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

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.

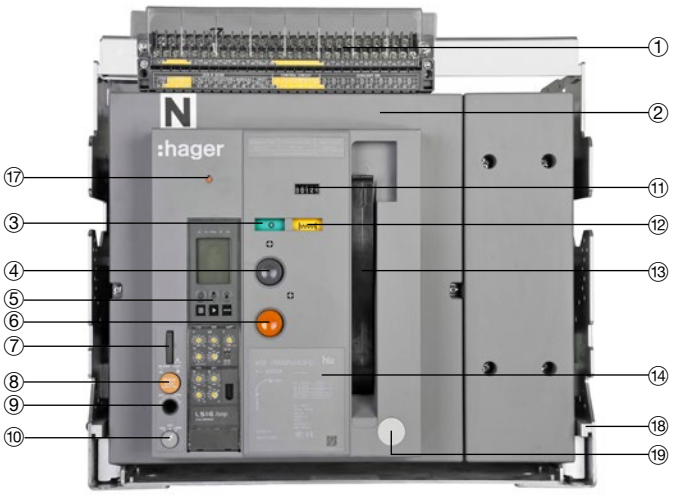
Characteristics of OCR

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)**	• 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”: • “+” corresponds to the normal direction of flow, i.e from the top on the acb to the bottom; • “-” is the opposite.

Front

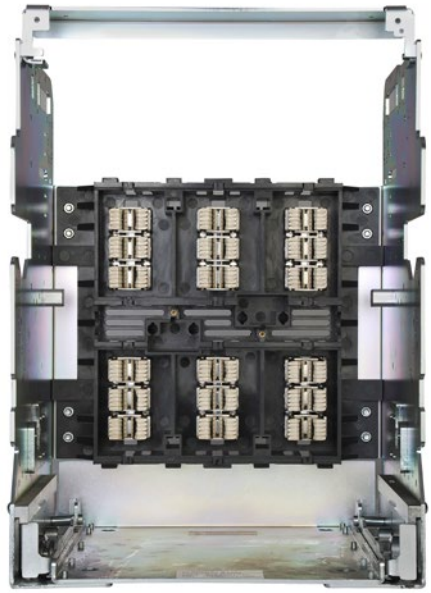
Fixed type

Draw-out type

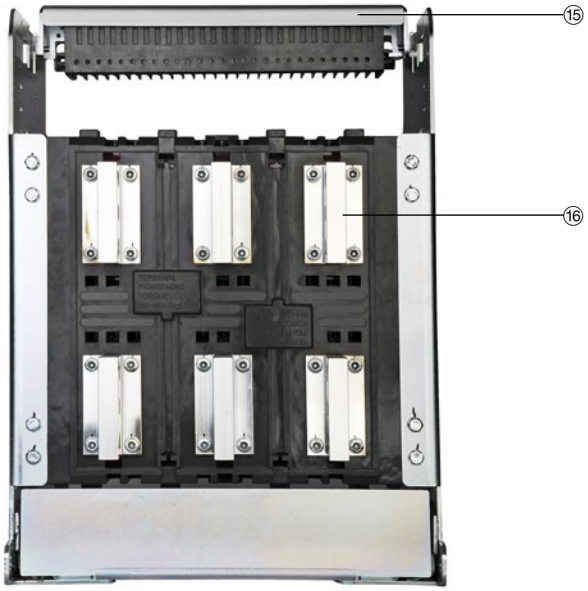


Chassis

Inside

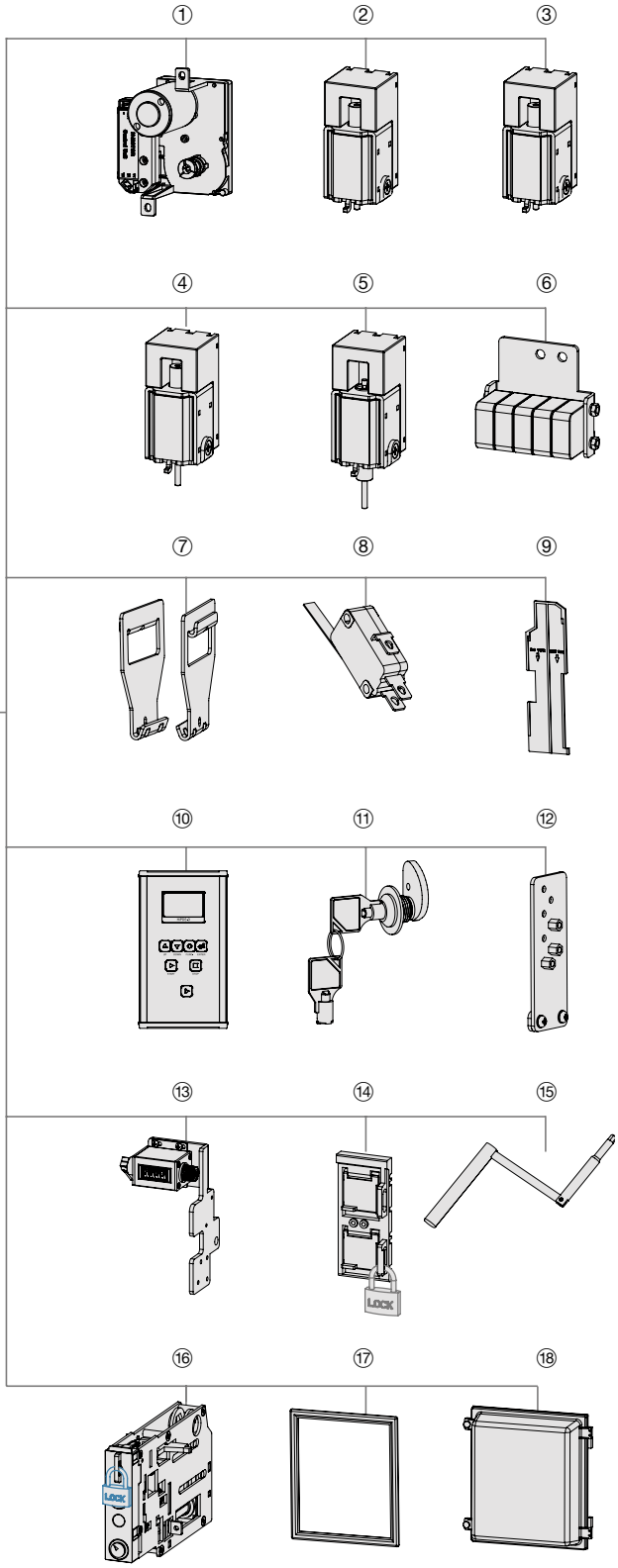


Rear



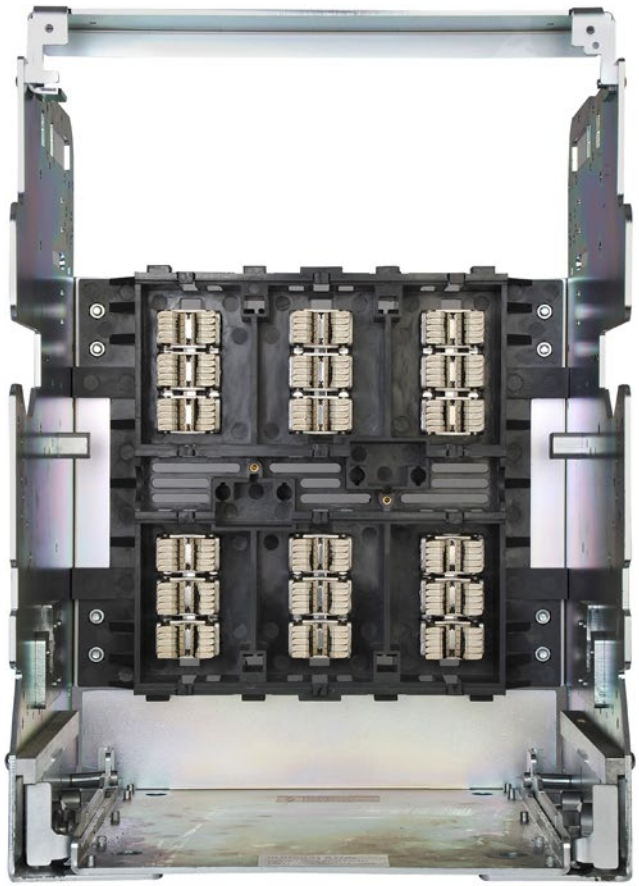
① Control terminal
② Front cover
③ Close/Open indicator
④ Close button
⑤ Protection trip relay (OCR)
⑥ Open button
⑦ Position lock device
⑧ Position lock release button
⑨ Draw-in/out handle insertion hole
⑩ Position indicator
⑪ Counter
⑫ Charged/Discharged indicator
⑬ Manual charging handle
⑭ Name plate
⑮ Arc shield
⑯ Terminal connection
⑰ OCR & Alarm switch reset button
⑱ Draw-in/out guide rail
⑲ Draw-in/out handle

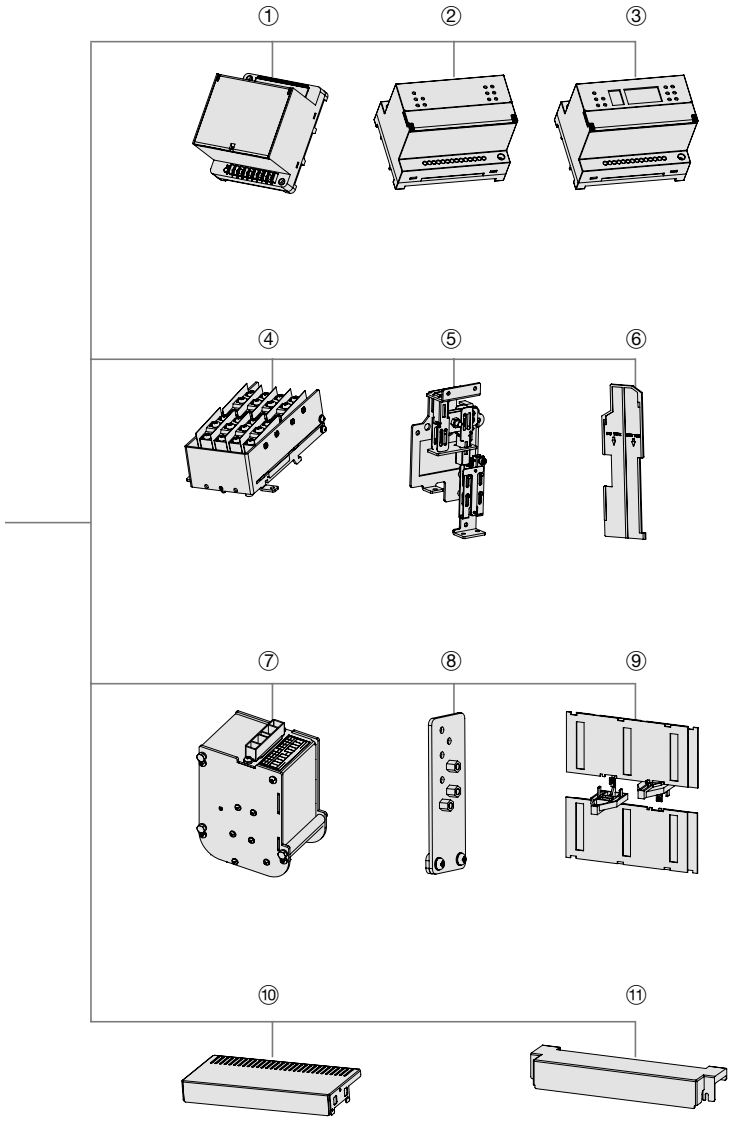
Body side



① Motor operator
② Closing coil
③ Shunt trip coil
④ Second shunt trip coil
⑤ Under voltage trip coil
⑥ Auxiliary switch
⑦ Lifting lug
⑧ Ready to close
⑨ Phase insulation barrier
⑩ OCR portable checker
⑪ Key lock device
⑫ Wrong insertion preventer
⑬ Counter
⑭ ON/OFF button cover
⑮ Draw-in/out handle
⑯ Draw-in/out mechanism
⑰ Door flange
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

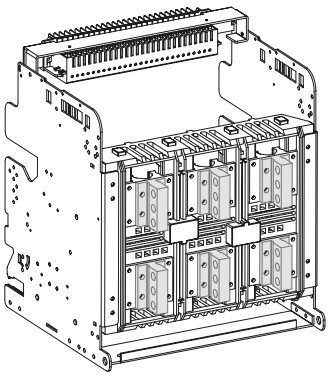
Accessories included as standard:
- Auxiliary switch 4NO/5NC
- Door flange for IP30
- Safety shutter lock (for draw-out type)
- Rotary handle (for draw-out type)

Flexible terminal connections

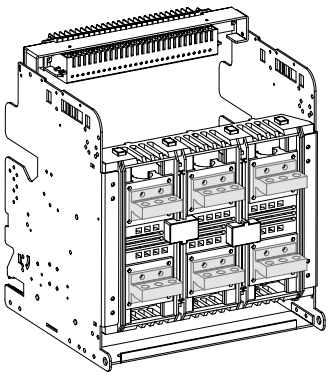
Connectors can be set horizontally and vertically, which allows an easy mounting by adapting their position to the busbars.
Horizontal/vertical terminals rotate at 90° to make easier panel builder's convenience regarding busbar connection. [1)]

Standard connection

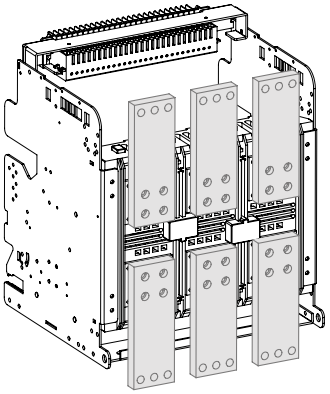
Vertical



Horizontal

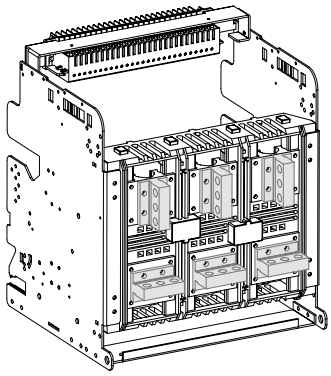


Front

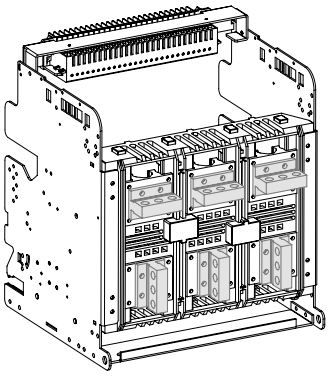


Mixed connection (top / bottom)

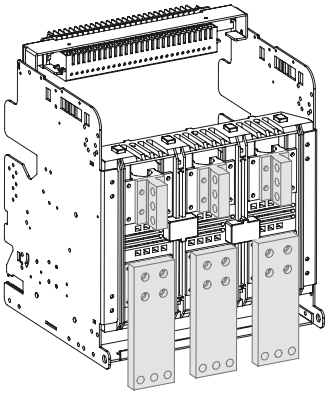
Vertical / horizontal



Horizontal / vertical



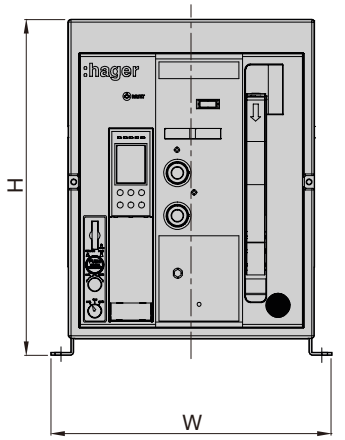
Vertical / front



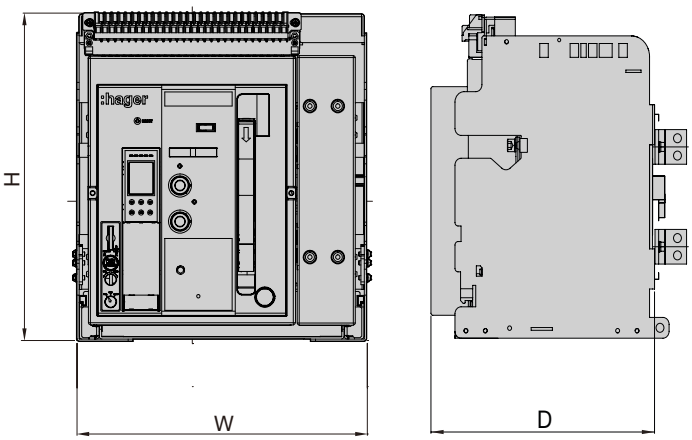
[1)] For frame A up to 1600A and frame B up to 3200A.

Frame				**A**		**B**			**C**
Type				H	N	N	S	P	P
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			5000		up to 2000A: 10000			2000
						from 2500A: 5000			
	with maintenance			10000		up to 2000A: 15000			5000
						from 2500A: 10000			
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			76
						4000A: 61			
		4 pole		44		up to 3200A: 55			81
						4000A: 81			
	draw-out type	3 pole		63		up to 3200A: 87			145
						4000A: 107			
		4 pole		80		up to 3200A: 130			173
						4000A: 161			

Fixed type

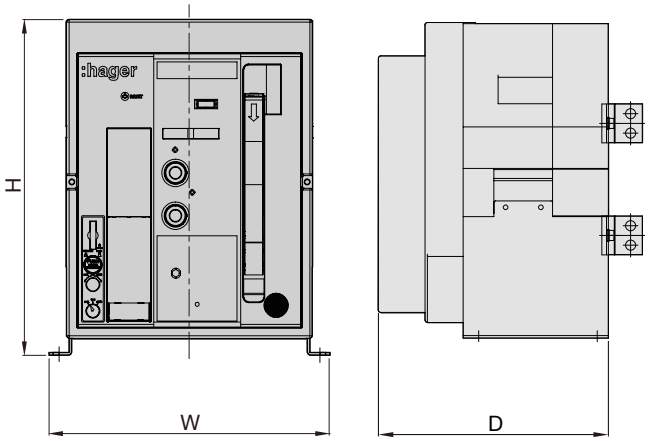


Draw-out type

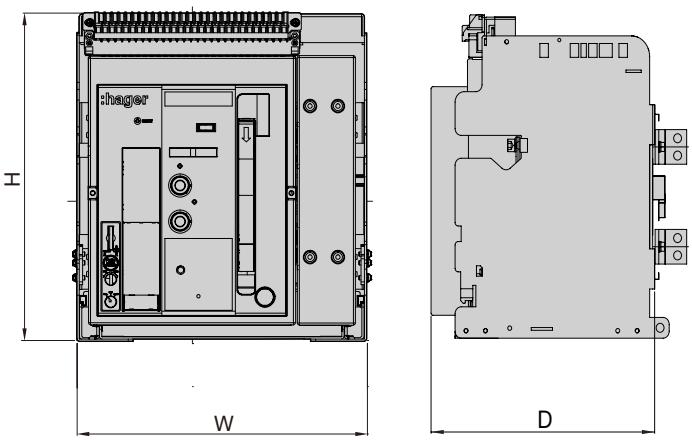


Frame				**A**	**B**	**C**
Type				N.....A	N.....A	P.....A
Rated current			A	630-2000	630-4000	3200-5000
Rated operating voltage (Ue)			V	690		
Rated insulation voltage (Ui)			V	1000		
Rated impulse withstand voltage (Uimp)			KV	12		
Frequency			Hz	50/60		
Number of poles			poles	3-4		
Rated current 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		times	20000	15000	10000
	with maintenance			30000	20000	20000
Electrical life cycle	without maintenance			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

HWBN416ED

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**

Air Circuit Breakers, frame B

Icu=Ics=85KA
Icu=Ics=Icw

HWBS416ED

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**

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**

HWCP432ED

Air Circuit Breakers, frame C

Icu=Ics=100KA
Icw=85KA

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

HWAN416EDA

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**

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

Icw=85kA (1s)
Icw=65 kA (3s)

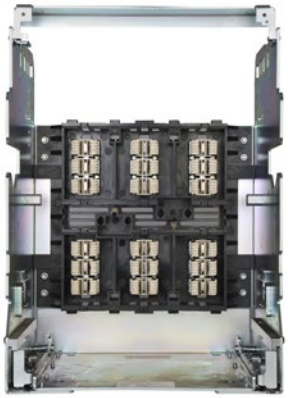
Description	Rating (A)	Nr. of poles	Cat. ref. draw-out type	fixed type
switch disconnector, frame B	630	3	**HWBP306EDA**	**HWBP306EFA**
switch disconnector, frame B	800	3	**HWBP308EDA**	**HWBP308EFA**
switch disconnector, frame B	1000	3	**HWBP310EDA**	**HWBP310EFA**
switch disconnector, frame B	1250	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

Icw=85kA (1s)
Icw=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**

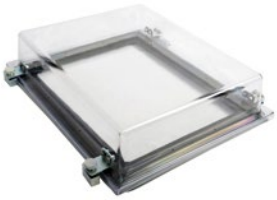
Mechanical operated cell switch (additional AX)

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

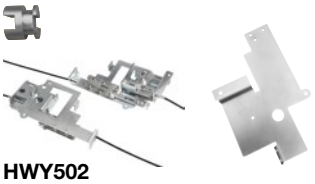
Description	Pack qty.	Cat. ref.
type 1 - AA	1	**HWY706**
type 2 - AB	1	**HWY707**
type 3 - A_	1	**HWY708**
adaptor kit for Castell locks	1	**HWY698**

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	**HWW065**

OCR portable checker

Description	Pack qty.	Cat. ref.
OCR portable checker	1	**HWY649**

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**

HWY660

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**

HWY644

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			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 mm²				185 mm² (cage)			120 mm² (cage)			120 mm² (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 mm² (cage)		240 mm² (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		

		In	Nbr of poles	MCCB								Trip free switches	Add-on-blocks		Collar terminals		Extended connections		Rear connection
	Trip unit		Trip unit/ pole	18kA fix/fix	18kA adj./fix	25kA fix/fix	25kA adj./fix	40kA fix/fix	40kA adj./fix	40kA adj./adj.	40kA magnetic -/fix	3P 4P	fix 300mA	adjustable	Simple Alu x160 (Alu/Cu for x250)	Simple Alu/Cu 240 mm²	Straight	Spreader	
x160	TM	16A	1P-1d	HDA014Z		HHA014Z											HYA013H		
			2P-2d	HDA015Z		HHA015Z													
			3P-3d	HDA016Z		HHA016Z		HNA016Z			HNA016M		HBA127H	HBA125H	HYA005H			HYA014H	
			4P-4d	HDA017Z		HHA017Z		HNA017Z			HNA017M		HBA128H	HBA126H	HYA006H			HYA015H	
		20A	1P-1d	HDA018Z		HHA018Z													
			2P-2d	HDA019Z		HHA019Z													
			3P-3d	HDA020Z		HHA020Z		HNA020Z			HNA020M		HBA127H	HBA125H	HYA005H			HYA014H	
			4P-4d	HDA021Z		HHA021Z		HNA021Z			HNA021M		HBA128H	HBA126H	HYA006H			HYA015H	
		25A	1P-1d	HDA023Z		HHA023Z													
			2P-2d	HDA024Z		HHA024Z													
			3P-3d	HDA025Z	HDA025U	HHA025Z	HHA025U	HNA025Z	HNA025U		HNA025M		HBA127H	HBA125H	HYA005H			HYA014H	
			4P-4d	HDA026Z	HDA026U	HHA026Z	HHA026U	HNA026Z	HNA026U		HNA026M		HBA128H	HBA126H	HYA006H			HYA015H	
		32A	1P-1d	HDA030Z		HHA030Z													
			2P-2d	HDA031Z		HHA031Z													
			3P-3d	HDA032Z		HHA032Z		HNA032Z			HNA032M		HBA127H	HBA125H	HYA005H			HYA014H	
			4P-4d	HDA033Z		HHA033Z		HNA033Z			HNA033M		HBA128H	HBA126H	HYA006H			HYA015H	
		40A	1P-1d	HDA038Z		HHA038Z													
			2P-2d	HDA039Z		HHA039Z													
			3P-3d	HDA040Z	HDA040U	HHA040Z	HHA040U	HNA040Z	HNA040U		HNA040M		HBA127H	HBA125H	HYA005H			HYA014H	
			4P-4d	HDA041Z	HDA041U	HHA041Z	HHA041U	HNA041Z	HNA041U		HNA041M		HBA128H	HBA126H	HYA006H			HYA015H	
		50A	1P-1d	HDA048Z		HHA048Z													
			2P-2d	HDA049Z		HHA049Z													
			3P-3d	HDA050Z		HHA050Z		HNA050Z			HNA050M		HBA127H	HBA125H	HYA005H			HYA014H	
			4P-4d	HDA051Z		HHA051Z		HNA051Z			HNA051M		HBA128H	HBA126H	HYA006H			HYA015H	
		63A	1P-1d	HDA061Z		HHA061Z													
			2P-2d	HDA062Z		HHA062Z													
			3P-3d	HDA063Z	HDA063U	HHA063Z	HHA063U	HNA063Z	HNA063U		HNA063M		HBA127H	HBA125H	HYA005H			HYA014H	
			4P-4d	HDA064Z	HDA064U	HHA064Z	HHA064U	HNA064Z	HNA064U		HNA064M		HBA128H	HBA126H	HYA006H			HYA015H	
		80A	1P-1d	HDA078Z		HHA078Z													
			2P-2d	HDA079Z		HHA079Z													
			3P-3d	HDA080Z	HDA080U	HHA080Z	HHA080U	HNA080Z	HNA080U		HNA080M		HBA127H	HBA125H	HYA005H			HYA014H	
			4P-4d	HDA081Z	HDA081U	HHA081Z	HHA081U	HNA081Z	HNA081U		HNA081M		HBA128H	HBA126H	HYA006H			HYA015H	
		100A	1P-1d	HDA098Z		HHA098Z													
			2P-2d	HDA099Z		HHA099Z													
			3P-3d	HDA100Z	HDA100U	HHA100Z	HHA100U	HNA100Z	HNA100U		HNA100M		HBA127H	HBA125H	HYA005H			HYA014H	
			4P-4d	HDA101Z	HDA101U	HHA101Z	HHA101U	HNA101Z	HNA101U		HNA101M		HBA128H	HBA126H	HYA006H			HYA015H	
		125A	1P-1d	HDA123Z		HHA123Z													
			2P-2d	HDA124Z		HHA124Z													
			3P-3d	HDA125Z	HDA125U	HHA125Z	HHA125U	HNA125Z	HNA125U		HNA125M	HCA125Z	HBA127H	HBA125H	HYA005H			HYA014H	
			4P-4d	HDA126Z	HDA126U	HHA126Z	HHA126U	HNA126Z	HNA126U		HNA126M	HCA126Z	HBA128H	HBA126H	HYA006H			HYA015H	
		160A	1P-1d																
			2P-2d	HDA159Z		HHA159Z													
			3P-3d	HDA160Z	HDA160U	HHA160Z	HHA160U	HNA160Z	HNA160U		HNA160M	HCA160Z		HBA160H	HYA005H			HYA014H	
			4P-4d	HDA161Z	HDA161U	HHA161Z	HHA161U	HNA161Z	HNA161U		HNA161M	HCA161Z		HBA161H	HYA006H			HYA015H	
x250	TM	100A	3P-3d			HHB100P		HNB100P		HNB100S					HYB001H	HYB005H	HYB010H	HYB011H	HYB031H
			4P-3d/4d			HHB101P		HNB101P		HNB101S				HBB161H	HYB002H	HYB006H		HYB012H	HYB032H
			4P-3dN/2																
		125A	3P-3d			HHB125P		HNB125P		HNB125S					HYB001H	HYB005H		HYB011H	HYB031H
			4P-3d/4d			HHB126P		HNB126P		HNB126S				HBB161H	HYB002H	HYB006H		HYB012H	HYB032H
			4P-3dN/2																
		160A	3P-3d			HHB160P		HNB160P		HNB160S					HYB001H	HYB005H		HYB011H	HYB031H
			4P-3d/4d			HHB161P		HNB161P		HNB161S				HBB161H	HYB002H	HYB006H		HYB012H	HYB032H
			4P-3dN/2																
		200A	3P-3d			HHB200P		HNB200P		HNB200S					HYB001H	HYB005H		HYB011H	HYB031H
			4P-3d/4d			HHB201P		HNB201P		HNB201S				HBB161H	HYB002H	HYB006H		HYB012H	HYB032H
			4P-3dN/2																
		250A	3P-3d			HHB250P		HNB250P		HNB250S		HCB250P			HYB001H	HYB005H		HYB011H	HYB031H
			4P-3d/4d			HHB251P		HNB251P		HNB251S		HCB251P		HBB251H	HYB002H	HYB006H		HYB012H	HYB032H
			4P-3dN/2																

x160 - x250	Auxiliary contact 1NO + 1NC	Auxiliary alarm contact 1NO + 1NC	Auxiliary low level contact 1NO + 1NC	Auxiliary alarm low level contact 1NO + 1NC	
Auxiliary contact	HXA021H	HXA024H	HXA025H	HXA026H	
Coil voltage	**24V DC**	**48V DC**	**110V AC**	**230V AC**	**400V AC**
Shunt trip	HXA001H	HXA002H	HXA003H	HXA004H	HXA005H
Undervoltage release	HXA011H		HXA013H	HXA014H	HXA015H
Undervoltage release delayed	HXA051H		HXA053H	HXA054H	HXA055H

Inter-phase barrier	Terminal cover				Rotary handle		DIN rail		Motor		Accessories		Mechanical interlocking				Electrical interlocking	
	Straight	Spreader	Rear connection	Collar terminal	Direct	On door	Adaptor	Raiser	24V DC -48V DC	110 - 230V AC	Padlocks	Connection 6 wires 6x0,75 mm^2	Full interlocking kit	Interlocking unit	Cable l = 1 m	Cable l = 1,5 m	Cable link x250 and/or h250	Cable link (x250 or h250) and (h630 or h1000)
HYA019H					HXA030H	HYA031H	HYA033H	HYA036H			HXA039H	HYA035H							
	HYA021H	HYA023H		HYA027H															
	HYA022H	HYA024H		HYA028H															
	HYA021H	HYA023H		HYA027H															
	HYA022H	HYA024H		HYA028H															
	HYA021H	HYA023H		HYA027H															
	HYA022H	HYA024H		HYA028H															
	HYA021H	HYA023H		HYA027H															
	HYA022H	HYA024H		HYA028H															
	HYA021H	HYA023H		HYA027H															
	HYA022H	HYA024H		HYA028H															
	HYA021H	HYA023H		HYA027H															
	HYA022H	HYA024H		HYA028H															
	HYA021H	HYA023H		HYA027H															
	HYA022H	HYA024H		HYA028H															
	HYA021H	HYA023H		HYA027H															
	HYA022H	HYA024H		HYA028H															
	HYA021H	HYA023H		HYA027H															
	HYA022H	HYA024H		HYA028H															
	HYA021H	HYA023H		HYA027H															
	HYA022H	HYA024H		HYA028H															
	HYA021H	HYA023H		HYA027H															
	HYA022H	HYA024H		HYA028H															
HYB019H	HYB021H	HYB023H	HYB025H	HYB027H	HXB030H	HXB031H	HYB033H	HYA036H	HXB040H	HXB042H	HXA039H	HYA035H	HXB065H	HXB066H	HXB070H	HXB071H	HXB068H	HXB069H
	HYB022H	HYB024H	HYB026H	HYB028H															
	HYB021H	HYB023H	HYB025H	HYB027H															
	HYB022H	HYB024H	HYB026H	HYB028H															
	HYB021H	HYB023H	HYB025H	HYB027H															
	HYB022H	HYB024H	HYB026H	HYB028H															
	HYB021H	HYB023H	HYB025H	HYB027H															
	HYB022H	HYB024H	HYB026H	HYB028H															
	HYB021H	HYB023H	HYB025H	HYB027H															
	HYB022H	HYB024H	HYB026H	HYB028H															

		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
	Trip unit		Trip unit per pole	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	Simple 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	
			4P-3dNr		HNG033U									HYC004H	HYB006H			HYB012H	
		63A	3P-3d	HHG063U	HNG063U	HEG063U								HYC003H	HYB005H			HYC011H	
			4P-3dNr		HNG064U	HEG064U								HYC004H	HYB006H			HYB012H	
		100A	3P-3d	HHG100U	HNG100U	HEG100U								HYC003H	HYB005H			HYC011H	
			4P-3dNr		HNG101U	HEG101U								HYC004H	HYB006H			HYB012H	
		125A	3P-3d	HHG125U	HNG125U	HEG125U								HYC003H	HYB005H			HYC011H	
			4P-3dNr		HNG126U	HEG126U								HYC004H	HYB006H			HYB012H	
		160A	3P-3d	HHG160U	HNG160U	HEG160U								HYC003H	HYB005H			HYC011H	
			4P-3dNr		HNG161U	HEG161U								HYC004H	HYB006H			HYB012H	
		200A	3P-3d	HHG200U	HNG200U	HEG200U								HYC003H	HYB005H			HYC011H	
			4P-3dNr		HNG201U	HEG201U								HYC004H	HYB006H			HYB012H	
		250A	3P-3d	HHG250U	HNG250U	HEG250U								HYC003H	HYB005H			HYC011H	
			4P-3dNr		HNG251U	HEG251U								HYC004H	HYB006H			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	
			4P-3dNr		HNC126H		HEC126H							HYC004H	HYB006H			HYB012H	
		250A	3P-3d		HNC250H		HEC250H							HYC003H	HYB005H			HYC011H	
			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	HYD019H
		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

	ORC sealing covers	Rear connec-tions	Terminal covers				Rotary handle		Motors		Accessories		Mechanical interlocking				Electrical interlocking	
			Straight	Spreader							Padlock	Connection 6 wires 6x0,75 mm2	Full kit for 2 h250 MCCBs	Inter-locking adaptator	Cable length = 1m	Cable length = 1,5m	Link cable between 2 MCCBs same size	Link cable between (x250 or h250) and (h630 or h1000)
	HYG041H		HYG021H			HYC027H	HXC030H	HXC031H	HXC040H	HXC042H	HXC039H	HYA035H	HXC065H	HXC066H	HXB070H	HXB071H	HXB068H	HXB069H
			HYG022H			HYC028H												
			HYG021H			HYC027H												
			HYG022H			HYC028H												
			HYG021H			HYC027H												
			HYG022H			HYC028H												
			HYG021H			HYC027H												
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			HYG022H			HYC028H												
			HYG021H			HYC027H												
			HYG022H			HYC028H												
			HYG021H			HYC027H												
			HYG022H			HYC028H												
	HYC041H	HYC031H	HYC021H		HYC025H	HYC027H												
		HYC032H	HYC022H		HYC026H	HYC028H												
		HYC031H	HYC021H		HYC025H	HYC027H												
		HYC032H	HYC022H		HYC026H	HYC028H												
		HYC031H	HYC021H		HYC025H	HYC027H												
		HYC032H	HYC022H		HYC026H	HYC028H												
		HYD031H	HYD021H	HYD023H	HYD025H	HYD027H	HXD030H	HXD031H	HXD040H	HXD042H	HXD039H	HYA035H	HXD065H	HXD066H	HXB070H	HXB071H	HXD068H	HXB069H
		HYD032H	HYD022H	HYD024H	HYD026H	HYD028H												
		HYD031H	HYD021H	HYD023H	HYD025H	HYD027H												
		HYD032H	HYD022H	HYD024H	HYD026H	HYD028H												
		HYD031H	HYD021H	HYD023H	HYD025H	HYD027H												
		HYD032H	HYD022H	HYD024H	HYD026H	HYD028H												
		HYD031H	HYD021H	HYD023H	HYD025H	HYD027H												
		HYD032H	HYD022H	HYD024H	HYD026H	HYD028H												
		HYD033H	HYD021H	HYD023H	HYD025H	HYD027H												
		HYD034H	HYD022H	HYD024H	HYD026H	HYD028H												
		HYE031H	HYE021H		HYE025H		HXE030H	HXE031H	HXE040H	HXE042H	HXD039H	HYA035H	HXE065H	HXE066H	HXB070H	HXB071H	HXD068H	HXB069H
		HYE032H	HYE022H		HYE026H													
		HYE033H	HYE021H		HYE025H													
		HYE034H	HYE022H		HYE026H													
							HXF030H	HXF031H	HXF040H	HXF042H	HXF039H	HYA035H						

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**
	160	-	**HDA159Z**	**HDA160Z**	**HDA161Z**
adjustable thermal 0.63 - 0.8 - 1 x In fixed magnetic > 10 x In	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**
	160	-	**HHA159Z**	**HHA160Z**	**HHA161Z**
adjustable thermal 0.63 - 0.8 - 1 x In fixed magnetic > 10 x In	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 Icu: 40kA (400/415 V AC)

Description	In (A)	Cat. ref. 3P	4P
fixed thermal 1 x In fixed magnetic > 10 x In	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**
	160	**HNA160Z**	**HNA161Z**
adjustable thermal 0.63 - 0.8 - 1 x In fixed magnetic > 10 x In	25	**HNA025U**	**HNA026U**
	40	**HNA040U**	**HNA041U**
	63	**HNA063U**	**HNA064U**
	80	**HNA080U**	**HNA081U**
	100	**HNA100U**	**HNA101U**
	125	**HNA125U**	**HNA126U**
	160	**HNA160U**	**HNA161U**

HNA125M

Magnetic MCCBs x160 40kA

Breaking capacity Icu: 40kA (400/415 V AC)

Description	In (A)	Cat. ref. 3P	4P
fixed magnetic > 10 x In	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% IΔn).

Assembly and disassembly facilitated by the drawer assembly system. The terminal cover is dependent of the add-on block.

Connection capacity
95 mm^2 rigid cables
70 mm^2 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
IΔn 300 mA fixed sensitivity instantaneous tripping	16	**HBA127H**	**HBA128H**
sensitivity IΔn adjustable: 0.03 - 0.1 - 0.3 - 1 - 3 - 6A adjustable tripping: - instantaneous - time delay: 0.06 - 0.15 - 0.3 - 0.5 - 1s	125	**HBA125H**	**HBA126H**
	160	**HBA160H**	**HBA161H**

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 mm^2 rigid cables
Comply with IEC 60 947-2.

Trip-free switches
Allows tripping at distance using a voltmetrical 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 fixed magnetic ≥10 x In	100	**HHB100P**	**HHB101P**
	125	**HHB125P**	**HHB126P**
	160	**HHB160P**	**HHB161P**
	200	**HHB200P**	**HHB201P**
	250	**HHB250P**	**HHB251P**

HNB100P

HNB100S

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 fixed magnetic ≥ 10 x In	100	**HNB100P**	**HNB101P**
	125	**HNB125P**	**HNB126P**
	160	**HNB160P**	**HNB161P**
	200	**HNB200P**	**HNB201P**
	250	**HNB250P**	**HNB251P**
adjustable thermal 0.63 - 0.8 - 1x In adjustable magnetic 6 - 8 - 10 - 13 x In (100 - 200A) 5 - 7 - 9 - 11 x In (250A) 3P, 3 trip units - 4P, neutral setting: 0 or 100%	100	**HNB100S**	**HNB101S**
	125	**HNB125S**	**HNB126S**
	160	**HNB160S**	**HNB161S**
	200	**HNB200S**	**HNB201S**
	250	**HNB250S**	**HNB251S**

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**

HBB251H

Add-on blocks

Description	In (A)	Cat. ref. 3P	4P
adjustable sensitivity IΔn: 0.03 - 0.1 - 0.3 - 1 - 3 - 6A adjustable tripping: - instantaneous - time delay: 0.06 - 0.15 - 0.3 - 0.5 - 1 sec	160	**-**	**HBB161H**
	250	-	**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 mm^2 flexible or rigid cables
Optional connection cables.
The cable capacity of the terminals is 0.5 to 1.25 mm^2.

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**

HXB030H

Direct rotary handle

Description	Cat. ref.
padlockable handle, max Ø 6 mm	**HXB030H**

HXB031H

Extended rotary handle

Description	Cat. ref.
padlockable handle max Ø 8 mm	**HXB031H**

HXA039H

Padlocks

to mount on MCCB for handle locking

Description	Cat. ref.
for 3 padlock max Ø 8 mm	**HXA039H**

HXB042H

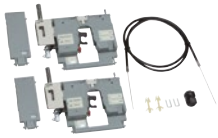
Motor operators

Description	Cat. ref.
24V DC	**HXB040H**
230 - 240V AC	**HXB042H**

HXB068H

Electrical interlocks

Description	Cat. ref.
between motors for (x250 or h250)	**HXB068H**
between motors for (x250 or h250) and (h630 or h1000)	**HXB069H**



HXB065H

Interlocking kit

Description	Cat. ref.
interlocking kit for 2 MCCB's x250	**HXB065H**

HXB066H

Interlocking unit

Description	Cat. ref.
interlocking unit for x250 MCCB	**HXB066H**

Interlocking mechanical cables

Description	Cat. ref.
1 m	**HXB070H**
1.5 m	**HXB071H**

HYB002H

Collar terminals

Description	Cat. ref. 3P	4P
4 aluminium / copper conductors 150 mm² rigid cables 120 mm² flexible cables	**HYB001H**	**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 mm², set of 3 x 2 wires, length: 1.30m	**HYA035H**

Ring lugs

Description	Cat. ref.
compact lugs 35 mm² Ø8.5	**HYA088H**
compact lugs 50 mm² Ø8.5	**HYA089H**
compact lugs 70 mm² Ø8.5	**HYA090H**
compact lugs 95 mm² Ø8.5	**HYA091H**
compact lugs 120 mm² Ø8.5	**HYB092H**
compact lugs 150 mm² 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.

Electronic trip unit LSI
Long delay (thermal equivalent) adjustable: Ir = 0.4 to 1 x In
short delay (magnetic equivalent) adjustable: 2.5 to 10 x Ir
time delay: 0.1 - 0.2 s
3P & 4P
Mechanical test button, sealable 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.

HHG250U

MCCBs h250 25kA TM

breaking capacity Icu: 25kA (400/415 V AC)
Ics: 19kA

Description	In (A)	Cat. ref. 3P	4P
adjustable thermal 0.63 to 1 x In adjustable magnetic 6 - 8 - 10 - 13 x In	20	**HHG020U**	**-**
	32	**HHG032U**	**-**
	63	**HHG063U**	**-**
	100	**HHG100U**	**-**
	125	**HHG125U**	**-**
	160	**HHG160U**	**-**
	200	**HHG200U**	**-**
	250	**HHG250U**	**-**

MCCBs h250 50kA TM

breaking capacity Icu: 30 kA (20-32A)
Icu: 50 kA (400/415 V AC)
Ics: 25 kA

Description	In (A)	Cat. ref. 3P	4P
adjustable thermal 0.63 to 1 x In adjustable magnetic 6 - 8 - 10 - 13 x In	20	**HNG020U**	**HNG021U**
	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 Icu: 65 kA (400/415 V AC)
Ics: 36 kA

Description	In (A)	Cat. ref. 3P	4P
adjustable thermal 0.63 to 1 x In adjustable magnetic 6 - 8 - 10 - 13 x In	63	**HEG063U**	**HEG064U**
	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 Ir = 0.4 to 1 x In adjustable magnetic 2.5 to 10 x Ir	40	**HNC040H**	**HNC041H**
	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 Ir = 0.4 to 1 x In adjustable magnetic 2.5 to 10 x Ir	40	**HEC040H**	**HEC041H**
	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	Cat. ref.
padlockable handle, max Ø 5-8 mm	**HXC030H**

HXC030H

Extended rotary handle

Description	Cat. ref.
padlockable handle max Ø 5-8 mm	**HXC031H**

Padlocks

to mount on MCCB for handle locking

Description	Cat. ref.
for 3 padlocks max Ø 5 mm	**HXC039H**

HXC039H

Motor operators

Description	Cat. ref.
24V DC	**HXC040H**
230 - 240V AC	**HXC042H**

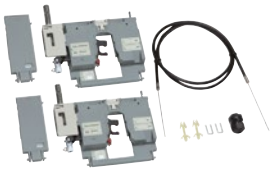
HXC042H

Electrical interlocks

Description	Cat. ref.
for motor type A (x250-x250, x250-h250, h250-h250)	**HXD068H**
for motor type B (x250-h630, x250-h1000, h250-h630, h250-h1000)	**HXB069H**

Interlocking kit

Description	Cat. ref.
full mechanical interlocking kit for 2 x250 MCCBs	**HXC065H**
mechanical interlocking adaptor for x250 MCCBs	**HXC066H**



HXC065H

Interlocking mechanical cable

Description	Cat. ref.
1 m	**HXB070H**
1.5 m	**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. 3P	4P
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. 3P	4P
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. 3P	4P
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. 3P	4P
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: Ir = 0.4 to 1 x In
- short delay (magnetic equivalent) adjustable:
  2.5 to 10 x Ir (400A)
  2.5 to 8 x Ir (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 adjustable magnetic: 6 to 12 x In	250	**HHD250U**	-
	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 adjustable magnetic: 6 to 12 x In	250	**HND250U**	**HND251U**
	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: Ir = 0.4 to 1 x In adjustable magnetic: 2.5 to 10 x Ir (250-400A) 2.5 to 8 x Ir (630A) time delay: 0.1 - 0.2 s	400	**HND400H**	**HND401H**
	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: Ir = 0.4 to 1 x In adjustable magnetic: 2.5 to 10 x Ir (250-400A) 2.5 to 8 x Ir (630A) time delay: 0.1 - 0.2 s	400	**HED400H**	**HED401H**
	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% IΔn).

