

Catalogue 2019/2020

:hager

**Your reliable
partner for
intelligent
solutions.**

There's plenty to do. Let's get started.

**The time for
renovated electrical
installations and
intelligent solutions
is now.**



Dear friends and partners,

We all value experience. Routine helps us to be fast and reliable, which can save us time, money and hard work. Yet there are also moments when we need to leave the familiar behind and take advantage of golden opportunities just waiting to be discovered and seized.

This is one of those moments.

Renewable energy sources and innovative building technologies are creating opportunities to make more intelligent and energy-efficient homes. And with our Ambient Assisted Living (AAL) solutions, we will be able to help older people and those who require special care to live safely and independently in the future.

The latest studies indicate that Africa experiences one of the fastest increases in energy demand among the world's regions. Electricity consumption and economic development are closely linked: growth will only happen with a step change in the power sector.

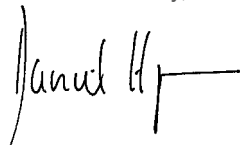
In Middle East, the energy consumption will increase by more than 50% by 2040, and many Gulf Cooperation Council (GCC) governments have recently announced plans to embrace renewable energy in the near future.

This work requires specialists. There's plenty to do. Let's get started.

We at Hager Group will support you with the very best products, solutions and services. And we are constantly evolving and improving: we have more than 800 team members working on better products and innovative technologies to make your work easier and your customers' lives more comfortable. At the same time, we are increasing our focus on services so that we can provide you and your customers with expert support.

When it comes to change, we practise what we preach. And we rely on expert partners like you to help us set the trends for the future. This future is starting right now, and I'm looking forward to shaping it with you.

Yours sincerely,



Daniel Hager
Hager Group CEO

Under one roof

Members of Hager Group

:hager

B.
Berker

ELCOM.

DAITEM


diagral

EFEN 

BOCCHIOTTI

One family

The world is changing, and we are changing with it. As a family company, we have grown steadily over the last sixty years to become a reliable partner to expert technicians and electrical wholesalers around the world. All while remaining true to ourselves and to our values. And so we continue today, with a number of well-known brands – each with their own distinctive strengths – working together under the Hager Group umbrella.



Hager Forum in Obernai, France, is a place where we can work with customers and partners to shape the future. That makes it a perfect symbol of the innovative power of Hager Group.

hagergroup

Your trust

As a partner and customer, you can choose from the entire range of products and services offered by every member of our brand family. Our new corporate image highlights our shared strengths even more clearly. From now on, each of our brands will be easily recognisable as a 'Member of Hager Group'. The new corporate image also involves some colour and design changes. Our core promise remains the same: we will always work with you to succeed together.

Our strengths

We have huge opportunities ahead. The upcoming modernisation of existing buildings, intelligent building technology, digital services, new energy sources and technologies – all of this opens up new, exciting potential for you and for us. At the same time, business requirements are becoming more and more complex. That's why it's so important for you to have Hager Group specialists supporting you with all of their expertise. Together, we are stronger. Together, we will overcome the complex challenges of our time with simple, impressive solutions – just as we have been doing for the last six decades.

E3

Global warming, a shortage of natural resources, social cohesion and the transition to renewable energy: there are many challenges facing businesses and society today. Hager Group is pursuing a variety of initiatives to promote sustainable development with its “E3” approach.

Environ

E for Environment

We work continuously to reduce our carbon footprint. Our priorities include optimising the transport of our products and cutting the amount of energy we use in production to further reduce our Carbon footprint.



Ethics

E for Ethics

We need skilled, motivated and healthy employees in order to offer our customers the best services and products. That's why we provide all our team members with a safe, healthy working environment, support their professional growth and offer them opportunities for further development. We also promote diversity and adherence to an Ethics Code throughout the company.

ment

Energy

E for Energy

Hager Group helps its customers to save energy intelligently. We also analyse and optimise our products' environmental performance throughout development and production. By providing a detailed environmental profile for most of our products, we can be fully transparent with our customers and ourselves.

Technology as a friend



Hager Design turns technical products into familiar friends.

Before we start designing a new product, we think about the people it is going to serve. Will it assist or entertain, observe or protect, save time or save energy? Ideally, whatever it does, users will feel it is a reliable 'friend'. We need to know how to connect with people on an emotional level, to ensure that in return they feel connected to our products.

Technology for people

Responsible design builds on an ethical foundation. At Hager, this foundation is all about respecting people and caring about their well-being. And it's not just about today – we want to inspire our customers for years to come. That's why we include them in every stage of the design process – from installer to planner, to end user.

An honest brand

Hager products are world-renowned for their quality, which is visibly and tangibly unveiled in their design. The unmistakable, explicit and clear brand image tells customers straight away that these products are part of 'the family'. This is our signature, the Hager DNA, which embodies two central principles.

Friendly, serene, balanced: an honest, authentic design that blends naturally into everyday life, without gadgets or cheap effects.



Erwin van Handenhoven
Hager Group Design Director

Ingeniously simple: our products are important, but never over-the-top. If it's not necessary, we leave it out. The essence remains. Straightforward in both form and function: simple to install, simple to use. Simply Hager!

Looking ahead to the future

Hager systems are not stagnant – they are expanding, gaining more and more visibility in our customer's homes. This has implications for our present design language. We call it 'New Start'. The aim of New Start is to meet our customers where they are, and carry them with us into the future: with innovative ideas, new designs and expressive materials. The new Hager catalogue is full of 'New Starters' – along with lots of 'old friends'. Come and explore!

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01 Small enclosures

consumer unit / invicta VT / invicta DR / mini gamma / gamma 13 and 18 / cosmos / golf / gala / vega / volta / vector / vega D / FW / vector security



1.1

Small enclosures

02 Main switchboards

invicta type B distribution board / invicta panel board / enclosed fused combination switches / enclosed load break switches / quadro4 / quadro5 / quadro+ / orion plus / orion.inox / orion.tech / quadro automation



2.1

Main switchboards

03 Main incomers

Hw ACBs / h3 MCCBs / Earth leakage relays / Torroidal transformers / Load break switches / Changeover switches



3.1

Main incomers

04 Protection devices

Miniature circuit breakers / Residual circuit breakers with overload / Residual current circuit breakers / Auxiliaries / Remote control auxiliaries / Motor starters / HRC fuse carriers / Supply busbars / Surge protection devices



4.1

Protection devices

05 Power, control and signaling interfaces

AC-3 contactors / Modular contactors / Delay timers / Interface relays / Latching relays / Switch disconnectors / Changeover switches / Trip-free switches / Indicator lights / Push buttons / Transformers, bells and buzzers



5.1

Power, control and signaling

06 Energy counting and measurement

Energymeters / Analogue voltmeters and ammeters / Digital voltmeters and ammeters / Multi-function meters / Pulse concentrator / Current transformers / Selection switches / Control relays



6.1

Counting and measurement

07 Connection

Busbars / Distribution blocks / Junction blocks / Junction terminals / Brass distribution terminals / quickconnect and screw terminals / Mini-junction terminals / "Souplex" junction block



7.1

Connection

08 Residential trunking

tehalit.ateha / tehalit.SL



8.1

Residential trunking

09 Line distribution

tehalit.lifea / tehalit.FB / tehalit.CLM / tehalit.LFR / Self sticking mini trunking



9.1

Line distribution

10 Installation trunking

tehalit.queraz PVC / tehalit.queraz alu / LPT surface mounting boxes for outlets / tehalit.BRP PVC / tehalit.BRAP alu / tehalit.BRS steel / Accessories for BRP/BRAP/BRS / tehalit.c60+



10.1

Installation trunking

11 Office trunking

DA 200 poles and posts / Underfloor system / tehalit.officea / Eoline accessories / Multi outlet blocks NR / Pull-out multi outlet modules / Flexible trunking / Floor trunking / Cable outlet for raised floor

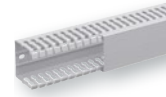


11.1

Office trunking

12 Enclosure trunking

tehalit.BA7A wide-slot wiring duct / tehalit.BA7B narrow-slot wiring duct / tehalit.B7A solid duct / tehalit.HA7 wiring duct, halogen-free / tehalit.HNG / tehalit.VK-Flex



12.1

Enclosure trunking

13 Specific trunking

tehalit.LFH halogen free trunking system / tehalit.LFS general purpose steel trunking / tehalit.LFG trunking in fiberglass reinforced polyester / Fire resistant trunking system



13.1

Specific trunking

14 British Standard switches and sockets

system 8000 / stylea / system 9088 / system 10088 / sollysta white moulded / sollysta decorative / sollysta grid / metal clad / IP66 range / IP66 isolators / Doorbells / Door chimes / RCD sockets / Lampholders / Floor sockets



14.1

BS switches and sockets

15 European switches and sockets

systo / essensya / cubyko



15.1

European switches and sockets

16 Energy and lighting management

Motion detectors / Presence detectors / LED and halogen floodlights with PIR / Time lag switches / Modular dimmers / Twilight switches / Astronomical switches / Digital time switches / Analogue time switches



16.1

Energy / lighting management

17 Wireless home automation

coviva smartbox / Micromodules / Remote controls and transmitters / Wireless control solutions for renovation / KNX wireless system platform / sepio alarm system / Fire alarm



17.1

Wireless home automation

18 Door communication systems

elcom.touch / elcom.fon indoor stations / Comfort indoor stations / System components / elcom.one outdoor stations / elcom.modesta outdoor stations / Intercom systems 2-wire sets, elcom.home



18.1

Door Communication systems

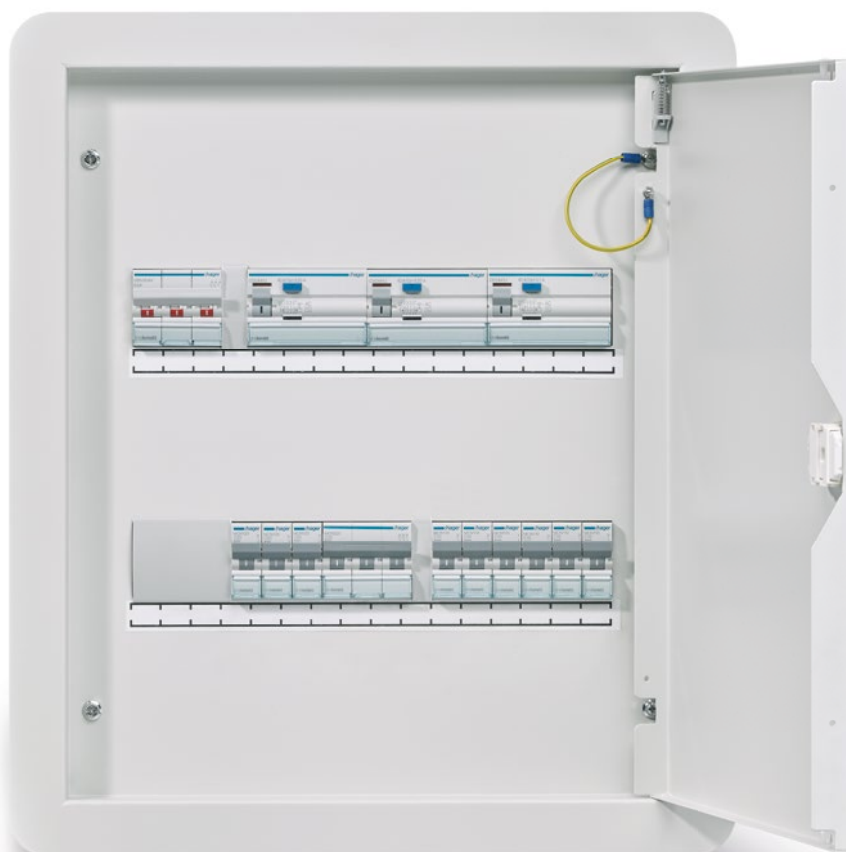
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Appendix

Small enclosures

As a specialist for housing and commercial premises enclosures, we provide a large range of products. Plastic or steel enclosures, flush or surface mounting, there is always a solution to fit to your need.



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invicta VT	1.5
invicta DR	1.6
mini gamma	1.7
gamma 13 and gamma 18	1.8
cosmos	1.10
golf	1.13
gala	1.16
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vega D	1.26
FW	1.38
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technical guide	1.53

Degree of protection

Installation type:

Residential, commercial, professional and industrial premises

IP30

Premises with risk of medium external influences



mini gamma
IP30 without door, plastic,
surface mounting, 2 to 10 ■
page 1.7



gamma 13, gamma 18
IP30 without door, plastic,
surface mounting, 13 to 72 ■
page 1.8 and 1.9

IP40 / IP41

Premises with risk of medium external influences



consumer unit
IP40 with door, metallic,
surface mounting, 6 to 18 ■
page 1.4



mini gamma
IP40 with door, plastic,
surface mounting, 2 to 10 ■
page 1.7



invicta VT consumer unit
IP40 with door, metallic, flush
and surface mounting, 4 to
20 ■
page 1.5



gamma 13, gamma 18
IP40 with door, plastic,
surface mounting, 13 to 72 ■
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invicta DR
IP40 with door, metallic, flush
and surface mounting, 16 to
96 ■
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invicta TP&N 125 and 250
IP41 with door, wall mounting
metallic enclosure, flush and
surface mounting, 4 to 24
ways, 13 to 72 ■
page 2.2 to 2.5



**Enclosed fuse combination
switch**
IP41 with door, wall mounting
metallic enclosure, surface
mounting, 20 to 800 A
page 2.10 to 2.11



Enclosed load break switch
IP40 with door, wall mounting
metallic enclosure, surface
mounting, 20 to 1600 A
page 2.12 and 2.13

IP43 / IP44

Premises with risk of medium external influences



FW
IP44 with door, metallic,
surface mounting, 36 to 288 ■
page 1.44 to 1.51



quadro 4
IP43 enclosures with door, to
be assembled, floor standing
or wall mounting, height 450
to 1800 mm, width 370 and
620 mm, up to 630A
page 2.14 to 2.21

IP54 / IP55

Premises with risk of high external influences



vega D
IP54 with door, plastic, flush
and surface mounting, 48 to
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page 1.35 to 1.37



vector
IP55 with door, plastic,
surface mounting, 2 to 54 ■
page 1.22 and 1.23



vector security
IP55 with glass door, metallic,
surface mounting, 6 to 10 ■
page 1.52



orion.tech IP55 enclosures
with door
page 2.102 and 2.103

IP65

Premises with risk of high external influences



vector
IP65 with door, plastic,
surface mounting, 3 to 54 ■
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orion plus IP65/66 enclosures with door
- orion polyester,
- orion steel,
- orion inox (stainless steel),
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gala
IP30 with door, plastic,
surface mounting, 12 to 48 ■
page 1.16



volta
IP30 with door, plastic, flush
mounting, 12 to 60 ■
page 1.20 and 1.21



FW
IP30 with door, metallic, flush
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cosmos
IP40 with door, plastic, flush
and surface mounting, 6 to
24 ■
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vega
IP40 with door, plastic,
surface mounting, 18 to 72 ■
page 1.17 to 1.19



golf
IP40 with door, plastic, flush
and surface mounting, 8 to
24 ■
page 1.13 to 1.15



vega D
IP40/41 with door, plastic,
flush and surface mounting,
48 to 168 ■
page 1.26 to 1.33



**invicta 250, 400, 630/800
panel board**
IP41 with door, wall mounting
metallic enclosure, surface
mounting, 2 to 16 ways
page 2.6 to 2.9



quadro5
IP55 with door, floor standing
or wall mounting metallic and
monobloc enclosures, height
510 to 2010 mm width 450 to
900 mm, up to 630A
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quadro+
IP55 floor standing metallic
enclosures, to be assembled,
height 1900 and 2100 mm
width 450 to 1000 mm, up to
4000A
page 2.28 to 2.46



**quadro automation, FK
range**
- metallic automation
enclosure
- metallic automation desk,
page 2.104 to 2.109

Characteristics

Easy to install, compact size and with a large wiring space, the consumer unit range is presented in flush and surface versions mounting enclosures and dedicated to indoor use. The range includes boxes with capacities of 1 row from 6 to 18 ■.

Delivered with

Neutral and earth terminal, plain door and 100A tinned copper busbar.

Technical data

- IP40
- class I
- nominal current (In): 100A
- rated voltage (Ue): 240V AC - 50 Hz
- insulation voltage (Ui): 690V
- rated impulse withstand voltage (Uimp): 6kV
- conditional short circuit current: 25kA
- DIN rail mounting
- colour: grey white RAL 9002
- 1,2mm thick sheet steel epoxy powder coated enclosure
- metallic enclosure
- 70mm depth

Complies with

BS EN 61 439-1 and BS EN 61 439-3

Consumer unit flush mounting

Description	Nr. of outgoing ways	Wall niche H x W x D (mm)	Cat.ref.
1 row, 6 ■	4	226 x 208 x 70	VT04FM - NT
1 row, 8 ■	6	226 x 244 x 70	VT06FM - NT
1 row, 10 ■	8	226 x 280 x 70	VT08FM - NT
1 row, 12 ■	10	226 x 316 x 70	VT10FM - NT
1 row, 14 ■	12	226 x 352 x 70	VT12FM - NT
1 row, 18 ■	16	226 x 424 x 70	VT16FM - NT



VT04SM

Consumer unit surface mounting

Description	Nr. of outgoing ways	Wall niche H x W x D (mm)	Cat.ref.
1 row, 6 ■	4	231 x 214 x 92	VT04SM - NT
1 row, 8 ■	6	231 x 250 x 92	VT06SM - NT
1 row, 10 ■	8	231 x 286 x 92	VT08SM - NT
1 row, 12 ■	10	231 x 322 x 92	VT10SM - NT
1 row, 14 ■	12	231 x 358 x 92	VT12SM - NT
1 row, 18 ■	16	231 x 430 x 92	VT16SM - NT

Characteristics

Easy to install, compact size and with a large wiring space the consumer unit range is presented in flush and surface mounting versions enclosures and dedicated to indoor use. The range includes boxes with capacities of 1 row from 4 to 20 ■ and completed with 3 types of flap with an integrated maintaining position system.

Delivered with

Neutral and earth terminal, plain, transparent or metal flap and removable DIN rail assembly.

Technical data

- IP40
- class I
- nominal current (In): 63A
- rated voltage (Ue): 400 V AC - 50Hz
- DIN rail mounting
- colour: RAL 9002
- 1,2mm thick sheet steel epoxy powder coated enclosure
- metallic enclosure
- 80mm depth

Glow wire test

BS EN 60 695-2 and BS EN 60 695-11: 850°C

Complies with

BS EN 61 439-3

invicta VT flush mounting

Description	Wall niche H x W x D (mm)	Cat.ref.
1 row, 4 ■ with metal flap (non transparent)	220 x 206 x 80	VT04MF
1 row, 4 ■ with opaque plastic flap	220 x 206 x 80	VT04PNF
1 row, 4 ■ with transparent plastic flap	220 x 206 x 80	VT04TF
1 row, 8 ■ with metal flap (non transparent)	220 x 277 x 80	VT08MF
1 row, 8 ■ with opaque plastic flap	220 x 277 x 80	VT08PNF
1 row, 8 ■ with transparent plastic flap	220 x 277 x 80	VT08TF
1 row, 12 ■ with metal flap (non transparent)	220 x 348 x 80	VT12MF
1 row, 12 ■ with opaque plastic flap	220 x 348 x 80	VT12PNF
1 row, 12 ■ with transparent plastic flap	220 x 348 x 80	VT12TF
1 row, 16 ■ with metal flap (non transparent)	220 x 420 x 80	VT16MF
1 row, 16 ■ with opaque plastic flap	220 x 420 x 80	VT16PNF
1 row, 16 ■ with transparent plastic flap	220 x 420 x 80	VT16TF
1 row, 20 ■ with metal flap (non transparent)	220 x 491 x 80	VT20MF
1 row, 20 ■ with opaque plastic flap	220 x 491 x 80	VT20PNF
1 row, 20 ■ with transparent plastic flap	220 x 491 x 80	VT20TF



VT12MF


invicta VT surface mounting

Description	Wall niche H x W x D (mm)	Cat.ref.
1 row, 4 ■ with metal flap (non transparent)	253 x 245 x 93	VT04MS
1 row, 4 ■ with opaque plastic flap	253 x 245 x 93	VT04PNS
1 row, 4 ■ with transparent plastic flap	253 x 245 x 93	VT04TS
1 row, 8 ■ with metal flap (non transparent)	253 x 316 x 93	VT08MS
1 row, 8 ■ with opaque plastic flap	253 x 316 x 93	VT08PNS
1 row, 8 ■ with transparent plastic flap	253 x 316 x 93	VT08TS
1 row, 12 ■ with metal flap (non transparent)	253 x 387 x 93	VT12MS
1 row, 12 ■ with opaque plastic flap	253 x 387 x 93	VT12PNS
1 row, 12 ■ with transparent plastic flap	253 x 387 x 93	VT12TS
1 row, 16 ■ with metal flap (non transparent)	253 x 458 x 93	VT16MS
1 row, 16 ■ with opaque plastic flap	253 x 458 x 93	VT16PNS
1 row, 16 ■ with transparent plastic flap	253 x 458 x 93	VT16TS
1 row, 20 ■ with metal flap (non transparent)	253 x 529 x 93	VT20MS
1 row, 20 ■ with opaque plastic flap	253 x 529 x 93	VT20PNS
1 row, 20 ■ with transparent plastic flap	253 x 529 x 93	VT20TS



VT12TF

Characteristics

Easy to install, compact size and with a large wiring space the consumer unit range is presented in flush and surface mounting versions enclosures and dedicated to an indoor use. The range includes boxes with capacities of 1 row up to 6 rows and from 16 to 96  and completed with 3 types of flap with an integrated maintaining position system.

Delivered with

Plain metallic door or transparent cut on metallic door and removable DIN rail chassis.

Technical data

- IP40
- class I
- nominal current (In): 63A
- rated voltage (Ue): 400V AC - 50Hz
- DIN rail mounting
- colour: RAL 9001
- 1,2mm thick sheet steel epoxy powder coated enclosure
- metallic enclosure
- 110mm depth

Complies with







IEC 61 439-1 and IEC 61 439-3



DR32F

invicta DR flush mounting

with full metallic door transparent cut out door







Description	Wall niche H x W x D (mm)	Cat.ref.	
		plain door	transparent door
1 row, 16 	320 x 400 x 110	DR16F	DR16FT
2 rows, 32 	470 x 400 x 110	DR32F	DR32FT
3 rows, 48 	620 x 400 x 110	DR48F	DR48FT
4 rows, 64 	770 x 400 x 110	DR64F	DR64FT
5 rows, 80 	820 x 400 x 110	DR80F	DR80FT
6 rows, 96 	1070 x 400 x 110	DR96F	DR96FT




DR32ST

invicta DR surface mounting

with full metallic door transparent cut out door

Description	Wall niche H x W x D (mm)	Cat.ref.	
		plain door	transparent door
1 row, 16 	325 x 405 x 110	DR16S	DR16ST
2 rows, 32 	475 x 405 x 110	DR32S	DR32ST
3 rows, 48 	625 x 405 x 110	DR48S	DR48ST
4 rows, 64 	775 x 405 x 110	DR64S	DR64ST
5 rows, 80 	825 x 405 x 110	DR80S	DR80ST
6 rows, 96 	1075 x 405 x 110	DR96S	DR96ST

Accessories

Description	Cat.ref.
joining kits for flush boards	JK01FK
joining kits for surface boards	JK01SK
1  blanking strip	P032H
keylock	VZ303

Characteristics

The mini gamma surface mounting boxes range is dedicated to small applications or extensions. The range includes boxes with capacities of 1 row and from 2 to 10 **I** and completed with transparent or plain doors.

Delivered with

Earth terminal (except GD102E) and marking labels.

Note: enclosures of this range are delivered without door.

Technical data

- IP30 and IK05 without door
- IP40 and IK05 with door
- class II
- nominal current (In): 63A
- rated voltage (Ue): 400V AC - 50Hz
- DIN rail included
- colour : RAL 9010
- made in insulating plastic material
- 82mm depth

Glow wire test

IEC 60 695-2 and IEC 60 695-11: 850°C

Complies with

IEC 61439-3

mini gamma enclosures

Description	Wall niche H x W x D (mm)	Cat.ref.
1 row, 2 I	160 x 55 x 82	GD102E
1 row, 4 I	180 x 110 x 82	GD104E
1 row, 6 I	180 x 146 x 82	GD106E
1 row, 8 I	180 x 182 x 82	GD108E
1 row, 10 I	180 x 218 x 82	GD110E



GD106E

Doors

with integrated handle

Description	Cat.ref.	
	plain doors	transparent doors
for GD102A	GP102P	GP102T
for GD104A	GP104P	GP104T
for GD106A	GP106P	GP106T
for GD108A	GP108P	GP108T
for GD110A	GP110P	GP110T



GP106P



GP110T

Terminal and terminal supports

Description	Cat.ref.
4 neutral terminals, IP2X, from 1.5 to 16 mm ²	GZ04N
4 earth terminals, IP2X, from 1.5 to 16 mm ²	GZ04E
7 neutral terminals, IP2X, from 1.5 to 16 mm ²	GZ07N
7 earth terminals, IP2X, from 1.5 to 16 mm ²	GZ07E
for GD104A	GZ104S
for GD106A	GZ106S
for GD108A	GZ108S
for GD110A	GZ110S



GZ04E



GZ108S

Accessories

Description	Cat.ref.
keylock for plain or transparent doors	VZ313
blanking 12 I	S35S
blanking 24 I	JP002
cable gland M20	GZ100G



VZ313

Characteristics

The gamma surface mounting enclosure range is mainly dedicated to residential applications. The range includes boxes with capacities of 1 row up to 4 rows and from 13 to 52 ■ and completed with transparent or plain doors.

Delivered with

neutral and earth terminal, marking labels and blanking clips

Note: enclosures of this range are delivered without door.

Technical data

- IP30 and IK07 without door
- IP40 and IK07 with door
- class II ■ with back plate
- nominal current (In): 90A Ph+N and 63A 3Ph+N

- rated voltage (Ue): 230/400V AC - 50Hz
- short circuit current resistance: 10kA
- DIN rail mounting
- colour: RAL 9010
- made in insulating plastic material
- 103mm depth

Glow wire test

- IEC 60 695-2-10 and IEC 60 695-2-11:
- 850°C for box
- 750°C for back plate

Complies with

IEC 61439-3



GD213A

gamma 13 surface mounting

Description	quickconnect terminal	Wall niche H x W x D (mm)	Blanking strips	Cat.ref.
1 row, 13 ■	E: 3 x 25 + 11 x 4 mm ²	250 x 250 x 103	6 ■ divisible	GD113A
2 rows, 26 ■	Ph: 4 x 16 mm ² N: 4 x 16 mm ² E: 5 x 25 + 17 x 4 mm ²	375 x 250 x 103	6 ■ divisible	GD213A
3 rows, 39 ■	Ph: 7 x 10 mm ² N: 7 x 10 mm ² E: 7 x 25 + 25 x 4 mm ²	500 x 250 x 103	13 ■ divisible	GD313A
4 rows, 52 ■	Ph: 7 x 10 mm ² N: 7 x 10 mm ² E: 10 x 25 + 34 x 4 mm ²	625 x 250 x 103	13 ■ divisible	GD413A



GP213P-GP213T

Doors

Description	Depth (mm)	Cat.ref.	
		plain door	transparent door
for GD113A	30	GP113P	GP113T
for GD213A	30	GP213P	GP213T
for GD313A	30	GP313P	GP313T
for GD413A	30	GP413P	GP413T



GS113D

Back plates

- to ensure the insulation class II

Description	Cat.ref.
for GD113A	GS113D
for GD213A	GS213D
for GD313A	GS313D
for GD413A	GS413D



P032F P031F

Accessories

Description	Cat.ref.
keylock for plain and transparent doors	GZ35A
sealing kit for 2 points of sealing	GZ32A
blanking clips 1/2 ■	P031F
blanking clips 1 ■	P032F
blanking strips 6 ■, RAL 9010	JP001
blanking strips 13 ■, RAL 9010	JP014
quickconnect terminal support	GZ30A

Characteristics

The gamma surface mounting enclosure range is mainly dedicated to residential applications. The range includes boxes with capacities of 1 row up to 4 rows and from 18 to 72 ■ and completed with transparent or plain doors.

Delivered with

Neutral and earth terminal, marking labels and blanking clips.

Note: the enclosures of this range are delivered without door.

Technical data

- IP30 and IK07 without door
- IP40 and IK07 with door
- class II □ with back plate
- nominal current (In): 90A Ph+N and 63A 3Ph+N

- rated voltage (Ue): 240/415V AC - 50Hz
- short circuit current resistance: 10kA
- DIN rail mounting
- colour: RAL 9010
- made in insulating plastic material
- 103mm depth

Glow wire test

- IEC 60 695-2-10 and IEC 60 695-2-11:
- 850° C for box
- 750°C for back plate

Complies with

IEC 61439-3

gamma 18 surface mounting

Description	quickconnect terminal	Wall niche H x W x D (mm)	Blanking strips	Cat.ref.
1 row, 18 ■	E: 4 x 25 + 14 x 4 mm ²	250 x 355 x 103	6 ■ divisible	GD118A
2 rows, 36 ■	Ph: 4 x 16 mm ² N: 4 x 16 mm ² E: 6 x 25 + 20 x 4 mm ²	375 x 355 x 103	12 ■ divisible	GD218A
3 rows, 54 ■	Ph: 7 x 16 mm ² N: 7 x 16 mm ² E: 8 x 25 + 28 x 4 mm ²	500 x 355 x 103	18 ■ divisible	GD318A
4 rows, 72 ■	Ph: 7 x 16 mm ² N: 7 x 16 mm ² E: 10 x 25 + 34 x 4 mm ²	625 x 355 x 103	24 ■ divisible	GD418A



GD118A

Doors

Description	Depth (mm)	Cat.ref. plain door	transparent door
for GD118A	30	GP118P	GP118T
for GD218A	30	GP218P	GP218T
for GD318A	30	GP318P	GP318T
for GD418A	30	GP418P	GP418T

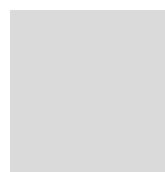


GP118P-GP118T

Back plates

- to ensure the insulation class II

Description	Cat.ref.
for GD118A	GS118D
for GD218A	GS218D
for GD318A	GS318D
for GD418A	GS418D



GS218D

Accessories

Description	Cat.ref.
keylock for plain and transparent doors	GZ35A
sealing kit for 2 points of sealing	GZ32A
blanking clips 1/2 ■	P031F
blanking clips 1 ■	P032F
blanking strips 6 ■, RAL 9010	JP001
blanking strips 18 ■, RAL 9010	JP015
quickconnect terminal support	GZ40A



P032F P031F

Characteristics

Indoor surface mounted distribution box 1 and 2 rows, from 1 to 4 ■ without door, and from 6 up to 24 ■ with opaque or transparent door for devices up to 70 mm installation depth, DIN profile for modular devices 47 mm under the cover. Distance between the DIN profiles axis 125 mm (for the two row size).

Optional lock with keys. Enclosure can be installed either way up. Cable entries for cable, conduit and trunking.

- class II
- white colour RAL 9010
- rated current: 63 A
- rated insulation: 400V AC/50 Hz
- material: plastic enclosure
- short circuit resistance: 10kA
- class II
- Din rail mounting

Delivered with

- brass screw-type terminals
- pole fillers
- directly fixed DIN rails to the wall box let to have room enough for wiring behind them.
- door protected by a plastic film

Glow wire test

650°C according IEC 60 695-2-1

Complies with

IEC 61439-3

Technical data:

- IP rating: IP30 without door and IP40 with door IK07



cosmos surface mounting without door

Description	H x W x D (mm)	Cat.ref. without door
1 row, 1 ■	163.6 x 27.5 x 71	VD101NF
1 row, 2 ■	163.6 x 45.5 x 71	VD102NF
1 row, 3 ■	163.6 x 63.5 x 71	VD103NF
1 row, 4 ■	163.6 x 81.5 x 71	VD104NF

VD101NF



cosmos surface mounting with door

Description	Brass terminal	H x W x D (mm)	Cat.ref.	
			plain door	transparent door
1 row, 6 ■	N: 2 x 16 mm ² + 2 x 10 mm ²	163.6 x 134.5 x 71	VD106PF	VD106TF
1 row, 6 ■	E: 2 x 16 mm ² + 2 x 10 mm ² N: 2 x 16 mm ² + 2 x 10 mm ²	163.6 x 134.5 x 71	VD106PJ	VD106TJ
1 row, 8 ■	N: 2 x 16 mm ² + 2 x 10 mm ²	170 x 170.5 x 91	VD108PF	VD108TF
1 row, 8 ■	E: 2 x 16 mm ² + 2 x 10 mm ² N: 2 x 16 mm ² + 2 x 10 mm ²	170 x 170.5 x 91	VD108PJ	VD108TJ
1 row, 10 ■	N: 2 x 16 mm ² + 2 x 10 mm ²	170 x 206.5 x 91	VD110PF	VD110TF
1 row, 10 ■	E: 2 x 16 mm ² + 2 x 10 mm ² N: 2 x 16 mm ² + 2 x 10 mm ²	170 x 206.5 x 91	VD110PJ	VD110TJ
1 row, 12 ■	N: 3 x 16 mm ² + 4 x 10 mm ²	200 x 292.5 x 91	VD112PF	VD112TF
1 row, 12 ■	E: 3 x 16 mm ² + 4 x 10 mm ² N: 2 x 16 mm ² + 2 x 10 mm ²	200 x 292.5 x 91	VD112PJ	VD112TJ
1 row, 18 ■	N: 3 x 16 mm ² + 4 x 10 mm ²	200 x 400 x 91	VD118PF	VD118TF
1 row, 18 ■	E: 4 x 16 mm ² + 5 x 10 mm ² N: 3 x 16 mm ² + 4 x 10 mm ²	200 x 400 x 91	VD118PJ	VD118TJ
1 row, 24 ■	N: 3 x 16 mm ² + 4 x 10 mm ²	326.5 x 294 x 92.5	VD212PF	VD212TF
1 row, 24 ■	E: 4 x 16 mm ² + 6 x 10 mm ² N: 3 x 16 mm ² + 4 x 10 mm ²	326.5 x 294 x 92.5	VD212PJ	VD212TJ

VD108PF

Characteristics

Flush mounted distribution boxes of 1 and 2 rows, from 8 to 24 **I**, supplied with opaque or transparent door for devices up to 70 mm installation depth. DIN profile for modular devices 47 mm under the cover. Distance between the DIN rails axis 125 mm. (for the two row size). Distribution boards manufactured from plastic material. Opaque and transparent doors. Door is fitted on vertical in 1 row versions and on right or left (for the two row version) both without dismantling the cover; optional lock and keys. Wall box and cover can be installed either way up. Removable cable entry slider. Cable entries for cable and conduit.

Delivered with

- brass screw-type terminals
- pole fillers
- door protected by a plastic film.
- DIN rails directly fixed to the wall box.

Technical data

- IP rating: IP30 without door and IP40 with door IK07
- isolation Class II
- white colour RAL 9010
- rated current: up to 63 A
- rated insulation: 400V AC/50 Hz
- material: plastic enclosure
- short circuit resistance: 10kA
- class II
- DIN rail mounting

Accessories

DIN rail brackets for plaster compensation (in depth) in case the box is installed too deep inside the wall (maybe covered by plaster).

Glow wire test

650°C according IEC 60 695-2

Complies with

IEC 61439-3

cosmos flush mounting with door

Description	Brass terminal	Dimensions H x W x D (mm)	Cat.ref.	
			plain door	transparent door
1 row, 8 I	N: 2 x 16 mm ² + 2 x 10 mm ²	206 x 236 x 91	VR108PF	VR108TF
1 row, 8 I	E: 2 x 16 mm ² + 2 x 10 mm ² N: 2 x 16 mm ² + 2 x 10 mm ²	206 x 236 x 91	VR108PJ	VR108TJ
1 row, 12 I	N: 3 x 16 mm ² + 4 x 10 mm ²	226 x 308 x 91	VR112PF	VR112TF
1 row, 12 I	E: 3 x 16 mm ² + 4 x 10 mm ² N: 2 x 16 mm ² + 2 x 10 mm ²	226 x 308 x 91	VR112PJ	VR112TJ
1 row, 18 I	N: 3 x 16 mm ² + 4 x 10 mm ²	226 x 416 x 91	VR118PF	VR118TF
1 row, 18 I	E: 4 x 16 mm ² + 5 x 10 mm ² N: 3 x 16 mm ² + 4 x 10 mm ²	226 x 416 x 91	VR118PJ	VR118TJ
1 row, 24 I	N: 3 x 16 mm ² + 4 x 10 mm ²	351 x 308 x 93	VR212PF	VR212TF
1 row, 24 I	E: 4 x 16 mm ² + 6 x 10 mm ² N: 3 x 16 mm ² + 4 x 10 mm ²	351 x 308 x 93	VR212PJ	VR212TJ



VR108P.



VR212P.

The cosmos range includes a lot of accessories, from brackets for possible plaster compensation to hollow wall anchor fixations, every single feature is conceived to save time and increase simplicity of mounting. It is also possible to find spare parts and additional accessories to the range, such as keys, locks and doors.



VZ924N



VZ923N

Doors

- opaque: made of plastic material, RAL 9010
- transparent: polycarbonate

Description	Cat.ref.	
	opaque door	transparent door
for VD106	VZ910N	VZ909N
for VD108	VZ912N	VZ911N
for VR108	VZ914N	VZ913N
for VD110	VZ916N	VZ915N
for VR/VD112	VZ918N	VZ917N
for VR/VD118	VZ920N	VZ919N
for VD212	VZ922N	VZ921N
for VR212	VZ924N	VZ923N



VZ926N

Lock

- supplied with 2 keys

Description	Cat.ref.
lock	VZ926N



VZ927N

Hollow wall lever set

- made of plastic material, RAL 9010

Description	Pack qty.	Cat.ref.
hollow wall lever set	4	VZ927N



VZ925N

DIN rail chassis

- including screws

Description	Pack qty.	Cat.ref.
DIN rail chassis	2	VZ925N

Screw set

- including:
8 x cover fixation screws
4 x DIN rail fixation screws

Description	Cat.ref.
screw set for VD/VR enclosures	VZ932N



VZ933N

Caps

- set of 5 pieces to close wall mounting holes on surface enclosures

Description	Pack qty.	Cat.ref.
caps for VD enclosures	1 set	VZ933N


Characteristics

The golf flush enclosure dedicated for housing is particularly suitable thanks to its ease of mounting on walls. The small enclosure is easily and swiftly mounted and offers space for a large number of modular devices. The range includes boxes with capacities of 1 row up to 4 rows and from 4 to 72 ■ and completed with transparent or plain doors.

Delivered with

- earth brass screw type terminal and neutral depending on the reference
- marking stickers
- transparent or plain door depending on the reference

Technical data

- IP30 and IK07 without door
- IP40 and IK07 with door
- class II 
- nominal current (In): up to 63A
- rated voltage (Ue): 230/400V AC 50Hz
- short circuit current resistance: 10kA
- DIN rail mounting
- colour: RAL 9010
- made in plastic material free of PVC
- wall niche: 72 mm depth
- enclosure total depth: 98 mm

Glow wire test

IEC 60 695-2-10 and IEC 60 695-2-11: 650°C

Complies with

EN IEC 60439-1 / 60439-3 / 60529 / 60670-24

golf flush mounted

Description	Brass terminal	Dimensions H x W x D (mm)	Cat.ref.	
			plain door	transparent door
1 row, 4 ■	N: 2 x 16 mm ² + 2 x 10 mm ²	225 x 204 x 98	VF104PF	VF104TF
1 row, 4 ■	E: 2 x 16 mm ² + 2 x 10 mm ² N: 2 x 16 mm ² + 2 x 10 mm ²	225 x 204 x 98	VF104PJ	VF104TJ
1 row, 8 ■	N: 3 x 16 mm ² + 4 x 10 mm ²	225 x 275 x 98	VF108PF	VF108TF
1 row, 8 ■	E: 2 x 16 mm ² + 2 x 10 mm ² N: 2 x 16 mm ² + 2 x 10 mm ²	225 x 275 x 98	VF108PJ	VF108TJ
1 row, 12 ■	N: 3 x 16 mm ² + 4 x 10 mm ²	293 x 352 x 98	VF112PF	VF112TF
1 row, 12 ■	E: 3 x 16 mm ² + 4 x 10 mm ² N: 2 x 16 mm ² + 2 x 10 mm ²	293 x 352 x 98	VF112PJ	VF112TJ
2 rows, 24 ■	N: 3 x 16 mm ² + 4 x 10 mm ²	418 x 352 x 98	VF212PF	VF212TF
2 rows, 24 ■	E: 4 x 16 mm ² + 6 x 10 mm ² N: 3 x 16 mm ² + 3 x 10 mm ²	418 x 352 x 98	VF212PJ	VF212TJ
3 rows 36 ■	N: 3 x 16 mm ² + 4 x 10 mm ²	543 x 352 x 98	VF312PF	VF312TF
3 rows 36 ■	E: 5 x 16 mm ² + 6 x 10 mm ² N: 3 x 16 mm ² + 4 x 10 mm ²	543 x 352 x 98	VF312PJ	VF312TJ
4 rows 48 ■	N: 3 x 16 mm ² + 4 x 10 mm ²	688 x 352 x 98	VF412PF	VF412TF
4 rows 48 ■	E: 6 x 16 mm ² + 8 x 10 mm ² N: 3 x 16 mm ² + 4 x 10 mm ²	688 x 352 x 98	VF412PJ	VF412TJ
1 row, 18 ■	E: 3 x 16 mm ² + 4 x 10 mm ²	293 x 460 x 98	VF118PF	VF118TF
1 row, 18 ■	E: 1 x 25 mm ² + 4 x 16 mm ² + 5 x 10 mm ² N: 3 x 16 mm ² + 3 x 10 mm ²	293 x 460 x 98	VF118PJ	VF118TJ
2 rows 36 ■	E: 3 x 16 mm ² + 4 x 10 mm ²	418 x 460 x 98	VF218PF	VF218TF
2 rows 36 ■	E: 1 x 25 mm ² + 6 x 16 mm ² + 7 x 10 mm ² N: 3 x 16 mm ² + 4 x 10 mm ²	418 x 460 x 98	VF218PJ	VF218TJ
3 rows 54 ■	E: 3 x 16 mm ² + 4 x 10 mm ²	543 x 460 x 98	VF318PF	VF318TF
3 rows 54 ■	E: 1 x 25 mm ² + 7 x 16 mm ² + 8 x 10 mm ² N: 3 x 16 mm ² + 4 x 10 mm ²	543 x 460 x 98	VF318PJ	VF318TJ
4 rows 72 ■	E: 3 x 16 mm ² + 4 x 10 mm ²	688 x 460 x 98	VF418PF	VF418TF
4 rows 72 ■	E: 1 x 25 mm ² + 8 x 16 mm ² + 9 x 10 mm ² N: 3 x 16 mm ² + 4 x 10 mm ²	688 x 460 x 98	VF418PJ	VF418TJ
1 row, 22 ■	E: 3 x 16 mm ² + 4 x 10 mm ²	293 x 532 x 98	VF122PF	VF122TF
1 row, 22 ■	E: 4 x 16 mm ² + 6 x 10 mm ² N: 3 x 16 mm ² + 3 x 10 mm ²	293 x 532 x 98	VF122PJ	VF122TJ




VF104



VF418

Characteristics


The golf surface mounting enclosure range is mainly dedicated to residential applications.

The range includes boxes with capacities of 1 row up to 4 rows and from 4 to 72  and completed with transparent or plain doors.

Delivered with

- screw type earth and neutral brass terminal, depending on the reference
- marking stickers
- transparent or plain door depending on the reference

Technical data

- IP30 and IK07 without door
- IP40 and IK07 with door
- class II 
- nominal current (In) : up to 63A
- rated voltage (Ue): 230/400V AC - 50Hz
- short circuit current resistance: 10kA
- DIN rail mounting
- colour: RAL 9010
- made in plastic material free of PVC
- enclosure total depth: 99mm

Glow wire test

IEC 60 695-2-10 and IEC 60 695-2-11: 650°C

Complies with

EN 60439-1 / 60439-3 / 60529 / 60670-24

golf surface mounted

























VS108



VS212



VS318

Description	Brass terminal	Dimensions H x W x D (mm)	Cat.ref.	
			plain door	transparent door
1 row, 4 	N: 2 x 16 mm ² + 2 x 10 mm ²	184 x 138 x 99	VS104PF	VS104TF
1 row, 4 	E: 2 x 16 mm ² + 2 x 10 mm ² N: 2 x 16 mm ² + 2 x 10 mm ²	184 x 138 x 99	VS104PJ	VS104TJ
1 row, 8 	N: 3 x 16 mm ² + 4 x 10 mm ²	184 x 210 x 99	VS108PF	VS108TF
1 row, 8 	E: 2 x 16 mm ² + 2 x 10 mm ² N: 2 x 16 mm ² + 2 x 10 mm ²	184 x 210 x 99	VS108PJ	VS108TJ
1 row, 12 	N: 3 x 16 mm ² + 4 x 10 mm ²	252 x 282 x 99	VS112PF	VS112TF
1 row, 12 	E: 3 x 16 mm ² + 4 x 10 mm ² N: 2 x 16 mm ² + 2 x 10 mm ²	252 x 282 x 99	VS112PJ	VS112TJ
2 rows, 24 	N: 3 x 16 mm ² + 4 x 10 mm ²	377 x 282 x 99	VS212PF	VS212TF
2 rows, 24 	E: 4 x 16 mm ² + 6 x 10 mm ² N: 3 x 16 mm ² + 3 x 10 mm ²	377 x 282 x 99	VS212PJ	VS212TJ
3 rows 36 	N: 3 x 16 mm ² + 4 x 10 mm ²	500 x 282 x 99	VS312PF	VS312TF
3 rows 36 	E: 5 x 16 mm ² + 6 x 10 mm ² N: 3 x 16 mm ² + 4 x 10 mm ²	500 x 282 x 99	VS312PJ	VS312TJ
4 rows 48 	N: 3 x 16 mm ² + 4 x 10 mm ²	647 x 282 x 99	VS412PF	VS412TF
4 rows 48 	E: 6 x 16 mm ² + 8 x 10 mm ² N: 3 x 16 mm ² + 4 x 10 mm ²	647 x 282 x 99	VS412PJ	VS412TJ
1 row, 18 	E: 3 x 16 mm ² + 4 x 10 mm ²	252 x 390 x 99	VS118PF	VS118TF
1 row, 18 	E: 1 x 25 mm ² + 4 x 16 mm ² + 5 x 10 mm ² N: 3 x 16 mm ² + 3 x 10 mm ²	252 x 390 x 99	VS118PJ	VS118TJ
2 rows 36 	E: 3 x 16 mm ² + 4 x 10 mm ²	377 x 390 x 99	VS218PF	VS218TF
2 rows 36 	E: 1 x 25 mm ² + 6 x 16 mm ² + 7 x 10 mm ² N: 3 x 16 mm ² + 4 x 10 mm ²	377 x 390 x 99	VS218PJ	VS218TJ
3 rows 54 	E: 3 x 16 mm ² + 4 x 10 mm ²	500 x 390 x 99	VS318PF	VS318TF
3 rows 54 	E: 1 x 25 mm ² + 7 x 16 mm ² + 8 x 10 mm ² N: 3 x 16 mm ² + 4 x 10 mm ²	500 x 390 x 99	VS318PJ	VS318TJ
4 rows 72 	E: 3 x 16 mm ² + 4 x 10 mm ²	647 x 390 x 99	VS418PF	VS418TF
4 rows 72 	E: 1 x 25 mm ² + 8 x 16 mm ² + 9 x 10 mm ² N: 3 x 16 mm ² + 4 x 10 mm ²	647 x 390 x 99	VS418PJ	VS418TJ
1 row, 22 	E: 3 x 16 mm ² + 4 x 10 mm ²	252 x 462 x 99	VS122PF	VS122TF
1 row, 22 	E: 4 x 16 mm ² + 6 x 10 mm ² N: 3 x 16 mm ² + 3 x 10 mm ²	252 x 462 x 99	VS122PJ	VS122TJ

Doors

Description	Cat.ref.	
	plain door	transparent door
for VF/VS104	VZ601N	VZ621N
for VF/VS108	VZ602N	VZ622N
for VF/VS112	VZ603N	VZ623N
for VF/VS212	VZ604N	VZ624N
for VF/VS312	VZ605N	VZ625N
for VF/VS412	VZ606N	VZ626N
for VF/VS118	VZ607N	VZ627N
for VF/VS218	VZ608N	VZ628N
for VF/VS318	VZ609N	VZ629N
for VF/VS418	VZ610N	VZ630N



Lock

- supplied with 2 keys

Description	Cat.ref.
lock	VZ794N



Cable guides

Description	Pack qty	Cat.ref.
for VS and VF enclosures	10	VZ699N



Class II caps and horizontal assembly kit

Description	Pack qty	Cat.ref.
for VS enclosures	4	VZ789N



Brick wall fixation brackets

Description	Pack qty	Cat.ref.
brick wall fixation brackets	4	VZ786N



Labelling

Description	Pack qty	Cat.ref.
transparent label holder for VF/VS enclosures, 450 mm	5	VZ787N
labelling sticker	10	VZ788N



quickconnect terminal support

Description	Cat.ref.
4 ■ for VF/VS series	VZ705N
8 ■ for VF/VS series	VZ706N
12 ■ for VF/VS series	VZ707N
18 ■ for VF/VS series	VZ708N

Characteristics

The gala surface mounting enclosure range manufactured with insulated material includes boxes of 1 row up to 4 rows and from 4 to 48 ■ of box and completed with transparent or plain doors.

Delivered with

- quickconnect earth terminal block
- full metallic door
- blanking clip
- marking strip

Technical data

- IP30 and IK07
- class II
- nominal current (In): 63A 3Ph+N
- rated voltage (Ue): 230/400V AC - 50Hz
- DIN rail mounting
- colour: RAL 9010
- made in plastic material free from PVC
- 97mm depth

Glow wire test

IEC 60 695-2-10 and IEC 60 695-2-11: 750°C

Complies with

IEC 61439-3



VA24D

gala surface mounted

Description	quickconnect earth terminal	Dimensions H x W x D (mm)	Cat.ref.
1 row, 12 ■	E: 3 x 25 mm ² + 11 x 4 mm ²	245 x 305 x 97	VA12D
2 rows, 24 ■	E: 5 x 25 mm ² + 17 x 4 mm ²	370 x 305 x 97	VA24D
3 rows 36 ■	E: 6 x 25 mm ² + 20 x 4 mm ²	515 x 305 x 97	VA36D
4 rows 48 ■	E: 8 x 25 mm ² + 28 x 4 mm ²	640 x 305 x 97	VA48D



VZ302N

Keylock

Description	Cat.ref.
keylock standard	VZ302N



VZ403

Connection assembly 63A



VZ428

Description	Cat.ref.
1 phase + neutral 2 x (3 x 16 + 4 x 10 mm ²)	VZ403
3 phases + neutral 3 x (3 x 16 + 2 x 10 mm ²) + 1 x (5 x 16 + 6 x 10 mm ²)	VZ428

Blanking clips

Description	Cat.ref.
blanking clips 12 ■	P012

Marking strip

Description	Cat.ref.
marking strip	VZ604

Boxes with opaque or transparent door, 1–4 lines, 18 to 72 **I**. Insulating box, colour RAL 9010, for power distribution in residential or small business environments. The chassis can be removed in one piece, while the DIN rails can be removed one by one, using the clips. The DIN rails can be lowered to accommodate devices with higher shouldering.

The box offers plenty of cabling space:
 - between the DIN rail and the base of the box: 47.5 mm
 - between the lowered DIN rail and the base of the box: 18 mm
 - lateral cabling space between the wall and the DIN rail: 30 mm
 - interspace between DIN rails: 150 mm
 The cable entry plates have clips, which can also be screwed into place.

Delivered with
 “Easy Wall Fixation” system with caps to comply with Class II, diagram holder, shutters, label holders with marking labels and **quickconnect** earth modules.

- Options**
- 1242E or 405 lock
 - IP41 kit
 - horizontal or vertical junction or coupling kits
 - cable ducts
 - plate for flexible cable entry

- Technical specifications**
- IP40 (with door) / IK07
 - Insulation class: II
 - 90 A for 1 and 2 row boxes
 - 125 A for 3 and 4 row boxes
 - Glow wire test: 650°C

Complies with
 CEBEC & NF marking
 EN IEC 60670-24 and EN IEC 61439-3

vega surface mounted

Description	quickconnect earth terminal	Dimensions H x W x D (mm)	Cat.ref.	
			plain door	transparent door
1 row, 18 I	E: 4 x 25 mm ² + 14 x 4 mm ²	325 x 400 x 146	VB118B	VB118R
2 rows, 36 I	E: 6 x 25 mm ² + 22 x 4 mm ²	475 x 400 x 146	VB218B	VB218R
3 rows 54 I	E: 10 x 25 mm ² + 34 x 4 mm ²	625 x 400 x 146	VB318B	VB318R
4 rows 72 I	E: 12 x 25 mm ² + 42 x 4 mm ²	775 x 400 x 146	VB418B	VB418R



VB118B

VB318R

Plain doors

Description	Cat.ref.
for VB118B	VZ118P
for VB218B	VZ218P
for VB318B	VZ318P
for VB418B	VZ418P



VZ318P

Transparent doors

Description	Cat.ref.
for VB118R	VZ118T
for VB218R	VZ218T
for VB318R	VZ318T
for VB418R	VZ418T



VZ318T

Hinges for plain or transparent doors

Description	Cat.ref.
set of 2 hinges	VZ004VB



VZ004VB

Lock

- supplied with 2 keys

Description	Cat.ref.
lock 1242E for plain door	VZ310PVB
lock 405 for plain door	VZ311PVB
lock 1242E for transparent door	VZ310TVB
lock 405 for transparent door	VZ311TVB



VZ310PVB

VZ310TVB



VZ003VB

Cable entry plates

Description	Cat. ref.
with rectangular markings for ducts and wires	VZ001VB
flexible cable entry	VZ003VB



VZ708N

Terminal support

- receives the **quickconnect** modules KN...E, KN...N, KN...P

Description	Cat.ref.
terminal support	VZ708N



VZ699N

Cable guides

- for lateral guiding of cables in the box

Description	Pack qty	Cat. ref.
cable guides	10	VZ699N



VZ010VB

Symmetrical DIN rail

Description	Cat.ref.
symmetrical DIN rail	VZ010VB



VZ011VB

Label holders

Description	Pack qty	Cat. ref.
label holders and marking labels 18 ■	4	VZ011B



VZ005VB



VZ006VB

Alignment kit

Description	Cat.ref.
horizontal	VZ005VB
vertical	VZ006VB



VZ012VB

Cabling trunking

- halogen free
- with fitting accessories

Description	Dimensions W x D (mm)	Cat. ref.
horizontal	25 x 60	VZ014VB
vertical for VB318B/R	25 x 60	VZ012VB
vertical for VB418B/R	25 x 60	VZ013VB



VZ041VB

Kit IP41

- to upgrade vega enclosures from IP40 to IP41

Description	Cat. ref.
kit IP41	VZ041VB

"Easy wall fixation" mounting kit

- 4 rotating attachments
- 5 shutters to comply with Class II insulation



Description

Cat. ref.

"Easy Wall Fixation" mounting kit

VZ009VB

VZ009VB

Diagram holder

- holds plans and diagrams in the door of the box



Description

Cat.ref.

diagram holder

VZ535

VZ535

Pole fillers

- to secure locations with no device



Description

Cat. ref.

1/2 ■ width

P031F

1 ■ width

P032F

18 ■ width

JP015

JP015

Characteristics

volta flush distribution enclosure range includes enclosures from 1 row up to 5 rows and from 12 to 60 ■ and can be completed with transparent or plain doors.

Delivered with

- neutral and earth brass terminal
- reversible full metallic door or transparent door with handle
- blanking clip
- marking strip

Technical data

- IP30 and IK07
- class II
- nominal current (In): for devices up to 63A
- rated voltage (Ue): 230/400V AC - 50Hz
- DIN rail mounting
- colour: RAL 9010
- integrated spirit level
- installed product: 94.5 mm depth

Glow wire test

IEC 60 695-2-10 and IEC 60 695-2-11: 650°C

Complies with

IEC 61439-3



VU12NE



VU24NE

volta flush mounted

Description	Brass terminal	Dimensions H x W (mm)	Cat.ref.	
			plain door	transparent door
1 row, 12 ■	N: 1 x 25 mm ² + 5 x 16 mm ² + 7 x 10 mm ² E: 1 x 25 mm ² + 5 x 16 mm ² + 7 x 10 mm ²	356 x 348	VU12NE	VU12NT
2 rows, 24 ■	N: 1 x 25 mm ² + 7 x 16 mm ² + 9 x 10 mm ² E: 1 x 25 mm ² + 7 x 16 mm ² + 9 x 10 mm ²	505 x 348	VU24NE	VU24NT
3 rows, 36 ■	N: 1 x 25 mm ² + 9 x 16 mm ² + 12 x 10 mm ² E: 1 x 25 mm ² + 9 x 16 mm ² + 12 x 10 mm ²	630 x 348	VU36NE	VU36NT
4 rows, 48 ■	N: 1 x 25 mm ² + 11 x 16 mm ² + 13 x 10 mm ² E: 1 x 25 mm ² + 11 x 16 mm ² + 13 x 10 mm ²	755 x 348	VU48NE	VU48NT
5 rows, 60 ■	N: 1 x 25 mm ² + 11 x 16 mm ² + 13 x 10 mm ² + 3 x 16 mm ² + 4 x 10 mm ² E: 1 x 25 mm ² + 11 x 16 mm ² + 13 x 10 mm ² + 3 x 16 mm ² + 4 x 10 mm ²	880 x 348	VU60NE	VU60NT



VZ131N

Transparent door

- colour: RAL 9010
- installed product width: 288 mm
- installed product height: 296.5 mm

Description	Cat. ref.
for VU12NE/NT	VZ131N
for VU24NE/NT	VZ132N
for VU36NE/NT	VZ133N
for VU48NE/NT	VZ134N
for VU60NE/NT	VZ135N



VZ302N



VZ304N

Keylocks

Description	Pack qty	Cat. ref.
keylock standard	1	VZ302N
spare keys	2	VZ304N
lock bolts for front cover	2	VZ225N



VZ403



VZ428

Connection assemblies 63A

Description	Cat. ref.
phase and neutral 2x (3 x 16 + 2 x 10 mm ²)	VZ403
3 phase and neutral 3x (3 x 16 + 2 x 10 mm ²) + 1x (5 x 16 + 6 x 10 mm ²)	VZ428

Depth adaptators

- allows to convert standard versions into "flat" versions with 72mm installation depth

Description	Cat.ref.
for VU12NE, NT	VZ111N
for VU24NE, NT	VZ112N
for VU36NE, NT	VZ113N
for VU48NE, NT	VZ114N
for VU60NE, NT	VZ115N



VZ111N

Empty terminal support

Description	Cat.ref.
empty terminal support	VZ711



VZ711

Support frames

- for mirror and picture insert

Description	Cat.ref.
matt silver, for VU24ND	VZ807N
matt silver, for VU36ND	VZ808N



VZ808N

Mirrors

Description	Cat.ref.
for VU24ND	VZ811N
for VU36ND	VZ812N



VZ811N

Picture inserts

Description	Cat.ref.
for VU24ND	VZ813N
for VU36ND	VZ814N



VZ814N

Pinboard doors

- black expanded plastic plate with aluminium frame colour silver

Description	Cat.ref.
for VU24ND	VZ292N
for VU36ND	VZ293N



VZ293N

Blanking strips

Description	Cat.ref.
6 ■	JP001
12 ■	P012



JP001

Characteristics

Surface mounting enclosures with transparent doors for indoor or outdoor use:

- 1 to 4 rows from 2 to 48 ■
- 1 to 3 rows from 18 to 54 ■

Delivered with

Cable bushes and transparent door

Technical data

- IP55 and IK07 < 12 ■
- IK08 ≥ 12 ■
- class II □
- nominal current (In): 63A
- rated voltage (Ue): 230/400V AC - 50Hz
- colour: light grey RAL 7035

- adjustable DIN rail for shoulder measurement 47 and 63 mm,
- DIN rail mounting
- transparent hinged cover (2 to 10) or door (12 to 54),
- 2 lateral knock outs for cable entry or coupling pieces
- with premarked knock outs for bushes or cable glands M20, M25, M32, M40 and M50 depending on the size,
- 151mm depth for 12 and 18 ■ width enclosures,
- center distance between DIN rails:
 - 125mm for 12 ■ enclosures
 - 150mm for 18 ■ enclosures

Glow wire test

IEC 60 695-2-10 and IEC 60 695-2-11: 750°C

Complies with

IEC 61439-3



VE106F

vector IP55 surface mounted

Description	Brass terminal	Dimensions H x W x D (mm)	Cat. ref. 1 terminal
1 row, 2+1 ■	- E: 2x16 + 2x10 mm ² - supplied cable bushes: 3xM20	175 x 111 x 93	VE103F
1 row, 4+2 ■	- E: 3x16 + 4x10 mm ² - supplied cable bushes: 2xM20+2xM25+1xM32	190 x 165 x 113	VE106F
1 row, 8+2 ■	- E: 5x16 + 6x10 mm ² - supplied cable bushes: 4xM20+2xM25+1xM32	210 x 237 x 114	VE110F



VE312F

vector IP55 surface mounted

Description	quickconnect terminal	Dimensions H x W x D (mm)	Cat. ref.
1 row, 12 ■	- E: 3x25 + 5x16 + 7x10 mm ² - supplied cable bushes: 10xM20 + 2xM25 + 1xM32	302 x 310 x 151	VE112F
2 rows, 24 ■	- E: 5x25 + 7x16 + 9x10 mm ² - supplied cable bushes: 14xM20 + 4xM25 + 1xM32	427 x 310 x 151	VE212F
3 rows, 36 ■	- E: 6x25 + 10x16 + 11x10 mm ² - supplied cable bushes: 14xM20 + 10xM25 + 2xM32	552 x 310 x 151	VE312F
4 rows, 48 ■	- E: 8x25 + 11x16 + 13x10 mm ² - supplied cable bushes: 14xM20 + 10xM25 + 2xM32	677 x 310 x 151	VE412F
1 row, 18 ■	- E: 4x25 mm ² + 14x4 mm ² - supplied cable bushes: 8xM20 + 10xM25 + 1xM32	302 x 418 x 151	VE118F
2 rows, 36 ■	- E: 6x25 mm ² + 20x4 mm ² - supplied cable bushes: 8xM20 + 14xM25 + 1xM32	452 x 418 x 151	VE218F
3 rows, 54 ■	- E: 9x25 mm ² + 31x4 mm ² - supplied cable bushes: 8xM20 + 18xM25 + 2xM32	602 x 418 x 151	VE318F



VE218F

quickconnect terminals

- for 12 ■ or 18 ■ width boxes

Description	Cat. ref.
terminal support	VZ711
adapter for terminal support	VZ744

Connection assemblies 63A

Description	Characteristics	Cat. ref.
single phase + N	2x(3x16 + 4x10 mm ²)	VZ403
three phase + N	3x(3x16 + 2x10 mm ²) 1x(5x16 + 6x10 mm ²)	VZ428



VZ403



VZ428

Lock

- with 2 keys
- for enclosures from 2 to 54 ■

Description	Cat. ref.
lock	VZ311



VZ311

Coupling sleeves

- to juxtapose enclosures
- reduction of degree of protection to IP54
- fit on lateral PG21 knock outs of the enclosures
VE112, VE212, VE312, VE412, VE118, VE218 and VE318

Description	Pack qty	Cat. ref.
coupling sleeves	1 set of 10	VZ754



VZ754

Set of cable glands

- set includes: 14xM20 + 10xM25 + 2xM32
- reduction of degree of protection IP54

Description	Cat. ref.
set of cable glands	VZ758



VZ758

Finishing accessories trunking / box

- RAL 7035

Description	Cat. ref.
finishing accessory 12 ■	VZ747
finishing accessory 18 ■	VZ748



VZ747

Blanking strips

- RAL 7035

Description	Cat. ref.
blanking strip 6 ■	VZ413
blanking strip 12 ■	VZ415
blanking strip 18 ■	VZ416



VZ413

Characteristics

UV stabilized and IP65 surface mounting enclosures range suitable for outdoor and photovoltaic application. The range includes enclosures from 1 up to 4 rows from 2 to 54 ■.

Delivered with:

- transparent door

Technical data

- IP65 and IK07 < 12 ■
IK08 ≥ 12 ■
- class II □
- nominal current (In): 63A

- rated voltage (Ue): 230/400V AC - 50Hz
- material: made of polycarbonate
- colour: light grey RAL 7035
- with premarked knock outs for bushes or cable glands M20, M25, M32, M40 and M50
- DIN rail mounting
- 151mm depth for 12 and 18 ■

Glow wire test

IEC 60 695-2-10 IEC 60 695-2-11: 850°C

Complies with

IEC 61439-3



VE106SN



VE312SN

vector IP65 surface mounted

Description	Dimensions H x W x D (mm)	Cat.ref.	
		without knock-out	with knock-out
1 row, 3 ■	175 x 111 x 93	VE103SN	VE103PN
1 row, 6 ■	190 x 165 x 113	VE106SN	VE106PN
1 row 10 ■	210 x 237 x 114	VE110SN	VE110PN
1 row 12 ■	302 x 310 x 151	VE112SN	VE112PN
2 rows 24 ■	427 x 310 x 151	VE212SN	VE212PN
3 rows 36 ■	552 x 310 x 151	VE312SN	VE312PN
4 rows 48 ■	677 x 310 x 151	VE412SN	VE412PN
1 row 18 ■	302 x 418 x 151	VE118SN	VE118PN
2 rows 36 ■	452 x 418 x 151	VE218SN	VE218PN
3 rows 54 ■	602 x 418 x 151	VE318SN	VE318PN



VZ016M



VZ013V



VZ020D

Cable glands

- to be screwed in knock-outs

Description	Pack qty	Cat.ref.
cable glands Ø M16	20	VZ016M
cable glands Ø M20	20	VZ020M
cable glands Ø M25	20	VZ025M
cable glands Ø M32	20	VZ032M
cable glands Ø M40	10	VZ040M
ventilated cable glands Ø M20	1	VZ020D
ventilated cable glands Ø M25	1	VZ025D
ventilated cable glands Ø M32	1	VZ032D
cap for ventilated cable glands Ø M20/25	1	VZ013V
cap for ventilated cable glands Ø M25/32	1	VZ021V



VZ011

Wall fixing brackets

- can be mounted on the side, on the top, and bottom

Description	Pack qty	Cat.ref.
set of 4 wall fixing brackets	1	VZ011



VZ040

Mounting plates

Description	Pack qty	Cat.ref.
for VE106xx	1	VZ040
for VE110xx	1	VZ041

Connection assembly

- type: 3 Ph+N
- In: 63A
- Ph: 3 x (3x16mm² + 2x10mm²)
- N: 1 x (5x16mm² + 6x10mm²)



VZ428

Description	Cat.ref.
connection assembly	VZ428

Terminal supports equipped with earth and neutral brass terminals

Description	Pack qty	Cat.ref.
for boards 12 ■ and 18 ■ per row - N: 1 x (1x25mm ² + 5x16mm ² + 7x10mm ²) - E: 1 x (1x25mm ² + 5x16mm ² + 7x10mm ²)	1	VZ521
for boards 12 ■ and 18 ■ per row - N: 1 x (1x25mm ² + 7x16mm ² + 9x10mm ²) - E: 1 x (1x25mm ² + 7x16mm ² + 9x10mm ²)	10	VZ522
for boards 12 ■ and 18 ■ per row - N: 1 x (1x25mm ² + 9x16mm ² + 12x10mm ²) - E: 1 x (1x25mm ² + 9x16mm ² + 12x10mm ²)	10	VZ523
for boards 12 ■ and 18 ■ per row - N: 1 x (1x25mm ² + 11x16mm ² + 13x10mm ²) - E: 1 x (1x25mm ² + 11x16mm ² + 13x10mm ²)	1	VZ524
for VE103 - N: 1x (2x16mm ² + 2x10mm ²) - E: 1x (2x16mm ² + 2x10mm ²)	1	VZ722
for VE106 - N: 1x (3x16mm ² + 3x10mm ²) - E: 1x (3x16mm ² + 3x10mm ²)	1	VZ723
for VE110 - N: 1x (5x16mm ² + 5x10mm ²) - E: 1x (5x16mm ² + 5x10mm ²)	1	VZ724
for boards 12 ■ and 18 ■ per row - N or E: 1 x (1x25mm ² + 5x16mm ² + 7x10mm ²)	1	VZ725
for boards 12 ■ and 18 ■ per row - N or E: 1 x (1x25mm ² + 7x16mm ² + 9x10mm ²)	1	VZ726
for boards 12 ■ and 18 ■ per row - N or E: 1 x (1x25mm ² + 9x16mm ² + 12x10mm ²)	1	VZ727
for boards 12 ■ and 18 ■ per row - N or E: 1 x (1x25mm ² + 11x16mm ² + 13x10mm ²)	1	VZ728
for boards 12 ■ and 18 ■ per row - N or E: 1 x (1x25mm ² + 11x16mm ² + 13x10mm ²) + 1 x (1x25mm ² + 2x16mm ² + 3x10mm ²)	1	VZ729



VZ521



VZ722



VZ724

Terminal supports equipped with earth and neutral quickconnect terminals

Description	Pack qty	Cat.ref.
for VE boards - N: 1x (3x25mm ² + 11x4mm ²) - E: 1x (3x25mm ² + 11x4mm ²)	1	VZ461
for VE boards - N: 1x (3x25mm ² + 11x4mm ²) + (1x25mm ² + 5x4mm ²) - E: 1x (4x25mm ² + 14x4mm ²)	1	VZ462
for VE boards - N: 1x (4x25mm ² + 14x4mm ²) + (1x25mm ² + 5x4mm ²) - E: 1x (5x25mm ² + 17x4mm ²)	1	VZ463
for VE boards - N: 1x (3x25mm ² + 11x4mm ²) + (1x25mm ² + 5x4mm ²) - E: 1x (6x25mm ² + 20x4mm ²)	1	VZ464



VZ461

Empty terminal support

Description	Cat.ref.
empty terminal support	VZ711



Surface enclosures

Equipment units

Partially equipped	Empty	Nr of rows	Width in modules	For 3 or 4 poles x160 MCCBs with or without add-on block vert. mounting height: 2 rows	For 3 or 4 poles x160 MCCBs without add-on block horiz. mounting height: 12 rows	DIN rail kit for modular devices height: 2 rows	Depth-adjustable perforated mounting plate kit height: 2 rows	DIN rail kit for terminal blocks + plain front cover height: 2 rows	
FD22AN	FD22GN	2	48	FD02K1	FD01K1	FD02A1	FD02C2	FD02A2	
FD32AN	FD32GN	3	72						
FD42AN	FD42GN	4	96						
FD52AN	FD52GN	5	120						
FD62AN	FD62GN	6	144						
FD72AN	FD72GN	7	168						



**Flush enclosures
high depth**

Equipment units

Partially equipped	Empty	Nr of rows	Width in modules	For 3 or 4 poles x160 MCCBs with or without add-on block vert. mounting height: 2 rows	For 3 or 4 poles x160 MCCBs without add-on block horiz. mounting height: 2 rows	DIN rail kit for modular devices height: 2 rows	Depth-adjustable perforated mounting plate kit height: 2 rows	DIN rail kit for terminal blocks + plain front cover height: 2 rows	
FU22AN	FU22GN	2	48	FD02K1	FD01K1	FD02A1	FD02C2	FD02A2	
FU32AN	FU32GN	3	72						
FU42AN	FU42GN	4	96						
FU52AN	FU52GN	5	120						
FU62AN	FU62GN	6	144						
FU72AN	FU72GN	7	168						

Doors		Association kit	Fixation plates	Cable entry plates			Back panel entry flange	Cable brackets
Plain	Transparent, glazed	Horizontal and vertical for surface enclosures	External for surface enclosures	Waterproof with 2 x flange VZ741	IP41 with tube openings	IP41, with rubber coating	Vertical cable duct sideways for surface enclosures	
FD22PN	FD22TN	FD00F1	FD00F2	FD00P2	FD00P3	VZ741	FD00B1	
FD32PN	FD32TN							
FD42PN	FD42TN							
FD52PN	FD52TN							
FD62PN	FD62TN							
FD72PN	FD72TN							

Doors			Mounting kit	Cable entry plates			Back panel entry flange	Cable brackets
Plain	Transparent	Mirror	For hollow wall for flush enclosures	IP41	IP41 with tube openings	IP41	Vertical cable duct sideways for flush enclosures	
FD22PN	FD22TN	FD22SN	VZ405N	FD00P2	FD00P3	VZ741	FD00B2	
FD32PN	FD32TN	FD32SN						
FD42PN	FD42TN	FD42SN						
FD52PN	FD52TN	FD52SN						
FD62PN	FD62TN	FD62SN						
FD72PN	FD72TN	FD72SN						

Characteristics

vega D flush mounting enclosures range is adapted to installations in residential and commercial premises up to 160A. The range offers fully or partially equipped enclosure with rows for modular devices or empty enclosures. The vega D range includes enclosures from 2 up to 7 rows from 48 to 168 capacities.

Delivered with (not for GN version)

- quickconnect earth terminal block
- blanking clip
- marking strip
- pocket plan
- cable strain relief bar

Technical data

- IP30 and IK07 without door
- IP40 and IK08 with door (flush)
- IP41 and IK08 with door and FD00G1
- class II

- nominal current (In): 160A
- rated voltage (Ue): 230/400V AC
- 50Hz
- material: metallic enclosure
- colour: RAL 9010
- DIN rail mounting
- empty space for equipment unit for enclosure to be completed
- 110mm depth + 40mm external shoulder (for enclosure FUxxDN)
- 110mm depth + 72mm external shoulder (for enclosure FUxxAN and FUxxGN)

Glow wire test:

IEC 60 695-2-10 IEC 60 695-2-11: 850°C

Complies with:

IEC 61 439-3

Note: enclosures of this range are delivered without doors.



FU42DN

Full equipped flush enclosures

- without door, low depth (150mm)
- w. 550 x d. 150 mm
- frame height: 40 mm

Description	Height (mm)	quickconnect terminals	Cat. ref.
2 rows (48)	537	1 x KN26E	FU22DN
3 rows (72)	687	2 x KN22E+ 1 x KN99E	FU32DN
4 rows (96)	837	1 x KN22E + 1 x KN26E + 1 x KN99E	FU42DN
5 rows (120)	987	1 x KN22E + 1 x KN26E + 1 x KN99E	FU52DN
6 rows (144)	1137	3 x KN26E+ 2 x KN99E	FU62DN
7 rows (168)	1287	3 x KN26E+ 2 x KN99E	FU72DN



FU42AN

Partially equipped flush enclosures

- without door, high depth (182mm)
- w. 550 x d. 182 mm
- frame height: 72 mm

Description	Height (mm)	quickconnect terminals	Cat. ref.
2 rows height empty space for equipment unit	537	1 x KN26E	FU22AN
+ 1 row (24)	687	2 x KN22E + 1 x KN99E	FU32AN
+ 2 rows (48)	837	1 x KN22E + 1 x KN26E + 1 x KN99E	FU42AN
+ 3 rows (72)	987	1 x KN22E + 1 x KN26E + 1 x KN99E	FU52AN
+ 4 rows (96)	1137	3 x KN26E+ 2 x KN99E	FU62AN
+ 5 rows (120)	1287	3 x KN26E+ 2 x KN99E	FU72AN



FU52GN

Empty flush enclosures

- to be completed
- without door and without terminal block, high depth (182mm)
- w. 550 x d. 182 mm
- frame height: 72 mm
- delivered with 2 vertical uprights and quickconnect terminal holder

Description	Height (mm)	Cat. ref.
2 rows height capacity	537	FU22GN
3 rows height capacity	687	FU32GN
4 rows height capacity	837	FU42GN
5 rows height capacity	987	FU52GN
6 rows height capacity	1137	FU62GN
7 rows height capacity	1287	FU72GN

Characteristics

vega D surface mounting enclosures range is adapted to installations in houses and commercial premises up to 160A. The range offers fully or partially equipped enclosure with rows for modular devices or empty enclosures. The vega D range includes enclosures from 2 up to 7 rows from 48 to 168 ■ capacities.

Delivered with (not for GN version)

- quickconnect earth terminal block
- blanking clip
- marking strip
- pocket plan
- cable strain relief bar

Technical data

- IP30 and IK07 without door
- IP41 and IK08 with door
- class II

- nominal current (In): 160A
- rated voltage (Ue): 230/400V AC
- 50Hz
- material: metallic enclosure
- colour: RAL 9010
- DIN rail mounting
- empty space for equipment unit for enclosure to be completed for FDxxAN and FDxxGN versions
- 193mm depth

Glow wire test

IEC 60 695-2-10 IEC 60 695-2-11: 650°C

Complies with

IEC 61 439-3

Note: enclosures of this range are delivered without doors.

Full equipped surface enclosures

- without door
- w. 550 x d. 193 mm

Description	Height (mm)	quickconnect terminals	Cat. ref.
2 rows (48 ■)	450	1 x KN26E	FD22DN
3 rows (72 ■)	600	2 x KN22E+ 1 x KN99E	FD32DN
4 rows (96 ■)	750	1 x KN22E + 1 x KN26E + 1 x KN99E	FD42DN
5 rows (120 ■)	900	1 x KN22E + 1 x KN26E + 1 x KN99E	FD52DN
6 rows (144 ■)	1050	3 x KN26E+ 2 x KN99E	FD62DN
7 rows (168 ■)	1200	3 x KN26E+ 2 x KN99E	FD72DN



FD52DN

Partially equipped surface enclosures

- without door
- w. 550 x d. 193 mm

Description	Height (mm)	quickconnect terminals	Cat. ref.
2 rows height empty space for internal module	450	1 x KN26E	FD22AN
+ 1 row (24 ■)	600	2 x KN22E + 1 x KN99E	FD32AN
+ 2 rows (48 ■)	750	1 x KN22E + 1 x KN26E + 1 x KN99E	FD42AN
+ 3 rows (72 ■)	900	1 x KN22E + 1 x KN26E + 1 x KN99E	FD52AN
+ 4 rows (96 ■)	1050	3 x KN26E+ 2 x KN99E	FD62AN
+ 5 rows (120 ■)	1200	3 x KN26E+ 2 x KN99E	FD72AN



FD52AN

Empty surface enclosures

- to be completed
- without door and without terminal block
- w. 550 x d. 193 mm

- delivered with 2 vertical uprights and quickconnect terminal holder.

Description	Height (mm)	quickconnect holder	Cat. ref.
2 rows height capacity	450	1	FD22GN
3 row height capacity	600	1	FD32GN
4 rows height capacity	750	1	FD42GN
5 rows height capacity	900	1	FD52GN
6 rows height capacity	1050	2	FD62GN
7 rows height capacity	1200	2	FD72GN



FD52GN



FD52PN

Plain doors

- door opening angle 135°

Description	Height (mm)	Cat. ref.
for FD22GN, FD22DN, FU22GN, FU22DN, FD22AN, FU22AN	350	FD22PN
for FD32GN, FD32DN, FU32GN, FU32DN, FD32AN, FU32AN	500	FD32PN
for FD42GN, FD42DN, FU42GN, FU42DN, FD42AN, FU42AN	650	FD42PN
for FD52GN, FD52DN, FU52GN, FU52DN, FD52AN, FU52AN	800	FD52PN
for FD62GN, FD62DN, FU62GN, FU62DN, FD62AN, FU62AN	950	FD62PN
for FD62GN, FD62DN, FU62GN, FU62DN, FD62AN, FU62AN	1100	FD72PN



FD52TN

Transparent doors

- door opening angle 135°

Description	Height (mm)	Cat. ref.
for FD22GN, FD22DN, FU22GN, FU22DN, FD22AN, FU22AN	350	FD22TN
for FD32GN, FD32DN, FU32GN, FU32DN, FD32AN, FU32AN	500	FD32TN
for FD42GN, FD42DN, FU42GN, FU42DN, FD42AN, FU42AN	650	FD42TN
for FD52GN, FD52DN, FU52GN, FU52DN, FD52AN, FU52AN	800	FD52TN
for FD62GN, FD62DN, FU62GN, FU62DN, FD62AN, FU62AN	950	FD62TN
for FD62GN, FD62DN, FU62GN, FU62DN, FD62AN, FU62AN	1100	FD72TN



FD01A1

Equipment units

- not compatible with full equipped flush low depth version (FUxxDN type references)

Description	Height (mm)	Cat. ref.
1 row of 24 modules DIN rail kit for modular devices	150	FD01A1
adjustable 1 row of 20 modules capacity DIN rail kit for terminal blocks + plain front cover	150	FD01A2
for 3 or 4 poles x160 MCCBs and switch disconnected DIN rail kit, horizontal position	150	FD01K1
for 3 or 4 poles x160 MCCBs or switch disconnected + add-on block DIN rail kit, vertical position	300	FD02K1
2 rows of 24 modules DIN rail kit for modular devices	300	FD02A1
adjustable 2 rows of 20 modules capacity DIN rail kit for terminal blocks + plain front cover	300	FD02A2
2 rows high kit with 1 depth adjustable and 1 distribution DIN rails	300	FD02A3
depth-adjustable perforated mounting plate kit 370 x 290 x 1,2mm	300	FD02C2
160A change over switch kit for HIC402A, HIC404A, HIC406A, HIC408A, HIC410A, HIC412A, HIC416A	300	FD02V2
3 rows of 24 modules DIN rail kit for modular devices with 3 times 1-row single cover	450	FD03A1



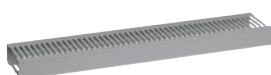
FD02A1



FD01K1



FD02A2



FD00T1

Trunking

- only for surface low depth enclosure versions

Description	Cat. ref.
set of 4 internal cable trays 30 x 80mm, 439mm width for horizontal fast mounting between 2 rows, with cover	FD00T1
set of 4 halogen free internal cable tray 30 x 80mm, 439mm width for horizontal fast mounting between 2 rows with cover	FD00T2

Cover plates

Description	Height (mm)	Cat. ref.
2 rows slotted cover with 2 label holders and 24 modules width labelling strips	300	FD00C1
2 rows plain cover, flat surface, for self-milling or terminal blocks	300	FD00C2
2 rows slotted cover with 1 label holder and 24 modules width labelling strip	300	FD00C3
1 row slotted cover with 1 label holder and 24 modules width labelling strip	150	FD00C4
1 row plain cover	150	FD00C5



FD00C3

Mounting plates

Description	Height (mm)	Cat. ref.
perforated mounting plate for direct fixing on vertical uprights	225	FD00M1
plain mounting plate for direct fixing on vertical uprights	300	FD00M2
perforated mounting plate for direct fixing on vertical uprights	150	FD00M3
plain mounting plate for direct fixing on vertical uprights	150	FD00M4



FD00M1

Accessories

Description	Cat. ref.
base of DIN rail holder	FD00H1
Set of 2 mounting kit supports for 1 row of 150mm high + screws	FD00H2
set of 2 DIN rail holders for surface and high depth flush mounting enclosures + screws	FD00H1
set of 10 label holder and 24 modules width paper strip	FD00A1
set of 10 vertical cable brackets for surface mounting vega D	FD00B1
set of 10 cable brackets for flush mounting low depth vega D	FD00B2
24 modules width quickconnect terminals empty support	FD00Q1
24 modules width quickconnect and brass terminals empty support, compatible with KN00A universal support	FD00Q2
set of 20 wire guides for vertical or horizontal use, big section	UZ25V1
set of 20 wire guides for vertical or horizontal use, small section	UZ25V2
support for UZ25V1 and UZ25V2 wire guides	UZ01V1



FD00H1



FD00H2



FD00A1



FD00B1



FD00Q1



UZ25V2



FD00P1



FD00P2



FD00P3



FD00P4

Cable entry plates

- FP00P1, FD00P2 and FD00P3 are delivered with 2 fixation screws in order to fasten slider to the back panel mechanically

Description	Cat. ref.
slider with rectangular openings	FD00P1
slider with 2 premounted waterproof flanges, IP41	FD00P2
IP41 slider with tube openings to mount-in with 2 fixation screws, 4x12mm, 5x10/20mm, 4 x 12/16/25mm pre-openings	FD00P3
kit with a set of 2 side entry plates and gaskets M40, M32 and M25 pre-openings	FD00P4
IP41 back panel entry flange	VZ741
set of 2 ventilation grids	FD00P5



FD00E1

45x45mm adapter with cover for systo wiring accessories

- compatible with:
- WS100: 16A socket - quick connection
 - WS101: 16A socket - screw connection
 - WS160: 16A socket outlet
 - WS032: emergency push-button
 - WS033: 1/4 turn emergency push-button
 - WS035: key switch
 - WS264: HDMI socket
 - WS265: USB socket
 - WS219 x 2: white RJ45 UTP 8pts socket
 - WS601: green/red light indicator

Description	Cat. ref.
45x45mm adapter withcover for systo wiring accessories	FD00E1



FD00F1

Vertical and horizontal association kit

Description	Cat. ref.
set of 2 association bracket and 4 screws for surface version enclosure	FD00F1



FD00F2

External wall fixation plates

Description	Cat. ref.
set of 4 brackets delivered with 4 x M6 screws for surface version enclosure	FD00F2



FD00F3

Cable strain relief bar

- to mount below cable entry plates

Description	Cat. ref.
24 modules width, delivered with 4 fixing screws	FD00F3



UZ02B9

DIN rails (deep adjustable)

- 15 mm height

Description	Cat. ref.
set of 2 430mm DIN rails for 2 additional rows of 24 modules, delivered with 4 screws	UZ02B9

A4 pocket plan

Description

flexible, A4 format, self adhesive, to stick on the inside of the door

Cat. ref.

FZ794



FZ794

Blanking clips

Description

1/2 module

Pack qty.

50

Cat. ref.

P031F

1 module

50

P032F

Blanking strips

- color RAL 9010

Description

24 modules

Pack qty.

10

Cat. ref.

JP002

Locks

- replace the original latch

Description

standard closing system as spare part



Cat. ref.

FD00S0

FD00S1

key lock n° 1242E delivered with 2 keys



FD00S1

lock triangle 7mm (with square opening tool)



FD00S2

lock square 7mm (with triangle opening tool)



FD00S3

key lock n° 405 delivered with 2 keys



FD00S4

two-way key lock 3mm (with 2-way opening tool)



FD00S5



FD00S5

Horizontal partitioning plates

Description

for surface mounting enclosures

Cat. ref.

FD00A3

for high depth flush mounting enclosures (182 mm)

FD00A4

for low depth flush mounting enclosures (150 mm)

FD00A5



FD00A3



KJ02AN

Single pole distribution blocks

- FP00P1, FD00P2 and FD00P3 are delivered with 2 fixation screws in order to fasten slider to the back panel mechanically

Description	I _{pk} (kA)	I _{cw} (kA - 1s)	Connection capacity (mm ²)	Width in module	Cat. ref.
125A	25	4,2	flexible: 2 x 6 to 35 mm ² + 1 x 1.5 to 16 mm ² + 6 x 1.5 to 10 mm ² rigid: 2 x 10 to 35 mm ² + 2 x 2.5 to 16 mm ² + 8 x 1.5 to 16 mm ²	1.5	KJ02DN
160A	36	8.4	flexible: 2 x 16 to 50 mm ² + 3 x 1.5 to 16 mm ² + 8 x 1.5 to 10 mm ² rigid: 2 x 25 to 70 mm ² + 3 x 2.5 to 25 mm ² + 8 x 1.5 to 16 mm ²	2	KJ02CN
250A	60	14.4	flexible: 1 x 25 to 95 mm ² + 3 x 1.5 to 35 mm ² + 4 x 1.5 to 10 mm ² + 8 x 1.5 to 16 mm ² rigid: 2 x 35 to 120 mm ² + 1 x 1.5 to 50 mm ² + 4 x 1.5 to 16 mm ² + 8 x 2.5 to 25 mm ²	2.5	KJ02AN
400A	514	2	rigid: - incoming : 1 x 95 to 185 mm ² - outgoing : 2 x 6 to 35 mm ² + 5 x 1.5 to 16 mm ² + 4 x 1.5 to 10 mm ² flexible: - incoming : 1 x 95 to 150 mm ² - outgoing : 2 x 6 to 25 mm ² + 5 x 1.5 to 16 mm ² + 4 x 1.5 to 10 mm ²	2.5	KJ02B



KJ02E

Modular distribution monobloc

Description	I _{sc} peak (kA)	U _i (V)	Connection capacity (mm ²)	Width in module	Cat. ref.
100A, 4 poles	20	500	per phase: 1 x 25 mm ² + 2 x 10 mm ² + 5 x 6 mm ² neutral: 1 x 25 mm ² + 6 x 10 mm ² + 4 x 6 mm ²	6	KJ02E



KJ100A

Stepped distribution blocks Brass busbar terminals

Description	I _{pk} (kA)	U _i (V)	Connection capacity per bar (mm ²)	Width in module	Cat. ref.
90A, 2 poles	29		2 x 25 mm ² + 10 x 16 mm ² flexible 2 x 35 mm ² + 10 x 16 mm ² rigid	7.5	KJ01A
100A, 4 poles 4x7 connection points	24	500	2 x 25 mm ² + 5 x 16 mm ² rigid wire 2 x 16 mm ² + 5 x 10 mm ² with ferrule	4.5	KJ100A
125A, 4 poles 4x15 connection points	28	500	1 x 35 mm ² + 3 x 35 mm ² + 11 x 16 mm ² rigid wire 1 x 35 mm ² + 3 x 25 mm ² + 11 x 10 mm ² with ferrule	10	KJ125B
160A, 4 poles 4x12 connection points	36	500	1 x 70 mm ² + 3 x 35 mm ² + 8 x 25 mm ² rigid wire 1 x 50 mm ² + 3 x 25 mm ² + 8 x 16 mm ² with ferrule	9.5	KJ160A



KJ160A

Characteristics

vega D surface mounting enclosures range is adapted to installations in houses and commercial premises up to 160A. The range offers enclosures to be completed according to the configuration with rows for modular devices. The vega D range includes enclosures from 2 up to 7 rows from 48 to 168 ■ capacities.

Delivered with

- quickconnect earth terminal block
- plain door
- wall fixing brackets

Technical data

- IP54 and IK07
- class II □
- nominal current (In): 160A
- rated voltage (Ue): 230/400V AC - 50Hz
- material: metallic enclosure
- colour: RAL 9010
- DIN rail mounting
- empty space for equipment unit for enclosure to be completed
- 185mm depth

Glow wire test

IEC 60 IEC 60 695-2-10,
IEC 60 695-2-11: 650°C

Complies with

EN60-439-3

Partially equipped surface mounting enclosures

- with an empty space for internal module
- with door
- w. 550 x d. 218 mm

Description	Height (mm)	quickconnect terminals	Cat. ref.
2 rows height empty space for internal module	500	5 x 25 + 17 x 4 mm ²	FV22A
+ 1 row (24 ■)	650	2 x (5 x 25 + 17 x 4 mm ²)	FV32A
+ 2 rows (48 ■)	800	(5 x 25 + 17 x 4 mm ²) + (6 x 25 + 20 x 4 mm ²)	FV42A
+ 3 rows (72 ■)	950	(5 x 25 + 17 x 4 mm ²) + (6 x 25 + 20 x 4 mm ²)	FV52A
+ 4 rows (96 ■)	1100	3 x (6 x 25 + 20 x 4 mm ²)	FV62A
+ 5 rows (120 ■)	1250	3 x (6 x 25 + 20 x 4 mm ²)	FV72A





UK22A2

Equipment units

Description	Cat. ref.
for 3 or 4 poles x160 MCCBs and switch disconnected DIN rail - vertical position	UK22A2
for 250A MCCBs setted at In = 160A	UK22B3
for DIN rail modular devices 2 row of 24 modules	UD22B3
with perforated plate w.415 x h.235 mm	UD22C2
for terminal blocks	UD22A5



FZ507



FZ503

Locks

- replace the original latch

Description		Cat. ref.
key lock n° 1242E delivered with 2 keys		FZ507
key lock n° 405 delivered with 2 keys		FZ526
key lock n° 455 delivered with 2 keys		FZ527
lock with male triangle of 7 mm chrome plated with 1 key		FZ502
lock with male square of 7 mm chrome plated with 1 key		FZ503
lock with double chrome plated bar of 3 mm with 1 key		FZ501



UZ25V2

Wire guides

Description	Pack qty	Cat. ref.
wire guides big section	20	UZ25V1
wire guides small section	20	UZ25V2
covers for wire guides, 2m length	20	UT50C



UZ52A1

Wire ducts

Description	Pack qty	Cat. ref.
horizontal wire ducts, 2 x (h. 85 x w. 31 x l. 500 mm)	1	UZ52A1
support frame for wire ducts	2	UZ50A1



P031F P032F

Blanking clips

Description	Pack qty.	Cat. ref.
1/2 module	50	P031F
1 module	50	P032F

Blanking strips

Description	Pack qty.	Cat. ref.
24 modules, RAL 9010	10	JP002



FZ794

A4 pocket plan

Description	Cat. ref.
flexible, A4 format, self adhesive, to stick on the inside of the door	FZ794

Spray paint

Description	Cat. ref.
spray paint, RAL 9010	FZ792N

Single pole distribution blocks

Description	Isc peak (kA)	Connection capacity (mm ²)	Width in module	Cat. ref.
125A	30	incoming: 1 x 35 + 1 x 16mm ² outgoing: 6 x 16mm ²	1.5	KJ02D
160A	50	incoming: 1 x 70mm ² (rigid) 1 x 50mm ² (flexible) outgoing: 6 x 16 + 1 x 16mm ² flat copper lateral	2	KJ02C
250A	50	incoming: 1 x 95mm ² outgoing: 2 x 25 + 5 x 16 + 4 x 10mm ²	2.5	KJ02A
400A	50	incoming: 1 x 150 outgoing: 2 x 25 + 5 x 16 + 4 x 10mm ²	2.5	KJ02B



KJ02A

Modular distribution monobloc

Description	Isc peak (kA)	Ui (V)	Connection capacity (mm ²)	Width in module	Cat. ref.
100A, 4 poles	20	500	per phase: 1 x 25 + 2 x 10 + 5 x 6mm ² neutral: 1 x 25 + 6 x 10 + 4 x 6mm ²	6	KJ02E



KJ02E

Stepped distribution blocks Brass busbar terminals

Description	Ipk (kA)	Ui (V)	Connection capacity per bar (mm ²)	Width in module	Cat. ref.
100A, 4 poles 4x7 connection points	24	500	2x25 + 5x16mm ² rigid wire 2x16 + 5x10mm ² with ferrule	4.5	KJ100A
125A, 4 poles 4x15 connection points	28	500	1x35 + 3x35 + 11x16mm ² rigid wire 1x35 + 3x25 + 11x16mm ² with ferrule	10	KJ125B
160A, 4 poles 4x12 connection points	36	500	1x70 + 3x35 + 8x25mm ² rigid wire 1x50 + 3x25 + 8x16mm ² with ferrule	9.5	KJ160A



KJ100A



KJ160A

Characteristics

FW flush mounting enclosures range is adapted to installations in commercial premises up to 125A. The range enables enclosures to be completed according to the configuration or complete enclosure with rows for modular devices. The FW range includes enclosures from 1 up to 4 fields, 3 up to 7 rows and from 36 to 288 ■ capacities.

Delivered with

- plain or transparent door
- wall fixing brackets
- **quickconnect** earth and neutral terminal block per field
- Euramis door latch

Technical data

- IP30
- class II □

- nominal current (In): 125A
- rated voltage (Ue): 230/400V AC - 50Hz
- short circuit resistance: 17kA
- material: metallic enclosure
- colour: RAL 9010
- DIN rail mounting
- 110mm depth
- DIN rail 35 x 7.5mm
- 125mm center distance between rows

Glow wire test

- IEC 60 695-2-10,
- IEC 60 695-2-11: 850°C

Complies with

- IEC 61 439-3



FW62US2

FW flush mounting enclosures

- DIN rail equipped version (except FWxxxUD2)
- 110mm depth
- for connection with screws use the KMxxx accessories

Height (mm)	Width (mm)	Terminals E/N	Fields	Rows	Nr of modules	Cat. ref. plain door	transparent door
500	300	KN18E + KN18N	1	3	36	FW31US2	FW31UG2
500	550	KN18E + KN18N	2	3	72	FW32US2	FW32UG2
500	800	KN18E + KN18N	3	3	108	FW33US2	FW33UG2
650	300	KN22E + KN22N	1	4	48	FW41US2	FW41UG2
650	550	KN22E + KN22N	2	4	96	FW42US2	FW42UG2
650	800	KN22E + KN22N	3	4	144	FW43US2	FW43UG2
800	300	KN26E + KN26N	1	5	60	FW51US2	FW51UG2
800	550	KN26E + KN26N	2	5	120	FW52US2	FW52UG2
800	800	KN26E + KN26N	3	5	180	FW53US2	FW53UG2
800	1050	KN26E + KN26N	4	5	240	FW54US2	FW54UG2
950	300	KN26E + KN26N	1	6	72	FW61US2	FW61UG2
950	550	KN26E + KN26N	2	6	144	FW62US2	FW62UG2
950	800	KN26E + KN26N	3	6	216	FW63US2	FW63UG2
950	1050	KN26E + KN26N	4	6	288	FW64US2	FW64UG2
1100	300	KN26E + KN26N	1	7	84	FW71US2	FW71UG2
1100	550	KN26E + KN26N	2	7	168	FW72US2	FW72UG2
1100	800	KN26E + KN26N	3	7	252	FW73US2	FW73UG2


Characteristics

FW flush mounting enclosures range is adapted to installations in commercial premises up to 125A. The range enables enclosures to be completed according to the configuration or complete enclosure with rows for modular devices. The FW range includes enclosures from 1 up to 4 fields, 3 up to 7 rows and from 36 to 338 capacities.

Delivered with

- plain door
- wall fixing brackets
- Euramis door latch

Technical data

- IP30
- class II 
- nominal current (In): 125A

- rated voltage (Ue): 230/400V AC - 50Hz
- short circuit resistance: 17kA
- material: metallic enclosure
- colour: RAL 9010
- 110mm depth

Glow wire test

- IEC 60 695-2-10,
- IEC 60 695-2-11: 850°C

Complies with

- IEC 61 439-3



FW62UD2

FW flush mounting enclosures empty version

- 110mm depth

Height (mm)	Width (mm)	Cat. ref. plain door
500	300	FW31UD2
500	550	FW32UD2
500	800	FW33UD2
650	300	FW41UD2
650	550	FW42UD2
650	800	FW43UD2
800	300	FW51UD2
800	550	FW52UD2
800	800	FW53UD2
800	1050	FW54UD2
950	300	FW61UD2
950	550	FW62UD2
950	800	FW63UD2
950	1050	FW64UD2
1100	300	FW71UD2
1100	550	FW72UD2
1100	800	FW73UD2
1250	300	FW81UD2



FZ006NV

Slotted doors

- do not reduce IP30
- the rated power adjusted as far as 45% on appliance one section; on appliance 2 sections as far as 90%

Description	Cat. ref.	
	left door	right door w/ closure
for FW42U..	-	FZ006NV
for FW43U..	FZ007NV	FZ006NV
for FW51U..	-	FZ009NV
for FW52U..	-	FZ010NV
for FW53U..	FZ011NV	FZ010NV
for FW62U..	-	FZ014NV
for FW71U..	-	FZ021NV
for FW72U..	-	FZ022NV
for FW73U..	FZ023NV	FZ022NV
for FW81U..-	-	FZ026NV



UW31U

Mounting kits

Description	Height (mm)	Width (mm)	No. of spans	No. of rows	Cat. ref.
for flush enclosures 500mm	450	250	1	3	UW31U
for flush enclosures 650mm	600	250	1	4	UW41U
for flush enclosures 800mm	750	250	1	5	UW51U
for flush enclosures 950mm	900	250	1	6	UW61U
for flush enclosures 1100mm	1050	250	1	7	UW71U
for flush enclosures 1200mm	1200	250	1	8	UW81U



UN61TN

Kits for perforated mounting plates

Description	Height (mm)	Width (mm)	No. of spans	No. of rows	Cat. ref.
for FW31U..	310	248	1	3	UN31TN
for FW32/33U..	310	498	2	3	UN32TN
for FW41U..	460	248	1	4	UN41TN
for FW42/43U..	460	498	2	4	UN42TN
for FW51U..	610	248	1	5	UN51TN
for FW52/53/54U..	610	498	2	5	UN52TN
for FW61U..	760	248	1	6	UN61TN
for FW62/63/64U..	760	498	2	6	UN62TN
for FW71U..	910	248	1	7	UN71TN
for FW72/73U..	910	498	2	7	UN72TN

Perforated mounting plates

Description	Height (mm)	Width (mm)	No. of spans	No. of rows	Cat. ref.
perforated mounting plate	240	248	1	2	UZ21M6
perforated mounting plate	310	248	1	3	UZ31M5
perforated mounting plate	390	248	1	3	UZ31M6
perforated mounting plate	310	498	2	3	UZ32M5
perforated mounting plate	460	248	1	4	UZ41M5
perforated mounting plate	570	248	1	4	UZ41M6
perforated mounting plate	460	498	2	4	UZ42M5
perforated mounting plate	610	248	1	5	UZ51M5
perforated mounting plate	610	498	2	5	UZ52M5
perforated mounting plate	760	248	1	6	UZ61M5
perforated mounting plate	760	498	2	6	UZ62M5



UZ61M5

Set of 2 uprights

Description	Cat. ref.
for flush enclosures h. 500mm	UN03FN
for flush enclosures h. 650mm	UN04FN
for flush enclosures h. 800mm	UN05FN
for flush enclosures h. 950mm	UN06FN
for flush enclosures h. 1100mm	UN07FN
for flush enclosures h. 1250mm	UN08FN



UN04FN

DIN rails

Description	Pack qty	Cat. ref.
DIN rail 7.5 mm, galvanized metal, 1 field	30	U842B
DIN rail 7.5 mm, insulated, 1 field	30	UT22C



U842B

Earth connection for perforated plates

Description	Cat. ref.
earth connection cable for perforated plates, 400 mm, 1.5 mm ²	UL01G1

Supporting structures

- DIN rails with distance between the centres: 125mm,
- without plate

Height (mm)	Width (mm)	No. of fields	No. of rows	No. of modules	Cat. ref.
450	250	1	3	36	UN03GN
600	250	1	4	48	UN04GN
750	250	1	5	60	UN05GN
900	250	1	6	72	UN06GN
1050	250	1	7	84	UN07GN



UN06GN



US31A3

Opened protective covers

- DIN rails with distance between the centres: 125mm,
- without plate

Height (mm)	Width (mm)	No. of fields	No. of rows	No. of modules	Cat. ref.
150	250	1	1	12	US11A3
300	250	1	2	24	US21A3
450	250	1	3	36	US31A3
600	250	1	4	48	US41A5
750	250	1	5	60	US51A5
900	250	1	6	72	US61A5



US21A1

Closed protective covers

Height (mm)	Width (mm)	No. of fields	No. of rows	No. of modules	Cat. ref.
150	250	1	1	12	US11A1
300	250	1	2	24	US21A1
450	250	1	3	36	US31A1
600	250	1	4	48	US41A1
750	250	1	5	60	US51A1



UT44AN

Vertical partitions

Description	Cat. ref.
for flush enclosures h. 500mm	UT44AN
for flush enclosures h. 650mm	UT44BN
for flush enclosures h. 800mm	UT44CN
for flush enclosures h. 950mm	UT44DN
for flush enclosures h. 1100mm	UT44FN



ZZ10H

Accessories

Description	Cat. ref.
horizontal partitions to mount between the plates (to cut out for flush mounting)	ZZ10H
double towers with screw	UZ04A1
tower underparts with bar	UZ03A1
low tower underparts	UZ01A2
adapter kits, 12 mm adjustable, max. 32 mm	FZ279
hollow wall mounting kits	FZ276
sliders	FZ277
connection assembly for quickconnect	UZ00K1
universal adaptor	KN00A
door shields with handle	FZ598N



UZ04A1



UZ00K1



KN00A

PE + N connections

- snap on lateral support

PE/N Terminals	Section (mm ²)	Pack qty	Cat. ref.
2 x 13 each	6 x 16, 7 x 10	2	KM13A
2 x 22 each	10 x 16, 12 x 10	2	KM22A
2 x 25 each	11 x 16, 14 x 10	2	KM25A
4 x 5 each	1 x 25, 2 x 16, 2 x 10	1	KM05B



KM05B



KM25A

quickconnect terminals

Description	Width (mm)	Cat. ref. N terminals	Ph terminals	PE terminals
6 units	30	KN06N	KN06P	KN06E
10 units	45	KN10N	KN10P	KN10E
14 units	60	KN14N	KN14P	KN14E
18 units	75	KN18N	KN18P	KN18E
22 units	90	KN22N	KN22P	KN22E
26 units	105	KN26N	KN26P	KN26E



KN06P



KN10N



KN14E

Characteristics

FW flush and surface mounting enclosures range is adapted to installations in commercial premises up to 125A. The range enables enclosures to be completed according to the configuration or complete enclosure with rows for modular devices. The FW range includes enclosures from 1 up to 4 fields, 3 up to 7 rows and from 36 to 338 capacities.

Delivered with

- full or transparent door
- wall fixing brackets
- **quickconnect** earth and neutral terminal block per field

Technical data

- IP44
- class II
- nominal current (In): 125A
- rated voltage (Ue): 230/400V AC - 50Hz
- short circuit resistance: 17kA
- material: metallic enclosure
- colour: RAL 9010
- DIN rail mounting
- 160mm depth

Glow wire test

- IEC 60 695-2-10
- IEC 60 695-2-11: 750°C

Complies with

- IEC 61 439-3 and EN 61 439-3



FWB52S

FW metal surface mounting enclosures

- 160mm depth
- for connection with screws use the KMxxx accessories

Height (mm)	Width (mm)	Terminals E/N	Fields	Rows	Nr of modules	Cat. ref. plain door	transparent door
500	300	KN18E + KN18N	1	3	36	FWB31S	FWB31GS
500	550	KN18E + KN18N	2	3	72	FWB32S	FWB32GS
500	800	KN18E + KN18N	3	3	108	FWB33S	FWB33GS
500	1050	KN18E + KN18N	4	3	144	FWB34S	FWB34GS
650	300	KN22E + KN22N	1	4	48	FWB41S	FWB41GS
650	550	KN22E + KN22N	2	4	96	FWB42S	FWB42GS
650	800	KN22E + KN22N	3	4	144	FWB43S	FWB43GS
650	1050	KN22E + KN22N	4	4	192	FWB44S	FWB44GS
800	300	KN26E + KN26N	1	5	60	FWB51S	FWB51GS
800	550	KN26E + KN26N	2	5	120	FWB52S	FWB52GS
800	800	KN26E + KN26N	3	5	180	FWB53S	FWB53GS
800	1050	KN26E + KN26N	4	5	240	FWB54S	FWB54GS
950	300	KN26E + KN26N	1	6	72	FWB61S	FWB61GS
950	550	KN26E + KN26N	2	6	144	FWB62S	FWB62GS
950	800	KN26E + KN26N	3	6	216	FWB63S	FWB63GS
950	1050	KN26E + KN26N	4	6	288	FWB64S	FWB64GS
1100	300	KN26E + KN26N	1	7	84	FWB71S	FWB71GS
1100	550	KN26E + KN26N	2	7	168	FWB72S	FWB72GS
1100	800	KN26E + KN26N	3	7	252	FWB73S	FWB73GS
1100	1050	KN26E + KN26N	4	7	336	FWB74S	FWB74GS
1250	300	KN26E + KN26N	1	8	96	FWB81S	-

Plain doors

Description	Cat. ref.	
	left door	right door w/ closure
for FWB31	-	FZ001N
for FWB32	-	FZ002N
for FWB33	FZ003N	FZ002N
for FWB34	FZ004N	FZ002N
for FWB41	-	FZ005N
for FWB42	-	FZ006N
for FWB43	FZ007N	FZ006N
for FWB44	FZ008N	FZ006N
for FWB51	-	FZ009N
for FWB52	-	FZ010N
for FWB53	FZ011N	FZ010N
for FWB54	FZ012N	FZ010N
for FWB61	-	FZ013N
for FWB62	-	FZ014N
for FWB63	FZ015N	FZ014N
for FWB64	FZ016N	FZ014N
for FWB71	-	FZ021N
for FWB72	-	FZ022N
for FWB73	FZ023N	FZ022N
for FWB74	FZ024N	FZ022N
for FWB81	-	FZ026N



FZ001N

Small enclosures

Slotted doors

Description	Cat. ref.	
	left door	right door w/ closure
for FWB42	-	FZ006NV
for FWB43	FZ007NV	FZ006NV
for FWB51	-	FZ009NV
for FWB52	-	FZ010NV
for FWB53	FZ011NV	FZ010NV
for FWB62	-	FZ014NV
for FWB71	-	FZ021NV
for FWB72	-	FZ022NV
for FWB81	-	FZ026NV



FZ006NV



FZ106N

Transparent doors

- width 550mm, 2 sections
- all transparent doors can also use for appliance FW flush mounting.

Description	Cat. ref.
width 550mm, 2 sections for enclosures height 500 mm x width 550 to 1050 mm, FWB32 , FWB33 , FWB34	FZ107N
width 550mm, 2 sections for enclosures height 650 mm x width 550 to 1050 mm, FWB42S, FWB43S, FWB44S	FZ104N
width 550mm, 2 sections for enclosures height 800 mm x width 550 to 1050 mm, FWB52S, FWB53S, FWB54S	FZ106N
width 550mm, 2 sections for enclosures height 950 mm x width 550 to 1050 mm, FWB62S, FWB63S, FWB64S	FZ110N
width 550mm, 2 sections for enclosures height 1100 mm x width 550 to 1050 mm, FWB72S, FWB73S, FWB74S	FZ102N
width 300mm, 1 section for enclosures height 500 mm x width 300 mm, FWB31	FZ105N
width 300mm, 1 section for enclosures height 650 mm x width 300 mm, FWB41	FZ108N



FZ22B

Finishing frames

- max. adjustment 45 mm
- external dimensions + 48 mm

Description	Height (mm)	Width (mm)	Cat. ref.
for FWB31	500	300	FZ011B
for FWB32	500	550	FZ012B
for FWB33	500	800	FZ013B
for FWB34	500	1050	FZ014B
for FWB41	650	300	FZ021B
for FWB42	650	550	FZ022B
for FWB43	650	800	FZ023B
for FWB44	650	1050	FZ024B
for FWB51	800	300	FZ11B
for FWB52	800	550	FZ12B
for FWB53	800	800	FZ13B
for FWB54	800	1050	FZ14B
for FWB61	950	300	FZ21B
for FWB62	950	550	FZ22B
for FWB63	950	800	FZ23B
for FWB64	950	1050	FZ24B
for FWB71	1100	300	FZ31B
for FWB72	1100	550	FZ32B
for FWB73	1100	800	FZ33B
for FWB74	1100	1050	FZ34B

Complete spans for modular devices and telecom applications can be easily integrated in the enclosure and combined according to the needs.

Mounting kits for enclosures

Description	Height (mm)	Width (mm)	No. of fields	No. of rows	No. of modules	Cat. ref.
for surface enclosures 500mm	450	250	1	3	36	UW31V
for surface enclosures 650mm	600	250	1	4	48	UW41V
for surface enclosures 800mm	750	250	1	5	60	UW51V
for surface enclosures 950mm	900	250	1	6	72	UW61V
for surface enclosures 1100mm	1050	250	1	7	84	UW71V
for surface enclosures 1250 mm	1200	250	1	8	96	UW81V



UW61V

Kits for perforated mounting plates

- to be used with partitions (see page 1.49 for references)

Height (mm)	Width (mm)	No. of fields	No. of rows	Cat. ref.
310	248	1	3	UN31TN
310	498	2	3	UN32TN
460	248	1	4	UN41TN
460	498	2	4	UN42TN
610	248	1	5	UN51TN
610	498	2	5	UN52TN
760	248	1	6	UN61TN
760	498	2	6	UN62TN
910	248	1	7	UN71TN
910	498	2	7	UN72TN



UN61TN

Perforated mounting plates

Height (mm)	Width (mm)	No. of fields	No. of rows	Cat. ref.
240	248	1	2	UZ21M6
310	248	1	3	UZ31M5
390	248	1	3	UZ31M6
310	498	2	3	UZ32M5
460	248	1	4	UZ41M5
570	248	1	4	UZ41M6
460	498	2	4	UZ42M5
610	248	1	5	UZ51M5
610	498	2	5	UZ52M5
760	248	1	6	UZ61M5
760	498	2	6	UZ62M5



UZ61M5



UN03A

Set of 2 uprights

Description	Cat. ref.
for flush enclosures h. 500mm	UN03A
for flush enclosures h. 650mm	UN04A
for flush enclosures h. 800mm	UN05A
for flush enclosures h. 950mm	UN06A
for flush enclosures h. 1100mm	UN07A
for flush enclosures h. 1250mm	UN08A

Earth connection for perforated plates

Description	Cat. ref.
earth connection cable for perforated plates 400mm, 1,5 mm ²	UL01G1



US31A3

Opened protective covers

- DIN rails with distance between the centres: 125mm,
- for modular devices

Height (mm)	Width (mm)	No. of spans	No. of rows	No. of modules	Cat. ref.
150	250	1	1	12	US11A3
300	250	1	2	24	US21A3
450	250	1	3	36	US31A3
600	250	1	4	48	US41A5
750	250	1	5	60	US51A5
900	250	1	6	72	US61A5



US21A1


Closed protective covers

Height (mm)	Width (mm)	No. of spans	No. of rows	No. of modules	Cat. ref.
150	250	1	1	12	US11A1
300	250	1	2	24	US21A1
450	250	1	3	36	US31A1
600	250	1	4	48	US41A1
750	250	1	5	60	US51A1
150	500	2	1	24	US12A1
300	500	2	2	48	US22A1
450	500	2	3	72	US32A1
600	500	2	4	96	US42A1
150	500	3	1	24	US13A1
300	500	3	2	48	US23A1
450	500	3	3	72	US33A1

Partitions

Description	Cat. ref.	
vertical for enclosures h. 500mm	UZ30F1	 UZ40F1
vertical for enclosures h. 650mm	UZ40F1	
vertical for enclosures h. 800mm	UZ50F1	
vertical for enclosures h. 950mm	UZ60F1	
vertical for enclosures h. 1100mm	UZ70F1	
horizontal for 1 span width	ZZ10H	


Towers

Description	Cat. ref.	
double towers with screw	UZ04A1	 UZ01A2
top tower overpart, 15 mm, 1 set = 4 pieces	UZ05A1	
tower underparts with bar	UZ03A1	 UZ05A1
low tower underparts	UZ01A2	

Cable guides


Description	Cat. ref.	
cable guides strap small section, 1 set = 20 pieces	UZ25V2	 UZ25V2
fixing support for cable guide, vertical, clip fixing	UZ01V2	

Wall fixing brackets

Description	Cat. ref.	
for surface mounting, 1 set = 4 pieces	FZ803B	 FZ803B


Suspension rail

- to mount surface enclosures

Description	Cat. ref.	
suspension rail, length: 2 m, delivered with 4 brackets	FZ890N	 FZ890N
suspension brackets for wall fixing rails FZ890N	FZ799N	

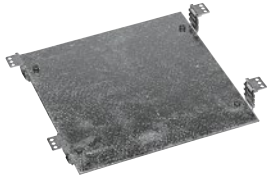
Strain relief rails

- to mount on lower / upper part of surface enclosures

Description	Cat. ref.	
strain relief rails, length: 140 mm, profile C 25 x 10 mm, slot 11 mm	U850S	 U850S

Mounting plates

- with depth adjustment

Description	Cat. ref.	
mounting plates h.115 x w.210 mm x thick. 2.5mm, lowering 29 mm	UT26A	 UT26B
mounting plates h.215 x w.210 mm x thick. 2.5, lowering 29 mm	UT26B	



FZ597N

Locks

- with 2 keys, to replace the original lock

Description	Cat. ref.
locks	FZ597N



FZ821N

Sealing caps

Description	Cat. ref.
without closing system, only cap	FZ226
with cap, male square 8 mm centre, plastic	FZ821N
with cap, male square 6 mm centre, metal	FZ822N
with slot, plastic	FZ823N
with lock cylinder	FZ824N



UT22B

Rails, depth adjustable and insulated

- 7.5 mm height DIN rail

Description	Cat. ref.
1 span, lowering up to 21mm	UT22C
1 span, lowering up to 31mm	UT22B
1 span, lowering up to 32mm	U82A



FZ794

Diagram holders

Description	Pack qty	Cat. ref.
flexible, A4 format, self adhesive to stick inside the doors	10	FZ794
rigid, A4 format, made of metal sheet, delivered with fixing screws (from door height 800 mm and width 550 mm)	1	FZ707

Touch up paint

Description	Cat. ref.
for final touch colour RAL 9010 (pure white)	FZ791N



ZZ34S

Blanking stripes

- to blank opening
- 9 mm pre-cut,
- RAL 9010 (pure white)

Description	Pack qty	Cat. ref.
blanking stripes, length 221mm	10	S35S
blanking stripes, length 221mm, lockable	10	ZZ34S



UZ005

Identifier stripes

- to stick on protection plates,
- delivered with label
- 1set = 12 pieces

Description	Cat. ref.
identifier stripes, 1 span	UZ005
identifier labels to insert in UZ005 identifier stripe (1 sheet = 12 labels)	UZ006

Marking systems

- sheet "circuits caption" to stick on the inner side of the door
- 1 set = 10 pieces

Description

marking systems

Cat. ref.

VZ717



VZ717

Marking strips

- 1 set = 10 pieces

Description

transparent stripe with 14 modules length label

Cat. ref.

VZ602



VZ602

Connection assemblies

Description

for **quickconnect**

Cat. ref.

UZ00K1



UZ00K1

Adapters

Description

universal adapters

level adapters

Cat. ref.

KN00A

UZ00K2



KN00A

Set of stoppers

- to block opened cable entries

Description

set of stoppers

Cat. ref.

FZ401



FZ401

Door shield with handle

- with camlock, IP44

Description

door shield with handle

Cat. ref.

FZ598N



FZ598N

Cable entry

Description

for top and bottom

for rear cable entry

Cat. ref.

FZ426

FZ428



FZ428

Fixing screws for plates

Description

spare screws, sealable for plate, 1 piece

spare screws, sealable for plate, 25 pieces

Cat. ref.

UZ06A1

UZ06A3



UZ06A1


Characteristics

vector security surface mounting boxes associated with a protection device allows to open circuit in case of emergency stop. The range of boxes is adapted to installations where a remote control of the emergency stop is needed or fire application. The range enables boxes to be completed according to the configuration or fully equipped.

Delivered with

- hinged glass door
- earth brass terminal
- marking strip
- key lock

Technical data

- IP55 and IK07
- class II 
- colour: RAL 3020
- DIN rail mounting
- equipment depends on the version
- hammer in option

Glow fire test

IEC 60 695-2-10
IEC 60 695-2-11: 850°C

Complies with

IEC 61947-5-1 and IEC 61947-5-5



VE105A

Box to be equipped

Description	Dimensions H x W x D (mm)	Characteristics	Cat. ref.
1 row, 4 + 2 modules	190 x 165 x 113	- E: 2 x 16 + 2 x 10mm ² - cable entry gland size: 2 x M20 + 2 x M25 + 1 x M32	VE105A
1 row, 8 + 2 modules	210 x 237 x 114	- E: 2 x 16 + 2 x 10mm ² - cable entry gland size: 4 x M20 + 2 x M25 + 1 x M32	VE109A



VE105U

Emergency button equipped box

- equipped with mushroom head button, green and red indicator lights

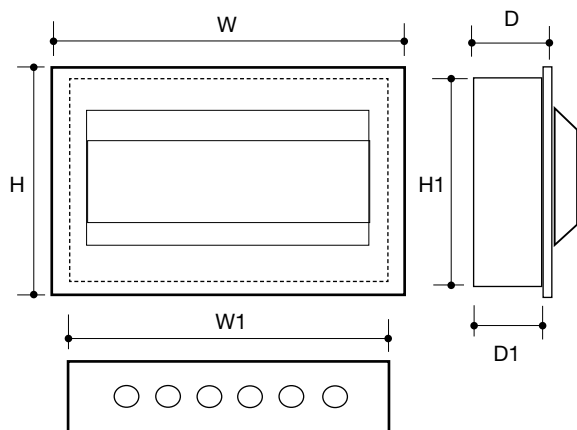
Description	Dimensions H x W x D (mm)	Characteristics	Cat. ref.
1 row, 4 + 2 modules	190 x 165 x 113	- remote control emergency stop - 10A / 230 V AC - 1 NO + 1 NC contact - key release	VE105U

Glass breaking hammer

- delivered with chain

Description	Cat.ref.
glass breaking hammer	VZ198

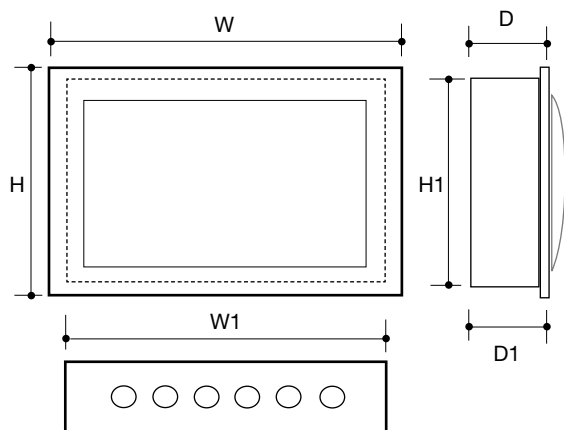
consumer units with 100A fixed busbar



Dimensions (mm)

References	H	W	D	H1	W1	D1
VT04FM	251	234	92	226	208	70
VT06FM	251	270	92	226	244	70
VT08FM	251	306	92	226	280	70
VT10FM	251	342	92	226	316	70
VT12FM	251	378	92	226	352	70
VT16FM	251	450	92	226	424	70
VT04SM	231	214	92	226	208	70
VT06SM	231	250	92	226	244	70
VT08SM	231	286	92	226	280	70
VT10SM	231	322	92	226	316	70
VT12SM	231	358	92	226	352	70
VT16SM	231	430	92	226	424	70

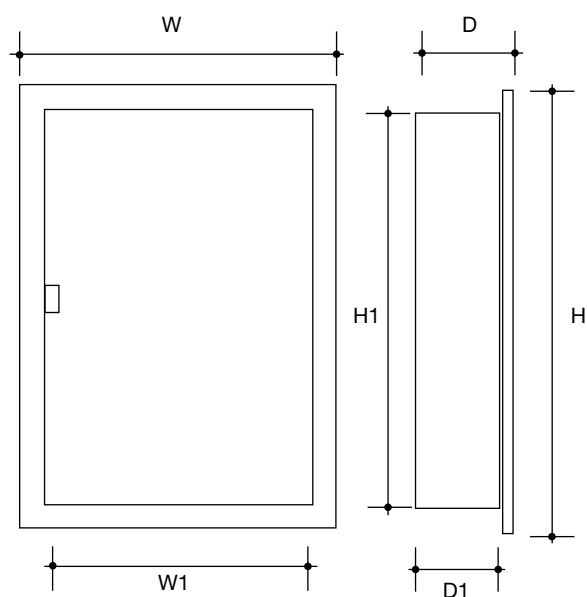
invicta VT



Dimensions (mm)

References (fixed load)	H	W	D	H1	W1	D1
VT04MF/PNF/TF	253	245	93	220	206	80
VT08MF/PNF/TF	253	316	93	220	277	80
VT12MF/PNF/TF	253	387	93	220	348	80
VT16MF/PNF/TF	253	458	93	220	420	80
VT20MF/PNF/TF	253	529	93	220	491	80
VT04MS/PNS/TS	253	245	93	250	242	80
VT08MS/PNS/TS	253	316	93	250	313	80
VT12MS/PNS/TS	253	387	93	250	384	80
VT16MS/PNS/TS	253	458	93	250	456	80
VT20MS/PNS/TS	253	529	93	220	527	80

invicta DR

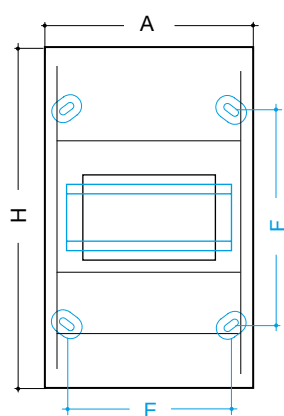


Dimensions (mm)

References (flush)	H	W	D	H1	W1	D1
DR16F/FT	350	430	110	320	400	110
DR32F/FT	500	430	110	470	400	110
DR48F/FT	650	430	110	620	400	110
DR64F/FT	800	430	110	770	400	110
DR80F/FT	950	430	110	920	400	110
DR96F/FT	1100	430	110	1070	400	110
DR12FT	350	430	110	320	400	110
DR24FT	500	430	110	470	400	110
DR36FT	650	430	110	470	400	110

References (surface)	H	W	D	H1	W1	D1
DR16S/ST	325	405	110	320	400	110
DR32S/ST	475	405	110	470	400	110
DR48S/ST	625	405	110	620	400	110
DR64S/ST	775	405	110	770	400	110
DR80S/ST	925	405	110	920	400	110
DR96S/ST	1075	405	110	1070	400	110
DR12ST	325	405	110	320	400	110
DR24ST	475	405	110	470	400	110
DR36ST	625	405	110	470	400	110

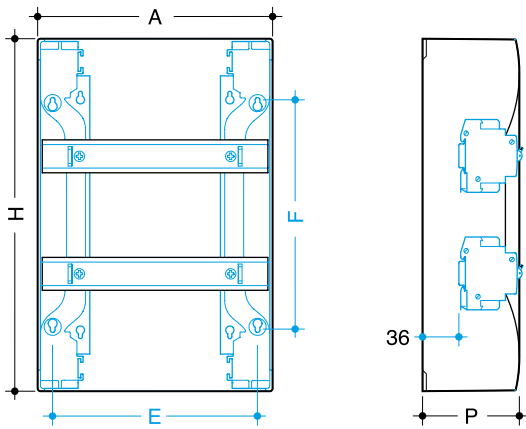
mini gamma



Dimensions (mm)

References	Dimensions			Fixing centers	
	A	H	depth	E	F
GD102E	55	160	82	-	-
GD104E	110	180	82	86	114
GD106E	146	180	82	124	114
GD108E	182	180	82	158	114
GD110E	218	180	82	194	114

gamma 13

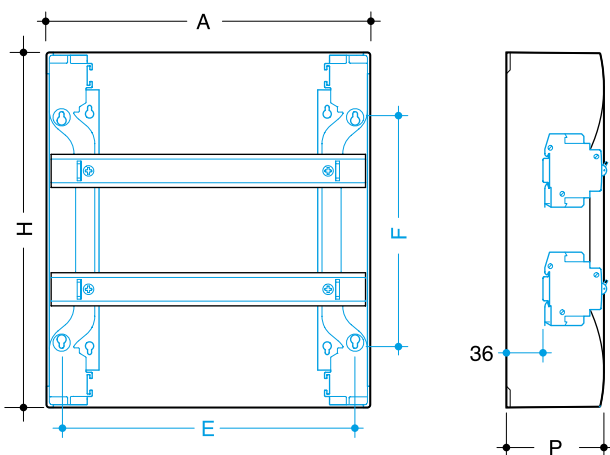


Dimensions (mm)

References	Dimensions			Fixing centers	
	A	H	P	E	F
GD113A	250	250	103	180	177
GD213A	250	375	103	180	302
GD313A	250	500	103	180	427
GD413A	250	625	103	180	552

Note: allow 28mm extra in width for door opening.

gamma 18



Dimensions (mm)

References	Dimensions			Fixing centers	
	A	H	P	E	F
GD118A	355	250	103	285	177
GD218A	355	375	103	285	302
GD318A	355	500	103	285	427
GD418A	355	625	103	285	552

Note: allow 28mm extra in width for door opening.

Cable entries

Top/bottom

- cable entries knockout-type
- 40mm diameter pre-cuts on the other side
- the wall box is 180° turnable

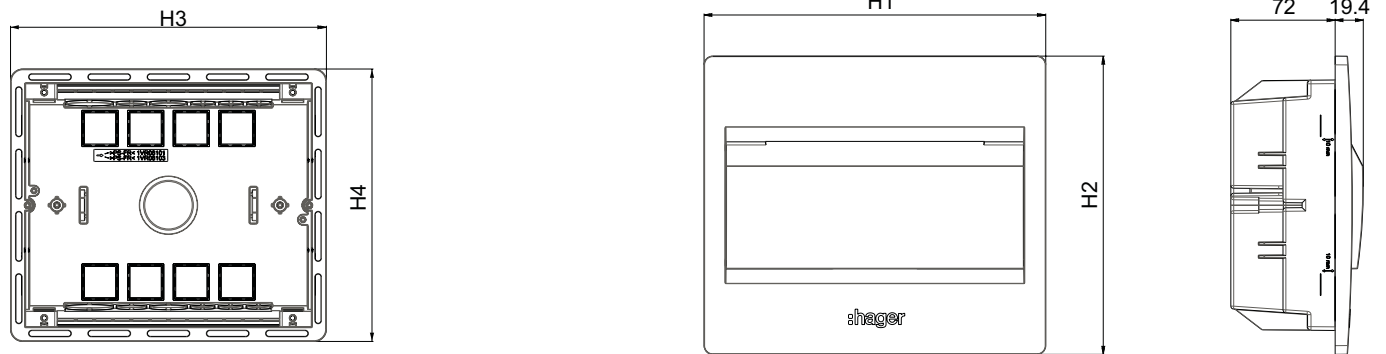
Side

- one knockout Ø 25 mm on the left and right side, in the upper and lower connection space

Back

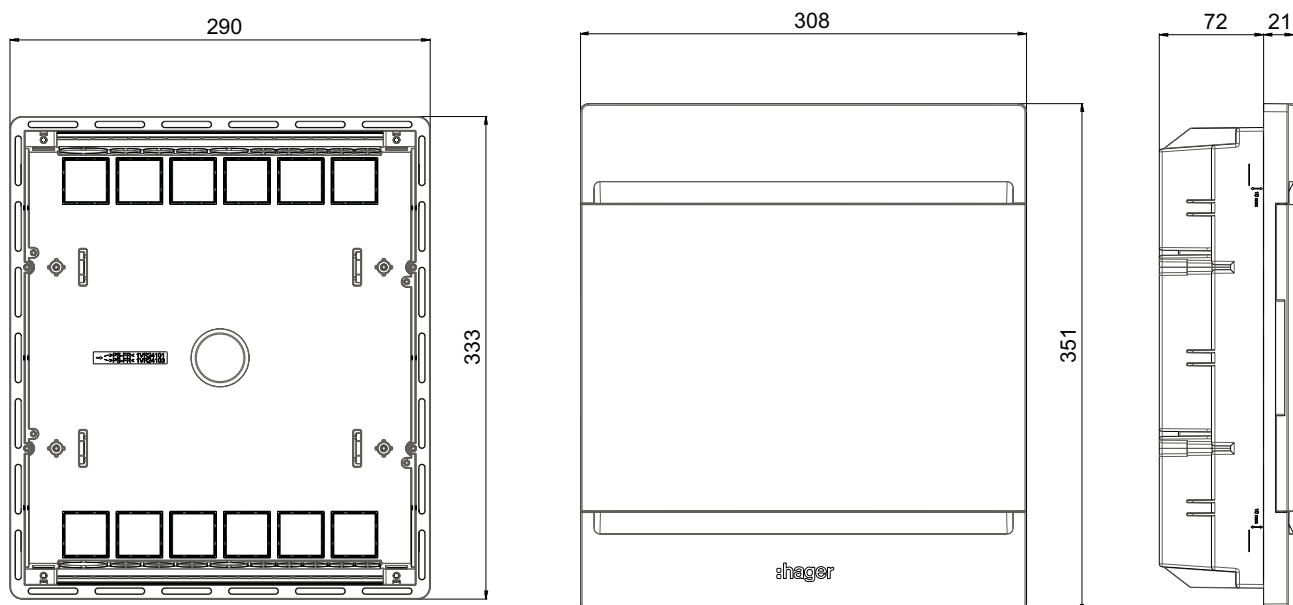
- knockouts are foreseen on the back wallbox

VR108, VR112 and VR118



Reference		Dimensions in mm			
		Frame		Wall niche	
		H1	H2	H3	H4
VR108	1 row 8 modules	236	206	218	188
VR112	1 row 12 modules	308	226	290	208
VR118	1 row 18 modules	416	226	398	208

VR212

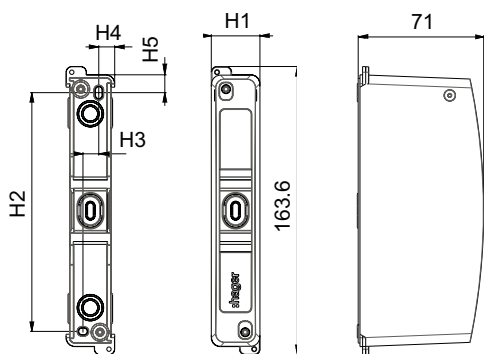


Cable entries

Top/bottom

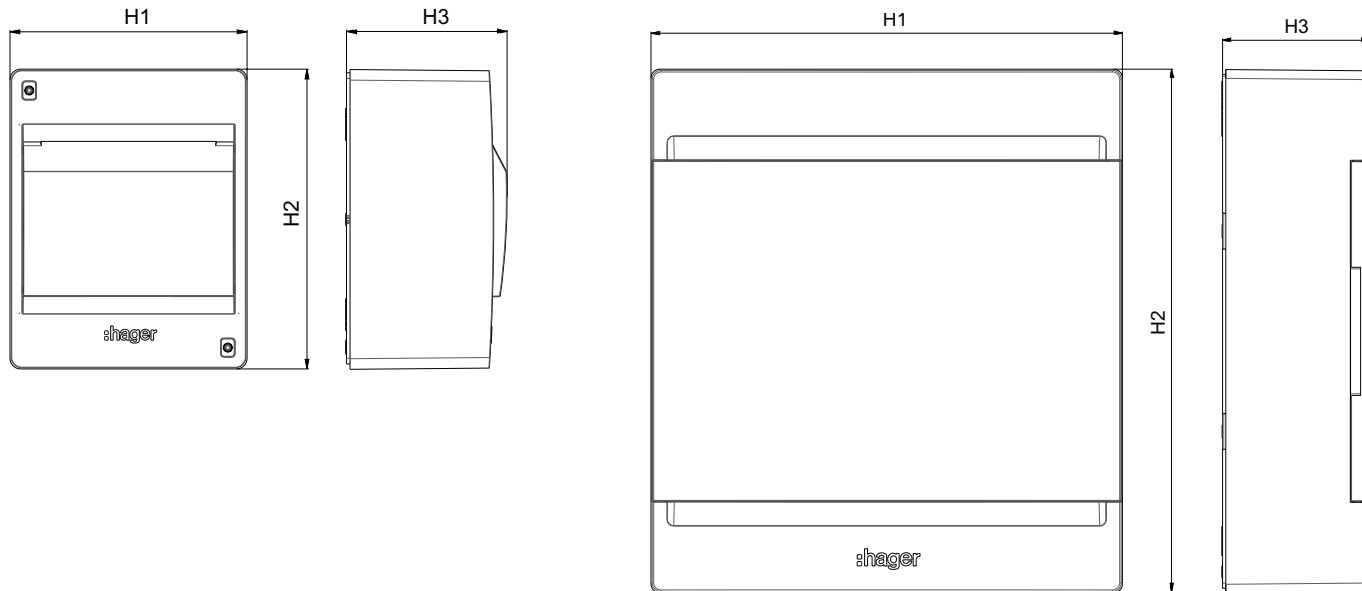
Both sides cable entry, knockout-type, for cable, conduit or trunking.
Cable ties can be fixed wherever needed on the backplate.

VD101 to VD104



Reference	Dimensions in mm				
	H1	H2	H3	H4	H5
VD101 1 row 1	27.5	135.5	9	9	10
VD102 1 rangée 2	45.5	135.5	26	9	10
VD103 1 rangée 3	63.5	126	35.5	15	12.5
VD104 1 rangée 4	81,5	125	52.7	16	13

VD106 to VD212



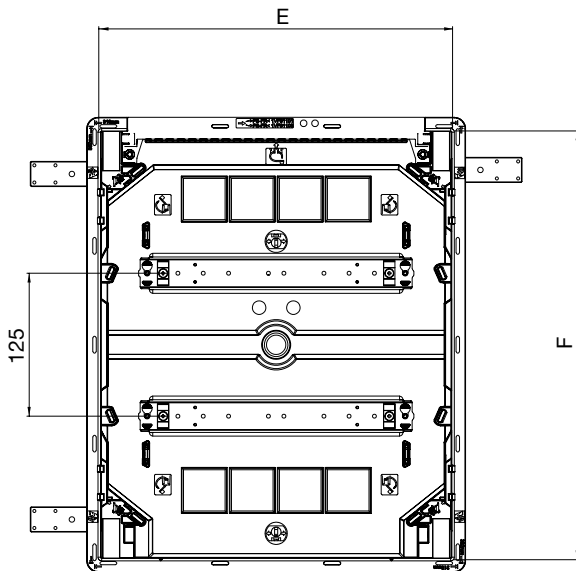
Reference	Dimensions en mm						
	H1	H2	H3	H4	H5	H6	H7
VD106 1 row 6	134.5	170	91	104	108	31	15
VD108 1 row 8	170.5	170	91	139.5	107	31.5	15.5
VD110 1 row 10	206.5	170	91	176	107	32	15
VD112 1 row 12	292.5	200	91	262.5	137	32	15
VD118 1 row 18	400	200	91	371.5	131.5	34	14.5
VD212 2 rows 24	294	326.5	92.5	262	262	32.5	16

golf, flush version

Cable entries

- top/bottom

One side cable entry slide, knockout-type, (VF104... and VF108...). The other side pre cuts with diameters 20mm, 25mm, 32mm and 40 mm the wall box is 180° turnable (slider can be placed at top or bottom).



- side

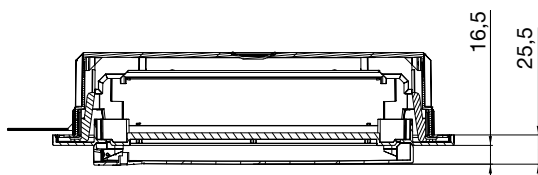
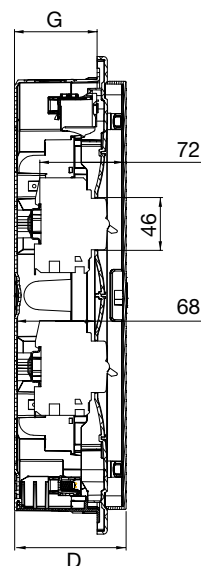
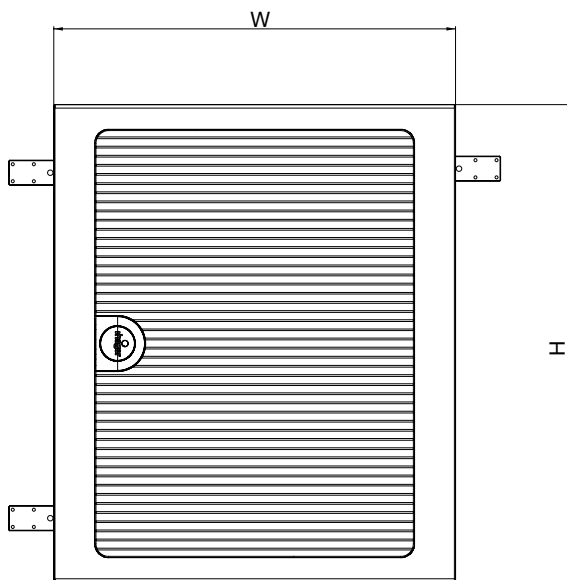
Each knockout Ø 25mm on the left and right in the upper and lower connection space.

2 rows, knockouts Ø 25mm on the left and right between the device rows. (no knockouts at 4 and 8 module enclosures).

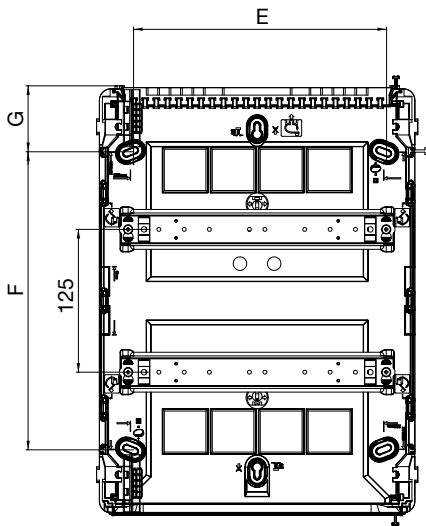
Dimensions (mm)

References	Dimensions					
	Frame			Wall niche		
	W	H	D	E	F	G
VF104... 1 row 4	204	225	98	170	189	72
VF108... 2 row 8	275	225	98	242	189	72
VF112... 1 row 12	352	293	98	318	257	72
VF212... 2 row 12	352	418	98	318	382	72
VF312... 3 row 12	352	543	98	318	507	72
VF412... 4 row 12	352	688	98	318	652	72
VF118... 1 row 18	460	293	98	426	257	72
VF218... 2 row 18	460	418	98	426	382	72
VF318... 3 row 18	460	543	98	426	507	72
VF418... 4 row 18	460	688	98	426	652	72
VF122.. 1 row 22	532	293	98	498	257	72

For the wall niche, these dimensions are minimal.

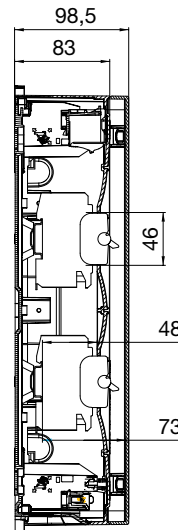
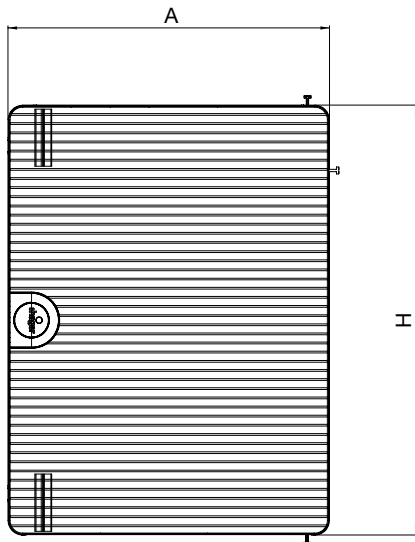


golf, surface version



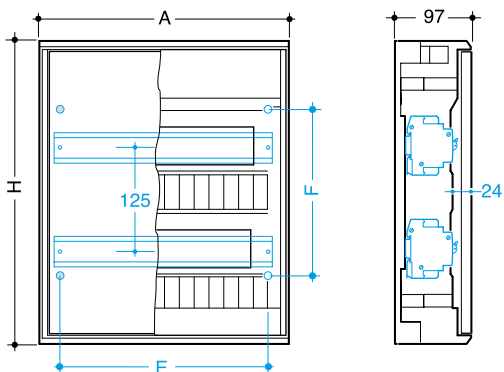
Dimensions (mm)

References	Dimensions		Wall fixation		
	A	H	E	F	G
VS104... 1 row 4	137.5	183.5	101	68	58
VS108... 2 row 8	209.5	183.5	173.5	68	58
VS112... 1 row 12	281.5	251.5	221.5	135.5	58
VS212... 2 row 12	281.5	376.5	221.5	260.5	58
VS312... 3 row 12	281.5	500	221.5	385.5	58
VS412... 4 row 12	281.5	646.5	221.5	491	78
VS118... 1 row 18	389.5	251.5	329.5	135.5	58
VS218... 2 row 18	389.5	376.5	329.5	260.5	58
VS318... 3 row 18	389.5	500	329.5	385.5	58
VS418... 4 row 18	389.5	646.5	329.5	491	78
VS122... 1 row 22	461.5	251.5	401.5	135.5	58







gala

VA24D - 2 rows 24 modules

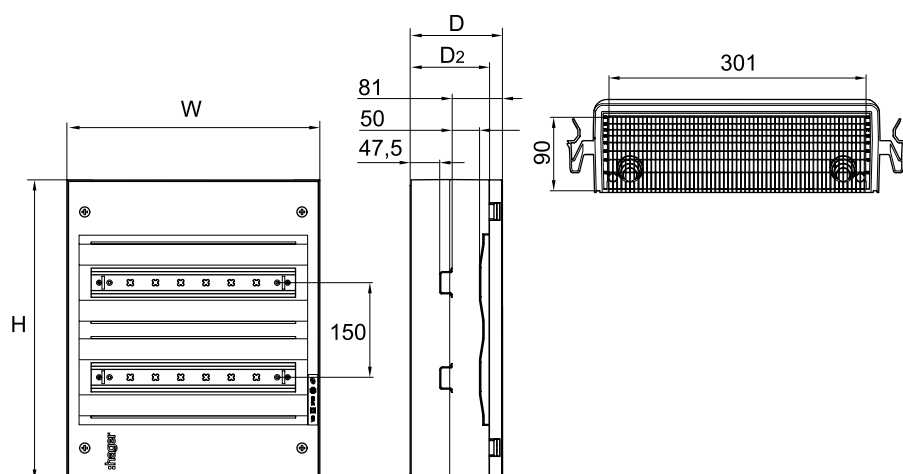


Dimensions (mm)





References	Dimensions		Fixing centers	
	A	H	E	F
VA12D 12  1 row	305	245	270	91
VA24D 24  2 rows	305	370	270	216
VA36D 36  3 rows	305	515	270	331
VA48D 48  4 rows	305	640	270	456

vega

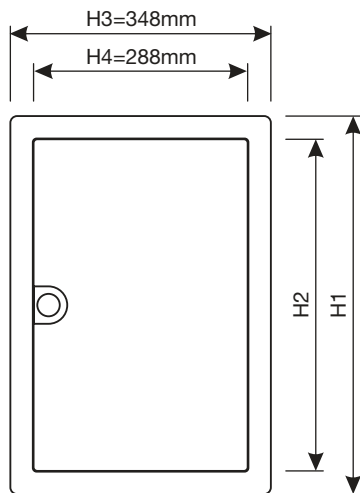
VB118, VB218, VB318, VB418



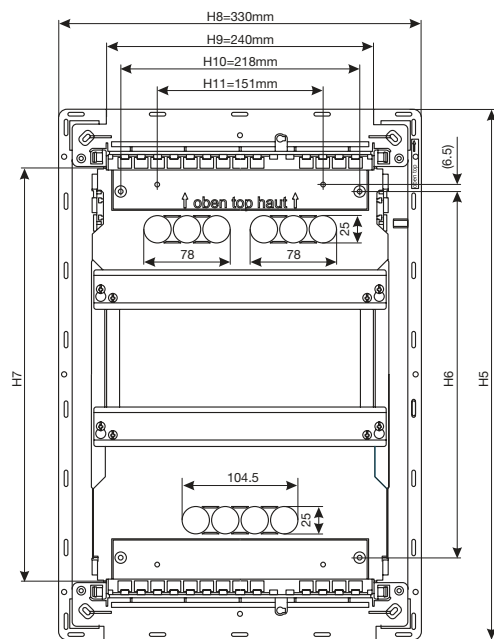
Dimensions (mm)

References	Dimensions		Fixing centers	
	H	W	D	D ₂
VB118 18  1 row	325	400	146	126
VB218 36  2 rows	475	400	146	126
VB318 54  3 rows	625	400	146	126
VB418 72  4 rows	775	400	146	126

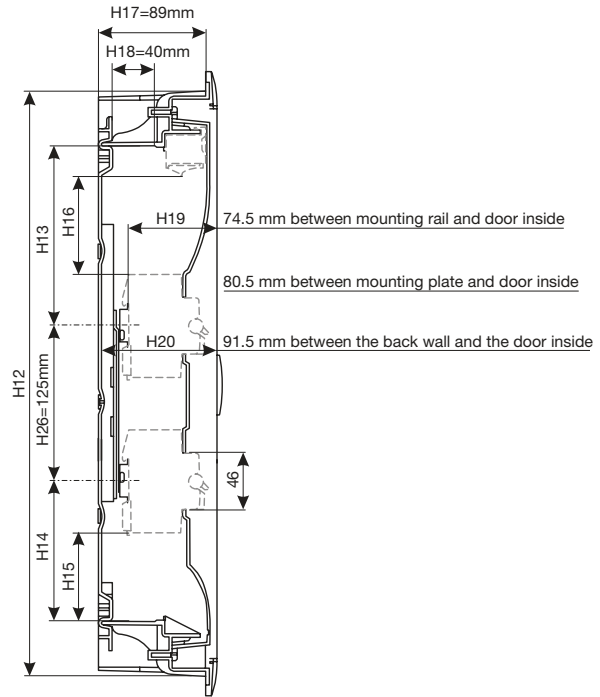
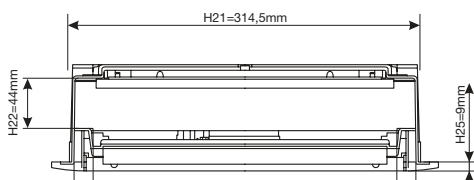
Dimensions (mm)



	H1	H2
VU12	356.5	298.5
VU24	505.5	445.5
VU36	630.5	570.5
VU48	755.5	695.5
VU60	880.5	820.5



	H5	H6	H7
VU12	335	185	224
VU24	484	334	373
VU36	609	469	498
VU48	734	584	623
VU60	859	709	748

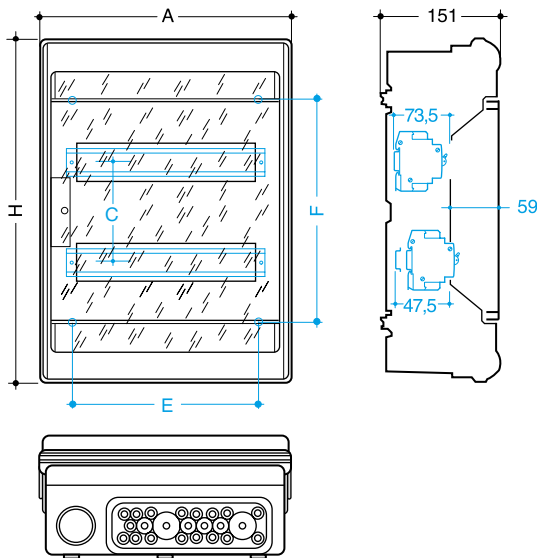


	H12	H13	H14	H15	H16
VU12	321	130	104	56	64
VU24	470	144	114	66	79
VU36	595	144	114	66	79
VU48	720	144	114	66	79
VU60	845	144	114	66	79

	Description
H1	Overall height of the frame
H2	Internal height of the frame
H3	Overall width of the frame
H4	Internal width of the frame
H5	Overall height of the wall box
H6	Height distance from rear mounting holes
H7	Internal height of the wall box
H8	Overall width of the wall box
H9	Width of the cable entry slide opening
H10	Width distance from rear mounting holes
H11	Width spacing of mounting holes (for example, sheet metal bracket or similar)
H12	Height of the hollow wall cutout
H13	Upper wiring space according to DIN 43871
H14	Lower wiring space according to DIN 43871
H15	Lower wiring space with integrated modular devices
H16	Upper wiring space with integrated modular devices
H17	Installation in depth of the wall box for hollow wall
H18	Maximum cable entry passing-through dimension
H19	Distance between mounting rail and door
H20	Distance between back plate and door
H21	Width of the hollow wall cutout
H22	Height of the lateral wiring space
H23	Width of the side wiring space
H24	Internal width of the wall box
H25	Thickness of the frame
H26	Mounting rail

VE212F - 2 rows 24 modules

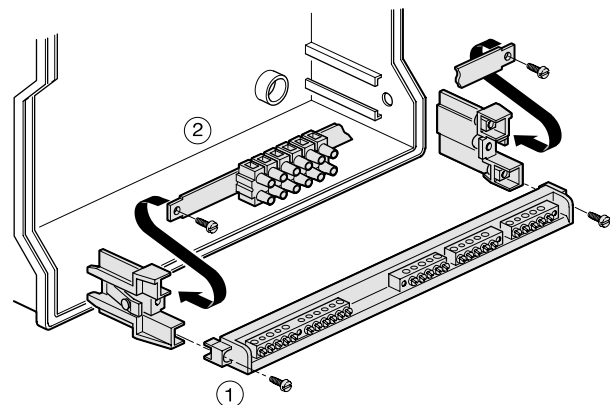
Dimensions (mm)



References	No. of rows	Enclosure dimension		Fixing centres		DIN rails centre distance C
		A	H	E	F	
VE103F or PN 3	1	111	175	-	147	125
VE106F or PN 6	1	165	190	108	158	
VE110F or PN 10	1	237	210	180	173	
VE112F or PN 12	1	310	302	230	155	
VE212F or PN 24	2	310	427	230	280	
VE312F or PN 36	3	310	552	230	405	
VE412F or PN 48	4	310	677	230	550	150
VE118F or PN 18	1	418	302	338	155	
VE218F or PN 36	2	418	452	338	305	
VE318F or PN 54	3	418	602	338	455	

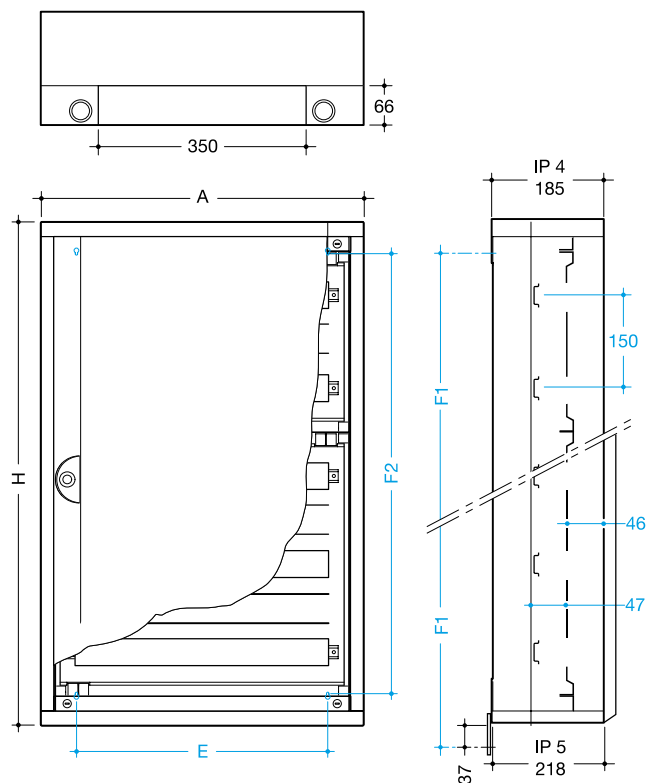
Connection assembly

Mounting on insulating support at both end of the chassis
additional connection assembly: VZ403 or VZ428

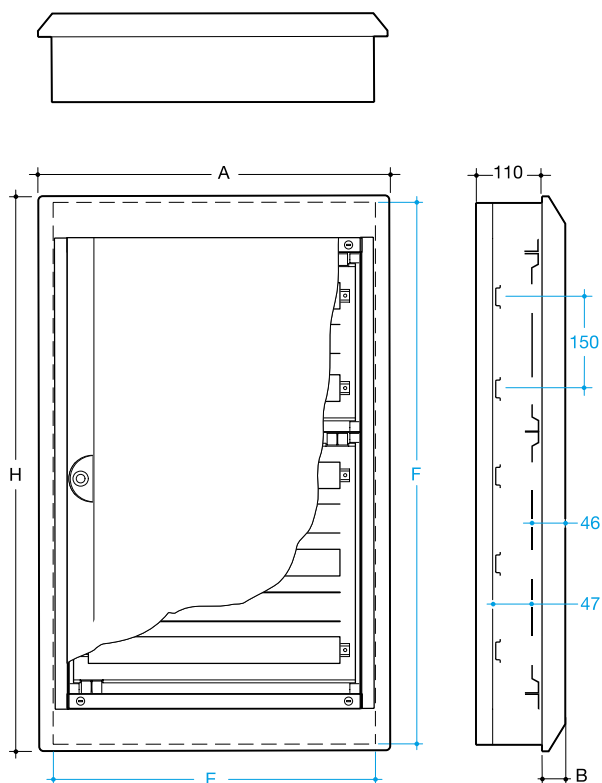


References	Cable glands	Side knockout PG
VE103F or PN	2 x M20	-
VE106F or PN	1 x M20 + 1 x M25 + 1 x M20/32	2 x 16
VE110F or PN	1 x M20/32 + 1 x M25 + 3 x M20	2 x 16
VE112F or PN	2 x M20/32/40 + 2 x M25/32 + 3 x M25 + 6 x M20	2 x 21
VE212F or PN	1 x M20/40/50 + 2 x M20/32 + 12 x M25 + 2 x M20	2 x 21
VE312F or PN	2 x M20/32/40 + 2 x M25/32 + 3 x M25 + 6 x M20	3 x 21
VE412F or PN	1 x M20/40/50 + 2 x M20/32 + 12 x M25 + 2 x M20	3 x 21
VE118F or PN	2 x M20/32/40 + 2 x M25/32 + 3 x M25 + 6 x M20	4 x 21
VE218F or PN	1 x M20/40/50 + 2 x M20/32 + 12 x M25 + 2 x M20	4 x 21
VE318F or PN	2 x M20/32/40 + 2 x M25/32 + 3 x M25 + 6 x M20	5 x 21

Surface version



Flush version



* version FUx2AN only

Dimensions (mm)

Surface version

References	Dimensions of box		Fixing		
	A	H	E	F1	F2
FD22AN/GN FD22DN	550	450	350	325	245
FD32AN/GN FD32DN	550	600	350	475	395
FD42AN/GN FD42DN	550	750	350	625	545
FD52AN/GN FD52DN	550	900	350	775	695
FD62AN/GN FD62DN	550	1050	350	925	845
FD72AN/GN FD72DN	550	1200	350	1075	995

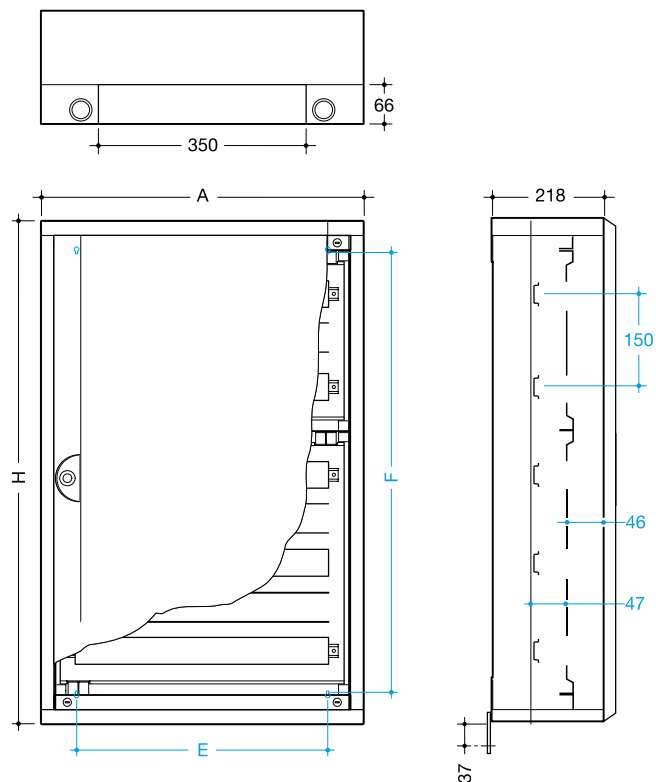
Flush version

References	Dimensions external frame			Wall niche	
	A	H	B	E	F
FU22DN	600	537	40	550	506
FU32DN	600	687	40	550	656
FU42DN	600	837	40	550	806
FU52DN	600	987	40	550	956
FU62DN	600	1137	40	550	1106
FU72DN	600	1287	40	550	1256
FU22AN/GN	600	537	72	550	506
FU32AN/GN	600	687	72	550	656
FU42AN/GN	600	837	72	550	806
FU52AN/GN	600	987	72	550	956
FU62AN/GN	600	1137	72	550	1106
FU72AN/GN	600	1287	72	550	1256

vega D enclosures

Weatherproof

FV52A - 5 rows 120 ■



Dimensions (mm)

References	Enclosure dimension		Fixing		Number of			
	A	H	E	F	rows	mod.	doors	lock
FV22A	550	500	405	574	-	-	1	1
FV32A	550	650	405	724	+1	24	1	1
FV42A	550	800	405	874	+2	48	1	1
FV52A	550	950	405	1024	+3	72	1	1
FV62A	550	1100	405	1174	+4	96	1	1
FV72A	550	1250	405	1324	+5	120	1	1

General description

Flush mounting enclosures for domestic and commercial electrical distribution.

Included in delivery:

- enclosures with door,
- carrier rails with complete board,
- device covers with 46mm slots, with complete board,
- comes fitted with **quickconnect** terminals in complete boards or with brass terminals (according to the versions)

Complies with Standards

IEC 60 439-3


Nominal voltage

AC 400V / 50Hz

Current rating

for devices up to 125A

Protection class

II (insulation protected) 

IP rating

IP30

Protection details

Protection against direct contact: IP3X behind the door

Protection with indirect contact: insulation protection

Door

Frontal fastening, with internal hinges, all adjustable, removable without tools, can be mounted on right or left, width from 800mm double door, opening angle 110°.

Door lock

Twist release lock, exchangeable with other locks, 3 point bar locks on double door cabinet.

quickconnect terminals

built in per field to every complete board **quickconnect**

Colour

RAL 9010 (pure white)

Cable entries

Cable entry plates top and bottom made of plastic to feed in the cable from the front.

Material

Housing and door made of steel, powder coated.

Carrier rails

Steel, powder coated.

Supports

Plastic

Device rails

Steel, galvanised

Covers and knockouts

Plastic

Glow wire test for plastic parts

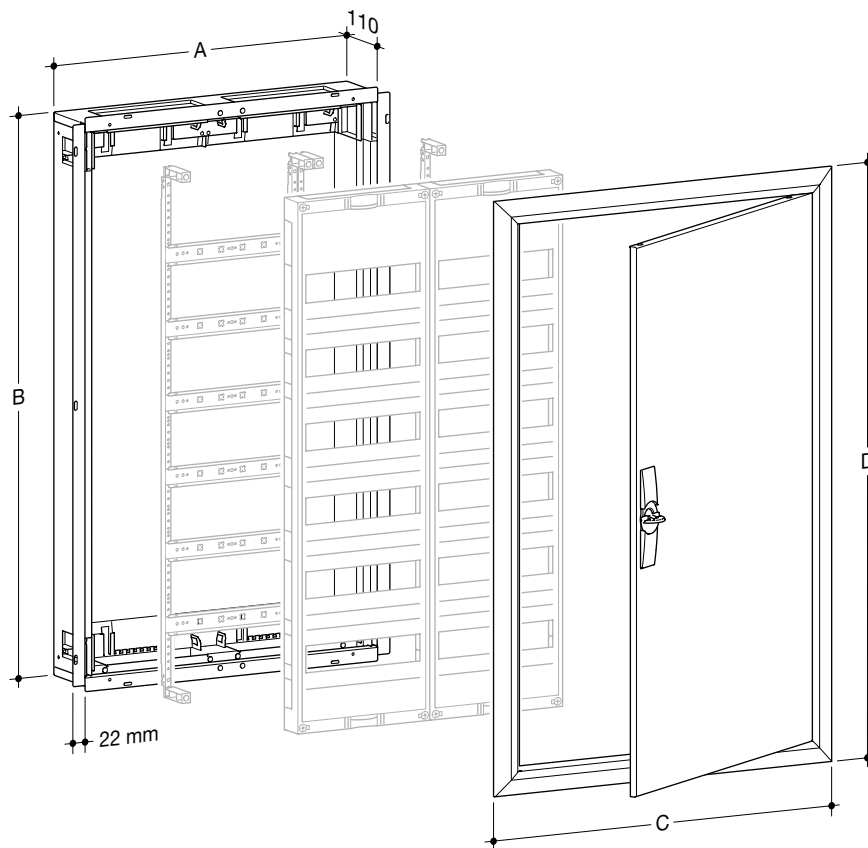
IEC 60 695-2-10

IEC 60 695-2-11: 850°C

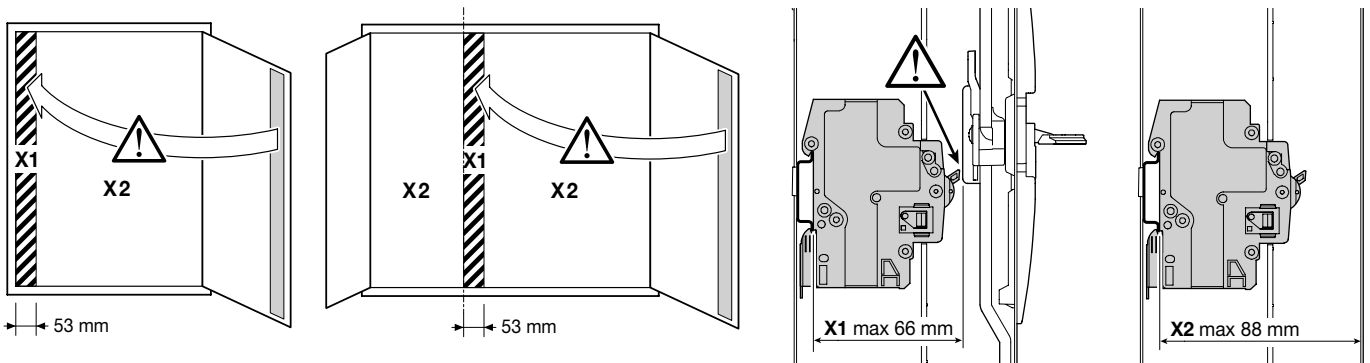
	Height (mm)	Width (mm)	Depth (mm)	DIN rails (12 mod.)	Fields across	Nr of modules	IP class (standard)	PE/N terminals (per field)
FW31US2/UG2	500	300	110	3	1	36	IP30	2x(4x25mm ² + 14x4mm ²)
FW32US2/UG2	500	550	110	3	2	72	IP30	2x(4x25mm ² + 14x4mm ²)
FW33US2/UG2	500	1050	110	3	3	108	IP30	2x(4x25mm ² + 14x4mm ²)
FW41US2/UG2	650	300	110	4	1	48	IP30	2x(5x25mm ² + 17x4mm ²)
FW42US2/UG2	650	550	110	4	2	96	IP30	2x(5x25mm ² + 17x4mm ²)
FW43US2/UG2	650	1050	110	4	3	144	IP30	2x(5x25mm ² + 17x4mm ²)
FW51US2/UG2	800	300	110	5	1	60	IP30	2x(6x25mm ² + 20x4mm ²)
FW52US2/UG2	800	550	110	5	2	120	IP30	2x(6x25mm ² + 20x4mm ²)
FW53US2/UG2	800	800	110	5	3	180	IP30	2x(6x25mm ² + 20x4mm ²)
FW54US2/UG2	800	1050	110	5	4	240	IP30	2x(6x25mm ² + 20x4mm ²)
FW61US2/UG2	950	300	110	6	1	72	IP30	2x(6x25mm ² + 20x4mm ²)
FW62US2/UG2	950	550	110	6	2	144	IP30	2x(6x25mm ² + 20x4mm ²)
FW63US2/UG2	950	800	110	6	3	216	IP30	2x(6x25mm ² + 20x4mm ²)
FW64US2/UG2	950	1050	110	6	4	288	IP30	2x(6x25mm ² + 20x4mm ²)
FW71US2/UG2	1100	300	110	7	1	84	IP30	2x(6x25mm ² + 20x4mm ²)
FW72US2/UG2	1100	550	110	7	2	168	IP30	2x(6x25mm ² + 20x4mm ²)
FW73US2/UG2	1100	1050	110	7	3	252	IP30	2x(6x25mm ² + 20x4mm ²)

FW flush enclosures, depth 110mm

Dimensions (mm)



References	Recess dimension		Dimension incl. trimming frame	
	A	B	C	D
FW31US2	305	502	353	553
FW32US2	555	502	603	553
FW33US2	805	502	853	553
FW41US2	305	652	353	703
FW42US2	555	652	603	703
FW43US2	805	652	853	703
FW51US2	305	802	353	853
FW52US2	555	802	603	853
FW53US2	805	802	853	853
FW54US2	1055	802	1103	853
FW61US2	305	952	353	1003
FW62US2	555	952	603	1003
FW63US2	805	952	853	1003
FW64US2	1055	952	1103	1003
FW71US2	305	1102	353	1153
FW72US2	555	1102	603	1153
FW73US2	805	1102	853	1153



General description

Surface mounting enclosures for domestic and commercial electrical distribution.

Included in delivery

- enclosures with door,
- carrier rails with complete board,
- device covers with 46mm slots, with complete board,

Complies with

IEC 61 439-3


Nominal voltage

AC 230/400V, 50Hz

Current rating

for devices up to 125A

Protection class

II (insulation protected) 

IP rating

IP44

Protection details

Protection against direct contact: IP3X behind the door

Protection with indirect contact: insulation protection

Door

Frontal fastening, with internal hinges, all adjustable, removable without tools, optionally attachable on right or left, width from 800mm double door, opening angle 110°.

Door lock

Twist release lock, exchangeable with other locks, 3 point bar locks on double door cabinet.

quickconnect terminals or brass terminals (according to the versions)

Please contact us.

Colour

RAL 9010 (pure white)

Cable entries

Cable entry plates top and bottom made of plastic to feed in the cable from the front.

Material

Housing and door made of steel, powder coated.

Carrier rails

Steel, powder coated.

Supports

Plastic

Device rails

Steel, galvanised

Covers and knockouts

Plastic

Glow wire test for plastic parts

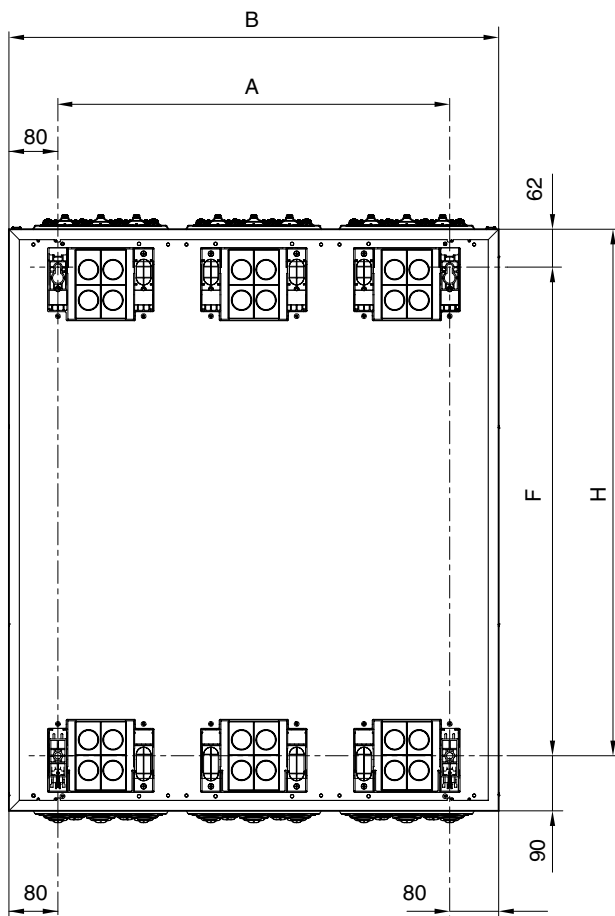
IEC 60 695-2-10

IEC 60 695-2-11: 750°C

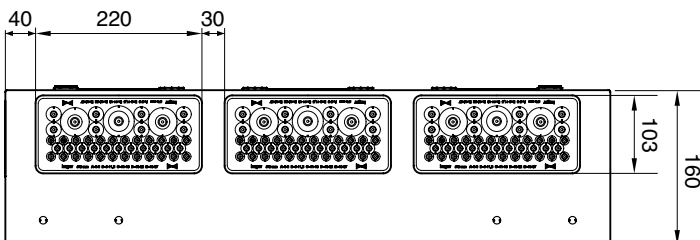
	Height (mm)	Width (mm)	Depth (mm)	DIN rails (12 mod.)	Fields across	Nr of modules	IP class (standard)	PE/N terminals (per field)
FWB31S/GS	500	300	160	3	1	36	IP44	2x(4x25mm ² + 14x4mm ²)
FWB32S/GS	500	550	160	3	2	72	IP44	2x(4x25mm ² + 14x4mm ²)
FWB33S/GS	500	800	160	3	3	108	IP44	2x(4x25mm ² + 14x4mm ²)
FWB34S/GS	500	1050	160	3	4	144	IP44	2x(4x25mm ² + 14x4mm ²)
FWB41S/GS	650	300	160	4	1	48	IP44	2x(5x25mm ² + 17x4mm ²)
FWB42S/GS	650	550	160	4	2	96	IP44	2x(5x25mm ² + 17x4mm ²)
FWB43S/GS	650	800	160	4	3	144	IP44	2x(5x25mm ² + 17x4mm ²)
FWB44S/GS	650	1050	160	4	4	192	IP44	2x(5x25mm ² + 17x4mm ²)
FWB51S/GS	800	300	160	5	1	60	IP44	2x(6x25mm ² + 20x4mm ²)
FWB52S/GS	800	550	160	5	2	120	IP44	2x(6x25mm ² + 20x4mm ²)
FWB53S/GS	800	800	160	5	3	180	IP44	2x(6x25mm ² + 20x4mm ²)
FWB54S/GS	800	1050	160	5	4	240	IP44	2x(6x25mm ² + 20x4mm ²)
FWB61S/GS	950	300	160	6	1	72	IP44	2x(6x25mm ² + 20x4mm ²)
FWB62S/GS	950	550	160	6	2	144	IP44	2x(6x25mm ² + 20x4mm ²)
FWB63S/GS	950	800	160	6	3	216	IP44	2x(6x25mm ² + 20x4mm ²)
FWB64S/GS	950	1050	160	6	4	288	IP44	2x(6x25mm ² + 20x4mm ²)
FWB71S/GS	1100	300	160	7	1	84	IP44	2x(6x25mm ² + 20x4mm ²)
FWB72S/GS	1100	550	160	7	2	168	IP44	2x(6x25mm ² + 20x4mm ²)
FWB73S/GS	1100	800	160	7	3	252	IP44	2x(6x25mm ² + 20x4mm ²)
FWB74S/GS	1100	1050	160	7	4	336	IP44	2x(6x25mm ² + 20x4mm ²)

FWB surface enclosures

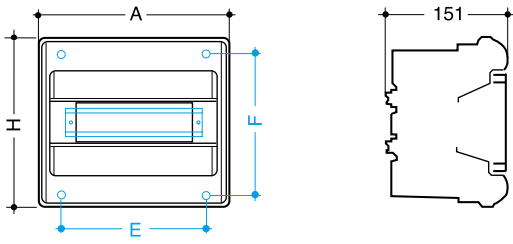
Dimensions (mm)



References	Dimensions			
	H	B	A	F
FWB31S/GS	500	300	348	140
FWB32S/GS	500	550	348	390
FWB33S/GS	500	800	348	640
FWB34S/GS	500	1050	348	890
FWB41S/GS	650	300	498	140
FWB42S/GS	650	550	498	390
FWB43S/GS	650	800	498	640
FWB44S/GS	650	1050	498	890
FWB51S/GS	800	300	648	140
FWB52S/GS	800	550	648	390
FWB53S/GS	800	800	648	640
FWB54S/GS	800	1050	648	890
FWB61S/GS	950	300	798	140
FWB62S/GS	950	550	798	390
FWB63S/GS	950	800	798	640
FWB64S/GS	950	1050	798	890
FWB71S/GS	1100	300	948	140
FWB72S/GS	1100	550	948	390
FWB73S/GS	1100	800	948	640
FWB74S/GS	1100	1050	948	890



vector security



Dimensions (in mm)

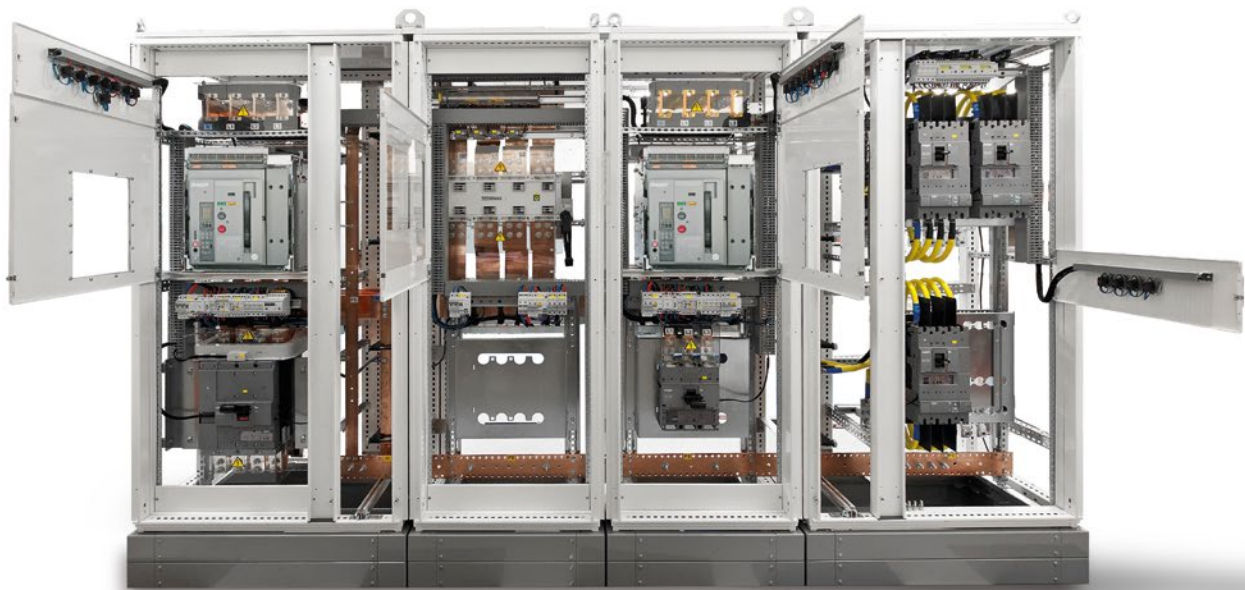
References	No. of rows	No. of rows	Enclosure dimension		Fixing centres	
			A	H	E	F
VE105A	6 mod.	1	165	190	108	158
VE109A	10 mod.	1	237	210	180	173

Cable entry gland sizes

Cable gland print			Delivered cable gland
References	Top and bottom prints	Side	
VE105A/U	1 x M20 + 1 x M25 + 1 x M20/32	2 x 16	2 x M20 + 2 x M25 + 1 x M32
VE109A	1 x M20/32 + 1 x M25 + 3 x M20	2 x 16	4 x M20 + 2 x M25 + 1 x M32

Main switchboards

Our main switchboard range is composed of a wide choice of references and allows to achieve all combinations needed for your projects. Secure and aesthetic, they have been developed as solutions for modern commercial electrical distribution systems.



invicta TPN125 type B distribution board	2.2
invicta TPN250 type B distribution board	2.4
invicta 250A panel board	2.6
invicta 400A panel board	2.7
invicta 630/800A panel board	2.8
enclosed fuse combination switches	2.10
enclosed load break switches	2.12
quadro4	2.14
quadro5	2.22
quadro+	2.28
quadro equipment units	2.48
quadro distribution system	2.58
orion plus	2.71
orion.inox	2.92
orion.tech	2.102
quadro automation	2.104
IP55 control desk monobloc enclosures	2.109
technical guide	2.110

Main switchboards

invicta TPN125 type B distribution board

invicta 125A type B distribution board range is a solution for commercial installations. The invicta range includes both 125A boards with multiple incomer choices. The range is presented in flush and surface mounting enclosures and includes boxes with capacities of 4 ways up to 24 ways in fixed and split load types.

Delivered with

- neutral and earth brass terminal,
- plain door,
- 125A rated pan assembly,
- 100A rated JK1L1003SM link kit for fixed version or 100A rated JK1L1003SMSL link kit for fixed version.

Technical data

- IP41
- class I
- nominal input current: 125A

- nominal output current: 63A
- rated voltage (Ue): 240/400V AC - 50Hz
- insulation voltage (Ui): 440V
- rated impulse withstand voltage (Uimp): 4kV for 0.2s
- Icw = 20kA
- incomer DIN rail mounting
- colour : powder coat grey white RAL 9002
- 1.0mm thickness steel
- metallic enclosure
- 115mm depth
- pre-punched gland

Comply with

BS EN 61 439-1 and -3

ASTA certified insulated tinned copper busbar assembly.



JK1B08S1

TPN125 type B distribution boards fixed load boards

Description	Cat. ref. flush	surface
4 ways	JK1B04F1	JK1B04S1
6 ways	JK1B06F1	JK1B06S1
8 ways	JK1B08F1	JK1B08S1
10 ways	JK1B10F1	JK1B10S1
12 ways	JK1B12F1	JK1B12S1
14 ways	JK1B14F1	JK1B14S1
16 ways	JK1B16F1	JK1B16S1
18 ways	JK1B18F1	JK1B18S1
24 ways	JK1B24F1	JK1B24S1



JK1B042S1

TPN125 type B distribution boards split load boards

Description	Cat. ref. flush	surface
2+2 ways	JK1B022F1	JK1B022S1
4+2 ways	JK1B042F1	JK1B042S1
4+4 ways	JK1B044F1	JK1B044S1
6+2 ways	JK1B062F1	JK1B062S1
6+4 ways	JK1B064F1	JK1B064S1
6+6 ways	JK1B066F1	JK1B066S1
8+2 ways	JK1B082F1	JK1B082S1
8+4 ways	JK1B084F1	JK1B084S1
8+6 ways	JK1B086F1	JK1B086S1
8+8 ways	JK1B088F1	JK1B088S1
10+4 ways	JK1B104F1	JK1B104S1

Extension boxes for JK1 TPN125 type B

Description	Cat. ref. flush	surface
16 modules DIN extension box (15 modules available)	JK1E16F	JK1E16S
32 modules DIN extension box	JK1E32F	JK1E32S
48 modules DIN extension box	JK1E48F	JK1E48S

Spreader boxes for JK1 TPN125 type B

Description	Cat. ref. flush	surface
JK1 cable spreader box	JK1E01F	JK1E01S

Joint kit for spreader and extension box

Description	Cat. ref. flush	surface
JK1 - Joint kit for spreader box	JK1XJKEF	JK1XJKES

Incoming link kits

Description	Cat. ref.
3P 80A - 125A MCB incomer kit	JK1L1253MM
4P 80A - 125A MCB incomer kit	JK1L1254MM
3P 100A switch or RCCB incomer kit	JK1L1003SR
3P 125A switch disconnecter kit	JK1L1253SK
125A direct connection kit	JK1L1254D
3P 63A/100A switch disconnecter/RCCB or 3P 63A MCB incomer kit (only for fixed load)	JK1L1003SM
4P 63A/100A switch disconnecter/RCCB or 4P 63A MCB incomer kit (only for fixed load)	JK1L1004SM
3P 63A/100A switch disconnecter/RCCB or 3P 63A MCB incomer kit (only for split load)	JK1L1003SMSL
4P 63A/100A switch disconnecter/RCCB or 4P 63A MCB incomer kit (only for split load)	JK1L1004SMSL
125A 3 poles top link kit	JK1L1253TL



JK1L1004SM

Shrouds

Description	Cat. ref.
incomer shroud in 125A fixed load board in 9M without cutout	JK1XISF0
incomer shroud in 125A fixed load board in 9M with 3M cutout	JK1XISF3
incomer shroud in 125A split load board in 13M with 7M cutout	JK1XISS7
incomer shroud in 125A split load board in 13M with 11M cutout	JK1XISS11
incomer shroud in 125A split load board in 13M with 13M cutout	JK1XISS13
top busbar shroud	JK1XTBS

Terminals

Description	Cat. ref.
neutral terminal cover IP2X	JK1XNC
spare neutral terminal (4 ways)	JK1XSNT
spare neutral terminal extra (10 ways)	JK1XSNTE
neutral terminal support (4 ways)	JK1XNTS
neutral terminal link support	JK1XNTLS



JK1XSNT

Accessories

Description	Cat. ref.
1 module blank for incomer cutout	JK1XBSP
single phase blank for outgoing cutout	P032H
busbar protective boot	P100H
2 pieces of gland plate with screw for 125A for flush version board	JK1XGPF
2 pieces of gland plate with screw for 125A for surface version board	JK1XGPS
key lock for distribution boards	JK1XKLS



JK1XBSP

invicta 250A TPN board range is a solution for commercial electrical installations. The invicta range includes both 250A boards with MCCB incomer or direct link. The range is presented in surface mounting enclosures and includes boxes with capacities of 4 ways up to 24 ways in fixed load types.

Delivered with

- neutral and earth brass terminal,
- plain door,
- 250A rated pan assembly.

Technical data

- IP41
- class I
- nominal current (In): 250A
- rated voltage (Ue): 240/415V AC - 50Hz
- insulation voltage (Ui): 690V

- rated impulse withstand voltage (Uimp): 6kV
- Icw: 20 kA at 415V for 0.2 sec. and 25kA for 0.3s
- colour: powder coat grey, white RAL 9002
- 1.2mm thickness steel
- metallic enclosure
- 115mm depth
- reversible door

Comply with

BS EN 61 439-1 and -3

ASTA certified insulated tinned copper busbar assembly.



JK2B08S1

TPN250 type B distribution boards fixed load boards

- link kits are not supplied with standard, please order I/e link kits separately

Description	Cat. ref. flush	surface
4 ways	JK2B04F1	JK2B04S1
6 ways	JK2B06F1	JK2B06S1
8 ways	JK2B08F1	JK2B08S1
10 ways	JK2B10F1	JK2B10S1
12 ways	JK2B12F1	JK2B12S1
14 ways	JK2B12F1	JK2B14S1
16 ways	JK2B16F1	JK2B16S1
18 ways	JK2B18F1	JK2B18S1
24 ways	JK2B24F1	JK2B24S1

Extension boxes for JK2 TPN250 type B

Description	Cat. ref. flush	surface
16 modules DIN extension box (15 modules available)	JK2E16F	JK2E16S
32 modules DIN extension box	JK2E32F	JK2E32S
48 modules DIN extension box	JK2E48F	JK2E48S

Spreader boxes for JK2 TPN250 type B

Description	Cat. ref. flush	surface
JK2 cable spreader box	JK2E01F	JK2E01S

Joint kits

Description	Cat. ref. flush	surface
for spreader and extension box	JK2XJKEF	JK2XJKES

Incoming link kits

Description	Cat. ref.
3P 160A switch disconnecter incomer kit for JK 250A	JK2L1603SK
3P 200/250A switch disconnecter incomer kit for JK 250A	JK2L2503SK
3P 160A MCB / MCS incomer kit for JK 250A	JK2L1603MH
3P 200/250A MCB / MCS incomer kit for JK 250A	JK2L2503MH
3P 200/250A direct connection kit	JK2L2503D
4P 125/160A MCCB incomer kit for JK 200/250A	JK2L1604MH
4P 250A MCCB incomer kit for JK 250A	JK2L2504MH
4P 200/250A direct connection kit	JK2L2504D

Switch disconnectors

Description	Cat. ref.
3P 160A switch disconnecter - AC22	JK160S
3P 160A switch disconnecter - AC23	JK161S
3P 200A switch disconnecter - AC23	JK200S
3P 250A switch disconnecter - AC22	JK250S



JK200S

Switch on covers

Description	Cat. ref.
13M blank for 125/160A switch on cover	JK2XBSK1
13M blank for 200/250A switch on cover	JK2XBSK2
13M blank for 125/160A MCCB / MCS on cover	JK2XBMH1
13M blank for 200/250A MCCB / MCS on cover	JK2XBMH2



JK2XB..

Accessories

Description	Cat. ref.
1 module incomer blank	P032H
busbar protective boot	P100H
single phase blank for TPN boards	JK1XBSP
1/4 turn lock for distribution boards	JK1XKLS
boards neutral terminal cover IP2X	JK1XNC
spare neutral terminal (4 ways)	JK1XSNT
spare neutral terminal extra (10 ways)	JK1XSNT E
2 pieces of gland plate with screws for 250A flush boards	JK2XGPF
2 pieces of gland plate with screws for 250A surface boards	JK2XGPS



JK1XSNT



P032H



JK1XBSP



JK1XNC

invicta 250A panel board range is a solution for commercial electrical installations. The invicta range includes both 250A boards with MCCBs, isolating switches or direct link incomers. The range is presented in surface mounting enclosures and includes boxes with capacities of 2 ways up to 16 ways in fixed load types.

Delivered with

- neutral and earth brass terminal,
- plain door,
- 250A rated pan assembly.

Technical data

- IP41
- class I
- nominal current (In): 250A
- rated voltage (Ue): 240/415V AC - 50Hz
- insulation voltage (Ui): 690V

- rated impulse withstand voltage (Uimp): 6kV
- Icw for 250A busbar: 25kA at 415V for 0.3 sec.
- colour: epoxy powder coating RAL 9002
- metallic enclosure
- 1.5mm thickness sheet steel
- 160mm depth
- reversible door.

Comply with

BS EN 61 439-1 and -3

ASTA certified insulated tinned copper busbar assembly.



JN2B0008S1

invicta 250 panel board system 250A incoming and 125A (x160) MCCB outgoing

- surface mounted
- link kits are not supplied with standard, please order I/e link kits separately

Description	Cat. ref.
2 ways	JN2B00002S1
4 ways	JN2B00004S1
6 ways	JN2B00006S1
8 ways	JN2B00008S1
10 ways	JN2B00010S1
12 ways	JN2B00012S1
16 ways	JN2B00016S1

Incoming kits

Description	Cat. ref.
250A 3P MCCB incomer kit	JN2L2503MH
250A 3P isolator incomer kit	JN2L2503SK
250A direct incomer kit	JN2L2503D

Switch disconnecter

Description	Cat. ref.
switch 3 x 250A 400V	JK250S

Extension boxes

Description	Cat. ref.
250A spreader box	JN2E01S
250A DIN rail box - 20 modules	JN2E20S

Accessories / spares

Description	Cat. ref.
single pole blanking plate 125A frame	JN2XBSP
keylock for distribution board	JK1XKLS

The three phases and neutral metal clad of invicta 400A panel board range is a solution for commercial installations. The invicta range includes both 400A boards with MCCBs or direct link incomers. Suitable for MCCBs incomers and outgoing. The range is presented in surface mounting enclosures and includes boxes with capacities of 4 ways up to 16 ways in fixed load types.

Delivered with

- neutral and earth brass terminal,
- plain door,
- 400A rated pan assembly.

Technical data

- IP41
- class I
- nominal current (In): 400A
- rated voltage (Ue): 240/415V AC - 50Hz

- insulation voltage (U_i): 690V
- rated impulse withstand voltage (U_{imp}): 6kV
- Icw for 400A busbar: 35kA at 415V for 1 sec.
- colour: epoxy powder coating RAL 9002
- metallic enclosure
- 1.5mm thickness sheet steel
- 200mm depth
- removable pre-punched top and bottom gland plates.

Comply with

BS EN 61 439-1 and -3

ASTA certified insulated tinned copper busbar assembly.

invicta 400 panel board system 400A incoming and up to 125A (x160) outgoing fixed load boards

Description	Cat. ref.
4 ways	JN4B00004S1
6 ways	JN4B00006S1
8 ways	JN4B00008S1
10 ways	JN4B00010S1
12 ways	JN4B00012S1
16 ways	JN4B00016S1



JN4B00008S1

invicta 400 panel board system 400A incoming and up to 125A (x160) outgoing split load boards

Description	Cat. ref.
2 ways 250A + 2 ways 125A	JN4B00202S1
2 ways 250A + 4 ways 125A	JN4B00204S1
2 ways 250A + 6 ways 125A	JN4B00206S1
2 ways 250A + 8 ways 125A	JN4B00208S1
2 ways 250A + 10 ways 125A	JN4B00210S1
2 ways 250A + 14 ways 125A	JN4B00214S1

Incoming kits

Description	Cat. ref.
400A 3P MCCB incomer kit	JN4L4003MH
400A 3P MCCB extension bar	JN4L4003EB
400A 3P direct incomer kit	JN4L4003D

Extension boxes

Description	Cat. ref.
400A spreader box	JN4E01S
400A small DIN rail box (125A outgoing only) - 24 modules	JN4E24S
400A large DIN rail box (250A+125A outgoing only) - 32 modules	JN8E32S

Accessories / spares

Description	Cat. ref.
single pole blanking plate 125A frame	JN2XBSP
three pole blanking plate 250A frame	JN4XBTP
keylock for distribution board	JK1XKLS



JN2XBSP

The three phases and neutral metal clad of invicta 630/800A panel board range is a solution for commercial electrical installations. The invicta range includes both 630/800A boards with MCCBs or direct link incomers. Suitable for MCCBs incomers and outgoing. The range is presented in surface mounting enclosures and includes boxes with capacities of 4 ways up to 16 ways in fixed load types.

Delivered with

- neutral and earth brass terminal,
- plain door,
- 630/800A rated pan assembly.

Technical data

- IP41
- class I
- nominal current (In): 630/800A
- rated voltage (Ue): 240/415V AC - 50Hz

- insulation voltage (U_i) : 690V
- rated impulse withstand voltage (U_{imp}): 6kV
- Icw for 630/800A busbar: 40kA for 1 sec. or 43kA for 0.2 sec
- colour: epoxy powder coating RAL 9002
- metallic enclosure
- 1.5mm thickness sheet steel
- 200mm depth
- removable pre-punched top and bottom gland plates.

Comply with

BS EN 61 439-1 and -3

ASTA certified insulated tinned copper busbar assembly.



JN8B00008S1

invicta 630/800A panel board system up to 630/800A incoming 125A (x160) MCCB outgoing

Description	Cat. ref.
4 ways 125A	JN8B00004S1
6 ways 125A	JN8B00006S1
8 ways 125A	JN8B00008S1
10 ways 125A	JN8B00010S1
12 ways 125A	JN8B00012S1
16 ways 125A	JN8B00016S1

invicta 630/800A panel board system up to 630/800A incoming 250A (x250) MCCB outgoing

Description	Cat. ref.
4 ways 250A	JN8B00400S1
6 ways 250A	JN8B00600S1
8 ways 250A	JN8B00800S1
10 ways 250A	JN8B01000S1
12 ways 250A	JN8B01200S1
16 ways 250A	JN8B01600S1

invicta 630/800A panel board system up to 630/800A incoming 250A (x250) MCCB outgoing and up to 125A (x160) MCCB outgoing

Description	Cat. ref.
2 ways 250A + 2 ways 125A	JN8B00202S1
2 ways 250A + 4 ways 125A	JN8B00204S1
2 ways 250A + 6 ways 125A	JN8B00206S1
2 ways 250A + 8 ways 125A	JN8B00208S1
2 ways 250A + 10 ways 125A	JN8B00210S1
2 ways 250A + 14 ways 125A	JN8B00214S1

**invicta 630A/800A panel board system up to 630/800A incoming
up to 250A (x250) MCCB outgoing and up to 125A (x160) MCCB outgoing**

Description	Cat. ref.
4 ways 250A + 2 ways 125A	JN8B00402S1
4 ways 250A + 4 ways 125A	JN8B00404S1
4 ways 250A + 6 ways 125A	JN8B00406S1
4 ways 250A + 8 ways 125A	JN8B00408S1
4 ways 250A + 10 ways 125A	JN8B00410S1

**invicta 630A/800A panel board system up to 630/800A incoming
up to 250A (x250) MCCB outgoing**

Description	Cat. ref.
6 ways 250A + 6 ways 125A	JN8B00606S1
6 ways 250A + 8 ways 125A	JN8B00608S1

Incoming kits

Description	Cat. ref.
630A 3P MCCB incomer kit	JN8L6303MH
630A 3P direct incomer kit	JN8L6303D
800A 3P MCCB incomer kit	JN8L8003MH
800A 3P direct incomer kit	JN8L8003D
630A 3P MCCB extension bar	JN8L6303EB
800A 3P MCCB extension bar	JN8L8003EB

Extension boxes

Description	Cat. ref.
800A spreader box	JN8E01S
800A DIN rail box - 32 modules	JN8E32S

Accessories / spares

Description	Cat. ref.
single pole blanking plate 125A frame	JN2XBSP
three pole blanking plate 250A frame	JN4XBTP
keylock for distribution board	JK1XKLS



JN4XBTP

The range of enclosed FCS have been designed to match the TP&N range of distribution boards. The number of enclosure sizes has been optimized, to ensure an easy installation. The FCS products are designed to isolate individual circuits. The range is presented in surface mounting enclosures and includes 3 versions of boxes:

- SPSN 20 - 100A (4 ratings)
- TP&N 20 - 800A (12 ratings)
- TPSN 20 - 800A (12 ratings)

Delivered with

- fuse combination switch
- fuse links, fitted in all 4 poles fuse combination switches
- extended rotary handle
- plain door

Technical data

- IP41
- nominal current (In): 20A up to 800A
- rated voltage (Ue): 415V AC
- utilisation category: AC23A and AC23B
- colour: epoxy powder coating RAL 9002
- metallic enclosure
- 1.2mm thickness
- extra cabling space

Comply with

EN 60947-3, IEC 60947-3
Sequence 1 & 4

Enclosed fuse combination switch single pole switched neutral

Description	Size h x w x d (mm)	Utilisation category	Fuse type	Cat. ref.
20A	250 x 200 x 150	AC23A	A1	JFB202U
32A	250 x 200 x 150	AC23A	A1	JFB203U
63A	325 x 300 x 150	AC23A	A2-A3	JFD206U
100A	400 x 375 x 200	AC23A	A4	JFE210U



JFD306U

Enclosed fuse combination switch triple pole and neutral

Description	Size h x w x d (mm)	Utilisation category	Fuse type	Cat. ref.
20A	250 x 200 x 150	AC23A	A1	JFB302U
32A	250 x 200 x 150	AC23A	A1	JFB303U
63A	325 x 300 x 150	AC23A	A2-A3	JFD306U
100A	400 x 375 x 200	AC23A	A4	JFE310U
125A	500 x 375 x 200	AC23A	B1-B2	JFG312U
160A	500 x 375 x 200	AC23A	B1-B2	JFG316U
200A	500 x 375 x 200	AC23A	B1-B2	JFG320U
250A	500 x 375 x 200	AC23A	B1-B3	JFG325U
315A	650 x 500 x 300	AC23B	B1-B3	JFH331U
400A	650 x 500 x 300	AC23B	B1-B4	JFH340U
630A	800 x 600 x 350	AC23B	C1-C2	JFI363U
800A	800 x 600 x 350	AC23B	C1-C3	JFI380U

Enclosed fuse combination switch triple pole switched neutral

Description	Size h x w x d (mm)	Utilisation category	Fuse type	Cat. ref.
20A	250 x 200 x 150	AC23A	A1	JFB402U
32A	250 x 200 x 150	AC23A	A1	JFB403U
63A	325 x 300 x 150	AC23A	A2-A3	JFD406U
100A	400 x 375 x 200	AC23A	A4	JFE410U
125A	500 x 375 x 200	AC23A	B1-B2	JFG412U
160A	500 x 375 x 200	AC23A	B1-B2	JFG416U
200A	500 x 375 x 200	AC23A	B1-B2	JFG420U
250A	500 x 375 x 200	AC23A	B1-B3	JFG425U
315A	650 x 500 x 300	AC23B	B1-B3	JFH431U
400A	650 x 500 x 300	AC23B	B1-B4	JFH440U
630A	800 x 600 x 350	AC23B	C1-C2	JFI463U
800A	800 x 600 x 350	AC23B	C1-C3	JFI480U

Cable extension boxes triple pole and triple pole switched neutral

Description	Cat. ref.
125A, 160A, 200A, 250A	JZA701
315A, 400A	JZA702
630A, 800A	JZA703

Auxiliary contact

Description	Cat. ref.
1AC type NO	HZF301
1AC type NC	HZF302



HZF301

Terminal cover

Description	Cat. ref.		
	2P	3P	4P
terminal cover 100A	HZF201	-	-
terminal cover 100A - 160A	-	HZF202	HZF203
terminal cover 200A - 400A	-	HZF204	HZF205
terminal cover 630A - 800A	-	HZF206	HZF207



HZF207

The range of enclosed LBS has been designed to match the TP&N range of distribution boards. The number of enclosure sizes has been optimized, to ensure an easy installation.

The LBS products are designed to isolate individual circuits. The range is presented in surface mounting enclosures and includes 2 versions of boxes :

- TPN 20-1600A (14 ratings)
- TPSN 20-1600A (14 ratings)

Delivered with

- load break switch
- plain door
- extended rotary handle

Technical data

- IP41
- nominal current (In): 20A up to 1600A
- rated voltage (Ue): 415V AC
- utilisation category: AC23A / AC23B / AC22B
- colour: epoxy powder coating RAL 9002
- metallic enclosure
- 1.2mm thickness
- extra cabling space

Comply with

IEC 60947-3, EN 60947-3
Sequence 1, 2 and 3



JAB306

Enclosed load break switches triple pole and neutral

Description	Size: h x w x d (mm)	Utilisation category	Cat. ref.
20A	230 x 175 x 105	AC23A	JAB302
32A	230 x 175 x 105	AC23A	JAB303
63A	230 x 175 x 105	AC23A	JAB306
100A	250 x 200 x 150	AC23A	JAB310
125A	300 x 250 x 150	AC23A	JAC312
160A	300 x 250 x 150	AC23A	JAC316
200A	400 x 375 x 200	AC23A	JAE320
250A	400 x 375 x 200	AC23A	JAE325
315A	500 x 375 x 200	AC23A	JAG331
400A	500 x 375 x 200	AC23A	JAG340
630A	650 x 500 x 300	AC23A	JAH363
800A	650 x 500 x 300	AC23B	JAH380
1250A*	1050 x 750 x 300	AC23B	JAH390
1600A*	1050 x 750 x 300	AC22B	JAH392

Enclosed load break switches triple pole switched neutral

Description	Size: h x w x d (mm)	Utilisation category	Cat. ref.
20A	230 x 175 x 105	AC23A	JAB402
32A	230 x 175 x 105	AC23A	JAB403
63A	230 x 175 x 105	AC23A	JAB406
100A	250 x 200 x 150	AC23A	JAB410
125A	300 x 250 x 150	AC23A	JAC412
160A	300 x 250 x 150	AC23A	JAC416
200A	400 x 375 x 200	AC23A	JAE420
250A	400 x 375 x 200	AC23A	JAE425
315A	500 x 375 x 200	AC23A	JAG431
400A	500 x 375 x 200	AC23A	JAG440
630A	650 x 500 x 300	AC23A	JAH463
800A	650 x 500 x 300	AC23B	JAH480
1250A*	1050 x 750 x 300	AC23B	JAH490
1600A*	1050 x 750 x 300	AC22B	JAH492

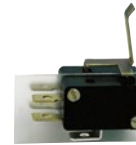
* For these references, please contact us.

Cable extension boxes triple pole and triple pole switched neutral

Description	Cat. ref.
125A, 160A	JZA700
200A, 250A, 315A, 400A	JZA701
630A, 800A	JZA702

Auxiliary contacts

Description	Cat. ref.
20A to 160A, 1NO+1NC	HZC311
20A to 160A, 2NO	HZC312
125A to 1600A, 2x(1NO+1NC)	HZ023



HZ023

Terminal shrouds

Description	Cat. ref.	
	3P	4P
20A to 40A	HZC211	HZC212
63A to 100A	HZC213	HZC214
125A to 160A	HZC201	HZC202
200A to 315A	HZC203	HZC204
400A to 630A	HZC205	HZC206



HZC201

Terminal protection screens






Description	Cat. ref.	
	3P	4P
800A	HZ036	HZ046
1250A to 1600A	HZ037	HZ047



HZ046

260 mm depth		Back plate	Top and bottom panels		Top panel and plinth		Sides (set of 2)	
enclosures height with top and plinth	inside height capacity	ref. for enclosure width:		ref. for enclosure width:		ref. for enclosure width:		ref.
		370 mm	620 mm	370 mm	620 mm	370 mm	620 mm	
500 mm	450 mm	FC110	FC210	FC415 FC416	FC425 FC426	FC445 FC446	FC455 FC456	FC010
650 mm	600 mm	FC111	FC211	FC415 FC416	FC425 FC426	FC445 FC446	FC455 FC456	FC011
800 mm	750 mm	FC112	FC212	FC415 FC416	FC425 FC426	FC445 FC446	FC455 FC456	FC012
950 mm	900 mm	FC113	FC213	FC415 FC416	FC425 FC426	FC445 FC446	FC455 FC456	FC013
1100 mm	1050 mm	FC114	FC214	FC415 FC416	FC425 FC426	FC445 FC446	FC455 FC456	FC014
1250 mm	1200 mm	FC115	FC215	FC415 FC416	FC425 FC426	FC445 FC446	FC455 FC456	FC015
1525 mm	1350 mm	FC116	FC216	FC415 FC416	FC425 FC426	FC445 FC446	FC455 FC456	FC016
1675 mm	1500 mm	2xFC112	2xFC112	FC415 FC416	FC425 FC426	FC445 FC446	FC455 FC456	FC012 + FC012
1825 mm	1650 mm	FC118	FC218	FC415 FC416	FC425 FC426	FC445 FC446	FC455 FC456	FC012 + FC013
1975 mm	1800 mm	FC119	FC219	FC415 FC416	FC425 FC426	FC445 FC446	FC455 FC456	2 x FC013

ref. in blue = IP43

		Full door		Transparent door	Assembling kits	
					horizontal	vertical
						
		delivered with keylock		delivered with keylock		
doors height		ref. for enclosure width: 370 mm 620 mm		ref. for enclosure width: 620 mm	ref.	ref.
450 mm		FC310	FC330	FC340	FC120	FC230
600 mm		FC311	FC331	FC341	FC121	FC230
750 mm		FC312	FC332	FC342	FC122	FC230
900 mm		FC313	FC333	FC343	FC123	FC230
1050 mm		FC314	FC334	FC344	FC124	FC230
1200 mm		FC315	FC335	FC345	FC125	FC230
1350 mm		FC316	FC336	FC346	FC126	FC230
1500 mm		FC317	FC337	FC347	FC122 + FC122	FC230
1650 mm		FC318	FC338	FC348	FC122 + FC123	FC230
1800 mm		FC319	FC339	FC349	2 x FC123	FC230

The range of quadro4 has been designed in order to propose a complete solution from subdistribution enclosure to the main low voltage distribution boards up to 630A. The dimensions of the quadro4 give it an easy accessibility and increased comfort of internal wiring. The range allows to choose enclosure heights from 450 mm up to 1800 mm, width of 370 mm and 640 mm width in wall mounting or floor standing versions and multiple combinations of enclosures.

quadro4 is composed of back plate

- + top and bottom panel kit or top panel and plinth kit
- + kit of 2 sides
- + full or transparent door

Technical data

- indoor use
- IP30, IK07 without door
- IP40, IK08 with closed door
- IP43, IK08 with closed door
- rated insulation voltage: 690V AC
- nominal current (In): 630A
- Icw: 35kA (1s)
- depth: 267 mm
- colour: RAL 9010
- colour of plinth: RAL 7042
- metallic enclosure
- 12/10 mm thickness CR4 steel for the back plate and the sides
- 10/10 mm thickness CR4 steel for the door

Comply with IEC 62 208, IEC 61 439-1 and -2



FC113

Back plate

- for 1500 mm height back plate (2xFC112) , use FC230 association kit,
- the 1650 and 1800 mm back plates are delivered with 2 intermediate pillars

Height (mm)	Cat. ref. width 370 mm	width 620 mm
450	FC110	FC210
600	FC111	FC211
750	FC112	FC212
900	FC113	FC213
1050	FC114	FC214
1200	FC115	FC215
1350	FC116	FC216
1500	FC112 x 2	FC122 x 2
1650	FC118	FC218
1800	FC119	FC219



FC415

Top and bottom panels

- delivered with the pre-mounting screws (unloosable), cable entry

Description	Cat. ref. triple pole & N	triple pole & switched N
delivered with cable entry plate in insulating material and with contractor name plate holder to ensure IP40	FC415	FC425
delivered with cable entry plates in insulating material to ensure IP43 and with contractor name plate holder	FC416	FC426



FC456

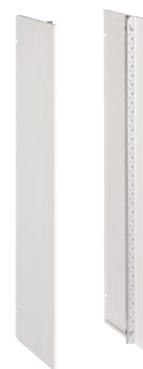
Top panel and plinth

- delivered with the pre-mounting screws (unloosable)
- cable entry and 150mm height plinth

Description	Cat. ref. triple pole & N	triple pole & switched N
delivered with cable entry to ensure IP40	FC445	FC455
delivered with cable entry to ensure IP43	FC446	FC456

Kit of 2 sides

Height (mm)	Cat. ref. width 620 mm
450	FC010
600	FC011
750	FC012
900	FC013
1050	FC014
1200	FC015
1350	FC016
1500	FC012 + FC012
1650	FC012 + FC013
1800	FC013 x 2



FC013

Main switchboards

Full metallic doors

- delivered with adjustable hinges and key lock

Height (mm)	Cat. ref. width 370 mm	width 620 mm
450	FC310	FC330
600	FC311	FC331
750	FC312	FC332
900	FC313	FC333
1050	FC314	FC334
1200	FC315	FC335
1350	FC316	FC336
1500	FC317	FC337
1650	FC318	FC338
1800	FC319	FC339



FC333

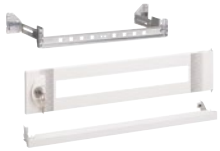
Transparent glazed door

- delivered with adjustable hinges and key lock

Height (mm)	Cat. ref. width 620 mm
450	FC340
600	FC341
750	FC342
900	FC343
1050	FC344
1200	FC345
1350	FC346
1500	FC347
1650	FC348
1800	FC349



FC343



FC350

Equipment unit with door

- for modular devices and DIN rail
- reversible kit
- delivered complete with lock
- adjustable in depth

Description	Cat. ref.
equipment 1 row, 24 modules for enclosure width 620 mm	FC350



FZ597



FZ451



FZ450



FZ449

Locks

- replace the original latch

Description	Cat. ref.
key lock n° 1242E, delivered with 2 keys	FZ597
key lock n° 405, delivered with 2 keys	FZ452
key lock n° 455, delivered with 2 keys	FZ453
lock with male square of 7 mm, chrome plated with 1 key	FZ451
lock with male triangle of 7 mm chrome plated with 1 key	FZ450
lock with double chrome plated bar of 3mm with 1 key	FZ449
plastic spare lock	FZ598N



FC230

Enclosure vertical association kit

- width 370 and 620 mm the continuity of equipments is guaranteed
- 1 set is composed of 2 bolts with screws for connection of the bottoms and of 2 pillars for connection on the sides

Description	Cat. ref.
vertical association kit	FC230



FC123

Enclosure horizontal association kits

- the kit is common for the bottoms of width 370 and 620 mm
- 1 set is composed of 2 bolts with screws for connection of the bottoms and of 2 pillars for connection on the sides

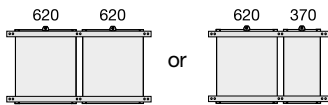
- for bottom of 1650 mm, use 1 x FC 122 + 1 x FC 123
- for bottom of 1800 mm, use 2 x FC 123

Description	for height (mm)	Cat. ref.
horizontal association kit	450	FC120
horizontal association kit	600	FC121
horizontal association kit	750	FC122
horizontal association kit	900	FC123
horizontal association kit	1050	FC124
horizontal association kit	1200	FC125
horizontal association kit	1350	FC126

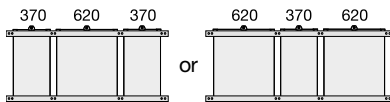
Horizontal link bars

- set of 2 bars delivered with fastening screw on enclosures
- to link several enclosures to facilitate transport or fixing on the wall
- precuts allow to adapt the bars to the desired length
- It is strongly recommended to use the link bars during the association of several bottoms

Description	Cat. ref.
for the association of 2 enclosures 2 x 620 mm or 1 x 620 + 1 x 370 mm	FC192



for the association of 3 enclosures: 2 x 370 + 1 x 620 mm or 2 x 620 + 1 x 370 mm	FC193
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Cable entry plates

- insulating material
- IP43 full plastic plate
- for spare top and bottom entry plates

Description	Cat. ref.
cable entry gland plate	FZ402
full cable entry plate	FZ404



Spare entry plate

Description	Cat. ref. width 370 mm	width 620 mm
spare entry plate IP40, RAL 9010	FC419	FC429



FC419

Schematic holders

- self-adhesive, to stick inside the doors
- A4 format

Description	Cat. ref.
flexible	FZ794
rigid	FZ795D

Wall mounting lugs

- fixed at the back delivered with fastening screws

Description	Cat. ref.
1 set of 2 lugs	FM640



FM640

Partition

- 620 mm width sheet metal plate
- for quadro4 and quadro5

Description	Cat. ref.
partition plate	FC664

		Enclosures depth 260 mm delivered without plinth			Enclosures depth 260 mm and 400 mm delivered with plinth of 150 mm			
enclosures height with top and bottom or plinth	internal equipment height	enclosures width:			enclosures width: (435 mm useful) 450 mm total		(685 mm useful) 700 mm total	
		(685 mm useful) 700 mm total	pair of sides	plinth 150 mm	d. 260 mm	d. 400 mm	d. 260 mm	d. 400 mm
510 mm	450 mm	FM200	FM400	FM450	-	-	-	-
660 mm	600 mm	FM201	FM401	FM450	-	-	-	-
810 mm	750 mm	FM202	FM402	FM450	-	-	-	-
960 mm	900 mm	FM203	FM403	FM450	-	-	-	-
1110 mm	1050 mm	FM204	FM404	FM450	-	-	-	-
1260 mm	1200 mm	FM205	FM405	FM450	-	-	-	-
1410 mm	1350 mm	FM206	FM406	FM450	-	-	-	-
1710 mm	1500 mm	-	-	-	FM107	FM117	FM207	FM217
1860 mm	1650 mm	-	-	-	FM108	FM118	FM208	FM218
2010 mm	1800 mm	-	-	-	FM109	FM119	FM209	FM219
vertical association kit		FM 630+ UC890	-	-	-	-	FM630 possible	
horizontal association kit		FM 635+ UC890	-	-	FM 635+ UC890	FM 635+ UC890	FM 635+ UC890	-

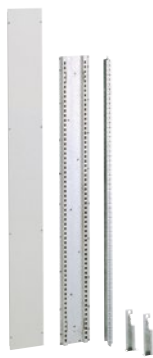
Enclosures
depth 260 mm and
400 mm delivered with
plinth of 150 mm



Side panels



**Busbar compartment
and cable sleeve**



Doors



Enclosures		Side panels		Busbar compartment and cable sleeve		Doors			transparent doors:		functionnal uprights
depth 260 mm and 400 mm delivered with plinth of 150 mm		pair of sides		for enclosure: width		full doors:			transparent doors:		functionnal uprights
(885 mm useful)	900 mm total	d. 260 mm	d. 400 mm	d. 260 mm	d. 400 mm	width	width	width	width	width	d. 400 mm
						435 mm	685 mm	885 mm	685 mm	885 mm	
-	-	-	-	-	-	-	FM530	-	FM540	-	-
-	-	-	-	-	-	-	FM531	-	FM541	-	-
-	-	-	-	-	-	-	FM532	-	FM542	-	-
-	-	-	-	-	-	-	FM533	-	FM543	-	-
-	-	-	-	-	-	-	FM534	-	FM544	-	-
-	-	-	-	-	-	-	FM535	-	FM545	-	-
-	-	-	-	-	-	-	FM536	-	FM546	-	-
FM307	FM317	FM407	FM417	FM427	FM437	FM517	FM537	FM557	FM547	FM567	FM477
FM308	FM318	FM408	FM418	FM428	FM438	FM518	FM538	FM558	FM548	FM568	FM478
FM309	FM319	FM409	FM419	FM429	FM439	FM519	FM539	FM559	FM549	FM569	FM479
-	-	-	-	-	-	-	-	-	-	-	-
FM635+ UC890	-	-	-	-	-	-	-	-	-	-	-

The range of quadro5 proposes a complete solution from subdistribution enclosures to the main low voltage distribution boards. The quadro5 monobloc enclosures are designed for enclosed distribution up to 630A. Delivered without sides, they can be joined horizontally and vertically to create multiple assemblies. The range allows you to choose enclosure heights from 1710 mm up to 2010 mm, depth from 260 mm up to 400 mm width in wall mounting or floor standing versions and multiple combinations of enclosures.

quadro5 is composed of
 structure with back plate, top panel and plinth kit
 + kit of 2 sides
 + full or transparent door

Technical data

- IP30, IK08 without door
- IP55, IK10 with door
- rated insulation voltage : 690V AC
- floor standing nominal current (In): 630A, 35kA (1s)
- wall mounting nominal current (In): 250A, 25kA (1s)
- depth: 260 or 400 mm
- colour: RAL 9010
- colour of plinth: RAL 7042
- metallic enclosure
- extra cabling space
- plinth height: 150 mm
- 12/10 mm thickness CR4 steel for the back plate and the sides
- 10/10 mm thickness CR4 steel for the door

Complies with

IEC 62 208, IEC 61 439



FM208

Enclosures with plinth

- delivered with 2 wall fixing lugs, top and bottom cover plate and 150 mm height plinth

Width (mm)	Total height (mm)	Equipment height (mm)	Depth (mm)	Cat. ref. enclosure	sides
450	1710	1500	260	FM107	FM407
450	1710	1500	400	FM117	FM417
450	1860	1650	260	FM108	FM408
450	1860	1650	400	FM118	FM418
450	2010	1800	260	FM109	FM409
450	2010	1800	400	FM119	FM419
700	1710	1500	260	FM207	FM407
700	1710	1500	400	FM217	FM417
700	1860	1650	260	FM208	FM408
700	1860	1650	400	FM218	FM418
700	2010	1800	260	FM209	FM409
700	2010	1800	400	FM219	FM419
900	1710	1500	260	FM307	FM407
900	1710	1500	400	FM317	FM417
900	1860	1650	260	FM308	FM408
900	1860	1650	400	FM318	FM418
900	2010	1800	260	FM309	FM409
900	2010	1800	400	FM319	FM419



FM204

Boards

- 700 mm width
- delivered with 4 mounting lugs and cover plate

Width (mm)	Total height (mm)	Equipment height (mm)	Depth (mm)	Cat. ref. enclosure	sides
700	510	450	260	FM200	FM400
700	660	600	260	FM201	FM401
700	810	750	260	FM202	FM402
700	960	900	260	FM203	FM403
700	1110	1050	260	FM204	FM404
700	1260	1200	260	FM205	FM405
700	1410	1350	260	FM206	FM406

Note

- for total width of 450 mm, the inside width is 435 mm (with sides)
- for total width of 700 mm, the inside width is 685 mm (with sides)
- for total width of 900 mm, the inside width is 885 mm (with sides), to use with a kit for cable sleeve or busbar compartment cable sleeve or busbar compartment: 200 mm

Kits for cable compartment

- allow to create a cable compartment with cable of 200 mm in 885 mm width enclosure
- delivered with 2 fixing lugs, 1 pillar kit, 1 support of front plates and a full front plate

Description	Depth (mm)	Cat. ref.
for FM307	260	FM427
for FM317	400	FM437
for FM308	260	FM428
for FM318	400	FM438
for FM309	260	FM429
for FM319	400	FM439



FM428

Plinth

- delivered with 4 screws + 4 nuts + cover plates
- dimensions : height = 150 mm, useful width = 685 mm, total width = 700 mm
- RAL 9042



FM450

Description	Depth (mm)	Cat. ref.
for enclosures of width 700 mm	260	FM450

Functional uprights

Description	Depth (mm)	Cat. ref.
for FM317	400	FM477
for FM318	400	FM478
for FM319	400	FM479

Plain metallic doors

- delivered with hinges, equipped with triangle lock (for locks, see next page), reversible doors
- distance between door and front plate is 54 mm

Height (mm)	Cat. ref.		
	width 450 mm	width 700 mm	width 900 mm
510	-	FM530	-
660	-	FM531	-
810	-	FM532	-
960	-	FM533	-
1110	-	FM534	-
1260	-	FM535	-
1410	-	FM536	-
1710	FM517	FM537	FM557
1860	FM518	FM538	FM558
2010	FM519	FM539	FM559



FM532



FM568

Transparent glazed doors

- in sheet steel with a tempered smoked grey glass plate, thickness 3 mm
- delivered with hinges and equipped with triangle lock

Height (mm)	Cat. ref.		
	width 450 mm	width 700 mm	width 900 mm
510	-	FM540	-
660	-	FM541	-
810	-	FM542	-
960	-	FM543	-
1110	-	FM544	-
1260	-	FM545	-
1410	-	FM546	-
1710	-	FM547	FM567
1860	-	FM548	FM568
2010	-	FM549	FM569



FZ597



FZ449



FZ451



FZ450

Locks

- dedicated to wall mounting boards
- replace the original lock for the following doors height: 510 mm, 660 mm, 810 mm, 960 mm, 1110 mm, 1260 mm, 1410 mm

Description	Cat. ref.
key lock n° 1242E, delivered with 2 keys	FZ597
key lock n° 405, delivered with 2 keys	FZ452
key lock n° 455, delivered with 2 keys	FZ453
lock with male square of 7 mm, chrome plated with 1 key	FZ451
lock with male triangle of 7 mm chrome plated with 1 key	FZ450
lock with double chrome plated bar of 3mm with 1 key	FZ449
IP44 door shield handle	FZ598N



FZ515



FZ517

Inserts for locks

- replace the lock of origin on the doors height: 1710 mm, 1860 mm, 2010 mm

Description	Cat. ref.
triangle insert 8 mm	FZ515
square insert 6 x 6 mm	FZ517
rotary handle lock with key 1242E lock cylinder	FZ508
triangle key + square + double bar	FZ850



FZ680

IP55 handle

- dedicated to floor standing enclosures

Description	Cat. ref.
without key insert	FZ680
padlockable handle, Ø 7 mm hole, padlock not included	FL78Z

Inserts for locks for handle

- replace the lock of origin on the doors height:
1710 mm, 1860 mm, 2010 mm



FL74Z-FL75Z-FL76Z-FL77Z

Description	Cat. ref.
half cylinder triangle 8 mm insert	FL74Z
half cylinder double bit Ø 3 mm insert	FL75Z
half cylinder squared 8 x 8 mm insert	FL76Z
half cylinder with key E333 key insert	FL77Z
half cylinder squared 6 x 8 mm insert	FL98Z

Association kits

Description	Cat. ref.
kit of vertical association for boards including: 4 screws + M12 nuts, 4 washers, 1 self-adhesive seal	FM630
kit of horizontal association for boards and enclosures including: 6 screws + M6 nuts, 1 self-adhesive seal	FM635



FM630

Back plates

Description	Cat. ref.
h.150 x w.600 mm	FM482
h.200 x w.600 mm	FM483
h.300 x w.600 mm	FM484
h.400 x w.600 mm	FM485
h.600 x w.600 mm	FM486
h.150 x w.800 mm	FM492
h.200 x w.800 mm	FM493
h.300 x w.800 mm	FM494
h.400 x w.800 mm	FM495
h.600 x w.800 mm	FM496

Schematic holders

- size A4

Description	Cat. ref.
flexible, in plastic material, self-adhesive to stick inside the doors	FZ794
rigid, in sheet metal, with adhesive to stick inside the doors	FZ795D



FZ794

2 wall mounting lugs

- for quadro4 and quadro5
- to fix the enclosures on the wall, the lugs can be positioned vertically and horizontally

Description	Cat. ref.
2 wall mounting lugs	FM640



FM640

2 lifting rings

- allow the transport (lifting) of a unit, maximum weight 250 kg
- including 2 rings and 2 nuts M12 screws

Description	Cat. ref.
2 lifting rings	FM653



FM653

quadro+ includes assemblies, equipment and accessories required to build distribution enclosures with IP30 or IP55 protection levels up to 4000A with or without solid or transparent door.

The range includes:

- L 450 mm assemblies to be used as busbar or cable compartments or to be equipped with kits for modules and blocks with a width of 10 DIN modules
- L700 mm assemblies to be equipped with kits for modules and blocks with a width of 24 DIN modules
- L900 mm assemblies to be equipped with kits for modules and blocks with a width of 36 DIN modules
- L1000 mm assemblies to be equipped with kits for modules and blocks with a width of 24 DIN modules + 300 mm (usable 200 mm) busbar compartment
- Solid and transparent doors

- IP30 trim cornice

- All assemblies are available in heights of 1900 and 2100 mm and depths of 400, 600 and 800 mm
- Solid front panels, kits for modular apparatus, kits for moulded-case circuit-breakers
- Internal doors to enable the installation of control enclosures to supplement the distribution enclosures
- Internal panels
- DIN cable-trays
- Universal and pre-drilled panels
- Vertical and horizontal separation panels
- Bar systems up to 1600A
- Distribution blocs and staged busbar blocs
- Horizontal and vertical ducts

Technical data:

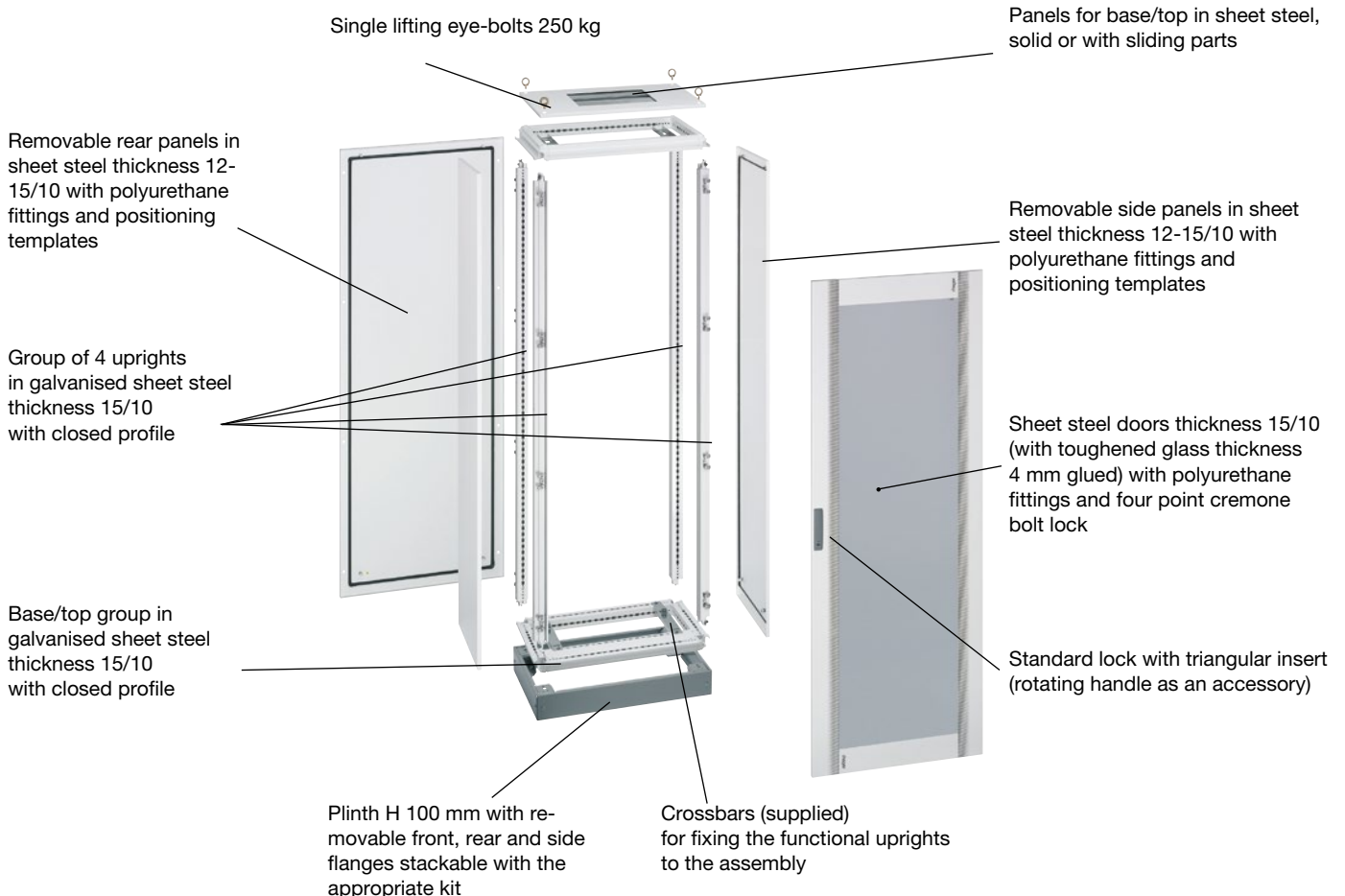
- Modular, composable assembly allowing side-by-side positioning
- Uprights, base and top in galvanised sheet steel, thickness 15/10 in closed profile
- Join between base, top and uprights using patent three dimensional die-cast joint and only 8 screws
- Base panels/top panels, side panels, rear panels and solid / transparent doors constructed of sheet steel with a thickness of 12-15/10 with polyurethane seals continuously glued by a robot-controlled process;
- Interior panels with DIN profiles, pre-drilled brackets and assembly accessories made in galvanised and Sendzimir sheet steel
- Transparent doors fitted with toughened safety glass thickness 4 mm continuously glued with polyurethane adhesive by a robot-controlled process
- Painted using epoxy powder smooth finish colour RAL 9010 for assembly, doors, fitting kits and RAL 7042 for the plinths, after previous washing, phosphating and passivation of the metal sheets.
- Equipotential joints between the various parts of the assembly and between the assembly and the fitting kits, made by contact and

without the need for joins in the cable.

- Reversible doors, fitted with clasp and cremone bolts having locks with interchangeable triangular insert (rotating handle with interchangeable inserts provided as an accessory). Installable front and rear.
- Plinths height 100 mm with removable front, rear and side flanges and with holes for fixing to the floor.
- Lifting eye-bolts for single and series enclosures (supplied as an accessory)
- IP55 protection level (IP30 with door open/without door)
- Separation matrix up to 3a
- Rated operating voltage 690 V
- Rated insulation voltage 690 V
- Rated current 1600A
- Rated overload current 50 kA

Complies with

- CEI EN 62208
- CEI EN 61439-1/2 standard with CESI test-reports
- Internal installation

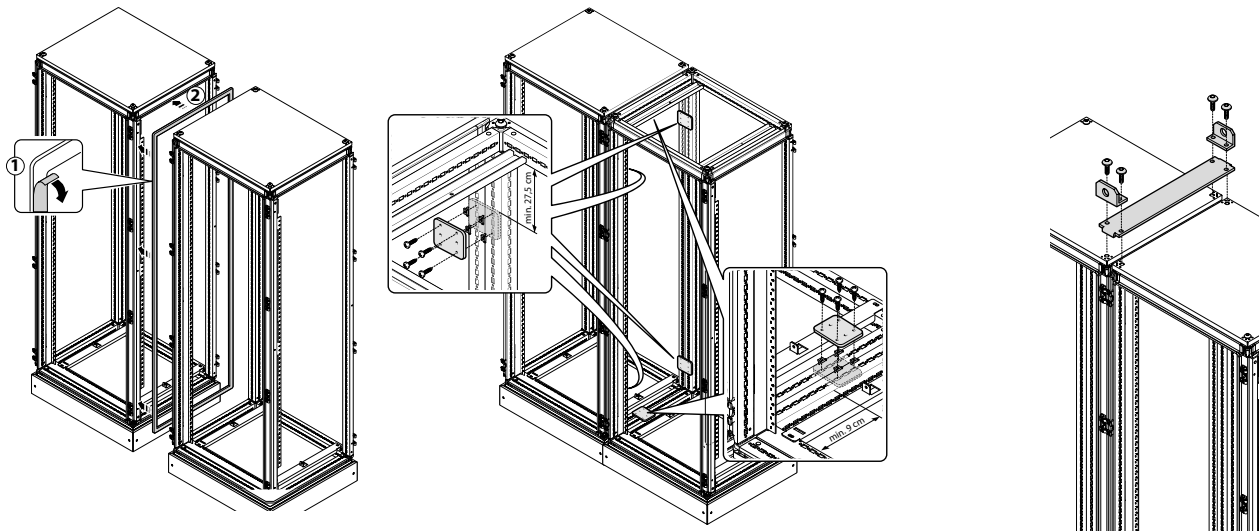


Side-by-side positioning

quadro+ assemblies can be placed side by side without specific constraints on size or combination, while maintaining unchanged the IP55 protection level using only:
2 side-coupling elements article 10894 - FN950*; adhesive fittings article 10890 - UC890*;
covering flange article:
- FN942E for P400 mm enclosures
- FN943E for P600 mm enclosures
- FN944E for P800 mm enclosures

Even in the case of assemblies positioned side by side, equipotential linking is made by contact, without the need for joins in the cable

For lifting the enclosures, eye bolts are also provided for single enclosures (art. 17880 - FZ767* max load 250 kg) and for enclosures placed side by side (art. FZ760E max load 500 kg).



Modular construction

quadro+ is designed to combine the concept of composability with the concept of modularity in order to simplify as much as possible the planning of the enclosure and the choice of the relevant components.

This modular design is constructed on a 50 mm base vertical module and on a 250 mm base horizontal module.

All quadro+ structural components (uprights, vertical dividing uprights, functional uprights, doors, etc.) as well as all the fitting components (kits for modular and moulded units, solid panels, internal panels, separators, etc.), are constructed in a height which is a multiple of the 50 mm module and a width which is a multiple of the 250 mm module.

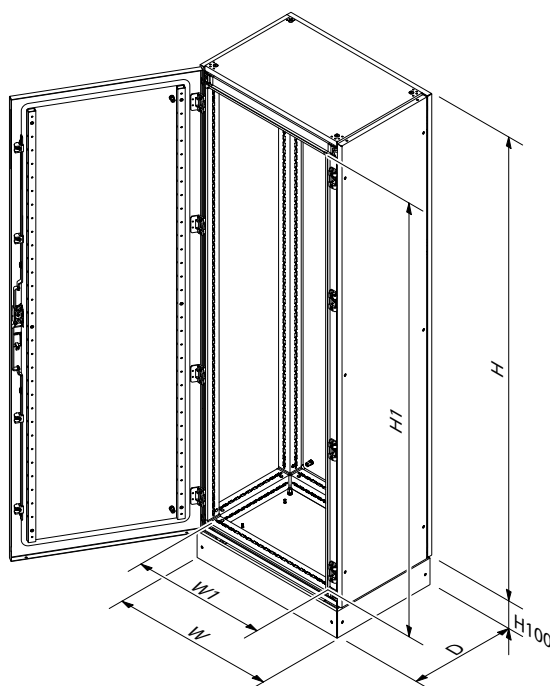
The following are the capacities of the assemblies in mod 50 and in DIN modules:

Assemblies with height H1900 mm

modular height H1:
9 mod. 200 (1800 mm)
120/288/432 mod. DIN

Assemblies with height H2100 mm

modular height H1:
10 mod. 200 (2000 mm)
130/312/468 mod. DIN



Assemblies with width W450 mm

(W1: 350 mm)
Modular width W2: 250 mm
10 mod. DIN per row

Assemblies with width W700/1000 mm

(W1: 600 mm)
Modular width W2: 500 mm
24 mod. DIN per row

Assemblies with width W900 mm

(W1: 800 mm)
Modular width W2: 750 mm
36 mod. DIN per row



Composability

quadro+ is a cabinet of composable design which, thanks to its die-cast three dimensional joint, combines the practicality typical of composable assemblies (storage volumes and transport of contents, increased combination options with a reduced number of codes) with the strength found in one-piece welded assemblies.

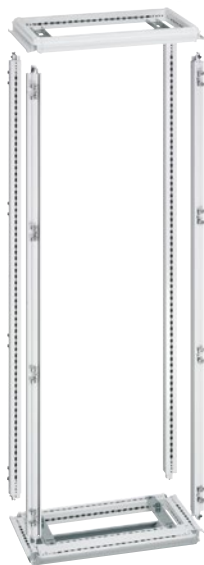
The three-dimensional joint allows for simple and quick assembly with only 8 screws, which guarantees, in addition to IP55 grade protection, the correct positioning of the uprights and the perfect squareness of the assembly.

The base assembly comprises the elements pictured below.

Equipotential connection between the various parts of the assembly is by contact, without the need for cable-joints.



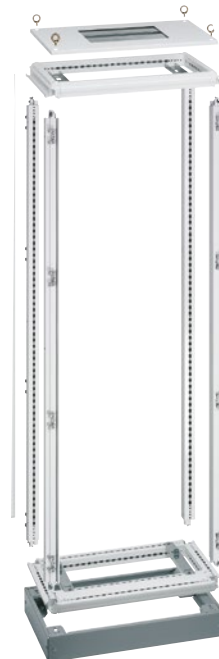
base/top group



group of 4 uprights



solid panel for base or top; panel with sliding parts for base or top



base plinth with removable flanges



fixed panel for rear



fixed panel for side



transparent door with clasp fitted with triangular insert

Range of sizes

quadro+ includes assemblies, fittings and accessories for constructing distribution enclosures with IP55 grade protection up to 1600A with solid or transparent door. The range of assemblies comprises:



Assemblies width 450 mm
height 1900 mm /36 mod. 50 (1800 mm)
2100 mm / 40 mod. 50 (2000 mm)
Depth
400 mm
600 mm
800 mm

For use with busbar/cable spaces or for fitting with kit for moulded-case and modular circuit-breakers width 250 mm / 10 mod. DIN



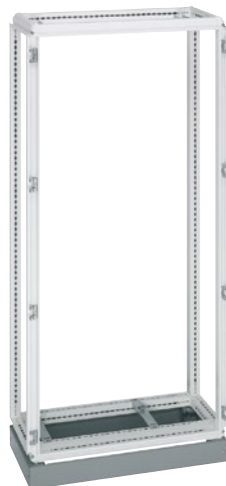
Assemblies width 700 mm
height 1900 mm /36 mod. 50 (1800 mm)
2100 mm /40 mod. 50 (2000 mm)
Depth
400 mm
600 mm
800 mm

For use with kits for moulded and modular circuit-breakers width 600mm /24 mod. DIN



Assemblies width 900 mm
height 1900 mm /36 mod. 50 (1800 mm)
2100 mm /40 mod. 50 (2000 mm)
Depth
400 mm
600 mm
800 mm

For use with kits for moulded modular circuit-breakers width 800mm/36 mod. DIN



Assemblies width 1000 mm
height 1900 mm / 36 mod. 50 (1800 mm)
2100 mm 40 mod. 50 (2000 mm)
Depth
400 mm
600 mm
800 mm

For fitting with the kit for moulded-case and modular circuit-breakers width 600 mm / 24 mod. DIN + busbar/cable space 300 mm (usable 200 mm)



busbar/cable space (right or left)
constructed using 2 vertical upright dividers (front and rear) and 1 panel in front or behind width 300 mm;
The rear can be closed off using 1 panel behind or in front width 1000 mm or 2 panels width 700 and 300 mm

If it is required to fit a full height internal panel, you will need to use 2 further dividing uprights (upper and lower).

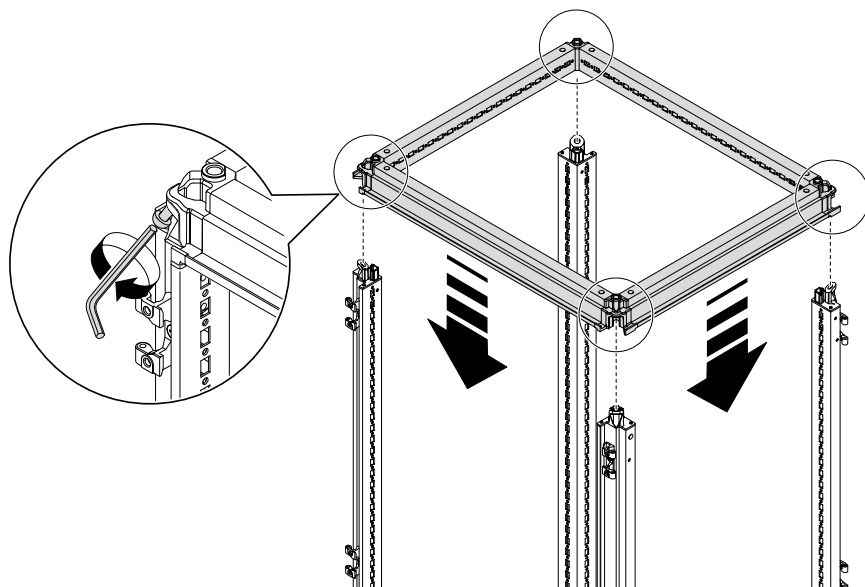
The dimensions of complete assemblies with doors, rear panels and side panels can be determined by adding to the dimensions shown for the modules:
- 18 mm in width
- 18 mm in height*
- 15 mm in depth.

(*) + 100 mm for the base plinth

New joint

The new die-cast joint not only keeps the assembly completely solid and the three planes perfectly upright, but also has new functional characteristics which make assembling the cabinet extremely easy and quick:

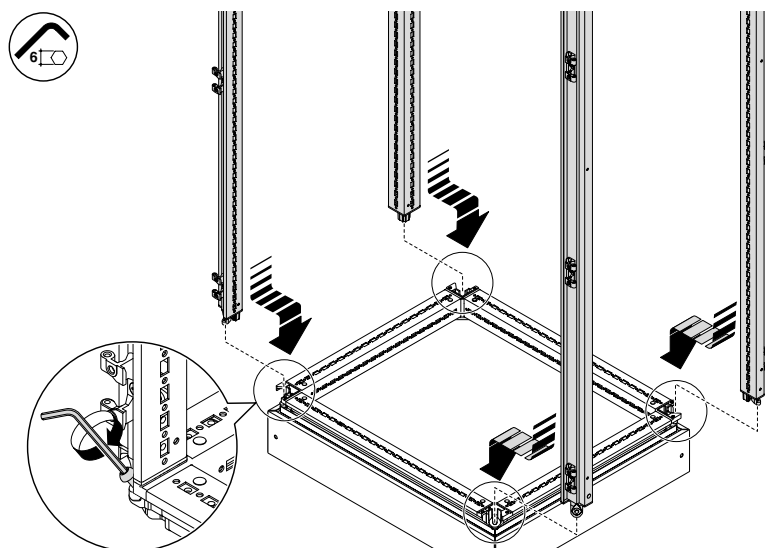
- Joint completely pre-mounted onto base and top
- Only 8 pre-mounted captive screws for assembly
- No loose accessories
- No possibility for assembly errors thanks to the fact that the uprights can only be inserted one way
- Easy access to the 8 fixing screws thanks to their angled insertion.



New uprights

The new uprights combine maximum rigidity with functional characteristics that make assembling the cabinet extremely simple and quick:

- Closed-profile construction
- Captive screws pre-mounted for joining to the base and the top
- Continuous double perforations on the internal sides for inserting wing-nuts and M6 self-tapping screws with the maximum fixing options.
- Die-cast pre-mounted hinges with dual hinge / closing clasp function for doors and front and rear panels



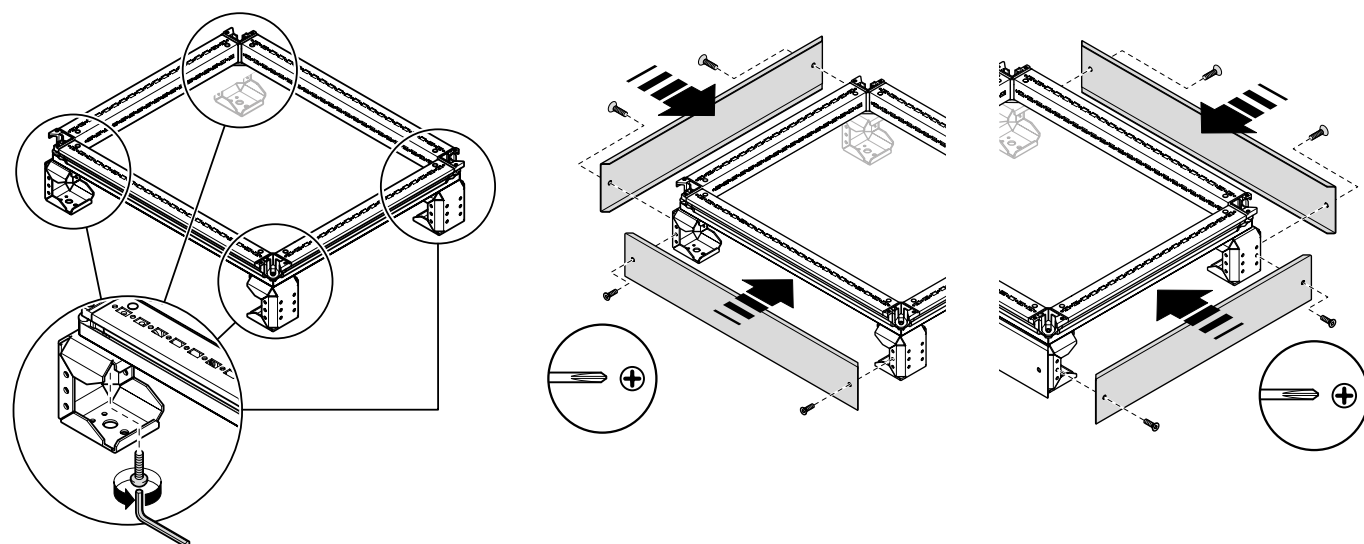
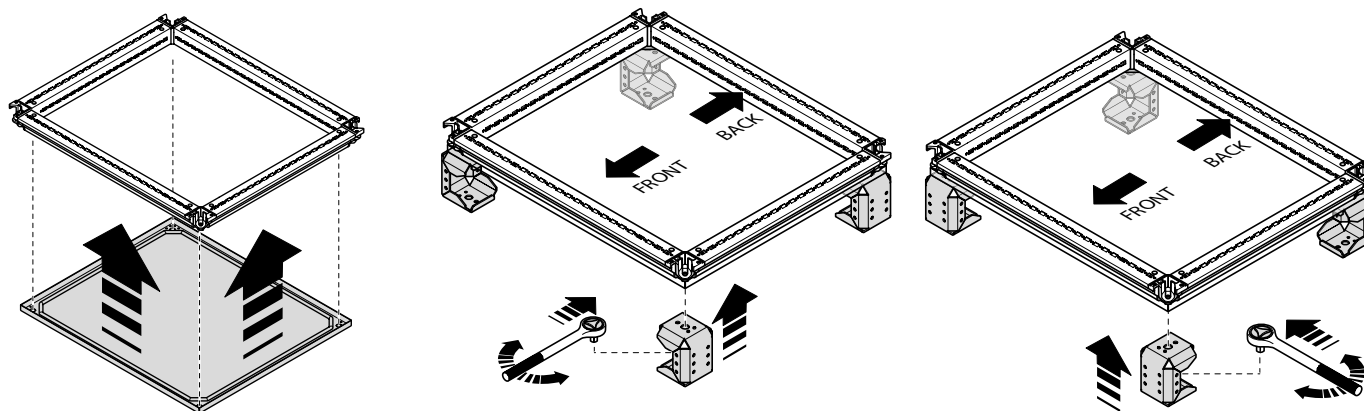
New plinth

The new plinth offers totally reversible corner sections provided with anti-rotation templates.

- The direction of assembly of the corner sections allows you to select the most accessible position for floor fixing. This can be front/back or left/right side.
- The anti-rotation templates and the easy access to the four fixing screws make assembling the corner pieces easy and rapid.
- The full-width closing flanges are fixed by 2 simple screws and provide an enlarged access «window» for easy moving with a fork-lift.



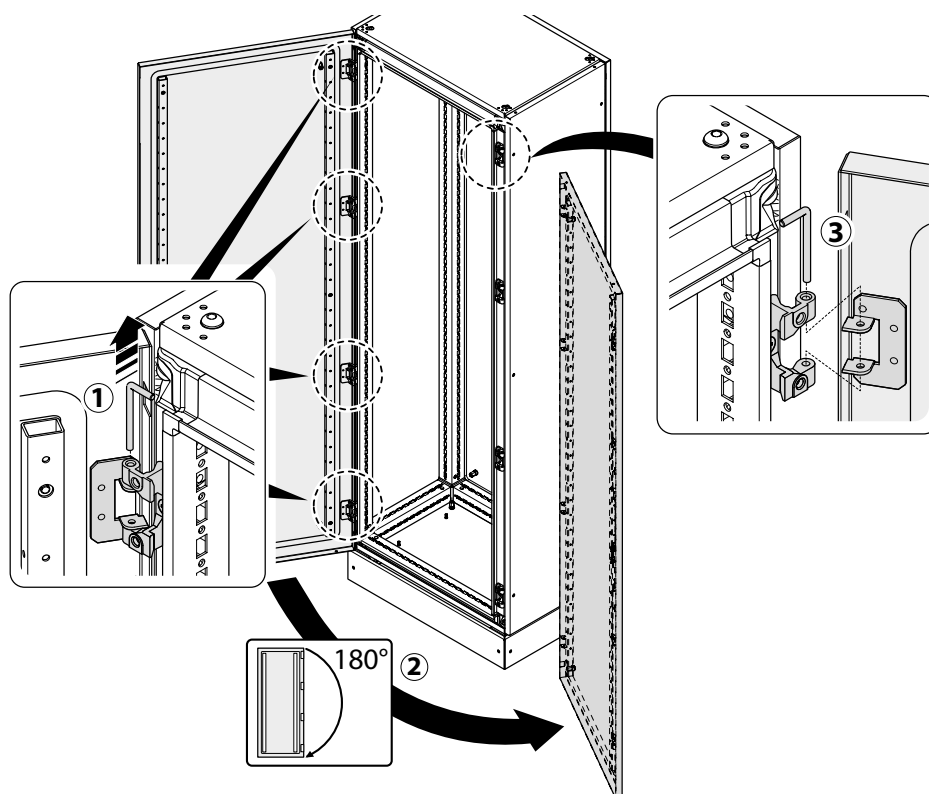
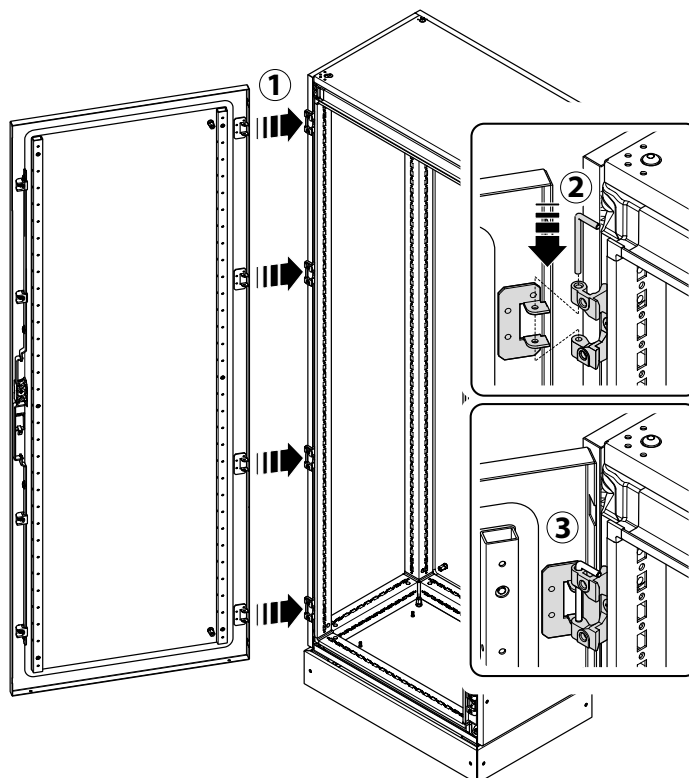
Main switchboards



New hinges

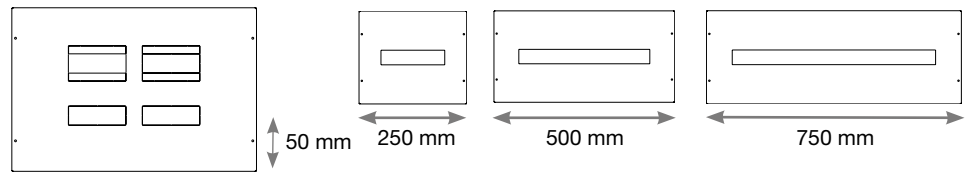
The new die-cast hinges make assembling the door extremely easy and quick:

- Pre-mounted hinges on the uprights
- Dual function hinge and closing clasp
- Assembly of the door with 2 simple operations:
 - 1-Position the door onto the hinges
 - 2-Insert the pins
- The door can be reversed in 2 simple operations:
 - 1-rotate the door through 180°
 - 2-turn the lock (not necessary with the standard lock)



Selection of fitting kits

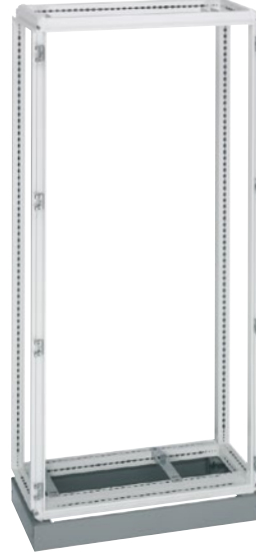
The fitting kits are produced with a modular concept based on the 50 mm high module and the 250 mm wide module (3 modular widths).



Height 50 mm module

Width 250 mm module

Main switchboards

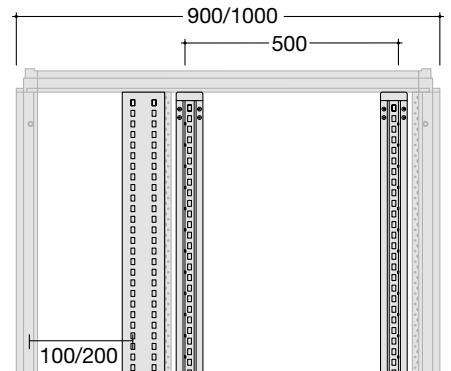
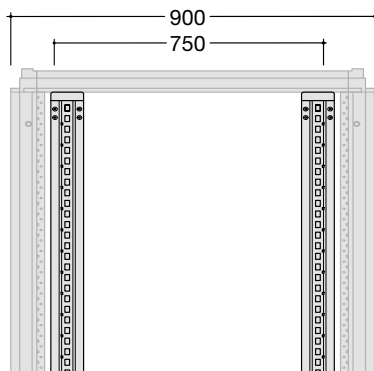
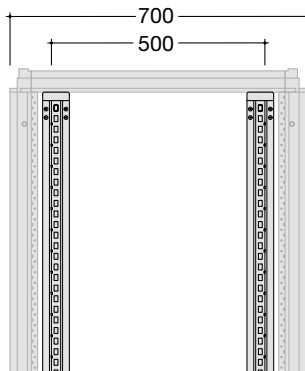
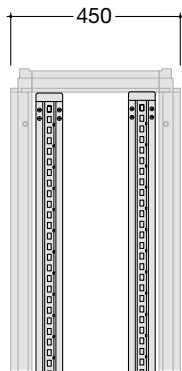


L450 mm assemblies

L700 mm assemblies

L900 mm assemblies

L1000 mm assemblies



Modular width 250 mm

Modular width 500 mm

Modular width 575 mm

Modular width 500 mm



front kit and panels L350



front kit and panels L600



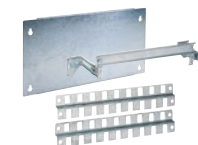
front kit and panels L800



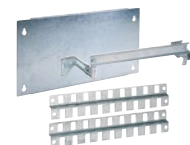
front kit and panels L600



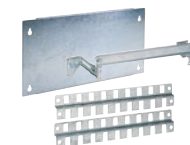
front panels, DIN rails, L250 brackets



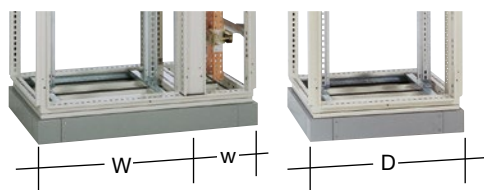
front panels, DIN rails, L500 brackets



front panels, DIN rails, L750 brackets



front panels, DIN rails, L500 brackets



Dimensions













	width W+w (mm)	width W (mm)	height H (mm)	depth D (mm)	top and bottom frame	4 uprights	vertical dividing upright	horizontal dividing upright	plain plate for top and bottom frames	sliding plate plate for top and bottom frames	full door
-	450	1900	400	FN018E	FN046E	-	-	FN078E	FN098E	FN546E	
-	450	2100	400	FN018E	FN047E	-	-	FN078E	FN098E	FN547E	
-	450	1900	600	FN020E	FN046E	-	-	FN080E	FN100E	FN546E	
-	450	2100	600	FN020E	FN047E	-	-	FN080E	FN100E	FN547E	
-	450	1900	800	FN022E	FN046E	-	-	FN082E	FN102E	FN546E	
-	450	2100	800	FN022E	FN047E	-	-	FN082E	FN102E	FN547E	
-	700	1900	400	FN021E	FN046E	-	-	FN081E	FN101E	FN506E	
-	700	2100	400	FN021E	FN047E	-	-	FN081E	FN101E	FN507E	
-	700	1900	600	FN029E	FN046E	-	-	FN089E	FN109E	FN506E	
-	700	2100	600	FN029E	FN047E	-	-	FN089E	FN109E	FN507E	
-	700	1900	800	FN013E	FN046E	-	-	FN073E	FN093E	FN506E	
-	700	2100	800	FN013E	FN047E	-	-	FN073E	FN093E	FN507E	
-	900	1900	400	FN023E	FN046E	-	-	FN083E	FN103E	FN526E	
-	900	2100	400	FN023E	FN047E	-	-	FN083E	FN103E	FN527E	
-	900	1900	600	FN031E	FN046E	-	-	FN091E	FN111E	FN526E	
-	900	2100	600	FN031E	FN047E	-	-	FN091E	FN111E	FN527E	
-	900	1900	800	FN017E	FN046E	-	-	FN077E	FN097E	FN526E	
-	900	2100	800	FN017E	FN047E	-	-	FN077E	FN097E	FN527E	
700+200	-	1900	400	FN023E	FN046E	FN286E	FN289E	FN083E	FN103E	FN506E ⁽¹⁾	
700+200	-	2100	400	FN023E	FN047E	FN287E	FN289E	FN083E	FN103E	FN507E ⁽²⁾	
700+200	-	1900	600	FN031E	FN046E	FN286E	FN291E	FN091E	FN111E	FN506E ⁽¹⁾	
700+200	-	2100	600	FN031E	FN047E	FN287E	FN291E	FN091E	FN111E	FN507E ⁽²⁾	
700+200	-	1900	800	FN017E	FN046E	FN286E	FN292E	FN077E	FN097E	FN506E ⁽¹⁾	
700+200	-	2100	800	FN017E	FN047E	FN287E	FN292E	FN077E	FN097E	FN507E ⁽²⁾	
700+300	-	1900	400	FN024E	FN046E	FN286E	FN289E	FN084E	FN104E	FN506E ⁽³⁾	
700+300	-	2100	400	FN024E	FN047E	FN287E	FN289E	FN084E	FN104E	FN507E ⁽⁴⁾	
700+300	-	1900	600	FN032E	FN046E	FN286E	FN291E	FN092E	FN112E	FN506E ⁽³⁾	
700+300	-	2100	600	FN032E	FN047E	FN287E	FN291E	FN092E	FN112E	FN507E ⁽⁴⁾	
700+300	-	1900	800	FN037E	FN046E	FN286E	FN292E	FN121E	FN117E	FN506E ⁽³⁾	
700+300	-	2100	800	FN037E	FN047E	FN287E	FN292E	FN121E	FN117E	FN507E ⁽⁴⁾	

⁽¹⁾ Door + busbar compartment panel FN266

⁽²⁾ Door + busbar compartment panel FN267

⁽³⁾ Door + busbar compartment panel FN206

⁽⁴⁾ Door + busbar compartment panel FN207

	 transparent doors	 back panel	 finishing frame (without door)	 cable compartment (front/rear)	 sides full panel	 plinth H = 100mm	 internal steel door	 galvanized steel plate	 functionnal uprights whole height 1900 mm	 functionnal uprights partial height 1600 mm
-	FN216E	-	-	FN356E	FN438E	-	FN726E	FN696E	FN896E + 2 x FN690E	
-	FN217E	-	-	FN357E	FN438E	-	FN727E	FN697E	FN897E + 2 x FN690E	
-	FN216E	-	-	FN366E	FN440E	-	FN726E	FN696E	FN896E + 2 x FN691E	
-	FN217E	-	-	FN367E	FN440E	-	FN727E	FN697E	FN897E + 2 x FN691E	
-	FN216E	-	-	FN376E	FN442E	-	FN726E	FN696E	FN896E + 2 x FN692E	
-	FN217E	-	-	FN377E	FN442E	-	FN727E	FN697E	FN897E + 2 x FN692E	
FN516E	FN276E	FN406E	-	FN356E	FN441E	FN700E	FN736E	FN696E	FN896E + 2 x FN690E	
FN517E	FN277E	FN407E	-	FN357E	FN441E	FN701E	FN737E	FN697E	FN897E + 2 x FN690E	
FN516E	FN276E	FN406E	-	FN366E	FN451E	FN700E	FN736E	FN696E	FN896E + 2 x FN691E	
FN517E	FN277E	FN407E	-	FN367E	FN451E	FN701E	FN737E	FN697E	FN897E + 2 x FN691E	
FN516E	FN276E	FN406E	-	FN376E	FN433E	FN700E	FN736E	FN696E	FN896E + 2 x FN692E	
FN517E	FN277E	FN407E	-	FN377E	FN433E	FN701E	FN737E	FN697E	FN897E + 2 x FN692E	
FN536E	FN296E	FN426E	-	FN356E	FN443E	FN706E	FN746E	FN696E	FN896E + 2 x FN690E	
FN537E	FN297E	FN427E	-	FN357E	FN443E	FN711E	FN747E	FN697E	FN897E + 2 x FN690E	
FN536E	FN296E	FN426E	-	FN366E	FN453E	FN706E	FN746E	FN696E	FN896E + 2 x FN691E	
FN537E	FN297E	FN427E	-	FN367E	FN453E	FN711E	FN747E	FN697E	FN897E + 2 x FN691E	
FN536E	FN296E	FN426E	-	FN376E	FN437E	FN706E	FN746E	FN696E	FN896E + 2 x FN692E	
FN537E	FN297E	FN427E	-	FN377E	FN437E	FN711E	FN747E	FN697E	FN897E + 2 x FN692E	
FN516E ⁽¹⁾	FN296E	FN426E	FN266E	FN356E	FN443E	FN706E	FN746E	FN696E	FN896E + 2 x FN690E	
FN517E ⁽²⁾	FN297E	FN427E	FN267E	FN357E	FN443E	FN711E	FN747E	FN697E	FN897E + 2 x FN690E	
FN516E ⁽¹⁾	FN296E	FN426E	FN266E	FN366E	FN453E	FN706E	FN746E	FN696E	FN896E + 2 x FN691E	
FN517E ⁽²⁾	FN297E	FN427E	FN267E	FN367E	FN453E	FN711E	FN747E	FN697E	FN897E + 2 x FN691E	
FN516E ⁽¹⁾	FN296E	FN426E	FN266E	FN376E	FN437E	FN706E	FN746E	FN696E	FN896E + 2 x FN692E	
FN517E ⁽²⁾	FN297E	FN427E	FN267E	FN377E	FN437E	FN711E	FN747E	FN697E	FN897E + 2 x FN692E	
FN516E ⁽³⁾	FN246E	FN406E	FN206E	FN356E	FN444E	FN700E	FN736E	FN696E	FN896E + 2 x FN690E	
FN517E ⁽⁴⁾	FN247E	FN407E	FN207E	FN357E	FN444E	FN701E	FN737E	FN697E	FN897E + 2 x FN690E	
FN516 ⁽³⁾	FN246E	FN406E	FN206E	FN366E	FN454E	FN700E	FN736E	FN696E	FN896E + 2 x FN691E	
FN517E ⁽⁴⁾	FN247E	FN407E	FN207E	FN367E	FN454E	FN701E	FN737E	FN697E	FN897E + 2 x FN691E	
FN516E ⁽³⁾	FN246E	FN406E	FN206E	FN376E	FN459E	FN700E	FN736E	FN696E	FN896E + 2 x FN692E	
FN517E ⁽⁴⁾	FN247E	FN407E	FN207E	FN377E	FN459E	FN701E	FN737E	FN697E	FN897E + 2 x FN692E	

quadro+ range is the ideal solution for achieving the main distribution boards up to 4000A in commercial and industrial installation ; where efficiency and operational continuity impose high quality standards and flexibility, where performances are required in terms of degree of protection, safety and reliability.
quadro+ enclosures join horizontally with no limit, to form a complete structure.

quadro+ is composed of

- + top and bottom frames
- + plinth kit, height 100mm
- + uprights
- + side panels
- + back panel
- + panel for busbar compartment
- + full or transparent doors
- + top and bottom cable gland plates

Technical data

- IP30 / IK08 without door
- IP55 / IK10 with door
- rated insulation voltage: 690V AC
- nominal current (In) : 1600 A
- short circuit level: 85kA (1s)
- RAL 9010 (structure) and RAL 7042 (plinth)
- metallic enclosure
- 4 widths: 450, 700, 900, 1000 mm,
- 2 heights: 1900, 2100 mm,
- 3 depths: 400, 600, 800 mm.
- form 2b
- 12/10 mm thickness CR4 steel for the back plate and the sides
- 10/10 mm thickness CR4 steel for the door

Comply with

IEC 62 208, IEC 61 439-1 and -2



FN018E

Top and bottom frames

Width (mm)	Depth (mm)	Cat. ref.
450	400	FN018E
700	400	FN021E
900	400	FN023E
1000	400	FN024E
450	600	FN020E
700	600	FN029E
900	600	FN031E
1000	600	FN032E
450	800	FN022E
700	800	FN013E
900	800	FN017E
1000	800	FN037E



FN081E

Cable gland plates

- can be mounted on top and bottom

Width (mm)	Depth (mm)	Cat. ref.	
		full	sliding
450	400	FN078E	FN098E
700	400	FN081E	FN101E
900	400	FN083E	FN103E
1000	400	FN084E	FN104E
450	600	FN080E	FN100E
700	600	FN089E	FN109E
900	600	FN091E	FN111E
1000	600	FN092E	FN112E
450	800	FN082E	FN102E
700	800	FN073E	FN093E
900	800	FN077E	FN097E
1000	800	FN121E	FN117E



FN101E

Structural uprights

Description	Height (mm)	Cat. ref.
set of 4 uprights	1900	FN046E
set of 4 uprights	2100	FN047E



FN046E

Vertical dividing uprights

- for cable compartment in enclosure width 900 mm (700 + 200) or 1000 mm (700 + 300)
- delivered with 1 upright and fixing accessories

Description	Height (mm)	Cat. ref.
vertical dividing uprights	1900	FN286E
vertical dividing uprights	2100	FN287E



FN286E

Functional uprights kits

- do not fit in 300 mm busbar compartment or cable sleeve
- FN896E and FN897E dedicated for enclosure with 200mm horizontal top busbar compartment

Description	Height (mm)	Mod. height (mm)	Cat. ref.
kit composed of 2 full height uprights for the kit fixation and 2 full height uprights for the front plate fixation	1900	1800	FN696E
kit composed of 2 full height uprights for the kit fixation and 2 full height uprights for the front plate fixation	1900	1600	FN896E
kit composed of 2 partial height uprights for the kit fixation and 2 partial height uprights for the front plate fixation	2100	2000	FN697E
kit composed of 2 partial height uprights for the kit fixation and 2 partial height uprights for the front plate fixation	2100	1800	FN897E



FN696E

Functional uprights partial height

- fixing of the uprights with 4 perforated brackets (not included):
 - FN690E for quadro+ P400 mm
 - FN691E for quadro+ P600 mm
 - FN692E for quadro + P800 mm

Height (mm)	Cat. ref.
150	FN891E
200	FN892E
300	FN893E
400	FN894E
600	FN895E

Vertical functional uprights

- allows to achieve a double face mounting enclosure

Description	Width (mm)	Cat. ref.
vertical functional uprights	700	UC807
vertical functional uprights	900	UC809

Profiles for front cover fixing

- for the use of FN891E to FN895E and UC807 and UC809

Description	Height (mm)	Mod. height (mm)	Cat. ref.
kit composed of 2 full height uprights for the front plate fixation	1900	1800	FN696EP
kit composed of 2 full height uprights for the front plate fixation	1900	1600	FN896EP
kit composed of 2 partial height uprights for the front plate fixation	2100	2000	FN697EP
kit composed of 2 partial height uprights for the front plate fixation	2100	1800	FN897EP



FN289E

Horizontal brackets

Description	Depth (mm)	Cat. ref.
horizontal brackets	400	FN289E
horizontal brackets	600	FN291E
horizontal brackets	800	FN292E



FN438E

Base plinth kits

Width (mm)	Depth (mm)	Cat. ref.
450	400	FN438E
700	400	FN441E
900	400	FN443E
1000	400	FN444E
450	600	FN440E
700	600	FN451E
900	600	FN453E
1000	600	FN454E
450	800	FN442E
700	800	FN433E
900	800	FN437E
1000	800	FN459E

Plinth overlapping kits

- to superpose 2 plinths

Description	Cat. ref.
seal 10 x 6 mm, length 10 m	FN430E



FN276E

Back panels

- to be mounted on the back of the enclosures

Width (mm)	Height (mm)	Cat. ref.
450	1900	FN216E
450	2100	FN217E
700	1900	FN276E
700	2100	FN277E
900	1900	FN296E
900	2100	FN297E
1000	1900	FN246E
1000	2100	FN247E

Side panels

- fixing by screws on the sides

Depth (mm)	Height (mm)	Cat. ref.
400	1900	FN356E
400	2100	FN357E
600	1900	FN366E
600	2100	FN367E
800	1900	FN376E
800	2100	FN377E

Cable compartment panels

- to close 200 or 300 mm cable compartment,
- can be mounted on the front or on the back side

Width (mm)	Height (mm)	Cat. ref.
900 mm (200 mm cable compartment)	1900	FN266E
900 mm (200 mm cable compartment)	2100	FN267E
1000 mm (300 mm cable compartment)	1900	FN206E
1000 mm (300 mm cable compartment)	2100	FN207E
450 mm (450 mm cable compartment)	1900	FN216E
450 mm (450 mm cable compartment)	2100	FN217E



Full and transparent doors

- delivered complete with hinges and with triangular key lock

Width (mm)	Height (mm)	Cat. ref.	
		full	transparent
450	1900	FN546E	FN510E
450	2100	FN547E	FN511E
700	1900	FN506E	FN516E
700	2100	FN507E	FN517E
900	1900	FN526E	FN536E
900	2100	FN527E	FN537E
1000	1900	FN506E + FN206E	FN516E + FN206E
1000	2100	FN507E + FN207E	FN517E + FN207E



Door stopper

- to block the door in open position

Description	Cat. ref.
for door width: 450 and 700 mm	FN952



Door handle

Description	Cat. ref.
rotary handle lock cylinder, with key 1242E	FZ508



FZ517

Inserts for locks

- replace the lock of the original door handle FZ508

Description	Cat. ref.
triangle insert 8 mm	FZ515
square insert 8 x 8 mm	FZ517
rotary handle lock with key 1242E lock cylinder	FZ508
triangle key + square + double bar	FZ850



FZ515



FZ680

IP55 handle

- dedicated to floor standing enclosures

Description	Cat. ref.
without key insert	FZ680
padlockable handle, Ø 7 mm hole, padlock not included	FL78Z



FL74Z-FL75Z-FL76Z-FL77Z-
FZ98Z

Inserts for locks for handle

- replace the lock of origin on the doors height: 710 mm, 1860 mm, 2010 mm

Description	Cat. ref.
half cylinder triangle 8mm insert	FL74Z
half cylinder double bit Ø 3 mm insert	FL75Z
half cylinder squared 8 x 8 mm insert	FL76Z
half cylinder squared 6 x 8 mm insert	FL77Z
half cylinder with key E333 key insert	FL98Z



FZ795

Rigid diagram holders

- delivered with adhesive for fixing inside doors

Description	Cat. ref.
in sheet steel, A4 size	FZ795

Corner transfer pre-assembled enclosure

- to be used for realisation of a "L" or "U" shape enclosure installation
- 100mm height plinth kit included

Width (mm)	Depth (mm)	Height (mm)	Cat. ref.
600	600	1900	FN006E
600	600	2100	FN007E
800	800	1900	FN008E
800	800	2100	FN009E



FN950

Horizontal association kits

- for all the enclosures

Description	Cat. ref.
kit with 4 galvanized steel parts 40/10e	FN950

Cells connection kits

- replace the lock of the original door handle FZ508

Description	Cat. ref.
seal 10 x 6 mm length 10 m	FN951

Plinth overlapping kits

- to superpose 2 plinths



Description	Cat. ref.
seal 10 x 6 mm length 10 m	FN430E

FN430E

Back to back association kit

Description	Cat. ref.
plates + screws	FN954E

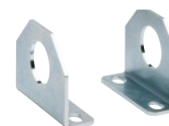
Cover plates

- to close space between two associated enclosures
- to be used for each association

Description	Cat. ref.
lateral association 400 mm	FN942E
lateral association 600 mm	FN943E
lateral association 800 mm	FN944E
back to back association 450 mm	FN946E
back to back association 700 mm	FN947E
back to back association 900 mm	FN948E
back to back association 1000 mm	FN949E

Lifting brackets

- set of 2, delivered with M12 bolt



Description	Cat. ref.
single	FZ767
double	FZ760E

FZ760E

Internal doors

Width (mm)	Height (mm)	Cat. ref.
700	1900	FN700E
700	2100	FN701E
900	1900	FN706E
900	2100	FN711E



FN406E

Finishing frames

- to be used without door (IP30) to help the air dissipation when the cell is located in a technical room

Width (mm)	Height (mm)	Cat. ref.
700/1000	1900	FN406E
900	1900	FN426E
700/1000	2100	FN407E
900	2100	FN427E



FL212Z

Ventilating fans

- reinforced polyamide, colour RAL7035
- IP54
- 230V supply

Description	Rotation/ min.	Airflow	Dimensions WxHxD (mm)	Cat. ref.
ventilating fan 20W	2650/3000	57m ³ /h	150 x 150 x 71	FL210Z
ventilating fan 20W	2650/3000	115m ³ /h	250 x 250 x 113	FL212Z
ventilating fan 29W	2500	240m ³ /h	250 x 250 x 121	FL214Z
ventilating fan 67W	2480/2650	520m ³ /h	325 x 325 x 161	FL216Z



FL220Z

Air vents with filters

- colour RAL7035
- IP54

Description	Dimensions WxHxD (mm)	Cat. ref.
air vent with filter	150 x 150 x 28	FL220Z
air vent with filter	250 x 250 x 31	FL224Z
air vent with filter	325 x 325 x 161	FL226Z



FL230Z

Fan filters

Description	Cat. ref.
filter for FL220Z	FL230Z
filter for FL224Z	FL234Z
filter for FL226Z	FL236Z



FL253Z

Heater supplies

Description	Cat. ref.
heater supply 15W	FL252Z
heater supply 30W	FL253Z
heater supply 45W	FL254Z
heater supply 80W	FL255Z
heater supply 150W	FL256Z



FL258Z

Thermostats

- to control temperature in the enclosure, changeover contact
- fixing on DIN rail

- settings -10° to 80° C
- dimensions: w. 29 x h. 68 x d. 45 mm

Description	Cat. ref.
to control condensation contact NC	FL258Z
to control fan-contact NO	FL259Z

Mounting plates

Width (mm)	Height (mm)	Cat. ref.
450	1900	FN726E
450	2100	FN727E
700	1900	FN736E
700	2100	FN737E
900	1900	FN746E
900	2100	FN747E

Perforated crossbars with clamps

- to mount horizontally on enclosures sides
- H = 50 mm, step of 25 mm



Description	Cat. ref.
for enclosure depth 400 mm	FN690E
for enclosure depth 600 mm	FN691E
for enclosure depth 800 mm	FN692E

FN690E

Mounting rails perforated

- to mount directly on the uprights on the back of the enclosure
- H = 50 mm, step of 25 mm



Description	Cat. ref.
for enclosure width 300 mm	FN873E
for enclosure width 450 mm	FN875E
for enclosure width 700 mm	FN877E
for enclosure width 900 mm	FN879E

FN877E

Perforated brackets

- in depth on crossbars FN690E to FN692E
- step of 25 mm



Description	Cat. ref.	
	H = 50 mm	H = 25 mm
for enclosure width 450 mm	FN863E	FN862E
for enclosure width 700 mm	FN865E	FN864E
for enclosure width 900 mm	FN867E	FN866E

FN864E



FN883E

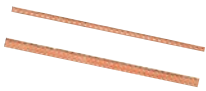
Perforated brackets assemblies

- to mount inside on brackets FN862E to FN867E
- step of 25 mm

Description	Cat. ref.	
	H = 50 mm	H = 25 mm
for enclosure width 400 mm	FN883E	FN882E
for enclosure width 600 mm	FN885E	FN884E
for enclosure width 800 mm	FN887E	FN886E

Brackets for bars support

Description	Cat. ref.
for enclosure width 400 mm	FN970E
for enclosure width 600 mm	FN971E
for enclosure width 800 mm	FN972E



UT87E

Perforated busbars

- copper bar to keep earth PE/PEN continuity

Description	Cat. ref.
25 x 5 mm, length 1750 mm	UT87E
50 x 5 mm, length 400 mm	UT87F



UT88A

UT88B

Single brackets

- for copper busbars

Description	Cat. ref.
for busbars 25 x 5 mm	UT88A
for busbars 50 x 5 mm	UT88B



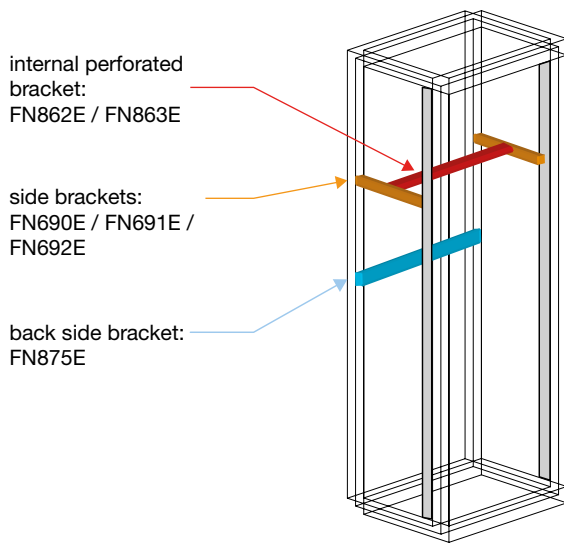
UT88C

Double brackets

- for copper busbars

Description	Cat. ref.
for busbars 25 x 5 mm	UT88C
for busbars 50 x 5 mm	UT88D

**For enclosures 450mm width
(400 / 600 / 800mm depth)**

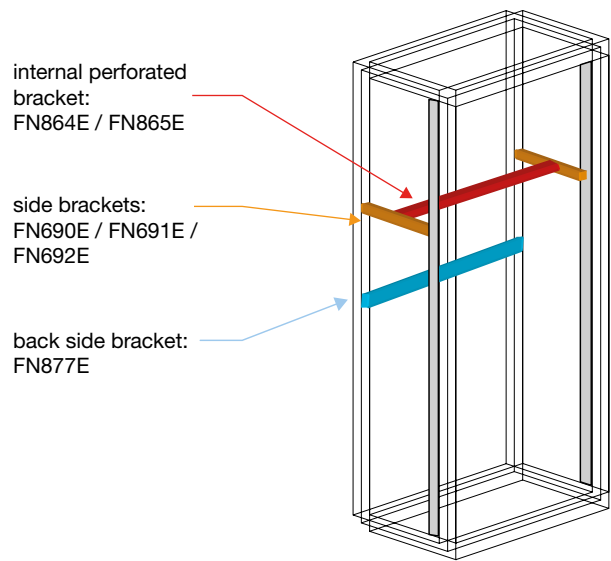


internal perforated
bracket:
FN862E / FN863E

side brackets:
FN690E / FN691E /
FN692E

back side bracket:
FN875E

**For enclosures 700mm width
(400 / 600 / 800mm depth)**

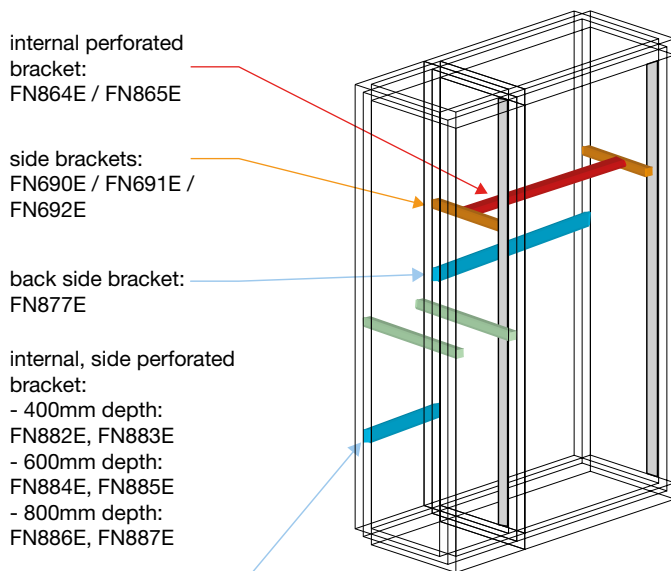


internal perforated
bracket:
FN864E / FN865E

side brackets:
FN690E / FN691E /
FN692E

back side bracket:
FN877E

**For enclosures 1000mm width, 700+200mm
(400 / 600 / 800mm depth)**



internal perforated
bracket:
FN864E / FN865E

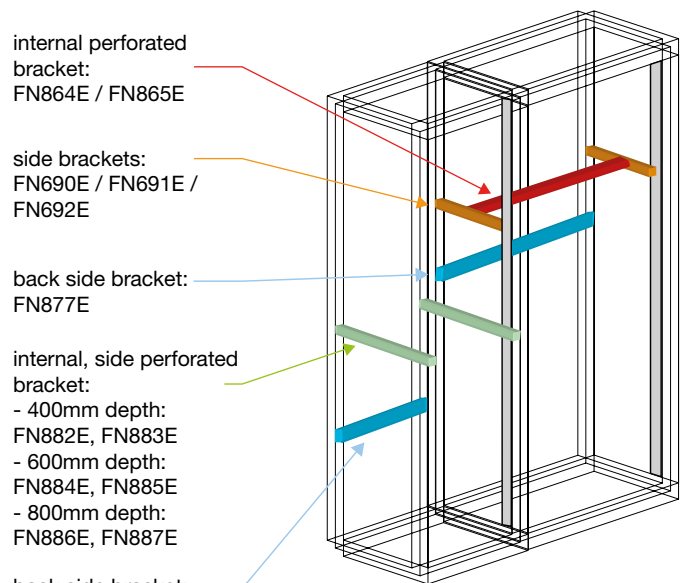
side brackets:
FN690E / FN691E /
FN692E

back side bracket:
FN877E

internal, side perforated
bracket:
- 400mm depth:
FN882E, FN883E
- 600mm depth:
FN884E, FN885E
- 800mm depth:
FN886E, FN887E

back side bracket:
FN8737E

**For enclosures 1000mm width, 700+300mm
(400 / 600 / 800mm depth)**



internal perforated
bracket:
FN864E / FN865E

side brackets:
FN690E / FN691E /
FN692E

back side bracket:
FN877E

internal, side perforated
bracket:
- 400mm depth:
FN882E, FN883E
- 600mm depth:
FN884E, FN885E
- 800mm depth:
FN886E, FN887E

back side bracket:
FN837E

Main
switchboards

Main switchboards

Equipment kits for quadro range

MCCBs,
trip-free switches
125 and 160A
x160



MCCBs,
trip-free switches
250A
x250



MCCBs
trip-free switches
250 A (electronic)
h250

		width (mm)			width (mm)			width (mm)		
		350	600	800	350	600	800	350	600	
Equipment kits - height (mm)	for rotary handle and flush toggle	150								
		class I		UC013H	UC014H					
		class II		UC313H	UC314H					
		200								
		class I				UC127H	UC128H		UC127H	
		class II				UC427H	UC428H		UC427H	
	for motor operator	300	class I							
			class II	UC010H UC310H	UC011H UC311H	UC012H UC312H	UC020H UC320H	UC021H UC321H	UC022H UC322H	UC020H UC320H
		400	class I							
			class II				UC030H UC330H	UC023H UC323H	UC024H UC324H	UC030H UC330H
		600	class I							
			class II							
for manual control plug-in devices	300									
	class II				UC321HM	UC322HM		UC321HM		
	400									
for motorized control plug-in devices	300									
	class II							UC321HR		
	400									
for motorized control plug-in devices	300									
	class II							UC321HMR		
for motorized control plug-in devices	400									
	class II									



MCCBs,
trip-free switches
400 and 630A
h400-h630



MCCBs,
800 and 1000A
h1000



MCCBs,
1250 and 1600A
h1600



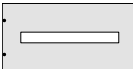





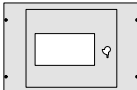
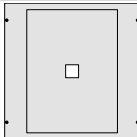
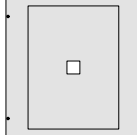


Main
switchboards

800	350	600	800	600	800	600	800

Main switchboards

Equipment kits for quadro range

	Modular changeover kit		Load break switches with visible breaking 100 to 400A		HA switches, visual breaking 160 to 1600A		Modular devices: 10 ■ (w. 350 mm) 24 ■ (w. 600 mm) 36 ■ (w. 800 mm)	
width	600 mm	800 mm	350 mm	600 mm	350 mm	600 mm	350 mm	
50 mm								
75 mm								
100 mm								
150 mm								
200 mm								UC200
300 mm	UC317S	UC318S	 UC310H + HY170	 UC311H + HY170	 UC008	 UC001 (160A)		
	UC321S	UC322S	 UC332		 UC009	 UC003 (250/400A)		
400 mm				 UC335				
600 mm		UC328S				 UC005 (160A)		
						 UC270 (1600A)		
800 mm								

Metering device front plates for SM102E and SM103E multi-function meter
















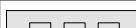


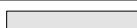
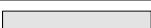















Full front plates and grids for special devices
- DIN rails for terminals
w. 600 mm
UC951

- equipment kits for terminals
w. 600 mm, h. 150 mm
UC209



Full front plates

Grids for special devices

		Metering device front plates for SM102E and SM103E multi-function meter		Full front plates and grids for special devices - DIN rails for terminals w. 600 mm UC951		- equipment kits for terminals w. 600 mm, h. 150 mm UC209			
		600 mm	800 mm	600 mm	800 mm	350 mm	600 mm	800 mm	600 mm
						 UC221	 UC231	 UC241	
						 UC220	 UC230	 UC240	
							 UC239	 UC249	
		 UC201	 UC203			 UC222	 UC232	 UC242	
		 UC205	 UC207	 UC233EM UC234EM	 UC243EM	 UC223	 UC233	 UC243	
						 UC224	 UC234	 UC244	 UC960
						 UC225	 UC235	 UC245	 UC692 (450 mm)
						 UC226	 UC236	 UC246	 UC964
						 UC227	 UC237	 UC247	

Equipment kits for h3 MCCBs x160, x250, h250 LSI, h630 LSI
Double insulation, class II for direct or rotary handle.

Composition

- 1 lowered symmetrical DIN rail, fixed on a mounting plate with 4 class II insulated mounting brackets
- 1 sheet metal front plate
- fixing accessories

Capacity

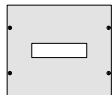
width 500 mm space for one more device.

Equipment kits for switches with visible breaking 160 to 1600 A
For direct or rotary handle

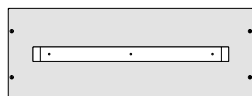
Composition

- 1 insulated mounting plate for the main device
- 1 sheet metal front plate
- fixing accessories.

The mounting plate for versions 160 and 250/400 A in width 500 mm are fitted with a symmetrical DIN rail to receive a set of distribution blocks.



UC010H / UC310H



UC012H / UC312H



UC013H / UC313H

Equipment kits for MCCBs x160

Description	Height (mm)	Width (mm)	Cat. ref. class I	class II
for direct or rotary handle control vertical layout with or without add-on block	300	350	UC010H	UC310H
	300	600	UC011H	UC311H
	300	800	UC012H	UC312H
for direct or rotary handle control horizontal layout without add-on block	150	600	UC013H	UC313H
	150	800	UC014H	UC314H
	200	600	UC015H	-
	200	800	UC016H	-

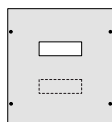


HYA036H

DIN rail raiser, 30 mm

- allows to raise MCBs with standard shoulder when mounted on the same kit as modular MCCBs and moulded case switch disconnectors > 125 A

Description	Cat. ref.
DIN rail raiser, 3 x 6 modules	HYA036H



UC030H / UC330H



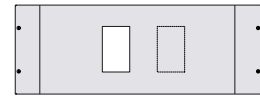
UC128H / UC428H

Equipment kits for MCCBs x250

Description	Height (mm)	Width (mm)	Cat. ref. class I	class II
for direct or rotary handle control vertical layout without add-on block	300	350	UC020H	UC320H
	300	600	UC021H	UC321H
	300	800	UC022H	UC322H
for direct or rotary handle control vertical layout with add-on block	400	350	UC030H	UC330H
	400	600	UC023H	UC323H
	400	800	UC024H	UC324H
for direct or rotary handle control horizontal layout with or without add-on block	200	600	UC127H	UC427H
	200	800	UC128H	UC428H
for motor operator vertical layout without add-on block	300	600	-	UC321HM
	300	800	-	UC322HM

Equipment kits for MCCBs h250 LSI

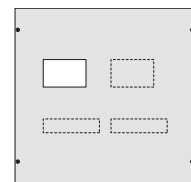
Description	Height (mm)	Width (mm)	Cat. ref. class I	class II
for direct or rotary handle control vertical layout	300	350	UC020H	UC320H
	300	600	UC021H	UC321H
for direct or rotary handle control horizontal layout	200	600	-	UC427HL
	200	800	-	UC428HL
for motor operator control vertical layout without add-on block	300	600	-	UC321HM
	300	800	-	UC322HM
for manual control plug-in version, vertical layout	400	600	-	UC441HM
	400	800	-	UC442HM
for motor operator control plug-in version, vertical layout	300	600	-	UC321HMR



UC322HM

Equipment kits for MCCBs h630 LSI

Description	Height (mm)	Width (mm)	Cat. ref. class I	class II
for direct or rotary handle control vertical layout without add-on block	400	350	UC140H	UC440H
	400	600	UC141H	UC441H
	400	800	UC142H	UC442H
for direct or rotary handle control vertical layout with add-on block	600	350	UC144H	UC444H
	600	600	UC145H	UC445H
	600	800	UC146H	UC446H
for direct or rotary handle control horizontal layout with or without add-on block	200	600	UC147H	UC447H
	200	800	UC148H	UC448H
for motor operator control vertical layout without add-on block	400	600	-	UC441HM
	400	800	-	UC442HM
for manual control plug-in version, vertical layout	300	600	-	UC441HR
for motor operator control plug-in version, vertical layout	300	600	-	UC441HMR
for direct or rotary handle control withdrawable version, vertical layout, without add-on block	400	600	-	UC441HW



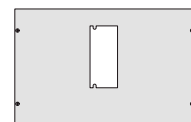
UC145H / UC445H



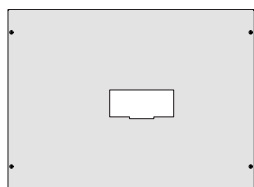
UC147H / UC447H

Equipment kits for MCCBs h1000 LSI

Description	Height (mm)	Width (mm)	Cat. ref. class I	class II
for direct or rotary handle horizontal layout	400	600	UC054H	UC354H
	400	800	UC055H	UC355H
for direct or rotary handle vertical layout	600	600	UC050H	UC350H
	600	800	UC051H	UC351H
for direct or rotary handle vertical layout, withdrawable	600	600	-	UC350HR
for motor operator vertical layout	600	600	-	UC350HM
	600	800	-	UC351HM



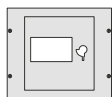
UC054H / UC354H



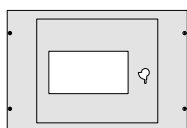
UC061H / UC361H

Equipment kits for MCCBs h1600 LSI

Description	Height (mm)	Width (mm)	Cat. ref. class I	class II
for direct or rotary handle vertical layout	600	600	UC060H	UC360H
	600	800	UC061H	UC361H
for motor operator vertical layout	600	600	-	UC360HM
	600	800	-	UC361HM



UC332



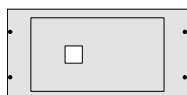
UC335

Equipment kits for switch disconnectors with visible breaking 100 to 400 A double isolation class II

Description	Height (mm)	Width (mm)	Cat. ref. class I	class II
kits for switches HA 100 to 200A	300	350	-	UC310H
	300	600	-	UC311H
kits for switches 250 A HA964N with direct control	300	350	-	UC332
kits for switches 400 A HA966N with direct control	400	600	-	UC335

Motorized changeover kits

Description	Height (mm)	Width (mm)	Cat. ref. class I	class II
for HIC from 63 to 160A changeovers	300	600	-	UC311S
	300	800	-	UC312S
for HIB, HIC from 125 to 400A changeovers	300	600	-	UC317S
	300	800	-	UC318S
for HIB, HIC from 125 to 630A changeovers	300	600	-	UC321S
	300	800	-	UC322S
for HIB, HIC from 800 to 1600A changeovers	600	800	-	UC328S



UC001

Equipment kits for switch disconnectors with visual breaking 160 to 1600 A

Description	Height (mm)	Width (mm)	Cat. ref. class I	class II
kits for switches 160 A HA452	300	350	-	UC008
	300	600	-	UC001
kits for switches 250/400 A, HA454, HA457	250	350	-	UC009
	250	600	-	UC003
kits for switches 630 A HA458	600	600	-	UC005
kits for switches 800 to 1600A	600	600	-	UC270
	800	200	-	UC002
	800	600	-	UC004
	800	600	-	UC006
	800	600	-	UC006

Equipment kits for hw ACBs size 1

Description	Height (mm)	Width (mm)	Cat. ref.
from 630A up to 1600A Class I version, in 600 and 800 mm depth enclosures	600	600	UC062HEM

Equipment kits for hw ACBs size 2

Description	Height (mm)	Width (mm)	Cat. ref.
from 630A up to 4000A Class I version, in 800 mm depth enclosures	600	800	UC082HEM

Equipment kits for modular devices
Available in height 150 mm and 200 mm, their positioning is facilitated by gauges delivered with each kit.

Equipment kits for terminals
Available in height 150 mm, DIN rail adjustable in depth, 20° inclinable.

The DIN rail supports allow a fast fixing by clipping on the bottom of the enclosure.
Front plates are mounted with screws included in the kit.



UC200



UC201

Equipment kits for modular devices

delivered with:
- modular DIN rail for shoulder devices 45 mm
- sheet metal front plate

Description	Height (mm)	Cat. ref.
length 250 mm, equipment 1 row 10 modules	150	UC200
length 500 mm, equipment 1 row 24 modules	150	UC201
	200	UC205
length 700 mm, equipment 1 row 24 modules	150	UC203
	200	UC207

Equipment kits for non modular

- for 92x92mm SM102E and SM103E multi-meter devices

Description	Height (mm)	Cat. ref.
length 500 mm	200	UC233EM
	300	UC234EM
length 700 mm	300	UC243EM

Equipment kits for terminals

- delivered with DIN rail and front plate

Description	Height (mm)	Cat. ref.
length 500 mm, equipment 1 row 24 modules	150	UC209



UC231



UC230



UC239



UC232



UC235

Full front plates

Height (mm)	Cat. ref.		
	250 mm	500 mm	750 mm
50	UC221	UC231	UC241
75	UC220	UC230	UC240
100	-	UC239	UC249
150	UC222	UC232	UC242
200	UC223	UC233	UC243
300	UC224	UC234	UC244
400	UC225	UC235	UC245
600	UC226	UC236	UC246
700	UC227	UC237	UC247

Adjustable DIN rails

- in depth for terminals, 20° inclinable

Description	Cat. ref.
for width 500 mm length	UC951
for width 750 mm length	UC952

Perforated mounting plates

- for special devices
- delivered with fixing supports

Description	Length (mm)	Height (mm)	Cat. ref.
perforated mounting plates for special devices	500	300	UC960
perforated mounting plates for special devices	500	450	UC962
perforated mounting plates for special devices	500	600	UC964



UC962

Clips nuts and M5 screws

- for perforated mounting plates

Description	Cat. ref.
1 set = 25 nuts	UC969

Hinges for front plates

- to mount on the left or the right side of the front plate

Description	Cat. ref.
set of 2 hinges	UC268



UC268

Main switchboards

quadro range - busbar support reference guide



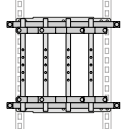
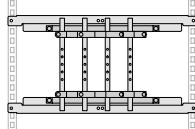
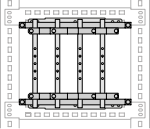

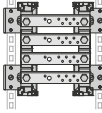
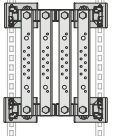
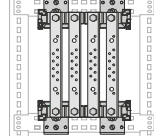

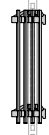

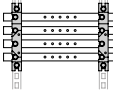
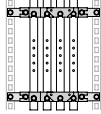
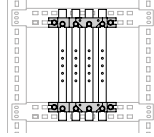

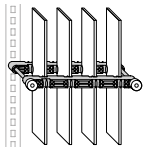
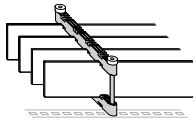

Several systems allow to ensure the electric distribution in the enclosures quadro4, quadro5 and quadro+:

- flat busbars,
- inclined busbars,
- side busbars,
- staggered bars,
- 4 poles supports

Distribution systems complete the offer

- single pole distribution blocks
- multi-plug repartitors
- 80 to 160A modular distribution blocks

A range of connectors allow to ensure the electrical link among some incoming devices and the distribution systems.

Busbar supports	In	Copper bars	Application and accessories (crossbars, brackets, protective screen)			
Flat busbars  UC820	160A	12 x 5 mm KS72B, KS72C	horizontal in bottom 250 and 500 mm  UC811 UC827	vertical in bottom 250 mm  UC811 UC827	vertical in bottom 500 mm  UC812 UC827	vertical on crossbars (quadro+)  UT89B, UT89C UC827
	250A 400A	20 x 5 mm UC832 30 x 5 mm UM30A1, UM30A2 UM30A5				
Inclined busbars  UC826	250A 400A 630A	20 x 5 mm UC832 32 x 5 mm UC842 30 x 10 mm UM30A4, UM30A5	horizontal in bottom 250 and 500 mm  UC826	vertical in bottom 250 and 500 mm  UC828	vertical on crossbars (quadro+)  UT89C, UT89B	
Side busbars  UC830	250A	20 x 5 mm UC832	on pillars in bottom  UC834			
Staggered busbars  UC815	250A 400A	20 x 5 mm UC832 32 x 5 mm UC842	horizontal in bottom 250 and 500 mm  UC816	vertical in bottom 250 mm  UC816 - UC988	vertical on crossbars (quadro5, quadro+)  UC288 (sheath 200 mm), UT89A (sheath 300 mm), UT89B - UT89C	
4 poles support (quadro+ only)  UC824 UC823	500A 630A 800A 1000A	50 x 5 mm UC844 63 x 5 mm UC922 80 x 5 mm UC 966 100 x 5 mm UC967	horizontal  UT81H, UC821, FN690 or FN690E, FN896 or FN896E, mount with supports UC825 or UC822	vertical  UC821, UC825 UT89A or FN873E (sheath 300 mm), UT89B or FN875E		
On edge busbars with variable phase-spacing 	500A 630A 800A 1000A 1250A 1600A 2000A 2500A 3200A 4000A	50 x 50 mm UC844 63 x 5 mm UC922 80 x 5 mm UC966 100 x 5 mm UC967 80 x 10 mm UC966E 2 x 80 x 5 mm UC966 2 X 100 X 5 mm UC967 120 x 10 mm UC968E 2 x 80 x 10 mm UC966E 2 x 100 x 10 mm UC967 3 x 120 x 10 mm UC968E	horizontal and vertical mounting Busbars support kits UC895E (4 x 5), UC896E (2 x 10), UC897E (3 x 10). Aluminium profiles kit UC860E. Steel brackets kit to fix on uprights or perforated profiles UC861E. Spare parts fixing kit UC862E. Use perforated mounting rails FN873E to FN877E, FN862E to FN866E, FN882E to FN886E, FN690E to FN692E and UC821 according to configurations.			

Flat busbars to compose from 160 to 630A

To mount on bottoms of quadro4, quadro5 enclosures and on quadro+ crossbars
 - rear vertical mounting especially adapted to carry out busbars behind the modular devices
 - vertical mounting in bottom
 - horizontal mounting.

Inclined busbars to compose from 250 to 630A

To mount behind the front plate
 Horizontal mounting possible on 250 and 500 mm bottom widths, vertical mounting possible on 250 mm bottom widths.

Busbars supports to compose 500 to 1600A

To mount vertical and horizontal distribution busbars in quadro+ cells.
 Up to 2 copper bars per pole.
 For copper bars:
 - 400A, 50 x 5 mm
 - 630A, 63 x 10 mm
 - 800A, 80 x 5 mm
 - 1000A, 100 x 5 mm

Flat busbars from 160 to 630A

- includes 1 support, 3 M6 screws and 2 pillars for protective screen



UC820

Description	Cat. ref.
for copper bars: 160A, 12 x 5 mm - 250A, 20 x 5 mm - 400A, 32 x 5 mm 630A, 30 x 10 mm	UC820

Vertical busbars

- delivered with 2 cage nut and 2 M6 screws

Description	Cat. ref.
rear vertical busbar sfor bottom width 250 mm	UC812
vertical busbar in bottom mounting on 250 mm width bottom, horizontal mounting on 250 mm and 500 mm width bottoms	UC811

Protective screen

Description	Height (mm)	Width (mm)	Cat. ref.
protective screen to cut to the right dimensions	990	294	UC827

Inclined busbars to compose from 250 to 630A, behind the front plate

Description	Cat. ref.
4P support, set of 2 with 4 fixing parts, 8 cage nut, 16 M6 screws, 8 M8 screws and 4 pillars for protective screen	UC826
for copper bars 250A, 20 x 5 mm - 400A, 32 x 5 mm - 630A, 30 x 10 mm	
protective screen, to be adapted in length - l. 212 x h. 990 mm	UC828

Busbars supports to compose 500 to 1600 A

Description	Cat. ref.
3 poles support	UC823
4 poles support for copper bars, with screws and fixing parts	UC824
mounting brackets, to mount on supports UC824 and UC823	UC821



UC824

Busbars bearing

- for vertical mounted copper bars
 - includes 1 support, screw and fixing parts for the mounting on crossbars

Description	Cat. ref.
for 3P distribution	UC822
for 4P distribution	UC825

The compact adjustable busbars supports kits for 5mm thick and 10mm allow to connect moulded case circuit breakers in combination with flexible copper bars to distribute current and to connect the downstream circuit breakers in order to energize all the connected devices or sub-boards.

The compact busbar support kit can be installed vertically on the sides or on the bottom of the enclosure; in combination with functional partial uprights can be installed horizontally at any point of the cell (top, bottom, middle).

The compact busbar support kits are mounted inside of the fixing to joint the pre-drilled aluminium profiles UC860E. The aluminium

profiles are to be cut adapted to the size according to the width and depth of the enclosure and fixed to the structure through the UC861E corner bracket.

Technical data

- In: from 400A to 3200A,
- Icc: max up to 85 kA eff
- Ue: 1000 V AC and 1500V DC,
- thickness: 5 and 10mm,
- max busbar height: from 30 to 125mm,
- distance between 125mm pitch adjustable,
- operating temperature: from -40 to +130°C
- polyamide with halogenfree fibreglass.



UC895E

Busbar support kits

- one kit is composed of 8 insulating support and 6 lugs and fixing screw
- to be mounted inside of the fixing to joint the pre-drilled aluminium profiles UC860E

Description	Bars / phase	Thickness (mm)	Height (mm)	Cat. ref.
set of 4 x 3Ph+N	1 to 4	5	30 to 120	UC895E
set of 2 x 3Ph+N	1 to 2	10	30 to 120	UC896E
set of 3 x 3Ph+N	1 to 3	10	30 to 120	UC897E



UC860E

Perforated aluminium profiles

- for fastening the bars support kit
- one kit is composed of 2 profiles
- use the fixing brackets UC861E

Description	Cat. ref.
kit of 2 perforated aluminium profile	UC860E



UC861E

Brackets for aluminium profiles

- for fixing of the UC860E aluminium profiles to the enclosure

Description	Cat. ref.
kit composed of 10 square brackets with fixing screws	UC861E



UC862E

Additional screw kit

- for 2 bars of 10mm thickness busbar support

Description	Cat. ref.
spare parts fixing kit	UC862E

Sets of side bars quadro 250A to be composed

To mount in the sides of quadro enclosures.
Icc peak: 36 kA
Fixing centers of the supports: 225 mm

Possibility to install them directly on the bottoms of the quadro4, quadro5 and quadro+ enclosures, without using the crossbars.

Sets of multi stage bars In 250 and 400A - to be composed

For vertical installation in the cable sheaths of the quadro4, quadro5 and quadro+ enclosures.

Sets of side bars quadro 250 A to be composed

Description

set of 4-pole busbar 250A, 20 x 5 mm

protective screen, length: 1000 mm

Cat. ref.

UC830

UC834



UC830

Sets of multi stage bars In 250 and 400 A to be composed

Description

4 poles support for copper bars 250A, 20 x 5 mm and 400A, 32 x 5 mm delivered with 6 M6 screws and 2 cage nuts

universal crossbars for quadro5, quadro+ cable sleeve

universal crossbars for quadro4 (width 370), quadro5 (width 450) and quadro+ (width 400, 450)

protective screen, delivered with screw, length: 620 mm

Sheath length (mm)

-

200

250

-

Cat. ref.

UC815

UC288

UC988

UC816



UC815

Copper bars allow to connect miniature circuit breakers and moulded case circuit breakers. In combination with cables or flexible copper bars they allow to connect and energize the downstream circuits. The choice of busbar supports depends on the bar crosssections and their length. The connection screws must be ordered separately for the bars from 250 to 1000A.

The current capacities (Iz) of flat busbars with components fitted were calculated by testing at :
 - 35°C for ambient temperature
 - 45°C for enclosure internal temperature
 - 85°C for conductors temperature with an enclosure IP degree over than 30 and with enclosure doors closed.

Complies with BS EN 13601.

Technical data

- In : mini 1049A and maxi 2144A (1 bar per phase)
- Icc : max 854A eff
- Ue : 1000 AC
- thickness : 10 mm
- height : mini 50 mm



Copper bars

KS72B



UC842

Description	In	Length (mm)	Cat. ref.
12 x 5 mm copper bar, M5 tapped, delivered with screw	160A	245	KS72B
12 x 5 mm copper bar, M5 tapped, delivered with screw	160A	1000	KS72C
20 x 5 mm copper bar, M6 tapped	250A	1000	UC832
25 x 5 mm copper bar, M6 tapped	250A	1750	UT87E
32 x 5 mm copper bar, M6 tapped	400A	1000	UC842
30 x 5 mm copper bar, M6 tapped	400A	280	UM30A3
30 x 5 mm copper bar, M6 tapped	400A	430	UM30A1
30 x 5 mm copper bar, M6 tapped	400A	880	UM30A2
32 x 5 mm copper bar, M6 tapped	500A	1750	UC843
30 x 10 mm copper bar, M6 tapped	630A	430	UM30A4
30 x 10 mm copper bar, M6 tapped	630A	880	UM30A5
20 x 5 mm ????????	????	?1750	UC833



UC966

Perforated copper bars, 5mm thickness

- for use with UC896 -UC897

Description	Length (mm)	Cat. ref.
50x5 - I max 772A	1750	UC844
63x5 - I max 951A	1750	UC922
80x5 - I max 1173A	1750	UC966
100x5 - I max 1431A	1750	UC967
125x5 - I max 1723A	1750	UC968

Perforated copper bars, 10mm thickness

- for use with UC896 -UC897

Description	Length (mm)	Cat. ref.
50x10 - I max 1049A	1750	UC844E
60x10 - I max 1214A	1750	UC922E
80x10 - I max 1528A	1750	UC966E
100x10 - I max 1836A	1750	UC967E
120x10 - I max 2144A	1750	UC968E

Screws

Description	Cat. ref.
self thread forming screws M6 x 10	UC856E
connection screws M6 x 12 with washers	UC851
connection screws M8 x 30 with washers	UC853
connection screws M10 x 30 with washers	UC855



UC851

Busbar selection guide depending on nominal current In (A)

In (A)	cross-section and number of bars per phase			busbar holders
	1	2	3	cat. ref.
500	50 x 5	-	-	UC895E
630	63 x 5	-	-	UC895E
800	80 x 5	-	-	UC895E
1000	100 x 5	-	-	UC895E
1250	-	80 x 5	-	UC895E
1600	-	100 x 5	-	UC896E
2000	-	80 x 10	-	UC896E
2500	-	100 x 10	-	UC896E
3200	-	-	100 x 10	UC897E
4000	-	-	120 x 10	UC897E



UC895E

Link connectors and bars

To carry out connections between incoming devices and distribution system (set of busbars, repartitor blocks).

Connectors

To carry out connections between incoming devices and distribution system (set of busbars, distribution blocks).
- h3 MCCBs: x250, h250 LSI, h630 LSI



UC870

Link connectors

Description	includes	Cat. ref.
to connect the switches HA406N, HA407, HA408 to distribution blocks KJ02 fixed on the same line	4 cables H 07-V-K black, 50 mm ² , length 450 mm with lugs	UC870
to connect the switches HA452 / HA454 to distribution blocks KJ02 fixed beside the switch	4 flexible connectors 20 x 3 mm	UC874
to connect the switches HA452 / HA454 to the side busbars	4 flexible connectors 20 x 3 mm	UC876



UM92Y

Flexible copper bars

- to connect the switches HA452/HA454 to the side busbars

Description	In	Length (m)	Cat. ref.
section 20 x 2 mm	160A	2	UM92X
section 20 x 3 mm	250A	2	UM92Y
section 32 x 4 mm	400A	2	UM92Z
section 24 x 5 mm	400A	2	UM92ZE
section 32 x 6 mm	630A	2	UM92W
section 24 x 8 mm	630A	2	UM92WE
section 40 x 6 mm	800A	2	UM92V
section 40 x 8 mm	1000A	2	UM92VE



UC877

Connectors

- possible mounting in quadro4 and quadro5

Description	includes	Cat. ref.
to connect x250 and h250 LSI MCCBs to the inclined bars set UC826 mounted in 250 mm width	4 cables with lugs, 20 x 3 mm ²	UC877
to connect h630 LSI MCCBs to inclined bars set UC826 mounted in 250 mm width	4 cables, 25 x 6 mm ²	UC868
to connect the horizontal mounted x250 and h250 LSI MCCBs in 500 mm width to bars set UC820 mounted behind modular devices in 500 mm width	4 cables, 25 x 6 mm ²	UC875



UC868



UC871

Incoming kits

- possible mounting in quadro4, quadro5 and quadro+

Description	includes	Cat. ref.
to supply the horizontal mounted x250 and h250 LSI MCCBs in 500 mm width	1 support for cable incoming (maxi 70 mm ²) and 4 cables 70 mm ² with lugs	UC871
to connect the horizontal mounted x250 and h250 LSI MCCBs in 500 mm width to inclined bars set UC826 horizontal mounted	4 cables 70 mm ² with lugs	UC869



UC879

Link connection

- possible mounting in quadro4, quadro5 and quadro+

Description	includes	Cat. ref.
to connect x250 et h250 LSI MCCBs to bars set UC826 mounted behind the modular devices in 500 mm width	4 cables 70 mm ² with lugs	UC879

Stepped distribution blocks

- modular
 - monobloc
 - for copper conductors
 - removable front cover
 - Ui: 500V
 - fixing on DIN rail
- Equipped with an insulated rear plate.

Single pole distribution blocks

- monoblocs, insulated, grey colour,
- clip fixing on mounting plate DIN rail of the main devices kit,
- lcc peak: 36 kA

Comply with IEC 60 998-1 and IEC 60947-7-1.

Modular distribution monobloc

- h. 74.5 x d. 45 mm

Description	Isc peak (kA)	Connection capacity per bar	Width (mm)	Cat. ref.
100 A - four pole	20	per phase: 1x25 + 2x10 + 5x6 mm ² neutral: 1x25 + 6x10 + 4x6 mm ²	98 (5.5 modules)	KJ02E



KJ02E

Stepped distribution blocks Brass busbar terminals

Description	Isc peak (kA)	Connection capacity per bar	Width (mm)	Cat. ref.
100 A - four pole 4 x 7 connection points	24	2 x25 + 5 x16 mm ² rigid wire 2 x16 + 5x10 mm ² with ferrule	71 (4 modules)	KJ100A
125 A - four pole 4x15 connection points	28	1x35 + 3x35 + 11x16 mm ² rigid wire 1x35 + 3x25 + 11x16 mm ² with ferrule	170 mm (10 modules)	KJ125B
160 A - four pole 4x12 connection points	36	1x70 + 3x35 + 8x25 mm ² rigid wire 1x50 + 3x25 + 8x16 mm ² with ferrule	162 mm (9 modules)	KJ160A



KJ100A



KJ160A

Additional neutral bar

Description	Connection capacity	Cat. ref.
100 A 7 connection points	2x25 + 5x10 mm ² rigid wire 2x16 + 5x6 mm ² with ferrule	KJ07NB
125 A 12 connection points	1x35 + 7x25 + 4x16 mm ² rigid wire 1x25 + 7x16 + 4x10 mm ² with ferrule	KJ12NB
125 A 15 connection points	1x35 + 3x35 + 11x16 mm ² rigid wire 1x25 + 3x25 + 11x10 mm ² with ferrule	KJ15NB



KJ15NB

Single pole distribution blocks

for copper conductors

Description	Ipk (kA)	Connection capacity	Width (mm)	Cat. ref.
125A	30	incoming: 1x35 + 1x16 mm ² outgoing: 6x16 mm ²	27	KJ02D
160A	30	incoming: 1x70 mm ² + 1 lateral flat copper max 16x5mm outgoing: 6x16 mm ²	35	KJ02C
250A	50	incoming: 1x95 mm ² outgoing: 2x25 + 5x16 + 4x10 mm ²	45	KJ02A
400A	50	incoming: 1x150 mm ² outgoing: 2x25 + 5x16 + 4x10 mm ²	45	KJ02B



4 x KJ02A

Multi-plug 4P repartitors 250A

- bridging of all types of equipments 2, 3 and 4 poles placed on the same DIN rail
- facilitate phases balancing
- incoming connection by 4 screw ranges
- outgoing connection by insulated flexible connectors with automatic lock.

Delivered with

- 6 blue insulated wire connectors H07 V-K, 6 x 6mm² (blue) and 12 x 6mm² (black)
- 12 black insulated wires connectors H07 V-K: 6 x 6mm² (blue) and 12 x 6mm² (black)
- 2 quadro mounting legs
- 2 unifers fixing brackets.



KJ03A

Multi-plug 4P repartitors

- implementation in 620 or 700 mm width quadro enclosures
- 60 connection points per pole
- sections: 6 mm² and 10 mm²
- acceptable In under 40 °C: per pole: 250A, 40A with connector 6 mm², 63A with connector 10 mm²
- Icc peak: 60 kA
- Un: 500 V AC - 50 Hz

Description	Cat. ref.
without connector	KJ03A
with connectors	KJ03B



KZ007

Connectors (end)

Description	Cat. ref.
to clip 6 mm ² flexible wire	KZ007



KZ001

KZ002

Connectors

- for multi-plug repartitors 250 A
- flexible connectors insulated wire serial H07 V-K

Description	In	Section (mm ²)	Cat. ref.	
			blue	black
connectors length 120 mm	40A	6	KZ001	KZ002
connectors length 500 mm	40A	6	KZ051	KZ052
connectors length 120 mm	63A	10	KZ004	KZ005
connectors length 500 mm	63A	10	KZ074	KZ075

Cable management accessories

Several systems allow to manage the cable trunking, as well as the connections in quadro enclosures:

- vertical slotted trunking
- horizontal slotted trunking
- cable guides.

Universal crossbars

Allow either to maintain the cables using a clamp, or to mount a vertical DIN rail to create a terminal block

Cable spreader box

insulating material, RAL 9010

Fixed on the top or the bottom part of the enclosures, these trunkings allow the enlargement and the arrangement of the incoming and outgoing cables and ensure the junction between the enclosures and the vertical trunking.

Slotted trunking

- delivered with cover

Description	Length (mm)	Cat. ref.
vertical slotted trunking w. 60 x 80 mm	2000	UC916
horizontal slotted trunking w.30 x 80 mm	250	UC911
horizontal slotted trunking w.30 x 80 mm	500	UC912
horizontal slotted trunking w.30 x 80 mm	750	UC313



UC916

Fixing supports

- possible mounting in quadro4, quadro5 and quadro+

Description	Cat. ref.
vertical and horizontal sheaths on the bottom of the quadro enclosures	UC915



UC915

Cable straps

- 1 set includes 20 pieces

Description	Cat. ref.
large volume	UZ25V1
small volume	UZ25V2



UZ25V1

UZ25V2

Cable guides

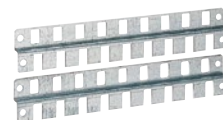
- 1 set includes 20 pieces

Description	Cat. ref.
fixing centres 150 mm	UZ01V1

Universal crossbars

- for 200 mm cable sheaths in 900 mm width quadro5

Description	Width (mm)	Cat. ref.
universal crossbar	185	UC288
universal crossbar	250	UC988
universal crossbar	500	UC289
universal crossbar	900	UC989



UC988

Blanking strips

Description	Cat. ref.
24 modules length	JP024



JP024



JE003

Marking strips

- includes adhesive transparent label holder and marking strip

Description	Length (in modules)	Cat. ref.
marking strips for modular front plates	10	JE001
marking strips for modular front plates	24	JE003



FZ442

Cable spreader boxes

- includes 2 fixing brackets, 1 bottom plate, 1 cover and 2 side cover plates

Description	Length (mm)	Cat. ref.
cable spreader box h. 195 x d. 155 mm	300	FZ441
cable spreader box h. 195 x d. 155 mm	550	FZ442
cable spreader box h. 195 x d. 155 mm	800	FZ443
cable spreader box h. 195 x d. 155 mm	1050	FZ444

Horizontal segregation metallic plate

Description	Length (mm)	Cat. ref.
horizontal segregation metallic plate for quadro4 and quadro5	620	FC664

Incoming earth terminal blocks

To mount on supplied 80mm spacers.

Outgoing connectors for PE conductors

To mount on supplied 80mm spacers, possibility to add quickconnect terminals.

Caution

connectors UC975S and UC976S have no equipotential connection with the structures of the enclosure.

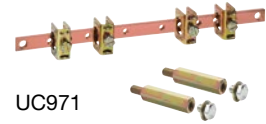
Mounting rail

For terminals blocks vertical or horizontal mounting. Length: 2 m.

Incoming earth terminal blocks

- can be completed with the staples below

Description	Width (mm)	Cat. ref.
incoming earth terminal blocks	250	UC971
Incoming earth terminal blocks	500	UC972



Staples

- for above terminal blocks

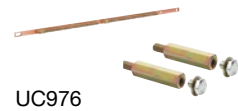
Description	Cable section (mm ²)	Cat. ref.
staples	16	K070
staples	35	K071
staples	70	K073
staples	95	K074



Outgoing connectors

- 1 set includes 20 pieces

Description	Width (mm)	Cat. ref.
outgoing connectors for PE conductors connection includes support (1 x 35 mm ² - 11 x 16 mm ² - 13 x 10 mm ²), 2 nuts, 2 screws and spacers	250	UC975
outgoing connectors for PE conductors connection includes support (1 x 35 mm ² - 11 x 16 mm ² - 13 x 10 mm ²), 2 nuts, 2 screws and spacers	500	UC976
outgoing connectors quickconnect for PE conductors connection includes 1 DIN rail, support KN00A, terminal block KN26E, 2 nuts, 2 screws and 2 decked terminals for UC976S	250	UC975S
outgoing connectors quickconnect for PE conductors connection includes 1 DIN rail, support KN00A, terminal block KN26E, 2 nuts, 2 screws and 2 decked terminals for UC976S	500	UC976S



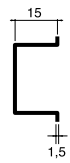
Metal spacers

Description	Cat. ref.
spacer height: 80 mm, M6 screw	UC992





A09900



A09900

Symmetrical DIN rails

- DIN 46277/3
- 35 mm width

Description	Width (mm)	Depth (mm)	Cat. ref.
symmetrical DIN rail	35	15	A09900



A099E



Symmetrical perforated DIN rails

Description	Width (mm)	Depth (mm)	Cat. ref.
symmetrical DIN rails perforated DIN 46277/2	15	5	A099E
symmetrical DIN rails perforated DIN 46277/3	35	55	A099B



A099C



DIN rail for structure

Description	Width (mm)	Depth (mm)	Cat. ref.
DIN rail	250	15	A099C
special sliding screws M6	-	-	A099D



A099D



UC990

Nuts and screws

Description	Cat. ref.
cage nuts M6	UC990
screws, M6 x 12	UC991
screws, M6 x 10	UC856E



UC991

**orion plus IP 65
metal enclosures**



Choice of equipment :



Plain metal mounting plates for automation or non modular products



Perforated metal mounting plates for automation or non modular products



Insulated metal mounting plates for automation of non modular products

The orion plus enclosures

These enclosures are of monobloc construction available in metal, glass reinforced polyester (GRP) with plain or transparent doors. They constitute a large range of enclosures with heights from 300 up to 2050mm and width up to 800mm (metal) and 1100mm (polyester).

These enclosures are flexible and can be used with different types of equipments:

- plain, perforated or insulated metal mounting plates.

These enclosures allow:

- installation of automation products for the control of machines or small processes
- installation of non modular products such as contactors, transformers, etc....
- cable termination and distribution.

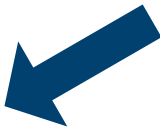
Metal mounting plates:

- available in various sizes, plain, perforated, insulated for the installation of non modular equipment.
- fixed directly on the back of the enclosure or on depth adjustable guides depending on the size of the equipment.

Chassis kits

for modular products designed for easy mounting of modular equipment. The chassis can be removed and tilted. Supplied complete with front cover, DIN rails and uprights.