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: 0.75mm^2 flexible or rigid cables
Optional connection cables.
The cable capacity of the terminals is 0.5 to 1.25 mm^2.

MCCBs h630 70kA LSI plug in

equipped with pins and terminals covers
breaking capacity Icu: 70 kA (400/415 V AC)
Ics: 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
Ue: 415 V AC
Icw (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 IΔn: 0.03 - 0.1 - 0.3 - 1 - 3 - 6A adjustable tripping instantaneous time delay: 0.06s - 0.15s - 0.3s - 0.5 - 1s	400	-	**HBD401H**
	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 mm², set of 3 x 2 wires, length: 1.30m	**HYB033H**

Ring lugs

Description	Cat. ref.
compact lugs 35 mm² Ø8.5	**HYA088H**
compact lugs 50 mm² Ø8.5	**HYA089H**
compact lugs 70 mm² Ø8.5	**HYA090H**
compact lugs 95 mm² Ø8.5	**HYA091H**
compact lugs 120 mm² Ø8.5	**HYB092H**
compact lugs 150 mm² 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.

Moulded case circuit breakers h1000
Electronic trip unit LSI:
- long delay (thermal equivalent)
  adjustable: Ir= 0.4 to 1 x In
- short delay (magnetic equivalent) adjustable:
  2.5 to 10 x Ir (630-800A) and 2.5 to 8 x Ir (1000A)
- 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.

Trip-free switches
Allows tripping at distance using a voltmetrical trip unit (optional)
Comply with IEC 60 947-3.
AC 23A / DC 22A

HNE970H

MCCBs h1000 50kA LSI

breaking capacity Icu: 50 kA (400/415 V AC)
Ics: 50 kA

Description	In (A)	Cat. ref. 3P	4P
adjustable thermal Ir = 0.4 to 1 x In adjustable magnetic 2.5 to 10 x Ir (630 - 800A) 2.5 to 8 x Ir (1000A) time delay: 0.1-0.2 s neutral setting from 0-50 to 100%	800	**HNE800H**	**HNE801H**
	1000	**HNE970H**	**HNE971H**

MCCBs h1000 70kA LSI

breaking capacity Icu: 70 kA (400/415 V AC)
Ics: 50 kA

Description	In (A)	Cat. ref. 3P	4P
adjustable thermal Ir = 0,4 to 1 x In adjustable magnetic 2,5 to 10 x Ir (800A) 2,5 to 8 x Ir (1000A) time delay: 0,1-0,2 s neutral setting from 0-50 to 100%	800	**HEE800H**	**HEE801H**
	1000	**HEE970H**	**HEE971H**

MCCBs h1000 70kA LSI plug in

breaking capacity Icu: 70 kA (400/415 V AC)
Ics: 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
Ue: 415 V AC
Icw (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 Ø 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 mm²	630-800	**HYE007H**	**HYE008H**

Connecting kit

Description	Cat. ref.
0.75 mm², 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**

HYE031H

Moulded case circuit breakers h1600, selection and protection
Electronic trip unit LSI
- long delay (thermal equivalent) adjustable:
  Ir = 0.4 to 1 x In
- short delay (magnetic equivalent) adjustable:
  2.5 to 10 x Ir
- 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 Icu: 50 kA (400/415 V AC)
Ics: 50 kA

Description	In (A)	Cat. ref. 3P	4P
adjustable thermal Ir = 0.4 to 1 x In adjustable magnetic 2.5 to 10 x Ir time delay: 0.1-0.2 s neutral setting 0, 50, 100%	1250	**HNF980H**	**HNF981H**
	1600	**HNF990H**	**HNF991H**

MCCBs h1600 70kA LSI

breaking capacity Icu: 70 kA (400/415 V AC)
Ics: 50 kA

Description	In (A)	Cat. ref. 3P	4P
adjustable thermal Ir = 0.4 to 1 x In adjustable magnetic 2.5 to 10 x Ir time delay: 0.1-0.2 s neutral setting from 0, 50, 100%	1250	**HEF980H**	**HEF981H**
	1600	**HEF990H**	**HEF991H**

Trip-free switches

suitable for AC 22A / AC 23A
Ue: 415 V AC
Icw (0.3 s) = 20 kA

Description	In (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	Cat. ref.
padlockable handle, max Ø 8 mm	**HXF030H**

HXF031H

Extended rotary handle

Description	Cat. ref.
padlockable handle, max Ø 8 mm	**HXF031H**

HXF039H

Padlocks

to mount on MCCB for handle locking

Description	Cat. ref.
for 3 padlock Ø 8 mm² max	**HXF039H**

HXF040H

Motor operators

Description	Cat. ref.
24 V DC	**HXF040H**
200 - 230V AC	**HXF042H**

Interphase barriers

Description	Cat. ref.
3/4P	**HYD019H**

Connection kit

Description	Cat. ref.
0.75 mm², set of 3 x 2 wires, length: 1.30m	**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 IΔn: 0.03A instantaneous tripping	3VA		**HR500**
fixed IΔn: 0.,3A instantaneous tripping	3VA		**HR502**
Earth leakage relays adjustable			
adjustable IΔn: 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 IΔn/drop output: 0.3-10 A/0 to 3 s	5VA	1 C/O	**HR510**
with bargraph display adjustable IΔn: 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 IΔn/drop output: 0.3-10 A/0 to 5 s	5VA	1 C/O	**HR520**
adjustable IΔn: 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 IΔn: 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 IΔn: 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 IΔn: 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

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

- disconnector modular design
- IP20
- In=Ith, AC23

In/A	Width in modules 3P	4P	Cat. ref. 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**

Auxiliaries contact

- for HA load break switches 125 to 1600A
- AC1, 5A, 250V

HZ023

Description	Cat. ref.
1NO + 1NC	**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 3P	4P	Cat. ref. 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

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. 3P	4P
100 to 160A	**HZC217**	**HZC218**
for HA408, HA407	**-**	**HZ062**
for HA964N	**HZ095**	**HZ095**
for HA966N	**HZ096**	**HZ096**


HZ095

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

- disconnector
- modular design
- 3 positions: 0-I-II


HIM404

In/A	Width in modules 3P	4P	Cat. ref. 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**

External handles

- 3 positions: 0-I-II
- lockable with 3 padlocks

HZC016

Description	Cat. ref.
for HIM 20 to 80A	**HZC016**
for HI 100 to 125A	**HZI004**

Shaft extensions


HZC113

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**

Terminal shrouds

- 2 pieces / packaging
- top and bottom


HZC212

Description	Cat. ref. 3P	4P
for HIM 20 to 40A	**HZC211**	**HZC212**
for HIM 63 to 80A	**HZC213**	**HZC214**

HZC311

Auxiliaries contacts

Description	Width in modules 3P	4P	Cat. ref. 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 HI 63 and 125A	**-**	**HZ156R**
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

External handles

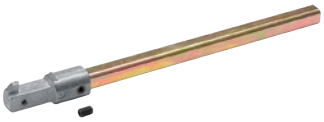
- 3 positions: 0-I-II
- lockable with 3 padlocks

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

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 mm^2 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

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

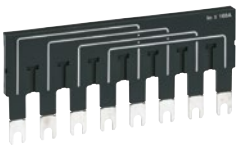
Description	Cat. ref.
for switch control circuit supply, 2 conductors / pole	**HZI230**


HZI230

Bridging bars

- 2 x 4P

In/A	Cat. ref.
for 63 to 125A	**HZI400**
for 160A	**HZI401**

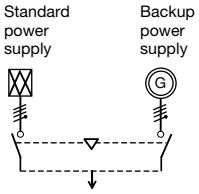

HZI401

Sealable cover

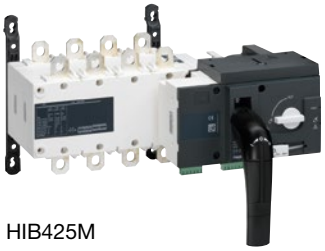
Description	Cat. ref.
sealable cover	**HZI210**

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 recommanded 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**
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**

HIC425E

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

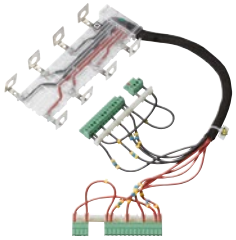
Description	Cat. ref.
changeover status display	**HZI910**
changeover status and control display	**HZI911**

HZI911

HZI812

Double power supply

Description	Width in modules	Cat. ref.
double power supply	4	**HZI812**



HZI411

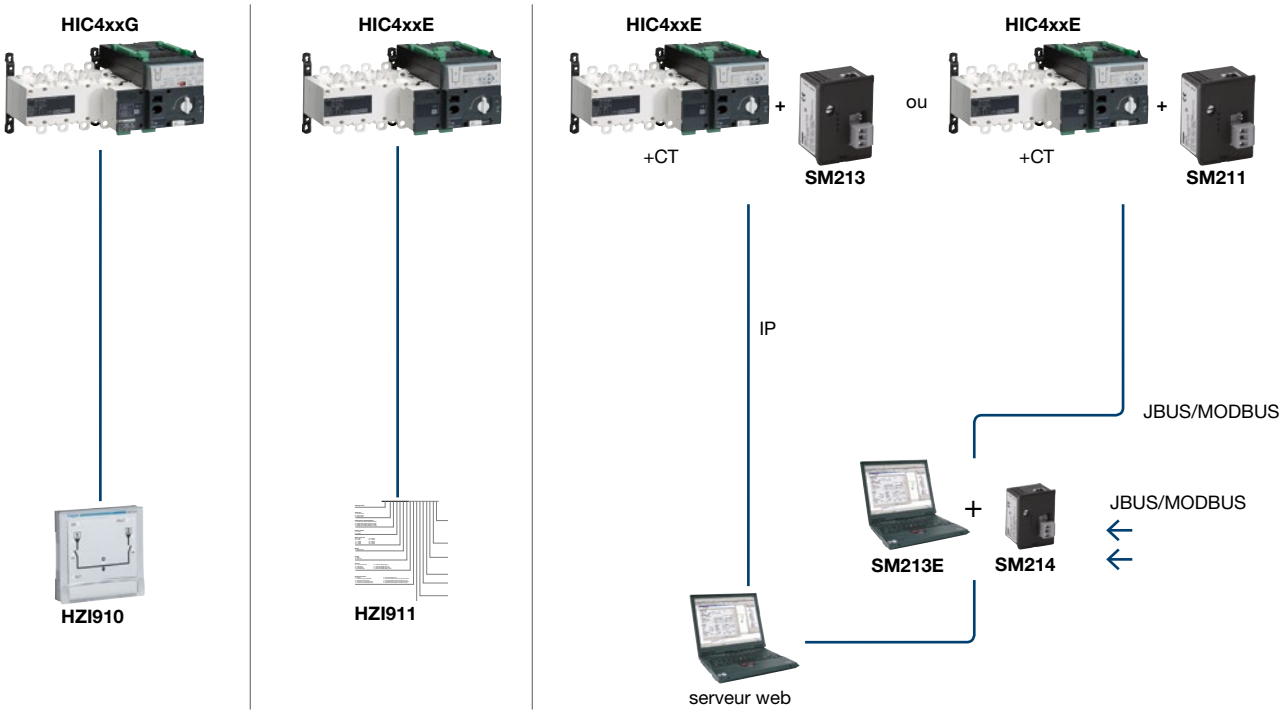
Voltage sensor kits

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**

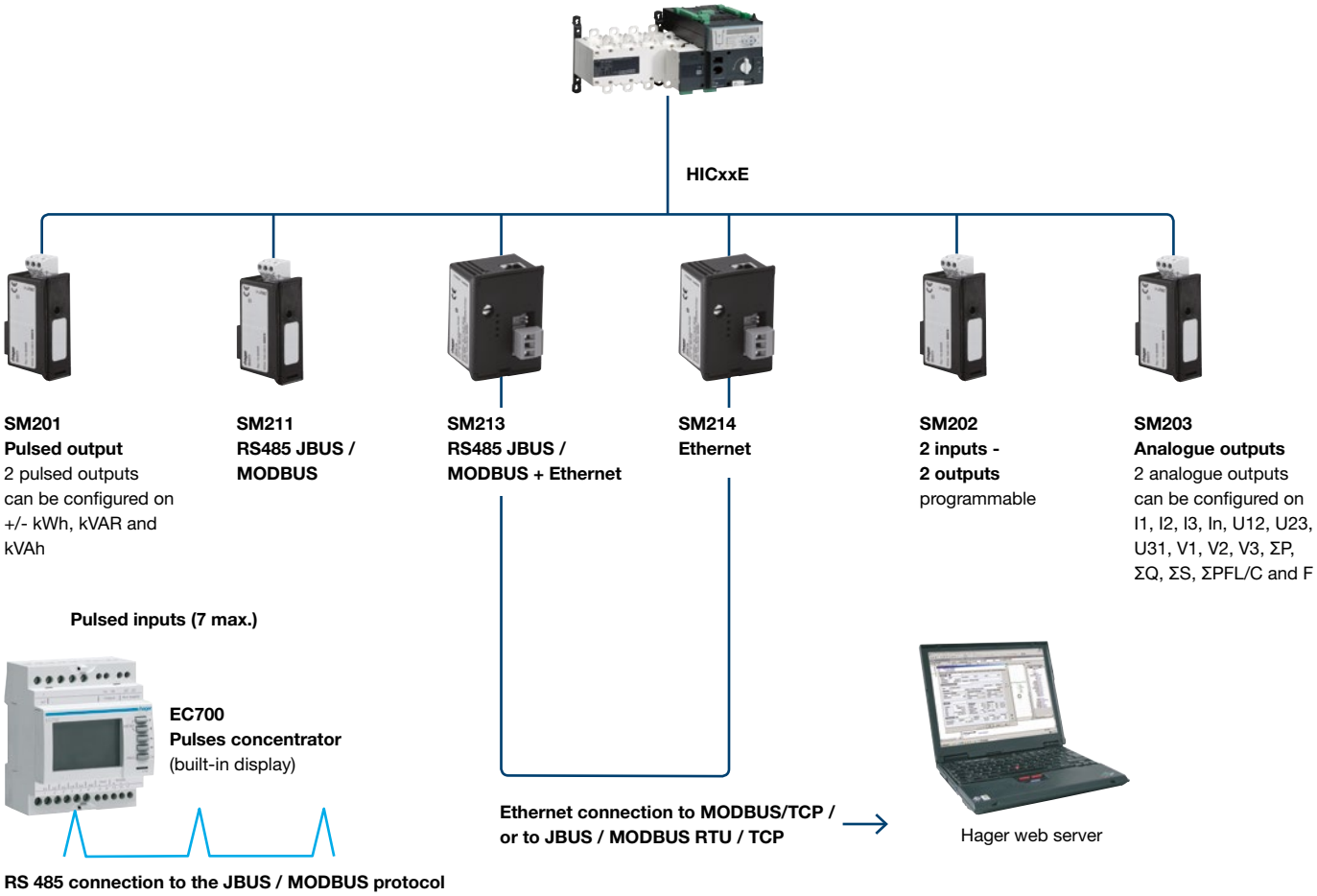
Selection Auto / manual key

Description	Cat. ref.
for switches 125 to 3200A	**HZI010**

Optional modules



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 LSIG	H = OCR LCD display Energy LSIG

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
B = AC/DC 110V
C = AC/DC 220V
D = AC 380V
E = AC 440V
F = DC 24V
G = DC 48V
H = AC/DC 110V with time delay
I = AC/DC 220V with time delay
J = AC 380V with time delay
K = AC 440V with time delay
L = DC 24V with time delay
M = DC 48V with time delay
N = AC/DC 110V double shunt release
O = AC/DC 220V double shunt release
P = AC 380V double shunt release
Q = AC 440V double shunt release
R = DC 24V double shunt release
S = DC 48V double shunt release

Closing release
0 = without
1 = AC/DC 110V
2 = AC/DC 220V
3 = AC 380V
4 = AC 440V
5 = DC 24V
6 = DC 48V

Motor operator & ready to close switch
A = without
B = AC/DC 110V motor only
C = AC/DC 220V motor only
D = AC 380V motor only
E = AC 440V motor only
F = DC 24V motor only
G = DC 48V motor only
N = AC/DC 110V motor with RTC
O = AC/DC 220V motor with RTC
P = AC 380V motor with RTC
Q = AC 440V motor with RTC
R = DC 24V motor with RTC
S = DC 48V motor with RTC
U = without motor with RTC

Shunt release
A = without
B = AC/DC 110V
C = AC/DC 220V
D = AC380V
E = AC 440V
F = DC 24V
G = DC 48V

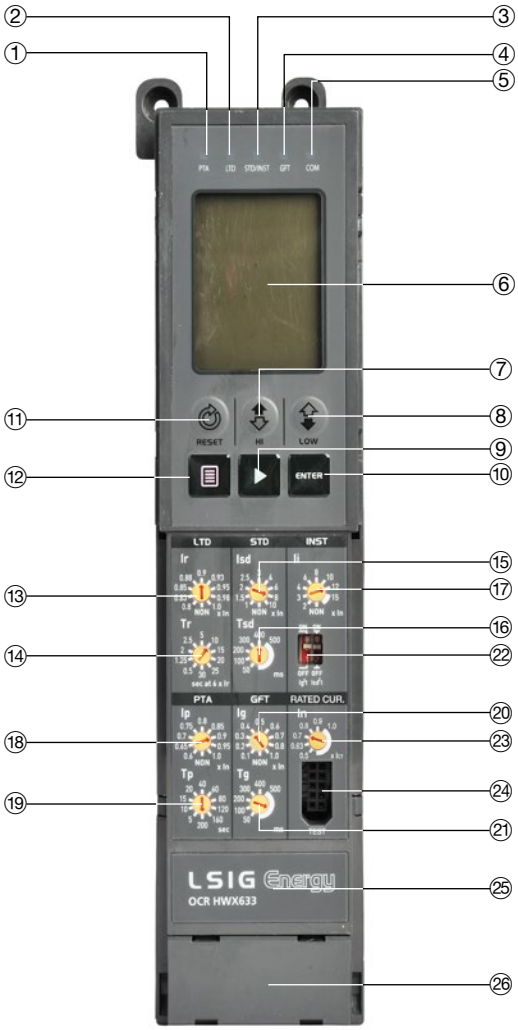
Protection trip unit (OCR)

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

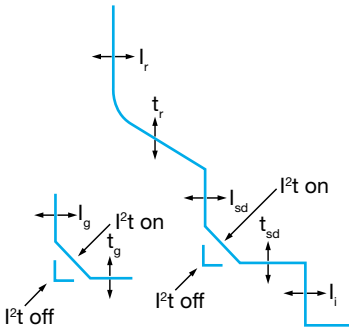
➔ Self power works normally at larger than 10% for 3 phase, 30% for single phase.

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 In
  - 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

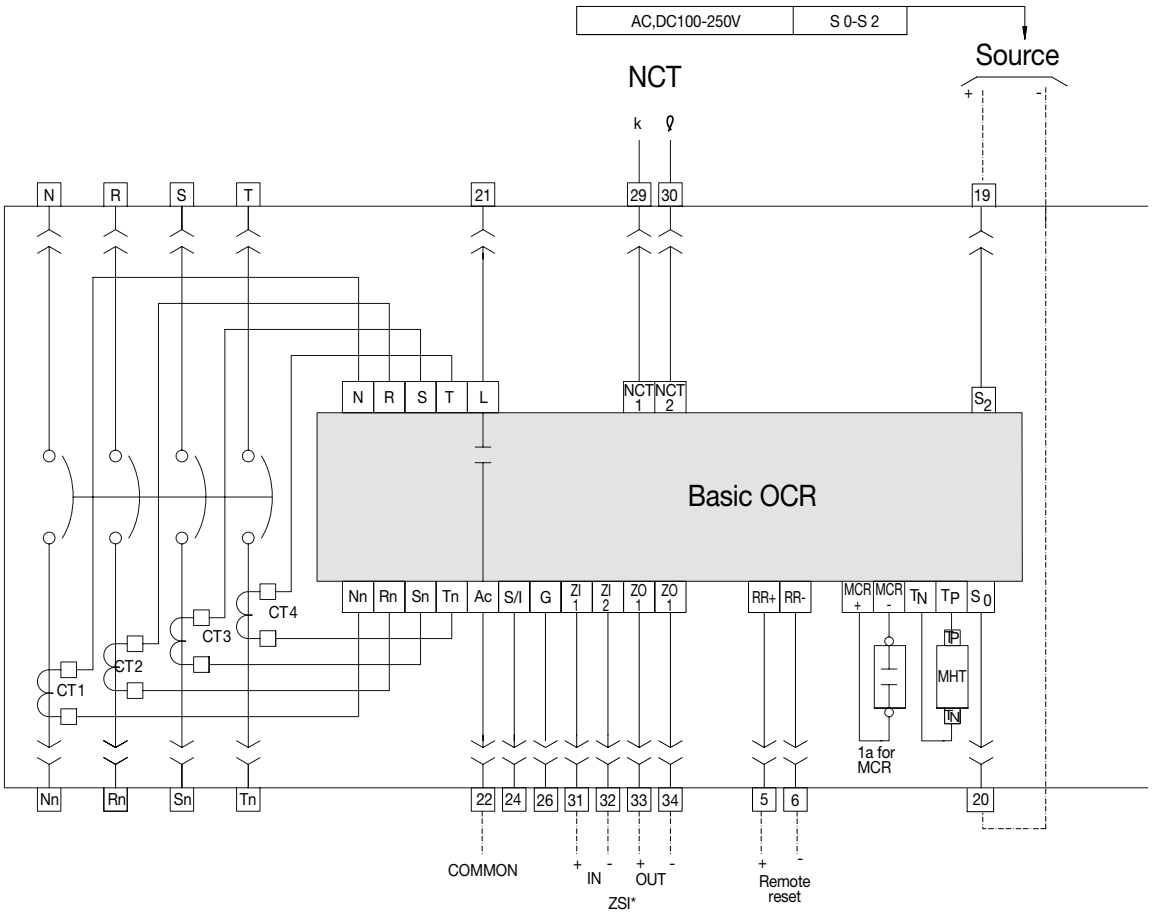
Rating	Nominal switching capacity (resistive load)	5A 277V AC
	Max. switching power (resistive load)	1,385VA
	Max. switching voltage	277V AC
	Max. switching current	5A
	Max. switching capacity (reference value)	100mA 5V DC



Protection

Long time LTD	Ict	In =Ictx...		0.5	0.63	0.7	0.8	0.9	1				
	current setting (A)	Ir=Inx...		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×Ir)		10.4	26.1	41.7	52	104	208	312	417	521	626
		tr at(6.0×Ir)		0.5	1.25	2	2.5	5	10	15	20	25	30
		tr at(7.2×Ir)		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%	Isd=Inx...		1	1.5	2	2.5	3	4	6	8	10	Non
	time delay (sec) at 10×In	tsd	I^2t off	0.05	0.1	0.2	0.3	0.4	0.5				
			I^2t on	0.05	0.1	0.2	0.3	0.4	0.5				
		(I^2t 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%	Ii=Inx...		2	3	4	6	8	10	12	15	Non	
	trip time			below 50ms									
Ground fault GFT	current setting (A) accuracy: ±20%(Ig>0.4In) ±20%(Ig≤0.4In)	Ig=Ictx...		0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	1	Non
	time delay (sec) at 1×In accuracy: ±20%	tg	I^2t off	0.05	0.1	0.2	0.3	0.4	0.5				
			I^2t on	0.05	0.1	0.2	0.3	0.4	0.5				
		(I^2t off)	min. trip time (ms)	20	80	160	260	360	460				
			max. trip time (ms)	80	140	240	340	440	540				

Basic OCR

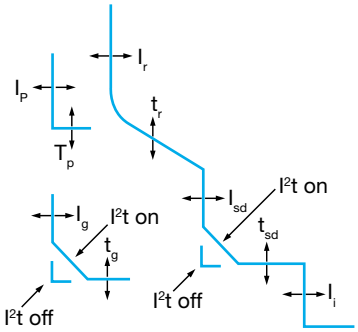


* ZSI: contacts 31-32 are pre-wired by factory. If you use ZSI function, please remove this wire.

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 Ie, Isd, Ii)
- 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, occurance 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 (In)
- Field test
  - Simulation of long time, short time, instantaneous delay
- Communication : RS-485 / MODBUS-RTU
- 4 digital output NO
  - Contact specification

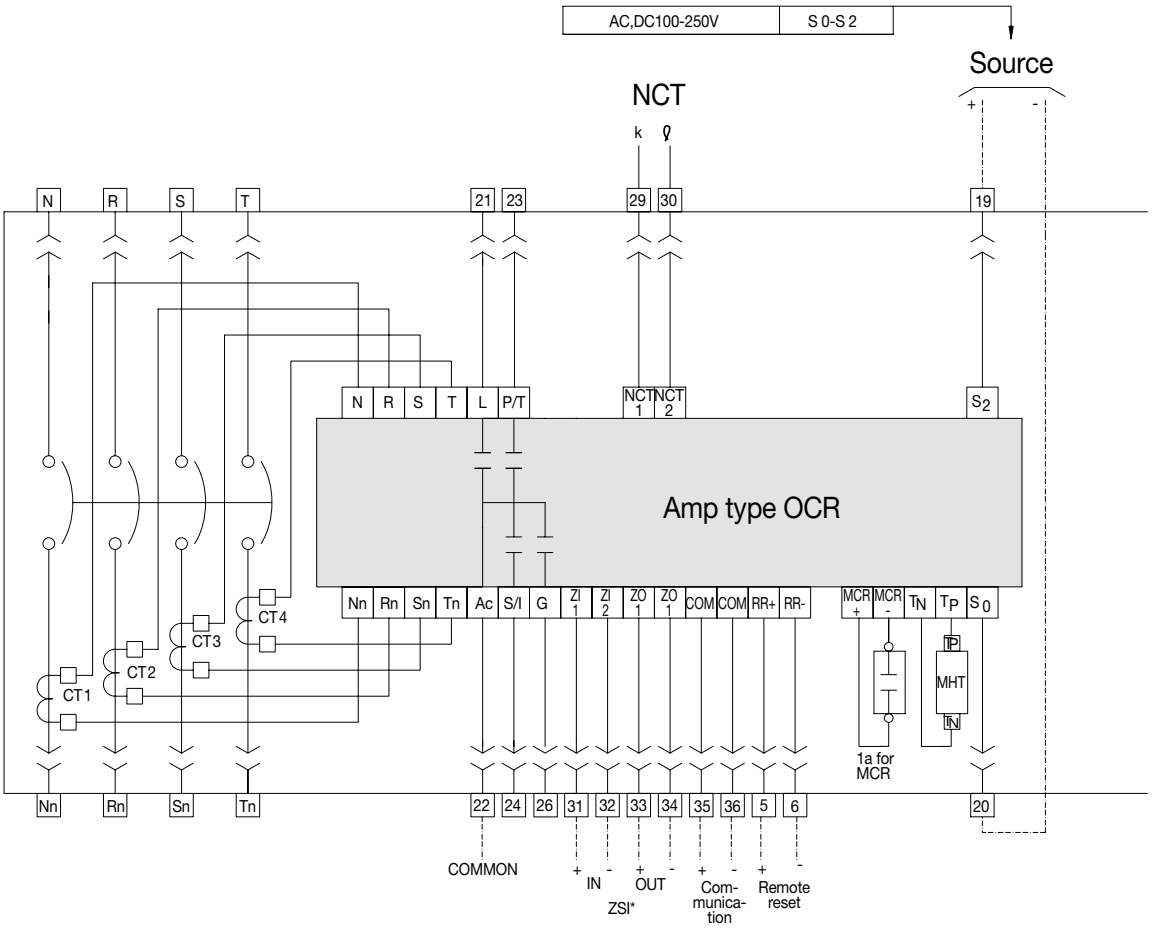
Rating	Nominal switching capacity (resistive load)	5A 277V AC
	Max. switching power (resistive load)	1,385VA
	Max. switching voltage	277V AC
	Max. switching current	5A
	Max. switching capacity (reference value)	100mA 5V DC



Protection

Long time LTD	Ict	In=Ictx...		0.5	0.63	0.7	0.8	0.9	1				
	current setting (A)	Ir=Inx...		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×Ir)		10.4	26.1	41.7	52	104	208	312	417	521	626
		tr at(6.0×Ir)		0.5	1.25	2	2.5	5	10	15	20	25	30
		tr at(7.2×Ir)		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%	Isd=Inx...		1	1.5	2	2.5	3	4	6	8	10	Non
	time delay (sec) at 10×In	tsd	I^2t off	0.05	0.1	0.2	0.3	0.4	0.5				
			I^2t on	0.05	0.1	0.2	0.3	0.4	0.5				
		(I^2t 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%	Ii=Inx...		2	3	4	6	8	10	12	15	Non	
	trip time			below 50ms									
Ground fault GFT	pick-up (A) accuracy: ±15%(Ig>0.4In) ±20%(Ig≤0.4In)	Ig=Ictx...		0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	1	Non
	time delay (sec) at 1×In accuracy: ±20%	tg	I^2t off	0.05	0.1	0.2	0.3	0.4	0.5				
			I^2t on	0.05	0.1	0.2	0.3	0.4	0.5				
		(I^2t 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%	Ip=In×...		0.6	0.65	0.7	0.75	0.8	0.85	0.9	0.95	1	Non
	time delay (sec)	tp at (Ipx1.2)		5	10	15	20	40	60	80	120	160	

Amp type OCR



* ZSI: contacts 31-32 are pre-wired by factory. If you use ZSI function, please remove this wire.

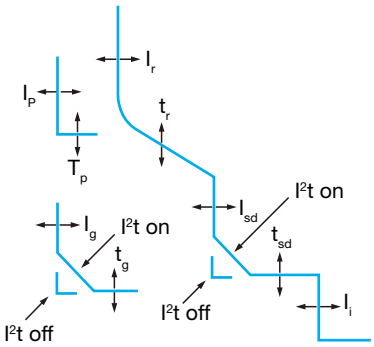
Energy type OCR: HWX633

- 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 Ir, Isd, Ii)
- 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, occurance 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 (In)
- 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

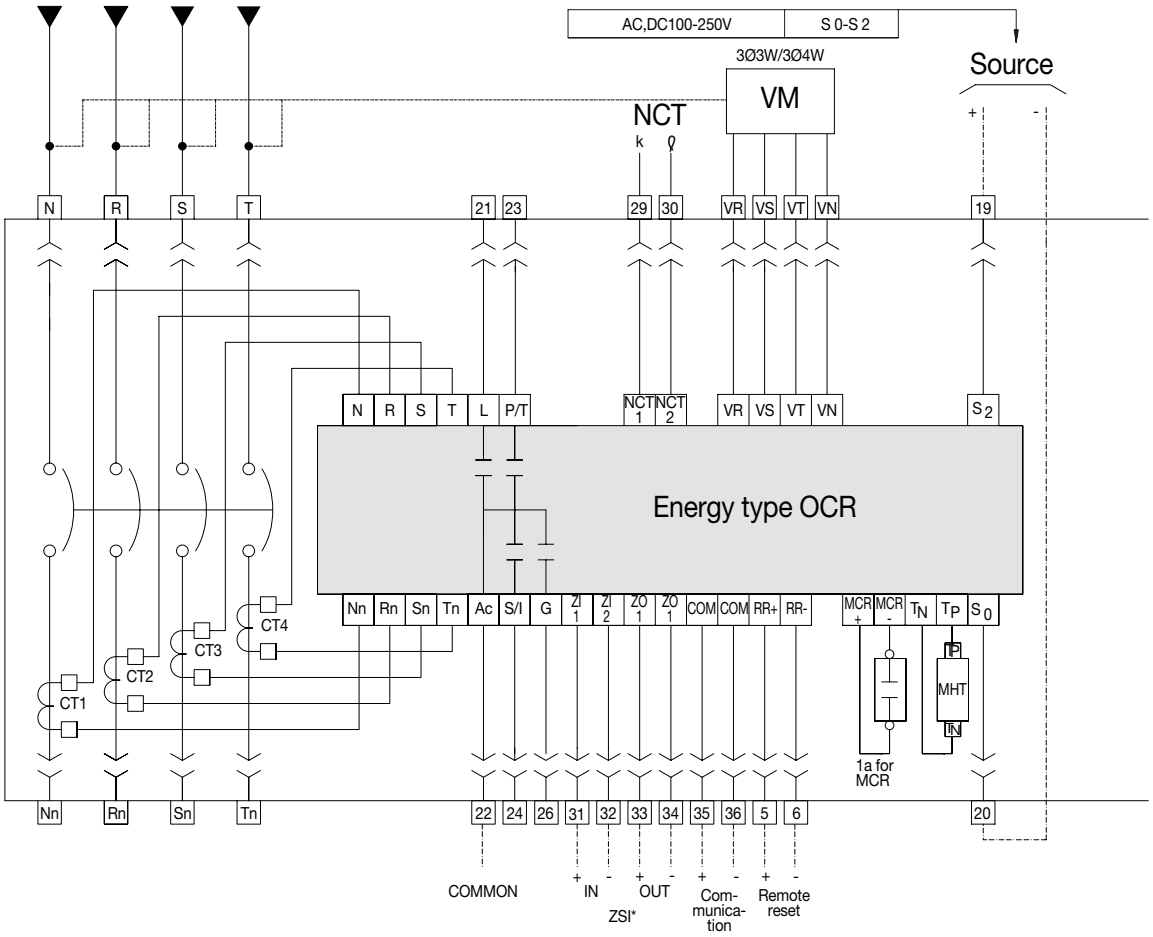
Rating	Nominal switching capacity (resistive load)	5A 277V AC
	Max. switching power (resistive load	1,385VA
	Max. switching voltage	277V AC
	Max. switching current	5A
	Max. switching capacity (reference value)	100mA 5V DC



Protection

Long time LTD	Ict	In=Ictx...		0.5	0.63	0.7	0.8	0.9	1				
	current setting (A)	Ir=Inx...		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×Ir)		10.4	26.1	41.7	52	104	208	312	417	521	626
		tr at(6.0×Ir)		0.5	1.25	2	2.5	5	10	15	20	25	30
		tr at(7.2×Ir)		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%	Isd=Inx...		1	1.5	2	2.5	3	4	6	8	10	Non
	time delay (sec) at 10×In	tsd	I^2t off	0.05	0.1	0.2	0.3	0.4	0.5				
			I^2t on	0.05	0.1	0.2	0.3	0.4	0.5				
		(I^2t 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%	Ii=Inx...		2	3	4	6	8	10	12	15	Non	
	trip time			below 50ms									
Ground fault GFT	pick-up (A) accuracy: ±15%(Ig>0.4In) ±20%(Ig≤0.4In)	Ig=Ictx...		0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	1	Non
	time delay (sec) at 1×In accuracy: ±20%	tg	I^2t off	0.05	0.1	0.2	0.3	0.4	0.5				
			I^2t on	0.05	0.1	0.2	0.3	0.4	0.5				
		(I^2t 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%	Ip=In×...		0.6	0.65	0.7	0.75	0.8	0.85	0.9	0.95	1	Non
	time delay (sec)	tp at (Ipx1.2)		5	10	15	20	40	60	80	120	160	

Energy type OCR



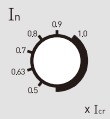
* ZSI: contacts 31-32 are pre-wired by factory. If you use ZSI function, please remove this wire.

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**

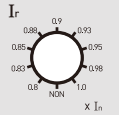
Rated Current (In)

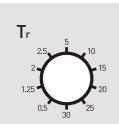


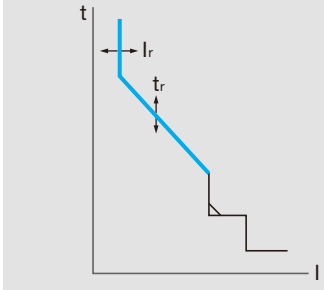
- Rated current [In] can be adjusted to 50%, 63%, 70%, 80%, 90% and 100% of the rated primary CT current [Ict].
- On the ACB nameplate, rated current [In] is marked.
- Rated current [In] can be selected by sliding the base current setting select switch, which can be set to the predetermined scale.

Operation characteristics

Long time delay (LTD)







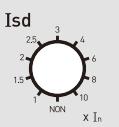
Standard current setting

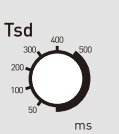
- The scale is marked as magnification of [In].
- Setting range: (Non, 0.8, 0.83, 0.85, 0.88, 0.9, 0.93, 0.95, 0.98, 1.0)×In (10 modes)
- No protection in case of non setting of [Ir].
- The breaker is not tripped below 105% of [Ir], and tripped at 120%.

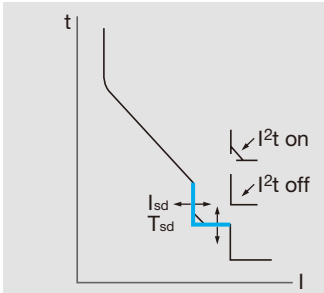
Time delay setting

- Standard operating time (sec) is based on the time of 600%×[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.

Short time delay (STD)







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)×In (10 modes)

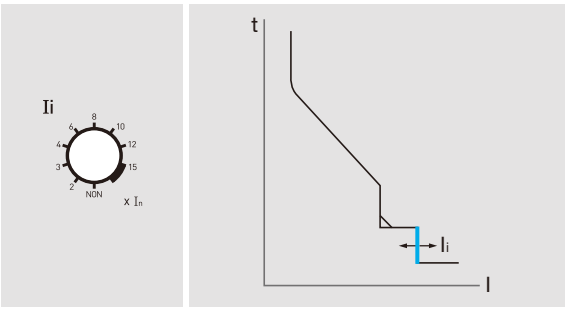
Time delay setting

- Standard operating time (msec) is based on the time of 120%×[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

- Isd^2t ON: for inverse time characteristic, which has $Isd^2t=C$ (constant) characteristic at 100% of a set point, tolerance of setting current is ±20%
- Isd^2t OFF: for definite time characteristics

Instantaneous trip (INST)



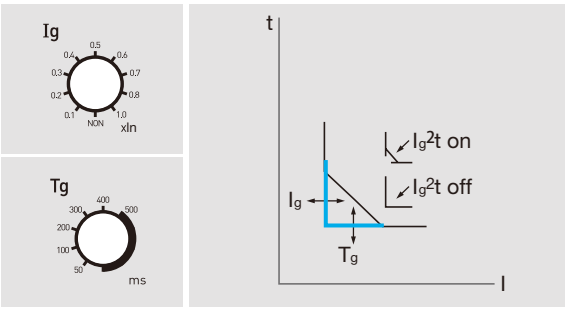
Standard current setting

- The scale is marked as magnification of [Ict].
- Setting range: (Non, 2, 3, 4, 6, 8, 10, 12, 15)×In (9 modes)
- No protection in case of non setting of [Ii].

Time delay setting

- Total breaking time is below 50ms.

Ground fault trip (GFT)



Standard current setting

- The scale is marked as magnification of OCR rated primary current [Ict].
- Setting range: (Non, 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8, 1.0)×[Ict] (10 steps)

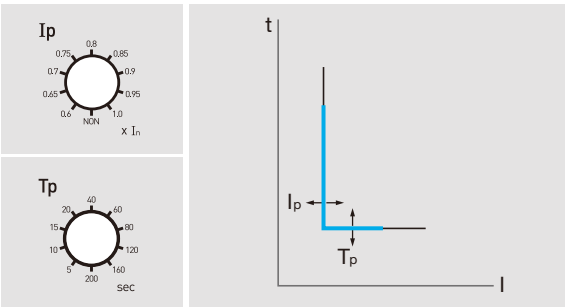
Time delay setting

- Standard operating time (msec) is based on the time of 120%×[Ig] with definite time operation.
- Setting range: 50, 100, 200, 300, 400, 500msec (6 steps)
- Inverse time operated with 100% of [Ict] standard in case of [I2t on] setting.

DIP switch

- Ig^2t ON: for inverse time characteristic, which has Ig^2t=C (constant) characteristic at 100% of a set point, tolerance of setting current is ±30%
- Ig^2t OFF: for definite time characteristics

Pre-trip alarm (PTA)



Standard current setting

- The scale is marked as magnification of [In] 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)×In (10 steps)

Time delay setting

- Standard operating time (sec) is based on the time of 100%×[Ip].
- 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 Umin	pickup	100V ~ Umax	5V	1.2s ~ 5s	0.1s	20%
	dropout	pickup ~ Umax	5V	1.2s ~ 36s	0.1s	-20%
Maximum voltage Umax	pickup	Umin 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 rPmax	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.

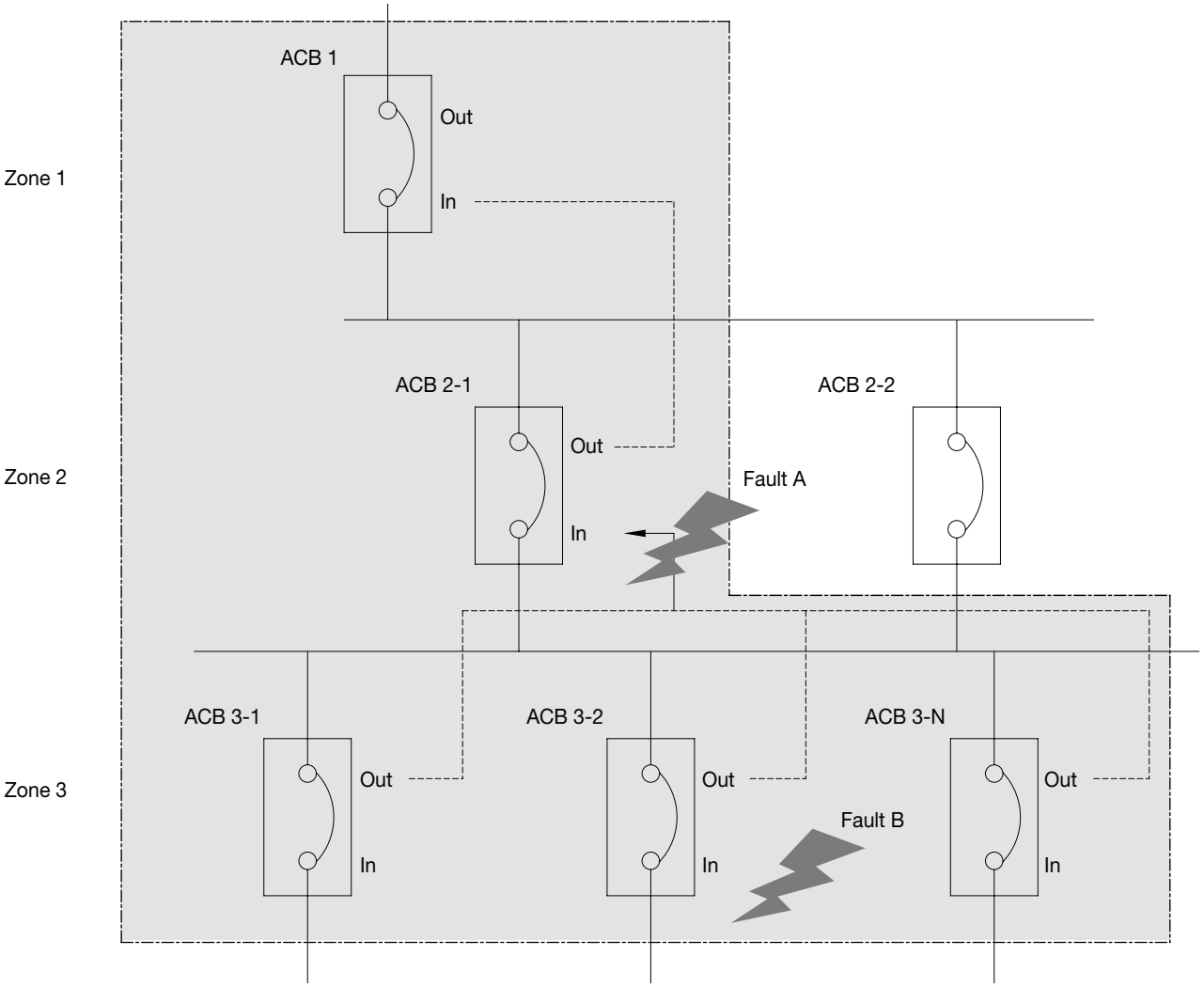
Example

- 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

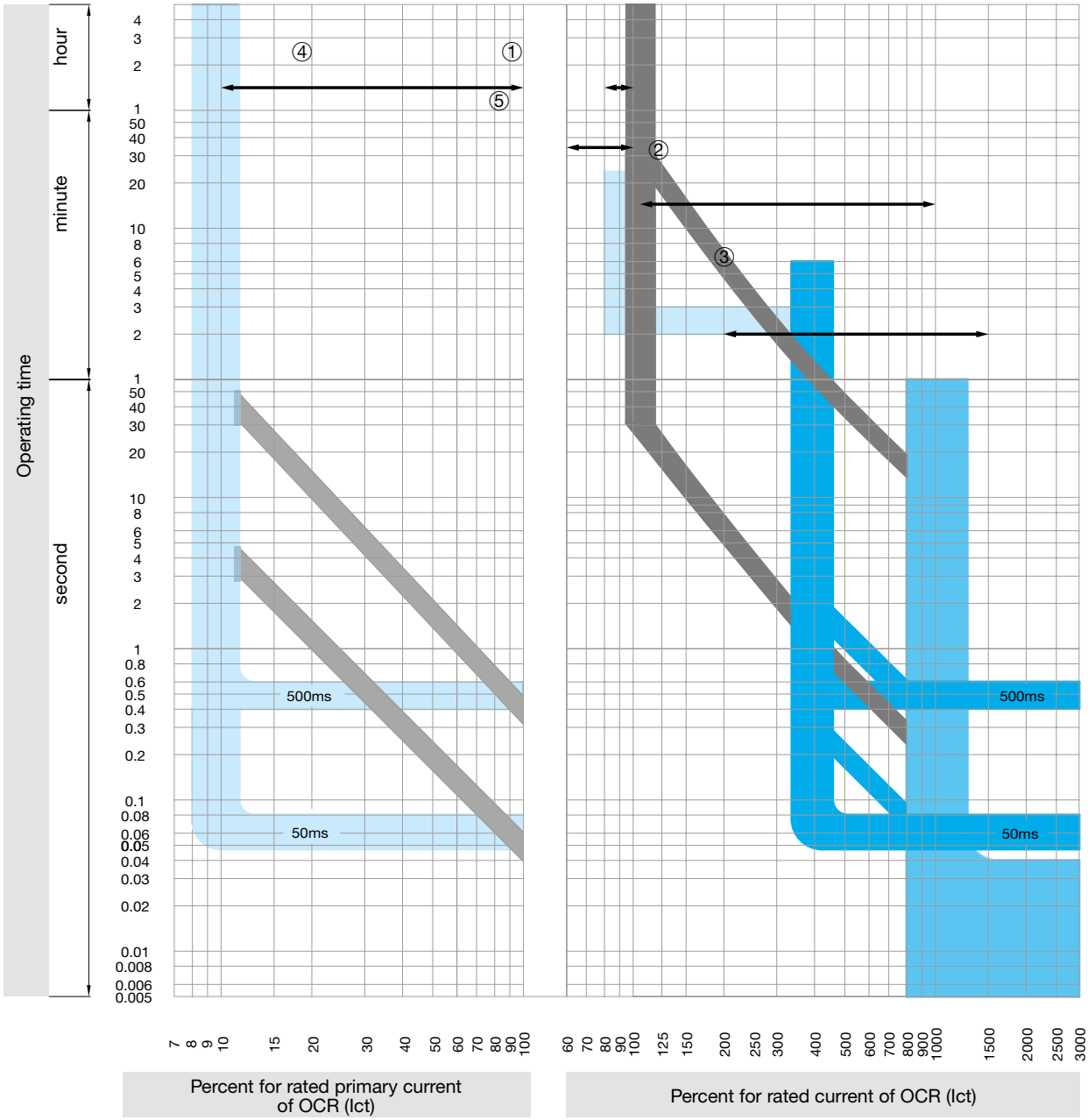
Twisted shield cable (AWG 16-22) maximum impedance: 3Ω



---------- ZSI connecting

Pre-wired contact (31,32) as standard by factory.
If you use ZSI function between 2 breakers, please use this wire.