**orion plus IP 66
polyester enclosures**



Equipment kits for modular products



orion plus enclosures
sheet steel



mounting plates
plain or perforated

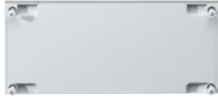


Equipment kits for
modular chassis



Enclosures dimensions in mm			modular height	qty of modules per row	max. capacity (modules)	enclosures		plinth h. 150	mounting plates			internal doors	
height	width	depth				with plain door	with transp. door		metal plain	metal perforated	insulated	metal	insulated
250	200	160	-	-	-	FL101A	FL151A	-	FL401A	-	-	FL541A	-
300	250	160	-	-	-	FL102A	FL152A	-	FL402A	FL472A	FL422A	FL542A	-
300	300	160	-	-	-	FL103A	FL153A	-	FL403A	-	-	FL543A	-
350	300	160	300	10	20	FL104A	FL154A	-	FL404A	FL473A	FL423A	FL544A	FL643A
350	300	200	300	10	20	FL105A	FL155A	-	FL404A	FL473A	FL423A	FL544A	FL643A
400	300	160	-	-	-	FL106A	FL156A	-	FL405A	-	-	FL545A	-
400	300	200	-	-	-	FL107A	FL157A	-	FL405A	-	-	FL545A	-
400	400	200	-	-	-	FL108A	FL158A	-	FL406A	-	-	FL546A	-
500	300	160	450	10	30	FL109A	FL159A	-	FL407A	FL474A	FL424A	FL547A	FL644A
500	300	200	450	10	30	FL110A	FL160A	-	FL407A	FL474A	FL424A	FL547A	FL644A
500	400	160	450	16	48	FL111A	FL161A	-	FL408A	FL475A	FL425A	FL548A	FL645A
500	400	200	450	16	48	FL112A	FL162A	-	FL408A	FL475A	FL425A	FL548A	FL645A
500	500	200	-	-	-	FL113A	FL163A	-	FL409A	-	-	FL549A	-
600	400	200	-	-	-	FL114A	FL164A	-	FL410A	-	-	FL550A	-
600	400	250	-	-	-	FL115A	FL165A	-	FL410A	-	-	FL550A	-
600	600	250	-	-	-	FL116A	FL166A	-	FL411A	-	-	FL553A	-
650	400	200	600	16	64	FL117A	FL167A	-	FL412A	FL476A	FL426A	FL551A	-
650	400	250	600	16	64	FL118A	FL168A	-	FL412A	FL476A	FL426A	FL551A	-
650	500	200	600	22	88	FL119A	FL169A	FL957A	FL413A	FL477A	FL427A	FL552A	-
650	500	250	600	22	88	FL120A	FL170A	FL958A	FL413A	FL477A	FL427A	FL552A	-
800	500	200	750	22	110	FL121A	FL171A	FL957A	FL414A	FL478A	FL428A	FL554A	-
800	500	250	750	22	110	FL122A	FL172A	FL958A	FL414A	FL478A	FL428A	FL554A	-
800	600	250	750	26	130	FL123A	FL173A	FL959A	FL415A	FL479A	FL429A	FL555A	FL649A
800	600	300	750	26	130	FL124A	FL174A	FL960A	FL415A	FL479A	FL429A	FL555A	FL649A
950	600	250	900	26	156	FL125A	FL175A	FL959A	FL416A	FL480A	FL430A	FL556A	-
950	600	300	900	26	156	FL126A	FL176A	FL960A	FL416A	FL480A	FL430A	FL556A	-
950	800	250	900	37	222	FL127A	FL177A	FL961A	FL417A	FL481A	FL431	FL557A	-
950	800	300	900	37	222	FL128A	FL178A	FL962A	FL417A	FL481A	FL431A	FL557A	-
1250	600	250	1200	26	208	FL129A	FL179A	FL959A	FL418A	FL482A	FL432A	FL558A	-
1250	800	300	1200	37	296	FL130A	FL180A	FL962A	FL419A	FL483A	FL433A	FL559A	-

plain front plates



partial metal mounting plates
fixed or adjustable



DIN rails for
terminals

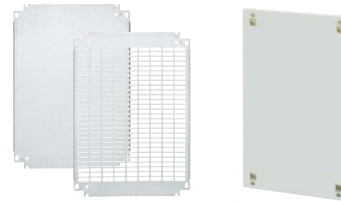


	modular equipment kits	plain front plates				partial metal plates fixed				partial metal plates adjustable				DIN rails for terminals
		h. 50	h. 150	h. 200	h. 300	h. 150	h. 200	h. 300	h. 400	h. 150	h. 200	h. 300	h. 400	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FL990A	-	FL711E	-	-	-	FL311A	-	-	-	-	-	-	-	-
FL990A	-	FL711E	-	-	-	FL311A	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FL991A	-	FL711E	-	-	-	FL311A	-	-	-	-	-	-	-	-
FL991A	-	FL711E	-	-	-	FL311A	-	-	-	-	-	-	-	-
FL992A	FL702E	FL712E	FL722E	-	-	FL312A	FL322A	-	-	-	-	-	-	FL500A
FL992A	FL702E	FL712E	FL722E	-	-	FL312A	FL322A	-	-	-	-	-	-	FL500A
-	-	-	-	-	-	-	-	-	-	-	-	-	-	FL500A
-	-	-	-	-	-	-	-	-	-	-	-	-	-	FL500A
-	-	-	-	-	-	-	-	-	-	-	-	-	-	FL500A
-	-	-	-	-	-	-	-	-	-	-	-	-	-	FL500A
FL993A	FL702E	FL712E	FL722E	-	-	FL312A	FL322A	-	-	-	-	-	-	FL500A
FL993A	FL702E	FL712E	FL722E	-	-	FL312A	FL322A	-	-	FL314A	FL324A	-	-	FL500A
FL994A	FL703E	FL713E	FL723E	FL733E	FL313A	FL323A	FL333A	FL343A	-	-	-	-	-	FL501A
FL994A	FL703E	FL713E	FL723E	FL733E	FL313A	FL323A	FL333A	FL343A	FL315A	FL325A	FL335A	FL345A	-	FL501A
FL995A	FL703E	FL713E	FL723E	FL733E	FL313A	FL323A	FL333A	FL343A	-	-	-	-	-	FL501A
FL995A	FL703E	FL713E	FL723E	FL733E	FL313A	FL323A	FL333A	FL343A	FL315A	FL325A	FL335A	FL345A	-	FL501A
FL996A	FL704E	FL714E	FL724E	FL734E	-	-	-	-	FL316A	FL326A	FL336A	FL346A	-	FL502A
FL996A	FL704E	FL714E	FL724E	FL734E	-	-	-	-	FL316A	FL326A	FL336A	FL346A	-	FL502A
FL997A	FL704E	FL714E	FL724E	FL734E	-	-	-	-	FL316A	FL326A	FL336A	FL346A	-	FL502A
FL997A	FL704E	FL714E	FL724E	FL734E	-	-	-	-	FL316A	FL326A	FL336A	FL346A	-	FL502A
FL998A	FL705E	FL715E	FL725E	FL735E	-	-	-	-	FL317A	FL327A	FL337A	FL347A	-	FL503A
FL998A	FL705E	FL715E	FL725E	FL735E	-	-	-	-	FL317A	FL327A	FL337A	FL347A	-	FL503A
FL999A	FL704E	FL714E	FL724E	FL734E	-	-	-	-	FL316A	FL326A	FL336A	FL346A	-	FL502A
FL000A	FL705E	FL715E	FL725E	FL735E	-	-	-	-	FL317A	FL327A	FL337A	FL347A	-	FL503A

orion plus polyester enclosures



metal mounting plate internal doors



modular chassis functional uprights



Enclosures dimensions in mm			modular height	qty of modules per row	max. capacity (modules)	enclosures		mounting plates			internal doors		modular equipment kits
height	width	depth				with plain door	with transp. door	metal plain	metal perforated	insulated	metal plain	insulated	
350	300	160	300	10	20	FL204B	FL254B	FL404A	FL473A	FL423A	FL544A	FL643A	FL990A
500	300	200	450	10	30	FL209B	FL259B	FL407A	FL474A	FL424A	FL547A	FL644A	FL991A
500	400	200	450	16	48	FL213B	FL263B	FL408A	FL475A	FL425A	FL548A	FL645A	FL992A
650	400	200	600	16	64	FL216B	FL266B	FL412A	FL476A	FL426A	FL551A	FL646A	FL993A
650	500	250	600	22	88	FL221B	FL271B	FL413A	FL477A	FL427A	FL552A	FL647A	FL994A
800	600	300	750	26	130	FL229B	FL279B	FL415A	FL479A	FL429A	FL555A	FL649A	FL996A

Enclosures dimensions in mm			modular height	qty of modules per row	max. capacity (modules)	modular kit on chassis
height	width	depth				
350	300	160	300	10	20	FL980A
500	300	200	450	10	30	FL981A
500	400	200	450	16	48	FL982A
650	400	200	600	16	64	FL983A
650	500	250	600	22	88	-
800	600	300	750	26	130	-

plain front plates



partial metal mounting plates



DIN rail for terminal



Main switchboards

plain front plates				partial metal plates fixed				partial metal plates adjustable				DIN rails for terminals
h. 50	h. 150	h. 200	h. 300	h. 150	h. 200	h. 300	h. 400	h. 150	h. 200	h. 300	h. 400	
-	FL711E	-	-	FL311A	-	-	-	-	-	-	-	-
-	FL711E	-	-	FL311A	-	-	-	-	-	-	-	-
FL702E	FL712E	FL722E	-	FL312A	FL322A	-	-	-	-	-	-	FL500A
FL702E	FL712E	FL722E	-	FL312A	FL322A	-	-	-	-	-	-	FL500A
FL703E	FL713E	FL723E	FL733E	FL313A	FL323A	FL333A	FL343A	-	-	-	-	FL501A
FL704E	FL714E	FL724E	FL734E	-	-	-	-	FL316A	FL326A	FL336A	FL346A	FL502A

polyester enclosures
depth 300 mm

Transparent doors

Metal mounting
plates



	Enclosures dimensions in mm					upper section		lower section		enclosures		transparent doors		metal mounting plates		insulated mounting plates
	height	width	modular width	modular height upper	modular height lower	qty of mod. p/row	max. capacity	qty of mod. p/row	max. capacity (mod.)	with plain door	with transparent door	upper part	lower part	plain upper section	lower section	upper section
enclosures	550	600	500	450	-	23	69	-	-	FL300B	FL500B	-	-	FL510E	-	FL550E
	850	600	500	750	-	23	115	-	-	FL301B	FL501B	-	-	FL511E	-	FL551E
	1150	600	500	1050	-	23	161	-	-	FL302B	FL502B	-	-	FL512E	-	FL552E
	550	850	750	450	-	37	111	-	-	FL305B	FL505B	-	-	FL520E	-	FL560E
	850	850	750	750	-	37	185	-	-	FL306B	FL506B	-	-	FL521E	-	FL561E
	1150	850	750	1050	-	37	259	-	-	FL307B	FL507B	-	-	FL522E	-	FL562E
	550	1100	500+500	450	-	46	138	-	-	FL310B	FL510B	-	-	FL530E	-	FL570E
	850	1100	500+500	750	-	46	230	-	-	FL311B	FL511B	-	-	FL531E	-	FL571E
	1150	1100	500+500	1050	-	46	322	-	-	FL312B	FL512B	-	-	FL532E	-	FL572E
	600	600	500	450	-	23	69	-	-	FL320B	FL520B	-	-	FL510E	-	FL550E
	900	600	500	750	-	23	115	-	-	FL321B	FL521B	-	-	FL511E	-	FL551E
	1200	600	500	1050	-	23	161	-	-	FL322B	FL522B	-	-	FL512E	-	FL552E
	600	850	750	450	-	37	111	-	-	FL325B	FL525B	-	-	FL520E	-	FL560E
	900	850	750	750	-	37	185	-	-	FL326B	FL526B	-	-	FL521E	-	FL561E
	1200	850	750	1050	-	37	259	-	-	FL327B	FL527B	-	-	FL522E	-	FL562E
	600	1100	500+500	450	-	46	138	-	-	FL330B	FL530B	-	-	FL530E	-	FL570E
900	1100	500+500	750	-	46	230	-	-	FL331B	FL531B	-	-	FL531E	-	FL571E	
1200	1100	500+500	1050	-	46	322	-	-	FL332B	FL532B	-	-	FL532E	-	FL572E	
enclosures with 2 sections	1150	600	500	450	450	23	69	23	69	FL340B	-	FL400B	FL400B	FL510E	FL510E	FL550E
	1450	600	500	450	750	23	69	23	115	FL342B	-	FL400B	FL401B	FL510E	FL511E	FL550E
	1750	600	500	450	1050	23	69	23	161	FL344B	-	FL400B	FL402B	FL510E	FL512E	FL550E
	1750	600	500	750	750	23	115	23	115	FL346B	-	FL401B	FL401B	FL511E	FL511E	FL551E
	2050	600	500	750	1050	23	115	23	161	FL348B	-	FL401B	FL402B	FL511E	FL512E	FL551E
	1150	850	750	450	450	37	111	37	111	FL350B	-	FL405B	FL405B	FL520E	FL520E	FL560E
	1450	850	750	450	750	37	111	37	185	FL352B	-	FL405B	FL406B	FL520E	FL521E	FL560E
	1750	850	750	450	1050	37	111	37	259	FL354B	-	FL405B	FL407B	FL520E	FL522E	FL560E
	1750	850	750	750	750	37	185	37	185	FL356B	-	FL406B	FL406B	FL521E	FL521E	FL561E
	2050	850	750	750	1050	37	185	37	259	FL358B	-	FL406B	FL407B	FL521E	FL522E	FL561E
	1150	1100	500+500	450	450	46	138	46	138	FL360B	-	FL410B	FL410B	FL530E	FL530E	FL570E
	1450	1100	500+500	450	750	46	138	46	230	FL362B	-	FL410B	FL411B	FL530E	FL531E	FL570E
	1750	1100	500+500	450	1050	46	138	46	322	FL364B	-	FL410B	FL412B	FL530E	FL532E	FL570E
	1750	1100	500+500	750	750	46	230	46	230	FL366B	-	FL411B	FL411B	FL531E	FL531E	FL571E
2050	1100	500+500	750	1050	46	230	46	322	FL368B	-	FL411B	FL412B	FL531E	FL532E	FL571E	

internal door
metal



modular chassis
functional uprights



plain front plates



partial metal
mounting plates



DIN rail



		internal door		modular kits		plain front plates				partial metal plates adjustable				DIN rails for terminals
	lower section	metal upper section	lower section	upper section	lower section	h.50	h.150	h.200	h.300	h.150	h.200	h.300	h.400	
	-	FL590E	-	FL990B	-	-	FL710E	-	-	FL610E	FL620E	FL630E	FL640E	FL500E
	-	FL591E	-	FL992B	-	-	FL710E	-	-	FL610E	FL620E	FL630E	FL640E	FL500E
	-	FL592E	-	FL994B	-	-	FL710E	-	-	FL610E	FL620E	FL630E	FL640E	FL500E
	-	FL600E	-	FL991B	-	FL705E	FL715E	FL725E	FL735E	FL317A	FL327A	FL337A	FL347A	FL503A
	-	FL601E	-	FL993B	-	FL705E	FL715E	FL725E	FL735E	FL317A	FL327A	FL337A	FL347A	FL503A
	-	FL602E	-	FL995B	-	FL705E	FL715E	FL725E	FL735E	FL317A	FL327A	FL337A	FL347A	FL503A
	-	2xFL590E	-	2xFL990B	-	-	FL710E	-	-	FL610E	FL620E	FL630E	FL640E	FL500E
	-	2xFL591E	-	2xFL992B	-	-	FL710E	-	-	FL610E	FL620E	FL630E	FL640E	FL500E
	-	2xFL592E	-	2xFL994B	-	-	FL710E	-	-	FL610E	FL620E	FL630E	FL640E	FL500E
	-	FL590E	-	FL990B	-	-	FL710E	-	-	FL610E	FL620E	FL630E	FL640E	FL500E
	-	FL591E	-	FL992B	-	-	FL710E	-	-	FL610E	FL620E	FL630E	FL640E	FL500E
	-	FL592E	-	FL994B	-	-	FL710E	-	-	FL610E	FL620E	FL630E	FL640E	FL500E
	-	FL600E	-	FL991B	-	FL705E	FL715E	FL725E	FL735E	FL317A	FL327A	FL337A	FL347A	FL503A
	-	FL601E	-	FL993B	-	FL705E	FL715E	FL725E	FL735E	FL317A	FL327A	FL337A	FL347A	FL503A
	-	FL602E	-	FL995B	-	FL705E	FL715E	FL725E	FL735E	FL317A	FL327A	FL337A	FL347A	FL503A
	-	2xFL590E	-	2xFL990B	-	-	FL710E	-	-	FL610E	FL620E	FL630E	FL640E	FL500E
	-	2xFL591E	-	2xFL992B	-	-	FL710E	-	-	FL610E	FL620E	FL630E	FL640E	FL500E
	-	2xFL592E	-	2xFL994B	-	-	FL710E	-	-	FL610E	FL620E	FL630E	FL640E	FL500E
	FL550E	FL590E	FL590E	FL990B	FL990B	-	FL710E	-	-	FL610E	FL620E	FL630E	FL640E	FL500E
	FL551E	FL590E	FL591E	FL990B	FL992B	-	FL710E	-	-	FL610E	FL620E	FL630E	FL640E	FL500E
	FL552E	FL590E	FL592E	FL990B	FL994B	-	FL710E	-	-	FL610E	FL620E	FL630E	FL640E	FL500E
	FL551E	FL591E	FL591E	FL992B	FL992B	-	FL710E	-	-	FL610E	FL620E	FL630E	FL640E	FL500E
	FL552E	FL591E	FL592E	FL992B	FL994B	-	FL710E	-	-	FL610E	FL620E	FL630E	FL640E	FL500E
	FL560E	FL600E	FL600E	FL991B	FL991B	FL705E	FL715E	FL725E	FL735E	FL317A	FL327A	FL337A	FL347A	FL503A
	FL561E	FL600E	FL601E	FL991B	FL993B	FL705E	FL715E	FL725E	FL735E	FL317A	FL327A	FL337A	FL347A	FL503A
	FL562E	FL600E	FL602E	FL991B	FL995B	FL705E	FL715E	FL725E	FL735E	FL317A	FL327A	FL337A	FL347A	FL503A
	FL561E	FL601E	FL601E	FL993B	FL993B	FL705E	FL715E	FL725E	FL735E	FL317A	FL327A	FL337A	FL347A	FL503A
	FL562E	FL601E	FL602E	FL993B	FL995B	FL705E	FL715E	FL725E	FL735E	FL317A	FL327A	FL337A	FL347A	FL503A
	FL570E	2xFL590E	2xFL590E	2xFL990B	2xFL990B	-	FL710E	-	-	FL610E	FL620E	FL630E	FL640E	FL500E
	FL571E	2xFL590E	2xFL591E	2xFL990B	2xFL992B	-	FL710E	-	-	FL610E	FL620E	FL630E	FL640E	FL500E
	FL572E	2xFL590E	2xFL592E	2xFL990B	2xFL994B	-	FL710E	-	-	FL610E	FL620E	FL630E	FL640E	FL500E
	FL571E	2xFL591E	2xFL591E	2xFL992B	2xFL992B	-	FL710E	-	-	FL610E	FL620E	FL630E	FL640E	FL500E
	FL572E	2xFL591E	2xFL592E	2xFL992B	2xFL994B	-	FL710E	-	-	FL610E	FL620E	FL630E	FL640E	FL500E

Sheet metal enclosures with plain or transparent door

color RAL 7035
 IP 65 / IK 10 with door closed
 IP 30 with door open
 insulation class: I
 compliance to IEC 529

Enclosures delivered with

- 2 removable cable entry plates top/bottom,
- earthing studs on enclosure body and door,
- easy dismountable hinges to reverse the door,
- plain or transparent door with 1 or 2 locks with triangular centre 8mm located on the non weatherproof part,
- mounting slides,
- gasket moulded on the door,

Accessories

- locks,
- wall fixing brackets,
- metallic or insulated internal doors
- plain or perforated metallic mounting plates
- kits for modular equipment

Complies with IEC62208



FL113A

Metal enclosures orion plus

Description	Height (mm)	Width (mm)	Depth (mm)	Cat. ref.	
				plain door	transparent door
metal enclosure	250	200	160	FL101A	FL151A
metal enclosure	300	250	160	FL102A	FL152A
metal enclosure	300	300	160	FL103A	FL153A
metal enclosure	350	300	160	FL104A	FL154A
metal enclosure	350	300	200	FL105A	FL155A
metal enclosure	400	300	160	FL106A	FL156A
metal enclosure	400	300	200	FL107A	FL157A
metal enclosure	400	400	200	FL108A	FL158A
metal enclosure	500	300	160	FL109A	FL159A
metal enclosure	500	300	200	FL110A	FL160A
metal enclosure	500	400	160	FL111A	FL161A
metal enclosure	500	400	200	FL112A	FL162A
metal enclosure	500	500	200	FL113A	FL163A
metal enclosure	600	400	200	FL114A	FL164A
metal enclosure	600	400	250	FL115A	FL165A
metal enclosure	600	600	250	FL116A	FL166A
metal enclosure	650	400	200	FL117A	FL167A
metal enclosure	650	400	250	FL118A	FL168A
metal enclosure	650	500	200	FL119A	FL169A
metal enclosure	650	500	250	FL120A	FL170A
metal enclosure	800	500	200	FL121A	FL171A
metal enclosure	800	500	250	FL122A	FL172A
metal enclosure	800	600	250	FL123A	FL173A
metal enclosure	800	600	300	FL124A	FL174A
metal enclosure	950	600	250	FL125A	FL175A
metal enclosure	950	600	300	FL126A	FL176A
metal enclosure	950	800	250	FL127A	FL177A
metal enclosure	950	800	300	FL128A	FL178A
metal enclosure	1250	600	250	FL129A	FL179A
metal enclosure	1250	800	300	FL130A	FL180A

Plinths

Description	Height (mm)	Cat. ref.
for enclosures: FL113A, FL119A, FL121A, FL163A, FL169A, FL171A	50	FL957A
for enclosures: FL120A, FL122A, FL170A, FL172A	50	FL958A
for enclosures: FL116A, FL123A, FL125A, FL129A, FL166A, FL173A, FL175A, FL179A	50	FL959A
for enclosures: FL124A, FL126A, FL174A, FL176A	50	FL960A
for enclosures: FL127A, FL177A	50	FL961A
for enclosures: FL128A, FL130A, FL178A, FL180A	50	FL962A



FL958A

Lock with key

- to replace existing lock

Description	Pack qty.	Cat. ref.
lock with 2 keys n°427	10	FL96Z



FL96Z

Locks

Description	Pack qty.	Cat. ref.
set of 2 locks square centre 8mm, 1 key	10	FL80Z
set of 2 locks square centre 6mm, 1 key	10	FL82Z
set of 2 locks triangular centre 8mm	10	FL93Z
set of 2 double bit 3m centre locks	10	FL95Z



FL80Z



FL95Z

Set of wall fixing brackets

Description	Pack qty.	Cat. ref.
metallic	1	FL85Z



FL85Z

Earthing kit

Description	Pack qty.	Cat. ref.
for metal enclosures, section: 4 mm ²	10	FL874A



FL874A

Vertical association kit

Description	Pack qty.	Cat. ref.
vertical association kit (sealstrip + screws)	1	FL670A



FL670A

Enclosures with plain or transparent doors

glass reinforced polyester enclosures, color RAL 7035
 IP 66 / IK 10 with plain door, IK08 with transparent door
 IP30 with door open
 insulation class: II
 compliance to IEC 536

- Enclosures delivered with
- plain or transparent door with 1 or 2 locks with triangular centre 8mm located on the non weatherproof part
 - mounting slides
 - gasket moulded on the door
 - for outdoor use
 - insulation voltage Ui: 690V (operational voltage according to IEC EN 61439-1 parag. 10.9: 1000V AC and 1500V DC)
 - Installation temperature: -5 to +40°C

Accessories

- locks
- wall fixing brackets
- metallic or insulated internal doors
- plain or perforated metallic

Comply with IEC 60 695-2- 10, 60 695-2-11, EN62208:2011 and IMQ certificate n° CA02.05935



Polyester boxes orion plus

- moulded monobloc structure

Description	Height (mm)	Width (mm)	Depth (mm)	Cat. ref.	
				plain door	transparent door
polyester box	350	300	160	FL204B	FL254B
polyester box	500	300	200	FL209B	FL259B
polyester box	500	400	200	FL213B	FL263B
polyester box	650	400	200	FL216B	FL266B
polyester box	650	500	250	FL221B	FL271B
polyester box	800	600	300	FL229B	FL279B

FL216B



FL96Z



FL81Z



FL97Z

Accessories

Description	Pack qty.	Cat. ref.
lock with 2 keys n°427, for enclosure height ≤ 800 mm	10	FL96Z
plastic key, RAL7046	10	FL99Z
set of 2 locks square centre 8mm	10	FL81Z
set of 2 locks triangular centre 8mm	10	FL94Z
set of 2 locks double bit centre 3mm	10	FL97Z

Enclosures with plain or transparent doors

glass reinforced polyester enclosures, color RAL 7035
IP 65 / IK 10 with plain door, IK08 with transparent door
IP30 with door open
insulation class: II \square
compliance to IEC 536

Enclosures delivered with

- plain or transparent door with 1 or 2 locks with triangular centre 8mm located on the non weatherproof part
- mounting slides
- gasket moulded on the door
- for outdoor use
- insulation voltage Ui: 690V (operational voltage according to IEC EN 61439-1 parag. 10.9: 1000V AC and 1500V DC)
- Installation temperature: -5 to +40°C

Accessories

- locks
- wall fixing brackets
- metallic or insulated internal doors
- plain or perforated metallic

Comply with IEC 60 695-2- 10, 60 695-2-11, EN62208:2011 and IMQ certificate n° CA02.02562

Polyester enclosures

Description	Height (mm)	Width (mm)	Depth (mm)	Cat. ref.	
				plain door	transparent door
polyester enclosure	550	600	300	FL300B	FL500B
polyester enclosure	550	850	300	FL305B	FL505B
polyester enclosure	550	1100	300	FL310B	FL510B
polyester enclosure	850	600	300	FL301B	FL501B
polyester enclosure	850	850	300	FL306B	FL506B
polyester enclosure	850	1100	300	FL311B	FL511B
polyester enclosure	1150	600	300	FL302B	FL502B
polyester enclosure	1150	850	300	FL307B	FL507B
polyester enclosure	1150	1100	300	FL312B	FL512B



FL505B

Polyester enclosures

- delivered with a 70mm plinth

Description	Height (mm)	Width (mm)	Depth (mm)	Cat. ref.	
				plain door	transparent door
polyester enclosure	600	600	300	FL320B	FL520B
polyester enclosure	600	850	300	FL325B	FL525B
polyester enclosure	600	1100	300	FL330B	FL530B
polyester enclosure	900	600	300	FL321B	FL521B
polyester enclosure	900	850	300	FL326B	FL526B
polyester enclosure	900	1100	300	FL331B	FL531B
polyester enclosure	1200	600	300	FL322B	FL522B
polyester enclosure	1200	850	300	FL327B	FL527B
polyester enclosure	1200	1100	300	FL332B	FL532B



FL321B



FL344B

Polyester enclosures

- made of 2 enclosures with plain doors on top of each other

Description	Height (mm)	Width (mm)	Depth (mm)	Height upper + lower section (mm)	Cat. ref. plain door
polyester enclosure	1150	600	300	550+550	FL340B
polyester enclosure	1150	850	300	550+550	FL350B
polyester enclosure	1150	1100	300	550+550	FL360B
polyester enclosure	1450	600	300	550+850	FL342B
polyester enclosure	1450	850	300	550+850	FL352B
polyester enclosure	1450	1100	300	550+850	FL362B
polyester enclosure	1750	600	300	550+1150	FL344B
polyester enclosure	1750	600	300	850+850	FL346B
polyester enclosure	2050	600	300	850+1150	FL348B
polyester enclosure	1750	850	300	550+1150	FL354B
polyester enclosure	1750	850	300	850+850	FL356B
polyester enclosure	2050	850	300	850+1150	FL358B
polyester enclosure	1750	1100	300	550+1150	FL364B
polyester enclosure	1750	1100	300	850+850	FL366B
polyester enclosure	2050	1100	300	850+1150	FL368B

Doors

- to replace standard plain doors

Description	Height (mm)	Width (mm)	Cat. ref. plain door	transparent door
door	500	600	FL380B	FL400B
door	550	850	FL385B	FL405B
door	550	1100	FL390B	FL410B
door	850	600	FL381B	FL401B
door	850	850	FL386B	FL406B
door	850	1100	FL391B	FL411B
door	1150	600	FL382B	FL402B
door	1150	850	FL387B	FL407B
door	1150	1100	FL392B	FL412B



FL98Z



FL863Z

Accessories

Description	Pack qty.	Cat. ref.
cylindrical barrel, triangular male 8mm	5	FL74Z
cylindrical barrel, double bar 3mm	5	FL75Z
cylindrical barrel, square male 8 x 8 mm	5	FL76Z
cylindrical barrel, square male 6 x 6 mm	5	FL77Z
lock with 2 keys n°427	10	FL98Z
set of M6 nuts to fix equipment directly on back	100	FZ801
euro handle watertight		FZ680
set of wall fixing brackets in insulated material, delivered with fixing screws M6x12		FL863Z

Plain mounting plates

- sheet metal thickness 2mm, delivered with fixing screws
- mounting either directly on the back of the enclosures, or on the integrated slides with brackets FL450A to adjust depth

Description	Height (mm)	Width (mm)	Cat. ref.
for FL101A, FL151A	230	143	FL401A
for FL102A, FL152A	280	193	FL402A
for FL103A, FL153A	280	243	FL403A
for FL104A, FL105A, FL154A, FL155A, FL204B, FL254B	330	243	FL404A
for FL106A, FL107A, FL156A, FL157A	380	243	FL405A
for FL108A, FL158A	380	343	FL406A
for FL109A, FL110A, FL159A, FL160A, FL209B, FL259B	480	243	FL407A
for FL111A, FL112A, FL161A, FL162A, FL213B, FL263B	480	343	FL408A
for FL300B, FL500B, FL320B, FL520B	480	493	FL510E
for FL305B, FL505B, FL325B, FL525B	480	743	FL520E
for FL310B, FL510B, FL330B, FL530B	480	993	FL530E
for FL113A, FL163A	480	443	FL409A
for FL114A, FL115A, FL164A, FL165A	580	343	FL410A
for FL116A, FL166A	580	543	FL411A
for FL117A, FL118A, FL167A, FL168A, FL216B, FL266B	630	343	FL412A
for FL119A, FL120A, FL169A, FL170A, FL221B, FL271B	630	443	FL413A
for FL121A, FL122A, FL171A, FL172A	780	443	FL414A
for FL123A, FL124A, FL173A, FL174A, FL229B, FL279B	780	543	FL415A
for all the enclosures	780	243	FL501E
for all the enclosures	1080	243	FL502E
for FL300B, FL500B, FL320B, FL520B	480	493	FL510E
for FL301B, FL501B, FL321B, FL521B	780	493	FL511E
for FL306B, FL506B, FL326B, FL526B	780	743	FL521E
for FL311B, FL511B, FL331B, FL531B	780	993	FL531E
for FL302B, FL502B, FL322B, FL522B	1080	493	FL512E
for FL307B, FL507B, FL327B, FL527B	1080	793	FL522E
for FL312B, FL512B, FL332B, FL532B	1080	993	FL532E
for FL125A, FL126A, FL175A, FL176A	930	543	FL416A
for FL127A, FL128A, FL177A, FL178A	930	743	FL417A
for FL129A, FL179A	1230	543	FL418A
for FL130A, FL180A	1230	743	FL419A



FL408A



FL475A

Perforated mounting plates

- sheet metal thickness 2mm, delivered with fixing screws
- mounting either directly on the back of the enclosures, or on the integrated slides with brackets FL450A to adjust depth
- use clip with screw UC969 to fix equipment on the mounting plate

Description	Height (mm)	Width (mm)	Cat. ref.
for FL102A, FL152A	280	193	FL472A
for FL104A, FL105A, FL154A, FL155A, FL204B, FL254B	330	243	FL473A
for FL109A, FL110A, FL159A, FL160A, FL209B, FL259B	480	243	FL474A
for FL111A, FL112A, FL161A, FL162A, FL213B, FL263B	480	343	FL475A
for FL117A, FL118A, FL167A, FL168A, FL216B, FL266B	630	343	FL476A
for FL119A, FL120A, FL169A, FL170A, FL221B, FL271B	630	443	FL477A
for FL121A, FL122A, FL171A, FL172A	780	443	FL478A
for FL123A, FL124A, FL173A, FL174A, FL229B, FL279B	780	543	FL479A
for FL125A, FL126A, FL175A, FL176A	930	543	FL480A
for FL127A, FL128A, FL177A, FL178A	930	743	FL481A
for FL129A, FL179A	1230	543	FL482A
for FL130A, FL180A	1230	743	FL483A



FL427A

Insulated mounting plates

- insulating material, delivered with fixing screws
- mounting either directly on the back of the enclosures, or on the integrated slides with brackets FL450A to adjust depth

Description	Height (mm)	Width (mm)	Cat. ref.
for FL102A, FL152A	235	195	FL422A
for FL104A, FL105A, FL154A, FL155A, FL204B, FL254B	285	245	FL423A
for FL109A, FL110A, FL159A, FL160A, FL209B, FL259B	435	245	FL424A
for FL111A, FL112A, FL161A, FL162A, FL213B, FL263B	435	345	FL425A
for all the enclosures	735	245	FL541E
for all the enclosures	1035	245	FL542E
for FL300B, FL500B, FL320B, FL520B	435	495	FL550E
for FL305B, FL505B, FL325B, FL525B	435	745	FL560E
for FL310B, FL510B, FL330B, FL530B	435	995	FL570E
for FL117A, FL118A, FL167A, FL168A, FL216B, FL266B	585	345	FL426A
for FL119A, FL120A, FL169A, FL170A, FL221B, FL271B	585	345	FL427A
for FL121A, FL122A, FL171A, FL172A	735	445	FL428A
for FL123A, FL124A, FL173A, FL174A, FL229B, FL279B	735	545	FL429A
for FL301B, FL501B, FL312B, FL512B	735	495	FL551E
for FL306B, FL506B, FL326B, FL526B	735	745	FL561E
for FL311B, FL511B, FL331B, FL531B	735	995	FL571E
for FL302B, FL502B, FL322B, FL522B	1035	745	FL552E
for FL307B, FL507B, FL327B, FL527B	1035	745	FL562E
for FL312B, FL512B, FL332B, FL532B	1035	995	FL572E
for FL125A, FL126A, FL175A, FL176A	885	545	FL430A
for FL127A, FL128A, FL177A, FL178A	885	745	FL431A
for FL129A, FL179A	1185	545	FL432A
for FL130A, FL180A	1185	745	FL433A



UC969

Clip nut screws for perforated mounting plates

Description	Cat. ref.
set of 25 clip nut screws M5	UC969

Internal doors, sheet metal reversible

- delivered with fixing accessories mounting on slides with delivered fixing frame

Description	Cat. ref.
for FL101A, FL151A	FL541A
for FL102A, FL152A	FL542A
for FL103A, FL153A	FL543A
for FL104A, FL105A, FL154A, FL155A, FL204B, FL254B	FL544A
for FL106A, FL107A, FL156A, FL157A	FL545A
for FL108A, FL158A	FL546A
for FL109A, FL110A, FL159A, FL160A, FL209B, FL259B	FL547A
for FL111A, FL112A, FL161A, FL162A, FL213B, FL263B	FL548A
for FL300B, FL500B, FL310B, FL510B, FL320B, FL520B, FL330B, FL530B	FL590E
for FL305B, FL505B, FL325B, FL525B	FL600E
for FL113A, FL163A	FL549A
for FL114A, FL115A, FL164A, FL165A	FL550A
for FL117A, FL118A, FL167A, FL168A, FL216B, FL266B	FL551A
for FL119A, FL120A, FL169A, FL170A, FL221B, FL271B	FL552A
for FL116A, FL166A	FL553A
for FL121A, FL122A, FL171A, FL172A	FL554A
for FL123A, FL124A, FL173A, FL174A, FL229B, FL279B	FL555A
for all the enclosures	FL580E
for all the enclosures	FL581E
for all the enclosures	FL582E
for FL301B, FL501B, FL311B, FL511B, FL321B, FL521B, FL331B, FL531B	FL591E
for FL306B, FL506B, FL326B, FL526B	FL601E
for FL302B, FL502B, FL312B, FL512B, FL322B, FL522B, FL332B, FL532B	FL592E
for FL307B, FL507B, FL327B, FL527B	FL602E
for FL125A, FL126A, FL175A, FL176A	FL556A
for FL127A, FL128A, FL177A, FL178A	FL557A
for FL129A, FL179A	FL558A
for FL130A, FL180A FL545A	FL559A



FL552A

Main switchboards

Internal doors, polyester reversible

- delivered with fixing accessories mounting on slides with delivered fixing frame

Description	Cat. ref.
for FL104A, FL105A, FL154A, FL155A, FL204B, FL254B	FL643A
for FL109A, FL110A, FL159A, FL160A, FL209B, FL259B	FL644A
for FL111A, FL112A, FL161A, FL162A, FL213B, FL263B	FL645A
for FL117A, FL118A, FL167A, FL168A, FL216B, FL266B	FL646A
for FL119A, FL120A, FL169A, FL170A, FL221B, FL271B	FL647A
for FL123A, FL124A, FL173A, FL174A, FL229B, FL279B	FL649A



FL647A

Clip nut screws for perforated mounting plates

Description	Cat. ref.
set of 25 clip nut screws M5	UC969



FL463A

Functional uprights

- for the assembly of kit for modular equipment, kit for box section, solid panels and partial internal panels
- fixed to the guide runners by means of brackets provided
- prepared for vertical conduits:
 - ⁽¹⁾ section 25 x 60
 - ⁽²⁾ section 40 x 60

Description	Cat. ref.
for panel h. 350 x ⁽¹⁾ w. 300 - H mod. 300 mm	FL461A
for panel h. 500 x ⁽¹⁾ w. 300 - H mod. 450 mm	FL462A
for panel h. 500 x ⁽¹⁾ w. 400 - H mod. 450 mm	FL462A
for panel h. 650 x ⁽¹⁾ w. 400 - H mod. 600 mm	FL463A
for panel h. 650 x ⁽¹⁾ w. 500 - H mod. 600 mm	FL463A
for panel h. 800 x ⁽¹⁾ w. 500 - H mod. 750 mm	FL465A
for panel h. 800 x ⁽²⁾ w. 600 - H mod. 750 mm	FL466A
for panel h. 950 x ⁽²⁾ w. 600 - H mod. 900 mm	FL467A
for panel h. 950 x ⁽²⁾ w. 800 - H mod. 900 mm	FL467A
for panel h. 1250 x ⁽²⁾ w. 600 - H mod. 1200 mm	FL468A
for panel h. 1250 x ⁽¹⁾ w. 800 - H mod. 1200 mm	FL468A



FL981A

Functional chassis for modular equipment

- pre-assembled made up of:
- 2 uprights
 - DIN guides
 - modular panels in resin
 - 4 fixing brackets are fixed to the guide runners by means of the brackets provided.

Description	Cat. ref.
for panel h.350 x w.300 mm, 24 mod. (2 rows of 12 mod.), for steel enclosures only	FL979A
for panel h.350 x w.300 mm, 24 mod. (2 rows of 12 mod.), for polyester enclosures only	FL980A
for panel h.500 x w.300 mm, 36 mod. (3 rows of 12 mod.)	FL981A
for panel h.500 x w.400 mm, 54 mod. (3 rows of 18 mod.)	FL982A
for panel h.650 x w.400 mm, 72 mod. (4 rows of 18 mod.)	FL983A



Sliding guides

Description	Cat. ref.
for polyester enclosures	FL672E

Equipment kits

- for modular products
- mounting on functional uprights made of fixing frame, 2 functional uprights for DIN rails, 2 uprights to fix DIN rails, DIN rails and front plates with modular cut out h.150mm

Description		Cat. ref.
for FL204B, FL254B		FL990C
for FL104A, FL105A, FL154A, FL155A	2 rows (20 mod.)	FL990A
for FL109A, FL110A, FL159A, FL160A, FL209B, FL259B	3 rows (30 mod.)	FL991A
for FL111A, FL112A, FL161A, FL162A, FL213B, FL263B	3 rows (48 mod.)	FL992A
for FL300B, FL500B, FL320B, FL520B	3 rows (69 mod.)	FL990B
for FL305B, FL505B, FL325B, FL525B	3 rows (111 mod.)	FL991B
for FL117A, FL118A, FL167A, FL168A, FL216B, FL266B	4 rows (64 mod.)	FL993A
for FL119A, FL120A, FL169A, FL170A, FL221B, FL271B	4 rows (88 mod.)	FL994A
for FL121A, FL122A, FL171A, FL172A	5 rows (110 mod.)	FL995A
for FL123A, FL124A, FL173A, FL174A, FL229B, FL279B	5 rows (130 mod.)	FL996A
for FL301B, FL501B, FL321B, FL521B	5 rows (115 mod.)	FL992B
for FL306B, FL506B, FL326B, FL526B	5 rows (185 mod.)	FL993B
for FL125A, FL126A, FL175A, FL176A	6 rows (156 mod.)	FL997A
for FL127A, FL128A, FL177A, FL178A	6 rows (222 mod.)	FL998A
for FL302B, FL502B, FL322B, FL522B	7 rows (161 mod.)	FL994B
for FL307B, FL507B, FL327B, FL527B	7 rows (259 mod.)	FL995B
for FL129A, FL179A	8 rows (208 mod.)	FL999A
for FL130A, FL180A	8 rows (296 mod.)	FL000A



FL992A

Main switchboards

Kits for modular devices

Description	Width (mm)	Cat. ref.
kits for modular devices H150	300	FL361A
kits for modular devices H150	400	FL362A
kits for modular devices H150	500	FL363A
kits for modular devices H150	600	FL364A
kits for modular devices H150	800	FL365A
kits for modular devices H200, for FL992A, FL993A	400	FL366A
kits for modular devices H200, for FL994A, FL995A	500	FL367A
kits for modular devices H200, for FL996A, FL997A, FL 999A	600	FL368A
kits for modular devices H200, for FL991A, FL993A, FL995A, FL998A, FL000A	800	FL369A

Kits for main incomer

Description	Width (mm)	Height (mm)	Cat. ref.
kit for main incomer 125/160A, modular	400	300	FL371A
kit for main incomer 125/160A, modular	500	300	FL372A
kit for main incomer 125/160A, modular	600	300	FL373A
kit for main incomer 125/160A, modular	800	300	FL374A
kit for main incomer 250A x250	600	200	FL380AH
kit for main incomer 250A x250	800	200	FL381AH
kit for main incomer 250A x250	300	500	FL391AH
kit for main incomer 250A x250	400	500	FL392AH
kit for main incomer 250A x250	400	650	FL393AH
kit for main incomer 400/630A	400	650	FL399AH



FL323A

Fixed partial mounting plates

- mounting on functional uprights

Description	Width (mm)	Height (mm)	Cat. ref.
for FL990A, FL991A	300	150	FL311A
for FL992A, FL993A	400	150	FL312A
for FL992A, FL993A	400	200	FL322A
for FL994A, FL995A	500	150	FL313A
for FL994A, FL995A	500	200	FL323A
for FL994A, FL995A	500	300	FL333A
for FL994A, FL995A	500	400	FL343A



FL325A

Adjustable partial mounting plates

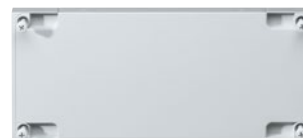
- mounting on functional uprights
- for enclosures with a depth of 250 and 300mm

Description	Width (mm)	Height (mm)	Cat. ref.
for FL993A	400	150	FL314A
for FL993A	400	200	FL324A
for FL994A, FL995A	500	150	FL315A
for FL994A, FL995A	500	200	FL325A
for FL994A, FL995A	500	300	FL335A
for FL994A, FL995A	500	400	FL345A
for FL996A, FL997A, FL999A	600	150	FL316A
for FL996A, FL997A, FL999A	600	200	FL326A
for FL996A, FL997A, FL999A	600	300	FL336A
for FL996A, FL997A, FL999A	600	400	FL346A
for FL990B, FL992B, FL994B	600	150	FL610E
for FL990B, FL992B, FL994B	600	200	FL620E
for FL990B, FL992B, FL994B	600	300	FL630E
for FL990B, FL992B, FL994B	600	400	FL640E
for FL998A, FL000A, FL991B, FL993B, FL995B	800/850	150	FL317A
for FL998A, FL000A, FL991B, FL993B, FL995B	800/850	200	FL327A
for FL998A, FL000A, FL991B, FL993B, FL995B	800/850	300	FL337A
for FL998A, FL000A, FL991B, FL993B, FL995B	800/850	400	FL347A

Plain front plates

- fixed by screws of 1/4 turn to replace modular covers

Description	Height (mm)	Cat. ref.
for FL992A, FL993A	50	FL702E
for FL994A, FL995A	50	FL703E
for FL996A, FL997A, FL999A	50	FL704E
for FL998A, FL000A, FL991B, FL993B, FL995B	50	FL705E
for FL990B, FL992B, FL994B	150	FL710E
for FL990A, FL991A, FL990C	150	FL711E
for FL992A, FL993A	150	FL712E
for FL994A, FL995A	150	FL713E
for FL996A, FL997A, FL999A	150	FL714E
for FL998A, FL000A, FL991B, FL 993B, FL 995B	150	FL715E
for FL992A, FL993A	200	FL722E
for FL 994A, FL995A	200	FL723E
for FL996A, FL997A, FL999A	200	FL724E
for FL998A, FL000A, FL991B, FL993B, FL995A	200	FL725E
for FL994A, FL995A	300	FL733E
for FL996A, FL997A, FL999A	300	FL734E
for FL998A, FL000A, FL991B, FL993B, FL995B	300	FL735E



FL712E

DIN rails for terminals adjustable inclination : 30°

- mounting on functional uprights

Description	Cat. ref.
for FL992A, FL993A	FL500A
for FL994A, FL995A	FL501A
for FL996A, FL997A, FL999A	FL502A
for FL998A, FL000A, FL991B, FL993B, FL995B	FL503A
for FL990B, FL992B, FL994B	FL500E



FL500A

Supports for earth and neutral terminals

Description	Width (mm)	Cat. ref.
for enclosures	300	FL492A
for enclosures	400	FL493A
for enclosures	500	FL494A
for enclosures	600	FL495A
for enclosures	800	FL496A

Mounting plate brackets

Description	Cat. ref.
4 brackets delivered with fixing screws	FL450A



FL450A

Slotted cable ducts horizontal and vertical

Description	Pack qty.	Width (mm)	Depth (mm)	Cat. ref.
2 m length slotted cable ducts	2	25	60	FL70Z
2 m length slotted cable ducts	2	40	60	FL71Z



FL70Z



Cable guides

Description	Cat. ref.
set of 20 pieces, section 2200 mm ²	UZ25V1
set of 20 pieces, section 1600 mm ²	UZ25V2
set of 20 fixing brackets for cable guide	UZ01V1



Cable retainer plastic cover

Description	Cat. ref.
2m length cable retainer plastic cover	UT50C



Blanking clip

Description	Pack qty.	Cat. ref.
4 modules width blanking clips, pre-cut to 1/2 module	6	FL871Z

FL871Z



Label holder for front plates

Description	Cat. ref.
24 modules width label holder with label	JE003

JE003



Ventilating fans

- reinforced polyamide, colour RAL7035
- IP54
- 230V supply

Description	Rotation/ min.	Airflow	Dimensions WxHxD (mm)	Cat. ref.
ventilating fan 20W	2650/3000	57m ³ /h	150 x 150 x 71	FL210Z
ventilating fan 20W	2650/3000	115m ³ /h	250 x 250 x 113	FL212Z
ventilating fan 29W	2500	240m ³ /h	250 x 250 x 121	FL214Z
ventilating fan 67W	2480/2650	520m ³ /h	325 x 325 x 161	FL216Z

FL212Z



Air vents with filters

- colour RAL7035
- IP54

Description	Dimensions WxHxD (mm)	Cat. ref.
air vent with filter	150 x 150 x 28	FL220Z
air vent with filter	250 x 250 x 31	FL224Z
air vent with filter	325 x 325 x 161	FL226Z

FL220Z

Fan filters

Description	Cat. ref.
filter for FL220Z	FL230Z
filter for FL224Z	FL234Z
filter for FL226Z	FL236Z

Heater supplies

Description	Cat. ref.
heater supply 15W	FL252Z
heater supply 30W	FL253Z
heater supply 45W	FL254Z
heater supply 80W	FL255Z
heater supply 150W	FL256Z



FL253Z

Thermostats

- to control temperature in the enclosure, changeover contact
- fixing on DIN rail
- settings -10° to 80° C
- dimensions: w. 29 x h. 68 x d. 45 mm

Description	Cat. ref.
to control condensation contact NC	FL258Z
to control fan-contact NO	FL259Z



FL258Z



FL259Z

BOARD enclosures

- Suitable for indoor and outdoor installation
 - Material: AISI304 (V2A)
 - Brushed, grain size 240
 - Door opening angle: 120°
 - IP66 protection (IP55 with double door)
 - IK10 shock resistance (IK10 with glazed door)
 - The galvanised, 2 mm thick mounting plate has a separate item number
 - Threaded bolts (M8) available in the internal casing for the mounting plate or for an aluminium profile
 - Threaded bolts (M6) available in the internal casing for earthing
 - Accessories available for the plain door and partially for the glazed door.
 - Safety tempered glass, thickness 4 mm
 - Minimum width 1000 mm with a double door
- Standard locking system: double bar
 - Standards: EN 62208
 - Upon the customer's request, cuts or special enclosure sizes can be provided and holes drilled
 - Several locking systems available as accessories
 - One packing unit
 - Sheet thickness: 1.2 mm (minimum)

Height (mm)	Width (mm)	Depth (mm)	No of doors	Plain door version AISI304	Glazed door version	Mounting plate	Canopy
300	200	150	1	FL010BW	-	UZ2030W	FZ110CW
300	300	210	1	FL012BW	-	UZ3030W	FZ112CW
300	400	150	1	FL013BW	-	UZ4030W	FZ113CW
400	300	150	1	FL014BW	FL014TW	UZ3040W	FZ111CW
400	300	210	1	FL015BW	FL015TW	UZ3040W	FZ112CW
400	400	210	1	FL016BW	FL016TW	UZ4040W	FZ114CW
400	600	210	1	FL017BW	FL017TW	UZ6040W	FZ120CW
500	400	210	1	FL021BW	FL021TW	UZ4050W	FZ114CW
500	500	210	1	FL023BW	FL023TW	UZ5050W	FZ118CW
500	500	250	1	FL024BW	FL024TW	UZ5050W	FZ119CW
600	400	210	1	FL025BW	FL025TW	UZ4060W	FZ114CW
600	500	210	1	FL027BW	FL027TW	UZ5060W	FZ118CW
600	600	210	1	FL028BW	FL028TW	UZ6060W	FZ120CW
600	600	250	1	FL029BW	FL029TW	UZ6060W	FZ121CW
600	600	300	1	FL030BW	FL030TW	UZ6060W	FZ122CW
600	800	300	1	FL032BW	FL032TW	UZ8060W	FZ124CW
600	1000	300	2	FL053BW	-	UZ10060W	FZ126CW
700	500	210	1	FL033BW	FL033TW	UZ5070W	FZ118CW
700	500	250	1	FL034BW	FL034TW	UZ5070W	FZ119CW
800	600	210	1	FL035BW	FL035TW	UZ6080W	FZ120CW
800	600	250	1	FL036BW	FL036TW	UZ6080W	FZ121CW
800	600	300	1	FL037BW	FL037TW	UZ6080W	FZ122CW
800	800	300	1	FL039BW	FL039TW	UZ8080W	FZ124CW
800	1000	300	2	FL054BW	-	UZ10080W	FZ126CW
800	1200	300	2	FL055BW	-	UZ12080W	FZ128CW
1000	600	300	1	FL041BW	FL041TW	UZ60100W	FZ122CW
1000	800	300	1	FL042BW	FL042TW	UZ80100W	FZ124CW
1000	1000	300	2	FL056BW	-	UZ100100W	FZ126CW
1200	600	300	1	FL043BW	FL043TW	UZ60120W	FZ122CW
1200	800	300	1	FL045BW	FL045TW	UZ80120W	FZ124CW
1200	1000	300	2	FL058BW	-	UZ100120W	FZ126CW
1200	1200	300	2	FL060BW	-	UZ120120W	FZ128CW
1400	800	300	1	FL049BW	FL049TW	UZ80140W	FZ124CW
1400	1000	300	2	FL062BW	-	UZ100140W	FZ126CW
1400	1200	300	2	FL064BW	-	UZ120140W	FZ128CW
1600	800	300	1	FL051BW	FL051TW	UZ80160W	FZ124CW

BOARD enclosures

- Suitable for indoor and outdoor installation
 - AISI316L
 - Brushed, grain size 240
 - Door opening angle: 120°
 - IP66 protection (IP55 with double door)
 - IK10 shock resistance (IK10 with glazed door)
 - The galvanised, 2 mm thick mounting plate has a separate item number
 - Threaded bolts (M8) available in the internal casing for the mounting plate or for an aluminium profile
 - Threaded bolts (M6) available in the internal casing for earthing
 - Accessories available for the plain door and partially for the glazed door.
 - Safety tempered glass, thickness 4 mm
 - Minimum width 1000 mm with a double door
- Standard locking system: double bar
 - Standards: EN 62208
 - Upon the customer's request, cuts or special enclosure sizes can be provided and holes drilled
 - Several locking systems available as accessories
 - One packing unit
 - Sheet thickness: 1.2 mm (minimum)

Height (mm)	Width (mm)	Depth (mm)	No of doors	Plain door version AISI316L	Glazed door version	Mounting plate	Canopy
300	200	150	1	FL010BWL	-	UZ2030W	FZ110CWL
300	300	210	1	FL012BWL	-	UZ3030W	FZ112CWL
300	400	150	1	FL013BWL	-	UZ4030W	FZ113CWL
400	300	150	1	FL014BWL	FL014TWL	UZ3040W	FZ111CWL
400	300	210	1	FL015BWL	FL015TWL	UZ3040W	FZ112CWL
400	400	210	1	FL016BWL	FL016TWL	UZ4040W	FZ114CWL
400	600	210	1	FL017BWL	FL017TWL	UZ6040W	FZ120CWL
500	400	210	1	FL021BWL	FL021TWL	UZ4050W	FZ114CWL
500	500	210	1	FL023BWL	FL023TWL	UZ5050W	FZ118CWL
500	500	250	1	FL024BWL	FL024TWL	UZ5050W	FZ119CWL
600	400	210	1	FL025BWL	FL025TWL	UZ4060W	FZ114CWL
600	500	210	1	FL027BWL	FL027TWL	UZ5060W	FZ118CWL
600	600	210	1	FL028BWL	FL028TWL	UZ6060W	FZ120CWL
600	600	250	1	FL029BWL	FL029TWL	UZ6060W	FZ121CWL
600	600	300	1	FL030BWL	FL030TWL	UZ6060W	FZ122CWL
600	800	300	1	FL032BWL	FL032TWL	UZ8060W	FZ124CWL
600	1000	300	2	FL053BWL	-	UZ10060W	FZ126CWL
700	500	210	1	FL033BWL	FL033TWL	UZ5070W	FZ118CWL
700	500	250	1	FL034BWL	FL034TWL	UZ5070W	FZ119CWL
800	600	210	1	FL035BWL	FL035TWL	UZ6080W	FZ120CWL
800	600	250	1	FL036BWL	FL036TWL	UZ6080W	FZ121CWL
800	600	300	1	FL037BWL	FL037TWL	UZ6080W	FZ122CWL
800	800	300	1	FL039BWL	FL039TWL	UZ8080W	FZ124CWL
800	1000	300	2	FL054BWL	-	UZ10080W	FZ126CWL
800	1200	300	2	FL055BWL	-	UZ12080W	FZ128CWL
1000	600	300	1	FL041BWL	FL041TWL	UZ60100W	FZ122CWL
1000	800	300	1	FL042BWL	FL042TWL	UZ80100W	FZ124CWL
1000	1000	300	2	FL056BWL	-	UZ100100W	FZ126CWL
1200	600	300	1	FL043BWL	FL043TWL	UZ60120W	FZ122CWL
1200	800	300	1	FL045BWL	FL045TWL	UZ80120W	FZ124CWL
1200	1000	300	2	FL058BWL	-	UZ100120W	FZ126CWL
1200	1200	300	2	FL060BWL	-	UZ120120W	FZ128CWL
1400	800	300	1	FL049BWL	FL049TWL	UZ80140W	FZ124CWL
1400	1000	300	2	FL062BWL	-	UZ100140W	FZ126CWL
1400	1200	300	2	FL064BWL	-	UZ120140W	FZ128CWL
1600	800	300	1	FL051BWL	FL051TWL	UZ80160W	FZ124CWL



FL010BW

BOARD enclosures, height 300 mm

- Plain door
- IP66
- Insulation class: ↓
- IK 10

Description	Height (mm)	Width (mm)	Depth (mm)	Cat. ref. AISI304	AISI316L
enclosure	300	200	150	FL010BW	FL010BWL
enclosure	300	300	210	FL012BW	FL012BWL
enclosure	300	400	150	FL013BW	FL013BWL



FL014BW

BOARD enclosures, height 400 mm

- Plain door
- IP66
- Insulation class: ↓
- IK 10

Description	Height (mm)	Width (mm)	Depth (mm)	Cat. ref. AISI304	AISI316L
enclosure	400	300	150	FL014BW	FL014BWL
enclosure	400	300	210	FL015BW	FL015BWL
enclosure	400	400	210	FL016BW	FL016BWL
enclosure	400	600	210	FL017BW	FL017BWL



FL021BW

BOARD enclosures, height 500 mm

- Plain door
- IP66
- Insulation class: ↓
- IK 10

Description	Height (mm)	Width (mm)	Depth (mm)	Cat. ref. AISI304	AISI316L
enclosure	500	400	210	FL021BW	FL021BWL
enclosure	500	400	250	FL022BW	FL022BWL
enclosure	500	500	210	FL023BW	FL023BWL
enclosure	500	500	250	FL024BW	FL024BWL

BOARD enclosures, height 600 mm

- Plain door
- IP66
- Insulation class: ↓
- IK 10
- Minimum width 1000 mm with double door (IP55)

Description	Height (mm)	Width (mm)	Depth (mm)	Cat. ref. AISI304	AISI316L
enclosure	600	400	210	FL025BW	FL025BWL
enclosure	600	500	210	FL027BW	FL027BWL
enclosure	600	600	210	FL028BW	FL028BWL
enclosure	600	600	250	FL029BW	FL029BWL
enclosure	600	600	300	FL030BW	FL030BWL
enclosure	600	800	300	FL032BW	FL032BWL
enclosure	600	1000	300	FL053BW	FL053BWL



FL025BW

BOARD enclosures, height 700 mm

- Plain door
- IP66
- Insulation class: ↓
- IK 10

Description	Height (mm)	Width (mm)	Depth (mm)	Cat. ref. AISI304	AISI316L
enclosure	700	500	210	FL033BW	FL033BWL
enclosure	700	500	250	FL034BW	FL034BWL



FL033BW

BOARD enclosures, height 800 mm

- Plain door
- IP66
- Insulation class: ↓
- IK 10
- Minimum width 1000 mm with double door (IP55)

Description	Height (mm)	Width (mm)	Depth (mm)	Cat. ref. AISI304	AISI316L
enclosure	800	600	210	FL035BW	FL035BWL
enclosure	800	600	250	FL036BW	FL036BWL
enclosure	800	600	300	FL037BW	FL037BWL
enclosure	800	800	300	FL039BW	FL039BWL
enclosure	800	1000	300	FL054BW	FL054BWL
enclosure	800	1200	300	FL055BW	FL055BWL



FL035BW



FL056BW

BOARD enclosures, height 1000 mm

- Plain door
- IP66
- Insulation class: ↓
- IK 10
- Minimum width 1000 mm with double door (IP55)

Description	Height (mm)	Width (mm)	Depth (mm)	Cat. ref. AISI304	AISI316L
enclosure	1000	600	300	FL041BW	FL041BWL
enclosure	1000	800	300	FL042BW	FL042BWL
enclosure	1000	1000	300	FL056BW	FL056BWL



FL058BW

BOARD enclosures, height 1200 mm

- Plain door
- IP66
- Insulation class: ↓
- IK 10
- Minimum width 1000 mm with double door (IP55)

Description	Height (mm)	Width (mm)	Depth (mm)	Cat. ref. AISI304	AISI316L
enclosure	1200	600	300	FL043BW	FL043BWL
enclosure	1200	800	300	FL045BW	FL045BWL
enclosure	1200	1000	300	FL058BW	FL058BWL
enclosure	1200	1200	300	FL060BW	FL060BWL



FL062BW

BOARD enclosures, height 1400 mm

- Plain door
- IP66
- Insulation class: ↓
- IK 10
- Minimum width 1000 mm with double door (IP55)

Description	Height (mm)	Width (mm)	Depth (mm)	Cat. ref. AISI304	AISI316L
enclosure	1400	800	300	FL049BW	FL049BWL
enclosure	1400	1000	300	FL062BW	FL062BWL
enclosure	1400	1200	300	FL064BW	FL064BWL



FL051BW

BOARD enclosures, height 1600 mm

- Plain door
- IP66
- Insulation class: ↓
- IK 10

Description	Height (mm)	Width (mm)	Depth (mm)	Cat. ref. AISI304	AISI316L
enclosure	1600	800	300	FL051BW	FL051BWL

BOARD enclosures, height 400 mm

- Glazed door
- IP66
- Insulation class: \downarrow
- IK 10

Description	Height (mm)	Width (mm)	Depth (mm)	Cat. ref. AISI304	AISI316L
enclosure	400	300	150	FL014TW	FL014TWL
enclosure	400	300	210	FL015TW	FL015TWL
enclosure	400	400	210	FL016TW	FL016TWL
enclosure	400	600	210	FL017TW	FL017TWL



FL014TW

BOARD enclosures, height 500 mm

- Glazed door
- IP66
- Insulation class: \downarrow
- IK 10

Description	Height (mm)	Width (mm)	Depth (mm)	Cat. ref. AISI304	AISI316L
enclosure	500	400	210	FL021TW	FL021TWL
enclosure	500	500	210	FL023TW	FL023TWL
enclosure	500	500	250	FL024TW	FL024TWL



FL021TW

BOARD enclosures, height 600 mm

- Glazed door
- IP66
- Insulation class: \downarrow
- IK 10

Description	Height (mm)	Width (mm)	Depth (mm)	Cat. ref. AISI304	AISI316L
enclosure	600	400	210	FL025TW	FL025TWL
enclosure	600	500	210	FL027TW	FL027TWL
enclosure	600	600	210	FL028TW	FL028TWL
enclosure	600	600	250	FL029TW	FL029TWL
enclosure	600	600	300	FL030TW	FL030TWL
enclosure	600	800	300	FL032TW	FL032TWL



FL027TW

BOARD enclosures, height 700 mm

- Glazed door
- IP66
- Insulation class: \downarrow
- IK 10

Description	Height (mm)	Width (mm)	Depth (mm)	Cat. ref. AISI304	AISI316L
enclosure	700	500	210	FL033TW	FL033TWL
enclosure	700	500	250	FL034TW	FL034TWL



FL033TW



FL035TW

BOARD enclosures, height 800 mm

- Glazed door
- IP66
- Insulation class: \downarrow
- IK 10

Description	Height (mm)	Width (mm)	Depth (mm)	Cat. ref. AISI304	AISI316L
enclosure	800	600	210	FL035TW	FL035TWL
enclosure	800	600	250	FL036TW	FL036TWL
enclosure	800	600	300	FL037TW	FL037TWL
enclosure	800	800	300	FL039TW	FL039TWL



FL041TW

BOARD enclosures, height 1000 mm

- Glazed door
- IP66
- Insulation class: \downarrow
- IK 10

Description	Height (mm)	Width (mm)	Depth (mm)	Cat. ref. AISI304	AISI316L
enclosure	1000	600	300	FL041TW	FL041TWL
enclosure	1000	800	300	FL042TW	FL042TWL



FL043TW

BOARD enclosures, height 1200 mm

- Glazed door
- IP66
- Insulation class: \downarrow
- IK 10

Description	Height (mm)	Width (mm)	Depth (mm)	Cat. ref. AISI304	AISI316L
enclosure	1200	600	300	FL043TW	FL043TWL
enclosure	1200	800	300	FL045TW	FL045TWL



FL049TW

BOARD enclosures, height 1400 mm

- Glazed door
- IP66
- Insulation class: \downarrow
- IK 10

Description	Height (mm)	Width (mm)	Depth (mm)	Cat. ref. AISI304	AISI316L
enclosure	1400	800	300	FL049TW	FL049TWL



FL051TW

BOARD enclosures, height 1600 mm

- Glazed door
- IP66
- Insulation class: \downarrow
- IK 10

Description	Height (mm)	Width (mm)	Depth (mm)	Cat. ref. AISI304	AISI316L
enclosure	1600	800	300	FL051TW	FL051TWL

Functional chassis for modular equipment*

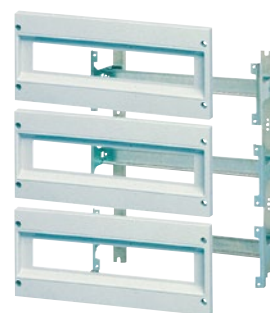
pre-assembled made up of:

- 2 uprights
- DIN guides
- modular panels in resin
- 4 fixing brackets are fixed to the guide runners by means of the brackets provided.

The chassis is made of galvanized steel.

NOTE : functional chassis de-rate the IP when the door is opened up to IP20

* more functional chassis sizes on demand



FL982A

MCBs and MCCBs modular shape can be installed up to 125 A.

Description	For panel height x width	Compatibility	Pack qty.	Cat. ref.
functional chassis	500 x 400 mm 54 DIN, 3 rows of 18 DIN	FL021BW and FL021TW	1	FL982A
functional chassis	800 x 600 mm 140 DIN, 5 rows of 28 DIN	FL035BW and FL035TW	1	FL985A

Frame's adaptors

to install the functional chassis

Description	Pack qty.	Cat. ref.
frame's adaptors	4	FZ110A

Sealable screws set

to seal the front covers (1 set = 40 pcs.)



FL872Z

Description	Pack qty.	Cat. ref.
sealable screws set	1 set	FL872Z

Blanking strips

- 18 modules length
- RAL 7035



VZ416

Description	Pack qty.	Cat. ref.
blanking strips	10	VZ416



UZ3040W

Mounting plates

- material: galvanised steel
- plate thickness 2 mm

Description	Height (mm)	Width (mm)	Cat. ref.
mounting plate	264	134	UZ2030W
mounting plate	264	234	UZ3030W
mounting plate	364	234	UZ3040W
mounting plate	264	334	UZ4030W
mounting plate	364	334	UZ4040W
mounting plate	464	334	UZ4050W
mounting plate	564	334	UZ4060W
mounting plate	464	334	UZ5050W
mounting plate	564	434	UZ5060W
mounting plate	664	434	UZ5070W
mounting plate	364	434	UZ6040W
mounting plate	564	534	UZ6060W
mounting plate	764	534	UZ6080W
mounting plate	964	534	UZ60100W
mounting plate	1164	534	UZ60120W
mounting plate	564	534	UZ8060W
mounting plate	764	734	UZ8080W
mounting plate	964	734	UZ80100W
mounting plate	1164	734	UZ80120W
mounting plate	1382	700	UZ80140W
mounting plate	1582	700	UZ80160W
mounting plate	564	934	UZ10060W
mounting plate	764	934	UZ10080W
mounting plate	964	934	UZ100100W
mounting plate	1182	900	UZ100120W
mounting plate	1382	900	UZ100140W
mounting plate	764	1134	UZ12080W
mounting plate	1182	1100	UZ120120W
mounting plate	1382	1100	UZ120140W

Canopy, BOARD range

- sloped canopy
- installation by the customer (in case of additional holes drilled on the casing, the customer is responsible for the protection rating)
- supplied with fixing hardware



FZ110CW

Description	Height (mm)	Width (mm)	Depth (mm)	Pcs	Cat.Ref AISI304	AISI316L
canopy	50	200	250	1	FZ110CW	FZ110CWL
canopy	50	300	250	1	FZ111CW	FZ111CWL
canopy	50	300	310	1	FZ112CW	FZ112CWL
canopy	50	400	250	1	FZ113CW	FZ113CWL
canopy	50	400	310	1	FZ114CW	FZ114CWL
canopy	50	500	310	1	FZ118CW	FZ118CWL
canopy	50	500	350	1	FZ119CW	FZ119CWL
canopy	50	600	310	1	FZ120CW	FZ120CWL
canopy	50	600	350	1	FZ121CW	FZ121CWL
canopy	50	600	400	1	FZ122CW	FZ122CWL
canopy	50	800	400	1	FZ124CW	FZ124CWL
canopy	50	1000	400	1	FZ126CW	FZ126CWL
canopy	50	1200	400	1	FZ128CW	FZ128CWL

Wall mounting brackets

- material : AISI316L (V4A)
- supplied with fixing screws
- 1 packing unit = 4 pcs



Description	Pcs	Cat. ref.
wall mounting brackets	1	UZ020W

UZ020W

Locking systems

- 1 packing unit = 1 pcs

Description	Pcs	Cat. ref.
double bar locking	1	UZ010LW
stainless steel double bar locking	1	UZ210LW
square locking 8 / 8	1	UZ013LW
stainless steel square locking 8 / 8	1	UZ212LW
butterfly locking with EK333	1	UZ410LW
butterfly locking	1	UZ411LW
butterfly locking for padlock	1	UZ412LW
T-shaped handle lock EK333	1	UZ413LW
T-shaped handle lock	1	UZ414LW
L-shaped handle lock EK333	1	UZ415LW
L-shaped handle lock	1	UZ416LW



UZ010LW

Our range of automation enclosures has been extended with a series of boxes for on-board applications.

Technical characteristics

- Type of enclosure: one-piece box complete with internal mounting plate
- Applications: on-board automation
- Material: box made of 10/10 thickness sheet steel, internal mounting plate made of 18/10 thickness galvanised sheet steel
- Paintwork: RAL 7035 epoxy powder fine textured finish
- Plain door: made of 12/10 thickness sheet steel, no. 1/2 locks with double fin, opening angle 110°, hinged on the right, reversible by rotating the enclosure
- Cable entry: removable covers with gasket
- Access to the interior: door opening: no. 1/2 locks with double fin
- Installation method: wall-mounted using bushes at the back of the box or fixing-brackets (accessory)
- Installation accessories: fixing-brackets for wallmounted installation

- Place of installation: interior
- Operating conditions: Normal, pollution grade 3, installation temperature -5/40°C
- Equipotential bondings: box/door/panel via cable (accessory)
- Insulation category: CL I
- IP protection level: IP 54 with door closed
- IK protection level: IK 10
- Max Ue operating voltage: 400 V
- Ui insulation voltage: 690 V
- Uimp impulse withstand voltage: 8 kV
- Frequency: 50/60 Hz
- Max Icc cto current: 10 kA
- Segregation types: 1
- Conforms to standard CEI EN 62208
- Marks and approvals: IMQ Istituto Italiano del Marchio di Qualità Italian Institute of Quality, CA02.05033

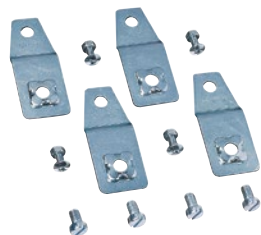


FL715L

Enclosures with plain door

- complete with internal mounting plate
- usable distance between door and internal mounting plate = box depth -20 mm

Description	Height (mm)	Width (mm)	Depth (mm)	Cat. ref.
orion.tech plain door	250	200	160	FL701L
orion.tech plain door	300	250	160	FL702L
orion.tech plain door	300	300	160	FL703L
orion.tech plain door	400	300	160	FL706L
orion.tech plain door	400	300	200	FL707L
orion.tech plain door	400	400	200	FL708L
orion.tech plain door	500	400	200	FL713L
orion.tech plain door	500	500	200	FL712L
orion.tech plain door	600	400	200	FL714L
orion.tech plain door	600	400	250	FL715L
orion.tech plain door	600	600	250	FL716L
orion.tech plain door	700	500	250	FL721L
orion.tech plain door	800	600	250	FL723L
orion.tech plain door	800	600	300	FL729L
orion.tech plain door	950	600	250	FL725L
orion.tech plain door	950	600	300	FL726L
orion.tech plain door	950	800	300	FL728L
orion.tech plain door	1250	800	300	FL730L
orion.tech plain door	1250	800	400	FL731L



FL85Z

Wall fixing brackets

- complete with screws for fixing to the box
- kit of 4 galvanised sheet steel brackets

Description	Pack qty.	Cat. ref.
wall fixing brackets	10	FL85Z

Cable for equipotential bondings

- colour yellow-green
- diameter 4 mm²
- connection with connector



Description	Pack qty.	Cat. ref.
cable for equipotential bondings		FL874A

Plinth

Description	Cat. ref.
plinth H150 for encl. W500 D250 mm	FL958A
plinth H150 for encl. W600 D250 mm	FL959A
plinth H150 for encl. W600 D300 mm	FL960A
plinth H150 for encl. W800 D300 mm	FL962A
plinth H150 for encl. W800 D400 mm	FL963A



FL958A

Vertical coupling kit

Description	Cat. ref.
vertical coupling kit	FL670A



FL670A





Handle







Description	Cat. ref.
handle with key 405	UZ010L

External dimensions			Enclosure with fixed rear panel with solid door, top, base and internal panel.		Solid lower cable feedthrough plates
H height mm	W width mm	D depth mm	Enclosure having internal panel with front insertion	Enclosure having internal panel with side insertion	To close the floor and obtain the IP 65 protection index
1900	600	400	FK110	FK160	FK220
1900	800	400	FK120	FK170	FK230
1900	1000	400	FK130	FK180	FK240
1900	600	500	FK111	FK161	FK220
1900	800	500	FK121	FK171	FK230
1900	1000	500	FK131	FK181	FK240
2100	600	400	FK113	FK163	FK220
2100	800	400	FK123	FK173	FK230
2100	1000	400	FK133	FK183	FK240
2100	600	500	FK114	FK164	FK220
2100	800	500	FK124	FK174	FK230
2100	1000	500	FK134	FK184	FK240

Accessories for special enclosures

Kit for juxtaposition of enclosures	Adhesive seal	Set of brackets for fixing the enclosures to the wall	Set of lifting rings
<p>Plan 1 kit for every 2 juxtaposed enclosures</p>	<p>To ensure the IP 65 protection index for juxtaposed enclosures</p>	<p>Alignable 0-90°</p>	<p>Plan 4 lifting rings for each enclosure</p>
FM635	FN951	FK460	FM653

<p>Sliding lower cable feedthrough plate</p>  <p>to close the floor with a protection seal for the cables</p>	<p>Set of side panels</p>  <p>with attachment accessories</p>	<p>Additional bases</p>  <p>H 100 mm with kit for connecting to the provided base</p>	<p>Set of perforated brackets</p>  <p>H 50 mm for in-depth fixing to the supports of the enclosure</p>
FK270	FK310	FK370	FK404
FK280	FK310	FK380	FK404
FK290	FK310	FK390	FK404
FK270	FK311	FK371	FK405
FK280	FK311	FK381	FK405
FK290	FK311	FK391	FK405
FK270	FK320	FK370	FK404
FK280	FK320	FK380	FK404
FK290	FK320	FK390	FK404
FK270	FK321	FK371	FK405
FK280	FK321	FK381	FK405
FK290	FK321	FK391	FK405

<p>Inserts for standard lock</p>  <p>Double bar; diam. 3 mm</p>	<p>Rotary handle</p>  <p>As a replacement for the standard lock</p>	<p>Inserts for rotary handle</p>     <p>Triangle 8 mm</p> <p>Double flat insert diam. 3 mm</p> <p>Square 8 x 8 mm</p> <p>With key</p>			
10962	FZ680	FL74Z	FL75Z	FL76Z	FL98Z

quadro automation is composed of monoblock enclosures delivered with:

- fixed internal panel,
- plinth kit, height 100mm,
- removable top,
- full door with triangle insert lock,
- side or front insert internal mounting panel

It can be completed with side panels and cable gland plates.

Technical data

- IP65 / IK10 with door and side panels
- RAL 7035 (structure) and (plinth)
- metallic enclosure
- 1.2mm thickness CR4 steel for panels and 1.5 mm for the doors,
- 3 widths: 600, 800, 1000 mm,
- 2 heights: 1900, 2100 mm,
- 2 depths: 400, 500 mm.

Comply with IEC 62 208



FK110

Enclosures with internal panel and front insertion

- monoblock enclosures with juxtaposable fixed rear panel
- height includes H 100 base

Description	Height (mm)	Modular height (mm)	Width (mm)	Depth (mm)	Cat. ref.
enclosure	1900	1800	600	400	FK110
enclosure	1900	1800	800	400	FK120
enclosure	1900	1800	1000	400	FK130
enclosure	1900	1800	600	500	FK111
enclosure	1900	1800	800	500	FK121
enclosure	1900	1800	1000	500	FK131
enclosure	2100	2000	600	400	FK113
enclosure	2100	2000	800	400	FK123
enclosure	2100	2000	1000	400	FK133
enclosure	2100	2000	600	500	FK114
enclosure	2100	2000	800	500	FK124
enclosure	2100	2000	1000	500	FK134



FK160

Enclosures with internal panel and side insertion

- monoblock enclosures with juxtaposable fixed rear panel
- height includes H 100 base

Description	Height (mm)	Modular height (mm)	Width (mm)	Depth (mm)	Cat. ref.
enclosure	1900	1800	600	400	FK160
enclosure	1900	1800	800	400	FK170
enclosure	1900	1800	1000	400	FK180
enclosure	1900	1800	600	500	FK161
enclosure	1900	1800	800	500	FK171
enclosure	1900	1800	1000	500	FK181
enclosure	2100	2000	600	400	FK163
enclosure	2100	2000	800	400	FK173
enclosure	2100	2000	1000	400	FK183
enclosure	2100	2000	600	500	FK164
enclosure	2100	2000	800	500	FK174
enclosure	2100	2000	1000	500	FK184

Set of side panels

- to close the sides of the enclosure
- polyurethane seals
- fixing on the sides with screws (supplied)

Description	Height (mm)	Depth (mm)	Cat. ref.
set of 2 side panels	1900	400	FK310
set of 2 side panels	1900	500	FK311
set of 2 side panels	2100	400	FK320
set of 2 side panels	2100	500	FK321



FK310

Solid lower cable feedthrough plates

- to close the floor of the enclosure
- protection index IP 65 (with IP 65 cable glands)
- continuously moulded polyurethane seals
- fixing to the floor with screws (supplied)

Description	Width (mm)	Cat. ref.
solid lower cable feedthrough plates	600	FK220
solid lower cable feedthrough plates	800	FK230
solid lower cable feedthrough plates	1000	FK240



FK220

Sliding lower cable feedthrough plates

- to close the floor of the enclosure
- adjustable opening for passage of cables
- adhesive expanded polyurethane seals
- fixing to the floor with screws (supplied)

Description	Width (mm)	Cat. ref.
solid lower cable feedthrough plates	600	FK270
solid lower cable feedthrough plates	800	FK280
solid lower cable feedthrough plates	1000	FK290



FK270

Additional bases

- to raise the enclosure
- removable front and rear baseboards
- prepared cut-outs on the sides for passage of cables
- fixing on the standard base with bolts (provided)

Description	Height (mm)	Depth (mm)	Cat. ref.
additional base	600	400	FK370
additional base	800	400	FK380
additional base	1000	400	FK390
additional base	600	500	FK371
additional base	800	500	FK381
additional base	1000	500	FK391



FK370



FK404

Perforated crossbars

- for various attachments
- two holes spaced 25 mm apart for wing nuts

- fixing on the sides of the enclosure with screws (supplied)

Description	Height (mm)	Depth (mm)	Cat. ref.
set of 2 perforated crossbars	50	400	FK404
set of 2 perforated crossbars	50	400	FK405



FM635

Kit for juxtaposition of enclosures

- plan 1 kit for every 2 juxtaposed enclosures

Description	Cat. ref.
kit composed of 6 threaded pins M6 and 12 bolts M5	FM635



FN951

Adhesive expanded polyurethane seal

- to ensure the protection index
- plan 1 reel for every 2 juxtaposed enclosures

Description	Cat. ref.
10 m adhesive seal, w. 10 mm x t. 8 mm	FN951



FM640

Accessories for fixing and transport

Description	Cat. ref.
set of 2 wall fixing brackets to be attached to the rear panel of the enclosure using the supplied screws, alignable 0-90°	FM640



FM653

Description	Cat. ref.
set of 2 lifting rings to be attached to the roof of the enclosure using the supplied cage nuts and screws, Ø 55mm, max. load 250 kg	FM653



10962

Closure inserts for standard lock

- insert for standard lock to replace the standard triangle insert

Description	Pack qty.	Cat. ref.
double bar design 3 mm	10	10962



FZ680

Sealed handle

- to use as a replacement for the standard triangle lock
- can only be activated with the key

Description	Pack qty.	Cat. ref.
handle in technopolymer without insert, to be completed with the closure inserts	5	FZ680



FL74Z FL75Z FL76Z FL98Z

Closure inserts

- applied to the sealed handle
- key insert FL98Z is equipped with 2 keys bearing the unique reference EK333

Description	Pack qty.	Cat. ref.
triangle insert 8 mm	5	FL74Z
double bar insert ø 3 mm	5	FL75Z
square insert 8 x 8 mm	5	FL76Z
insert with key	5	FL98Z

Complete desk with fixed back and sides:

- structure in 15/10 sheet steel,
- plain doors, plates and cable entry with continuous polyester seals,
- reversible plain door in 15/10 sheet steel with rigid profile and interchangeable lock with triangular inserts,
- Rotary handle as accessory,
- Double plain doors for L1200 enclosures are reversible and lock in mounted on the left door,
- enclosure is in 15/10 sheet steel equipped with 2 pneumatic shock absorbers for the opening and 2 lever locks with triangular inserts, rotary handle as accessory,

- fixed internal panel to be installed from the front in 20/10 zinc covered sheet steel,
- Integrated plinth h100mm with lateral locks and holes for floor mounting,
- plain cable entry plate in 15/10 sheet steel,
- epoxy polyester powder coating, RAL 7035,
- Protection class: IP55 - IK10,
- Nominal current of use: 400V,
- short-circuit voltage rating: 10kA,
- for indoor installation,
- max. operating temperature: +40°C.

Monobloc control desks

- control desk height: 200mm
- body height: 700mm
- plinth height: 100mm
- completed with fixed internal panels
- base completely closed
- lockable door and desk panel with triangular insert
- 1 door for width 600, 800 and 1000mm
- double door for width 1200mm

Description	Height (mm)	Width (mm)	Depth (mm)	ΔT 0.5 (K)	ΔT 1.0 (K)	P; max (W)	Cat. ref.
monobloc control desks	1000	600	400	22.9	30	150	FL650CD
monobloc control desks	1000	800	400	23.7	30	200	FL652CD
monobloc control desks	1000	1000	400	23.7	30	250	FL654CD
monobloc control desks	1000	1200	400	23.7	30	200	FL656CD



FL652CD

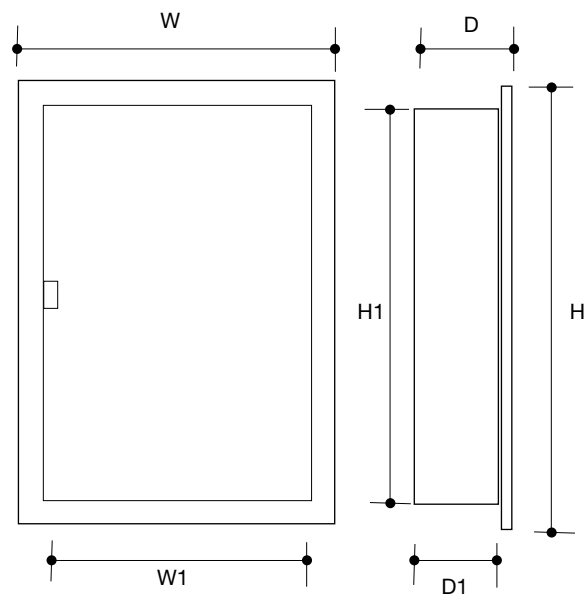
TPN 125A type B distribution boards - fixed busbar

Surface mounting version

Reference (surface)	H	W	D	H1	W1	D1
JK1B04S1	495	405	115	490	400	110
JK1B06S1	555	405	115	550	400	110
JK1B08S1	605	405	115	600	400	110
JK1B10S1	660	405	115	655	400	110
JK1B12S1	715	405	115	710	400	110
JK1B14S1	770	405	115	765	400	110
JK1B16S1	820	405	115	815	400	110
JK1B18S1	940	405	115	935	400	110
JK1B24S1	1105	405	115	1100	400	110

Flush mounting version

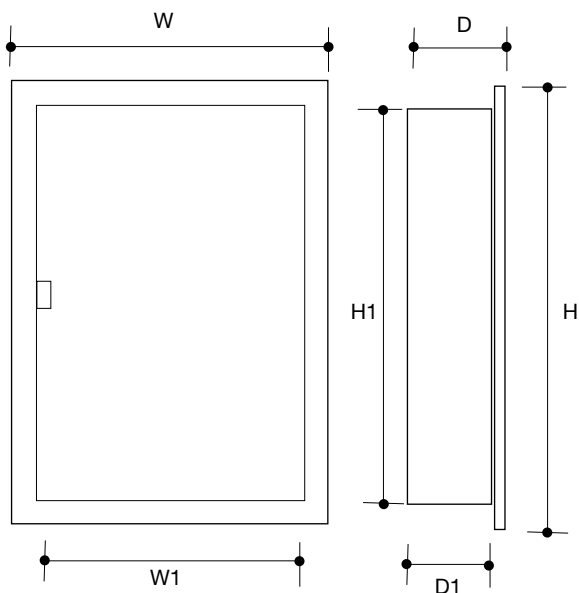
Reference (flush)	H	W	D	H1	W1	D1
JK1B04F1	520	430	115	490	400	110
JK1B06F1	580	430	115	550	400	110
JK1B08F1	630	430	115	600	400	110
JK1B10F1	685	430	115	655	400	110
JK1B12F1	740	430	115	710	400	110
JK1B14F1	795	430	115	765	400	110
JK1B16F1	845	430	115	815	400	110
JK1B18F1	965	430	115	935	400	110
JK1B24F1	1130	430	115	1100	400	110



TPN 125A type B distribution boards - split busbar

Dimensions of spreader box + din extension box

Reference	H	W	D
JK1E01S	275	405	115
JK1E16S	275	405	115
JK1E32S	425	405	115
JK1E48S	655	405	115
JK1E01F	300	430	115
JK1E16F	300	430	115
JK1E32F	450	430	115
JK1E48F	680	430	115

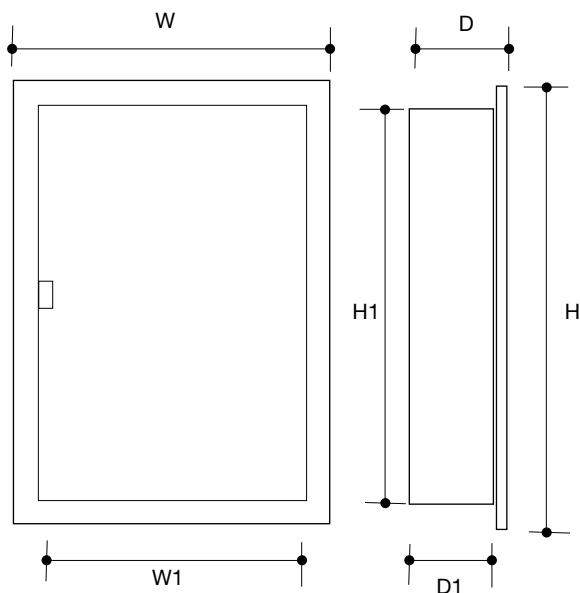


Main switchboards

Reference (surface)	H	W	D	H1	W1	D1
JK1B022S1	555	445	115	550	440	110
JK1B042S1	610	445	115	605	440	110
JK1B044S1	665	445	115	660	440	110
JK1B062S1	665	445	115	660	440	110
JK1B064S1	720	445	115	715	440	110
JK1B066S1	775	445	115	770	440	110
JK1B082S1	720	445	115	715	440	110
JK1B084S1	775	445	115	770	440	110
JK1B086S1	830	445	115	825	440	110
JK1B088S1	885	445	115	880	440	110
JK1B104S1	935	445	115	930	440	110

Reference (flush)	H	W	D	H1	W1	D1
JK1B022F1	580	470	115	550	440	110
JK1B042F1	635	470	115	605	440	110
JK1B044F1	690	470	115	660	440	110
JK1B062F1	690	470	115	660	440	110
JK1B064F1	745	470	115	715	440	110
JK1B066F1	800	470	115	770	440	110
JK1B082F1	745	470	115	715	440	110
JK1B084F1	800	470	115	770	440	110
JK1B086F1	855	470	115	825	440	110
JK1B088F1	910	470	115	880	440	110
JK1B104F1	960	470	115	930	440	110

invicta - 250A type B distribution boards



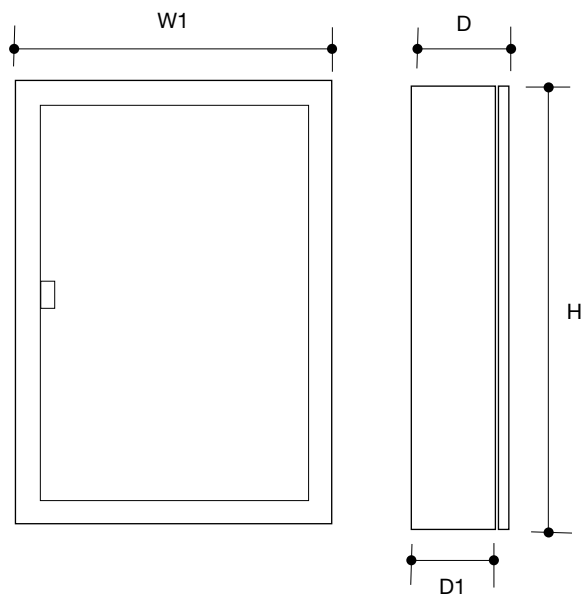
Reference (surface)	H	W	D	H1	W1	D1
JK2B04S1	665	445	115	650	440	110
JK2B06S1	705	445	115	700	440	110
JK2B08S1	760	445	115	755	440	110
JK2B10S1	815	445	115	810	440	110
JK2B12S1	865	445	115	860	440	110
JK2B14S1	920	445	115	915	440	110
JK2B16S1	975	445	115	970	440	110
JK2B18S1	1030	445	115	1025	440	110
JK2B24S1	1195	445	115	1190	440	110

Reference (flush)	H	W	D	H1	W1	D1
JK2B04F1	680	470	115	650	440	110
JK2B06F1	730	470	115	700	440	110
JK2B08F1	785	470	115	755	440	110
JK2B10F1	840	470	115	810	440	110
JK2B12F1	890	470	115	860	440	110
JK2B14F1	945	470	115	915	440	110
JK2B16F1	1000	470	115	970	440	110
JK2B18F1	1055	470	115	1025	440	110
JK2B24F1	1220	470	115	1190	440	110

Dimensions of spreader box + din extension box

Reference	H	W	D
JK2E01F	300	470	115
JK2E01S	275	445	115
JK2E16S	275	445	115
JK2E32S	425	445	115
JK2E48S	575	445	115
JK2E16F	300	470	115
JK2E32F	450	470	115
JK2E48F	600	470	115

invicta - 250A panel board system
250A incoming, 125A outgoing



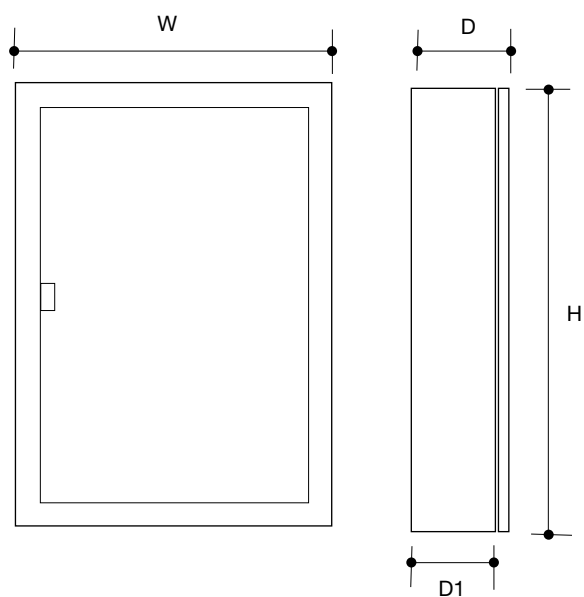
Main
switchboards

Reference (surface)	H	W	D1	D
JN2B00002S1	700	615	160	165
JN2B00004S1	775	615	160	165
JN2B00006S1	855	615	160	165
JN2B00008S1	925	615	160	165
JN2B00010S1	1000	615	160	165
JN2B00012S1	1115	615	160	165
JN2B00016S1	1375	615	160	165

Dimensions of spreader box + din extension box

Reference	H	W	D
JN2E01S	303	615	160
JN2E20S	303	615	160

invicta - 400A panel board system
400A incoming, 125A / 250A incoming

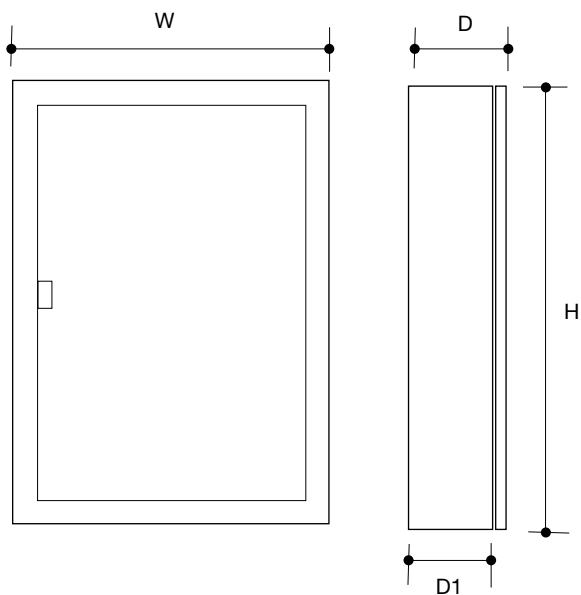


Reference (surface)	H	W	D1	D
JN4B00004S1	930	690	200	205
JN4B00006S1	1005	690	200	205
JN4B00008S1	1080	690	200	205
JN4B00010S1	1155	690	200	205
JN4B00012S1	1230	690	200	205
JN4B00016S1	1380	690	200	205
JN4B00202S1	960	846	200	205
JN4B00204S1	1035	846	200	205
JN4B00206S1	1110	846	200	205
JN4B00208S1	1185	846	200	205
JN4B00210S1	1260	846	200	205
JN4B00214S1	1410	846	200	205

Dimensions of spreader box + din extension box

Reference	H	W	D
JN4E01S	303	690	200
JN4E24S	303	690	200
JN8E32S	453	615	160

invicta - 800A panel board system
630A/ 800A incoming 125A/ 250A/ 400A outgoing

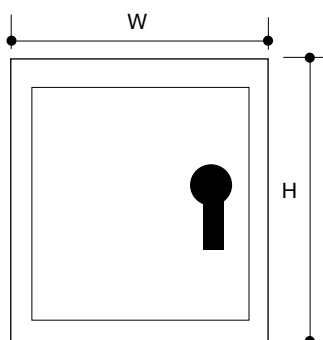


Main
switchboards

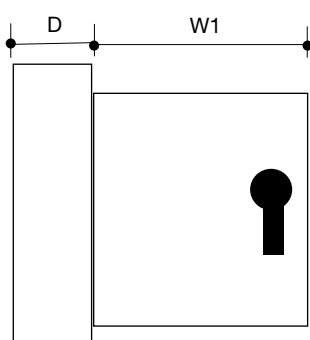
Reference (surface)	H	W	D1	D
JN8B00004S1	1035	846	200	205
JN8B00006S1	1110	846	200	205
JN8B00008S1	1215	846	200	205
JN8B00010S1	1320	846	200	205
JN8B00012S1	1410	846	200	205
JN8B00016S1	1620	846	200	205
JN8B00400S1	1095	846	200	205
JN8B00600S1	1200	846	200	205
JN8B00800S1	1305	846	200	205
JN8B01000S1	1410	846	200	205
JN8B01200S1	1515	846	200	205
JN8B01600S1	1725	846	200	205
JN8B00202S1	1065	846	200	205
JN8B00204S1	1140	846	200	205
JN8B00206S1	1215	846	200	205
JN8B00208S1	1320	846	200	205
JN8B00210S1	1410	846	200	205
JN8B00214S1	1560	846	200	205
JN8B00402S1	1170	846	200	205
JN8B00404S1	1245	846	200	205
JN8B00406S1	1350	846	200	205
JN8B00408S1	1440	846	200	205
JN8B00410S1	1650	846	200	205
JN8B00606S1	1485	846	200	205
JN8B00608S1	1620	846	200	205

Dimensions of spreader box + dim. extension box

Reference	H	W	D
JN8E01S	303	846	200
JN8E32S	453	846	200

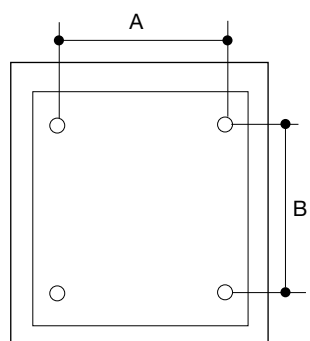


Reference	Product type	Rating	Dimensions					
			H	W	D	W1	A	B
JFB202U	SPSN	20A/ A1	250	200	150	182	120	172
JFB302U	TPN	20A/ A1	250	200	150	182	120	172
JFB402U	TPSN	20A/ A1	250	200	150	182	120	172
JFB203U	TPSN	32A/ A1	250	200	150	182	120	172
JFB303U	TPN	32A/ A1	250	200	150	182	120	172
JFB403U	TPSN	32A/ A1	250	200	150	182	120	172



Size 3									
JFD206U	SPSN	63A/ A2-A3	325	300	150	282	190	217	
JFD306U	TPN	63A/ A2-A3	325	300	150	282	190	217	
JFD406U	TPSN	63A/ A2-A3	325	300	150	282	190	217	

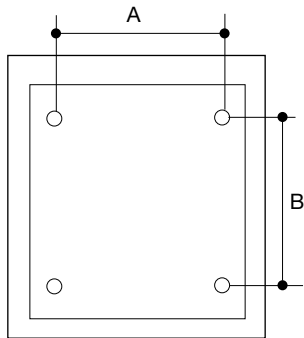
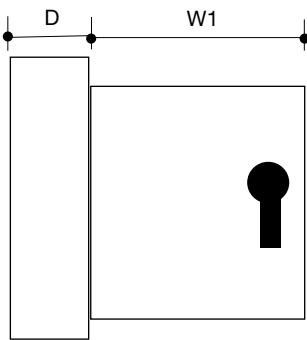
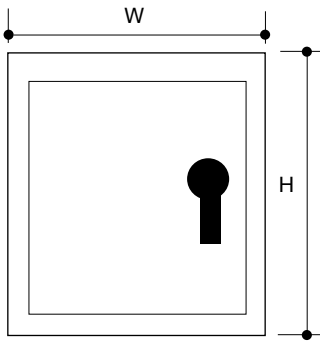
Size 4									
JFE210U	SPSN	100A/ A4	400	375	200	357	265	292	
JFE310U	TPN	100A/ A4	400	375	200	357	265	292	
JFE410U	TPSN	100A/ A4	400	375	200	357	265	292	



Size 6									
JFG312U	TPN	125A/ B1-B2	500	375	200	357	265	380	
JFG412U	TPSN	125A/ B1-B2	500	375	200	357	265	380	
JFG316U	TPN	125A/ B1-B2	500	375	200	357	265	380	
JFG416U	TPSN	125A/ B1-B2	500	375	200	357	265	380	
JFG320U	TPN	125A/ B1-B2	500	375	200	357	265	380	
JFG420U	TPSN	125A/ B1-B2	500	375	200	357	265	380	
JFG325U	TPN	125A/ B1-B2	500	375	200	357	265	380	
JFG425U	TPSN	125A/ B1-B2	500	375	200	357	265	380	

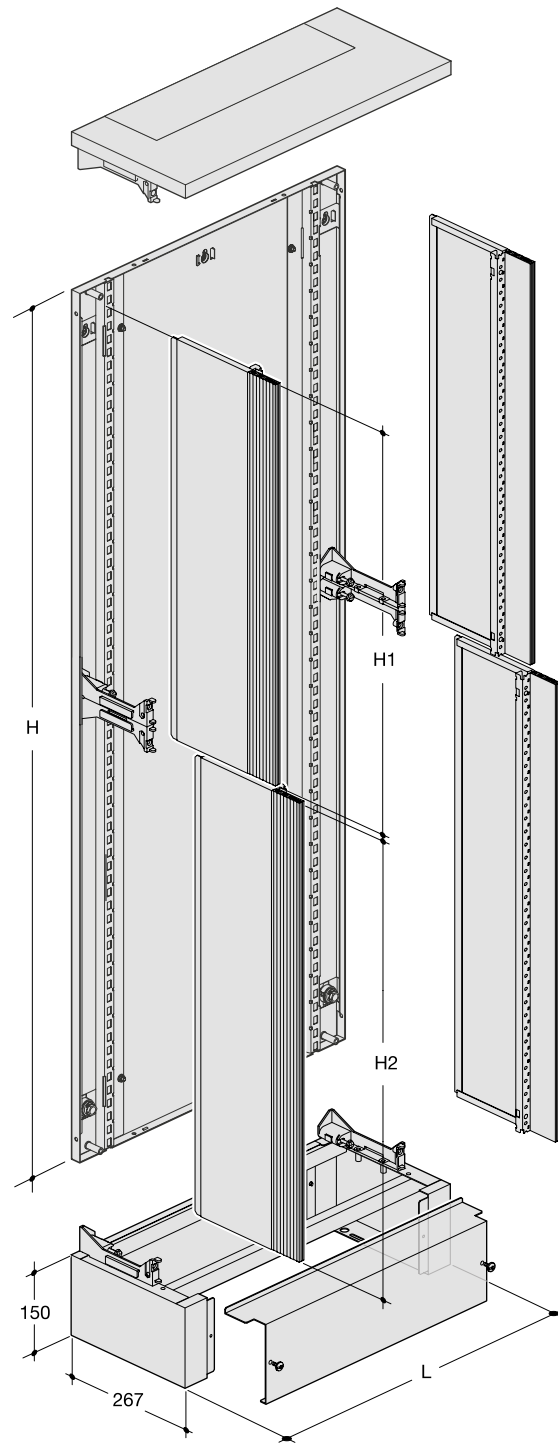
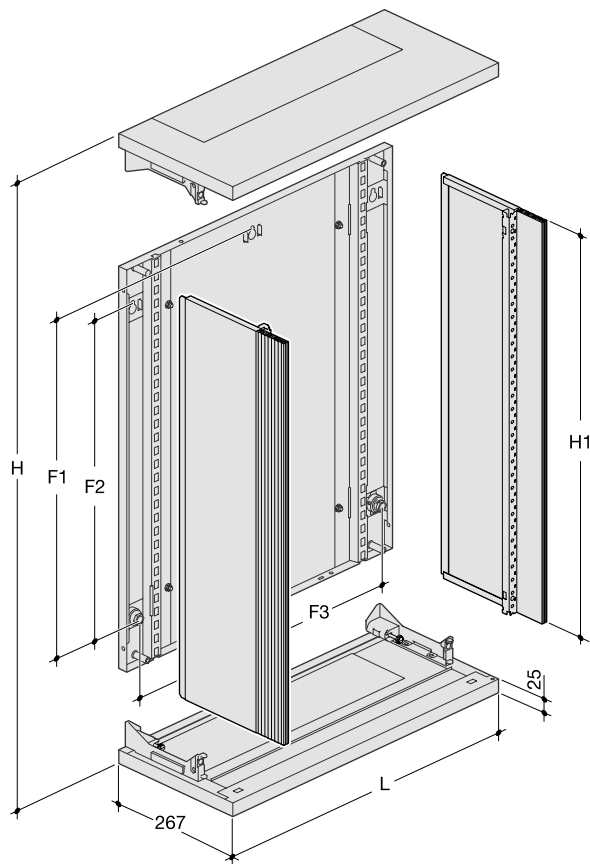
Size 7									
JFH331U	TPN	315A/ B1-B3	650	500	300	481.5	390	529	
JFH431U	TPSN	315A/ B1-B3	650	500	300	481.5	390	529	
JFH340U	TPN	400A/ B1-B4	650	500	300	481.5	390	529	
JFH440U	TPSN	400A/ B1-B4	650	500	300	481.5	390	529	

Size 8									
JFI363U	TPN	630A/ C1-C2	800	600	350	581.5	490	679	
JFI463U	TPSN	630A/ C1-C2	800	600	350	581.5	490	679	
JFI380U	TPN	800A/ C1-C2	800	600	350	581.5	490	679	
JFI480U	TPSN	800A	800	600	350	581.5	490	679	



Reference	Dimensions					
	H	W	D	H1	A	B
JAB302	250	180	105	177	110	172
JAB402	250	180	105	177	120	172
JAB303	250	180	105	177	110	172
JAB403	250	180	105	177	120	172
JAB306	250	180	105	177	120	172
JAB406	250	180	105	177	120	172
JAB310	250	200	150	182	120	172
JAB410	250	200	150	182	120	172
JAC312	300	200	150	182	140	196
JAC412	300	200	150	182	140	196
JAC316	300	200	150	182	140	196
JAC416	300	200	150	182	140	196
JAE320	400	375	200	357	265	292
JAE420	400	375	200	357	265	292
JAE325	400	375	200	357	265	292
JAE425	400	375	200	357	265	292
JAG331	500	375	200	357	265	380
JAG431	500	375	200	357	265	380
JAG340	500	375	200	357	265	380
JAG440	500	375	200	357	265	380
JAH363	650	500	300	481.5	390	529
JAH463	650	500	300	481.5	390	529
JAH380	650	500	300	481.5	390	529
JAH480	650	500	300	481.5	390	529
JAH390	1058	750	300	732	390	937
JAH392	1058	750	300	732	130	937
JZA700	200	250	150	/	140	100
JZA701	200	375	200	/	265	100
JZA702	250	500	300	/	390	134
JZA703	300	600	350	/	490	134

quadro4 enclosures



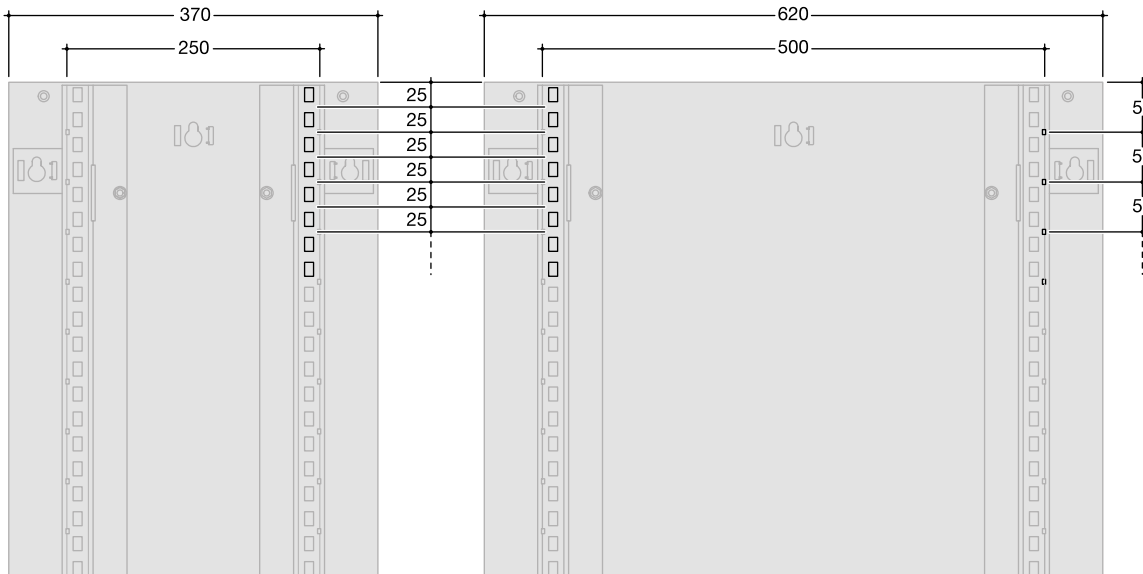
Dimensions in mm

references sides	bottoms	H	H1	L	fixing holes position		
					F1	F2	F3
FC110	FC010	500	450	370	305	270	315
FC210	FC010	500	450	620	305	270	565
FC111	FC011	650	600	370	455	420	315
FC211	FC011	650	600	620	455	420	565
FC112	FC012	800	750	370	605	570	315
FC212	FC012	800	750	620	605	570	565
FC113	FC013	950	900	370	755	720	315
FC213	FC013	950	900	620	755	720	565
FC114	FC014	1100	1050	370	905	870	315
FC214	FC014	1100	1050	620	905	870	565
FC115	FC015	1250	1200	370	1055	1020	315
FC215	FC015	1250	1200	620	1055	1020	565
FC116	FC016	1400	1350	370	1205	1170	315
FC216	FC016	1400	1350	620	1205	1170	565

Dimensions in mm

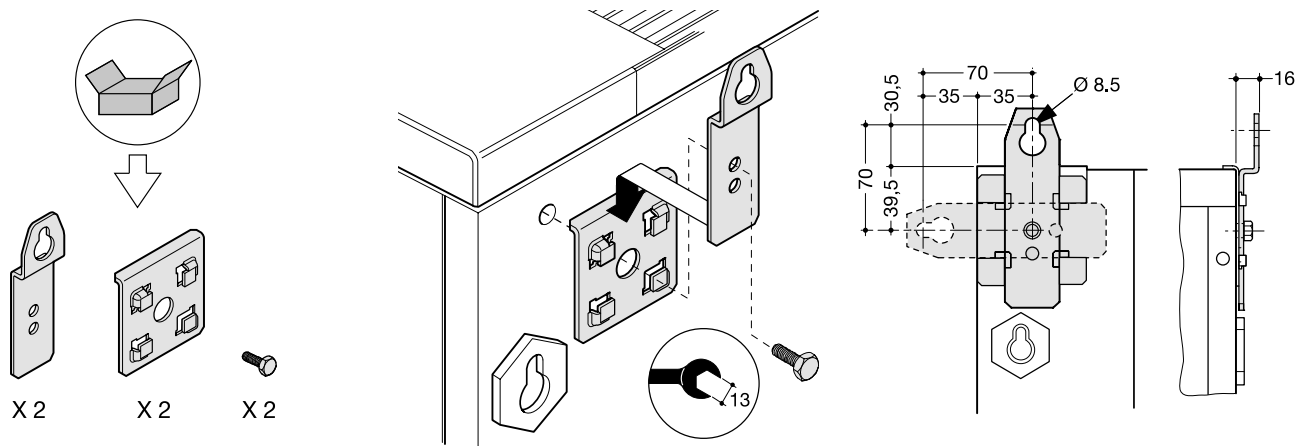
bottoms > 1400	sides	H	L	H1	H2
FC118	FC012 + FC013	1650	370	750	900
FC218	FC012 + FC013	1650	620	750	900
FC119	X FC013 2	1800	370	900	900
FC219	X FC013 2	1800	620	900	900

Back plates (dimensions in mm)

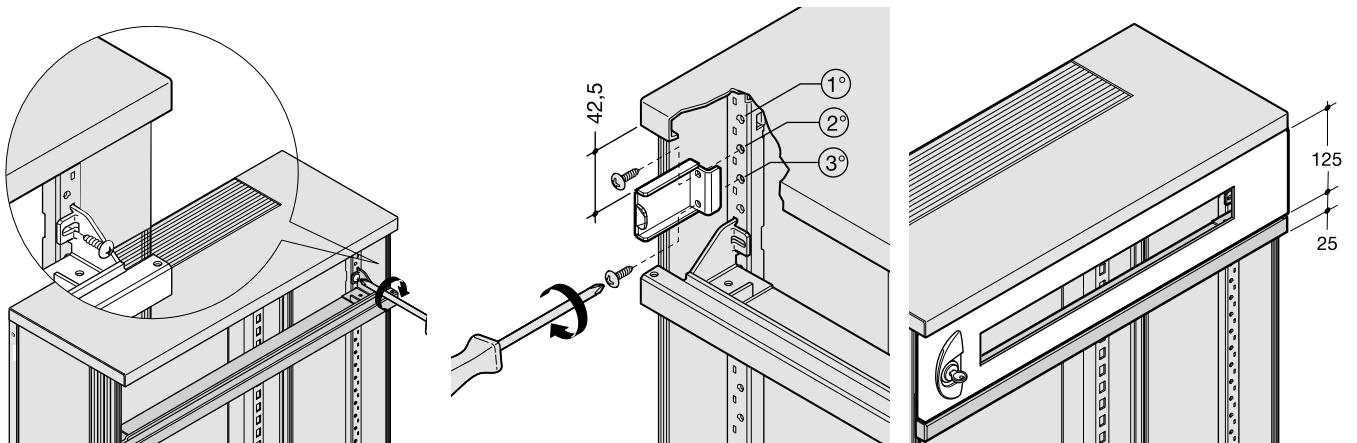


Main switchboards

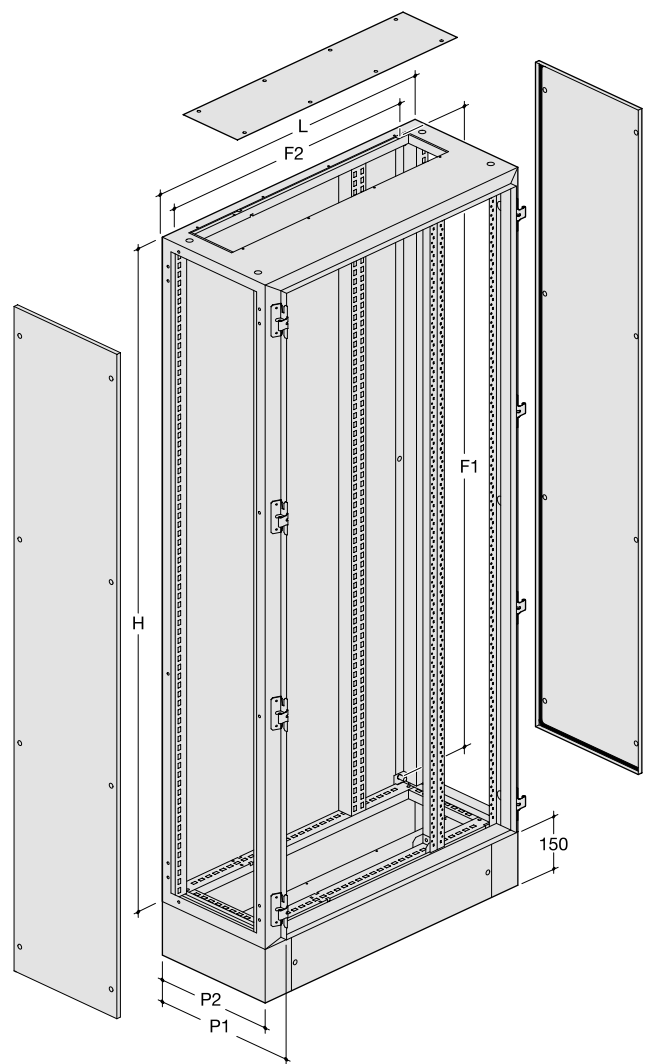
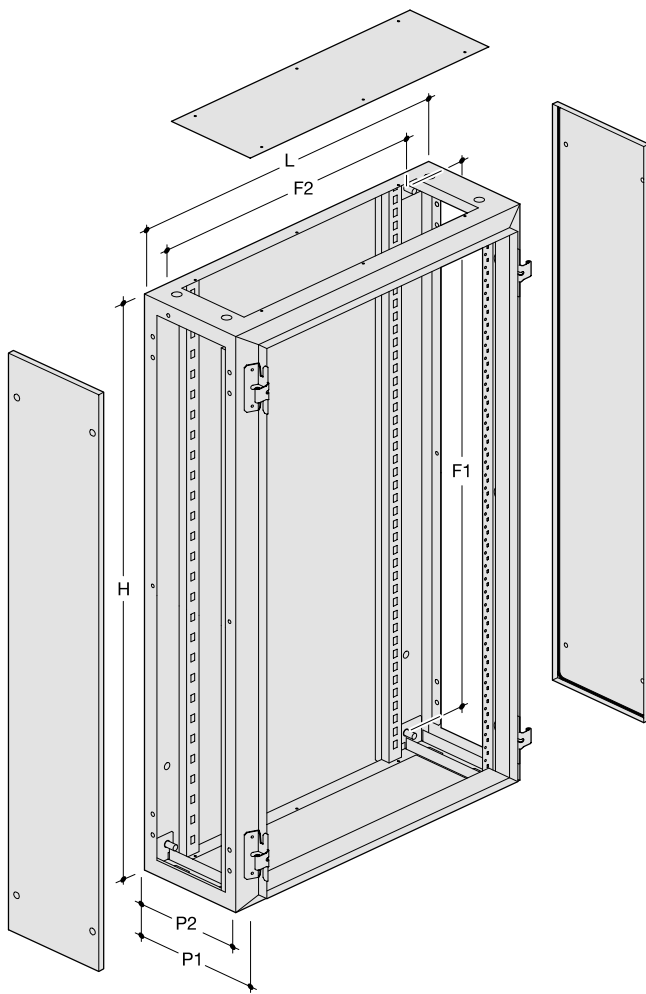
Wall mounting brackets FM640 (dimensions in mm)



Mounting of hinged front plate door of DIN rail equipment unit (dimensions in mm)



quadro5 enclosures and boards



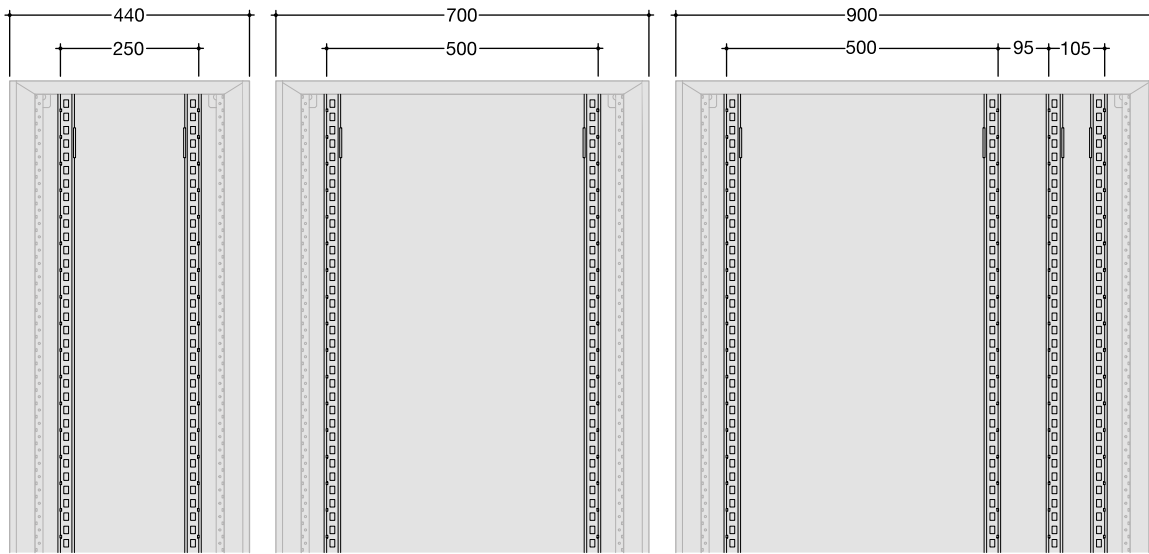
Dimensions in mm

references		fixing					
bodies	sides	H	L	P1	P2	F1	F2
FM200	FM400	510	700	260	220	430	570
FM201	FM401	660	700	260	220	580	570
FM202	FM402	810	700	260	220	730	570
FM203	FM403	960	700	260	220	880	570
FM204	FM404	1100	700	260	220	1030	570
FM205	FM405	1260	700	260	220	1180	570
FM206	FM406	1410	700	260	220	1330	570

Dimensions in mm

references		fixing					
bodies	sides	H	L	P1*	P2	F1	F2
FM107	FM407	1560	450	260	220	1480	320
FM108	FM408	1710	450	260	220	1630	320
FM109	FM409	1860	450	260	220	1780	320
FM207	FM407	1560	700	260	220	1480	570
FM208	FM408	1710	700	260	220	1630	570
FM209	FM409	1860	700	260	220	1780	570
FM307	FM407	1560	900	260	220	1480	770
FM308	FM408	1710	900	260	220	1630	770
FM309	FM409	1860	900	260	220	1780	770
FM117	FM407	1560	450	400	360	1480	320
FM118	FM408	1710	450	400	360	1630	320
FM119	FM409	1860	450	400	360	1780	320
FM217	FM407	1560	700	400	360	1480	570
FM218	FM408	1710	700	400	360	1630	570
FM219	FM409	1860	700	400	360	1780	570
FM317	FM407	1560	900	400	360	1480	770
FM318	FM408	1710	900	400	360	1630	770
FM319	FM409	1860	900	400	360	1780	770

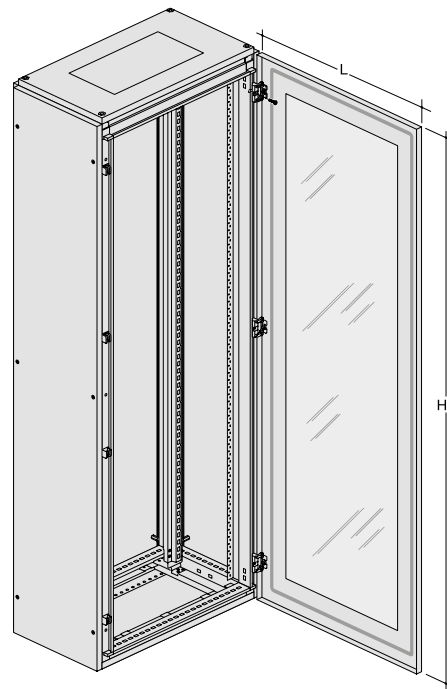
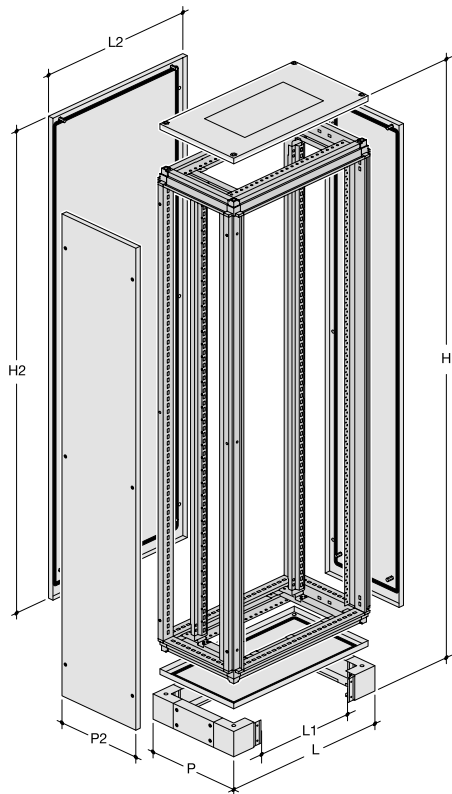
Back plates quadro5



	width (mm)	distance between pillars (mm)	top panel width (mm)
quadro5	450	250	350
	700	500	600
	900	700	800

	distance between pillars (mm)	top panel width (mm)
1 x 10 modules	250	350
1 x 24 modules	500	600
1 x 36 modules	700	800

quadro+ enclosures



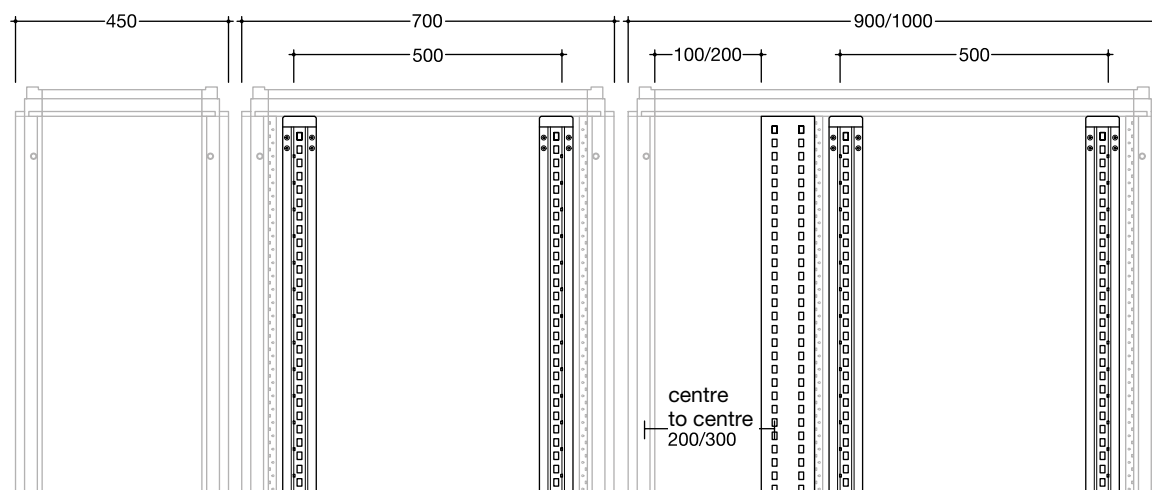
Doors height H1 : 1900 mm

Dimensions in mm

	frame	plinth	side	back	H*	P	L1	H2	L2	P2
L = 450	FN018E	FN438E	FN356E	FN216E	2000	400	288	1900	448	365
L = 700	FN021E	FN441E	FN356E	FN276E	2000	400	538	1900	698	365
L = 900	FN023E	FN443E	FN356E	FN296E	2000	400	738	1900	898	365
L = 1000	FN024E	FN444E	FN356E	FN246E	2000	400	838	1900	998	365
L = 450	FN020E	FN440E	FN366E	FN216E	2000	600	288	1900	448	565
L = 700	FN029E	FN451E	FN366E	FN276E	2000	600	538	1900	698	565
L = 900	FN031E	FN453E	FN366E	FN296E	2000	600	738	1900	898	565
L = 1000	FN032E	FN454E	FN366E	FN246E	2000	600	838	1900	998	565
L = 450	FN022E	FN442E	FN376E	FN216E	2000	800	288	1900	448	765
L = 700	FN013E	FN433E	FN376E	FN276E	2000	800	538	1900	698	765
L = 900	FN017E	FN437E	FN376E	FN296E	2000	800	738	1900	898	765
L = 1000	FN037E	FN459E	FN376E	FN246E	2000	800	838	1900	998	765

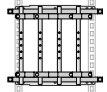
* structure 1900 mm, plinth 100 mm

Back plates quadro+ evo

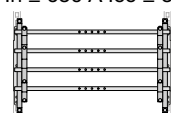


Busbars short-circuits withstand capacity

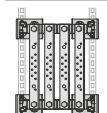
Vertical mounting

Busbars fixing	nominal current	bar sections (mm)	bars supports max. distance depending on short-circuit current (mm)					
			10 kA	15 kA	20kA	25 kA	30 kA	35 kA
 In ≤ 630 A Icc ≤ 35 kA UC820	160A	12 x 5	1000	475	250	650	425	300
	250A	20 x 5	1000	1000	950	650	425	300
	400A	30 x 5	1000	1000	1000	850	550	375
UC820	630A	30 x 10	1000	1000	1000	1000	900	625



Horizontal mounting

Busbars fixing	nominal current	bar sections (mm)	short-circuit current depending on bottom width for quadro4, quadro5 et quadro+	
			250 mm	500 mm
 In ≤ 630 A Icc ≤ 35 kA UC820	160A	12 x 5	20 kA	150kA
	250A	20 x 5	35 kA	30 kA
	400A	30 x 5	45 kA	34 kA
	630A	30 x 10	55 kA	45 kA

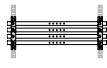
Inclined busbars

Busbars fixing	nominal current	bar sections (mm)	short-circuit current depending on bottom width for quadro4, quadro5 et quadro					
			10 kA	15 kA	20kA	25 kA	30 kA	35 kA
 In ≤ 630 A Icc ≤ 35 kA UC826	250A	20 x 5	1000	1000	1000	825	650	425
	400A	32 x 5	1000	1000	1000	1000	925	625
	630A	30 x 10	1000	1000	1000	1000	925	650

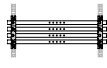
Vertical mounting

Busbars fixing	nominal current	bar sections (mm)	bars supports max. distance depending on short-circuit current (mm)					
			10 kA	15 kA	20kA	25 kA	30 kA	35 kA
 In ≤ 250 A Icc ≤ 25 kA UC830	250A	20 x 5			300	200		
	 In ≤ 400 A Icc ≤ 35 kA UC815	250A	20 x 5	1000	1000	925	745	580
400A		32 x 5	1000	1000	895	655	510	385

Horizontal mounting

Busbars fixing	nominal current	bar sections (mm)	short-circuit current depending on bottom width for quadro4, quadro5 et quadro+	
			250 mm	500 mm
 In ≤ 630 A Icc ≤ 35 kA UC815	250A	20 x 5	35 kA	35 kA
	400A	32 x 5	40 kA	34 kA

Inclined horizontal bars mounting

Busbars fixing	nominal current	bar sections (mm)	short-circuit current depending on bottom width for quadro4, quadro5 et quadro+	
			250 mm	500 mm
 In ≤ 630 A Icc ≤ 35 kA UC826	250A	20 x 5	35 kA	35 kA
	400A	32 x 5	45 kA	35 kA
	630A	30 x 10	45 kA	35 kA

Fix interphase distance, on edge mounting copper busbar

Vertical or horizontal mounting	nominal current	copper bar cross-sections (mm)	Maximum distance "d" in mm of busbar holders depending on short-circuit current				
			24/12 kA 3P/4P	48/23 kA 3P/4P	63/30 kA 3P/4P	82/39 kA 3P/4P	114/52 kA 3P/4P
	500A	50 x 5	700	350	250	200	130
	630A	63 x 5	800	400	300	225	130
	800A	80 x 5	950	475	350	225	125
	1000A	100 x 5	1000	550	400	225	125
	1250A	80 x 5 x 2	975	475	375	275	200
	1600A	100 x 5 x 2	1000	575	425	325	225

Adjustable interphase distance, on edge mounting copper busbar

Table of interphase distance (in mm) between each busbar holders depending on electro dynamical efforts generated during short-circuit, for different interphase distances for each single pole supports.

5mm thickness copper bars

Cu bars (mm)	IpCr. (kA) / Icw (kA) eff 1s (interphase 65 mm) for 1 bar per phase									
	24 / 12	48 / 23	63 / 30	82 / 39	114 / 52	145 / 66	152 / 69	165 / 75	187 / 85	209 / 95
50 x 5	717	398	-	-	-	-	-	-	-	-
63 x 5	900	446	-	-	-	-	-	-	-	-
80 x 5	1000	503	-	-	-	-	-	-	-	-

Cu bars (mm)	IpCr. (kA) / Icw (kA) eff / 1s (interphase 75 mm) for 1 bar per phase									
	24 / 12	48 / 23	63 / 30	82 / 39	114 / 52	145 / 66	152 / 69	165 / 75	187 / 85	209 / 95
50 x 5	801	398	305	234	167	105	-	-	-	-
63 x 5	900	446	342	263	170	105	-	-	-	-
80 x 5	1000	503	386	296	170	105	-	-	-	-
100 x 5	1000	563	431	331	170	105	-	-	-	-
120 x 5	1000	629	482	332	170	105	-	-	-	-

Cu bars	IpCr. (kA) / Icw (kA) eff / 1s (interphase 100 mm) for 1 bar per phase									
	24 / 12	48 / 23	63 / 30	82 / 39	114 / 52	145 / 66	152 / 69	165 / 75	187 / 85	209 / 95
50 x 5	925	459	352	270	193	140	128	109	-	-
63 x 5	1000	516	395	304	217	140	128	109	-	-
80 x 5	1000	581	445	342	227	140	128	109	-	-
100 x 5	1000	650	498	383	227	140	128	109	-	-
120 x 5	1000	727	557	428	227	140	128	109	-	-

Cu bars	IpCr. (kA) / Icw (kA) eff / 1s (interphase 75 mm) for 1 bar per phase									
	24 / 12	48 / 23	63 / 30	82 / 39	114 / 52	145 / 66	152 / 69	165 / 75	187 / 85	209 / 95
50 x 5	1000	563	431	331	237	187	178	152	118	-
63 x 5	1000	632	484	372	266	197	180	152	118	-
80 x 5	1000	712	546	420	300	197	180	152	118	-
100 x 5	1000	796	610	469	317	197	180	152	118	-
120 x 5	1000	890	682	525	317	197	180	152	118	-

Cu bars	IpCr. (kA) / Icw (kA) eff / 1s (interphase 100 mm) for 1 bar per phase									
	24 / 12	48 / 23	63 / 30	82 / 39	114 / 52	145 / 66	152 / 69	165 / 75	187 / 85	209 / 95
50 x 5	1000	650	498	383	274	216	206	190	158	126
63 x 5	1000	730	559	430	308	242	232	203	158	126
80 x 5	1000	822	630	485	347	262	240	203	158	126
100 x 5	1000	920	705	542	388	262	240	203	158	126
120 x 5	1000	1000	788	606	423	262	240	203	158	126

10mm thickness copper bars

Cu bars (mm)	IpCr. (kA) / Icw (kA) eff / 1s (interphase 75 mm) for 1 bar per phase									
	48 / 23	63 / 30	82 / 39	114 / 52	145 / 66	152 / 69	165 / 75	187 / 85	209 / 95	231 / 105
50 x 10	796	610	469	336	244	223	188	146	117	-
63 x 10	872	669	514	368	244	223	188	146	117	-
80 x 10	1000	772	594	393	244	223	188	146	117	-
100 x 10	1000	863	664	393	244	223	188	146	117	-
120 x 10	1000	946	727	393	244	223	188	146	117	-
Cu bars	IpCr. (kA) / Icw (kA) eff / 1s (interphase 100 mm) for 1 bar per phase									
	48 / 23	63 / 30	82 / 39	114 / 52	145 / 66	152 / 69	165 / 75	187 / 85	209 / 95	231 / 105
50 x 10	920	705	542	388	305	292	252	196	156	128
63 x 10	1000		594	425	325	297	252	196	156	128
80 x 10	1000		686	491	325	297	252	196	156	128
100 x 10	1000		767	524	325	297	252	196	156	128
120 x 10	1000	1000	840	524	325	297	252	196	156	128
Cu bars	IpCr. (kA) / Icw (kA) eff / 1s (interphase 150 mm) for 1 bar per phase									
	48 / 23	63 / 30	82 / 39	114 / 52	145 / 66	152 / 69	165 / 75	187 / 85	209 / 95	231 / 105
50 x 10	1000	863	664	475	374	358	329	290	235	192
63 x 10	1000	946	727	520	410	392	361	294	235	192
80 x 10	1000	1000	840	601	473	447	378	294	235	192
100 x 10	1000	1000	939	672	488	447	378	294	235	192
120 x 10	1000	1000	1000	736	488	447	378	294	235	192
Cu bars	IpCr. (kA) / Icw (kA) eff / 1s (interphase 75 mm) for 2 bars per phase									
	48 / 23	63 / 30	82 / 39	114 / 52	145 / 66	152 / 69	165 / 75	187 / 85	209 / 95	231 / 105
50 x 10	1000	863	664	435	270	247	209	162	130	106
63 x 10	1000	946	727	435	270	247	209	162	130	106
80 x 10	1000	1000	840	435	270	247	209	162	130	106
100 x 10	1000	1000	850	435	270	247	209	162	130	106
120 x 10	1000	1000	850	435	270	247	209	162	130	106
Cu bars	IpCr. (kA) / Icw (kA) eff / 1s (interphase 100 mm) for 2 bars per phase									
	48 / 23	63 / 30	82 / 39	114 / 52	145 / 66	152 / 69	165 / 75	187 / 85	209 / 95	231 / 105
50 x 10	1000	997	767	549	360	329	279	217	173	142
63 x 10	1000	1000	840	581	360	329	279	217	173	142
80 x 10	1000	1000	970	581	360	329	279	217	173	142
100 x 10	1000	1000	1000	581	360	329	279	217	173	142
120 x 10	1000	1000	1000	581	360	329	279	217	173	142
Cu bars	IpCr. (kA) / Icw (kA) eff / 1s (interphase 150 mm) for 2 bars per phase									
	48 / 23	63 / 30	82 / 39	114 / 52	145 / 66	152 / 69	165 / 75	187 / 85	209 / 95	231 / 105
50 x 10	1000	1000	939	672	529	494	418	325	260	213
63 x 10	1000	1000	1000	736	540	494	418	325	260	213
80 x 10	1000	1000	1000	851	540	494	418	325	260	213
100 x 10	1000	1000	1000	871	540	494	418	325	260	213
120 x 10	1000	1000	1000	871	540	494	418	325	260	213
Cu bars	IpCr. (kA) / Icw (kA) eff / 1s (interphase 150 mm) for 3 bars per phase									
	48 / 23	63 / 30	82 / 39	114 / 52	145 / 66	152 / 69	165 / 75	187 / 85	209 / 95	231 / 105
50 x 10	1000	1000	1000	824	649	620	548	427	341	279
63 x 10	1000	1000	1000	902	709	648	548	427	341	279
80 x 10	1000	1000	1000	1000	709	648	548	427	341	279
100 x 10	1000	1000	1000	1000	709	648	548	427	341	279
120 x 10	1000	1000	1000	1000	709	648	548	427	341	279

Dimensions for UC895E, UC896E and UC897E

L (mm)	bar per phase	bar size (mm)	interphase (mm)
75	1 to 4	30 to 125 x 5	75 100
75	1 to 2	30 to 120 x 10	75 100
75	1 to 3	30 to 120 x 10	150

Guide of choice for bars support interphase according to In (A) and cell's depth (mm)

bars type	interphase (mm)	nr. of poles	max. Cu bars height (mm)	Cu bars thickness (mm)	In (A)	cell depth (mm)
A	65	4P	80	5	500 to 800	400
B	75	3P	80	5	500 to 800	400
B	75	3P/4P	63 to 100	5 / 10	630 to 1600	600 - 800
C	100	3P/4P	63 to 80	5 / 10	630 to 1600	600
C	100	3P/4P	63 to 100	5 / 10	630 to 4000	800
C	100	3P/4P	max. 100	10	2500 to 4000	800 - 1000
D	150	3P/4P	max. 120	10	630 to 4000	800 - 1000

Perforated copper bars

- ambient temperature within the framework 35° C
- operating temperature measured on the surface of the bars
- flow rates according to DIN 43671 standards

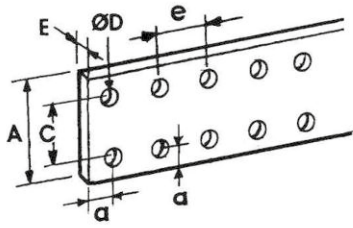
5 mm thickness

cat. ref.	cross-section	nominal current (A)							
		operating temperature 85°C bar				operating temperature 65°C bar			
UC844	50 x 5	772	1317	1670	1870	583	994	1260	1411
UC922	63 x 5	951	1586	1980	2217	718	1197	1494	1673
UC966	80 x 5	1173	1921	2319	2597	885	1450	1750	1960
UC967	100 x 5	1431	2292	2716	3042	1080	1730	2050	2296
UC968	125 x 5	1723	2679	3155	3532	1300	2022	2381	2666

10 mm thickness

cat. ref.	cross-section	nominal current (A)							
		operating temperature 85°C bar				operating temperature 65°C bar			
UC844E	DPCB 50 x 10	1050	1861	2514	-	792	1404	1897	-
UC922E	DPCB 63 x 10	1214	2119	2835	-	916	1600	2139	-
UC966E	DPCB 80 x 10	1528	2600	3438	-	1153	1962	2595	-
UC967E	DPCB 100 x 10	1836	3056	4018	-	1386	2306	3032	-
UC968E	DPCB 125 x 10	2145	3525	4609	-	1618	2660	3478	-

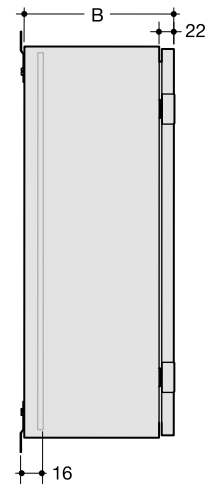
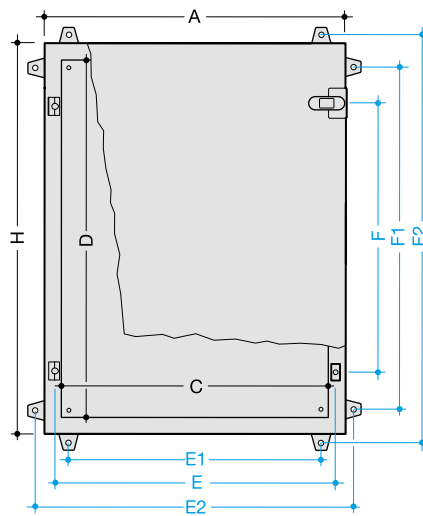
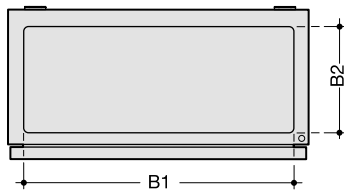
Dimensional data for perforated copper bars



5 mm thickness

cat. ref.	cross-section	A (mm)	C (mm)	a (mm)	e (mm)	ØD (mm)	E (mm)	length (m)	weight (kg)
UC844	50 x 5	50	25	12.5	25	10.5	5	1.75	3.40
UC922	63 x 5	63	38	12.5	25	10.5	5	1.75	4.40
UC966	80 x 5	80	55	12.5	25	10.5	5	1.75	5.70
UC967	100 x 5	100	75	12.5	25	10.5	5	1.75	7.25
UC968	125 x 5	125	100	12.5	25	10.5	5	1.75	9.20

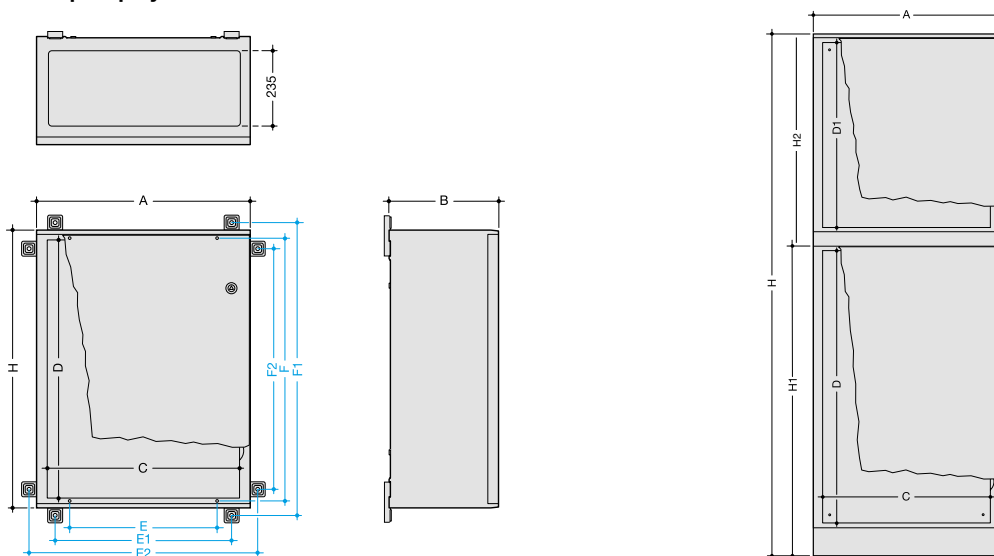
Metal enclosure orion plus



Dimensions

References			enclosure							external fixing			
plain door	transp. door	nr. of rows	A	H	B	B1	B2	C	D	E1	E2	F1	F2
FL101A	FL151A	-	200	250	160	145	80	150	200	160	270	170	282
FL102A	FL152A	-	250	300	160	195	80	200	250	210	320	220	332
FL103A	FL153A	-	300	300	160	245	80	250	250	260	370	220	332
FL104A	FL154A	2	300	350	160	245	80	250	300	260	370	270	382
FL105A	FL155A	2	300	350	200	245	120	250	300	260	370	270	382
FL106A	FL156A	-	300	400	160	245	80	250	350	260	370	320	432
FL107A	FL157A	-	300	400	200	245	120	250	350	260	370	320	432
FL108A	FL158A	-	400	400	200	345	120	350	350	360	470	320	432
FL109A	FL159A	3	300	500	160	245	80	250	450	260	370	420	532
FL110A	FL159A	3	300	500	200	245	120	250	450	260	370	420	532
FL111A	FL161A	3	400	500	160	345	80	350	450	360	470	420	532
FL112A	FL162A	3	400	500	200	345	120	350	450	360	470	420	532
FL113A	FL163A	-	500	500	200	445	120	450	450	460	570	420	532
FL114A	FL164A	-	400	600	200	345	120	350	550	360	470	520	632
FL115A	FL165A	-	400	600	250	345	170	350	550	360	470	520	632
FL116A	FL166A	-	600	600	250	545	170	550	550	560	670	520	632
FL117A	FL167A	4	400	650	200	345	120	350	600	360	470	570	682
FL118A	FL168A	4	400	650	250	345	170	350	600	360	470	570	682
FL119A	FL169A	4	500	650	200	445	120	450	600	460	570	570	682
FL120A	FL170A	4	500	650	250	445	170	450	600	460	570	570	682
FL121A	FL171A	5	500	800	200	445	120	450	750	460	570	720	832
FL122A	FL172A	5	500	800	250	445	170	450	750	460	570	720	832
FL123A	FL173A	5	600	800	250	545	170	550	750	560	670	720	832
FL124A	FL174A	5	600	800	300	545	220	550	750	560	670	720	832
FL125A	FL175A	6	600	950	250	545	170	550	900	560	670	870	982
FL126A	FL176A	6	600	950	300	545	220	550	900	560	670	870	982
FL127A	FL177A	6	800	950	250	745	170	750	900	760	870	870	982
FL128A	FL178A	6	800	950	300	745	220	750	900	760	870	870	982
FL129A	FL179A	8	600	1250	250	545	170	550	1200	560	670	1170	1282
FL130A	FL180A	8	800	1250	300	745	220	750	1200	760	870	1170	1282

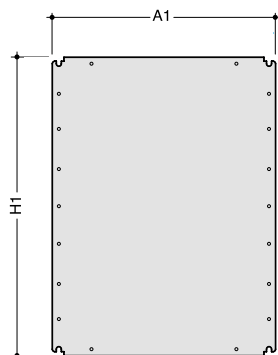
orion plus polyester enclosures



Main switchboards

References		nr of rows	enclosures		int. fixing								external fixing			
plain door	transp. door		A	H	H1	H2	B	C	D	D1	E	F	E1	E2	F1	F2
FL204B	FL254B	2	300	500	-	-	160	250	300	-	219	258	339	339	269	389
FL209B	FL259B	3	300	500	-	-	200	250	450	-	219	408	339	339	419	539
FL213B	FL263B	3	400	500	-	-	200	350	450	-	319	408	439	439	419	539
FL216B	FL266B	4	400	650	-	-	200	350	600	-	319	558	439	439	569	689
FL221B	FL271B	4	500	650	-	-	250	450	600	-	419	558	539	539	569	689
FL229B	FL279B	5	600	800	-	-	300	550	750	-	519	708	639	639	719	839
FL300B	FL500B	3	600	550	-	-	300	500	450	-	-	-	-	-	-	-
FL301B	FL501B	5	600	850	-	-	300	500	750	-	-	-	-	-	-	-
FL302B	FL502B	7	600	1150	-	-	300	500	1050	-	-	-	-	-	-	-
FL305B	FL505B	3	850	550	-	-	300	750	450	-	-	-	-	-	-	-
FL306B	FL506B	5	850	850	-	-	300	750	750	-	-	-	-	-	-	-
FL307B	FL507B	7	850	1150	-	-	300	750	1050	-	-	-	-	-	-	-
FL310B	FL510B	3	1100	550	-	-	300	1000	450	-	-	-	-	-	-	-
FL311B	FL511B	5	1100	850	-	-	300	1000	750	-	-	-	-	-	-	-
FL312B	FL512B	7	1100	1150	-	-	300	1000	1050	-	-	-	-	-	-	-
FL320B	FL520B	3	600	600	-	-	300	500	450	-	-	-	-	-	-	-
FL321B	FL521B	5	600	900	-	-	300	500	750	-	-	-	-	-	-	-
FL322B	FL522B	7	600	1200	-	-	300	500	1050	-	-	-	-	-	-	-
FL325B	FL525B	3	850	600	-	-	300	750	450	-	-	-	-	-	-	-
FL326B	FL526B	5	850	900	-	-	300	750	750	-	-	-	-	-	-	-
FL327B	FL527B	7	850	1200	-	-	300	750	1050	-	-	-	-	-	-	-
FL330B	FL530B	3	1100	600	-	-	300	1000	450	-	-	-	-	-	-	-
FL331B	FL531B	5	1100	900	-	-	300	1000	750	-	-	-	-	-	-	-
FL332B	FL532B	7	1100	1200	-	-	300	1000	1050	-	-	-	-	-	-	-
FL340B	-	3+3	600	1150	550	550	300	500	450	-	-	-	-	-	-	-
FL342B	-	5+3	600	1450	850	550	300	500	750	450	-	-	-	-	-	-
FL344B	-	7+3	600	1750	1150	550	300	500	1050	450	-	-	-	-	-	-
FL346B	-	5+5	600	1750	850	850	300	500	750	750	-	-	-	-	-	-
FL348B	-	7+5	600	2050	1150	850	300	500	1050	750	-	-	-	-	-	-
FL350B	-	3+3	850	1150	550	550	300	750	450	450	-	-	-	-	-	-
FL352B	-	5+3	850	1450	850	550	300	750	750	450	-	-	-	-	-	-
FL354B	-	7+3	850	1750	1150	550	300	750	1050	450	-	-	-	-	-	-
FL356B	-	5+5	850	1750	850	850	300	750	750	750	-	-	-	-	-	-
FL358B	-	7+5	850	2050	1150	850	300	750	1050	750	-	-	-	-	-	-
FL360B	-	3+3	1100	1500	550	550	300	1000	450	450	-	-	-	-	-	-
FL362B	-	5+3	1100	1450	850	550	300	1000	750	450	-	-	-	-	-	-
FL364B	-	7+3	1100	1750	1150	550	300	1000	1050	450	-	-	-	-	-	-
FL366B	-	5+5	1100	1750	850	850	300	1000	750	750	-	-	-	-	-	-
FL368B	-	7+5	1100	2050	1150	550	300	1000	1050	750	-	-	-	-	-	-

Mounting plate



Dimensions

plain plate	perforated plate	size A1	H1	for enclosures	insulated	size A1	H1
FL401A	-	143	230	FL101A, FL151A	-	-	-
FL402A	FL472A	193	280	FL102A, FL152A	FL422A	195	235
FL403A	-	243	280	FL103A, FL153A	-	-	-
FL404A	FL473A	243	330	FL104A, FL105A, FL154A, FL155A, FL204B, FL254B	FL423A	245	285
FL405A	-	243	380	FL106A, FL107A, FL156A, FL157A	-	-	-
FL406A	-	343	380	FL108A, FL158A	-	-	-
FL407A	FL474A	243	480	FL109A, FL110A, FL159A, FL160A, FL209B, FL259B	FL424A	245	285
FL408A	FL475A	343	480	FL111A, FL112A, FL161A, FL162A, FL213B, FL263B	FL425A	245	435
FL510E	-	493	480	FL300B, FL500B, FL320B, FL520B	FL550E	495	435
FL520E	-	743	480	FL305B, FL505B, FL325B, FL525B	FL560E	745	435
FL530E	-	993	480	FL310B, FL510B, FL330B, FL530B	FL570E	995	435
FL409A	-	443	480	FL113A, FL163A	-	-	-
FL410A	-	343	580	FL114A, FL115A, FL164A, FL165A	-	-	-
FL411A	-	543	580	FL116A, FL166A	-	-	-
FL412A	FL476A	343	630	FL117A, FL118A, FL167A, FL168A, FL216B, FL266B	FL426A	345	585
FL413A	FL477A	443	630	FL119A, FL120A, FL169A, FL170A, FL221B, FL271B	FL427A	445	585
FL414A	FL478A	443	780	FL121A, FL122A, FL171A, FL172A	FL428A	445	735
FL415A	FL479A	543	780	FL123A, FL124A, FL173A, FL174A, FL229B, FL279B	FL429A	545	735
FL511E	-	493	780	FL301B, FL501B, FL321B, FL521B	FL551E	495	735
FL521E	-	743	780	FL306B, FL506B, FL326B, FL526B	FL561E	745	735
FL531E	-	993	780	FL311B, FL511B, FL331B, FL531B	FL571E	995	735
FL512E	-	493	1080	FL302B, FL502B, FL322B, FL522B	FL552E	495	1035
FL522E	-	693	1080	FL307B, FL507B, FL327B, FL527B	FL562E	745	1035
FL 532E	-	993	1080	FL312B, FL512B, FL332B, FL532B	FL572E	995	1035
FL416A	FL480A	543	930	FL125A, FL126A, FL175A, FL176A	FL430A	545	885
FL417A	FL481A	743	930	FL127A, FL128A, FL177A, FL178A	FL431A	745	885
FL418A	FL482A	543	1230	FL129A, FL179A	FL432A	545	1185
FL419A	FL483A	743	1230	FL130A, FL180A	FL433A	745	1185

Power dissipated by the enclosures

IEC standard EN 60439-1 (IEC 17-13/1) standard in Table 7 shows the list of checks and tests to be carried out on BT panel types (series equipment subject to type testing) and ANS (series equipment partially subject to type testing).

One of the characteristics to be monitored is the overtemperature limit check to ensure that the temperatures specified in Table 3 of the standard are not exceeded for the various parts of the panel.

IEC standard EN 60439-1 requires that for ANS type panels the overtemperature limit check can be carried out by means of extrapolation of the series panels (AS) that have passed the type testing.

The extrapolation method laid down by the standard is set out in the IEC 890 publication corresponding to IEC standard 17-43 "Overtemperature determination method, by extrapolation, for non-standard (ANS) protection and control equipment assemblies for low tension (BT panels)".

To make the overtemperature limit check easier, Hager has drawn up a series of tables where the maximum power values that can be dissipated P.Max (W) are shown for all the panels.

These values have been determined so as to obtain the overtemperature values specified in Table 3 of IEC standard EN 60439-1 for accessible external envelopes and coverings (30K for metal surfaces and 40K for insulating surfaces) for the upper part of the panel.

The maximum power values shown in the tables that can be dissipated by the metalwork are valid for the mounting conditions of the panel considered and for the overtemperature values halfway up ΔT 0.5 and in the upper part ΔT 1.0 indicated.

IP 65 standard metal panels

Article		Dimensional data (mm)	Laid	ΔT 0,5 (K)	ΔT 1,0 (K)	P. max (W)
FL102A	FL152A	300 x 250 x 160	Walls	25,0	30	28
FL104A	FL154A	350 x 300 x 160	Walls	25,0	30	35
FL105A	FL155A	350 x 300 x 200	Walls	24,9	30	39
FL109A	FL159A	500 x 300 x 160	Walls	24,3	30	44
FL110A	FL160A	500 x 300 x 200	Walls	24,3	30	49
FL111A	FL161A	500 x 400 x 160	Walls	24,7	30	54
FL112A	FL162A	500 x 400 x 200	Walls	24,9	30	60
FL117A	FL167A	650 x 400 x 200	Walls	24,3	30	71
FL118A	FL168A	650 x 400 x 250	Walls	24,5	30	80
FL119A	FL169A	650 x 500 x 200	Walls	24,8	30	84
FL120A	FL170A	650 x 500 x 250	Walls	24,9	30	93
FL121A	FL171A	800 x 500 x 200	Walls	24,4	30	97
FL122A	FL172A	800 x 500 x 250	Walls	24,5	30	107
FL123A	FL173A	800 x 600 x 250	Walls	22,0	30	100
FL124A	FL174A	800 x 600 x 300	Walls	22,7	30	114
FL125A	FL175A	950 x 600 x 250	Walls	21,4	30	113
FL126A	FL176A	950 x 600 x 300	Walls	21,8	30	127
FL127A	FL177A	950 x 800 x 250	Walls	22,1	30	148
FL128A	FL178A	950 x 800 x 300	Walls	22,8	30	170
FL129A	FL179A	1250 x 600 x 250	Walls	20,0	30	134,5
FL130A	FL180A	1250 x 800 x 300	Walls	21,3	30	211

Power dissipated by the enclosures (CEI EN 60439-1)

Polyester panels IP 65 series boxes

Article		Dimensional data (mm)	Laid	ΔT 0,5 (K)	ΔT 1,0 (K)	P. max (W)
FL204B	FL254B	350 x 300 x 160	Walls	33,4	40	50
FL209B	FL259B	500 x 300 x 200	Walls	32,4	40	70
FL213B	FL263B	500 x 400 x 200	Walls	33,0	40	85
FL216B	FL266B	650 x 400 x 200	Walls	32,6	40	102
FL221B	FL271B	650 x 500 x 250	Walls	33,0	40	132
FL229B	FL279B	800 x 600 x 300	Walls	29,9	40	160

Polyester panels IP 65 series panels

Article		Dimensional data (mm)	Laid	ΔT 0,5 (K)	ΔT 1,0 (K)	P. max (W)
FL300B		550 x 600 x 300	Walls	34,3	40	150
FL301B		850 x 600 x 300	Walls	29,7	40	167
FL302B		1150 x 600 x 300	Walls	27,8	40	205
FL305B		550 x 850 x 300	Walls	32,5	40	170
FL306B		850 x 850 x 300	Walls	30,7	40	230
FL307B		1150 x 850 x 300	Walls	29,2	40	300
FL310B		550 x 1100 x 300	Walls	32,8	40	215
FL311B		850 x 1100 x 300	Walls	31,8	40	310
FL312B		1150 x 1100 x 300	Walls	30,4	40	405

Polyester panels IP 65 series cupboards

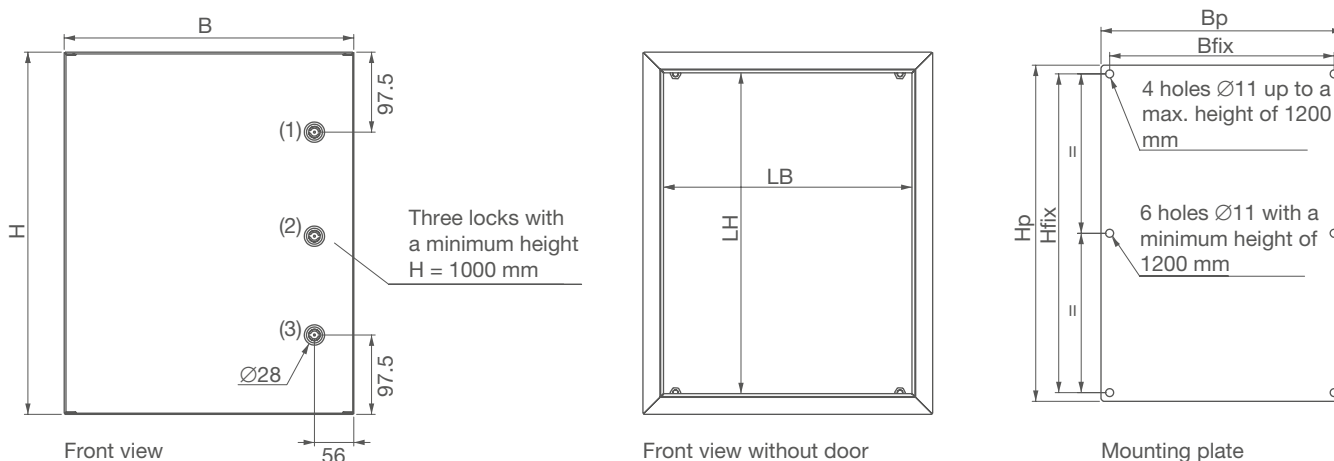
Article		Dimensional data (mm)	Laid	ΔT 0,5 (K)	ΔT 1,0 (K)	P. max (W)
FL320B		600 x 600 x 300	Floor-Walls	40	15	150
FL321B		900 x 600 x 300	Floor-Walls	40	17	167
FL322B		1200 x 600 x 300	Floor-Walls	40	215	205
FL325B		600 x 850 x 300	Floor-Walls	40	180	170
FL326B		900 x 850 x 300	Floor-Walls	40	245	230
FL327B		1200 x 850 x 300	Floor-Walls	40	315	300
FL330B		600 x 1100 x 300	Floor-Walls	40	230	215
FL331B		900 x 1100 x 300	Floor-Walls	40	325	310
FL332B		1200 x 1100 x 300	Floor-Walls	40	420	405

Power dissipated by the enclosures (CEI EN 60439-1)

Polyester panels IP 65 series cupboards

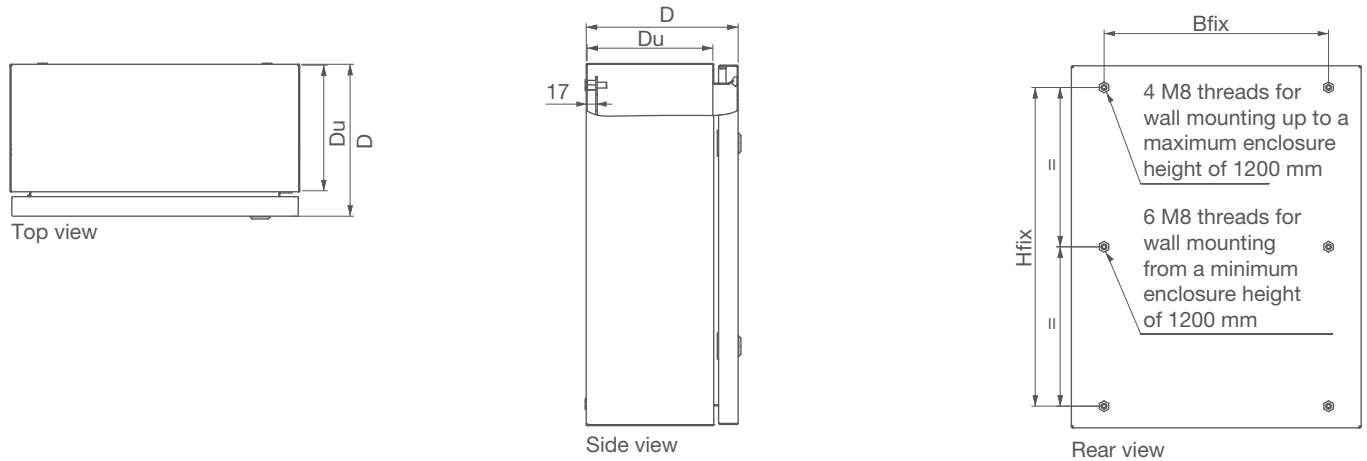
Article	Dimensional data (mm)	Laid	ΔT 0,5 (K)	ΔT 1,0 (K)	P. max (W)
FL340B	1150 x 600 x 300	Floor-Walls	27,5	40	190
FL342B	1450 x 600 x 300	Floor-Walls	26,9	40	240
FL344B	1750 x 600 x 300	Floor-Walls	25,7	40	285
FL346B	1750 x 600 x 300	Floor-Walls	25,7	40	285
FL348B	2050 x 600 x 300	Floor-Walls	25,6	40	340
FL350B	1150 x 850 x 300	Floor-Walls	29,0	40	280
FL352B	1450 x 850 x 300	Floor-Walls	27,9	40	345
FL354B	1750 x 850 x 300	Floor-Walls	26,9	40	400
FL356B	1750 x 850 x 300	Floor-Walls	26,9	40	400
FL358B	2050 x 850 x 300	Floor-Walls	26,2	40	450
FL360B	1150 x 1100 x 300	Floor-Walls	30,3	40	380
FL362B	1450 x 1100 x 300	Floor-Walls	29,0	40	455
FL364B	1750 x 1100 x 300	Floor-Walls	27,9	40	505
FL366B	1750 x 1100 x 300	Floor-Walls	27,9	40	505
FL368B	2050 x 1100 x 300	Floor-Walls	27,1	40	535

Dimensions



- (2) One centered locking system with height H = 300 and 400mm
- (1+3) Two (top and bottom) locks with a minimum height H = 500 to 800mm
- (1+2+3) Three locks with a minimum height H = 1000 mm

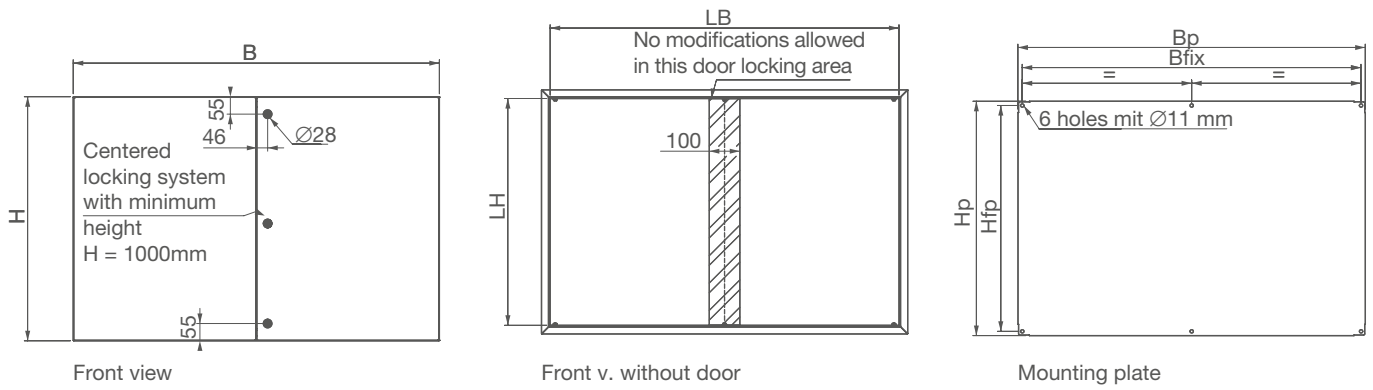
Cat. ref.	Dimensions (mm)			Weight (kg)	Volume (m ³)	Door opening (mm)		Usable depth (mm)
	H	B	D			LB	LH	
FL010BWL	301	201	150	5.91	0.011	151	237	125
FL012BWL	301	301	210	9.71	0.023	251	237	185
FL013BWL	301	401	150	9.39	0.022	351	237	125
FL014BWL	401	301	150	9.31	0.022	251	337	125
FL015BWL	401	301	210	11.53	0.030	251	337	185
FL016BWL	401	401	210	13.87	0.040	351	337	185
FL017BWL	401	601	210	18.56	0.060	551	337	185
FL021BWL	501	401	210	16.14	0.050	351	437	185
FL023BWL	501	501	210	18.94	0.063	451	437	185
FL024BWL	501	501	250	20.91	0.075	451	437	224
FL025BWL	601	401	210	18.41	0.060	351	537	185
FL027BWL	601	501	210	21.66	0.076	451	537	185
FL028BWL	601	601	210	24.92	0.091	551	537	185
FL029BWL	601	601	250	27.09	0.108	551	537	224
FL030BWL	601	601	300	29.95	0.130	551	537	275
FL032BWL	601	801	300	44.14	0.173	751	537	275
FL033BWL	701	501	210	24.39	0.088	951	637	185
FL034BWL	701	501	250	26.56	0.105	451	637	224
FL035BWL	801	601	210	33.05	0.121	451	737	185
FL036BWL	801	601	250	35.42	0.144	551	737	224
FL037BWL	801	601	300	38.52	0.173	551	737	275
FL039BWL	801	801	300	54.18	0.230	551	737	275
FL041BWL	1001	601	300	51.96	0.216	751	937	275
FL042BWL	1001	801	300	64.23	0.288	951	937	275
FL043BWL	1201	601	300	59.94	0.259	1151	1137	275
FL045BWL	1201	801	300	74.27	0.346	551	1137	275
FL049BWL	1401	801	300	84.32	0.336	751	1337	275
FL051BWL	1601	801	300	94.36	0.384	951	1537	275



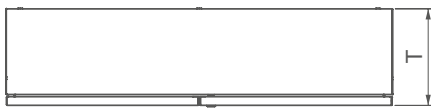
Main switchboards

Mounting plate (mm)		Weight (kg)	Threads for wall mounting / holes for mounting plate / threaded bolts (mm)		Nr. of locking points
B_p	H_p		B_{fix}	H_{fix}	
134	264	0.23	110	240	1
234	264	1.51	210	240	1
334	264	2.08	310	240	1
234	364	2.07	210	340	1
234	364	2.07	210	340	1
334	364	2.86	310	340	1
534	364	4.44	510	340	1
334	464	3.64	310	440	2
434	464	4.65	410	440	2
434	464	4.65	410	440	2
334	564	4.42	310	540	2
434	564	5.64	410	540	2
534	564	6.86	510	540	2
534	564	6.86	510	540	2
534	564	6.86	510	540	2
734	564	9.3	710	540	2
434	664	6.64	410	640	2
434	664	6.64	410	640	2
534	764	9.28	510	740	2
534	764	9.28	510	740	2
534	764	9.28	510	740	2
734	764	12.58	710	740	2
534	964	11.7	510	940	3
734	964	15.86	710	940	3
534	1164	14.12	510	1140	3
734	1164	19.14	710	1140	3
700	1382	22.42	672	1340	3
700	1582	25.7	672	1540	3

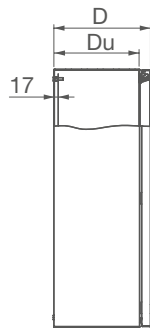
Dimensions



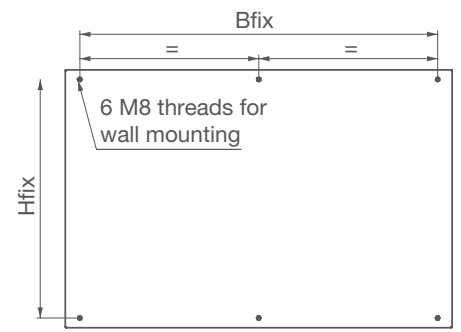
Cat. ref.	Dimensions (mm)			Weight (kg)	Volume (m ³)	Door opening (mm)		Usable depth (mm)
	H	B	T			LB	LH	
FL053BWL	601	1001	300	53.16	0.216	951.5	551.5	275
FL054BWL	801	1001	300	65.55	0.288	951.5	751.5	275
FL055BWL	801	1201	300	75.74	0.346	1151.5	751.5	275
FL056BWL	1001	1001	300	77.95	0.360	951.5	951.5	275
FL058BWL	1201	1001	300	90.34	0.432	951.5	1151.5	275
FL060BWL	1201	1201	300	104.67	0.518	1151.5	1151.5	275
FL062BWL	1401	1001	300	102.73	0.504	951.5	1351.5	275
FL064BWL	1401	1201	300	119.13	0.605	1151.5	1351.5	275



Top view



Side view

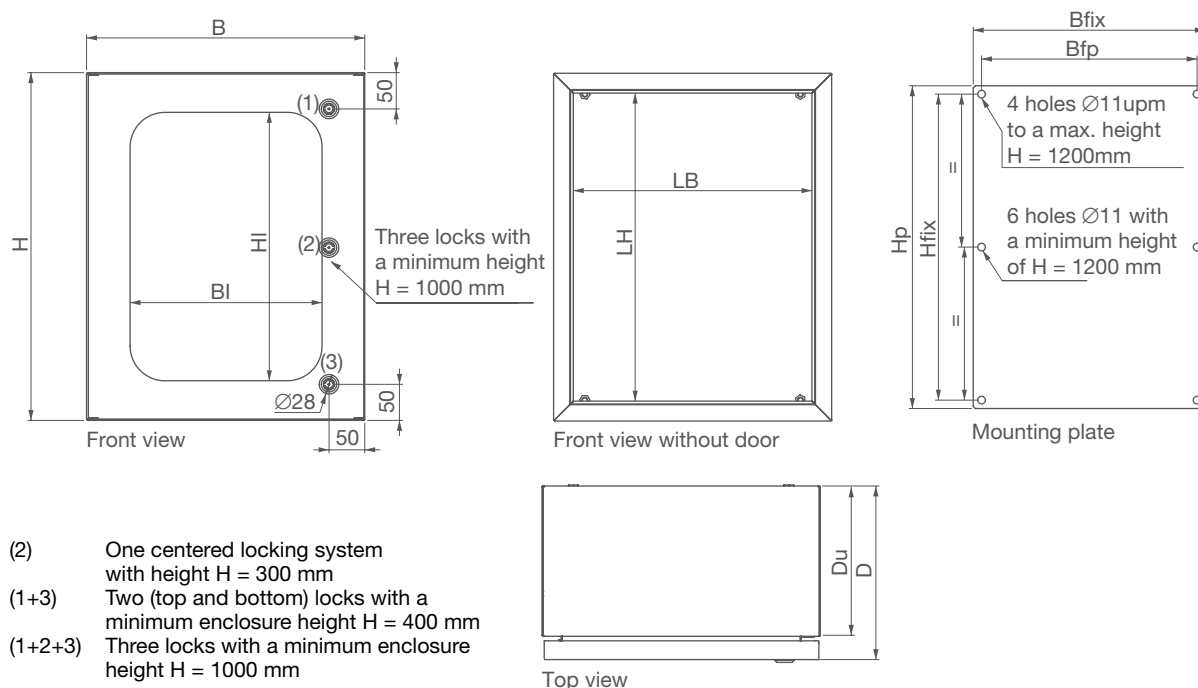


Rear view

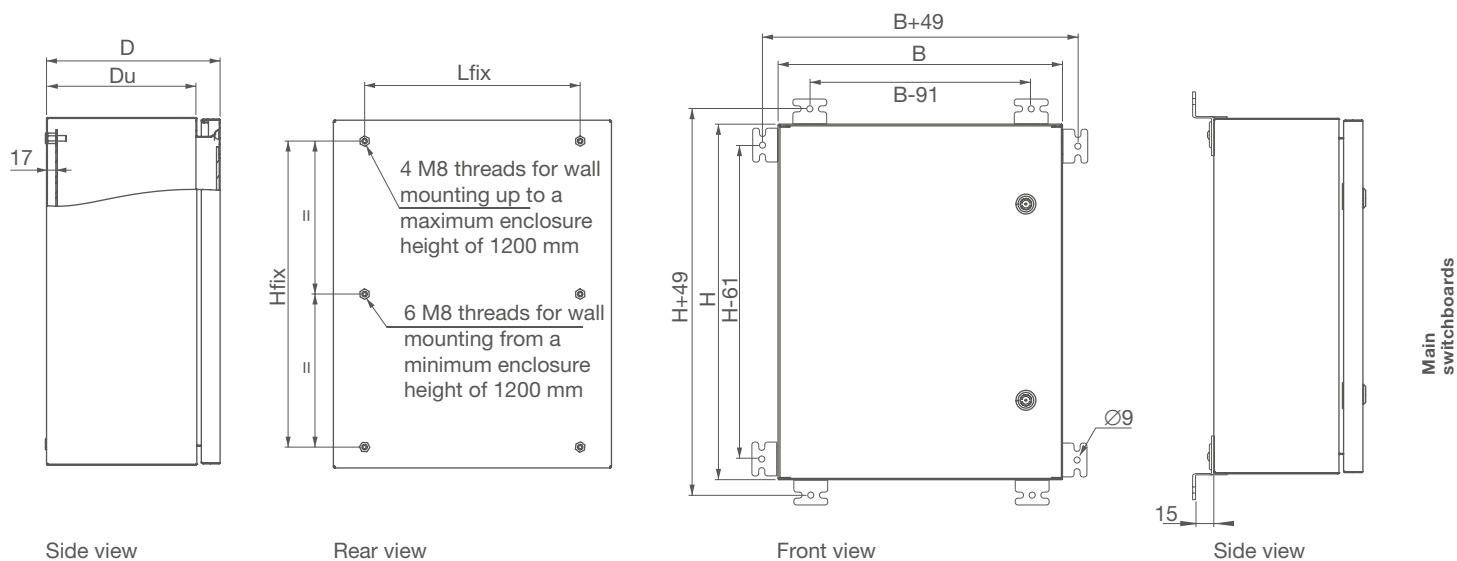
Main
switchboards

Mounting plate (mm)		Weight (kg)	Threads for wall mounting / holes for mounting plate / threaded bolts (mm)		Nr. of locking points
Bp	Hp		Bfix	Hfix	
936	570	11.74	911	541	2
936	770	15.88	911	741	2
1136	770	19.18	1111	741	2
936	970	20.02	911	941	3
936	1170	24.16	911	1141	3
1136	1170	29.18	1111	1141	3
936	1370	28.3	911	1341	3
1136	1370	34.18	1111	1341	3

Dimensions



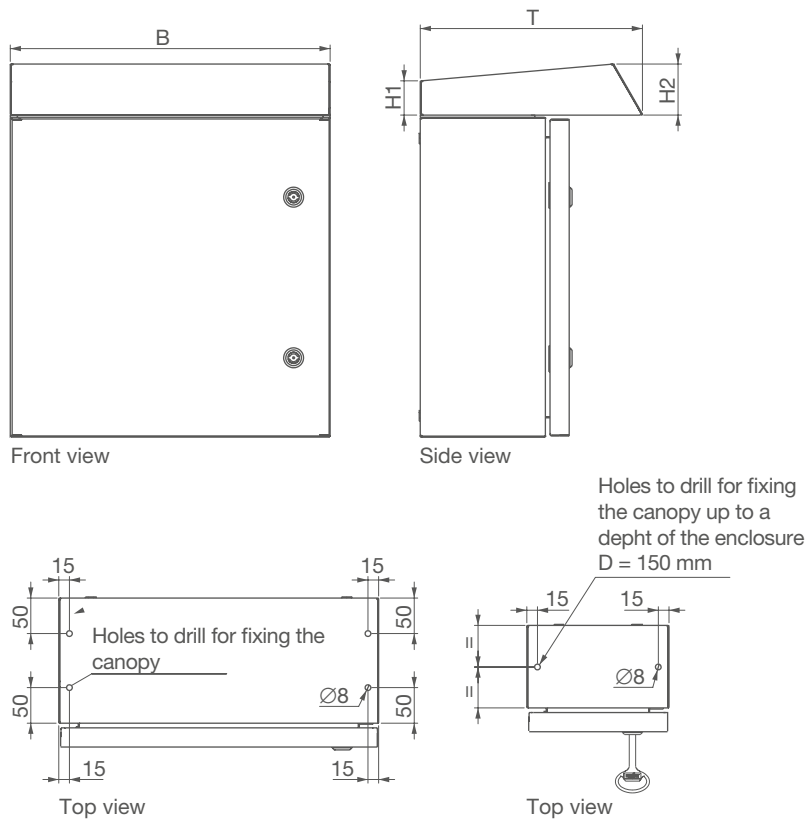
Cat. ref.	Dimensions (mm)			Weight (kg)	Volume (m ³)	Glazed surface (mm)		Usable depth (mm)
	H	B	T			BI	HI	
FL014TWL	400	300	150	9.31	0.022	176	286	116
FL015TWL	400	300	210	11.53	0.030	176	286	176
FL016TWL	400	400	210	13.87	0.040	276	286	176
FL017TWL	400	600	210	18.56	0.060	476	286	176
FL021TWL	500	400	210	16.14	0.050	276	386	176
FL023TWL	500	500	210	18.94	0.063	376	386	176
FL024TWL	500	500	250	20.91	0.075	376	386	216
FL025TWL	600	400	210	18.41	0.060	276	486	176
FL027TWL	600	500	210	21.66	0.076	376	486	176
FL028TWL	600	600	210	24.92	0.091	476	486	176
FL029TWL	600	600	250	27.09	0.108	476	486	216
FL030TWL	600	600	300	29.95	0.130	476	486	266
FL032TWL	600	800	300	44.14	0.173	676	486	266
FL033TWL	700	500	210	24.39	0.088	376	586	176
FL034TWL	700	500	250	26.56	0.105	376	586	216
FL035TWL	800	600	210	33.05	0.121	476	686	176
FL036TWL	800	600	250	35.42	0.144	476	686	216
FL037TWL	800	600	300	38.52	0.173	476	686	266
FL039TWL	800	800	300	54.18	0.230	676	686	266
FL041TWL	1000	600	300	51.96	0.216	476	886	266
FL042TWL	1000	800	300	64.23	0.288	676	886	266
FL043TWL	1200	600	300	59.94	0.259	476	1086	266
FL045TWL	1200	800	300	74.27	0.346	676	1086	266
FL049TWL	1400	800	300	84.32	0.336	620	1300	266
FL051TWL	1600	800	300	94.36	0.384	620	1500	266



Main switchboards

Door opening (mm)		Mounting plate (mm)		Weight (kg)	Threads for wall mounting / holes for mounting plate / threaded bolts (mm)		Nr. of locking points
LB	LH	Bp	Hp		Bfix	Hfix	
243	343	234	364	2.07	210	340	1
243	343	234	364	2.07	210	340	1
343	343	334	364	2.86	310	340	1
543	343	534	364	4.44	510	340	1
343	443	334	464	3.64	310	440	2
443	443	434	464	4.65	410	440	2
443	443	434	464	4.65	410	440	2
343	543	338	564	4.42	310	540	2
443	543	438	564	5.64	410	540	2
543	543	538	564	6.86	510	540	2
543	543	538	564	6.86	510	540	2
543	543	538	564	6.86	510	540	2
743	543	738	564	9.3	710	540	2
443	643	438	664	6.64	410	640	2
443	643	438	664	6.64	410	640	2
543	743	538	764	9.28	510	740	2
543	743	538	764	9.28	510	740	2
543	743	538	764	9.28	510	740	2
743	743	738	764	12.58	710	740	2
543	943	538	968	11.7	510	940	3
743	943	738	968	15.86	710	940	3
543	1143	538	1168	14.12	510	1140	3
743	1143	738	1168	19.12	710	1140	3
710	1343	700	1382	22.42	672	1340	3
710	1543	700	1582	25.7	672	1540	3

Dimensions



Cat. ref.	Dimensions (mm)				Weight (kg)	Volume (m ³)
	H1	H2	B	T		
FZ110CWL	48	72	200	250	1.38	0.003
FZ111CWL	48	72	300	250	1.81	0.005
FZ112CWL	48	72	300	310	2.14	0.006
FZ113CWL	48	72	400	250	2.25	0.006
FZ114CWL	48	72	400	310	2.65	0.007
FZ118CWL	48	72	500	310	3.16	0.009
FZ119CWL	48	72	500	350	3.48	0.011
FZ120CWL	48	72	600	310	3.68	0.011
FZ121CWL	48	72	600	350	4.05	0.013
FZ122CWL	48	72	600	400	4.51	0.014
FZ124CWL	48	72	800	400	5.77	0.019
FZ126CWL	48	72	1000	400	7.04	0.024
FZ128CWL	48	72	1200	400	8.30	0.029

Stainless Steel Enclosures in Industrial Environment

304 : The basic alloy. Type 304 (18-8) is an austenitic steel possessing a minimum of 18% chromium and 8% nickel, combined with a maximum of 0.08% carbon. It is a nonmagnetic steel which cannot be hardened by heat treatment, but instead, must be cold worked to obtain higher tensile strengths.

The stainless alloy resists most oxidizing acids and can withstand all ordinary rusting. It is immune to foodstuffs, sterilizing solutions, most of the organic chemicals and dyestuffs, and a wide variety of inorganic chemicals.

Because of its ability to withstand the corrosive action of various acids found in fruits, meats, milk, and vegetables, Type 304 stainless steel enclosures are widely used for food processing plants. Although Type 304 stainless steel is effective in many food and beverage settings, if the environment is overly chloride-rich or cleaning procedures involve the use of highly corrosive solvents, a switch to a stronger grade of stainless steel may be necessary.

Type 304 stainless steel enclosures are especially suited for all types of dairy equipment - milking machines, containers, homogenizers, sterilizers, and storage and hauling tanks, including piping, valves, milk trucks and railroad cars. This 18-8 alloy is equally serviceable in the brewing industry where it is used in pipelines, yeast pans, fermentation vats, storage and railway cars, etc.

Type analysis of stainless type 304

Carbon	Manganese	Phosphorus	Sulfur	Silicon	Chromium	Nickel
0.08% max.	2.00% max.	0.045% max.	0.030% max.	1.00% max.	18 - 20%	8 - 10.5%

Environment	In-depth	Stainless Steel
Food and beverage	general food processing	304 or 316
	bottling	304 or 316
	milk and dairy	304 or 316
	bakeries	304 or 316
	brewery and wine	304 or 316
Water	distribution	304 or 316
	waste water treatment	304 or 316
	potable water treatment	304 or 316
Mining	ore	304 or 316
	coal	304 or 316
Materials	paper	304 or 316
	plastic	304 or 316

If the condition of installation is not included in the above table, please check with the Manufacturer to determine which additional protection has to be implemented.

Stainless Steel Enclosures in Industrial Environment

316 : Type 316 is also austenitic, non-magnetic, and thermally nonhardenable stainless steel like Type 304. The carbon content is held to 0.08% maximum, while the nickel content is increased slightly. What distinguishes Type 316 from Type 304 is the addition of molybdenum up to a maximum of 3%. Molybdenum increases the corrosion resistance of this chromium-nickel alloy to withstand attack by many industrial chemicals and solvents, and, in particular, inhibits pitting caused by chlorides. As such, molybdenum is one of the single most useful alloying additives in the fight against corrosion.

Due to an increased resistance to chlorides, Type 316 stainless steel is the preferred material of choice for processing plants where enclosures could come into contact with highly acidic chemicals and concentrated chloride salts. Type 316 stainless steel enclosures are also recommended for marine applications such as shipping and offshore drilling and, not surprisingly, in salt mines. Basically, any application where high chloride levels are present or the corrosive environment will continually attack the surface of the enclosure, Type 316 stainless steel is the metal of choice.

By virtue of the molybdenum addition, Type 316 can withstand corrosive attack by sodium and calcium brines, hypochlorite solutions, phosphoric acid; and the sulfite liquors and sulfurous acids used in the paper pulp industry. This alloy, therefore, is specified for industrial equipment that handles the corrosive process chemicals used to produce inks, rayons, photographic chemicals, paper, textiles, bleaches, and rubber.

Type analysis of stainless type 314

Carbon	Manganese	Phosphorus	Sulfur	Silicon	Chromium	Nickel	Molybdenum
0.08% max.	2.00% max.	0.045% max.	0.030% max.	1.00% max.	16 - 18%	10 - 14%	2 - 3%

Environment	In-depth	Stainless Steel
Water	desalination	316
Mining	salt	316
Materials	rubber	316
	pulp	316
Marine	shipping	316
	offshore drilling	316
Chemical	pharmaceutical	316
	petrochemical	316

If the condition of installation is not included in the above table, please check with the Manufacturer to determine which additional protection has to be implemented.

Stainless Steel Enclosures in Industrial Environment

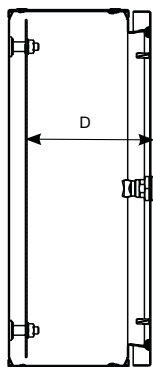
It is important to note that neither Type 304 nor Type 316 stainless steel will resist the chemical corrosion caused by hydrochloric acid. The acid will destroy the passivity, leaving the surface of the metal defenseless. The following chart shows how Type 304 and Type 316 stainless steels react with some of the chemicals present in common application environments.

Chemical Resistance Table (Room Temperature)

Group	Compound	304	316
Inorganic acids	hydrochloric acid	-	-
	sulfuric acid (< 10%)	-	++
	nitric acid	++	++
	phosphoric acid (< 40%)	-	+
	sulfuric acid	++	++
	carbonic acid	++	++
Organic acids	acetic acid	-	++
	formic acid	++	++
	lactic acid	++	++
	citric acid	++	++
	fatty acid	++	++
Bases	ammonium hydroxide	++	++
	sodium hydroxide (50%)	++	++
	potassium hydroxide	++	++
Miscellaneous	fresh water	++	++
	sea water	-	+

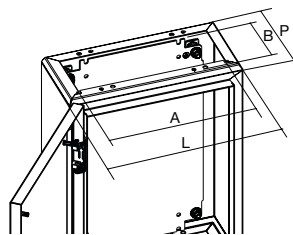
- not recommended
+ good
++ excellent

Usable distances between interior panel and door



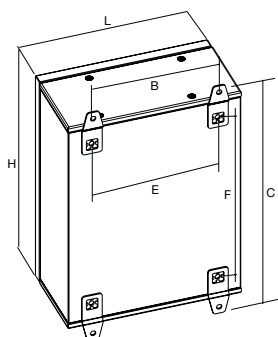
Depth of enclosures (mm)	D (mm)
160	138
200	178
250	228
300	278
400	378

Dimensions of cover (in mm)



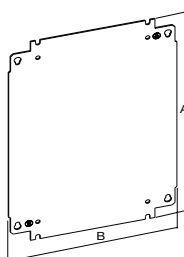
LxP	ext. dimensions		int. dimensions	
	A	B	A	B
200x160	154	88		
250x160	204	88		
300x160	254	88		
300x160	354	128		
400x250	354	178		
500x200	454	128		
500x250	454	178		
600x250	554	178		
600x300	554	228		
800x300	754	228		
800x400	754	228		

Enclosure fixing screw-holes (in mm)



HxL	B	C	E	F
250x200	119	279	119	169
300x250	169	329	169	219
300x300	219	329	219	219
400x300	219	429	219	319
400x400	319	429	319	319
500x400	319	529	319	419
500x500	419	529	419	419
600x400	319	629	319	519
600x600	519	629	519	519
700x500	419	729	419	619
800x600	519	829	219	719
950x600	519	979	519	869
950x800	719	979	719	869
1250x800	719	1279	719	1169

Interior panel dimensions (in mm)

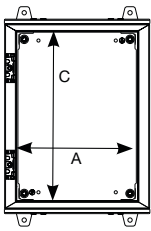


HxL	A	B
250x200	230	145
300x250	280	195
300x300	280	245
400x300	380	245
400x400	380	345
500x400	480	345
500x500	480	445
600x400	580	345
600x600	580	545
700x500	680	445
800x600	780	545
950x600	930	545
950x800	930	745
1250x800	1230	745

Power losses for calibration in accordance with standard
CEI EN 61439-2

Cat. ref.	dimensions (mm)	fixing	ΔT 0.5 (K)	ΔT 1.0 (K)	P. max (W)
FL701L	250x200x160	wall	24.3	30	21
FL702L	300x250x160	wall	25.0	30	28
FL703L	300x300x160	wall			
FL706L	400x300x160	wall	24.7	30	38
FL707L	400x300x200	wall	24.9	30	43
FL708L	400x400x200	wall			
FL712L	500x500x200	wall			
FL713L	500x400x200	wall	24.9	30	60
FL714L	600x400x200	wall	24.6	30	68
FL715L	600x400x250	wall	24.5	30	75
FL716L	600x600x250	wall			
FL721L	600x500x250	wall	25.1	30	94
FL723L	800x600x250	wall			
FL725L	950x600x250	wall			
FL726L	950x600x300	wall			
FL728L	950x800x300	wall			
FL729L	800x600x300	wall	25.1	30	100
FL730L	1250x800x300	wall			
FL731L	1250x800x400	wall			

Interior dimensions (in mm)



Cat. ref. plain door	int. dimensions	
	A	C
FL701L	150	200
FL702L	200	250
FL703L	250	250
FL706L	250	350
FL707L	250	350
FL708L	350	450
FL712L	350	450
FL713L	450	550
FL714L	550	550
FL715L	550	550
FL716L	550	550
FL721L	550	600
FL723L	550	750
FL725L	550	900
FL726L	750	900
FL728L	550	900
FL729L	550	750
FL730L	750	1200
FL731L	750	1200

Short-circuit withstand for calibration in accordance with standard CEI/EN 61439-2

Series	cat. ref.	Maximum short – circuit current kA
orion.tech	FL701L - FL731L	10 kA

Main incomers

Allow the connection, protection, breaking and switching in the low voltage distribution boards.

The range includes air circuit breakers, moulded case circuit breakers, main switches and changeover switches.

The offer is completed by earth leakage relays and torroids to build a main protection with adjustable setting for your installation.



03

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Hw ACBs	3.2
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Earth leakage relays	3.55
Torroidal transformers	3.55
Load break switches	3.56
Changeover switches	3.61
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Air Circuit Breaker products get their name from the fact that their breaking chambers are in the open air to allow better energy dissipation. Their electrical and mechanical strength, breaking capacity, maintainability and accessories make them ideal for protection for low voltage installations.

Characteristics of air circuit breaker

Rated current In (A)	This is the maximum current value the circuit breaker can withstand on a permanent basis. This value is always given for an ambient temperature (40/50°C) in accordance with IEC 60947-2 standard if this temperature is higher, it is necessary to reduce the operating current.
Rated operating voltage Ue (V)	This is the voltage at which the circuit breaker can be used. The value indicated is usually the maximum value. At lower voltages, certain characteristics may differ or even be improved, such as the breaking capacity.
Insulation voltage Ui (V)	This is the value for the insulation performance of the device. The insulation test voltages (impulse, industrial frequency) are determined based on this value.
Impulse voltage Uimp (kV)	This value characterizes the ability of the device to withstand transient overvoltages such as lightning.
Ultimate breaking capacity Icu (kA)	This is the maximum short-circuit current value that a circuit breaker can break at a given voltage and phase angle. The tests are executed according to the sequence O - t - CO. O represents an automatic break operation, t a time interval and CO a make operation followed by an automatic break operation. Following the test, the circuit breaker must continue to provide a minimum level of safety (isolation, dielectric strength).
Standard breaking capacity Ics (kA)	This is the value expressed as a percentage of Icu. It will be one of the following values: 25% (category A only), 50%, 75% or 100%. The circuit breaker must be capable of operating normally after breaking the Ics current several times using the sequence O-CO-CO.
Short-time withstand current Icw (kA)	This is the value of the short-circuit current that a category B circuit breaker is capable of withstanding for a defined period without altering its characteristics. This value is intended to enable discrimination between devices. The circuit breaker concerned can remain closed while the fault is eliminated by the downstream device.
Rated short-circuit making capacity Icm (kA peak)	This is the maximum current intensity a device can make at its rated voltage according to the conditions of the standard. Devices without a protection function, such as switches, must be able to withstand short-circuit currents with a value and duration resulting from the action of the associated protection device.

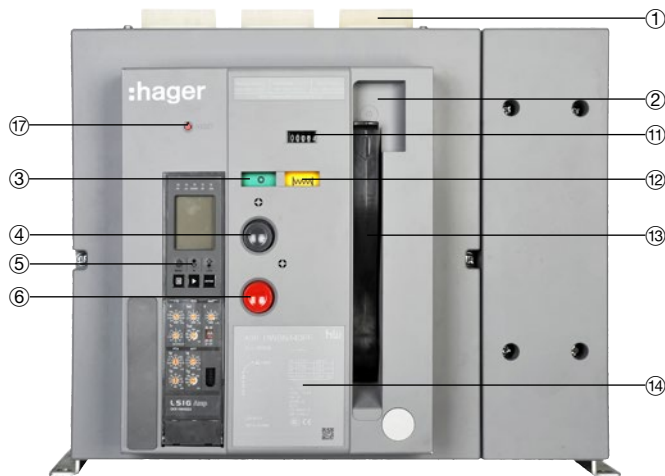
The ACB Hw offers protection trip unit (OCR) functions and, in the event of tripping, controls the opening of the circuit-breaker, preventing it from closing again unless it has been reset by the operator.

Characteristics of OCR

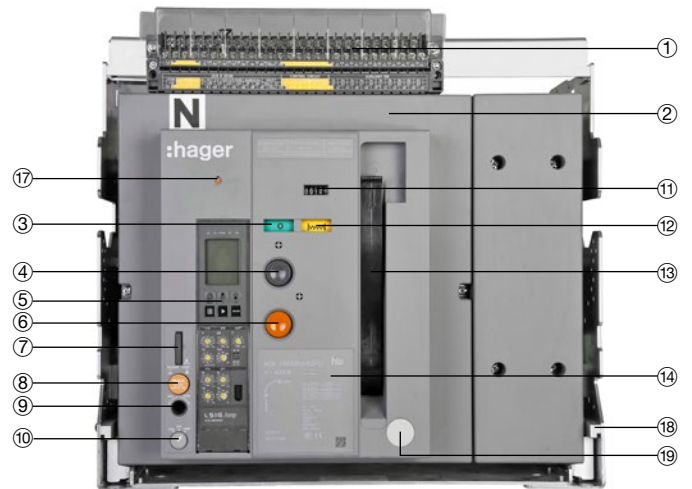
Basic functions	Long-time Overload Protection (LTD)	Long-time overload protection function is for the protection of circuit overload. The protection is based on true rms value of currents.
	Short Time (STD)	Short-time short-circuit protection prevents impedance type short-circuit of power distribution system. Such kind of short-circuit normally is caused by partial short-circuit. Current normally exceed overload range but not be too large.
	Instantaneous (INST)	Instantaneous short-circuit protection functions prevents solid type short-circuit in power distribution system, which is normally caused by inter-phase fault and will generate large short-circuit current. Then an instantaneous tripping is required. Such protection is based on true rms value of currents.
	Ground Fault Trip (GFT)	The ground fault protection for equipment is used to detect current flowing through the grounding conductors which may present a hazardous condition.
	Neutral protection	Available at 100% x In of the phase currents 4P, or disabled, it is applied to the overcurrent protections L, S and I.
	Thermal Memory	To prevent unacceptable repeated or periodical overload, control unit will track and record thermal effect of overload current and trigger tripping operation when accumulated thermal effect reaches predefined threshold.
	Pre Trip Alarm (PTA)	The protection unit includes an alarm indication that will be lit continuously when the current is above 100% of the pickup setting. The settable PTA indicates the set threshold is reached before the protection is tripped.
	Fail-safe	ACB must be protected against the short-circuits although Isd and Ii has set as "NON". When It detects current more than 10 x In, this function is operating.
	Zone selective Interlock (ZSI)	This function allows total selective protection between upstream or downstream ACBs. Once the area has received the signal in the network, it will coordinate its trip in case of fault.
	Making Current Release (MCR)	Closing on short-circuit (MCR): this function trips the ACB when a short-circuit current flows during ACB closing operation, and lock the ACB to keep it inoperative. MCR is operated by 8 times of CT rating. The function is active with an auxiliary supply. MCR is operated by 8 times of CT rating.
	Field test	Field test on circuit breakers have long provided diagnostic for the electrical components and simulate long time, short time, instantaneous delay. This function requires a control power supply (available for Amp and Energy type OCRs).
	Override	The purpose of this function is to protect ACB and wire from a current over Icw. Detects a peak value of current. This function breaks the ACB without a time delay (< 30ms) Pick-up : 15 x Ict.
	Fault event	Records 256 numbers of the fault info, fault phase, current value and time stamp. This function records the last wave of that time when the trip occurs and can check the wave via the communication.
System event	Records 200 numbers of the trip unit information, i.e trip unit power on, protection setting change and so on. This event can check via the communication.	
Advanced functions (only energy type)	Under Voltage Relays and Over Voltage Relay (UVR/OVR)	<ul style="list-style-type: none"> • Minimum voltage protection UVR: This function calculates the minimum rms value of the three phase to phase voltages. Protection is activated when at least one of the three phase to phase voltages is below the threshold set by the user. • Maximum voltage protection OVR: This function calculates the maximum rms value of the three phase to phase voltages. Protection is activated when at least one of the three phase to phase voltages are simultaneously above the threshold set by the user.
	Unbalance voltage and current	U unbal calculates the rms value of the unbalance between the three phase to phase voltages. I unbal is activated by an unbalance between the rms values of the three phase currents. This is set by a communication and monitored.
	Reverse power rP	Calculates the value of the total active power on the three phases. Is activated when the total active power of the three phases flows in the direction opposite. The direction of flow is set by the user in the "Power Sign": <ul style="list-style-type: none"> • "+" corresponds to the normal direction of flow, i.e from the top on the acb to the bottom; • "-" is the opposite.

Front

Fixed type

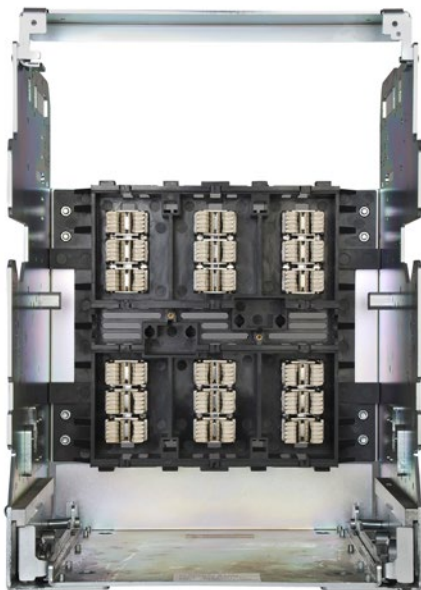


Draw-out type

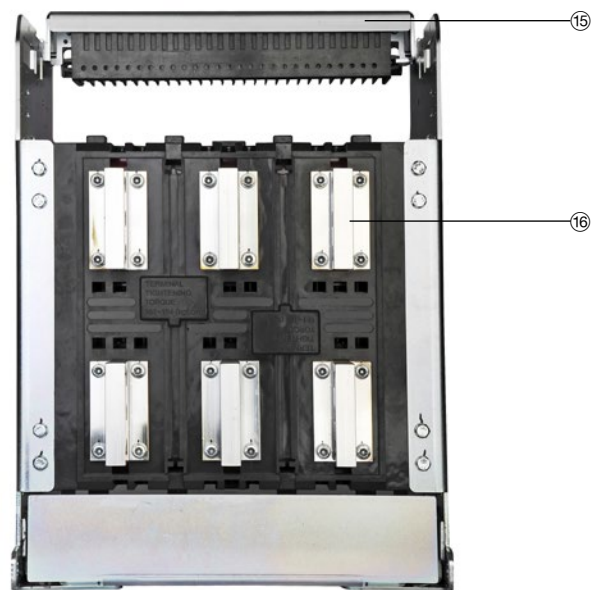


Chassis

Inside



Rear

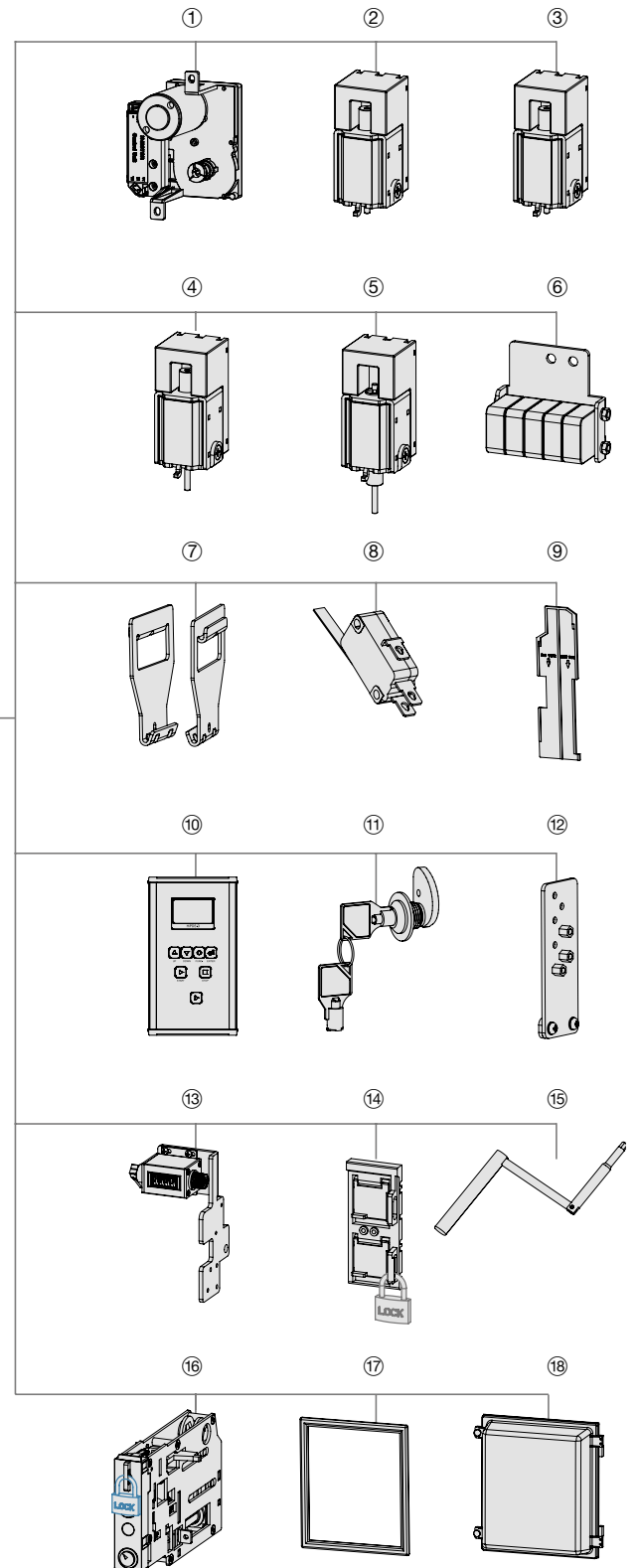


- ① Control terminal
- ② Front cover
- ③ Close/Open indicator
- ④ Close button
- ⑤ Protection trip relay (OCR)
- ⑥ Open button
- ⑦ Position lock device

- ⑧ Position lock release button
- ⑨ Draw-in/out handle insertion hole
- ⑩ Position indicator
- ⑪ Counter
- ⑫ Charged/Discharged indicator
- ⑬ Manual charging handle
- ⑭ Name plate

- ⑮ Arc shield
- ⑯ Terminal connection
- ⑰ OCR & Alarm switch reset button
- ⑱ Draw-in/out guide rail
- ⑲ Draw-in/out handle

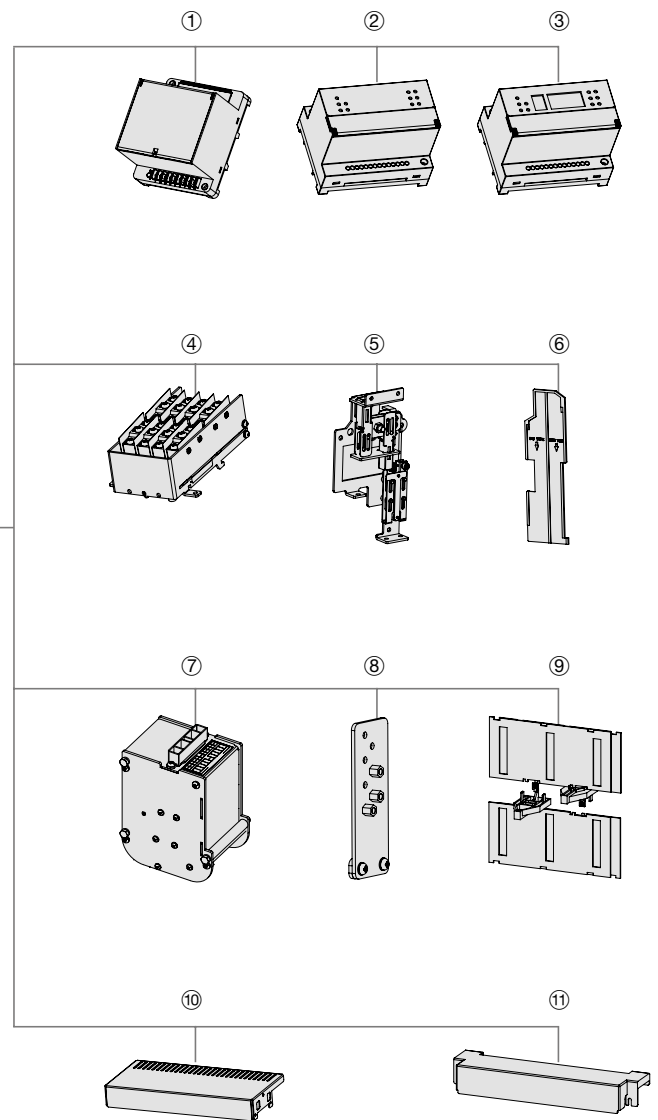
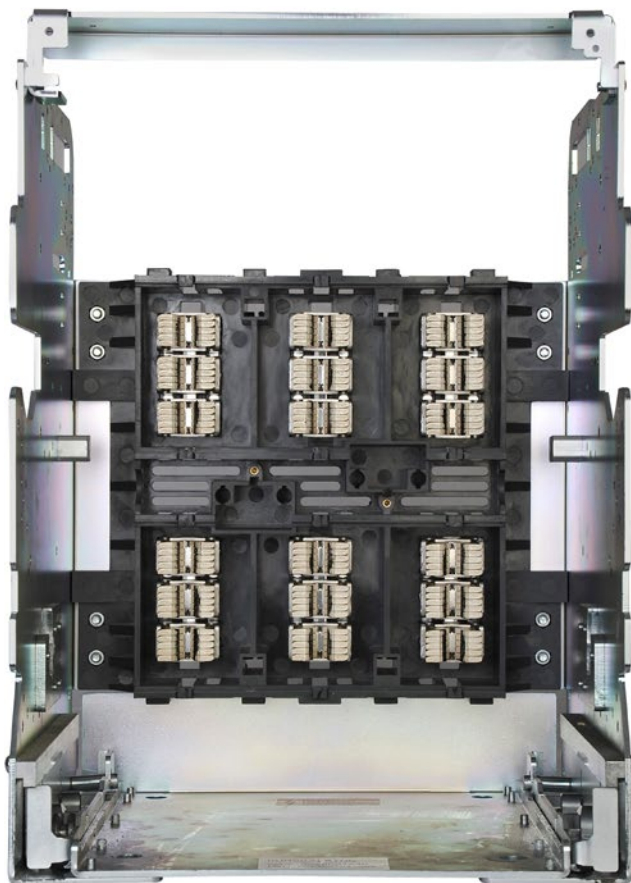
Body side



Main incomers

- | | | |
|---------------------------|-----------------------------|-------------------------|
| ① Motor operator | ⑦ Lifting lug | ⑬ Counter |
| ② Closing coil | ⑧ Ready to close | ⑭ ON/OFF button cover |
| ③ Shunt trip coil | ⑨ Phase insulation barrier | ⑮ Draw-in/out handle |
| ④ Second shunt trip coil | ⑩ OCR portable checker | ⑯ Draw-in/out mechanism |
| ⑤ Under voltage trip coil | ⑪ Key lock device | ⑰ Door flange |
| ⑥ Auxiliary switch | ⑫ Wrong insertion preventer | ⑱ Dust cover |

Chassis side (cradle)



- ① UVT time delay controller
- ② Remote operation module (RCU)
- ③ Temperature detection module (RCTU)
- ④ Position switch
- ⑤ Mechanical interlock kit
- ⑥ Phase insulation barrier
- ⑦ Mechanical operated cell (MOC) switch

- ⑧ Wrong insertion preventer
- ⑨ Safety shutter
- ⑩ Arc shield
- ⑪ Control terminal protection cover

Accessories included as standard:

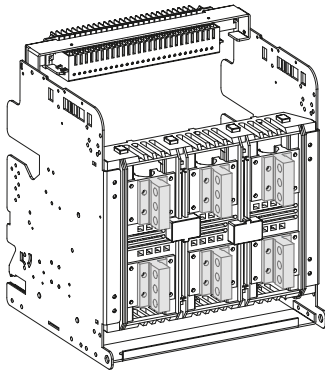
- Auxiliary switch 4NO/5NC
- Door flange for IP30
- Safety shutter lock (for draw-out type)
- Rotary handle (for draw-out type)

Flexible terminal connections

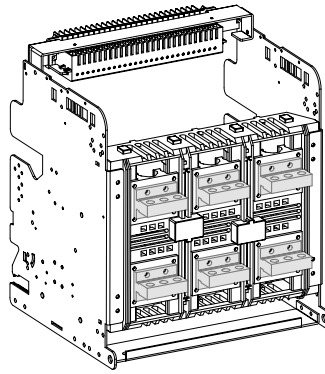
Connectors can be set horizontally and vertically, which allows an easy mounting by adapting their position to the busbars. Horizontal/vertical terminals rotate at 90° to make easier panel builder's convenience regarding busbar connection. ¹⁾

Standard connection

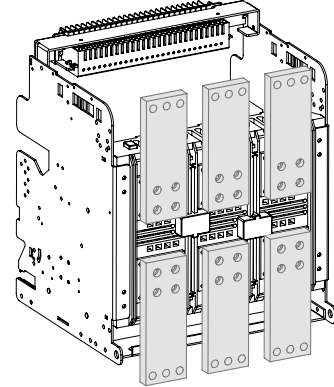
Vertical



Horizontal



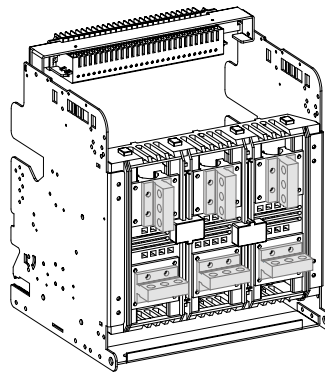
Front



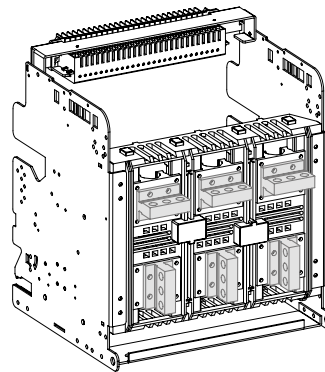
Main incomers

Mixed connection (top / bottom)

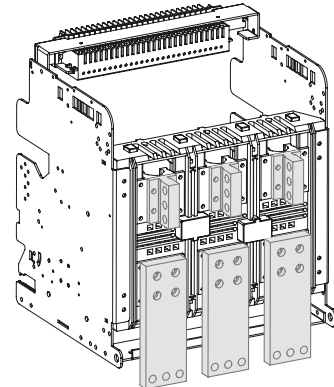
Vertical / horizontal



Horizontal / vertical



Vertical / front



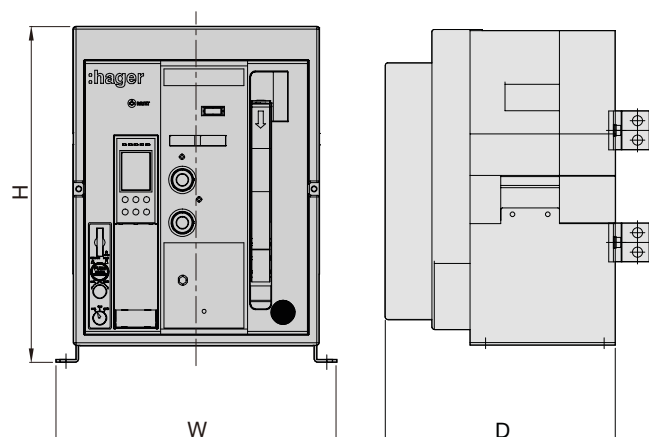
¹⁾ For frame A up to 1600A and frame B up to 3200A.

Main incomers

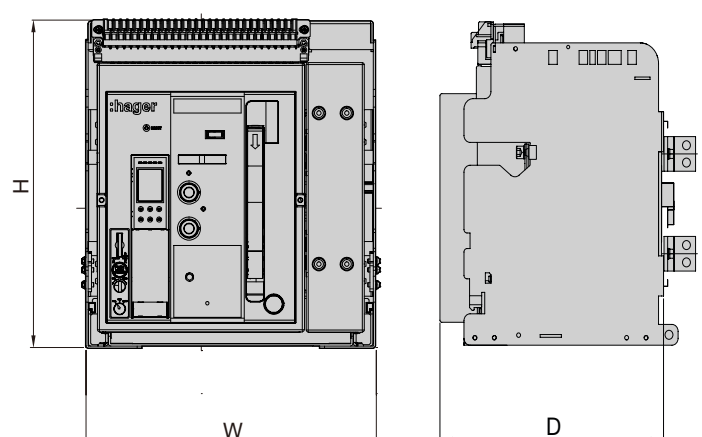
Hw automatic circuit breakers - ratings

Frame		A		B			C	
		H	N	N	S	P	P	
Type								
Rated current	A	630-2000		630-4000			3200-5000	
Rated operating voltage (Ue)	V	690						
Rated insulation voltage (Ui)	V	1000						
Rated impulse withstand voltage (Uimp)	KV	12						
Frequency	Hz	50/60						
Number of poles	poles	3-4						
Current setting range (...x In max)	Ir	0.4-1.0						
Rated current of neutral pole (...% x In)	%/In	100%						
Rated breaking capacity (Icu)	AC 690/600/550V	KA	36	50	50	65	85	85
	AC 415/380/220V		50	65	65	85	100	100
Rated service breaking capacity (Ics)	AC 690/600/550V	KA	100% Icu					
	AC 415/380/220V							
Rated short-time capacity (Icw)	1s	KA	50	65	65	85	85	85
	3s		36	36	50	55	65	65
Rated making capacity (Icm) (kA peak)	AC 690/600/550V	KA	76	105	105	143	187	187
	AC 415/380/220V		105	143	143	187	220	220
Utilization category (according to IEC 60947-2)			B					
Time								
Maximum total breaking time	ms		40					
Closing operating time	motor charging time	s	5					
	max. closing time	ms	40					
Operating cycle								
Mechanical life cycle	without maintenance	times	20000	15000			10000	
	with maintenance		30000	20000			20000	
Electrical life cycle	without maintenance	times	5000	up to 2000A: 10000 from 2500A: 5000			2000	
	with maintenance		10000	up to 2000A: 15000 from 2500A: 10000			5000	
Dimensions								
External dimension (W x H x D, except busbar)	fixed type	3 pole	mm	337x404x296	408x404x296			633x404x296
		4 pole		422x404x296	523x404x296			803x404x296
	draw-out type	3 pole		328x460x368	399x460x368			624x460x368
		4 pole		413x460x368	514x460x368			794x460x368
Weight	fixed type	3 pole	kg	34	up to 3200A: 44 4000A: 61			76
		4 pole		44	up to 3200A: 55 4000A: 81			81
	draw-out type	3 pole		63	up to 3200A: 87 4000A: 107			145
		4 pole		80	up to 3200A: 130 4000A: 161			173

Fixed type

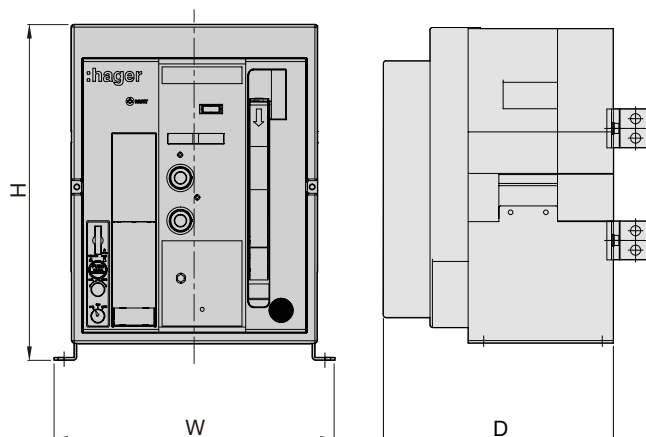


Draw-out type

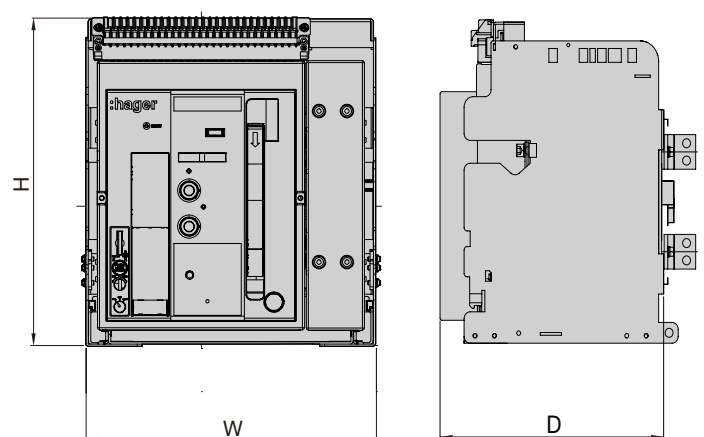


Frame			A	B	C	
Type			N....A	N....A	P....A	
Rated current	A		630-2000	630-4000	3200-5000	
Rated operating voltage (Ue)	V		690			
Rated insulation voltage (Ui)	V		1000			
Rated impulse withstand voltage (Uimp)	KV		12			
Frequency	Hz		50/60			
Number of poles	poles		3-4			
Rated current of neutral pole (...% x In)	%/In		100%			
Rated short-time capacity (Icw)	1s	KA	65	65	85	
	3s		36	50	65	
Rated making capacity (Icm) (kA peak)	AC 690/600/550V	KA	105	105	187	
	AC 415/380/220V		143	143	220	
Utilization category (according to IEC 60947-3)			AC23			
Time						
Maximum total breaking time	ms		40			
Closing operating time	motor charging time	s	5			
	max. closing time	ms	40			
Operating cycle						
Mechanical life cycle	without maintenance		20000	15000	10000	
	with maintenance		30000	20000	20000	
Electrical life cycle	without maintenance	times	5000	up to 2000A: 10000 from 2500A: 5000	2000	
	with maintenance		10000	up to 2000A: 15000 from 2500A: 10000	5000	
Dimensions						
External dimension (W x H x D, except busbar)	fixed type	3 pole	mm	337x404x296	408x404x296	633x404x296
		4 pole		422x404x296	523x404x296	803x404x296
	draw-out type	3 pole		328x460x368	399x460x368	624x460x368
		4 pole		413x460x368	514x460x368	794x460x368
Weight	fixed type	3 pole	kg	34	up to 3200A: 44 4000A: 61	76
		4 pole		44	up to 3200A: 55 4000A: 81	81
	draw-out type	3 pole		63	up to 3200A: 87 4000A: 107	145
		4 pole		80	up to 3200A: 130 4000A: 161	173

Fixed type



Draw-out type





HWAN416ED

Air Circuit Breakers, frame A

Icu=Ics=50KA
Icu=Ics=Icw

Description	Rating (A)	Nr. of poles	Cat. ref. draw-out type	fixed type
ACB, frame A	630	3	HWAH306ED	HWAH306EF
ACB, frame A	800	3	HWAH308ED	HWAH308EF
ACB, frame A	1000	3	HWAH310ED	HWAH310EF
ACB, frame A	1250	3	HWAH312ED	HWAH312EF
ACB, frame A	1600	3	HWAH316ED	HWAH316EF
ACB, frame A	2000	3	HWAH320ED	HWAH320EF
ACB, frame A	630	4	HWAH406ED	HWAH406EF
ACB, frame A	800	4	HWAH408ED	HWAH408EF
ACB, frame A	1000	4	HWAH410ED	HWAH410EF
ACB, frame A	1250	4	HWAH412ED	HWAH412EF
ACB, frame A	1600	4	HWAH416ED	HWAH416EF
ACB, frame A	2000	4	HWAH420ED	HWAH420EF

Air Circuit Breakers, frame A

Icu=Ics=65KA
Icu=Ics=Icw

Description	Rating (A)	Nr. of poles	Cat. ref. draw-out type	fixed type
ACB, frame A	630	3	HWAN306ED	HWAN306EF
ACB, frame A	800	3	HWAN308ED	HWAN308EF
ACB, frame A	1000	3	HWAN310ED	HWAN310EF
ACB, frame A	1250	3	HWAN312ED	HWAN312EF
ACB, frame A	1600	3	HWAN316ED	HWAN316EF
ACB, frame A	2000	3	HWAN320ED	HWAN320EF
ACB, frame A	630	4	HWAN406ED	HWAN406EF
ACB, frame A	800	4	HWAN408ED	HWAN408EF
ACB, frame A	1000	4	HWAN410ED	HWAN410EF
ACB, frame A	1250	4	HWAN412ED	HWAN412EF
ACB, frame A	1600	4	HWAN416ED	HWAN416EF
ACB, frame A	2000	4	HWAN420ED	HWAN420EF

Air Circuit Breakers, frame B

Icu=Ics=65KA
Icu=Ics=Icw

Description	Rating (A)	Nr. of poles	Cat. ref.	
			draw-out type	fixed type
ACB, frame B	630	3	HWBN306ED	HWBN306EF
ACB, frame B	800	3	HWBN308ED	HWBN308EF
ACB, frame B	1000	3	HWBN310ED	HWBN310EF
ACB, frame B	1250	3	HWBN312ED	HWBN312EF
ACB, frame B	1600	3	HWBN316ED	HWBN316EF
ACB, frame B	2000	3	HWBN320ED	HWBN320EF
ACB, frame B	2500	3	HWBN325ED	HWBN325EF
ACB, frame B	3200	3	HWBN332ED	HWBN332EF
ACB, frame B	4000	3	HWBN340ED	HWBN340EF
ACB, frame B	630	4	HWBN406ED	HWBN406EF
ACB, frame B	800	4	HWBN408ED	HWBN408EF
ACB, frame B	1000	4	HWBN410ED	HWBN410EF
ACB, frame B	1250	4	HWBN412ED	HWBN412EF
ACB, frame B	1600	4	HWBN416ED	HWBN416EF
ACB, frame B	2000	4	HWBN420ED	HWBN420EF
ACB, frame B	2500	4	HWBN425ED	HWBN425EF
ACB, frame B	3200	4	HWBN432ED	HWBN432EF
ACB, frame B	4000	4	HWBN440ED	HWBN440EF



HWBN416ED

Main incomers

Air Circuit Breakers, frame B

Icu=Ics=85KA
Icu=Ics=Icw

Description	Rating (A)	Nr. of poles	Cat. ref.	
			draw-out type	fixed type
ACB, frame B	630	3	HWBS306ED	HWBS306EF
ACB, frame B	800	3	HWBS308ED	HWBS308EF
ACB, frame B	1000	3	HWBS310ED	HWBS310EF
ACB, frame B	1250	3	HWBS312ED	HWBS312EF
ACB, frame B	1600	3	HWBS316ED	HWBS316EF
ACB, frame B	2000	3	HWBS320ED	HWBS320EF
ACB, frame B	2500	3	HWBS325ED	HWBS325EF
ACB, frame B	3200	3	HWBS332ED	HWBS332EF
ACB, frame B	4000	3	HWBS340ED	HWBS340EF
ACB, frame B	630	4	HWBS406ED	HWBS406EF
ACB, frame B	800	4	HWBS408ED	HWBS408EF
ACB, frame B	1000	4	HWBS410ED	HWBS410EF
ACB, frame B	1250	4	HWBS412ED	HWBS412EF
ACB, frame B	1600	4	HWBS416ED	HWBS416EF
ACB, frame B	2000	4	HWBS420ED	HWBS420EF
ACB, frame B	2500	4	HWBS425ED	HWBS425EF
ACB, frame B	3200	4	HWBS432ED	HWBS432EF
ACB, frame B	4000	4	HWBS440ED	HWBS440EF



HWBS416ED

Air Circuit Breakers, frame B

Icu=Ics=100KA
Icw=85KA

Description	Rating (A)	Nr. of poles	Cat. ref. draw-out type	fixed type
ACB, frame B	630	3	HWBP306ED	HWBP306EF
ACB, frame B	800	3	HWBP308ED	HWBP308EF
ACB, frame B	1000	3	HWBP310ED	HWBP310EF
ACB, frame B	1250	3	HWBP312ED	HWBP312EF
ACB, frame B	1600	3	HWBP316ED	HWBP316EF
ACB, frame B	2000	3	HWBP320ED	HWBP320EF
ACB, frame B	2500	3	HWBP325ED	HWBP325EF
ACB, frame B	3200	3	HWBP332ED	HWBP332EF
ACB, frame B	4000	3	HWBP340ED	HWBP340EF
ACB, frame B	630	4	HWBP406ED	HWBP406EF
ACB, frame B	800	4	HWBP408ED	HWBP408EF
ACB, frame B	1000	4	HWBP410ED	HWBP410EF
ACB, frame B	1250	4	HWBP412ED	HWBP412EF
ACB, frame B	1600	4	HWBP416ED	HWBP416EF
ACB, frame B	2000	4	HWBP420ED	HWBP420EF
ACB, frame B	2500	4	HWBP425ED	HWBP425EF
ACB, frame B	3200	4	HWBP432ED	HWBP432EF
ACB, frame B	4000	4	HWBP440ED	HWBP440EF

Air Circuit Breakers, frame C

Icu=Ics=100KA
Icw=85KA



HWCP432ED

Description	Rating (A)	Nr. of poles	Cat. ref. draw-out type	fixed type
ACB, frame C	3200	3	HWCP332ED	HWCP332EF
ACB, frame C	4000	3	HWCP340ED	HWCP340EF
ACB, frame C	5000	3	HWCP350ED	HWCP350EF
ACB, frame C	3200	4	HWCP432ED	HWCP432EF
ACB, frame C	4000	4	HWCP440ED	HWCP440EF
ACB, frame C	5000	4	HWCP450ED	HWCP450EF

Switch disconnectors, frame A

Icw=50KA

Description	Rating (A)	Nr. of poles	Cat. ref. draw-out type	fixed type
switch disconnector, frame A	630	3	HWAH306EDA	HWAH306EFA
switch disconnector, frame A	800	3	HWAH308EDA	HWAH308EFA
switch disconnector, frame A	1000	3	HWAH310EDA	HWAH310EFA
switch disconnector, frame A	1250	3	HWAH312EDA	HWAH312EFA
switch disconnector, frame A	1600	3	HWAH316EDA	HWAH316EFA
switch disconnector, frame A	2000	3	HWAH320EDA	HWAH320EFA
switch disconnector, frame A	630	4	HWAH406EDA	HWAH406EFA
switch disconnector, frame A	800	4	HWAH408EDA	HWAH408EFA
switch disconnector, frame A	1000	4	HWAH410EDA	HWAH410EFA
switch disconnector, frame A	1250	4	HWAH412EDA	HWAH412EFA
switch disconnector, frame A	1600	4	HWAH416EDA	HWAH416EFA
switch disconnector, frame A	2000	4	HWAH420EDA	HWAH420EFA



HWAN416EDA

Switch disconnectors, frame A

Icw=65KA

Description	Rating (A)	Nr. of poles	Cat. ref. draw-out type	fixed type
switch disconnector, frame A	630	3	HWAN306EDA	HWAN306EFA
switch disconnector, frame A	800	3	HWAN308EDA	HWAN308EFA
switch disconnector, frame A	1000	3	HWAN310EDA	HWAN310EFA
switch disconnector, frame A	1250	3	HWAN312EDA	HWAN312EFA
switch disconnector, frame A	1600	3	HWAN316EDA	HWAN316EFA
switch disconnector, frame A	2000	3	HWAN320EDA	HWAN320EFA
switch disconnector, frame A	630	4	HWAN406EDA	HWAN406EFA
switch disconnector, frame A	800	4	HWAN408EDA	HWAN408EFA
switch disconnector, frame A	1000	4	HWAN410EDA	HWAN410EFA
switch disconnector, frame A	1250	4	HWAN412EDA	HWAN412EFA
switch disconnector, frame A	1600	4	HWAN416EDA	HWAN416EFA
switch disconnector, frame A	2000	4	HWAN420EDA	HWAN420EFA



HWBN416EDA

Switch disconnectors, frame B

Icw=65kA
Icw=50 kA (3s)

Description	Rating (A)	Nr. of poles	Cat. ref. draw-out type	fixed type
switch disconnector, frame B	630	3	HWBN306EDA	HWBN306EFA
switch disconnector, frame B	800	3	HWBN308EDA	HWBN308EFA
switch disconnector, frame B	1000	3	HWBN310EDA	HWBN310EFA
switch disconnector, frame B	1250	3	HWBN312EDA	HWBN312EFA
switch disconnector, frame B	1600	3	HWBN316EDA	HWBN316EFA
switch disconnector, frame B	2000	3	HWBN320EDA	HWBN320EFA
switch disconnector, frame B	2500	3	HWBN325EDA	HWBN325EFA
switch disconnector, frame B	3200	3	HWBN332EDA	HWBN332EFA
switch disconnector, frame B	4000	3	HWBN340EDA	HWBN340EFA
switch disconnector, frame B	630	4	HWBN406EDA	HWBN406EFA
switch disconnector, frame B	800	4	HWBN408EDA	HWBN408EFA
switch disconnector, frame B	1000	4	HWBN410EDA	HWBN410EFA
switch disconnector, frame B	1250	4	HWBN412EDA	HWBN412EFA
switch disconnector, frame B	1600	4	HWBN416EDA	HWBN416EFA
switch disconnector, frame B	2000	4	HWBN420EDA	HWBN420EFA
switch disconnector, frame B	2500	4	HWBN425EDA	HWBN425EFA
switch disconnector, frame B	3200	4	HWBN432EDA	HWBN432EFA
switch disconnector, frame B	4000	4	HWBN440EDA	HWBN440EFA



HWBS416EDA

Switch disconnectors, frame B

Icw=85kA (1s)
Icw=55 kA (3s)

Description	Rating (A)	Nr. of poles	Cat. ref. draw-out type	fixed type
switch disconnector, frame B	630	3	HWBS306EDA	HWBS306EFA
switch disconnector, frame B	800	3	HWBS308EDA	HWBS308EFA
switch disconnector, frame B	1000	3	HWBS310EDA	HWBS310EFA
switch disconnector, frame B	1250	3	HWBS312EDA	HWBS312EFA
switch disconnector, frame B	1600	3	HWBS316EDA	HWBS316EFA
switch disconnector, frame B	2000	3	HWBS320EDA	HWBS320EFA
switch disconnector, frame B	2500	3	HWBS325EDA	HWBS325EFA
switch disconnector, frame B	3200	3	HWBS332EDA	HWBS332EFA
switch disconnector, frame B	4000	3	HWBS340EDA	HWBS340EFA
switch disconnector, frame B	630	4	HWBS406EDA	HWBS406EFA
switch disconnector, frame B	800	4	HWBS408EDA	HWBS408EFA
switch disconnector, frame B	1000	4	HWBS410EDA	HWBS410EFA
switch disconnector, frame B	1250	4	HWBS412EDA	HWBS412EFA
switch disconnector, frame B	1600	4	HWBS416EDA	HWBS416EFA
switch disconnector, frame B	2000	4	HWBS420EDA	HWBS420EFA
switch disconnector, frame B	2500	4	HWBS425EDA	HWBS425EFA
switch disconnector, frame B	3200	4	HWBS432EDA	HWBS432EFA
switch disconnector, frame B	4000	4	HWBS440EDA	HWBS440EFA

Switch disconnectors, frame B

I_{cw}=85kA (1s)
I_{cw}=65 kA (3s)

Description	Rating (A)	Nr. of poles	Cat. ref. draw-out type	fixed type
switch disconnector, frame B	630	3	HWBP306EDA	HWBP306EFA
switch disconnector, frame B	800	3	HWBP308EDA	HWBP308EFA
switch disconnector, frame B	1000	3	HWBP310EDA	HWBP310EFA
switch disconnector, frame B	1250	3	HWBP312EDA	HWBP312EFA
switch disconnector, frame B	1600	3	HWBP316EDA	HWBP316EFA
switch disconnector, frame B	2000	3	HWBP320EDA	HWBP320EFA
switch disconnector, frame B	2500	3	HWBP325EDA	HWBP325EFA
switch disconnector, frame B	3200	3	HWBP332EDA	HWBP332EFA
switch disconnector, frame B	4000	3	HWBP340EDA	HWBP340EFA
switch disconnector, frame B	630	4	HWBP406EDA	HWBP406EFA
switch disconnector, frame B	800	4	HWBP408EDA	HWBP408EFA
switch disconnector, frame B	1000	4	HWBP410EDA	HWBP410EFA
switch disconnector, frame B	1250	4	HWBP412EDA	HWBP412EFA
switch disconnector, frame B	1600	4	HWBP416EDA	HWBP416EFA
switch disconnector, frame B	2000	4	HWBP420EDA	HWBP420EFA
switch disconnector, frame B	2500	4	HWBP425EDA	HWBP425EFA
switch disconnector, frame B	3200	4	HWBP432EDA	HWBP432EFA
switch disconnector, frame B	4000	4	HWBP440EDA	HWBP440EFA

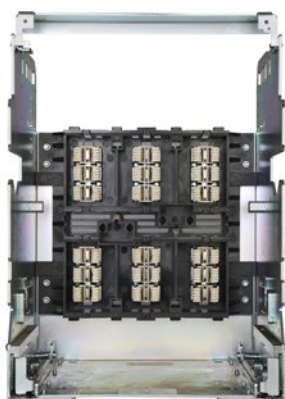
Switch disconnectors, frame C

I_{cw}=85kA (1s)
I_{cw}=65 kA (3s)

Description	Rating (A)	Nr. of poles	Cat. ref. draw-out type	fixed type
switch disconnector, frame C	3200	3	HWCP332EDA	HWCP332EFA
switch disconnector, frame C	4000	3	HWCP340EDA	HWCP340EFA
switch disconnector, frame C	5000	3	HWCP350EDA	HWCP350EFA
switch disconnector, frame C	3200	4	HWCP432EDA	HWCP432EFA
switch disconnector, frame C	4000	4	HWCP440EDA	HWCP440EFA
switch disconnector, frame C	5000	4	HWCP450EDA	HWCP450EFA



HWCP432EDA



HWY750

Chassis

Description	Pack qty.	Cat. ref.
frame A, 3 pole, 630 -1600A	1	HWY750
frame A, 4 pole, 630 -1600A	1	HWY751
frame A, 3 pole, 2000A	1	HWY752
frame A, 4 pole, 2000A	1	HWY753
frame B, 3 pole, 630 -2500A	1	HWY754
frame B, 4 pole, 630 -2500A	1	HWY755
frame B, 3 pole, 3200A	1	HWY756
frame B, 4 pole, 3200A	1	HWY757
frame B, 3 pole, 4000A vertical	1	HWY758
frame B, 4 pole, 4000A vertical	1	HWY759
frame B, 3 pole, 4000A horizontal	1	HWY760
frame B, 4 pole, 4000A horizontal	1	HWY761
frame C, 3 pole, 3200-5000A vertical	1	HWY762
frame C, 4 pole, 3200-5000A vertical	1	HWY763
frame C, 3 pole, 3200-5000A horizontal	1	HWY764
frame C, 4 pole, 3200-5000A horizontal	1	HWY765



HWX633

Protection trip units (OCR)

Description	Pack qty.	Cat. ref.
LI	1	HWX611
LSI	1	HWX612
LSIG	1	HWX613
Amp LI	1	HWX621
Amp LSI	1	HWX622
Amp LSIG	1	HWX623
Energy LSIG	1	HWX633



HWY650

Voltage module

Description	Pack qty.	Cat. ref.
voltage module	1	HWY650



HWY654

Remote control units

Description	Pack qty.	Cat. ref.
remote control unit	1	HWY639
remote control temperature unit	1	HWY654
remote control temperature unit + temperature sensor	1	HWY655

Temperature sensor and supports

Description	Pack qty.	Cat. ref.
temperature sensor	1	HWY640
support for frame A, 3 pole	1	HWY690
support for frame A, 4 pole	1	HWY691
support for frame B, 3 pole	1	HWY692
support for frame B, 4 pole	1	HWY693
support for frame C, 3 pole	1	HWY695
support for frame C, 4 pole	1	HWY696



HWY640

Position switches

Description	Pack qty.	Cat. ref.
isolated 1C, test 1C, connected 2C	1	HWX570
inserted 1C, isolated 1C, test 1C, connected 1C	1	HWX571
inserted 1C, isolated 1C, test 3C, connected 3C	1	HWX572
inserted 2C, isolated 2C, test 2C, connected 2C	1	HWX573



HWX573

Motor operators (MO)

Description	Pack qty.	Cat. ref.
motor operator DC 24V	1	HWX541
motor operator DC 48V	1	HWX542
motor operator AC/DC 110V	1	HWX543
motor operator AC/DC 220V	1	HWX544



HWX544

Closing coils (CC)

Description	Pack qty.	Cat. ref.
closing coil DC 24V	1	HWX551
closing coil DC 48V	1	HWX552
closing coil AC/DC 110V	1	HWX553
closing coil AC/DC 220V	1	HWX554
closing coil AC 380/415V	1	HWX555
closing coil AC 440V	1	HWX556



HWX554

Shunt trip coils (SH)

Description	Pack qty.	Cat. ref.
shunt trip coil DC 24V	1	HWX501
shunt trip coil DC 48V	1	HWX502
shunt trip coil AC/DC 110V	1	HWX503
shunt trip coil AC/DC 220V	1	HWX504
shunt trip coil AC 380/415V	1	HWX505
shunt trip coil AC 440V	1	HWX506



HWX501

Secondary trip coils (sSH)

Description	Pack qty.	Cat. ref.
secondary trip coil DC 24V	1	HWX521
secondary trip coil DC 48V	1	HWX522
secondary trip coil AC/DC 110V	1	HWX523
secondary trip coil AC/DC 220/250V	1	HWX524
secondary trip coil AC 380/415V	1	HWX525
secondary trip coil AC 440V	1	HWX526



HWX514

Under voltage trip coils - instantaneous (UVT)

Description	Pack qty.	Cat. ref.
under voltage trip coil DC 24V	1	HWX511
under voltage trip coil DC 48V	1	HWX512
under voltage trip coil AC/DC 110V	1	HWX513
under voltage trip coil AC/DC 220/250V	1	HWX514
under voltage trip coil AC 380/415V	1	HWX515
under voltage trip coil AC 440V	1	HWX516

UVT time delay controllers

Description	Pack qty.	Cat. ref.
UVT time delay controller AC/DC 110V	1	HWX533
UVT time delay controller AC/DC 220/250V	1	HWX534
UVT time delay controller AC 380/415V	1	HWX535
UVT time delay controller AC 440V	1	HWX536

Mechanical operated cell switch (additional AX)

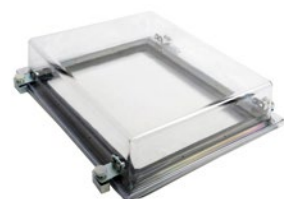
Description	Pack qty.	Cat. ref.
mechanical operated cell switch 5NO+5NC	1	HWX565



HWX547

Ready to close contact RTC

Description	Pack qty.	Cat. ref.
draw-out type 1NO	1	HWX547
fixed type 1NO	1	HWX548



HWY642

Accessories

Description	Pack qty.	Cat. ref.
counter	1	HWY638
lifting lug	1	HWY648
wrong insertion preventer for draw-out type	1	HWY636
door flange	1	HWY641
dust cover	1	HWY642
ON/OFF button cover	1	HWY632

Key cylinder lock in open position

Description	Pack qty.	Cat. ref.
type 1	1	HWY633
type 2	1	HWY634
type 3	1	HWY635
type 4	1	HWY646
type 5	1	HWY647
type 6	1	HWY656
type 7	1	HWY657
type 8	1	HWY658
type 9	1	HWY659



HWY6xx

Key Ronis lock in open position

Description	Pack qty.	Cat. ref.
type 1 - K1L1/L4	1	HWY701
type 2 - K2L2/L4/L5	1	HWY702
type 3 - K3L3/L5	1	HWY703
type 4 - K4L4	1	HWY704
type 5 - K5L5	1	HWY705
adaptor kit for Ronis locks	1	HWY697



HWY701

Key Castell lock in open position

Description	Pack qty.	Cat. ref.
type 1 - AA	1	HWY706
type 2 - AB	1	HWY707
type 3 - A_	1	HWY708
adaptor kit for Castell locks	1	HWY698



HWY706

Neutral CT

Description	Pack qty.	Cat. ref.
neutral CT 630A	1	HWW260
neutral CT 800A	1	HWW261
neutral CT 1000A	1	HWW262
neutral CT 1250A	1	HWW263
neutral CT 1600A	1	HWW264
neutral CT 2000A	1	HWW265
neutral CT 2500A	1	HWW266
neutral CT 3200A	1	HWW267
neutral CT 4000A	1	HWW268
neutral CT 5000A	1	HWW269



HWW268



HWY502

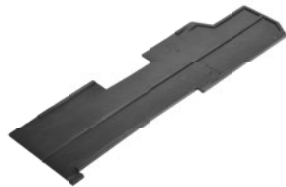
Mechanical interlocks

with mechanism and cables

Description	Pack qty.	Cat. ref.
draw-out type, 2 way	1	HWY500
draw-out type, 3 way	1	HWY501
fixed type, 2 way (incl. plate)	1	HWY502
fixed type, 3 way (incl. plate)	1	HWY503

Cables for mechanical interlocks

Description	Pack qty.	Cat. ref.
cable 3m	1	HWY508
cable 5m	1	HWY509



HWY630

Phase insulation barrier

Description	Pack qty.	Cat. ref.
3 pole (2 units)	1	HWY630
4 pole (3 units)	1	HWY631



HWY637

Control terminal protection cover

Description	Pack qty.	Cat. ref.
for draw-out type	1	HWY637



HWY672

Arc shield (for draw-out type)

Description	Pack qty.	Cat. ref.
for frame A 3 pole, 630-2000A	1	HWY670
for frame A 4 pole, 630-2000A	1	HWY671
for frame B 3 pole, 630-4000A	1	HWY672
for frame B 4 pole, 630-4000A	1	HWY673
for frame C 3 pole, 3200-5000A	1	HWY674
for frame C 4 pole, 3200-5000A	1	HWY675

Fixed type connector plug

Description	Length	Pack qty.	Cat. ref.
pre-wired kit	3m	1	HWY065

OCR portable checker

Description	Pack qty.	Cat. ref.
OCR portable checker	1	HWY649



OCR manual reset and alarm switch reset (MHT)

Description	Pack qty.	Cat. ref.
for draw-out type	1	HWY651
for fixed type	1	HWY652

Motor controller unit only

Description	Pack qty.	Cat. ref.
motor controller unit only	1	HWW068

Motor ON/OFF switch only

Description	Pack qty.	Cat. ref.
motor ON/OFF switch only	1	HWW069

Safety shutters

Description	Pack qty.	Cat. ref.
frame A 3 pole, 630-2000A	1	HWY660
frame A 4 pole, 630-2000A	1	HWY661
frame B 3 pole, 630-4000A	1	HWY662
frame B 4 pole, 630-4000A	1	HWY663
frame C 3 pole, 3200-5000A	1	HWY664
frame C 4 pole, 3200-5000A	1	HWY665



Horizontal / vertical terminals

Description	Pack qty.	Cat. ref.
for frame A 3 pole, 630-1600A	1	HWY610
for frame A 4 pole, 630-1600A	1	HWY611
for frame B 3 pole, 630-3200A	1	HWY612
for frame B 4 pole, 630-3200A	1	HWY613

Rotary handle

Description	Pack qty.	Cat. ref.
for draw-out type	1	HWY644



Main incomers

H3 MCCBs technical characteristics



Frame			x160				x250			h250 TM			h250 TM+		
Product			Switch	MCCB			Switch	MCCB		MCCB			MCCB		
Reference			HCA	HDA	HHA	HNA	HCB	HHB	HNB	HHG	HNG	HEG	HNH	HEH	
Number of poles		[No.]	3-4	1-2-3-4	1-2-3-4	3-4	3-4						3-4		
Electrical characteristics															
Rated current	In	[A]	160				250			250			250		
Current rated range		[A]	125-160		16-125 (1P), 16-160 (2,3,4P)		250	100-250		12.5-250			12.5-250		
Rated service voltage, (AC)	Ue	[V]	220-690				220-690			220-690			220-690		
Frequency	f	[Hz]	50/60				50/60			50/60			50/60		
Rated insulation voltage	Ui	[V]	690				800			800			800		
Rated impulse withstand voltage	Uimp	[kV]	8				8			8			8		
Rated ultimate short-circuit breaking capacity	(Icu)														
(AC) 50-60 Hz 220/230 V	Icu	[kA]	-	25	35	85	-	35	85	35	85	85	85	100	
(AC) 50-60 Hz 380/415 V	Icu	[kA]	-	18	25	40	-	25	40	25	50	65	50	70	
(AC) 50-60 Hz 480/500/525 V	Icu	[kA]	-	6	7.5	12.5	-	-	10	10	25	25	30	45	
(AC) 50-60 Hz 660/690 V	Icu	[kA]	-	-	-	-	-	-	4	-	7.5	7.5	20	20	
(DC) 250 V - 2 poles in series	Icu	[kA]	-	12.5	20	25	-	25	25	25	40	40	40	40	
Rated service short-circuit breaking capacity,	(Ics)														
(AC) 50-60 Hz 220/230 V	Ics	[kA]	-	25	25	40	-	25	40	27	65	85	85	100	
(AC) 50-60 Hz 380/415 V	Ics	[kA]	-	18	20	20	-	20	20	19	25	36	50	70	
(AC) 50-60 Hz 480/500/525 V	Ics	[kA]	-	3	4	7.5	-	-	7.5	7.5	25	25	30	45	
(AC) 50-60 Hz 660/690 V	Ics	[kA]	-	-	-	3	-	-	2	-	7.5	7.5	15	15	
(DC) 250 V - 2 poles in series	Ics	[kA]	-	7	10	13	-	13	13	19	40	40	40	40	
Rated short-circuit making capacity	Icm	[kA]	2,8	-	-	-	6	-	-	-	-	-	-	-	
Rated short-time withstand current for 1s	Icw	[kA]	2	-	-	-	3	-	-	-	-	-	-	-	
Category of use (EN 60947-2)			-	A			-	A		A			A		
Calibration temperature			-	50°C			-	50°C		50°C			50°C		
Derating			40°C	-	100%			-	100%		100%			100%	
			50°C	-	100%			-	100%		100%			100%	
			55°C	-	95%			-	94%		94%			94%	
			60°C	-	93%			-	91%		91%			91%	
			65°C	-	90%			-	88%		88%			88%	
Suitability for insulation			ok				ok			ok			ok		
Electric endurance in number of cycles			10000				10000			10000			10000		
Mechanical endurance in number of operations			20000				20000			30000			30000		
Operating temperature			-25 to +70°C				-25 to +70°C			-25 to +70°C			-25 to +70°C		
Storage temperature			-35 to +70°C				-35 to +70°C			-35 to +70°C			-35 to +70°C		
Power loss (at In for 3P)		[W]	39				60			65			68		
Reference standard			IEC 60947-3		IEC 60947-2		IEC 60947-3	IEC 60947-2		IEC 60947-2			IEC 60947-2		
Releases: switch			ok		-		ok	-		-			-		
Releases: TM (thermomagnetic)			-		ok		-	ok		ok			ok		
T fixed, M fixed			-		ok		-	ok		-			-		
T adjustable, M fixed			-		ok		-	-		-			-		
T adjustable, M adjustable			-		-		-	ok		ok			ok		
Thermal adjustment value			-		0,63 to 1 x In		-	0,63 to 1 x In		0,63 to 1 x In			0,63 to 1 x In		
Magnetic adjustment value			-		-		-	6-8-10-13 x In (200A) 5-7-9-11 In (250A)		6-8-10-13 x In			6-8-10-13 x In		
Releases: LSI (electronic)			-		-		-	-		-			-		
Long delay			-		-		-	-		-			-		
Short delay			-		-		-	-		-			-		
Time delay			-		-		-	-		-			-		
Connection															
Standard terminal type			cage				lugs			lugs			lugs		
Maximum terminal capacity			95 mm ²				185 mm ² (cage)			120 mm ² (cage)			120 mm ² (cage)		
Terminal width		mm	-				25			25			25		
Terminal shields			ok				ok			ok			ok		
Cage terminal			integrated				ok			ok			ok		
Extended connections			ok				ok			ok			ok		
Rear connections			no				ok			ok			ok		
Dimensions															
Height		mm	130				165			165			165		
Width	1P	mm	-	25	-	-	-	-	-	-	-	-	-	-	
	2P	mm	-	50	-	-	-	-	-	-	-	-	-	-	
	3P	mm	75				105			105			105		
	4P	mm	100				140			140			140		
Depth		mm	68				68			68			97		
Weight	1P	kg	-	0,29	-	-	-	-	-	-	-	-	-	-	
	2P	kg	-	0,48	-	-	-	-	-	-	-	-	-	-	
	3P	kg	0,715				1,3			1,5			2,4		
	4P	kg	0,95				1,6			1,9			3,2		

h250 LSI		h400 TM			h630 LSI			h800 TM		h1000 LSI			h1600 LSI		
MCCB		MCCB			Switch	MCCB		MCCB		Switch	MCCB		Switch	MCCB	
HNC	HEC	HHD	HND	HKD	HCD	HND	HED	HNK	HEK	HCE	HNE	HEE	HCF	HNF	HEF
3-4		3-4			3-4			3-4		3-4			3-4		
250		400			630			800		1000			1600		
40-125-250		250-400			400-630	250-400-630		630-800		630-800-1000			1250-1600		
220-690		220-690			220-690			220-690		220-690			220-690		
	50/60	50/60			50/60			50/60		50/60			50/60		
800		800			800			800		800			800		
8		8			8			8		8			8		
85	100	35	85	100	-	85	100	85	100	-	85 (800A) 75 (1000A)	100	-	100	100
50	70	25	50	70	-	50	70	50	70	-	50	70	-	50	70
25	45	10	30		-	30	30	30	30	-	30	30	-	45	65
7,5	20	7,5	20		-	20	20	20	20	-	20	20	-	25	45
-	-	25	40		-			50	50	-	-	-	-	-	-
85	100	35	85		-	85	85	85	85	-	85 (800A) 75 (1000A)	100 (800A) 75 (1000A)	-	75	75
25	70	25	50	50	-	50	50	50	50	-	50	50	-	50	50
25	45	10	30		-	30	30	30	30	-	30	30	-	45	50
7,5	15	7,5	15		-	15	15	20	20	-	20	20	-	25	34
-	-	25	40		-			50	50	-	-	-	-	-	-
-	-	-	-		9	-	-	-	-	20	-	-	45	-	-
-	-	-	-		5 (0,3s)	-	-	-	-	10 (0,3s)	-	-	20 (0,3s)	-	-
A		A			-	B(250-400A) - A(630A)		A		-	B(800A) - A(1000A)		-	B	
40/50°C		50°C			-	40/50°C		40°C		-	40/50°C		-	40/50°C	
100%		100%			-	100%		100%		-	100%		-	100%	
95%		100%			-	95%		100%		-	95%		-	95%	
90%		95%			-	90%		95%		-	90%		-	90%	
80%		92%			-	80%		92%		-	80%		-	80%	
80%		89%			-	80%		89%		-	80%		-	80%	
ok		ok			ok			ok		ok			ok		
10000		4500			4500			4500		4500			4500		
30000		15000			15000			15000		15000			15000		
-25 to +70°C		-25 to +70°C			-25 to +70°C			-25 to +70°C		-25 to +70°C			-25 to +70°C		
-35 to +70°C		-35 to +70°C			-35 to +70°C			-35 to +70°C		-35 to +70°C			-35 to +70°C		
75		75			150			150		150			170		
IEC 60947-2		IEC 60947-2			IEC 60947-3	IEC 60947-2		IEC 60947-2		IEC 60947-3	IEC 60947-2		IEC 60947-3	IEC 60947-2	
-		-			ok	-		-		ok	-		ok	-	
-		ok			-	-		ok		-	-		-	-	
-		-			-	-		-		-	-		-	-	
-		-			-	-		-		-	-		-	-	
-		ok			-	-		ok		-	-		-	-	
-		0,63 to 1 x In			-	-		0,63 to 1 x In		-	-		-	-	
-		6-8-10-12 x In			-	-		5 to 10 x In		-	-		-	-	
-		-			-	ok		-		-	ok		-	ok	
0,4 to 1 x Ir		-			-	0,4 to 1 x Ir		-		-	0,4 to 1 x Ir		-	0,4 to 1 x In	
2,5 to 10 x Ir		-			-	2,5 to 10 x Ir (250-400A) 2,5 to 8 x Ir (630A)		-		-	2,5 to 10 x Ir (800A) 2,5 to 8 x Ir (1000A)		-	2,5 to 10 x Ir	
0,1 - 0,2s		-			-	0,1 - 0,2s		-		-	0,1 - 0,2s		-	0,1 - 0,2s	
lugs		lugs			lugs			lugs		lugs			lugs		
120 mm ² (cage)		240 mm ² (cage)			-	-		-		-	-		-	-	
25		30			30			45		45			45		
ok		ok			ok			ok		ok			ok		
ok		ok			-	-		-		-	-		-	-	
ok		ok			integrated			integrated		integrated			integrated		
ok		ok			ok			ok		ok			ok		
165		260			260			273/433		273/433			370/570		
-		-			-	-		-		-	-		-	-	
-		-			-	-		-		-	-		-	-	
105		140			140			210		210			210		
140		185			185			280		280			280		
97		97			97			99,5		99,5			140		
-		-			-	-		-		-	-		-	-	
-		-			-	-		-		-	-		-	-	
2,5		4,2			4,3			8,5		11			27		
3,3		5,6			5,7			11,5		14,8			31		

Main incomers

H3 MCCBs references guide



	Trip unit	In	Nbr of poles	MCCBs				Trip free switches	Add-on block	Base plate for plug-in MCCBs	Accessories for draw-out and plug-in MCCBs			Collar terminals		Extended connection		Inter-phase barriers				
				25kA adj./adj.	50kA adj./adj.	65kA adj./adj.	70kA adj./adj.				Auxiliary terminal 5 wires panel side	Auxiliary terminal 3 wires body side	Auxiliary terminal 2 wires body side	Simple Copper Alu	Double Alu	Straight	Spreader					
h250	TM	20A	3P-3d	HHG020U	HNG020U									HYC003H	HYB005H	HYC010H	HYC011H	HYB019H				
			4P-3dNr		HNG021U								HYC004H	HYB006H	HYB012H							
		32A	3P-3d	HHG032U	HNG032U										HYC003H				HYB005H	HYC011H	HYB012H	
			4P-3dNr		HNG033U										HYC004H				HYB006H	HYC011H	HYB012H	
		63A	3P-3d	HHG063U	HNG063U	HEG063U									HYC003H				HYB005H	HYC011H	HYB012H	
			4P-3dNr		HNG064U	HEG064U									HYC004H				HYB006H	HYC011H	HYB012H	
		100A	3P-3d	HHG100U	HNG100U	HEG100U									HYC003H				HYB005H	HYC011H	HYB012H	
			4P-3dNr		HNG101U	HEG101U									HYC004H				HYB006H	HYC011H	HYB012H	
		125A	3P-3d	HHG125U	HNG125U	HEG125U									HYC003H				HYB005H	HYC011H	HYB012H	
			4P-3dNr		HNG126U	HEG126U									HYC004H				HYB006H	HYC011H	HYB012H	
		160A	3P-3d	HHG160U	HNG160U	HEG160U									HYC003H				HYB005H	HYC011H	HYB012H	
			4P-3dNr		HNG161U	HEG161U									HYC004H				HYB006H	HYC011H	HYB012H	
	200A	3P-3d	HHG200U	HNG200U	HEG200U									HYC003H	HYB005H	HYC011H	HYB012H					
		4P-3dNr		HNG201U	HEG201U									HYC004H	HYB006H	HYC011H	HYB012H					
	250A	3P-3d	HHG250U	HNG250U	HEG250U									HYC003H	HYB005H	HYC011H	HYB012H					
		4P-3dNr		HNG251U	HEG251U									HYC004H	HYB006H	HYC011H	HYB012H					
	LSI	40A	3P-3d		HNC040H		HEC040H							HYC003H	HYB005H	HYC011H	HYC019H					
			4P-3dNr		HNC041H		HEC041H							HYC004H	HYB006H	HYB012H						
		125A	3P-3d		HNC125H		HEC125H							HYC003H	HYB005H	HYC011H	HYB012H					
			4P-3dNr		HNC126H		HEC126H							HYC004H	HYB006H	HYB012H						
	250A	3P-3d		HNC250H		HEC250H								HYC003H	HYB005H	HYC011H	HYB012H					
		4P-3dNr		HNC251H		HEC251H								HYC004H	HYB006H	HYB012H						
	Plug-in	40A	3P-3d		HNC040G				HYC200H	HYC250H	HYC353H	HYC352H										
			4P-3dNr		HNC041G				HYC201H													
125A		3P-3d		HNC125G				HYC200H														
		4P-3dNr		HNC126G				HYC201H														
250A	3P-3d		HNC250G				HYC200H															
	4P-3dNr		HNC251G				HYC201H															
h630	TM	250A	3P-3d	HHD250U	HND250U									HYD003H	HYD005H	HYD007H	HYD010H	HYD011H	HYD019H			
			4P-3dNr		HND251U										HYD004H	HYD006H				HYD008H	HYD012H	
		400A	3P-3d	HHD400U	HND400U										HYD003H	HYD005H				HYD007H	HYD011H	HYD019H
			4P-3dNr		HND401U										HYD004H	HYD006H				HYD008H	HYD012H	HYD019H
	LSI	250A	3P-3d											HYD003H	HYD005H	HYD007H	HYD011H	HYD019H				
			4P-3dNr					HBD401H						HYD004H	HYD006H	HYD008H	HYD012H	HYD019H				
		400A	3P-3d		HND400H		HED400H	HCD400U						HYD003H	HYD005H	HYD007H	HYD011H	HYD019H				
			4P-3dNr		HND401H		HED401H	HCD401U	HBD401H					HYD004H	HYD006H	HYD008H	HYD012H	HYD019H				
	630A	3P-3d		HND630H		HED630H	HCD630U							HYD005H	HYD007H	HYD013H	HYD014H	HYD019H				
		4P-3dNr		HND631H		HED631H	HCD631U	HBD631H/500A						HYD006H	HYD008H	HYD015H	HYD019H					
	Plug-in	250A	3P-3d			HED250G			HYD200H	HYC250H	HYC353H	HYC352H										
			4P-3dNr			HED251G			HYD201H													
400A	3P-3d			HED400G				HYD200H														
	4P-3dNr			HED401G				HYD201H														
h1000	LSI	800A	3P-3d		HNE800H	HEE800H	HCE800U								HYE007H	included	HYD019H					
			4P-3dNr		HNE801H	HEE801H	HCE801U						HYE008H	HYD019H								
		1000A	3P-3d		HNE970H	HEE970H	HCE970U											HYD019H				
			4P-3dNr		HNE971H	HEE971H	HCE971U											HYD019H				
	Plug-in	630A	3P-3d			HEE630G			HYE200H	HYC250H	HYC353H	HYC352H										
			4P-3dNr			HEE631G			HYE201H													
		800A	3P-3d			HEE800G			HYE200H													
			4P-3dNr			HEE801G			HYE201H													
h1600	LSI	1250A	3P-3d		HNF980H	HEF980H	HCF980U								included	HYD019H						
			4P-3dNr		HNF981H	HEF981H	HCF981U						HYD019H									
	1600A	3P-3d		HNF990H	HEF990H	HCF990U								HYD019H								
		4P-3dNr		HNF991H	HEF991H	HCF991U								HYD019H								

h250 - h630 - h1000 - h1600	Range	Auxiliary contact 1NO + 1NC	Auxiliary alarm contact 1NO + 1NC	Auxiliary low level contact 1NO + 1NC	Auxiliary low level contact 1NO + 1NC			
Auxiliary contact			HXC024H	HXC025H	HXC026H			
Coil voltage		24V DC	48V DC	V AC 120 - 100	V DC 120 - 100	V AC 240 - 200	V DC 240 - 200	V AC 450 - 380
Shunt trip	h250 to h1000	HXC001H	HXC002H	HXC003H	HXC008H	HXC004H		HXC005H
	h1600	HXF001H	HXF002H	HXF003H	HXF008H	HXF004H		HXF005H
Undervoltage release	h250 to h630	HXC011H		HXC013H	HXC018H	HXC014H	HXC019H	HXC015H
	h1000 to h1600	HXE011H		HXE013H	HXE018H	HXE014H	HXE019H	HXE015H
Undervoltage release delayed	h250	HXC051H		HXC053H		HXC054H		HXC055H
	h630	HXD051H		HXD053H		HXD054H		HXD055H
	h1000	HXE051H		HXE053H		HXE054H		HXE055H
	h1600	HXF051H		HXF053H		HXF054H		HXF055H

Main incomers

H3 MCCBs x160



Mechanical test button, lockable setting, integrated padlocking handle Ø 4 mm

Connection capacity
Copper collar terminals
95mm² rigid cable
70mm² flexible cable

	...Z	...U	...M
Trip unit	M: fixed Th: fixed	M: fixed Th: adj.	M: fixed Th: /
Auxiliary visibility	non visible	visible	visible
Mounting Din rail	with HYA033H	with HYA033H	yes



HDA125Z

MCCBs x160 18kA

Breaking capacity Icu: 18kA (400/415 V AC)

Description	In (A)	Cat. ref.			
		1P	2P	3P	4P
fixed thermal 1 x In fixed magnetic > 10 x In	16	HDA014Z	HDA015Z	HDA016Z	HDA017Z
	20	HDA018Z	HDA019Z	HDA020Z	HDA021Z
	25	HDA023Z	HDA024Z	HDA025Z	HDA026Z
	32	HDA030Z	HDA031Z	HDA032Z	HDA033Z
	40	HDA038Z	HDA039Z	HDA040Z	HDA041Z
	50	HDA048Z	HDA049Z	HDA050Z	HDA051Z
	63	HDA061Z	HDA062Z	HDA063Z	HDA064Z
	80	HDA078Z	HDA079Z	HDA080Z	HDA081Z
	100	HDA098Z	HDA099Z	HDA100Z	HDA101Z
	125	HDA123Z	HDA124Z	HDA125Z	HDA126Z
adjustable thermal 0.63 - 0.8 - 1 x In fixed magnetic > 10 x In	160	-	HDA159Z	HDA160Z	HDA161Z
	25	-	-	HDA025U	HDA026U
	40	-	-	HDA040U	HDA041U
	63	-	-	HDA063U	HDA064U
	80	-	-	HDA080U	HDA081U
	100	-	-	HDA100U	HDA101U
	125	-	-	HDA125U	HDA126U
	160	-	-	HDA160U	HDA161U



HHA161U

MCCBs x160 25kA

Breaking capacity Icu: 25kA (400/415 V AC)

Description	In (A)	Cat. ref.			
		1P	2P	3P	4P
fixed thermal 1 x In fixed magnetic > 10 x In	16	HHA014Z	HHA015Z	HHA016Z	HHA017Z
	20	HHA018Z	HHA019Z	HHA020Z	HHA021Z
	25	HHA023Z	HHA024Z	HHA025Z	HhA026Z
	32	HHA030Z	HHA031Z	HHA032Z	HHA033Z
	40	HHA038Z	HHA039Z	HHA040Z	HHA041Z
	50	HHA048Z	HHA049Z	HHA050Z	HHA051Z
	63	HHA061Z	HHA062Z	HHA063Z	HHA064Z
	80	HHA078Z	HHA079Z	HHA080Z	HHA081Z
	100	HHA098Z	HHA099Z	HHA100Z	HHA101Z
	125	HHA123Z	HHA124Z	HHA125Z	HHA126Z
adjustable thermal 0.63 - 0.8 - 1 x In fixed magnetic > 10 x In	160	-	HHA159Z	HHA160Z	HHA161Z
	25	-	-	HHA025U	HHA026U
	40	-	-	HHA040U	HHA041U
	63	-	-	HHA063U	HHA064U
	80	-	-	HHA080U	HHA081U
	100	-	-	HHA100U	HHA101U
	125	-	-	HHA125U	HHA126U
	160	-	-	HHA160U	HHA161U

Mechanical test button, lockable setting, integrated padlocking handle Ø 4 mm

Connection capacity
Copper collar terminals
95mm² rigid cable
70mm² flexible cable

	...Z	...U	...M
Trip unit	M: fixed Th: fixed	M: fixed Th: adj.	M: fixed Th: /
Auxiliary visibility	non visible	visible	visible
Mounting Din rail	with HYA033H	with HYA033H	yes



HNA125Z

MCCBs x160 40kA

Breaking capacity I_{cu}: 40kA (400/415 V AC)

Description	In (A)	Cat. ref. 3P	4P
fixed thermal 1 x I _n fixed magnetic > 10 x I _n	16	HNA016Z	HNA017Z
	20	HNA020Z	HNA021Z
	25	HNA025Z	HNA026Z
	32	HNA032Z	HNA033Z
	40	HNA040Z	HNA041Z
	50	HNA050Z	HNA051Z
	63	HNA063Z	HNA064Z
	80	HNA080Z	HNA081Z
	100	HNA100Z	HNA101Z
	125	HNA125Z	HNA126Z
adjustable thermal 0.63 - 0.8 - 1 x I _n fixed magnetic > 10 x I _n	160	HNA160Z	HNA161Z
	25	HNA025U	HNA026U
	40	HNA040U	HNA041U
	63	HNA063U	HNA064U
	80	HNA080U	HNA081U
	100	HNA100U	HNA101U
	125	HNA125U	HNA126U
	160	HNA160U	HNA161U

Main incomers



HNA125M

Magnetic MCCBs x160 40kA

Breaking capacity I_{cu}: 40kA (400/415 V AC)

Description	In (A)	Cat. ref. 3P	4P
fixed magnetic > 10 x I _n	16	HNA016M	HNA017M
	20	HNA020M	HNA021M
	25	HNA025M	HNA026M
	32	HNA032M	HNA033M
	40	HNA040M	HNA041M
	50	HNA050M	HNA051M
	63	HNA063M	HNA064M
	80	HNA080M	HNA081M
	100	HNA100M	HNA101M
	125	HNA125M	HNA126M
	160	HNA160M	HNA161M

Add-on blocks for x160 devices

These devices are intended to be fixed on the right side of the devices.

Type A and HI

For fault component pulsating current.

HI (High Immunity): the products with "reinforced immunity" reduce the unexpected tripping when they protect equipment generating disturbances (micro-processing, electronic ballast...)

Fixed version: 300 mA sensitivity and instantaneous tripping

Adjustable version: adjustable sensitivity and tripping.

Test button for differential functioning check.

Mechanical test button

LED or at distance signal for tripping or advance warning (25-50% $I_{\Delta n}$).

Assembly and disassembly facilitated by the drawer assembly system. The terminal cover is dependent of the add-on block.

Connection capacity

95 mm² rigid cables

70 mm² flexible cables

Comply with IEC 60 947-2

Trip-free switches x160

- suitable for AC22A / AC 23A

- Ue: 415 V AC

- Icw (1s): 2 kA

Description	In (A)	Cat. ref. 3P	4P
trip-free switches x160	125	HCA125Z	HCA126Z
	160	HCA160Z	HCA161Z



HBA161H

Add-on blocks

Description	In (A)	Cat. ref. 3P	4P
$I_{\Delta n}$ 300 mA fixed sensitivity instantaneous tripping	16	HBA127H	HBA128H
sensitivity $I_{\Delta n}$ adjustable: 0.03 - 0.1 - 0.3 - 1 - 3 - 6A	125	HBA125H	HBA126H
	160	HBA160H	HBA161H
adjustable tripping: - instantaneous - time delay: 0.06 - 0.15 - 0.3 - 0.5 - 1s			

Indication contacts

- 1 changeover switch (ON/OFF): indicates the position of the MCCB is "open" or "close".
- 1 changeover alarm contact: indicates MCCB tripping.

Coil connection

Connection capacity: 0.75 mm² flexible or rigid cables
Optional connection cables.
The cable capacity of the terminals is 0.5 to 1.25 mm².

Shunt trip

Remotes tripping of MCCBs or trip-free switches.
Operating voltage: 0.7 to 1.1 x Un

Under voltage release

Allows the tripping of MCCBs or trip-free switches when voltage level drop between 35 and 70% of Un. Pick up voltage 0.85 x Un

Direct rotary handle

- padlockable
- equipped with front cover and handle
- fixing without any additional screw.

Extended rotary handle

- IP 55
- supplied complete with shaft and handle.



HXA021H

HXA024H

Auxiliary contacts - AX, AL

Description	Cat. ref.
1 changeover contact (ON/OFF) 250 V AC / 3A 125 V DC / 0,4A 1 NO + 1 NC	HXA021H
1 changeover alarm contact 250 V AC / 3A 125 V DC / 0,4A 1 NO + 1 NC	HXA024H
Low level contact (ON/OFF) 125 V AC 1 NO + 1 NC	HXA025H
Low level alarm contact 125 V AC 1 NO + 1 NC	HXA026H

Shunt trips - SH

Description	Cat. ref.
24V DC	HXA001H
48V DC	HXA002H
100 - 120V AC	HXA003H
200 - 240V AC	HXA004H
380 - 450V AC	HXA005H



HXA014H

Undervoltage releases - UV

Description	Cat. ref.
24V DC	HXA011H
100 - 120V AC	HXA013H
200 - 240V AC	HXA014H
380 - 450V AC	HXA015H

Delayed undervoltage releases - DUVR

Description	Cat. ref.
24V DC	HXA051H
100 - 120V AC	HXA053H
200 - 240V AC	HXA054H
380 - 450V AC	HXA055H



HXA030H

Direct rotary handle

Description	Cat. ref.
padlockable handle, max Ø 6 mm	HXA030H



HXA031H

Extended rotary handle

Description	Cat. ref.
padlockable handle max Ø 8 mm	HXA031H

Padlock

to mount on MCCB for handle locking

Description	Cat. ref.
for 3 padlock max Ø 8 mm	HXA039H

Collar terminals

Description	Cat. ref.	3P	4P
for aluminium / copper conductor up to 70 mm ²	HYA005H	HYA006H	



HYA015H

Extended connections

Description	Cat. ref.	3P	4P
set of 4 straight connections	HYA013H	HYA013H	
set of 3 or 4 spreader connections	HYA014H	HYA015H	

Interphase barriers

Description	Cat. ref.
set of 3, height: 50 mm	HYA019H



HYA027H

Terminal covers

Description	Cat. ref.	3P	4P
for extended straight connections	HYA021H	HYA022H	
for extended spreader connections	HYA023H	HYA024H	
for collar terminal	HYA027H	HYA028H	

Din rail adaptor

Description	Cat. ref.
din rail adaptor	HYA033H

Connecting kit

Description	Cat. ref.
0.75 mm ² , set of 3 x 2 wires, length: 1.30m	HYA035H

Rail Din raiser

Description	Cat. ref.
rail Din raiser	HXA036H

Ring lugs

Description	Cat. ref.
compact lugs 16 mm ² Ø8.5	HYA086H
compact lugs 25 mm ² Ø8.5	HYA087H
compact lugs 35 mm ² Ø8.5	HYA088H
compact lugs 50 mm ² Ø8.5	HYA089H
compact lugs 70 mm ² Ø8.5	HYA090H
compact lugs 95 mm ² Ø8.5	HYA091H

Moulded case circuit breakers x250

2 versions of trip unit:
 - Z version: fixed thermal and magnetic
 - U version: adjustable thermal and magnetic

3P and 4P
 Mechanical test button, lockable settings, integrated padlocking handle Ø 4mm.
 Comply with IEC 60 947-2.

Connection

Directly on copper cable terminal, with end lug max. width: 25 mm
 Connection capacity: 185 mm² rigid cables
 Comply with IEC 60 947-2.

Trip-free switches

Allows tripping at distance using a voltmeterical trip unit (optional)
 Complies with IEC 60 947-3 AC 22/23A

Add-on blocks for x250 devices

These devices are intended to be fixed at the bottom of the devices.

Type A and HI for fault component dc pulsating current and the products with "reinforced immunity".
 Adjustable sensitivity and tripping.
 Test button for differential functioning check.
 Mechanical test button
 LED or at distance signal for tripping or advance warning (25 - 50% IΔn).
 Comply with IEC 60 947-2



HHB160P

MCCBs x250 25kA

Breaking capacity Icu: 25kA (400/415 V AC)
 Ics: 20kA

Description	In (A)	Cat. ref.	
		3P	4P
fixed thermal 1 x In	100	HHB100P	HHB101P
fixed magnetic ≥ 10 x In	125	HHB125P	HHB126P
	160	HHB160P	HHB161P
	200	HHB200P	HHB201P
	250	HHB250P	HHB251P



HNB100P

MCCBs x250 40kA

Breaking capacity Icu: 40kA (400/415 V AC)
 Ics: 20kA

Description	In (A)	Cat. ref.	
		3P	4P
fixed thermal 1 x In	100	HNB100P	HNB101P
fixed magnetic ≥ 10 x In	125	HNB125P	HNB126P
	160	HNB160P	HNB161P
	200	HNB200P	HNB201P
	250	HNB250P	HNB251P
adjustable thermal 0.63 - 0.8 - 1x In	100	HNB100S	HNB101S
adjustable magnetic	125	HNB125S	HNB126S
6 - 8 - 10 - 13 x In (100 - 200A)	160	HNB160S	HNB161S
5 - 7 - 9 - 11 x In (250A)	200	HNB200S	HNB201S
3P, 3 trip units - 4P, neutral setting: 0 or 100%	250	HNB250S	HNB251S



HNB100S

Trip-free switches x250

capacity suitable for AC 22/23A
 Icw (1s): 3 kA

Description	In (A)	Cat. ref.	
		3P	4P
trip-free switches x250	250	HCB250P	HCB251P

Add-on blocks

Description	In (A)	Cat. ref.	
		3P	4P
adjustable sensitivity IΔn: 0.03 - 0.1 - 0.3 - 1 - 3 - 6A	160	-	HBB161H
adjustable tripping: - instantaneous - time delay: 0.06 - 0.15 - 0.3 - 0.5 - 1 sec	250	-	HBB251H



HBB251H

Indication contacts

- 1 changeover switch (ON/OFF): indicates the position of the MCCB is "open" or "closed".
- 1 changeover alarm contact: indicates MCCB tripping.

Coil connection

Connection capacity: 0.75 mm² flexible or rigid cables
Optional connection cables.
The cable capacity of the terminals is 0.5 to 1.25 mm².

Shunt trip

Remotes tripping of MCCBs or trip-free switches.
Operating voltage: 0.7 to 1.1 x Un

Under voltage release

Allows the tripping of MCCBs or trip-free switches when voltage level drop between 35 and 70% of Un. Pick up voltage 0.85 x Un

Direct rotary handle

- padlockable
- equipped with front cover and handle
- fixing without any additional screw.

Extended rotary handle

- IP 55
- supplied complete with shaft and handle.

Auxiliary contacts - AX, AL

Description	Cat. ref.
1 changeover contact (ON/OFF) 250 V AC / 3A 125 V DC / 0.4A 1 NO + 1 NC	HXA021H
1 changeover alarm contact 250 V AC / 3A 125 V DC / 0.4A 1 NO + 1 NC	HXA024H
Low level contact (ON/OFF) 125 V AC 1 NO + 1 NC	HXA025H
Low level alarm contact 125 V AC 1 NO + 1 NC	HXA026H



HXA021H

HXA024H

Shunt trips - SH

Description	Cat. ref.
24V DC	HXA001H
48V DC	HXA002H
100 - 120V AC	HXA003H
200 - 240V AC	HXA004H
380 - 450V AC	HXA005H

Undervoltage releases - UV

Description	Cat. ref.
24V DC	HXA011H
100 - 120V AC	HXA013H
200 - 240V AC	HXA014H
380 - 450V AC	HXA015H



HXA014H

Delayed undervoltage releases - DUVR

Description	Cat. ref.
24V DC	HXA051H
100 - 120V AC	HXA053H
200 - 240V AC	HXA054H
380 - 450V AC	HXA055H



Direct rotary handle

Description	Cat. ref.
padlockable handle, max Ø 6 mm	HXB030H

HXB030H



Extended rotary handle

Description	Cat. ref.
padlockable handle max Ø 8 mm	HXB031H

HXB031H



Padlocks

to mount on MCCB for handle locking

Description	Cat. ref.
for 3 padlock max Ø 8 mm	HXA039H

HXA039H



Motor operators

Description	Cat. ref.
24V DC	HXB040H
230 - 240V AC	HXB042H

HXB042H



Electrical interlocks

Description	Cat. ref.
between motors for (x250 or h250)	HXB068H
between motors for (x250 or h250) and (h630 or h1000)	HXB069H

HXB068H



Interlocking kit

Description	Cat. ref.
interlocking kit for 2 MCCB's x250	HXB065H

HXB065H



Interlocking unit

Description	Cat. ref.
interlocking unit for x250 MCCB	HXB066H

HXB066H

Interlocking mechanical cables

Description	Cat. ref.
1 m	HXB070H
1.5 m	HXB071H



Collar terminals

Description	Cat. ref.	3P	4P
4 aluminium / copper conductors	HYB001H		HYB002H
150 mm ² rigid cables			
120 mm ² flexible cables			

HYB002H

Collar terminals 240 mm²

Description	Cat. ref.	
	3P	4P
4 aluminium / copper conductors	HYB005H	HYB006H

Extended connections

Description	Cat. ref.	
	3P	4P
set of 4 pieces for straight connections	HYB010H	HYB010H
spreader connections	HYB011H	HYB012H



HYB012H

Interphase barriers

Description	Cat. ref.
set of 3, height: 97 mm	HYB019H

Terminal covers

Description	Cat. ref.	
	3P	4P
for extended straight connections	HYB021H	HYB022H
for extended spreader connections	HYB023H	HYB024H
for rear connections	HYB025H	HYB026H
for collar terminal	HYB027H	HYB028H



HYB022H

Rear connections

Description	Cat. ref.	
	3P	4P
set of 3 or 4 pieces	HYB031H	HYB032H



HYB031H

Din rail raiser

Description	Cat. ref.
Din rail raiser	HYA036H



HYA036H

Din rail adaptator

Description	Cat. ref.
Din rail adaptator	HYB033H



HYB033H

Connecting kit

Description	Cat. ref.
0.75 mm ² , set of 3 x 2 wires, length: 1.30m	HYA035H

Ring lugs

Description	Cat. ref.
compact lugs 35 mm ² Ø8.5	HYA088H
compact lugs 50 mm ² Ø8.5	HYA089H
compact lugs 70 mm ² Ø8.5	HYA090H
compact lugs 95 mm ² Ø8.5	HYA091H
compact lugs 120 mm ² Ø8.5	HYB092H
compact lugs 150 mm ² Ø8.5	HYB094H

Moulded case circuit breakers h250

2 versions of trip unit:
 - Thermal magnetic trip unit: thermal adjustment: 0.63 to 1 In
 - Magnetic adjustment: 6-8-10-13 x In
 3P & 4P
 Mechanical test button, lockable settings.

Not for use in TPN and panel boards.

Connection
 Directly on copper cable terminal, with end lug max. width: 25 mm

Comply with IEC 60 947-2.

Electronic trip unit LSI

Long delay (thermal equivalent) adjustable: $I_r = 0.4$ to $1 \times I_n$
 short delay (magnetic equivalent) adjustable: 2.5 to $10 \times I_r$
 time delay: 0.1 - 0.2 s
 3P & 4P
 Mechanical test button, sealable settings.



HHG250U

MCCBs h250 25kA TM

breaking capacity I_{cu} : 25kA (400/415 V AC)
 I_{cs} : 19kA

Description	I_n (A)	Cat. ref. 3P	4P
adjustable thermal 0.63 to $1 \times I_n$	20	HHG020U	-
adjustable magnetic 6 - 8 - 10 - 13 x I_n	32	HHG032U	-
	63	HHG063U	-
	100	HHG100U	-
	125	HHG125U	-
	160	HHG160U	-
	200	HHG200U	-
	250	HHG250U	-

MCCBs h250 50kA TM

breaking capacity I_{cu} : 30 kA (20-32A)
 I_{cu} : 50 kA (400/415 V AC)
 I_{cs} : 25 kA

Description	I_n (A)	Cat. ref. 3P	4P
adjustable thermal 0.63 to $1 \times I_n$	20	HNG020U	HNG021U
adjustable magnetic 6 - 8 - 10 - 13 x I_n	32	HNG032U	HNG033U
	63	HNG063U	HNG064U
	100	HNG100U	HNG101U
	125	HNG125U	HNG126U
	160	HNG160U	HNG161U
	200	HNG160U	HNG201U
	250	HNG250U	HNG251U

MCCBs h250 65kA TM

breaking capacity I_{cu} : 65 kA (400/415 V AC)
 I_{cs} : 36 kA

Description	I_n (A)	Cat. ref. 3P	4P
adjustable thermal 0.63 to $1 \times I_n$	63	HEG063U	HEG064U
adjustable magnetic 6 - 8 - 10 - 13 x I_n	100	HEG100U	HEG101U
	125	HEG125U	HEG126U
	160	HEG160U	HEG161U
	200	HEG200U	HEG201U
	250	HEG250U	HEG251U

MCCBs h250 50kA LSI

breaking capacity Icu: 50 kA (400/415 V AC)
Ics: 25 kA

Description	In (A)	Cat. ref.	
		3P	4P
adjustable thermal I _r = 0.4 to 1 x I _n	40	HNC040H	HNC041H
adjustable magnetic 2.5 to 10 x I _r	125	HNC125H	HNC126H
	250	HNC250H	HNC251H

3P, 3 trip units & 4P, 3 trip units



HEC250H

MCCBs h250 70kA LSI

breaking capacity Icu: 70 kA (400/415 V AC)
Ics: 70 kA

Description	In (A)	Cat. ref.	
		3P	4P
adjustable thermal I _r = 0.4 to 1 x I _n	40	HEC040H	HEC041H
adjustable magnetic 2.5 to 10 x I _r	125	HEC125H	HEC125H
	250	HEC250H	HEC251H

3P, 3 trip units & 4P, 3 trip units



HEC250H

MCCBs h250 50kA LSI plug in

equipped with pins and terminals covers
breaking capacity Icu: 50 kA (400/415 V~)

Description	In (A)	Cat. ref.	
		3P	4P
electronic trip unit	40	HNC040G	HNC041G
	125	HNC125G	HNC126G
	250	HNC250G	HNC251G

Base plate for MCCBs plug in h250 LSI

Description	Cat. ref.	
	3P	4P
base plate for MCCBs plug in h250 LSI	HYC200H	HYC201H

Indication contacts

- 1 changeover switch (ON/OFF): indicates the position of the MCCB is "open" or "close".
- 1 changeover alarm contact: indicates MCCB tripping.

Coil connection

Connection capacity: 0.75 mm² flexible or rigid cables
Optional connection cables.
The cable capacity of the terminals is 0.5 to 1.25 mm².

Shunt trip

Remotes tripping of MCCBs or trip-free switches.
Operating voltage: 0.7 to 1.1 x Un

Under voltage release

Allows the tripping of MCCBs or trip-free switches when voltage level drop between 35 and 70% of Un. Pick up voltage 0.85 x Un

Direct rotary handle

- padlockable
- equipped with front cover and handle
- fixing without any additional screw.

Extended rotary handle

- IP 55
- supplied complete with shaft and handle.



HXC021H

HXC024H

Auxiliary contacts - AX, AL

Description	Cat. ref.
1 changeover contact (ON/OFF) 250 V AC / 3A 125 V DC / 0.4A 1 NO + 1 NC	HXC021H
1 changeover alarm contact 250 V AC / 3A 125 V DC / 0.4A 1 NO + 1 NC	HXC024H
Low level contact (ON/OFF) 125 V AC 1 NO + 1 NC	HXC025H
Low level alarm contact 125 V AC 1 NO + 1 NC	HXC026H



HXC004H

Shunt trips - SH

Description	Cat. ref.
24V DC	HXC001H
48V DC	HXC002H
100 - 120V DC	HXC008H
100 - 120V AC	HXC003H
200 - 240V AC	HXC004H
380 - 450V AC	HXC005H



HXC014H

Undervoltage releases - UV

Description	Cat. ref.
24V DC	HXC011H
48 V DC	HXC018H
100 - 120V DC	HXC019H
100 - 120V AC	HXC013H
200 - 240V AC	HXC014H
380 - 450V AC	HXC015H

Delayed undervoltage releases - DUVR

Description	Cat. ref.
24V DC	HXC051H
100 - 120V AC	HXC053H
200 - 240V AC	HXC054H
380 - 450V AC	HXC055H

Direct rotary handle

Description
padlockable handle, max Ø 5-8 mm

Cat. ref.
HXC030H



HXC030H

Extended rotary handle

Description
padlockable handle max Ø 5-8 mm

Cat. ref.
HXC031H

Padlocks

to mount on MCCB for handle locking

Description
for 3 padlocks max Ø 5 mm

Cat. ref.
HXC039H



HXC039H

Motor operators

Description
24V DC
230 - 240V AC

Cat. ref.
HXC040H
HXC042H



HXC042H

Electrical interlocks

Description
for motor type A
(x250-x250, x250-h250, h250-h250)
for motor type B
(x250-h630, x250-h1000, h250-h630, h250-h1000)

Cat. ref.
HXD068H
HXB069H

Interlocking kit

Description
full mechanical interlocking kit for 2 x250 MCCBs
mechanical interlocking adaptor for x250 MCCBs

Cat. ref.
HXC065H
HXC066H



HXC065H

Interlocking mechanical cable

Description
1 m
1.5 m

Cat. ref.
HXB070H
HXB071H



HYC352H

Male and female connectors to fit plug in and draw out MCCBs auxiliaries

Description	Cat. ref.	
auxiliary circuit terminal panel side	HYC250H	
auxiliary circuit terminal 2 wires body side	HYC352H	
auxiliary circuit terminal 3 wires body side	HYC353H	



HYC003H

Collar terminals

Description	Cat. ref.	
set of 3 or 4 pieces for copper conductors 120 mm ²	HYC003H	HYC004H
set of 3 or 4 pieces for alu conductors 240 mm ²	HYB005H	HYB006H



HYC011H

Extended connections

Description	Cat. ref.	
spreader connections	HYC011H	HYB012H
straight connections	HYC010H	HYC010H



HYC019H

Interphase barriers

Description	Cat. ref.	
for LSI	HYC019H	
for TM only	HYB019H	



HYC022H

Terminal covers

Description	Cat. ref.	
for extended straight connections (LSI)	HYC021H	HYC022H
for extended straight connections (TM only)	HYG021H	HYG022H
for rear connections (LSI only)	HYC025H	HYC026H
for collar terminals	HYC027H	HYC028H



HYC031H

Rear connections

Description	Cat. ref.	
for LSI only	HYC031H	HYC032H



HYB019H

Connecting kit

Description	Cat. ref.	
0.75 mm ² , set of 3 x 2 wires, length: 1.30m	HYB019H	

OCR sealing covers

Description	Cat. ref.	
for h250 LSI	HYC041H	
for h250 TM	HYG041H	

Moulded case circuit breakers h400, h630

Thermal magnetic trip unit TM:

- thermal adjustment: from 0.63 to 1 x In
- magnetic adjustment: from 6 to 12 x In

Connection

Directly on copper cable terminal, with end lug max. width: 30 mm

Comply with IEC 60 947-2.

Electronic trip unit LSI

- long delay (thermal equivalent) adjustable: $I_r = 0.4$ to $1 \times I_n$
- short delay (magnetic equivalent) adjustable:

2.5 to $10 \times I_r$ (400A)

2.5 to $8 \times I_r$ (630A)

- time delay: 0,1 - 0,2 s

3P & 4P (adjustable neutral

0 - 50% - 100%).

Mechanical test button, lockable settings

Connection

Directly on copper cable terminal, with end lug max. width: 30 mm

Comply with IEC 60 947-2.

MCCBs h400 25kA TM

Breaking capacity Icu: 25kA (400/415 V AC)

Ics: 25kA

Description	In (A)	Cat. ref. 3P	4P
adjustable thermal: 0.63 to 1 x In	250	HHD250U	-
adjustable magnetic: 6 to 12 x In	400	HHD400U	-



HHD400U

MCCBs h400 50kA TM

breaking capacity Icu: 50 kA (400/415 V AC)

Ics: 50 kA

Description	In (A)	Cat. ref. 3P	4P
adjustable thermal: 0.63 to 1 x In	250	HND250U	HND251U
adjustable magnetic: 6 to 12 x In	400	HND400U	HND401U

MCCBs h630 50kA LSI

Breaking capacity Icu: 50kA (400/415 V AC)

Ics: 50kA

Description	In (A)	Cat. ref. 3P	4P
adjustable thermal: $I_r = 0.4$ to $1 \times I_n$	400	HND400H	HND401H
adjustable magnetic: 2.5 to $10 \times I_r$ (250-400A) 2.5 to $8 \times I_r$ (630A) time delay: 0.1 - 0.2 s	600	HND630H	HND631H



HND630H

MCCBs h630 70kA LSI

breaking capacity Icu: 70 kA (400/415 V AC)

Ics: 50 kA

Description	In (A)	Cat. ref. 3P	4P
adjustable thermal: $I_r = 0.4$ to $1 \times I_n$	400	HED400H	HED401H
adjustable magnetic: 2.5 to $10 \times I_r$ (250-400A) 2.5 to $8 \times I_r$ (630A) time delay: 0.1 - 0.2 s	630	HED630H	HED631H

Trip-free switches

Allows tripping at distance using a voltmetrical trip unit (optional)
Comply with IEC 60 947-3. AC 23A / DC 22A

Add-on blocks

For h630 (LSI) devices
These devices are intended to be fixed at the bottom of the devices.
Fixed version: 300mA sensitivity and instantaneous tripping.
Adjustable version: sensitivity from 30mA to 6A, tripping from instantaneous to 1s delay.
Test button for differential functioning check.
Mechanical test button.
LED or remote signal for tripping or advance warning (25-50% I Δ n).

Type A (for fault component DC pulsating current) and HI (reinforced immunity against unexpected tripping).
Comply with IEC 60 947-2.

Indication contacts

- 1 changeover switch (ON/OFF): indicates the position of the MCCB is "open" or "close".
- 1 changeover alarm contact: indicates MCCB tripping.

Coil connection

Connection capacity: 0.75mm² flexible or rigid cables
Optional connection cables.
The cable capacity of the terminals is 0.5 to 1.25 mm².

MCCBs h630 70kA LSI plug in

equipped with pins and terminals covers
breaking capacity I_{cu}: 70 kA (400/415 V AC)
I_{cs}: 50 kA

Description	In (A)	Cat. ref. 3P	4P
electronic trip unit	400	HED250G	HED251G
	630	HED400G	HED401G
base plate for MCCBs plug in h630 LSI		HYD200H	HYD201H

Trip-free switches

suitable for AC 22A / AC 23A
U_e: 415 V AC
I_{cu} (0.3s) = 5kA

Description	In (A)	Cat. ref. 3P	4P
trip-free switches	400	HCD400H	HCD401H
	630	HCD630H	HCD631H



HBD401H

Add-on blocks

for 630A, use earth leakage relays with torroids (see page 3.55)

Description	In (A)	Cat. ref. 3P	4P
adjustable sensitivity I Δ n: 0.03 - 0.1 - 0.3 - 1 - 3 - 6A	400	-	HBD401H
adjustable tripping instantaneous time delay: 0.06s - 0.15s - 0.3s - 0.5 - 1s	600	-	HBD631H



HXC021H



HXC024H

Auxiliary contacts - AX, ALw

Description	Cat. ref.
1 changeover contact (ON/OFF) 250 V AC / 3A 125 V DC / 0.4A 1 NO + 1 NC	HXC021H
1 changeover alarm contact 250 V AC / 3A 125 V DC / 0.4A 1 NO + 1 NC	HXC024H
Low level contact (ON/OFF) 125 V AC 1 NO + 1 NC	HXC025H
Low level alarm contact 125 V AC 1 NO + 1 NC	HXC026H

Shunt trip

Remotes tripping of MCCBs or trip-free switches.
Operating voltage: 0.7 to 1.1 x Un

Under voltage release

Allows the tripping of MCCBs or trip-free switches when voltage level drop between 35 and 70% of Un. Pick up voltage 0.85 x Un

Direct rotary handle

- padlockable
- equipped with front cover and handle
- fixing without any additional screw.

Extended rotary handle

- IP 55
- supplied complete with shaft and handle.

Shunt trips - SH

Description	Cat. ref.
24V DC	HXC001H
48V DC	HXC002H
100 - 120V DC	HXC008H
100 - 120V AC	HXC003H
200 - 240V AC	HXC004H
380 - 450V AC	HXC005H



HXC004H

Undervoltage releases - UV

Description	Cat. ref.
24V DC	HXC011H
48 V DC	HXC018H
100 - 120V DC	HXC019H
100 - 120V AC	HXC013H
200 - 240V AC	HXC014H
380 - 450V AC	HXC015H



HXC014H

Delayed undervoltage releases - DUVR

Description	Cat. ref.
24V DC	HXD051H
100 - 120V AC	HXD053H
200 - 240V AC	HXD054H
380 - 450V AC	HXD055H

Direct rotary handle

Description	Cat. ref.
padlockable handle, max Ø 6 mm	HXD030H



HXD030H

Extended rotary handle

Description	Cat. ref.
padlockable handle max Ø 8 mm	HXD031H

Padlocks

to mount on MCCB for handle locking

Description	Cat. ref.
for 3 padlock Ø 5 - 8 mm ² max	HXD039H



HXD039H



HXD042H

Motor operators

Description	Cat. ref.
24-48 V DC	HXD040H
100 - 240V AC	HXD042H

Interlocking kit

Description	Cat. ref.
full interlocking kit for 2 MCCBs h630	HXD065H

Interlocking unit

Description	Cat. ref.
interlocking unit for h630 MCCB	HXD066H

Interlocking mechanical cables

Description	Cat. ref.
1 m	HXB070H
1.5 m	HXB071H

Electrical interlocks

Description	Cat. ref.
for motor type A (between 2x h630/h1000)	HXD068H
for motor type B (between h630 and h250)	HXB069H

Male and female connectors to fit plug in and draw out MCCBs auxiliaries

Description	Cat. ref.
auxiliary circuit terminal panel side	HYC250H
auxiliary circuit terminal 2 wires body side	HYC352H
auxiliary circuit terminal 3 wires body side	HYC353H



HYD003H

Collar terminals

Description	In (A)	Cat. ref. 3P	4P
set of 3 or 4 terminals for copper conductors 1 x 35 - 240 mm ²	250-400	HYD003H	HYD004H
set of 3 or 4 terminals for aluminium / copper conductors 1 x 35 - 240 mm ²	250-400-630	HYD005H	HYD006H
set of 3 or 4 terminals for multiple aluminium / copper conductors 2 x 35 - 240 mm ²	250-400-630	HYD007H	HYD008H

Extended connections

Description	In (A)	Cat. ref. 3P	4P
set of 4 pieces for straight connections	250-400	HYD010H	HYD010H
set of 4 pieces for straight connections	630	HYD013H	HYD013H
spreader connections	250-400	HYD011H	HYD012H
spreader connections	630	HYD014H	HYD015H



HYD015H

Interphase barriers

Description	Cat. ref.
set of 4 pieces	HYD019H

Terminal covers

Description	Cat. ref. 3P	4P
for extended straight connections	HYD021H	HYD022H
for extended spreader connections	HYD023H	HYD024H
for rear connections	HYD025H	HYD026H
for collar terminals	HYD027H	HYD028H



HYD022H

Rear connections

Description	In (A)	Cat. ref. 3P	4P
rear connections	250-400	HYD031H	HYD032H
rear connections	630	HYD033H	HYD034H



HYD033H

Connecting kit

Description	Cat. ref.
0.75 mm ² , set of 3 x 2 wires, length: 1.30m	HYB033H

Ring lugs

Description	Cat. ref.
compact lugs 35 mm ² Ø8.5	HYA088H
compact lugs 50 mm ² Ø8.5	HYA089H
compact lugs 70 mm ² Ø8.5	HYA090H
compact lugs 95 mm ² Ø8.5	HYA091H
compact lugs 120 mm ² Ø8.5	HYB092H
compact lugs 150 mm ² Ø8.5	HYB094H

Moulded case circuit breakers h800

Thermal magnetic trip unit TM:
 - thermal adjustment: from 0.63 to 1 x In
 - magnetic adjustment: from 5 to 10 x In

Connection
 Directly on copper cable terminal, with end lug max. width: 30 mm
 Comply with IEC 60 947-2.

- time delay: 0.1-0.2 s
 3P & 4P (adjustable neutral 0 - 50% - 100%).
 Mechanical test button, lockable settings.

Connection
 Directly on copper cable terminal, with end lug max. width: 50 mm
 Comply with IEC 60 947-2.

Moulded case circuit breakers h1000

Electronic trip unit LSI:
 - long delay (thermal equivalent)
 adjustable: $I_r = 0.4$ to 1 x In
 - short delay (magnetic equivalent) adjustable:
 2.5 to 10 x I_r (630-800A) and 2.5 to 8 x I_r (1000A)

Trip-free switches
 Allows tripping at distance using a voltmeterical trip unit (optional)
 Comply with IEC 60 947-3.
 AC 23A / DC 22A



HNE970H

MCCBs h1000 50kA LSI

breaking capacity I_{cu}: 50 kA (400/415 V AC)
 I_{cs}: 50 kA

Description	In (A)	Cat. ref. 3P	4P
adjustable thermal $I_r = 0.4$ to 1 x In	800	HNE800H	HNE801H
adjustable magnetic 2.5 to 10 x I_r (630 - 800A) 2.5 to 8 x I_r (1000A) time delay: 0.1-0.2 s	1000	HNE970H	HNE971H

neutral setting from 0-50 to 100%

MCCBs h1000 70kA LSI

breaking capacity I_{cu}: 70 kA (400/415 V AC)
 I_{cs}: 50 kA

Description	In (A)	Cat. ref. 3P	4P
adjustable thermal $I_r = 0,4$ to 1 x In	800	HEE800H	HEE801H
adjustable magnetic 2,5 to 10 x I_r (800A) 2,5 to 8 x I_r (1000A) time delay: 0,1-0,2 s	1000	HEE970H	HEE971H

neutral setting from 0-50 to 100%

MCCBs h1000 70kA LSI plug in

breaking capacity I_{cu}: 70 kA (400/415 V AC)
 I_{cs}: 50 kA

Description	In (A)	Cat. ref. 3P	4P
MCCBs h1000 70kA LSI plug in	630	HEE630G	HEE631G
MCCBs h1000 70kA LSI plug in	800	HEE800G	HEE801G
base plate for h1000 MCCBs plug in		HYE200H	HYE201H

Trip-free switches

suitable for AC 22A / AC 23A
 U_e: 415 V AC
 I_{cw} (0.3 s) = 10 kA

Description	In (A)	Cat. ref. 3P	4P
trip-free switches	800	HCE800H	HCE801H
trip-free switches	1000	HCE970H	HCE971H

Indication contacts

- 1 changeover switch (ON/OFF): indicates the position of the MCCB is "open" or "close".
- 1 changeover alarm contact: indicates MCCB tripping.

Coil connection

Connection capacity: 0.75mm² flexible or rigid cables
 Optional connection cables.
 The cable capacity of the terminals is 0.5 to 1.25 mm².

Shunt trip

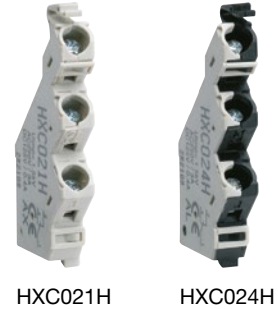
Remotes tripping of MCCBs or trip-free switches.
 Operating voltage: 0.7 to 1.1 x Un

Under voltage release

Allows the tripping of MCCBs or trip-free switches when voltage level drop between 35 and 70% of Un. Pick up voltage 0.85 x Un

Auxiliary contacts - AX, AL

Description	Cat. ref.
1 changeover contact (ON/OFF) 250 V AC / 3A 125 V DC / 0.4A 1 NO + 1 NC	HXC021H
1 changeover alarm contact 250 V AC / 3A 125 V DC / 0.4A 1 NO + 1 NC	HXC024H
Low level contact (ON/OFF) 125 V AC 1 NO + 1 NC	HXC025H
Low level alarm contact 125 V AC 1 NO + 1 NC	HXC026H



HXC021H HXC024H

Shunt trips - SH

Description	Cat. ref.
24V DC	HXC001H
48V DC	HXC002H
100 - 120V DC	HXC008H
100 - 120V AC	HXC003H
200 - 240V AC	HXC004H
380 - 450V AC	HXC005H



HXC004H

Undervoltage releases - UV

Description	Cat. ref.
24V DC	HXE011H
100 - 120V DC	HXE018H
200 - 240V DC	HXE019H
110 - 120V AC	HXE013H
220 - 240V AC	HXE014H
380 - 415V AC	HXE015H



HXE014H

Delayed undervoltage releases - DUVR

Description	Cat. ref.
24V DC	HXE051H
110 - 120V AC	HXE053H
220 - 240V AC	HXE054H
380 - 415V AC	HXE055H

Direct rotary handle

- padlockable
- equipped with front cover and handle
- fixing without any additional screw.

Extended rotary handle

- IP 55
- supplied complete with shaft and handle.



HXE030H

Direct rotary handle

Description	Cat. ref.
padlockable handle	HXE030H

Extended rotary handle

Description	Cat. ref.
padlockable handle	HXE031H



HXD039H

Padlocks

to mount on MCCB for handle locking

Description	Cat. ref.
for 3 padlock \varnothing 8 mm ² max	HXD039H

Motor operators

Description	Cat. ref.
24-48 V DC	HXE040H
100 - 240V AC	HXE042H

Interlocking kit

Description	Cat. ref.
full interlocking kit for 2 MCCBs h1000	HXE065H

Interlocking unit

Description	Cat. ref.
interlocking unit kit for h1000 MCCB	HXE066H

Interlocking mechanical cable

Description	Cat. ref.
1 m	HXB070H
1.5 m	HXB071H

Electrical interlock

Description	Cat. ref.
for motor type A (between 2x h630/h1000)	HXD068H
for motor type B (between h1000 and h250)	HXB069H

Male and female connectors to fit plug in and draw out MCCBs auxiliaries

Description	Cat. ref.
auxiliary circuit terminal panel side	HYC250H
auxiliary circuit terminal 2 wires body side	HYC352H
auxiliary circuit terminal 3 wires body side	HYC353H

Collar terminals

Description	In (A)	Cat. ref. 3P	4P
Terminals for aluminium / copper conductors 4 x 35 - 240 mm ²	630-800	HYE007H	HYE008H

Connecting kit

Description	Cat. ref.
0.75 mm ² , set of 3 x 2 wires, length: 1.30m	HYA035H

Interphase barrier

Description	Cat. ref.
set of 4 pieces	HYD019H

Terminal covers

Description	Cat. ref. 3P	4P
for extended connections	HYE021H	HYE022H
for rear connections	HYE025H	HYE026H

Rear connections

Description	In (A)	Cat. ref. 3P	4P
rear connections		HYE031H	HYE032H
rear connections		HYE033H	HYE034H



Moulded case circuit breakers h1600, selection and protection

Electronic trip unit LSI

- long delay (thermal equivalent) adjustable:

$I_r = 0.4$ to $1 \times I_n$

- short delay (magnetic equivalent) adjustable:

2.5 to $10 \times I_r$

- time delay: 0.1 - 0.2 s

3 pole, 3 trip units,

4 pole, 4 trip units,

adjustable neutral 0 - 50% - 100%

Mechanical test button, lockable settings.

Connection:

Directly on copper cable terminal, with end lug max. width: 60 mm

Comply with IEC 60 947-2.

Trip-free switches

Allows tripping at distance using a voltmetrical trip unit (optional)

Comply with IEC 60 947-3. AC 23A / DC 22A



HNF990H

MCCBs h1600 50kA LSI

breaking capacity I_{cu} : 50 kA (400/415 V AC)
 I_{cs} : 50 kA

Description	I_n (A)	Cat. ref. 3P	4P
adjustable thermal $I_r = 0.4$ to $1 \times I_n$	1250	HNF980H	HNF981H
adjustable magnetic 2.5 to $10 \times I_r$ time delay: 0.1 - 0.2 s	1600	HNF990H	HNF991H
neutral setting 0, 50, 100%			

MCCBs h1600 70kA LSI

breaking capacity I_{cu} : 70 kA (400/415 V AC)
 I_{cs} : 50 kA

Description	I_n (A)	Cat. ref. 3P	4P
adjustable thermal $I_r = 0.4$ to $1 \times I_n$	1250	HEF980H	HEF981H
adjustable magnetic 2.5 to $10 \times I_r$ time delay: 0.1 - 0.2 s	1600	HEF990H	HEF991H
neutral setting from 0, 50, 100%			

Trip-free switches

suitable for AC 22A / AC 23A

U_e : 415 V AC

I_{cw} (0.3 s) = 20 kA

Description	I_n (A)	Cat. ref. 3P	4P
trip-free switches	1250	HCF980H	HCF981H
trip-free switches	1600	HCF990H	HCF991H

Indication contacts

- 1 changeover switch (ON/OFF): indicates the position of the MCCB is "open" or "close".
- 1 changeover alarm contact: indicates MCCB tripping.

Coil connection

Connection capacity: 0.75mm² flexible or rigid cables
Optional connection cables.
The cable capacity of the terminals is 0.5 to 1.25 mm².

Shunt trip

Remotes tripping of MCCBs or trip-free switches.
Operating voltage: 0.7 to 1.1 x Un

Under voltage release

Allows the tripping of MCCBs or trip-free switches when voltage level drop between 35 and 70% of Un. Pick up voltage 0.85 x Un

Auxiliary contacts - AX, AL

Description	Cat. ref.
1 changeover contact (ON/OFF) 250 V AC / 3A 125 V DC / 0.4A 1 NO + 1 NC	HXC021H
1 changeover alarm contact 250 V AC / 3A 125 V DC / 0.4A 1 NO + 1 NC	HXC024H
Low level contact (ON/OFF) 125 V AC 1 NO + 1 NC	HXC025H
Low level alarm contact 125 V AC 1 NO + 1 NC	HXC026H



HXC021H

HXC024H

Shunt trips - SH

Description	Cat. ref.
24V DC	HXF001H
48V DC	HXF002H
110V DC	HXF008H
100 - 120V AC	HXF003H
200 - 240V AC	HXF004H
380 - 450V AC	HXF005H



HXF004H

Undervoltage releases - UV

Description	Cat. ref.
24V DC	HXE011H
100 - 120V DC	HXE018H
200 - 240V DC	HXE019H
110 - 120V AC	HXE013H
220 - 240V AC	HXE014H
380 - 415V AC	HXE015H



HXE014H

Delayed undervoltage releases - DUVR

Description	Cat. ref.
24V DC	HXE051H
110 - 120V AC	HXE053H
220 - 240V AC	HXE054H
380 - 415V AC	HXE055H

Direct rotary handle

- padlockable
- equipped with front cover and handle
- fixing without any additional screw.

Extended rotary handle

- IP 55
- supplied complete with shaft and handle.

Rear connection: included



HXF030H

Direct rotary handle

Description

padlockable handle, max Ø 8 mm

Cat. ref.

HXF030H



HXF031H

Extended rotary handle

Description

padlockable handle, max Ø 8 mm

Cat. ref.

HXF031H



HXF039H

Padlocks

to mount on MCCB for handle locking

Description

for 3 padlock Ø 8 mm² max

Cat. ref.

HXF039H



HXF040H

Motor operators

Description

24 V DC

200 - 230V AC

Cat. ref.

HXF040H

HXF042H

Interphase barriers

Description

3/4P

Cat. ref.

HYD019H

Connection kit

Description

0.75 mm², set of 3 x 2 wires, length: 1.30m

Cat. ref.

HYA035H

Earth leakage relays

- Voltage range : 230V +/- 20%
- Network voltage: 50 to 700 V
- Frequency: 50 / 60 Hz
- Working temperature: -10 to +55°C
- Storage temperature: -25 to +70°C
- Max. cable lenght to torroids: 25m non-twisted cable 0.5 to 1.5mm²
50m twisted cable
- Standards: IEC 60755, IEC 947-2 annex B, IEC 61543, IEC 61008-1,
IEC 61000-6, IEC 60755

Torroids

- Frequency: 50 / 60 Hz
- Working temperature: - 10 to +55°C
- Storage temperature: - 25 to +70°C
- IP rating: IP 41

Earth leakage relays

Description	Power absorbed	Positive safety contact	Cat. ref.
Earth leakage relays non adjustable			
fixed I Δ n: 0.03A instantaneous tripping	3VA		HR500
fixed I Δ n: 0.,3A instantaneous tripping	3VA		HR502
Earth leakage relays adjustable			
adjustable I Δ n: 0.03-0.1- 0.3-0.5-1-3-10A delay settings: inst. 0-0.1-0.3-0.4-0.5-1-3 s I Δ n/drop output: 0.3-10 A/0 to 3 s	5VA	1 C/O	HR510
with bargraph display adjustable I Δ n: 0.03-0.1-0.3-0.5-1-3-10A delay settings: inst. 0-0.1-0.3-0.4-0.5-1-3 s I Δ n/drop output: 0.3-10 A/0 to 5 s	5VA	1 C/O	HR520
adjustable I Δ n: 0.03-0.1-0.3-0.5-1-3-10A delay settings: inst. 0-0.1-0.2-0.25-0.3-0.4-0.5 s	5VA	1 C/O	HR522
adjustable I Δ n: 0.5-1- 3-5-10-20-30A delay settings: inst. 0-0.1-0.2-0.25-0.3-0.4-0.5 s	5VA	1 C/O	HR523
adjustable I Δ n: 0.03-0.1- 0.3-0.5-1-3-10A delay settings: inst./sel. 0.02-0.1-0.3-0.4-0.5 s / 0.75-1-3-5-10 s	6VA	1 C/O	HR525
adjustable I Δ n: 0.03-0.1-0.3-0.5-1-3-10-30A delay settings: inst./sel. 0.02-0.1-0.3-0.4-0.5 s / 0.75-1-3-5-10 s	6VA	1 C/O	HR534



HR525

Main incomers

Circular torroids

Description	Cat. ref.
internal Ø30 mm	HR700
internal Ø35 mm	HR741
internal Ø70 mm	HR742
internal Ø105 mm	HR743
internal Ø140 mm	HR744
internal Ø210 mm	HR745



HR700

Open rectangular torroids

Description	Cat. ref.
80 x 80 mm	HR822
80 x 120 mm	HR823
80 x 160 mm	HR824



HR822

Rectangular torroids

Description	Cat. ref.
75 x 175 mm	HR830
115 x 305 mm	HR831
150 x 350 mm	HR832
200 x 500 mm	HR833



HR831

Modular load break switches 20 to 125A

- modular design,
 - to mount directly on DIN rail,
 - lockable in OFF position.
- Comply with NF EN 60 947-3.

Connection

- with collar terminals copper conductors compatible.
- connection capacity:
 - HAB** 20 to 63A: 16 mm² flexible or rigid cables
 - HAC** 60 to 100A: 35 mm² flexible or rigid cables
 - HAD** 100 and 125A: 70 mm² flexible or rigid cables



HAC410

Load break switches visual breaking

- disconnecter modular design
- IP20
- In=lth, AC23

In/A	Width in modules		Cat. ref.	
	3P	4P	3P	4P
20A	2.6	3.5	HAB302	HAB402
32A	2.6	3.5	HAB303	HAB403
40A	2.6	3.5	HAB304	HAB404
63A	2.6	3.5	HAB306	HAB406
63A	3	4.5	HAC306	HAC406
80A	3	4.5	HAC308	HAC408
100A	3	4.5	HAC310	HAC410
100A	4.5	6	HAD310	HAD410
125A	4.5	6	HAD312	HAD412



HZC010

External handles

- IP55
- lockable with 3 padlocks

Description	Cat. ref.
for LBS 20 to 100A (HAB, HAC)	HZC010
for LBS 100 to 125A (HAD)	HZC011



HZC113

Shaft extensions

Description	Cat. ref.
20 to 125A, 150mm	HZC111
20 to 125A, 200mm	HZC112
20 to 125A, 320mm	HZC113



HZC212

Terminal shrouds

- 2 pieces / packaging: top and bottom

Description	Cat. ref.	
	3P	4P
20 to 63A (HAB)	HZC211	HZC212
63 to 100A (HAC)	HZC213	HZC214
100 to 125A (HAD)	HZC215	HZC216



HZC311

Auxiliaries contacts

- In = 10A
- 250V AC

Description	Width in modules	Cat. ref.
1NO + 1NC	0.5	HZC311
2NO	0.5	HZC312

Load break switches with rotary handle

- for main and/or modular breaking, to use in commercial premises.
- Ith (40°): 125 to 1600A
- Un 400 / 690V AC
- 3P and 4P switches with visible breaking, with sudden double breaking, positive action opening, breaking or engagement visualisation,
- selfcleaning silver plated copper contacts.

Comply with EN 60 947-3.

Options

- extended handle;
- auxiliary contact.

Load break switches with handle

Insulating voltage Ui: from 160 to 400A: 800V AC
630A: 1000V AC

Connection: In 160A: 95 mm² max.
In 250A: 150 mm² max.
In 400A: 240 mm² max. or
2 x 150 mm² max.

Delivered with:

- 1 lockable handle
- fixing screws and nuts
- tightening programming segments



HA358

In/A	Cat. ref. 3P	4P
125A	HA351	HA451
160A	HA352	HA452
200A	HA353	HA453
250A	HA354	HA454
400A	HA357	HA457
630A	HA358	HA458
800A	HA360	HA460
1250A	HA362	HA462
1600A	HA364	HA464

Main incomers

Auxiliaries contact

- for HA load break switches 125 to 1600A
- AC1, 5A, 250V



Description	Cat. ref.
1NO + 1NC	HZ023 HZ023

Rotary handles

Description	Cat. ref.
for extended shaft, 125 to 630A	HZC002
for extended shaft, 800 to 1600A	HZA001

Shaft extensions

Description	Cat. ref.
63 to 630A, 200mm	HZC101
63 to 630A, 320mm	HZC102
800 to 1600A, 200mm	HZC105
800 to 1600A, 320mm	HZC106



HZ044

Terminal shields

- top and bottom

Description	Cat. ref. 3P	4P
for switches HA351, HA352	HZ033	-
for switches HA451, HA452	-	HZ043
for switches HA354, HA357	HZ034	-
for switches HA454, HA457	-	HZ044
for switches HA358	HZ035	-
for switches HA458	-	HZ045
for switches HA360	HZ036	-
for switches HA460	-	HZ046
for switches HA362, HA364	HZ037	-
for switches HA462, HA464	-	HZ047



HZC202

Terminal shrouds

Description	Cat. ref. 3P	4P
for switches HA351, HA352	HZC201	-
for switches HA451, HA452	-	HZC202
for switches HA354, HA357	HZC203	-
for switches HA454, HA457	-	HZC204
for switches HA358	HZC205	-
for switches HA458	-	HZC206



HZ073

Cage terminals

Description	Cat. ref. 3P	4P
for switches HA351, HA352	HZ073	-
for switches HA451, HA452	-	HZ083
for switches HA353, HA354	HZ074	-
for switches HA453, HA454	-	HZ084
for switches HA357	HZ075	-
for switches HA457	-	HZ085
for switches HA358	HZ076	-
for switches HA458	-	HZ086



HZ183

Double cage terminals

Description	Cat. ref. 3P	4P
for switches HA351, HA352	HZ183	-
for switches HA353, HA354	HZ184	-
for switches HA357	HZ185	-
for switches HA358	HZ186	-

Load break switches with visible breaking, 100 to 400A

- modular design
- to mount directly on DIN rail for LBS up to 200A
- lockable in OFF position
- HA964N and HA966N are with double visible breaking (upstream and downstream)
- mounting on plate
- connection
 - HAE: with collar terminals copper conductors compatible, HA308, HA408, HA964N and HA966N on terminal

- connection capacity:

- HAE** 100 to 160A: 70 mm² flexible or rigid cables
- HA308, HA408**: 95 mm² end lugs
- HA964N**: 150 mm² end lugs
- HA966N**: 240 mm² end lugs

Comply with NF EN 60 947-3.

Load break switches visible breaking

In/A	Width in modules		Cat. ref.	4P
	3P	4P		
Modular load break switches with collar terminal connection				
100A	6.5	8	HAE310	HAE410
125A	6.5	8	HAE312	HAE412
160A	6.5	8	HAE316	HAE416
Non modular load break switches with lug terminal connection				
125A	-	8.5	-	HA406N
160A	8.5	8.5	HA307	HA407
200A	8.5	8.5	HA308	HA408
250A	-	11.5	-	HA964N
400A	-	19.5	-	HA966N



HAE416

Main incomers

External handles

- IP55
- lockable with 3 padlocks

Description	Cat. ref.
for LBS 100 to 160A (HAE...)	HZC014
for HA308, HA408, HA307, HA407	HZC001
for HA964N, HA966N	HZC002



HZC001

Shaft extensions

Description	Cat. ref.
200mm, for HA307, HA308 and HA407, HA408	HZC103
300mm, for HA307, HA308 and HA407, HA408	HZC104
for HAE100 to 160A, 150mm	HZC114
for HAE 100 to 160A, 200mm	HZC115
for HAE 100 to 160A, 320mm	HZC116
for HA964N, HA966N, 200mm	HZC101
for HA964N, HA966N, 320mm	HZC102

Terminal shrouds

- top and bottom

Description	Cat. ref.	4P
100 to 160A	HZC217	HZC218
for HA408, HA407	-	HZ062
for HA964N	HZ095	HZ095
for HA966N	HZ096	HZ096



HZ095

Main incomers

Load break switches with visible breaking 100 to 400A



HZ093

Collar terminals

Description	Cat. ref.
for HA307, HA308 and HA407, HA408, copper, 95 mm ²	HZ082
for HA964, aluminium/copper, 185 mm ²	HZ093



HZC311

Auxiliaries contacts

Description	Width in modules	Cat. ref.
1NC + 1NO, for HA307, HA308 and HA407, HA408	0.5	HZ022
1NC + 1NO, for LBS 100 - 160 A (HAE...)	0.5	HZC311
2NO, for LBS 100 - 160 A (HAE...)	0.5	HZC312

Manual changeover switches, 20 to 125A

- allows manual switch, changeover switch or on load power circuit permutation
- for safety breaking
- 3P/4P
- modular design
- mounting on DIN rail
- lockable on position: I, O or II
- each switch can be equipped with 2 auxiliary contacts blocks max.
- one block is composed of 3 auxiliary contacts (positions I, O and II)
- IP20

Comply with EN 60 947-3.

Connection for copper conductors with collar terminals.

Connection capacity

HIM402/HIM404: 16 mm² flexible or rigid

HIM406/HIM408: 35 mm² flexible or rigid

HI405R/HI406R: 50 mm² flexible or rigid

Changeover switches visual breaking

- disconnecter
- modular design
- 3 positions: 0-I-II

In/A	Width in modules		Cat. ref.	
	3P	4P	3P	4P
20A	5	7	HIM302	HIM402
40A	5	7	HIM304	HIM404
63A	6	8	HIM306	HIM406
80A	6	8	HIM308	HIM408
100A	-	12.5	-	HI405R
125A	-	12.5	-	HI406R



HIM404

Main incomers

External handles

- 3 positions: 0-I-II
- lockable with 3 padlocks

Description	Cat. ref.
for HIM 20 to 80A	HZC016
for HI 100 to 125A	HZI004



HZC016

Shaft extensions

Description	Cat. ref.
for HIM 20 to 80A, 150mm	HZC111
for HIM 20 to 80A, 200mm	HZC112
for HIM 20 to 80A, 300mm	HZC113
for HI 100 to 125A, 200mm	HZC103
for HI 100 to 125A, 300mm	HZC104



HZC113

Terminal shrouds

- 2 pieces / packaging
- top and bottom

Description	Cat. ref.	
	3P	4P
for HIM 20 to 40A	HZC211	HZC212
for HIM 63 to 80A	HZC213	HZC214



HZC212



HZC311

Auxiliaries contacts

Description	Width in modules		Cat. ref. 3P	4P
	3P	4P		
for HIM 20 to 80A, 1NO + 1NC	0.5	0.5	HZC311	HZC311
for HIM 20 to 80A, 2NC	0.5	0.5	HZC312	HZC312
for HI 100 to 125A, 1NO + 1NC	-	0.5	-	HZ160R

Insulated busbars

Description	Cat. ref. 3P	4P
for HIM 20 to 40A	HZC706	HZC707
for HIM 63 to 80A	HZC708	HZC709

Manual changeover switches, 125 to 1600A

- allows manual switch, changeover switch or on load power circuit permutation
- for safety breaking
- 4P
- mounting on perforated plates or crossbars
- lockable on position: I, O or II
- HI452, HI454 and HI456 can be mounted in quadro and univers distribution boards
- HI458 is only recommended for quadro+

- for mounting in quadro or univers, contact us
- comply with EN 60 947-3
- connection with terminals

Changeover switches

- 4P
- non-modular design

In/A	Cat. ref.
125A	HI451
160A	HI452
250A	HI454
400A	HI456
630A	HI458
800A	HI460
1250A	HI462
1600A	HI464



HI458

Main incomers

External handles

- 3 positions: 0-I-II
- lockable with 3 padlocks

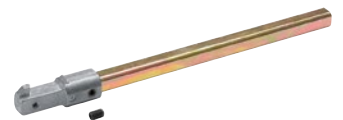
Description	Cat. ref.
for HI 125 to 630A	HZI002
for HI 800 to 1600A	HZI003



HZI002

Shaft extensions

Description	Cat. ref.
for HI 125 to 630A, 200mm	HZC101
for HI 125 to 630A, 320mm	HZC102
for HI 800 to 1600A, 200mm	HZC105
for HI 800 to 1600A, 320mm	HZC106



HZC101

Terminal shrouds

- top and bottom
- 2 pieces / packaging

Description	Cat. ref.
for HI 125 to 200A	HZC202
for HI 200 to 400A	HZC204
for HI 400 to 630A	HZC206



HZC202

Auxiliaries contacts

Description	Cat. ref.
for HI 125 to 1600A, 1NO + 1NC	HZ160



HZ160

Main incomers

Manual and non-modular changeover switches 125 to 1600A



HZI205

Terminal cover

Description	Cat. ref.
for HI451, HI452	HZI201
for HI454, HI456	HZI202
for HI458	HZI203
for HI460, H462	HZI204
for HI464	HZI205



HZ159

Busbars

Description	Cat. ref.
for HI451 and HI452	HZ156
for HI454	HZ157
for HI456	HZ158
for HI458	HZ159
for HI460	HZ162
for HI462	HZ163
for HI464	HZ164

Motorized changeover switches, 20 to 160A

- allows automated switch, changeover switch or on load power circuit permutation
- for safety breaking
- 4P
- lockable on position: O
- controller and two built-in supplies
- mounting on perforated plate or directly on DIN rail
- each product can be equipped with 2 auxiliary contacts blocks max.
- one block is composed of 3 auxiliary contacts (positions I, O and II)

- complies with EN 60 947-3
- connection on copper conductors with collar terminals
- connection capacity: 70 mm² flexible or rigid

Motorized changeover switches

- 4P
- modular design
- 3 positions: 0-I-II

In/A	Cat. ref.
20A	HIC402A
40A	HIC404A
63A	HIC406A
80A	HIC408A
100A	HIC410A
125A	HIC412A
160A	HIC416A



HIC416A

Main incomers

Terminal shrouds

- top and bottom
- 2 pieces / packaging

Description	Cat. ref.
for HI 20 to 160A, sealable	HZC218



HZC218

Auxiliaries contacts

Description	Cat. ref.
for HIC 20 to 160A, 1NO + 1NC	HZI300



HZI300

Single phase voltage sensing taps

Description	Cat. ref.
for switch control circuit supply, 2 conductors / pole	HZI230

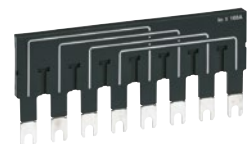


HZI230

Bridging bars

- 2 x 4P

In/A	Cat. ref.
for 63 to 125A	HZI400
for 160A	HZI401



HZI401

Sealable cover

Description	Cat. ref.
sealable cover	HZI210

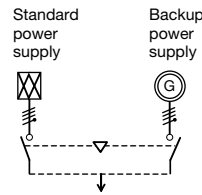


HZI210

Motorized and non-modular changeover switches 125 to 1600A

- allows automated switch, changeover switch or on load power circuit permutation
- 4P
- lockable on position: O.
- mounting on plain or perforated plate
- HIB and HIC are only recommended for quadro+
- double power supply HZI811 controls HIB switches
- HZI812 should be used to supply HZI811 and motorized control of HIB to avoid control circuit breaking
- comply with NF EN 60947-3, NF EN 60947-6
- connection with terminals

- connection of remote interfaces to HZI811 and changeover switches by RJ45 cables



- delivered without busbars
- for >1600A, contact us



HIB425M

Motorized changeover switches

In/A	Cat. ref.
125A	HIB412M
160A	HIB416M
250A	HIB425M
400A	HIB440M
630A	HIB463M
800A	HIB480M
1000A	HIB490M
1250A	HIB491M
1600A	HIB492M



HIC425G

Motorized automatic changeover switches

In/A	Cat. ref.
Automatic changeover switches with command control	
125A	HIC412G
160A	HIC416G
250A	HIC425G
400A	HIC440G
630A	HIC463G
800A	HIC480G
1000A	HIC490G
1250A	HIC491G
1600A	HIC492G



HIC425E

Automatic changeover switches with command control + energy management

125A	HIC412E
160A	HIC416E
250A	HIC425E
400A	HIC440E
630A	HIC463E
800A	HIC480E
1000A	HIC490E
1250A	HIC491E
1600A	HIC492E

Busbars

Description	Cat. ref.
for switches 125 to 160A	HZ156
for switches 250A	HZ157
for switches 400A	HZ158
for switches 630A	HZ159
for switches 800A	HZ162
for switches 1000 to 1250A	HZ163
for switches 1600A	HZ164



HZ159

Terminal shrouds

- top and bottom
- 2 pieces / packaging

Description	Cat. ref.
for switches 125 to 160A	HZC202
for switches 200 to 400A	HZC204
for switches 400 to 630A	HZC206



HZC202

Terminal covers

Description	Cat. ref.
for switches 125 to 160A	HZI201
for switches 250 to 400A	HZI202
for switches 630A	HZI203
for switches 800 to 1250A	HZI204
for switches 1600A	HZI205



HZI205

Controller

Description	Width in modules	Cat. ref.
controller for motorized changeover switches HIB	6	HZI811



HZI811

Remotes

- 96 x 96 mm

Description	Cat. ref.
changeover status display	HZI910
changeover status and control display	HZI911



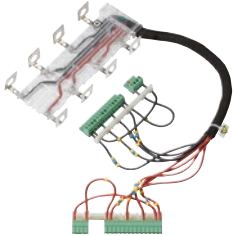
HZI911



HZI812

Double power supply

Description	Width in modules	Cat. ref.
double power supply	4	HZI812



HZI411

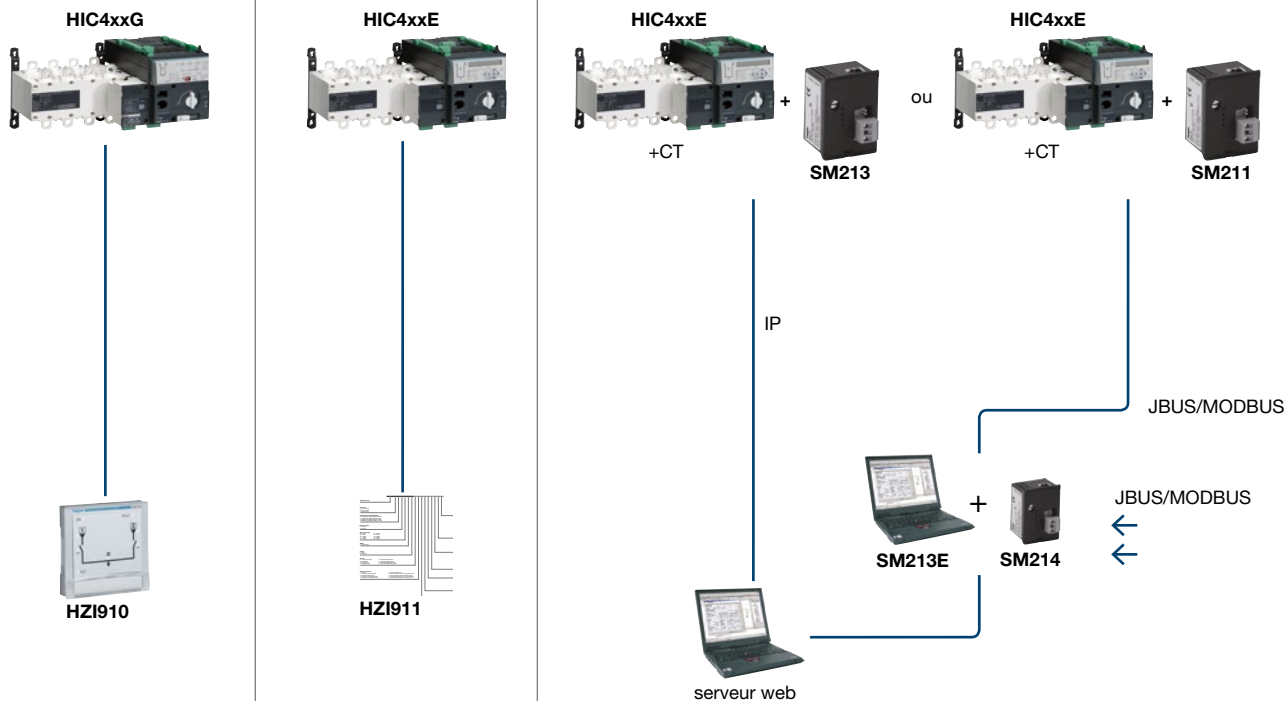
Voltage sensor kits

Description	Cat. ref.
for switches 125/160/200A	HZI410
for switches 250A	HZI411
for switches 400A	HZI412
for switches 630A	HZI413
for switches 800 / 1000A	HZI414
for switches 1250A	HZI415
for switches 1600A	HZI416
for switches 3200A	HZI417

Selection Auto / manual key

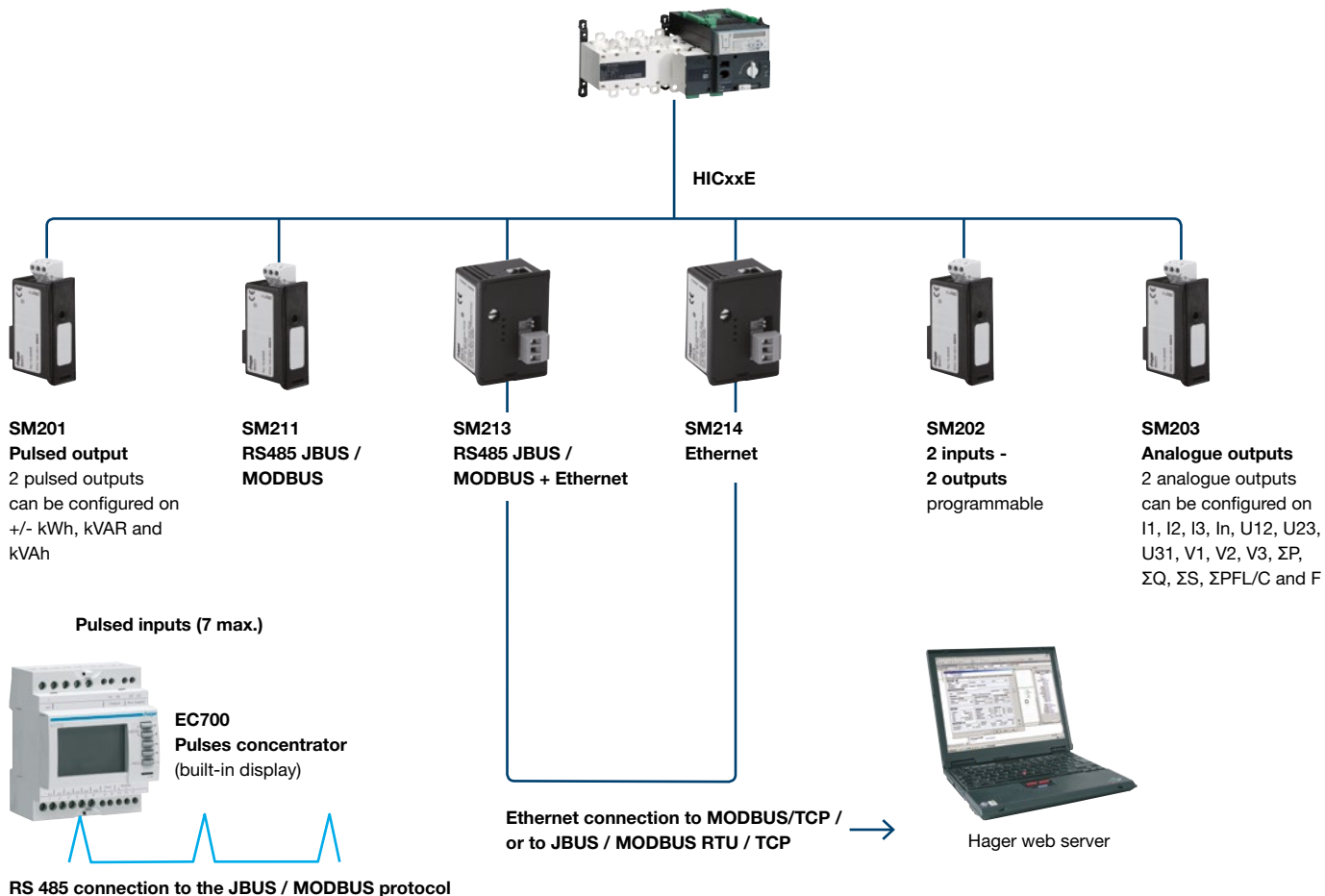
Description	Cat. ref.
for switches 125 to 3200A	HZI010

Optional modules



Main incomers

Optional modules



Codification

H	W	A	H	3	16	E	F	A	0	A	A	0	A	0	A	0
---	---	---	---	---	----	---	---	---	---	---	---	---	---	---	---	---

ACB series name

Frame size

- A = Frame size A
- B = Frame size B
- C = Frame size C

Product Family + Breaking capacity

- H = breaker with breaking capacity of 50kA
- N = breaker with breaking capacity of 65kA
- S = breaker with breaking capacity of 85kA
- P = breaker with breaking capacity of 100kA

Number of poles

- 3 = 3 poles
- 4 = 4 poles

Rated current (In)

- | | |
|------------|------------|
| 06 = 630A | 20 = 2000A |
| 08 = 800A | 25 = 2500A |
| 10 = 1000A | 32 = 3200A |
| 12 = 1250A | 40 = 4000A |
| 16 = 1600A | 50 = 5000A |

Market

- E = Market letter

Version

- F = fixed
- D = draw-out

Trip unit

- | | |
|-------------------------|--------------------------------|
| A = no OCR switch disc. | E = OCR LCD display Amp LI |
| B = OCR STD LI | F = OCR LCD display Amp LSI |
| C = OCR STD LSI | G = OCR LCD display Amp LSIG |
| D = OCR STD LSI | H = OCR LCD display Energy LSI |

Terminal connection

- | | |
|-------------------------------------|--|
| 0 = without | 5 = front terminal (FC/FC) |
| 1 = horizontal terminal (HC/HC) | 6 = front terminal and horizontal terminal (FC/HC) |
| 2 = vertical terminal (VC/VC) | 7 = front terminal and vertical terminal (FC/VC) |
| 3 = horizontal and vertical (HC/VC) | 8 = horizontal terminal and front terminal (HC/FC) |
| 4 = vertical and horizontal (VC/HC) | 9 = vertical terminal and front terminal (VC/FC) |

Position switch (only DO ACB)

- 0 = without
- 1 = isolated 1C, test 1C, connected 2C
- 2 = inserted 1C, isolated 1C, test 1C, connected 1C
- 3 = inserted 1C, isolated 1C, test 3C, connected 3C
- 4 = inserted 2C, isolated 2C, test 2C, connected 2C

OFF lock (key lock device)

- A = without
- B = type 1 (key lock device)
- C = type 2 (key lock device)
- D = type 3 (key lock device)
- E = type 4 (key lock device)
- F = type 5 (key lock device)
- G = Ronis type 1 - K1-L1/L4
- H = Ronis type 2 - K2-L2/4/5
- I = Ronis type 3 - K3-L3/5
- J = Ronis type 4 - K4-L4
- K = Ronis type 5 - K5-L5
- L = Castell type 1 - AA
- M = Castell type 2 - AB
- N = Castell type 3 - A_

MOC 2nd Auxiliary Switch & Counter & Arc Shield (only DO ACB)

- 0 = without Counter & without MOC & without Arc Shield
- 1 = with Counter & without MOC & without Arc Shield
- 2 = without Counter & with MOC & without Arc Shield
- 3 = with Counter & with MOC & without Arc Shield
- 4 = without Counter & without MOC & with Arc Shield
- 5 = with Counter without MOC & with Arc Shield
- 6 = without Counter & with MOC & with Arc Shield
- 7 = with Counter & with MOC & with Arc Shield

Under voltage release or 2nd SH coil

- | | |
|--------------------------------|-------------------------------------|
| A = without | K = AC 440V with time delay |
| B = AC/DC 110V | L = DC 24V with time delay |
| C = AC/DC 220V | M = DC 48V with time delay |
| D = AC 380V | N = AC/DC 110V double shunt release |
| E = AC 440V | O = AC/DC 220V double shunt release |
| F = DC 24V | P = AC 380V double shunt release |
| G = DC 48V | Q = AC 440V double shunt release |
| H = AC/DC 110V with time delay | R = DC 24V double shunt release |
| I = AC/DC 220V with time delay | S = DC 48V double shunt release |
| J = AC 380V with time delay | |

Closing release

- | | |
|----------------|-------------|
| 0 = without | 4 = AC 440V |
| 1 = AC/DC 110V | 5 = DC 24V |
| 2 = AC/DC 220V | 6 = DC 48V |
| 3 = AC 380V | |

Motor operator & ready to close switch








- | | |
|---------------------------|-------------------------------|
| A = without | N = AC/DC 110V motor with RTC |
| B = AC/DC 110V motor only | O = AC/DC 220V motor with RTC |
| C = AC/DC 220V motor only | P = AC 380V motor with RTC |
| D = AC 380V motor only | Q = AC 440V motor with RTC |
| E = AC 440V motor only | R = DC 24V motor with RTC |
| F = DC 24V motor only | S = DC 48V motor with RTC |
| G = DC 48V motor only | U = without motor with RTC |

Shunt release

- | | |
|----------------|-------------|
| A = without | E = AC 440V |
| B = AC/DC 110V | F = DC 24V |
| C = AC/DC 220V | G = DC 48V |
| D = AC380V | |

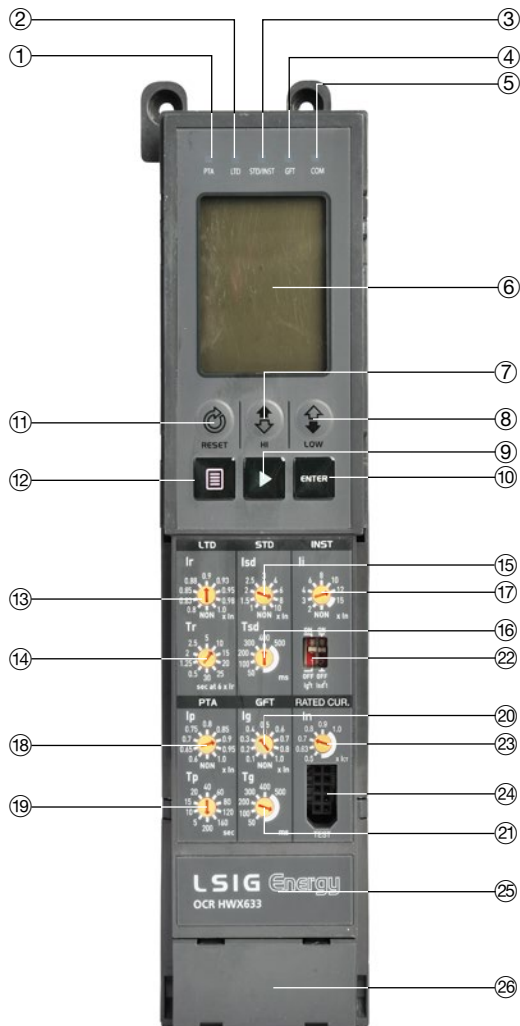
Protection trip unit (OCR)

Characteristics

Reference		HWX611	HWX612	HWX613	HWX621	HWX622	HWX623	HWX633
Type		LI	LSI	LSIG	LI Amp	LSI Amp	LSIG Amp	Energy
Frequency 50/60 Hz		•	•	•	•	•	•	•
OCR								
Power	externals	•	•	•	•	•	•	•
	self	•	•	•	•	•	•	•
Protection function	LTD	•	•	•	•	•	•	•
	STD	-	•	•	-	•	•	•
	INST	•	•	•	•	•	•	•
	PTA	-	-	-	•	•	•	•
	GFT	-	-	•	-	-	•	•
	neutral protection	100%	100%	100%	0-50-100%	0-50-100%	0-50-100%	•0-50-100%
	fail safe	•	•	•	•	•	•	•
	MCR	•	•	•	•	•	•	•
Indication	long time pick up LED	•	•	•	•	•	•	•
	fault LED	L, I	L, S/I	L, S/I, G	L, I, PTA	L, S/I, PTA	L, S/I, G, PTA	L, S/I, G, PTA
	LCD display, Amp and measurement	-	-	-	•	•	•	-
	LCD display, Amp, Energy, voltage, power, energy, demand and measurement	-	-	-	-	-	-	•
Digital output	separately continuous contact	• (2NO) L, I	• (2NO) L, S/I	• (3NO) L, S/I, G	• (3NO) L, I, PTA	• (3NO) L, S/I, PTA	• (4NO) L, S/I, G, PTA	• (4NO) L, S/I, G, PTA
ZSI		•	•	•	•	•	•	•
Reset button		•	•	•	•	•	•	•
Advanced functions	COM	-	-	-	•	•	•	•
	event / fault recording	-	-	-	•	•	•	•
	under/over voltage protection	-	-	-	-	-	-	•
	unbalanced current / voltage protection	-	-	-	-	-	-	•
	reverse power protection	-	-	-	-	-	-	•
	power P, Q, S, power factor, 3 phases voltage	-	-	-	-	-	-	•
	demand current / voltage	-	-	-	-	-	-	•

Protection trip unit (OCR)

Overview



- ① PTA signal LED
- ② LTD signal LED
- ③ STD/INST signal LED
- ④ GFT signal LED
- ⑤ Com. signal LED
- ⑥ LCD screen
- ⑦ STD/INST test button
- ⑧ LTD test button
- ⑨ Movement button
- ⑩ Enter button
- ⑪ Reset button
- ⑫ Menu button
- ⑬ LTD pick up setting
- ⑭ LTD time setting
- ⑮ STD pick up setting
- ⑯ STD time setting
- ⑰ INST pick up setting
- ⑱ PTA pick up setting
- ⑲ PTA time setting
- ⑳ GFT pick up setting
- ㉑ GFT time setting
- ㉒ GFT/STD (Inverse time setting), MCR ON/OFF setting switch
- ㉓ In (rated current) setting
- ㉔ Temporary test connection jack
- ㉕ Model name
- ㉖ Battery

➔ Self power works normally at larger than 10% for 3 phase, 30% for single phase.

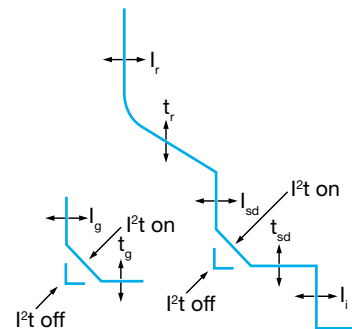
Basic OCR: HWX611, HWX612, HWX613



- Overload protection
 - Long time delay
- Short circuit protection
 - Short time delay, instantaneous trip
 - I²t on/off optional (for STD)
- Ground fault protection
 - I²t on/off optional (for GFT)
- Neutral wire protection
 - 3P: No protection
 - 4P: 100 % x I_n
 - LTD, STD, INST protection
- Realization of protective coordination by ZSI (zone selective interlocking)

- LI (2 digital output - NO)
- LSI (2 digital output - NO)
- LSIG (3 digital output - NO)
 - Contact specification

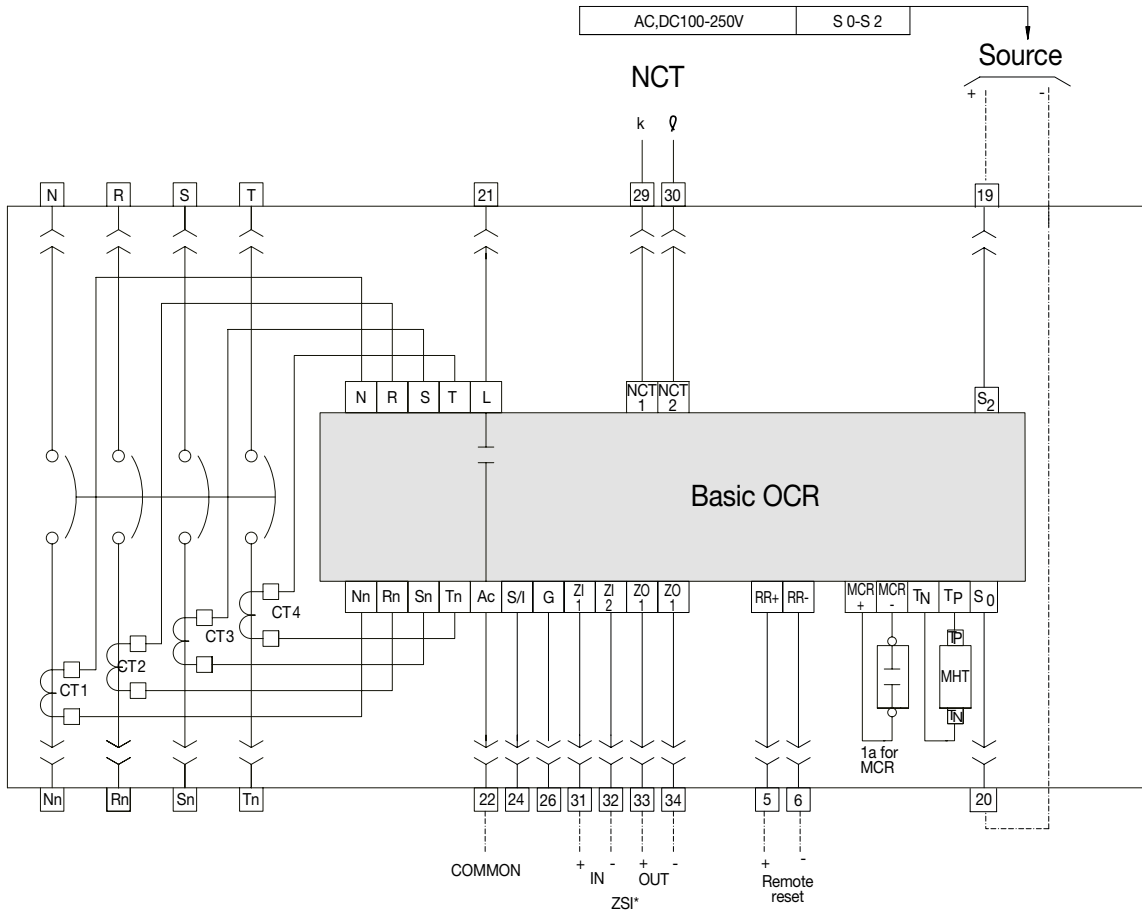
Rating	Nominal switching capacity (resistive load)	5A 277V AC
	Max. switching power (resistive load)	1,385VA
	Max. switching voltage	277V AC
	Max. switching current	5A
	Max. switching capacity (reference value)	100mA 5V DC



Protection

Protection	Setting	Formula	Multiplier											
			0.5	0.63	0.7	0.8	0.9	1						
Long time LTD	current setting (A)	I _n = I _n × ...	0.8	0.83	0.85	0.88	0.9	0.93	0.95	0.98	1	Non		
	time delay (sec) accuracy: ±15% or below 100ms	tr at (1.5 × I _r)	10.4	26.1	41.7	52	104	208	312	417	521	626		
		tr at (6.0 × I _r)	0.5	1.25	2	2.5	5	10	15	20	25	30		
		tr at (7.2 × I _r)	0.35	0.86	1.38	1.73	3.45	6.9	10.4	13.8	17.3	20.7		
Short time STD	current setting (A) accuracy: ±15%	I _{sd} = I _n × ...	1	1.5	2	2.5	3	4	6	8	10	Non		
	time delay (sec) at 10 × I _n	tsd	I ² t off	0.05	0.1	0.2	0.3	0.4	0.5					
			I ² t on	0.05	0.1	0.2	0.3	0.4	0.5					
	(I ² t off)	min. trip time (ms)	20	80	160	260	360	460						
max. trip time (ms)		80	140	240	340	440	540							
Instantaneous INST	current setting (A) accuracy ±10%	I _{li} = I _n × ...	2	3	4	6	8	10	12	15	Non			
	trip time		below 50ms											
Ground fault GFT	current setting (A) accuracy: ±20% (I _g > 0.4 I _n) ±20% (I _g ≤ 0.4 I _n)	I _{lg} = I _n × ...	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	1	Non		
	time delay (sec) at 1 × I _n accuracy: ±20%	tg	I ² t off	0.05	0.1	0.2	0.3	0.4	0.5					
			I ² t on	0.05	0.1	0.2	0.3	0.4	0.5					
	(I ² t off)	min. trip time (ms)	20	80	160	260	360	460						
max. trip time (ms)		80	140	240	340	440	540							

Basic OCR



Main incomers

* ZSI: contacts 31-32 are pre-wired by factory. If you use ZSI function, please remove this wire.