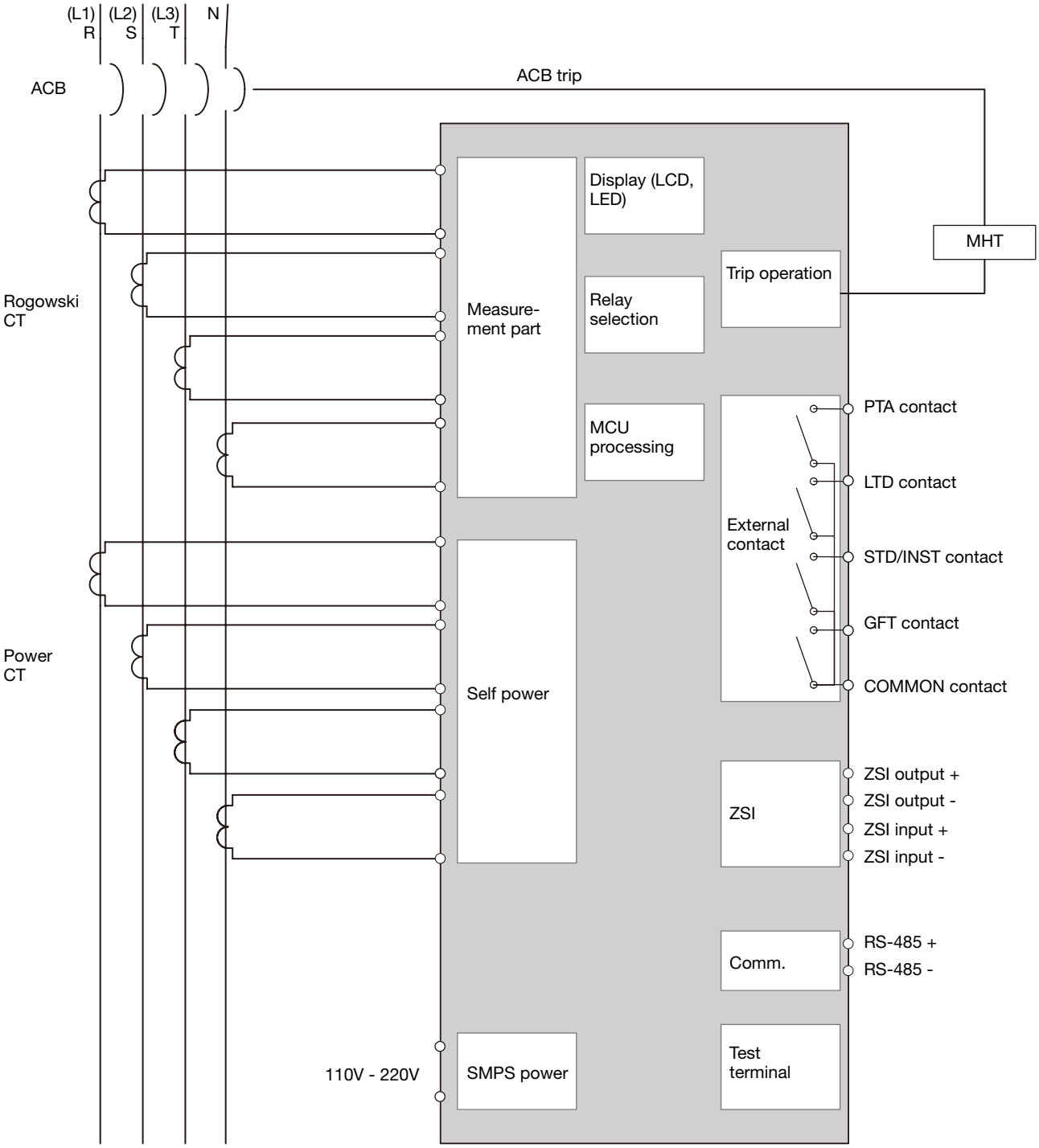
General feeder



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



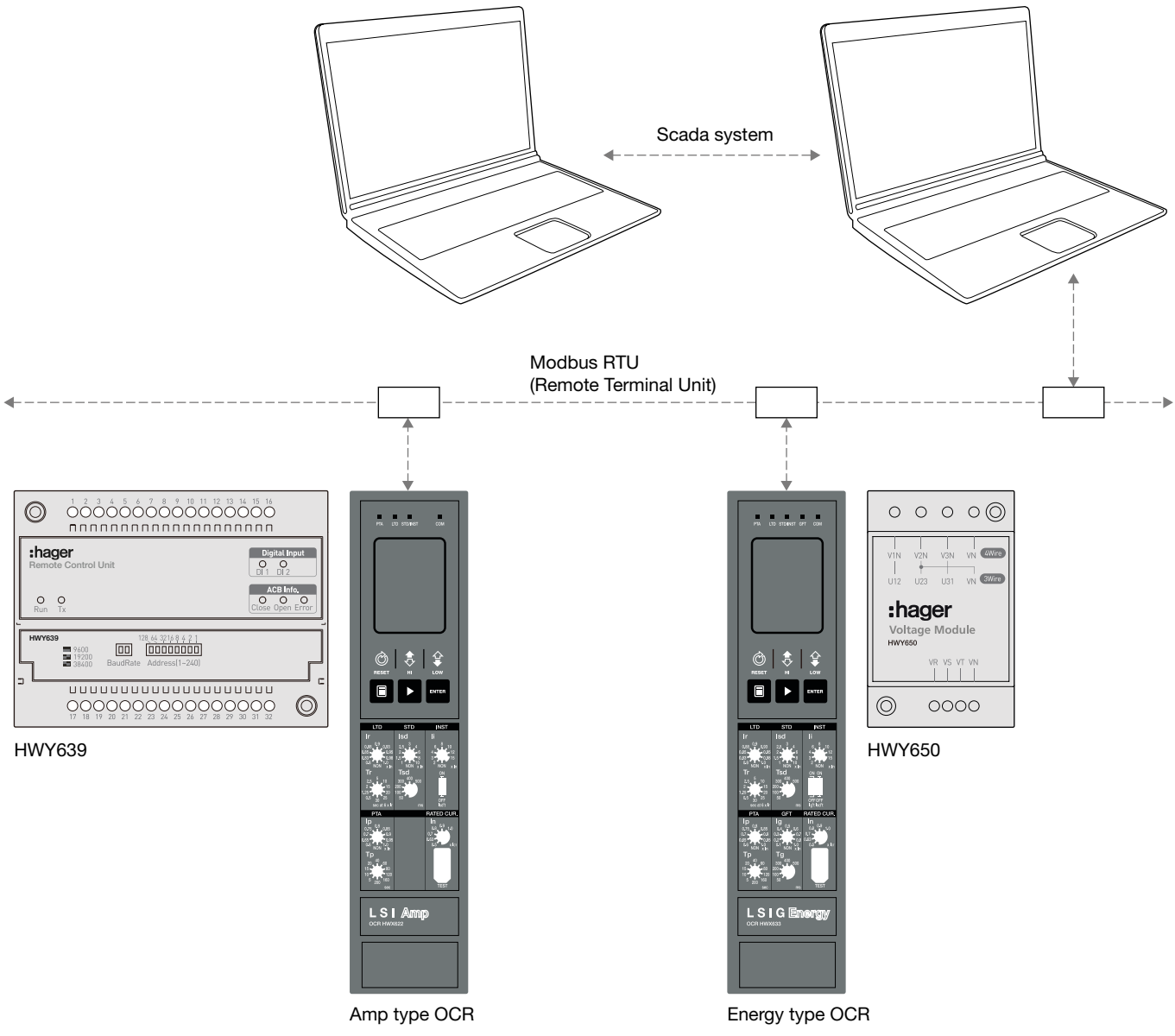
Protection trip unit (OCR)

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.



HWY639

Amp type OCR

Energy type OCR

HWY650

Characteristics

- operation mode: differential
- max. distance:1.2 km
- baud rate: 9600; 19200; 38400 bps
- transmission method: half-duplex
- termination: 150Ω

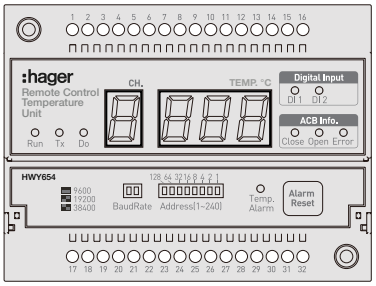
Remote control temperature unit (RCTU) and remote control unit (RCU)

- 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.

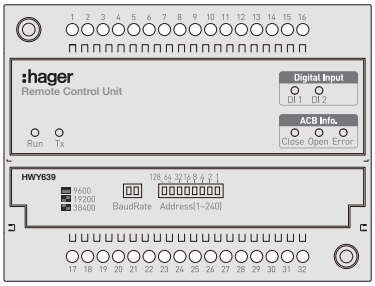
Contact specification

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 temperature unit (RCTU)



Remote control unit (RCU)



RCTU terminal composition

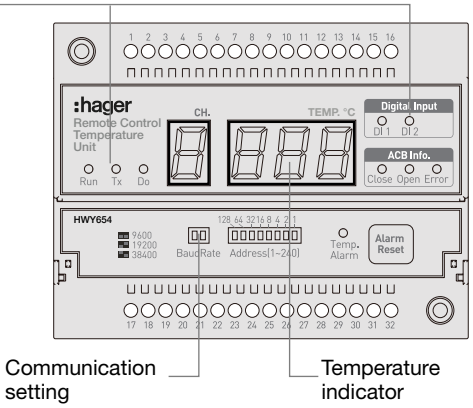
No.	Definition	No.	Definition
1	DI CB CONNECT	17	NTC Temperature sensor
2	DI CB CONNECT	18	NTC Temperature sensor
3	DI CB TEST	19	CH1 infrared light sensor AOR (black)
4	DI CB TEST	20	CH1 infrared light sensor GND (green)
5	DI CLOSE	21	CH1 infrared light sensor AOT (yellow)
6	DI CLOSE	22	CH1 infrared 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 (+)

RCU terminal composition

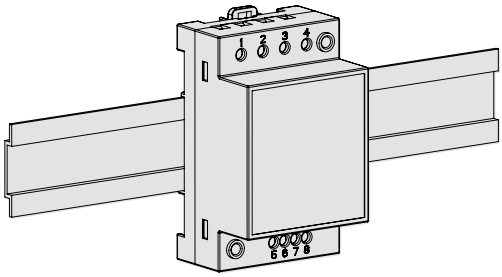
No.	Definition	No.	Definition
1	DI CB CONNECT	17	-
2	DI CB CONNECT	18	-
3	DI CB TEST	19	-
4	DI CB TEST	20	-
5	DI CLOSE	21	-
6	DI CLOSE	22	-
7	DI OPEN	23	-
8	DI OPEN	24	-
9	-	25	-
10	-	26	-
11	DO CLOSE	27	-
12	DO CLOSE	28	-
13	DO OPEN	29	-
14	DO OPEN	30	-
15	AC/DC Power	31	RS485 (-)
16	AC/DC Power	32	RS485 (+)

Shape

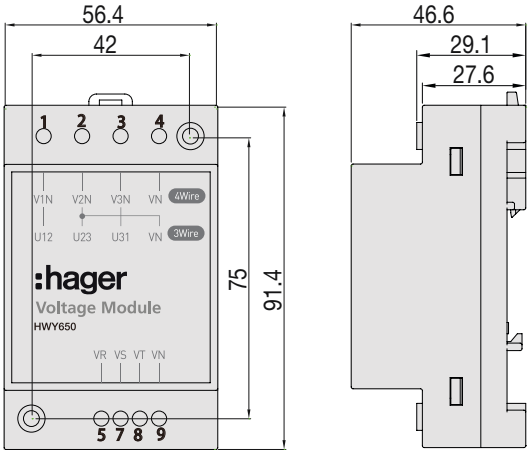
Status LED		Information
RCTU	Run LED	RCTU running LED
	Com LED	communication LED
	Temp. Alarm LED	temp. alarm LED
	Alarm DO LED	temp. alarm DO LED
General digital input	D11	dry contact (5V)
	D12	dry contact (5V)
ACB control	Close	ACB close LED
	Open	ACB open LED
	Error	ACB close/open terminal disconnection and controlling error



HWY650

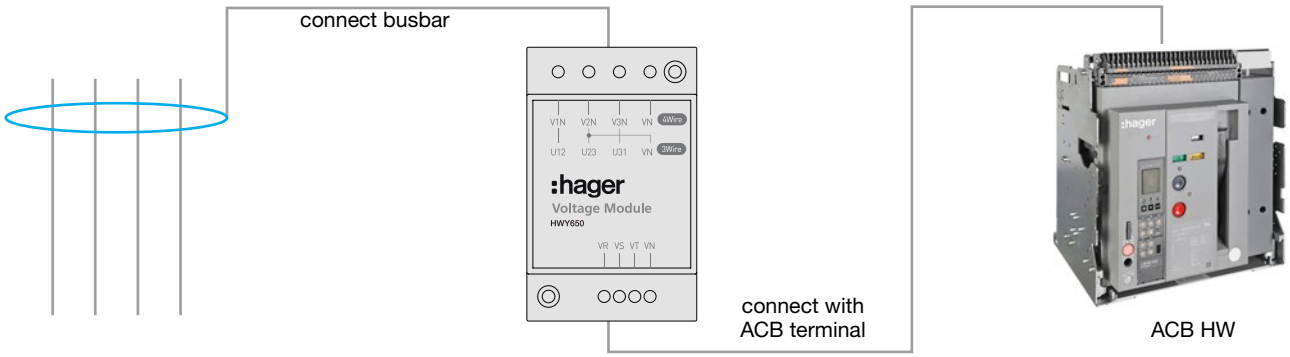


Dimensions (mm)

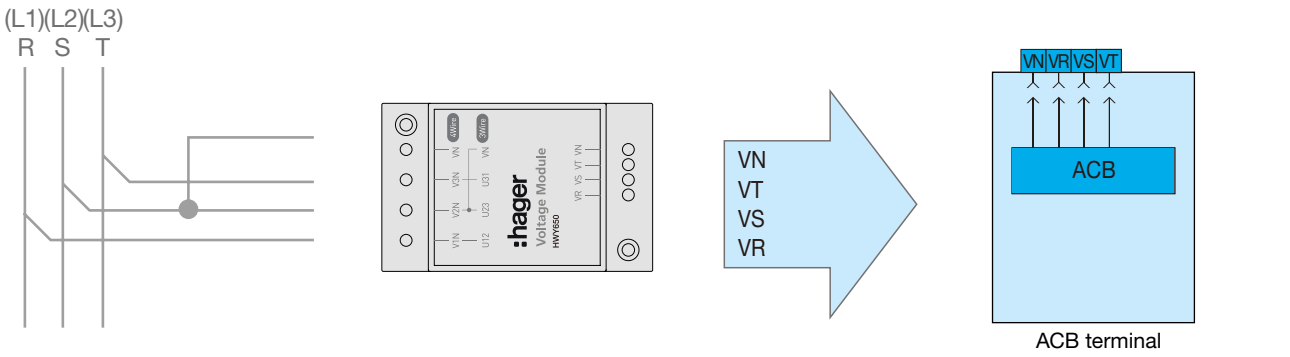


Voltage connection

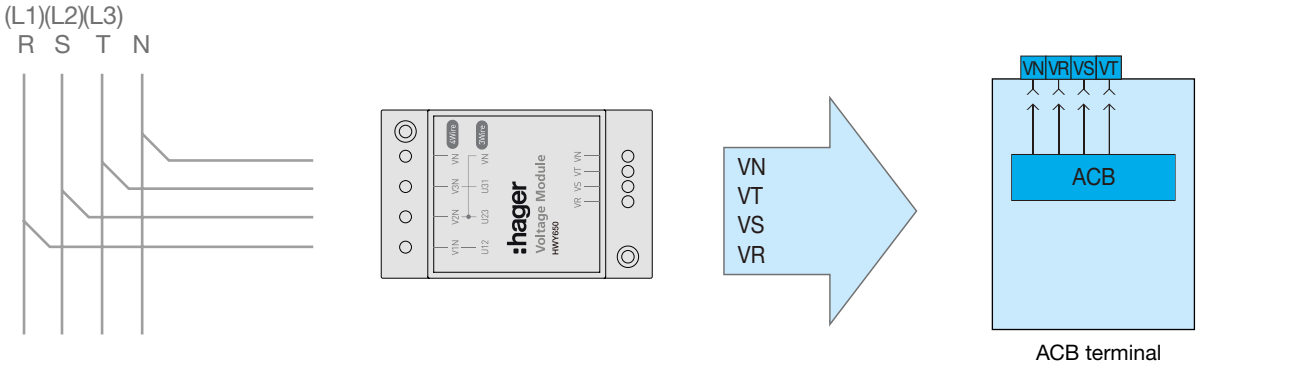
Trip unit offers VM (Voltage module) as an essential option, to measure voltage.
Voltage input range:AC 69 ~ 690V



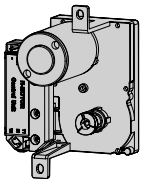
3 pole 3 wire

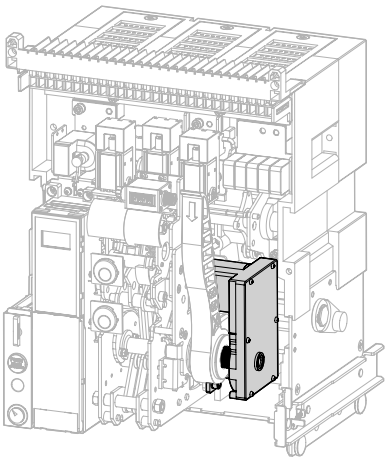


4 pole 4 wire / 3 pole 4 wire

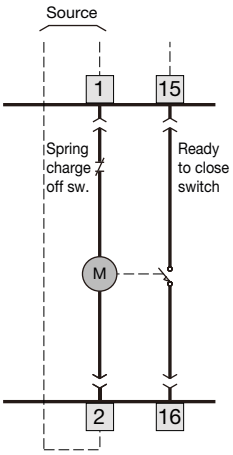


Motor (MO)





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.

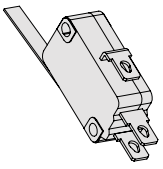
Reference	Rating
HWX541	DC 24V
HWX542	DC 48V
HWX543	AC/DC 110V
HWX544	AC/DC 220V

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

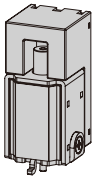
Ready to close switch and spring charge (RTC)

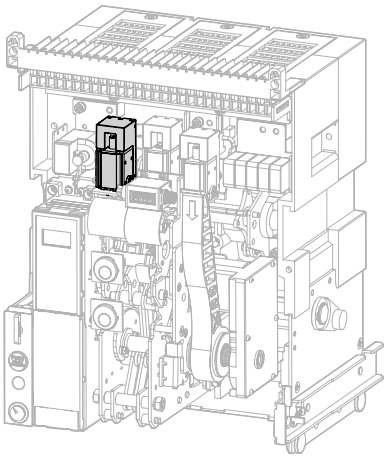
- These contacts (No.15,16) are for delivering spring charge status to outside and indicate the breaker is in a ready to close status.
- Optional device mounted on the body.



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

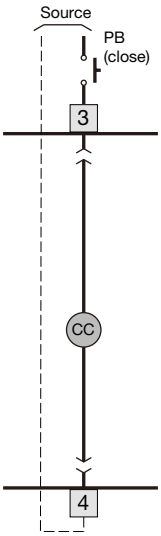
Closing coil (CC)





- A control device which closes a circuit breaker remotely, when applying 85-110% of rated control voltage over 150ms to coil terminals (3,4).

Connection diagram



Ratings

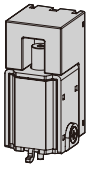
Power supply (Vn)		operating limits	Power consumption (VA)		Opening time (ms)
DC (V)	AC (V)		inrush	steady-state	
24	-	0.85-1.1Vn	300	10	80
100-130	100-130	0.85-1.1Vn			
200-250	200-250	0.85-1.1Vn			

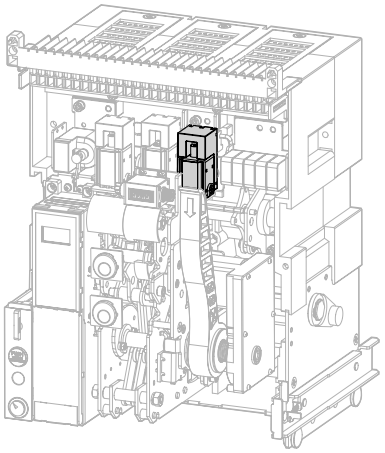
Reference	Rating
HWX551	DC 24V
HWX552	DC 48V
HWX553	AC/DC 110V
HWX554	AC/DC 220V
HWX555	AC/DC 380/415V
HWX556	AC 440V

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

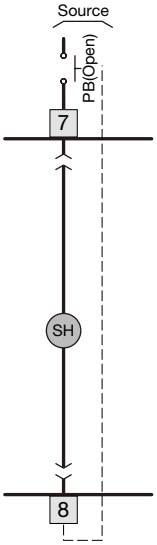
Shunt trip coil (SH)





- A control device which trips a circuit breaker remotely, when applying 70-110% of rated control voltage over 150ms to coil terminals (7,8).

Connection diagram



Ratings

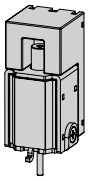
Power supply (Vn)		Operating limits	Power consumption (VA)		Opening time (ms)
DC (V)	AC (V)		inrush	steady-state	
24	-	0.7-1.1Vn	300	10	50
100-130	100-130				
200-250	200-250				

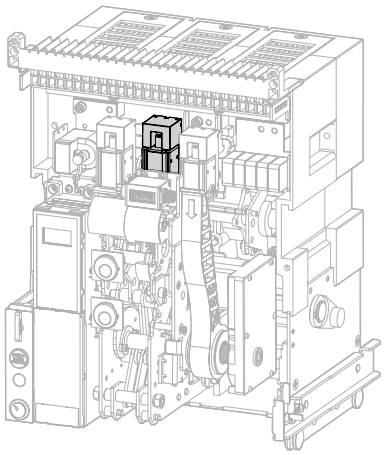
Reference	Rating
HWX501	DC 24V
HWX502	DC 48V
HWX503	AC/DC 110V
HWX504	AC/DC 220V
HWX505	AC 380/415V
HWX506	AC 440V

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

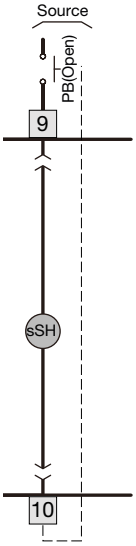
Second shunt trip coil (sSH)





- 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).

Connection diagram



Ratings

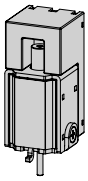
Power supply (Vn)		Operating limits	Power consumption (VA)		Opening time (ms)
DC (V)	AC (V)		inrush	steady-state	
24	-	0.7-1.1Vn	300	10	50
100-130	100-130				
200-250	200-250				

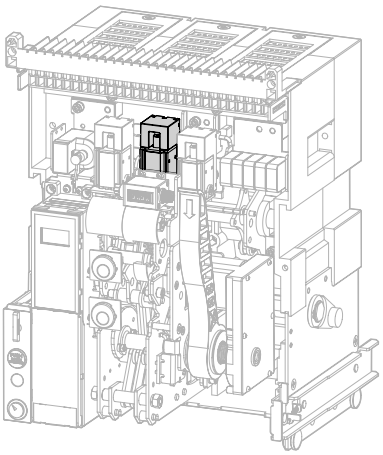
Reference	Rating
HWX521	DC 24V
HWX522	DC 48V
HWX523	AC/DC 110V
HWX524	AC/DC 220V
HWX525	AC 380/415V
HWX526	AC 440V

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

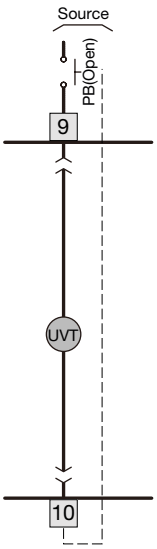
Under voltage trip coil (UVT)





- 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.

Connection diagram



Ratings

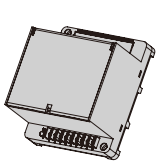
Power supply (Vn)		Pick-up	Drop	Power consumption (Vn)		Trip time (ms)
DC (V)	AC (V)			inrush	steady-state	
24	-	above 0.85Vn	below 0.35Vn	300	10	60
110 (100-130)	110 (100-130)					
200 (200-250)	200 (200-250)					
-	380					
-	440					

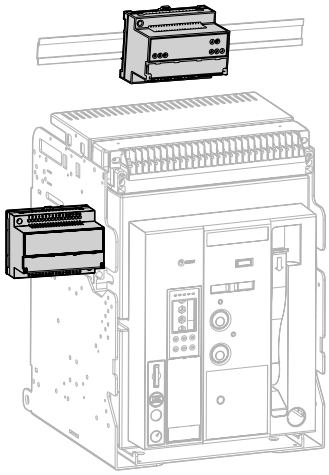
Reference	**Rating**
HWX511	DC 24V
HWX512	DC 48V
HWX513	AC/DC 110V
HWX514	AC/DC 220V
HWX515	AC 380/415V
HWX516	AC 440V

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

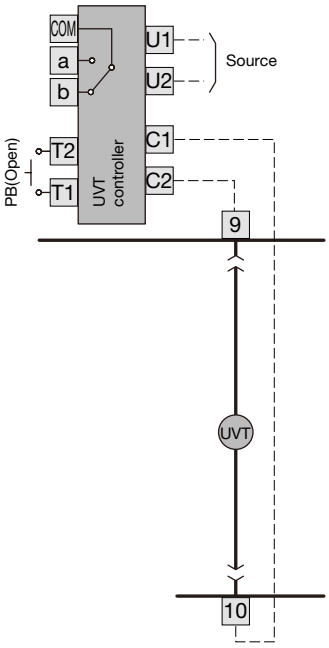
UVT time delay controller



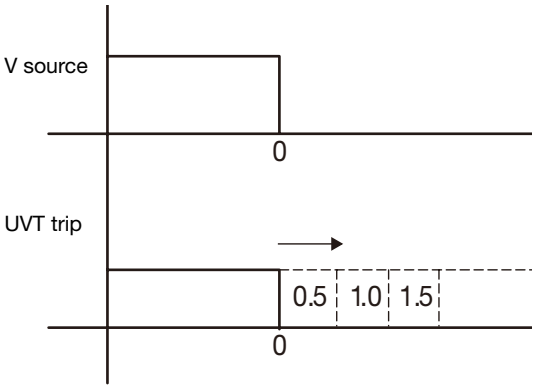


- This device is possible to delay as (0.5, 1.0, 1.5, 3 sec).
- It can be mounted on side of chassis or on the DIN rail.

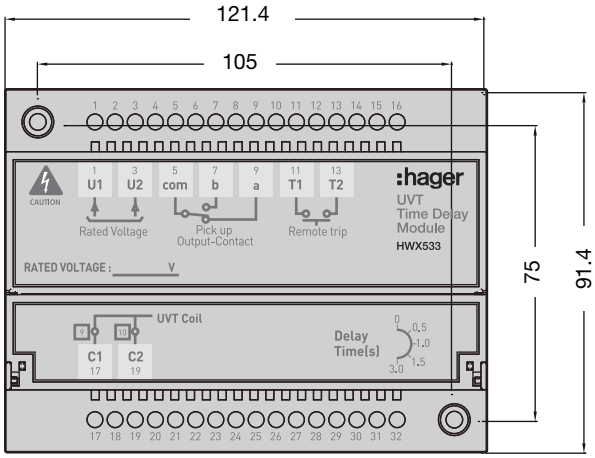
Connection diagram



Connection and operating time



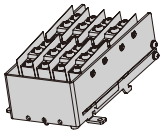
Dimensions (mm)

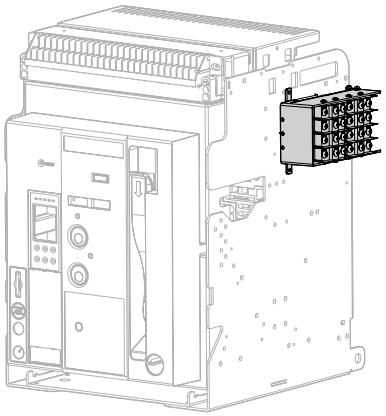


Ratings

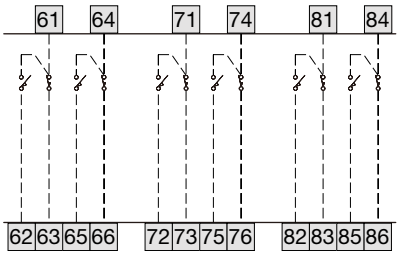
Reference	Rating
HWX533	AC/DC 110V
HWX534	AC/DC 220V
HWX535	AC 380/415V
HWX536	AC 440V

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	
64-66 b	74-76 b	Insert position
67-68 a	77-78 a	91-92 a
67-69 b	77-79 b	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

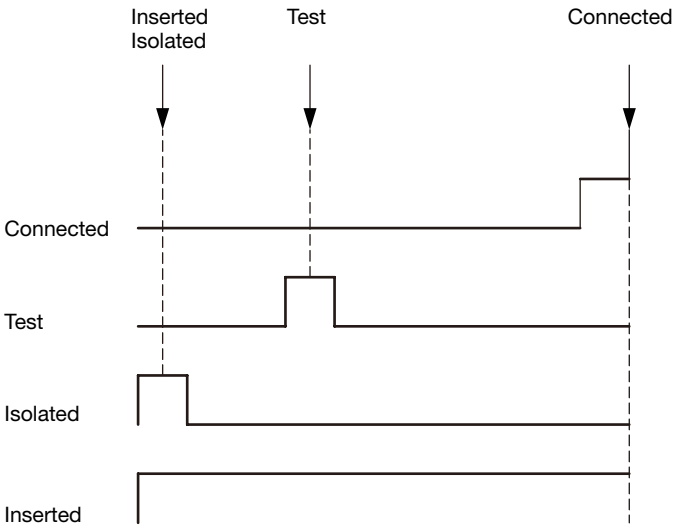
Ratings

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

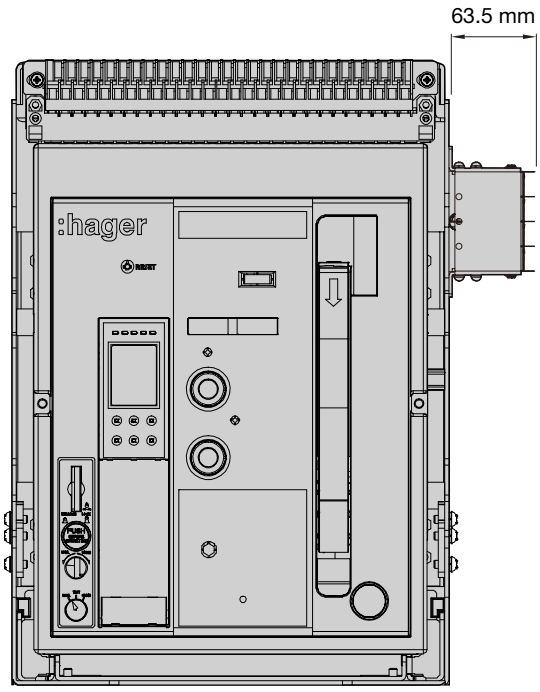
References

References	Inserted	Isolated	Test	Connected
HWX570	-	1C	1C	2C
HWX571	1C	1C	1C	1C
HWX572	1C	1C	3C	3C
HWX573	2C	2C	2C	2C

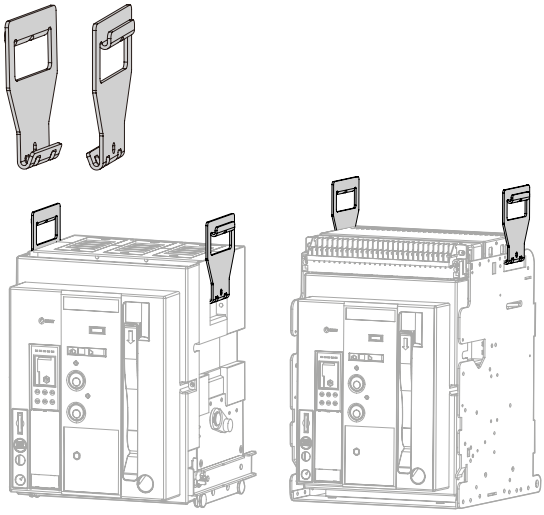
Position switch operating sequence



View

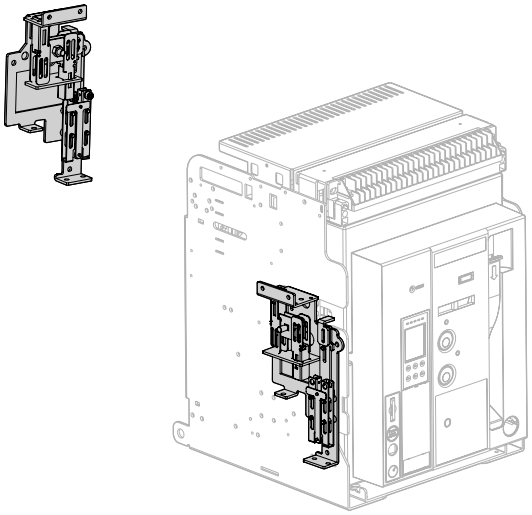


Lifting lugs



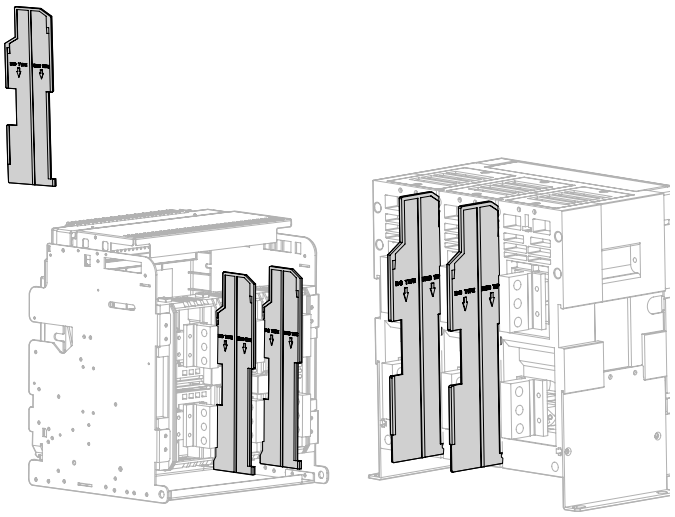
- A device to make an ACB easy to shift.
- Hang it to both handles of the arc shield, chassis, and ACB.
- When handling products, please be sure to use crane. In case of products under 3,200A and handling chassis only, please comply with safety regulation.
- Offered 2ea of 1set as a standard in 5,000A "C" frame.

Mechanical interlock kit



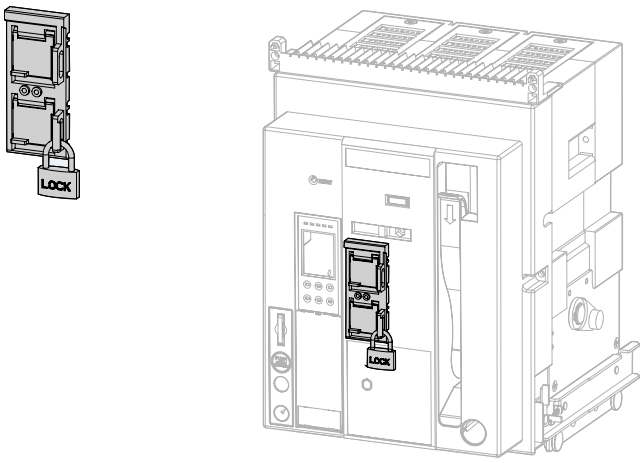
- It is used to interlock closing and trip between two or three breakers mechanically so as to prevent unintended operation at the same time.
- The MI is a safety gear installed in ACB for distribution line and it creates a mechanical interlock between two or three circuit-breakers through each ACB's 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



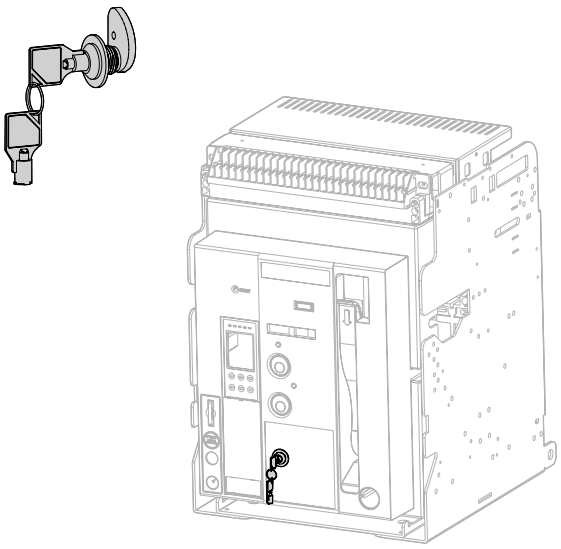
- Phase insulation barrier prevents the arc which may arise and result in short-circuit between phase in advance.

ON/OFF button lock



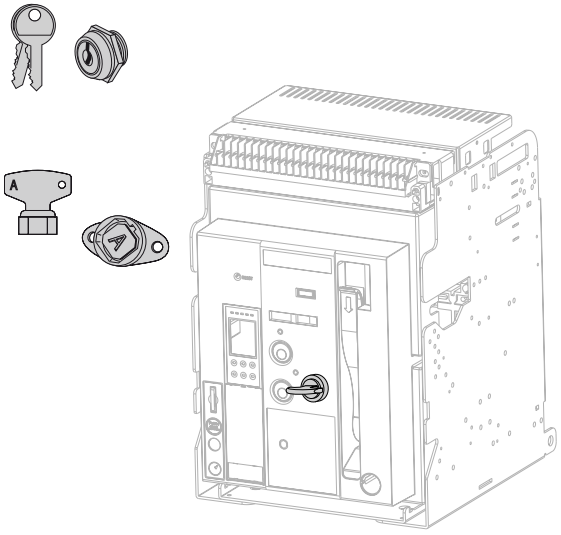
- Prevents manual operation of ACB's closing/tripping button due to user's wrong handling.
- It is not possible to handle on/off operation under the "Button lock" status.
- Padlock is not included, key lock size: Ø5-Ø8

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



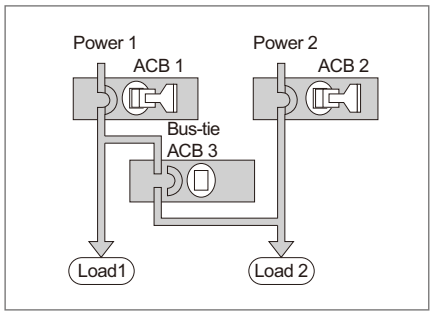
Kirk and Profalux type of locks may also be applied.

	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

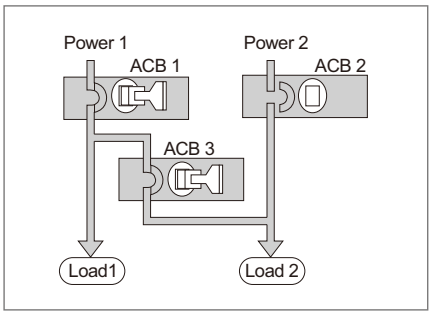
Configure the system with three breaker mounted key lock device. Only two breakers are possible to input with 2ea key, and the other breaker can supply stable load with interlocking.

- ACB 3 is interlocked



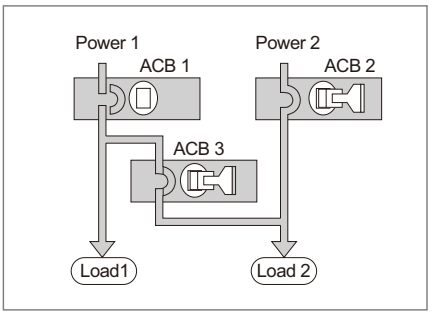
ACB 3 cannot be closed.

- ACB 2 is interlocked



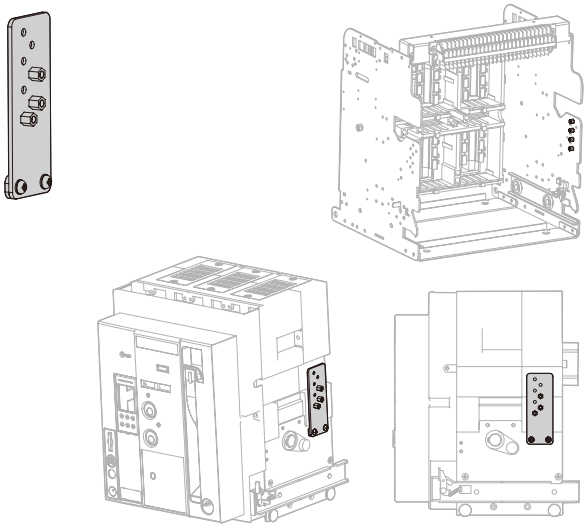
ACB 2 cannot be closed.

- ACB 1 is interlocked



ACB 1 cannot be closed.

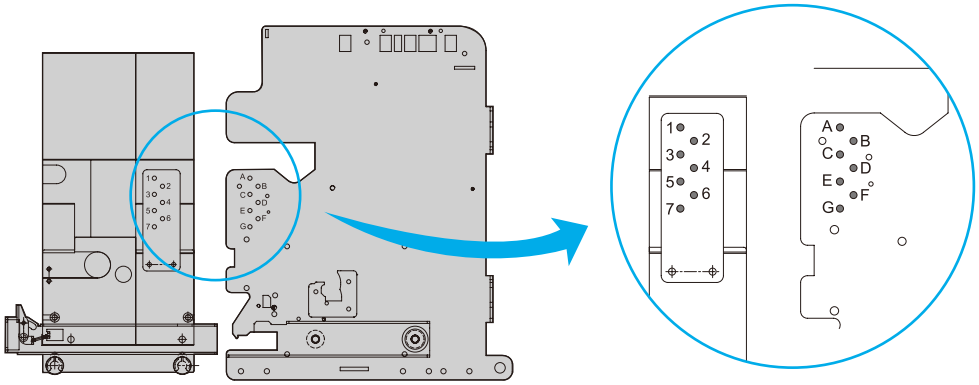
Wrong insertion preventer



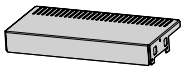
- When the main body of ACB is inserted to the chassis if the ratings of ACB do not match with chassis it mechanically prevents ACB from being inserted into chassis of ACB.
- Each part will have been installed on body or chassis.
- This device is set by CT rated current.

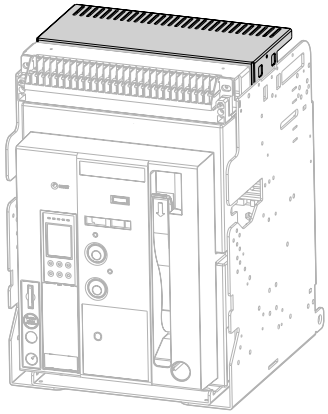
Mounting position according to rated current

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



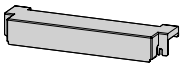
Arc shield

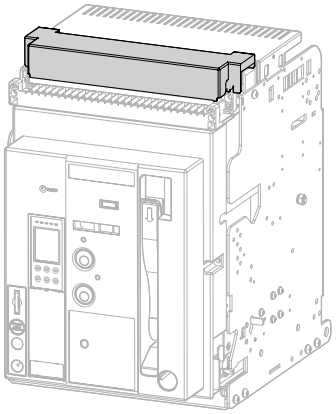




- Arc which may arise while breaking fault current is extinguished first by arc chute in main body of circuit breaker and then completely extinguished by arc cover.

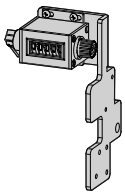
Control terminal protection cover

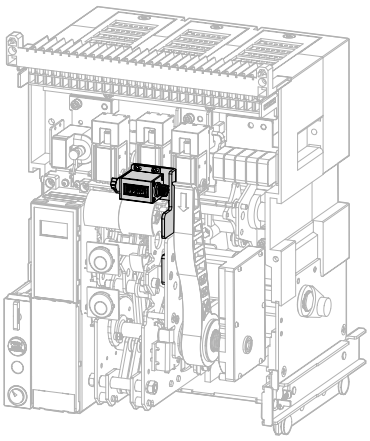




- Protects control terminals which are exposed to the outside, and prevent damage from foreign substances.

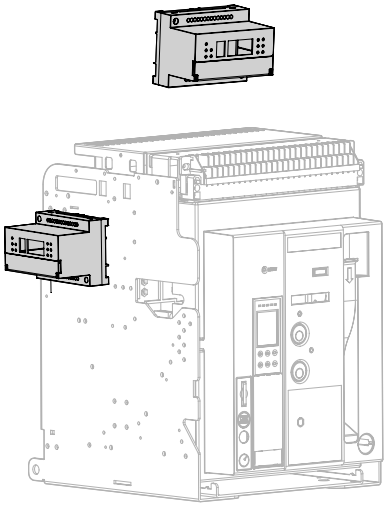
Counter





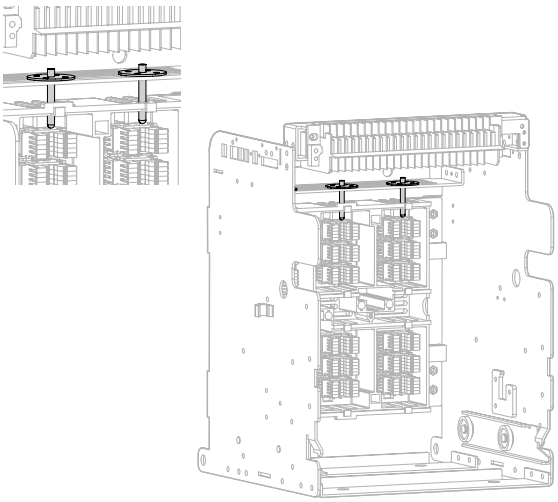
- Displays the total number of on/off operation of ACB
- The counter displays the total number of on/off operation of ACB.

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.

Temperature sensor

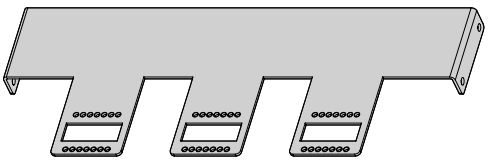


- The RCTU is used with temperature sensor installed inside of the ACB.
- The temperature sensor is installed in designated position. However user can change the position to applicable extra site.

Contact specification

Division		Range of application
ACB control	contact ratings	10A, 240V AC, 30V DC
	max. switching power	2,400VA, 300W

Temperature sensor support



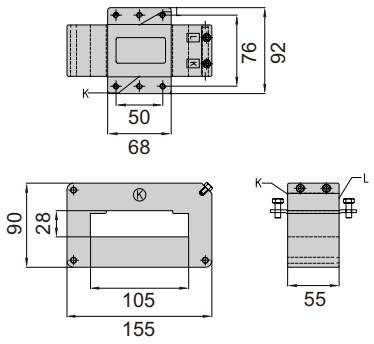
Different supports are designed to make easier the installation of IR temperature sensor:
- Frame A, 3P and 4P
- Frame B, 3P and 4P
- Frame C, 3P and 4P

Neutral CT

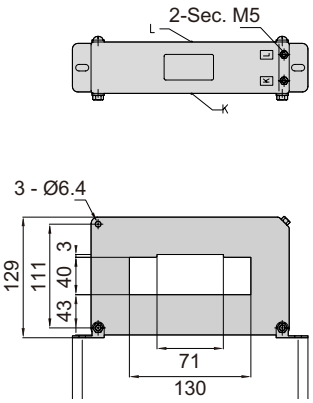
- The NCT is additionally applied for 3-pole circuit breaker when it is connected to distribution line (3 phases 4 lines).
- For distribution line (3 phases 4 lines) 3pole circuit breaker can protect the ground fault however, we can not classify unbalanced load and ground fault. To complement this when 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)

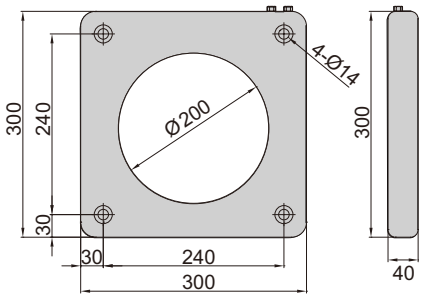
630-1,600A



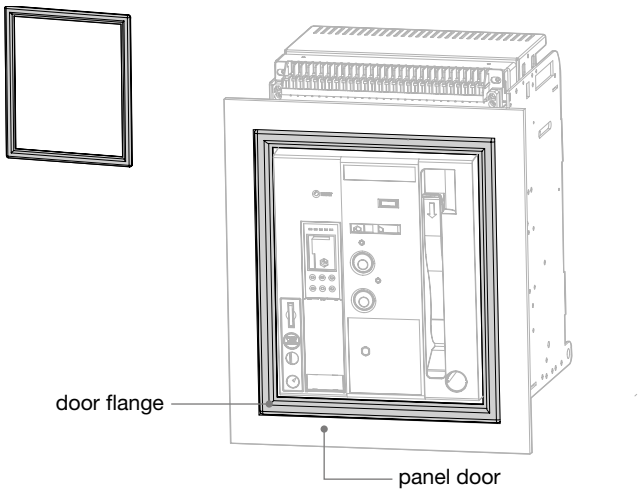
2,000-4,000A



4,000-5,000A

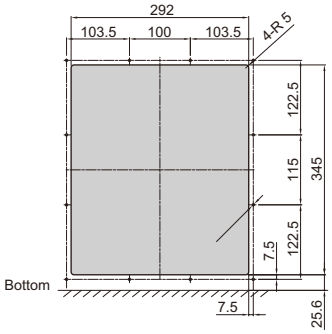


Door flange

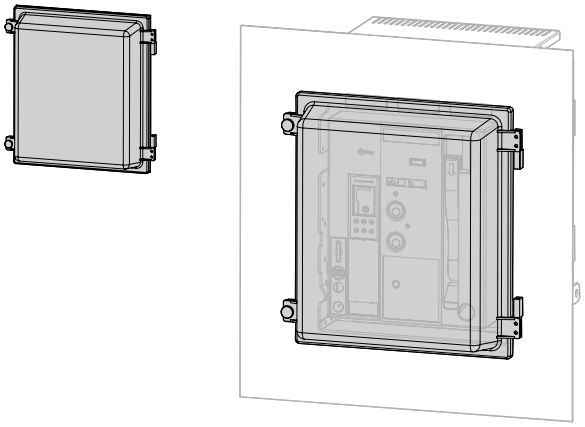


- Protects the protruding front of ACB and the cutting side of panel door by attaching it to the panel door.
- Both fixed/draw-out type are the same size of the panel cutting, even if the dust cover is installed.
- Refer to dimension for panel cutting size.
- Protection rating of IP30.

Panel door cutting dimensions (mm)

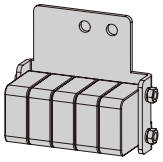


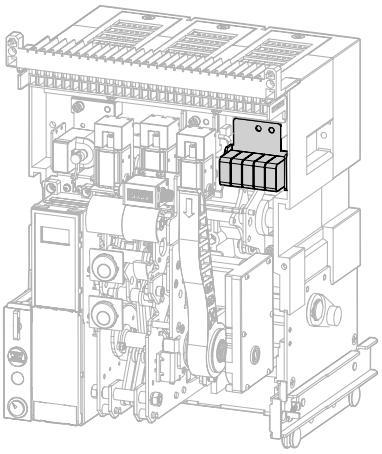
Dust cover



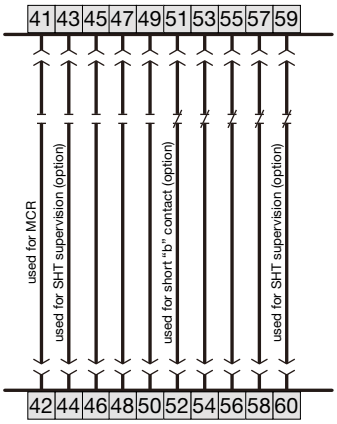
- A protective cover which completely protects the front panel of ACB from dust and moisture, with a protection rating of IP54.
- Locks the cover in the test or connected position.
- Refer to dimension for panel cutting size.

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.

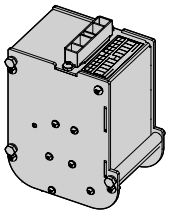
Ratings

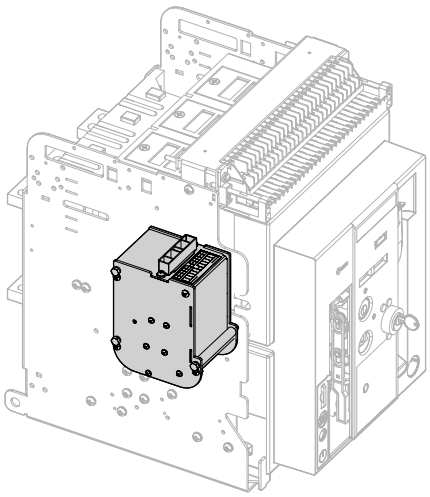
Load	Resistance	Lamp	Inductor	Motor
AC125V	5A	0.7A	4A	1.3A
AC250V	5A	0.5A	4A	0.8A

Wire ratings

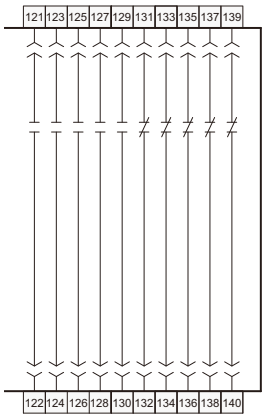
Wire ratings (Un)	
AWG	insulation level (V)
20	300

Additional AX 5a5b (MOC)





Connection diagram



- MOC is suitable for ACB draw-out type
- When MOC is fitted, MI cannot be mounted.

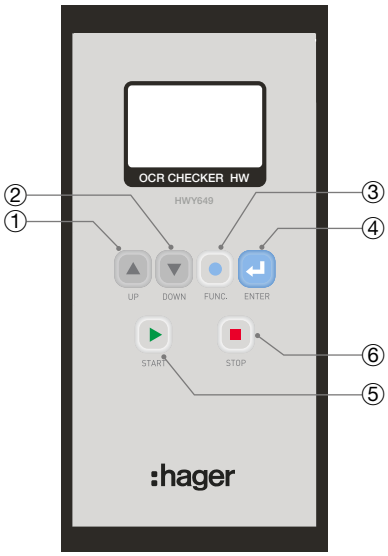
OCR portable checker

- 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).

Connection diagram

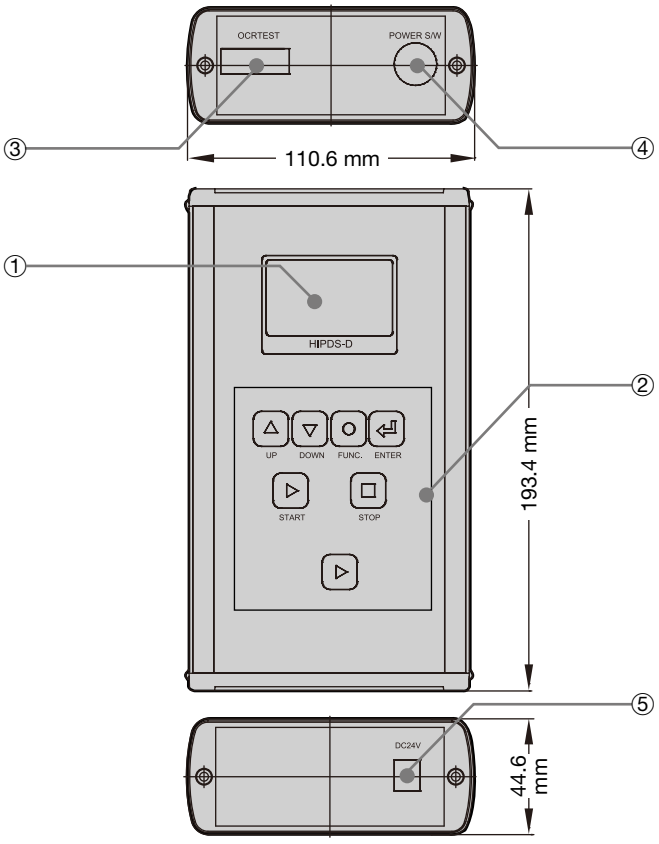
Item	Specifications
external power	input: AC/DC100-220V,50/60Hz output: DC24V,2.5A
battery	Alkaline 9V: 3EA
trip time measurement	0-999,999 sec
test output	0.3In-17In
output precision	±20% (1In-17In)
size (H×W×D)	193mm x 111mm x 45mm

Keypad



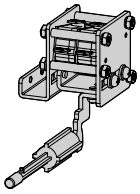
Nr	Button	Function
1	UP	move menu and increasing setpoint
2	DOWN	move menu and decrease setpoint
3	FUNC	move to the previous menu and return to the setup screen
4	ENTER	save the settings and move the number of digits of setting current
5	START	waveform occurrence
6	STOP	waveform stop

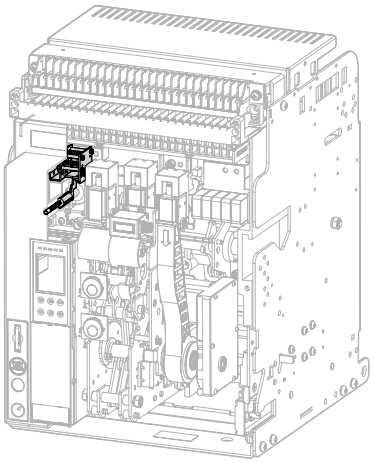
Externals



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

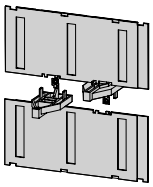
OCR and alarm switch reset (MHT)

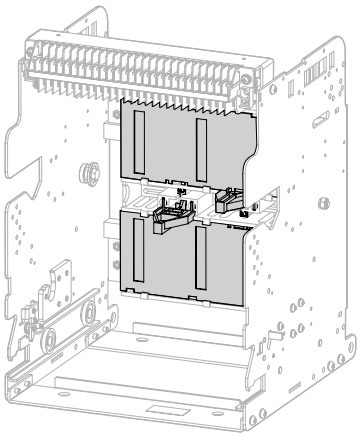




- When a circuit breaker tripped by fault current or over load and only if the circuit breaker has been tripped by OCR, the Manual Reset Button operates interlock and resets the interlock to restore electric lines after fault factors have been removed.
- When the ACB is tripped by OCR it provides functions 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.

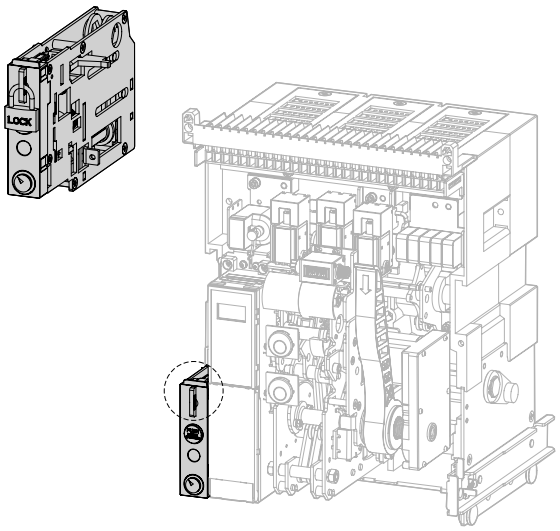
Safety shutter lock





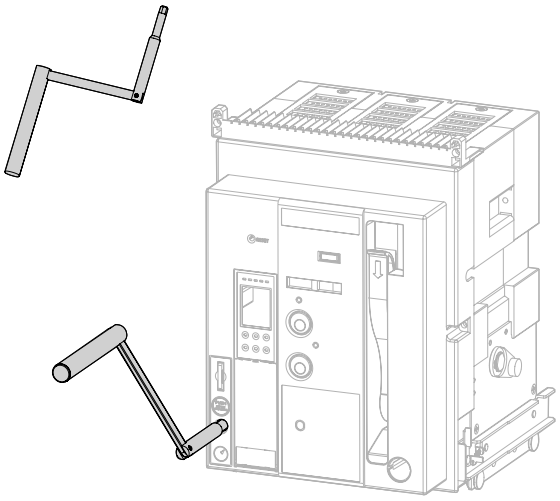
- An automatic safety device to protect the connectors of main circuit by cutting off dangerous contact from outside while the breaker is drawn out.
- Shutter lock is a locking device which prevents safety shutter from being opened when it is closed. (Key lock is not included. Size is Ø5-Ø8)

Draw-in/out device mechanism



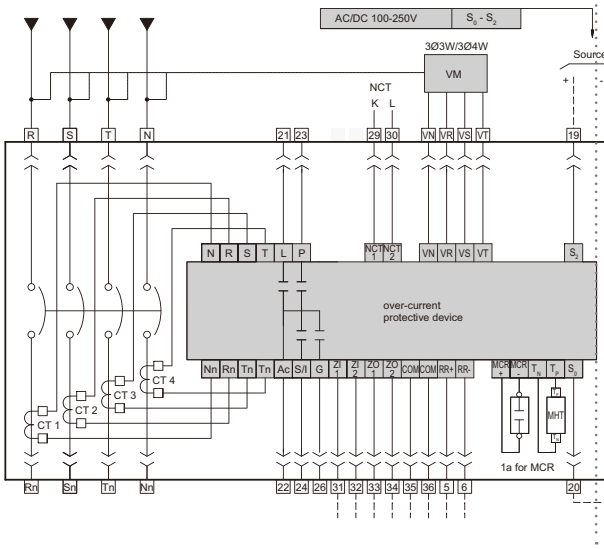
- Draw-in/out device unit is mounted on the body of draw type ACB as standard.
- Draw-in/out device unit consists of draw-in/out handle storage space, push button, position indicator, pad lock.
- Position pad lock is a safety device as locking draw-in/out function in connected/test/sol position.
- This device is offered as standard except key lock. Available key lock size: Ø5-Ø8

Draw-in/out handle

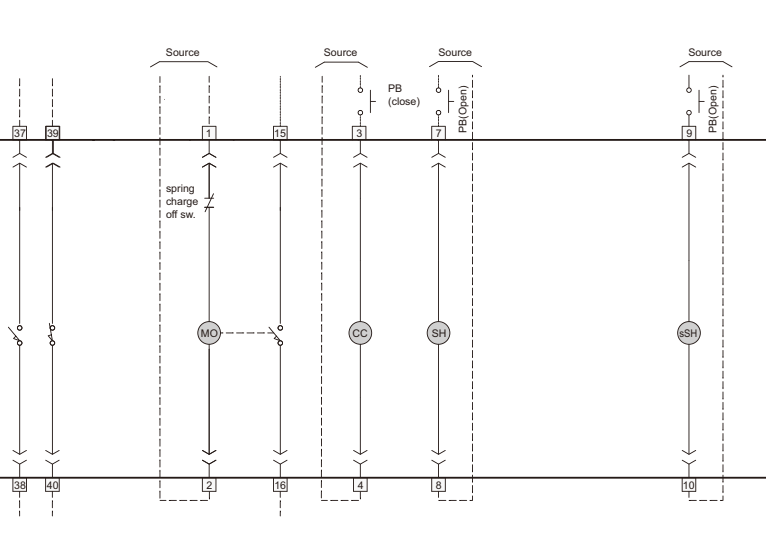


- Draw-in/out handle is included in storage place for draw-out type.

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

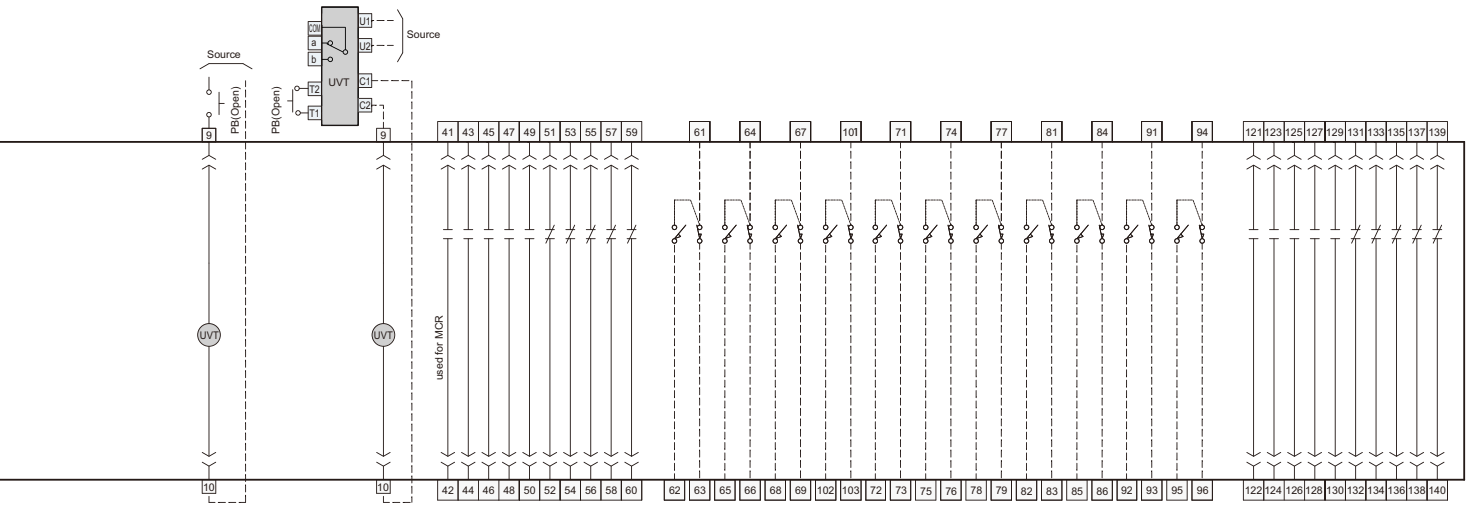
Terminal description

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



Test position	Connection position	Isolation position	Insert position	Additional auxiliary SW
61-62 a	71-72 a	81-82 a	84-85 a	5NO/5NC
61-63 b	71-73 b	81-83 b	84-86 b	
64-65 a	74-75 a	84-85 a	91-92 a	
64-66 b	74-76 b	84-86 b	91-93 b	
67-68 a	77-78 a		94-95 a	
67-69 b	77-79 b		94-96 b	
101-102 a				"a" contact = NO contact
101-103 b				"b" contact = NC contact

Draw-out type lay-out

OCR & OCGR														Control circuit					Auxiliary switch									
POW	OCR CONTACT			PR	NCT	ZIC-IN	ZIC-OUT	RS485	BA		VM		MO	CC	SH	UVT/ sSH	RTC	MCR	2a	3a	4a	5a	1b	2b	3b	4b	5b
	COM.22	L-21	SI-24	PTA-23	G-26																							
+19	21	23		5	+29	+31	+33	+35	37	39	VR/Z7	VT	1	3	7	9	15	41	43	45	47	49	51	53	55	57	59
-20	22	24	26	6	-30	-32	-34	-36	38	40	VS/28	VT	2	4	8	10	16	42	44	46	48	50	52	54	56	58	60

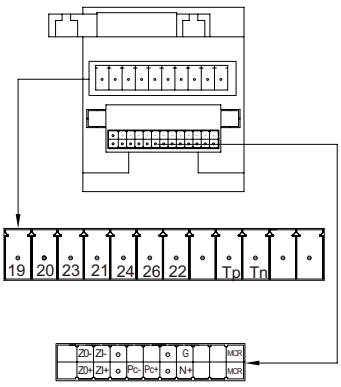
OCR and OCGR — control circuit — auxiliary switch

OCR & OCGR												
POW	OCR CONT				RR	NC	ZIC-IN	ZIC-OUT	RS485	BA		M/ZCT	
	COM22	L-21	SI-24	PTA-23	G-26								
+19	21	23			5	+29	+31	+33	+35	37	39	VR/27	VT
-20	22	24	26		6	-30	-32	-34	-36	38	40	VS/28	VN

Control circuit				
MO	CC	SH	UVT /sSH	RTC
1	3	7	9	15
2	4	8	10	16

Auxiliary switch									
MCR	2a	3a	4a	5a	1b	2b	3b	4b	5b
41	43	45	47	49	51	53	55	57	59
42	44	46	48	50	52	54	56	58	60

Over-current protective device (standard type)



Fixed type lay-out

5	27	+31	+33			37	39	VR	VT
6	28	-32	-34			38	40	VS	VN

RR	ZCT	ZSI IN	ZSI OUT		BA	VM	

OCR CIRCUIT

1	3	7	9	+35		24	15	+19	21	+29
2	4	8	10	-36	26	23	16	-20	22	-30

MO	CC	SH	UVT /sSH	RS 485	G	S/I PTA	RTC	OCR POW	LTD COM	NCT

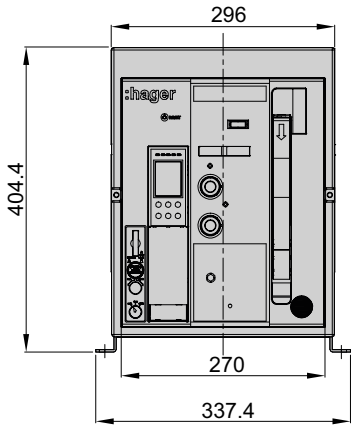
Control circuit

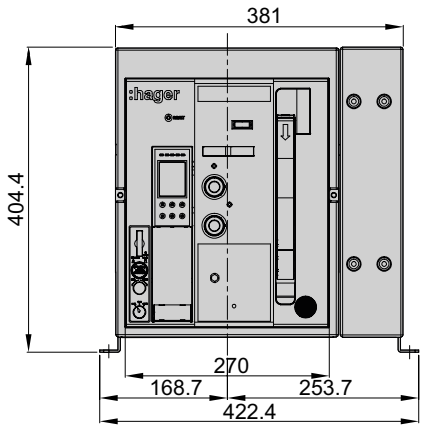
41	43	45	47	49		51	53	55	57	59
42	44	46	48	50		52	54	56	58	60

MCR	2a	3a	4a	5a	1b	2b	3b	4b	5b

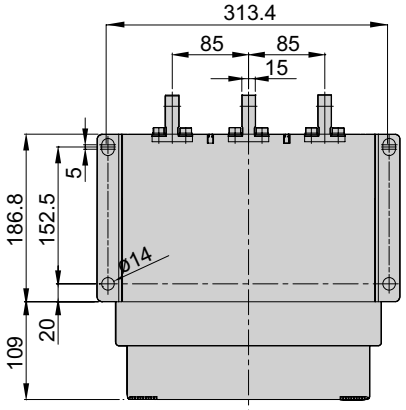
Auxiliary switch

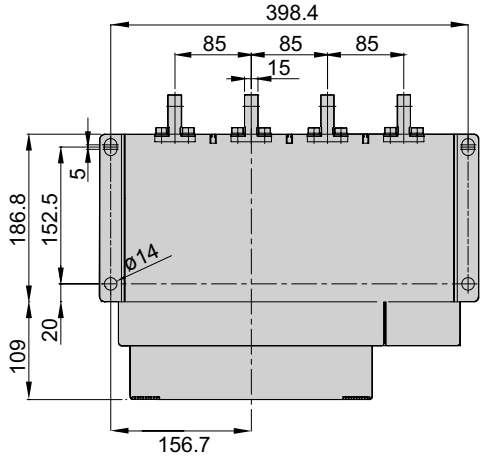
A frame draw-out type dimensions
Front view (mm)



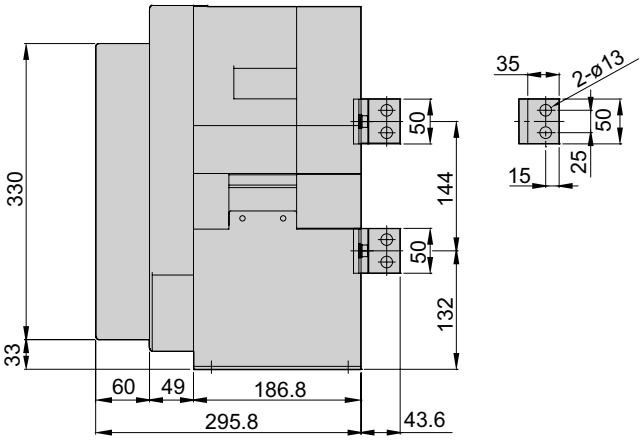


Vertical terminal connection (mm)

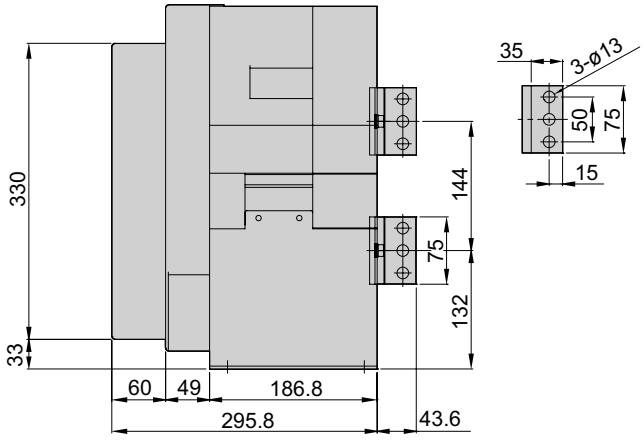




[630-1,600A]

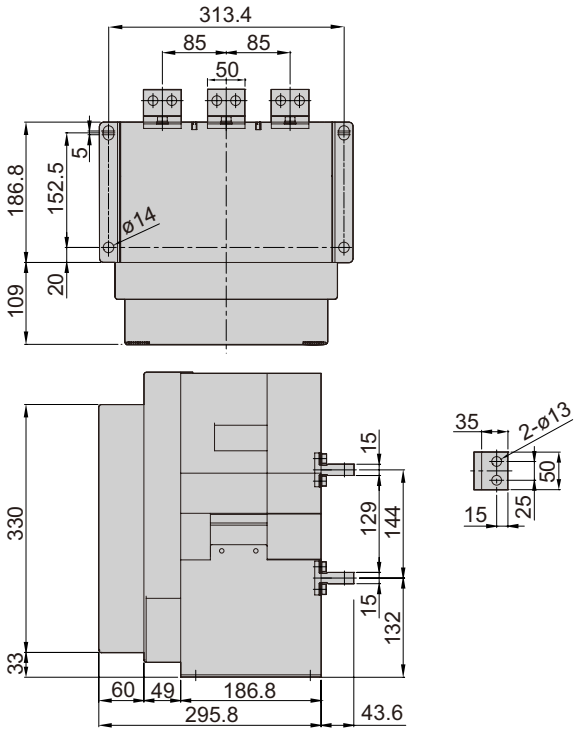


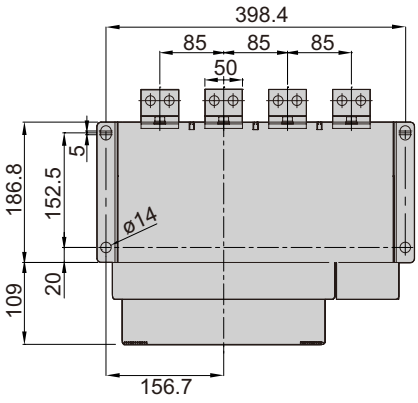
[2000A]



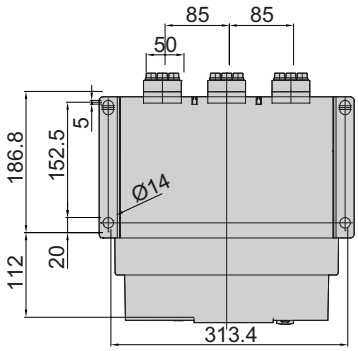
A frame 2,000A of ACB Hw is applicable vertical terminal only.

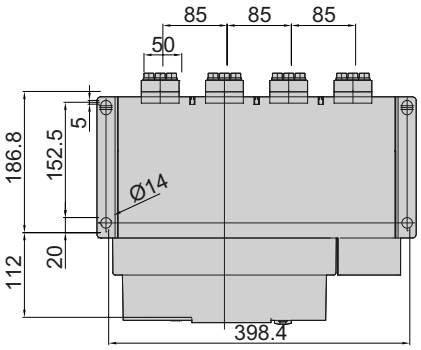
A frame draw-out type dimensions
Horizontal terminal connection (mm)

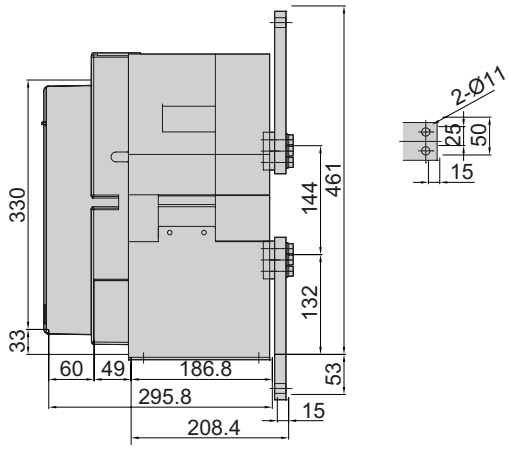




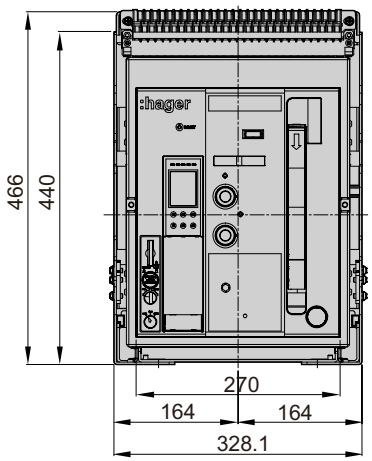
Front terminal connection (mm)
[630 - 1600A]

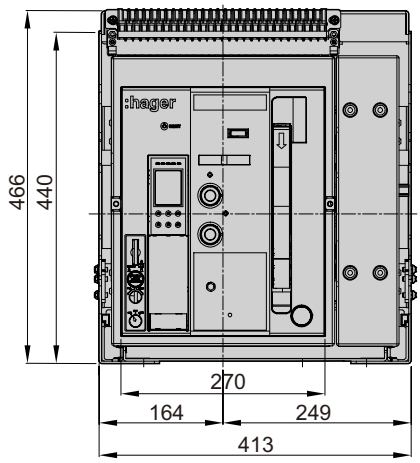




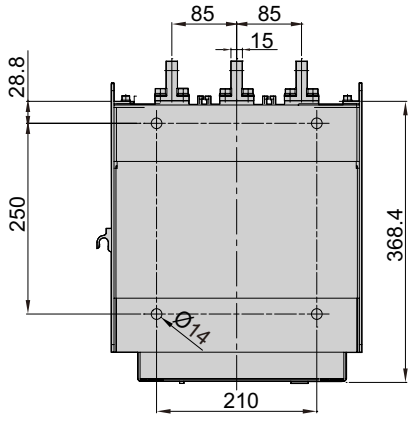


A frame draw-out type dimensions
Front view (mm)

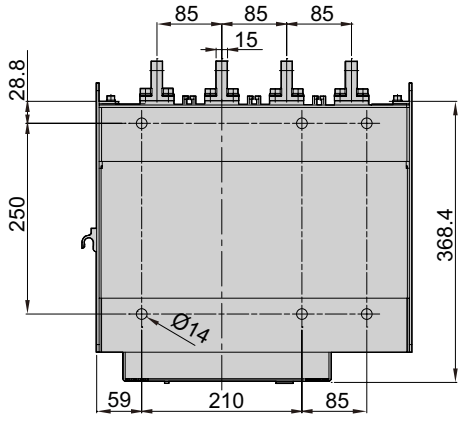




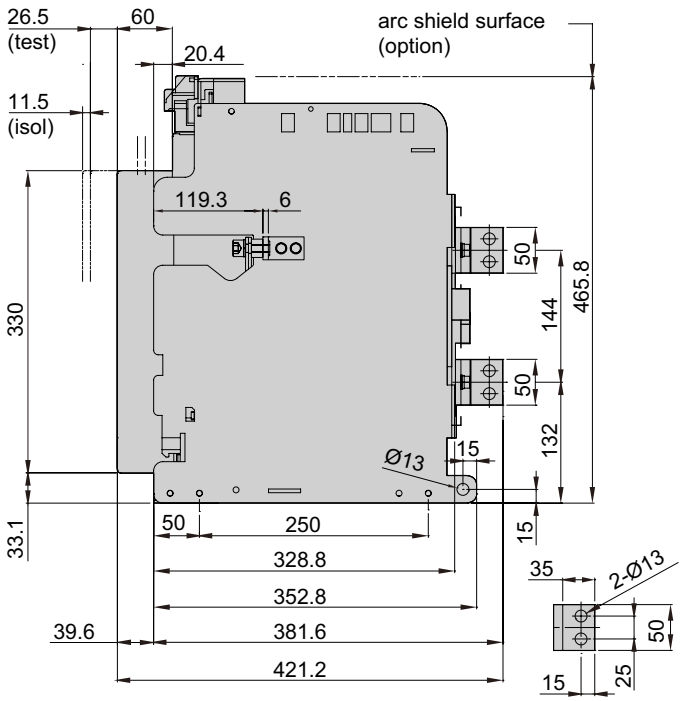
Vertical terminal connection (mm)

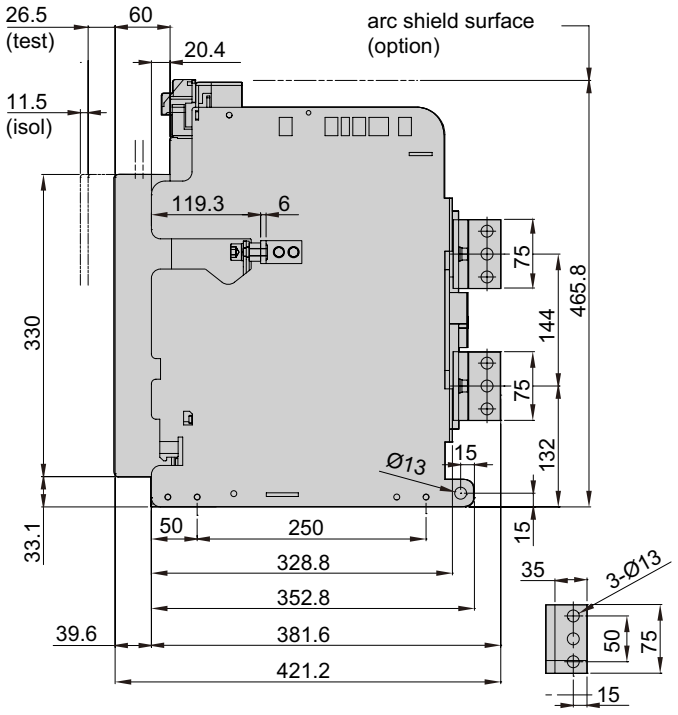


[630-1,600A]



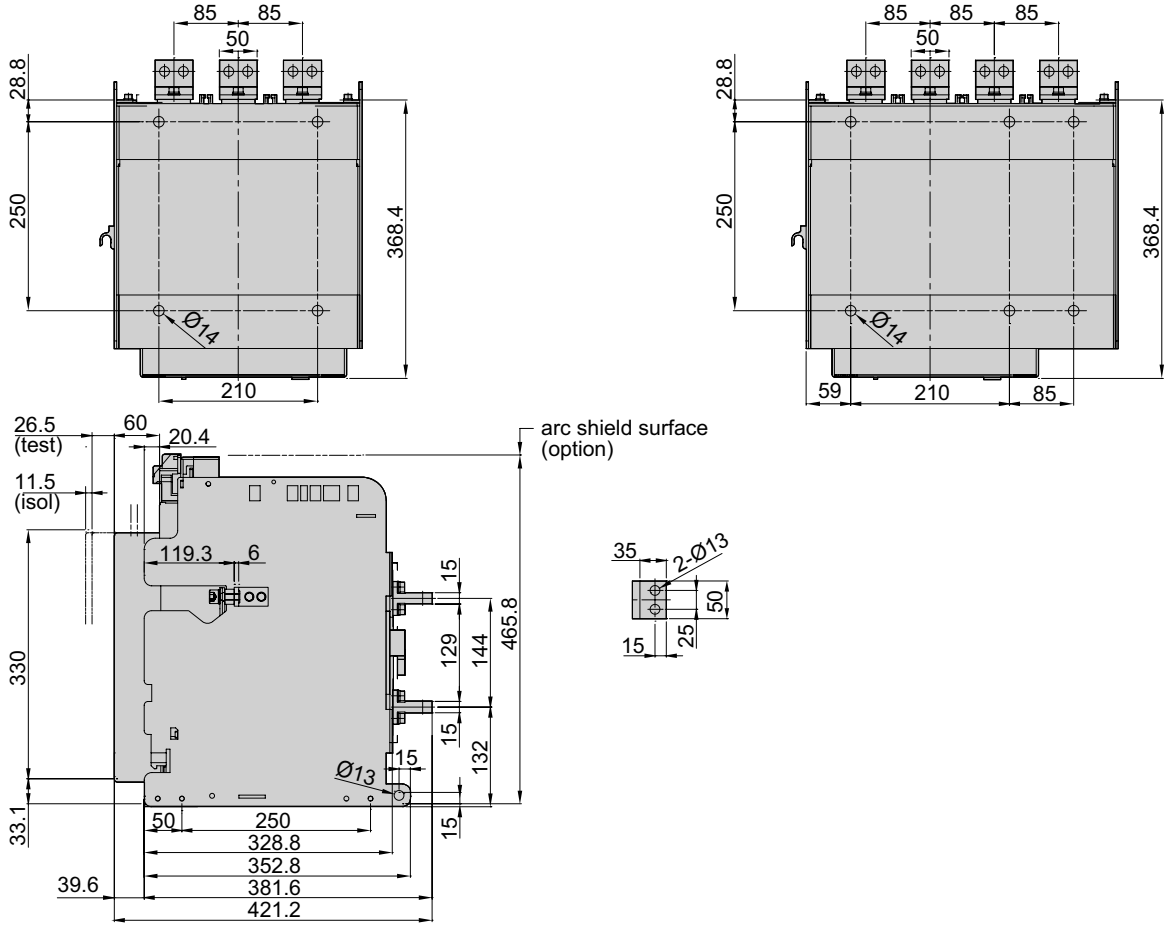
[2,000A]



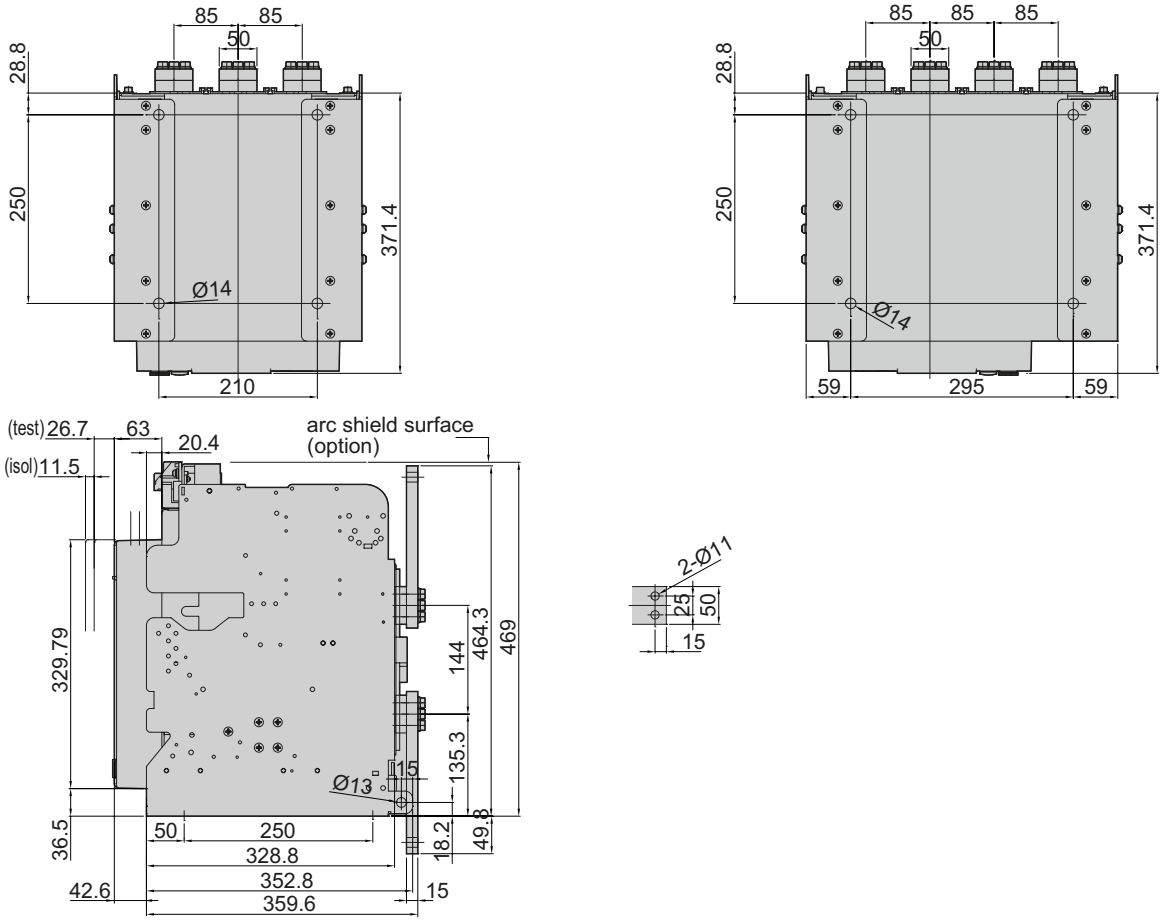


A frame 2,000A of ACB Hw is applicable vertical terminal only.