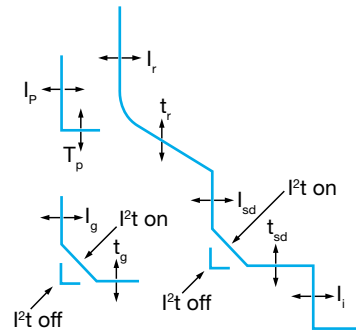
Amp type OCR: HWX621, HWX622, HWX623



- Overload protection
 - Long time delay
 - Thermal function
- Short circuit protection
 - Short time delay, instantaneous trip
 - I²t on/off optional (for STD)
- Neutral wire protection
 - 3 Pole: No protection
 - 4 Pole: Non, 50%, 100% (x I_e, I_{sd}, I_i)
- Measurement and display
 - 3 phase current
- Realization of protective coordination by ZSI (zone selective interlocking)
- Fault recording
 - Record up to 256 fault information about fault type, fault phase, fault value, occurrence time of fault.
 - Record latest fault waveform (4 period, check by communication)
- Event recording
 - Record events of device related to setting change, operation and state change up to 200
- Pre-trip alarm
 - Prevent unnecessary over load trip according to rated current (I_n)
- Field test
 - Simulation of long time, short time, instantaneous delay
- Communication : RS-485 / MODBUS-RTU

- 4 digital output NO
- Contact specification

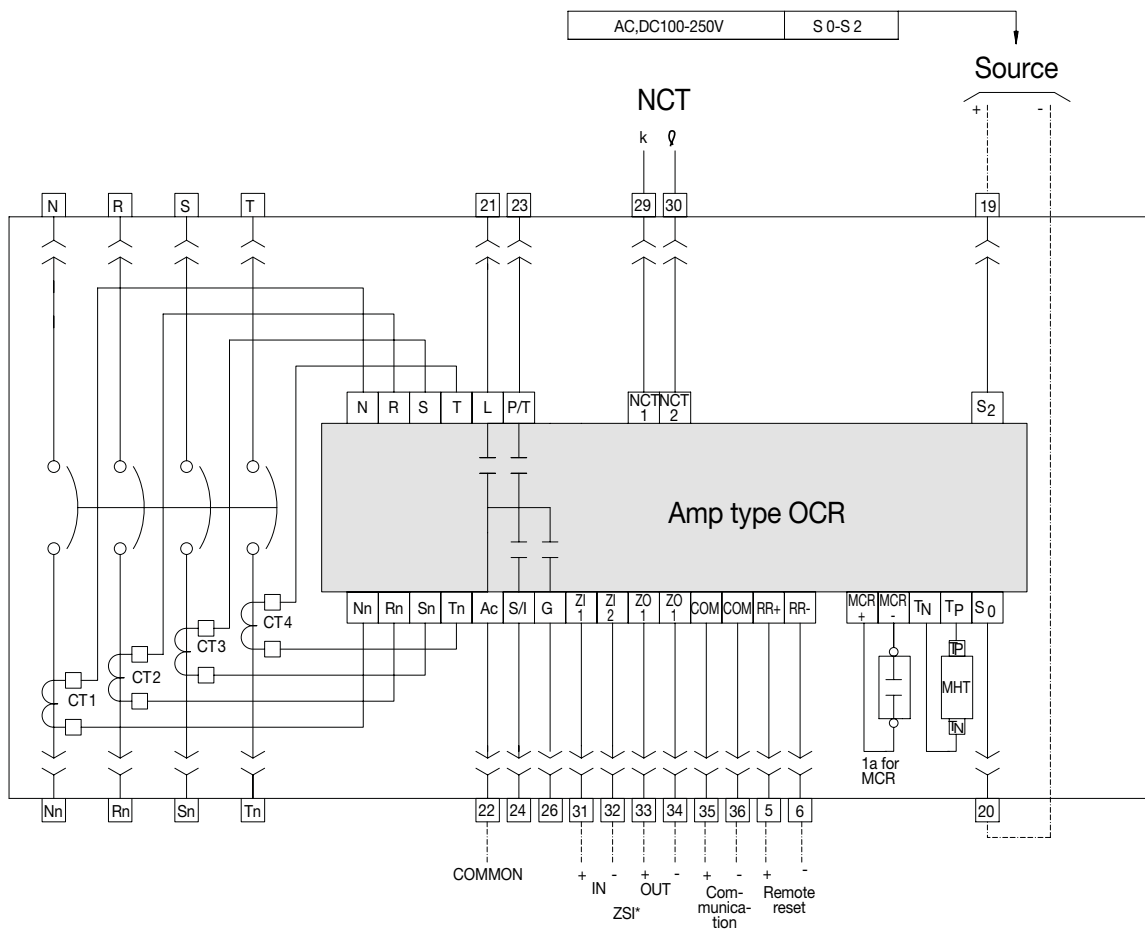
Rating	Nominal switching capacity (resistive load)	5A 277V AC
	Max. switching power (resistive load)	1,385VA
	Max. switching voltage	277V AC
	Max. switching current	5A
	Max. switching capacity (reference value)	100mA 5V DC



Protection

Protection Type	Setting	Setting Formula	Current Rating (A)																				
			0.5	0.63	0.7	0.8	0.9	1	1.25	1.5	2	2.5	3	4	6	8	10	15	20	25	30	Non	
Long time LTD	current setting (A)	I _n =I _{ct} x...	0.5	0.63	0.7	0.8	0.9	1															
	time delay (sec) accuracy: ±15% or below 100ms	tr at(1.5xI _r)	10.4	26.1	41.7	52	104	208	312	417	521	626											
		tr at(6.0xI _r)	0.5	1.25	2	2.5	5	10	15	20	25	30											
		tr at(7.2xI _r)	0.35	0.86	1.38	1.73	3.45	6.9	10.4	13.8	17.3	20.7											
Short time STD	current setting (A) accuracy: ±15%	I _{sd} =I _n x...	1	1.5	2	2.5	3	4	6	8	10	Non											
	time delay (sec) at 10xI _n	I ² t off	0.05	0.1	0.2	0.3	0.4	0.5															
		I ² t on	0.05	0.1	0.2	0.3	0.4	0.5															
	(I ² t off)	min. trip time (ms)	20	80	160	260	360	460															
max. trip time (ms)		80	140	240	340	440	540																
Instantaneous INST	current setting (A) accuracy ±10%	I _i =I _n x...	2	3	4	6	8	10	12	15	Non												
	trip time		below 50ms																				
Ground fault GFT	pick-up (A) accuracy: ±15%(I _g >0.4I _n) ±20%(I _g ≤0.4I _n)	I _g =I _{ct} x...	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	1	Non											
	time delay (sec) at 1xI _n accuracy: ±20%	I ² t off	0.05	0.1	0.2	0.3	0.4	0.5															
		I ² t on	0.05	0.1	0.2	0.3	0.4	0.5															
	(I ² t off)	min. trip time (ms)	20	80	160	260	360	460															
max. trip time (ms)		80	140	240	340	440	540																
Pre trip alarm PTA	current setting (A) accuracy: ±15%	I _p =I _n x...	0.6	0.65	0.7	0.75	0.8	0.85	0.9	0.95	1	Non											
	time delay (sec)	t _p at (I _p x1.2)	5	10	15	20	40	60	80	120	160												

Amp type OCR



Main incomers

* ZSI: contacts 31-32 are pre-wired by factory. If you use ZSI function, please remove this wire.

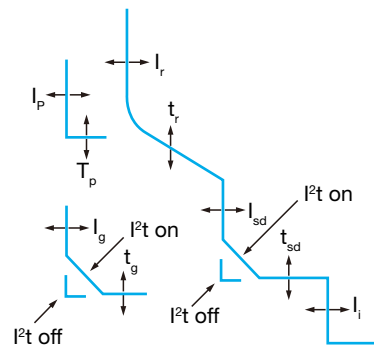
Energy type OCR: HWX633



- Overload protection
 - Long time delay
 - Thermal function
- Short circuit protection
 - Short time delay, instantaneous trip
 - I²t on/off optional (for STD)
- Ground fault protection
 - I²t on/off optional (for GFT)
 Neutral wire protection
 - 3 Pole: No protection
 - 4 Pole: Non, 50%, 100% (x I_r, I_{sd}, I_i)
- Overload/underload/voltage imbalance protection
- Measurement and display
 - 3 phase current/Voltage/Power/Power factor/energy/phase/demand
- Realization of protective coordination by ZSI (zone selective interlocking)
- Fault recording
 - Record up to 256 fault information about fault type, fault phase, fault value, occurrence time of fault.
 - Record latest fault waveform (4 period, check by communication)
- Event recording
 - Record events of device related to setting change, operation and state change up to 200
- Pre-trip alarm
 - Prevent unnecessary over load trip according to rated current (I_n)
- Field test
 - Simulation of long time, short time, instantaneous delay

- Communication: RS-485 / MODBUS-RTU
- Must install voltage module
- 4 digital output - NO
 - Contact Specification

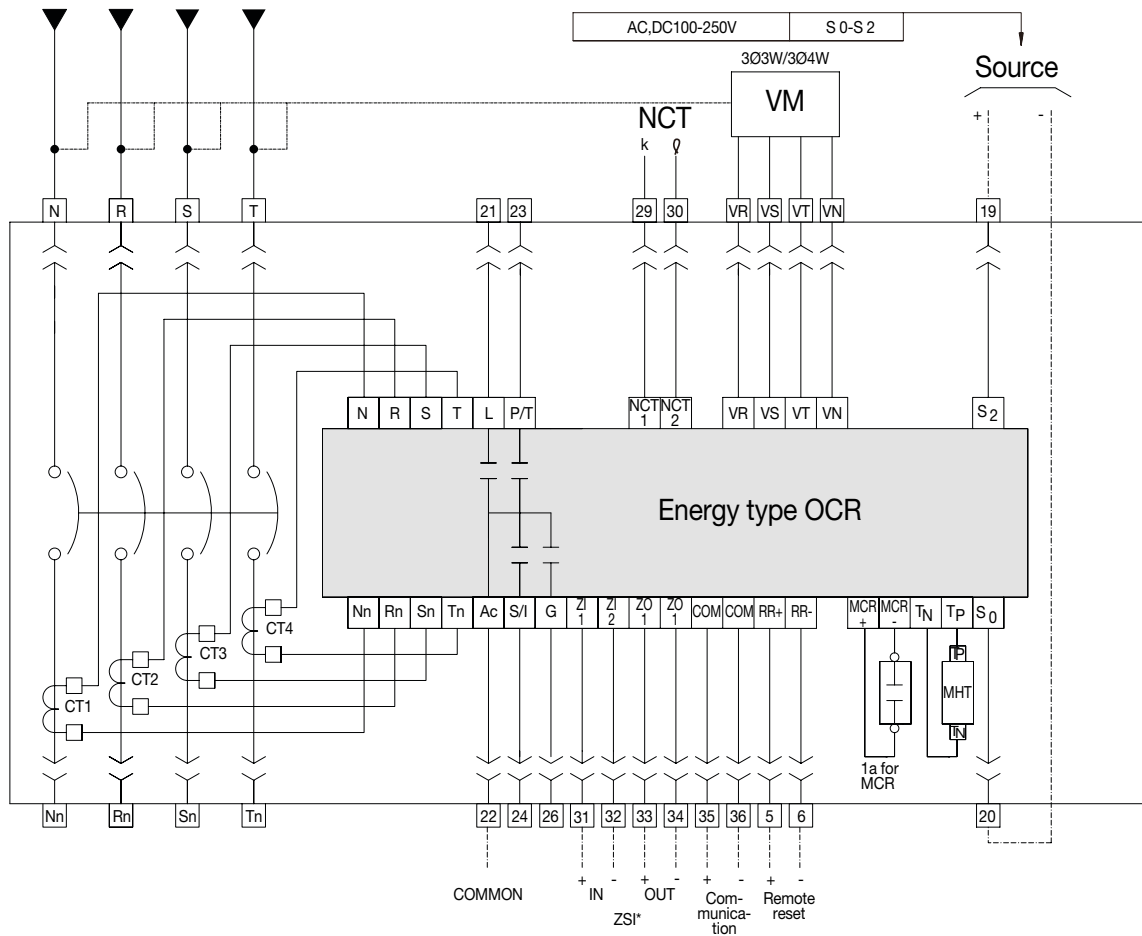
Rating	Nominal switching capacity (resistive load)	5A 277V AC
	Max. switching power (resistive load)	1,385VA
	Max. switching voltage	277V AC
	Max. switching current	5A
	Max. switching capacity (reference value)	100mA 5V DC



Protection

Long time LTD	I _{ct}	I _n =I _{ct} x...	0.5	0.63	0.7	0.8	0.9	1					
	current setting (A)	I _r =I _n x...	0.8	0.83	0.85	0.88	0.9	0.93	0.95	0.98	1	Non	
	time delay (sec) accuracy: ±15% or below 100ms	tr at(1.5×I _r)		10.4	26.1	41.7	52	104	208	312	417	521	626
			tr at(6.0×I _r)	0.5	1.25	2	2.5	5	10	15	20	25	30
tr at(7.2×I _r)			0.35	0.86	1.38	1.73	3.45	6.9	10.4	13.8	17.3	20.7	
Short time STD	current setting (A) accuracy: ±15%	I _{sd} =I _n x...	1	1.5	2	2.5	3	4	6	8	10	Non	
	time delay (sec) at 10×I _n	tsd	I ² t off	0.05	0.1	0.2	0.3	0.4	0.5				
			I ² t on	0.05	0.1	0.2	0.3	0.4	0.5				
		(I ² t off)	min. trip time (ms)	20	80	160	260	360	460				
max. trip time (ms)			80	140	240	340	440	540					
Instantaneous INST	current setting (A) accuracy ±10%	I _i =I _n x...	2	3	4	6	8	10	12	15	Non		
	trip time		below 50ms										
Ground fault GFT	pick-up (A) accuracy: ±15%(I _g >0.4I _n) ±20%(I _g ≤0.4I _n)	I _g =I _{ct} x...	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	1	Non	
	time delay (sec) at 1×I _n accuracy: ±20%	t _g	I ² t off	0.05	0.1	0.2	0.3	0.4	0.5				
			I ² t on	0.05	0.1	0.2	0.3	0.4	0.5				
		(I ² t off)	min. trip time (ms)	20	80	160	260	360	460				
max. trip time (ms)			80	140	240	340	440	540					
Pre trip alarm PTA	current setting (A) accuracy: ±15%	I _p =I _n x...	0.6	0.65	0.7	0.75	0.8	0.85	0.9	0.95	1	Non	
	time delay (sec)	t _p at (I _p x1.2)	5	10	15	20	40	60	80	120	160		

Energy type OCR



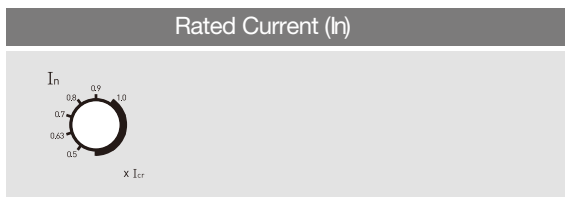
Main incomers

* ZSI: contacts 31-32 are pre-wired by factory. If you use ZSI function, please remove this wire.

Protection trip unit (OCR)

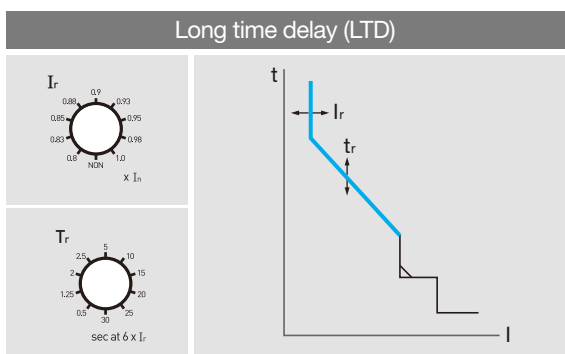
Values of Ict and In

Frame	Applicable	Rated current (In)					
	Ict (max)	Ict					
	In (A)	x0.5	x0.63	x0.7	x0.8	x0.9	x1
A	630	315	397	441	504	567	630
	800	400	504	560	640	720	800
	1000	500	630	700	800	900	1000
	1250	625	787	875	1000	1125	1250
	1600	800	1008	1120	1280	1440	1600
	2000	1000	1260	1400	1600	1800	2000
B	630	315	397	441	504	567	630
	800	400	504	560	640	720	800
	1000	500	630	700	800	900	1000
	1250	625	787	875	1000	1125	1250
	1600	800	1008	1120	1280	1440	1600
	2000	1000	1260	1400	1600	1800	2000
	2500	1250	1575	1750	2000	2250	2500
	3200	1600	2016	2240	2560	2880	3200
	4000	2000	2520	2800	3200	3600	4000
C	3200	1600	2016	2240	2560	2880	3200
	4000	2000	2520	2800	3200	3600	4000
	5000	2500	3150	3500	4000	4500	5000



- Rated current [In] can be adjusted to 50%, 63%, 70%, 80%, 90% and 100% of the rated primary CT current [Ict].
- On the ACB nameplate, rated current [In] is marked.
- Rated current [In] can be selected by sliding the base current setting select switch, which can be set to the predetermined scale.

Operation characteristics

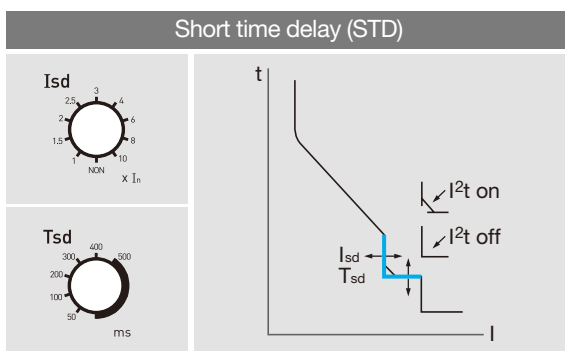


Standard current setting

- The scale is marked as magnification of [In].
- Setting range: (Non, 0.8, 0.83, 0.85, 0.88, 0.9, 0.93, 0.95, 0.98, 1.0) x In (10 modes)
- No protection in case of non setting of [Ir].
- The breaker is not tripped below 105% of [Ir], and tripped at 120%.

Time delay setting

- Standard operating time (sec) is based on the time of 600% x [Ir] with inverse time operation.
- Setting range: 0.5, 1.25, 2, 2.5, 5, 10, 15, 20, 25, 30sec (10 modes)
- The breaker is tripped at ±15% of setting time.



Standard current setting

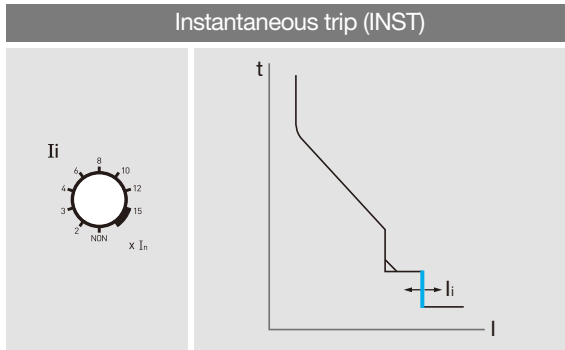
- The scale is marked as magnification of [In].
- Setting range: (Non, 1, 1.5, 2, 2.5, 3, 4, 6, 8, 10) x In (10 modes)

Time delay setting

- Standard operating time (msec) is based on the time of 120% x [Isd] with definite time operation.
- Setting range: 50, 100, 200, 300, 400, 500msec (6 modes)
- 100% of inverse time curve applied in case of inverse time (I²t on) setting.

DIP switch

- Isd²t ON: for inverse time characteristic, which has Isd²t=C (constant) characteristic at 100% of a set point, tolerance of setting current is ±20%
- Isd²t OFF: for definite time characteristics

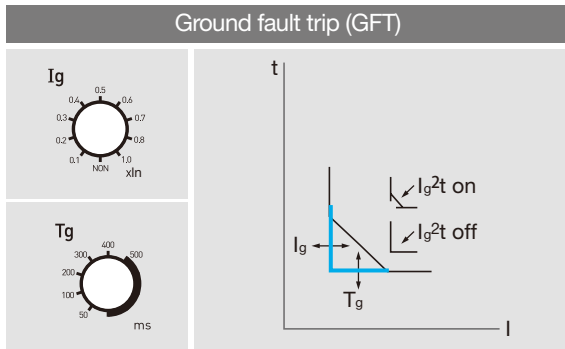


Standard current setting

- The scale is marked as magnification of I_{ct} .
- Setting range: (Non, 2, 3, 4, 6, 8, 10, 12, 15) $\times I_n$ (9 modes)
- No protection in case of non setting of I_i .

Time delay setting

- Total breaking time is below 50ms.



Standard current setting

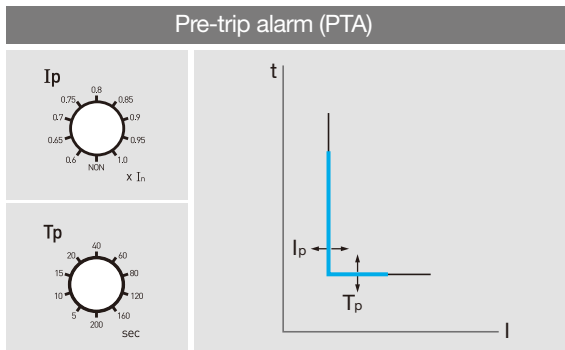
- The scale is marked as magnification of OCR rated primary current I_{ct} .
- Setting range: (Non, 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8, 1.0) $\times I_{ct}$ (10 steps)

Time delay setting

- Standard operating time (msec) is based on the time of 120% $\times I_g$ with definite time operation.
- Setting range: 50, 100, 200, 300, 400, 500msec (6 steps)
- Inverse time operated with 100% of I_{ct} standard in case of I_{2t} on setting.

DIP switch

- $I_g^2 t$ ON: for inverse time characteristic, which has $I_g^2 t = C$ (constant) characteristic at 100% of a set point, tolerance of setting current is $\pm 30\%$
- $I_g^2 t$ OFF: for definite time characteristics



Standard current setting

- The scale is marked as magnification of I_n with definite time operation.
- Setting range: (Non, 0.6, 0.65, 0.7, 0.75, 0.8, 0.85, 0.9, 0.95, 1.0) $\times I_n$ (10 steps)

Time delay setting

- Standard operating time (sec) is based on the time of 100% $\times I_p$.
- Setting range: 5, 10, 15, 20, 40, 60, 80, 120, 160, 200sec (10 steps).

Additional voltage measurement factor (Energy type)

Type		Threshold		Time delay		
		range	step	range	step	accuracy
Minimum voltage U_{min}	pickup	100V ~ U_{max}	5V	1.2s ~ 5s	0.1s	20%
	dropout	pickup ~ U_{max}	5V	1.2s ~ 36s	0.1s	-20%
Maximum voltage U_{max}	pickup	U_{min} pickup ~ 800V	5V	1.2s ~ 5s	0.1s	20%
	dropout	100V ~ pickup	5V	1.2s ~ 36s	0.1s	-20%
U unbal	pickup	2 ~ 30%	1%	1s ~ 40s	1s	-20%
	dropout	2 ~ pickup	50kW	10s ~ 360s	1s	-20%

- Operate Alarm contact (22, 23) without tripping ACB.

Reverse power (Energy type)

Type		Threshold		Time delay		
		range	step	range	step	accuracy
Reverse power rP_{max}	pickup	5 ~ 500kW	5kW	0.2s ~ 20s	0.1s	20%
	dropout	5kW ~ pickup	5kW	1s ~ 360s	0.1s	20%

- Operate alarm contact (22, 23) without tripping ACB.
- Depending on the total active power value, operates when current direction is opposite from the power direction user specified.
 - + direction : Current flow from above to below ACB terminal (default).
 - direction : Current flow from below to above ACB terminal.

Protection trip unit (OCR)

Zone selective interlock function (ZSI)

Zone selective interlocking drops delay time that eliminates faults for breakers. It minimizes the shock that all kinds of electric machinery get under fault conditions.

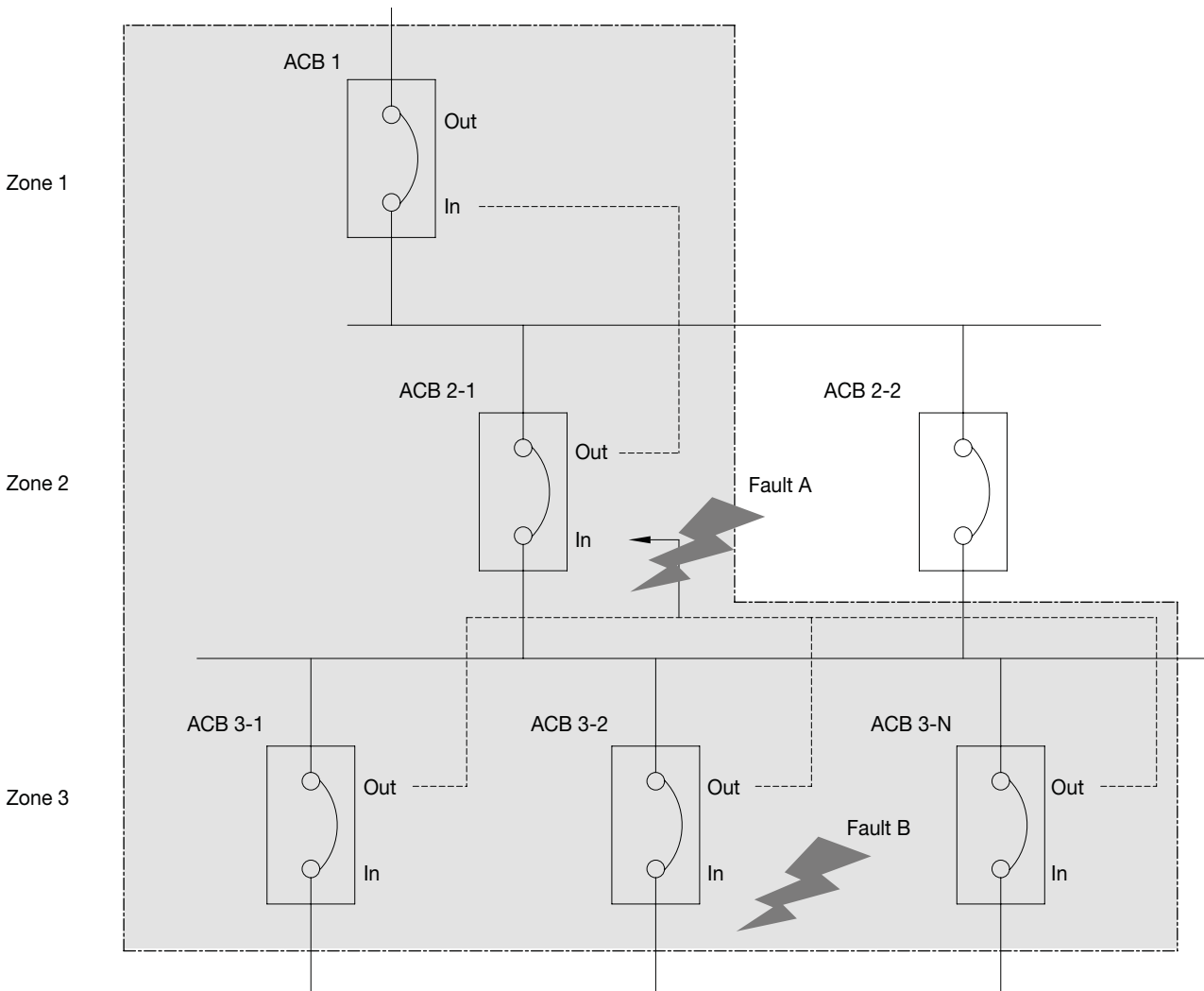
Example

- In case of that short time-delay or ground fault accident occurs at ZSI built in system, the breaker at accident site sends ZSI signal to halt upstream breaker's operation.
- To eliminate a breakdown, trip relay of ACB at accident site activates trip operation without time delay.
- The upstream breaker that received ZSI signal adhere to pre-set short time-delay or ground fault time delay for protective coordination in the system. However upstream breaker that did not receive its signal will trip instantaneously.
- For ordinary ZSI operation, it should arrange operation time accordingly so that downstream circuit breakers will react before upstream ones under overcurrent/short time delay/ground fault situations.

ZSI conditions

Type of ZSI	Number of ACBs (in total)	Max. distance between 2 ACBs
In series	2	100 m
	6	10 m
In parallel	6	10 m

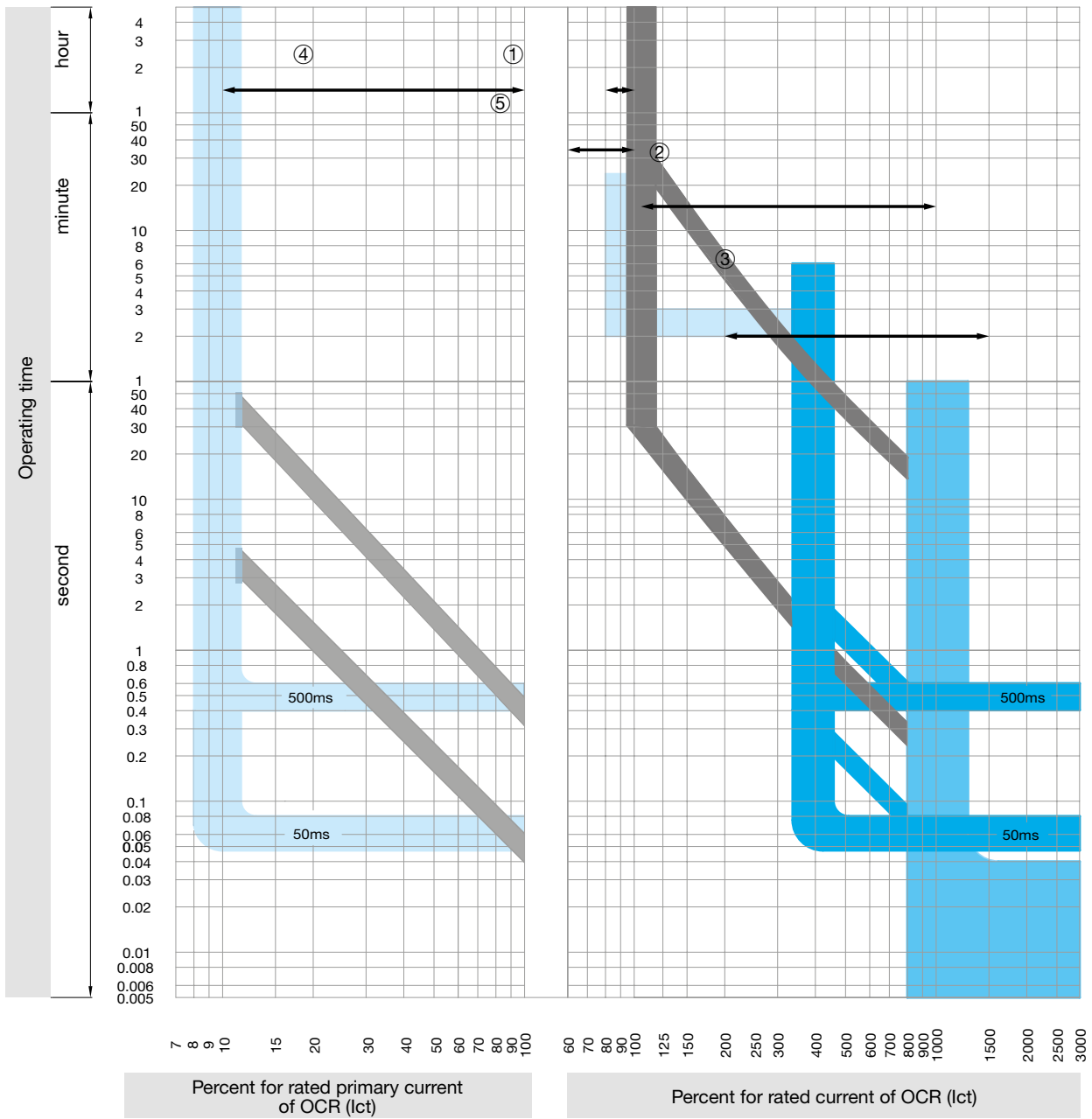
Twisted shield cable (AWG 16-22) maximum impedance: 3Ω



----- ZSI connecting

Pre-wired contact (31,32) as standard by factory. If you use ZSI function between 2 breakers, please use this wire.

General feeder

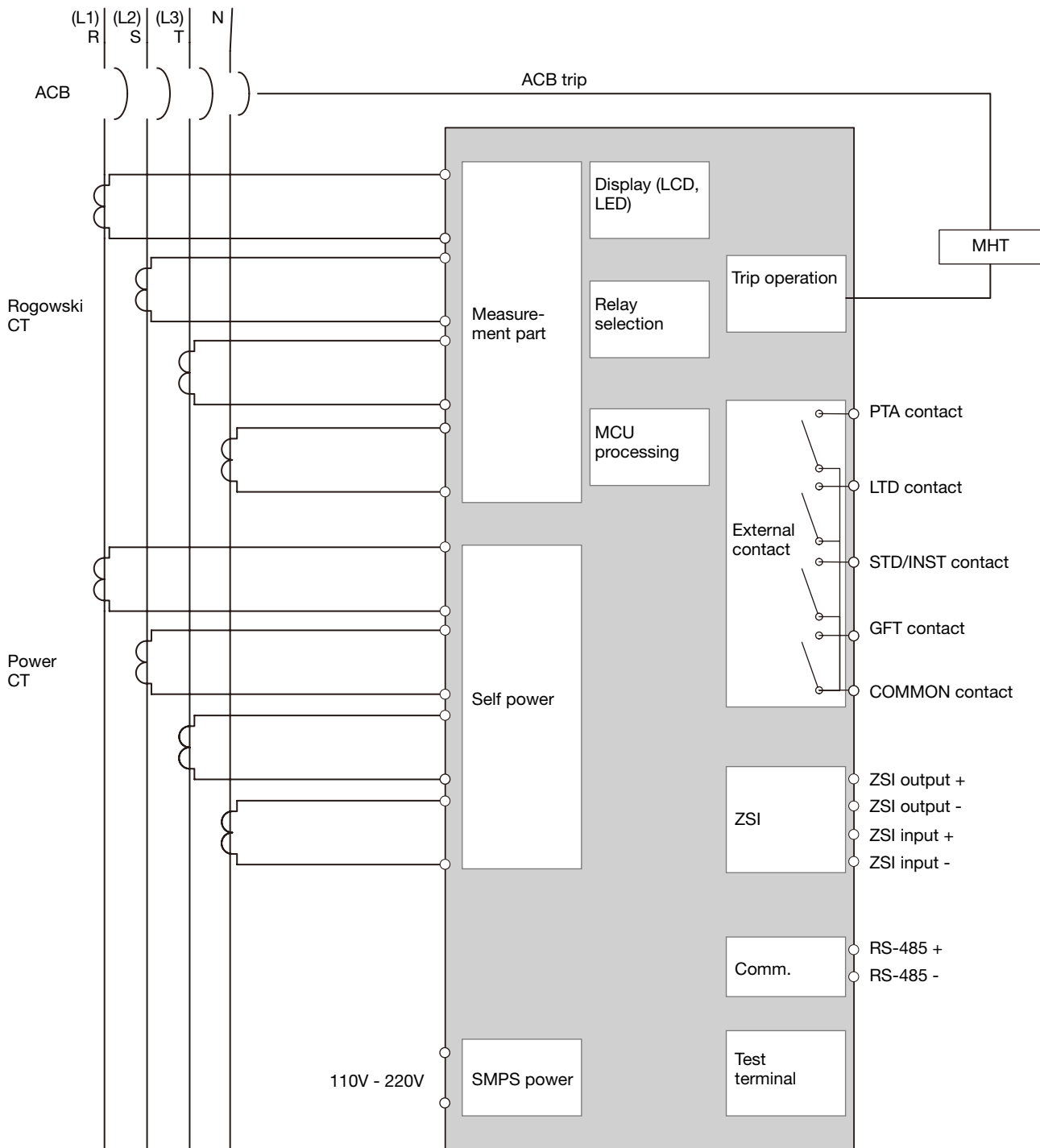


Main incomers

- ① Long time delay current setting range LTD
- ② Short time delay current setting range STD
- ③ Instantaneous tripping current setting range INST
- ④ Ground fault trip current setting range GFT
- ⑤ Pre-trip alarm current setting range PTA

Protection trip unit (OCR)

System diagram



Protection trip unit (OCR)

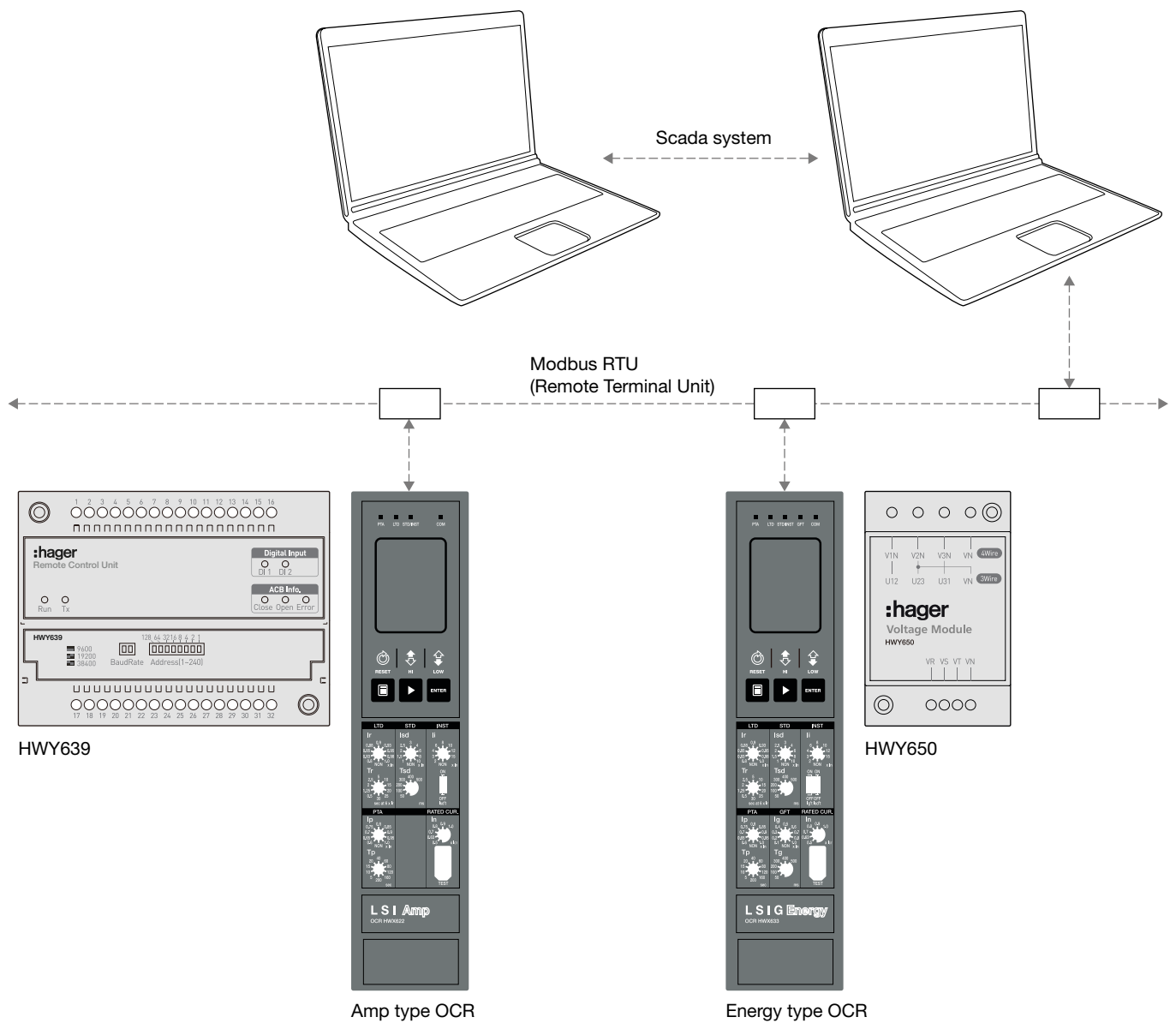
Communication function

The ACB Hw series OCR Amp and Energy types are equipped with communication module.

It allows to get all breakers information from network at any location connected to the bus, such as:

- measurements: current, voltage, power, power factor, energy, frequency
- breaker status: closing, opening and other state
- fault recording: time-stamped trip information
- event logging
- protect the controller setting
- protect pre-alarm controller

In addition to the Voltage Module HWY650 and Remote Control Unit HWY639, the user can control the breaker for the following operations: opening, closing, and reset.



Main incomers

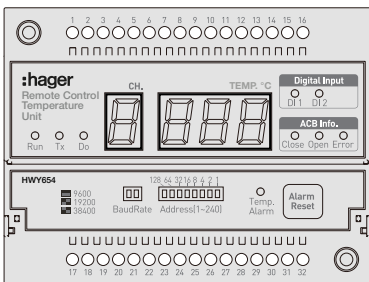
Characteristics

- operation mode: differential
- max. distance: 1.2 km
- baud rate: 9600; 19200; 38400 bps
- transmission method: half-duplex
- termination: 150Ω

Remote control temperature unit (RCTU) and remote control unit (RCU)

- RCTU has Digital Output contact that ables to insert/disconnect ACB remotely by communication. It checks temperature of ACB with 4 temperature channels.
- RCTU communication offers RS-485/Modbus-RTU.
- Insert/ disconnect control of ACB assures its reliability through SBO (select before operation) function.
- If the temperature rises over the user setting value, you can check it through alarm contacting point (additional connection needed).
- You can check ACB temperature through segment LED at the front.
- RCTU can be installed on side of the ACB cradle or panel.
- RCU module same function with RCTU module except temperature monitoring.

Remote control temperature unit (RCTU)



RCTU terminal composition

No.	Definition	No.	Definition
1	DI CB CONNECT	17	NTC Temperature sensor
2	DI CB CONNECT	18	NTC Temperature sensor
3	DI CB TEST	19	CH1 infrared light sensor AOR (black)
4	DI CB TEST	20	CH1 infrared light sensor GND (green)
5	DI CLOSE	21	CH1 infrared light sensor AOT (yellow)
6	DI CLOSE	22	CH1 infrared light sensor power (red)
7	DI OPEN	23	CH2 infrared light sensor AOR (black)
8	DI OPEN	24	CH2 infrared light sensor GND (green)
9	DO TEMP. ALARM	25	CH2 infrared light sensor AOT (yellow)
10	DO TEMP. ALARM	26	CH2 infrared light sensor power (red)
11	DO CLOSE	27	CH3 infrared light sensor AOR (black)
12	DO CLOSE	28	CH3 infrared light sensor GND (green)
13	DO OPEN	29	CH3 infrared light sensor AOT (yellow)
14	DO OPEN	30	CH3 infrared light sensor power (red)
15	AC/DC Power	31	RS485 (-)
16	AC/DC Power	32	RS485 (+)

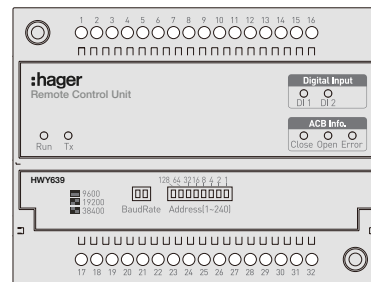
Shape

Status LED	Information	
RCTU	Run LED	RCTU running LED
	Com LED	communication LED
	Temp. Alarm LED	temp. alarm LED
	Alarm DO LED	temp. alarm DO LED
General digital input	D11	dry contact (5V)
	D12	dry contact (5V)
ACB control	Close	ACB close LED
	Open	ACB open LED
	Error	ACB close/open terminal disconnection and controlling error

Contact specification

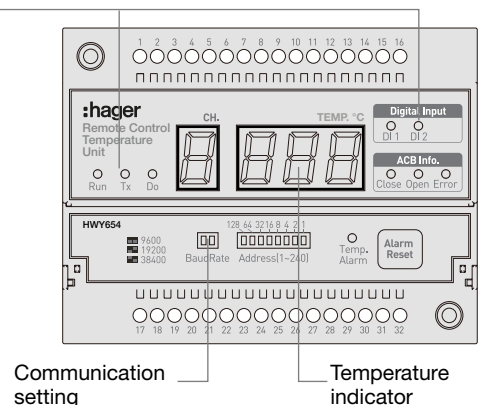
Type	Range of application	
ACB control	contact ratings	10A 240VAC, 30VDC
	max. switching power	2400VA, 300W
Temperature alarm	contact ratings	10A 240VAC/5A 240VAC/5A 30VDC
	max. switching power	1200VA, 150W

Remote control unit (RCU)



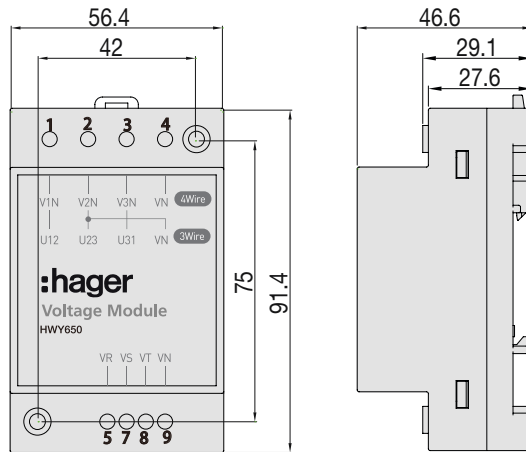
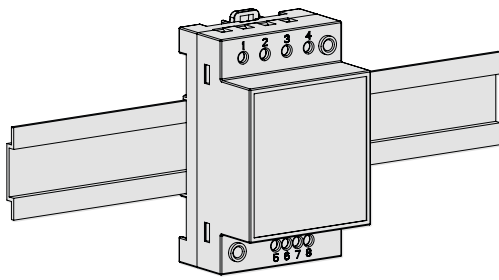
RCU terminal composition

No.	Definition	No.	Definition
1	DI CB CONNECT	17	-
2	DI CB CONNECT	18	-
3	DI CB TEST	19	-
4	DI CB TEST	20	-
5	DI CLOSE	21	-
6	DI CLOSE	22	-
7	DI OPEN	23	-
8	DI OPEN	24	-
9	-	25	-
10	-	26	-
11	DO CLOSE	27	-
12	DO CLOSE	28	-
13	DO OPEN	29	-
14	DO OPEN	30	-
15	AC/DC Power	31	RS485 (-)
16	AC/DC Power	32	RS485 (+)



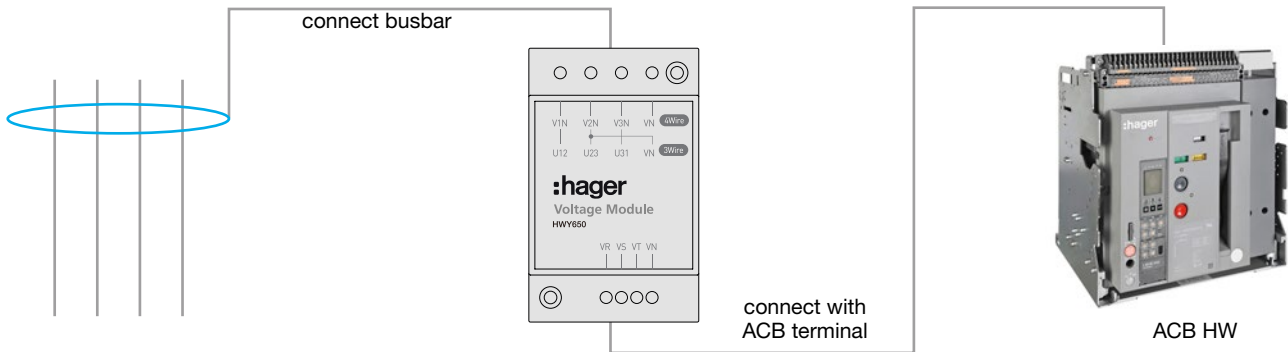
HWY650

Dimensions (mm)



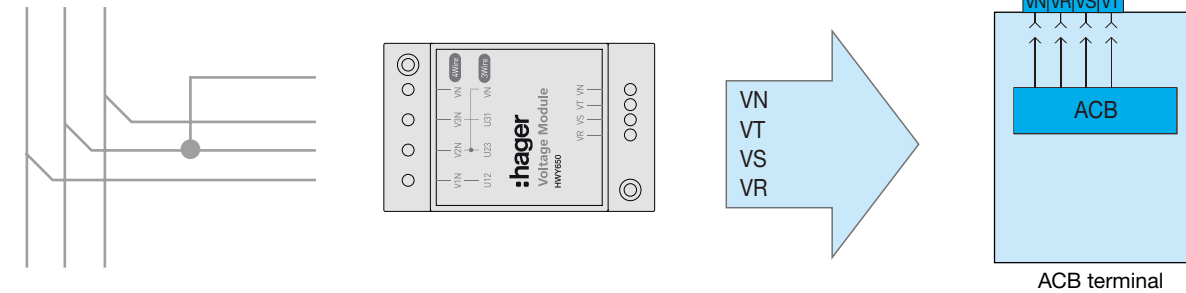
Voltage connection

Trip unit offers VM (Voltage module) as an essential option, to measure voltage.
Voltage input range: AC 69 ~ 690V



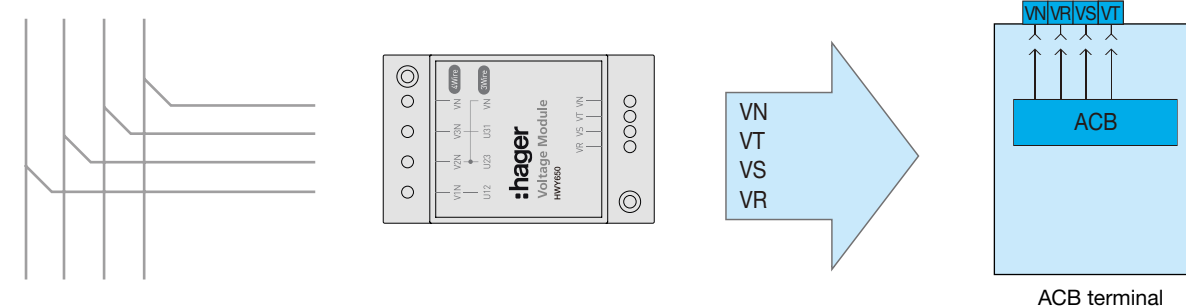
3 pole 3 wire

(L1)(L2)(L3)
R S T

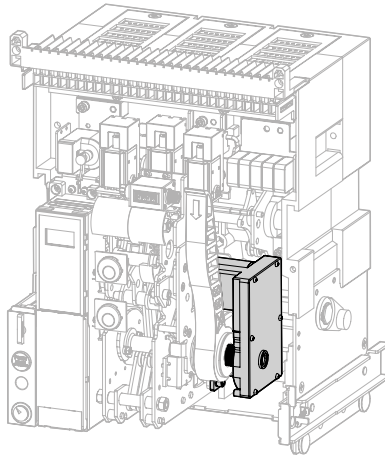
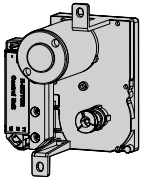


4 pole 4 wire / 3 pole 4 wire

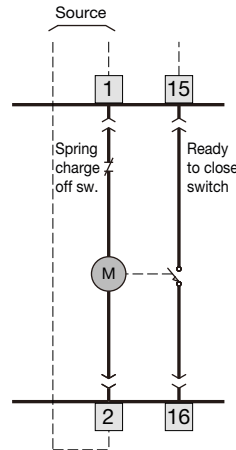
(L1)(L2)(L3)
R S T N



Motor (MO)



Connection diagram



- Manual charging method and geared motor charging by external power source.
- Operating voltage range: 85-110%

Ratings

Rated voltage	DC110V	DC220V
rated current (A)	1.5	0.5
starting pick up(A)	5-6 times of rated current	
charging time (s)	within 5 sec ¹⁾	
torque (kgf)	300kgf×cm	
rated watt (W)	100	100
insulation voltage (V/min)	2,000	
insulation resistance (MΩ)	100	
ambient temperature (°C)	-15 to 60	

¹⁾ Charging time is within 10sec of rated, in case of DC24/48V.

Reference	Rating
HWX541	DC 24V
HWX542	DC 48V
HWX543	AC/DC 110V
HWX544	AC/DC 220V

Wire ratings

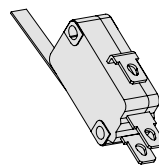
Rated voltage			
DC 24/48V and AC/DC 110/220V AC 380/440V			
AWG	insulation level (V)	AWG	insulation level (V)
20	300	20	600

Ready to close switch and spring charge (RTC)

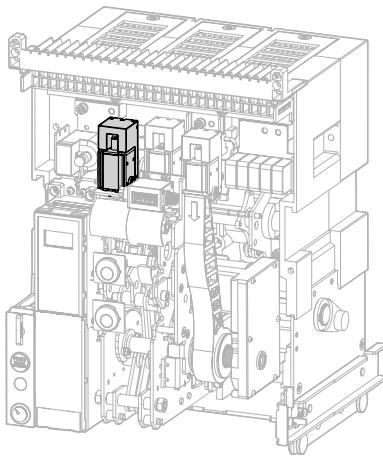
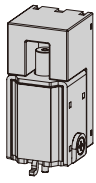
- These contacts (No.15,16) are for delivering spring charge status to outside and indicate the breaker is in a ready to close status.
- Optional device mounted on the body.

These contacts operate when the followings are valid:

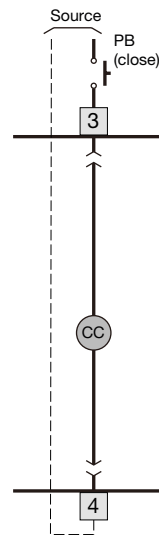
- ACB is in OFF position
- spring charge indicator shows charged
- UVT is energised
- SH is not energised
- ACB is in connected position
- key lock is in open position (OFF)
- mechanical interlock is OFF



Closing coil (CC)



Connection diagram



- A control device which closes a circuit breaker remotely, when applying 85-110% of rated control voltage over 150ms to coil terminals (3,4).

Ratings

Power supply (Vn)		operating limits	Power consumption (VA)		Opening time (ms)
DC (V)	AC (V)		inrush	steady-state	
24	-	0.85-1.1Vn	300	10	80
100-130	100-130	0.85-1.1Vn			
200-250	200-250	0.85-1.1Vn			

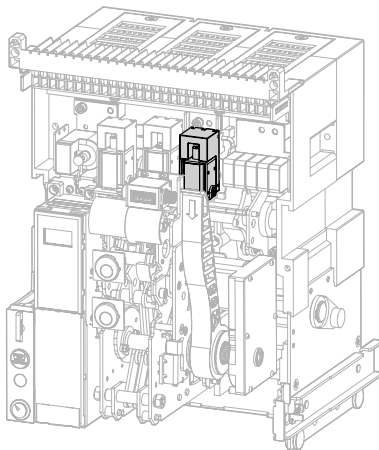
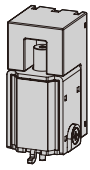
Reference	Rating
HWX551	DC 24V
HWX552	DC 48V
HWX553	AC/DC 110V
HWX554	AC/DC 220V
HWX555	AC/DC 380/415V
HWX556	AC 440V

Wire ratings

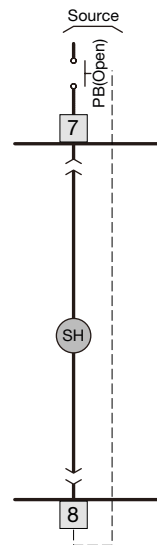
Rated voltage

DC 24/48V and AC/DC 110/220V		AC 380/440V	
AWG	insulation level (V)	AWG	insulation level (V)
20	300	20	600

Shunt trip coil (SH)



Connection diagram



- A control device which trips a circuit breaker remotely, when applying 70-110% of rated control voltage over 150ms to coil terminals (7,8).

Ratings

Power supply (Vn)		Operating limits	Power consumption (VA)		Opening time (ms)
DC (V)	AC (V)		inrush	steady-state	
24	-	0.7-1.1Vn	300	10	50
100-130	100-130				
200-250	200-250				

Reference	Rating
HWX501	DC 24V
HWX502	DC 48V
HWX503	AC/DC 110V
HWX504	AC/DC 220V
HWX505	AC 380/415V
HWX506	AC 440V

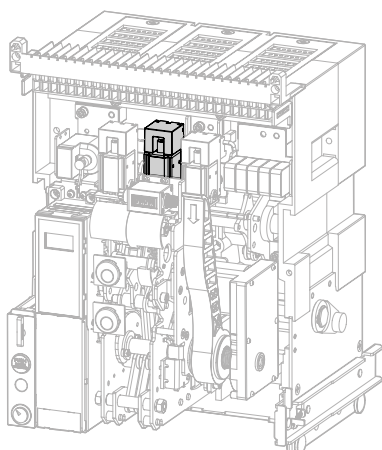
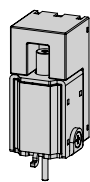
Wire ratings

Rated voltage

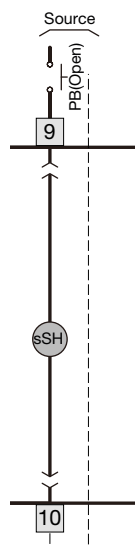
DC 24/48V and AC/DC 110/220V AC 380/440V

AWG	insulation level (V)	AWG	insulation level (V)
20	300	20	600

Second shunt trip coil (sSH)



Connection diagram



- A control device which trips a circuit breaker doubly from the outside.
- When second shunt trip coil is installed, there is no possibility to fit the UVT coil
- Rated control voltage range 70-110%, applying voltage over 150ms to coil terminals (9,10).

Ratings

Power supply (Vn)		Operating limits	Power consumption (VA)		Opening time (ms)
DC (V)	AC (V)		inrush	steady-state	
24	-	0.7-1.1Vn	300	10	50
100-130	100-130				
200-250	200-250				

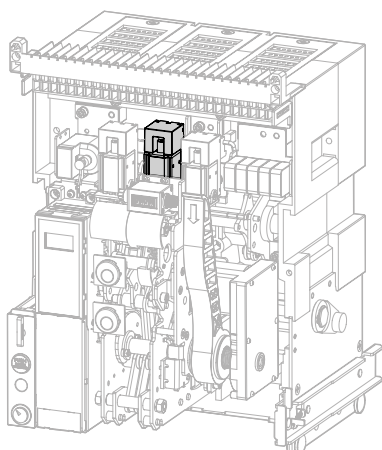
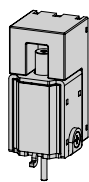
Reference	Rating
HWX521	DC 24V
HWX522	DC 48V
HWX523	AC/DC 110V
HWX524	AC/DC 220V
HWX525	AC 380/415V
HWX526	AC 440V

Wire ratings

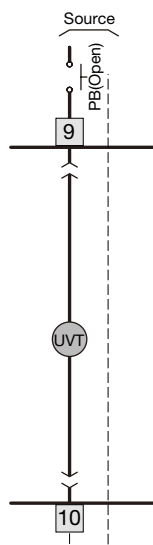
Rated voltage

DC 24/48V and AC/DC 110/220V		AC 380/440V	
AWG	insulation level (V)	AWG	insulation level (V)
20	300	20	600

Under voltage trip coil (UVT)



Connection diagram



- If the voltage of the main or the control power is under 70% of the standard, UVT breaks the circuit automatically.
- Connect instantaneous type with both terminals (9,10) and connect with time delay type in order to present time delay controller.
 - The circuit breaker is opened with trip unit power supply voltages below 70%.
 - The circuit breaker is closed with unit power supply voltage above 85%.
- Instantaneous type can not be used with double trip coil.

Ratings

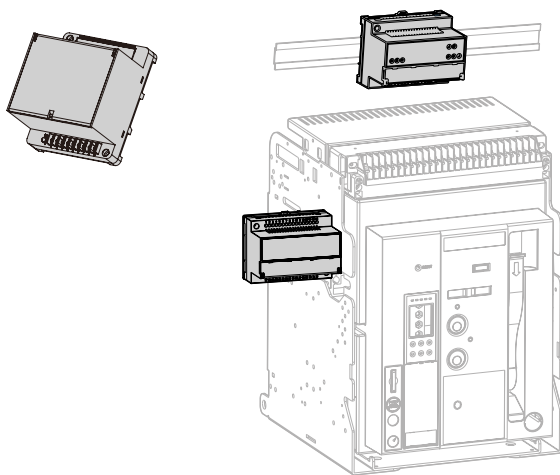
Power supply (Vn)		Pick-up	Drop	Power consumption (Vn)		Trip time (ms)
DC (V)	AC (V)			inrush	steady-state	
24	-	above 0.85Vn	below 0.35Vn	300	10	60
110 (100-130)	110 (100-130)					
200 (200-250)	200 (200-250)					
-	380					
-	440					

Reference	Rating
Hwx511	DC 24V
Hwx512	DC 48V
Hwx513	AC/DC 110V
Hwx514	AC/DC 220V
Hwx515	AC 380/415V
Hwx516	AC 440V

Wire ratings

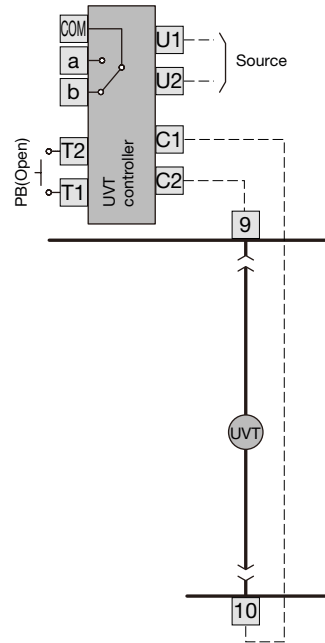
Rated voltage			
DC 24/48V and AC/DC 110/220V		AC 380/440V	
AWG	insulation level (V)	AWG	insulation level (V)
20	300	20	600

UVT time delay controller

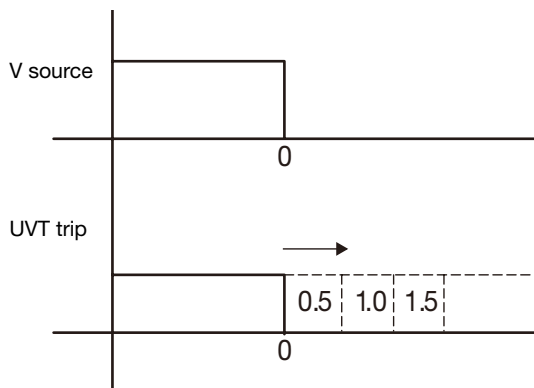


- This device is possible to delay as (0.5, 1.0, 1.5, 3 sec).
- It can be mounted on side of chassis or on the DIN rail.

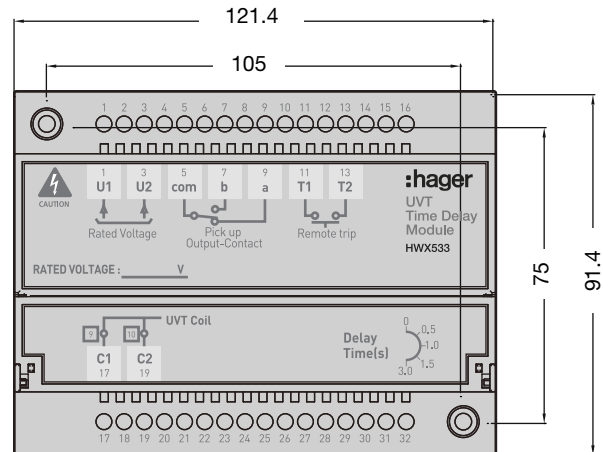
Connection diagram



Connection and operating time



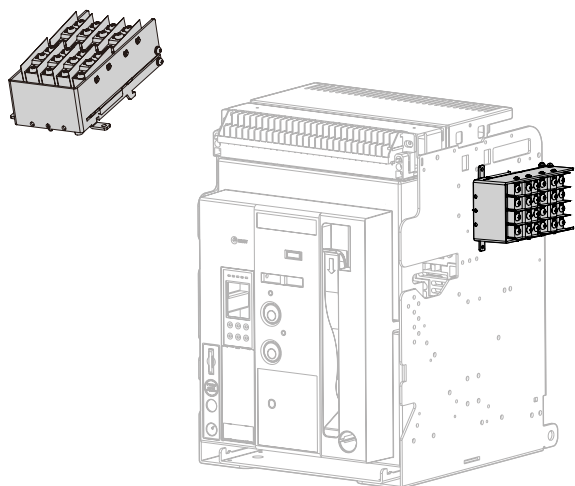
Dimensions (mm)



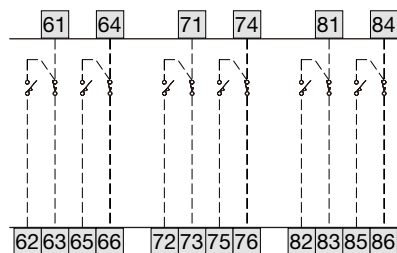
Ratings

Reference	Rating
HWX533	AC/DC 110V
HWX534	AC/DC 220V
HWX535	AC 380/415V
HWX536	AC 440V

Position switch



Connection diagram



Test position	Connection position	Isolation position
61-62 a	71-72 a	81-82 a
61-63 b	71-73 b	81-83 b
64-65 a	74-75 a	Insert position
64-66 b	74-76 b	
67-68 a	77-78 a	
67-69 b	77-79 b	91-92 a
		91-93 b

- This switch is for indicating the position of ACB in the chassis. It is mounted on the side of chassis.
- Indicating position Connected/Test/Isol/Insert.
- Only one switch is applicable.

"a" contact = NO contact
 "b" contact = NC contact

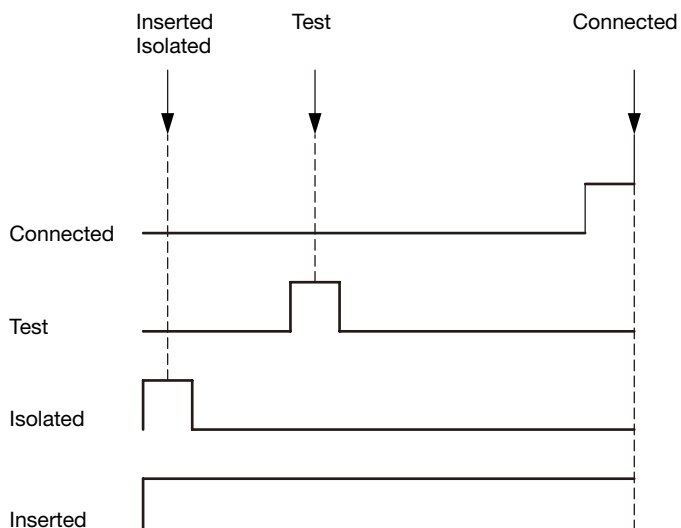
Ratings

Load	Resistance	Lamp	Inductor	Motor
AC125V	10A	1.5A	6A	2A
DC30V	6A	3A	6A	3A
DC125V	0.6A	0.1A	0.6A	0.1A
DC250V	0.3A	0.05A	0.3A	0.05A

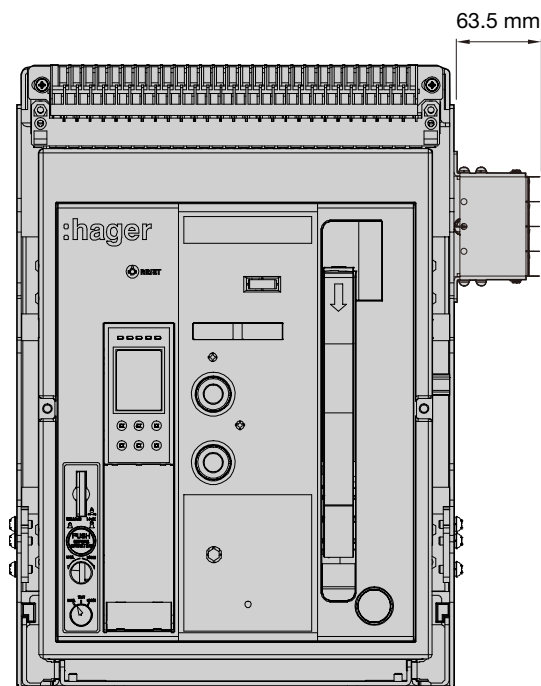
References

References	Inserted	Isolated	Test	Connected
HWX570	-	1C	1C	2C
HWX571	1C	1C	1C	1C
HWX572	1C	1C	3C	3C
HWX573	2C	2C	2C	2C

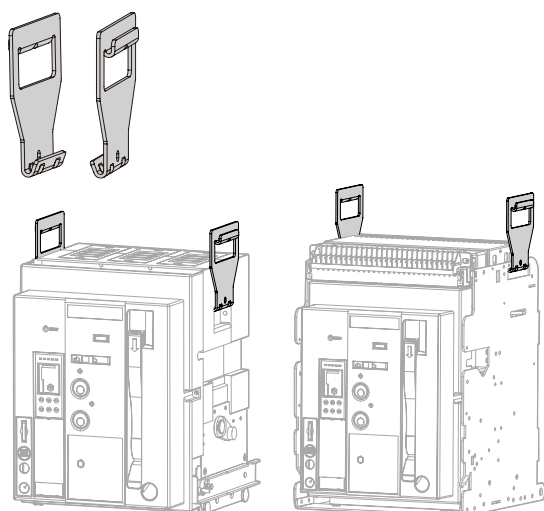
Position switch operating sequence



View

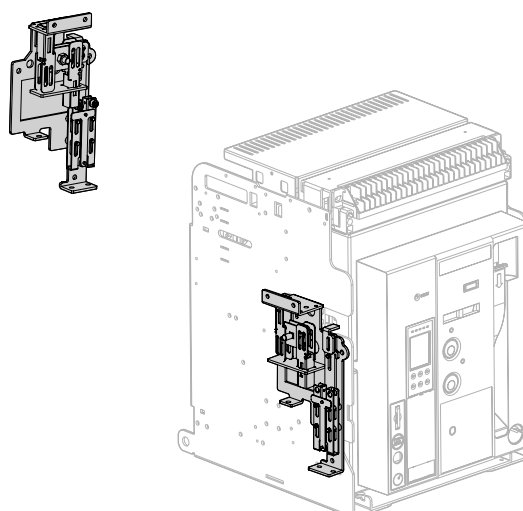


Lifting lugs



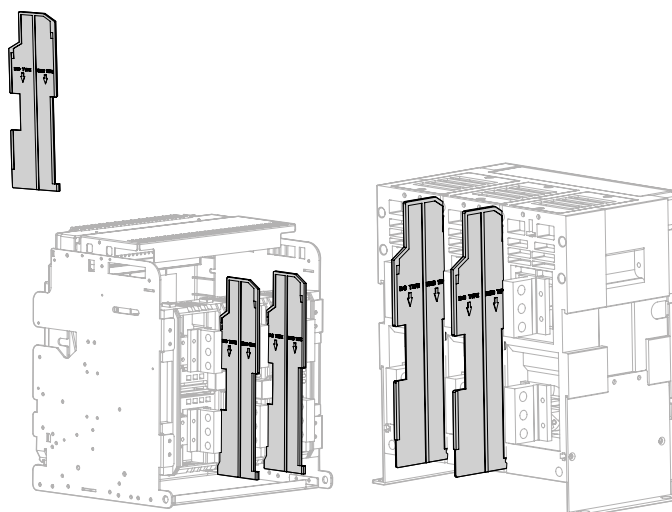
- A device to make an ACB easy to shift.
- Hang it to both handles of the arc shield, chassis, and ACB.
- When handling products, please be sure to use crane. In case of products under 3,200A and handling chassis only, please comply with safety regulation.
- Offered 2ea of 1set as a standard in 5,000A "C" frame.

Mechanical interlock kit



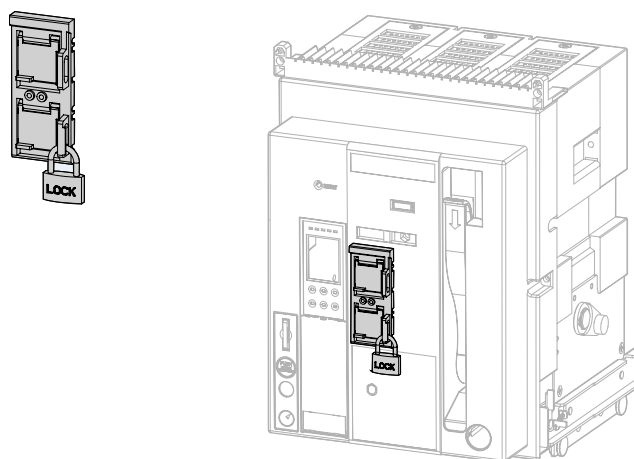
- It is used to interlock closing and trip between two or three breakers mechanically so as to prevent unintended operation at the same time.
- The MI is a safety gear installed in ACB for distribution line and it creates a mechanical interlock between two or three circuit-breakers through each ACB's open/close work.
- To operate the MI every component linked to the MI unit and the MI must be combined before use.
- MI unit is separate product. After installing ACB it is additionally attached.
- When ordering MI wire of parts all components linked to the MI unit are provided.
- MI is provided with cable length: 1.5 m.(additional cables can be ordered for 3 and 5 m)

Phase insulation barrier



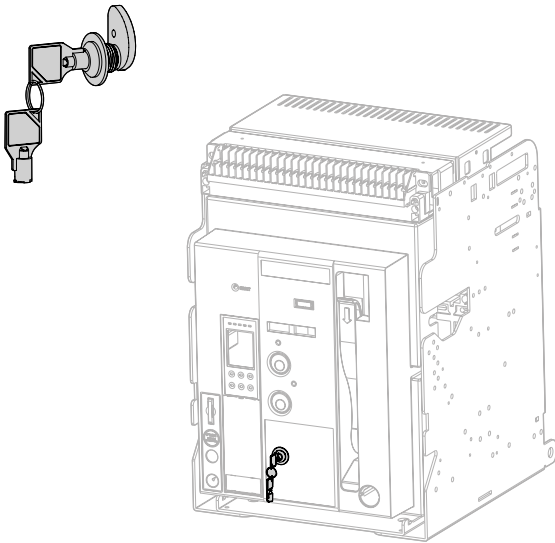
- Phase insulation barrier prevents the arc which may arise and result in short-circuit between phase in advance.

ON/OFF button lock



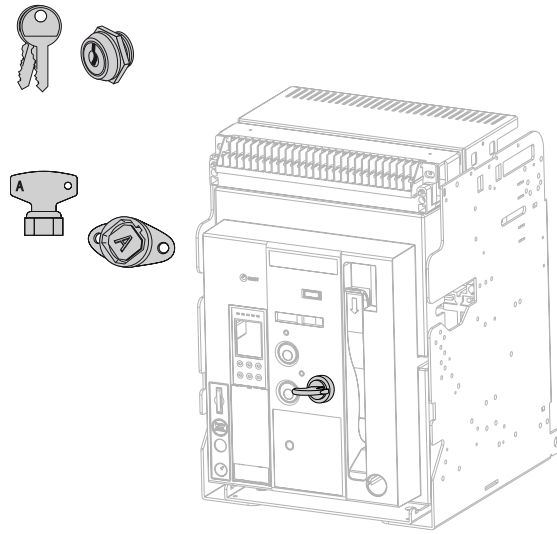
- Prevents manual operation of ACB's closing/tripping button due to user's wrong handling.
- It is not possible to handle on/off operation under the "Button lock" status.
- Padlock is not included, key lock size: Ø5-Ø8

Key lock device



- The key lock prevents the circuit breaker closing, it maintains interlock condition (Mechanical prevention).
- When the key has been unlocked you can operate spring changing/manual on or off, when the key is removed from circuit breaker it becomes interlock. The key doesn't turn to lock position until user push the off button, when the key is locked.

Key Ronis lock and key Castell lock



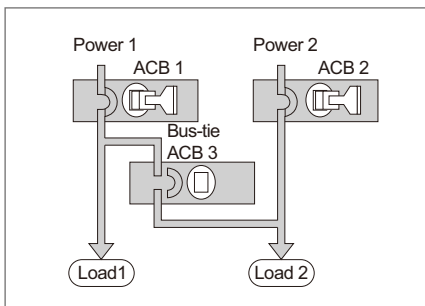
Kirk and Profalux type of locks may also be applied.

	Ref.	Key type	Suitable with Lock type	Adaptor kit ref.
Key Ronis lock	HWY701	1	1, 4	HWY697
	HWY702	2	2, 4, 5	
	HWY703	3	3, 5	
	HWY704	4	4	
	HWY705	5	5	
Key Castell lock	HWY706	1	3	HWY698
	HWY707	2	3	
	HWY708	3	-	

Key interlock

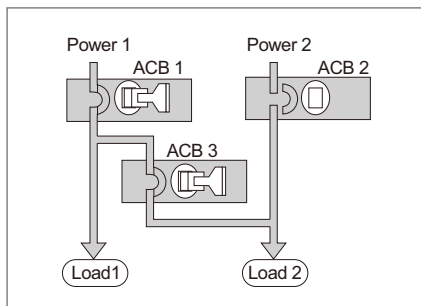
Configure the system with three breaker mounted key lock device. Only two breakers are possible to input with 2ea key, and the other breaker can supply stable load with interlocking.

- ACB 3 is interlocked



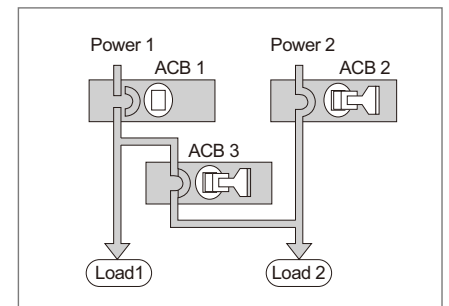
ACB 3 cannot be closed.

- ACB 2 is interlocked



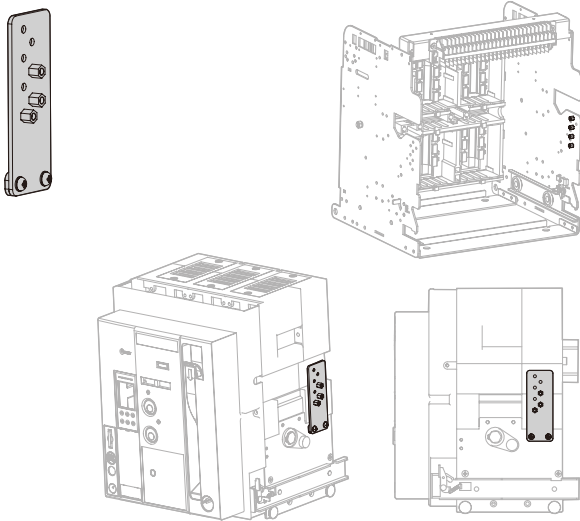
ACB 2 cannot be closed.

- ACB 1 is interlocked



ACB 1 cannot be closed.

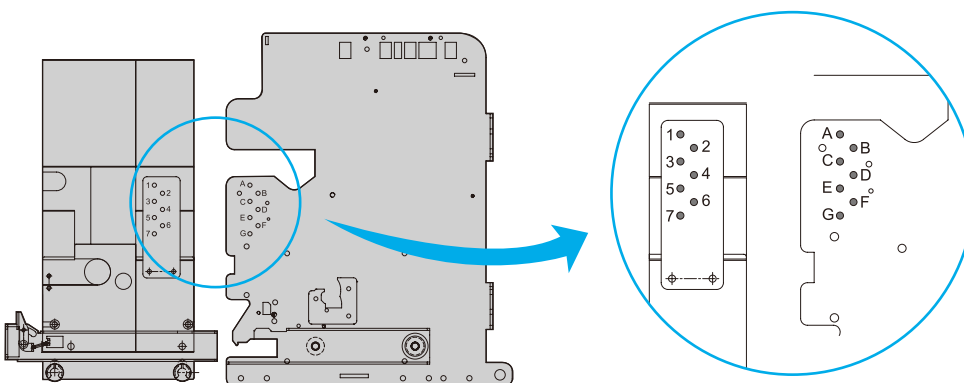
Wrong insertion preventer



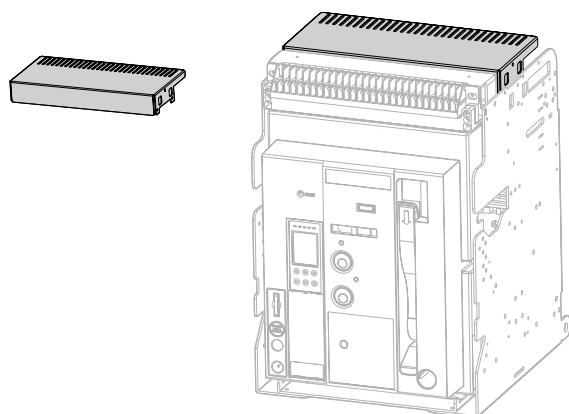
- When the main body of ACB is inserted to the chassis if the ratings of ACB do not match with chassis it mechanically prevents ACB from being inserted into chassis of ACB.
- Each part will have been installed on body or chassis.
- This device is set by CT rated current.

Mounting position according to rated current

CT	Mounting position	
	chassis	ACB
0 = without OCR	ADEG	236
T = 630A	ABDF	357
H = 800A	ABDE	367
J = 1,000A	ABCG	456
K = 1,250A	ABCF	457
L = 1,600A	ABCE	467
M = 2,000A	ABCD	567
N = 2,500A	BCDE	167
P = 3,200A	BCDF	157
Q = 4,000A	BCDG	156
S = 5,000A	BCEF	147

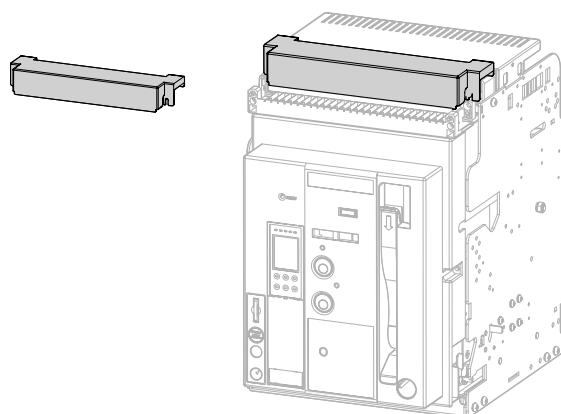


Arc shield



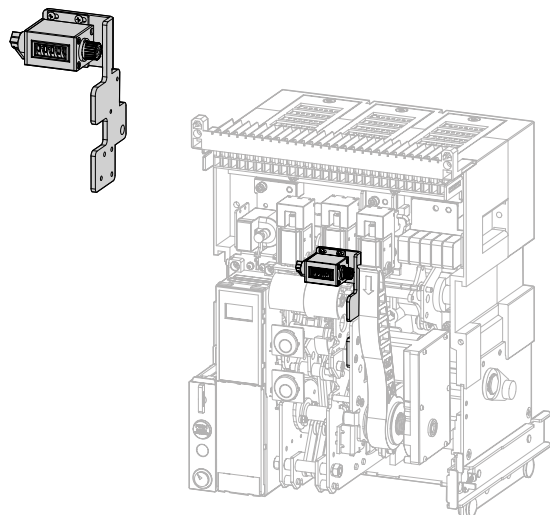
- Arc which may arise while breaking fault current is extinguished first by arc chute in main body of circuit breaker and then completely extinguished by arc cover.

Control terminal protection cover



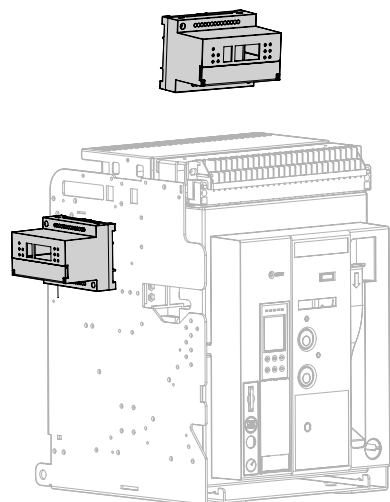
- Protects control terminals which are exposed to the outside, and prevent damage from foreign substances.

Counter



- Displays the total number of on/off operation of ACB
- The counter displays the total number of on/off operation of ACB.

Remote control temperature unit

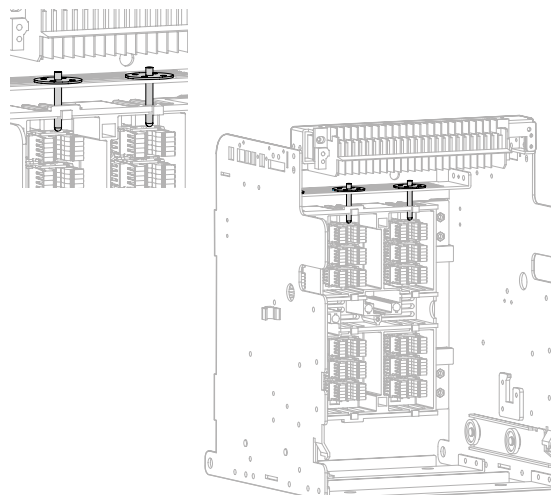


- RCTU is installed on the chassis or inside of panel, and communicates with Modbus/RS-485 basically.
- It can be purchased separately and can be operated with temperature alarm unit at the same time: RCTU
- It is used with temperature sensor.
- Temperature alarm unit is a device to show the busbar's temperature through a sensor inside of ACB.
- Temperature sensor can be installed up to 3 and alarm can occur when it reaches the specified temperature.
- Display the maximum temperature on the segment LED and transmits through a network.
- Installed on the chassis or inside of panel, and can be operated with remote closing & trip unit at the same time.

Contact specification

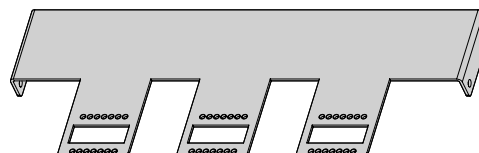
Division	Range of application	
ACB control	contact ratings	10A, 240V AC, 30V DC
	max. switching power	2,400VA, 300W

Temperature sensor



- The RCTU is used with temperature sensor installed inside of the ACB.
- The temperature sensor is installed in designated position. However user can change the position to applicable extra site.

Temperature sensor support



Different supports are designed to make easier the installation of IR temperature sensor:

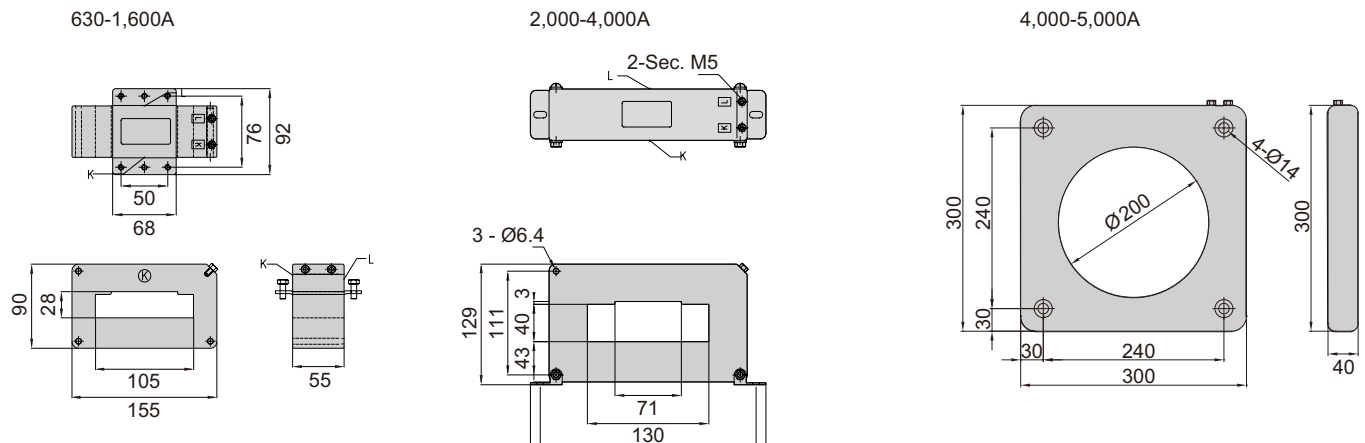
- Frame A, 3P and 4P
- Frame B, 3P and 4P
- Frame C, 3P and 4P

Neutral CT

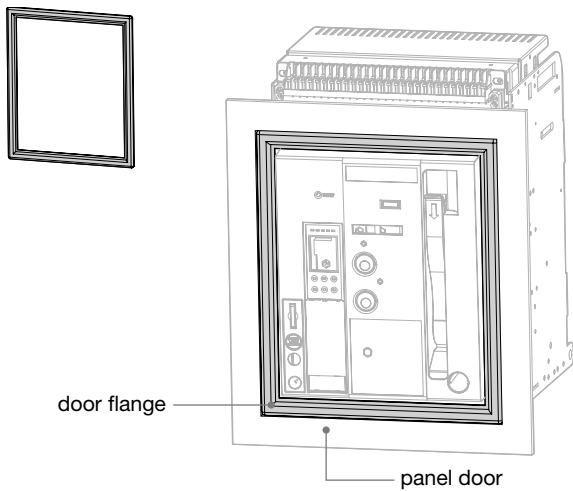


- The NCT is additionally applied for 3-pole circuit breaker when it is connected to distribution line (3 phases 4 lines).
- For distribution line (3 phases 4 lines) 3pole circuit breaker can protect the ground fault however, we can not classify unbalanced load and ground fault. To complement this when only a ground fault occurs the NCT senses the N phase load and operates the GFT.
- When connecting a relay or electric instrument checking phase is mandatory. Please connect the designated terminal.

Dimensions (mm)

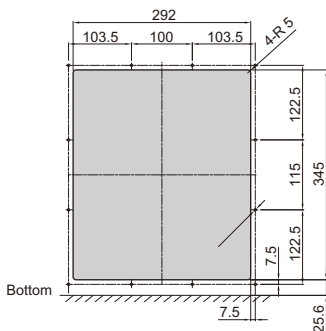


Door flange

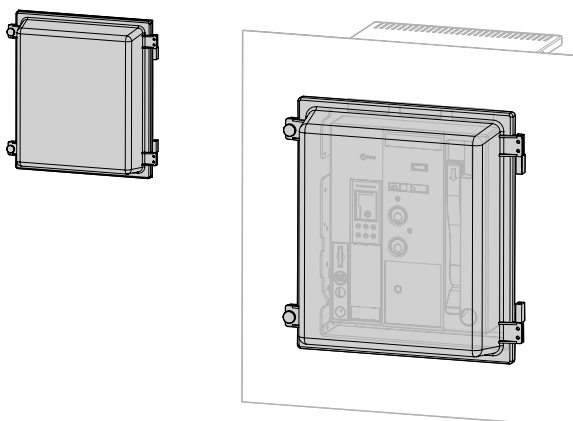


- Protects the protruding front of ACB and the cutting side of panel door by attaching it to the panel door.
- Both fixed/draw-out type are the same size of the panel cutting, even if the dust cover is installed.
- Refer to dimension for panel cutting size.
- Protection rating of IP30.

Panel door cutting dimensions (mm)

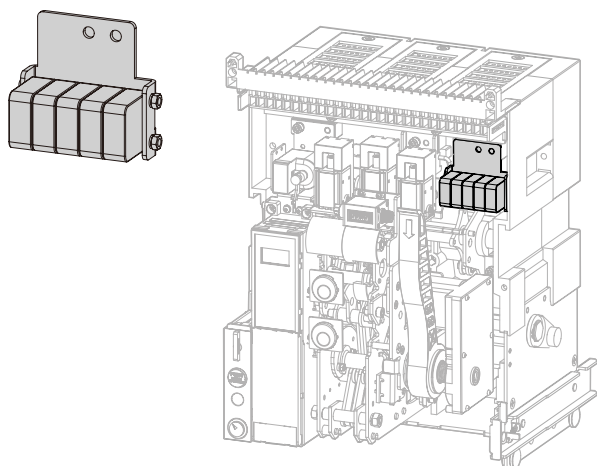


Dust cover

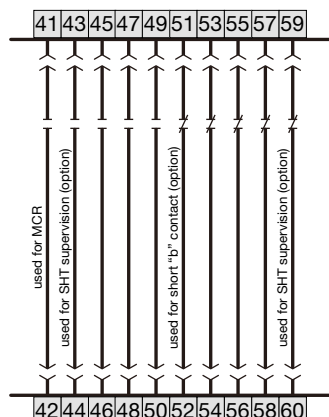


- A protective cover which completely protects the front panel of ACB from dust and moisture, with a protection rating of IP54.
- Locks the cover in the test or connected position.
- Refer to dimension for panel cutting size.

Auxiliary switch



Connection diagram



- A contact to monitor On/Off position of ACB remotely.
- 5a5b is standard for ACB HW series.
- Applicable AUX switch is up to 6a6b.
- When working with OCR's MCR function it will be 4NO, 5NC (4a5b). When both monitoring contact and MCR function working together it will be 3a4b.
- When ordering short "b" additionally it will be attached to 'b' contacts 51, 52 when the product is out. The additional short b which enclosed in the product is applicable as the number of the b contact.
- Additional AX 5a5b (MOC) can be fitted on the left side of breaker HWX565.

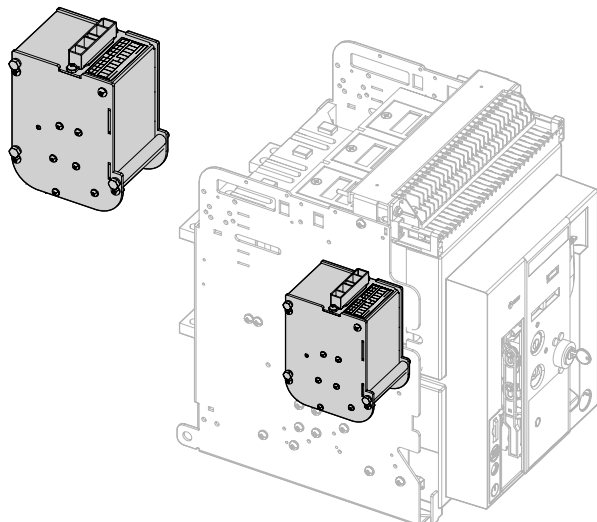
Ratings

Load	Resistance	Lamp	Inductor	Motor
AC125V	5A	0.7A	4A	1.3A
AC250V	5A	0.5A	4A	0.8A

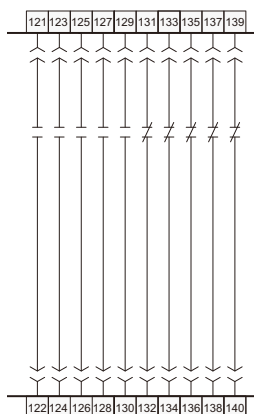
Wire ratings

Wire ratings (Un)	
AWG	insulation level (V)
20	300

Additional AX 5a5b (MOC)



Connection diagram



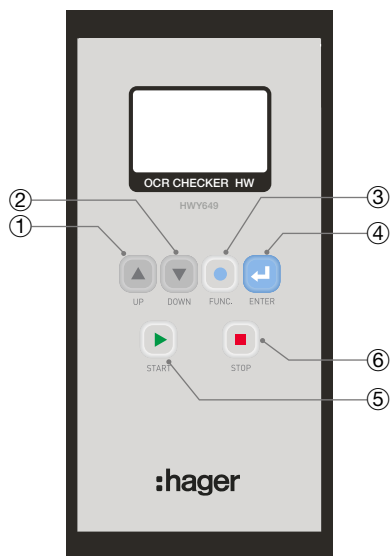
- MOC is suitable for ACB draw-out type
- When MOC is fitted, MI cannot be mounted.

OCR portable checker



- ACB HW portable checker tests for the operation of OCR (Long time/Short time delay/Instantaneous/Ground fault).
- It is possible to set current level, phases, and frequency for OCR's test.
- All testing factors are adjustable through front monitor and you can check operating time.
- Battery equipped inside (Available without external power source).

Keypad

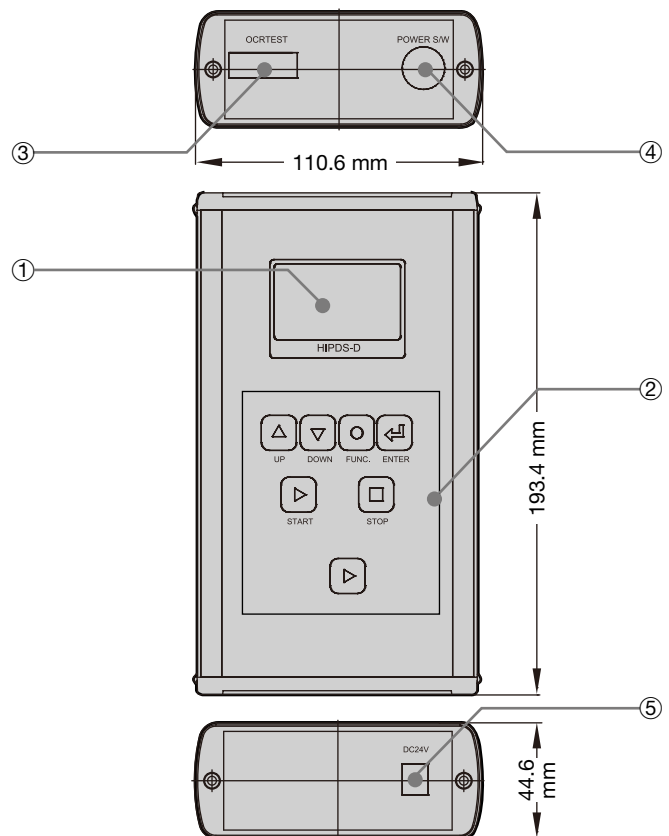


Nr	Button	Function
1	UP	move menu and increasing setpoint
2	DOWN	move menu and decrease setpoint
3	FUNC	move to the previous menu and return to the setup screen
4	ENTER	save the settings and move the number of digits of setting current
5	START	waveform occurrence
6	STOP	waveform stop

Connection diagram

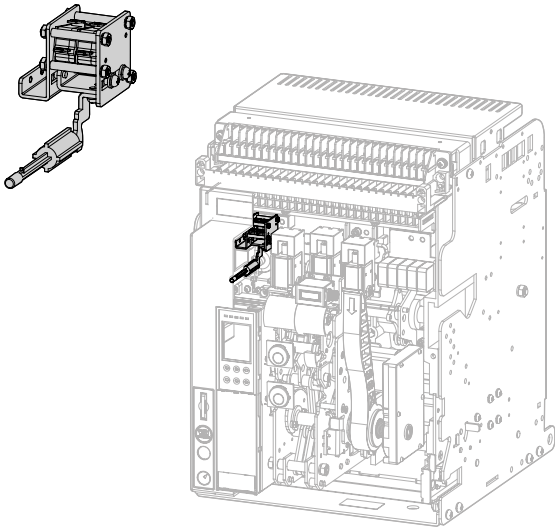
Item	Specifications
external power	input: AC/DC100-220V,50/60Hz output: DC24V,2.5A
battery	Alkaline 9V: 3EA
trip time measurement	0-999,999 sec
test output	0.3In-17In
output precision	±20% (1In-17In)
size (H×W×D)	193mm x 111mm x 45mm

Externals



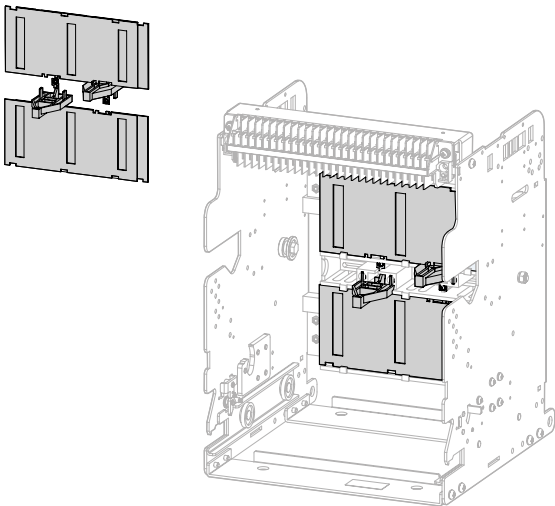
Nr	Button	Function
1	LCD	menu, setting current, trip time
2	keypad	move menu and setting
3	signal output terminal	OCR connection terminal
4	power switch	On/Off
5	terminal	control terminal of checker

OCR and alarm switch reset (MHT)



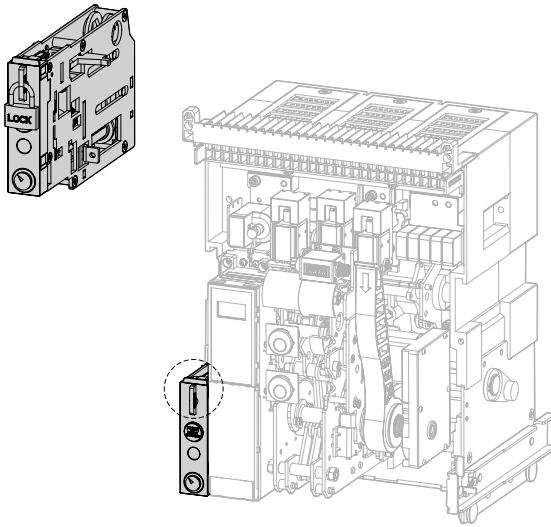
- When a circuit breaker tripped by fault current or over load and only if the circuit breaker has been tripped by OCR, the Manual Reset Button operates interlock and resets the interlock to restore electric lines after fault factors have been removed.
- When the ACB is tripped by OCR it provides functions of interlocking above mechanism and output contacts (1NO/1NC) which check operation of ACB by OCR as well. The output contact displays OCR operation by long time, short time delay, instantaneous and ground fault. And resetting above mechanism occurs.
- Except above functions when emergent restoration of electric load is needed it automatically reset itself to get ready to open immediately after trip and reset only output contacts.

Safety shutter lock



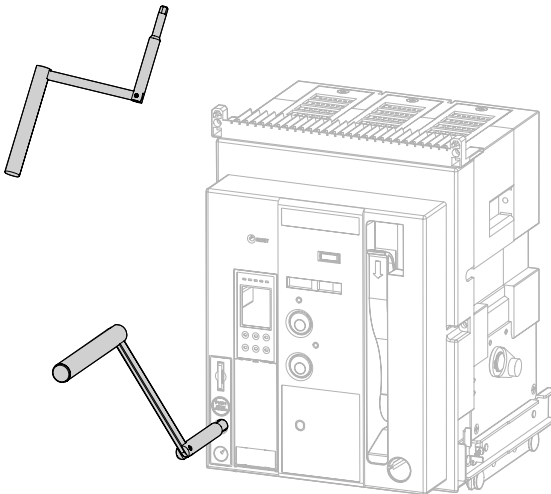
- An automatic safety device to protect the connectors of main circuit by cutting off dangerous contact from outside while the breaker is drawn out.
- Shutter lock is a locking device which prevents safety shutter from being opened when it is closed. (Key lock is not included. Size is Ø5-Ø8)

Draw-in/out device mechanism



- Draw-in/out device unit is mounted on the body of draw type ACB as standard.
- Draw-in/out device unit consists of draw-in/out handle storage space, push button, position indicator, pad lock.
- Position pad lock is a safety device as locking draw-in/out function in connected/test/sol position.
- This device is offered as standard except key lock. Available key lock size: Ø5-Ø8

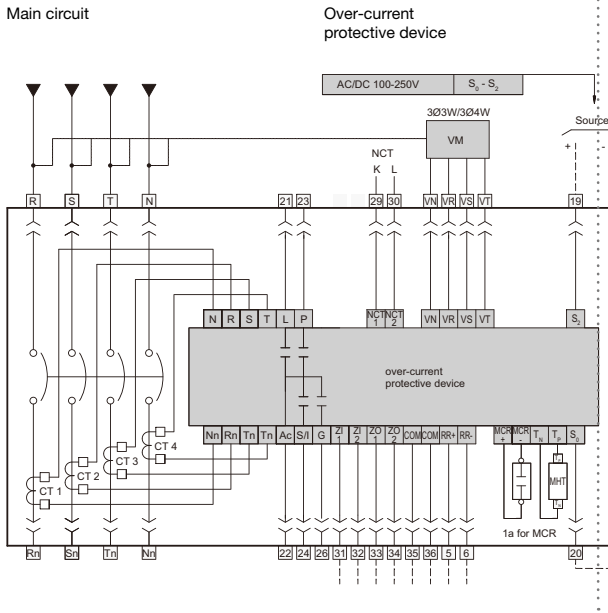
Draw-in/out handle



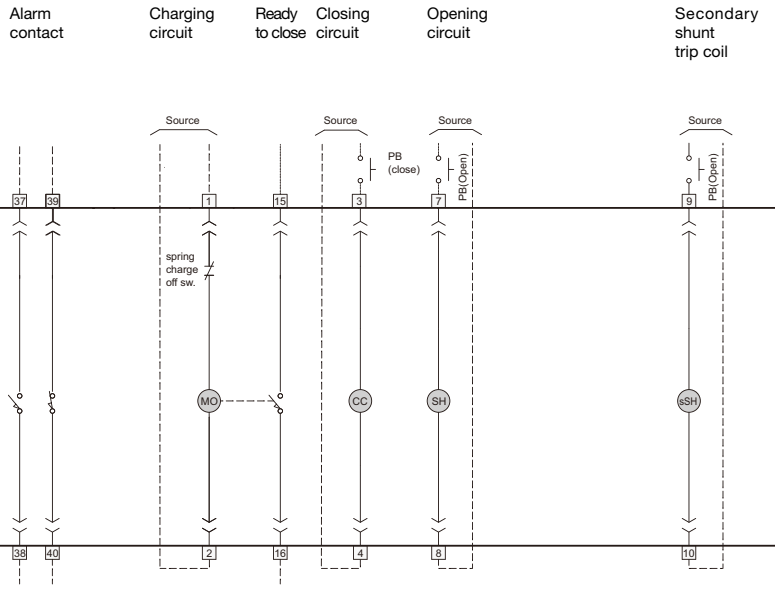
- Draw-in/out handle is included in storage place for draw-out type.



OCR Circuit diagram (Energy type)



Common Circuit diagram



Symbol description

CT	current transformer
L	LTD terminal
P	PTA terminal
G	GFT terminal
S/I	STD/INST terminal
Ac	common terminal
NCT	neutral current transformer
ZI	zone selective input
ZO	zone selective output
COM	communication (pc)
MCR+/-	MCR input terminal
Tp/Tn	MHT input source
MO	charging motor
CC	close coil (close)
SH	shunt trip coil (open)
sSH	secondary trip coil
UVT	undervoltage trip coil
MHT	magnetic hold trigger
S0/S2	protection unit source power
RR	remote reset

Terminal description

1-2	charging motor (MO) source power
3-4	closing coil (CC) source power
5-6	remote reset
7-8	opening coil (SH) source power
9-10	UVT coil / secondary shunt trip coil
15-16	ready to close contact (RTC)
19-20	OCR source power
22-21	LTD contact
22-23	PTA contact
22-24	STD/INST contact
22-26	GFT
29-30	NCT input terminal
31-34	ZSI input/output
35-36	communication (RS485)
37-40	OCR alarm contact
VN-VT	voltage module
43-60	AUX switch contact
61-96	position switch

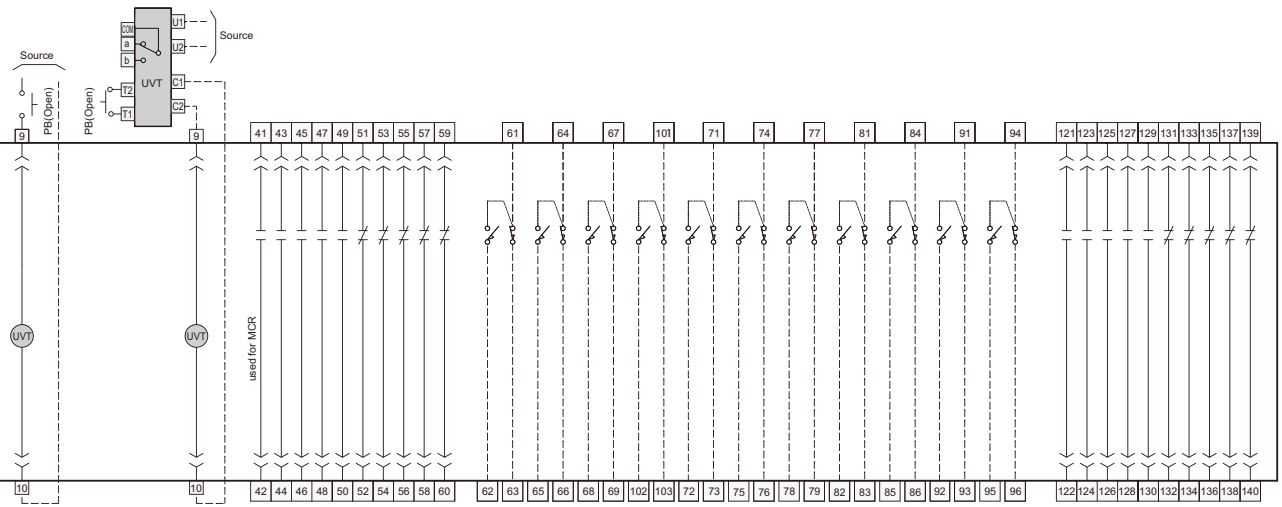
- Manufacturer's wiring
- User's wiring
- ⌞ Disconnecting device (Draw-out type)

Under-voltage trip

Auxiliary sw.

Position sw.

MOC
Mechanical Operated
Cell switch



Main incomers

Test position
61-62 a
61-63 b
64-65 a
64-66 b
67-68 a
67-69 b
101-102 a
101-103 b

Connection position
71-72 a
71-73 b
74-75 a
74-76 b
77-78 a
77-79 b

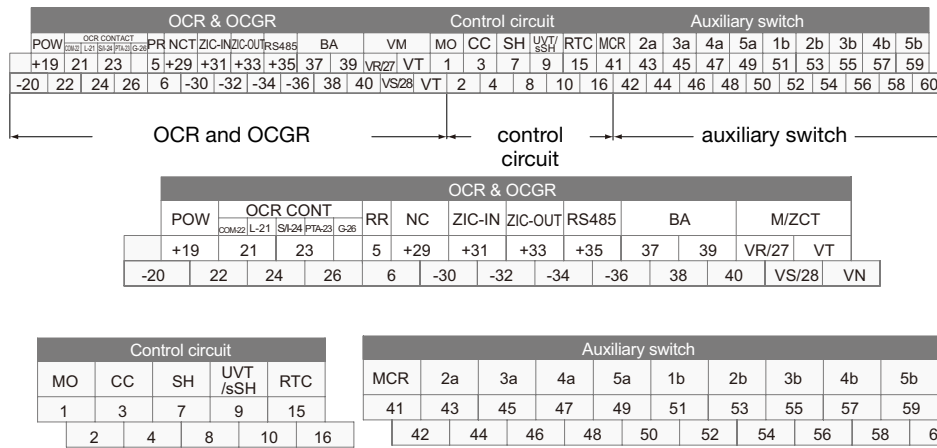
Isolation position
81-82 a
81-83 b
84-85 a
84-86 b

Insert position
84-85 a
84-86 b
91-92 a
91-93 b
94-95 a
94-96 b

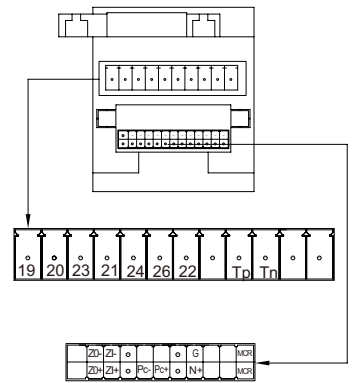
Additional auxiliary SW
5NO/5NC

"a" contact = NO contact
"b" contact = NC contact

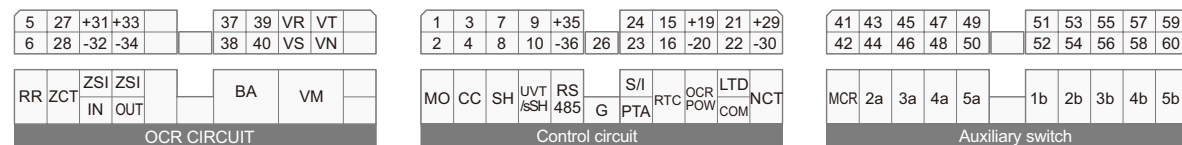
Draw-out type lay-out



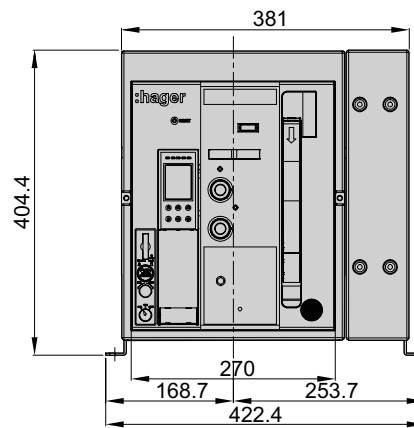
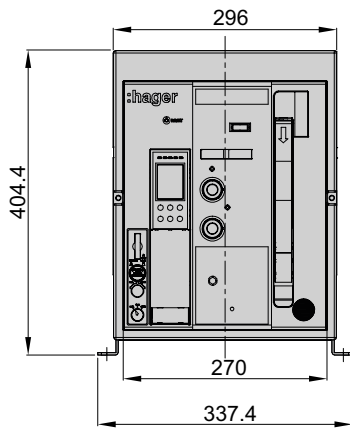
Over-current protective device (standard type)



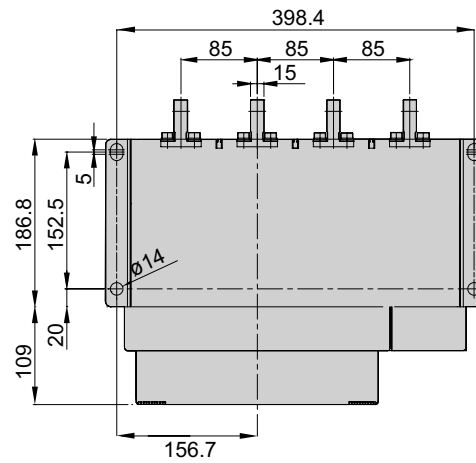
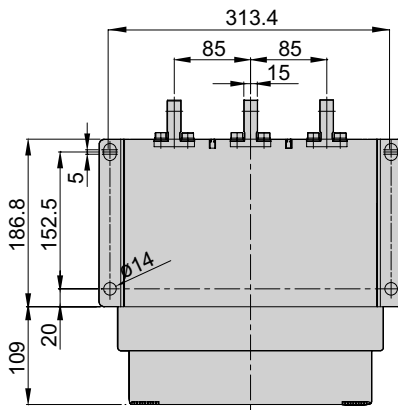
Fixed type lay-out



A frame draw-out type dimensions
Front view (mm)

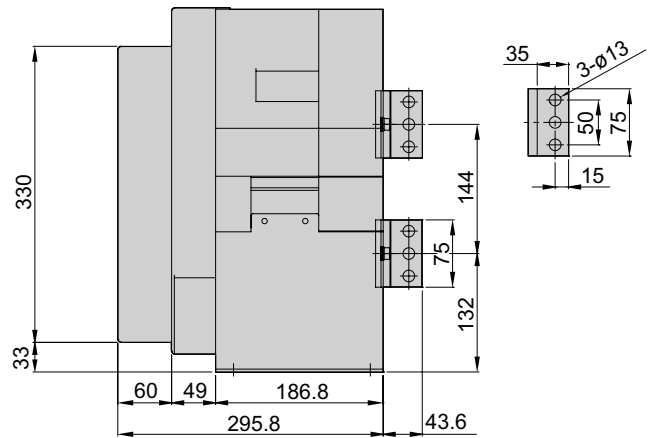
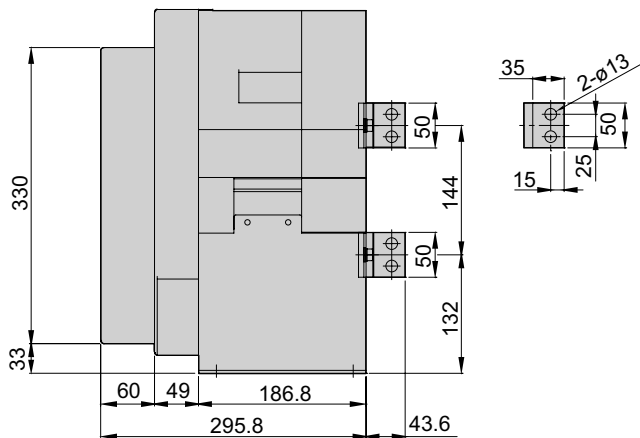


Vertical terminal connection (mm)



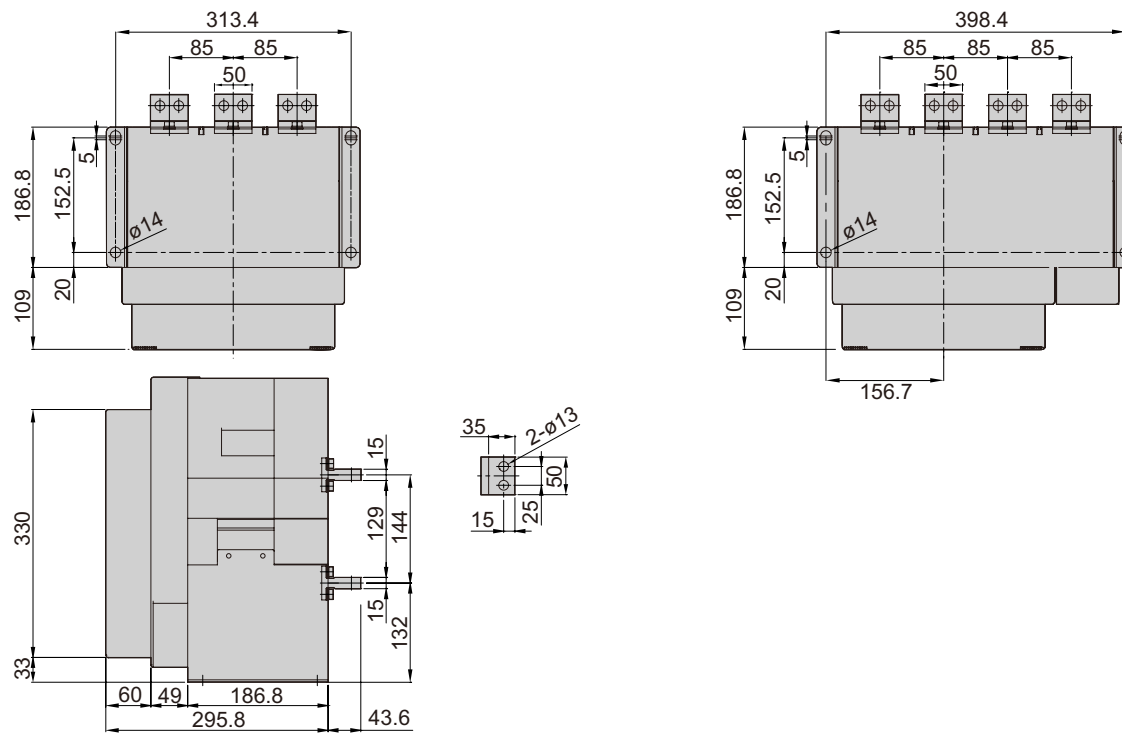
[630-1,600A]

[2000A]

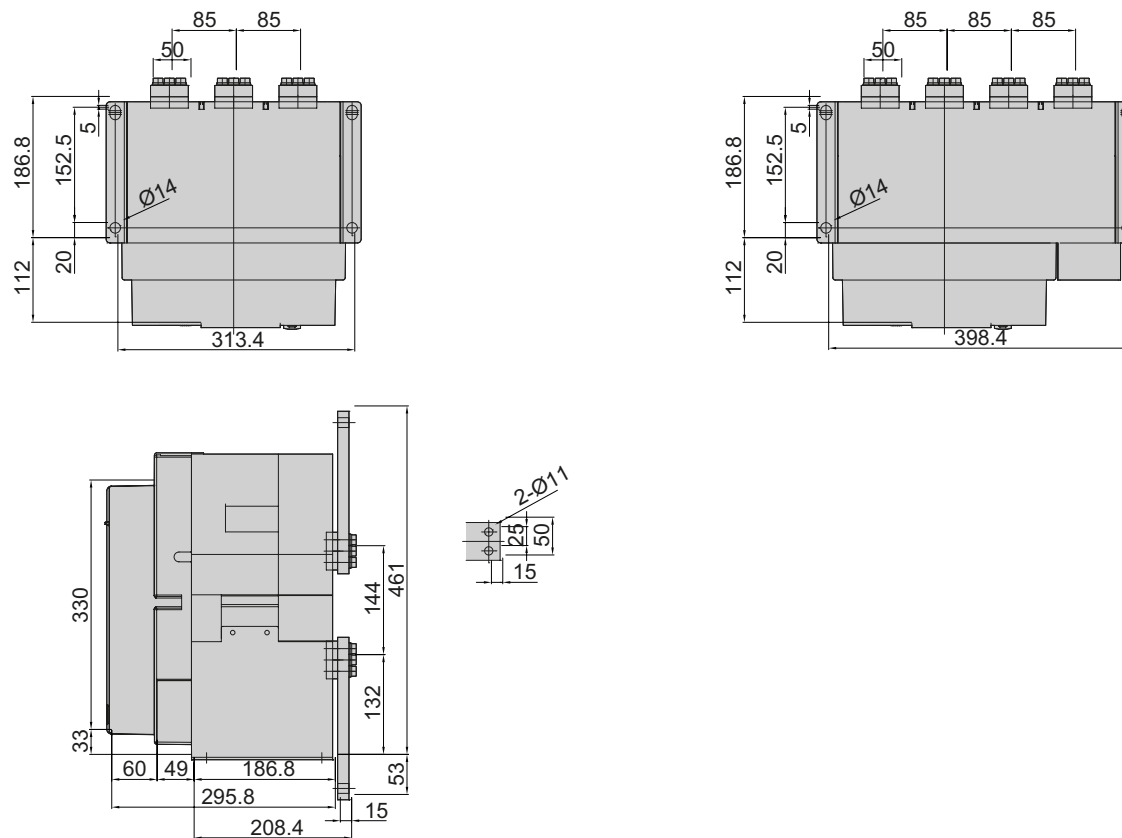


A frame 2,000A of ACB Hw is applicable vertical terminal only.

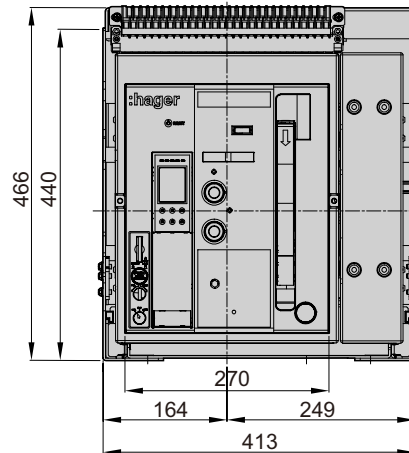
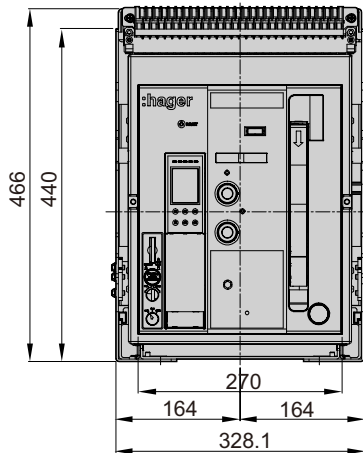
A frame draw-out type dimensions
Horizontal terminal connection (mm)



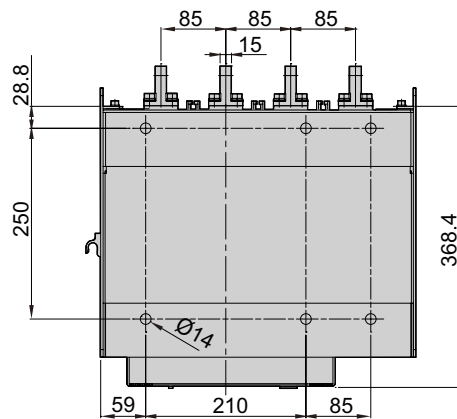
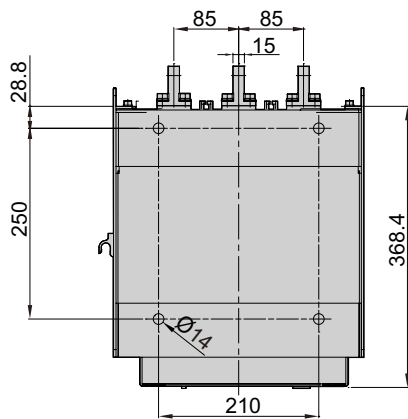
Front terminal connection (mm)
[630 - 1600A]



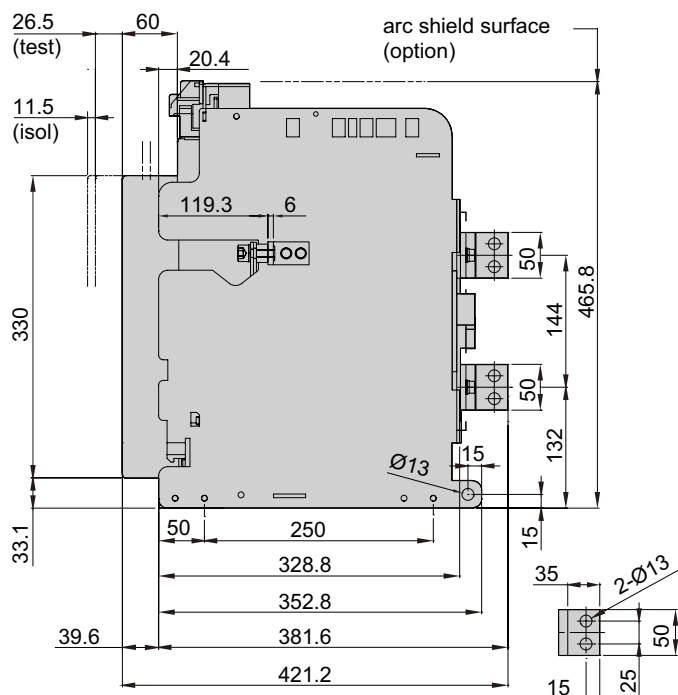
A frame draw-out type dimensions
Front view (mm)



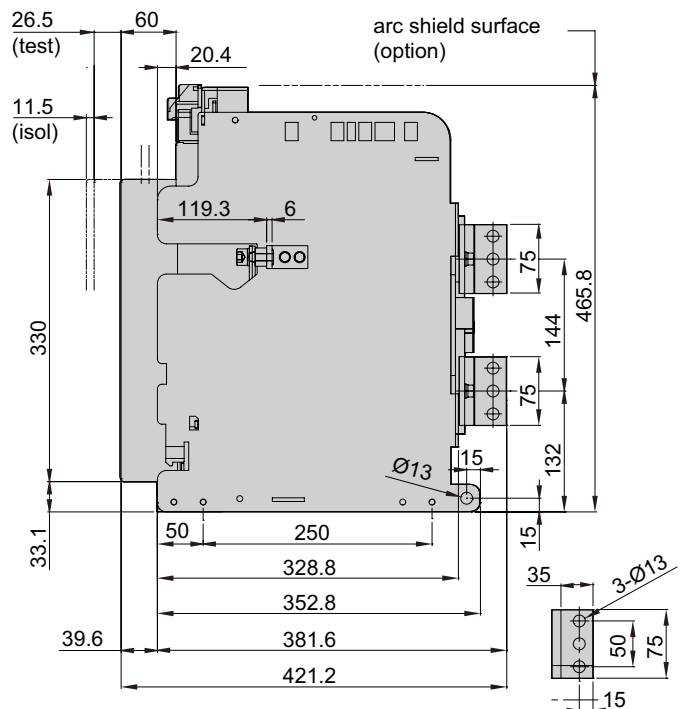
Vertical terminal connection (mm)



[630-1,600A]

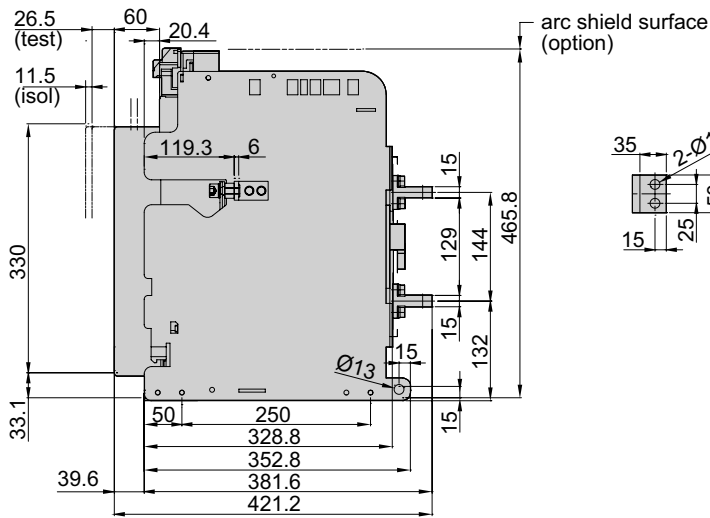
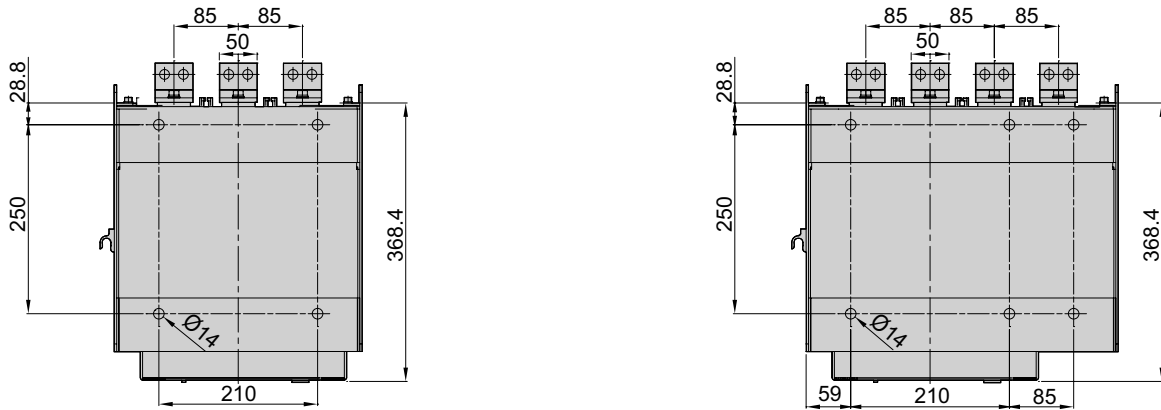


[2,000A]

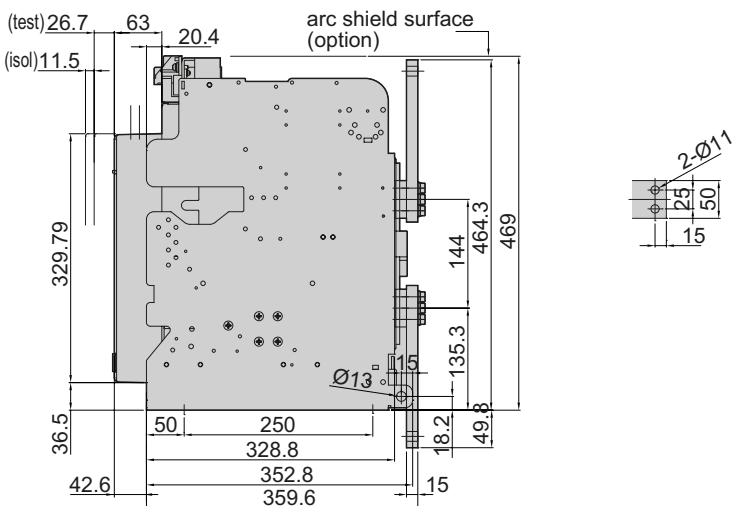
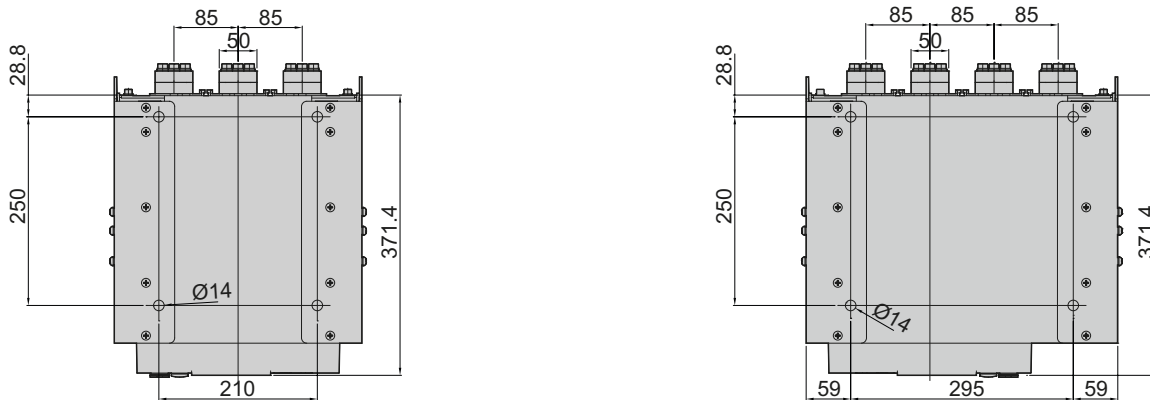


A frame 2,000A of ACB Hw is applicable vertical terminal only.

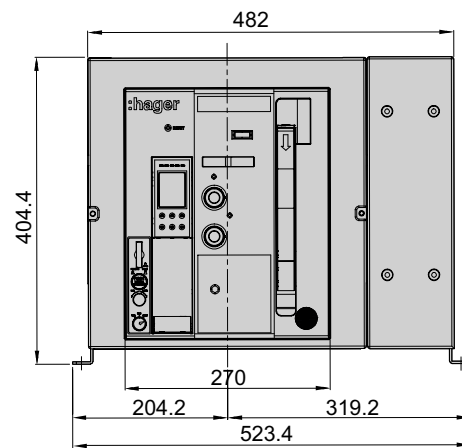
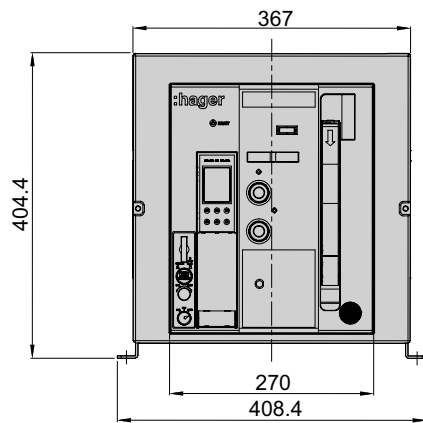
A frame draw-out type dimensions
Horizontal terminal connection (mm)



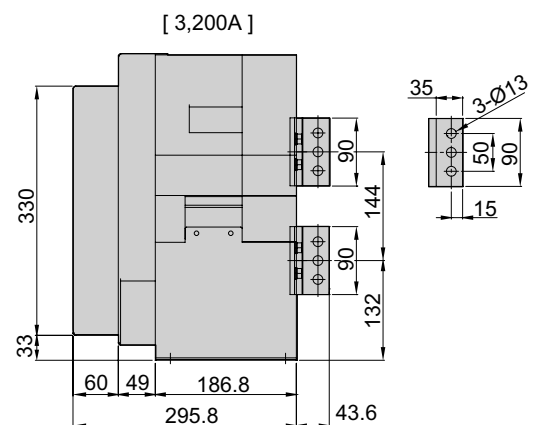
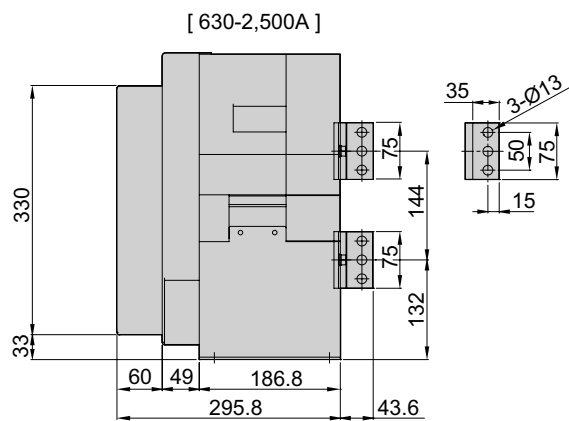
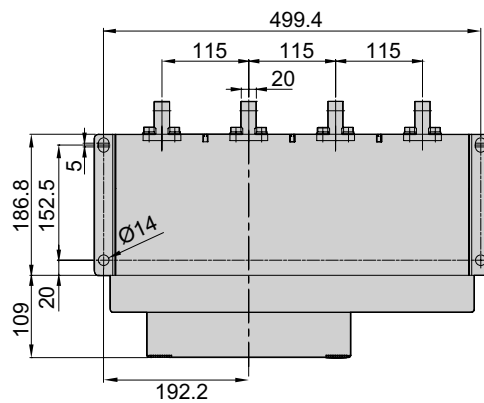
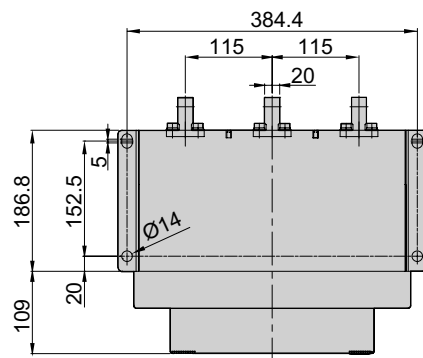
Front terminal connection (mm)
[630-1600A]



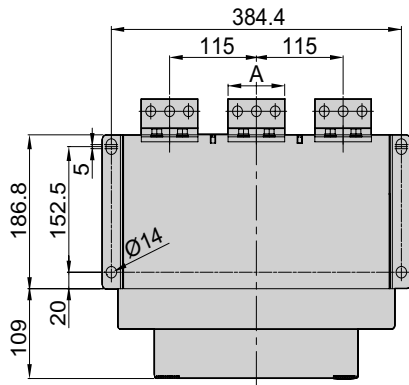
B frame fixed type 630 - 3200A dimensions
Front view (mm)



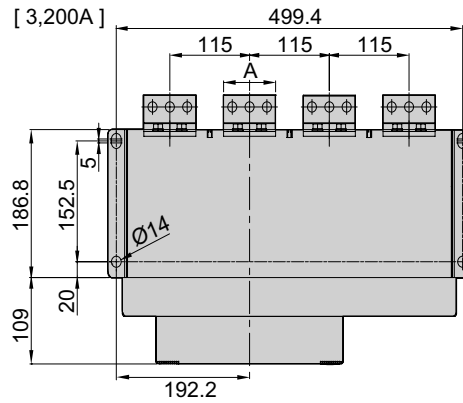
Vertical terminal connection (mm)



B frame fixed type 630 - 3200A dimensions
Horizontal terminal connection (mm)

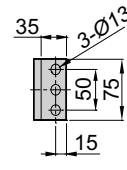
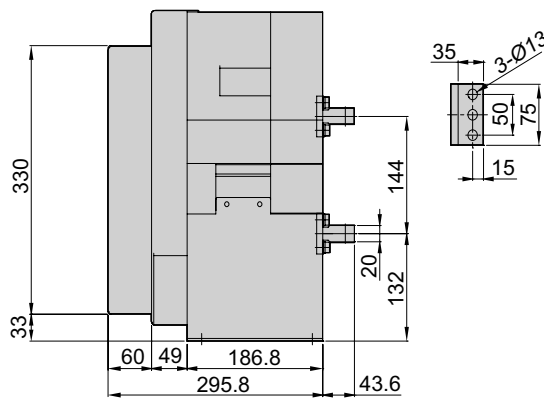
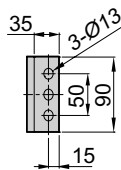
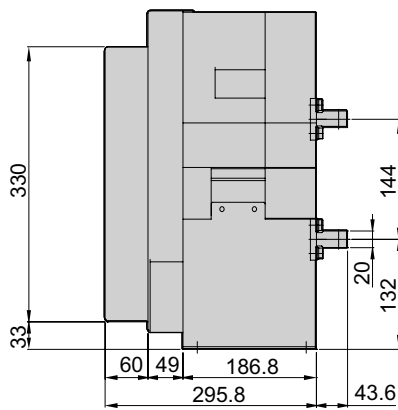


Range	A (mm)
630 - 2500A	75
3200A	90

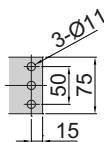
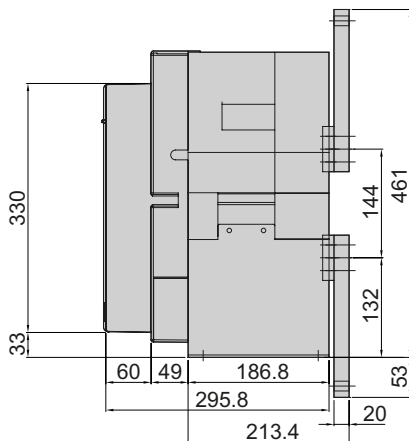
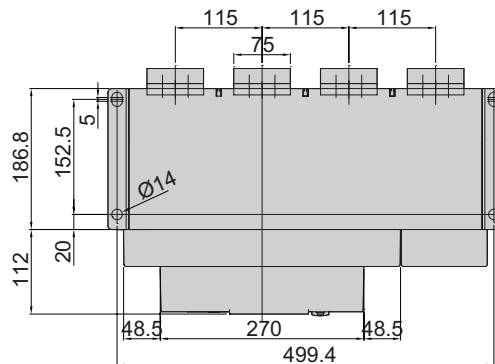
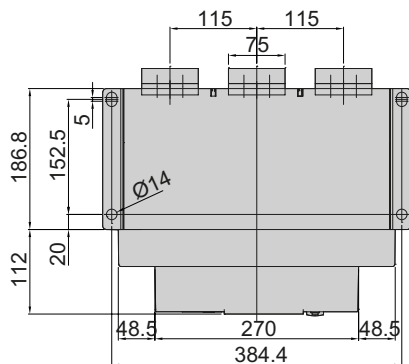


[3,200A]

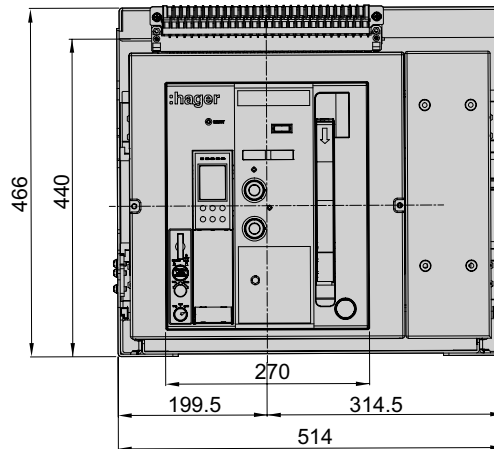
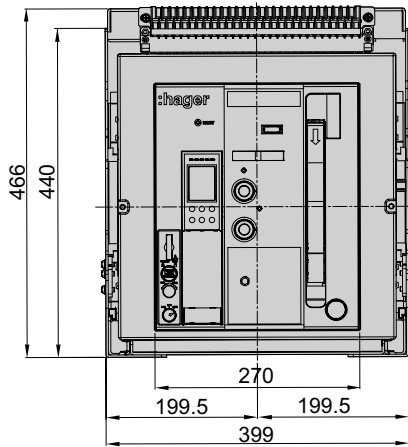
[630~2,500A]



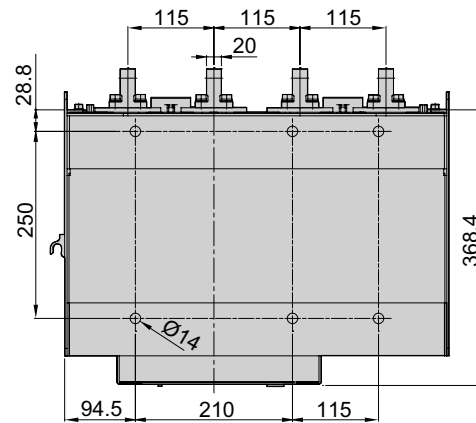
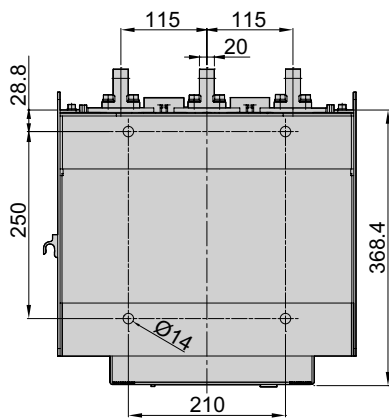
Front terminal connection (mm)
[630-3200A]



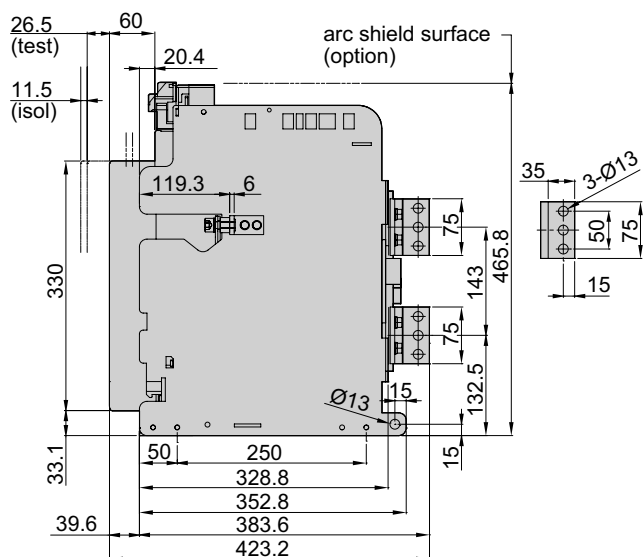
B frame draw-out type 630 - 3200A dimensions
Front view (mm)



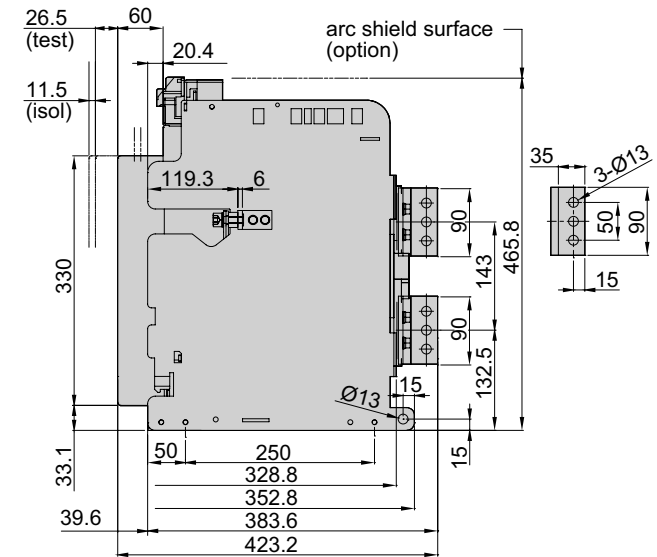
Vertical terminal connection (mm)



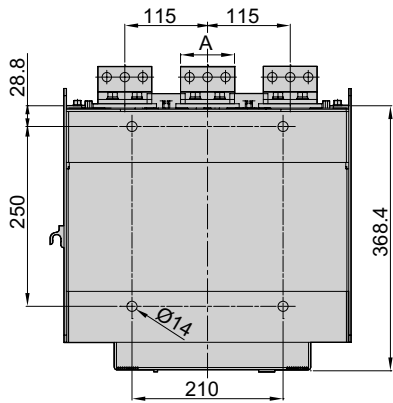
[630-2,500A]



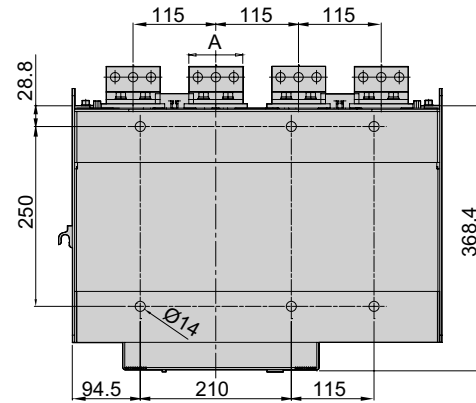
[3,200A]



B frame draw-out type 630 - 3200A dimensions
Horizontal terminal connection (mm)

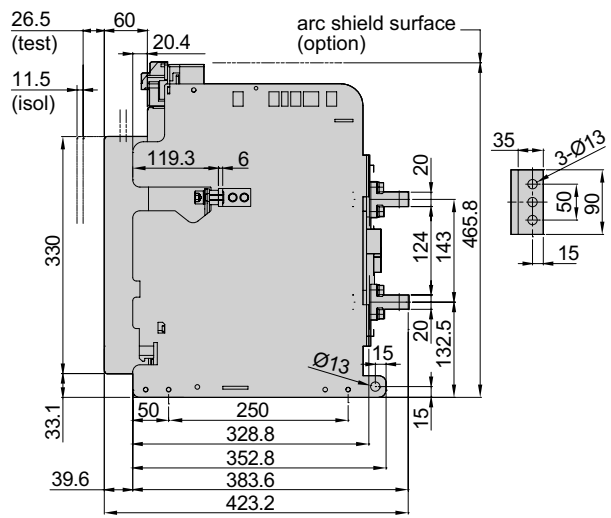
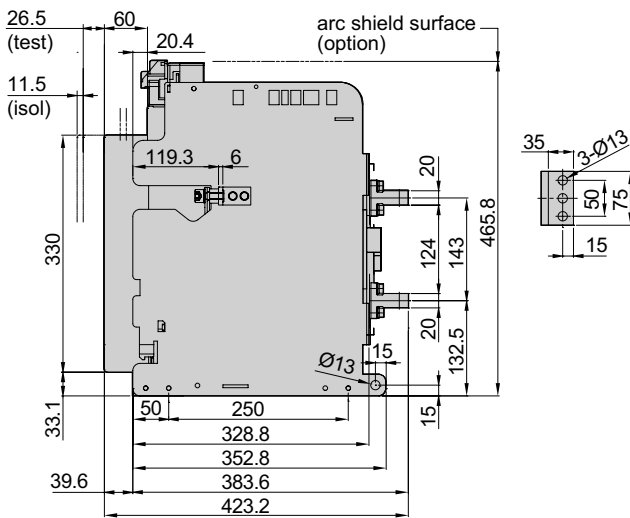


Range	A (mm)
630 - 2500A	75
3200A	90

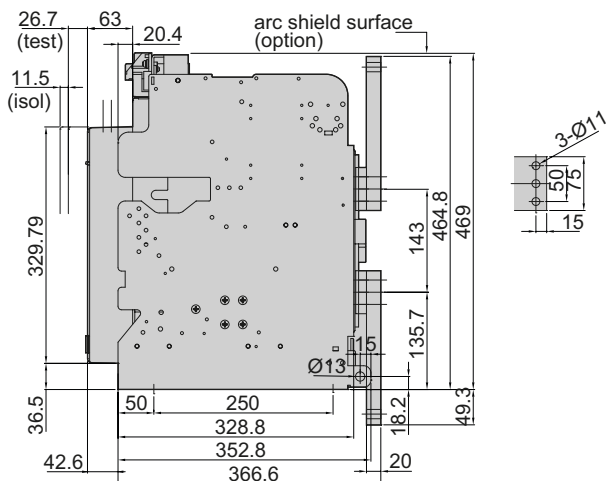
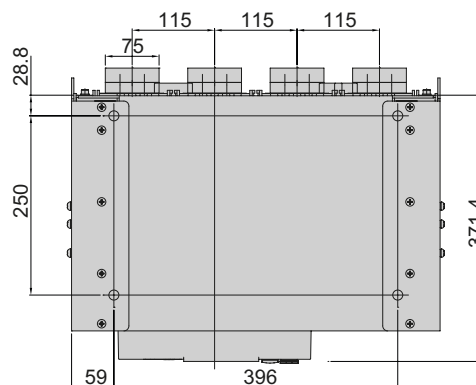
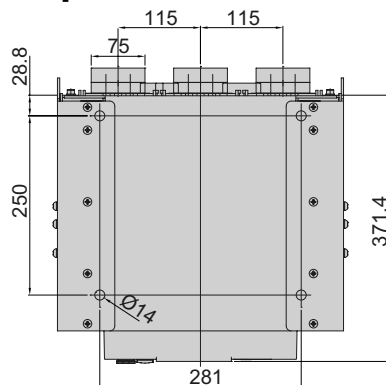


[630-2,500A]

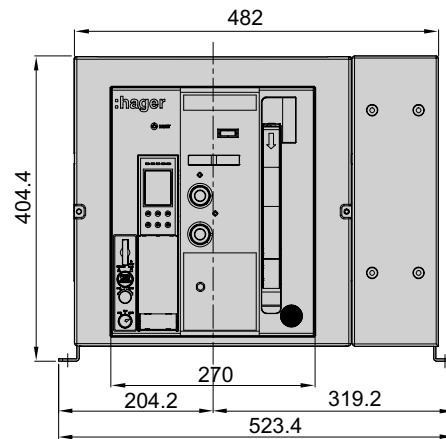
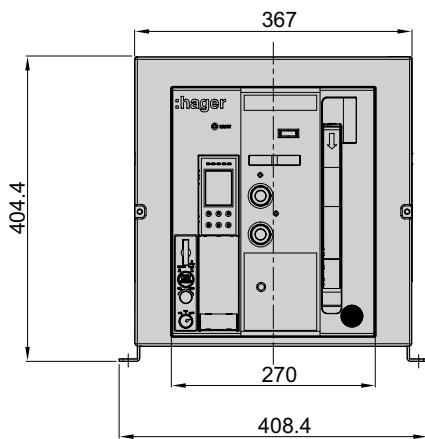
[3,200A]



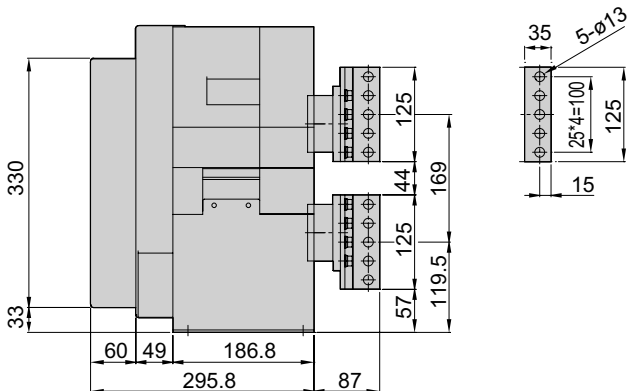
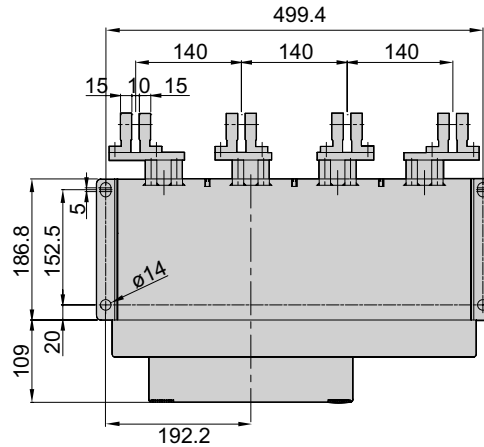
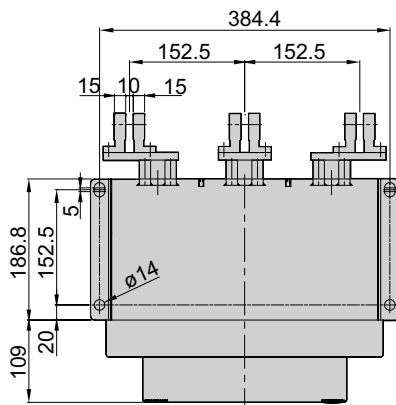
Front terminal connection (mm)
[630-3200A]



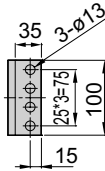
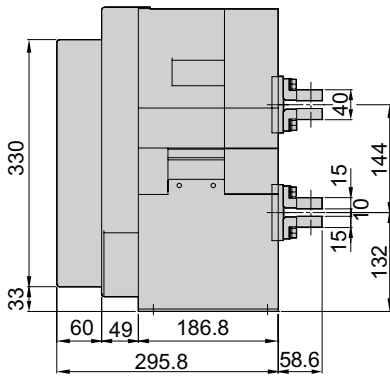
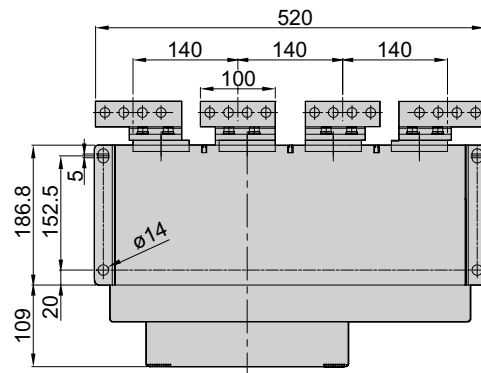
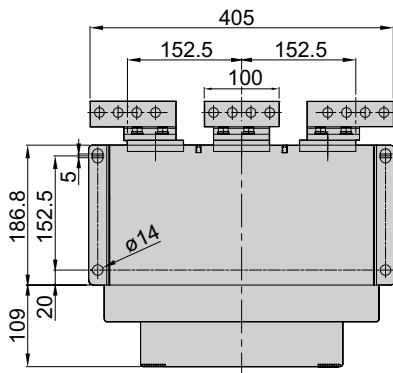
B frame fixed type 4000A dimensions
Front view (mm)



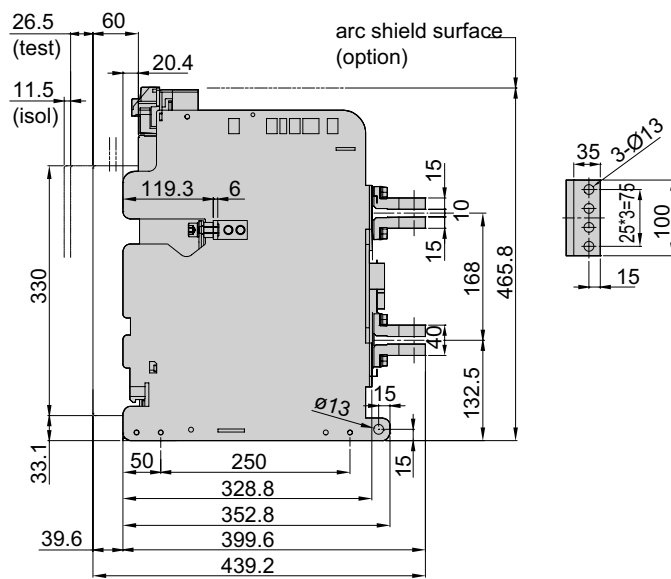
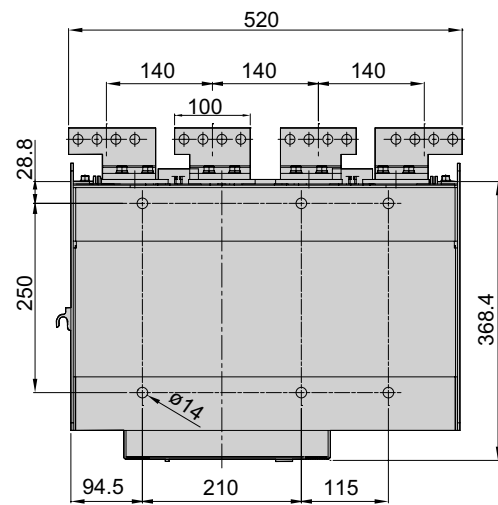
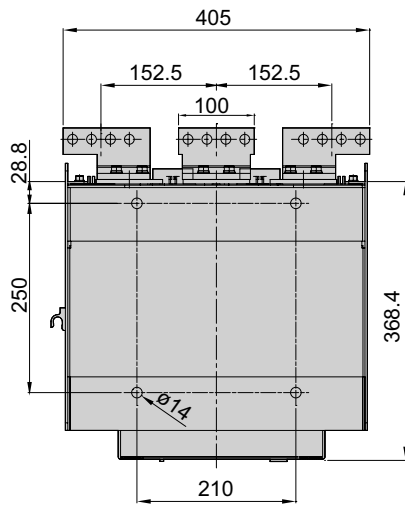
Vertical terminal connection (mm)



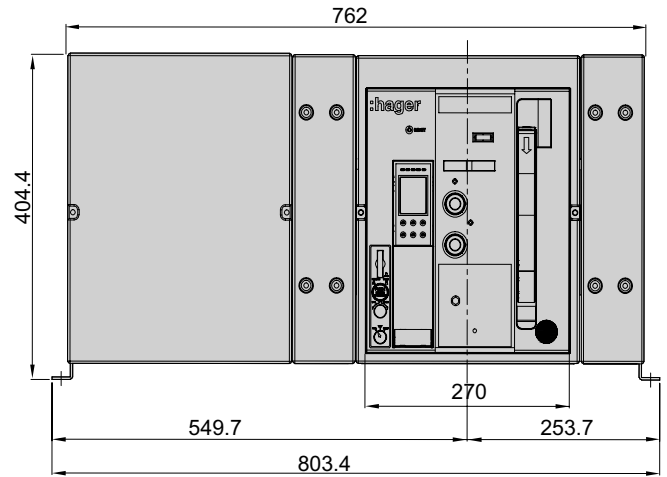
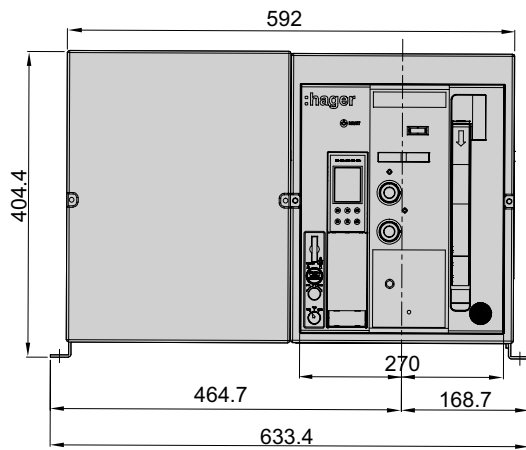
B frame fixed type 4000A dimensions
Horizontal terminal connection (mm)



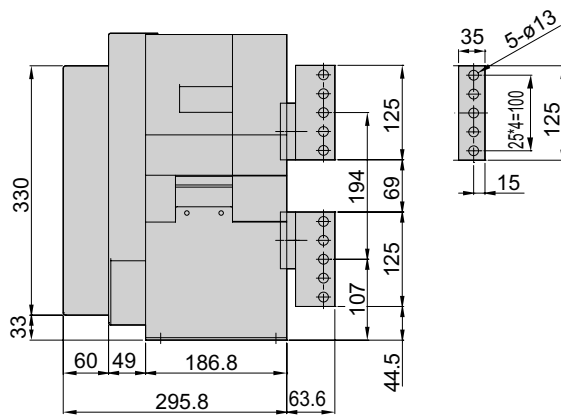
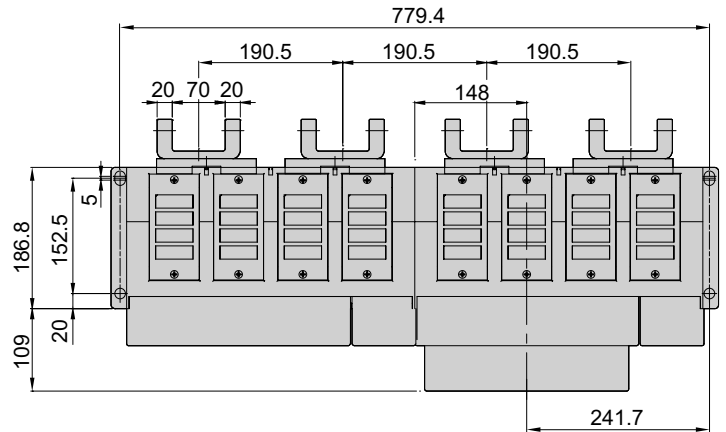
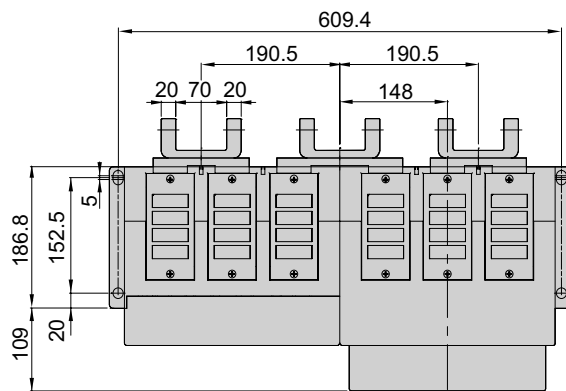
B frame draw-out type 4000A dimensions
Horizontal terminal connection (mm)



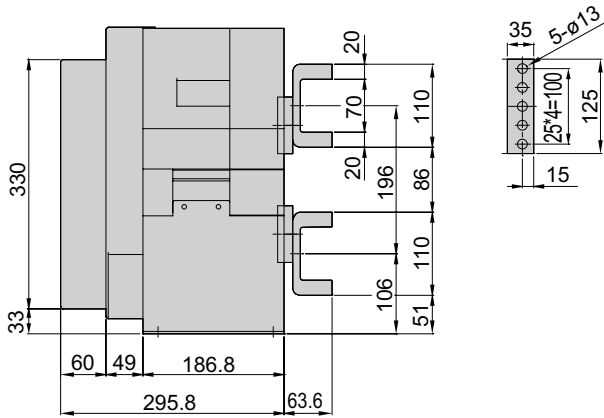
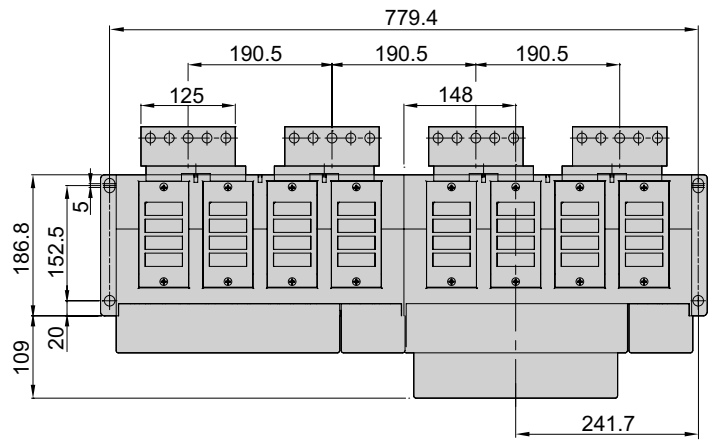
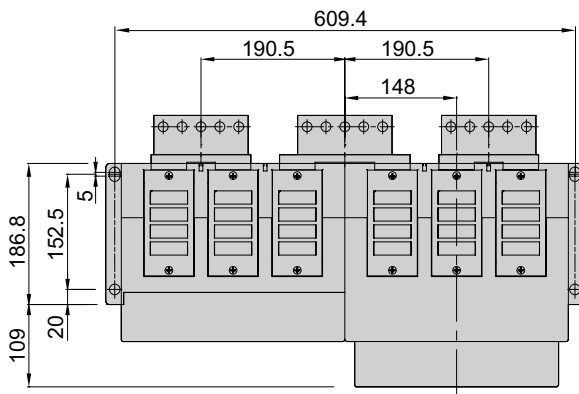
C frame fixed type 3200-5000A dimensions
Front view (mm)



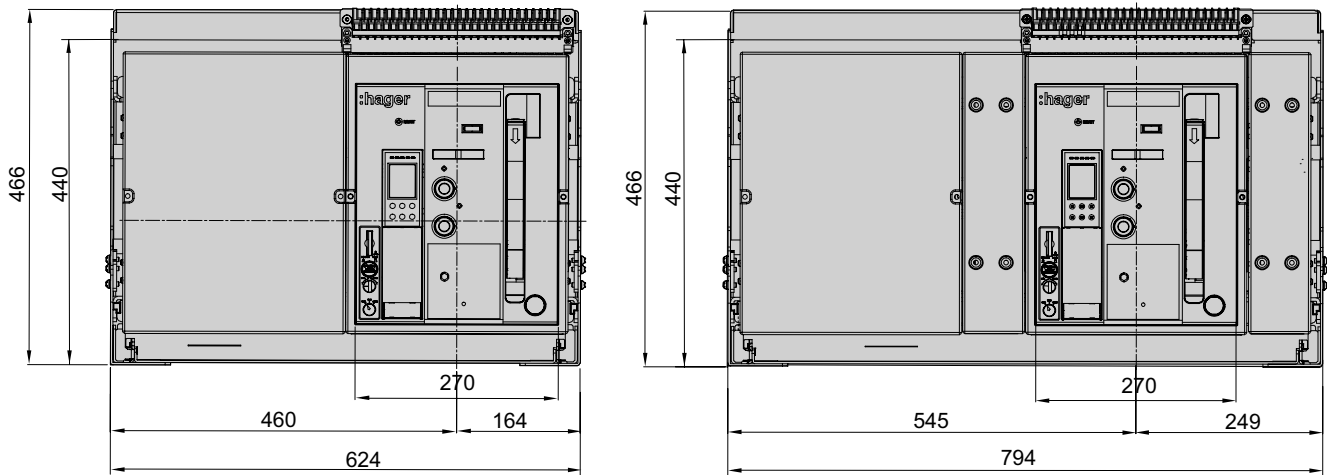
Vertical terminal connection (mm)



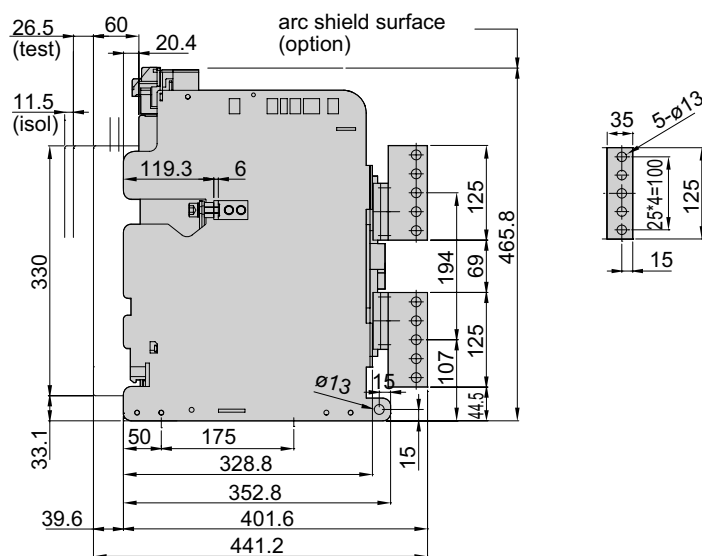
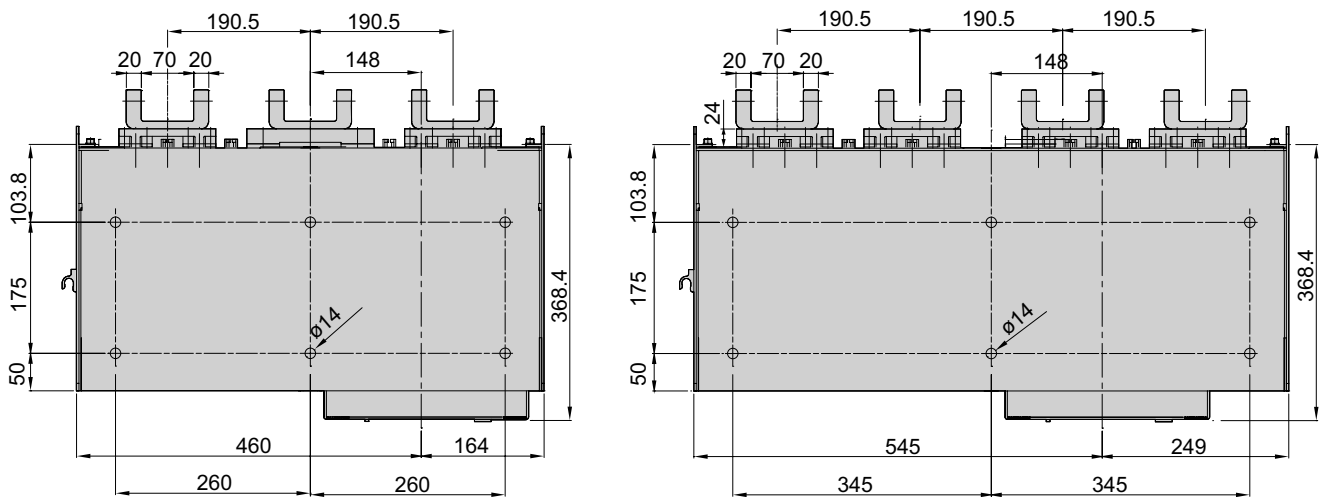
C frame fixed type 3200-5000A dimensions
Horizontal terminal connection (mm)



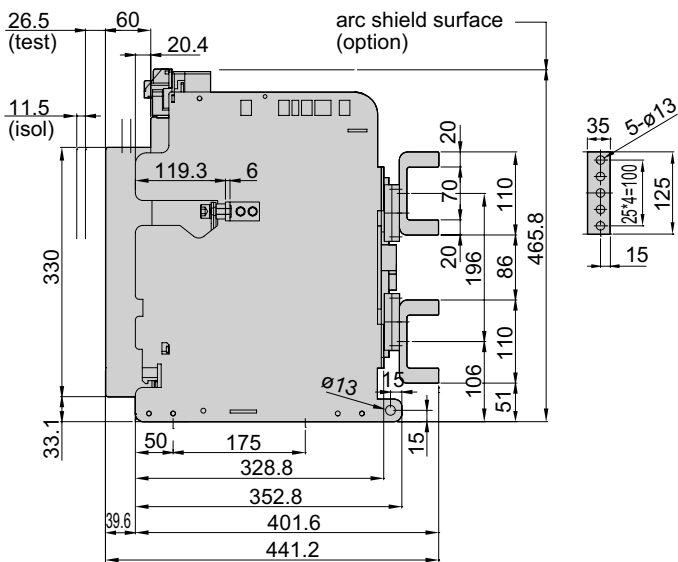
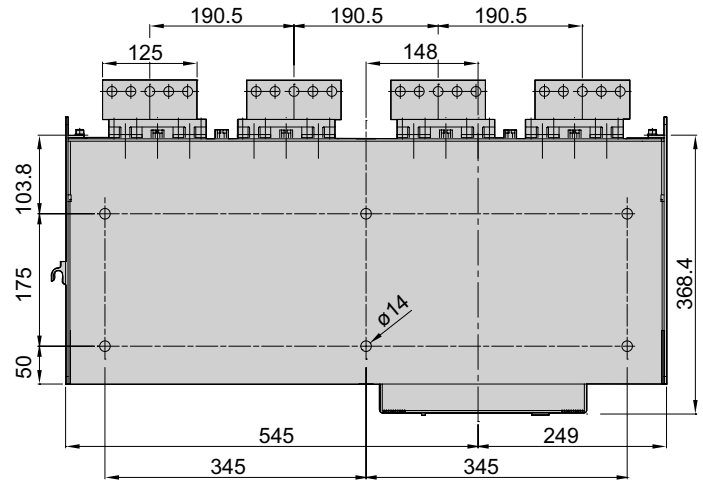
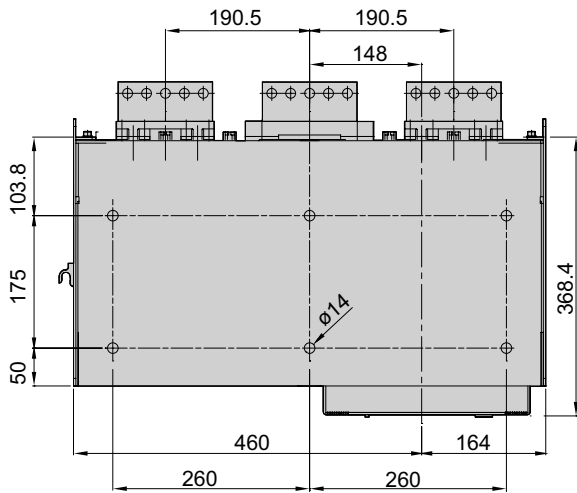
C frame draw-out type 3200-5000A dimensions
Front view (mm)



Vertical terminal connection (mm)

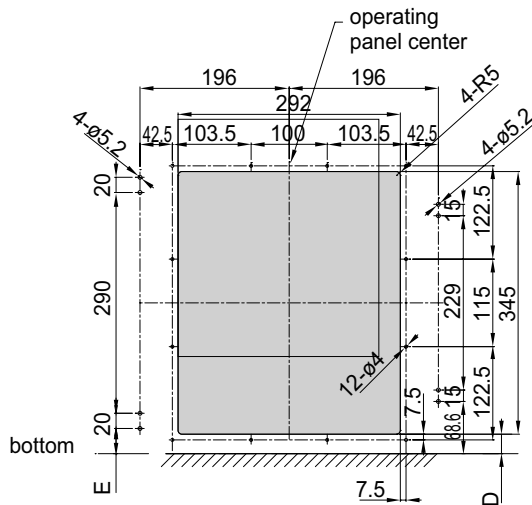


C frame draw-out type 3200-5000A dimensions
Horizontal terminal connection (mm)

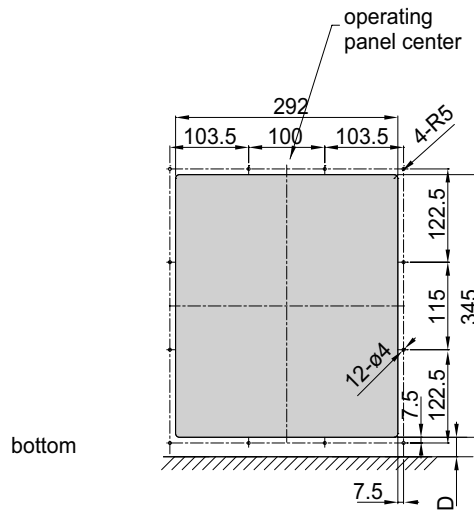


Draw-out type dimensions

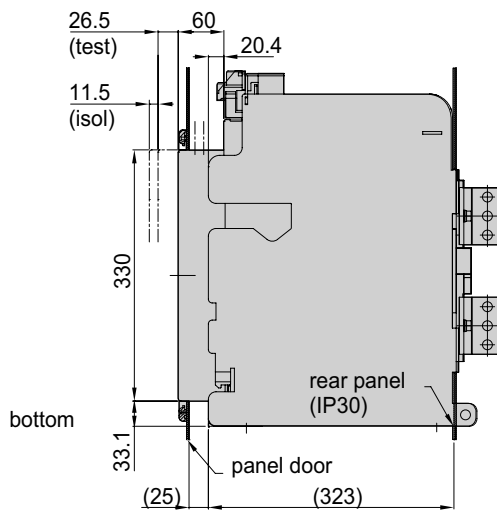
Panel door cut-out for dust cover (mm)



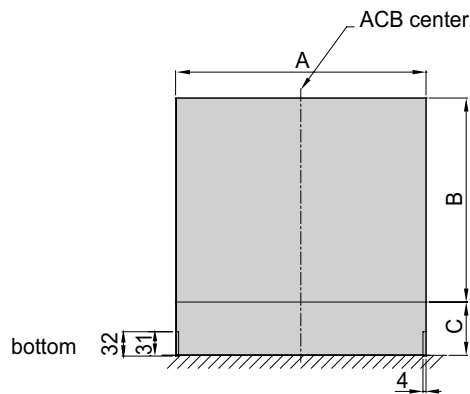
Panel door cut-out for door flange (mm)



Side view (mm)



Rear panel cutting size (mm)

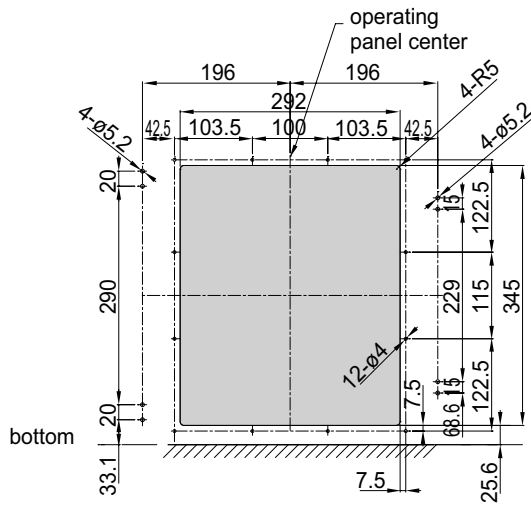


Rear panel cutting size (mm)

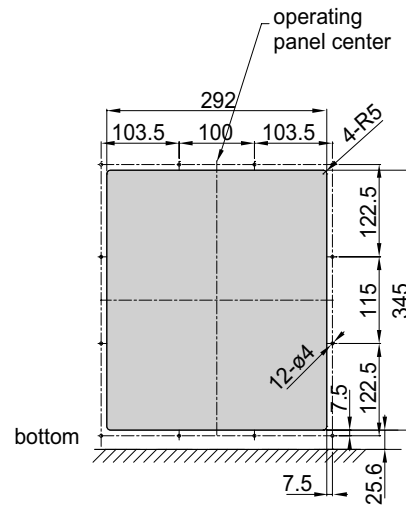
Model	A	B	C	D	E
frame A, 3 pole	329	268	70	28.7	36.5
frame A, 4 pole	414	268	70	28.7	36.5
frame B, 3 pole	400	298	55	28.7	36.5
frame B, 4 pole	515	298	55	28.7	36.5
frame C, 3 pole	625	338	35	48.7	56.5
frame C, 4 pole	795	338	35	48.7	56.5

Fixed type dimensions

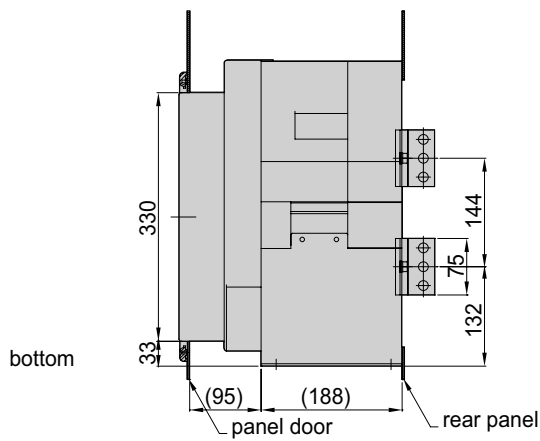
Panel door cut-out for dust cover (mm)



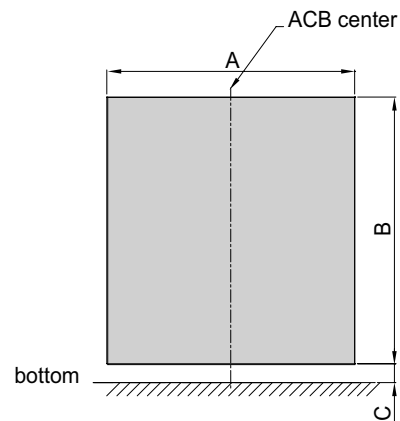
Panel door cut-out for door flange (mm)



Side view (mm)



Rear panel cutting size (mm)



Rear panel cutting size (mm)

Model	A	B	C
frame A, 3 pole	283	355	25
frame A, 4 pole	368	355	25
frame B, 3 pole	354	355	25
frame B, 4 pole	469	355	25
frame C, 3 pole	579	355	25
frame C, 4 pole	749	355	25

Internal resistance and power consumption

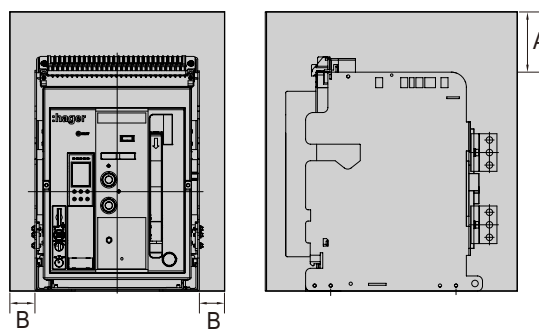
Model type	Rated current (A)	Fixed type		Draw-out type	
		Internal resistance (mΩ)	Power consumption (W/3Phase)	Internal resistance (mΩ)	Power consumption (W/3Phase)
frame A	630	15	18	30	36
	800	15	29	30	58
	1000	15	45	30	90
	1250	15	70	30	141
	1600	15	115	30	230
	2000	13	156	27	324
frame B	2000	10	120	20	240
	2500	10	188	20	375
	3200	10	307	20	614
	4000	8	384	11	528
frame C	4000	8	384	11	528
	5000	8	600	11	825

- 1) Power consumption listed is maximum power consumption for each rated current, 50/60Hz, 3/4 pole.
- 2) This is inner resistance value per pole.
- 3) Power factor = 1.0

Insulation distance

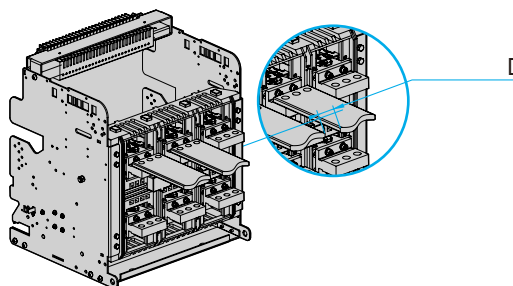
- Insulation distance from arc (in mm)

ACB		A	B
Fixed type		150 (415V) 300 (690V)	60
Draw-out type	without arc shield	150 (415V) 300 (690V)	60
	with arc shield	0	60





- Minimum insulation distance at charging side (in mm)

Insulating voltage	D
(V) ≤ 600 V	8
600 V < (V) ≤ 1000 V	14



Rectification of rated current

Frame	Terminal connection of ACB body	Rated current	Applicable busbar size											
				horizontal type					vertical type					
				40°C	45°C	50°C	55°C	60°C	40°C	45°C	50°C	55°C	60°C	
frame A	15t x 50mm x 1EA	630A	5t x 50mm x 2EA	630A	630A	630A	630A	630A	630A	630A	630A	630A	630A	
			10t x 60mm x 1EA											
		800A	6t x 50mm x 2EA	800A	800A	800A	800A	800A	800A	800A	800A	800A	800A	800A
			10t x 60mm x 1EA											
		1000A	8t x 50mm x 2EA	1000A	1000A	1000A	1000A	1000A	1000A	1000A	1000A	1000A	1000A	1000A
			6t x 75mm x 2EA	-	-	-	-	-						
	1250A	8t x 60mm x 2EA	1250A	1250A	1250A	1250A	1250A	1250A	1250A	1250A	1250A	1250A	1250A	
		10t x 50mm x 2EA												
		6t x 75mm x 3EA	-	-	-	-	-							
	1600A	10t x 60mm x 3EA	1600A	1600A	1520A	1480A	1420A	1600A	1600A	1600A	1550A	1550A	1550A	
		8t x 60mm x 3EA												
	frame A	20t x 75mm x 1EA	2000A	8t x 75mm x 3EA	-	-	-	-	-	2000A	2000A	2000A	1860A	1860A
10t x 100mm x 2EA														
frame B	20t x 75mm x 1EA	630A	5t x 50mm x 2EA	630A	630A	630A	630A	630A	630A	630A	630A	630A	630A	
			10t x 60mm x 1EA											
		800A	6t x 50mm x 2EA	800A	800A	800A	800A	800A	800A	800A	800A	800A	800A	800A
			10t x 60mm x 1EA											
		1000A	8t x 50mm x 2EA	1000A	1000A	1000A	1000A	1000A	1000A	1000A	1000A	1000A	1000A	1000A
			6t x 75mm x 2EA	-	-	-	-	-						
	1250A	8t x 60mm x 2EA	1250A	1250A	1250A	1250A	1250A	1250A	1250A	1250A	1250A	1250A	1250A	
		10t x 50mm x 2EA												
		6t x 75mm x 3EA	-	-	-	-	-							
	1600A	10t x 60mm x 3EA	1600A	1600A	1600A	1600A	1600A	1600A	1600A	1600A	1600A	1600A	1600A	
		8t x 60mm x 3EA												
	2000A	8t x 75mm x 3EA	2000A	2000A	2000A	2000A	2000A	2000A	2000A	2000A	2000A	2000A	2000A	
10t x 100mm x 2EA		-	-	-	-	-								
2500A	10t x 75mm x 3EA	2500A	2500A	2500A	2400A	2300A	2500A	2500A	2500A	2500A	2500A	2500A		
	8t x 75mm x 4EA													
frame B	20t x 90mm x 1EA	3200A	10t x 100mm x 3EA	-	-	-	-	-	3200A	3200A	3200A	3050A	3050A	
			10t x 75mm x 4EA	3200A	3200A	3100A	3000A	2900A						
frame B	15t x 100mm x 2EA	4000A horizontal	10t x 100mm x 4EA	4000A	4000A	3900A	3800A	3640A	-	-	-	-	-	
	10t x 125mm x 3EA													
frame B	15t x 125mm x 2EA	4000A vertical	10t x 100mm x 4EA	-	-	-	-	-	4000A	4000A	4000A	3800A	3800A	
			10t x 125mm x 3EA											
frame C	20t x 125mm x 2EA	3200A	10t x 100mm x 3EA	3200A	3200A	3100A	3000A	2900A	3200A	3200A	3200A	3000A	3000A	
		4000A	10t x 100mm x 4EA	4000A	4000A	3920A	3860A	3800A	4000A	4000A	4000A	3900A	3900A	
		5000A	10t x 125mm x 4EA	5000A	5000A	4900A	4800A	4700A	5000A	5000A	5000A	4900A	4900A	

t= thickness (mm) EA=number of parts

Altitude

ACB HW is designed for operation at altitudes under 2000m. At altitudes higher than 2000m, change the ratings upon service condition.

Altitude	2000m	3000m	4000m	5000m
withstand voltage (V)	3500	3150	2500	2100
average insulating voltage (V)	1000	900	700	600
max. operation voltage (V)	690	590	520	460
rectified rated current (A)	1×In	0.99×In	0.96×In	0.94×In

Derating table

Switchboard composition connection type											
Model type	Frame A					Frame A					
Rated current ²⁾	630 - 800A					1000A					
Busbar dimensions (mm) ³⁾	2EA x 50 x 6					2EA x 50 x 6					
ventilated switchboard (IP31) ⁴⁾ 	Ta ¹⁾ = 35°C	4				800					
		3				800	800			1000	
		2			800	800	800			1000	1000
		1	800	800	800	800	800		1000	1000	1000
	Ta = 45°C	4				800					
		3				800	800			1000	
		2			800	800	800			1000	1000
		1	800	800	800	800	800	1000	1000	1000	1000
	Ta = 55°C	4				800					
		3				800	800			1000	
		2			800	800	800			1000	1000
		1	800	800	800	800	800	1000	1000	1000	1000
non-ventilated switchboard (IP52) ⁵⁾ 	Ta = 35°C	4				800					
		3				800	800			1000	
		2			800	800	800			1000	1000
		1	800	800	800	800	800	1000	1000	1000	1000
	Ta = 45°C	4				800					
		3				800	800			1000	
		2			800	800	800			1000	1000
		1	800	800	800	800	800	1000	1000	1000	1000
	Ta = 55°C	4				800					
		3				800	800			1000	
		2			800	800	800			1000	1000
		1	800	800	800	800	800	1000	1000	1000	1000
Panel dimensions (mm) : W x H x D	800 x 2300 x 900										
Area of outlet vents (IP31)	350 cm ³										
Area of inlet vents (IP31)	350 cm ³										

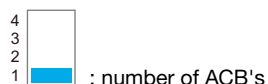
1) Ta refers to atmospheric temperature outside of panel (IEC 61439-1).

2) Rated current observes temperature condition on test according to IEC60947-1,2. When installed inside the panel, derating of additional current and using indicated busbar dimension is required.

3) Busbar dimension is manufacturer recommendation. Smaller busbar requires additional derating.

4) Ventilation should be designed to drop the temperature of switchboard inside the panel.

5) For non-ventilated switchboard, additional forced ventilation should be added to drop the temperature inside the panel.



Type of connection:



Derating table

Switchboard composition connection type											
Model type	Frame A				Frame A			Frame A			
Rated current ²⁾	1250A				1600A			2000A			
Busbar dimensions (mm) ³⁾	2EA x 78 x 8				3EA x 75 x 8			2EA x 100 x 10			
ventilated switchboard (IP31) ⁴⁾	Ta ¹⁾ = 35°C	4									
		3				1250				2000	
		2			1250	1250			1600	2000	2000
		1	1250	1250	1250	1250	1600	1600	1600		
	Ta = 45°C	4									
		3				1250				1900	
		2			1250	1250			1600	2000	2000
		1	1250	1250	1250	1250	1600	1600	1600		
	Ta = 55°C	4									
		3				1250				1800	
		2			1250	1250			1470	1900	1900
		1	1250	1250	1250	1250	1520	1600	1600		
non-ventilated switchboard (IP52) ⁵⁾	Ta = 35°C	4									
		3				1250				1750	
		2			1250	1250			1600	1850	1850
		1	1250	1250	1250	1250	1600	1600	1600		
	Ta = 45°C	4									
		3				1250				1750	1650
		2			1250	1250			1500		1750
		1	1250	1250	1250	1250	1500	1600	1600		
	Ta = 55°C	4									
		3				1250				1650	1550
		2			1250	1250			1400		1650
		1	1250	1250	1250	1250	1400	1520	1520		
Panel dimensions (mm) : W x H x D		800 x 2300 x 900									
Area of outlet vents (IP31)		350 cm ³									
Area of inlet vents (IP31)		350 cm ³									

Derating table

Switchboard composition connection type												
Model type	Frame B			Frame B		Frame B		Frame B				
Rated current ²⁾	2000A			2500A		3200A		4000A				
Busbar dimensions (mm) ³⁾	2EA x 100 x 10			3EA x 100 x 10		2EA x 125 x 10		4EA x 125 x 10				
ventilated switchboard (IP31) ⁴⁾ 	Ta ¹⁾ = 35°C		4									
			3			2000						
			2	2000	2000	2000	2375	2500	3040	3200	3320	3700
			1									
	Ta = 45°C		4									
			3			2000						
			2	2000	2000	2000	2250	2380	2880	3100	3160	3500
			1									
	Ta = 55°C		4									
			3			2000						
			2	2000	2000	2000	2100	2250	2690	2900	2960	3280
			1									
non-ventilated switchboard (IP52) ⁵⁾ 	Ta = 35°C		4									
			3			2000						
			2	2000	2000	2000	2125	2275	2650	2850	3040	3320
			1									
	Ta = 45°C		4									
			3			1900						
			2	1960	1960	1960	2000	2150	2550	2700	2880	3120
			1									
	Ta = 55°C		4									
			3			1780						
			2	1800	1920	1920	1900	2020	2370	2530	2720	2960
			1									
Panel dimensions (mm) : W x H x D	800 x 2300 x 900											
Area of outlet vents (IP31)	350 cm ³											
Area of inlet vents (IP31)	350 cm ³											

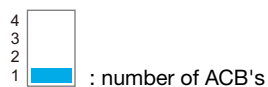
1) Ta refers to atmospheric temperature outside of panel (IEC 61439-1).

2) Rated current observes temperature condition on test according to IEC60947-1,2. When installed inside the panel, derating of additional current and using indicated busbar dimension is required.

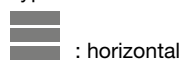
3) Busbar dimension is manufacturer recommendation. Smaller busbar requires additional derating.

4) Ventilation should be designed to drop the temperature of switchboard inside the panel.

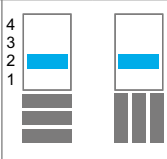
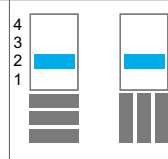
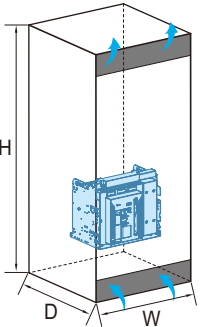
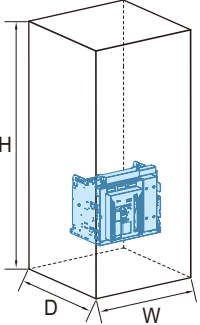
5) For non-ventilated switchboard, additional forced ventilation should be added to drop the temperature inside the panel.



Type of connection:



Derating table

Switchboard composition connection type							
Model type	Frame C		Frame C				
Rated current ²⁾	4000A		5000A				
Busbar dimensions (mm) ³⁾	4EA x 125 x 10		5EA x 140 x 10				
ventilated switchboard (IP31) ⁴⁾ 	Ta ¹⁾ = 35°C	4					
		3					
		2	3900	4000	4550	4850	
	Ta = 45°C	4					
		3					
		2	3850	3900	4350	4650	
	Ta = 55°C	4					
		3					
		2	3800	3850	4100	4400	
	non-ventilated switchboard (IP52) ⁵⁾ 	Ta = 35°C	4				
			3				
			2	3800	3900	4200	4500
Ta = 45°C		4					
		3					
		2	3650	3800	3950	4250	
Ta = 55°C		4					
		3					
		2	3550	3650	3750	4050	
Panel dimensions (mm) : W x H x D		1000 x 2300 x 900					
Area of outlet vents (IP31)		500 cm ³					
Area of inlet vents (IP31)		500 cm ³					

Discrimination table

		OCR: LI, LSI, LSIg, LI Amp, LSI Amp, LSIg Amp, LSIg Energy I_{R1}, t_{R1} of the ACB > I_{R1}, t_{R1} of the MCCB / I_{sd}, t_{sd} of the ACB > I_{sd}, t_{sd} of the MCCB / $I_i = 16xI_n$, NON, MCR ON																					
Icc (kA)	Upstream	Frame A, type HWAH							Frame A, type HWAN							Frame B, type HWBN							
		max. rated current 2000A $I_{cu} = I_{cs} = 50kA$ at 415V							max. rated current 2000A $I_{cu} = I_{cs} = 65kA$ at 415V							max. rated current 4000A $I_{cu} = I_{cs} = 65kA$ at 415V							
Downstream	(A)	630	800	1000	1250	1600	2000	630	800	1000	1250	1600	2000	630	800	1000	1250	1600	2000				
HDA HHA HNA	x160 TM 18/25/40kA	16	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T			
		20	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
		25	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
		32	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
		40	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
		50	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
		63	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
		80	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
		100	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
		125	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
160	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T			
HHB HNB	x250 TM 25/40kA	100	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
		125	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
		160	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
		200	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
		225	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
HHG HNG HEG	h250 TM 25/50/65kA	20	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
		32	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
		50	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
		63	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
		100	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
		125	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
		160	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
HNH HEH	h250 TM+ 50/70kA	20	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
		32	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
		50	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
		63	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
		100	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
		125	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
		160	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
HNC HEC	h250 LSI 50/70kA	40	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
		125	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
		250	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
HHD HND HKD	h400 TM 25/50/70kA	250	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
		300	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
		350	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
		400	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
HND HED	h630 LSI 50/70kA	250	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
		400	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
		500	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
		600		T	T	T	T	T		T	T	T	T	T		T	T	T	T	T	T	T	
		630		T	T	T	T	T		T	T	T	T	T		T	T	T	T	T	T	T	
HNK HEK	h800 TM 50/70kA	630		T	T	T	T		T	T	T	T	T		T	T	T	T	T	T	T		
		800			T	T	T			T	T	T	T			T	T	T	T	T	T	T	
HNE HEE	h1000 LSI 50/70kA	630		T	T	T	T		T	T	T	T	T		T	T	T	T	T	T	T		
		700		T	T	T	T			T	T	T	T			T	T	T	T	T	T	T	
		800			T	T	T	T			T	T	T	T			T	T	T	T	T	T	
HNF HEF	h1600 LSI 50/70kA	800			T	T	T			T	T	T	T			T	T	T	T	T	T		
		1250				T	T					T	T						T	T		T	
		1600						T					T	T								T	T

Cascading

		Upstream								
		Frame A, type HWAH			Frame A, type HWAN					
		630-800A	1000-1250A	1600-2000A	630-800A	1000-1250A	1600-2000A			
		IEC 60947-2	50kA			65kA				
Downstream	x160 TM	HDA	18kA	18	18	18	18	18	18	
		HHA	25kA	25	25	25	25	25	25	
		HNA	40kA	40	40	40	40	40	40	
	x250 TM	HHB	25kA	25	25	25	25	25	25	
		HNB	40kA	40	40	40	40	40	40	
	h250 TM	HHG	25kA	25	25	25	25	25	25	
		HNG	50kA	50	50	50	50	50	50	
		HEG	65kA	50	50	65	65	65	65	
	h250 TM+	HNH	50kA	50	50	50	50	50	50	
		HEH	70kA	50	50	50	65	65	65	
	h250 LSI	HNC	50kA	50	50	50	50	50	50	
		HEC	70kA	50	50	50	65	65	65	
	h400 TM	HHD	25kA	25	25	25	25	25	25	
		HND	50kA	50	50	50	50	50	50	
		HKD	70kA	50	50	50	65	65	65	
	h630 LSI	HND	50kA	50	50	50	50	50	50	
		HED	70kA	50	50	50	65	65	65	
	h800 TM	HNK	50kA	50	50	50	50	50	50	
		HEK	70kA	50	50	50	65	65	65	
	h1000 LSI	HNE	50kA		50	50		50	50	
HEE		70kA		50	50		65	65		
h1600 LSI	HNF	50kA			50			50		
	HEF	70kA			50			65		

Max. cascading value in kA rms according to IEC 60947-2.
Network: 3 phases + neutral 220/380 ~ 240/415 VAC.

Frame B, type HWBN			Frame B, type HWBS			Frame B, type HWBP			Frame C, type HWCP
630-800A	1000-1250A	1600-4000A	630-800A	1000-1250A	1600-4000A	630-800A	1000-1250A	1600-4000A	3200-5000A
65kA			85kA			100kA			100kA
18	18	18	18	18	18	18	18	18	18
25	25	25	25	25	25	25	25	25	25
40	40	40	40	40	40	40	40	40	40
25	25	25	25	25	25	25	25	25	25
40	40	40	40	40	40	40	40	40	40
25	25	25	25	25	25	25	25	25	25
50	50	50	50	50	50	50	50	50	50
65	65	65	65	65	65	65	65	65	65
50	50	50	50	50	50	50	50	50	50
65	65	65	70	70	70	70	70	70	70
50	50	50	50	50	50	50	50	50	50
65	65	65	70	70	70	70	70	70	70
25	25	25	25	25	25	25	25	25	25
50	50	50	50	50	50	50	50	50	50
65	65	65	70	70	70	70	70	70	70
50	50	50	50	50	50	50	50	50	50
65	65	65	70	70	70	70	70	70	70
50	50	50	50	50	50	50	50	50	50
65	65	65	70	70	70	70	70	70	70
	50	50		50	50		50	50	50
	65	65		70	70		70	70	70
		50			50			50	50
		65			70			70	70

Main incomers

Operating conditions

Ambient temperature

- Operating condition: -5°C to 50°C is recommended.
- Chassis is fixed to a switchboard.
- The average temperature for 24 hours should be within 35°C.
- Reduce the continuous conducting current when the temperature is over 50°C (45°C for horizontal type connection).

Load (I/In)

Load	Using	Effect	Installation
$I/In \leq 100\%$	24/24 hours	-	normal condition (recommended)
$80 < I/In \leq 100\%$	24/24 hours	-	periodic inspection
$I/In = 100\%$	24/24 hours	plastic insulator color changed	exhaust added

Atmospheric conditions

- Do not apply under corrosive or ammonia gas circumstances (H₂S, SO₂, NH₃).
- Use in clean air condition.

Altitude

Item	Altitude		
	2000 m	2600 m	3900 m
Isolating voltage (V)	1,000	950	800
Operating voltage (V)	690	655.5	552
Allowed current (V)	$I \times In$	$0.99 \times In$	$0.96 \times In$

Relative humidity

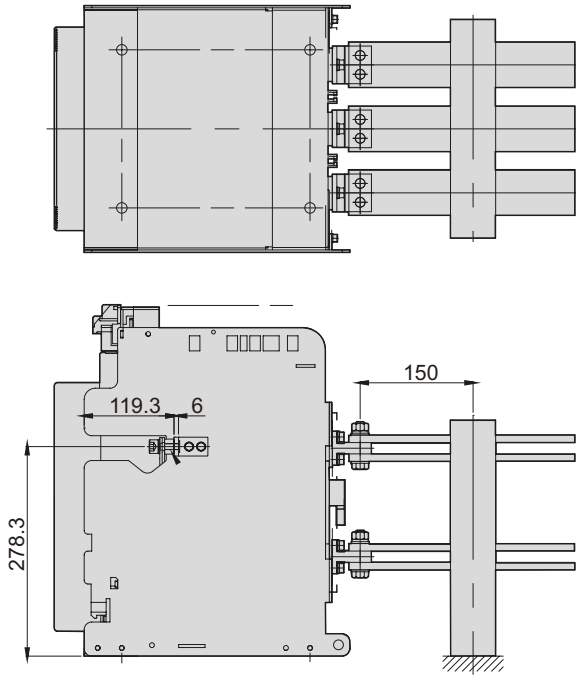
- Relative humidity should be under 85%.

Storage conditions

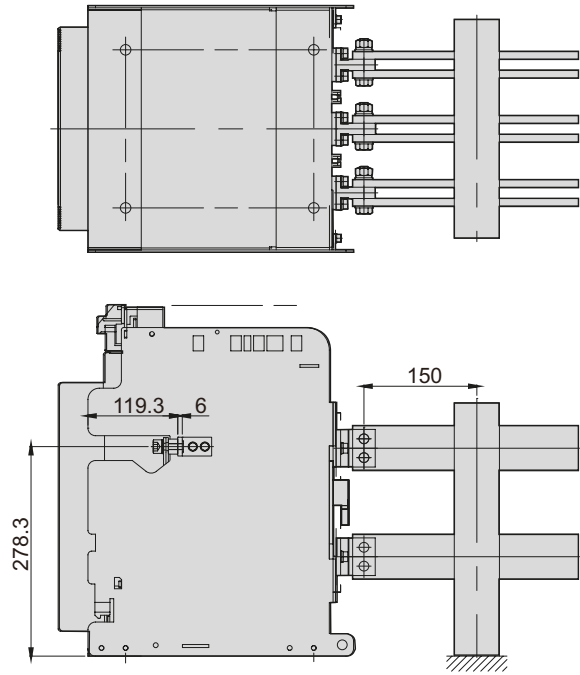
- Device without its control unit: -25°C to 85°C
- Device with control unit: -15°C to 70°C
- The product with charging motor should be stored in open position.

Installation conditions

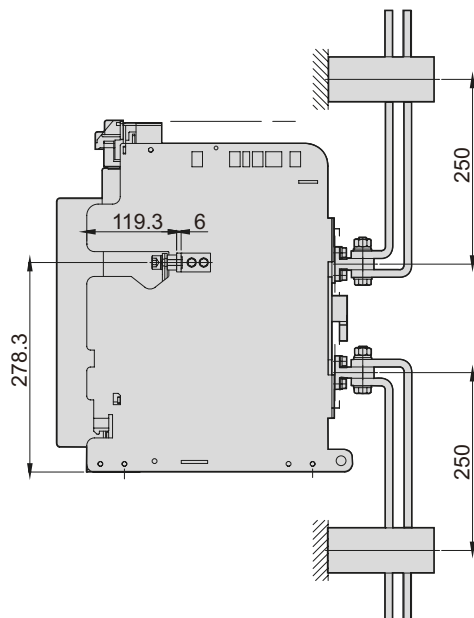
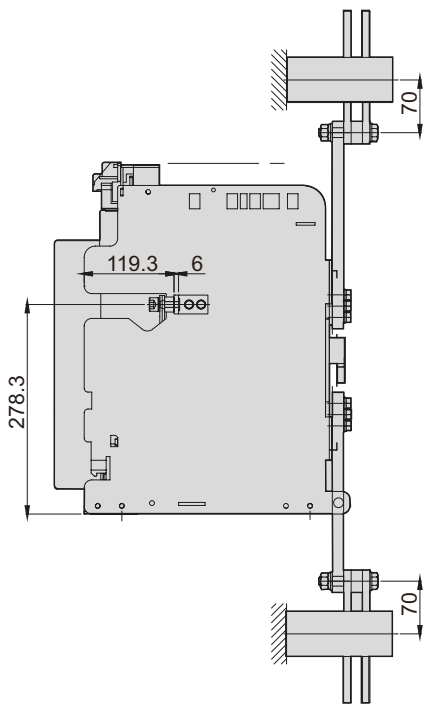
Horizontal type (mm)



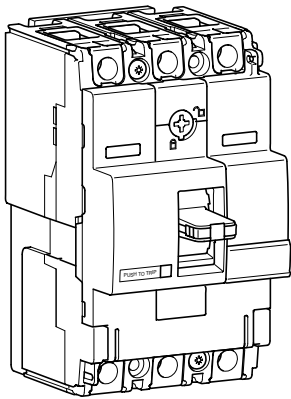
Vertical type (mm)



Front type (mm)

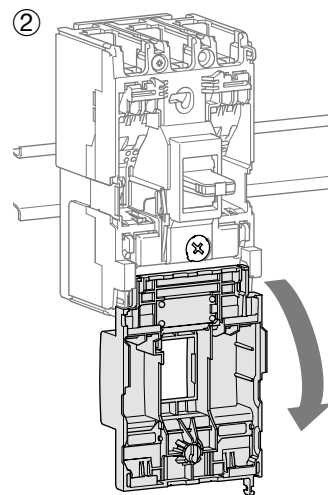
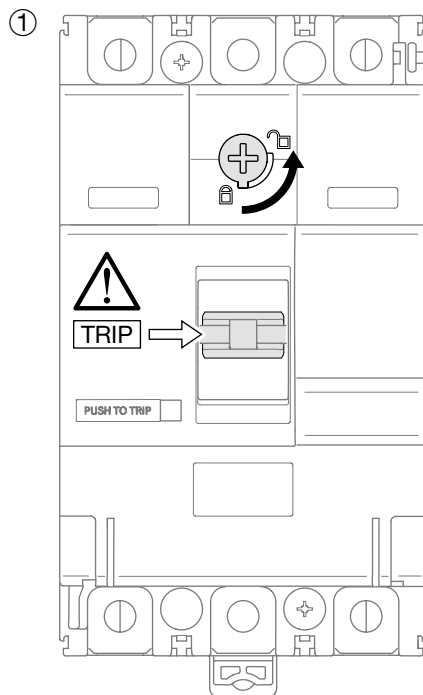


MCCBs

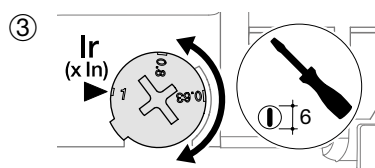


		220/240V AC IEC 60 947-2	380/415V AC IEC 60 947-2
HDA	Icu	25 kA	18 kA
	Ics	25 kA	18 kA
HHA	Icu	35 kA	25 kA
	Ics	25 kA	20 kA
HNA	Icu	85 kA	40 kA
	Ics	30 kA	20 kA
HCA	Icm	-	2,8 kA
	Icw	-	2 kA - 1s

Magnetic and thermal settings



For DIN rail mounting, use HYA033H.



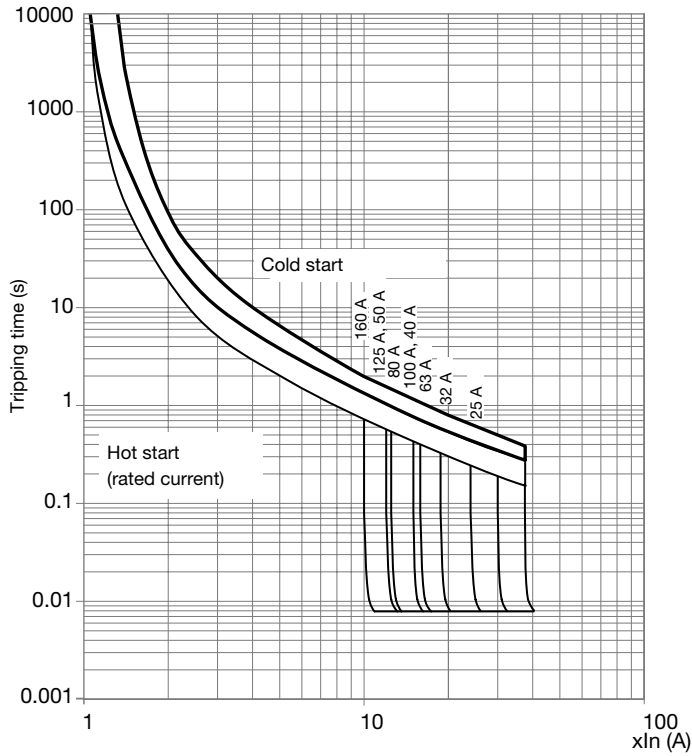
Thermal adjustment from 0,63 to 1 x In

Magnetic adjustment fixed > 10 x In

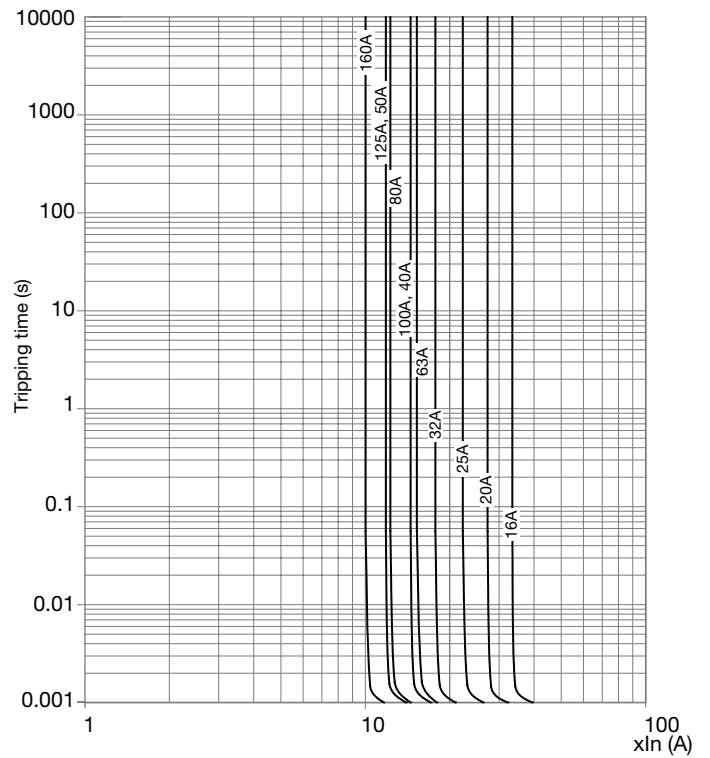
In	15 - 50 A	63 - 80 A	100 - 125 A	160 A
I _{mag}	600 A	1000 A	1500 A	1600 A

Tripping curve

MCCB x160



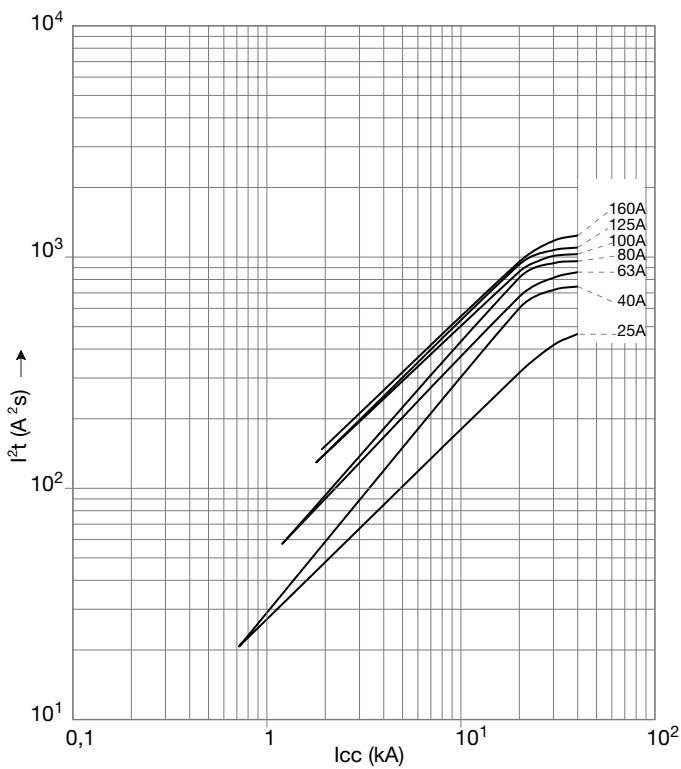
Magnetic tripping



Main incomers

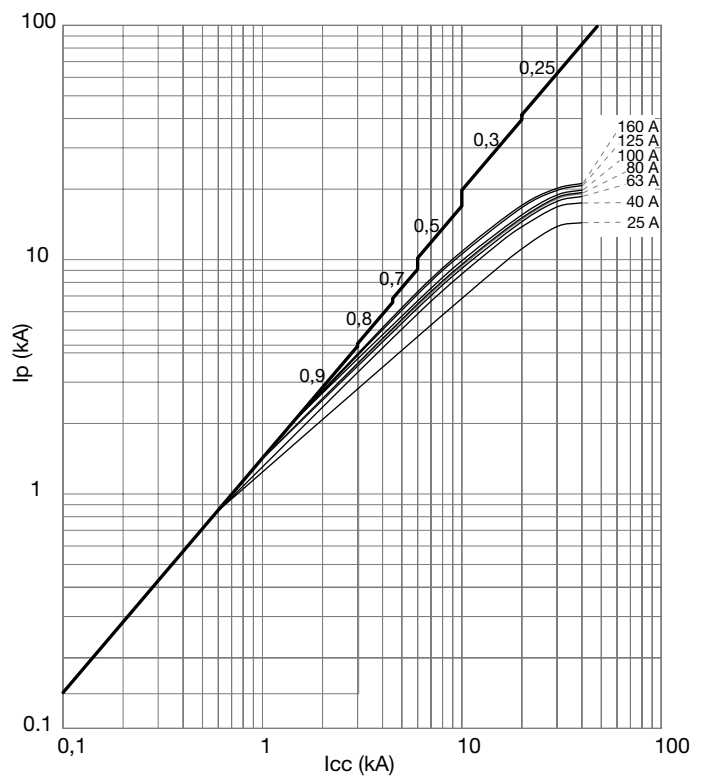
Thermal constraint curve at 400V (Let-through energy)

MCCB x160



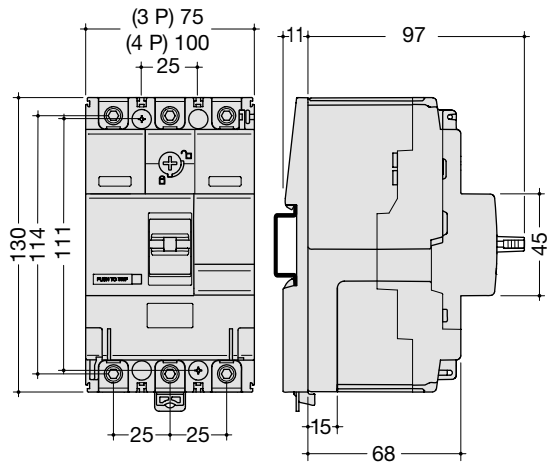
Current limiting curve at 400V (Let-through pick current)

MCCB x160



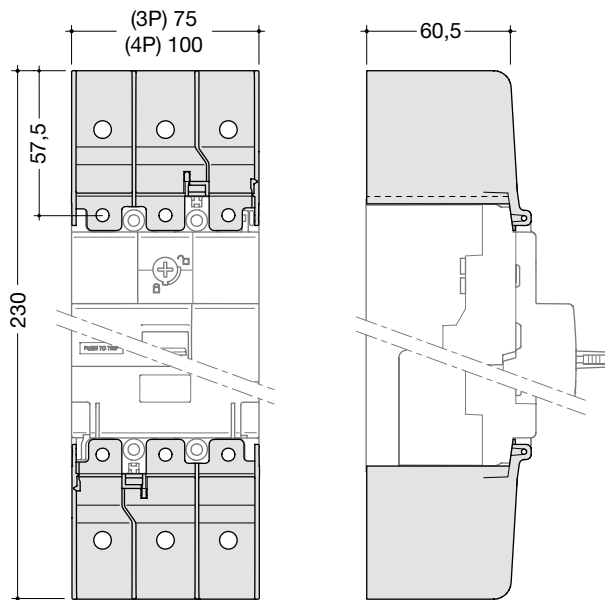
Dimensions

MCCB x160



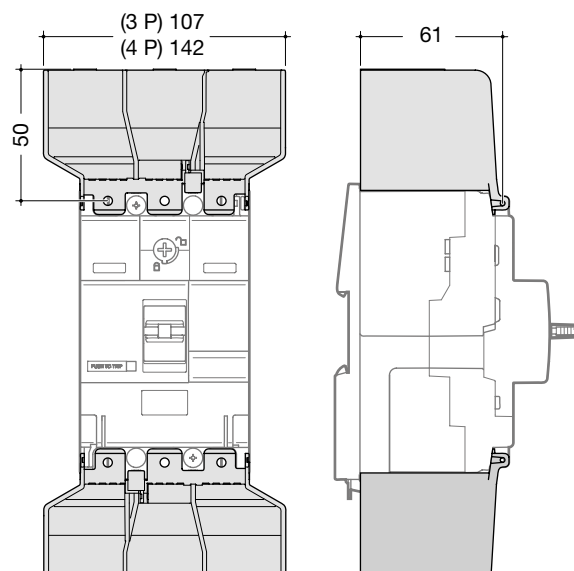
	A (mm)
1P	24,8
2P	49,5
3P	74,5
4P	99,5

Terminal covers for extended straight connections



	A (mm)	B (mm)	C (mm)
1P	24.4	57.5	60.5
2P	49.5	57.5	60.5
3P	74.5	57.5	60.5
4P	99.5	57.5	60.5

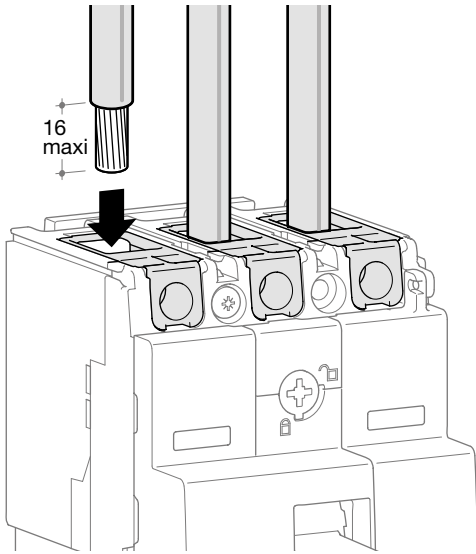
Terminal cover for extended spreader connections



	A (mm)	B (mm)
3P	106.5	57.5
4P	141.5	57.5

Connection

Connection with end lugs



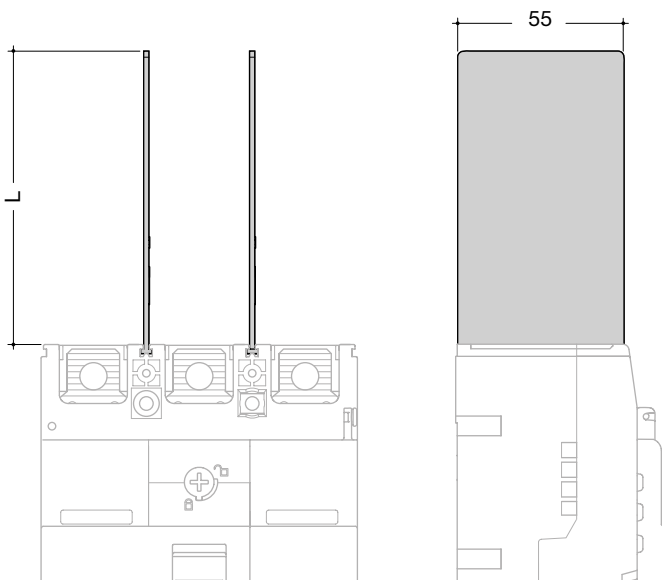
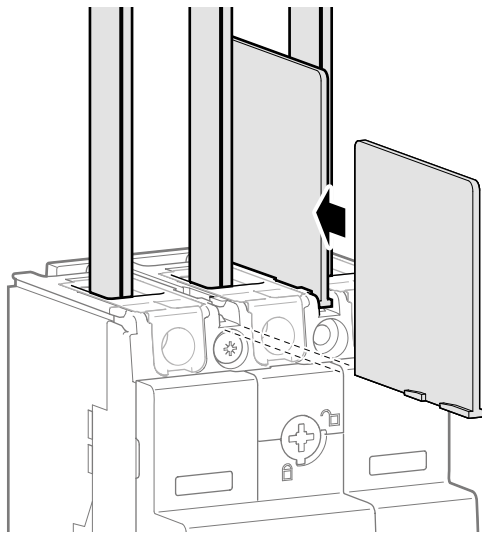
Terminals for copper conductors (standard)

	min. 6 mm ²	max. 70 mm ²
	min. 6 mm ²	max. 95 mm ²
	4 6 Nm	

Terminals for aluminium / copper conductors (accessory)
HYA005H, HYA006H

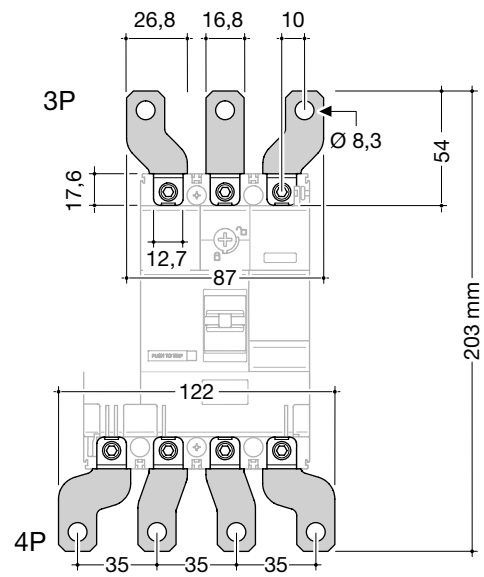
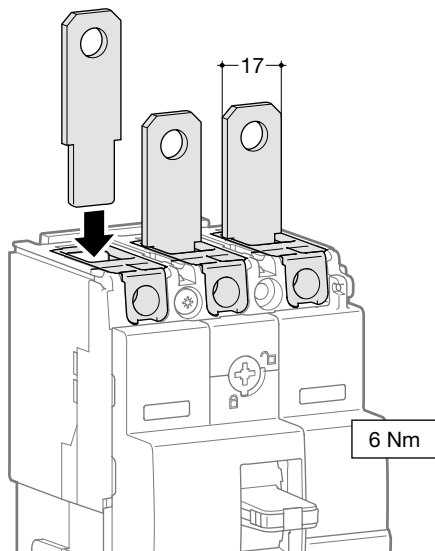
	min. 35 mm ²	max. 70 mm ²
	5 Nm 10	

Interphase barriers

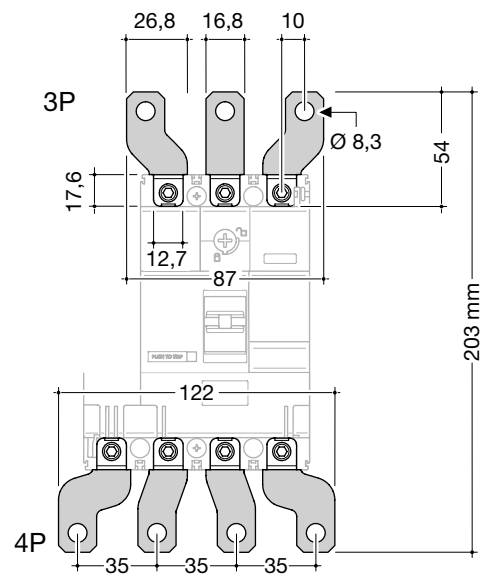
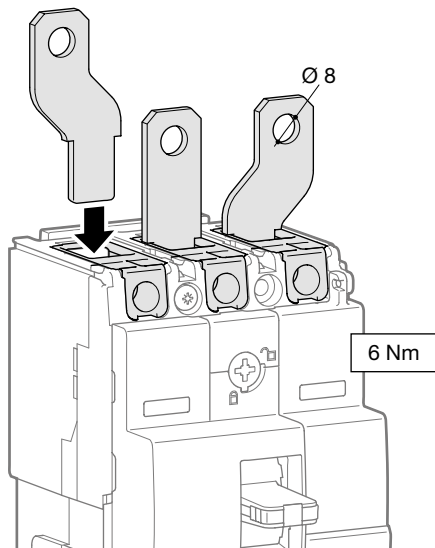


	L (mm)
HYA019H	50
HYB019H	97

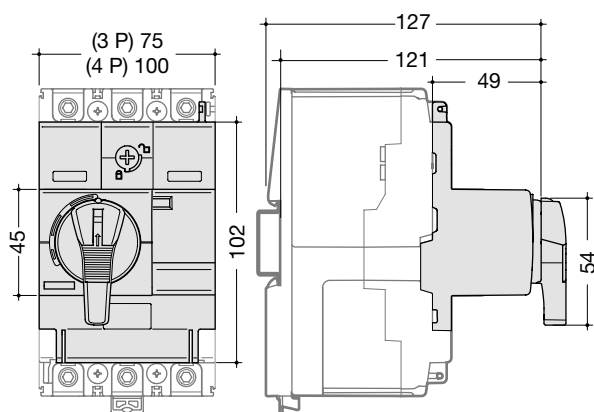
Extended straight connections



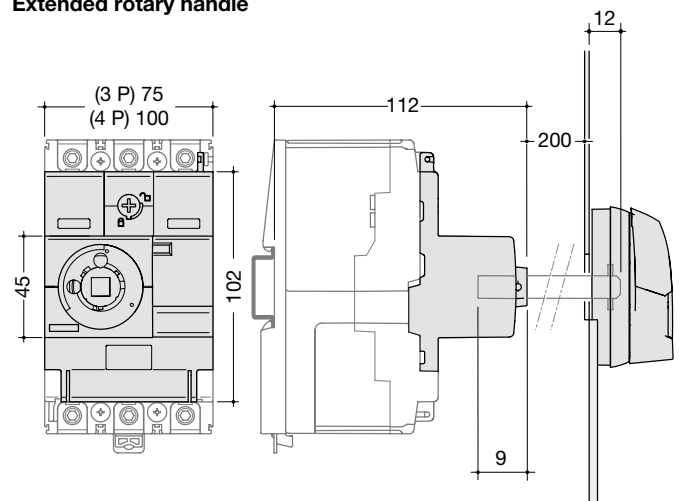
Extended spreader connections



Direct rotary handle

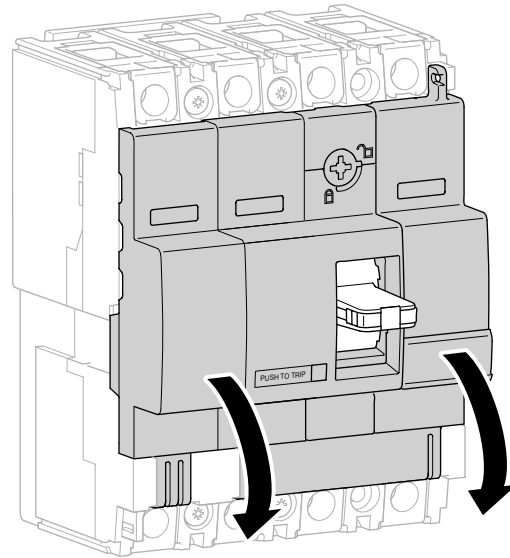
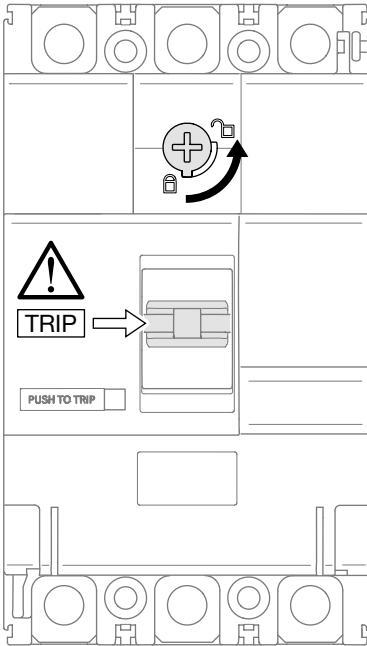


Extended rotary handle



Auxiliaries

Auxiliaries for MCCBs and trip-free switches

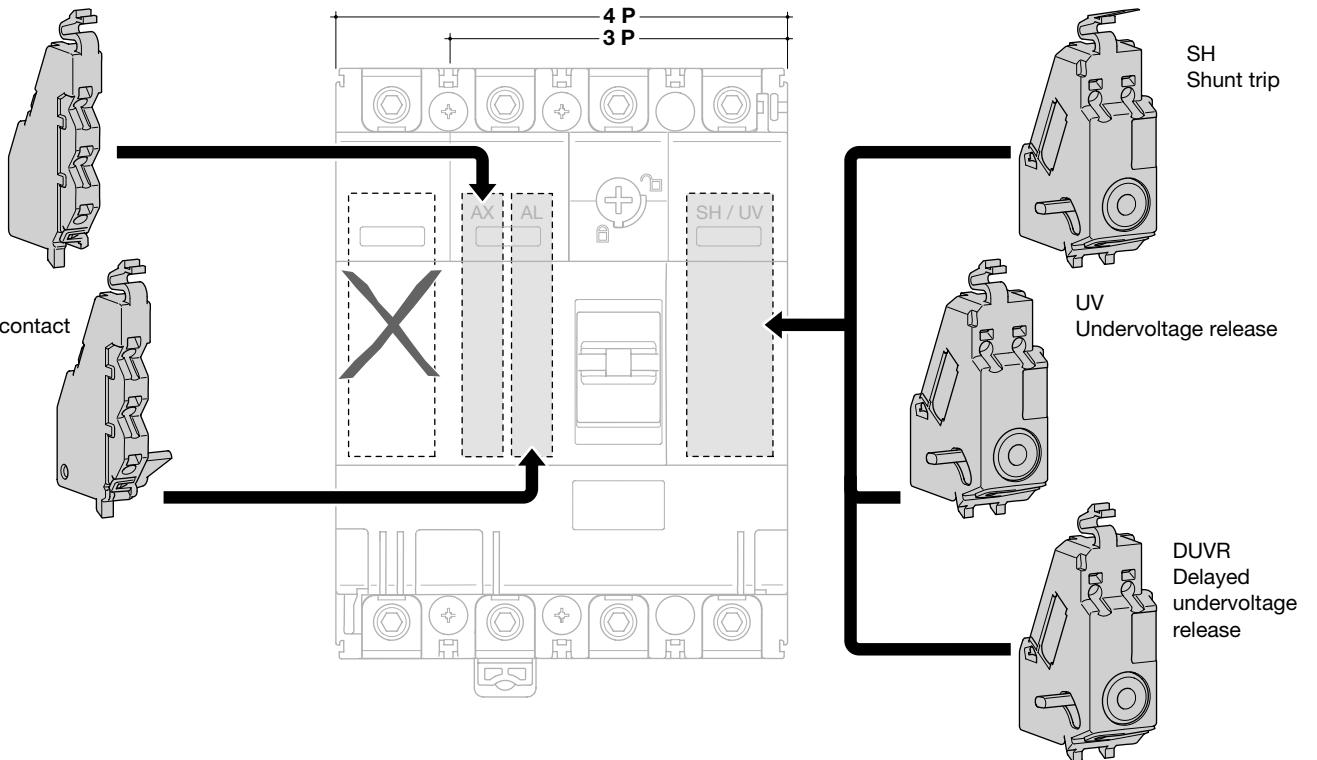


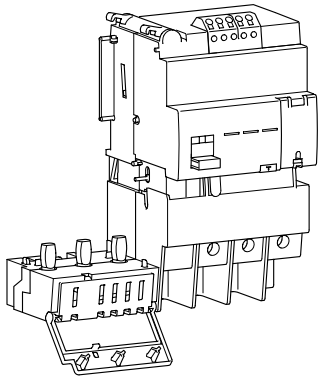
Main incomers

Mounting combination for auxiliaries and releases

AX
Auxiliary contact

AL
Alarm contact





When associated with MCCB, the add-on block provides an earth fault protection and protects against electrical shocks by direct or indirect contacts.

The add-on blocks are protected against nuisance tripping caused by transient voltages. It's able to detect sinusoidal alternating currents and residual pulsating direct currents (A type). It also avoids miss tripping (HI type - High Immunity).

Add-on block x160 characteristics

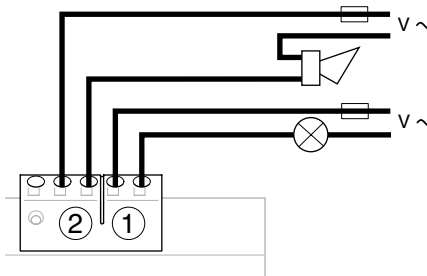
Reset button:
Signals add-on block tripping and must be acknowledged before switching on the installation.

Test button for differential functioning:
Allows to check the electrical operating of the MCCB / Add-on block association.

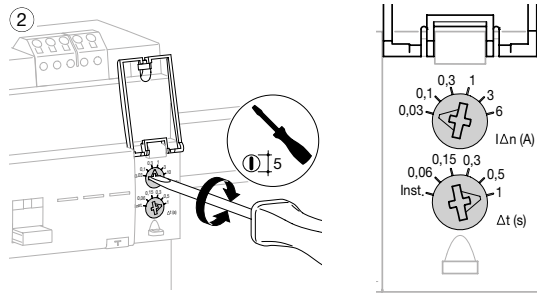
Mechanical test button:
Allows to check the mechanical operating of the MCCB / Add-on block association.

LED signaling default current level in the installation:
25% (orange) and 50% (red) $I_{\Delta n}$; green light to signal correct operating.

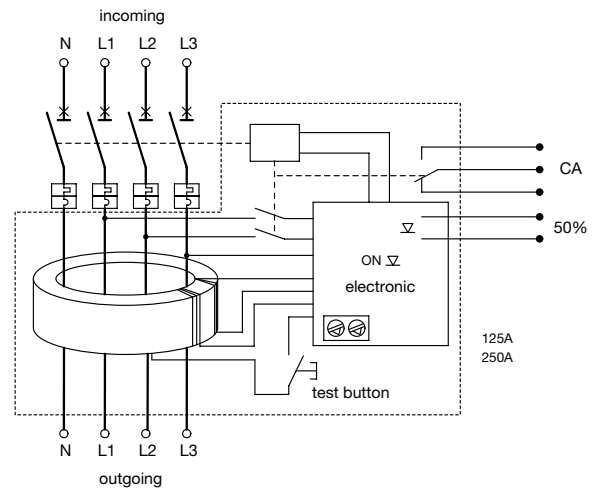
Remote tripping and advanced warning (50% $I_{\Delta n}$) signaling thanks to these contacts:



Earth leakage current ($I_{\Delta n}$) and delay (Δt) setting

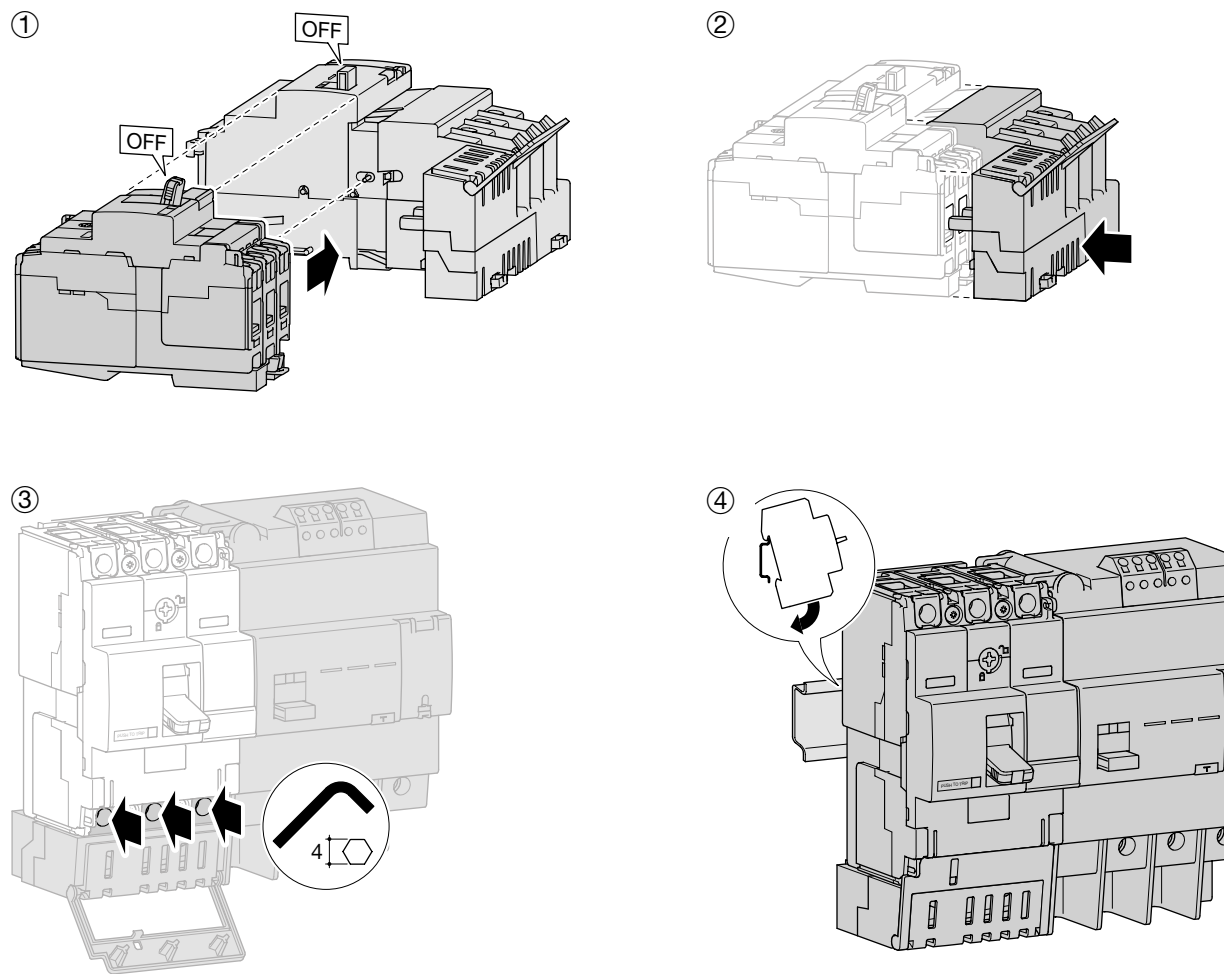


Add-on block operating



		A ($I_{\Delta n}$)					
		0.03	0.1	0.3	1	3	6
S (Δt)	Inst.	OK	OK	OK	OK	OK	OK
	0.06	no	OK	OK	OK	OK	OK
	0.15	no	OK	OK	OK	OK	OK
	0.3	no	OK	OK	OK	OK	OK
	0.5	no	OK	OK	OK	OK	OK
	1	no	OK	OK	OK	OK	OK

Add-on block mounting

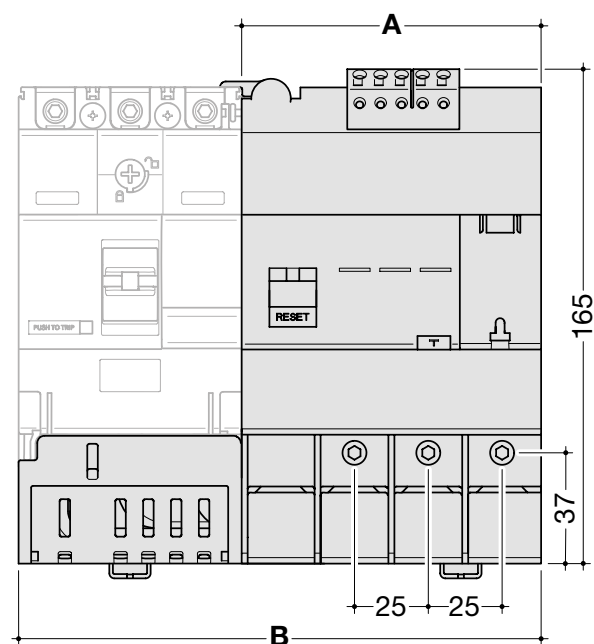


Exclusive drawer assembly system allows quick mounting and makes MCCB and add-on block association a complete monoblock unit.

Reinforced insulation connexion (class II)

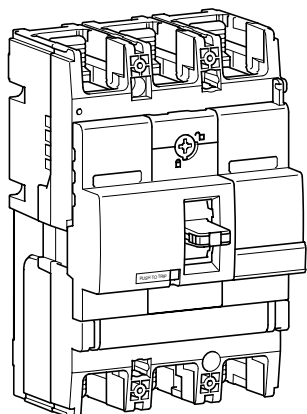
System avoids the omission of terminal tightening

Dimensions



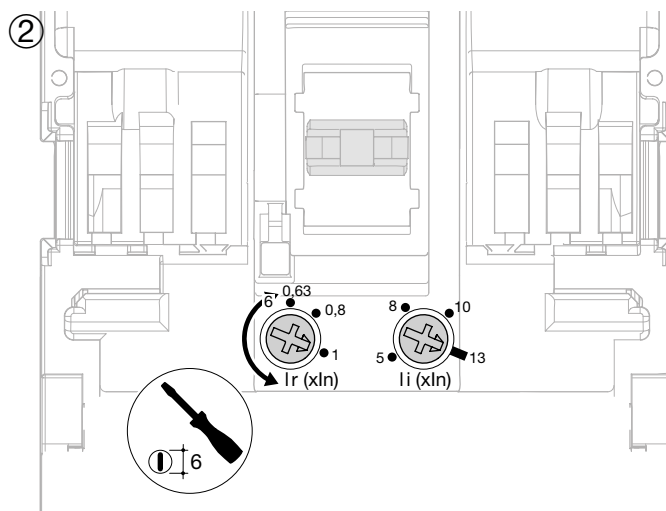
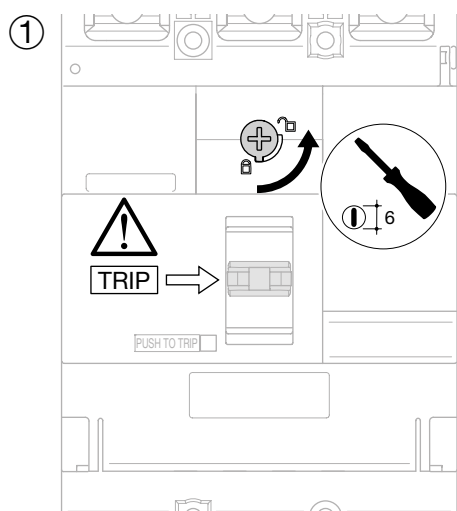
	3P	4P
A (mm)	100	100
B (mm)	174.5	199.5

MCCBs



		220/240V AC IEC 60 947-2	380/415V AC IEC 60 947-2
HHB	Icu	35 kA	25 kA
	Ics	25 kA	40 kA
HNB	Icu	85 kA	40 kA
	Ics	40 kA	20 kA
HCB	Icm	-	9 kA
	Icw	-	3 kA - 1s

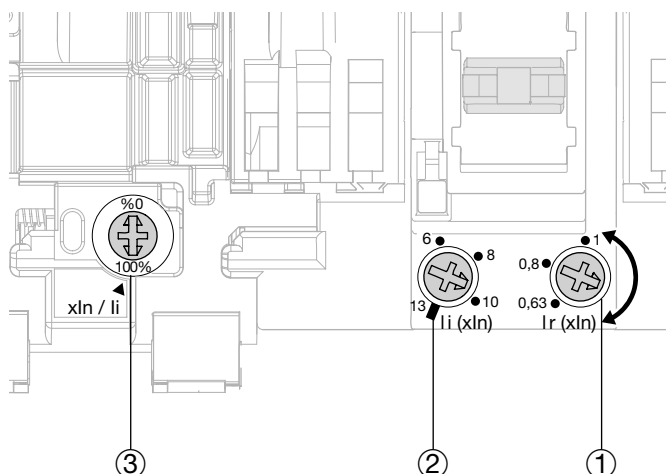
Magnetic and thermal settings



Thermal adjustment from 0,63 to 1 x In

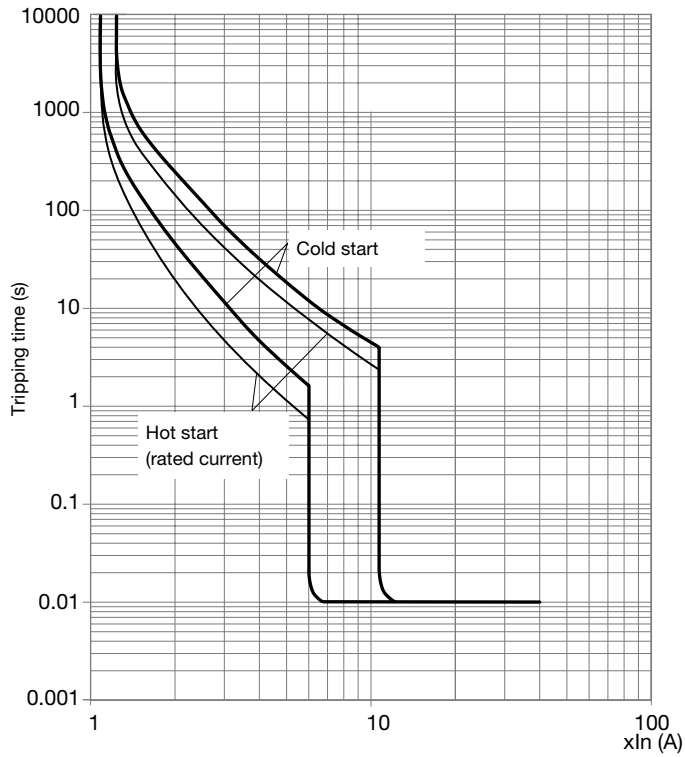
Magnetic adjustment from 6 to 13 x In (100 - 200A)
from 5 to 11 x In (250A)

	100 - 200A	250A
Ir (x In) ①	0.63 - 0.8 - 1 x In	
Ii (x In) ②	6 - 8 - 10 - 13 x In	5 - 7 - 9 - 11 x In
x In/Ii ③	0 - 100%	
	0 - 60%	



Tripping curve

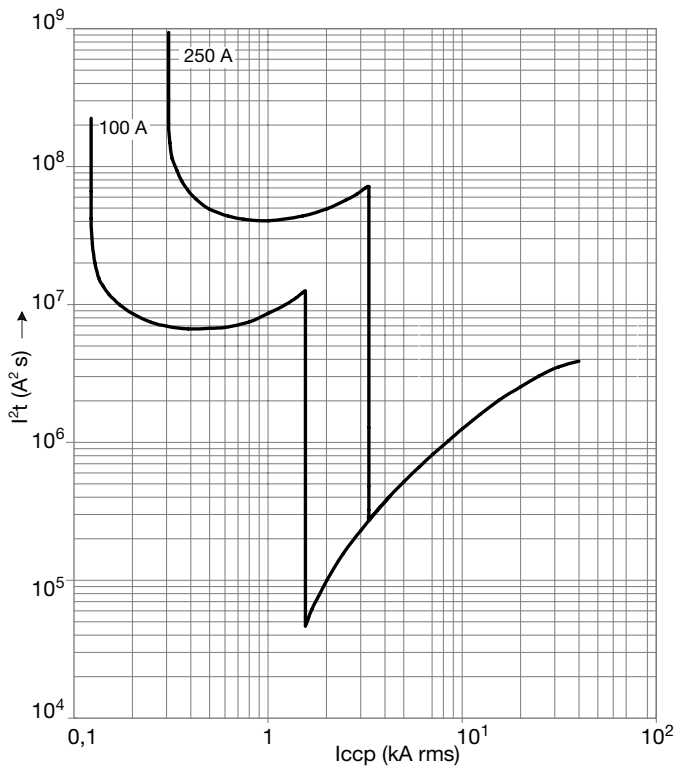
MCCB x250



Main incomers

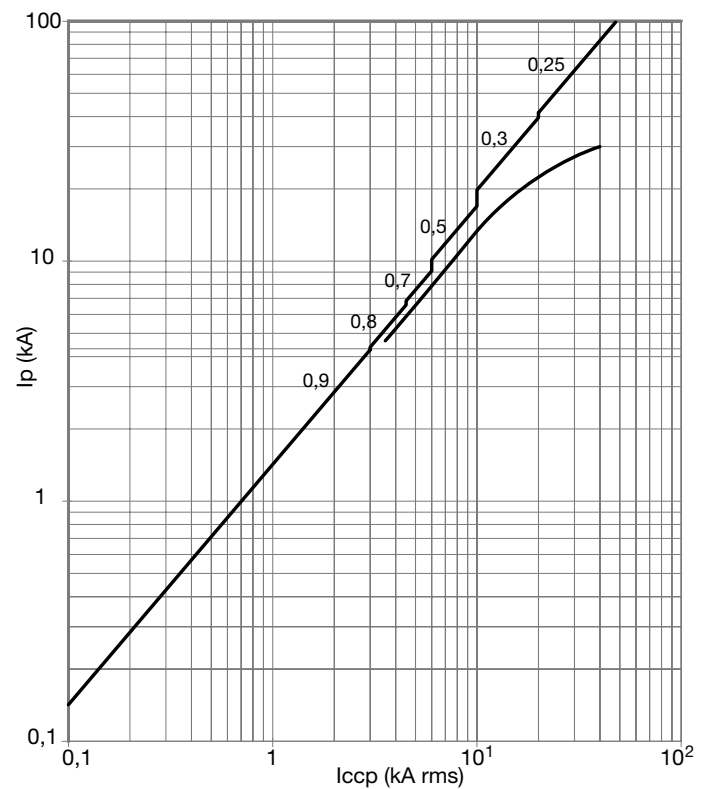
Thermal constraint curve at 400V (Let-through energy)

MCCB x250



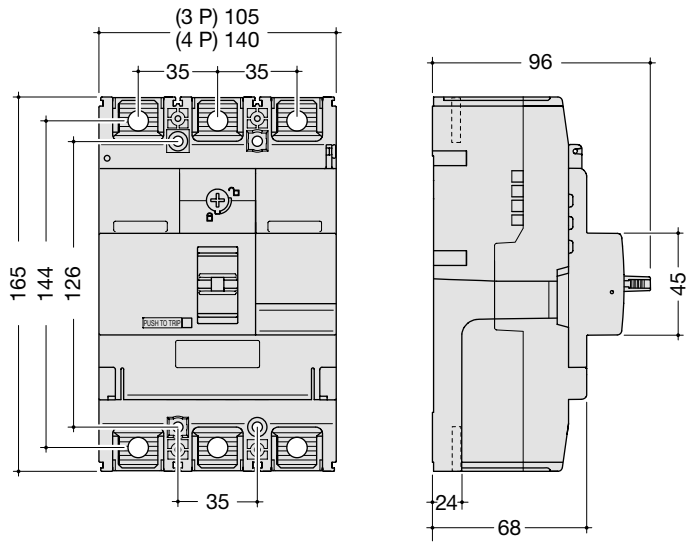
Current limiting curve at 400V (Let-through peak current)

MCCB x250

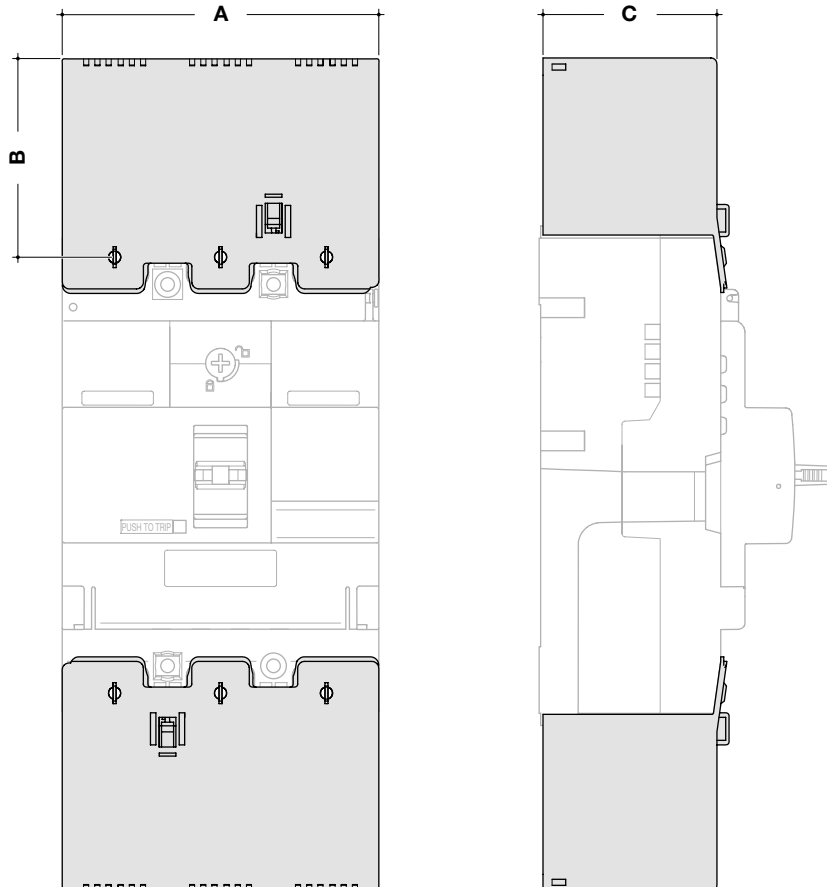


Dimensions

MCCB x250



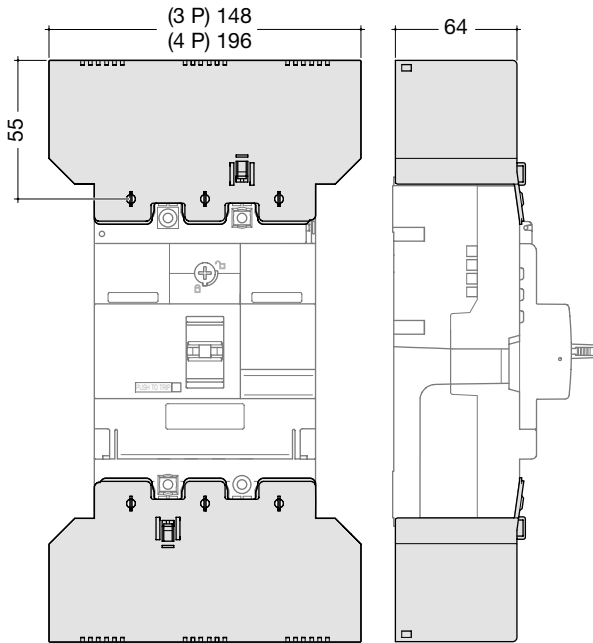
Terminal covers for extended straight connections



	A (mm)	B (mm)	C (mm)
3P	105	54.5	64
4P	140	54.5	64

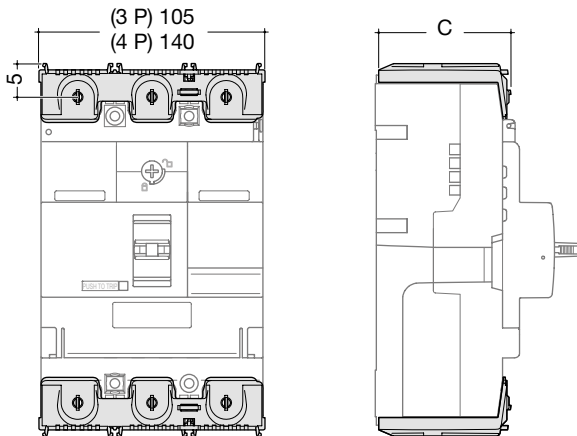
Accessories

Terminal cover for extended spreader connections



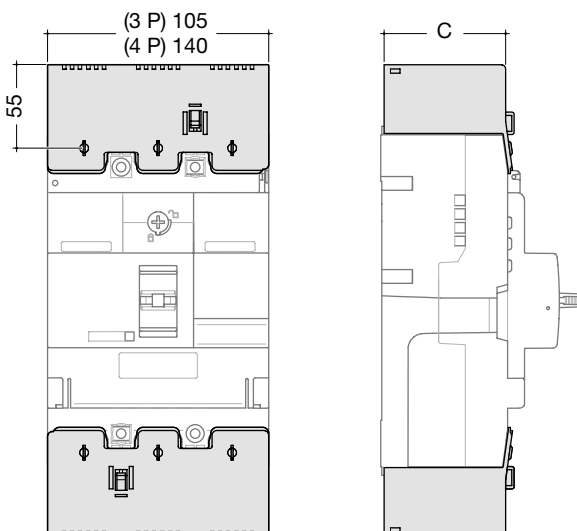
	A (mm)	B (mm)	C (mm)
3P	147.5	54.5	64
4P	196	54.5	64

Terminal cover for rear connections



	A (mm)	B (mm)	C (mm)
3P	105	5	64
4P	140	5	64

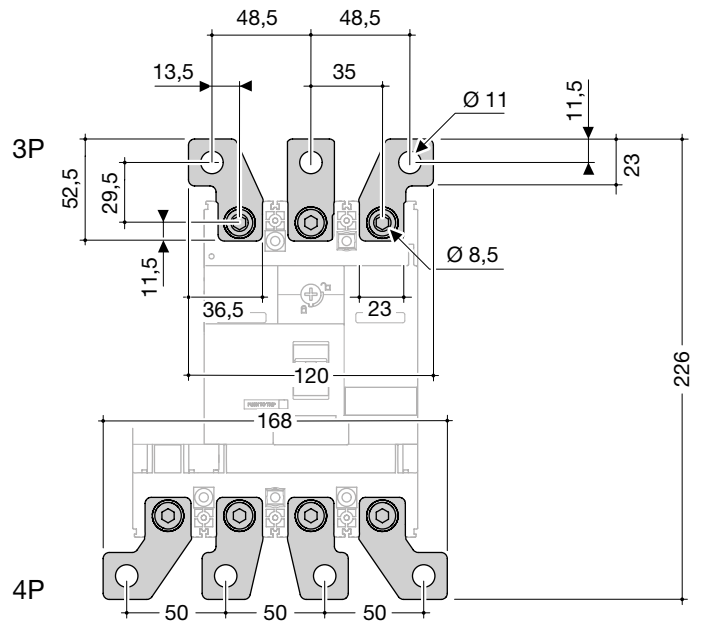
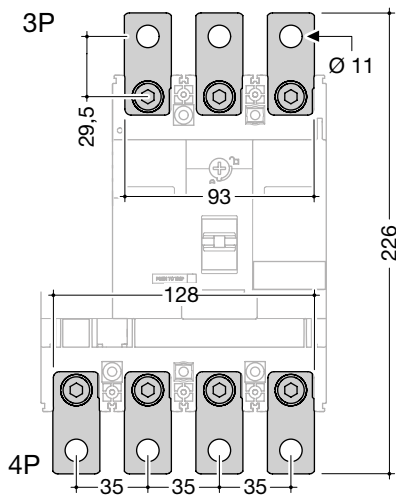
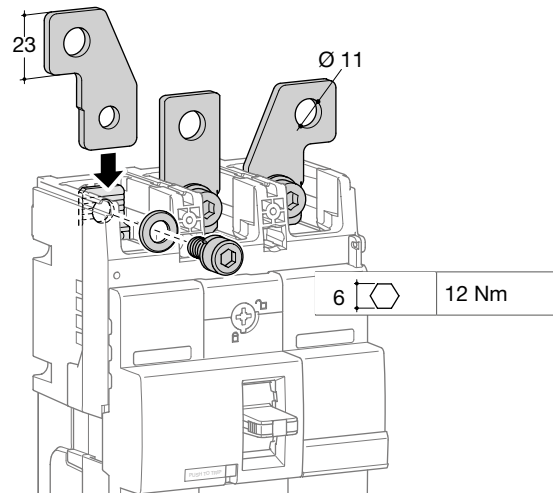
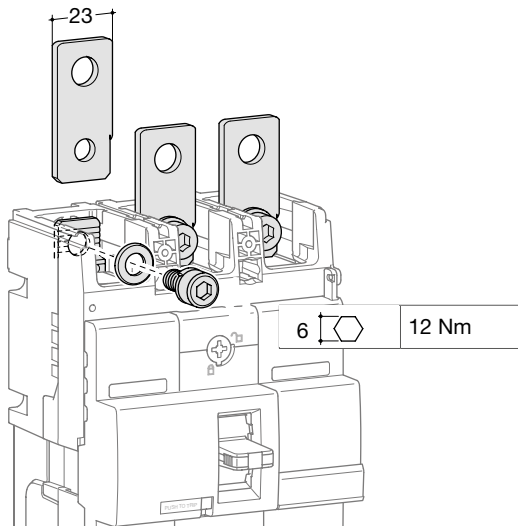
Terminal covers for collar terminals



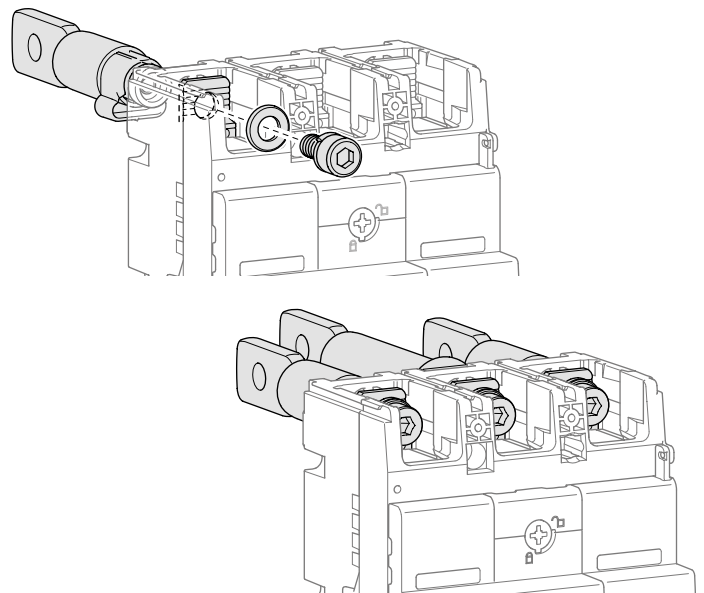
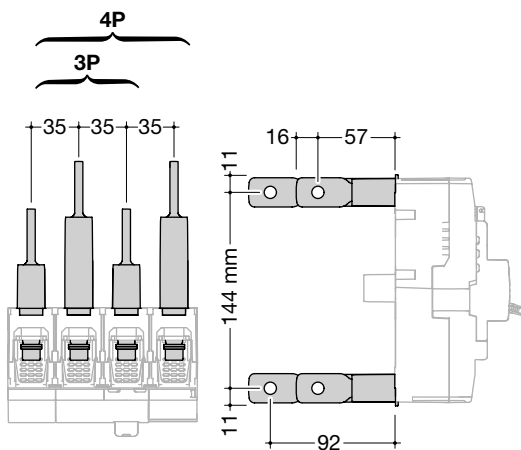
	A (mm)	B (mm)	C (mm)
3P	105	28.5	64
4P	140	28.5	64

Connection

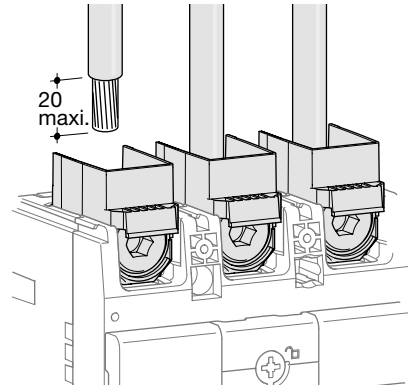
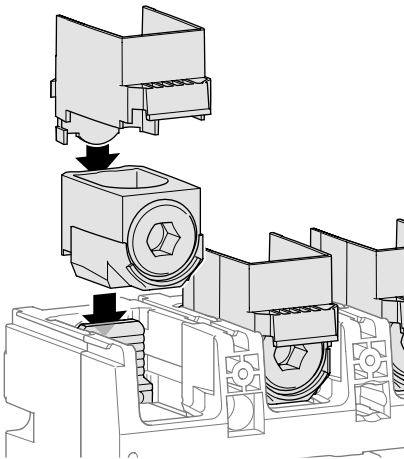
Extended straight and spreader connections



Rear connections



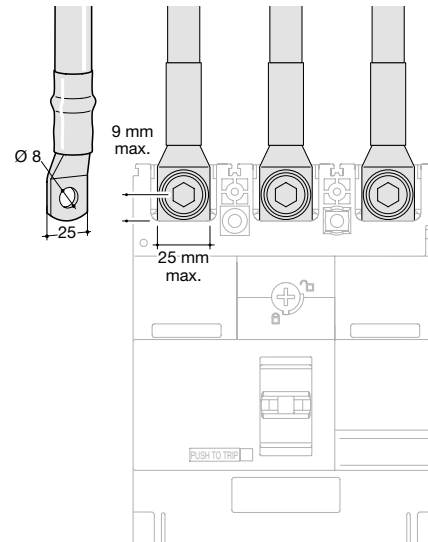
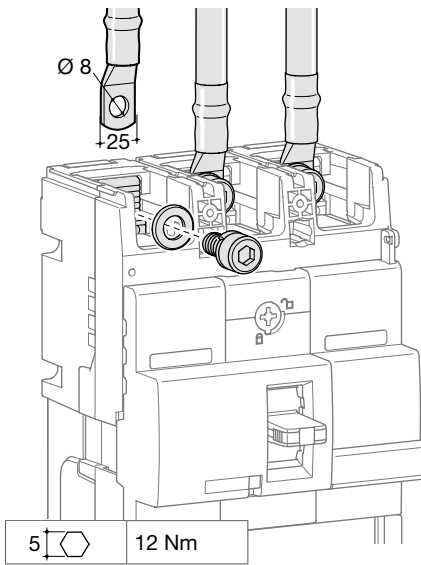
Connection by collar



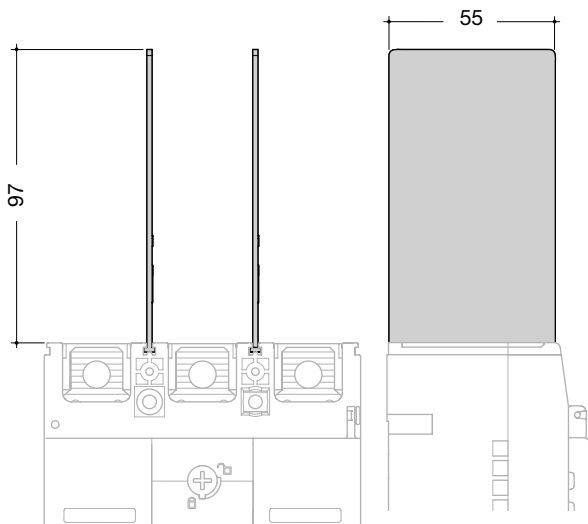
Terminals for aluminium / copper conductors (accessory)
HYB001H, HYB002H

	min. 35 mm ²	max. 150 mm ²
	min. 35 mm ²	max. 185 mm ²
	35 mm ² to 50 mm ² = 25 Nm 60 mm ² to 185 mm ² = 25 Nm	

Connection with end lugs

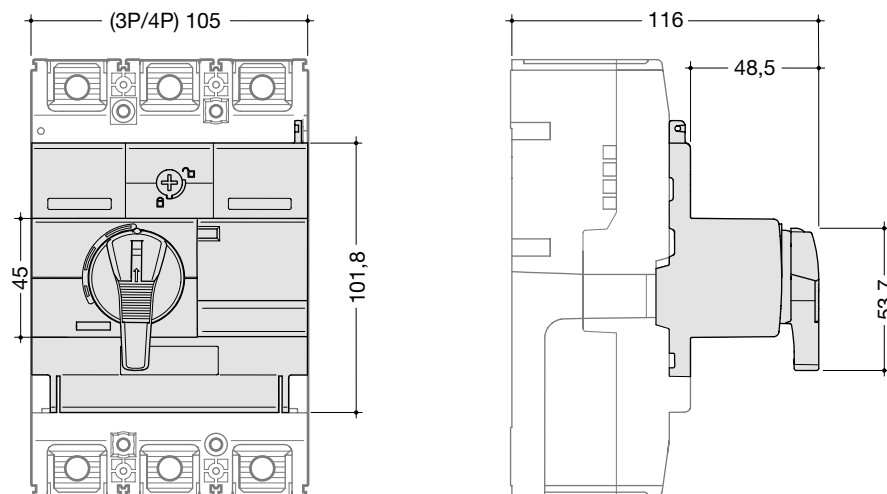


Interphase barriers

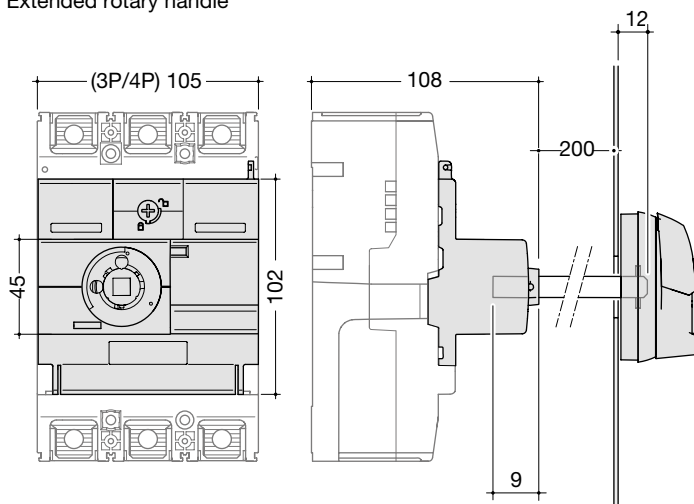


Accessories

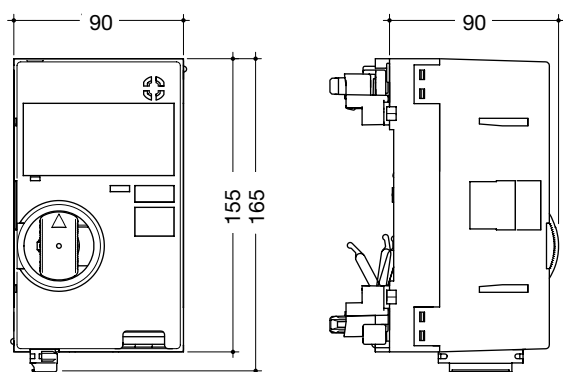
Rotary handle



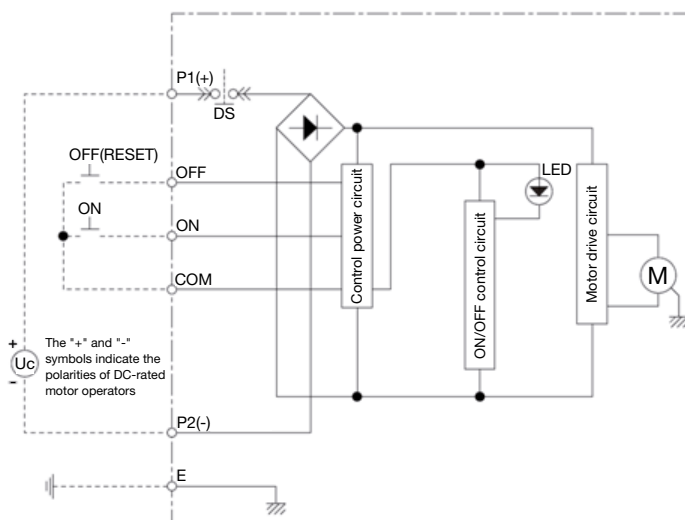
Extended rotary handle



Motor operator



Wiring diagram

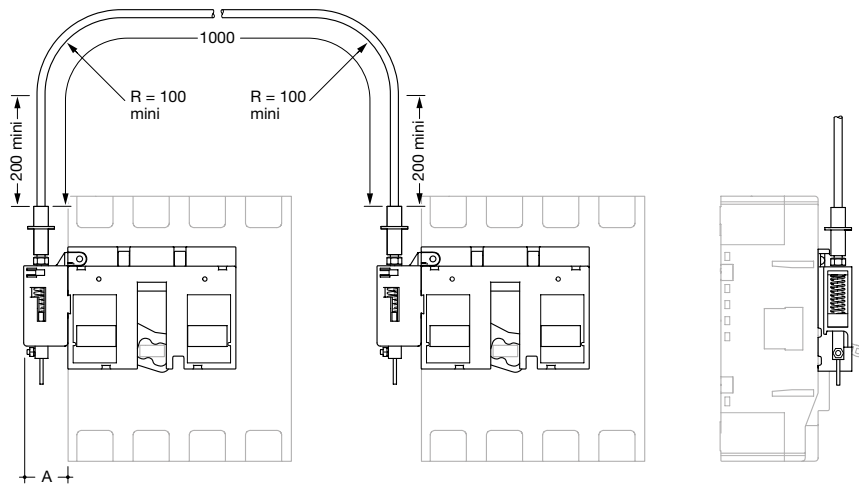


	HXB040H	HXB042H
Operating voltage	24V DC	230-240V AC
Operating current / starting current peak value (A)	24V DC 18/26	- 3,5/7
Operating time (s)	(ON) 0.1s (OFF) 0.1s (RESET) 0.1s	
Power supply required	300VA min.	
Dielectric properties (1 min)	1000V AC	1500V AC

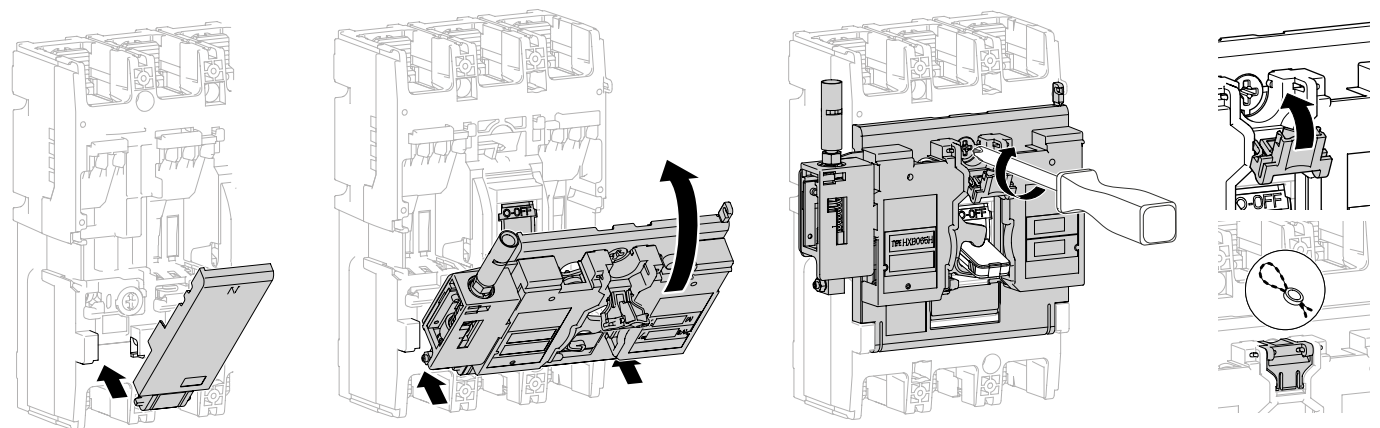
Interlocking system

Suitable with motor operator HXB04xH.
With electrical interlock for motor operator HXB068H (for 250A)
or HXB069H (for 630/1000A).

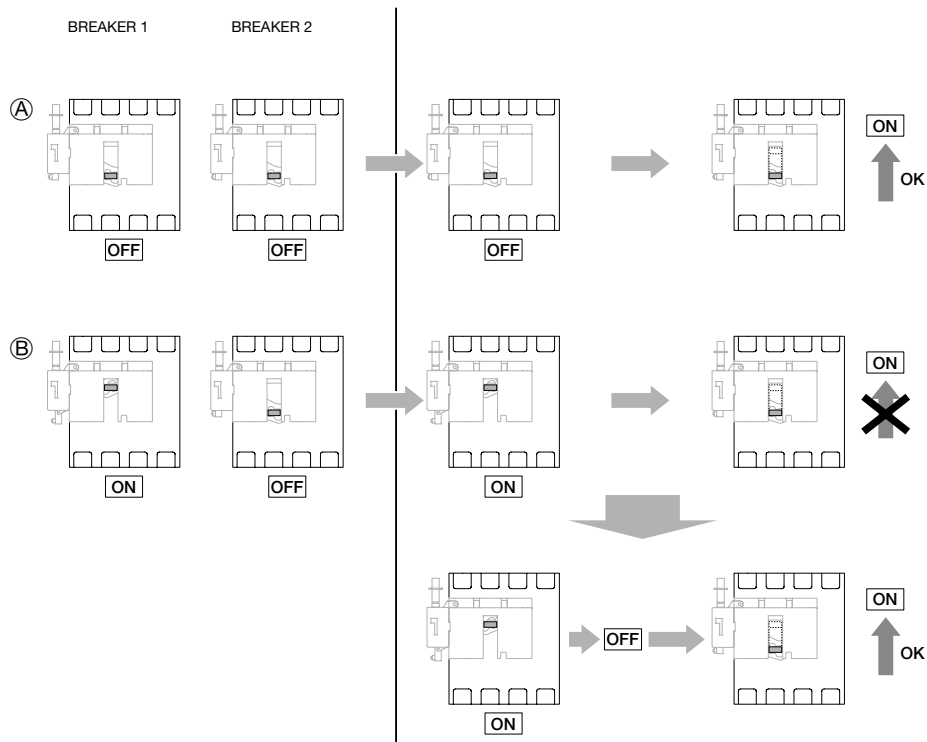
- Length HXB068H: 1500 mm
- Length HXB069H: 2100 mm



Mounting

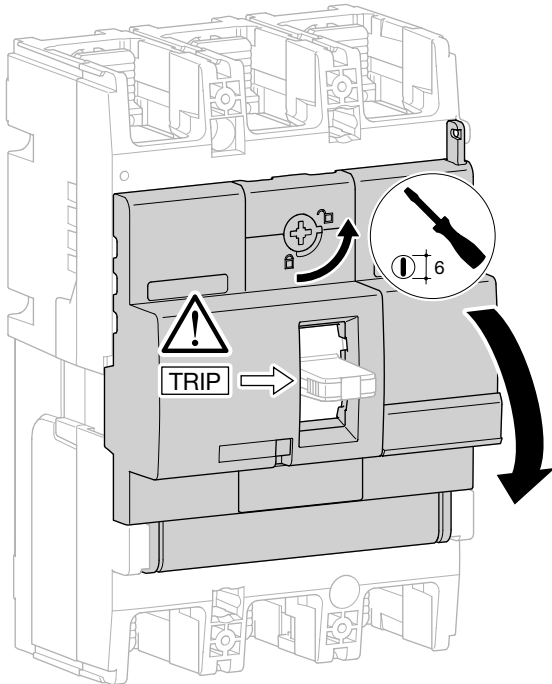


Checking the correct assembly



Auxiliaries

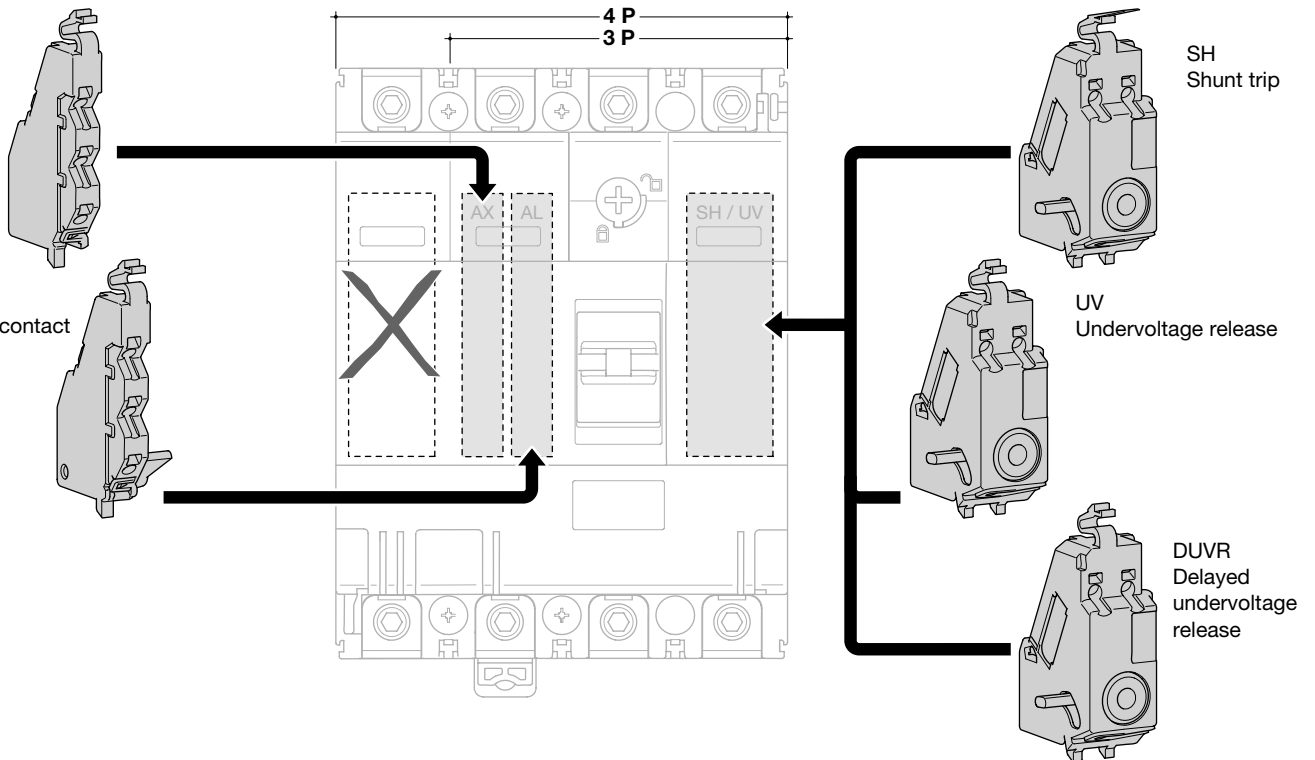
Auxiliaries for MCCBs and trip-free switches

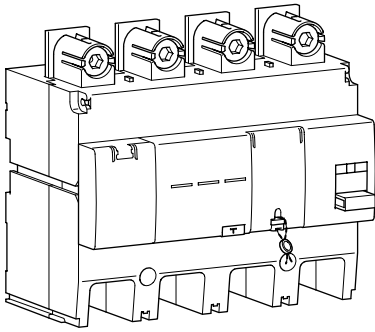


Mounting combination for auxiliaries and releases


AX
Auxiliary contact

AL
Alarm contact





When associated with MCCB, the add-on block provides an earth fault protection and protects against electrical shocks by direct or indirect contacts.

The add-on blocks are protected against nuisance tripping caused by transient voltages. It's able to detect sinusoidal alternating currents and residual pulsating direct currents (A type ). It also avoids miss tripping (HI type - High Immunity).

Add-on blocks x250 characteristics

Reset button:

Signals add-on block tripping and must be acknowledged before switching on the installation.

Test button for differential operating:

Allows to check the electrical operating of the MCCB / Add-on block association.

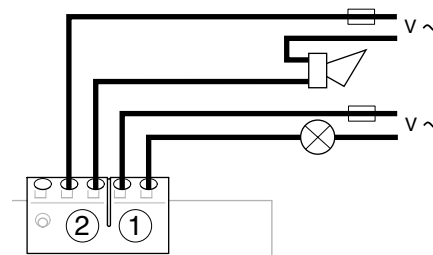
Mechanical test button:

Allows to check the mechanical operating of the MCCB / Add-on block association.

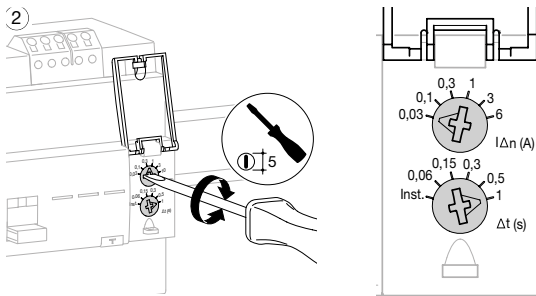
LED signaling default current level in the installation:

25% (orange) and 50% (red) IΔn; green light to signal correct operating.

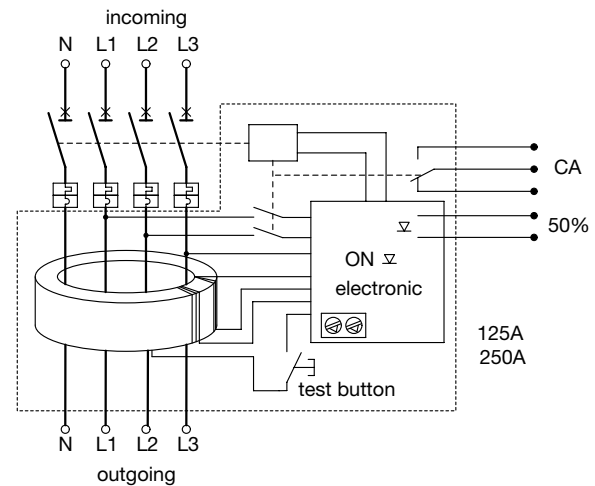
Remote tripping and advanced warning (50% IΔn) signaling thanks to these contacts:



Earth leakage current (IΔn) and delay (Δt) setting

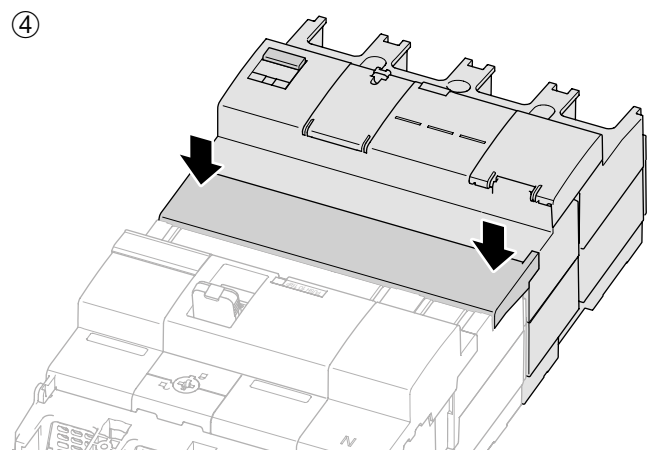
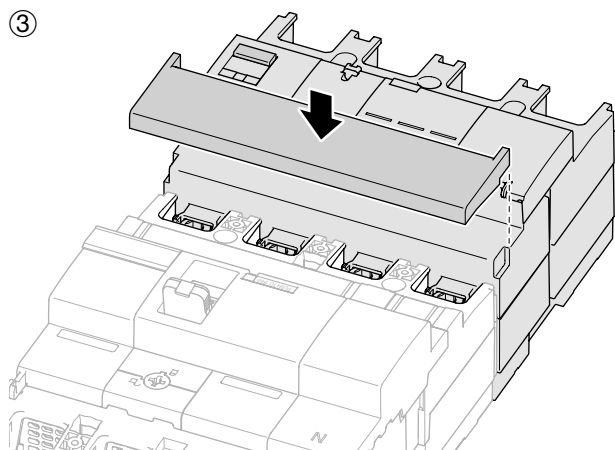
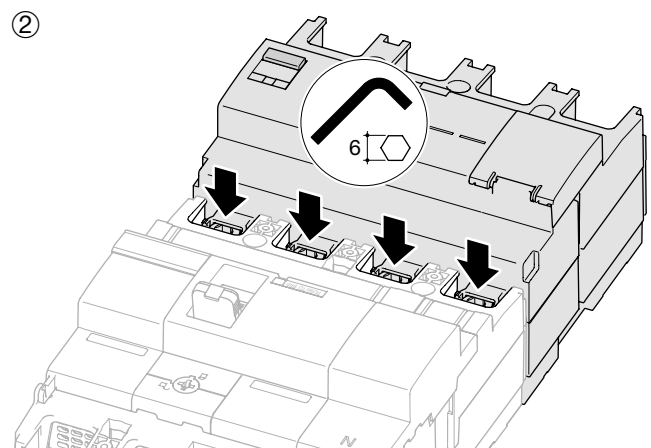
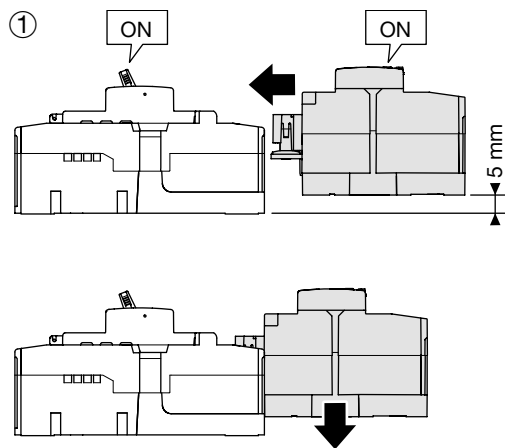


Add-on block operating

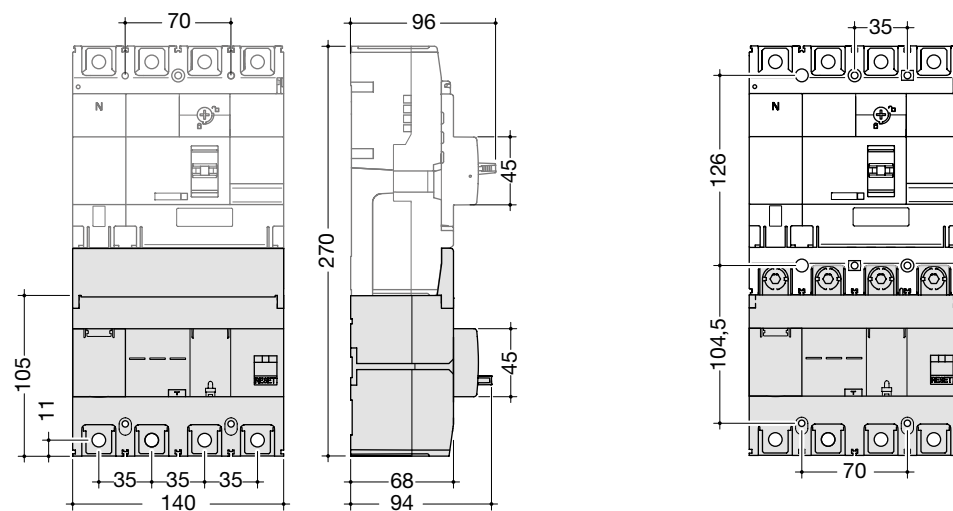


		A (IΔn)					
		0.03	0.1	0.3	1	3	6
S (Δt)	Inst.	OK	OK	OK	OK	OK	OK
	0.06	no	OK	OK	OK	OK	OK
	0.15	no	OK	OK	OK	OK	OK
	0.3	no	OK	OK	OK	OK	OK
	0.5	no	OK	OK	OK	OK	OK
	1	no	OK	OK	OK	OK	OK

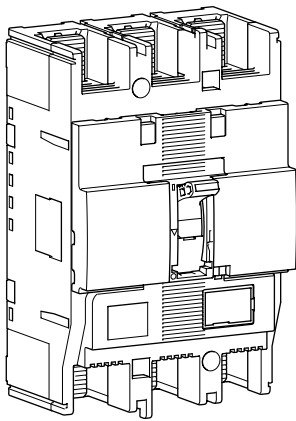
Add-on block mounting



Dimensions

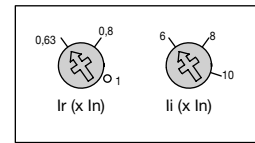


MCCBs



		220/240 V AC (kA)	380/415 V AC (kA)	660/690 V AC (kA)
HHG	Icu	35	25	-
	Ics	27	19	-
HNG	Icu	35	50	-
	Ics	65	25	-
HEG	Icu	85	65	-
	Ics	85	36	-
HNC	Icu	85	50	7,5
	Ics	85	25	7,5
HEC	Icu	100	70	20
	Ics	100	70	15

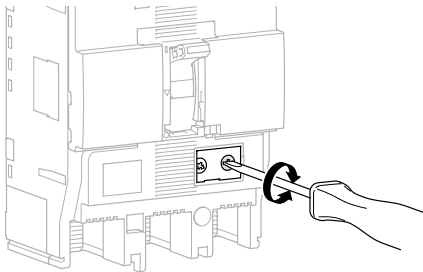
Magnetic and thermal settings



Thermal adjustment from 0.63 to 1 x In

Magnetic adjustment from 6 to 10 x In (250A)
from 6 to 13 x In (160 and 200A)
from 6 to 12 x In (32, 63, 100 and 125A)

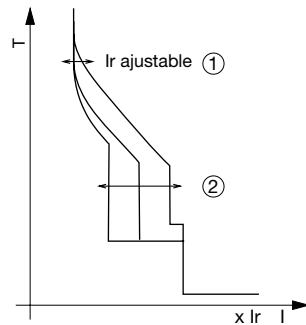
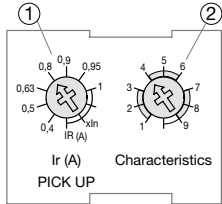
Electronic trip unit setting (LSI)



L - Long delay - protection against overloads:
I_r and t_r settings

S - Short delay - protection against short circuits:
I_{sd} and t_{sd} settings

I - Instantaneous - max. instantaneous threshold (< 10 ms) in case of
short circuit: 2.5 to 10 x I_r.

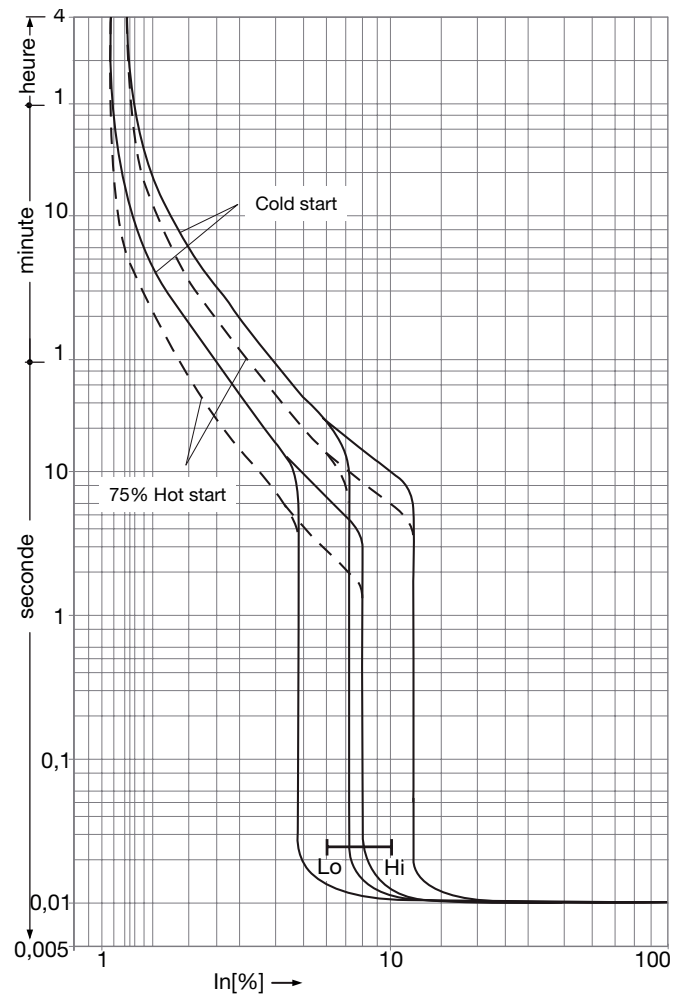


Use	Characteristics (*)	
	3 P	4 P
Generator protection	pos. 1	pos. 1, 4 and 7
Standard protection	pos. 2 and 3	pos. 2, 5 and 8
Motor protection	pos. 4 and 5	pos. 3, 6 and 9

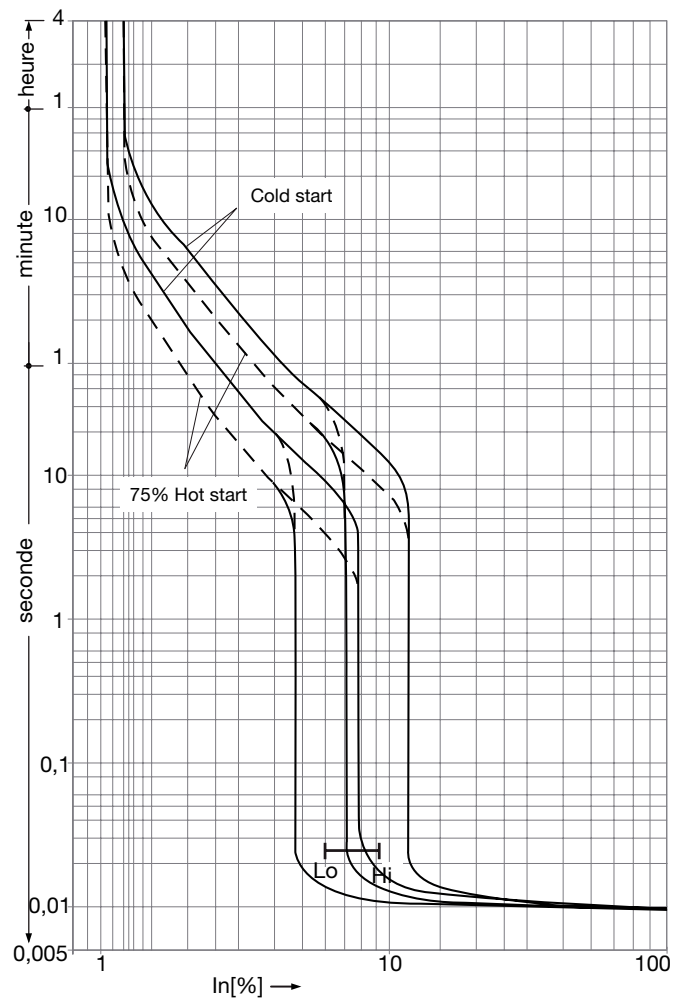
LSI		In A										
		3P						4P				
		Long Time Delay		Short Time Delay		Inst	Long Time Delay		Short Time Delay		Inst	Protection
Ir (x In)	tr (s)	isd (xlr)	tsd (s)	li (xlr)	Ir (x In)	tr (s)	isd (xlr)	tsd (s)	li (xlr)	Neutral		
① Ir (x In)	0.4	OK				OK						
	0.5	OK				OK						
	0.63	OK				OK						
	0.8	OK				OK						
	0.9	OK				OK						
	0.95	OK				OK						
	1	OK				OK						
② Characteristics	1	11s at 2 xlr	2.5	0.1	14 (max 12 x In)	11 s at 2 xlr	2.5	0.1	14 (max 10 x In)	no		
	2	21s at 2 xlr				21 s at 2 xlr	5					
	3		5			7.5 s at 6 xlr	10	0,2				
	4	5 s at 6 xlr	10			11 s at 2 xlr	2.5	0.1		50%		
	5	7.5 s at 6 xlr		0.2		21 s at 2 xlr	10					
	6					7.5 s at 6 xlr	2.5	0.2				
	7					11 s at 6 xlr	2.5	0.1				
	8					21 s at 2 xlr	5			100%		
	9					21 s at 2 xlr	10	0.2				

Tripping curve

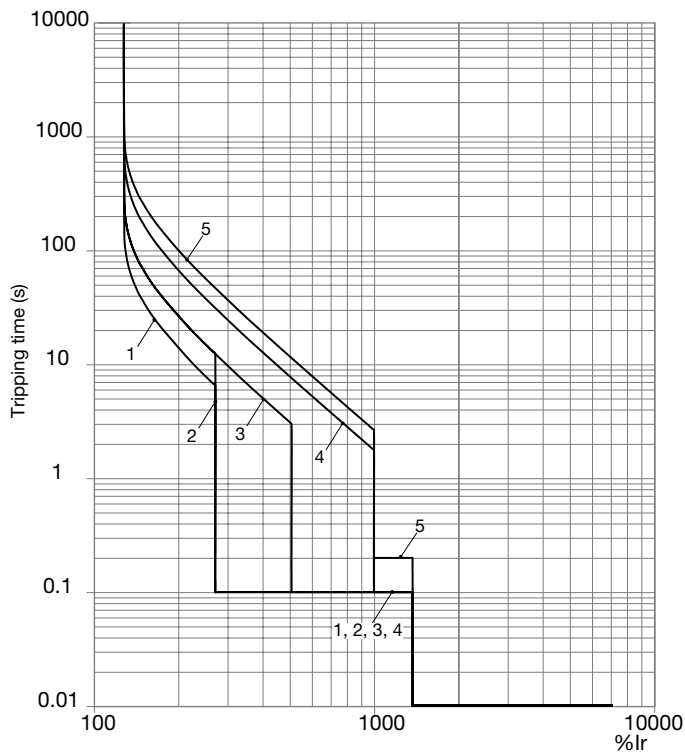
MCCB h250 TM



MCCB h250 TM+

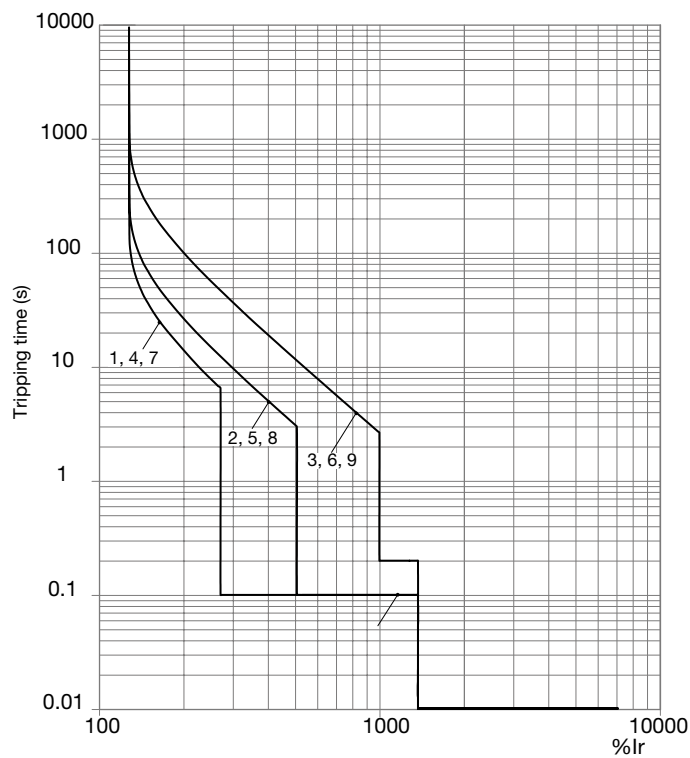


MCCB h250 3P LSI



LTD pick-up current		I_r (x I_n)	0,4	0,5	0,63	0,8	0,9	0,95	1
Characteristics		No.	1	2	3	4	5		
Standard	LTD	tr (s)	11	21	21	5	7.5		
			200 % x I_r				600 % x I_r		
	STD	Isd (x I_r)	2.5	2.5	5	10	10		
		tsd (s)	0.1	0.1	0.1	0.1	0.2		
INST	li (x I_r)	14 (max 13 x I_n)							

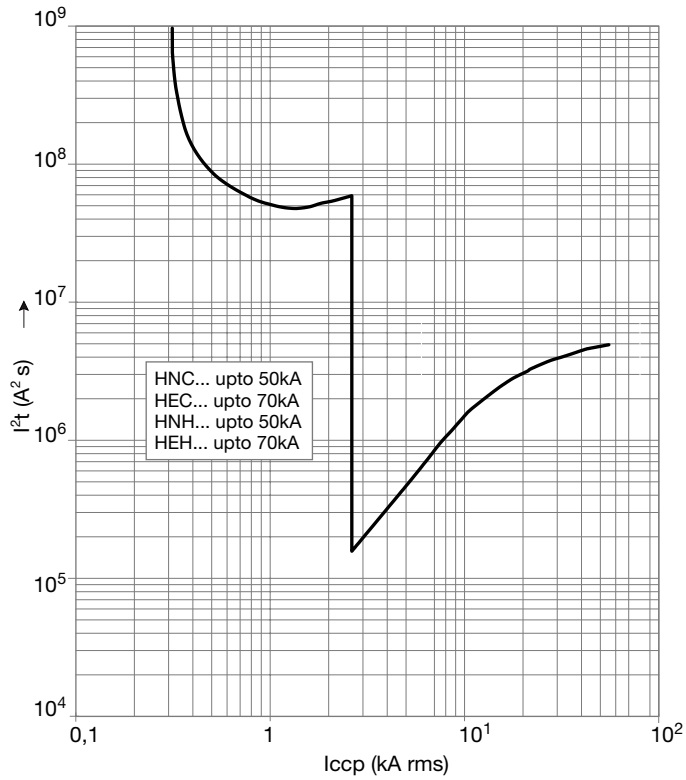
MCCB h250 4P LSI



LTD pick-up current		$I_r (x I_n)$	0.4	0.5	0.63	0.8	0.9	0.95	1		
Characteristics		No.	1	2	3	4	5	6	7	8	9
	LTD	tr (s)	11 s	21 s	7.5 s	11 s	21 s	7.5 s	11 s	21 s	7.5 s
			200 % x I_r		600% x I_r	200 % x I_r		600% x I_r	200 % x I_r		600% x I_r
	STD	Isd (x I_r)	2.5	5	10	2.5	5	10	2.5	5	10
		tsd (s)	0.1		0.2	0.1		0.2	0.1		0.2
	INST	li (x I_r)	14 (max 13 x I_n)								
Neutral protection			no			0.5		1			

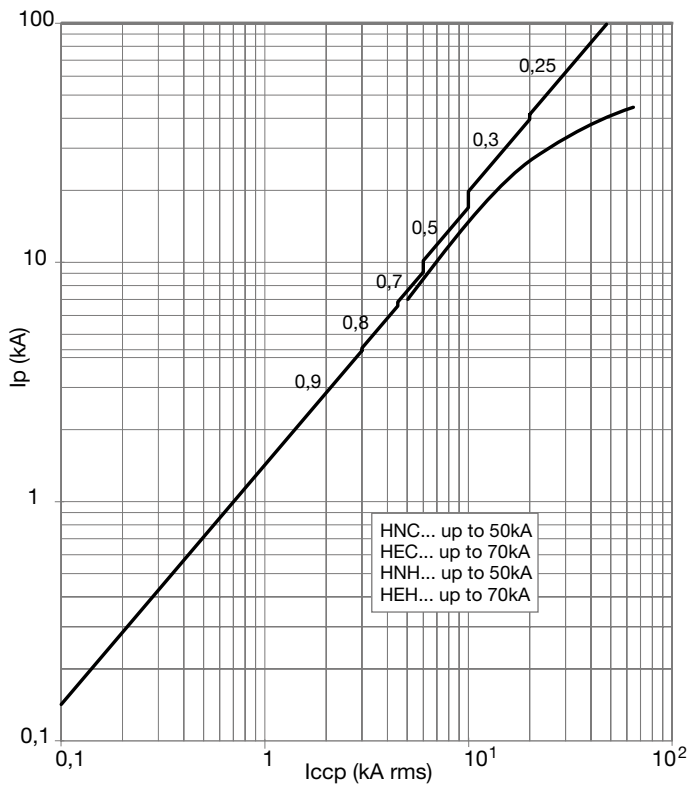
Thermal constraint curve at 400V (Let-through energy)

MCCB h250



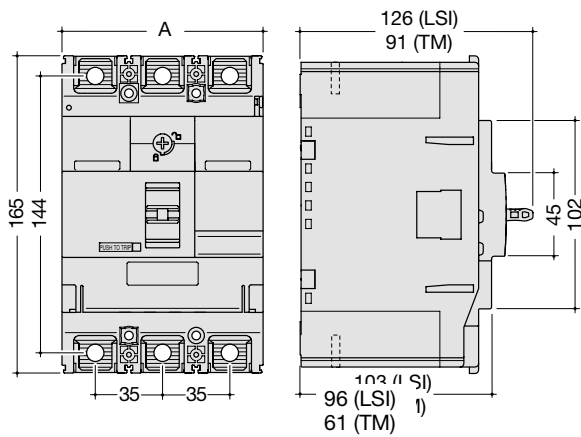
Current limiting curve at 400V (Let-through peak current)

MCCB h250



Dimensions

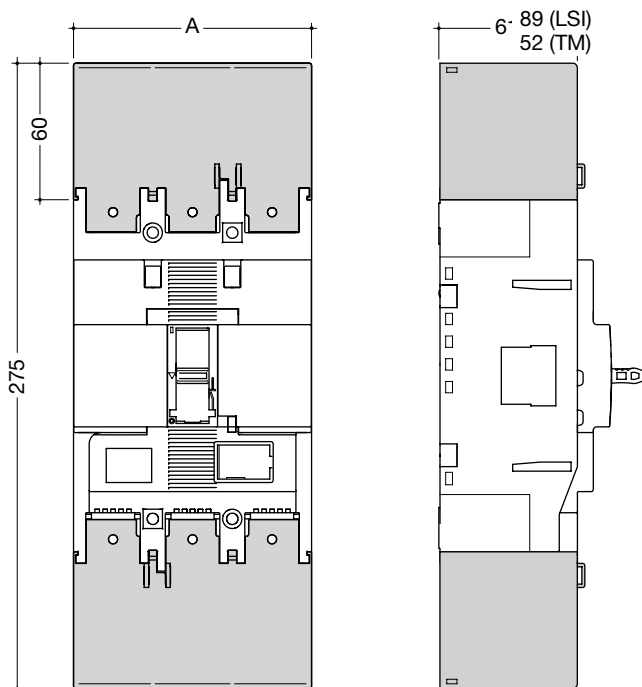
MCCBs



	A (mm)
3P	105
4P	140

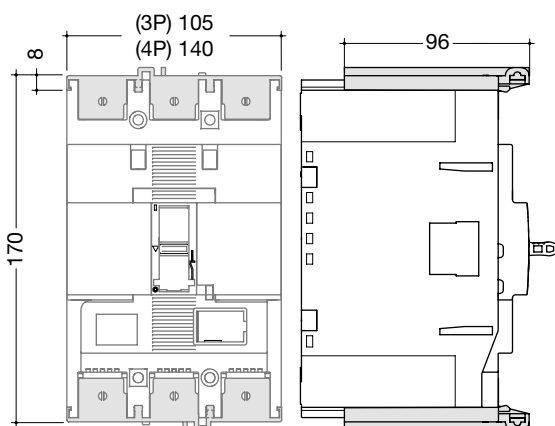
Accessories

Terminal covers for extended straight connections



	A (mm)
3P	105
4P	140

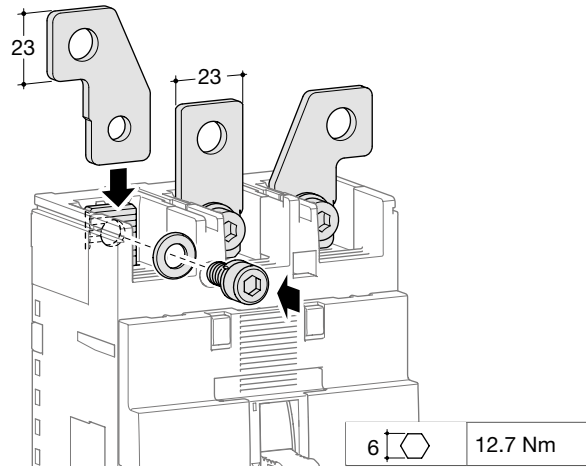
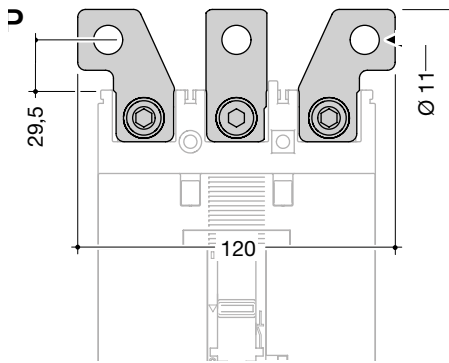
Terminal cover for rear connections (LSI only)



	A (mm)
3P	105
4P	140

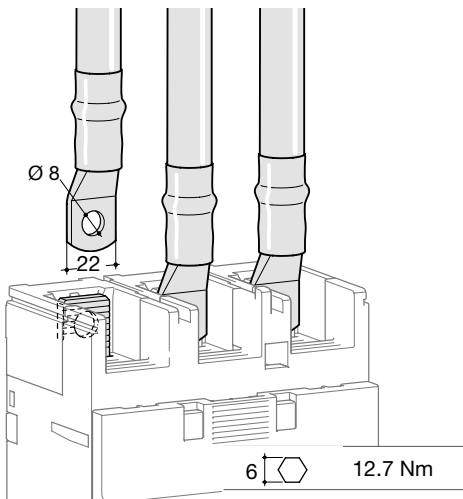
Connection

Extended straight and spreader connections

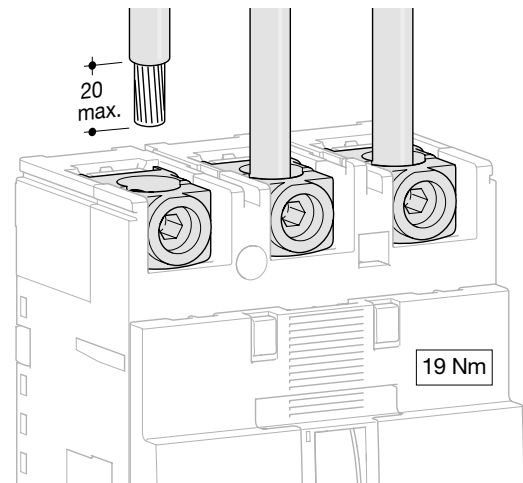


Main incomers

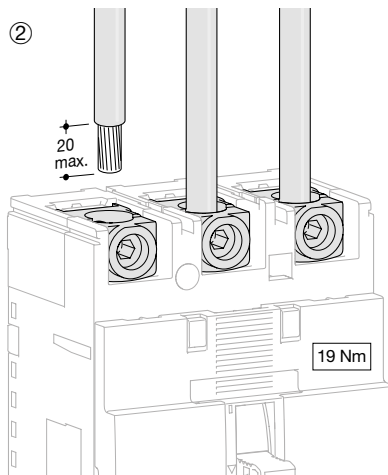
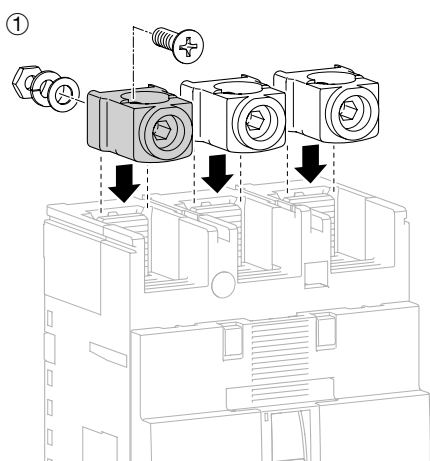
Connection with end lugs




Connection by collar 240mm² - HYB005H and HYB06H




Connection by collar



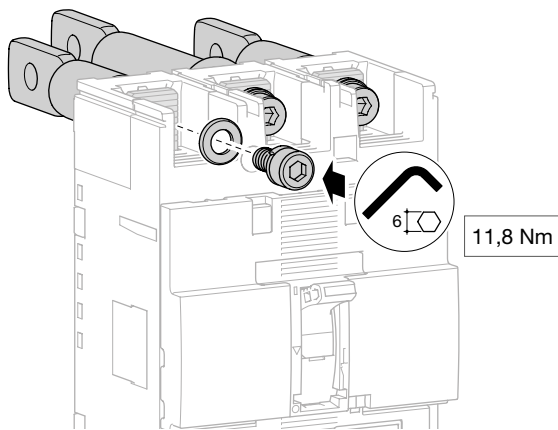
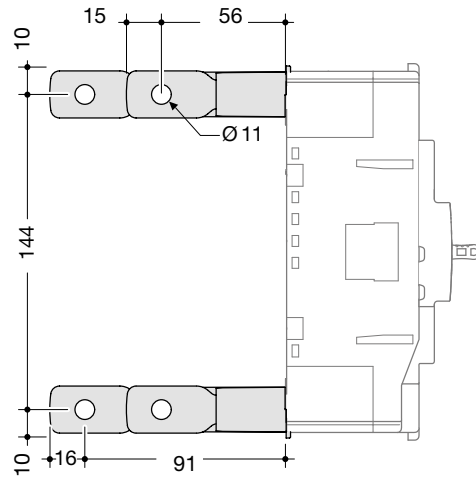
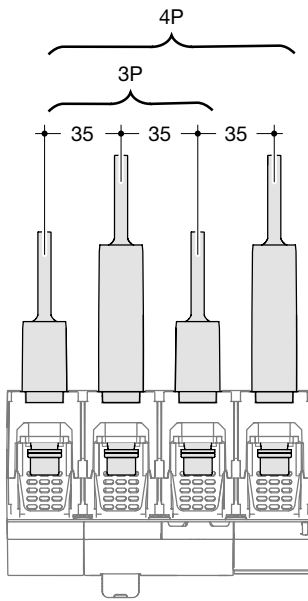
Terminals for copper conductors
HYC003H, HYC004H

 min. 35 mm² max. 120 mm²

 min. 35 mm² max. 120 mm²

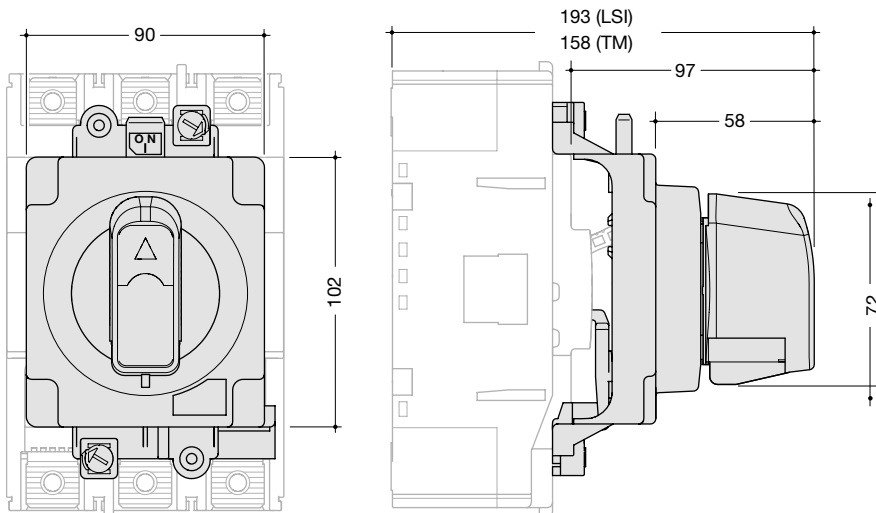
6  19 Nm

Rear connections (LSI only)

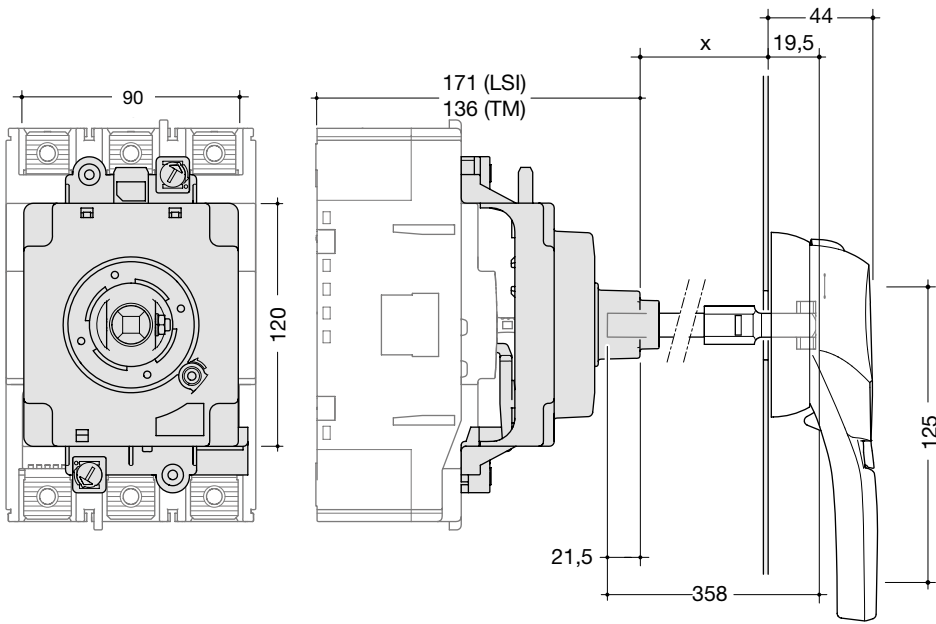


Accessories

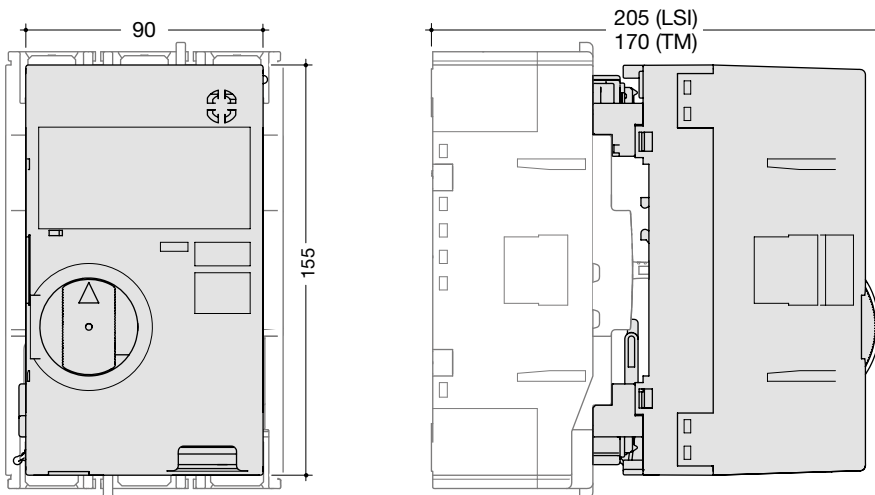
Direct rotary handle



Extended rotary handle

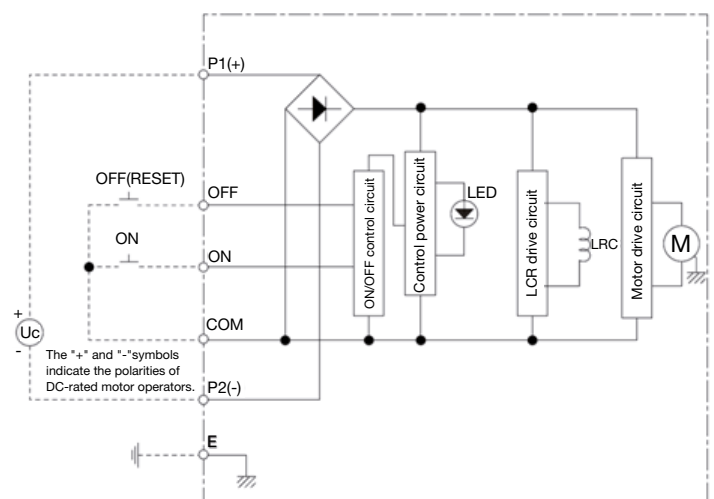


Motor operator



Wiring diagram

		HXC040H	HXC042H
Operating voltage		24V DC	230-240V AC
Operating current / starting current peak value (A)	24V DC	18/26	-
	230-240V AC	-	3,5/7
Operating time (s)	(ON)	0.1s	
	(OFF)	0.1s	
	(RESET)	0.1s	
Power supply required		300VA min.	
Dielectric properties (1 min)		1000V AC	1500V AC

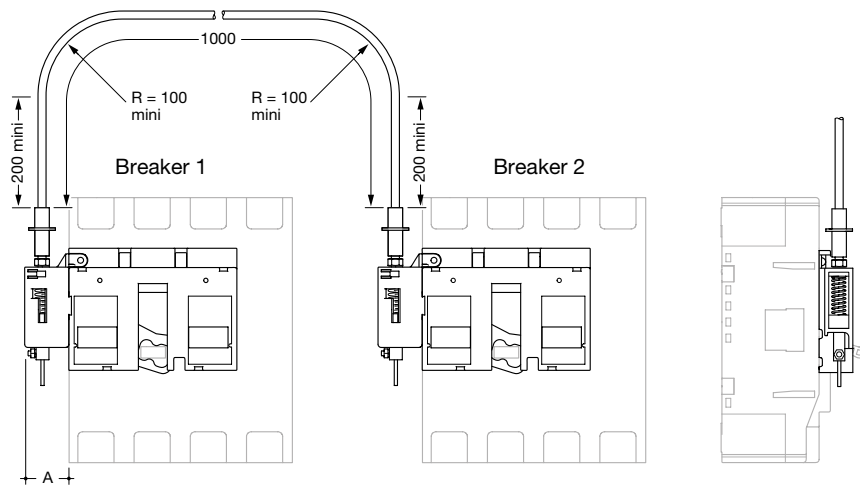


Interlocking system

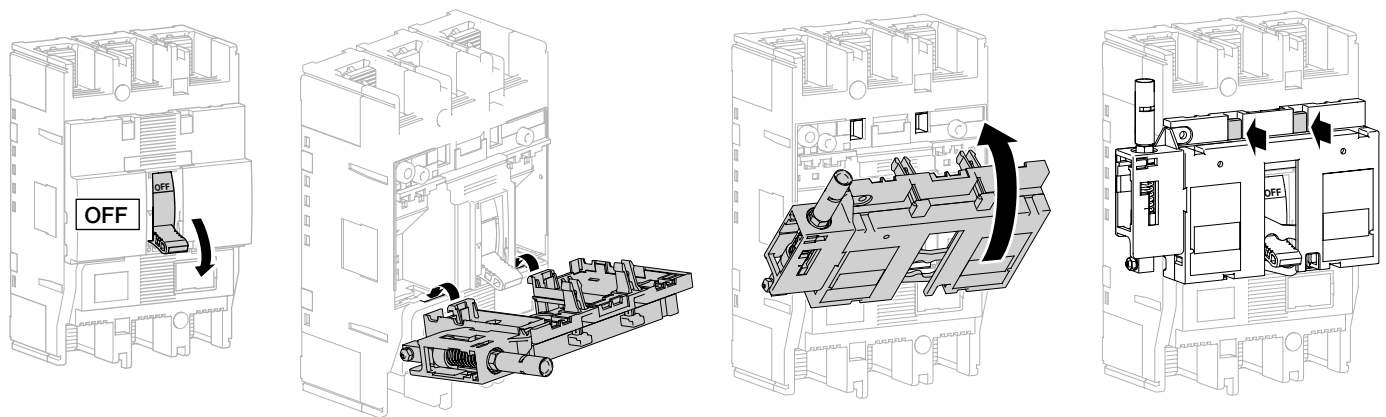
Suitable with motor operator HXB04xH.

With electrical interlock for motor operator HXB068H (for 250A) or HXB069H (for 630/1000A).

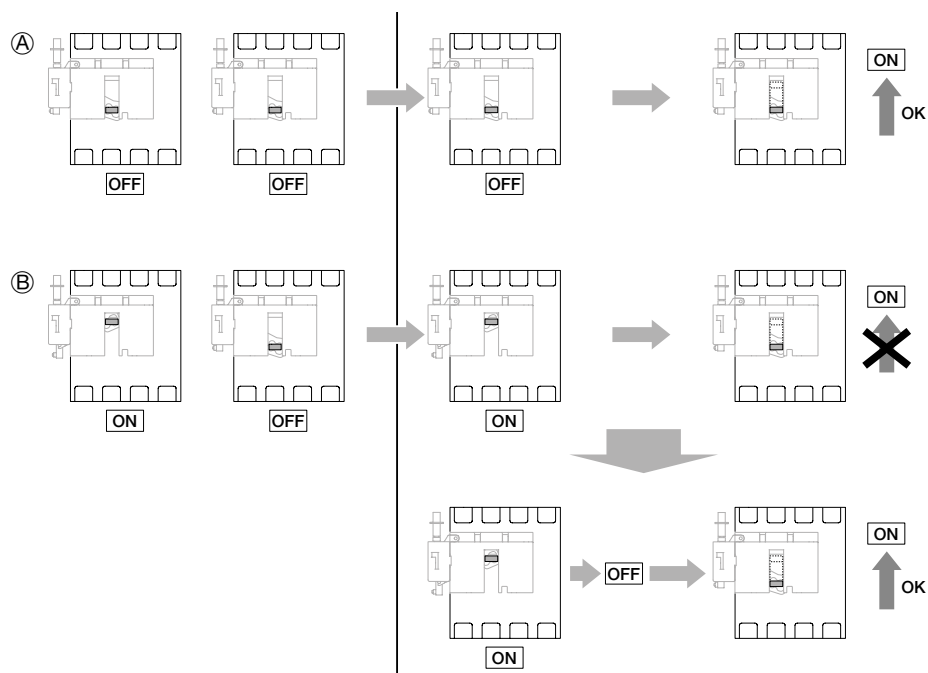
- Length HXB068H: 1500 mm
- Length HXB069H: 2100 mm



Mounting

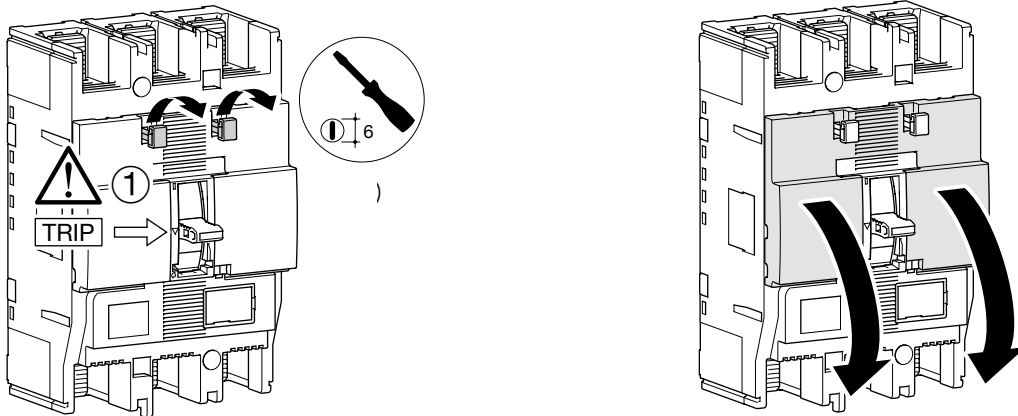


Mounting

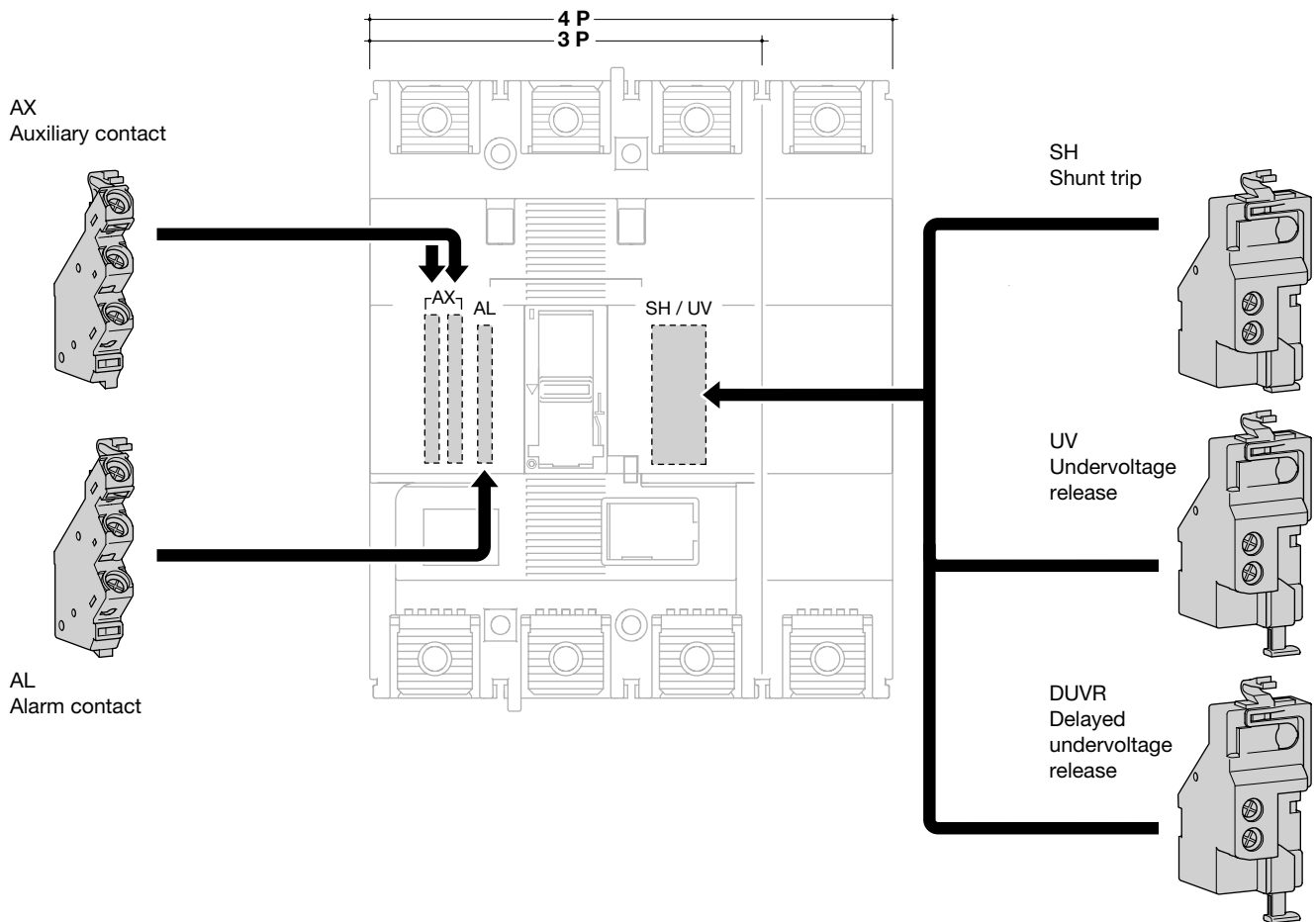


Auxiliaries

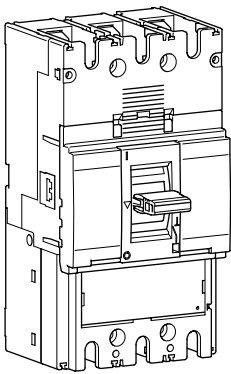
Auxiliaries for MCCBs and trip-free switches



Mounting combination for auxiliaries and releases

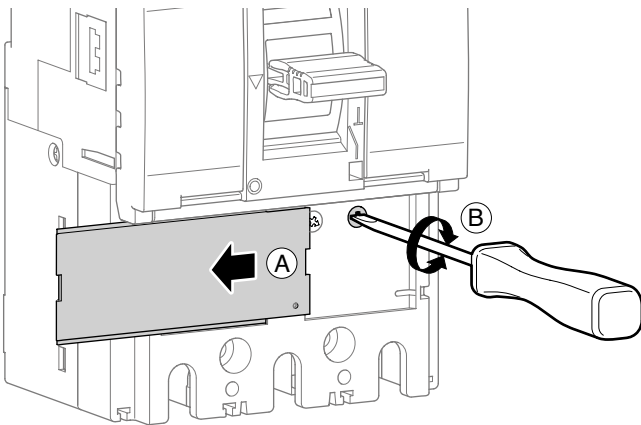


MCCBs

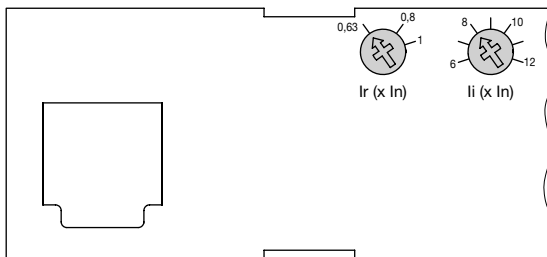


		220/240 V AC (kA)	380/415 V AC (kA)	660/690 V AC (kA)
h400/h630 HND	l _{cu}	85	50	20
	l _{cs}	85	50	15
h630 HED	l _{cu}	100	70	20
	l _{cs}	85	50	15
h630 HCD	l _{cm}	–	9	–
	l _{cw}	–	5 kA-0.3 s	–

Settings



Magnetic and thermal settings

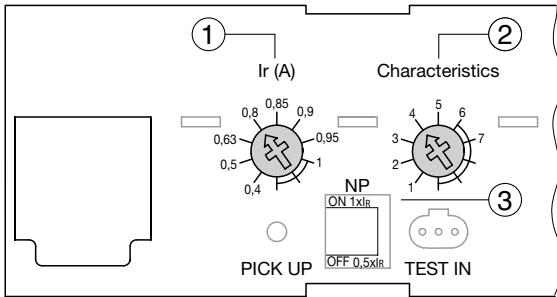


Thermal adjustment from 0,63 to 1 x I_n

Magnetic adjustment from 6 to 12 x I_n

Electronic trip unit setting (LSI)

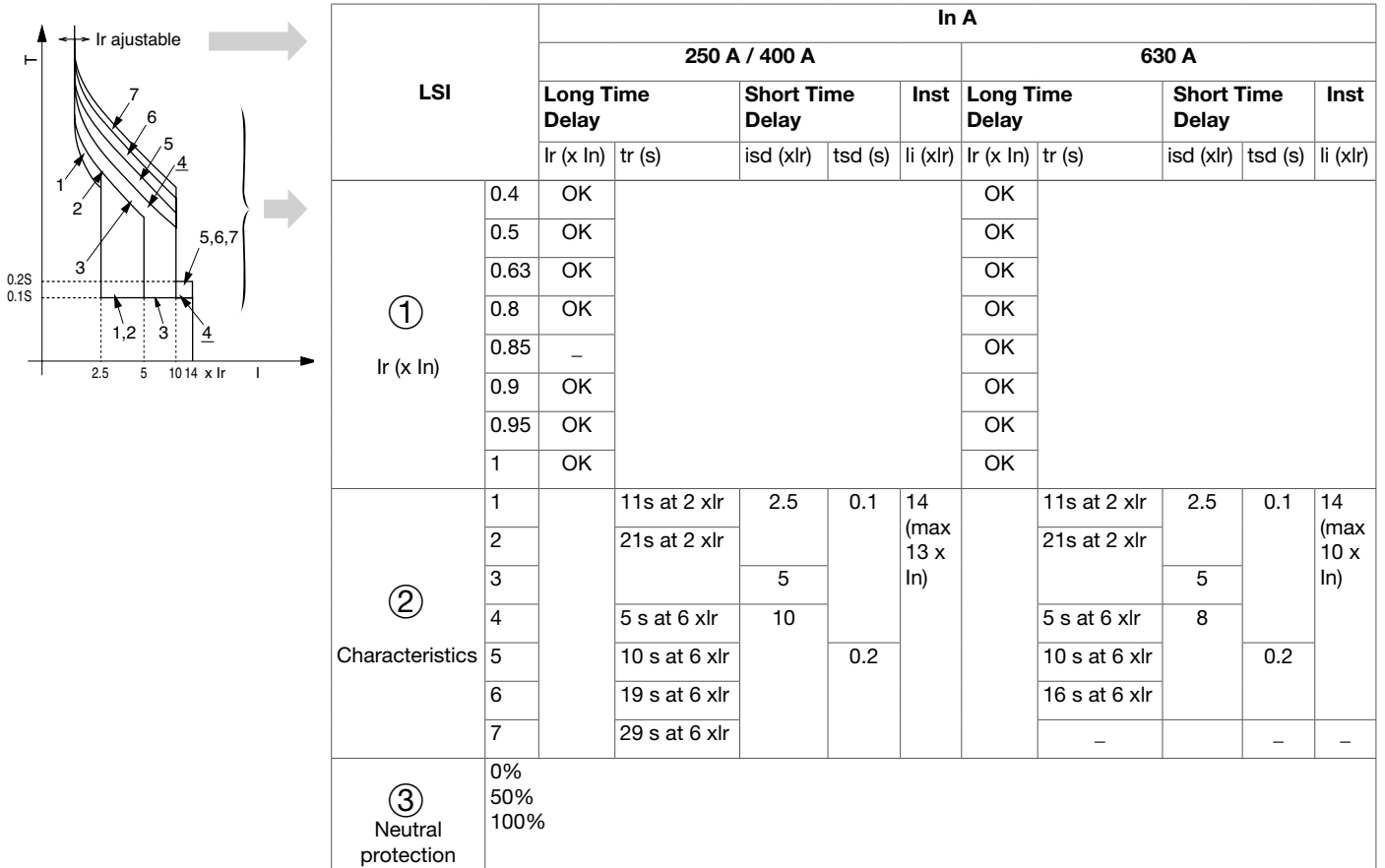
- L - Long delay - protection against overloads:
I_r and t_r settings
- S - Short delay - protection against short circuits:
I_{sd} and t_{sd} settings
- I - Instantaneous - max. instantaneous threshold
(< 10 ms) in case of short circuit:
2,5 to 10 x I_r (250 - 400A) and 2.5 to 8 x I_r (630A).