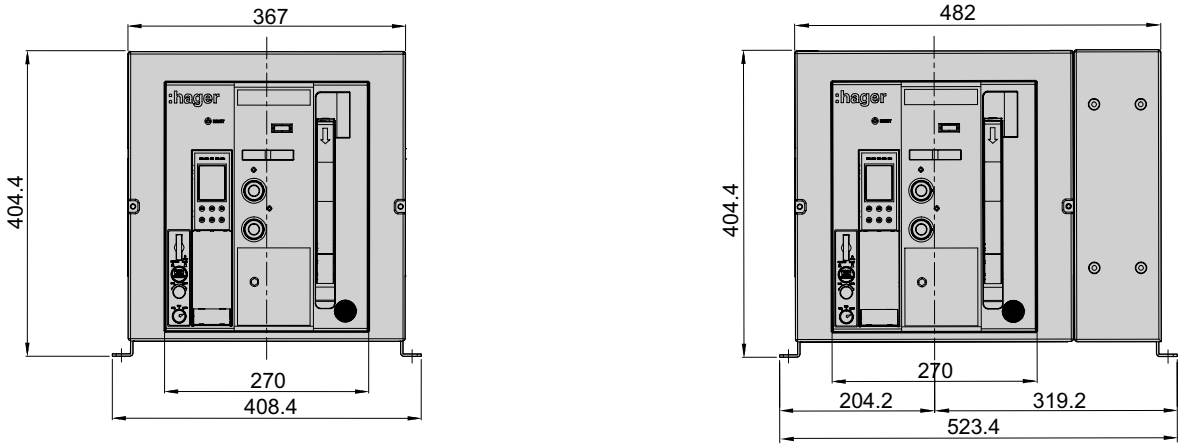
A frame draw-out type dimensions
Horizontal terminal connection (mm)



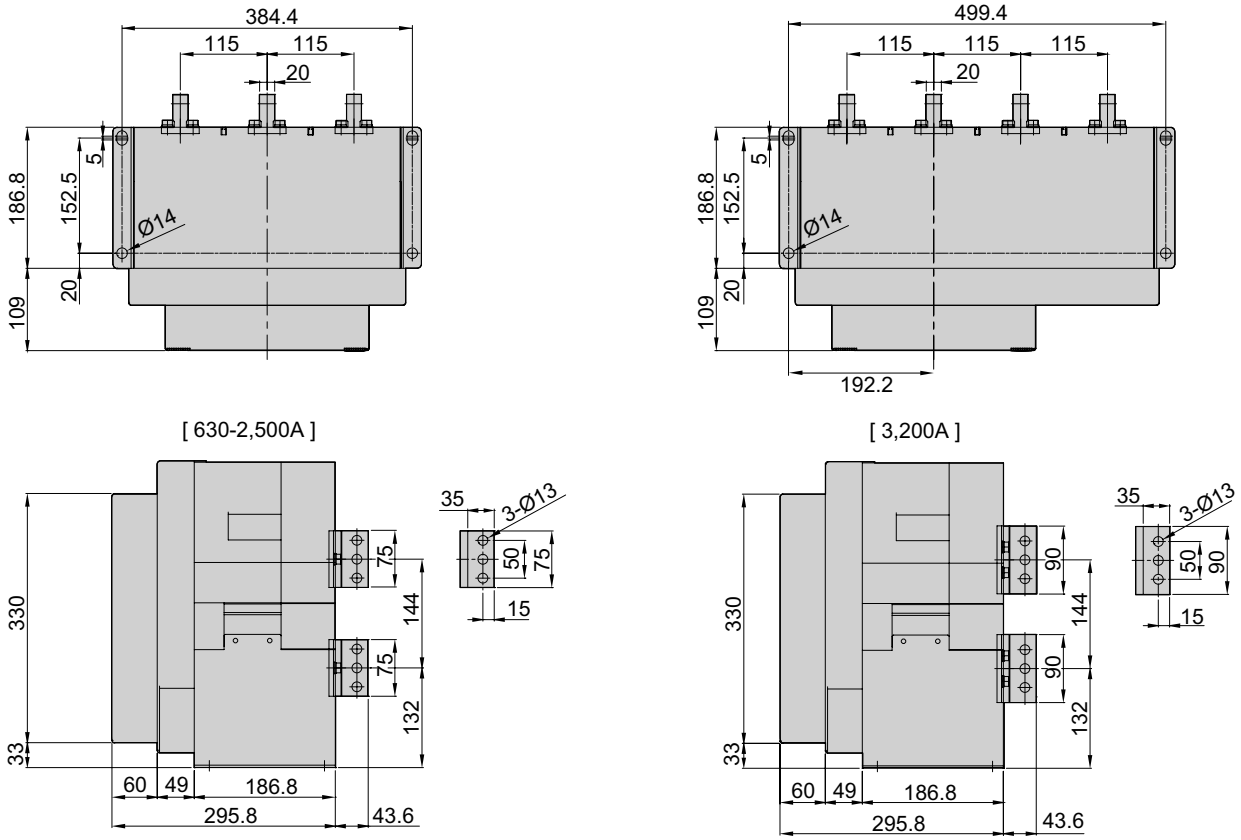
Front terminal connection (mm)
[630-1600A]



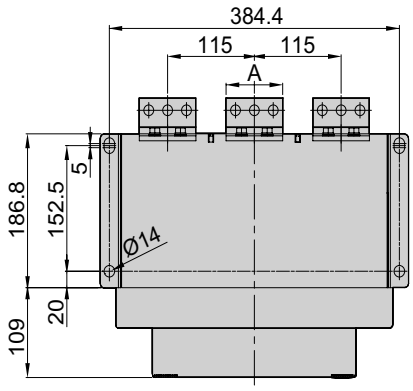
B frame fixed type 630 - 3200A dimensions
Front view (mm)



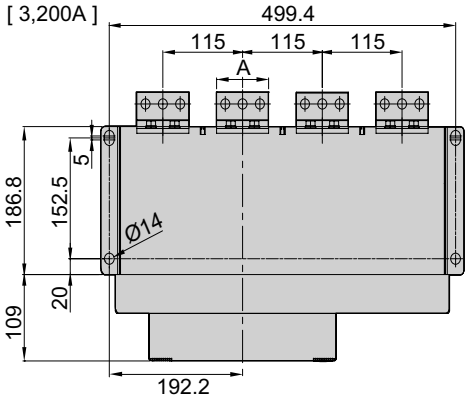
Vertical terminal connection (mm)



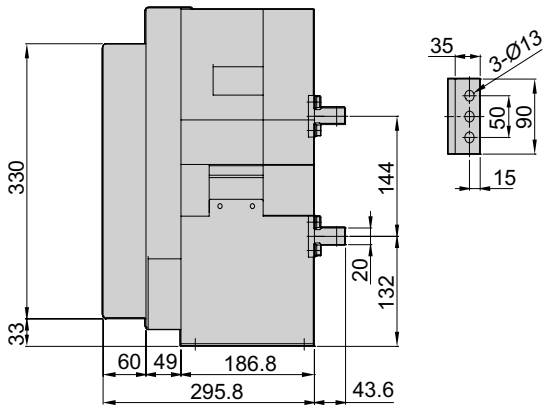
B frame fixed type 630 - 3200A dimensions
Horizontal terminal connection (mm)



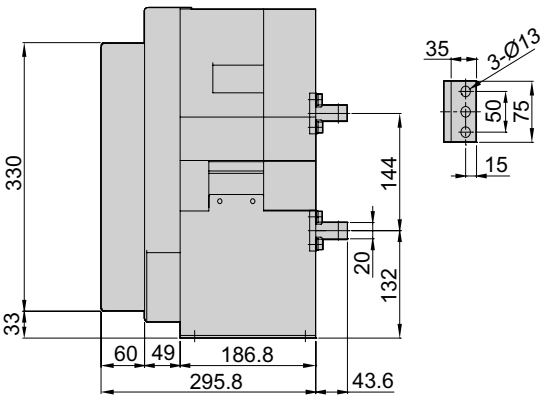
Range	A (mm)
630 - 2500A	75
3200A	90



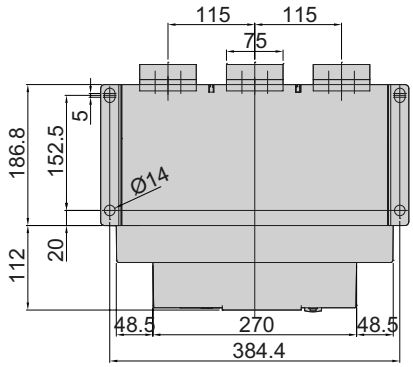
[3,200A]

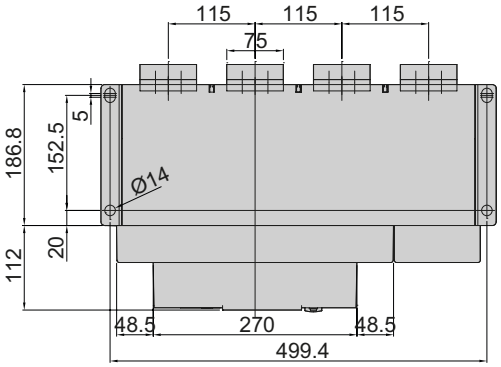


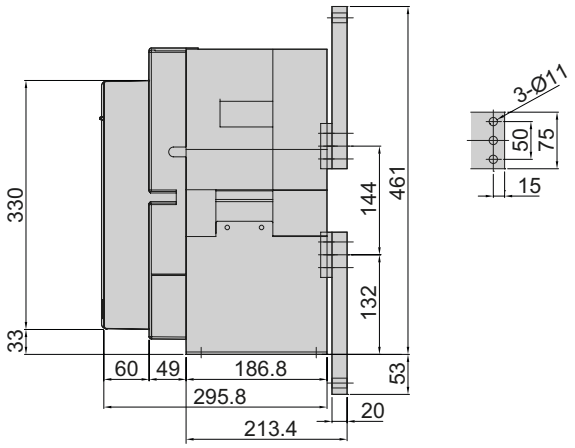
[630~2,500A]



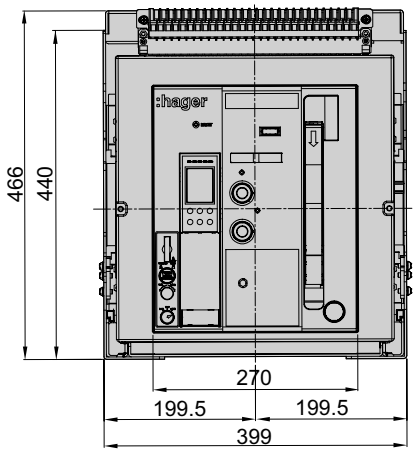
Front terminal connection (mm)
[630-3200A]

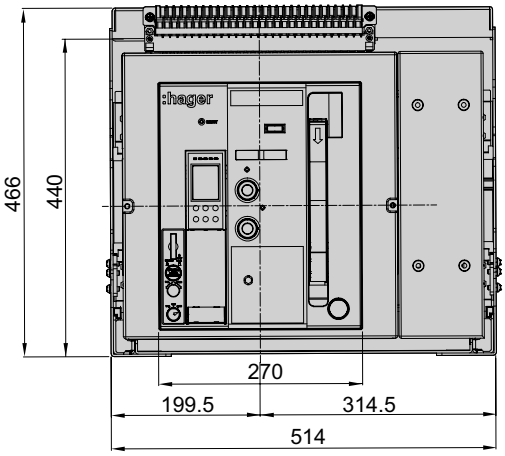




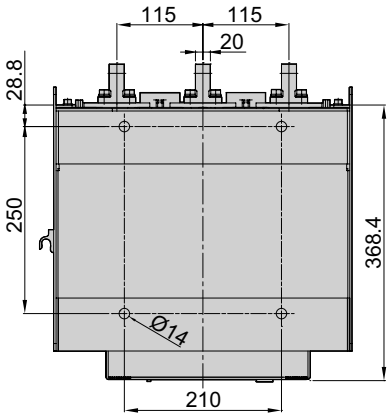


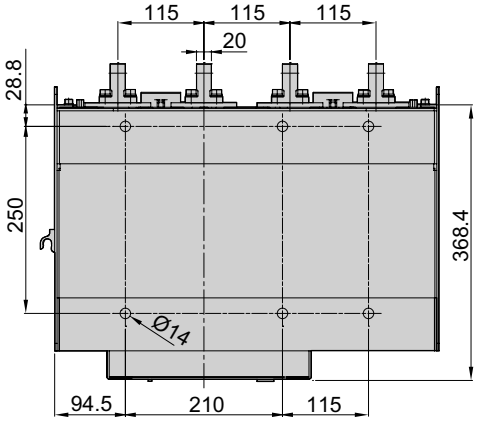
B frame draw-out type 630 - 3200A dimensions
Front view (mm)



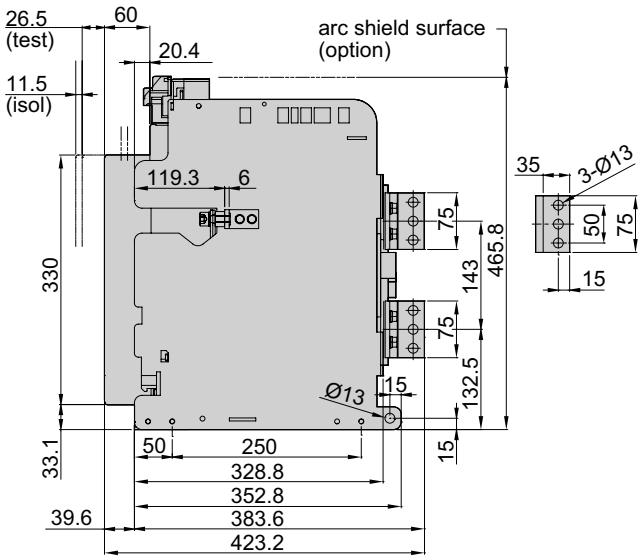


Vertical terminal connection (mm)

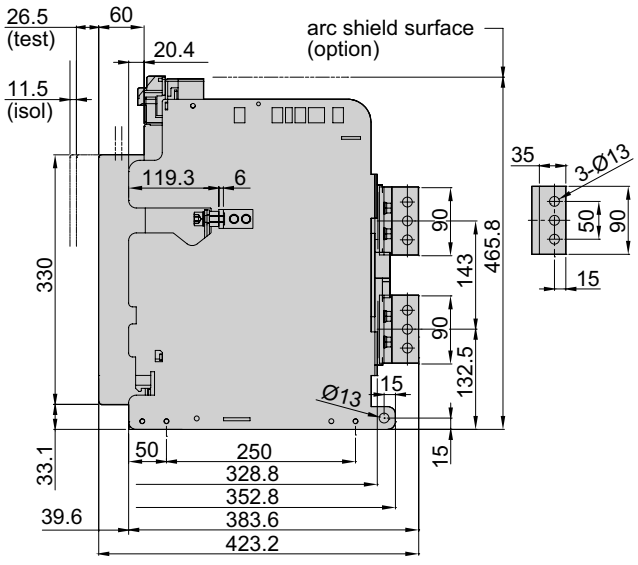




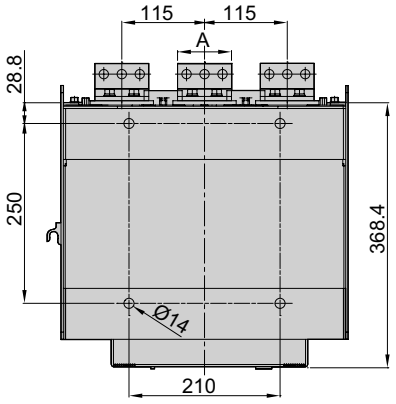
[630-2,500A]



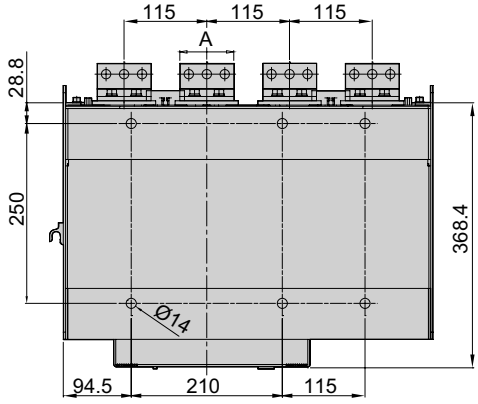
[3,200A]



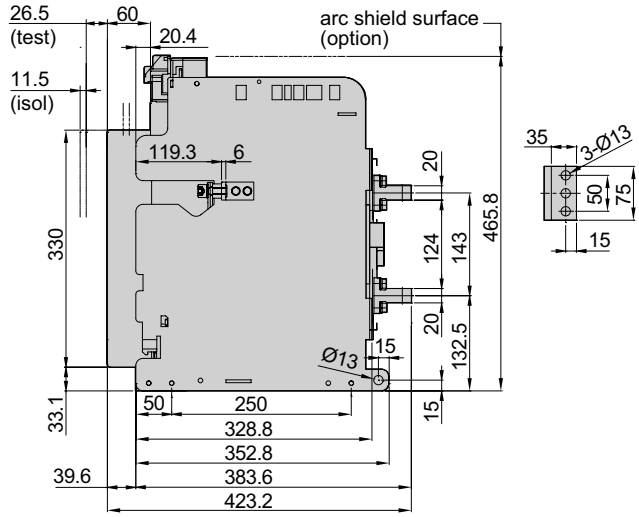
B frame draw-out type 630 - 3200A dimensions
Horizontal terminal connection (mm)



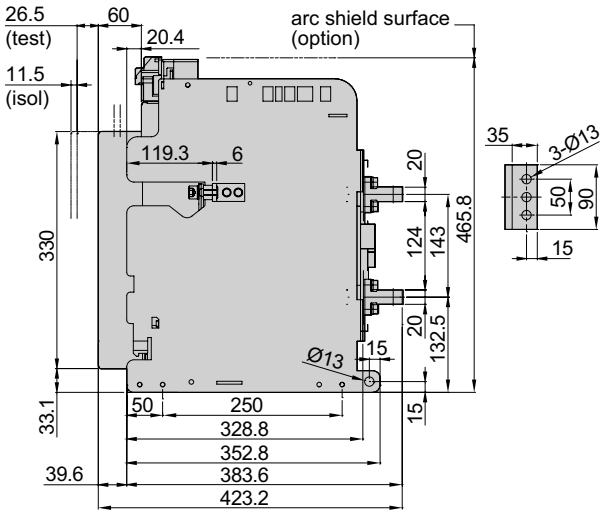
Range	A (mm)
630 - 2500A	75
3200A	90



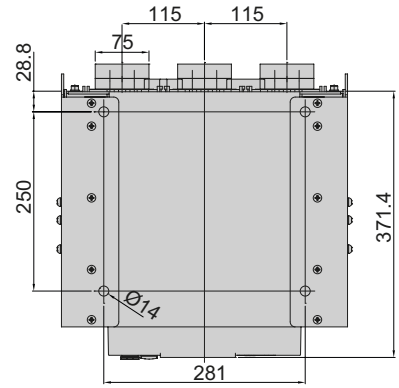
[630-2,500A]

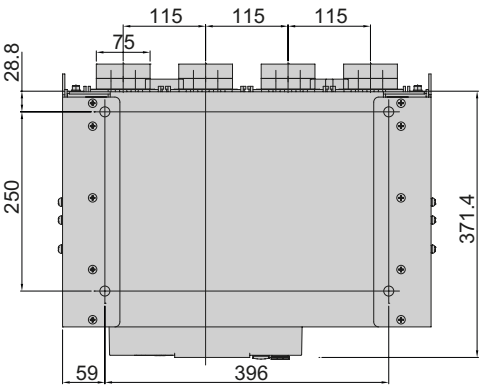


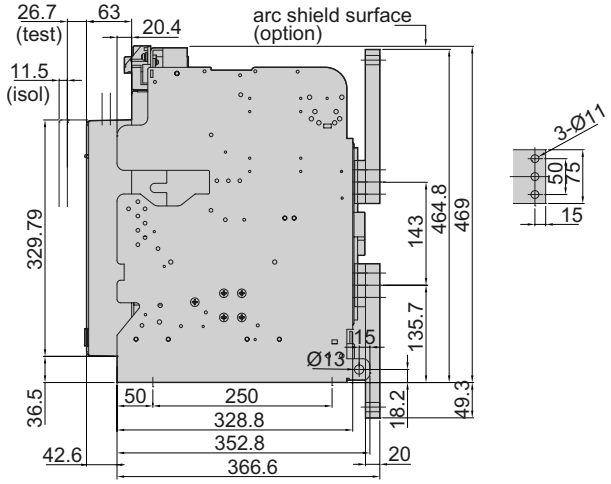
[3,200A]



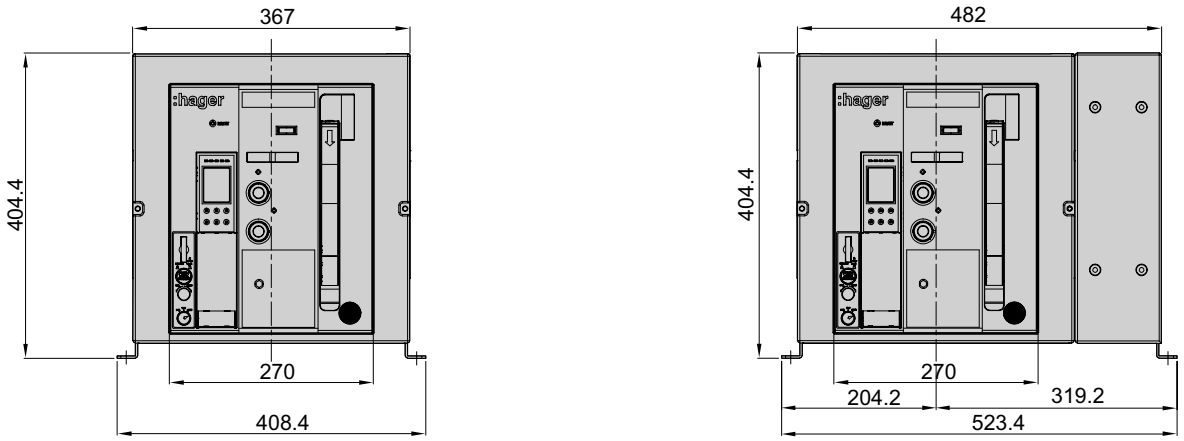
Front terminal connection (mm)
[630-3200A]



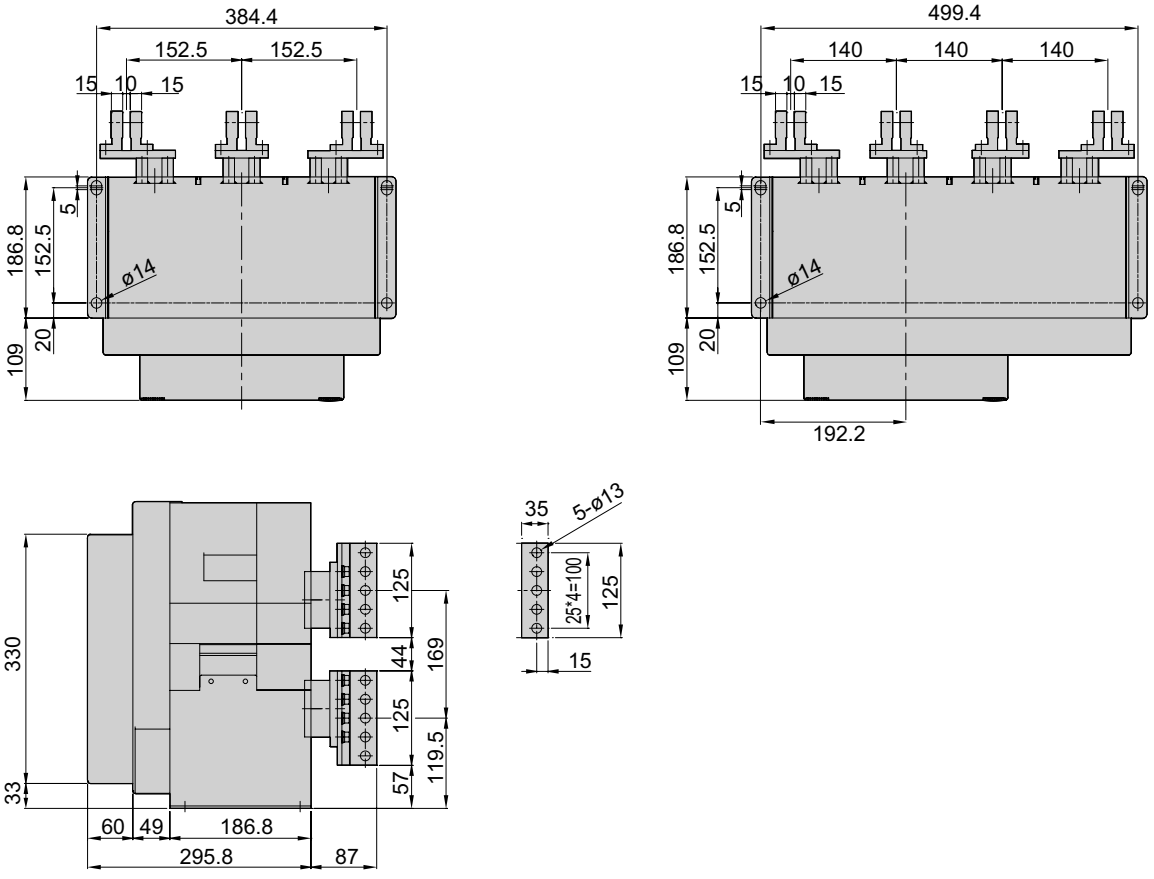




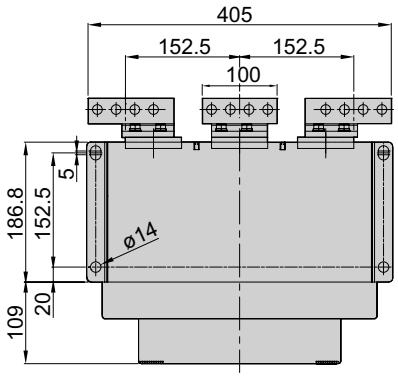
B frame fixed type 4000A dimensions
Front view (mm)

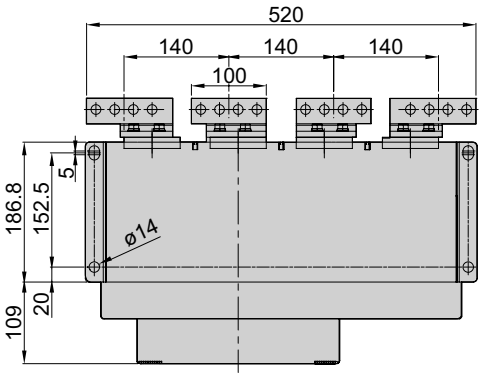


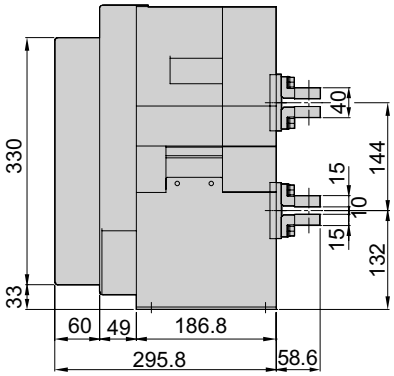
Vertical terminal connection (mm)

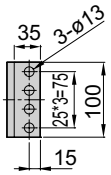


B frame fixed type 4000A dimensions
Horizontal terminal connection (mm)

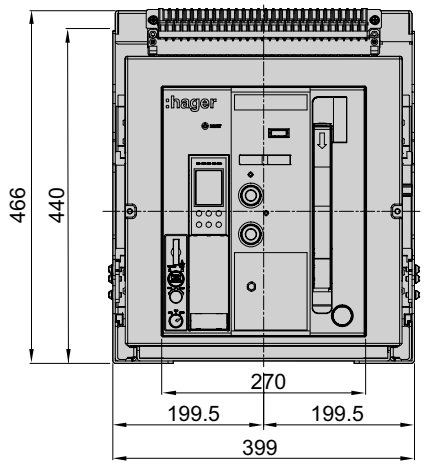


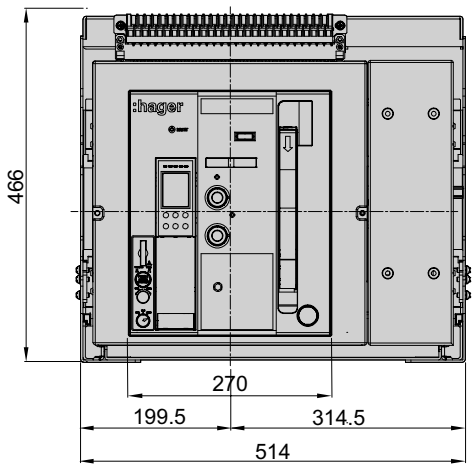




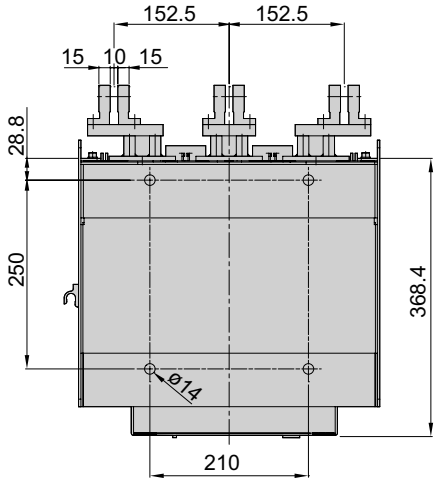


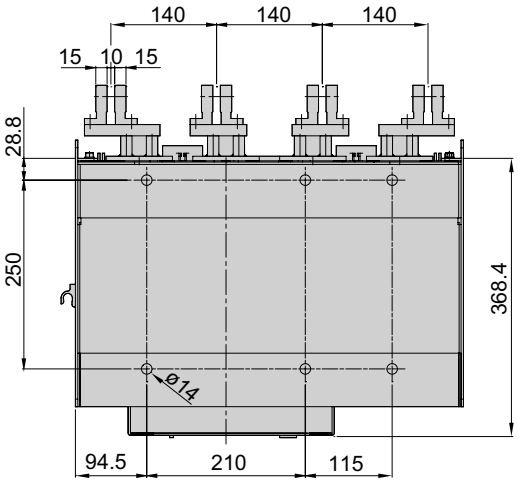
B frame draw-out type 4000A dimensions
Front view (mm)

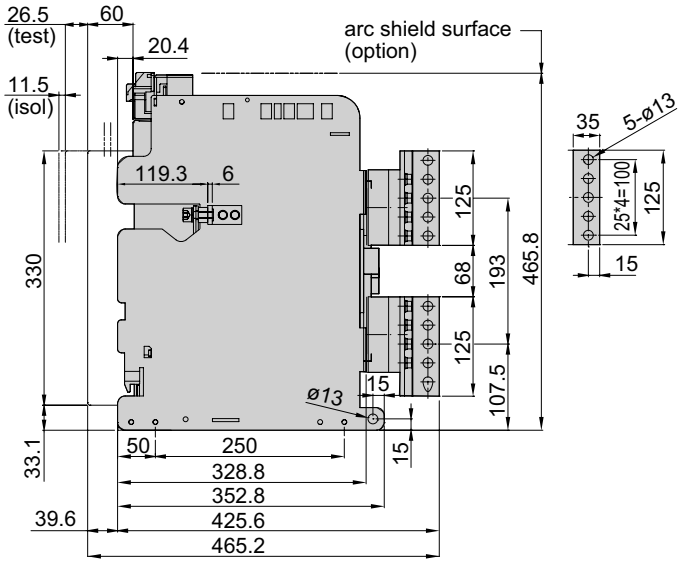




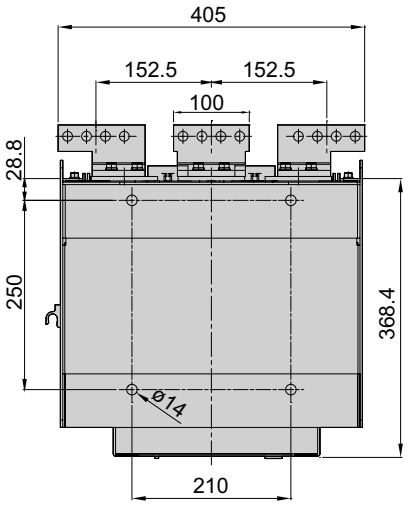
Vertical terminal connection (mm)

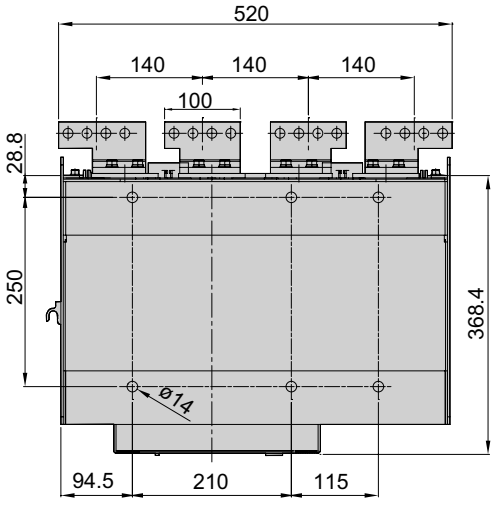


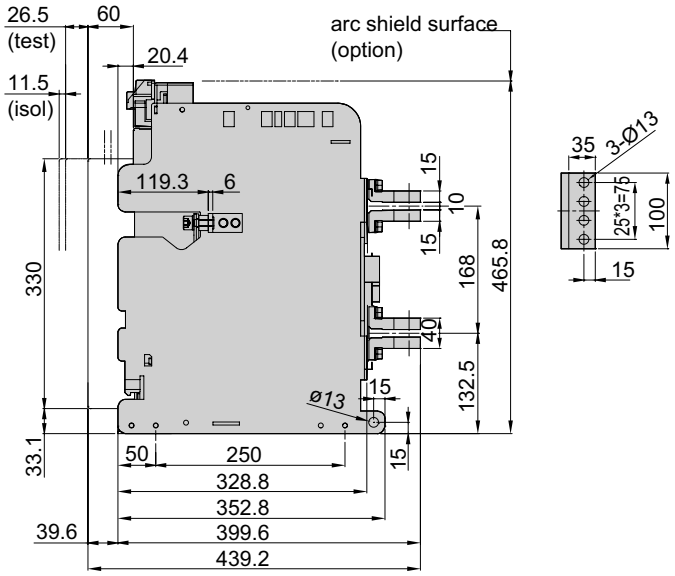




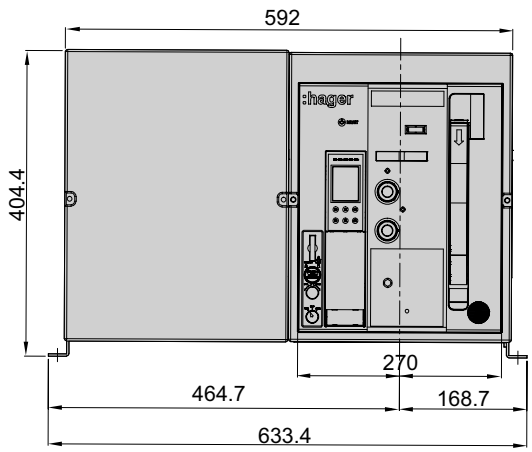
B frame draw-out type 4000A dimensions
Horizontal terminal connection (mm)

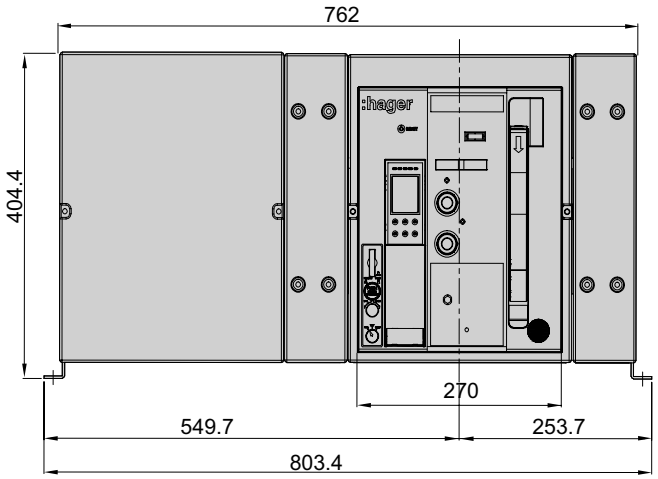




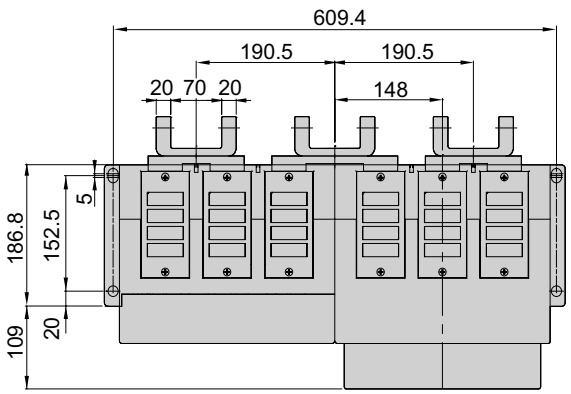


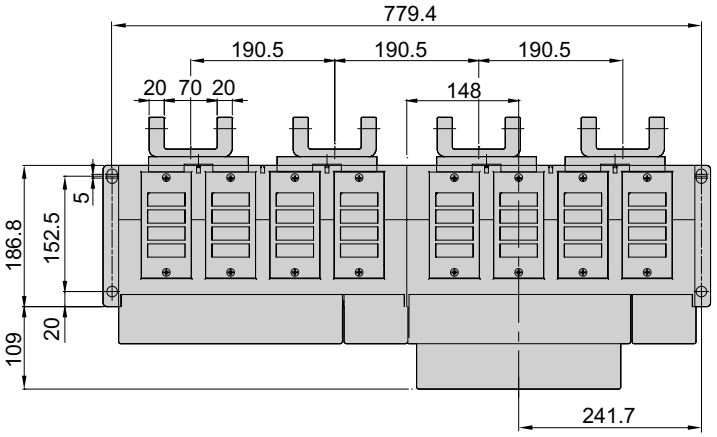
C frame fixed type 3200-5000A dimensions
Front view (mm)

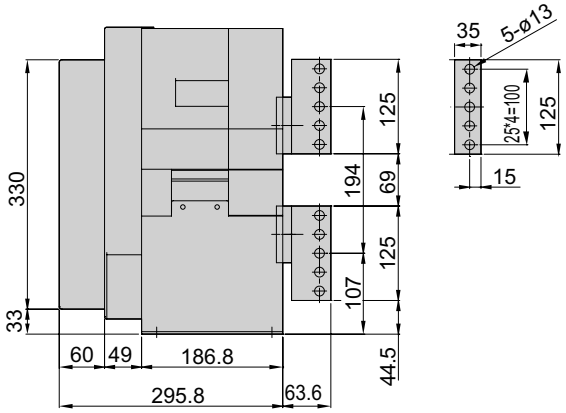


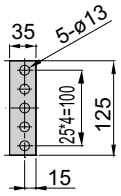


Vertical terminal connection (mm)

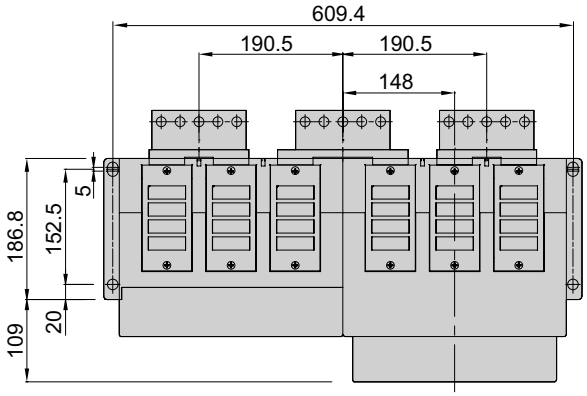


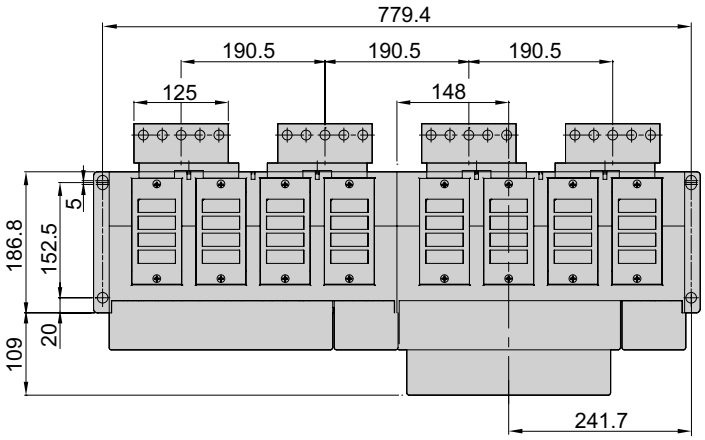


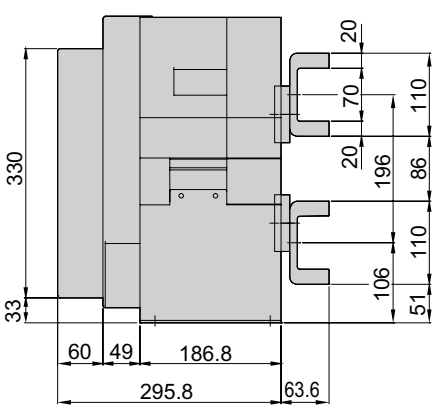


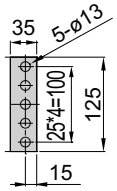


C frame fixed type 3200-5000A dimensions
Horizontal terminal connection (mm)

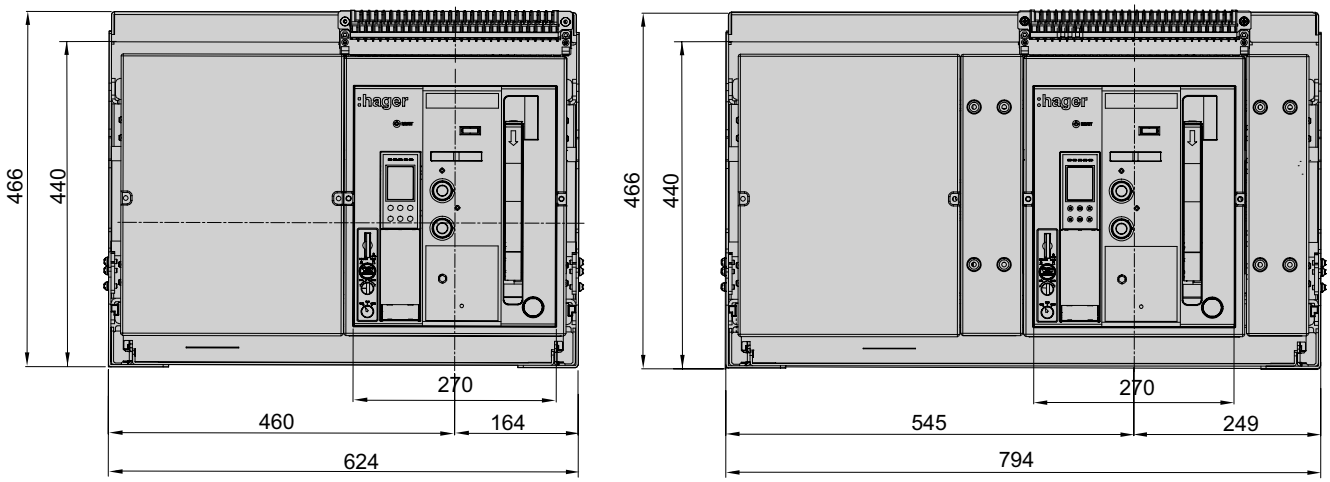




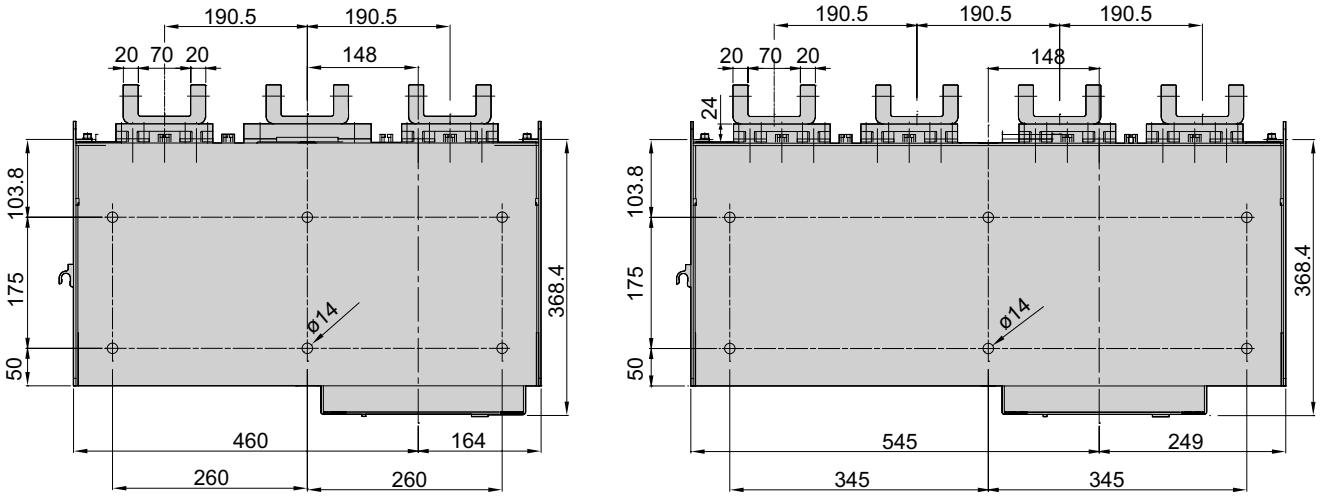


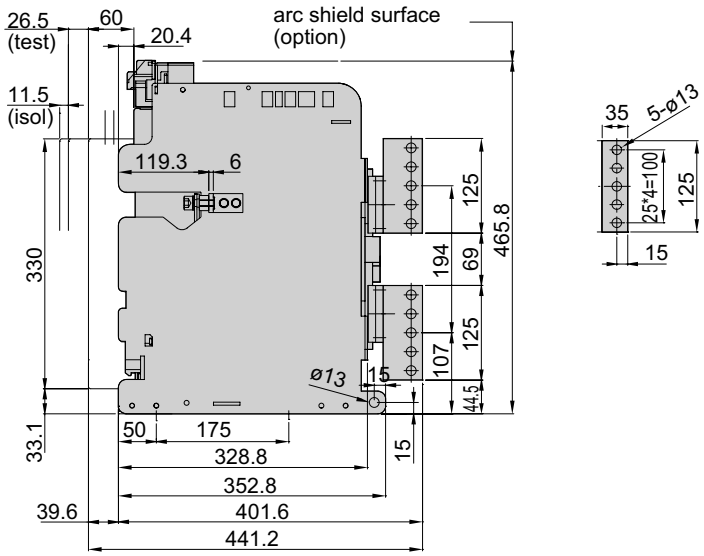


C frame draw-out type 3200-5000A dimensions
Front view (mm)

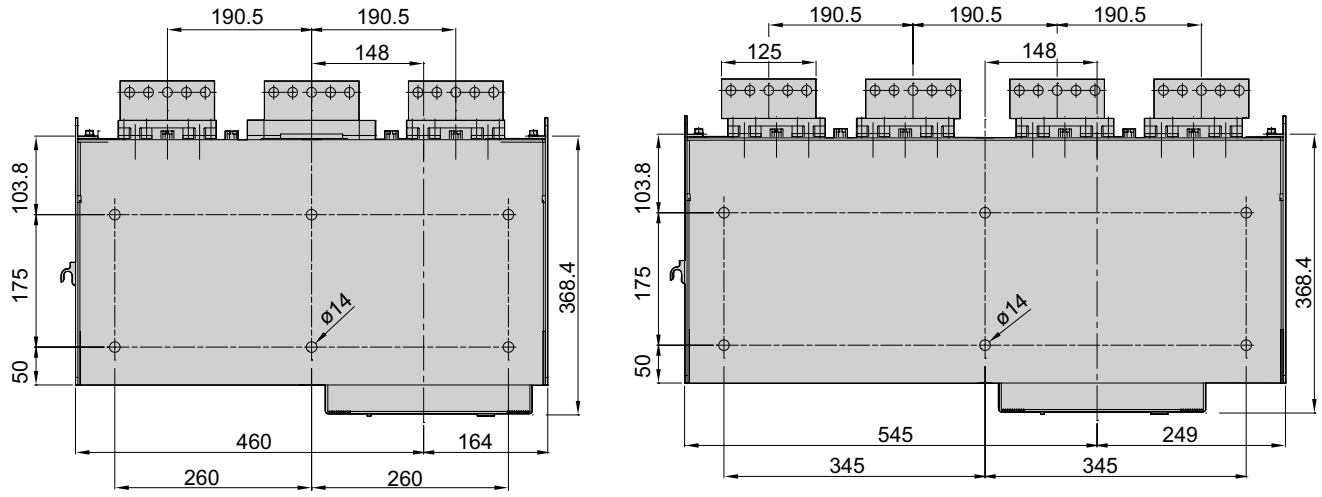


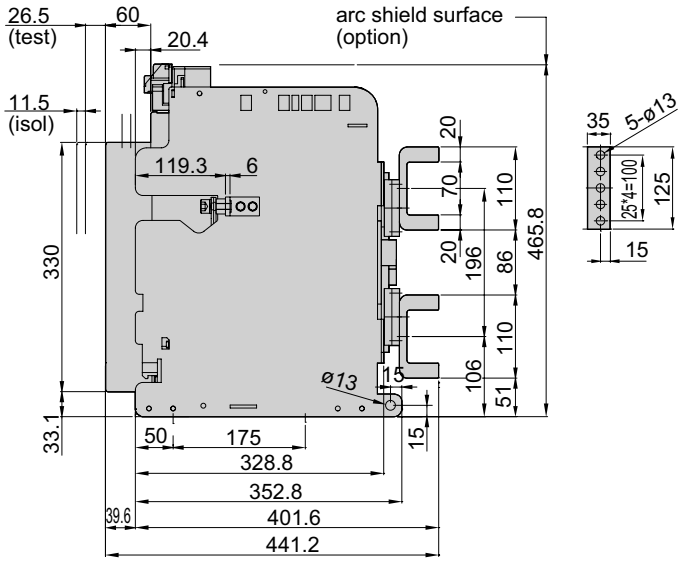
Vertical terminal connection (mm)





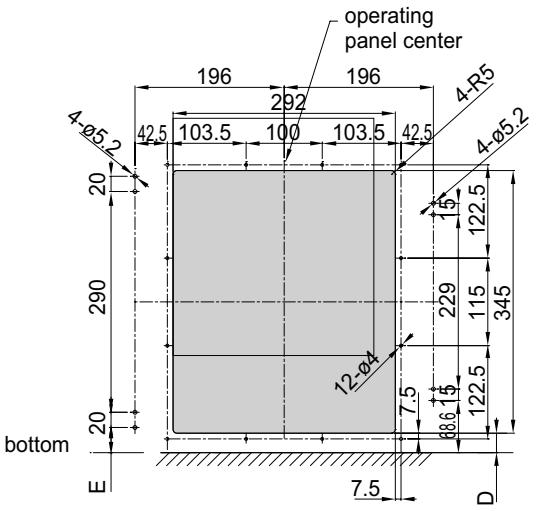
C frame draw-out type 3200-5000A dimensions
Horizontal terminal connection (mm)



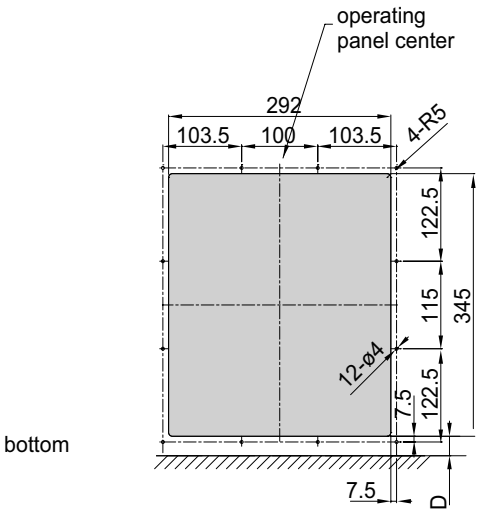


Draw-out type dimensions

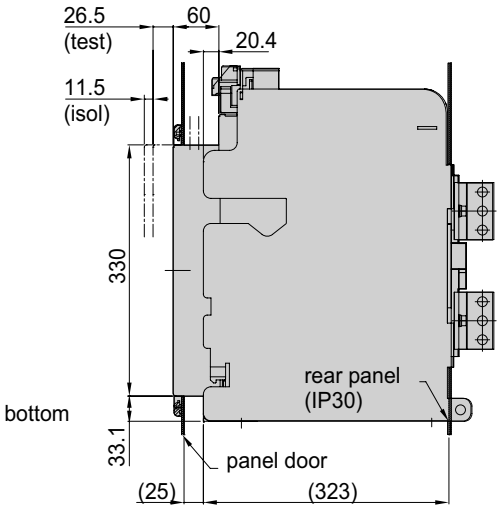
Panel door cut-out for dust cover (mm)



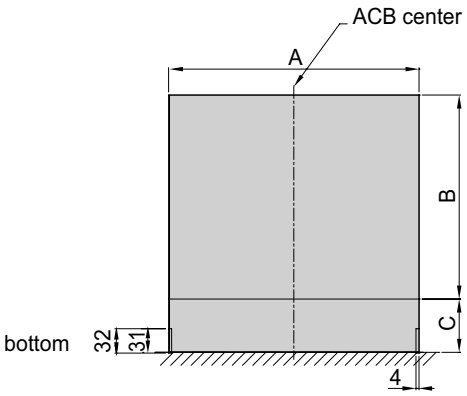
Panel door cut-out for door flange (mm)



Side view (mm)



Rear panel cutting size (mm)

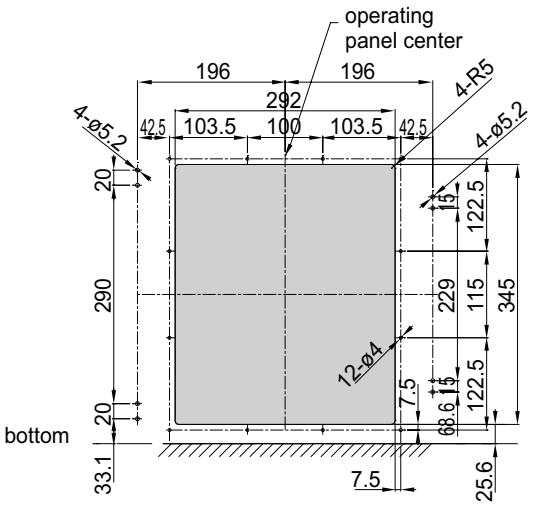


Rear panel cutting size (mm)

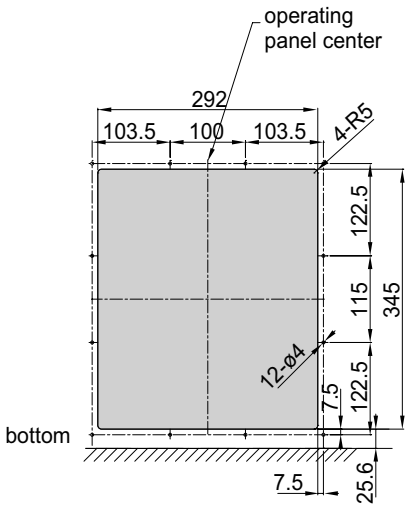
Model	A	B	C	D	E
frame A, 3 pole	329	268	70	28.7	36.5
frame A, 4 pole	414	268	70	28.7	36.5
frame B, 3 pole	400	298	55	28.7	36.5
frame B, 4 pole	515	298	55	28.7	36.5
frame C, 3 pole	625	338	35	48.7	56.5
frame C, 4 pole	795	338	35	48.7	56.5

Fixed type dimensions

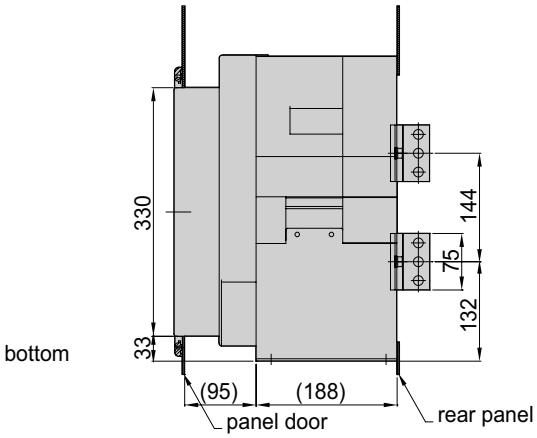
Panel door cut-out for dust cover (mm)



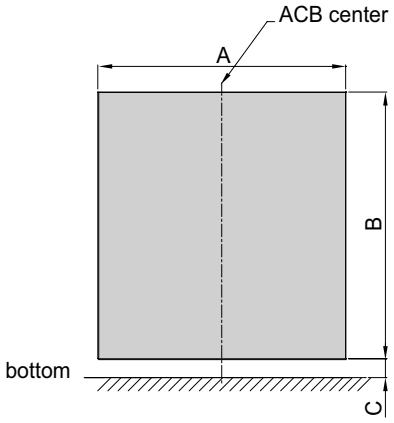
Panel door cut-out for door flange (mm)



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

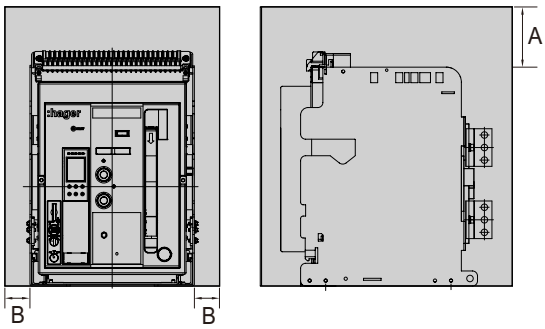
Model type	Rated current (A)	Fixed type		Draw-out type	
		Internal resistance (mΩ)	Power consumption (W/3Phase)	Internal resistance (mΩ)	Power consumption (W/3Phase)
frame A	630	15	18	30	36
	800	15	29	30	58
	1000	15	45	30	90
	1250	15	70	30	141
	1600	15	115	30	230
	2000	13	156	27	324
frame B	2000	10	120	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

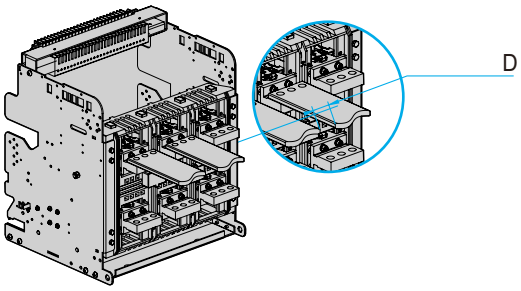
• Insulation distance from arc (in mm)

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 × 50mm × 2EA	630A	630A	630A	630A	630A	630A	630A	630A	630A	630A
			10t × 60mm × 1EA										
		800A	6t × 50mm×2EA	800A	800A	800A	800A	800A	800A	800A	800A	800A	800A
			10t × 60mm × 1EA										
		1000A	8t × 50mm × 2EA	1000A	1000A	1000A	1000A	1000A	1000A	1000A	1000A	1000A	1000A
			6t × 75mm × 2EA	-	-	-	-	-					
		1250A	8t × 60mm × 2EA	1250A	1250A	1250A	1250A	1250A	1250A	1250A	1250A	1250A	1250A
			10t × 50mm × 2EA										
			6t × 75mm × 3EA	-	-	-	-	-					
		1600A	10t × 60mm × 3EA	1600A	1600A	1520A	1480A	1420A	1600A	1600A	1600A	1550A	1550A
			8t × 60mm × 3EA										
frame A	20t × 75mm × 1EA	2000A	8t × 75mm × 3EA	-	-	-	-	-	2000A	2000A	2000A	1860A	1860A
			10t × 100mm × 2EA										
frame B	20t × 75mm × 1EA	630A	5t × 50mm × 2EA	630A	630A	630A	630A	630A	630A	630A	630A	630A	630A
			10t × 60mm × 1EA										
		800A	6t × 50mm × 2EA	800A	800A	800A	800A	800A	800A	800A	800A	800A	800A
			10t × 60mm × 1EA										
		1000A	8t × 50mm × 2EA	1000A	1000A	1000A	1000A	1000A	1000A	1000A	1000A	1000A	1000A
			6t × 75mm × 2EA	-	-	-	-	-					
		1250A	8t × 60mm × 2EA	1250A	1250A	1250A	1250A	1250A	1250A	1250A	1250A	1250A	1250A
			10t × 50mm × 2EA										
			6t × 75mm × 3EA	-	-	-	-	-					
		1600A	10t × 60mm × 3EA	1600A	1600A	1600A	1600A	1600A	1600A	1600A	1600A	1600A	1600A
			8t × 60mm × 3EA										
		2000A	8t × 75mm × 3EA	2000A	2000A	2000A	2000A	2000A	2000A	2000A	2000A	2000A	2000A
			10t × 100mm × 2EA	-	-	-	-	-					
		2500A	10t × 75mm × 3EA	2500A	2500A	2500A	2400A	2300A	2500A	2500A	2500A	2500A	2500A
			8t × 75mm × 4EA										
frame B	20t × 90mm × 1EA	3200A	10t × 100mm × 3EA	-	-	-	-	-	3200A	3200A	3200A	3050A	3050A
			10t × 75mm × 4EA	3200A	3200A	3100A	3000A	2900A					
frame B	15t × 100mm × 2EA	4000A horizontal	10t × 100mm × 4EA	4000A	4000A	3900A	3800A	3640A	-	-	-	-	-
			10t × 125mm × 3EA										
	15t × 125mm × 2EA	4000A vertical	10t × 100mm × 4EA	-	-	-	-	-	4000A	4000A	4000A	3800A	3800A
			10t × 125mm × 3EA										
frame C	20t × 125mm × 2EA	3200A	10t × 100mm × 3EA	3200A	3200A	3100A	3000A	2900A	3200A	3200A	3200A	3000A	3000A
		4000A	10t × 100mm × 4EA	4000A	4000A	3920A	3860A	3800A	4000A	4000A	4000A	3900A	3900A
		5000A	10t × 125mm × 4EA	5000A	5000A	4900A	4800A	4700A	5000A	5000A	5000A	4900A	4900A

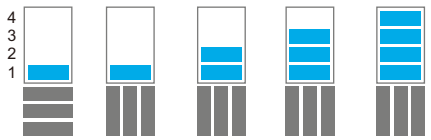
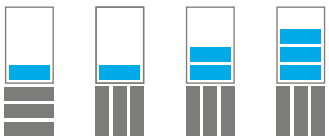
t= thickness (mm) EA=number of parts

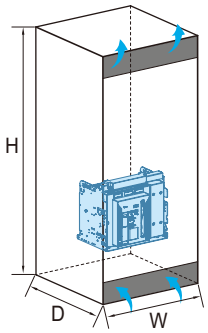
Altitude

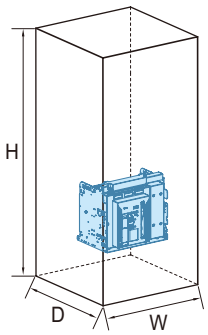
ACB HW is designed for operation at altitudes under 2000m. At altitudes higher than 2000m, change the ratings upon service condition.

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
rectificated 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.

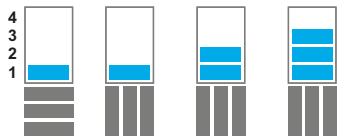
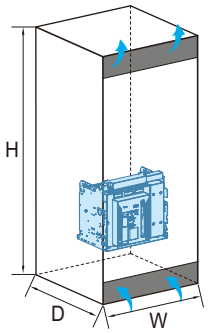
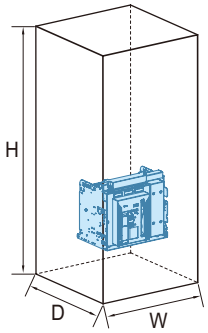
: number of ACB's

Type of connection:

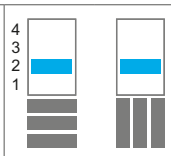
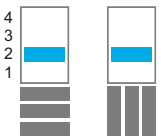
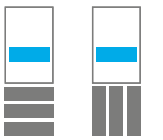

: horizontal

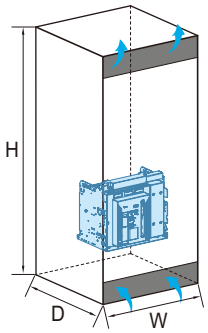

: vertical

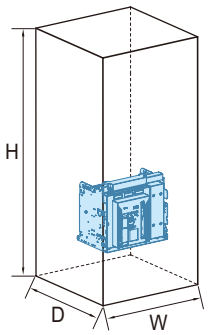
Derating table

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.

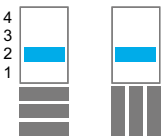
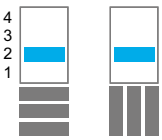
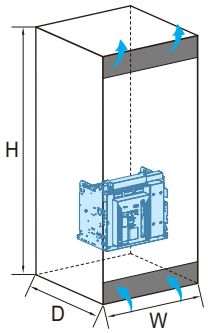
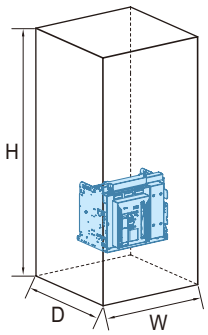
: number of ACB's

Type of connection:


: horizontal


: vertical

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
		1				
	Ta = 45°C	4				
		3				
		2	3850	3900	4350	4650
		1				
	Ta = 55°C	4				
		3				
		2	3800	3850	4100	4400
		1				
non-ventilated switchboard (IP52) [5] 	Ta = 35°C	4				
		3				
		2	3800	3900	4200	4500
		1				
	Ta = 45°C	4				
		3				
		2	3650	3800	3950	4250
		1				
	Ta = 55°C	4				
		3				
		2	3550	3650	3750	4050
		1				
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_R, t_R of the ACB > I_R, t_R of the MCCB / Isd, tsd of the ACB > Isd, tsd of the MCCB / Ii = 16xIn, NON,MCR ON																	
	Icc (kA)	Upstream	**Frame A, type HWAH** max. rated current 2000A Icu = Ics = 50kA at 415V						**Frame A, type HWAN** max. rated current 2000A Icu = Ics = 65kA at 415V						**Frame B, type HWBN** max. rated current 4000A Icu = Ics = 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
		25	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
		40	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
		63	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
		100	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
		160	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
		125	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
		200	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
		250	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
		32	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
		63	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
		125	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
		200	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
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
		32	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
		63	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
		125	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
		250	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
		125	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
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
		300	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
		400	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
		400	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
		600		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
HNK **HEK**	**h800 TM** 50/70kA	630		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
HNE **HEE**	**h1000 LSI** 50/70kA	630		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
		1000				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
		1250					T	T					T	T					T	T
		1600						T					T	T						T

				Frame B, type HWBS max. rated current 4000A Icu = Ics = 85kA at 415V									**Frame B, type HWBP** max. rated current 4000A Icu = Ics = 100kA at 415V									**Frame C, type HWCP** max. rated current 5000A Icu = Ics = 100kA at 415V		
	2500	3200	4000	630	800	1000	1250	1600	2000	2500	3200	4000	630	800	1000	1250	1600	2000	2500	3200	4000	3200	4000	5000
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Main incomers

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

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).

Relative humidity

- Relative humidity should be under 85%.

Load (I/In)

Load	Using	Effect	Installation
I/In ≤ 100%	24/24 hours	-	normal condition (recommended)
80 < I/In ≤ 100%	24/24 hours	-	periodic inspection
I/In = 100%	24/24 hours	plastic insulator color changed	exhaust added

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.

Atmospheric conditions

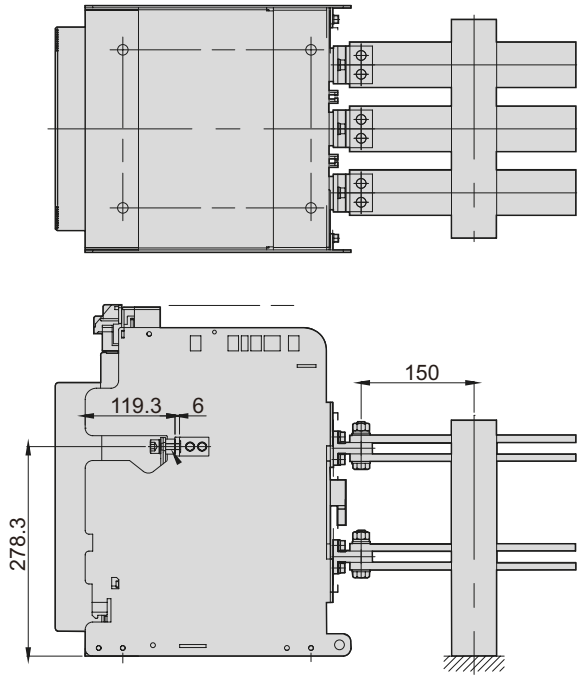
- Do not apply under corrosive or ammonia gas circumstances (H2S, SO2, NH3).
- Use in clean air condition.

Altitude

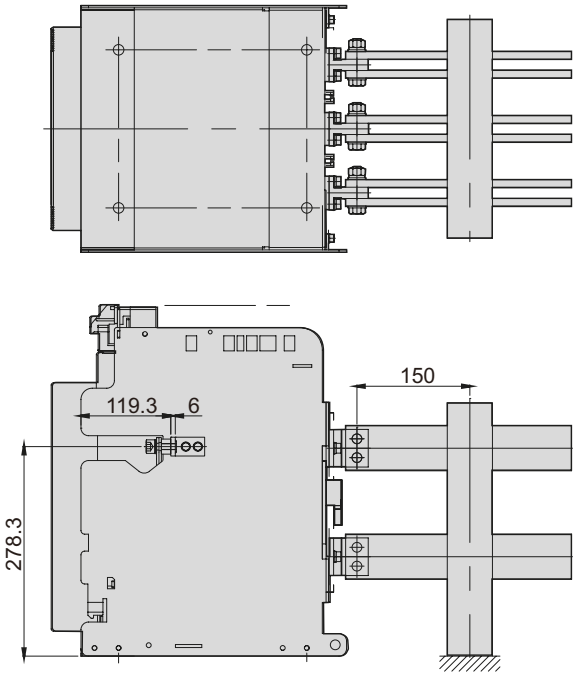
Item	Altitude		
	2000 m	2600 m	3900 m
Isolating voltage (V)	1,000	950	800
Operating voltage (V)	690	655.5	552
Allowed current (V)	I×In	0.99×In	0.96×In

Installation conditions

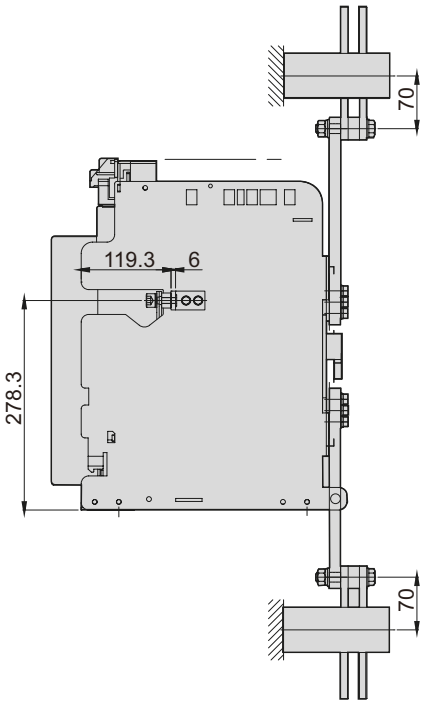
Horizontal type (mm)

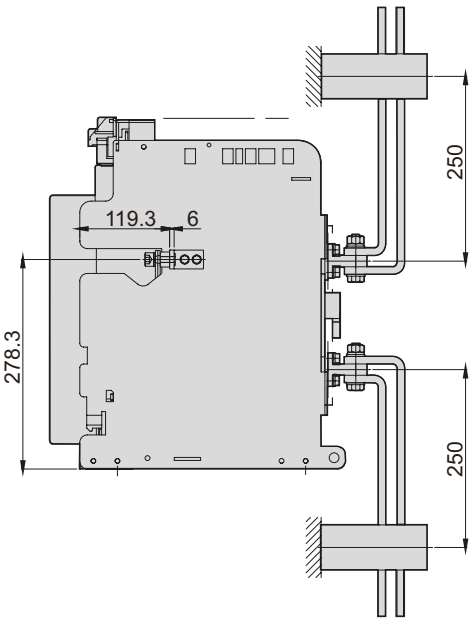


Vertical type (mm)

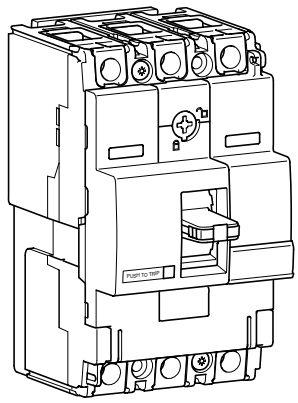


Front type (mm)





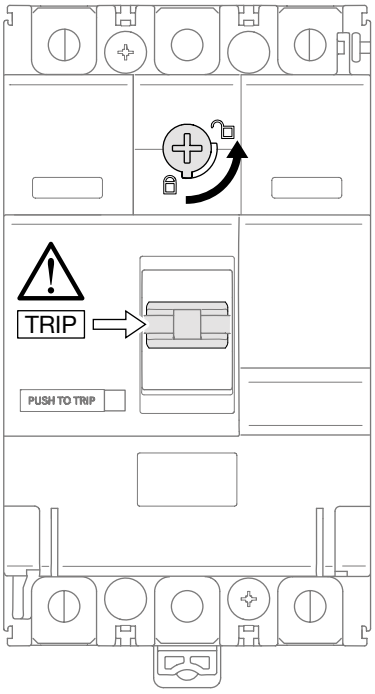
MCCBs



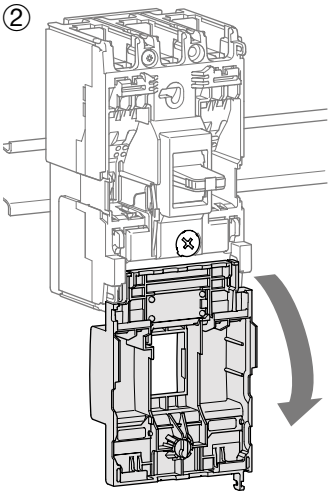
		220/240V AC IEC 60 947-2	380/415V AC IEC 60 947-2
HDA	Icu	25 kA	18 kA
	Ics	25 kA	18 kA
HHA	Icu	35 kA	25 kA
	Ics	25 kA	20 kA
HNA	Icu	85 kA	40 kA
	Ics	30 kA	20 kA
HCA	Icm	-	2,8 kA
	Icw	-	2 kA - 1s

Magnetic and thermal settings

①

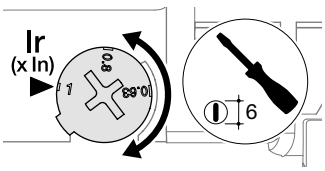


②



For DIN rail mounting, use HYA033H.

③



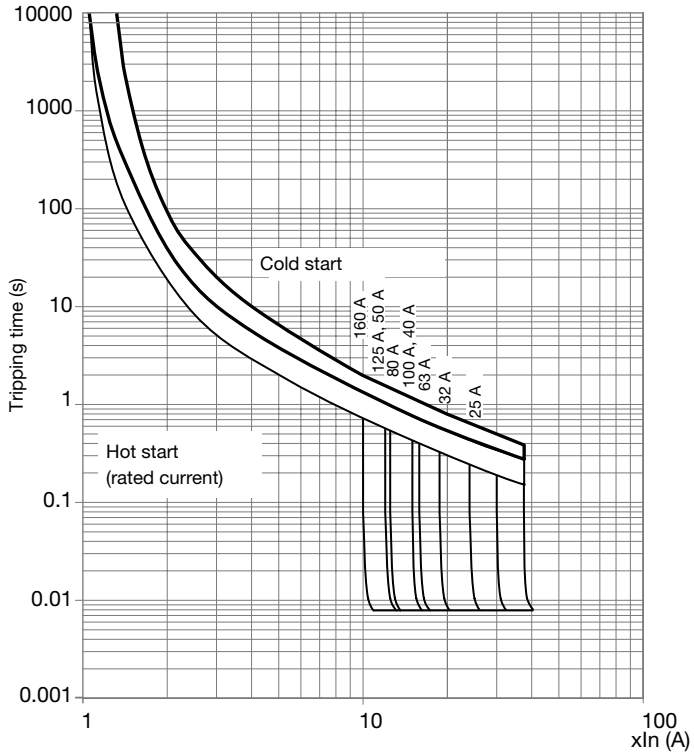
Thermal adjustment from 0,63 to 1 x In

Magnetic adjustment fixed > 10 x In

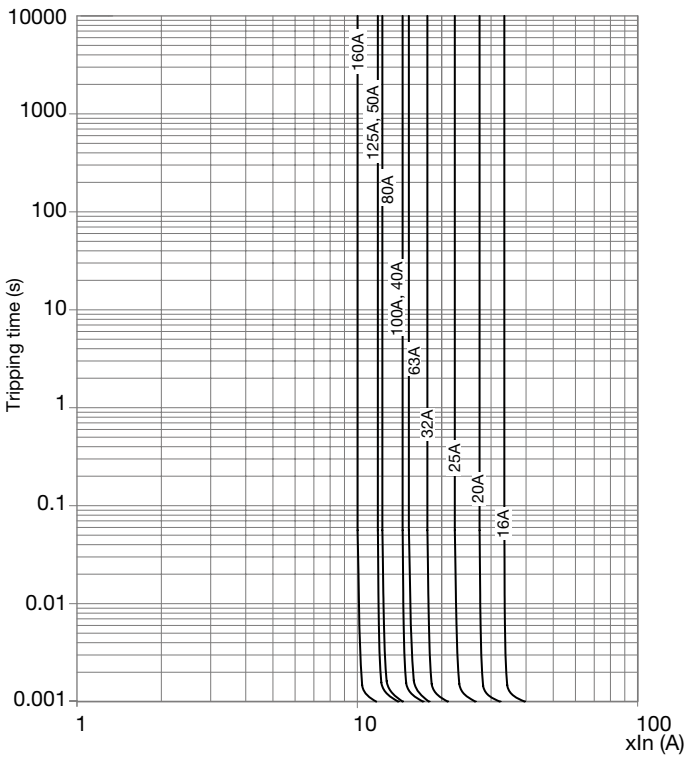
In	15 - 50 A	63 - 80 A	100 - 125 A	160 A
Imag	600 A	1000 A	1500 A	1600 A

Tripping curve

MCCB x160

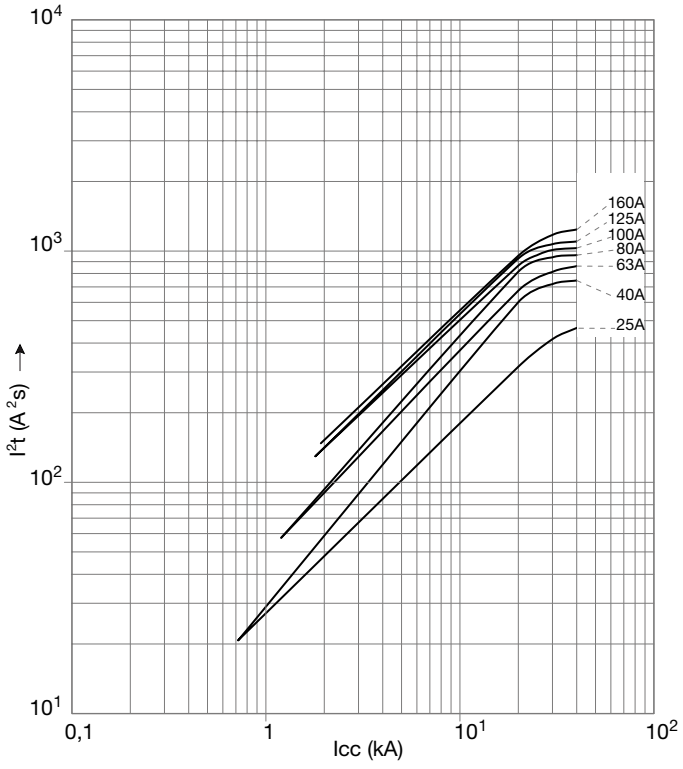


Magnetic tripping



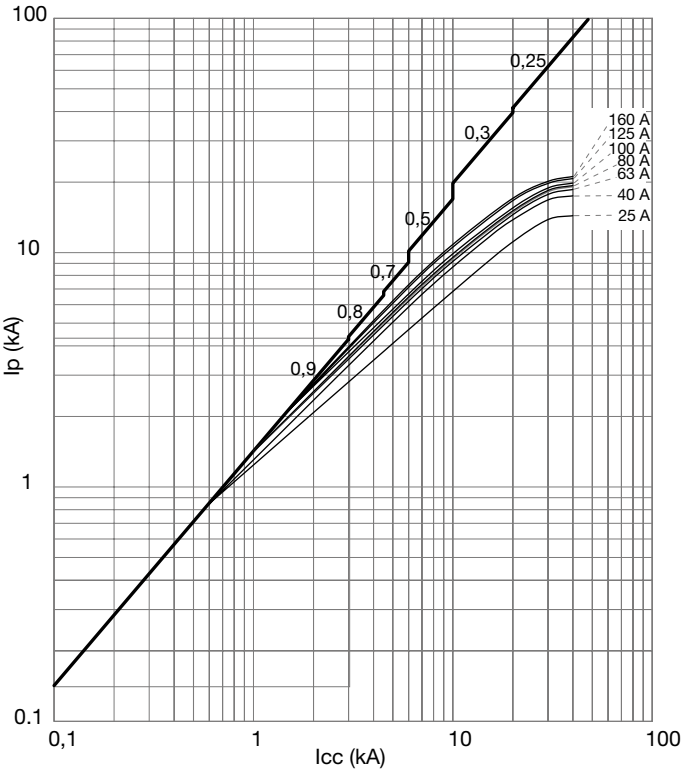
Thermal constraint curve at 400V (Let-through energy)

MCCB x160



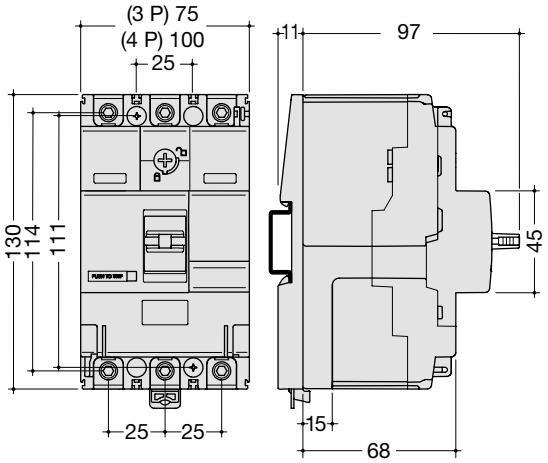
Current limiting curve at 400V(Let-through pick current)

MCCB x160



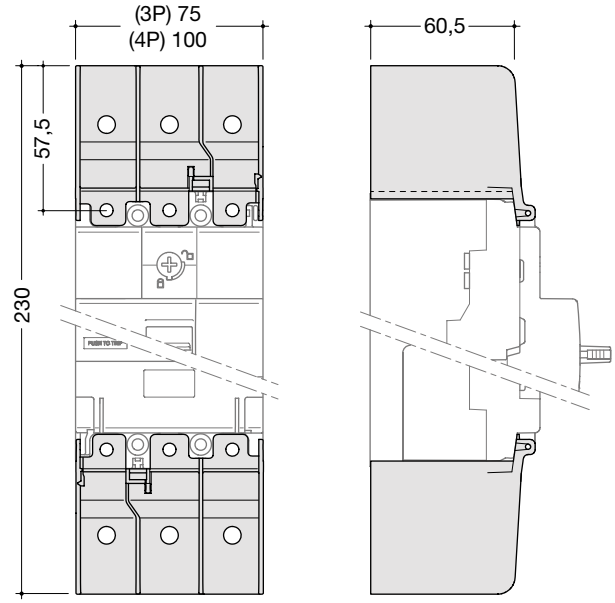
Dimensions

MCCB x160



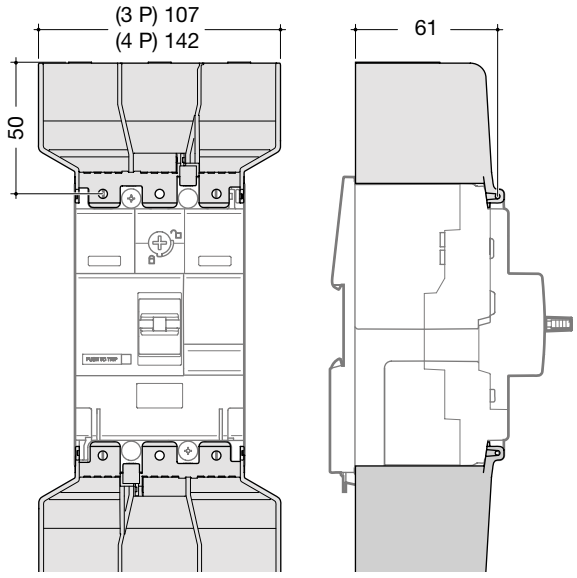
	A (mm)
1P	24,8
2P	49,5
3P	74,5
4P	99,5

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

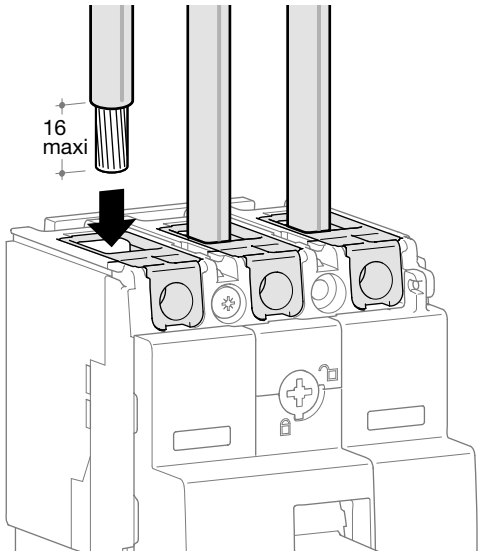
Terminal cover for extended spreader connections



	A (mm)	**B** (mm)
3P	106.5	57.5
4P	141.5	57.5

Connection

Connection with end lugs



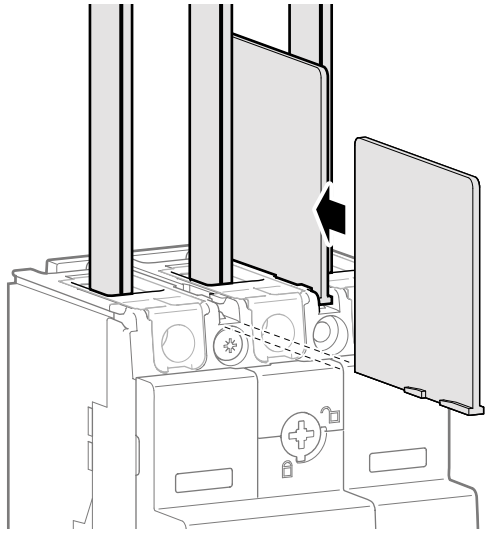
Terminals fo copper conductors (standard)

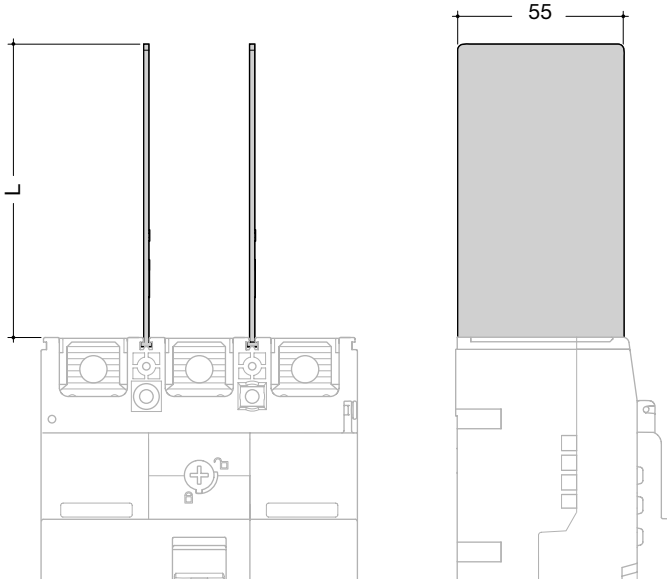
	min. 6 mm²	max. 70 mm²
	min. 6 mm²	max. 95 mm²
4	6 Nm	