Neutral settings:

- ① Long delay current I_r setting
- ② Other curve characteristics setting (t_r, I_{sd}, t_{sd})
- ③ Neutral protection against overloads setting

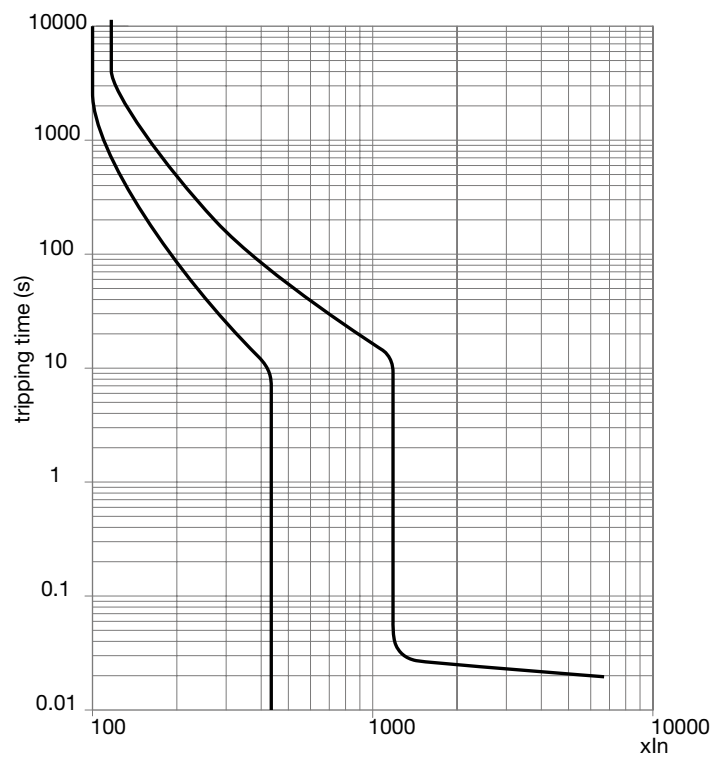
Main incomers



(*) Characteristic 1: use for generators protection.
 Characteristic 2 to 4 - standard protection: options allow coordination optimisation with other products.
 Characteristic 5 to 7 - motor protection: use positions according to motor starting characteristics.

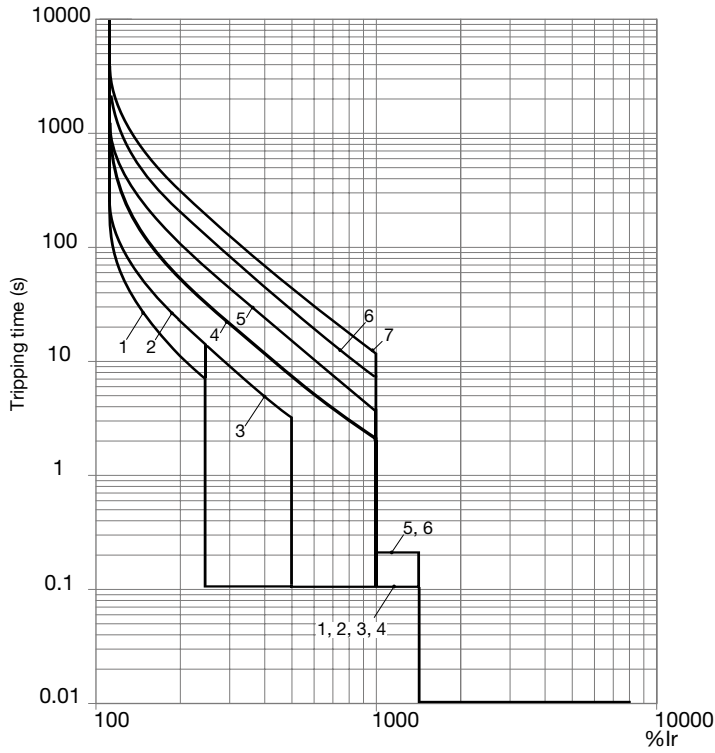
Tripping curve

MCCB h400 TM (250 and 400A)



Tripping curve

MCCB h630 LSI (250A and 400A)



Main incomers

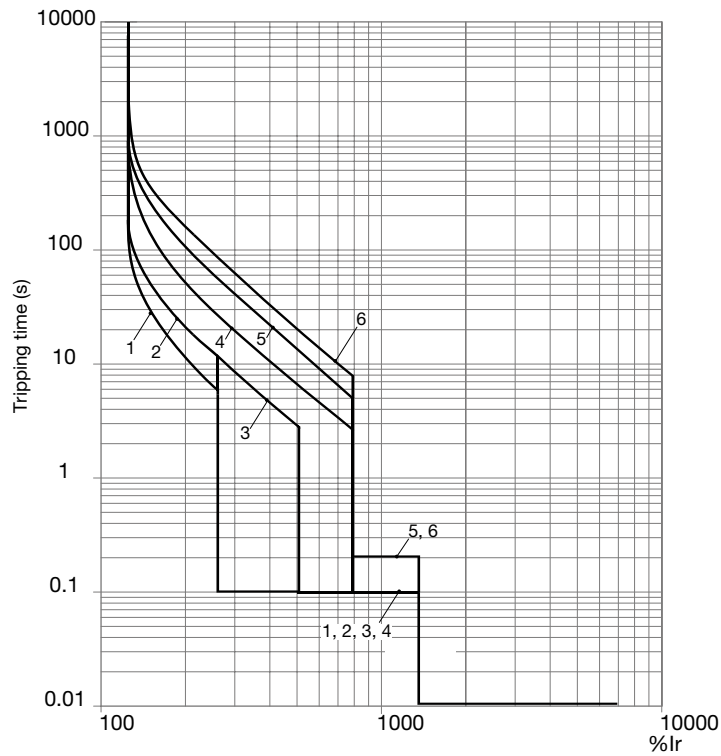
Electronic trip unit setting (LSI)

MCCB h630 LSI (250A and 400A)

Ir (A)									
LTD Pick-up current		Ir (x In)	0.4	0.5	0.63	0.8	0.9	0.95	1
Characteristics		No.	1	2	3	4	5	6	7
Standard	LTD	tr (s)	11	21	21	5	10	19	29
			at 200% x Ir			at 600% x Ir			
	STD	Isd (x Ir)	2.5		5	10			
		tsd (s)	0,1			0.2			
INST	li (x Ir)	14 (max : 13 x In)							
Optional	N	In (x In)	0 - 0.5 - 1						
		tn (s)	tn = tr						

Tripping curve

MCCB h630 LSI (630A electronic)



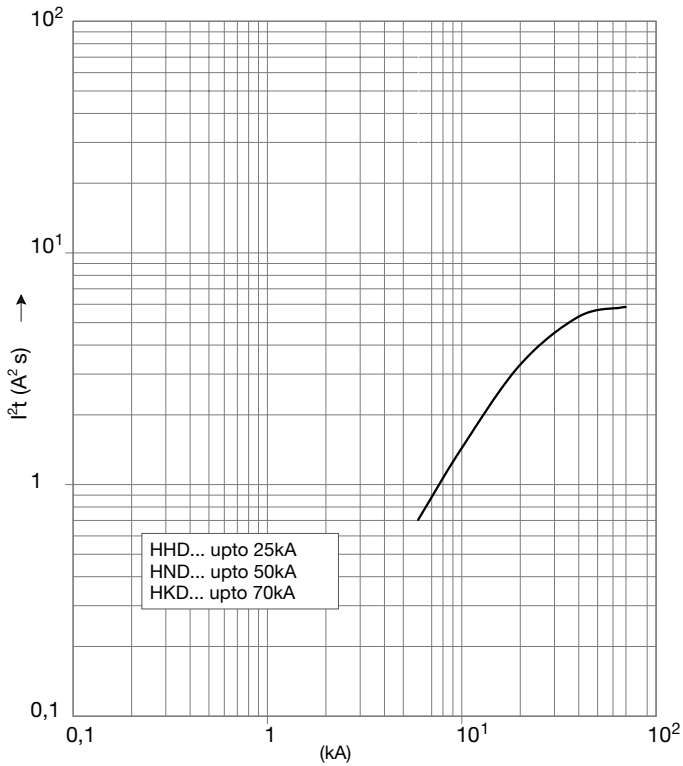
Electronic trip unit setting (LSI)

MCCB h630 LSI (630A electronic)

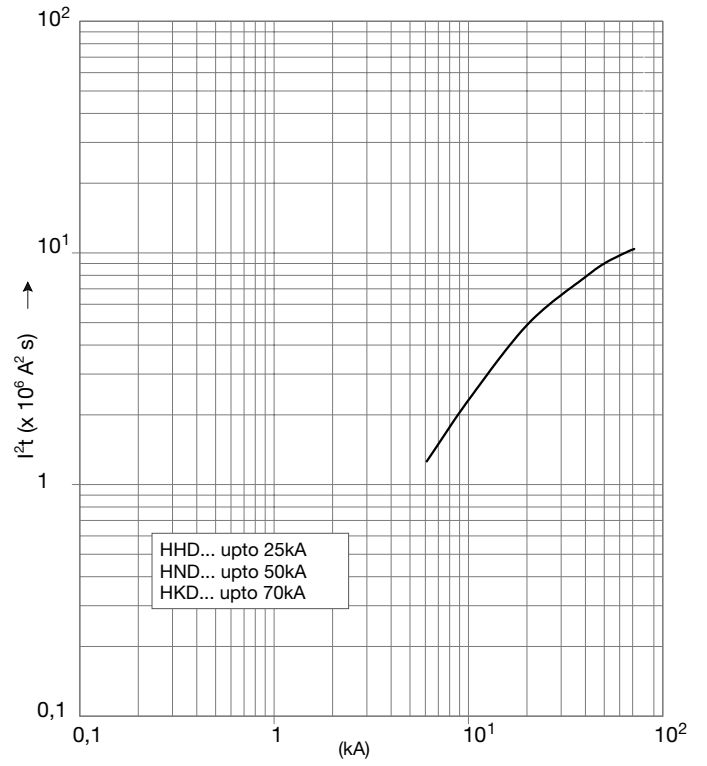
Ir (A)											
LTD Pick-up current		Ir (x In)	0.4	0.5	0.63	0.8	0.85	0.9	0.95	1	
Characteristics		No.	1	2	3	4	5	6			
Standard	LTD	tr (s)	11	21	21	5	10	16			
			200% x Ir			600% x Ir					
	STD	Isd (x Ir)	2.5		5	8					
		tsd (s)	0.1				0.2				
INST	li (x Ir)	14 (max : 13 x In)									
Optional	N	In (x In)	0 - 0.5 - 1								
		tn (s)	tn = tr								

Thermal constraint curve at 400V (Let-through energy)

MCCB h400 TM (250A)

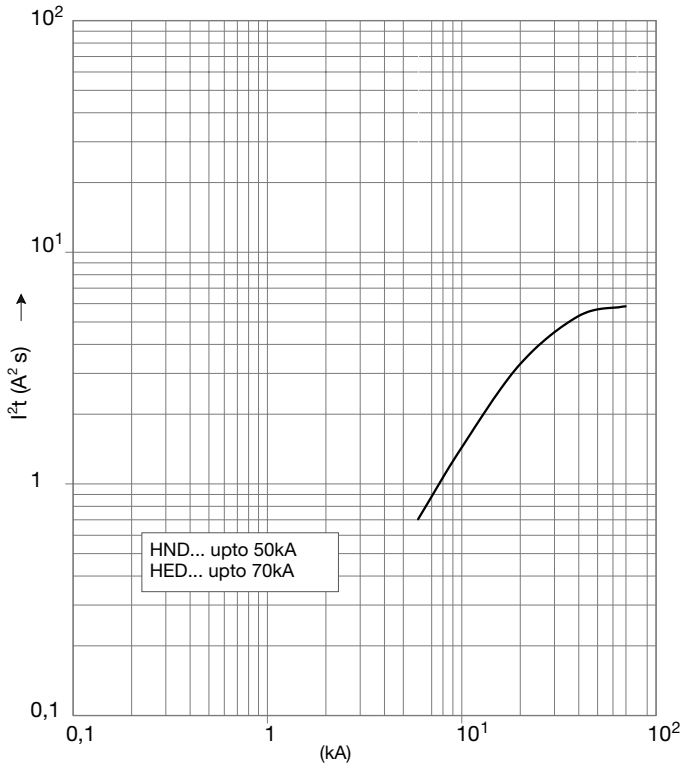


MCCB h400 TM (400A)

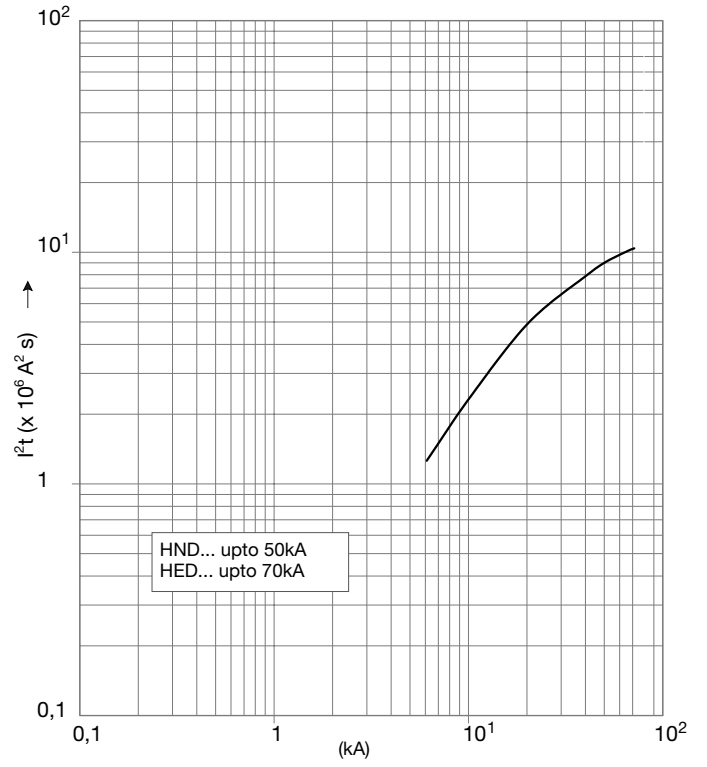


Main incomers

MCCB h630 LSI (250A and 400A)

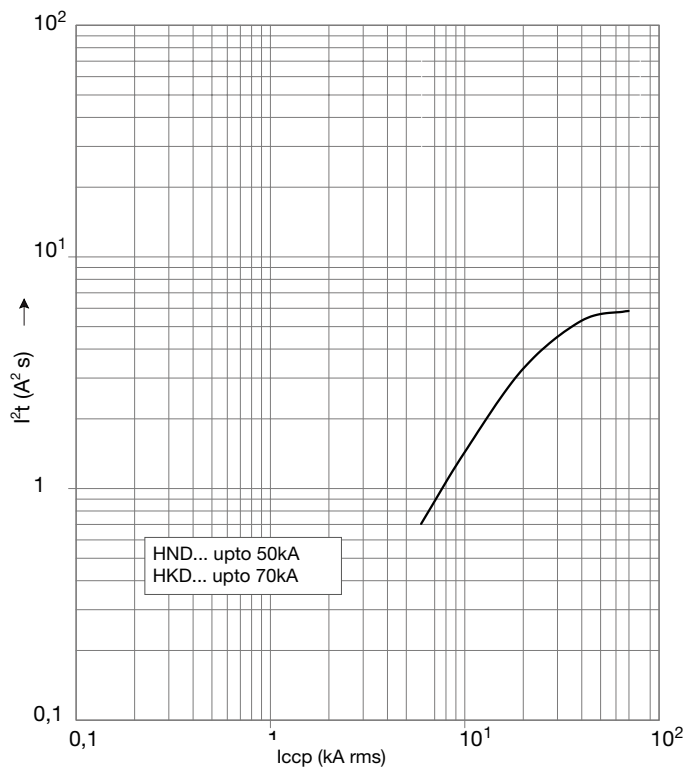


MCCB h630 LSI (630A)



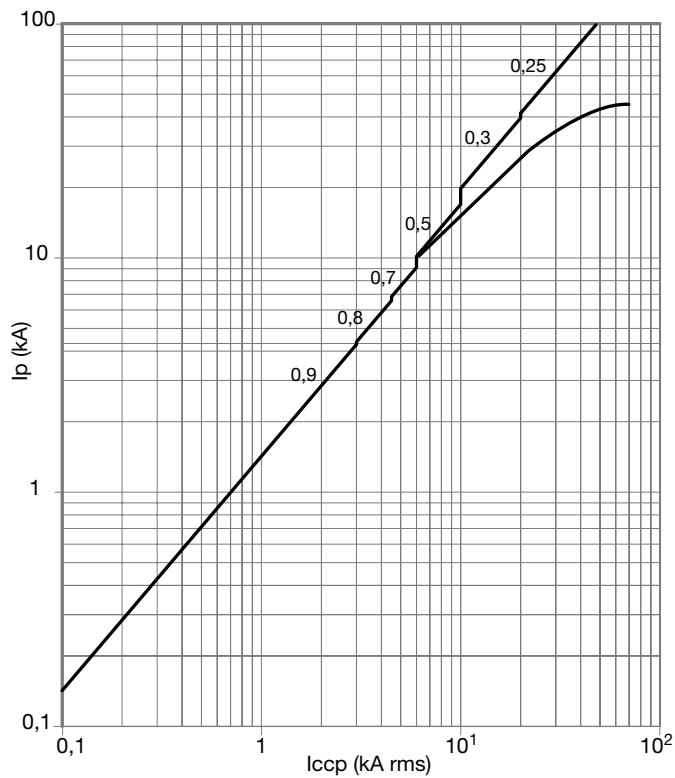
Thermal constraint curve at 400V (Let-through energy)

MCCB h630 LSI (630A)

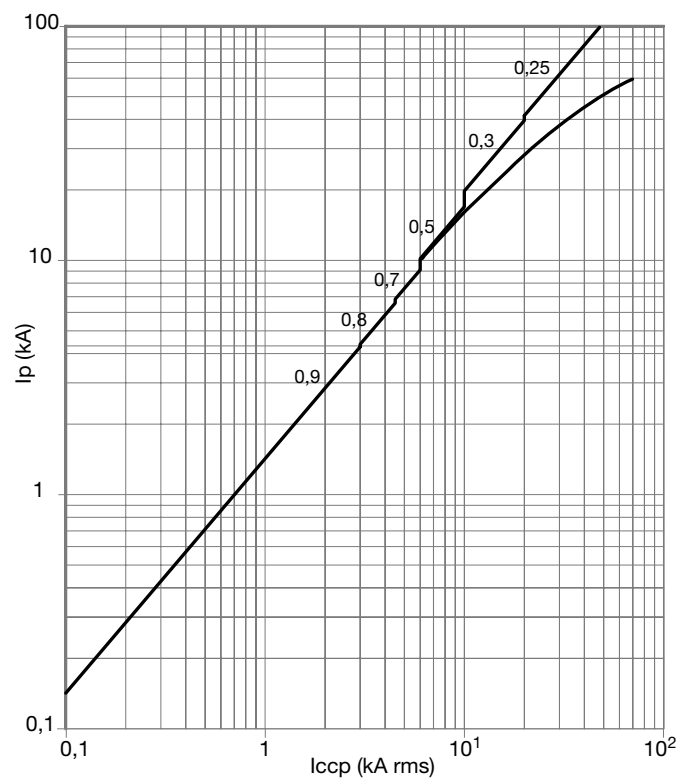


Current limiting curve at 400V (Let-through peak current)

MCCB h630 LSI (250A and 400A)
MCCB h400 TM

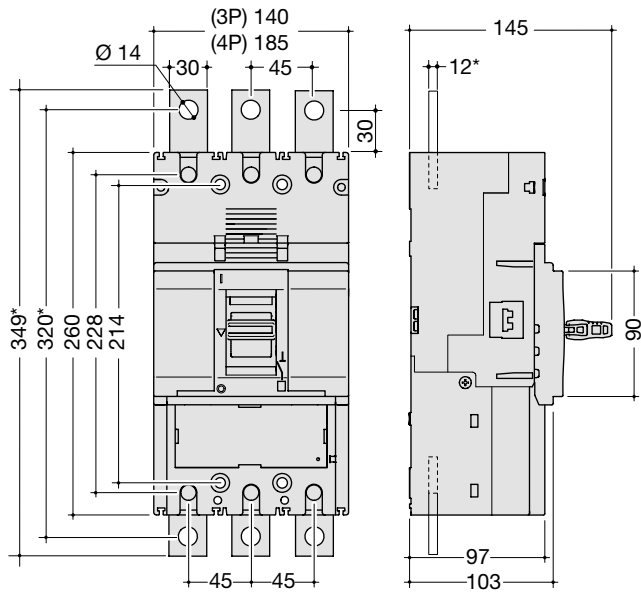


MCCB h630 LSI (630A)

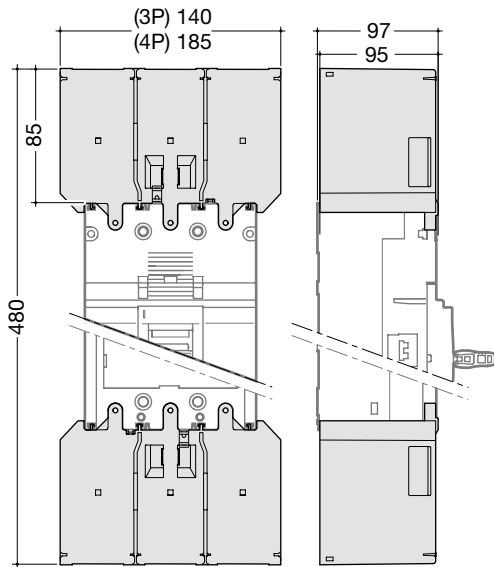


Dimensions

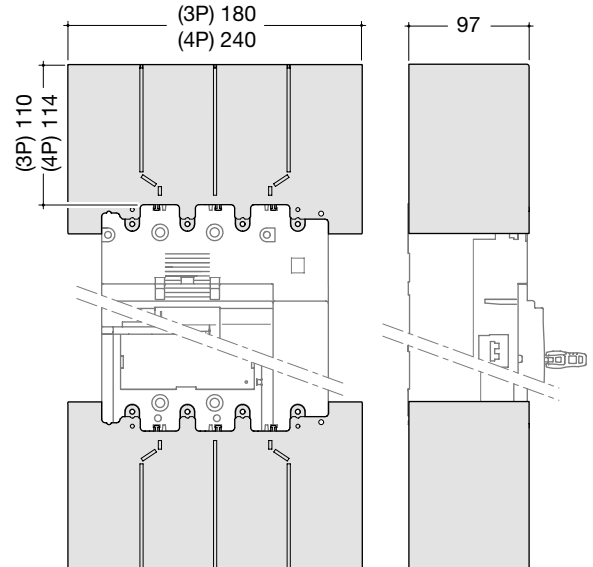
MCCBs



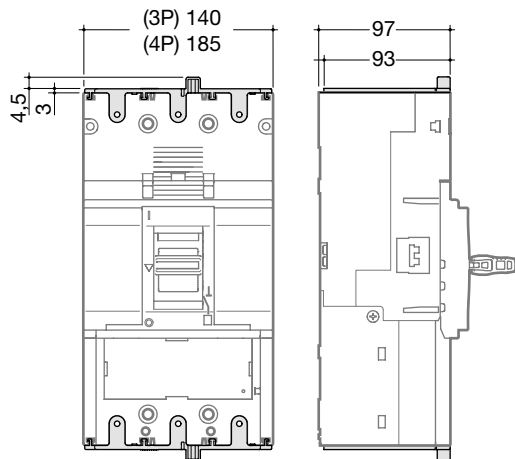
Terminal covers for extended straight connections



Terminal covers for extended spreader connections



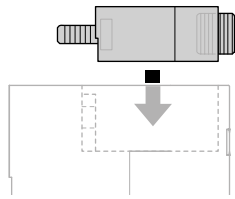
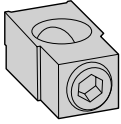
Terminal covers for rear connections and collar terminal



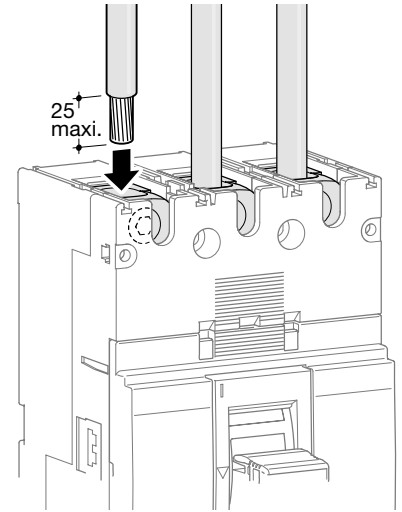
Connection

Connection for aluminium / copper conductors
(h400 TM, h630 LSI)

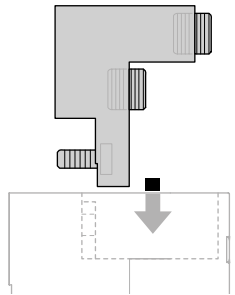
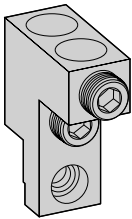
HYD005 (3P) - HYD006H (4P)



	max. 1x240 mm ²
10	25 Nm

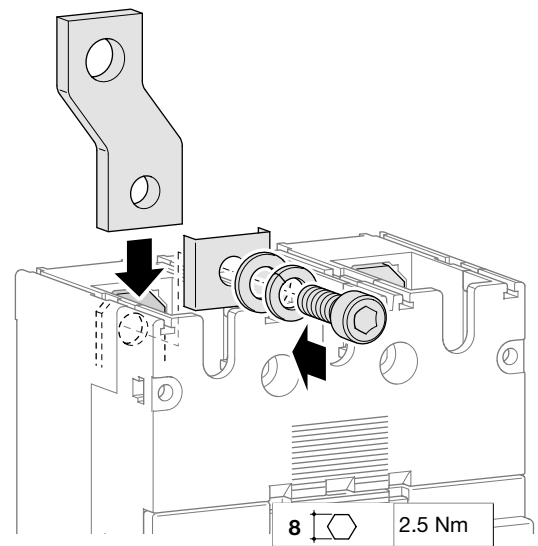
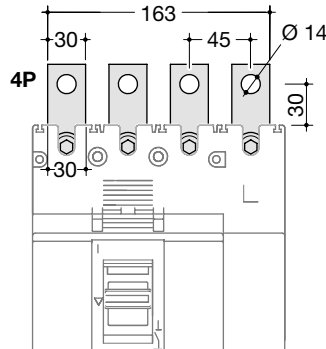
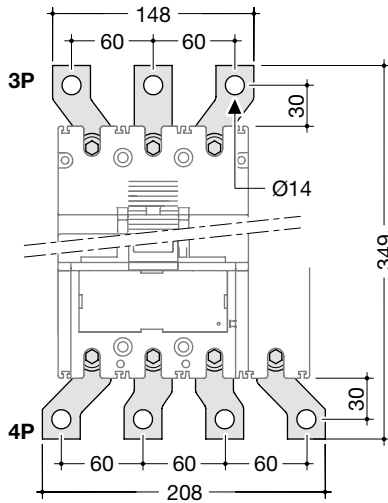


HYD007 (3P) - HYD008H (4P)

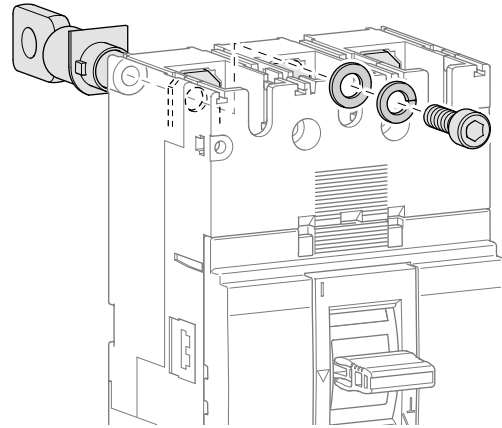
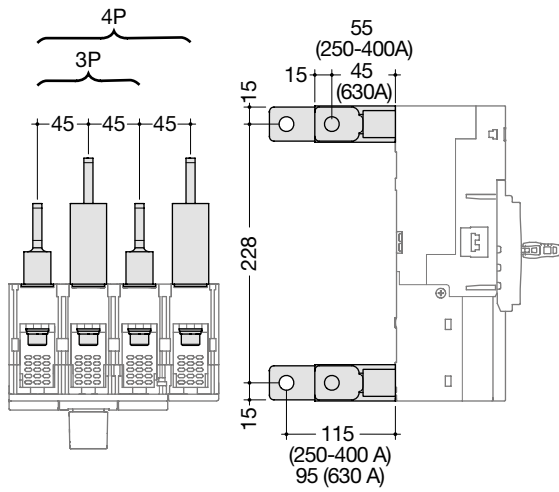


	max. 2x240 mm ²
5	25 Nm

Extended straight and spreader connections

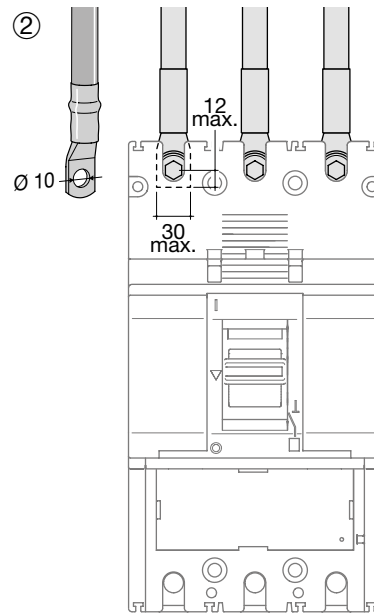
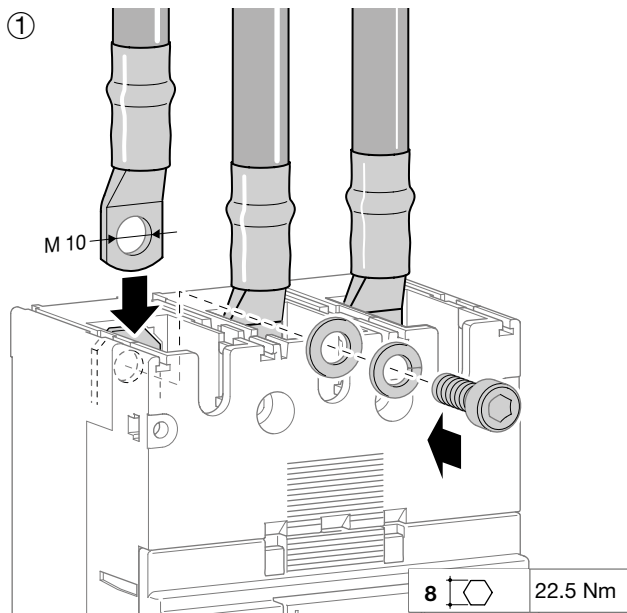


Rear connections



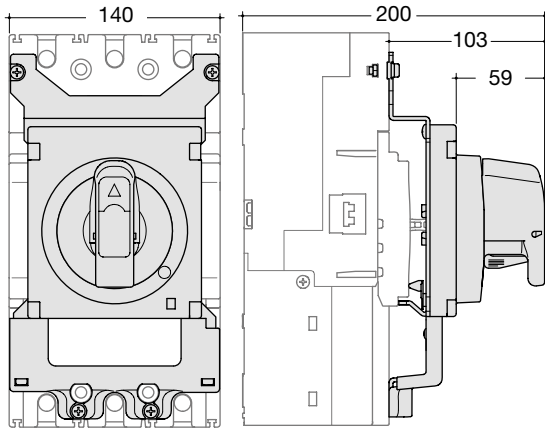
Main incomers

Connection with end lugs

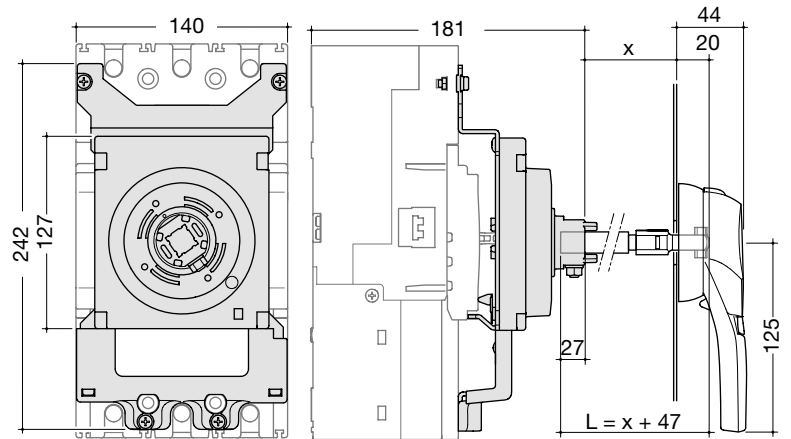


Accessories

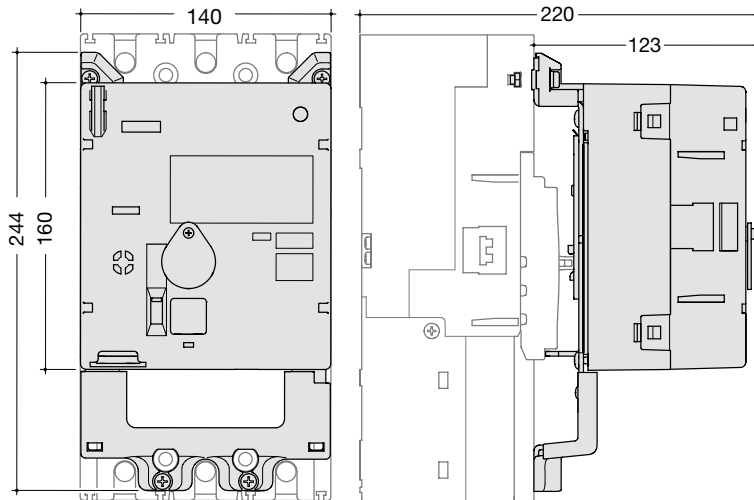
Direct rotary handle



Extended rotary handle

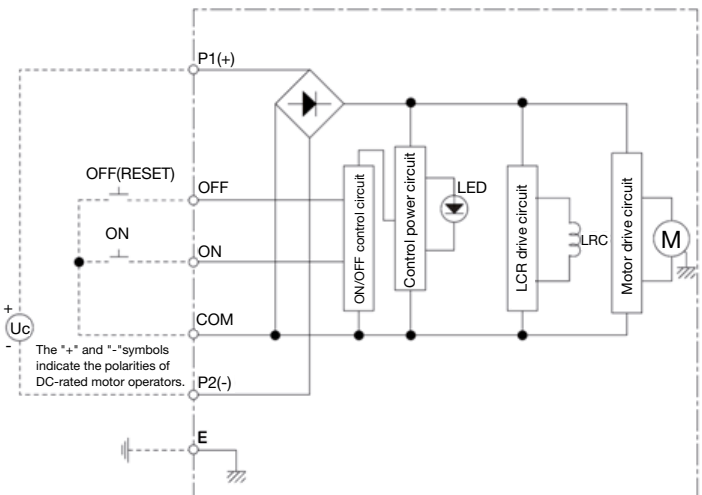


Motor operator



		HXD040H	HXD042H
Operating voltage		24-48V DC	100-240V AC
Operating current/starting current peak value (A)	24V DC	-/9,2 (ON) 4,3/9,8 (OFF, RESET)	-
	48V DC	-/3,8 (ON) 2,0/5,2 (OFF, RESET)	-
	100-110V AC	-	-/1,9 (ON) 1,3/3,8 (OFF, RESET)
	200-240V AC	-	-/3,3 (ON) 0,9/3,8 (OFF, RESET)
Operating time (s)	(ON)	0.1 s	
	(OFF)	1.5 s	
	(RESET)	1.5 s	
Power supply required		300VA min.	
Dielectric properties (1 min)		1000V AC	1500V AC

Wiring diagram



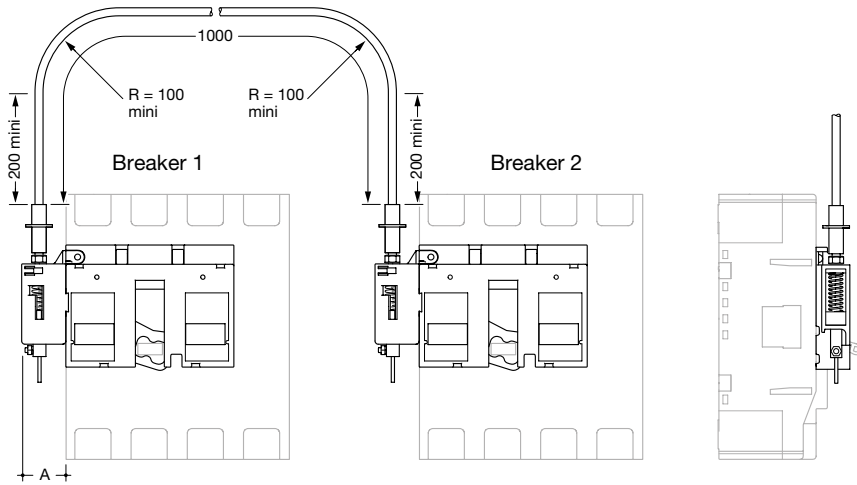
Interlocking system

Suitable with motor operator HXB04xH.

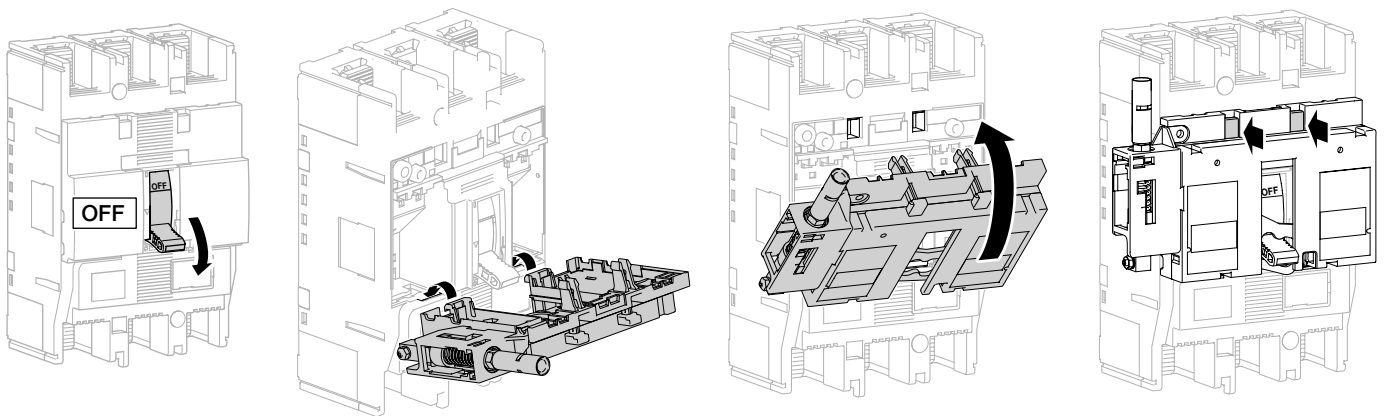
With electrical interlock for motor operator HXB068H (for 630/1000A) or HXB069H (for 250A).

- Length HXB068H: 2100 mm

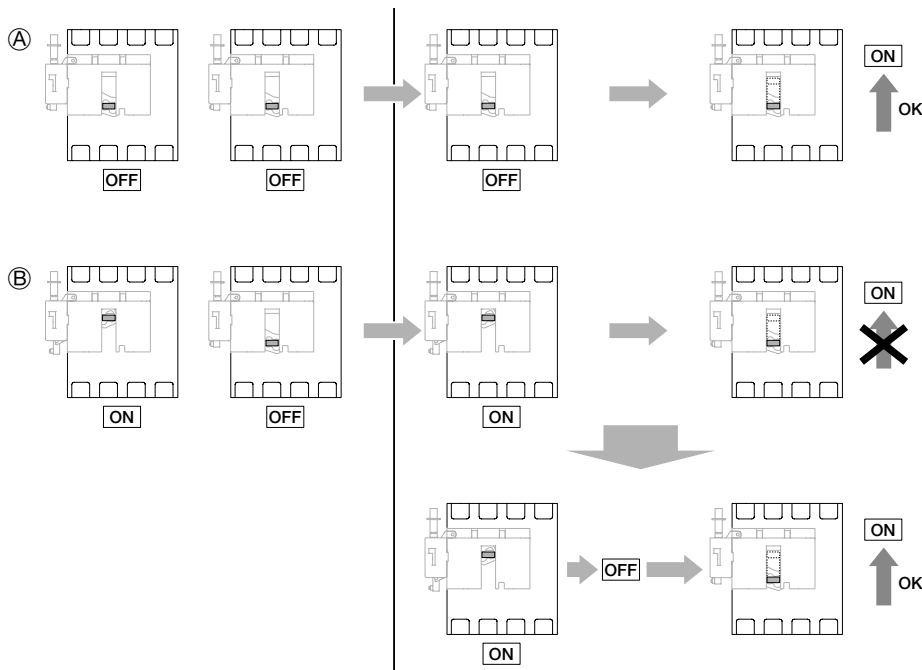
- Length HXB069H: 2100 mm



Mounting

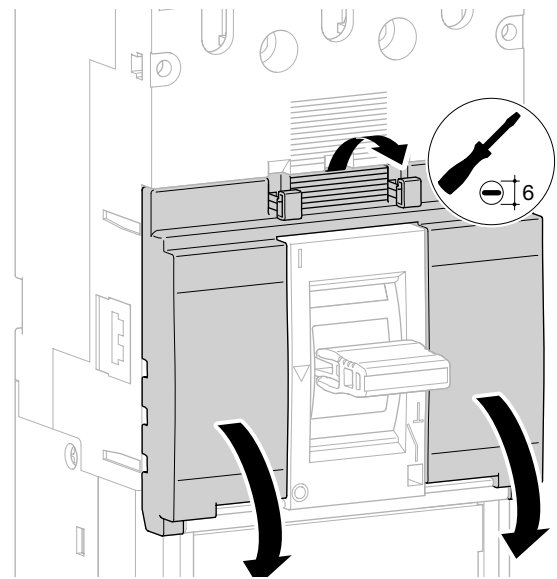
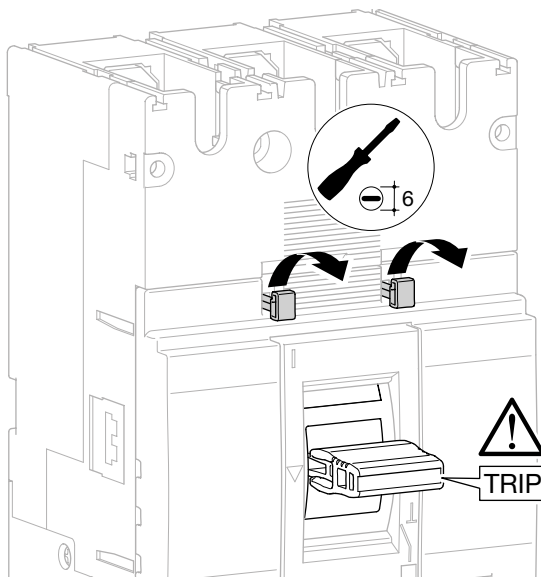


Mounting

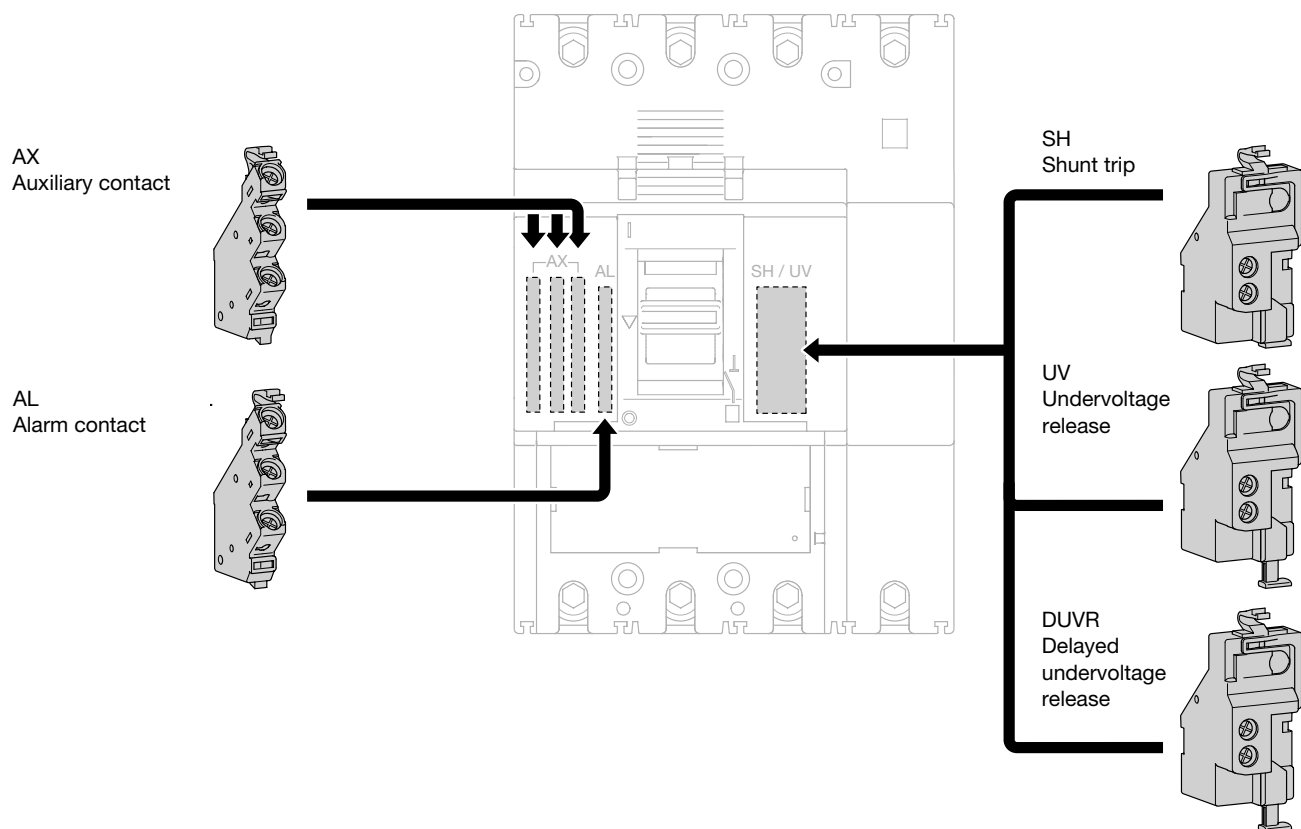


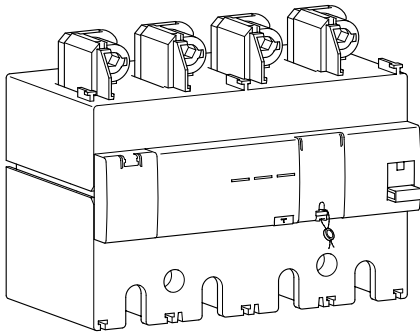
Auxiliaries

Auxiliaries for MCCBs and free tripping switches



Mounting combination for auxiliaries and releases





When associated with MCCB, the add-on block provides an earth fault protection and protects against electrical shocks by direct or indirect contacts.

The add-on blocks are protected against nuisance tripping caused by transient voltages. It's able to detect sinusoidal alternating currents and residual pulsating direct currents (A type). It also avoids miss tripping (HI type - High Immunity).

Add-on block h630

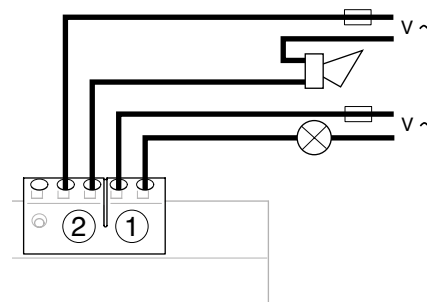
Reset button:
Signals add-on block tripping and must be acknowledged before switching on the installation.

Test button for differential functioning:
Allows to check the electrical operating of the MCCB / Add-on block association.

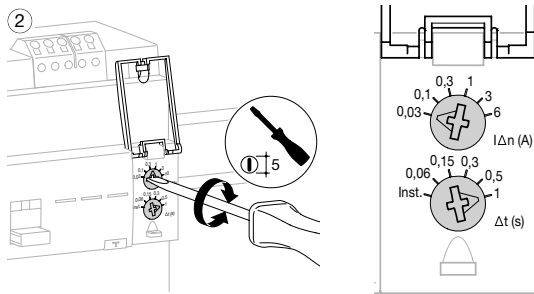
Mechanical test button:
Allows to check the mechanical operating of the MCCB / Add-on block association.

LED signaling default current level in the installation:
25% (orange) and 50% (red) $I_{\Delta n}$; green light to signal correct operating.

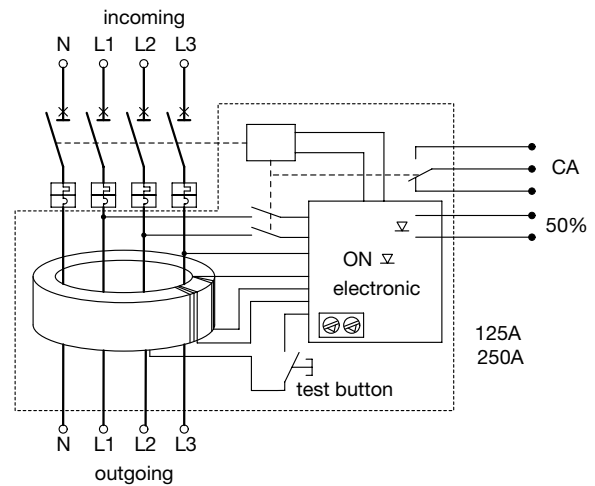
Remote tripping and advanced warning (50% $I_{\Delta n}$) signaling thanks to these contacts:



Earth leakage current ($I_{\Delta n}$) and delay (Δt) setting

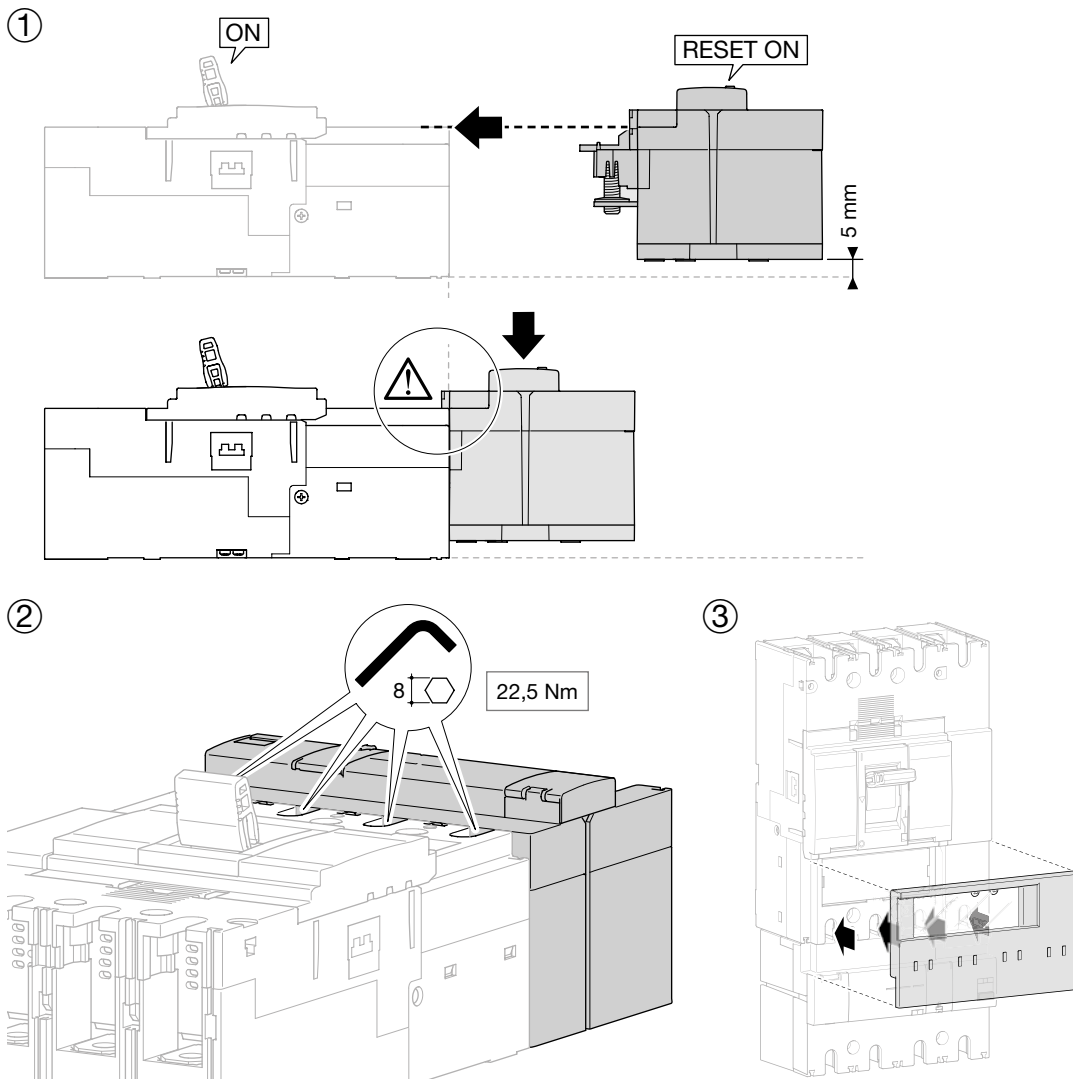


Add-on block operating

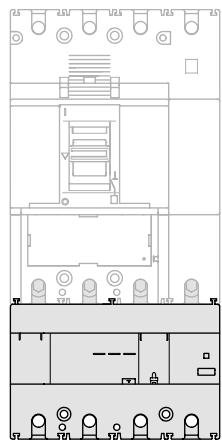


		A ($I_{\Delta n}$)					
		0.03	0.1	0.3	1	3	6
S (Δ)	Inst.	OK	OK	OK	OK	OK	OK
	0.06	no	OK	OK	OK	OK	OK
	0.15	no	OK	OK	OK	OK	OK
	0.3	no	OK	OK	OK	OK	OK
	0.5	no	OK	OK	OK	OK	OK
	1	no	OK	OK	OK	OK	OK

Add-on block h630 mounting

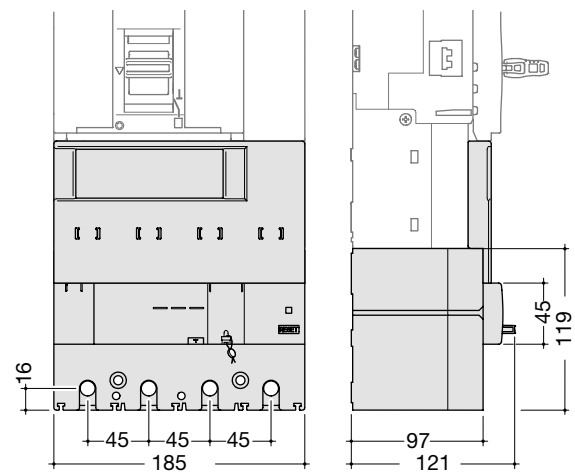


Association / Compatibility



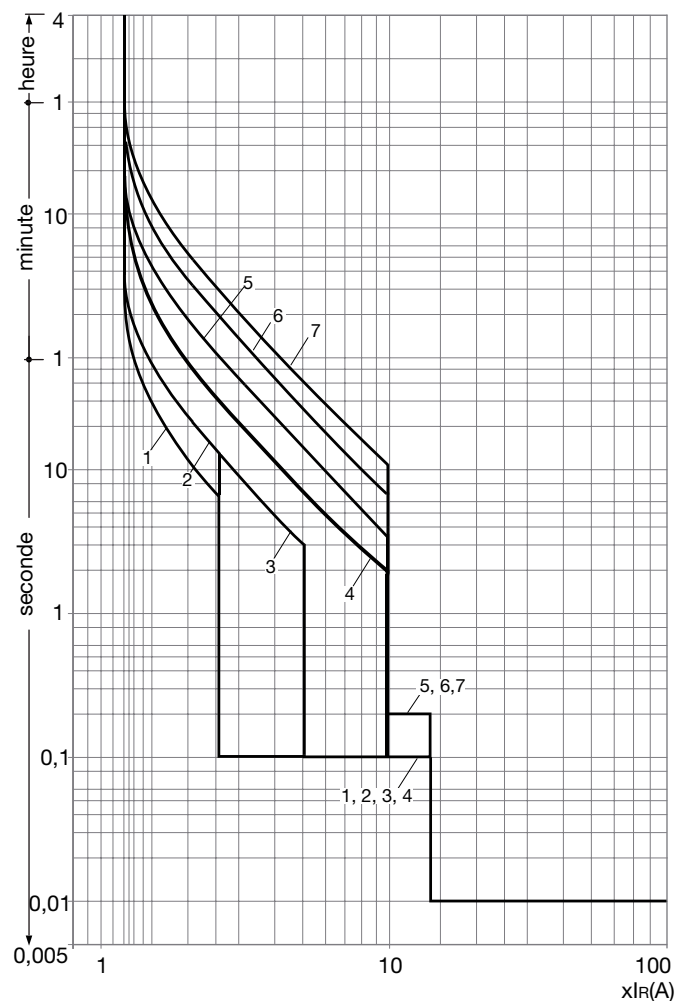
250 - 400A	630A x 0.8
HBD401H 400A	HBD631H 500A (le: 630A x 0.8)

Dimensions



Tripping curve

MCCB h1000 LSI (630-800A)



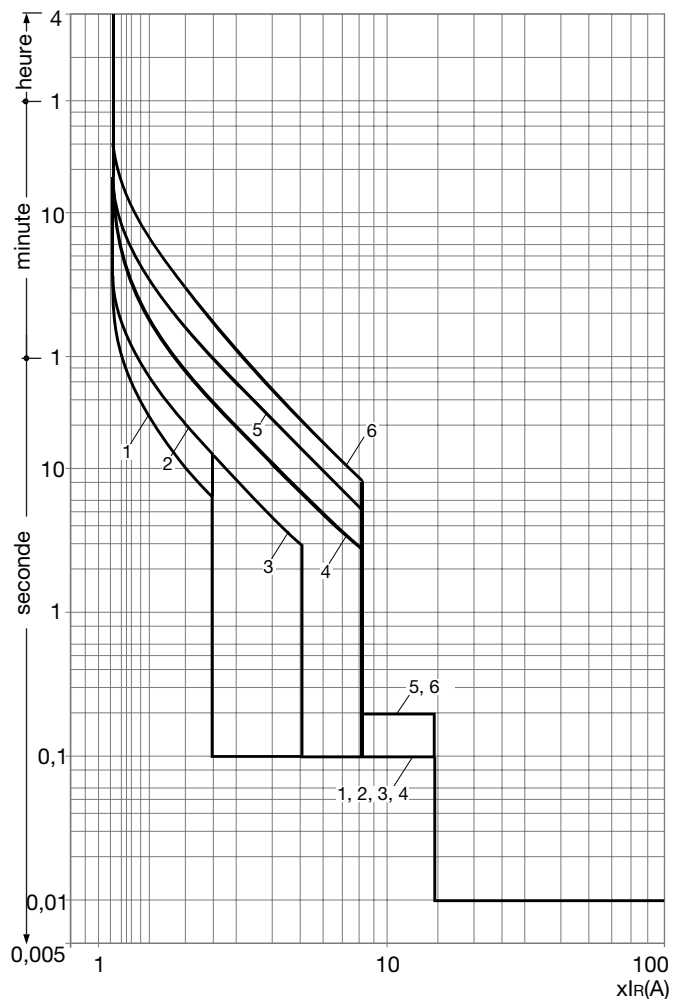
Electronic trip unit setting (LSI)

MCCBs 630-800A electronic

Ir (A)									
LTD Pick-up current		Ir (x In)	0.4	0.5	0.63	0.8	0.9	0.95	1
Characteristics		No.	1	2	3	4	5	6	7
Standard	LTD	tr (s)	11	21	21	5	10	19	29
			200% x Ir			600% x Ir			
	STD	Isd (x Ir)	2.5		5	10			
		tsd (s)	0.1					0.2	
	INST	li (x Ir)	14 (max : 12 x In)						
Optional	NP	In (x Ir)	0 - 0.5 - 1						
		tn (s)	tn = tr						

Tripping curve

MCCB h1000 LSI (1000A)



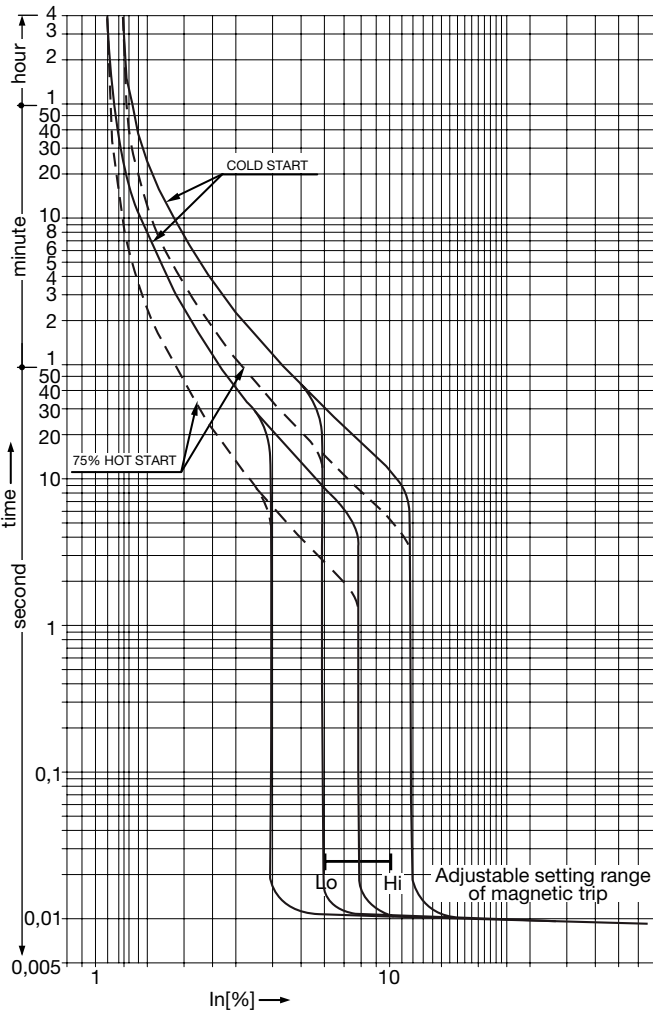
Electronic trip unit setting (LSI)

MCCBs 1000A electronic

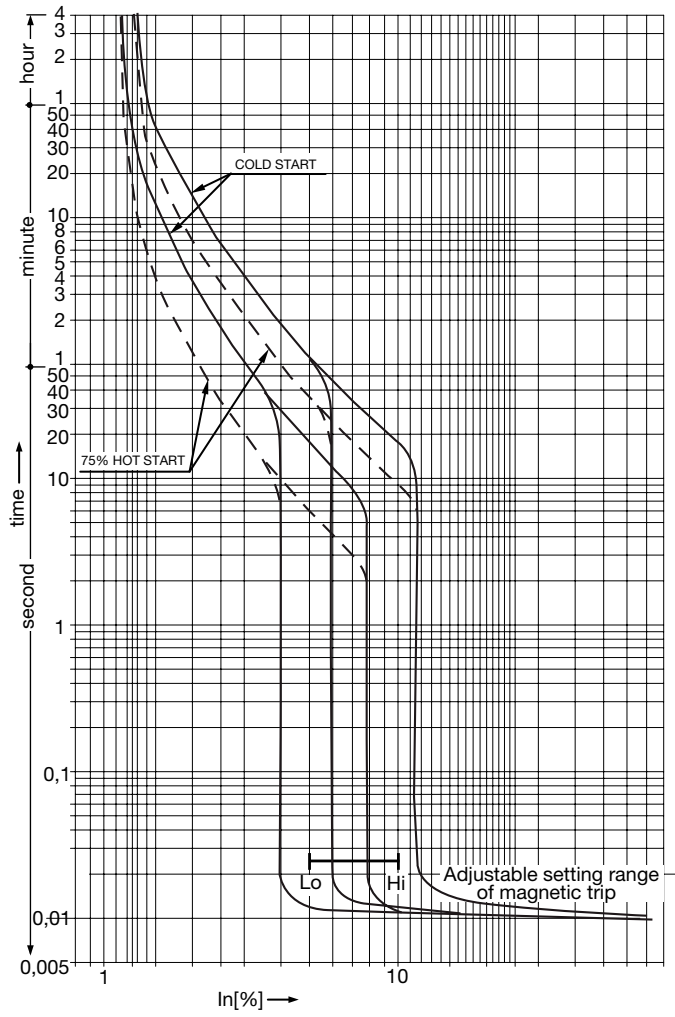
Ir (A)									
LTD Pick-up current		Ir (x In)	0.4	0.5	0.63	0.8	0.9	0.95	1
Characteristics		No.	1	2	3	4	5	6	
Standard	LTD	tr (s)	11	21	21	5	10	16	
			200% x Ir			600% x Ir			
	STD	Isd (x Ir)	2.5		5	8			
		tsd (s)	0.1					0.2	
	INST	li (x Ir)	14 (max : 10 x In)						
Optional	NP	In (x In)	0.8						
		tn (s)	tn = tr						

Tripping curve

MCCB h800 TM (630A)



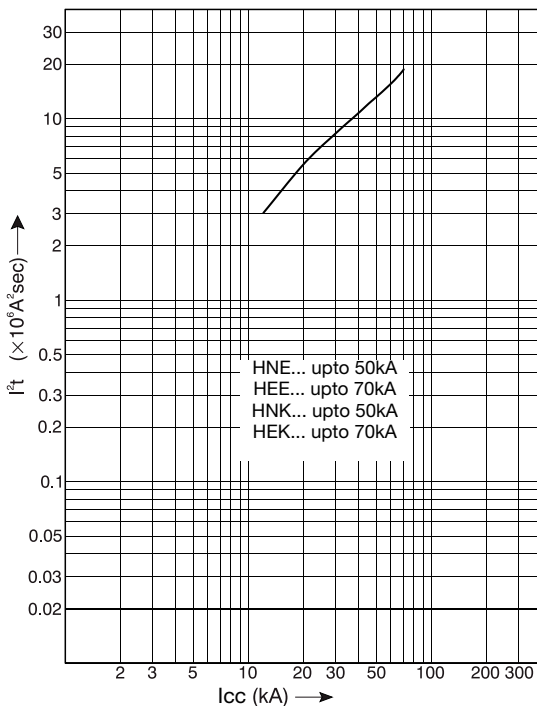
MCCB h800 TM (800A)



Main incomers

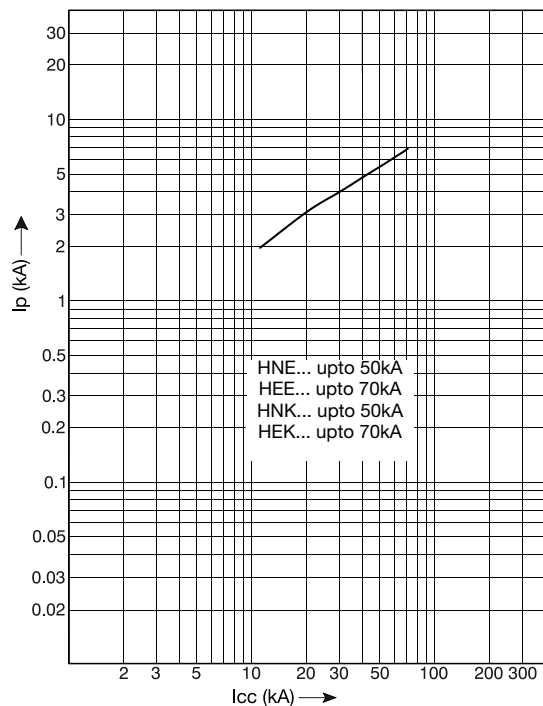
Thermal constraint curve at 400V (Let-through energy)

MCCB h1000



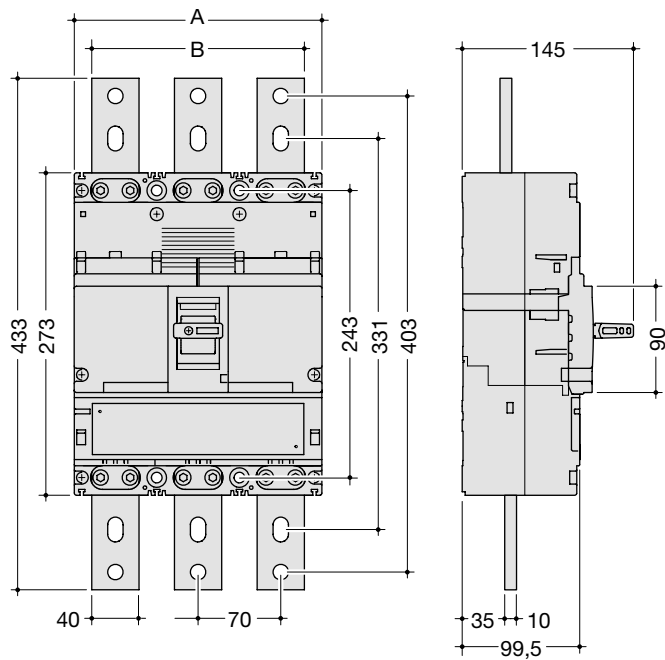
Current limiting curve at 400V (Let-through peak current)

MCCB h1000



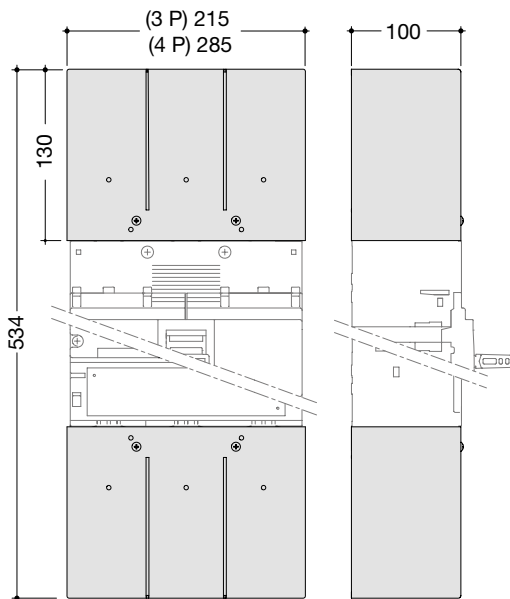
Dimensions

MCCBs



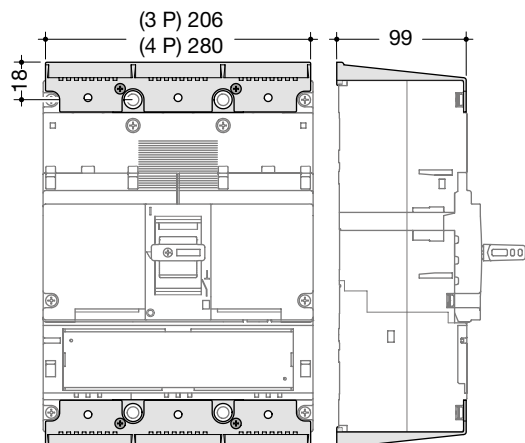
	A (mm)	B (mm)
3P	210	180
4P	280	250

Terminal covers for extended straight connections



	A (mm)	B (mm)	C (mm)
3P	215	130	99.5
4P	285	130	99.5

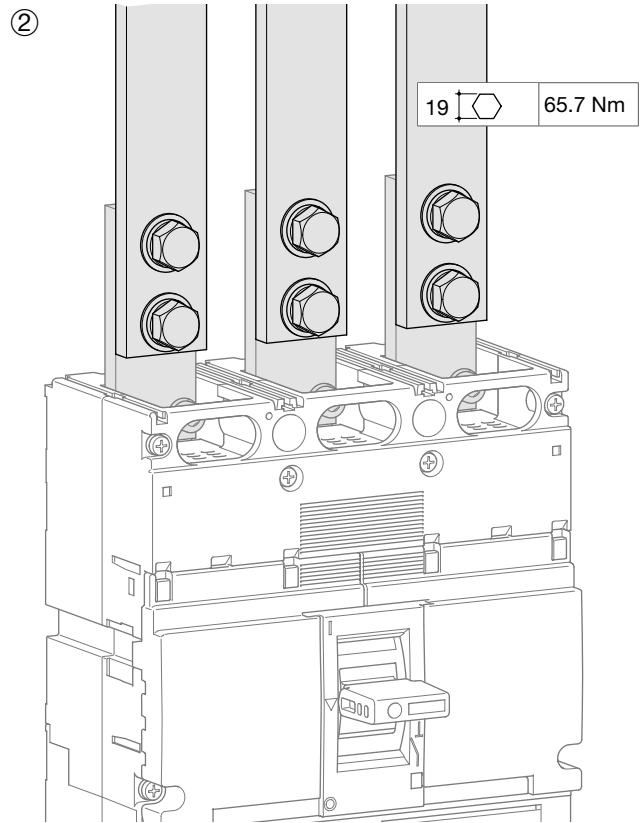
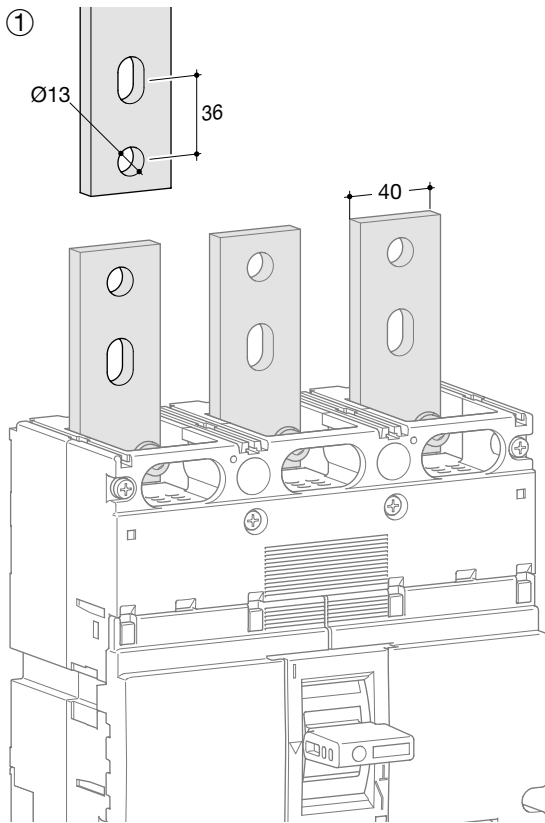
Terminal covers for rear connections



	A (mm)	B (mm)	C (mm)
3P	210	14	101
4P	280	18	99

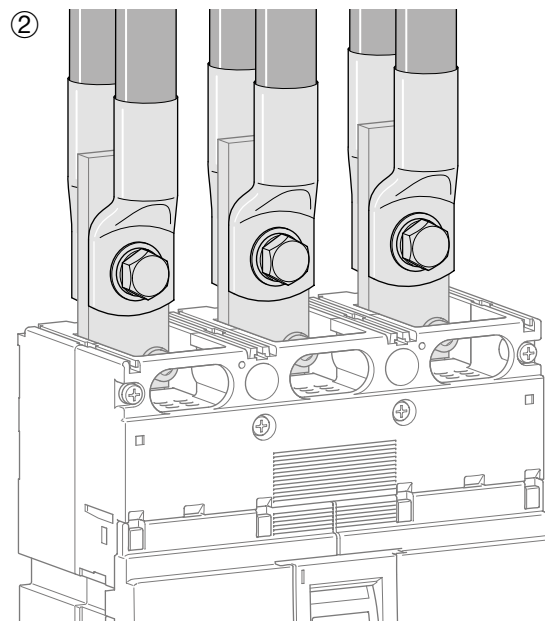
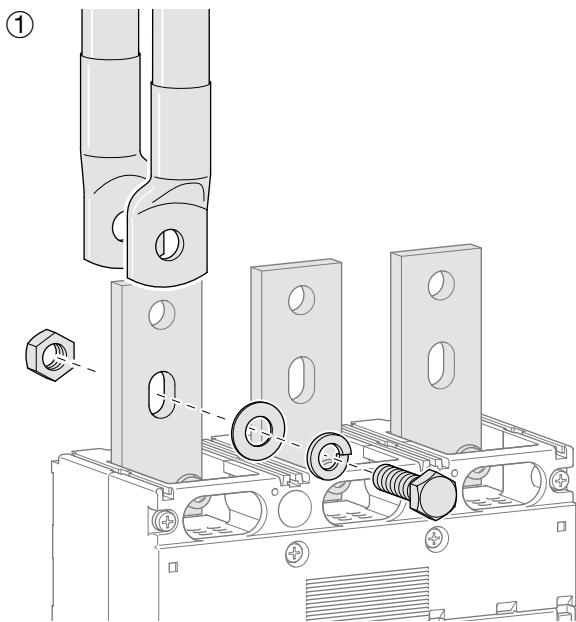
Connection

Extended straight connections

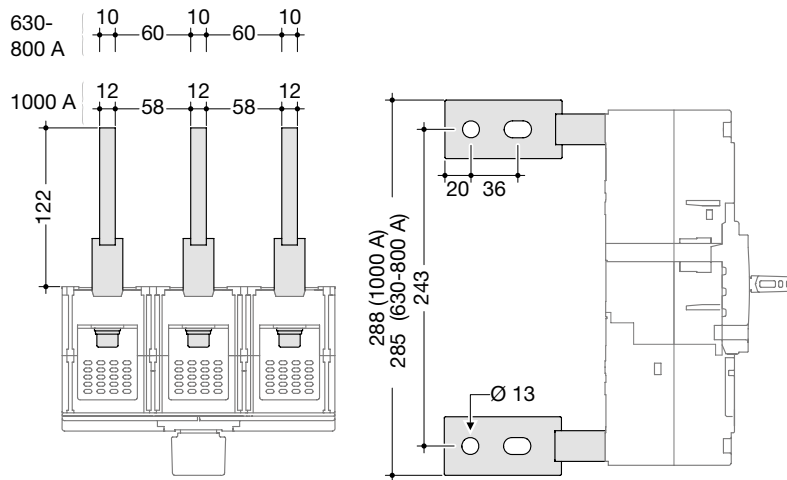
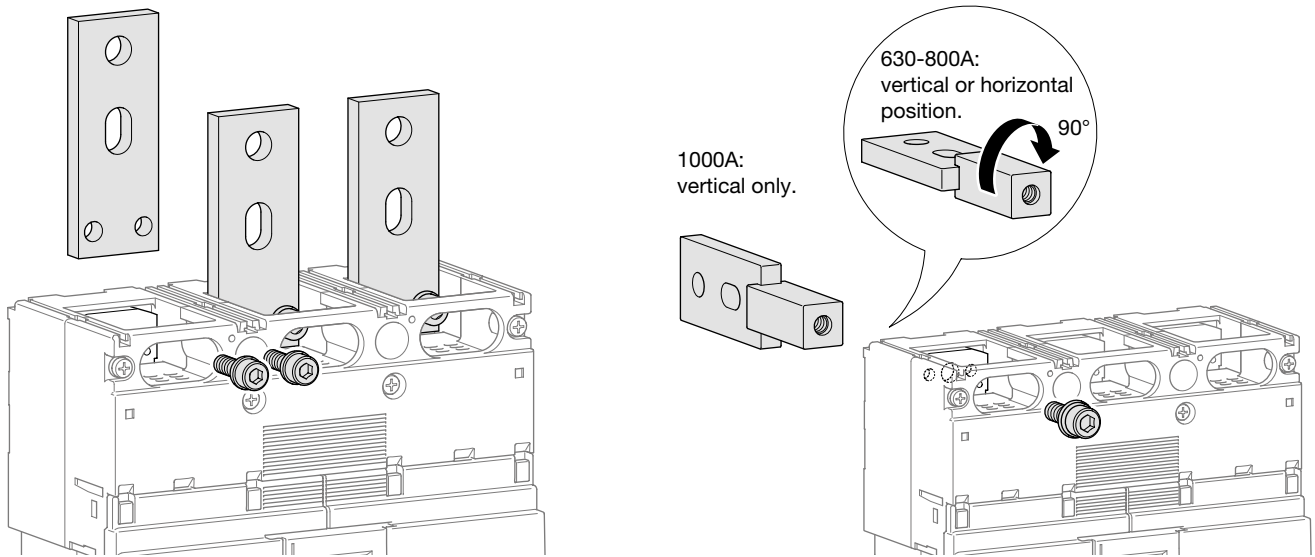


Direct cable connection on terminal
Copper with conductor max. width: 50 mm

Connection with end lugs

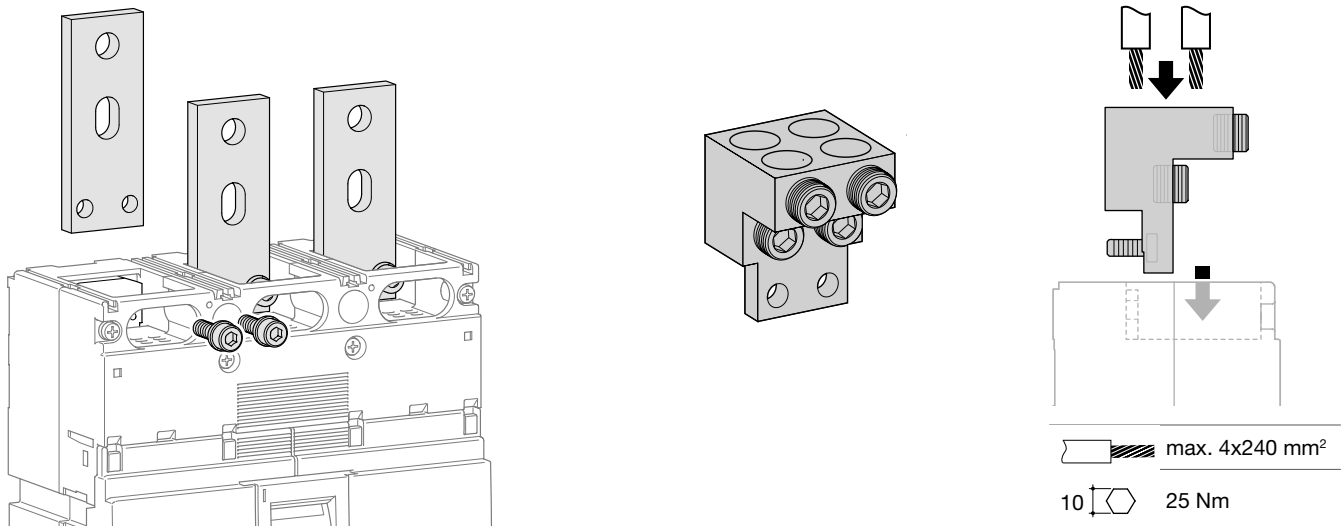


Rear connections



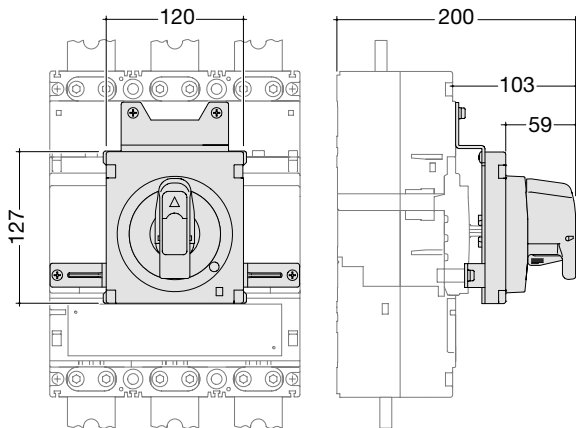
Connection for aluminium / copper conductors (h1000)

HYE007 (3P) - HYE008H (4P)

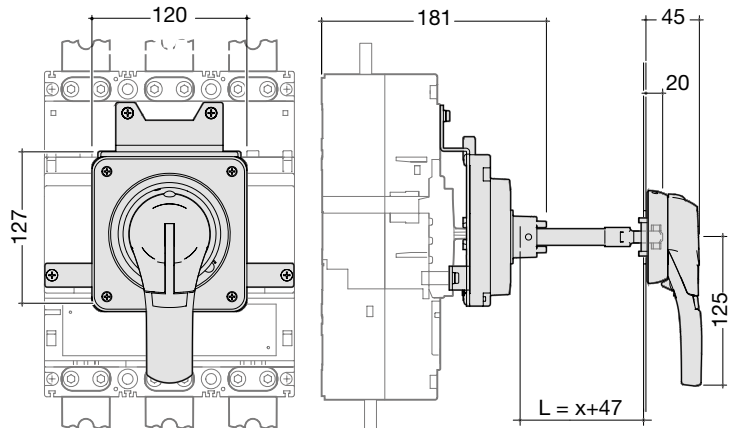


Accessories

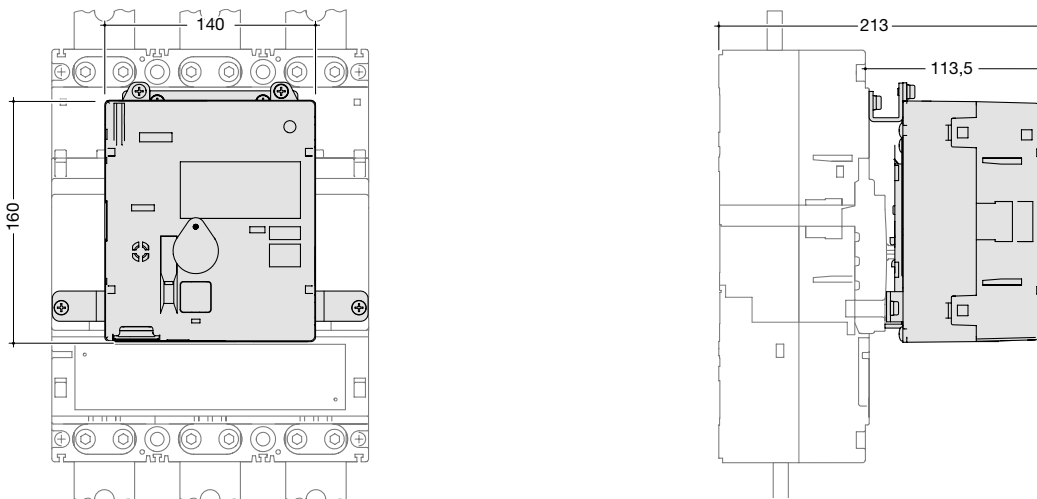
Direct rotary handle



Extended rotary handle

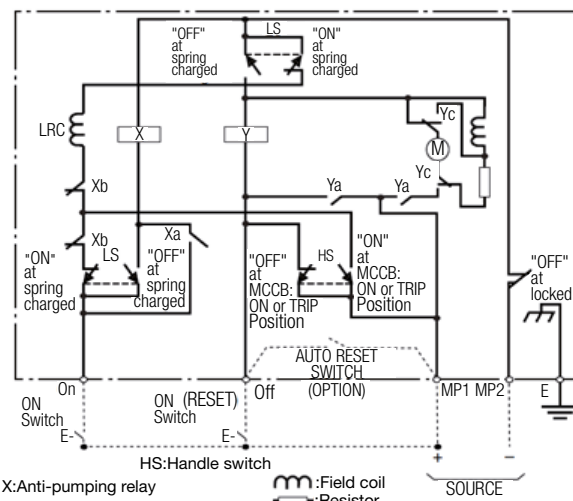


Motor operator



		HXE040H	HXE042H
Operating voltage		24-48V DC	100-240V AC
Operating current/starting current peak value (A)	24V DC	-/12 (ON) 6/11.5 (OFF, RESET)	-
	48V DC	-/7 (ON) 3.2/6.5 (OFF, RESET)	-
	100-110V AC	-	-/2.2 (ON) 1.7/3.5 (OFF, RESET)
	200-240V AC	-	-/2.2 (ON) 1.3/3.5 (OFF, RESET)
Operating time (s)	(ON)	0.1 s	
	(OFF)	1.5 s	
	(RESET)	1.5 s	
Power supply required		300VA min.	
Dielectric properties (1 min)		1000V AC	1500V AC

Wiring diagram



- X: Anti-pumping relay
- Y: Motor drive relay
- LRC: Latch release coil (closing coil)
- M: Motor

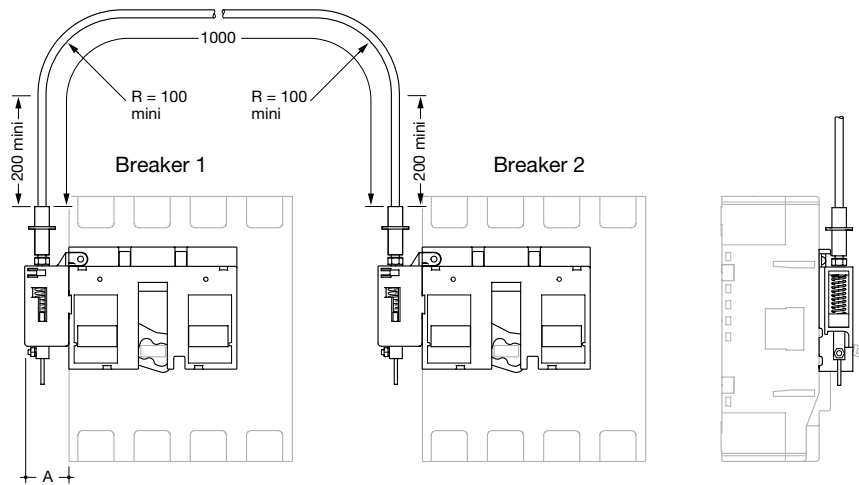
Interlocking system

Suitable with motor operator HXB04xH.

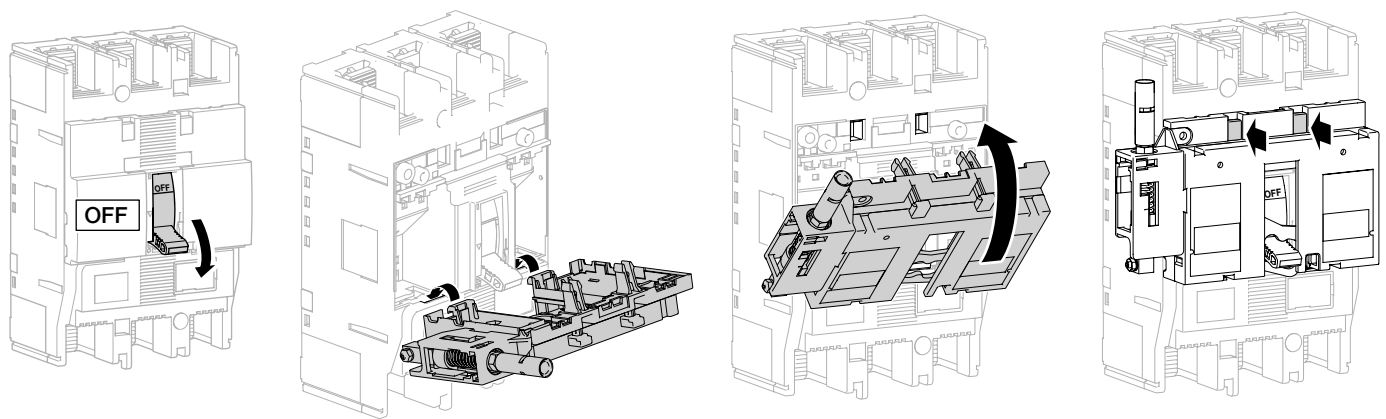
With electrical interlock for motor operator HXB068H (for 630/1000A) or HXB069H (for 250A).

- Length HXB068H: 2100 mm

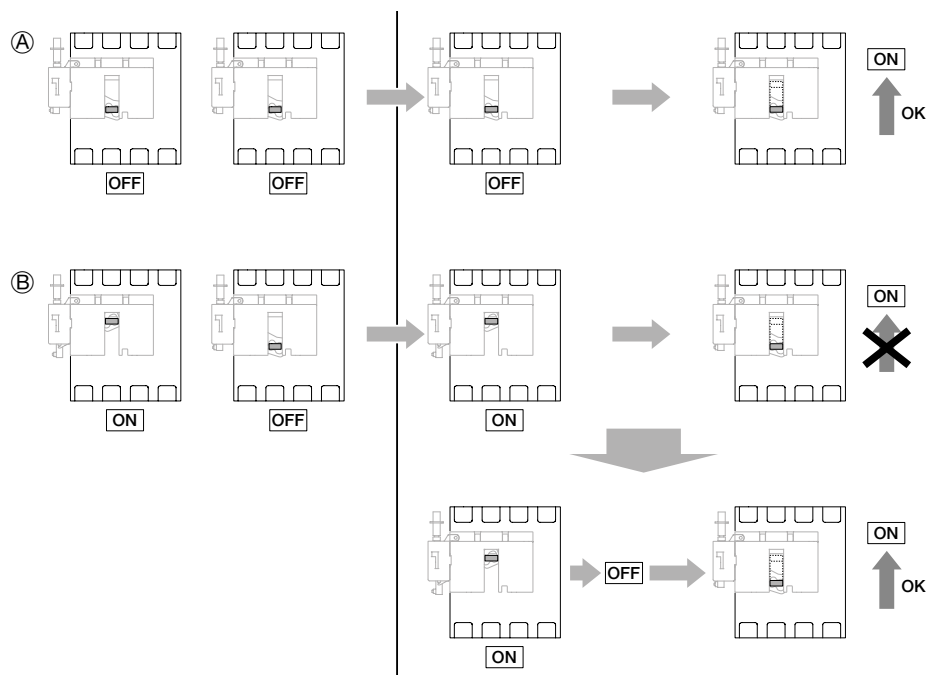
- Length HXB069H: 2100 mm



Mounting

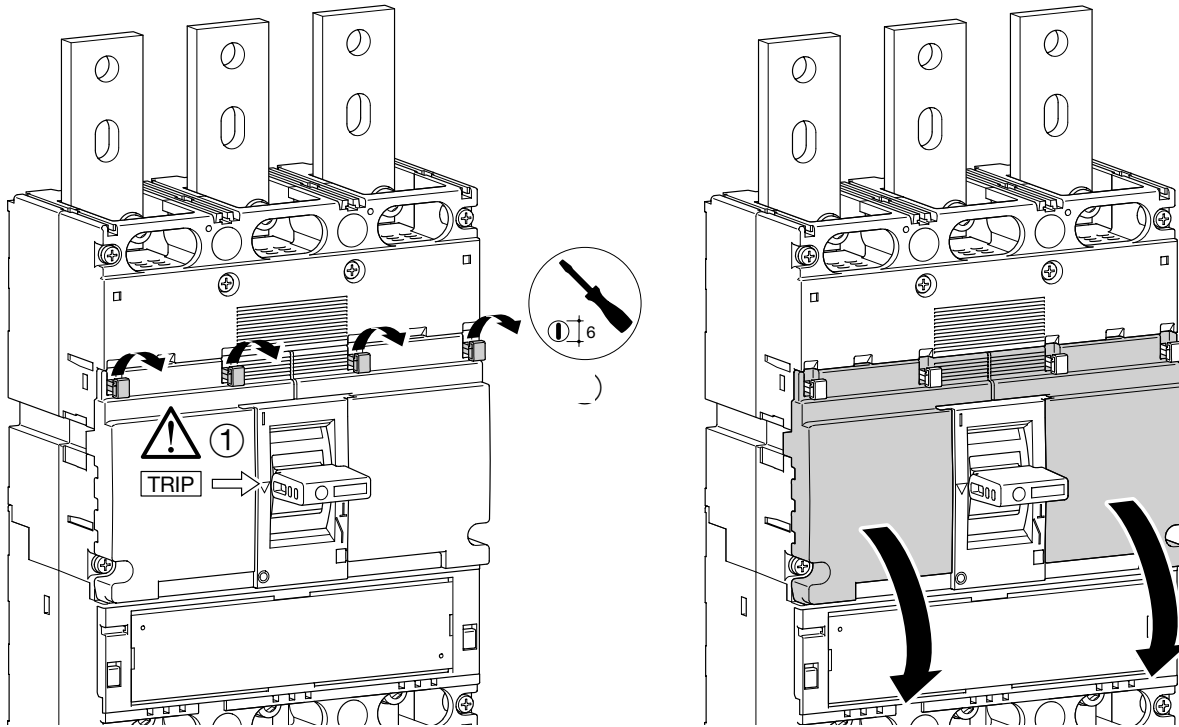


Mounting



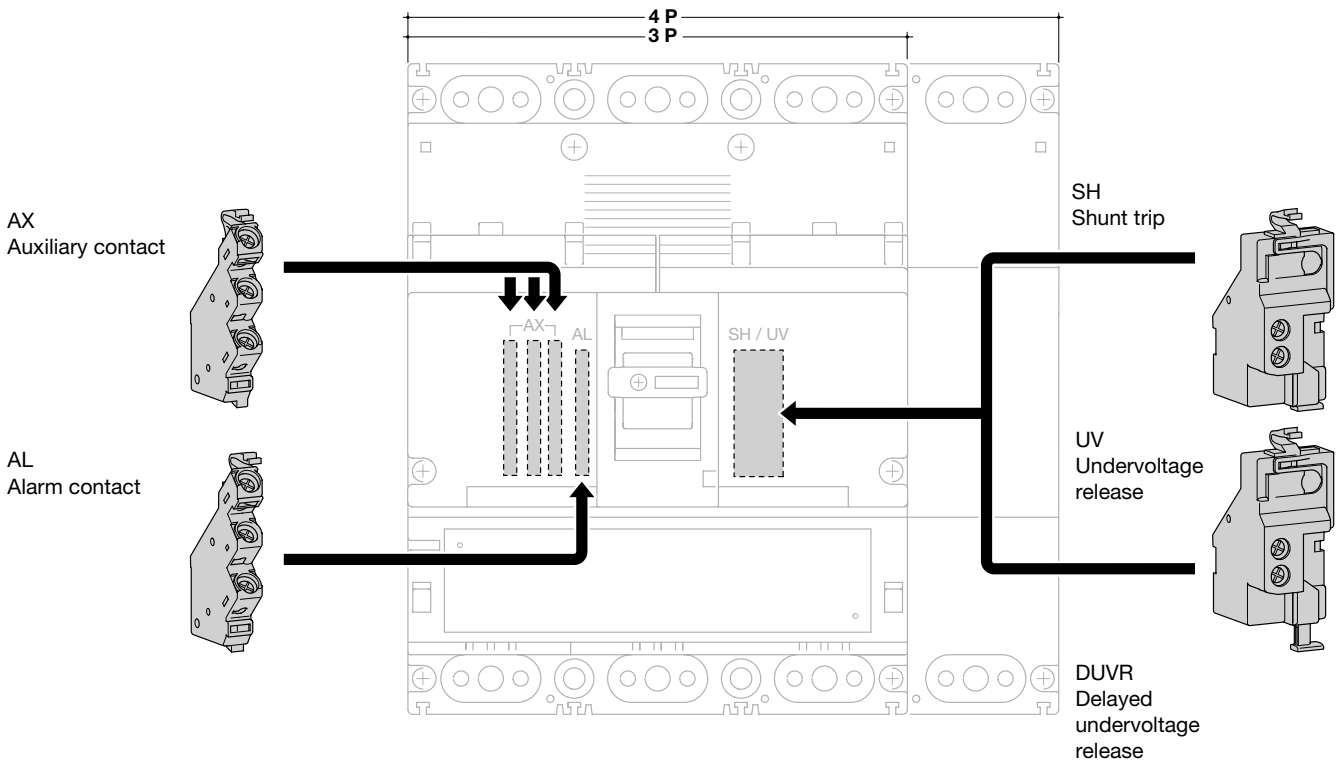
Auxiliaries

Auxiliaries for MCCBs and free tripping switches

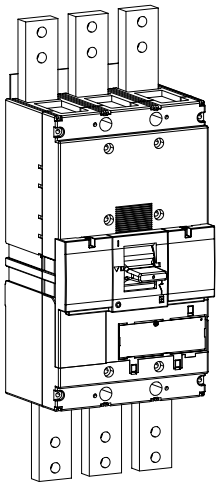


Main incomers

Mounting combination for auxiliaries and releases

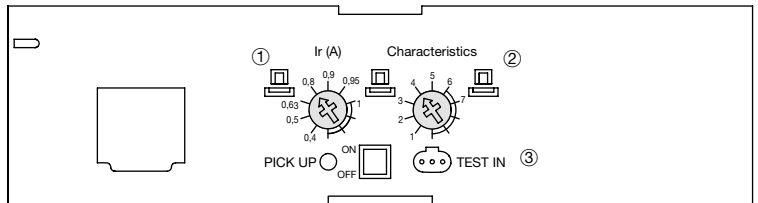
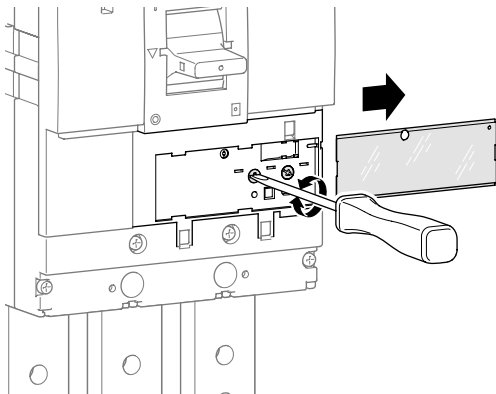


MCCBs



		220/240 V AC (kA)	380/415 V AC (kA)	660/690 V AC (kA)
HNF	I _{cu}	100	50	25
	I _{cs}	75	50	25
HEF	I _{cu}	100	70	45
	I _{cs}	75	50	34
HCF	I _{cm}	45 kA		
	I _{cw}	20 kA-0.3 s		

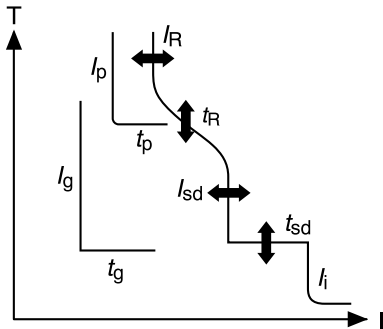
Electronic trip unit settings (LSI)



L - Long delay - protection against overloads: I_r and t_r settings

S - Short delay - protection against short circuits: I_{sd} and t_{sd} settings

I - Instantaneous - max. instantaneous threshold (< 10 ms) in case of short circuit: 2.5 to 10 x I_n.



LSI	I _n A					
	1250 - 1600 A		Long Time Delay		Short Time Delay	Inst
	I _r (x I _n)	t _r (s)	I _{sd} (x I _r)	t _{sd} (s)	I _i (x I _r)	
① I _r (x I _n)	0.4	OK				
	0.5	OK				
	0.63	OK				
	0.8	OK				
	0.9	OK				
	0.95	OK				
	1	OK				
② Characteristics*	1	11s at 2 x I _r	2.5	0.1	14 (max 12 x I _n)	
	2	21s at 2 x I _r				
	3		5			
	4	5 s at 6 x I _r	10	0.2		
	5	10 s at 6 x I _r				
	6	19 s at 6 x I _r				
	7	29 s at 6 x I _r				
③ Neutral protection	0% 50% 100%					

	① I _r (A)	② I _m	③ N
LSI	0.4 - 1 I _n	2.5 - 10 I _r	0% 50% 100 %

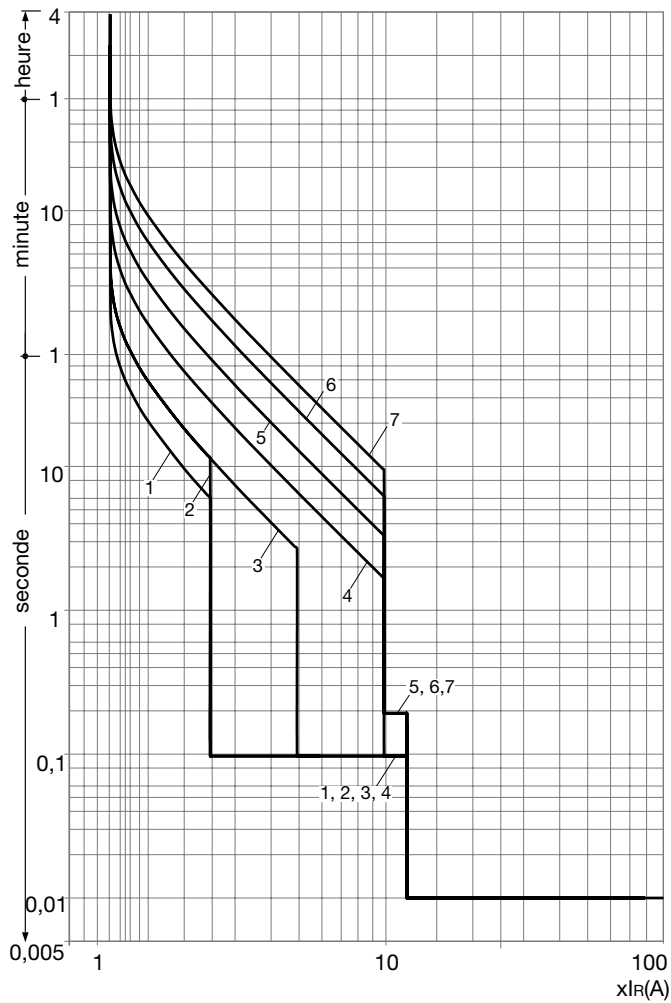
(*) Characteristic 1: use for generators protection.

Characteristic 2 to 4 - standard protection: options allow coordination optimisation with other products.

Characteristic 5 to 7 - motor protection: use positions according to motor starting characteristics.

Tripping curve

MCCB h1600 LSI



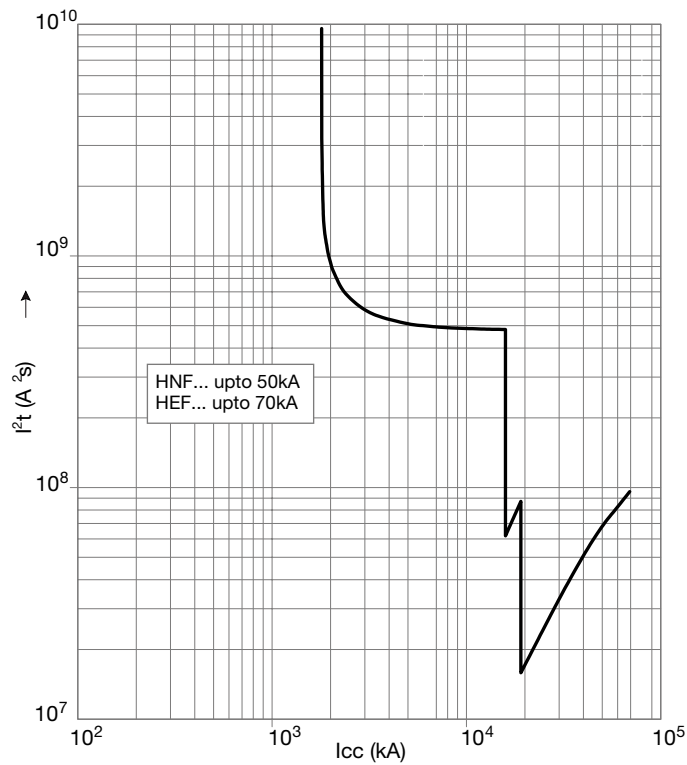
Electronic trip unit setting (LSI)

MCCBs 1250A and 1600A electronic

Ir (A)									
LTD Pick-up current		Ir (x In)	0.4	0.5	0.63	0.8	0.9	0.95	1
Characteristics		No.	1	2	3	4	5	6	7
Standard	LTD	tr (s)	11	21	21	5	10	19	29
			200% x Ir			600% x Ir			
	STD	Isd (x Ir)	2.5		5	10			
		tsd (s)	0.1					0.2	
	INST	li (x Ir)	14 (max : 12 x In)						
Optional	NP	In (x Ir)	0 - 0.5 - 1						
		tn (s)	In = tr						

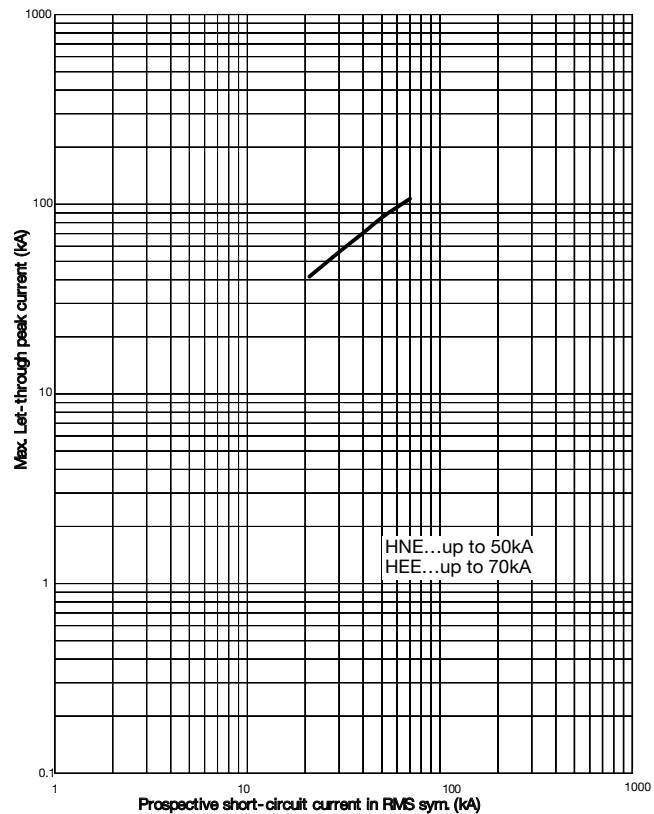
Thermal constraint curve at 400V (Let-through energy)

MCCB h1600



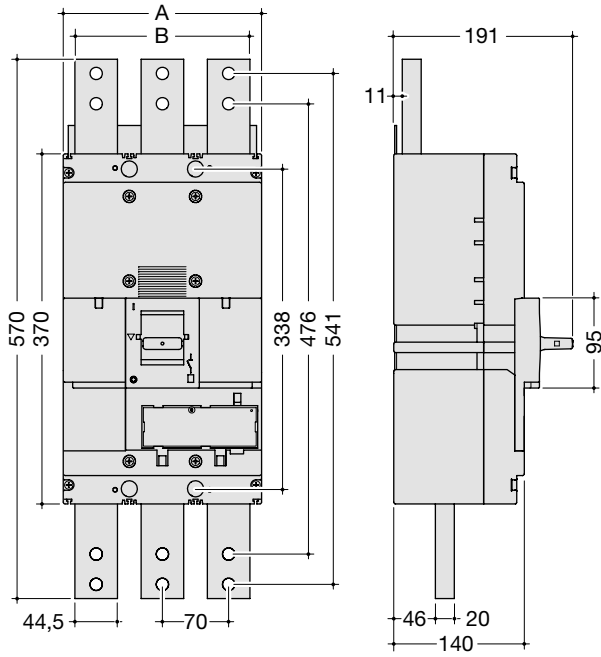
Current limiting curve at 400V (Let-through peak current)

MCCB h1600



Dimensions

MCCBs

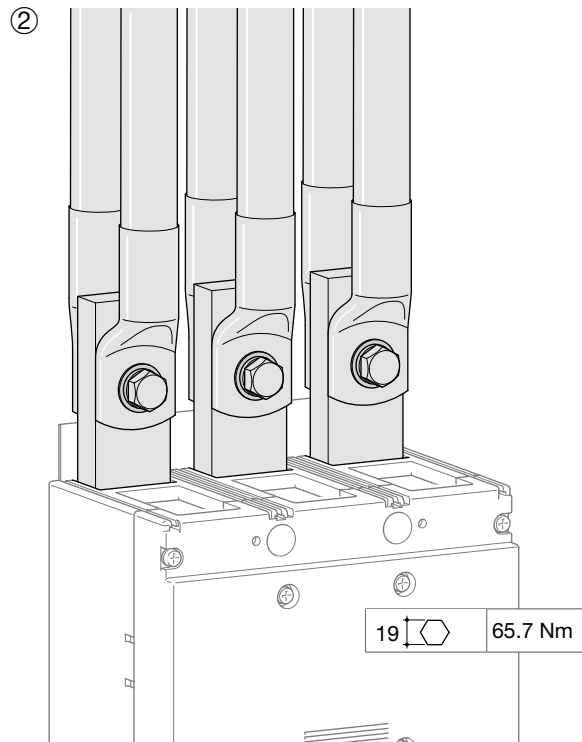
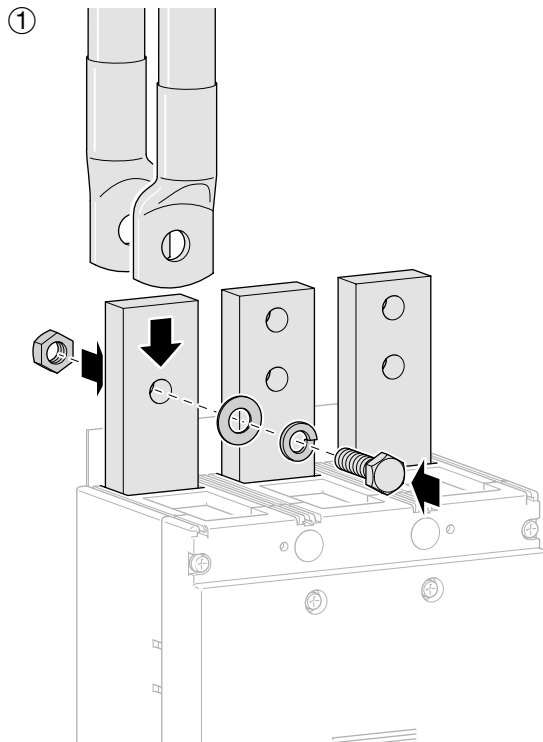


	A (mm)	B (mm)
3P	210	185
4P	280	255

Main incomers

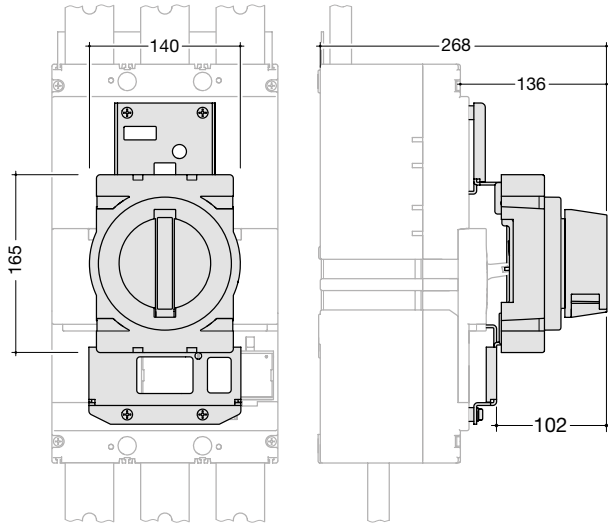
Connection

Connection with end lugs

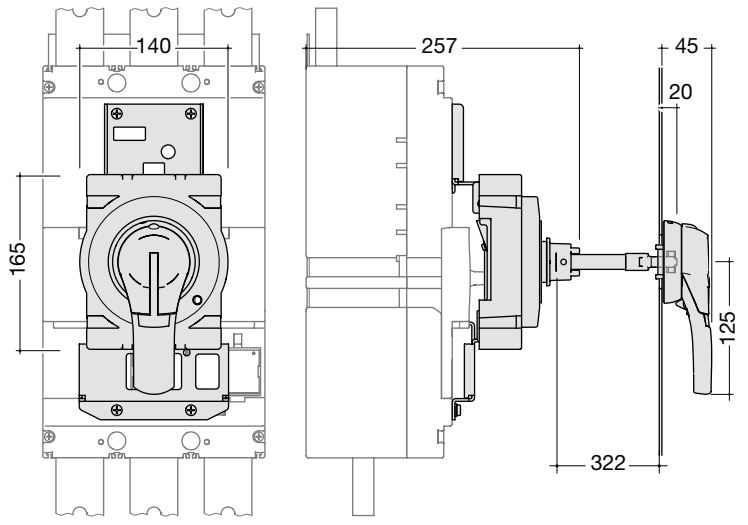


Accessories

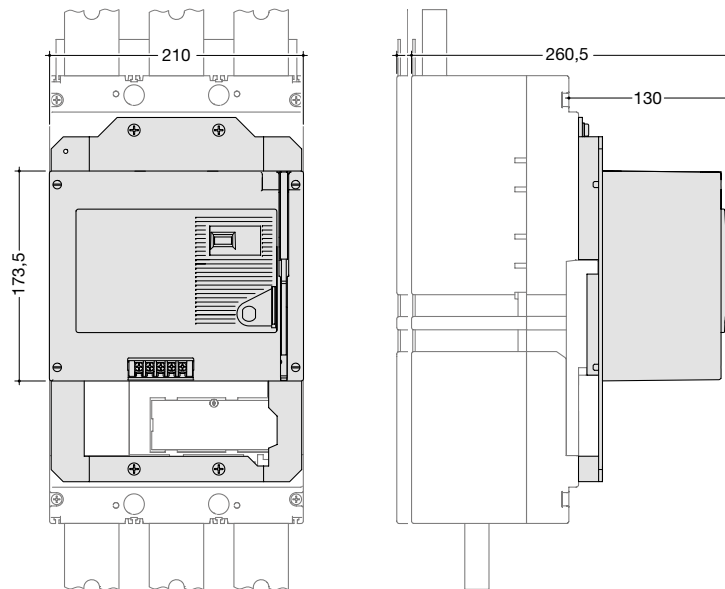
Direct rotary handle



Extended rotary handle

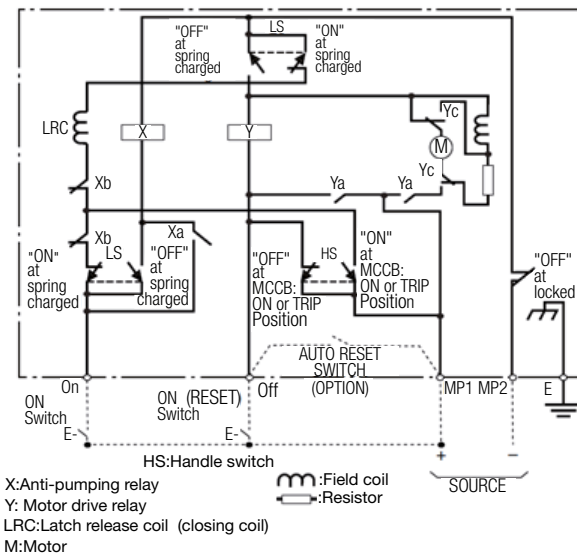


Motor operator



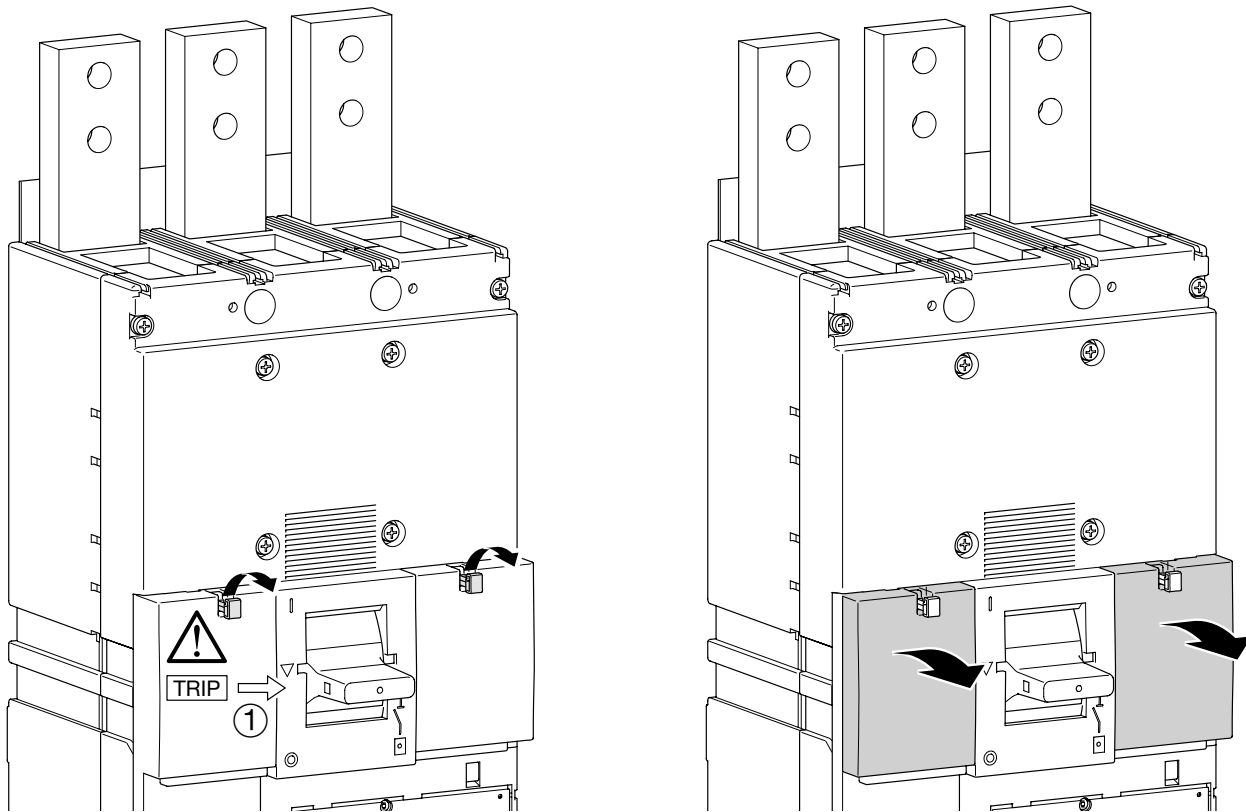
	HXF040H	HXF042H
Operating voltage	24V DC	200-230V AC
Operating current / starting current peak value (A)	24V DC	-4,5 (ON) 4,0/12,0 (OFF, RESET)
	200-230V AC	-
Operating time (s)	(ON)	0,06s
	(OFF)	3s
	(RESET)	3s
Power supply required	300VA min.	
Dielectric properties (1 min)	500V AC	1500V AC

Wiring diagram



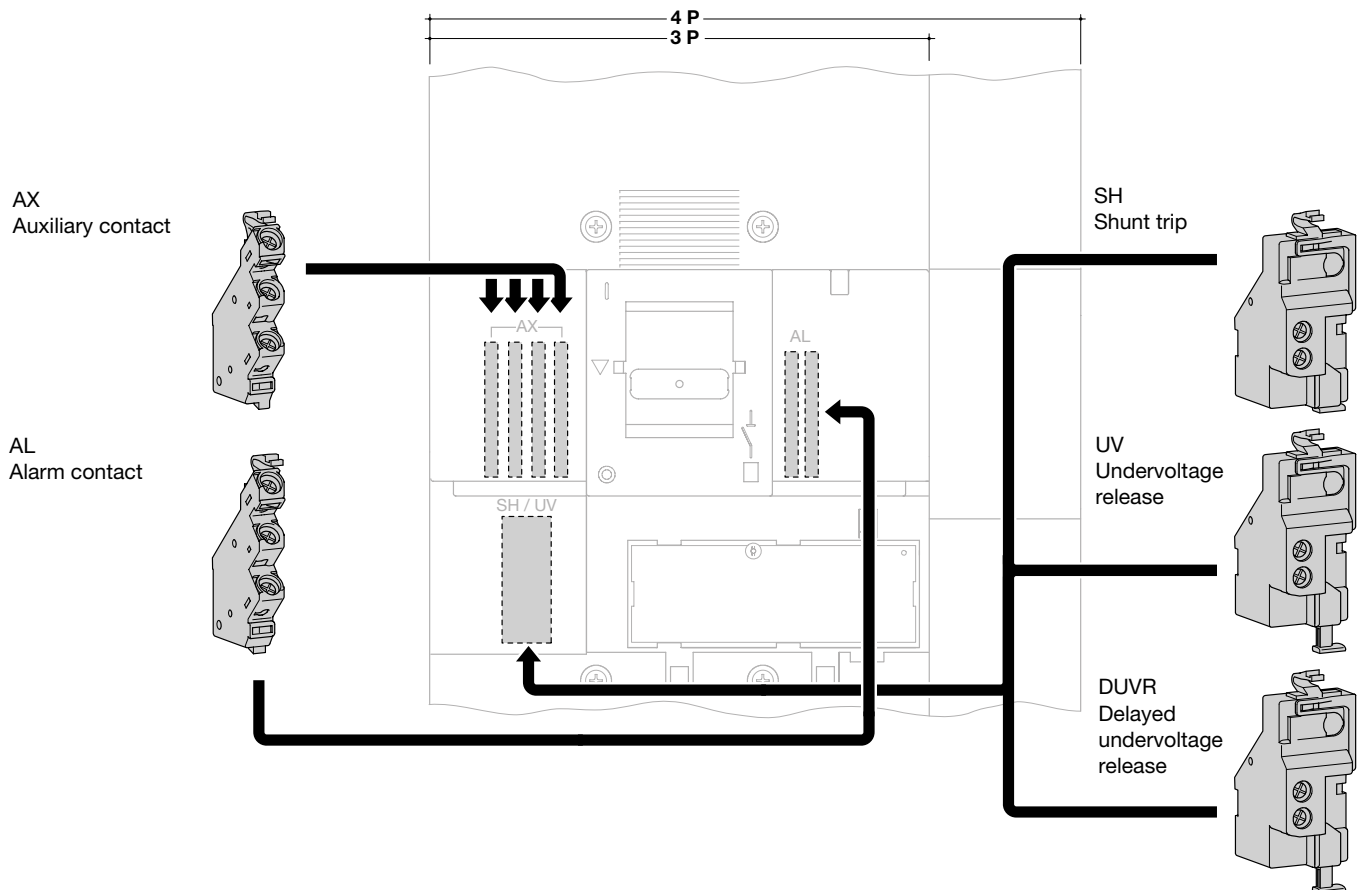
Auxiliaries

Auxiliaries for MCCBs and free tripping switches



Main incomers

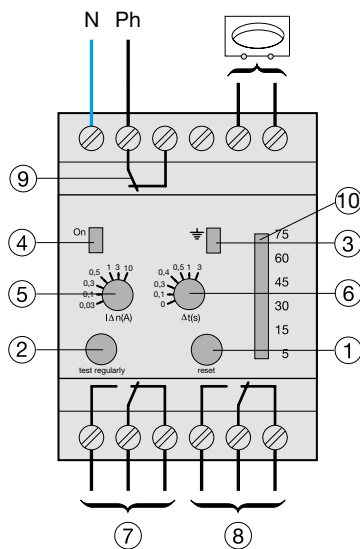
Mounting combination for auxiliaries and releases



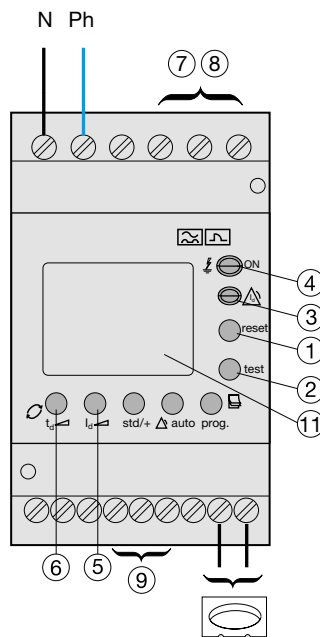
Technical characteristics

	HR500	HR502	HR510	HR520	HR525	HR534	
supply voltage ~ 50/60 Hz	230 V ± 20%						
supervised power voltage ~ 50/60 Hz	50 to 700 V						
standard output 1 OF (tripping at 85 % of I Δ n ± 15 %)	yes	yes	yes	yes	yes	yes	
positive safety output	yes	yes	yes	yes	yes	yes	
pre-alarm fault output	no	no	yes	yes	yes	yes	
external test and reset button	no	no	no	no	yes	yes	
sensitivity I Δ n	30 mA	300 mA	30 - 100 - 300 - 500 mA - 1 - 3 - 10 A		30 - 100 - 300 - 500 mA - 1 - 3 - 10 - 30 A		
temporization (± 20%)	instantaneous		inst., 0,1-0,3-0,4-0,5-1-3 s	inst., 0,1-0,3-0,4-0,5-1-3-5s	inst., $\frac{\square}{\square}$ - 0,02 - 0,1 - 0,3 - 0,4 - 0,5 - 1 - 3 - 5 - 10 s		
A type	yes	yes	yes	yes	yes	yes	
high immunity HI	yes	yes	yes	yes	no	no	
consumption	3 VA	3 VA	5 VA	5 VA	6 VA	6 VA	
control output	free potential changeover switch						
breaking capacity (standard output, positive safety, pre-alarm 50%)	5 A / 250 V AC1		6 A / 250 V AC1				
torroid allowed overload	30 kA / 100 ms						
voltage for reset and test push buttons	100 to 250 V						
maxi length of test/reset connection	200 m						
maxi length of torroid/relay connection	50 m maxi with twisted cable 1.5 - 25 m non-twisted cable						
relay connection : collar terminal	rigid	1.5 mm ² to 4 mm ²				0.5 mm ² to 2 mm ²	
	flexible	1 mm ² to 2.5 mm ²				0.5 mm ² to 2 mm ²	
torroid connection	rigid	1.5 mm ² to 4 mm ²				0.5 mm ² to 2 mm ²	
	flexible	1 mm ² to 6 mm ²				0.5 mm ² to 2 mm ²	
operating temperature	- 10 to +55 °C						
storage temperature	- 25 to +70 °C						

HR510, HR520



HR525

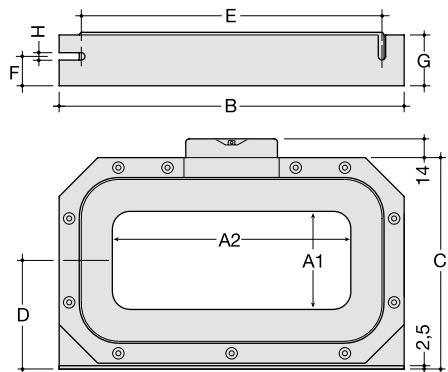


Product presentation :

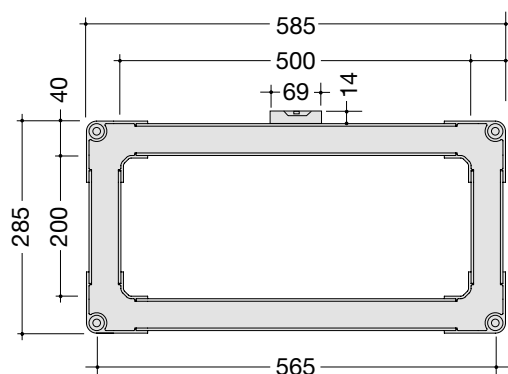
- ① reset push button
- ② test push button
- ③ fault indicator
- ④ supply indicator
- ⑤ I Δ n ratings (A)
- ⑥ temporization t (s)
- ⑦ standard output 1 OF
- ⑧ positive safety output
- ⑨ pre-alarm output
- ⑩ barregraph : indicates continuously the value of the leakage current, 5 to 15 %, 15 to 30 %, 30 to 45 %, 45 to 60 % and 60 to 75 % of I Δ n.
- ⑪ LCD display

Technical characteristics

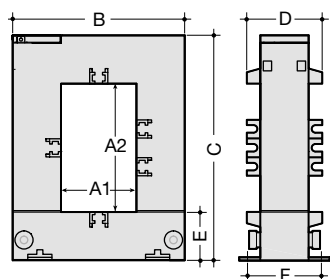
Rectangular torroids :
HR830, HR831, HR832



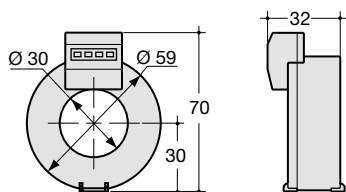
HR833



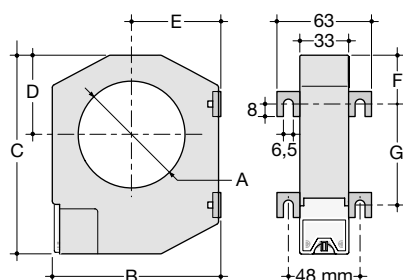
Open rectangular torroids:
HR820 to HR824



Circular torroids :
HR700



HR741 to HR745



Dimensions for rectangular and circular torroids (in mm)

ref.	A	A1	A2	B	C	D	E	F	G	H
HR830	-	70	175	260	162	85	225	22	40	7.5
HR831	-	115	305	400	225	116	360	25	48	8.5
HR832	-	150	350	460	270	140	415	28	48	8.5

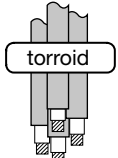
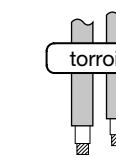
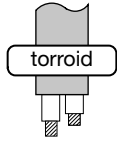
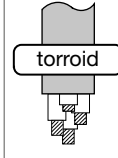
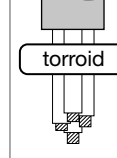
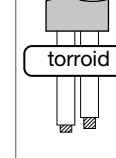
Dimensions for open rectangular torroids (in mm)

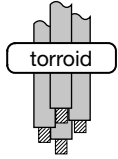
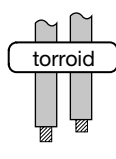
ref.	A1	A2	B	C	D	E	F
HR820	20	30	89	110	41	32	46
HR821	50	80	114	145	50	32	46
HR822	80	80	145	145	50	32	46
HR823	80	121	145	185	50	32	46
HR824	80	161	184	244	70	37	46

Dimensions for circular torroids (in mm)

ref.	A	B	C	D	E	F	G
HR741	Ø 35	79	100	35	43	26	48.5
HR742	Ø 70	110	130	52	57	32	66
HR743	Ø 105	146	170	72	73	38	94
HR744	Ø 140	196	220	97	98	48.5	123
HR745	Ø 210	284	299	141	142	69	161

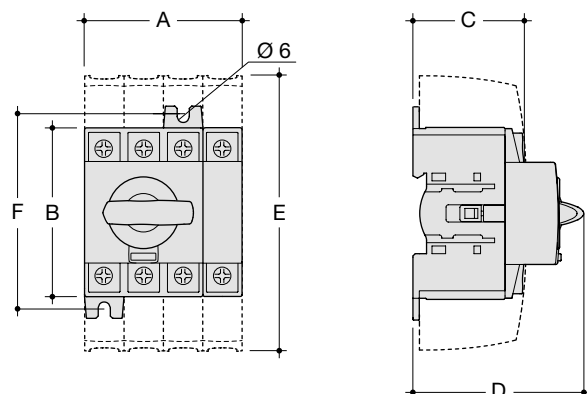
Torroid capacity

		U 1000 R2V copper (1 conductor)	U 1000 R2V copper (1 conductor)	U 1000 R2V copper (2 conductors)	U 1000 R2V copper (4 conductors)	U 1000 R2V copper (4 conductors) stripped	U 1000 R2V copper (2 conductors) stripped
Torroid inner diameter							
30	HR700	4 x 16 mm ²	2 x 50 mm ²	35 mm ²	35 mm ²	35 mm ²	50 mm ²
35	HR701	4 x 25 mm ²	2 x 70 mm ²	35 mm ²	50 mm ²	35 mm ²	70 mm ²
70	HR702	4 x 185 mm ²	2 x 400 mm ² or 4 x 150 mm ²	35 mm ²	240 mm ²	35 mm ²	300 mm ²
105	HR703	4 x 500 mm ²	2 x 630 mm ² or 4 x 185 mm ²	35 mm ²	300 mm ²	35 mm ²	300 mm ²
140	HR704	4 x 630 mm ²	2 x 630 mm ² or 4 x 240 mm ²	35 mm ²	300 mm ²	35 mm ²	300 mm ²
210	HR705	4 x 630 mm ²	2 x 630 mm ² or 4 x 240 mm ²	35 mm ²	300 mm ²	35 mm ²	300 mm ²
70 x 175	HR830	4 x 630 mm ²	2 x 630 mm ² or 4 x 240 mm ²	35 mm ²	300 mm ²	35 mm ²	300 mm ²
115 x 305	HR831	4 x 630 mm ²	2 x 630 mm ² or 4 x 240 mm ²	35 mm ²	300 mm ²	35 mm ²	300 mm ²
150 x 350	HR832	4 x 630 mm ²	2 x 630 mm ² or 4 x 240 mm ²	35 mm ²	300 mm ²	35 mm ²	300 mm ²
20 x 30	HR820	4 x 16 mm ²	2 x 70 mm ²	35 mm ²	10 mm ²	35 mm ²	16 mm ²
50 x 80	HR821	4 x 240 mm ²	2 x 630 mm ² or 4 x 185 mm ²	35 mm ²	120 mm ²	35 mm ²	150 mm ²
80 x 80	HR822	4 x 500 mm ²	2 x 630 mm ² or 4 x 185 mm ²	35 mm ²	300 mm ²	35 mm ²	300 mm ²
80 x 120	HR823	4 x 630 mm ²	2 x 630 mm ² or 4 x 240 mm ²	35 mm ²	300 mm ²	35 mm ²	300 mm ²
80 x 160	HR824	4 x 630 mm ²	2 x 630 mm ² or 4 x 240 mm ²	35 mm ²	300 mm ²	35 mm ²	300 mm ²
200 x 500	HR833	4 x 630 mm ²	2 x 630 mm ² or 4 x 240 mm ²	35 mm ²	300 mm ²	35 mm ²	300 mm ²

		H07 V - U copper (1 conductor)	H07 V - U copper (1 conductor)
Torroid inner diameter			
30	HR700	4 x 35 mm ²	2 x 70 mm ²
35	HR701	4 x 5 mm ²	2 x 95 mm ²
70	HR702	4 x 240 mm ²	2 x 400 mm ² or 4 x 185 mm ²
105	HR703	4 x 400 mm ²	2 x 400 mm ² or 4 x 240 mm ²
140	HR704	4 x 400 mm ²	2 x 400 mm ² or 4 x 240 mm ²
210	HR705	4 x 400 mm ²	2 x 400 mm ² or 4 x 240 mm ²
70 x 175	HR830	4 x 400 mm ²	2 x 400 mm ² or 4 x 240 mm ²
115 x 305	HR831	4 x 400 mm ²	2 x 400 mm ² or 4 x 240 mm ²
150 x 350	HR832	4 x 400 mm ²	2 x 400 mm ² or 4 x 240 mm ²
20 x 30	HR820	4 x 10 mm ²	2 x 35 mm ²
50 x 80	HR821	4 x 185 mm ²	2 x 240 mm ²
80 x 80	HR822	4 x 400 mm ²	2 x 400 mm ² or 4 x 240 mm ²
80 x 120	HR823	4 x 400 mm ²	2 x 400 mm ² or 4 x 240 mm ²
80 x 160	HR824	4 x 400 mm ²	2 x 400 mm ² or 4 x 240 mm ²
200 x 500	HR833	4 x 400 mm ²	2 x 400 mm ² or 4 x 240 mm ²

HAB, HAC, HAE switches

HAB402, HAB403, HAB404, HAB406, HAC408



Dimensions (in mm)

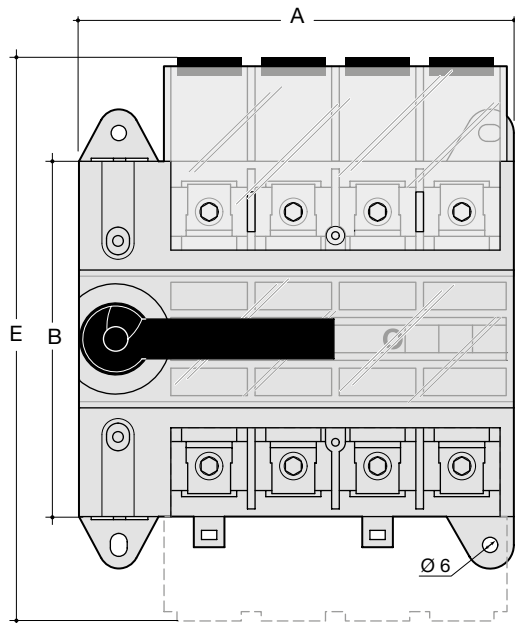
	HAB302, HAB303, HAB304, HAB306	HAB402, HAB403, HAB404, HAB406	HAC306, HAC308, HAC310	HAC406, HAC408, HAC410
A	45	60	52.5	70
B	68	68	76	76
C	48.5	48.5	48.5	48.5
D	75	75	75	75
E	110	110	110	110
F	75	75	85	85

Technical characteristics

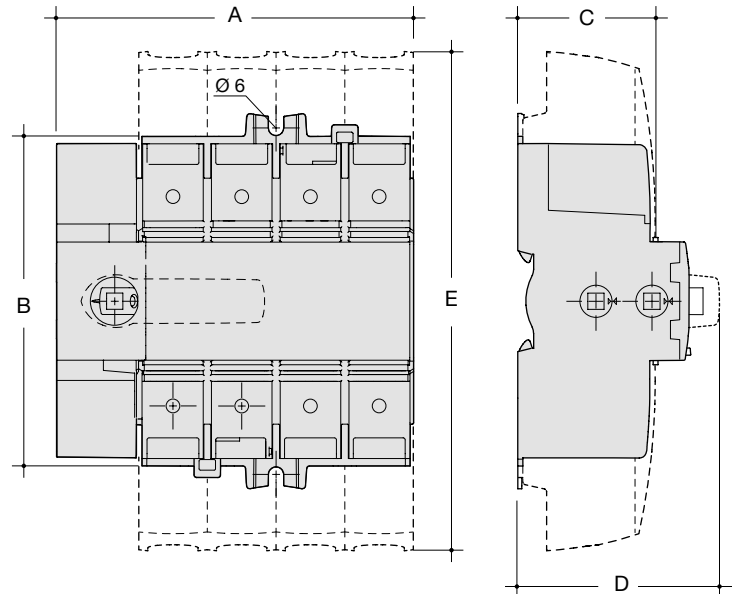
	HAB302 HAB402	HAB303 HAB403	HAB304 HAB404	HAB306 HAB406	HAC306 HAC406	HAC308 HAC408	HAC310 HAC410	HAD310 HAD410	HAD312 HAD412
In	20 A	32 A	40 A	63 A	63 A	80 A	100 A	100 A	125 A
rated insulation voltage U_i	(V) 800	800	800	800	800	800	800	800	800
rated impulse withstand voltage U_{imp}	(kV) 8	8	8	8	8	8	8	8	8
le AC 22B at 400 V	(A) 20	32	40	63	63	80	100	100	125
le AC 23B at 400 V	(A) 20	32	40	63	63	80	100	100	125
rated short-circuit breaking capacity in association with gG DIN fuse	(kA) 50	50	50	50	50	50	50	50	50
current rated range	(A) 20	32	40	63	63	80	100	100	125
short-circuit making capacity I_{cc}	(A peak) 6 000	6 000	6 000	6 000	9 000	9 000	9 000	12 000	12 000
rated short-time withstand current for 1s I_{cw}	(kA eff) 2.5	2.5	2.5	2.5	3	3	3	5	5
mechanical endurance	(nr of operations) 100 000	100 000	100 000	100 000	100 000	100 000	100 000	100 000	100 000
connection	(mm ²) 16	16	16	16	35	35	35	70	70

HA, HAE switches

HA406N, HA407, HA408



HAE410, HAE412, HAE416



Dimensions (in mm)

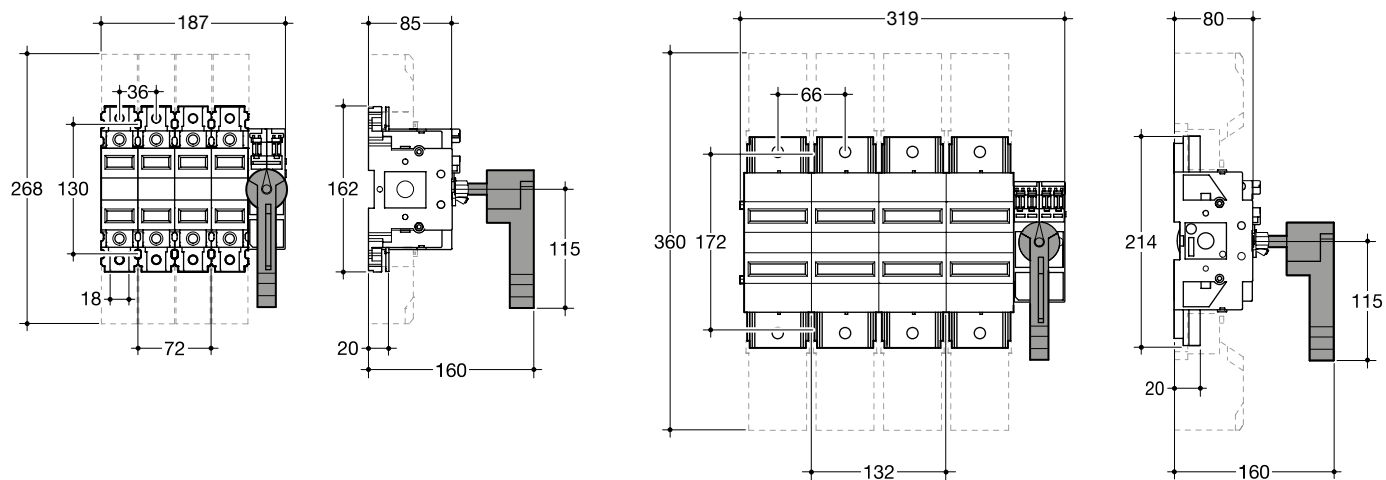
	HA406N, HA407, HA408	HAE410, HAE412, HAE416
A	142	135
B	116	124.5
C	44	50.5
D	86.3	76
E	183	189

Technical characteristics

	HA406N	HA407	HA408	HAE310 HAE410	HAE312 HAE412	HAE316 HAE416
In	125 A	160 A	200 A	100 A	125 A	160 A
rated insulation voltage U_i	(V) 750	750	750	800	800	800
rated impulse withstand voltage U_{imp}	(kV) 8	8	8	8	8	8
le AC 22B at 400 V	(A) 125	160	160	100	125	160
le AC 23B at 400 V	(A) 125	160	160	100	125	160
motor power AC 23A at 400 V ~	(kW) 55	80	100	45	55	75
rated short-circuit breaking capacity in association with gG DIN fuse	(kA) 100	50	50	100	65	50
current rated range	(A) 125	160	160	100	125	160
short-circuit making capacity I_{cc}	(A peak) 20 000	20 000	20 000	12 000	12 000	12 000
rated short-time withstand current for 1s I_{cw}	(kA eff) -	-	-	4	4	4
mechanical endurance (nr of operations)	10 000	10 000	10 000	50 000	50 000	50 000
connection	(mm ²) 95	95	95	70	70	70

HA switches

HA964N - HA966N

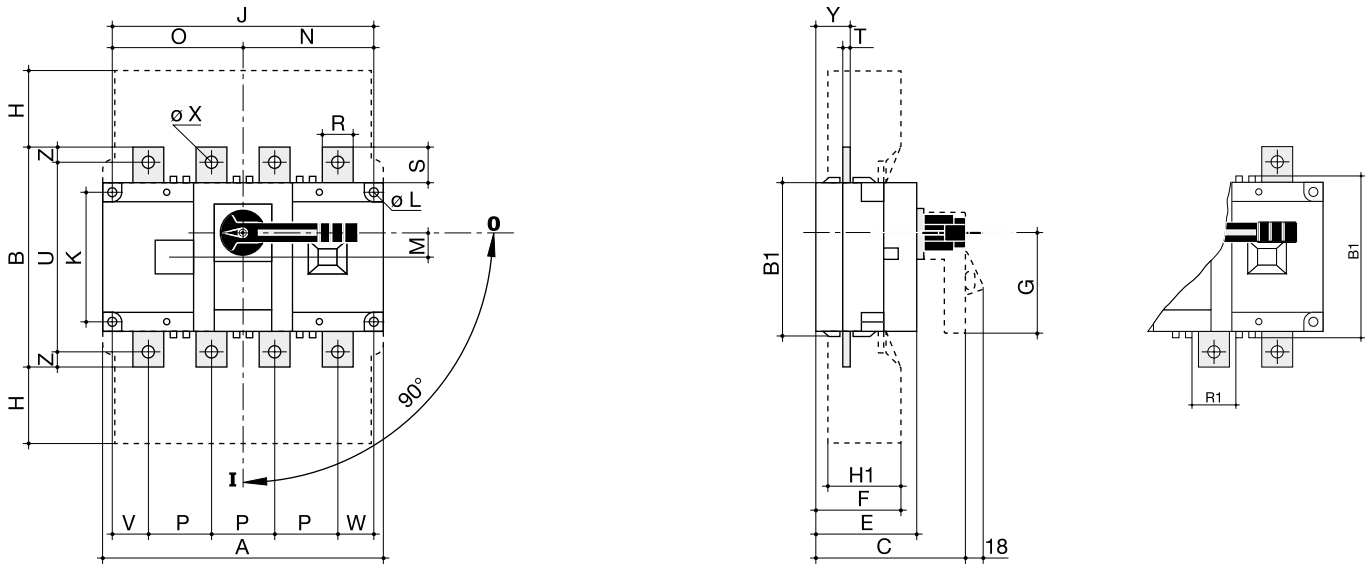


Main incomers

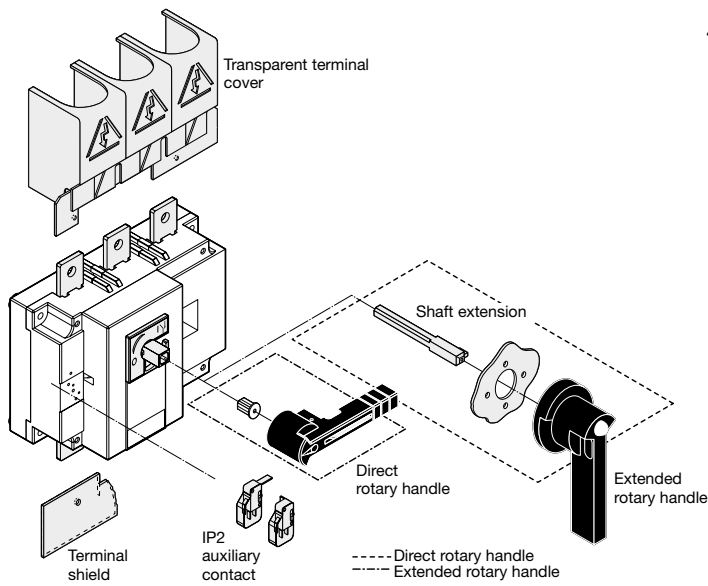
Technical characteristics

	HA964N	HA966N
electrical characteristics		
rated current	250 A	400 A
rated insulation voltage U_i	(V) 800	800
rated impulse withstand voltage U_{imp}	(kV) 8	8
le AC 22 at 400 V	(A) 250	400
le AC 23 at 400 V	(A) 250	400
rated short-circuit breaking capacity (A)		
dynamic effect (peak)	11 900	15 300
thermal effect (eff. 1 s)	7 000	9 000
rated short-circuit current	(kA) 80	50
with gl - gG fuses	250 A	400 A
mechanical endurance (nr of operations)	10 000	10 000
electrical connection		
cage terminal	(mm ²) 185	-
bolt terminal	(Ø mm) M8	M8
lugs	(mm ²) 150	240

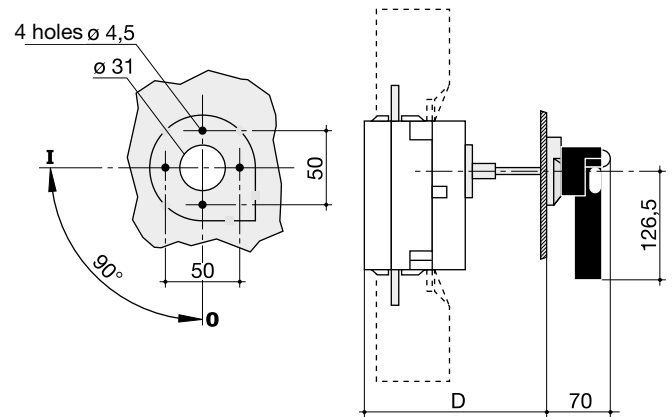
HA351, HA451, HA352, HA452, HA354, HA454, HA357, HA457, HA358, HA458 switches



Mounting



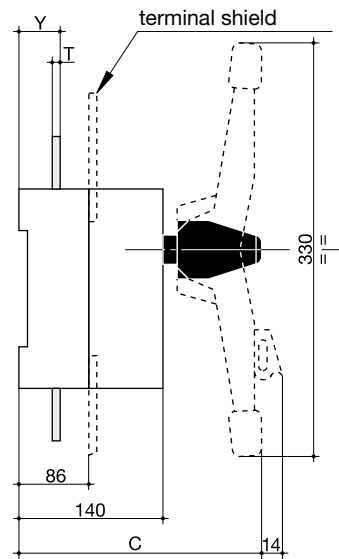
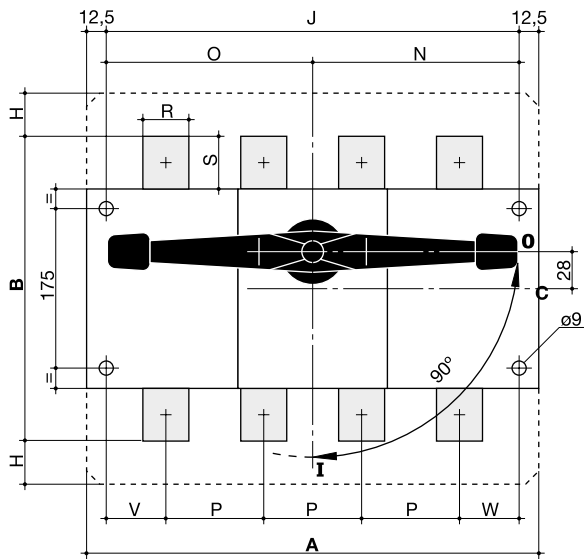
Extended rotary handle



Dimensions for switches from 125A to 630A (rotary handle)

Ref.	In(A)	A	B	B1	C	D	E	F	G	H	H1	J	K	ØL	M	N	O	P	R	Rr1	S	T	U	V	W	X	Y	Z
HA351	125A	140	135	93	120	124/354	65	50	80	50	40	120	65	5.5	15	75	75	36	20	20.5	25	3.5	115	22	20	9	20.5	10
HA451	125A	170	135	93	120	124/354	65	50	80	50	40	150	65	5.5	15	75	75	36	20	20.5	25	3.5	115	22	20	9	20.5	10
HA352	160A	140	135	93	120	124/354	65	50	80	50	40	120	65	5.5	15	75	75	36	20	20.5	25	3.5	115	22	20	9	20.5	10
HA452	160A	170	135	93	120	124/354	65	50	80	50	40	150	65	5.5	15	75	75	36	20	20.5	25	3.5	115	22	20	9	20.5	10
HA354	250A	190	160	108	130	135/365	75	60	115	60	50	160	80	5.5	20	705	705	50	25	25.5	30	3.5	130	33	27	11	22.5	15
HA454	250A	230	160	108	130	135/365	75	60	115	60	50	210	80	5.5	20	105	105	50	25	25.5	30	3.5	130	33	27	11	22.5	15
HA357	400A	190	170	108	130	135/365	75	60	115	60	50	160	80	5.5	20	105	105	50	25	25.5	30	3.5	130	33	27	11	22.5	15
HA457	400A	230	170	108	130	135/365	75	60	115	60	50	210	80	5.5	20	105	105	50	25	25.5	30	3.5	130	33	27	11	22.5	15
HA358	630A	230	260	170	165	167/397	110	89	115	70	75	210	140	7	30	135	135	65	45	45.5	50	5	220	37.5	37.5	13	36	20
HA458	630A	290	260	170	165	167/397	110	89	115	70	75	270	140	7	30	135	135	65	45	45.5	50	5	220	37.5	37.5	13	36	20

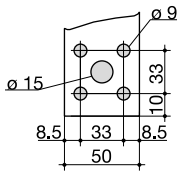
HA360, HA362, HA364, HA460, HA462, HA464 switches with rotary handle



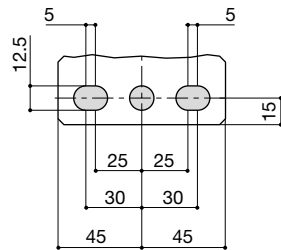
Main incomers

Connection terminals

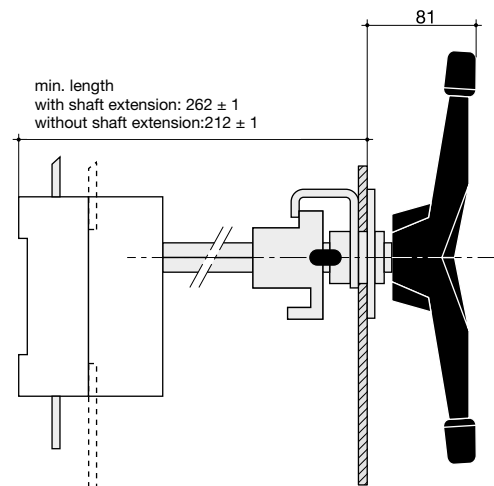
800A



1250-1600A



Rotary handle



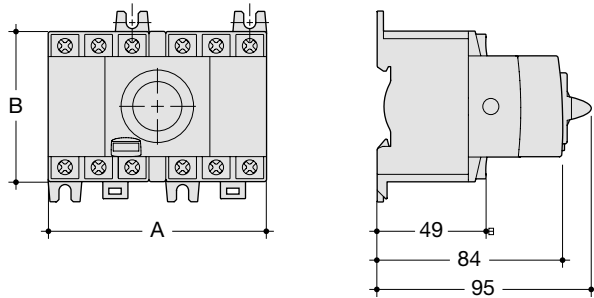
Dimensions for switches from 125A to 630A (rotary handle)

Ref.	In(A)	A	B	C	H	J	N	O	P	R	S	T	V	W	Y
HA360	600	280	320	214	50	255	127.5	127.5	80	50	60.5	7	47.5	47.5	46.5
HA460	800	360	320	214	50	335	167.5	167.5	80	50	60.5	7	47.5	47.5	46.5
HA362	1250	372	288	215	66.5	347	173.5	173.5	120	90	44	8	53.5	53.5	47.5
HA462	1250	492	288	215	66.5	467	233.5	233.5	120	90	44	8	53.5	53.5	47.5
HA364	1600	372	288	215	66.5	347	173.5	173.5	120	90	44	8	53.5	53.5	47.5
HA464	1600	492	288	215	66.5	467	233.5	233.5	120	90	44	8	53.5	53.5	47.5

Changeover switches

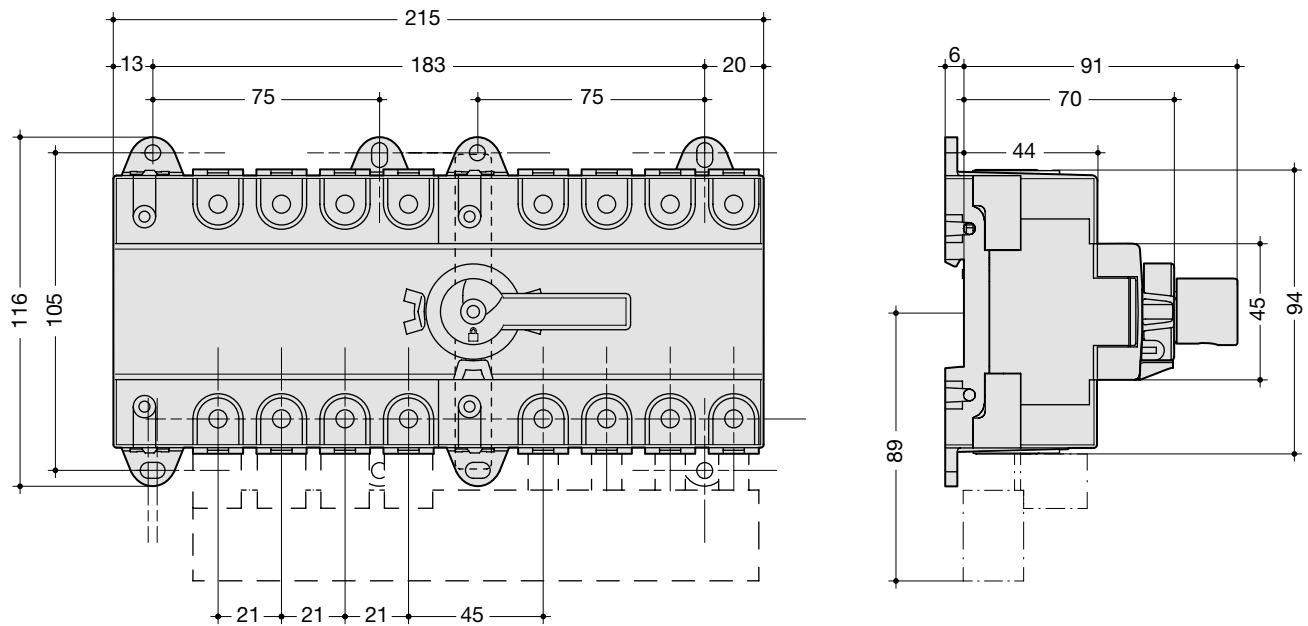
HIM302, HIM304, HIM306, HIM308,
HIM402, HIM404, HIM406, HIM408

Dimensions (in mm)



	HIM302 HIM304	HIM402 HIM404	HIM306 HIM308	HIM406 HIM408
A	97.5	127.5	105	140
B	68		76	

HI405R and HI406R

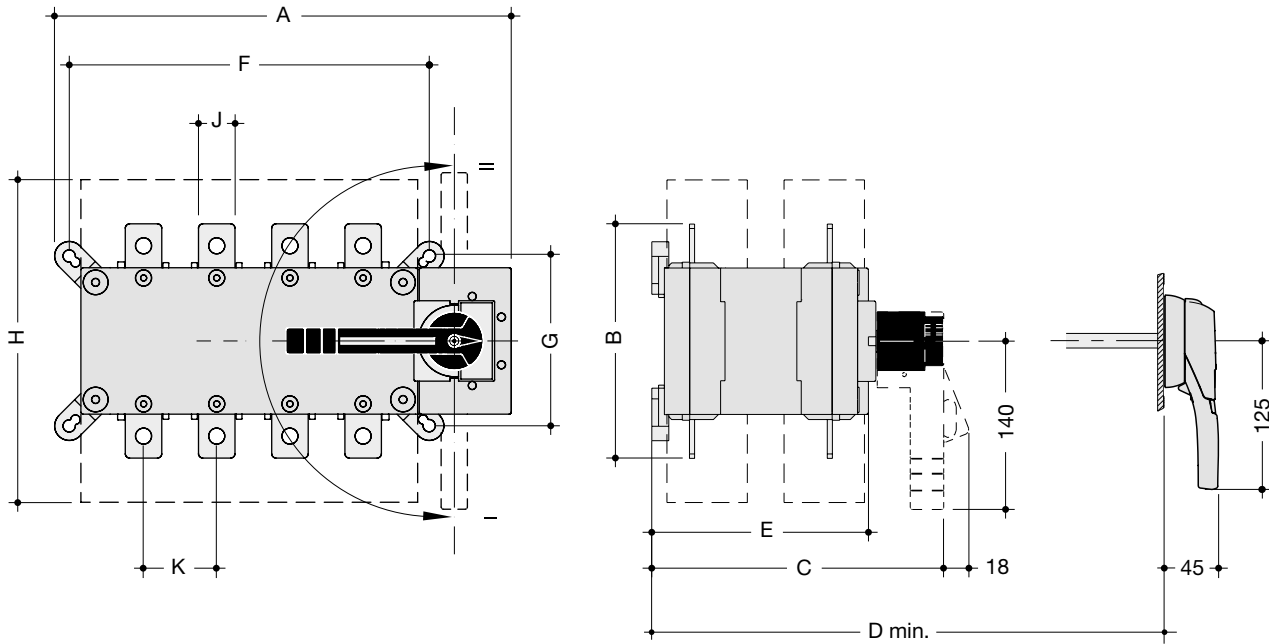


Technical characteristics

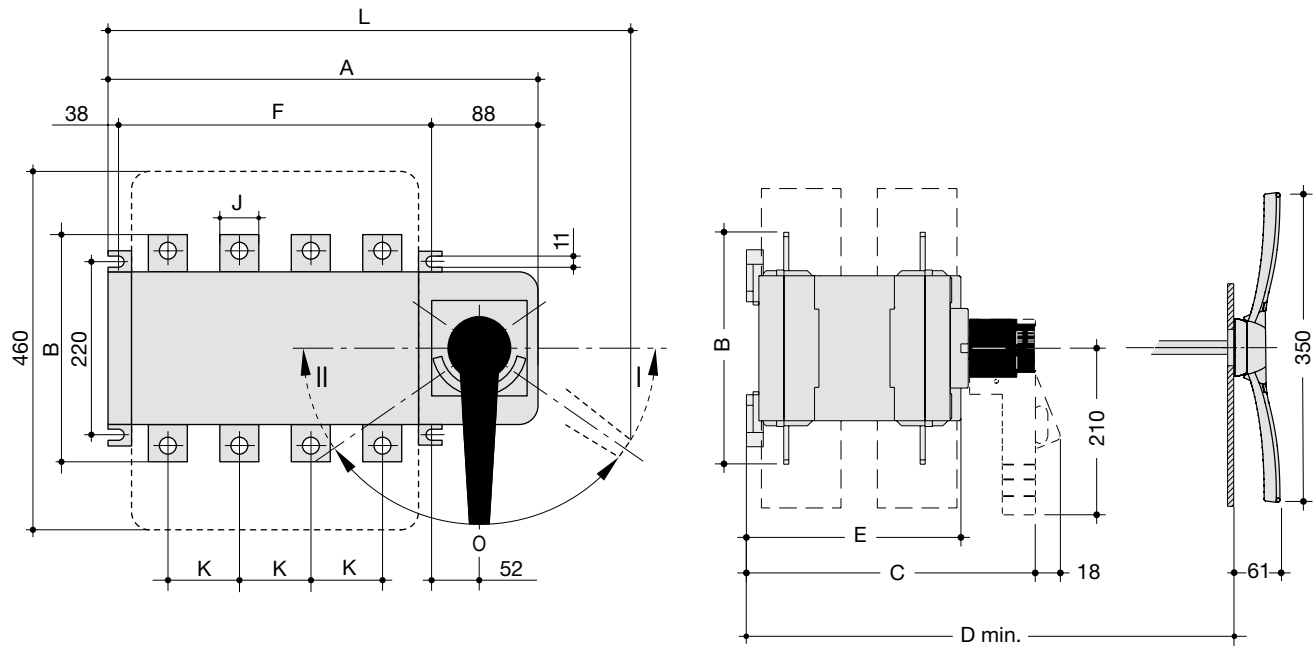
	HIM302 HIM402	HIM304 HIM404	HIM306 HIM406	HIM308 HIM408	HI405R	HI406R
In	20 A	40 A	63 A	80 A	100 A	125 A
insulation voltage U_i	(V) 800	800	800	800	690	690
impulse withstand voltage U_{imp}	(kV) 8	8	8	8	8	8
I_e AC 22 at 400 V	(A) 20	40	63	80	100	125
I_e AC 23 at 400 V	(A) 20	40	63	80	63	63
operational power AC 23A at 400 V ~	(kW) 9	18.5	30	37	45	45
short-circuit current with gG DIN fuses	(kA) 50	50	50	50	100	50
associated fuse rated	(A) 20	40	63	80	100	125
short-circuit resistance I_{cc}	(kA peak) 6	6	9	9	12	12
rated short-time withstand current I_{cw}	(kA / 1s) 2.5	2.5	3	3	2.5	2.5
mechanical endurance	(cycles) 10 000	10 000	10 000	10 000	10 000	10 000
connection	(mm ²) 16	16	35	35	50	50

Changeover switches

HI452, HI454, HI456, HI458



HI460, HI462, HI464



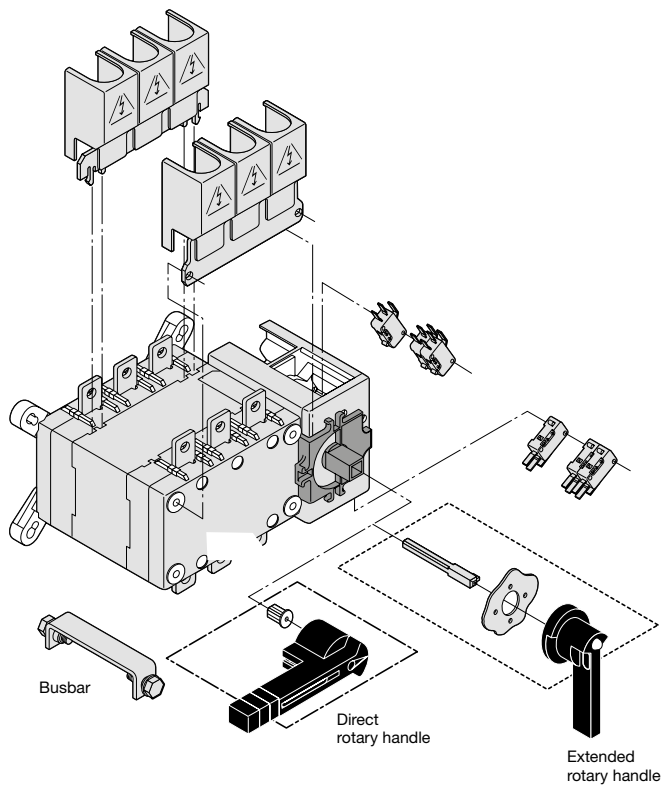
Dimensions for switches from 125A to 630A (rotary handle)

Ref.	A	B	C	D mini.	E	F	G	H	J	K	L
HI452	251	135	218	208	148	186	101	235	20	36	-
HI454	312	160	218	208	148	246	116	280	25	50	-
HI456	312	170	218	208	148	246	116	280	35	50	-
HI458	379	260	295	285	225	306	176	400	45	65	-
HI460	460	320	374	390	302	335	220	460	50	80	609
HI462	592	330	374	390	302	467	220	460	60	120	741
HI464	592	360	374	390	302	467	220	460	90	120	741

Technical characteristics

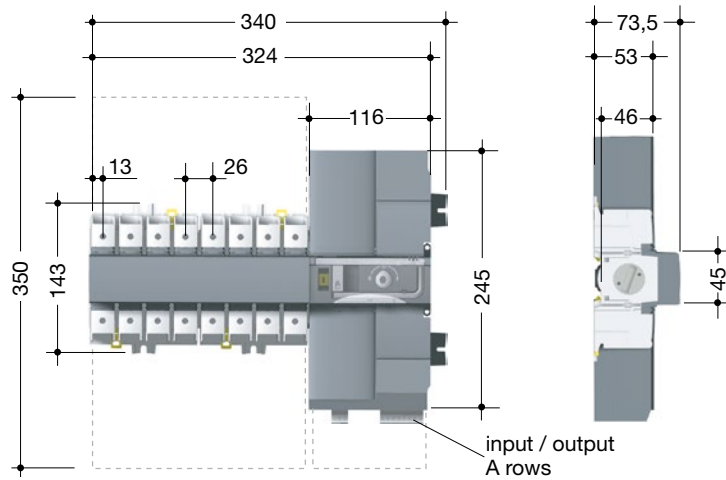
	HI452	HI454	HI456	HI458	HI460	HI462	HI464
In	160 A	250 A	400 A	630 A	800 A	1250 A	1600 A
insulation voltage U_i	(V) 800	800	800	1000	1000	1000	1000
impulse withstand voltage U_{imp}	(kV) 8	12	8	12	12	12	12
le AC 22 at 400 V	(A) 160	250	400	630	800	1250	1600
le AC 23 at 400 V	(A) 160	250	250	500	800	1250	1600
operational power AC 23A at 400 V ~	(kW) 80	132	220	280	450	710	710
short-circuit current with gG DIN fuses	(kA) 100	50	18	70	50	100	100
associated fuse rated	(A) 160	250	400	630	800	1250	2 x 800
rated short circuit making capacity I_{cm}	(A peak) 12	147	15.3	30	48	75	86
rated short-time withstand current I_{cw}	(kA / 1s) 7	9	9	13	26	50	50
mechanical endurance	(cycles) 10 000	10 000	10 000	5 000	3 000	4 000	4 000
connection for lugs	(mm ²) 95	150	240	2 x 300	2 x 300	4 x 185	6 x 185

Mounting



Changeover switches

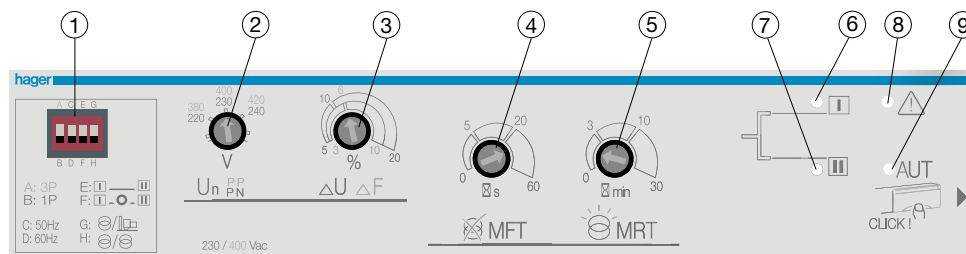
HIC406A, HIC408A, HIC410A, HIC 412A, HIC416A



Technical characteristics

	HIC402A	HIC404A	HIC406A	HIC408A	HIC410A	HIC412A	HIC416A
In	20 A	40 A	63 A	80 A	100 A	125 A	160 A
rated insulation voltage U_i	(V) 800	800	800	800	800	800	800
rated impulse withstand voltage U_{imp}	(kV) 6	6	6	6	6	6	6
le AC 22 at 415 V	(A) 20	40	63	80	100	125	160
le AC 23 at 415 V	(A) 20	40	63	80	100	125	160
short-circuit current with gG DIN fuses	(kA) 50	50	50	50	50	50	50
associated fuse rated	(A) 20	40	63	80	100	125	160
short circuit making capacity I_{cc}	(A peak) 17	17	17	17	17	17	17
rated short-time withstand current I_{cw} 1s	(kA) 4	4	4	4	4	4	4
mechanical endurance	(cycles) 10 000	10 000	10 000	10 000	10 000	10 000	10 000
connection	(mm ²) 10-70	10-70	10-70	10-70	10-70	10-70	10-70

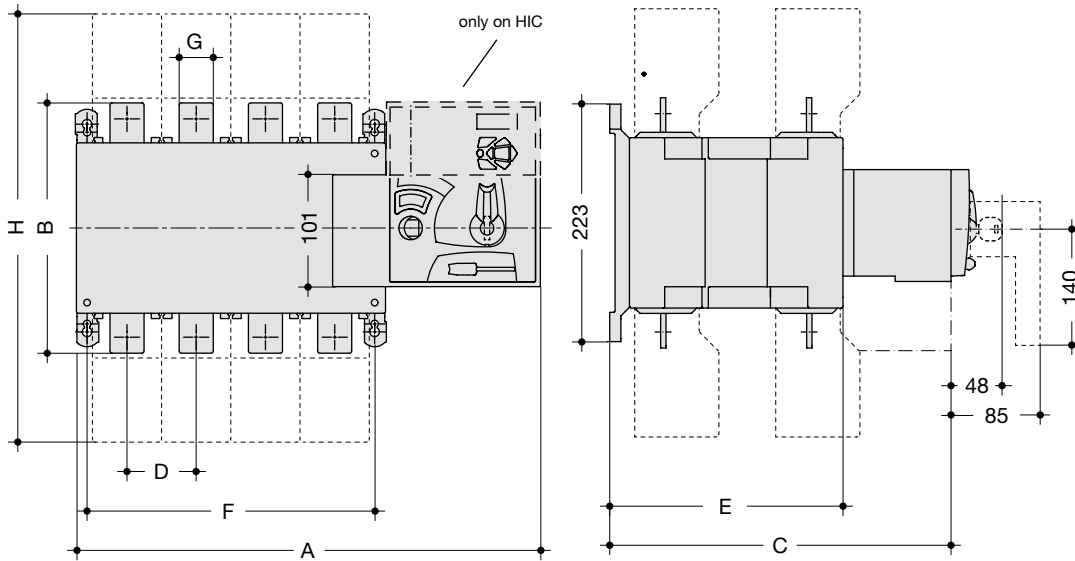
Settings



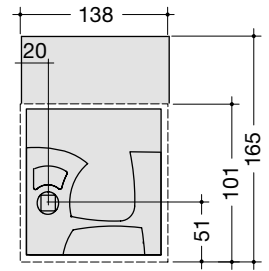
- ① small switches configurator : single or three phase network / 50 or 60 Hz frequency / 0 position stay option - 0 or 2 s.
- ② source voltage supply configuration U_n
- ③ voltage threshold / frequency setting U : 5 to 20 %, F : 3 to 10 %, (hysteresis U/F 20%)
- ④ loss of priority source timer (0 to 60 s)
- ⑤ return of priority source timer (0 to 30 min)
- ⑥ source I status indicator (LED ON: Source I available)
- ⑦ source II status indicator (LED ON: Source I available)
- ⑧ product status indicator (LED ON: fault, LED OFF: product ok)
- ⑨ automatic/manual mode indicator (LED ON: Auto mode, LED OFF: Manual mode)

Changeover switches

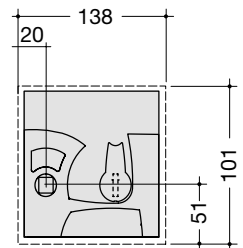
HIB425M, HIB440M, HIB463M, HIC425E et G,
HIC440E et G, HIC463E et G



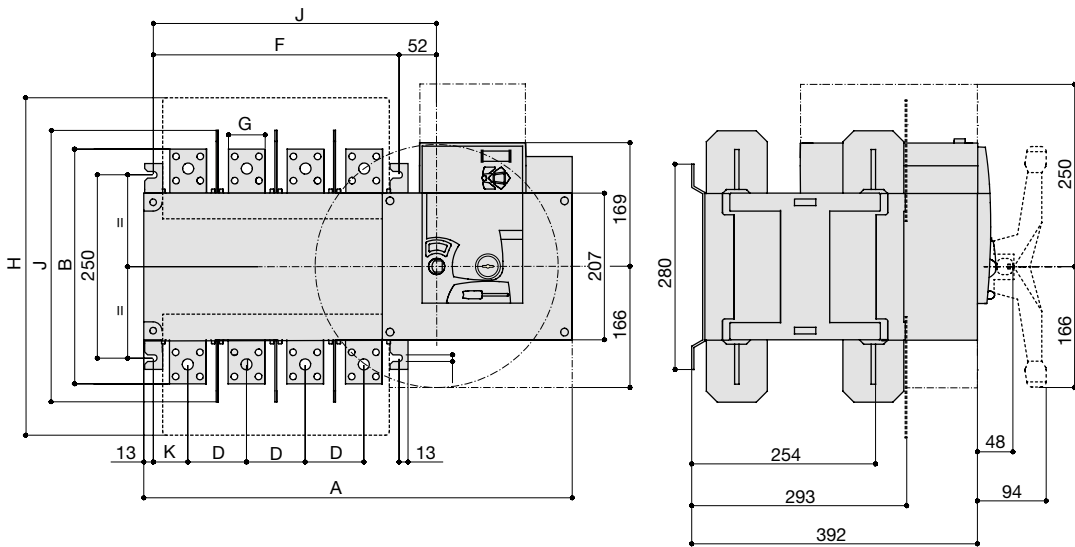
HIC4xxE and G



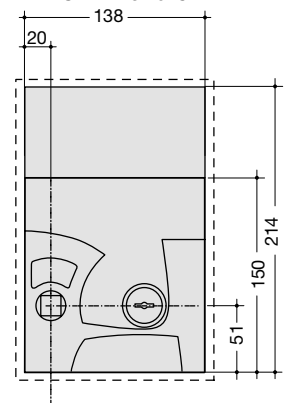
HIB4xxM



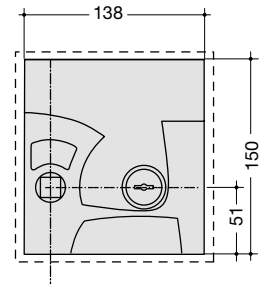
HIB480, HIB490, HIB491, HIB492, HIC480, HIC490, HIC491, HIC492



HIC4xxE and G



HIB4xxM



Dimensions (en mm)

	A	B	C	D	E	F	G	H	J	K
HIB425M	378	160	244	50	152	210	25	288	-	33
HIB440M	378	170	244	50	152	210	35	288	-	33
HIB463M	437	260	320.5	65	221	270	45	402	-	37.5
HIB480M	584	321	391.5	80	293	335	50	461	370	47.5
HIB490M	584	321	391.5	80	293	335	50	461	370	47.5
HIB491M	584	330	391.5	80	293	335	60	461	370	47.5
HIB492M	716	288	391.5	120	293	467	90	531	380	53
HIC425E/G	378	160	244	50	152	210	25	288	-	33
HIC440E/G	378	160	244	50	152	210	35	288	-	33
HIC463E/G	437	260	320.5	65	221	270	45	402	-	37.5
HIC480E/G	584	321	391.5	80	293	335	50	461	370	47.5
HIC490E/G	584	321	391.5	80	293	335	50	461	370	47.5
HIC491E/G	584	330	391.5	80	293	335	60	461	370	47.5
HIC492E/G	716	288	391.5	120	293	467	90	531	380	53

Technical characteristics

		HIB425M HIC425E/G	HIB440M HIC440E/G	HIB463M HIC463E/G	HIB480M HIC480E/G	HIB490M HIC490E/G	HIB491M HIC491E/G	HIB492M HIC492E/G
In		250 A	400 A	630 V	800 V	1000 V	1250 V	1600 V
rated insulation voltage U _i	(V)	800	1000	1000	1000	1000	1000	1000
rated impulse withstand voltage U _{imp}	(kV)	12	12	12	12	12	12	12
le AC 22B, 415 V	(A)	250	400	630	800	1000	1250	1600
le AC 23A / AC 23B, 415 V	(A)	200/200	400/400	630/630	800/800	1000/1000	1250/1250	1250/1250
rated operational current le AC 31B, 415 V	(A)	250	400	630	800	1000	1250	1600
rated operational current le AC 32B sous 415 V	(A)	200	400	500	800	1000	1250	1600
rated operational current le AC 33B sous 415 V	(A)	200	200	400	800	800	800	1000
short circuit current with gG DIN fuses	(kA)	50	18	70	50	100	100	100
associated fuse rated	(A)	250	400	630	800	1000	1250	2 x 800
rated short circuit making capacity I _{cm}	(kA peak)	22	22	17	48	73.5	73.5	110
rated short time withstand current I _{cw}	(kA/1s)	8	8	10	20	35	35	50
mechanical endurance	(cycles)	8 000	8 000	5 000	4000	4000	4000	3000
connection for lugs	(mm ²)	150	240	2 x 300	2 x 300	4 x 185	4 x 185	6 x 185

Protection devices

We offer a wide range of protection devices, such as miniature circuit breakers, auxiliaries and accessories, RCD add-on blocks, single pole and switched neutral devices, 2 and 4 pole RCCBs, RCCB auxiliaries, RCBOs, HRC fuse carriers, motor starters, earth fault relays and surge protection devices.



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Protection and control of circuits against overloads and short circuits.
Allow to isolate circuits.



MHT716



Miniature circuit breakers 1P+N type B, 4500 A, 6 kA

- tripping curve: 3 to 5 I_n
- voltage rating: 230 V AC
- current rating: 2 to 40 A
- frequency: 50/60 Hz

- connecting capacity:
10 mm² flexible conductor
16 mm² rigid conductor
- comply to the standard IEC 60898-1 breaking capacity: 4.5kA (IEC 60898-1)
6kA (IEC 60947-2)

In	Width in module 17.5 mm	Pack qty	Cat. ref.
6 A	1	12	MHT706
10 A	1	12	MHT710
16 A	1	12	MHT716
20 A	1	12	MHT720
25 A	1	12	MHT725
32 A	1	12	MHT732
40 A	1	12	MHT740



Miniature circuit breakers 1P+N type C, 4500 A, 6 kA

- tripping curve: 5 to 10 I_n
- voltage rating: 230 V AC
- current rating: 2 to 40 A
- frequency: 50/60 Hz

- connecting capacity:
10 mm² flexible conductor
16 mm² rigid conductor
- comply to the standard IEC 60898-1 breaking capacity: 4.5kA (IEC 60898-1)
6kA (IEC 60947-2)

In	Width in module 17.5 mm	Pack qty	Cat. ref.
6 A	1	12	MJT706
10 A	1	12	MJT710
16 A	1	12	MJT716
20 A	1	12	MJT720
25 A	1	12	MJT725
32 A	1	12	MJT732
40 A	1	12	MJT740



MLN720



Miniature circuit breakers 1P+N type C, 6000A, 7.5 kA

- tripping curve: 5 to 10 I_n
- voltage rating: 230 V AC
- current rating: 2 to 40 A
- frequency: 50/60 Hz

- connecting capacity:
10 mm² flexible conductor
16 mm² rigid conductor
- comply to the standard IEC 60898-1 breaking capacity: 6kA (IEC 60898-1)
7.5kA (IEC 60947-2)

In	Width in module 17.5 mm	Pack qty	Cat. ref.
6 A	1	12	MLN706
10 A	1	12	MLN710
16 A	1	12	MLN716
20 A	1	12	MLN720
25 A	1	12	MLN725
32 A	1	12	MLN732

Miniature circuit breakers 1P+N type C, 6000A

- tripping curve: 5 to 10 In
- voltage rating: 230 V AC
- current rating: 2 to 40 A
- frequency: 50/60 Hz

- connecting capacity:
10 mm² flexible conductor
16 mm² rigid conductor
- comply to the standard IEC 60898-1
6kA (IEC 60898-1)
7.5kA (IEC 60947-2)



In	Width in module 17.5 mm	Pack qty	Cat. ref.
40 A	1	12	MLN740A

MLN740A

Add-on blocks for MCB's 1P+N

IΔn	In	Width in module 17.5 mm	Cat. ref. class AC	Cat. ref. class A / HI
30 mA	25 A	1	BDC225F	BDH225F
	40 A	1	BDC240F	BDH240F
300 mA	25 A	1	BFC225F	BFH225F
	40 A	1	BFC240F	BFH240F



BDC240F

Add-on blocks for miniature circuit breakers selection chart

	IΔn	Add-on blocks				
		class AC		class A and HI		
		30 mA	300 mA	30 mA	300 mA	
Miniature Circuit Breakers	B curve	MHT706	BDC225F	BFC225F	BDH225F	BFH225F
		MHT710				
		MHT716				
		MHT720				
	MHT725					
	MHT732	BDC240F	BFC240F	BDH240F	BFH240F	
MHT740						
C curve	MJT706	BDC225F	BFC225F	BDH225F	BFH225F	
		MJT710				
		MJT716				
		MJT720				
	MJT725					
	MJT732	BDC240F	BFC240F	BDH240F	BFH240F	
MJT740						

Protection and control of circuits against overloads and short circuits.
Allow to isolate circuits.

Miniature circuit breakers 3/4.5 kA, type B and C

- tripping curve:
 - B curve: 3 to 5 I_n,
 - C curve: 5 to 10 I_n
- poles: 1PP, 2PP, 3PP, 4PP (protected poles)
- voltage rating: 240/400V AC
- current rating: 6 to 40A
- frequency: 50/60Hz
- climate sealed: T2
- connecting capacity:
 - 16 mm² flexible conductor
 - 25 mm² rigid conductor
- comply to the standard IEC 60898-1
- breaking capacity: 3kA (IEC 60898-1)
- 4.5kA (IEC 60947-2)
- will not accept accessories



MV116



In	Width in module 17.5 mm	Pack qty	Cat. ref. B curve	C curve
Single pole miniature circuit breakers 3/4.5 kA				
6 A	1	12	MV106	MW106
10 A	1	12	MV110	MW110
16 A	1	12	MV116	MW116
20 A	1	12	MV120	MW120
25 A	1	12	MV125	MW125
32 A	1	12	MV132	MW132
40 A	1	12	MV140	MW140



MV240



Double pole miniature circuit breakers 3/4.5 kA				
6 A	2	6	MV206	MW206
10 A	2	6	MV210	MW210
16 A	2	6	MV216	MW216
20 A	2	6	MV220	MW220
25 A	2	6	MV225	MW225
32 A	2	6	MV232	MW232
40 A	2	6	MV240	MW240



MV316



Three pole miniature circuit breakers 3/4.5 kA				
6 A	3	4	MV306	MW306
10 A	3	4	MV310	MW310
16 A	3	4	MV316	MW316
20 A	3	4	MV320	MW320
25 A	3	4	MV325	MW325
32 A	3	4	MV332	MW332
40 A	3	4	MV340	MW340



Four pole miniature circuit breakers 3/4.5 kA				
6 A	4	3	MV406	MW406
10 A	4	3	MV410	MW410
16 A	4	3	MV416	MW416
20 A	4	3	MV420	MW420
25 A	4	3	MV425	MW425
32 A	4	3	MV432	MW432
40 A	4	3	MV440	MW440

Miniature circuit breakers 6 kA, type B and C

- tripping curve:
 - B curve: 3 to 5 I_n,
 - C curve: 5 to 10 I_n
- poles: 1PP, 2PP, 3PP, 4PP (protected poles)
- voltage rating: 240/400V AC
- current rating: 6 to 63A
- frequency: 50/60Hz
- climate sealed: T2
- connecting capacity:
 - 16 mm² flexible conductor
 - 25 mm² rigid conductor
- comply to the standard IEC 60898-1
- breaking capacity: 6kA (IEC 60898-1)

In	Width in module 17.5 mm	Pack qty	Cat. ref. B curve	C curve
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Single pole miniature circuit breakers 6 kA

6 A	1	12	MBN106A	MCN106A
10 A	1	12	MBN110A	MCN110A
16 A	1	12	MBN116A	MCN116A
20 A	1	12	MBN120A	MCN120A
25 A	1	12	MBN125A	MCN125A
32 A	1	12	MBN132A	MCN132A
40 A	1	12	MBN140A	MCN140A
50 A	1	12	MBN150A	MCN150A
63 A	1	12	MBN163A	MCN163A



MBN116A



Double pole miniature circuit breakers 6 kA

6 A	2	6	MBN206A	MCN206A
10 A	2	6	MBN210A	MCN210A
16 A	2	6	MBN216A	MCN216A
20 A	2	6	MBN220A	MCN220A
25 A	2	6	MBN225A	MCN225A
32 A	2	6	MBN232A	MCN232A
40 A	2	6	MBN240A	MCN240A
50 A	2	6	MBN250A	MCN250A
63 A	2	6	MBN263A	MCN263A



MBN232A



Three pole miniature circuit breakers 6 kA

6 A	3	4	MBN306A	MCN306A
10 A	3	4	MBN310A	MCN310A
16 A	3	4	MBN316A	MCN316A
20 A	3	4	MBN320A	MCN320A
25 A	3	4	MBN325A	MCN325A
32 A	3	4	MBN332A	MCN332A
40 A	3	4	MBN340A	MCN340A
50 A	3	4	MBN350A	MCN350A
63 A	3	4	MBN363A	MCN363A



MBN320A



Four pole miniature circuit breakers 6 kA

6 A	4	3	MBN406A	MCN406A
10 A	4	3	MBN410A	MCN410A
16 A	4	3	MBN416A	MCN416A
20 A	4	3	MBN420A	MCN420A
25 A	4	3	MBN425A	MCN425A
32 A	4	3	MBN432A	MCN432A
40 A	4	3	MBN440A	MCN440A
50 A	4	3	MBN450A	MCN450A
63 A	4	3	MBN463A	MCN463A



MBN440A



Miniature circuit breakers 6/10kA, type B and C

- tripping curve:
 - B curve: 3 to 5 I_n,
 - C curve: 5 to 10 I_n
- poles: 1PP, 2PP, 3PP, 4PP (protected poles)
- voltage rating: 240/400V AC
- current rating: 6 to 63A
- frequency: 50/60Hz
- climate sealed: T2
- connecting capacity:
 - 16 mm² flexible conductor
 - 25 mm² rigid conductor
- comply to the standard IEC 60898-1
- breaking capacity: 6kA (IEC 60898-1)
- 10kA (IEC 60947-2)
- **will not accept accessories**



MT116A



In	Width in module 17.5 mm	Pack qty	Cat. ref. B curve	C curve
Single pole miniature circuit breakers 6/10kA				
6 A	1	12	MT106A	MU106A
10 A	1	12	MT110A	MU110A
16 A	1	12	MT116A	MU116A
20 A	1	12	MT120A	MU120A
25 A	1	12	MT125A	MU125A
32 A	1	12	MT132A	MU132A
40 A	1	12	MT140A	MU140A
50 A	1	12	MT150A	MU150A
63 A	1	12	MT163A	MU163A



MT216A



Double pole miniature circuit breakers 6/10kA				
6 A	2	6	MT206A	MU206A
10 A	2	6	MT210A	MU210A
16 A	2	6	MT216A	MU216A
20 A	2	6	MT220A	MU220A
25 A	2	6	MT225A	MU225A
32 A	2	6	MT232A	MU232A
40 A	2	6	MT240A	MU240A
50 A	2	6	MT250A	MU250A
60 A	2	6	MT263A	MU263A



MT320A



Three pole miniature circuit breakers 6/10kA				
6 A	3	4	MT306A	MU306A
10 A	3	4	MT310A	MU310A
16 A	3	4	MT316A	MU316A
20 A	3	4	MT320A	MU320A
25 A	3	4	MT325A	MU325A
32 A	3	4	MT332A	MU332A
40 A	3	4	MT340A	MU340A
50 A	3	4	MT350A	MU350A
63 A	3	4	MT363A	MU363A



Four pole miniature circuit breakers 6/10kA				
6 A	4	3	-	MU406A
10 A	4	3	-	MU410A
16 A	4	3	-	MU416A
20 A	4	3	-	MU420A
25 A	4	3	-	MU425A
32 A	4	3	-	MU432A
40 A	4	3	-	MU440A
50 A	4	3	-	MU450A
63 A	4	3	-	MU463A

Miniature circuit breakers 6/10 kA, type B and C

- tripping curve:
 - B curve: 3 to 5 I_n,
 - C curve: 5 to 10 I_n
- poles: 1PP, 2PP, 3PP, 4PP (protected poles)
- voltage rating: 240/400V AC
- current rating: 0.5 to 63A
- frequency: 50/60Hz
- climate sealed: T2
- connecting capacity:
 - 16 mm² flexible conductor
 - 25 mm² rigid conductor
- comply to the standard IEC 60898-1
- breaking capacity: 6kA (IEC 60898-1)
10 kA(IEC 60947-2)

In	Width in module 17.5 mm	Pack qty	Cat. ref. B curve	C curve
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Single pole miniature circuit breakers 6/10 kA

0.5 A	1	12	-	MC100A
1 A	1	12	-	MC101A
2 A	1	12	-	MC102A
3 A	1	12	-	MC103A
4 A	1	12	-	MC104A
6 A	1	12	MB106A	MC106A
10 A	1	12	MB110A	MC110A
16 A	1	12	MB116A	MC116A
20 A	1	12	MB120A	MC120A
25 A	1	12	MB125A	MC125A
32 A	1	12	MB132A	MC132A
40 A	1	12	MB140A	MC140A
50 A	1	12	MB150A	MC150A
63 A	1	12	MB163A	MC163A



MC132A



Double pole miniature circuit breakers 6/10 kA

0.5 A	2	6	-	MC200A
1 A	2	6	-	MC201A
2 A	2	6	-	MC202A
3 A	2	6	-	MC203A
4 A	2	6	-	MC204A
6 A	2	6	MB206A	MC206A
10 A	2	6	MB210A	MC210A
16 A	2	6	MB216A	MC216A
20 A	2	6	MB220A	MC220A
25 A	2	6	MB225A	MC225A
32 A	2	6	MB232A	MC232A
40 A	2	6	MB240A	MC240A
50 A	2	6	MB250A	MC250A
63 A	2	6	MB263A	MC263A



MC216A



Three pole miniature circuit breakers 6/10 kA

0.5 A	3	4	-	MC300A
1 A	3	4	-	MC301A
2 A	3	4	-	MC302A
3 A	3	4	-	MC303A
4 A	3	4	-	MC304A
6 A	3	4	MB306A	MC306A
10 A	3	4	MB310A	MC310A
16 A	3	4	MB316A	MC316A
20 A	3	4	MB320A	MC320A
25 A	3	4	MB325A	MC325A
32 A	3	4	MB332A	MC332A
40 A	3	4	MB340A	MC340A
50 A	3	4	MB350A	MC350A
63 A	3	4	MB363A	MC363A



MC320A



In	Width in module 17.5 mm	Pack qty	Cat. ref. B curve	C curve
Four pole miniature circuit breakers 6/10 kA				
0.5 A	4	3	-	MC400A
1 A	4	3	-	MC401A
2 A	4	3	-	MC402A
3 A	4	3	-	MC403A
4 A	4	3	-	MC404A
6 A	4	3	MB406A	MC406A
10 A	4	3	MB410A	MC410A
16 A	4	3	MB416A	MC416A
20 A	4	3	MB420A	MC420A
25 A	4	3	MB425A	MC425A
32 A	4	3	MB432A	MC432A
40 A	4	3	MB440A	MC440A
50 A	4	3	MB450A	MC450A
63 A	4	3	MB463A	MC463A



NGN116



Miniature circuit breakers 6/10 kA, type D

- tripping curve: D curve: 10 to 20 In,
- poles: 1PP, 2PP, 3PP, 4PP (protected poles)
- voltage rating: 240/400V AC
- current rating: 0.5 to 63A
- frequency: 50/60Hz

- climate sealed: T2
- connecting capacity:
25 mm² flexible conductor
35 mm² rigid conductor
- comply to the standard IEC 60898-1
breaking capacity: 6kA (IEC 60898-1)
10 kA (IEC 60947-2)

In	Width in module 17.5 mm	Pack qty	Cat. ref. D curve
Single pole miniature circuit breakers 6/10 kA			
0.5 A	1	1	NGN100
1 A	1	1	NGN101
2 A	1	1	NGN102
3 A	1	1	NGN103
4 A	1	1	NGN104
6 A	1	1	NGN106
10 A	1	1	NGN110
16 A	1	1	NGN116
20 A	1	1	NGN120
25 A	1	1	NGN125
32 A	1	1	NGN132
40 A	1	1	NGN140
50 A	1	1	NGN150
63 A	1	1	NGN163

In	Width in module 17.5 mm	Pack qty	Cat. ref. D curve
Double pole miniature circuit breakers 6/10 kA			
0.5 A	2	1	NGN200
1 A	2	1	NGN201
2 A	2	1	NGN202
3 A	2	1	NGN203
4 A	2	1	NGN204
6 A	2	1	NGN206
10 A	2	1	NGN210
16 A	2	1	NGN216
20 A	2	1	NGN220
25 A	2	1	NGN225
32 A	2	1	NGN232
40 A	2	1	NGN240
50 A	2	1	NGN250
63 A	2	1	NGN263
Three pole miniature circuit breakers 6/10 kA			
0.5 A	3	1	NGN300
1 A	3	1	NGN301
2 A	3	1	NGN302
3 A	3	1	NGN303
4 A	3	1	NGN304
6 A	3	1	NGN306
10 A	3	1	NGN310
16 A	3	1	NGN316
20 A	3	1	NGN320
25 A	3	1	NGN325
32 A	3	1	NGN332
40 A	3	1	NGN340
50 A	3	1	NGN350
63 A	3	1	NGN363
Four pole miniature circuit breakers 6/10 kA			
0.5 A	4	1	NGN400
1 A	4	1	NGN401
2 A	4	1	NGN402
3 A	4	1	NGN403
4 A	4	1	NGN404
6 A	4	1	NGN406
10 A	4	1	NGN410
16 A	4	1	NGN416
20 A	4	1	NGN420
25 A	4	1	NGN425
32 A	4	1	NGN432
40 A	4	1	NGN440
50 A	4	1	NGN450
63 A	4	1	NGN463



NGN232



NGN320



NGN440



Miniature circuit breakers 10/15 kA, type B, C and D

- tripping curve:
 - B curve: 3 to 5 I_n
 - C curve: 5 to 10 I_n
 - D curve: 10 to 20 I_n
- poles: 1PP, 2PP, 3PP, 4PP (protected poles)
- voltage rating: 240/400V AC
- current rating: 0.5 to 63A
- frequency: 50/60Hz
- climate sealed: T2
- connecting capacity:
 - 25 mm² flexible conductor
 - 35 mm² rigid conductor
- comply to the standard IEC 60898-1
- breaking capacity: 10kA (IEC 60898-1)
- 15 kA (IEC 60947-2)



NCN116A



In	Width in module 17.5 mm	Pack qty	Cat. ref. B curve	C curve	D curve
Single pole miniature circuit breakers 10/15 kA					
0.5 A	1	12	-	NCN100A	NDN100A
1 A	1	12	-	NCN101A	NDN101A
2 A	1	12	-	NCN102A	NDN102A
3 A	1	12	-	NCN103A	NDN103A
4 A	1	12	-	NCN104A	NDN104A
6 A	1	12	NBN106A	NCN106A	NDN106A
10 A	1	12	NBN110A	NCN110A	NDN110A
16 A	1	12	NBN116A	NCN116A	NDN116A
20 A	1	12	NBN120A	NCN120A	NDN120A
25 A	1	12	NBN125A	NCN125A	NDN125A
32 A	1	12	NBN132A	NCN132A	NDN132A
40 A	1	12	NBN140A	NCN140A	NDN140A
50 A	1	12	NBN150A	NCN150A	NDN150A
63 A	1	12	NBN163A	NCN163A	NDN163A



NCN232A



Double pole miniature circuit breakers 10/15 kA					
0.5 A	2	6	-	NCN200A	NDN200A
1 A	2	6	-	NCN201A	NDN201A
2 A	2	6	-	NCN202A	NDN202A
3 A	2	6	-	NCN203A	NDN203A
4 A	2	6	-	NCN204A	NDN204A
6 A	2	6	NBN206A	NCN206A	NDN206A
10 A	2	6	NBN210A	NCN210A	NDN210A
16 A	2	6	NBN216A	NCN216A	NDN216A
20 A	2	6	NBN220A	NCN220A	NDN220A
25 A	2	6	NBN225A	NCN225A	NDN225A
32 A	2	6	NBN232A	NCN232A	NDN232A
40 A	2	6	NBN240A	NCN240A	NDN240A
50 A	2	6	NBN250A	NCN250A	NDN250A
63 A	2	6	NBN263A	NCN263A	NDN263A

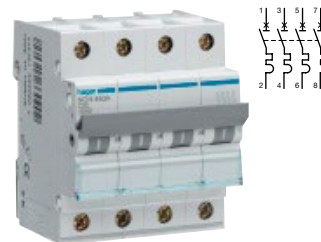


NCN320A



Three pole miniature circuit breakers 10/15 kA					
0.5 A	3	4	-	NCN300A	NDN300A
1 A	3	4	-	NCN301A	NDN301A
2 A	3	4	-	NCN302A	NDN302A
3 A	3	4	-	NCN303A	NDN303A
4 A	3	4	-	NCN304A	NDN304A
6 A	3	4	NBN306A	NCN306A	NDN306A
10 A	3	4	NBN310A	NCN310A	NDN310A
16 A	3	4	NBN316A	NCN316A	NDN316A
20 A	3	4	NBN320A	NCN320A	NDN320A
25 A	3	4	NBN325A	NCN325A	NDN325A
32 A	3	4	NBN332A	NCN332A	NDN332A
40 A	3	4	NBN340A	NCN340A	NDN340A
50 A	3	4	NBN350A	NCN350A	NDN350A
63 A	3	4	NBN363A	NCN363A	NDN363A

In	Width in module 17.5 mm	Pack qty	Cat. ref. B curve	C curve	D curve
Four pole miniature circuit breakers 10/15 kA					
0.5 A	4	3	-	NCN400A	NDN400A
1 A	4	3	-	NCN401A	NDN401A
2 A	4	3	-	NCN402A	NDN402A
3 A	4	3	-	NCN403A	NDN403A
4 A	4	3	-	NCN404A	NDN404A
6 A	4	3	NBN406A	NCN406A	NDN406A
10 A	4	3	NBN410A	NCN410A	NDN410A
16 A	4	3	NBN416A	NCN416A	NDN416A
20 A	4	3	NBN420A	NCN420A	NDN420A
25 A	4	3	NBN425A	NCN425A	NDN425A
32 A	4	3	NBN432A	NCN432A	NDN432A
40 A	4	3	NBN440A	NCN440A	NDN440A
50 A	4	3	NBN450A	NCN450A	NDN450A
63 A	4	3	NBN463A	NCN463A	NDN463A



NCN440A

Miniature circuit breakers 15 to 25 kA, type B, C and D

- tripping curve:
 - B curve: 3 to 5 I_n
 - C curve: 5 to 10 I_n
 - D curve: 10 to 20 I_n
- poles: 1PP, 2PP, 3PP, 4PP (protected poles)
- voltage rating: 240/400V AC
- current rating: 0.5 to 63A
- frequency: 50/60Hz
- climate sealed: T2
- connecting capacity:
 - 25 mm² flexible conductor
 - 35 mm² rigid conductor
- comply to the standard IEC 60898-1, breaking capacity:
 - 25kA for 0.5 to 25A (IEC 60 947-2)
 - 20kA for 32 to 40A (IEC 60 947-2)
 - 15kA for 50 to 63A (IEC 60 947-2)

In	Breaking capacity (kA)	Width in module 17.5 mm	Pack qty	Cat. ref. B curve	C curve	D curve
Single pole miniature circuit breakers 15 to 25 kA						
0.5 A	80	1	1	-	NRN100	NSN100
1 A	80	1	1	-	NRN101	NSN101
2 A	80	1	1	-	NRN102	NSN102
3 A	50	1	1	-	NRN103	NSN103
4 A	50	1	1	-	NRN104	NSN104
6 A	30	1	1	NQN106	NRN106	NSN106
10 A	25	1	1	NQN110	NRN110	NSN110
16 A	25	1	1	NQN116	NRN116	NSN116
20 A	25	1	1	NQN120	NRN120	NSN120
25 A	25	1	1	NQN125	NRN125	NSN125
32 A	20	1	1	NQN132	NRN132	NSN132
40 A	20	1	1	NQN140	NRN140	NSN140
50 A	15	1	1	NQN150	NRN150	NSN150
63 A	15	1	1	NQN163	NRN163	NSN163



NRN116



NPN232



In	Breaking capacity (kA)	Width in module 17.5 mm	Pack qty	Cat. ref. B curve	C curve	D curve
Double pole miniature circuit breakers 15 to 25 kA						
0.5 A	80	2	1	-	NRN200	NSN200
1 A	80	2	1	-	NRN201	NSN201
2 A	80	2	1	-	NRN202	NSN202
3 A	50	2	1	-	NRN203	NSN203
4 A	50	2	1	-	NRN204	NSN204
6 A	30	2	1	NQN206	NRN206	NSN206
10 A	25	2	1	NQN210	NRN210	NSN210
16 A	25	2	1	NQN216	NRN216	NSN216
20 A	25	2	1	NQN220	NRN220	NSN220
25 A	25	2	1	NQN225	NRN225	NSN225
32 A	20	2	1	NQN232	NRN232	NSN232
40 A	20	2	1	NQN240	NRN240	NSN240
50 A	15	2	1	NQN250	NRN250	NSN250
63 A	15	2	1	NQN263	NRN263	NSN263



NPN320



In	Breaking capacity (kA)	Width in module 17.5 mm	Pack qty	Cat. ref. B curve	C curve	D curve
Three pole miniature circuit breakers 15 to 25 kA						
0.5 A	80	3	1	-	NRN300	NSN300
1 A	80	3	1	-	NRN301	NSN301
2 A	80	3	1	-	NRN302	NSN302
3 A	50	3	1	-	NRN303	NSN303
4 A	50	3	1	-	NRN304	NSN304
6 A	30	3	1	NQN306	NRN306	NSN306
10 A	25	3	1	NQN310	NRN310	NSN310
16 A	25	3	1	NQN316	NRN316	NSN316
20 A	25	3	1	NQN320	NRN320	NSN320
25 A	25	3	1	NQN325	NRN325	NSN325
32 A	20	3	1	NQN332	NRN332	NSN332
40 A	20	3	1	NQN340	NRN340	NSN340
50 A	15	3	1	NQN350	NRN350	NSN350
63 A	15	3	1	NQN363	NRN363	NSN363



NPN440



In	Breaking capacity (kA)	Width in module 17.5 mm	Pack qty	Cat. ref. B curve	C curve	D curve
Four pole miniature circuit breakers 15 to 25 kA						
0.5 A	80	4	1	-	NRN400	NSN400
1 A	80	4	1	-	NRN401	NSN401
2 A	80	4	1	-	NRN402	NSN402
3 A	50	4	1	-	NRN403	NSN403
4 A	50	4	1	-	NRN404	NSN404
6 A	30	4	1	NQN406	NRN406	NSN406
10 A	25	4	1	NQN410	NRN410	NSN410
16 A	25	4	1	NQN416	NRN416	NSN416
20 A	25	4	1	NQN420	NRN420	NSN420
25 A	25	4	1	NQN425	NRN425	NSN425
32 A	20	4	1	NQN432	NRN432	NSN432
40 A	20	4	1	NQN440	NRN440	NSN440
50 A	15	4	1	NQN450	NRN450	NSN450
63 A	15	4	1	NQN463	NRN463	NSN463

Magnetic miniature circuit breakers

- Protection of smoke hatch motors against short circuit.
- tripping curve: 12 In
- breaking capacity:
 - 25kA \leq 12.5A (EN 60 947-2)
 - 20kA $>$ 12.5A (EN 60 947-2)
- voltage rating: 230/400V AC
- current rating: 0.63 to 25A
- frequency: 50/60Hz
- climate sealed: T2
- connecting capacity:
 - 25 mm² flexible conductor
 - 35 mm² rigid conductor
- nominal voltage: 400 V AC
- comply with IEC 60 947-2



MMN216

In/A	Breaking capacity (kA)	Width in module 17.5 mm	Pack qty	Cat. ref.
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Double pole magnetic miniature circuit breakers

0.63 A	25	2	1	MMN200
1.25 A	25	2	1	MMN201
1.6 A	25	2	1	MMN202
2.5 A	25	2	1	MMN203
4 A	25	2	1	MMN204
6.3 A	25	2	1	MMN206
10 A	25	2	1	MMN210
12 A	25	2	1	MMN213
16 A	20	2	1	MMN216
20 A	20	2	1	MMN220
25 A	20	2	1	MMN225

Three pole magnetic miniature circuit breakers

0.63 A	25	3	1	MMN300
1.25 A	25	3	1	MMN301
1.6 A	25	3	1	MMN302
2.5 A	25	3	1	MMN303
4 A	25	3	1	MMN304
6.3 A	25	3	1	MMN306
10 A	25	3	1	MMN310
12 A	25	3	1	MMN313
16 A	20	3	1	MMN316
20 A	20	3	1	MMN320
25 A	20	3	1	MMN325



MMN310

Protection devices

Accessories for Miniature Circuit Breakers

- for NGN, NBN, NCN, NDN, NGN, NQN, NRN and NSN

Description	Pack qty	Cat. ref.
terminal shields for MCBs, screw shield	4	MZN120
interphase barriers for MCBs, set of 3	1	MZN121



MZN120



MZN121

Add-on blocks

When add-on block is associated with MCBs, the complete unit provides an earth fault protection and protects against electrical shocks by direct or indirect contacts. They are designed to be fitted to the right hand side of 2, 3, and 4 poles MCBs.

Technical information

- AC type

Ensured for residual sinusoidal alternating currents, whether suddenly applied or slowly rising. It incorporates a filtering device preventing the risk of nuisance tripping due to the transient voltages (lightening, line disturbance on other equipment...) and transient currents (from high capacitive circuits)

- A and HI type (reinforced immunity)

In addition to the characteristics of AC type, it ensured for residual pulsating direct currents, whether suddenly applied or slowly rising. They are used whenever fault currents are not sinusoidal. It reduces the unexpected tripping when they protect equipment generating disturbances like DC fault current (washing machines, speed drives, microprocessing, electronic ballast...).

Compatible with the following miniature circuit breakers:

- MBNxxxA, MCNxxxA,
- MBxxxA, MCxxxA,
- NGN,
- NBNxxxA, NCNxxxA, NDNxxxA,
- NQN, NRN, NSN

Add-on block

- sensitivity
 - high sensitivity: 10mA, 30mA instant tripping
 - medium sensitivity: 100mA, 300mA, 500mA instant tripping / 300mA, 500mA, 1A selective (time delay)
- voltage rating: 240/400V AC
- current rating: 25 to 63A
- frequency: 50/60Hz
- types: AC and A types
- mounting type: side mounted
- climate sealed: T2
- connecting capacity:
 - 25 A
6 mm² flexible conductor
10 mm² rigid conductor
 - 40 A and 63 A
16 mm² flexible conductor
25 mm² rigid conductor
- comply with IEC 61 009-1

IΔn	In/A	Width in module 17.5 mm	Pack qty	Cat. ref. class AC	class A and HI
2 pole add-on blocks					
10 mA	25	2	1	BC226	-
30 mA	25	2	1	BD226	BD225
	40	2	1	BD241	BD240
	63	2	1	BD264	BD263
100 mA	63	2	1	BE264	-
100 mA	63	2	1	BN264	-
300 mA	25	2	1	BF226	BF225
	40	2	1	BF241	BF240
	63	2	1	BF264	BF263
300 mA	63	2	1	BP264	-
500 mA	63	2	1	BG264	-
500 mA	63	2	1	BR264	-
1A	63	2	1	BS264	BS263
3 pole add-on blocks					
30 mA	25	2	1	BD326	BD325
	40	3	1	BD341	BD340
	63	3	1	BD364	BD363
300 mA	25	2	1	BF326	BF325
	40	3	1	BF341	BF340
	63	3	1	BF364	BF363
300 mA	63	3	1	BP364	-
500 mA	63	3	1	BG364	-
500 mA	63	3	1	BR364	-
1 A	63	3	1	BS364	BS363



BD226



BD364

I _{Δn}	I _n /A	Width in module 17.5 mm	Pack qty	Cat. ref. class AC	class A and HI
4 pole add-on blocks					
30 mA	25	2	1	BD426	BD425
	40	3	1	BD441	BD440
	63	3	1	BD464	BD463
100 mA	63	3	1	BE464	-
100 mA $\text{\textcircled{S}}$	63	3	1	BN464	-
300 mA	25	2	1	BF426	BF425
	40	3	1	BF441	BF440
	63	3	1	BF464	BF463
300 mA $\text{\textcircled{S}}$	63	3	1	BP464	-
500 mA	63	3	1	BG464	-
500 mA $\text{\textcircled{S}}$	63	3	1	BR464	-
1 A $\text{\textcircled{S}}$	63	3	1	BS464	BS463N
4 pole add-on blocks double output					
30 mA	25	3	1	BDC825	BDH825
	40	3	1	BDC840	BDH840
	63	3	1	BDC863	BDH863
300 mA	25	3	1	BFC825	BFH825
	40	3	1	BFC840	BFH840
	63	3	1	BFC863	BFH863
300 mA $\text{\textcircled{S}}$	63	3	1	BPC863	-
1 A $\text{\textcircled{S}}$	63	3	1	BSC863	-



BD463



BFC840

Protection and control of circuits against overloads and short circuits. Allow to isolate circuits. They can be used for installation in commercial building and industrial premises.

Miniature circuit breakers 10 kA, type B and C

- breaking capacity:
 - 10 kA (IEC 60 898-1)
 - 10 kA (IEC 60 947-2)
 - tripping curves
 - B curve: 3 to 5 In
 - C curve: 5 to 10 In
 - poles: 1PP, 2PP, 3PP, 4PP (protected poles)
 - voltage rating: 230/400V AC
 - current rating: 80 to 125 A
 - frequency: 50/60 Hz
 - climate sealed: T2
- fast-on connection: no
 - tightening comp. system: no
 - lockable handle: no
 - connection capacity
 - rigid conductors: 70 mm²
 - flexible conductors: 50 mm²
 - comply with IEC 60898-1, 60947-2

In/A	Width in module 17.5 mm	Pack qty	Cat. ref. B curve	C curve
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Single pole miniature circuit breakers 10 kA

80	1.5	1	HLE180S	HLF180S
100	1.5	1	HLE190S	HLF190S
125	1.5	1	HLE199S	HLF199S



HLF199S

Double pole miniature circuit breakers 10 kA

80	3	1	HLE280S	HLF280S
100	3	1	HLE290S	HLF290S
125	3	1	HLE299S	HLF299S



HLF299S

Three pole miniature circuit breakers 10 kA

80	4.5	1	HLE380S	HLF380S
100	4.5	1	HLE390S	HLF390S
125	4.5	1	HLE399S	HLF399S



HLF399S

Four pole miniature circuit breakers 10 kA

80	6	1	HLE480S	HLF480S
100	6	1	HLE490S	HLF490S
125	6	1	HLE499S	HLF499S



HLF499S

Miniature circuit breakers 15 kA, type B, C and D

- breaking capacity:
 - 15 kA (IEC 60 898-1),
 - 15 kA (IEC 60 947-2)
- tripping curves
 - B curve: 3 to 5 I_n
 - C curve: 5 to 10 I_n
 - D curve: 10 to 20 I_n
- poles: 1PP, 2PP, 3PP, 4PP (protected poles)
- voltage rating: 230/400V AC
- current rating: 80 to 125 A
- frequency: 50/60 Hz
- climate sealed: T2
- fast-on connection: yes
- tightening comp. system: yes
- lockable handle: yes
- connection capacity
 - rigid conductors: 70 mm²
 - flexible conductors: 50 mm²
- comply with IEC 60898-1, 60947-2

In/A	Width in module 17.5 mm	Pack qty	Cat. ref. B curve	C curve	D curve
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Single pole miniature circuit breakers 15 kA

80	1.5	1	HMB180	HMC180	HMD180
100	1.5	1	HMB190	HMC190	HMD190
125	1.5	1	HMB199	HMC199	HMD199



HMB180

Double pole miniature circuit breakers 15 kA

80	3	1	HMB280	HMC280	HMD280
100	3	1	HMB290	HMC290	HMD290
125	3	1	HMB299	HMC299	HMD299



HMB280

Three pole miniature circuit breakers 15 kA

80	4.5	1	HMB380	HMC380	HMD380
100	4.5	1	HMB390	HMC390	HMD390
125	4.5	1	HMB399	HMC399	HMD399



HMC399

Four pole miniature circuit breakers 15 kA

80	6	1	HMB480	HMC480	HMD480
100	6	1	HMB490	HMC490	HMD490
125	6	1	HMB499	HMC499	HMD499



HMC499

Miniature circuit breakers 30 kA, type B and C

- breaking capacity:
 - 30 kA (IEC 60 898-1)
 - 30 kA (IEC 60 947-2)
- tripping curves
 - B curve: 3 to 5 I_n
 - C curve: 5 to 10 I_n
- poles: 1PP, 2PP, 3PP, 4PP (protected poles)
- voltage rating: 230/400V AC
- current rating: 80 to 125 A
- frequency: 50/60 Hz
- climate sealed: T2
- fast-on connection: yes
- tightening comp. system: yes
- lockable handle: yes
- connection capacity
 - rigid conductors: 70 mm²
 - flexible conductors: 50 mm²
- comply with IEC 60898-1, 60947-2

In/A	Width in module 17.5 mm	Pack qty	Cat. ref. B curve	C curve
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Single pole miniature circuit breakers 30 kA

80	1.5	1	HMJ180	HMK180
100	1.5	1	HMJ190	HMK190
125	1.5	1	HMJ199	HMK199



HMK199

Double pole miniature circuit breakers 30 kA

80	3	1	HMJ280	HMK280
100	3	1	HMJ290	HMK290
125	3	1	HMJ299	HMK299



HMK299

Three pole miniature circuit breakers 30 kA

80	4.5	1	HMJ380	HMK380
100	4.5	1	HMJ390	HMK390
125	4.5	1	HMJ399	HMK399



HMK399

Four pole miniature circuit breakers 30 kA

80	6	1	HMJ480	HMK480
100	6	1	HMJ490	HMK490
125	6	1	HMJ499	HMK499



HMK499

Accessories for Miniature Circuit Breakers

- for HLE, HLF, HMB, HMC, HMD, HMK, HMJ and HMX



MZN130



MZN131

Description	Cat. ref.
terminal cover / screw cap, sealable screw cap	MZN130
phase separator, 1 set of 3 pieces	MZN131

Miniature circuit breakers 50 kA, type C

- breaking capacity:
 - 50 kA (IEC 60 898-1),
 - 50 kA (IEC 60 947-2)
- tripping curves
 - C curve: 5 to 10 I_n
- poles: 1PP, 2PP, 3PP, 4PP (protected poles)
- voltage rating: 230/400V AC
- current rating: 80 to 125 A
- frequency: 50/60 Hz
- climate sealed: T2
- fast-on connection: yes
- tightening comp. system: yes
- lockable handle: yes
- connection capacity
 - rigid conductors: 70 mm²
 - flexible conductors: 50 mm²
- comply with IEC 60898-1, 60947-2

In/A	Width in module 17.5 mm	Pack qty	Cat. ref. C curve
Single pole miniature circuit breakers 50 kA			
10	1.5	1	HMX110
16	1.5	1	HMX116
20	1.5	1	HMX120
25	1.5	1	HMX125
32	1.5	1	HMX132
40	1.5	1	HMX140
50	1.5	1	HMX150
63	1.5	1	HMX163
Double pole miniature circuit breakers 50 kA			
10	3	1	HMX210
16	3	1	HMX216
20	3	1	HMX220
25	3	1	HMX225
32	3	1	HMX232
40	3	1	HMX240
50	3	1	HMX250
63	3	1	HMX263
Three pole miniature circuit breakers 50 kA			
10	4.5	1	HMX310
16	4.5	1	HMX316
20	4.5	1	HMX320
25	4.5	1	HMX325
32	4.5	1	HMX332
40	4.5	1	HMX340
50	4.5	1	HMX350
63	4.5	1	HMX363
Four pole miniature circuit breakers 50 kA			
10	6	1	HMX410
16	6	1	HMX416
20	6	1	HMX420
25	6	1	HMX425
32	6	1	HMX432
40	6	1	HMX440
50	6	1	HMX450
63	6	1	HMX463



HMX120



HMX225



HMX320



HMX440

Add-on blocks

When add-on block is associated with MCBs, the complete unit provides an earth fault protection and protects against electrical shocks by direct or indirect contacts. They are designed to be fitted to the right hand side of 2, 3 and 4 poles MCBs.

Technical information

- AC type

Ensured for residual sinusoidal alternating currents, whether suddenly applied or slowly rising. It incorporates a filtering device preventing the risk of nuisance tripping due to the transient voltages (lightening, line disturbance on other equipment...) and transient currents (from high capacitive circuits).

- A and HI type (reinforced immunity)

In addition to the characteristics of AC type, it ensured for residual pulsating direct currents, whether suddenly applied or slowly rising. They are used whenever fault currents are not sinusoidal. It reduces the unexpected tripping when they protect equipment generating disturbances like DC fault current (washing machines, speed drives, microprocessing, electronic ballast...).

- Adjustable block

The setting is done by actuating the thumb wheel on the front face. The setting thumb wheels are protected by a transparent sealable cover.

- Tightening compensation terminals

The circuit breakers block are equipped with screw terminals with tightening compensation, reinforced arch and cable holding jaws. These contributes to an effective tightening over time.

Compatible with the following miniature circuit breakers:

- HLE, HLF
- HMB, HMC, HMD
- HMJ, HMK
- HMX

Add-on block

- sensitivity

- high sensitivity: 30mA instant tripping (fixed)
- medium sensitivity: 300mA instant tripping (fixed) / 300mA, 500mA, 1A adjustable (selective or time delay)

- time delay: 0ms, 60ms or 150ms

- current rating: 125A

- voltage rating: 240/400V AC

- poles: 2P, 3P, 4P

- types: AC and A/Hi types

- frequency: 50/60Hz

- mounting type: side mounted

- climate sealed: T2

- connecting capacity:

35 mm² flexible conductor

70 mm² rigid conductor

- comply with IEC 61 009-1

IΔn	In/A	Width in module 17.5 mm	Pack qty	Cat. ref. class AC	class A and HI
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2 pole add-on blocks

fixed 30 mA

125

6

1

BDC280E

BDH280E

adjustable 0.3 - 0.5 - 1 A
inst. - - 150 ms

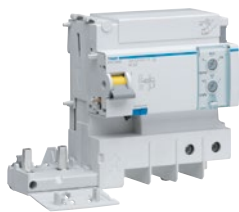
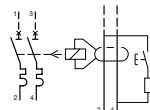
125

6

1

BTC280E

BTH280E



BTH280E

3 pole add-on blocks

fixed 30 mA

125

6

1

BDC380E

BDH380E

adjustable 0.3 - 0.5 - 1 A
inst. - - 150 ms

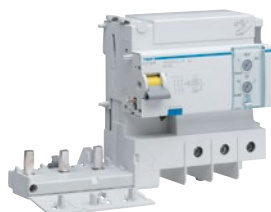
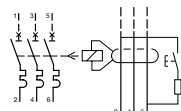
125

6

1

BTC380E

BTH380E



BTH380E

4 pole add-on blocks

fixed 30 mA

125

6

1

BDC480E

BDH480E

fixed 300 mA

125

6

1

BFC480E

BFH480E

adjustable 0.3 - 0.5 - 1 A
inst. - - 150 ms

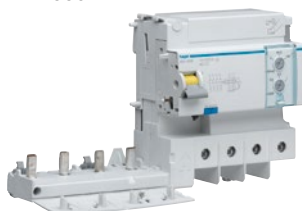
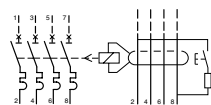
125

6

1

BTC480E

BTH480E



BDC480E

Residual Circuit Breakers with Overload (RCBO)

Compact protection devices which provide MCB overload protection and RCD earth leakage protection (protect against electrical shocks by direct or indirect contacts).

Technical information

- AC type
Ensured for residual sinusoidal alternating currents, whether suddenly applied or slowly rising.

- A type

In addition to the characteristics of AC type, it ensured for residual pulsating direct currents, whether suddenly applied or slowly rising. They are used whenever fault currents are not sinusoidal. It is able to detect DC fault current generated by loads like washing machines, speed drives, microprocessing, electronic ballast.

SP RCBOs

- sensitivity:
 - high sensitivity: 10mA, 30mA instantaneous tripping (fixed)
 - medium sensitivity: 100mA, 300mA instantaneous tripping (fixed)
- current rating: 6 to 50A
- voltage rating: 230V AC
- poles: SP& passing N
- types: AC type

- frequency: 50Hz
- flying neutral lead length: 700mm
- connection capacity
 - outgoing:
 - rigid conductors: 16mm²
 - flexible conductors: 10mm²
 - incoming:
 - rigid conductors: 35mm²
 - flexible conductors: 25mm²
- approved according to IEC 61 009-1



AD124

Protection devices

In / A	Width in module 17.5 mm	Pack qty	Cat. ref. B curve	C curve
RCBOs AC type - 30 mA - 6 kA				
6	1	1	AD104	AD119
10	1	1	AD105	AD120
16	1	1	AD107	AD122
20	1	1	AD108	AD123
25	1	1	AD109	AD124
32	1	1	AD110	AD125
40	1	1	AD111	AD126
50	1	1	AD113	AD128
RCBOs AC type - 30 mA - 10 kA				
6	1	1	ADB106	ADC106
10	1	1	ADB110	ADC110
16	1	1	ADB116	ADC116
20	1	1	ADB120	ADC120
25	1	1	ADB125	ADC125
32	1	1	ADB132	ADC132
40	1	1	ADB140	ADC140
50	1	1	ADB150	ADC150
RCBOs AC type - 100 mA - 6 kA				
6	1	1		AE106Z
10	1	1		AE110Z
16	1	1		AE116Z
20	1	1		AE120Z
25	1	1		AE125Z
32	1	1		AE132Z
40	1	1		AE140Z
50	1	1		AE150Z
RCBOs AC type - 100 mA - 10 kA				
6	1	1		AEC106
10	1	1		AEC110
16	1	1		AEC116
20	1	1		AEC120
25	1	1		AEC125
32	1	1		AEC132
40	1	1		AEC140

In / A	Width in module 17.5 mm	Pack qty	Cat. ref. B curve	C curve
RCBOs AC type - 300 mA - 6 kA				
10	1	1	-	AF110Z
16	1	1	-	AF116Z
20	1	1	-	AF120Z
25	1	1	-	AF125Z
32	1	1	-	AF132Z
40	1	1	-	AF140Z
50	1	1	-	AF145Z
RCBOs A type - 30 mA - 10 kA				
6	1	1	-	ADA156U
10	1	1	-	ADA160U
16	1	1	-	ADA160U
20	1	1	-	ADA170U
25	1	1	-	ADA175U
32	1	1	-	ADA182U

SP&N RCBOs

- sensitivity:
 - high sensitivity: 30mA instant tripping (fixed)
 - medium sensitivity: 100mA, 300mA instant tripping (fixed)
- current rating: 6 to 40A
- curves: B and C
- voltage rating: 230V AC

- poles: SP&N
- types: AC and A types
- frequency: 50Hz
- connection capacity
 - rigid conductors: 70 mm²
 - flexible conductors: 50 mm²
- approved according to IEC 61 009-1

In / A	Breaking capacity (IEC 60 898-1)	Width in module 17.5 mm	Pack qty	Cat. ref. B curve	C curve
RCBOs AC type - 30 mA - <u>4500</u> 6 kA *					
6 A	4.5 kA	2	1	AD806J	AD856J
10 A	4.5 kA	2	1	AD810J	AD860J
16 A	4.5 kA	2	1	AD816J	AD866J
20 A	4.5 kA	2	1	AD820J	AD870J
25 A	4.5 kA	2	1	AD825J	AD875J
32 A	4.5 kA	2	1	AD832J	AD882J
40 A	4.5 kA	2	1	AD840J	AD890J
RCBOs AC type - 30 mA - <u>6000</u>					
6 A	6 kA	2	1	AD906B	AD956B
10 A	6 kA	2	1	AD910B	AD960B
16 A	6 kA	2	1	AD916B	AD966B
20 A	6 kA	2	1	AD920B	AD970B
25 A	6 kA	2	1	AD925B	AD975B
32 A	6 kA	2	1	AD932B	AD982B
40 A	6 kA	2	1	AD940B	AD990B
RCBOs AC type - 100 mA - <u>6000</u>					
6 A	6 kA	2	1	-	AE956B
10 A	6 kA	2	1	-	AE960B
16 A	6 kA	2	1	-	AE966B
20 A	6 kA	2	1	-	AE970B
25 A	6 kA	2	1	-	AE975B
32 A	6 kA	2	1	-	AE982B
40 A	6 kA	2	1	-	AE990B



AD816J

* Will not accept auxiliaries

In / A	Breaking capacity (IEC 60 898-1)	Width in module 17.5 mm	Pack qty	Cat. ref. B curve	C curve
RCBOs AC type - 300 mA - [6000]					
6 A	6 kA	2	1	-	AF956B
10 A	6 kA	2	1	-	AF960B
16 A	6 kA	2	1	-	AF966B
20 A	6 kA	2	1	-	AF970B
25 A	6 kA	2	1	-	AF975B
32 A	6 kA	2	1	-	AF982B
40 A	6 kA	2	1	-	AF990B

RCBOs A type - 30 mA - [6000]					
6 A	6 kA	2	1	AD906J	AD956J
10 A	6 kA	2	1	AD910J	AD960J
16 A	6 kA	2	1	AD916J	AD966J
20 A	6 kA	2	1	AD920J	AD970J
25 A	6 kA	2	1	AD925J	AD975J
32 A	6 kA	2	1	AD932J	AD982J
40 A	6 kA	2	1	AD940J	AD990J



AD916J

RCBOs A type - 300 mA - [6000]					
6 A	6 kA	2	1	-	AF956J
10 A	6 kA	2	1	-	AF960J
16 A	6 kA	2	1	-	AF966J
20 A	6 kA	2	1	-	AF970J
25 A	6 kA	2	1	-	AF975J
32 A	6 kA	2	1	-	AF982J
40 A	6 kA	2	1	-	AF990J

* Will not accept auxiliaries

4 poles RCBOs

- sensitivity:
 - high sensitivity: 30mA instant tripping (fixed)
 - medium sensitivity: 300mA instant tripping (fixed)
- current rating: 6 to 40A
- curves: B and C
- voltage rating: 230V AC
- poles: 4PP
- types: AC and A types
- frequency: 50Hz
- connection capacity
 - rigid conductors: 70 mm²
 - flexible conductors: 50 mm²
- approved according to IEC 61 009-1

In / A	Breaking capacity (IEC 60 898-1)	Width in module 17.5 mm	Pack qty	Cat. ref. B curve	C curve
RCBOs AC type - 30 mA - 6 kA					
6 A	6 kA	4	1	-	ADP456H
10 A	6 kA	4	1	-	ADP460H
16 A	6 kA	4	1	-	ADP466H
20 A	6 kA	4	1	-	ADP470H
25 A	6 kA	4	1	-	ADP475H
32 A	6 kA	4	1	-	ADP482H
40 A	6 kA	4	1	-	ADP490H



ADP466H

RCBOs AC type - 300 mA - 6 kA					
6 A	6 kA	4	1	-	AFP456H
10 A	6 kA	4	1	-	AFP460H
16 A	6 kA	4	1	-	AFP466H
20 A	6 kA	4	1	-	AFP470H
25 A	6 kA	4	1	-	AFP475H
32 A	6 kA	4	1	-	AFP482H
40 A	6 kA	4	1	-	AFP490H



ADH406H

In / A	Breaking capacity (IEC 60 898-1)	Width in module 17.5 mm	Pack qty	Cat. ref. B curve	C curve
RCBOs A type - 30 mA - 6 kA					
6 A	6 kA	4	1	-	ADM456H
10 A	6 kA	4	1	-	ADM460H
16 A	6 kA	4	1	-	ADM466H
20 A	6 kA	4	1	-	ADM470H
25 A	6 kA	4	1	-	ADM475H
32 A	6 kA	4	1	-	ADM482H
40 A	6 kA	4	1	-	ADM490H
RCBOs A type - 300 mA - 6 kA					
6 A	6 kA	4	1	-	AFM456H
10 A	6 kA	4	1	-	AFM460H
16 A	6 kA	4	1	-	AFM466H
20 A	6 kA	4	1	-	AFM470H
25 A	6 kA	4	1	-	AFM475H
32 A	6 kA	4	1	-	AFM482H
40 A	6 kA	4	1	-	AFM490H
RCBOs HI type - 30 mA - 6 kA					
6 A	6 kA	4	1	ADH406H	ADH456H
10 A	6 kA	4	1	ADH410H	ADH460H
16 A	6 kA	4	1	ADH416H	ADH466H
20 A	6 kA	4	1	ADH420H	ADH470H
25 A	6 kA	4	1	ADH425H	ADH475H
32 A	6 kA	4	1	ADH432H	ADH482H
40 A	6 kA	4	1	ADH440H	ADH490H
RCBOs HI type - 300 mA - 6 kA					
6 A	6 kA	4	1	AFH406H	AFH456H
10 A	6 kA	4	1	AFH410H	AFH460H
16 A	6 kA	4	1	AFH416H	AFH466H
20 A	6 kA	4	1	AFH420H	AFH470H
25 A	6 kA	4	1	AFH425H	AFH475H
32 A	6 kA	4	1	AFH432H	AFH482H
40 A	6 kA	4	1	AFH440H	AFH490H
RCBOs AC type - 30 mA - 10 kA					
6 A	10 kA	4	1	-	ADQ456H
10 A	10 kA	4	1	-	ADQ460H
16 A	10 kA	4	1	-	ADQ466H
20 A	10 kA	4	1	-	ADQ470H
25 A	10 kA	4	1	-	ADQ475H
32 A	10 kA	4	1	-	ADQ482H
40 A	10 kA	4	1	-	ADQ490H
RCBOs AC type - 300 mA - 10 kA					
6 A	10 kA	4	1	-	AFQ456H
10 A	10 kA	4	1	-	AFQ460H
16 A	10 kA	4	1	-	AFQ466H
20 A	10 kA	4	1	-	AFQ470H
25 A	10 kA	4	1	-	AFQ475H
32 A	10 kA	4	1	-	AFQ482H
40 A	10 kA	4	1	-	AFQ490H

In / A	Breaking capacity (IEC 60 898-1)	Width in module 17.5 mm	Pack qty	Cat. ref. B curve	C curve
RCBOs A type - 30 mA - 10 kA					
6 A	10 kA	4	1	ADX406H	ADX456H
10 A	10 kA	4	1	ADX410H	ADX460H
16 A	10 kA	4	1	ADX416H	ADX466H
20 A	10 kA	4	1	ADX420H	ADX470H
25 A	10 kA	4	1	ADX425H	ADX475H
32 A	10 kA	4	1	ADX432H	ADX482H
40 A	10 kA	4	1	ADX440H	ADX490H
RCBOs A type - 300 mA - 10 kA					
6 A	10 kA	4	1	AFX406H	AFX456H
10 A	10 kA	4	1	AFX410H	AFX460H
16 A	10 kA	4	1	AFX416H	AFX466H
20 A	10 kA	4	1	AFX420H	AFX470H
25 A	10 kA	4	1	AFX425H	AFX475H
32 A	10 kA	4	1	AFX432H	AFX482H
40 A	10 kA	4	1	AFX440H	AFX490H
RCBOs HI type - 30 mA - 10 kA					
6 A	10 kA	4	1	ADR406H	ADR456H
10 A	10 kA	4	1	ADR410H	ADR460H
16 A	10 kA	4	1	ADR416H	ADR466H
20 A	10 kA	4	1	ADR420H	ADR470H
25 A	10 kA	4	1	ADR425H	ADR475H
32 A	10 kA	4	1	ADR432H	ADR482H
40 A	10 kA	4	1	ADR440H	ADR490H
RCBOs HI type - 300 mA - 10 kA					
6 A	10 kA	4	1	AFR406H	AFR456H
10 A	10 kA	4	1	AFR410H	AFR460H
16 A	10 kA	4	1	AFR416H	AFR466H
20 A	10 kA	4	1	AFR420H	AFR470H
25 A	10 kA	4	1	AFR425H	AFR475H
32 A	10 kA	4	1	AFR432H	AFR482H
40 A	10 kA	4	1	AFR440H	AFR490H



ADR416H

Residual Current Circuit Breakers (RCCBs)

Compact devices which provide RCD earth leakage protection (protect against electrical shocks by direct or indirect contacts). To open automatically in the event of an earth fault between phase and earth and/or neutral and earth.
INC = 6kA with gG fuse

Technical information

- AC type
Ensured for residual sinusoidal alternating currents, whether suddenly applied or slowly rising

- A and HI type (reinforced immunity)
In addition to the characteristics of AC type, it ensured for residual pulsating direct currents, whether suddenly applied or slowly rising. They are used whenever fault currents are not sinusoidal.
HI types only: It reduces the unexpected tripping when they protect equipment generating disturbances like DC fault current (washing machines, speed drives, microprocessing, electronic ballast...).

Nota: to fit auxiliaries contact, alarm contact, for all tripping auxiliaries we have to use the dedicated auxiliaries CZ001

RCCBs

- sensitivity:
 - high sensitivity: 10, 30mA instantaneous tripping (fixed)
 - medium sensitivity: 100mA, 300mA instantaneous or selective tripping (fixed)
- current rating: 16 to 100A
- voltage rating: 230V AC (2P) and 400V (4P)
- poles: 2P and 4P
- types: AC, A and HI types
- frequency: 50Hz
- connection capacity
 - 25 to 63A: rigid conductors: 25mm² flexible conductors: 16mm²
 - 80 and 100A: rigid conductors: 50mm² flexible conductors: 35mm²
- Comply with IEC 61008-1 and 61008-2-1



Current rating	Pack qty	Cat. ref. 2P	4P
RCCBs AC type - 10 mA			
16 A	1	CC217J	-
RCCBs AC type - 30 mA			
25 A	1	CD226J	CD426J
40 A	1	CD241J	CD441J
63 A	1	CD264J	CD464J
80 A	1	CD281Z	CD480Z
100 A	1	CD285Z	CD485Z
RCCBs A type - 30 mA			
25 A	1	CD225J	CD425J
40 A	1	CD240J	CD440J
63 A	1	CD263J	CD463J
RCCBs HI type - 30 mA			
25 A	1	CH225J	CH425J
40 A	1	CH240J	CH440J
63 A	1	CH263J	CH463J
RCCBs AC type - 100 mA			
25 A	1	CE226J	CE426J
40 A	1	CE241J	CE441J
63 A	1	CE264J	CE464J
80 A	1	CE281Z	CE481Z
100 A	1	CE285Z	CE485Z
RCCBs AC type - 300 mA			
25 A	1	CF226J	CF426J
40 A	1	CF241J	CF441J
63 A	1	CF264J	CF464J
80 A	1	CF281Z	CF481Z
100 A	1	CF285Z	CF485Z
RCCBs AC type selective S - 300 mA			
40 A	1	-	CP441J
63 A	1	-	CP464J



CD241J



CD441J

Current rating	Pack qty	Cat. ref. 2P	4P
RCCBs A type - 300 mA			
25 A	1	CF225J	CF425J
40 A	1	CF240J	CF440J
63 A	1	CF263J	CF463J
RCCBs A type selective  - 300 mA			
40 A	1	-	CP440J
63 A	1	-	CP463J
RCCBs HI type selective  - 300 mA			
40 A	1	-	CQ440J
63 A	1	-	CQ463J

Auxiliaries and alarm contact

- 6 V - 230 V

Description	Width in module 17.5 mm	Pack qty	Cat. ref.
1NO+1NC for auxiliary or alarm contact	1	1	CZ001



CZ001

Sealable terminal covers

- 1 set is composed of 2 terminal covers

Description	Pack qty	Cat. ref.
for RCCB 2 modules, 25 to 63 A	10	CZN005
for RCCB 4 modules, 25 to 63 A	10	CZN006
for RCCB 2 modules, 80 A	10	CZ007
for RCCB 4 modules, 80 to 100 A	10	CZ008



CZN006

Auxiliaries and accessories for MCBs, RCCBs and RCBOs

Use of MZ203 - MZ212 on RCCBs requires the use of interface auxiliary CZ001.

All auxiliaries are common to both single and multi-pole circuit breakers. These auxiliaries are fitted to the left hand side of devices. Shunt trips, and under-voltage releases are fitted with a flag indicator that indicates the automatic/remote tripping of the device.

Connection capacity
6 mm² rigid cables
4 mm² flexible cables



MZ201

Auxiliary contacts

- indication of main contact status

Description	Width in module 17.5 mm	Cat. ref.
1NO + 1NC auxiliary contact	0.5	MZ201



MZ202

Alarm contacts

- SD contact indicates a fault overcurrent (e.g. MCB tripped) on overload or short-circuit

Description	Width in module 17.5 mm	Cat. ref.
alarm contact	0.5	MZ202



MZ203

Shunt trips

- allows remote tripping of the device

Description	Width in module 17.5 mm	Cat. ref.
24V - 415V AC / 12V - 130V DC	1	MZ203
24V - 48V AC / 12V - 48V DC	1	MZ204



MZ205

Undervoltage releases

- allows MCB to be closed only when voltage is above 70% of Un. MCB will automatically trip when voltage falls by 35% of Un

Description	Width in module 17.5 mm	Cat. ref.
48V DC	1	MZ205
230V AC	1	MZ206

Overvoltage releases

- monitors the voltage between phase and neutral in a network
- it opens the current circuit in case of over voltage by tripping the connected protection device (e.g. MCB or RCCB)

Description	Width in module	Cat. ref.
230V AC	1	MZ212



MZ212

Over and undervoltage auxiliary

- trip when the voltage decrease or increase out of the correct scale working voltage
- mechanical indicator of faults on the front face

Description	Width in module	Cat. ref.
over and undervoltage auxiliary	1	MZ214

Locking kit

- allows locking of the device dolly in the on/off position
- will accept two padlocks with hasps of 4.75 mm diameter max.

Description	Cat. ref.
locking kit	MZN175



MZN175

Marking strip

Description	Cat. ref.
13 modules for modular devices	MZN177



MZN177

These products are remote control auxiliaries for modular protection devices (MCB, RCCB, RCBO).

They allow:

- to operate by remote control the closing and opening contacts of the associated device (MCB, RCD and RCBO),
- to indicate the state of contacts and the tripping of the associated product.

The product MZ913, MZ915 has a further function which allows a second automatic tripping when fault current.

Particular functioning modes

- power interruption

When the power is interrupted, the product saves its state (time delays, handle position and number of trippings) in order to reset when the power supply returns.

During the interruption, the indicator light and the contacts "a" and "b" are open.

If a control disappears during an interruption, it is not executed when there is supply.

- soldered contacts on the associated product

In this case, the handle of the remote auxiliary positions itself in the centre as the handle of the associated device.

This state is indicated by:

- "a" and "b" contacts opening,
- the indicator light is intermittent red.

- forced remote closing

When "on" or automatic reclosing are jammed, the controlled device has tripped 3 times or a time delay (3 mins or 30 secs) is present, it is possible to reactivate them.

To unjam "on" remotely, we must activate "reset".

To unjam locally, we must hold the side selector in "reset" position (for 5 s) until a green indicator light appears.

To reinitialise the automatic resetting remotely, activate "reset" and then "on".

To reinitialise locally, hold the side selector

- remote control impossible when tripping (overloads or short-circuits) It is impossible to impose a manual setting after tripping.

To reset, cable the contacts "a" and "b" in order and connect them on "reset" control (input n°6).

Connection capacity

- Up

Rigid conductor: 1,5 to 10mm²

Flexible conductor: 1 to 6 mm²

- Down

Rigid conductor: 2 to 2.5mm²

Flexible conductor: 2 to 2.5mm²

Complies with EN 50-557

Remote control auxiliaries

Description	Width in module 17,5 mm	Pack qty.	Cat. ref.
for 3, 4 pole MCBs, with or without add-on block	3	1	MZ903
for 1, 2 pole MCBs / RCBOs / RCCBs, with or without add-on block	3	1	MZ905

Auto reclosing remote control auxiliaries

Description	Width in module 17,5 mm	Pack qty.	Cat. ref.
for 3, 4 pole MCBs, with or without add-on block	3	1	MZ913
for 1, 2 pole MCBs / RCBOs / RCCBs, with or without add-on block	3	1	MZ915



MZ913

Selection guide

Designation	References	Remote control auxiliary	
		MZ903 MZ913	MZ905 MZ915
RCBOs 1P+E up to 40A	Ax1xx, Ax1xxZ		
RCBOs 1P+E up to 40A	Ax8xxB, Ax9xxB, Ax9xxJ		ok
RCCBs 2P and 4P up to 63A	Cx2xxJ, Cx4xxJ		ok
RCCBs 2P and 4P 80 to 100A	Cx4xxZ, Cx2xxZ		ok
MCBs 1P, 2P, 3P and 4P	MV, MW MBxxx, MCxxx		
MCBs 1P+E	MLN		ok
MCBs 1P, 2P, 3P and 4P	MBNxxxA, MCNxxxA		
MCBs 2P	NBNxxxA, NCNxxxA, NDNxxxA, NGN, NQN, NRN, NSN with or without add-on block		ok
MCBs 3P and 4P	NBNxxxA, NCNxxxA, NDNxxxA, NGN, NQN, NRN, NSN with or without add-on block	ok	
Magnetic MCBs 2P	MMN2xx with or without add-on block		ok
Magnetic MCBs 3P	MMN3xx with or without add-on block	ok	
MCBs 1,5 module	HLE, HLF		
	HMB, HMC, HMD		
	HMJ, HMK		
	HMX		

To ensure localised control and protection of single and three-phase motors.

The rated motor current is set on the motor starter units by means of a current dial (in the front).

Technical data

- Adjustable thermal relay
- AC3 utilisation category
- Connection capacity: conductor cross-sections of the motor cables:
 - flexible 1 to 4 mm²
 - rigid 1 to 6 mm²

Options

Undervoltage release: MZ528N, MZ529N

Auxiliary contacts: MZ520N, MZ522N

Alarm contact: MZ527N

Shunt trip: MZ523N

Comply with IEC/EN 60947 for low voltage switchgear.

The motor starter wiring should be implemented in compliance to IEC/EN 60947-1 table 9.

Breaking capacity

	Ic (kA) 230V AC	Ic (kA) 400V AC
0.16 to 10 A	100	100
16 to 25 A	16	16

Motor starters

current range Ie	Standard power rating of 3 phase motors 50/60 Hz (AC3)		Width in module 17.5 mm	Pack qty.	Cat. ref.
	230 V (kW)	400 V (kW)			
0.1 to 0.16 A	-	-	2.5	1	MM501N
0.16 to 0.25 A	-	0.06	2.5	1	MM502N
0.25 to 0.4 A	0.06	0.09	2.5	1	MM503N
0.4 to 0.63 A	0.09	0.12	2.5	1	MM504N
0.63 to 1 A	0.09	0.12	2.5	1	MM505N
1 to 1.6 A	0.25	0.55	2.5	1	MM506N
1.6 to 2.5 A	0.55	0.8	2.5	1	MM507N
2.5 to 4 A	0.8	1.5	2.5	1	MM508N
4 to 6.3 A	1.5	2.5	2.5	1	MM509N
6.3 to 10 A	2.5	4	2.5	1	MM510N
10 to 16 A	4	7.5	2.5	1	MM511N
16 to 20 A	5.5	9	2.5	1	MM512N
20 to 25 A	7.5	12.5	2.5	1	MM513N
25 to 32 A	7.5	12.5	2.5	1	MM514N



MM501N

Auxiliary contact

- indicates ON/OFF position

Description	Width in module 17.5 mm	Pack qty.	Cat. ref.
1NO + 1NC, 3.5 A - 230 V AC / 2 A - 400 V AC	0.5	1	MZ520N



MZ520N

Front auxiliary contact

- cannot be mounted behind a modular front plate

Description	Width in module 17.5 mm	Pack qty.	Cat. ref.
1NO, 1 A - 230 V AC / 400 V AC	0.5	1	MZ522N



MZ527N

Alarm contact

- mounting on the right side of the motor starter

Description	Width in module 17.5 mm	Pack qty.	Cat. ref.
1 NO: Short-circuit 1 NO: Short-circuit and overload 3,5 A - 230 V AC 2 A - 400 V AC	0.5	1	MZ527N

Shunt trip

- mounting on the left side of the motor starter

Description	Width in module 17.5 mm	Pack qty.	Cat. ref.
shunt trip, 230 V AC - 50 Hz	1	1	MZ523N



MZ528N

Undervoltage releases

- mounting on the left side of the motor starter

Description	Width in module 17.5 mm	Pack qty.	Cat. ref.
undervoltage release, 230 V AC - 50 Hz	1	1	MZ528N
undervoltage release, 400 V AC - 50 Hz	1	1	MZ529N



MZ521N

Surface mounting enclosure

- weatherproof IP55 with a external rotary handle
- w. 80 x h. 158 x d. 125.5 mm

Description	Pack qty.	Cat. ref.
surface mounting enclosure	1	MZ521N



MZ530N

MZ531N

External emergency stop buttons

- ingress degree protection: IP65

Description	Pack qty.	Cat. ref.
external emergency stop button, 1NO + 1NC	1	MZ530N
external emergency stop button with key, 1NO + 1NC, 230 / 400 V	1	MZ531N



KD303M



KF30M

KZ058

Connections

- suitable also with an auxiliary

Description	Pack qty.	Cat. ref.
three pole insulated busbars for 2 motor starters	10	KD302M
three pole insulated busbars for 3 motor starters	10	KD303M
three pole insulated busbars for 4 motor starters	10	KD304M
three pole terminal block 63A to supply the insulated busbars KDxxxM	10	KF30M
terminal cover protection to insulate the spare parts (1 set = 10 end caps)	1 set	KZ058

Protection and control of circuits against overloads and short circuits.

Technical data

- sizes: L31, L38, L51, L58
- poles: 1P, 2P, 3P, 4P
- voltage rating: 500 V AC, 690V AC
- current rating: 25 to 125A
- frequency: 50/60Hz
- climate sealed: T2
- will accept accessories
- short circuit resistance with fuse link 8.5 x 31.5 mm:
80kA – 690V AC
- short circuit resistance with fuse link 10.3 x 38 mm:
80kA – 690V AC / 120kA – 500 V AC
- short circuit resistance with fuse link 14 x 51 mm:
100kA – 690V
- short circuit resistance with fuse link 22 x 58 mm:
100kA – 690V

Connection capacity

- L31 (8.5x31.5):
rigid conductors: 25mm²
flexible conductors: 16mm²
- L38 (10x38):
rigid conductors: 25mm²
flexible conductors: 16mm²
- L51 (14x51):
rigid conductors: 35mm²
flexible conductors: 25mm²
- L58 (22x58):
rigid conductors: 50mm²
flexible conductors: 35mm²

Comply with IEC 60 269-2 and IEC 60 269-2-1.

L31 fuse carriers 500V - 25A

- compatible with accessories

Description	Width in module 17.5 mm	Pack qty.	Cat. ref.
single pole	1	12	LSN401
two pole	2	6	LSN402
three pole	3	4	LSN403
3 phases + neutral link	4	3	LSN404
1 phase + neutral link	2	6	LSN412
single pole with signal light	1	12	LSN431



LSN401

Protection devices

L38 fuse carriers 690V - 32A

- compatible with accessories

Description	Width in module 17.5 mm	Pack qty.	Cat. ref.
single pole	1	12	LSN501
two pole	2	6	LSN502
three pole	3	4	LSN503
3 phases + neutral link	4	3	LSN504
1 neutral link	1	12	LSN509
1 phase + neutral link	2	6	LSN512
single pole with signal light	1	12	LSN531



LSN504

L51 fuse carriers 690V - 50A

Description	Width in module 17.5 mm	Pack qty.	Cat. ref.
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Fuse carriers compatible with accessories

single pole	1.5	1	LS601
two pole	3	1	LS602
three pole	4.5	1	LS603
3 phases + neutral link	6	1	LS604
1 phase + neutral link	3	1	LS612

Fuse carriers accessory free

single pole	1.5	10	LR601
two pole	3	5	LR602
three pole	4.5	3	LR603
3 phases + neutral link	6	2	LR604
1 phase + neutral link	3	5	LR612



LS601



LS703

L58 fuse carriers 690V - 125A

Description	Width in module 17.5 mm	Pack qty.	Cat. ref.
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Fuse carriers compatible with accessories

single pole	2	1	LS701
two pole	4	1	LS702
three pole	6	1	LS703
3 phases + neutral link	8	1	LS704
1 phase + neutral link	4	1	LS712

Fuse carriers accessory free

single pole	2	6	LR701
two pole	4	3	LR702
three pole	6	2	LR703
3 phases + neutral link	8	1	LR704
1 phase + neutral link	4	3	LR712



LS670

Microswitches

Description	Pack qty.	Cat. ref.
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Microswitches for L51 fuse carriers

single pole	1	LS670
three pole	1	LS671

Microswitches for L58 fuse carriers

single pole	1	LS770
three pole	1	LS771



LS672

Signal lights 230V

Description	Pack qty.	Cat. ref.
for L51 and L58 fuse carriers	1	LS672

Cylindrical gG fuse-links are intended for industrial applications. gG protection for general purpose applications against overload and short-circuits.

- Sizes:
- L 38: 10 x 38
 - L 51: 14 x 51
 - L 58: 22 x 58

Comply with IEC 60 269-1 and 60 269-2.

Cartridge fuses type gG 10 x 38 mm

- breaking capacity: 120kA

In	Cat. ref.
Voltage 500 V AC	
0.5 A	LF300G
1 A	LF301G
2 A	LF302G
4 A	LF304G
6 A	LF306G
8 A	LF308G
10 A	LF310G
12 A	LF312G
16 A	LF316G
20 A	LF320G
25 A	LF325G
Voltage 400 V AC	
32 A	LF332G



LF302G

Cartridge fuses type gG 14 x 51 mm

- breaking capacity: 80kA (2 to 25A), 120 kA (32 to 50 A)

In	Cat. ref.
Voltage 690 V AC	
2 A	LF402G
4 A	LF404G
6 A	LF406G
8 A	LF408G
10 A	LF410G
12 A	LF412G
16 A	LF416G
20 A	LF420G
25 A	LF425G
Voltage 500 V AC	
32 A	LF432G
40 A	LF440G
45 A	LF445G
Voltage 400 V AC	
50 A	LF450G



LF425G



LF563G

Cartridge fuses type gG 22 x 58 mm

- breaking capacity: 80kA (16 to 63 A), 120 kA (80 to 125 A)

In	Cat. ref.
Voltage 690 V AC	
16 A	LF516G
20 A	LF520G
25 A	LF525G
32 A	LF532G
40 A	LF540G
50 A	LF550G
63 A	LF563G
Voltage 500 V AC	
80 A	LF580G
100 A	LF590G
Voltage 400 V AC	
125 A	LF599G

Cylindrical aM fuse-links are intended for industrial applications.
aM protection for motor protection applications against shortcircuits.

- Sizes:
- L 38: 10 x 38
- L 51: 14 x 51
- L 58: 22 x 58

Comply with IEC 60 269-1 and 60 269-2.

Cartridge fuses type aM 10 x 38 mm

- breaking capacity: 120kA

In Cat. ref.



LF302M

Voltage 500 V AC

0.5 A	LF300M
1 A	LF301M
2 A	LF302M
4 A	LF304M
6 A	LF306M
8 A	LF308M
10 A	LF310M
12 A	LF312M
16 A	LF316M

Voltage 400 V AC

20 A	LF320M
25 A	LF325M
32 A	LF332M

Protection devices

Cartridge fuses type aM 14 x 51 mm

- breaking capacity: 80kA (2 to 25A), 120 kA (32 to 50 A)

In Cat. ref.



LF432M

Voltage 690 V AC

2 A	LF402M
4 A	LF404M
6 A	LF406M
8 A	LF408M
10 A	LF410M
12 A	LF412M
16 A	LF416M
20 A	LF420M
25 A	LF425M

Voltage 500 V AC

32 A	LF432M
40 A	LF440M
45 A	LF445M

Voltage 400 V AC

50 A	LF450M
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LF563M

Cartridge fuses type aM 22 x 58 mm

- breaking capacity: 80kA (16 to 63 A), 120 kA (80 to 125 A)

In	Cat. ref.
Voltage 690 V AC	
16 A	LF516M
20 A	LF520M
25 A	LF525M
32 A	LF532M
40 A	LF540M
50 A	LF550M
63 A	LF563M
Voltage 500 V AC	
80 A	LF580M
100 A	LF590M
Voltage 400 V AC	
125 A	LF599M

Connection type	Characteristics		
MCB's Ph + N 	63 A	KB163P or KB163N	- KF83A*: 1 x 25 mm ² flexible conductors, side or top incoming.  - KF83B*: 2 x 25 mm ² flexible conductors, side incoming. - KF82A: 2 x 10 mm ² flexible conductors, top incoming.
Single pole MCB's and fuse carriers	100 A	KB190B or KB190C	- KF83C*: 1 x 25 mm ² flexible conductors, side or top incoming. 
Double output four poles add on block MCB's Ph + N 	63 A	KBN663A or KBN663C	- KF83D*: 1 x 25 mm ² flexible conductors, side or top incoming.  Necessary for supplying directly through the busbar KBN663
Two poles MCB's 	63 A	KB263A or KB263C	- KF83C*: 1 x 25 mm ² flexible conductors, side or top incoming. 
	80 A	KB280B	
Three poles MCB's	63 A	KB463A or KB463C	- KF83C*: 1 x 25 mm ² flexible conductors, side or top incoming. 
	80 A	KB380B	
Four pole MCB's 	63 A	KB463A or KB463C	- KF83C*: 1 x 25 mm ² flexible conductors, side or top incoming. 
	80 A	KB480B	
			* KF83x are suitable with aluminium and copper conductors

Insulated universal supply busbars

- blue for neutral,
- brown for live
- for MCB's and fuse carriers 1 module width

Single, double, three and four pole busbars

- for multipolar MCB from 0,5 to 63A
- for multipolar, single pole fuse carriers and SB switches

Supply busbars 3 Ph+N shifted terminal

- suitable to connect the double output add-on block with MCB's Ph+N (balance phases)

Comply with IEC 60947-7 and IEC 60439-1.



KB163P

Single pole supply busbars

- 63 A are equipped with protection profiles



KB163N



KB190C

In	Section	Width in module	Pack qty.	Cat. ref.
63 A	10 mm ²	13	50	KB163P
63 A	10 mm ²	18	20	KB163PG
63 A	10 mm ²	13	50	KB163N
63 A	10 mm ²	18	20	KB163NG
100 A	20 mm ²	24	10	KB190C
100 A	20 mm ²	57 (1m)	10	KB190B



KB263A

Double pole supply busbars

In	Section	Width in module	Pack qty.	Cat. ref.
63 A	10 mm ²	12	10	KB263A
63 A	10 mm ²	24	10	KB263C
80 A	16 mm ²	56 (1m)	10	KB280B



KB363A

Three pole supply busbars

In	Section	Width in module	Pack qty.	Cat. ref.
63 A	10 mm ²	12	10	KB363A
63 A	10 mm ²	24	10	KB363C
80 A	16 mm ²	12	25	KB380A
80 A	16 mm ²	57 (1m)	10	KB380B



KB463A

Four pole supply busbars

- equipped with end caps

In	Section	Width in module	Pack qty.	Cat. ref.
63 A	10 mm ²	12	10	KB463A
63 A	10 mm ²	24	10	KB463C
80 A	16 mm ²	56 (1m)	10	KB480B

Supply busbars 3 Ph+N shifted terminal

- 1 module width for neutral
- 3 modules width for live
- equipped with 2 end caps and protection profiles

- KBN863A and KBN863C 1 three pole bar + 1 single pole bar



KBN663A

In	Section	Width in module	Pack qty.	Cat. ref.
63 A	10 mm ²	12	8	KBN663A
63 A	10 mm ²	24	8	KBN663C
63 A	10 mm ²	12	10	KBN863A
63 A	10 mm ²	24	10	KBN863C

End caps

- to insulate the ends of the busbars

Description	Pack qty.	Cat. ref.
for single busbars KB163P, KB163N	1	KZ021
for double busbars KB263A, KB263C	1	KZ022
for double / three pole busbars KB280B, KB363A, KDN263B, KB363C, KB380B, KDN363B	1	KZ023A
for four pole busbars KB463A, KB463C, KB480B, KDN463B	1	KZ024
for 3 Ph+N busbars KBN663A, KBN663C	10	KZN624



KZ021



KZ023A



KZN624

Protection profiles

- to insulate the spare prongs

Description	Pack qty.	Cat. ref.
5 modules width protection profile	10	KZ059



KZ059

Fork insulated busbars

For modular devices equipped with biconnect terminals
- multipolar MCB's from 0.5 to 63A (except Ph+N) and RCCB's

KF83A, KF83C and KF83D are compatible with aluminium and copper conductors.

Comply with IEC 60947-2 and IEC 60439-1.

Entry terminals

For all prongs and fork supply busbars



KD190B



KDN263B



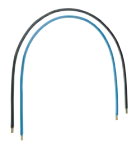
KDN363B



KDN463B

Fork insulated busbars

Description	In	Section	Width in module	Pack qty.	Cat. ref.
single pole, 1 module width	100 A	20 mm ²	57 (1 m)	10	KD190B
double pole, 2 modules width	63 A	10 mm ²	56 (1 m)	20	KDN263B
three pole, 3 modules width	63 A	10 mm ²	57 (1 m)	20	KDN363B
four pole, 4 modules width	63 A	10 mm ²	56 (1 m)	10	KDN463B



KC416

Set of 2 conductors with terminals swaged

- flexible cable H07VK
- blue and black

Description	Pack qty.	Cat. ref.
16 mm² for a 63A limited use		
2 x 450 mm	1	KC416
2 x 650 mm	1	KC616
25 mm² 16 mm² for a 90A limited use		
2 x 450 mm	1	KC025



KF84A

Fork connection terminals

- for fork busbars terminals
- cable incoming: lateral
- cable tightening with 2 screws

Description	Pack qty.	Cat. ref.
connection capacity: 1 x 25 mm ²	10	KF84A



KF82A

Prong connection terminals

- for devices with screw terminal
- cable incoming: lateral
- cable tightening with 2 screws

Description	Pack qty.	Cat. ref.
connection capacity: 1 x 16 mm ²	10	KF82A



KF83A



KF83B



KF83C



KF83D

Connection terminals

- cable incoming:
for KF83A and KF83B: lateral
for KF83C, KF83D and KF83E: lateral or top
- cable tightening with 1 screw (KF83A and KF83B only)

Description	Connection capacity	Pack qty.	Cat. ref.
for KB163P and KB83B	1 x 25 mm ²	10	KF83A
for KB163P and KB83B	2 x 25 mm ²	4	KF83B
for KB190B and KB263 to KB463	1 x 25 mm ² for KB263 to KB463 (35 mm ² rigid)	10	KF83C
for KBN663A to KBN663C	2 x 25 mm ² flexible (35 mm ² rigid)	4	KF83D
for KBN863A to KBN863C	2 x 25 mm ² flexible (35 mm ² rigid)	4	KF83E

Risk of electrical surge

Surge protective devices (SPD) assist in the protection of valuable electrical and electronic equipment against transients, originating from lightning and also from switching sources.

These transients can cause damage ranging from the premature ageing of equipment, logic failures and down time, to the complete destruction of equipment within the entire electrical installation.

Products such as LCD screens, data servers and industrial equipment such PLC's are critical to business activity. Protecting this equipment may now be a necessity.

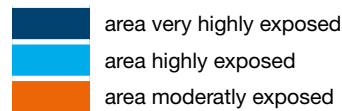
Our SPD range of solutions may offer protection to prevent damage to this sensitive equipment by diverting the damaging transfer over-voltages. In the majority of cases this will eliminate equipment failures and reduce downtime.

The choice of a surge protective device depends on:

- the exposure of the building to lightning transients,
- the sensitivity and value of the equipment that requires protection (it is recommended that the contractor should discuss the installations requirements with the customer),
- the location and therefore the exposure level of the installation,
- the equipment used within the installation and whether this equipment could generate switching transients.

All our surge arrestor's are complying with IEC 61643-1

Africa and Near-East lightning activity



Selection guide for type 2 surge arrestor's

General protection and sensitive equipment

Environment	1 Ph	1Ph + N	3 Ph +N	Discharge current
Very highly exposed	-	SPN265R*	SPN465R*	Very important I max. 65 kA, waveform 8/20 µs
Highly exposed	SPN140C	SPN240R* SPN240D	SPN440R* SPN440D	Important I max. 40 kA, waveform 8/20 µs
Moderately exposed	-	SPN215R* SPN215D SPN715D	SPN415R* SPN415D	Moderate I max. 15 kA, waveform 8/20 µs

* Surge arrestors equipped with cartridge with reserve status indicator and auxiliary contact for remote signaling

Protection for very sensitive electronic equipment

For protection of:	1Ph + N	3 Ph +N	Discharge current
Very sensitive electronic equipment (computer, alarm system, medical equipment, TV, Hi-fi system,...)	SPN208D	SPN408D	Very important I max. 8 kA, waveform 8/20 µs

Optimal coordination is obtained when cascaded with type 2 surge arrestors

Selection guide for type 3 surge arrestor's

Protection for telephone lines

Line types	analog	digital
Cat. ref.	SPN505	SPN504

Surge protection devices type 1+2

The combined surge protection devices offer as an «all-in-one solution» protection against lightning and surge-voltage in one device.

They are in accordance with the requirement class type 1.

3 versions available, with or without auxiliary contact:

- SPN800 for TNC-Networks, 75kA (lighting impulse current)
- SPN801 for TNS-Networks, 100kA (lighting impulse current)
- SPN802 for TT-Networks, 100kA (lighting impulse current)

Product features

- Lightning and surge-voltage protection in one device
- Compliance with to EN 61643-11, requirement class type 1+2
- Replaceable plug-in modules
- Integrated fault indicator in the plug-in modules
- SPDs with separate auxiliary contact



SPN800R

Surge protection devices, type 1+2, for TNC-Networks

Description	Width in module 17.5 mm	Pack qty.	Cat. ref.
with auxiliary contact	3	1	SPN800R
without auxiliary contact	3	1	SPN800



SPN801R

Surge protection devices, type 1+2, for TNS-Networks

Description	Width in module 17.5 mm	Pack qty.	Cat. ref.
with auxiliary contact	4	1	SPN801R
without auxiliary contact	4	1	SPN801



SPN802

Surge protection devices, type 1+2, for TT-Networks

Description	Width in module 17.5 mm	Pack qty.	Cat. ref.
with auxiliary contact	4	1	SPN802R
without auxiliary contact	4	1	SPN802



SPN080

Cartridges

Description	Cat. ref.
phase - 25kA, for SPN8xxx	SPN080
neutral - 25kA class 1, for SPN802 and SPN802R	SPN080N

Surge protection devices type 1

For main protection - type 1.

SPDs with higher discharge current (I_{max} 10/350), to evacuate overvoltages, associated with lightning strikes.

Installation

The main protection SPDs are installed directly after the main incoming device.

SPD's can be used in any supply system e.g. TNC, TNCS, TNS, TT

Connection capacity

- rigid conductors: 25 mm²
- flexible conductors: 16 mm²

Comply with NF EN 61643-11

Comply with IEC61643-1



SPA412A

Surge arrester type 1

- limp. 12.5 kA
- waveform 10/350 μ s
- Up: 2.5 kV

Description	Width in module 17.5 mm	Cat. ref.
1 Ph + N	4	SPA212A
3 Ph + N	8	SPA412A

Surge protection devices type 2

For main protection - type 2 SPDs with higher discharge current (Imax. 8/20), to evacuate as much of the transient to earth as possible, protection level (Up ≤ 1000V).

Installation

The main protection SPDs are installed directly after the main incoming device.
SPD's can be used in any supply system e.g. TNC, TNCS, TNS, TT

Connection capacity

- rigid conductors: 25 mm²
- flexible conductors: 16 mm²

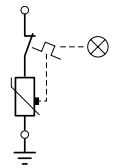
Comply with NF EN 61643-11

Comply with IEC61643-1

Surge arrestors type 2 for very highly exposed area

- I_{max.} 65 kA
- waveform 8/20 μs
- I_n: 20 kA - U_p: 1.5 kV

Description	Width in module 17.5 mm	Cat. ref. End of life indicator	Reserve status indicator
1 Ph + N	2	-	SPN265R
3 Ph + N	4	-	SPN465R



SPN265R

Protection devices

Surge arrestors type 2 for highly exposed area

- I_{max.} 40 kA
- waveform 8/20 μs
- I_n: 15 kA - U_{pw} 1.2 kV except SPN140C U_p: 2 kV

Description	Width in module 17.5 mm	Cat. ref. End of life indicator	Reserve status indicator
1 Ph	1	SPN140C	-
1 Ph + N	2	SPN240D	SPN240R
3 Ph + N	4	SPN440D	SPN440R



SPN440R

Surge arrestors type 2 for moderately exposed area

- I_{max.} 40 kA
- waveform 8/20 μs
- I_n: 15 kA - U_{pw} 1.2 kV except SPN140C U_p: 2 kV

Description	Width in module 17.5 mm	Cat. ref. End of life indicator	Reserve status indicator
1 Ph + N	2	SPN215D	SPN215R
3 Ph + N	4	SPN415D	SPN415R
1 Ph + N, self-protected	2	SPN715D	-



SPN415R



SPN715D

Surge protection devices type 2, with low let through voltage levels

To protect very sensitive electronic equipment.
This fine protection complements the main protection and can protect 1 or several electronic devices.

Optimal coordination is obtained when cascaded with type 2 surge arrester (lower U_p).

Discharge current: I_{max} . 8kA (8/20 wave)
A green LED on the front face indicates the status of the SPD
SPN208D, connected in series with the equipment that needs to be protected (with a maximum line current of 25A).
Protection is ensured in both common and differential modes

Connection capacity

Terminal blocks L, N & E

- rigid conductors: 16mm²
- flexible conductors: 10mm²

Comply with NF EN 61643-11 and -21



SPN408D

Surge arrestors type 2 with low let through voltage levels, pluggable

- I_{max} . 8 kA,
- 8/20 ms current wave,
- U_p (Ph/ N =>) \leq 1.5 kV
(Ph => N) \perp 1 kV
- with end-of-life indicator

Description	Width in module 17.5 mm	Cat. ref.
1 Ph + N	2	SPN208D
3 Ph + N	3	SPN408D



SPN008D

Cartridge for pluggable SPD

Description	Cat. ref.
for SPN208D	SPN008D
for SPN408D	SPN008N

Surge protection devices type 3

To protect telephone lines and data signal networks and multimedia applications.

Surge arrestors type 3 for telephone lines

Description	Un	Up	Width in module 17.5 mm	Cat. ref.
SPD for analog phone line	130 V	600 V AC	1.5	SPN505
SPD for digital phone line	40 V	600 V AC	1.5	SPN504



SPN504

Surge arrestors type 3 for data signal networks and multimedia applications

Description	Un	Up	Width in module 17.5 mm	Cat. ref.
SPD for ADSL2+ phone lines	180 V DC	≤ 550 V	2/3	SPK102
SPD for Ethernet RJ45	48 V	≤ 550 V	1	SPK200
SPD for coaxial TV/satellite	24 V	≤ 300 V	1.5	SPK300
SPD for weather stations and 4-20 mA loop lines, 1 pair	24 V	550 V AC	2/3	SPK402
SPD for weather stations and 4-20 mA loop lines, 2 pairs	24 V	550 V AC	2/3	SPK404
SPD for industrial buses (modbus, ...)	5 V	550 V AC	2/3	SPK502



SPK102



SPK200



SPK300

Spare cartridges

These cartridges replace the cartridge in the main SPD. They allow simple replacement without the need to cut-off the power supply.

Cartridges are available for all discharge currents (15kA to 65kA) with and without condition indication.

A keying system exists to prevent a line cartridge being interchanged by mistake with a neutral one and vice versa. Neutral cartridges have a discharge current fo 65kA.

For Phase:

SPN140D = SPN040D
 SPN215D = SPN015D
 SPN415D = SPN015D
 SPN215R = SPN015R
 SPN415R = SPN015R

For Neutral / Earth:

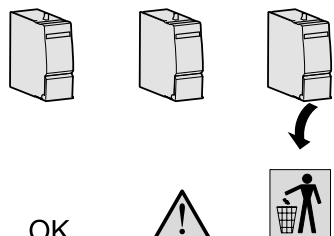
SPN215D = SPN040N
 SPN415D = SPN040N
 SPN215R = SPN040N
 SPN415R = SPN040N

Auxiliary contact for remote signaling (R version only)

230V AC 1A
 12V ... 10mA

Reserve Status Indicator (R versions)

End of Life Indicator (D versionsw)



Replacement cartridge phase

Description	Cat. ref.
65kA, 275V AC, for SPNx65R	SPN065R
40kA, 440V AC, for SPN140C	SPN040C
40kA, 275V AC, for SPNx40R	SPN040R
40kA, 275V AC, for SPNx40D	SPN040D
15kA, 275V AC, for SPNx40R	SPN015R
15kA, 275V AC, for SPNx40D	SPN015D



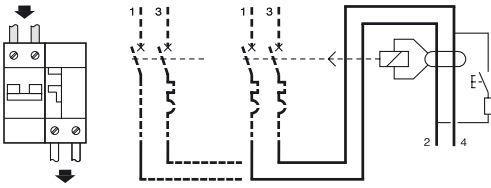
Replacement cartridge neutral

Description	Cat. ref.
65kA, 255V AC, for SPNx65R	SPN065N
40kA, 255V AC, for SPNx40x and SPNx15x	SPN040N

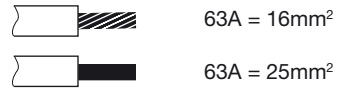
RCCB add-ons

3 sensitivities 30mA, 100mA and 300mA instantaneous.
2 sensitivities 100mA and 300mA time delayed.
RCCB add-ons can be associated with devices rated from 0.5 to 63A in 2 and 4 poles.

Wiring diagram



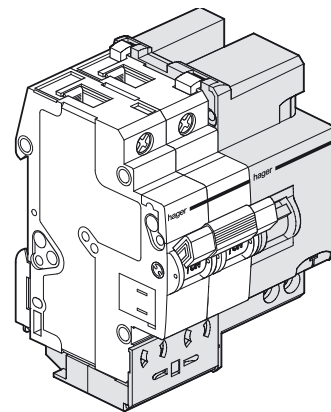
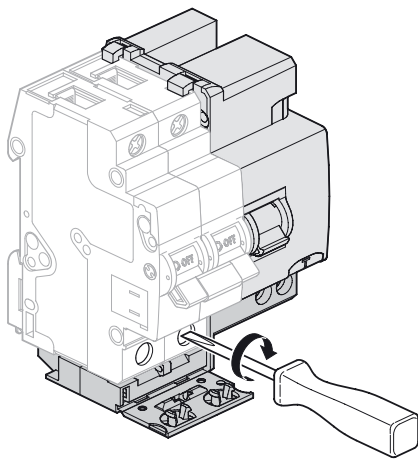
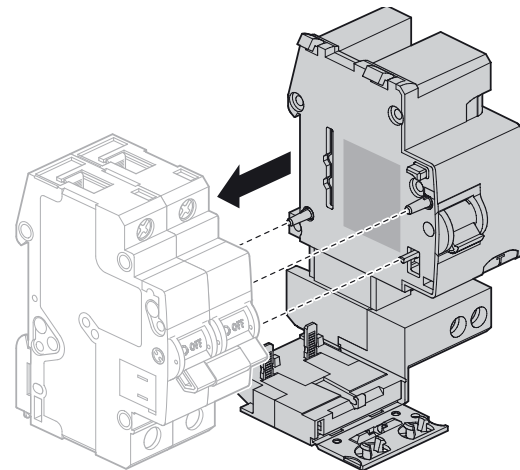
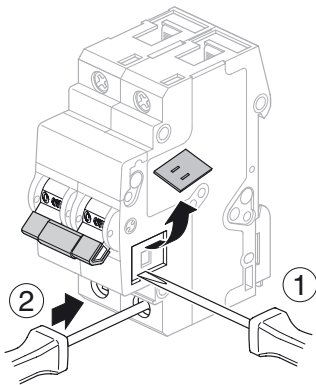
Connection capacity



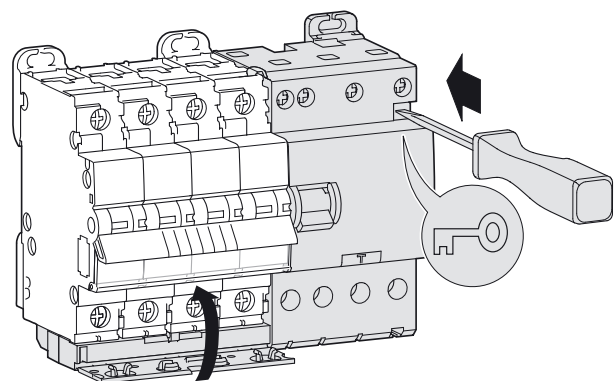
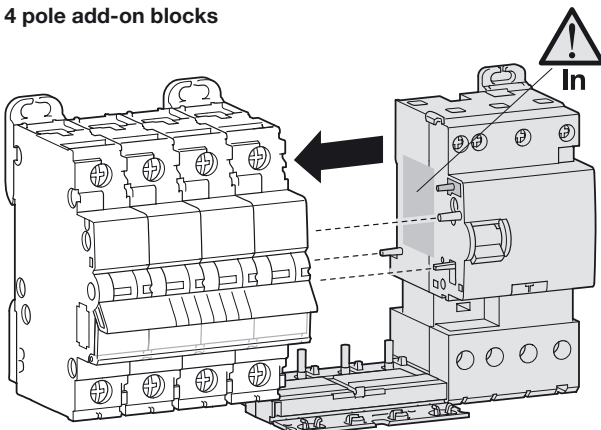
Characteristics

- Easy coupling (drawer system)
- Easy disassembly (without damage)
- Conforms to EN61009 appendix G

**Mounting
2 pole add-on blocks**



4 pole add-on blocks



Technical specifications

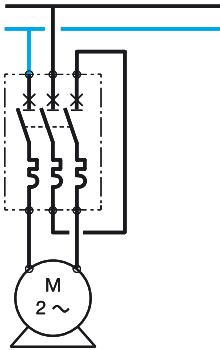
Electrical characteristics

- Electrical supply: 230/400/440/500/690V AC
- Ambient temperature range: -25°C to +55°C

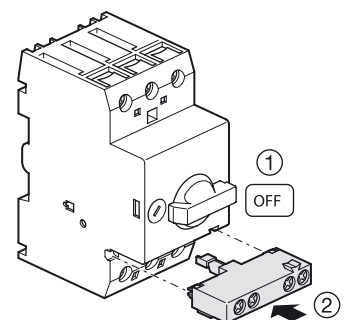
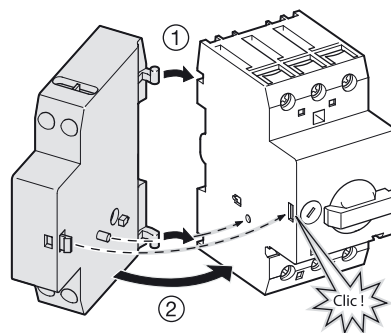
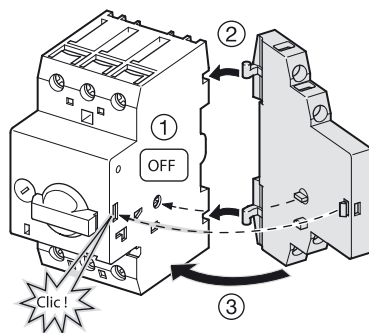
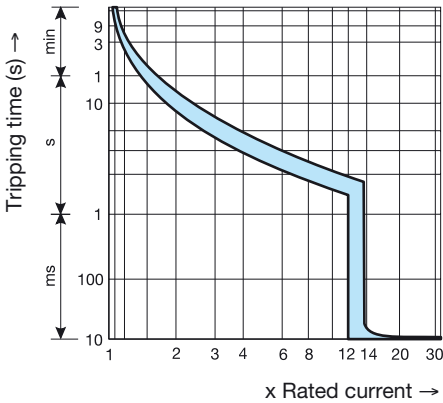
The influence of the ambient temperature on the deflection of the bimetallic releases is automatically compensated within a temperature range from -5 to +40°C by means of an additional current-free bimetallic release that continuously corrects the tripping range.

- Working life: 100,000 operations AC-3
- Maximum of 40 operations/hour
- Tropicalized for all climates
- Connection with clamp type, following conductor cross-sections of the motor cables:
flexible: 1 to 4mm²
rigid: 1 to 6mm²

Electrical connection single phase



Tripping characteristic



Conditional rated short-circuit current (according to IEC / EN 60 947-4-1)

	230V Icu (kA)	⌈ (A) ¹⁾	400V Icu (kA)	⌈ (A) ¹⁾	440V Icu (kA)	⌈ (A) ¹⁾	500V Icu (kA)	⌈ (A) ¹⁾	690V Icu (kA)	⌈ (A) ¹⁾
MM501N	150	N	150	N	100	N	100	N	100	N
MM502N	150	N	150	N	100	N	100	N	100	N
MM503N	150	N	150	N	100	N	100	N	100	N
MM504N	150	N	150	N	100	N	100	N	100	N
MM505N	150	N	150	N	100	N	100	N	100	N
MM506N	150	N	150	N	100	N	100	N	100	N
MM507N	150	N	150	N	100	N	100	N	5	50
MM508N	150	N	150	N	100	N	100	N	3	50
MM509N	150	N	150	N	100	N	42	50	3	50
MM510N	150	N	150	N	42	50	42	50	3	50
MM511N	50	50	50	50	15	50	15	50	3	50
MM512N	50	50	50	50	10	50	6	50	3	50
MM513N	50	50	50	50	10	50	6	50	3	50
MM514N	50	50	50	50	10	50	-	50	3	50

■ no upstream protective device required, since this is an inherent stable range (100/150 kA)

N not required

1) primary fusing is required if the short-circuit current exceeds the conditional rated short-circuit current ($I_{cc} > I_{cu}$). The conditional rated short-circuit current is determined by the primary fuse used:
100A gG/gL, $I_{cu} = 30kA$
50A gG/gL, $I_{cu} = 100kA$

Under voltage release (no volt coil)

MZ528N MZ529N
230V AC 400V AC

Auxiliary contacts (Mounted inside starter)

MZ520N
2A – 400V AC
3.5A – 230V AC

Alarm contact (Mounted under starter)

MZ527N
2A – 400V AC
1A – 230V AC

Residual current devices

A residual current device (RCCB) is the generic term for a device which simultaneously performs the functions of detection of the residual current, comparison of this value with the rated residual operating value and opening the protected circuit when the residual current exceeds this value.

For fixed domestic installations and similar applications we have two types:

- Residual current operated circuit-breaker without integral over-current protection (RCCBs) which should comply with the requirements of IEC 61 008
- Residual current operated circuit-breaker with integral over-current protection (RCBOs) which should comply with the requirements of IEC 61 009

Both RCCBs and RCBOs are further divided into types depending on their operating function:

Type AC For which tripping is ensured for residual sinusoidal alternating currents, whether suddenly applied or slowly rising. Marked with the symbol:



Type A For which tripping is ensured for residual sinusoidal alternating currents and residual pulsating direct currents, whether suddenly applied or slowly rising. Marked with the symbol:



Type S For selectivity, with time-delay. Marked with the symbol:



RCCBs must be protected against short-circuits by means of circuit-breakers or fuses. RCBOs have their own in built short-circuit protection, up to it's rated value.

The drawing opposite shows how a torroid is located around the line and neutral conductors to measure the magnetic fields created by the current flowing in these conductors. The sum of the magnetic fields set up by these currents (which takes into consideration both the magnitude and phase relationship of the currents) is detected by the torroid.

In a normal healthy circuit the vector sum of the current values added together will be zero. Current flowing to earth, due to a line earth fault, will return via the earth conductor, and regardless of load conditions will register as a fault. This current flow will give rise to a residual current (I_{res}) which will be detected by the device.

It is most important that the line and neutral conductors are passed through the torroid. A common cause of nuisance operation is the failure to connect the neutral through the device.

RCCBs work just as well on three phase or three phase and neutral circuits, but when the neutral is distributed it must pass through the torroid.

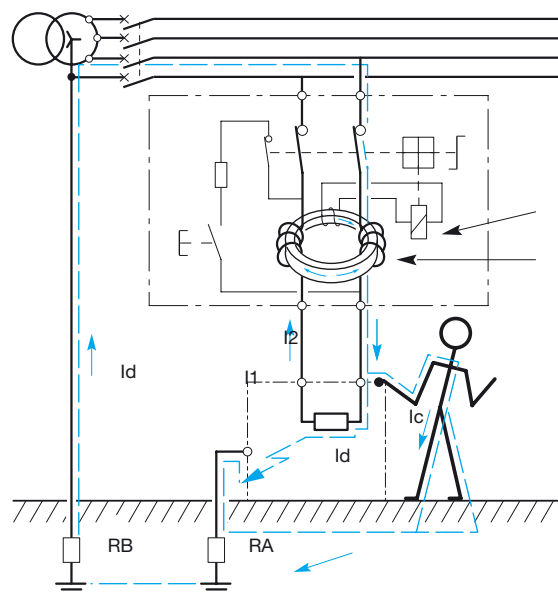
RCCBs are not suitable for use on DC systems and unearthed networks.

RCCBs – domestic installation

RCCBs can be installed in two ways:

1. whole house protection.
2. selective protection.

Principle



Current flowing through torroid in healthy circuit

$$I_{res} = I_1 - I_2 = 0$$

Current flowing through torroid in circuit with earth fault I₃

$$I_{res} = I_1 - I_2 + I_3 = I_3$$

Whole house protection is provided typically by a consumer unit where the RCCB device serves as the main switch. Although very popular this suffers from a disadvantage: all circuits are disconnected in the event of fault. Selective protection can be provided by associating the RCCB with identified high risk circuits by adopting one or more of the following:

- Split busbar consumer unit:
All circuits are fed via an overall isolator and selected circuits fed additionally via the RCCB. Typical circuits fed direct are lighting, freezer, storage heating; and circuits fed via the RCCB are socket outlets, garage circuits. This concept minimises inconvenience in the event of fault.

Individual RCBO

Each separate final circuit requiring protection by a RCD can be supplied through an RCBO. This method provides the best solution for minimising inconvenience.

Nuisance tripping

All Hager RCCBs incorporate a filtering device preventing the risk of nuisance tripping due to transient voltages (lightning, line disturbances on other equipment...) and transient currents (from high capacitive circuit).

Pulsating DC fault current sensitive

Increasingly, semi-conductors are also extensively used in computers, VDUs, printers, plotters... all of which may be fed from the mains electrical supply. The presence of semi-conductors may result in the normal sinusoidal AC waveform being modified. For example, the waveform may be rectified or, as in asymmetric phase control devices, the waveform may be chopped. The resulting waveforms are said to have a pulsating DC component.

In the event of an earth fault occurring in equipment containing semi-conductor devices, there is a probability that the earth fault current will contain a pulsating DC component.

Standard type AC may not respond to this type of earth fault current and the intended degree of protection will not be provided.

Use of RCCBs

RCCBs offer excellent protection against earth fault currents; the main areas of application being as follows:

- **Zs value too high to allow disconnection in the required time**

Where the overcurrent protection or a circuit breaker cannot provide disconnection within the specified time because the earth fault loop impedance is too high the addition of RCCB protection may well solve the problem without any other change in the system. Because of its high sensitivity to earth fault current and its rapid operating time, in most cases the RCCB will ensure disconnection within the specified time. This is achieved without any detriment to overcurrent discrimination because, unlike the situation in a fuse based system, the increased sensitivity is obtained without increasing sensitivity to overcurrent faults. Use of RCCBs in this way can be particularly useful for construction sites and bathrooms where disconnection times are more stringent than for standard installations. (Construction sites - 0.2s at 220-277V, bathrooms - 0.4s).

The limitation to this technique is the requirement that the rated residual operating current multiplied by Zs should not exceed 50V. This is to avoid the danger of exposed conductive parts reaching an unacceptably high voltage level.

Residual current protection can even be added to a completed distribution system where the value of Zs is excessive, either because of a design oversight or subsequent wiring modification.

- **Protection against shock by direct contact**

So far we have considered shock by indirect contact only. Direct contact is defined thus:

Direct contact - contact of persons or livestock with live parts which may result in electric shock. The consideration here is not the hazard of parts becoming live as a result of a fault but the possibility of touching circuit conductors which are intentionally live.

RCCBs, although affording good protection against the potentially lethal effects of electric shock, must not be used as a the sole means of protection against shock by direct contact. The Electricity at Work Act recommends the use of RCCBs, "...danger may be reduced by the use of a residual current device but states that this should be "... considered as a second line of defence". The Wiring Regulations defines the other measures that should be taken i.e.

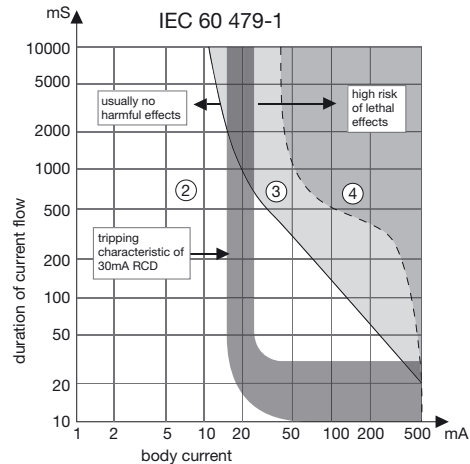
- insulation of live parts.
- barriers or enclosures.
- obstacles.
- placing live parts out of reach.

Additionally an RCCB used for this purpose should have:

- a sensitivity of 30mA
- an operating time not exceeding 40mS at a residual current of 150mA.

The specified sensitivity is based on research that has been carried out to estimate the effect various levels and duration of current can have on the human body. This experience is summarised in a graph shown in 'IEC 479-1: Effects of current passing through the human body'. A simplified version of this graph is shown opposite. It shows that very small currents can be tolerated for reasonably long periods and moderate currents for very short periods. It can be seen, for instance, that 100mA for 100mS or 20mA for 500mS will not normally cause any harmful effect. 200mA for 200mS or 50mA for 500mS which are in Zone 3, would be more dangerous; and shock levels in Zone 4 carry a risk of lethal consequences.

The tripping characteristic for a 30mA RCCB is also shown in the graph. It shows the level of current required to cause the RCCB to trip, for example; 50mA will cause a trip but not 10mA. Comparing its characteristic with the various zones on the graph it can be seen that the 30mA RCCB gives a very good measure of protection against the hazards associated with electric shock. Where a higher level of protection is required, for example in laboratories, 10mA devices are available.



Note : Although RCCBs are extremely effective devices they must never be used as the only method of protection against electric shock. With or without RCCBs protection all electrical equipment should be kept in good condition and should never be worked on live.

- **Protection against shock outside the equipotential bonding zone**
Bonding conductors are used in an installation to maintain metallic parts, as near as possible, to the same potential as earth. Working with portable equipment outside this equipotential bonding zone, e.g. in the car park of a factory, introduces additional shock hazards. Socket outlets rated 32A or less 'which may be reasonably expected to supply portable equipment for use outdoors' should have at least one socket nominated for outdoor use. This socket should be equipped with 30 mA RCCB protection unless fed from an isolating transformer or similar device, or fed from a reduced voltage.
- **Protection in special situations**
The use of RCCBs is obligatory or recommended in the following situations:
 - caravans: 30mA RCCB should be used.
 - TT systems.
 - swimming pools: 30mA RCCB for socket outlets in Zone B obligatory; recommended in Zone C.
 - agricultural and horticultural: 30mA RCCB for socket outlets and for the purpose of protection against fire, RCCB \leq 0.5A sensitivity.
 - construction sites: 30mA RCCB recommended.
- **Portable equipment**
With the exception mentioned above, where a socket is specifically designated for work outside the equipotential bonding zone, the Wiring Regulations demand the use of RCCBs to protect the users of portable equipment. It is widely recognised that their use has made a significant contribution to safety in the workplace and the home.
- **Protection against fire hazards**
The provisions in the Wiring Regulations for protection against shock by indirect contact ensure rapid disconnection under earth fault assuming the fault has negligible impedance. Under such conditions the fault current, as we have seen, is sufficiently great to cause the overcurrent protection device to quickly disconnect the fault. However high impedance faults can arise where the fault current is sufficient to cause considerable local heat without being high enough to cause tripping of the overcurrent protective device. The heat generated at the point of the fault may initiate a fire long before the fault has deteriorated into a low impedance connection to earth.

The provision of residual current protection throughout a system or in vulnerable parts of a system will greatly reduce the hazard of fire caused by such faults.
- **PEN conductors**
The use of RCCBs with PEN conductors is prohibited. A PEN conductor is a single conductor combining the functions of neutral conductor and protective conductor. This being so, when the PEN conductor is taken through the toroid of an RCCB, earth faults will go undetected because the return path for the earth fault current is included in the residual sum.
- **Auxiliary contacts**
A range of auxiliaries, alarm and shunt contacts are available for Hager RCCBs.
- **Supply entry**
Top or bottom feed.

Electrical characteristics of RCCB from 25 to 125 A intended for business premises

RCCBs 2 poles

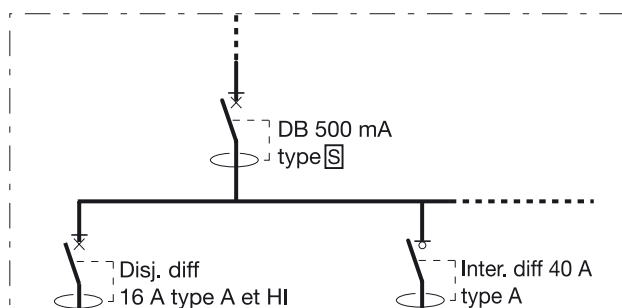
Nominal current I _n	2 x 25 A	2 x 40 A	2 x 63 A	2 x 80 A
Nominal voltage U _n	230 V (+10% /-15%) / 50 Hz			
Working voltage push-button test	230 V (+10% /-15%)			
Width in ■ (17.5 mm)	2			
Sensitivity IΔn in mA	10 mA type AC	30 mA type AC - A/HI 100 mA type AC 300 mA type AC - A/HI 500 mA type AC	300 mA - S type AC	30 mA type AC 300 mA - S type AC 300 mA type AC
Electrical and mechanical auxiliaries	CZ001 - MZ203 - MZ204 - MZ205 - MZ206 - MZ209 - MZ175			
Working temperature	type AC	-5 to + 40 °C	type A / HI	-25 to + 40 °C
Storage temperature		-25 to + 70 °C		-55 to + 70 °C
Connection capacity: - flexible wire - rigid wire	1.5 to 16 mm ² 1.5 to 25 mm ²			10 to 35 mm ² 10 to 50 mm ²

RCCBs 4 poles

Version	type AC and type A/HI						type B	
Nominal current I _n	4 x 25 A	4 x 40 A	4 x 63 A	4 x 80 A	4 x 100 A	4 x 125 A	4 x 40 A	4 x 63 A
Nominal voltage U _n	400 V (+10% /-15%) / 50 Hz							
Working voltage push-button test	400 V (+10% /-15%)							
Width in ■ (17.5 mm)	4							
Sensitivity IΔn in mA	30 mA type AC - HI 100 mA type AC 300 mA type AC - HI 500 mA type AC	300 mA - S type AC	300 mA type AC 300 mA - S type AC	300 mA, 500 mA	30 mA type B 300 mA type B			
Elec. and mechanic. auxiliaries	CZ001 - MZ203 - MZ204 - MZ205 - MZ206 - MZ209 - MZ175				CZ009		CZ009	
Working temperature	type AC	-5 to + 40 °C	type HI	-25 to + 40 °C	-15 to 40°C	-25 to 40°C		
Storage temperature		-25 to + 70 °C		-55 to + 70 °C	-15 to 40°C			
Connection capacity: - flexible wire - rigid wire	1.5 to 16 mm ² 1.5 to 25 mm ²			10 to 35 mm ² 10 to 50 mm ²		1,5 to 35 mm ² 1,5 to 50 mm ²		1.5 to 35 mm ² 1.5 to 50 mm ²

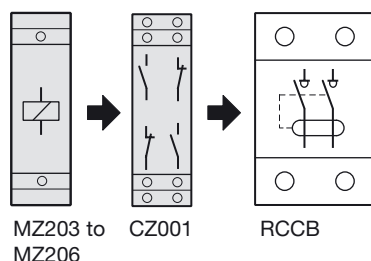
Electrical connection

Two-pole and three-pole use of four-pole RCCB
Ph + N
3 Ph



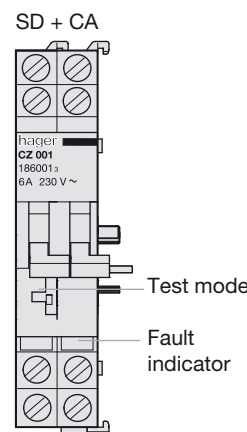
Combination of MZ auxiliaries

the auxiliary contact CZ001 is intended for RCCB of type AC and type A/HI. It is possible to combine other auxiliaries, MZ201 to MZ209. In that case, auxiliary CZ001 must be installed first. Auxiliaries MZ901, MZ902, MZ911 and MZ912 combine directly on the RCCB, without auxiliary CZ001.



Auxiliary CZ001

It is composed of: - an auxiliary contact (CA)
- a fault indication contact (SD)



Test mode:

Used to check the operation of the auxiliary circuit. The test is performed by pressing the blue button:
- for CA: In RCCB position OFF
- for SD: independent of the lever position.

Fault indicator:

The red LED on the front of the product indicates tripping due to a fault.

Type B and auxiliary RCCB

The indicating auxiliary CZ009 is dedicated to type B RCCB. It is not possible to combine auxiliaries and MZ triggers on these RCCBs.

Coordination between RCCBs and upstream protection

In order to reduce the risk of deterioration of the RCCB due to short-circuits occurring downstream from them, it is combined with upstream devices protecting against short-circuits.

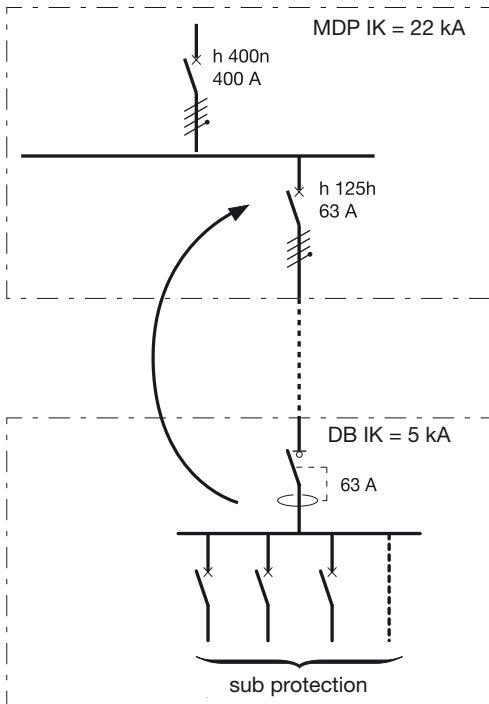
The table below indicates:

- the response to short-circuits of the RCCB only
- the ratings of the upstream protection devices which ensure good coordination with the RCCB
- the short-circuit response in combination with fuses or circuit breakers.

Upstream		Fuses gG type				MCBs						
		10,3 x 38 25 A	14 x 51 40 A	22 x 58 63 A	22 x 58 100 A	MBN, MCN	NGN, MMN	NBN, NCN, NDN, NQN, NRN, NSN	HMB, HMC, HLE, HLF, HMJ, HMK	HMD	HMX	x160
Downstream	In	Coordination										
2 poles RCCBs Network 230 V Breaking capacity RCCB (alone) 1500 Amps	25 A	100	40	16	16	6	7	10	6	5	8	5
	40 A	-	40	16	16	6	7	10	6	5	8	5
	63 A	-	-	16	16	6	7	10	6	5	8	6
	80 A	-	-	-	18	-	-	-	8	5	-	6
4 poles RCCBs Network 400 V Breaking capacity RCCB (alone) 1500 Amps	25 A	100	40	16	6	6	7	10	7.5	6	8	5
	40 A	-	40	16	6	6	7	10	7.5	6	8	5
	63 A	-	-	16	6	6	7	10	7.5	6	8	6
	80 A	-	-	-	6	-	-	-	8	6	-	6
	100 A	-	-	-	6	-	-	-	8	6	-	6
	125 A	-	-	-	-	-	-	-	8	6	-	6

The above values for response to short-circuits are given in kA eff.

In two different enclosures



- upstream protection:

- circuit breaker h400 with In = 400 A and a breaking capacity of 45 kA (greater than 22 kA),
- circuit breaker x160 with In = 63 A and a breaking capacity of 25 kA (greater than 22 kA).

The 63 A RCCB is coordinated with the x160 up to 6 kA (see table above).
The coordinated response to short-circuits > 5 kA.

RCCBs and RCBOs

Normalised values of the maximum operating time and the non-response time according to the standards NF EN 61008-1 and NF EN 61009-1

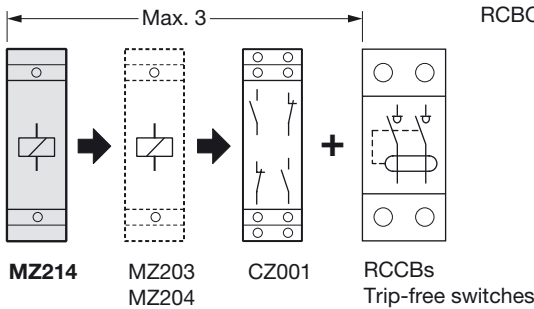
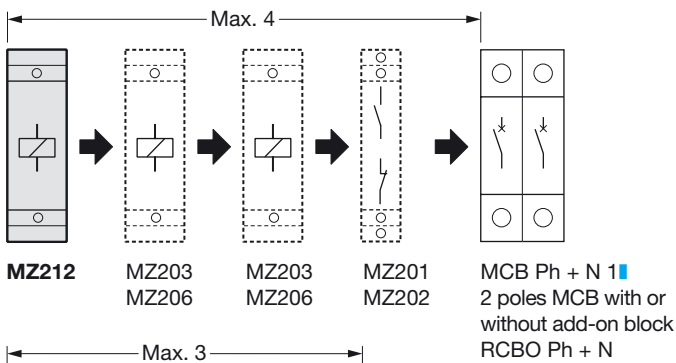
Characteristics of RCCB		Normalised values of the non-response operating time for a residual current (IΔn) equal to:					
type	In A	IΔn A	IΔn	2IΔn	5IΔn	500 A	
general	any value		0.3	0.15	0.04	0.04	maximum operating time
S	>25	>0.030	0.5	0.2	0.15	0.15	maximum operating time
			0.13	0.06	0.05	0.04*	minimum operating time

* only for RCCBs

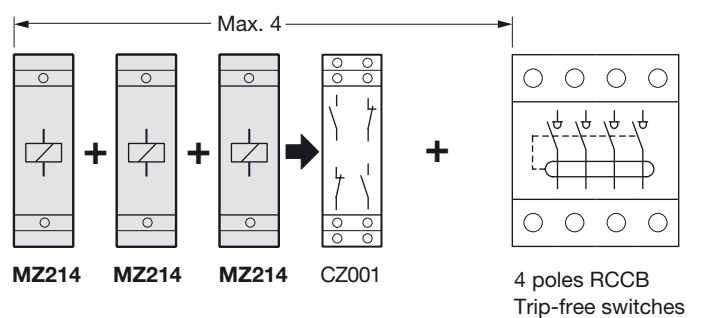
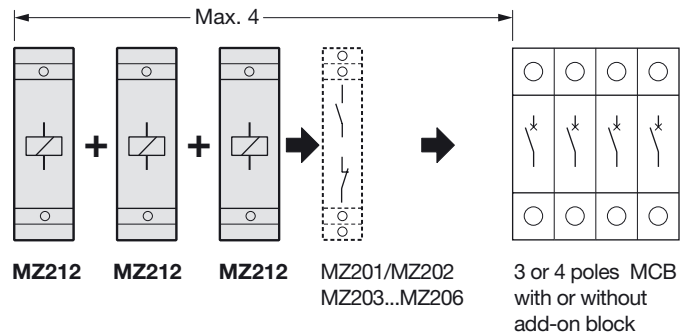
Trip units electrical features

MZ203	MZ204	MZ205	MZ206	MZ212	MZ214
Control voltage U_n : 230 V to 415 V AC 110 V to 130 V DC	Control voltage U_n : 24 V to 48 V AC 12 V to 48 V DC.	Control voltage U_n : 48 V DC	Control voltage U_n : 230 V AC	Tripping voltage: see tripping curve	Low voltage release U_n : 230 V AC
peak power 15 VA	peak power 30 VA	tripping voltage between $0,2s U_n$ and $0,6s U_n$			
tolerance: AC DC -15% of U_n with $T^\circ \leq 40^\circ C$		consumption: 2.4 VA	consumption: 3.5 VA	consumption: 0.7 VA	consumption: 0.7 VA

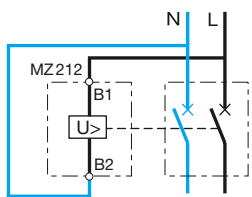
Auxiliaries possibility combination
2 poles



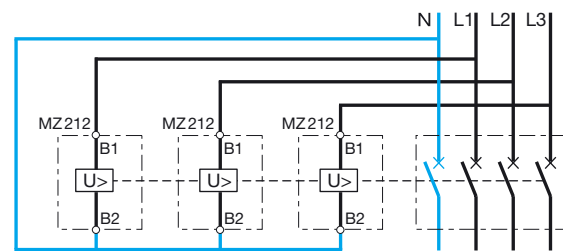
4 poles



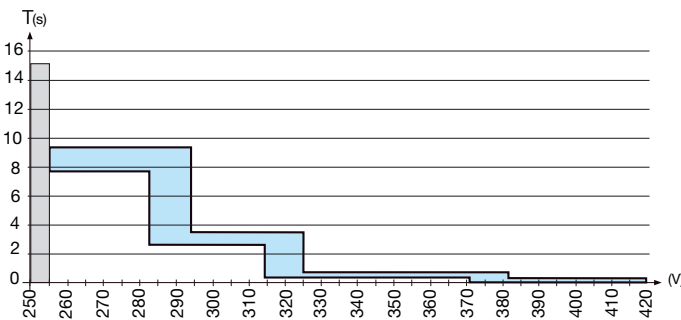
Overvoltage tripping MZ212
single-phase



three-phase

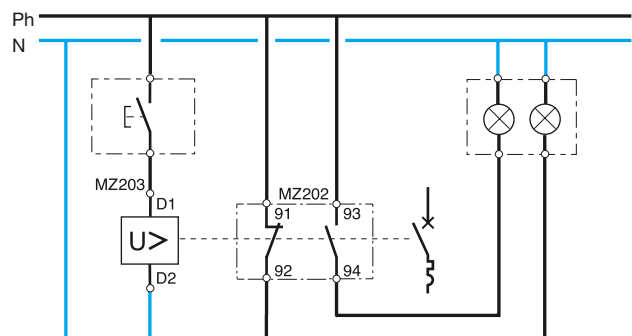


Tripping curve



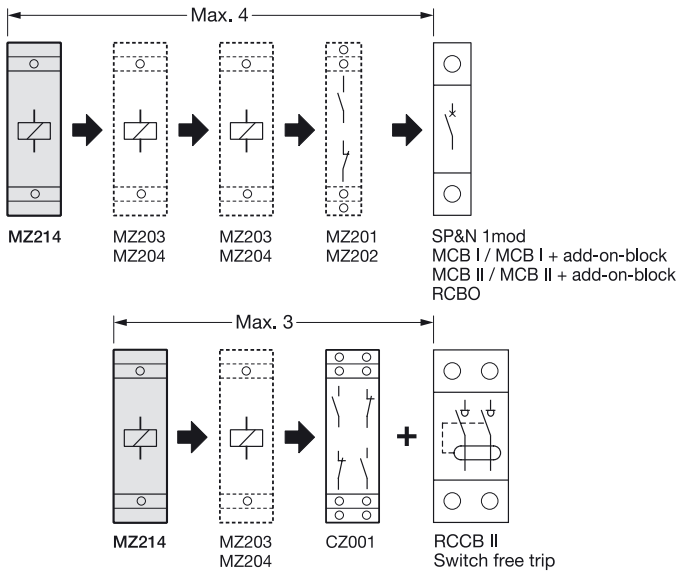
Shunt trip MZ203

Diagram with an emergency stop button (NO) and a shunt trip

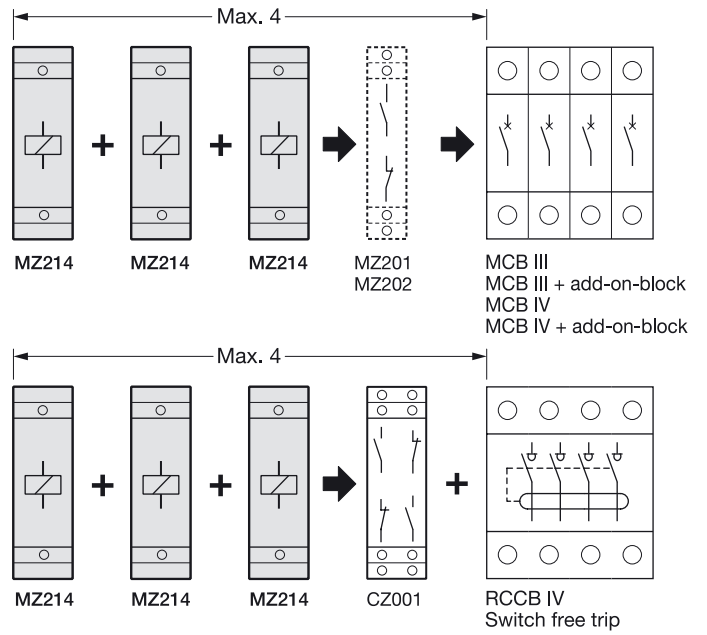


Auxiliaries possibility combination

2 poles

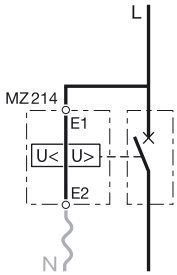


4 poles

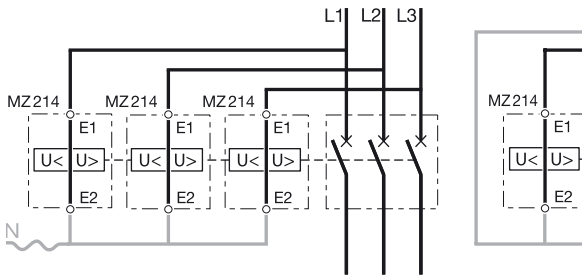
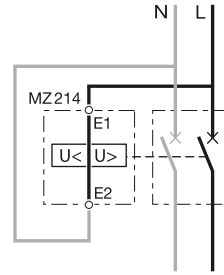


Overvoltage tripping MZ214

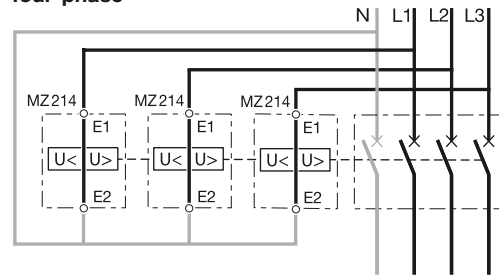
single-phase



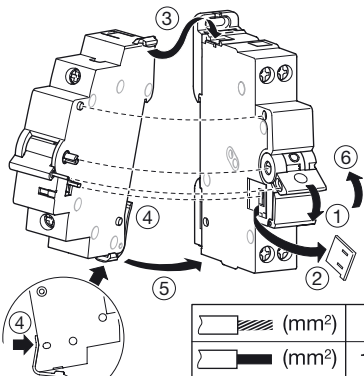
two-phase



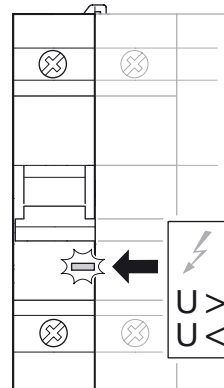
four-phase



Mounting



	(mm ²) 1...6	2 max.
	(mm ²) 1,5...10	2 max.
	12 mm	
	PZ1	1,2 Nm
	0,8 ⌀6	




Low voltage release

< 60 VAC ±10 VAC	no tripping
60 VAC to 120 VAC	150 ms
120 VAC to 170 VAC	3 s
170 VAC to 195 VAC	8 s
tolerance on voltage	± 5 VAC
tolerance on tripping time	± 15%

Over voltage release


> 270 VAC	100 ms
-----------	--------

Functioning modes

For the front functioning modes “off & on” and “auto”, the remote controls “on”, “off”, “reset” and “

“on” remote control (input n°2)


It is jammed when:

- The selector or the controls activate “reset” or “

“off” remote control (input n°4)

Takes priority for “on” setting and automatic reclosing.

It is jammed when:


- Selector activates the “reset” or “

“reset” remote control (input n°6)

This control padlocks to the « on » position, the « off » position and reinitialises the product.

The initialisation consists of resetting the number of tripping and the time delay (3 mins or 30 secs).

This will remotely unjam the product.

“

This control locks “on” and automatic reclosing.

“off” is available.

The product does not operate if this control is not connected (minimum).

Side selector “time set”

Time delay of 3 mins is recommended for associated products before activating either remote control setting “on” or automatic reclosing. Even if it the device is reset before 3 mins the action will be delayed. However, for specific installations, when a continuity of service is required, the side selector can be set at 30 secs (except for MCBs and RCBOs).


Supervision

“a” and “b” signal outputs

If “a” and “b” are closed (the position of the associated product or remote control auxiliary handles is down), the cause could be:

- short-circuit, an overload or an earth leakage fault (depending on the associated device),
- tripping = 3 (end of cycle).

If “a” and “b” are open (position of the handle down or central), the cause could be:

- padlocking “


Indicator light

The indicator light shows the state of the product and allows a diagnosis.

We can distinguish 3 general cases:

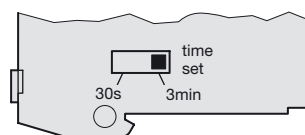
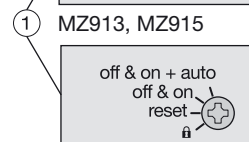
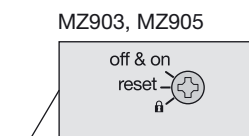
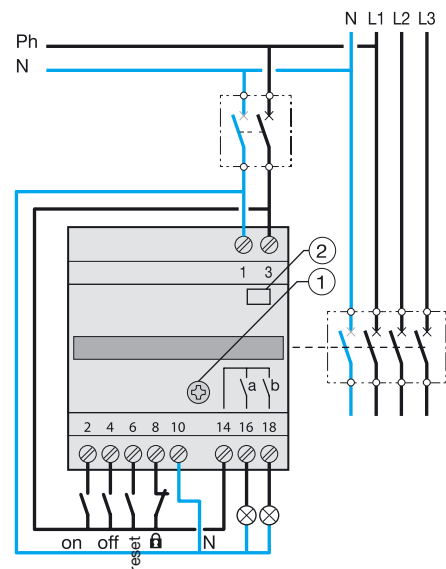
- indicator light on, the product is operational,
- indicator light off, the product is not supplied,
- indicator light intermittent, the remote controls or the automatic reclosing temporarily or permanently jammed.

Caused by

- Front selector padlocking position selected Remote control “reset” or “

If a red intermittent light is present, the controlled device is out of order.

Connection diagram



Technical specifications

Electrical characteristics

- Supply voltage: 230 V -10% / +15%
- Frequency: 50/60 Hz
- Product consumption:
 - transitional switching between closing/opening: 5 A max. for 150 ms
 - permanent: 7 VA


Functional characteristics

- Controls:
 - minimum of control: 120 ms
 - max. distance: 200 m
- Signals outputs: 200 m
 - 2 dry contacts:
 - max. breaking capacity: 5 A 250 V AC
 - min. breaking capacity: 10 mA 5 V DC
- Handlings: 10 000
- Opening or closing length: < 270 ms

Environment

- Functioning temperature: -5 °C to + 40 °C
- Storage temperature: -25 °C to + 70 °C

Operating principle

Position of front selector	Functioning	Indicator light
“off & on”	<ul style="list-style-type: none"> • Remote controls “on”, “off”, “reset” and “ <p>4.58</p> 	

Withstand current correction table

- (a) - depending on ambient temperature,
- (b) - depending on the proximity heating effect of the fuse carriers themselves when fully loaded and mounted together in groups.

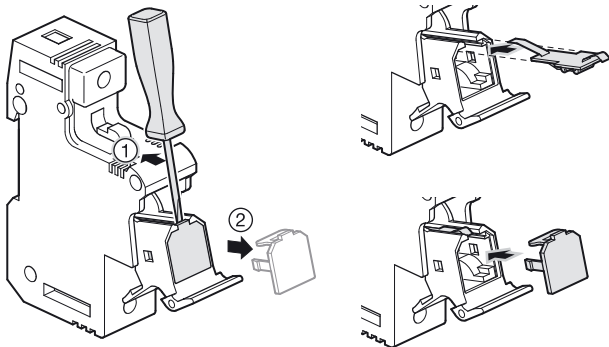
type		L 38	L 51	L 58
fuse size		10 x 38	14 x 51	22 x 58
In for Un 400 V AC		32 A	50 A	125 A
In for Un 500 V~		20 A	40 A	80 A
(a)	20°	1	1	1
	30°	0.95	0.95	0.95
	40°	0.90	0.90	0.90
	50°	0.80	0.80	0.80
(b)	1 à 3 Ph	1	1	1
	4 à 6 Ph	0.8	0.8	0.8
	7 à 9 Ph	0.7	0.7	0.7
	> 10 Ph	0.6	0.6	0.6

Microswitches functions

- Fuse melting: a fuse-carrier containing a fuse-link with a striker that sends out a signal when the fuse element melts
- Pre-cut: when the fuse-carrier opens
- Presence: sends a signal when the fuse-carrier is closed with no fuse in it

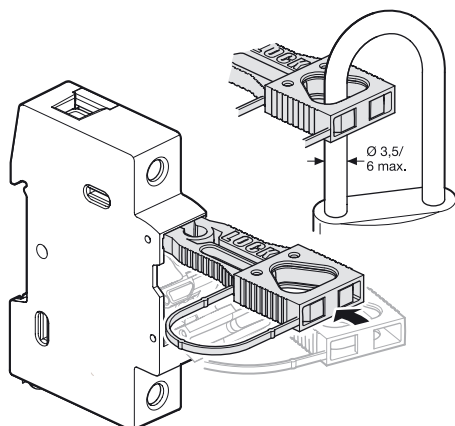
Signal light

Mounting on L 51 and L 58



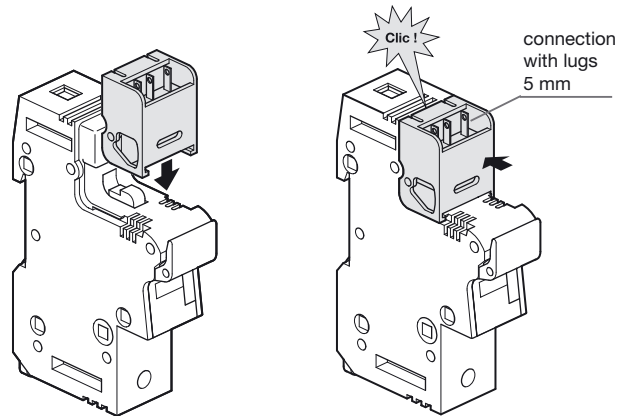
Padlocking and sealing

LS4xx and LS5xx in «open» position

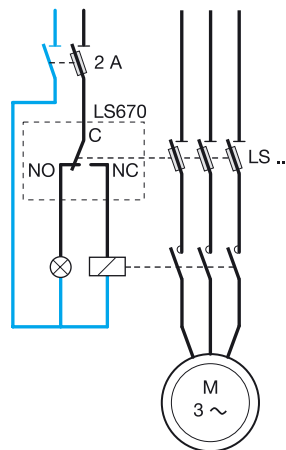


Microswitch

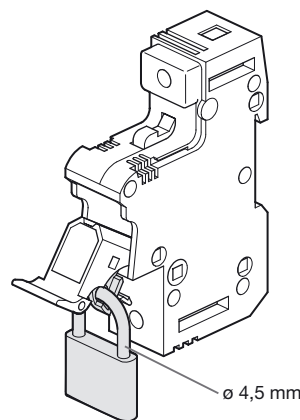
mounting on L 51 et L 58, single pole or multi pole



Application

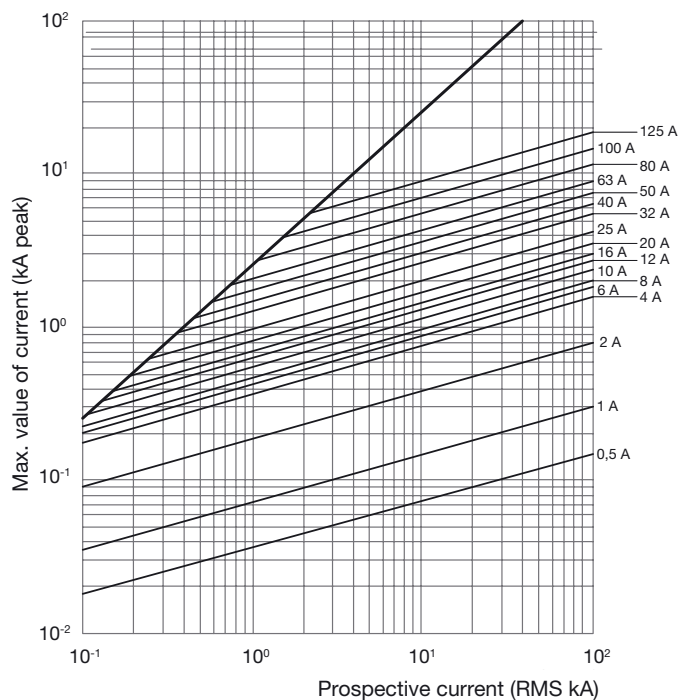


Padlocking and sealing of the others fuse carriers in «open» position

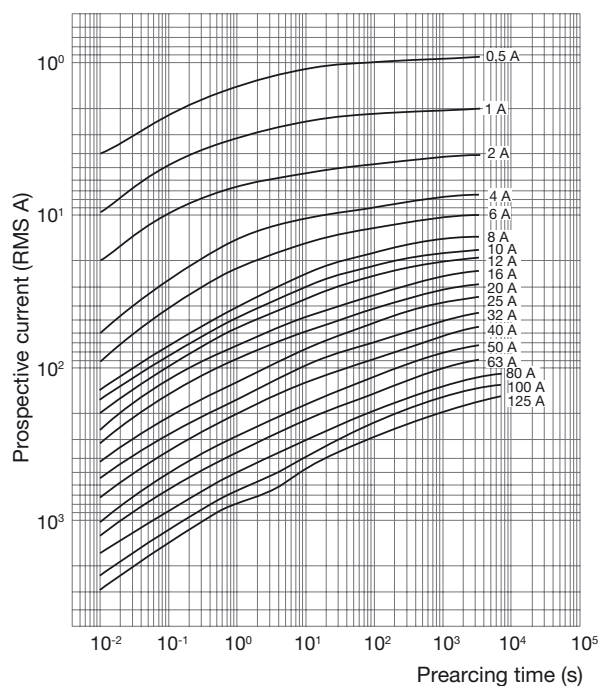


Cartridge fuses - gG type

Cut-off characteristics current limitation



Time-current characteristics



Energy let through chart (A² s)

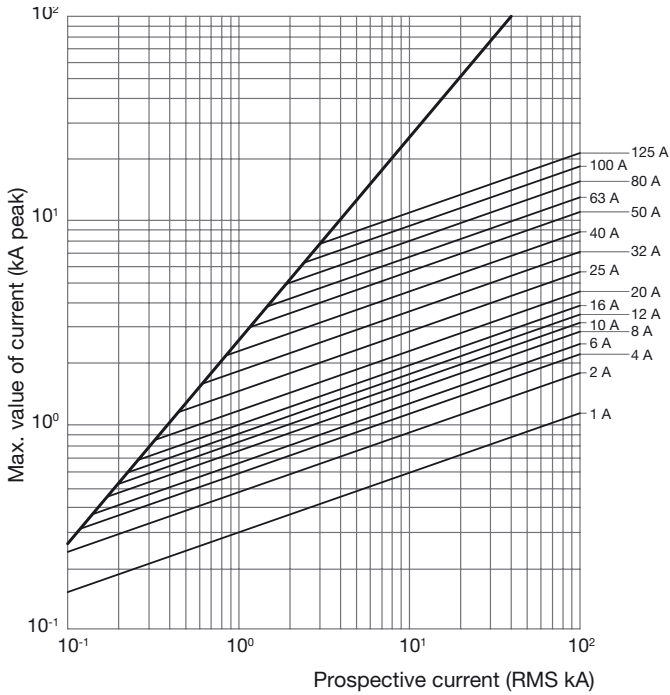
In	prearcing time I ² t	I ² t à 400 V	I ² t à 500 V	I ² t à 690 V
0.5	4.0	8.6	10.4	15.0
1	6.5	13.2	15.7	22.0
2	7.0	14.6	17.6	25.0
4	45	90	108	150
6	70	140	166	230
8	80	158	188	260
10	120	248	297	420
12	180	362	431	600
16	270	536	636	880
20	500	981	1162	1600
25	800	1688	2034	2900
32	1200	2412	2871	4000
40	2500	4907	5808	8000
45	2870	5603	6623	9100
50	5100	11262	13728	20000
63	7900	16451	19762	28000
80	16000	37242	46000	-
100	28000	68072	85000	-
125	40000	120000	-	-

Rated power dissipation (W)

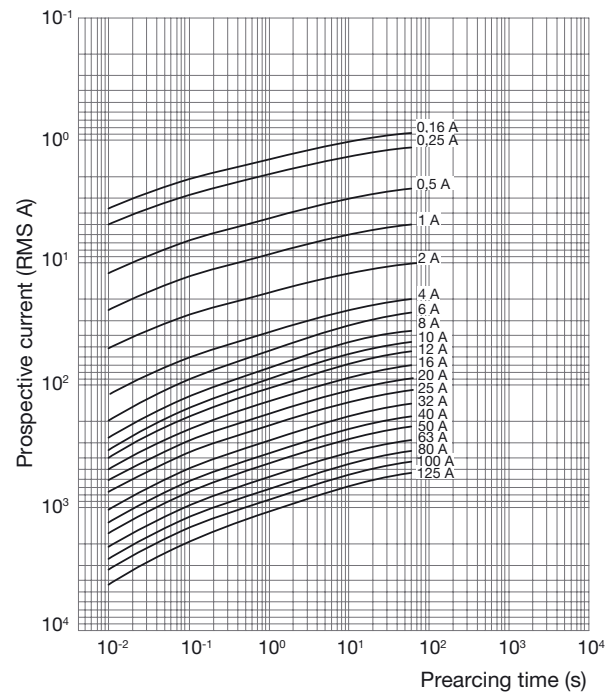
In (A)	size 10 x 38	size 14 x 51	size 22 x 58
0.5	1.43	-	-
1	2.77	3.90	-
2	0.60	0.90	1.00
4	0.70	1.00	1.10
6	0.85	1.15	1.30
8	0.75	1.00	1.10
10	1.00	1.30	1.50
12	1.30	1.70	1.80
16	1.60	2.00	2.10
20	2.00	2.50	2.70
25	2.60	3.30	3.30
32	2.90	3.50	3.50
40	-	4.75	4.00
45	-	4.80	-
50	-	4.80	5.50
63	-	-	6.90
80	-	-	7.80
100	-	-	9.00
125	-	-	11.4

Cartridge fuses - aM type

Cut-off characteristics current limitation



Time-current characteristics



Protection devices

Energy let through chart (A² s)

In (A)	prearcing time I ² t	I ² t à 400 V	I ² t à 500 V	I ² t à 630 V
0.5	6.5	13.2	15.7	22.0
1	9.5	18.5	21.9	30.0
2	40	83	99	140
4	90	181	215	300
6	120	250	300	425
8	220	448	535	750
10	300	733	916	1400
12	380	936	1173	1800
16	550	1608	2103	3500
20	950	2488	3165	5000
25	1300	3728	4851	8000
32	2500	6207	7791	12000
40	4500	10685	13263	20000
45	8000	16538	19831	28000
50	10000	19626	23230	32000
63	15000	31520	37950	54000
80	30000	59088	70000	-
100	50000	113945	140000	-
125	80000	200000	-	-

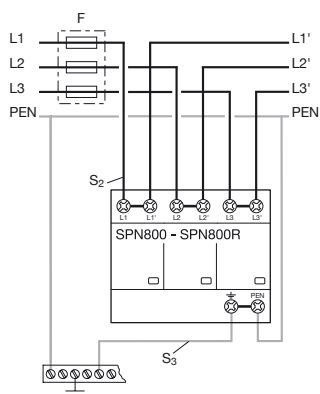
Rated power dissipation (W)

In (A)	size 10 x 38	size 14 x 51	size 22 x 58
0.5	0.49	0.69	-
1	0.10	0.14	-
2	0.18	0.24	0.29
4	0.31	0.45	0.48
6	0.32	0.42	0.47
8	0.52	0.70	0.73
10	0.55	0.53	0.74
12	0.63	0.88	0.83
16	0.92	1.16	1.21
20	0.96	1.23	1.29
25	1.40	1.46	1.53
32	1.80	2.04	2.13
40	-	2.60	3.40
45	-	2.85	-
50	-	2.90	3.48
63	-	-	4.46
80	-	-	5.86
100	-	-	6.61
125	-	-	8.42

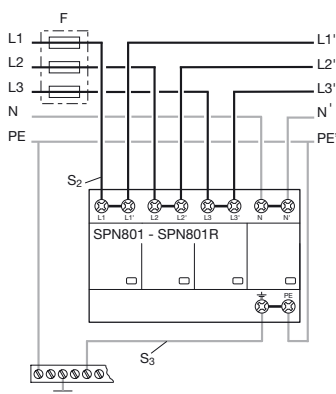
SPD references	SPN800	SPN801	SPN802
Standards / approval	EN61643-11	EN61643-11	EN61643-11
	L1/L2/L3 → PE	L1/L2/L3/N → PE	L1/L2/L3/N → PE N → PE
Type / Class	T1/ I / B	T1/ I / B	T1/ I / B
Installation of SPD	in parallel	in parallel	in parallel
Earthing system	TN-C	TN-S	TT
Protection mode	common	common	common and differential
Nominal voltage (Un)	230/400 V AC	230/400 V AC	230/400 V AC
Max. continuous operating voltage (Uc)	255 V AC	255 V AC	255 V AC
Voltage protection level (Up)	≤ 1.5 kV	≤ 1.5 kV	≤ 1.5 kV
Temporary overvoltage (Ut)	440 V / 5 s	440 V / 5 s	440 V / 5 s 1200 V / 200 ms
Nominal current I (L)	315 Aeff	315 Aeff	315 Aeff
Nominal current I (L-L')	125 Aeff	125 Aeff	125 Aeff
Disconnection value (Ifi)	50 kAeff	50 kAeff	50 kA 100 kA
Discharge current capacity (8/20) nominal current (In)	75 kA	100 kA	25 kA 100 kA
Shock current (10/350) (Iimp)	75 kA	100 kA	25 kA 100 kA
Residual current IPE	≤ 100 µA	≤ 100 µA	≤ 100 µA
Max. upstream protection - fuse	125 A gL/gG in series or 315 A in parallel	125 A gL/gG in series or 315 A in parallel	125 A gL/gG in series or 315 A in parallel
Max. upstream protection - MCB	125 A in series or 160 A in parallel curve C	125 A in series or 160 A in parallel curve C	125 A in series or 160 A in parallel curve C
Max. short-circuit resistance with max. upstream protection - fuse	50 kA eff ac	50 kA eff ac	25 kA eff ac
Max. short-circuit resistance with max. upstream protection - MCB	50 kA eff ac	50 kA eff ac	25 kA eff ac
Response time (tA)	≤ 100 ns	≤ 100 ns	≤ 100 ns
Working temperature	-40°C to +60°C	-40°C to +60°C	-40°C to +60°C
Indication (disconnection device)	green - red light on L1, L2, L3	green - red light on L1, L2, L3, N	green - red light on L1, L2, L3, N
Connection capacity min. L1, L2, L3, PE - max. L1', L2', L3', PE'	10 mm ² rigid / flexible	10 mm ² rigid / flexible	10 mm ² rigid / flexible
Connection capacity max. L1, L2, L3, PE	50 mm ² multi-wired 35 mm ² flexible	50 mm ² multi-wired 35 mm ² flexible	50 mm ² multi-wired 35 mm ² flexible
Connection capacity max. L1', L2', L3', PE'	50 mm ² multi-wired 25 mm ² flexible	50 mm ² multi-wired 25 mm ² flexible	50 mm ² multi-wired 25 mm ² flexible
Terminals tightening torque	7,0 Nm	7,0 Nm	7,0 Nm
Mounting on	DIN rail 35 mm (EN 60715)	DIN rail 35 mm (EN 60715)	DIN rail 35mm, conform to EN 60715
Case material	thermoplastic, grey color, UL 94V-0	thermoplastic, grey color, UL 94V-0	thermoplastic, grey color, UL 94V-0
Degree of protection	IP20	IP20	IP20
Size	6 ■, DIN 43880	6 ■, DIN 43880	8 ■, DIN 43880
Weight	970 g	1260 g	1272 g
Approval	VDE	VDE	VDE

Auxiliary contact references	SPN800R = SPN800 w/ aux. contact	SPN801R = SPN801 w/ aux. contact	SPN802R = SPN802 w/ aux. contact
Contact type	changeover	changeover	changeover
Electrical characteristics (Un/In)	AC: 250V/0.5A DC: 250V/0.1A ; 125V/0.2A ; 75V/0.5A	AC: 250V/0.5A DC: 250V/0.1A ; 125V/0.2A ; 75V/0.5A	AC: 250V/0.5A DC: 250V/0.1A ; 125V/0.2A ; 75V/0.5A
Min. connection capacity	0.25 mm ² rigid / flexible	0.25 mm ² rigid / flexible	0.25 mm ² rigid / flexible
Max. connection capacity	1.5 mm ² multi-wired / flexible	1.5 mm ² multi-wired / flexible	1.5 mm ² multi-wired / flexible

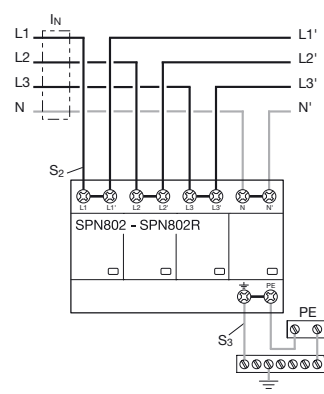
Installation in parallel TN-C



Installation in parallel TN-S



Installation in parallel TT



	Class II - Overvoltage protection					
	High	Medium				Fine
Reference	SPN140D	SPN215D	SPN215R	SPN415D	SPN415R	SPN208S
Installation exposure level (risk)	high	medium	medium	medium	medium	low
Installation of SPD	parallel	parallel	parallel	parallel	parallel	series
Number of poles	1P	1P+N	1P+N	3P+N	3P+N	1P+N
Number of modules	1	2	2	4	4	2
Nominal current	-	-	-	-	-	-
Nominal voltage Un (V)	230	230	230	400	400	230/400
Frequency (Hz)	50/60	50/60	50/60	50/60	50/60	50/60
Operating temperature range	-40°C to +60°C	-40°C to +60°C	-40°C to +60°C	-40°C to +60°C	-40°C to +60°C	-40°C to +60°C
Storage temperature range	-40°C to +70°C	-40°C to +70°C	-40°C to +70°C	-40°C to +70°C	-40°C to +70°C	-40°C to +70°C
Max. continuous operating voltage Uc (V)						
common mode	275	275	275	275	275	440
differential mode	-	-	-	-	-	255
Voltage protection level Up (kV)						
common mode	-	-	-	-	-	1.2
differential mode	1.2	1.0	1.0	1.0	1.0	1.0
Discharge current wave 8/20 µs (kA)						
nominal current In	15	5	5	5	5	2
maximum current Imax	40	15	15	15	15	8
Short circuit withstand with max.						
backup fuse or MCB	20kA	10kA	10kA	10kA	10kA	6A
max. backup fuse	25A	10A	10A	10A	10A	25A
backup MCB (C curve)	25A	25A	25A	25A	25A	25A
End of life indication (fault indication)						
1. three stage indication - green. green/red. red (R versions)	yes	N/A	yes	N/A	yes	N/A
2. basic indication - green/red (D versions)	N/A	yes	N/A	yes	N/A	N/A
3. green LED is on when SPD is working	N/A	N/A	N/A	N/A	N/A	yes
Applications						
industrial and commercial buildings	yes	yes	yes	yes	yes	yes
domestic buildings	yes	yes	yes	yes	yes	yes

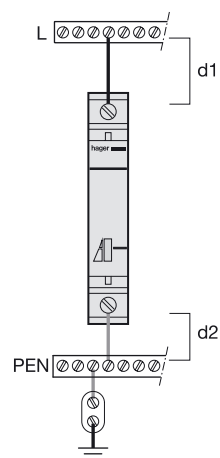
- Imax The maximum value of current that the SPD can withstand and remain operational.
- In The nominal value of current that the SPD can withstand at least 20 times and still be serviceable.
- Up The residual voltage that is measured across the terminal of the SPD when In is applied.
- Uc The maximum voltage which may be continuously applied to the SPD without conducting.
- Uoc Open circuit voltage under test conditions.
- Isc Short circuit current under test conditions.
- Un The nominal rated voltage of the installation
- MOV Metal Oxide Varistor
- SPD Surge Protective Device

How to choose your surge protection device

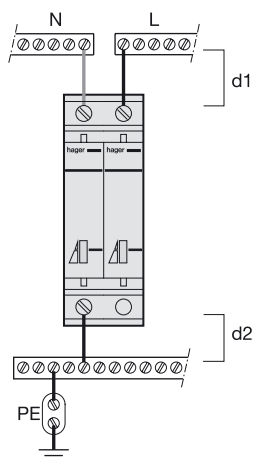
The choice of surge protection device depends on your supply arrangements and level of protection required.