Terminals fo aluminium / copper conductors (accessory) HYA005H, HYA006H

	min. 35 mm²	max. 70 mm²
5	Nm 10	

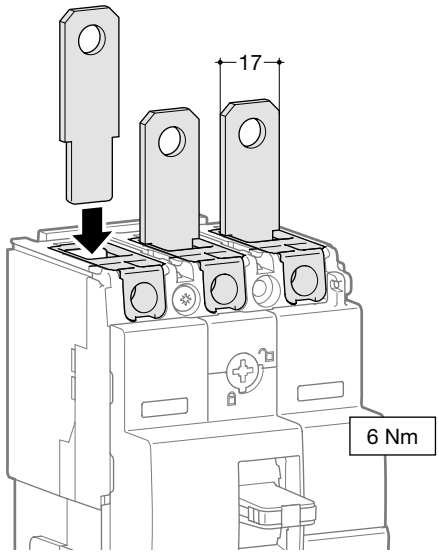
Interphase barriers

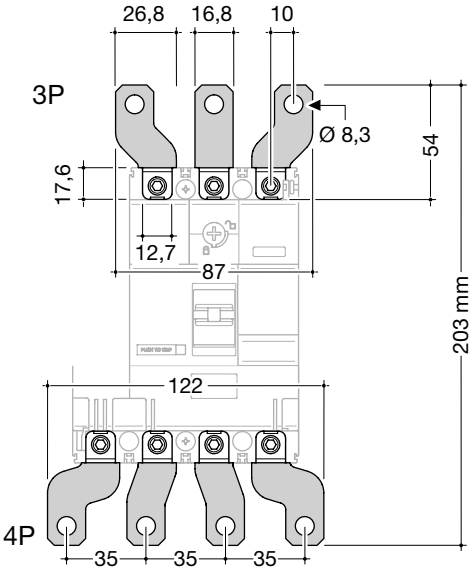




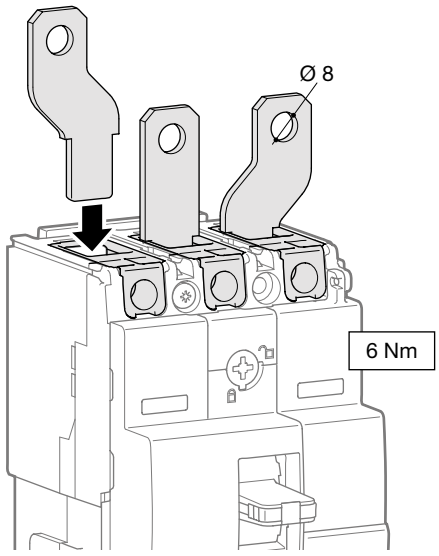
	L (mm)
HYA019H	50
HYB019H	97

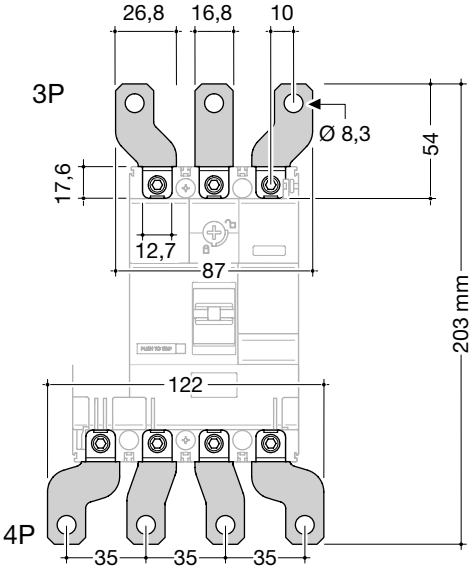
Extended straight connections



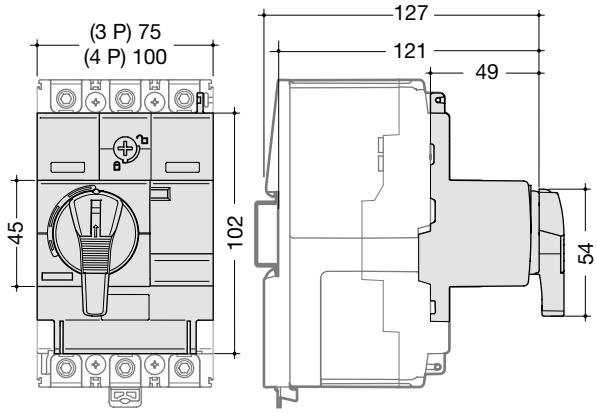


Extended spreader connections

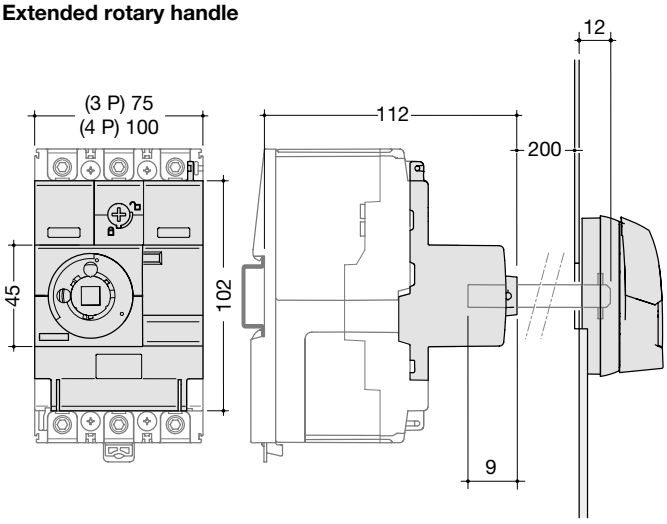




Direct rotary handle

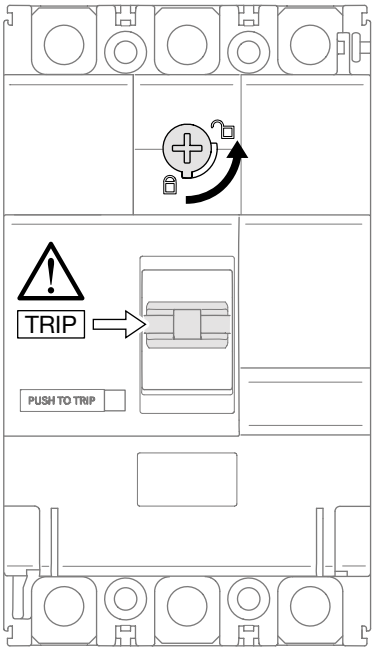


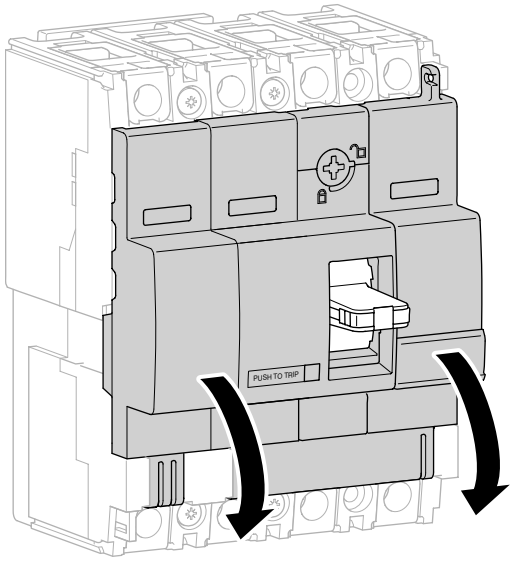
Extended rotary handle



Auxiliaries

Auxiliaries for MCCBs and trip-free switches

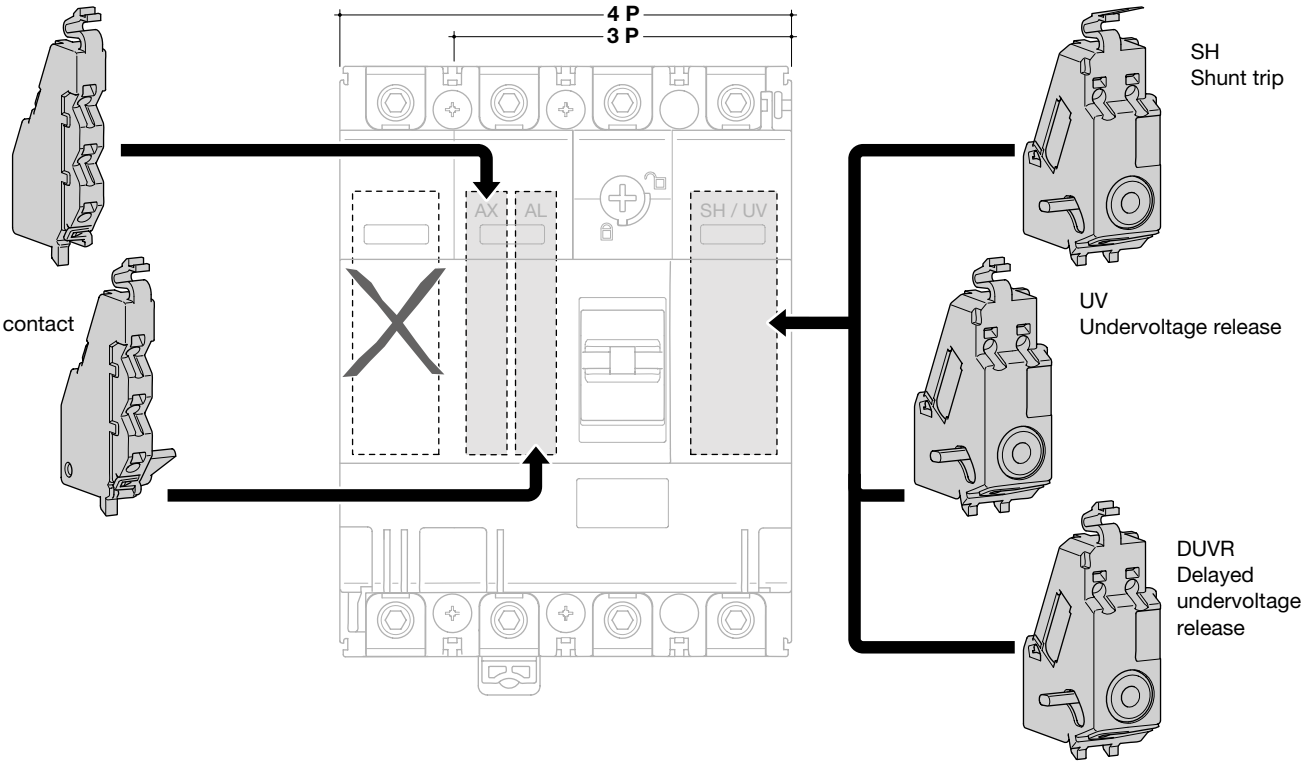




Mounting combination for auxiliaries and releases

AX
Auxiliary contact

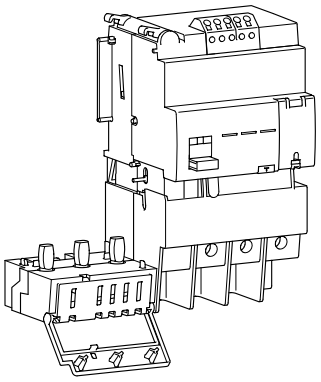
AL
Alarm contact



SH
Shunt trip

UV
Undervoltage release

DUVR
Delayed
undervoltage
release



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

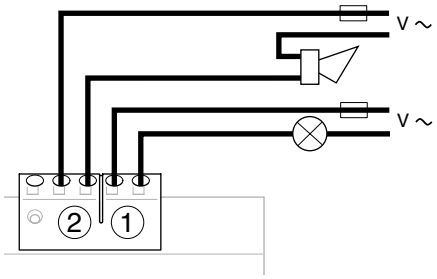
Reset button:
Signals add-on block tripping and must be acknowledged before switching on the installation.

Test button for differential functioning:
Allows to check the electrical operating of the MCCB / Add-on block association.

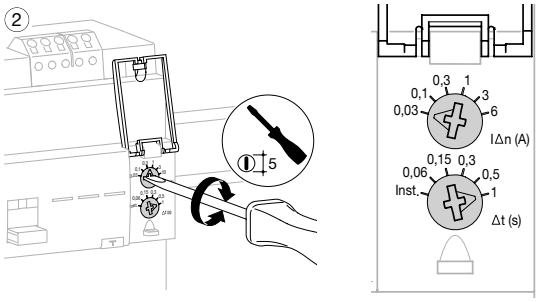
Mechanical test button:
Allows to check the mechanical operating of the MCCB / Add-on block association.

LED signaling default current level in the installation:
25% (orange) and 50% (red) IΔn; green light to signal correct operating.

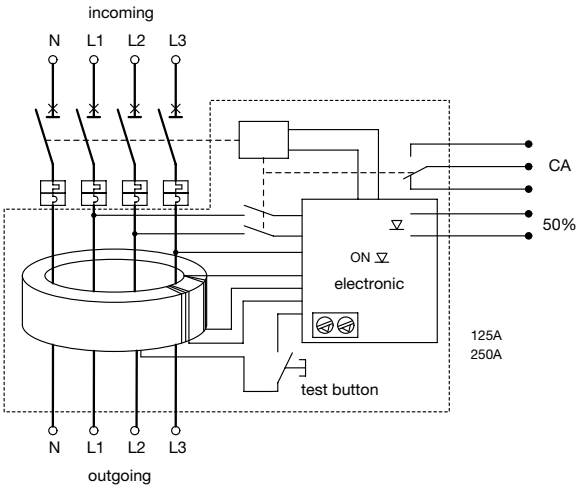
Remote tripping and advanced warning (50% IΔn) signaling thanks to these contacts:



Earth leakage current (IΔn) and delay (Δt) setting



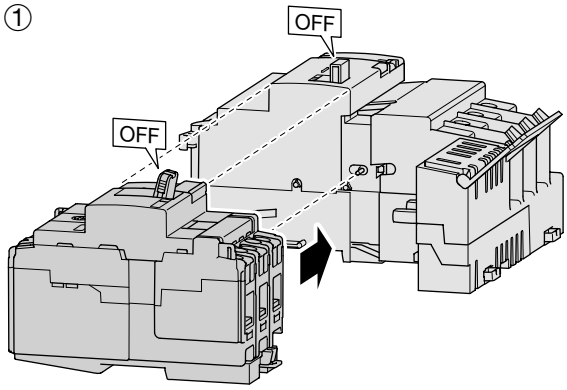
Add-on block operating



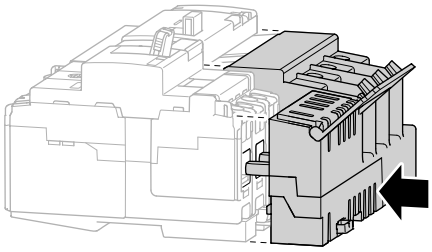
S (Δt) \ A (IΔn)	0.03	0.1	0.3	1	3	6
Inst.	OK	OK	OK	OK	OK	OK
0.06	no	OK	OK	OK	OK	OK
0.15	no	OK	OK	OK	OK	OK
0.3	no	OK	OK	OK	OK	OK
0.5	no	OK	OK	OK	OK	OK
1	no	OK	OK	OK	OK	OK

Add-on block mounting

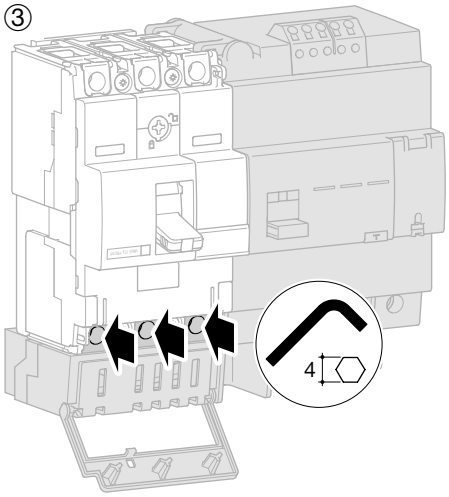
①



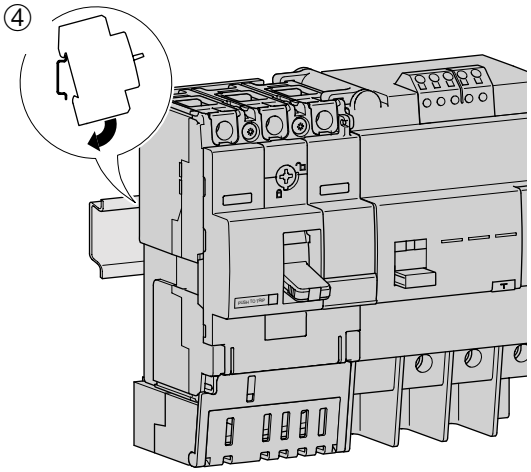
②



③



④

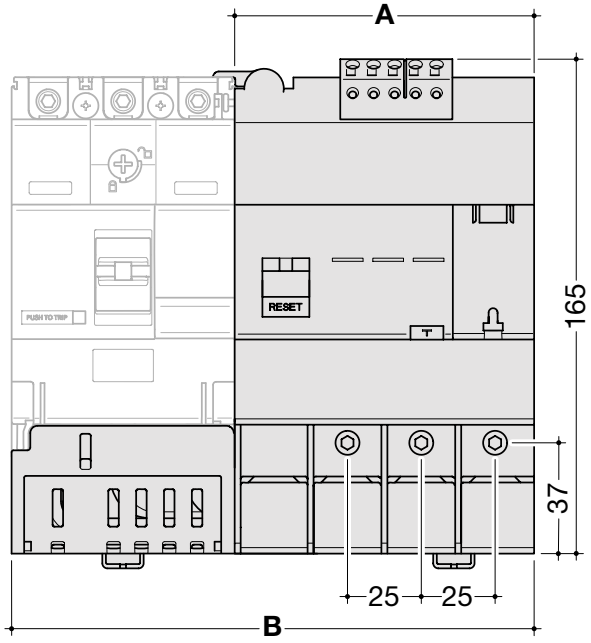


Exclusive drawer assembly system allows quick mounting and makes MCCB and add-on block association a complete monoblock unit.

Reinforced insulation connexion (class II)

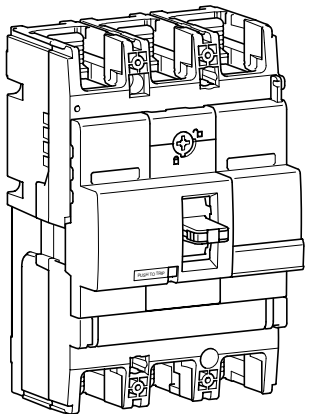
System avoids the omission of terminal tightening

Dimensions



	3P	4P
A (mm)	100	100
B (mm)	174.5	199.5

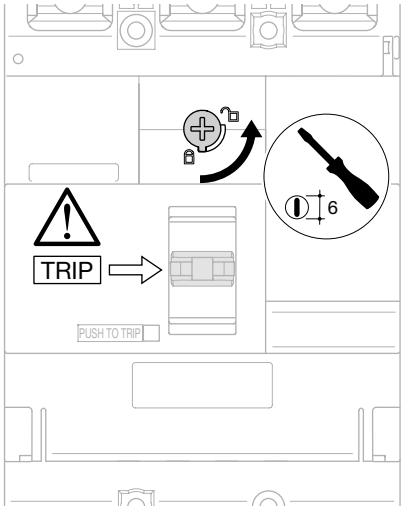
MCCBs



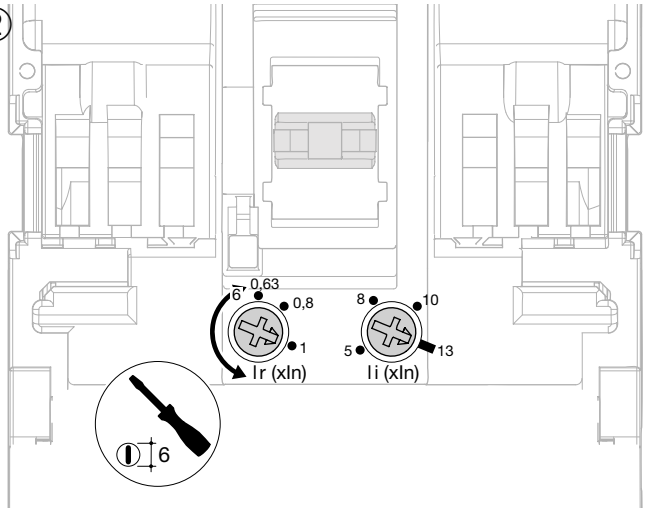
		220/240V AC IEC 60 947-2	380/415V AC IEC 60 947-2
HHB	Icu	35 kA	25 kA
	Ics	25 kA	40 kA
HNB	Icu	85 kA	40 kA
	Ics	40 kA	20 kA
HCB	Icm	-	9 kA
	Icw	-	3 kA - 1s

Magnetic and thermal settings

①



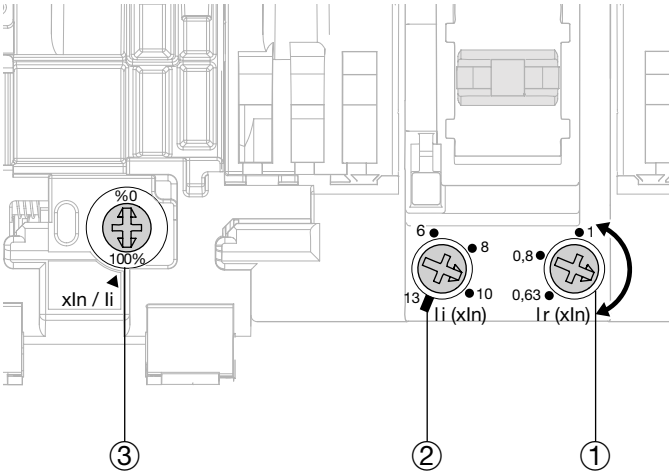
②



Thermal adjustment from 0,63 to 1 x In

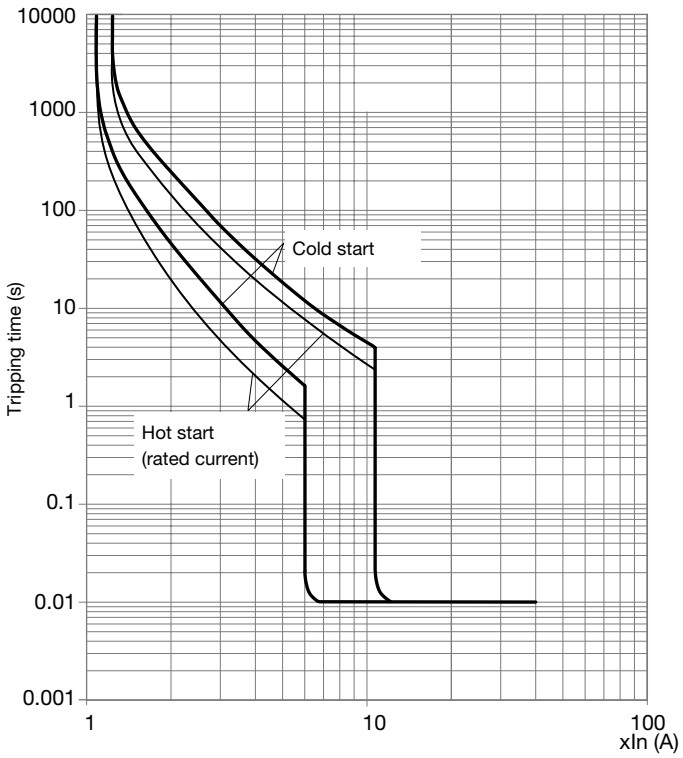
Magnetic adjustment from 6 to 13 x In (100 - 200A)
from 5 to 11 x In (250A)

	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%	



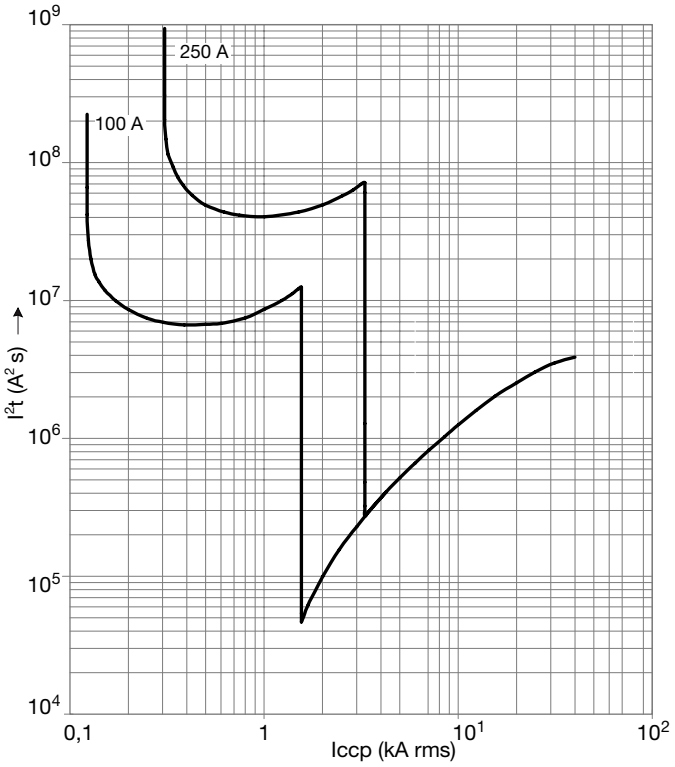
Tripping curve

MCCB x250



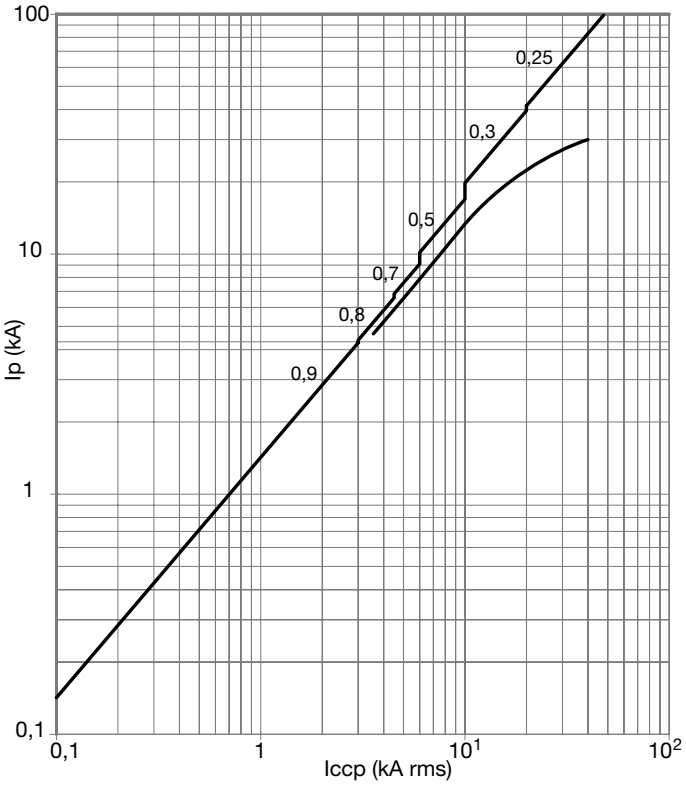
Thermal constraint curve at 400V (Let-through energy)

MCCB x250



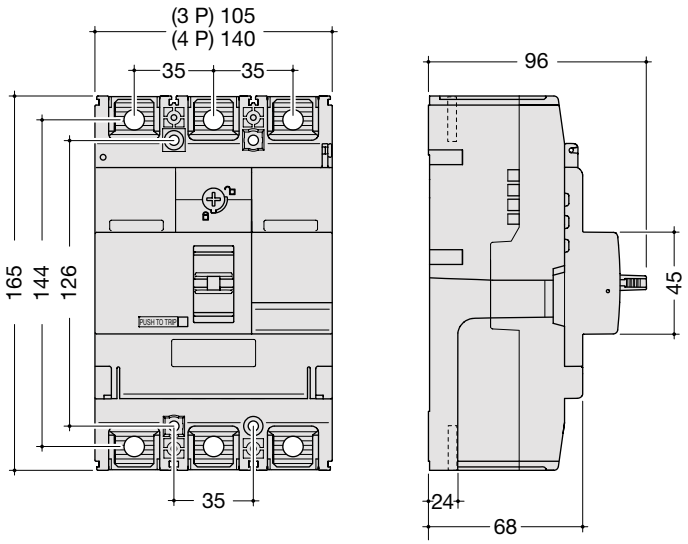
Current limiting curve at 400V (Let-through peak current)

MCCB x250

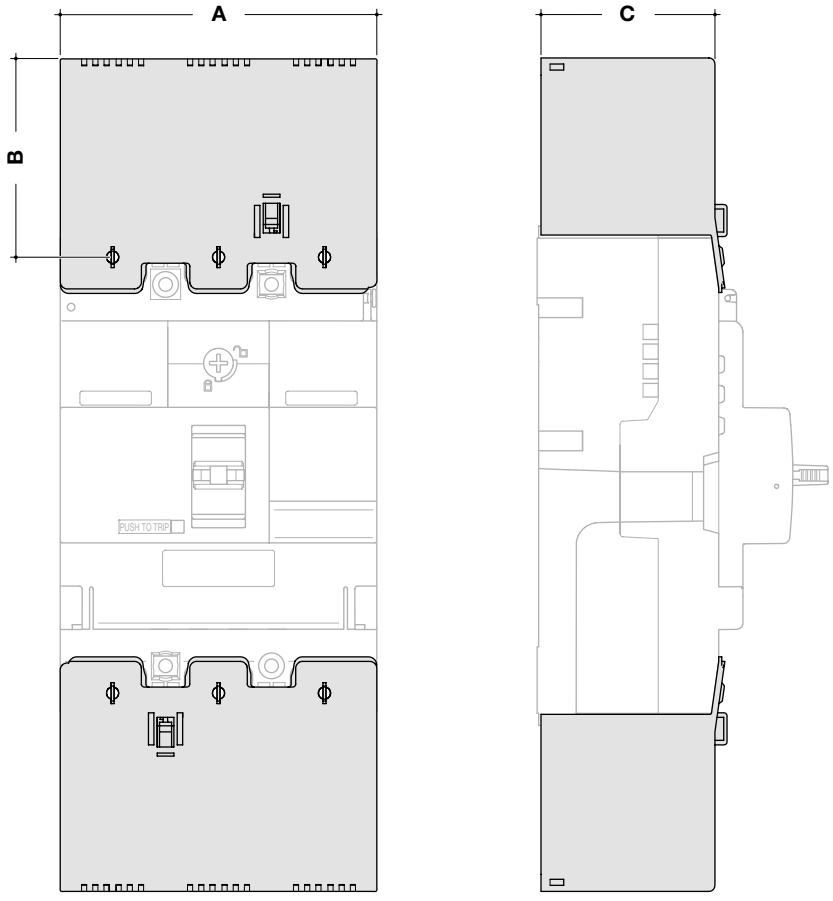


Dimensions

MCCB x250



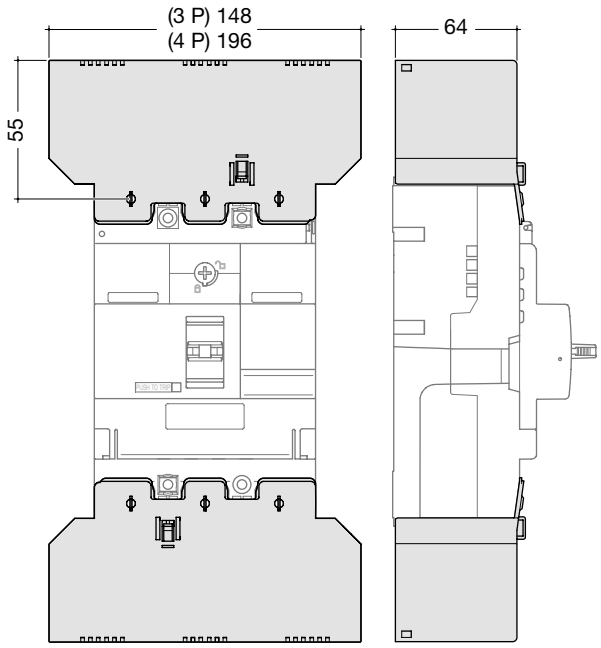
Terminal covers for extended straight connections



	A (mm)	**B** (mm)	**C** (mm)
3P	105	54.5	64
4P	140	54.5	64

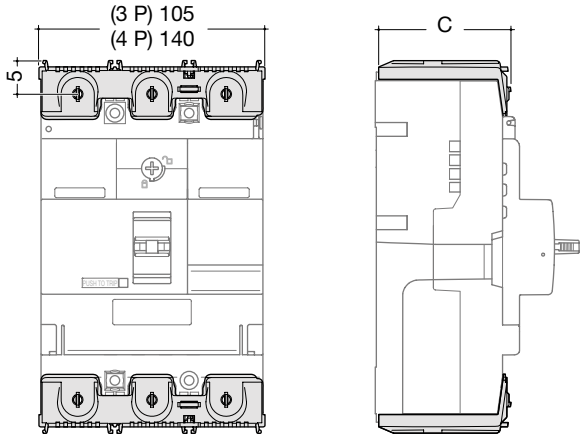
Accessories

Terminal cover for extended spreader connections



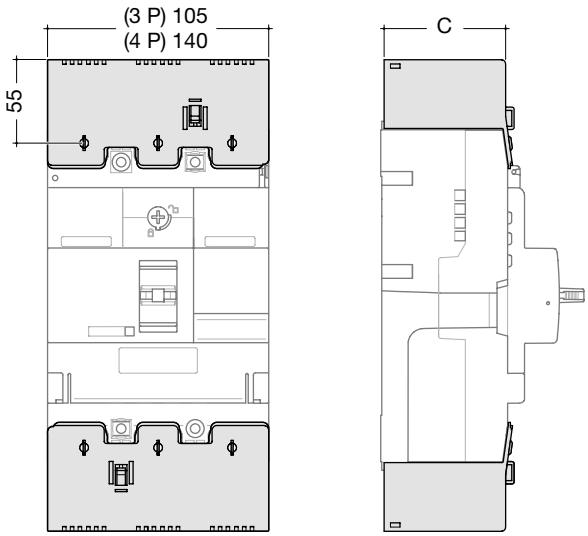
	A (mm)	B (mm)	C (mm)
3P	147.5	54.5	64
4P	196	54.5	64

Terminal cover for rear connections



	A (mm)	B (mm)	C (mm)
3P	105	5	64
4P	140	5	64

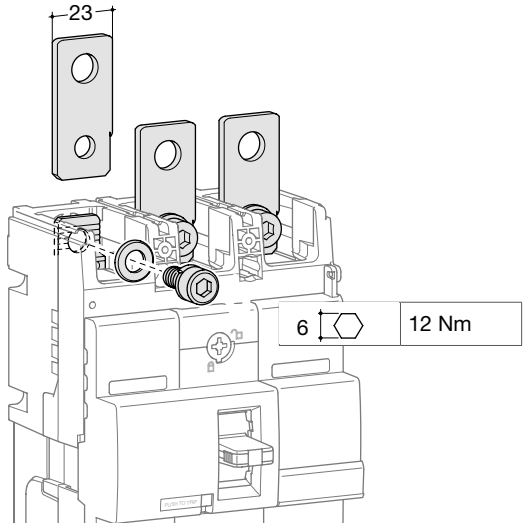
Terminal covers for collar terminals

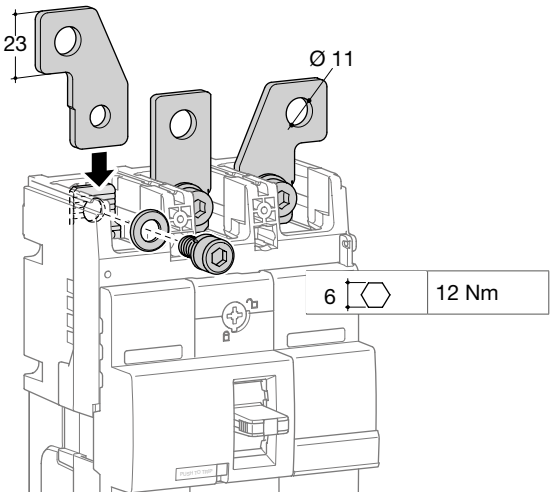


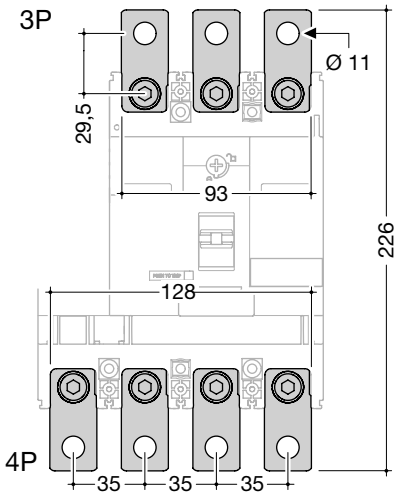
	A (mm)	B (mm)	C (mm)
3P	105	28.5	64
4P	140	28.5	64

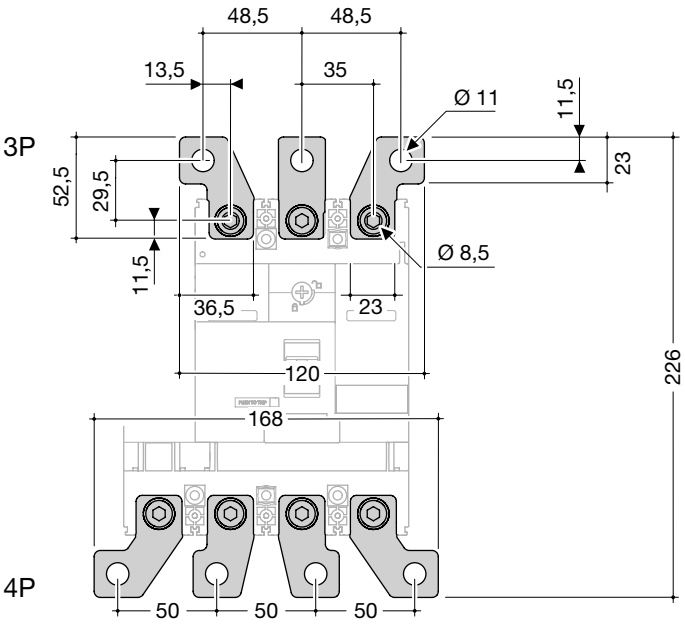
Connection

Extended straight and spreader connections

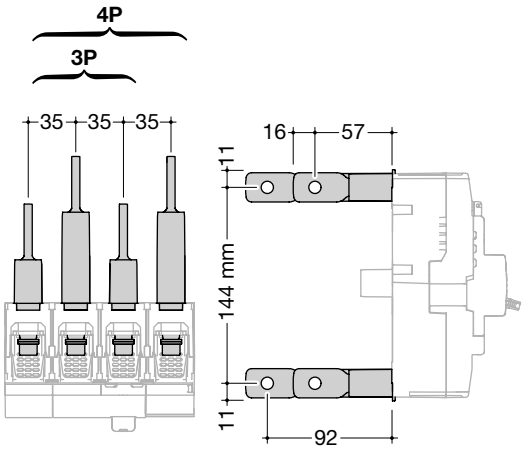


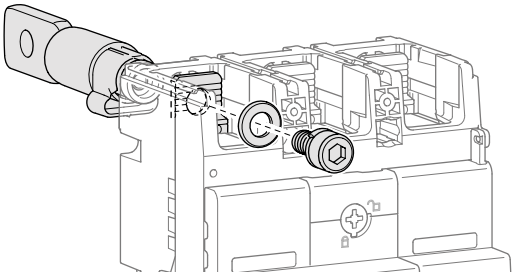


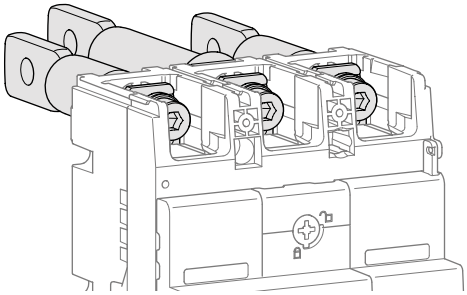




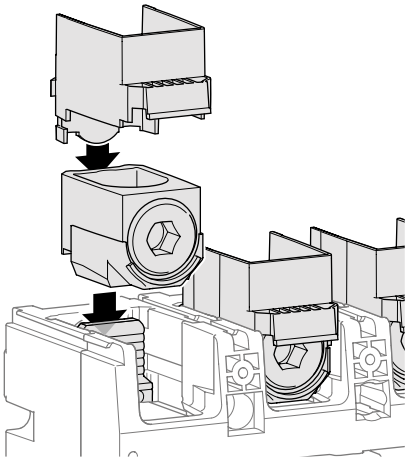
Rear connections

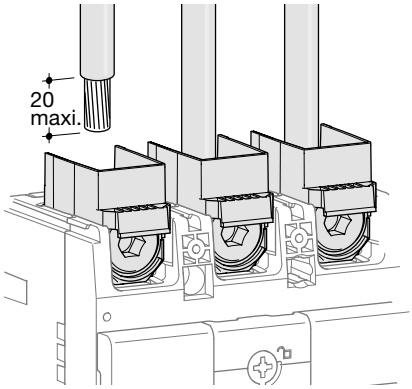






Connection by collar

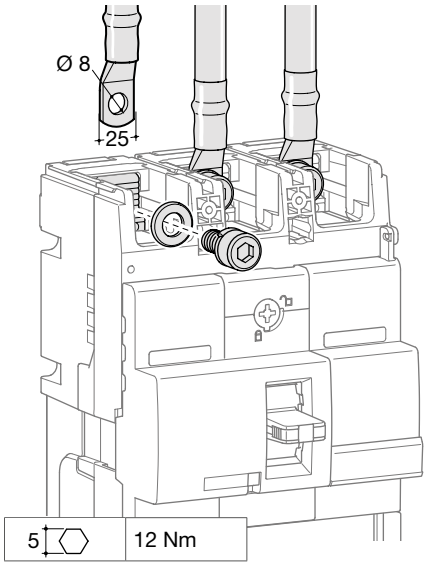


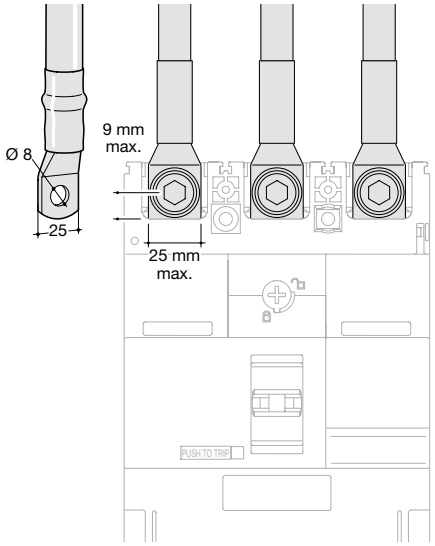


Terminals for aluminium / copper conductors (accessory)
HYB001H, HYB002H

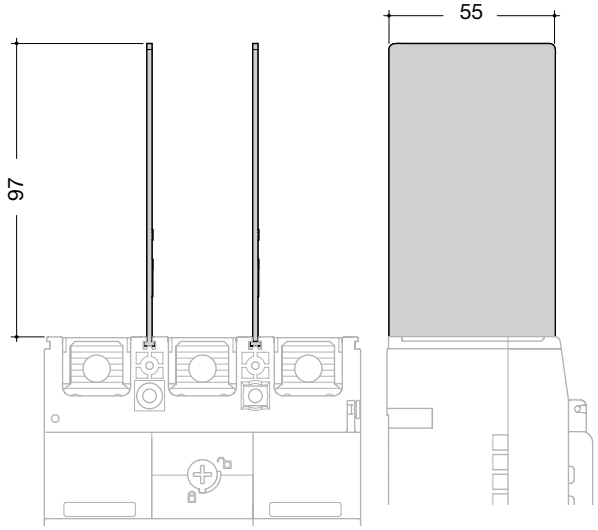
	min. 35 mm²	max. 150 mm²
	min. 35 mm²	max. 185 mm²
8	35 mm² to 50 mm² = 25 Nm 60 mm² to 185 mm² = 25 Nm	