Earthing system	Type of protection		connection	Products to be used in a	
				Single phase installation	Three phase installation
TN-C TN-C-S (P-M-E)	transient voltage surges (8/20ms)	class II main protection $I_{max} = 40kA$ or $15kA$ (depending on selection)	parallel	SPN140D 	1xSPN415D/SPN415R
		class II fine protection $U_p < 1kV$	parallel	SPN208S 	
TN-S TT	transient voltage surges (8/20ms)	class II main protection $I_{max} = 15kA$ $I_{max} = 15kA$	parallel	SPN215D/SPN215R 	1xSPN415D/SPN415R
		class II fine protection $U_p < 1kV$	parallel	SPN208S 	

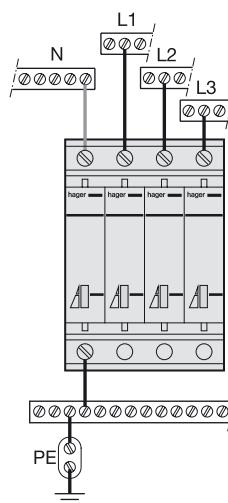
Connections



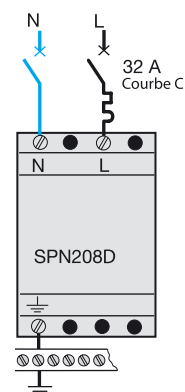
SPN140D



SPN265R



SPN415D/R



SPN208S

Basic principles

The proper selection of the correct circuit protective device requires an understanding of the potential hazards against which protection for safety is required. The Wiring Regulations identify several hazards:

- electric shock
- thermal effects
- overcurrent
- undervoltage
- isolation

Electric shock

Electric shock is divided into two parts:

- direct contact: contact with parts which result in an electric shock in normal service
- indirect contact: contact with exposed conductive parts which result in an electric shock in case of a fault.

To protect against direct contact the Wiring Regulations suggest the following basic measures should be taken:

- (1) by insulation of live parts
- (2) by enclosures or barriers
- (3) by obstacles
- (4) by placing out of reach

To protect against indirect contact the Wiring Regulations suggest the following basic measures should be taken:

- (1) earthed equipotential bonding and automatic disconnection of supply
- (2) use of class II equipment or equivalent insulation
- (3) non-conducting location
- (4) earth-free local equipotential bonding
- (5) electrical separation

Of these five measures, the first is by far the most commonly used:

- (1) earthed equipotential bonding and automatic disconnection of supply.

In each installation main equipotential bonding conductors shall connect the main earthing terminal of the installation; this metalwork comprises exposed conductive parts which are part of the electrical installation itself and extraneous conductive parts including the following:

- main water pipes
- gas installation pipes
- other service pipes and ducting
- risers of central heating and air conditioning systems
- exposed metal parts of the building structure

This bonding creates a zone within which any voltages appearing between exposed conductive parts and extraneous conductive parts, are minimised; the earth fault loop impedance must have a value low enough to allow sufficient current to flow for the circuit protective device to operate rapidly to disconnect the supply; disconnection must be sufficiently fast so that voltages appearing on the bonded metalwork cannot persist long enough to cause danger; depending on the operating characteristics of the protective device and the earth impedance, such disconnection may be achieved either by overcurrent devices, Fuses, Miniature Circuit Breakers, (i.e. MCBs) or by Residual Current Devices, (i.e. RCCBs).

Thermal effect

Refers to heat generated by the electrical equipment in normal use and under fault conditions. The proper selection of equipment complying with the latest product standards is essential in providing protection against thermal effects.

Overcurrent

Defined as a current exceeding the rated value of the circuit components. It may be caused by the overloading of a healthy circuit or it may take the form of a short-circuit current, defined as an «overcurrent resulting from a fault of negligible impedance between live conductors having a difference in potential under normal operating conditions». Overcurrent protection may be provided by using fuses or circuit breakers singly or in combination.

Undervoltage

Refers to the dangers that could be caused by the reduction or loss in voltage and the subsequent restoration, such as the unexpected re-starting of motors or the automatic closing of protective devices. The proper selection of control and protective devices must take the protection against undervoltage into consideration.

Isolation

Every circuit shall be provided with means of isolation (except in certain cases) to prevent or remove hazards associated with the installation, equipment and machines. The new standards for circuit breakers and switch-fuses now take this into account.

Protection against shock by indirect contact

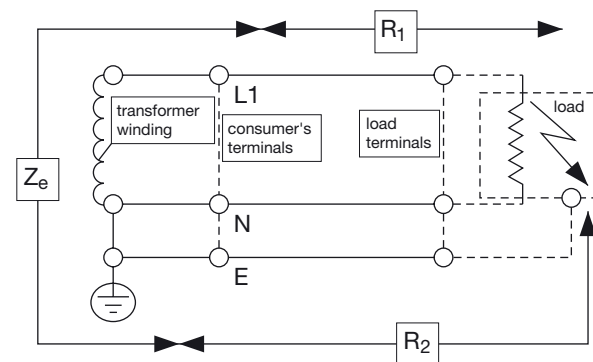
Indirect contact - is the contact of persons or livestock with exposed conductive parts made live by a fault and which may result in electric shock. An example would be where the insulation of an electric heater has broken down resulting in a live conductor internally touching the casing. This could result in the heater casing being raised to a hazardous voltage level, causing electric shock to a person touching it.

Two important measures must be taken to prevent this hazard:

- the impedance of circuit conductors is kept to a minimum. The earth fault loop impedance (Z_s) is used as a measure of the circuit impedance under fault conditions.
- the overcurrent device protecting the circuit is selected to rapidly disconnect an earth fault.

The effect of these two measures is inter-related.

1. By ensuring that the circuit protective conductor is of a low impedance, the voltage to which the live casing is raised, under fault conditions, is kept to a minimum.
2. The low impedance path provided by the circuit conductors and the circuit protective conductor will result in a high level of current in the event of an earth fault. This high fault current ensures that the overcurrent protective device will disconnect the fault in a short time, reducing the interval during which the casing of the faulty equipment is live.



Components of earth fault loop impedance (Z_s) in a system. (Earth fault at load between conductor and casing).

$$Z_s = Z_e + (R_1 + R_2)$$

Earth fault loop impedance (Z_s)

To ensure the impedance of conductors in a circuit is sufficiently low the system designer has to establish the value of the earth fault loop impedance.

Z_s - is a measure of the earth fault current loop, comprising the phase conductor and the earth conductor. It comprises the complete loop including the winding of the transformer from which the circuit is supplied as defined by the following:

Z_e - is the part of the earth fault loop impedance external to the installation, its value can be measured or a nominal value can be obtained from the supply authority.

$(R_1 + R_2)$ - where R_1 is the resistance of the phase conductor within the installation and R_2 is the resistance of the circuit protective conductor. These two components constitute the loop impedance within the installation.

Therefore: $Z_S = Z_e + (R_1 + R_2)$

Once the value of Z_S has been established a suitable overcurrent protective device has to be selected to ensure disconnection of an earth fault within the specified time. The times are:

- 5 seconds for fixed equipment.
- For portable equipment and for fixed equipment installed outside the equipotential bonding zone, the disconnection times are dependent on the nominal voltage to earth, i.e. 220 to 277 volts = 0.4 seconds.

Z_S by calculation

To establish whether the relevant disconnection time can be achieved a simple calculation must be made, based on Ohm's law:

$$I_f \text{ (fault current)} = \frac{U_0 \text{ (open circuit voltage)*}}{Z_S \text{ (earth fault loop)}}$$

* voltage between phase and earth (240V)

The fault current (I_f) must be high enough to cause the circuit protective device to trip in the specified time. This can be established by consulting the time/current characteristic for the protective device. If the maximum trip time for the fault current calculated is less than or equal to the relevant value (5s for fixed equipment; 0.4s for portable equipment) then compliance is achieved. It is important that when consulting the characteristic curve the worst case is used, i.e. the maximum tripping time including any tolerance. An example is shown in Figs 1 and 2.

Z_S by tables

The above procedure can be used for any type of protective device providing a time/current characteristic curve is available. Frequently, however, a much simpler method is available using tables listing maximum Z_S values which have been interpreted from the characteristic curves for the relevant devices. Providing the system Z_S is equal to or less than the value given in the table, compliance is achieved. Tables for a number of 'standard' devices (certain fuses and MCBs) are given in the Wiring Regulations.

Z_S too high

If the system Z_S value is too high to achieve rapid enough disconnection with the overcurrent protective devices available then it is necessary to use one of the two following methods:

- fit a cable with a larger cross-section and consequently a lower impedance. This may be a very expensive solution especially when the installation is complete before the problem is discovered.
- use a Hager residual current device (RCD). Subject to certain conditions being met this provides a simple and economical solution.

Example

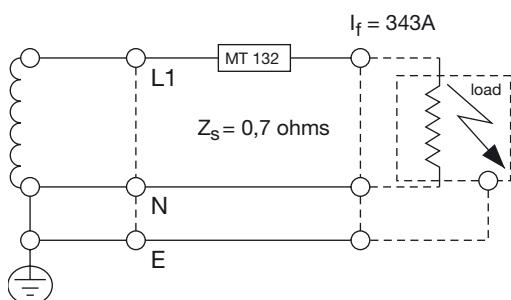
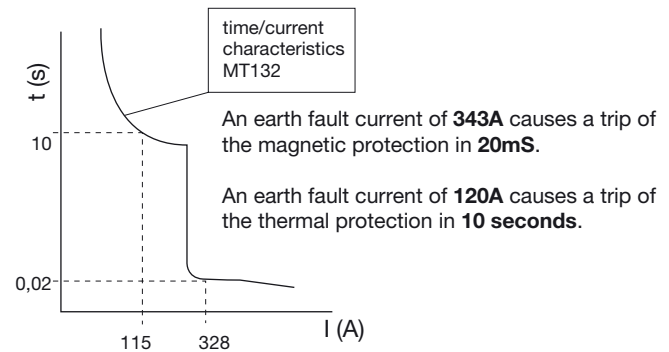


Diagram above shows a fixed circuit with an earth loop impedance Z_S of 0.7 ohms protected with an MT 132. The fault current (I_f) will therefore be $U_0/Z_S = 240/0.7 = 343A$

By referring to the characteristic for MT132 (see diagram below) it can be seen that the breaker will disconnect in 0.02 seconds for this current. The breaker therefore easily satisfies the requirement for disconnection in 5 seconds.

If the circuit Z_S was 2.0 ohms then the fault current would be: $240/2 = 120A$ and the disconnection time would be 10 seconds, in which case compliance would not be achieved.



Protection against overcurrent

Overcurrent - «A current exceeding the rated value. For conductors the rated value is the current-carrying capacity»

Overload Current

«An overcurrent occurring in a circuit which is electrically sound»

Short-Circuit Current

«An overcurrent resulting from a fault of negligible impedance between live conductors having a difference in potential under normal operating conditions.»

Protection against Overload Current

For the protection against overload current, protective devices must be provided in the circuit to break any overload current flowing in the circuit conductors before it can cause a temperature rise which would be detrimental to insulation, joints, terminations or the surroundings of the conductors.

In order to achieve this protection the nominal current of the protective device I_n should be not less than the design current of the circuit I_b and that I_n should not exceed the current-carrying capacity of the conductors I_z , and that the current causing effective operation of the protective device I_2 does not exceed 1.45 times the current-carrying capacity of the conductor I_z , expressed as

$$I_b \leq I_n \leq I_z$$

$$I_2 \leq 1.45 I_z$$

Protection against Short-Circuit Current

Protective devices must be provided to break any short-circuit current before it can cause danger due to thermal and mechanical (electro-dynamic) effects produced in the conductors and connections. The breaking capacity of the protective device shall not be less than the prospective short-circuit current at the point at which the device is installed. However a lower breaking capacity is permitted provided that a properly co-ordinated back-up device having the necessary breaking capacity is installed on the supply side.

Positioning of Overcurrent Devices

Devices for the protection against overload and short-circuit must be placed at the point where a reduction occurs in the current-carrying capacity of the conductors. This reduction could be caused by a change in the environmental conditions as well as the more obvious change in the cross-sectional area of the cable.

There are of course exceptions to this general rule which relate to a very few special applications. These are set out in detail in the the Wiring Regulations.

Both of the new International Standards covering Low Voltage Circuit Breakers provide the user with a better assurance of quality and performance by taking into account the actual operating conditions of the breaker. New definitions and symbols have been introduced which should be committed to memory. Some of those most frequently used are:

U_e :	rated service voltage
U_i :	rated insulation voltage ($> U_e$ max)
U_{imp} :	rated impulse withstand
I_{cm} :	rated short circuit making capacity
I_{cn} :	rated short circuit capacity
I_{CS} :	rated service short circuit breaking capacity
I_{cu} :	rated ultimate short circuit breaking capacity
$I_{\Delta n}$:	rated residual operating current (often called residual sensitivity)
I_n :	rated current = maximum value of current used for the temperature rise test
Δt :	trip delay of residual current devices

In addition IEC 898 sets out to provide a greater degree of safety to the uninstructed users of circuit breakers. It is interesting to note that the description «miniature circuit breaker» or MCB is not used at all in this standard, but no doubt both manufacturers and users will continue to call circuit breakers complying with IEC 898 miniature circuit breakers or MCBs for some time to come.

The scope of this standard is limited to ac air break circuit breakers for operation at 50Hz or 60Hz, having a rated current not exceeding 125A and a rated short-circuit capacity not exceeding 25kA.

A rated service short-circuit breaking capacity I_{CS} is also included which is equal to the rated short-circuit capacity I_{cn} for short-circuit capacity values up to and including 6kA, and 50% of I_{cn} above 6kA with a minimum value of 7.5kA. As the circuit-breakers covered by this standard are intended for household and similar uses, I_{CS} is of academic interest only. The rated short-circuit capacity of a MCB (I_{cn}) is the alternating component of the prospective current expressed by its r.m.s. value, which the MCB is designed to make, carry for its opening time and to break under specified conditions. I_{cn} is shown on the MCB label in a rectangular box without the suffix 'A' and is the value which is used for application purposes. I_{cn} (of the MCB) should be equal to or greater than the prospective short-circuit current at the point of application.

You will see from the curves that the inverse time delay characteristic which provides overload protection is the same on all three. This is because the Standards requires the breaker to carry 1.13 times the rated current without tripping for at least one hour and when the test current is increased to 1.45 times the rated current, it must trip within one hour, and again from cold if the last current is increased to 2.55 times the rated current the breaker must trip between 1 and 120 seconds. The inverse time delay characteristic of all MCBs claiming compliance with IEC 898 must operate within these limits.

The difference between the three types of characteristic curves designated 'B', 'C' and 'D' concerns only the magnetic instantaneous trip which provides short-circuit protection.

- For type 'B' the breaker must trip between the limits of 3 to 5 times rated current
- For type 'C' the breaker must trip between the limits of 5 to 10 times rated current, and
- For type 'D' the breaker must trip between the limits of 10 to 20 times rated current.

Often manufacturers publish their MCB tripping characteristics showing the limits set by the standard and guarantee that any breaker that you purchase will operate within these limits. So great care should be taken when working with characteristic curves showing lower and higher limits - on no account should you take a mean point for application design purposes.

For cable protection applications you should take the maximum tripping time and some manufacturers publish single line characteristic curves which show the maximum tripping time. If the design problem is nuisance tripping then the minimum tripping time should be used and for desk top co-ordination studies, both lower and upper limits have to be taken into account.

Energy limiting

Energy is measured in Joules. *James Prescott Joule proved that thermal energy was produced when an electric current flowed through a resistance for a certain time, giving us the formula :

Joules = $I^2 \times R \times t$ or because we know that watts = $I^2 R$

Joules = watts x seconds

Therefore we can say that :

One Joule = one watt second

or energy = watts x seconds = $I^2 R t$

If the resistance (R) remains constant or is very small compared with the current (I) as in the case of short-circuit current, then energy becomes proportional to $I^2 t$. Which is why the energy let-through of a protective device is expressed in ampere squared seconds and referred to as $I^2 t$

$I^2 t$ (Joule Integral) is the integral of the square of the current over a given time interval (t_0, t_1)

The $I^2 t$ characteristic of a circuit breaker is shown as a curve giving the maximum values of $I^2 t$ as a function of the prospective current.

Manufacturers are required by the Standard to produce the $I^2 t$ characteristic of their circuit breakers.

See previous page.

The energy limiting characteristics of modern MCBs greatly reduce the damage that might otherwise be caused by short-circuits. They protect the cable insulation and reduce the risk of fire and other damage. Knowledge of the energy limiting characteristic of a circuit breaker also helps the circuit designer calculate discrimination with other protective devices in the same circuit.

Because of the importance of the energy limiting characteristic the Standards for circuit breakers for household and similar installations suggests three energy limiting classes based on the permissible $I^2 t$ (let-through) values for circuit breakers up to 32A; class 3 having the highest energy limiting performance.

All Hager MCBs are well within the limits of energy let-through set by IEC 898 for energy limiting class 3.

Breaking capacity

References	MLN	Ax8xxx	Ax9xxx
poles	Ph+N	Ph+N	Ph+N
nominal current In (A)	2 to 40	6 to 40	6 to 40
breaking capacity IEC/EN 60 898			
230V	6kA	4.5kA	6kA
400V	-	-	-
breaking capacity IEC/EN 60 947-2			
230V	7.5kA	6kA	10kA
400V	-	-	-

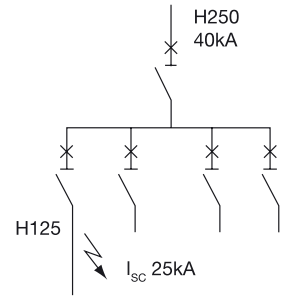
References	MV MW		MT MU		MBN MCN		MB MC		NGN				
poles	1	2, 3, 4	1	2, 3, 4	1	2, 3, 4	1	2, 3, 4	1, 2, 3, 4	1, 2, 3, 4	1, 2, 3, 4	1	2, 3, 4
nominal current In (A)	6 to 40	6 to 40	6 to 40	6 to 40	6 to 63	6 to 63	0.5 to 63	0.5 to 63	0.5 to 2	3 to 6	6	10 to 63	10 to 63
breaking capacity IEC/EN 60 898													
230V	3kA	4.5kA	6kA	10kA	6kA	10kA	6kA	10kA	-	-	-	6kA	10kA
400V	-	3kA	-	6kA	-	6kA	-	6kA	-	-	-	6kA	6kA
breaking capacity IEC/EN 60 947-2													
230V	-	-	10kA	20kA	-	-	10kA	20kA	80kA	50kA	30kA	10kA	20kA
400V	-	-	3kA	10kA	-	-	3kA	10kA	80kA	50kA	30kA	3kA	10kA

References	NBN, NCN NDN					NQN, NRN, NSN						
poles	1, 2, 3, 4	1, 2, 3, 4	1, 2, 3, 4	1	2, 3, 4	1, 2, 3, 4	1, 2, 3, 4	1, 2, 3, 4	1, 2, 3, 4	1, 2, 3, 4	1, 2, 3, 4	1, 2, 3, 4
nominal current In (A)	0.5 to 2	3 to 6	6	10 to 63	10 to 63	0.5 to 2	3 to 6	6	6 to 25	32 to 40	50 to 63	
breaking capacity IEC/EN 60 898												
230V	-	-	-	10000A	-	-	-	-	-	-	-	-
400V	-	-	-	-	10000A	-	-	-	-	-	-	-
breaking capacity IEC/EN 60 947-2												
230V	80kA	50kA	30kA	15kA	20kA	80kA	50kA	30kA	25kA	20kA	15kA	
400V	80kA	50kA	30kA	3kA	15kA	80kA	50kA	30kA	25kA	20kA	15kA	

References	HLE HLF		HMB, HMC HMD		HMJ HMK		HMX	
poles	1	2, 3, 4	1	2, 3, 4	1	2, 3, 4	1	2, 3, 4
nominal current In (A)	80 to 125	80 to 125	80 to 125	80 to 125	80 to 125	80 to 125	10 to 63	10 to 63
breaking capacity IEC/EN 60 898								
230V	15kA	10kA	-	15kA	-	-	-	-
400V	10kA	10kA	-	15kA	-	-	-	-
breaking capacity IEC/EN 60 947-2								
230V	15kA	15kA	-	30kA	-	60kA	-	100kA
400V	10kA	10kA	-	15kA	-	30kA	-	50kA

Definition

This allows circuit breakers of lower breaking capacity than the PSCC to be installed. The principle is that two breakers operating in series will clear a larger fault and that energy let through by the upstream breaker will not damage the down stream device.



A. Coordination: upstream MCB / downstream MCB, 1PP / 2PP / 3PP / 3PP+N / 4PP 400 - 415 V IEC60947

	Breaking capacity	Size	curve	Axx8xx	Axx9xx	MV, MW	NExxxA NFxxxA	MUxxxA MTxxxA MBxxxA MCxxxA	NGN	NBNxxxA NCNxxxA NDNxxxA	NQN, NRN, NSN			HLE HLF	HMB HMC HMD	HMJ HMK	HMX
				6 kA	10 kA	4.5 kA	10 kA	-	10 kA	15 kA	25 kA	20 kA	15 kA	10 kA	15 kA	30 kA	50 kA
				6 - 25 A	25 - 40 A	50 - 63 A	80 - 125 A	80 - 125 A	80 - 125 A	10 - 63 A	B, C, D	B, C, D	B, C, D	B, C	B, C, D	B, C	C
MUxxxA, MTxxxA, MBxxxA, MCxxxA	10 kA	B, C	-	-	-	-	-	-	15	25	20	15	-	15	30	50	
NGN	10 kA	B, C, D	-	-	-	-	-	-	15	25	20	15	-	15	30	50	
NBNxxxA, NCNxxxA, NDNxxxA	15 kA	B, C, D	-	-	-	-	-	-	-	25	20	15	-	-	30	50	
NQN, NRN, NSN	25 kA	B, C, D	-	-	-	-	-	-	-	-	-	-	-	-	30	50	
	20 kA	B, C, D	-	-	-	-	-	-	-	25	-	-	-	-	30	50	
MMN 2xx, MMN 3xx	15 kA	B, C, D	-	-	-	-	-	-	-	25	20	-	-	-	30	50	
	25-20 kA	magn.	-	-	-	-	-	-	-	25	-	-	-	-	30	50	
HLE, HLF	10 kA	B, C	-	-	-	-	-	-	-	25	20	-	-	15	30	-	
HMB, HMC, HMD	15 kA	B, C, D	-	-	-	-	-	-	-	25	20	-	-	-	30	-	
HMJ, HMK	30 kA	B, C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
HMX	50 kA	C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Protection devices

B. Coordination: upstream MCCB / downstream MCB, 1PP / 2PP / 3PP / 3PP+N / 4PP 400 - 415 V IEC60947

	Breaking capacity	curve	x160 TM			x250 TM			h250 TM			h250 LSI		h400 TM		h630 LSI		h1000 LSI		h1600 LSI	
			HDA	HHa	HNA	HHB	HNb	HHG	HNG	HEG	HNC	HEC	HHD	HND	HND	HED	HNE	HEE	HNF	HEF	
			18 kA	25 kA	40 kA	25 kA	40 kA	25 kA	50 kA	65 kA	50 kA	70 kA	25 kA	50 kA	50 kA	70 kA	50 kA	70 kA	50 kA	70 kA	
Axx8xx, MGT, MHT	6 kA	C	8	8	8	6.5	6.5	5.8	5.8	5.8	6.5	6.5	-	-	-	-	-	-	-	-	
Axx9xx	10 kA	C	18	18	18	14	14	10	10	10	14	14	14	14	10	10	-	-	-	-	
MUxxxA, MTxxxA, MBxxxA, MCxxxA	10 kA	B, C	18	20	20	14	14	10	10	10	14	14	13.6	13.6	10.1	10.1	-	-	-	-	
NGN	10 kA	D	18	25	30	20	25	15	18	20	25	35	15	20	20	20	18	18	-	-	
NBNxxxA, NCNxxxA, NDNxxxA	15 kA	B, C, D	18	25	40	25	40	25	25	25	47	47	23	23	19	19	18	18	-	-	
NQN, NRN, NSN	25 kA	B, C, D	-	-	40	-	40	25	50	65	50	70	25	50	50	58	44	44	28	28	
	20 kA	B, C, D	-	25	40	25	40	25	50	55	50	70	25	44	29	29	30	30	20	20	
MMN 2xx, MMN 3xx	15 kA	B, C, D	18	25	40	25	40	25	25	25	47	47	25	33	19	19	18	18	-	-	
	25 kA	magn.	-	-	40	-	40	25	50	65	50	70	25	50	50	58	44	44	28	28	
MMN 2xx, MMN 3xx	20 kA	magn.	-	25	40	25	40	25	50	53.4	50	70	25	44	29	29	30	30	20	20	
HLE, HLF	10 kA	B, C	18	25	40	25	40	25	25	25	47	47	23	23	18.6	18.6	18	18	-	-	
HMB, HMC, HMD	15 kA	B, C, D	18	25	40	25	40	25	25	25	47	48	24	23	19	19	18	18	-	-	
HMJ, HMK	30 kA	B, C	-	-	40	-	40	-	50	65	50	70	25	50	50	70	50	65	34	34	
HMX	50 kA	C	18	25	40	25	40	25	50	65	50	70	25	50	50	70	70	70	50	70	

C. Coordination: upstream fuses / downstream MCB, 1PP / 2PP / 3PP / 3PP+N / 4PP 400 - 415 V IEC60947

	curve	≤ 50 A	63 A	80 A	100 A	125 A	160 A	200 A	250 A	315 A	400 A	500 A	630 A	800 A
		Fuse gG												
MUxxxA, MTxxxA, MBxxxA, MCxxxA	B, C	100	100	100	100	70	35	10	10	10	10	10	10	10
NGN	B, C, D	100	100	100	100	70	35	10	10	10	10	10	10	10
NBNxxxA, NCNxxxA, NDNxxxA	B, C, D	100	100	100	100	100	100	15	15	15	15	15	15	15
NQN, NRN, NSN	B, C, D	100	100	100	100	100	100	60	15	15	15	15	15	15
MMN 2xx, MMN 3xx	magn.	100	100	100	100	100	100	60	15	15	15	15	15	15
HLE, HLF	B, C	100	100	65	35	22	10	10	10	10	10	10	10	10
HMB, HMC, HMD	B, C, D	100	100	65	35	25	15	15	15	15	15	15	15	15
HMJ, HMK	B, C	100	100	100	100	100	70	50	30	30	30	30	30	30
HMX	C	100	100	100	100	100	100	70	50	50	50	50	50	50

E. Coordination: upstream MCB / downstream MCB, 1PP / 2PP / 230V/240V IEC60947

	Breaking capacity	Axx8xx	Axx9xx	MV, MW	MUxxxA MTxxxA MBxxxA MCxxxA	MBNxxxA MCNxxxA	NGN	NBNxxxA NCNxxxA NDNxxxA	NQN, NRN, NSN			HLE HLF	HMB HMC HMD	HMJ HMK	HMX
		6 kA	10 kA	10 kA	20 kA	-	20 kA	30 kA	50 kA	40 kA	30 kA	20 kA	30 kA	60 kA	100 kA
		Fuse							6 - 25 A	25 - 40 A	50 - 63 A	80 - 125 A	80 - 125 A	80 - 125 A	10 - 63 A
curve	B, C	B, C	B, C	B, C	B, C	B, C	B, C, D	B, C, D	B, C, D	B, C, D	B, C, D	B, C, D	B, C, D	B, C	C
Axx8xx, MGT, MHT	6 kA	B, C	-	10	-	20	20	20	20	20	20	15	15	15	15
Axx9xx	10 kA	B, C	-	-	-	20	20	20	20	20	20	15	15	15	15
MUxxxA, MTxxxA, MBxxxA, MCxxxA	20 kA	B, C	-	-	-	-	-	30	50	40	30	-	30	60	100
MLN	7.5 kA	B, C	-	10	-	20	20	20	20	20	20	15	15	15	15
NGN	20 kA	B, C, D	-	-	-	-	-	30	50	40	30	-	30	60	100
NBNxxxA, NCNxxxA, NDNxxxA	30 kA	B, C, D	-	-	-	-	-	-	50	40	30	-	-	60	100
NQN, NRN, NSN	50 kA	B, C, D	-	-	-	-	-	-	-	-	-	-	-	60	100
	40 kA	B, C, D	-	-	-	-	-	-	-	-	-	-	-	60	100
	30 kA	B, C, D	-	-	-	-	-	-	-	-	-	-	-	60	100
MMN 2xx, MMN 3xx	50-40 kA	magn.	-	-	-	-	-	-	-	-	-	-	-	60	100
HLE, HLF	20 kA	B, C	-	-	-	-	-	-	-	-	-	-	30	60	-
HMB, HMC, HMD	30 kA	B, C, D	-	-	-	-	-	-	-	-	-	-	-	60	-
HMJ, HMK	60 kA	B, C	-	-	-	-	-	-	-	-	-	-	-	-	-
HMX	100 kA	C	-	-	-	-	-	-	-	-	-	-	-	-	-

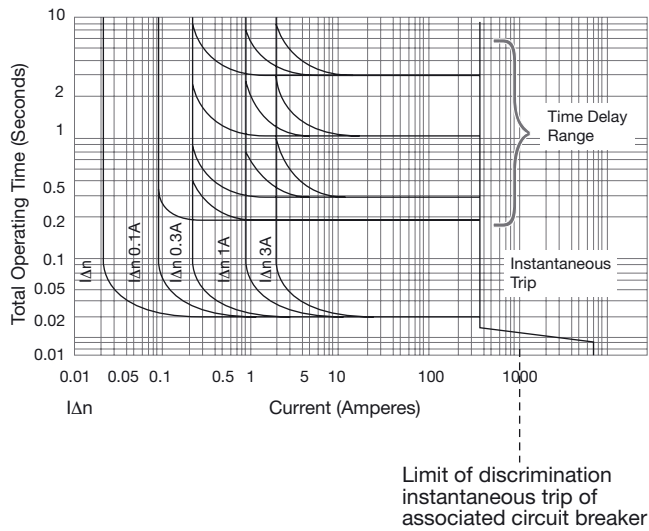
E. Coordination: upstream MCCB / downstream MCB, 1PP / 2PP / 230V/240V IEC60947

	Breaking capacity	x160 TM			x250 TM			h250 TM			h250 LSI		h400 TM		h630 LSI		h1000 LSI		h1600 LSI	
		HDA	HHA	HNA	HHB	HNB	HHG	HNG	HEG	HNC	HEC	HHD	HND	HND	HED	HNE	HEE	HNF	HEF	
		25 kA	35 kA	85 kA	35 kA	85 kA	35 kA	85 kA	85 kA	85 kA	100 kA	35 kA	85 kA	85 kA	100 kA	85 kA	100 kA	100 kA	100 kA	
curve	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Axx8xx, MGT, MHT	6 kA	C	15	15	15	6.5	6	6	6	6	7	8.2	8.2	7.2	7.2	-	-	-	-	
Axx9xx	10 kA	C	45	45	45	15	18	18	18	18	40	19	19	15	15	-	-	-	-	
MLN	7.5 kA	B, C	24	24	24	9	9	9	9	9	12	13.5	13.5	10	10	-	-	-	-	
NGN	20 kA	D	25	35	85	35	85	35	85	85	100	35	64	63	63	40	40	21	21	
NBNxxxA, NCNxxxA, NDNxxxA	30 kA	B, C, D	25	35	85	35	85	35	85	85	100	35	85	85	100	85	85	37	37	
NQN, NRN, NSN	50 kA	B, C, D	25	35	85	35	85	35	85	85	100	35	85	85	100	85	100	85	85	
	40 kA	B, C, D	25	35	85	35	85	35	85	85	100	35	85	85	100	85	100	55	55	
	30 kA	B, C, D	25	35	85	35	85	35	85	85	100	35	85	85	100	85	100	37	37	
MMN 2xx, MMN 3xx	50 kA	magn.	25	35	85	35	85	35	85	85	100	35	85	85	100	85	100	85	85	
MMN 2xx, MMN 3xx	40 kA	magn.	25	35	85	35	85	35	85	85	100	35	85	85	100	85	100	55	55	
HLE, HLF	20 kA	B, C	25	35	85	35	85	35	85	85	100	35	85	85	100	85	100	37	37	
HMB, HMC, HMD	30 kA	B, C, D	25	35	85	35	85	35	85	85	100	35	85	85	100	85	100	37	37	
HMJ, HMK	60 kA	B, C	25	35	85	35	85	35	85	85	100	35	85	85	100	85	100	100	100	
HMX	100 kA	C	25	35	85	35	85	35	85	85	100	35	85	85	100	85	100	100	100	

F. Coordination: upstream fuses / downstream MCB, 1PP / 2PP / 230V/240V IEC60947

	curve	≤ 50 A	63 A	80 A	100 A	125 A	160 A	200 A	250 A	315 A	400 A	500 A	630 A	800 A
		Fuse gG												
Axx8xx, MGT, MHT	C	100	65	40	22	15	6.5	6	6	6	6	6	6	6
Axx9xx	C	100	100	65	40	25	11	10	10	10	10	10	10	10
MUxxxA, MTxxxA, MBxxxA, MCxxxA	B, C	100	100	100	100	70	35	20	20	20	20	20	20	20
MLN	B, C	100	100	65	40	25	11	7.5	7.5	7.5	7.5	7.5	7.5	7.5
NGN	B, C, D	100	100	100	100	70	35	20	20	20	20	20	20	20
NBNxxxA, NCNxxxA, NDNxxxA	B, C, D	100	100	100	100	100	100	70	30	30	30	30	30	30
NQN, NRN, NSN	B, C, D	100	100	100	100	100	100	70	30	30	30	30	30	30
MMN 2xx, MMN 3xx	magn.	100	100	100	100	100	100	70	30	30	30	30	30	30
HLE, HLF	B, C	100	100	100	70	45	20	20	20	20	20	20	20	20
HMB, HMC, HMD	B, C, D	100	100	100	70	50	30	30	30	30	30	30	30	30
HMJ, HMK	B, C	100	100	100	100	100	100	100	60	60	60	60	60	60
HMX	C	100	100	100	100	100	100	100	100	100	100	100	100	100

Typical RCCB time/current characteristics



Having decided on the type and the limit of discrimination of the circuit breakers in the system, it is very important to consider the discrimination between any add on RCCBs. In theory it is possible to achieve current discrimination between RCCBs but the limit of discrimination is too low for practical purposes. Time discrimination is by far the best method and is achieved by delaying the tripping of the upstream RCCB.

Note that the limit of discrimination is the instantaneous setting of the associated circuit breaker. In other words if the earth fault current is greater than the instantaneous trip setting of the associated circuit breaker, the circuit breaker will trip regardless of the time delay on the RCCB. The table below indicates how time discrimination may be achieved between RCCBs.

		Up-stream RCCB sensitivity IΔn																					
		0.01A				0.03A				0.1A				0.3A				1.0A				3.0A	
Downstream RCCB sensitivity IΔn	Time delay (sec.)	0	0	0	0.2	0	0.2	0.3	1.0	3.0	0	0.2	0.3	1.0	3.0	0	0.3	1.0	3.0	0	0.3	1.0	3.0
0.01A	0																						
	0.2																						
0.03A	0																						
	0.2																						
	0.3																						
	1.0																						
0.1A	0																						
	0.2																						
	0.3																						
	1.0																						
0.3A	0																						
	0.2																						
	0.3																						
	1.0																						
1.0A	0																						
	0.3																						
	2.0																						
	3.0																						
3.0A	0																						
	0.3																						
	1.0																						
	3.0																						

Discrimination achieved

Co-Ordination between circuit protective devices

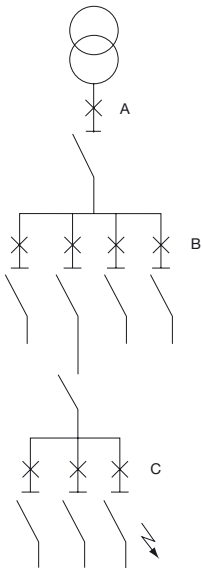
The proper co-ordination of two circuit protective devices is essential in all installations in order to fulfil the requirements of the Wiring Regulations which set out to ensure the safe continuity of supply of electrical current under all conditions of service. If a fault does occur, the circuit protective device nearest the fault should operate, allowing the device immediately upstream to continue to supply healthy circuits. This is called discrimination.

Sometimes the upstream device is selected to protect the downstream device(s) against high prospective short circuit currents and will operate to provide this protection should the actual short circuit current rise to a level which cannot be handled by the device nearest the fault. This is called back-up protection and devices should be so chosen as to allow discrimination up to the point the back-up device takes over.

Discrimination

Discrimination, which is sometimes called selectivity, is the co-ordination of two automatic circuit protective devices in such a way that a fault appearing at any given point in an installation is cleared by the protective device installed immediately upstream of the fault and by that device alone.

Example



A fault occurs downstream of final sub-circuit device «C». All other protective devices remain closed ensuring continuity of supply to the rest of the installation.

When this ideal situation is achieved under all conditions it is called «total discrimination».

Discrimination between two protective devices can be based on either the magnitude of the fault which is called «current discrimination» or the duration of the time the upstream device can withstand the fault current; this is called «time discrimination».

Current discrimination

In order to achieve «current discrimination» in a distribution system it is necessary for the downstream device to have a lower continuous current rating and a lower instantaneous tripping value than the upstream device. Current discrimination increases as the difference between the continuous current ratings of the upstream and downstream devices increases.

A simple way of checking current discrimination at both overload and short-circuit conditions is to compare the time/current characteristic curves of both devices plotted to the same scale. Transparency overlays, if available, make this task much easier (see diagram on

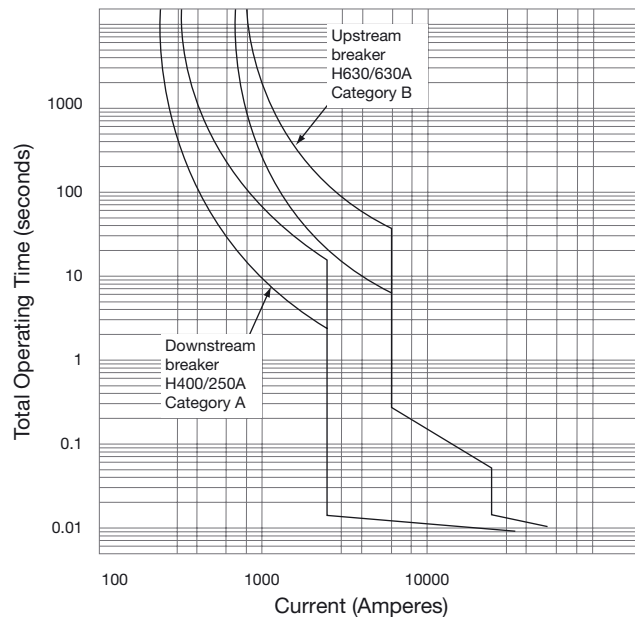
the right). For this example the time/current characteristics of a 32A type 'B' circuit breaker complying with BS EN 60898, with a 100A category 'A' circuit breaker to BS EN 60947 Part 2 are checked for current discrimination.

Because the thermal characteristic curve of the upstream circuit breaker clears the knee of the characteristic curve of the smaller downstream breaker, it can be said that overload discrimination is achieved under all conditions. However because the instantaneous characteristic curves cross at 0.01 sec, short-circuit discrimination is limited up to the point they cross, which in this case is approximately 2.7kA. The point at which the two time/current characteristics cross is called the limit of discrimination or selectivity. In this example the level of discrimination I_s is 2.7kA, so we only have partial discrimination between these two devices.

Time discrimination

Time discrimination is achieved by delaying the opening of the upstream circuit breaker until the downstream circuit breaker has opened and cleared the fault. The total clearing time of the downstream circuit breaker must be less than the time setting of the upstream circuit breaker and the upstream circuit breaker must be able to withstand the fault current for the time setting period. Therefore the upstream circuit breaker must be a category 'B' breaker which has been designed and tested for this purpose.

To determine time discrimination it is only necessary to compare the time/current characteristic curves of the two devices to ensure that no overlap occurs.



Short circuit discrimination

A more accurate way of checking the discrimination between two circuit protective devices at short circuit levels is to compare the energy let-through of the downstream device with the no-tripping or pre-arcing energy levels of the upstream device.

In order to check current discrimination at short circuit levels between:

Fuse Upstream - Fuse Downstream

It is only necessary to compare the I^2t values of each fuse. This information is usually available in very simple tabular form (see Table 1 page 4.73). If the total let-through energy (I^2t) of the downstream fuse is less than the pre-arcing energy (I^2t) of the upstream fuse, then total discrimination is achieved at short-circuit levels.

Fuse I²t characteristics

Rated current (A)	Pre-arcing I ² t (kA ² s)	Total I ² t (kA ² s)
10	0.07	0.25
16	0.17	0.45
20	0.31	0.90
25	0.62	1.90
32	1.00	3.0
40	2.1	8.0
50	7.0	17
63	11	30
80	22	70
100	39	100
125	62	170
160	101	300
200	190	500
315	480	1100
400	800	2100
500	1100	3100
630	1800	5000

Table 1

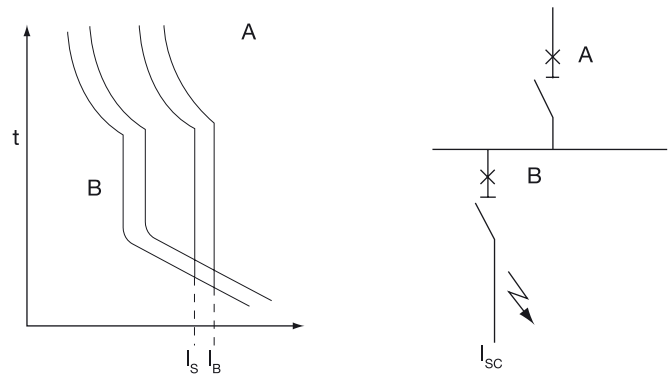
MCB total let-through energy

MCB In	Total let-through energy kA ² s at PSCC		
	3kA	6kA	10kA
6	5.9	10.5	15
10	6.5	12.2	21.5
16	8.0	17.5	30
20	8.8	19.5	34
25	10	21	38
32	11	24	42
40	12.5	29	50
50	15	34	61
63	16	38	72

Table 2

Fuse Upstream - Circuit breaker downstream. The same procedure applies to fuse/circuit breaker as it does to fuse/fuse association to check current discrimination.

While for all practical purposes, a desk top study of time/current and let-through energy (I²t) characteristics are perfectly adequate, the British Standards for circuit breakers do recommend testing to confirm the results. With this in mind hager have prepared a complete list of discrimination levels for all its circuit protective devices.



Back-up protection co-ordination

Back-up Protection

Sometimes known as cascading, when the energy limiting capacity of an upstream breaker is used to allow the use of a downstream circuit breaker having a short circuit breaking capacity (I_{cu}) lower than the prospective fault level at the point at which it is installed.

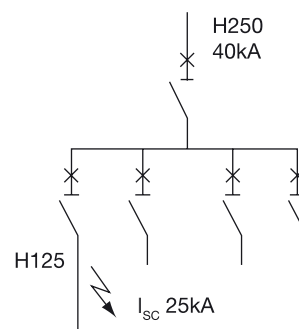
It should be noted that when two circuit protective devices are used in association to improve the short-circuit capacity of the downstream device, total selectivity can never be achieved up to the assigned breaking capacity of the association.

The upstream device must at some point operate to provide the necessary protection to the downstream circuit breaker. This point, which is known as the take-over current, must not be greater than the rated short-circuit capacity of the downstream circuit breaker alone. It therefore follows that the limit of selectivity I_S will be less than the take-over current I_B. See Diagram above.

Example

A panelboard is to be installed at a point where the prospective fault level is 25kA. 250A incoming and 16A TP outgoing circuits. Select the lowest cost circuit breakers which may be used. See diagram below.

Incoming - Hager H250 MCCB having an I_{cu} of 40kA.



Discrimination chart: Upstream - MCCBs H3
Downstream - MCBs and RCBOs

		Upstream	x160 TM 18 / 25 / 40 kA										x250 TM 25 / 40 kA					
Downstream		In (A)	16	20	25	32	40	50	63	80	100	125	160	100	125	160	200	250
MLN	Curve B	6	1.5	1.5	1.5	1.5	1.5	1.5	5.1	5.1	T	T	T	T	T	T	T	T
		10	1.2	1.2	1.2	1.2	1.2	1.2	3.6	3.6	T	T	T	5.7	T	T	T	T
		16	1.2	1.2	1.2	1.2	1.2	1.2	3.1	3.1	T	T	T	4.7	T	T	T	T
		20	-	1	1	1	1	1	2.6	2.6	T	T	T	3.9	T	T	T	T
		25	-	-	0.91	0.91	0.91	0.91	2.3	2.3	5.5	5.5	T	3.2	5.5	T	T	T
		32	-	-	-	0.82	0.82	0.82	1.8	1.8	4.4	4.4	5	2.7	4.4	T	T	T
		40	-	-	-	-	0.79	0.79	1.4	1.4	3	3	3.4	2	3	5.5	T	T
	Curve C	1	4.6	4.6	4.6	4.6	4.6	4.6	T	T	T	T	T	T	T	T	T	T
		2	4.6	4.6	4.6	4.6	4.6	4.6	T	T	T	T	T	T	T	T	T	T
		6	1.5	1.5	1.5	1.5	1.5	1.5	5.1	5.1	T	T	T	T	T	T	T	T
		10	1.2	1.2	1.2	1.2	1.2	1.2	3.6	3.6	T	T	T	5.7	T	T	T	T
		16	1.2	1.2	1.2	1.2	1.2	1.2	3.1	3.1	T	T	T	4.7	T	T	T	T
		20	-	1	1	1	1	1	2.6	2.6	T	T	T	3.9	T	T	T	T
		25	-	-	0.91	0.91	0.91	0.91	2.3	2.3	5.5	5.5	T	3.2	5.5	T	T	T
ADC ADH Axx8xx Axx9xx	Curve B	6	1.5	1.5	1.5	1.5	1.5	1.5	4.3	4.3	T	T	T	6.8	T	T	T	T
		10	1.2	1.2	1.2	1.2	1.2	1.2	3	3	7.5	7.5	8.3	4.4	7.5	T	T	T
		13	1.2	1.2	1.2	1.2	1.2	1.2	3	3	7.5	7.5	8.3	4.4	7.5	T	T	T
		16	1.1	1.1	1.1	1.1	1.1	1.1	2.4	2.4	5.8	5.8	6.5	3.5	5.8	T	T	T
		20	-	0.95	0.95	0.95	0.95	0.95	2.1	2.1	4.9	4.9	5.4	3	4.9	8.1	T	T
		25	-	-	0.92	0.92	0.92	0.92	1.8	1.8	4.1	4.1	4.5	2.6	4.1	6.6	T	T
		32	-	-	-	0.86	0.86	0.86	1.6	1.6	3.5	3.5	4	2.4	3.5	5.8	8.8	T
	Curve C	40	-	-	-	-	0.83	0.83	1.5	1.5	3.1	3.1	3.4	2.1	3.1	4.9	7.1	9.2
		1	4.7	4.7	4.7	4.7	4.7	4.7	T	T	T	T	T	T	T	T	T	T
		2	4.7	4.7	4.7	4.7	4.7	4.7	T	T	T	T	T	T	T	T	T	T
		3	1.5	1.5	1.5	1.5	1.5	1.5	4.3	4.3	T	T	T	6.8	T	T	T	T
		4	1.5	1.5	1.5	1.5	1.5	1.5	4.3	4.3	T	T	T	6.8	T	T	T	T
		6	1.5	1.5	1.5	1.5	1.5	1.5	4.3	4.3	T	T	T	6.8	T	T	T	T
		10	1.2	1.2	1.2	1.2	1.2	1.2	3	3	7.5	7.5	8.3	4.4	7.5	T	T	T
13	1.2	1.2	1.2	1.2	1.2	1.2	3	3	7.5	7.5	8.3	4.4	7.5	T	T	T		
16	1.1	1.1	1.1	1.1	1.1	1.1	2.4	2.4	5.8	5.8	6.5	3.5	5.8	T	T	T		
20	-	0.95	0.95	0.95	0.95	0.95	2.1	2.1	4.9	4.9	5.4	3	4.9	8.1	T	T		
25	-	-	0.92	0.92	0.92	0.92	1.8	1.8	4.1	4.1	4.5	2.6	4.1	6.6	T	T		
32	-	-	-	0.86	0.86	0.86	1.6	1.6	3.5	3.5	4	2.4	3.5	5.8	8.8	T		
40	-	-	-	-	0.83	0.83	1.5	1.5	3.1	3.1	3.4	2.1	3.1	4.9	7.1	9.2		

T = Total discrimination
The value of the maximal current is in kA

	h250 TM 25 / 50 / 65 kA							h250 LSI 70 kA			h400 TM 25 / 50 kA		h630 LSI 50 / 70 kA			h1000 LSI 50 / 70 kA			h1600 LSI 50 / 70 kA	
	32	63	100	125	160	200	250	40	125	250	250	400	250	400	630	630	800	1000	1250	1600
	0.71	2.4	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.62	1.8	5.7	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.62	1.6	4.7	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.54	1.4	3.9	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.53	1.2	3.2	5.5	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.5	1.1	2.7	4.4	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.5	1	2	3	5.5	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	1.3	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	1.3	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.71	2.4	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.62	1.8	5.7	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.62	1.6	4.7	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.54	1.4	3.9	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.53	1.2	3.2	5.5	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.5	1.1	2.7	4.4	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.5	1	2	3	5.5	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.73	2.3	6.8	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.62	1.7	4.4	7.5	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.62	1.7	4.4	7.5	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.54	1.4	3.5	5.8	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.52	1.35	3	4.9	8.1	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.5	1.3	2.6	4.1	6.6	T	9.6	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.5	1.2	2.4	3.5	5.8	8.8	8	T	T	T	T	T	T	T	T	T	T	T	T	T
	-	1.1	2.1	3.1	4.9	7.1	6.8	T	T	T	T	T	T	T	T	T	T	T	T	T
	1.25	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	1.25	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.73	2.3	6.8	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.73	2.3	6.8	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.73	2.3	6.8	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.62	1.7	4.4	7.5	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.62	1.7	4.4	7.5	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.54	1.4	3.5	5.8	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.52	1.35	3	4.9	8.1	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.5	1.3	2.6	4.1	6.6	T	9.6	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.5	1.2	2.4	3.5	5.8	8.8	8	T	T	T	T	T	T	T	T	T	T	T	T	T
	-	1.1	2.1	3.1	4.9	7.1	6.8	T	T	T	T	T	T	T	T	T	T	T	T	T

Protection devices

Discrimination chart: Upstream - MCCBs H3
Downstream - MCBs

		Upstream	x160 TM 18 / 25 / 40 kA										x250 TM 25 / 40 kA						
Downstream	In (A)	16	20	25	32	40	50	63	80	100	125	160	100	125	160	200	250		
MV MW MUxxxA MTxxxA MBxxxA MCxxxA	Curve B	6	1.3	1.3	1.3	1.3	1.3	1.3	2.7	2.7	5.9	5.9	6.6	3.7	5.9	9.8	T	T	
		10	1.1	1.1	1.1	1.1	1.1	1.1	2.3	2.3	4.9	4.9	5.3	3.1	4.9	8	T	T	
		13	0.96	0.96	0.96	0.96	0.96	0.96	0.96	2	2	4.2	4.2	4.8	2.7	4.2	6.9	T	T
		16	0.96	0.96	0.96	0.96	0.96	0.96	0.96	2	2	4.2	4.2	4.8	2.7	4.2	6.9	T	T
		20	-	0.9	0.9	0.9	0.9	0.9	0.9	1.8	1.8	3.6	3.6	4	2.4	3.6	5.6	8.5	9.3
		25	-	-	0.9	0.9	0.9	0.9	0.9	1.8	1.8	3.6	3.6	4	2.4	3.6	5.6	8.5	9.3
		32	-	-	-	0.83	0.83	0.83	0.83	1.5	1.5	3	3	3.3	2.1	3	4.6	7	7.8
		40	-	-	-	-	0.83	0.83	0.83	1.5	1.5	3	3	3.3	2.1	3	4.6	7	7.8
		50	-	-	-	-	-	0.8	0.8	1.4	1.4	2.6	2.6	2.8	1.8	2.6	3.7	5.4	6
	63	-	-	-	-	-	-	-	1.4	1.4	2.6	2.6	2.7	1.8	2.6	3.7	5.4	6	
	Curve C	0.5	5	5	5	5	5	5	T	T	T	T	T	T	T	T	T	T	
		1	1.7	1.7	1.7	1.7	1.7	1.7	4.8	4.8	T	T	T	7	T	T	T	T	
		2	1.7	1.7	1.7	1.7	1.7	1.7	4.8	4.8	T	T	T	7	T	T	T	T	
		3	1.4	1.4	1.4	1.4	1.4	1.4	3.5	3.5	8	8	9	4.1	8	T	T	T	
		4	1.4	1.4	1.4	1.4	1.4	1.4	3.5	3.5	8	8	9	4.1	8	T	T	T	
		6	1.3	1.3	1.3	1.3	1.3	1.3	2.7	2.7	5.9	5.9	6.6	3.7	5.9	9.8	T	T	
		10	1.1	1.1	1.1	1.1	1.1	1.1	2.3	2.3	4.9	4.9	5.3	3.1	4.9	8	T	T	
		13	0.96	0.96	0.96	0.96	0.96	0.96	0.96	2	2	4.2	4.2	4.8	2.7	4.2	6.9	T	T
		16	0.96	0.96	0.96	0.96	0.96	0.96	0.96	2	2	4.2	4.2	4.8	2.7	4.2	6.9	T	T
		20	-	0.9	0.9	0.9	0.9	0.9	0.9	1.8	1.8	3.6	3.6	4	2.4	3.6	5.6	8.5	9.3
		25	-	-	0.9	0.9	0.9	0.9	0.9	1.8	1.8	3.6	3.6	4	2.4	3.6	5.6	8.5	9.3
		32	-	-	-	0.83	0.83	0.83	0.83	1.5	1.5	3	3	3.3	2.1	3	4.6	7	7.8
	40	-	-	-	-	0.83	0.83	0.83	1.5	1.5	3	3	3.3	2.1	3	4.6	7	7.8	
	50	-	-	-	-	-	0.8	0.8	1.4	1.4	2.6	2.6	2.8	1.8	2.6	3.7	5.4	6	
	63	-	-	-	-	-	-	-	1.4	1.4	2.6	2.6	2.7	1.8	2.6	3.7	5.4	6	
	Curve D	0.5	4.3	4.3	4.3	4.3	4.3	4.3	T	T	T	T	T	T	T	T	T	T	
		1	1.7	1.7	1.7	1.7	1.7	1.7	4.6	4.6	T	T	T	6.8	T	T	T	T	
		2	1.7	1.7	1.7	1.7	1.7	1.7	4.6	4.6	T	T	T	6.8	T	T	T	T	
		3	1.4	1.4	1.4	1.4	1.4	1.4	3.2	3.2	7.6	7.6	8.6	4.6	7.6	T	T	T	
		4	1.4	1.4	1.4	1.4	1.4	1.4	3.2	3.2	7.6	7.6	8.6	4.6	7.6	T	T	T	
		6	1.2	1.2	1.2	1.2	1.2	1.2	2.4	2.4	5.5	5.5	6.1	3.4	5.5	9.1	T	T	
		10	1	1	1	1	1	1	2.1	2.1	4.3	4.3	5	2.7	4.3	7.2	T	T	
		13	0.93	0.93	0.93	0.93	0.93	0.93	0.93	1.8	1.8	3.8	3.8	4.2	2.5	3.8	6	9.2	T
16		0.93	0.93	0.93	0.93	0.93	0.93	0.93	1.8	1.8	3.8	3.8	4.2	2.5	3.8	6	9.2	T	
20		-	0.86	0.86	0.86	0.86	0.86	0.86	1.6	1.6	3.1	3.1	3.4	2.2	3.1	4.9	7.2	8	
25		-	-	0.86	0.86	0.86	0.86	0.86	1.6	1.6	3.1	3.1	3.4	2.2	3.1	4.9	7.2	8	
32		-	-	-	0.81	0.81	0.81	0.81	1.5	1.5	2.6	2.6	2.8	1.8	2.6	3.8	5.4	6	
40	-	-	-	-	0.81	0.81	0.81	1.5	1.5	2.6	2.6	2.8	1.8	2.6	3.8	5.4	6		
50	-	-	-	-	-	0.78	0.78	1.4	1.4	2.4	2.4	2.5	1.7	2.4	3.3	4.6	5		
63	-	-	-	-	-	-	-	1.4	1.4	2.4	2.4	2.5	1.7	2.4	3.3	4.6	5		

T = Total discrimination
The value of the maximal current is in kA

	h250 TM 25 / 50 / 65 kA							h250 LSI 70 kA			h400 TM 25 / 50 kA		h630 LSI 50 / 70 kA			h1000 LSI 50 / 70 kA				h1600 LSI 50 / 70 kA	
	32	63	100	125	160	200	250	40	125	250	250	400	250	400	630	630	800	1000	1250	1600	
	0.65	1.7	3.7	5.9	9.8	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
	0.59	1.5	3.1	4.9	8	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
	0.54	1.4	2.7	4.2	6.9	T	9.8	T	T	T	T	T	T	T	T	T	T	T	T	T	
	0.54	1.4	2.7	4.2	6.9	T	9.8	T	T	T	T	T	T	T	T	T	T	T	T	T	
	0.52	1.2	2.4	3.6	5.6	8.3	7.9	T	T	T	T	T	T	T	T	T	T	T	T	T	
	0.52	1.2	2.4	3.6	5.6	8.3	7.9	T	T	T	T	T	T	T	T	T	T	T	T	T	
	0.5	1.15	2.1	3	4.6	7	6.4	T	T	T	T	T	T	T	T	T	T	T	T	T	
	-	1.15	2.1	3	4.6	7	6.4	T	T	T	T	T	T	T	T	T	T	T	T	T	
	-	1.1	1.8	2.6	3.7	5.3	5	T	T	T	T	T	T	T	T	T	T	T	T	T	
	-	1.1	1.8	2.6	3.7	5.3	5	T	T	T	T	T	T	T	T	T	T	T	T	T	
	1.8	8.6	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
	0.84	2.6	7	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
	0.84	2.6	7	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
	0.7	2	4.1	8	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
	0.7	2	4.1	8	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
	0.65	1.7	3.7	5.9	9.8	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
	0.59	1.5	3.1	4.9	8	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
	0.54	1.4	2.7	4.2	6.9	T	9.8	T	T	T	T	T	T	T	T	T	T	T	T	T	
	0.54	1.4	2.7	4.2	6.9	T	9.8	T	T	T	T	T	T	T	T	T	T	T	T	T	
	0.52	1.2	2.4	3.6	5.6	8.3	7.9	T	T	T	T	T	T	T	T	T	T	T	T	T	
	0.52	1.2	2.4	3.6	5.6	8.3	7.9	T	T	T	T	T	T	T	T	T	T	T	T	T	
	0.5	1.15	2.1	3	4.6	7	6.4	T	T	T	T	T	T	T	T	T	T	T	T	T	
	-	1.15	2.1	3	4.6	7	6.4	T	T	T	T	T	T	T	T	T	T	T	T	T	
	-	1.1	1.8	2.6	3.7	5.3	5	T	T	T	9.2	T	T	T	T	T	T	T	T	T	
	-	1.1	1.8	2.6	3.7	5.3	5	T	T	T	9.2	T	T	T	T	T	T	T	T	T	
	1.8	7	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
	0.84	2.6	6.8	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
	0.84	2.6	6.8	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
	0.7	1.9	4.6	7.6	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
	0.7	1.9	4.6	7.6	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
	0.62	1.5	3.4	5.5	9.1	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
	0.57	1.4	2.7	4.3	7.2	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
	0.54	1.3	2.5	3.8	6	9.2	8.4	T	T	T	T	T	T	T	T	T	T	T	T	T	
	0.54	1.3	2.5	3.8	6	9.2	8.4	T	T	T	T	T	T	T	T	T	T	T	T	T	
	0.52	1.2	2.2	3.1	4.9	7.1	6.7	T	T	T	T	T	T	T	T	T	T	T	T	T	
	0.52	1.2	2.2	3.1	4.9	7.1	6.7	T	T	T	T	T	T	T	T	T	T	T	T	T	
	0.5	1.1	1.8	2.6	3.8	5.4	5.1	T	T	T	9	T	T	T	T	T	T	T	T	T	
	-	1.1	1.8	2.6	3.8	5.4	5.1	T	T	T	9	T	T	T	T	T	T	T	T	T	
	-	1	1.7	2.4	3.3	4.6	4.3	T	T	T	7.2	T	T	T	T	T	T	T	T	T	
	-	1	1.7	2.4	3.3	4.6	4.3	T	T	T	7.2	T	T	T	T	T	T	T	T	T	

Discrimination chart: Upstream - MCCBs H3
Downstream - MCBs

		Upstream	x160 TM 18 / 25 / 40 kA										x250 TM 25 / 40 kA							
Downstream	In (A)	16	20	25	32	40	50	63	80	100	125	160	100	125	160	200	250			
MBNxxxA MCNxxxA	Curve B	6	1.1	1.1	1.1	1.1	1.1	1.1	2.3	2.3	4.7	4.7	5.3	3.2	4.7	T	T	T		
		10	0.97	0.97	0.97	0.97	0.97	0.97	0.97	2	2	4	4	4.5	2.6	4	T	T	T	
		13	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.7	1.7	3.4	3.4	4	2.4	3.4	9.4	T	T	
		16	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.7	1.7	3.4	3.4	4	2.4	3.4	9.4	T	T	
		20	-	0.82	0.82	0.82	0.82	0.82	0.82	1.5	1.5	3.1	3.1	3.4	2.1	3.1	4.7	T	T	
		25	-	-	0.82	0.82	0.82	0.82	0.82	1.6	1.6	3.1	3.1	3.4	2.1	3.1	4.7	T	T	
		32	-	-	-	0.81	0.81	0.81	0.81	1.5	1.5	2.7	2.7	3.1	1.9	2.7	4.1	T	T	
		40	-	-	-	-	0.81	0.81	1.5	1.5	2.7	2.7	3.1	1.9	2.7	4.1	T	T		
		50	-	-	-	-	-	0.8	1.4	1.4	2.4	2.4	2.8	1.7	2.4	3.7	9.3	9.3	9	
	63	-	-	-	-	-	-	1.4	1.4	2.4	2.4	2.8	1.7	2.4	3.7	9.3	9.3	9		
	Curve C	0.5	1.6	1.6	1.6	1.6	1.6	1.6	4.7	4.7	T	T	T	T	T	T	T	T	T	
		1	1.4	1.4	1.4	1.4	1.4	1.4	3.5	3.5	T	T	T	5.1	T	T	T	T	T	
		2	1.4	1.4	1.4	1.4	1.4	1.4	3.5	3.5	T	T	T	5.1	T	T	T	T	T	
		3	1.3	1.3	1.3	1.3	1.3	1.3	2.8	2.8	T	T	T	4	T	T	T	T	T	
		4	1.3	1.3	1.3	1.3	1.3	1.3	2.8	2.8	T	T	T	4	T	T	T	T	T	
		6	1.1	1.1	1.1	1.1	1.1	1.1	2.3	2.3	4.7	4.7	5.3	3.2	4.7	T	T	T	T	
		10	0.97	0.97	0.97	0.97	0.97	0.97	0.97	2	2	4	4	4.5	2.6	4	T	T	T	
		13	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.7	1.7	3.4	3.4	4	2.4	3.4	9.4	T	T	
		16	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.7	1.7	3.4	3.4	4	2.4	3.4	9.4	T	T	
		20	-	0.82	0.82	0.82	0.82	0.82	0.82	1.5	1.5	3.1	3.1	3.4	2.1	3.1	4.7	T	T	
25		-	-	0.82	0.82	0.82	0.82	0.82	1.6	1.6	3.1	3.1	3.4	2.1	3.1	4.7	T	T		
32	-	-	-	0.81	0.81	0.81	0.81	1.5	1.5	2.7	2.7	3.1	1.9	2.7	4.1	T	T			
40	-	-	-	-	0.81	0.81	1.5	1.5	2.7	2.7	3.1	1.9	2.7	4.1	T	T				
50	-	-	-	-	-	0.8	1.4	1.4	2.4	2.4	2.8	1.7	2.4	3.7	9.3	9.3	9			
63	-	-	-	-	-	-	1.4	1.4	2.4	2.4	2.8	1.7	2.4	3.7	9.3	9.3	9			

	h250 TM 25 / 50 / 65 kA							h250 LSI 70 kA			h400 TM 25 / 50 kA		h630 LSI 50 / 70 kA			h1000 LSI 50 / 70 kA			h1600 LSI 50 / 70 kA	
	32	63	100	125	160	200	250	40	125	250	250	400	250	400	630	630	800	1000	1250	1600
	0.6	1.5	3.2	4.7	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.55	1.4	2.6	4	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.52	1.3	2.4	3.4	9.4	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.52	1.3	2.4	3.4	9.4	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.5	1.2	2.1	3.1	4.7	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.5	1.2	2.1	3.1	4.7	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.5	1.1	1.9	2.7	4.1	T	9.6	T	T	T	T	T	T	T	T	T	T	T	T	T
	-	1.1	1.9	2.7	4.1	T	9.6	T	T	T	T	T	T	T	T	T	T	T	T	T
	-	1	1.7	2.4	3.7	9.3	9	T	T	T	T	T	T	T	T	T	T	T	T	T
	-	1	1.7	2.4	3.7	9.3	9	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.86	2.6	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.75	2.1	5.1	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.75	2.1	5.1	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.66	1.7	4	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.66	1.7	4	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.6	1.5	3.2	4.7	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.55	1.4	2.6	4	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.52	1.3	2.4	3.4	9.4	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.52	1.3	2.4	3.4	9.4	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.5	1.2	2.1	3.1	4.7	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.5	1.2	2.1	3.1	4.7	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.5	1.1	1.9	2.7	4.1	T	9.6	T	T	T	T	T	T	T	T	T	T	T	T	T
	-	1.1	1.9	2.7	4.1	T	9.6	T	T	T	T	T	T	T	T	T	T	T	T	T
	-	1	1.7	2.4	3.7	9.3	9	T	T	T	T	T	T	T	T	T	T	T	T	T
	-	1	1.7	2.4	3.7	9.3	9	T	T	T	T	T	T	T	T	T	T	T	T	T

Protection devices

Discrimination chart: Upstream - MCCBs H3
Downstream - MCBs and Magnetic MCBs

		Upstream	x160 TM 18 / 25 / 40 kA										x250 TM 25 / 40 kA						
Downstream		In (A)	16	20	25	32	40	50	63	80	100	125	160	100	125	160	200	250	
NGN NBNxxxA NCNxxxA NDNxxxA	Curve B	6	1.3	1.3	1.3	1.3	1.3	1.3	2.7	2.7	5.8	5.8	6.7	3.8	5.8	9.6	T	T	
		10	1.2	1.2	1.2	1.2	1.2	1.2	2.2	2.2	4.8	4.8	5.4	3.1	4.8	8	13	T	
		13	0.97	0.97	0.97	0.97	0.97	0.97	2	2	4.3	4.3	4.8	2.8	4.3	6.9	11	12	
		16	0.97	0.97	0.97	0.97	0.97	0.97	2	2	4.3	4.3	4.8	2.8	4.3	6.9	11	12	
		20	-	0.92	0.92	0.92	0.92	0.92	1.8	1.8	3.6	3.6	4	2.4	3.6	5.5	8.3	9.3	
		25	-	-	0.92	0.92	0.92	0.92	1.8	1.8	3.6	3.6	4	2.4	3.6	5.5	8.3	9.3	
		32	-	-	-	0.84	0.84	0.84	1.5	1.5	3	3	3.4	2.1	3	4.7	6.9	7.7	
		40	-	-	-	-	0.84	0.84	1.5	1.5	3	3	3.4	2.1	3	4.7	6.9	7.7	
		50	-	-	-	-	-	0.81	1.4	1.4	2.5	2.5	2.8	1.8	2.5	3.7	5.4	6	
	63	-	-	-	-	-	-	1.4	1.4	2.5	2.5	2.8	1.8	2.5	3.7	5.4	6		
	Curve C	0.5	5	5	5	5	5	5	T	T	T	T	T	T	T	T	T	T	T
		1	1.6	1.6	1.6	1.6	1.6	1.6	4.8	4.8	12	12	14	7.1	12	T	T	T	
		2	1.6	1.6	1.6	1.6	1.6	1.6	4.8	4.8	12	12	14	7.1	12	T	T	T	
		3	1.4	1.4	1.4	1.4	1.4	1.4	3.5	3.5	8	8	9.2	5.1	8	14	T	T	
		4	1.4	1.4	1.4	1.4	1.4	1.4	3.5	3.5	8	8	9.2	5.1	8	14	T	T	
		6	1.3	1.3	1.3	1.3	1.3	1.3	2.7	2.7	5.8	5.8	6.7	3.8	5.8	9.6	T	T	
		10	1.2	1.2	1.2	1.2	1.2	1.2	2.2	2.2	4.8	4.8	5.4	3.1	4.8	8	13	T	
		13	0.97	0.97	0.97	0.97	0.97	0.97	2	2	4.3	4.3	4.8	2.8	4.3	6.9	11	12	
		16	0.97	0.97	0.97	0.97	0.97	0.97	2	2	4.3	4.3	4.8	2.8	4.3	6.9	11	12	
		20	-	0.92	0.92	0.92	0.92	0.92	1.8	1.8	3.6	3.6	4	2.4	3.6	5.5	8.3	9.3	
		25	-	-	0.92	0.92	0.92	0.92	1.8	1.8	3.6	3.6	4	2.4	3.6	5.5	8.3	9.3	
	32	-	-	-	0.84	0.84	0.84	1.5	1.5	3	3	3.4	2.1	3	4.7	6.9	7.7		
	40	-	-	-	-	0.84	0.84	1.5	1.5	3	3	3.4	2.1	3	4.7	6.9	7.7		
	50	-	-	-	-	-	0.81	1.4	1.4	2.5	2.5	2.8	1.8	2.5	3.7	5.4	6		
	63	-	-	-	-	-	-	1.4	1.4	2.5	2.5	2.8	1.8	2.5	3.7	5.4	6		
	Curve D	0.5	4.3	4.3	4.3	4.3	4.3	4.3	14	14	T	T	T	T	T	T	T	T	T
		1	1.6	1.6	1.6	1.6	1.6	1.6	4.6	4.6	11	11	13	6.8	11	T	T	T	
		2	1.6	1.6	1.6	1.6	1.6	1.6	4.6	4.6	11	11	13	6.8	11	T	T	T	
		3	1.4	1.4	1.4	1.4	1.4	1.4	3.2	3.2	7.4	7.4	8.5	4.6	7.4	13	T	T	
		4	1.4	1.4	1.4	1.4	1.4	1.4	3.2	3.2	7.4	7.4	8.5	4.6	7.4	13	T	T	
		6	1.2	1.2	1.2	1.2	1.2	1.2	2.4	2.4	5.4	5.4	6.2	3.4	5.4	9	T	T	
		10	0.98	0.98	0.98	0.98	0.98	0.98	2	2	4.3	4.3	4.9	2.8	4.3	7.2	12	13	
		13	0.92	0.92	0.92	0.92	0.92	0.92	1.8	1.8	3.7	3.7	4.2	2.5	3.7	6	9.2	11	
		16	0.92	0.92	0.92	0.92	0.92	0.92	1.8	1.8	3.7	3.7	4.2	2.5	3.7	6	9.2	11	
		20	-	0.86	0.86	0.86	0.86	0.86	1.6	1.6	3.2	3.2	3.4	2.2	3.2	4.8	7.1	7.9	
		25	-	-	0.86	0.86	0.86	0.86	1.6	1.6	3.2	3.2	3.4	2.2	3.2	4.8	7.1	7.9	
	32	-	-	-	0.81	0.81	0.81	1.5	1.5	2.5	2.5	2.7	1.8	2.5	3.7	5.4	5.9		
	40	-	-	-	-	0.81	0.81	1.5	1.5	2.5	2.5	2.7	1.8	2.5	3.7	5.4	5.9		
	50	-	-	-	-	-	0.78	1.4	1.4	2.4	2.4	2.5	1.7	2.4	3.3	4.6	5		
	63	-	-	-	-	-	-	1.4	1.4	2.4	2.4	2.5	1.7	2.4	3.3	4.6	5		
MMN 2xx. MMN 3xx range	0.63	1.3	1.3	1.3	1.3	1.3	1.3	3.1	3.1	7	7	7.9	4.4	7	12	19	21		
	1.25	1.3	1.3	1.3	1.3	1.3	1.3	3.1	3.1	7	7	7.9	4.4	7	12	19	21		
	1.6	1.1	1.1	1.1	1.1	1.1	1.1	2.5	2.5	5.3	5.3	6	3.5	5.3	8.9	14	16		
	2.5	1.1	1.1	1.1	1.1	1.1	1.1	2.5	2.5	5.3	5.3	6	3.5	5.3	8.9	14	16		
	4	0.9	0.9	0.9	0.9	0.9	0.9	1.8	1.8	3.6	3.6	4	2.4	3.6	5.5	8.4	9.3		
	6.3	0.9	0.9	0.9	0.9	0.9	0.9	1.8	1.8	3.6	3.6	4	2.4	3.6	5.5	8.4	9.3		
	10	0.84	0.84	0.84	0.84	0.84	0.84	1.6	1.6	2.8	2.8	3.1	2	2.8	4.2	6.1	6.8		
	12.5	0.84	0.84	0.84	0.84	0.84	0.84	1.6	1.6	2.8	2.8	3.1	2	2.8	4.2	6.1	6.8		
	16	0.81	0.81	0.81	0.81	0.81	0.81	1.5	1.5	2.6	2.6	2.8	1.8	2.6	3.8	5.4	6		
20	-	0.81	0.81	0.81	0.81	0.81	1.5	1.5	2.6	2.6	2.8	1.8	2.6	3.8	5.4	6			
25	-	-	0.81	0.81	0.81	0.81	1.5	1.5	2.6	2.6	2.8	1.8	2.6	3.8	5.4	6			

T = Total discrimination
The value of the maximal current is in kA

	h250 TM 25 / 50 / 65 kA							h250 LSI 70 kA			h400 TM 25 / 50 kA		h630 LSI 50 / 70 kA			h1000 LSI 50 / 70 kA			h1600 LSI 50 / 70 kA	
	32	63	100	125	160	200	250	40	125	250	250	400	250	400	630	630	800	1000	1250	1600
	0.65	1.7	3.8	5.8	9.6	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.58	1.5	3.1	4.8	8	13	12	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.55	1.4	2.8	4.3	6.9	11	9.7	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.55	1.4	2.8	4.3	6.9	11	9.7	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.53	1.3	2.4	3.6	5.5	8.3	7.7	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.53	1.3	2.4	3.6	5.5	8.3	7.7	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.5	1.2	2.1	3	4.7	6.9	6.4	T	T	T	12	T	T	T	T	T	T	T	T	T
	-	1.2	2.1	3	4.7	6.9	6.4	T	T	T	12	T	T	T	T	T	T	T	T	T
	-	1.1	1.8	2.5	3.7	5.4	5	T	T	T	9.2	T	T	T	T	T	T	T	T	T
	-	1.1	1.8	2.5	3.7	5.4	5	T	T	T	9.2	T	T	T	T	T	T	T	T	T
	1.8	8.5	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.85	2.6	7.1	12	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.85	2.6	7.1	12	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.7	2	5.1	8	14	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.7	2	5.1	8	14	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.65	1.7	3.8	5.8	9.6	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.58	1.5	3.1	4.8	8	13	12	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.55	1.4	2.8	4.3	6.9	11	9.7	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.55	1.4	2.8	4.3	6.9	11	9.7	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.53	1.3	2.4	3.6	5.5	8.3	7.7	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.53	1.3	2.4	3.6	5.5	8.3	7.7	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.5	1.2	2.1	3	4.7	6.9	6.4	T	T	T	12	T	T	T	T	T	T	T	T	T
	-	1.2	2.1	3	4.7	6.9	6.4	T	T	T	12	T	T	T	T	T	T	T	T	T
	-	1.1	1.8	2.5	3.7	5.4	5	T	T	T	9.2	T	T	T	T	T	T	T	T	T
	-	1.1	1.8	2.5	3.7	5.4	5	T	T	T	9.2	T	T	T	T	T	T	T	T	T
	1.8	7	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.84	7	6.8	11	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.84	2.6	6.8	11	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.7	2.6	4.6	7.4	13	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.7	1.9	4.6	7.4	13	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.62	1.5	3.4	5.4	9	T	14	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.56	1.4	2.8	4.3	7.2	12	10.5	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.54	1.3	2.5	3.7	6	9.2	8.4	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.54	1.3	2.5	3.7	6	9.2	8.4	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.52	1.2	2.2	3.2	4.8	7.1	6.7	T	T	T	12	T	T	T	T	T	T	T	T	T
	0.52	1.2	2.2	3.2	4.8	7.1	6.7	T	T	T	12	T	T	T	T	T	T	T	T	T
	0.5	1.1	1.8	2.5	3.7	5.4	5.1	T	T	T	9	T	T	T	T	T	T	T	T	T
	-	1.1	1.8	2.5	3.7	5.4	5.1	T	T	T	9	T	T	T	T	T	T	T	T	T
	-	1	1.7	2.4	3.3	4.6	4.3	T	T	T	7.2	T	T	T	T	T	T	T	T	T
	-	1	1.7	2.4	3.3	4.6	4.3	T	T	T	7.2	T	T	T	T	T	T	T	T	T
	0.7	1.8	4.4	7	12	19	17	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.7	1.8	4.4	7	12	19	17	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.64	1.5	3.5	5.3	8.9	14	13	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.64	1.5	3.5	5.3	8.9	14	13	T	T	T	T	T	T	T	T	T	T	T	T	T
	0.53	1.3	2.4	3.6	5.5	8.4	7.8	T	T	T	15	T	T	T	T	T	T	T	T	T
	0.53	1.3	2.4	3.6	5.5	8.4	7.8	T	T	T	15	T	T	T	T	T	T	T	T	T
	0.51	1.15	2	2.8	4.2	6.1	5.7	T	T	T	11	T	T	T	T	T	T	T	T	T
	0.51	1.15	2	2.8	4.2	6.1	5.7	T	T	T	11	T	T	T	T	T	T	T	T	T
	0.5	1.1	1.8	2.6	3.8	5.4	5	T	T	T	9	T	T	T	T	T	T	T	T	T
	0.5	1.1	1.8	2.6	3.8	5.4	5	T	T	T	9	T	T	T	T	T	T	T	T	T
	0.5	1.1	1.8	2.6	3.8	5.4	5	T	T	T	9	T	T	T	T	T	T	T	T	T

Discrimination chart: Upstream - MCCBs H3
Downstream - MCBs

		Upstream	x160 TM 18 / 25 / 40 kA										x250 TM 25 / 40 kA							
Downstream	In (A)	16	20	25	32	40	50	63	80	100	125	160	100	125	160	200	250			
NQN NRN NSN	Curve B	6	1.3	1.3	1.3	1.3	1.3	1.3	2.7	2.7	5.8	5.8	6.7	3.8	5.8	9.6	15	17		
		10	1.2	1.2	1.2	1.2	1.2	1.2	2.2	2.2	4.8	4.8	5.4	3.1	4.8	8	13	14		
		13	0.97	0.97	0.97	0.97	0.97	0.97	0.97	2	2	4.3	4.3	4.8	2.8	4.3	6.9	11	12	
		16	0.97	0.97	0.97	0.97	0.97	0.97	0.97	2	2	4.3	4.3	4.8	2.8	4.3	6.9	11	12	
		20	-	0.92	0.92	0.92	0.92	0.92	0.92	1.8	1.8	3.6	3.6	4	2.4	3.6	5.5	8.3	9.3	
		25	-	-	0.92	0.92	0.92	0.92	0.92	1.8	1.8	3.6	3.6	4	2.4	3.6	5.5	8.3	9.3	
		32	-	-	-	0.84	0.84	0.84	0.84	1.5	1.5	3	3	3.4	2.1	3	4.7	6.9	7.7	
		40	-	-	-	-	0.84	0.84	0.84	1.5	1.5	3	3	3.4	2.1	3	4.7	6.9	7.7	
		50	-	-	-	-	-	0.81	0.81	1.4	1.4	2.5	2.5	2.8	1.8	2.5	3.7	5.4	6	
	63	-	-	-	-	-	-	-	1.4	1.4	2.5	2.5	2.8	1.8	2.5	3.7	5.4	6		
	Curve C	0.5	5	5	5	5	5	5	17	17	T	T	T	T	T	T	T	T	T	
		1	1.6	1.6	1.6	1.6	1.6	1.6	4.8	4.8	12	12	14	7.1	12	20	T	T		
		2	1.6	1.6	1.6	1.6	1.6	1.6	4.8	4.8	12	12	14	7.1	12	20	T	T		
		3	1.4	1.4	1.4	1.4	1.4	1.4	3.5	3.5	8	8	9.2	5.1	8	14	22	T		
		4	1.4	1.4	1.4	1.4	1.4	1.4	3.5	3.5	8	8	9.2	5.1	8	14	22	T		
		6	1.3	1.3	1.3	1.3	1.3	1.3	2.7	2.7	5.8	5.8	6.7	3.8	5.8	9.6	15	17		
		10	1.2	1.2	1.2	1.2	1.2	1.2	2.2	2.2	4.8	4.8	5.4	3.1	4.8	8	13	14		
		13	0.97	0.97	0.97	0.97	0.97	0.97	0.97	2	2	4.3	4.3	4.8	2.8	4.3	6.9	11	12	
		16	0.97	0.97	0.97	0.97	0.97	0.97	0.97	2	2	4.3	4.3	4.8	2.8	4.3	6.9	11	12	
		20	-	0.92	0.92	0.92	0.92	0.92	0.92	1.8	1.8	3.6	3.6	4	2.4	3.6	5.5	8.3	9.3	
		25	-	-	0.92	0.92	0.92	0.92	0.92	1.8	1.8	3.6	3.6	4	2.4	3.6	5.5	8.3	9.3	
		32	-	-	-	0.84	0.84	0.84	0.84	1.5	1.5	3	3	3.4	2.1	3	4.7	6.9	7.7	
		40	-	-	-	-	0.84	0.84	0.84	1.5	1.5	3	3	3.4	2.1	3	4.7	6.9	7.7	
	50	-	-	-	-	-	0.81	0.81	1.4	1.4	2.5	2.5	2.8	1.8	2.5	3.7	5.4	6		
	63	-	-	-	-	-	-	-	1.4	1.4	2.5	2.5	2.8	1.8	2.5	3.7	5.4	6		
	Curve D	0.5	4.3	4.3	4.3	4.3	4.3	4.3	14	14	T	T	T	18	T	T	T	T		
		1	1.6	1.6	1.6	1.6	1.6	1.6	4.6	4.6	11	11	13	6.8	11	19	T	T		
		2	1.6	1.6	1.6	1.6	1.6	1.6	4.6	4.6	11	11	13	6.8	11	19	T	T		
		3	1.4	1.4	1.4	1.4	1.4	1.4	3.2	3.2	7.4	7.4	8.5	4.6	7.4	13	21	24		
		4	1.4	1.4	1.4	1.4	1.4	1.4	3.2	3.2	7.4	7.4	8.5	4.6	7.4	13	21	24		
		6	1.2	1.2	1.2	1.2	1.2	1.2	2.4	2.4	5.4	5.4	6.2	3.4	5.4	9	15	16		
		10	0.98	0.98	0.98	0.98	0.98	0.98	2	2	4.3	4.3	4.9	2.8	4.3	7.2	12	13		
		13	0.92	0.92	0.92	0.92	0.92	0.92	1.8	1.8	3.7	3.7	4.2	2.5	3.7	6	9.2	11		
		16	0.92	0.92	0.92	0.92	0.92	0.92	1.8	1.8	3.7	3.7	4.2	2.5	3.7	6	9.2	11		
		20	-	0.86	0.86	0.86	0.86	0.86	0.86	1.6	1.6	3.2	3.2	3.4	2.2	3.2	4.8	7.1	7.9	
		25	-	-	0.86	0.86	0.86	0.86	0.86	1.6	1.6	3.2	3.2	3.4	2.2	3.2	4.8	7.1	7.9	
		32	-	-	-	0.81	0.81	0.81	0.81	1.5	1.5	2.5	2.5	2.7	1.8	2.5	3.7	5.4	5.9	
		40	-	-	-	-	0.81	0.81	0.81	1.5	1.5	2.5	2.5	2.7	1.8	2.5	3.7	5.4	5.9	
	50	-	-	-	-	-	0.78	0.78	1.4	1.4	2.4	2.4	2.5	1.7	2.4	3.3	4.6	5		
	63	-	-	-	-	-	-	-	1.4	1.4	2.4	2.4	2.5	1.7	2.4	3.3	4.6	5		

T = Total discrimination
The value of the maximal current is in kA

	h250 TM 25 / 50 / 65 kA							h250 LSI 70 kA			h400 TM 25 / 50 kA		h630 LSI 50 / 70 kA			h1000 LSI 50 / 70 kA			h1600 LSI 50 / 70 kA	
	32	63	100	125	160	200	250	40	125	250	250	400	250	400	630	630	800	1000	1250	1600
0.65	1.7	3.8	5.8	9.6	15	14	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.58	1.5	3.1	4.8	8	13	12	T	T	T	24	T	T	T	T	T	T	T	T	T	T
0.55	1.4	2.8	4.3	6.9	11	9.7	T	T	T	18	T	T	T	T	T	T	T	T	T	T
0.55	1.4	2.8	4.3	6.9	11	9.7	T	T	T	18	T	T	T	T	T	T	T	T	T	T
0.53	1.3	2.4	3.6	5.5	8.3	7.7	T	T	T	15	T	T	T	T	T	T	T	T	T	T
0.53	1.3	2.4	3.6	5.5	8.3	7.7	T	T	T	15	T	T	T	T	T	T	T	T	T	T
0.5	1.2	2.1	3	4.7	6.9	6.4	T	T	T	12	T	T	T	T	T	T	T	T	T	T
-	1.2	2.1	3	4.7	6.9	6.4	T	T	T	12	T	T	T	T	T	T	T	T	T	T
-	1.1	1.8	2.5	3.7	5.4	5	T	T	T	9.2	T	T	T	T	T	T	T	T	T	T
-	1.1	1.8	2.5	3.7	5.4	5	T	T	T	9.2	T	T	T	T	T	T	T	T	T	T
1.8	8.5	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.85	2.6	7.1	12	20	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.85	2.6	7.1	12	20	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.7	2	5.1	8	14	22	20	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.7	2	5.1	8	14	22	20	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.65	1.7	3.8	5.8	9.6	15	14	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.58	1.5	3.1	4.8	8	13	12	T	T	T	24	T	T	T	T	T	T	T	T	T	T
0.55	1.4	2.8	4.3	6.9	11	9.7	T	T	T	18	T	T	T	T	T	T	T	T	T	T
0.55	1.4	2.8	4.3	6.9	11	9.7	T	T	T	18	T	T	T	T	T	T	T	T	T	T
0.53	1.3	2.4	3.6	5.5	8.3	7.7	T	T	T	15	T	T	T	T	T	T	T	T	T	T
0.53	1.3	2.4	3.6	5.5	8.3	7.7	T	T	T	15	T	T	T	T	T	T	T	T	T	T
0.5	1.2	2.1	3	4.7	6.9	6.4	T	T	T	12	T	T	T	T	T	T	T	T	T	T
-	1.2	2.1	3	4.7	6.9	6.4	T	T	T	12	T	T	T	T	T	T	T	T	T	T
-	1.1	1.8	2.5	3.7	5.4	5	T	T	T	9.2	T	T	T	T	T	T	T	T	T	T
-	1.1	1.8	2.5	3.7	5.4	5	T	T	T	9.2	T	T	T	T	T	T	T	T	T	T
1.8	7	18	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.84	7	6.8	11	19	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.84	2.6	6.8	11	19	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.7	2.6	4.6	7.4	13	21	19	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.7	1.9	4.6	7.4	13	21	19	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.62	1.5	3.4	5.4	9	15	14	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.56	1.4	2.8	4.3	7.2	12	10.5	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.54	1.3	2.5	3.7	6	9.2	8.4	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.54	1.3	2.5	3.7	6	9.2	8.4	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.52	1.2	2.2	3.2	4.8	7.1	6.7	T	T	T	12	T	T	T	T	T	T	T	T	T	T
0.52	1.2	2.2	3.2	4.8	7.1	6.7	T	T	T	12	T	T	T	T	T	T	T	T	T	T
0.5	1.1	1.8	2.5	3.7	5.4	5.1	T	T	T	9	T	T	T	T	T	T	T	T	T	T
-	1.1	1.8	2.5	3.7	5.4	5.1	T	T	T	9	T	T	T	T	T	T	T	T	T	T
-	1	1.7	2.4	3.3	4.6	4.3	T	T	T	7.2	T	T	T	T	T	T	T	T	T	T
-	1	1.7	2.4	3.3	4.6	4.3	T	T	T	7.2	T	T	T	T	T	T	T	T	T	T

Discrimination chart: Upstream - MCCBs H3
Downstream - MCBs 1.5 module width/pole

		Upstream	x160 TM 18 / 25 / 40 kA										x250 TM 25 / 40 kA							
Downstream		In (A)	16	20	25	32	40	50	63	80	100	125	160	100	125	160	200	250		
HLE, HLF, HMB, HMC, HMD	Curve B	80	-	-	-	-	-	-	-	1.3	2.3	2.3	2.5	1.6	2.3	3.2	4.2	4.6		
		100	-	-	-	-	-	-	-	1.3	2.3	2.3	2.5	1.6	2.3	3.2	4.2	4.6		
		125	-	-	-	-	-	-	-	1.3	2.3	2.3	2.5	1.6	2.3	3.2	4.2	4.6		
	Curve C	80	-	-	-	-	-	-	-	1.3	2.3	2.3	2.5	1.6	2.3	3.2	4.2	4.6		
		100	-	-	-	-	-	-	-	-	2.3	2.3	2.5	1.6	2.3	3.2	4.2	4.6		
		125	-	-	-	-	-	-	-	-	-	2.3	2.5	-	2.3	3.2	4.2	4.6		
	Curve D	80	-	-	-	-	-	-	-	1.3	2	2	2.1	1.5	2	2.5	3.5	3.8		
		100	-	-	-	-	-	-	-	-	2	2	2.1	1.5	2	2.5	3.5	3.8		
		125	-	-	-	-	-	-	-	-	-	2	2.1	-	2	2.5	3.5	3.8		
	HMJ, HMK, HMX	Curve C	10	0.9	0.9	0.9	0.9	0.9	0.9	1.7	1.7	3	3	3.2	2.2	3	4.2	6	6.6	
			16	0.9	0.9	0.9	0.9	0.9	0.9	1.7	1.7	3	3	3.2	2.2	3	4.2	6	6.6	
			20	-	0.81	0.81	0.81	0.81	0.81	1.6	1.6	2.6	2.6	2.8	1.9	2.6	3.7	5	5.4	
25			-	-	0.84	0.84	0.84	0.84	1.6	1.6	2.6	2.6	2.8	1.9	2.6	3.7	5	5.4		
32			-	-	-	0.84	0.84	0.84	1.6	1.6	2.6	2.6	2.8	1.9	2.6	3.7	5	5.4		
40			-	-	-	-	0.78	0.78	1.4	1.4	2.3	2.3	2.4	1.6	2.3	3.1	4.2	4.6		
50			-	-	-	-	-	0.78	1.4	1.4	2.3	2.3	2.4	1.6	2.3	3.1	4.2	4.6		
63			-	-	-	-	-	-	1.4	1.4	2.3	2.3	2.4	1.6	2.3	3.1	4.2	4.6		
80			-	-	-	-	-	-	-	1.3	2.3	2.3	2.5	1.6	2.3	3.2	4.2	4.6		
100			-	-	-	-	-	-	-	-	2.3	2.3	2.5	1.6	2.3	3.2	4.2	4.6		
125			-	-	-	-	-	-	-	-	-	-	2.3	2.5	-	2.3	3.2	4.2	4.6	

T = Total discrimination

The value of the maximal current is in kA

	h250 TM 25 / 50 / 65 kA							h250 LSI 70 kA			h400 TM 25 / 50 kA		h630 LSI 50 / 70 kA			h1000 LSI 50 / 70 kA			h1600 LSI 50 / 70 kA	
	32	63	100	125	160	200	250	40	125	250	250	400	250	400	630	630	800	1000	1250	1600
	0.5	1	1.6	2.3	3.2	4.2	4	T	T	T	7	T	T	T	T	T	T	T	T	T
	0.5	1	1.6	2.3	3.2	4.2	4	T	T	T	7	T	T	T	T	T	T	T	T	T
	0.5	1	1.6	2.3	3.2	4.2	4	T	T	T	7	T	T	T	T	T	T	T	T	T
	-	-	1.6	2.3	3.2	4.2	4	T	T	T	7	T	T	T	T	T	T	T	T	T
	-	-	1.6	2.3	3.2	4.2	4	T	T	T	7	T	T	T	T	T	T	T	T	T
	-	-	-	2.3	3.2	4.2	4	T	T	T	7	T	T	T	T	T	T	T	T	T
	-	-	1.5	2	2.5	3.5	3.3	T	T	T	5.5	T	T	T	T	T	T	T	T	T
	-	-	1.5	2	2.5	3.5	3.3	T	T	T	5.5	T	T	T	T	T	T	T	T	T
	-	-	-	2	2.5	3.5	3.3	T	T	T	5.5	T	T	T	T	T	T	T	T	T
	5.4	1.2	2.2	3	4.2	6	5.4	T	T	T	4.2	T	T	T	T	T	T	T	T	T
	5.4	1.2	2.2	3	4.2	6	5.4	T	T	T	4.2	T	T	T	T	T	T	T	T	T
	5.2	1.1	1.9	2.6	3.7	5	4.5	T	T	T	4.2	T	T	T	T	T	T	T	T	T
	5.2	1.1	1.9	2.6	3.7	5	4.5	T	T	T	4.2	T	T	T	T	T	T	T	T	T
	5.2	1.1	1.9	2.6	3.7	5	4.5	T	T	T	4.2	T	T	T	T	T	T	T	T	T
	-	1	1.6	2.3	3.1	4.2	4	T	T	T	4.2	T	T	T	T	T	T	T	T	T
	-	1	1.6	2.3	3.1	4.2	4	T	T	T	4.2	T	T	T	T	T	T	T	T	T
	-	1	1.6	2.3	3.1	4.2	4	T	T	T	4.2	T	T	T	T	T	T	T	T	T
	-	-	1.6	2.3	3.2	4.2	4	T	T	T	7	T	T	T	T	T	T	T	T	T
	-	-	1.6	2.3	3.2	4.2	4	T	T	T	7	T	T	T	T	T	T	T	T	T
	-	-	-	2.3	3.2	4.2	4	T	T	T	7	T	T	T	T	T	T	T	T	T

Protection devices

Discrimination chart: Upstream - MCBs 1 and 1.5 module width/pole
Downstream - MCBs 1 and 1.5 module width/pole, magnetic MCBs

		Upstream : MCBs 1 and 1.5 module width																																
		Curve B													Curve C																			
In	6 A	10 A	13 A	16 A	20 A	25 A	32 A	40 A	45 A	50 A	63 A	80 A	100 A	125 A	1 A	2 A	3 A	4 A	6 A	10 A	13 A	16 A	20 A	25 A	32 A	40 A	45 A	50 A	63 A	80 A	100 A	125 A		
	Curve B	6 A	-	0.04	0.05	0.06	0.08	0.1	0.13	0.16	0.18	0.2	0.25	0.32	0.4	0.5	-	-	-	-	-	0.08	0.1	0.12	0.15	0.19	0.24	0.3	0.34	0.38	0.47	0.6	0.75	0.94
10 A		-	-	-	0.06	0.08	0.1	0.13	0.16	0.18	0.2	0.25	0.32	0.4	0.5	-	-	-	-	-	-	-	0.12	0.15	0.19	0.24	0.3	0.34	0.38	0.47	0.6	0.75	0.94	
13 A		-	-	-	-	0.08	0.1	0.13	0.16	0.18	0.2	0.25	0.32	0.4	0.5	-	-	-	-	-	-	-	-	0.15	0.19	0.24	0.3	0.34	0.38	0.47	0.6	0.75	0.94	
16 A		-	-	-	-	-	0.1	0.13	0.16	0.18	0.2	0.25	0.32	0.4	0.5	-	-	-	-	-	-	-	-	-	0.19	0.24	0.3	0.34	0.38	0.47	0.6	0.75	0.94	
20 A		-	-	-	-	-	-	0.13	0.16	0.18	0.2	0.25	0.32	0.4	0.5	-	-	-	-	-	-	-	-	-	-	0.24	0.3	0.34	0.38	0.47	0.6	0.75	0.94	
25 A		-	-	-	-	-	-	-	0.16	0.18	0.2	0.25	0.32	0.4	0.5	-	-	-	-	-	-	-	-	-	-	-	-	0.3	0.34	0.38	0.47	0.6	0.75	0.94
32 A		-	-	-	-	-	-	-	-	-	0.2	0.25	0.32	0.4	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.38	0.47	0.6	0.75	0.94
40 A		-	-	-	-	-	-	-	-	-	-	0.25	0.32	0.4	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.47	0.6	0.75	0.94
50 A		-	-	-	-	-	-	-	-	-	-	-	0.32	0.4	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.6	0.75	0.94
63 A		-	-	-	-	-	-	-	-	-	-	-	-	0.4	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.75	0.94
80 A		-	-	-	-	-	-	-	-	-	-	-	-	-	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.94
100 A		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
125 A		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Curve C		0.5 A	0.024	0.04	0.05	0.06	0.08	0.1	0.13	0.16	0.18	0.2	0.25	0.32	0.4	0.5	0.008	0.015	0.023	0.03	0.05	0.08	0.1	0.12	0.15	0.19	0.24	0.3	0.34	0.38	0.47	0.6	0.75	0.94
	1 A	0.024	0.04	0.05	0.06	0.08	0.1	0.13	0.16	0.18	0.2	0.25	0.32	0.4	0.5	-	0.015	0.023	0.03	0.05	0.08	0.1	0.12	0.15	0.19	0.24	0.3	0.34	0.38	0.47	0.6	0.75	0.94	
	2 A	0.024	0.04	0.05	0.06	0.08	0.1	0.13	0.16	0.18	0.2	0.25	0.32	0.4	0.5	-	-	-	0.03	0.05	0.08	0.1	0.12	0.15	0.19	0.24	0.3	0.34	0.38	0.47	0.6	0.75	0.94	
	3 A	-	0.04	0.05	0.06	0.08	0.1	0.13	0.16	0.18	0.2	0.25	0.32	0.4	0.5	-	-	-	-	0.05	0.08	0.1	0.12	0.15	0.19	0.24	0.3	0.34	0.38	0.47	0.6	0.75	0.94	
	4 A	-	0.04	0.05	0.06	0.08	0.1	0.13	0.16	0.18	0.2	0.25	0.32	0.4	0.5	-	-	-	-	-	0.08	0.1	0.12	0.15	0.19	0.24	0.3	0.34	0.38	0.47	0.6	0.75	0.94	
	6 A	-	-	-	0.06	0.08	0.1	0.13	0.16	0.18	0.2	0.25	0.32	0.4	0.5	-	-	-	-	-	-	0.08	0.1	0.12	0.15	0.19	0.24	0.3	0.34	0.38	0.47	0.6	0.75	0.94
	10 A	-	-	-	-	-	0.1	0.13	0.16	0.18	0.2	0.25	0.32	0.4	0.5	-	-	-	-	-	-	-	0.12	0.15	0.19	0.24	0.3	0.34	0.38	0.47	0.6	0.75	0.94	
	13 A	-	-	-	-	-	-	0.13	0.16	0.18	0.2	0.25	0.32	0.4	0.5	-	-	-	-	-	-	-	-	-	0.19	0.24	0.3	0.34	0.38	0.47	0.6	0.75	0.94	
	16 A	-	-	-	-	-	-	-	0.16	0.18	0.2	0.25	0.32	0.4	0.5	-	-	-	-	-	-	-	-	-	-	0.19	0.24	0.3	0.34	0.38	0.47	0.6	0.75	0.94
	20 A	-	-	-	-	-	-	-	-	0.2	0.25	0.32	0.4	0.5	-	-	-	-	-	-	-	-	-	-	-	-	0.24	0.3	0.34	0.38	0.47	0.6	0.75	0.94
	25 A	-	-	-	-	-	-	-	-	-	0.25	0.32	0.4	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	0.3	0.34	0.38	0.47	0.6	0.75	0.94
	32 A	-	-	-	-	-	-	-	-	-	-	0.32	0.4	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.38	0.47	0.6	0.75	0.94
	40 A	-	-	-	-	-	-	-	-	-	-	-	0.4	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.47	0.6	0.75	0.94
	50 A	-	-	-	-	-	-	-	-	-	-	-	-	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.6	0.75	0.94
63 A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.75	0.94	
80 A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.94	
100 A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
125 A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Curve D	0.5 A	0.024	0.04	0.05	0.06	0.08	0.1	0.13	0.16	0.18	0.2	0.25	0.32	0.4	0.5	-	0.015	0.023	0.03	0.05	0.08	0.1	0.12	0.15	0.19	0.24	0.3	0.34	0.38	0.47	0.6	0.75	0.94	
	1 A	0.024	0.04	0.05	0.06	0.08	0.1	0.13	0.16	0.18	0.2	0.25	0.32	0.4	0.5	-	-	0.023	0.03	0.05	0.08	0.1	0.12	0.15	0.19	0.24	0.3	0.34	0.38	0.47	0.6	0.75	0.94	
	2 A	-	0.04	0.05	0.06	0.08	0.1	0.13	0.16	0.18	0.2	0.25	0.32	0.4	0.5	-	-	-	-	0.05	0.08	0.1	0.12	0.15	0.19	0.24	0.3	0.34	0.38	0.47	0.6	0.75	0.94	
	3 A	-	-	-	0.06	0.08	0.1	0.13	0.16	0.18	0.2	0.25	0.32	0.4	0.5	-	-	-	-	-	0.08	0.1	0.12	0.15	0.19	0.24	0.3	0.34	0.38	0.47	0.6	0.75	0.94	
	4 A	-	-	-	-	0.08	0.1	0.13	0.16	0.18	0.2	0.25	0.32	0.4	0.5	-	-	-	-	-	-	0.1	0.12	0.15	0.19	0.24	0.3	0.34	0.38	0.47	0.6	0.75	0.94	
	6 A	-	-	-	-	-	0.13	0.16	0.18	0.2	0.25	0.32	0.4	0.5	-	-	-	-	-	-	-	-	0.15	0.19	0.24	0.3	0.34	0.38	0.47	0.6	0.75	0.94		
	10 A	-	-	-	-	-	-	0.16	0.18	0.2	0.25	0.32	0.4	0.5	-	-	-	-	-	-	-	-	-	-	-	0.24	0.3	0.34	0.38	0.47	0.6	0.75	0.94	
	13 A	-	-	-	-	-	-	-	0.2	0.25	0.32	0.4	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	0.3	0.34	0.38	0.47	0.6	0.75	0.94	
	16 A	-	-	-	-	-	-	-	-	0.32	0.4	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.38	0.47	0.6	0.75	0.94	
	20 A	-	-	-	-	-	-	-	-	-	0.4	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.47	0.6	0.75	0.94
	25 A	-	-	-	-	-	-	-	-	-	-	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.6	0.75	0.94
	32 A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.75	0.94	
	40 A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.94	
	50 A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
63 A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
80 A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
100 A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
125 A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Range MMNxxx	0.63 A	0.024	0.04	0.05	0.06	0.08	0.1	0.13	0.16	0.18	0.2	0.25	0.32	0.4	0.5	-	-	-	0.03	0.05	0.08	0.1	0.12	0.15	0.19	0.24	0.3	0.34	0.38	0.47	0.6	0.75	0.94	
	1.25 A	-	0.04	0.05	0.06	0.08	0.1	0.13	0.16	0.18	0.2	0.25	0.32	0.4	0.5	-	-	-	-	-	0.08	0.1	0.12	0.15	0.19	0.24	0.3	0.34	0.38	0.47	0.6	0.75	0.94	
	1.6 A	-	0.04	0.05	0.06	0.08	0.1	0.13	0.16	0.18	0.2	0.25	0.32																					

Discrimination chart: Upstream - Fuses type G
Downstream - MCBs and magnetic MCBs

		Upstream : fuses type gG																				
		In	2 A	4 A	6 A	8 A	10 A	12 A	16 A	20 A	25 A	32 A	40 A	50 A	63 A	80 A	100 A	125 A	160 A	200 A	250 A	
NBNxxxA NQN	Curve B	6 A	-	-	-	0.14	0.17	0.21	0.31	0.42	0.62	1	1.5	2.3	3.8	<u>7.1</u>	<u>14</u>	T	T	T	T	
		10 A	-	-	-	-	-	0.19	0.28	0.38	0.55	0.9	1.3	2	3.3	6	<u>11</u>	<u>21</u>	T	T	T	
		13 A	-	-	-	-	-	-	0.25	0.34	0.47	0.75	1.1	1.7	2.8	5	<u>8.9</u>	<u>16</u>	T	T	T	
		16 A	-	-	-	-	-	-	-	0.34	0.47	0.75	1.1	1.7	2.8	5	<u>8.9</u>	<u>16</u>	T	T	T	
		20 A	-	-	-	-	-	-	-	-	0.41	0.65	0.97	1.3	2.3	4	<u>6.8</u>	<u>12</u>	<u>21</u>	T	T	
		25 A	-	-	-	-	-	-	-	-	-	0.65	0.97	1.3	2.3	4	<u>6.8</u>	<u>12</u>	<u>21</u>	T	T	
		32 A	-	-	-	-	-	-	-	-	-	-	0.84	1.2	1.9	3.1	5.4	<u>9</u>	<u>15</u>	T	T	
		40 A	-	-	-	-	-	-	-	-	-	-	-	1.2	1.9	3.1	5.4	<u>9</u>	<u>15</u>	T	T	
		50 A	-	-	-	-	-	-	-	-	-	-	-	-	1.8	2.8	4.5	<u>6.8</u>	<u>10</u>	T	T	
63 A	-	-	-	-	-	-	-	-	-	-	-	-	-	2.8	4.5	<u>6.8</u>	<u>10</u>	T	T			
NCNxxxA NRN	Curve C	0.5 A	0.07	0.12	0.16	0.22	0.24	0.34	0.61	1	1.6	3.2	6.3	13	T	T	T	T	T	T		
		1 A	0.055	0.09	0.12	0.15	0.19	0.23	0.38	0.57	0.9	1.5	2.7	4.8	<u>9.3</u>	<u>21</u>	T	T	T	T		
		2 A	-	0.09	0.12	0.15	0.19	0.23	0.38	0.57	0.9	1.5	2.7	4.8	<u>9.3</u>	<u>21</u>	T	T	T	T		
		3 A	-	-	0.105	0.13	0.16	0.2	0.32	0.46	0.7	1.1	1.9	3.2	5.9	<u>12</u>	T	T	T	T		
		4 A	-	-	-	0.13	0.16	0.2	0.32	0.46	0.7	1.1	1.9	3.2	5.9	<u>12</u>	T	T	T	T		
		6 A	-	-	-	-	-	0.18	0.29	0.42	0.62	1	1.5	2.3	3.8	<u>7.1</u>	<u>14</u>	T	T	T		
		10 A	-	-	-	-	-	-	0.26	0.37	0.55	0.9	1.3	2	3.3	6	<u>11</u>	<u>21</u>	T	T		
		13 A	-	-	-	-	-	-	-	0.33	0.46	0.75	1.1	1.7	2.8	5	<u>8.9</u>	<u>16</u>	T	T		
		16 A	-	-	-	-	-	-	-	-	0.46	0.75	1.1	1.7	2.8	5	<u>8.9</u>	<u>16</u>	T	T		
		20 A	-	-	-	-	-	-	-	-	-	0.65	0.97	1.3	2.3	4	<u>6.8</u>	<u>12</u>	<u>21</u>	T	T	
		25 A	-	-	-	-	-	-	-	-	-	-	0.97	1.3	2.3	4	<u>6.8</u>	<u>12</u>	<u>21</u>	T	T	
		32 A	-	-	-	-	-	-	-	-	-	-	-	1.2	1.9	3.1	5.4	<u>9</u>	<u>15</u>	T	T	
		40 A	-	-	-	-	-	-	-	-	-	-	-	-	1.9	3.1	5.4	<u>9</u>	<u>15</u>	T	T	
		50 A	-	-	-	-	-	-	-	-	-	-	-	-	-	2.8	4.5	<u>6.8</u>	<u>10</u>	T	T	
63 A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.5	<u>6.8</u>	<u>10</u>	T	T			
NDNxxxA NGN NSN	Curve D	0.5 A	0.07	0.12	0.16	0.22	0.24	0.34	0.61	1	1.6	3.2	5.7	<u>11</u>	<u>24</u>	T	T	T	T			
		1 A	-	0.09	0.12	0.15	0.19	0.23	0.38	0.54	0.85	1.4	2.3	4	<u>6.9</u>	<u>13</u>	T	T	T			
		2 A	-	-	-	0.15	0.19	0.23	0.38	0.54	0.85	1.4	2.3	4	<u>6.9</u>	<u>13</u>	T	T	T			
		3 A	-	-	-	-	0.16	0.2	0.31	0.44	0.67	1.1	1.6	2.8	5	<u>9.2</u>	<u>19</u>	T	T			
		4 A	-	-	-	-	-	0.2	0.31	0.44	0.67	1.1	1.6	2.8	5	<u>9.2</u>	<u>19</u>	T	T			
		6 A	-	-	-	-	-	-	-	0.37	0.54	0.87	1.3	2.1	3.6	<u>6.4</u>	<u>11</u>	<u>23</u>	T	T		
		10 A	-	-	-	-	-	-	-	-	0.46	0.74	1.1	1.6	2.8	5	<u>8.6</u>	<u>15</u>	T	T		
		13 A	-	-	-	-	-	-	-	-	-	0.65	0.99	1.5	2.4	4	<u>6.8</u>	<u>11</u>	<u>24</u>	T	T	
		16 A	-	-	-	-	-	-	-	-	-	-	0.99	1.5	2.4	4	<u>6.8</u>	<u>11</u>	<u>24</u>	T	T	
		20 A	-	-	-	-	-	-	-	-	-	-	-	1.1	1.7	2.8	4.7	<u>7.4</u>	<u>14</u>	T	T	
		25 A	-	-	-	-	-	-	-	-	-	-	-	-	1.7	2.8	4.7	<u>7.4</u>	<u>14</u>	T	T	
		32 A	-	-	-	-	-	-	-	-	-	-	-	-	-	2.2	3.5	5.5	<u>9.1</u>	T	T	
		40 A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.5	5.5	<u>9.1</u>	T	T	
		50 A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.5	<u>7.2</u>	<u>13</u>	T	
63 A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<u>7.2</u>	<u>13</u>	T			
MMN xxx range		0.63 A	-	-	0.105	0.14	0.17	0.21	0.33	0.46	0.66	1.02	1.5	2.3	3.8	7	14	T	T	T		
		1.25 A	-	-	-	-	0.17	0.21	0.33	0.46	0.66	1.02	1.5	2.3	3.8	7	14	T	T	T		
		1.6 A	-	-	-	-	-	0.17	0.27	0.38	0.54	0.84	1.2	1.9	3	5.4	10	18	T	T		
		2.5 A	-	-	-	-	-	-	-	0.38	0.54	0.84	1.2	1.9	3	5.4	10	18	T	T		
		4 A	-	-	-	-	-	-	-	-	0.43	0.67	1	1.4	2.2	3.5	5.8	9	15	T	T	
		6.3 A	-	-	-	-	-	-	-	-	-	-	1	1.4	2.2	3.5	5.8	9	15	T	T	
		10 A	-	-	-	-	-	-	-	-	-	-	-	-	1.7	2.8	4.6	7.2	11	T	T	
		12.5 A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.8	4.6	7.2	11	T	T
		16 A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.6	5.6	9.2	T	T
		20 A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.6	9.2	T	T
		25 A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.2	T	T

T = Total discrimination

The value of the maximal current is in kA

Each underlined value must be read as T if it is over the breaking capacity range of the MCBs.

Discrimination chart : Upstream - Fuses type G
Downstream - MCBs 1 and 1.5 pole/width

		Upstream : fuses type gG											
		In	80 A	100 A	125 A	160 A	200 A	250 A	315 A	400 A	500 A	630 A	800 A
Downstream : MCBs	Curve B	80 A	-	2.2	3.9	6.2	8.8	13	T	T	T	T	T
		100 A	-	-	3.9	6.2	8.8	13	T	T	T	T	T
		125 A	-	-	-	6.2	8.8	13	T	T	T	T	T
HLE HLF HMB HMC HMD HMK	Curve C	80 A	-	-	2.8	5.3	7.8	13	T	T	T	T	T
		100 A	-	-	-	5.3	7.8	13	T	T	T	T	T
		125 A	-	-	-	-	7.8	13	T	T	T	T	T
	Curve D	80 A	-	-	-	-	6.6	15	T	T	T	T	T
		100 A	-	-	-	-	-	12	T	T	T	T	T
		125 A	-	-	-	-	-	-	T	T	T	T	T

		Upstream : fuses type gG																		
		In	2 A	4 A	6 A	8 A	10 A	12 A	16 A	20 A	25 A	32 A	40 A	50 A	63 A	80 A	100 A	125 A	160 A	200 A
Downstream : MCBs	Curve B	6 A	-	-	-	0.14	0.17	0.21	0.31	0.42	0.62	1	1.5	2.3	3.8	7.1	T	T	T	T
		10 A	-	-	-	-	-	0.19	0.28	0.38	0.55	0.9	1.3	2	3.3	6	T	T	T	T
		13 A	-	-	-	-	-	-	0.25	0.34	0.47	0.75	1.1	1.7	2.8	5	8.9	T	T	T
		16 A	-	-	-	-	-	-	-	0.34	0.47	0.75	1.1	1.7	2.8	5	8.9	T	T	T
		20 A	-	-	-	-	-	-	-	-	0.41	0.65	0.97	1.3	2.3	4	6.8	T	T	T
		25 A	-	-	-	-	-	-	-	-	-	0.65	0.97	1.3	2.3	4	6.8	T	T	T
		32 A	-	-	-	-	-	-	-	-	-	-	0.84	1.2	1.9	3.1	5.4	9	T	T
		40 A	-	-	-	-	-	-	-	-	-	-	-	1.2	1.9	3.1	5.4	9	T	T
		50 A	-	-	-	-	-	-	-	-	-	-	-	-	1.8	2.8	4.5	6.8	T	T
		63 A	-	-	-	-	-	-	-	-	-	-	-	-	-	2.8	4.5	6.8	T	T
Downstream : MCBs	Curve C	0.5 A	0.07	0.12	0.16	0.22	0.24	0.34	0.61	1	1.6	3.2	6.3	T	T	T	T	T	T	
		1 A	0.055	0.09	0.12	0.15	0.19	0.23	0.38	0.57	0.9	1.5	2.7	4.8	9.3	T	T	T	T	
		2 A	-	0.09	0.12	0.15	0.19	0.23	0.38	0.57	0.9	1.5	2.7	4.8	9.3	T	T	T	T	
		3 A	-	-	0.105	0.13	0.16	0.2	0.32	0.46	0.7	1.1	1.9	3.2	5.9	T	T	T	T	
		4 A	-	-	-	0.13	0.16	0.2	0.32	0.46	0.7	1.1	1.9	3.2	5.9	T	T	T	T	
		6 A	-	-	-	-	-	0.18	0.29	0.42	0.62	1	1.5	2.3	3.8	7.1	T	T	T	T
		10 A	-	-	-	-	-	-	0.26	0.37	0.55	0.9	1.3	2	3.3	6	T	T	T	
		13 A	-	-	-	-	-	-	-	0.33	0.46	0.75	1.1	1.7	2.8	5	8.9	T	T	
		16 A	-	-	-	-	-	-	-	-	0.46	0.75	1.1	1.7	2.8	5	8.9	T	T	
		20 A	-	-	-	-	-	-	-	-	-	0.65	0.97	1.3	2.3	4	6.8	T	T	
		25 A	-	-	-	-	-	-	-	-	-	-	0.97	1.3	2.3	4	6.8	T	T	
		32 A	-	-	-	-	-	-	-	-	-	-	-	1.2	1.9	3.1	5.4	9	T	
		40 A	-	-	-	-	-	-	-	-	-	-	-	-	1.9	3.1	5.4	9	T	
		50 A	-	-	-	-	-	-	-	-	-	-	-	-	-	2.8	4.5	6.8	T	
		63 A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.5	6.8	T	

Protection devices

		Upstream : fuses type gG																	
		In	2 A	4 A	6 A	8 A	10 A	12 A	16 A	20 A	25 A	32 A	40 A	50 A	63 A	80 A	100 A	125 A	160 A
Downstream : MCBs	Curve B	6 A	-	-	-	0.11	0.13	0.16	0.26	0.35	0.5	0.8	1.2	1.8	2.9	5.2	T	T	T
		10 A	-	-	-	-	-	0.14	0.22	0.31	0.43	0.68	1	1.5	2.4	4.1	T	T	
		13 A	-	-	-	-	-	-	0.19	0.27	0.37	0.57	0.85	1.2	2	3.4	5.7	T	
		16 A	-	-	-	-	-	-	-	0.26	0.36	0.57	0.85	1.2	2	3.4	5.7	T	
		20 A	-	-	-	-	-	-	-	-	0.31	0.46	0.7	1.05	1.7	2.8	4.7	T	
		25 A	-	-	-	-	-	-	-	-	-	0.46	0.7	1.05	1.7	2.8	4.7	T	
		32 A	-	-	-	-	-	-	-	-	-	-	0.61	0.97	1.5	2.6	4.3	T	
		40 A	-	-	-	-	-	-	-	-	-	-	-	0.97	1.5	2.6	4.3	T	
		50 A	-	-	-	-	-	-	-	-	-	-	-	-	1.4	2.4	3.9	T	
		63 A	-	-	-	-	-	-	-	-	-	-	-	-	-	2.4	3.9	T	
MLN. MCNxxxA	Curve C	0.5 A	0.07	0.11	0.15	0.19	0.23	0.28	0.44	0.63	0.96	1.5	2.7	5	T	T	T	T	
		1 A	0.055	0.09	0.12	0.16	0.19	0.23	0.35	0.48	0.73	1.1	1.8	3.2	5.9	T	T	T	
		2 A	-	0.08	0.12	0.15	0.19	0.23	0.35	0.48	0.73	1.1	1.8	3.2	5.9	T	T	T	
		3 A	-	-	0.11	0.13	0.16	0.19	0.29	0.4	0.59	0.94	1.4	2.3	4	T	T	T	
		4 A	-	-	-	0.12	0.15	0.19	0.29	0.4	0.59	0.94	1.4	2.3	4	T	T	T	
		6 A	-	-	-	-	-	0.16	0.25	0.35	0.5	0.8	1.2	1.8	2.9	5.2	T	T	
		10 A	-	-	-	-	-	-	0.22	0.3	0.43	0.68	1	1.5	2.4	4.1	T	T	
		13 A	-	-	-	-	-	-	-	0.26	0.37	0.57	0.85	1.2	2	3.4	5.7	T	
		16 A	-	-	-	-	-	-	-	-	0.36	0.57	0.85	1.2	2	3.4	5.7	T	
		20 A	-	-	-	-	-	-	-	-	-	0.46	0.7	1.05	1.7	2.8	4.7	T	
		25 A	-	-	-	-	-	-	-	-	-	-	0.7	1.05	1.7	2.8	4.7	T	
		32 A	-	-	-	-	-	-	-	-	-	-	-	0.97	1.5	2.6	4.3	T	
		40 A	-	-	-	-	-	-	-	-	-	-	-	-	1.5	2.6	4.3	T	
		50 A	-	-	-	-	-	-	-	-	-	-	-	-	-	2.4	3.9	T	
		63 A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.9	T	

MCBs 1 module/pole: temperature correction factor according to ambient temperature (nominal values for ref. temperature: 30°C ; see the blue cells in the chart).

Derating chart according to the ambient temperature for MCBs **1 module/pole**

In(A)	20°C	25°C	30°C	35°C	40°C	45°C	50°C	55°C	60°C	65°C	70°C
0.5	0.54	0.52	0.5	0.48	0.46	0.44	0.42	-	-	-	-
1	1.08	1.04	1	0.96	0.92	0.88	0.84	0.8	0.76	0.72	0.68
1.5	1.62	1.56	1.5	1.44	1.38	1.32	1.26	1.2	1.14	1.08	1.02
1.6	1.73	1.66	1.6	1.54	1.47	1.41	1.34	1.28	1.22	1.15	1.09
2	2.16	2.08	2	1.92	1.84	1.76	1.68	1.6	1.52	1.44	1.36
3	3.24	3.12	3	2.88	2.76	2.64	2.52	2.4	2.28	2.16	2.04
3.5	3.78	3.64	3.5	3.36	3.22	3.08	2.94	2.8	2.66	2.52	2.38
4	4.32	4.16	4	3.84	3.68	3.52	3.36	3.2	3.04	2.88	2.72
5	5.4	5.2	5	4.8	4.6	4.4	4.2	4	3.8	3.6	3.4
6	6.48	6.24	6	5.76	5.52	5.28	5.04	4.8	4.56	4.32	4.08
7.5	8.1	7.8	7.5	7.2	6.9	6.6	6.3	6	5.7	5.4	5.1
8	8.64	8.32	8	7.68	7.36	7.04	6.72	6.4	6.08	5.76	5.44
10	10.8	10.4	10	9.6	9.2	8.8	8.4	8	7.6	7.2	6.8
13	14.0	13.5	13	12.5	12.0	11.4	10.9	10.4	9.9	9.4	8.8
15	16.2	15.6	15	14.4	13.8	13.2	12.6	12	11.4	10.8	10.2
16	17.3	16.6	16	15.4	14.7	14.1	13.4	12.8	12.2	11.5	10.9
20	21.6	20.8	20	19.2	18.4	17.6	16.8	16	15.2	14.4	13.6
25	27	26	25	24	23	22	21	20	19	18	17
30	32.4	31.2	30	28.8	27.6	26.4	25.2	24	22.8	21.6	20.4
32	34.6	33.3	32	30.7	29.4	28.2	26.9	25.6	24.3	23.0	21.8
35	37.8	36.4	35	33.6	32.2	30.8	29.4	28.0	26.6	25.2	23.8
40	44.8	41.6	40	38.4	36.8	35.2	33.6	32	30.4	28.8	27.2
45	50.4	46.8	45	43.2	41.4	39.6	37.8	36	34.2	32.4	30.6
50	56	52	50	48	46	44	42	40	38	36	34
63	-	-	63	60.5	58.0	55.4	52.9	50.4	47.9	45.4	42.8

Note: If the current of a circuit (Ib) is less than 0,85 x the nominal setting of the circuit breaker (In) don't take in account the below correction.

Nb of MCBs placed side by side	Factor correction
n = 2	1
3 ≤ n < 4	0.95
4 ≤ n < 6	0.9
6 ≤ n	0.85

Derating chart according to the ambient temperature for MCBs **HLE, HLF, HMB, HMC, HMD, HMK**

In(A)	20°C	25°C	30°C	35°C	40°C	45°C	50°C	55°C	60°C	65°C	70°C
10	10.8	10.4	10	9.6	9.2	8.8	8.4	8	7.6	7.2	6.8
13	14.04	13.52	13	12.48	11.96	11.44	10.92	10.4	9.88	9.36	8.84
15	16.2	15.6	15	14.4	13.8	13.2	12.6	12	11.4	10.8	10.2
16	17.28	16.64	16	15.36	14.72	14.08	13.44	12.8	12.16	11.52	10.88
20	21.6	20.8	20	19.2	18.4	17.6	16.8	16	15.2	14.4	13.6
25	27	26	25	24	23	22	21	20	19	18	17
30	32.4	31.2	30	28.8	27.6	26.4	25.2	24	22.8	21.6	20.4
32	34.56	33.28	32	30.72	29.44	28.16	26.88	25.6	24.32	23.04	21.76
35	37.8	36.4	35	33.6	32.2	30.8	29.4	28	26.6	25.2	23.8
45	43.2	41.6	45	38.4	36.8	35.2	33.6	32	30.4	28.8	27.2
50	54	52	50	48	46	44	42	40	38	36	34
63	68.04	65.52	63	60.48	57.96	55.44	52.92	50.4	47.88	45.36	42.84
80	86.4	83.2	80	76.8	73.6	70.4	67.2	64	60.8	57.6	54.4
100	108	104	100	96	92	88	84	80	76	72	68
125	-	-	125	120	115	110	105	100	95	90	85

Derating chart according to the ambient temperature for MCBs **HMX**

In(A)	20°C	25°C	30°C	35°C	40°C	45°C	50°C	55°C	60°C	65°C	70°C
10	11.6	11.2	10.8	10.4	10	9.6	9.2	8.8	8.4	8	7.6
16	18.56	17.92	17.28	16.64	16	15.36	14.72	14.08	13.44	12.8	12.16
20	23.2	22.4	21.6	20.8	20	19.2	18.4	17.6	16.8	16	15.2
25	29	28	27	26	25	24	23	22	21	20	19
32	37.12	35.84	34.56	33.28	32	30.72	29.44	28.16	26.88	25.6	24.32
40	46.4	44.8	43.2	41.6	40	38.4	36.8	35.2	33.6	32	30.4
50	58	56	54	52	50	48	46	44	42	40	38
63	73.08	70.56	68.04	65.52	63	60.48	57.96	55.44	52.92	50.4	47.88

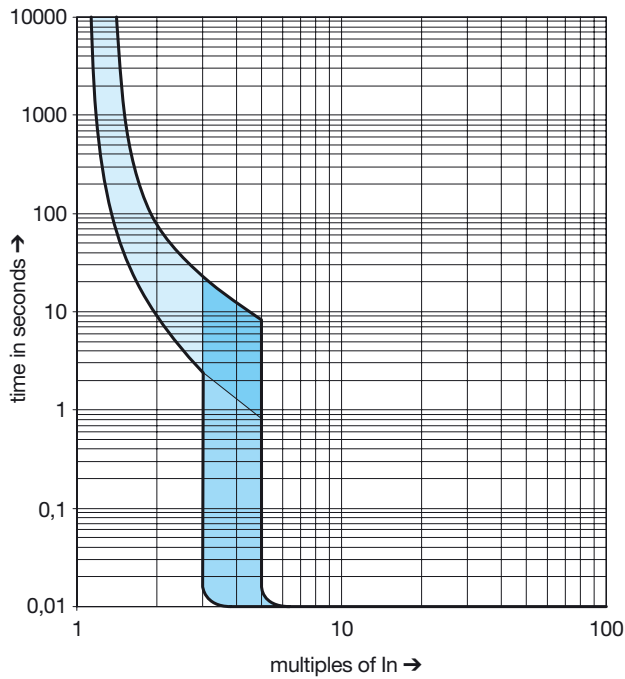
Example of derating due to the temperature

5 MCBs NGN420 four poles, curve C, rated 20 A are placed side by side in a box which is situated in a local where the temperatures 40 °C.

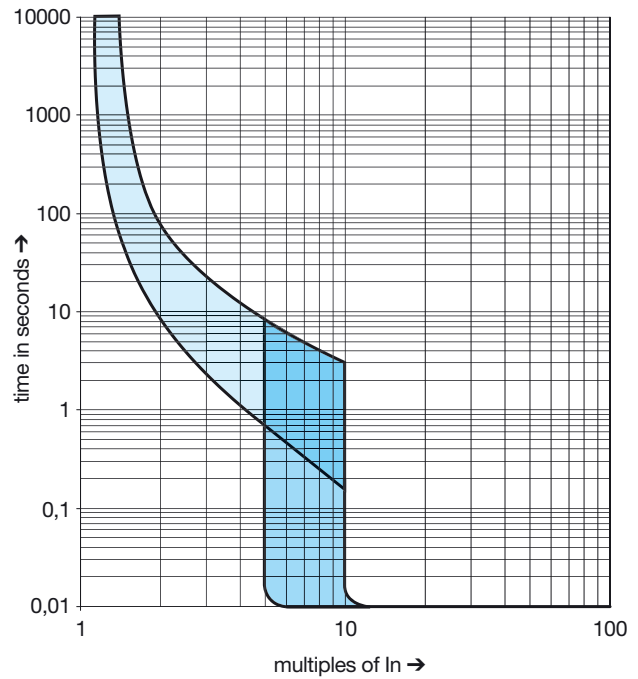
Derating due to the temperature 40 °C: 18.4 A.

Additional derating due to the juxtaposed MCBs: 18.4 x 0.9 = 16.5 A

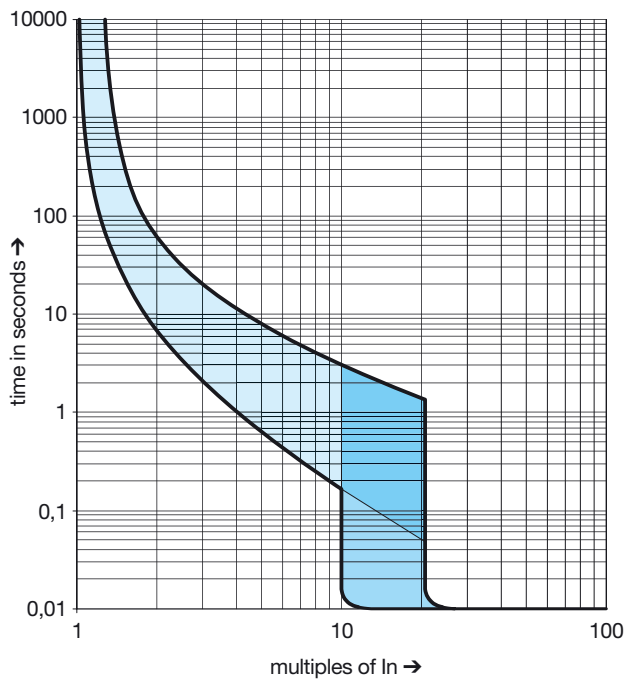
B curve at 30°C (IEC 60 898-1) MCB:
MV, MTxxxA, MBxxxA, NBNxxxA, NQN,
HLE, HMB, HMJ



C curve at 30°C (IEC 60 898-1) MCB:
MLN, MW, MUxxxA, MCxxxA, MCNxxxA, NCNxxxA, NRN, HLF, HMC,
HMK, HMX
RCBOs : ACC, ADC, ADH, AFC, AFH



D curve at 30°C (IEC 60 898-1) MCB:
NGN, NDNxxxA, NSN, HMD



DC applications

Because of their quick make and break design and excellent arc quenching capabilities, Hager circuit breakers are suitable for use on DC. When selecting a circuit breaker for any DC application it is necessary to consider 2 main points:

a) system voltage

The system voltage and the type of system determines the number of poles required to provide the necessary breaking capacity and arc control. The table gives the maximum DC voltage and breaking capacity for one pole or two poles connected in the series: The positioning of these breaking poles in the system depends on whether the system is earthed or insulated and if it is earthed whether one polarity is earthed or the centre point is earthed.

b) type of DC systems: 3 different types

- Network connected to the earth - one polarity earthed (+ve or -ve):
If -ve is earthed, all poles will be placed in series in the +ve leg.
If the +ve is earthed, all poles will be placed in the -ve leg.
Note: an extra pole will be needed on the earthed polarity to provide isolation.
- Network connected to the earth - middle point earthed:
The number of poles required to break I_{sc} should be placed on each polarity.
- Network insulated to the earth:
The number of poles required to break I_{sc} should be split between the two polarities.

Information

To disconnect under load, use a DC switch SB432PV (32A - 1000V DC).

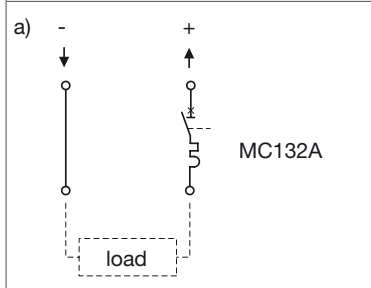
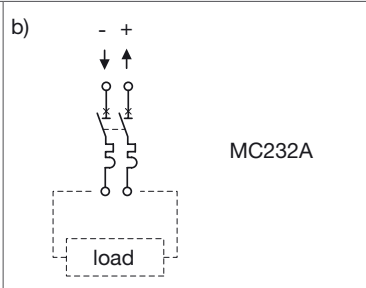
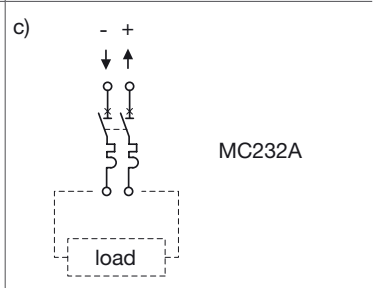
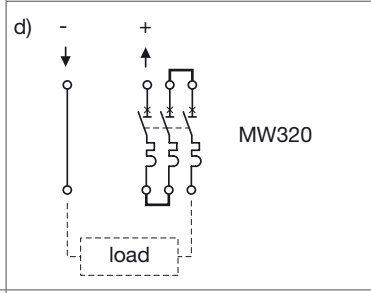
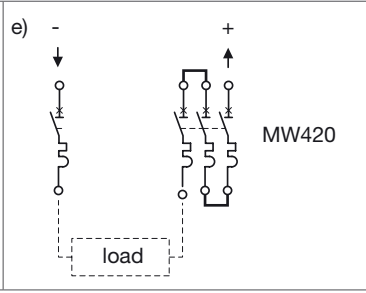
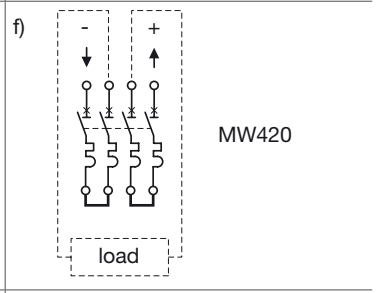
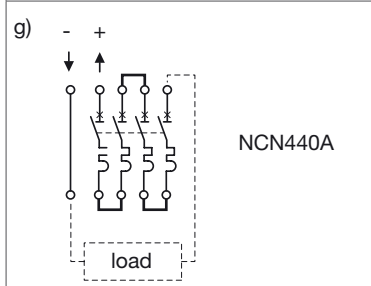

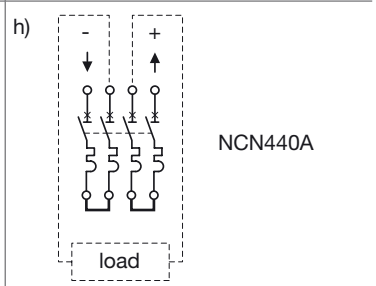
		①	②	③	④
		I_{t1}	I_{t2}	I_{rm1}	I_{rm2}
curve B	AC 50Hz	1.13 I_n	1.45 I_n	3 I_n	5 I_n
	DC	1.13 I_n	1.45 I_n	4 I_n	7 I_n
curve C	AC 50Hz	1.13 I_n	1.45 I_n	5 I_n	10 I_n
	DC	1.13 I_n	1.45 I_n	7 I_n	15 I_n
curve D	AC 50Hz	1.13 I_n	1.45 I_n	10 I_n	20 I_n
	DC	1.13 I_n	1.45 I_n	15 I_n	30 I_n

range	I_n	nb of poles in series needed for breaking	breaking capacity (kA)				
			≤48V	60V	125V	250V	500V
MT, MU, MB, MC, MV, MW, MBNxxxA, MCNxxxA	0.5 to 63A	1P	15	-	-	-	-
		2P	20	20	-	-	-
		3P	25	25	20	-	-
		4P	35	35	25	-	-
NGN, NB-NxxxA, NCNxxxA, NDNxxxA	0.5 to 63A	1P	15	15	10	-	-
		2P	20	20	15	6	-
		3P	25	25	20	10	-
		4P	35	35	25	15	10
	0.5 to 20A	1P	25	25	20	-	-
		2P	35	35	25	15	-
		3P	40	40	35	20	-
		4P	45	45	40	25	10
NRN NSN, NQN	25 to 40A	1P	20	20	15	-	-
		2P	25	25	20	10	-
		3P	30	30	30	15	-
		4P	35	35	35	20	10
	50 and 63A	1P	15	15	10	-	-
		2P	20	20	15	6	-
		3P	25	25	20	10	-
		4P	35	35	25	15	10
HMB, HMC, HMD, HMK, HMJ	80 to 125A	1P	15	15	10	-	-
		2P	20	20	15	6	-
		3P	30	30	30	15	-
		4P	35	35	35	20	10
HMX	10 to 63A	1P	25	25	20	-	-
		2P	35	35	25	15	-
		3P	40	40	35	20	-
		4P	45	45	40	25	10
HLFxxxS HLExxxS	80 to 125A	1P	12	12	8	-	-
		2P	15	15	10	4	-
		3P	25	25	25	10	-
		4P	30	30	30	15	5

c) earthing system types

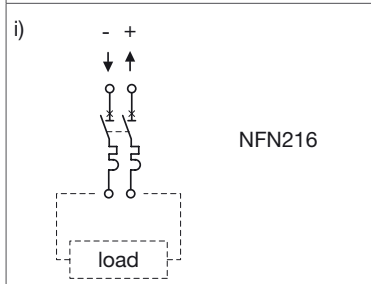
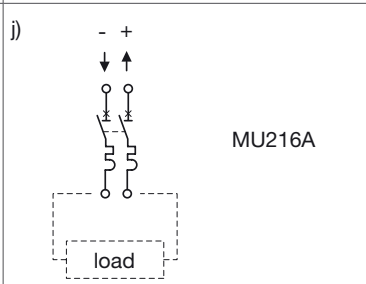
earthing diagrams TT, TNS, TNC		IT system isolated to the earth	
a polarity connected to earth	earthed center point		
<p>- Network connected to the earth - one polarity earthed (+ve or -ve): If -ve is earthed, all poles will be placed in series in the +ve leg. If the +ve is earthed, all poles will be placed in the -ve leg.</p>	<p>- Network connected to the earth - middle point earthed: The number of poles required to break I_{sc} should be placed on each polarity.</p>	<p>- Network insulated to the earth: The number of poles required to break I_{sc} should be split between the two polarities.</p>	<p>- Network connected to the earth - middle point earthed: The number of poles required to break I_{sc} should be placed on each polarity.</p>

Examples of TT, TNS, TNC earthing systems:

<p>24V DC ≤ U ≤ 48V DC</p>	<p>Protection of a 32A circuit under U = 48V DC voltage with earthed negative polarity and 15kA short circuit current (I_{cc}). a) without negative polarity breaking b) with negative polarity breaking</p>	<p>Protection of a 32A circuit under U = 48V DC voltage with middle point earthed and 15kA short circuit current (I_{cc}). c) I_{cc} under U/2 = 24V</p>	
	<p>a) </p>	<p>b) </p>	<p>c) </p>
<p>48V DC ≤ U ≤ 125V DC</p>	<p>Protection of a 20A circuit under U = 125V DC voltage with earthed negative polarity and 15kA short circuit current (I_{cc}). a) without negative polarity breaking b) with negative polarity breaking</p>	<p>Protection of a 20A circuit under U = 125V DC voltage with middle point earthed and 15kA short circuit current (I_{cc}). c) I_{cc} under U/2 = 72,5V</p>	
	<p>d) </p>	<p>e) </p>	<p>f) </p>
<p>125V DC ≤ U ≤ 500V DC</p>	<p>Protection of a 40A circuit under U = 500V DC voltage with earthed negative polarity and 10kA short circuit current (I_{cc}). a) without negative polarity breaking</p>	<p>Protection of a 40A circuit under U = 500V DC voltage with middle point earthed and 10kA short circuit current (I_{cc}). c) I_{cc} under U/2 = 250V</p>	
	<p>g) </p>	<p>h) </p>	<p>h) </p>

Protection devices

Examples of IT earthing system:

<p>24V DC ≤ U ≤ 125V DC</p>	<p>Protection of a 16A circuit under U = 120V DC voltage supplied by a 4kA I_{cc} isolated battery.</p>	<p>Protection of a 16A circuit under U = 120V DC voltage supplied by an impedant middle point battery delivering 4kA short circuit current. U/2 = 60V</p>
	<p>i) </p>	<p>j) </p>

Power loss per pole (Watt)

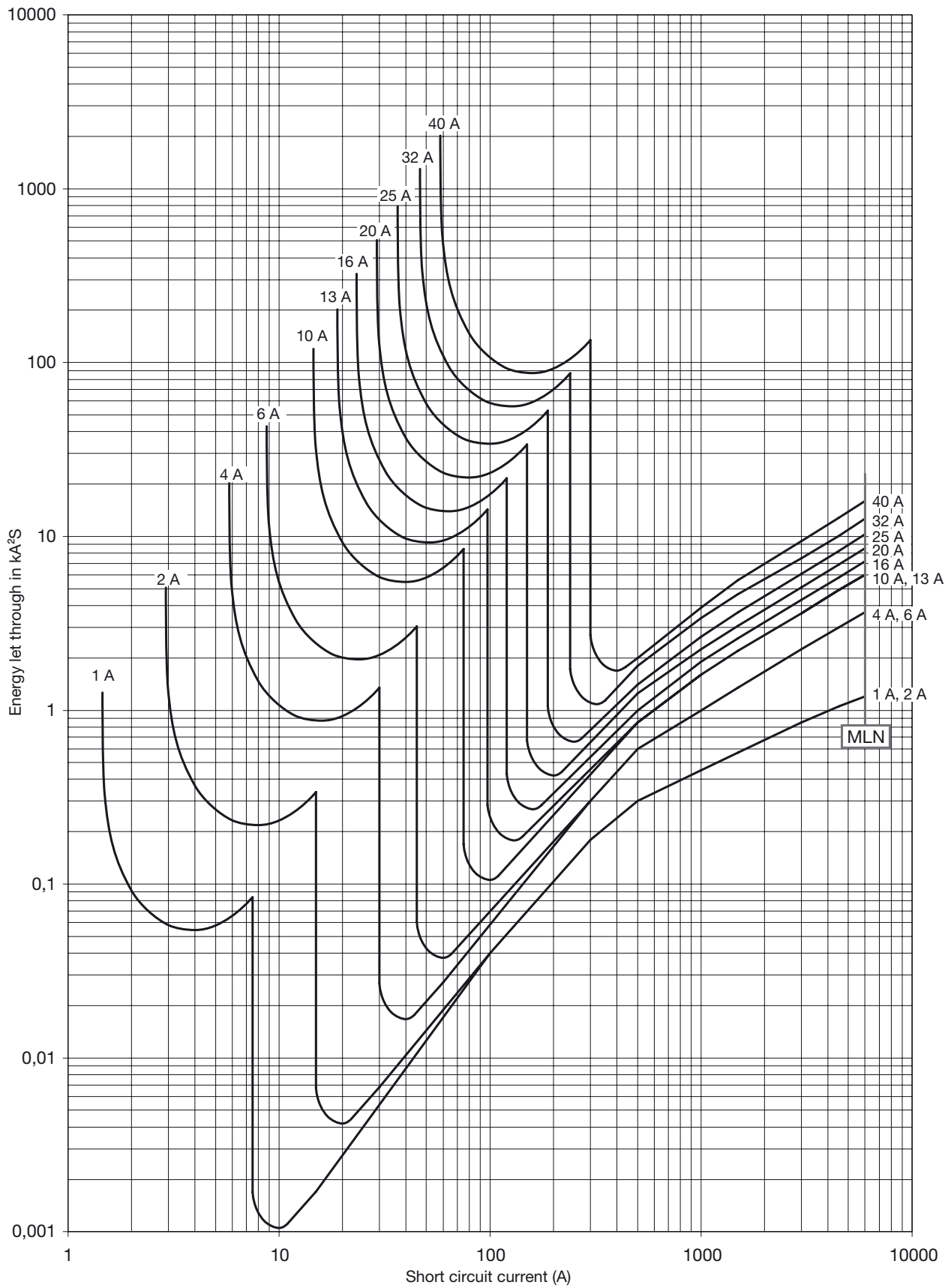
In(A)	MLN	MV	MW	MBNxxxA	MCNxxxA	MTxxxA MBxxxA	MUxxxA MCxxxA	NGN	NBNxxxA	NCNxxxA	NDNxxxA	NQN	NRN	NSN	HLExxxS
0.5	-	-	-	-	1.2	-	1.2	1.2	-	1.2	1.2	-	1.2	1.2	-
1	-	-	-	-	1.3	-	1.3	1.3	-	1.3	1.3	-	1.3	1.3	-
2	1.7	-	-	-	1.5	-	1.5	1.5	-	1.5	1.5	-	1.5	1.5	-
3	-	-	-	-	2	-	2	2	-	2	2	-	2	2	-
4	-	-	-	-	1.8	-	1.8	1.8	-	1.8	1.8	-	1.8	1.8	-
6	1.8	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	-
10	2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	-
13	-	-	-	-	2.2	-	-	2.1	2.1	2.1	2.1	2.1	-	2.1	-
16	2.8	3	3	3	3	3	3	2.5	2.5	2.5	2.5	2.5	2.5	2.5	-
20	3	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	-
25	3.3	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	-
32	3.6	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	-
40	-	4.5	4.5	4.5	4.5	4.5	4.5	4	4	4	4	4	4	4	-
50	-	-	-	5.1	5.1	5.1	5.1	4.5	4.5	4.5	4.5	4.5	4.5	4.5	-
63	-	-	-	6.4	6.4	6.4	6.4	5.1	5.1	5.1	5.1	5.1	5.1	5.1	-
80	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5
100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.5
125	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8

	HLFxxxA	HMB	HMC	HMD	HMJ	HMK	HMX	RCCB 2 poles					RCCB 4 poles				RCBO			
								10mA	30mA	100mA	300mA	500mA	30mA	100mA	300mA	500mA	10mA	30mA	300mA	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.3	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	1.7
-	-	-	-	-	-	-	2.3	-	-	-	-	-	-	-	-	-	-	-	2.6	2.4
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	3.4	-	-	-	-	-	-	-	-	-	-	6.5	4.2	4
-	-	-	-	-	-	-	2.7	-	-	-	-	-	-	-	-	-	-	-	5.4	4.3
-	-	-	-	-	-	-	2.6	5.8	2.5	1	1	1	4.6	2	2	2	-	12.8	8.6	
-	-	-	-	-	-	-	3.5	-	-	-	-	-	-	-	-	-	-	7.3	6.8	
-	-	-	-	-	-	-	3.4	-	6.3	2.6	2.6	2.6	11.8	5	5	5	-	14.2	14.7	
-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	5	-	8.4	6.4	6.4	6.4	17.5	12.5	12.5	12.5	-	-	-	-
5	5	5	5	5	5	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5.5	5.5	5.5	5.5	5.5	5.5	5.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8	8	8	8	8	8	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Protection devices

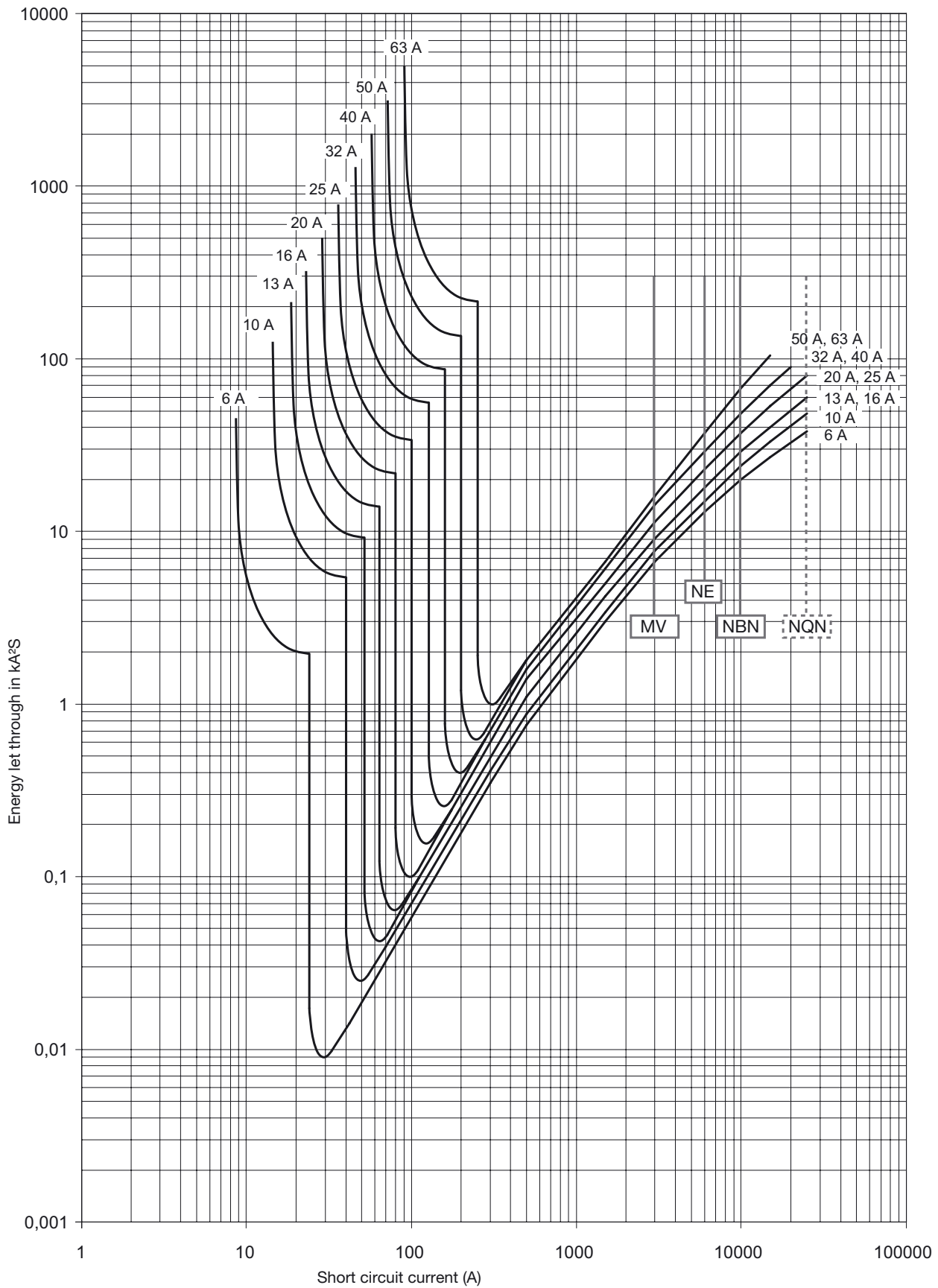
Energy let through at 230 V - IEC EN 60898

MCBs: MLN



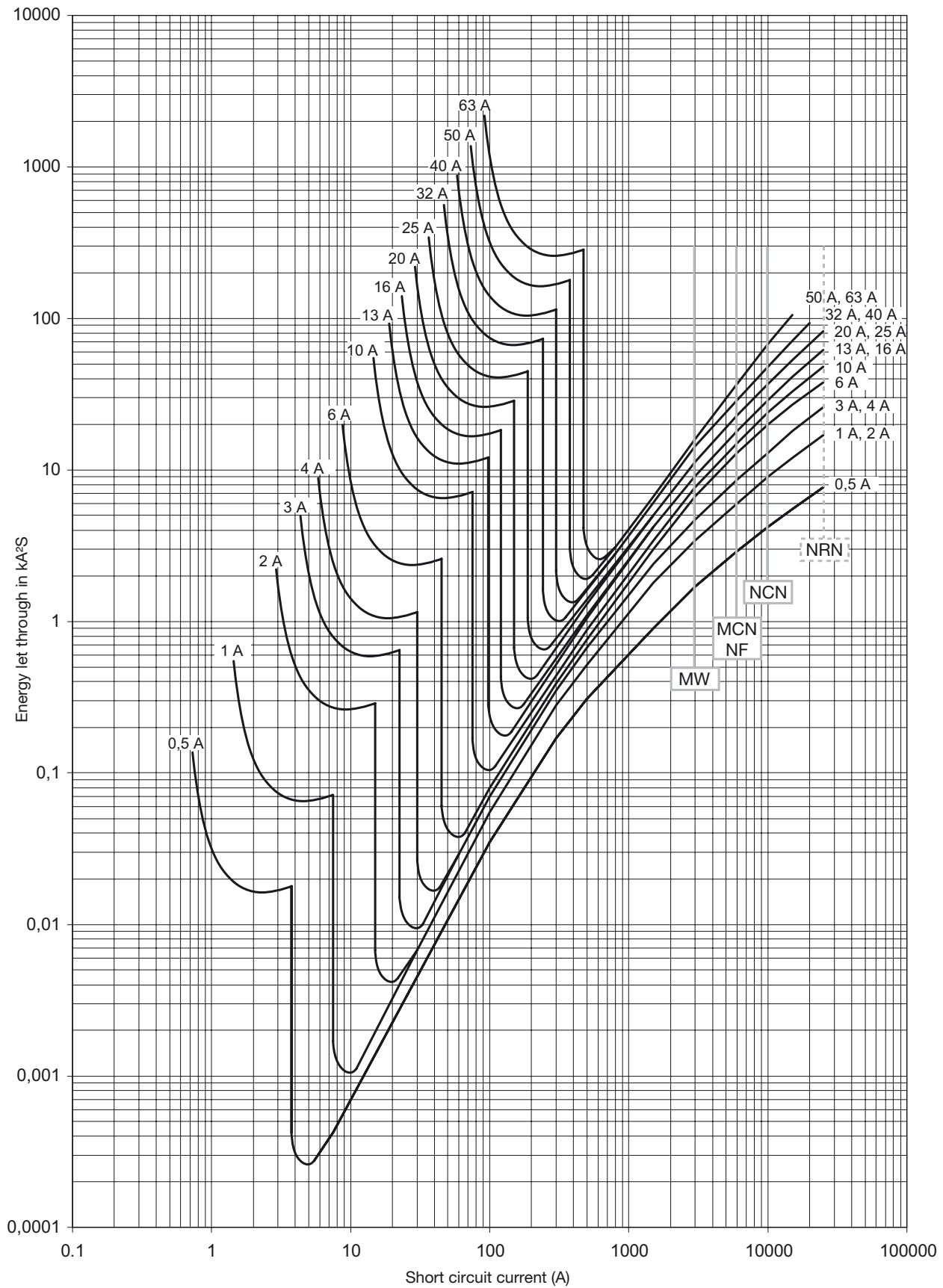
Energy let through at 400 V - IEC EN 60898

MCBs: MV, MBNxxxA, MTxxxA, MBxxxA, NBNxxA, NQN



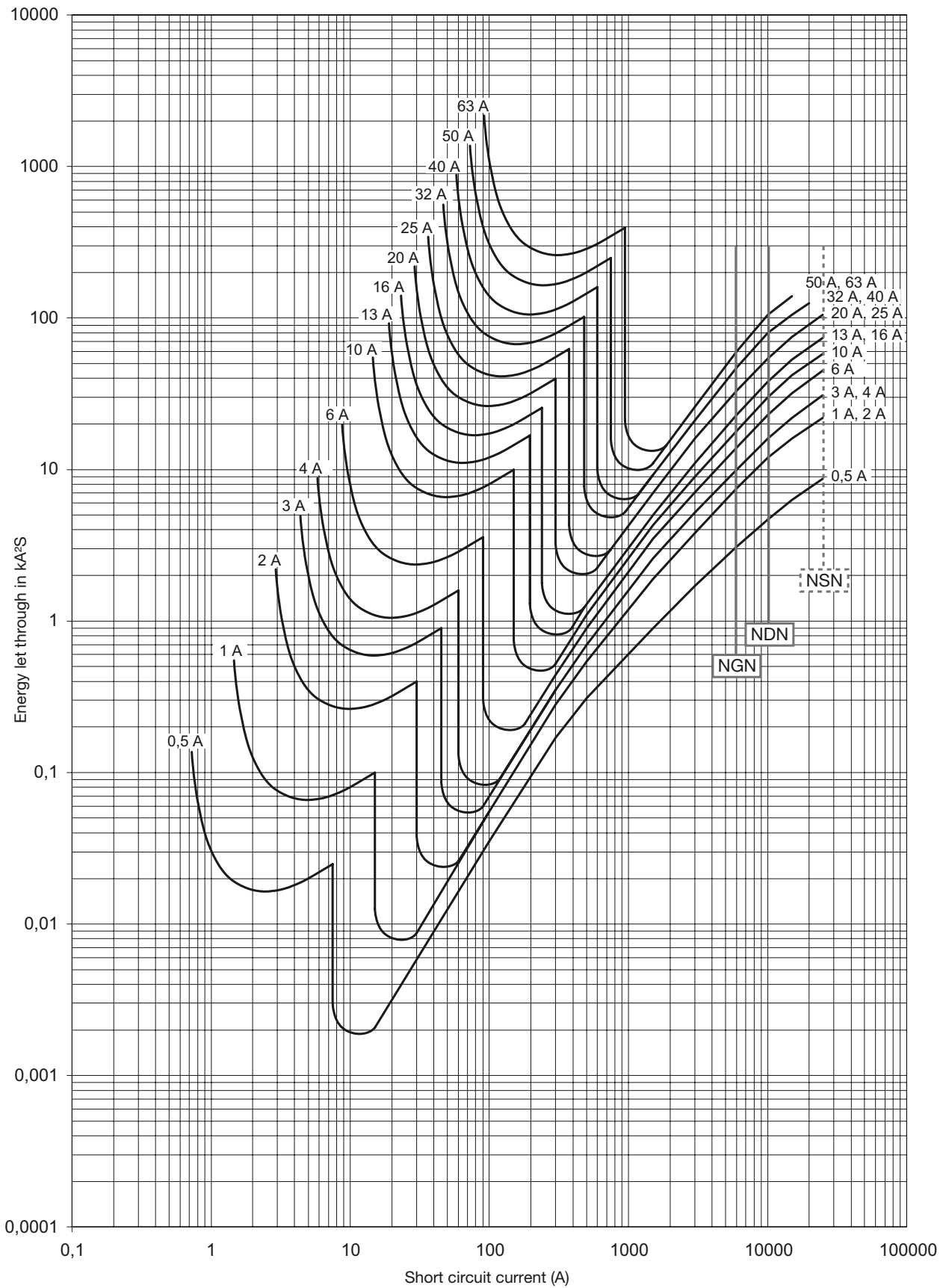
Energy let through at 400 V - IEC EN 60898

MCBs: MW, MCNxxxA, MUxxxA, MCxxxA,
NCNxxxA, NRN



Energy let through at 400 V - IEC EN 60898

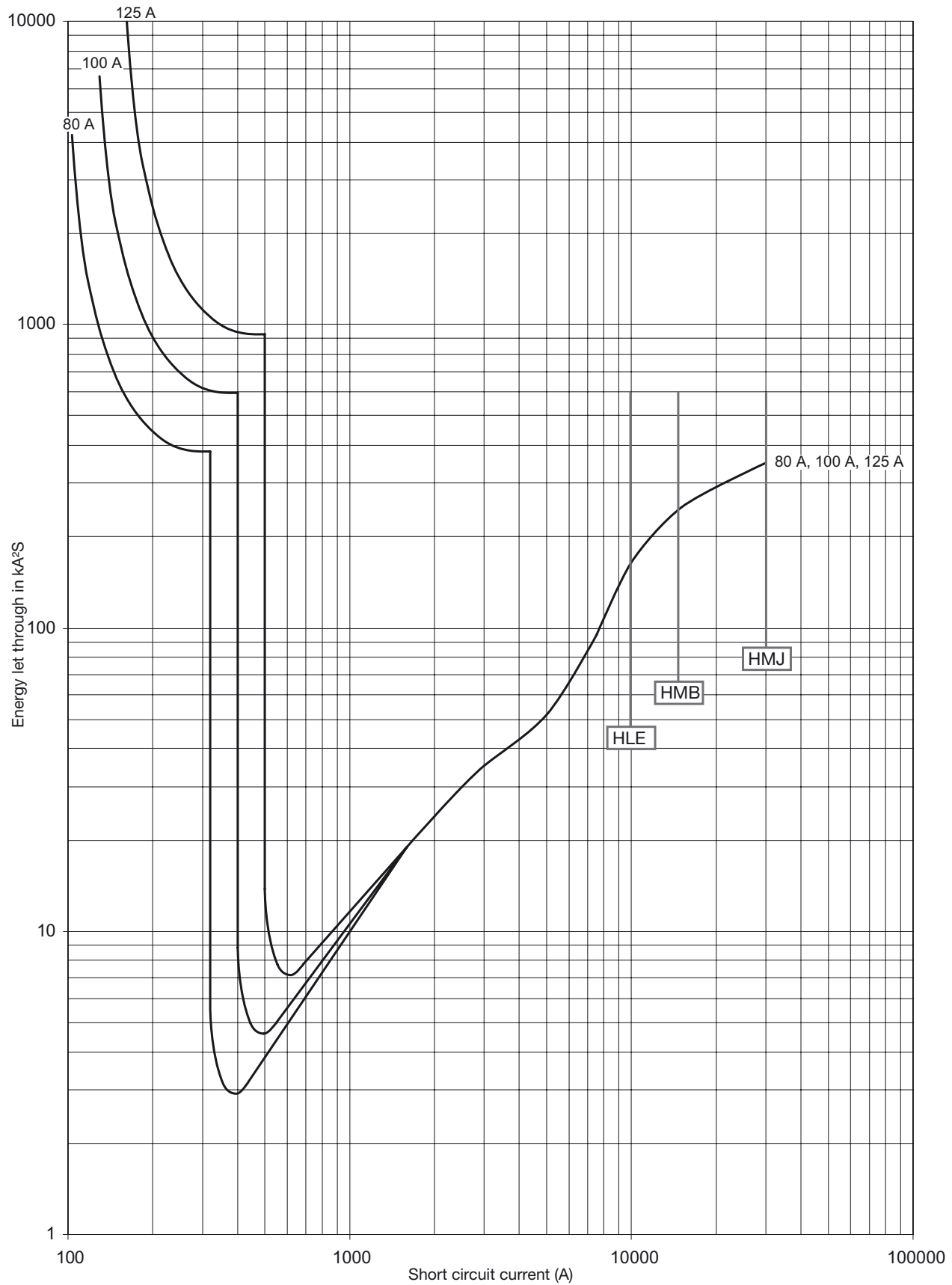
MCBs: NGN, NDN, NSN



Protection devices

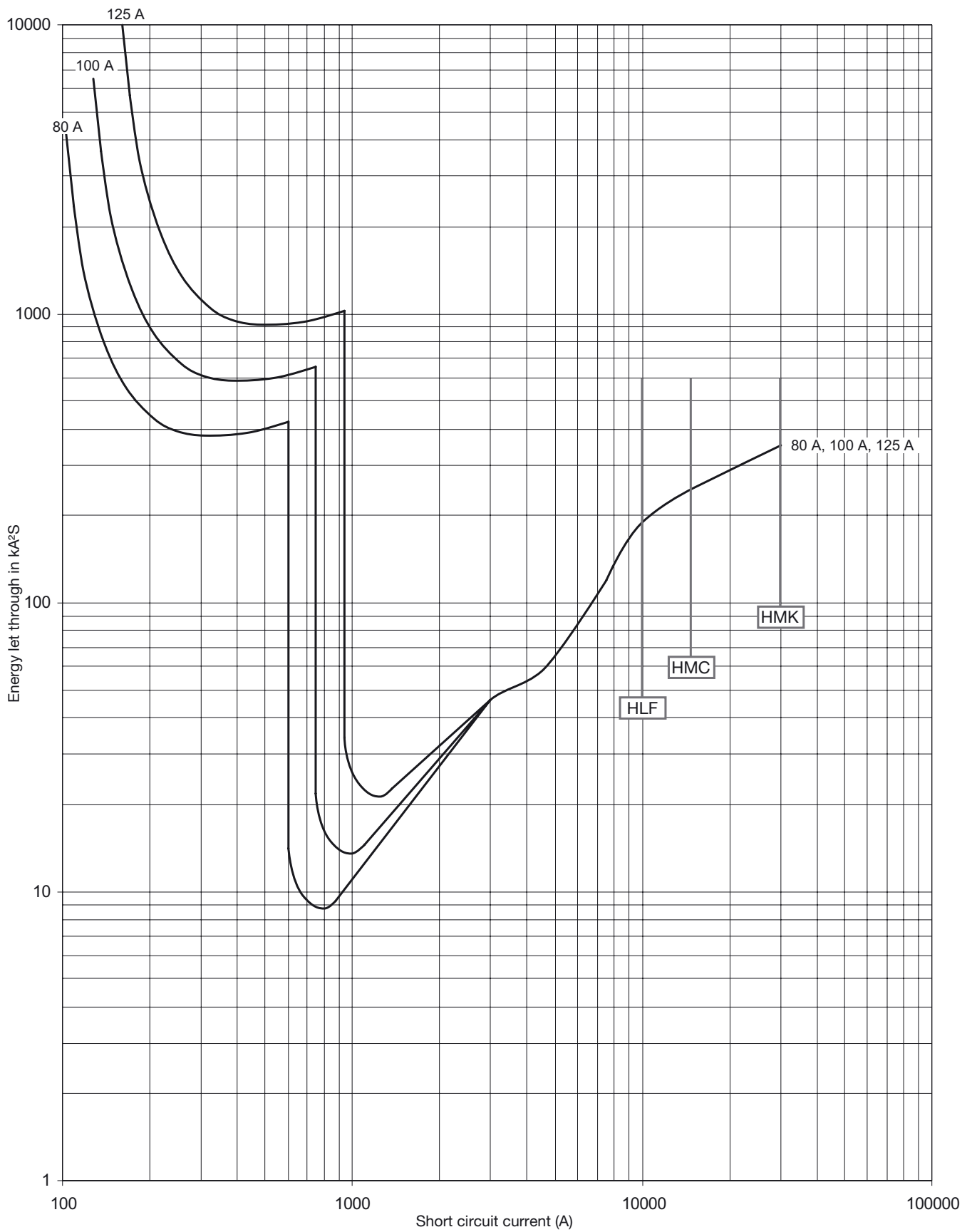
Energy let through at 400 V - IEC EN 60947-2

MCBs: HMB, HMJ, HLE



Energy let through at 400 V - IEC EN 60947-2

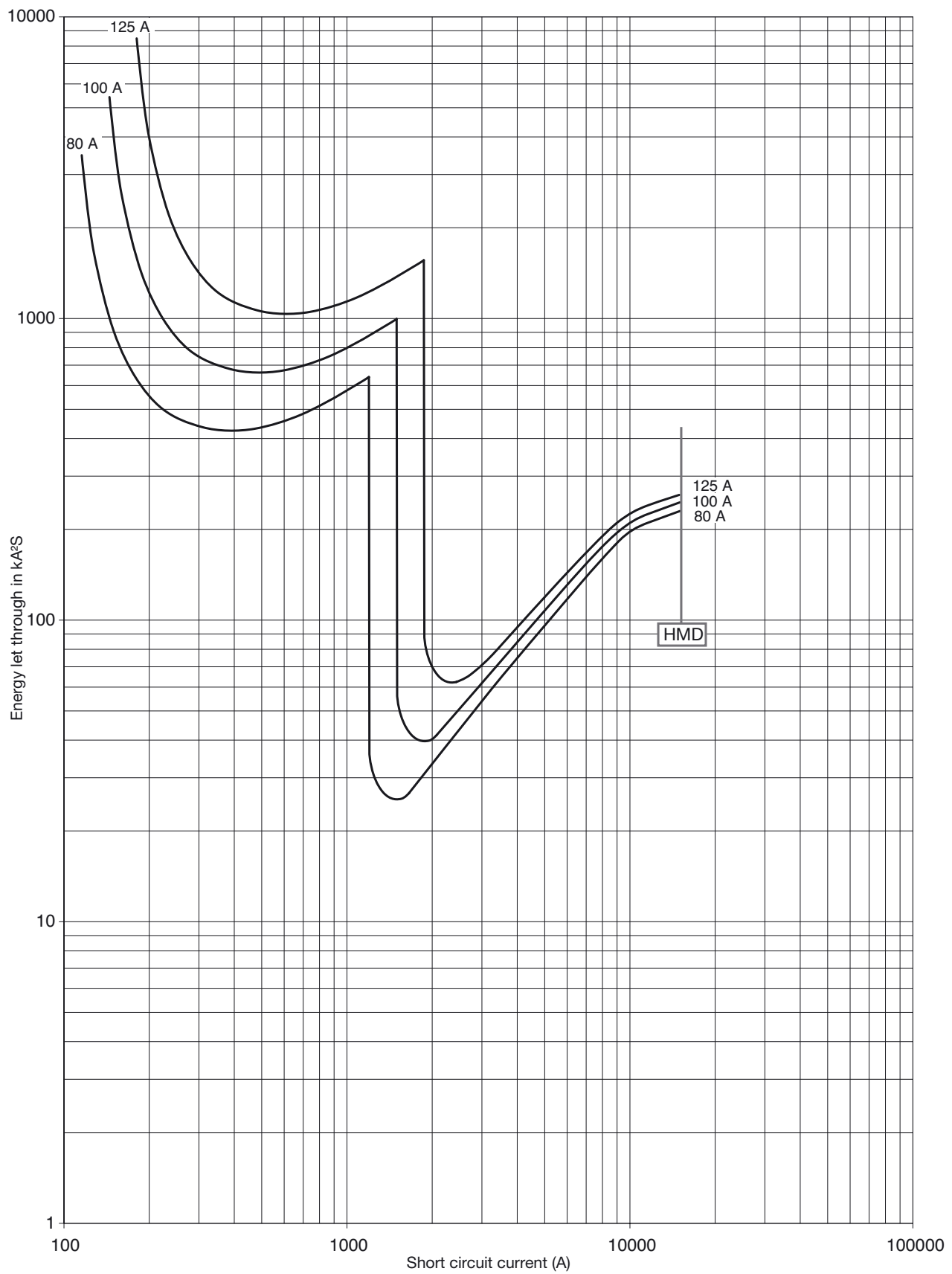
MCBs: HMC, HMK, HLF



Protection devices

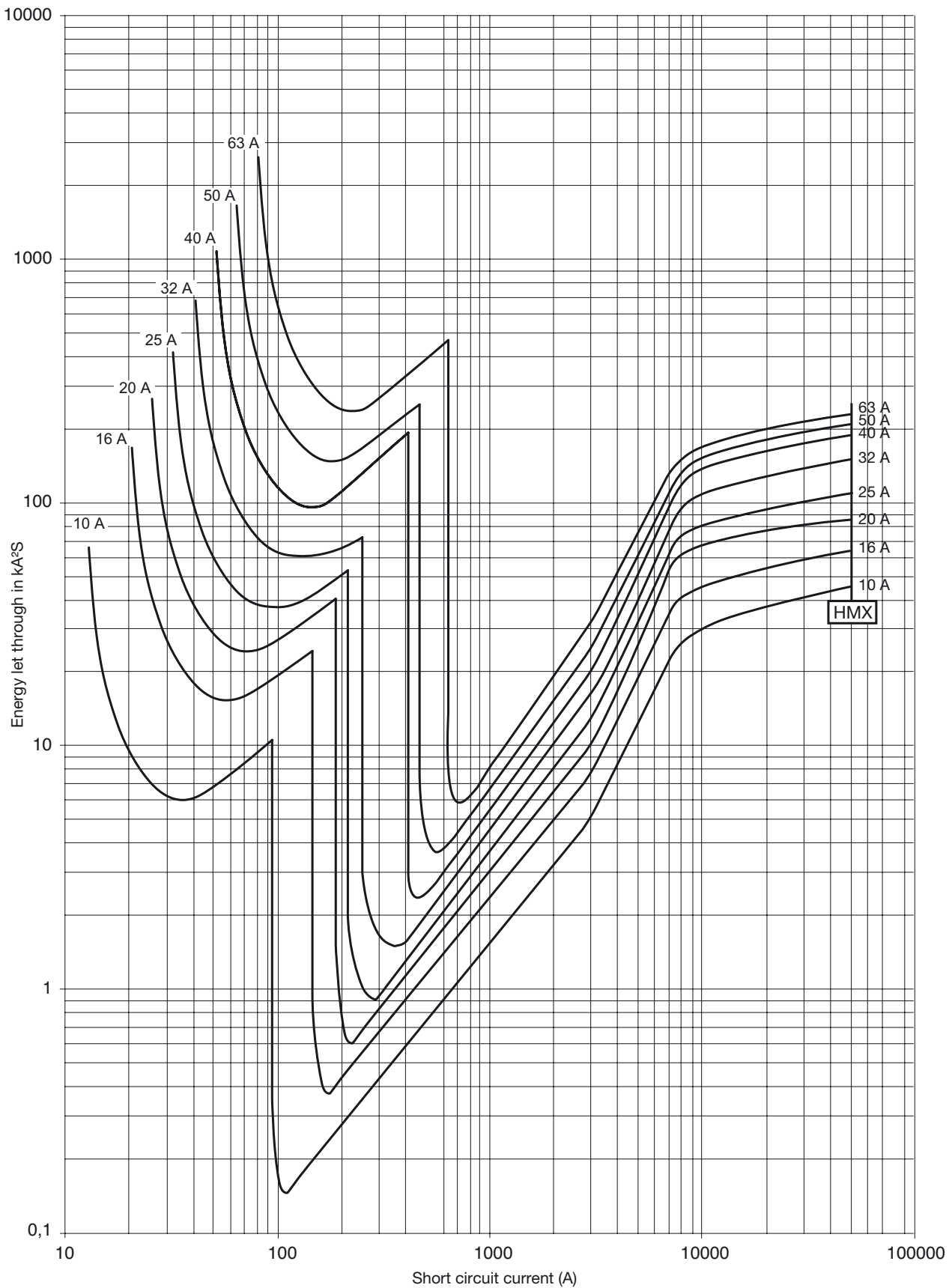
Energy let through at 400 V - IEC EN 60947-2

MCBs: HMD



Energy let through at 400 V - IEC EN 60947-2

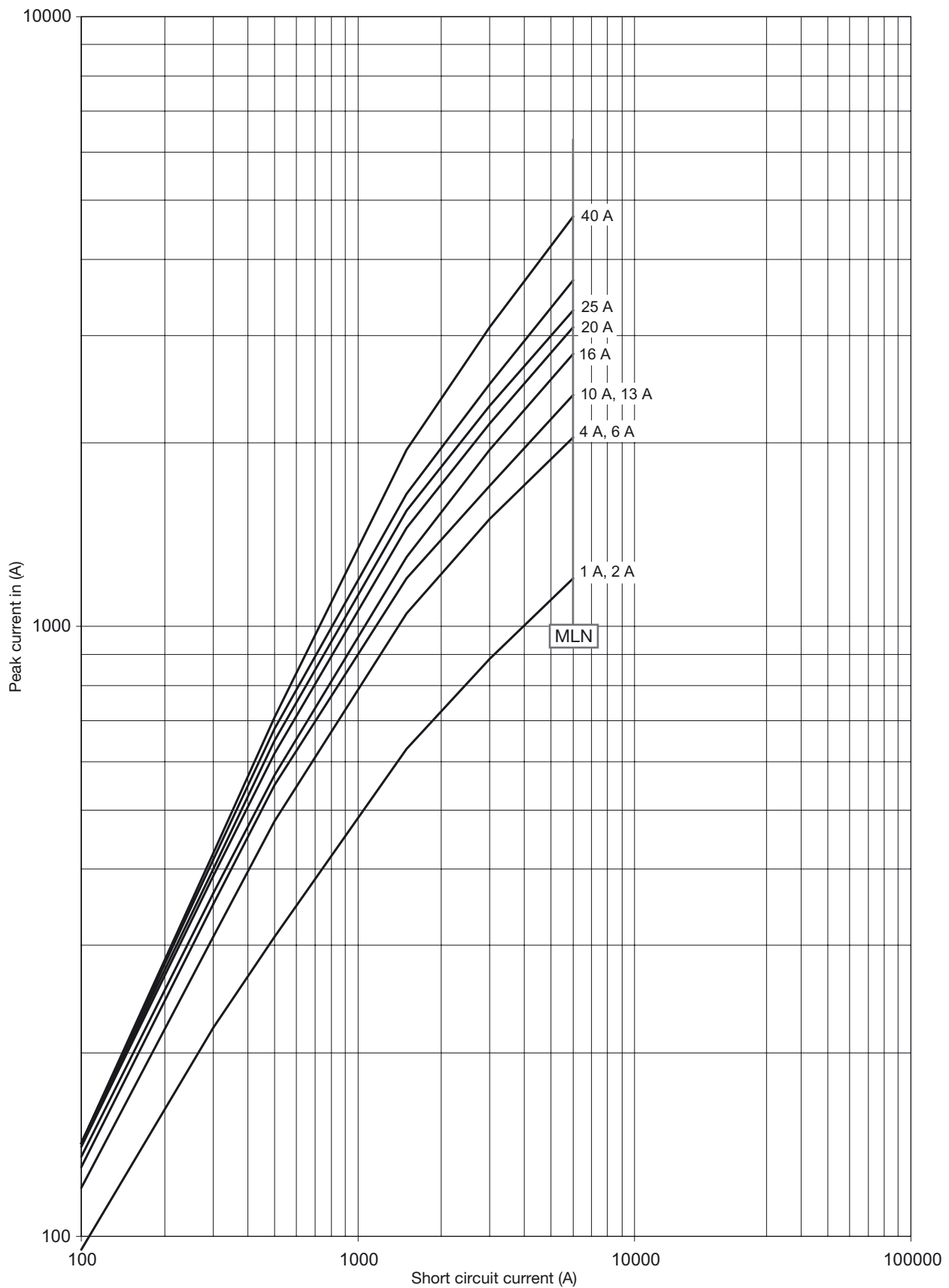
MCBs: HMX



Protection devices

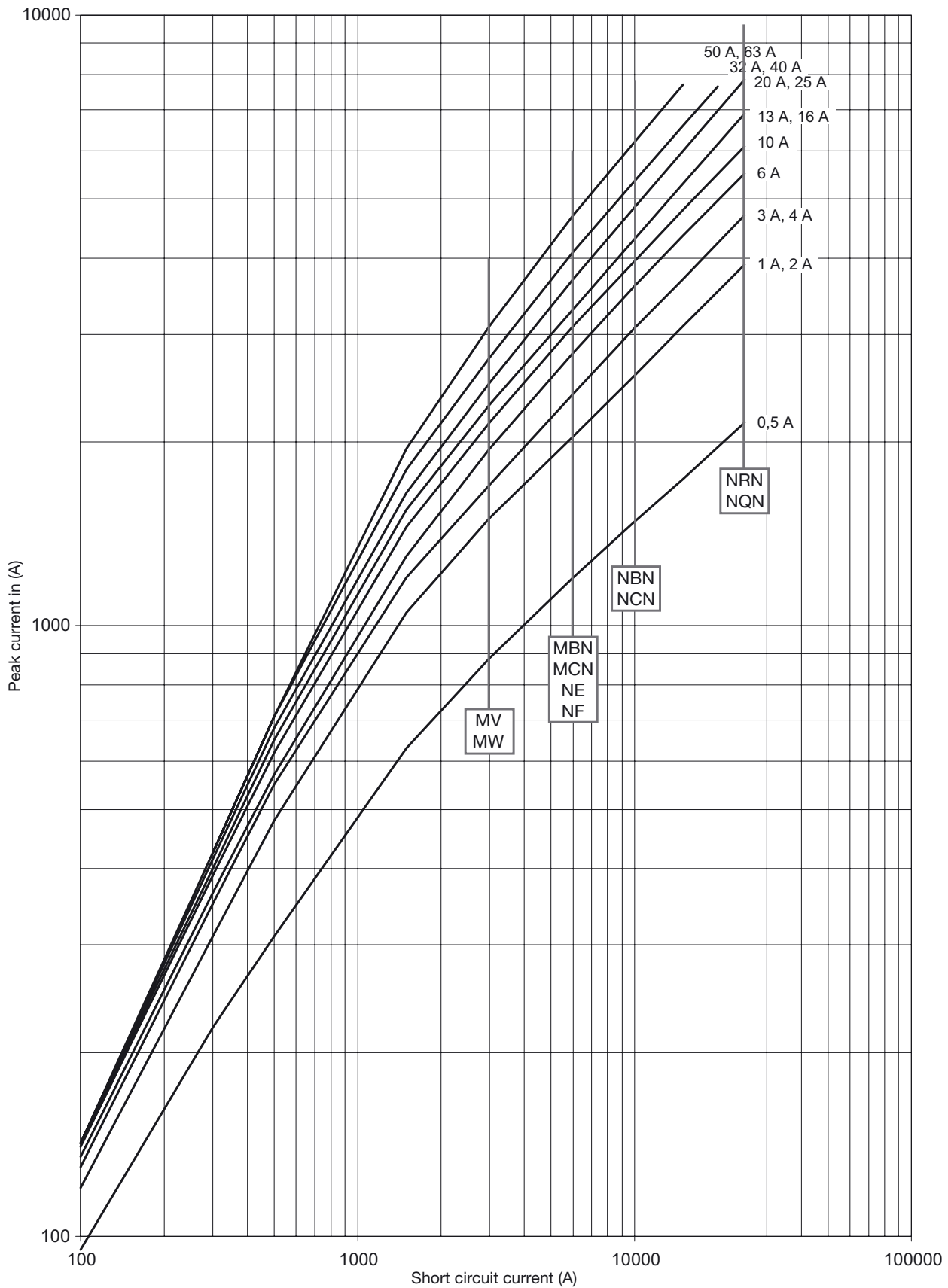
Current limiting at 230 V - EN 60898

MCBs: MLN



Current limiting at 400 V - EN 60898

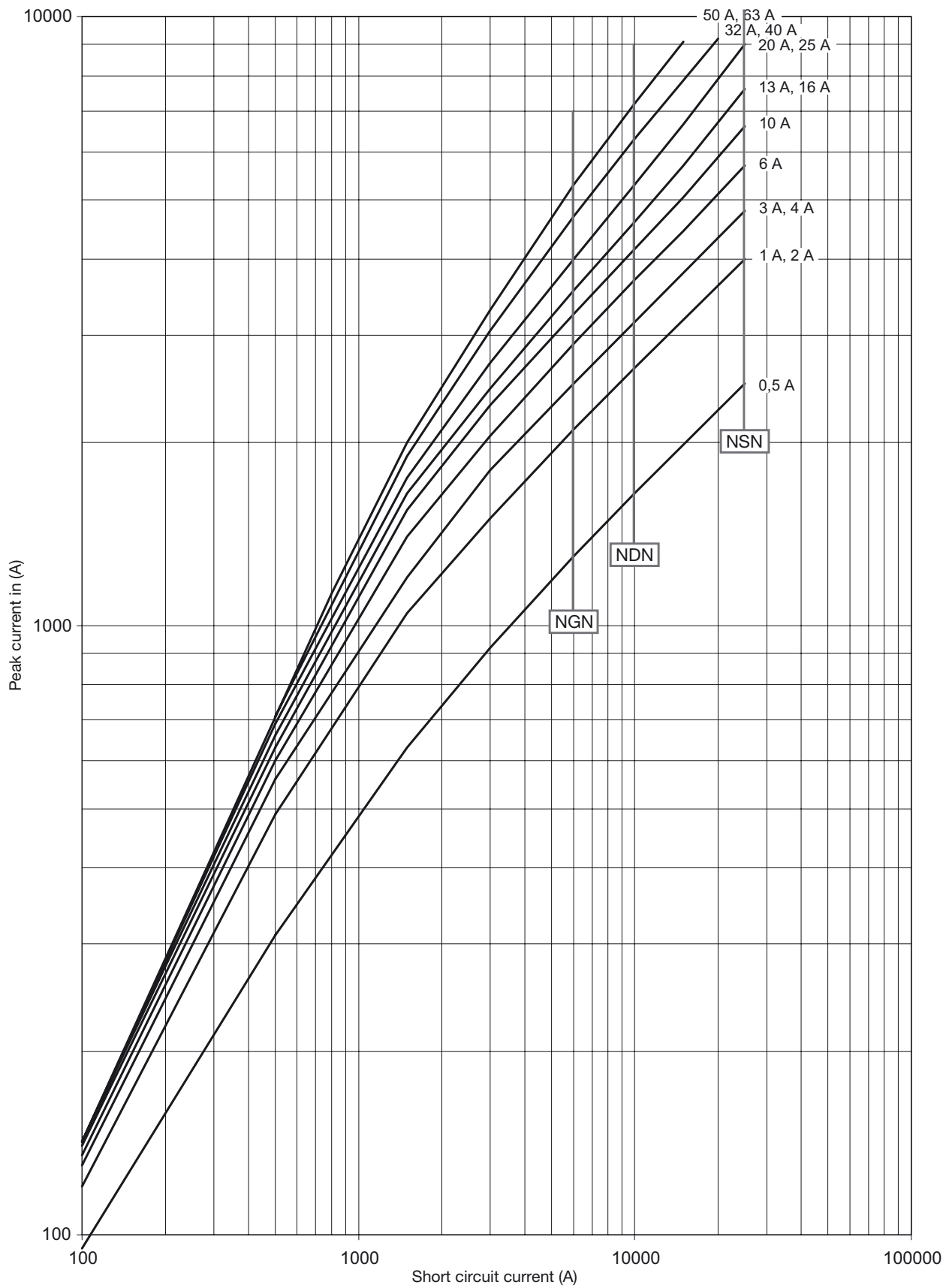
MCBs: MV, MW, MBNxxxA, MCNxxxA, MTxxxA, MUxxxA, MBxxxA, MCxxxA, NBNxxxA, NCNxxxA, NQN, NRN



Protection devices

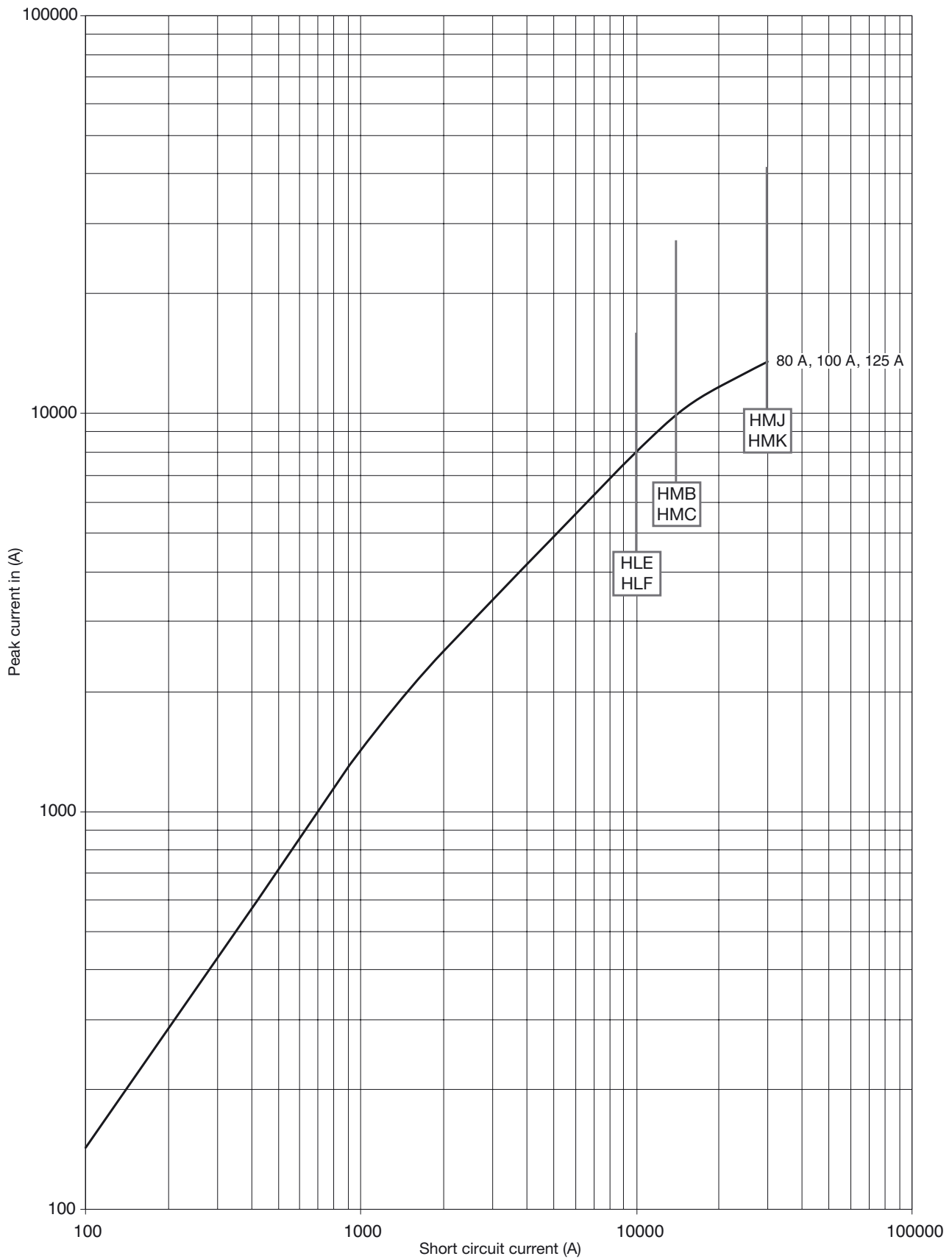
Current limiting at 400 V - EN 60898

MCBs: NGN, NDNxxxA, NSN



Current limiting at 400 V - EN 60947-2

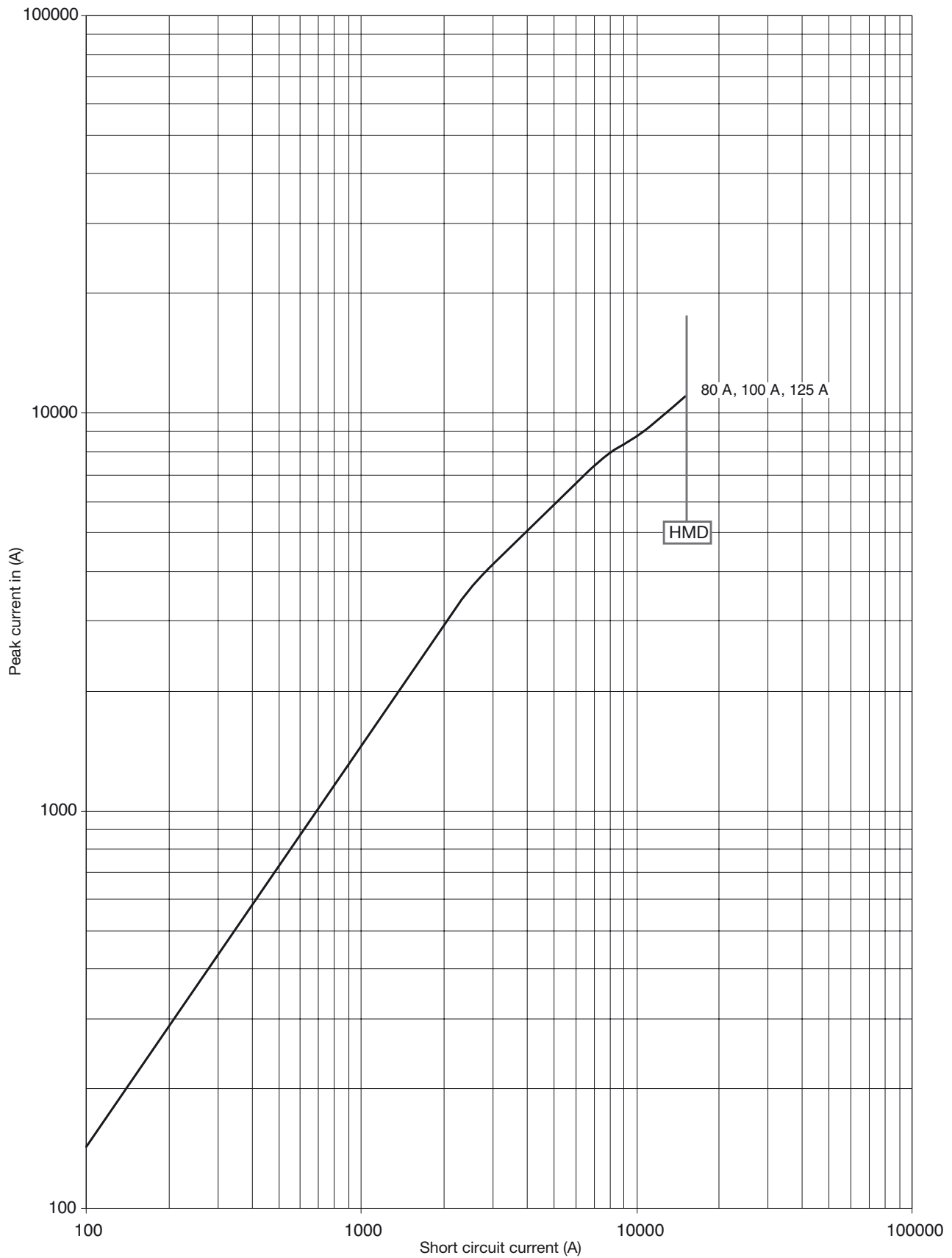
MCBs: HMB, HMC, HMK, HMJ, HLE, HLF



Protection devices

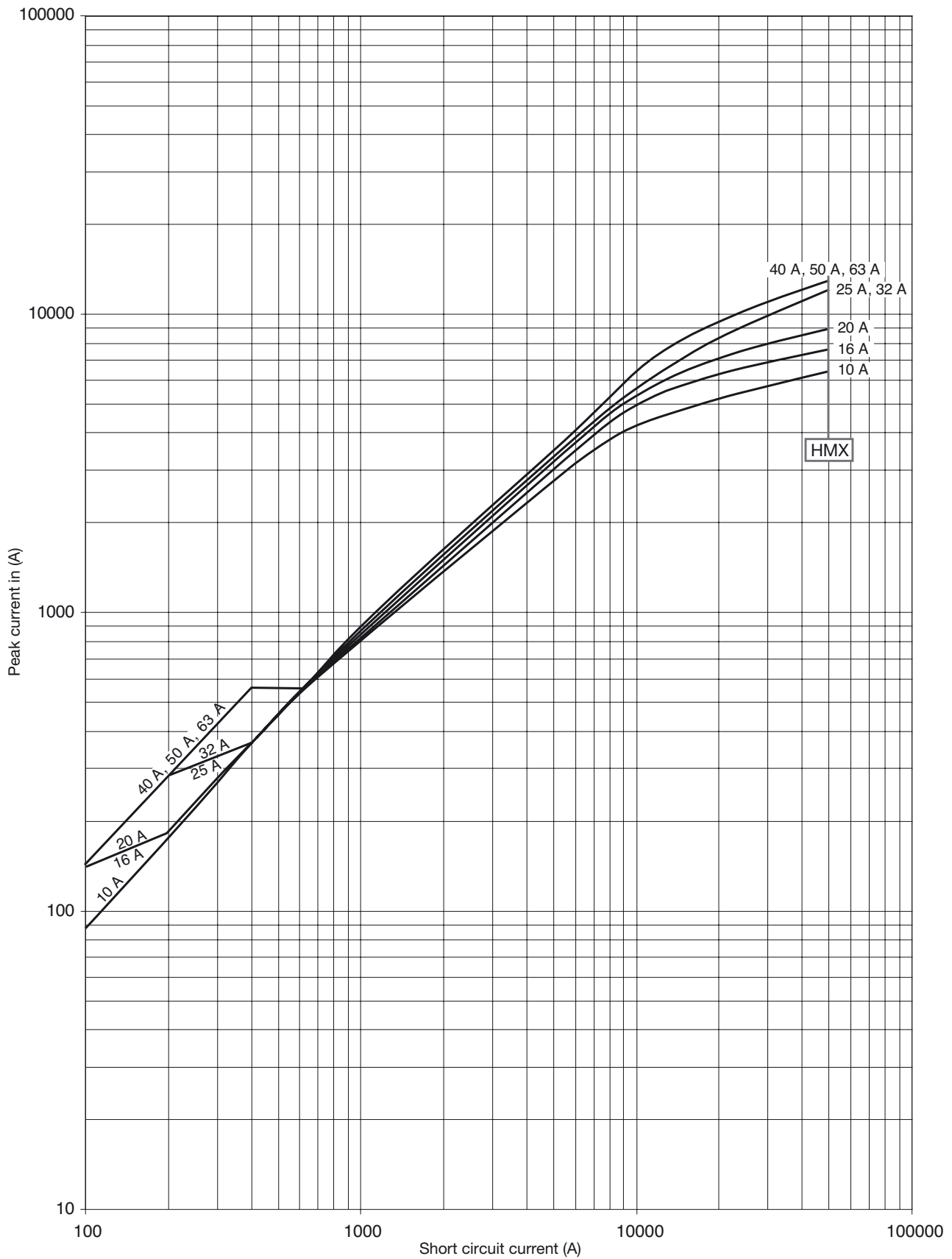
Current limiting at 400 V - EN 60947-2

MCBs: HMD



Current limiting at 400 V - EN 60947-2

MCBs: HMX



References		MCN			
number of poles		1P	2P	3P	4P
width in modules		1	2	3	4
rating current		0.5A - 1A - 2A - 4A - 6A - 10A - 16A - 20A - 25A - 32A - 40A - 50A - 63A			
overvoltage category		3			
standard		IEC 60898-1			
Electrical characteristics					
voltage rating in AC		240/415V	415V		
frequency		50/60Hz			
tripping curve		C			
AC thermal operation threshold - min/max	lth1	1.13 I _n			
	lth2	1.45 I _n			
AC thermal operation threshold - min/max	lrm1	5 I _n			
	lrm2	10 I _n			
rated insulation voltage		500V			
rated impulse withstand voltage	U _{imp}	4kV			
breaking capacity IEC 60898-1	I _{cn}	6000A			
short-circuit capacity IEC 60898 - 1	I _{cs}	6000A			
electric endurance in number of cycles		10000 cycles			
mechanical endurance in number of operations		20000 operations			
operating temperature		-25°C to +70°C			
storage temperature		-25°C to +80°C			
protection index		IP20			
Connecting					
type of connection		bi-connect (cable and busbar)			
connection capacity with flexible cable		1 to 16 mm ²			
connection capacity with rigid cable		1 to 25 mm ²			
terminal torque		2.8 Nm			
Installation					
mounting		DIN rail EN50.022-35			
mounting position		installed vertically			
accept accessories		yes			
supply		feed either top or bottom			
DIN clip type		bottom rail clip plastic			
Weight and dimensions					
weight	g	118	237	357	475
width	mm	17.6	35.2	52.8	70
height	mm	83.5			
length	mm	73.6			
depth	mm	70			

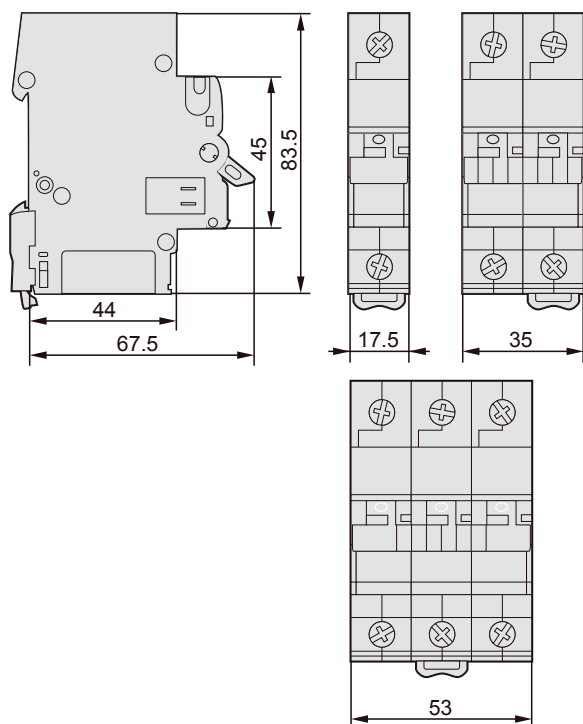
Total power loss under IN

IN	1P	2P	3P	4P
0.5A	0.11	2.18	3.42	4.48
1A	0.1	2.82	4.3	5.65
2A	1.34	2.74	4.09	5.4
3A	1.91	4.02	5.95	7.97
4A	1.92	3.78	5.65	7.7
6A	1.31	2.5	3.82	5.01
8A	1.99	4	6.1	-
10A	1.81	3.8	5.81	7.82
13A	2.21	4.57	6.7	9.1
16A	2.43	5.18	8.16	10.77
20A	2.7	5.57	8.86	11.71
25A	2.95	6	10.1	13.35
32A	4.35	8.99	13.01	17.6
40A	4.84	10.52	16.88	22.44
50A	5.2	9.2	16.3	19.75
63A	7.43	11.4	18.27	25.58

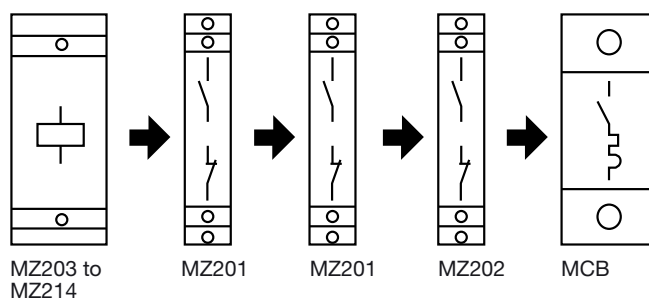
Short circuit current: breaking capacity with DC current

Number of poles in series	Breaking capacity (kA) L/R=15ms		
	≤ 60V	≤ 125V	≤ 250V
1	15	15	-
2	20	15	15
3	25	20	15
4	35	25	15

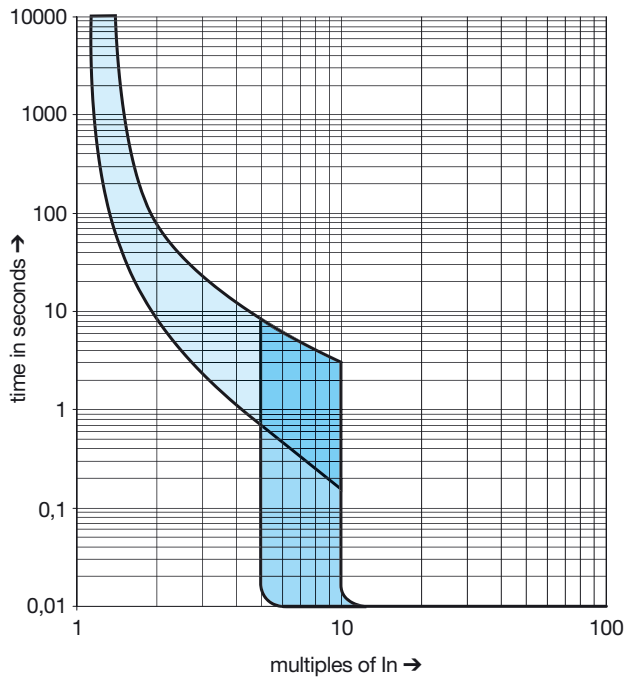
Dimensions (in mm)



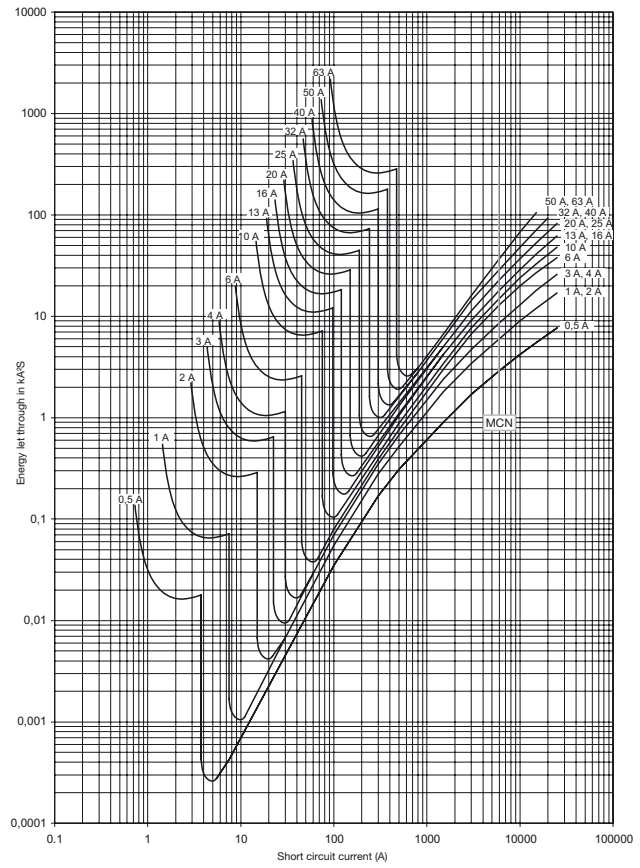
Auxiliary possibilities



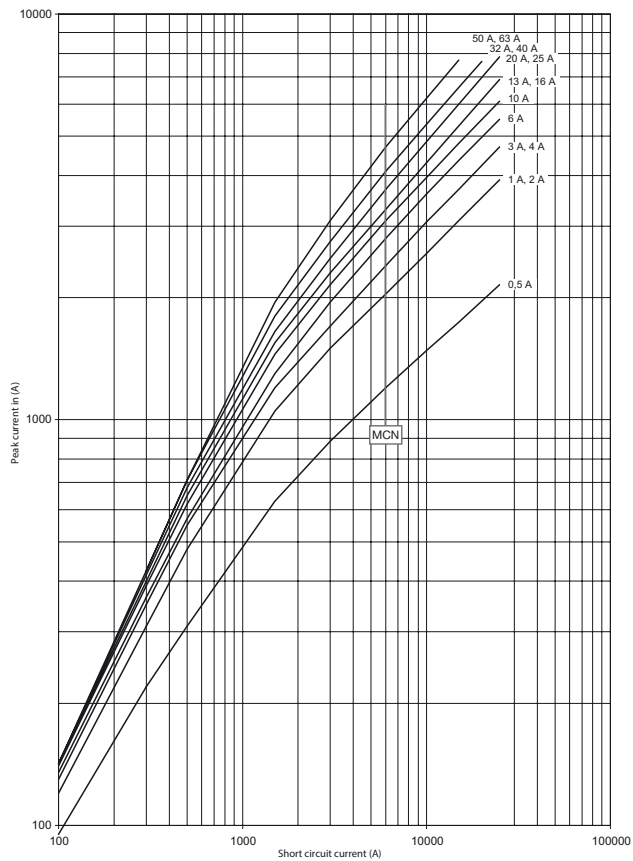
C curve (IEC 60898-1)



Energy let through at 400 V - IEC 60898

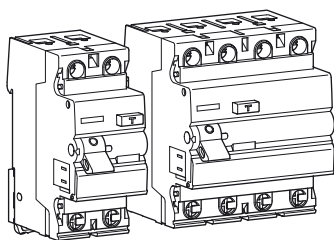


Current limiting at 400 V - IEC 60898

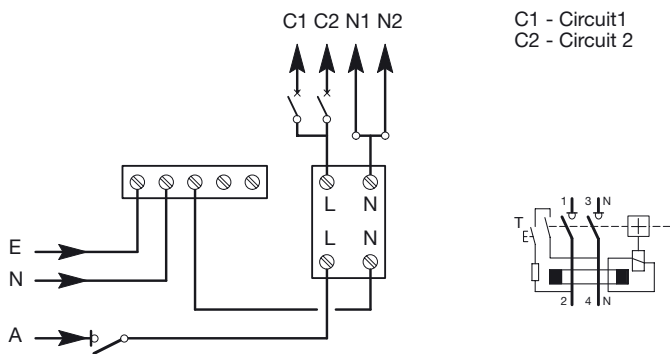


References	CCCxxxJ CDCxxxJ CECxxxJ CFCxxxJ	CDxxxZ CExxxZ CFxxxZ
	1P+N and 3P+N	
Characteristics		
residual current type	AC	
nominal rating I _n	16A to 63A	80A and 100A
sensitivity	10mA - 30mA - 100mA - 300mA	30mA - 100mA - 300mA
storage temperature	-55°C to +70°C	
working temperature	-5°C to +40°C	
installation height	2000m max.	
front product labelling	yes	no
material	thermoplastic	
Electrical characteristics		
nominal voltage	240V (1P+N) 240V/415V (3P+N)	
degree of pollution	2	
protection index	IP20	
test button operating voltage	240V, +10%/-15% (2P) 240/415V, +10%/-15% (4P)	
rated impulse withstand current to wave 1.2/50µs	6.2kA at sea level	
peak withstand current to wave 8/20µs	250A (AC type)	
rated insulation voltage (U _i)	500V according to IEC 61008-1	
rated impulse withstand voltage U _{imp}	4kV	
rated frequency	50Hz	
breaking and opening capacity (I _{Δm} =I _m)	1500A	
rated conditional short-circuit current I _{nc}	6kA	
number electrical endurance cycles	2000	
number mechanical endurance cycles	4000	
neutral position	right	
Installation and connecting		
bottom rail clip	plastic	metal
top rail clip	-	
fixing mode	DIN rail	
supply side	top or bottom	
cage clamp position	in line	
accept accessories	yes	
type of bottom supply	by cable	
type of top connection	with cable	
bottom terminal cover	option	
connection capacity	up to 16 mm ² (flexible) up to 25 mm ² (rigid)	up to 35 mm ² (flexible) up to 50 mm ² (rigid)
sealable	yes (OFF position only)	yes (OFF and ON position)
standard	IEC 61008-1	

Safety switch (RCCBs), 20 - 40 - 63 A



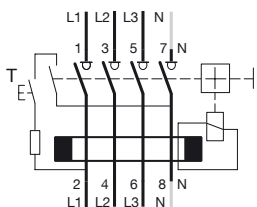
Electrical connection - 2 poles, 20 - 40 - 63 A



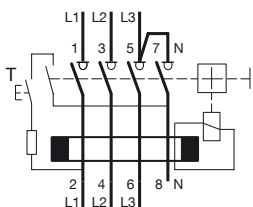
For a 2 pole 40A unit, where, for example, two power circuits are to be protected, the Hager neutral link KM03A may be connected to the N terminal for convenient splitting of the neutrals.

Electrical connection - 4 poles, 20 - 40 - 63 A

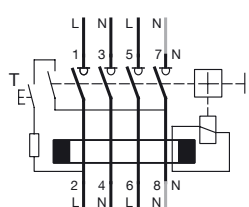
Three phase & neutral
(unbalanced load)



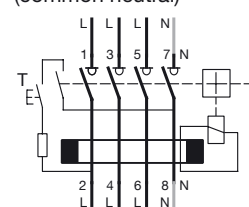
Three phase & neutral
(balanced load)



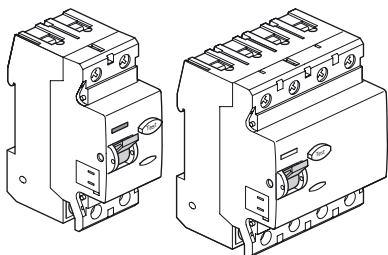
Single phase
Two circuits



Single phase
Three circuits
(common neutral)

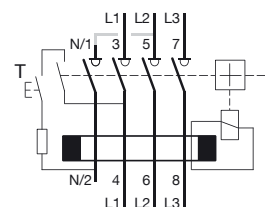
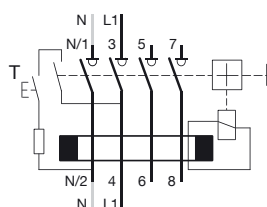
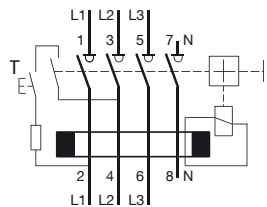
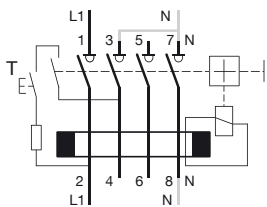


Safety switch (RCCBs), 80 - 100 A

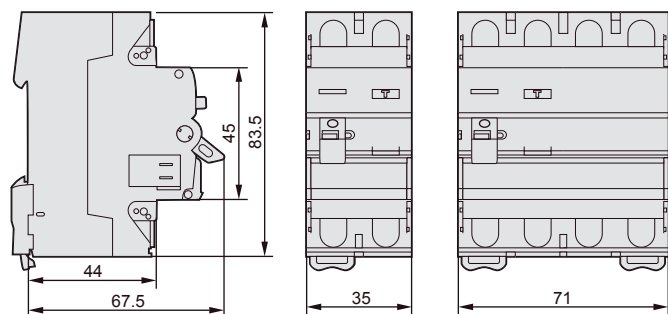


Electrical connection - 4 poles, 80 - 100 A

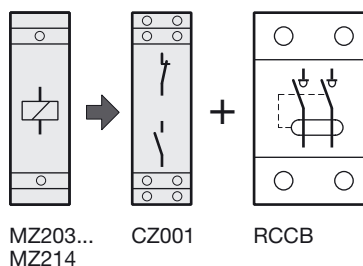
Three phase & neutral



Dimensions (in mm)



Auxiliary possibilities



References		YZBxxx and YZCxxx			
Number of poles		1P	2P	3P	4P
Width in 5		1	2	3	4
Rating current		6A - 10A - 16A - 20A - 25A - 32A - 40A - 50A - 63A			
Overvoltage category		3			
Standard		EN 60898-1			
Electrical characteristics					
Voltage rating in AC		240/415V 50/60Hz	415V 50/60Hz		
Tripping curve at 30°C		C	B		
AC thermal operation threshold - min/max	Ith1	1.13 I _n			
	Ith2	1.45 I _n			
AC thermal operation threshold - min/max	I _{rm1}	5 I _n	3 I _n		
	I _{rm2}	10 I _n	5 I _n		
Rated insulation voltage		500V			
Rated impulse withstand voltage		U _{imp}	4kV		
Breaking capacity		I _{cn}	6kA		
Electric endurance in number of cycles		10000 cycles			
Mechanical endurance in number of operations		20000 operations			
Operating temperature		-25°C to +60°C			
Storage temperature		-25°C to +80°C			
Calibration temperature		30°C			
Protection index		20			
Connecting					
Type of connection		screw			
Connection capacity with flexible cable		1 to 16 mm ²			
Connection capacity with rigid cable		1 to 25 mm ²			
Terminal torque		2.8 Nm			
Installation					
Mounting		DIN rail EN50.022-35			
Mounting position		installed vertically			
Accept accessories		no			
Supply		feed either top or bottom			
DIN clip type		bottom rail clip metal			
Weight and dimensions					
Weight	gr	118	226	338	475
Width	mm	17.4	35.2	52.8	70
Height	mm	85.1			
Length	mm	73.6			
Depth	mm	70			

Power, control and signaling interface

Power, control and signaling products are the complementary devices of the distribution board. Their functions are used to improve comfort and savings. They also allow to control and isolate circuits in housing and commercial installations.



AC-3 contactors	5.2
Modular contactors	5.12
Delay timers	5.21
Interface relays	5.22
Latching relays	5.23
Switch disconnectors	5.25
Changeover switches	5.27
Trip-free switches	5.29
Indicator lights	5.31
Push buttons	5.32
Emergency lighting	5.34
Transformers, bells and buzzers	5.35
Technical guide	5.37

References*

EW005

EW006



Main contact

Rated insulation voltage U_i (V)		690	690	
Rated operational voltage U_e (V)		690	690	
Thermal current I_{th} (A)		20	20	
Main contact rated operational current AC-3 Ie	Single pole	110V	8A / 0.37 kW	10.5A / 0.55kW
		220V	7A / 0.75kW	10A / 1.1kW
	Three pole	220/230V	7.5A / 1.5kW	10.1A / 2.2kW
		380/400V	7A / 3kW	9A / 4kW
		415V	6.5A / 3kW	8.5A / 4kW
		440V	6A / 3kW	8A / 4kW
		500V	5A / 3kW	6.5A / 4kW
		660V	4A / 3kW	5A / 4kW
		690V	4A / 3kW	5A / 4kW

Auxiliary contact

Rated insulation voltage U_i (V)		690	690	
Rated operational voltage U_e (V)		380	380	
Thermal current I_{th} AC/DC (A)		10/2.5	10/2.5	
Auxiliary contact rated operational current Ie	AC-15	120V	6	6
		240V	3	3
		380V	1.9	1.9

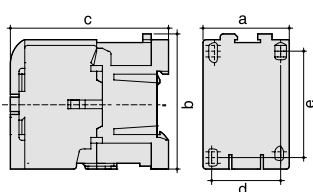
Contactors life

Operation frequency (cycles/hour)		1200	1200
Electrical lifespan (operations)		1,000,000	1,000,000
Mechanical lifespan (operations)		5,000,000	5,000,000

Others

Type of auxiliary contact	NO	1	1
	NC	0	0
Weight (kg)		0.18	0.18

Dimensions (mm)



a	45	45
b	54	54
c	58	58
d	35	35
e	50	50

* **Note:** Control circuit rated operational voltage

C: 220V AC 50/60Hz (EW005_C ~ EW006_C)
 D: 380V AC 50/60Hz (EW005_D ~ EW006_D)
 E: 24V DC 50/60Hz (EW005_E ~ EW006_E)
 F: 48V DC 50/60Hz (EW005_F ~ EW006_F)

H: 110V AC 50/60Hz (EW005_H ~ EW006_H)
 N: 24V AC 50/60Hz (EW005_N ~ EW006_N)
 P: 48V AC 50/60Hz (EW005_P ~ EW006_P)

Thermal overload relays

- h.62 x l.45 x w.60 mm

Setting range	Cat. ref.
0.1 - 0.16A	EWT001A
0.16 - 0.25A	EWT002A
0.25 - 0.4A	EWT004A
0.35 - 0.5A	EWT005A
0.45 - 0.63A	EWT006A
0.55 - 0.8A	EWT008A
0.75 - 1A	EWT010A
0.9 - 1.3A	EWT013A
1.1 - 1.6A	EWT016A
1.4 - 2A	EWT020A
1.8 - 2.5A	EWT025A
2.3 - 3.2A	EWT032A
2.9 - 4A	EWT040A
3.5 - 4.8A	EWT048A
4.5 - 6.3A	EWT063A
5.5 - 7.5A	EWT075A
7.2 - 10A	EWT100A
9 - 12.5A	EWT125A



EWT...A

Auxiliaries for contactors EW005 and EW006

- installation mode: on the top

Description	Cat. ref.
1 NO + 1 NC	EWA011
2 NO	EWA012
2 NC	EWA013
4 NO	EWA014
3 NO + 1 NC	EWA015
2 NO + 2 NC	EWA016
1 NO + 3 NC	EWA017
4 NC	EWA018

Mechanical interlock

- installation mode: on the top

Description	Cat. ref.
for AC contactor	EWA105
for DC contactor	EWA106




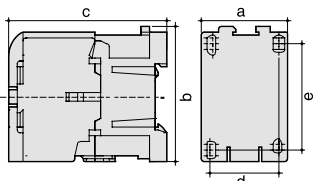
Surge suppressor

- operational voltage: 24V
- type: rheostat
- surge voltage: < 3 x rated voltage
- current rating: 28.5 - 38.5mA
- drop-out time: < 40ms

Description	Cat. ref.
surge suppressor	EWA405



EWA405

References*		EW007	EW009	EW012	
					
Main contact					
Rated insulation voltage U_i (V)		660	660	660	
Rated operational voltage U_e (V)		660	380	660	
Thermal current I_{th} (A)		20	20	25	
Main contact rated operational current AC-3 I_e	Single pole	110V	8A / 0,37 kW	10.5A / 0.55kW	10.5A / 0.55kW
		220V	7A / 0.75kW	10A / 1.1kW	10.5A / 1.1kW
	Three pole	220/230V	7.5A / 1.5kW	10.1A / 2.2kW	12A / 3kW
		380/400V	7A / 3kW	9A / 4kW	12A / 5.5kW
		415/440V	6.5A / 3kW	-	11A / 5.5kW
		500V	5A / 3kW	-	9A / 5.5kW
		660V	4A / 3kW	-	7A / 5.5kW
Auxiliary contact					
Rated insulation voltage U_i (V)		690	690	690	
Rated operational voltage U_e (V)		600	600	600	
Thermal current I_{th} AC/DC (A)		10/2.5	10/2.5	10/2.5	
Auxiliary contact rated current I_e	AC 15	120V	6	6	6
		240V	3	3	3
		380V	1.9	1.9	1.9
		480V	1.5	1.5	1.5
	DC 13	125V	0.55	0.55	0.55
		250V	0.27	0.27	0.27
		Contactor life			
Operation frequency (cycles/hour)		1200	1200	1200	
Electrical lifespan (cycles)		1,000,000	1,000,000	1,000,000	
Mechanical lifespan (cycles)		10,000,000	10,000,000	10,000,000	
Others					
Type of auxiliary contact	NO	1	1	1	
	NC	0	0	0	
Weight (kg)		0.3	0.3	0.3	
Dimensions (mm)					
		a	45	45	45
		b	70	70	70
		c	82	82	82
		d	35	35	35
		e	55	55	55

* **Note:** Control circuit rated operational voltage

C: 220V AC 50/60Hz (EW007_C ~ EW300_C)
 D: 380V AC 50/60Hz (EW007_D ~ EW300_D)
 H: 110V AC 50/60Hz (EW007_H ~ EW090_H)
 J: 230V AC 50Hz (EW007_J ~ EW300_J)

K: 240V AC 50Hz (EW007_K ~ EW300_K)
 L: 400V AC 50Hz (EW007_L ~ EW090_L)
 M: 415V AC 50Hz (EW007_M ~ EW090_M)

EW016

EW020

EW025

EW032

EW038

EW040


660	660	660	1000	1000	1000
690	660	660	690	440	660
25	32	35	50	60	60
13.5A / 0.75 kW	19.5A / 1.1kW	25.5A / 1.5kW	35A / 1.5kW	39A / 2.2kW	37A / 2.2kW
14A / 1.5kW	20.5A / 2.2kW	26A / 3kW	35A / 3.73kW	39A / 5kW	33A / 4kW
16A / 4kW	23A / 5.5kW	27A / 7.5kW	32A / 7.5kW	39A / 11kW	42A / 11kW
16A / 7.5kW	22A / 11kW	26A / 11kW	32A / 15kW	38A / 18.5kW	40A / 20kW
15A / 7.5kW	21A / 11kW	21A / 11kW	32A / 15kW	38A / 22kW	40A / 22kW
13A / 7.5kW	19A / 11kW	21A / 11kW	22A / 18.5kW	-	35A / 22kW
10A / 7.5kW	14A / 11kW	19A / 11kW	22A / 18.5kW	-	26A / 22kW
690	690	690	690	690	690
600	600	600	660	660	600
10/2.5	10/2.5	10/2.5	10/2.5	10/2.5	10/2.5
6	6	6	6	6	6
3	3	3	3	3	3
1.9	1.9	1.9	1.9	1.9	1.9
1.5	1.5	1.5	1.5	1.5	1.5
0.55	0.55	0.55	0.55	0.55	0.55
0.27	0.27	0.27	0.27	0.27	0.27
1200	1200	1200	1200	1200	1200
1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
1	1	1	1	1	1
0	1	1	1	1	1
0.3	0.4	0.4	0.7	0.7	0.8
45	55	55	55	58	69
70	72	72	72	94.3	99
82	92	92	92	111.7	111.7
35	45	45	45	50	60
55	55	55	55	75	80

References*

EW050

EW063

EW070



Main contact

Rated insulation voltage U_i (V)		660	660	660	
Rated operational voltage U_e (V)		660	660	660	
Thermal current I_{th} (A)		70	80	100	
Main contact rated operational current AC-3 I_e	Single pole	110V	-	50A / 3kW	60A / 4kW
		220V	-	45A / 6kW	55A / 7.5kW
	Three pole	220/230V	55A / 15kW	65A / 18.5kW	75A / 22kW
		380/400V	55A / 25kW	64A / 30kW	72A / 37kW
		415/440V	52A / 30kW	64A / 37kW	70A / 40kW
		500V	45A / 30kW	55A / 37kW	65A / 45kW
		660V	35A / 30kW	45A / 37kW	60A / 45kW

Auxiliary contact

Rated insulation voltage U_i (V)		660	660	660	
Rated operational voltage U_e (V)		600	600	600	
Thermal current I_{th} AC/DC (A)		10/2.5	10/2.5	10/2.5	
Auxiliary contact rated current I_e	AC 15	120V	6	6	6
		240V	3	3	3
		380V	1.9	1.9	1.9
		480V	1.5	1.5	1.5
	DC 13	125V	0.55	0.55	0.55
		250V	0.27	0.27	0.27

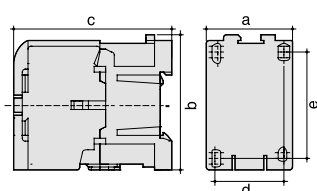
Contactor life

Operation frequency (cycles/hour)	1200	1200	1200
Electrical lifespan (cycles)	1,000,000	1,000,000	1,000,000
Mechanical lifespan (cycles)	10,000,000	10,000,000	10,000,000

Others

Type of auxiliary contact	NO	2	2	2
	NC	2	2	2
Weight (kg)		0.8	1.3	1.3

Dimensions (mm)










a	93.5	93.5	93.5
b	116	116	150 (with Cu terminals)
c	123	123	123
d	80	80	80
e	90	90	90

* **Note:** Control circuit rated operational voltage should be given as suffix EW0xx_x

C: 220V AC 50/60Hz (EW007_C ~ EW300_C)
 D: 380V AC 50/60Hz (EW007_D ~ EW300_D)
 H: 110V AC 50/60Hz (EW007_H ~ EW090_H)
 J: 230V AC 50Hz (EW007_J ~ EW300_J)

K: 240V AC 50Hz (EW007_K ~ EW300_K)
 L: 400V AC 50Hz (EW007_L ~ EW090_L)
 M: 415V AC 50Hz (EW007_M ~ EW090_M)

EW090	EW115	EW138	EW150	EW180	EW220	EW300
						
1000	1000	1000	1000	1000	1000	1000
690	690	690	690	690	690	690
135	135	150	200	240	260	350
-	-	-	-	-	-	-
-	-	-	-	-	-	-
85A / 25kW	115A / 30kW	138A / 40kW	150A / 45kW	182A / 55kW	225A / 65kW	300A / 90kW
85A / 45kW	115A / 60kW	138A / 75kW	147A / 80kW	179A / 95kW	225A / 120kW	300A / 160kW
85A / 51kW	105A / 60kW	135A / 75kW	131A / 80kW	178A / 100kW	220A / 132kW	300A / 160kW
80A / 55kW	93A / 65kW	105A / 75kW	129A / 90kW	156A / 110kW	190A / 132kW	250A / 160kW
50A / 45kW	75A / 65kW	85A / 75kW	107A / 100kW	118A / 110kW	140A / 132kW	220A / 220kW
660	660	660	660	660	660	660
600	660	660	660	660	660	660
10/2.5	10/2.5	10/2.5	10/2.5	10/2.5	10/2.5	10/2.5
6	6	6	6	6	6	6
3	3	3	3	3	3	3
1.9	1.9	1.9	1.9	1.9	1.9	1.9
1.5	1.5	1.5	1.5	1.5	1.5	1.5
0.55	0.55	0.55	0.55	0.55	0.55	0.55
0.27	0.27	0.27	0.27	0.27	0.27	0.27
1200	1200	1200	1200	1200	1200	1200
1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
2	2	2	2	2	2	2
2	2	2	2	2	2	2
1.3	1.9	1.9	4.1	4.1	6.7	6.7
93.5	100	100	130	130	146	146
150 (with Cu terminals)	139	139	180	180	210	210
123	133	133	157.2	157.2	183.2	183.2
80	83	83	100	100	133	133
90	110	110	130	130	150	150

References*

EW400

EW500

EW630



Main contact

Rated insulation voltage U_i (V)			1000	1000	1000
Rated operational voltage U_e (V)			690	690	690
Thermal current I_{th} (A)			500	700	750
Main contact rated operational current AC-3 I_e	Single pole	110V	-	-	-
		220V	-	-	-
	Three pole	220/230V	400A / 110kW	500A / 150kW	630A / 200kW
		380/400V	400A / 200kW	500A / 257kW	630A / 335kW
		415/440V	400A / 220kW	430A / 257kW	600A / 355kW
		500V	375A / 257kW	410A / 280kW	525A / 355kW
		660V	330A / 300kW	355A / 335kW	460A / 450kW
690V	330A / 300kW	355A / 335kW	460A / 450kW		

Auxiliary contact

Rated insulation voltage U_i (V)			690	690	690
Rated operational voltage U_e (V)			660	660	660
Thermal current I_{th} AC/DC (A)			10/2.5	10/2.5	10/2.5
Auxiliary contact rated current I_e	AC 15	120V	6	6	6
		240V	3	3	3
		380V	1.9	1.9	1.9
		480V	1.5	1.5	1.5
		DC 13	125V	0.55	0.55
		250V	0.27	0.27	0.27

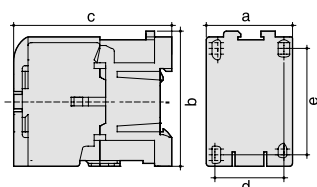
Contactor life

Operation frequency (cycles/hour)			1200	1200	1200
Electrical lifespan (cycles)			500,000	500,000	500,000
Mechanical lifespan (cycles)			1,000,000	1,000,000	1,000,000

Others

Type of auxiliary contact	NO	2	2	2	
	NC	2	2	2	
Weight (kg)			10.8	10.8	17.4

Dimensions (mm)



a	233	233	309
b	238	238	304
c	232	232	255
d	170	170	170
e	180	180	180

Thermal overload relays for contactors EW007 to EW032

Setting range	Cat. ref.
0.1 - 0.16A	EWT001B
0.16 - 0.25A	EWT002B
0.35 - 0.5A	EWT005B
0.45 - 0.63A	EWT006B
0.55 - 0.8A	EWT008B
0.9 - 1.3A	EWT013B
1.1 - 1.6A	EWT016B
1.4 - 2A	EWT020B
1.8 - 2.5A	EWT025B
2.3 - 3.2A	EWT032B
2.9 - 4A	EWT040B
3.5 - 4.8A	EWT048B
4.5 - 6.3A	EWT063B
5.5 - 7.5A	EWT075B
7.2 - 10A	EWT100B
9 - 12.5A	EWT125B
11.3 - 16A	EWT160B
15 - 20A	EWT200B
17.5 - 21.5A	EWT215B
21 - 25A	EWT250B
24.5 - 30A	EWT300B



EWT...B

Thermal overload relays for contactors EW038

Setting range	Cat. ref.
15 - 20A	EWT200C
17.5 - 21.5A	EWT215C
21 - 25A	EWT250C
24.5 - 30A	EWT300C
29 - 36A	EWT360C
33 - 38A	EWT380C

Thermal overload relays for contactors EW020 to EW032

Setting range	Cat. ref.
17 - 25A	EWT250D

Thermal overload relays for contactors EW040

Setting range	Cat. ref.
17 - 25A	EWT250E
24.5 - 36A	EWT360E
35 - 47A	EWT470E



EWT...E



EWT...G

Thermal overload relays for contactors EW050 to EW070

Setting range	Cat. ref.
24.5 - 36A	EWT360G
35 - 47A	EWT470G
45 - 60A	EWT600G
58 - 75A	EWT750G
72 - 90A	EWT900G

Thermal overload relays for contactors EW038

Setting range	Cat. ref.
17 - 25A	EWT250H
24.5 - 36A	EWT360H
35 - 47A	EWT470H



EWT...F

Separated thermal overload relays

- connection with wires

Setting range	Cat. ref.
17 - 25A	EWT250F
24.5 - 36A	EWT360F
35 - 47A	EWT470F
45 - 60A	EWT600F
58 - 75A	EWT750F
72 - 90A	EWT900F



EWA601

Current transformers

Description	Cat. ref.
ratio: 150A /5A	EWA601
ratio: 250A /5A	EWA602
ratio: 350A /5A	EWA603



EWA501

Guide rails

- for assembly of thermal relays

Description	Cat. ref.
for EWTxxxB series	EWA501



Product mix

Setting range	Current transformer + base + thermal overload relay	Cat. ref.
87 - 120A	EWA601 + EWA501 + EWT040B	
105 - 144A	EWA601 + EWA501 + EWT048B	
135 - 150A	EWA601 + EWA501 + EWT063B	
175 - 240A	EWA602 + EWA501 + EWT048B	
225 - 250A	EWA602 + EWA501 + EWT063B	
245 - 336A	EWA603 + EWA501 + EWT048B	

Auxiliary contacts for contactors EWA007 to EW070

- installation on the top

Description	Cat. ref.
1 NO + 1 NC	EWA001
2 NO	EWA002
2 NC	EWA003
4 NO	EWA004
4 NC	EWA005
3 NO + 1 NC	EWA006
2 NO + 2 NC	EWA007
1 NO + 3 NC	EWA008



EWA001



EWA007

Auxiliary contacts for contactors EWA007 to EW040

- installation on the side

Description	Cat. ref.
1 NO + 1 NC	EWA009



EWA009

Auxiliary contacts for contactors EWA007 to EW300

- installation on the side

Description	Cat. ref.
1 NO + 1 NC	EWA010

Mechanical interlocks

Description	Cat. ref.
for EW007 to EW032	EWA101
for EW038 to EW070	EWA103
for EW100 to EW300	EWA104



EWA101



EWA104

Mechanical and electrical interlocks

- rated insulation voltage U_i : 690V
- rated operation voltage U_e : 600V
- conventional thermal current I_{th} AC1: 10A
- type of contact: 2 NC
- minimum current: DC24V 5mA

Description	Cat. ref.
for EW007 to EW032	EWA102



EWA102

Surge suppressors for EW007 to EW120

- type: rheostat
- surge voltage: < 3 x rated voltage
- drop-out time: < 40ms

Current rating	Operational voltage	Cat. ref.
28.5 - 38.5mA	24V	EWA401
56.5 - 76.5mA	48V	EWA402
36.1 - 48.9mA	110V	EWA403
23.1 - 31.1mA	220V	EWA404



EWA401

Contactors are power devices necessary for the remote switching and control of power circuits like heating circuits, lighting, ventilation, etc...

It is recommended to associate them with command and energy management devices (time switches, thermostats, delay timers, etc...)

Technical data

- standard contactors range: 1, 2 and 3 module width
- power contacts rating: 230V AC or 400V AC, 50/60Hz
- without manual override control
- ratings: 16A, 25A, 40A, 63A
- coil voltage rating: 12V, 24V, 110/127V, 230V AC
- utilisation categories: AC-7a / AC-1, AC-7b / AC-3

Connection capacities

- for 16A, 25A contactors:
10mm² rigid conductor
6mm² flexible conductor
- for 40A, 63A contactors:
25mm² rigid conductor
16mm² flexible conductor
- for coil connection:
10mm² rigid conductor
6mm² flexible conductor

Complies with IEC 61095

Recommendations

- the use of LZ060 (heat dissipation inserts) is strongly recommended every 2 contactors mounted in a row or between contactors and adjacent devices
- the use of the auxiliary contact ESC080 is not compatible with 1 module width low noise contactors



ESC225



ESC425

230V AC - 50 Hz control coil voltage

Contact types	Symbol	Power contact rating	Width in module 17.5 mm	Pack qty	Cat. ref.
1NO		25A	1	12	ESC125
1NC		25A	1	12	ESC126
2NO		25A	1	12	ESC225
		40A	3	4	ESC240
		63A	3	4	ESC263
2NC		25A	1	12	ESC226
		40A	3	4	ESC241
		63A	3	4	ESC264
1NO + 1NC		25A	1	12	ESC227
3NO		25A	2	6	ESC325
		40A	3	4	ESC340
		63A	3	4	ESC363
4NO		25A	2	6	ESC425
		40A	3	4	ESC440
		63A	3	4	ESC463
4NC		25A	2	6	ESC426
		40A	3	4	ESC441
		63A	3	4	ESC464
2NO + 2NC		25A	2	6	ESC427
		40A	3	4	ESC442
		63A	3	4	ESC465
3NO + 1NC		25A	2	6	ESC428
		40A	3	4	ESC443
		63A	3	4	ESC466

110/127V AC - 50 Hz control coil voltage

Contact types	Symbol	Power contact rating	Width in module 17.5 mm	Pack qty	Cat. ref.
2NO		25A	1	12	ESM225
1NO + 1NC		25A	1	12	ESM227
4NO		40A	3	4	ESM440



ESM225

24V AC - 50 Hz control coil voltage

Contact types	Symbol	Power contact rating	Width in module 17.5 mm	Pack qty	Cat. ref.
1NO		25A	1	12	ESD125
2NO		25A	1	12	ESD225
		40A	3	4	ESD240
		63A	3	4	ESD263
2NC		25A	1	12	ESD226
		40A	3	4	ESD241
		63A	3	4	ESD264
1NO + 1NC		25A	1	12	ESD227
4NO		25A	2	6	ESD425
		40A	3	4	ESD440
		63A	3	4	ESD463
4NC		25A	2	6	ESD426
		63A	3	4	ESD464
2NO + 2NC		25A	2	6	ESD427
3NO + 1NC		25A	2	6	ESD428



ESD263

12V AC - 50 Hz control coil voltage

Contact types	Symbol	Power contact rating	Width in module 17.5 mm	Pack qty	Cat. ref.
1NO		25A	1	12	ESL125
2NO		25A	1	12	ESL225
		40A	3	4	ESL240
		63A	3	4	ESL263
2NC		25A	1	12	ESL226
		40A	3	4	ESL241
		63A	3	4	ESL264
1NO + 1NC		25A	1	12	ESL227
4NO		25A	2	6	ESL425
		40A	3	4	ESL440
		63A	3	4	ESL463
4NC		25A	2	6	ESL426
2NO + 2NC		25A	2	6	ESL427
3NO + 1NC		25A	2	6	ESL428



ESL440

Accessories

Description	Pack qty	Cat. ref.
terminal shrouds for 1 module width contactors	10	ESC001
terminal shrouds for 2 module width contactors	10	ESC002
terminal shrouds for 3 module width contactors	10	ESC003
1NO + 1NC auxiliary contact for 1, 2 and 3 modules width contactors, 6A in AC12, 2A in AC15	1	ESC080
1/2 module width heat dissipation insert	12	LZ060



ESC001



ESC080

Contactors are power devices necessary for the remote switching and control of power circuits like heating circuits, lighting, ventilation, etc...

It is recommended to associate them with command and energy management devices (time switches, thermostats, delay timers, etc...)

The low noise version is recommended in every areas where silent functioning is required.

Technical data

- low noise contactors range: 1, 2 and 3 module width
- power contacts rating: 230V AC or 400V AC, 50/60Hz
- without manual override control
- ratings: 16A, 25A, 40A, 63A
- coil voltage rating: 12V, 24V, 110/127V, 230V AC
- utilisation categories: AC-7a / AC-1, AC-7b / AC-3

Recommendations

- the use of LZ060 (heat dissipation inserts) is strongly recommended between each low noise contactors or between low noise contactors and adjacent devices
- the use of the auxiliary contact ESC080 is not compatible with 1 module width low noise contactors

Connection capacities

- for 16A, 25A contactors:
 - 10mm² rigid conductor
 - 6mm² flexible conductor
- for 40A, 63A contactors:
 - 25mm² rigid conductor
 - 16mm² flexible conductor
- for coil connection:
 - 10mm² rigid conductor
 - 6mm² flexible conductor

Complies with IEC 61095



ESC225S



ESC425S





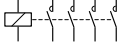
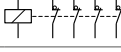
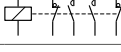
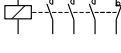


ESC463S

230V AC - 50 Hz control coil voltage

Contact types	Symbol	Power contact rating	Width in module 17.5 mm	Pack qty	Cat. ref.
1NO		25A	1	12	ESC125S
2NO		25A	1	12	ESC225S
		40A	3	4	ESC240S
		63A	3	4	ESC263S
3NO		25A	2	6	ESC325S
		40A	3	4	ESC340S
		63A	3	4	ESC363S
3NC		25A	2	6	ESC326S
4NO		25A	2	6	ESC425S
		40A	3	4	ESC440S
		63A	3	4	ESC463S
4NC		25A	2	6	ESC426S
2NO + 2NC		25A	2	6	ESC427S
3NO + 1NC		25A	2	6	ESC428S


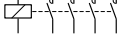
24V AC - 50 Hz control coil voltage

Contact types	Symbol	Power contact rating	Width in module 17.5 mm	Pack qty	Cat. ref.
1NO		25A	1	12	ESD125S
2NO		25A	1	12	ESD225S
		40A	3	4	ESD240S
		63A	3	4	ESD263S
3NO		25A	2	6	ESD325S
3NC		25A	2	6	ESD326S
4NO		25A	2	6	ESD425S
		40A	3	4	ESD440S
		63A	3	4	ESD463S
4NC		25A	2	6	ESD426S
2NO + 2NC		25A	2	6	ESD427S
3NO + 1NC		25A	2	6	ESD428S



ESD463S

12V AC - 50 Hz control coil voltage

Contact types	Symbol	Power contact rating	Width in module 17.5 mm	Pack qty	Cat. ref.
2NO		40A	3	4	ESL240S
		63A	3	4	ESL263S
4NO		40A	3	4	ESL440S
		63A	3	4	ESL463S



ESL463S

Accessories

Description	Pack qty	Cat. ref.
terminal shrouds for 1 module width contactors	10	ESC001
terminal shrouds for 2 module width contactors	10	ESC002
terminal shrouds for 3 module width contactors	10	ESC003
1NO+1NC auxiliary contact for 1, 2 and 3 modules width contactors, 6A in AC12, 2A in AC15 (not compatible with 1 module width low noise contactors)	1	ESC080
1/2 module width heat dissipation insert	12	LZ060



ESC001



ESC080

Contactors are power devices necessary for the remote switching and control of power circuits like heating circuits, lighting, ventilation, etc...

It is recommended to associate them with command and energy management devices (time switches, thermostats, delay timers, etc...)

Technical data

- standard contactors range: 1, 2 and 3 module width
- power contacts rating: 230V AC or 400V AC, 50/60Hz
- without manual override control,
- ratings: 16A, 25A, 40A, 63A
- coil voltage rating: 12V, 24V, 110/127V, 230V AC
- utilisation categories: AC-7a / AC-1, AC-7b / AC-3

Connection capacities

- for 16A, 25A contactors:
 - 10mm² rigid conductor
 - 6mm² flexible conductor
- for 40A, 63A contactors:
 - 25mm² rigid conductor
 - 16mm² flexible conductor
- for coil connection:
 - 10mm² rigid conductor
 - 6mm² flexible conductor

Complies with IEC 61095

Recommendations

- the use of LZ060 (heat dissipation inserts) is strongly recommended every 2 contactors mounted in a row or between contactors and adjacent devices
- the use of the auxiliary contact ESC080 is not compatible with 1 module width low noise contactors



ERC225



ERC263



ERC425

230V AC - 50 Hz control coil voltage

Contact types	Symbol	Power contact rating	Width in module 17.5 mm	Pack qty	Cat. ref.
1NO		25A	1	12	ERC125
2NO		16A	1	12	ERC216
		25A	1	12	ERC225
		40A	3	4	ERC240
		63A	3	4	ERC263
2NC		16A	1	12	ERC217
		25A	1	12	ERC226
3NO		16A	2	6	ERC316
		25A	2	6	ERC325
4NO		16A	2	6	ERC416
		25A	2	6	ERC425
4NC		25A	2	6	ERC426
2NO + 2NC		16A	2	6	ERC418
		25A	2	6	ERC427
3NO + 1NC		25A	2	6	ERC428



ERD218

24V AC - 50 Hz control coil voltage

Contact types	Symbol	Power contact rating	Width in module 17.5 mm	Pack qty	Cat. ref.
2NO		16A	1	12	ERD216
		25A	1	12	ERD225
		40A	3	4	ERD240
		63A	3	4	ERD263
2NC		16A	1	12	ERD217
1NO + 1NC		16A	1	12	ERD218
2NO + 2NC		25A	2	6	ERD418
4NO		25A	2	6	ERD425

12V AC - 50 Hz control coil voltage

Contact types	Symbol	Power contact rating	Width in module 17.5 mm	Pack qty	Cat. ref.
2NO		16A	1	12	ERL216
		25A	1	12	ERL225
		40A	3	4	ERL240
		63A	3	4	ERL263
2NC		16A	1	12	ERL217
1NO + 1NC		16A	1	12	ERL218
2NO + 2NC		25A	2	6	ERL418
4NO		25A	2	6	ERL425



ERL225

Accessories

Description	Pack qty	Cat. ref.
terminal shrouds for 1 module width contactors	10	ESC001
terminal shrouds for 2 module width contactors	10	ESC002
terminal shrouds for 3 module width contactors	10	ESC003
1NO+1NC auxiliary contact for 1, 2 and 3 modules width contactors, 6A in AC12, 2A in AC15	1	ESC080
1/2 module width heat dissipation insert	12	LZ060



ESC001



ESC080

Contactors are power devices necessary for the remote switching and control of power circuits like heating circuits, lighting, ventilation, etc...

It is recommended to associate them with command and energy management devices (time switches, thermostats, delay timers, etc...)

The low noise version is recommended in every areas where silent functioning is required.

Technical data

- low noise contactors range: 1, 2 and 3 module width,
- power contacts rating: 230V AC or 400V AC, 50/60Hz,
- without manual override control,
- ratings: 16A, 25A, 40A, 63A,
- coil voltage rating: 12V, 24V, 110/127V, 230V AC,
- utilisation categories: AC-7a / AC-1, AC-7b / AC-3.

Recommendations:

- the use of LZ060 (heat dissipation inserts) is strongly recommended between each low noise contactors or between low noise contactors and adjacent devices.
- the use of the auxiliary contact ESC080 is not compatible with 1 module width low noise contactors.

Connection capacity:

- for 16A, 25A contactors:
10mm² rigid conductor
6mm² flexible conductor
- for 40A, 63A contactors:
25mm² rigid conductor
16mm² flexible conductor
- for coil connection:
10mm² rigid conductor
6mm² flexible conductor

Complies with IEC 61095



ERC225S

230V AC - 50 Hz control coil voltage

Contact types	Symbol	Power contact rating	Width in module 17.5 mm	Pack qty	Cat. ref.
1NO		25A	1	12	ERC125S
2NO		25A	1	12	ERC225S
		40A	3	4	ERC240S
4NO		25A	2	6	ERC425S

24V AC - 50 Hz control coil voltage

Contact types	Symbol	Power contact rating	Width in module 17.5 mm	Pack qty	Cat. ref.
2NO		25A	1	12	ERD225S
		40A	3	4	ERD240S
		63A	3	4	ERD263S
2NO + 2NC		25A	2	6	ERD418S



ERL263S

12V AC - 50 Hz control coil voltage

Contact types	Symbol	Power contact rating	Width in module 17.5 mm	Pack qty	Cat. ref.
2NO		40A	3	4	ERL240S
		63A	3	4	ERL263S



ESC001



ESC080

Accessories

Description	Pack qty	Cat. ref.
terminal shrouds for 1 module width contactors	10	ESC001
terminal shrouds for 2 module width contactors	10	ESC002
terminal shrouds for 3 module width contactors	10	ESC003
1NO+1NC auxiliary contact for 1, 2 and 3 modules width contactors, 6A in AC12, 2A in AC15 (not compatible with 1 module width low noise contactors)	1	ESC080
1/2 module width heat dissipation insert	12	LZ060

Contactors are power devices necessary for the remote switching and control of power circuits like heating circuits, lighting, ventilation, etc...

It is recommended to associate them with command and energy management devices (time switches, thermostats, delay timers, etc...)

The DC control voltage version is recommended in some application when continuous current functioning is required.

Technical data

- DC control voltage use contactors range: 1, 2 and 3 module width
- power contacts rating: 230V AC or 400V AC
- with and without manual override control
- ratings: 16A, 25A, 40A, 63A
- coil voltage rating: 12V, 24V
- utilisation category: AC-7a / AC-1, AC-7b / AC-3

Recommendations

- the use of LZ060 (heat dissipation inserts) is strongly recommended between each low noise contactors or between low noise contactors and adjacent devices.
- the use of the auxiliary contact ESC080 is not compatible with 1 module width low noise contactors.

Connection capacity

- for 16A, 25A contactors:
 - 10mm² rigid conductor
 - 6mm² flexible conductor
- for 40A, 63A contactors:
 - 25mm² rigid conductor
 - 16mm² flexible conductor
- for coil connection:
 - 10mm² rigid conductor
 - 6mm² flexible conductor

Complies with IEC 61095

12V DC - 50 Hz control coil voltage, without override

Contact types	Symbol	Power contact rating	Width in module 17.5 mm	Pack qty	Cat. ref.
2NO		25A	1	12	ESL225SDC
		40A	3	4	ESL240S
		63A	3	4	ESL263S
3NC		25A	2	6	ESL326SDC
4NO		25A	2	6	ESL425SDC
		40A	3	4	ESL440S
		63A	3	4	ESL463S
4NC		25A	2	6	ESL426SDC
2NO + 2NC		25A	2	6	ESL427SDC
3NO + 1NC		25A	2	6	ESL428SDC



ESL463S

Power, control and signaling

24V DC - 50 Hz control coil voltage, without override

Contact types	Symbol	Power contact rating	Width in module 17.5 mm	Pack qty	Cat. ref.
2NO		40A	3	4	ESD240S
		63A	3	4	ESD263S
4NO		25A	2	6	ESD425SDC
		40A	3	4	ESD440S
		63A	3	4	ESD463S



ESD463S



ERL263S

12V DC - 50 Hz control coil voltage, with override

Contact types	Symbol	Power contact rating	Width in module 17.5 mm	Pack qty	Cat. ref.
2NO		25A	1	12	ERL625SDC
		40A		4	ERL240S
		63A	3	4	ERL263S
4NO		25A	2	6	ERL425SDC
2NO + 2NC		16A	2	6	ERL418SDC

24V DC - 50 Hz control coil voltage, with override

Contact types	Symbol	Power contact rating	Width in module 17.5 mm	Pack qty	Cat. ref.
2NO		25A	1	12	ERD225SDC
		40A	3	4	ERD240S
		63A	3	4	ERD263S



ESC001



ESC080

Accessories

Description	Pack qty	Cat. ref.
terminal shrouds for 1 module width contactors	10	ESC001
terminal shrouds for 2 module width contactors	10	ESC002
terminal shrouds for 3 module width contactors	10	ESC003
1NO+1NC auxiliary contact for 1, 2 and 3 modules width contactors, 6A in AC12, 2A in AC15 (not compatible with 1 module width low noise contactors)	1	ESC080
1/2 module width heat dissipation insert	12	LZ060

To provide all types of automatic control i.e. lighting, ventilation, watering, machine pre-heating, automatic door and visual audible indication, cycle control etc.
For timing and automation in domestic and commercial premises. The input signal can be via various switching devices (pushbutton, latching switch, timeclock etc) and the timed output used to control the application.

Connection capacity

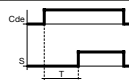
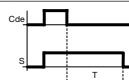
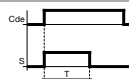
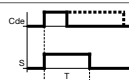
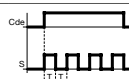
6mm² max rigid
1.5 - 10mm² flexible

Complies with - EN 60669-1, EN 60669-2-1

Technical data

- voltage supply range:
12 and 24 to 48V DC
12 and 24 to 230V AC
- adjustable time delay: from 0.1s to 10hrs
- LED indicator frequency: 50/60 Hz
- 1 potential free changeover contact
- breaking capacity: 8A / 230V AC

Modular delay timers

Description		Width in module 17.5 mm	Pack qty	Cat. ref.
delay on		1	1	EZN001
delay off		1	1	EZN002
adjustable time on		1	1	EZN003
timer		1	1	EZN004
symmetrical flasher		1	1	EZN005
multifunction 6 individual functions including: delay on, delay off, timer,...		1	1	EZN006



EZN001



EZN006

To interface between low voltage and very low voltage circuits to ensure galvanic isolation between LV and VLV to 4kV.

Application

Interface between fire alarm, burglar alarm and other VLV systems and main distribution circuits.

Connection capacity

- 4 mm² flexible
- 6 mm² rigid.

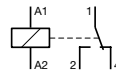


EN145

Interface relay VLV/LV 1 way

- coil voltage: 10 to 26 V AC/DC
- consumption: 75 mA to 120 mA
- output: 1 changeover contact
max. 5 A - 250 V AC
min. 10 mA - 12 V DC

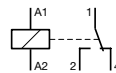
Description	Width in module 17.5 mm	Pack qty	Cat. ref.
interface relays VLV/LV 1 way	1	1	EN145



Interface relay LV/VLV 1 way

- coil voltage: 230V AC 50Hz
- output: 1 changeover contact
max. 5 A - 250 V AC
min. 10 mA - 12 V DC

Description	Width in module 17.5 mm	Pack qty	Cat. ref.
interface relays LV/VLV 1 way	1	1	EN146

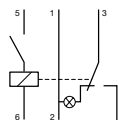


EN175

Collective safety device relay

- for motorized gas combustion extraction system
- coil voltage: 230V AC 50Hz
- output: 1 changeover contact
max. 5 A - 250 V AC
min. 10 mA - 12 V DC

Description	Width in module 17.5 mm	Pack qty	Cat. ref.
collective safety device relay	1	1	EN175



Permits the remote control of a lighting circuits from several points using push-buttons in private buildings, small industry buildings and administration buildings. Latching relays operate when impulsed by a signal voltage. The impulse can be provided via a push button or switch. The first pulse operates the relay and latches it into its set (opposite) state, the next operation of the push button returns the relay into its reset (original) state.

Technical data

- nominal voltage of the power circuit: Un = 250/400 V AC
- nominal voltage of the power circuit: 12V, 24V, 48V and 230 V AC
- nominal voltage of the control circuit: 12V, 24V, 110V DC

- conventional thermal current: 16A AC1
- control and power circuits
- nominal frequency: 50/60Hz
- contact types: 1NO, 2NO, 1NC+1NO, 4NO, 2NO+2NC, 3NO+1NC
- 4 types of auxiliaries
- connection capacity:
 - rigid 10 mm²
 - flexible 6 mm²

Complies with IEC 60 669-1 and IEC 60 669-2-2.

Latching relays

Contact types	Symbol	Coil V AC 50/60 Hz	Coil V DC	Power circuit AC1	Width in module 17.5 mm	Pack qty	Cat. ref.
1NO		230	110	16A-250V	1	12	EPN510
		48	24	16A-250V	1	1	EPN501
		24	12	16A-250V	1	1	EPN513
		12	-	16A-250V	1	1	EPN511
2NO		230	110	16A-250V	1	1	EPN520
		48	24	16A-250V	1	1	EPN526
		24	12	16A-250V	1	1	EPN524
		12	-	16A-250V	1	1	EPN521
1NC + 1NO		230	110	16A-250V	1	1	EPN515
		110	48	16A-250V	1	1	EPN516
		48	24	16A-250V	1	1	EPN503
		24	12	16A-250V	1	1	EPN518
		12	-	16A-250V	1	1	EPN519
4NO		230	110	16A-400V	2	1	EPN540
		48	24	16A-400V	2	1	EPN548
		24	12	16A-400V	2	1	EPN541
2NC + 2NO		230	110	16A-250V	2	1	EPN525
		24	12	16A-250V	2	1	EPN528
3NO + 1NC		230	110	16A-400V	2	1	EPN546



EPN510



EPN540

Several auxiliaries can be combined with the latching relay. The latching relays are built to add as an option the following auxiliaries:

- an auxiliary for centralised ON/OFF control EPN050
- an auxiliary contact for remote signalling EPN051
- an auxiliary for multi levelled centralised control EPN052
- an auxiliary for control by maintained contact EPN053.

Technical data

- voltage supply: 24 to 230V AC
- 4 types auxiliaries
- connection capacity:
rigid 10 mm²
flexible 6 mm²

Complies with IEC 60 669-1 and IEC 60 669-2-2




EPN050

Auxiliary for centralised control

- 110V to 230V AC
- the EPN050 allows the centralised control of several light sources which can be turned on or off simultaneously

- the separate switching by pushing the pushbuttons, which are connected with the latching relay, remains possible


Description		Width in module 17.5 mm	Pack qty	Cat. ref.
auxiliary for centralised control		0.5	1	EPN050



EPN051

Auxiliary contact

- 2A - 250 V AC
- a remote signalling can be realised with the auxiliary contact EPN051

Description		Width in module 17.5 mm	Pack qty	Cat. ref.
auxiliary contact		0.5	1	EPN051



EPN052

Auxiliary for multi levelled centralised control

- 110V to 230V AC
- the EPN052 allows a generic central control of individual central on/off EPN050

Description		Width in module 17.5 mm	Pack qty	Cat. ref.
auxiliary for multi levelled centralised control		0.5	1	EPN052



EPN053

Auxiliary for control by maintained contact

- 24V to 230V AC
- when control devices with permanent impulse are externally driven, e.g. time switches or limit switches, an impulse control directly to the latching relay's coil is possible with the auxiliary contact EPN053

Description		Width in module 17.5 mm	Pack qty	Cat. ref.
auxiliary for control by maintained contact		0.5	1	EPN053

Switch disconnectors are used as general switches in electrical low voltage distribution boards and for the isolation of loads during the interventions of maintenance.

Technical data

- 3 sizes are available:
 - Size 1: In 16 A, 25 A, 32 A
 - Size 2: In 32 A, 40 A, 63 A
 - Size 3: In 63 A, 80 A, 100 A, 125 A
- 230/400V 50/60 Hz
- utilisation category AC22A from 16A to 125A for mixed alternative load (inductive and resistive)
- version with light indicator in 1 and 2 poles from 16 to 32A
- IP2X with terminal shrouds
- all switches have a green/red indication on the toggle giving positive contact position
- MZN175 padlocking kit allows to lock in the ON and OFF position

Connection capacity

- Size 1: In 16 A, 25 A, 32 A
 - 16 mm² rigid conductor
 - 10 mm² flexible conductor
- Size 2: In 32 A, 40 A, 63 A
 - 25 mm² rigid conductor
 - 16 mm² flexible conductor
- Size 3: In 63 A, 80 A, 100 A, 125 A
 - 50 mm² rigid conductor
 - 35 mm² flexible conductor

Complies with

- IEC 60 669-1, IEC 60 669-2-4, IEC 60 947-3 for the size 1
- IEC 60 669-2-4, IEC 60 947-3 for the size 2
- IEC 60 947-3 for the size 3

Single pole switch disconnectors

Size	Characteristics	Width in module 17.5 mm	Pack qty	Cat. ref.
1	1 x 16 A - 250 V AC	1	12	SBN116
	1 x 25 A - 250 V AC	1	12	SBN125
	1 x 32 A - 250 V AC	1	12	SBN132
2	1 x 32 A - 250 V AC	1	12	SBN133
	1 x 40 A - 250 V AC	1	12	SBN140
	1 x 63 A - 250 V AC	1	12	SBN163
3	1 x 63 A - 250 V AC	1	12	SBN164
	1 x 80 A - 250 V AC	1	12	SBN180
	1 x 100 A - 250 V AC	1	12	SBN190
	1 x 125 A - 250 V AC	1	12	SBN199



SBN163



Double pole switch disconnectors

Size	Characteristics	Width in module 17.5 mm	Pack qty	Cat. ref.
1	2 x 16 A - 250 V AC	1	12	SBN216
	2 x 25 A - 250 V AC	1	12	SBN225
	2 x 32 A - 250 V AC	1	12	SBN232
2	2 x 32 A - 250 V AC	2	6	SBN233
	2 x 40 A - 250 V AC	2	6	SBN240
	2 x 63 A - 250 V AC	2	6	SBN263
3	2 x 63 A - 250 V AC	2	6	SBN264
	2 x 80 A - 250 V AC	2	6	SBN280
	2 x 100 A - 250 V AC	2	6	SBN290
	2 x 125 A - 250 V AC	2	6	SBN299

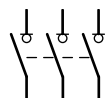


SBN263





SBN363

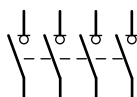


Three pole switch disconnectors

Size	Characteristics	Width in module 17.5 mm	Pack qty	Cat. ref.
1	3 x 16 A - 250 V AC	2	6	SBN316
	3 x 25 A - 250 V AC	2	6	SBN325
	3 x 32 A - 250 V AC	2	6	SBN332
2	3 x 32 A - 250 V AC	3	4	SBN333
	3 x 40 A - 250 V AC	3	4	SBN340
	3 x 63 A - 250 V AC	3	4	SBN363
3	3 x 63 A - 250 V AC	3	4	SBN364
	3 x 80 A - 250 V AC	3	4	SBN380
	3 x 100 A - 250 V AC	3	4	SBN390
	3 x 125 A - 250 V AC	3	4	SBN399



SBN463



Four pole switch disconnectors

Size	Characteristics	Width in module 17.5 mm	Pack qty	Cat. ref.
1	4 x 16 A - 250 V AC	2	6	SBN416
	4 x 25 A - 250 V AC	2	6	SBN425
	4 x 32 A - 250 V AC	2	6	SBN432
2	4 x 32 A - 250 V AC	4	3	SBN433
	4 x 40 A - 250 V AC	4	3	SBN440
	4 x 63 A - 250 V AC	4	3	SBN463
3	4 x 63 A - 250 V AC	4	3	SBN464
	4 x 80 A - 250 V AC	4	3	SBN480
	4 x 100 A - 250 V AC	4	3	SBN490
	4 x 125 A - 250 V AC	4	3	SBN499



SBB116



Single pole switch disconnectors with indicator light

Size	Characteristics	Width in module 17.5 mm	Pack qty	Cat. ref.
1	1 x 16 A - 250 V AC	1	1	SBB116
	1 x 25 A - 250 V AC	1	1	SBB125
	1 x 32 A - 250 V AC	1	1	SBB132



SBB225



Double pole switch disconnectors with indicator light

Size	Characteristics	Width in module 17.5 mm	Pack qty	Cat. ref.
1	2 x 16 A - 250 V AC	1	1	SBB216
	2 x 25 A - 250 V AC	1	1	SBB225
	2 x 32 A - 250 V AC	1	1	SBB232



ESC080

Accessories

Description	Pack qty	Cat. ref.
auxiliary contact compatible with switch disconnectors from 16 to 125 A, 6 A, 230 V AC	1	ESC080
terminal shroud for switches 32 A to 125 A	4	MZN120
phase barrier shield	set of 3	MZN121
padlocking kit	1	MZN175

The changeover switch range is the solution to guarantee supply of load by controlling 2 power circuits.

Technical data

- In from 25A to 63A
- use category AC22A from 25A to 40A for mixed alternative load, inductive and resistive (AC21A for 63A)
- IP2X with terminal shrouds
- frequency 50/60 Hz

Connection capacity

- In 25 A and 40 A
 - 16 mm² rigid conductor
 - 10 mm² flexible conductor
- In 63A
 - 25 mm² rigid conductor
 - 16 mm² flexible conductor

Complies with IEC 60 669-1, IEC 60947-3

MZN175 padlocking kit allows to lock in the ON and OFF position.

1-way changeover switch and common point on top (I-II)

Size	Characteristics	Width in module 17.5 mm	Pack qty	Cat. ref.
1	1 x 25 A - 250 V AC	1	12	SFH125



SFH125



2-way changeover switch 1NO+1NC (I-II)

Size	Characteristics	Width in module 17.5 mm	Pack qty	Cat. ref.
1	1 x 25 A - 250 V AC	1	12	SFM125

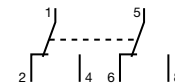


SFM125



2-way changeover switch and common point on top (I-II)

Size	Characteristics	Width in module 17.5 mm	Pack qty	Cat. ref.
1	2 x 25 A - 250 V AC	1	6	SFH225



Single pole centre-off changeover switches and common point on top (I-O-II)

Size	Characteristics	Width in module 17.5 mm	Pack qty	Cat. ref.
1	1 x 25 A - 250 V AC	1	12	SFT125
	1 x 40 A - 250 V AC	1	12	SFT140

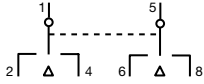


SFT125





SFT440

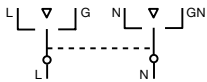


Double pole centre-off changeover switches and common point on top (I-O-II)

Size	Characteristics	Width in module 17.5 mm	Pack qty	Cat. ref.
1	2 x 25 A - 250 V AC	1	6	SFT225
	2 x 40 A - 250 V AC	1	6	SFT240
	3 x 40 A - 400 V AC	1	4	SFT340
	4 x 40 A - 400 V AC	1	3	SFT440



SFT463



Changeover switches with centerpoint (I-O-II)

Size	Characteristics	Width in module 17.5 mm	Pack qty	Cat. ref.
1	2 x 63 A - 250 V AC	4	1	SF263
	4 x 63 A - 400 V AC	8	1	SF463



ESC080

Accessories

Description	Pack qty	Cat. ref.
Auxiliary contact compatible with switch disconnectors from 16 to 125 A, 6 A, 230 V AC	1	ESC080
Terminal shroud for switches 32 A to 125 A	4	MZN120
Phase barrier shield set of 3 pieces	3	MZN121
Padlocking kit padlocking kit	1	MZN175

Allows remote control* tripping via voltmetric tripping relay to associate on the left side of product
 - associated auxiliary: auxiliary contact (AC)
 - for the main protection in general or sub-switchboard

Connection capacity for associated auxiliary

- 0.5 to 6 mm² flexible
- 1 to 10 mm² rigid

Complies with IEC 60947-1 / IEC 60947-3. AC 23 A

Connection capacity for switch

- 6 to 16 mm² flexible
- 6 to 25 mm² rigid

2 pole switches

- U_i = 690 V AC

Characteristics	Width in module 17.5 mm	Pack qty	Cat. ref.
2 x 40 A - 250 V AC	2.5	1	SA240
2 x 63 A - 250 V AC	2.5	1	SA263
2 x 80 A - 250 V AC	2.5	1	SA280



SA263



4 pole switches

- U_i = 690 V AC

Characteristics	Width in module 17.5 mm	Pack qty	Cat. ref.
4 x 40 A - 400 V AC	4.5	1	SA440
4 x 63 A - 400 V AC	4.5	1	SA463
4 x 80 A - 400 V AC	4.5	1	SA480



SA463



Shunt trips

- allows remote tripping of the trip free switch

Characteristics	Width in module 17.5 mm	Pack qty	Cat. ref.
230 - 415 V AC, 110 - 130 V DC	1	1	MZ203
24 - 48 V AC, 12 - 48 V DC	1	1	MZ204



MZ203



Under voltage release

- allows trip free switch to be closed only when voltage is above 70% of U_n

- trip free switch will automatically trip when voltage falls by 35% of U_n

Characteristics	Width in module 17.5 mm	Pack qty	Cat. ref.
48 V DC	1	1	MZ205
230 V AC	1	1	MZ206



MZ205



Power, control and signaling



MZ212

Over voltage release

- allows trip free switch to be closed only when voltage between Ph and N is above 110/180%

Characteristics	Width in module 17.5 mm	Pack qty	Cat. ref.
230 V AC	1	1	MZ212



MZN175

Padlocking kit

- accepts 2 padlock with Ø 4,75mm shackle or 3 padlocks with Ø 3mm shackle

Characteristics	Pack qty	Cat. ref.
padlocking kit	1	MZN175

These products are used for remote controlling signalisation of any event in any electrical installation (domestic, tertiary & industrial). LED technology providing longer life, new design, integrated label holder.

Push buttons

- versions: impulse push buttons and latching push buttons,
- contact types: 1NO, 1NC, 2NO, 2NC, 1NC+1NO

Indicator lights

- light type: LED technology
- supply voltage: 12/48V AC/DC and 230/415V AC
- colors: green, red, orange, blue, clear
- range: 1,2 and 3 indicators light possibility in the same device
- power consumption: 0.8 watts
- burning hours: up to 100,000h

These versions with indicator lights are equipped with green or red diffuser. (led technology)

Connection capacity

- 10 mm² rigid,
- 6 mm² flexible

Comply with IEC 60947-5-1 and IEC 62094-1

Single indicator light

- 230 V AC

Description	Width in module 17.5 mm	Pack qty	Cat. ref.
green LED light	1	12	SVN121
red LED light	1	12	SVN122
orange LED light	1	12	SVN123
blue LED light	1	12	SVN124
clear LED light	1	12	SVN125



SVN122



Double indicator light

- 230 V AC

Description	Width in module 17.5 mm	Pack qty	Cat. ref.
green and red LED light	1	12	SVN126
clear LED light	1	12	SVN128



SVN126



Triple indicator light

- 230 V AC

Description	Width in module 17.5 mm	Pack qty	Cat. ref.
red LED light	1	12	SVN127
red/orange/green LED light	1	12	SVN129
green LED light	1	12	SVN221
red/orange/blue LED light	1	12	SVN222



SVN127



Low voltage indicator lights

- 12 to 48 V AC/DC

Description	Width in module 17.5 mm	Pack qty	Cat. ref.
green LED light	1	12	SVN131
red LED light	1	12	SVN132
orange LED light	1	12	SVN133
blue LED light	1	12	SVN134
clear LED light	1	12	SVN135
green/red LED light	1	12	SVN136



SVN134





SVN311



SVN391

Impulse push-buttons 16 A - 250 V AC

Characteristics	Symbol	Width in module 17.5 mm	Pack qty	Cat. ref.
1 NO		1	12	SVN311
1 NC		1	12	SVN321
2 NO		1	12	SVN331
2 NC		1	12	SVN341
1NO / 1 NC		1	12	SVN351
1 NO + 1 NO		1	12	SVN371
1 NC + 1 NO		1	12	SVN391



SVN411

Impulse push-buttons 16 A - 250 V AC with LED

Characteristics	Symbol	Width in module 17.5 mm	Pack qty	Cat. ref.
1 NO with 230 V AC green LED		1	12	SVN411
1 NC with 230 V AC red LED		1	12	SVN422
2 NO with 230 V AC red LED		1	12	SVN432
2 NC with 230 V AC green LED		1	12	SVN441
1 NC + 1 NO with 230 V AC red LED		1	12	SVN452



SVN461

Impulse push-buttons 16 A - 12/48 V AC/DC

Characteristics	Symbol	Width in module 17.5 mm	Pack qty	Cat. ref.
2 NO with 230 V AC green LED		1	12	SVN461
2 NO with 230 V AC red LED		1	12	SVN462

Latching push buttons 16 A - 230 V AC

Characteristics	Symbol	Width in module 17.5 mm	Pack qty	Cat. ref.
1 NO		1	12	SVN312
1 NC		1	12	SVN322
2 NO		1	12	SVN332
2 NC		1	12	SVN342
1NO / 1 NC		1	12	SVN352



SVN332

Impulse push-buttons 16 A - 250 V AC with LED

Characteristics	Symbol	Width in module 17.5 mm	Pack qty	Cat. ref.
1 NO with 230 V AC green LED		1	12	SVN413
2 NO with 230 V AC green LED		1	12	SVN433



SVN433

Impulse push-buttons 16 A - 12/48 V AC/DC

Characteristics	Symbol	Width in module 17.5 mm	Pack qty	Cat. ref.
2 NO with 230 V AC green LED		1	12	SVN463
2 NO with 230 V AC red LED		1	12	SVN464



SVN464



EE960

Emergency lighting module

- for residential and commercial premises
- installed in a consumer unit or distribution board
- the lamp can be configured to light automatically in case of power failure
- it can also be withdrawn from its base, thereby acting as a mini torch
- type of lamp: incandescent lamp
- battery charging time: 12 hours
- battery autonomy: +/- 3 hours
- life time: 500 cycles
- ingress protection degree: IP20
- connection capacity: 4 mm² flexible/rigid wire
- supply voltage: 230V AC +/-10%
- frequency: 50/60Hz
- fixing mode: DIN rail

Description	Width in module 17.5 mm	Pack qty	Cat. ref.
emergency lighting module	3	1	EE960



EE910

Remote control for emergency lightings

- the remote control is recommended in public, commercial or industrial premises.
- the device is a 2 position changeover switch, with automatic recall for switching off or on, of self contained emergency lighting, by delivering polarized current impulses on the remote control circuits (+ or -)
- supply voltage: 230V AC +/-10%
- frequency: 50/60Hz
- consumption: 0,1 mA / 6V
- fixing mode: DIN rail
- output supply: 12V and 8,4V DC
- capacity: 60 and 120 emergency lighting blocks
- connection capacity:
 - 10 mm² rigid wire
 - 6 mm² flexible wire

Description	Width in module 17.5 mm	Pack qty	Cat. ref.
for up to 60 self contained emergency lighting	4	1	EE905
for up to 120 self contained emergency lighting	4	1	EE910

Transformers ensure an electrical separation between primary and secondary circuits.
They provide extra safety low voltage 8, 12, 24 V AC

Technical data

- secondary voltages: 8 V, 12 V, 24 V AC
- bell transformers are short-circuit protected
- bells/buzzers max. continuous duty < 30 minutes
- output bells: 85 dBA
- output buzzers: 78 dBA

Connection capacities

6mm² cable clamp type

When a bell transformer is installed in an enclosure with main voltage equipment, 230V cable should be used on the secondary side of the transformer or extra low voltage cable should be sheathed within the enclosure.

Note : the transformers have a higher no load voltage. The stated voltages correspond to the voltages on nominal load.

Safety transformers

- 230V 12-24 V AC, 50/60 Hz

Description	Width in module 17.5 mm	Pack qty	Cat. ref.
16 VA	4	1	ST313
25 VA	4	1	ST312
40 VA	4	1	ST314
63 VA	6	2	ST315



ST313



Bell transformers

- 230V 8-24 V AC, 50/60 Hz

Description	Width in module 17.5 mm	Pack qty	Cat. ref.
4 VA, 8 V / 0.5V, 12 V / 0.33 A	2	6	ST301
8 VA, 8 V / 1 A, 12 V / 0.67 A	2	6	ST303
16 VA, 8 V / 2 A, 12 V / 1.33 A	3	1	ST305



ST303



Bells

Description	Width in module 17.5 mm	Pack qty	Cat. ref.
8/12 V AC, 5 VA - 0.33 A	1	12	SU212
230 V AC, 6.5 VA - 0.03 A	1	12	SU213



SU212



Buzzers

Description	Width in module 17.5 mm	Pack qty	Cat. ref.
8/12 V AC, 4 VA - 0.35 A	1	12	SU214
230 V AC, 6.5 VA - 0.03 A	1	12	SU215



SU214





SN316

Sockets 10/16 A - 230 V AC

- with safety shutters

Description	Symbol	Width in module 17.5 mm	Pack qty	Cat. ref.
2P + E		2.5	4	SN216
2P + E with light indicator		2.5	4	SN316
2P + E, German standard 10/16 A, Italian standard 10 A		2.5	4	SN010



SN220

Sockets 20 A - 400 V AC

- with safety shutters

Description	Symbol	Width in module 17.5 mm	Pack qty	Cat. ref.
2P + E		4	3	SN120
3P + E		4	4	SN220
3P + E + N		4	4	SN320

Reference principle



EW serie contactors

Rated current AC-3

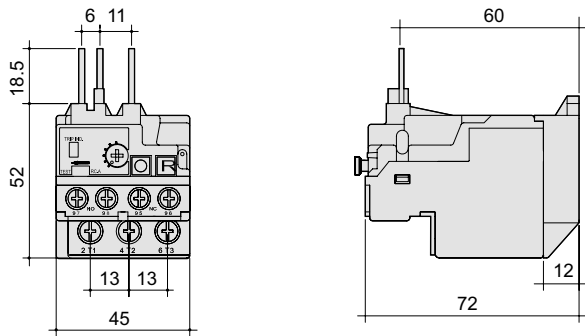
005 = 7A minicontactor	063 = 63A
006 = 9A minicontactor	070 = 72A
007 = 7A	100 = 105A
009 = 9A	120 = 115A
012 = 12A	150 = 147A
016 = 16A	180 = 179A
020 = 22A	220 = 225A
025 = 26A	300 = 300A
032 = 32A	400 = 400A
038 = 38A	500 = 500A
040 = 40A	630 = 630A
050 = 55A	

Rated control supply voltage Us

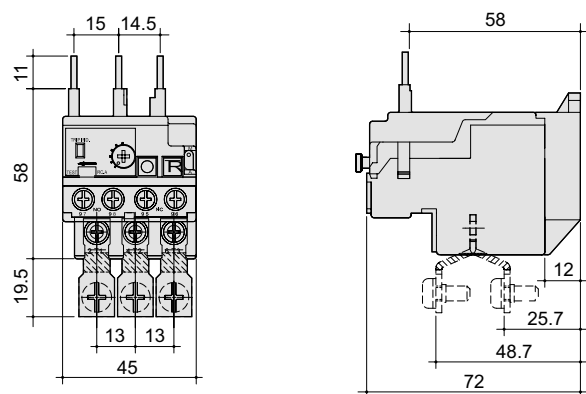
C = 220V AC 50/60Hz	K = 240V AC 50Hz
D = 380V AC 50/60Hz	L = 400V AC 50Hz
E = 24V DC	M = 415V AC 50Hz
F = 48V DC	N = 24V AC 50/60Hz
H = 110V AC 50/60Hz	P = 48V AC 50/60Hz
J = 230V AC 50Hz	Q = 127V AC 50/60Hz

Thermal overload relays

EWT...B

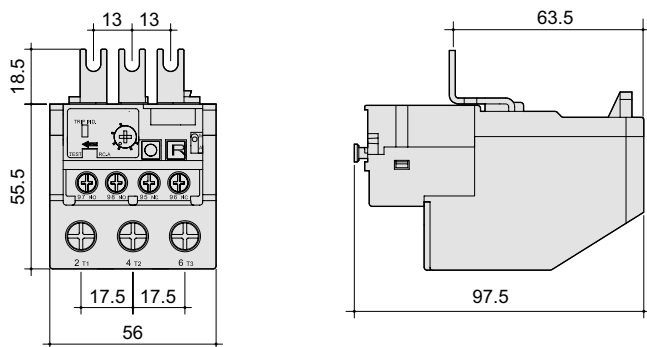


EWT...C

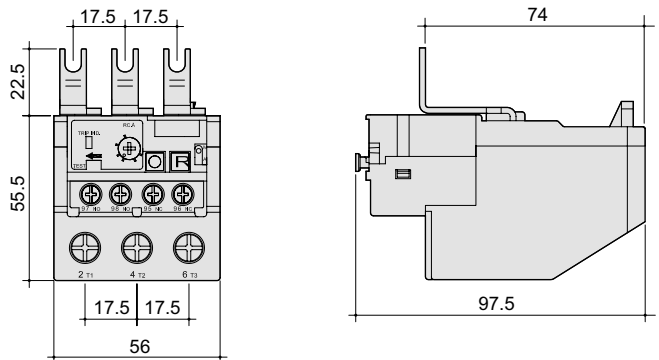


Extension terminal applicable for thermal relay above 36A.

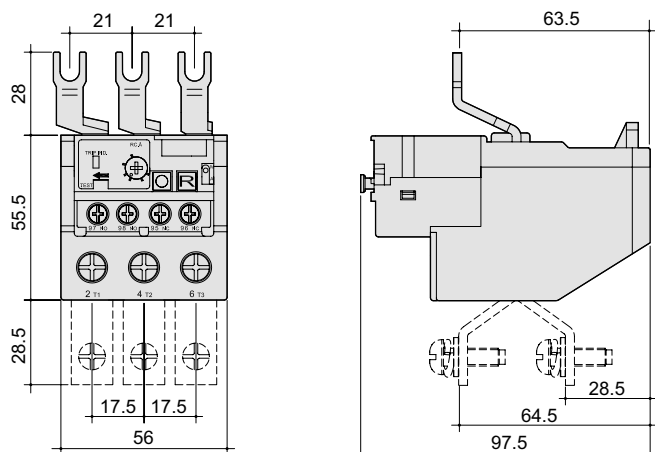
EWT...D



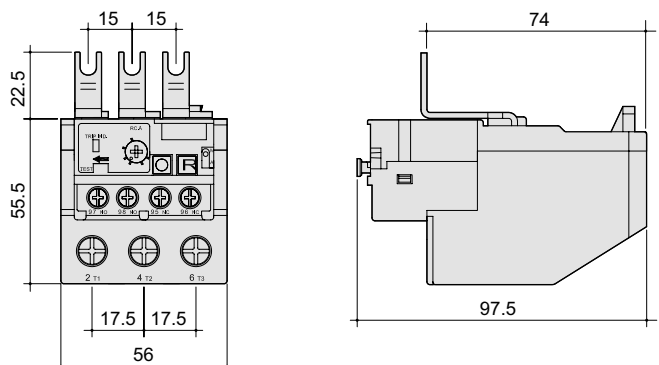
EWT...E



EWT...G



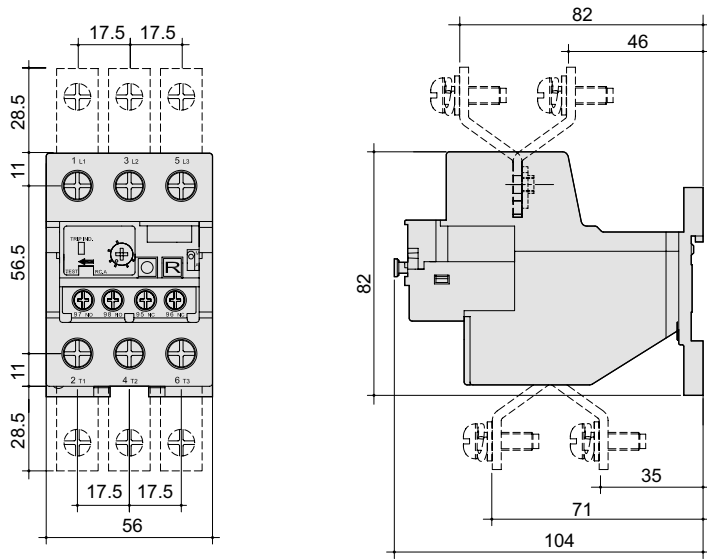
EWT...H



Extension terminal applicable for thermal relay above 50A.

Separated thermal overload relays

EWT...F



Extension terminal for wire connection.

Description		Modular contactor and relay						Auxiliary contact
Standard conformity		EN 61095						
Approvals		NF - VDE - IMQ - KEMA - RMC / CCC						
		Contactor		Contactor		Contactor		Accessory
Number of modules		1		2		3		1/2
Thermal current I _{th} (40°C)		16A	25A	16A	25A	40A	63A	6A
Rated frequency		50Hz	50Hz	50Hz	50Hz	50Hz	50Hz	50Hz
Rated insulation voltage (U _i)		250V	250V	440V	440V	440V	440V	250V
Rated impulse withstand voltage (U _{imp})		4kV	4kV	4kV	4kV	4kV	4kV	4kV
Protection degree		2	2	2	2	2	2	2
Rated operating currents and power ratings in AC								
AC-1 / AC-7a	rated operational currents I _e	16A	25A	16A	25A	40A	63A	-
	rated operational power	3kW	4.6kW	3kW	4.6kW	7.3kW	11.6kW	-
AC-3 / AC-7b	rated operational currents I _e	5.5A	8.5A	5.5A	8.5A	25A	32A	-
	rated operational power	570W	880W	570W	880W	2.6kW	3.3kW	-
AC-12	rated operational currents at 230V	-	-	-	-	-	-	6A
AC-15	rated operational currents at 230V	-	-	-	-	-	-	2A
Mechanical and electrical endurances								
Mechanical endurance	nr of operations	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
Electrical endurance at I _e AC7a (AC12 for aux contacts)	nr of operations	60,000	60,000	60,000	60,000	60,000	60,000	60,000
MCB protected short-circuit withstand								
Prospected short-circuit current	rms	1kA	3kA	1kA	3kA	3kA	3kA	1kA
Associated protection		MCB C16-6kA	MCB C25-6kA	MCB C16-6kA	MCB C25-6kA	MCB C40-10kA	MCB C63-10kA	6A 10x38 gG fuse or MCB
Power dissipation								
Power dissipation per current path		1W	1.5W	1W	1.5W	3.2W	5W	0.4W
Magnetic system for standard and low noise contactors								
Pick-up		7.4VA	7.4VA	9.2VA	9.2VA	60VA	60VA	-
Coil consumption		1.8VA	1.8VA	1.85VA	1.85VA	7VA	7VA	-
Closing delay		25ms	25ms	25ms	25ms	25ms	25ms	-
Opening delay		15ms	15ms	15ms	15ms	20ms	20ms	-
Connection								
Main contact cable section	rigid	1...10mm ²	1...10mm ²	1...10mm ²	1...10mm ²	4...25mm ²	4...25mm ²	1...6mm ²
	flexible	1...6mm ²	1...6mm ²	1...6mm ²	1...6mm ²	4...16mm ²	4...16mm ²	1...6mm ²
Main contact connection screw	type	M3.4	M3.4	M3.4	M3.4	M3.4	M3.4	M3.4
	posidrive	PZ2	PZ2	PZ2	PZ2	PZ2	PZ2	PZ2
	max. tight. torque	1.2Nm	1.2Nm	1.2Nm	1.2Nm	2Nm	2Nm	1.2Nm
Coil connection cable section	rigid	1...10mm ²	1...10mm ²	1...10mm ²	1...10mm ²	1...10mm ²	1...10mm ²	1...10mm ²
	flexible	1...6mm ²	1...6mm ²	1...6mm ²	1...6mm ²	1...6mm ²	1...6mm ²	1...6mm ²
Coil connection screw	type	M3.4	M3.4	M3.4	M3.4	M3.4	M3.4	M3.4
	posidrive	PZ2	PZ2	PZ2	PZ2	PZ2	PZ2	PZ2
	max. tight. torque	1.2Nm	1.2Nm	1.2Nm	1.2Nm	1.5Nm	1.5Nm	-
Working temperature								
		-10°C to +50°C						
Storage temperature								
		-40°C to +80°C						

Choice of contactors

The choice of contactor is based on many factors:

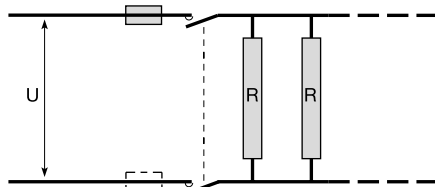
- type of the load supplied,
- nominal current of the load,
- operating voltage,
- number of operations,
- etc..

The contactors are AC7-a (resistive load) and AC7-b (inductive load) approved.

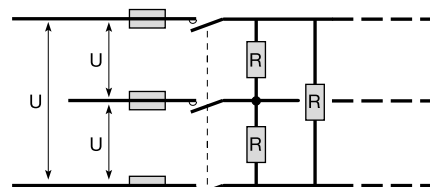
Heating applications

The choice of the contactor is based on the electrical heating load, and the targeted life time.

Single phase



Three phase supply



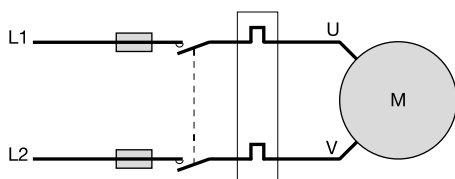
Number of operations		60,000	100,000	150,000	300,000	600,000	
Maximum load* in kW	230V	16A	3.0	2.5	1.9	0.8	0.7
		25A	4.6	4.0	3.0	1.3	1.0
		40A	7.3	6.3	4.7	2.2	1.6
		63A	11.6	10.0	7.5	3.5	2.5
	400V	16A	8.9	8.0	5.8	2.8	2.0
		25A	13.8	12.0	8.6	4.3	3.0
		40A	22.0	18.5	14.3	6.3	5.0
		63A	35.0	30.0	22.6	10.2	7.6

* On three phase configuration the maximum load per phase corresponds to the values states divided by 3.

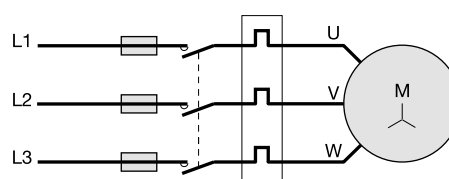
Example:

Function of a heating installation 200 days/annum, 75 operations per day (1 opening + 1 closing = 2 operations)
Mechanical life = 10 years
Total number of operations: 200 x 75 x 10 = 150,000
in that case, depending on the type of circuit, select a contactor 40A 230V to control a load of 4.7 kW, or a contactor 16A 400V to control a load up to 5.8 kW.

**Motor applications (AC7-b equivalent to AC3)
Single phase 230V**



Three phase 400V



	Contactor rating	Control diagram	
		2P 230V single phase	3P 400V three phase
Maximum power for the motor	16A	0.57 kW	1.7 kW
	25A	0.88 kW	2.65 kW
	40A	2.6 kW	7.8 kW
	63A	3.3 kW	10 kW

Influence of working temperature:

Derating factor between 40°C and 50°C: 0.9

Example: heating with convector.

The maximum load of ESC225 is 4.6kW for 60,000 operations and for a temperature <40°C.

Between 40°C and 50°C, the load is 4.6 x 0.9 i.e. 4.14kW

Adjacent fitting:

It is necessary to put a heat dissipation insert (reference LZ060) between each 3 products, or each humfree contact.

Selection chart for lighting loads

Lighting systems with electronic ballasts cause inrush current peaks. Therefore we recommend you use the chart below to determinate the maximum amount of lamps that can be connected to a Hager contactor: the chart gives the maximum amount of lamps per contact.

In 2014 the performances of the contactors in combination with lights increased. The products identified on the front face with this pictogramm (+) can accept a higher number of lamps. For these products, see the figures in the column with the pictogramm in the header.

Lighting technology	Power of the lamp	Contactor 16A	Contactor 25A	Contactor 16A (+)	Contactor 25A (+)	Contactor 40A	Contactor 63A	
Compact fluo lamps								
Compact fluo lamp with external electronic ballast	5W	11	15	17	27	49	76	
	7W	11	15	17	27	49	76	
	9W	9	13	16	26	40	63	
	11W	9	13	16	26	40	63	
	15W	7	11	14	22	36	57	
	18W	7	11	14	22	36	57	
	20W	7	11	14	22	36	57	
	23W	7	11	14	22	36	57	
	26W	7	11	14	22	36	57	
	Compact fluo lamp with integrated electronic ballast	5W	17	27	34	54	86	135
7W		17	27	34	54	86	135	
9W		17	27	34	54	86	135	
11W		17	27	34	54	86	135	
15W		17	27	34	54	86	135	
18W		13	20	25	40	63	100	
20W		13	20	25	40	63	100	
23W		13	20	25	40	63	100	
26W		13	20	25	40	63	100	
Incandescent lamps								
Tungsten & halogen lamps 230V	40W	32	50	36	57	76	120	
	60W	21	33	28	45	67	105	
	75W	17	27	24	38	63	100	
	100W	13	20	17	28	41	65	
	150W	8	13	11	18	29	45	
	200W	6	9	8	14	22	35	
	300W	4	7	6	10	15	23	
	500W	2	3	3	6	9	14	
	1000W	0	0	1	2	4	7	
	Tungsten & halogen lamps 12 or 24V	20W	13	20	25	40	139	218
35W		8	13	16	26	82	129	
50W		6	9	11	18	60	94	
75W		4	6	7	12	52	82	
100W		2	3	3	6	35	55	
150W		1	2	2	4	20	31	
LED								
LED 230V with integrated electronic ballast - non dimmable	4W	17	27	34	54	86	135	
	4.5W	17	27	34	54	86	135	
	6W	17	27	34	54	86	135	
	7W	17	27	34	54	86	135	
	8W	17	27	34	54	86	135	
	12W	17	27	34	54	86	135	
	17W	13	20	25	40	63	101	
	18W	13	20	25	40	63	101	
	22W	13	20	25	40	63	101	
	30W	9	14	17	28	44	70	
	34W	9	14	17	28	44	70	
	40W	9	14	17	28	44	70	
	50W	7	11	14	22	35	55	
	LED 230V with integrated electronic ballast - dimmable	4W	38	60	76	120	159	250
		4.5W	38	60	76	120	159	250
6W		38	60	76	120	159	250	
7W		38	60	76	120	159	250	
8W		38	60	76	120	159	250	
12W		38	60	76	120	159	250	
17W		28	44	56	88	118	185	
18W		28	44	56	88	118	185	
22W		28	44	56	88	118	185	
30W		20	31	39	62	82	130	
34W		20	31	39	62	82	130	
40W		20	31	39	62	82	130	
50W		16	24	30	48	65	102	
LED 230V headlight with integrated electronic ballast		100W			3	5	6	9
		150W			1	3	4	6
	200W			1	2	4	6	
LED 12V with separated transformer - dimmable	1W	38	60	76	120	180	220	
	2.5W	38	60	76	120	180	220	
	4W	38	60	76	120	180	220	
	5W	38	60	76	120	180	220	
	7W	38	60	76	120	160	200	
	10W	38	60	76	120	160	200	
	15W	28	44	56	88	160	200	
	Fluorescent tubes							
T5 single - uncompensated	15W	13	20	19	30	70	100	
	18W	13	1220	1919	1930	70	100	
	20W	12	15	17	30	70	100	
	36W	10	13	16	28	60	90	
	40W	9	12	15	26	60	90	
	42W	7	9	10	24	55	83	
	58W	6	8	10	17	35	56	
	65W	5	7	9	17	35	56	
	80W	4	5	6	15	30	48	
	115W	3	5	6	10	20	32	
	140W				10	16	26	

Lighting technology	Power of the lamp	Contacteur 16A	Contacteur 25A	Contacteur 16A (+)	Contacteur 25A (+)	Contacteur 40A	Contacteur 63A
T5 single - parallel compensation	15W	7	11	12	20	36	57
	18W	7	11	12	20	36	57
	20W	7	11	12	20	36	57
	36W	7	11	12	20	34	53
	40W	7	11	12	20	29	45
	42W	7	11	12	20	29	45
	58W	6	10	9	15	27	42
	65W	6	10	9	15	27	42
	80W	6	10	9	15	27	42
	115W	6	10	9	15	25	39
	T5 double - uncompensated	2 x 18W	13	20	25	40	50
2 x 20W		12	19	24	38	50	78
2 x 36W		12	15	19	30	44	69
2 x 40W		10	13	16	26	40	63
2 x 42W		9	12	15	24	40	63
2 x 58W		7	9	11	18	27	42
2 x 65W		6	8	10	16	27	42
2 x 80W		5	7	8	14	22	35
2 x 115W		4	5	6	10	16	25
T5 double - serie compensation		2 x 18W	7	11	14	22	34
	2 x 20W	7	11	14	22	29	45
	2 x 36W	6	10	12	20	27	42
	2 x 40W	6	10	12	20	27	42
	2 x 42W	6	10	12	20	27	42
	2 x 58W	6	10	12	20	25	39
	2 x 65W	5	7	8	14	23	36
	2 x 80W	5	7	8	14	20	31
	2 x 115W	4	5	6	10	17	25
	T5 single - electronic ballast	15W	7	11	14	22	36
18W		7	11	14	22	36	57
20W		7	11	14	22	36	57
36W		7	11	14	22	34	53
40W		7	11	14	22	29	45
42W		7	11	14	22	29	45
58W		6	10	12	20	27	42
65W		6	10	12	20	27	42
80W		6	10	12	20	27	42
115W		6	10	12	20	25	39
T5 double - electronic ballast		2 x 18W	7	11	14	22	34
	2 x 20W	7	11	14	22	29	45
	2 x 36W	6	10	12	20	27	42
	2 x 40W	6	10	12	20	27	42
	2 x 42W	6	10	12	20	27	42
	2 x 58W	6	10	12	20	25	39
	2 x 65W	5	7	8	14	23	36
	2 x 80W	5	7	8	14	20	31
	2 x 115W	4	5	6	10	17	25
	Discharge lamps						
High-pressure mercury-vapor lamps - without compensation	50W	9	14	17	28	32	50
	80W	6	9	11	18	24	37
	125W	3	5	6	10	18	28
	250W	2	3	3	6	10	15
	400W	1	1	1	2	6	9
	700W	0	0	0	0	4	5
High-pressure mercury-vapor lamps - parallell compensation	50W	7	11	14	22	26	40
	80W	5	8	10	16	22	34
	125W	3	5	6	10	15	23
	250W	2	3	3	6	9	14
	400W	1	1	1	2	5	8
	700W	0	0	0	0	3	5
	1000W	0	0	0	0	2	3
Low pressure sodium lamps - without compensation	18W	8	10	8	12	17	23
	35W	4	6	7	9	14	20
	55W	3	6	7	9	14	20
	90W	2	4	5	6	9	14
	135W	1	3	3	4	6	8
	180W	1	2	2	4	6	8
	Low pressure sodium lamps - parallel compensation	18W	5	7	5	8	12
35W		4	6	4	7	10	23
55W		3	5	3	5	10	19
90W		2	3	3	4	8	16
135W		1	2	1	2	5	7
180W		1	2	1	2	5	6
High pressure sodium lamps - without compensation		35W	11	14	15	24	30
	50W	9	12	10	15	22	34
	70W	8	9	8	12	18	28
	110W	6	8	6	10	14	22
	150W	4	7	5	8	10	16
	250W	2	4	3	5	6	10
	400W	0	1	1	2	4	6
	1000W	0	1	1	1	2	3
	High pressure sodium-vapour lamps - electronic ballast or parallel compensation	35W	6	9	11	18	31
50W		6	9	11	18	22	35
70W		4	6	7	12	16	25
110W		3	5	6	8	13	21
150W		3	5	4	6	8	13
250W		2	3	3	4	7	11
400W		1	1	1	2	5	8
1000W		0	0	0	1	2	3
Metal halide lamps - without compensation	35W	12	24	19	30	42	55
	70W	10	15	12	17	26	36
	150W	6	7	8	12	14	20
	250W	3	5	5	8	9	14
	400W	1	2	2	4	6	9
	1000W	0	0	0	0	3	5
	Metal halide lamps - electronic ballast or parallel compensation	35W	6	10	12	18	22
70W		5	8	10	13	22	10
150W		3	5	6	8	12	6
250W		3	5	6	7	9	3
400W		1	1	1	2	5	1
1000W		0	0	0	1	2	0

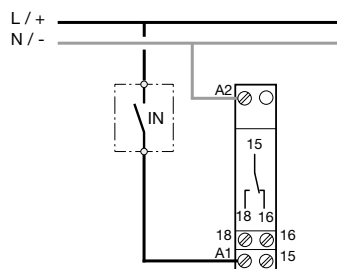
Power, control and signaling

Technical specifications

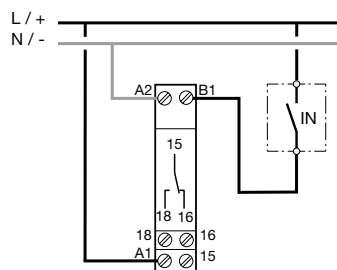
	EZN001 - EZN002 - EZN003 - EZN004 - EZN005 - EZN006
Electrical characteristics	
Supply voltage	12 - 230 V AC (±10%), 50Hz/60Hz 12 - 48 V DC (±10%)
Output	1 volt free C/O contact
Life expectancy	
max load AC1	8 A / 230 V AC 50 000 cycles
incandescent	450 W AC 50 000 cycles
fluorescent non comp.	600 W AC 50 000 cycles
inductive load 0.6pf	5 A AC 100 000 cycles
Min power	
AC	100 mA at 230 V
DC	100 mA at 12 V
Galvanic isolation	2 kV
Standard / norm	EN60669-2-1
Functional characteristics	
Timer range	0.1 s. - 10 h
Min. command period	
AC	50 ms
DC	30 ms
Operating temperature	
working	-10°C to +50°C
storage	-40°C to +50°C
Connection capacity	
flexible	1 - 6 mm ²
rigid	1.5 - 10 mm ²

Wiring diagrams

EZN001, EZN003, EZN005, EZN006 (functions D,E,F)



EZN002, EZN004, EZN006 (functions A,B,C)



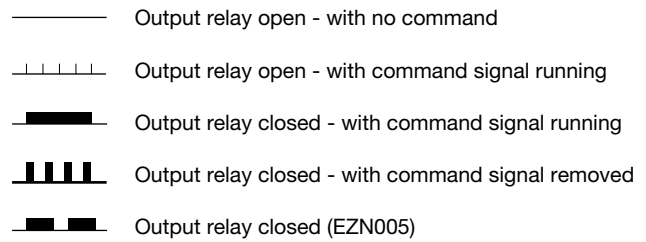
Delay timers

Delay timer devices are used to control a variety of processes where the requirement is for switching circuits on, off or delaying the on or off switching for a pre-set period of time. Typical device types are:

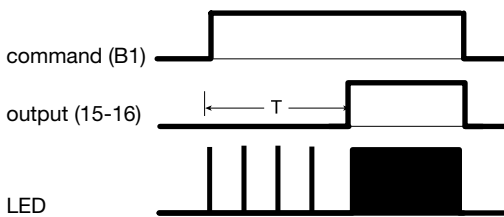
- delay on: intended to delay the starting or switching of a circuit for a set period of time following the command signal e.g. to delay the starting of motor loads where a large number of motors are to be started by the same switch to reduce the effects of the starting currents.
- delay off: intended to delay the stopping or switching off of a circuit for a set period of time following the removal of the command signal e.g. to overrun an extractor following the switching off of a process that creates fumes.
- Adjustable time on: intended to switch on for a set period, the command must remain on throughout the set period e.g. to switch on two sets of heaters with one set (the boost) switching off after the set period.
- Impulse timer: intended to switch on for a set period, the command signal length is not important e.g. to boost a time clock controlled circuit such as a water storage heater.
- Symmetrical timer: intended to toggle a circuit on and off in regular time patterns e.g. to run an extractor intermittently.

Multifunction timer - 8 individual functions

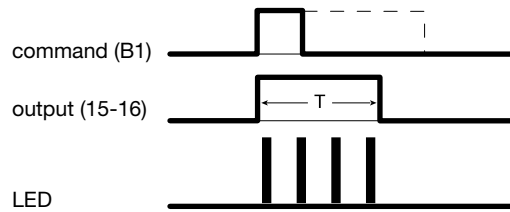
- A = timer.
 - B = delay off (output relay opens either at end of command or after set time period - whichever is shorter).
 - C = delay off.
 - D = delay on.
 - E = delay on (output relay closes either at end of command or after set time period - whichever is shorter).
 - F = Symmetrical timer.
- On selection - contact permanently closed
Off selection - contact permanently open



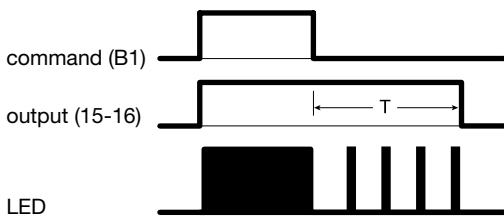
**Delay on
EZN001 and EZN006 function D**



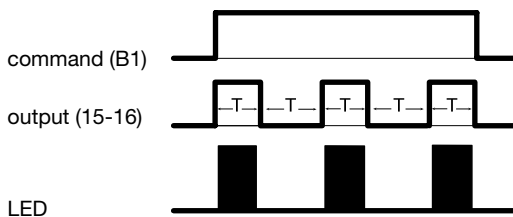
**Impulse timer
EZN004 and EZN006 function A**



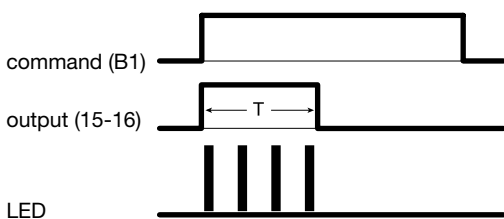
**Delay off
EZN002 and EZN006 function C**



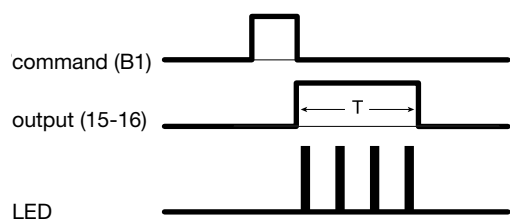
**Symmetrical flasher
EZN005 and EZN006 function F**



**Adjustable time on
EZN003 and EZN006 function E**



**Multifunction timer
EZN006 function B**



References	EN146	EN145
width	1 ■	1 ■
Coil control circuit		
control circuit voltage	230V	10 to 26V
frequency	50Hz	50/60Hz and DC
connection - rigid (mm ²) - flexible (mm ²)	1 to 6 0.5 to 4	1 to 6 0.5 to 4
pick-up coil consumption	5VA	(a)
coil consumption	5VA	(a)
Power circuit		
current (AC1, AC7a)	5A	5A
insulation voltage	250V	250V
rated frequency	50/60Hz	50/60Hz
current (AC3, AC7b)	-	-
connection - rigid (mm ²) - flexible (mm ²)	1 to 6 0.5 to 4	1 to 6 0.5 to 4
mechanical endurance	-	-
electrical endurance	200 000 cycles	-
Working temperature	-10°C to +50°C	
Storage temperature	-40°C to +80°C	

(a): consumption of EN145

control voltage	consumption
12 V DC	0.5 W
24 V DC	1.5 W
12 V AC	1 VA
24 V AC	2 VA

Technical characteristics

	EPN510 EPN515 EPN520	EPN516	EPN501 EPN503 EPN526	EPN513 EPN518 EPN524	EPN511 EPN519 EPN521	EPN525 EPN540 EPN546	EPN548	EPN528 EPN541
Coil in AC								
voltage rating	230V	110V	48V	24V	12V	230V	48V	24V
tolerance	+10/-20%							
frequency	50/60Hz							
start consumption	25VA					55VA		
Coil in DC								
voltage rating	110V	48V	24V	12V	-	110V	24V	12V
tolerance	+10/-20%							
start consumption	12VA				-		25W	
Contacts								
max. perm. Current AC1	16A							
voltage	250V AC						400V AC	
electrical endurance	150 000 operations							
mechanical endurance	500 000 operations							
ohmic loss per current path	1,2W							
minimum duration of impulse	50 ms							
maximum time under voltage	1 H							
push button with signal lamp without condensator	6 (1mA / lamp)							
push button with signal lamp with condensator = 1uF parrallel *	10 (1mA / lamp)							
push button with signal lamp with condensator = 2.2uF parrallel *	44 (1mA / lamp)							
ingress protection	IP20							
working temperature	-5 to +40°C							
storage temperature	-40 to +80°C							
Connection								
flexible	6mm ²							
rigid	10mm ²							

Auxiliaries + latching relays, possible combinations:

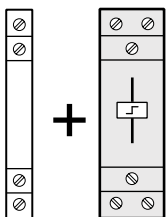
EPN050: auxiliary for centralised control


EPN051: auxiliary contact


EPN052: auxiliary for multi levelled centralised control


EPN053: auxiliary for control by maintained contact

...with 1 auxiliary

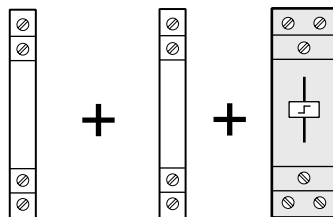



EPN050 +  24 to 230V AC


EPN051 +  12 to 230V AC
12 to 110V DC


EPN053 +  24 to 230V AC


...with 2 auxiliaries



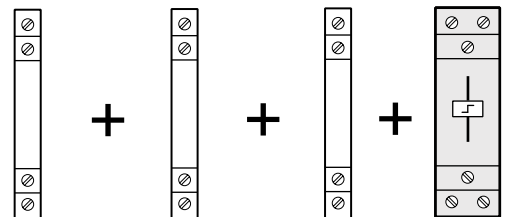
EPN051 + EPN050 +  24 to 230V AC


EPN052 + EPN050 +  24 to 230V AC

EPN051 + EPN053 +  24 to 230V AC

EPN051 + EPN051 +  12 to 230V AC
12 to 110V DC

...with 3 auxiliaries



EPN052 + EPN051 + EPN050 +  24 to 230V AC

Technical characteristics

The following table shows the number of lamps which can be connected per phase at 230V 50Hz.

Incandescent lamps									
230V lamps with and without halogen									
load:	40W	60W	75W	100W	150W	200W	300W	500W	1000W
number:	45	30	24	18	12	9	5	3	2
Low voltage halogen									
load:	20W	50W	75W	100W	150W	300W			
number:	70	28	19	14	9	3			
Fluorescent lamps uncompensated									
load:	15W	18W	30W	36W	58W				
number:	29	25	25	24	14				
Parallel compensation									
load:	15W	18W	30W	36W	58W				
number:	27	27	25	25	16				
C total max _(a) :	121µF	121µF	112µF	112µF	72µF				
Two lamp circuit, series compensation									
load:	2x18W	2x20W	2x36W	2x40W	2x58W	2x65W			
number:	40	40	22	22	12	12			
C :	2.7µF	2.7µF	3.4µF	3.4µF	5.3µF	5.3µF			
load:	18W	36W	58W						
number:	30	28	15						
Two lamp circuit with electronics power supply units									
load:	2x18W	2x36W	2x58W						
number:	15	13	8						
Flo compact uncompensated									
load:	7W	10W	18W	26W					
number:	50	45	40	25					
Flo compact electronic power supply unit									
load:	11W	15W	20W	23W					
number:	80	60	50	40					
High intensity discharge metal halogen lamps, uncompensated									
load:	50W	80W	125W	250W	400W				
number:	11	9	7	3	2				
Metal halogen lamps, parallel compensation									
load:	50W	80W	125W	250W	400W				
number:	9	8	6	3	2				
C total max _(a) :	63µF	58µF	60µF	54µF	50µF				
High pressure sodium vapour lamps, uncompensated									
load:	70W	150W	250W	400W					
number:	9	5	3	2					
High pressure sodium vapour lamps, parallel compensated									
load:	70W	150W	250W	400W					
number:	5	3	2	1					
C total max _(a) :	60µF	54µF	64µF	50µF					

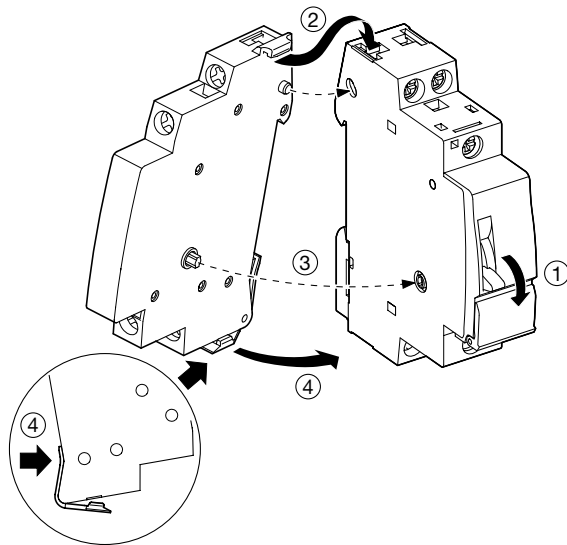
(a) : these values must not be exceeded

Auxiliaries for latching relays

	EPN050	EPN051	EPN052	EPN053
voltage rating	(a)	-	(a)	(a)
	24 to 230V AC			
	12 to 110V DC			
nominal load	-	2A/250V AC	-	-
I _{min} /230V AC	-	15mA	-	-
working temperature	-5 to +40°C			
storage temperature	-40 to 80°C			
Connections : flexible	6 mm ²			
rigid	10 mm ²			

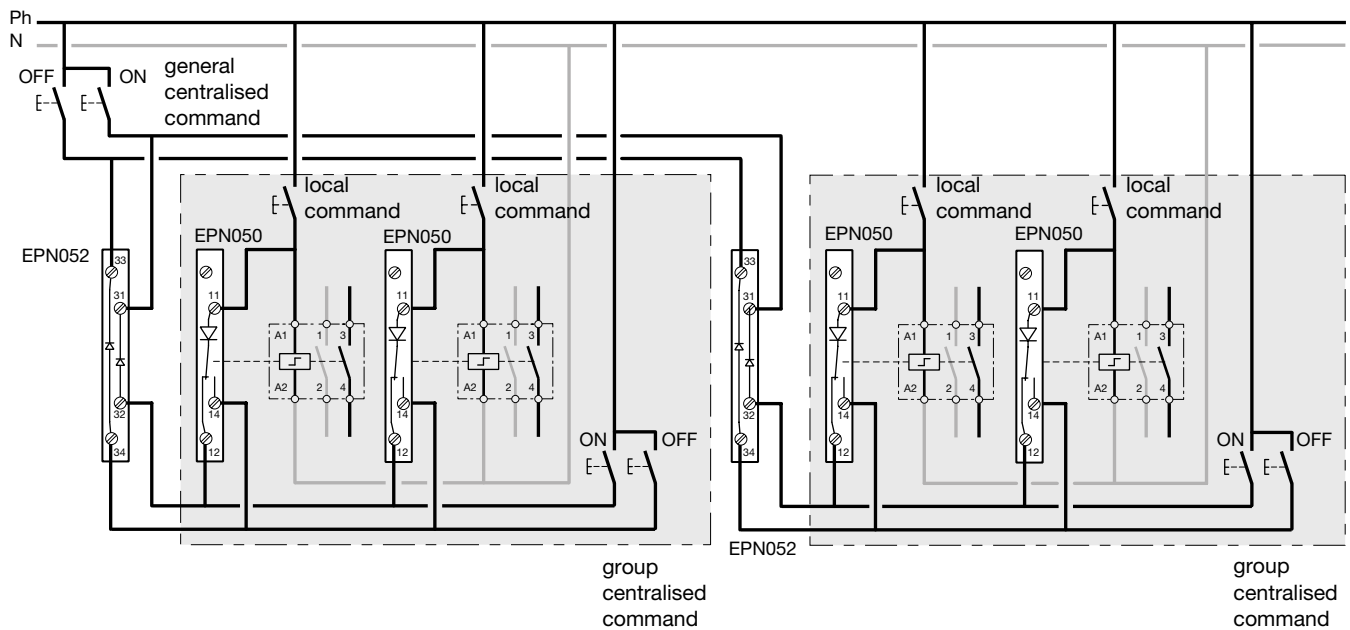
(a) : according to a latching relay connected with an auxiliary

Installation of the auxiliaries



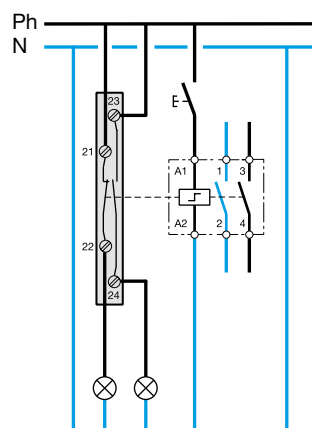
Application diagram

centralised command (EPN050 - EPN052)

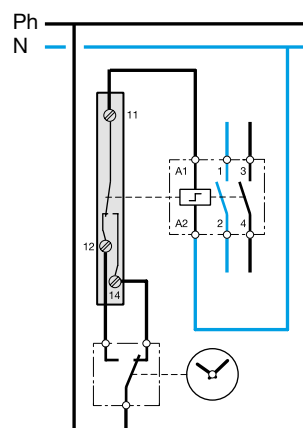


Power, control and signaling

Remote signalling (EPN051)



Maintained command (EPN053)



Technical characteristics

references	SBN SBB SFH SFT SFM	SBN SBB	SBN SBB
number of pole	1P - 2P - 3P - 4P		
frame size	frame size 1	frame size 2	frame size 3
comply with standard	IEC 60947-3	ok	ok
	IEC 60669-2-4	ok	-
thermal current I _{th} (40°C)	16A 25A 32A	32A 40A 63A	63A 80A 100A 125A
operational frequency	50/60 Hz	50/60 Hz	50/60 Hz
rated insulation voltage (U _i)	440V	440V	440V
rated impulse withstand voltage U _{imp}	4kV	6 kV	6 kV
protection degree	3 (SB) / 2 (SF)	3	3
working temperature	-20 to 50°C		
storage temperature	-40 to 80°C		

Operational current I_e

rated voltage	load duty category	16A	25A	32A	32A	40A	63A	63A	80A	100A	125A
400V AC	AC 21-A ⁽¹⁾	16A	25A	32A	32A	40A	63A	63A	80A	100A	125A
	AC 22-A ⁽¹⁾	16A	25A	32A	32A	40A	63A	63A	80A	100A	125A

Short circuit characteristics

rated short time withstand current 1s I _{cw} (rms)	IEC 60947-3	240A	375A	480A	480A	600A	945A	945A	960A	1200A	1500A
prospective short circuit current (rms)	EN 60669-2-4	3kA			6kA			n/a			

Mechanical characteristics

rigid cable section	16 mm ²	25 mm ²	50 mm ²
flexible cable section	10 mm ²	16 mm ²	35 mm ²
tightening torque	1.8 Nm	2.8 Nm	3.6 Nm
busbar thickness	n/a	1 to 1.5 mm	1.5 to 2 mm
IP protection degree	20		
mechanical endurance (number of cycles)	100000	30000	20000
electrical endurance @ AC22 (number of cycles)	25000	5000	2500

Overall dimension

width (mm)	1P	17.5	
	2P	17.5	36
	3P	36	53
	4P	36	72
height (mm)	1-4P	83	
depth (mm)	1-4P	72	

⁽¹⁾ A category: frequent operation

Important: The switch should also be protected against overloads.
The switch calibration needs to be at least equal to the calibration of the upstream MCB.

Cat. ref.	In/A	Un/V 50/60Hz	Nr of poles	mechanical endurance in nr of operations	mechanical endurance in nr of operations In-Un Cosφ=0,6	Short circuit withstand (kA presumed) - Upstream protection															
						Fuse links										MCB					
						gG fuse (A)										MV, MW -3kA (EN 60898-1) (A)					
						16A	25A	32A	40A	63A	80A	100A	125A	16A	20A	25A	32A	40A			
SBN SBB	16	230/400V	1,2,3,4	300 000	30 000	10											3				
	25	230/400V	1,2,3,4	300 000	30 000	10	10										3	3	3		
	32	230/400V	1,2,3,4	300 000	30 000	10	10	10									3	3	3	3	
	40	230/400V	1,2,3,4	150 000	30 000	10	10	10	10								3	3	3	3	3
	63	230/400V	1,2,3,4	150 000	10 000	10	10	10	10	10							3	3	3	3	3
	80	400V	1,2,3,4	90 000	7 500	10	10	10	10	10	10	6					3	3	3	3	3
	100	400V	1,2,3,4	90 000	7 500	10	10	10	10	10	10	6					3	3	3	3	3
	125	400V	1,2,3,4	40 000	2 000	10	10	10	10	10	10	6	3				3	3	3	3	3



Product type	In/A	Un/V 50/60Hz	Nr of poles	mechanical endurance in nr of operations	mechanical endurance in nr of operations In-Un Cosφ=0,6	Short circuit withstand (kA presumed) - Upstream protection																			
						MCB																			
						MBN, MCN - 6kA (EN 60898-1) MB, MT, MC, MU - 6kA (EN 60898-1) (A)										NBN, NCN - 10 kA (IEC 60947-2) NRN - 15 to 25 kA (IEC 60947-2) (A)					HLF - 10kA HMB, HMC-15kA (IEC 60947-2) (A)				
						16A	25A	32A	40A	63A	80A	100A	125A	16A	20A	25A	32A	40A	50A	63A	60A	80A	125A		
SBN SBB	16	230/400V	1,2,3,4	300 000	30 000	3																			
	25	230/400V	1,2,3,4	300 000	30 000	3	3	3						3	3	3									
	32	230/400V	1,2,3,4	300 000	30 000	3	3	3	3					3	3	3	3								
	40	230/400V	1,2,3,4	150 000	30 000	6	6	6	6	6				6	6	6	6	6	6						
	63	230/400V	1,2,3,4	150 000	10 000	6	6	6	6	6	6	6		6	6	6	6	6	6						
	80	400V	1,2,3,4	90 000	7 500	6	6	6	6	6	6	6		6	6	6	6	6	6	6					
	100	400V	1,2,3,4	90 000	7 500	6	6	6	6	6	6	6		6	6	6	6	6	6	6					
	125	400V	1,2,3,4	40 000	2 000	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6					

Product type	In/A	Un/V 50/60Hz	Im trip-free switches	Short circuit withstand (kA presumed) - Upstream protection														
				Fuse links										MCB				
				gG fuse (A)										MV, MW -3kA (EN 60898-1) (A)				
				16A	25A	32A	40A	63A	80A	100A	16A	20A	25A	32A	40A			
SA2xx	40	230V	1500 A	80	80	80	80							3	3	3	3	3
	63	230V	1500 A	80	80	80	80	32						3	3	3	3	3
	80	230V	1500 A	80	80	80	80	32	10					3	3	3	3	3
SA4xx	40	400V	1500 A	80	80	80	80							3	3	3	3	3
	63	400V	1500 A	80	80	80	80	32						3	3	3	3	3
	80	400V	1500 A	80	80	80	80	32	10					3	3	3	3	3

Product type	In/A	Un/V 50/60Hz	Im trip-free switches	Short circuit withstand (kA presumed) - Upstream protection																			
				MCB																			
				MBN, MCN - 6kA (EN 60898-1) MB, MT, MC, MU - 6kA (EN 60898-1) (A)										NBN, NCN - 10 kA (IEC 60947-2) NRN - 15 to 25 kA (IEC 60947-2) (A)					HLF - 10kA HMB, HMC-15kA (IEC 60947-2) (A)				
				16A	25A	32A	40A	63A	80A	100A	16A	20A	25A	32A	40A	50A	63A	80A	100A				
SA2xx	16	230V	1500 A	6	6	6	6	6					10	10	10	10	10						
	25	230V	1500 A	6	6	6	6	6	6	6	6	10	10	10	10	10	10	10					
	32	230V	1500 A	6	6	6	6	6	6	6	6	10	10	10	10	10	10	10	15				
SA4xx	40	400V	1500 A	6	6	6	6	6					10	10	10	10							
	63	400V	1500 A	6	6	6	6	6	6	6	6	10	10	10	10	10	10						
	80	400V	1500 A	6	6	6	6	6	6	6	6	10	10	10	10	10	10	10					

Discrimination chart (withstand)			Short circuit withstand (kA presumed) - upstream protection												
			Fuse links								MCB				
product type	In/A	Un/V 50/60Hz	gG fuse (A)								MV, MW - 3kA				
			16A	25A	32A	40A	63A	80A	100A	125A	16A	20A	25A	32A	40A
SBN / SBB / SFH / SFT / SFM	16	230V													
	25	230V	-								-	-			
	32	230V	-	-							-	-	-		
	40	400V	-	-	-						-	-	-	-	
	63	400V	-	-	-	-					-	-	-	-	-
	80	400V	-	-	-	-	-				-	-	-	-	-
	100	400V	-	-	-	-	-	-			-	-	-	-	-
	125	400V	-	-	-	-	-	-	-		-	-	-	-	-

Discrimination chart (switch on / switch off)			Short circuit withstand (kA presumed) - upstream protection												
			Fuse links								MCB				
product type	In/A	Un/V 50/60Hz	fusible gG (A)								MV, MW - 3kA				
			16A	25A	32A	40A	63A	80A	100A	125A	16A	20A	25A	32A	40A
SBN / SBB / SFH / SFT / SFM	16	230V													
	25	230V	-								-	-			
	32	230V	-	-							-	-	-		
	40	400V	-	-	-						-	-	-	-	
	63	400V	-	-	-	-					-	-	-	-	-
	80	400V	-	-	-	-	-				-	-	-	-	-
	100	400V	-	-	-	-	-	-			-	-	-	-	-
	125	400V	-	-	-	-	-	-	-		-	-	-	-	-

-  Complete protection: short circuit and overload
-  Protected against short circuit, no protection against overload.

MCB							MCB							MCB			MCCB		
MBN, MCN, MB, MT, MC, MU, - 6kA (IEC 60947-2)							NGN - 6kA NBN, NCN, NDN - 10kA NQN, NRN, NSN - 15 to 25kA (IEC 60947-2)							HLE, HLF - 10kA HMB, HMC, HMD - 15kA HMJ, HMK - 30kA (IEC 60947-2)			h3 x160A		
16A	20A	25A	32A	40A	50A	63A	16A	20A	25A	32A	40A	50A	63A	80A	100A	125A	80A	100A	125A
-	-						-	-											
-	-	-					-	-	-										
-	-	-	-				-	-	-	-									
-	-	-	-	-	-		-	-	-	-	-								
-	-	-	-	-	-	-	-	-	-	-	-	-							
-	-	-	-	-	-	-	-	-	-	-	-	-	-						
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					

MCB							MCB							MCB			MCCB		
MBN, MCN, MB, MT, MC, MU, - 6kA (IEC 60947-2)							NGN - 6kA NBN, NCN, NDN - 10kA NQN, NRN, NSN - 15 to 25kA (IEC 60947-2)							HLE, HLF - 10kA - HMB, HMC, HMD 15kA HMJ, HMK - 30kA (IEC 60947-2)			h3 x160A		
16A	20A	25A	32A	40A	50A	63A	16A	20A	25A	32A	40A	50A	63A	80A	100A	125A	80A	100A	125A
-	-						-	-											
-	-	-					-	-	-										
-	-	-	-				-	-	-	-									
-	-	-	-	-	-		-	-	-	-	-								
-	-	-	-	-	-	-	-	-	-	-	-	-							
-	-	-	-	-	-	-	-	-	-	-	-	-	-						
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					

Electrical and mechanical characteristics

General features

Part number	SVN1... / SVN2...	SVN4...		SVN3...
Designation	indicator lights	indicator lights + push buttons		push buttons
		indicator lights	push buttons	
Standard	IEC62094-1		IEC60947-5-1	
Light technology	LED light			

Electrical characteristics

Rated insulation voltage	250V		
Rated impulse withstand voltage	4kV (2kV for 12-48V version)	4kV	
Operational voltage	230V AC (1)		
Frequency	50/60Hz		
Operational thermal current	n/a	16A	
Operational current @ 230V AC12	n/a	16A	
Operational current @ 230V AC14	n/a	10A	
LED power	0,8W (230V) 0,33W (48V) 0,08W (24V) 0,018W (12V)		
Conditional short circuit current	n/a	1000A with gl 10A fuse	
IP class	IP2X		
Degree of pollution	3		

Connecting

Type of connection	cage terminals		
Connection capacity with flexible cable	0,75mm ² to 6mm ²		
Connection capacity with rigid cable	0,75m ² to 10m ²		
Terminal tightening torque	mini : 1,3Nm ; Max 2Nm ; advised 1,65Nm rigid and 1,8Nm supple		
Case material	Thermoplastic (Polyamide) comply with IEC 695-2-2		

Mechanical characteristics

Electric endurance in number of cycles	n/a	15000 (AC12); 6000 (AC14)	
Mechanical endurance in no. of operations	n/a	15000	
Life time	100000 h		
Operating temperature	-20 to +50°C		
Storage temperature	-40 to +80°C		
Climat environment	all climates		
Protection index IP	20		
Altitude	2000 m		

Installation

Mounting	DIN rail EN50.022-35		
Mounting position	performances not affected if installed vertically, horizontally or flat		

(1) except 12 to 48V indicator light (SVN131, SVN132, SVN133, SVN134, SVN135)

Technical specifications

Electrical characteristics

- supply voltage: 230 V
- load time: 36 h

Functional characteristics

- autonomy / load 24 hours: 1 hour
- autonomy / load 36 hours: 1.5 hours
- working life: 500 cycles
- illumination at 1 m: 4 lumens
- illumination at 0.5 m: 16 lumens

Environment

- working temperature: 0 to +40 °C
- storage temperature: -5 to +50 °C

Connection capacity:

1 to 4 mm²

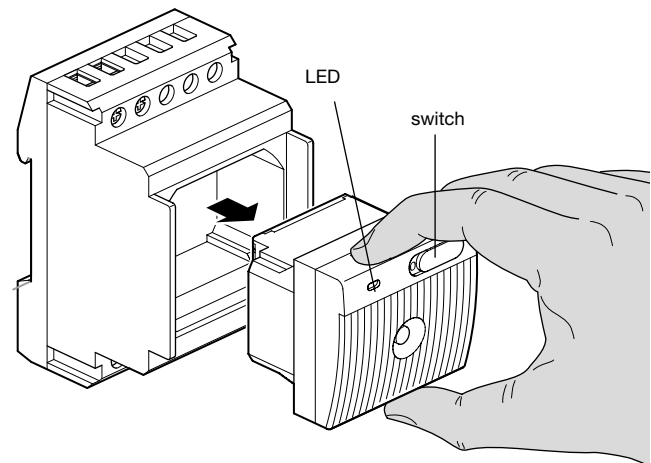
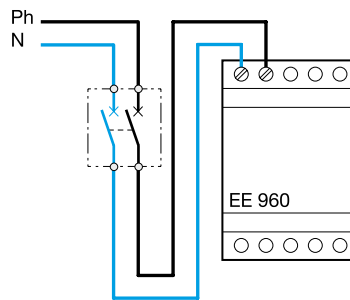
With emergency light EE960, you will always have a small pocket lamp:

- easy to find: the device is always on the board
- battery always loaded

Functional chart

voltage supply 230V	position of switch	state of LED	state of lamp
supply 230V	« 0 »	on red	off
	« 1 »	on green	off
no supply 230V or lamp removed from socket	« 0 »	off	off
	« 1 »	off	off

Electrical connection



Remote controls for emergency light blocks

Technical specifications

Electrical characteristics

- supply voltage: 230 V +10 -15% 50/60 Hz
- output impulse for control
EE905: 8.4 V DC
EE910: 12 V DC
- consumption:
EE905 = 3 VA
EE910 = 4 VA

Functional characteristics

- number of remotable blocks
EE905: 60
EE910: 120

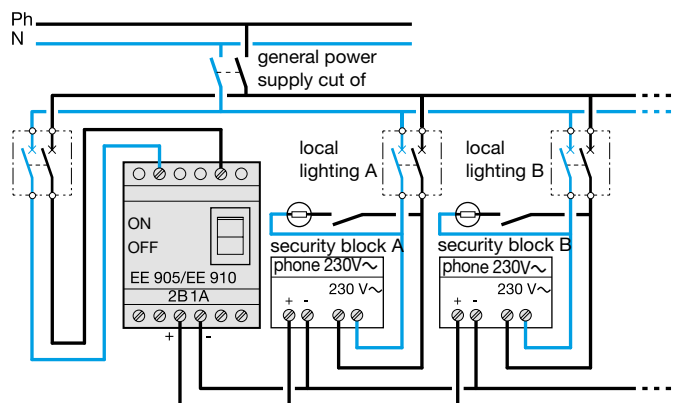
Environment

- working temperature: -10 to +40 °C
- storage temperature: -20 to +80 °C

Connection capacity:

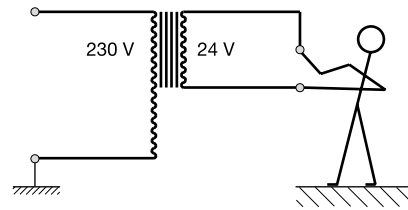
- flexible: 1 to 6 mm²
- rigid: 1.5 to 10 mm²

Electrical connection



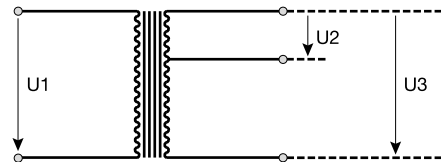
Safety transformers

These transformers are designed to ensure personal safety, their primary winding are electrically separated from their secondary windings and they are intended to feed safety extra low voltage circuits $U \leq 50V$. A thermal overload, in the primary windings, ensures that if a short circuit or an overload occurs in the output it will not damage the device.



Bell transformers

Bell transformers are similar to safety transformers but the secondary voltages do not exceed 24 volts, they are also similarly protected against short circuits and overloads, by thermal protection in the primary winding.



Compliance with the standards

The bell and safety transformers comply with EN 60742 (BS 3535).

Technical specification

reference	ST301	ST303	ST305	ST312	ST313	ST314	ST315
nominal power	4 VA	8 VA	16 VA	25 VA	16 VA	40 VA	63 VA
designation	bell	bell	bell	safety	safety	safety	safety
primary voltage	230 V	230 V	230 V	230 V	230 V	230 V	230 V
secondary voltage U2	12 V In = 0.33A	8 V In = 1A	8 V In = 2A	12 V In = 2.08A	12 V In = 1.33A	12 V In = 3.33A	12 V In = 5,25 A
U3	12 V In = 0.5A	12 V In = 0,67 A	12 V In = 1,33 A	24 V In = 1,04 A	24 V In = 0,67 A	24 V In = 1,67 A	24 V In = 2,63 A
no load secondary voltage U2	12 V	15 V	12.4 V	14 V	15.5 V	13.7 V	13.6 V
U3	18 V	21.8 V	18.5 V	29 V	29.7 V	26.5 V	27 V
galvanic insulation	4 kV	4 kV	4 kV	4 kV	4 kV	4 kV	4 kV
max functional temperature	35 °C	35 °C	35 °C	35 °C	35 °C	35 °C	35 °C
overload and S/C protection	thermal cut out in the primary winding						

Number of products that can be operated simultaneously by a transformer

Transformer	reference	ST301		ST303		ST305		ST312		ST313		ST314		ST315	
		8V	12V	8V	12V	8V	12V	12V	24V	12V	24V	12V	24V	12V	24V
power		4	4	8	8	16	16	25	25	16	16	40	40	63	63
bell	SU212 8/12V	1	1	3	2	5	3	-	-	-	-	-	-	-	-
buzzer	SU214 8/12V	1	1	3	2	5	3	-	-	-	-	-	-	-	-
relays	ER124 12V	-	-	-	-	-	-	4	-	2	-	7	-	8	-
	ER139 12V	-	-	-	-	-	-	2	-	1	-	3	-	4	-
	ER123 24V	-	-	-	-	-	-	-	2	-	2	-	7	-	8
	ER138 24V	-	-	-	-	-	-	-	2	-	1	-	3	-	4
contactors	ES224 24V	-	-	-	-	-	-	-	5	-	3	-	11	-	12
	ES424 24V	-	-	-	-	-	-	-	3	-	2	-	7	-	8
latching relays	EPN519 12V	-	-	-	1	-	2	3	-	2	-	4	-	4	-
	EPN513 24V	-	-	-	-	-	-	-	2	-	2	-	3	-	3
	EPN518 24V	-	-	-	-	-	-	-	4	-	3	-	7	-	8
	EPN525 24V	-	-	-	-	-	-	-	4	-	3	-	4	-	6
	EPN528 24V	-	-	-	-	-	-	-	2	-	1	-	3	-	4
	EPN541 24V	-	-	-	-	-	-	-	2	-	1	-	3	-	4

Energy counting and measurement

In the current context of research of energy saving, counting and measurement of consumption become unavoidable. We offer new residential and tertiary solutions, to better control energy consumption.



Energymeters	6.4
Modular analogue voltmeters and ammeters	6.6
Modular digital voltmeters and ammeters	6.7
Multi-function meters	6.8
Pulse concentrator	6.10
Current transformers	6.11
Selector switches	6.12
Control relays	6.13
Technical guide	6.15

Impulse concentrator

Energymeters

single phase

three phase

direct 32A

direct 63A

direct 63A

direct 100A

connection via CT
5/6000A

EC051

**EC150
EC152**

**EC350
EC352**

**EC360
EC362
EC365B**

**EC370
EC372**



Digital inputs
(7 max)

EC700
(with local display)

EC366



EC376



Other communication protocols

M-BUS communication protocol



EC368

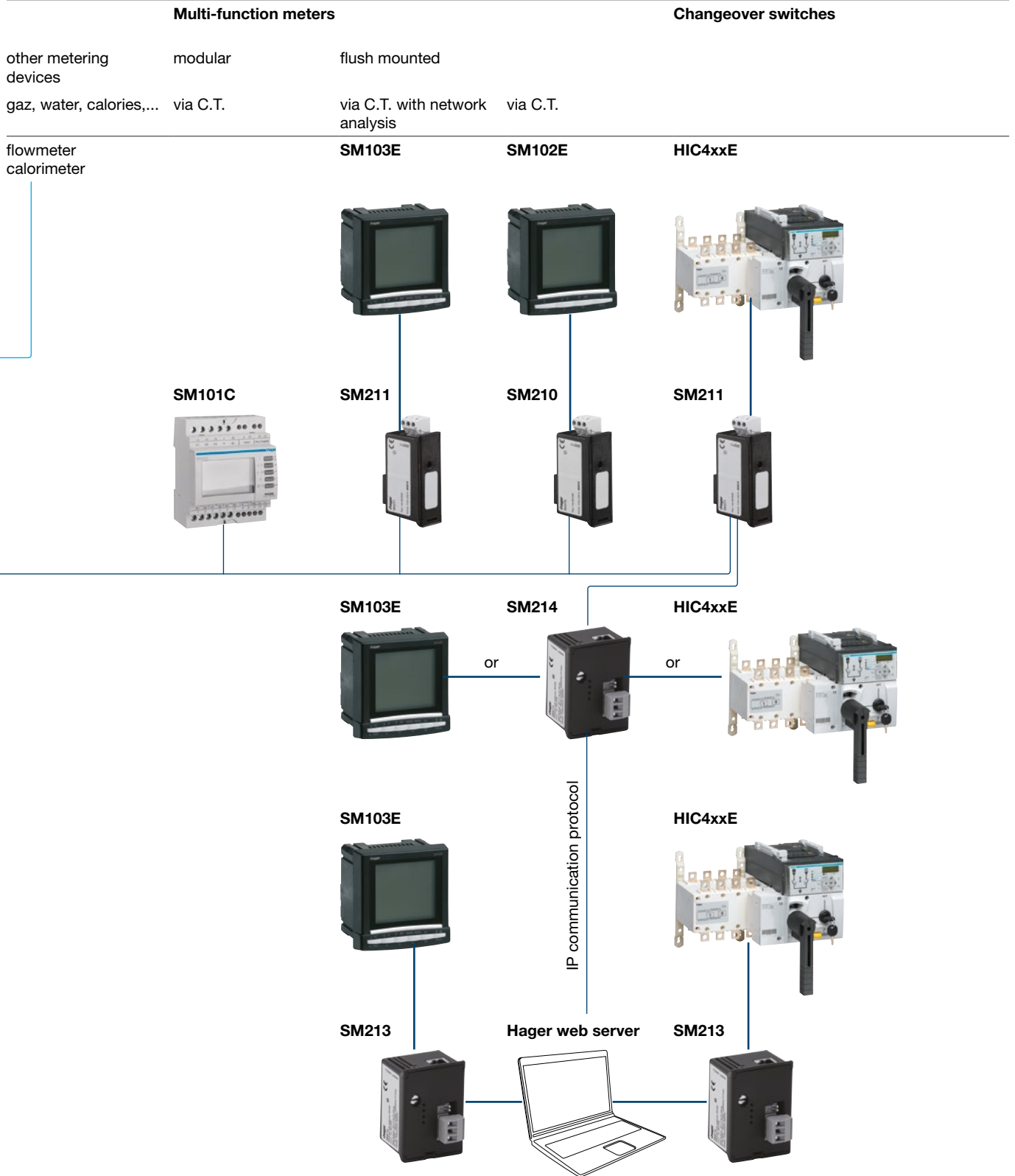
EC378

KNX TP Communication protocol



TE360

TE370



Energymeters are aimed to measure the active energy consumed by an installation. They can control the real cost of an installation and permit to divide the consumption between the different appliances.

- LED flashing according to consumption
- option: tariff 1 / tariff 2.
- three phase energymeters are adapted to all kind of networks
- display indication in case of bad wiring.

Technical data

- class 1
- accuracy 1%
- energy readout: 7 digits
- backlighted display
- indication of instantaneous power consumption
- total / partial counter
- pulsed output
- unlimited saving of measures

Connection capacity

- flexible 6 mm²
- rigid 4 mm²

Complies with EN 60053-21



EC050

Single phase - direct 32A

- voltage: 230V AC 50 / 60Hz

Description	Width in module 17.5 mm	Cat. ref.
single tariff, without pulsed output	1	EC050
single tariff, with pulsed output	1	EC051



EC150

Single phase - direct 63A

- voltage: 230V AC 50 / 60Hz
- starting current: 40mA
- base current: 10A
- max current: 63A

Description	Width in module 17.5 mm	Cat. ref.
with pulsed output and total / partial	3	EC150
with pulsed output, total / partial counter and 2 tariffs	3	EC152



EC350

Three phase - direct 63A

- voltage: 230/400V AC 50 / 60Hz
- starting current: 40mA
- base current: 10A
- max current: 63A

Description	Width in module 17.5 mm	Cat. ref.
with pulsed output and total / partial	4	EC350
with pulsed output, total / partial counter and 2 tariffs	4	EC352



EC360

Three phase - direct 100A

- voltage: 230/400V AC 50 / 60Hz
- starting current: 80mA
- base current: 20A
- max current: 100A

Description	Width in module 17.5 mm	Cat. ref.
with pulsed output and total / partial	7	EC360
with pulsed output, total / partial counter and 2 tariffs	7	EC362

Three phase - connection via current transformers 6000/5A

- to be connected with CT with 5A on the secondary
- voltage: 230/400V AC 50 / 60Hz
- starting current: 10mA
- max current on CT secondary: 6A

Description	Width in module 17.5 mm	Cat. ref.
with pulsed output and total / partial	4	EC370
with pulsed output, total / partial counter and 2 tariffs	4	EC372



EC370

Hour counters

- 230V 50Hz

Description	Width in module 17.5 mm	Cat. ref.
hour counters	2	EC100



EC100



SM500

Analogue voltmeter

- for commercial and industrial installations.
- single phase: direct connection
- three phase: use of a voltmeter selector switch SK602 - see page 6.12
- frequency: 50/60Hz
- accuracy: 1,5% (full scale)

- consumption : 3VA
- connection capacity:
rigid conductor 10 mm²
flexible conductor 6 mm²
- comply with IEC 60 054-1

Description	Width in module 17.5 mm	Cat. ref.
analogue voltmeter, 0 - 500V	4	SM500



SM030

Analogue ammeters

- For commercial and industrial installations.
- direct reading: up to 30A
- indirect reading via current transformers:
see page 6.11 from 50 to 600A
- connection capacity:
rigid conductor 10 mm²
flexible conductor 6 mm²

- comply with IEC 60 054-1

Description	Width in module 17.5 mm	Cat. ref.
0 - 5A	4	SM005
0 - 15A	4	SM015
0 - 30A	4	SM030



SM150

Ammeters current transformers (CT) operated

- accuracy: 1,5% (full scale)

Description	Scale	Width in module 17.5 mm	Cat. ref.
reading via CT SRA00505	0 - 50A	4	SM050
reading via CT SRA01005	0 - 100A	4	SM100
reading via CT SRA01505	0 - 150A	4	SM150
reading via CT SRA02505	0 - 250A	4	SM250
reading via CT SRC04005	0 - 400A	4	SM400
reading via CT SRC06005	0 - 600A	4	SM600

Digital voltmeter

- for domestic and commercial installations
- three phase: use of a voltmeter selector switch SK602
- connection capacity:
 - rigid conductor 10 mm²
 - flexible conductor 6 mm²

- complies with IEC 60 054-1
- voltage rating: 220/230V - 50/60Hz
- accuracy: ±1%
- consumption: 4.5VA
- scale: 0 -500V



Description	Width in module 17.5 mm	Cat. ref.
digital voltmeter	4	SM501

SM501

Digital ammeters

- SM020 : direct reading
- from SM151 to SM601: reading via a current transformer (see page 6.11)
- connection capacity:
 - rigid conductor 10 mm²
 - flexible conductor 6 mm²

- comply with IEC 60 054-1



Description	Scale	Width in module 17.5 mm	Cat. ref.
direct	0 - 20A	4	SM020
reading via CT 150/5A SRA01505	0 - 150A	4	SM151
reading via CT 400/5A SRC04005	0 - 400A	4	SM401
reading via CT 600/5A SRC06005	0 - 600A	4	SM601

SM020

Multi-function meters

- SM101E and SM101C are multifunction meters for electrical values for the low voltage network in modular format
- they allow visualization of all electrical parameters and to operate the functions of measuring, metering, energy and communication
- voltage rating: 200 to 277 V AC +/- 15 %
- frequency: 50/60Hz
- consumption: < 5VA
- network: 1L, 2L, 3L, 3L + N

- IP degree: IP20 case degree protection and IP51 with front cover
- communication mode: Jbus /Modbus
- connection capacity:
 - rigid/flexible conductor 4 mm² (power)
 - rigid/flexible conductor 4 mm² (communication)
- complies with: IEC61557-12, IEC62053-22 (class 0.5S), IEC62053-23 (class 2)



SM101E

Description	Width in module 17.5 mm	Cat. ref.
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multi-function meters

measured values: Inst&Max values: I, U, V, F, P, PF, h	4	SM101E
measured values: Inst&Max values: I, U, THD, F, P, PF, E, h pulses output RS485 Jbus/Modbus communication	4	SM101C

Flush mounting kit 4 modules width

for SM101C, SM101E, ECxxx modules energy meters, EC700 pulse concentrator	1	SM002
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SM002

Multi-function meter measure the extent of electrical values for all LV or LV/HV networks. It allows starting from the front panel to configure and display all the electric parameters and to exploit the functions of measurement, metering and energy management, harmonics analysis, remote control and control the state of devices, communication and detection of high voltages, peaks and voltage disconnections. This device is a multi-function meter for measuring electrical values for single, two and three phase low and high voltage networks.

Common equipments:

- backlit LCD screen
- direct access key for currents (instantaneous and max. values), current THD and set up wiring correction
- direct access key for voltages, frequency and voltage THD,
- direct access key for active, reactive and apparent power (instantaneous and max. values) and power factor
- direct access key for energies and hour meters



SM102E

Low voltage multi-function meter

- measurement in real effective values (TRMS) of:
 - current per phase and neutral in instant and maximum value,
 - phase-to-neutral and phase-to phase voltages,
 - In instant,
 - frequency, In instant,
 - active positive power total in instant and maximum value,
 - reactive positive power total in instant and maximum value,
 - apparent positive power total in instant and maximum value,
 - power factor (PF) total with inductive or capacitive indication
- harmonic distortion rate (THD) up to 51 on phase-to-neutral and phase-to-phase voltages and currents (THD 3U, THD 3V, THD 3I) energy meters
- positive active energy meter
- positive reactive energy meter - programmable hour run meter
- connection capacity:
 - voltage: rigid or flexible conductors 2,5 mm²
 - current: rigid or flexible conductors 6 mm²
- comply with IEC 61 557-12, IEC, 62 053-22 class 0.5 S and IEC 62 053-23 class II

Description

Cat. ref.

low voltage multi-function meter

SM102E



SM103E

Low and high voltage multi-function meter and network analyser

- same measures as for SM102E with average values,
- active and reactive power on 4 quadrants (\pm),
- harmonic distortion rate (THD) up to 51 on phase-to-neutral and phase-to-phase voltages and currents (THD 3U, THD 3V, THD 3I, THD In)
- metering:
 - active and reactive power meter on 4 quadrants,
 - apparent power meter,
 - programmable hour run meter.
- connection capacity:
 - voltage: rigid or flexible conductors 2,5 mm²
 - current: rigid or flexible conductors 6 mm²
- comply with IEC 61 557-12, IEC, 62 053-22 class 0.5 S and IEC 62 053-23 class II

Description

Cat. ref.

low and high voltage multi-function meter and network analyser

SM103E



SM200

Low and high voltage multi-function meter and network analyser

- 2 pulse outputs cable for configuration (kWh, kvarh, kVah)

Description

Cat. ref.

for meter SM102E with 1 adjustable output

SM200

for meter SM103E with 2 adjustable outputs

SM201

Input / output plug-in module

- 2 inputs, 2 outputs cable for configuration on various measurement

Description	Cat. ref.
for meter SM103E (3 modules max. can be connected)	SM202

Analogue outputs plug-in module

- 2 outputs cable for configuration on various measurement

Description	Cat. ref.
for meter SM103E (3 modules max. can be connected)	SM203



SM203

Temperature inputs plug-in module

- temperature indication:
 - internal
 - external sensor PT 100 (T°C 1)
 - external sensor PT 100 (T°C 2)
 - external sensor PT 100 (T°C 3)

Description	Cat. ref.
for meter SM103E	SM205



SM205

Memory plug-in module

- storing up to a maximum of 62 days of P+, P-, Q+, Q-
- storing of 10 hour-dated last alarms
- storing of the last minimum and maximum instantaneous values for 3U, 3V, 3I, In, F, ΣP±, Q±, S, THD 3U, THD 3V, THD, 3U, THD, 3V, THD, 3I, THD In
- storing of 3U, 3V and F average values based on synchronisation function (maximum 60 days)

Description	Cat. ref.
for meter SM103E	SM204



SM204

Communication modules

Description	Cat. ref.
RS485 JBUS/MODBUS	
for meter SM102E	SM210
for meter SM103E	SM211
Ethernet JBUS/MODBUS	
for meter SM103E	SM213
Ethernet + RS485 JBUS/MODBUS	
for meter SM103E	SM214



SM213

The EC700 is a pulse concentrator equipped with 7 digital inputs (logical signal or pulse) and a RS485 JBUS/MODBUS protocol binding. It centralizes and memorizes the impulses or logic signals output of electricity, gas, oil, water, compressed air counters or multi-function meters.

Connection solid/stranded:
6/4mm² (inputs)
2.5/2.5mm² (communication)

Improved customisation

- Selection of the measuring unit: kWh, m³, liters.
- Selection of the currency unit: €, k€, £, \$.

Values can be displayed in the unit of your choice and energy costs can be directly calculated.



EC700

Pulse concentrator

- IP20 for the case and IP51 for the front
- multi-utility meter
- total, partial and programmable metering day, week, month, year)
- RS485 Jbus/Modbus communication
- 7 pulse inputs
- 1 digital output
- backlight LCD display
- power supply U=110...400 VAC ± 10 %

Description	Width in module 17.5 mm	Cat. ref.
pulse concentrator	4	EC700

Current transformers are used to feed analog and digital ammeters and energy meters. The current on the secondary circuit (0 - 5A) is proportional to the current on primary circuit. The range of current transformers is composed of direct reading type, up to 30A, and indirect reading type, via current transformers, from 50 to 4000A. The range is adapted to any type of mounting: edgewise or flat mounting, DIN-rail or backplate mounting

- primary current: In from 50 to 4000A
- continuous thermal current: $1.2 \times I_n$ (according to IEC/EN 61869-2)
- operating temperature: -40 to +40°C

- Connection capacity: 1.5 to 6 mm²
- rigid conductor 4mm²
 - flexible conductor 4mm²

Technical data

- secondary current: 5A
- frequency: 50/60Hz
- isolating voltage: 0.72kV at 3kV/50Hz/1s)

Complies with IEC/EN 61869-2

Current transformers (C.T.)

C.T ratio	Geometry	Width in module 17.5 mm	Cat. ref.
50 / 5 A	BG213	4	SRA00505
75 / 5 A	BG113	3	SRA00755
100 / 5 A	BG213	4	SRA010051
125 / 5 A	BG113		SRA01255
150 / 5A	BG113	3	SRA01505
200 / 5A	BG113	3	SRA02005
250 / 5 A	BG113	3	SRA02505
300 / 5 A	BG413	4	SRI03005
400 / 5 A	BG413	3	SRI04005
600 / 5 A	BG413	3	SRI06005
800 / 5 A	BG613	5	SRD08005
1000 / 5A	BG613	5	SRD10005
1000 / 5 A	BG814	6	SRE100051
1250 / 5 A	BG814	6	SRE12505
1250 / 5 A	BG1034	8	SRF12505
1500 / 5 A	BG613	5	SRD15005
1600 / 5 A	BG814	6	SRE16005
1600 / 5 A	BG1034	8	SRF16005
2000 / 5 A	BG814	6	SRE20005
2000 / 5 A	BG1034	8	SRF20005
2500 / 5 A	BG1034	8	SRF25005
3000 / 5 A	BG1254	10	SRG30005
3000 / 5 A	BG1274	10	SRH30005
4000 / 5 A	BG1254	10	SRG40005
4000 / 5 A	BG1274	10	SRH40005



SRA01005



SRD10005

Accessory

- to mount BG113, BG213 and BG413 geometry CT on DIN rails

Description

DIN rail mounting accessory

Cat. ref.

SRZH01



SRZH01

To provide command signals or program selection in electrical control schemes.
For domestic and commercial installations.

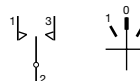
Isolating voltage: 400V AC
Nominal current: 10-20A
Comply with IEC 947-3 and IEC 60 947-3

Connection capacity
- rigid conductor: 1.5 to 10 mm²
- flexible conductor: 1 to 6 mm²



1 pole selector switch

- 20A 400V AC
- non spring return

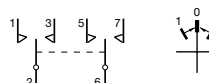


Description	Width in module 17.5 mm	Cat. ref.
1 pole selector switch	3	SK600

SK600

2 pole selector switch

- 20A 400V AC
- non spring return

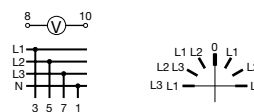


Description	Width in module 17.5 mm	Cat. ref.
2 pole selector switch	3	SK601



Voltmeter selector

- 20A 400V AC
- 3Ph&N
- 3 readings between phases
- 3 readings between phase & neutral
- null position (no reading)



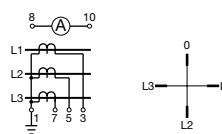
Description	Width in module 17.5 mm	Cat. ref.
voltmeter selector	3	SK602

SK602



Ammeter selector

- 20A 400V AC
- 4 positions
- use in 3Ph&N
- reading by phase
- 0 position (no reading)
- should be used with current transformer (CT)



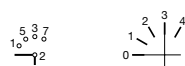
Description	Width in module 17.5 mm	Cat. ref.
ammeter selector	3	SK603

SK603

4 ways selector switch with "0"

- 20A 400V AC

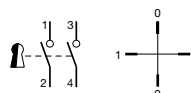
Description	Width in module 17.5 mm	Cat. ref.
4 ways selector switch with "0"	3	SK604



3 ways keys selector switch with "0"

- 10A 400V AC

Description	Width in module 17.5 mm	Cat. ref.
3 ways keys selector switch with "0"	3	SK606



SK606

The function of a control relay in an electrical installation is overseeing electrical characteristics, like U (voltage) and I (current), of a specific circuit or equipment.

The installation of a control relay allows to inform and/or disconnect the equipment if fluctuations in network may damage. Control relays are intended to be installed in the installation where the monitoring and visualization of an electrical value is required.

EU100/101/301

Voltage control relays dedicated to protect air conditioning equipments:

- EU100, EU101 single phase
- EU301 three phase.

They monitor the compressor power supply and disconnect the compressor when the voltage is faulty.

EU102/302

Voltage control relay used to survey DC or AC voltage:

- EU102 single phase product to monitor DC or AC
- EU302 three phase control relay used to check AC voltage.

They survey a voltage and close contact as soon as the measurement is not ok.

EU103

Current control relay used to survey DC or AC current:

- EU103 single phase product to monitor DC or AC current direct via current transformer.

It surveys a current and closes a contact as soon as the measurement is not ok.

Phase control relay EU300 to verify phase parameters (asymmetry, loss of phase, undervoltage)

The two digital control relays EU102 and EU103 are equipped with an LCD indicator. During normal operation, the LCD displays the measured voltage (EU102) or current (EU103).

The LCD and the local push buttons are also used to enter the parameter settings (type of signal, monitored levels,...) In case of an error, the relay will close a contact (changeover contact 8A)

Single phase compressor control relay

- power supply 230V AC 50/60 Hz
- under/over voltage control
- Umin: 0.75 Un - Umax: 1.2 Un
- restart duration (5 or 10 minutes) selected via bridge
- output: changeover contact 8A AC1 250V AC



Description	Width in module	Cat. ref.
single phase compressor control relay	17.5 mm	EU100
	2	EU100

Single phase compressor control relay

- power supply 230V AC 50/60 Hz
- under/over voltage control
- Umin/Umax: +/-5% to +/-20% Un set via potentiometer
- restart duration (5 or 10 minutes) selected via switch
- output: changeover contact 8A AC1 250V AC



Description	Width in module	Cat. ref.
single phase compressor control relay	17.5 mm	EU101
	2	EU101

Three phase compressor control relay

- power supply 400V AC 50/60 Hz
- under/over voltage control
- Umin/Umax: +/-5% to +/-20% Un set via potentiometer
- restart duration (5 or 10 minutes) selected via switch
- output: changeover contact 8A AC1 250V AC



Description	Width in module	Cat. ref.
three phase compressor control relay	17.5 mm	EU301
	2	EU301



EU300

Phase control relay

- power supply: 400V AC 50/60 Hz
- under / over voltage control
- loss of phase, phase order control
- asymmetry control: +/-5% to +/-20% set via potentiometer
- output: changeover contact 8A AC1 250V AC

Description	Width in module 17.5 mm	Cat. ref.
phase control relay	2	EU300



EU102

Voltage control relay with LCD

- power supply 230V AC 50/60 Hz
- voltage monitored DC 15 to 700V or AC 15 to 480V AC
- under / over voltage or both control bands
- parameter setting via push button and LCD indicator
- output: changeover contact 8A AC1 250V AC

Description	Width in module 17.5 mm	Cat. ref.
voltage control relay with LCD	2	EU102



EU302

Three phase voltage control relay

- power supply U_n 400V AC 50/60 Hz
- under/over voltage control
- U_{min}/U_{max} : +/-5% to +/-20% U_n set via potentiometer
- output: changeover contact 8A AC1 250V AC

Description	Width in module 17.5 mm	Cat. ref.
three phase voltage control relay	2	EU302



EU103

Current control relay single phase with LCD

- power supply U_n 230V AC 50/60 Hz
- current control DC or AC, direct 0.1A to 10A or via current transformer
- under / over current or both control bands
- parameter setting via push button and LCD indicator
- output: changeover contact 8A AC1 250V AC

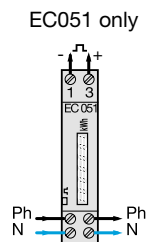
Description	Width in module 17.5 mm	Cat. ref.
current control relay single phase with LCD	2	EU103

Technical data

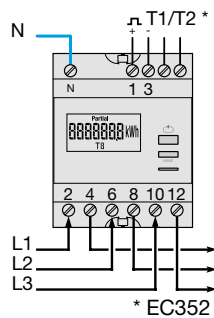
	EC050	EC051	EC150	EC152	EC350	EC352	EC360	EC362	EC370	EC372
Electrical characteristics										
voltage	230V AC +/- 15%				230V AC +/- 15%, 400V AC +/- 15%					
frequency	50 / 60Hz									
consumption	<8 VA		<0.2W and 1.3VA		EC350/352: <0.6W and 2.8VA EC360/362: <0.6W and 2.5 VA per phase EC370/372: <0.6W and 2.8 VA per phase					
Metrological data										
connection	direct								via current transformer	
display	5 + 1 digits		6 + 1 digits		7 + 1 digits					
accuracy	1%, class 1 EN62053-21				1%, class 1 EN62053-21					
I max	32 A direct		63 A direct		100 A direct		6A on sec. of CT			
I starting	20 mA		40 mA		80 mA		10mA on sec. of CT			
base current	10 A		10 A		20 A		5 A			
Metrological LED										
LED	1 Wh/pulse				2 Wh/pulse		0.1 Wh x CT ratio			
Pulsed output										
Pulsed output	no		1 pulse = 100Wh / 100ms / 20 - 30V DC max (except on KNX meters)							
Tariff										
tariff	1	1	1	2	1	2	1	2	1	2
Mechanical characteristics										
width	1 module		3 modules		4 modules		7 modules		4 modules	
protection degree	IP20		IP20, IP51 (front part)							
storage temperature	-20 to +70°C		-25 to +70°C							
operating temperature	-10 to +55°C		-10 to +55°C							
connection capacity	rigid: 1.5 to 10 mm ² flexible: 1 to 6 mm ²		rigid: 1.5 to 16 mm ² flexible: 1 to 16 mm ²				rigid: 2.5 to 35 mm ² flexible: 2.5 to 35 mm ²		rigid: 1.5 to 10 mm ² flexible: 1 to 6 mm ²	

Connection diagram

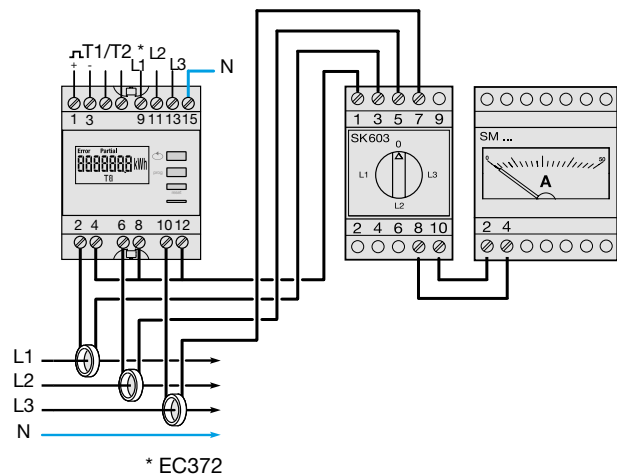
EC050, EC051



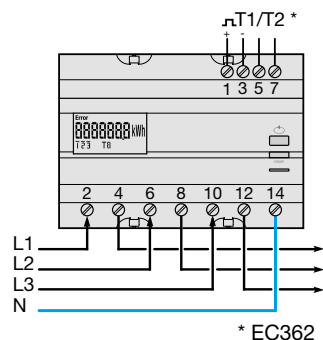
EC350, EC352



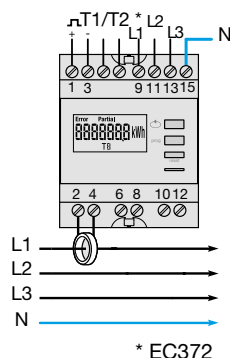
Metering for 3 phase network associated with an ammeter and its phase switch 230 / 400V AC



EC360, EC362



EC370, EC372



Analogic voltmeters and ammeters

Technical specifications

Electrical characteristics

- direct reading voltmeter: 500V for 50/60Hz
- direct reading ammeter: 5, 15, 30A
- ammeter with CT: CT/5A
- consumption:
 - voltmeter < 3VA
 - ammeter < 1.1VA
- isolating voltage: 2kV

Environment

- ref T° : 23 +/-2°C
- working T°: 25 to 50°C
- storage T°: -40°C to +80°C

Connection capacity

- flexible: 1 to 6 mm²
- rigid: 1.5 to 10 mm²

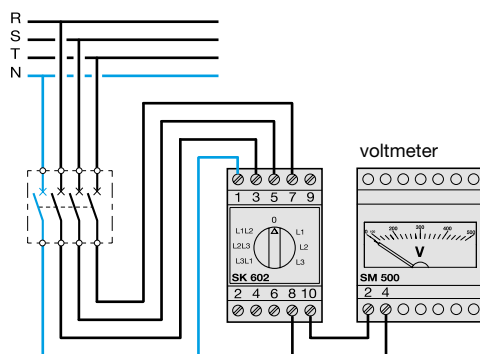
Voltmeters range

ref.	scale	reading
SM500	0-500V	direct

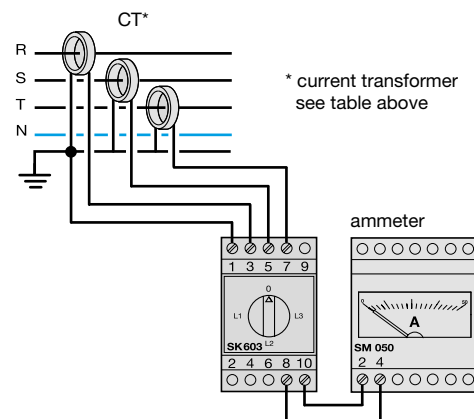
Ammeters range

ref.	scale	reading
SM005	0-5A	direct
SM015	0-15A	direct
SM030	0-30A	direct
SM050	0-50A	via CT/5A
SM100	0-100A	via CT/5A
SM150	0-150A	via CT/5A
SM250	0-250A	via CT/5A
SM400	0-400A	via CT/5A
SM600	0-600A	via CT/5A

Electrical connection



Electrical connection



Digital voltmeter and ammeter

Technical specifications

Electrical characteristics

- working voltage: 220/230V AC 50/60Hz
- consumption: < 1VA

Environment

- working T°: -10 to +55°C
- storage T°: -40°C to +70°C

Connection

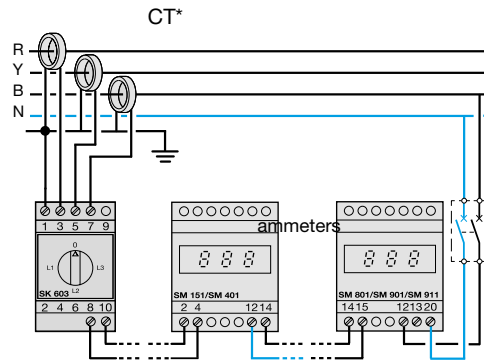
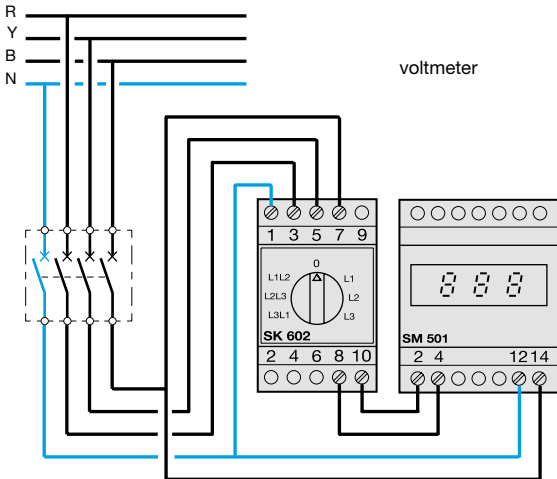
- connection capacity:
 - flexible: 6 mm²
 - rigid: 10 mm²

Overload withstand of ammeters

- 2 x I_n continuous
 - 10 x I_n for 5 seconds
- These values are to allow for starting currents.

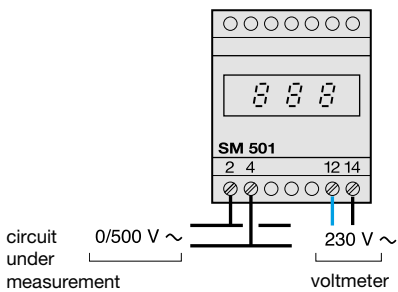
ref.	product	range	consumption	accuracy %	reference temp. °C	accuracy variation	max permanent overload	momentary overload	frequency Hz	isolating voltage
SM501	voltmeter	500 V	≤ 4.5 VA	± 1	23 ± 1°C	± 0,03% / °C	1.2 Un	2 Un/5 sec.	45 - 65	2 kV/50 Hz-1 min
SM020	direct ammeter	0 - 20 A	≤ 4.5 VA	± 1	23 ± 1°C	± 0,03% / °C	1.2 In	10 In/5 sec.	45 - 65	2 kV/50 Hz-1 min
SM151 SM401 SM601	ammeter with CT	0 - 150 A 0 - 400 A 0 - 600 A	≤ 4.5 VA	± 1	23 ± 1°C	± 0,03% / °C	2 In	10 In/5 sec.	45 - 65	2 kV/50 Hz-1 min

Electrical connection

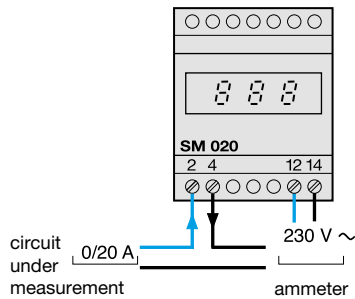


connection: SM151/401/601
* CT rating of your choice

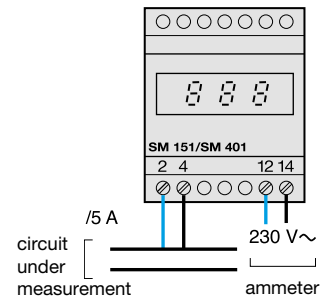
Operating principle
for SM501



for SM020

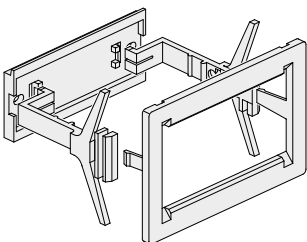


for SM151, SM401, SM601



SM002

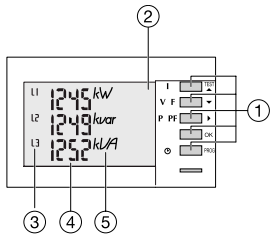
Door flush mounting kit for SM101C, SM101E, ECxxx 4 modules energy meters, EC700 pulse concentrator



	SM101E	SM101C
Voltage	200 to 277 V AC +/- 15 %	
Frequency	50/60 Hz	
Consumption	≤ 0.1 VA / phase	
Network	1L, 2L, 3L, 3L + N	
Current (TRMS)		
I (1st CT)	5 A... 9,999 A	
I (2nd CT)	5 A	
measuring current	5 mA to 9 999 A	
input consumption	0.6 VA per phase	
accuracy	0.2%	
permanent overload	6 A	
overload	60 A during 1s	120 A during 0.5s
Voltage (TRMS)		
U	50V AC...520V AC (Ph-Ph) 28V AC...300V AC (Ph-N)	
input consumption	≤ 0.1 VA	
accuracy	0.2 %	
permanent overload	760 V AC	
Frequency		
F	45Hz...65Hz	
accuracy	0.1%	
Power		
measuring range	0 to 9 999 kW / kvar / kVA	
accuracy	0.5%	
Power factor		
accuracy	0.5%	
Energy		
accuracy (Ea)	-	class 0.5 S
accuracy (Er)	-	class 2
Update period	1s	
Communication		
support	-	RS485
type	-	2/3 wires half duplex
protocol	-	JBUS/MODBUS
JBUS/MODBUS speed	-	2,400bds...38,400bds
Tariff input	-	double tariff tariff 1 = 0 V tariff 2 = 230 V
Output		
active energy (impulse)	-	20 - 30 V DC max, 27 mA max
reactive energy (impulse)	-	0,1 to 10 000 kWh, 100 to 900 ms
alarm	-	0,1 to 10 000 kWh, 100 to 900 ms
control	-	I, In, U, V, P, Q, S, THD U, THD V, THD I, hour counter, frequency, ...
Operating temperature	-10°C... +55°C	
Storage temperature	-20°C... +70°C	
Protection degree		
case	IP20	
front panel	IP51	
Connection		
current/voltage input	4 mm ² (solid or stranded)	
others	2.5 mm ² (solid or stranded)	

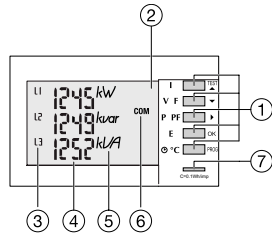
Display

SM101E



- ① Key-pad with 4 dual-function keys (display or programming)
- ② Backlit LCD display
- ③ Phase
- ④ Values
- ⑤ Unit

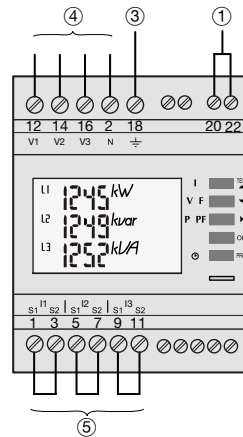
SM101C



- ① Key-pad with 4 dual-function keys (display or programming)
- ② Backlit LCD display
- ③ Phase
- ④ Values
- ⑤ Unit
- ⑥ Activity indicator on the communication bus
- ⑦ Energy metering indication

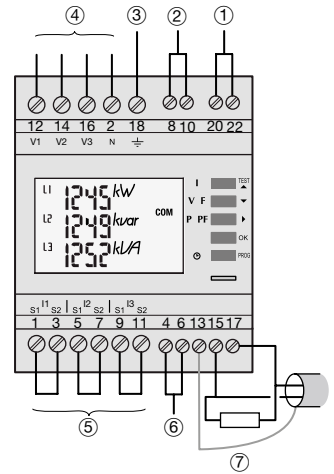
Connection

SM101E



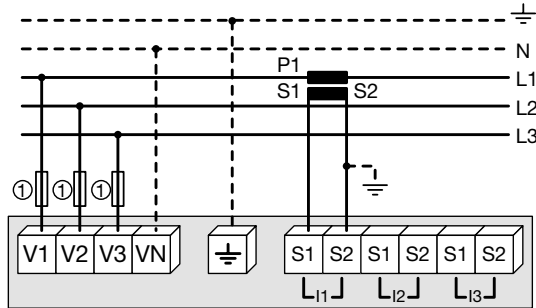
- ① Auxiliary supply
- ② Input
- ③ Earth
- ④ 3 phase network connection
- ⑤ CT connection
- ⑥ Output
- ⑦ RS 485 communication

SM101C



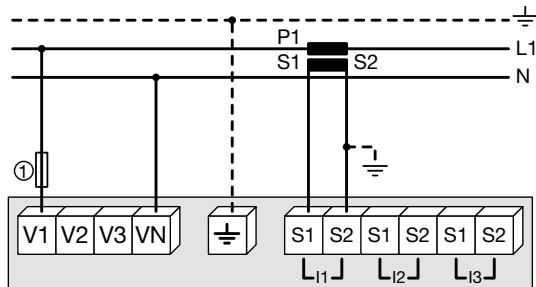
Balanced network

3BL/4BL



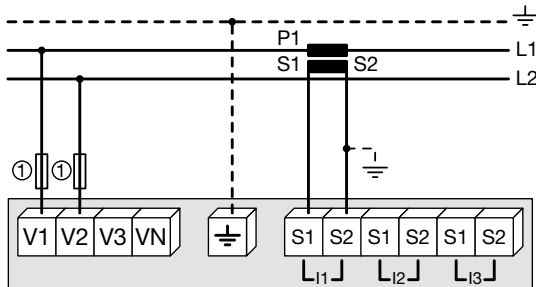
① = Fus. 0.5 A gG/ 0.5 A class CC

1BL



① = Fus. 0.5 A gG/ 0.5 A class CC

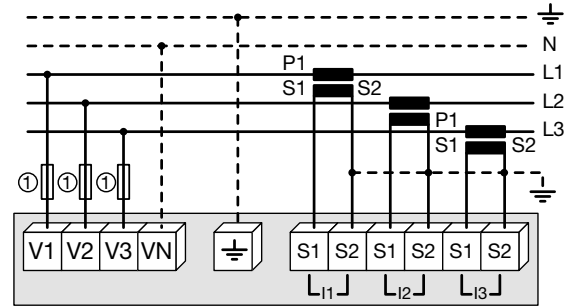
2BL



① = Fus. 0.5 A gG/ 0.5 A class CC

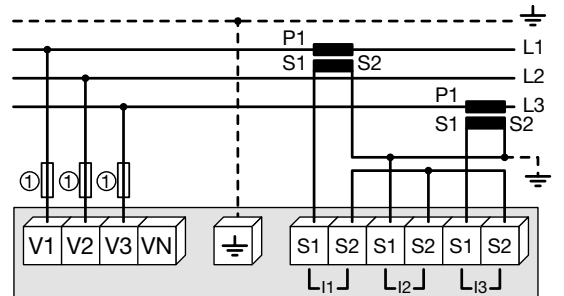
Unbalanced network

4NBL



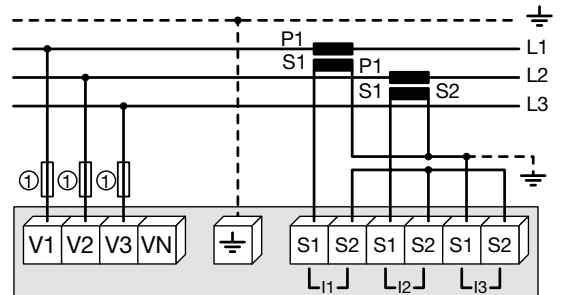
① = Fus. 0.5 A gG/ 0.5 A class CC

3NBL



① = Fus. 0.5 A gG/ 0.5 A class CC

3NBL

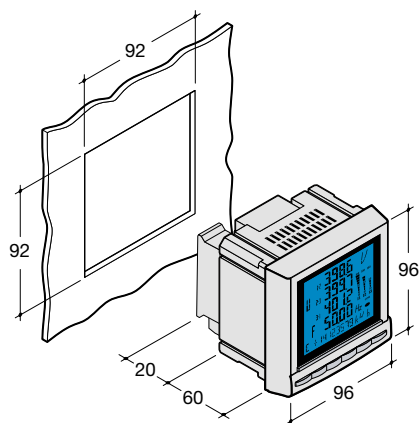


① = Fus. 0.5 A gG/ 0.5 A class CC

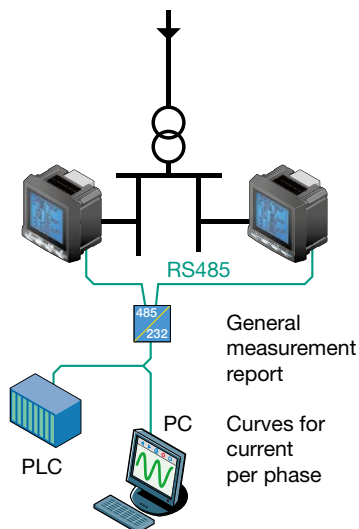
Technical characteristics

	SM102E	SM103E
Current measurement on insulated inputs (TRMS)		
CT primary	10 000 A	10 000 A
CT secondary	5 A	1 and 5 A
measurement range	0 - 11 kA	
input consumption	0.6 VA	≤ 0.1 VA
accuracy	0,2 %	
sustained overload	6 A	
intermittent overload	10 x In for 1 s	
Voltage measurement (TRMS)		
direct measurement between phases	50 - 500 V	18 - 700 V
direct measurement between phases and neutral	28 - 289 V	11 - 404 V
input consumption	≤ 0.1 VA	
accuracy	0,2 %	
power measurement accuracy	0,5 %	
power factor measurement accuracy	0,5 %	
frequency measurement range	45 - 65 Hz	
frequency measurement accuracy	0.1 %	
active energy accuracy	class 0.5 s	
reactive energy accuracy	class 2	
measurement updating period	1 s	
copper conductor connection capacity		
- voltage	flexible or rigid: 2.5 mm ²	
- current	flexible or rigid: 6 mm ²	
Auxiliary		
power supply		
- AC voltage	110 - 400 V AC ± 10 %	
- DC voltage	120 - 350 V DC ± 20 %, 12 - 48 V DC -6 to + 20 %	
frequency	50/60 Hz	
consumption	≤ 10 VA	

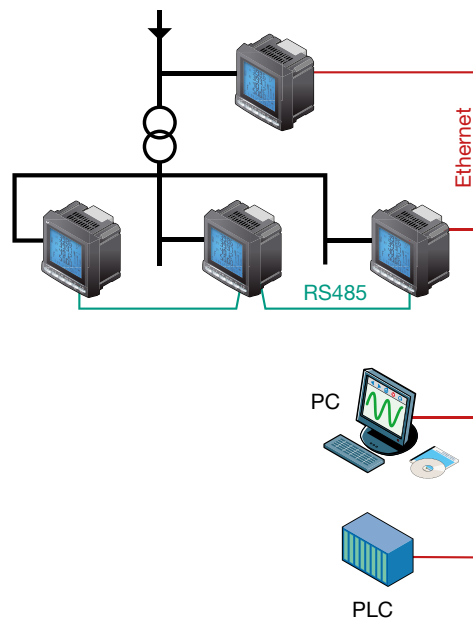
Dimensions



Application: SM102E



SM103E

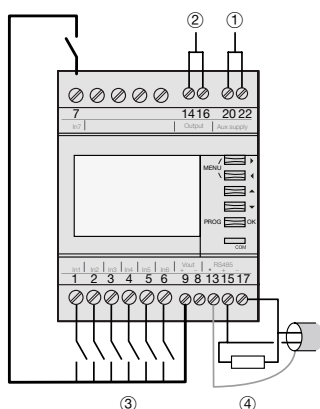


Technical characteristics

Description	Min.	Max.	Units	Comments
Auxiliary power supply				
AC voltage	100	400	V AC	+/- 10%, 45-65 Hz
DC voltage	120	300	V DC	+/-10%, 5 VA
Climate				
ambient temperature	-10	55	°C	IEC 60068-2-1/ -2-2
storage temperature	-20	70	°C	IEC 60068-2-1/ -2-2
ambient humidity		95	% RH	IEC 60068-2-30
Vibration				
vibration		2	G	IEC 60068-2-6 10 to 100 Hz
Case				
dimensions		73 x 90 x 67	mm	LxWxH
weight		215	g	
protection index of enclosure		IP51 / IP20		Front/Case
Electrical safety				
cat. Install. /degree of pollution		III / 2		IEC 61010-1 ed. 3 (300 V AC Ph/N)
Updating period				
display		1	Sec	
RS 485 communication		0.5	Sec	
Digital inputs				
direct voltage	10	30	V DC	terminal 8 reference
current	2	15	mA	according to IEC 62053-31 Class B
line length		1000	m	min. section 1.5 mm ² (#16AWG)
pulse duration	30		ms	max. 16 Hz
power consumption per input		0.4	VA	
Internal digital input polarisation power supply				
voltage	10	15	Vdc	max. 35 mA
Relay output				
set-up (contact setting)	1 contact (NC, NO)			
mechanical strength	105 cycles			
AC breaking	250 V AC/3A			
DC breaking	30 V DC/1A			
RS485 bus communication (JBUS/MODBUS protocol)				
line length		1200	m	
number of equipment		32		2 shielded wires + half duplex
modulation speed	9.6K, 19.2K, 38.4Kbds			
Connection				
connection capacity (rigid or flexible wire): 2.5 mm ² max.				
- inputs:	rigid 0.2 to 6 mm ² flexible 0.2 to 4 mm ²			
- others:	rigid 0.14 to 2.5 mm ² flexible 0.14 to 2.5 mm ²			

Counting and measurement

EC700 connection



- ① Aux.: 100 ... 400V AC
100 ... 400V AC
- ② Fus.: 0.5 A gB / BS 88 2A gB
- ③ 250V AC 3A relay
30V DC / 1A
- ④ RS485

Electrical characteristics

- primary current: from 50 to 2000A
- secondary current: 5A
- frequency : 50/60Hz
- max. permanent overload: 1.2 In
- accuracy class: 1

Connection

- flexible cable: 1 to 4 mm²
- rigid cable: 1 to 6 mm²

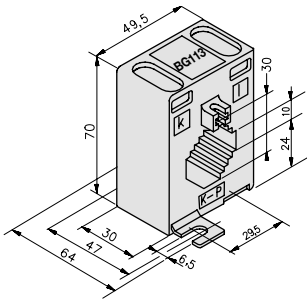
Working temperature: from -40 to +40°C

Current transformers

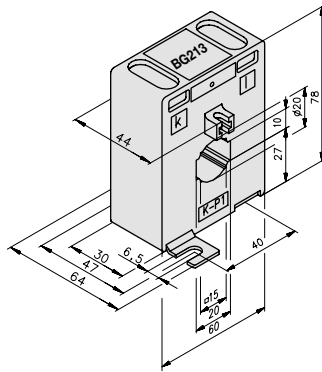
References	Primary current (A)	Geometry	Power consumption (VA)	Cable max. diameter (mm)	Busbar max. sizes (mm)
SRA00505	50	BG213	1.5	20	20 x 10, 15 x 15
SRA00755	75	BG113	1.5	29.5	30 x 10, 25 x 15, 20 x 20
SRA010051	100	BG213	2.5	20	20 x 10, 15 x 15
SRA01255	125	BG113	2.5	29.5	30 x 10, 25 x 15, 20 x 20
SRA01505	150	BG113	2.5	29.5	30 x 10, 25 x 15, 20 x 20
SRA02005	200	BG113	2.5	29.5	30 x 10, 25 x 15, 20 x 20
SRA02505	250	BG113	2.5	29.5	30 x 10, 25 x 15, 20 x 20
SRI03005	300	BG413	5	28	40 x 12
SRI04005	400	BG413	5	28	40 x 12
SRI06005	600	BG413	5	28	40 x 12
SRD08005	800	BG613	5	45	60 x 10, 50 x 30
SRD10005	1000	BG613	5	45	60 x 10, 50 x 30
SRE100051	1000	BG814	15	60	80 x 10, 60 x 30
SRE12505	1250	BG814	15	60	80 x 10, 60 x 30
SRF12505	1250	BG1034	15	85	2 x 100 x 10, 80 x 50
SRD15005	1500	BG613	5	45	60 x 10, 50 x 30
SRE16005	1600	BG814	15	60	80 x 10, 60 x 30
SRF16005	1600	BG1034	30	85	2 x 100 x 10, 80 x 50
SRE20005	2000	BG814	15	60	80 x 10, 60 x 30
SRF20005	2000	BG1034	30	85	2 x 100 x 10, 80 x 50
SRF25005	2500	BG1034	30	85	2 x 100 x 10, 80 x 30
SRG30005	3000	BG1254	15	85	3 x 120 x 10
SRH30005	3000	BG1274	15	122	4 x 120 x 10
SRG40005	4000	BG1254	15	98	3 x 120 x 10
SRH40005	4000	BG1274	15	122	4 x 120 x 10

Current transformers range

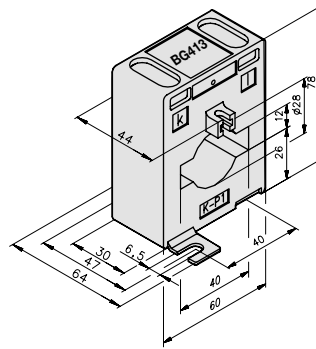
BG113



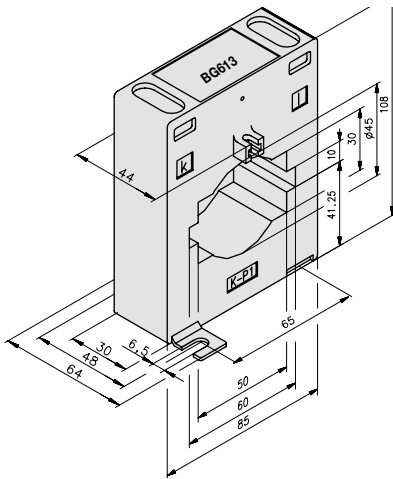
BG213



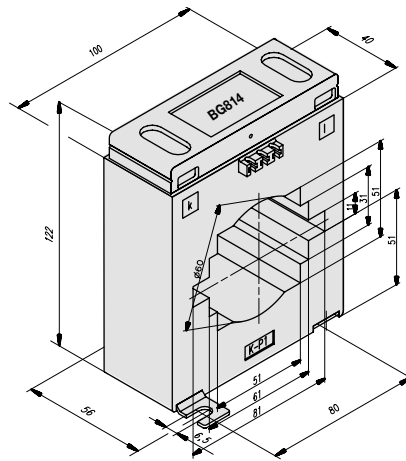
BG413



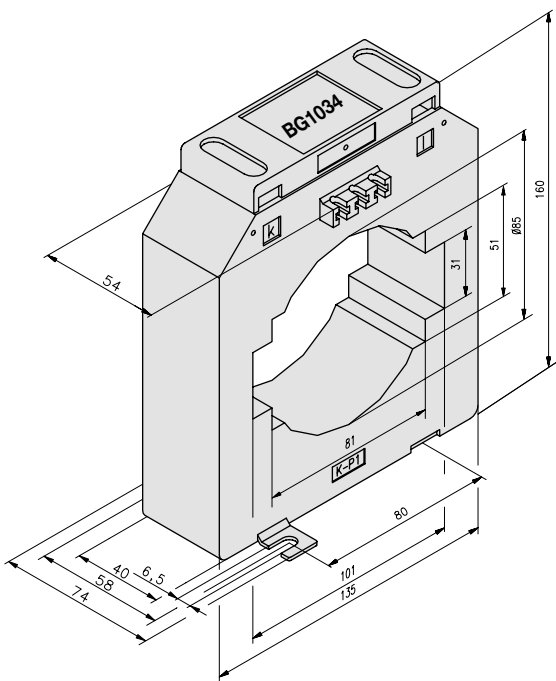
BG613



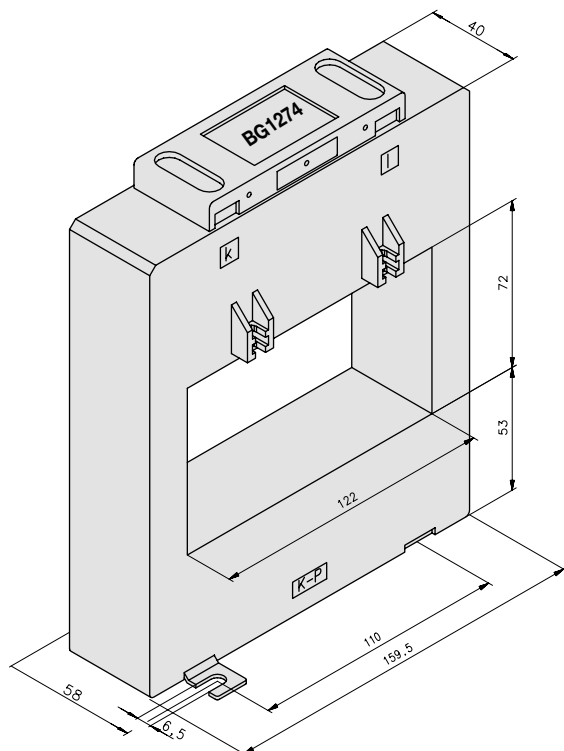
BG814



BG1034

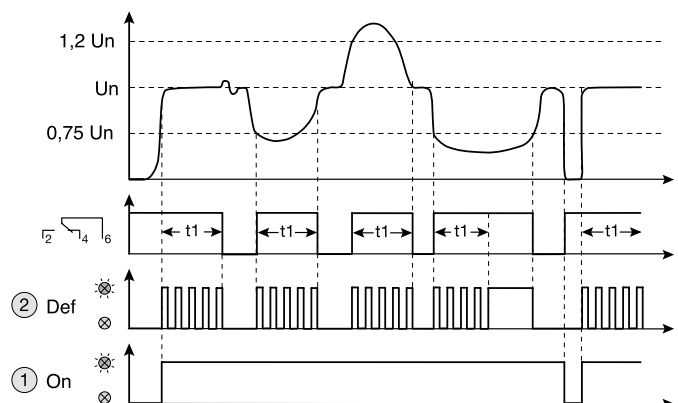
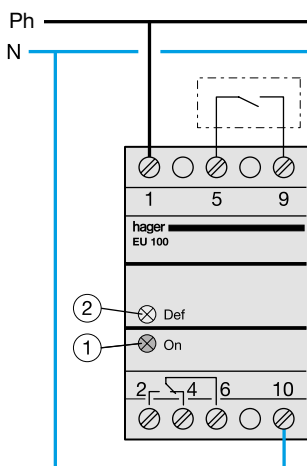


BG1274

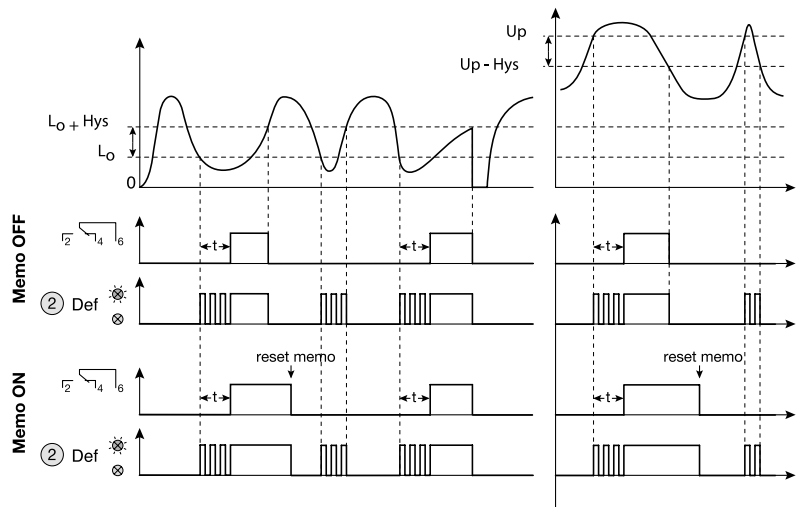
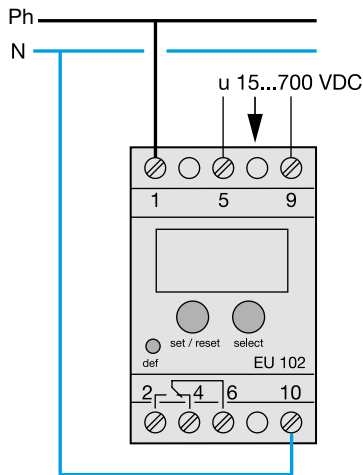


Ref.	EU100	EU101	EU301	EU302	EU300	EU102	EU103
Function	single phase compressor control relay	single phase compressor control relay	three phase compressor control relay	three phase voltage control relay	phase control relay	voltage control relay with LCD	current control relay with LCD
LCD indicator	No					measured voltage	measured current
Power supply	230 V AC +10% -15% 50/60Hz +/-2%		400 V AC +10% -15% 50/60Hz +/-2%		230 V AC +10% -15% 50/60Hz +/-2%		
Power consumption	< 5 VA						
Output contact	8A - AC1 - 250V closed: normal status opened: default status						
Disconnection time	5min / 10min			-			
Response time	200 ms			0,1..12s set via potentiometer	200 ms	200 ms	
Monitoring function	monitoring function over/under voltage				monitor. funct. under voltage loss of phase	over voltage under voltage band	under voltage band
Monitoring levels	Umin: 0.75Un Umax: 1.2Un	Umin/Umax: +/-5% to +/-20%Un set via potentiometer		Umin: +/-5 to +/-20% Un Umax: 1.15Un	asymmetry +/-5% to +/-20% Umin : 0.70Un	DC: 15V to 700V AC: 15V rms to 480V rms	DC: 0.1 to 10A AC: direct: 0.1to10A or via current trans- former: X/5
Hysteresis						5 to 50%	
Latching function	no			yes	no	yes	
Supervised voltage	the power supply						
Width	2 modules					2 modules	
LED power supply: green	lights when powered						
LED default information: red	lights in case of fault, flashing during time elapses, off during normal status						
LED asymmetry information: yellow					asymmetry fault		
IK	3						
Ingress protection	IP 20						
Working temperature	-20 to +55°C						
Storage temperature	-40 to +70°C						
Connexion	flexible rigid	0.75 to 4mm ² 1 to 6 mm ²					

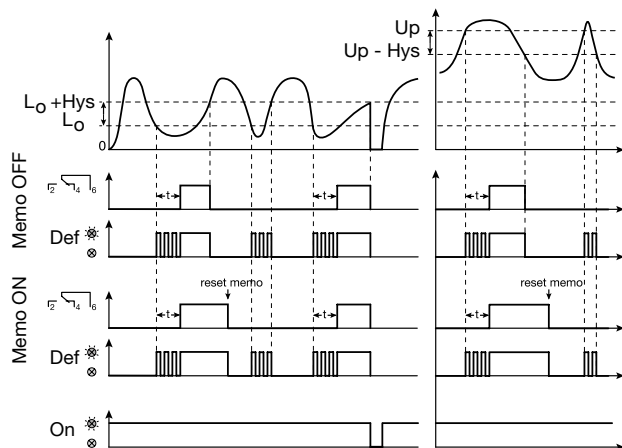
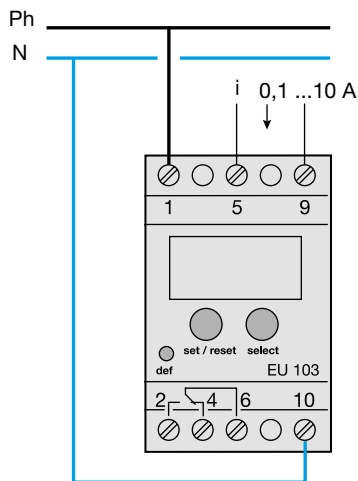
Air conditioning control relay single phase EU100



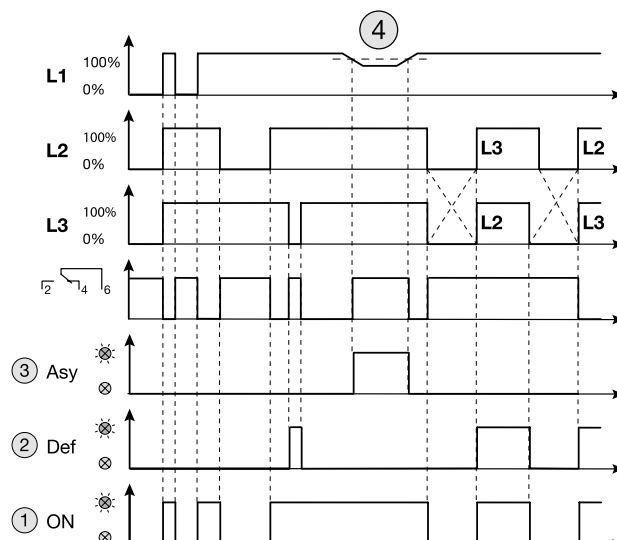
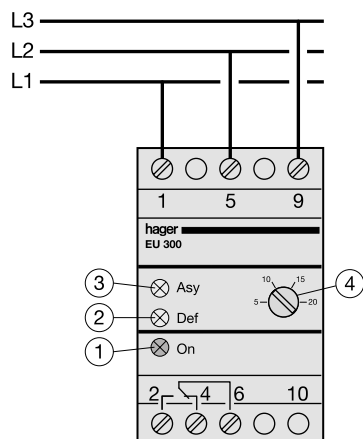
Voltage control relay single phase EU102



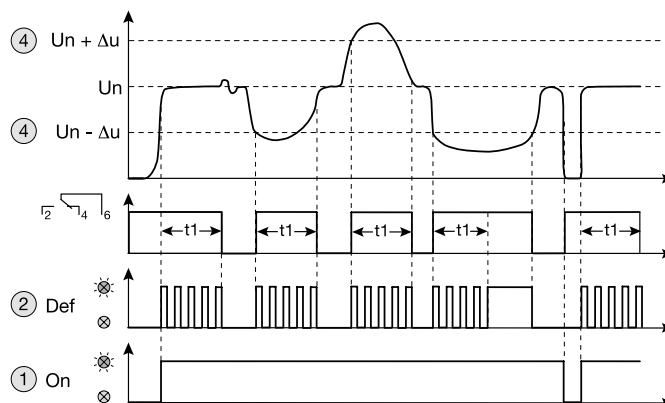
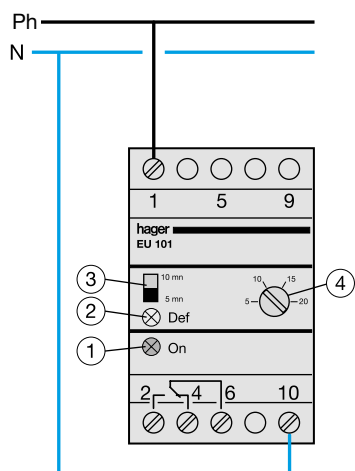
Current control relay single phase EU103



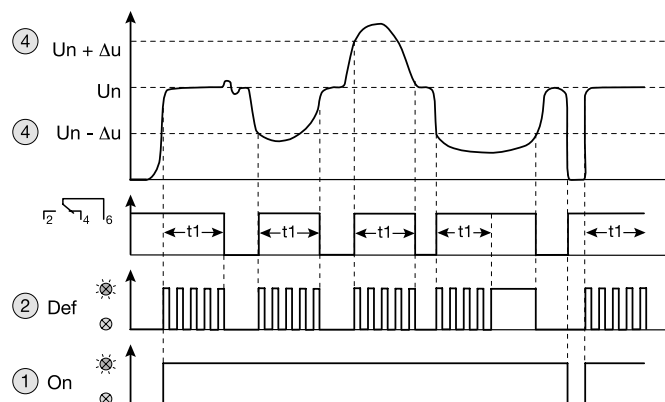
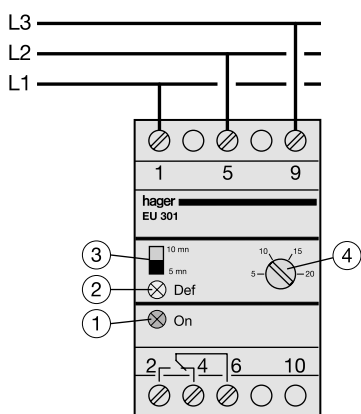
Phase control relay EU300



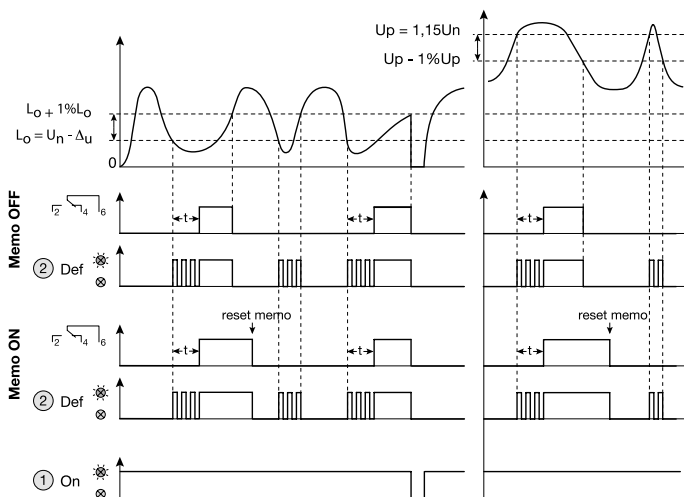
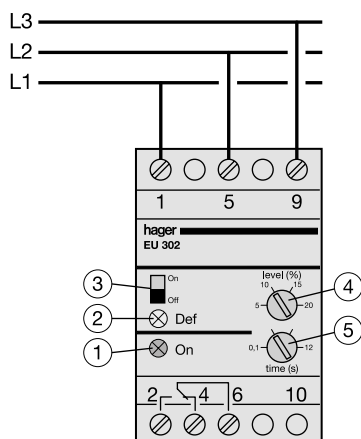
Air conditioning control relay single phase EU101



Air conditioning control relay three phase EU301

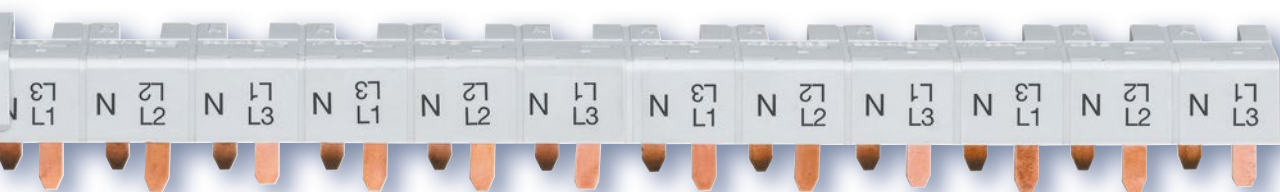


Voltage control relay three phase EU302





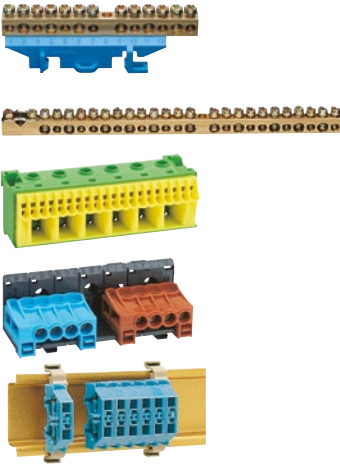















Connection

Insulated busbars, junction blocks, distribution blocks, terminals, all that is needed to quickly and efficiently mount devices in enclosures and distribution boards.



Prong supply busbars	7.4
Fork supply busbars	7.6
Distribution blocks	7.7
Multi-connection distribution blocks	7.8
Junction blocks	7.9
Junction terminals	7.10
Brass distribution terminals	7.12
Accessories for connections	7.13
quickconnect and screw terminals	7.15
Mini-junction terminals	7.16
"Souplex" junction blocks	7.17
Technical guide	7.18

Connection type	Characteristics			
Power distribution blocks (page 7.7) 		Suitable for copper conductors	Single pole distribution block	
	125 A	incoming: 1 x 35mm ² + 1 x 16mm ² outgoing: 6 x 16mm ²		- mounted on DIN rail, grid or mounting plate - suitable for vega D, quadro, orion
	160 A	incoming: 1 x 70mm ² outgoing: 6 x 16mm ²		
	250 A	incoming: 1 x 35 - 95mm ² outgoing: 2 x 6 - 25 ² , 5 x 1.5 - 16mm ² , 4 x 1.5 - 10 mm ²		
	400 A	incoming: 1 x 95 - 150mm ² outgoing: 2 x 6 - 25mm ² , 5 x 1.5 - 16mm ² , 4 x 1.5 - 10mm ²		
Stepped distribution blocks (page 7.7) 	100 A	Suitable for copper conductors incoming: 2 connections per bar outgoing: 5 connections per bar	Monoblock four poles distribution block - front face cover - mounted on DIN rail, grid or mounting plate - suitable for vega D, quadro, orion	
	125 A	incoming: 1 connections per bar outgoing: 14 connections per bar	- mounted on DIN rail four poles - 4 modules wide	
	160 A	incoming: 1 connections per bar outgoing: 11 connections per bar	- 10 modules wide - 9 modules wide	
Multiconnection distribution blocks (page 7.8) 	250 A	Suitable for copper conductors incoming: terminal per pole (3ph+N) outgoing: 25 neutral connections 12 connections per phases	3 Ph + N - for quadro4, quadro5, quadro+ - plug-in connectors for outgoing cable	
Blocks and terminals junction (page 7.9 to 7.11) 	125 A	Suitable for copper conductors incoming: 2 x 25 mm ² outgoings: 4 x 16 mm ²	Junction block 1 - 2 - 3 - 4 - 5 poles mounted on DIN rail	
	230 A 300 A	Suitable for copper and aluminium 25 to 150 mm ²	Junction terminals monochrome grey	
	24 A to 192 A	Suitable for copper conductors 0.5 to 70 mm ²	Junction terminals phase: grey neutral: blue earth: green / yellow	
Junction block and brass terminals (page 7.12) 	60 A	Suitable for copper conductors 2 to 163 connections per terminal 10, 16, 25 mm ²	brass terminals - can be mounted using bases (KZxxx) - version with base: to clip on 12 x 2 mm rails	
	60A	Suitable for copper conductors 1.5 to 4 mm ² quickconnect / collar terminals 1.5 to 25 mm ² 5 quickconnect + 1 collar 8 quickconnect + 2 collars 11 quickconnect + 3 collars 14 quickconnect + 4 collars 17 quickconnect + 5 collars 20 quickconnect + 6 collars	quickconnect and collar terminals incoming: collar terminals outgoings: quickconnect terminals phase: brown neutral: blue earth: green / yellow jumper to connect 2 terminals together	
	25 A to 250 A	Suitable for copper and aluminium 6 to 150 mm ²	Incoming collar terminals Souplex junction block - anti shearing terminals - single or associated to make connection block	
			mini junction terminals - spring collar connection	

Connection type	Characteristics		
MCB's Ph + N 	63 A	KB163P or KB163N 	- KF83A*: 1 x 25 mm ² flexible conductors, side or top incoming.  - KF83B*: 2 x 25 mm ² flexible conductors, side incoming. - KF82A: 2 x 10 mm ² flexible conductors, top incoming.
Single pole MCB's and fuse carriers	100 A	KB190B or KB190C 	- KF83C*: 1 x 25 mm ² flexible conductors, side or top incoming.
Double output four poles add on block MCB's Ph + N 	63 A	KBN663A or KBN663C 	- KF83D*: 1 x 25 mm ² flexible conductors, side or top incoming.  Necessary for supplying directly through the busbar KBN663
Two poles MCB's 	63 A	KB263A or KB263C 	- KF83C*: 1 x 25 mm ² flexible conductors, side or top incoming. 
	80 A	KB280B	
Three poles MCB's	63 A	KB463A or KB463C 	- KF83C*: 1 x 25 mm ² flexible conductors, side or top incoming.
	80 A	KB380B	
Four pole MCB's 	63 A	KB463A or KB463C 	- KF83C*: 1 x 25 mm ² flexible conductors, side or top incoming.
	80 A	KB480B	
			* KF83x are suitable with aluminium and copper conductors

Insulated universal supply busbars

- blue for neutral,
- brown for live
- for MCB's and fuse carriers 1 module width

Single, double, three and four pole busbars

- for multipolar MCB from 0,5 to 63A
- for multipolar, single pole fuse carriers and SB switches

Supply busbars 3 Ph+N shifted terminal

- suitable to connect the double output add-on block with MCB's Ph+N (balance phases)

Comply with IEC 60947-7 and IEC 60439-1.



KB163P

Single pole supply busbars

- from 63 A up to 100 A version



KB163N



KB190C

In	Section	Width in module	Pack qty.	Cat. ref.
63 A	10 mm ²	13	50	KB163P
63 A	10 mm ²	18	20	KB163PG
63 A	10 mm ²	13	50	KB163N
63 A	10 mm ²	18	20	KB163NG
100 A	20 mm ²	24	10	KB190C
100 A	20 mm ²	57 (1m)	10	KB190B



KB263A

Double pole supply busbars

In	Section	Width in module	Pack qty.	Cat. ref.
63 A	10 mm ²	12	10	KB263A
63 A	10 mm ²	24	10	KB263C
80 A	16 mm ²	56 (1m)	10	KB280B



KB363A

Three pole supply busbars

In	Section	Width in module	Pack qty.	Cat. ref.
63 A	10 mm ²	12	10	KB363A
63 A	10 mm ²	24	10	KB363C
80 A	16 mm ²	12	25	KB380A
80 A	16 mm ²	57 (1m)	10	KB380B



KB463A

Four pole supply busbars

- equipped with end caps

In	Section	Width in module	Pack qty.	Cat. ref.
63 A	10 mm ²	12	10	KB463A
63 A	10 mm ²	24	10	KB463C
80 A	16 mm ²	56 (1m)	10	KB480B

Supply busbars 3 Ph+N shifted terminal

- 1 module width for neutral
- 3 modules width for live
- equipped with 2 end caps and protection profiles

- KBN863A and KBN863C 1 three pole bar + 1 single pole bar



KBN663A

In	Section	Width in module	Pack qty.	Cat. ref.
63 A	10 mm ²	12	8	KBN663A
63 A	10 mm ²	24	8	KBN663C
63 A	10 mm ²	12	10	KBN863A
63 A	10 mm ²	24	10	KBN863C

End caps

- to insulate the ends of the busbars

Description	Pack qty.	Cat. ref.
for single busbars KB163P, KB163N	1	KZ021
for double busbars KB263A, KB263C	1	KZ022
for double / three pole busbars KB280B, KB363A, KDN263B, KB363C, KB380B, KDN363B	1	KZ023A
for four pole busbars KB463A, KB463C, KB480B, KDN463B	1	KZ024
for 3 Ph+N busbars KBN663A, KBN663C	10	KZN624



KZ021



KZ023A



KZN624

Protection profiles

- to insulate the spare prongs

Description	Pack qty.	Cat. ref.
5 modules width protection profile	10	KZ059



KZ059

Fork insulated busbars

For modular devices equipped with biconnect terminals
- multipolar MCB's from 0.5 to 63A (except Ph+N) and RCCB's

KF83A, KF83C and KF83D are compatible with aluminium and copper conductors.

Comply with IEC 60947-2 and IEC 60439-1.

Entry terminals

For all prongs and fork supply busbars



KD190B



KDN263B



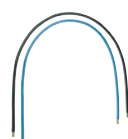
KDN363B



KDN463B

Fork insulated busbars

Description	In	Section	Width in module	Pack qty.	Cat. ref.
single pole, 1 module width	100 A	20 mm ²	57 (1 m)	10	KD190B
double pole, 2 modules width	63 A	10 mm ²	56 (1 m)	20	KDN263B
three pole, 3 modules width	63 A	10 mm ²	57 (1 m)	20	KDN363B
four pole, 4 modules width	63 A	10 mm ²	56 (1 m)	10	KDN463B



KC416

Set of 2 conductors with terminals swaged

- flexible cable H07VK
- blue and black

Description	Pack qty.	Cat. ref.
16 mm² for a 63A limited use		
2 x 450 mm	1	KC416
2 x 650 mm	1	KC616
25 mm² 16 mm² for a 90A limited use		
2 x 450 mm	1	KC025



KF84A

Fork connection terminals

- for fork busbars terminals
- cable incoming: lateral
- cable tightening with 2 screws

Description	Pack qty.	Cat. ref.
connection capacity: 1 x 25 mm ²	10	KF84A



KF82A

Prong connection terminals

- for devices with screw terminal
- cable incoming: lateral
- cable tightening with 2 screws

Description	Pack qty.	Cat. ref.
connection capacity: 1 x 16 mm ²	10	KF82A



KF83A



KF83B



KF83C



KF83D

Connection terminals

- cable incoming:
for KF83A and KF83B: lateral
for KF83C, KF83D and KF83E: lateral or top
- cable tightening with 1 screw (KF83A and KF83B only)

Description	Connection capacity	Pack qty.	Cat. ref.
for KB163P and KB83B	1 x 25 mm ²	10	KF83A
for KB163P and KB83B	2 x 25 mm ²	4	KF83B
for KB190B and KB263 to KB463	1 x 25 mm ² for KB263 to KB463 (35 mm ² rigid)	10	KF83C
for KBN663A to KBN663C	2 x 25 mm ² flexible (35 mm ² rigid)	4	KF83D
for KBN863A to KBN863C	2 x 25 mm ² flexible (35 mm ² rigid)	4	KF83E

Single pole distribution blocks

- monoblocs
- insulated
- for copper conductor
- U_i: 500V
- fixing on DIN rail, mounting plate and main devices plate kits.

Equipped with an insulated rear plate.

Comply with IEC 60 998-1 and IEC 60947-7-1.

Stepped distribution blocks

- modular
- monobloc
- for copper conductors
- removable front cover
- U_i: 500V
- fixing on DIN rail

Single pole distribution blocks

Description	I _{pk} (kA)	I _{cw} (1s) (kA)	Connection capacity (rigid / flexible wires)	Width (mm)	Cat. ref.
125 A	25	4.2	- 2 x 6 to 35mm ² / 2 x 10 to 35mm ² - 1 x 1.5 to 16mm ² / 2 x 2.5 to 25mm ² - 6 x 1.5 to 10mm ² / 6 x 1.5 to 16mm ²	27	KJ02DN
160 A	36	8.4	- 2 x 16 to 50mm ² / 2 x 25 to 70mm ² - 3 x 1.5 to 16mm ² / 3 x 2.5 to 25mm ² - 8 x 1.5 to 10mm ² / 8 x 1.5 to 16mm ²	36	KJ02CN
250 A	60	14.4	- 1 x 25 to 95mm ² / 1 x 35 to 120mm ² - 1 x 1.5 to 35mm ² / 3 x 1.5 to 50mm ² - 4 x 1.5 to 10mm ² / 4 x 1.5 to 16mm ² - 8 x 1.5 to 16mm ² / 8 x 2.5 to 25mm ²	45	KJ02AN
400 A	514A	2	incoming: 1x150 mm ² outgoing: 2x25 + 5x16 + 4x10 mm ²	45	KJ02B



KJ02B

Modular distribution monobloc

- h. 74.5 x d. 45 mm

Description	I _{pk} (kA)	Connection capacity per bar	Width (mm)	Cat. ref.
100 A - four pole	25	per phase: 1x25 + 2x10 + 5x6 mm ² neutral: 1x25 + 6x10 + 4x6 mm ²	98 (5.5 modules)	KJ02E



KJ02E

Stepped distribution blocks Brass busbar terminals

Description	I _{pk} (kA)	Connection capacity per bar	Width (mm)	Cat. ref.
100 A - four pole 4 x 7 connection points	24	2 x 25 + 5 x 16 mm ² rigid wire 2 x 16 + 5 x 10 mm ² with ferrule	71 (4 modules)	KJ100A
125 A - four pole 4x15 connection points	28	1x35 + 3x35 + 11x16 mm ² rigid wire 1x35 + 3x25 + 11x16 mm ² with ferrule	170 mm (10 modules)	KJ125B
160 A - four pole 4x12 connection points	36	1x70 + 3x35 + 8x25 mm ² rigid wire 1x50 + 3x25 + 8x16 mm ² with ferrule	162 mm (9 modules)	KJ160A



KJ100A



KJ160A

Additional neutral bar

Description	Connection capacity	Cat. ref.
100 A 7 connection points	2x25 + 5x10 mm ² rigid wire 2x16 + 5x6 mm ² with ferrule	KJ07NB
125 A 12 connection points	1x35 + 7x25 + 4x16 mm ² rigid wire 1x25 + 7x16 + 4x10 mm ² with ferrule	KJ12NB
125 A 15 connection points	1x35 + 3x35 + 11x16 mm ² rigid wire 1x25 + 3x25 + 11x10 mm ² with ferrule	KJ15NB



KJ15NB

Four pole multi-connection system 250A

- to supply 2, 3 and 4 pole devices on the same Din rail
- for quadro enclosures 700 mm wide
- incoming connection with 4 screw lugs
- outgoing connection with insulated flexible connectors
- delivered with: 6 insulated blue wires 6mm², 12 insulated brown wires 6mm² and 2 angle brackets for quadro enclosures



KJ03A

Four pole multi-connection distribution block 250A

- In under 40°C:
 - per pole: 250A
 - 40A with connector 6 mm²
 - 63A with connector 10 mm²
- Isc peak: 60kA
- Un: 500 V AC - 50 Hz
- 60 outgoing connections:
 - 24 neutral outgoings
 - 12 outgoings per phase cross section: 6 and 10 mm²

Description	Cat. ref.
without connectors	KJ03A
with connectors	KJ03B



KZ007

Plug-in connector terminals

Description	Cat. ref.
plug-in connector terminals	KZ007



KZ002

KZ001

Connectors

Description	Length (mm)	Cat. ref.	
		blue	black
40 A, 6 mm ²	120	KZ001	KZ002
40 A, 6 mm ²	500	KZ051	KZ052
63 A, 10 mm ²	120	KZ004	KZ005
63 A, 10 mm ²	500	KZ074	KZ075

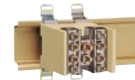
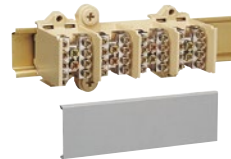
Junction blocks

- suitable for copper conductors
- incoming: 2x 25mm² / 2x35mm²
- outgoing: 4x16mm²
- In max: 125A
- fixing on DIN rail
- horizontal or vertical fixing for K024 and K025

Junction blocks with front protection cover

- connection per pole for K018, K023, K024, K025:
 - incoming: 2 x 25 mm²
 - outgoing: 4 x 16 mm²
- connection per pole for K037:
 - incoming: 1 x 35 mm²
 - outgoing: 4 x 25 mm²

Description	Dimensions	Width in module	Cat. ref.
1 pole	w.40 x h. 55 x d. 40 mm	2.5	K018
2 poles	w.65 x h. 55 x d. 35 mm	4	K023
4 poles	w.120 x h. 55 x d. 45 mm	7	K024
5 poles	w.150 x h. 55 x d. 45 mm	8.5	K025
1 pole	w. 41 x h. 55 x d. 53 mm	2.5	K037



K023
K024
K037

Junction block fixed on DIN rail

- tightening by hexagonal wrench

Description	Width in mm	Cat. ref.
25 to 95 mm ²	25	KR95P
35 to 150 mm ²	31	KR15P



KR95P KR15P

Connection terminals

- fixing on DIN rail
- 2 x 5 terminals domino

Description	Cat. ref.
for 2,5 mm ² wire	K010



K010

Earth cutting bar

- equipped with 70 mm² cable clamp

Description	Cat. ref.
50 mm ² cross section	K085

Connection capacity

Screw connection

- 0.5 to 150mm² flexible wire.

- 0.5 to 185mm² rigid wire

Description

- In max: 24 to 309A

- screw connection terminals

- fixing on DIN rail

- the earth terminals are equipped with a metallic mounting base

- comply with IEC 60947-7-1

- suitable for copper conductors



KXA04LH

Phase terminals (grey)

Cross-section flexible (mm ²)	rigid (mm ²)	In	Width (mm)	Pack qty.	Cat. ref.
0.5 - 2.5	0.5 - 4	24 A	5	100	KXA02LH
0.5 - 4	0.5 - 6	32 A	6	100	KXA04LH
1 - 10	1.5 - 16	57 A	10	50	KXA10L
1 - 16	1.5 - 25	76 A	12	50	KXA16L
6 - 35	6 - 50	125 A	16	20	KXA35L
10 - 70	16 - 95	192 A	24	20	KXB70LH
35 - 150	35 - 185	309 A	28	10	KXB150LH



KXA04NH

Neutral terminals (blue)

Cross-section flexible (mm ²)	rigid (mm ²)	In	Width (mm)	Pack qty.	Cat. ref.
0.5 - 2.5	0.5 - 4	24 A	5	100	KXA02NH
0.5 - 4	0.5 - 6	32 A	6	100	KXA04NH
1 - 10	1.5 - 16	57 A	10	50	KXA10N
1 - 16	1.5 - 25	76 A	12	50	KXA16N
6 - 35	6 - 50	125 A	16	20	KXA35N
10 - 70	16 - 95	192 A	24	20	KXB70NH
35 - 150	35 - 185	309 A	28	10	KXB150NH



KXA02E

Earth terminals (green / yellow)

Cross-section flexible (mm ²)	rigid (mm ²)	In	Width (mm)	Pack qty.	Cat. ref.
0.5 - 2.5	0.5 - 4	24 A	5	100	KXA02E
0.5 - 4	0.5 - 6	32 A	6	100	KXB04E
1 - 10	1.5 - 16	57 A	10	50	KXA10E
1 - 16	1.5 - 25	76 A	12	50	KXA16E
6 - 35	6 - 50	125 A	16	20	KXB35E
10 - 70	16 - 95	192 A	24	20	KXB70E

Insulated end caps

- beige

Description	Pack qty.	Cat. ref.
for junction terminals KXA02xx and KXA04xx	10	KWE01G
for junction terminals KXA10xx and KXA16xx	10	KWE04G
for junction terminals KXA35xx	10	KWE03G

Insulated end stops

- black

Description	Pack qty.	Cat. ref.
for junction terminals 4 to 50 mm ²	100	KWB01
for junction terminals KXB70LH	100	KWB02



KWB01

Bridging bars for screw junction terminals

- re-assembled bars
- consecutive or alternative connection

Description	Pack qty.	Cat. ref.
for 10 terminals KXA02xx	10	KWJ02B10
for 10 terminals KXA04xx	10	KWJ04B10
for 10 terminals KXA10xx	10	KWJ10B10

Marking strips box (0-9)

- for junction terminals

Description	Pack qty.	Cat. ref.
transparent box with 50 strips of 10 markers from 0 to 9	1	KWL001
set of 25 strips of 100 markers from 1 to 100	1	KWL002
set of 25 strips of 100 markers from 101 to 200	1	KWL003
set of 25 strips of 5 markers L1, L2, L3, N and PE	1	KWL004



KWL001

Brass distribution terminals




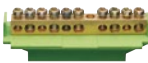


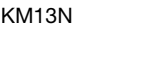

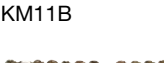

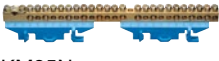


- suitable for copper conductors
- for live, neutral or earth distribution
- In : 60A

Brass distribution terminal on support

- neutral: blue support
- live: beige support

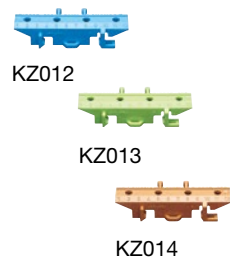
Brass distribution terminal without support

- mounting on support (KZ0xx)
- directly on the structure
- delivered with mounting screws

		Brass distribution terminals						
		- KM17N and K25N includes 2 supports						
	Connection capacity (mm ²)	Number of connections	Length (mm)	Cat. ref. with support			without support	
				neutral	earth	live		
 KM04L	2 x 16 + 2 x 10	4	30	-	-	KM04L	K140	
 KM08L	4 x 16 + 4 x 10	8	30	-	-	KM08L	-	
 KM07N	3 x 16 + 4 x 10	7	49	KM07N	KM07E	KM07L	K142	
	5 x 16 + 5 x 10	10	67	KM10A	KM10B	KM10C	K143	
 KM10B	5 x 16 + 6 x 10	11	73	KM11N	KM11E	KM11L	K144	
	2 x 16 double tightening + 8 x 10	10	69	KM10N	KM10E	KM10L	K145	
 KM10E	6 x 16 + 7 x 10	13	85	KM13N	KM13E	-	K148	
	1 x 25 + 5 x 16 + 5 x 10	11	85	-	KM11B	-	K151	
 KM11B	1 x 25 + 8 x 16 + 8 x 10	17	121	KM17N	KM17E	-	K156	
	1 x 25 + 11 x 16 + 13 x 10	25	169	KM25N	KM25E	-	K158	
 KM13N	1 x 25 + 8 x 16 + 29 x 10		242	-	-	-	K159	
	1 x 25 + 16 x 16 + 61 x 10		482	-	-	-	K160F	
 KM11N	1 x 25 + 33 x 16 + 129 x 10		992	-	-	-	K162F	
 KM13E								
 K151								
 KM25N								
 K158								
 K159								

Support for brass distribution terminals

- for K140 to K162
- insulated support
- delivered with 8 x M4 screws



Description	Cat. ref.
blue support, for neutral	KZ012
green / yellow support, for earth	KZ013
beige support, for live	KZ014

Flat bar 12 x 2 carrier

- for mounting the brass distribution terminals with support in all enclosures

Rail fixing clips

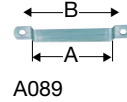
- for mounting brass distribution terminals with support thanks to the rail fixing clips on DIN rail

DIN rail

- for mounting brass distribution terminals, distribution blocks, junction terminals and blocks
- electro-zinc coated and bichromated
- length : 2m

Strip support

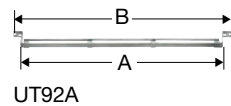
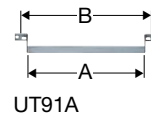
Description	Dimensions		Cat. ref.
	A	B	
for one brass distribution terminals, with support	55 mm	74 mm	A08900



Crossbar carrier

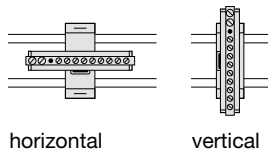
- for brass distribution terminals with support

Description	Dimensions		Cat. ref.
	A	B	
250mm width	205 mm	225 mm	UT91A
500mm width	435 mm	480 mm	UT92A



Rail fixing clips

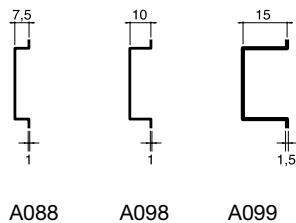
- to mount brass distribution terminals with support KZ012, K013, KZ014 on DIN rails
- horizontal or vertical mounting in DIN rail



Description	Cat. ref.
20 mm width	KZ060F
10 mm width	KZ061

Symmetrical DIN rails

- DIN 46277/3



Description	Cat. ref.
7.5 mm depth x 35 mm width	A08800
10 mm depth x 35 mm width	A09800
15 mm depth x 35 mm width	A09900



A099E

Perforate symmetrical DIN rails

- DIN 46277/2



Description

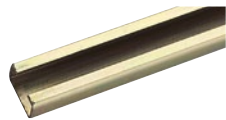
5 mm depth x 10 mm width

10 mm depth x 15 mm width

Cat. ref.

A099E

A099B



A099C



A099D

DIN rail for structure

- DIN 46277/2



Description

rail 15 mm depth x 25 mm width

sliding nuts M6 for A099C

Cat. ref.

A099C

A099D

Screw for metal sheet

- DIN 46277/1

Description

tapping screw 3,5mmx12mm

Cat. ref.

KZ062

quickconnect and screw terminals

- suitable for copper conductors
- to connect live, neutral or earth wire
- insulated material
- In : 63A
- Ui : 400V
- IP: 2x
- equipped with quickconnect terminals up to 4mm² and screw terminals up to 25mm²

- can be fitted directly on the pre-mounted support in volta, vector, vega18, vegaD, gala and gamma enclosures
- also available as accessories

Comply with NF EN 60998



KN06P



KN22N



KN26E

Number of connections quickconnect terminals 1.5 to 4 mm ²	screw terminals 1.5 to 25 mm ²	Cat. ref. blue neutral	brown live	green / yellow earth
5	1	KN06N	KN06P	KN06E
8	2	KN10N	KN10P	KN10E
11	3	KN14N	KN14P	KN14E
14	4	KN18N	KN18P	KN18E
17	5	KN22N	KN22P	KN22E
20	6	KN26N	KN26P	KN26E

Equipotential bridgings

- to link 2 quickconnect terminals



KN 99P

Description	Cat. ref.
neutral	KN99N
live	KN99P
earth	KN99E

Support for quickconnect terminals

Description	Cat. ref.
for vega 18 surface, vega D	VZ710
for volta, vector	VZ711
for vega 12	VZ707N
for vega 18	VZ708N
for gamma	GZ30A



VZ 710



VZ711



GZ30A

Universal support for terminals

- mounting on 12 x 2 flat bar or on DIN rail in quadro enclosures



KN00A

Description	Cat. ref.
breakable support to fit on with the terminals length, 105 mm length	KN00A

Incoming screw terminals

- wire connection up to 25 mm²
- Ui = 630 V, 90 A
- clips on the same support as the quickconnect terminals

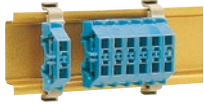


KN07N



KN04P

Description	Cat. ref.
Neutral screw terminals	
4 x 25 mm ²	KN04N
7 x 25 mm ²	KN07N
Phase screw terminals	
4 x 25 mm ²	KN04P
7 x 25 mm ²	KN07P

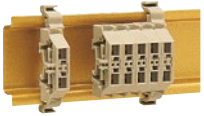


K890

Mini-junction terminals

- suitable for copper conductors In maxi: 15 A
- spring connections
- adapts automatically to the cross section wire
- reliable contact, good vibration resistance
- connection capacity: 0.14 to 2.5 mm²

- delivered with marking labels
- comply with NF EN 60998



K891

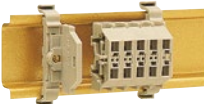


K892



K893

Description	Width in modules	Cat. ref.
blue	6	K89000
grey	6	K89100
green	6	K89200
orange	6	K89300

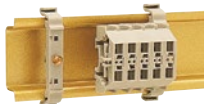


K894

Insulated end caps

- to close a row of mini-junction terminals
- delivered with 100 capscrew 2,9 x 9,5 mm

Description	Cat. ref.
insulated end caps	K89400



K895

Adaptors for symmetrical DIN Rail

- accessories to mount mini-junction terminals on DIN rail
- delivered with fixing screw

Description	Cat. ref.
adaptors for symmetrical DIN rail	K89500

"Souplex" junction blocks

For copper and aluminium conductors.
An anti-shearing system ensures a good tightening and a long term quality connection.
Suitable for 2 cable connection.

- Version without support: for a single use
- Version with support: single or associated to make connection blocks

Comply with NF C 20-110 and EN 60685-2-2.

"Souplex" junction blocks

- in unbreakable insulated material

Description	In (max.)	Cat. ref.	
		without support	with support
2 x 6 mm ²	25 A	K10601	K20601
2 x 10 mm ²	32 A	K11001	K21001
2 x 16 mm ²	40 A	K11601	K21601
2 x 25 mm ²	63 A	K125	K22501
2 x 35 mm ²	80 A	K135	K23501
2 x 70 mm ²	160 A	-	K270
2 x 150 mm ²	250 A	-	K2150

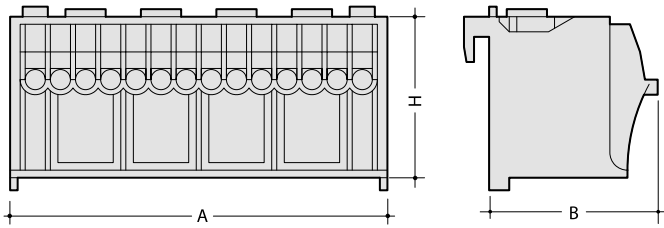


Supports for junction blocks

- length: 1 m

Description	Cat. ref.	
	without support	with support
6 to 25 mm ²	-	K09800
35 mm ²	-	K09900

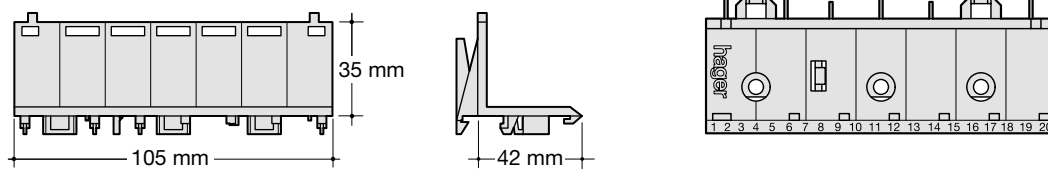
Neutral, earth and live terminals



	quickconnect terminals						Screw terminals	
	KN06N KN06P KN06E	KN10N KN10P KN10E	KN14N KN14P KN14E	KN18N KN18P KN18E	KN22N KN22P KN22E	KN26N KN26P KN26E	KN04N KN04P	KN07N KN07P
H	33 mm	33 mm	33 mm	33 mm	33 mm	33 mm	33 mm	33 mm
A	30 mm	45 mm	60 mm	75 mm	90 mm	105 mm	45 mm	75 mm
B	34 mm	34 mm	34 mm	34 mm	34 mm	34 mm	18 mm	18 mm

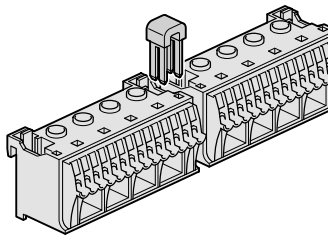
Terminal supports

KN00A universal supports

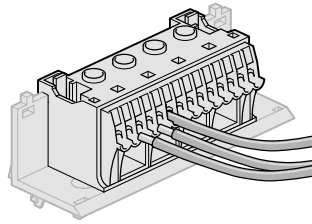


Connection

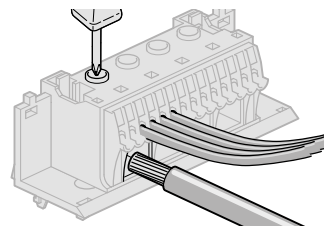
Bridge for 2 terminals



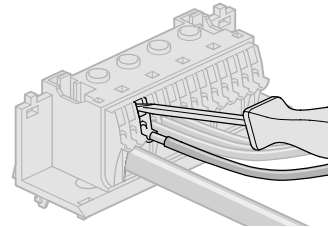
quickconnect 1,5 to 4 mm² wires



max. 25 mm² wires in a cage terminal

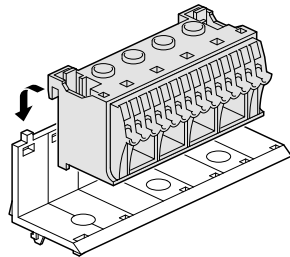


disconnecting with screwdriver

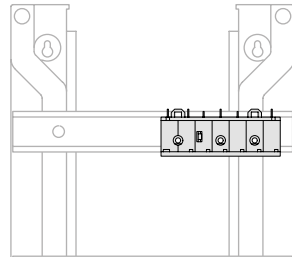


Mounting

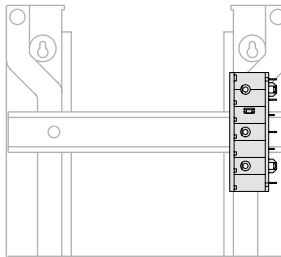
clipping on terminal supports or universal supports



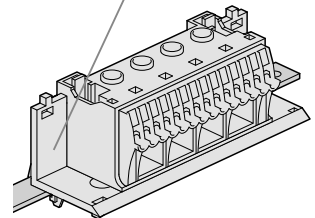
universal support : horizontal mounting on DIN rail



vertical mounting on DIN rail



breakable universal support



Combinations: quantity of quickconnect terminals

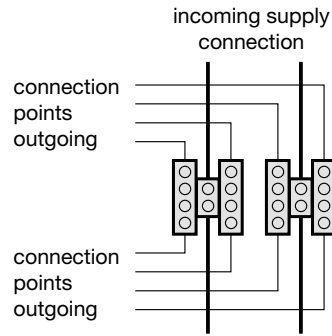
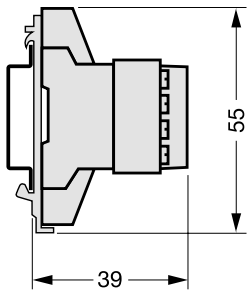
quickconnect terminals	KN06N/P/E	KN10N/P/E KN04N/P	KN14N/P/E	KN18N/P/E KN07N/P	KN22N/P/E	KN26N/P/E
number of blocks	1	1.5	2	2.5	3	3.5

quickconnect terminals supports	VZ710 vega 18 surface, vega D	GZ30A gamma	VZ711 vector, volta, gala, vega 18 flush	KN00A universal support
number of blocks	10.5	6.5	8	3.5

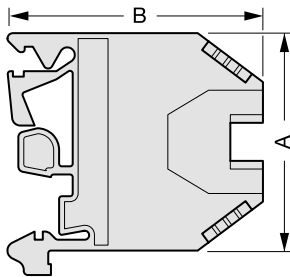
The bases above accept blocks combinations (neutral, phase and earth).
Connection between same terminals is done using equipotential bridgings (KN99x).

Dimensions (in mm)

Junction blocks: K018, K023, K024, K025, K037

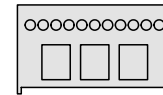


Junction terminals



terminals	A (mm)	B (mm)
KXA02LH, KXA02NH, KXA02E KXA04LH, KXA04NH, KXB04E	44.5	48.5
KXA10L, KXA10N, KXA10E KXA16L, KXA16N, KXA16E KXA35L, KXA35N, KXB35E	58	51.5
KXB70LH	76	79
KR15P	184	100
KR95P	83	83

Mini-junction terminals



Distribution blocks for copper conductors

Cat. ref.	Description	In/ 40°C	Ui	Warming Δt° @ In according to IEC 60947- 7-1:2002 §8.4.5	Circuit resistance		Cable connections per pole		Tightening torque
					Ipk according to IEC 61439-1 §8.2.3.2	Icw (1s) according to IEC 60947- 7-1:2002 §8.4.6	solid cable without ferrule	flexible cable with ferrule	
KJ100A	4P brass busbar terminal	100A	500V AC	34°K	24kA	3kA	2 x 2.5-25mm ² 5 x 1.5-16mm ²	2 x 2.5-25mm ² 5 x 1.5-16mm ²	2N.m 2N.m
KJ125B	4P brass busbar terminal	125A	500V AC	42.8°K	28kA	4.2kA	1 x 10-35mm ² 3 x 6-35mm ² 11 x 1.5-16mm ²	1 x 6-35mm ² 3 x 4-25mm ² 11 x 1.5-10mm ²	2.5N.m 2N.m 2N.m
KJ160A	4P brass busbar terminal	160A	500V AC	40.2°K	36kA	8.4kA	1 x 25-70mm ² 3 x 10-35mm ² 8 x 2.5-25mm ²	1 x 16-50mm ² 3 x 4-25mm ² 8 x 1.5-16mm ²	5N.m 2.5N.m 2N.m

Cat. ref.	Description	In	Ui	Warming Δt° @ In according to IEC 60947- 7-1:2002 §8.4.5	Circuit resistance		Cable connections per pole		Tightening torque	Width
					Ipk according to IEC 61439-1 §8.2.3.2	Icw (1s) according to IEC 60947- 7-1:2002 §8.4.6	solid cable without ferrule	flexible cable with ferrule		
KJ02DN	1P 125A	125A	500V AC	17°K	25kA	4.2kA	2 x 10 - 35mm ² 2 x 2.5 - 25mm ² 6 x 1.5 - 16mm ²	2 x 6 - 35mm ² 2 x 1.5 - 16mm ² 6 x 1.5 - 10mm ²	8N.m 2N.m 2N.m	27mm (1.5 mod.)
KJ02CN	1P 160A	160A	500V AC	21.5°K	36kA	8.4kA	2 x 25 - 70mm ² 3 x 2.5 - 25mm ² 8 x 1.5 - 16mm ²	2 x 16 - 50mm ² 3 x 1.5 - 16mm ² 8 x 1.5 - 10mm ²	9N.m 2N.m 2N.m	36mm (2 mod.)
KJ02AN	1P 250A	250A	500V AC	15°K	60kA	14.4kA	1 x 35 - 120mm ² 1 x 1.5 - 50mm ² 4 x 1.5 - 16mm ² 8 x 2.5 - 25mm ²	1 x 25 - 95mm ² 1 x 1.5 - 35mm ² 4 x 1.5 - 10mm ² 8 x 1.5 - 16mm ²	10N.m 4N.m 2N.m 2N.m	45mm (2.5 mod.)
KJ02B	1P 400A	400A	500V AC	20°K	51kA	21kA	1 x 95 - 185mm ² 2 x 6 - 35mm ² 5 x 1.5 - 16mm ² 4 x 1.5 - 10mm ²	2 x 6 - 25mm ² 5 x 1.5 - 16mm ² 4 x 1.5 - 10mm ²	25N.m 3.5N.m 2N.m 2N.m	45mm (2.5 mod.)
KJ02E	4P 100A	100A	500V AC	18°K	25kA	4.2kA	Phase 1 x 6 - 35mm ² 2 x 4 - 16mm ² 5 x 1.5 - 6mm ² Neutral 1 x 6 - 35mm ² 6 x 4 - 16mm ² 4 x 1.5 - 6mm ²	Phase 1 x 6 - 35mm ² 2 x 4 - 16mm ² 5 x 1.5 - 6mm ² Neutral 1 x 6 - 35mm ² 6 x 4 - 16mm ² 4 x 1.5 - 6mm ²	1.5N.m 1.5N.m 0.8N.m 1.5N.m 1.5N.m 0.8N.m	98mm (5.5 mod.)

All technical data and product comply to the standard IEC 947-1

Residential trunking

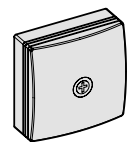
Easy to install and offering great finishes, our range of residential trunking is suitable for renovation or extension of the installations in houses and small professional premises.



tehalit.atoha	8.2
tehalit.SL	8.8
Accessories for tehalit.atoha	8.12
Technical guide	8.13

Delivery information: Base and lid together (lid opening with screwdriver) and 2 cables retainers/m (except 12x20).
Standard length: 2m, except for sizes: 12x20, 12x30, 16x30 and 6x30 (2,10 m). Other length on demand, max. 6 m.
Material: Rigid PVC. **Protection category:** IP 40, IK 07.

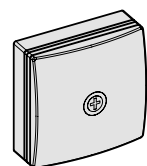
	Note: The colour code indicates compatibility between accessories and trunkings.	Base and lid	Adjustable external corner	Adjustable internal corner	Flat corner	End cap
		Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.
	pure white	ATA122009010	ATA122039010	ATA122049010	ATA122059010	ATA122069010
	brown	ATA122008014	ATA122038014	ATA122048014	ATA122058014	ATA122068014
	packaging	84 m	40 pieces	40 pieces	40 pieces	40 pieces
	pure white	ATA122019010	ATA122039010	ATA122049010	ATA122059010	ATA122069010
	brown	ATA122018014	ATA122038014	ATA122048014	ATA122058014	ATA122068014
	packaging	84 m	40 pieces	40 pieces	40 pieces	40 pieces
	pure white	ATA123009010	ATA123039010	ATA123049010	ATA123059010	ATA123069010
	brown	ATA123008014	ATA123038014	ATA123048014	ATA123058014	ATA123068014
	packaging	60 m	40 pieces	40 pieces	40 pieces	40 pieces
	pure white	ATA123019010	ATA123039010	ATA123049010	ATA123059010	ATA123069010
	brown	ATA123018014	ATA123038014	ATA123048014	ATA123058014	ATA123068014
	packaging	60 m	40 pieces	40 pieces	40 pieces	40 pieces
	pure white	ATA163009010	ATA163039010	ATA163049010	ATA163059010	ATA163069010
	brown	ATA163008014	ATA163038014	ATA163048014	ATA163058014	ATA163068014
	packaging	50 m	20 pieces	20 pieces	20 pieces	20 pieces
	pure white	ATA163019010	ATA163039010	ATA163049010	ATA163059010	ATA163069010
	brown	ATA163018014	ATA163038014	ATA163048014	ATA163058014	ATA163068014
	packaging	50 m	20 pieces	20 pieces	20 pieces	20 pieces
	pure white	ATA630009010				
	packaging	46 m				



ATA70759

Connection boxes 75 x 75 x 32 mm



Description	Pack qty.	Cat. ref.
pure white (9010)	10	ATA707599010
brown (8014)	10	ATA707598014


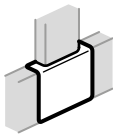
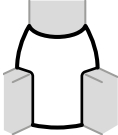
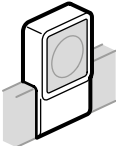
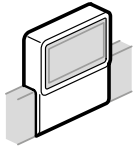
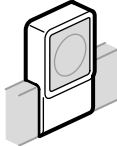
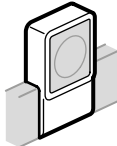
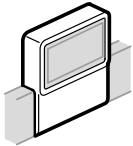


ATA71159

Connection boxes 115 x 115 x 52 mm

Description	Pack qty.	Cat. ref.
pure white (9010)	8	ATA711599010
brown (8014)	8	ATA711598014

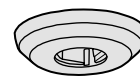
Colours:  pure white (9010)
 brown (8014)

Joint cover	T, and deviation piece	Adaptator ATA / SL with EK corner trunking	Socket box 1-gang empty for Legrand outlet (1x45mm)	Socket box 2-gang empty for Legrand outlet (2x45mm)	Socket box 1-gang empty Alrea™ outlet (1x45mm)	Socket box 1-gang outlet for ateha	Socket box 2-gang outlet for ateha
							
Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.
ATA122079010	ATA122089010	M55609010	ATA122199010	ATA122499010	ATA122399010	ATA12391	ATA12392
ATA122078014	ATA122088014		ATA122198014				
40 pieces	20 pieces	5 pieces	20 pieces	10 pieces	20 pieces	20 pieces	10 pieces
ATA122079010	ATA122089010	M55609010	ATA122199010	ATA122499010	ATA122399010	ATA12391	ATA12392
ATA122078014	ATA122088014		ATA122198014	ATA122498014			
40 pieces	20 pieces	5 pieces	20 pieces	10 pieces	20 pieces	20 pieces	10 pieces
ATA123079010	ATA123089010	M55609010	ATA123199010	ATA123499010	ATA123399010	ATA12391	ATA12392
ATA123078014	ATA123088014		ATA123198014	ATA123498014			
40 pieces	20 pieces	5 pieces	20 pieces	10 pieces	20 pieces	20 pieces	10 pieces
ATA123079010	ATA123089010	M55609010	ATA123199010	ATA123499010	ATA123399010	ATA12391	ATA12392
ATA123078014	ATA123088014		ATA123198014				
40 pieces	20 pieces	5 pieces	20 pieces	10 pieces	20 pieces	20 pieces	10 pieces
ATA163079010	ATA163089010	M55609010	ATA123199010	ATA123499010	ATA123399010	ATA16391	ATA16392
ATA163078014	ATA163088014		ATA123198014				
20 pieces	10 pieces	5 pieces	20 pieces	10 pieces	20 pieces	20 pieces	10 pieces
ATA163079010	ATA163089010	M55609010	ATA123199010	ATA123499010	ATA123399010	ATA16391	ATA16392
ATA163078014	ATA163088014		ATA123198014				
20 pieces	10 pieces	5 pieces	20 pieces	10 pieces	20 pieces	20 pieces	10 pieces

Ceiling rose

- used with plinths: ATA12200 and ATA63000

Description	Pack qty.	Cat. ref.
pure white (9010)	6	ATA63059010

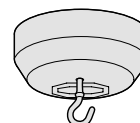


ATA63059

Ceiling rose DCL

- used with plinths: ATA12200, ATA12300 and ATA63000
 - delivered with connector and ceiling hook

Description	Pack qty.	Cat. ref.
pure white (9010)	6	ATA63069010

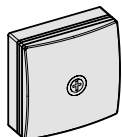


ATA63069

Delivery information: Base and lid together (lid opening with screwdriver) and 2 cables retainers/m (except 12x20).
Standard length: 2m, except for sizes: 12x20, 12x30, 16x30 and 6x30 (2,10 m). Other length on demand, max. 6 m.
Material: Rigid PVC. **Protection category:** IP 40, IK 07.

Note: The colour code indicates compatibility between accessories and trunkings.

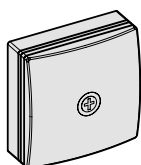
		Base and lid	Adjustable external corner	Adjustable internal corner	Flat corner	End cap
		Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.
	pure white	ATA125009010	ATA125039010	ATA125049010	ATA125059010	ATA125069010
	brown	ATA125008014	ATA125038014	ATA125048014	ATA125058014	ATA125068014
	packaging	48 m	20 pieces	20 pieces	20 pieces	20 pieces
	pure white	ATA125019010	ATA125039010	ATA125049010	ATA125059010	ATA125069010
	brown	ATA125018014	ATA125038014	ATA125049010	ATA125058014	ATA125068014
	packaging	48 m	20 pieces	20 pieces	20 pieces	20 pieces
	pure white	ATA125029010	ATA125039010	ATA125049010	ATA125059010	ATA125069010
	brown	ATA125028014	ATA125038014	ATA125048014	ATA125058014	ATA125068014
	packaging	48 m	20 pieces	20 pieces	20 pieces	20 pieces
	pure white	ATA205009010	ATA205039010	ATA205049010	ATA205059010	ATA205069010
	brown	ATA205008014	ATA205038014	ATA205048014	ATA205058014	ATA205068014
	packaging	32 m	20 pieces	20 pieces	20 pieces	20 pieces
	pure white	ATA205019010	ATA205039010	ATA205049010	ATA205059010	ATA205069010
	brown	ATA205018014	ATA205038014	ATA205048014	ATA205058014	ATA205068014
	packaging	32 m	20 pieces	20 pieces	20 pieces	20 pieces
	pure white	ATA205018014	ATA205039010	ATA205049010	ATA205059010	ATA205069010
	brown	ATA205028014	ATA205038014	ATA205048014	ATA205058014	ATA205068014
	packaging	32 m	20 pieces	20 pieces	20 pieces	20 pieces
	pure white	ATA207529010	ATA207539010	ATA207549010	ATA207559010	ATA207569010
	brown	ATA207528014	ATA207538014	ATA207548014	ATA207558014	ATA207568014
	packaging	24 m	20 pieces	20 pieces	20 pieces	20 pieces



ATA70759

Connection boxes 75 x 75 x 32 mm



Description	Pack qty.	Cat. ref.
pure white (9010)	10	ATA707599010
brown (8014)	10	ATA707598014


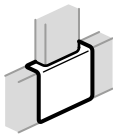
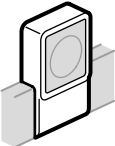
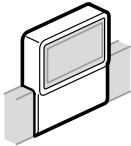
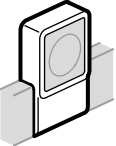
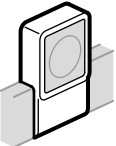
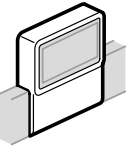


ATA71159

Connection boxes 115 x 115 x 52 mm

Description	Pack qty.	Cat. ref.
pure white (9010)	8	ATA711599010
brown (8014)	8	ATA711598014

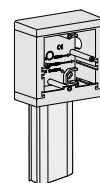
Colours:  pure white (9010)
 brown (8014)

Joint cover	T, and deviation piece	Socket box 1-gang empty for Legrand outlet (1x45mm)	Socket box 2-gang empty for Legrand outlet (2x45mm)	Socket box 1-gang empty Alrea™ outlet (1x45mm)	Socket box 1-gang outlet for ateha	Socket box 2-gang outlet for ateha
						
Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.
ATA125079010	ATA125089010	ATA125199010	ATA125499010	ATA125399010	ATA12591	ATA12592
ATA125078014	ATA125088014	ATA125198014				
20 pieces	10 pieces	20 pieces	10 pieces	20 pieces	20 pieces	10 pieces
ATA125079010	ATA125089010	ATA125199010	ATA125499010	ATA125399010	ATA12591	ATA12592
ATA125078014	ATA125088014	ATA125198014				
20 pieces	10 pieces	20 pieces	10 pieces	20 pieces	20 pieces	10 pieces
ATA125079010	ATA125089010	ATA125199010	ATA125499010	ATA125399010	ATA12591	ATA12592
ATA125078014	ATA125088014	ATA125198014				
20 pieces	10 pieces	20 pieces	10 pieces	20 pieces	20 pieces	10 pieces
ATA205079010	ATA205089010	ATA125199010	ATA125499010	ATA125399010	ATA20591	ATA20592
ATA205078014	ATA205088014	ATA125198014				
20 pieces	10 pieces	20 pieces	10 pieces	20 pieces	20 pieces	10 pieces
ATA205079010	ATA205089010	ATA125199010	ATA125499010	ATA125399010	ATA20591	ATA20592
ATA205078014	ATA205088014	ATA125198014				
20 pieces	10 pieces	20 pieces	10 pieces	20 pieces	20 pieces	10 pieces
ATA207579010	ATA207589010					
ATA207578014	ATA207588014					
20 pieces	10 pieces					

Universal boxes for socket

- 60 mm for ATA/LF
- dimensions: 90 x 90 x 42 mm

Description: pure white (9010) Pack qty. 5 Cat. ref. ATA806099010

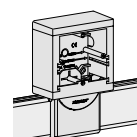


ATA80609

Universal boxes for socket

- 60 mm + adaptator ATA
- dimensions: 90 x 90 x 42 mm

Description: pure white (9010) Pack qty. 5 Cat. ref. ATA806199010




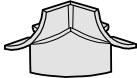



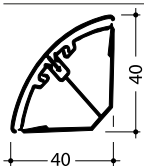
ATA80619

Delivery information: base, lid and cable retainers. Lid opening with screwdriver.

Standard length: 2.5 m. Other length on demand, max. 6 m.

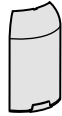
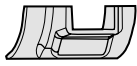
Material: Rigid PVC. **Protection category:** IP 40, IK 07.

	Base and lid	Internal corner corner Flat corner	External corner	T piece	End cap
					
	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.
pure white	EK4004009010	L27719010	L27729010	L27799010	L27739010
packaging	16 pieces	20 pieces	20 pieces	20 pieces	20 pieces



Colours: pure white (9010)

Joint cover	Deviation on	Adaptator
	ATA 12 x 20	ATA / SL with
	ATA 12 x 30	EK
	ATA 6 x 30	



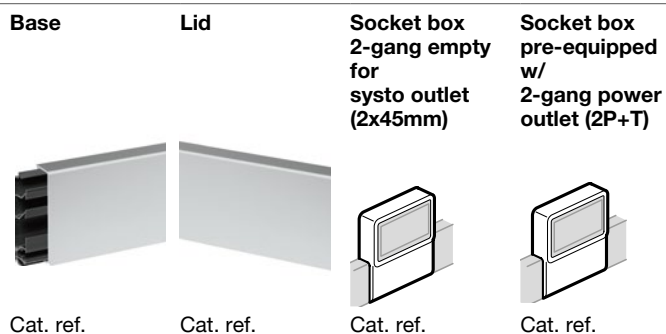
Cat. ref.	Cat. ref.	Cat. ref.
L27749010	L27809010	M55609010

20 pieces	15 pieces	5 pieces
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


Delivery information: base pre-drilled and lid (opening with screwdriver) sold separately.

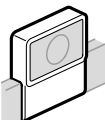
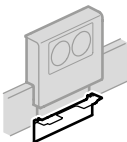
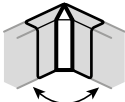
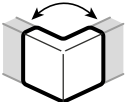

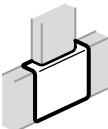

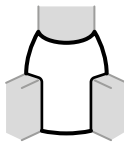
Standard length: 2m. Other length on demand, max. 6 m.

Material: Rigid PVC. **Protection category:** IP 40, IK 07.



	Base	Lid	Socket box 2-gang empty for systo outlet (2x45mm)	Socket box pre-equipped w/ 2-gang power outlet (2P+T)		
	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.		
		pure white (9010)	SL2005529010	SL200559039010	SL200559609010	
		graphite black (9011)	SL200551	SL2005529011	SL200559039011	SL200559609011
		alu		SL200552D1	SL20055903D1	SL20055960D1
		beech		SL200552D2		
		maple		SL200552D3		
		cherry		SL200552D4		
		oak		SL200552D5		
		sucupira		SL200552D6		
		with carpet border:				
		pure white (9010)		SL20055229010		
		with soft components:				
		pure white (9010)		SL20055219010		
		graphite black (9011)		SL20055219011		
		packaging	36 m	white/black: 36 m D1 to D6: 18 m	4 pieces	4 pieces
			pure white (9010)	SL2008029010	SL200809039010	SL200809609010
		graphite black (9011)	SL200801	SL2008029011	SL200809039011	SL200809609011
		alu		SL200802D1	SL20080903D1	SL20080960D1
		beech		SL200802D2		
		maple		SL200802D3		
		cherry		SL200802D4		
		oak		SL200802D5		
		sucupira		SL200802D6		
		with carpet border:				
		pure white (9010)	SL200801LED	SL20080229010		
		with LED:				
		black		SL20080259011		
		alu		SL2008025D1		
		with soft components:				
		pure white (9010)		SL20080219010		
	graphite black (9011)		SL20080219011			
	packaging	36 m	white/black: 36 m D1 to D6 : 18 m LED: 18 m	4 pieces	4 pieces	
		pure white (9010)	SL2011529010	SL201159039010	SL201159609010	
		graphite black (9011)	SL201151	SL2011529011	SL201159039011	SL201159609011
		packaging	24 m	24 m	4 pieces	4 pieces

Colours:  pure white (9010)  decor aluminium (D1)  decor maple (D3)  decor oak (D5)
 graphite black (9011)  decor beech (D2)  decor cherry (D4)  decor sucupira (D6)

Socket box universal for 60mm outlets	Box coupling	Adjustable internal corner	Adjustable external corner	Left and right end cap	T piece	Lid joint cover	EK adaptor
							
Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.
SL200559019010	SL20055A9010	SL2005549010	SL2005539010	SL2005569010	SL2005589010	SL2005579010	SL20055819010
SL200559019011	SL20055A9011	SL2005549011	SL2005539011	SL2005569011	SL2005589011	SL2005579011	SL20055819011
SL20055901D1	SL20055AD1	SL200554D1	SL200553D1	SL200556D1	SL200558D1	SL200557D1	SL2005581D1
	SL20055AD2	SL200554D2	SL200553D2	SL200556D2		SL200557D2	
	SL20055AD3	SL200554D3	SL200553D3	SL200556D3		SL200557D3	
	SL20055AD4	SL200554D4	SL200553D3	SL200556D4		SL200557D4	
	SL20055AD5	SL200554D5	SL200553D5	SL200556D5		SL200557D5	
	SL20055AD6	SL200554D6	SL200553D6	SL200556D6		SL200557D6	

4 pieces	20 pieces	5 pieces	5 pieces	5 pieces	4 pieces	5 pieces	5 pieces
SL200809019010	SL20080A9010	SL2008049010	SL2008039010	SL2008069010	SL2008089010	SL2008079010	SL20080819010
SL200809019011	SL20080A9011	SL2008049011	SL2008039011	SL2008069011	SL2008089011	SL2008079011	SL20080819011
SL20080901D1	SL20080AD1	SL200804D1	SL200803D1	SL200806D1	SL200808D1	SL200807D1	SL2008081D1
	SL20080AD2	SL200804D2	SL200803D2	SL200806D2		SL200807D2	SL2008081D2
	SL20080AD3	SL200804D3	SL200803D3	SL200806D3		SL200807D3	SL2008081D3
	SL20080AD4	SL200804D4	SL200803D4	SL200806D4		SL200807D4	SL2008081D4
	SL20080AD5	SL200804D5	SL200803D5	SL200806D5		SL200807D5	SL2008081D5
	SL20080AD6	SL200804D6	SL200803D6	SL200806D6		SL200807D6	SL2008081D6

4 pieces	20 pieces	5 pieces	5 pieces	5 pieces	4 pieces	5 pieces	5 pieces
SL201159019010	SL20115A9010	SL2011549010	SL2011539010	SL2011569010	SL2011589010	SL2011579010	SL20115819010
SL201159019011	SL20115A9011	SL2011549011	SL2011539011	SL2011569011	SL2011589011	SL2011579011	SL20115819011
4 pieces	15 pieces	5 pieces	5 pieces	5 pieces	4 pieces	5 pieces	5 pieces

Description

The new tehalit.SL skirting trunking set with LED lighting enables the targeted use of lighting highlights combined with flexible cable management. The system is suitable for applications in indoor areas, e.g. in passageways and entrances.

Colours

- aluminium,
- black, RAL 9011



LED06WEISS

LED tube

- LED colour code: white approx. 6500 K
- light current per light: 2304 lm
- protection: IP68
- lighting angle: 120°
- power: 28.8 W
- voltage: 24 V
- number of LED: 360
- energy class: A

Description	Length	Cat. ref.
white	6 m	LED06WEISS



SL20080259011

Lid with 80mm height

- lid with integrated LED
- material: PVC

Description	Length	Cat. ref.
black color, RAL 9011	18 m	SL20080259011
aluminium decor	18 m	SL2008025D1



SL200801LED

Base with 80mm height

- specially for LED stripe

Description	Length	Cat. ref.
black	18 m	SL200801LED



SL200809LEDD1

Accessory box set LED for SL 20x80

- with transformer 30W
- the device carrier skirt **SL20080AXXXX** should be ordered separately

Description	Cat. ref.
aluminium	SL200809LEDD1



SL20080926D1

Accessory box SL 20x80 with Schuko socket and PIR

- Schuko socket
- 230V, 16A
 - **quickconnect** connection
 - increased touch protection

PIR

- angle of detection: 90° to 180°, manual setting without accessory
- brightness level setting: by push button or potentiometer
- the device carrier skirt **SL20080AXXXX** should be ordered separately

Description	Cat. ref.
aluminium	SL20080926D1

Transformer 30W/24 V for LED tube

- input voltage: 230 V/50 Hz
- output voltage: 24 V DC (2-gang)
- dimensions: 91 x 39.5 x 28.5 mm



Description

Cat. ref.

LEDTR030

transformer 30W/24V for LED tube

LEDTR030

Transformer 100 W/24 V for LED tube

- input voltage: 230 V/50 Hz
- output voltage: 24 V DC
- dimensions: 190 x 52 x 37 mm



Description

Cat. ref.

LEDTR100

transformer 100W/24V for LED tube

LEDTR100

Door crossing

- for new building or renovation
- height: 75 mm
- for a door, 2 door crossings are needed
- connection is done through standard ducts Ø 20 mm



Description

Cat. ref.

G6090SCHW

black

G6090SCHW

Connection box for tehalit.SL plinths

- offers the possibility to connect LV socket outlets and VLV data socket outlet.
- can be used as a storage box for a transformer (LED lighting)



Description

Cat. ref.

white, RAL 9010

COL40110SET19010

aluminium

COL40110SET1ALU

COL40110SET19010



AFOUTILPISTOLET

Glue guns for rigid glue

Description	Pack. qty	Cat. ref.
glue guns for rigid glue	6	AFOUTILPISTOLET
pure white glue cartridges, capacity 0.3 L	6	AFCOLLECART



AFCLOUSM118

Flat head nails

Description	Pack. qty	Cat. ref.
L = 18 mm, Ø = 2.5 mm	4 boxes	AFCLOUSM118
L = 25 mm, Ø = 2.5 mm	1 box	AFCLOUSM125



AFTH1520CLOUS

Nails

Description	Pack. qty	Cat. ref.
L = 20 mm, Ø = 1.5 mm	1 box	AFTH1520CLOUS
L = 25 mm, Ø = 1.5 mm	1 box	AFTH1525CLOUS
L = 30 mm, Ø = 1.5 mm	1 box	AFTH1530CLOUS



AFVISTC6023

Pack of 250 polyamide wall screws

- for fixing in BA 13 type hollow partition

Description	Pack. qty	Cat. ref.
L = 23 mm, Ø = 6 mm	4 pces	AFVISTC6023

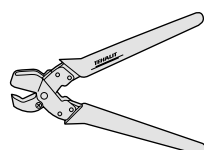


L5561

Cutting pliers

- to cut up mouldings to 45° and 90° up to 10 mms of depth

Description	Pack. qty	Cat. ref.
cutting pliers maximum length of cut 85 mm	1	L5561



L5562

Pliers for exit of cable

- to cut up the lateral partition of a trunking and to drill a cable hole

Description	Pack. qty	Cat. ref.
pliers for exit of cable Ø 20 mm	1	L5562



ATA99030

Cable retainers

- color: blue

Description	Pack. qty	Cat. ref.
pack of 50 cable retainers for ATA12300/12301, ATA16300/16301	10	ATA99030
pack of 30 cable retainers for ATA12500, ATA12501, ATA12502, ATA20500, ATA20501, ATA20502	15	ATA99050
pack of 20 cable retainers for ATA20752	15	ATA99075

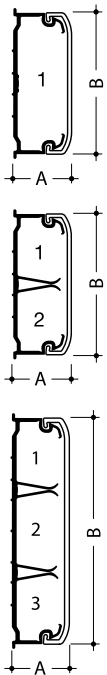
Wires and cables diameter and section

for power and vlv data current

	approx. external Ø in mm	section in mm ²
wire: H 07 V		
1.5	2.8	6.2
2.5	3.4	9.1
4	3.9	11.9
6	4.7	17.3
telephone cable - STY1		
1 pair	3.8	11.3
2 pairs	4.9	18.9
3 pairs	5.2	21.2
4 pairs	5.7	25.5
5 pairs	6.1	29.2
data cable - Cat 5		
FTP 100 Ω 4 pairs	6.0	28.3
L 120 120 Ω 4 pairs	8 x 5	40.0
L 120 120 Ω 8 pairs	10.5 x 8	84.0
TV cable		
coax 75 Ω	7.0	38.5

	approx. external Ø in mm	section in mm ²
wire U1000R02V - H07RNF		
2 x 1.5	8.4	55.4
2 x 2.5	9.6	72.4
2 x 4	10.5	86.6
2 x 6	11.8	109.4
3 x 1.5	8.8	60.8
3 x 2.5	10.0	78.5
3 x 4	11.0	95.0
3 x 6	12.9	130.7
4 x 1.5	9.6	72.4
4 x 2.5	11.0	95.0
4 x 4	12.2	116.9
4 x 6	14.2	158.4
5 x 1.5	10.0	78.5
5 x 2.5	11.6	105.7
5 x 4	13.5	143.1
5 x 6	15.5	188.7

tehalit.atoha



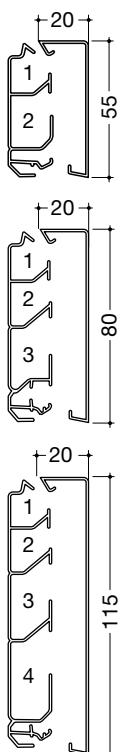
	compartments	dimensions A x B	wire number in mm ²				cable number		section by compartment in mm ²	
			1.5	2.5	4	6	3x25mm ²	Ø max.	nominal	useful*
references										
ATA12200	1	13 x 24	18	13	9	6	1	11.5	226	113
ATA12201	1 2	13 x 24	7 7	5 5	3 3	2 2	0 0	7.5 7.5	90 90	45 45
ATA12300	1	13 x 32	24	19	15	10	2	11.5	281	141
ATA12301	1 2	13 x 32	10 10	8 8	6 6	4 4	1 1	11.5 11.5	128 128	64 64
ATA12500	1	13 x 52	44	36	23	16	4	11.5	551	276
ATA12501	1 2	13 x 52	29 11	24 8	15 5	11 4	3 1	11.5 11.5	313 127	157 64
ATA12502	1 2 3	13 x 52	11 15 11	8 12 8	5 7 5	4 6 4	1 1 1	11.5 11.5 11.5	128 162 128	64 81 64
ATA16300	1	16 x 32	32	26	17	12	3	12.5	372	186
ATA16301	1 2	16 x 32	14 14	11 11	7 7	5 5	1 1	12.5 12.5	160 160	80 80
ATA20500	1	20 x 52	69	51	37	30	6	16.5	817	409
ATA20501	1 2	20 x 52	46 19	34 14	25 9	16 6	4 1	16.5 16.5	546 227	273 114
ATA20502	1 2 3	20 x 52	19 23 19	14 17 14	9 12 9	6 9 6	1 1 1	16.5 16.5 16.5	227 274 227	114 137 114
ATA20752	1 2 3	20 x 74	19 51 19	14 43 14	9 32 9	6 21 6	1 5 1	16.5 16.5 16.5	227 613 227	114 307 114

skirting systems for corners EK references

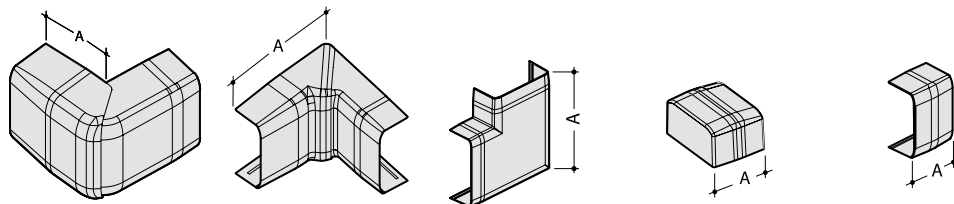
EK400400	1 2	40 x 40	24 24	16 16	12 12	8 8	2 2	16 16	300 300	150 150
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* section acting as base of calculation to define the countenance according to the different section of cables.

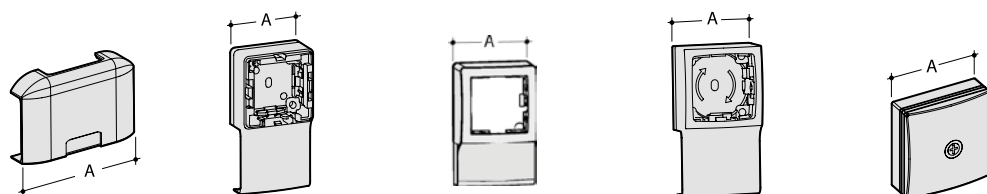
tehalit.SL



	Compartments	wire				cable			Ø max
		1.5 mm ²	2.5 mm ²	4 mm ²	6 mm ²	3 x 1.5 mm ²	3 x 2.5 mm ²		
SL20055	1 2	14 30	11 21	7 15	4 9	2 3	1 2	15 15	
SL20080	1 2 3	14 23 35	11 14 21	8 10 15	6 7 11	1 2 4	1 2 2	15 15 15	
SL20115	1 2 3 4	14 18 35 52	11 14 27 33	7 9 19 23	5 6 12 15	1 2 5 5	1 2 3 3	15 15 15 15	



profile types	external corner size in mm	internal corner size in mm	flat corner size in mm	end cap size in mm	joint cover size in mm
ATA12200/12201	26.5	48	50	24	24
ATA12300/12301	26.5	48	58	24	24
ATA12500/12501/12502	26.5	48	78	24	24
ATA16300/16301	26.5	49.5	58	24	24
ATA20500/20501/20502	26.5	54	78	24	24
ATA20752	26.5	54	100	24	24



profile types	T and deviation piece size in mm	box for socket Legrand equipment protrusion double size in mm	box for socket simple Alréa™ size in mm	box for socket Profil 2™ size in mm	connection box size in mm	
ATA12200/12201	72	66	128	62	66	-
ATA12300/12301	80	66	128	62	66	-
ATA12500/12501/12502	102	66	128	62	66	-
ATA16300/16301	85	66	128	62	66	-
ATA20500/20501/20502	114	66	128	62	66	-
ATA20752	140	66	128	62	66	-
ATA70759	-	-	-	-	-	77
ATA71159	-	-	-	-	-	114

Line distribution

tehalit.lifea trunking ranges are suitable with all kind of conductor controls and cables in housing and tertiary premises thanks to their several types of profiles.



tehalit.lifea	9.2
tehalit.FB	9.10
tehalit.CLM	9.12
Accessories	9.14
tehalit.LFR	9.15
Self sticking mini trunking	9.16
Technical guide	9.17





Line distribution

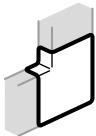


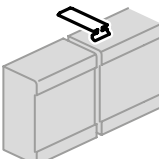
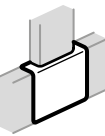
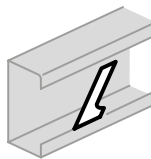
PVC tehalit.lifea from 10 to 30 mm depth

Delivery information: Base pre-drilled (except LF100100), lid, coupling pieces, cable retainers (from 60 mm on width). Lid (opening with screwdriver)
Standard length: 2m, other lengths on demand, max. 6 m.
Material: Rigid PVC. **Protection category:** IP 40, IK 07.

		Full trunking Base and lid		Internal cover*	External corner*
			Cat. ref.		
	pure white (9010)	LF1001009010		Cat. ref.	Cat. ref.
	brown (8014)	LF1001008014			
	packaging	84 m			
	pure white (9010)	LF1501509010			
	brown (8014)	LF1501508014			
	black (9011)	LF1501509011			
	packaging	44 m			
	pure white (9010)	LF2002009010			
	brown (8014)	LF2002008014			
	packaging	36 m			
	pure white	LFF2003509010		M61419010	M61429010
	brown (8014)	LFF2003508014		M61418014	M61428014
	packaging	40 m		20 pieces	20 pieces
	pure white (9010)	LFF2003609010		M61419010	M61429010
	brown (8014)	LFF2003608014		M61418014	M61428014
	packaging	40 m		20 pieces	20 pieces
	pure white (9010)	LFF3003009010	delivered with 2 coupling pieces	M59619010	M59629010
	grey (7030)	LFF3003007030		M59618014	M59627030
	packaging	56 m		5 pieces	5 pieces
	pure white (9010)	LFF3004509010	delivered with 2 coupling pieces	M61819010	M61829010
	grey (7030)	LFF3004507030		M61817030	M61827030
	packaging	32 m		8 pieces	8 pieces
	pure white (9010)	LFF3006009010	delivered with 4 cable retainers M7239 and 2 coupling pieces	LFF300649010	LFF300639010
	grey (7030)	LFF3006007030		LFF300647030	LFF300637030
	packaging	32 m		5 pieces	5 pieces

* Adjustable corners only for LFF300600

Colours:  pure white (9010)  grey (7030)  black (9011)
 brown (8014)

Flat corner	End caps*	Joint cover lid	Joint cover base	T piece	Cable retainer
					
Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.
	M61139010				
	M61138014				
	5 pieces				
	M612390101				
	M61238014				
	5 pieces				
M61459010	M61439010			M61469010	
M61458014	M61438014			M61468014	
20 pieces	20 pieces			10 pieces	
M61459010	M61439010			M61469010	
M61458014	M61438014			M61468014	
20 pieces	20 pieces			10 pieces	
M59659010	M59639010		LFF60J9010	M59669010	
M59657030	M59637030			M59667030	
5 pieces	5 pieces		10 pieces	5 pieces	
M61859010	M61839010		LFF60J9010	M61869010	
M61857030	M61837030			M61867030	
5 pieces	5 pieces		10 pieces	8 pieces	
LFF300659010	LFF600669010	LFF600679010	LFF60J9010	M53969010	
LFF300657030	LFF600667030			M53967030	
					M7239
5 pieces	10 pieces	10 pieces	10 pieces	10 pieces	10 pieces


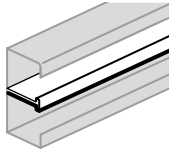
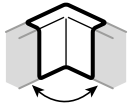
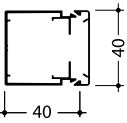
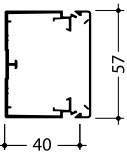
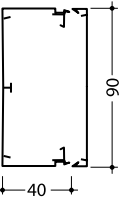
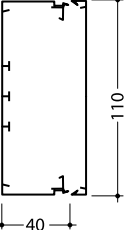
Line distribution

PVC tehalit.lifea 40 mm depth

Delivery information: Base pre-drilled, lid and cable retainer (except LF400400). Lid (opening with screwdriver).

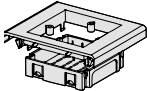
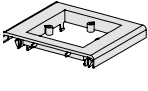
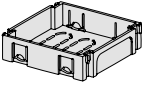
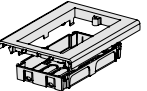
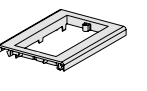
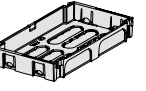
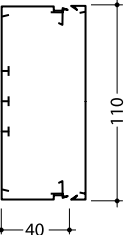
Standard length: 2m, other lengths on demand, max. 6 m.



Material: Rigid PVC. **Protection category:** IP 40, IK 07.

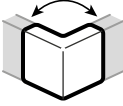
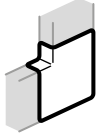


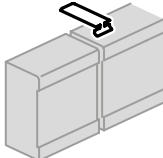
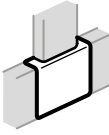
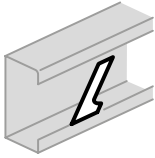
		Full trunking Base and lid		Partition	Adjustable internal corner*
					
		Cat. ref.		Cat. ref.	Cat. ref.
	pure white (9010)	LFF4004009010	delivered with 2 coupling pieces		M58019010
	grey (7030)	LFF4004007030			M58017030
	packaging	32 m			5 pieces
	pure white (9010)	LFF4006009010	delivered with 4 cable retainers		LFF400649010
	grey (7030)	LFF4006007030	M7239 and 2 coupling pieces	M2024	LFF400647030
	packaging	24 m		50 m	5 pieces
	pure white (9010)	LFF4009009010	delivered with 4 cable retainers		LFF400949010
	grey (7030)	LFF4009007030	M7248 and 2 coupling pieces	M2024	LFF400947030
	packaging	24 m		50 m	5 pieces
	pure white	LFF4011009010	delivered with 4 cable retainers		LFF401149010
	grey (7030)	LFF4011007030	M7249 and 2 coupling pieces	M2024	LFF401149010
	packaging	20 m		50 m	5 pieces

* except for LFF400400

BS wiring accessories for LFF4011009010

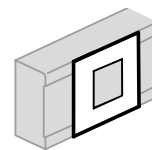
	Kit 1 gang	1 gang support	1 gang insulation	Kit 2 gang	2 gang support	2 gang insulation
						
	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.
	pure white (9010)	LFF71BZ1109010	LFF71B1109010	LFF79B1	LFF72BZ1109010	LFF72B1109010
	packaging	5 pieces	5 pieces	5 pieces	5 pieces	5 pieces

Colours:  pure white (9010)
 grey (7030)

Ajustable external corner *	Flat corner	End caps*	Joint cover lid	Joint cover base	T piece	Cable retainer
						
Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.
M58029010	M58059010	M58039010		LFF60J9010	M58069010	
M58027030	M58057030	M58037030			M58067030	
8 pieces	5 pieces	5 pieces		10 pieces	10 pieces	
LFF400639010	LFF400659010	LFF600669010	LFF600679010	LFF60J9010	M54069010	
LFF400637030	LFF400657030	LFF600667030			M54067030	
						M7239
5 pieces	5 pieces	10 pieces	10 pieces	10 pieces	10 pieces	10 pieces
LFF400939010	LFF400959010	LFF600969010	LFF600979010	LFF60J9010	M54569010	
LFF400937030	LFF400957030	LFF600967030			M54567030	
						M7248
5 pieces	5 pieces	10 pieces	10 pieces	10 pieces	5 pieces	10 pieces
LFF401139010	LFF401159010	LFF601169010	LFF601179010	LFF60J9010	M54169010	
LFF401137030	LFF401157030	LFF601167030			M54167030	
						M7249
5 pieces	5 pieces	10 pieces	10 pieces	10 pieces	10 pieces	10 pieces

Frames for wiring accessories 45x45 support

Description	Colour	Pack qty.	Cat. ref. 45 x 45	Cat. ref. center distance 60 mm
for LFF40090	pure white	10	LFF71H0909010	LFF71U0909010
for LFF40110	pure white	10	LFF71H1109010	LFF71U1109010



Back boxes for wiring accessories 45x45 supports

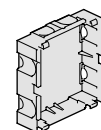
Description	Colour	Pack qty.	Cat. ref.
for support frame LFF71H090	pure white	4 sets of 10	LFF71H0999010
for support frame LFF71H110	pure white	4 sets of 10	LFF71H1199010



LFF71H099

Insulation boxes

Description	Colour	Pack qty.	Cat. ref.
for 45 x 45 support frame	black	10	LFF79H
for 60 mm support frame	black	10	LFF79U



LFF79U


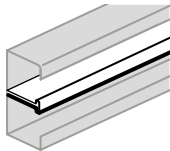
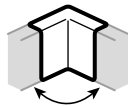
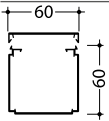
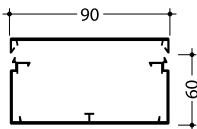
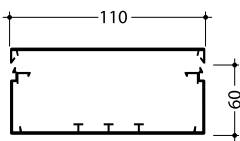
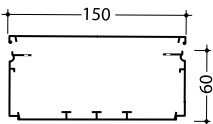
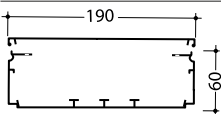
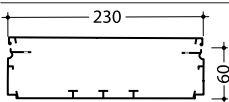
Line distribution

PVC tehalit.lifea 60 mm depth

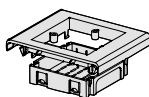
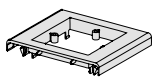
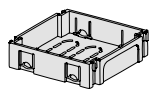
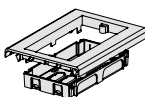
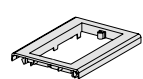
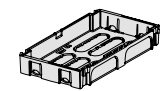
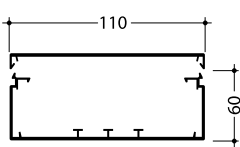
Delivery information: Base pre-drilled, lid and cable retainer. Lid (opening with screwdriver).



Standard length: 2m, other lengths on demand, max. 6 m.

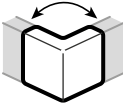
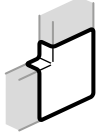


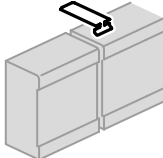
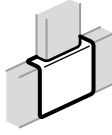
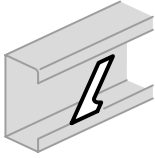
Material: Rigid PVC. **Protection category:** IP 40, IK 07.

		Full trunking Base and lid		Partition	Adjustable internal corner*
					
		Cat. ref.		Cat. ref.	Cat. ref.
	pure white (9010)	LFF6006009010	delivered with 4 cable retainers		LFF600649010
	grey (7030)	LFF6006007030	M7239		LFF600647030
	packaging	16 m	and 2 coupling pieces		8 pieces
	pure white (9010)	LFF6009009010	delivered with 4 cable retainers		LFF600949010
	grey (7030)	LFF6009007030	M7248		LFF600947030
	packaging	16 m	and 2 coupling pieces	M2026	5 pieces
				50 m	
	pure white (9010)	LFF6011009010	delivered with 4 cable retainers		LFF601149010
	grey (7030)	LFF6011007030	M7249		LFF601147030
	packaging	16 m	and 2 coupling pieces	M2026	5 pieces
				50 m	
	pure white	LFF6015009010	delivered with 4 cable retainers		M55219010
	grey (7030)	LFF6015007030	M7250		M55217030
	packaging	8 m	and 2 coupling pieces	M2026	5 pieces
				50 m	
	pure white	LFF6019009010	delivered with 4 cable retainers		M55319010
	grey (7030)	LFF6019007030	M7251		M55317030
	packaging	8 m	and 2 coupling pieces	M2026	8 pieces
				50 m	
	pure white	LFF6023009010	delivered with 4 cable retainers		M55419010
	grey (7030)	LFF6023007030	M7252		M55417030
	packaging	8 m	and 2 coupling pieces	M2026	8 pieces
				50 m	

** except for LFF601500, LFF601900 and LFF602300

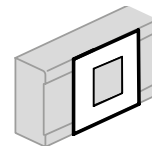
BS wiring accessories for LFF601100 9010	Kit 1 gang	1 gang support	1 gang insulation	Kit 2 gang	2 gang support	2 gang insulation
						
	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.
	pure white (9010)	LFF71BZ1109010	LFF71B1109010	LFF79B1	LFF72BZ1109010	LFF72B1109010
	packaging	5 pieces	5 pieces	5 pieces	5 pieces	5 pieces

Colours:  pure white (9010)
 grey (7030)

Ajustable external corner *	Flat corner	End caps*	Joint cover lid	Joint cover base	T piece	Cable retainer
						
Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.
LFF600639010	LFF600659010	LFF600669010	LFF600679010	LFF60J9010	M54469010	
LFF600637030	LFF600657030	LFF600667030			M54467030	M7239
5 pieces	5 pieces	10 pieces	10 pieces	10 pieces	5 pieces	10 pieces
LFF600939010	LFF600959010	LFF600969010	LFF600979010	LFF60J9010	M54669010	
LFF600937030	LFF600957030	LFF600967030			M54667030	M7248
5 pieces	5 pieces	10 pieces	10 pieces	10 pieces	8 pieces	10 pieces
LFF601139010	LFF601159010	LFF601169010	LFF601179010	LFF60J9010	M55069010	
LFF601137030	LFF601157030	LFF601167030			M55067030	M7249
5 pieces	5 pieces	10 pieces	10 pieces	10 pieces	5 pieces	10 pieces
M55229010	M55259010	M55239010		LFF60J9010	M55269010	
M55227030	M55257030	M55237030			M55267030	M7250
5 pieces	12 pieces	5 pieces		10 pieces	10 pieces	20 pieces
M55329010	M55359010	M55339010		LFF60J9010	M55369010	
M55327030	M55357030	M55337030			M55367030	M7251
8 pieces	10 pieces	5 pieces		10 pieces	8 pieces	20 pieces
M55429010	M55459010	M55439010		LFF60J9010	M55469010	
M55427030	M55457030	M55437030			M55467030	M7252
5 pieces	6 pieces	5 pieces		10 pieces	8 pieces	20 pieces

Frames for wiring accessories 45x45 supports

Description	Colour	Pack qty.	Cat. ref. 45 x 45	Cat. ref. center distance 60 mm
for LFF60090	pure white	10	LFF71H0909010	LFF71U0909010
for LFF60110	pure white	10	LFF71H1109010	LFF71U1109010



Back boxes for wiring accessories 45x45 supports

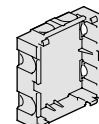
Description	Colour	Pack qty.	Cat. ref.
for support frame LFF71H090	pure white	4 sets of 10	LFF71H0999010
for support frame LFF71H110	pure white	4 sets of 10	LFF71H1199010



LFF71H099

Insulation boxes

Description	Colour	Pack qty.	Cat. ref.
for 45 x 45 support frame	black	10	LFF79H
for 60 mm support frame	black	10	LFF79U



LFF79U

Line distribution

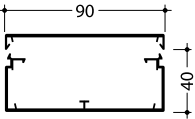
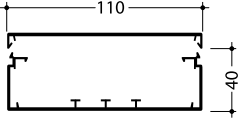
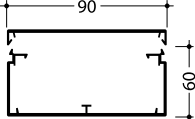
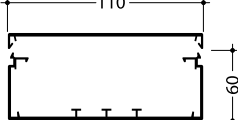
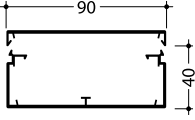
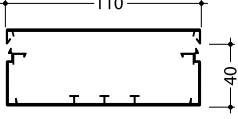
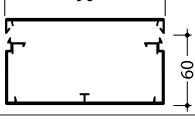

PVC tehalit.lifea trunking with wiring accessories support





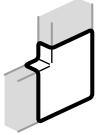


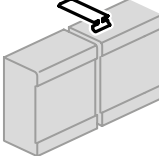
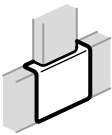
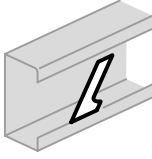
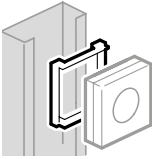
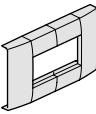
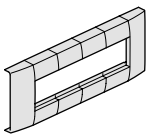
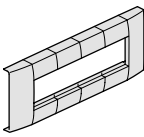
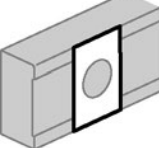
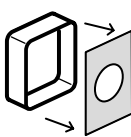
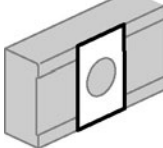
Delivery information: Base pre-drilled, lid and cable retainer. Lid (opening with screwdriver).

Standard length: 2m, other lengths on demand, max. 6 m.

Material: Rigid PVC. **Protection category:** IP 40, IK 07.

		Full trunking Base and lid cable retainers	Partition	Adjustable internal corner*	Ajustable external corner
	pure white (9010)	LFF4009009010	M2024	LFF400949010	LFF400939010
	grey (7030)	LFF4009007030		LFF400947030	LFF400937030
	packaging	24 m	50 m	5 pieces	5 pieces
	pure white (9010)	LFF4011009010	M2024	LFF401149010	LFF401139010
	grey (7030)	LFF4011007030		LFF401147030	LFF401137030
	packaging	20 m	50 m	5 pieces	5 pieces
	pure white (9010)	LFF6009009010	M2026	LFF600949010	LFF600939010
	grey (7030)	LFF6009007030		LFF600947030	LFF600937030
	packaging	16 m	50 m	5 pieces	5 pieces
	pure white	LFF6011009010	M2026	LFF601149010	LFF601139010
	grey (7030)	LFF6011007030		LFF601147030	LFF601137030
	packaging	12 m	50 m	5 pieces	5 pieces
	pure white	LFF4009009010	LFF71H0909010	LFF71H0999010	LFF79H
	packaging	24 m	10 pieces	4 packs of 10	10 pieces
	pure white	LFF4011009010	LFF71H1109010	LFF71H1199010	LFF79H
	packaging	20 m	10 pieces	4 packs of 10	10 pieces
	pure white	LFF6009009010	LFF71H0909010	LFF71H0999010	LFF79H
	packaging	16 m	10 pieces	4 packs of 10	10 pieces
	pure white	LFF6011009010	LFF71H1109010	LFF71H0999010	LFF79H
	packaging	12 m	10 pieces	4 packs of 10	10 pieces

Colours:  pure white (9010)
 grey (7030)

Flat corner	End caps	Joint cover lid	Joint cover base	T piece	Cable retainer	Frame for vertical mounting
						
Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.
LFF400959010	LFF600969010	LFF600979010	LFF60J9010	M54569010		
LFF400957030	LFF600967030			M54567030	M7248	
						L4770
5 pieces	10 pieces	10 pieces	10 pieces	5 pieces	10 pieces	5 pieces
LFF401159010	LFF601169010	LFF601179010	LFF60J9010	M54169010		
LFF401157030	LFF601167030			M54167030	M7249	
						L4770
5 pieces	10 pieces	10 pieces	10 pieces	10 pieces	10 pieces	5 pieces
LFF600959010	LFF600969010	LFF600979010	LFF60J9010	M54669010		
LFF600957030	LFF600967030			M54667030	M7248	
						L4770
5 pieces	10 pieces	10 pieces	10 pieces	8 pieces	10 pieces	5 pieces
LFF601159010	LFF601169010	LFF601179010	LFF60J9010	M55069010		
LFF601157030	LFF601167030			M55067030	M7249	
						L4770
5 pieces	10 pieces	10 pieces	10 pieces	5 pieces	10 pieces	5 pieces
2 gangs frame 45x45 support	3 gangs frame 45x45 support	4 gangs frame 45x45 support	Frame center distance 60mm support	Insulation box for frame 60mm support	Frame CEE17 support	
						
Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.	
LFF71H0909010 + 2x LFF71H0993010	LFF71H0909010 + 4x LFF71H0993010	LFF71H0909010 + 6x LFF71H0993010	LFF71U0909010	LFF79U		
			10 pieces	10 pieces		
LFF71H1109010 + 2x LFF71H1193010	LFF71H1109010 + 4x LFF71H1193010	LFF71H1109010 + 6x LFF71H1193010	LFF71U1109010	LFF79U		
			10 pieces	10 pieces		
LFF71H0909010 + 2x LFF71H0993010	LFF71H0909010 + 4x LFF71H0993010	LFF71H0909010 + 6x LFF71H0993010	LFF71U0909010	LFF79U		
			10 pieces	10 pieces		
LFF71H1109010 + 2x LFF71H1193010	LFF71H1109010 + 4x LFF71H1193010	LFF71H1109010 + 6x LFF71H1193010	LFF71U1109010	LFF79U	LFF71Z1109010	
			10 pieces	10 pieces	4 pieces	


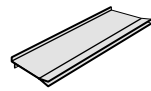
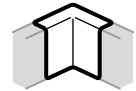
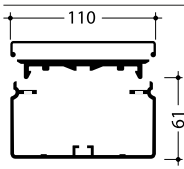
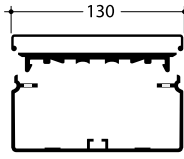
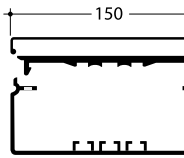
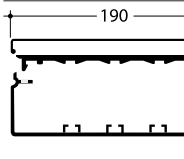
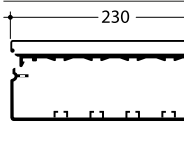
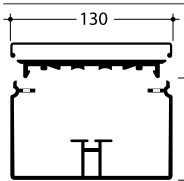
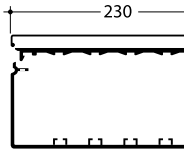
Line distribution



PVC tehalit.FB for industrial application


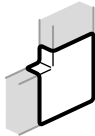
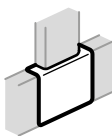

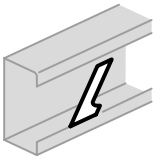
Delivery information: Base pre-drilled, lid and cable retainer (2pcs per meter). Lid (opening with screwdriver).

Standard length: 2m, other lengths on demand, max. 6 m.

Material: Rigid PVC. **Protection category:** IP 40, IK 07.

		Full trunking Base and lid		Partition	Internal corner
					
		Cat. ref.		Cat. ref.	Cat. ref.
	pure white (9010)	FB6011009010	delivered with 4 cable retainers M5280		M55019010
	grey (7030)	FB6011007030			
	packaging	16 m		M1346	
	pure white (9010)	FB6013009010	delivered with 4 cable retainers M5281		M55119010
	grey (7030)	FB6013007030			M55117030
	packaging	12 m		M1346	
	pure white (9010)	FB6015009010	delivered with 4 cable retainers M5282		M55219010
	grey (7030)	FB6015007030			M55217030
	packaging	12 m		M1346	
	pure white	FB6019009010	delivered with 4 cable retainers M5283		M55319010
	grey (7030)	FB6019007030			M55317030
	packaging	8 m		M1346	8 pieces
	pure white (9010)	FB6023009010	delivered with 4 cable retainers M5284		M55419010
	grey (7030)	FB6023007030			M55417030
	packaging	12 m		M1346	8 pieces
	pure white (9010)	FB80130090101	delivered with 4 cable retainers M5281		L87619010
	grey (7030)	FB80130070301			L87617030
	packaging	16 m		M1346	6 pieces
	pure white (9010)	FB9923009010	delivered with 4 cable retainers M5284		L96819010
	grey (7030)	FB9923007030			L96817030
	packaging	6 m		M1629	1 piece

Colours:  pure white (9010)
 grey (7030)

External corner	Flat corner	T piece	End caps	Cable retainer
				
Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.
M55029010	M55059010	M55069010	M55039010	
M55027030	M55057030	M55067030	M55037030	
				M5280
5 pieces	6 pieces	5 pieces	5 pieces	50 pieces
M55129010	M55159010	M55169010	M55139010	
M55127030	M55157030	M55167030	M55137030	
				M5281
8 pieces	8 pieces	14 pieces	5 pieces	50 pieces
M55229010	M55259010	M55269010	M55239010	
M55227030	M55257030	M55267030	M55237030	
				M5282
5 pieces	12 pieces	10 pieces	5 pieces	50 pieces
M55329010	M55359010	M55369010	M55339010	
M55327030	M55357030	M55367030	M55339010	
				M5283
8 pieces	10 pieces	8 pieces	5 pieces	50 pieces
M55429010	M55459010	M55469010	M55439010	
M55427030	M55457030	M55467030	M55437030	
				M5284
5 pieces	6 pieces	8 pieces	5 pieces	50 pieces
L87629010	L87659010		M53039010	
L87627030	L87657030		M53037030	
				M5281
7 pieces	8 pieces		6 pieces	50 pieces
L96829010	L96859010		M58339010	
L96827030	L96857030		M58337030	
				M5284
2 pieces	1 piece		6 pieces	50 pieces

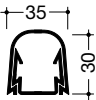
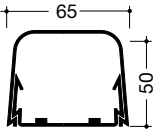
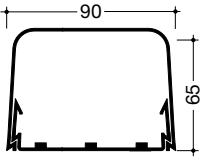
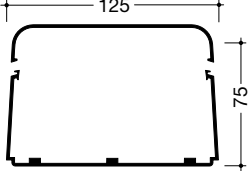
Line distribution


PVC tehalit.CLM


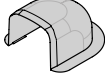

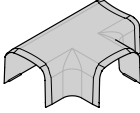



Delivery information: Pre-drilled base with lugs for clip, lid around the trunking

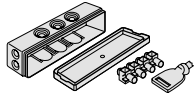
Standard length: 2m

Material: Rigid PVC.

		Full trunking Base and lid	Internal corner	External corner	Flat corner
	pure white (9010)	CLM30035	CLM300354	CLM300353	CLM300355
	packaging	52 m	10 pieces	10 pieces	10 pieces
	pure white (9010)	CLMU50065	CLM500654	CLM500653	CLM500655
	packaging	24 m	10 pieces	10 pieces	10 pieces
	pure white (9010)	CLMU65090	CLM650904	CLM650903	CLM650905
	packaging	16 m	5 pieces	5 pieces	5 pieces
	pure white (9010)	CLM75125	CLM751254	CLM751253	CLM751255
	packaging	10 m	1 piece	1 piece	1 piece

Colours:  pure white (9010)

Flat corner	Wall derivation	Joint cover lid	T piece	Wall joint	Reducer	Cable retainer
						
Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.
CLM300356	CLM3003561	CLM300357		CLM300359		
10 pieces	10 pieces	10 pieces		10 pieces		
CLM500656	CLM5006561	CLM500657	CLM500658	CLM500659		
10 pieces	10 pieces	10 pieces	5 pieces	10 pieces		
CLM650906	CLM6509061	CLM650907	CLM650908	CLM650908	CLM6509062	
10 pieces	5 pieces	5 pieces	5 pieces	10 pieces	5 pieces	
CLM751256	CLM7512561	CLM751257	CLM751258	CLM751259	CLM7512562	CLM125
1 piece	1 piece	1 piece	1 piece	1 piece	1 piece	15 pieces



L5111

Junction box

- IP54

Description	Pack qty.	Cat. ref.
halogen free junction box	10	L5111



M5159/1/2

Spacers

Description	Pack qty.	Cat. ref.
12 mm height, ø 25 mm	50	M51592
20 mm height, ø 25 mm	50	M5159



M5164

Set ring

Description	Pack qty.	Cat. ref.
for M3 - M5	100	M5164

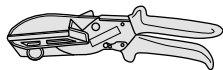


L5804

Sound proof barrier

- 15 twisted mineral fibers
- attenuation: around 40 dB
- fireproof, class M1

Description	Pack qty.	Cat. ref.
length 300 mm, ø 30 mm	1	L5804

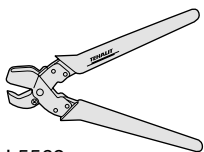


L5561

Cutter plier

- to cut trunking up to 20 x 35 at 45° or 90°

Description	Pack qty.	Cat. ref.
cutter plier, length: up to 85 mm	1	L5561



L5562

Notching plier

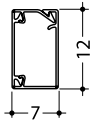
- to cut out a ø 20mm notch on the trunking side

Description	Pack qty.	Cat. ref.
notching plier for ø 20mm cable outlet	1	L5562

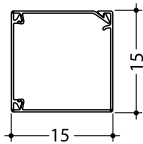
Delivery information: Pre-drilled base and lid complete with self adhesive tape
Standard length: 20 meter roll
Material: Rigid PVC.

Colour:  pure white (9010)

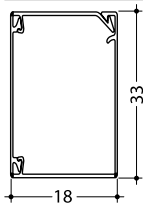
Full trunking
Base and lid



	Cat. ref.	Trunking volume
pure white (9010)	LFR701209010T2	1 phone cable 4 pairs STY 1
packaging	20 m	



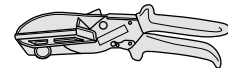
pure white (9010)	LFR1501509010T2	2 phone cables 4 pairs STY 1 1 cable 3 x 2.5 mm ²
packaging	20 m	



pure white (9010)	LFR2003509010T2	4 phone cables 4 pairs STY 1 3 cables 3 x 2.5 mm ²
packaging	20 m	

Cutter plier

- to cut trunking up to 20 x 35 at 45° or 90°

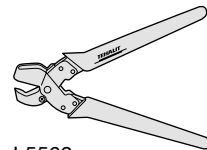


Description	Pack qty.	Cat. ref.
cutter plier, length: up to 85 mm	1	L5561

L5561

Notching plier

- to cut out a ø 20mm notch on the trunking side



Description	Pack qty.	Cat. ref.
notching plier for ø 20mm cable outlet	1	L5562

L5562

Line distribution

self-sticking mini trunking

Delivery information: base with double-face joining tape
Standard length: 2m
Material: Rigid PVC.

Colours:

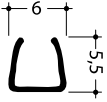
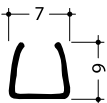
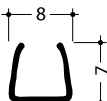
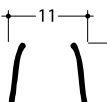


transparent (**TRAN**)
 cream white (**9001**)

Self-sticking
Cable guide

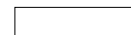
Base



		Cat. ref.	Trunking volume
	transparent (TRAN)	M1647TRAN	for 1 cable ø 4,5 to 6 m
	white (9001)	M16479001	
	packaging	150 m	
	transparent (TRAN)	M1648TRAN	for 1 cable ø 5,5 to 7 m
	white (9001)	M16489001	
	packaging	150 m	
	transparent (TRAN)	M1673TRAN	for 1 cable ø 6,5 to 8 m
	white (9001)	M16739001	
	packaging	150 m	
	transparent (TRAN)	M1659TRAN	for 1 cable ø 7,5 to 10 m
	white (9001)	M16599001	
	packaging	150 m	

Delivery information: base with double-face joining tape and lid
Standard length: 2m
Material: Rigid PVC.

Colours:

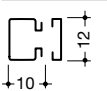
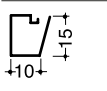
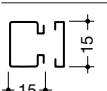
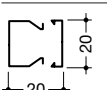


pure white (**9010**)

Self-sticking
Mini trunking

Base



		Cat. ref.	Trunking volume
	pure white (9010)	LF1001009010A	for 1 cable ø 7
	packaging	84 m	
	pure white (9010)	LFC100159010A	for 2 cables ø 6
	packaging	148 m	
	pure white (9010)	LF1501509010A	for 1 cable ø 10
	packaging	88 m	
	pure white (9010)	LF2002009010A	for 1 cable ø 12
	packaging	54 m	

tehalit.lifea:

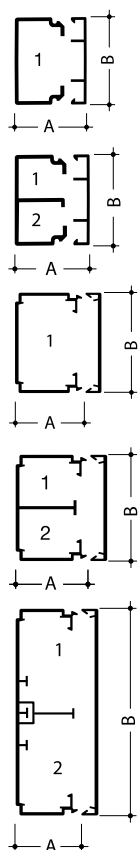
Wires, cables diameter and section for power and vlv data current

	approx. external diameter in mm	cross section in mm ²
wire: H 07 V		
1.5	2.8	6.2
2.5	3.4	9.1
4	3.9	11.9
6	4.7	17.3
telephone cable - STY1		
1 pair	3.8	11.3
2 pairs	4.9	18.9
3 pairs	5.2	21.2
4 pairs	5.7	25.5
5 pairs	6.1	29.2
data cable - Cat 5		
FTP 100 Ω 4 pairs	6.0	28.3
L 120 120 Ω 4 pairs	8 x 5	40.0
L 120 120 Ω 8 pairs	10.5 x 8	84.0
tv cable		
feeder 75 Ω	7.0	38.5

	approx. external diameter in mm	cross section in mm ²
cable U1000R02V - H07RNF		
2 x 1.5	8.4	55.4
2 x 2.5	9.6	72.4
2 x 4	10.5	86.6
2 x 6	11.8	109.4
3 x 1.5	8.8	60.8
3 x 2.5	10.0	78.5
3 x 4	11.0	95.0
3 x 6	12.9	130.7
4 x 1.5	9.6	72.4
4 x 2.5	11.0	95.0
4 x 4	12.2	116.9
4 x 6	14.2	158.4
5 x 1.5	10.0	78.5
5 x 2.5	11.6	105.7
5 x 6	13.5	143.1
5 x 4	15.5	188.7

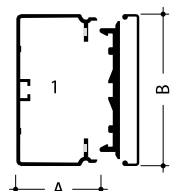
Trunking volume LF, LFF, FB

tehalit.lifea trunking



	partition number	size A x B	nominal cross section in mm ²	effective cross section in mm ²	maximum ø in mm	cable aera 3 x 2.5 mm ²
references						
LF150150	1	15 x 15	150	75	10	1
LF200200	1	20 x 19	228	114	12	1
LFF200350	1	20 x 33	440	220	15	2
LFF200360	1	20 x 33	210	105	10	1
	2		210	105	10	1
LFF300300	1	30 x 30	620	310	15	4
LFF300450	1	30 x 45	970	485	25	6
LFF300600	1	30 x 57	1250	625	25	8
LFF400400	1	40 x 40	1200	600	23	8
LFF400600	1	40 x 57	1700	850	29	11
LFF400610	1	40 x 57	830	415	15	5
	2		830	415	15	5
LFF400900	1	40 x 90	2650	1325	32	17
LFF400900 + M2024	1	40 x 90	1300	650	24	8
	2		1300	650	24	8
LFF401100	1	40 x 110	3250	1625	32	21
LFF401100 + M2024 ⁽¹⁾	1	40 x 110	1600	800	32	10
	2		1600	800	32	10
LFF600600	1	60 x 57	2860	1430	54	18
LFF600900	1	60 x 90	4550	2275	54	29
LFF600900 + M2026	1	60 x 90	2200	1100	29	14
	2		2200	1100	29	14
LFF601100	1	60 x 110	5500	2750	54	35
LFF601100 + M2026 ⁽¹⁾	1	60 x 110	2600	1300	29	19
	2		2600	1300	29	19
LFF601500 + M2026 ⁽¹⁾	1	61 x 150	3600	1790	54	24
	2		3600	1790	54	24
LFF601900 + M2026 ⁽¹⁾	1	61 x 190	4590	2280	54	29
	2		4590	2280	54	29
LFF602300 + M2026 ⁽¹⁾	1	61 x 230	5610	2790	54	35
	2		5610	2790	54	35

tehalit.FB trunking

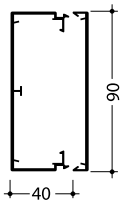


	partition number	size A x B	nominal cross section in mm ²	effective cross section in mm ²	maximum ø in mm	cable aera 3 x 2.5 mm ²
references						
FB601100	1	61 x 110	4680	2340	54	30
FB601300	1	61 x 130	5580	2790	54	36
FB601500	1	61 x 150	6450	3225	54	41
FB601900	1	61 x 190	8280	4140	54	53
FB602300	1	61 x 230	9800	4900	54	62
FB801300	1	82 x 130	7700	3850		49
FB992300	1	100 x 230	18500	9250		118

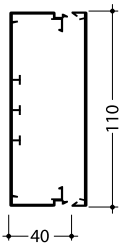
* cross-section to be used to determinate the cable area

⁽¹⁾ cable area with the partition in the middle

LFF



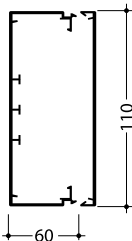
		with wiring accessories			without wiring accessories
		45 x 45	center distance 60	CEE 17	
LFF400900					
number of cables	power current 3 x 2.5 mm ²	area 1 ⁽¹⁾	10	8	17
		area 1/2 ⁽²⁾	5/5	4/4	8/8
	vlv data current L 120 - 4 pairs	area 1	24	19	35
		area 1/2	12/12	9/9	17/17
nominal cross section/ effective* per area		area 1	1850/925	1420/710	2650/1325
		area 1/2	900/450	685/342	1300/650



LFF401100					
number of cables	power current 3 x 2.5 mm ²	area 1	14	11	21
		area 1/2	6/6	5/5	10/10
	vlv data current L 120 - 4 pairs	area 1	31	26	42
		area 1/2	15/15	13/13	21/21
nominal cross section/ effective* per area		area 1	2350/1175	1900/950	3250/1625
		area 1/2	1150/575	925/463	1600/800



LFF600900					
number of cables	power current 3 x 2.5 mm ²	area 1	21	19	29
		area 1/2	10/10	9/9	14/14
	vlv data current L 120 - 4 pairs	area 1	47	44	58
		area 1/2	23/23	21/21	29/29
nominal cross section/ effective* per area		area 1	3550/1775	3320/1660	4550/220
		area 1/2	1750/875	1635/817	2200/1100

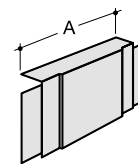
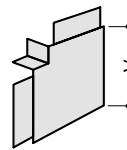
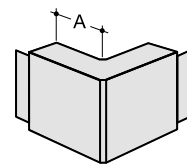
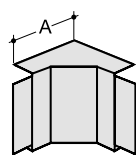


LFF6011000						
number of cables	power current 3 x 2.5 mm ²	area 1	25	24	12	35
		area 1/2	12/12	11/11	6/6	19/19
	vlv data current L 120 - 4 pairs	area 1	58	53	26	70
		area 1/2	28/28	25/25	12/12	35/35
nominal cross section/ effective* per area		area 1	4400/2200	4000/2000	1960/980	5500/2600
		area 1/2	2150/1075	1950/975	930/450	2600/1300

⁽¹⁾ area 1 = for trunking without partition

⁽²⁾ area 1/2 = for trunking with partition in the middle

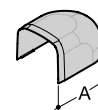
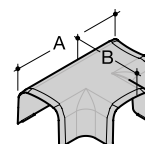
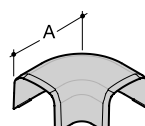
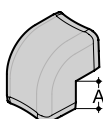
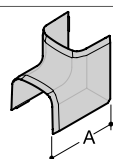
LFF, FB



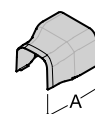
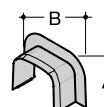
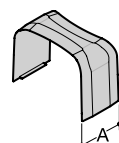
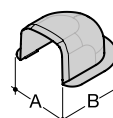
references	Internal corner size in mm	External corner size in mm	Flat corner size in mm	T piece size in mm
LFF200350 / 200360	35	35	43	92
LFF300300	60	30	60	130
LFF300450	60	30	60	130
LFF300600 *	75	55	85	170
LFF400400	85	45	65	170
LFF400900 *	115	70	128	170
LFF401100 *	115	70	148	190
LFF600600 *	130	69	91	170
LFF600900 *	138	50	128	170
LFF601100 *	138	50	148	190
LFF601500	130	69	180	250
LFF601900	130	69	220	290
LFF602300	130	69	260	290
FB601100	130	69	140	190
FB601300	130	69	160	210
FB601500	130	69	180	250
FB601900	130	69	220	290
FB602300	130	69	260	290
FB801300	240	160	176	-
FB992300	250	250	300	-

* Adjustable internal and external corners

CLM



references	Internal corner size in mm	External cover size in mm	Flat corner size in mm	T piece size in mm	End caps size in mm
CLM30035	60	18	65	-	50
CLMU50065	95	30	110	A = 160 / B = 110	90
CLMU65090	110	30	135	A = 180 / B = 130	105
CLM75125	130	35	175	A = 230 / B = 183	125



references	Wall deviation size in mm	Lid cover joint size in mm	Wall joint size in mm	Reducer size in mm
CLM30035	A = 65 / B = 60	20	A = 44 / B = 60	-
CLMU50065	A = 110 / B = 100	25	A = 100 / B = 70	-
CLMU65090	A = 125 / B = 125	30	A = 125 / B = 85	-
CLM75125	A = 125 / B = 150	35	A = 125 / B = 100	70

Installation trunking

In PVC, aluminium or steel, small or large, our range of trunking for installation can be equipped with sockets, which makes it the ideal solution for the electric installation in professional premises and commercial buildings.



tehalit.queraz PVC	10.2
tehalit.queraz alu	10.4
LPT surface mounting boxes for outlets	10.6
tehalit.BRP PVC	10.8
tehalit.BRAP alu	10.10
tehalit.BRS steel	10.12
Accessories for BRP/BRAP/BRS	10.14
tehalit.c60+	10.20
Technical guide	10.22

Installation trunking tehalit.queraz PVC with direct locking system



Delivery information: Base pre-drilled (except GBD500500), lid (opening with screwdriver).

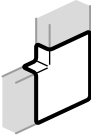
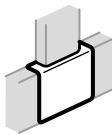
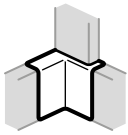
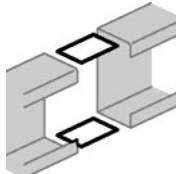



Standard length: 2m, other lengths on demand, max. 6 m.

Material: Rigid PVC, accessories in ABS.. **Protection category:** IP 40, IK 07.

		Base and lid	Partition	Adjustable internal corner 83° to 97°	Extension for internal corner 97° to 140°	Adjustable external corner 83° to 140°
		Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.
	pure white	GBD5005009010				
	black	GBD5005009011	L4369			
	packaging	16 m	72 m			
	pure white	GBD5008509010		L44719010		L44729010
	black	GBD5008509011	L4369	L44719011		L44729011
	packaging	16 m	72 m	5 pieces		5 pieces
	pure white	GBD5010009010		L43619010	L43649010	L43629010
	black		L4369			
	packaging	16 m	72 m	5 pieces	5 pieces	5 pieces
	pure white	GBD5013109010		L43919010	L43949010	L43929010
	black	GBD5013109011	L4369	L43919011		L43929011
	packaging	12 m	72 m		5 pieces	5 pieces
	pure white	GBD5016009010		L43819010	L43849010	L43829010
	black		L4369			
	packaging	8 m	72 m	4 pieces	4 pieces	4 pieces
	pure white	GBD5016109010		L43419010	L43459010	L43429010
	black	GBD5016109011		L43419011		L43429011
	packaging	8 m		4 pieces	4 pieces	4 pieces
	pure white	GBD5019009010		L44119010	L44149010	L44129010
	black		L4369			
	packaging	8 m	72 m	4 pieces	4 pieces	4 pieces

Colours:  pure white (9010)

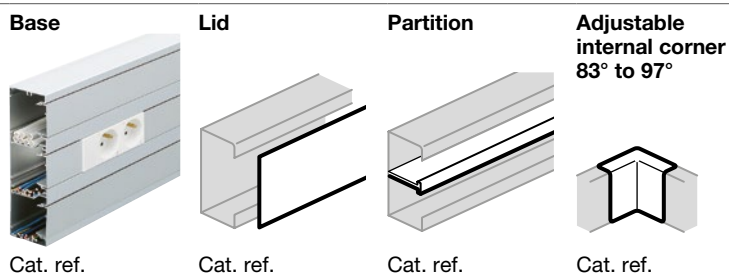
 black (9011)

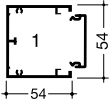
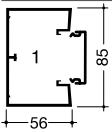
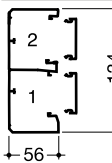
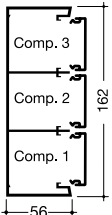
Flat corner	T-piece	3D internal corner	Coupling piece pack	End cap	Clip and hidecut 45	MCB frame 45 mm
						
Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.
				L44339010	L4389	L4760
				L44339011	L43899011	
				5 pieces	30 pieces (9010) 10 pieces (9011)	1 piece
L44789010	L44779010		L44669010	L44739010	L4389	L4760
L44789011	L44779011			L44739011	L43899011	
4 pieces	4 pieces		10 pieces	5 pieces	30 pieces (9010) 10 pieces (9011)	1 piece
L43689010	L43519010	L43529010	L44609010	L43639010	L4389	L4760
					L43899011	
4 pieces	4 pieces	2 pieces	10 pieces	5 pieces	30 pieces (9010) 10 pieces (9011)	1 piece
L43989010	L43579010	L43549010	L44639010	L43939010	L4389	L4760
L43989011	L43579011			L43939011	L43899011	
4 pieces	4 pieces	2 pieces	10 pieces	5 pieces	30 pieces (9010) 10 pieces (9011)	1 piece
L43889010	L43559010	L43569010	L44629010	L43839010	L4389	L4760
					L43899011	
2 pieces	2 pieces	2 pieces	10 pieces	5 pieces	30 pieces (9010) 10 pieces (9011)	1 piece
L43489010	L43479010	L43569010	L44659010	L43439010	L4389	L4760
L43489011	L43479011			L43439011	L43899011	
2 pieces	2 pieces	2 pieces	10 pieces	5 pieces	30 pieces (9010) 10 pieces (9011)	1 piece
L44189010	L43599010		L44649010	L44139010	L4389	L4760
					L43899011	
2 pieces	2 pieces		10 pieces	5 pieces	30 pieces (9010) 10 pieces (9011)	1 piece

Delivery information: Base and lid to be ordered separately (lid opening with screwdriver).

Standard length: 2m, other lengths on demand, max. 6 m.

Material: Profiles in natural anodised aluminum. Accessories in rigid PVC aluminium lacquered. **Protection category:** IP 40, IK 07.



	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.
	natural anodised	GBA500501ALU	GBA452ALU	
	pure white	GBA5005019010	GBA4529010	
	black			L4369
	packaging	24 m	24 m	72 m
	natural anodised	GBA500851ALU	GBA452ALU	L4471ALU
	pure white	GBA5008519010	GBA4529010	L44719010
	black			L4369
	packaging	12 m	24 m	72 m
	natural anodised	GBA501311ALU	GBA452ALU	L4391ALU
	pure white	GBA5013119010	GBA4529010	L43919010
	black			L4369
	packaging	12 m	24 m	72 m
	natural anodised	GBA501611ALU	GBA452ALU	L4341ALU
	pure white	GBA5016119010	GBA4529010	L43419010
	packaging	8 m	24 m	



L4770

Vertical support frame 45 x 45 mm

Description	Pack qty.	Cat. ref.
vertical support frame	5	L4770



AFVISTC6023



Pack of 250 polyamide screws

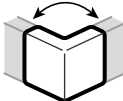
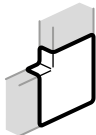

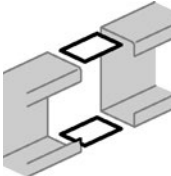
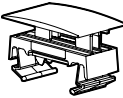
- for fixing in BA13 type hollow partition

Description	Pack qty.	Cat. ref.
L = 23 mm, Ø = 6 mm	4	AFVISTC6023

Earth terminal

Description	Pack qty.	Cat. ref.
steel earth terminal	10	L4187CHRO

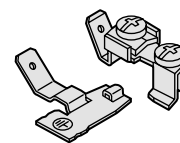
Colour:  natural anodised (ALU)
 pure white (9010)

Adjustable external corner 83° to 140°	Flat corner	End cap	Junction coupling piece	Clip and hidecut 45
				
Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.
		L4433ALU		L4389ALU
		L44339010		L4389
			L4467VERZ	
		5 pieces	2 pieces	30 pieces (ALU) 10 pieces (9010)
L4472ALU	L4478ALU	L4473ALU		L4389ALU
L44729010	L44789010	L4473ALU		L4389
			L4467VERZ	
5 pieces	4 pieces	5 pieces	2 pieces	30 pieces (ALU) 10 pieces (9010)
L4392ALU	L4398ALU	L4393ALU		L4389ALU
L43929010	L43989010	L43939010		L4389
			L4467VERZ	
5 pieces	4 pieces	5 pieces	2 pieces	30 pieces (ALU) 10 pieces (9010)
L4342ALU	L4348ALU	L4343ALU		L4389ALU
L43429010	L43489010	L43439010	L4467VERZ	L4389
4 pieces	2 pieces	5 pieces	2 pieces	30 pieces (ALU) 10 pieces (9010)

Base and lid earthing kit

- kit including 25 base terminals and 25 lid terminals

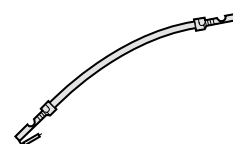
Description	Pack qty.	Cat. ref.
steel bases and lids	1 kit	L5802



L5802

Earth straps

Description	Pack qty.	Cat. ref.
length 150 mm	25	L4181GNGE
length 300 mm	25	L4182GNGE
length 600 mm	25	L4183GNGE



L4183

Delivery information

complete box (base, cover, support)

Material

ABS

Colour

pure white (9010)

System benefits

- boxes of 2, 4, 6 and 8 outlets for mechanism 45 x 45 ...
- surface mounting box with modular structure giving the possibility to install the needed number of modules
- modules to install DIN 1 or 2 modules products: a flexible use with a minimum of references
- the outlets are clipped directly on the support which is pivoting to allow an easy connection and installation in the box
- accessories: front and side adaptors for mini trunking 20x50 and voltage indicator (red).



LPT02H

Surface modular boxes

Description	Pack qty.	Cat. ref.
2 gang 45 x 45 mm	3	LPT02H
4 gang 45 x 45 mm	1	LPT04H
6 gang 45 x 45 mm	1	LPT06H
8 gang 45 x 45 mm	1	LPT08H



LPT06H



LPT20H

Extension kit LPT box

Description	Pack qty.	Cat. ref.
2 gang 45 x 45 mm	1	LPT20H



M4855



M4850

Interchangeable frames

Description	Pack qty.	Cat. ref.
support for 1 double socket 45 x 45 mm	1	M4855
support for 2 simple sockets 45 x 45 mm	1	M4850


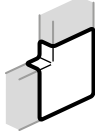

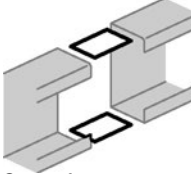
Delivery information: Base pre-drilled and lid to be ordered separately (lid opening with screwdriver).


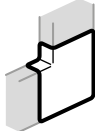

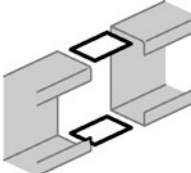
Standard length: 2m, other lengths on demand, max. 6 m.

Material: Rigid PVC. **Protection category:** IP 40, IK 07.

	PVC base	PVC lid	PVC simple cable divider	Internal corner divider
	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.
pure white (9010)	BRP6510019010	BRP08029010		BRP651004H9010
black (9011)	BRP6510019011	BRP08029011	M2026	BRP651004H9011
packaging	8 m	24 m	50 m	1 piece
	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.
pure white (9010)	BRP6513019010	BRP08029010		BRP651304H9010
black (9011)	BRP6513019011	BRP08029011	M2026	BRP651304H9011
packaging	8 m	24 m	50 m	1 piece
	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.
pure white (9010)	BRP6517019010	BRP08029010		BRP651704H9010
			M2026	
packaging	8 m	24 m	50 m	1 piece
BRP double lid 65 mm depth	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.
	pure white (9010)	BRP65210D19010	BRP08029010 (x2)	BRP652104DH9010
			M2026	
packaging	8 m	24 m	50 m	1 piece

Colours: pure white (9010)



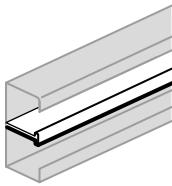
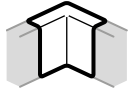
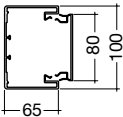
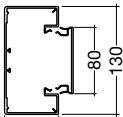
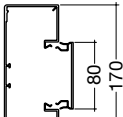
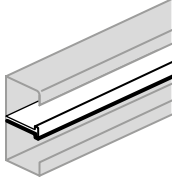

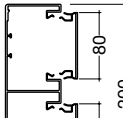
External corner	Flat corner	End cap	Coupling piece pack
			
Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.
BRP651003H9010	BRP651005H9010	BRP6510069010	BRP65XXX9
BRP651003H9011	BRP651005H9011	BRP6510069011	
1 piece	1 piece	1 piece	10 pieces
BRP651303H9010	BRP651305H9010	BRP6513069010	BRP65XXX9
BRP651303H9011	BRP651305H9011	BRP6513069011	
1 piece	1 piece	1 piece	10 pieces
BRP651703H9010	BRP651705H9010	BRP6517069010	BRP65XXX9
1 piece	1 piece	1 piece	10 pieces

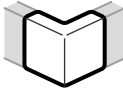
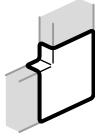

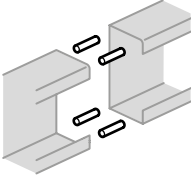
External corner	Flat corner	End cap	Coupling piece pack
			
Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.
BRP652103DH9010	BRP652105DH9010	BRP652106D9010	BRP65XXX9
1 piece	1 piece	1 piece	10 pieces

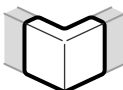
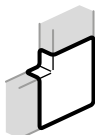

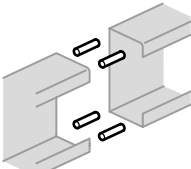
Delivery information: Base pre-drilled and lid to be ordered separately (lid opening with screwdriver).

Standard length: 2m, other lengths on demand, max. 6 m.

Material: Natural anodised aluminium. **Protection category:** IP 40, IK 07.

		PVC base	PVC lid	PVC simple cable divider	Internal corner divider
					
		Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.
	nat. anodised alu	BRAP651001ELN	BRAP0802ELN		
	lacq. nat. anod. alu				BRP651004HLAN
				M1043	
	packaging	8 m	16 m	40 m	1 piece
	nat. anodised alu	BRAP651301ELN	BRAP0802ELN		
	lacq. nat. anod. alu				BRP651304HLAN
				M1043	
	packaging	8 m	16 m	40 m	1 piece
	nat. anodised alu	BRAP651701ELN	BRAP0802ELN		
	lacq. nat. anod. alu				BRP651704HLAN
				M1043	
	packaging	8 m	16 m	40 m	1 piece
BRAP double lid 80 mm depth		PVC base	PVC lid	PVC simple cable divider	Internal corner divider
					
		Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.
	nat. anodised alu	BRAP802001ELN	BRAP0802ELN (2x)		L8081ELN
				M1043	
	packaging	6 m	16 m	40 m	1 piece

External corner	Flat corner	End cap	Coupling piece pack
			
Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.
L6532ELN			
BRP651003HLAN	BRP651005HLAN		L5412
1 piece	1 piece	1 piece	100 pieces
L6533ELN			
BRP651303HLAN	BRP651305HLAN		L5412
1 piece	1 piece	1 piece	100 pieces
L6534ELN			
BRP651703HLAN	BRP651705HLAN		L5412
1 piece	1 piece	1 piece	100 pieces



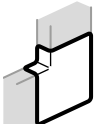
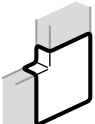



External corner	Flat corner	End cap	Coupling piece pack
			
Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.
L8082ELN	L8085ELN	L8034ELN	L5412
1 piece	1 piece	1 piece	100 pieces

Delivery information: Base pre-drilled and lid to be ordered separately (lid opening with screwdriver).

Standard length: 2m. Other length on demand, max. 3.1 m.

Material: galvanized steel. **Protection category:** IP 40, IK 07.

		Steel base	Steel lid	Internal corner steel	Internal corner PC/ABS halogen free	External corner steel
	pure white	BRS6510019010	BRS08029010	BRS6510049010	BRS651004H9010	BRS6510039010
	anodised					
	packaging	8 m	32 m	1 piece	1 piece	1 piece
	pure white	BRS6513019010	BRS08029010	BRS6513049010	BRS651304H9010	BRS6513039010
	anodised					
	packaging	8 m	32 m	1 piece	1 piece	1 piece
	pure white	BRS6517019010	BRS08029010	BRS6517049010	BRS651704H9010	BRS6517039010
	anodised					
	packaging	8 m	32 m	1 piece	1 piece	1 piece
	pure white	BRS6521019010	BRS08029010	BRS6521049010	BRS652104H9010	BRS6521039010
	anodised					
	packaging	6 m	32 m	1 piece	1 piece	1 piece
BRS double lid 65 mm depth 	pure white	BRS652101D9010	BRS08029010 (2x)	BRS652104D9010	BRS652104DH9010	BRS652103D9010
	anodised					
	packaging	4 m	32 m	1 piece	1 piece	1 piece

External corner PC/ABS halogen free	End cap steel	Flat corner steel	Flat corner PC/ABS halogen free	Coupling steel	Flange	Joint cover
						
Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.
BRS651003H9010	BRS6510069010	BRS6510059010	BRS651005H9010		BRS65100W9010	BRS6510079010
BRS651009						
1 piece	1 piece	1 piece	1 piece	1 piece	1 piece	1 piece
BRS651303H9010	BRS6513069010	BRS6513059010	BRS651305H9010		BRS65130W9010	BRS6513079010
BRS651309						
1 piece	1 piece	1 piece	1 piece	1 piece	1 piece	1 piece
BRS651703H9010	BRS6517069010	BRS6517059010	BRS651705H9010		BRS65170W9010	BRS6517079010
BRS651709						
1 piece	1 piece	1 piece	1 piece	1 piece	1 piece	1 piece
BRS652103H9010	BRS6521069010	BRS6521059010	BRS652105H9010		BRS65210W9010	BRS6521079010
BRS652109						
1 piece	1 piece	1 piece	1 piece	1 piece	1 piece	1 piece
BRS652103DH9010	BRS652106D9010	BRS652105D9010	BRS652105DH9010		BRS65210WD9010	BRS652107D9010
BRS652109D						
1 piece	1 piece	1 piece	1 piece	1 piece	1 piece	1 piece



L4181GNGE

Earth straps

- plug-in, 4mm² section for electrical connection of the bases & lids

Description	Pack qty.	Cat. ref.
150 mm length	100	L4181GNGE
300 mm length	100	L4182GNGE
600 mm length	25	L4183GNGE



R6570VERZ

Ground connection drags

- 70mm height

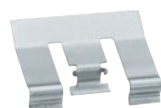
Description	Pack qty.	Cat. ref.
for BRS 70...	10	R6570VERZ



L4253BCHR

Cable retainers

Description	Pack qty.	Cat. ref.
for BR/BRA/BRS ...100 and ...214	80	L4253BCHR
for BR/BRA/BRS ...132 and ...130	70	L4254BCHR
for BR/BRA/BRS ...172 and ...170	50	L4255BCHR



L6705BCHR

Divider retaining clips

Description	Pack qty.	Cat. ref.
divider retaining clips	40	L6705BCHR



L4187CHRO

Earth terminal

Description	Pack qty.	Cat. ref.
up to 10mm ²	10	L4187CHRO



L5802

Earth kit

Description	Pack qty.	Cat. ref.
in sheet steel	1 set of 25 pieces	L5802



L4180VERZ

Earth tag

Description	Pack qty.	Cat. ref.
BRS lid and BRS base	10	L4180VERZ



L5804

Sound insulation barrier

- sound level reduction: 40 dB
 - incombustible
 - material catégorie: M1
 - do not use as fire resistant protection !

Description	Pack qty.	Cat. ref.
300 mm length, Ø 30 mm, in mineral fibres	1 set of 15 pieces	L5804

Metal cable divider

offers a strong additional shield.

PVC divider

used to separate high and low voltage current.

Divider for steel trunking

- to separate high and low voltage current



Description	Pack qty.	Cat. ref.
zinc coated steel	32 m	TWS70VERZ

Partition 1 gang

- to separate high and low voltage current



Description	Pack qty.	Cat. ref.
PVC	48 m	G1612

External corner lid

- to cover fixed external corners



Description	Pack qty.	Cat. ref.
80 mm lid, RAL 9010	1	BRS0802A9010

Internal corner lid

- to cover fixed internal corners



Description	Pack qty.	Cat. ref.
80 mm lid, RAL 9010	1	BRS0802I9010

Cable retainers

Description	Pack qty.	Cat. ref.
zinc coated	80	L4253BCHR



L4253BCHR

Earth terminals

- to connect to junction or as earthing up to 10 mm²

Description	Pack qty.	Cat. ref.
Earth terminals	10	L4187CHRO



L4187CHRO

Universal earth clips

- for electrical connection of bases or as earthing

Description	Pack qty.	Cat. ref.
universal earth clips	10	G2401



G2401

Earth straps

- plug-in, 4mm² section
- for electrical connection of the bases & lids, and for pieces bridging

Description	Pack qty.	Cat. ref.
150 mm length	100	L4181GNGE
300 mm length	100	L4182GNGE
600 mm length	25	L4183GNGE



L4181GNGE

45mm wiring frame can be front clipped on the profile.

Colours:

pure white, RAL 9010

black, RAL 9011

alu, ALU



GT4519010

1 gang outlet frames 45mm

Description	Cat. ref.
white	GT4519010
black	GT4519011
alu	GT451ALU



GT4529010

2 gang outlet frames 45mm

Description	Cat. ref.
white	GT4529010
black	GT4529011
alu	GT452ALU



GT4539010

3 gang outlet frames 45mm

Description	Cat. ref.
white	GT4539010
black	GT4539011
alu	GT453ALU



LFF79H

Insulation box

Description	Cat. ref.
1 gang 45mm	LFF79H

Mounting boxes

- for 60mm, German socket

Description

1 gang mounting box

2 gang mounting box

Cat. ref.

G2850

G2860



G2850

- for BS socket

Description

1 gang mounting box

2 gang mounting box

Cat. ref.

BS2850

BS2860



G2860

Mounting frame

- for 60mm, high voltage

Description

1 gang mounting frame

Cat. ref.

G2870



G2870

Finishing frame

- only for BRS

Description

for finishing frame > 80mm or highly rounded

Cat. ref.

G35609010



G35609010

Description

Wide boxes to mount in BRAP and BRS trunking.
Will accept CEE wiring up to 32A.
Frame in PC/ABS with pre-cuts adapted to CEE socket.
Neat finish.

Delivery information

delivered with 4 self-threading screws and 2 cable clips.

Colours

pure white, RAL9010
lacquered alu, LAN



G2745

CEE outlet box

- centre distance: 60 or 70mm

Description

black, polyamide

Cat. ref.

G2745



G33749010

Front plate kits

- for CEE outlet box

Description

white

lacquered alu

Cat. ref.

G33749010

G3374LAN

Description

- to be clipped on front of BRP / BRAP / BRS trunking profiles,
- compact size thanks to plug-in,
- double insulation socket box,
- safe socket,
- input connector for socket connection.

Colours

- pure white, RAL9010
- lacquered alu, LAN

2 gang socket outlet boxes 16A, 250V

Description	Cat. ref.
white	GE20119010
red	GE20113020



GE20119010

Modular frontplates for 2 gang socket outlet

- the modular intermediate front plate is necessary for the combination of 16A sockets and data outlet with modular frontplate.

Description	Cat. ref.
PVC, pure white RAL 9010, for ecoline range of socket	GB080209010
PVC, clear grey, RAL 7035, for ecoline range of socket	GB080207035
PVC + ABS material, aluminium color	G3561LAN



GB080209010

3 pole input connector

Description	Cat. ref.
for ecoline socket	G4703



G4703

3 pole output connector

Description	Cat. ref.
painting alu	G4713



G4713

2 gangs RJ45 sockets

Description	Cat. ref.
cat. 6 UTP, ecoline	G3150
data outlet box for G3150, front mounted	GLT1511

Modular frontplates for 2xRJ45 socket for horizontal or vertical mounting

Description	Cat. ref.
PVC, pure white RAL 9010	GR08009010
PVC, clear grey, RAL 7035	GR08007035
PVC + ABS material, aluminium color	G3234LAN



GR08009010

Supply cables

- 3 x 2,5 mm², WAGO connection

Description	Cat. ref.
length: 300mm	G4733
length: 450mm	G4743
length: 750mm	G4753
length: 1500mm	G4796
length: 2500mm	G4797
length: 4500mm	G4798




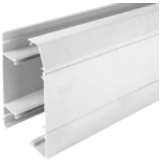
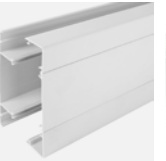


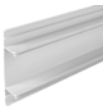









G4733



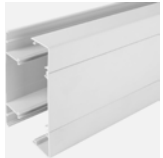

















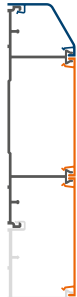

Delivery information: Base pre-drilled and lid to be ordered separately.

Standard length: 2.92 m

Material: PVC , white WH

Protection category: IP40, IK04

			Profile 1 167 x 50 mm	Profile 2 167 x 50 mm	Profile 3 167 x 50 mm	Profile 4 218 x 50 mm	Profile 5 218 x 50 mm
							
			Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.
Base unit		white	CU50BAWH	CU50BAWH	CU50BAWH	CU50BAWH	CU50BAWH
		packaging	4 x 2.92 m	4 x 2.92 m	4 x 2.92 m	4 x 2.92 m	4 x 2.92 m
Base extension		white	-	-	-	CU50BAEWH	CU50BAEWH
		packaging				4 x 2.92 m	4 x 2.92 m
Main compartment cover		white	CU50C1WH	CU50C1WH	CU50C1WH	2 x CU50C1WH	2 x CU50C1WH
		packaging	8 x 2.92 m	8 x 2.92 m	8 x 2.92 m	8 x 2.92 m	8 x 2.92 m
Angle cover		white	2 x CU50C2WH	CU50C2WH	-	CU50C2WH	-
		packaging	8 x 2.92 m	8 x 2.92 m		8 x 2.92 m	
Square cover		white	-	CU50C3WH	2 x CU50C3WH	-	CU50C3WH
		packaging		8 x 2.92 m	8 x 2.92 m		8 x 2.92 m
Couplers		white	CU50CP1WH	CU50CP2WH	CU50CP3WH	CU50CP4WH	CU50CP5WH
		packaging	5 pieces	5 pieces	5 pieces	5 pieces	5 pieces
End caps		left	CU50EP1WH	CU50EPL2WH	CU50EP3WH	CU50EPL4WH	CU50EPL5WH
		right	CU50EP1WH	CU50EPR2WH	CU50EP3WH	CU50EPR4WH	CU50EPR5WH
		packaging	5 pieces	5 pieces	5 pieces	5 pieces	5 pieces
Internal bend		white	CU50IC1WH	CU50IC2WH	CU50IC3WH	CU50IC4WH	CU50IC5WH
		packaging	5 pieces	5 pieces	5 pieces	5 pieces	5 pieces
Internal bend covers only, data		white	CU50ICDA1WH	CU50ICDA2WH	CU50ICDA3WH	CU50ICDA4WH	CU50ICDA5WH
		packaging	1 piece	1 piece	1 piece	1 piece	1 piece
External bend		white	CU50EC1WH	CU50EC2WH	CU50EC3WH	CU50EC4WH	CU50EC5WH
		packaging	1 piece	1 piece	1 piece	1 piece	1 piece

			Profile 1 167 x 50 mm	Profile 2 167 x 50 mm	Profile 3 167 x 50 mm	Profile 4 218 x 50 mm	Profile 5 218 x 50 mm
							
			Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.
Flat angles		up	CU50FA1WH	CU50FAU2WH	CU50FA3WH	CU50FAU4WH	CU50FAU5WH
		down	CU50FA1WH	CU50FAD2WH	CU50FA3WH	CU50FAD4WH	CU50FAD5WH
		packaging	1 piece	1 piece	1 piece	1 piece	1 piece
Flat tees up or down		white	CU50FT1WH	-	CU50FT3WH	-	-
		packaging	1 piece		1 piece		
Dividing filet		white	CU50DF1WH	CU50DF1WH	CU50DF1WH	CU50DF1WH	CU50DF1WH
		packaging	8 x 2.92 m	8 x 2.92 m	8 x 2.92 m	8 x 2.92 m	8 x 2.92 m
1-gang accessory box		white	CU50BO1WH	CU50BO1WH	CU50BO1WH	CU50BO1WH	CU50BO1WH
		packaging	20 pieces	20 pieces	20 pieces	20 pieces	20 pieces
2-gang accessory box		white	CU50BO2WH	CU50BO2WH	CU50BO2WH	CU50BO2WH	CU50BO2WH
		packaging	10 pieces	10 pieces	10 pieces	10 pieces	10 pieces
1-gang accessory plate, data		white	CU50P1WH	CU50P1WH	CU50P1WH	CU50P1WH	CU50P1WH
		packaging	10 pieces	10 pieces	10 pieces	10 pieces	10 pieces
2-gang accessory plate, data		white	CU50P2WH	CU50P2WH	CU50P2WH	CU50P2WH	CU50P2WH
		packaging	5 pieces	5 pieces	5 pieces	5 pieces	5 pieces
Profile views			Profile 1 167 x 50 mm	Profile 2 167 x 50 mm	Profile 3 167 x 50 mm	Profile 4 218 x 50 mm	Profile 5 218 x 50 mm
<ul style="list-style-type: none">  Base unit  Base extension  Cover  Angle cover  Square cover 							

Wires and cables diameter and section for power and low voltage

	approx. external Ø in mm	section in mm ²
wire: H 07 V		
1.5	2.8	6.2
2.5	3.4	9.1
4	3.9	11.9
6	4.7	17.3
Phone cable - STY1		
1 pair	3.8	11.3
2 pairs	4.9	18.9
3 pairs	5.2	21.2
4 pairs	5.7	25.5
5 pairs	6.1	29.2
Data cable - Cat 5		
FTP 100 Ω 4 pairs	6.0	28.3
L 120 120 Ω 4 pairs	8 x 5	40.0
L 120 120 Ω 8 pairs	10.5 x 8	84.0
TV cable		
coax 75 Ω	7.0	38.5

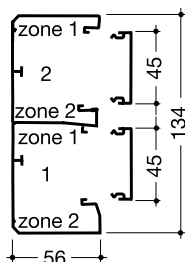
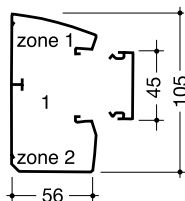
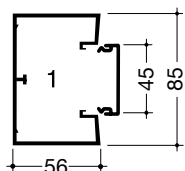
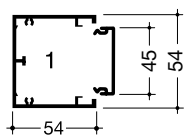
	approx. external Ø in mm	section in mm ²
Cable U1000R02V - H07RNF		
2 x 1,5	8,4	55,4
2 x 2,5	9,6	72,4
2 x 4	10,5	86,6
2 x 6	11,8	109,4
3 x 1,5	8,8	60,8
3 x 2,5	10,0	78,5
3 x 4	11,0	95,0
3 x 6	12,9	130,7
4 x 1,5	9,6	72,4
4 x 2,5	11,0	95,0
5 x 1,5	10,0	78,5
5 x 2,5	11,6	105,7
5 x 4	13,5	143,1
5 x 6	15,5	188,7

GBD deviation list toward other trunking types

derivation toward trunking	GBD501000			GBD501310			GBD501600			GBD501610			GBD501900		
	flat corner	T	int. corner 3D	flat corner	T	int. corner 3D	flat corner	T	int. corner 3D	flat corner	T	int. corner 3D	flat corner	T	int. corner 3D
LFF types															
LFF300300															
LFF300450															
LFF300600															
LFF400400															
LFF400600															
LFF400900															
LFF401100															
EK types															
EK400400															

All derivations for GBD (except 50190) toward 50085 using an adaptor delivered with the T of the GBD.

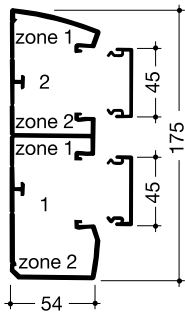
tehalit.queraz PVC



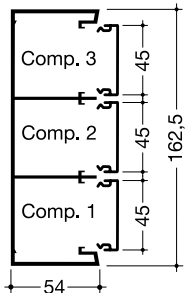
		with outlet		without outlet	
GBD500500					
Cable capacity	power current 3 x 2,5 mm ²	compartment 1	2 + 2	15	
	vlv data current L 120 - 4 pairs	compartment 1	2 + 2	25	
GBD500850					
Cable capacity	power current 3 x 2,5 mm ²	compartment 1	7 + 7	20	
	vlv data current L 120 - 4 pairs	compartment 1	15 + 15	40	
GBD501000					
Cable capacity	power current 3 x 2,5 mm ²	compartment 1	area 1	5	
			area 2	11	
	vlv data current L 120 - 4 pairs	compartment 1	area 1	10	
			area 2	21	
Total useful / nominal section in mm ² *		compartment 1		2347 / 4694	
Total useful / nominal section by zone *		compartment 1	area 1	420 / 840	
			area 2	870 / 1740	
GBD501310					
Cable capacity	power current 3 x 2,5 mm ²	compartment 2	area 1	3	
			area 2	3	
		compartment 1	area 1	2	
			area 2	7	
	vlv data current L 120 - 4 pairs	compartment 2	area 1	9	
			area 2	9	
		compartment 1	area 1	5	
			area 2	15	
Total useful / nominal section in mm ² *		compartment 2		1305 / 2610	
		compartment 1		1360 / 2720	
Total useful / nominal section by zone *		compartment 2	area 1	360 / 710	
			area 2	380 / 760	
			compartment 1	area 1	200 / 400
				area 2	600 / 1200

* Section acting as base of calculation to define the capacity according to the different section of cables.

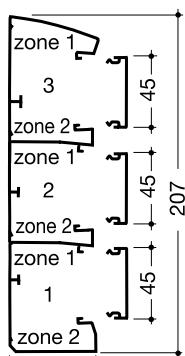
tehalit.queraz PVC



GBD501600				with outlet	without outlet	
Cable capacity	power current 3 x 2,5 mm ²	compartment 2	area 1	5	22	
			area 2	3		
		compartment 1	area 1	3	27	
			area 2	11		
	vlv data current L 120 - 4 pairs	compartment 2	area 1	10	44	
			area 2	7		
		compartment 1	area 1	7	54	
			area 2	21		
Total useful / nominal section in mm ² *		compartment 2			1792 / 3584	
		compartment 1			2188 / 4376	
Total useful / nominal section by zone *		compartment 2	area 1	420 / 840		
			area 2	300 / 600		
			compartment 1	area 1	300 / 600	
				area 2	870 / 1740	



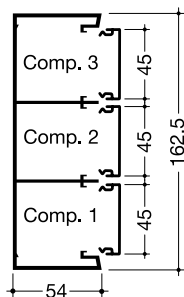
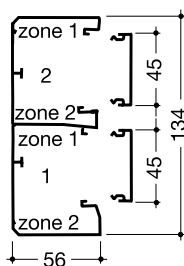
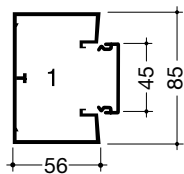
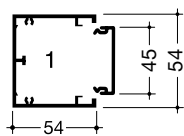
GBD501610						
Cable capacity	power current 3 x 2,5 mm ²	compartment 3		11	20	
		compartment 2		8	17	
		compartment 1		11	20	
		vlv data current L120 - 4 p airs	compartment 3		16	35
	compartment 2		12	30		
	compartment 1		16	35		
	Total useful / nominal section in mm ² *		compartment 3	655 / 1310		935 / 1870
			compartment 2	510 / 1020		810 / 1620
		compartment 1	655 / 1310		935 / 1870	



GBD501900							
Cable capacity	power current 3 x 2,5 mm ²	compartment 3	area 1	5	22		
			area 2	3			
		compartment 2	area 1	1	16		
			area 2	3			
		compartment 1	area 1	1	20		
			area 2	8			
		vlv data current L120 - 4 pairs	compartment 3	area 1	15	38	
				area 2	9		
	compartment 2		area 1	5	28		
			area 2	9			
	compartment 1		area 1	5	34		
			area 2	15			
	Total useful / nominal section in mm ² *		compartment 3			1550 / 3100	
			compartment 2			1150 / 2300	
			compartment 1			1375 / 2750	
	Total useful / nominal section in mm ² *		compartment 3	area 1	600 / 1200		
		area 2		375 / 750			
		compartment 2	area 1	210 / 420			
			area 2	370 / 740			
		compartment 1	area 1	200 / 400			
			area 2	600 / 1200			

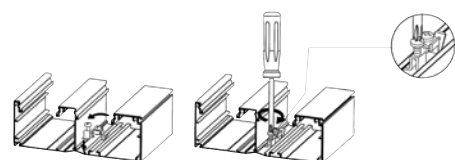
* Section acting as base of calculation to define the capacity according to the different section of cables.

tehalit.queraz alu

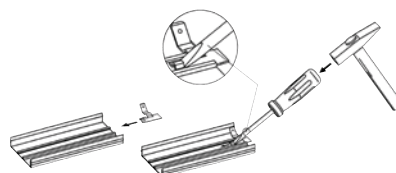


GBA500501			with outlet	without outlet	
Cable capacity	power current 3 x 2,5 mm ²	compartment 1	2 + 2	15	
	vlv data current L 120 - 4 pairs		2 + 2	25	
GBA500851					
Cable capacity	power current 3 x 2,5 mm ²	compartment 1	7 + 7	20	
	vlv data current L 120 - 4 pairs		15 + 15	40	
GBA501311					
Cable capacity	power current 3 x 2,5 mm ²	compartment 2	area 1	3	18
			area 2	3	
vlv data current L 120 - 4 pairs		compartment 1	area 1	2	19
			area 2	7	
		compartment 2	area 1	9	32
			area 2	9	
compartment 1	area 1	5	34		
	area 2	15			
Total useful / nominal section in mm ² *		compartment 2			1305 / 2610
		compartment 1			1360 / 2720
Total useful / nominal section by zone *		compartment 2	area 1	360 / 710	
			area 2	380 / 760	
		compartment 1	area 1	200 / 400	
			area 2	600 / 1200	
GBA501611					
Cable capacity	power current 3 x 2,5 mm ²	compartment 3	11	20	
		compartment 2	8	17	
vlv data current L120 - 4 pairs		compartment 1	11	20	
		compartment 3	16	35	
		compartment 2	12	30	
Total useful / nominal section in mm ² *		compartment 1	16	35	
		compartment 3	655 / 1310	935 / 1870	
		compartment 2	510 / 1020	810 / 1620	
		compartment 1	655 / 1310	935 / 1870	

Accessories mounting

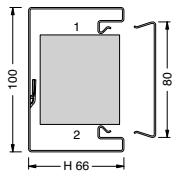


Earth terminal for aluminium base.

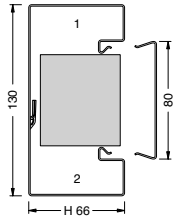


Earth terminal for aluminium lid.

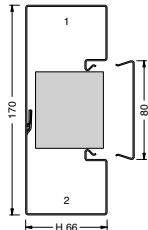
tehalit.queraz BRP/BRAP/BRS



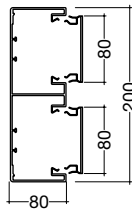
BRP/BRAP/BRS651001 - BRP/BRS65210D1					
cable capacity	power current 3 x 2,5 mm ²	area 1	6	33	
		area 2	6		
	vlv data current L 120 - 4 pairs	area 1	12	66	
		area 2	12		
Total useful / nominal section in mm ² *				2650 / 5300	
Total useful / nominal section by compartment *				area 1	495 / 990
				area 2	495 / 990



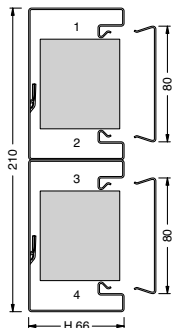
BRP/BRAP/BRS651301					
cable capacity	power current 3 x 2,5 mm ²	area 1	10	40	
		area 2	10		
	vlv data current L 120 - 4 pairs	area 1	20	78	
		area 2	20		
Total useful / nominal section in mm ² *				3150 / 6300	
Total useful / nominal section by compartment *				area 1	832 / 1664
				area 2	832 / 1664



BRP/BRAP/BRS651701					
cable capacity	power current 3 x 2,5 mm ²	area 1	19	57	
		area 2	19		
	vlv data current L 120 - 4 pairs	area 1	37	112	
		area 2	37		
Total useful / nominal section in mm ² *				4500 / 9000	
Total useful / nominal section by compartment *				area 1	1492 / 2984
				area 2	1492 / 2984



BRAP802001					
cable capacity	power current 3 x 2,5 mm ²	area 1	17	54	
		area 2	17		
	vlv data current L 120 - 4 pairs	area 1	30	100	
		area 2	30		
Total useful / nominal section in mm ² *				7000 / 14000	
Total useful / nominal section by compartment *				area 1	1850 / 3700
				area 2	1850 / 3700



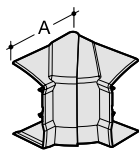
BRS652101					
cable capacity	power current 3 x 2,5 mm ²	area 1	25	70	
		area 2	25		
	vlv data current L 120 - 4 pairs	area 1	45	130	
		area 2	45		
Total useful / nominal section in mm ² *				5750 / 11700	
Total useful / nominal section by compartment *				area 1	2050 / 4300
				area 2	2050 / 4300

* Section acting as base of calculation to define the capacity according to the different section of cables.

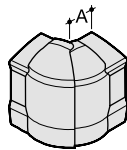
Trunking installation time

	trunking laying in min./m
BRP/BRAP/BRS trunking	
BRP/BRAP/BRS651001	10,5
BRP651301 ; BRAP/BRS651321	11
BRP651701 ; BRAP/BRS651721	12

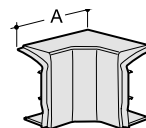
tehalit.queraz



internal corner
size in mm



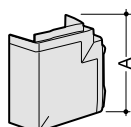
external corner
size in mm



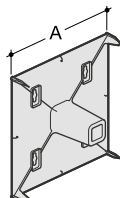
3D internal corner
size in mm

references

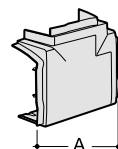
GBD500850 / GBA500850	110	45 to 90°	-
GBD501000	110	45 to 90°	145
GBD501310 / GBA501310	110	45 to 90°	145
GBD501600	110	45 to 90°	185
GBD501610 / GBA501610	110	45 to 90°	185
GBD501900	110	45 to 90°	-



flat corner
size in mm



back plate for flat corner and T piece
size in mm

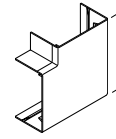
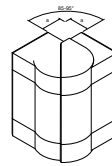
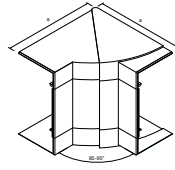


T piece
size in mm

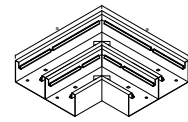
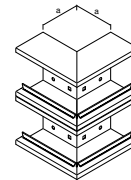
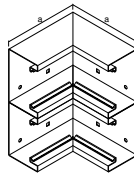
references

GBD500850 / GBA500850	120	-	145
GBD501000	140	110	165
GBD501310 / GBA501310	165	136	190
GBD501600	210	180	235
GBD501610 / GBA501610	210	180	235
GBD501900	240	212	265

tehalit.queraz BRP, BRAP, BRS



references	internal corner size in mm	external corner size in mm	flat corner size in mm
BRP/BRAP/BRS651001	145	37	135
BRP/BRAP/BRS651301	145	37	165
BRP/BRAP/BRS651701	145	37	205
BRP/BRAP/BRS652101	145	37	265
BRP/BRAP/BRS65210D	145	37	290



references	internal corner size in mm	external corner size in mm	flat corner size in mm
BRAP802001	250	250	250

Earthing of BRAP / GBA aluminium trunking**• Use of wires**

The earthing of every metallic part is compulsory, and are realized with L5802 earthing kit.

Bases are connected thanks to junctions and grounded through terminals inserted in the groove (cone-point set screw contact).

For the lids, the earthing is allowed by tabs (to be inserted in the groove) linked to one terminal of the base.

The BRAP covers must be connected to the bottom terminal thanks to an earthing conductor.

• Use of cables

Near the device, the earthing of every metallic part (bottom, lids,...) is compulsory using the same process as for wire cabling.

Earthing of BRAP / GBA aluminium trunking**• Use of wires**

The earthing of every metallic part is compulsory. Junctions are used to connect bases electrically. The earthing of the bases can be done only on one point (junction ensuring the electric continuity). Covers are equipped with one tab on each end. If the ends of the cover should be cut, earth junctions (L6699) allow the earthing. They can be mounted in the slots that are every 40 cm on cover border.

A conductor must be connected between those tabs and an earthing point (for example: junctions of the bottoms).

The reported tab (L4180) allows the earthing of the metallic partitions.

Metallic covers should be connected, thanks to 2 integrated tabs, to an earthing point (for example: junctions of the bottoms or earth connection lugs).

• Use of cables

No earthing is required for the trunking systems.

For installation trunking, the earthing of every metallic part (bottom, lids,...) is compulsory near the device using the same process as for wire cabling.

Earthing of BRAP / GBA aluminium trunking**• Use of wires**

The earthing of every metallic part is compulsory. Cone-point set screw of the leg and cylinder should be tighten.

The tabs (L4188) allows the earthing of the covers.

Boxes can be grounded thanks to a terminal.

Earth conductor can be connected to the terminal of one leg or cylinder.

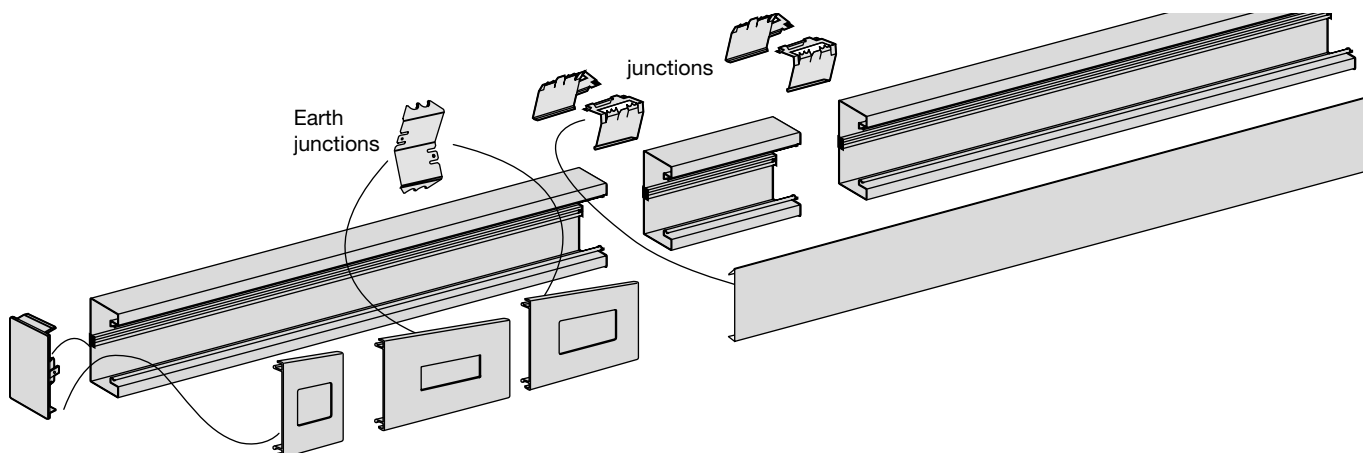
• Use of cables

The earth terminal that equip all the boxes can only be used to ground them.

• Equipotentiality

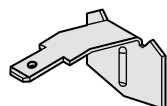
When required, it can be realized by simply tightening the cone-point set screw of the cylinder and leg.

tehalit.BRS trunking

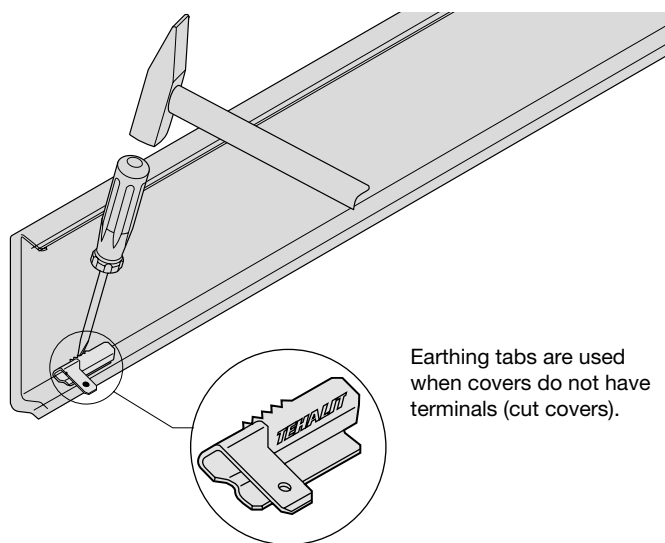


Metallic lids, bases and accessories are delivered with earth terminals.

Partitions earthing is done using L4180.

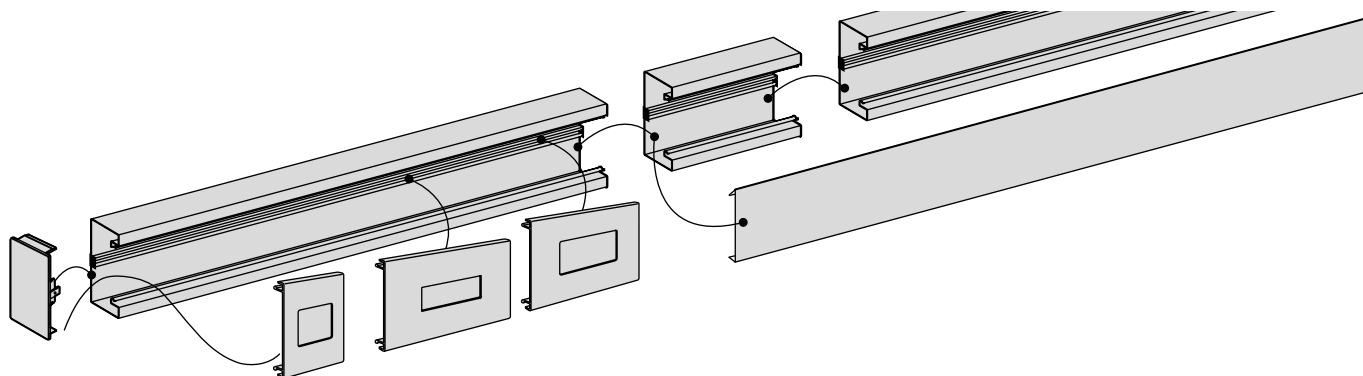


Earth junction for partition

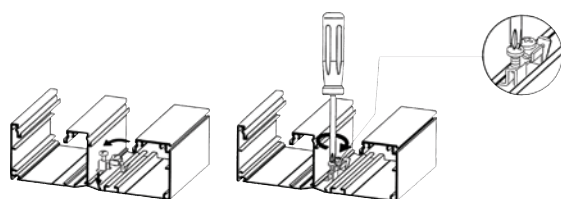


Earthing tabs are used when covers do not have terminals (cut covers).

BRAP and GBA trunkings

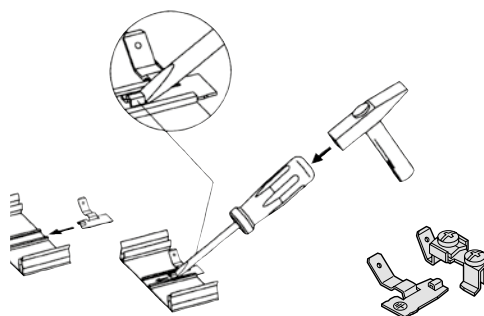


Base earthing



BRAP bases are equipped with earth terminals.

Lid earthing



base and lid earthing kits.

Office trunking

The tehalit.officea offer is designed to answer to most cases of low voltage and very low voltage distribution of workstations. The range is composed of poles and posts, multi outlet modules and blocks.

tehalit.officea is suitable for offices as well as meeting rooms.



DA 200 poles	11.2
DA 200 posts	11.6
Underfloor system	11.7
tehalit.officea	11.8
Ecoline accessories	11.10
Multi outlet blocks NR	11.12
Pull-out multi outlet modules	11.14
Flexible round trunking	11.15
Flexible floor trunking	11.16
Floor trunking	11.17
Cable outlet for raised floor	11.18
Consolidation points	11.19
Technical guide	11.20

2 ranges:

Fixed pole (S) for:

- accessories 45 mm
- accessories 60 mm and ecoline
- quick and easy mounting by one person by integrated fixing lever
- profiles: single and double sided

Special finishes and RAL colours available on request.

Colours:

- anodised aluminium, ELN
- pure white, RAL 9010
- black, RAL 7021

Material:

- body and cover: aluminium
- end plate: polyamide
- fixing system: metal
- ceiling rose: polyamide



DAS452700ELN

Single sided pole DA 200-45 for accessories 45 mm

- fixed
- slightly curved profile (66 x 66 mm),
- incl. fixing system, spirit level, earthing kit and ceiling rose

Description	Color	Cat. ref.
fixing height from 2.7 to 3 m	anodised aluminium	DAS452700ELN
fixing height from 2.7 to 3 m	pure white	DAS4527009010
fixing height from 3 to 3.3 m	anodised aluminium	DAS453000ELN
fixing height from 3 to 3.3 m	pure white	DAS4530009010
fixing height from 3.3 to 3.6 m	anodised aluminium	DAS453300ELN
fixing height from 3.3 to 3.6 m	pure white	DAS4533009010

Double sided pole DA 200-45 for accessories 45 mm

- fixed
- slightly curved profile (130 x 66 mm),
- incl. fixing system, spirit level, earthing kit and ceiling rose

Description	Color	Cat. ref.
fixing height from 2.7 to 3 m	anodised aluminium	DAS2452700ELN
fixing height from 2.7 to 3 m	pure white	DAS24527009010
fixing height from 3 to 3.3 m	anodised aluminium	DAS2453000ELN
fixing height from 3 to 3.3 m	pure white	DAS24530009010
fixing height from 3.3 to 3.6 m	anodised aluminium	DAS2453300ELN
fixing height from 3.3 to 3.6 m	pure white	DAS24533009010

Partition for DA 200-45

- to be ordered separately

Description	Pack qty.	Cat. ref.
partition 2 m	50 m	M2024



L4770

Frame for 45 mm accessories

- to mount vertically 45 mm accessories like switches, RJ45...

Description	Pack qty.	Cat. ref.
frame	10	L4770

Single sided pole DA 200-80 for accessories 60 mm

- fixed
- slightly curved profile (68 x 98 mm),
- incl. fixing system, spirit level, earthing kit and ceiling rose

Description	Color	Cat. ref.
fixing height from 2.5 to 2.8 m	anodised aluminium	DAS802500ELN
fixing height from 2.5 to 2.8 m	pure white	DAS8025009010
fixing height from 2.8 to 3.1 m	anodised aluminium	DAS802800ELN
fixing height from 2.8 to 3.1 m	pure white	DAS8028009010
fixing height from 3.1 to 3.4 m	anodised aluminium	DAS803100ELN
fixing height from 3.1 to 3.4 m	pure white	DAS8031009010
fixing height from 3.4 to 3.7 m	anodised aluminium	DAS803400ELN
fixing height from 3.4 to 3.7 m	pure white	DAS8034009010

Double sided pole DA 200-80 for accessories 60 mm

- fixed
- slightly curved profile (136 x 98 mm),
- incl. fixing system, spirit level, earthing kit and ceiling rose

Description	Color	Cat. ref.
fixing height from 2.5 to 2.8 m	anodised aluminium	DAS2802500ELN
fixing height from 2.5 to 2.8 m	pure white	DAS28025009010
fixing height from 2.8 to 3.1 m	anodised aluminium	DAS2802800ELN
fixing height from 2.8 to 3.1 m	pure white	DAS28028009010
fixing height from 3.1 to 3.4 m	anodised aluminium	DAS2803100ELN
fixing height from 3.1 to 3.4 m	pure white	DAS28031009010
fixing height from 3.4 to 3.7 m	anodised aluminium	DAS2803400ELN
fixing height from 3.4 to 3.7 m	pure white	DAS28034009010

Ceiling rose for fixed poles DA 200

- spare part

Description	Color	Cat. ref.
for DA200-45, simple	black	DAC457021
for DA200-45, simple	pure white	DAC459010
for DA200-45, double	pure white	DAC2459010
for DA200-80, simple	black	DAC807021
for DA200-80, simple	pure white	DAC809010
for DA200-80, double	black	DAC2807021
for DA200-80, double	pure white	DAC2809010



DAC807021

Finishing sleeve

- pole mounting without suspended ceiling
- to hide the cables and the fixing system

Description	Cat. ref.
finishing sleeve	L1840



L1840

2 ranges

- mobile pole with flexible ceiling connector (F) for:
 - accessories 45 mm
 - accessories 60 mm and ecoline
 - quick and easy mounting by one person
 - profiles: single and double sided

Colours

- anodised aluminium, ELN
- pure white, RAL 9010
- black, RAL 7021

Material

- body and cover: aluminium
- end plate: polyamide
- fixing system: metal
- ceiling rose: polyamide
- base: cast iron

Special finishes and RAL colours available on request.



DAF4520009010

Single sided pole DA 200-45 for accessories 45 mm

- with flexible ceiling connector
- slightly curved profile (66 x 66 mm),
- incl. flexible connector, spirit level, earthing kit and ceiling rose
- without base

Description	Color	Cat. ref.
height 2m	anodised aluminium	DAF452000ELN
height 2m	pure white	DAF4520009010



DAF2452000ELN

Double sided pole DA 200-45 for accessories 45 mm

- with flexible ceiling connector
- slightly curved profile (130 x 66 mm),
- incl. flexible connector, spirit level, earthing kit and ceiling rose
- without base

Description	Color	Cat. ref.
height 2m	anodised aluminium	DAF2452000ELN
height 2m	pure white	DAF24520009010



M2024

Partition for DA 200-45

- to be ordered separately

Description	Pack qty.	Cat. ref.
partition 2 m	50 m	M2024



L4770

Frame for 45 mm accessories

- to mount vertically 45 mm accessories like switches, RJ45...

Description	Pack qty.	Cat. ref.
frame	10	L4770

Single sided pole DA 200-80 for accessories 90 mm

- with flexible ceiling connector
- slightly curved profile (68 x 98 mm),
- incl. flexible connector, spirit level, earthing kit and ceiling rose
- without base

Description	Color	Cat. ref.
height 2m	anodised aluminium	DAF802000ELN
height 2m	pure white	DAF8020009010



DAF802000ELN

Double sided pole DA 200-80 for accessories 60 mm

- with flexible ceiling connector
- slightly curved profile (136 x 98 mm),
- incl. flexible connector, spirit level, earthing kit and ceiling rose
- without base

Description	Color	Cat. ref.
height 2m	anodised aluminium	DAF2802000ELN
height 2m	pure white	DAF28020009010

Base for single sided pole

- cast iron base (to be ordered separately)
- weight: 15 kg
- dimension: 300 x 300 x 26 mm



Description	Cat. ref.
base for DA 200-45 / DA 200-80	DAFF20007035

Base for double sided pole

- cast iron base (to be ordered separately)
- weight: 15 kg
- dimension: 300 x 340 x 26 mm

Description	Cat. ref.
base for DA 200-45 / DA 200-80	DAFF220007035

Posts (P) for

- accessories 45 mm
- accessories 60 mm and ecoline

Special finishes and RAL colours available on request.

Material

- body and cover: aluminium
- end plate: polyamide
- fixing system: metal

Colours

- anodised aluminium, ELN
- pure white, RAL 9010



DAP45700ELN

Post single sided DA 200-45 for accessories 45 mm

- dimensions 66 x 66 mm, height 700 mm

Description	Color	Cat. ref.
aluminium post for accessories 45 mm	anodised aluminium	DAP45700ELN
aluminium post for accessories 45 mm	pure white	DAP457009010

Post double sided DA 200-45 for accessories 45 mm

- dimensions 130 x 66 mm, height 700 mm

Description	Color	Cat. ref.
aluminium post for accessories 45 mm	anodised aluminium	DAP245700ELN
aluminium post for accessories 45 mm	pure white	DAP2457009010



M2024

Partition for DA 200-45

- for accessories 45 mm
- to be ordered separately

Description	Pack qty.	Cat. ref.
PVC partition, length 2m	50 m	M2024



L4770

Frame for 45 mm accessories

- to mount vertically 45 mm accessories like switches, RJ45...

Description	Pack qty.	Cat. ref.
frame	10	L4770

Floor-fed service pillar, single-sided

- aluminium installation pillar for front-latching installation devices with modular covers
- slightly convex profile (68 x 98 mm)
- floor plate (168 x 138 mm)

Description	Color	Cat. ref.
floor-fed service pillar, 650 mm	anodised aluminium	DAP80650ELN
floor-fed service pillar, 650 mm	pure white	DAP806509010



DAP280650ELN

Floor-fed service pillar, double-sided

- aluminium installation pillar for front-latching installation devices with modular covers
- slightly convex profile (130 x 98 mm)
- floor plate (168 x 200 mm)

Description	Color	Cat. ref.
floor-fed service pillar, 2-sided, 650 mm	anodised aluminium	DAP280650ELN
floor-fed service pillar, 2-sided, 650 mm	pure white	DAP2806509010



M2026

Partition for DA 200-80

- for accessories 60 mm
- to be ordered separately

Description	Pack qty.	Cat. ref.
PVC partition, length 2m	50 m	M2026

Technical data

- galvanised steel
- rust protection
- adapted for conduits with a diameter of 25mm
- special plate adapted for trunking installation (25 or 38 mm height)
- supply unit made of polyamide according to EN 50085-2-2

Application

- adapted to install devices
- 3 compartments
- mounting in screed
- height adjustable by lid and frame, 80 - 110 mm

Plates

Function as an outlet box for install power and data

Lid

- for dry rooms with dry cleaned floors
- carpet or tile flooring height of 8 mm

Service outlet box

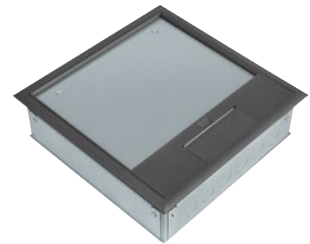
- dimensions: 269 x 269 mm

Description

service outlet box, outlet and lid

Cat. ref.

UDBSQ06



UDBSQ06

Plates

Description

blank plate in sheet steel for service outlet box

13A BS twin switched socket outlet (incl. plate and module)

data outlet plate, 2 x 2 gang (without data module)

socket modules plate, 2 x 2 gang (without data module)

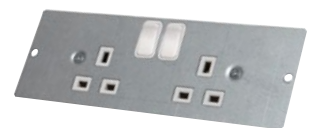
Cat. ref.

GTVPB00

GTVPB00



GTVBS25



GTVBS25

GTVDP4M



GTVDP4M

GTVSP452



GTVSP452

Modules

Description

RJ45 data module, keystone 8 pin cat6 data, dim. 22.5 x 45 mm

RJ11 data module, keystone 4 pin cat6 telephone, dim. 22.5 x 45 mm

blank module in white plastic, dim. 22.5 x 45 mm

13A BS module, dim. 45 x 45 mm

Cat. ref.

WGMRJ456



WGMRJ456

WGMRJ11



WGMRJ11

WGMV1



WGMV1

WGSM113



WGSM113

The service pole and post “RS design” offers a fast and convenient solution to supply a workstation with energy and data. The pre-wired and preassembled service pole system allows to realise fast installation without tools.

Delivered with

- collar,
- quick fix system,
- earthing kit,
- flexible ceiling connection for mobile pole, base to be ordered separately,
- outlet box with 45mm accessories pre-mounted and wired.
- cables of 6,5m length for poles and 3,5m for posts, minimum 3m cables out of the product.

Characteristics

- The range of poles is composed of 3 lengths of profile:
- from 2700 to 3000mm
 - from 3000 to 3300mm
 - from 3300 to 3600mm

Technical data

- material: profile and lid in aluminium and outlet box in ABS
- colour: black RAL 9011
- 2 mounting sides

Complies with EN50085-1

Empty fixed poles

- to be equipped

Description	Cat. ref.
fixing height from 2.7 to 3 m for a suspended ceiling height of 2.65 m	DES2700ELS
fixing height from 3 to 3.3 m for a suspended ceiling height of 2.95 m	DES3000ELS
fixing height from 3 to 3.3 m for a suspended ceiling height of 3.25 m	DES3300ELS



DES2700ELS +
DMF0012A009

Equipped fixed poles

- equipped with 5 sockets + 4 RJ45 Cat.6 FTP

Description	Cat. ref.
fixing height from 2.7 to 3 m for a suspended ceiling height of 2.65 m	DES2700FR
fixing height from 3 to 3.3 m for a suspended ceiling height of 2.95 m	DES3000FR
fixing height from 3 to 3.3 m for a suspended ceiling height of 3.25 m	DES3300FR

Empty fixed post

- to be equipped

Description	Cat. ref.
height of 650mm	DEP650ELS

Equipped fixed post

- equipped with 5 sockets + 4 RJ45 Cat.6 FTP

Description	Cat. ref.
height of 650mm	DEP650FR



DEP650FR

Empty mobile pole

- to be equipped

Description	Cat. ref.
height of 2000mm	DEF2000ELS

Equipped mobile pole

- equipped with 5 sockets + 4 RJ45 Cat.6 FTP

Description	Cat. ref.
height of 2000mm	DEF2000FR



Polestand

Description	Cat. ref.
polestand	DEFF



DEFF

Empty boxes

- to be equipped with wiring accessories

Description	Cat. ref.
12 modules of 22.5 x 45mm	DMF0012A009
16 modules of 22.5 x 45mm	DMF0016A009
20 modules of 22.5 x 45mm	DMF0020A009
24 modules of 22.5 x 45mm	DMF0024A009



DMF0012A009

Equipped box with wiring accessories

- equipped with 5 sockets + 4 RJ45 Cat.6 FTP

Description	Cat. ref.
equipped box	DEMFR



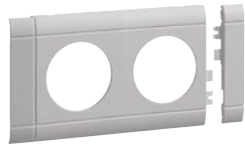
DEMFR

The ecoline range only fits in DA 200-80 poles and posts.
- compact size with quick plugin technique
- the connector G4703 must be used for connecting the outlet

Colours
For lids:
- grey RAL, 7035
- white, RAL 9010
- lacquered alu, LAN



GE20119010



GB080207035



G4703



G4713



G4733

Power outlet

Description

Cat. ref.

Double insulated socket outlet

white RAL 9010	GE20119010
red	GE20113020

Modular lid for double ecoline outlet

grey RAL 7035	GB080207035
white, RAL 9010	GB080209010
lacquered alu	GB08020LAN

Connectors

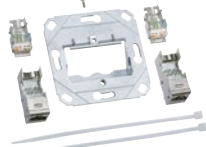
incoming connector 3 pole	G4703
outcoming connector 3 pole	G4713

Supply cable 3 pole

300 mm	G4733
450 mm	G4743
750 mm	G4753
1500 mm	G4796
2500 mm	G4797
4500 mm	G4798



G2850



G3155



G32249010

Data outlet

- quick clip in box for vertical mounting in poles DA 200-80
- to standards EN 55 022 and 50 082 T1
- LSA+ connectors

R4545 ecoline outlet:
- 8 pole connecting module with RJ45 engines oriented downwards
- colour codes according to EIA/TAI-568 A/B
- always double
- up to 250 Mhz

Modular lids:
- cover cut outs, with label, to be clipped on the accessories
- with 2 plug in end parts
- central cover with integrated protection lids

Description

Cat. ref.

Outlet box for RJ45 socket

empty box for socket G3155	G2850
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Double RJ45 socket

double data outlet cat. 6 UTP	G3155
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Modular lid with cover for double RJ45 socket

white, RAL 9010	G32249010
lacquered alu	G3234LAN

Intermediary lid

- for combination of power and data outlets

Description

Cat. ref.



GV0807035

grey RAL 7035	GV0807035
white, RAL 9010	GV0809010
lacquered alu	GV080LAN

Mounting boxes for 60 mm accessories

Description	Pack qty.	Cat. ref.
single mounting box, dim. 64 x 71 x 42 mm	5	G2850
double mounting box, dim. 64 x 142 x 42 mm	2	G2860



G2850

- for BS socket

Description	Cat. ref.
1 gang mounting box	BS2850
2 gang mounting box	BS2860



G2860

Mounting boxes for EEC accessories

- large mounting boxes to be fixed on poles and posts DA 200-80
- EEC accessories up to 32A and compatible with different brands

- lids in PC / ABS with cut out to the size of the EEC socket outlet
- delivery: mounting box, 4 self tapping screws and 2 cables tighteners



G2745

Description	Cat. ref.
EEC mounting box polyamide box with 4 screws and 2 cables tighteners	G2745

Lids for DA 200-80

white, RAL 9010	G33759010
lacquered alu	G3375LAN



G3375

Frames for 45 mm accessories

- to be clipped on the front of the profile

Description	Cat. ref.
Single supports	
white, RAL 9010	GT4519010
black, RAL 9011	GT4519011
lacquered alu, ALU	GT451ALU
Double supports	
white, RAL 9010	GT4529010
black, RAL 9011	GT4529011
lacquered alu, ALU	GT452ALU
Triple supports	
white, RAL 9010	GT4539010
black, RAL 9011	GT4539011
lacquered alu, ALU	GT453ALU
Insulation box for frames 45 x 45 mm	LFF79H



GT4519010



GT4529010



GT4539010



LFF79H

- anodised aluminium profile fitted with 2 mounting frames
- empty or equipped in different configurations
- separation low and very low voltage
- quick fit connections Winsta technique from Wago.
- quick and protected connection with prepared supply cables

- special equipment possible on request

Material

Anodised aluminium profile, PVC covers and mounting frames



NRF0008A00

Empty blocks

- size of 1 module: 22.5 x 45 mm

Description	Cat. ref.
6 modules	NRF0006A00
8 modules	NRF0008A00
12 modules	NRF0012A00
16 modules	NRF0016A00
20 modules	NRF0020A00



NRF0004D00

Pre-equipped blocks with quick fit connectors

Description	Cat. ref.
3 sockets 2P + E	NRF0003D00
4 sockets 2P + E	NRF0004D00
6 sockets 2P + E	NRF0006D00
3 sockets 2P + E and 2 special sockets 2P + E	NRF0023D00
4 sockets 2P + E and 3 special sockets 2P + E	NRF0034D00
4 sockets 2P + E and 2 sockets RJ45 Cat 6 UTP patch / patch	NRF4204D00



NRF0023D00



NRF4204D00



NRF0204B00

Pre-equipped blocks with terminal and free space

Description	Cat. ref.
3 sockets 2P + E and 2 empty modules 22,5 mm	NRF0203B00
4 sockets 2P + E and 2 empty modules 22,5 mm	NRF0204B00
6 sockets 2P + E and 4 empty modules 22,5 mm	NRF0406B00



NRF4204K00

Pre-equipped and pre-wired blocks

Description	Cat. ref.
4 sockets 2P + E with 3 m cable and quick fit connector	NRF4204K00
2 sockets RJ45 Cat 6 UTP with 3 m cable and RJ45 plug	
6 sockets 2P + E with 3 m cable and quick fit connector	NRF4406K00
4 sockets RJ45 Cat 6 UTP with 3 m cable and RJ45 plug	

Pre-equipped blocks with cable and 2P sockets

Description	Cat. ref.
3 x 2P + E + 6m cable with Wieland connector	NRF0003G00
4 x 2P + E + 6m cable with Wieland connector	NRF0004G00
6 x 2P + E + 6m cable with Wieland connector	NRF0006G00
3 x 2P + E with mechanical keying + 6m cable with Wieland connector	NRF0030G00
4 x 2P + E with mechanical keying + 6m cable with Wieland connector	NRF0040G00
2 x 2P + E + 2 x 2P + E with mechanical keying + 6 m cable with Wieland connector	NRF0022G00
2 x 2P + E + RCBO 16A 30mA + 6m cable with Wieland connector	NRF0002G30
2 x 2P + E, 2 x 2P + E with mechanical keying 2 RJ45 Cat6-9, + 6m cable with Wieland connector	NRF5222G00



NRF5222G00

Pre-equipped blocks with cable and 2P+E sockets

Description	Cat. ref.
6 x 2P Schuko socket with 1.5m cable and 1 x RJ45 shielded data socket cat.6	DED001
6 x 2P Schuko socket with 1.5m cable and 1 x RJ45 non shielded data socket cat.6	DED002
6 x 2P+E Schuko socket with 1.5m cable and 1 x RJ45 shielded data socket cat.6	DED101
6 x 2P+E Schuko socket with 1.5m cable and 1 x RJ45 non shielded data socket cat.6	DED102



DED001

Cables and connectors

- different types of ready to use cables for connecting multi outlet block or the ecoline sockets in multi outlet blocks

- all combinations of plugs, incoming / outgoing connectors Winsta type from WAGO
- protected connections

Description	Cat. ref.
Supply cables with incoming connector and 3P plug	
1 m length	G4721
2 m length	G4731
3 m length	G4741
4 m length	G4751
5 m length	G4761
Connecting cables 3 x 2.5mm² with incoming / outgoing connector	
0.3 m length	G4733
0.45 m length	G4743
0.75 m length	G4753
1.5 m length	G4796
2.5 m length	G4797
4.5 m length	G4798
Shunt - double	
to connect sockets in parallel	G4773
Connectors	
incoming connector, used with connecting cable	G4703
outgoing connector, used on the outgoing side of ecoline sockets	G4713



G4741



G4743



G4773



G4703



G4713

- Flush mounting modules
- Hole diameter: 102 mm.

Material
Aluminium / PVC

- Colours**
- body: anodised aluminium
 - cover: lacquered alu
 - sockets: black

Special equipment on request



G7343LAN

Multi outlet module for flush mounting

- child safety
- cable: 3 m

Description

3 sockets 230 V 2 P + E

Cat. ref.

G7343LAN



G7345LAN

Multi outlet module for flush mounting

- child safety
- cable: 3 m

Description

3 sockets 230 V 2 P + E, 2 sockets RJ45 Cat 6, patch / patch

Cat. ref.

G7345LAN



G7059

Hole saw

Description

diam. 102 mm

Cat. ref.

G7059

- Flexible round trunking to bring power / data cables from the floor to the post and the multi outlet modules
- The rigidity of the trunking ensures good protection of the cables
- Easy to open / close with the clip system
- Supply of power and data cables
- Very flexible in all directions taking in consideration cable bending angle
- Extension just by adding one link

Material
polyamide

Colours
- grey, RAL 7035
- black, RAL 7021 and RAL 9005

Flexible round trunking

- trunking with 2 compartments to supply power / data cables,
- bending radius 250 mm
- connecting to multi outlet modules
- delivery: mounting box, 4 self tapping screws and 2 cables tighteners

Description	Pack qty.	Cat. ref.
Flexible round trunking		
grey, RAL 7035	1 m	RK17035
black, RAL 9005	1 m	RK19005
Bases incl. adapter with cable clamp for fixing on floor, ceiling		
grey, RAL 7035	1	G71417035
black, RAL 7021	1	G71417021
Connection adapters		
grey, RAL 7035	20	RKA7035
black, RAL 9005	20	RKA9005



RK17035



G71417035

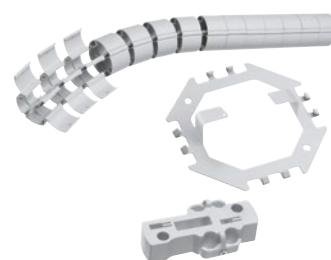


RKA7035

Flexible round trunking desk / floor set

- trunking with 2 compartments to supply power / data cables
- bending radius 250 mm (14 links)
- to supply cables from the floor to the desk
- connecting adapter
- base (for fixing under a desk, 1 x adaptor G7117xxxx to be ordered separately)

Description	Pack qty.	Cat. ref.
grey, RAL 7035	0.8 m	G71117035
black, RAL 7021	0.8 m	G71117021



G71117035

Wall support

Description	Pack qty.	Cat. ref.
support for round trunking	5	RKWH000

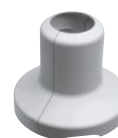


RKWH000

Cover sleeves

- sleeve in 2 parts
- to be combined with base G7141xxxx

Description	Pack qty.	Cat. ref.
Cover sleeves for connection with floor trunking G7130xxxx		
grey, RAL 7035	1	G71227035
black, RAL 7021	1	G71227021
Cover sleeves for connection with floor trunking AKA181250ELN		
grey, RAL 7035	1	G71237035
black, RAL 7021	1	G71237021
Cover sleeves for floor connection		
grey, RAL 7035	1	G71267035
black, RAL 7021	1	G71267021



G71227035



G71237035



G71267035

- Flexible floor trunking with limited height to run cables on the floor
- Respect the 250 mm bending radius
- 2 compartments to supply power / data cables

Colours

- grey, RAL 7035
- black, RAL 7021 and RAL 9005

Material
polyamide



FK17035

Flexible floor trunking

- trunking with 2 compartments to run power / data cables on the floor
- bending radius of 250 mm kept

Description	Pack qty	Cat. ref.
grey, RAL 7035	1 m	FK17035
black, RAL 9005	1 m	FK19005

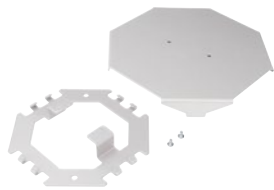


FKWB00

Support with cable clamps

- support to fix the trunking on the floor or the wall

Description	Cat. ref.
support with cable clamps	FKWB000

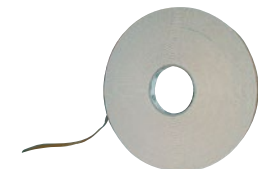


FKB7035

Universal derivation complete

- to go from alu floor trunking AKA to flexible floor trunking
- two parts: base and cover
- material: steel

Description	Pack qty	Cat. ref.
grey, RAL 7035	1	FKB7035
black, RAL 7021	1	FKB9005



L5106

Double sided adhesive tape

- to fix trunking on the floor

Description	Pack qty	Cat. ref.
double sided adhesive tape	1	L5106



G71407035

Universal derivation cover only

- to change directions between alu floor trunking AKA and flexible floor trunking
- material: steel

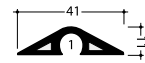
Description	Pack qty	Cat. ref.
grey, RAL 7035	1	G71407035
black, RAL 7021	1	G71407021

PVC floor trunking

- base and cover in PVC
- base with pre-punched holes and cover
- 2 meters
- other length on request (max. 6 m)



SL1104007030



Description

Pack qty

Cat. ref.

Floor trunking 11 x 41 mm

grey, RAL 7030

70 m

SL1104007030

Floor trunking 17 x 75 mm

grey, RAL 7030

32 m

SL1807507030

light grey, RAL 7035

32 m

SL1807507035

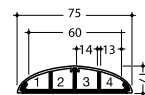
brown, RAL 8014

32 m

SL1807508014



SL1807507030

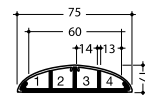


PVC and aluminium floor trunking

- cover aluminium, base PVC
- dimensions 17 x 75 mm
- 2 meters
- other length on request (max. 6 m)



SLA180750ELN



Description

Pack qty

Cat. ref.

aluminium

10 m

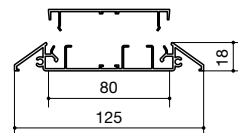
SLA180750ELN

Aluminium floor trunking

- floor trunking in aluminium for heavy loads
- 2 or 4 compartments
- dimensions 18 x 125 mm
- 2 meters
- easy access via cover
- other length on request (max. 6 m)



AKA181250ELN



Description

Pack qty

Cat. ref.

aluminium

12 m

AKA181250ELN

- cable outlet for raised floor with a thickness of 20 mm or more, dry cleaned floors
- diameter 132 mm, flush fitting 112 mm

Colours

- steel grey, RAL 7011
- grey, RAL 7035
- black, RAL 9005

Material

polyamide without halogen



LAFKG209005

Cable outlets for flexible floor trunking

- for dry cleaned floors

Description	Pack qty	Cat. ref.
For floor thickness > 20 mm		
steel grey, RAL 7011	1	LAFKG207011
grey, RAL 7035	1	LAFKG207035
black, RAL 7021	1	LAFKG209005
For floor thickness < 20 mm		
grey, RAL 7035	1	LAFKK207035
black, RAL 7021	1	LAFKK209005



LARKG207035

Cable outlets for round flexible trunking

- for dry cleaned floors

Description	Pack qty	Cat. ref.
For floor thickness > 20 mm		
steel grey, RAL 7011	1	LARKG207011
grey, RAL 7035	1	LARKG207035
black, RAL 7021	1	LARKG209005
For floor thickness < 20 mm		
grey, RAL 7035	1	LARKK207035
black, RAL 7021	1	LARKK209005

- decentralised and flexible connection
- power connection with up to 6 incoming connectors Winsta type from Wago
- the data repartition point for RJ45 is fitted with dust protective covers

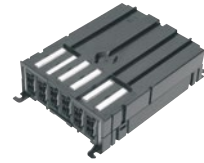
Delivery
box fitted with 6 incoming connectors.

Colour
black

Material
PC / ABS

Power repartition

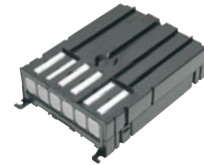
Description	Pack qty	Cat. ref.
complete box with 6 incoming quick fit connectors	1	G8360



G8360

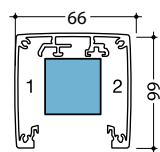
Data repartition

Description	Pack qty	Cat. ref.
complete box with 6 incoming connectors RJ45 Cat 6 FTP	1	G3160

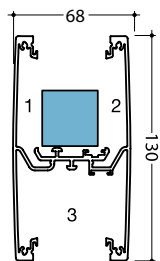


G3160

Poles / posts DA 200-45



single sided

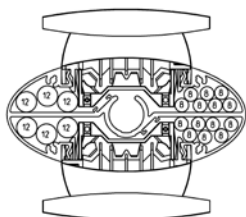


double sided

	cable type	number of cables		
		area 1	area 2	area 3
single sided	power (3 x 2.5 mm ²)	3	3	-
	data (L 120 - 4 paires)	8	3	-
double sided	power (3 x 2.5 mm ²)	4	4	14
	data (L 120 - 4 paires)	9	9	30

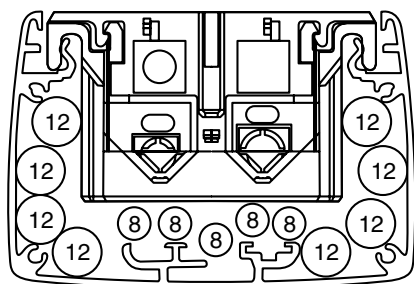
Fixing system space.

Pressure fitting and mobile poles

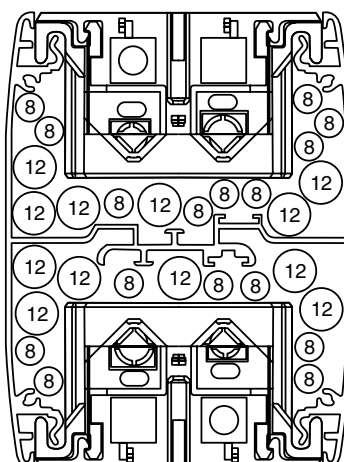


	cable capacity	cable type			
		area 1	area 2	area 3	area 4
simple and double sided pressure fitting and mobile	power current (ø 10 - 11 mm)	3	3	3	3
	vlv data current (ø 7 mm)	7	7	7	7

Example: installation in pole DA 200-80



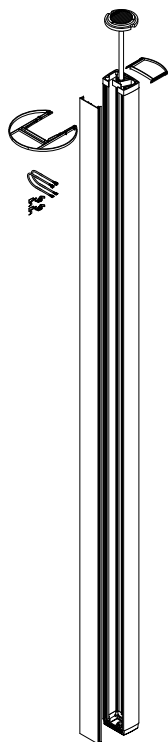
Single sided pole DA 200-80:
Min. 6 x diam. 12 mm (power)
Min. 4 x diam. 8 mm (data)



Double sided pole DA 200-80:
Min. 12 x diam. 12 mm (power)
Min. 8 x diam. 8 mm (data)

Selection chart for pressure fixing poles DA 200 profile length

This chart will assist you in selecting the right pole depending on available height and way of installation.



DA 200-45

reference	profile length	suspended ceiling	concrete ceiling
DAS452700xxxx DAS2452700xxxx	2,657 mm	up to max, 2,650 mm	2,700 - 3,000 mm
DAS453000xxxx DAS2453000xxxx	2,957 mm	up to max, 2,950 mm	3,000 - 3,300 mm
DAS453300xxxx DAS2453300xxxx	3,257 mm	up to max, 3,250 mm	3,300 - 3,600 mm

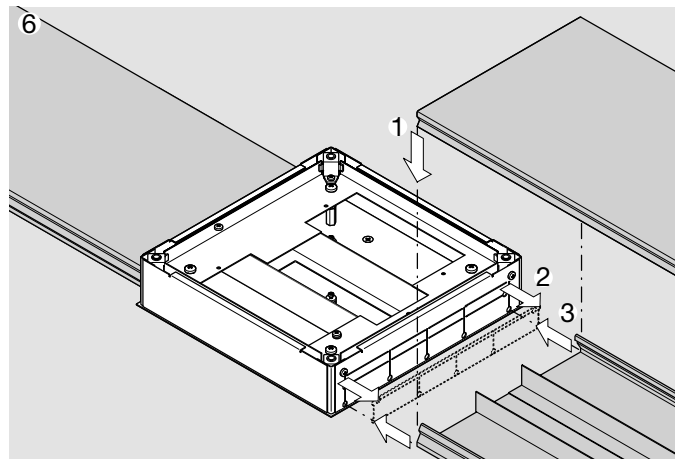
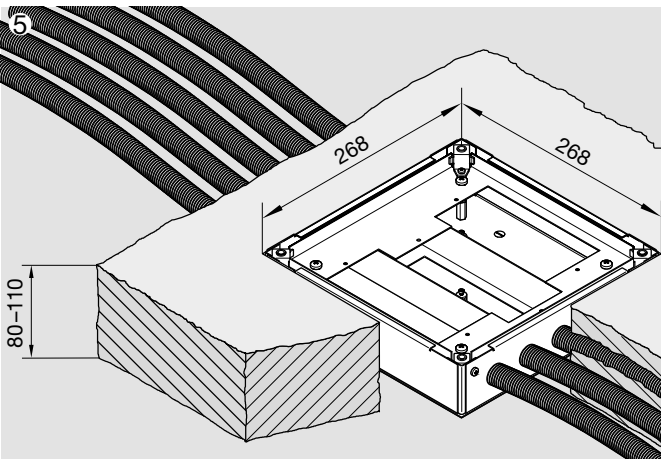
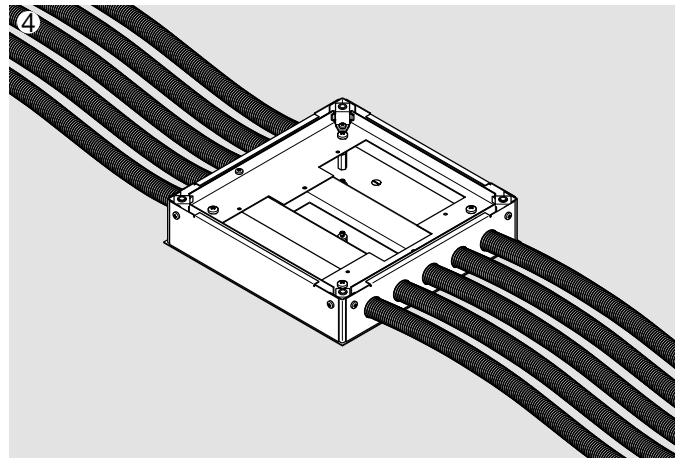
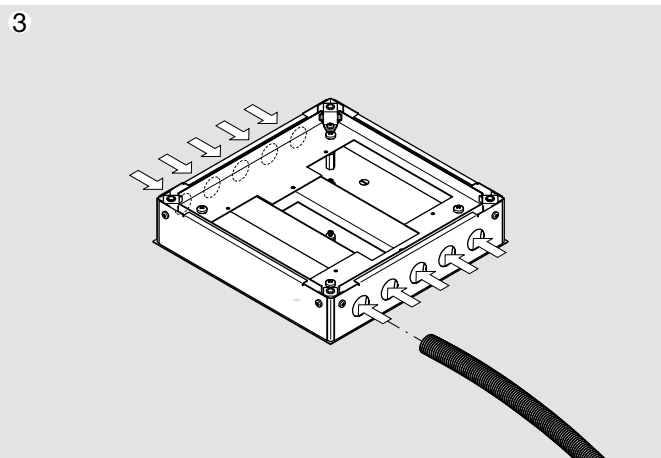
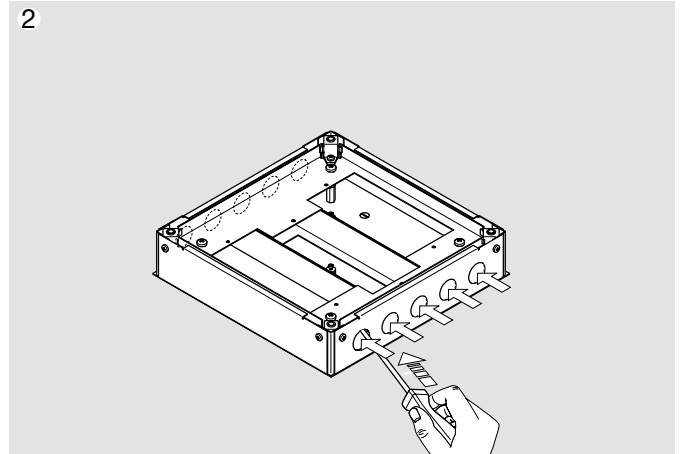
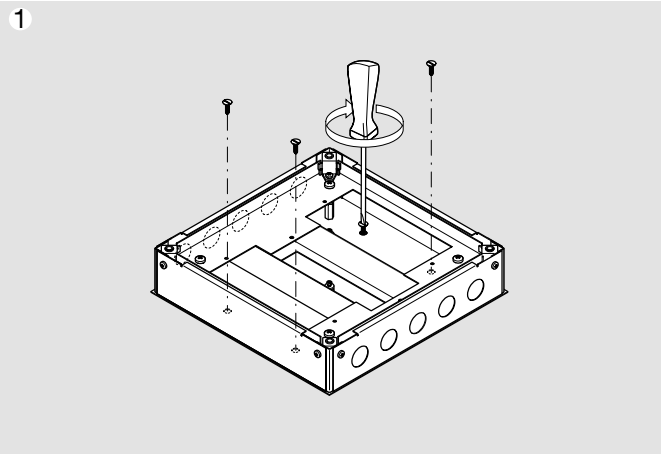
DA 200-80

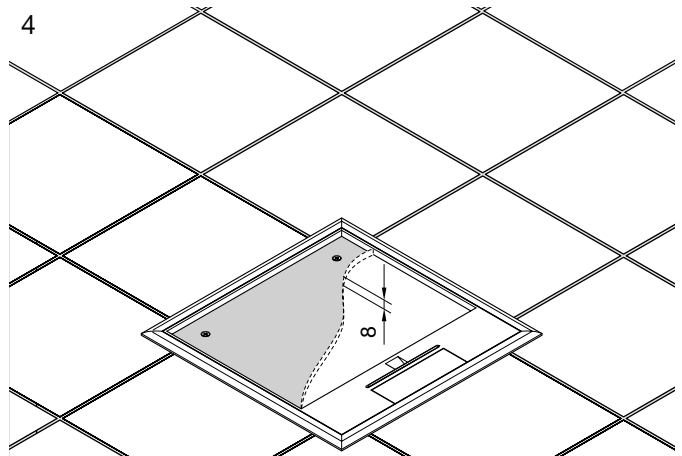
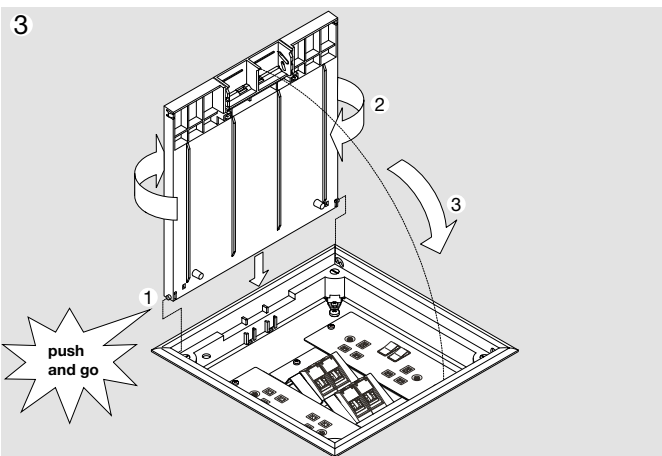
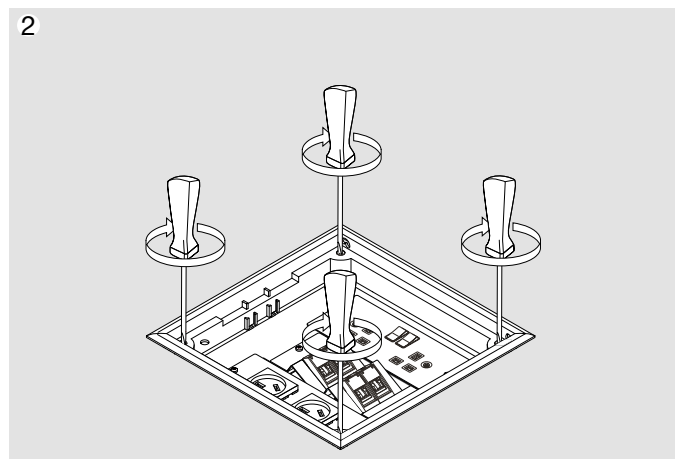
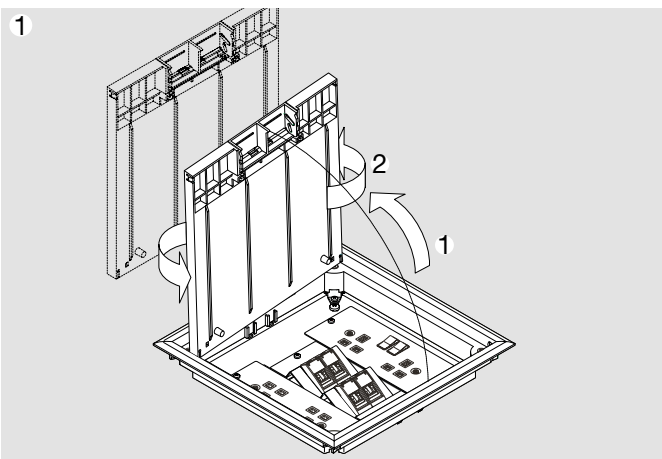
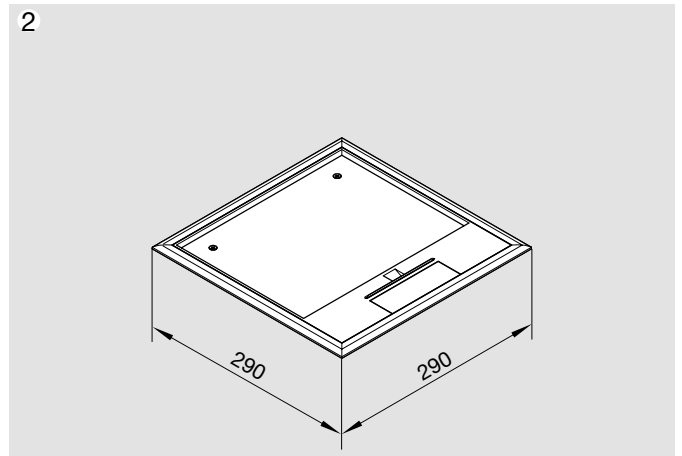
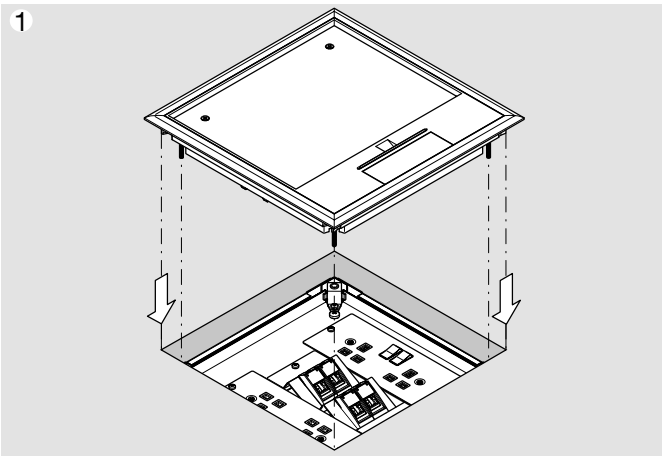
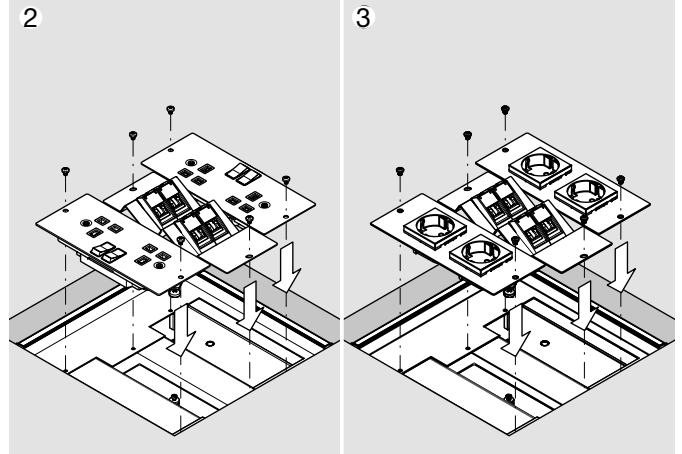
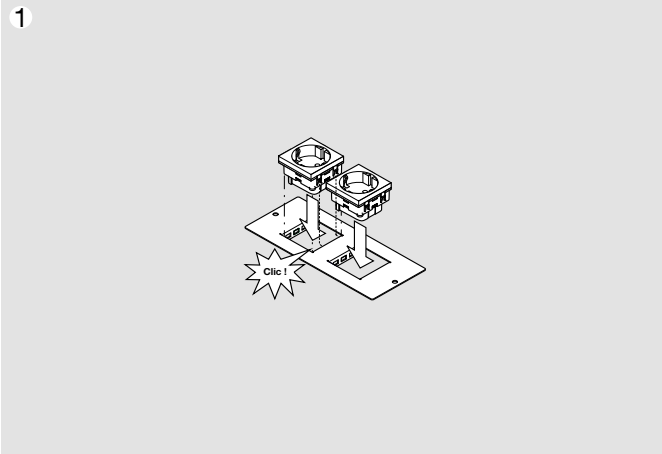
reference	profile length	suspended ceiling	concrete ceiling
DAS802500xxxx DAS2802500xxxx	2,457 mm	up to max, 2,450 mm	2,500 - 2,800 mm
DAS802800xxxx DAS2802800xxxx	2,757 mm	up to max, 2,750 mm	2,800 - 3,100 mm
DAS803100xxxx DAS2803100xxxx	3,057 mm	up to max, 3,050 mm	3,100 - 3,400 mm
DAS803400xxxx DAS2803400xxxx	3,357 mm	up to max, 3,350 mm	3,400 - 3,700 mm

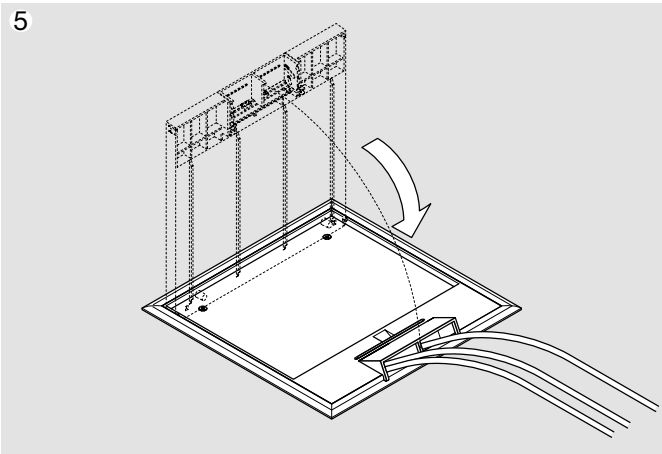
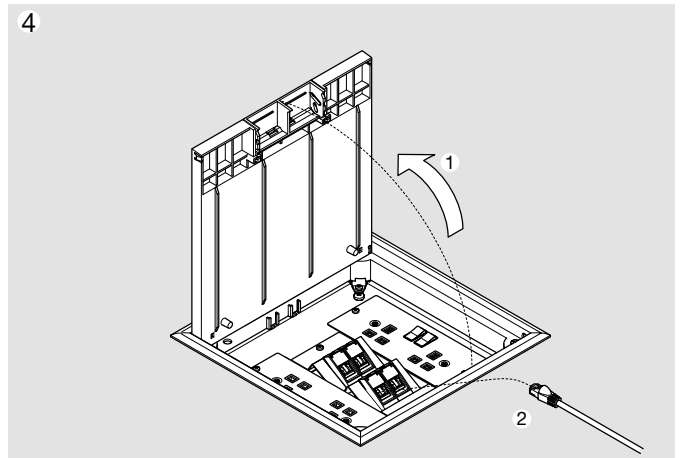
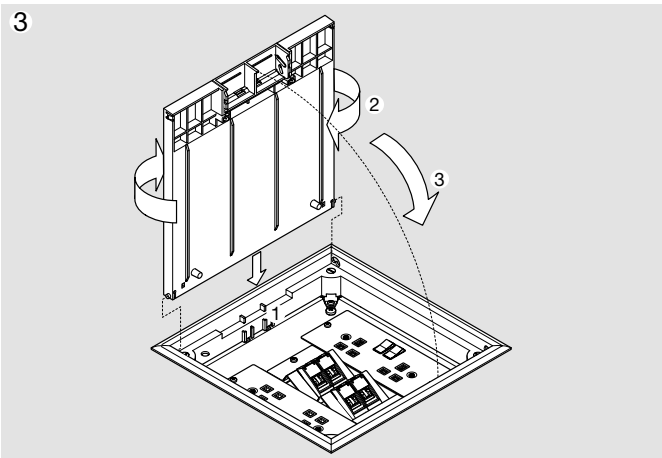
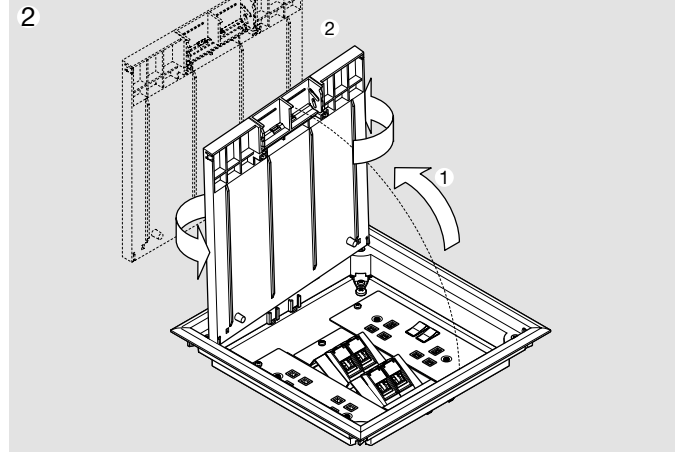
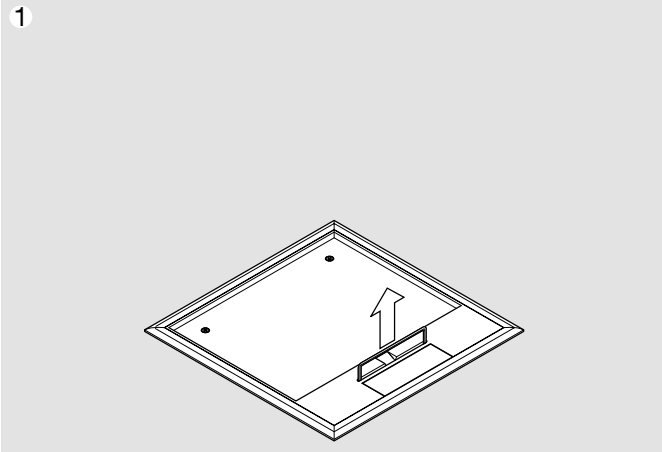
xxxx (colour): ELN (anodised alu) or 9010 (white)

For example: when the concrete ceiling is at a height of 2800 mm the pole DAS4527000 can be used provided the suspended ceiling is at a max height of 2,650 mm.

For other lengths not indicated in the above chart, please consult us.



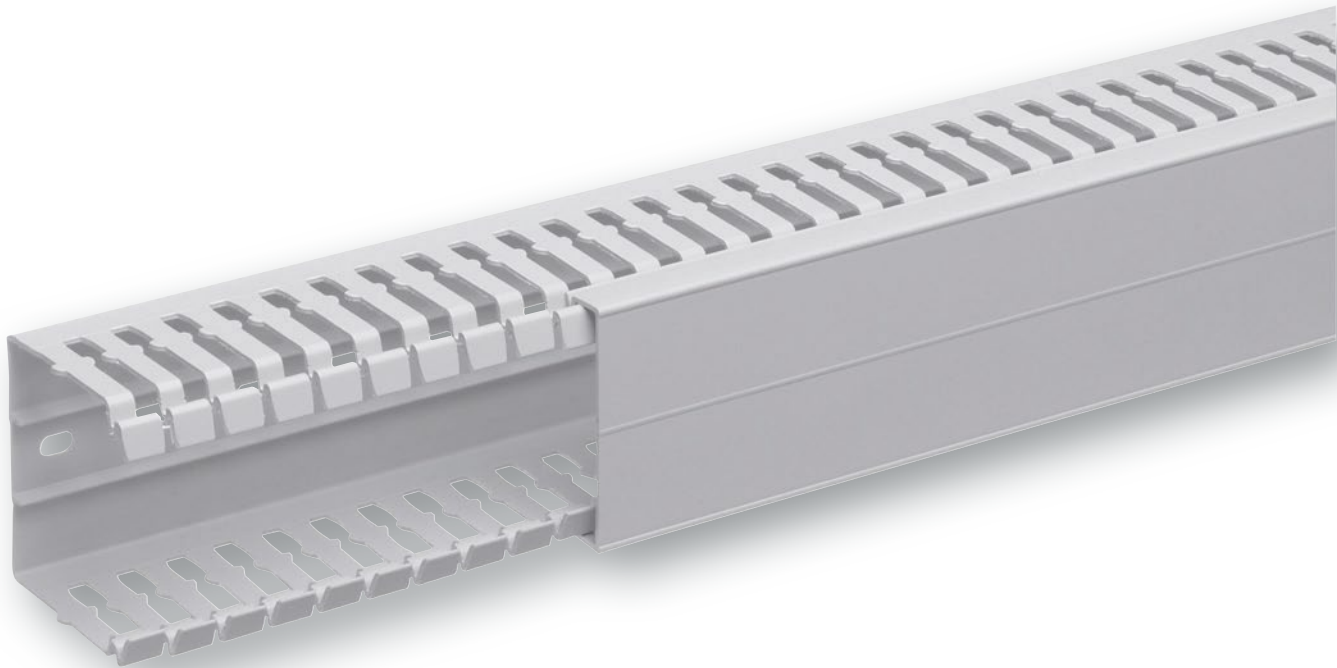




Enclosure trunking

The system of equipment of the boards is a wide range proposing solutions for each type of application:

- the series tehalit.BA7A in PVC cover the whole current needs,
- series tehalit.HA7 in PC-ABS halogen free, is proposed for the sensitive equipments,
- the series tehalit.VK-Flex allows flexible connections between the equipment of the door and the body of the board.



tehalit.BA7A wide-slot wiring duct	12.2
tehalit.BA7B narrow-slot wiring duct	12.8
tehalit.B7A solid duct	12.12
tehalit.HA7 wiring duct, halogen-free	12.13
tehalit.HNG halogen free slotted trunking in PPO	12.16
tehalit.VK-Flex	12.17
Accessories	12.18
Technical guide	12.15

- wide-slot/web design for a wide range of wire bundle sizes
- temperature range from -5 °C to +60 °C
- flame-retardant according to UL94-V0, UL-recognized and CSA-certified
- EN50085-2-3-approved, VDE and CE marking
- slot 6 mm, web 6.5 mm
- colours: grey RAL 7030
- material: PVC rigid
- wiring duct length: 2 meters



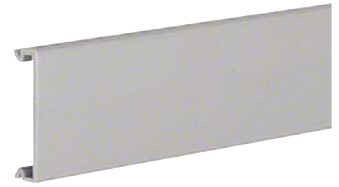
BA7A80060

Bases and covers BA7A

Base and cover		1 mm ² H05V-U/K 6.16 mm ²	1.5 mm ² H07V-U/R 8.55 mm ²	2.5 mm ² H07V-U/R 11.95 mm ²	2.1 mm ² No 14 AWG 11 mm ²	3.3 mm ² No 12 AWG 14 mm ²	Pack qty.	Cat. ref.
Depth x width (mm)	Area (mm ²)							
25 x 25	220	14	10	7	8	6	50	BA7A25025
25 x 40	375	24	18	13	14	11	48	BA7A25040
25 x 80	642	42	30	21	23	18	24	BA7A25080
40 x 25	462	30	22	15	17	13	48	BA7A40025
40 x 30	535	35	25	18	19	15	40	BA7A40030
40 x 40	749	49	35	25	27	21	50	BA7A40040
40 x 60	1155	75	54	39	42	33	40	BA7A40060
40 x 80	1557	101	73	52	57	44	30	BA7A40080
40 x 100	1956	127	91	65	71	56	20	BA7A40100
60 x 25	836	54	39	28	30	24	60	BA7A60025
60 x 30	1060	69	50	35	39	30	48	BA7A60030
60 x 40	1404	91	66	47	51	40	40	BA7A60040
60 x 60	2184	142	102	73	79	62	24	BA7A60060
60 x 80	2970	193	139	99	108	85	20	BA7A60080
60 x 100	3746	243	175	125	136	107	16	BA7A60100
60 x 120	4519	294	211	151	164	129	12	BA7A60120
80 x 25	1202	78	56	40	44	34	20	BA7A80025
80 x 30	1533	100	72	51	56	44	24	BA7A80030
80 x 40	2071	135	97	69	75	59	20	BA7A80040
80 x 60	3243	211	152	109	118	93	20	BA7A80060
80 x 80	4412	287	206	148	160	126	12	BA7A80080
80 x 100	5577	362	261	187	203	159	12	BA7A80100
80 x 120	6737	438	315	226	245	192	16	BA7A80120
100 x 30	1875	122	88	63	68	54	24	BA7A100030
100 x 40	2663	173	125	89	97	76	20	BA7A100040
100 x 60	4239	275	198	142	154	121	16	BA7A100060
100 x 80	5815	378	272	195	211	166	16	BA7A100080
100 x 100	7391	480	346	247	269	211	12	BA7A100100

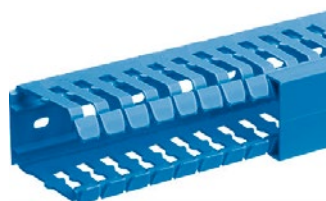
Covers BA7A for duct

Depth x width (mm)	Pack qty.	Cat. ref.
25 x 25	28	BA70252K
25 x 40	28	BA70402K
25 x 80	20	BA70402K
<hr/>		
40 x 25	28	BA70252
40 x 30	40	BA70302
40 x 40	28	BA70402
40 x 60	20	BA70602
40 x 80	20	BA70802
40 x 100	12	BA71002
<hr/>		
60 x 25	28	BA70252
60 x 30	40	BA70252
60 x 40	28	BA70402
60 x 60	20	BA70602
60 x 80	20	BA70802
60 x 100	12	BA71002
60 x 120	12	BA71202
<hr/>		
80 x 25	28	BA70252
80 x 30	40	BA70302
80 x 40	28	BA70402
80 x 60	20	BA70602
80 x 80	20	BA70802
80 x 100	12	BA71002
80 x 120	12	BA71202
<hr/>		
100 x 30	40	BA70302
100 x 40	28	BA70402
100 x 60	20	BA70602
100 x 80	20	BA70802
100 x 100	12	BA71002



BA70402K

- wide-slot/web design for a wide range of wire bundle sizes
- temperature range from -5 °C to +60 °C
- flame-retardant according to UL94-V0, UL-recognized and CSA-certified
- EN50085-2-3-approved, VDE and CE marking
- slot 6 mm, web 6.5 mm
- colours: blue RAL 5015
- material: PVC rigid
- wiring duct length: 2 meters



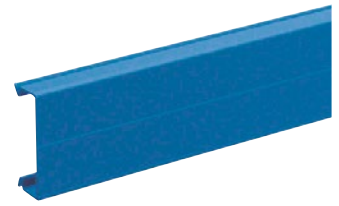
BA7A60040BL

Bases and covers BA7A

Base and cover		1 mm ² H05V-U/K 6.16 mm ²	1.5 mm ² H07V-U/R 8.55 mm ²	2.5 mm ² H07V-U/R 11.95 mm ²	2.1 mm ² No 14 AWG 11 mm ²	3.3 mm ² No 12 AWG 14 mm ²	Pack qty.	Cat. ref.
Depth x width (mm)	Area (mm ²)							
40 x 40	749	49	35	25	27	21	50	BA7A40040BL
40 x 60	1155	75	54	39	42	33	40	BA7A40060BL
40 x 80	1557	101	73	52	57	44	30	BA7A40080BL
60 x 25	836	54	39	28	30	24	60	BA7A60025BL
60 x 40	1404	91	66	47	51	40	40	BA7A60040BL
60 x 60	2184	142	102	73	79	62	24	BA7A60060BL
60 x 80	2970	193	139	99	108	85	20	BA7A60080BL
60 x 100	3746	243	175	125	136	107	16	BA7A60100BL
80 x 25	1202	78	56	40	44	34	20	BA7A80025BL
80 x 30	1533	100	72	51	56	44	24	BA7A80030BL
80 x 40	2071	135	97	69	75	59	20	BA7A80040BL
80 x 60	3243	211	152	109	118	93	20	BA7A80060BL
80 x 80	4412	287	206	148	160	126	12	BA7A80080BL
80 x 100	5577	362	261	187	203	159	12	BA7A80100BL
80 x 120	6737	438	315	226	245	192	16	BA7A80120BL
100 x 60	4239	275	198	142	154	121	16	BA7A100060BL
100 x 80	5815	378	272	195	211	166	16	BA7A100080BL
100 x 100	7391	480	346	247	269	211	12	BA7A100100BL

Covers BA7A for duct

Depth x width (mm)	Pack qty.	Cat. ref.
40 x 40	28	BA70402BL
40 x 60	20	BA70602BL
40 x 80	20	BA70802BL
60 x 25	28	BA70252BL
60 x 40	28	BA70402BL
60 x 60	20	BA70602BL
60 x 80	20	BA70602BL
60 x 100	12	BA71002BL
80 x 25	28	BA70252BL
80 x 30	40	BA70302BL
80 x 40	28	BA70402BL
80 x 60	20	BA70602BL
80 x 80	20	BA70802BL
80 x 100	12	BA71002BL
80 x 120	12	BA71202BL
100 x 60	20	BA70602BL
100 x 80	20	BA70802BL
100 x 100	12	BA71002BL



BA70402BL

- wide-slot/web design for a wide range of wire bundle sizes
- temperature range from -5 °C to +60 °C
- flame-retardant according to UL94-V0, UL-recognized and CSA-certified
- EN50085-2-3-approved, VDE and CE marking
- slot 6 mm, web 6.5 mm
- colours: white RAL 9010
- material: PVC rigid
- wiring duct length: 2 meters



BA7A60040W

Bases and covers BA7A

Base and cover		1 mm ² H05V-U/K 6.16 mm ²	1.5 mm ² H07V-U/R 8.55 mm ²	2.5 mm ² H07V-U/R 11.95 mm ²	2.1 mm ² No 14 AWG 11 mm ²	3.3 mm ² No 12 AWG 14 mm ²	Pack qty.	Cat. ref.
Depth x width (mm)	Area (mm ²)							
40 x 40	749	49	35	25	27	21	50	BA7A40040W
40 x 60	1155	75	54	39	42	33	40	BA7A40060W
40 x 80	1557	101	73	52	57	44	30	BA7A40080W
60 x 25	836	54	39	28	30	24	60	BA7A60025W
60 x 40	1404	91	66	47	51	40	40	BA7A60040W
60 x 60	2184	142	102	73	79	62	24	BA7A60060W
60 x 80	2970	193	139	99	108	85	20	BA7A60080W
60 x 100	3746	243	175	125	136	107	16	BA7A60100W
80 x 25	1202	78	56	40	44	34	20	BA7A80025W
80 x 30	1533	100	72	51	56	44	24	BA7A80030W
80 x 40	2071	135	97	69	75	59	20	BA7A80040W
80 x 60	3243	211	152	109	118	93	20	BA7A80060W
80 x 80	4412	287	206	148	160	126	12	BA7A80080W
80 x 100	5577	362	261	187	203	159	12	BA7A80100W
80 x 120	6737	438	315	226	245	192	16	BA7A80120W
100 x 60	4239	275	198	142	154	121	16	BA7A100060W
100 x 80	5815	378	272	195	211	166	16	BA7A100080W
100 x 100	7391	480	346	247	269	211	12	BA7A100100W

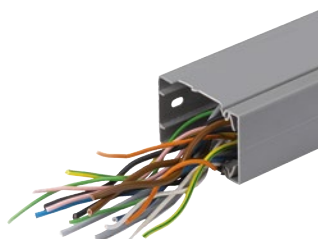
Covers BA7A for duct

Depth x width (mm)	Pack qty.	Cat. ref.
40 x 40	28	BA70402W
40 x 60	20	BA70602W
40 x 80	20	BA70802W
60 x 25	28	BA70252W
60 x 40	28	BA70402W
60 x 60	20	BA70602W
60 x 80	20	BA70802W
60 x 100	12	BA71002W
80 x 25	28	BA70252W
80 x 30	40	BA70302W
80 x 40	28	BA70402W
80 x 60	20	BA70602W
80 x 80	20	BA70802W
80 x 100	12	BA71002W
80 x 120	12	BA71202W
100 x 60	20	BA70602W
100 x 80	20	BA70802W
100 x 100	12	BA71002W



BA70402W

- solid duct for maximum protection: restricted wiring access for more security
- temperature range from -5 °C to +60 °C
- flame-retardant according to UL94-V0
- colours: grey RAL 7030
- material: PVC rigid
- wiring duct length: 2 meters



Bases and covers B7A

Base and cover		1 mm ² H05V-U/K 6.16 mm ²	1.5 mm ² H07V-U/R 8.55 mm ²	2.5 mm ² H07V-U/R 11.95 mm ²	2.1 mm ² No 14 AWG 11 mm ²	3.3 mm ² No 12 AWG 14 mm ²	Pack qty.	Cat. ref.
Depth x width (mm)	Area (mm ²)							
40 x 25	462	30	22	15	17	13	48	B7A40025
40 x 40	749	49	35	25	27	21	50	B7A40040
40 x 60	1155	75	54	39	42	33	40	B7A40060
40 x 80	1557	101	73	52	57	44	30	B7A40080
60 x 40	1404	91	66	47	51	40	40	B7A60040
60 x 60	2184	142	102	73	79	62	24	B7A60060
60 x 80	2970	193	139	99	108	85	20	B7A60080
60 x 100	3746	243	175	125	136	107	16	B7A60100
60 x 120	4519	294	211	151	164	129	12	B7A60120
80 x 25	1202	78	56	40	44	34	20	B7A80025
80 x 40	2071	135	97	69	75	59	20	B7A80040
80 x 60	3243	211	152	109	118	93	20	B7A80060
80 x 80	4412	287	206	148	160	126	12	B7A80080
80 x 100	5577	362	261	187	203	159	12	B7A80100
80 x 120	6737	438	315	226	245	192	16	B7A80120

B7A60040



BA70252

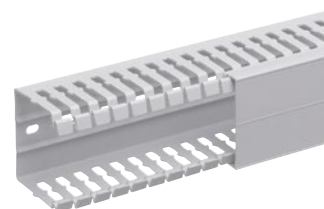
Covers B7A for duct

Depth x width (mm)	Pack qty.	Cat. ref.
40 x 25	28	BA70252
40 x 40	28	BA70402
40 x 60	20	BA70602
40 x 80	20	BA70802
60 x 40	28	BA70402
60 x 60	20	BA70602
60 x 80	20	BA70802
60 x 100	12	BA71002
60 x 120	12	BA71202
80 x 25	28	BA70252
80 x 40	28	BA70402
80 x 60	20	BA70602
80 x 80	20	BA70802
80 x 100	12	BA71002
80 x 120	12	BA71202

- wide-slot/web design for a wide range of wiring bundle sizes
 - highly recommended for use in panels subject to high internal or external temperatures
 - the stability of the material ensures full cover security, protecting the wiring within the temperature ranges shown
 - temperature range from -25 °C to +90 °C
 - flame-retardant according to UL94-V0, UL-recognized and CSA-certified
 - EN50085-2-3-approved, VDE and CE marking
- EN45545-2 for railway applications
 - slot 6 mm, web 6.5 mm
 - colours: light grey RAL 7035
 - material: PC-ABS halogen-free
 - wiring duct length: 2 meters

Bases and covers HA7

Base and cover		1 mm ² H05V-U/K 6.16 mm ²	1.5 mm ² H07V-U/R 8.55 mm ²	2.5 mm ² H07V-U/R 11.95 mm ²	2.1 mm ² No 14 AWG 11 mm ²	3.3 mm ² No 12 AWG 14 mm ²	Pack qty.	Cat. ref.
Depth x width (mm)	Area (mm ²)							
25 x 25	220	14	10	7	8	6	50	HA725025
25 x 40	375	24	18	13	14	11	48	HA725040
25 x 80	642	42	30	21	23	18	24	HA725080
40 x 25	462	30	22	15	17	13	48	HA740025
40 x 30	535	35	25	18	19	15	40	HA740030
40 x 40	749	49	35	25	27	21	50	HA740040
40 x 60	1155	75	54	39	42	33	40	HA740060
40 x 80	1557	101	73	52	57	44	30	HA740080
40 x 100	1956	127	91	65	71	56	20	HA740100
60 x 25	836	54	39	28	30	24	60	HA760025
60 x 30	1060	69	50	35	39	30	48	HA760030
60 x 40	1404	91	66	47	51	40	40	HA760040
60 x 60	2184	142	102	73	79	62	24	HA760060
60 x 80	2970	193	139	99	108	85	20	HA760080
60 x 100	3746	243	175	125	136	107	16	HA760100
60 x 120	4519	294	211	151	164	129	12	HA760120
80 x 25	1202	78	56	40	44	34	20	HA780025
80 x 30	1533	100	72	51	56	44	24	HA780030
80 x 40	2071	135	97	69	75	59	20	HA780040
80 x 60	3243	211	152	109	118	93	20	HA780060
80 x 80	4412	287	206	148	160	126	12	HA780080
80 x 100	5577	362	261	187	203	159	12	HA780100
80 x 120	6737	438	315	226	245	192	16	HA780120
100 x 30	1875	122	88	63	68	54	24	HA7100030
100 x 40	2663	173	125	89	97	76	20	HA7100040
100 x 60	4239	275	198	142	154	121	16	HA7100060
100 x 80	5815	378	272	195	211	166	16	HA7100080
100 x 100	7391	480	346	247	269	211	12	HA7100100



HA760060

Enclosure trunking



HA70602

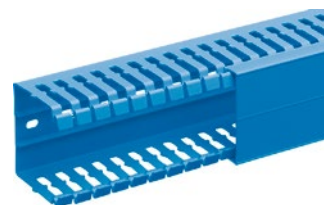
Covers HA7 for duct

Depth x width (mm)	Pack qty.	Cat. ref.
25 x 25	28	HA70252K
25 x 40	28	HA70402K
25 x 80	20	HA70402K
40 x 25	28	HA70252
40 x 30	40	HA70302
40 x 40	28	HA70402
40 x 60	20	HA70602
40 x 80	20	HA70802
40 x 100	12	HA71002
60 x 25	28	HA70252
60 x 30	40	HA70252
60 x 40	28	HA70402
60 x 60	20	HA70602
60 x 80	20	HA70802
60 x 100	12	HA71002
60 x 120	12	HA71202
80 x 25	28	HA70252
80 x 30	40	HA70302
80 x 40	28	HA70402
80 x 60	20	HA70602
80 x 80	20	HA70802
80 x 100	12	HA71002
80 x 120	12	HA71202
100 x 30	40	HA70302
100 x 40	28	HA70402
100 x 60	20	HA70602
100 x 80	20	HA70802
100 x 100	12	HA71002

- wide-slot/web design for a wide range of wiring bundle sizes
- highly recommended for use in panels subject to high internal or external temperatures
- the stability of the material ensures full cover security, protecting the wiring within the temperature ranges shown
- temperature range from -25 °C to +90 °C
- flame-retardant according to UL94-V0, UL-recognized and CSA-certified
- EN50085-2-3-approved, VDE and CE marking
- EN45545-2 for railway applications
- slot 6 mm, web 6.5 mm
- colours: blue RAL 5015
- material: PC-ABS halogen-free
- wiring duct length: 2 meters

Bases and covers HA7

Base and cover		1 mm ² H05V-U/K 6.16 mm ²	1.5 mm ² H07V-U/R 8.55 mm ²	2.5 mm ² H07V-U/R 11.95 mm ²	2.1 mm ² No 14 AWG 11 mm ²	3.3 mm ² No 12 AWG 14 mm ²	Pack qty.	Cat. ref.
Depth x width (mm)	Area (mm ²)							
60 x 60	2184	142	102	73	79	62	24	HA760060BL
60 x 80	2970	193	139	99	108	85	20	HA760080BL
80 x 40	2071	135	97	69	75	59	20	HA780040BL
80 x 60	3243	211	152	109	118	93	20	HA780060BL
80 x 80	4412	287	206	148	160	126	12	HA780080BL
80 x 100	5577	362	261	187	203	159	12	HA780100BL
80 x 120	6737	438	315	226	245	192	16	HA780120BL
100 x 40	2663	173	125	89	97	76	20	HA7100040BL
100 x 60	4239	275	198	142	154	121	16	HA7100060BL
100 x 80	5815	378	272	195	211	166	16	HA7100080BL
100 x 100	7391	480	346	247	269	211	12	HA7100100BL

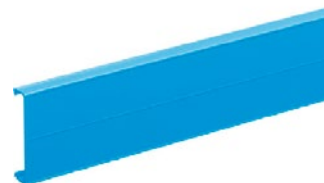


HA760060BL

Enclosure trunking

Covers HA7 for duct

Depth x width (mm)	Pack qty.	Cat. ref.
60 x 60	20	HA70602BL
60 x 80	20	HA70802BL
80 x 40	28	HA70402BL
80 x 60	20	HA70602BL
80 x 80	20	HA70802BL
80 x 100	12	HA71002BL
80 x 120	12	HA71202BL
100 x 40	28	HA70402BL
100 x 60	20	HA70602BL
100 x 80	20	HA70802BL
100 x 100	12	HA71002BL



HA70402BL

Enclosure trunking

tehalit.HNG: halogen free slotted trunking in PPO



Delivery information: Base pre-drilled and lid.

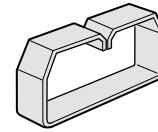
Standard length: 2m.

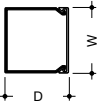
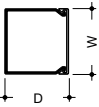
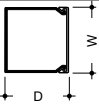
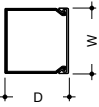
Material: PPO. Self-extinguishing classification: UL 94V1.

Base and lid

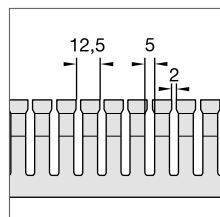


Clip

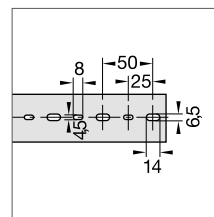


Cat. ref.	Depth x width D x w (mm)	Countenance by conductors section in mm ²			Packaging	Cat. ref.	Packaging	
		1.0 ²	1.5 ²	2.5 ²				
 Depth 25 mm	HNG2502507035B	24 x 24	40	32	22	36 m		
 Depth 40 mm	HNG3702507035B	36 x 24				48 m		
	HNG3703707035B	36 x 37	95	76	52	32 m		
	HNG3705007035B	36 x 49	129	103	71	40 m	HN370503	50
 Depth 50 mm	HNG5002507035B	49 x 24	77	62	42	48 m		
	HNG5003707035B	49 x 37	127	102	70	40 m		
	HNG5005007035B	49 x 49	185	140	96	48 m	HN500503	50
	HNG5007507035B	49 x 74	250	212	146	20 m	HN500753	50
	HNG5010007035B	49 x 99	336	285	196	24 m	HN501003	50
	HNG5012507035B	49 x 124	502	403	277	18 m	HN501253	50
 Depth 75 mm	HNG7503707035B	73 x 36	210	169	116	40 m		
	HNG7505007035B	73 x 49	277	222	153	20 m	HN750503	50
	HNG7507507035B	73 x 74	423	340	233	16 m	HN750753	50
	HNG7510007035B	73 x 99	575	462	317	16 m	HN751003	50
	HNG7512507035B	73 x 124	724	581	400	12 m	HN751253	50

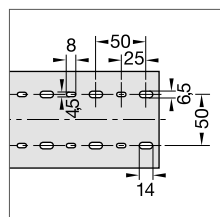
* complete trunking with cutting side with step of 10 mm



Slot configuration



Base punching
configuration for
trunking width 25,
37 and 50 mm
DIN 43659



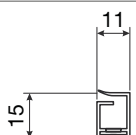
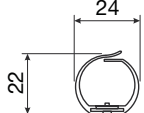
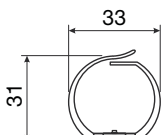
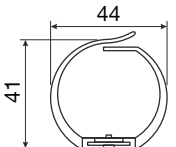
Base punching
configuration for
trunking width 75,
100 and 125 mm
DIN 43659

- Halogen free
- Self-extinguishing
- Operating temperature: -25 °C to + 90 °C
- High rigidity

- this flexible wiring duct is indispensable in areas where using a conventional rigid wiring duct is difficult
- manufactured from grey polyamide, the wiring duct features an integral male/female tag at each end to allow for continuous runs
- inserting the wiring is very easy and quickly done, and ample room is provided between the webs for wiring branch-outs
- the bases come with punched holes and with or without adhesive tape

- temperature range from -25 °C to +90 °C
- flame-retardant according to UL94-V0, UL-recognized and CSA-certified
- polyamide halogen-free material

VK-Flex pre-drilled

Dimensions				Profile	Pack qty.	Cat. ref.
Depth (mm)	Width (mm)	Length (mm)	Area (mm ²)			
15	11	250	100		40	M5690
22	24	500	154		40	M5691
31	33	500	379		40	M5692
41	44	500	620		40	M5693



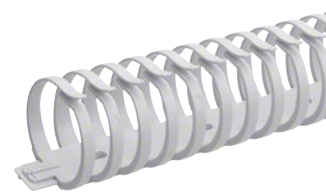
M5690



M5691



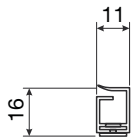
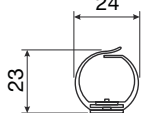
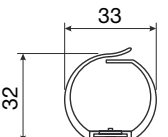
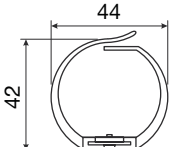
M5692



M5693

Enclosure trunking

VK-Flex pre-drilled with adhesive tape

Dimensions				Profile	Pack qty.	Cat. ref.
Depth (mm)	Width (mm)	Length (mm)	Area (mm ²)			
15	11	250	100		40	L2212
22	24	500	154		40	L2222
31	33	500	379		40	L2232
41	44	500	620		40	L2242



L2212



L2222



L2232



L2242



BA7CUTTER

Tools

- for all slotted trunkings

Description	Pack qty.	Cat. ref.
trunking cutter	1	BA7CUTTER
web cropping tool	1	L6490
trunking scissors	1	L5561



L6490



L5561



L5085

One-piece rivets

Description	Pack qty.	Cat. ref.
Ø 4 mm hole diameter, for 2 mm mounting plate width	100	L5085
Ø 4 mm hole diameter, for 3 mm mounting plate width	100	L5123
Ø 6 mm hole diameter, for 3 mm mounting plate width	100	L5067



L5262



L5263

Rivet drivers

Description	Pack qty.	Cat. ref.
grey, for L5085	1	L5262
red, for L5123	1	L5263
black, for L5067	1	L5264



M5159

Spacers

Description	Pack qty.	Cat. ref.
Ø 25 mm, height 12 mm	50	M51592
Ø 25 mm, height 20 mm	50	M5159



M5164

Bolt collars

Description	Pack qty.	Cat. ref.
to hide M4 to M5 bolt heads	100	M5164



BA7CLIP

Clips

Description	Pack qty.	Cat. ref.
for BA7A, HA7, breakable, for all widths	100	BA7CLIP



ATACOLLE

Glue cartridge

Description	Pack qty.	Cat. ref.
pure white RAL 9010, volume: 0.3 l	1	ATACOLLE



UC969

Clip nuts and M5 bolts

Description	Pack qty.	Cat. ref.
for perforated mounting plates	25	UC969

tehalit.BA7A | BA7B | B7A

Wiring duct	Duct height (mm)	Duct width (mm)	inner cross-section (mm ²)	Max. wiring capacity - fill level 0.4						
				H05 - U/K			H07 - U/R		No 14 - AWG	
				Ø 1 mm ²	Ø 1.5 mm ²	Ø 2.5 mm ²	Ø 2.1 mm ²	Ø 3.3 mm ²		
BA7A25025	25	25	220	14	10	7	8	6		
BA7A / BA7B / B7A 25040	25	40	375	24	18	13	14	11		
BA7A / BA7B / B7A 25080	40	80	642	42	30	21	23	18		
BA7A40025	40	25	462	30	22	15	17	13		
BA7A / BA7B / B7A 40030	40	30	535	35	25	18	19	15		
BA7A / BA7B / B7A 40040	40	40	749	49	35	25	27	21		
BA7A / BA7B / B7A 40060	40	60	1155	75	54	39	42	33		
BA7A / BA7B / B7A 40080	40	80	1557	101	73	52	57	44		
BA7A / BA7B / 40100	40	100	1956	127	91	65	71	56		
BA7A60025	60	25	836	54	39	28	30	24		
BA7A / BA7B / B7A 60030	60	30	1060	69	50	35	39	30		
BA7A / BA7B / B7A 60040	60	40	1404	91	66	47	51	40		
BA7A / BA7B / B7A 60060	60	60	2184	142	102	73	79	62		
BA7A / BA7B / B7A 60080	60	80	2970	193	139	99	108	85		
BA7A / BA7B / 60100	60	100	3746	243	175	125	136	107		
BA7A / BA7B / B7A 60120	60	120	4519	294	211	151	164	129		
BA7A80025	80	25	1202	78	56	40	44	34		
BA7A / BA7B / B7A 80030	80	30	1533	100	72	51	56	44		
BA7A / BA7B / B7A 80040	80	40	2071	135	97	69	75	59		
BA7A / BA7B / B7A 80060	80	60	3243	211	152	109	118	93		
BA7A / BA7B / B7A 80080	80	80	4412	287	206	148	160	126		
BA7A / BA7B / 80100	80	100	5577	362	261	187	203	159		
BA7A / BA7B / B7A 80120	80	120	6737	438	315	226	245	192		
BA7A / BA7B / B7A 100030	100	30	1875	122	88	63	68	54		
BA7A / BA7B / B7A 100040	100	40	2663	173	125	89	97	76		
BA7A / BA7B / B7A 100060	100	60	4239	275	198	142	154	121		
BA7A / BA7B / B7A 100080	100	80	5815	378	272	195	211	166		
BA7A / BA7B / 100100	100	100	7391	480	346	247	269	211		

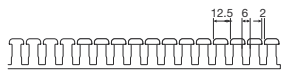
tehalit.HA7

Wiring duct	Duct height (mm)	Duct width (mm)	inner cross-section (mm ²)	Max. wiring capacity - fill level 0.4		
				H05 - U/K		H07 - U/R
				Ø 1 mm ²	Ø 1.5 mm ²	Ø 2.5 mm ²
HA725025	25	25	220	14	10	7
HA725040	25	40	375	24	18	13
HA740025	40	25	462	30	22	15
HA740040	40	40	749	49	35	25
HA740060	40	60	1155	75	54	39
HA740080	40	80	1557	101	73	52
HA740100	40	100	1956	127	91	65
HA760025	60	25	836	54	39	28
HA760040	60	40	1404	91	66	47
HA760060	60	60	2184	142	102	73
HA760080	60	80	2970	193	139	99
HA760100	60	100	3746	243	175	125
HA760120	60	120	4519	294	211	151
HA780025	80	25	1202	78	56	40
HA780040	80	40	2071	135	97	69
HA780060	80	60	3243	211	152	109
HA780080	80	80	4412	287	206	148
HA780100	80	100	5577	362	261	187
HA780120	80	120	6737	438	315	226
HA7100060	100	60	4239	275	198	142
HA7100080	100	80	5815	378	272	195
HA7100100	100	100	7391	480	346	247

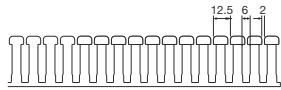
tehalit.VK-flex

Wiring duct	Duct height (mm)	Duct width (mm)	inner cross-section (mm ²)	Max. wiring capacity - fill level 0.4		
				H05 - U/K		H07 - U/R
				Ø 1 mm ²	Ø 1.5 mm ²	Ø 2.5 mm ²
M5690/L2212	15	11	250	10	8	5
M5691/L2222	22	24	500	20	18	13
M5692/L2232	31	33	500	57	46	30
M5693/L2242	41	44	500	101	81	53

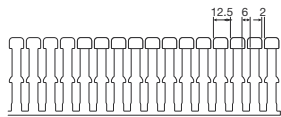
BA7A | HA7
lateral punched openings



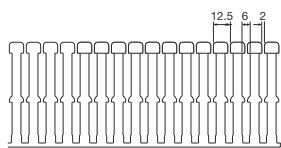
for duct height 25 mm



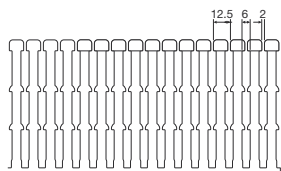
for duct height 40 mm



for duct height 60 mm

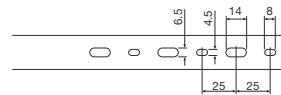


for duct height 80 mm

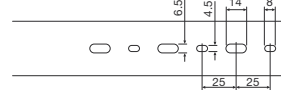


for duct height 100 mm

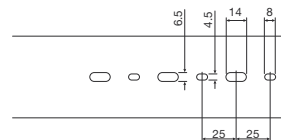
BA7A | BA7B | B7A | HA7
bottom holes EN50085



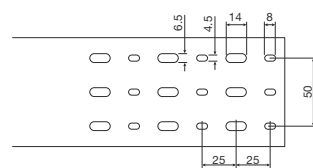
for duct width 25 mm



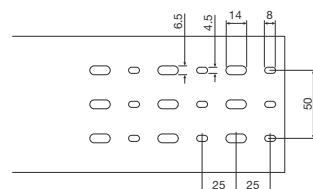
for duct width 40 mm



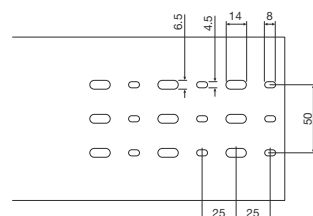
for duct width 60 mm



for duct width 80 mm

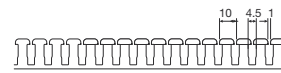


for duct width 100 mm

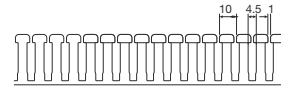


for duct width 120 mm

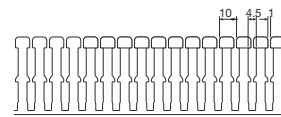
BA7B
lateral punched openings



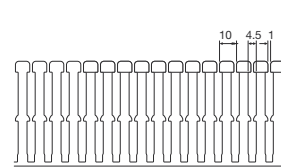
for duct height 25 mm



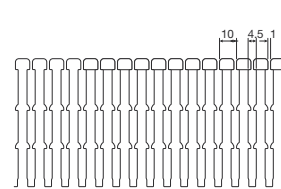
for duct height 40 mm



for duct height 60 mm

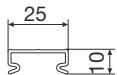


for duct height 80 mm

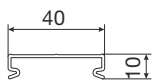


for duct height 100 mm

Cover BA7
for duct height 25 mm

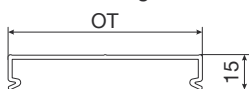


BA70252K for BA7 25 x 25 mm



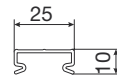
BA70402K for BA7 25 x 40 mm

Cover BA7
from duct height 40 mm

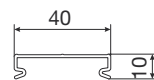


- BA70252 for duct BA7A, BA7B, B7A, width 25 mm
- BA70402 for duct BA7A, BA7B, B7A, width 40 mm
- BA70602 for duct BA7A, BA7B, B7A, width 60 mm
- BA70802 for duct BA7A, BA7B, B7A, width 80 mm
- BA71002 for duct BA7A, BA7B, B7A, width 100 mm
- BA71202 for duct BA7A, BA7B, B7A, width 120 mm

Cover HA7
for duct height 25 mm

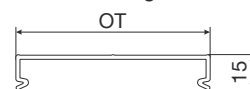


HA70252K for HA7 25 x 25 mm

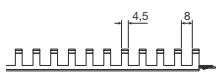
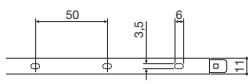
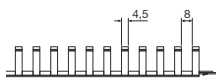
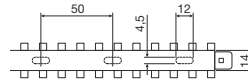
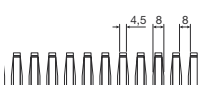
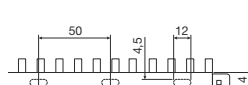
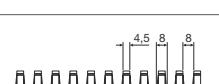
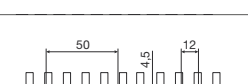


HA70402K for HA7 25 x 40 mm

Cover HA7
from duct height 40 mm



- HA70252 for duct HA7 width 25 mm
- HA70402 for duct HA7 width 40 mm
- HA70602 for duct HA7 width 60 mm
- HA70802 for duct HA7 width 80 mm
- HA71002 for duct HA7 width 100 mm
- HA71202 for duct HA7 width 120 mm

	Base	Depth (mm)	Width (mm)	Lateral punched openings	Bottom holes
VK Flex 10 mm	M5690 / L2212	15	11		
VK Flex 20 mm	M5691 / L2222	22	24		
VK Flex 30 mm	M5692 / L2232	31	33		
VK Flex 40 mm	M5693 / L2242	41	44		

Materials

Rigid polyvinyl chloride PVC: BA7A, BA7B, B7A

- General-purpose material for use in indoor applications
- Flammability rating UL94-V0
- UL-recognized for continuous use at temperatures up to 50 °C

Halogen-free PC-ABS: HA7

- For use in halogen-free or high temperature applications
- Flammability rating UL94-V0
- UL-recognized for continuous use at temperatures up to 65°C





Polyamide (PA): VK-Flex

- For wiring to cabinet doors, from control panels and for electrical equipment
- Flammability rating UL94-V0
- UL-recognized for continuous use at temperatures up to 65°C

Caution: Do not use any cleaning solvents and cutting fluids containing oil or grease as these may cause stress cracking in the material.

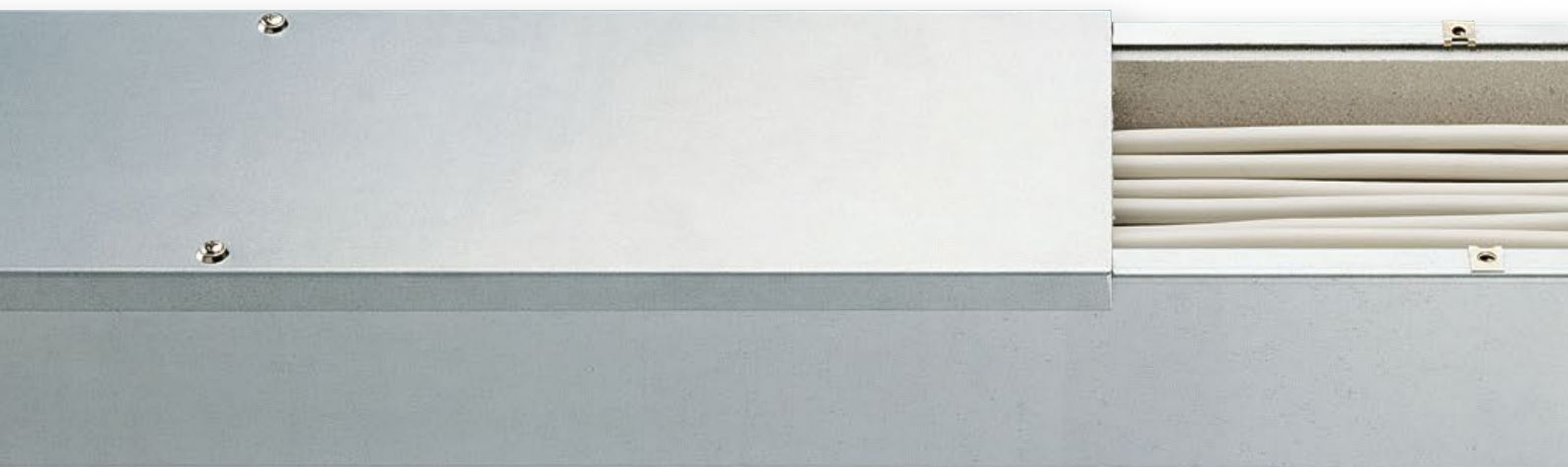
		Material		
		PVC	PC/ABS	Polyamide
Mechanical properties	tensile strength	30 N/mm ²	69 N/mm ²	60 N/mm ²
	impact resistance	4 KJ/m ²	40 KJ/m ²	5 KJ/m ²
Thermal properties	flammability	UL94 - V0 low inflammability	UL94 - V0 self-extinguishing	UL94 - V0 self-extinguishing
	temperature resistance	-5 °C to 60 °C	-25 °C to 90 °C	-25 °C to 90 °C
	dimensional stability acc. to Martens	up to 65 °C acc. to DIN 53458		
Electrical properties	dielectric strength	> 35 kV/mm	> 21 kV/mm	> 35 kV/mm
	surface resistance	> 10 ¹¹ Ω	> 10 ¹⁵ Ω	> 10 ¹¹ Ω
	specific resistance	> 10 ¹⁷ Ω/cm		> 10 ¹⁷ Ω/cm
	dielectric number		≈ 2.7	≈ 2.7

Approval and compliances

Marking	Agency	Complies with	Requirements	Applicable products
	Underwriters Laboratories, Inc.	File No. 48414	UL1565	BA7A, BA7B grey, HA7, VK-Flex
	Canadian Standards Association	File No. 167102	CSA C22.2 No.18.5. "Positioning Devices" CSA C22.2 No.14 "Industrial control equipment"	BA7A, HA7 VK-Flex
 G Nr. A639	Verband Der Elektrotechnik (German Association for Electrical, Electronic & Information Technologies)	EN50085-2-3	Cable trunking and cable ducting systems for electrical installations	BA7A, BA7B, HA7
	Conformité Européenne	Low Voltage Directive 2006/95/EEC	EN50085	BA7A, BA7B, HA7
	DIN Deutsches Institut für Normung (German Institute for Standardization)	DIN 43659	This European standard specifies dimensions for slotted wiring ducts installed in electrical switchgear assemblies, including: - channel mounting hole pattern - slot dimensions - hole pitch and location - distance from first to last like-size mounting hole - minimum overall trunking length	BA7A, BA7B, B7A, HA7
	EN European Fire Test to railway components	EN 45545-2	Fire Test to railway components Requirement for fire behaviour of materials and components	HA7

Specific trunking

Thanks to the specific or customized trunking, tehalit.camelea allows to answer to the most demanding specifications. The tehalit.camelea LFH, LFS, LFG and FWK trunking ranges are suitable with all kind of conductor controls and cables in commercial premises thanks to their several types of profiles.



tehalit.LFH halogen free trunking system	13.2
tehalit.LFS general purpose steel trunking	13.4
tehalit.LFG trunking in fiberglass reinforced polyester	13.6
Fire resistant trunking system	13.8
Technical guide	13.12


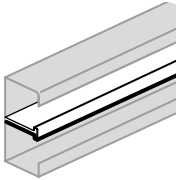
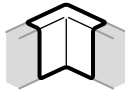
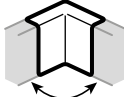

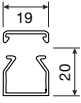
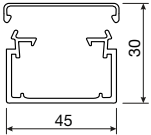
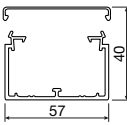
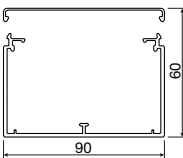
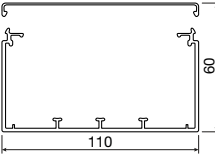
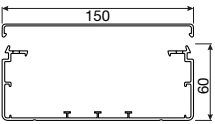
Specific trunking

tehalit.LFH halogen free trunking system

Delivery information: Joints pre-mounted from LFH30045, cable retainers pre-mounted from LFH40060

Standard length: 2 m, other lengths on demand, max. 6 m.

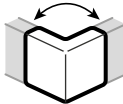
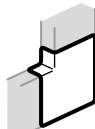


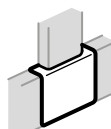
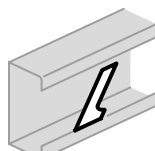
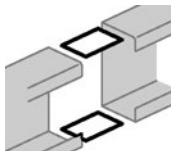
Material: PC / ABS trunking and cable retainers, protection category: IP40, IK08.

		Base and lid	Partition	Internal corner	Adjustable internal corner	External corner
						
		Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.
	pure white	LFH2002009010				
	white	LFH2002009001				
	light grey	LFH2002007035				
	packaging	36 m				
	pure white	LFH3004509010		M61819010		M61829010
	white	LFH3004509001		M61819001		M61829001
	light grey	LFH3004507035		M61817035		M61827035
	black					
	packaging	32 m		1 piece		1 piece
	pure white	LFH4006009010			LFF400649010	
	white	LFH4006009001			LFF400649001	
	light grey	LFH4006007035			LFF400647035	
	black		MH2024			
	packaging	24 m	50 m		1 piece	
	pure white	LFH6009009010			LFF600949010	
	white	LFH6009009001			LFF600949001	
	light grey	LFH6009007035			LFF600947035	
	black		MH2026			
	packaging	16 m	50 m		1 piece	
	pure white	LFH6011009010			LFF601149010	
	white	LFH6011009001			LFF601149001	
	light grey	LFH6011007035			LFF601147035	
	black		MH2026			
	packaging	16 m	50 m		1 piece	
	pure white	LFH6015009010		M55219010		M55229010
	white	LFH6015009001		M55219001		M55229001
	light grey	LFH6015007035		M55217035		M55227035
	black		MH2026			
	packaging	8 m	50 m	1 piece		1 piece

Pieces can be fixed or flexible:

- **M**: fixed pieces

- **LFF**: flexible pieces

Adjustable external corner	Flat corner	End cap	Adjustable end cap	T-piece	Cable retainer	Junction coupling piece
						
Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.
		M612390101				
		M61239001				
		M61237035				
		5 pieces				
	M61859010	M61839010		M61869010		
	M61859001	M61839001		M61869001		
	M61857035	M61837035		M61867035		
					M7239	M7204
	1 piece	1 piece		1 piece	10 pieces	10 pieces
LFF400639010	LFF400659010	M54039010	LFF600669010	M54069010		
LFF400639001	LFF400659001	M54039001	LFF600669001	M54069001		
LFF400637035	LFF400657035	M54037035	LFF600667035	M54067035		
					M7239	M7204
1 piece	1 piece	1 piece	1 piece	1 piece	10 pieces	10 pieces
LFF600939010	LFF600959010	M54639010	LFF600969010	M54669010		
LFF600939001	LFF600959001	M54639001	LFF600969001	M54669001		
LFF600937035	LFF600957035	M54637035	LFF600967035	M54667035		
					M7248	M7224
1 piece	1 piece	1 piece	1 piece	1 piece	10 pieces	10 pieces
LFF601139010	LFF601159010	M55039010	LFF601169010	M55069010		
LFF601139001	LFF601159001	M55039001	LFF601169001	M55069001		
LFF601137035	LFF601157035	M55037035	LFF601167035	M55067035		
					M5429	M7224
1 piece	1 piece	1 piece	1 piece	1 piece	5 pieces	10 pieces
	M55259010	M55239010		M55269010		
	M55259001	M55239001		M55269001		
	M55257035	M55237035		M55267035		
					M7250	
	1 piece	1 piece		1 piece	20 pieces	

Specific trunking


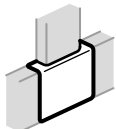

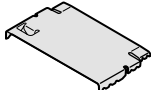
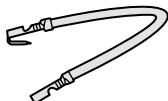

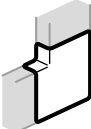

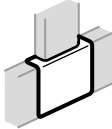
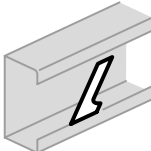
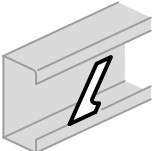
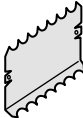

tehalit.LFS general purpose steel trunking

Delivery information: Base pre-drilled, lid and cable retainers (except LFS200200 and LFS300450).

Standard length: 2 m, other lengths on demand, max. 6 m.

Material: Galvanised steel. Group 3 DIN 17162. 275 g/m². Protection category: IP40 IK09.

20 to 30 mm depth	Base and lid	Internal corner	External corner	Flat corner
	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.
	galvanized LFS200200VERZ			
	lacquered pure white LFS2002009010			
	packaging 72 m			
	galvanized LFS300450VERZ	L2751VERZ	L2752VERZ	L2755VERZ
	lacquered pure white LFS3004509010	L27519010	L27529010	L27559010
	packaging 32 m	5 pieces	5 pieces	5 pieces
40 to 60 mm depth	Base and lid	Steel partition	Internal corner	External corner
	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.
	galvanized LFS400600VERZ		R2551VERZ	R2552VERZ
	lacquered pure white LFS4006009010		R25519010	R25529010
	packaging 12 m		4 pieces	4 pieces
	galvanized LFS600600VERZ		R2581VERZ	R2582VERZ
	lacquered pure white LFS6006009010		R25819010	R25829010
	packaging 8 m		4 pieces	4 pieces
	galvanized LFS601000VERZ	TWS70VERZ	R2661VERZ	R2662VERZ
	lacquered pure white LFS6010009010		R26619010	R26629010
	packaging 6 m		4 pieces	2 pieces
	galvanized LFS601500VERZ	TWS70VERZ	R2701VERZ	R2702VERZ
	lacquered pure white LFS6015009010		R27019010	R27029010
	packaging 6 m		5 pieces	8 pieces
	galvanized LFS602000VERZ	TWS70VERZ	R2731VERZ	R2732VERZ
	lacquered pure white LFS6020009010		R27319010	R27329010
	packaging 6 m		4 pieces	4 pieces

End cap	T and cross junction	Earth junction base / base	Earth junction lid / base		Earth strap with terminal	Earth connector
						
Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.		Cat. ref.	Cat. ref.
L2733UNLA		R2320VERZ			L4181GNGE	L4187CHRO
L27339010					L = 150 mm	
			R4320		L4182GNGE	
1 piece		1 pair	10 pieces		L = 300 mm	
					L4183GNGE	
					L = 600 mm	
					25 pieces	10 pieces
Flat corner	End cap	T and cross junction	Steel cable retainer	PC / ABS cable retainer	Earth junction base / base	Earth junction lid / base
						
Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.
R2555VERZ	R2573VERZ	R2566VERZ	R2290VERZ		R2504VERZ	L4180VERZ
R25559010	R25739010	R25669010		M6290		
8 pieces	5 pieces	8 pieces	100 pieces	50 pieces	5 pairs	50 pieces
R2585VERZ	R2603VERZ	R2606VERZ	R2290VERZ		R2604VERZ	L4180VERZ
R25859010	R26039010	R2606VERZ		M6290		
6 pieces	10 pieces	1 piece	100 pieces	50 pieces	5 pairs	50 pieces
R2665VERZ	R2693VERZ	R2646VERZ	R2291VERZ		R2604VERZ	L4180VERZ
R26659010	R26939010	R26469010		M6291		
4 pieces	6 pieces	4 pieces	100 pieces	50 pieces	5 pairs	50 pieces
R2705VERZ	R2723VERZ	R2696VERZ	R2292VERZ		R2604VERZ	L4180VERZ
R27059010	R27239010	R26969010		M6292		
4 pieces	5 pieces	6 pieces	100 pieces	50 pieces	5 pairs	50 pieces
R2735VERZ	R2753VERZ	R2736VERZ	R2293VERZ		R2604VERZ	L4180VERZ
R27359010	R27539010	R27369010		M6293		
4 pieces	6 pieces	6 pieces	100 pieces	50 pieces	5 pairs	50 pieces


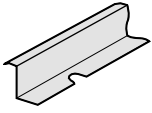

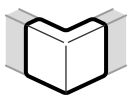

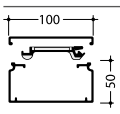
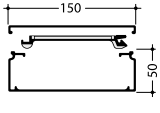
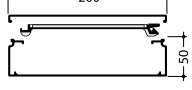

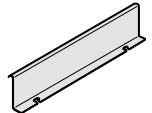

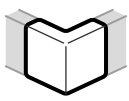
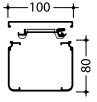
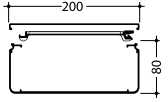
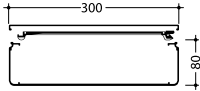
Specific trunking

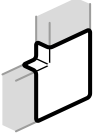

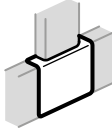
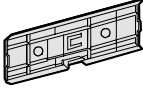
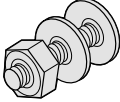
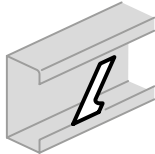
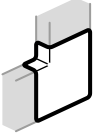

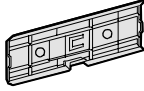
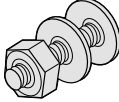
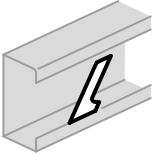
tehalit.LFG trunking in fiberglass reinforced polyester

Delivery information: Base pre-drilled, lid and cable retainers.

Standard length: 2 m, other lengths on demand, max. 6 m.

Material: profiles in PRV (halogen free). Accessories and cable retainers in PC/ABS. Protection category: IP40, IK10.

40 to 50 mm depth		Base and lid	Partition	Internal corner	External corner
					
		Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.
	grey	LFG400600GRAU			
	grey			M59317032	M59327032
	packaging	24 m		1 piece	1 piece
	grey	LFG501000GRAU	M1657GRAU		
	grey	delivered with 4 cable retainers M6015		M59017032	M59027032
	packaging	14 m	60 m	1 piece	1 piece
	grey	LFG501500GRAU	M1657GRAU		
	grey	delivered with 4 cable retainers M6016		M59117032	M59127032
	packaging	10 m	60 m	1 piece	1 piece
	grey	LFG502000GRAU	M1657GRAU		
	grey	delivered with 4 cable retainers M6017		M59217032	M59227032
	packaging	10 m	60 m	1 piece	1 piece
80 mm depth		Base and lid (incl. cable retainers)	Steel partition	Internal corner	External corner
					
		Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.
	grey	LFG801000GRAU	LFG801000GRAU	R7811GRAU	R7812GRAU
	packaging	12 m	40 m	1 piece	1 piece
	grey	LFG802000GRAU	M1607GRAU	R7821GRAU	R7822GRAU
	packaging	6 m	40 m	1 piece	1 piece
	grey	LFG803000GRAU	M1607GRAU	R7831GRAU	R7832GRAU
	packaging	4 m	40 m	1 piece	1 piece

Flat corner	End cap	T and cross junction	Coupling piece junction	Stainless fixing screw	Cable retainer
					
Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.
M59357032	M59337032	M59367032	M6250	L7109	M6014
1 piece	1 piece	1 piece	10 pieces	100 pieces	50 pieces
M59057032	M59037032	M59067032	M6250	L7109	M6015
1 piece	1 piece	1 piece	10 pieces	100 pieces	50 pieces
M59157032	M59137032	M59167032	M6250	L7109	M6016
1 piece	1 piece	1 piece	10 pieces	100 pieces	50 pieces
M59257032	M59237032	M59267032	M6250	L7109	M6017
1 piece	1 piece	1 piece	10 pieces	100 pieces	50 pieces
Flat corner	End cap	T and cross junction	Steel cable retainer	Cable retainer	
					
Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.	
R7815GRAU	R7813GRAU	M1614	L7109	M6015	
1 piece	1 piece	10 pieces	100 pieces	50 pieces	
R7825GRAU	R7823GRAU	M1614	L7109	M6017	
1 piece	1 piece	10 pieces	100 pieces	50 pieces	
R7835GRAU	R7833GRAU	M1614	L7109	M6019ROT	
1 piece	1 piece	10 pieces	100 pieces	50 pieces	

Specific trunking

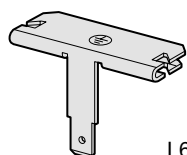
tehalit.FWK fire resistant trunking system

Delivery information: Base and lid.

Standard length: 1.50 m or 1 m.

Material: Plasterplates, galvanised steel.

Fire resistance I90	Base and lid	Partition	Internal corner	External corner
galvanised	FWK3500600VERZ	L6664VERZ	L6811VERZ	L6812VERZ
plaster				
PVC		L6632		
weight per piece / length	13.8 kg / 1.50m		3.42 kg	3.46 kg
packaging	1 piece		1 piece	1 piece
	FWK3501100VERZ	L6664VERZ	L6821VERZ	L6822VERZ
galvanised				
plaster				
PVC		L6632		
weight per piece / length	18.2 kg		4.51 kg	4.54 kg
packaging	1 piece		1 piece	1 piece
	FWK3502100VERZ	L6664VERZ	L6851VERZ	L6852VERZ
galvanised				
plaster				
PVC		L6632		
weight per piece / length	26.8 kg / 1.50m		6.69 kg	6.72 kg
packaging	1 piece		1 piece	1 piece
	FWK3991600VERZ	L6665VERZ	L6861VERZ	L6862VERZ
galvanised				
plaster				
PVC		L6633		
weight per piece / length	17.8 kg / 1m		7.71 kg	7.76 kg
packaging	1 piece		1 piece	1 piece
	FWK3992600VERZ	L6665VERZ	L6871VERZ	L6872VERZ
galvanised				
plaster				
PVC		L6633		
weight per piece / length	23.7 kg / 1m		10.2 kg	10.25 kg
packaging	1 piece		1 piece	1 piece



L6681

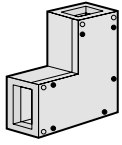
Earth junction

Description	Colour	Pack qty.	Cat. ref.
earth junction in sheet steel	chromed steel	20	L6681GCHR

Fire proof mastic

Description	Pack qty.	Cat. ref.
cartridge content: 310 ml	1	L6682
bucket content: 5 kg	1	L6683

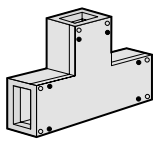
Flat corner



Cat. ref.

L6815VERZ

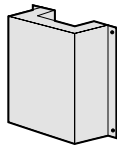
T-piece



Cat. ref.

L6816VERZ

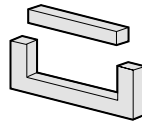
**Sliding sleeve
(wall mounting)**



Cat. ref.

L6818VERZ

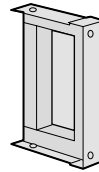
Sealing fitting



Cat. ref.

L6819

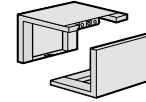
End cap



Cat. ref.

L6813VERZ

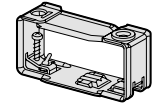
**Sliding sleeve
(slung mounting
on trunking)**



Cat. ref.

L6810VERZ

**Cable retainer
FWK**



Cat. ref.

3.97 kg

1 piece

L6825VERZ

6.13 kg

1 piece

L6826VERZ

3.9 kg

1 piece

L6828VERZ

0.1 kg

1 piece

L6829

0.4 kg

1 piece

L6823VERZ

0.7 kg

1 piece

L6820VERZ

L5732VERZ

5.67 kg

1 piece

L6855VERZ

7.76 kg

1 piece

L6856VERZ

4.5 kg

1 piece

L6858VERZ

0.14 kg

1 piece

L6859

0.5 kg

1 piece

L6853VERZ

0.85 kg

1 piece

L6850VERZ

15 pieces

L5733VERZ

9.95 kg

1 piece

L6865VERZ

11.03 kg

1 piece

L6866VERZ

5.6 kg

1 piece

L6868VERZ

0.22 kg

1 piece

L6869

0.8 kg

1 piece

L6863VERZ

1.22 kg

1 piece

L6860VERZ

15 pieces

L5734VERZ

9.18 kg

1 piece

L6875VERZ

11.06 kg

1 piece

L6876VERZ

6.3 kg

1 piece

L6878VERZ

0.25 kg

1 piece

L6879

1 kg

1 piece

L6873VERZ

1.23 kg

1 piece

L6870VERZ

10 pieces

L5735VERZ

14.32 kg

1 piece

14.18 kg

1 piece

7.5 kg

1 piece

0.3 kg

1 piece

1.4 kg

1 piece

1.6 kg

1 piece

25 pieces


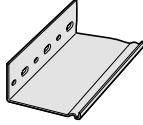
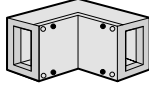
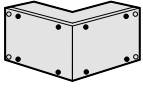
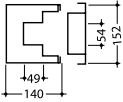
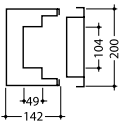
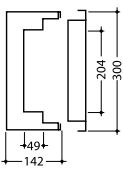
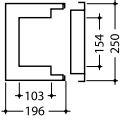
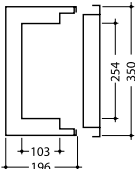
Specific trunking

tehalit.FWK fire resistant trunking system

Delivery information: Base and lid.

Standard length: 0.75 m or 0.5 m.

Material: Plasterplates, galvanised steel.

	Base and lid	Partition	Internal corner	External corner
				
	Cat. ref.	Cat. ref.	Cat. ref.	Cat. ref.
	galvanised plaster PVC	FWK9500600VERZ L6664VERZ	L6911VERZ	L6912VERZ
	weight per piece / length	18.8 kg/0.75 m	10.66 kg	10.74 kg
	packaging	1 piece	1 piece	1 piece
	galvanised plaster PVC	FWK9501100VERZ L6664VERZ	L6921VERZ	L6922VERZ
	weight per piece / length	23.3 kg/0.75 m	13.24 kg	13.32 kg
	packaging	1 piece	1 piece	1 piece
	galvanised plaster PVC	FWK9502100VERZ L6664VERZ	L6951VERZ	L6952VERZ
	weight per piece / length	32.3 kg/0.75 m	18.41 kg	18.48 kg
	packaging	1 piece	1 piece	1 piece
	galvanised plaster PVC	FWK9991600VERZ L6665VERZ	L6961VERZ	L6962VERZ
	weight per piece / length	21.7 kg/0.50m	20.92 kg	21.02 kg
	packaging	1 piece	1 piece	1 piece
	galvanised plaster PVC	FWK9992600VERZ L6665VERZ	L6971VERZ	L6972VERZ
	weight per piece / length	27.6 kg/0.50 m	26.73 kg	26.83 kg
	packaging	1 piece	1 piece	1 piece

Service continuity validated by tests according to DIN 4102/2.

Wall mounting (wall, floor, ceiling):

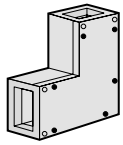
- 60 minutes for FWK9500600 / 9501100 / 9502100

- 90 minutes for FWK9991600 / 9992600.

Slung mounting:

- 30 minutes for all FWK90 trunking.

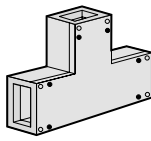
Flat corner



Cat. ref.

L6915VERZ

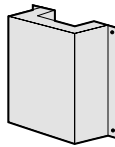
T-piece



Cat. ref.

L6916VERZ

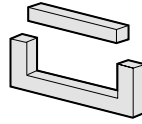
**Sliding sleeve
(wall mounting)**



Cat. ref.

L6918VERZ

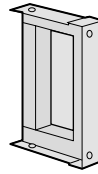
Sealing fitting



Cat. ref.

L6919

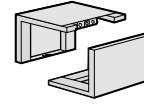
End cap



Cat. ref.

L6913VERZ

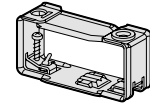
**Sliding sleeve
(slung mounting
on trunking)**



Cat. ref.

L6910VERZ

**Cable retainer
FWK**



Cat. ref.

11.9 kg

15.1 kg

13.2 kg

0.3 kg

1.4 kg

1.41 kg

1 piece

1 piece

1 piece

1 piece

1 piece

1 piece

L6925VERZ

L6926VERZ

L6928VERZ

L6929

L6923VERZ

L6920VERZ

L5732VERZ

16.04 kg

18.65 kg

14.4 kg

0.4 kg

1.9 kg

1.69 kg

1 piece

1 piece

1 piece

1 piece

1 piece

1 piece

15 pieces

L6955VERZ

L6956VERZ

L6958VERZ

L6959

L6953VERZ

L6950VERZ

L5733VERZ

26.12 kg

25.72 kg

16.8 kg

0.6 kg

2.7 kg

2.29 kg

1 piece

1 piece

1 piece

1 piece

1 piece

1 piece

15 pieces

L6965VERZ

L6966VERZ

L6968VERZ

L6969

L6963VERZ

L6960VERZ

L5734VERZ

26.24 kg

25.66 kg

18.2 kg

0.6 kg

3.2 kg

2.31 kg

1 piece

1 piece

1 piece

1 piece

1 piece

1 piece

10 pieces

L6975VERZ

L6976VERZ

L6978VERZ

L6979

L6973VERZ

L6970VERZ

L5735VERZ

26.17 kg

32.42 kg

20.6 kg

0.8 kg

4.4 kg

2.9 kg

1 piece

1 piece

1 piece

1 piece

1 piece

1 piece

25 pieces

Junction pins

- with specified fire resistance (F90 according to DIN 4102)

Description

junction pins for wall and ceiling mounting

Pack qty.

1

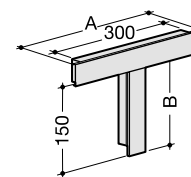
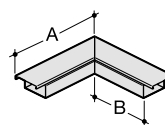
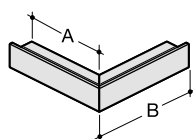
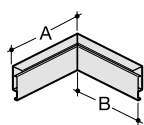
Cat. ref.

L6681GCHR

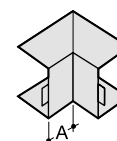
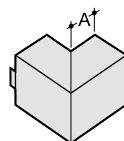
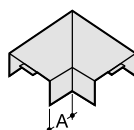
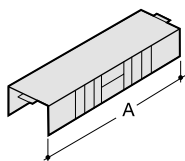


L6565

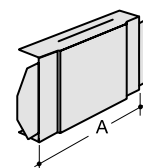
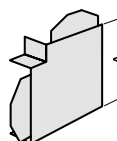
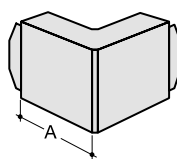
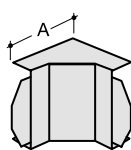
tehalit.LFS - tehalit.LFG



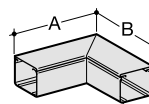
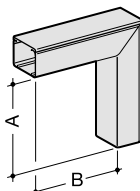
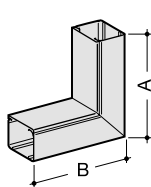
references	internal corner size in mm	external corner size in mm	flat corner size in mm	t and deviation piece size in mm
LFS200200	A = 150 / B = 140	A = 150 / B = 200	A = 170 / B = 150	A = 340 / B = 170
LFS300450	A = 150 / B = 140	A = 150 / B = 200	A = 170 / B = 150	A = 340 / B = 170



references	internal corner size in mm	external corner size in mm	flat corner size in mm	t and deviation piece size in mm
LFS400600	50	50	50	50
LFS600600	50	50	50	50
LFS601000	50	50	50	50
LFS601500	50	50	50	50
LFS602000	50	50	50	50

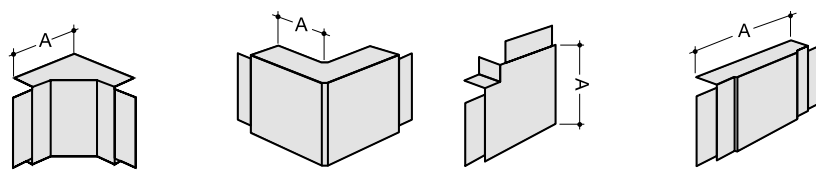


references	internal corner size in mm	external corner size in mm	flat corner size in mm	t and deviation piece size in mm
LFG400600	A = 85	A = 85	A = 85	A = 170
LFG501000	A = 130	A = 130	A = 135	A = 210
LFG501500	A = 130	A = 130	A = 181	A = 260
LFG502000	A = 130	A = 130	A = 231	A = 260



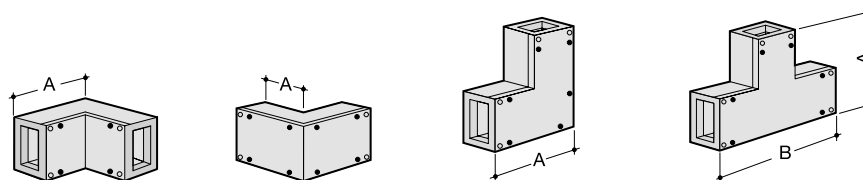
references	internal corner size in mm	external corner size in mm	flat corner size in mm
LFG801000	A = 250 / B = 250	A = 250 / B = 250	A = 250 / B = 250
LFG802000	A = 250 / B = 250	A = 250 / B = 250	A = 250 / B = 250
LFG803000	A = 250 / B = 250	A = 250 / B = 250	A = 250 / B = 250

tehalit.LFH

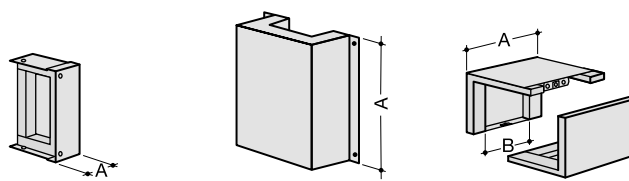


references	internal corner size in mm	external corner size in mm	flat corner size in mm	t and deviation piece size in mm
LFH300450	85	45	85	170
LFH400600 / 400610	85	45	85	170
LFH600900	130	69	120	170
LFH601100	130	69	140	190
LFH601510	130	69	180	250

tehalit.FWK



references	internal corner size in mm	external corner size in mm	flat corner size in mm	t and deviation piece size in mm
FWK3500600	240	150	250	A = 250 / B = 500
FWK3501100	240	150	300	A = 300 / B = 500
FWK3502100	240	150	400	A = 400 / B = 500
FWK3991600	293	150	350	A = 350 / B = 500
FWK3992600	293	150	450	A = 450 / B = 500
FWK9500600	293	150	300	A = 300 / B = 500
FWK9501100	293	150	350	A = 350 / B = 500
FWK9502100	293	150	450	A = 450 / B = 500
FWK9991600	347	150	400	A = 400 / B = 500
FWK9992600	347	150	500	A = 500 / B = 500



references	end cap size in mm	sliding sleeve * size in mm	sliding sleeve ** size in mm
FWK3500600	20	400	A = 120 / B = 60
FWK3501100	20	400	A = 120 / B = 60
FWK3502100	20	400	A = 120 / B = 60
FWK3991600	20	400	A = 120 / B = 60
FWK3992600	20	400	A = 120 / B = 60
FWK9500600	50	400	A = 120 / B = 60
FWK9501100	50	400	A = 120 / B = 60
FWK9502100	50	400	A = 120 / B = 60
FWK9991600	50	400	A = 120 / B = 60
FWK9992600	50	400	A = 120 / B = 60

* wall mounting

** cable trunking

Earthing of tehalit.LFS steel sheet trunking

• Use of wires:

The earthing of every metallic part is compulsory.

• LFS200200 and 300450:

Junctions are mounted on the bottom of the base and are equipped with a screw / ring system which permits the connection of an earth conductor. The earthing of the bases can be done only on one point (junction ensuring the electric continuity).

For the covers, the reported tabs allowing the earthing (R4320 for LFS200200 and R4330 for LFS300450) are mounted under the cover.

A conductor must be connected between those tabs and an earthing point (for example: junctions of the bottoms).

• LFS depth 40 and 60 mm:

Junctions are mounted on the side panels of the base and are equipped with a tab which permits to connect an earth terminal. The earthing of the bases can be done only at one point (junctions ensure electrical continuity).

For LFS covers, depth 40 and 60, reported tabs (L4180) to be mounted on the side of the covers, allow the earthing. A conductor must be connected between those tabs and an earthing point (for example: junctions of the bottoms). The same tab (L4180) allow the earthing of the metallics.

Finishing accessories are equipped with tabs to link with a conductor to an earthing point (for example: bottom junctions).

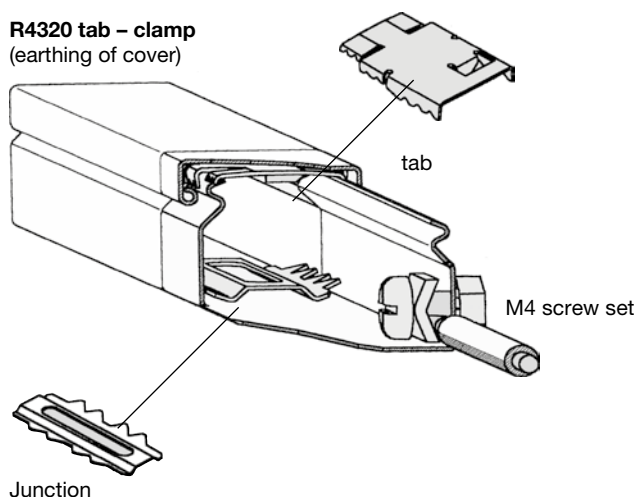
• Use of cables:

No earthing is required for the trunking systems.

LFS200200 / LFS300450 trunkings

LFS200200

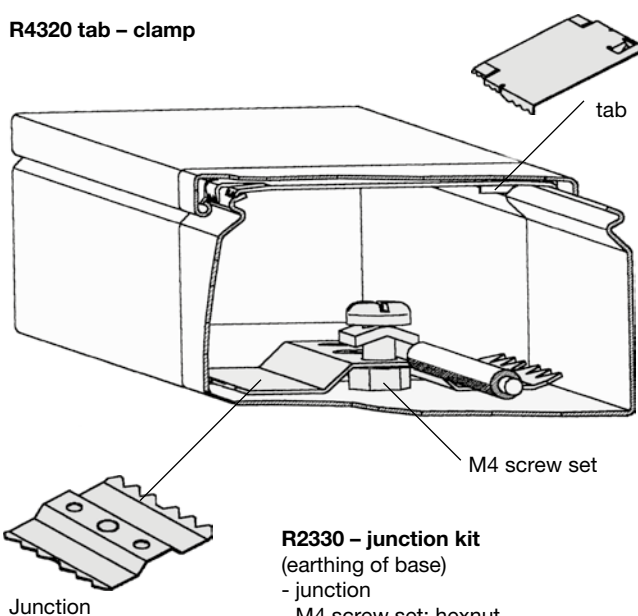
R4320 tab – clamp
(earthing of cover)



R2320 – junction kit
(earthing of base)
- junction
- M4 screw set: hexnut, lockwasher, M4 screw with domed washer

LFS300450

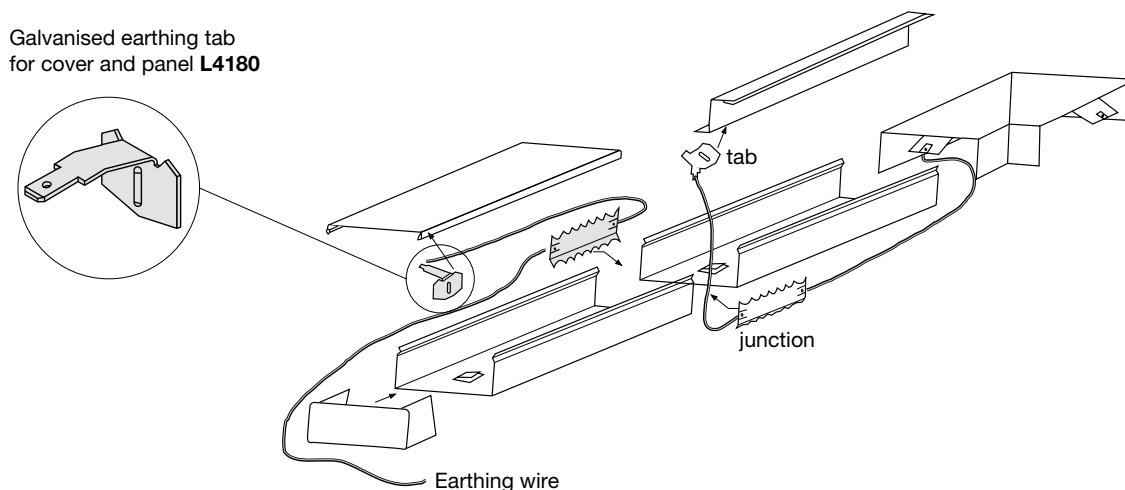
R4320 tab – clamp



R2330 – junction kit
(earthing of base)
- junction
- M4 screw set: hexnut, lockwasher, M4 screw with domed washer

LFS400600 / LFS600600 / 1000 / 1500 / 2000 trunkings

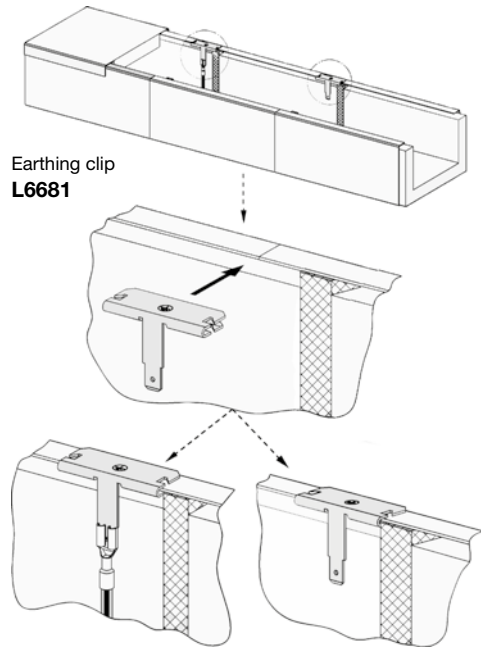
Galvanised earthing tab for cover and panel **L4180**



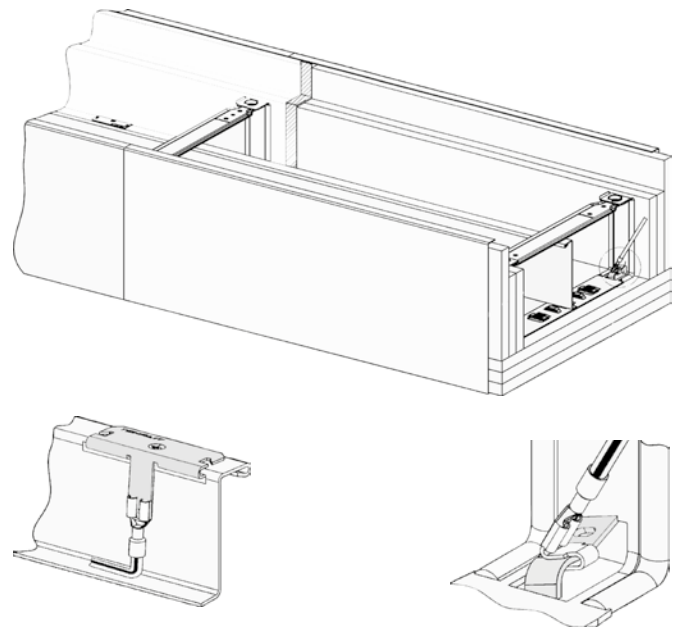
Finishing accessories are basically equipped with an earthing terminal.

tehalit.FWK trunking

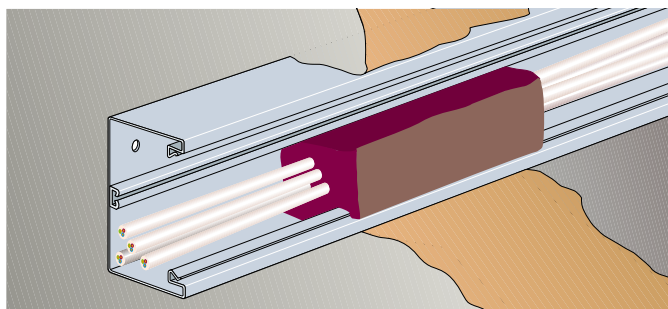
Earthing lids and bases



Earthing cable retainers and sides



Implementation



Mastic quantity in number of packs

trunking references	max.	min.
FB601100	1.4	0.6
FB601300	1.7	0.7
FB601500	1.9	0.8
FB601900	2.5	1.0
FB602300	3.0	1.2
FB801300	2.2	0.9
FB992300	5.0	2.0
LFF400600	0.5	0.2
LFF400610	0.5	0.2
LFF400900	0.8	0.3
LFF401100	1.0	0.4
LFF600600	0.8	0.3
LFF600900	1.3	0.5
LFF601100	1.5	0.6
LFF601500	2.0	0.8
LFF601900	2.6	1.0
LFF602300	3.1	1.2
LFH400600	0.5	0.2
LFH400610	0.5	0.2
LFH600900	1.3	0.5
LFH601100	1.5	0.6
LFH601510	2.0	0.8
LFS400600	0.5	0.2
LFS600600	0.8	0.3
LFS601000	1.4	0.6
LFS601500	2.0	0.8
LFS602000	2.7	1.1
LFG400600	0.5	0.2
LFG501000	1.1	0.4
LFG501500	1.7	0.7
LFG502000	2.3	0.9
LFG801000	1.8	0.7
LFG802000	3.6	1.4
LFG803000	5.4	2.1

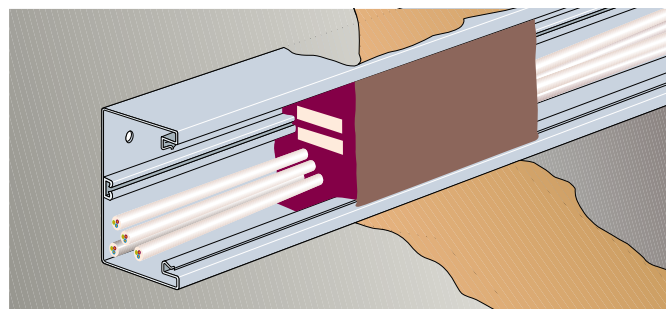
max: trunking without cable
min.: 60% full trunking

Protection against fire

For wall and ceiling mounting with specified fire resistance (F 90 according to DIN 4102).

Mounting

1. Install trunkings end to end.
2. Pass cables.
3. Put fire proof mastic **L6565** inside the trunking, on about 200 mm, on the fire protection area. Uniformly space the cables in the mastic. (if necessary, use lid as formwork).
4. Stuff holes in the wall.
5. Fill in the specification sheet and stick it on the upper part of the trunking. Slide the lids on the right and on the left of the fire protection.



Quantity in number of braids

trunking references	nr of braids
FB601100	9
FB601300	11
FB601500	12
FB601900	15
FB602300	19
FB801300	14
FB992300	31
LFF400600	2
LFF400610	3
LFF400900	4
LFF401100	6
LFF600600	5
LFF600900	6
LFF601100	9
LFF601500	13
LFF601900	15
LFF602300	19
LFH400600	2
LFH400610	2
LFH600900	6
LFH601100	9
LFH601510	12
LFS400600	2
LFS600600	5
LFS601000	8
LFS601500	13
LFS602000	16
LFG400600	2
LFG501000	6
LFG501500	10
LFG801000	13
LFG802000	22
LFG803000	33

- Braid length: 300 m, diameter: 30 mm, damping: about 40 dB, material: A1 category.

!! Do not use as a protection against fire !!



L6565

British Standard switches and sockets

Hager provides a complete range of wiring accessories to fit in homes, offices or hotels. Nice designs, wide choice of switches and colours, each product can be easily adapted to your specific needs.

Systems 8000, stylea, 9088, 10088, Metal clad, Stainless steel and IP66 range are compliant with British Standard.



system 8000	14.2
stylea	14.7
system 9088	14.13
system 10088	14.20
sollysta white moulded	14.28
sollysta decorative	14.34
sollysta grid	14.40
metal clad	14.42
IP66 range	14.43
IP66 isolators	14.44
Doorbells	14.45
Door chimes	14.45
RCD sockets	14.45
Lampholders	14.46
Floor sockets	14.46
Mounting boxes	14.47
Covers	14.47
Technical guide	14.48



XP8110
XP8120



XP8210
XP8220

Single pole switches 10AX

- 'AX' rated - No need to derate for fluorescent loads
- supplied with M3.5 x 25mm long fixing screws and screw caps
- capacity of each terminal:
3 x 1.5mm²
2 x 2.5mm²
- two way switches can be wired either 1 way or 2 way

- terminal markings denote:
L1 = one way
L2 = two way
C = common
- material: Polycarbonate
- complies with: BS EN 60669-1, IEC 60669-1, CB certificate



XP8310
XP8320



XP8410
XP8420



XP8510
XP8520



XP8001

Description	Pack qty.	Cat. ref.
1 gang 1 way	10	XP8110
1 gang 2 way	10	XP8120
2 gang 1 way	10	XP8210
2 gang 2 way	10	XP8220
3 gang 1 way	10	XP8310
3 gang 2 way	10	XP8320
4 gang 1 way	10	XP8410
4 gang 2 way	10	XP8420
5 gang 1 way	10	XP8510
5 gang 2 way	10	XP8520
1 gang intermediate switch	10	XP8001



XP8110RED

Red dolly series

- please contact your local sales office for this customised product.

Description	Pack qty.	Cat. ref.
1 gang 1 way	10	XP8110RED



XP8910



XP8911

Single pole bell switches 10A

- bell push / press can be wired to make 250 V AC
- supplied with M3.5 x 25mm long fixing screws and screw caps.
- capacity of each terminal:
3 x 1.5mm²
2 x 2.5mm²

- material: Polycarbonate
- comply with: BS EN 60669-1, IEC 60669-1

Description	Pack qty.	Cat. ref.
marked "BELL"	10	XP8910
marked "PRESS"	10	XP8911



XP8515



XP8525

Dimmer switches 500W 2 way switched

- supplied with M3.5 x 25mm long fixing screws and screw caps.
- capacity of each terminal
3 x 1.5mm² conductors
2 x 2.5mm² conductors
- frequency 50Hz/ 60Hz
- rating 500W max
- for incandescent lamps only
- max 150W for halogen lamps
- material: polycarbonate
- comply with BS EN 60669-2-1 a.c only, IEC 60669-2-1, CB certificate

Description	Pack qty.	Cat. ref.
single dimmer	5	XP8515
twin dimmer	5	XP8525

Fan controller

- supplied with M3.5 x 25mm long fixing screws and screw caps.
- capacity of each terminal
3 x 1.5mm² conductors
2 x 2.5mm² conductors

- frequency 50Hz/ 60Hz
- material: polycarbonate
- comply with BS EN 60669-2-1 a.c only, IEC 60669-2-1, CB certificate



XP8105



XP8103

Description	Pack qty.	Cat. ref.
400VA 2 way switched	5	XP8105
75VA 3-speed fan control	5	XP8103

Double pole control switches 20AX

- supplied with M3.5 x 25mm long fixing screws and screw caps.
- capacity of each terminal:
L, N: 2 x 6.0mm²
E: 2 x 4.0mm²

- material: polycarbonate
- comply with BS EN 60669-1, IEC 60669-1, CB certificate



XR8200



XR8206

Description	Pack qty.	Cat. ref.
1 gang	10	XR8200
1 gang with neon	10	XR8206
1 gang double pole switch + 10AX single pole switch	10	XR8203
1 gang double pole switch + twin 10AX single pole switch	10	XR8204
1 gang double pole control switch with neon & flex outlet	10	XR8207
2 gang with neon	10	XR8222



XR8203



XR8204



XR8207



XR8222

32A and 45A double pole control switches

- with special marking
- supplied with M3.5 x 25mm long fixing screws and screw caps.
- capacity of each terminal:
L, N: 2 x 6.0mm²
E: 2 x 4.0mm²

- material: polycarbonate
- comply with BS EN 60669-1, IEC 60669-1, CB certificate



XR8327



XR8456

Description	Pack qty.	Cat. ref.
32A with neon	10	XR8327
45A with neon	10	XR8457
45A DP cooker unit (size 2)	5	XR8456



XR8457

Double pole cooker control unit 45A

- combined switch / sockets have double pole 45A main switch and 13A switched socket outlet.
- supplied with M3.5 x 25 mm long fixing screws and screw caps
- capacity of each terminal
L, N: 1 x 16mm²
E: 1 x 10mm²

- marking on cooker control units: ON, OFF and circuit identification cooker and socket.
- material: polycarbonate
- comply with BS 4177



XR8458

Description	Pack qty.	Cat. ref.
cooker control unit (size 2)	5	XR8458



XR8206WH



XR8206AX

Double pole control switch with special marking

Description	Pack qty.	Cat. ref. 20A	Cat. ref. 32A
1 gang with neon marked "Air Conditionner"	10	XR8206AC	XR8327AC
1 gang with neon marked "Cooker Hob"	10	XR8206CB	XR8327CB
1 gang with neon marked "Cooker Hood"	10	XR8206CH	XR8327CH
1 gang with neon marked "Computer Power"	10	XR8206CP	XR8327CP
1 gang with neon marked "Dryer"	10	XR8206DR	XR8327DR
1 gang with neon marked "Dish Washer"	10	XR8206DW	XR8327DW
1 gang with neon marked "Fridge"	10	XR8206FR	XR8327FR
1 gang with neon marked "20AX"	10	XR8206AX	-
1 gang with neon marked "Oven"	10	XR8206OV	XR8327OV
1 gang with neon marked "Water Heater"	10	XR8206WH	XR8327WH
1 gang with neon marked "Washing Machine"	10	XR8206WM	XR8327WM



XR8327DW



XT8001
XT8002



XT8004

Communication and data

- supplied with M3.5 x 25 mm long fixing screws and screw caps
- material: polycarbonate

Description	Pack qty.	Cat. ref.
telephone outlet (BS style master)	10	XT8001
telephone outlet (BS style slave) TV	10	XT8002
co-axial outlet	10	XT8004
TV + FM connector	10	XT8005
RJ 45 data outlet (1 mod) Cat 5e	10	XT8007
RJ 45 data outlet (1 mod) Cat 6	10	XT8607
RJ11 telephone outlet (1 mod)	10	XT8010
RG6 cable TV outlet	10	XT8012
TV + RG 6 connector without splitter	10	XT8017



XT8005



XT8007
XT8607



XT8010



XT8012



XT8017

5A socket outlets

- supplied with M3.5 x 25 mm long fixing screws and screw caps
- capacity of each terminal
L, N: 2 x 2.5mm²
E: 3 x 1.5mm²

- integral rocker design of switched sockets provide clear red 'on' indication.
- material: polycarbonate
- complies with BS 546, SS 472



XS8906

Description	Pack qty.	Cat. ref.
5A round pin switched	10	XS8906

10A socket outlets

- supplied with M3.5 x 25 mm long fixing screws and screw caps
- capacity of each terminal
L, N: 2 x 4.0mm²
E: 3 x 2.5mm²

- integral rocker design of switched sockets provide clear red 'on' indication.
- material: polycarbonate
- complies with IEC 60884-2-3



XS8211



XS8212

Description	Pack qty.	Cat. ref.
10A 2 pin unswitched universal socket	10	XS8211
10A 2 pin switched universal socket	10	XS8212
10A 2 pin unswitched twin universal socket	10	XS8221



XS8221

13A socket outlets

- all terminal screws upward facing for ease of installation.
- supplied with M3.5 x 25 mm long fixing screws and screw caps
- capacity of each terminal
L, N: 2 x 4.0mm²
E: 3 x 2.5mm²
- integral rocker design of switched sockets

- provide clear red 'on' indication.
- tough plastic back for durability.
- material: polycarbonate
- complies with BS 1363-2, SS 145-2
- sockets are with FREE dust preventive sticker to give additional protection during installation
- sockets with Red rocker switch are also available / Surcharge applies



XS8113



XS8213



XS8114



XS8214

Description	Pack qty.	Cat. ref.
13A single unswitched	10	XS8113
13A double unswitched (size 2)	10	XS8213
13A single switched, single pole	10	XS8114
13A twin switched (size 2), single pole	10	XS8214
13A single switched with neon, single pole	10	XS8117
13A twin switched with neon (size 2), single pole	10	XS8217
13A single switched, double pole	10	XS8113DP
13A twin switched (size 2), double pole	10	XS8213DP
13A twin switched socket, full red	10	XS8214REDF



XS8117



XS8217

15A and 16A socket outlets

- supplied with M3.5 x 25 mm long fixing screws and screw caps
- capacity of each terminal
L, N: 2 x 4.0mm²
E: 3 x 2.5mm²

- integral rocker design of switched sockets provide clear red 'on' indication.
- material: polycarbonate
- complies with BS 546, SS 472, IEC 60884 (for XS8413/ 8414), IEC 60884-1 (for XS8116IS)



XS8915



XS8916

Description	Pack qty.	Cat. ref.
15A round pin unswitched	10	XS8915
15A round pin switched	10	XS8916
16A German style socket (without shutter)	10	XS8413
16A German style socket (with shutter)	10	XS8414
16A 3 switched universal	10	XS8116IS
16A 3 double switched universal	10	XS8216IS



XS8413



XS8414

XS8116IS



XS8216



XR8130



XR8131

Fused connection units

- cable clamp accommodates up to 2.5mm² flexible cords
- supplied with M3.5 x 25 mm long fixing screws and screw caps
- all switched units are double pole
- all units fitted with a 13 Amp fuse link to BS 1362, can be supplied with 2 Amp, 5 Amp fuse link
- capacity of each terminal
L, N: 3 x 4.0mm²
E: 2 x 4.0mm²
- optional flex outlet for choice of use.
- material: polycarbonate
- complies with BS 1363-4



XR8137



XR8138

Description	Pack qty.	Cat. ref.
13A fused with flex outlet	10	XR8130
13A switch fused with flex outlet	10	XR8131
13A switch fused with neon and flex outlet	10	XR8137
13A fused with neon and flex outlet	10	XR8138



XR8250



XR8450

Connection units

- supplied with M3.5 x 25mm long fixing screws and screw caps
- material: polycarbonate
- capacity of each terminal for 25A connection unit
L, N: 2 x 6.0mm²
E: 2 x 6.0mm²
- capacity of each terminal for 45A connection unit
L, N: 2 x 6.0mm²
E: 2 x 6.0mm²
- complies with BS 5733

Description	Pack qty.	Cat. ref.
25A connection unit with flex outlet	10	XR8250
45A connection unit with flex outlet	10	XR8450



XV8101



XV8102

Moulded blank plates

- supplied with M3.5 x 25mm long fixing screws and screw caps
- material: polycarbonate
- complies with BS 5733

Description	Pack qty.	Cat. ref.
blank plate (size 1)	20	XV8101
blank plate (size 2)	10	XV8102

Single pole switches 10AX

- supplied with M3.5 x 25 mm long fixing screws
- 'AX' rated, no need to derate for fluorescent loads
- two way switches can be wired either 1 way or 2 way
- capacity of each terminal:
3 x 1.5 mm²
2 x 2.5 mm²

- terminal markings denote:
L1 = one way
L2 = two way
C = common
- material: polycarbonate
- complies with BS EN 60669-1, IEC 60669-1, CB certificate

Description	Pack qty.	Cat. ref.
1 gang 1 way, large dolly	10	WXEL111
1 gang 2 way, large dolly	10	WXEL112
2 gang 1 way, large dolly	10	WXEL121
2 gang 2 way, large dolly	10	WXEL122
3 gang 1 way, large dolly	10	WXEL131
3 gang 2 way, large dolly	10	WXEL132
4 gang 2 way, large dolly	10	WXEL142
1 gang intermediate large dolly	10	WXEL101



WXEL111
WXEL112



WXEL121
WXEL122



WXEL131
WXEL132



WXEL142

Single pole bell switches 10A

- supplied with M3.5 x 25 mm long fixing screws
- capacity of each terminal:
3 x 1.5 mm²
2 x 2.5 mm²

- material: polycarbonate
- complies with BS EN 60669-1, IEC 60669-1, CB certificate

Description	Pack qty.	Cat. ref.
marked "BELL" large dolly	10	WXEL11B
marked "PRESS" large dolly	10	WXEL11P
2 gang marked "PRESS" large dolly	10	WXEL12P



WXEL11B



WXEL11P



WXEL12P

Dimmer switches 500W 2 way switched

- supplied with M3.5 x 25 mm long fixing screws
- capacity of each terminal: 3 x 1.5mm²
- frequency 50/ 60Hz
- rating 500W max

- for incandescent lamps only
- max 150W for halogen lamps
- material: polycarbonate
- complies with BS EN 60669-2-1, IEC 60669-2-1

Description	Pack qty.	Cat. ref.
500W 2 way switched single	5	WXED1R500
500W 2 way switched twin	5	WXED2R500



WXED1R500



WXED2R500

Fan controllers

- supplied with M3.5 x 25 mm long fixing screws
- capacity of each terminal: 3 x 1.5mm²
- material: polycarbonate

- complies with BS EN 60669-2-1, IEC 60669-2-1, IEC 60669-1 (WXEF75)

Description	Pack qty.	Cat. ref.
400W 2 way switched	5	WXEF1R400
75VA 3-speed fan control	5	WXEF75



WXEF1R400



WXEF75



WXEL2D1



WXEL2D1N

Double pole control switches 20AX

- supplied with M3.5 x 25mm long fixing screws and screw caps.
- capacity of each terminal:
L, N: 2 x 4mm²
E: 2 x 4mm²

- material: polycarbonate
- comply with BS EN 60669-1, IEC 60669-1, CB certificate



WXEL2D2



WXEL2D2N



WXEL2D12



WXEL2D12N

Description	Pack qty.	Cat. ref.
1 gang, large dolly	10	WXEL2D1
1 gang, large dolly with neon	10	WXEL2D1N
2 gang, large dolly	10	WXEL2D2
2 gang, large dolly with neon	10	WXEL2D2N
1 gang 2 way, large dolly	10	WXEL2D12
1 gang 2 way, large dolly with neon	10	WXEL2D12N



WXEL2D1NWH



WXEL2D1NAX

Double pole 20AX control switches with special marking and (RED) neon

Description	Pack qty.	Cat. ref.
20AX 1 gang, large dolly marked "Water Heater"	10	WXEL2D1NWH
20AX 1 gang, large dolly marked "Air Conditioner"	10	WXEL2D1NAC
20AX 1 gang, large dolly marked "Cooker Hob"	10	WXEL2D1NCB
20AX 1 gang, large dolly marked "Cooker Hood"	10	WXEL2D1NCH
20AX 1 gang, large dolly marked "Computer Power"	10	WXEL2D1NCP
20AX 1 gang, large dolly marked "Dryer"	10	WXEL2D1NDR
20AX 1 gang, large dolly marked "Dish Washer"	10	WXEL2D1NDW
20AX 1 gang, large dolly marked "Fridge"	10	WXEL2D1NFR
20AX 1 gang, large dolly marked "20AX"	10	WXEL2D1NAX
20AX 1 gang, large dolly marked "Oven"	10	WXEL2D1NOV
20AX 1 gang, large dolly marked "Washing Machine"	10	WXEL2D1NWM



WXER32D1
WXER45D1



WXER45D2

Double pole control switches 32A and 45A

- supplied with M3.5 x 25 mm long fixing screws
- material: polycarbonate
- capacity of each terminal
L, N: 1 X 16.0 mm²
E: 2 X 16.0 mm²

- complies with BS EN 60669-1, IEC 60669-1, CB certificate

Description	Pack qty.	Cat. ref.
32A with neon	10	WXER32D1
45A with neon	10	WXER45D1
45A with neon (size 2)	5	WXER45D2



WXER45CCU

Double pole cooker control unit 45A

- supplied with M3.5 x 25 mm long fixing screws
- capacity of each terminal
L, N: 1 x 16 mm²
E: 1 x 10 mm²
- marking on cooker control units: ON, OFF and circuit identification cooker and socket

- combined switch / sockets have double pole 45A main switch & 13A switched socket outlet
- material: polycarbonate
- complies with BS 4177

Description	Pack qty.	Cat. ref.
cooker control unit (size 2)	5	WXER45CCU

Communication and data

- supplied with M3.5 x 25 mm long fixing screws
- material: polycarbonate

Description	Pack qty.	Cat. ref.
telephone outlet (BS style master)	10	WXET1M
telephone outlet (BS style slave)	10	WXET1S
FM co-axial outlet	10	WXETFM75
TV co-axial outlet	10	WXETV75
TV + FM splitter isolator SCV outlet (size 2)	10	WXETVFM2
TV + FM connector	10	WXETVFM
TV + FM outlet with splitter	10	WXETVFMWS
RJ45 data outlet (1 mod) Cat 5e	10	WXET1RJ5
RJ45 data outlet (2 mod) Cat 5e	10	WXET2RJ5
RJ45 data outlet (1 mod) Cat 6	10	WXET1RJ6
RJ45 data outlet (2 mod) Cat 6	10	WXET2RJ6
RJ11 telephone + RJ45 data outlet Cat 5e	10	WXETD
RJ11 telephone outlet (1 mod)	10	WXET1RJ
RJ11 telephone outlet (2 mod)	10	WXET2RJ
RG6 cable TV outlet	10	WXETV75F
branching terminal 5-pair tel. terminal	10	WXETBT5
TV + RG6 connector without splitter	10	WXETV75R
2A telephone socket with shutter	10	WXET2A
TV + FM outlet (master)	10	WXETVFM
TV + FM outlet (slave)	10	WXETVFMWS



WXET1M WXET1S



WXETFM75 WXETV75



WXETVFM2



WXETVFM WXETVFMWS



WXET1RJ5 WXET2RJ5
WXET1RJ6 WXET2RJ6



WXETD WXET1RJ



WXET2RJ WXETV75F



WXETBT5 WXETV75R



WXET2A WXETVFM
WXETVFMWS

BS switches
and sockets



WXEHKT



WXEHDC

Hotel range

- supplied with M3.5 x 25 mm long fixing screws
- material: polycarbonate
- complies with BS EN 60669-1, IEC 60669-1

Description	Pack qty.	Cat. ref.
Key tag switch with key card (time delay 60s)	5	WXEHKT
"DND" & "Please clean up" switches with (RED) neon	10	WXEHDC
"DND" & "Please clean up" indication box with door bell switch	10	WXEHBD



WXEHBD



WXES105



WXES105S

5A socket outlets

- supplied with M3.5 x 25 mm long fixing screws
- capacity of each terminal
L, N: 3 x 2.5 mm²
E: 4 x 1.5 mm²

- integral rocker design of switched sockets provides clear red 'on' indication
- material: polycarbonate
- complies with BS 546, SS 472

Description	Pack qty.	Cat. ref.
5A round pin unswitched	10	WXES105
5A round pin switched	10	WXES105S



WXES10U



WXES10US

10A socket outlets

- supplied with M3.5 x 25 mm long fixing screws
- capacity of each terminal
L, N: 2 x 4.0 mm²
E: 3 x 2.5 mm²

- integral rocker design of switched sockets provides clear red 'on' indication
- material: polycarbonate
- complies with IEC 60884-2-3

Description	Pack qty.	Cat. ref.
10A 2 pin unswitched universal	10	WXES10U
10A 2 pin switched universal	10	WXES10US
10A 2 pin unswitched twin universal	10	WXES10U2



WXES10U2



WXES113



WXES213

13A socket outlets

- supplied with M3.5 x 25 mm long fixing screws
- capacity of each terminal
L, N: 2 x 4.0 mm²
E: 3 x 2.5 mm²

- material: polycarbonate
- complies with BS 1363-2, SS 145-2
- sockets are supplied with free dust damage prevention sticker to give additional protection during installation.
- sockets with red rocker are also available/ surcharge applies.

- integral rocker design of switched sockets provides clear red 'on' indication
- tough plastic back for durability
- all terminal screws are facing upward for ease of installation

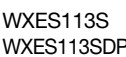
Description	Pack qty.	Cat. ref.
13A single unswitched	10	WXES113
13A twin unswitched (size 2)	10	WXES213
13A single switched, single pole	10	WXES113S
13A twin switched (size 2), single pole	10	WXES213S
13A single switched with neon, single pole	10	WXES113N
13A twin switched with neon (size 2), single pole	10	WXES213N
13A single switched, double pole	10	WXES113SDP
13A twin switched (size 2), double pole	10	WXES213SDP



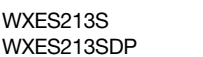
WXES113S



WXES213S



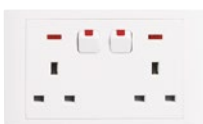
WXES113SDP



WXES213SDP



WXES113N



WXES213N

15A and 16A socket outlets

- supplied with M3.5 x 25 mm long fixing screws
- capacity of each terminal
L, N: 2 x 4.0 mm²
E: 3 x 2.5 mm²
- integral rocker design of switched sockets provides clear red 'on' indication

- material: polycarbonate
- complies with BS 546, SS 472, IEC 60884 (for WXES116/ 116S), IEC 60884-1 (for WXES116IS)

Description	Pack qty.	Cat. ref.
15A round pin unswitched	10	WXES115
15A round pin switched	10	WXES115S
16A German style socket (without shutter)	10	WXES116
16A German style socket (with shutter)	10	WXES116S
16A 3 pin switched universal	10	WXES116IS
16A 3 pin double switched universal	10	WXES216IS



WXES115



WXES115S



WXES116
WXES116S



WXES116IS



WXES216IS

Shaver socket

- designed for use in bathrooms and washrooms and incorporates an earth free supply
- input: 230V a.c.
- output dual
- voltage: 230V a.c. and 115V a.c.
- outlets rating: 20VA on either voltage
- primary circuit is protected by a self-resetting thermal overload device

- insertion of shaver plug automatically switches on the transformer, removal automatically switches it off
- supplied with M3.5 x 25 mm long fixing screws
- capacity of each terminal: 2 x 2.5 mm²
- material: polycarbonate
- complies with BS EN 61558-2-5, IEC 61558-2-5



WXES200

Description	Pack qty.	Cat. ref.
shaver socket 115V /230V [20VA] (size 2)	1	WXES200

Fused connection units

- supplied with M3.5 x 25 mm long fixing screws
- all switched units are double pole
- all units fitted with a 13A fuse link to BS 1362, can be supplied with 2A, 5A fuse link.
- cable clamp accommodates up to 2.5 mm² flexible cord

- capacity of each terminal
L, N: 3 x 4.0 mm²
E: 2 x 4.0 mm²
- optional flex outlet for choice of use
- material: polycarbonate
- complies with BS 1363-4

Description	Pack qty.	Cat. ref.
13A fused with flex outlet	10	WXER13
13A fused with neon and flex outlet	10	WXER13N
13A switched fused with flex outlet	10	WXER13S
13A switched fused with neon and flex outlet	10	WXER13SN



WXER13



WXER13N



WXER13S



WXER13SN

Connection unit

- supplied with M3.5 x 25 mm long fixing screws
- capacity of each terminal
L, N: 2 x 6.0 mm²
E: 2 x 6.0 mm²

- material: polycarbonate
- complies with BS 5733



WXER25

Description	Pack qty.	Cat. ref.
25A connection unit with flex outlet	10	WXER25

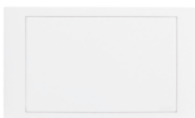


WXEV1

Moulded blank plates

- supplied with M3.5 x 25 mm long fixing screws
- complies with BS 5733

Description	Pack qty.	Cat. ref.
blank plate (size 1)	20	WXEV1
blank plate (size 2)	10	WXEV2



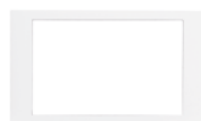
WXEV2



WXEC1

Decoration covers

Description	Pack qty.	Cat. ref.
1 gang clip on cover (size 1)	20	WXEC1
2 gang clip on cover (size 2)	10	WXEC2



WXEC2



WXEVE2



WXEVE3

Euro accommodation plates

- 1 module = 22.5 x 45mm
- for 45x45 modules, see page 14.25

Description	Pack qty.	Cat. ref.
accommodation plate (for 2 modules)	20	WXEVE2
accommodation plate (for 3 modules)	10	WXEVE3

Single pole switches 10AX

- supplied with M3.5 x 25mm long fixing screws.
- switches with neon for illuminated identification in the dark environment.
- two way switches can be wired either 1 way or 2 way.
- terminal markings denote:
 - L1 = one way
 - L2 = two way
 - C = common

- 'AX' rated - No need to derate for fluorescent loads
- material: polycarbonate
- capacity of each terminal
 - 3 x 1.5mm²
 - 2 x 2.5mm²
- comply with BS EN 60669-1, IEC 60669-1, CB certificate

Description	Pack qty.	Cat. ref.
1 gang 1 way, large dolly	10	XL9110
1 gang 2 way, large dolly	10	XL9120
2 gang 1 way, large dolly	10	XL9210
2 gang 2 way, large dolly	10	XL9220
3 gang 1 way, large dolly	10	XL9310
3 gang 2 way, large dolly	10	XL9320
4 gang 1 way, large dolly (size 2)	10	XL9410
4 gang 2 way, large dolly (size 2)	10	XL9420
6 gang 1 way (size 2)	10	XL9610
6 gang 2 way (size 2)	10	XL9620
8 gang 1 way (size 2)	10	XL9810
8 gang 2 way (size 2)	10	XL9820
1 gang intermediate large dolly	10	XL9001



XL9110
XL9120

XL9210
XL9220



XL9310
XL9320

XL9001



XL9410
XL9420



XP9610
XP9620



XP9810
XP9820

Single pole switches 10AX with neon

Description	Pack qty.	Cat. ref.
1 gang 1 way, large dolly with neon	10	XL9117
1 gang 2 way, large dolly with neon	10	XL9127
2 gang 1 way, large dolly with neon	10	XL9217
2 gang 2 way, large dolly with neon	10	XL9227
3 gang 1 way, large dolly with neon	10	XL9317
3 gang 2 way, large dolly with neon	10	XL9327



XL9117
XL9127

XL9217
XL9227

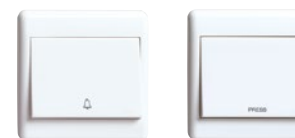


XL9317
XL9327

Single pole bell switches 10A

- supplied with M3.5 x 25mm long fixing screws.
- capacity of each terminal
 - 3 x 1.5mm²
 - 2 x 2.5mm²
- material: polycarbonate

Description	Pack qty.	Cat. ref.
marked bell large dolly	10	XL9910
marked press large dolly	10	XL9911
without marking large dolly	10	XL9911NM



XL9910

XL9911



XL9911NM



XP9515

XP9525

Dimmer switches

- supplied with M3.5 x 25mm long fixing screws.
- capacity of each terminal:
3 x 1.5mm²
2 x 2.5mm²
- dimmer can control incandescent lamps only (for XP9515)
- dimmers can control incandescent lamps and max 150W halogen lamps (for XP9515 & XP9525)
- frequency: 50/ 60Hz
- material: polycarbonate
- complies with BS EN 60669-2-1, IEC 60669-2-1

Description	Pack qty.	Cat. ref.
500W 2 way switched single	10	XP9515
500W 2 way switched twin	10	XP9525



XP9105

Fan controller

- supplied with M3.5 x 25mm long fixing screws.
- capacity of each terminal:
3 x 1.5mm²
2 x 2.5mm²
- frequency: 50/ 60Hz
- material: polycarbonate
- complies with BS EN 60669-2-1, IEC 60669-2-1

Description	Pack qty.	Cat. ref.
400W 2 way switched	10	XP9105



XL9200

XL9221

Double pole control switches 20AX

- supplied with M3.5 x 25mm long fixing screws.
- capacity of each terminal
L, N: 2 x 4 mm²
E: 2 x 4 mm²
- material: polycarbonate
- complies with BS EN 60669-1, IEC 60669-1, CB certificate

Description	Pack qty.	Cat. ref.
1 gang, large dolly	10	XL9200
2 gang, large dolly	10	XL9221
1 gang, large dolly with neon	10	XL9206
2 gang, large dolly with neon	10	XL9222



XL9206

XL9222

Double pole control 20AX switches with special marking



XL9206WH

XL9206AX

Description	Pack qty.	Cat. ref.	
		1 gang	2 gang
large dolly with neon marked "Air Conditionner"	10	XL9206AC	XL9222AC
large dolly with neon marked "Cooker Hob"	10	XL9206CB	XL9222CB
large dolly with neon marked "Cooker Hood"	10	XL9206CH	XL9222CH
large dolly with neon marked "Computer Power"	10	XL9206CP	XL9222CP
large dolly with neon marked "Dryer"	10	XL9206DR	XL9222DR
large dolly with neon marked "Dish Washer"	10	XL9206DW	XL9222DW
large dolly with neon marked "Fridge"	10	XL9206FR	XL9222FR
large dolly with neon marked "20AX"	10	XL9206AX	XL9222AX
large dolly with neon marked "Oven"	10	XL9206OV	XL9222OV
large dolly with neon marked "Water Heater"	10	XL9206WH	XL9222WH
large dolly with neon marked "Washing Machine"	10	XL9206WM	XL9222WM



XL9222WM

Double pole control switches 32A and 45A

- supplied with M3.5 x 25mm long fixing screws.
- capacity of each terminal
L, N: 1 x 16 mm²
E: 2 x 16 mm²

- material: polycarbonate
- complies with BS EN 60669-1, IEC 60669-1, CB certificate

Description	Pack qty.	Cat. ref.
32A with neon	10	XR9327
45A with neon	10	XR9457
45A DP cooker unit (size 2)	10	XR9456



XR9327



XR9457



XR9456

Double pole cooker control unit

- supplied with M3.5 x 25mm long fixing screws.
- capacity of each terminal
L, N: 1 x 16 mm²
E: 1 x 10 mm²
- combined switch / sockets have double pole 45A main switch and 13A switched socket outlet

- marking on cooker control units: ON, OFF and circuit identification cooker and socket
- material: polycarbonate
- complies with BS 4177

Description	Pack qty.	Cat. ref.
cooker control unit (size 2)	5	XR9458



XR9458

Hotel range

- supplied with M3.5 x 25 mm long fixing screws and screw caps
- material: polycarbonate
- comply with BS EN 60669-1, IEC 60669-1

Description	Pack qty.	Cat. ref.
key tag switch with key card (time delay 60s)	5	XH9001
key card only	5	XH9001CARD
"DND" & "Please clean up" switches with (RED) neon	10	XH9002
"DND" & "Please clean up" indication box with door bell switch	10	XH9003



XH9001



XH9002



XH9003



XT9001



XT9002



XT9003



XT9004



XT9005



XT9006



XT9025



XT9007
XT9607



XT9008
XT9608



XT9009



XT9010



XT9011



XT9012



XT9013



XT9014



XT9015



XT9016



XT9017

Communication and data

- supplied with M3.5 x 25 mm long fixing screws and screw caps
- material: polycarbonate

Description	Pack qty.	Cat. ref.
telephone outlet (BS style master)	10	XT9001
telephone outlet (BS style slave)	10	XT9002
FM co-axial outlet	10	XT9003
TV co-axial outlet	10	XT9004
TV + FM connector	10	XT9005
TV + FM splitter isolator SCV outlet (size 2) (blank plate only)	10	XT9025
TV + FM outlet with splitter	10	XT9006
RJ45 data outlet (1 mod) Cat 5e	10	XT9007
RJ45 data outlet (2 mod) Cat 5e	10	XT9008
RJ45 data outlet (1 mod) Cat 6	10	XT9607
RJ45 data outlet (2 mod) Cat 6	10	XT9608
RJ11 telephone + RJ45 data outlet	10	XT9009
RJ11 telephone outlet (1 mod)	10	XT9010
RJ11 telephone outlet (2 mod)	10	XT9011
RG6 cable TV outlet	10	XT9012
branching terminal 5-pair tel. terminal	10	XT9013
2A telephone socket with shutter	10	XT9014
TV + FM outlet (Master)	10	XT9015
TV + FM outlet (Slave)	10	XT9016
TV + RG6 connector without splitter	10	XT9017

Shaver socket

- designed for use in bathrooms and washrooms and incorporates an earth free supply
- input: 230 V AC
- output: dual voltage 230V a.c. and 115 V AC outlets rating 20VA on either voltage
- supplied with M3.5 x 25 mm long fixing screws
- primary circuit is protected by a self-resetting thermal overload device

- insertion of shaver plug automatically switches on the transformer, removal automatically switches it off
- a positive interlock prevents 2 plugs being inserted simultaneously
- capacity of each terminal: 2 x 2.5 mm²
- material: polycarbonate
- complies with BS EN 61558-2-5, IEC 61558-2-5



XS9200

Description	Pack qty.	Cat. ref.
shaver socket 115V / 230V [20VA] (size 2)	1	XS9200

5A socket outlets

- supplied with M3.5 x 25 mm long fixing screws
- capacity of each terminal
L, N: 2 x 2.5 mm²
E: 3 x 1.5 mm²

- integral rocker design of switched sockets provides clear red 'on' indication
- material: polycarbonate
- complies with BS 546, SS 472



XS9905



XS9906

Description	Pack qty.	Cat. ref.
5A round pin unswitched	10	XS9905
5A round pin switched	10	XS9906

10A socket outlet

- supplied with M3.5 x 25 mm long fixing screws
- capacity of each terminal
L, N: 2 x 4.0 mm²
E: 3 x 2.5 mm²

- integral rocker design of switched sockets provides clear red 'on' indication
- material: polycarbonate
- complies with IEC 60884-2-3



XS9211



XS9212

Description	Pack qty.	Cat. ref.
10A 2 pin unswitched universal	10	XS9211
10A 2 pin switched universal	10	XS9212
10A 2 pin unswitched twin universal	10	XS9221



XS9221



XS9113



XS9213

13A socket outlet

- supplied with M3.5 x 25 mm long fixing screws
- capacity of each terminal
L, N: 2 x 4.0 mm²
E: 3 x 2.5 mm²
- integral rocker design of switched sockets provides clear red 'on' indication
- tough plastic back for durability
- all terminal screws are facing upward for ease of

- installation
- material: polycarbonate
- complies with BS 1363-2, SS 145-2
- socket are supplied with free dust damage prevention sticker to give additional protection during installation.
- sockets with red rocker are also available/ surcharge applies.



XS9114



XS9214



XS9117



XS9217



XS9113DP



XS9213DP

Description	Pack qty.	Cat. ref.
13A single unswitched	10	XS9113
13A twin unswitched (size 2)	10	XS9213
13A single switched	10	XS9114
13A twin switched (size 2)	10	XS9214
13A single switched with neon	10	XS9117
13A twin switched with neon (size 2)	10	XS9217
13A single switched, double pole	10	XS9113DP
13A twin switched (size 2), double pole	10	XS9213DP



XS9915



XS9916

15A and 16A socket outlet

- supplied with M3.5 x 25 mm long fixing screws
- capacity of each terminal
L, N: 2 x 4.0 mm²
E: 3 x 2.5 mm²
- integral rocker design of switched sockets provides clear red 'on' indication

- material: polycarbonate
- complies with BS 546, SS 472, IEC 60884 (for XS9413/9414), IEC 60884-1 (for XS9116IS)



XS9413

XS9414

Description	Pack qty.	Cat. ref.
15A round pin unswitched socket	10	XS9915
15A round pin switched socket	10	XS9916
16A German style (without shutter) socket	10	XS9413
16A German style (with shutter) socket	10	XS9414
16A 3 pin switched universal socket	10	XS9116IS

Fused connection units

- supplied with M3.5 x 25 mm long fixing screws
- all switched units are double pole
- all units fitted with a 13A fuse link to BS 1362, can be supplied with 2A, 5A fuse link.
- cable clamp accommodates up to 2.5 mm² flexible cord
- capacity of each terminal
L, N: 3 x 4.0 mm²
E: 2 x 4.0 mm²
- optional flex outlet for choice of use
- material: polycarbonate
- complies with BS 1363-4



XR9130
XR91302
XR91305

XR9131
XR91312
XR91315

Description	Pack qty.	Cat. ref.
13A fused with flex outlet	10	XR9130
13A switched fused with flex outlet	10	XR9131
13A switched fused with neon and flex outlet	10	XR9137
13A fused with neon and flex outlet	10	XR9138
2A fused with flex outlet	10	XR91302
2A switched fused with flex outlet	10	XR91312
2A switched fused with neon and flex outlet	10	XR91372
2A fused with neon and flex outlet	10	XR91382
5A fused with flex outlet	10	XR91305
5A switched fused with flex outlet	10	XR91315
5A switched fused with neon and flex outlet	10	XR91375
5A fused with neon and flex outlet	10	XR91385



XR9137
XR91372
XR91375

XR9138
XR91382
XR91385

Connection units

- supplied with M3.5 x 25 mm long fixing screws
- capacity of each terminal for 25A connection unit
L, N: 2 x 6.0 mm²
E: 2 x 6.0 mm²
- capacity of each terminal for 45A connection unit
L, N: 2 x 6.0 mm²
E: 2 x 6.0 mm²
- material: polycarbonate
- complies with BS 5733



XR9250

XR9450

Description	Pack qty.	Cat. ref.
25A connection unit with flex outlet	10	XR9250
45A connection unit with flex outlet	10	XR9450

Blank plates

- supplied with M3.5 x 25 mm long fixing screws
- material: polycarbonate
- complies with BS 5733



XV9101

XV9102

Description	Pack qty.	Cat. ref.
blank plate (size 1)	10	XV9101
blank plate (size 2)	10	XV9102



WGL111
WGL112



WGL121
WGL122



WGL131
WGL132



WGL101

Single pole switches with fluorescent strips 10AX

- supplied with M3.5 x 25 mm long fixing screws
- all switches without LED have glow in the dark fluorescent indicators
- 'AX' rated - No need to derate for fluorescent loads
- two way switches can be wired either 1 way or 2 way.
- terminal markings denote:
L1 = one way
L2 = two way
C = common
- capacity of each terminal
3 x 1.5mm²
2 x 2.5mm²
- material: polycarbonate
- complies with BS EN 60669-1, IEC 60669-1, CB certificate
- if "ON" indicator is required, extra loop terminal is needed for wiring / surcharge applies

Description	Pack qty.	Cat. ref.
1 gang 1 way, large dolly	10	WGL111
1 gang 2 way, large dolly	10	WGL112
2 gang 1 way, large dolly	10	WGL121
2 gang 2 way, large dolly	10	WGL122
3 gang 1 way, large dolly	10	WGL131
3 gang 2 way, large dolly	10	WGL132
1 gang intermediate large dolly	10	WGL101



WGL112N



WGL122N



WGL132N

Single pole switches with LED 10AX

- supplied with M3.5 x 25 mm long fixing screws
- switches available with Blue LED for illuminated identification in a dark environment
- all switches with LED are pre-wired as location indicator
- 'AX' rated - No need to derate for fluorescent loads
- two way switches can be wired either 1 way or 2 way.
- terminal markings denote:
L1 = one way
L2 = two way
C = common
- capacity of each terminal
3 x 1.5mm²
2 x 2.5mm²
- material: polycarbonate
- complies with BS EN 60669-1, IEC 60669-1, CB certificate
- if "ON" indicator is required, extra loop terminal is needed for wiring / surcharge applies

Description	Pack qty.	Cat. ref.
1 gang 1 way, large dolly	10	WGL111N
1 gang 2 way, large dolly	10	WGL112N
2 gang 1 way, large dolly	10	WGL121N
2 gang 2 way, large dolly	10	WGL122N
3 gang 1 way, large dolly	10	WGL131N
3 gang 2 way, large dolly	10	WGL132N



WGL11B



WGL11P



WGL12P

Single pole bell switches with fluorescent strips 10A

- supplied with M3.5 x 25mm long fixing screws.
- material: polycarbonate
- capacity of each terminal
3 x 1.5mm²
2 x 2.5mm²
- complies with BS EN 60669-1, IEC 60669-1, CB certificate

Description	Pack qty.	Cat. ref.
marked "BELL" large dolly	10	WGL11B
marked "PRESS" large dolly	10	WGL11P
2 gang marked "PRESS" large dolly	10	WGL12P

Double pole control switches 20AX

- supplied with M3.5 x 25mm long fixing screws.
- material: polycarbonate
- capacity of each terminal
L, N: 2 x 4.0mm²
E: 2 x 4.0mm²

- complies with BS EN 60669-1, IEC 60669-1, CB certificate

Description	Pack qty.	Cat. ref.
1 gang, large dolly	10	WGL2D1
1 gang, large dolly with neon	10	WGL2D1N
2 gang, large dolly	10	WGL2D2
2 gang, large dolly with neon	10	WGL2D2N
1 gang 2 way, large dolly	10	WGL2D12
1 gang, 2 way, large dolly with neon	10	WGL2D12N



Double pole control switch with special marking and (RED) neon

Description	Pack qty.	Cat. ref.
20AX 1 gang, large dolly marked "Water Heater"	10	WGL2D1NWH
20AX 1 gang, large dolly marked "Air Conditioner"	10	WGL2D1NAC
20AX 1 gang, large dolly marked "Cooker Hob"	10	WGL2D1NCB
20AX 1 gang, large dolly marked "Cooker Hood"	10	WGL2D1NCH
20AX 1 gang, large dolly marked "Computer Power"	10	WGL2D1NCH
20AX 1 gang, large dolly marked "Dryer"	10	WGL2D1NDR
20AX 1 gang, large dolly marked "Dish Washer"	10	WGL2D1NDW
20AX 1 gang, large dolly marked "Fridge"	10	WGL2D1NFR
20AX 1 gang, large dolly marked "20AX"	10	WGL2D1NAX
20AX 1 gang, large dolly marked "Oven"	10	WGL2D1NOV
20AX 1 gang, large dolly marked "Washing machine"	10	WGL2D1NWM



BS switches and sockets

32A and 45A double pole control switches

- supplied with M3.5 x 25mm long fixing screws and screw caps
- material: polycarbonate
- capacity of each terminal
L, N: 1 x 16.0mm²
E: 2 x 16.0mm²

- comply with BS EN 60669-1, IEC 60669-1, CB certificate

Description	Pack qty.	Cat. ref.
32A with (RED) neon	10	WGR32D1
45A with (RED) neon	10	WGR45D1
45A DP cooker unit (size 2)	10	WGR45D2



Cooker control unit

- supplied with M3.5 x 25mm long fixing screws and screw caps
- combined switch / sockets have double pole 45A main switch and 13A switched socket outlet
- marking on cooker control units: ON, OFF and circuit identification cooker and socket.

- material: polycarbonate
- capacity of each terminal
L, N: 1 x 16mm²
E: 1 x 10mm²
- comply with BS 4177

Description	Pack qty.	Cat. ref.
double pole cooker control unit 45A (size 2)	10	WGR45CCU

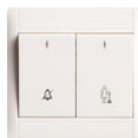




WGHKT

Hotel range

- supplied with M3.5 x 25 mm long fixing screws
- material: polycarbonate
- complies with BS EN 60669-1, IEC 60669-1



WGHDC



WGHBD

Description	Pack qty.	Cat. ref.
key tag switch with key card (time delay 60s)	5	WGHKT
"DND" & "Please clean up" switches with (RED) neon(Inside the room)	10	WGHDC
"DND" & "Please clean up" indication box with door bell switch (outside the room)	10	WGHBD



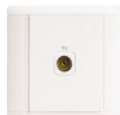
WGT1M



WGT1S

Communication and data

- supplied with M3.5 x 25 mm long fixing screws
- material: polycarbonate



WGT1S



WGTVM2

Description	Pack qty.	Cat. ref.
telephone outlet (BS style master)	10	WGT1M
telephone outlet (BS style slave)	10	WGT1S
TV co-axial outlet	10	WGTV75
TV + FM splitter isolator SCV outlet (size 2)	10	WGTVM2
RJ45 data outlet (1 mod) Cat 5e	10	WGT1RJ5
RJ45 data outlet (2 mod) Cat 5e	10	WGT2RJ5
RJ45 data outlet (1 mod) Cat 6	10	WGT1RJ6
RJ45 data outlet (2 mod) Cat 6	10	WGT2RJ6
RJ11 + RJ45 data outlet	10	WGTD
RJ11 data outlet (1 mod)	10	WGT1RJ
RJ11 data outlet (2 mod)	10	WGT2RJ
RG6 cable TV outlet	10	WGTV75F
branching terminal 5-pair tel. terminal	10	WGTBT5
TV + RG6 connector without splitter	10	WGTV75R



WGT1RJ5 /
WGT1RJ6



WGT2RJ5 /
WGT2RJ6



WGTD



WGT1RJ



WGT2RJ



WGTV75F



WGTBT5



WGTV75R



WGS200

Shaver socket

- supplied with M3.5 x 25mm long fixing screws
- input: 230 V AC
- output dual voltage 230 V AC and 115 V AC
- outlets rating: 20VA on either voltage
- designed for use in bathrooms and washrooms and incorporates an earth free supply
- primary circuit is protected by a self-resetting thermal overload device

- insertion of shaver plug automatically switches on the transformer, removal automatically switches it off
- a positive interlock prevents 2 plugs being inserted simultaneously
- capacity of each terminal: 2 x 2.5mm²
- material: polycarbonate
- complies with BS EN 61558-2-5, IEC 61558-2-5

Description	Pack qty.	Cat. ref.
shaver socket 115V /230V [20VA] (size 2)	1	WGS200

5A socket outlets

- supplied with M3.5 x 25mm long fixing screws
- capacity of each terminal
 - L, N: 3 x 2.5mm²
 - E: 4 x 1.5mm²

- integral rocker design of switched sockets provide clear red 'on' indication
- material: polycarbonate
- complies with BS 546, SS 472



Description	Pack qty.	Cat. ref.
5A round pin unswitched	10	WGS105
5A round pin switched	10	WGS105S

WGS105

WGS105S

10A socket outlets

- supplied with M3.5 x 25mm long fixing screws
- capacity of each terminal
 - L, N: 2 x 4.0mm²
 - E: 3 x 2.5mm²

- integral rocker design of switched sockets provide clear red 'on' indication
- material: polycarbonate
- complies with IEC 60884-2-3



Description	Pack qty.	Cat. ref.
10A 2 pin unswitched universal socket	10	WGS10U
10A 2 pin switched universal socket	10	WGS10US
10A 2 pin unswitched twin universal socket	10	WGS10U2

WGS10U

WGS10US



WGS10U2

13A socket outlets

- supplied with M3.5 x 25mm long fixing screws.
- capacity of each terminal
 - L, N: 2 x 4.0mm²
 - E: 3 x 2.5mm²
- integral rocker design of switched sockets provide clear red 'on' indication
- tough plastic back for durability

- all terminal screws upward facing for ease of installation
- material: polycarbonate
- complies with BS 1363-2, SS 145-2
- socket are with FREE dust preventive sticker to give additional protection during installation
- sockets with red dolly are also available



WGS113

WGS213



WGS113S

WGS213S



WGS113N

WGS213N

Description	Pack qty.	Cat. ref.
13A single unswitched	10	WGS113
13A double unswitched (size 2)	10	WGS213
13A single switched, single pole	10	WGS113S
13A double switched (size 2), single pole	10	WGS213S
13A single switched with neon, single pole	10	WGS113N
13A double switched with neon (size 2), single pole	10	WGS213N
13A single switched with neon, double pole	10	WGS113DP
13A twin switched with neon (size 2), double pole	10	WGS213DP



WGS115 WGS115S



WGS116 WGS116IS
WGS116S



WGS216IS

15A and 16A socket outlets

- supplied with M3.5 x 25mm long fixing screws
- capacity of each terminal
L, N: 2 x 4.0mm²
E: 3 x 2.5mm²
- integral rocker design of switched sockets provide clear red 'on' indication.
- material: polycarbonate
- comply with BS 546, SS 472, IEC 60884 (for WGS116/ 116S), IEC 60884-1 (for WGS16IS)

Description	Pack qty.	Cat. ref.
15A round pin unswitched socket	10	WGS115
15A round pin switched socket	10	WGS115S
16A German style socket (without shutter)	10	WGS116
16A German style socket (with shutter)	10	WGS116S
16A 3 pins switched universal socket	10	WGS116IS
16A 3 pins double switched universal socket	10	WGS216IS



WGR13 WGR13S
WGR132 WGR13S2
WGR135 WGR13S5



WGR13SN
WGR13SN2
WGR13SN5

Fused connection units

- supplied with M3.5 x 25mm long fixing screws
- all switched units are double pole.
- capacity of each terminal
L, N: 3 x 4.0mm²
E: 2 x 4.0mm²
- all units fitted with a 13A fuse link to BS 1362, can be supplied with 2A, 5A fuse link
- cable clamp accommodates up to 2.5mm² flexible cord
- optional flex outlet for choice of use
- material: polycarbonate
- complies with BS 1363-4

Description	Pack qty.	Cat. ref.
13A fused with flex outlet	10	WGR13
13A switched fused with flex outlet	10	WGR13S
13A switched fused with neon and flex outlet	10	WGR13SN
2A fused with flex outlet	10	WGR132
2A switched fused with flex outlet	10	WGR13S2
2A switched fused with neon and flex outlet	10	WGR13SN2
5A fused with flex outlet	10	WGR135
5A switched fused with flex outlet	10	WGR13S5
5A switched fused with neon and flex outlet	10	WGR13SN5



WGR25

Connection unit

- supplied with M3.5 x 25mm long fixing screws.
- capacity of each terminal for 25A connection unit
L, N: 2 x 6.0mm²
E: 2 x 6.0mm²
- material: polycarbonate
- complies with BS 5733

Description	Pack qty.	Cat. ref.
25A connection unit with flex outlet	10	WGR25



WGV1 WGV2

Moulded blank plates

- supplied with M3.5 x 25mm long fixing screws.
- material: polycarbonate
- complies with BS 5733

Description	Pack qty.	Cat. ref.
blank plate (size 1)	20	WGV1
blank plate (size 2)	10	WGV2

Euro accommodation plates

- 1 module = 22.5 mm x 45 mm

Description	Pack qty.	Cat. ref.
accommodation plate (for 2 modules)	20	WGVE2
accommodation plate (for 3 modules)	20	WGVE3



WGVE2

WGVE3

Modules

- keystone modules (WGMRJ11, WGMRJ45 and WGMRJ456) are not suitable for stylea and 10088 accommodation plate WXEVE2,3 and WGVE2,3
 - multi international socket (WGSM13I) and Euro American sockets (WGSM216EA, WGSM16EA and WGSMT16EA) are for export markets only

Description	Pack qty.	Cat. ref.
13A multi international socket (45mm x 45mm)	10	WGSM13I
16A 2 pin Euro American socket (22.5 mm x 45 mm)	10	WGSM216EA
16A 3 pin Euro American socket (45 mm x 45 mm)	10	WGSM16EA
16A 3 pin twin Euro American socket (45 mm x 67.5 mm)	5	WGSMT16EA
13A BS socket (45 mm x 45 mm)	10	WGSM113
16A Schuko socket (45mm x 45mm)	10	WS161
10AX switch module (22.5mm x 45mm)	10	WS012
Keystone 4 pin telephone (22.5 mm x 45 mm)	10	WGMRJ11
Keystone 8 pin Cat 5E Data (22.5 mm x 45 mm)	10	WGMRJ45
Keystone 8 pin Cat 6 Data (22.5 mm x 45 mm)	10	WGMRJ456
75 Ohm "F" connection mechanism IGHZ (22.5 mm x 45 mm)	10	WGMTV75F
USB charger 2.1A 5V	1	WS110
RJ11/12 4/6pin telephone (45mm x 45mm)	10	WS201
RJ45 8 pin Cat 5E Data (22.5mm x 45mm)	10	WS213
RJ45 8pin Cat 6 Data (22.5mm x 45mm)	10	WS222
blank module (22.5 mm x 45 mm)	10	WGMV1



WGSM13I

WGSM16EA



WGSM216EA

WGSMT16EA



WGSM113

WGMRJ11



WGMRJ45

WGMTV75F



WGMV1

BS switches and sockets

Motion detectors

Description	Pack qty.	Cat. ref.
systo 2M PIR without neutral (45mm x 45mm)	1	WS050
systo 2M PIR 3 wires (45mm x 45mm)	1	WS051



WS050

WS051

Dimmers

Description	Pack qty.	Cat. ref.
systo 2M rotative dimmer for all kind of dimmable load (45mm x 45mm)	1	WS060
systo 2M push button dimmer for all kind of dimmable load (45mm x 45mm)	1	WS061



WS060



WS300

WS301

Shutter control switches

- for export markets only

Description	Pack qty.	Cat. ref.
systo 2M double 2W SW for shutters (45mm x 45mm)	10	WS300
systo 2M double PB for shutters (45mm x 45mm)	10	WS301



WGC1CA

WGC2CA

Decoration covers

Description	40Pack qty.	Cat. ref.
clip on cover Carbon (size 1)	40	WGC1CA
clip on cover Carbon (size 2)	20	WGC2CA
clip on cover Titanium Grey (size 1)	40	WGC1TG
clip on cover Titanium Grey (size 2)	20	WGC2TG
clip on cover Mother of Pearl (size 1)	40	WGC1MP
clip on cover Mother of Pearl (size 2)	20	WGC2MP
clip on cover with Gold strip (size 1)	40	WGC1-GD
clip on cover with Gold strip (size 2)	20	WGC2-GD
clip on cover with Silver strip (size 1)	40	WGC1-SV
clip on cover with Silver strip (size 2)	20	WGC2-SV
clip on cover White (size 1)	40	WGC1
clip on cover White (size 2)	20	WGC2



WGC1TG

WGC2TG



WGC1MP

WGC2MP



WGC1-GD

WGC2-GD



WGC1-SV

WGC2-SV



WGC1

WGC2



WGC2-H

Multi-gang cover

Description	Pack qty.	Cat. ref.
2 multi-gang cover (horizontal)	30	WGC2-H
3 multi-gang cover (horizontal)	20	WGC3-H
2 multi-gang cover (vertical)	30	WGC2-V
3 multi-gang cover (vertical)	20	WGC3-V



WGC3-H



WGC2-V



WGC3-V

Colours



WGL111CA

CA: Carbon

WGL111TG

TG: Titanium Grey

WGL111MP

MG: Mother of Pearl

Colour Code and Reference

W	G	1	1	1	C	A
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system 10088 range



Product reference in the range

Colour

CA = carbon
TG = titanium grey
MP = mother of pearl

Ordering

Example of product references:

Reference	clip on cover	product
WGL111	white	white
		
WGL111CA	carbon	carbon
		

In addition to the aesthetics for the home owner, the products have been designed to make the installation easier for electrical contractors.

Terminals designed to face in the same direction with lead-ins for wiring, backed-off screws held captive to prevent loss, wire end stops and clear identification, all help make the wiring and cabling much easier.

With the shallowest projection allowing more cabling space and faceplate overlap, the final fitting is quicker and provides a neater finish.



WMPS11

1 and 2 way wall switches

- complies with BS EN 60669-1, a.c only
- 'X' rated - no need to derate for fluorescent loads
- two way switches can be wired either 1 way or 2 way
- clear terminal markings: 1-way L1, 2-way L2
- capacity of each terminal 2 x 4.0mm² conductors
- supplied with M3.5 x 20mm long fixing screws

Description	Cat. ref.
10AX 1 gang 1 way wall switch	WMPS11
10AX 1 gang 2 way wall switch	WMPS12
10AX 2 gang 2 way wall switch	WMPS22
10AX 3 gang 2 way wall switch	WMPS32
10AX 4 gang 2 way wall switch	WMPS42
10AX 1 gang 2 way wall switch wide rocker	WMPS12W
10AX 2 gang 2 way wall switch wide rocker	WMPS22W



WMPS12W



WMPS16

Intermediate switches

- complies with BS EN 60669-1, a.c only
- 'X' rated - no need to derate for fluorescent loads
- two way switches can be wired either 1 way or 2 way
- clear terminal markings: 1-way L1, 2-way L2
- capacity of each terminal 2 x 4.0mm² conductors
- supplied with M3.5 x 20mm long fixing screws

Description	Cat. ref.
intermediate switch	WMPS16
intermediate switch wide rocker	WMPS16W



WMPS12RB

Push switches

- complies with BS EN 60669-1, a.c only
- 'X' rated - no need to derate for fluorescent loads
- two way switches can be wired either 1 way or 2 way
- clear terminal markings: 1-way L1, 2-way L2
- capacity of each terminal 2 x 4.0mm² conductors
- supplied with M3.5 x 20mm long fixing screws

Description	Cat. ref.
push switch	WMPS12R
push switch with bell symbol	WMPS12RB
push switch wide rocker	WMPS12RW



WMDR1/400R

Rotary dimmers

- push ON, push OFF
- rotary dimming control
- 1 or 2 way switching
- suitable for resistive loads (e.g. incandescent lamps)
- suitable for main halogen lamps without the need for derating
- not suitable for fluorescent or inductive loads
- complies with BS EN 60669-2-1 (excluding clause 26 EMC requirements)
- 220-240V AC, 50/60Hz

Description	Cat. ref.
1 gang dimmer 60 - 400W	WMDR1/400R
1 gang dimmer 60 - 630W	WMDR1/630R
2 gang dimmer 40 - 250W/gang	WMDR2/250R

Press dimmers

- stylish flush buttons give easy press action
- quick press for ON/OFF
- hold button down to dim or brighten light level
- leading edge
- soft start feature prolongs lamp life
- suitable for dimming mains and dimmable transformer extra low voltage lamps
- complies with BS EN 60669-2-1 (including BS EN 55015)

- automatic switch off in the case of transformer instability protects the dimmer and the transformer
- supplied with M3.5 x 30mm long fixing screws
- 220-240V AC , 50/60Hz



WMDS1

Description	Cat. ref.
1 gang dimmer 60 - 400W	WMDS1
2 gang dimmer 40 - 250W/gang	WMDS2

Rotary fan speed controller

- push ON, push OFF
- rotary speed control
- 1 or 2 way switching
- not suitable for control of fans or motors which are synchronous (designed to be constant speed)

- Complies with BS EN 60669-2 -1 (excluding clause 26 EMC requirements)
- 220-240V AC , 50/60Hz



WMFR1/250

Description	Cat. ref.
1 gang fan speed controller 50 - 250VA	WMFR1/250

1 gang 3 pole isolator switches

- complies with BS EN 60669-2-4
- rated conditional short circuit current (I_{nc}) 1500A tested with Hager MTN110 6kA B curve MCB

- capacity of each terminal 2 x 4.0mm² conductors
- supplied with M3.5 x 20mm long fixing screws



WMPS3PI

Description	Cat. ref.
3 pole isolator switch	WMPS3PI
3 pole isolator switch with fan symbol	WMPS3PIF



WMSS81N



WMSS82



WMSS115

Sockets

- unique patented 3 part safety shutter
- complies with BS 1363-2, a.c only, 15A round pin sockets complies with BS 546
- double pole switching mechanism on switched sockets
- twin socket comes with twin earth as standard
- all terminal screws grouped in-line and upward facing for ease of installation
- clear printed and engraved terminal markings
- supplied with M3.5 x 30mm long fixing screws
- capacity of each terminal:
 - 5 x 2.5mm² conductors switched
 - 4 x 2.5mm² unswitched

Description	Cat. ref.
13A switched sockets	
1 gang double pole switched socket	WMSS81
2 gang double pole switched socket dual earth	WMSS82
2 gang double pole switched socket dual earth outboard rockers	WMSS820
1 gang double pole switched socket with led indicator	WMSS81N
2 gang double pole switched socket dual earth with led indicator	WMSS82N
2 gang double pole switched socket dual earth outboard rockers with led indicator	WMSS820N
13A unswitched sockets	
1 gang unswitched socket	WMS81
2 gang unswitched socket dual earth	WMS82
5A socket	
5A 1 gang unswitched socket	WMS51
15A sockets	
15A 1 gang double pole switched roundpin socket	WMSS115
15A, 127V, 1 gang unswitched UL socket with earth	WMS115UL
15A, 127V, 2 gang unswitched UL socket with earth	WMS215UL



WMDP84N

20A double pole switches

- complies with BS EN 60669-2-4
- cable clamp accommodates up to 1.5mm² flexible cord
- single screw fast fix cable clamp
- available with LED indicator in rocker
- all terminal screws upward facing for ease of installation
- clearly printed and engraved terminal marking
- capacity of each terminal: 2 x 6.0mm² conductors
- supplied with M3.5 x 30mm long fixing screws

Description	Cat. ref.
20A double pole switch	WMDP84
20A double pole switch with LED indicator	WMDP84N
20A double pole switch with flex outlet	WMDP84FO
20A double pole switch with LED indicator & flex outlet	WMDP84FON
20A double pole switch with LED indicator marked waterheater	WMDP85N
20A double pole switch with LED indicator & flex outlet marked waterheater	WMDP85FON



WMDP50N

50A double pole switches

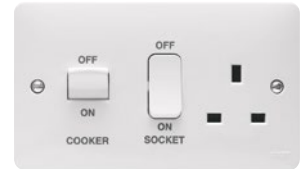
- complies with BS EN 60669-2-4
- LED indication
- all terminal screws upward facing for ease of installation
- capacity of each terminal: 2 x 6mm², 1 x 10mm²
- supplied with M3.5 x 30mm long fixing screws
- clearly printed terminal marking

Description	Cat. ref.
50A double pole switch 1 gang with LED indicator	WMDP50N
50A double pole switch 1 gang with LED indicator marked COOKER	WMDP50N/CK
50A double pole switch 1 gang with LED indicator marked AIR CONDITIONER	WMDP50N/AC
50A double pole switch 2 gang vertical with LED indicator	WMDP50VN

45A cooker control unit

- complies with BS 4177
- switch and socket are double pole
- twin earth as standard
- available with optional LED indication
- main switch is suitable for isolation

- all terminals are upward facing for ease of installation
- clearly printed terminal marking
- capacity of terminals: 2 x 6.0mm², 1 x 16.0mm²
- supplied with M3.5 x 30mm long fixing screws



WMCC50

Description	Cat. ref.
45A cooker control unit	WMCC50
45A cooker control unit with LED indicator	WMCC50N

Fused connection units

- complies with BS 1363-4
- cable clamp accommodates up to 1.5mm² flexible cord
- single screw fast fix cable clamp
- available with LED light indicator in rocker
- all terminal screws upward facing for ease of installation

- clearly printed terminal markings
- capacity of each terminal: 2 x 6.0 mm² conductors
- supplied with M3.5 x 30mm long fixing screws



WMSSU83

Description	Cat. ref.
13A switched FCU	
13A FCU switched	WMSSU83
13A FCU switched with LED indicator	WMSSU83N
13A FCU switched with flex outlet	WMSSU83FO
13A FCU switched with LED indicator and flex outlet	WMSSU83FON
13A unswitched FCU	
13A FCU unswitched	WMSU83
13A FCU unswitched with flex outlet	WMSU83FO

Outlet plates

- complies with BS 5733
- terminal capacity:
for 20A: 2 x 6.0mm²
for 45A: 2 x 10.0mm²
- 20A plate features 2 separate terminals for each of Line, Neutral and Earth so flexible and fixed wiring do not occupy the same terminal

- single screw fast fix cable clamp
- supplied with M3.5 x 30mm long fixing screws
- 45A features large open brass terminals for ease of installation
- protective red washer must be used under cable clamp to prevent damage to cable
- supplied with M3.5 x 20mm long fixing screws



WMP2FO

Description	Cat. ref.
flex outlet plate 20A	WMP2FO
cooker cable outlet with terminals 45A	WMP50FO

Shutter control switch

- internal mechanical interlock mechanism
- complies with BS EN 60669-1, AC . only
- clear terminal markings : L1, L2
- capacity of each terminal: 2 x 40 mm² conductors

Description	Cat. ref.
double switch for direct control of a motor, 10A, 230V	WMPS22ST



WMSO100

Shaver socket

- complies with BS EN 61558-2-5
- capacity of each terminal: 2 x 2.5mm² conductors
- designed for use in bathrooms and shower rooms and incorporates a double wound transformer for an earth free supply
- input 230V a.c. output dual voltage 230V a.c. and 115V a.c. outlets
- rating 20VA on either voltage
- primary circuit protected by a self resetting thermal overload device
- insertion of shaver plug automatically switches on the transformer
- supplied with M3.5 x 30mm long fixing screws
- 50/ 60Hz compatible

Description	Cat. ref.
115/230 V shaver socket	WMSO100

Telephone and data

- BT sockets comply with BS EN 6312-2
- supplied with fitted cable tie
- quick connection with insulation displacement terminals
- RJ11 has tool less quick connect terminals
- clearly printed terminal marking
- supplied with M3.5 x 20mm long fixing screws

Description	Cat. ref.
BT master telephone outlet	WMBTM
BT secondary telephone outlet	WMBTS
RJ11 socket - single	WMRJ11
RJ45 socket - single (Cat 6)	WMRJ45
RJ45 socket - twin (Cat 6)	WMRJ452



WMTVM

TV and satellite

- TV outlets comply with BS 3041
- satellite outlets comply with BS EN 50083-2
- fully screened
- DAB compatible
- supplied with M3.5 x 20mm fixing screws



WMQX

Description	Cat. ref.
single F type satellite outlet screened	WMSAT
single co-ax TV socket outlet male	WMTVM
single co-ax TV socket outlet female	WMTVF
double TV and FM/DAB co-ax socket outlet	WMDX
triplexer TV, FM/DAB and satellite outlet	WMTX
quadplexer TV, FM/DAB, satellite 1 and satellite 2 outlet	WMQX

Euro frontplates and modules

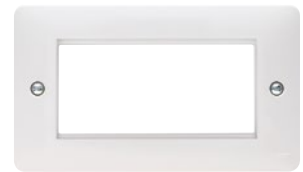
- carrier plates facilitate installation of industry standard modular data outlets
- easy to configure for all applications

- easy installation of module to plate
- robust retention of modules in operation
- quick release of modules for maintenance

Description

Width of modules
25 mm

Cat. ref.



WMP4EU

Euro style accommodation plates

1 module	WMP1EU
2 modules	WMP2EU
4 modules	WMP4EU

Euro style modules

BT telephone master euromodule, white	1	WMMBTM
BT telephone secondary euromodule, white	1	WMMBTS
RJ11 - modem euromodule, white	1	WMMRJ11
RJ45 - Cat 6 UTP euromodule, white	1	WMMRJ45
phono plugs - red/black - gold plated euromodule	1	WMMPP
speaker terminal posts - gold plated euromodule	1	WMMSP
single IEC female non isolated euromodule, white	1	WMMTVF
single IEC male non isolated euromodule, white	1	WMMTVM
single satellite F connector euromodule, white	1	WMMSAT
single blank euromodule, white	1	WMMB
diplexer - TV & FM radio euromodule, white	2	WMMDX
triplexer - TV, satellite & FM radio euromodule, white	2	WMMTX
quadplexer - TV, satellite, FM radio and return euromodule, white	2	WMMQX



WMMBTM

Blank module and plates

Description

Cat. ref.

single blank plate	WMP1
twin blank plate	WMP2



WMP1



WRPS12BSW

Wall switches

- complies with BS EN 60669-1, a.c only
- 'X' rated - No need to derate for fluorescent loads
- two way switches can be wired either 1 way or 2 way
- clear terminal markings:
1-way L1
2-way L2
- capacity of each terminal 2 x 4.0mm² conductors
- supplied with M3.5 x 20mm long fixing screws



WFPS22PSW



WFPS12PBW

Description	Cat. ref. polished stainless steel	brushed stainless steel	polished brass
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Raised plate

10AX 1 gang 2 way	WRPS12PSW	WRPS12BSW	WRPS12PBW
10AX 2 gang 2 way	WRPS22PSW	WRPS22BSW	WRPS22PBW
10AX 3 gang 2 way	WRPS32PSW	WRPS32BSW	WRPS32PBW
10AX 4 gang 2 way	WRPS42PSW	WRPS42BSW	WRPS42PBW
intermediate switch	WRPS16PSW	WRPS16BSW	WRPS16PBW
push switch	WRPS12RPSW	WRPS12RBSW	WRPS12RPBW

Flat plate

10AX 1 gang 2 way	WFPS12PSW	WFPS12BSW	WFPS12PBW
10AX 2 gang 2 way	WFPS22PSW	WFPS22BSW	WFPS22PBW
10AX 3 gang 2 way	WFPS32PSW	WFPS32BSW	WFPS32PBW
10AX 4 gang 2 way	WFPS42PSW	WFPS42BSW	WFPS42PBW
intermediate switch	WFPS16PSW	WFPS16BSW	WFPS16PBW
push switch	WFPS12RPSW	WFPS12RBSW	WFPS12RPBW



WFDS1PS

Press dimmers

- stylish flush buttons give easy press action
- quick press for ON/OFF
- hold button down to dim or brighten light level
- soft start feature prolongs lamp life
- suitable for dimming mains and dimmable transformer extra low voltage lamps
- complies with BS EN 60669-2-1 (including BS EN 55015)
- automatic switch off in the case of transformer instability protects the dimmer and the transformer
- WR references supplied with M3.5 x 30mm long fixing screws
- WF references supplied with M3.5 x 20mm long fixing screws
- 220-240V AC, 50/60Hz



WFDS2BS

Description	Cat. ref. polished stainless steel	brushed stainless steel	polished brass
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Raised plate

1 gang dimmer 60-400W	WRDS1PS	WRDS1BS	WRDS1PB
2 gang dimmer 40-250W/gang	WRDS2PS	WRDS2BS	WRDS2PB

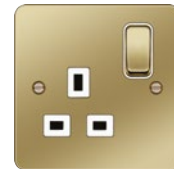
Flat plate

1 gang dimmer 60-400W	WFDS1PS	WFDS1BS	WFDS1PB
2 gang dimmer 40-250W/gang	WFDS2PS	WFDS2BS	WFDS2PB

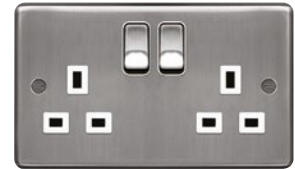
Sockets

- unique patented 3 part safety shutter
- complies with:
BS 1363 Part 2, a.c only
BS 546 for 15A roundpin
- double pole switching mechanism on switched sockets
- twin socket comes with twin earth as standard
- all terminal screws grouped in-line and upward facing for ease of installation

- clear printed and engraved terminal markings
- capacity of each terminal:
5 x 2.5mm² conductors switched
4 x 2.5mm² unswitched
- WR references supplied with M3.5 x 30mm long fixing screws
- WF references supplied with M3.5 x 20mm long fixing screws



WFSS81PBW



WRSS82BSW



WRSS82PBW



WFSS81BSW

Description

Cat. ref.
polished
stainless steel

brushed
stainless steel

polished
brass

Raised plate

13A 1 gang double pole switched socket	WRSS81PSW	WRSS81BSW	WRSS81PBW
13A 2 gang double pole switched socket dual earth	WRSS82PSW	WRSS82BSW	WRSS82PBW
13A 1 gang double pole switched socket with LED	WRSS81NPSW	WRSS81NBSW	WRSS81NPBW
13A 2 gang double pole switched socket with LED	WRSS82NPSW	WRSS82NBSW	WRSS82NPBW
5A 1 gang unswitched socket	WRS51PSW	WRS51BSW	WRS51PBW
15A 1 gang double pole switched round pin socket	WRSS115PSW	WRSS115BSW	WRSS115PBW

Flat plate

13A 1 gang double pole switched socket	WFSS81PSW	WFSS81BSW	WFSS81PBW
13A 2 gang double pole switched socket dual earth	WFSS82PSW	WFSS82BSW	WFSS82PBW
13A 1 gang double pole switched socket with LED	WFSS81NPSW	WFSS81NBSW	WFSS81NPBW
13A 2 gang double pole switched socket with LED	WFSS82NPSW	WFSS82NBSW	WFSS82NPBW
5A 1 gang unswitched socket	WFS51PSW	WFS51BSW	WFS51PBW
15A 1 gang double pole switched round pin socket	WFSS115PSW	WFSS115BSW	WFSS115PBW



WRDP84FOPSW

20A double pole switches

- complies with BS EN 60669-1 a.c. only
- cable clamp accommodates up to 1.5mm² flexible cord
- single screw fast fix cable clamp
- all terminal screws upward facing for ease of installation
- clearly printed and engraved terminal marking
- capacity of each terminal 2 x 6.0mm² conductors
- WR references supplied with M3.5 x 30mm long fixing screws
- WF references supplied with M3.5 x 20mm long fixing screws

Description	Cat. ref. polished stainless steel	brushed stainless steel	polished brass
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Raised plate

20A double pole switch	WRDP84PSW	WRDP84BSW	WRDP84PBW
20A double pole switch with LED indicator	WRDP84NPSW	WRDP84NBSW	WRDP84NPBW
20A double pole switch with flex outlet	WRDP84FOPSW	WRDP84FOBSW	WRDP84FOPBW
20A double pole switch with LED indicator and flex outlet	WRDP84FONPSW	WRDP84FONBSW	WRDP84FONPBW

Flat plate

20A double pole switch	WFDP84PSW	WFDP84BSW	WFDP84PBW
20A double pole switch with LED indicator	WFDP84NPSW	WFDP84NBSW	WFDP84NPBW
20A double pole switch with flex outlet	WFDP84FOPSW	WFDP84FOBSW	WFDP84FOPBW
20A double pole switch with LED indicator and flex outlet	WFDP84FONPSW	WFDP84FONBSW	WFDP84FONPBW



WFDP84BSW



WFDP50NBSW

50A double pole switches

- complies with BS EN 60669-2-4
- LED indication
- all terminal screws upward facing for ease of installation
- clearly printed terminal marking
- capacity of each terminal 2 x 6mm², 1 x 10mm²
- WR references supplied with M3.5 x 30mm long fixing screws
- WF references supplied with M3.5 x 20mm long fixing screw

Description	Cat. ref. polished stainless steel	brushed stainless steel	polished brass
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Raised plate

50A double pole switch 1 gang with LED	WRDP50NPSW	WRDP50NBSW	WRDP50NPBW
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Flat plate

50A double pole switch 1 gang with LED	WFDP50NPSW	WFDP50NBSW	WFDP50NPBW
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WFCC50NPSW

45A cooker control unit

- complies with BS 4177
- switch and socket are double pole
- twin earth as standard
- main switch is suitable for isolation
- all terminals are upward facing for ease of installation
- clearly printed terminal marking
- capacity of terminals: 2 x 6.0mm², 1 x 16.0mm²
- WR references supplied with M3.5 x 30mm long fixing screws
- WF references supplied with M3.5 x 20mm long fixing screws

Description	Cat. ref. polished stainless steel	brushed stainless steel	polished brass
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Raised plate

45A cooker control unit	WRCC50NPSW	WRCC50NBSW	WRCC50NPBW
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Flat plate

45A cooker control unit	WFCC50NPSW	WFCC50NBSW	WFCC50NPBW
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13A switched & unswitched fused connection units

- complies with BS 1363-4
- cable clamp accommodates up to 1.5mm² flexible cord
- single screw fast fix cable clamp
- all terminal screws upward facing for ease of installation
- clearly printed terminal markings

- capacity of each terminal: 2 x 6.0 mm² conductors
- WR references supplied with M3.5 x 30mm long fixing screws
- WF references supplied with M3.5 x 20mm long fixing screws



WRSSU83FOBSW

Description

Cat. ref.
polished
stainless steel

brushed
stainless steel

polished
brass

Raised plate

13A FCU switched	WRSSU83PSW	WRSSU83BSW	WRSSU83PBW
13A FCU switched with flex outlet	WRSSU83FOPSW	WRSSU83FOBSW	WRSSU83FOPBW
13A FCU unswitched	WRSU83PSW	WRSU83BSW	WRSU83PBW



WFSU83BSW

Flat plate

13A FCU switched	WFSSU83PSW	WFSSU83BSW	WFSSU83PBW
13A FCU switched with flex outlet	WFSSU83FOPSW	WFSSU83FOBSW	WFSSU83FOPSW
13A FCU unswitched	WFSU83PSW	WFSU83BSW	WFSU83PBW

Shaver socket

- complies with BS EN 61558-2-5
- capacity of each terminal: 2 x 2.5mm² conductors
- designed for use in bathrooms and shower rooms and incorporates a double wound transformer for an earth free supply
- input: 230V a.c.
- output: dual voltage 230V a.c. and 115V a.c. outlets
- rating: 20VA on either voltage

- primary circuit protected by a self resetting thermal overload device
- 50/60Hz compatible
- insertion of shaver plug automatically switches on the transformer
- WR references supplied with M3.5 x 30mm long fixing screws
- WF references supplied with M3.5 x 20mm long fixing screws



WRSO100PSW

Description

Cat. ref.
polished
stainless steel

brushed
stainless steel

polished
brass

Raised plate

115/230V shaver socket	WRSO100PSW	WRSO100BSW	WRSO100PBW
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Flat plate

115/230V shaver socket	WFSO100PSW	WFSO100BSW	WFSO100PBW
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WRBTMBSW



WFBTMPSW

Telephone & data

- BT sockets comply with BS EN 6312-2
- supplied with fitted cable tie
- quick connection with insulation displacement terminals
- RJ11 has tool less quick connect terminals.

- clearly printed terminal marking
- WR references supplied with M3.5 x 30mm long fixing screws
- WF references supplied with M3.5 x 20mm long fixing screws

Description	Cat. ref. polished stainless steel	brushed stainless steel	polished brass
Raised plate			
BT master telephone outlet	WRBTMPSW	WRBTMBSW	WRBTMPBW
BT secondary telephone outlet	WRBTSPSW	WRBTSBSW	WRBTSPBW
RJ45 socket - single (Cat 6)	WRRJ45PSW	WRRJ45BSW	WRRJ45PBW
RJ45 socket - twin (Cat 6)	WRTRJ45PSW	WRTRJ45BSW	WRTRJ45PBW
Flat plate			
BT master telephone outlet	WFBTMPSW	WFBTMBSW	WFBTMPBW
BT secondary telephone outlet	WFBTSPSW	WFBTSBSW	WFBTSPBW
RJ45 socket - single (Cat 6)	WFRJ45PSW	WFRJ45BSW	WFRJ45PBW
RJ45 socket - twin (Cat 6)	WFTRJ45PSW	WFTRJ45BSW	WFTRJ45PBW



WFTVFBSW



WFDXBSW



WFDXPBW



WFTXPSW

TV & satellite

- TV outlets comply with BS 3041
- satellite outlets comply with BS EN 50083-2
- fully screened
- DAB compatible

- WR references supplied with M3.5 x 30mm long fixing screws
- WF references supplied with M3.5 x 20mm long fixing screws

Description	Cat. ref. polished stainless steel	brushed stainless steel	polished brass
Raised plate			
single F type satellite outlet screened	WRSATPSW	WRSATBSW	WRSATPBW
single co-ax TV outlet male	WRMTVFPSW	WRMTVFBSW	WRMTVFPBW
single co-ax TV outlet female	WRTVFPSW	WRTVFBSW	WRTVFPBW
double TV & FM/DAB co-ax socket outlet	WRDXPSW	WRDXBSW	WRDXPBW
triplexer TV & FM/DAB & satellite outlet	WRTXPSW	WRTXBSW	WRTXPBW
quadriplexer TV & FM/DAB satellite 1 & satellite 2	WRQXPSW	WRQXBSW	WRQXPBW
Flat plate			
single F type satellite outlet screened	WFSATPSW	WFSATBSW	WFSATPBW
single co-ax TV outlet male	WFMTVFPSW	WFMTVFBSW	WFMTVFPBW
single co-ax TV outlet female	WFTVFPSW	WFTVFBSW	WFTVFPBW
double TV & FM/DAB co-ax socket outlet	WFDXPSW	WFDXBSW	WFDXPBW
triplexer TV & FM/DAB & satellite outlet	WFTXPSW	WFTXBSW	WFTXPBW
quadriplexer TV & FM/DAB satellite 1 & satellite 2	WFQXPSW	WFQXBSW	WFQXPBW

Euro frontplates & modules

- carrier plates facilitate installation of industry standard modular data outlets
- easy to configure for all applications
- easy installation of module to plate
- robust retention of modules in operation
- quick release of modules for maintenance

- WR references supplied with M3.5 x 30mm long fixing screws
- WF references supplied with M3.5 x 20mm long fixing screws



WFP1EUPSW

Description	Cat. ref. polished stainless steel	brushed stainless steel	polished brass
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Raised plate

1 module	WRP1EUPSW	WRP1EUBSW	WRP1EUPBW
2 modules	WRP2EUPSW	WRP2EUBSW	WRP2EUPBW
4 modules	WRP4EUPSW	WRP4EUBSW	WRP4EUPBW



WFP4EUBSW

Flat plate

1 module	WFP1EUPSW	WFP1EUBSW	WFP1EUPBW
2 modules	WFP2EUPSW	WFP2EUBSW	WFP2EUPBW
4 modules	WFP4EUPSW	WFP4EUBSW	WFP4EUPBW

Blank plates

- WR references supplied with M3.5 x 30mm long fixing screws
- WF references supplied with M3.5 x 20mm long fixing screws

Description	Cat. ref. polished stainless steel	brushed stainless steel	polished brass
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Raised plate

single blank plate	WRP1PS	WRP1BS	WRP1PB
twin blank plate	WRP2PS	WRP2BS	WRP2PB

Flat plate

single blank plate	WFP1PS	WFP1BS	WFP1PB
twin blank plate	WFP2PS	WFP2BS	WFP2PB



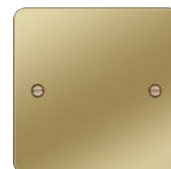
WRP2PS



WFP1BS



WRP1PS

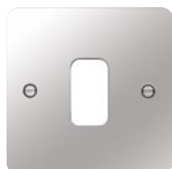


WFP1PB

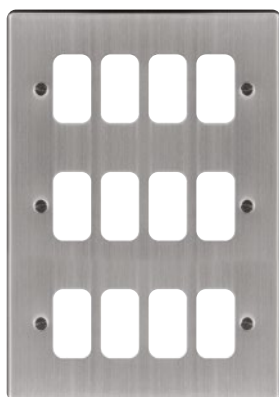
BS switches
and sockets



WMGP3



WFGP1PS



WRGP12BS

Grid plates

Description	Cat. ref. white moulded	polished	brushed	polished
		stainless steel	stainless steel	brass

Raised plate

1 gang grid plate	WMGP1	WRGP1PS	WRGP1BS	WRGP1PB
2 gang grid plate	WMGP2	WRGP2PS	WRGP2BS	WRGP2PB
3 gang grid plate	WMGP3	WRGP3PS	WRGP3BS	WRGP3PB
4 gang grid plate	WMGP4	WRGP4PS	WRGP4BS	WRGP4PB
6 gang (2x3) grid plate	WMGP6	WRGP6PS	WRGP6BS	WRGP6PB
8 gang (2x4) grid plate	WMGP8	WRGP8PS	WRGP8BS	WRGP8PB
12 gang (3x4) grid plate	-	WRGP12PS	WRGP12BS	WRGP12PB

Flat plate

1 gang grid plate	-	WFGP1PS	WFGP1BS	WFGP1PB
2 gang grid plate	-	WFGP2PS	WFGP2BS	WFGP2PB
3 gang grid plate	-	WFGP3PS	WFGP3BS	WFGP3PB
4 gang grid plate	-	WFGP4PS	WFGP4BS	WFGP4PB
6 gang (2x3) grid plate	-	WFGP6PS	WFGP6BS	WFGP6PB
8 gang (2x4) grid plate	-	WFGP8PS	WFGP8BS	WFGP8PB
12 gang (3x4) grid plate	-	WFGP12PS	WFGP12BS	WFGP12PB



WMGF34

Grid frames

Description	Cat. ref.		
	1 gang frame	2 gang frame	3 gang frame
frames for white moulded and decorative raised plate ranges	WMGF1	WMGF2	WMGF34
frames for decorative flat plate ranges	WFGF1	WFGF2	WFGF34

Grid switches and accessories

- complies with BS EN 606691-1 switches, BS 5733 fuse carrier
- shallowest switch modules for ease of installation
- modules clip from the front for ease of installation and maintenance
- terminal screw can be accessed with modules clipped into frames

- frames locate to finished wall level
- frames clip to ease alignment for 6 gang and 8 gang applications
- WR references supplied with M3.5 x 30mm long fixing screws
- WF references supplied with M3.5 x 20mm long fixing screws



WMGSDP2

Description	Cat. ref. white moulded	polished stainless steel	brushed stainless steel	polished brass
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Modules

20AX 1 way single pole switch	WMGS211	WMGS211PSW	WMGS211BSW	WMGS211PBW
20AX 2 way single pole switch	WMGS12	WMGS12PSW	WMGS12BSW	WMGS12PBW
20AX 1 intermediate switch	WMGS16	WMGS16PSW	WMGS16BSW	WMGS16PBW
20AX push switch	WMGS22R	WMGS22RPSW	WMGS22RBSW	WMGS22RPBW
20AX 1 way double pole switch	WMGSDP2	WMGSDP2PSW	WMGS0P2BSW	WMGS0P2PBW
20AX double pole key switch	WMGKS	-	-	-
13A fuse carrier	WMGFU13	WMGFU13PSW	WMGFU13BSW	WMGFU13PBW
blank module	WMGB1	WMGB1PSW	WMGB1BSW	WMGB1PBW



WMGFU13BSW



WMGFU13

Modules

20AX 1 way double pole switch			WMGSDP2	WMGSDP2N
20AX 1 way double pole switch marked "cooker hood"			WMGSDP2/CHD	WMGSDP2N/CHD
20AX 1 way double pole switch marked "dishwasher"			WMGSDP2/DW	WMGSDP2N/DW
20AX 1 way double pole switch marked "fridge"			WMGSDP2/FRI	WMGSDP2N/FRI
20AX 1 way double pole switch marked "HOB"			WMGSDP2/HB	WMGSDP2N/HB
20AX 1 way double pole switch marked "microwave"			WMGSDP2/MW	WMGSDP2N/MW
20AX 1 way double pole switch marked "washing machine"			WMGSDP2/WM	WMGSDP2N/WM



WMGKS



WMGSDP2/HB

BS switches and sockets



WPDP50N

Wall switches

- complies with BS EN 60669-1, a.c only
- 'X' rated - No need to derate for fluorescent loads
- two way switches can be wired either 1 way or 2 way
- clear terminal markings: 1-way L1, 2-way L2
- capacity of each terminal 2 x 4.0mm² conductors
- backbox included

Description	Pack qty.	Cat. ref.
50A double pole switch 1 gang with LED indicator	10	WPDP50N
20A double pole switch with flex outlet	10	WPDP84FO
20A double pole switch with LED indicator and flex outlet	10	WPDP84FON
10AX 1 gang 2 way wall switch	10	WPPS12
10AX 2 gang 2 way wall switch	10	WPPS22
10AX 2 gang 2 way wall switch with red rocker	10	WPPS12RR
10AX 3 gang 2 way wall switch	10	WPPS32
10AX push switch	10	WPPS12R
intermediate switch	10	WPPS16



WPSS81

Socket outlets

- unique patented 3 part safety shutter
- complies with BS 1363-2, a.c only
- double pole switching mechanism on switched sockets
- twin socket comes with twin earth as standard
- all terminal screws grouped in-line and upward facing for ease of installation
- clear printed and engraved terminal markings
- capacity of each terminal: 5 x 2.5mm² conductors switched; 4 x 2.5mm² unswitched
- backbox included

Description	Pack qty.	Cat. ref.
1 gang double pole switched socket	10	WPSS81
1 gang double pole switched socket with LED indicator	10	WPSS81N
2 gang double pole switched socket	5	WPSS82
2 gang double pole switched socket with LED indicator	5	WPSS82N



WPSU83FO

13A fuse connection units

- complies with bs 1363-4
- cable clamp accommodates up to 1.5mm² flexible cord
- single screw fast fix cable clamp
- available with LED light indicator in rocker
- all terminal screws upward facing for ease of installation
- clearly printed terminal markings
- capacity of each terminal 2 x 6.0 mm² conductors
- backbox included

Description	Pack qty.	Cat. ref.
13A FCU unswitched with flex outlet	10	WPSU83FO
13A FCU switched with flex outlet	10	WPSSU83FO
13A FCU switched with LED indicator and flex outlet	10	WPSSU83FON



WPB140KO

Backboxes

Description	Pack qty.	Cat. ref.
single back box with knockouts	10	WPB140KO
twin back box with knockouts	5	WPB240KO

Wall switches

- box size: 90 x 90 mm
- cable entries :
side: 4 x 20 mm
back: 1 x 20 mm and 1 x 25 mm

- robust and rugged enclosures designed to withstand the elements

Description	Pack qty.	Cat. ref.
10AX 1 gang 2 way switch	1	WXPPS12
10AX 2 gang 2 way switch	1	WXPPS22
20AX double pole 1gang 1 way switch	1	WXDP84
20AX double pole 1 gang 1 way switch with neon	1	WXDP84N
20AX double pole 2 gang 1 way switch	1	WXDP842
10A 1 gang bell push switch	1	WXPPS12B



WXPPS12



WXPPS22

Socket outlets

- cable entries :

box size (mm)	cable entries (quantity x diameter in mm)	
	side	back
103 x 116.5	4 x 20	1 x 20 and 1 x 25
164 x 116.5	6 x 20	1 x 20 and 1 x 25

- robust and rugged enclosures designed to withstand the elements
- unique double hinge allows lid to fully open through 180°

- fixing point for padlock
- 13A socket outlets comply with BS 1363-2 & SS 145 part 2
- 15A socket outlets comply with BS 546 & SS 472

Description	Dimensions H x W (mm)	Pack qty.	Cat. ref.
13A 1 gang unswitched socket	103 x 116.5	1	WXPS81
13A 1 gang double pole switched socket	103 x 116.5	1	WXPS81
13A 1 gang double pole switched socket with neon	103 x 116.5	1	WXPS81N
13A 2 gang unswitched socket	164 x 116.5	1	WXPS82
13A 2 gang double pole switched socket	164 x 116.5	1	WXPS82
13A 2 gang double pole switched socket with neon	164 x 116.5	1	WXPS82N
15A 1 gang double pole switched socket	103 x 116.5	1	WXPS115



WXPS81



WXPS82

Fused connection unit

- box size: 103 x 116.5 mm
- cable entries :
side: 4 x 20 mm
back: 1 x 20 mm and 1 x 25 mm
- robust and rugged enclosures designed to withstand the elements

- unique double hinge allows lid to fully open through 180°
- fixing point for padlock
- comply with BS 1363-4 IP66 rating conforms to IEC/ BS EN 60529

Description	Pack qty.	Cat. ref.
13A DP switched fused connection unit with flex outlet	1	WXPSU83FO
13A unswitched fused connection unit with flex outlet	1	WXPSU83FO



WXPSU83FO

The range of IP66 isolators are designed to be used in outdoor applications with IP66 degree of protection. They are rated at AC22A and AC23A and offer options of 2, 3 poles and 4 poles with switched neutral. They are compact and easy to install with 2 screw quick release top cover.



JG220U

IP66 isolators rating AC22A

- rated voltage: 250 V AC
440 V AC
- material: polycarbonate – UV grade.
- for switching of mixed resistive and inductive loads, including moderate overloads.
- protection category: IP66
- devices & accessories: DP 20-40A, TP & N 20-40A, TP & SW N 20-63A
- complies with BS EN 60947-3, IEC 60947-3, AS 3947-3

Description	Pack qty.	Cat. ref.
2 pole		
20A 2 pole IP66	1	JG220U
32A 2 pole IP66	1	JG232U
40A 2 pole IP66	1	JG240U
63A 2 pole IP66	1	JG263U
3 pole		
20A 3 pole IP66	1	JG320U
32A 3 pole IP66	1	JG332U
40A 3 pole IP66	1	JG340U
3 pole + switched neutral		
20A 4 pole IP66	1	JG420U
32A 4 pole IP66	1	JG432U
40A 4 pole IP66	1	JG440U
63A 4 pole IP66	1	JG463U



JG320IN

IP66 isolators rating AC23A

- rated voltage: 250 V AC
440 V AC
- material: polycarbonate – UV grade.
- for switching of motor loads or other highly inductive loads
- protection category: IP66
- devices & accessories: DP 20-40A, TP & N 20-40A, TP & SW N 20-63A
- complies with BS EN 60947-3, IEC 60947-3, AS 3947-3

Description	Pack qty.	Cat. ref.
2 pole		
20A 2 pole IP66	1	JG220IN
32A 2 pole IP66	1	JG232IN
40A 2 pole IP66	1	JG240IN
63A 2 pole IP66	1	JG263IN
3 pole		
20A 3 pole IP66	1	JG320IN
32A 3 pole IP66	1	JG332IN
40A 3 pole IP66	1	JG340IN
3 pole + switched neutral		
20A 4 pole IP66	1	JG420IN
32A 4 pole IP66	1	JG432IN
40A 4 pole IP66	1	JG440IN
63A 4 pole IP66	1	JG463IN

IP65 isolators rating AC22A

- rated voltage: 250 V AC
440 V AC
- material: polycarbonate – UV grade.
- for switching of mixed resistive and inductive loads, including moderate overloads.

- protection category: IP66
- devices & accessories: DP 20-40A, TP & N 20-40A, TP & SW N 20-63A
- complies with BS EN 60947-3, IEC 60947-3, AS 3947-3



Description	Pack qty.	Cat. ref.
3 pole		
63A 3 pole IP65	1	JG363S
80A 3 pole IP65	1	JG380S
125A 3 pole IP65	1	JG325S

JG380S

Doorbells

- dimensions: w. 105 mm x h. 168 mm x d. 45 mm
- power source:
for XC001: 220-240V AC 50Hz
for XC002: 4 x 1.5V R14C batteries

- transformer output: 6VDC (XC001 only)
- only dingdong sound
- complies with BS EN 61558-1:1998, BS EN 61558-2-8:1999, IEC 60335-1



Description	Pack qty.	Cat. ref.
220-240V AC 50Hz powered doorbells	1	XC001
4 x 1.5V R14C batteries powered doorbells	1	XC002

XC001

XC002

Door chime

- supplied with M3.5 x 25mm long fixing screws
- 250V AC or 4.5V DC (AAA x 3)
- frequency: 50/ 60 Hz

- with adjustable melody / ding dong sound
- material: polycarbonate
- complies with BS EN 62080, IEC 62080



Description	Pack qty.	Cat. ref.
for stylea	10	WXEDC01
for system 10088	10	WGDC01
for system 9088	10	XD9001

WXEDC01

WGDC01



XD9001

RCD sockets

- voltage: 220/ 240 V AC 50/60Hz
- rated trip current: 30mA
- tripping: less than 40mS at 150mA
- RCD section: double pole

- breaking capacity: 250A on earth fault
- through fault withstand current: 1500A
- complies with BS EN 7288: 1990



WGS114RCD WGS214RCD

Description	Pack qty.	Cat. ref.
13A single switched, latching	1	WGS114RCD
13A twin switched, latching (size 2)	1	WGS214RCD



XB8001

XB8002

Lampholders

Straight BC batten
- complies with BS EN 61184 (XB8001), BS EN 60238 (XB8002)

Ceiling rose
- complies with BS 67

Plattress box
- complies with BS 5733
- 2 earth terminals
- feet on base to add mounting on uneven surfaces



XB8003

XB8004

Description	Pack qty.	Cat. ref.
3 terminal, home office shield BC batten (pin type)	10	XB8001
3 terminal, home office shield BC batten (screw type)	10	XB8002
ceiling rose	10	XB8003
plastic pattress box for lampholder	20	XB8004



XS113FM

XS213FM

Floor mounting sockets

- technical data: 250V 13A (single and twin)
- capacity of each terminal:
3 x 2.5mm²
2 x 4mm²
- material: stainless steel
- complies with BS 1363-2

Description	Pack qty.	Cat. ref.
13A single unswitched floor mounting socket	10	XS113FM
13A twin unswitched floor mounting socket (size 2)	5	XS213FM



WGFFVE3BS

Floor socket frame

- dimensions: 67.5mm x 45mm
- supplied with quick connection terminals
- supplied with M4 x 40 mm long fixing screws
- capacity of each terminal:
L, N: 2 x 2.5 mm²
E: 2 x 2.5 mm²
- material: stainless steel
- for 45x45 modules see page 14.25
- IP20

Description	Pack qty.	Cat. ref.
brushed steel frame	1	WGFFVE3BS

Mounting boxes

- colour and size match to system 8000, system 9088 and system 10088 ranges of wiring accessories.
- knockouts are provided on the base and sides for cable entry

- with earth terminal
- material: PVC
- complies with BS 5733



XB8351



XB8471

Description	Pack qty.	Cat. ref.
mounting box 35mm depth (size 1)	10	XB8351
mounting box 47mm depth (size 1)	10	XB8471
mounting box 35mm depth (size 2)	10	XB8352
mounting box 47mm depth (size 2)	10	XB8472



XB8352



XB8472

Covers for wiring accessories

Description	Pack qty.	Cat. ref.
cover for switch	10	XC9001
cover for socket	10	XC9002
IP55 cover	40	XC9003
IP55 cover (size 2)	40	XC9004



XC9001



XC9002



XC9003



XC9004

Compliance with standards

Regulation 511-01-01 of BS 7671: Requirements for Electrical Installations, IEE Wiring Regulations Sixteenth Edition is of particular importance to specifiers and installers with respect to product standards.

Regulation 511-01-01 requires every item of equipment to comply with the relevant requirements of the applicable British Standard, or Harmonised Standard appropriate to the intended use of the equipment.

British Standards (BS)

The BSI (British Standards Institution) was the first national standards body in the world. There are now more than 100 similar organisations which belong to the International Organisation for Standardisation (ISO) and the International Electrotechnical Commission (IEC).

British Standards are drawn up by all those who have a particular interest in the subject i.e. manufacturers, users, research organisations, government departments and consumers. This work is coordinated by BSI staff, acting as secretaries to the committees where the work is done. All standards are made available for public comment before they are published.

Harmonised standards

A Harmonised standard is a European standard formally presented by CENELEC, to the European Commission and published in the commission's official journal. CENELEC is the Comité Européen de Normalisation Electrotechnique i.e. European Committee for Electrotechnical Standardisation.

BS 7671 part 2 defines a harmonised standard as a standard which has been drawn up by common agreement between national standards bodies notified to the European Commission by all member states and published under national procedures. The UK national standards body is the British Standards Institution. In the UK a harmonised standard will normally be published as a British Standard European Norm i.e. BS EN.

British Standard European Norm (BS EN)

CENELEC European standards are pre-fixed EN (European Norm). Adoption of the European Standard within the EC is mandatory and member countries of CENELEC are obliged to publish them unchanged. In the UK such standards are further endorsed with the additional prefix 'BS', for example BS EN 60669-1 : 1996 is the British Standard European Norm for Switches for household and similar fixed electrical installations.

Whilst a European Standard can be a direct replica of an IEC standard, discussions within CENELEC may result in the formulation of a standard which includes commonly agreed variations and Special National Conditions.

International Electrotechnical Commission (IEC)

Founded in 1906 the International Electrotechnical Commission (IEC) is the world organisation that prepares and publishes international standards for all electrical, electronic and related technologies. The membership consists of 60 participating countries, including all the world's major trading nations and a growing number of industrialising countries.

Foreign national standards based on IEC standards are permitted to be used by BS 7671. However the specifier must verify that any differences between the foreign standard and the corresponding British Standard or Harmonised Standard does not result in any lesser degree of safety than that afforded by compliance with the British Standard. This assessment would probably need to be made by specialists.

Conclusion

BS 7671 (IEE Wiring Regulations) recognises equipment which complies with a British Standard or Harmonised Standard appropriate to the intended use of the equipment without the need for further qualification.

Hager products have always been designed and manufactured to a high standard to ensure compliance with the current British or Harmonised Standard. See the table next page for further information.

Product description	BS / IEC number	Description
Switches	BS EN 60669-1 IEC 60669-1 CB certificate	Switches for households and similar fixed electrical installations
Indicators	BS 5733	Switches for household and similar fixed electrical installations with particular requirements for time delay switches (TDS)
Connection unit, cord outlets	BS 5733	Switches for household and similar fixed electrical installations with particular requirements for time delay switches (TDS)
Dimmers	BS EN 60669-2-3	Switches for household and similar fixed electrical installations with particular requirements for time delay switches (TDS)
Frames and plates	BS 5733	Switches for household and similar fixed electrical installations with particular requirements for time delay switches (TDS)
Boxes	BS 4662 or IEC 60670-1	Specification for boxes for the enclosure of electrical accessories
10 Amp wall switches	BS EN 60669-1 IEC 60669-1 CB certificate	Switches for households and similar fixed electrical installations
Dimmer switches	BS EN 60669-2-1 IEC 60669-2-1	Electronic variable control switches (dimmer switches) for tungsten filament lighting
13 Amp socket outlets	BS 1363: Part 2 SS145	13A plugs, socket outlets, adaptors and connection units
15 Amp switched sockets	BS 546 SS472	Specification: two pole and earthing-pin plugs, socket outlets and socket outlet adaptators
20 Amp D.P. switches	BS EN 60669-1 IEC 60669-1 CB certificate	Switches for households and similar fixed electrical installations
13 Amp fused connection units	BS 1363 : part 4	Specification for 13A fused connection units switched and unswitched
45 Amp D.P. switches	BS EN 60669-1 IEC 60669-1 CB certificate	Switches for households and similar fixed electrical installations
45 Amp cooker control units	BS 4177	Cooker control units
Shaver socket outlets	BS EN 61558-2-5 IEC 61558-2-5	General requirements isolating transformers and safety isolating transformers Electromagnetic compatibility, immunity requirements for household CB certificate appliances tools and similar apparatus.
25 Amp / Amp flex outlet plates	BS 5733	General requirements for electrical accessories
BS batten	BS EN 61184 BS EN 60238	Home office shield are T2 rated.
Ceiling rose	BS 67	Specification for two and three-terminal ceiling roses.

Objective of CE marking

CE marking is a “technical passport” which indicates that a product conforms to all relevant directives which require CEmarking, thus enabling the product to travel within the E.U.

A directive is a piece of mandatory European Legislation implemented by regulations in all member countries. Its purpose is to allow free movement of goods that are safe and fit for use into and within the European Union.

CE marking is not a quality mark and it does not indicate that any testing or certification has been carried out.

The marking

CE marking is a statement by the manufacturer that the product complies with the essential requirements of all relevant Directives, notably in the area of technical safety and conformity assessment.

CE marking can appear on the product or packaging or documentation or combination thereof dependant upon which directive it has to comply with.

CE marking is a very specific graphical symbol and must be clearly separated from other marks.



Directives

It is the responsibility of the manufacturer or his authorised representative who places the product onto the EC market to decide which Directive(s) apply and to ensure the CE marking is affixed by the dates stated in the relevant directive(s).

For the majority of Hager products only one directive is applicable this is referred to as the Low Voltage Directive. Where some products incorporate electronic devices the Low voltage Directive and the Electromagnetic Compatibility Directive are applicable.

The Low Voltage Directive

EC directives are requirements adopted by the European Council and published in the Official Journal of the European Communities and are addressed to the member states.

European Council Directive 73/23/EEC with an amendment 93/68/EEC is known as the Low Voltage Directive.

The Low Voltage Directive has been implemented into UK law by the “Electrical Equipment (Safety) Regulations 1994” and apply to all electrical / electronic equipment operating at a voltage of 50-1000 V a.c. or 75-1500 V d.c.. They do not apply to plugs, socket outlets and adapters which are covered by the Plugs and Sockets (Safety) Regulations 1994.

Relationship between the Electrical Equipment (Safety) Regulations, Harmonised standards and the IEE Wiring Regulations Sixteenth Edition.







The Electrical Equipment (Safety) Regulations requires electrical equipment to be safe. Electrical equipment which satisfies the safety provisions of Harmonised standards shall be taken to comply with this requirement, unless there are reasonable grounds for suspecting that the equipment does not so comply.

Regulation 511-01-01 of BS 7671 Requirements for Electrical Installations, IEE Wiring Regulations Sixteenth Edition requires every item of equipment to comply with the relevant requirements of the applicable British Standard, or Harmonised Standard appropriate to the intended use of the equipment.

The Ingress Protection (IP) for all low voltage enclosures up to 1000 V AC and 1500 V DC is defined in identical fashion by the standards EN 605 29 - IEC 529 it comprises the letters IP followed by two character numerals:









The first character numeral indicates the degree of protection provided by the enclosure with respect to persons, also to the equipment inside the enclosure.

The first character numeral:
protection against solid substances

IP	Description
0	Non-protected
1	 Protected against solid objects greater than 50mm
2	 Protected against solid objects greater than 12.5mm
3	 Protected against solid objects greater than 2.5mm
4	 Protected against solid objects greater than 1.0mm
5	 Dust-protected
6	 Dust-tight

The second character numeral indicates the degree of protection provided by the enclosure with respect to harmful ingress of water; a third character may be used to indicate mechanical strength. An x signifies that no test has been carried out

The second character numeral:
protection against liquid substances

IP	Description
0	Non-protected
1	 Protected against dripping water
2	 Protected against dripping water when tilted up to 15°
3	 Protected against spraying water
4	 Protected against splashing water
5	 Protected against water jets
6	 Protected against heavy seas
7	 Protected against the effect of immersion (15 cm)
8	 Protected against submersion (m)

BS switches and sockets

Additional letter (in option)

Protection of people against access to dangerous parts

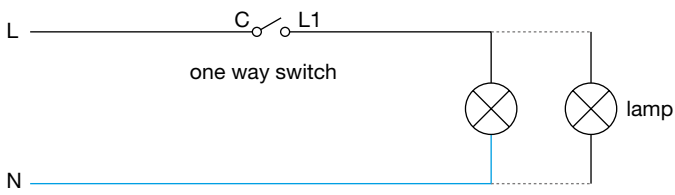
	Description
A	Protected against access of the back of the hand
B	Protected against access of a finger
C	Protected against access of a tool - ø 2.5mm
D	Protected against access of a tool - ø 1mm

Additional letter (in option)

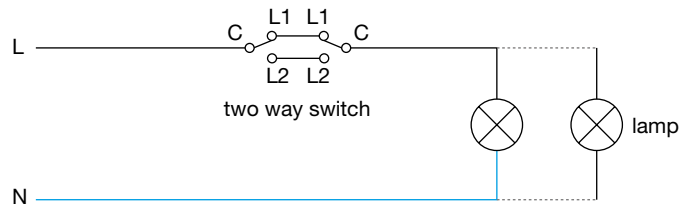
Specific information on the product

	Description
H	High voltage material
M	Movements during water test
S	Stationary during water test
W	Bad weather

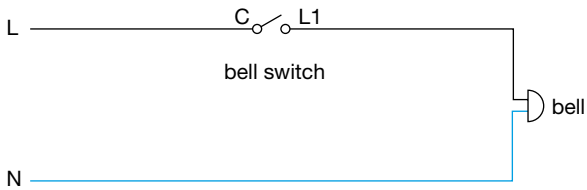
One way switch



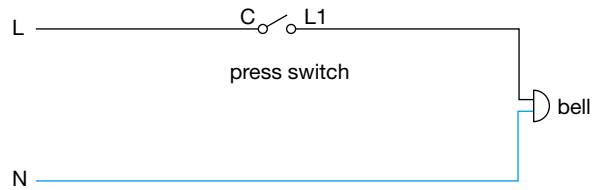
Two way switch



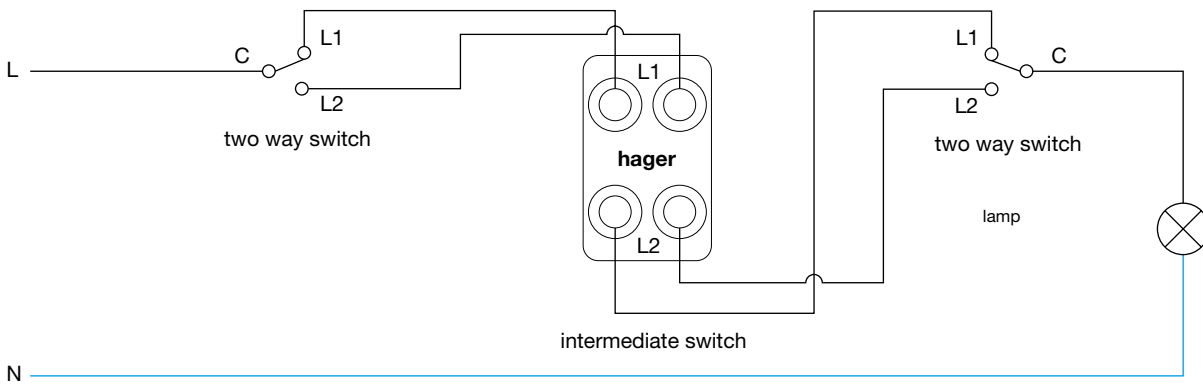
Marked BELL switch



Marked PRESS switch

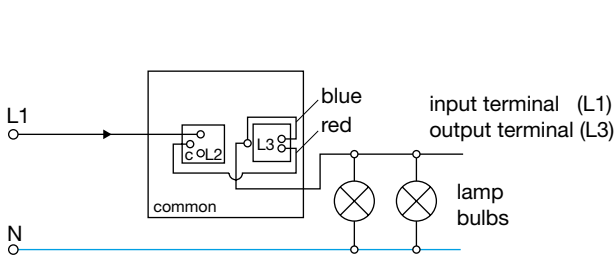


Intermediate switch

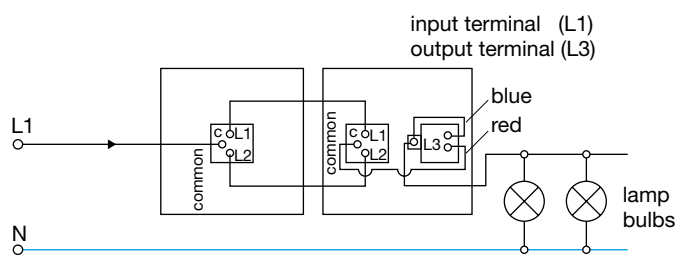


Dimmer switch

1. One way connection

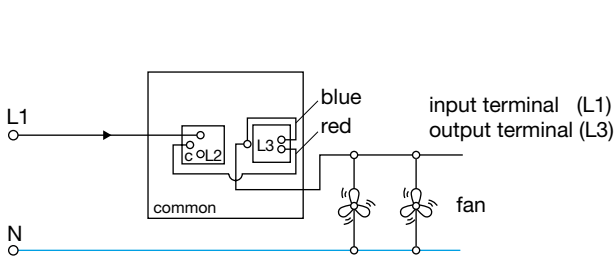


2. Two way connection

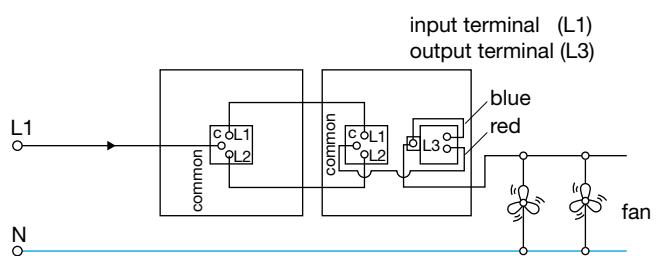


Fan control

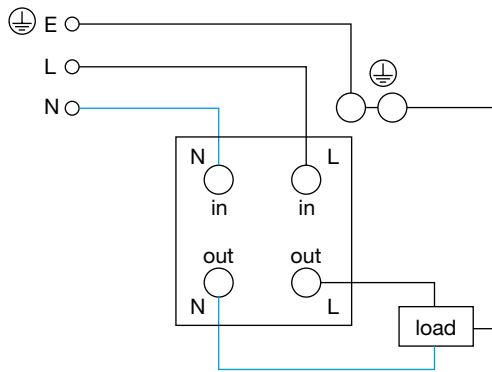
1. One way connection



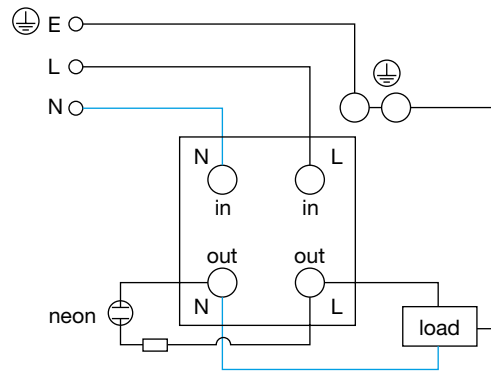
2. Two way connection



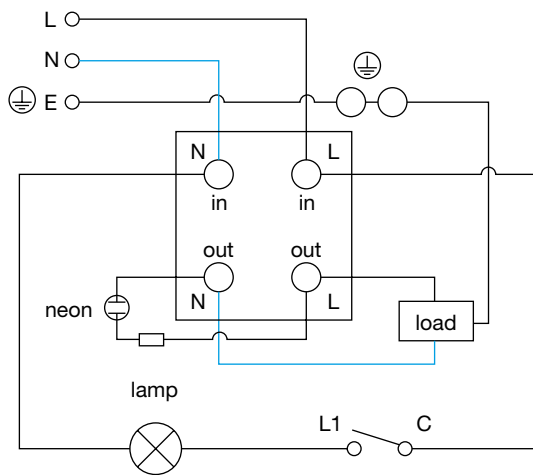
Double Pole Control Switch



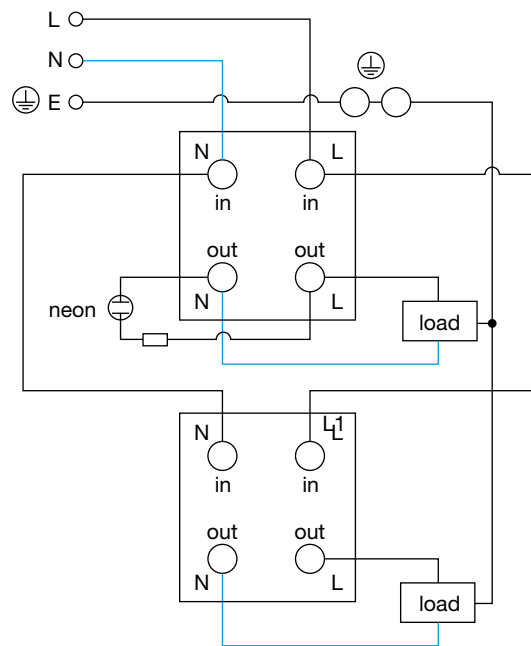
Double pole control switch with neon



Double pole control switch 20AX with neon + 10AX

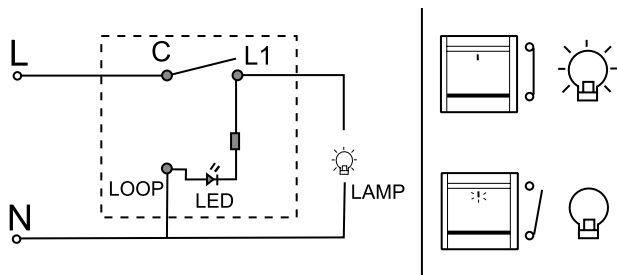


Double pole control switch 20AX without neon + 20AX with neon

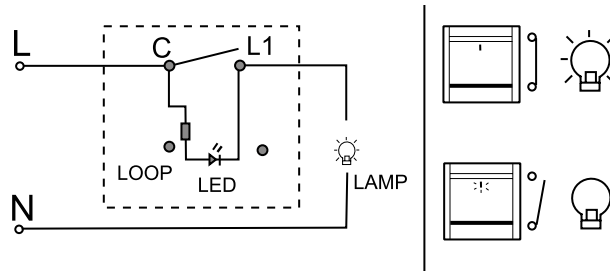


One way large dolly switch with LED

1. LED as location indicator

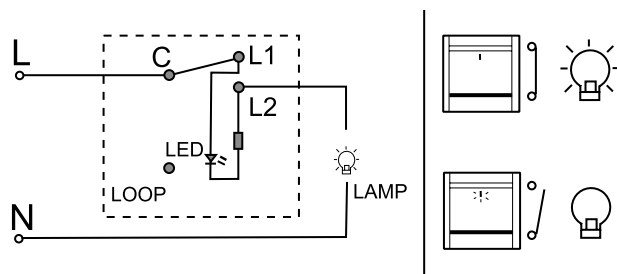


2. LED as ON indicator

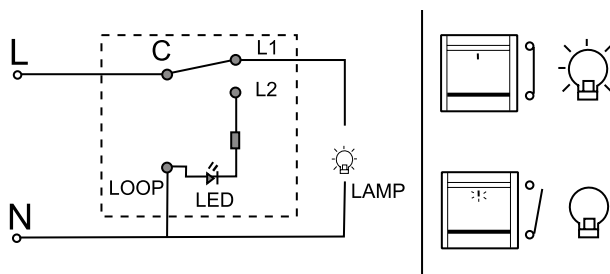


Two way large dolly switch with LED

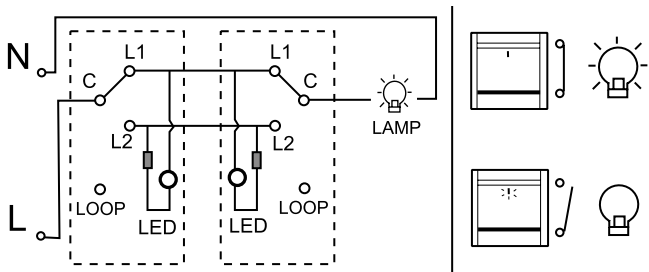
1. LED as location indicator



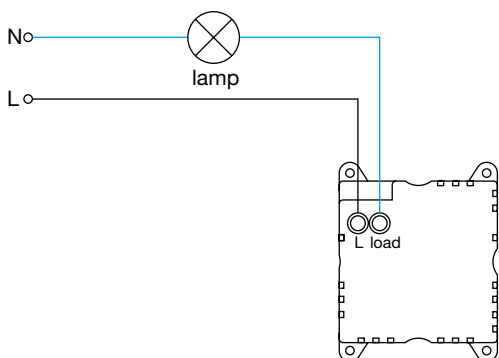
2. LED as ON indicator



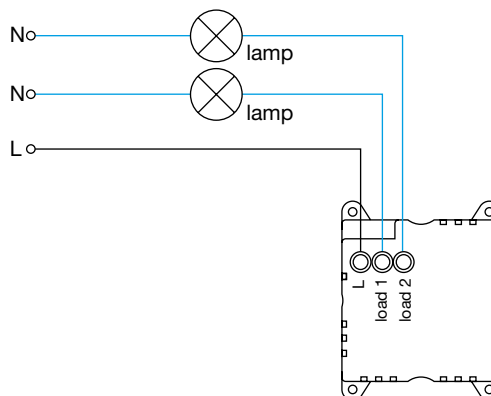
3. LED as location indicator



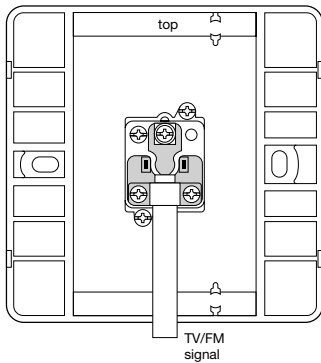
600W 1 gang large dolly dimming
Switch with neon (cycle action)



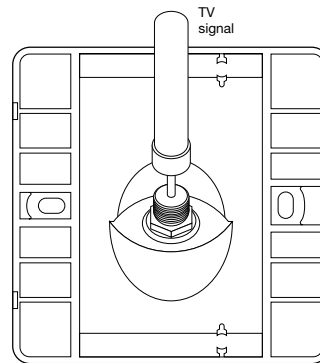
400W 2 gang large dolly dimming
Switch with neon (cycle action)



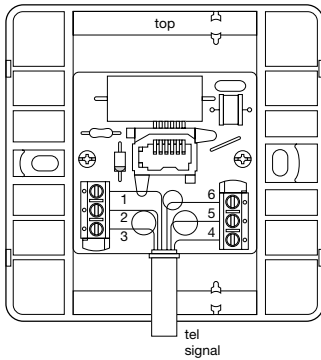
TV & FM connector



RG6 cable TV outlet

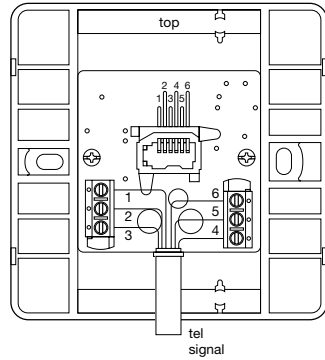


Telephone socket BS style master



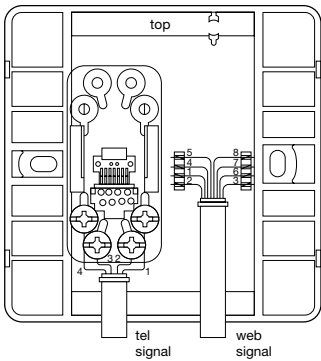
Pin No	Pin code
1	green / white
2	blue / white
3	orange / white
4	white / orange
5	white / blue
6	white / green

Telephone socket BS style slave



Pin No	Pin code
1	green / white
2	blue / white
3	orange / white
4	white / orange
5	white / blue
6	white / green

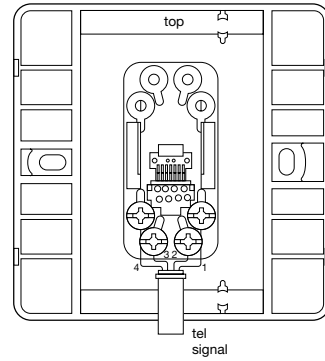
RJ45 + RJ11 data outlet



Pin No	Pin code
1	yellow
2	green
3	red
4	brown

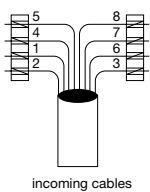
Jack pin	A	B
1	white / green	white / orange
2	green / white	orange / white
3	white / orange	white / green
4	blue / white	blue / white
5	white / blue	white / blue
6	orange / white	green / white
7	white / brown	white / brown
8	brown / white	brown / white

RJ11 data outlet



Pin No	Pin code
1	yellow
2	green
3	red
4	brown

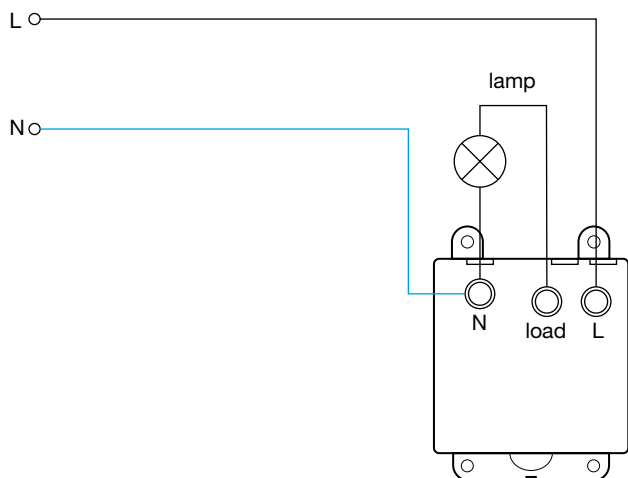
RJ45 data outlet



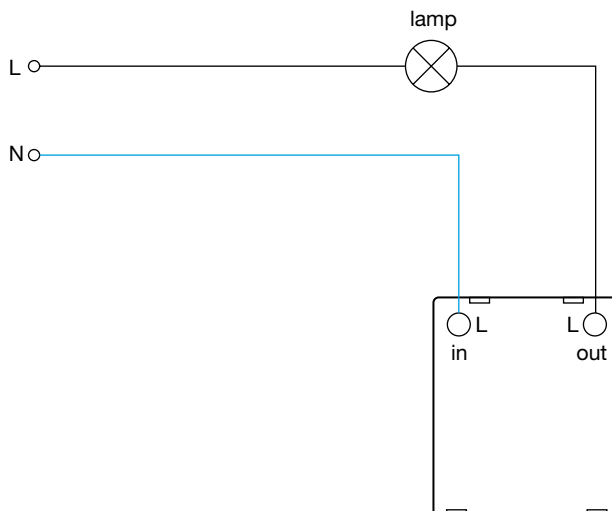
Jack pin	A	B
1	white / green	white / orange
2	green / white	orange / white
3	white / orange	white / green
4	blue / white	blue / white
5	white / blue	white / blue
6	orange / white	green / white
7	white / brown	white / brown
8	brown / white	brown / white

Hotel range

Key tag



Infrared motion detectors



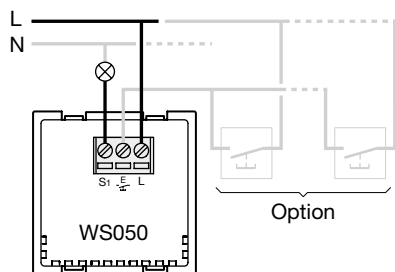
Hotel range

«DND» & PLS CLEAN UP» indication box with door bell

“Do not disturb” and “Please clean up” indication box with door bell

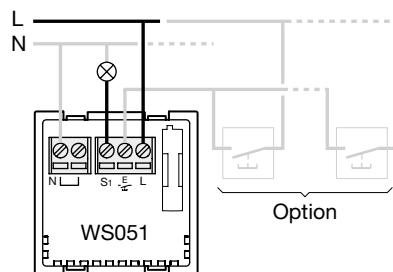
Motion detector

WS050



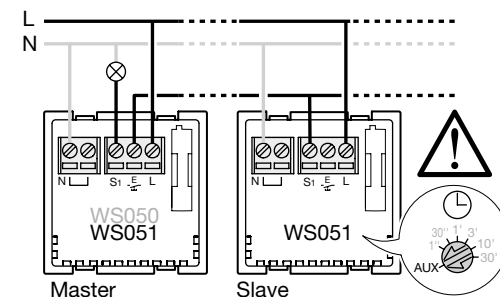
← 40 m maxi →

WS051



← 40 m maxi →

WS050 + WS051 / WS051 + WS051



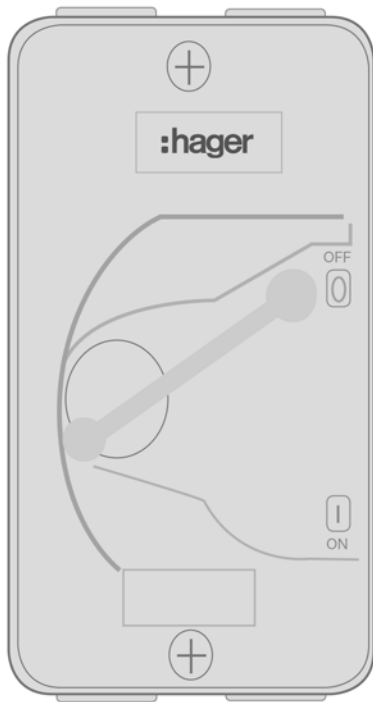
← 40 m maxi →

Terminal Capacities for White Moulded, Decorative and Grid

Accessory type	rating	Maximum number of conductors per terminal (Solid or Stranded conductors BS 6004)						
		1.0 mm ²	1.5 mm ²	2.5 mm ²	4.0 mm ²	6.0 mm ²	10.0 mm ²	16.0 mm ²
switches	10AX	4	4	3	2			
dimmers	10AX	4	3					
BS 546 socket outlet	5A	3	3	3	2	2		
shaver socket	10A	4	3	2				
fused connction units	13A			3	2	2		
BS 1363 socket outlets	13A			3	3	2		
BS 546 socket outlet	15A			3	3	2		
flex outlet plates	20A	5	4	3	2	2		
double pole switches	20A			3	2	2	1	
double pole switches	45/50A				3	2	1	1
cooker control unit	45A				3	2	1	1
cooker connection unit	45A				2	3		
grid switches	20AX	4	4	3	2			

Accessory type	rating	Maximum number of conductors per terminal (Flex conductors BS 6500)						
		1.0 mm ²	1.5 mm ²	2.5 mm ²	4.0 mm ²	6.0 mm ²	10.0 mm ²	16.0 mm ²
switches	10AX							
dimmers	10AX							
BS 546 socket outlet	5A							
shaver socket	10A							
fused connction units	13A	1	1	1	1	1	1	1
BS 1363 socket outlets	13A							
BS 546 socket outlet	15A							
flex outlet plates	20A	1	1	1	1	1	1	1
double pole switches	20A	1	1	1	1	1	1	1
double pole switches	45/50A							
cooker control unit	45A	1	1	1	1	1	1	1
cooker connection unit	45A							
grid switches	20AX							

IP66 isolator dimensions



2 pole

Reference	Current	H	W	D
JG220U	20A	170	84	87
JG232U	32A	170	84	87
JG240U	40A	170	84	87
JG263U	63A	170	84	87

• All dimensions are in mm

3 pole

Reference	Current	H	W	D
JG320U	20A	170	84	87
JG332U	32A	170	84	87
JG340U	40A	170	84	87

• All dimensions are in mm

3 pole + switched neutral

Reference	Current	H	W	D
JG420U	20A	170	84	87
JG432U	32A	170	84	87
JG440U	40A	170	84	87
JG463U	63A	170	84	87

• All dimensions are in mm

2 pole

Reference	Current	H	W	D
JG220IN	20A	170	84	87
JG232IN	32A	170	84	87
JG240IN	40A	170	84	87
JG263IN	63A	170	84	87

• All dimensions are in mm

3 pole

Reference	Current	H	W	D
JG320IN	20A	170	84	87
JG332IN	32A	170	84	87
JG340IN	40A	170	84	87

• All dimensions are in mm

3 pole + switched neutral

Reference	Current	H	W	D
JG420IN	20A	170	84	87
JG432IN	32A	170	84	87
JG440IN	40A	170	84	87
JG463IN	63A	170	84	87

• All dimensions are in mm

European Standards switches and sockets







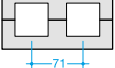
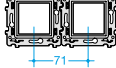
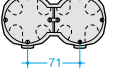
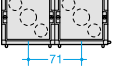
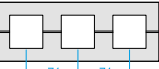
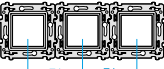
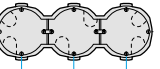

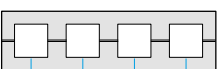
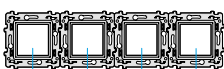

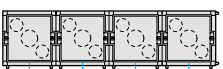

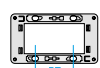



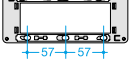
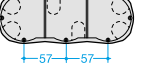
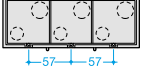
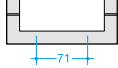

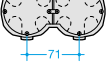
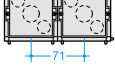

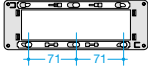
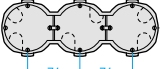
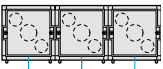
We provide a complete range of wiring accessories suitable for domestic and commercial applications.

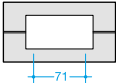
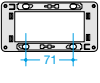
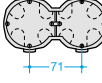
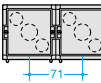
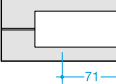
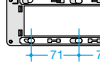
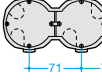
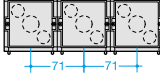
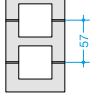
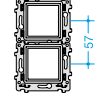
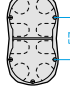
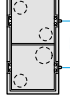
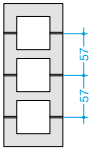
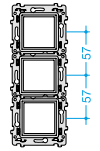
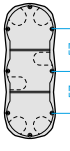
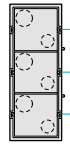
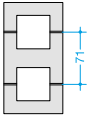
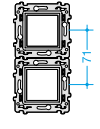
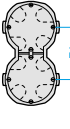
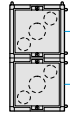
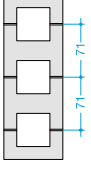
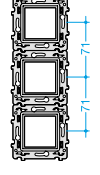
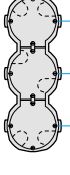
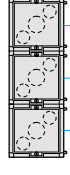
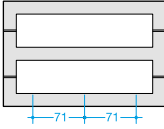
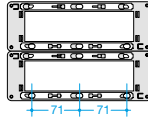
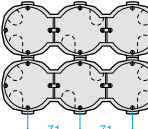
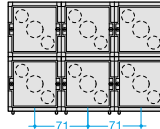
Nice designs, wide choice of switches and colours, each product can be easily adapted to your specific needs.

systo, essensya, cubyko ranges comply with European Standards.



systo	15.2
essensya	15.26
cubyko	15.35
Technical guide	15.44

Frames	Support with screws	Support with claws	Hollow boxes depth 40 mm	Masonry boxes depth 40 mm
 1 module WS405 - WS405T - WS405N 80 x 40 mm	delivered with frame WS405			
 2 modules WS401 - WS401T - WS401N 80 x 80 mm	 WS450	 WS451	 	
 2 x 2 modules WS402 - WS402T - WS402N 80 x 151 mm (71 mm spacing)	 2 x WS450	 (71 mm spacing)	 2 boxes (71 mm spacing)	
 3 x 2 modules WS403 - WS403T - WS403N 80 x 222 mm (71 mm spacing)	 3 x WS450	 (71 mm spacing)	 3 boxes (71 mm spacing)	
 4 x 2 modules WS404 - WS404T - WS404N 80 x 293 mm (71 mm spacing)	 4 x WS450	 (71 mm spacing)	 4 boxes (71 mm spacing)	
 4 modules WS410 - WS410T - WS410N 80 x 137 mm (57 mm spacing)	 WS452	 (57 mm spacing)	 2 boxes (57 mm spacing)	
 6 modules WS411 - WS411T - WS411N 80 x 194 mm (57 mm spacing)	 WS453	 (57 mm spacing)	 3 boxes (57 mm spacing)	
 5 modules WS412 - WS412T - WS412N 80 x 150 mm (71 mm spacing)	 WS454	 (71 mm spacing)	 2 boxes (71 mm spacing)	
 8 modules WS413 - WS413T - WS413N 80 x 220 mm (71 mm spacing)	 WS455	 (71 mm spacing)	 3 boxes (71 mm spacing)	

Frames	Support with screws	Hollow boxes depth 40 mm	Masonry boxes depth 40 mm
 <p>4 modules WS414 - WS414T - WS414N for WS122 80 x 150 mm</p>	 <p>WS454</p>		 <p>2 boxes</p>
 <p>6 modules WS415 - WS415T - WS415N for WS123 80 x 220 mm</p>	 <p>WS455</p>		 <p>3 boxes</p>
 <p>2 x 2 modules WS406 - WS406T 137 x 80 mm</p>	 <p>2 x WS451S</p>		 <p>2 boxes</p>
 <p>3 x 2 modules WS407 - WS407T 194 x 80 mm</p>	 <p>3 x WS451S</p>		 <p>3 boxes</p>
 <p>2 x 2 modules WS408 - WS408T - WS408N 151 x 80 mm</p>	 <p>2 x WS450</p>		 <p>2 boxes</p>
 <p>3 x 2 modules WS409 - WS409T - WS409N 222 x 80 mm</p>	 <p>3 x WS450</p>		 <p>3 boxes</p>
 <p>16 modules WS416 - WS416T - WS416N 165 x 235 mm</p>	 <p>WS456</p>		 <p>2 x 3 boxes</p>

Controls

Options: Lamps for location or indication are suitable for all controls items with lamps or label holders

Complies with NF EN 60-669-1
Glow wire test according to NF EN 60 695-2
IP2XC products

Connection capacity
- mini: 2 x 1mm² rigid wire
- maxi: 2 x 2,5mm² rigid wire



WS016

1 way switches 10AX - 250V AC, quickconnect

Description	Pack qty.	Cat. ref. 1 module	Pack qty.	Cat. ref. 2 modules
white	10	WS016	10	WS000
black	10	WS016N	-	-
titane	10	WS016T	-	-
antibacterial	10	WS016H	-	-
white with light	10	WS017	-	-
black with light	10	WS017N	-	-
titane with light	10	WS017T	-	-
antibacterial with light	10	WS017H	-	-



WS012



WS001T

2 way switches 10AX - 250V AC, quickconnect

Description	Pack qty.	Cat. ref. 1 module	Pack qty.	Cat. ref. 2 modules
white	10	WS012	10	WS001
black	10	WS012N	10	WS001N
titane	10	WS012T	10	WS001T
antibacterial	10	WS012H	10	WS001H



WS013



WS002T

2 way illuminated switches 10AX - 250V AC, quickconnect

- delivered without lamp (see lamp 1, 2 or 3)

Description	Pack qty.	Cat. ref. 1 module	Pack qty.	Cat. ref. 2 modules
white	10	WS013	10	WS002
black	10	WS013N	10	WS002N
titane	10	WS013T	10	WS002T
antibacterial	-	-	10	WS002H



WS005

2 way pull cord switches 10AX - 250V AC, quickconnect

- delivered with 1.5m cord

Description	Pack qty.	Cat. ref. 1 module	Pack qty.	Cat. ref. 2 modules
white	-	-	1	WS005
titane	-	-	1	WS005T



WS006



WS014

2 way illuminated switches with label holder 10AX - 250V AC, quickconnect

- delivered without lamp (see lamp 1, 2 or 3)

Description	Pack qty.	Cat. ref. 1 module	Pack qty.	Cat. ref. 2 modules
white	1	WS014	1	WS006

Double pole switches 10AX - 250V AC, quickconnect

- allow to switch the 2 contacts

Description	Pack qty.	Cat. ref. 1 module	Pack qty.	Cat. ref. 2 modules
white	-	-	1	WS008
titane	-	-	1	WS008T



WS008

Double pole illuminated switches 10AX - 250V AC, quickconnect

- delivered with lamp for locator use

Description	Pack qty.	Cat. ref. 1 module	Pack qty.	Cat. ref. 2 modules
white	-	-	1	WS009
titane	-	-	1	WS009T



WS009

Intermediate switches 10AX - 250V AC, quickconnect

Description	Pack qty.	Cat. ref. 1 module	Pack qty.	Cat. ref. 2 modules
white	-	-	1	WS010
black	-	-	1	WS010N
titane	-	-	1	WS010T



WS010

Intermediate illuminated switches 10AX - 250V AC, quickconnect

- delivered with lamp for locator use

Description	Pack qty.	Cat. ref. 1 module	Pack qty.	Cat. ref. 2 modules
white	-	-	1	WS011
black	-	-	1	WS011N
titane	-	-	1	WS011T



WS011

Double pole switches 16AX - 250V AC, quickconnect

- allow to switch the 2 contacts

Description	Pack qty.	Cat. ref. 1 module	Pack qty.	Cat. ref. 2 modules
white	-	-	1	WS015
titane	-	-	1	WS015T



WS015

1 way push buttons 10AX - 250V AC, quickconnect

Description	Pack qty.	Cat. ref. 1 module	Pack qty.	Cat. ref. 2 modules
white	10	WS027	10	WS020
black	10	WS027N	10	WS020N
titane	10	WS027T	10	WS020T
antibacterial	10	WS027H	10	WS020H



WS027T



WS022

2 way push buttons 10AX - 250V AC, quickconnect

Description	Pack qty.	Cat. ref. 1 module	Pack qty.	Cat. ref. 2 modules
white	10	WS029	10	WS022
black	-	-	10	WS022N



WS030

2 way illuminated push button 10AX - 250V AC, quickconnect

- delivered without lamp (see lamp 1, 2 or 3)

Description	Pack qty.	Cat. ref. 1 module	Pack qty.	Cat. ref. 2 modules
white	10	WS030	10	WS023
black	10	WS030N	10	WS023N
titane	10	WS030T	10	WS023T
antibacterial	-	-	10	WS023H



WS024

2 way pull cord push buttons 10AX - 250V AC, quickconnect

- delivered with 1.5m cord

Description	Pack qty.	Cat. ref. 1 module	Pack qty.	Cat. ref. 2 modules
white	-	-	1	WS024
black	-	-	1	WS024N
titane	-	-	1	WS024T



WS025



WS031

2 way illuminated push button with label holders 10AX - 250V AC, quickconnect

- delivered without lamps (see lamp 1, 2 or 3)

Description	Pack qty.	Cat. ref. 1 module	Pack qty.	Cat. ref. 2 modules
white	10	WS031	10	WS025



WS032

Emergency stop push buttons

Description	Pack qty.	Cat. ref. 2 modules
with key 10A - 250V	1	WS032
1/4 turn 10A - 250V	1	WS033



WS035

Key switches

Description	Pack qty.	Cat. ref. 2 modules
2 positions 10 A - 250V	1	WS035
3 positions 10 A - 250V	1	WS036



WS055

Hotel card switch

- credit card size
- switch off after an adjustable time delay (0 s, 15 s, 30 s, 1 min)

Description	Pack qty.	Cat. ref. 2 modules
white	1	WS055

Plug-in Led lamps

Description	Pack qty.	Cat. ref.
1 - for location 250 V AC blue, cons.: 0,4mA - 50000h	10	WS690
2 - for indication 250 V AC red, cons.: 0,75mA - 50000h	10	WS691
3 - for location 12-24 V DC blue, cons.: 0,4mA - 50000h	10	WS692
4 - for socket WS103 red, cons.: 0,75mA - 50000h	10	WUZ694



WS690, WS692



WUZ694

Associable lamps

Description	Pack qty.	Cat. ref.
surface mounted lamp 250V blue 0.5mA	10	WJA690
surface mounted lamp 250V red 1mA	10	WJA691
surface mounted lamp 250V white 0.5mA	10	WJA692
surface mounted lamp 12/24V red	10	WJA693
surface mounted lamp 12/24V blue	10	WJA694
surface mounted lamp 12/24V white	10	WJA695



WJA690

Sockets

Connection capacity

quickconnect connection

- mini: 2 x 1mm² rigid wire

- maxi: 2 x 2,5mm² rigid wire

Screw terminals

maxi: 1 x 4mm² rigid wire or 2 x 2,5mm² rigid wire

Complies with NFC 60-314 for WS100, WS101, WS102, WS103, WS105, WS 106

Glow wire test according to NF EN 60 695-2

IP2XC products



WS100

2P+E sockets 16A - 250V, quickconnect

- french standard

Description	Pack qty.	Cat. ref.
white	10	WS100
orange	10	WS100E
black	10	WS100N
red	10	WS100R
titane	10	WS100T
green	10	WS100V
antibacterial	10	WS100H



WS100T



WS101

2P+E sockets 16A - 250V, screw terminals

- french standard

Description	Pack qty.	Cat. ref.
white	10	WS101
black	10	WS101N
titane	10	WS101T



WS102

2P sockets 16A - 250V, screw terminals

- french standard

Description	Pack qty.	Cat. ref.
white	10	WS102



WS103

Illuminated 2P+E sockets 16A - 250V, quickconnect

- french standard

- to be associated with WUZ694 lamp

Description	Pack qty.	Cat. ref.
white	10	WS103



WS105

2P+E sockets with mechanical keyring 16A - 250V, quickconnect

- french standard

Description	Pack qty.	Cat. ref.
red	10	WS105



WS106

2P+E sockets with mechanical keyring 16A - 250V, screw terminals

- french standard

Description	Pack qty.	Cat. ref.
red	10	WS106

I2P+E Schuko sockets 16A - 250V, quickconnect

- german standard

Description	Pack qty.	Cat. ref.
white	10	WS160
orange	10	WS160E
black	10	WS160N
titane	10	WS160T
green	10	WS160V
antibacterial	10	WS160H



WS160



WS160T

2P+E Schuko sockets 16A - 250V, without child protection, screw connection

- german standard

Description	Pack qty.	Cat. ref.
white	10	WS161
black	10	WS161N



WS161

2P+E Schuko sockets 16A - 250V, screw connection

- german standard

Description	Pack qty.	Cat. ref.
red	10	WS162
white	10	WS163
black	10	WS163N



WS162



WS163

2P+E sockets with mechanical keyring 16A - 250V, screw terminals

- german standard

Description	Pack qty.	Cat. ref.
red	10	WS164



WS164

Comfort controls

Flush mounting

- for switches choose 40mm depth boxes
- for dimmers and motion detectors choose 50mm depth boxes

Complies with NF EN 60-669-1 for WS048, WS060, WS061.

Complies with NF EN 60-669-2 for WS050, WS051, WS060, WS061.

Glow wire test according to NF EN 60 695-2

Connection capacity

quickconnect connection

- mini: 2 x 1mm² rigid wire
- maxi: 2 x 2.5mm² rigid wire

Screw terminals

maxi: 2 x 2.5mm² rigid wire or 2 x 1.5mm² flexible wire

quickconnect connection

IP2XC products



WS048

2 way CMV switches, 10A - 250V

- 2 speed levels

Description	Pack qty.	Cat. ref. 2 modules
white	1	WS048



WS050

Motion detectors without neutral (2 wires)

- in place of a one way switch with no additional wiring, suitable for :
 - incandescent and halogen lamps 230 V AC,
 - ELV lamps with electronic transformer. Can be used as master in a configuration with several motion detectors
- 230V AC /50Hz
- 60 ... 320W/VA

Description	Pack qty.	Cat. ref. 2 modules
white	1	WS050
black	1	WS050N
titane	1	WS050T



WS051

Motion detectors without neutral (3 wires)

- incandescent and halogen lamps 230 V AC,
- ELV lamps with electronic and ferromagnetic transformer
- fluorescent lamps
- CMV, ventilator...
- can be used as master or slave in a configuration with several motion detectors
- incandescent and halogen 230 V AC: 0 ... 1000 W
- other loads: 0 ... 500 VA

Description	Pack qty.	Cat. ref. 2 modules
white	1	WS051
black	1	WS051N
titane	1	WS051T



WS060

Dimmers

- for all type of dimmable loads
 - 70W CFL, LED,
 - 275W incandescent
 - 250W halogen with or without transformer



WS061

Description	Pack qty.	Cat. ref. 2 modules
rotary switch, white	1	WS060
rotary switch, black	1	WS060N
rotary switch, titane	1	WS060T
push button, white	1	WS061
push button, black	1	WS061N
push button, titane	1	WS061T

Comfort controls

- Flush mounting
- for switches choose 40mm depth boxes
- for dimmers and motion detectors choose 50mm depth boxes

Complies with NF EN 60-669-1 for WS300, WS301.
NF EN 60-730-2, NF EN 60-335-1
NF EN 55-014-1, NF EN 61-000-3 for WS310, WS311, WS314.

Connection capacity

- quickconnect connexion
- mini: 2 x 1mm² rigid wire
- maxi: 2 x 2,5mm² rigid wire
- Screw terminals
- maxi: 2 x 2,5mm² rigid wire or 2x1.5mm² flexible wire

Glow wire test according to NF EN 60 695-2

quickconnect connection

IP2XC products

Rolling shutters controls 10 A - 250 V AC, quickconnect double two way switch with mechanical interlocking

Description	Pack qty.	Cat. ref. 2 modules
white	1	WS300
black	1	WS300N
titane	1	WS300T
antibacterial	1	WS300H



WS300

Rolling shutters controls 10 A - 250 V AC, quickconnect double two way push button for automation management

Description	Pack qty.	Cat. ref. 2 modules
white	1	WS301
black	1	WS301N
titane	1	WS301T
antibacterial	1	WS301H



WS301

Electronic rolling shutter and blind controls

Description	Pack qty.	Cat. ref. 2 modules
white, daily programming	1	WS304
white, centralized electronic shutter controls with display weekly and daily programming	1	WS305



WS304



WS305

Electronic room thermostat

- power supply : 230 V AC /50 Hz
- output : 2 way switch
- adjustment range: +5° C to +30°
- accuracy: ± 0,5°C
- output relay: 8 A - 250 V AC for a power factor = 1



WS310

Description	Pack qty.	Cat. ref. 2 modules
white	1	WS310



WS200

Telephone "T" socket

Description	Pack qty	Cat. ref. 1 module	Pack qty.	Cat. ref. 2 modules
white, 8 screw contacts	-	-	10	WS200
titane, 8 screw contacts	-	-	10	WS200T



WS201

RJ11 socket

- with label holders and anti-dust flap.

Description	Pack qty	Cat. ref. 1 module	Pack qty.	Cat. ref. 2 modules
white	-	-	10	WS201
titane	-	-	10	WS201T



WS210T



WS211T



WS213



WS214



WS213N

RJ45 sockets category 5E

- D class at 100MHz
- with label holders and anti-dust flap.
- suitable also for RJ11 and RJ12 sockets

Description	Pack qty	Cat. ref. 1 module	Pack qty.	Cat. ref. 2 modules
UTP, 8 pts, white	10	WS210	1	WS211
UTP, 8 pts, titane	10	WS210T	1	WS211T
UTP, 8 pts, black	10	WS210N	-	-
FTP, 9 pts for grade 1, white	10	WS213	1	WS214
FTP, 9 pts for grade 1, titane	10	WS213T	10	WS214T
FTP, 9 pts for grade 1, black	10	WS213N	10	WS214N
STP or SFTP 8 shielded points, white	10	WS216	1	WS217
STP or SFTP 8 shielded points, titane	10	WS216T	1	WS217T
STP or SFTP 8 shielded points, black	10	WS216N	-	-



WS226

RJ45 sockets category 6

- E class at 250MHz
- with label holders and anti-dust flap.
- suitable also for RJ11 and RJ12 sockets

Description	Pack qty	Cat. ref. 1 module	Pack qty.	Cat. ref. 2 modules
UTP, 8 pts, white	10	WS219	1	WS220
UTP, 8 pts, titane	10	WS219T	1	WS220T
UTP, 8 pts, black	10	WS219N	1	WS220N
UTP, 8 pts, antibacterial	10	WS219H	1	WS220H
FTP, 9 pts for grade 1, white	10	WS222	10	WS223
FTP, 9 pts for grade 1, titane	10	WS222T	10	WS223T
FTP, 9 pts for grade 1, black	10	WS222N	10	WS223N
FTP, 9 pts for grade 1, antibacterial	10	WS222H	10	WS223H
STP or SFTP 8 shielded points for grade 3, white	10	WS225	1	WS226
STP or SFTP 8 shielded points for grade 3, titane	10	WS225T	1	WS226T
STP or SFTP 8 shielded points for grade 3, black	10	WS225N	1	WS226N
STP or SFTP 8 shielded points for grade 3, antibacterial	10	WS225H	1	WS226H

RJ45 sockets category 6A

- E class at 300MHz
- with label holders and anti-dust flap.
- suitable also for RJ11 and RJ12 sockets

Description	Pack qty	Cat. ref. 1 module	Pack qty.	Cat. ref. 2 modules
STP or SFTP 8 shielded points for grade 3, white	1	WS229	1	WS228
STP or SFTP 8 shielded points for grade 3, titane	1	WS229T	1	WS228T
STP or SFTP 8 shielded points for grade 3, black	1	WS229N	1	WS228N

RJ45 plates

- for Keystone engine

Description	Pack qty	Cat. ref. 1 module	Pack qty.	Cat. ref. 2 modules
white	10	WS202	10	WS203
titane	10	WS202T	-	-
black	10	WS202N	10	WS203N



WS202



WS203

Television sockets 45 x 45 mm

- screw connection for a better coaxial cable maintain

Description	Pack qty.	Cat. ref.
direct, white	10	WS250
direct, titane	10	WS250T
F type, white	10	WS259
F type, titane	10	WS259T
pass through socket attenuation 10 dB delivered with terminal resistance 75Ω, white	1	WS251
pass through socket attenuation 10 dB delivered with terminal resistance 75Ω, titane	1	WS251T



WS250

Television sockets + FM sockets 45 x 45 mm

- screw connection for a better coaxial cable maintain

Description	Pack qty.	Cat. ref.
direct, white	1	WS253
direct, titane	1	WS253T
direct, black	1	WS253N
pass through socket attenuation 10 dB delivered with terminal resistance 75Ω, white	1	WS254
pass through socket attenuation 10 dB delivered with terminal resistance 75Ω, titane	1	WS254T
pass through socket attenuation 10 dB delivered with terminal resistance 75Ω, black	1	WS254N



WS254



WS256

Television + FM + TV socket 45 x 45 mm

- screw connection for a better coaxial cable maintain

Description	Pack qty.	Cat. ref.
direct 1 input, white	1	WS256
direct 1 input, titane	1	WS256T
direct 1 input, black	1	WS256N
direct 2 inputs, white	1	WS257
direct 2 inputs, titane	1	WS257T
direct 2 inputs, black	1	WS257N

Terminal resistance

Description	Pack qty.	Cat. ref.
75Ω	1	WS258



WS110N

USB Power supply

- output voltage: 5V DC
- nominal current: 2.1A

Description	Pack qty.	Cat. ref.
white	1	WS110
titane	1	WS110T
black	1	WS110N



WS260

2 RCA audio socket

Description	Pack qty.	Cat. ref. 1 module	Pack qty.	Cat. ref. 2 modules
screw terminals, white	-	-	1	WS260



WS261

3 RCA audio + video socket

Description	Pack qty.	Cat. ref. 1 module	Pack qty.	Cat. ref. 2 modules
screw terminals, white	-	-	1	WS261



WS263

HDMI passthrough socket

Description	Pack qty.	Cat. ref. 1 module	Pack qty.	Cat. ref. 2 modules
white	-	-	1	WS263
titane	-	-	1	WS263T



WS264

HDMI socket

Description	Pack qty.	Cat. ref. 1 module	Pack qty.	Cat. ref. 2 modules
screw terminals, white	-	-	1	WS264

USB sockets

Description	Pack qty	Cat. ref. 1 module	Pack qty.	Cat. ref. 2 modules
white	-	-	1	WS265
black	-	-	1	WS265N



WS265

XLR female socket

Description	Pack qty	Cat. ref. 1 module	Pack qty.	Cat. ref. 2 modules
screw terminals, white	-	-	1	WS266



WS266

XLR male socket

Description	Pack qty	Cat. ref. 1 module	Pack qty.	Cat. ref. 2 modules
screw terminals, white	-	-	1	WS267



WS267

Optical passthrough socket SC connector

Description	Pack qty	Cat. ref. 1 module	Pack qty.	Cat. ref. 2 modules
white	-	-	1	WS270



WS270

Optical passthrough socket LC connector

Description	Pack qty	Cat. ref. 1 module	Pack qty.	Cat. ref. 2 modules
white	-	-	1	WS271



WS271

BNC passthrough socket

Description	Pack qty	Cat. ref. 1 module	Pack qty.	Cat. ref. 2 modules
white	-	-	1	WS273



WS273

DVI-D socket

Description	Pack qty	Cat. ref. 1 module	Pack qty.	Cat. ref. 2 modules
screw terminals, white	-	-	1	WS274



WS274

S-video socket

Description	Pack qty	Cat. ref. 1 module	Pack qty.	Cat. ref. 2 modules
screw terminals, white	-	-	1	WS275



WS275

SUB-D 15 (VGA) socket

Description	Pack qty	Cat. ref. 1 module	Pack qty.	Cat. ref. 2 modules
screw terminals, white	-	-	1	WS276



WS276



WS278

Jack 3.5 mm socket

Description	Pack qty	Cat. ref. 1 module	Pack qty.	Cat. ref. 2 modules
screw terminals, white	-	-	1	WS278
screw terminals, titane	-	-	1	WS278T



WS279

S-video + RCA 2 audio socket

Description	Pack qty.	Cat. ref.
screw terminals, white	-	-
screw terminals, titane	-	-

Loudspeaker sockets

Description	Pack qty	Cat. ref. 1 module	Pack qty.	Cat. ref. 2 modules
white	10	WS290	10	WS291
titane	10	WS290T	10	WS291T
black	10	WS290N	10	WS291N



WS603

Signalisations

Description	Pack qty.	Cat. ref.
green/red light indicator	1	WS601
blue light indicator	1	WS602
white light indicator	1	WS603
blank label light indicator	1	WS604
stair label indicator	1	WS605
lift label light indicator	1	WS606
WC label (woman-man-disabled person) light indicator	1	WS607
room label (free-busy) light indicator	1	WS608
hotel label (cleaning/ not disturb) light indicator	1	WS609

Sockets specially for trunking

Connection capacity

quickconnect connection

- mini: 2 x 1mm² rigid wire

- maxi: 2 x 2,5mm² rigid wire

Complies with NF C 60-314 for references :

WS100, WS101, WS102, WS103, WS105, WS 106, WS121, WS122, WS123, WS131, WS132, WS133

Glow wire test according to NF EN 60 695-2

IP2XC products

2P+T sockets 16 A - 250 V, quickconnect

- french standard

Description	Pack qty.	Cat. ref.
white	20	WS121
orange	20	WS121E
black	20	WS121N
red	20	WS121R
titane	20	WS121T
green	20	WS121V



WS121



WS121E

2 x 2P+T sockets 16 A - 250 V, quickconnect

- french standard

Description	Pack qty.	Cat. ref.
white	10	WS122
orange	10	WS122E
black	10	WS122N
red	10	WS122R
titane	10	WS122T
green	10	WS122V



WS122



WS122N

3 x 2P+T sockets 16 A - 250 V, quickconnect

- french standard

Description	Pack qty.	Cat. ref.
white	10	WS123
orange	10	WS123E
black	10	WS123N
red	10	WS123R
titane	10	WS123T
green	10	WS123V



WS123



WS123T

2P+T sockets with mechanical keying 16 A - 250 V, quickconnect

Description	Pack qty.	Cat. ref.
red	20	WS131

2 x 2P+T sockets with mechanical keying 16 A - 250 V, quickconnect

Description	Pack qty.	Cat. ref.
red	10	WS132



WS132

3 x 2P+T sockets with mechanical keying 16 A - 250 V, quickconnect

Description	Pack qty.	Cat. ref.
red	10	WS133



WS133



WS136

Switch 16 AX

Description	Pack qty.	Cat. ref.
white	10	WS136



WS137

Surge protection type 3, class III

Description	Pack qty.	Cat. ref.
white	1	WS137
titane	1	WS137T
black	1	WS137N



WS138

Filter

Description	Pack qty.	Cat. ref.
white	1	WS138



WS171

2P+T sockets 16 A - 250 V, quickconnect

- german standard

Description	Pack qty.	Cat. ref.
white	20	WS171
orange	20	WS171E
black	20	WS171N
green	20	WS171V
titane	20	WS171T
red	20	WS187



WS172

2 x 2P+T sockets 16 A - 250 V, quickconnect

- german standard

Description	Pack qty.	Cat. ref.
white	10	WS172
orange	10	WS172E
black	10	WS172N
green	10	WS172V
titane	10	WS172T
red	10	WS185



WS173

3 x 2P+T sockets 16 A - 250 V, quickconnect

- german standard

Description	Pack qty.	Cat. ref.
white	10	WS173
orange	10	WS173E
black	10	WS173N
green	10	WS173V
titane	10	WS173T
red	10	WS186

2P+T Schuko sockets with mechanical keying 16 A - 250 V, quickconnect

Description	Pack qty.	Cat. ref.
red	20	WS181

2 x 2P+T Schuko sockets with mechanical keying 16 A - 250 V, quickconnect

Description	Pack qty.	Cat. ref.
red	10	WS182



WS182

3 x 2P+T Schuko sockets with mechanical keying 16 A - 250 V, quickconnect

Description	Pack qty.	Cat. ref.
red	10	WS183



WS183

Switch16 AX

- german standard

Description	Pack qty.	Cat. ref.
white	20	WS166
black	20	WS166N



WS166

Surge protection type 3, class III

- german standard

Description	Pack qty.	Cat. ref.
white	10	WS167

Filter

- german standard

Description	Pack qty.	Cat. ref.
white	10	WS168

Junction for multiple socket

Description	Pack qty.	Cat. ref.	Pack qty.	Cat. ref.
		1 module		2 modules
grey	-	-	10	WS120



WS120

Cable clamp for multiple socket

Description	Pack qty.	Cat. ref.	Pack qty.	Cat. ref.
		1 module		2 modules
grey	-	-	10	WS130



WS130

Cable outlets modular 45 x 45

- suitable for multi gang
- for cable: Ø 1.5 to 12 mm

Description	Pack qty.	Cat. ref.	Pack qty.	Cat. ref.
		1 module		2 modules
white	-	-	10	WS155
black	-	-	10	WS155N
titane	-	-	10	WS155T



WS155



WS155T



WE155

Cable outlet extraflat

- not suitable for multi gang

Description	Pack qty	Cat. ref. 1 module	Pack qty.	Cat. ref. 2 modules
white	-	-	10	WE155
titane	-	-	10	WE155T



WS169N

Surge protection cartridges

Description	Pack qty	Cat. ref. 1 module	Pack qty.	Cat. ref. 2 modules
white	-	-	1	WS169
black	-	-	1	WS169N
titane	-	-	1	WS169T



WS687

Wire outlet

Description	Pack qty	Cat. ref. 1 module	Pack qty.	Cat. ref. 2 modules
Ø 8mm, white	10	WS687	-	-



WS688

Blank modules

Description	Pack qty	Cat. ref. 1 module	Pack qty.	Cat. ref. 2 modules
white	10	WS688	10	WS689
black	10	WS688N	10	WS689N
titane	10	WS688T	10	WS689T
antibacterial	10	WS688H	10	WS689H



WS697

Keying pin for plugs

Description	Pack qty.	Cat. ref.
red	10	WS697



WK696

Claws

Description	Pack qty	Cat. ref. 1 module	Pack qty.	Cat. ref. 2 modules
long	-	-	50	WK697
short	-	-	50	WK696

Clip-on frame

- UV resistant material with antistatic texture
- accurate mounting thanks to clip steps
- slots to remove the frame on the side
- glow wire test according to NF EN 60 695-2

Single frame

- 1 module plate + frame, dim. 80 x 40 mm

Description	Pack qty.	Cat. ref.
white	5	WS405
black	5	WS405N
titane	5	WS405T



WS405

Single frame

- 2 modules, dim. 80 x 80 mm

Description	Pack qty.	Cat. ref.
white	10	WS401
black	10	WS401N
titane	10	WS401T
antibacterial	10	WS401H



WS401



WS401T

Double horizontal frame

- 2 x 2 modules, dim. 80 x 151 mm, center distance 71 mm

Description	Pack qty.	Cat. ref.
white	10	WS402
black	10	WS402N
titane	10	WS402T
antibacterial	10	WS402H



WS402

Triple horizontal frame

- 3 x 2 modules, dim. 80 x 222 mm, center distance 71 mm

Description	Pack qty.	Cat. ref.
white	5	WS403
black	5	WS403N
titane	5	WS403T
antibacterial	5	WS403H



WS403

Quadruple horizontal frame

- 4 x 2 modules, dim. 80 x 293 mm, center distance 71 mm

Description	Pack qty.	Cat. ref.
white	1	WS404
black	1	WS404N
titane	1	WS404T
antibacterial	1	WS404H



WS404

Double vertical frame

- 2 x 2 modules, dim. 80 x 137 mm, center distance
57 mm

Description	Pack qty.	Cat. ref.
white	10	WS406
black	10	WS406N
titane	10	WS406T
antibacterial	10	WS406H

Double vertical frame

- 2 x 2 modules, dim. 151 x 80 mm, center distance
71 mm

Description	Pack qty.	Cat. ref.
white	5	WS408
black	5	WS408N
titane	5	WS408T
antibacterial	5	WS408H



WS407



WS407T

Triple vertical frame

- 3 x 2 modules, dim. 80 x 194 mm, center distance
57 mm

Description	Pack qty.	Cat. ref.
white	5	WS407
black	5	WS407N
titane	5	WS407T
antibacterial	5	WS407H



WS409

Triple vertical frame

- 3 x 2 modules, dim. 222 x 80 mm, center distance
71 mm

Description	Pack qty.	Cat. ref.
white	5	WS409
black	5	WS409N
titane	5	WS409T
antibacterial	5	WS409H



WS410

Horizontal 4 modules frame

- 4 modules, dim. 80 x 137 mm, center distance
57 mm

Description	Pack qty.	Cat. ref.
white	10	WS410
black	10	WS410N
titane	10	WS410T
antibacterial	10	WS410H

Horizontal 6 modules frame

- 6 modules, dim.: 80 x 194 mm, center distance 57 mm

Description	Pack qty.	Cat. ref.
white	5	WS411
black	5	WS411N
titane	5	WS411T
antibacterial	5	WS411H



WS411T

Horizontal 5 modules frame

- dim.: 80 x 150 mm, center distance 71 mm

Description	Pack qty.	Cat. ref.
white	10	WS412
black	10	WS412N
titane	10	WS412T
antibacterial	10	WS412H



WS412

Horizontal 8 modules frame

- dim.: 80 x 220 mm, center distance 71 mm

Description	Pack qty.	Cat. ref.
white	5	WS413
black	5	WS413N
titane	5	WS413T



WS413

Horizontal 4 modules frame

- dim.: 80 x 150 mm, center distance 71 mm

Description	Pack qty.	Cat. ref.
white	5	WS414
black	5	WS414N
titane	5	WS414T

Horizontal 6 modules frame

- dim.: 80 x 220 mm, center distance 71 mm

Description	Pack qty.	Cat. ref.
white	5	WS415
black	5	WS415N
titane	5	WS415T

Horizontal 16 modules frame

- 2 x 8 horizontal modules, dim.: 165 x 235 mm, center distance 71 mm

Description	Pack qty.	Cat. ref.
white	5	WS416
black	5	WS416N
titane	5	WS416T



WS416

Supports

- to use with 45 x 45 mechanisms in standard boxes flush and surface mounting
- suitable for multigang configuration - horizontal or vertical association
- glow wire test according to NF EN 60 695-2



WS450

WS451

Supports 2 modules

- equipped with painting protection

Description	Pack qty.	Cat. ref.
with screw	10	WS450
with claws-breakable	10	WS451
with screw-breakable	10	WS451S
universal with screw 45 x 45	10	WS461



WS452

Support 4 modules

- for frame WS410, center distance 57 mm

Description	Pack qty.	Cat. ref.
with screws	10	WS452



WS454

Support 5 modules

- for frame WS412, center distance 71 mm

Description	Pack qty.	Cat. ref.
with screws	10	WS454



WS453

Support 6 modules

- for frame WS411, center distance 57 mm

Description	Pack qty.	Cat. ref.
with screws	5	WS453

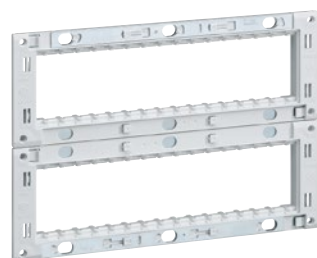


WS455

Support 8 modules

- for frame WS413, center distance 71 mm

Description	Pack qty.	Cat. ref.
with screws	5	WS455



WS456

Support 16 modules

- 2 x 8 horizontal modules, for frame WS416, center distance 71 mm

Description	Pack qty.	Cat. ref.
with screws	5	WS456

Surface boxes 1 gang

- to link with one systo support WS450

Description	Pack qty.	Cat. ref.
white	10	WS681
black	10	WS681N
titane	10	WS681T



WS681

Surface boxes 2 gangs

- center distance 71 mm
- to link with 2 systo supports WS450

Description	Pack qty.	Cat. ref.
white	5	WS682
black	5	WS682N
titane	5	WS682T

Surface boxes 3 gangs

- center distance 71 mm
- to link with 3 systo supports WS450

Description	Pack qty.	Cat. ref.
white	5	WS683
black	5	WS683N
titane	5	WS683T



WS683





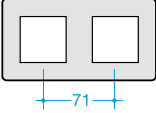
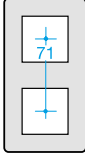
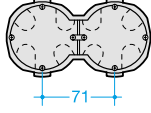
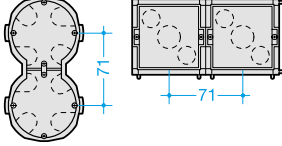
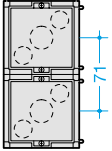
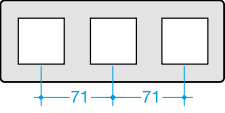
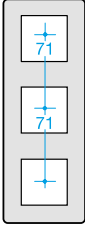
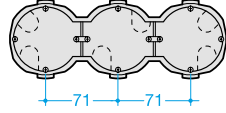
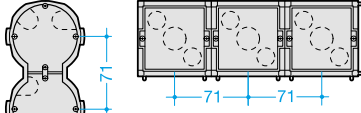
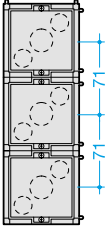
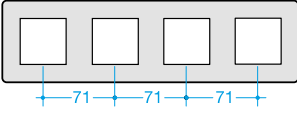
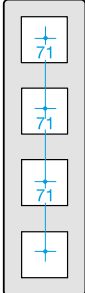
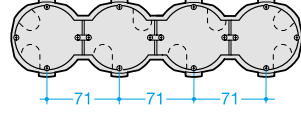
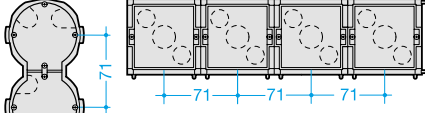
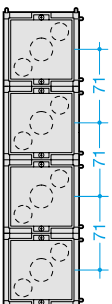
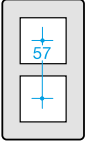
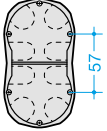
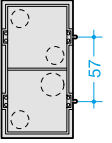
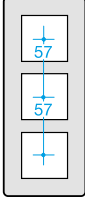
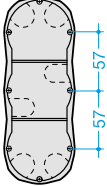
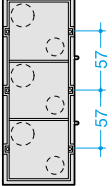
Surface boxes 8 gangs / 16 modules

- dim. 235 x 165 x 45 mm
- to link with 1 systo support WS456

Description	Pack qty.	Cat. ref.
white	1	WS686
black	1	WS686N
titane	1	WS686T



WS686

Frame	Hollow wall boxes depth : 40 mm	Masonry boxes depth : 40 mm
 <p>1 gang WE401 80 x 80 mm</p>		 
 <p>2 reversible gangs WE402 80 x 151 mm</p>	 	 <p>2 horizontal or vertical boxes</p> 
 <p>3 reversible gangs WE403 80 x 222 mm</p>	 	 <p>3 horizontal or vertical boxes</p> 
 <p>4 reversible gangs WE404 80 x 293 mm</p>	 	 <p>4 horizontal or vertical boxes</p> 
 <p>2 gangs WE406 137 x 80 mm</p>		
 <p>3 gangs WE407 194 x 80 mm</p>		

Controls

Options: Lamps for location or indication are suitable for all controls items with lamps or label holders.

Glow wire test according to NF EN 60 695-2

Connection capacity

quickconnect connection
- mini: 2 x 1mm² rigid wire
- maxi: 2 x 2,5mm² rigid wire

All push button mechanisms can be changed into 2-way switches by spring removing.

Possibility to add claws for all mechanisms with screw:
- short WK696
- long WK697

Complies with NF EN 60-669-1

IP2XC products

Switches 10 AX - 250 V quickconnect

Description	Pack qty.	Cat. ref. with screw	Pack qty.	Cat. ref. with claws (WK696)
1-way switch, white	10	WE000	10	WE000G
2-way switch, white	10	WE001	10	WE001G
2-way switch, titane	10	WE001T	-	-
2-way illuminated switch, delivered without lamps, white	10	WE002	10	WE002G
2-way illuminated switch, delivered without lamps, titane	10	WE002T	-	-
intermediate switch, white	10	WE010	-	-
intermediate switch, titane	10	WE010T	-	-
double 2-way switch, white	10	WE040	10	WE040G
double 2-way switch, titane	10	WE040T	-	-
double 2-way illuminated push button (can be changed into 2-way switch by spring removing), white	10	WE045	-	-
double 2-way illuminated push button (can be changed into 2-way switch by spring removing), titane	10	WE045T	-	-
set of 50 2-way switch WE001, white	1	WE00150	-	-
set of 50 2-way switch WE001, titane	1	WE00150T	-	-



WE000, WE001, WE010



WE002

Push buttons 10 AX - 250 V quickconnect

Description	Pack qty.	Cat. ref. with screw	Pack qty.	Cat. ref. with claws (WK696)
2-way push button NC/NO, white	10	WE022	10	WE022G
2-way push button NC/NO, titane	10	WE022T	-	-
2-way illuminated push button, white	10	WE023	10	WE023G
2-way illuminated push button, titane	10	WE023T	-	-
2-way illuminated push button with label holder, white *	10	WE025	10	WE025G
2-way illuminated push button with label holder, titane *	10	WE025T	-	-
double 2-way push button, white *	10	WE044	10	WE044G
double 2-way push button, titane *	10	WE044T	-	-
double 2-way illuminated push button, white *	10	WE045	-	-
double 2-way illuminated push button, titane*	10	WE045T	-	-
2-way push button + 2-way illuminated push button, white **	10	WE046	-	-
2-way push button + 2-way illuminated push button, titane **	10	WE046T	-	-



WE025



WE045

* can be changed into 2-way switch by spring removing

** can be changed into 2-way switch + 2 way illuminated switch by spring removing



WS690, WS692



WS691

Plug-in LED lamps

Description	Cons.	Pack qty.	Cat. ref.
1 - for location 250V AC blue,	0.4mA - 50000h	10	WS690
2 - for indication 250V AC, red	0.75mA - 50000h	10	WS691
3 - for location 12 - 24V DC, blue	0.4mA - 50000h	10	WS692



WJA690

Associable lamps

Description	Pack qty.	Cat. ref.
surface mounted lamp 250V blue 0.5mA	10	WJA690
surface mounted lamp 250V red 1mA	10	WJA691
surface mounted lamp 250V white 0.5mA	10	WJA692
surface mounted lamp 12/24V red	10	WJA693
surface mounted lamp 12/24V blue	10	WJA694
surface mounted lamp 12/24V white	10	WJA695

Sockets

Connection capacity

quickconnect connection:

- mini: 2 x 1mm² rigid wire
- maxi: 2 x 2,5mm² rigid wire

screw connection:

- maxi: 1 x 4mm² or 2 x 2,5mm² rigid wire

Complies with NF C 60-314-2 for : WE100, WE102, WE105, WE122,

WE123 references.

Glow wire test according to NF EN 60 695-2

Possibility to add claws for all mechanisms with screw:

- short WK696
- long WK697

IP2XC products

Sockets 16 A - 250 V, French standard

Description	Pack qty.	Cat. ref. with screw	Pack qty.	Cat. ref. with claws
2P+E, quickconnect , white	10	WE100	10	WE100G
2P+E, quickconnect , titane	10	WE100T	-	-
double 2P+E, quickconnect , white	10	WE122	-	-
double 2P+E, quickconnect , titane	10	WE122T	-	-
triple 2P+E, quickconnect , white	10	WE123	-	-
triple 2P+E, quickconnect , titane	10	WE123T	-	-
2P+E with mechanical keying, quickconnect	10	WE105	-	-
2P, screw connection, white	10	WE102	10	WE102G
2P, screw connection, titane	10	WE102T	-	-
set of 50 sockets 2P+E, WE100, white	1	WE10050	-	-
set of 50 sockets 2P+E, WE100, titane	1	WE10050T	-	-



WE100

Cable outlets

- for cable : Ø1,5 to 12mm

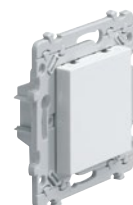
Description	Pack qty.	Cat. ref. with screw	Pack qty.	Cat. ref. with claws
universal, IP44, white	10	WE154	10	WE154G
universal, IP44, black	10	WE154C	-	-
universal, IP44, titane	10	WE154T	-	-
extraflat (not suitable for multigang), white	10	WE155	-	-
extraflat (not suitable for multigang), titane	10	WE155T	-	-
modulable (suitable for multigang), white	10	WE156	-	-
modulable (suitable for multigang), titane	10	WE156T	-	-



WE156

Accessories

Description	Pack qty.	Cat. ref. with screw	Pack qty.	Cat. ref. with claws
blank, white	10	WE157	-	-
blank, titane	10	WE157T	-	-
keying pin for plugs	-	-	10	WS697
short claws	-	-	50	WK696
long claws	-	-	50	WK697
airproof kit	-	-	20	WUZ155



WE157



WK696

Data sockets

Television sockets, suitable for:

- analog and digital reception
- reception through cable
- satellite reception

Wiring

- in series : a terminal resistance 75Ω must be mounted on the last socket
- in parallel : use direct socket

Complies with ISO 11801 ed. 2.0, EN 50173 for WE211 to WE226
NF EN 50083 UTE 90123 UTE 90125 for WE250 to WE259

Glow wire test according to NF EN 60 695-2

Possibility to add claws for all mechanisms with screw:

- short WK696
- long WK697



WE200

Telephone "T" socket

- 8 screw contacts

Description	Pack qty.	Cat . ref. with screw	Pack qty.	Cat. ref. with claws
white	10	WE200	-	-
titane	10	WE200T	-	-



WE214

RJ45 sockets category 5e

- D class at 100 MHz
- with label holder and anti-dust flap
- suitable for RJ11 and RJ12 sockets

- contact wiring without tools
- connection according to the standard colour code EIA/TIA 568A or B

Description	Pack qty.	Cat . ref. with screw	Pack qty.	Cat. ref. with claws
UTP, 8 pts, white	10	WE211	-	-
UTP, 8 pts, titane	10	WE211T	-	-
FTP, 9 pts for grade1, white	10	WE214	10	WE214G
FTP, 9 pts for grade1, titane	10	WE214T	-	-

RJ45 sockets category 6

- E class at 250 MHz
- with label holder and anti-dust flap
- suitable for RJ11 and RJ12 sockets

- contact wiring without tools
- connection according to the standard colour code EIA/TIA 568A or B

Description	Pack qty.	Cat . ref. with screw	Pack qty.	Cat. ref. with claws
UTP, 8 pts, white	10	WE220	-	-
UTP, 8 pts, titane	10	WE220T	-	-
FTP, 9 pts for grade1, white	10	WE223	10	WE223G
FTP, 9 pts for grade1, titane	10	WE223T	-	-
STP or SFTP 8 shielded points for grade 3, white	10	WE226	-	-
STP or SFTP 8 shielded points for grade 3, titane	10	WE226T	-	-

RJ45 sockets category 6a

- E class at 250 MHz
- with label holder and anti-dust flap
- suitable for RJ11 and RJ12 sockets

- contact wiring without tools
- connection according to the standard colour code EIA/TIA 568A or B

Description	Pack qty.	Cat . ref. with screw	Pack qty.	Cat. ref. with claws
STP 8 shielded points, white	10	WE228	-	-
STP 8 shielded points, titane	10	WE228T	-	-

USB sockets

- 5V DC / 1.2A

Description	Pack qty.	Cat . ref. with screw	Pack qty.	Cat. ref. with claws
double USB socket, white	10	WE111	-	-
double USB socket, titane	10	WE111T	-	-



WE111

Loudspeaker sockets

- quickconnect terminals

Description	Pack qty.	Cat . ref. with screw	Pack qty.	Cat. ref. with claws
single socket, white	10	WE290	-	-
single socket, titane	10	WE290T	-	-
double socket, white	10	WE291	-	-
double socket, titane	10	WE291T	-	-



WE290

Television sockets

- screw connection for a better coaxial cable maintain

Description	Pack qty.	Cat . ref. with screw	Pack qty.	Cat. ref. with claws
direct, white	10	WE250	10	WE250G
direct, titane	10	WE250T	-	-
type F, white	10	WE259	-	-
type F, titane	10	WE259T	-	-
double type F, white	10	WE258	-	-
double type F, titane	10	WE258T	-	-



WE250

TV+FM sockets

- screw connection for a better coaxial cable maintain

Description	Pack qty.	Cat . ref. with screw	Pack qty.	Cat. ref. with claws
direct, white	10	WE253	-	WE253G
direct, titane	10	WE253T	-	-



WE257

Sockets TV + FM + SAT

- screw connection for a better coaxial cable maintain

Description	Pack qty.	Cat . ref. with screw	Pack qty.	Cat. ref. with claws
direct 1 input, white	10	WE256	-	-
direct 1 input, titane	10	WE256T	-	-
direct 2 inputs, white	1	WE257	-	-
direct 2 inputs, titane	1	WE257T	-	-



WE257

Comfort controls

- Flush mounting
 - for switches, choose 40mm depth boxes
 - for dimmers and motion detectors, choose 50mm depth boxes

- Connection capacity
quickconnect connection
 - mini: 2 x 1mm² rigid wire
 - maxi: 2 x 2,5mm² rigid wire
 screw connection :
 - maxi: 2 x 2,5mm² rigid wire
 - maxi: 2 x 2,5mm² flexible wire

Complies with NF EN 60-669-1 for WE048, WE060, WE061
 Complies with NF EN 60-669-2 for WE050, WE051, WE060, WE061.

Glow wire test according to NF EN 60 695-2

Possibility to add claws for all mechanisms with screw:
 - short WK696
 - long WK697

IP2XC products



WE048

CMV control 10 A - 250 V AC, quickconnect

Description	Pack qty.	Cat. ref. with screw
2-way CMV switch, 2 speed level, white	1	WE048
2-way CMV switch, 2 speed level, titane	1	WE048T
2-way CMV push button, white	1	WE049
2-way CMV push button, titane	1	WE049T



WE050

Motion detectors without neutral (2 wires)

- 230 V AC / 50 Hz
- 60 ... 320 W/VA

In place of a one way switch with no additional wiring, suitable for :
 - incandescent and halogen lamps 230 V AC
 - ELV lamps with electronic transformer.
 Can be used as master in a configuration with several motion detectors.

Description	Pack qty.	Cat. ref. with screw
white	1	WE050
titane	1	WE050T



WE051

Motion detectors without neutral (3 wires)

- incandescent and halogen:
 230 V AC: 0 ... 1000 W
 other loads: 0 ... 500 VA

- incandescent and halogen lamps 230 V AC,
 - ELV lamps with electronic or ferromagnetic transformer
 - fluorescent lamps
 - CMV, fan...
 Can be used as master or slave in a configuration with several motion detectors.

Description	Pack qty.	Cat. ref. with screw
white	1	WE051
titane	1	WE051T



WE063, WE064

Dimmers

- automatically recognize load type (halogen, dimmable CFL, dimmable LED, electronic or ferromagnetic transformer, incandescent or halogen)

- 230V AC, 50/60 Hz
- incandescent and halogen lamps 230V AC, 20 to 275W
- dimmable LED or CFL, 3 to 70W
- ferromagnetic or electronic transformer, 20 to 250VA

Description	Pack qty.	Cat. ref. with screw
rotary dimmer, white	1	WE060
rotary dimmer, titane	1	WE060T
push button dimmer, white	1	WE061
push button dimmer, titane	1	WE061T

Comfort controls

Flush mounting
 - for switches choose 40mm depth boxes
 - for dimmers and motion detectors choose 50mm depth boxes

Connection capacity:
 Connection
 - mini: 2 x 1mm² rigid wire
 - maxi: 2 x 2,5mm² rigid wire
 Screw connection:
 - maxi: 2 x 2,5mm² rigid wire
 - maxi: 2 x 2,5mm² flexible wire

Complies with NF EN 60-669-1 for WE300, WE301.
 NF EN 60-730-2, NF EN 60-335-1
 NF EN 55-014-1, NF EN 61-000-3 for WE310.

Glow wire test according to NF EN 60 695-2

Possibility to add claws for all mechanisms with screw:
 - short WK696
 - long WK697

IP2XC products

Rolling shutters 10 A - 250 V AC, quickconnect

Description	Pack qty.	Cat. ref.
double 2-way switch with mechanical interlocking, white	1	WE300
double 2-way switch with mechanical interlocking, titane	1	WE300T
double 2-way push button for an automation management, white	1	WE301
double 2-way push button for an automation management, titane	1	WE301T



WE301

Electronic thermostats

- power supply: 230 V AC / 50 Hz
 - output: 2-way switch
 - adjustment range: +5°C to +30°C
 - accuracy: ± 0,5°C
 - output relay: 8 A - 250 V AC for
 - a power factor = 1

Description	Pack qty.	Cat. ref.
white	1	WE310
titane	1	WE310T



WE310

Clip-on frame

- UV resistant material with antistatic texture
- accurate mounting thanks to clip step
- slot to remove the frame on the side

Glow wire test according to NF EN 60 695



WE421

WE431



WE441

WE461



WE471

WE491

Horizontal/Vertical frames

- center distance: 71mm

Description	Pack. qty.	Cat. ref. single frame 80 x 80 mm	Pack. qty.	Cat. ref. double frame 80 x 151 mm	Pack. qty.	Cat. ref. triple frame 80 x 222 mm	Pack. qty.	Cat. ref. quadruple frame 80 x 293 mm
white	10	WE401	10	WE402	5	WE403	1	WE404
black	10	WE401N	10	WE402N	1	WE403N	1	WE404N
graphite	1	WE421	1	WE422	1	WE423	1	WE424
sisal	1	WE431	1	WE432	1	WE433	1	WE434
blue	1	WE441	1	WE442	1	WE443	1	WE444
bronze	1	WE461	1	WE462	1	WE463	1	WE464
red	1	WE471	1	WE472	1	WE473	1	WE474
titane	1	WE491	1	WE492	1	WE493	1	WE494



WE406

WE407N

Horizontal/Vertical frames

- center distance: 57mm

Description	Pack. qty.	Cat. ref. double frame 80 x 151 mm	Pack. qty.	Cat. ref. triple frame 80 x 222 mm
white	10	WE406	5	WE407
black	10	WE406N	1	WE407N
graphite	1	WE426	1	WE427
sisal	1	WE436	1	WE437
blue	1	WE446	1	WE447
bronze	1	WE466	1	WE467
red	1	WE476	1	WE477
titane	1	WE496	1	WE497

Single frames

Description	Cat. ref.
set of 50 single plates WE401, white	WE40150



WE416

16 modules frame

Description	Pack. qty.	Cat. ref.
2 x 8 horizontal modules, 165 x 235 mm, white	5	WE416
2 x 8 horizontal modules, 165 x 235 mm, titane	5	WE498



WE681

Surface boxes

Description	Pack. qty.	Cat. ref.
1 gang, halogen free, 80 x 80 x 40 mm, white	10	WE681
1 gang, halogen free, 80 x 80 x 40 mm, titane	10	WE681T
2 gangs, halogen free, 80 x 161 x 40 mm, center distance 71 mm, white	5	WE682
2 gangs, halogen free, 80 x 161 x 40 mm, center distance 71 mm, titane	5	WE682T



WE450

Frame support

Description	Pack. qty.	Cat. ref.
with screws, for 2 45 x 45 systo modules, white	10	WE450

Mechanisms IP55 controls

Glow wire test according to NF EN 60 695-2

Connection capacity quickconnect

- mini: 2 x 1mm² rigid wire
- maxi: 2 x 2,5mm² rigid wire

Complies with NF EN 60-669-1
Products IP55, IK07

Switches 10 AX - 250 V AC quickconnect

Description	Pack qty.	Cat. ref. grey	Pack qty.	Cat. ref. white
two way switch	10	WNA001	1	WNA001B
illuminated two way switch equipped with a lamp for locator use 250V 0.4mA - blue	10	WNA002	1	WNA002B
illuminated two way switch with neutral for indicator use equipped with a lamp for indicator use 250V 0.4mA - red	10	WNA003	1	WNA003B
two way switch with label holder	1	WNA006	1	WNA006B
two pole switch with lamp	10	WNA007	-	-
two pole switch with 0/1 marking	10	WNA008	1	WNA008B
rotary dimmer	1	WNA009	1	WNA009B
intermediate switch	1	WNA010	-	-



WNA002



WNA006B

Push buttons 10 A - 250 V AC quickconnect

Description	Pack qty.	Cat. ref. grey	Pack qty.	Cat. ref. white
NO contact	1	WNA020	1	WNA020B
illuminated changeover NO + NC contact equipped with a lamp for locator use 250V 0.4mA - blue	1	WNA021	1	WNA021B
changeover NO + NC contact	10	WNA022	1	WNA022B
illuminated NO contact for locator or indicator use equipped with a lamp for indicator use 250V 0.4mA - red	1	WNA023	1	WNA023B
NO contact with label holder equipped with a lamp for locator use 12-24V 0.4mA	10	WNA025	1	WNA025B



WNA020B



WNA025

Double switches 10 AX - 250 V AC quickconnect

Description	Pack qty.	Cat. ref. grey	Pack qty.	Cat. ref. white
double two way switch	10	WNA040	1	WNA040B
double two way switch with lamp equipped with a blue lamp 250V ; 0.4 mA	1	WNA041	1	WNA041B



WNA040B

Double push buttons 10 AX - 250 V AC quickconnect

Description	Pack qty.	Cat. ref. grey	Pack qty.	Cat. ref. white
double push button changeover NO + NC convertible into a two way switch +push button by spring removing	1	WNA044	1	WNA044B
double push button changeover NO + NC with lamp convertible into a two way switch +push button by spring removing equipped with a blue lamp 250V ; 0.4 mA	1	WNA045	1	WNA045B



WNA044

Mechanisms IP55 control comfort and sockets

Complies with NF C 60-314
Products IP55, IK07

Connection capacity quickconnect

- mini: 2 x 1mm² rigid wire
- maxi: 2 x 2.5mm² rigid wire



Emergency stop 10 A - 250 V AC

Description	Pack qty.	Cat. ref. grey	Pack qty.	Cat. ref. white
1NO + 1NC with key	1	WNA032	-	-
1NO + 1NC 1/4 turn	1	WNA033	-	-

WNA032

Adaptor

Description	Pack qty.	Cat. ref. grey	Pack qty.	Cat. ref. white
for push button, switch, pilot light , Ø 22.5 mm	1	WNA038	-	-



Key switches 10A - 250V AC

- RONIS key n°601

Description	Pack qty.	Cat. ref. grey	Pack qty.	Cat. ref. white
2 positions 1 - 2	1	WNA035	-	-
3 stay put positions 1 - 0 - 2 key withdrawal in all position	1	WNA036	-	-
3 positions 1 - 0 - 2 with spring return key withdrawal only in position 0	1	WNA037	1	WNA037B

WNA036



Rolling shutter controls 10 AX - 250 V AC quickconnect

Description	Pack qty.	Cat. ref. grey	Pack qty.	Cat. ref. white
2 gang shutter switch with mechanical interlocking	10	WNA300	1	WNA300B
2 gang shutter push button for an automation management	10	WNA301	1	WNA301B

WNA300



Sockets 16 A - 250 V AC quickconnect

Description	Pack qty.	Cat. ref. grey	Pack qty.	Cat. ref. white
2P + E	10	WNA100	1	WNA100B
2P + E with label holder	1	WNA104	1	WNA104B
2P + E with mechanical keying	1	WNA105	1	WNA105B
schuko sockets	10	WNA160	1	WNA160B

WNA100



WNA104

Adapters

- adapter for 2 modules wide format 45 x 45

Description	Pack qty.	Cat. ref. grey	Pack qty.	Cat. ref. white
for 45 x 45 systo basic mechanism (flush or surface mounting)	1	WNA450	-	-
for 45 x 45 systo tebis mechanism (flush or surface mounting)	1	WNA455	1	WNA455B



WNA450

Signalling 10 AX - 250 V AC

- 2 versions available:

- blank label : is used to give an information or for locator use
- printed label : is used to give a signaling

- brightness control thanks to an adjusting screw on the mechanisms

Description	Pack qty.	Cat. ref. grey	Pack qty.	Cat. ref. white
green/red lamp	1	WNA601	-	-
blue lamp	1	WNA602	-	-
white lamp	1	WNA603	-	-
blank label	1	WS604	-	-
stair label	1	WS605	-	-
lift label	1	WS606	-	-
WC label (man-woman-disabled)	1	WS607	-	-
room label (free-busy)	1	WS608	-	-
hotel label	1	WS609	-	-



WNA601 + WS609



WNA602 + WS606

Plugable lamps for locator use

- 0.4 mA max.

Description	Pack qty.	Cat. ref.
blue "I" form 250V	10	WUZ690
blue "I" form 12/24V	10	WUZ692
red "I" form 250V	10	WUZ695
red "I" form 12/24V	10	WUZ697
white "I" form 250V	10	WUZ698



WUZ692



WUZ698

Plugable lamps for indication use

- 0.75 mA max.

Description	Pack qty.	Cat. ref.
red "L" form 250V	10	WUZ691
blue "L" form 250V	10	WUZ696
white "L" form 250V	10	WUZ699



WUZ691



WUZ696

Cable outlets

Description	Pack qty.	Cat. ref. grey	Pack qty.	Cat. ref. white
for cable Ø 5 up to 12 mm	1	WNA155	1	WNA155B

Blank plates

Description	Pack qty.	Cat. ref. grey	Pack qty.	Cat. ref. white
for cable Ø 5 up to 12 mm	1	WNA157	1	WNA157B



WNA695

Lighting rings

- made for surface mounting products only
- can be fitted in place of the basic ring

Description	Pack qty.	Cat. ref.
Low light level		
white 230 V 0.3 mA	1	WNA695
white 12/24 V 0.3 mA (12 V) - 0.6 mA (24 V)	1	WNA696
double vertical lighting ring 230V 0.3 mA + 0.3 mA	1	WNA699
High light level		
blue 230 V 5 mA	1	WNA697
blue 12/24 V 2.5 mA (12 V) - 5 mA (24 V)	1	WNA698



WNA699



WUZ681



WUZ686

Plug in lamps

- according to the choosen lamp the product can be either an "indicator function" or a "locator function"
- LED with wires
- lifetime min. 50,000 h

Description	Cat. ref.
blue 250 V, consumption 0.4 mA max.	WUZ686
red 250 V, consumption 0.8 mA max.	WUZ681
blue 12/24 V, consumption 2.5 mA max.	WUZ682
red 12/24 V, consumption 2.8 mA max.	WUZ687



WK696

Claws

Description	Pack qty.	Cat. ref.
short claws	50	WK696
long claws	50	WK697

Surface mounting boxes

- available in white or in grey
- suitable for mechanisms IP55 to do single, double or triple complete surface mounting gangs

Flush mounting supports

- available in white or in grey
- suitable for mechanisms IP55 to do single, double or triple complete flush mounting gangs

Surface mounting boxes with glands M20

Description	Pack qty.	Cat. ref. grey	Pack qty.	Cat. ref. white
simple				
1 single entry: 1 x gland M20	1	WNA650	1	WNA650B
1 double entry: 2 x gland M20	1	WNA651	1	WNA651B
1 single entry: 1 x gland M20 1 single output: 1 x gland M20	1	WNA652	1	WNA652B
1 double entry: 2 x gland M20 1 single output: 1 x gland M20	1	WNA653	1	WNA653B
double vertical				
1 single entry: 1 x gland M20	1	WNA654	1	WNA654B
1 single entry: 1 x gland M20 1 single output: 1 x gland M20	1	WNA656	1	WNA656B
1 double entry: 2 x gland M20	1	WNA655	1	WNA655B
1 double entry: 2 x gland M20 1 single output: 1 x gland M20	1	WNA657	1	WNA657B
double horizontal				
1 single entry: 1 x gland M20	1	WNA658	1	WNA658B
1 double entry: 2 x gland M20	1	WNA659	1	WNA659B
fitting template				
for surface boxes	1	WNA692	-	-



WNA650



WNA651



WNA652



WNA653



WNA654



WNA656



WNA655



WNA657



WNA658



WNA659



WNA658



WNA659



WNA692

Surface mounting boxes

- available in white or in grey
- suitable for mechanisms IP55 to do single, double or triple complete surface mounting gangs

Flush mounting supports

- available in white or in grey
- suitable for mechanisms IP55 to do single, double or triple complete flush mounting gangs



WNA681

Surface mounting boxes

- made for surface mounting products only
- can be fitted in place of the basic ring
- top: one membrane for tube/cable entry



WNA682



WNA683



WNA686

Description	Pack qty.	Cat. ref. grey	Pack qty.	Cat. ref. white
bottom: one membrane with 2 cable entries				
1 gang	10	WNA681	10	WNA681B
2 horizontal gang	5	WNA682	5	WNA682B
3 horizontal gang	1	WNA683	1	WNA683B
2 horizontal gang 4 entries	5	WNA685	5	WNA685B
2 vertical gang	5	WNA686	5	WNA686B
bottom: one membrane for tube/cable entry				
1 gang	10	WNA690	-	-

Box accessories



WNA690



WNA691



WNA693



WNA694

Description	Pack qty.	Cat. ref. grey	Pack qty.	Cat. ref. white
2 cable entries	10	WNA690	10	WNA690B
cable or tube entry	10	WNA691	10	WNA691B
M20 glands for ø7 to 14 cable entry	10	WNA693	-	-
link boxes (to link vertical boxes together)	10	WNA694	-	-

Box accessories



WNA401



WNA402



WNA403

Description	Pack qty.	Cat. ref. grey	Pack qty.	Cat. ref. white
single	10	WNA401	10	WNA401B
horizontal double	5	WNA402	5	WNA402B
vertical double	5	WNA408	5	WNA408B
horizontal triple	1	WNA403	1	WNA403B

Complete surface mounting controls and sockets

Glow wire test according to NF EN 60 695-2
Products IP55, IK07

Connection capacity quickconnect

- mini: 2 x 1mm² rigid wire
- maxi: 2 x 2.5mm² rigid wire

Switches 10 AX - 250 V AC quickconnect

Description	Pack qty.	Cat. ref. grey	Pack qty.	Cat. ref. white
two way switch	10	WNC001	1	WNC001B
illuminated two way switch for locator use equipped with a blue lamp 250 V 0.4mA for locator use	1	WNC002	-	-
illuminated two way switch with neutral for indicator use equipped with a red lamp 250V 0.75mA for indicator use	1	WNC003	-	-
2 gang two way switch	1	WNC040	-	-
illuminated 2 gang two way switch for locator use	1	WNC041	-	-
2 gang one way switch with common entrance	1	WNC042	1	WNC042B
illuminated timer switch	1	WNC009	1	WNC009B



WNC001



WNC009

Push buttons 10 AX - 250 V AC quickconnect

Description	Pack qty.	Cat. ref. grey	Pack qty.	Cat. ref. white
NO contact	1	WNC020	1	WNC020B
illuminated changeover NO + NC contact equipped with a lamp 250 V AC for locator use	10	WNC021	1	WNC021B
changeover NO + NC contact	1	WNC022	-	-
illuminated NO contact for locator or indicator use equipped with a red lamp 250V for indicator use	10	WNC023	-	-
NO contact with label holder equipped with a blue lamp 12-24V for locator use	10	WNC025	1	WNC025B
double push button changeover NO + NC convertible into a two way switch+push button by spring removing	1	WNC044	-	-



WNC025

Key switches

Description	Pack qty.	Cat. ref. grey	Pack qty.	Cat. ref. white
emergency key switch	1	WNC032	-	-
emergency 1/4 turn	1	WNC033	-	-
2 positions 1 - 2 stay put, key withdrawal in all positions	1	WNC035	-	-
3 positions 1 - 0 - 2 stay put, key withdrawal in all positions	1	WNC036	-	-



WNC035

Sockets 16 A - 250 V AC quickconnect

Description	Pack qty.	Cat. ref. grey	Pack qty.	Cat. ref. white
2P + E	10	WNC100	-	-
horizontal double 2P+E pre-wired	5	WNC122	1	WNC122B
horizontal triple 2P + E pre-wired	1	WNC123	1	WNC123B
vertical double 2P + E pre-wired	5	WNC132	1	WNC132B
Schuko sockets	10	WNC160	-	-



WNC122



WNC100E



WNC100J



WNC100R



WNC100V

Sockets

Description	Pack qty.	Cat. ref. grey	Pack qty.	Cat. ref. white
2P + E with orange flap	1	WNC100E	-	-
2P + E with yellow flap	1	WNC100J	-	-
2P + E with red flap	1	WNC100R	-	-
2P + E with green flap	1	WNC100V	-	-
adaptor for systo tebis	1	WNC455	1	WNC455B



WNC155

Cable outlet

Description	Pack qty.	Cat. ref. grey	Pack qty.	Cat. ref. white
for cables Ø 5 to 12 mm	1	WNC155	1	WNC155B



XEVO80

witty e-vehicle socket

- 3.2 kW - 250V AC

Description	Pack qty.	Cat. ref. grey	Pack qty.	Cat. ref. white
2P + E	1	XEV080	-	-

Flush mounted controls and sockets

**Connection capacity
quickconnect connection**

- mini: 2 x 1mm² rigid wire
- maxi: 2 x 2.5mm² rigid wire

Complies with NF C 60-669-1, NF C 60-314
Glow wire test according to NF EN 60 695-2
IP55, IK07 products

Switches 10 AX - 250 V AC quickconnect

Description	Pack qty.	Cat. ref. grey	Pack qty.	Cat. ref. white
two way switch	10	WNE001	1	WNE001B
double two way switch	10	WNE040	1	WNE040B



WNE001

Push buttons 10 AX - 250 V AC quickconnect

Description	Pack qty.	Cat. ref. grey	Pack qty.	Cat. ref. white
illuminated NO contact for locator or indicator use equipped with a red lamp 250V for indicator use	10	WNE023	1	WNE023B
illuminated NO contact for locator or indicator use equipped with a blue lamp 12 V AC for indicator use	10	WNE025	1	WNE025B



WNE023B

Sockets 16 A - 250 V AC quickconnect

Description	Pack qty.	Cat. ref. grey	Pack qty.	Cat. ref. white
2P + E	10	WNE100	1	WNE100B
horizontal double 2P+E pre-wired	5	WNE122	1	WNE122B
horizontal triple 2P + E pre-wired	3	WNE123	3	WNE123B
vertical double 2P + E pre-wired	5	WNE132	5	WNE132B
Schuko sockets	10	WNE160	1	WNE160B



WNE100



WNE132B

Cable outlet

Description	Pack qty.	Cat. ref. grey	Pack qty.	Cat. ref. white
for cables Ø 5 to 12 mm	1	WNC155	1	WNC155B

Claws

Description	Pack qty.	Cat. ref.
short claws	50	WK696
long claws	50	WK697

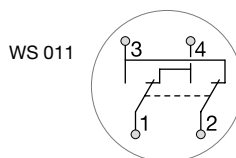
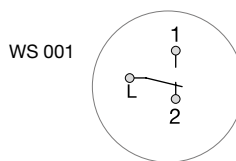
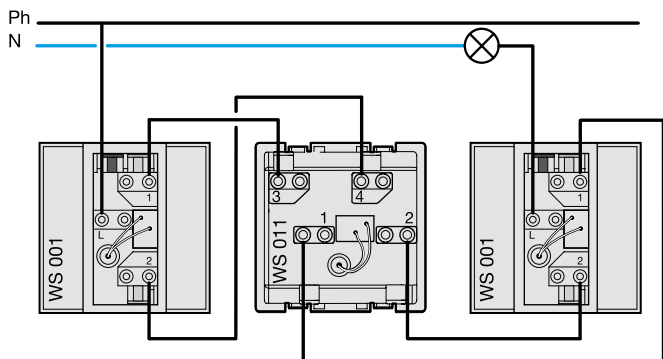


WK696

Controls

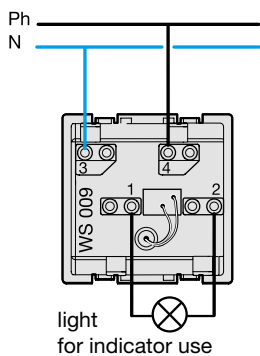
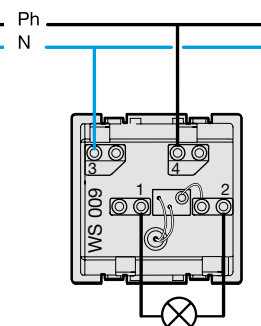
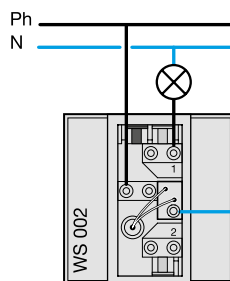
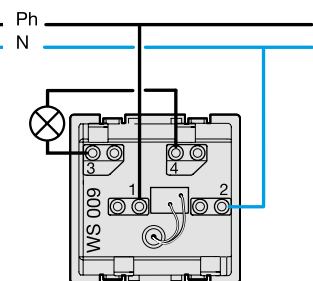
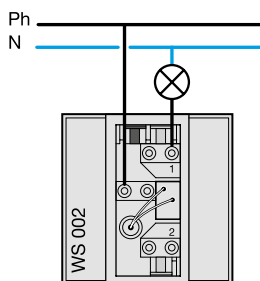
Wiring diagram

Illuminated intermediate switch WS011



- **WS690 or WS692** lamp or locator use with electrical connection for devices WS002, WS006, WS013, WS014, WS023, WS025, WS030, WS031 and WS009

- **WS691** lamp or locator use with electrical connection for devices WS002, WS006, WS013, WS014 and WS009

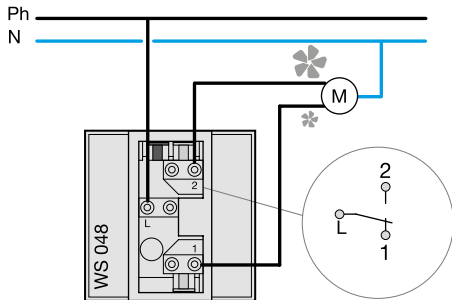


Technical specifications

Lighting function			Light for locator use		Light for indicator use
			- switch: lamp is lit when the load is power off	- push button or 2 pole switch: lamp is always lit	- switch: lamp is lit when the load is power on
	mechanisms		blue light 250 V AC	blue light 12-24 V DC	red light 250 V AC
Switches	1 module	2 modules			
- 2 ways switch	WS013	WS002	WS690	WS692	WS691
- 2 ways switch with label holder	WS014	WS006	WS690	WS692	WS691
- 2 pole switch with light indicator	-	WS009	WS690	WS692	WS691 (blue with lamp WS690)
- illuminated intermediate switch	-	WS011	WS690	WS692	-
Push buttons					
- illuminated push button 1NO+1NC	WS030	WS023	WS690	WS692	-
- push button 1NO+1NC with label holder	WS031	WS025	WS690	WS692	-
Socket outlet					
- 2P+E with red LED	WS103	-	-	-	WUZ694







CMV control

WS048: 2 speeds without stop position



Dimmer switches

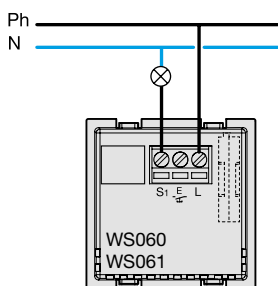
Technical characteristics

Load	WS060 rotary switch dimmer	WS061 push button dimmer
halogen or incandescent lamps 230V  	20 to 275 W	20 to 275 W
ELV halogen lamps supplied by ferromagnetic transformer  	20 to 250 VA	20 to 250 VA
ELV halogen lamps supplied by electronic transformer  	20 to 250 VA	20 to 250 VA
LED and CFL lamps	3 to 70 W	3 to 70 VA
Characteristics		
overload protection	electronic	electronic
standby power consumption	0.1 W	0.1 W
lighting level storage	yes	yes
softstart / softstop	yes	yes
latching relay function / remote dimmer	yes	yes

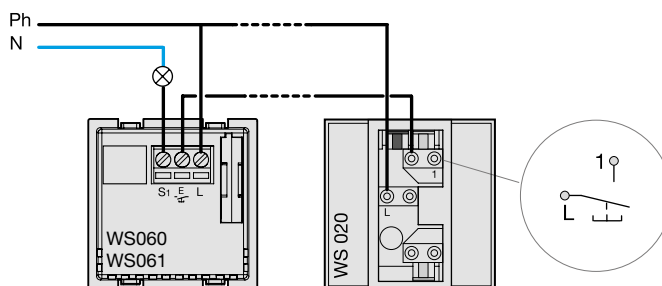
European switches and sockets

Wiring diagram

- to substitute a switch



- to substitute a 2 way switch:
possibility to connect push buttons (type WS022) on the input E.
They will have the same function as the dimmer itself.



← 40 m maxi →

Working principle if push buttons are associated to a dimmer:
- short press: switching on / switching off (variation level storage)
- long press: variation, each press invert the variation sense
- push buttons cannot be equipped with light indicator.

Motion detectors

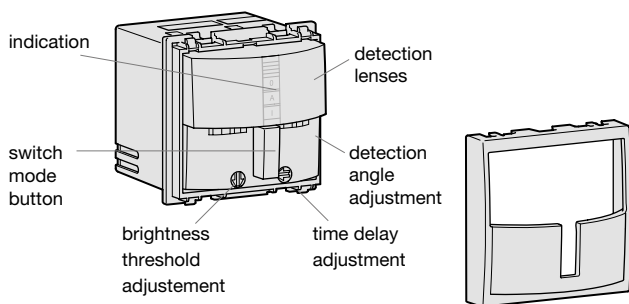
Technical characteristics

Load	WS050	WS051
halogen or incandescent lamps 230V	60 to 320 W	0 to 1000 W
ELV halogen lamps supplied by ferromagnetic transformer		0 to 500 VA
ELV halogen lamps supplied by electronic transformer	60 to 320 VA	0 to 500 VA
fluorescent lamps		0 to 500 VA

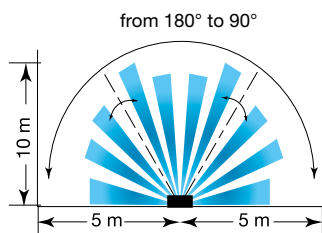
Characteristics

brightness threshold	5 to 800 lux (possibility to disable)	
time delay	2 s to 30 min	
detection angle	90° to 180°	
overload protection	electronic	
overcurrent protection	electronic	fuse F 4A H
use as master	yes	yes
use as slave	no	yes
remote timer function	yes	yes

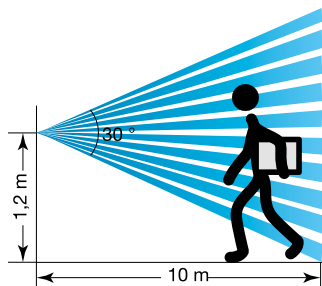
Product presentation



Detection area



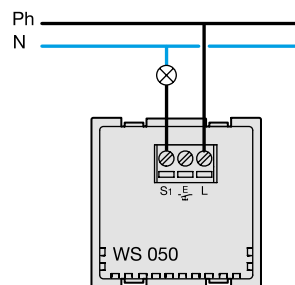
left and right area adjustment



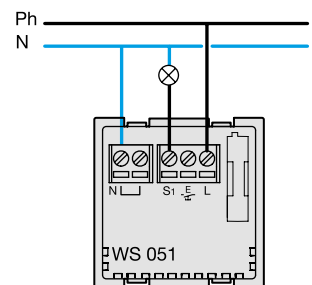
limitation of detection area with potentiometers on test position

Wiring diagram

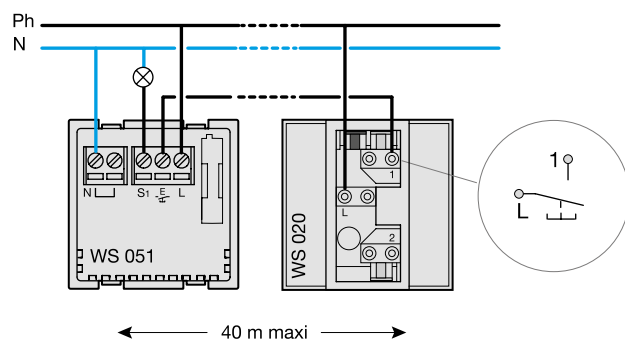
- 2 wire version to substitute a switch



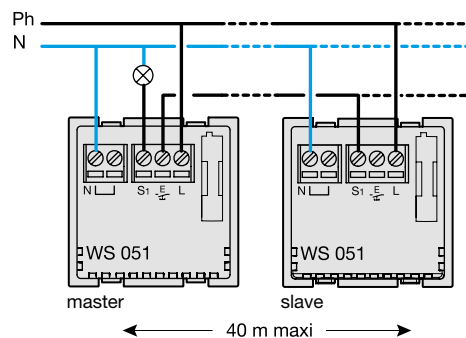
- 3 wire version without minimal load



- possibility to add push buttons on input "E" to force the switching on (see wiring)



- extension of detection area



Product description

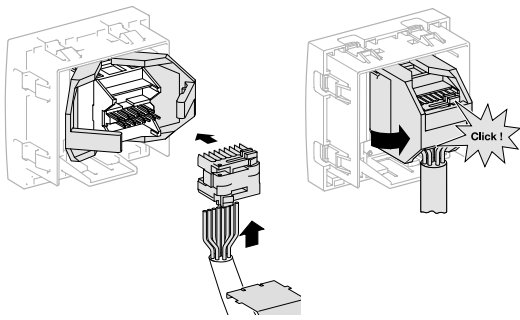
Adjustment of brightness threshold:

- manual: through potentiometer
- automatic: the threshold corresponds to the current room brightness.

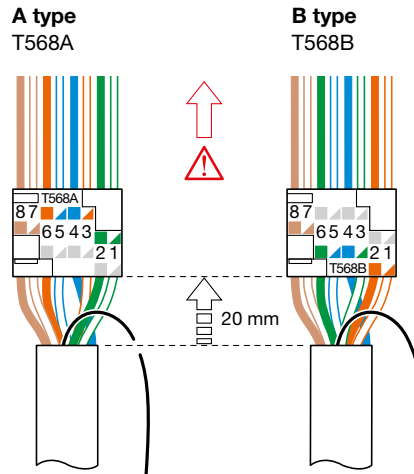
Selection of the mode through short press on button:

- automatic mode: release when passage detection, and brightness lower than threshold,
- Forced switching on and off,
- temporary forcing: lighting on during 2 hours then returns to the automatic mode,
- security: this mode disable the selection by press on the front button.

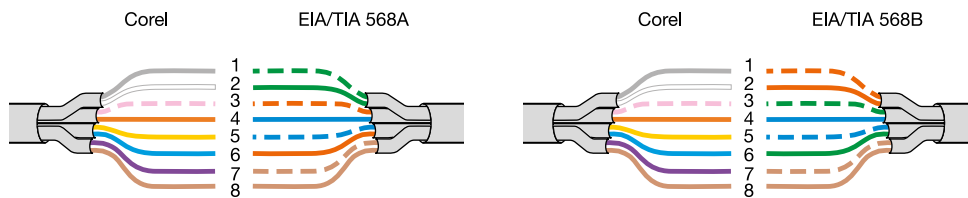
RJ45 sockets connection



Wiring diagram



Agreement conformity between Corel/EIA-TIA



Residential wiring recommendation according to UTE-C 90 483

	grade 1 telcom service	phone + LAN	grade 3 multiservices	multimedia
cable	grade 1		grade 3	
connector	category 5 e FTP		category 6 STP	
systo reference	1 module 2 modules	WS213 WS214	WS225 WS226	
analog voice transmission				
RNIS digital voice transmission + internet				
internet ADSL				
local network 100Mbits/s				
video, digital TV (analog by telcom line)				
local network 1Gbit/s				
analog and digital TV (VHF/UHF)				
satellite TV				

advisable
 adapted
 minimal
 unadapted

TV sockets

Technical specification

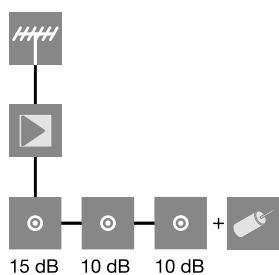
ref.	type	dB	75Ω		direct current (1)	back	band 1	FM	VHF	UHF	SAT
					mA	4-30 MHz	47-68 MHz	87,5-108 MHz	120-470 MHz	470-862 MHz	950-2400 MHz
WS250	direct socket	< 1 dB				TV		-	TV		-
WS251	terminal socket	10 dB	yes								
WS252	socket	15 dB	yes								
WS253	direct socket	< 1 dB				TV		FM	TV		-
WS254	terminal socket	10 dB	yes								
WS255	socket	15 dB	yes								
WS256	1 inlet				500 mA	TV		FM	TV		SAT
WS257	2 inlets				500 mA						

(1) amplifier or LNB satellite remote power feeding

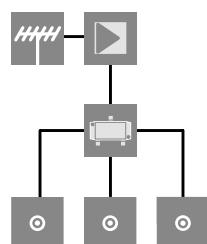
House



Simple TV socket



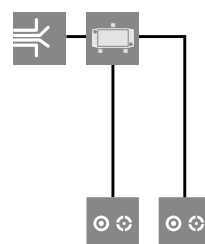
Simple TV socket



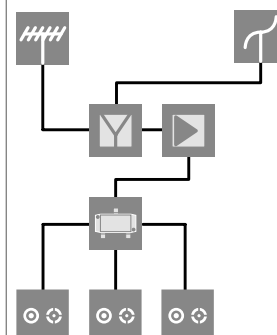
Simple TV socket



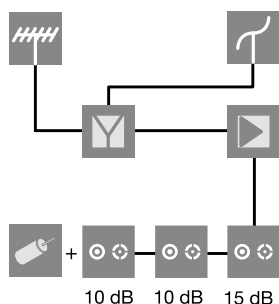
TV - FM socket wired network



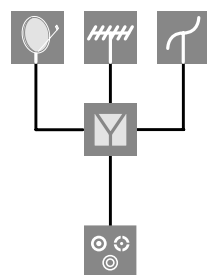
TV - FM socket hertzian reception



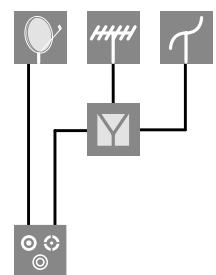
TV - FM socket



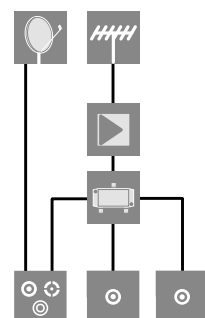
TV - FM - SAT socket 1 inlet



TV - FM - SAT socket 2 inlets



TV - FM - SAT socket + simple TV socket

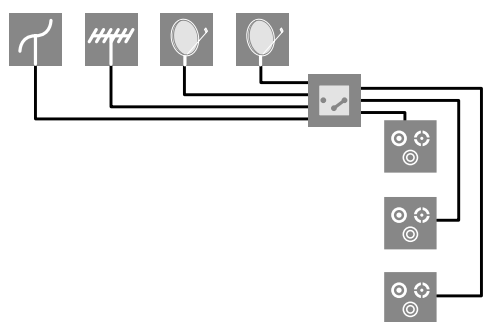


- parabolic antenna for satellite reception
- hertzian antenna for TV
- hertzian antenna for FM
- wiring network
- switch for satellite antenna
- antenna band mixer
- amplifier
- splitter
- TV socket
- TV - FM socket
- TV - FM - SAT socket
- terminal resistance 75Ω

Block of flats



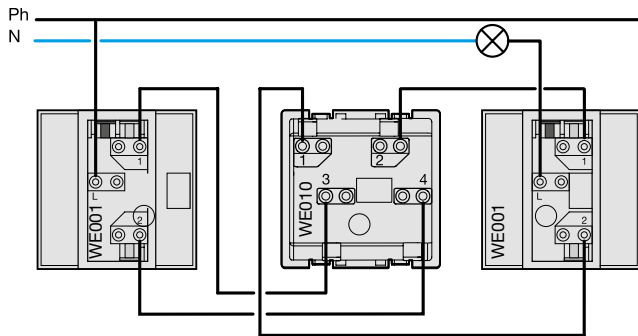
TV - FM - SAT socket



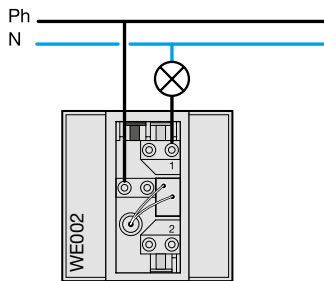
Controls

Circuit diagram

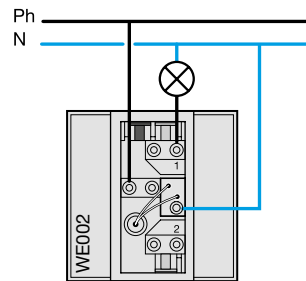
- **Illuminated intermediate switch WE010**



- **WS690 or WS692** lamps for locator use with connector for devices WE002, WE023, WE025, WE045



- **WS691** lamp for indicator use with connector for devices WE002, WE023, WE025, WE045

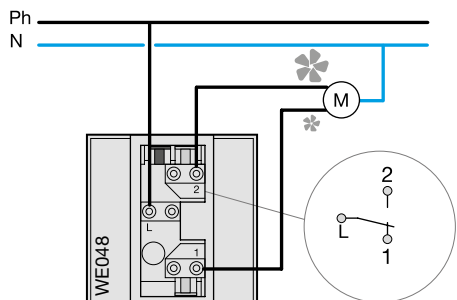


Technical specifications

Lighting function	Light for locator use		Light for indicator use	
	- switch: lamp is lit when the load is power off - push button or 2 pole switch: lamp is always lit		- switch: lamp is lit when the load is power on	
	mechanisms	blue light 250 V AC	blue light 12-24 V DC	red light 250 V AC
Switches				
- illuminated 2 way switch	WE002	WS690	WS692	WS691
- illuminated 2 gang 2 way single way	WE045	WS690	WS692	WS691
Push buttons				
- illuminated push button 1NO+1NC	WE023	WS690	WS692	-
- push button 1NO+1NC with label holder	WE025	WS690	WS692	-
- illuminated 2 gang 2 way single way	WE045	WS690	WS692	WS691




CMV control

WE048: 2 speeds without stop position



Dimmer switches

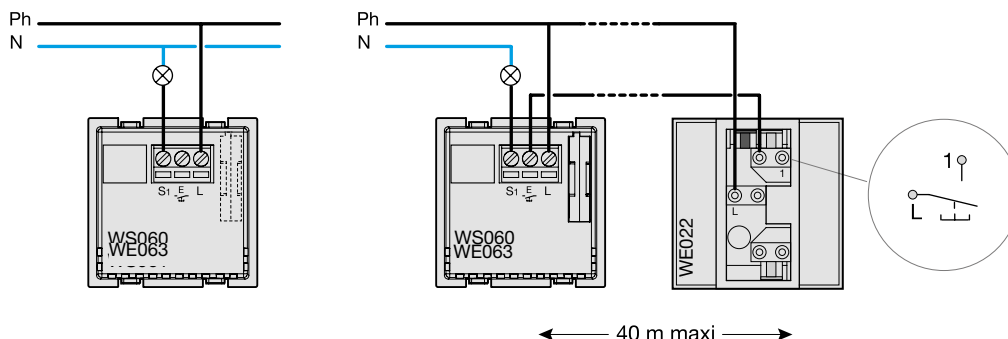
Technical characteristics

Load	WE060 rotary switch dimmer	WE061 push button dimmer
halogen or incandescent lamps 230V 	20 to 275 W	20 to 275 W
ELV halogen lamps supplied by ferromagnetic transformer 	20 to 250 VA	20 to 250 VA
ELV halogen lamps supplied by electronic transformer 	20 to 250 VA	20 to 250 VA
LED and CFL lamps	3 to 70 W	3 to 70 VA
Characteristics		
overload protection	electronic	electronic
standby power consumption	0.1 W	0.1 W
lighting level storage	yes	yes
softstart / softstop	yes	yes
latching relay function / remote dimmer	yes	yes

Wiring diagram

- to substitute a switch

- to substitute a 2 way switch:
possibility to connect push buttons on the input E. They will have the same function as the dimmer itself.



Working principle if push buttons are associated to a dimmer:
 - short press: switching on / switching off (variation level storage)
 - long press: variation, each press invert the variation sense
 - push buttons cannot be equipped with light indicator.

Motion detectors

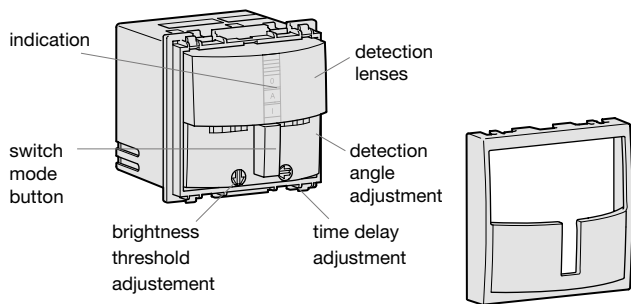
Technical specifications

Load	WE050	WE051
halogen or incandescent lamps 230V	60 to 320 W	0 to 1000 W
ELV halogen lamps supplied by ferromagnetic transformer		0 to 500 VA
ELV halogen lamps supplied by electronic transformer	60 to 320 VA	0 to 500 VA
fluorescent lamps		0 to 500 VA

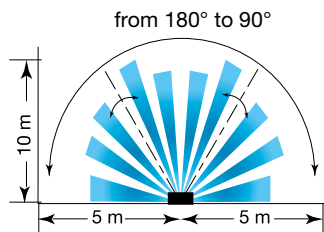
Characteristics

brightness threshold	5 to 800 lux (possibility to disable)	
time delay	2 s to 30 min	
detection angle	90° to 180°	
overload protection	electronic	
overcurrent protection	electronic	fuse F 4A H
use as master	yes	yes
use as slave	no	yes
remote timer function	yes	yes

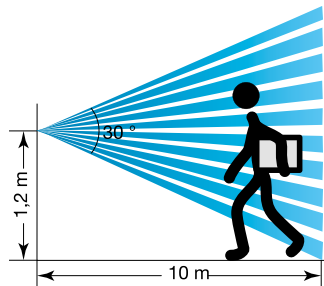
Product presentation



Detection area



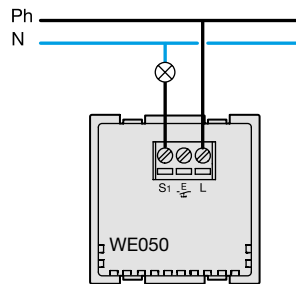
left and right area adjustment



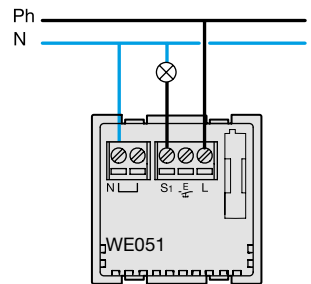
limitation of detection area with potentiometers on test position

Wiring diagram

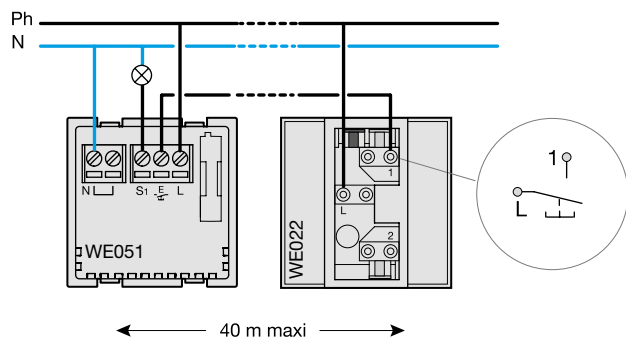
- 2 wire version to substitute a switch



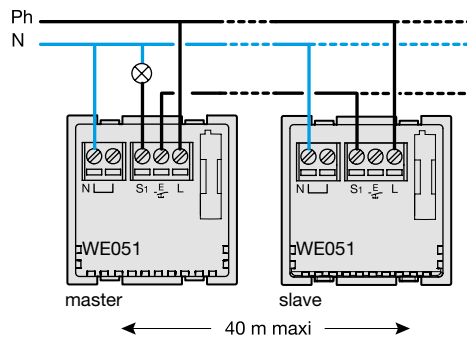
- 3 wire version without minimal load



- possibility to connect push button on input "E" to force the switching on (see wiring)



- extension of detection area



Product description

Adjustment of brightness threshold:

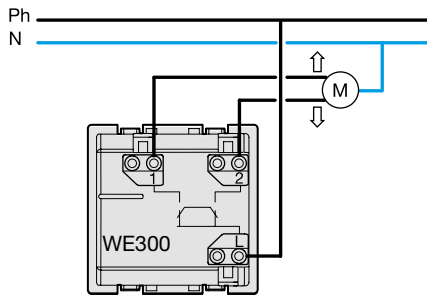
- manual: through potentiometer
- automatic: the threshold corresponds to the current room brightness.

Selection of the mode through short press on button:

- automatic mode: release when passage detection, and brightness lower than threshold,
- Forced switching on and off,
- temporary forcing: lighting on during 2 hours then returns to the automatic mode,
- security: this mode disable the selection by press on the front button.

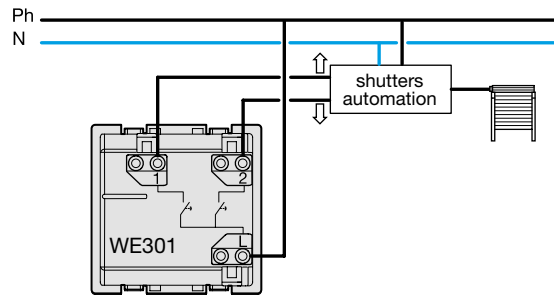
Shutters control: WE300

double 2 way switch: to control shutter motor directly

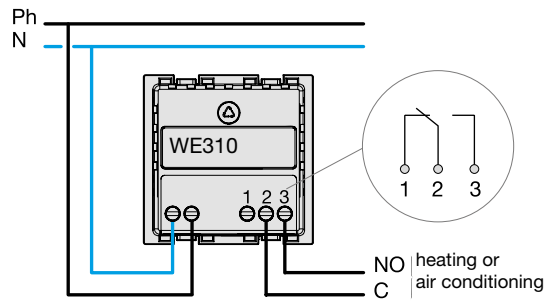
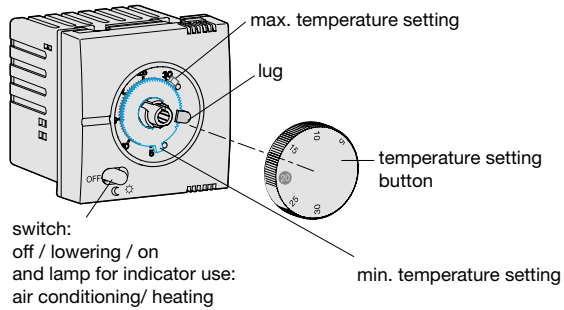


Shutters control: WE301

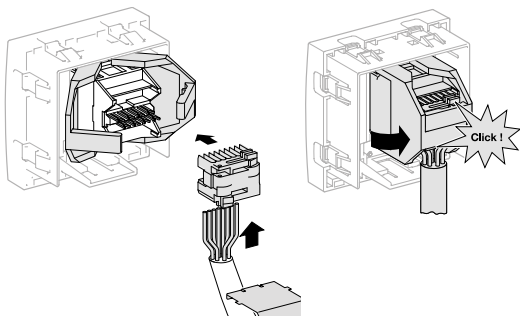
double push button for an automation management



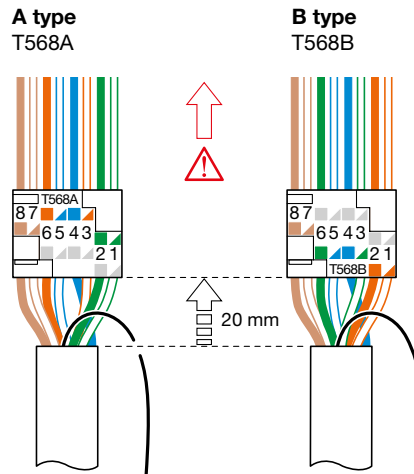
Room thermostat WE310



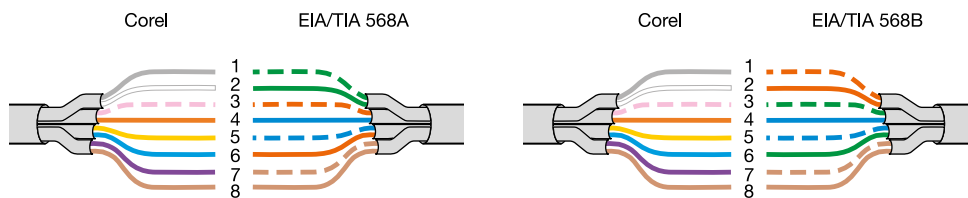
RJ45 sockets connection



Wiring diagram



Agreement conformity between Corel/EIA-TIA



Residential wiring recommendation according to UTE-C 90 483

	grade 1 telcom service	phone + LAN	grade 3 multiservices	multimedia
cable	Grade 1		Grade 3	
connector	FTP		STP	
essensya reference	WE214		WE226	
analog voice transmission				
RNIS digital voice transmission + internet				
internet ADSL				
local network 100Mbits/s				
video, digital TV (analog by telcom line)				
local network 1Gbit/s				
analog and digital TV (VHF/UHF)				
satellite TV				

advisable
 adapted
 minimal
 unadapted

TV sockets

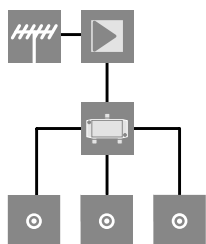
Technical specification

ref.	type	dB	75Ω	direct current (1)	back	band 1	FM	VHF	UHF	SAT
				mA	MHz	MHz	MHz	MHz	MHz	
WE250	direct socket	< 1 dB			4-30	47-68	87,5-108	120-470	470-862	950-2400
WE253	direct socket	< 1 dB			MHz	MHz	MHz	MHz	MHz	MHz
WE256 WE257	1 inlet 2 inlets			500 mA 500 mA	TV		FM	TV		SAT
WE259	1 inlet 2 inlets									SAT

(1) amplifier or LNB satellite remote power feeding

House

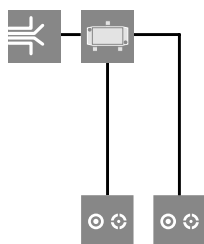
Simple TV socket



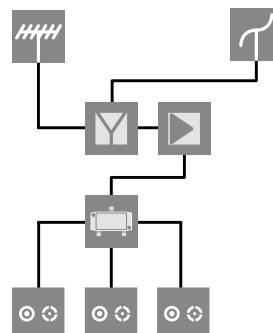
Simple TV socket



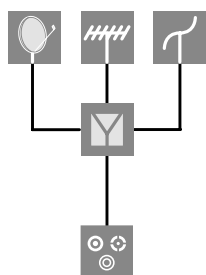
Simple TV socket wired network



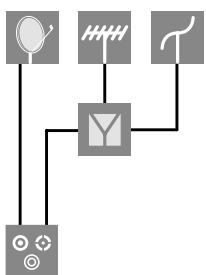
TV - FM socket hertzian reception



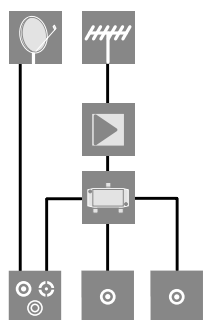
TV - FM - SAT socket 1 inlet



TV - FM - SAT socket, 2 inlets



TV - FM - SAT socket + simple TV socket



parabolic antenna for satellite reception

hertzian antenna for TV

hertzian antenna for FM

wiring network

switch for satellite antenna

antenna band mixer

amplifier

splitter

TV socket

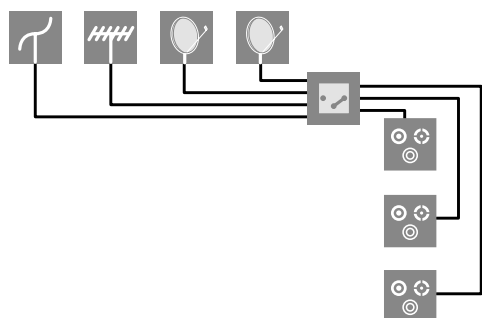
TV - FM socket

TV - FM - SAT socket

terminal resistance 75Ω

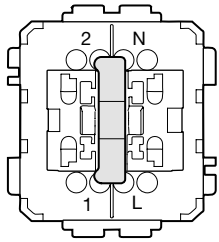
Block of flats

TV - FM - SAT socket

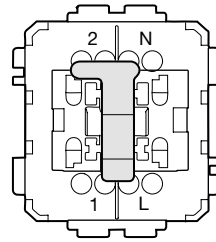


Lamps plug-in

WNA002, WNA002B, WNA006, WNA006B, WNA021,
WNA021B, WNA023, WNA023B, WNA025, WNA025B, WNC021,
WNC023, WNC025, WNE023, WNE023B, WNE025, WNE025B

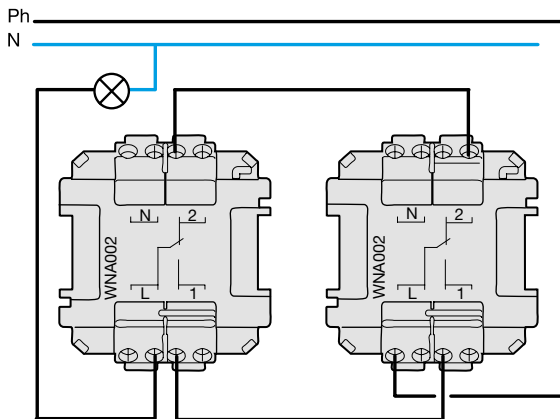


WNA003, WNA003B, WNC003



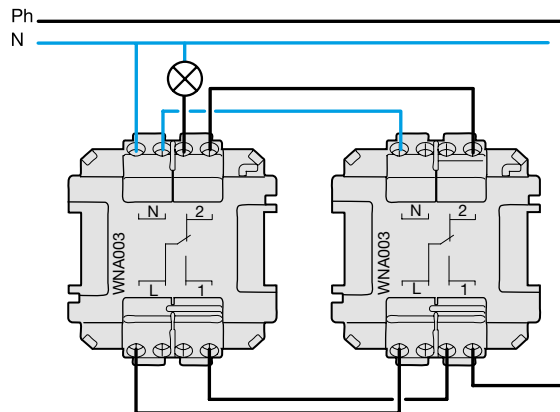
Wiring diagram

WNA002, WNA002B, WNA006, WNA006B,
Illuminated two way switch for locator use



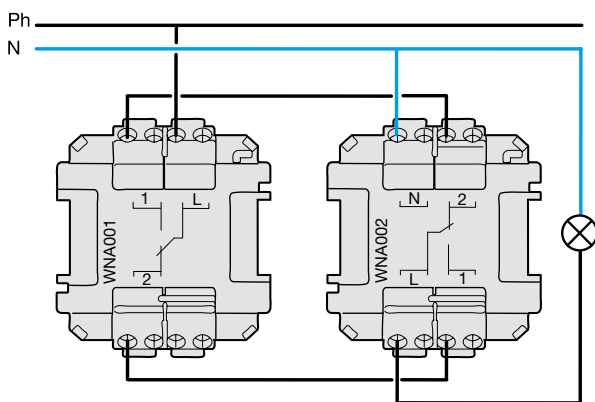
WNA003, WNA003B, WNC003

Illuminated two way switch with neutral for indicator use

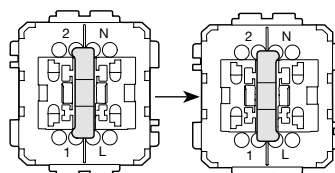


WNA001, WNA002

two way switch for indicator use with : WNA001 (single two way switch) and WNA002 (two way switch equipped with a lamp for locator use) - only one controle point with a two way switch for indicator use possible



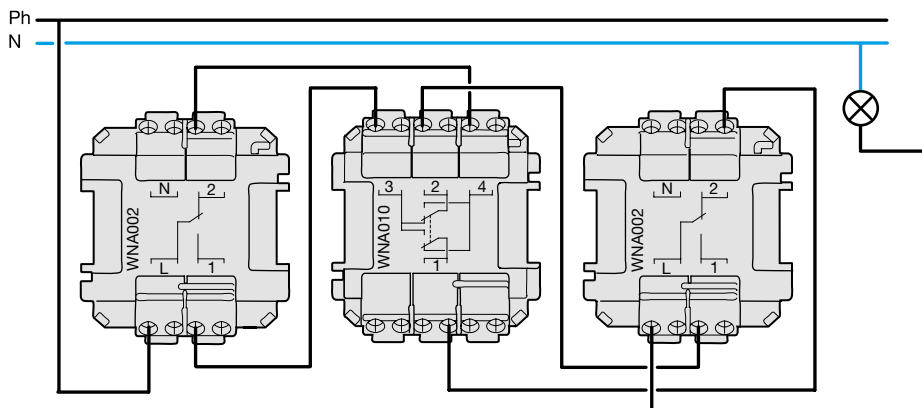
reverse the plug-in direction in order to plug between L and N



Wiring diagram

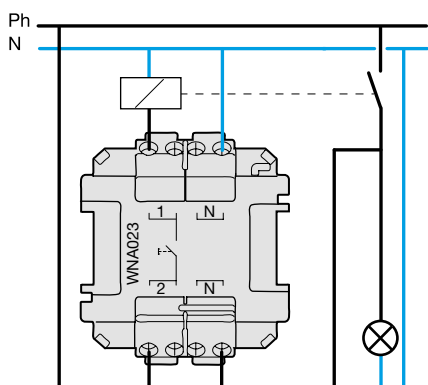
WNA002, WNA010

Intermediate switch wiring (Illuminated switch only for WNA002)



WNA023

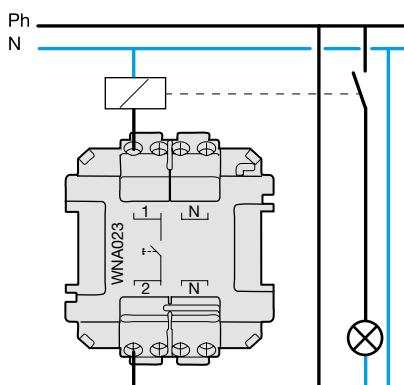
Illuminated push button with lamp for indicator use



Lamp already connected between N / N

WNA023

Illuminated push button with lamp for locator use



Lamp plug-in between 1 / 2



Technical specifications

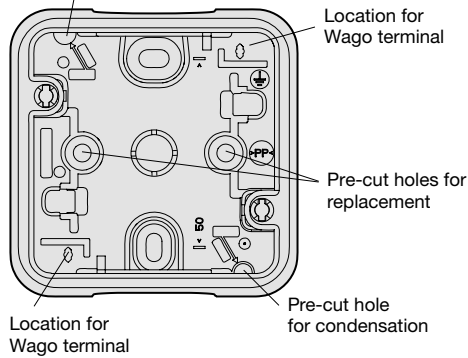
	for locator use			for indicator use			
	lamp 250V	lamp 24V	connection	lamp 250V	lamp 24V	connection	
Switches							
Illuminated (for locator use) two way switch + neutral	WNA002x WNA006x	WUZ690 blue WUZ695 red WUZ698 white	WUZ692 blue WUZ697 red	1 / 2	WUZ691 red WUZ696 blue WUZ699 white	-	N / 2
Illuminated (two way switch with neutral)	WNA003x WNC003	WUZ690 blue WUZ695 red WUZ698 white	WUZ692 blue WUZ697 red	1 / 2	WUZ691 red WUZ696 blue WUZ699 white	-	N / 2
Push buttons							
Illuminated NO contact with neutral (for locator use)	WNA021x WNC021	WUZ690 blue WUZ695 red WUZ698 white	WUZ692 blue WUZ697 red	1 / 2	-	-	-
Illuminated NO contact with label holder (for locator use)	WNA025x WNC025 WNE025x	WUZ690 blue WUZ695 red WUZ698 white	WUZ692 blue WUZ697 red	1 / 2	-	-	-
Illuminated NO contact (for locator or indicator use)	WNA023x WNC023 WNE023x	WUZ690 blue WUZ695 red WUZ698 white	WUZ692 blue WUZ697 red	1 / 2	WUZ690 blue WUZ695 red WUZ698 white	WUZ692 blue WUZ697 red	N / N

References in **bold** : products are equipped with a lamp

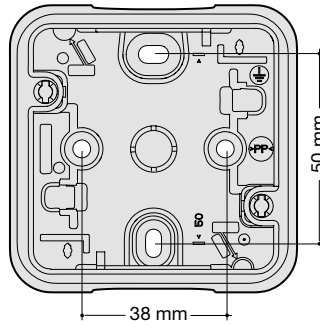
Surface-mounted box

Description

Pre-cut hole for condensation



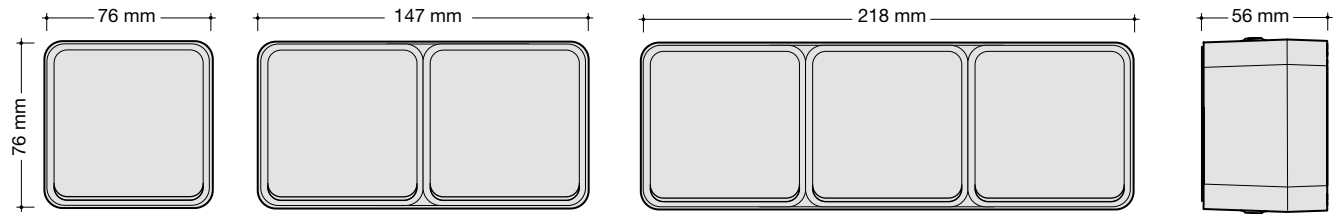
Mounting



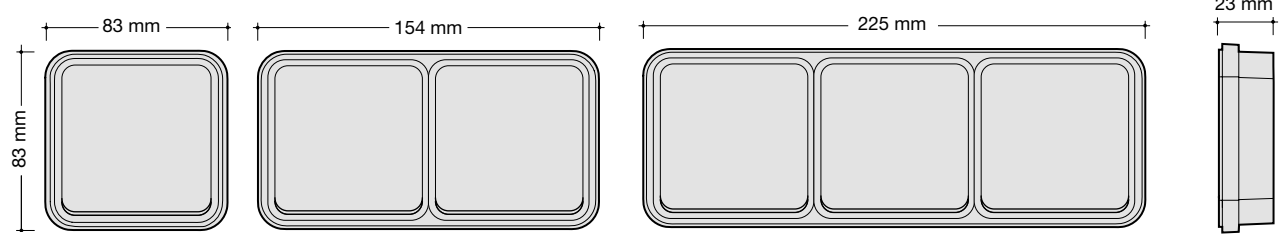
Break the pre-cut hole with a screwdriver. The hole enables condensation to escape. This change the IP from IP55 to IP44

Dimensions

Surface-mounted

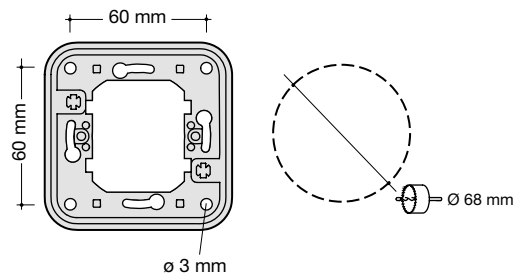


Flush-mounted



Hollow-wall mounting without boxes

Flush-mounted



Technical specifications

Protection rating	IP55 and IK07
Resistance to hot and cold (storage)	-40° C to +60° C
Resistance to hot and cold (in use)	-40° C to +60° C
Ultraviolet resistance	500 hours at 550 W/m ²
Resistance to saline fog	7 days (168 h)
Resistance to a glowing wire	850° C - complies with NF EN 60 695-2
Maintenance	Clean with a damp cloth or soapy water. Do not use trichloroethylene For all other products, make a test beforehand
RAL : Grey version	Boxes, brackets and trims: RAL 7011 Collar: RAL 7035
RAL : White version	RAL 9010
Material	Polypropylene

Resistance to chemicals at 20°C

Acetic acid 10 %	+	Flour	+	Sea water	+
Acetic acid 50 %	+	Food oil	+	Shampoo	+
Acetic anhydride	+	Formic acid	+	Silver salt	+
Acetone	+	Fructose	+	Soap	+
Aluminium	+	Fruit juice	+	Soda water	+
Aluminium salt	+	Gelatin	+	Sodium	+
Ammonia	+	Gin	+	Sodium acetate	+
Ammonium acetate	+	Glucose	+	Sodium carbonate	+
Ammonium carbonate	+	Glycol	+	Sodium chloride (salt)	+
Ammonium chloride	+	Glycerine	+	Sodium hypochlorite 13%	-
Ammonium nitrate	+	Honey	+	Sodium nitrate	+
Ammonium phosphate	+	Hydrochloric acid 10 %	+	Sodium phosphate	+
Ammonium sulfate	+	Hydrochloric acid 36 %	+	Sodium sulfate	+
Amyl acetate	+	Hydrochloric acid 40 %	+	Stearic acid	+
Amyl alcohol	+	Hydrogen	+	Sugar	+
Aniline	+	Isopropyl alcohol	+	Sulfite salt	+
Antifreeze	+	Jam	+	Sulfur	+
Barium	+	Kerosene	-	Sulfuric acid 10%	+
Battery acid	+	Lactic Acid	+	Sulfuric acid 85%	+
Beer	+	Magnesium salt	+	Tar	+
Bees-wax	+	Margarine	+	Tartaric acid	+
Benzene	-	Mayonnaise	+	Tea	+
Benzoic acid	+	Mercury	+	Toothpaste	+
Benzyl alcohol	+	Methyl alcohol (methanol)	+	Trichlorethylene	-
Boric acid	+	Milk	+	Turpentine	-
Brake fluid	+	Mineral oil	+	Urine	+
Bromid	+	Motot oil	+	Vaseline	+
Butane	+	Mustard	+	Vegetables	+
Butter	+	Nitric acid 25%	+	Vinegar	-
Calcium carbonate	+	Nitric acid 50%	-	Washing-up liquid	+
Carbonate salt	+	Oleic acid	+	Water	-
Cheese	+	Olive oil	+	Whisky	+
Chloride	-	Oleic acid	+	White spirit	+
Chlorinated lime	+	Ozone	+	Wine	+
Chloride salt	+	Palm oil	+	Zinc salt	+
Chlorinated water (liquid, gaseous)	-	Parafin	+		
Chloroform	+	Perfume	+		
Citric acid	+	Petroleum, petroleum ether	-		
Cocoa	+	Phenol	+		
Coffee	+	Phosphoric acid	+		
Copper salt	+	Phosphorus	+		
Cream	+	Potassium	+		
Detergent	+	Propane	+		
Ethyl acetate	+	Rum	+		
Ethyl alcohol	+	Salt	+		

+: Good resistance
- : Unstable

Energy and lighting control

Energy and lighting control product range, like automatic management of lighting, timers, dimmers and time switches allow to optimise energy consumption while increasing comfort in residential and commercial premises.



Selection guide	16.2
Motion detectors	16.10
Presence detectors	16.12
LED floodlights	16.14
Time lag switches	16.16
Modular dimmers	16.17
Twilight switches and astronomical switches	16.20
Digital time switches	16.22
Analogue time switches	16.24
Technical guide	16.26

Motion detectors

Wall mounting

Wiring accessories

180°

2 wires

WE050⁽¹⁾
page 15.32



WS050⁽²⁾
page 15.10



3 wires

WE051⁽¹⁾
page 15.32



WS051⁽²⁾
page 15.10



Standard IP55

140°

EE820
white
page 16.10



EE821
anthracite
page 16.10



200°

EE830
white
page 16.10



EE831
anthracite
page 16.10



360°

EE840
white
page 16.10



EE841
anthracite
page 16.10



Enhanced IP55

140°

EE850
white
page 16.10



EE851
anthracite
page 16.10



220°

EE860
white
page 16.10



EE861
anthracite
page 16.10



Accessories

Ceiling mounting accessories

EE827
white
page 16.10



EE828
anthracite
page 16.10



Remote control

EE806
white
page 16.11



EE806
white
page 16.11



Recommended for commercial application

(1) essensya mechanism references.
Plates sold separately.

(2) systo mechanism references.
Plates and support frames sold separately.

Corner mounting accessories

EE825
white
page 16.10



EE826
anthracite
page 16.10



Corner mounting accessories

EE855
white
page 16.10



EE856
anthracite
page 16.10



Motion detectors

Wall mounting

Enhanced IP55

IP55 wireless

220/230°

EE870
white
page 16.10



EE871
anthracite
page 16.10



tebis range

TRE700
white
page 17.8



TRE521 / 531
anthracite
page 17.8



TRE520 / 530
white
page 17.8



Accessoires

Remote control

EE806
white
page 16.11



Corner mounting accessories

EE825
white
page 16.10



EE826
anthracite
page 16.10



Presence detectors

Ceiling

Flush

Half-flush

360°

EE883
HF IP54
page 16.11



EE880
corridor
page 16.11



EE805A
white
page 16.11



EE815
1 channel
page 16.12



EE816
DALI/DSI
page 16.12



EE804A
white
page 16.11



EE810
1 channel
page 16.12



EE811
2 channels
page 16.12



EE812
1/10 V
page 16.12



Remote control

EE807
installer
page 16.13



EE808
user
page 16.13



Lighting with and without integrated motion detector

Wall mounting with LED lamp

Deco lamp LED
1100 Lumen

140°

EE610
white
page 16.15



Floodlight LED
3400 Lumen

220/360°

EE600
white
page 16.15



tebis range



TRE600
white
page 17.8



Wall mounting with LED lamp

Floodlight LED
700 Lumen

140°

EE631
white
page 16.14



EE641
black
page 16.14



EE635
white
page 16.14



EE645
black
page 16.14



Floodlight LED
1200 Lumen

140°

EE632
white
page 16.14



EE642
black
page 16.14



EE636
white
page 16.14



EE646
black
page 16.14



Floodlight LED
2000 Lumen

140°

EE633
white
page 16.14



EE643
black
page 16.14



EE637
white
page 16.14



EE647
black
page 16.14



Floodlight LED
3000 Lumen

140°

EE634
white
page 16.14



EE644
black
page 16.14



EE638
white
page 16.14



EE648
black
page 16.14



Accessories

Remote control

EE806
white
page 16.15



Time lag switch

Dimmer

Modular

Wiring accessories

Modular



EMN001
simple delay
page 16.16



EMN005
multifunction
page 16.16



rotary button

push button

Universal
275 W +
CFL, LED

Universal
300 W +
CFL, LED

Universal
500 W +
CFL, LED

Universal
1000 W

Pilote
1/10 V

WE060⁽²⁾
page 15.32



WS060⁽³⁾
page 15.10



WE061⁽²⁾
page 15.32



WS061⁽³⁾
page 15.10



EVN011
page 16.17



EVN012
comfort
page 16.17



EVN002
page 16.17



EVN004
comfort
page 16.17



EV100
page 16.17



EV102
advanced
page 16.17



EV106
page 16.18



EV108
advanced
page 16.18



■ Recommended for commercial application

- (1) essensya mechanism references.
Plates sold separately
- (2) systo mechanism references.
Plates and support frame sold separately.

Light sensitive switch

Astronomical time switch

**Flush
230 V**

**Modular
230 V**

**Modular
230 V**

1 channel

1 channel

2 channels

1 channel

1 channel

2 channels

Non prog.

Non programmable

Daily

Weekly

Weekly

Integrated
cell

Cellule
delivered

Cellule in
option

Cellule
delivered

Cellule
delivered

Cellule
delivered

EE701
basic
page 16.20



EE702
enhanced
page 16.20



EEN100
surface cell
page 16.20



EEN101
flush cell
page 16.20



EE200
2 channels
page 16.20



EE202
2 channels
+ 2 inputs
page 16.21



EE201
2 channels
page 16.20



EE203
2 channels
page 16.21



EE110
analogique
page 16.20



EE171
digital
page 16.20



EE180
1 channel
page 16.21



EE181
2 channels
page 16.21



Recommended for commercial application

Accessories

Cells

EE002
flush
page 16.21

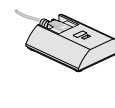


EE003
surface
page 16.21














Softwares
and interfaces via USB link

EG003G
page 16.23



Digital time switch

230 V					12 to 24 V		
1 channel		2 channels		4 channels		1 channel	
Daily	Weekly	Weekly	Yearly	Weekly	Yearly	Weekly	
1 module	1 module	2 modules	2 modules	4 modules	2 modules	4 modules	2 modules
EG010⁽¹⁾ 5 prog. page 16.22 	EG071⁽¹⁾ free prog. page 16.22 	EG103B⁽²⁾ base page 16.22 	EG203B⁽²⁾ basic page 16.22 	EG293B⁽²⁾ basic page 16.23 			
		EG103E enhanced page 16.22 	EG203E enhanced page 16.22 		EG403E enhanced page 16.23 	EG493E enhanced page 16.23 	
		EG103D wireless page 16.22 					EG103V VLV page 16.22 

Energy / lighting management

Accessories

EG006
page 16.23



storage module:
space for 3 keys

EG003G
page 16.23



Software and
interface via
USB link

locking key

EG004
page 16.23



programming key

EG005
page 16.23



DCF wireless antenna

EG001
page 16.23



Only for EG103D

programming key

EG007
page 16.23



DCF wireless antenna

EG001
page 16.23



prog. key

EG005
page 16.23



(1) no key
(2) key in option

Analogue time switch

230 V

1 channel

Daily

Weekly

1 module

2 modules

3 modules

box 72x72

1 module

2 modules

3 modules

5 modules

box 72x72

EH209
without reserve
page 16.24



EH010
without reserve
page 16.24



EH210
without reserve
page 16.24



EH110
without reserve
page 16.24



EH710
without reserve
page 16.25



EH011
reserve
200 h
page 16.24



EH211
reserve
200 h
page 16.24



EH111
reserve
200 h
page 16.24



EH711
reserve
200 h
page 16.25



EH071
reserve
200 h
page 16.24



EH271
reserve
200 h
page 16.24



EH171
reserve
200 h
page 16.24



EH191
reserve
200 h
page 16.24



EH770
without reserve
page 16.25



EH771
reserve
200 h
page 16.25



Analogue time switch

6 to 24 V

1 channel

Daily

Weekly

3 modules

box 72x72

EH110A
without reserve
page 16.24



EH111A
reserve
200 h
page 16.24



EH171A
reserve
200 h
page 16.24



Our range of movement detectors help switch On/Off according to human movement and available daylight, for indoor and outdoor use.

Matching with different detection and installation specifications, the detectors are available with a mounting set for wall, ceiling and corners.

The enhanced models of this range can be configured and controlled with an IR remote control. These detectors can also be used to increase comfort, safety, security and energy saving in commercial, residential and industrial premises.



EE820

Standard motion detectors IP55

- 230V AC (50/60 Hz)
 - output: 10A AC1 relay
 - for indoor or outdoor use
 - can be mounted on walls, in corners or to ceilings utilising the relevant mounting accessory
- time and lux are achieved locally, via potentiometers

Description	Cat. ref.
140° white	EE820
140° anthracite	EE821
200° white	EE830
200° anthracite	EE831
360° white	EE840
360° anthracite	EE841



EE840



EE825

Mounting accessories for standard motion detectors

Description	Cat. ref.
Corner fixing	
white, for EE82X et EE83X	EE825
anthracite, for EE82X et EE83X	EE826
Ceiling fixing	
white, for EE82X et EE83X	EE827
anthracite, for EE2X et EE83X	EE828



EE860

Comfort motion detectors IP55

- 230V AC (50/60 Hz)
 - output: 10A AC1 relay
 - can be mounted on walls, in corners or to ceilings utilising the relevant mounting accessory
 - allows automatic control of a light source for a defined length of time when a movement is detected in the surveillance zone
- settings set by the remote control to switch the light automatically for a given time

Description	Cat. ref.
140° white	EE850
140° anthracite	EE851
200° white	EE860
200° anthracite	EE861
220/360° white	EE870
220/360° anthracite	EE871



EE855

Mounting accessories for comfort motion detectors

Description	Cat. ref.
Corner fixing	
white, for EE84X, EE85X, EE86X and EE87X	EE855
anthracite, for EE84X, EE85X, EE86X and EE87X	EE856

IR remote control

- to adjust : time delay, sensivity, brightness, detection of angles (220°- 360° version), keypad lock, ON / OFF, test mode.



Description

IR remote control for EE85x, EE86x and EE87x

Cat. ref.

EE806 EE806

Presence and motion detectors IP21

- automatic switching of electric loads depending on heat motion and ambient brightness
- combination of presence and motion detector with enhanced detection sensitivity in the central

- presence-detection area
- response brightness and delay time adjustable



Description

360° surface mounting, white

360° flush mounting, white

Cat. ref.

EE804A

EE805A

EE804A

Motion detector for corridor IP54

- 1 way, 10 A AC1
- 4 m x 20 m
- for surface mounting on wall or ceiling

- sensitive to infrared radiation emitted as heat from a moving body
- specially designed to meet the needs of corridors



Description

360° surface mounting, white

Cat. ref.

EE880

EE880

HF motion detector (hyper frequency) IP54

- 1 way, 10 A AC1
- detection distance from 1 to 8 m
- for surface mounting on wall or ceiling
- employs Hyper Frequency technology and reacts to movements regardless of the temperature

- can detect movements through doors, windows and even non-metallic low-thickness partitions



Description

surface mounting, white

Cat. ref.

EE883

EE883

Protection basket

- Ø 178 mm



Description

compatible with EE804, EE805, EE883, white

Cat. ref.

EEK006

EEK006

Our range of presence detectors detect infra-red radiation and ambient light levels to provide simple and cost effective means of lighting control.

In addition, the energy cost will also be reduced thanks to the low consumption technologies used to build the electronic parts of these sensors.

This presence detectors range can be used in premises (offices, conference rooms, hotel rooms, classrooms, public building, homes etc) or in passage areas, where they increase comfort and reduce drastically the energy costs of the lighting. The new sensors come with embedded DALI standard and DSI protocol.



Presence detector 1 channel

- supply voltage: 230V AC, 50Hz
- S1 output contact : 16A, AC1 / 230V AC
- S2 slave output for association with EE811 / EE812 - Lux OFF

EE810

Description

Cat. ref.

360° white

EE810



Presence detector 2 channels

- supply voltage: 230V AC, 50Hz
- input slave / override
- slave maximum distance: 50m
- S1 control of lighting output contact : 16A, AC1 / 230V AC
- S2 control of presence output contact
- lighting output S1 time delay: from 1 to 30 min
- presence output S2 time delay: from 30s to 60 min

EE811

Description

Cat. ref.

360° white

EE811



Presence detector 1/10V

- supply voltage: 230V AC, 50Hz
- S1 control of lighting output contact : 10A AC1 / 230V AC
- 1/10V output used to control an electronic ballast or dimmers EV100/EV102
- 1/10V output : 50mA max
- 3 operating modes: ON/OFF/AUTO
- input slave / override
- slave maximum distance: 50m
- lighting output S1 time delay: from 1 to 30 min

EE812

Description

Cat. ref.

360° white

EE812



Presence detector flush mounting

- switched phase 16A AC1 230V
- power supply: 230V AC
- ON/OFF with remote control

EE815

Description

Cat. ref.

360° white

EE815



Presence detector DALI/DSI for lighting regulation

- DALI/DSI bus
- power supply: 230V AC

EE816

Description

Cat. ref.

360° white

EE816

Infra-red remote control

- for EE81x and TCC52x detectors

Description

Cat. ref.

for the installer (settings)

EE807

for the customer (lighting control)

EE808



EE807

EE808

Accessories

Description

Cat. ref.

Mounting box

white, for EE810, EE811, EE812

EE813



EE813

Backboxes

white, for EE815, EE816 and TCC5xx

EEK005

black, for EE815, EE816 and TCC5xx

EEK005B

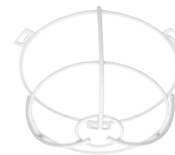


EEK005

Protection basket

white, for EE810, EE811, EE812

EEK006



EEK006

Our new range of floodlights is the easy solution for your outdoor lighting. Easy to install and configure, it also offers you high performances, due to its advanced technology sensors and reflectors. The built-in LED lamp ensures energy efficiency, with a low energy consumption. These detectors are available in versions with or without detector.



EE631

LED floodlights with sensor

- IP55

Description	Cat. ref.
700 lumen	
white	EE631
black	EE641
1200 lumen	
white	EE632
black	EE642
2000 lumen	
white	EE633
black	EE643
3000 lumen	
white	EE634
black	EE644



EE643



EE636

LED floodlights without sensor

- IP55

Description	Cat. ref.
700 lumen	
white	EE635
black	EE645
1200 lumen	
white	EE636
black	EE646
2000 lumen	
white	EE637
black	EE647
3000 lumen	
white	EE638
black	EE648



EE648

LED or halogen floodlights are equipped with an IR motion detector which allows an automatic control of the light when a movement is detected in the surveillance zone.
They permit also to control the several receivers like detectors or IP55 receivers.

LED lamp floodlight with PIR

- IP55
- 3400 lumen

Description
220°/360° white

Cat. ref.

EE600



EE600

LED deco lamp with PIR

- IP55
- 1100 lumen

Description
140° white

Cat. ref.

EE610



EE610

IR remote control

- for EE600 and EE610

Description
settings and lighting control

Cat. ref.

EE806



EE806

Time lag switches are designed to save energy and ensure safety. For example: for building stair-case or cellar lighting, ventilation, pumping, etc... these devices provide control of lighting circuits with automatic switch-off after a pre-set time (e.g. for staircase, corridors lighting).

Compact design with a 2 position switch permanent/timed lighting implementation facility.

- consumption: 1VA
- time delay: 30 s to 10 min
- protection degree: IP20
- current limiting: 100mA EMN001
- connection capacity:
 - 6mm² flexible
 - 10mm² rigid

Complies with EN 60 669.

Technical data

- supply voltage: 230V 50/60Hz
- cut-off power: 16A - 250V AC1

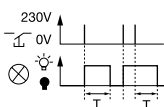


EMN001

Standard stair case time lag switch

- press shortly a push button to switch ON the light
- after an adjustable time "T", the light switch OFF automatically

Description	Width in modules	Pack qty.	Cat. ref.
standard stair case time lag switch	1	6	EMN001

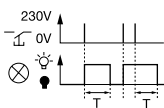


EMN005

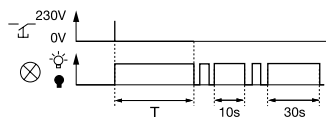
Multifunction stair case time lag switch

Description	Width in modules	Pack qty.	Cat. ref.
multifunction stair case time lag switch 4 functions:	1	1	EMN005

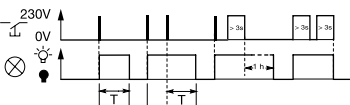
- basic mode



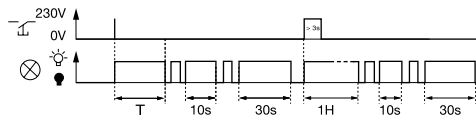
- prewarning mode



- double delay mode



- double delay + prewarning mode



Our dimmers control the lighting level of all types of lighting source: incandescent, LV halogen, VLV halogen with electronic or ferromagnetic transformer, LED VLV lamps with electronic transformer, fluorescent with electronic ballast. The new generation of EVN dimmers 300W and 500W also allows the lighting level adjustment for dimmable CFL and dimmable LED lamps.

Dimming controlled by push button :

- start / stop by short press
- increasing / decreasing by maintaining pressure

Common characteristics

- universal dimmers with automatic load recognition
- Softstart (progressive start) to increase the working life of lamps
- memorisation of last dimming level
- protection against overheating.

Dimmer 1000 W

Several lamps with up to 1000W power can be driven with the same control by associating EV102 (master) with up to 30 EV102 or EV100 (slave), that represents a total power of 30kW.

Dimmers 1-10V

The lamps equipped with a 1-10V dimmable input, whatever their power, can be driven by EV106 or EV108. A dimmer can drive up to 30 ballasts: the total power depends on the lamps power.

Connection capacity
rigid 10 mm²
flexible 6 mm²

Complies with EN50082-1 and CEI669-2

Universal dimmers 300 W

- compatible with dimmable CFL and LED (60W)
- 3 modes for load learning: auto, advanced, expert (comfort version)
- can replace a latching relay, with lighting level function
- push button (phase or neutral)
- very low consumption)

Description	Width in modules	Pack qty.	Cat. ref.
standard version	1	1	EVN011
comfort version	1	1	EVN012
- expert mode			
- scene by 2 short double presses on the remote push button (progressive switchoff, night light, 100%, no function)			



EVN011

Universal dimmers 500 W

- compatible CFL and LED
- 3 modes for load learning: auto, advanced, expert (comfort version)
- very low consumption

Description	Width in modules	Pack qty.	Cat. ref.
standard version	2	1	EVN002
comfort version	2	1	EVN004
- expert mode			
- 100% via 2 short presses on the dim input push button			
- 1 scene push button (scene, time delayed scene, progressive delayed scene, progressive switch-off, night light)			
- multi-voltage dim delayed scene, progressive			



EVN004

Universal dimmers 1000 W

- mode selection switch:
 - "local": autonomous operating,
 - "slave": 1/10V input,
 - "master" (EV102 only): 1/10V output
- min. and max. dim level

Description	Width in modules	Pack qty.	Cat. ref.
standard version	5	1	EV100
advanced version	5	1	EV102
- 2 scene push button (scene or override)			
- dimming level display			
- adjustable parameters (min. and max. dim level, dimming rise time, rise time when switching on and off)			



EV100



EV108

1/10V pilot dimmers

- to control electronic ballast or EV100/EV102 dimmers (max. 30)
- dim level display
- adjustable parameters (min. and max. dim level, dimming rise time, rise time when switching on and off)

Description	Width in modules	Pack qty.	Cat. ref.
standard version	4	1	EV106
advanced version - 2 scene push button (scene or override)	4	1	EV108



LZ060

Heat dissipation insert

Description	Width in modules	Pack qty.	Cat. ref.
heat dissipation insert	0.5	12	LZ060

Modular analogue time switches



width in 1 U :
EH010, EH011, EH071



width in 5 U :
EH191

Technical characteristics	EH010	EH011	EH071	EH209	EH110	EH210	EH111	EH211	EH171	EH271	EH191	EH110A	EH111A	EH171A
width in U 17,5mm	1	1	1	2	3	2	3	2	3	2	5	3	3	3
voltage	230V~	230V~	230V~	110 -230V~	110 -230V~	110 -230V~	230V~	230V~	230V~	230V~	230V~	6 to 24V AC/DC	6 to 24V AC/DC	6 to 24V AC/DC
operating cycle	24 h	24 h	7 days	24 h	24 h	24 h	24 h	24 h	7 days	7 days	24 h / 7 days	24 h	24 h	7 days
minimum switching	30 min	30 min	3 h 30	30 min	30 min	30 min	30 min	30 min	3 h 30	3 h 30	15 min / 2 h	30 min	30 min	4 h
supply failure reserve	-	200 h	200 h	-	-	-	200 h	200 h	200 h	200 h	200 h	-	200 h	200 h
manual override	auto / on	auto / on	auto / on	auto / on / off	auto / on / off	auto / on / off	auto / on / off	auto / on / off	auto / on / off	auto / on / off	auto / on / off	auto / on / off	auto / on / off	auto / on / off
AC1 contact type	1NO - 16A	1NO - 16A	1NO - 16A	1 c/o - 16A	1 c/o - 16A	1 c/o - 16A	1 c/o - 16A	1 c/o - 16A	1 c/o - 16A	1 c/o - 16A	1 c/o - 16A	1 c/o - 16A	1 c/o - 16A	1 c/o - 16A

c/o: changeover contact

Analogue time switches (72 x 72mm)



EH710, EH710A, EH711, EH770,
EH771, EH712, EH715, EH716

Technical characteristics	EH710	EH710A	EH711	EH770	EH771	EH712	EH715	EH716
voltage supply	230V~	6 to 24V AC/DC	230V~	230V~	230V~	230V~	48V DC 110-240V AC	
operating cycles	24 h	24 h	24 h	7 days	7 days	24 h	24 h	24 h
minimum switching	20 min	20 min	20 min	2 h	2 h	20 min	20 min	20 min
supply failure reserve	-	-	200 h	-	200 h	-	-	200 h
manual override	on/off	on/off	on/off	on/off	on/off	on/off	on/off	on/off

Modular digital time twilight switches



width in 1 U :
EG010, EG071



width in 4 U :
EG403E



EE171

Technical characteristics	Digital time switches (din rail mounted)								Twilight switches	
	EG010	EG103B EG071	EG203B EG103E	EG203E	EG403E	EG293B	EG493E	EEN101	EEN100 EE100	EE170 EE171
width in U	1	1	2	2	4	4	4	3	5	3
operating cycle	24 h	7 days	7 days	7 days	7 days	1 year	1 year	-	24 h	7 days
program steps	5	20	56	56	300	300	300	-	15 min	1 min
supply failure reserve	230V~	230V~	230V~	230V~	230V~	230V~	230V~	230V~	230V~	230V~
manual override	1	1	1	2	4	2	4	-	1	1

There are 3 solutions to control automatic lighting for night lighting such as neon signs, showcase, exterior surroundings, public lighting (streets, monuments):

- modular twilight switches,
- surface mounting compact twilight switches,
- astronomical time switches.

The twilight switches control light systems according to natural illumination. A photoelectric cell measures the light level and in conjunction with the relay provides ON/OFF control of a circuit. Astronomical time switches are electronic weekly programming clocks designed to control various loads automatically according to sunrise and sunset times to optimized the energy saving.

Technical data

- supply voltage: 230V AC $\pm 15\%$
- frequency: 50/60Hz
- maximum load: 16A / 250V AC1,
- loads: incandescent, halogen, and fluorescent lamps,
- max length between 2 modular devices: max. 50 m.

Connection capacity:
rigid: 1.5 to 10mm²
flexible: 1 to 6mm²

Complies with IEC 60669-1, IEC 60669-2-1, IEC 60730-2-7



EEN100

Twilight switches 1 channel

- light sensitive switch with photoelectric cell with 2 ranges of sensitivity 5 to 100 lux and 50 to 2000 lux

Description	Width in modules	Pack qty.	Cat. ref.
with surface mounting photoelectric cell EEN003	1	1	EEN100
with flush mounting photoelectric cell EEN002	1	1	EEN101



EE110

Programmable twilight switches with surface cell 1 channel

Description	Width in modules	Pack qty.	Cat. ref.
daily cycle, electromechanical switch	1	1	EE110
weekly cycle, electronic program free setting	1	1	EE171



EE702

Compact light switches

- IP55 integrated cell

Description	Pack qty.	Cat. ref.
basic 8A (without settings) - 1000W incandescent - fix lux: 10...30 lux - fix ON delay: 40s/OFF delay: 120s	1	EE701
enhanced 16A (with settings) - 2300W incandescent - adjustable lux: 2 to 1000 lux - time settings: from 1s to 120s	1	EE702



EE200

2 channels light sensitive switches

- the output is switched on/off according to the pre-defined lux level
- for each channel: threshold setting, state indication led, 4 positions selection switch, delivered without cell, can be associated

Description	Width in modules	Pack qty.	Cat. ref.
2 channels light sensitive switch	4	1	EE200
kit 2 channels light sensitive switch + surface cell EE003	4	1	EE201

2 channels light sensitive switches for cascading

- like EE200, it integrates 2 inputs for 2 operating modes
- the selected mode always applies to both outputs

Description	Width in modules	Pack qty.	Cat. ref.
2 channels light sensitive switches for cascading	4	1	EE202
kit 2 channels light sensitive switch for cascading + surface cell EE003	4	1	EE203



EE202

Accessories

- max length between cell and modular device: 50 m

Description	Pack qty.	Cat. ref.
Flush cells IP54		
for EEN100 and EEN101	1	EEN002
for EE200, EE202, EE110 and EE170	1	EE002
Surface cells IP54		
for EEN100 and EEN101	1	EEN003
for EE200, EE202, EE110 and EE170	1	EE003
Programming key		
for EE180 and EE181	1	EG005



EEN003



EE002

Astronomical time switches (weekly cycle) 1 and 2 channels

- delivered with key EG005
- operating reserve lithium battery 5 years
- running accuracy: ± 1.5sec/24hr
- time accuracy: ± 1 minutes
- programming capacity: 56 steps.
- automatic change of the winter/ summer time

Description	Width in modules	Pack qty.	Cat. ref.
1 channel, 1 changeover contact	1	1	EE180
2 channels, 2 changeover contacts	1	1	EE181



EE180

Time switches allow you to manage the operation of loads such as lighting, water pumps, and domestic machines giving improved comfort and saving energy. These products enable a daily (24 h), weekly (7 days) or annual (365 days) schedule on 1, 2 or 4 channels. The power reserve is powered by a lithium battery.

Technical data

- supply voltage: 230V AC, 50Hz
- cycles: 24h, 7 days, 1 year
- IP degree: IP20
- accuracy: +/- 1second pre day
- output: 16A and 10A AC1, 250V AC

Basic version

- product set at current time and date when delivered
- automatic change of summer or winter time
- programming per day or group of days
- permanent On/Off overrides
- temporary On/Off overrides
- bar graph showing the daily profile

Evolution version

- Same characteristics as basic version plus:
- holidays mode: forcing ON or OFF between two dates
 - random switching
 - backlighted screen
 - impulse programming capability (1s to 30min)

Wireless control version

Same characteristics as evolution version without backlighted screen plus more radio synchronization CDF77 long wave time signal.

VLV version (Very Low Voltage)

same characteristics as evolution version without backlighted screen plus more

Connection capacity
1.5 to 10mm² max rigid
4 to 6mm² max flexible

Complies with IEC 60730-2-7



EG010

1 channel daily cycle time switch

- 5 adjustable pre-recorded programs: 6 commutations max per day (3 ON and 3 OFF) 230V 50/60 Hz
- 16A / 250V AC1 changeover contact
- not compatible with programming key

Description	Width in modules	Pack qty.	Cat. ref.
1 channel daily cycle time switch	1	1	EG010



EG071

1 channel weekly cycle time switches

- 16A / 250V AC1 changeover contact

Description	Width in modules	Pack qty.	Cat. ref.
basic version compact size - capacity: 20 program steps - power supply: 230V AC 50/60 Hz - not compatible with programming key	1	1	EG071
basic version - capacity: 56 program steps - power supply: 230V AC 50/60 Hz - programming key included	2	1	EG103B
evolution version - capacity: 56 program steps - power supply: 230V AC 50/60 Hz - programming key included	2	1	EG103E
radio control version - capacity: 56 program steps - power supply: 230V AC 50/60 Hz - programming key included - CDF77 radio synchronisation (aerial as option)	2	1	EG103D
VLV version - capacity: 56 program steps - power supply: 12/24V AC/DC 50/60Hz - programming key included	2	1	EG103V



EG103V

2 channels weekly cycle time switches

- 16A / 250V AC1 changeover contact

Description	Width in modules	Pack qty.	Cat. ref.
evolution version - capacity: 56 program steps - power supply: 230V AC 50/60 Hz - programming key not included	2	1	EG203B
evolution version - capacity: 56 program steps - power supply: 230V AC 50/60 Hz - EG005 programming key included	2	1	EG203E



EG203E

4 channels yearly cycle time switch

- 2 changeover contacts 10A / 250V AC1

Description	Width in modules	Pack qty.	Cat. ref.
basic version - capacity: 300 program steps - power supply: 230V AC 50/60 Hz - EG007 programming key not included	4	1	EG293B



EG293B

4 channels weekly cycle time switch

- 2 NO contacts + 2 changeover contacts 10A / 250V AC1

Description	Width in modules	Pack qty.	Cat. ref.
evolution version - capacity: 300 program steps - power supply: 230V AC 50/60 Hz - EG007 programming key not included - DCF77 radio synchronization (aerial as an option)	4	1	EG403E



EG403E

4 channels yearly cycle time switch

- 2 NO contacts + 2 changeover contacts 10A / 250V AC1

Description	Width in modules	Pack qty.	Cat. ref.
evolution version - capacity: 300 program steps - power supply: 230V AC 50/60 Hz - EG007 programming key not included - DCF77 radio synchronization (aerial as an option)	4	1	EG493E



EG493E

Wireless control antenna

- power supply by the time 1 EG001 switch can radio-synchronized with DCF77 longwave time signal

- the aerial is dedicated to radio control the following time switches: EG493E, EG103D, EG403E using the DCF77 longwave time signal



Description	Pack qty.	Cat. ref.
wireless control antenna	1	EG001

EG001

Programming keys

Description	Pack qty.	Cat. ref.
for EG403E, EG293B, EG493E	1	EG007
for EG103 / EG203	1	EG005
clock key	1	EG004
storage module for programming key	1	EG006



EG007



EG006

Interface and software

Description	Pack qty.	Cat. ref.
interface and software with USB	1	EG003G



EG003G

In domestic and commercial premises, electromechanical time switches 1 channel for daily or weekly programming are used to control lighting, heating, household appliances, shop windows etc and also to improve comfort and save energy.

Connection capacity
1.5 mm² max rigid
Complies with IEC 60730-2-7

Technical data

- supply voltage: 230V AC and 6 to 24V AC/DC
- battery reserve: 24h and 7 days versions
- output: voltage free changeover contact 16A, 250V AC1
- programming by captive segments
- manual override on 1 module devices: automatic and permanent ON
- manual override on 3 and 5 module devices: automatic, permanent ON and permanent OFF



EH071

Modular analogue time switches compact

- modular and compact version
- 1 NO contact 16A - 250V AC1
- 230 V 50 Hz

Description	Width in modules	Cat. ref.
24h cycle, without battery reserve	1	EH010
24h cycle, reserve: 200h	1	EH011
7 days cycle, reserve: 200h	1	EH071



EH209

Modular analogue time switches

- standard modular version
- 1 NO changeover 16A - 250V AC1

Description	Width in modules	Cat. ref.
230V 50Hz		
24h cycle, without hand without battery reserve	2	EH209
24h cycle, without battery reserve	3	EH110
	2	EH210
24h cycle, reserve: 200h	3	EH111
	2	EH211
7 day cycle, reserve: 200h	3	EH171
	2	EH271
24h + 7 day cycle, reserve: 200h	5	EH191
6 to 24V AC/DC		
24h cycle, without battery reserve	3	EH110A
24h cycle, reserve: 200h	3	EH111A
7 day cycle, reserve: 200h	3	EH171A



EH110A

Accessories for 3 modules width time switches

Description	Cat. ref.
wall mounting kit	EH902

72 x 72 mm analogue time switches

- flush or surface mounting version, 72 x 72mm
- 1 changeover contact 16 A - 250 V AC1

Description	Width in modules	Cat. ref.
230V AC 50/60Hz		
24h cycle, without battery reserve	1	EH710
24h cycle, reserve: 200h	1	EH711
7 day cycle, without battery reserve	1	EH770
24h cycle, reserve: 200h	1	EH771
6 to 24V AC/DC		
24h cycle, without battery reserve	3	EH710A



EH711

Flush mounting kit

Description	Cat. ref.
for 72 x 72 mm time switches	EH900



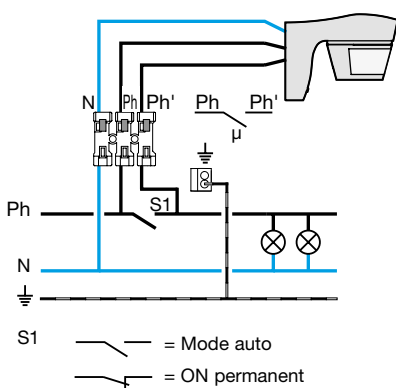
EH900

Technical characteristics

	EE820 EE830 EE840	EE850 EE860 EE870	EE804A EE805A	EE880	EE883
Voltage supply	230 V AC	230 V AC	230 V AC	230 V AC	230 V AC
Frequency	50 Hz	50 Hz	50 Hz	50 Hz	50 Hz
Brightness level	5 to 1000 lux	5 to 1000 lux	5 to 1000 lux	2 to 2000 lux	2 to 2000 lux
Lighting output operating time	5 s to 15 min	5s to 15 min or 30 min with remote control	5 s. to 30 min	5 s. to 15 min	5 s. to 15 min
Output	phase output (EE820 - EE830) NO contact (EE840)	NO contact	NO contact with zero crossing switching	NO contact	NO contact
Breaking capacity AC1	10A	10A	10A	10A	10A
- incandescent	1500 W	2300 W	2300 W	2300 W	2300 W
- halogen 230 V	1500 W	2300 W	2300 W	2300 W	2300 W
- halogen ELV via ferro.transfo.	1500 VA	1500 VA	1500 VA	1500 VA	1500 VA
- halogen ELV via electro.transfo.	1500 VA	1500 VA	1500 W	1500 VA	1500 VA
- non compensated fluorescent tubes	1000 W	1000 W	-	1200 W	1200 W
- compensated fluorescent tubes	290 W - C = 32 µF	400 W - C = 45 µF	1000 W	-	-
- electronic ballast	580 W	580 W	1000 W	580 W	580 W
- fluocompact	10 x 20 W	20 x 20 W	20 x 20 W	20 x 20 W	20 x 20 W
Terminal capacity	1 to 1.5 mm ²	1.5 mm ²	1 to 2.5 mm ²	1 to 2.5 mm ²	1 to 2.5 mm ²
IP	IP 55/ IK 04	IP 55/ IK 06	IP 21/ IK 04	IP 54/ IK 04	IP 54/ IK 04
Working temperature	-20°C to + 55°C	-20°C to + 55°C	-5°C to + 45°C	-20°C to + 50°C	-20°C to + 50°C
HF frequency	-	-	-	-	5,8 GHz, emission < 1 mW
Dimensions (L x l x h)	140° and 200° 127 x 83 x 97 mm 360° 153 x 91 x 139 mm	153 x 91 x 139 mm	surface Ø 100 x p.50 mm flush Ø 90 x p.61 mm	surface Ø 125.5 x d.65 mm	surface Ø 125.5 x d.51 mm

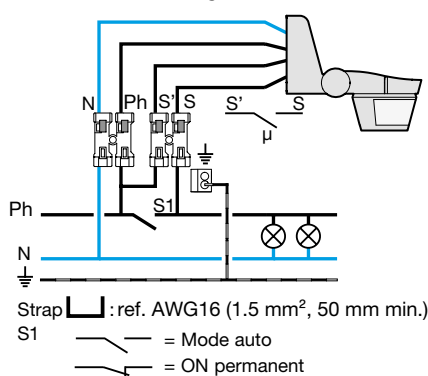
Connection

EE820 - EE830

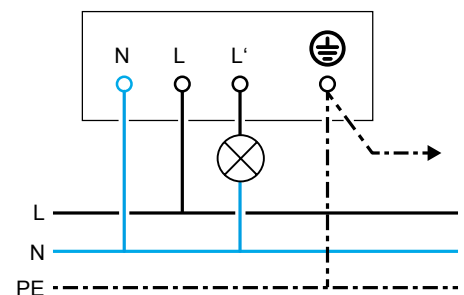


EE840 - EE850 - EE860 - EE870

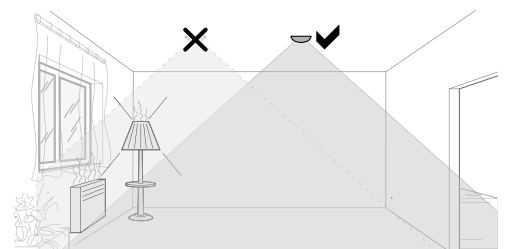
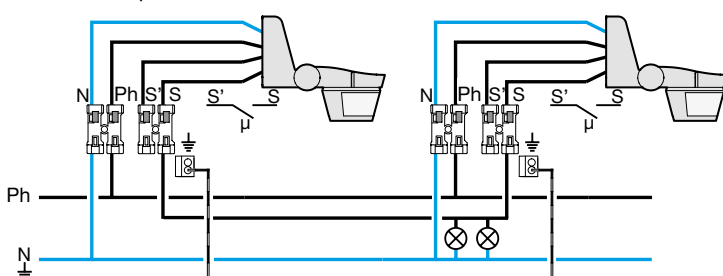
Auto/On functioning



EE804A - EE805A

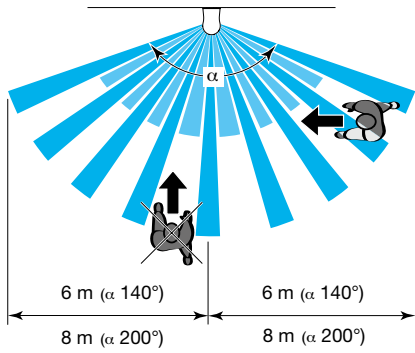
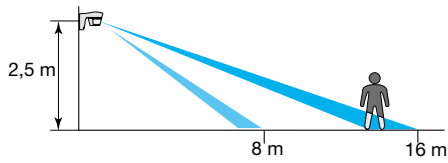


Detectors in parallel

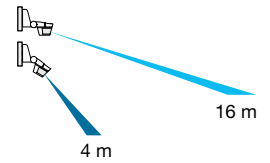
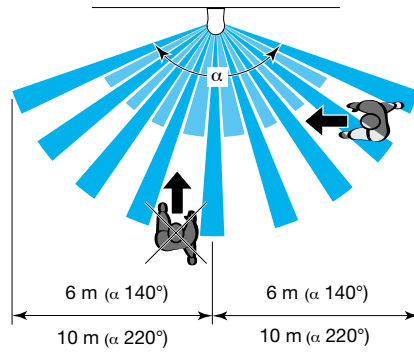
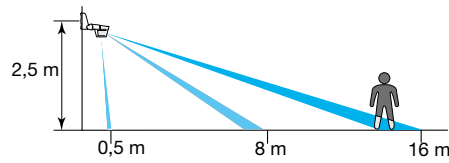


Detection area

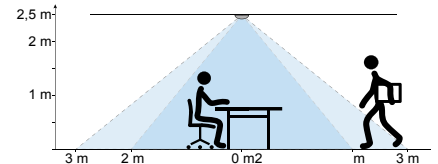
EE820 - EE830



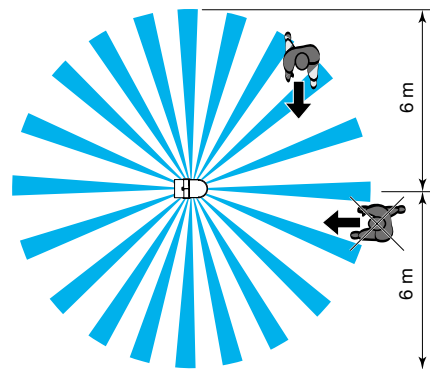
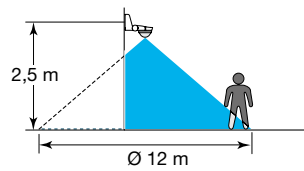
EE850 - EE860



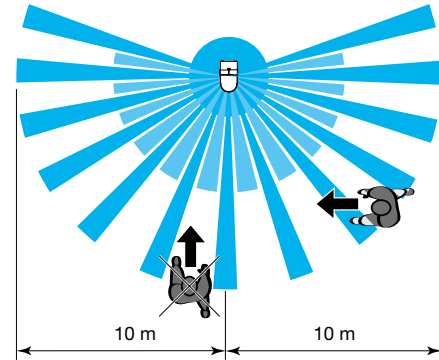
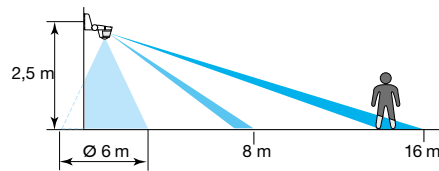
EE804A
EE805A



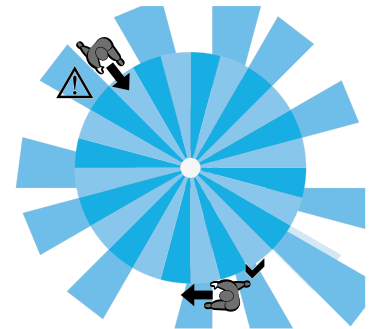
EE840



EE870

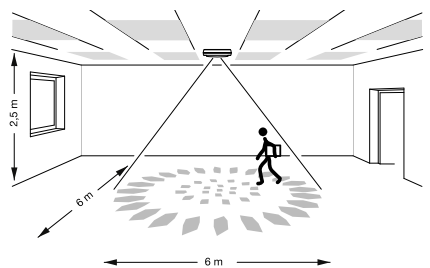


EE804A
EE805A

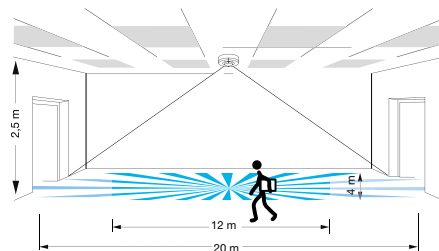


Energy / lighting
management

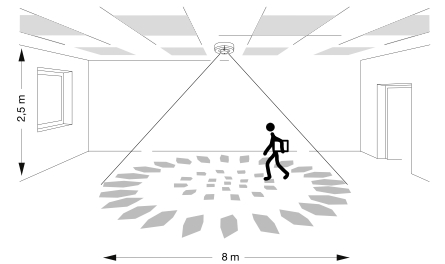
EE804A - EE805A



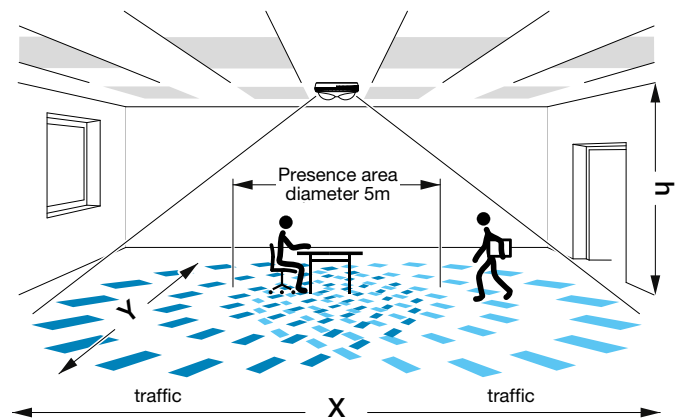
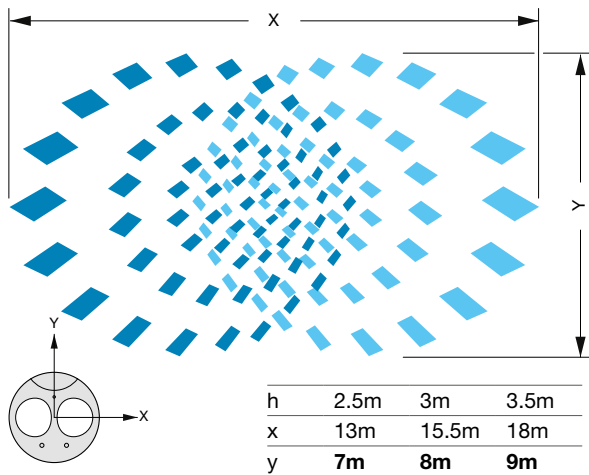
EE880



EE883

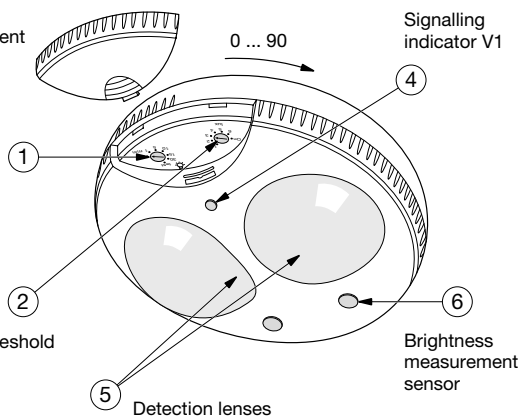


EE810/EE811/EE812
Detection area



Description

Lighting time delay adjustment potentiometer

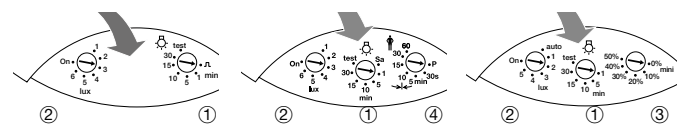


Adjustment potentiometers

EE810

EE811

EE812



- ① on delay ② light regulation
- ③ residual lighting ④ time delay with the interlocking (output 2)
- mode 1** : potentiometer > 10 s = time delay with the interlocking 15 min (use : correction of the setpoint, heating, etc.)
- mode 2** : potentiometer ≤ 10 s = time delay with the interlocking 15 s (use : ventilation/ventilation, synoptic lighting, ...)

Technical characteristics

References	EE810	EE811	EE812
Type	1 channel presence detector	2 channels presence detector	1/10 V presence detector
Supply voltage	230 V~ +10 %/-15 %/50 Hz		
Settings			
output brightness 1/3	potentiometer: auto (400 Lux), 5 to 1200 Lux, OFF		
output temporisation 1	potentiometer: 1 – 30 min, test, impulsions (EE810)		
output temporisation 2/3	-	potentiometer: 30 s – 1 h	
Residual brightness	-	-	potentiometer 0 - 50%
Breaking capacity			
output 1 (lighting)	16 A AC+, incandescent lamps, halogen: 1500 W, with fluo compact 580W for EE810 and 1000W for EE811 fluo parallel compensated: 290 W/32mF		10A AC 1
output 2 (presence)	-	2 A AC 1	-
output 3 (brightness setting)	-	-	1 - 10V current: 50mA
Input command 50m max.	-	230 V commutation	230 V commutation / dimming
LED	OFF: auto, ON: movement/test		
Power consumption	1.2 W	1.1 W	1 W
Ingress protection	IP41		
Connection	1 – 4 mm ²		
Storage temperature	-10 °C to +60 °C		
Working temperature	0 °C to +45 °C		

Test mode :

this mode makes it possible to validate the detection area :

- potentiometer ① in position "test"
- indicator V1 - ④ will indicate any detection by lighting for one second if the level of illumination is lower than the preset threshold. This lighting output S1 is not controlled in this mode, the time settings will remain ignored.

Instances of lighting levels

Position of potentiometer	Lux value	Application
1	5	-
2	100	corridor
3	200	corridor, WC
4	100	VDU work
5	500	offices
6	800-1200	classrooms laboratory
ON	measurement of brightness inhibited	

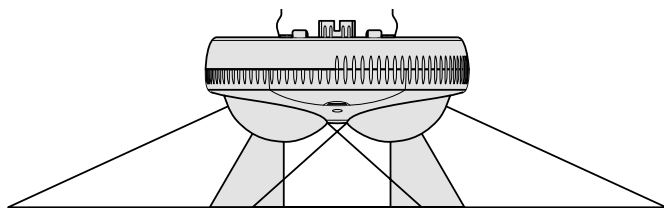
regulation set point is set at 400 Lux

Lighting measurement

In addition to one density of higher detection, the difference between one presence detector and a conventional detector of movements reside at the level of their principle of detection. The detector of movements will be activated in the event of detection of movements in the darkness. If the latter is transformed into lighting during the capture, the detector of movements will not extinguish however the light. One presence detector must be able to fill of such tasks and to make the difference between the natural and artificial light. The measurement of lighting carried out since the ceiling can be different from the measured lighting, because it will be influenced by the provision of the windows, the form and the reflective properties of the walls and the pieces of furniture, etc measurement moreover will be delayed in order to avoid inopportune commutations.

Presence detection

Based on a solution patented by Hager, the optical part presence detection rests on a double lens making it possible to obtain a zone of rectangular capture of form. The head of the detector can also swivel to adjust the detection zone. The latter is subdivided in two sections equipped with a density higher than the center and a density to reduce in the direction length. in the offices, these detectors should thus be assembled directly above the places of work, resp. in the direction length for an installation in corridors (zones of circulation).



movement detection	presence detection	movement detection
13 x 7 m (installation max. high 2.5 m)		

Detection zone

Covering a rectangular detection zone of 13 x 7m, the Hager presence detectors represent an ideal solution for the offices, classrooms, toilets, corridors, markets and garages. In the event of assembly of two detectors in order to increase the range of detection, it is then recommended to respect a zone of covering of approximately a meter. Only two detectors will be thus necessary to cover a 25m length market. A possibility of circuit Master/Slave exists for the commutation of only one group of lights. The presence detector principal one (Master : EE812 or EE811) measurement the lighting and the presence, then commutates and controls the electric devices. Auxiliary presence detectors (Slave : EE810) detect only the presence and will presence detector announce this one to principal, which will carry out commutation then by taking account of the lighting. The diagrams of wiring are illustrated in the respective instructions.

Assembly

The behavior of commutation will be determined by the passage of people in the zone of capture of the detector. In exceptional cases, an inopportune commutation can be caused by various influences. The sources of potential parasites should already be evaluated during the study of the project, resp. eliminated before the assembly.

Obstacles decreasing the range of the detector :

- the partition walls, plants of racks, etc can limit the range of detection.

Simulated movements :

- the presence detectors capture fast modifications of temperature in the environment of the detector as being movements, for example at the time of or the stop starting of lowers with hot air, ventilators etc when the flow of air is directed directly on the lenses or of the objects near the zone of capture of the detector.
- objects being heated slowly do not have a negative influence and do not cause inopportune commutation.

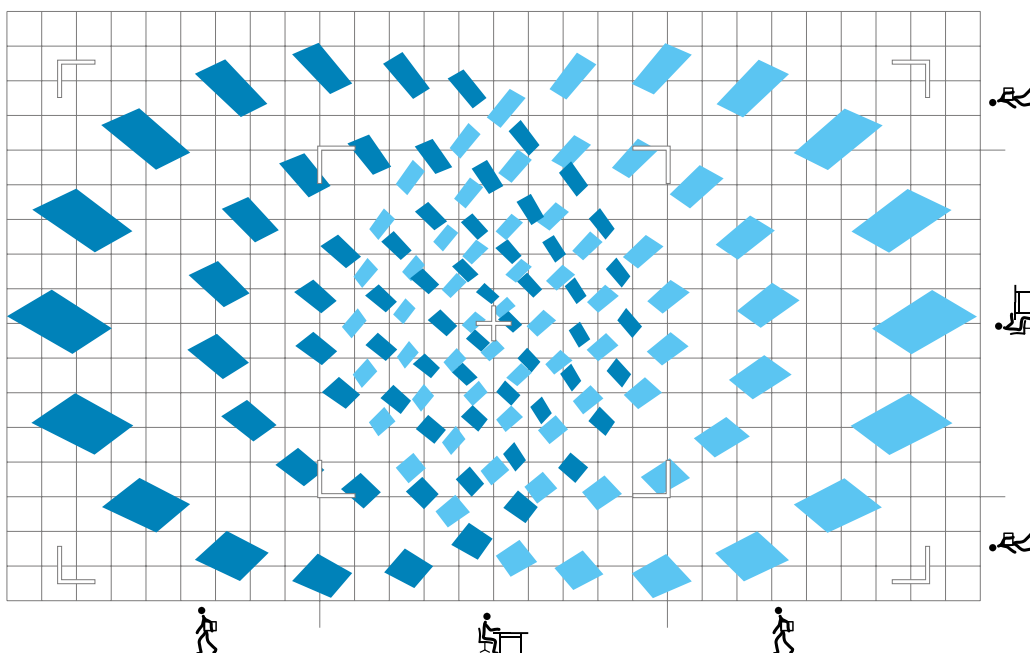
A side distance > 0,5m should however be respected.

Proximity of the conduits of heating and the bodies of radiators.

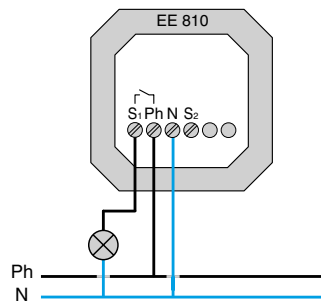
- luminaries switching on themselves and dying out near the zone of detection can simulate a displacement (p e.g of the lamps incandescence or halogen located at a distance < 1m).
- objects moving such as mobile machines, robots, posters can also cause an inopportune detection.

Detection zone - scale 1:100

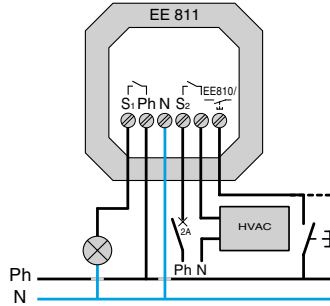
assembly height 2.5 m



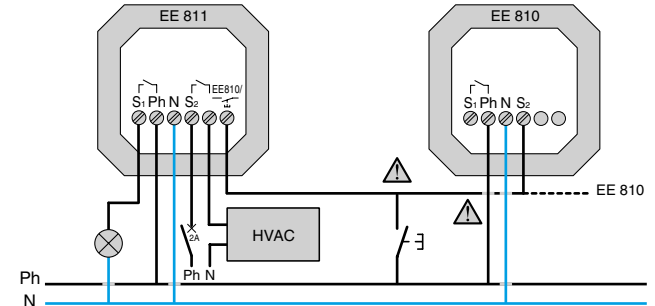
EE810



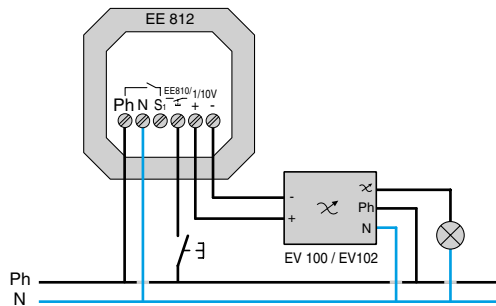
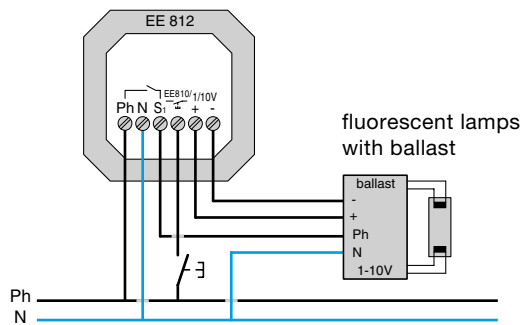
EE811



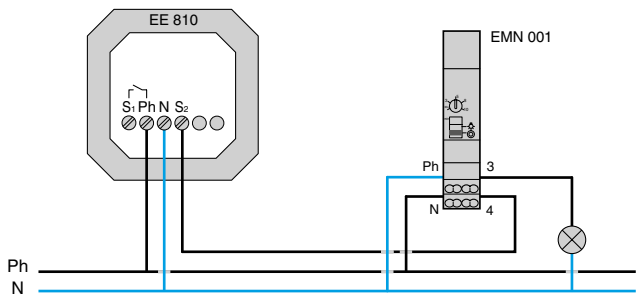
EE811 Master + EE810 Slave



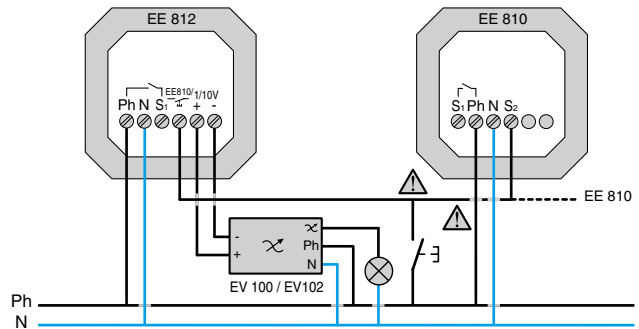
EE812 + ballast, EE812 + EV100/EV102



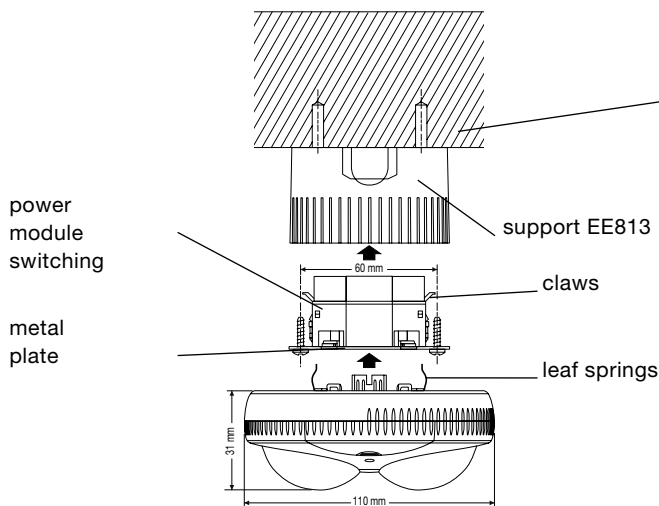
EE810 + EMN001/EMS003



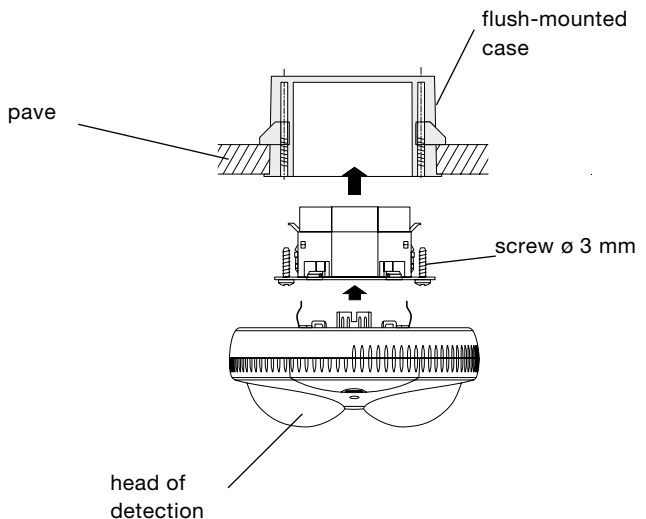
EE812 master + EE810 slave



Apparent assembly



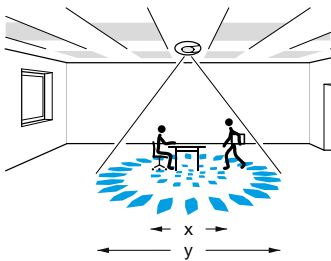
Flush-mounted assembly



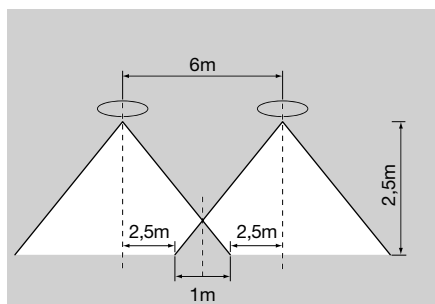
Technical characteristics

	EE815	EE816
Detection range	motion area: diameter 7m (product installed at 2.5m height) presence area: diameter 5m (product installed at 2.5m height)	
Supply voltage	230 V AC + 10 % - 15 %	
Frequency	50/60 Hz	
Local lux threshold setting	5 to 1000 Lux	3 modes available
Local time setting	1 min to 1 hr	
Commissioning via installer remote control	EE807 for power up, absence / presence mode, timer, active / passive cell	
Control with IR user remote control	EE808 for ON/OFF override	EE808 for ON/OFF override and dimming up/ down
Output	16A AC1 relay output (cut live): - 2300W incandescent or 230V halogen: > 26000 cycles - 1500W VLV halogen lamps with ferromagnetic or electronic transformer: > 35000 cycles - 1000 W/130 µF parallel compensated fluo tubes: > 50000 cycles - 23 x 23W fluo-compact with electronic ballast: > 20 000 cycles	14V / 50mA (for a DALI bus with 24 ballasts) - No isolation between the mains and the DALI bus !
Push button input	phase input for absence / presence detection (semi-automatic / automatic mode) same phase as power supply	to dim up / down and absence / presence detection (semi-automatic / automatic mode) same phase as power supply
Terminals	for 1.5 mm ² rigid / flexible wires	
Power dissipation	300 mW	60 mW
Isolation class	II	
Protection	IP41 / IK03	
Operating temperature	-10°C to +45°C	
Storage temperature	-20°C to +60°C	
Standards	IEC 60669-1, IEC 60669-2-1	

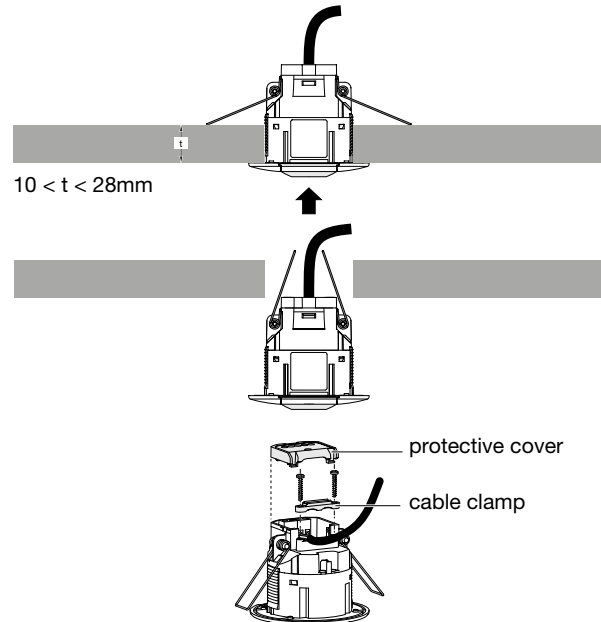
Detection areas



h	2.5m	3m	3.5m
x	5m	5m	5m
y	7m	8m	9m

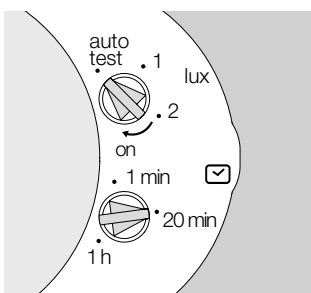


Mounting

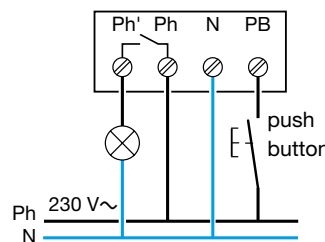


Energy / lighting management

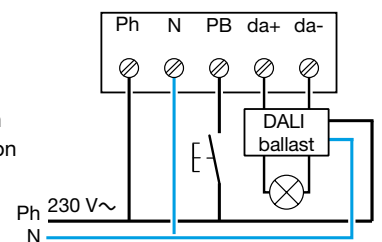
Settings EE815 / EE816



Wiring diagram EE815



Wiring diagram EE816

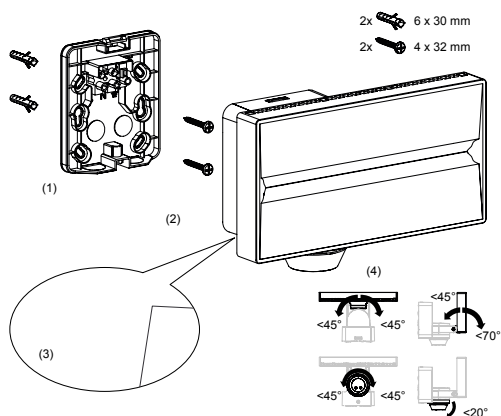


Technical characteristics

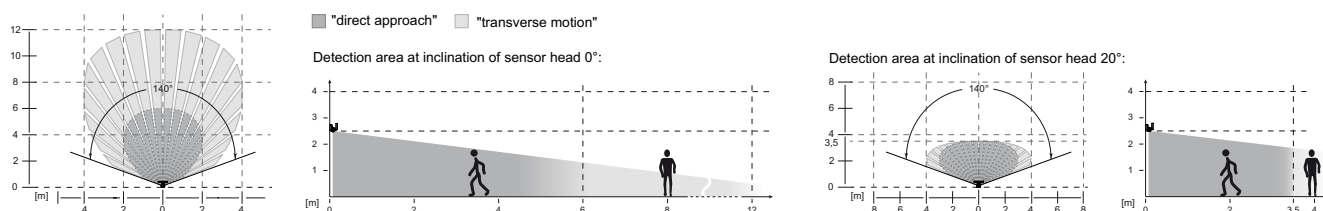
	LED floodlight					
References	EE631 - EE641 EE635 - EE645	EE610	EE632 - EE642 EE636 - EE646	EE633 - EE643 EE637 - EE647	EE634 - EE644 EE638 - EE648	EE600
Lumens	700 lm	1100 lm	1200 lm	2000 lm	3000 lm	3400 lm
Light color (kelvin)			4000 K			5700 K
Efficiency per watt	88 lm/W	73 lm/W	100 lm/W	100 lm/W	100 lm/W	57 lm/W
Power Supply	230/240V					
Frequency	50/60 Hz					
Operating (watt)	8	15	12	20	30	60
Angle Detection *	140°					220°
Operating duration setting *	30 s ... 15min	5 s ... 15min	30 s ... 15min		5 s ... 15 min	
Twilight threshold setting *	10 ... 1000 lux	5 ... 1000 lux	10... 1000 lux		5 ... 1000 lux	
Cage terminal maximum wire size	2 x 2.5mm ²					
Stockage temperature °C	-30 ... +70 °C					-20 ... +60 °C
Operating temperature °C	-20 ... +50 °C	-25 ... +50 °C	-20 ... +50 °C		-20 ... +45 °C	
Operating Humidity	90% RH Max					
Salt air resistant	Yes	-			Yes	-
Insulation class	Class II					
Ingress protection	IP55/IK04					
Product Dimension (LxWxD) mm	100x127x140	201x145x179	100x127x140	164x127x140	226x136x141	257x322x150
Performance specified for an ambient temperature of 20° C and a height of 2.5m						

* product equipped with sensor

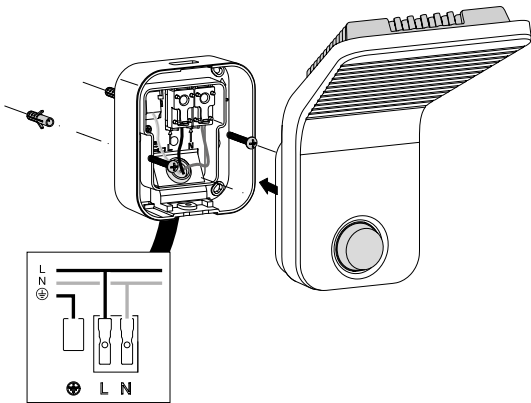
Floodlight 700 - 1200 - 2000 - 3000 lumens



EE63x - EE64x Detection Zone

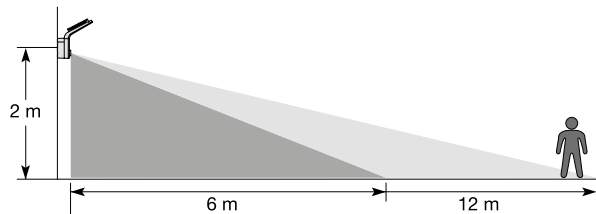


Floodlight 1100 lumen

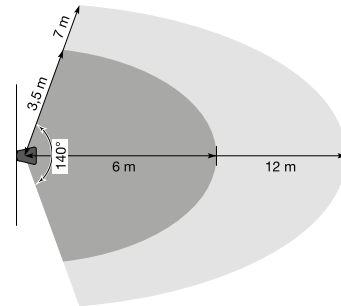


EE610 Detection Zone

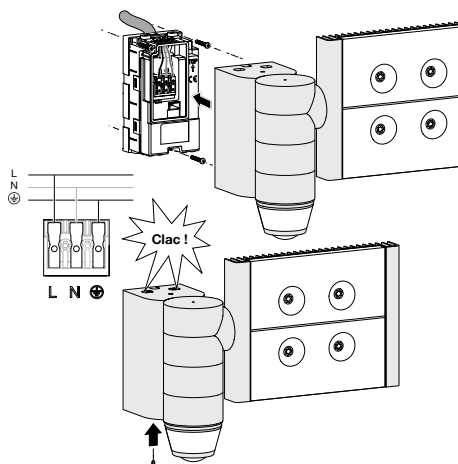
Optimal installation height is 2 m.
The detection zone shall remain free of obstacle.



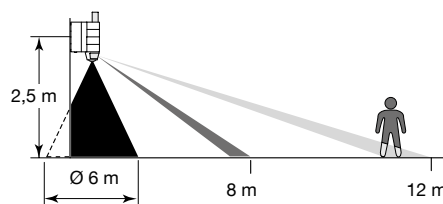
- D default detection area (set at factory)
- R remotely adjustable maximum detection area (EE806 /52900)



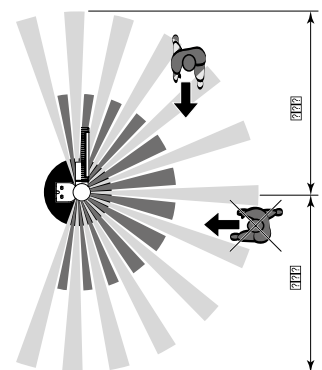
Floodlight 3400 lumen



Detection zones



Optimal installation height is 2.5m.
The detection zone shall remain free of obstacle.



Time lag switches

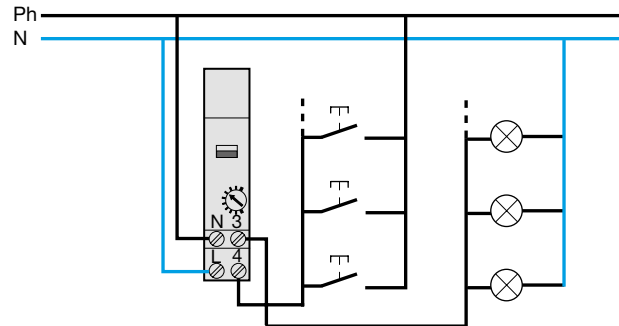
Common areas where time delay devices are used are stairways and corridors in multi occupancy buildings where they provide a level of energy efficiency. The EMN001 device provides basic time lag control.

Technical specification

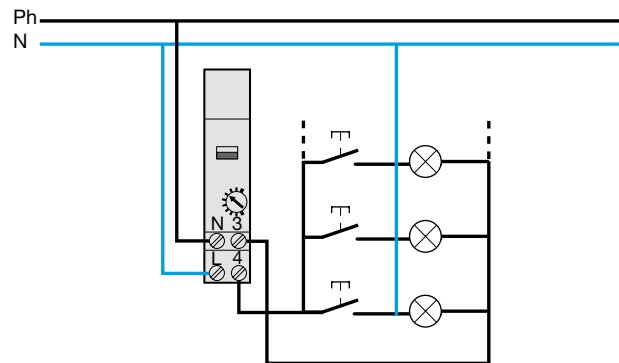
	EMN001 EMN005
Electrical characteristics	
supply voltage	230V +10/-15% 50/60 Hz
consumption	1VA
size (nb of I)	1
Breaking capacity	
AC1	16A 230V AC
incandescent	2300W
halogen 230V	2300W
ferromagnetic transformer	1600W
parallel compensated	capacitor 112µF
fluorescent lamps	1000W
series compensated	3600W
electronic transformer	2300W
compact fluorescent lamps with electronic ballast	60 x 7W or 40 x 11W or 32 x 15W or 20 x 23W
with conventional ballast	23000W
monitoring voltage	-
Functional characteristics	
time delay	30s to 10min
retrigger	yes
max. current in rest position	100mA
automatic 3/4 recognition	yes
local command	automatic / override on
Environment	
working temperature	-10 to +55°C
storage temperature	-20 to +60°C
Connection	
flexible	1 to 6mm ²
rigid	1,5 to 10mm ²

Wiring diagrams EMN001

4-wire



3-wire

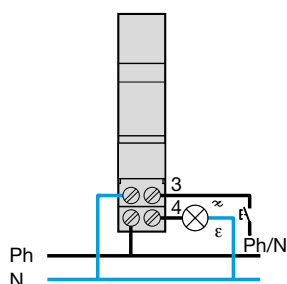


Technical characteristics

	EVN011	EVN012	EVN002	EVN004	EV100	EV102	EV106	EV108
Supply voltage	230 V +/- 10 %							
Frequency	50/60 Hz				50 Hz			
Load consumption	0,2 W				3 W			
Load control type	direct						through dimmer	
Remote power	300 W		500 W		20 to 1000 W		contact 10 A - 230 V	
Compatible load types :								
- incandescent 230 V	300 W		500 W		1000 W		-	
- halogen 230 V	300 W		500 W		1000 W		-	
- VLV halogen with transformer	300 VA		500 VA		1000 VA		-	
- dimmable fluocompact	60 W		100 W		-		-	
- fluocompact and LED not dimmable	-		-		-		-	
- dimmable LED 230 V	60 W		100 W		-		-	
1/10 V control	-				1 input	1 input/ output	1 output	
1/10 V control status	-				slave	slav./mast.	master	
I max. authorized for PB light	5 mA		-	5 mA	-			
max. PB-dimmers distance or 1-10 V control	50 m							
dim PB and ON/OFF on module	no		yes					
Number of preset lighting levels	-			1	-	2	-	3
Preset lighting levels control entry	-			1	-	2	-	2
Min. and max. dim lighting setting	-				yes			
On/Off status indication output	-					1 NO contact	-	
Values digital display	-					yes		
Max. power dissipation	2.1 W		4.5 W		15 W		6 W	
IP	IP 20							
Operating temperature	- 10°C to + 45°C							
Storage temperature	- 25°C to + 70°C				- 20°C to + 60°C			
Rigid connection	1.5 to 6 mm ²				1.5 to 10 mm ²			
Flexible connection	1 to 6 mm ²				1 to 6 mm ²			

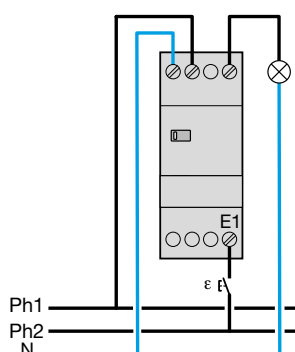
Wiring diagrams

EVN011 - EVN012

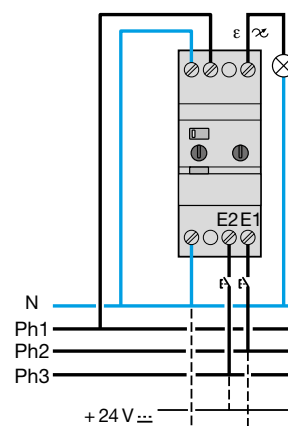


Use the same phase for control and supply.

EVN002



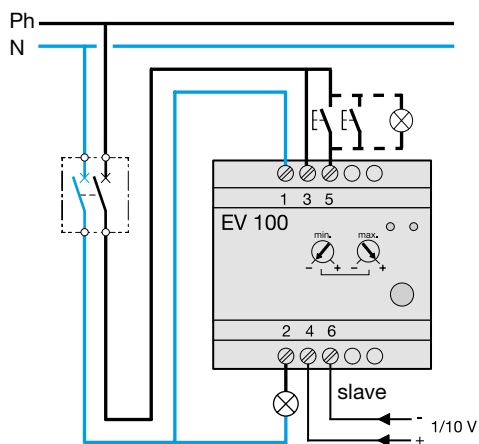
EVN004



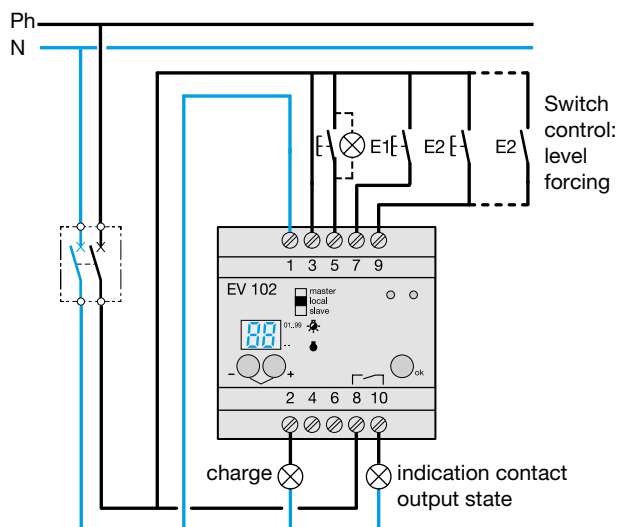
Do not forget to connect the 2 neutral points.

Wiring diagrams

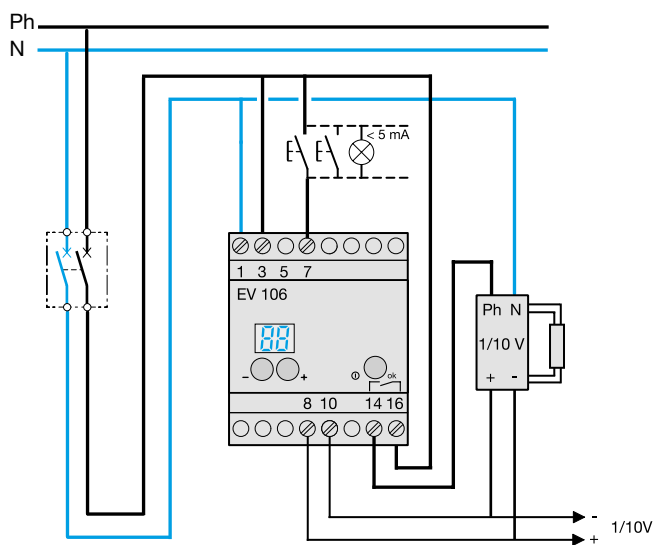
EV100



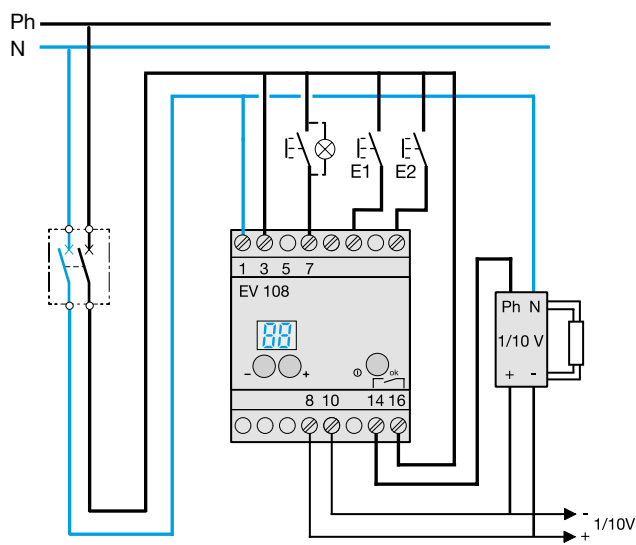
EV102



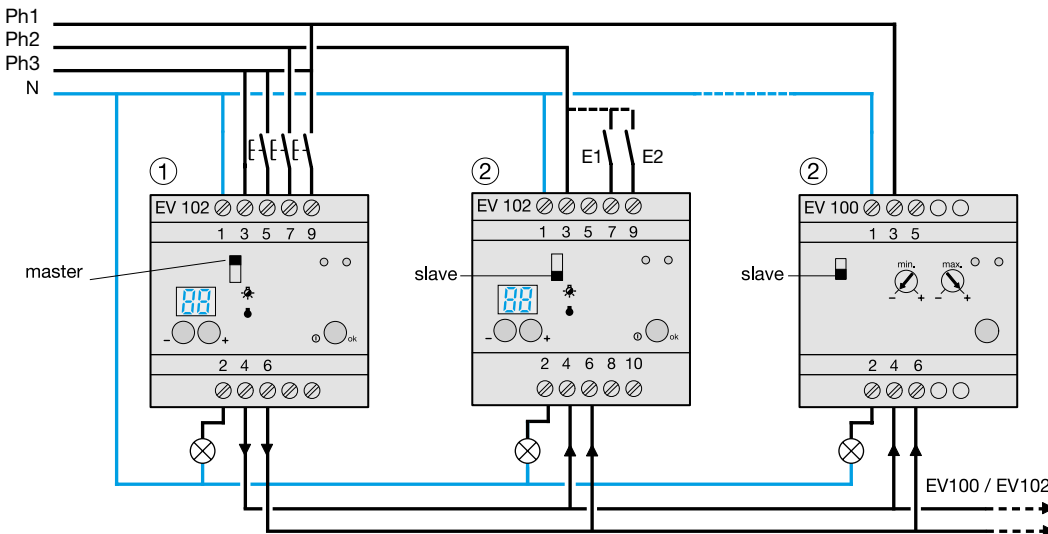
EV106



EV108



Association of dimmer EV102 with EV100

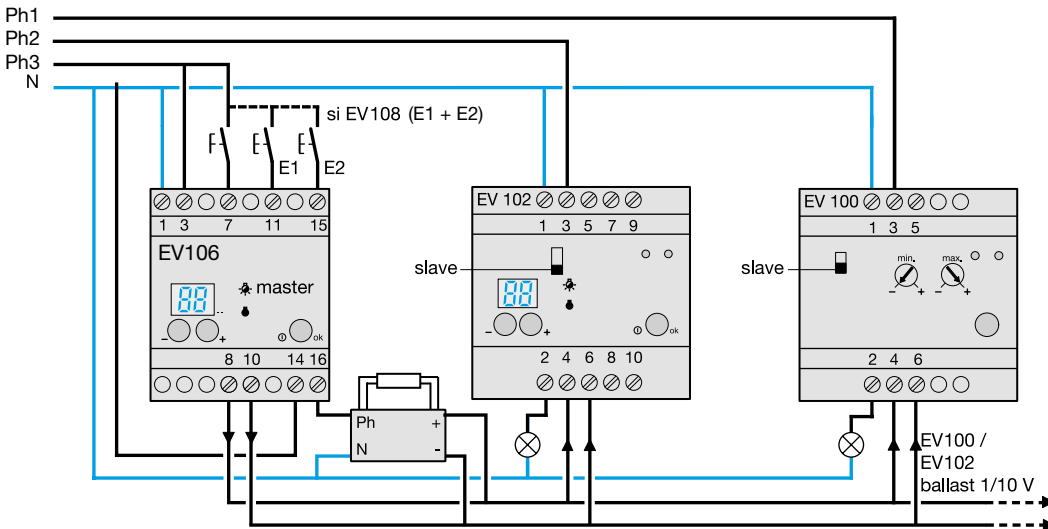


- ① mode switch in position “master” = output 1/10 V.
- ② mode switch in position “slave” = input 1/10V (in this position only priority settings with E1 and E2 are available)

Remark: it is possible to extract temporarily a product from system by switching from “slave” to “local”.

Use of input E1 and E2

(call of set up levels)
Inputs E1 and E2 allow to call 2 or 3 set up lighting ambient levels. Call of levels can be done normally with push button (impulse ≤ 400 ms) or by priority setting with switch or automation (maintained contact). Setup mode 1 or 2 allows to discriminate behaviour of dimmer by cancellation of priority setting.



- **mode 1** (by default), corresponds to normal use.
 - Control by push button, called level is applied out of respect of set up transition. Dimmer still reacts to the other controls applied.
 - Switch control, called level is applied by priority setting out of respect of set up transition. By cancellation of priority setting, lighting remains at the same level as long as no other control is given.
- **mode 2**, particularly adapted for priority setting. Same behaviour as above by call of level. By desactivation of priority setting, dimmer set back to the preceding state. In that mode, when the 2 entries are simultaneously active, a 3rd level becomes available in priority setting ($E1+E2 = E3$).

Twilight switches (DIN rail mounted)

	EEN100	EEN101	EE110	EE171
Width in	1	1	5	3
Electrical characteristics				
voltage supply	230V 50/60Hz			
consumption	300 mW maximum		1.5 VA	
output	1 voltage free changeover contacts			
Maximum switching capacity				
AC1	16A / 250V			
incandescent lamps	1500W	1500W	2000W	
230V halogen lamps	1500W	1500W	1000W	
fluorescent tubes connected in parallel	200W			
fluorescent tubes non compensated	1000W			
compact fluorescent	20 x 20W			
LED	20 x 20W			
fluorescent tubes with ferromagnetic or electronic ballasts	-			
halogen lamps with ferromagnetic or electronic ballasts	-			
Functional characteristics				
lighting level : 2 ranges	5 to 100 lux and 50 to 2000 lux			
ON and OFF delay	60 seconds		15 to 60 seconds	
mounting of cell	surface	flush* or surface	surface	
programmable	-		yes	yes, free prog.
technology	-		electromechan.	
cycle	-		24 hours	7 days
programming setting	-		15 min.	1 min
accuracy	-		+/- 6min/year	
operating reserve	-		accu 200h after beeing connected for 120h	lithium battery total of 3 years of supply failure
Environment				
working temperature	0 to +45°C		-30°C to +60°C (cell) -10°C to +50°C (mod. device)	
storage temperature	-25°C to +70°C		-20°C to +60°C	
Connection				
maximum length between cell and modular device	50 meters			
capacity (modular device)	1.5 to 6mm ²		0.5 to 4mm ²	
capacity (cell)	-		0.75 to 4mm ²	

Note : * delivered with a 1m cable (2x0.75mm²)

Mounting the cell

To ensure correct operation of the light sensitive switch, the cell must not be influenced by artificial light or direct solar radiation and should be sheltered from dust and humidity. In case of disconnection of the link between the cell and the light sensitive switch, the output of the device will be switched on. Make sure the light sensitive switch is unplugged before connecting the cell.

Adjustment of the working level

The test position of the override selector 1 makes setting the preset level easier by removing the ON and OFF delay.

Select the sensitivity range which suits your application (selector 1)
5 to 100 lux (low light level) application examples; public lighting, shop windows, signals...

50 to 2000 lux (high light level) application examples; controls of shades.

At the appropriate moment of the day, put the selector 1 in test position; turn the potentiometer 2 up to the switching point (the indicator 4 lights); put the selector back to position "auto" the normal operating mode of the device.

Cells	EEN002	EEN003
Type	flush mounting	surface mounting
Dimension (mm)	89x48x32	25x25x20 hole Ø 2,5mm
Connection	cable 1m 2x0.75mm ²	0.75 to 4mm ²
Ingress protection	IP54	
Working temperature	-30°C to +60°C	
Storage temperature	-25°C to +70°C	

Light sensitive switches

Using light sensitive switches can prevent the unnecessary use of lighting circuits where sufficient daylight exists. The benefit of modular devices is the facility to set the ambient lighting level at which the device will operate, and as the device is fitted at the distribution point prevent unauthorised tampering. The remote photocell unit can be mounted up to a distance of 50 metres from the device. Two devices are available the standard EE100 light sensitive switch and an enhanced programmable version the EE171 that also allows time clock control.

Principle of operation

Both devices control lighting systems according to natural illumination;

- The user sets the working level;
- The photo cell measures the external light level

The output of the EE100 is:

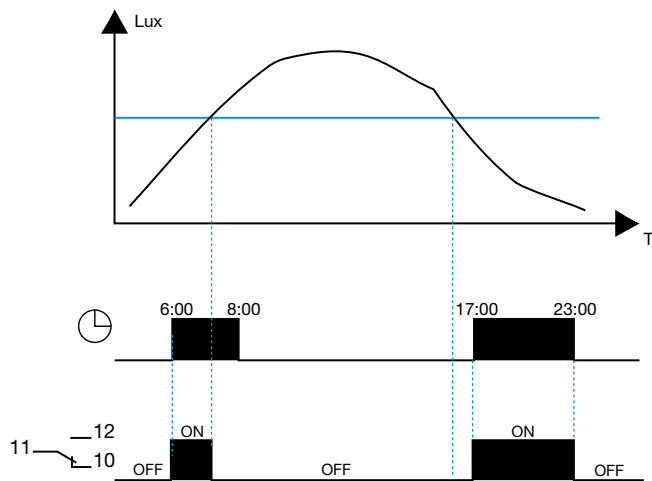
- ON, when the measured level is lower than the pre-set light level
- OFF, when the measured level is higher than the pre-set light level

The output of the EE171 during the programmed ON time period is:

- ON, when the measured level is lower than the pre-set light level
- OFF, when the measured level is higher than the pre-set light level

The output of the EE171 during the programmed off time period is:

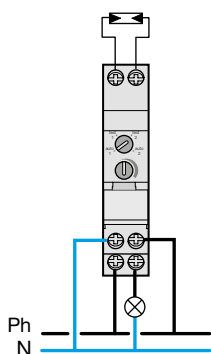
- OFF, regardless of the lighting level



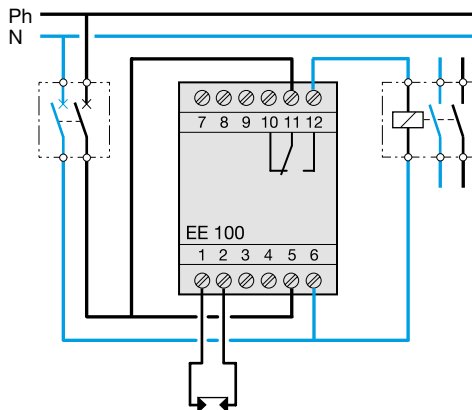
The light sensitive switches include a built in time delay which avoids unnecessary switching due to temporary factors such as car headlight beams etc...

Wiring diagram

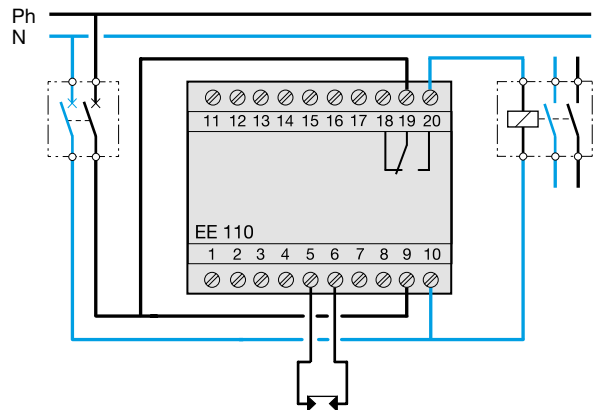
EEN100, EEN101



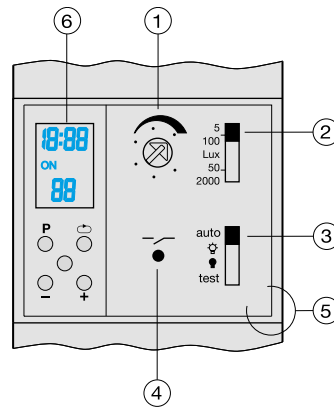
EE171



EE110



Description



The programmable light sensitive switch EE171 has two main functions:

- Light sensitive switch comprising:
 - 1 - override selector switch to allow permanent ON or OFF, auto or test mode
 - 2 - lighting range selector
 - 3 - potentiometer to set light level
 - 4 - indicator to show output switching status
- A programmer to establish the automatic operating cycle.

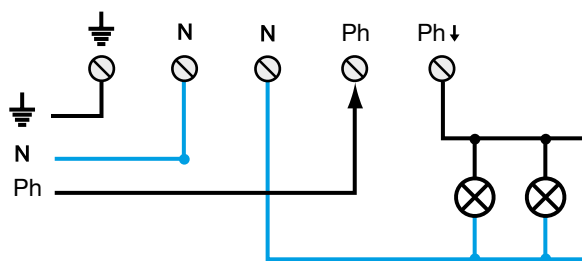
The programmer comprises 4 keys:

 - 5 - ON / OFF to choose whether the circuit is on or off
 - 6 - prog to set the program and scroll program steps
 - 7 - reset
 - 8 - + and - to change settings

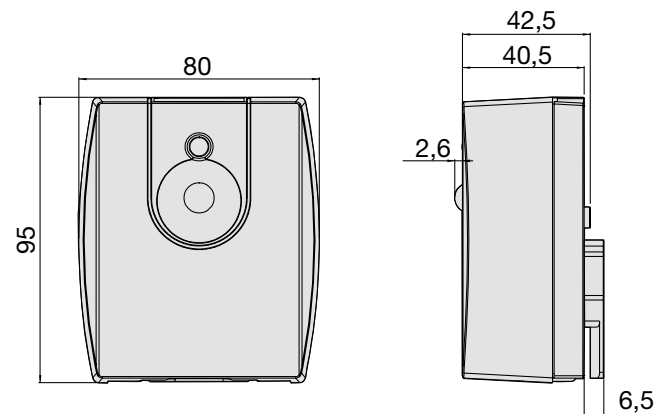
Twilight switches (surface mounted)

	EE701	EE702
Description	Compact light switch basic 10A	Compact light switch enhanced 16A
Dimensions	80 x 40.5 x 95 mm	
Supply voltage	230V AC (+10%/-15%), 50Hz	
Characteristics of relay	NO contact 8A AC1	NO contact 16A AC1
incandescent	1000W	2300W
halogen ELV (12 or 24V) via ferromagnetic or electronic transformer	750 VA	1500 VA
non compensated fluorescent tubes	12x20W	20x20W
compact fluorescents	1000W	2000W
electronic ballast	8x58W	16x58W
Connection		
flexible	1 to 6mm ²	
rigid	1.5 to 10mm ²	
Environment		
storage temperature	-30°C to +60°C	
operating temperature	-25°C to +45°C	
IP / IK	IP55 / IK03	
isolation class	II	
Standards	NFC 15 100 - IEC 60364-1-EN 60669-2-1	
Functional characteristics		
lighting switching-on level	Fixed (lighting switching-on level : 10 lux / lighting switching-off level : 30 lux	Setting by potentiometer from 2 to 1000 lux hysteresis 10%
setting delay	40 seconds	Setting by potentiometer from
tripping delay	120 seconds	1 to 120 seconds
mounting	on wall / on round box / on pillar	

Electrical connections



Dimensions



References	EE200	EE202
Electrical characteristics		
supply voltage	230 V AC +10/-15% 50 Hz	
Consumption	1.5 VA max	
outputs	2 NC	
maximum switching capacity	16 A 250 VM AC1	
incandescent lamps	2300 W	
230 V halogen lamps	2300 W	
halogen VLV via ferromagnetic transformer	1500 VA	
halogen VLV via electronic transformer	2300 W	
fluorescent lamps in series	3600 W	
compensated fluorescent lamps //	1000 W capacity 112 µF	
compact fluorescents with electronic ballast	450 W	
compact fluorescents with traditionnelle ballast	2300 W	
state indicator led	1 red led per channel	
2 sensitivity ranges	2 to 200 lux 200 to 20 000 lux	
ON and OFF delay	30s	
switch of operating mode auto / test	auto = normal operating mode test = to test light level, 30s delay does not apply in this operating mode	
switch of operating mode auto / semi-auto with time delay	no	yes, automatic or semi-automatic
delay in semi-automatic mode	-	from 1 min to 2 hours
association of products	slave, can only be associated with EE202	master or slave, can be associated with max. 10 products
Connection		
max. length between cell and switch	50 m, input signal voltage 0 or 230 V	
lmax. length between 2 switches	unpolarised connection 2 wires 1 to 6 mm ² , max. 50 m	
flexible	1 to 6 mm ²	
rigid	1.5 to 10 mm ²	
Environment		
working temperature	0°C to +45°C	
storage temperature	-20°C to +60°C	

Functions of EE202

Automatic mode :

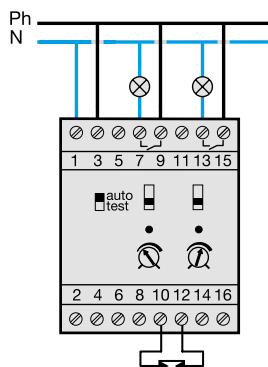
(potentiometer ⑤ is set to mode 1 position)
In this mode, the light sensitive switch controls outputs when the brightness level is too low, provided E1 input is activated (230V voltage is present).
An override push button is connected to E2 input and makes it possible to reverse the state of lighting areas.
Lighting is automatically switched off as soon as E1 is deactivated (0V) or the brightness level is sufficient.

Semi-automatic mode (mode 2) :

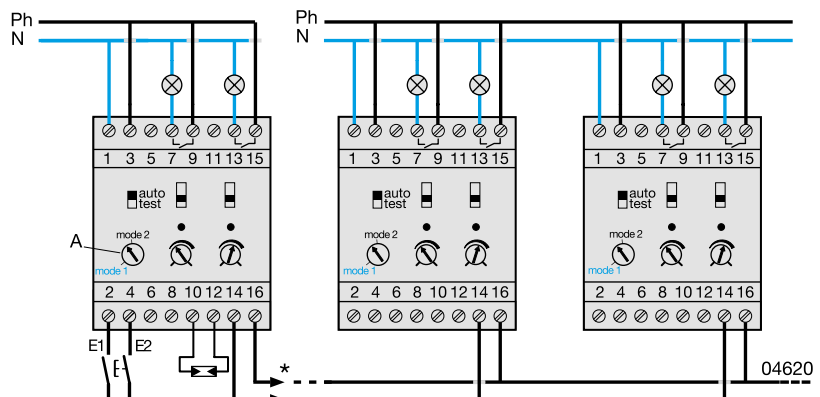
In this mode, the E1 input is used to define authorization periods (230V voltage is present on the lighting input E1).
A push button connected to the input E2 is used to switch the light ON/OFF.
Except in authorization periods, the lighting time is delayed.
The potentiometer is used to adjust the delay.
During periods of authorization, a push button is used to switch on lighting. Then, the control of lighting in the area depends on thresholds of brightness associated with each output.

Wiring diagram

EE200



EE202



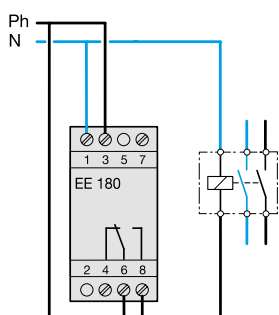
* the link of EE202/EE203 chaining can be used to transmit the lighting level information to several products and extend the number of thresholds and controlled circuits.

Astronomical time switches

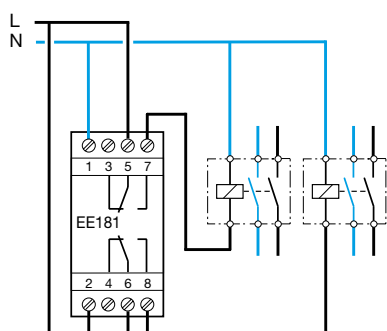
	EE180 (1 channel)	EE181 (2 channels)
Width in ■ 17.5mm	2	2
Supply voltage	230V AC (+10% / -15%), 50/60Hz	
Number of output	1	2
Characteristics of relay	change over contact 16A AC1 250V /10A cos φ = 0.6	
incandescent	2300W	
230V-halogen	2300W	
Connection	terminal n° 5	
flexible	1 to 6mm ²	
rigid	1.5 to 10mm ²	
Environment		
storage temperature	-20°C to +60°C	
working temperature	-10°C to +55°C	
IP and IK	IP 20 IK 3	
Standards	CE + CTICK and CEI 60-669	
Functional characteristics		
display LCD	without backligned screen	
operating reserve	Lithium battery 5 years	
precision	+/- 1.5s/day	
programming key	yes	
automatic change of winter/summer time	yes	
functions available in free programming	weekly programming / permanent override / temporary override	
Astro functions		
astro mode	yes	independent programming for each channel
programming of the lighting interruption	15 / 30 / 60min.	
maintained ON	yes (if channel ASTRO)	
anticipation ON	adjustment common to the 2 channels	

Electrical connection

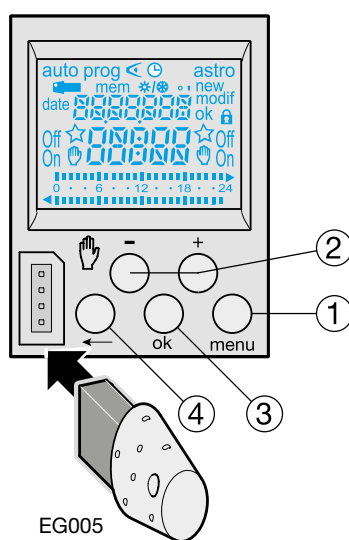
EE180 : 1 channel



EE181 : 2 channels



Presentation



Keys:

- ① **menu** : selection of operating mode
- auto** : mode of running according to the program selected.
- prog** : new for programming mode.
- prog** : modify to modify an existing program.
- ↔** : checking of the program.
- ⌚** : modification of time, date and selection of the winter / summer time change mode
- astro** : astronomical mode **⚙️/⚙️**
- ☆** : indicates that the channel is in astronomical mode
- ② **+ and -** : navigation or setting of values.
- A** **👉** : in auto mode, selection of overrides,
- B** **👉** : or waivers.
- ③ **ok** : to validate flashing information on display.
- ④ **←** : to return to the previous step.

You may return into auto mode at any moment using **menu**.

If no action is taken for 1 min, the switch returns into auto mode.

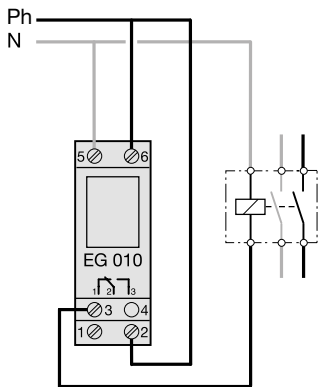
Digital time switches

	EG010	EG110	EG210	EG071	EG170	EG270	EG470
Width in ■ 17.5mm	1	3	3	1	3	3	5
Version	daily	daily	daily	weekly	weekly	weekly	weekly
Electrical characteristics							
voltage supply	230V +15/-15% 50/60Hz		230V +15/-15% 50/60Hz	230V +15/-15% 50/60Hz		230V +15/-15% 50/60Hz	230V +15/-15% 50/60Hz
consumption	1VA						20VA
output	changeover contact						
Switching capacity							
AC1	16A/250V						
inductive load (cos φ = 0.6)	3A/250V						
incandescent lamps	1000W						
Characteristics							
accuracy	+/- 1 sec per day						
supply failure reserve	Lithium battery total of three years						
manual override	permanent ON/OFF	permanent ON/OFF temporary ON/OFF		permanent ON/OFF	permanent ON/OFF temporary ON/OFF		
Environment							
ingress protection	IP20						
working temperature	-10 to +50°C						
storage temperature	-10 to +50°C						
connection	0.5 to 4mm ²						

	EG103B/E	EG203B/E	EG493E	EG293B	EG403E
Width in ■ 17.5mm	2	2	4	4	4
Cycle	weekly	weekly	yearly	yearly	weekly
Channels	1	2	4	2	4
Program step	56	56	300	300	300
Min. switching time	1 min		1 min		
Electrical characteristics					
voltage supply	230V +15%/-15% 50/60Hz		230V +15%/-15% 50/60Hz		
consumption	max 6VA		< 2VA		
output	changeover contact		2 changeover 2 NO contacts	2 changeover	2 changeover 2 NO contacts
Switching capacity					
AC1	μ16A/250V		μ10A/250V		
inductive load (cos φ = 0.6)	μ10A/250V				
incandescent lamps	2300W		1500W		
halogen lighting 230V	2300W		1500W		
compensated fluo. tubes //	400W, C=45μF		400W, C=45μF		
non compensated fluo. tubes	1000W		800W		
compact fluorescent tubes	500W		400W		
min. load switching	100mA/250V		100mA/250V		
Characteristics					
accuracy	± 1.5 second per day		+ 0.2 second per day		
supply failure reserve	lithium battery : 5 years				
manual override	permanent ON/OFF temporary ON/OFF				
Environment					
ingress protection	IP20		IP20		
working temperature	-5 to 45°C		-10 to +45°C		
storage temperature	-20 to +70°C		-20 to +70°C		
Connection	flexible: 1 to 6mm ² rigid: 1.5 to 10mm ²		0.75 to 2.5mm ²		

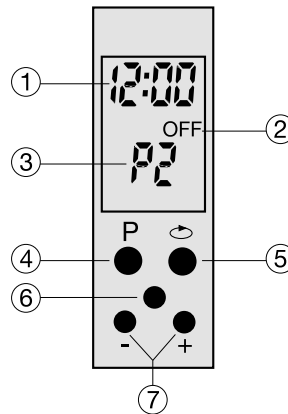
Electrical connections

EG010



5 pre-registered programs:

P	Prog
P0	OFF
P1	ON
P2	6,00 — 23,00
P3	6,00 8,00 17,00 23,00
P4	6,00 8,00 11,00 13,00 17,00 23,00



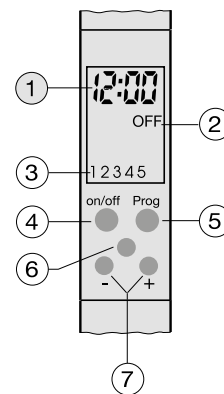
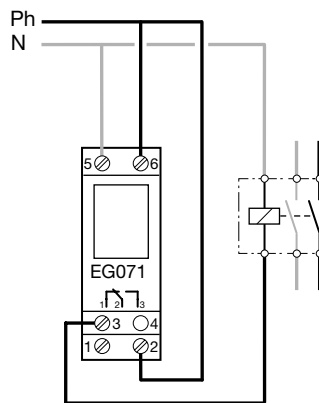
Display :

1. Time
2. Output contact (ON or OFF)
3. Program selected

Buttons :

4. To select the program to apply
5. To scroll program steps
6. Reset
7. + and - : change time settings

EG071



Display :

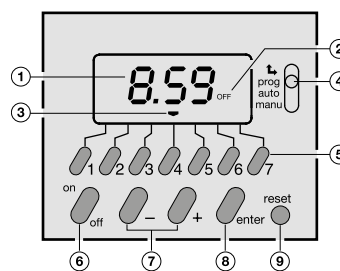
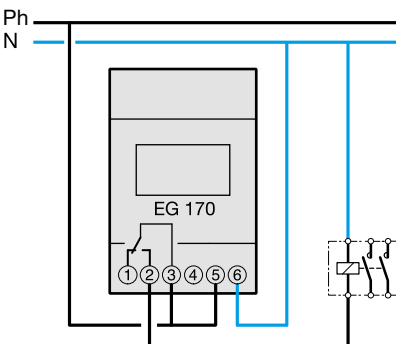
1. Time
2. Circuit status
3. Days

Buttons :

4. To select the program to apply
5. To scroll program steps
6. Reset
7. + and - : change time settings

	EG010	EG071
Electrical characteristics		
voltage supply	230V ±10% 50/60Hz	
consumption	1 VA	
output	1 changeover contact, 16A - 250V AC, 3A - 250V cos φ = 0.6, 1000W incandescent lighting	
Functional characteristics		
number of programs	5 adjustable pre-recorded programs	20 program steps (each program step can be applied to one of several days)
accuracy	± 6 min per year	
supply failure reserve	total of 3 years	
Environment		
working temperature	-10°C to +50°C	
storage temperature	-10°C to +60°C	
Cable capacity	1 to 4mm ²	
Main characteristics	5 programs are pre-recorded. The user just has to select the program which corresponds to its use and modify time switches if necessary	

EG170



Display :

1. Time
2. Circuit status (ON or OFF)
3. Day of the week (1=Monday, 2= Tuesday,...)

Buttons :

4. Mode selector : to select one of the following modes :
 - time setting
 - programming
 - running mode
 - manual override
5. "1" to "7" : selection of the days
6. "ON/OFF" : chooses whether the circuits is ON or OFF.
7. "+" and "-" : changes settings
8. "enter" : to confirm selection
9. "reset"

Technical specifications

Electrical characteristics

- supply : 230 V AC ±15 %
- frequency : 50/60 Hz
- consumption : max. 6 VA at 50 Hz
- output: 1 changeover contact voltage free (EG103B and EG103E)
2 changeover contacts voltage free (EG203B and EG203E)
- max. breaking capacity :
AC1 : μ16A 250 V~
DC1 : μ4A 12 V ...
Cos φ = 0.6 : μ10A 250 V~
incandescent lamps: 2300 W
halogen lamps : 230 V : 2300 W
compensated fluorescent lamps // (max. 45μF) : 400 W
non compensated fluorescent lamps, compensated in series :
1000 W fluo compact lamps : 500 W
- min. breaking capacity :
AC1: 100 mA 250 V~
DC1: 100 mA 12 V ...
- galvanic insulation between supply and output

Functional characteristics

- programming capacity : 56 steps shared on the 2 channels for EG203B and EG203E
- min. time between 2 steps : 1 minute
- accuracy : ± 1,5 sec / 24h
- supply failure reserve : lithium battery total of 5 years of supply failure
- the product switches to watching state (display lighted of) after 1 min without power. It returns into Auto mode at return of power or by push on a button
- ingress protection : IP20

Environment

- working temperature: -5 to +45 °C
- storage temperature: -20 to +70 °C

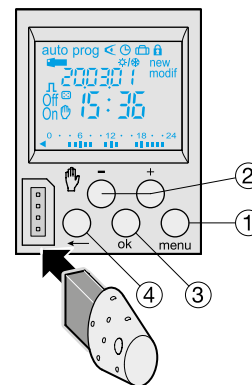
Connection by cage terminals

- flexible: 1 to 6mm²
- rigid: 1.5 to 10mm²

Main characteristics

- product delivered and updated to current date
- automatic change of time schedule summer: winter ☀ / ❄
- programming key: for temporary override for the copy or the saving of the program
- programming per day or group of days
- 56 program steps ON, OFF or impulse : 1 sec to 30 mn. (EG103E and EG203E)
- permanent priority ON or OFF (fixes),
- temporary overrides ON or OFF (blinking),
- holidays mode : priority setting ON or OFF between two dates (EG103E and EG203E),
- presence simulation (EG103E and EG203E)
- bargraph with daily profile display,
- possibility of locking the keyboard
- programmable power off
- backlighted screen (EG103E and EG203E),
- remote controlled temporary overrides (EG103E).

Product presentation



- ① menu: selection of the operating mode
auto: functioning according to the established program
prog: new for the programming
prog: modif to modify an existing program
◀: checking of the program
⏪: modification of the hour, the date and the choice of the mode of change of the time schedule summer/winter ☀ / ❄
- ② : holidays (EG103E and EG203E)
 + and -: navigation or adjustment of the values in Auto mode, selection of priority settings, overrides or of random functioning (EG103E and EG203E)
- ③ ok: to validate the blinking info
- ④ ←: return at the preceding step

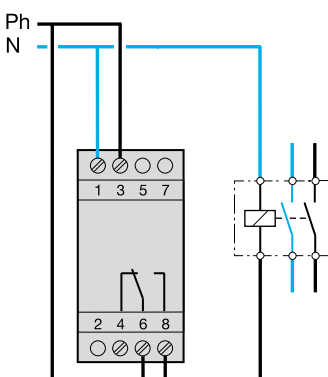
You can return in Auto mode at any time with the menu key. If no action is made during 1 min, the switch returns into Auto mode.

Reset :

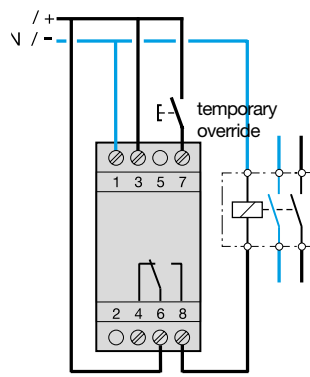
- of program : it can be completely delated by simultaneous push on the 3 following keys : menu, ok and ←. the hour and the date are maintained
- Total : by simultaneous push on menu and ok keys and ←, the whole content of the product is removed. After a total reset, it is necessary to redefine the hour and the date.

Electrical connection

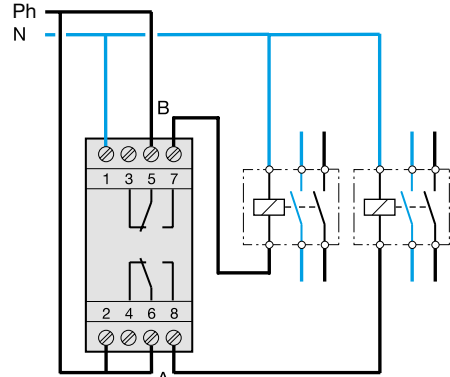
EG103B



EG103E



EG203E / EG203B



EG493E yearly programmer

Electrical characteristics

- supply: 230 V +10 -15% 50/60 Hz
- consumption <2 VA
- output: 2 changeover switches and 2 normally open contact
μ 10 A - 250 V~ AC1

Functional characteristics

- annual cycle
- programming capacity : 300 program steps
- functioning rate accuracy : ± 0.2 sec / day

Environment

- working temperature: -10 at +45 °C
- storage temperature: -20 at +70 °C

Connection capacity:

0.75 to 2.5mm²

Main characteristics

Programming

- Large display with programming instructions.
- 300 program steps (Basic weekly program, 9 sub-programs, specific program step, additional program step.).
- Advanced functions :
 - Easter function : the clock calculates each year the new date of events linked to easter.
 - Day of the week function : the clock calculates each year the new date in order to match the day of the week (ex : 2nd Sunday of March)

Automatic change summer / winter

pre-defined or customized settings

Programming key (copy, save, override)

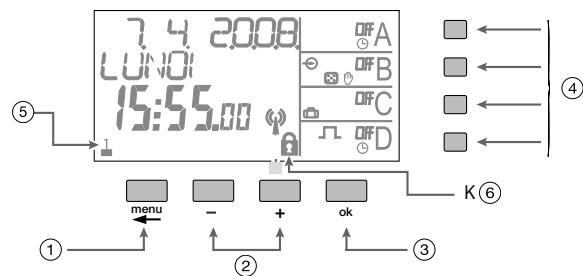
Additional characteristics

- The output can be defined as ON, OFF, impulse or Cyclic operating.
- Hours counter on each output
- Key board locking via PIN code
- 1 button per channel for manual override (permanent, temporary or random)
- 1 input for external override (changeover, permanent ON or OFF, random, time limited..)

Casing

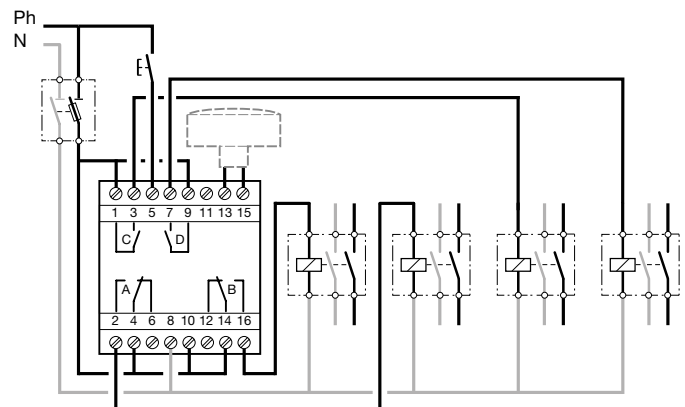
- 4 modules
- Connection with **quickconnect** terminals.
- 2 changeover and 2 NO contacts (10A-AC1)

Presentation



- ① enter in program mode and return to previous step
- ② navigation and value setting
- ③ validation
- ④ manual override:
 - auto
 - random
 - temporary override
 - permanent override
- ⑤ selection of the days of the week:
 - 1 = monday
 - 2 = tuesday
 - ...
 - 7 = sunday
- ⑥ PIN number locking

Electrical connection

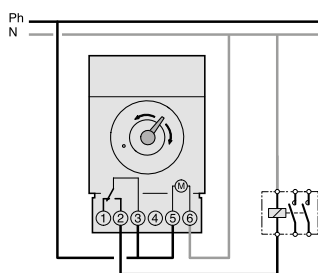


Modular analogue time switches

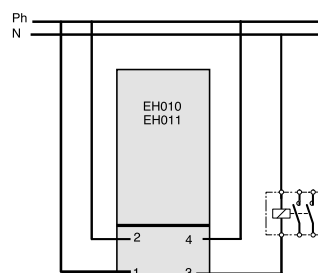
		EH0xx		EH1xx		EH7xx	
operating cycle		24 h	7 j	24 h	7 j	24 h	7 j
switching dial		15 min	1 h 45	15 min	2 h	10 min	1 h
min. switching		15 min	1 h 45	30 min	4 h	20 min	2 h
max. number of switching		96	96	48	42	72	84
accuracy		2 min 30	15 min	1 min 30	10 min	1 min 30	10 min
voltage supply		230 V ± 10 %		6 to 24 VAC/DC or 230 V ± 10 %		6 to 24 VAC/DC or 230 V +10/-15 %	
frequency		50/60 Hz		50/60 Hz		50/60 Hz	
consumption		0.5 VA		0.5 VA		0.5 VA	
changeover contacts potential free or NO contact	resistive load	16 A / 250 V AC 1		16 A / 250 V AC 1		16 A / 250 V AC 1	
	inductive load (cos φ = 0.6)	4 A / 250 V		3 A / 250 V		3 A / 250 V	
	incandescent lamps	-		900 W 250 V		1000 W 250 V	
	cage motor	-		350 W 250 V		350 W 250 V	
accuracy		1 s / 24 h		1 s / 24 h		1 s / 24 h	
working temperature		-10°C to +55°C		-10°C to +55°C		-10°C to +50°C	
storage temperature		-20°C to +65°C		with working reserve -10°C to +55°C without working reserve -20°C to +70°C		-20°C to +60°C	
connection		1 to 6 mm ²		1 to 6 mm ²		1 to 6 mm ²	
insulation class		II (under box cover) IP		II (under box cover) IP		II	
ingress protection		20 (under box cover)		20 (under box cover)		IP 20/IK 03	
complies with EN 60.730		yes		yes		yes	

indicated performances for an ambient temperature of 20°C

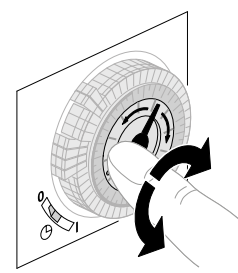
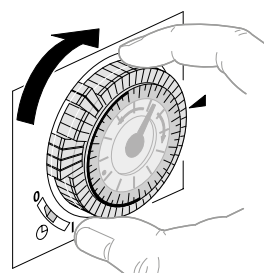
	EH209	EH210	EH211	EH271	EH110A	EH111A	EH171A
Width in ■ 17.5mm	2	2	2	2	3	3	3
Version	daily	daily	daily	weekly	daily	daily	weekly
Electrical characteristics							
voltage supply	110-230V +10/-15%		230V +10/-15%		6 to 24V AC/DC		
frequency	50/60Hz				50/60 Hz		
consumption	0.5 VA				0.5 VA		
output	1NO changeover				1NO changeover		
Switching capacity							
AC1	16A/230V				16A/230V		
inductive load (cos w = 0.6)	4A/230V				4A/230V		
incandescent lamps	1000W				900W		
Characteristics							
technology	quartz				quartz		
dial	24 h		7 days		24 h		7 days
switching dial	15 min		1 h 45		15 min		2 h
min. switching	30 min		3 h 30		30 min		4 h
max. number of switching	48				48		
accuracy	+/- 1 sec per day				± 6 min per year		
supply failure reserve	-	-	200 h	200 h	-	72 h	72 h
reached in	-	-	120 h	120 h	-	120 h	120 h
manual override	auto/ON/OFF				auto/ON/OFF		
Environment							
ingress protection	IP20				IP20		
working temperature	-10° to +55°C				-10° to +55°C		
storage temperature	-20° to +70°C				-20° to +70°C	-10° to +55°C	
connection	1.5 to 6mm ²				1 to 4mm ²		



EH110 connection



EH010, EH011 connection



Simple setting and programming thanks to bidirectional switching dial

Wireless home automation

With coviva, you can transform existing electrical installations into a smart home without any construction work or cable routing.

Simply combine coviva's micromodules with a smartbox and the coviva app to create a smart home that's easy to install, monitor and control.



coviva smartbox	17.2
Micromodules	17.3
Remote controls and transmitters	17.6
Wireless control solutions for renovation	17.8
KNX wireless system platform	17.10
sepio alarm system	17.16
Fire alarm	17.33
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TKP100A

coviva smartbox

Operating voltage:	5V=
Power consumption:	< 3 W
Transmission frequency:	868...870/433...434 MHz
Receiver category:	2
Transmitter duty cycle:	0.1...10%
Wireless range (open air):	300m
Network connection --> LAN:	at least Cat.5e-shielded
Network connection WLAN (optional):	802.11 b/g/n
USB port (only suitable for TKH180):	5 V=/250 mA in each case
Protection class, protection type:	II, IP30/IK04
Operating temperature :	0...40 °C
Storage temperature:	-25...70 °C
Relative humidity without condensation:	93% at 40°C
Dimensions (W x H x D):	178.5 x 156 x 48.4 mm

Delivery scope:

- coviva smartbox, adapter plate for optional wall mounting, RJ45 connection cable Cat.5e, power supply unit 230 V AC/5 V DC
- for visualising and controlling quicklink installations via an app.
- for Apple and Android smartphones
- coviva smartbox can only be commissioned with a myHager account as a registered electrician
- with 3 LEDs on the rear side (operation, WLAN and online) and one status RGB LED in the upper recess

Design

Cat. ref.

coviva smartbox

TKP100A



TKH180

USB stick for coviva

Operating voltage:	5V=
Current consumption:	max. 250 mA

- USB stick can be inserted to the side or rear of the coviva smartbox, depending on the installation
- WLAN connection of the coviva smartbox is only possible with the USB stick TKH180

Design

Cat. ref.

WIFI USB stick for coviva smartbox

TKH180

Robust and reliable, Hager's micromodules are compatible with all devices on the market. They enable lighting and powered opening/closing systems to be controlled remotely with the addition of wireless control points, so there will be no works or damage to your interior decoration.



Linked to coviva, they ensure remote and local control by smartphone or tablet. quicklink designates the set-up mode without any tools by using the buttons found on the products.



- Lighting functions
- On/Off (switch)
 - On
 - Off
 - On/Off (switch)
 - On/Off dimming
 - ON dimming '+'
 - OFF, dimming '-'
 - Timer
 - Scene setting

TRM693G:
This module is particularly appropriate for any type of lighting control, including CFL and LED.

- Rolling shutter functions
- Raise
 - Lower
 - Scene setting
 - Raise / lower (switch)
 - Force raise
 - Force lower
 - Repetition

Automatic recognition of the type of command (switch or push button) Paired On/Off switch inputs benefit from this function.

Repeater function
All products powered by mains are repeaters, boosting the signal.

Micromodule 2 battery inputs

- lithium battery powered CR 2430 3 V
 - LED powered
 - dimensions (H x L x D): 41 x 39.5 x 11 mm
 - 2 inputs for potential-free contacts
 - All types of command
- raise / lower
 - start / stop
 - scene setting
 - etc.

Description
light grey

Cat. ref.
TRM702A



TRM702A

Micromodules for controlling lighting ON/OFF without neutral (2 wires)

- dimensions (H x L x D): 40 x 40 x 18 mm
- 1 x 200 W 230 V output without neutral (incandescent, halogen BT, halogen TBT, dimmable LED) and 2 inputs for potential-free contacts

Description
light grey

Cat. ref.
TRM690G



TRM690G

Micromodules for controlling lighting ON/OFF dimming without neutral (2 wires)

- dimensions (H x L x D): 40 x 40 x 18 mm
- 1 x 200 W output without neutral (incandescent, halogen BT, halogen TBT, dimmable LED) and 2 inputs for potential-free contacts

Description
light grey

Cat. ref.
TRM691E



TRM691E

Micromodules for controlling lighting ON/OFF with neutral (3 wires)

- dimensions (H x L x D): 40 x 40 x 20 mm
- 1 x 3 A 230 V output with neutral with zero crossing switch, 2 inputs for potential-free contacts. Suitable for all kinds of lamps.

Description
light grey

Cat. ref.
TRM693G



TRM693G



TRM692G

**Micromodule for controlling rolling shutters / awnings
rolling shutters 4 wires**

(↑, ↓, Ph, N)
- dimensions (H × L × D): 40 × 40 × 18 mm
1 × 3 A 230 V output for 1 230 V motor
2 inputs for potential-free contacts
TRM692G inputs are pre-configured ↑ / ↓
for switches to be linked

Description

light grey

Cat. ref.

TRM692G



TRM694G

Micromodule multifunction

for controlling:
- garage doors, gates
- automatic pulse control
- door release
- SELV output
- dimensions (H × L × D): 40 × 40 × 20 mm

1 × 4 A potential-free output
2 inputs for potential-free contacts

Description

light grey

Cat. ref.

TRM694G

Simple configuration in 3 steps



01 Once the switch is connected to the emitter, start the configuration by pressing **cfg** button and then the button on the switch.



02 Select the function on the output (1 function = 1 color pattern). Validate by a long press > 2s until the LED blinks.

03 Exit configuration mode by a short press on **cfg** button on the emitter.

1 color pattern = 1 function

LED colour	On/Off Receivers	Dimmers	Shutters/Blinds
	Function	Function	Function
	on off On/Off (Toggle Switch)	On/Off Dimming +/-	Up/Stop (TRM692G only)
	on ON	+ ON (Dimming +)	Up, Stop
	off OFF	- OFF (Dimming -)	Down, Stop
	1 Scenario 1	1 Scenario 1	1 Scenario 1
	2 Scenario 2	2 Scenario 2	2 Scenario 2
	Timer	Timer	Down, Stop
	On/Off (Switch)	On/Off (Switch)	Shutter Control (Switch)
	on Priority ON		Priority UP
	off Priority OFF		Priority DOWN
	Clear	Clear	Clear

*functions only available on TRMxxx

Wireless transmitters enable control points to be easily added increased without any wiring or creating any mess. The TU444 remote control enables a tebis and/or wireless/mixed system to be controlled.

quicklink designates the configuration mode without any tools by using the buttons on the products.

Characteristics

- unidirectional transmitters in use and bidirectional in configuration
- frequency: 868.3 MHz wireless KNX
- low battery indication
- average battery lifetime: 5 years
- range: 100 m minimum in open field and through 2 concrete slabs

Take care with unused inputs; do not cut the wires and do not remove the insulation sleeves.

* according to the installation/assembly conditions



TRM600

Micromodule for remote controlled switches and timers

Enables a wireless control point to be added to an existing remote controlled or timer switch circuit.
- dimensions (H x L x D): 40 x 40 x 18 mm

Generates a pulse contact lasting 200 minutes
Connects behind a push-button in the existing circuit.

Description

white

Cat. ref.

TRM600



TU418

Remote controls wireless KNX

- equipped with CR 2430
- 3 V battery

Description

2 buttons

4 buttons

6 buttons

6 buttons - 18 channels

Cat. ref.

TU402

TU404

TU406

TU418



TRC301B

Wireless magnetic opening contact sensor

- 2 x LR03 batteries supplied

Description

white

Cat. ref.

TRC301B



D8931

Wireless magnetic opening contact sensor

To be connected with TRC301B NC contact (magnetic)

Description

surface-mounted terminal block - white

universally protected - 1 m cable - white

Cat. ref.

D8924

D8931



TRC321B

Wireless light sensor with suction

For controlling shutters (sun protection, light-sensitive switch function)
- suction cell

- fibre-optic
- 1.5 m cable

Description

white

Cat. ref.

TRC321B

KNX wireless wall-transmitter 1 or 2 gang flat quicklink

For wireless remote control of all assigned KNX wireless receivers.

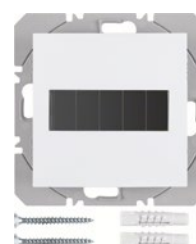
Operating voltage:	5V=
Power consumption:	< 3 W
Transmission frequency:	868...870/433...434 MHz
Receiver category:	2
Transmitter duty cycle:	0.1...10%
Wireless range (open air):	300m
Network connection --> LAN:	at least Cat.5e-shielded
Network connection WLAN (optional):	802.11 b/g/n
USB port (only suitable for TKH180):	5 V=/250 mA in each case
Protection class, protection type:	II, IP30/IK04
Operating temperature :	0...40 °C
Storage temperature:	-25...70 °C
Relative humidity without condensation:	93% at 40°C
Dimensions (W x H x D):	178.5 x 156 x 48.4 mm

KNX Functions available

- reset functions
- functions : Switching , Dimming , Blinds, 2 scenes, Time switching, NO contact push button
- integration in KNX wireless/TP gateway
- surface mounted
- ETS additional functions
- with led configuration
- with push button configuration
- toolless configuration
- delivered with battery 3V type CR 2430

KNX wireless wall transmitter 1 gang flat solar quicklink

Description	Cat. ref.
Berker S.1/B.3/B.7	
white glossy	8565 51 82
polar white glossy	8565 51 89
polar white matt	8565 51 88
anthracite matt	8565 51 85
aluminium, matt, lacquered	8565 51 83
Berker R.1/R.3	
polar white glossy	8565 51 39
black glossy	8565 51 31



KNX wireless wall transmitter 2 gang solar quicklink

Description	Cat. ref.
Berker S.1/B.3/B.7	
white glossy	8565 61 82
polar white glossy	8565 61 89
polar white matt	8565 61 88
anthracite matt	8565 61 85
aluminium, matt, lacquered	8565 61 83
Berker R.1/R.3	
polar white glossy	8565 61 39
black glossy	8565 61 31



KNX wireless wall-transmitter 1-gang flat quicklink

Characteristics



85655289



Operating voltage	3 V=
Battery service life	≈ 5 years
Wireless transmission frequency	868.3 MHz
Wireless protocol	KNX Wireless
Transmitter duty cycle	1 %
Receiver category	2
Number of wireless channels	2
Number of quicklink links	max. 20 transmitter/receiver
Wireless transmission power	< 10 mW
Wireless transmission range (free field)	max. 100 m
Wireless transmission range (building)	max. 30 m
Operating temperature	-5 ... +45 °C
Assembling height	14 mm

For wireless remote control of all assigned KNX wireless receivers.

- reset function (to factory setting)-
- quicklink functions: switching, dimming, blind, 2 scenes, time switching, NO contact push-button, memory
- integration in the KNX wireless/TP gateway, surface-mounted, into the KNX TP system
- ETS additional functions: +6 scenes, operating mode on/off, push-button, status display, dimming value
- with configuration LED
- with transmission status and battery status LED, red/green/orange
- with configuration button
- operating areas configurable as one or two-area operation
- with anti-dismantling protection
- with lithium coin cell battery 3 V type: CR 2430
- top and bottom operating area are freely configurable
- toolless quicklink configuration using buttons and LED display
- for flat surface mounting and extension of combinations



85655289

Design	Order no.	PU
Berker S.1/B.3/B.7		
white glossy	8565 52 82	1
polar white glossy	8565 52 89	1
polar white matt	8565 52 88	1
anthracite matt	8565 52 85	1
aluminium, matt, lacquered	8565 52 83	1

Berker Q.1/Q.3

white velvety	8565 52 22	1
polar white velvety	8565 52 29	1
anthracite velvety, lacquered	8565 52 26	1
aluminium velvety, lacquered	8565 52 24	1

Berker K.1/K.5

polar white glossy	8565 52 79	1
anthracite matt, lacquered	8565 52 75	1
aluminium, matt, lacquered	8565 52 77	1
stainless steel matt, lacquered	8565 52 73	1

Berker R.1/R.3

polar white glossy ¹⁾	8565 52 39	1
black glossy ¹⁾	8565 52 31	1



KNX wireless wall-transmitter 2-gang flat quicklink

Operating voltage	3 V=
Battery service life	≈ 5 years
Wireless transmission frequency	868.3 MHz
Wireless protocol	KNX Wireless
Transmitter duty cycle	1 %
Receiver category	2
Number of wireless channels	4
Number of quicklink links	max. 20 transmitter/receiver
Wireless transmission power	< 10mW
Wireless transmission range (free field)	max. 100 m
Wireless transmission range (building)	max. 30 m
Operating temperature	-5 ... +45 °C
Assembling height	14 mm

For wireless remote control of all assigned KNX wireless receivers.

Characteristics

- reset function (to factory setting)-
- quicklink functions: switching, dimming, blind, 2 scenes, time switching, NO contact push-button, memory
- integration in the KNX wireless/TP gateway, surface-mounted, into the KNX TP system
- ETS additional functions: +6 scenes, operating mode on/off, push-button, status display, dimming value
- with configuration LED
- with transmission status and battery status LED, red/green/orange
- with configuration button
- operating areas configurable as one or two-area operation
- with anti-dismantling protection
- with lithium coin cell battery 3 V type: CR 2430
- top and bottom operating area are freely configurable
- toolless quicklink configuration using buttons and LED display
- for flat surface mounting and extension of combinations



Design	Order no.	PU
Berker S.1/B.3/B.7		
white glossy	8565 62 82	1
polar white glossy	8565 62 89	1
polar white matt	8565 62 88	1
anthracite matt	8565 62 85	1
aluminium, matt, lacquered	8565 62 83	1
Berker Q.1/Q.3		
white velvety	8565 62 22	1
polar white velvety	8565 62 29	1
anthracite velvety, lacquered	8565 62 26	1
aluminium velvety, lacquered	8565 62 24	1
Berker K.1/K.5		
polar white glossy	8565 62 79	1
anthracite matt, lacquered	8565 62 75	1
aluminium, matt, lacquered	8565 62 77	1
stainless steel matt, lacquered	8565 62 73	1
Berker R.1/R.3		
polar white glossy ¹⁾	8565 62 39	1
black glossy ¹⁾	8565 62 31	1



Wireless wall sensor

Can be affixed in an area 'without mains' and controlled by a 230 V wireless receptor with resistive 10 A dry contact.

Characteristics

- available in battery or solar version
- detection angle: 220°
- IP55 / IK04
- unidirectional transmitters in use and bidirectional in configuration
- frequency: 868.3 MHz wireless KNX
- range: 100 m in open field
- equipped with 3 × 1.5 V batteries

Wireless KNX receivers

act as power interfaces for controlling electronic receivers.

Characteristics

- bi-directional receivers
- frequency: 868.3 MHz wireless KNX

Lighting functions

- ON/OFF (switch)
- ON
- OFF
- ON/OFF (switch)
- timer
- forced mode ON
- forced mode OFF

Rolling shutter functions

- raise
- lower
- scene setting
- raise / lower (switch)
- force raise
- force lower



TRE520

Wireless wallmounted KNX infra-red movement sensors

Description

Cat. ref.

Battery transmitter pack + 1 10 A contact receiver

white

TRE700

Battery transmitter

white

TRE520

anthracite

TRE521

Solar transmitter

white

TRE530

anthracite

TRE531



TRE302

Wireless KNX IP55 switches

Possibility of connecting disconnected potential-free contacts

Description

Cat. ref.

1 button 1 input

TRE301

2 buttons 2 inputs

TRE302



TRB302B

Recessed input module KNX wireless

Description

Cat. ref.

2 inputs 230V supply for 2 volt-free input contacts

TRB302B



TRB201

ON/OFF receiver, to be flush-mounted, wireless KNX

- 1 ON/OFF output 16 A / 230 V AC1

Description

Cat. ref.

light grey

TRB201



TRE600

LED projector with movement sensor

60 W LED lamp (300 W halogen equivalent)

- 220 / 360° detection angle
- energy class A
- 5700 K
- 3400 lumen

Description

Cat. ref.

white

TRE600

ON/OFF wireless KNX projected IP55 receivers

Dimensions 150 × 85 × 35 mm

Description

1 × 10 A / 230 V AC1 output (potential-free)

2 × 10 A / 230 V AC1 outputs (potential-free)

Cat. ref.

TRE201

TRE202



TRE201

IP55 wireless projected KNX rolling shutter/blind receiver

Dimensions 150 × 85 × 35 mm

- 1 output voltage / blind raising / lowering

4 wires (↑, ↓, Ph, N)

10 A / 230 V AC1

Description

white

Cat. ref.

TRE221



TRE221

1 input + 1 output IP55 projected wireless KNX receiver

- 1 input 1 potential-free contact

- 1 × 10 A / 230 V AC1 output (potential-free)

Description

white

Cat. ref.

TRE400



TRE400

Motion detector kit IP55 KNX wireless

includes:

- 1 × TRE520 motion detector

- 1 × TRE201 wall mounted output

Description

motion detector kit

Cat. ref.

TRE720



TRE720

KNX wireless switch activator for plugs

- for remote-controlled switching of electrical loads

Description

KNX wireless switch activator

Cat. ref.

TRC270D



TRC270D

KNX wireless System Platform

Hager KNX wireless is a very versatile system. This is because its electronic platform masters both conventional applications and wireless solutions, in a very simple way. As it is a bidirectional wireless system, even existing KNX systems can be extended simply. Also, it is just as easy to install and assign functions and components via quicklink.

Common features

- 230 V, 50/60 Hz, +10/-15 % Low power consumption: < 0.1 W or < 0.3 W
- New PEIS AM/PM interface : better isolation and guiding SW and HW coding PM/AM recognition

- Claws (isolated) with larger opening Anti-theft-solution for all AMs (not for Berker R.x)
- Screw terminals with harder screws
- Uniform, high-value metal ring Mostly slim models (22 mm)

KNX wireless Dimmer

Replace the switch, insert the dimmer: Never before has it been this easy to combine increased lighting comfort with low energy consumption. As the first dimmer of its kind, the KNX wireless universal touch dimmer can control almost all dimmable light sources, from LED and energy-saving lamps through incandescent lamps through to halogen lighting, both reliably and without flickering.



Relay insert

230 V retrofit LED lamps	440W	- parallel compensated	1000W
Dimmable energy saving lamps	440W	- in Duo circuit	1000W
Fluorescent lamps:		- with electronic ballast (EB)	1000W
- uncompensated	1100VA		
Description			Cat. ref.
light grey			8512 12 00



Switch insert 1 gang

230 V incandescent lamps and halogen lamps	25..400W	Dimmable energy saving lamps	13..80W
Dimmable 230 V retrofit LED lamps	5..70W	Dimmable conventional transformers	25..400VA
		Electronic transformers and dual mode transformers	25..400W
Description			Cat. ref.
light grey			8512 11 00



Switch insert 2 gang

230 V incandescent lamps and halogen lamps	35..300W	Dimmable energy saving lamps	15..54W
Dimmable 230 V retrofit LED lamps	12..54W	Dimmable conventional transformers	35..300VA
		Electronic transformers and dual mode transformers	35..300W
Description			Cat. ref.
light grey			8512 22 00



Touch dimmer (R, L)

230 V incandescent lamps and halogen lamps	25..400W	Dimmable conventional transformers	35..300VA
		Number of universal capacity enhancers	max.2
Description			Cat. ref.
light grey			8542 11 00



Universal touch dimmer 1 gang

230 V incandescent lamps and halogen lamps	25..400W	Dimmable energy saving lamps	13..80W
Dimmable 230 V retrofit LED lamps	5..70W	Dimmable conventional transformers	25..400VA
		Electronic transformers and dual mode transformers	25..400W
Description			Cat. ref.
light grey			8542 12 00



Universal touch dimmer 2 gang

230 V incandescent lamps and halogen lamps	35..300W	Dimmable energy saving lamps	15..54W
Dimmable 230 V retrofit LED lamps	12..40W	Dimmable conventional transformers	35..300VA
		Electronic transformers and dual mode transformers	35..300W
Description			Cat. ref.
light grey			8542 21 00

Characteristics

Wireless transmission/reception frequency	868.3MHz	quicklink functions: switching, dimming, blind, 2 scenes, time switching, NO contact pushbutton, memory
Wireless protocol:	KNX protocol	
Wireless transmission range (free field)	100m	
Wireless transmission range (building)	30m	
Operating temperature	-5...+45°C	

Wireless button 1 gang quicklink

Suitable for	Order no.	Page
Relay insert	8512 12 00	17.10
Switch insert 1gang	8512 11 00	17.10
Touch dimmer (R, L)	8542 11 00	17.10
Universal touch dimmer 1gang	8512 12 00	17.10
Mains insert for KNX radio application module	8502 01 00	-

Description

Cat. ref.

Berker S.1 | B.3 | B.7

white glossy	8514 51 82
polar white glossy	8514 51 89
polar white matt	8514 51 88
anthracite matt	8514 51 85
aluminium, matt, lacquered	8514 51 83

Berker Q.1 | Q.3 | Q.7

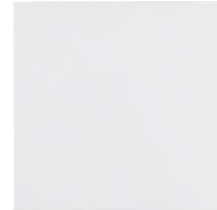
white velvety	8514 51 22
polar white velvety	8514 51 29
anthracite velvety, lacquered	8514 51 26
aluminium velvety, lacquered	8514 51 24

Berker K.1 | K.5

polar white glossy	8514 51 79
anthracite matt, lacquered	8514 51 75
aluminium matt, lacquered	8514 51 77
stainless steel matt, lacquered	8514 51 73

Berker R.1/R.3

polar white glossy	8514 51 39
black glossy	8514 51 31





Wireless button 2 gang quicklink

Suitable for	Order no.	Page
Switch insert 2gang	8512 22 00	17.10
Universal touch dimmer 2gang	8542 21 00	17.10
Mains insert for KNX radio application module	8502 01 00	-

Description Cat. ref.

Berker S.1/B.3/B.7

white glossy	8514 61 82
polar white glossy	8514 61 89
polar white matt	8514 61 88
anthracite matt	8514 61 85
aluminium, matt, lacquered	8514 61 83

Berker Q.1 | Q.3 | Q.7

white velvety	8514 61 22
polar white velvety	8514 61 29
anthracite velvety, lacquered	8514 61 26
aluminium velvety, lacquered	8514 61 24

Berker K.1 | K.5

polar white glossy	8514 61 79
anthracite matt, lacquered	8514 61 75
aluminium matt, lacquered	8514 61 77
stainless steel matt, lacquered	8514 61 73

Berker R.1/R.3

polar white glossy	8514 61 39
black glossy	8514 61 31



Wireless button 4 gang quicklink

Suitable for	Order no.	Page
Switch insert		17.10
Dimmer insert		17.10
Mains insert for KNX radio application module	8502 01 00	-

Description Cat. ref.

Berker S.1/B.3/B.7

white glossy	8564 81 82
polar white glossy	8564 81 89
polar white matt	8564 81 88
anthracite matt	8564 81 85
aluminium, matt, lacquered	8564 81 83

Berker Q.1 | Q.3 | Q.7

white velvety	8564 81 22
polar white velvety	8564 81 29
anthracite velvety, lacquered	8564 81 26
aluminium velvety, lacquered	8564 81 24

Berker K.1 | K.5

polar white glossy	8564 81 79
anthracite matt, lacquered	8564 81 75
aluminium matt, lacquered	8564 81 77
stainless steel matt, lacquered	8564 81 73

Berker R.1/R.3

polar white glossy	8564 81 39
black glossy	8564 81 31



KNX wireless timer quicklink

Description	Cat. ref.	Suitable for	Order no.	Page
		Relay insert	8512 12 00	17.10
		Mains insert for KNX radio application module	8502 01 00	-
Berker S.1/B.3/B.7				
white glossy			8574 52 82	
polar white glossy			8574 52 89	
polar white matt			8574 52 88	
anthracite matt			8574 52 85	
aluminium, matt, lacquered			8574 52 83	
Berker Q.1 Q.3 Q.7				
white velvety			8574 52 22	
polar white velvety			8574 52 29	
anthracite velvety, lacquered			8574 52 26	
aluminium velvety, lacquered			8574 52 24	
Berker K.1 K.5				
polar white glossy			8574 52 79	
anthracite matt, lacquered			8574 52 75	
aluminium matt, lacquered			8574 52 77	
stainless steel matt, lacquered			8574 52 73	
Berker R.1/R.3				
polar white glossy			8574 52 39	
black glossy			8574 52 31	



KNX wireless motion detector comfort 1.1m quicklink

Description	Cat. ref.	Suitable for	Order no.	Page
		Relay insert	8512 12 00	17.10
		Mains insert for KNX radio application module	8502 01 00	-
Berker S.1/B.3/B.7				
white glossy			8534 51 82	
polar white glossy			8534 51 89	
polar white matt			8534 51 88	
anthracite matt			8534 51 85	
aluminium, matt, lacquered			8534 51 83	
Berker Q.1 Q.3 Q.7				
white velvety			8534 51 22	
polar white velvety			8534 51 29	
anthracite velvety, lacquered			8534 51 26	
aluminium velvety, lacquered			8534 51 24	
Berker K.1 K.5				
polar white glossy			8534 51 79	
anthracite matt, lacquered			8534 51 75	
aluminium matt, lacquered			8534 51 77	
stainless steel matt, lacquered			8534 51 73	
Berker R.1/R.3				
polar white glossy			8534 51 39	
black glossy			8534 51 31	





KNX wireless motion detector comfort 2.2m quicklink

Suitable for	Order no.	Page
Relay insert	8512 12 00	17.10
Mains insert for KNX radio application module	8502 01 00	-

Description Cat. ref.

Berker S.1/B.3/B.7

white glossy	8534 61 82
polar white glossy	8534 61 89
polar white matt	8534 61 88
anthracite matt	8534 61 85
aluminium, matt, lacquered	8534 61 83

Berker Q.1 | Q.3 | Q.7

white velvety	8534 61 22
polar white velvety	8534 61 29
anthracite velvety, lacquered	8534 61 26
aluminium velvety, lacquered	8534 61 24

Berker K.1 | K.5

polar white glossy	8534 61 79
anthracite matt, lacquered	8534 61 75
aluminium matt, lacquered	8534 61 77
stainless steel matt, lacquered	8534 61 73

Berker R.1/R.3

polar white glossy	8534 61 39
black glossy	8534 61 31

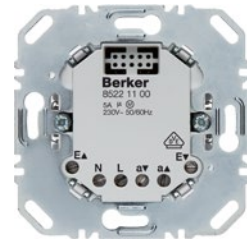
Blind insert Comfort

Description

black glossy

Cat. ref.

8522 11 00



Blind insert comfort

Suitable for

Blind insert comfort
Mains insert for KNX radio application module

Optional

KNX radio brightness sensor

Order no.

8522 11 00
8502 01 00

Page

17.15
-

Description

Berker S.1/B.3/B.7

white glossy	8524 51 82
polar white glossy	8524 51 89
polar white matt	8524 51 88
anthracite matt	8524 51 85
aluminium, matt, lacquered	8524 51 83

Berker Q.1 | Q.3 | Q.7

white velvety	8524 51 22
polar white velvety	8524 51 29
anthracite velvety, lacquered	8524 51 26
aluminium velvety, lacquered	8524 51 24

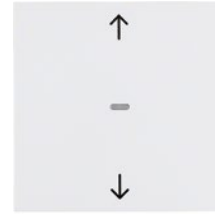
Berker K.1 | K.5

polar white glossy	8524 51 79
anthracite matt, lacquered	8524 51 75
aluminium matt, lacquered	8524 51 77
stainless steel matt, lacquered	8524 51 73

Berker R.1/R.3

polar white glossy	8524 51 39
black glossy	8524 51 31

Cat. ref.



sepio control panel

- sepio wireless system is suitable for retrofitting of residential and small commercial premises.
- sepio is more than just an alarm. Thanks to its connection with your smartphones, it is even more user-friendly, interactive and effective. You can keep in contact with your home, and remotely visualise what is happening there at any moment of the day, or in case of any event detected.
- it features:
 - voice assistance with feedback for installation and use
 - progressive deterrence to dissuade intruders before break-in
 - several steps progressive deterrence with outdoor detector
 - control panel
 - compatible with then old LS range
 - extended connectivity PSTN/GSM/ADSL
 - multi-operator SIM card ensuring the best network availability
 - local and remote devices control

sepio alarm pack

- starter pack to secure housing



RLC304F

Wireless alarm control panel LS, 4 groups

Power supply	RXU05X power pack (4.5V / 14 Ah) RXU01X 200-240 V AC	- control panels manage: intrusion protection, protection of individuals, fire alarm and household protection
Battery life	5 years in normal conditions of use	- adapted for residential and small tertiary premises
Average current consumed	235µA	- can control up to 4 separate protection groups
Operating temperature	-10°C to 55°C	- speech synthesis (6 languages)
Degree of mechanical protection	IP30 / IK06	- 4 customizable command keys and 12 programming keys
Siren acoustic power	100 (±2) dB(A) at 1m	- status change signal light
Dimensions	232 x 232 x 67.7mm	- vocal personalisation of the detectors (max. 40)
Weight	1200g	- log of the last 500 dates and time-stamped events
Central siren with integrated command keypad allowing to parameter and use sepio alarm system.		- 4-step progressive deterrence, with outdoor detector and outdoor siren emitting strobe flashes
		- control can be operated from: remote, keypad with or without badge reader and with or without display, with or without voice synthesis, smartphone

Description
white

Cat. ref.

RLC304F



RLP305F

Security pack, 4 groups

- 1 wireless alarm control panel 4 groups RLC304F
- 2 remote controls, 4 functions info feedback RLF444X
- 2 wireless expert pet tolerant motion detectors S165-22F
- 1 outdoor vocal siren white/orange

Description

wireless alarm pack, 4 groups

Cat. ref.

RLP305F

seprio commands

Remote controls

- ensure wireless control of the alarm system functionalities, as well as lighting and shutters. They allow to locally or remotely send alerts through the system: alert, silent alert, fire alert, audible call.

Alarm pendant

- allow to send emergency call 24h a day, might the system be turned on or off. Waterproof, it can be used indoor or outdoor and works under the shower. It can be worn as a pendant, on a belt or fixed on the wall thanks to the cord and clip.

Keypads

- command keypad ensures the control of the alarm system functionalities and the management of code or badge access through Twinband® wireless.
- screen vocal keypad makes the installation easier and the use more convenient by confirming all control acknowledgment and signaling any potential anomaly or open door.

4 inputs wireless remote control

- 4 programmable keys wireless / hybrid alarm
- 4 programmable keys alarm / quicklink
- supply: 2 x batteries 3 V type CR2430 (included)

Description

blue

Cat. ref.

TU444



TU444



quicklink

Alarm pendant

2 programmable commands

- slider ("alert" command)
- button ("alert" or "comfort" command, 10 years autonomy (1 call per day) and delivered with cord and clip)

Description

white

Cat. ref.

RLF001X



RLF001X



Command keypad

Power supply	4.5V / 2.7Ah battery pack
Battery life	3 years in normal conditions of use
Average current consumed	90µA
Operating temperature	-10°C to 55°C
Degree of mechanical protection	IP30
Dimensions	194 x 95 x 19mm
Weight	270g (with power pack)

Each command is confirmed with an audible signal and a visual signal (LED) issued by the keypad. The keypad also indicates the system status and any faults or open doors or windows.

- 4 personalisable keys
- code-based access to keypad commands
- alarm command functions
- 3-colour LED to support use and programming



RLF620X



The command and information keypad can be used to operate an intrusion protection system from inside the home.

Description

white

Cat. ref.

RLF620X



RLF660X



Screen vocal keypad with tag

Power supply	4.5V / 2.7Ah battery pack	- access codes
Battery life	5 years in normal conditions of use	- tag reader (identification of up to 32 tags)
Average current consumed	45µA	- 4 keys (2 pre-programmed, and 2 menu keys whose functions depend on what is displayed on the screen)
Operating temperature	-10°C to 55°C	- touch screen zone for display navigation
Degree of mechanical protection	IP30	- speech synthesis and OLED screen
Dimensions	194 x 95 x 19mm	Suitable for
Weight	220g (with power pack)	Tags
		Order no.
		RLF1..X
		Page
		17.18

The vocal keypad with tag reader and screen can be used to operate an intrusion protection system from inside the home.

Description	Cat. ref.
white	RLF660X



RLF444X



4-function remote control with information feedback

Power supply	lithium battery 3V / 270mA/h CR2430	- access codes
Battery life	5 years in normal conditions of use	- tag reader (identification of up to 32 tags)
Average current consumed	45µA	- 4 keys (2 pre-programmed, and 2 menu keys whose functions depend on what is displayed on the screen)
Operating temperature	-10°C to 55°C	- touch screen zone for display navigation
Degree of mechanical protection	IP30	- speech synthesis and OLED screen
Dimensions	194 x 95 x 19mm	
Weight	220g	

Description	Cat. ref.
white	RLF444X



RLF101X



Tag for access management

	Suitable for	Order no.	Page
	Keypad	RLF660X	17.18
Description	Pack qty.	Cat. ref.	
orange	1	RLF101X	
orange	10	RLF110X	

Intrusion detection

Motion detectors

- ensure volumetric protection of the premises. They can detect any moving heat source, such as infrared radiation emitted by the human body. The "expert pet tolerant" feature allows to distinguish pets, and therefore enhance efficiency by avoiding any false alarm triggering. The bi-technology detector is particularly adapted to premises with high temperature variation. It combines 2 detection types (heat source and moving objects) to trigger intrusion alert.

Detector-camera with sending pictures

- ensure housing monitoring and, in case of break-in, trigger the alarm and capture, store or remotely transmit a sequence of images. It distinguishes the presence of human from pet and features an integrated flash light allowing to take pictures even in low lighting level.

Wireless motion detector

- 1 alimentation réf. BATLi38 fournie*

Description	Pack qty.	Cat. ref.
wireless motion detector, 90°, 12 m	1	S161-22F
wireless corridor detector, 22 m	1	S162-22X
wireless curtain detector, 12 m	1	S163-22X
wireless expert pet tolerant motion detector, 85°, 12 m	1	S165-22X



S161-22F



Pet-tolerant IR detector-camera with sending pictures

Power supply	lithium battery 4.5V / 3Ah	Fitted with a specific lens and able to record image sequences using its built-in camera, the PIR motion detector with image transmission detects intrusion in rooms at risk in the home and is able to distinguish between the presence of a human being and that of a pet (cat, dog).
Detection angle	90°	
Detection range	12m	
Operating temperature	0°C to +55°C	
Degree of mechanical protection	IP31	Following infrared detection, the motion detector triggers the alerts and deterrents and records a sequence of images. These can then be:
Dimensions	125 x 85 x 67mm	- Stored on the microSD card (supplied)
Weight	205g	- Remotely transmitted via a dialler/transmission module GSM/GPRS(MMS)



RLA176X



Description	Pack qty.	Cat. ref.
pet-tolerant IR detector-camera with sending pictures	1	RLA176X

Outdoor anti-masking detector

Power supply	lithium battery 3.6V / 4Ah	- detects intrusion before break-in
Detection angle	180°	- anti-masking protection: detects any fraudulent masking of the front face 24/24
Detection range	5 setting levels from 2.5 to 12m	- 6 ready-to-use area mask sets supplied to adapt detection area
Operating temperature	-20°C to +60°C	
Degree of mechanical protection	IP55	
Dimensions	71 x 186 x 106mm	
Weight	540g	



RLA144X



Description	Pack qty.	Cat. ref.
outdoor anti-masking detector	1	RLA144X

IP55 detectors

- suitable for use in tough environment (garage, hangar, outdoor protection in pre-alarm mode, ...)

Outdoor detectors

- adapted for outdoor, even in tough environment, they are used for perimeter and premise protection from outside. Ideal to protect a door, a garage, a hangar or a facade. They feature the "expert pet tolerant" function and are adapted for an outdoor use.

Door and window detector

- ensures the protection of the doors and the windows of the premises. When any opening is detected, it triggers an alert.



S145-22X



Outdoor motion detector 2 x 12m

Power supply	lithium battery 3.6V / 4Ah	- for indoor / outdoor use
Detection range	12m	
Operating temperature	-20°C to +50°C	
Degree of mechanical protection	IP55	
Dimensions	56 x 128 x 235mm	
Weight	596g	

Description

outdoor motion detector 2 x 12m

Cat. ref.

S145-22X



S121-22X



Wireless dual technology motion detector

Power supply	lithium battery 2 x (3.6V / 2Ah)	- dual technology: infrared and hyperfrequency
Detection angle	90°	
Detection range	12m	
Operating temperature	-10°C to +55°C	
Degree of mechanical protection	IP31	
Dimensions	125 x 75 x 65mm	
Weight	208g	

Description

wireless dual technology motion detector

Cat. ref.

S121-22X



S261-22F



Wireless door and window detector

Power supply	lithium battery 3V / 1Ah	- for indoor use
Operating temperature	-10°C to +55°C	
Degree of mechanical protection	IP31	
Dimensions	108 x 26 x 30mm	
Weight	60g	

The contact detector is used to protect openings such as doors & windows. It is fitted with a built-in magnetic contact (reed switch).

Description

white
brown

Pack qty.

1
1

Cat. ref.

S261-22F
S262-22F

Multicontact detector

- ensures the protection of the doors and the windows of the premises. When any opening is detected, it triggers an alert. Its wired terminal allows the connection of additional wired contact detectors (standard contact, wide spacing, garage door contact,...)

External universal transmitter

- allows :
 - wireless ON/OFF control from a dry contact (timer, tebis automation output module,...)
 - wired detector information reporting (IR barrier, wide spacing contact,...)

Multicontact detector

Power supply lithium battery 3.6V / 1Ah - for indoor use
 Operating temperature -10°C to +55°C
 Degree of mechanical protection IP31
 Dimensions 138 x 26 x 30mm
 Weight 70g



S271-22F

Description	Pack qty.	Cat. ref.
white	1	S271-22F
brown	1	S272-22F



External universal transmitter

Power supply lithium battery 2 x (3.6V / 2Ah) - for outdoor use
 Operating temperature -25°C to +70°C
 Degree of mechanical protection IP55
 Dimensions 130 x 80 x 35mm
 Weight 200g



S230-22X

Description	Pack qty.	Cat. ref.
white	1	S230-22X



sepio household protection

Detector for roller blinds

- detects the opening of a closed blind. When the blind is raised by a few centimeters, the detector triggers an alert.

Glassbreak detector

- specially adapted to bay windows protection in housings. it detects sounds vibration emitted by glass breaking and triggers an alert.

Technical detectors

- allows detection of different types of risks in housings or premises, such as:
 - prolonged power cut of a device or a housing
 - flood or critical water level in an installation
 - frost protection temperature threshold in a room
 - temperature threshold in a freezer to avoid device malfunction
 - smoke spillage due to an outbreak of fire

In case an incident is detected, the siren of the alarm system will emit audible beeps every 10 seconds during 3 minutes or until the conditions are back to normal.
A specific message is sent when the alert is remotely triggered.



S231-22X



Detector for roller blinds

Power supply	lithium battery 3.6V / 1Ah	- for indoor application
Operating temperature	-10°C to +55°C	
Degree of mechanical protection	IP31	
Dimensions	138 x 26 x 30mm	
Weight	70g	

Description	Pack qty.	Cat. ref.
white	1	S231-22X
brown	1	S236-22X



S280-22X



Glassbreak detector

Power supply	lithium battery 2 x (3.6V / 2Ah)	- for indoor application
Operating temperature	-10°C to +55°C	
Degree of mechanical protection	IP31	
Dimensions	138 x 40 x 30mm	
Weight	90g	

Description	Pack qty.	Cat. ref.
white	1	S280-22X



S232-22X



Freezer breakdown detector

Power supply	lithium battery 2 x (3.6V / 2Ah)
--------------	----------------------------------

Description	Pack qty.	Cat. ref.
white	1	S232-22X

Loss of mains supply detector

Power supply lithium battery 2 x (3.6V / 2Ah)

Description	Pack qty.	Cat. ref.
white	1	S233-22X



S233-22X



Frost detector

Power supply lithium battery 2 x (3.6V / 2Ah)

Description	Pack qty.	Cat. ref.
white	1	S234-22X



S234-22X



Flood detector

Power supply lithium battery 2 x (3.6V / 2Ah)

Description	Pack qty.	Cat. ref.
white	1	S235-22X



S235-22X



Technical probes

Description	Pack qty.	Cat. ref.
freezer breakdown	1	SONPC
mains power failure	1	SONCS
freezing	1	SONHG
flooding	1	SONIN



SONPC



Smoke and heat detectors

- trigger a specific sound modulation on the sirens, and an emergency lighting on the detector itself. It is possible to stop the detector tone by pressing the test button or any button of an infrared remote (TV, DVD reader, HiFi,...) without any prior programming.

- Smoke detector is complying to EN 14 604 : 2005 + AC 2008 certified
- NF492 par AFNOR Certification
- The technical detectors are permanently active, whatever the status of the control panel (activated or deactivated).



S155-22X



Smoke detector

Power supply	sealed lithium battery 2x3V	- for indoor application
Battery life	10 years	
Detection signal	85dB at 3m	
Operating temperature	-10°C to +65°C	
Degree of mechanical protection	IP22	
Dimensions	Ø116 x 49mm	
Weight	255g	

Description	Pack qty.	Cat. ref.
white	1	S155-22X



S157-22X



Heat detector

Power supply	sealed lithium battery 2x3V	- for indoor application
Battery life	10 years	
Detection signal	85dB at 3m	
Operating temperature	-10°C to +65°C	
Degree of mechanical protection	IP22	
Dimensions	Ø116 x 49mm	
Weight	255g	

Description	Pack qty.	Cat. ref.
white	1	S157-22X

Receivers

- allows to control a light in ON/OFF or time-delay mode, or an automatic gate or garage door in pulse mode. They can simulate a presence when associated with a keyboard. When associated with the control panel, allows to activate a light of a bright flash in case of an intrusion, but also indicates a report on the system status.

- depending on the status and events of the 2 systems, different life scenarios will be possible. The integration, in domovea, of the alarm functionalities is also possible, allowing to locally or remotely (from a PC, tablet or smartphone) act on the alarm system, or receive notifications in case of intrusion, anomaly or alert, for example.

Alarm interface

- is a bidirectional communication gateway allowing the link between tebis system (KNX and/or domovea) and wireless or mixt. The interface allows a perfect interaction between the 2 systems.

Wireless command receiver

- ensures the transmission of Twinband wireless messages between different system components while increasing their wireless operating range. It is also possible to equip wide areas where wireless transmission could be difficult.

External receiver

Operating temperature	-20°C to +70°C	- for indoor or outdoor application
Degree of mechanical protection	IP55	
Dimensions	150 x 85 x 35mm	
Weight	224g	

Possible applications: on/off, time lag, presence simulation (when associated to keypad), remote control, impulse mode, system status reporting, activation in case of intrusion.



S781-22X



Description	Pack qty.	Cat. ref.
230V	1	S781-22X
12 - 24V	1	S791-22X

Alarm interface

Power supply	30V DC via KNX bus	- for indoor application
Operating temperature	0°C to +45°C	
Degree of mechanical protection	IP30	
Dimensions	203 x 77 x 26.5mm	
Weight	140g	

The TRC120 interface is used to enable Hager intrusion alarm system to communicate with the KNX world. On the alarm side, the interface communicates with the alarm central unit by wireless and by TP bus on the KNX side.



TRC120



Description	Pack qty.	Cat. ref.
white	1	TRC120

Relais sans fil

Power supply	battery MPU01X	- for indoor or outdoor (in sheltered location) application
Operating temperature	-25°C to +70°C	
Degree of mechanical protection	IP54	
Dimensions	245 x 215 x 120mm	
Weight	880g	

The receiver makes it possible to:

- interface a hardwired alarm product or any other low voltage automatic pulsed control device with the alarm system,
- operate additional deterrence devices (smoke generator, lighting, etc.) and other electrical devices (low voltage or power)



RLE700X



Description	Pack qty.	Cat. ref.
white	1	RLE700X

Transmitter

- The transmitter or plug-in module PSTN + GSM / GPRS allows, when an intruder or technical alarm is triggered, to remotely warn or alert by sending pre-recorded messages to several contacts, on their fixed-line or mobile phone.
- are a way to remove the doubt: listening and calling out (PSTN or GSM), transmission of the images captured by the detector through MMS (via GSM network with MMS option) to the private and films through ViewCom-IP to the monitoring station.

- They also allow to send by SMS via a system corresponding number informations about SMS consumption or SIM card validity, and by MMS the first 5 images captured by the detection alarm (via a detector-camera with sending pictures).



RLD464F



PSTN + GSM/GPRS stand-alone transmitter

Power supply	battery
Battery life	5 years in normal conditions of use
Average current consumed	235µA
Operating temperature	-10°C to +55°C
Degree of mechanical protection	IP30
Dimensions	216 x 237 x 67mm
Weight	1070g

Power supply:

- (4.5 V, 14 Ah) RXU05X power pack - low voltage threshold standard Type C - low threshold 3.65 V
- or (4.5 V, 14 Ah) RXU05X power pack backed up by (3.7 V 1.3 Ah) RXU03X Li-Ion buffer battery
- or (200-240 VAC 50-60 Hz / 4.5 V DC 2.2 A) RXU01X internal mains power module backed up by (3.7 V / 1.3 V) RXU03X Li-Ion buffer battery
- Low voltage threshold Type A - 3.6V - recharge time 20 hours to 80% - Duration with back-up: 36 h.

The RLD464F dialler operates with the Hager Twinband® alarm system.

It is suitable for specific configurations when a plug-in module cannot be directly added to the control panel.

The RLD464F dialler is recommended for complete extended and redundant transmission in voice mode (analogical) via PSTN with GSM back-up.

Description	Pack qty.	Cat. ref.
white	1	RLD464F



RLD454F



PSTN + GSM / GPRS plug-in module

Power supply	battery
Battery life	5 years in normal conditions of use
Average current consumed	235µA
Operating temperature	-10°C to +55°C
Degree of mechanical protection	IP30
Dimensions	165 x 63 x 35mm
Weight	114g

Power supply:

- (4.5 V, 14 Ah) RXU05X power pack - low voltage threshold standard Type C - low threshold 3.65 V
- or (4.5 V, 14 Ah) RXU05X power pack backed up by (3.7 V 1.3 Ah) RXU03X Li-Ion buffer battery
- or (200-240 VAC 50-60 Hz / 4.5 VDC 2.2 A) RXU01X internal mains power module backed up by (3.7 V / 1.3 V) RXU03X Li-Ion buffer battery
- Low voltage threshold Type A - 3.6 V - recharge time 20 hours to 80% - Duration with back-up: 36 h.

The RLD454F plug-in module operates with the Hager Twinband® alarm system.

It can be fitted to the control panel as an optional device.

The RLD454F module is recommended for complete extended and redundant transmission in voice mode (analogical) via PSTN with GSM back-up.

Description	Pack qty.	Cat. ref.
white	1	RLD454F

Sirens

- ensure alert function with modulations programmable from the control panel, for outdoor and indoor operation. A special modulation in case of fire is also available for alerts sent from fire or heat detector. Reinforced deterrence thanks to an outdoor detector which features audible, voice and light functions to dissuade intruder before break-in, or gradually reacts as the intruder approaches.

Indoor siren with vocal notification

Power supply	lithium battery 2 x (3.6V / 13Ah)
Battery life	5 years in normal conditions of use
Acoustic level	93 (± 2) dB
Operating temperature	-10°C to +55°C
Degree of mechanical protection	IP31
Dimensions	178 x 191 x 61mm
Weight	900g



RLD414X



The indoor siren provides audible information and ensures intruder deterrence when an alarm is triggered.

It sounds loudly in the event of intrusion, fire, audible warnings or household faults and issues vocal notifications about the system status.

It can be used as a door chime.

Description	Pack qty.	Cat. ref.
indoor siren with vocal notification	1	RLD414X

Outdoor siren with orange flash

Power supply	battery 6V / 14 Ah RXU06X	- for outdoor use
Battery life	5 years in normal conditions of use	
Acoustic level	103 (± 2) dB	
Operating temperature	-25°C to +70°C	
Degree of mechanical protection	IP54	
Dimensions	235 x 256 x 90mm	
Weight	2500g	



RLD415F



In addition to the protection provided by the control panel with built-in siren and keypad, the outdoor siren deters intruders.

In the event of intrusion, the siren is immediately triggered and sounds loudly for 90 seconds.

If a fire is detected, the siren is triggered in fire sounding mode for 5 min.

If somebody attempts to pull the siren off the wall, it sounds and then triggers all the alerts and deterrents via the control panel.

Thanks to its built-in transmitter, the siren notifies the control panel of battery faults, the radio link status and the tamper pin status.

Description	Pack qty.	Cat. ref.
outdoor vocal siren with orange flash	1	RLD415F
outdoor vocal siren white with orange flash	1	RLD416X



RLD416X

Glass break detector test unit

- is recommended to test if the detector is working correctly as well as the coverage area.



RXA02X

Replacement belt clip

Description	Pack qty.	Cat. ref.
replacement belt clip	1	RXA02X



RLH001X

Memory card multilingual

- 6 languages
- configuration, parameters and voice messages backup
- allows control panel change without reprogramming
- transfer of voice messages to a separated transmitter

- groups and transmission module backup

Suitable for	Order no.	Page
Control panel	RLC304F	17.16

Description	Pack qty.	Cat. ref.
memory card multilingual	1	RLH001X



856-99X

Multi socket RJ11 / RJ45-RJ45

- with RJ45 nesting plug and RJ11 socket

Description	Pack qty.	Cat. ref.
multi socket RJ11 / RJ45-RJ45	1	856-99X



900-99X

ADSL master filter

Description	Pack qty.	Cat. ref.
ADSL master filter	1	900-99X



RXA03X

GSM antenna

- adhesive
- external antenna

Suitable for	Order no.	Page
PSTN + GSM/GPRS stand-alone transmitter	RLD464F	17.26
PSTN + GSM/GPRS plug-in module	RLD454F	17.26

Description	Pack qty.	Cat. ref.
GSM antenna	1	RXA03X

MicroSD memory card

Description	Pack qty.	Cat. ref.	Suitable for	Order no.	Page
microSD memory card	1	RXE00X	Pet-tolerant IR detector-camera	RLA176X	17.19



RXE00X

Smoke detector tester

- no SFC, safe for human health and environment, content 150 ml
- please observe the conditions of use mentioned in the users instructions

Description	Pack qty.	Cat. ref.
smoke detector tester	1	TESTFUM



TESTFUM

Glass break detector test unit

- MN1604 supply unit included

Description	Pack qty.	Cat. ref.
glass break detector test unit	1	TV260



TV260

Mains power supply module

- mains power supply: 200-240V AC - 50/60Hz / 4.5V DC 2.2A

Suitable for	Order no.	Page
Control panel	RLC304F	17.16
PSTN + GSM/GPRS stand-alone transmitter	RLD464F	17.26
optional		
Secondary battery	RXU03X	17.31

Description	Pack qty.	Cat. ref.
mains power supply module	1	RXU01X



RXU01X



RLH002X

1 wired input / 2 relay outputs module

Allows to connect the following components to the control panel:

- auto-powered wired siren
- alarm system (flash, voice module,...)
- recording system (recording controller, video recorder)

Suitable for
Control panel

Order no.
RLC304F

Page
17.16

Description	Pack qty.	Cat. ref.
1 wired input / 2 relay outputs module	1	RLH002X



RXA05X

Connecting socket with relay (230V)

- 1NO/1NC contact 230V (AC or DC)

Suitable for
Smoke detector
Heat detector

Order no.
S155-22X
S157-22X

Page
17.24
17.24

Description	Pack qty.	Cat. ref.
connecting socket with relay (230V)	1	RXA05X



Battery pack, 4.5V / 2.7Ah

Suitable for	Order no.	Page
Command keypad	RLF620X	17.17
Screen vocal keypad	RLF660X	17.18

Description	Pack qty.	Cat. ref.
battery pack, 4.5V / 2.7Ah	1	RXU04X



RXU04X

Secondary battery Li-Ion, 3.7V / Ah

- for GSM/GPRS use, with or without power supply

Description	Pack qty.	Cat. ref.
secondary battery Li-Ion, 3.7V / Ah	1	RXU03X



RXU03X

Battery pack, 4.5V / 15Ah

Suitable for	Order no.	Page
Control panel	RLC304F	17.16
PSTN + GSM/GPRS stand-alone transmitter	RLD464F	17.26

Description	Pack qty.	Cat. ref.
battery pack, 4.5V / 15Ah	1	RXU05X



RXU05X

Battery pack, 6V / 15Ah

Suitable for	Order no.	Page
Outdoor siren with orange flash	RLD415F	17.27

Description	Pack qty.	Cat. ref.
battery pack, 6V / 15Ah	1	RXU06X



RXU06X



BATLi01

Batteries

Description	Cat. ref.
lithium battery 3,6 V / 5 Ah	BATLi01
lithium battery 7,2 V / 13 Ah	BATLi02
lithium battery 6 V	BATLi03
lithium battery 3,6 V / 2 Ah	BATLi04
lithium battery 3,6 V / 4 Ah	BATLi05
lithium battery 7,2 V / 5 Ah	BATLi06
lithium battery 3 V type 2016	BATLi07
lithium battery 3 V type 2430	BATLi08
lithium battery 3 V type 2032	BATLi09
lithium battery 9 V	BATLi10
lithium battery 7,2 V / 13 Ah	BATLi22
lithium battery 2 x 3,6 V / 36 Ah	BATLi23
lithium battery 2 x 3,6 V / 4 Ah	BATLi26
lithium battery 4,5 V / 3 Ah	BATLi30
lithium battery 3 V / 1 Ah	BATLi31
lithium battery 3,6 V / 2 Ah	BATLi38
battery kit 9 V	MN1604



BATLi11

Other batteries

Description	Cat. ref.
rechargeable lithium-ion battery	BATLi11
secondary battery 3,6 V / 700 mAh GSM	908-21X
battery for outdoor siren 2 Ah	BATPB2



851-99X

Cordons of phone connecting

Description	Cat. ref.
cordons of phone connecting with stacked-shelving grip and RJ11	851-99X
multi-socket RJ11 / RJ45-RJ45	856-99X

Stand alone smoke detectors

- are dedicated to fire protection in housings. Equipped with optical technology, they are particularly adapted to detect slow growth fire.
- functions: fault indication when the detector head is dirty or not working, possibility to deactivate the detector for about 15 minutes, active 24 hours a day.

Stand alone heat detectors

- are complementary to smoke detectors, as they can be installed in rooms such as kitchen, where there can be cooking smoke. It detects when a temperature increases abnormally fast to reach 54 to 70°C.
- Functions: fault indication when the detector head is dirty or not working, possibility to deactivate the detector for about 15 minutes, active 24 hours a day.

Stand alone smoke detectors

Average coverage	50 m ²
Use	indoor
Power supply	TG600A: replaceable CR123A type 3 V lithium battery; 5-year battery life TG600AL: non-replaceable CR17335 type 3 V lithium battery
Operating temperature	- 10°C to + 65°C
Storage temperature	- 20°C to + 45°C
Degree of protection	IP30
Dimensions (D x H)	97 mm x 37 mm
Weight (with battery)	55 g

The optical smoke detector is designed to protect the private areas of apartment buildings, residential properties and mobile homes.
If smoke is detected, the detector's red LED flashes rapidly and modulated sounding is triggered (85 dB(A) at 3 m).



TG600A

Description	Pack qty.	Cat. ref.
stand alone smoke detector 5 years	1	TG600A
stand alone smoke detector 10 years	1	TG600AL

Stand alone smoke and heat detectors

Power supply	sealed lithium battery 2x3V	- for indoor application
Battery life	10 years	
Detection signal	85dB at 3m	
Operating temperature	-10°C to +65°C	
Degree of mechanical protection	IP22	
Dimensions	Ø116 x 49mm	
Weight	255g	



S155-22X

Description	Pack qty.	Cat. ref.
standalone smoke detector	1	S155-22X
standalone heat detector	1	S157-22X

Smoke detector tester

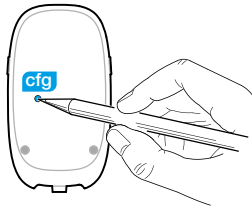
- no SFC, safe for human health and environment, content 150 ml
- please observe the conditions of use mentioned in the users instructions

Description	Pack qty.	Cat. ref.
smoke detector tester	1	TESTFUM



TESTFUM

It is possible to configure virtually any function in push-button mode – i.e. using the buttons on the devices themselves. Each transmitter is equipped with a configuration button (cfg) and each receiver is equipped with a configuration button and a function button (cfg + fct) for this purpose. All of the functions are indicated by coloured LEDs, whereby the fct button can be used to simply “scroll through” them.



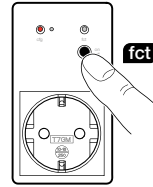
1. Activating configuration mode

Briefly press the cfg button on the transmitter. The cfg LEDs on the transmitter and all receivers light up.



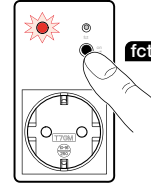
2. Configuring the transmitter

Briefly press the channel button to which a function is to be assigned on the transmitter. The cfg LED on the transmitter flashes for 1 second. Transmitter and receiver are now in configuration mode.



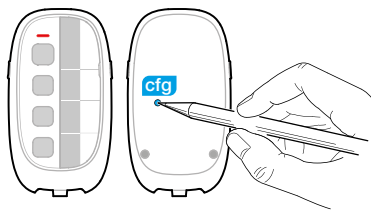
3. Selecting a function

Press the fct button on the receiver repeatedly until the chosen function is indicated by the fct LED.



4. Confirming the selected function

Press the fct button on the receiver and keep it pressed for > 2 s until the cfg LED starts flashing to confirm the selected function. To configure a group control system, repeat steps 3 and 4 on all other receivers in the group.



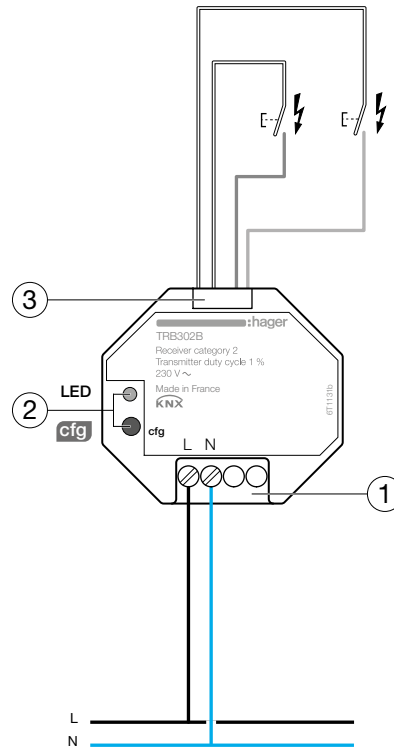
5. Terminating configuration

Briefly press the cfg button on the transmitter again. The cfg LEDs on the transmitter and all receivers go out. The configuration process really is “quick”!

LED colour	Switching outputs	Dimmers	Shutters/Blind outputs
	Function	Function	Function
	on ON/OFF (one surface control element)	ON/OFF Dimming +/-	
	on ON	+ ON (Dimming +)	Opening, Stop
	off OFF	- OFF (Dimming -)	Closing, Stop
	Scenario 1	Scenario 1	Scenario 1
	Scenario 2	Scenario 2	Scenario 2
	Timer	Timer	
	ON/OFF (Switch)	On/Off (Switch)	Shutter Control, system (Switch)
	on Priority ON		Priority OPEN
	off Priority OFF		Priority CLOSE
	Clear	Clear	Clear

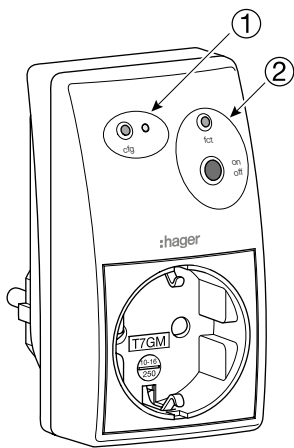
**Flush-mounted radio input module, 2-gang, 230 V, quicklink
TRB302B**

	TRB302B
Power supply	230V AC, 50 Hz ± 15%
Inputs	2 for floating contacts
Contact current	30 µA
Input current	19 mA
Transmit frequency	868.3 MHz
Range - indoors - outdoors	Max. 30 m Max. 100 m
Operating temperature	0 °C to +45 °C
Storage temperature	-20 °C to +70 °C
Ingress protection rating	IP20
Dimensions H x W x D	48 mm x 53 mm x 27 mm
Connection	Plug-in connector, connecting wires 200 mm long



- ① Terminal strip for the power supply
- ② Configuration button and LED **cfg**
- ③ Plug-in connector with connecting wires for the inputs (20 cm long)

**Wireless plug adapter actuator, quicklink
TRC270D**

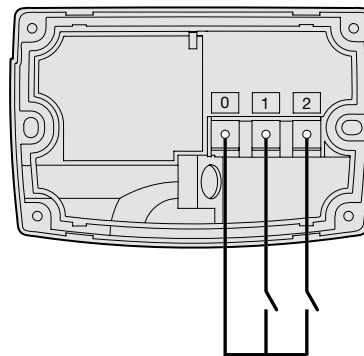


- ① Configuration button and LED **cfg**
- ② Function button and LED **fcn** for the output

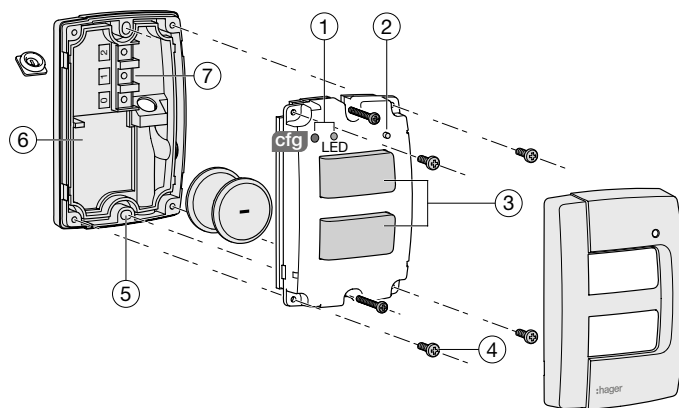
**Surface-mounted radio tactile sensor, IP55, quicklink
TRE301/TRE302**

Technical data	
Power supply	2xCR 2430 3.0 V (TBTS, SELV, ZLVS)
Estimated service life of the battery	5 years
Transmit frequency	868.3 MHz
Range in open spaces	100 m
Dimensions	76 mm x 49 mm x 23 mm
Cable length	< 3 m
Minimum dwell period	50 ms
Ingress protection rating – with wires connected	IP55 IP31
Operating temperature	-10 °C ... +50 °C
Storage temperature	-20 °C ... +70 °C
Standards	EN 60950-1 / EN 301489-3 EN 300220-2 / EN 50491-3

Contact assignments for external inputs



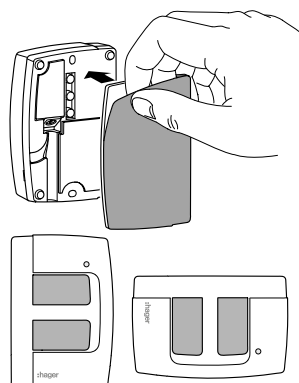
Installation



- ① The configuration button and LED **cfg** are located under the cover
- ② Transmission pilot light
- ③ Operator control buttons
- ④ Screw plugs for the battery compartment
- ⑤ Wall-mounting holes
- ⑥ Terminal strip holder
- ⑦ Terminal strip for external inputs

States indicated by the transmission pilot light ②

	State of the LED	Colour of the LED	Meaning
Activation of one of the buttons	Lights up briefly	Green	Transmitting the control command, input configured
	Flashes for 2 seconds	Green	Transmitting the control command, scene input (teach-in mode)
	Flashes for 1 second	Orange	Input not configured
	Flashes for 1 second	Red	Low battery charge
	Does not light up	-	- No batteries or very low charge - Batteries fitted the wrong way round



The device may be mounted to the wall with double-sided adhesive tape or screws. The following must be taken into consideration when using external inputs:

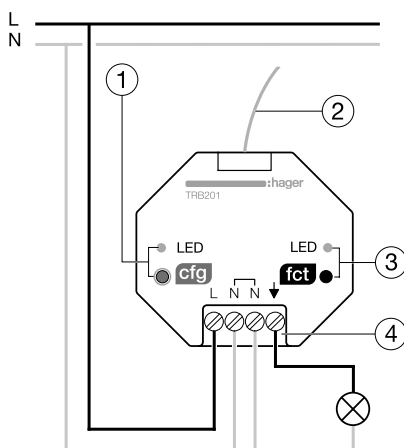
- Mounting orientation, i.e. horizontal or vertical alignment
- Supply line < 3 m

Flush-mounted radio switching output module quicklink TRB201 and socket quicklink TRC270D

	TRB201	TRC270D
Power supply	230V AC, 50 Hz ± 15%	
Outputs	μ 16 A 230V AC, AC1	μ 16 A 230V AC1 for resistive loads / μ 10 A 230 V AC1 for lamp loads
Type	NO contacts	
Switching capacity for:		
- Incandescent lamps	2300 W	2300 W
- 230 V halogen lamps	2300 W	2300 W
- LV halogen lamps with CTR	1600 VA	1600 VA
- LV halogen lamps with ETR	1200 VA	1200 VA
- Fluorescent lamps	20 × 36 W Max. 47 μF	20 × 36 W Max. 120 μF
Connection		
- flexible	1.5 - 2.5 mm ²	
- rigid	1.5 - 2.5 mm ²	
Transmit frequency	868.3 MHz	
Range		
- indoors	Max. 30 m	
- outdoors	Max. 100 m	
Operating temperature	0 °C to +45 °C	0 °C to +45 °C
Storage temperature	-20 °C to +70 °C	-20 °C to +70 °C
Ingress protection rating	IP20	IP30
Dimensions H x W x D	48 x 53 x 30 mm	98 x 40 (80) x 54 mm

CTR: conventional transformer
ETR: electronic transformer

Flush-mounted radio module, 1 output, quicklink TRB201









- ① Configuration button and LED **cfg**
- ② Radio transmitter
- ③ Function button and LED **fct** for the output
- ④ Terminal strip
 - L: Phase 230 V
 - N: Neutral
 - ▼: 230 V contact output

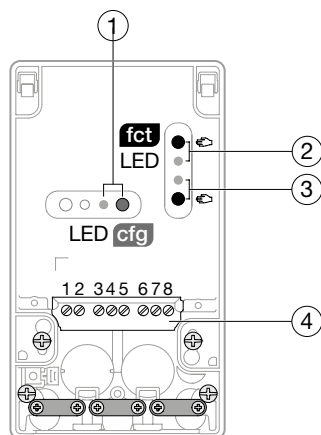
Technical data

	TRE20x / TRE400
Power supply	230V DC +10–15%
Transmit frequency	868.3 MHz
Switching capacity per output	2 (μ 16 A 230V AC, AC1)
Ingress protection rating	IP55
Operating temperature	–10 °C ... +55 °C
Storage temperature	–20 °C ... +70 °C
Dimensions (H × W × D)	150 mm × 85 mm × 35 mm
Connection	0.75 mm ² to 2.5 mm ²

Maximum load per switching output

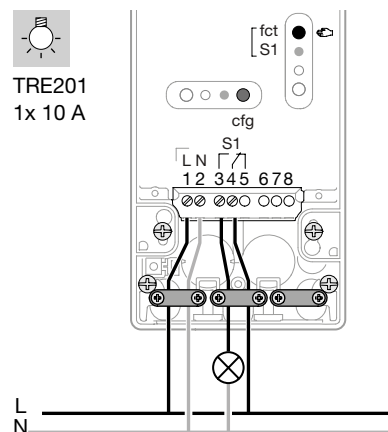
	230V AC	Incandescent lamps	1500 W
	230V AC	Halogen lamps	1500 W
	12V DC 24V DC	Conventional transformer	600 W
	12V DC 24V DC	Electronic transformer	600 W
	230V AC	Electronic transformer ballast	600 W
		Fluorescent lamps with ECG	6 x 58 W
		Fluorescent lamps with conventional ballast connected in parallel	-
		Energy-saving lamps	6 x 18 W

Connection

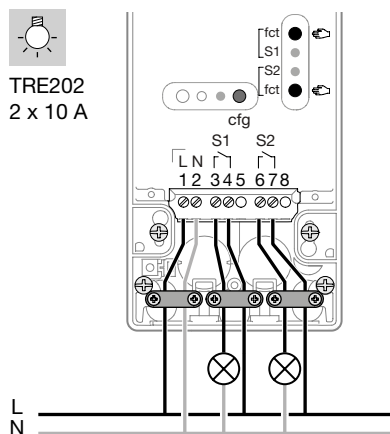


- ① Configuration button and LED **cfg**
- ② ③ Function buttons and LEDs **fct** for outputs S1 and S2
- ④ Terminal strip

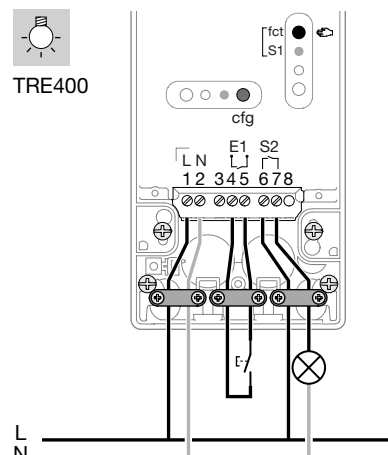
Surface-mounted radio output modules, 1 output, IP55, quicklink TRE201



Surface-mounted radio output modules, 2 output IP55, quicklink TRE202



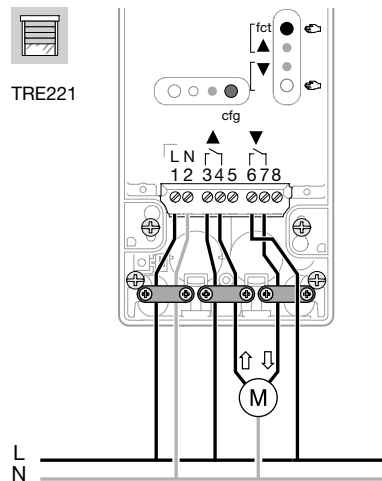
Surface-mounted radio module, 1 input + 1 output IP55, quicklink connection TRE400



Surface-mounted radio blind output module, 1 output IP55, quicklink TRE221

	TRE221
Power supply	230V DC +10–15%
Transmit frequency	868.3 MHz
Delay time between 2 opposite directions	600 ms
Ingress protection rating	IP55
Operating temperature	–10 °C ... +55 °C
Storage temperature	–20 °C ... +70 °C
Dimensions (H × W × D)	150 mm × 85 mm × 35 mm
Standards	EN 60669-2-1 EN 301489-3 EN 300220-2 EN50491-3 EN50428

Connecting TRE221



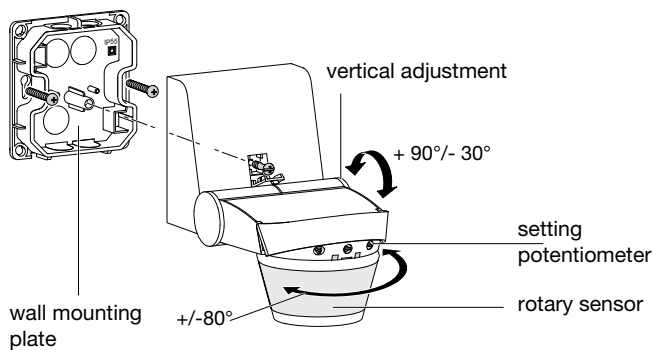
Surface-mounted radio motion detector, battery and solar-powered, IP55, quicklink TRE52x/TRE53x

Technical properties

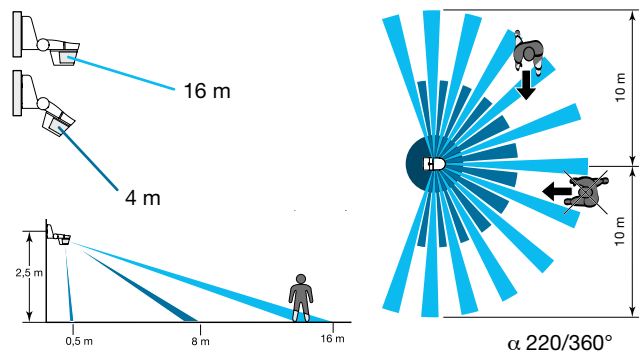
	TRE52x (battery)	TRE53x (solar)	TRE600
Colour	white, anthracite	white, anthracite, alum., brown	white
Detection zone	220° + 360° 16 m to the front / 10 m to the side 360° detection: 6 m diameter under the sensor		120° + 360° 12 m to the front / 10 m to the side 360° detection: 6 m diameter under the sensor
Head adjustment (vertical)	+90°/-30°		-
Head adjustment (horizontal)	±80		
LED lamp adjustment	-		180° (horizontal) / 340° (vertical)
Masking panels	Supplied with the devices		
Corner bracket (inside/outside)	EE855 white; EE856 anthracite		-
Potentiometer brightness adjustment	5 to 1000 lux		
Time delay adjustment	30 s to 15 min		
Sensitivity adjustment	20 to 100%		
Transmit frequency	868.3 MHz		
Controlled by remote control	TU4xx		
Pilot light detection	Yes		
Power supply	3 × 1.5V AAA	Solar cell with back-up battery	230V AC
Range	100 m (open spaces)		
LED power			approx. 60 W (300 W white-hot)
Standards	EN 609 50-1 EN 301489-3 EN 300220-2 EN 50491-3		
Ingress protection rating	IP55		
IK code	04		
Ambient conditions	- Storage temperature -20 °C to +55 °C - Operating temperature -20 °C to +60 °C		
Dimensions (L × W × H)	153 mm × 91 mm × 130 mm		322 mm × 150 mm × 257 mm

Motion detector, quicklink TRE52x/TRE53x

Description



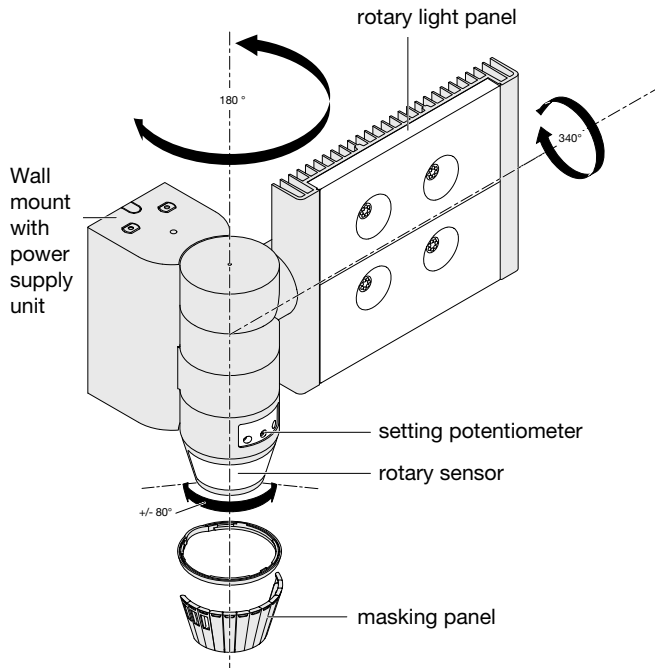
Detection range TRE52x/TRE53x



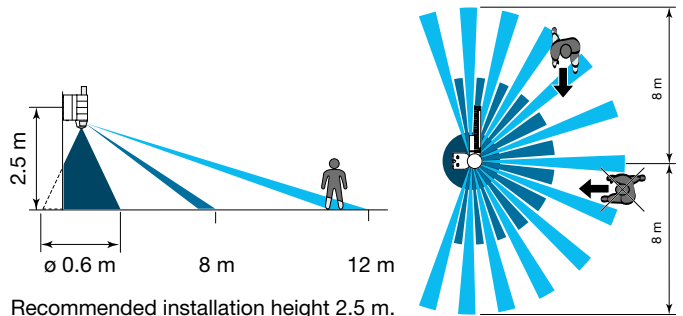
Recommended installation height 2,5 m.
The detection zone must be free of obstructions at all times.

Motion detector, quicklink TRE600

Description

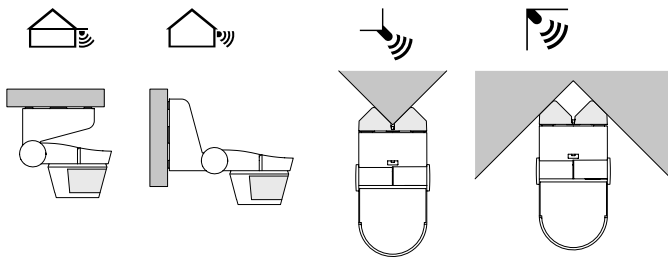


Detection range

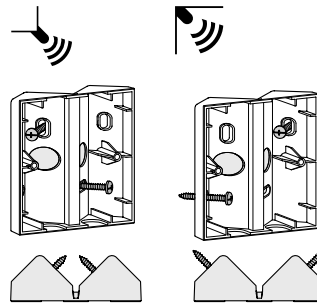


Recommended installation height 2.5 m.
The detection zone must be free of obstructions at all times.

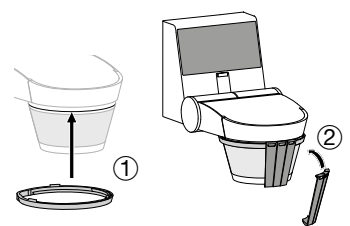
Installation TRE52x/TRE53x



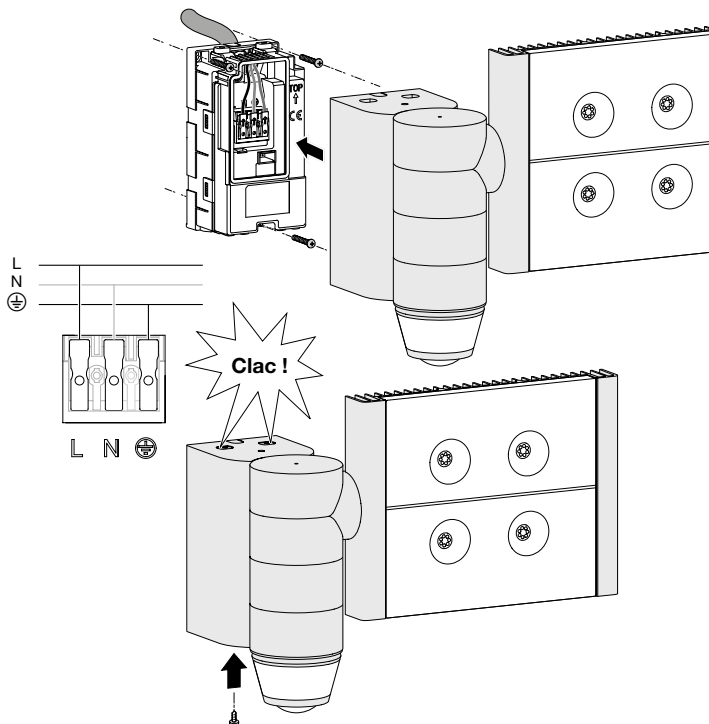
Corner adapter TRE52x/TRE53x



Masking panels TRE52x/TRE53x

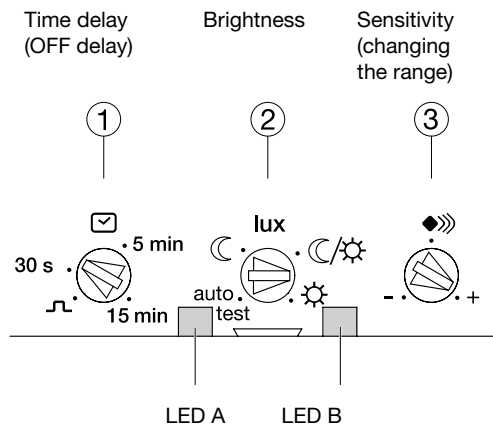


Installation TRE600

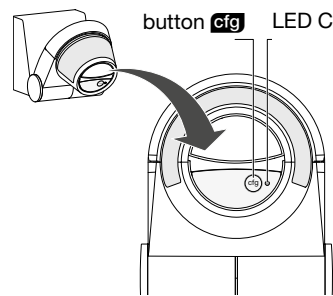


Surface mounted wireless motion detector IP55 quicklink

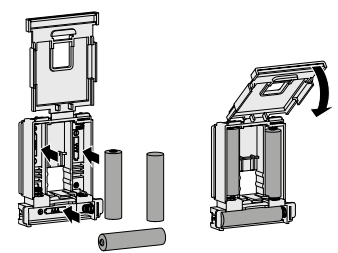
Device adjustments



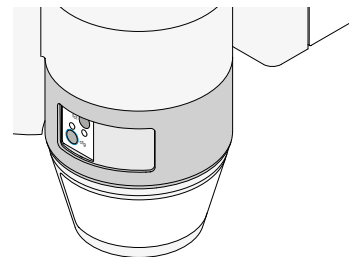
TRE5xx cfg button



Fitting the batteries TRE52x



TRE600 cfg button



Device adjustments

Operation	Setting	Potentiometer
Light switched on automatically for a predetermined period of time according to standard settings (factory). This function is only available if the time delay has been programmed for the detector.	Automatic settings Set lux potentiometer to "auto-test". The default settings are as follows: Lux = ☾, (night mode only) period = 3 min Sensitivity = max.	
Light switched on automatically for a predetermined period of time. This function is only available if the time delay has been programmed for the detector.	Electrician settings	
Testing and confirming the detection range.	Test mode Set potentiometer 2 to "auto-test".	
Adjusting the sensitivity.	Used to set the range in order to prevent interference	
Adjusting the sensitivity.	Used to set the sensitivity in order to avoid perturbation.	

LED fct	Function
	on/off ON/OFF (staircase lighting circuit)
	on ON
	off OFF
	1 Scene 1
	2 Scene 2
	Time switch
	ON/OFF (switch)
	on Forced mode ON
	off Forced mode OFF
	Presence simulation
	Delete

sepio central panel

Reference	RLC304F
Power supply	- RXU05X power pack (4.5 V - 14 Ah) - Low voltage threshold Type C - 3.65 V - or RXU01X 200-240 VAC 50-60 Hz/4.5 VDC 2.2 mains power unit backed up by RXU03 Li-Ion 3.7 V 1.3 Ah battery - Low voltage threshold Type A - 3.6 V - Recharge time 10 hours to 80% - 36 hours battery life
Battery life	approx. 5 years in normal conditions of use
Average current consumed	235 µA
Average humidity rate	from 5 % to 75 % without condensation at 25° C
Wireless link	TwinBand®, 400/800 MHz
Control panel specifications	4 separate groups progressive deterrence protection of individuals 10 remote control units max. 40 intrusion detectors max. 5 deterrence devices max. 32 user codes - 5 radio repeater relays maximum - 3 diallers maximum (transmission module included) vocal personalisation of detectors (max. 40) system saved to S.I.T.E. NVM stick (optional) built-in command keypad built-in remote control operation (if transmission module installed) log of the last 500 dates and time-stamped events 2 hardwired outputs + 1 hardwired input (optional)
Operating temperature	- 10°C to + 55°C
Degree of mechanical protection	IP 30 / IK 06
Tamper protection	opening / removal / line cuts (if transmission module is installed) / attempts to discover radio codes / radio interference
Supervision	wireless power pack / mains power module / battery Li-Ion tamper
Siren acoustic power	100 (±2) dB(A) average at 1 m
Audible alarm	built-in

sepio commands

References	RLF620X	RLF660X	RLF630X
Command keys	4 keys	4 keys	4 reprogrammable keys
Back-lighting	according to lighting level and when a key is pressed	according to lighting level and when a key is pressed	according to lighting level and when a key or a bell push button is pressed
Access codes	- 1 installer code - 1 master code - 32 user codes	- 1 installer code - 1 master code - up to 32 user codes (according to the number of tags)	- 1 installer code - 1 master code - up to 32 user codes (according to the number of tags)
Indications	vocal and visual indications of system status, alarms, exits and faults		
Use	indoor	indoor	outdoor
Power supply	4.5 V 2.7 Ah power pack - low voltage threshold 3 V - Type C	4.5 V 2.7 Ah power pack - low voltage threshold 3 V - Type C	4.5 V 2.7 Ah power pack - low voltage threshold 3 V - Type C
Battery life	5 years in normal conditions of use	3 years in normal conditions of use	5 years in normal conditions of use (4 years in case of relay card)
Average current consumed	45 µA	90 µA	30 µA
Average humidity rate	5% to 75% without condensation at 25°C possibly varying between 85% & 95% for 30 days over the course of the year	5% to 75% without condensation at 25°C possibly varying between 85% & 95% for 30 days over the course of the year	5% to 75% without condensation at 25°C possibly varying between 85% & 95% for 30 days over the course of the year
Wireless links	TwinBand® 400/800 MHz	TwinBand® 400/800 MHz - 433.050 - 434.790 MHz, 10 mW max. - 868.000 - 868.600 MHz, 25 mW max.	TwinBand® : - 433.050 - 434.790 MHz, 10 mW max. - 868.000 - 868.600 MHz, 25 mW max.
Operating temperature	- 10°C to + 55°C	- 10°C to + 55°C	- 25°C to + 70°C
Tamper protection	opening / removal / access code search		
Degrees of mechanical protection	IP 30	IP 30	IP 54 / IK 07

2 x 4 channel KNX remote control TU444

The TU444 remote allows to control sepio wireless alarm system and tebis quicklink^Q KNX output modules. It features 4 command keys, each one allocated to one function of the sepio alarm system, and another in the tebis quicklink^Q system.

It can control up to 8 functionalities:

- 4 functions of the sepio wireless alarm system (orange LED)
- 4 functions of the tebis quicklink^Q system (green LED)

One or several buttons can also be configured to launch a scenario, therefore allowing by the press on one single button to control one sepio and one tebis quicklink^Q function at the same time (for example, press the scenario button will turn on the alarm and close the roller shutters.)

Use of the remote

The remote always emit the same kind of function (sepio wireless or tebis), the permanent system is the last or the only system in which the remote has been configured.

A short press (< 2 s) on one of the side push buttons (③) allows to exit the permanent system to temporarily access the other system.

The permanent system switch can be operated by pressing more than 2 s on one of the 2 side push buttons (③).

Key lock mode

In order to avoid accidental press, the user can lock (or unlock) his remote by pressing simultaneously the 2 side push buttons (③).

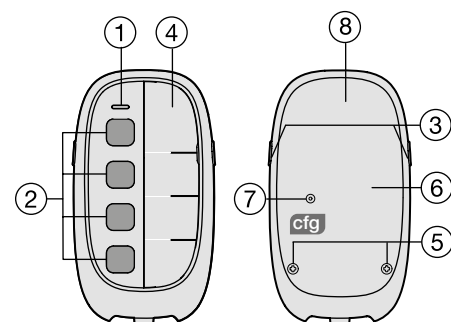
In locked mode, any press on the keys (②) are ignored and the LED (①) briefly light up in red. No command is emitted.

Factory reset

Press and hold the **cfg** button and release when the LED (①) blink (> 10 s). The LED (①) switches off when the factory reset has been completed. This operation causes the product configuration to be completely erased, whatever its configuration mode.

After a battery change or a factory reset, wait 15 s before proceeding to a configuration.

Product description



- ① 3-colour signal LED: red, orange, green
- ② Command keys
- ③ Side push buttons
- ④ Labels to indicate functions
- ⑤ Closing screw
- ⑥ Battery cover
- ⑦ Push button **cfg**/Reset
- ⑧ Warranty label

Note

TU444 is not compatible with S781-22X and S791-22X.

sepio intrusion detection

	S161-22F - S162-22X S163-22X - S165-22X	S141-22X	S121-22X	RLA144X	S145-22X
Detection	infrared	infrared	infrared/ hyperfrequency	infrared	
pet detection inhibition	only on S165-22F (see detection diagram)	-	-	yes	yes
Detection area and angle	S161-22F, 12 m - 90° S162-22X, 22 m - 12° S163-22X, 12 m - 8° S165-22X, 12 m - 85°	S141-22F, 10 m - 90°	12 m - 90°	5 settings level from 2.5 to 12 m - 90° Detection setting range 180° (7 positions from A to G)	area adjustable on each side from 2 to 12 m adapted for facade protection
Hyperfrequency range	-	-	range S : 2.45 GHz	-	
Mounting type	bracket, wall, angle	bracket	bracket, wall, angle	wall, pole	wall
Supply	lithium battery 3.6 V, 2 Ah (BATLi38)			lithium battery 3.6 V 4 Ah BATLi05	
Battery life	5 years in normal conditions of use				
Wireless link	TwinBand 400/800 MHz				
Test button	battery/ detection	battery/ detection/ wireless link	battery/ detection	wireless link	battery/ wireless link
LED indicator lamp	1	1	- red : infrared - yellow : hyperfrequency - red + yellow : bi-techno.	LED alarm red or anomaly	2
Operating temperature	-10°C to +55°C -10°C to +40°C (S165-22X)	-25°C to +70°C	-5°C to +55°C	-20°C to +60°C	-20°C to +50°C
Tamper protection	opening/removal (except bracket mounting)	opening	opening/removal	opening/removal	opening
Degrees of mechanical protection	IP 31/IK 04	IP 55/IK 04	IP 31/IK 04	IP 55	IP 55
Dimensions L x l x H	58 x 102 x 57 mm	163 x 85 x 63 mm	125 x 75 x 65 mm	71 x 186 x 106 mm	80 x 198 x 108 mm

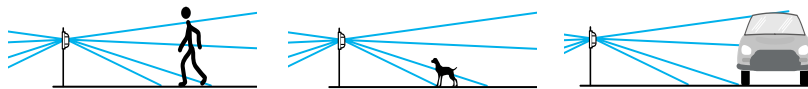
sepio intrusion detection

Detection principle S145-22X

The beam is always parallel to the floor
detection

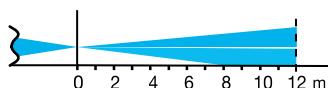
no detection

no detection

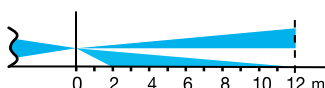


Detection setting S145-22X

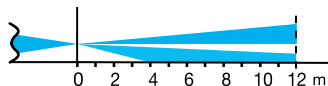
position A (12 m)



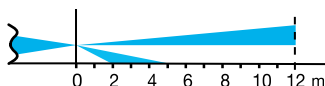
position C (5 m)



position B (8 m)



position D (2 m)

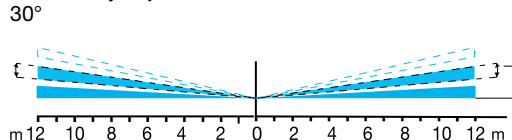


Detection area S145-22X

2 x 2 independently adjustable detection beam,
2 x 12 m range

The beam inclination is
horizontally adjustable at 0 or
30°

approx. 1.4 m
width at 12 m



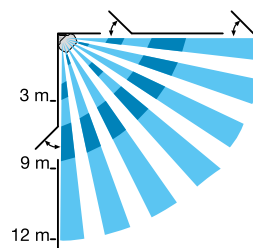
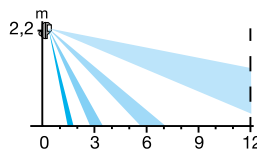
Installing height at 1 m

Position of the setting switch	standard detection area (m)	max. detection area (m)
A	12	10 - 15
B	8	6 - 10
C	5	4 - 6
D	2	1.5 - 3

S161-22F 90°

Volumetric protection inside buildings,

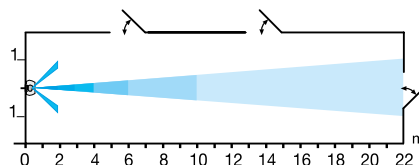
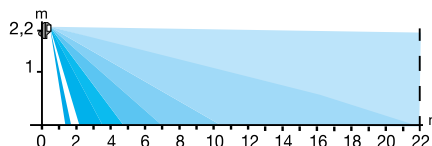
- detection area : 12 m,
- horizontal coverage : 90°,
- vertical coverage : 50°,
- number of beams : 19



S162-22X corridor

Specific volumetric protection of narrow passages in
housings (entrance, staircase, corridor...).

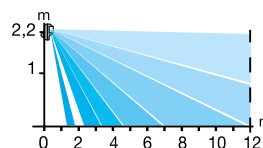
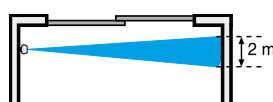
- detection area : 22 m,
- horizontal coverage : 12°,
- vertical coverage : 55°,
- number of beams : 9



S163-22X curtain

Specific volumetric protection of indoor facades:
window bay, rooms with several doors or perimeter
protection, with or without occupants

- detection area : 12 m,
- horizontal coverage : 8°,
- vertical coverage : 55°,
- number of beams : 19

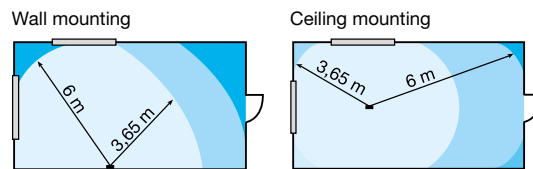


sepio intrusion detection

	Contact detector S261-22F - S262-22F	Multi-contact detectors S271-22F - S272-22F	Roller blinds detectors S231-22X - S236-22X	Glassbreak detector S280-22X
Detection	magnetic contact	magnetic contact	opening contact	acoustic
Couverture	-	-	-	3.65 m/glass : armoured (th. 6.4 mm) 6 m/glass : standard, double, toughened and laminated (thickness 2.4 to 6.4 mm)
Supply	lithium battery 3 V (BATLi31)		lithium battery 3.6 V (BATLi38)	
Battery life	5 years in normal conditions of use			
Wireless link	TwinBand 400/800 MHz			
Test button	battery/detection	battery/detection	programming/battery/ detection	battery/detection
LED Indicator lamp	1	1	1	1/receiver, 1/transmitter
Operating temperature	-10°C to +55°C	-10°C to +55°C	-25°C to +70°C	-10°C to +55°C
Anti-tamper & protection	opening / removal / loop cutting	opening / removal / loop cutting	opening / removal	opening / removal
Degrees of mechanical protection	IP 31/IK 02	IP 31/IK 02	IP 31/IK 04	IP 31/IK 02
Dimensions L x l x H	108 x 26 x 30 mm	138 x 26 x 30 mm	138 x 26 x 30 mm	138 x 40 x 30 mm

S280-22X window bay protection

- protected area, whatever the glass type (including armoured glass)
- protected area, whatever the glass type (excepted armoured glass)
- non protected area



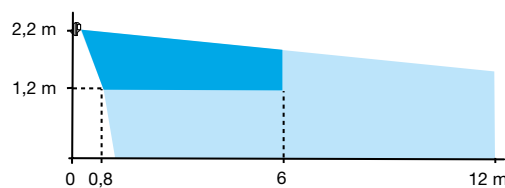
seprio intrusion detection

	RLA176X
Infrared detection	volumetric, 12 m, 85°
Optical field	12 m, 90°
Storage capacity	last 10 10-second sequences
Movie format for reading of the microSD stick on a computer (after intrusion or upon image capture request)	- VGA colour 640 x 480 - 10-second images sequences, 3 images/second
Images format for MMS	- JPEG colour 320 x 240 - 10-second images sequences
Movie format for remote monitoring	10-second movie, 1 image/second
Flash range	up to 7 m at 0 lux
Mounting type	bracket
Use	indoor
Supply	lithium battery BatLi30 - 4.5 V - 3 Ah
Battery life	5 years : 5 image capture (intrusion) per year + 10 sequences of images requests per month
LED Indicator lamp	1
Operating temperature	0°C to +55°C
Tamper protection	opening
Average humidity rate	from 5 % to 75 % without condensation at 25°C
Degrees of mechanical protection	IP 31/ IK 04

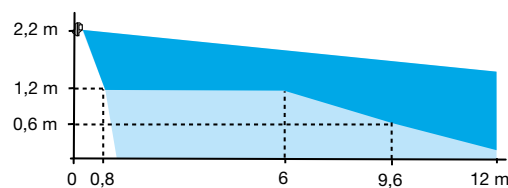
RLA176X pet-tolerant IR detector-camera with sending pictures

Detection area

for pets **under** 6 kg



for pets **over** 6 kg



- pet exclusion area
- area authorized to pet

Depending on the room and/or the pet, the mounting height (measured from the center of the detector lens) can be adjusted. When the detector isn't mounted at 2.2 m height from the floor, the limit between detection and non-detection area changes.

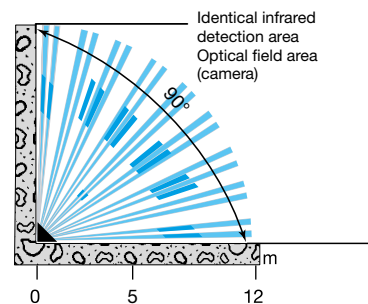
Infrared detection

allows rooms protection (living room, bedrooms,...) at a 90° angle for 12 m distance.

Optical field

Corresponds to the built-in camera's field of view at a 90° angle with a range up to 12 m.

NOTE: While capturing pictures in the dark, the range of the flash is limited to 7 m max.



seprio household and fire protection, transmitters

		S232-22X	S233-22X	S234-22X	S235-22X
Detection		freezer temperature	mains supply availability	premise temperature	water damage
Average coverage		-	-	-	-
Sensor detection range and threshold		-12°C	2 s, 18 mn or 5 h without mains connection	triggering : +5°C reclosing : + 7°C	min. : 2 mm
Sensor mounting		placed in the freezer	nesting plug	magnetic base	horizontal/vertical
Supply		lithium battery 3.6 V, 4 Ah (BATLi26) (transmitter)			
Battery life		5 years			
Wireless link		TwinBand 400/800 MHz			
Test button		1 BP (transmitter)			
LED Indicator lamp		1 test light (transmitter)			
Operating temperature	transmitter	-25°C to +70°C			
	sensor	-25°C to +70°C	-5°C to +55°C	-25°C to +70°C	
Tamper protection		case opening			
Degrees of mechanical protection		IP 55/IK 04 (transmitter)			
Dimensions L x l x H	transmitter	130 x 80 x 35 mm			
	sensor	53 x 70 x 12 mm	50 x 70 x 12 mm	53 x 70 x 12 mm	

		S155-22X	S157-22X
Detection		smoke detector	heat and temperature increase speed detector
Average coverage		50 m ²	30 m ²
Sensor detection range and threshold		-	62°C ±8°C
Supply		sealed lithium battery	
Battery life		10 years	
Wireless link		TwinBand 400/800 MHz	
Test button		1 PB luminous halo	
LED Indicator lamp		- red : tripping and programming - yellow : anomaly and normal functioning (1 blink every 10 seconds) luminous halo in case of alert	- red : tripping and programming - yellow : anomaly and normal functioning (1 blink every 10 seconds) luminous halo in case of alert
Built-in signal		> 85 dB to 3 m in detection mode > 75 dB to 3 m (test or anomaly)	> 85 dB to 3 m in detection mode > 75 dB to 3 m (test or anomaly)
Wired interconnection		40 detectors max.	
Operating temperature		-10°C to +55°C	-10°C to +55°C (+ 75°C short period of time)
Degrees of mechanical protection		IP 22	
Dimensions L x l x H		Ø 116 x 49 mm	

		S781-22X	S791-22X	RLE700X
Application		- ON/OFF - timer - presence simulation	- remote control - impulse - system status - intrusion activation	20 peripherals relays (siren and keyboard : 1 product relay) 5 relays max./system Max. number of receivers and/or wireless relays per installation : 10 (ex. 5 receivers and 5 wireless relays / 8 receivers and 2 wireless relays / 10 receivers and 0 wireless relays, etc.)
Supervision		-	-	wireless link/control panel status : battery and tamper protection
Supply		230 V AC	12 - 24 V AC ou DC	2 x (3.6 V-17 Ah) MPU0X - Type C low voltage threshold 3.1 V
Battery life		-	-	5 years
Wireless link		TwindBand 400/800 MHz		
Consumption		-	12 V \equiv 22 mA 12 V \sim 24 mA 24 V \equiv 11 mA	-
Output		dry contact NC/NO	dry contact NC/NO	-
Max. load		VLV halogen 12 V 1 500 W incandescent 1000 W	24 V \equiv 1 A 24 V \sim 2 A 12 V \equiv 2 A 12 V \sim 2 A	-
Operating temperature		-20°C to +70°C		-25°C to +70°C
Tamper protection		-		opening / removal
Isolating class		classe II \square	-	-
Degrees of mechanical protection		IP 55/IK 04		IP 55/IK 08
Dimensions L x l x H		150 x 85 x 35 mm		240 x 160 x 55 mm

seprio transmitters

Transmitter	RLD454F RLD464F
Supply	
- battery pack (4.5 V - 14 Ah) RXU05X - Type C - Low voltage threshold 3.65 V - or battery pack (4.5 V - 14 Ah) RXU05X and secondary battery Li-Ion (3.7 V 1.3 Ah) RXU03X - or mains power supply module (200-240 VAC 50-60 Hz / 4.5 VDC 2.2 a) RXU01X backedup by battery Li-Ion (3.7 V 1.3 Ah) RXU03X - Low voltage threshold 3,6 V type A -Charging time 20 h at 80 % - 36 h operating life	●
Battery life	
5 years in normal conditions of use	●
Average current consumed	
235 µA	●
Average humidity rate	
from 5 %to 75 % without condensation at 25°C	●
Wireless link	
Wireless TwinBand® : 400/800 MHz	●
General data	
1 built-in programming keyboard	●
1 built-in microphone and 1 built-in speaker for recording and listening	●
2 access codes (installer, user) from 4 to 6 digits programmable	●
Speech synthesis in 6 languages	●
Automatically switch to summer/winter time	●
Max. number of images transmission detectors : 40 max	●
Welcome message personalisation	●
Voice messages to identify the products (with control panel S.I.T.E. card only)	●
Voice personalisation for 4 alarm groups	●
Log of the last 500 dates and time-stamped events	●
Remote control over the phone	PSTN/GSM ⁽¹⁾
Transmission protocols	
PSTN : voice protocol to individual correspondents / FSK 200 bauds and ID contact to remote monitoring companies	PSTN
- GSM : voice/SMS/MMS protocol to individual correspondents / contact ID to remote monitoring companies	- GSM
Transmissions	
- 3 call cycles of 2 or 3 phone numbers, up to 5 call attempts per number in case of no acknowledgement (20 digits max. per number) - 8 programmable phone numbers in case of alarm	●
1 phone number for system correspondent	●
Transmission of the alarm images to the remote monitoring company	●
Transmission up to 5 images JPEG via MMS to individual correspondents	●
Programmable call cycle (beginning and period of 1 minute to 31 days)	●
Digital transmission of switching on/off to a remote monitoring company (and to an individual correspondent via SMS if GSM)	●
Identification number from 1 to 8 digits for an individual correspondent call	PSTN/GSM
Identification number from 4 to 8 digits for a remote monitoring company call	PSTN/GSM-GPRS
Operating temperature	-10 to +55°C
Degrees of protection	IP30 and IK06
Tamper protection	
Against removal or opening	●
Against power cuts, depending on the used media	●
Against communication network cuts (PSTN, GSM interference), depending on the used media	●
Against wireless interference	●
Against fraudulent code search	●
Supervision	
Wireless	●
Battery / mains power module / secondary battery	●
Tamper protection	●

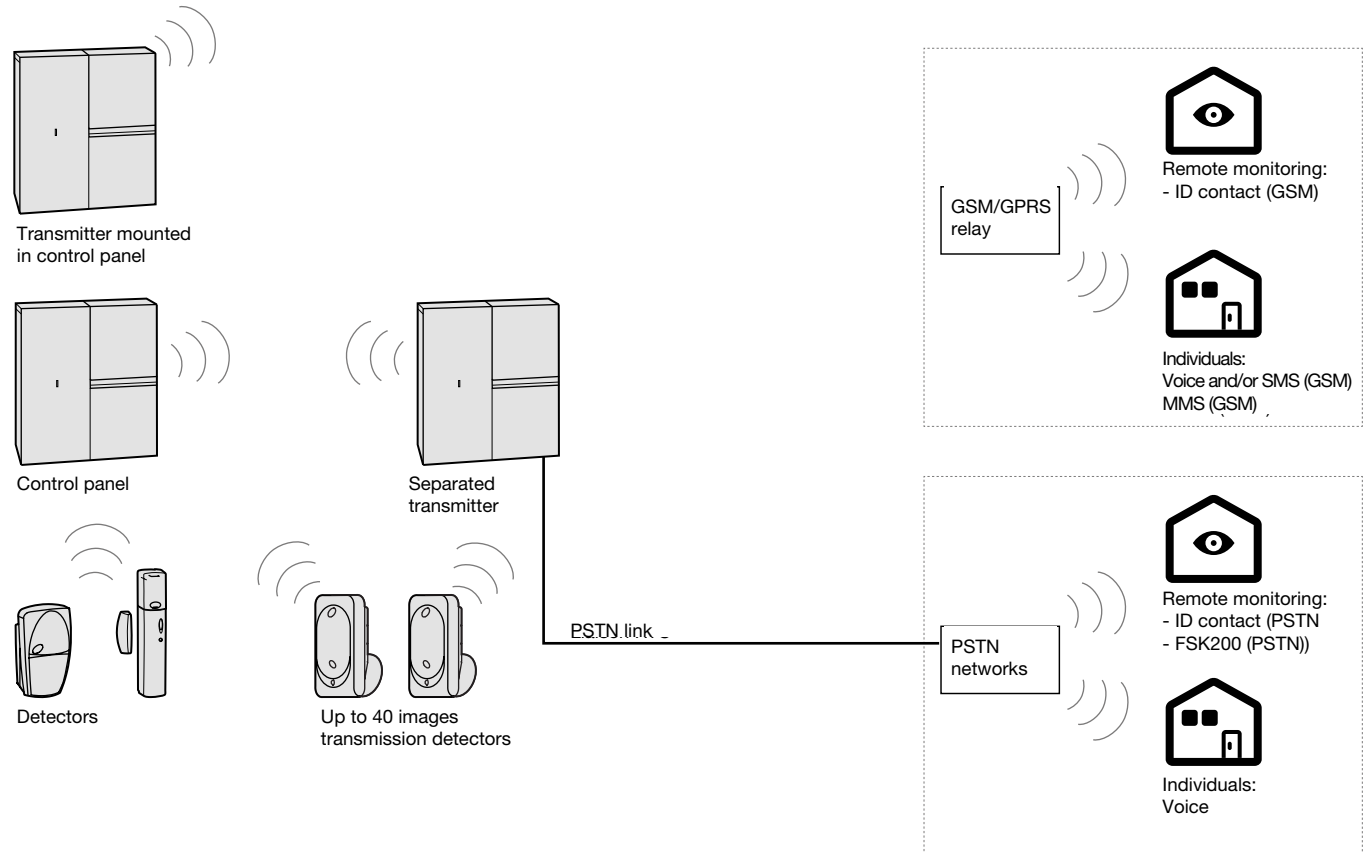
● : available function

⁽¹⁾ GSM, only if transmitter is supplied by mains.

sepio transmitters

The transmitter only operates in an alarm system including the control panel. It communicates via several communication networks: PSTN - GSM/GPRS

The images transmission detectors convey:
 - intrusion events directly to the control panel,
 - the recorded images directly to the transmitter.



Note : Each images transmission detector must be linked to and identified by the control panel and the separated transmitter.

sepio sirens

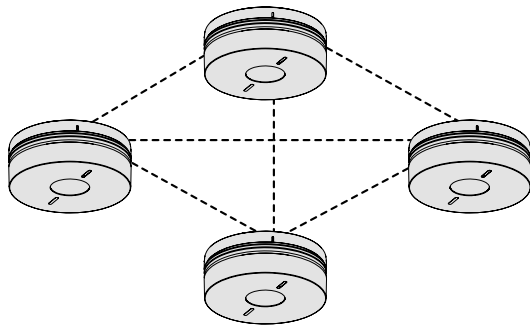
	RLD414X	RLD415F / RLD416X
Acoustic level	93 (±2) dB at 1 m	103 (±2) dB at 1 m
Sounding duration	20 s to 180 s	20 s to 180 s
Modulation	3600 Hz to 4200 Hz modulation 6 Hz (internal sounding)	1400 Hz to 1600 Hz (external sounding)
Fire sounding	700/900 Hz, sounding duration : 5 mn	700/900 Hz, sounding duration : 5 mn
Transfer of Arm/Disarm indications	sounding and vocal message	audible
Environment	indoor	outdoor
Power supply	TwinPower® via lithium power pack (2 x 3.6 V) - C type - 3.1 V low voltage	power pack 4 x 1.5 V- C type - 5.01 V low voltage
Battery life	5 years in normal conditions of use	5 years in normal conditions of use
Average current consumed	223 µA	260 µA
Average humidity rate	5% to 75% without condensation at 25°C	5% to 75% without condensation at 25°C
Wireless links	TwinBand® 400/800 MHz	TwinBand® 400/800 MHz
Supervision	radio, power pack, tamper	radio, power pack, tamper
Operating temperature	- 10°C to + 55°C	- 25°C to + 70°C
Tamper protection against	- opening / removal / wireless	
Degrees of mechanical protection	IP 31 / IK 06	IP 54 / IK 08
Flash	-	flash 1 pulse per 2 seconds
Dimensions L x H x P	192 x 192 x 59,9 mm	235 x 256 x 90 mm

Technical characteristics

	TG600A	TG600AL	S155-22X	S157-22X
Type of detection	smoke	smoke	smoke	heat
Power	lithium battery 3 V type CR123A	sealed lithium battery	sealed lithium battery	sealed lithium battery
Average coverage	50 m ²			30 m ²
Battery life	5 years	10 years	10 years	10 years
Indication	rouge : triggering, test and faults		red : triggering and signaling yellow : faults and normal operation (1 flash every 10 s.)	
	-		emergency halo lighting	
Sounding	> 85 dB at 3 m upon detection > 75 dB at 3 m (during testing and fault indication)			
Interconnection	-		wireless via 40 detectors max.	
Operating temperature	- 10 °C to + 65 °C			
IP	IP 30		IP 22	
Connecting socket with relay	-		RXA05X	
Dimensions	Ø 97 x 37 mm		Ø 116 x 49 mm	

S155-22X and/or S157-22X network

Smoke and heat detectors in a network (40 max.)



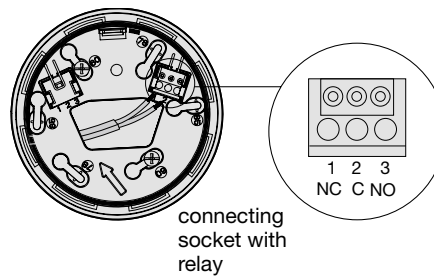
red : triggering and signaling
yellow : faults and normal operation
(1 flash every 10 s.)

Connecting socket with relay

	RXA05X
Use	indoor
Breaking capacity	2 A / 230 V
Connection capacity	rigid : 1 to 1.5 mm ² flexible : 1 to 1.5 mm ² flexible with socket: 1 to 1.5 mm ²
Operating temperature	-10 °C / + 55 °C
Dimensions	Ø 110 x 28 mm
IP	IP 32
Weight	125 gr

The connecting socket with relay is used to create a dry contact in case of an alarm, and therefore to command a lighting, a phone transmitter, etc...

contact relay NO : 2 A - 230 V AC
section 2,5 mm² max.

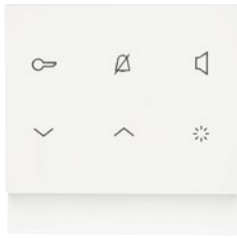


Door Communication systems

A tried-and-tested system: 2-wire technology transfers video, sound and control commands via just two wires. Calling, seeing, speaking, opening – a 2-wire system with a line coupler can connect 150 outdoor stations and 256 indoor stations. Due to the low number of components, this technology enables cost-effective solutions which are ideal for new systems, retrofits and renovations.



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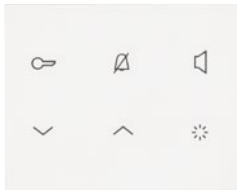
REK221X



ELCOM.TOUCH audio indoor stations kit

- Dimensions (W x H x D): 93/92.5/16 mm
 Operating temperature: 5 to 50 °C
 Operating voltage via bus: 22 to 24 V DC
- hands-free or Push-to-Talk
 - acoustic and optical call signalling
 - storey call forwarding to identically addressed indoor stations
 - parallel call (up to 3 indoor stations in parallel operation)
 - internal call to other indoor stations
 - special functions lockable using DIP-switches
 - connection terminal block with screw terminals
 - rotary coding switch (one-man commissioning)
- 6 function buttons with symbols, 3 are illuminated (release door, mute ring tone, call/speak)
 - 16 ring tone melodies
 - door call, storey call or internal call assignment
 - shut-off button for ring tone, with status LED
 - ring tone volume and microphone sensitivity can be adjusted incrementally

Description	Colour	Cat. ref.
indoor station audio angular surface-mounted 2-wire	polar white, glossy	REK221X



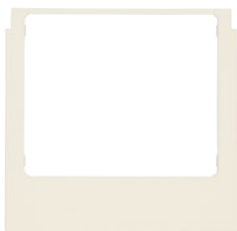
REA121X



ELCOM.TOUCH audio indoor stations

- Dimensions without frame (W x H x D): 93/74.5/16 mm
 Operating temperature: 5 to 50 °C
 Operating voltage via bus: 22 to 24 V DC
- hands-free or Push-to-Talk
 - acoustic and optical call signalling
 - storey call forwarding to identically addressed indoor stations
 - parallel call (up to 3 indoor stations in parallel operation)
 - internal call to other indoor stations
 - special functions lockable using DIP-switches
 - connection terminal block with screw terminals
 - rotary coding switch (one-man commissioning)
- 6 function buttons with symbols, 3 are illuminated (release door, mute ring tone, call/speak)
 - 16 ring tone melodies
 - door call, storey call or internal call assignment
 - shut-off button for ring tone, with status LED
 - ring tone volume and microphone sensitivity can be adjusted incrementally

Description	Colour	Cat. ref.
indoor station audio surface-mounted 2-wire	white, glossy	REA122X
indoor station audio surface-mounted 2-wire	white, matt, lacquered	REA112X
indoor station audio surface-mounted 2-wire	polar white, glossy	REA121X
indoor station audio surface-mounted 2-wire	polar white, matt	REA111X
indoor station audio surface-mounted 2-wire	black, glossy	REA125X
indoor station audio surface-mounted 2-wire	anthracite, matt, lacquered	REA114X
indoor station audio surface-mounted 2-wire	aluminium, matt, lacquered	REA113X



WD1219

ELCOM.TOUCH audio frame angular

Design line	Colour	Cat. ref.
Berker S.1	white, glossy	WD1219
Berker Q.3	white, matt	WD1212
Berker S.1/K.1/R.3	polar white, glossy	WD1221
Berker S.1/B.7/Q.3	polar white, matt	WD1211
Berker R.3	black, glossy	WD1225
Berker B.3/B.7/Q.3/K.1	anthracite, matt	WD1217
Berker B.7/Q.3	aluminium, matt, lacquered	WD1213
Berker B.3/B.7/Q.3/K.5	aluminium, metal matt-finished	WD1253
Berker K.5/R.3	stainless steel, metal matt-finished	WD1263
Berker B.7	stainless steel, metal brushed	WD1243
Berker B.7/R.3	glass, polar white	WD1231
Berker B.7	glass, aluminium	WD1233
Berker B.7/R.3	glass, black	WD1235

ELCOM.TOUCH audio frame round

Design line	Colour	Cat. ref.
Berker Q.1	white, matt	WD1112
Berker R.1/R.classic series/1930 series	polar white, glossy	WD1121
Berker Q.1/Q.7	polar white, matt	WD1111
Berker R.1/R.classic series/1930 series	black, glossy	WD1125
Berker Q.1/Q.7/R.1	anthracite, matt	WD1117
Berker Q.1/Q.7	aluminium, matt, lacquered	WD1113
Berker Q.7/R.1/R.classic series	aluminium, metal matt-finished	WD1153
Berker R.1/R.classic series	stainless steel, metal matt-finished	WD1163
Berker Q.7/R.1/R.classic series/glass series	glass, polar white	WD1131
Berker Q.7/R.1/R.classic series	glass, black	WD1135



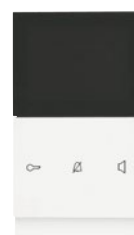
WD1112

ELCOM.TOUCH video indoor stations kit

Display diagonal: 8.9 cm (3.5")
 Resolution of graphical display: 320 x 240 px
 Dimensions (W x H x D): 93/163.5/16 mm
 Power consumption (operation): 5 W
 Operating temperature: 5 to 50 °C
 Operating voltage via bus: 22 to 24 V DC

- 3 function buttons with illuminated symbols for: release door, mute ring tone, call/speak
- Touch (capacitive) with mechanical feedback
- 16 ring tone melodies
- door call, storey call or internal call assignment
- shut-off button for ring tone, with status LED
- illuminated TFT colour display
- display of moving camera pictures from video door stations or external cameras
- icon bar for displaying menu button assignment
- Display brightness and contrast can be adjusted in stages

- ring tone volume and microphone sensitivity can be adjusted incrementally
- hands-free or Push-to-Talk
- acoustic and optical call signalling via LED and display
- storey call forwarding to identically addressed indoor stations
- parallel call (up to 3 indoor stations in parallel operation)
- internal call to other indoor stations
- manual switch on/change-over of cameras
- special functions and extended menu lockable using DIP-switches
- outgoing calls to door stations with display of the door address
- connection terminal block with screw terminals
- rotary coding switch (one-man commissioning)

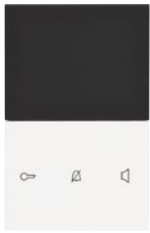


REK621X



IP30

Colour	Cat. ref.
polar white, glossy	REK621X



REA651X

ELCOM.TOUCH video indoor station comfort

- | | | |
|---------------------------------------|--------------------|--|
| Display diagonal | 8.9 cm (3.5") | - hands-free or Push-to-Talk |
| Resolution of graphical display | 320 x 240 px | - acoustic and optical call signalling via LED and video image display |
| Dimensions without frame (W x H x D): | 93 x 144.5 x 16 mm | - storey call forwarding |
| Operating temperature: | 5 ... 50 °C | - parallel operation of up to 3 indoor stations |
| Operating voltage via bus: | 24 V DC | - automatic display switch off after 3 minutes |
| Current consumption (operation): | ≤ 220 mA | - call waiting during current call |
- Concierge call
 - image memory function in in connection with IP gateway 2-wire
 - manual camera and door activation/change-over
 - automatic door release (automatic door release)
 - storey door release automatic
 - direct door release
 - internal connection
 - 8 internal call destinations can be configured
 - parallel call to call push-button intercom device address 0
 - special functions and extended menu lockable using DIP-switches
 - privacy function
 - video privacy function
 - manual camera activation lockable
 - connection terminal block with screw terminals
 - connection for for storey call push-button
 - connection for optional additional infeed
 - connection for integrated relay contact 24 V/1 A
 - drehfix® coding switch (one-man commissioning)
- flat surface-mounted installation or onto wall box
 - for vertical mounting
 - 3 Touch buttons with illuminated symbols for: release door, mute ring tone, call/speak
 - Touch buttons (capacitive) with mechanical feedback
 - 16 ring tone melodies
 - door call, storey call and internal call assignment
 - shut-off button for ring tone, with status LED
 - 3 menu operation buttons for settings and for triggering the functions appearing in the display
 - menu access and change-over by horizontal swipe movement on the touch user interface
 - illuminated TFT colour display
 - display of the calling door/indoor station number
 - display of moving camera pictures from video outdoor stations or external cameras
 - icon bar for displaying menu button assignment
 - display brightness and contrast can be adjusted in stages
 - ring tone volume and microphone sensitivity can be adjusted incrementally

Colour	Cat. ref.
polar white, matt, plastic	REA651X
white, matt	REA652X
aluminium, matt, lacquered	REA653X
anthracite, matt, lacquered	REA654X
polar white, glossy	REA661X
white, glossy	REA662X
black, glossy	REA665X



WD2219

ELCOM.TOUCH video frame angular

Design line	Colour	Cat. ref.
Berker S.1	white, glossy	WD2219
Berker Q.3	white, matt	WD2212
Berker S.1/K.1/R.3	polar white, glossy	WD2221
Berker S.1/B.7/Q.3	polar white, matt	WD2211
Berker R.3	black, glossy	WD2225
Berker B.3/B.7/Q.3/K.1	anthracite, matt	WD2217
Berker B.7/Q.3	aluminium, matt, lacquered	WD2213
Berker B.3/B.7/Q.3/K.5	aluminium, metal matt-finished	WD2253
Berker K.5/R.3	stainless steel, metal matt-finished	WD2263
Berker B.7	stainless steel, metal brushed	WD2243
Berker B.7/R.3	glass, polar white	WD2231
Berker B.7	glass, aluminium	WD2233
Berker B.7/R.3	glass, black	WD2235

ELCOM.TOUCH video frame round

Design line	Colour	Cat. ref.
Berker Q.1	white, matt	WD2112
Berker R.1/R.classic series/1930 series	polar white, glossy	WD2121
Berker Q.1/Q.7	polar white, matt	WD2111
Berker R.1/R.classic series/1930 series	black, glossy	WD2125
Berker Q.1/Q.7/R.1	anthracite, matt	WD2117
Berker Q.1/Q.7	aluminium, matt, lacquered	WD2113
Berker Q.7/R.1/R.classic series	aluminium, metal matt-finished	WD2153
Berker R.1/R.classic series	stainless steel, metal matt-finished	WD2163
Berker Q.7/R.1/R.classic series, glass series	glass, polar white	WD2131
Berker Q.7/R.1/R.classic series	glass, black	WD2135



WD2112

ELCOM.FON indoor station

Dimensions without frame (W x H x D): 93 x 74.3 x 16 mm
 Operating temperature: 5 ... 45 °C
 Operating voltage via bus: 24 V DC
 Current consumption (operation): ≤ 180 mA

- flat surface-mounted installation or installation onto wall box
- for vertical mounting
- screw fastening via supporting plate possible
- for door release, with status LED / for call switch off, with status LED / for hallway light / for programming
- push-buttons with tactile feedback
- 16 ring tone melodies
- door call, storey call and internal call assignment
- shut-off button for ring tone, with status LED
- tap-proof if handset is off-hook
- comfortable magnetic holder for handset with reed contact

- including spiral cable and RJ11 connector plug
- volume for hearing and speaking adjustable
- full duplex handset mode
- acoustic and optical call signalling
- storey call forwarding
- parallel operation of up to 3 indoor stations
- concierge call
- automatic display switch off after 3 minutes
- 2 pre-configured internal call destinations
- parallel call to call push-button intercom device address 0
- special functions via menu
- privacy function
- connection terminal block with screw terminals
- connection for for storey call push-button
- connection for optional additional infeed
- drehfix® coding switch (one-man commissioning)

Colour
polar white, glossy

Cat. ref.
REK241X



REK241X

IP30

Table supports

Colour: anthracite
 Connection: RJ45
 Length of connection cable: 3 m

Description
 table support for ELCOM.TOUCH / ELCOM.FON audio
 table support for ELCOM.TOUCH video

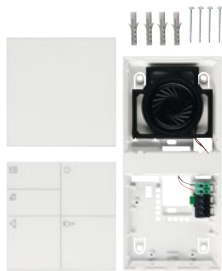
Cat. ref.
REH002X
REH003X



REH002X



REH003X



REA159X



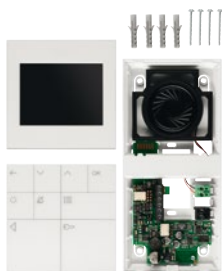
Indoor station audio comfort

Dimensions (W x H x D): 96/196/20 mm
Operating temperature: 5 to 40 °C
Operating voltage via bus: 19 to 25 V DC

Additional functions offered by comfort version

- Concierge call
- Automatic door release
- Switching functions
- Programmable integrated switching relay
- for call/speak for door release for call switch off, with status LED for hallway light for menu navigation
- capacitive buttons with blue status LED
- 16 ring tone melodies
- door call, storey call or internal call assignment
- sound volume for ring tone melody and control button tone continuously adjustable
- microphone sensitivity continuously adjustable
- full duplex hands-free mode
- acoustic and optical call signalling
- automatic display switch off after 3 minutes
- call waiting during current call
- parallel operation of up to 3 indoor stations
- storey call forwarding to identically addressed indoor stations
- automatic door release (automatic door release)
- floor door release automatic
- floor door release automatic via integrated relay
- direct door release
- call forwarding to another indoor station
- parallel call
- i2-BUS relay
- internal relay on the terminals KK
- internal call
- internal call F
- internal connection
- manual ON of the configured door station
- privacy function
- device configuration lockable via DIP-switch
- keylock for cleaning mode
- for floor call push-button
- at integrated relay contact 24 V/1 A
- for optional additional infeed

Description	Colour	Cat. ref.
indoor station audio comfort surface-mounted 2W video	white, glossy	REA159X



REA559X



Indoor station video comfort

Display diagonal: 8.9 cm (3.5")
Resolution of graphical display: 320 x 240 px
Dimensions (W x H x D): 96/196/20 mm
Power consumption (operation): 4 W
Operating temperature: 5 to 40 °C
Operating voltage via bus: 19 to 25 V DC

Additional functions offered by comfort version

- Concierge call
- Automatic door release
- Switching functions
- Programmable integrated switching relay
- for call/speak for door release for call switch off, with status LED for hallway light for menu navigation
- capacitive buttons with blue status LED
- 16 ring tone melodies
- door call, storey call or internal call assignment
- shut-off button for ring tone, with status LED
- illuminated TFT colour display
- status displays for calling and speaking
- display of the calling door/internal station number
- symbol display for special functions of the configured buttons
- Display brightness incrementally adjustable
- Contrast incrementally adjustable
- Colour reproduction incrementally adjustable
- call volume adjustable
- sound volume for ring tone melody and control button tone continuously adjustable
- microphone sensitivity continuously adjustable
- half duplex intercom mode temporarily/permanently adjustable
- acoustic and optical call signalling via LED and display
- automatic display switch off after 3 minutes
- call waiting during current call
- parallel operation of up to 3 indoor stations
- floor call forwarding to identically addressed indoor stations
- manual camera and door activation/change-over
- automatic door release (automatic door release)
- floor door release automatic
- floor door release automatic via integrated relay
- direct door release
- call forwarding to another indoor station
- parallel call
- i2-BUS relay
- internal relay on the terminals KK
- internal call
- internal connection
- camera change-over at the calling door
- privacy function
- video privacy function
- manual camera activation lockable
- call on the door can be switched on/can be switched off
- keylock for cleaning mode
- for floor call push-button
- for optional additional infeed
- at integrated relay contact 24 V/1 A

Description	Colour	Cat. ref.
indoor station video comfort surface-mounted 2W video	white, glossy	REA559X

Accessories for comfort indoor stations



REH001X

Colour: Stainless steel/glass glossy, metal brushed
Dimensions (W x H x D): 28/70/15 mm
Operating temperature: -20 to 60 °C
Installation mode: Built-in installation
Length of connection cable: 3 m
For use in office environments.

Description	Cat. ref.
universal desk console stainless steel/glass for comfort indoor intercom units	REH001X

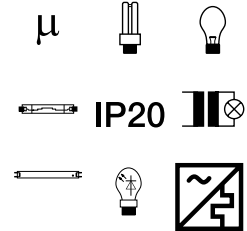
Line power supply

System technology:	2-wire
Dimensions (W x H x D):	106/90/67 mm
Operating voltage:	230 V AC
Output voltage:	22 to 26 V DC
Width of rail mounted device (RMD)	6 modules
230 V incandescent and halogen lamps	2300 W
230 V retrofit LED lamps	440 W
Compact fluorescent lamps with electronic ballast	22 x 20 W
- parallel compensated	1000 VA/130 µF
- with electronic ballast	1000 W
- lead-lag circuit	1000 W
Cable length to door station	max. 100 m
Cable length to indoor station	max. 150 m
Door release unlocking time	1/10 s
Operating temperature	-5 to 45 °C
Power consumption	≈ 4.1 W

To supply the 2-wire system. Integrated audio output coupler. Overload and overheating protection.



RED011X



Description

bus line power supply with relay RMD

Cat. ref.

RED011X

Mains transformer

Nominal operating voltage alternating current:	230 V
Output voltage:	12 V
Insulation voltage:	4000 V
Total energy dissipation under rated current:	2.07 W
Conductor cross-section (flexible):	4 mm ²
Connection cross-section with rigid conductor:	6 mm ²
Operating temperature:	10 to 25 °C
Installation mode:	DIN rail (RMD)

Safety transformer with PTC fuse.



ST320

Description

safety transformer 230V/12V 18VA 2PLE

Cat. ref.

ST320



Access gate

Width of rail mounted device (RMD):	6 modules
Operating temperature:	-5 ... 45 °C
Operating voltage:	21.6 ... 33 V= or 48 V= Power over Ethernet PoE according to IEEE802.3 series installation
Installation mode:	series installation

- with 2 USB jacks type A
- image memory function, protocols visitors for display on Touch indoor station video comfort and IP end devices
- compatible with web browsers from Internet Explorer 11, Chrome 32, Firefox 27, and Edge 20
- App for IOS as of version 7.1 and for Android as version 4.1 can be downloaded free of charge from the corresponding app store.



TJA510

Description

2-wire/IP gateway RMD with image memory

Cat. ref.

TJA510

Power supply, 24V DC, 1A

Width of rail mounted device (RMD):	4 modules
Operating temperature:	0 ... 45 °C
Operating voltage:	230 V AC
Frequency:	50/60Hz
Output voltage:	24 V DC
Output current:	Max. 1 A
Conductor cross-section (flexible):	0.75 - 2.5 mm ²
Conductor cross-section (rigid):	0.75 - 2.5 mm ²

- with QuickConnect plug terminals
- for generating the required auxiliary voltage
- power supply: 230 V AC/50 Hz on QuickConnect terminals
- No. of outputs: 2
- For supplying : TJA510



TGA200

Description

Power supply, 24 V DC, 1 A

Cat. ref.

TGA200



RED111X

IP20



Line coupler

Dimensions (W x H x D): 106/90/67 mm
 Width of rail mounted device (RMD): 6 modules
 Video signal amplification: 20 dB
 Operating temperature: 5 to 40 °C
 Installation mode: Rail mounted device (RMD)
 Device addressing: Rotary coding switch (one-man commissioning)
 Cable length to door station: max. 100 m
 Cable length to indoor station: max. 150 m
 Backbone cabling: Patch cable RJ45
 Backbone terminator: Switchable
 Backbone cable length: < 300 m
 Door stations per system: max. 150
 Indoor stations per system: max. 256
 Line couplers per system: max. 64
 Switching voltage door release contact: 24 V
 Switching voltage light contact: max. 24 V

- coupling of single lines
- integrated switching relay for door release and light (stair light timer)
- Integrated video signal amplifier for door station line
- for backbone cascading (2x RJ45)
- Power supply via video power supply unit
- infeed output for bus components
- potential-free door release and light switching contact
- with connection for floating output
- with power/overload, data traffic and backbone status LEDs
- door release protected against manipulation
- installable
- 3 simultaneous voice channels in backbone
- 1 voice channel in line
- simultaneous calls in multiple lines, if not occupied

Line coupler for connecting single lines in the 2-wire system via the backbone cable for systems with up to 256 subscribers and 150 main doors. Up to 64 line couplers with a backbone cable length of 300 m.

Description	Cat. ref.
line coupler 2-wire	RED111X



RED013X

IP20



Line coupler accessories

RED013X power supply
 Supplies power to the line coupler

TN002S - patch module RJ45, Cat.6, STP
 Reference to Hager catalogue "Energy distribution + meter panel systems"

TN733 - patch cable set, Cat.6, S/FTP
 Reference to Hager catalogue "Energy distribution + meter panel systems"

Description	Cat. ref.
power supply RMD 2W video	RED013X
patch module RJ45 CAT6 STP for DIN rails	TN002S
patch cable set Cat.6, RJ45, 4 pc. @ 300 mm	TN733



RED612X

IP20



Video distributor and branch

RED-612, RED-622 - video distributor 2gang
 For video distribution from one incoming to two outgoing bus cables. Alternatively, for coupling 2 door stations.

RED-612: DIN rail version
 RED-622: Flush-mounted version

RED-614, RED-624 - video distributor 4gang
 For video distribution from one incoming to two outgoing bus cables. Alternatively, for coupling 4 door stations.

RED-614: DIN rail version
 RED-624: Flush-mounted version

RED611X - video branch
 For branching a stub line from the video bus cable. Alternatively, for coupling one (storey) door station.

RED611X: DIN rail version
 RED621X: Flush-mounted version

Description	Cat. ref.
video distributor 2-gang 2-wire RMD	RED612X
video distributor 2-gang 2-wire flush-mounted	RED622X
video distributor 4-gang 2-wire RMD	RED614X
video distributor 4-gang 2-wire flush-mounted	RED624X
video distributor/branch 2-wire RMD	RED611X
video distributor/branch 2-wire flush-mounted	RED621X

Output coupler for i2 audio

RED311X, RED321X - audio output coupler
For decoupling the i2 audio bus from the 2-wire system for the operation of audio components. 2D video looped through.

RED311X: DIN rail version
RED321X: Flush-mounted version



Description	Cat. ref.
audio output coupler 2-wire RMD	RED311X
audio output coupler flush-mounted 2-wire	RED321X

Cat. ref.
RED311X
RED321X



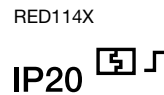
Switching relay

Dimensions (W x H x D): 42/51/16 mm
Operating temperature: 5 to 40 °C
Installation mode: For installation in flush-mounted wall box
Normally open contact switching voltage: 24 V
Normally open contact switching current: 1 A

- function-related switching and control functions
- switching of door release and light (stairway light timer)
- switching by function key on comfort indoor stations and door call signalling
- control by means of light, door release and comfort buttons of the indoor stations
- direct control of door release and light
- storey call function
- potential-free push-button input for control functions
- potential-free relay switching contact



RED114X - switching relay (universal)
for function-related switching and control functions such as: door release, light or function relay



Description	Cat. ref.
switching relay 2-wire flush-mounted	RED114X

Cat. ref.
RED114X

Switching relay

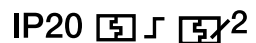
Switching relay 1gang with push-button input (universal)
For function-related switching and control functions such as: door release relay, light relay, function relay, door call signalling and door release/light direct control. (rail mounted device)

Switching relay 2gang (e.g. call switching relay)
With 2 potential-free switching contacts for subscriber-related switching functions. Addressable for 1-16 subscribers.



Description	Cat. ref.
switching relay 1gang with input RMD i2 audio	RED112X
switching relay 2gang RMD i2 audio	RED113X

Cat. ref.
RED112X
RED113X



Outdoor cameras

Colour: Stainless steel, metal brushed
Camera adjusting range horizontal/vertical: ± 90 °
Camera resolution: 320000 px
Camera light sensitivity F2.0: 0.2 lx
Camera objective: 12 mm
Camera CCD image sensor: 1/3"
Dimensions of camera rod (Ø x L): 24/83 mm
Dimensions of base (Ø x H): 104/25 mm
Video output, symmetrical: 1 Vpp, Z=100 ohms
Installation mode: For wall and ceiling installation
Operating voltage via bus: 19 to 25 V DC

The rod cameras can be concealed in an inconspicuous position for discreet monitoring of the entrance area.

- stable, weatherproof stainless steel housing
- for discreet, inconspicuous positioning
- can be flexibly adjusted in any direction
- camera adjustment by ball joint with setscrew
- base housing made of brushed stainless steel
- camera rod made of brushed stainless steel
- rotary coding switch one-man commissioning
- device configuration via DIP-switch



REE500X



Description	Aperture angle horizontal	Aperture angle vertical	Cat. ref.
	rod camera surface-mounted 2W video	63 °	
telescopic rod camera surface-mounted 2-wire	21 °	16 °	REE501X



RED361X



Telephone gateway

Dimensions (W x H x D): 93/96/59 mm
Installation mode: Rail mounting
Operating voltage via bus: 17 to 22 V DC
Operating temperature: -20 to 60 °C
Width of rail mounted device (RMD): 6 modules

Telecommunication interface

Used to connect the i2 bus intercom system to the a/b port of a telephone system. This turns the intercom system into a telephony unit so it can be used as part of a telephone system installation.

The call variants can be changed over via the voice menu or defined as a chain call (engaged/no reply). During a conversation, up to 8 defined door stations can be dialled and the relevant door opened.

Programming is carried out via the integrated display and the keypad on the device, or conveniently via PC software and USB connection. The device does not need a separate power supply and is supplied via the i2 bus.

- connection to analogue telephone system interface
- call variant with 2 possible destination call numbers per subscriber
- up to 256 different subscribers/call destinations programmable
- configurable duration of calls
- automatic display switch-off after configured time
- parallel operation with up to 2 indoor stations
- supports i2BUS door, internal or storey calls
- integrated voice announcements for differentiating the type of call

- control of call acceptance and end of call
- switching of door release and light (stairway light timer)
- switching of up to 4 switching relays
- switching of door and camera switch
- direct selection and control of up to 8 door stations and their door releases
- control of the switching functions by DTMF post-dialling
- control code for door release, call acceptance and end of call adjustable
- door filter function for assignment of interface to specific door
- 8 individually configurable voice announcements for differentiating doors
- individually configurable call type, information and system announcements
- call variants 1, 2 or chain call adjustable
- call variant change-over by voice menu, display input or PC software
- internal calls to i2 bus indoor stations
- privacy function
- reject calls at the door
- calling of the voice menu with configurable PIN request adjustable
- call and talking duration individually adjustable for each call type
- device configuration and data backup via MS Windows PC and BTI-Term software
- device configuration via integrated two-row display by means of micro push-button
- menu language in English and German
- processes announcement sound files in WAV format up to 8 seconds in length

Description

PBX interface RMD i2 audio

Cat. ref.

RED361X

ELCOM.ONE front plates audio

Material / surface: Makrolon
 Colour: Stainless steel, metal brushed
 Dimensions of name plate (W x H): 75.5/32.6 mm, 75.5/14.5 mm
 For labelling strip: 30 mm, 12 mm
 Operating temperature: -20 to 55 °C
 Surface compensation: 17 mm

- device configuration via LED display
- Name plate can be changed from the front without any special tools
- durable, homogeneous, white LED call push-button backlighting
- door release during connection or at any time adjustable

- Volume, microphone sensitivity, door release function, camera and call button backlighting adjustable
- call button can be adjusted with light, door release or without function
- call push-button with acknowledge tone (can be switched off) and tactile feedback
- front plate with non-visible opening mechanics and safety rope
- with protection from vandalism
- loudspeaker and microphone protected against sabotage
- break-proof flush-mounted call buttons
- installation in surface-mounted or flush-mounted housings
- pluggable connection terminal block with screw terminals



REQ001X



IP44 IK07

Description	Installation in housing surface-/flush-mounted size	Dimensions front plate (W x H x D)	Cat. ref.
door station audio 1/1 2-wire	1	133.5/242/2 mm	REQ001X
door station audio 2/1 2-wire	1	133.5/242/2 mm	REQ002X
door station audio 4/1 2-wire	1	133.5/242/2 mm	REQ004X
door station audio 6/1 2-wire	2	133.5/295.8/2 mm	REQ006X
door station audio 8/1 2-wire	3	133.5/332/2 mm	REQ008X
door station audio 10/1 2-wire	4	133.5/385.8/2 mm	REQ010X
door station audio 12/1 2-wire	5	133.5/422/2 mm	REQ012X
door station audio 16/2 2-wire	6	225.5/332/2 mm	REQ016X
door station audio 20/2 2-wire	7	225.5/422/2 mm	REQ020X
door station audio 24/2 2-wire	7	225.5/422/2 mm	REQ024X

ELCOM.ONE front plates video

Colour: Stainless steel, metal brushed
 Material / surface: scratch-proof camera cover; Makrolon
 Camera aperture angle
 Swivel range horizontal/vertical: 42.5 °
 Camera aperture angle horizontal: 82 °
 Camera aperture angle vertical: 58 °
 Dimensions of name plate (W x H): 75.5/32.6 mm, 75.5/14.5 mm
 For labelling strip: 30 mm, 12 mm
 Operating temperature: -20 to 55 °C
 Surface compensation: 17 mm

- device configuration via LED display
- camera adjustment by setscrew accessible from the front
- Name plate can be changed from the front without any special tools
- durable, homogeneous, white LED call push-button backlighting
- invisible, glare-free IR LED night lighting

- door release during connection or at any time adjustable
- Volume, microphone sensitivity, door release function, camera and call button backlighting adjustable
- call button can be adjusted with light, door release or without function
- call push-button with acknowledge tone (can be switched off) and tactile feedback
- front plate with non-visible opening mechanics and safety rope
- temperature controlled camera heating for clear view
- with protection from vandalism
- loudspeaker and microphone protected against sabotage
- break-proof flush-mounted call buttons
- installation in surface-mounted or flush-mounted housings
- pluggable connection terminal block with screw terminals



REQ501X



IP44

Description	Installation in housing surface-/flush-mounted size	Dimensions front plate (W x H x D)	Cat. ref.
door station video 1/1 2-wire	1	133.5/242/2 mm	REQ501X
door station video 2/1 2-wire	1	133.5/242/2 mm	REQ502X
door station video 4/1 2-wire	1	133.5/242/2 mm	REQ504X
door station video 6/1 2-wire	2	133.5/295.8/2 mm	REQ506X
door station video 8/1 2-wire	3	133.5/332/2 mm	REQ508X
door station video 10/1 2-wire	4	133.5/385.8/2 mm	REQ510X
door station video 12/1 2-wire	5	133.5/422/2 mm	REQ512X
door station video 16/2 2-wire	6	225.5/332/2 mm	REQ516X
door station video 20/2 2-wire	7	225.5/422/2 mm	REQ520X
door station video 24/2 2-wire	7	225.5/422/2 mm	REQ524X



REQ101X

IP44



ELCOM.ONE front plates audio with status indication

Colour: Stainless steel, metal brushed
Material / surface: Makrolon
Dimensions of name plate (W x H): 75.5/32.6 mm,
75.5/14.5 mm
For labelling strip: 30 mm, 12 mm
Operating temperature: -20 to 55 °C
Surface compensation: 17 mm

- device configuration via LED display
- with LED status display for bell, intercom connection and door release
- Name plate can be changed from the front without any special tools
- durable, homogeneous, white LED call push-button backlighting
- door release during connection or at any time adjustable

- Volume, microphone sensitivity, door release function, camera and call button backlighting adjustable
- call button can be adjusted with light, door release or without function
- call push-button with acknowledge tone (can be switched off) and tactile feedback
- front plate with non-visible opening mechanics and safety rope
- with protection from vandalism
- loudspeaker and microphone protected against sabotage
- break-proof flush-mounted call buttons
- installation in surface-mounted or flush-mounted housings
- pluggable connection terminal block with screw terminals

Description	Installation in housing surface-/ flush-mounted size	Dimensions front plate (W x H x D)	Cat. ref.
door station audio with LED 1/1 2-wire	1	133.5/242/2 mm	REQ101X
door station audio with LED 2/1 2-wire	1	133.5/242/2 mm	REQ102X
door station audio with LED 4/1 2-wire	3	133.5/332/2 mm	REQ104X
door station audio with LED 6/1 2-wire	3	133.5/332/2 mm	REQ106X
door station audio with LED 8/1 2-wire	5	133.5/422/2 mm	REQ108X
door station audio with LED 10/1 2-wire	5	133.5/422/2 mm	REQ110X
door station audio with LED 12/2 2-wire	6	225.5/332/2 mm	REQ112X
door station audio with LED 14/2 2-wire	6	225.5/332/2 mm	REQ114X
door station audio with LED 16/2 2-wire	7	225.5/422/2 mm	REQ116X
door station audio with LED 20/2 2-wire	7	225.5/422/2 mm	REQ120X
door station audio with LED 22/2 2-wire	7	225.5/422/2 mm	REQ122X



REQ601X

IP44



ELCOM.ONE front plates video with status indication

Colour: Stainless steel, metal brushed
Material / surface: Scratch-proof camera cover; Makrolon
Camera aperture angle
Swivel range horizontal/vertical: 42.5 °
Camera aperture angle horizontal: 82 °
Camera aperture angle vertical: 58 °
Dimensions of name plate (W x H): 75.5/32.6 mm,
75.5/14.5 mm
For labelling strip: 30 mm, 12 mm
Operating temperature: -20 to 55 °C
Surface compensation: 17 mm

- device configuration via LED display
- with LED status display for bell, intercom connection and door release
- camera adjustment by setscrew accessible from the front
- Name plate can be changed from the front without any special tools

- durable, homogeneous, white LED call push-button backlighting
- invisible, glare-free IR LED night lighting
- door release during connection or at any time adjustable
- Volume, microphone sensitivity, door release function, camera and call button backlighting adjustable
- call button can be adjusted with light, door release or without function
- call push-button with acknowledge tone (can be switched off) and tactile feedback
- front plate with non-visible opening mechanics and safety rope
- temperature controlled camera heating for clear view
- with protection from vandalism
- loudspeaker and microphone protected against sabotage
- break-proof flush-mounted call buttons
- installation in surface-mounted or flush-mounted housings
- pluggable connection terminal block with screw terminals

Description	Installation in housing surface-/ flush-mounted size	Dimensions front plate (W x H x D)	Cat. ref.
door station video with LED 1/1 2-wire	1	133.5/242/2 mm	REQ601X
door station video with LED 2/1 2-wire	1	133.5/242/2 mm	REQ602X
door station video with LED 4/1 2-wire	3	133.5/332/2 mm	REQ604X
door station video with LED 6/1 2-wire	3	133.5/332/2 mm	REQ606X
door station video with LED 8/1 2-wire	5	133.5/422/2 mm	REQ608X
door station video with LED 10/1 2-wire	5	133.5/422/2 mm	REQ610X
door station video with LED 12/2 2-wire	6	225.5/332/2 mm	REQ612X
door station video with LED 14/2 2-wire	6	225.5/332/2 mm	REQ614X
door station video with LED 16/2 2-wire	7	225.5/422/2 mm	REQ616X
door station video with LED 20/2 2-wire	7	225.5/422/2 mm	REQ620X
door station video with LED 22/2 2-wire	7	225.5/422/2 mm	REQ622X

ELCOM.ONE flush-mounted housing

Colour: Stainless steel, metal natural

- cut-outs for cable entry at the side, rear, top and bottom
- with extendible wall anchors



REW111X

Description	Dimensions Flush-mounted housing (W x H x D)	Cat. ref.
housing size 1 flush-mounted for door station ONE	92/218/47 mm	REW111X
housing size 2 flush-mounted for door station ONE	92/270.2/47 mm	REW112X
housing size 3 flush-mounted for door station ONE	92/308/47 mm	REW113X
housing size 4 flush-mounted for door station ONE	92/361.8/47 mm	REW114X
housing size 5 flush-mounted for door station ONE	92/398/47 mm	REW115X
housing size 6 flush-mounted for door station ONE	184/308/47 mm	REW126X
housing size 7 flush-mounted for door station ONE	184/398/47 mm	REW127X

ELCOM.ONE surface-mounted housing

Colour: Black matt, aluminium powder-coated

- rear-side cable entry



REW211X

Description	Dimensions Surface-mounted housing (W x H x D)	Cat. ref.
housing size 1 surface-mounted for door station ONE	139.5/248.3/28.5 mm	REW211X
housing size 2 surface-mounted for door station ONE	139.5/302.1/28.5 mm	REW212X
housing size 3 surface-mounted for door station ONE	139.5/338.3/28.5 mm	REW213X
housing size 4 surface-mounted for door station ONE	139.5/392.1/28.5 mm	REW214X
housing size 5 surface-mounted for door station ONE	139.5/428.3/28.5 mm	REW215X
housing size 6 surface-mounted for door station ONE	231.5/338.3/29 mm	REW226X
housing size 7 surface-mounted for door station ONE	231.5/428.3/29 mm	REW227X



REL101X

IP44



ELCOM.ONE letter box front audio

Colour: Stainless steel, metal brushed
 Dimensions of letter box flap (W x H): 279/58 mm
 For labelling strip: 30 mm, 12 mm
 Operating temperature: -20 to 55 °C
 LED operating voltage: 24 V DC
 Surface compensation: 17 mm

- letter box flap flush-mounted with sealing, damped axle
- device configuration via LED display
- Name plate can be changed from the front without any special tools
- durable, homogeneous, white LED call push-button backlighting
- Volume, microphone sensitivity, door release

- function, camera and call button backlighting adjustable
- call button can be adjusted with light, door release or without function
- call push-button with acknowledge tone (can be switched off) and tactile feedback
- front plate with non-visible opening mechanics and safety rope
- with protection from vandalism
- loudspeaker and microphone protected against sabotage
- break-proof flush-mounted call buttons
- pluggable connection terminal block with screw terminals

Description	Cat. ref.
pass-through letter box front audio 1/1 2-wire	REL101X
pass-through letter box front audio 2/1 2-wire	REL102X



REL501X



ELCOM.ONE letter box front video

Colour: Stainless steel, metal brushed
 Dimensions of letter box flap (W x H): 279/58 mm
 For labelling strip: 30 mm, 12 mm
 Operating temperature: -20 to 55 °C
 LED operating voltage: 24 V DC
 Surface compensation: 17 mm

- letter box flap flush-mounted with sealing, damped axle
- device configuration via LED display
- Name plate can be changed from the front without any special tools
- durable, homogeneous, white LED call push-button backlighting

- Volume, microphone sensitivity, door release function, camera and call button backlighting adjustable
- call button can be adjusted with light, door release or without function on the audio or video module
- call push-button with acknowledge tone (can be switched off on the audio or video module) and tactile feedback
- front plate with non-visible opening mechanics and safety rope
- with protection from vandalism
- loudspeaker and microphone protected against sabotage
- break-proof flush-mounted call buttons
- pluggable connection terminal block with screw terminals

Description	Cat. ref.
pass-through letter box front video 1/1 2-wire	REL501X
pass-through letter box front video 2/1 2-wire	REL502X



REW411X

IP44

ELCOM.ONE pass-through box

Colour: Silver, metal zinc-plated
 Material / surface: Zinc-plated sheet steel

- removal door on the back with name plate, hinged right
- removal door white aluminium (similar to RAL

- 9006) coated
- removal door with security lock BKS-110 and 2 keys
- for letter box fronts ONE
- depth of 263 ... 383 mm extendible

Description	Dimensions (W x H x D)	Cat. ref.
pass-through box 1/1 263-383 mm	311.6/323.7/263 mm	REW411X
pass-through box 2/1 263-383 mm	311.6/449.1/263 mm	REW412X
pass-through box 1/1 383-503 mm	311.6/323.7/383 mm	REW413X
pass-through box 2/1 383-503 mm	311.6/449.1/383 mm	REW414X

The modesta range is ideal for urban spaces where requirements could not be more varied: residential and commercial spaces within the same building complex, public institutions, offices and doctor's surgeries.

The modular design really comes into its own in this context and ensures a long service life thanks to the robust metal construction.

ELCOM.MODESTA flush-mounted frame

Colour: Stainless steel, metal brushed

The consistent processing of high-quality stainless steel, paired with the variable, modular design, is completely uncompromising and meets the highest standards when it comes to prestigious commercial properties in city centres in particular.

- stainless steel housing with extendible assembly aid
- flush-mounted, rear screw connection of the modules in the frame for modesta stainless steel modules
- stainless steel flush-mounted housing with cable entries at the side and rear



REM101X

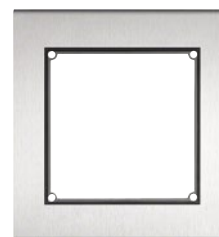
Description	Dimensions front plate (W x H x D)	Cat. ref.
MODESTA frame 1/1 stainless steel matt, incl. flush-mounted frame	155/180/2 mm	REM101X
MODESTA frame 2/1 stainless steel matt, incl. flush-mounted frame	155/310/2 mm	REM102X
MODESTA frame 3/1 stainless steel matt, incl. flush-mounted frame	155/440/2 mm	REM103X
MODESTA frame 4/1 stainless steel matt, incl. flush-mounted frame	155/580/2 mm	REM104X
MODESTA frame 4/2 stainless steel matt, incl. flush-mounted frame	285/310/2 mm	REM105X
MODESTA frame 6/2 stainless steel matt, incl. flush-mounted frame	285/440/2 mm	REM106X

ELCOM.MODESTA surface-mounted frame

Colour: Stainless steel, metal brushed

The modesta frame system is one of the most flexible door station systems on the market in terms of its durability and variation options.

- stainless steel housing with extendible assembly aid
- flush-mounted, rear screw connection of the modules in the frame for modesta stainless steel modules
- screwless folding mechanism with spring fastener
- cable entries on rear side



REM201X

Description	Dimensions housing (W x H x D)	Cat. ref.
MODESTA frame 1/1 stainless steel matt, incl. surface-mounted frame	170/180/48 mm	REM201X
MODESTA frame 2/1 stainless steel matt, incl. surface-mounted frame	170/310/48 mm	REM202X
MODESTA frame 3/1 stainless steel matt, incl. surface-mounted frame	170/440/48 mm	REM203X
MODESTA frame 4/1 stainless steel matt, incl. surface-mounted frame	170/570/48 mm	REM204X
MODESTA frame 5/1 stainless steel matt, incl. surface-mounted frame	300/310/48 mm	REM205X
MODESTA frame 6/1 stainless steel matt, incl. surface-mounted frame	300/440/48 mm	REM206X

ELCOM.MODESTA pedestals

Colour: Stainless steel, metal brushed

Pedestals in stainless steel, matt brushed

Clear design, optimal alignment for visitors, flexible positioning and seamless integration as a style feature for modern architecture projects – these are the signs of high-quality communication and function pedestals. Thanks to the flexible modular design, the product is suitable for a multitude of applications and meets a huge range of requirements.

- flush-mounted, rear screw connection of the modules in the frame for modesta stainless steel modules
- rear side inspection flap with spring hinge
- closed with hexagon stainless steel screw M2,5 x 5 mm
- cable entries from the bottom into a double pipe in the pedestal body



REM401X

Description	Dimensions (W x H x D)	Cat. ref.
MODESTA pedestals 1/1 stainless steel matt brushed	345/1370/150 mm	REM401X
MODESTA pedestals 2/1 stainless steel matt brushed	345/1500/150 mm	REM402X
MODESTA pedestals 3/1 stainless steel matt brushed	345/1630/150 mm	REM403X
MODESTA pedestals 4/1 stainless steel matt brushed	345/1630/150 mm	REM404X
MODESTA pedestals 5/1 stainless steel matt brushed	475/1500/150 mm	REM405X
MODESTA pedestals 6/1 stainless steel matt brushed	475/1630/150 mm	REM406X



REM505X

ELCOM.MODESTA letter box pedestals

Colour: Stainless steel, metal brushed
 Dimensions of letter box flap (W x H): 333/68 mm
 Installation mode: Free-standing

- flush-mounted screw connection on support structure for modesta stainless steel modules
- rear side inspection flap with spring hinge
- closed with hexagon screw M2,5 x 5 mm
- with letter box security lock type 1, differing lockings
- letter box flap flush-mounted with sealing, damped axle
- letter box removal compartment on the back, hinged down, hydraulically damped
- cable entries from the bottom into a double pipe in the pedestal body

Letter box pedestals in stainless steel, matt brushed

Letter box communication pedestals are ideal for the entrance areas of commercial buildings and sophisticated home environments. The pedestals receive your post, regulate building communication and access control, provide information and create a sense of prestige. Innovative function features fulfil every wish with regard to ease of use and ergonomics.

Description	Cat. ref.
MODESTA letter box pedestals 4/2 stainless steel matt brushed	REM505X
MODESTA letter box pedestals 6/2 stainless steel matt brushed	REM506X
MODESTA letter box pedestals front 4/2 stainless steel matt brushed	REM515X
MODESTA letter box pedestals front 6/2 stainless steel matt brushed	REM516X



REN101X



ELCOM.MODESTA REN push-button modules

Colour: Stainless steel, metal brushed
 Material / surface: Makrolon
 For labelling strip: 30 mm, 12 mm
 Operating temperature: -20 to 55 °C
 Operating voltage: 24 V DC

- Twilight controlled call push-button backlighting with adjustable switch-on brightness level
- call button can be adjusted with light, door release or without function on the audio or video module
- call push-button with acknowledge tone (can be switched off on the audio or video module) and tactile feedback

- Name plate can be changed from the front without any special tools
- durable, homogeneous, white LED call push-button backlighting

Description	Number of call buttons	Cat. ref.
call push-button module with LED name plate 1/1 built-in 2-wire	1	REN101X
call push-button module with LED name plate 2/1 built-in 2-wire	2	REN102X
call push-button module with LED name plate 4/1 built-in 2-wire	4	REN104X



REN091X



ELCOM.MODESTA REN push-button modules with status indication

Colour: Stainless steel, metal brushed
 For labelling strip: 30 mm, 12 mm
 Dimensions of front plate (W x H x D): 120/120/2 mm
 Dimensions of name plate (W x H): 75.5/32.6 mm, 75.5/14.5 mm

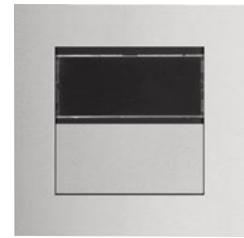
- with LED status display for bell, intercom connection and door release
- 2 connections for module connecting cable

Description	Cat. ref.
call push-button module with LED name plate 1/1 and LED status indication built-in 2-wire	REN091X
call push-button module with LED name plate 2/1 and LED status indication built-in 2-wire	REN092X

ELCOM.MODESTA REN module status indication

Colour: Stainless steel, metal brushed
 Dimensions of front plate (W x H x D): 120/120/2 mm
 Operating temperature: -20 to 55 °C
 Operating voltage: 24 V DC

- with LED status display for bell, intercom connection and door release
- 2 connections for module connecting cable



Description
 status indication module built-in 2-wire

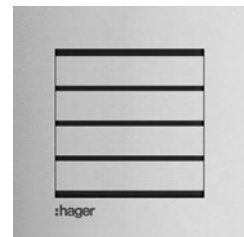
Cat. ref.
REN090X



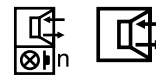
ELCOM.MODESTA loudspeaker module for REN push-button

Colour: Stainless steel, metal brushed
 Door release unlocking time: 1/10 s
 Door release contact potential-free: max. 24V/1A
 Switching current for door release contact: max. 1 A
 Switching voltage for door release contact: max. 24 V
 Loudspeaker unit: Loudspeaker volume adjustable; microphone sensitivity adjustable
 Operating temperature: -20 to 55 °C
 Operating voltage: 24 V DC
 Installation mode: Built-in installation
 Protection: Loudspeaker and microphone protected against sabotage

- device configuration via LED display
- Volume, microphone sensitivity, door release function, camera and call button backlighting adjustable
- Call push-button acknowledge tone can be switched off
- Connection for module connecting cable
- pluggable connection terminal block with screw terminals



REN410X



Description
 audio module built-in 2-wire

Cat. ref.
REN410X

ELCOM.MODESTA camera/loudspeaker module for REN push-button

Colour: Stainless steel, metal brushed
 Material / surface: Scratch-proof camera cover
 Camera resolution (horizontal x vertical): 500/582 px
 Camera aperture angle swivel range horizontal/vertical: 42.5 °
 Camera aperture angle horizontal: 82 °
 Camera aperture angle vertical: 58 °
 Switching current for door release contact: max. 1 A
 Switching voltage for door release contact: max. 24 V
 Door release unlocking time: 1/10 s
 Camera current consumption (operation): 240 mA
 Heating: Temperature-controlled camera heating for clear view
 Protection: Loudspeaker and microphone protected against sabotage
 Operating temperature: -20 to 55 °C
 Operating voltage: 24 V DC
 Installation mode: Built-in installation

- device configuration via LED display
- invisible, glare-free IR LED night lighting
- Volume, microphone sensitivity, door release function, camera and call button backlighting adjustable
- Call push-button acknowledge tone can be switched off
- camera adjustment by setscrew accessible from the front
- Connection for module connecting cable
- pluggable connection terminal block with screw terminals



REN610X



Description
 video module built-in 2-wire

Cat. ref.
REN610X



REN230X



ELCOM.MODESTA access modules

Transponder reader module

Access control without touch contact for max. 200 keys.

Transponder reader dummy module

Transponder reader dummy module for installing third-party card readers after providing and testing technical feasibility.

Fingerprint reader module

Access control consisting of internal unit and stainless steel scanner unit.

Code lock module

Code lock with 2 independent switching contacts.

Display call module

Call display for up to 256 resident entries with additional information.

Keyboard module for display call built-in

12-key stainless steel keypad for the display call module REN705. Code lock functions.

LAN interface

LAN interface for the display call module REN704X.

Description	Cat. ref.
transponder reader module built-in stainless steel matt modesta	REN230X
transponder reader dummy module built-in stainless steel matt modesta	REN231X
fingerprint reader module with control device built-in/RMD stainless steel matt modesta	REN233X
code lock module built-in stainless steel matt modesta	REN232X
display call module for modesta with German and English text	REN705S
display call module for modesta with French and English text	REN705X
display call module for modesta with Italian and English text	REN705T
display call module for modesta with Dutch and English text	REN705N
display lock module built-in stainless steel matt modesta	REN704X
LAN interface built-in for display call module	REE001X



REH213X

Transponder reader fob

Colour:
Dimensions (W x H x D):
Packaging unit:

Black/white matt
35/43/5 mm
3/10 pieces

RFID transponder for keypass as key chain standalone RFID access control without touch contact

Description	Cat. ref.
transponder fob/key chain 3 pieces black	REH213X
transponder fob/key chain 10 pieces black	REH214X



REH215X

Transponder reader card

Colour:
Dimensions (W x H x D):
Packaging unit:

White glossy
85/54/1 mm
3/10 pieces

RFID transponder for keypass in credit card size standalone RFID access control without touch contact

Description	Cat. ref.
transponder card/credit card size 3 pieces white	REH215X
transponder card/credit card size 10 pieces white	REH216X

ELCOM.MODESTA function modules

House number module, single-digit
House number module in robust plug-in design.

House number module, two-digit
House number module in robust plug-in design.

Info module, LED-illuminated
Info module, illuminated with LED (white), visible surface: 80 x 80 mm



REN701X

Description

house number module single-digit built-in stainless steel matt modesta

house number module two-digit built-in stainless steel matt modesta

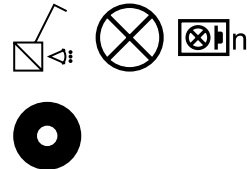
LED info module built-in stainless steel matt modesta

Cat. ref.

REN701X

REN702X

REN700X



ELCOM.MODESTA connecting cable REN push-button

- For connecting the modesta module inputs and outputs depending on distance
- ribbon cable with connector

Description

module connecting cable 90 mm

module connecting cable 335 mm

module connecting cable 420 mm

Line length

90 mm

335 mm

420 mm

Cat. ref.

REH301X

REH302X

REH305X



REH301X

Cleaning kit for stainless steel

For cleaning ELCOM.ONE and ELCOM.MODESTA

Description

cleaning kit for stainless steel

Cat. ref.

REH106X



REH106X

Characteristics

elcom.home are sets, that facilitate the order of the different components by using an order number.

Sets consist of:

- ELCOM.TOUCH indoor intercom unit and design frame in ultra white
- ELCOM.ONE outdoor intercom unit
- ELCOM.ONE flush-mounted box or surface-mounted box
- bus line power supply
- Transformer 12 VAC, 18 VA



REB521X

Video set flush-mounted

- REB521X for one residential unit consists of:
REA518X, WD2218, REQ501X, REW111X,
RED011X, ST320
- REB521X for two residential units consists of: 2 x
REA518X, 2 x WD2218, REQ502X, REW111X,
RED011X, ST320

Description	Cat. ref.
video set 1 residential unit, angular, 2-wire, ELCOM.ONE flush-mounted stainless steel matt, ELCOM.TOUCH ultra white matt	REB521X
video set 2 residential units, angular, 2-wire, ELCOM.ONE flush-mounted stainless steel matt, ELCOM.TOUCH ultra white matt	REB621X



REB721X

Video set surface-mounted

- REB721X for one residential unit consists of:
REA518X, WD2218, REQ501X, REW211X,
RED011X, ST320
- REB821X for two residential units consists of: 2 x
REA518X, 2 x WD2218, REQ502X, REW211X,
RED011X, ST320

Description	Cat. ref.
video set 1 residential unit angular, 2-wire, ELCOM.ONE surface-mounted stainless steel matt, ELCOM.TOUCH ultra white matt	REB721X
video set 2 residential units, angular, 2-wire, ELCOM.ONE surface-mounted stainless steel matt, ELCOM.TOUCH ultra white matt	REB821X



REB121X

Audio set flush-mounted

- REB121X for one residential unit consists of:
REA118X, WD1218, REQ001X, REW111X,
RED011X, ST320
- REB221X for two residential units consists of: 2 x
REA118X, 2 x WD1218, REQ002X, REW111X,
RED011X, ST320

Description	Cat. ref.
audio set 1 residential unit, angular, 2-wire, ELCOM.ONE flush-mounted stainless steel matt, ELCOM.TOUCH ultra white matt	REB121X
audio set 2 residential units, angular, 2-wire, ELCOM.ONE flush-mounted stainless steel matt, ELCOM.TOUCH ultra white matt	REB221X



REB321X

Audio set surface-mounted

- REB321X for one residential unit consists of:
REA118X, WD1218, REQ001X, REW211X,
RED011X, ST320
- REB421X for two residential units consists of: 2 x
REA118X, 2 x WD1218, REQ002X, REW211X,
RED011X, ST320

Description	Cat. ref.
audio set 1 residential unit, angular, 2-wire, ELCOM.ONE surface-mounted stainless steel matt, ELCOM.TOUCH ultra white matt	REB321X
audio set 2 residential units, angular, 2-wire, ELCOM.ONE surface-mounted stainless steel matt, ELCOM.TOUCH ultra white matt	REB421X

Video set with plastic outdoor intercom unit

- REP501X for one residential unit consists of:
REK621X, RED011X, ST320
- REP502X for two residential units consists of: 2 x
REK621X, RED011X, ST320
- REP511X for one residential unit consists of:
REK621X, RED011X, ST320
- REP512X for two residential units consists of: 2 x
REK621X, RED011X, ST320



REP511X

Description	Cat. ref.
video set 1 residential unit, external station colour anthracite	REP501X
video set 2 residential unit, external station colour anthracite	REP502X
video set 1 residential unit, external station colour traffic white	REP511X
video set 2 residential unit, external station colour traffic white	REP512X

IP54

All video set with internal station ELCOM.TOUCH

Audio set with plastic outdoor intercom unit

- REP101X for one residential unit consists of:
REK221X, RED011X, ST320
- REP102X for two residential units consists of: 2 x
REK221X, RED011X, ST320
- REP111X for one residential unit consists of:
REK221X, RED011X, ST320
- REP112X for two residential units consists of: 2 x
REK221X, RED011X, ST320

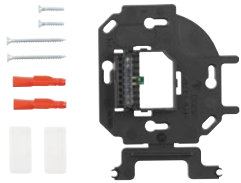


REP101X

Description	Cat. ref.
audio set 1 residential unit, external station colour anthracite	REP101X
audio set 2 residential unit, external station colour anthracite	REP102X
audio set 1 residential unit, external station colour traffic white	REP111X
audio set 2 residential unit, external station colour traffic white	REP112X

IP54

All audio set with internal station ELCOM.TOUCH



REH102X

ELCOM.TOUCH Replacement set

Scope of delivery: 2 dowels 5 mm, 2 combination Phillips screws 3x30 mm, adhesive Klett pad; Supporting plate with terminal block and terminating resistor

Description	Cat. ref.
replacement set-indoor stations touch, plastic	REH102X
replacement set-indoor stations touch, stainless steel	REH103X



REH100X

Key ELCOM.ONE

Scope of delivery: opening tool; spring for housing flush-mounted/surface-mounted

Description	Cat. ref.
dismantling tool and spring	REH100X



REH103X

Replacement set-mechanism

Scope of delivery: 2 fastening elements with spring; Socket wrench 5.5 mm and 4 M3 flange nuts, 4 module-mounting screws M3x12.5 mm, nylon safety rope; Hexagon camera locating screw M2x10 mm and Hexagonal Metric 1.5 mm - with video/audio module connection terminal block

Description	Cat. ref.
replacement mec. for outdoor station one	REH103X
replacement set-mechanism for flush-mounted box one	REH105X



Replacement set-electronics

Scope of delivery: Set 1-row consisting of: 4 connecting cables 89, 55 and 2 x 33 mm Set 2-row consisting of 6 connecting cables 186, 55 and 4 x 33 mm - 4 connecting cables for module inputs and outputs 89, 55 and 2 x 33 mm - flat cable with 2 jacks each

Description	Cat. ref.
replacement set-electronics for outdoor stations 1-row one	REH306X
replacement set-electronics for outdoor stations 2-row one	REH307X



REU021X

Call push-button modules

- name plate can be changed from the front without any special tools
 - durable, homogeneous, white LED call push-button backlighting
 - call button can be adjusted with light, door release or without function on the audio or video module
 - call push-button with acknowledge tone (can be switched off on the audio or video module) and tactile feedback
 - break-proof flush-mounted call push-buttons
 - 2 connections for module connecting cable

Description	Cat. ref.
call push-button semi module with LED name plate 1/1 built-in 2-wire	REU021X
call push-button semi module with LED name plate 2/1 built-in 2-wire	REU022X
call push-button with LED name plate 1/1 built-in 2-wire	REU041X
call push-button with LED name plate 2/1 built-in 2-wire	REU042X
call push-button with LED name plate 4/1 built-in 2-wire	REU044X

Replacement modules - Audio insert built-in 2-wire

- | | |
|---|--|
| <p>Colour: black matt</p> <ul style="list-style-type: none"> - device configuration via LED display - door release only during connection or at any time adjustable - volume, microphone sensitivity, door release function - and call push-button backlighting can be adjusted | <ul style="list-style-type: none"> - call push-button acknowledge tone can be switched off - installation in surface-mounted or flush-mounted housings - connection for module connecting cable - pluggable connection terminal block with screw terminals |
|---|--|



REU310X

Description	Cat. ref.
audio insert replacement built-in 2-wire	REU310X



Replacement modules - Video insert built-in 2-wire

- | | |
|--|--|
| <p>Colour: black matt</p> <ul style="list-style-type: none"> - device configuration via LED display - camera adjustment by setscrew accessible from the front - invisible, glare-free IR LED night lighting - door release only during connection or at any time adjustable - volume, microphone sensitivity, door release function and call push-button backlighting can be adjusted | <ul style="list-style-type: none"> - call push-button acknowledge tone can be switched off - installation in surface-mounted or flush-mounted housings - connection for module connecting cable - pluggable connection terminal block with screw terminals |
|--|--|



REU510X

Description	Cat. ref.
video insert replacement built-in 2-wire	REU510X



Replacement modules - LED status indication module built-in 2-wire

- | | |
|---|--|
| <p>Colour: Stainless steel, metal brushed</p> | <ul style="list-style-type: none"> - with LED status indication for bell, intercom connection and door release - break-proof, flush-mounted status indication - 2 connections for module connecting cable |
|---|--|



REU790X

Description	Cat. ref.
LED status indication module built-in 2-wire	REU790X

Replacement modules - call push-button module with LED name plate and LED status indication

- | | |
|--|--|
| <ul style="list-style-type: none"> - with LED status indication for bell, intercom connection and door release - Name plate can be changed from the front without any special tools - durable, homogeneous, white LED call push-button backlighting | <ul style="list-style-type: none"> - Twilight controlled call push-button backlighting with adjustable switch-on brightness level - break-proof, flush-mounted call push-button and status indication - 2 connections for module connecting cable |
|--|--|



REU791X

Description	Cat. ref.
call push-button module with LED name plate 1/1 and LED status indication built-in 2-wire	REU791X
call push-button module with LED name plate 2/1 and LED status indication built-in 2-wire	REU792X



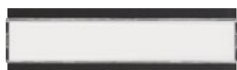
REU941X

Replacement covers - Call push-button cover with name plate insert

Dimensions (W x H x D): 75.5 x 79.2 x 6.7 mm

- Name plate can be changed from the front without any special tools with name plate insert

Description	Number of call buttons	Cat. ref.
call push-button cover 1/1 with name plate insert	1	REU941X
call push-button cover 2/1 with name plate insert	2	REU942X
call push-button cover 4/1 with name plate insert	4	REU944X



REU911X

Replacement covers - Name plate for letter box

- Name plate can be changed from the front without any special tools
- flush-mounted name plate
- with name plate insert

Description	Cat. ref.
name plate 1/4 module built-in for letter box	REU911X



REU921X

Replacement covers - Call push-button semi cover with name plate insert

- Name plate can be changed from the front without any special tools
- with name plate insert

Description	Cat. ref.
call push-button semi cover 1/1 with name plate insert	REU921X
call push-button semi cover 2/1 with name plate insert	REU922X



REU991X

Replacement covers - Status indication cover with name plate insert

- Name plate can be changed from the front without any special tools
- with name plate insert

Description	Cat. ref.
status indication cover 1/1 with name plate insert	REU991X
status indication cover 2/1 with name plate insert	REU992X



REU990X

Replacement covers

Description	Cat. ref.
video module replacement cover	REU990X
status indication cover 1/1 with name plate insert	REU991X
status indication cover 2/1 with name plate insert	REU992X



REH104X

Replacement set-mechanism

Scope of delivery: with 10 M3 modesta flange nuts; with 2 modesta holding brackets for PLUS modules

Description	Cat. ref.
mechanical fixing set replacements for modesta	REH104X

Dismantling tool ELCOM.MODESTA flush-mounted

- to dismantle the ELCOM.MODESTA flush-mounted frames



REH101X

Description
dismantling tool ZY ELCOM.MODESTA flush-mounted

Cat. ref.
REH101X

Replacement screw ELCOM.MODESTA

- special screws for fixing the ELCOM.MODESTA frame to the flush-mounted box
- can be mounted with ELCOM.MODESTA dismantling tool (REH101X)
- Material: stainless steel matt
- M5 x 22 mm



REH107X

Description
replacement screw ZY ELCOM.MODESTA

Cat. ref.
REH107X

Dismantling tool ELCOM.MODESTA surface-mounted

- to dismantle the ELCOM.MODESTA surface-mounted frames



REH108X

Description
dismantling tool ELCOM.MODESTA surface-mounted

Cat. ref.
REH108X

Replacement modules electronics

Colour: stainless steel, metal brushed, black glossy
 Operating voltage: 24 V DC
 Operating temperature: -20 ... 55 °C
 Installation mode: built in installation

- connection for module connecting cable
- pluggable connection terminal block with screw terminals
- device configuration via LED display
- door release only during connection or at any time adjustable



REU410X

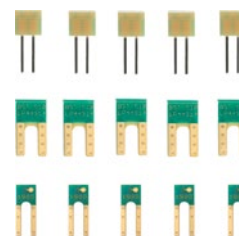
Description
audio module built-in 2-wire
video module built-in 2-wire

Cat. ref.
REU410X
REU610X

Terminating resistors

Dimensions (W x H x D): 30 x 30 x 10 mm
 Operating temperature: -20 ... 60 °C

- connection to the terminal block of the indoor station
- for cable connection at the last terminal of a 2D video line



REH109X

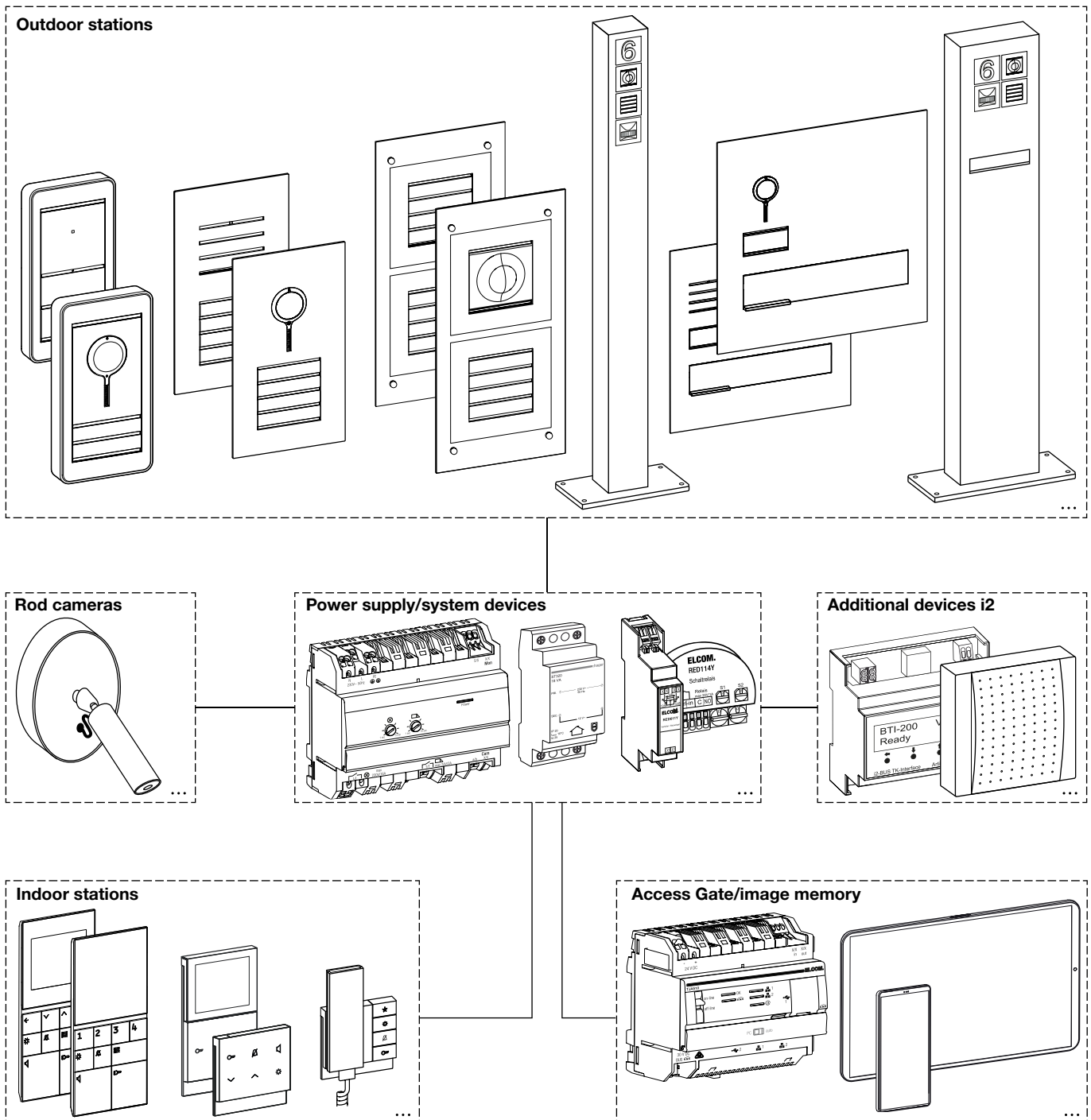
Description
terminator set (15 pieces)

Cat. ref.
REH109X

2-wire bus system for perfect audio, video, lighting, switching and control functions in door communication. State-of-the-art, slim indoor stations which match the switch range, linked to outdoor stations and letter-box outdoor stations. The combination of a video camera and door loudspeaker in one module makes for compact outdoor stations. The easy-to-install 2-wire technology is designed both for detached houses and housing complexes with up to 256 connected devices and 150 outdoor stations. The anti-eavesdropping 2-wire bus technology, which is protected against polarity reversal, prevents faults and reduces the complexity of installation and wiring in new systems. Existing cables from doorbell or intercom systems in older buildings can be equipped with the latest functions thanks to the conductor-saving 2-wire technology. Additional functions and devices can be integrated at any time. i2 audio technology components such as telephone gateways can be integrated seamlessly via the **a/b** connection on the line power supply or via an audio output coupler.

When working on systems with a 230 V AC power connection, comply with the safety requirements of DIN VDE 0100. When installing door communication systems, the general safety regulations for telecommunications systems according to VDE 0800 must be observed:

- Separate routing of power and door communication cables according to VDE 0800.
- Partitions between power and door communication cables in shared trunking.
- Use of standard telecommunications cables, e.g. J-Y (St) Y with 0.8 mm diameter.

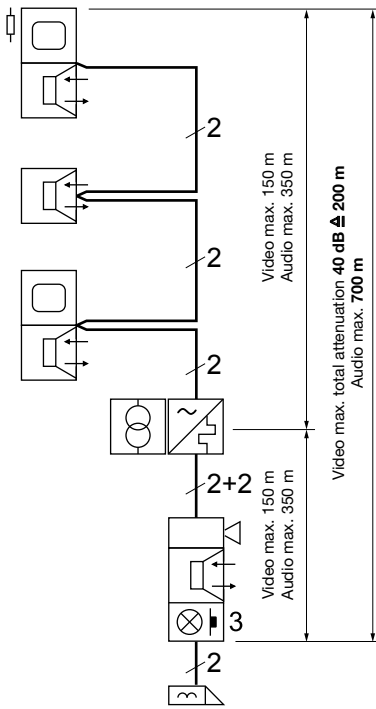


In video systems, video distributors must be used when there are 9 or more connected devices. A maximum of 8 video indoor stations per branch can be connected.

In pure audio systems, video distributors are unnecessary. A maximum of 16 indoor stations per branch can be freely wired-through with 2 cores.

Through installation

The bus cable X/X is wired-through from one indoor station to the next indoor station each with its own cable.



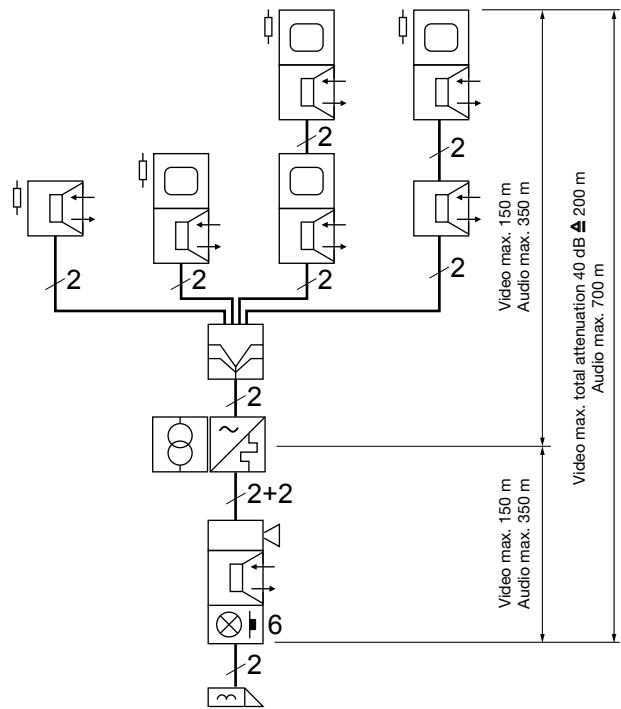
Note

We also recommend integrating video distributors in audio systems. This fulfils all the prerequisites for subsequently retrofitting a video system.

A star installation is advantageous because, in the event of a cable defect, only the affected branch becomes inoperative instead of the entire system.

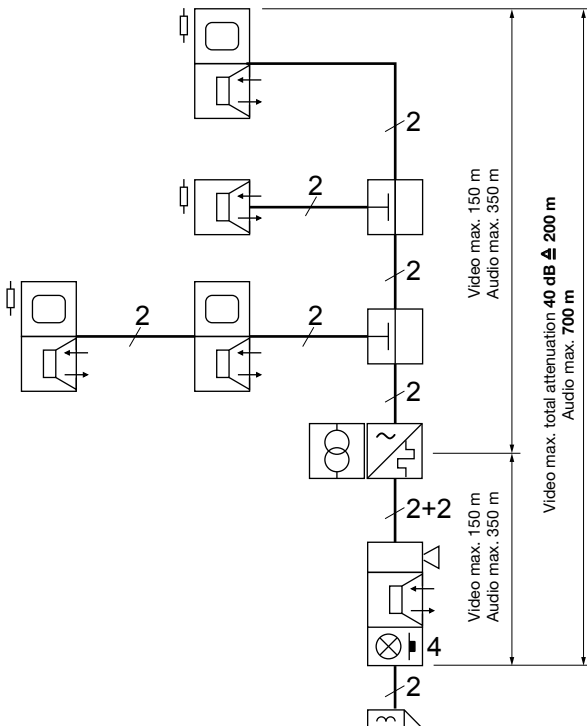
Star installation

Star installations are wired starting from a point and moving outwards in a star shape. Video distributors must be used. After the first indoor station, additional stations can be wired-through.



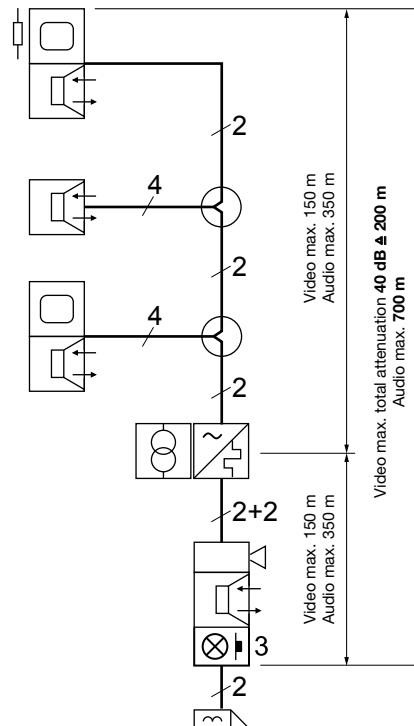
Stub installation with video distributor / branch

In a stub installation, wiring continues from the stub points (branches). Stub points can be connected to one another. In stub installations with video distributors or branches, no return line is needed.



Stub installation without video distributor

In a stub installation, wiring continues from the stub points (branches). Stub points can be connected to one another. Without a video distributor (outgoing and incoming wires in a cable), wrapped cables (e.g. J-Y(ST)Y or CAT) must be used in pairs.



Maximum expansion

Maximum expansion with number of video indoor stations with n outdoor stations

Outdoor stations / floor stations	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Video indoor station	32	30	28	26	24	22	20	18	16	14	12	10	8	6	4	2
Minimum number of branches for video indoor stations	4				3			2				1				

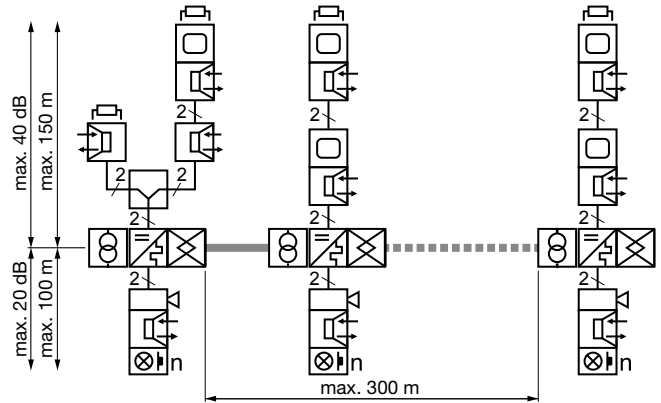
Maximum expansion with number of audio indoor stations with n outdoor stations

Outdoor stations / floor stations	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Audio indoor stations	32	30	28	26	24	22	20	18	16	14	12	10	8	6	4	2
Minimum number of branches for audio indoor stations	2								1							

Maximum expansion with line couplers

With a maximum of 64 line couplers, a maximum of 256 indoor stations and 150 outdoor stations can be operated. Up to 3 simultaneous voice channels in backbone can be carried out. The addition of connected outdoor stations and indoor stations must not exceed the line-coupler maximum expansion on 2 line couplers communicating via the backbone.

All bus cables connected to the line power supply and the longest bus coupler line of the system must not exceed the cable length of 1000 m.



Maximum expansion for 2 communicating line couplers

Additional outdoor stations / floor stations	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Addition of indoor stations	32	30	28	26	24	22	20	18	16	14	12	10	8	6	4	2

Cable type and cable lengths

The following cables can be used for installing:

J-Y(ST)Y, A-2Y(L)2Y

Installation cables stranded in pairs, with shielding.

Recommended bus lead pairing: white/yellow

CAT-5/6/7 network cables stranded in pairs, with shielding.

Recommended bus lead pairing: orange/white

YR bell hose line; not stranded and without shielding. Recommended

bus lead pairing: brown/yellow

The bus cable (X/X) must be installed on a stranded wire pair in the case of J-Y(ST)Y and CAT cables and on two adjacent wires in the case of YR cables.

Note

The cable length of all bus cables, inclusive coupler lines, may not exceed 1000 m.

For 2 indoor stations connected in parallel or an additional secondary signal device, the cable length must be reduced to 50% due to the higher current consumption. If 3 devices are connected, additional infeed is required.

Wire doubling of the 2-wire bus cable is not permitted.

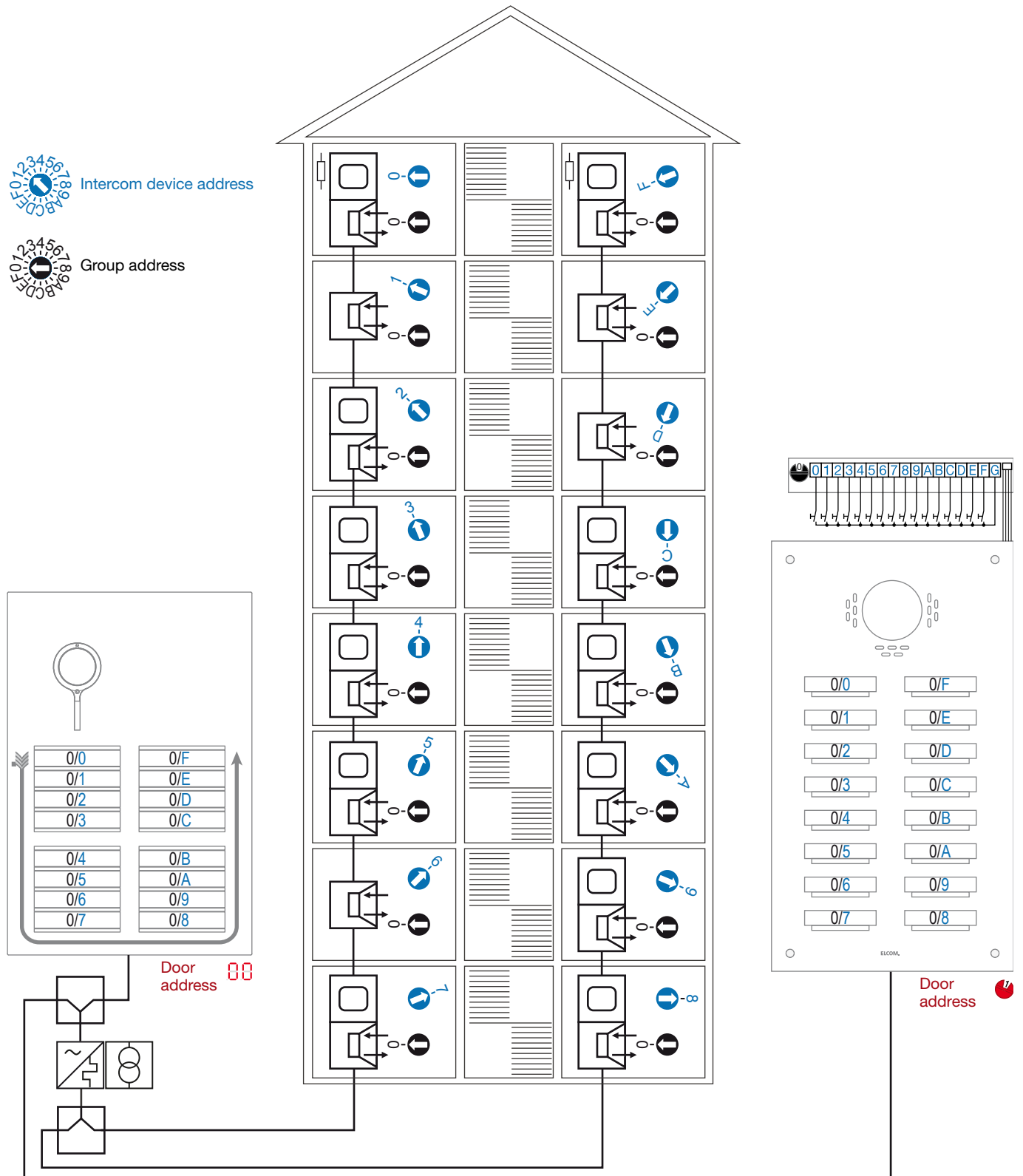
To further improve the interference resistance, the cable shielding connected through can be earthed as a neutral point in the case of J-Y(ST)Y and CAT cables and in the case of YR cables all unused wires.

Cable type	Conductor Ø	Max. cable length	max. attenuation / loop resistance	
Max. cable length per branch from the line power supply/coupler to the indoor stations				
J-Y(ST)Y	0.6 mm	75 m / 150 m with additional infeed	For each branch from the outdoor station to the last indoor station, a cable length of 200 m and an attenuation, including the video distributor, of 40 dB (20 dB for YR cables due to the lower interference resistance) must not be exceeded. From the line power supply/coupler to the outdoor station and from the line power supply/coupler to the last indoor station, a loop resistance of 15 Ω must not be exceeded.	
	0.8 mm	150 m / 150 m with additional infeed		
CAT-5/6/7	0.5 mm	50 m / 100 m with additional infeed / 150 m with additional infeed wire doubling		
YR	0.8 mm	75 m / 75 m with additional infeed		
Max. cable length per branch from the line power supply/coupler to the outdoor stations				
J-Y(ST)Y	0.6 mm	75 m		
	0.8 mm	150 m (100 m for coupler)		
CAT-5/6/7	0.5 mm	50 m		
YR	0.8 mm	75 m		
Max. connection cable length between couplers				
CAT-6/7	0.5 mm	300 m	with CAT-5 cables the cable length is reduced to 200 m	
Cable from the door release or outdoor station lighting to the ST320 transformer with a door-release current consumption of 1 A (0.5 A)				
J-Y(ST)Y	0.6 mm	1 A	30 m / 60 m with wire doubling	
		0.5 A	60 m / 120 m with wire doubling	
J-Y(ST)Y	0.8 mm	1 A	50 m / 100 m with wire doubling	
		0.5 A	100 m / 200 m with wire doubling	
CAT-5/6/7	0.5 mm	1 A	20 m / 40 m with wire doubling	
		0.5 A	40 m / 80 m with wire doubling	
YR	0.8 mm	1 A	50 m / 100 m with wire doubling	
		0.5 A	100 m / 200 m with wire doubling	
Cable from the indoor station to the storey push-button				
J-Y(ST)Y; CAT; YR		50 m	max. 15 Ω	

The call push-buttons of the outdoor station are assigned to the indoor stations via the addressing. When first switching on the outdoor station, the call push-buttons are automatically assigned group and intercom device addresses in a particular sequence (as per the cabling on the rear side). The door address and the group and intercom device addresses of the call push-buttons and functions can also be entered manually on the device menu with the 7-segment display located on the rear side of the outdoor station. The group and intercom device address of the call button can be set easily on the drehfix® code switches of the relevant indoor station.

Note

Addressing is continued to the next group address 1 after the group and intercom device address 0/F.

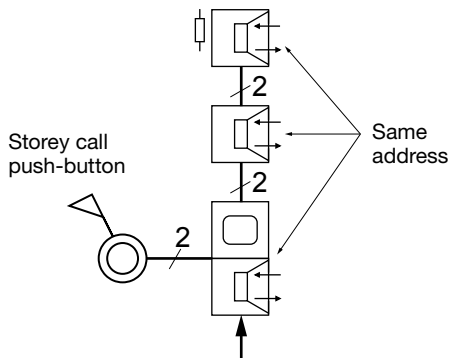


Parallel operation of indoor stations

An identical address can be used to operate a maximum of 3 indoor stations in parallel and to assign a shared call push-button. As the current consumption of the indoor stations is added up in this case, either the permissible cable length for 2 indoor stations is reduced by half or the additional infeed must be connected. In the case of 3 parallel indoor stations, the additional infeed (S/S) must be connected.

Storey call in parallel operation

In parallel operation, the storey call can be forwarded to the parallel indoor stations (max. 3) via the 2-wire bus. To do this, storey call forwarding must be activated in the first indoor station.



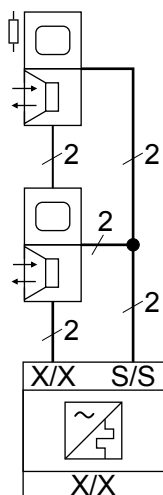
Note

Connection of the storey call push-button to multiple indoor stations in parallel is not permitted.

The storey call push-button cannot be lit up by the 2-wire bus. 12 V LED assemblies, on the separate, potential-free signalling contacts of the push-buttons, can be operated by the 12 V~ safety transformer to provide lighting.

Additional infeed S/S

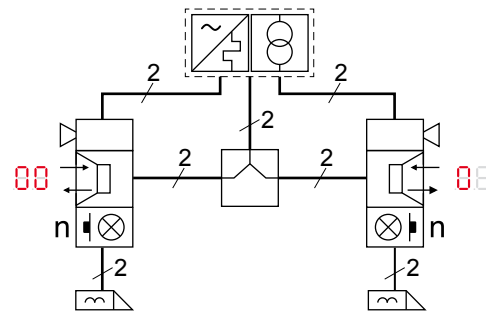
To increase the range in the case of parallel indoor stations and/or when using wire diameters of less than 0.8 mm, the additional infeed can be connected to the indoor stations. The additional infeed requires two extra wires (S/S) between the bus line power supply and the indoor station. In contrast to the bus cables (X/X), the additional infeed wires (S/S) can also be doubled and wired in any series, star or tree structure.



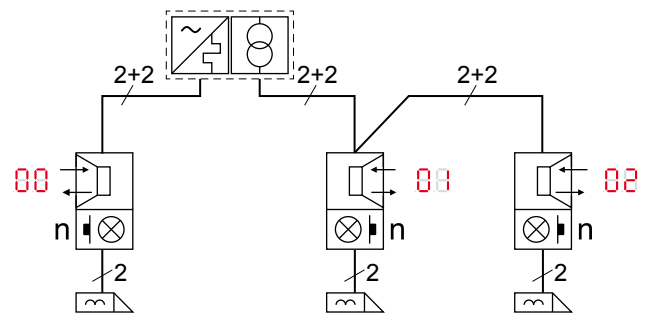
Operating multiple outdoor stations

In the case of multiple video outdoor stations, the bus cables of the individual outdoor stations must be coupled into the line via video distributors. In this case, the video distributor is operated "backwards", whereby the connections (X/X) act as inputs for the outdoor stations. In this case, the connection (X1/X1) is the output. Unused connections (X/X) on the video distributor must be terminated by attaching terminating resistors.

Operating multiple video outdoor stations



Operating multiple audio outdoor stations

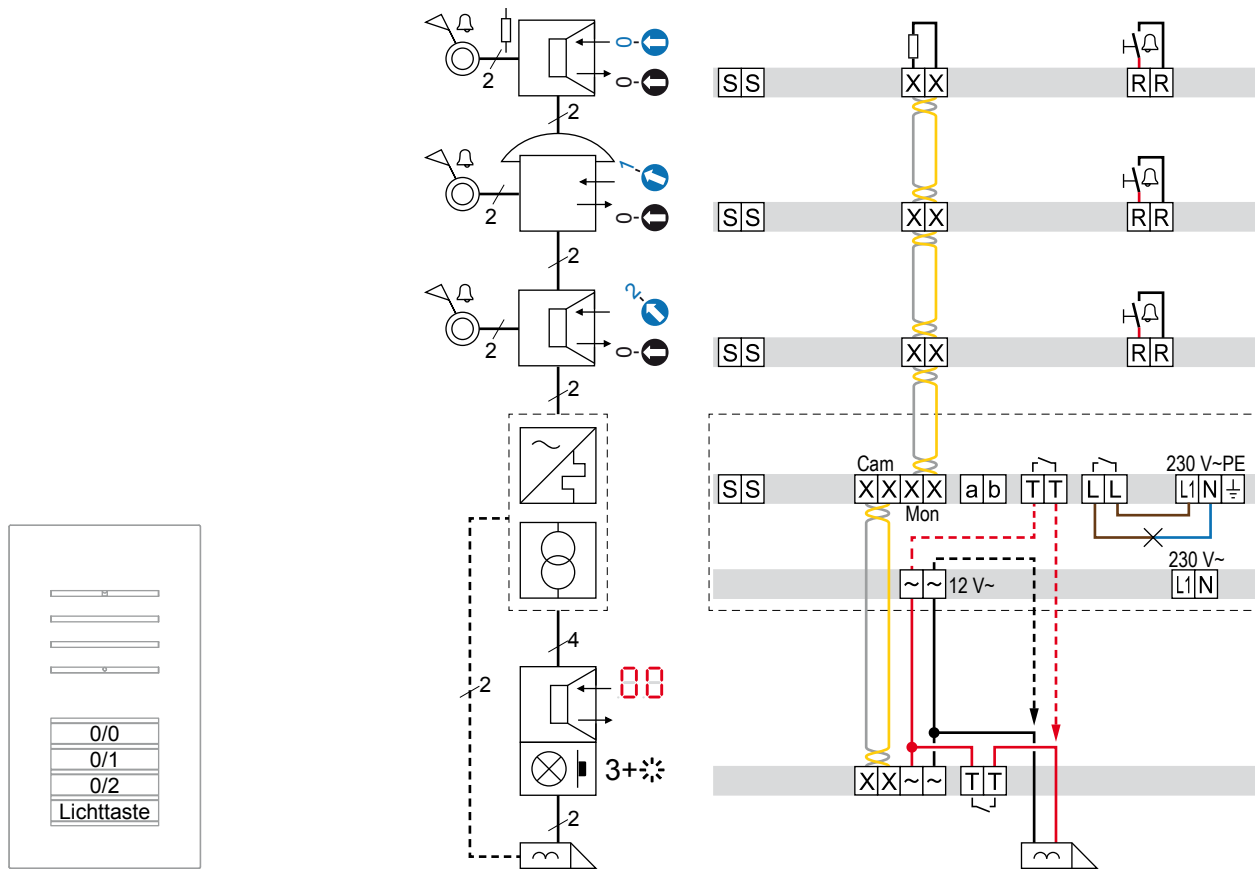


Note

The video distributor is not necessary for exclusively audio outdoor stations. Audio outdoor stations can also be wired-through. However, we recommend installing a video distributor even for audio outdoor stations for the purposes of subsequent video retrofitting.

The door address can be set via the device menu with the 7-segment display on the rear side of the outdoor station. Double door addresses are not permitted!

For example, with 3 audio indoor stations and one audio outdoor station in one through installation.



Note

In the version shown in dashed lines, which is protected against manipulation, the door release lead of the line power supply must not be routed through the outdoor station.

The terminating resistor remains in the indoor station at the end of the cable; in the preceding indoor stations this must be removed.

The bottom call push-button on the outdoor station is for switching the lighting and can be labelled with a light symbol.

In order to preserve the option of subsequently enhancing convenience using video devices, there should not be more than 8 indoor stations in each branch and 32 in each line.

Space required for the rail mounted devices in the distributor	8 modules
Adjustable door release unlocking time	1 ... 10 s
Adjustable delay time of potentialfree light contact (230 V suitable)	1 s ... 5 min
Adjustable call push-button backlighting	Duration OFF / ON and OFF depending on brightness / duration ON
Indoor station installation height (centre)	1.5 m (⊖ 1.3 m)
Outdoor station installation height (centre of loudspeaker)	1.5 m

Maximum expansion¹⁾ with number of audio indoor stations with n outdoor stations

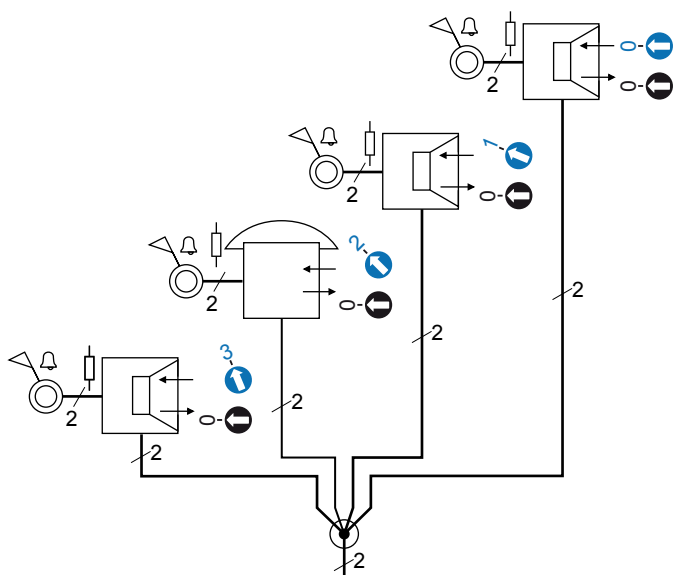
Outdoor stations	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Audio indoor stations	32	30	28	26	24	22	20	18	16	14	12	10	8	6	4	2
Minimum number of branches for audio indoor stations	2								3							

¹⁾ With line couplers, a maximum of 256 indoor stations and 150 outdoor stations can be operated.

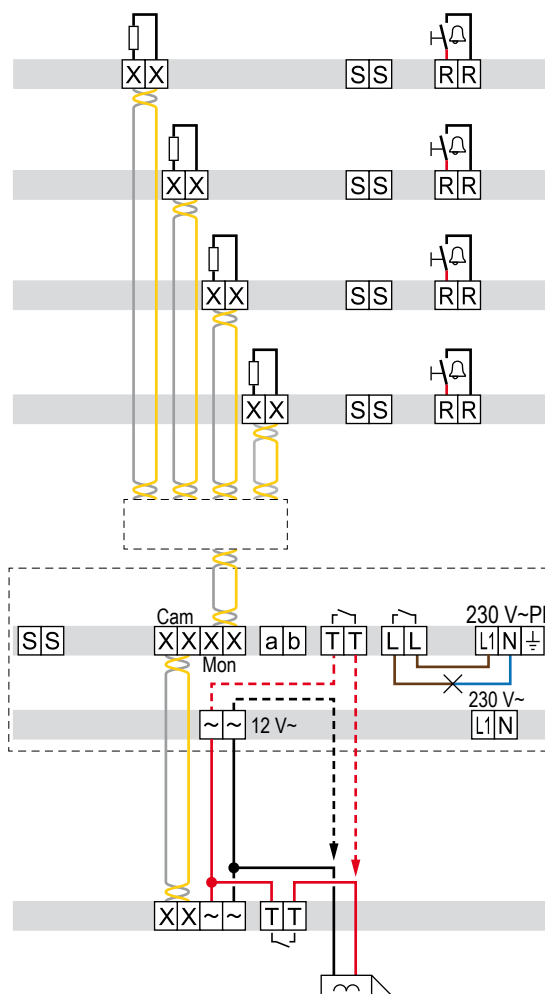
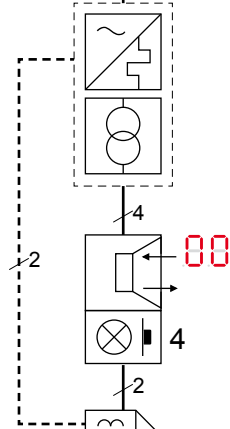
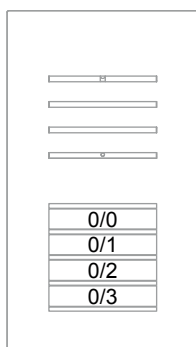
For example, with 4 audio indoor stations and one audio outdoor station in one star installation.

Note

Extremely fail-safe installation type because only the relevant indoor station affected goes down if there is an internal cable defect.



Example:
Automatic commissioning
of 4 call push-buttons
addressing



Planning information

Note

In the version shown in dashed lines, which is protected against manipulation, the door release lead of the line power supply must not be routed through the outdoor station.

All indoor stations are terminated with a terminating resistor.

In order to preserve the option of subsequently enhancing convenience using video devices, there should not be more than 8 indoor stations in each branch and 32 in each line. Instead of using a junction box, a video distributor should be used 4 times.

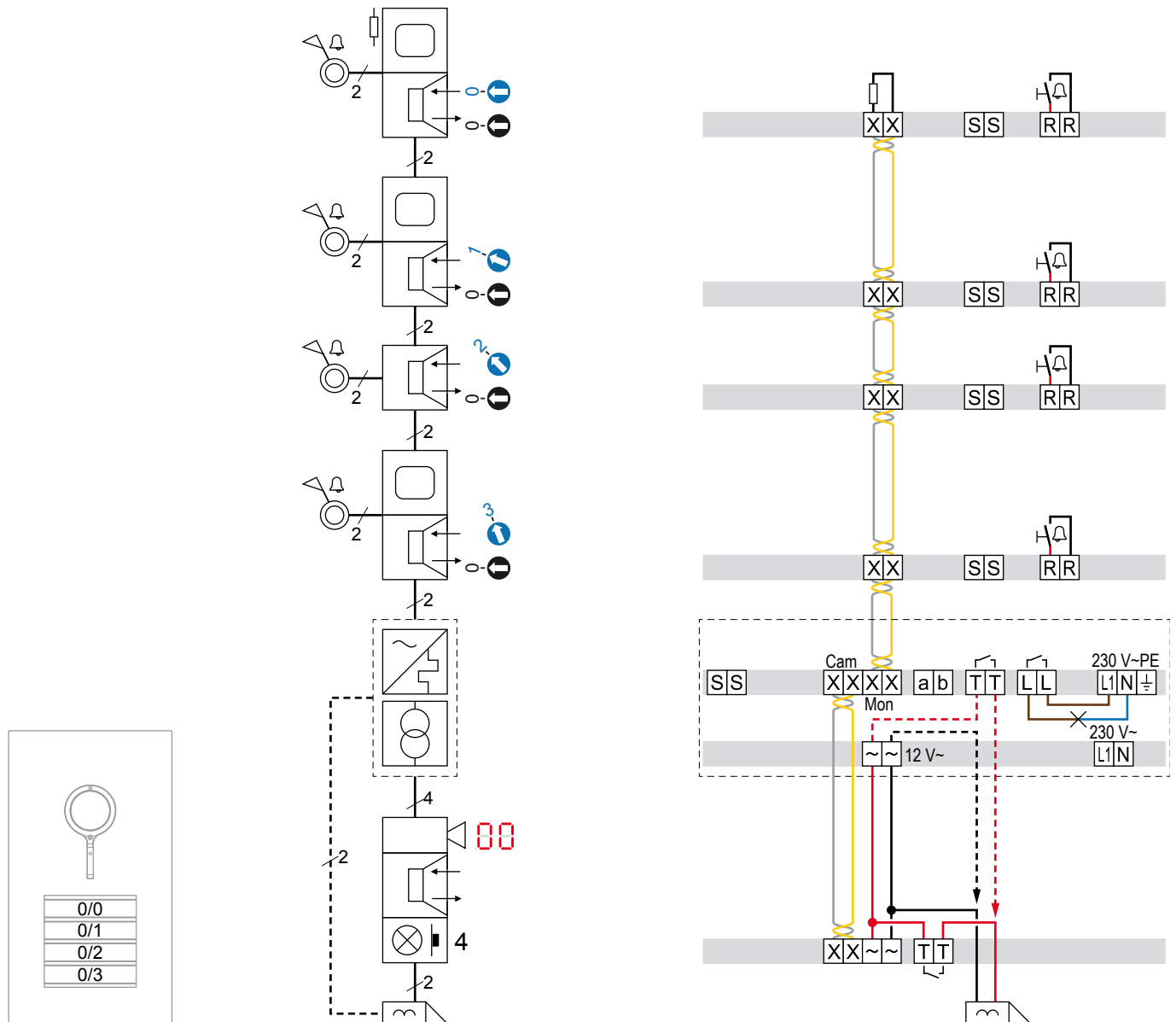
Space required for the rail mounted devices in the distributor	8 modules
Adjustable door release unlocking time	1 ... 10 s
Adjustable delay time of potentialfree light contact (230 V suitable)	1 s ... 5 min
Adjustable call push-button backlighting	Duration OFF / ON and OFF depending on brightness / duration ON
Indoor station installation height (centre)	1.5 m (⚠ 1.3 m)
Outdoor station installation height (centre of loudspeaker)	1.5 m

Maximum expansion¹⁾ with number of audio indoor stations with n outdoor stations

Outdoor stations	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Audio indoor stations	32	30	28	26	24	22	20	18	16	14	12	10	8	6	4	2
Minimum number of branches for audio indoor stations	2								3							

¹⁾ With line couplers, a maximum of 256 indoor stations and 150 outdoor stations can be operated.

For example, with 3 video indoor stations, one audio indoor station and one video outdoor station in a single through installation.



Planning information

Note

In the version shown in dashed lines, which is protected against manipulation, the door release lead of the line power supply must not be routed through the outdoor station.

The terminating resistor remains in the indoor station at the end of the cable. In the preceding indoor stations this must be removed.

Wiring through the cable shield and single-sided earthing in the distributor increases interference resistance.

The conditions for selecting the installation location must be taken into account (see operating instructions).

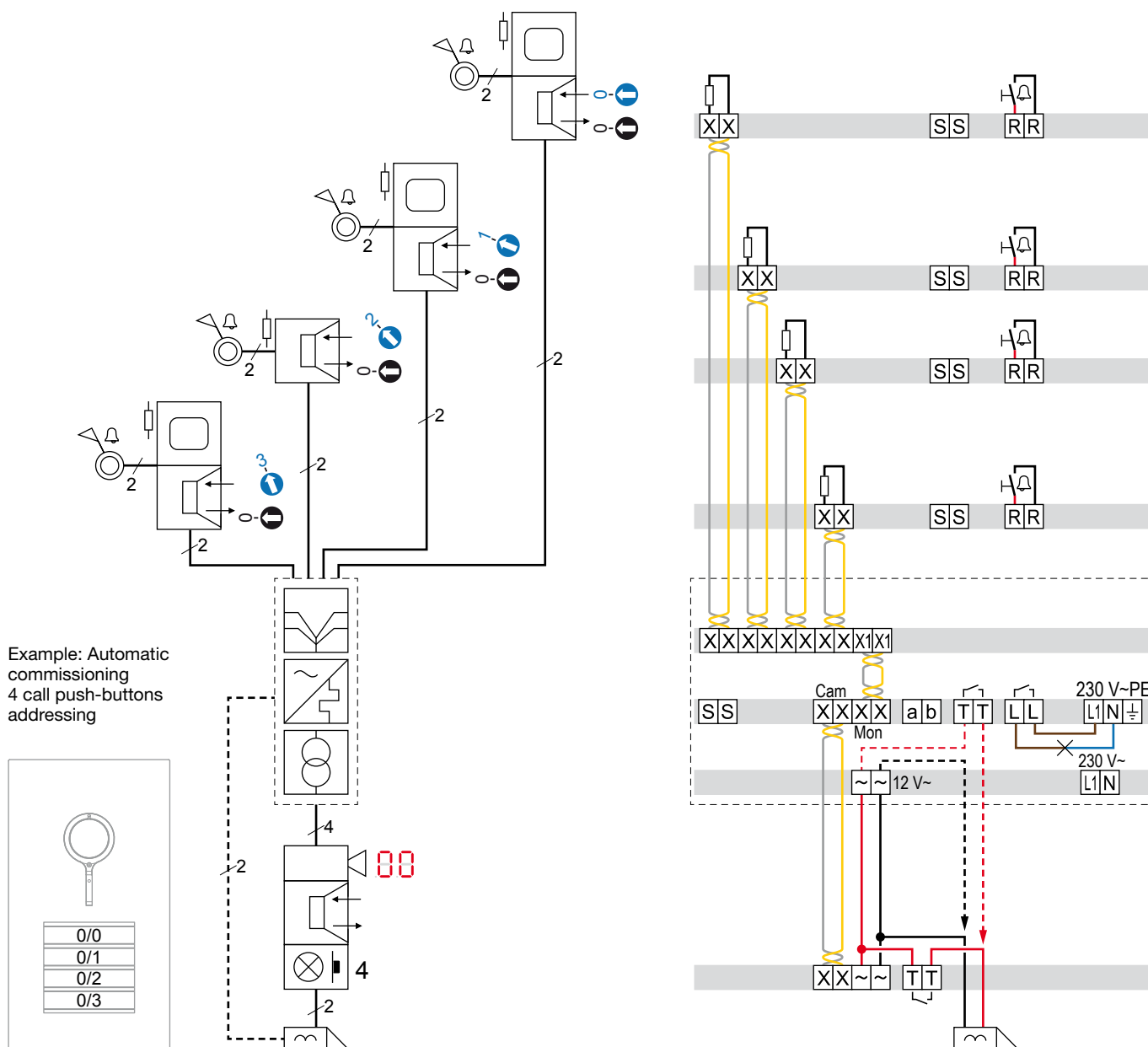
Space required for the rail mounted devices in the distributor	8 modules
Adjustable door release unlocking time	1 ... 10 s
Adjustable delay time of potentialfree light contact (230 V suitable)	1 s ... 5 min
Adjustable call push-button backlighting	Duration OFF / ON and OFF depending on brightness / duration ON
Indoor station installation height (centre)	1.5 m (± 1.3 m)
Outdoor station installation height (centre of camera)	1.5 m

Maximum expansion¹⁾ with number of video indoor stations with n outdoor stations

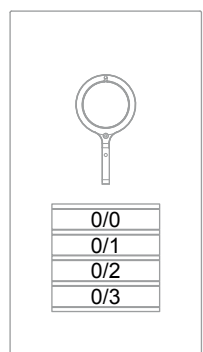
Outdoor stations	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Video indoor stations	32	30	28	26	24	22	20	18	16	14	12	10	8	6	4	2
Minimum number of branches for video indoor stations	4			3				2				1				

¹⁾ With line couplers, a maximum of 256 indoor stations and 150 outdoor stations can be operated.

For example, with 3 video indoor stations, one audio indoor station and one video outdoor station in a single star installation.



Example: Automatic commissioning
4 call push-buttons addressing



Planning information

Note

In the version shown in dashed lines, which is protected against manipulation, the door release lead of the line power supply must not be routed through the outdoor station.

The indoor stations are terminated with a terminating resistor.

The single-sided earthing of the cable shield in the distributor increases interference resistance.

The conditions for selecting the installation location must be taken into account (see operating instructions).

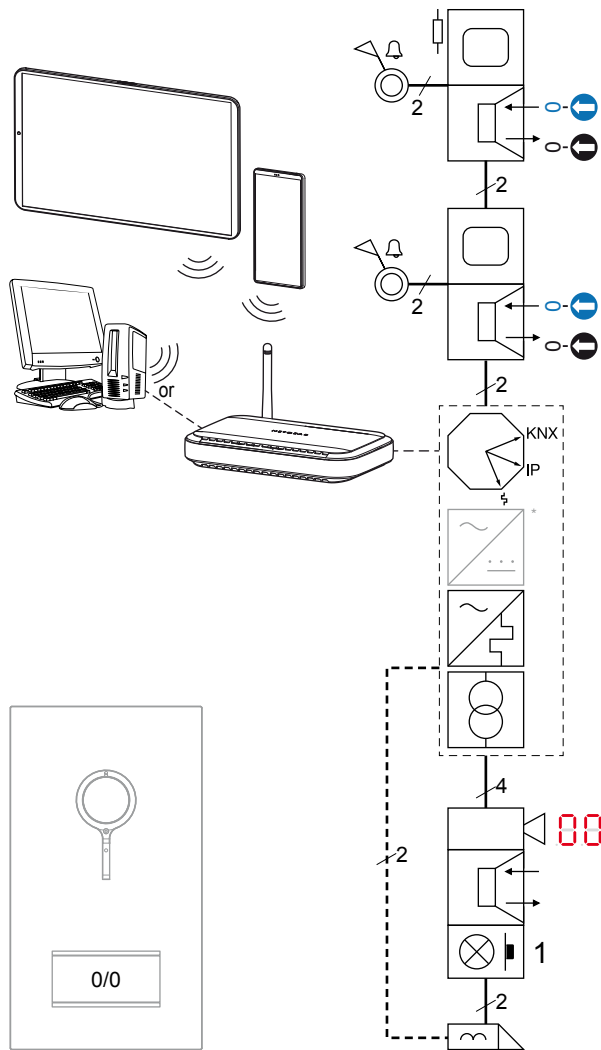
Space required for the rail mounted devices in the distributor	8 modules
Adjustable door release unlocking time	1 ... 10 s
Adjustable delay time of potentialfree light contact (230 V suitable)	1 s ... 5 min
Adjustable call push-button backlighting	Duration OFF / ON and OFF depending on brightness / duration ON
Indoor station installation height (centre)	1.5 m (± 1.3 m)
Outdoor station installation height (centre of camera)	1.5 m

Maximum expansion¹⁾ with number of video indoor stations with n outdoor stations

Outdoor stations	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Video indoor stations	32	30	28	26	24	22	20	18	16	14	12	10	8	6	4	2
Minimum number of branches for video indoor stations	4			3			2			1						

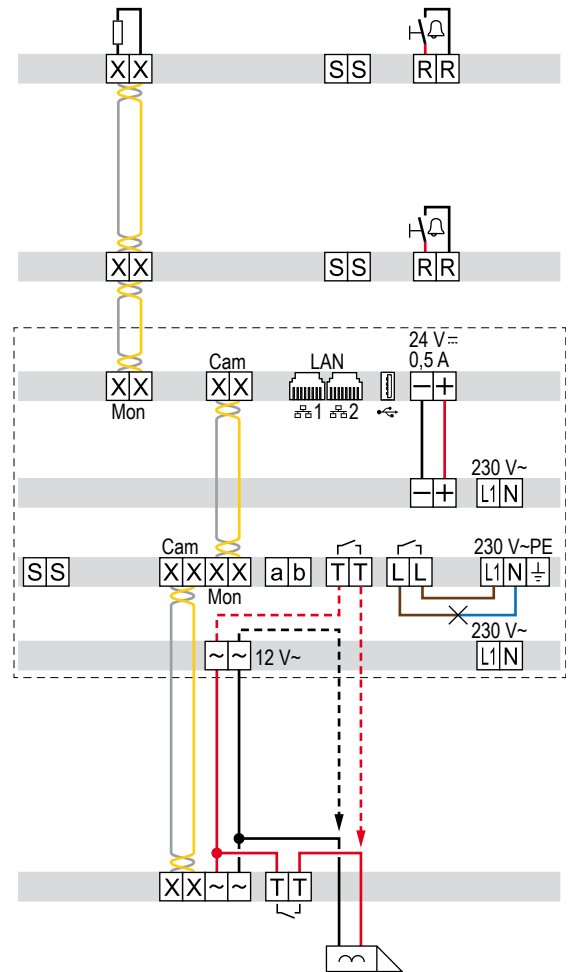
¹⁾ With line couplers, a maximum of 256 indoor stations and 150 outdoor stations can be operated.

For example, with 3 parallel video indoor stations and one video outdoor station in one through installation.



Note

The 2-wire IP KNX gateway can also be installed in a star installation for each branch/residential unit.



Planning information

Note

* The 2-wire Access Gate can be operated via PoE or a 24 V= power supply.

In the version shown in dashed lines, which is protected against manipulation, the door release lead of the line power supply must not be routed through the outdoor station.

The terminating resistor remains in the indoor station at the end of the cable. In the preceding indoor stations this must be removed.

Wiring through the cable shield and single-sided earthing in the distributor increases interference resistance. Pay attention to camera detection area when selecting the installation location.

Observe maximum expansion; the 2-wire access gate places the equivalent load of an indoor station on the 2-wire bus. After the Access Gate, a maximum of 2 indoor stations may be addressed in the same way in parallel operation.

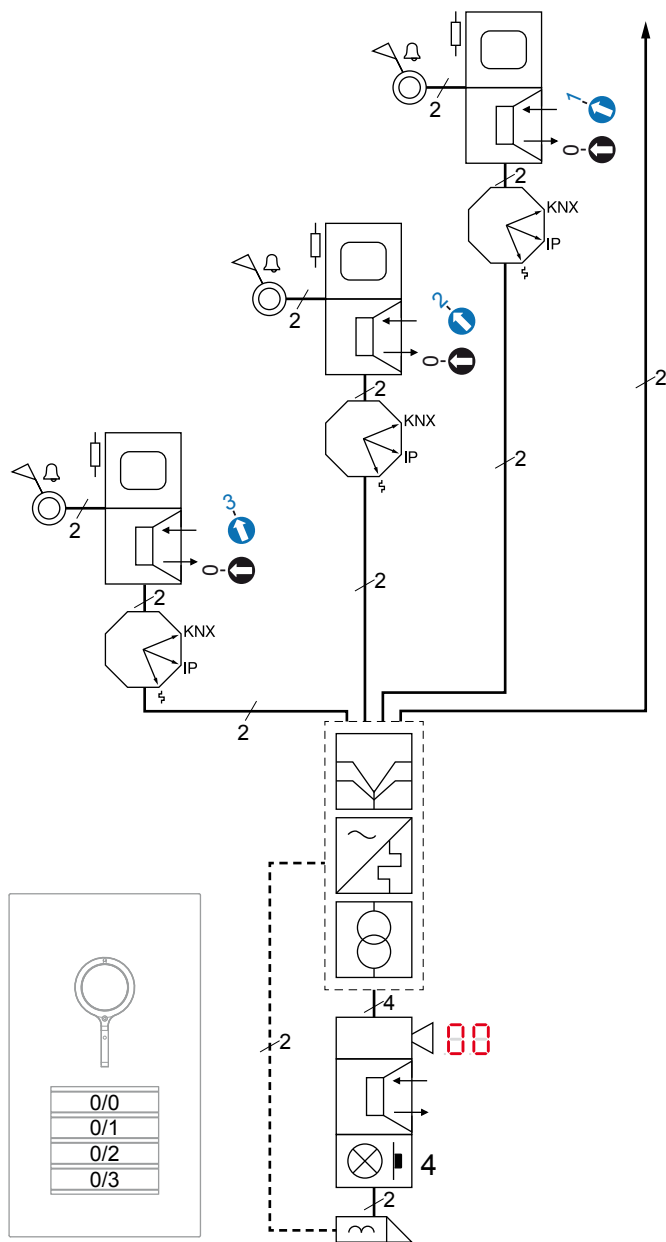
Maximum expansion¹⁾ with number of video indoor stations with n outdoor stations

Outdoor stations	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Video indoor stations	32	30	28	26	24	22	20	18	16	14	12	10	8	6	4	2
Minimum number of branches for video indoor stations	4			3				2				1				

¹⁾ With line couplers, a maximum of 256 indoor stations and 150 outdoor stations can be operated.

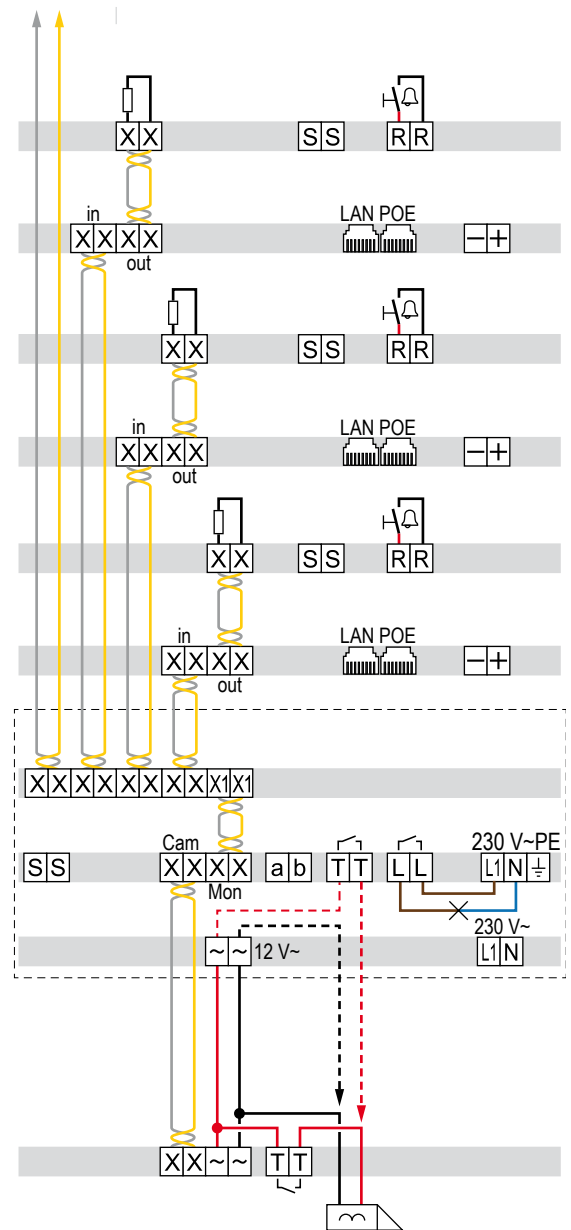
Space required for the rail mounted devices in the distributor	14 modules with POE power supply 17 modules with NGV-500
Adjustable door release unlocking time	1 ... 10 s
Adjustable delay time of potentialfree light contact (230 V suitable)	1 s ... 5 min
Adjustable call push-button backlighting	Duration OFF / ON and OFF depending on brightness / duration ON
Indoor station installation height (centre)	1.5 m (⚠ 1.3 m)
Outdoor station installation height (centre of camera)	1.5 m

For example: 3 video indoor stations and one video outdoor station in a star installation.



Note

The 2-wire Access Gate can also be installed in a star installation for each branch/residential unit.



Planning information

Note

* The 2-wire Access Gate can be operated via PoE or a 24 V= power supply.

In the version shown in dashed lines, which is protected against manipulation, the door release lead of the line power supply must not be routed through the outdoor station.

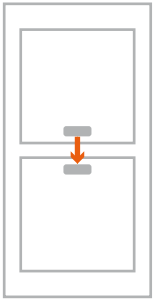
Indoor stations at the end of the branch and non-connected distributor branches must be connected to a terminating resistor.

Wiring through the cable shield and single-sided earthing in the distributor increases interference resistance. Pay attention to camera detection area when selecting the installation location.

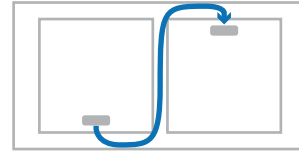
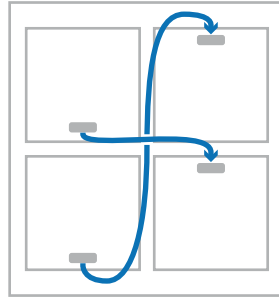
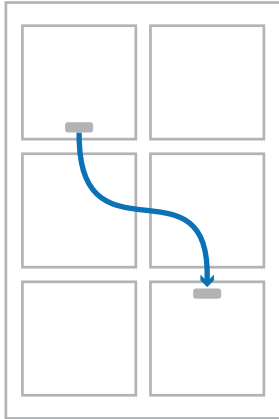
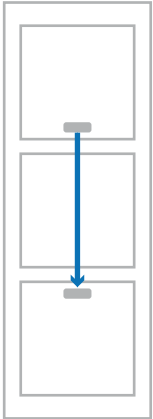
Observe maximum expansion; the 2-wire access gate places the equivalent load of an indoor station on the 2-wire bus.

After the Access Gate, a maximum of 2 indoor stations may be addressed in the same way in parallel operation.

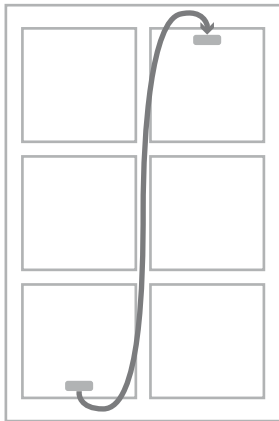
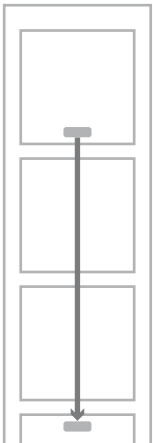
Space required for the rail mounted devices in the distributor	10 modules
Space required for Access Gate in the sub-distributor of the apartment	6 modules with POE 9 modules with NGV-500
Adjustable door release unlocking time	1 ... 10 s
Adjustable delay time of potentialfree light contact (230 V suitable)	1 s ... 5 min
Adjustable call push-button backlighting	Duration OFF / ON and OFF depending on brightness / duration ON
Indoor station installation height (centre)	1.5 m (⌀ 1.3 m)
Outdoor station installation height (centre of camera)	1.5 m



REH301Y
— connecting cable REN push-button 90 mm



REH302Y
— connecting cable REN push-button 355 mm



REH305Y
— connecting cable REN push-button 420 mm

System components/accessories

Switching symbols	Product
	Line power supply
	Safety transformer (Bell transformer)
	Power supply for coupler
	Line coupler with line power supply DC voltage supplied
	Line coupler with line power supply AC voltage supplied
	privacy function
	Storey call generator
	Video distributors / branches
	Video distributor 2gang / 4gang
	Audio output coupler
	Switching relay / switching relay 2gang
	Switching relay with 1 input
	Bus automatic light
	Access Gate
	PBX interface
	Door release
	Call push-button connecting module
	Storey push-button (bell push-button)
	Key push-button 2 NO contacts
	Blind plug
	Pilot lamp/lighting module
	Terminating resistor
	Junction box/distribution box
	Distributor/housing

Indoor stations/signaling units

Switching symbols	Product
	Audio indoor station
	Audio module of an outdoor station
	Indoor station audio with receiver
	Indoor station video
	Bus secondary signal device

Outdoor stations/access control

Switching symbols	Product
	Audio outdoor station with n call push-buttons (n e.g. 16/2 = outdoor station 2-row with 16 call push-buttons)
	Audio outdoor station with status indication
	Letter box station audio
	Video module of an outdoor station
	Video outdoor station with n call push-buttons 8/1 = outdoor station 1-row with 8 call push-buttons
	Video outdoor station with status indication
	Letter box station video
	Rod camera
	Call push-button / call push-button module
	Status display
	Status indication with n call push-buttons illuminated
	Display call module
	Code lock module / keyboard for display call module
	Code lock with 2 relay contacts
	Fingerprint reader module / Evaluation Unit
	Transponder reader module
	Motion detector

Symbol/device details

Symbols	Detail
	Wrapped wire pair
	Number of wires of a cable
	Group address of the indoor station
	Subscriber address of the indoor station
	Terminal labelling
	XX 2-wire bus cable
	RR floor call push-button
	SS additional infeed
	Symbol for light button
	received line address and outdoor station-/storey door address

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BATLi26	17.34	BF463	4.15	BRP6513069011	10.9	BRS652104D9010	10.12
BATLi30	17.34	BF464	4.15	BRP6517019010	10.8	BRS652104DH9010	10.12
BATLi31	17.34	BFC225F	4.3	BRP651703H9010	10.9	BRS652104H9010	10.12
BATLi38	17.34	BFC240F	4.3	BRP651703HLAN	10.11	BRS6521059010	10.13
BATPB2	17.34	BFC480E	4.20	BRP651704H9010	10.8	BRS652105D9010	10.13
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BD226	4.14	BFC863	4.15	BRP651705HLAN	10.11	BRS6521069010	10.13
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EU302	6.14	EWA018	5.3	EWT250B	5.9	FC115	2.18
EV100	16.17	EWA101	5.11	EWT250C	5.9	FC116	2.18
EV100	16.5	EWA102	5.11	EWT250D	5.9	FC118	2.18
EV102	16.17	EWA103	5.11	EWT250E	5.9	FC119	2.18
EV102	16.5	EWA104	5.11	EWT250F	5.10	FC120	2.20
EV106	16.18	EWA105	5.3	EWT250H	5.10	FC121	2.20
EV106	16.5	EWA106	5.3	EWT300B	5.9	FC122	2.20
EV108	16.18	EWA401	5.11	EWT300C	5.9	FC122 x 2	2.18
EV108	16.5	EWA402	5.11	EWT360C	5.9	FC123	2.20
EVN002	16.17	EWA403	5.11	EWT360E	5.9	FC124	2.20
EVN002	16.5	EWA404	5.11	EWT360F	5.10	FC125	2.20
EVN004	16.17	EWA405	5.3	EWT360G	5.10	FC126	2.20
EVN004	16.5	EWA501	5.10	EWT360H	5.10	FC192	2.21
EVN011	16.17	EWA601	5.10	EWT380C	5.9	FC193	2.21
EVN011	16.5	EWA602	5.10	EWT470E	5.9	FC210	2.18
EVN012	16.17	EWA603	5.10	EWT470F	5.10	FC211	2.18
EVN012	16.5	EWT001A	5.3	EWT470G	5.10	FC212	2.18
EW005	5.2	EWT001B	5.9	EWT470H	5.10	FC213	2.18
EW006	5.2	EWT002A	5.3	EWT600F	5.10	FC214	2.18
EW007	5.4	EWT002B	5.9	EWT600G	5.10	FC215	2.18
EW009	5.4	EWT004A	5.3	EWT750F	5.10	FC216	2.18
EW012	5.4	EWT005A	5.3	EWT750G	5.10	FC218	2.18
EW016	5.5	EWT005B	5.9	EWT900F	5.10	FC219	2.18
EW020	5.5	EWT006A	5.3	EWT900G	5.10	FC230	2.20
EW025	5.5	EWT006B	5.9	EZN001	5.21	FC310	2.19
EW032	5.5	EWT008A	5.3	EZN002	5.21	FC311	2.19
EW038	5.5	EWT008B	5.9	EZN003	5.21	FC312	2.19
EW040	5.5	EWT010A	5.3	EZN004	5.21	FC313	2.19
EW050	5.6	EWT013A	5.3	EZN005	5.21	FC314	2.19

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FC315	2.19	FD00P1	1.32	FK114	2.106	FL015BWL	2.94
FC316	2.19	FD00P2	1.32	FK120	2.106	FL015TW	2.97
FC317	2.19	FD00P3	1.32	FK121	2.106	FL015TWL	2.97
FC318	2.19	FD00P4	1.32	FK123	2.106	FL016BW	2.94
FC319	2.19	FD00P5	1.32	FK124	2.106	FL016BWL	2.94
FC330	2.19	FD00Q1	1.31	FK130	2.106	FL016TW	2.97
FC331	2.19	FD00Q2	1.31	FK131	2.106	FL016TWL	2.97
FC332	2.19	FD00S0	1.33	FK133	2.106	FL017BW	2.94
FC333	2.19	FD00S1	1.33	FK134	2.106	FL017BWL	2.94
FC334	2.19	FD00S2	1.33	FK160	2.106	FL017TW	2.97
FC335	2.19	FD00S3	1.33	FK161	2.106	FL017TWL	2.97
FC336	2.19	FD00S4	1.33	FK163	2.106	FL021BW	2.94
FC337	2.19	FD00S5	1.33	FK164	2.106	FL021BWL	2.94
FC338	2.19	FD00T1	1.30	FK170	2.106	FL021TW	2.97
FC339	2.19	FD00T2	1.30	FK17035	11.16	FL021TWL	2.97
FC340	2.19	FD01A1	1.30	FK171	2.106	FL022BW	2.94
FC341	2.19	FD01A2	1.30	FK173	2.106	FL022BWL	2.94
FC342	2.19	FD01K1	1.30	FK174	2.106	FL023BW	2.94
FC343	2.19	FD02A1	1.30	FK180	2.106	FL023BWL	2.94
FC344	2.19	FD02A2	1.30	FK181	2.106	FL023TW	2.97
FC345	2.19	FD02A3	1.30	FK183	2.106	FL023TWL	2.97
FC346	2.19	FD02C2	1.30	FK184	2.106	FL024BW	2.94
FC347	2.19	FD02K1	1.30	FK19005	11.16	FL024BWL	2.94
FC348	2.19	FD02V2	1.30	FK220	2.107	FL024TW	2.97
FC349	2.19	FD03A1	1.30	FK230	2.107	FL024TWL	2.97
FC350	2.20	FD22AN	1.29	FK240	2.107	FL025BW	2.95
FC415	2.18	FD22DN	1.29	FK270	2.107	FL025BWL	2.95
FC416	2.18	FD22GN	1.29	FK280	2.107	FL025TW	2.97
FC425	2.18	FD22PN	1.30	FK290	2.107	FL025TWL	2.97
FC426	2.18	FD22TN	1.30	FK310	2.107	FL027BW	2.95
FC429	2.21	FD32AN	1.29	FK311	2.107	FL027BWL	2.95
FC445	2.18	FD32DN	1.29	FK320	2.107	FL027TW	2.97
FC446	2.18	FD32GN	1.29	FK321	2.107	FL027TWL	2.97
FC455	2.18	FD32PN	1.30	FK370	2.107	FL028BW	2.95
FC456	2.18	FD32TN	1.30	FK371	2.107	FL028BWL	2.95
FC664	2.21	FD42AN	1.29	FK380	2.107	FL028TW	2.97
FC664	2.68	FD42DN	1.29	FK381	2.107	FL028TWL	2.97
FD00A1	1.31	FD42GN	1.29	FK390	2.107	FL029BW	2.95
FD00A3	1.33	FD42PN	1.30	FK391	2.107	FL029BWL	2.95
FD00A4	1.33	FD42TN	1.30	FK404	2.108	FL029TW	2.97
FD00A5	1.33	FD52AN	1.29	FK405	2.108	FL029TWL	2.97
FD00B1	1.31	FD52DN	1.29	FKB7035	11.16	FL030BW	2.95
FD00B2	1.31	FD52GN	1.29	FKB9005	11.16	FL030BWL	2.95
FD00C1	1.31	FD52PN	1.30	FKWB000	11.16	FL030TW	2.97
FD00C2	1.31	FD52TN	1.30	FL000A	2.73	FL030TWL	2.97
FD00C3	1.31	FD62AN	1.29	FL000A	2.87	FL032BW	2.95
FD00C4	1.31	FD62DN	1.29	FL010BW	2.92	FL032BWL	2.95
FD00C5	1.31	FD62GN	1.29	FL010BW	2.94	FL032TW	2.97
FD00E1	1.32	FD62PN	1.30	FL010BWL	2.94	FL032TWL	2.97
FD00F1	1.32	FD62TN	1.30	FL012BW	2.94	FL033BW	2.95
FD00F2	1.32	FD72AN	1.29	FL012BWL	2.94	FL033BWL	2.95
FD00F3	1.32	FD72DN	1.29	FL013BW	2.94	FL033TW	2.97
FD00H1	1.31	FD72GN	1.29	FL013BWL	2.94	FL033TWL	2.97
FD00H2	1.31	FD72PN	1.30	FL014BW	2.94	FL034BW	2.95
FD00M1	1.31	FD72TN	1.30	FL014BWL	2.94	FL034BWL	2.95
FD00M2	1.31	FK110	2.106	FL014TW	2.97	FL034TW	2.97
FD00M3	1.31	FK111	2.106	FL014TWL	2.97	FL034TWL	2.97
FD00M4	1.31	FK113	2.106	FL015BW	2.94	FL035BW	2.95

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FL035BWL	2.95	FL102A	2.78	FL151A	2.78	FL180A	2.78
FL035TW	2.98	FL103A	2.72	FL152A	2.72	FL204B	2.74
FL035TWL	2.98	FL103A	2.78	FL152A	2.78	FL204B	2.80
FL036BW	2.95	FL104A	2.72	FL153A	2.72	FL209B	2.74
FL036BWL	2.95	FL104A	2.78	FL153A	2.78	FL209B	2.80
FL036TW	2.98	FL105A	2.72	FL154A	2.72	FL210Z	2.44
FL036TWL	2.98	FL105A	2.78	FL154A	2.78	FL210Z	2.90
FL037BW	2.95	FL106A	2.72	FL155A	2.72	FL212Z	2.44
FL037BWL	2.95	FL106A	2.78	FL155A	2.78	FL212Z	2.90
FL037TW	2.98	FL107A	2.72	FL156A	2.72	FL213B	2.74
FL037TWL	2.98	FL107A	2.78	FL156A	2.78	FL213B	2.80
FL039BW	2.95	FL108A	2.72	FL157A	2.72	FL214Z	2.44
FL039BWL	2.95	FL108A	2.78	FL157A	2.78	FL214Z	2.90
FL039TW	2.98	FL109A	2.72	FL158A	2.72	FL216B	2.74
FL039TWL	2.98	FL109A	2.78	FL158A	2.78	FL216B	2.80
FL041BW	2.96	FL110A	2.72	FL159A	2.72	FL216Z	2.44
FL041BWL	2.96	FL110A	2.78	FL159A	2.78	FL216Z	2.90
FL041TW	2.98	FL111A	2.72	FL160A	2.72	FL220Z	2.44
FL041TWL	2.98	FL111A	2.78	FL160A	2.78	FL220Z	2.90
FL042BW	2.96	FL112A	2.72	FL161A	2.72	FL221B	2.74
FL042BWL	2.96	FL112A	2.78	FL161A	2.78	FL221B	2.80
FL042TW	2.98	FL113A	2.72	FL162A	2.72	FL224Z	2.44
FL042TWL	2.98	FL113A	2.78	FL162A	2.78	FL224Z	2.90
FL043BW	2.96	FL114A	2.72	FL163A	2.72	FL226Z	2.44
FL043BWL	2.96	FL114A	2.78	FL163A	2.78	FL226Z	2.90
FL043TW	2.98	FL115A	2.72	FL164A	2.72	FL229B	2.74
FL043TWL	2.98	FL115A	2.78	FL164A	2.78	FL229B	2.80
FL045BW	2.96	FL116A	2.72	FL165A	2.72	FL230Z	2.44
FL045BWL	2.96	FL116A	2.78	FL165A	2.78	FL230Z	2.90
FL045TW	2.98	FL117A	2.72	FL166A	2.72	FL234Z	2.44
FL045TWL	2.98	FL117A	2.78	FL166A	2.78	FL234Z	2.90
FL049BW	2.96	FL118A	2.72	FL167A	2.72	FL236Z	2.44
FL049BWL	2.96	FL118A	2.78	FL167A	2.78	FL236Z	2.90
FL049TW	2.98	FL119A	2.72	FL168A	2.72	FL252Z	2.44
FL049TWL	2.98	FL119A	2.78	FL168A	2.78	FL252Z	2.91
FL051BW	2.96	FL120A	2.72	FL169A	2.72	FL253Z	2.44
FL051BWL	2.96	FL120A	2.78	FL169A	2.78	FL253Z	2.91
FL051TW	2.98	FL121A	2.72	FL170A	2.72	FL254B	2.74
FL051TWL	2.98	FL121A	2.78	FL170A	2.78	FL254B	2.80
FL053BW	2.95	FL122A	2.72	FL171A	2.72	FL254Z	2.44
FL053BWL	2.95	FL122A	2.78	FL171A	2.78	FL254Z	2.91
FL054BW	2.95	FL123A	2.72	FL172A	2.72	FL255Z	2.44
FL054BWL	2.95	FL123A	2.78	FL172A	2.78	FL255Z	2.91
FL055BW	2.95	FL124A	2.72	FL173A	2.72	FL256Z	2.44
FL055BWL	2.95	FL124A	2.78	FL173A	2.78	FL256Z	2.91
FL056BW	2.96	FL125A	2.72	FL174A	2.72	FL258Z	2.44
FL056BWL	2.96	FL125A	2.78	FL174A	2.78	FL258Z	2.91
FL058BW	2.96	FL126A	2.72	FL175A	2.72	FL259B	2.74
FL058BWL	2.96	FL126A	2.78	FL175A	2.78	FL259B	2.80
FL060BW	2.96	FL127A	2.72	FL176A	2.72	FL259Z	2.44
FL060BWL	2.96	FL127A	2.78	FL176A	2.78	FL259Z	2.91
FL062BW	2.96	FL128A	2.72	FL177A	2.72	FL263B	2.74
FL062BWL	2.96	FL128A	2.78	FL177A	2.78	FL263B	2.80
FL064BW	2.96	FL129A	2.72	FL178A	2.72	FL266B	2.74
FL064BWL	2.96	FL129A	2.78	FL178A	2.78	FL266B	2.80
FL101A	2.72	FL130A	2.72	FL179A	2.72	FL271B	2.74
FL101A	2.78	FL130A	2.78	FL179A	2.78	FL271B	2.80
FL102A	2.72	FL151A	2.72	FL180A	2.72	FL279B	2.74

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FL279B	2.80	FL326A	2.88	FL362A	2.87	FL407A	2.72
FL300B	2.76	FL326B	2.76	FL362B	2.76	FL407A	2.74
FL300B	2.81	FL326B	2.81	FL362B	2.82	FL407A	2.83
FL301B	2.76	FL327A	2.73	FL363A	2.87	FL407B	2.76
FL301B	2.81	FL327A	2.77	FL364A	2.87	FL407B	2.82
FL302B	2.76	FL327A	2.88	FL364B	2.76	FL408A	2.72
FL302B	2.81	FL327B	2.76	FL364B	2.82	FL408A	2.74
FL305B	2.76	FL327B	2.81	FL365A	2.87	FL408A	2.83
FL305B	2.81	FL330B	2.76	FL366A	2.87	FL409A	2.72
FL306B	2.76	FL330B	2.81	FL366B	2.76	FL409A	2.83
FL306B	2.81	FL331B	2.76	FL366B	2.82	FL410A	2.72
FL307B	2.76	FL331B	2.81	FL367A	2.87	FL410A	2.83
FL307B	2.81	FL332B	2.81	FL368A	2.87	FL410B	2.76
FL310B	2.76	FL333A	2.73	FL368B	2.76	FL410B	2.82
FL310B	2.81	FL333A	2.75	FL368B	2.82	FL411A	2.72
FL311A	2.73	FL333A	2.88	FL369A	2.87	FL411A	2.83
FL311A	2.75	FL335A	2.73	FL371A	2.87	FL411B	2.76
FL311A	2.88	FL335A	2.88	FL372A	2.87	FL411B	2.82
FL311B	2.76	FL336A	2.73	FL373A	2.87	FL412A	2.72
FL311B	2.81	FL336A	2.75	FL374A	2.87	FL412A	2.74
FL312A	2.73	FL336A	2.88	FL380AH	2.87	FL412A	2.83
FL312A	2.75	FL337A	2.73	FL380B	2.82	FL412B	2.76
FL312A	2.88	FL337A	2.77	FL381AH	2.87	FL412B	2.82
FL312B	2.76	FL337A	2.88	FL381B	2.82	FL413A	2.72
FL312B	2.81	FL340B	2.76	FL382B	2.82	FL413A	2.74
FL313A	2.73	FL340B	2.82	FL385B	2.82	FL413A	2.83
FL313A	2.75	FL342B	2.76	FL386B	2.82	FL414A	2.72
FL313A	2.88	FL342B	2.82	FL387B	2.82	FL414A	2.83
FL314A	2.73	FL343A	2.73	FL390B	2.82	FL415A	2.72
FL314A	2.88	FL343A	2.75	FL391AH	2.87	FL415A	2.74
FL315A	2.73	FL343A	2.88	FL391B	2.82	FL415A	2.83
FL315A	2.88	FL344B	2.76	FL392AH	2.87	FL416A	2.72
FL316A	2.73	FL344B	2.82	FL392B	2.82	FL416A	2.83
FL316A	2.75	FL345A	2.73	FL393AH	2.87	FL417A	2.72
FL316A	2.88	FL345A	2.88	FL399AH	2.87	FL417A	2.83
FL317A	2.73	FL346A	2.73	FL400B	2.76	FL418A	2.72
FL317A	2.77	FL346A	2.75	FL400B	2.82	FL418A	2.83
FL317A	2.88	FL346A	2.88	FL401A	2.72	FL419A	2.72
FL320B	2.76	FL346B	2.76	FL401A	2.83	FL419A	2.83
FL320B	2.81	FL346B	2.82	FL401B	2.76	FL422A	2.72
FL321B	2.76	FL347A	2.73	FL401B	2.82	FL422A	2.84
FL321B	2.81	FL347A	2.77	FL402A	2.72	FL423A	2.72
FL322A	2.73	FL347A	2.88	FL402A	2.83	FL423A	2.74
FL322A	2.75	FL348B	2.76	FL402B	2.76	FL423A	2.84
FL322A	2.88	FL348B	2.82	FL402B	2.82	FL424A	2.72
FL322B	2.76	FL350B	2.76	FL403A	2.72	FL424A	2.74
FL322B	2.81	FL350B	2.82	FL403A	2.83	FL424A	2.84
FL323A	2.73	FL352B	2.76	FL404A	2.72	FL425A	2.72
FL323A	2.75	FL352B	2.82	FL404A	2.74	FL425A	2.74
FL323A	2.88	FL354B	2.76	FL404A	2.83	FL425A	2.84
FL324A	2.73	FL354B	2.82	FL405A	2.72	FL426A	2.72
FL324A	2.88	FL356B	2.76	FL405A	2.83	FL426A	2.74
FL325A	2.73	FL356B	2.82	FL405B	2.76	FL426A	2.84
FL325A	2.88	FL358B	2.76	FL405B	2.82	FL427A	2.72
FL325B	2.76	FL358B	2.82	FL406A	2.72	FL427A	2.74
FL325B	2.81	FL360B	2.76	FL406A	2.83	FL427A	2.84
FL326A	2.73	FL360B	2.82	FL406B	2.76	FL428A	2.72
FL326A	2.75	FL361A	2.87	FL406B	2.82	FL428A	2.84

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FL429A	2.74	FL500B	2.81	FL531B	2.76	FL557A	2.85
FL429A	2.84	FL500E	2.77	FL531B	2.81	FL558A	2.72
FL430A	2.72	FL500E	2.89	FL531E	2.76	FL558A	2.85
FL430A	2.84	FL501A	2.73	FL531E	2.83	FL559A	2.72
FL431	2.72	FL501A	2.75	FL532B	2.76	FL559A	2.85
FL431A	2.72	FL501A	2.89	FL532B	2.81	FL560E	2.76
FL431A	2.84	FL501B	2.76	FL532E	2.76	FL560E	2.77
FL432A	2.72	FL501B	2.81	FL532E	2.83	FL560E	2.84
FL432A	2.84	FL501E	2.83	FL541A	2.72	FL561E	2.76
FL433A	2.72	FL502A	2.73	FL541A	2.85	FL561E	2.77
FL433A	2.84	FL502A	2.75	FL541E	2.84	FL561E	2.84
FL450A	2.89	FL502A	2.89	FL542A	2.72	FL562E	2.76
FL461A	2.86	FL502B	2.76	FL542A	2.85	FL562E	2.77
FL462A	2.86	FL502B	2.81	FL542E	2.84	FL562E	2.84
FL463A	2.86	FL502E	2.83	FL543A	2.72	FL570E	2.76
FL465A	2.86	FL503A	2.73	FL543A	2.85	FL570E	2.77
FL466A	2.86	FL503A	2.77	FL544A	2.72	FL570E	2.84
FL467A	2.86	FL503A	2.89	FL544A	2.74	FL571E	2.76
FL468A	2.86	FL505B	2.76	FL544A	2.85	FL571E	2.77
FL472A	2.72	FL505B	2.81	FL545A	2.72	FL571E	2.84
FL472A	2.84	FL506B	2.76	FL545A	2.85	FL572E	2.76
FL473A	2.72	FL506B	2.81	FL546A	2.72	FL572E	2.77
FL473A	2.74	FL507B	2.76	FL546A	2.85	FL572E	2.84
FL473A	2.84	FL507B	2.81	FL547A	2.72	FL580E	2.85
FL474A	2.72	FL510B	2.76	FL547A	2.74	FL581E	2.85
FL474A	2.74	FL510B	2.81	FL547A	2.85	FL582E	2.85
FL474A	2.84	FL510E	2.76	FL548A	2.72	FL590E	2.77
FL475A	2.72	FL510E	2.83	FL548A	2.74	FL590E	2.85
FL475A	2.74	FL511B	2.76	FL548A	2.85	FL591E	2.77
FL475A	2.84	FL511B	2.81	FL549A	2.72	FL591E	2.85
FL476A	2.72	FL511E	2.76	FL549A	2.85	FL592E	2.77
FL476A	2.74	FL511E	2.83	FL550A	2.72	FL592E	2.85
FL476A	2.84	FL512B	2.76	FL550A	2.85	FL600E	2.77
FL477A	2.72	FL512B	2.81	FL550E	2.76	FL600E	2.85
FL477A	2.74	FL512E	2.76	FL550E	2.77	FL601E	2.77
FL477A	2.84	FL512E	2.83	FL550E	2.84	FL601E	2.85
FL478A	2.72	FL520B	2.76	FL551A	2.72	FL602E	2.77
FL478A	2.84	FL520B	2.81	FL551A	2.74	FL602E	2.85
FL479A	2.72	FL520E	2.76	FL551A	2.85	FL610E	2.77
FL479A	2.74	FL520E	2.83	FL551E	2.76	FL610E	2.88
FL479A	2.84	FL521B	2.76	FL551E	2.77	FL620E	2.77
FL480A	2.72	FL521B	2.81	FL551E	2.84	FL620E	2.88
FL480A	2.84	FL521E	2.76	FL552A	2.72	FL630E	2.77
FL481A	2.72	FL521E	2.83	FL552A	2.74	FL630E	2.88
FL481A	2.84	FL522B	2.76	FL552A	2.85	FL640E	2.77
FL482A	2.72	FL522B	2.81	FL552E	2.76	FL640E	2.88
FL482A	2.84	FL522E	2.76	FL552E	2.77	FL643A	2.72
FL483A	2.72	FL522E	2.83	FL552E	2.84	FL643A	2.74
FL483A	2.84	FL525B	2.76	FL553A	2.72	FL643A	2.85
FL492A	2.89	FL525B	2.81	FL553A	2.85	FL644A	2.72
FL493A	2.89	FL526B	2.76	FL554A	2.72	FL644A	2.74
FL494A	2.89	FL526B	2.81	FL554A	2.85	FL644A	2.85
FL495A	2.89	FL527B	2.76	FL555A	2.72	FL645A	2.72
FL496A	2.89	FL527B	2.81	FL555A	2.74	FL645A	2.74
FL500A	2.73	FL530B	2.76	FL555A	2.85	FL645A	2.85
FL500A	2.75	FL530B	2.81	FL556A	2.72	FL646A	2.74
FL500A	2.89	FL530E	2.76	FL556A	2.85	FL646A	2.85

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FL649A	2.72	FL723E	2.89	FL959A	2.72	FL995B	2.77
FL649A	2.74	FL723L	2.102	FL959A	2.79	FL995B	2.87
FL649A	2.85	FL724E	2.73	FL95Z	2.79	FL996A	2.73
FL650CD	2.109	FL724E	2.75	FL960A	2.103	FL996A	2.74
FL652CD	2.109	FL724E	2.89	FL960A	2.72	FL996A	2.87
FL654CD	2.109	FL725E	2.73	FL960A	2.79	FL997A	2.73
FL656CD	2.109	FL725E	2.77	FL961A	2.72	FL997A	2.87
FL670A	2.103	FL725E	2.89	FL961A	2.79	FL998A	2.73
FL670A	2.79	FL725L	2.102	FL962A	2.103	FL998A	2.87
FL672E	2.86	FL726L	2.102	FL962A	2.72	FL999A	2.73
FL701L	2.102	FL728L	2.102	FL962A	2.79	FL999A	2.87
FL702E	2.73	FL729L	2.102	FL963A	2.103	FL99Z	2.80
FL702E	2.75	FL730L	2.102	FL96Z	2.79	FM107	2.24
FL702E	2.89	FL731L	2.102	FL96Z	2.80	FM108	2.24
FL702L	2.102	FL733E	2.73	FL979A	2.86	FM109	2.24
FL703E	2.73	FL733E	2.75	FL97Z	2.80	FM117	2.24
FL703E	2.75	FL733E	2.89	FL980A	2.74	FM118	2.24
FL703E	2.89	FL734E	2.73	FL980A	2.86	FM119	2.24
FL703L	2.102	FL734E	2.75	FL981A	2.74	FM200	2.24
FL704E	2.73	FL734E	2.89	FL981A	2.86	FM201	2.24
FL704E	2.75	FL735E	2.73	FL982A	2.74	FM202	2.24
FL704E	2.89	FL735E	2.77	FL982A	2.86	FM203	2.24
FL705E	2.73	FL735E	2.89	FL982A	2.99	FM204	2.24
FL705E	2.77	FL74Z	2.108	FL983A	2.74	FM205	2.24
FL705E	2.89	FL74Z	2.27	FL983A	2.86	FM206	2.24
FL706L	2.102	FL74Z	2.42	FL985A	2.99	FM207	2.24
FL707L	2.102	FL74Z	2.82	FL98Z	2.108	FM208	2.24
FL708L	2.102	FL75Z	2.108	FL98Z	2.27	FM209	2.24
FL70Z	2.89	FL75Z	2.27	FL98Z	2.42	FM217	2.24
FL710E	2.77	FL75Z	2.42	FL98Z	2.82	FM218	2.24
FL710E	2.89	FL75Z	2.82	FL990A	2.73	FM219	2.24
FL711E	2.73	FL76Z	2.108	FL990A	2.74	FM307	2.24
FL711E	2.75	FL76Z	2.27	FL990A	2.87	FM308	2.24
FL711E	2.89	FL76Z	2.42	FL990B	2.77	FM309	2.24
FL712E	2.73	FL76Z	2.82	FL990B	2.87	FM317	2.24
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FL712L	2.102	FL77Z	2.82	FL991A	2.74	FM400	2.24
FL713E	2.73	FL78Z	2.26	FL991A	2.87	FM401	2.24
FL713E	2.75	FL78Z	2.42	FL991B	2.77	FM402	2.24
FL713E	2.89	FL80Z	2.79	FL991B	2.87	FM403	2.24
FL713L	2.102	FL81Z	2.80	FL992A	2.73	FM404	2.24
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FL714E	2.75	FL85Z	2.102	FL992A	2.87	FM406	2.24
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FL721L	2.102	FL957A	2.72	FL994A	2.74	FM429	2.25
FL722E	2.73	FL957A	2.79	FL994A	2.87	FM437	2.25
FL722E	2.75	FL958A	2.103	FL994B	2.77	FM438	2.25
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FM630	2.27	FN266E	2.41	FN726E	2.45	FU62AN	1.28
FM635	2.108	FN267E	2.41	FN727E	2.45	FU62DN	1.28
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FM653	2.108	FN289E	2.40	FN862E	2.45	FV22A	1.35
FM653	2.27	FN291E	2.40	FN863E	2.45	FV32A	1.35
FN006E	2.42	FN292E	2.40	FN864E	2.45	FV42A	1.35
FN007E	2.42	FN296E	2.40	FN865E	2.45	FV52A	1.35
FN008E	2.42	FN297E	2.40	FN866E	2.45	FV62A	1.35
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FW33UG2	1.38	FWB43S	1.44	FZ011NV	1.40	FZ124CWL	2.101
FW33US2	1.38	FWB44GS	1.44	FZ011NV	1.45	FZ126CW	2.101
FW41UD2	1.39	FWB44S	1.44	FZ012B	1.46	FZ126CWL	2.101
FW41UG2	1.38	FWB51GS	1.44	FZ012N	1.45	FZ128CW	2.101
FW41US2	1.38	FWB51S	1.44	FZ013B	1.46	FZ128CWL	2.101
FW42UD2	1.39	FWB52GS	1.44	FZ013N	1.45	FZ12B	1.46
FW42UG2	1.38	FWB52S	1.44	FZ014B	1.46	FZ13B	1.46
FW42US2	1.38	FWB53GS	1.44	FZ014N	1.45	FZ14B	1.46
FW43UD2	1.39	FWB53S	1.44	FZ014NV	1.40	FZ21B	1.46
FW43UG2	1.38	FWB54GS	1.44	FZ014NV	1.45	FZ226	1.50
FW43US2	1.38	FWB54S	1.44	FZ015N	1.45	FZ22B	1.46
FW51UD2	1.39	FWB61GS	1.44	FZ016N	1.45	FZ23B	1.46
FW51UG2	1.38	FWB61S	1.44	FZ021B	1.46	FZ24B	1.46
FW51US2	1.38	FWB62GS	1.44	FZ021N	1.45	FZ276	1.42
FW52UD2	1.39	FWB62S	1.44	FZ021NV	1.40	FZ277	1.42
FW52UG2	1.38	FWB63GS	1.44	FZ021NV	1.45	FZ279	1.42
FW52US2	1.38	FWB63S	1.44	FZ022B	1.46	FZ31B	1.46
FW53UD2	1.39	FWB64GS	1.44	FZ022N	1.45	FZ32B	1.46
FW53UG2	1.38	FWB64S	1.44	FZ022NV	1.40	FZ33B	1.46
FW53US2	1.38	FWB71GS	1.44	FZ022NV	1.45	FZ34B	1.46
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FW54UG2	1.38	FWB72GS	1.44	FZ023N	1.45	FZ402	2.21
FW54US2	1.38	FWB72S	1.44	FZ023NV	1.40	FZ404	2.21
FW61UD2	1.39	FWB73GS	1.44	FZ024B	1.46	FZ426	1.51
FW61UG2	1.38	FWB73S	1.44	FZ024N	1.45	FZ428	1.51
FW61US2	1.38	FWB74GS	1.44	FZ026N	1.45	FZ441	2.68
FW62UD2	1.39	FWB74S	1.44	FZ026NV	1.40	FZ442	2.68
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FW64UD2	1.39	FWK3992600VERZ	13.8	FZ107N	1.46	FZ450	2.26
FW64UG2	1.38	FWK9500600VERZ	13.10	FZ108N	1.46	FZ451	2.20
FW64US2	1.38	FWK9501100VERZ	13.10	FZ110A	2.99	FZ451	2.26
FW71UD2	1.39	FWK9502200VERZ	13.10	FZ110CW	2.101	FZ452	2.20
FW71UG2	1.38	FWK9991600VERZ	13.10	FZ110CWL	2.101	FZ452	2.26
FW71US2	1.38	FWK9992600VERZ	13.10	FZ110N	1.46	FZ453	2.20
FW72UD2	1.39	FZ001N	1.45	FZ111CW	2.101	FZ453	2.26
FW72UG2	1.38	FZ002N	1.45	FZ111CWL	2.101	FZ501	1.36
FW72US2	1.38	FZ003N	1.45	FZ112CW	2.101	FZ502	1.36
FW73UD2	1.39	FZ004N	1.45	FZ112CWL	2.101	FZ503	1.36
FW73UG2	1.38	FZ005N	1.45	FZ113CW	2.101	FZ507	1.36
FW73US2	1.38	FZ006N	1.45	FZ113CWL	2.101	FZ508	2.26
FW81UD2	1.39	FZ006NV	1.40	FZ114CW	2.101	FZ508	2.41
FWB31GS	1.44	FZ006NV	1.45	FZ114CWL	2.101	FZ508	2.42
FWB31S	1.44	FZ007N	1.45	FZ118CW	2.101	FZ515	2.26
FWB32GS	1.44	FZ007NV	1.40	FZ118CWL	2.101	FZ515	2.42
FWB32S	1.44	FZ007NV	1.45	FZ119CW	2.101	FZ517	2.26
FWB33GS	1.44	FZ008N	1.45	FZ119CWL	2.101	FZ517	2.42
FWB33S	1.44	FZ009N	1.45	FZ11B	1.46	FZ526	1.36
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FWB34S	1.44	FZ009NV	1.45	FZ120CWL	2.101	FZ597	2.20
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FZ598N	1.51	G4721	11.13	GBD5008509010	10.2	GS218D	1.9
FZ598N	2.20	G4731	11.13	GBD5008509011	10.2	GS313D	1.8
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FZ680	2.42	G4741	11.13	GBD5016009010	10.2	GT4519010	10.16
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FZ794	2.27	G4796	11.10	GD213A	1.8	GT452ALU	11.11
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FZ803B	1.49	G4798	11.10	GE20113020	10.19	GT453ALU	11.11
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G3150	10.19	G8360	11.19	GP118T	1.9	GZ30A	7.15
G3155	11.10	GB080207035	10.19	GP213P	1.8	GZ32A	1.8
G3160	11.19	GB080207035	11.10	GP213T	1.8	GZ32A	1.9
G32249010	11.10	GB080209010	10.19	GP218P	1.9	GZ35A	1.8
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G3375LAN	11.11	GBA500501ALU	10.4	GP413P	1.8	HA352	3.57
G35609010	10.17	GBA5008519010	10.4	GP413T	1.8	HA353	3.57
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JK1B082S1	2.2	JK1XNC	2.5	JN2B00016S1	2.6	JN8L6303MH	2.9
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JK1B084S1	2.2	JK1XNTS	2.3	JN2E20S	2.6	JN8L8003EB	2.9
JK1B086F1	2.2	JK1XSNT	2.3	JN2L2503D	2.6	JN8L8003MH	2.9
JK1B086S1	2.2	JK1XSNT	2.5	JN2L2503MH	2.6	JP001	1.21
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JK1B088S1	2.2	JK1XSNTTE	2.5	JN2XBSP	2.6	JP001	1.9
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JK1B08S1	2.2	JK200S	2.5	JN2XBSP	2.9	JP002	1.36
JK1B104F1	2.2	JK250S	2.5	JN4B00004S1	2.7	JP002	1.7
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JK1B10S1	2.2	JK2B04S1	2.4	JN4B00010S1	2.7	JP015	1.9
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L6875VERZ	13.9	L96857030	9.11	LF410M	4.37	LFF400637030	9.5
L6876VERZ	13.9	L96859010	9.11	LF412G	4.35	LFF400637035	13.3
L6878VERZ	13.9	LAFKG207011	11.18	LF412M	4.37	LFF400639001	13.3
L6879	13.9	LAFKG207035	11.18	LF416G	4.35	LFF400639010	13.3
L6910VERZ	13.11	LAFKG209005	11.18	LF416M	4.37	LFF400639010	9.5
L6911VERZ	13.10	LAFKK207035	11.18	LF420G	4.35	LFF400647030	9.4
L6912VERZ	13.10	LAFKK209005	11.18	LF420M	4.37	LFF400647035	13.2
L6913VERZ	13.11	LARKG207011	11.18	LF425G	4.35	LFF400649001	13.2
L6915VERZ	13.11	LARKG207035	11.18	LF425M	4.37	LFF400649010	13.2
L6916VERZ	13.11	LARKG209005	11.18	LF432G	4.35	LFF400649010	9.4
L6918VERZ	13.11	LARKK207035	11.18	LF432M	4.37	LFF400657030	9.5
L6919	13.11	LARKK209005	11.18	LF440G	4.35	LFF400657035	13.3
L6920VERZ	13.11	LED06WEISS	8.10	LF440M	4.37	LFF400659001	13.3
L6922VERZ	13.10	LEDTR030	8.11	LF445G	4.35	LFF400659010	13.3
L6923VERZ	13.11	LEDTR100	8.11	LF445M	4.37	LFF400659010	9.5

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LFF400939010	9.8	LFF600949001	13.2	LFF601179010	9.7	LFG502000GRAU	13.6
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MCN340A	4.5	MM510N	4.31	MU120A	4.6	MV425	4.4
MCN350A	4.5	MM511N	4.31	MU125A	4.6	MV432	4.4
MCN363A	4.5	MM512N	4.31	MU132A	4.6	MV440	4.4
MCN406A	4.5	MM513N	4.31	MU140A	4.6	MW106	4.4
MCN410A	4.5	MM514N	4.31	MU150A	4.6	MW110	4.4
MCN416A	4.5	MMN200	4.13	MU163A	4.6	MW116	4.4
MCN420A	4.5	MMN201	4.13	MU206A	4.6	MW120	4.4
MCN425A	4.5	MMN202	4.13	MU210A	4.6	MW125	4.4
MCN432A	4.5	MMN203	4.13	MU216A	4.6	MW132	4.4
MCN440A	4.5	MMN204	4.13	MU220A	4.6	MW140	4.4
MCN450A	4.5	MMN206	4.13	MU225A	4.6	MW206	4.4
MCN463A	4.5	MMN210	4.13	MU232A	4.6	MW210	4.4
MH2024	13.2	MMN213	4.13	MU240A	4.6	MW216	4.4
MH2026	13.2	MMN216	4.13	MU250A	4.6	MW220	4.4
MHT706	4.2	MMN220	4.13	MU263A	4.6	MW225	4.4
MHT706	4.3	MMN225	4.13	MU306A	4.6	MW232	4.4
MHT710	4.2	MMN300	4.13	MU310A	4.6	MW240	4.4
MHT710	4.3	MMN301	4.13	MU316A	4.6	MW306	4.4
MHT716	4.2	MMN302	4.13	MU320A	4.6	MW310	4.4
MHT716	4.3	MMN303	4.13	MU325A	4.6	MW316	4.4
MHT720	4.2	MMN304	4.13	MU332A	4.6	MW320	4.4
MHT720	4.3	MMN306	4.13	MU340A	4.6	MW325	4.4
MHT725	4.2	MMN310	4.13	MU350A	4.6	MW332	4.4
MHT725	4.3	MMN313	4.13	MU363A	4.6	MW340	4.4
MHT732	4.2	MMN316	4.13	MU406A	4.6	MW406	4.4
MHT732	4.3	MMN320	4.13	MU410A	4.6	MW410	4.4
MHT740	4.2	MMN325	4.13	MU416A	4.6	MW416	4.4
MHT740	4.3	MN1604	17.34	MU420A	4.6	MW420	4.4
MJT706	4.2	MT106A	4.6	MU425A	4.6	MW425	4.4
MJT706	4.3	MT110A	4.6	MU432A	4.6	MW432	4.4
MJT710	4.2	MT116A	4.6	MU440A	4.6	MW440	4.4
MJT710	4.3	MT120A	4.6	MU450A	4.6	MZ201	4.28
MJT716	4.2	MT125A	4.6	MU463A	4.6	MZ202	4.28
MJT716	4.3	MT132A	4.6	MV106	4.4	MZ203	4.28
MJT720	4.2	MT140A	4.6	MV110	4.4	MZ203	5.29
MJT720	4.3	MT150A	4.6	MV116	4.4	MZ204	4.28

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MZ206	4.28	NBN406A	4.11	NCN416A	4.11	NDN425A	4.11
MZ206	5.29	NBN410A	4.11	NCN420A	4.11	NDN432A	4.11
MZ212	4.29	NBN416A	4.11	NCN425A	4.11	NDN440A	4.11
MZ212	5.30	NBN420A	4.11	NCN432A	4.11	NDN450A	4.11
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MZ521N	4.32	NBN440A	4.11	NCN463A	4.11	NGN101	4.8
MZ522N	4.31	NBN450A	4.11	NDN100A	4.10	NGN102	4.8
MZ523N	4.32	NBN463A	4.11	NDN101A	4.10	NGN103	4.8
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MZ528N	4.32	NCN101A	4.10	NDN103A	4.10	NGN106	4.8
MZ529N	4.32	NCN102A	4.10	NDN104A	4.10	NGN110	4.8
MZ530N	4.32	NCN103A	4.10	NDN106A	4.10	NGN116	4.8
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RLF110X	17.20	SBN140	5.25	SL20055219010	8.8	SL20055A9011	8.9
RLF444X	17.20	SBN163	5.25	SL20055219011	8.8	SL20055AD1	8.9
RLF620X	17.19	SBN164	5.25	SL20055229010	8.8	SL20055AD2	8.9
RLF660X	17.20	SBN180	5.25	SL2005529010	8.8	SL20055AD3	8.9
RLH001X	17.30	SBN190	5.25	SL2005529011	8.8	SL20055AD4	8.9
RLH002X	17.32	SBN199	5.25	SL200552D1	8.8	SL20055AD5	8.9
RLP305F	17.18	SBN216	5.25	SL200552D2	8.8	SL20055AD6	8.9
RXA02X	17.30	SBN225	5.25	SL200552D3	8.8	SL200801	8.8
RXA03X	17.30	SBN232	5.25	SL200552D4	8.8	SL200801LED	8.10
RXA05X	17.32	SBN233	5.25	SL200552D5	8.8	SL200801LED	8.8
RXE00X	17.31	SBN240	5.25	SL200552D6	8.8	SL20080219010	8.8
RXU01X	17.31	SBN263	5.25	SL2005539010	8.9	SL20080219011	8.8
RXU03X	17.33	SBN264	5.25	SL2005539011	8.9	SL20080229010	8.8
RXU04X	17.33	SBN280	5.25	SL200553D1	8.9	SL20080259011	8.10
RXU05X	17.33	SBN290	5.25	SL200553D2	8.9	SL20080259011	8.8
RXU06X	17.33	SBN299	5.25	SL200553D3	8.9	SL2008025D1	8.10
S121-22X	17.22	SBN316	5.26	SL200553D5	8.9	SL2008025D1	8.8
S145-22X	17.22	SBN325	5.26	SL200553D6	8.9	SL2008029010	8.8
S155-22X	17.26	SBN332	5.26	SL2005549010	8.9	SL2008029011	8.8
S155-22X	17.35	SBN333	5.26	SL2005549011	8.9	SL200802D1	8.8
S157-22X	17.26	SBN340	5.26	SL200554D1	8.9	SL200802D2	8.8
S157-22X	17.35	SBN363	5.26	SL200554D2	8.9	SL200802D3	8.8
S161-22F	17.21	SBN364	5.26	SL200554D3	8.9	SL200802D4	8.8
S162-22X	17.21	SBN380	5.26	SL200554D4	8.9	SL200802D5	8.8
S163-22X	17.21	SBN390	5.26	SL200554D5	8.9	SL200802D6	8.8
S165-22X	17.21	SBN399	5.26	SL200554D6	8.9	SL2008039010	8.9
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S231-22X	17.24	SBN425	5.26	SL2005569011	8.9	SL200803D1	8.9
S232-22X	17.24	SBN432	5.26	SL200556D1	8.9	SL200803D2	8.9
S233-22X	17.25	SBN433	5.26	SL200556D2	8.9	SL200803D3	8.9
S234-22X	17.25	SBN440	5.26	SL200556D3	8.9	SL200803D4	8.9
S235-22X	17.25	SBN463	5.26	SL200556D4	8.9	SL200803D5	8.9
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S261-22F	17.22	SBN480	5.26	SL200556D6	8.9	SL2008049010	8.9
S262-22F	17.22	SBN490	5.26	SL2005579010	8.9	SL2008049011	8.9
S271-22F	17.23	SBN499	5.26	SL2005579011	8.9	SL200804D1	8.9
S272-22F	17.23	SF263	5.28	SL200557D1	8.9	SL200804D2	8.9
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SL200807D5	8.9	SM015	6.6	SPN040N	4.48	SRF12505	6.11
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UZ415LW	2.101	VD108TJ	1.10	VF112PF	1.13	VS108TF	1.14
UZ416LW	2.101	VD110PF	1.10	VF112PJ	1.13	VS108TJ	1.14
UZ41M5	1.41	VD110PJ	1.10	VF112TF	1.13	VS112PF	1.14
UZ41M5	1.47	VD110TF	1.10	VF112TJ	1.13	VS112PJ	1.14
UZ41M6	1.41	VD110TJ	1.10	VF118PF	1.13	VS112TF	1.14
UZ41M6	1.47	VD112PF	1.10	VF118PJ	1.13	VS112TJ	1.14
UZ42M5	1.41	VD112PJ	1.10	VF118TF	1.13	VS118PF	1.14
UZ42M5	1.47	VD112TF	1.10	VF118TJ	1.13	VS118PJ	1.14
UZ5050W	2.100	VD112TJ	1.10	VF122PF	1.13	VS118TF	1.14
UZ5060W	2.100	VD118PF	1.10	VF122PJ	1.13	VS118TJ	1.14
UZ5070W	2.100	VD118PJ	1.10	VF122TF	1.13	VS122PF	1.14
UZ50A1	1.36	VD118TF	1.10	VF122TJ	1.13	VS122PJ	1.14
UZ50F1	1.49	VD118TJ	1.10	VF212PF	1.13	VS122TF	1.14
UZ51M5	1.41	VD212PF	1.10	VF212PJ	1.13	VS122TJ	1.14
UZ51M5	1.47	VD212PJ	1.10	VF212TF	1.13	VS212PF	1.14
UZ52A1	1.36	VD212TF	1.10	VF212TJ	1.13	VS212PJ	1.14
UZ52M5	1.41	VD212TJ	1.10	VF218PF	1.13	VS212TF	1.14
UZ52M5	1.47	VE103F	1.22	VF218PJ	1.13	VS212TJ	1.14
UZ60100W	2.100	VE103PN	1.24	VF218TF	1.13	VS218PF	1.14
UZ60120W	2.100	VE103SN	1.24	VF218TJ	1.13	VS218PJ	1.14
UZ6040W	2.100	VE105A	1.52	VF312PF	1.13	VS218TF	1.14
UZ6060W	2.100	VE105U	1.52	VF312PJ	1.13	VS218TJ	1.14
UZ6080W	2.100	VE106F	1.22	VF312TF	1.13	VS312PF	1.14
UZ60F1	1.49	VE106PN	1.24	VF312TJ	1.13	VS312PJ	1.14
UZ61M5	1.41	VE106SN	1.24	VF318PF	1.13	VS312TF	1.14
UZ61M5	1.47	VE109A	1.52	VF318PJ	1.13	VS312TJ	1.14
UZ62M5	1.41	VE110F	1.22	VF318TF	1.13	VS318PF	1.14
UZ62M5	1.47	VE110PN	1.24	VF318TJ	1.13	VS318PJ	1.14
UZ70F1	1.49	VE110SN	1.24	VF412PF	1.13	VS318TF	1.14
UZ80100W	2.100	VE112F	1.22	VF412PJ	1.13	VS318TJ	1.14
UZ80120W	2.100	VE112PN	1.24	VF412TF	1.13	VS412PF	1.14
UZ80140W	2.100	VE112SN	1.24	VF412TJ	1.13	VS412PJ	1.14
UZ80160W	2.100	VE118F	1.22	VF418PF	1.13	VS412TF	1.14
UZ8060W	2.100	VE118PN	1.24	VF418PJ	1.13	VS412TJ	1.14
UZ8080W	2.100	VE118SN	1.24	VF418TF	1.13	VS418PF	1.14
VA12D	1.16	VE212F	1.22	VF418TJ	1.13	VS418PJ	1.14
VA24D	1.16	VE212PN	1.24	VR108PF	1.11	VS418TF	1.14
VA36D	1.16	VE212SN	1.24	VR108PJ	1.11	VS418TJ	1.14
VA48D	1.16	VE218F	1.22	VR108TF	1.11	VT04FM - NT	1.4
VB118B	1.17	VE218PN	1.24	VR108TJ	1.11	VT04MF	1.5
VB118R	1.17	VE218SN	1.24	VR112PF	1.11	VT04MS	1.5
VB218B	1.17	VE312F	1.22	VR112PJ	1.11	VT04PNF	1.5
VB218R	1.17	VE312PN	1.24	VR112TF	1.11	VT04PNS	1.5
VB318B	1.17	VE312SN	1.24	VR112TJ	1.11	VT04SM - NT	1.4
VB318R	1.17	VE318F	1.22	VR118PF	1.11	VT04TF	1.5
VB418B	1.17	VE318PN	1.24	VR118PJ	1.11	VT04TS	1.5
VB418R	1.17	VE318SN	1.24	VR118TF	1.11	VT06FM - NT	1.4
VD101NF	1.10	VE412F	1.22	VR118TJ	1.11	VT06SM - NT	1.4
VD102NF	1.10	VE412PN	1.24	VR212PF	1.11	VT08FM - NT	1.4

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VT10FM - NT	1.4	VZ041VB	1.18	VZ604N	1.15	VZ910N	1.12
VT10SM - NT	1.4	VZ111N	1.21	VZ605N	1.15	VZ911N	1.12
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VT12MF	1.5	VZ113N	1.21	VZ607N	1.15	VZ913N	1.12
VT12MS	1.5	VZ114N	1.21	VZ608N	1.15	VZ914N	1.12
VT12PNF	1.5	VZ115N	1.21	VZ609N	1.15	VZ915N	1.12
VT12PNS	1.5	VZ118P	1.17	VZ610N	1.15	VZ916N	1.12
VT12SM - NT	1.4	VZ118T	1.17	VZ621N	1.15	VZ917N	1.12
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VT16PNS	1.5	VZ218P	1.17	VZ628N	1.15	VZ924N	1.12
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