Connection with end lugs



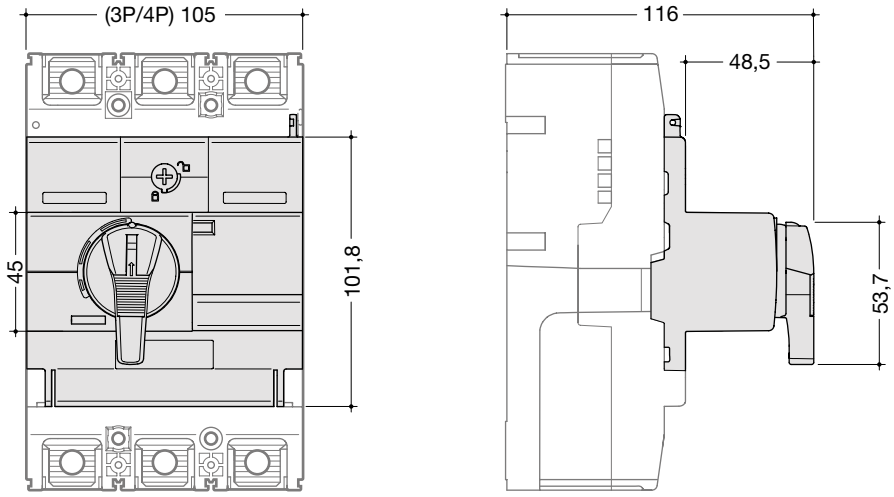


Interphase barriers

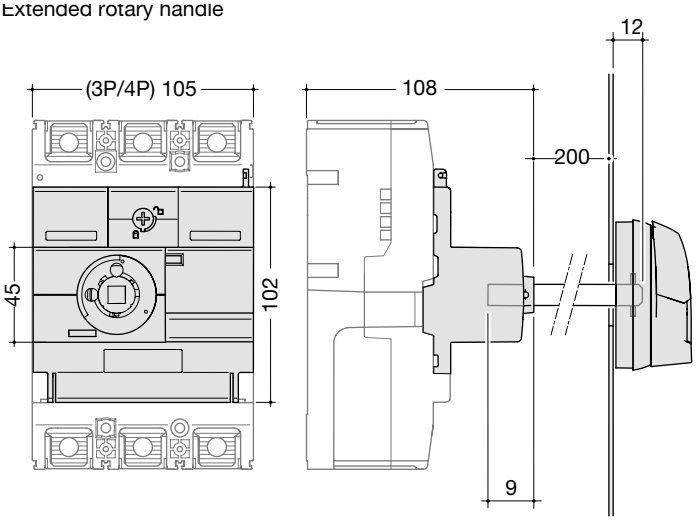


Accessories

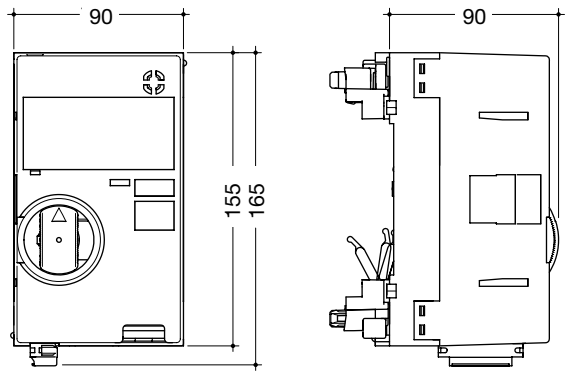
Rotary handle



Extended rotary handle

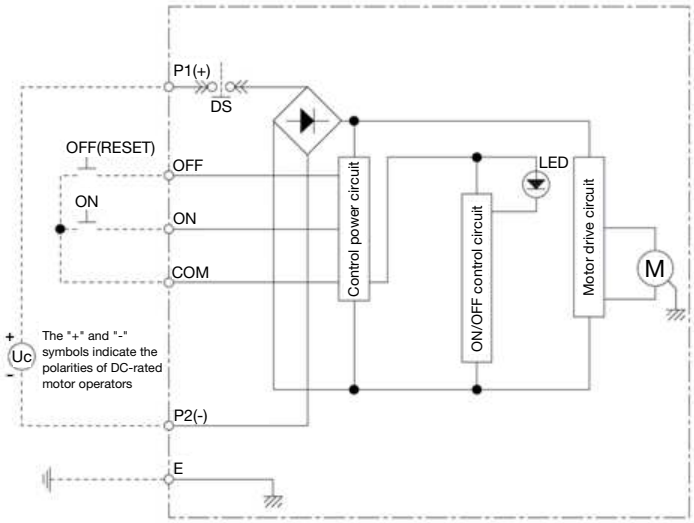


Motor operator



		HXB040H	HXB042H
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

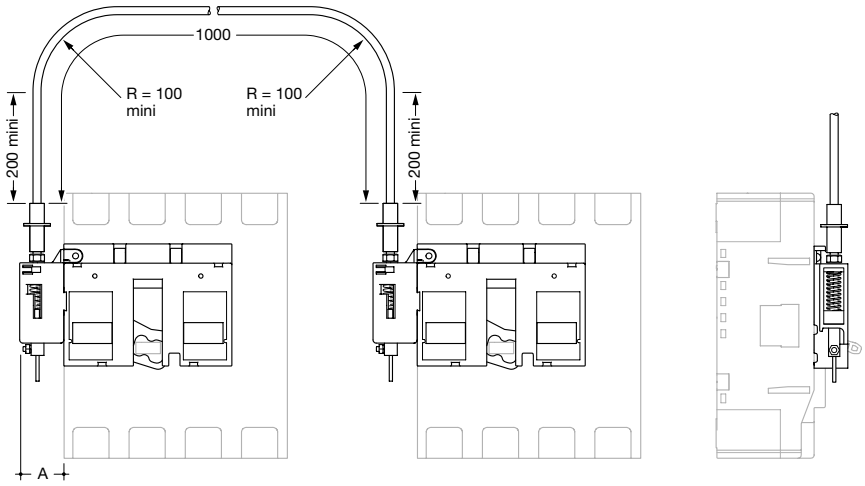
Wiring diagram



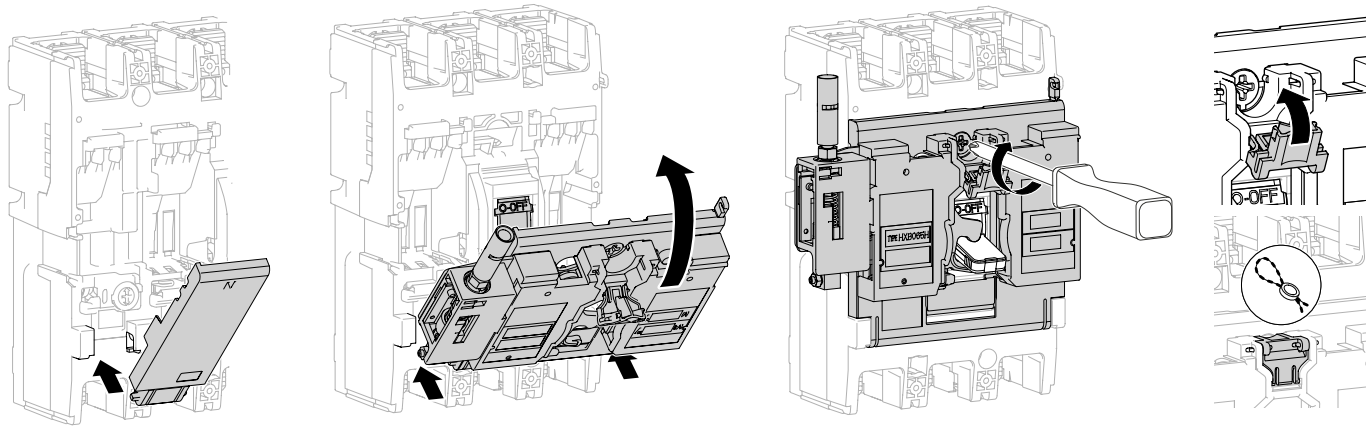
Interlocking system

Suitable with motor operator HXB04xH.
With electrical interlock for motor operator HXB068H (for 250A) or HXB069H (for 630/1000A).

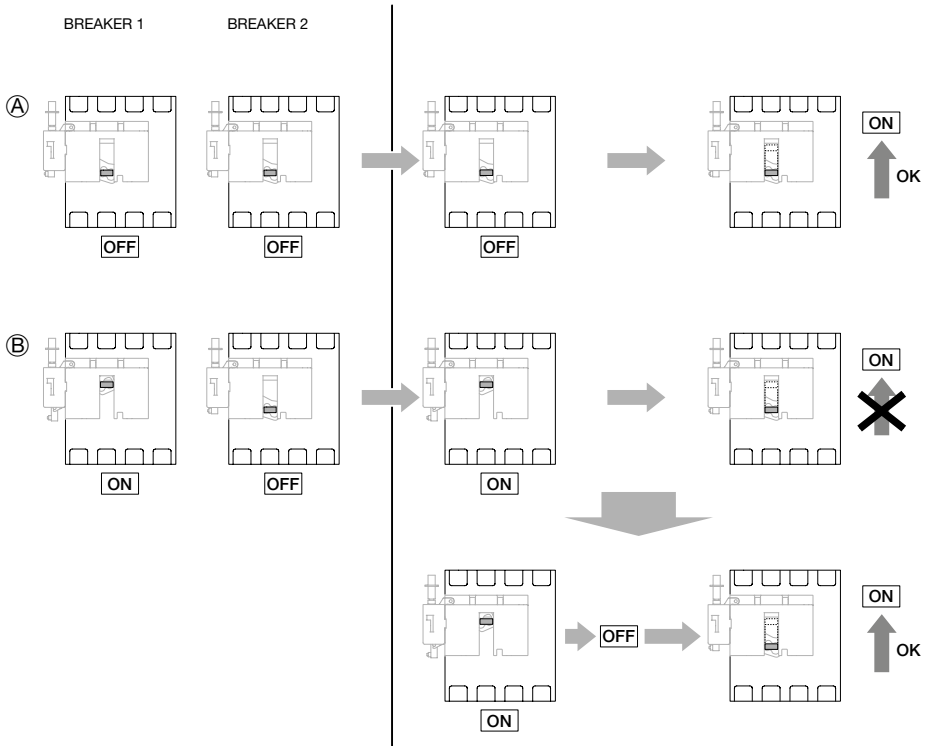
- Length HXB068H: 1500 mm
- Length HXB069H: 2100 mm



Mounting

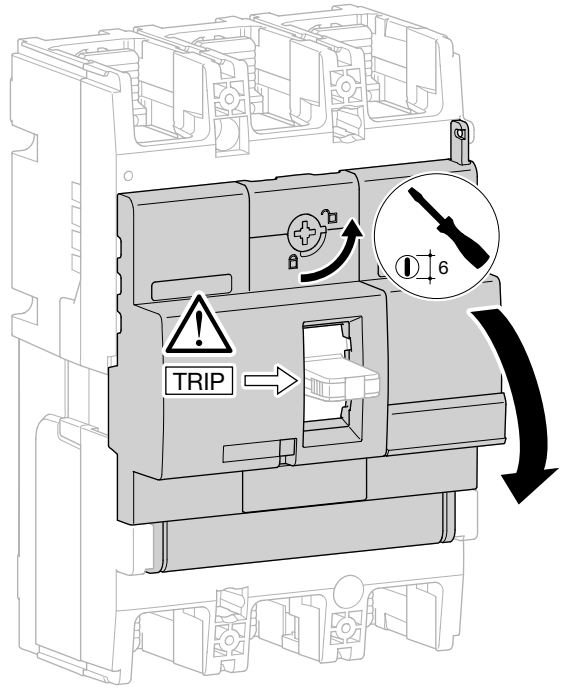


Checking the correct assembly



Auxiliaries

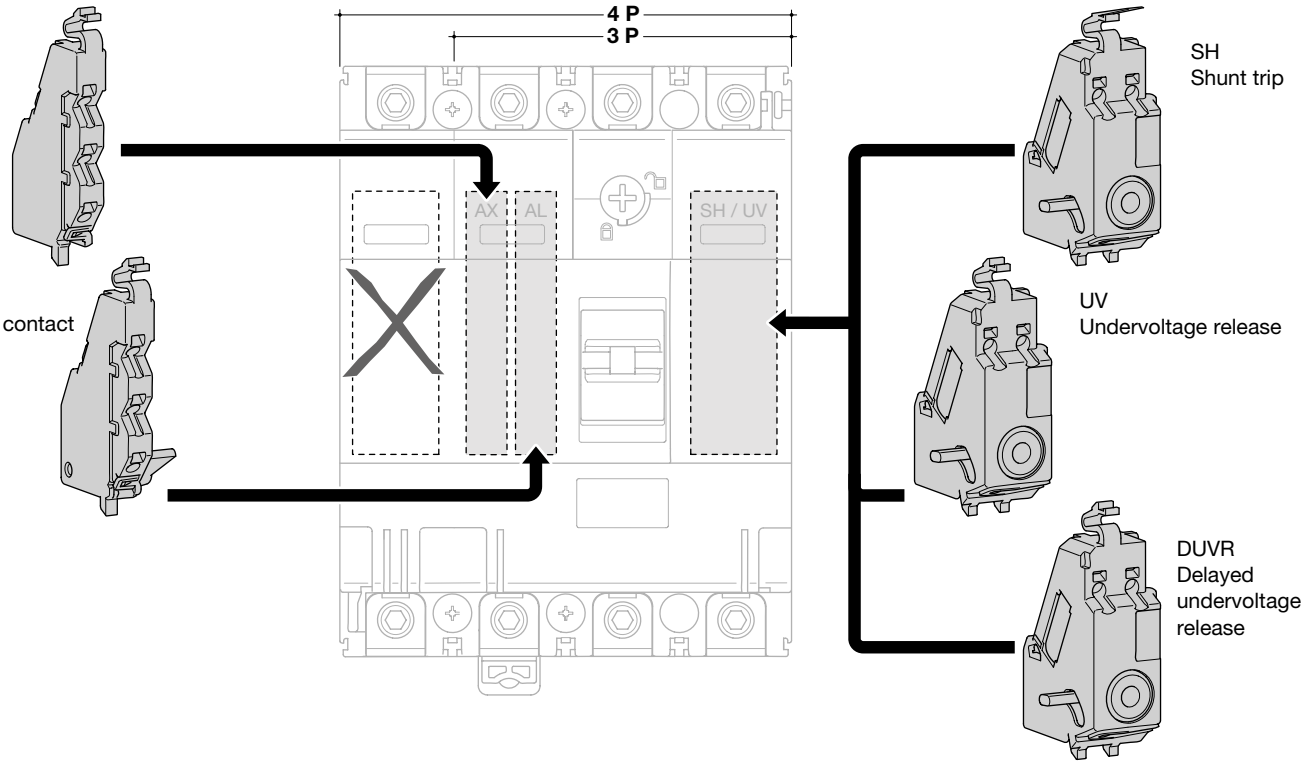
Auxiliaries for MCCBs and trip-free switches

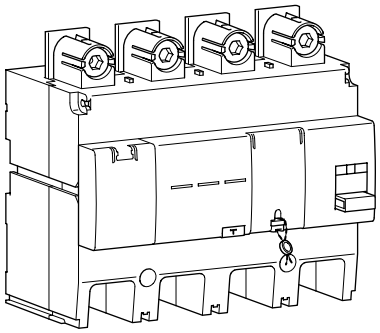


Mounting combination for auxiliaries and releases

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

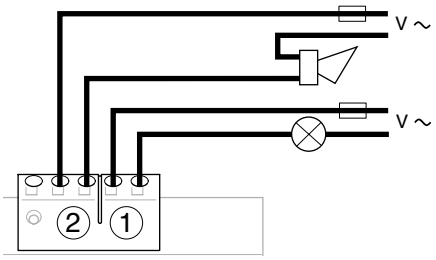
Reset button:
Signals add-on block tripping and must be acknowledged before switching on the installation.

Test button for differential operating:
Allows to check the electrical operating of the MCCB / Add-on block association.

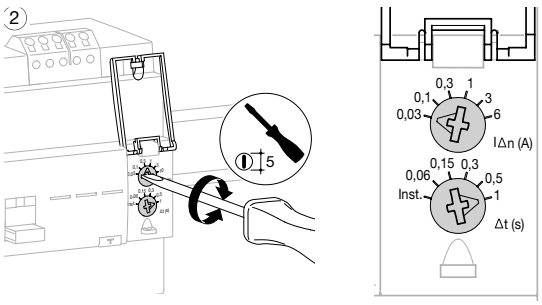
Mechanical test button:
Allows to check the mechanical operating of the MCCB / Add-on block association.

LED signaling default current level in the installation:
25% (orange) and 50% (red) IΔn; green light to signal correct operating.

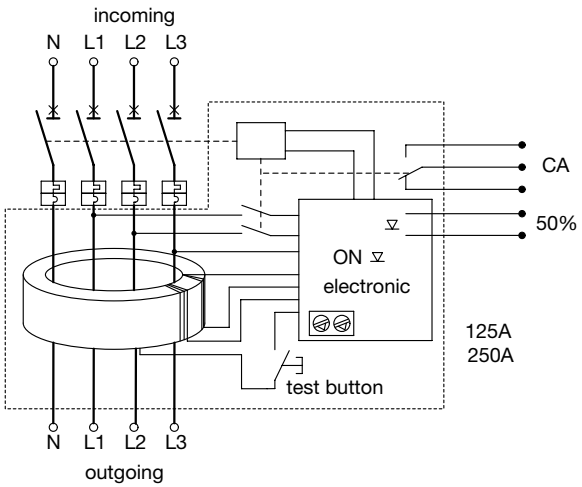
Remote tripping and advanced warning (50% IΔn) signaling thanks to these contacts:



Earth leakage current (IΔn) and delay (Δt) setting

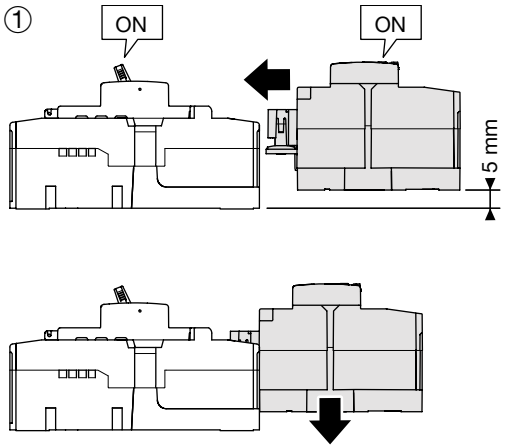


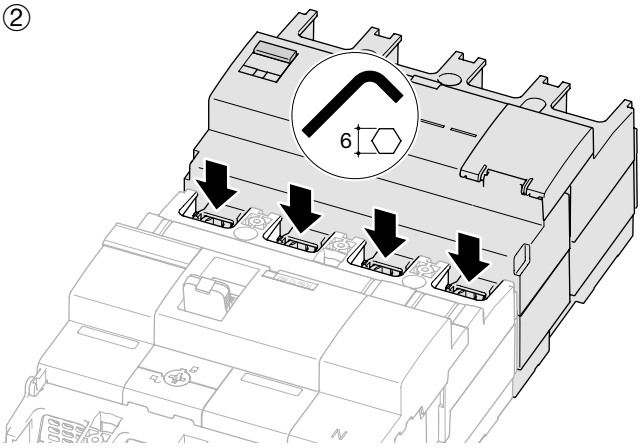
Add-on block operating

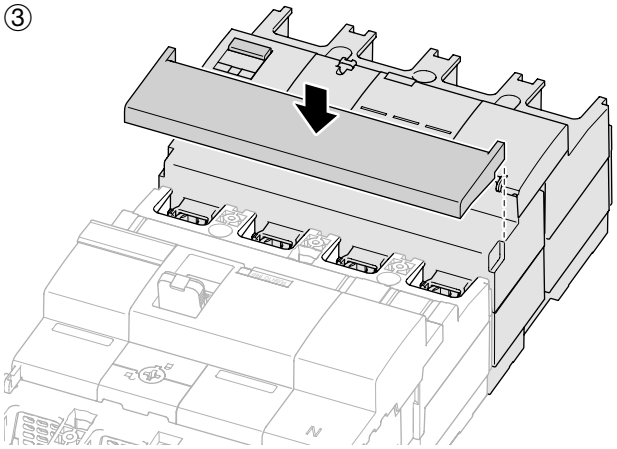


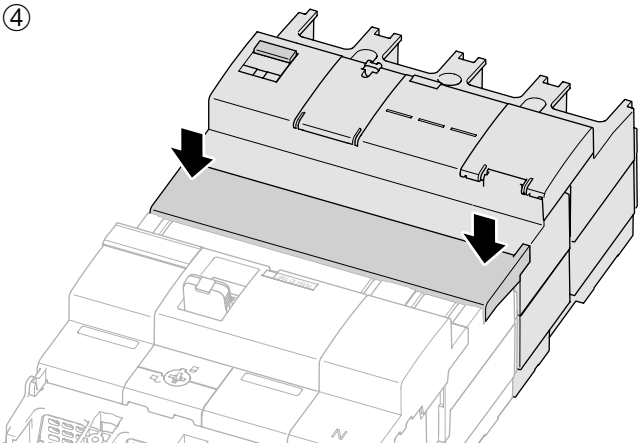
S (Δt)	A (IΔn)						
		0.03	0.1	0.3	1	3	6
	Inst.	OK	OK	OK	OK	OK	OK
	0.06	no	OK	OK	OK	OK	OK
	0.15	no	OK	OK	OK	OK	OK
	0.3	no	OK	OK	OK	OK	OK
	0.5	no	OK	OK	OK	OK	OK
	1	no	OK	OK	OK	OK	OK

Add-on block mounting

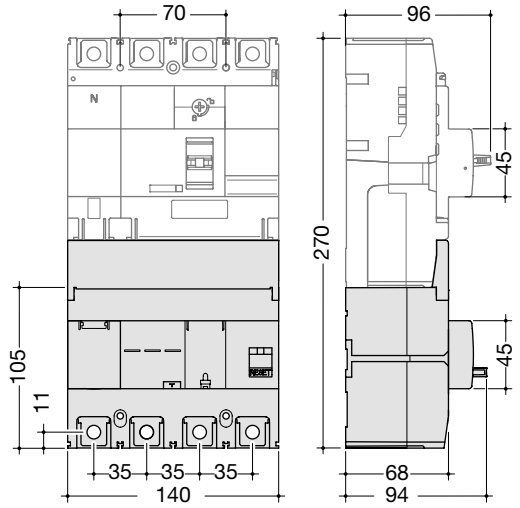


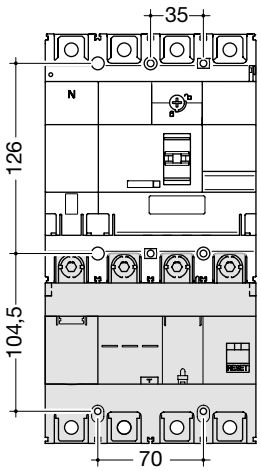




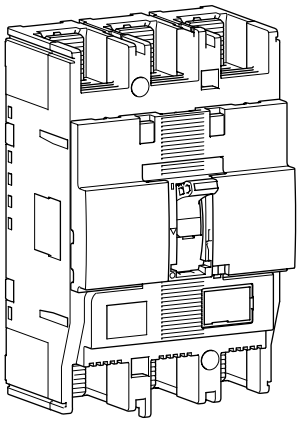


Dimensions



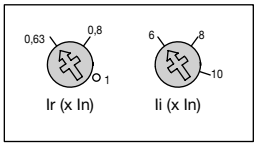


MCCBs



		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
	Icu	85	25	7,5
HEC	Icu	100	70	20
	Icu	100	70	15

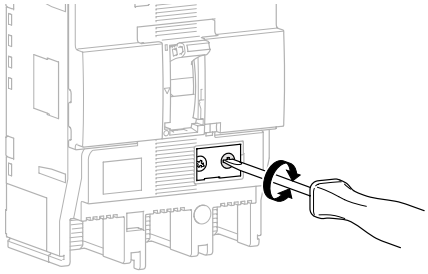
Magnetic and thermal settings

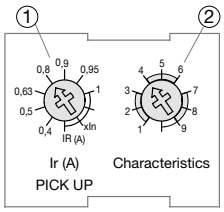


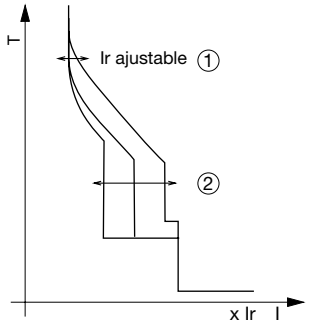
Thermal adjustment from 0.63 to 1 x In

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:
Ir and tr settings

S - Short delay - protection against short circuits:
Isd and tsd settings

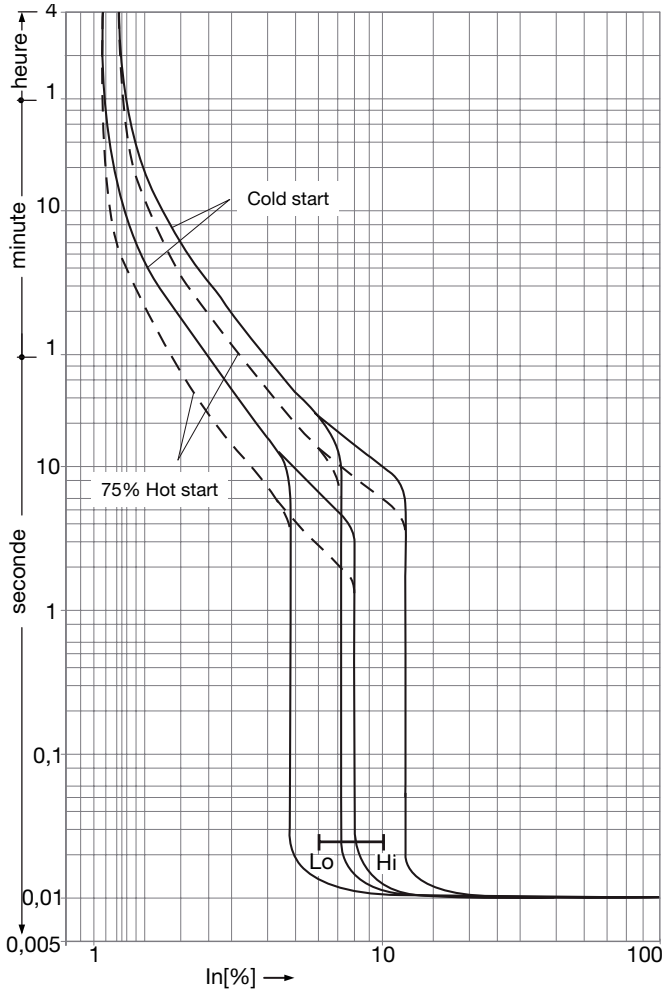
I - Instantaneous - max. instantaneous threshold (< 10 ms) in case of short circuit: 2.5 to 10 x Ir.

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

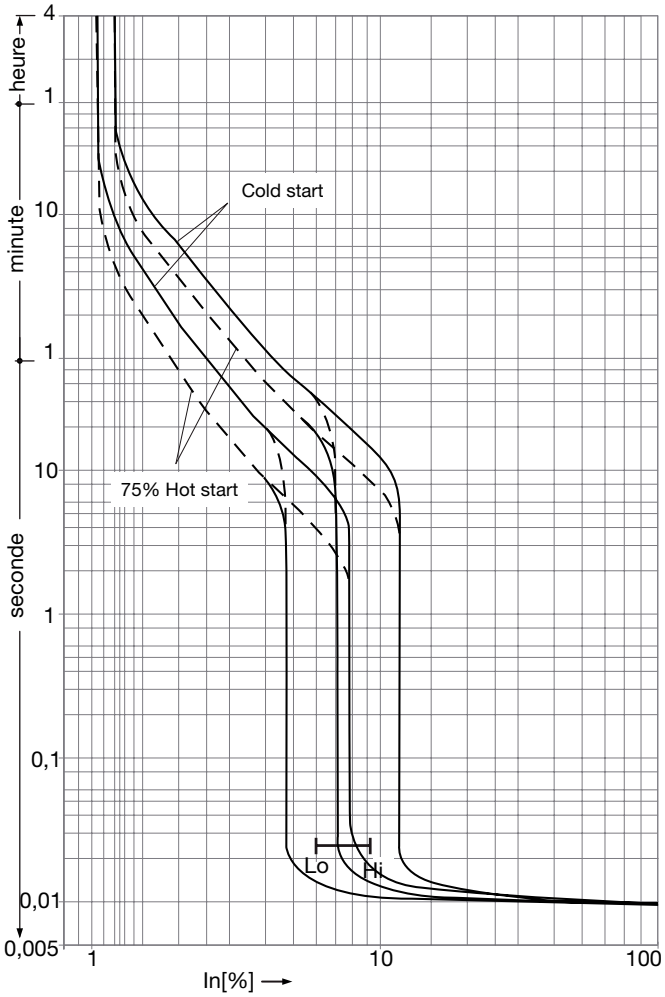
LSI		**In A**										
		3P					**4P**					
		Long Time Delay		**Short Time Delay**		**Inst**	**Long Time Delay**		**Short Time Delay**		**Inst**	**Protection**
		Ir (x In)	tr (s)	isd (xIr)	tsd (s)	Ii (xIr)	Ir (x In)	tr (s)	isd (xIr)	tsd (s)	Ii (xIr)	Neutral
① Ir (x In)	**0.4**	OK					OK					
	0.5	OK					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 xIr	2.5	0.1	14 (max 12 x In)		11 s at 2 xIr	2.5	0.1	14 (max 10 x In)	no
	2		21s at 2 xIr					21 s at 2 xIr	5			
	3			5				7.5 s at 6 xIr	10	0,2		
	4		5 s at 6 xIr	10				11 s at 2 xIr	2.5	0.1		50%
	5		7.5 s at 6 xIr		0.2			21 s at 2 xIr	10			
	6							7.5 s at 6 xIr	2.5	0.2		
	7							11 s at 6 xIr	2.5	0.1		100%
	8							21 s at 2 xIr	5			
	9							21 s at 2 xIr	10	0.2		

Tripping curve

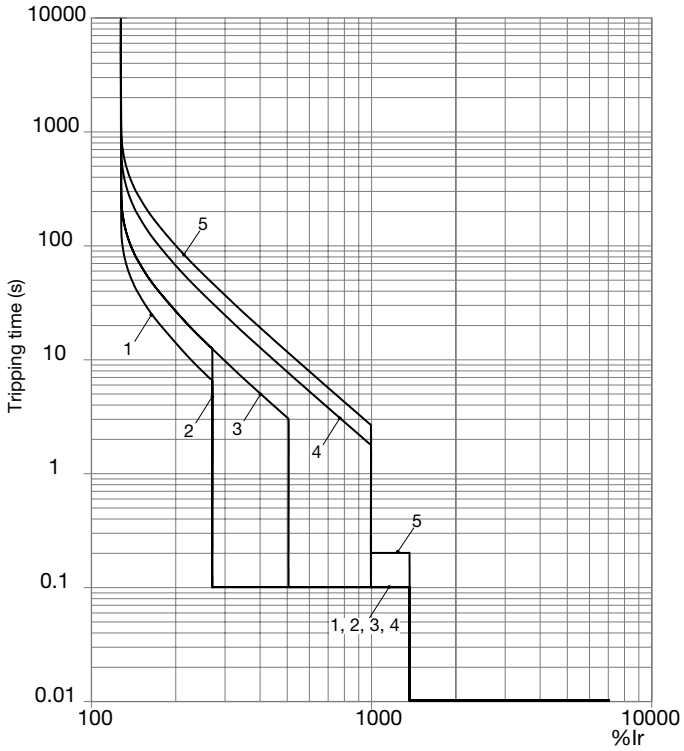
MCCB h250 TM



MCCB h250 TM+

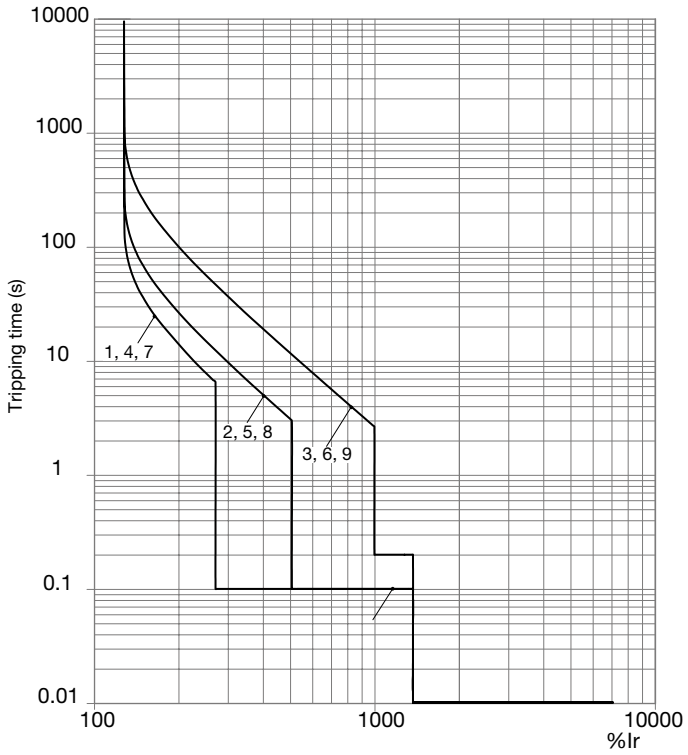


MCCB h250 3P LSI



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		
Standard	**LTD**	tr (s)	11	21	21	5	7.5		
			200 % x Ir			600 % x Ir			
	STD	Isd (x Ir)	2.5	2.5	5	10	10		
		tsd (s)	0.1	0.1	0.1	0.1	0.2		
	INST	Ii (x Ir)	14 (max 13 x In)						

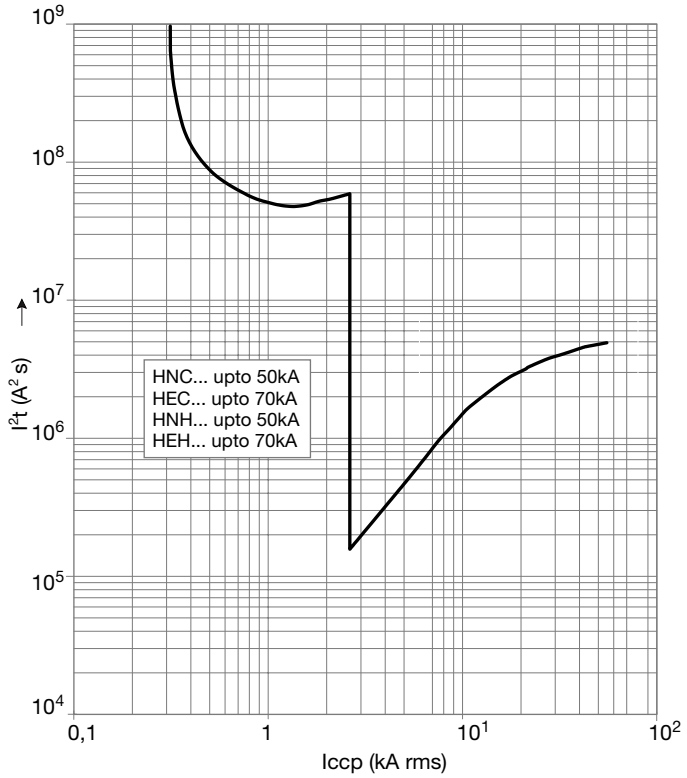
MCCB h250 4P LSI



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	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 Ir		600% x Ir	200 % x Ir		600% x Ir	200 % x Ir		600% x Ir
	STD	Isd (x Ir)	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	Ii (x Ir)	14 (max 13 x In)								
	Neutral protection		no			0.5			1		

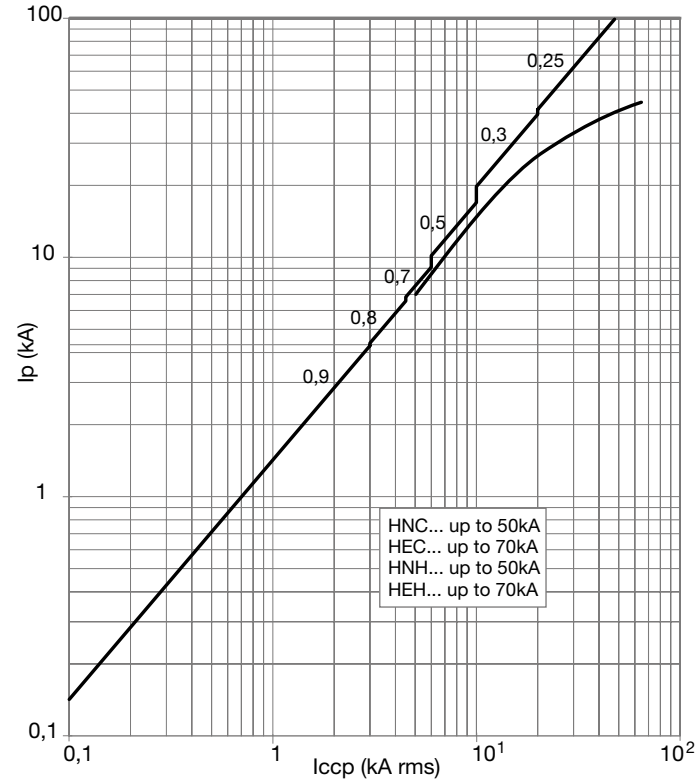
Thermal constraint curve at 400V (Let-through energy)

MCCB h250



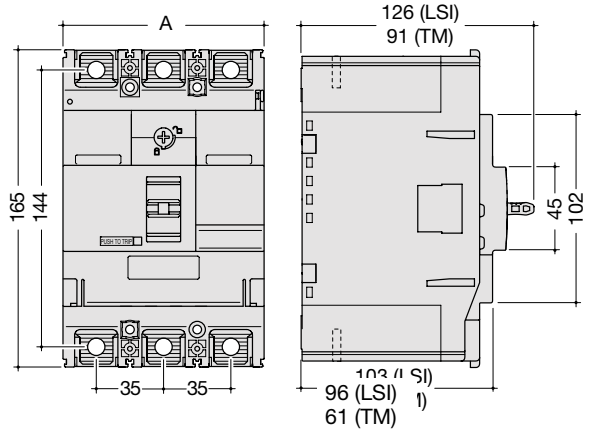
Current limiting curve at 400V (Let-through peak current)

MCCB h250



Dimensions

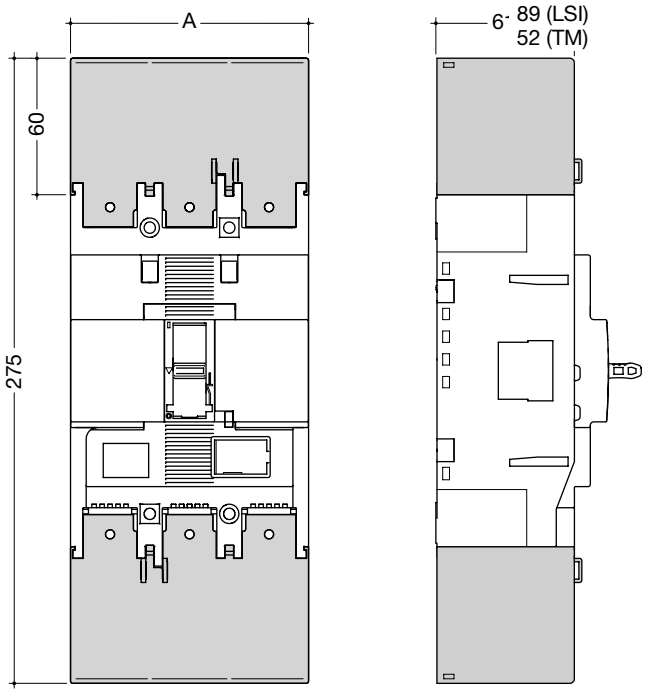
MCCBs



	A (mm)
3P	105
4P	140

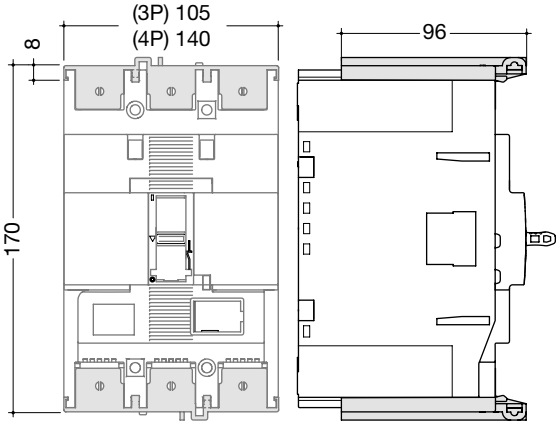
Accessories

Terminal covers for extended straight connections



	A (mm)
3P	105
4P	140

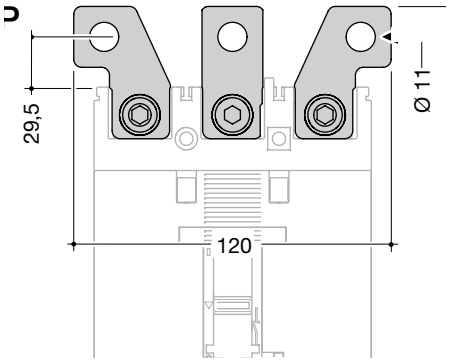
Terminal cover for rear connections (LSI only)

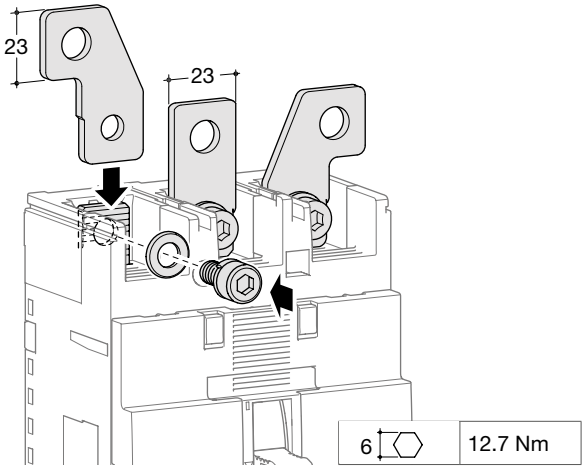


	A (mm)
3P	105
4P	140

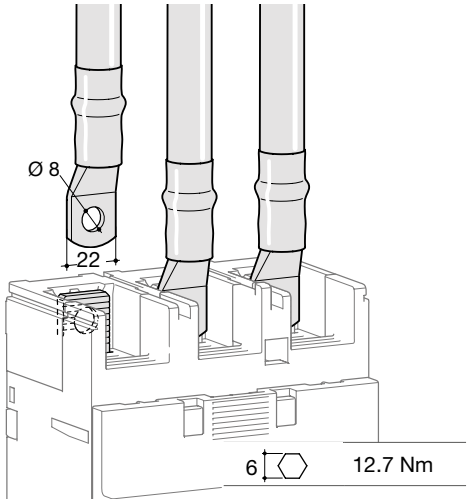
Connection

Extended straight and spreader connections

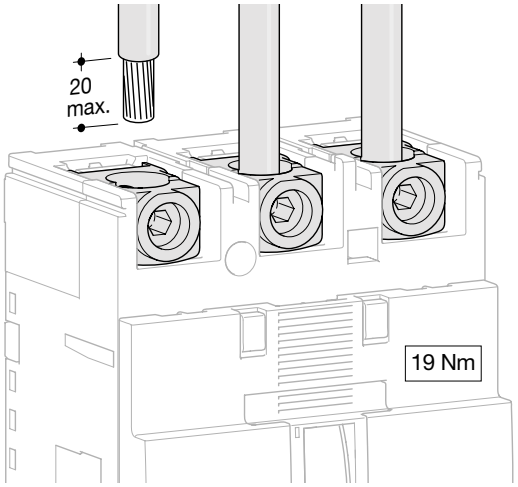




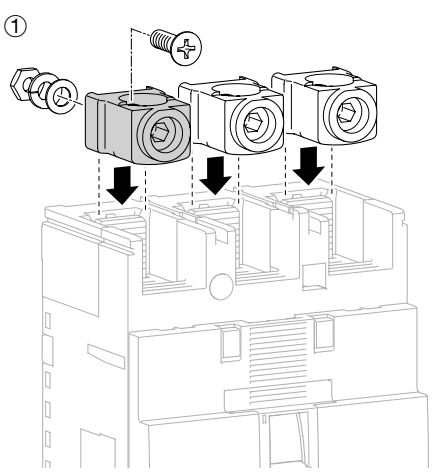
Connection with end lugs

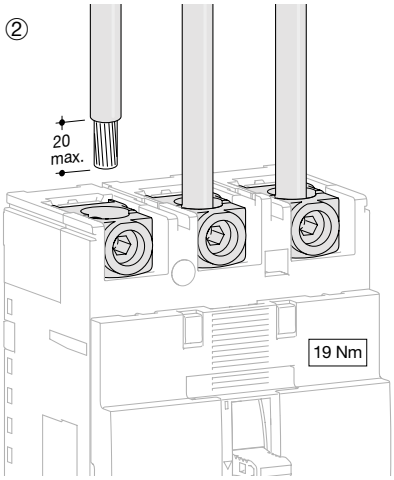


Connection by collar 240mm² - HYB005H and HYB06H



Connection by collar

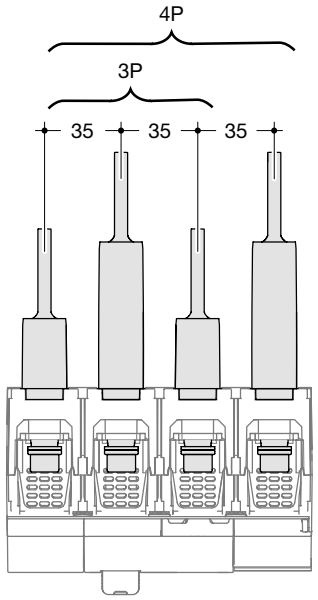


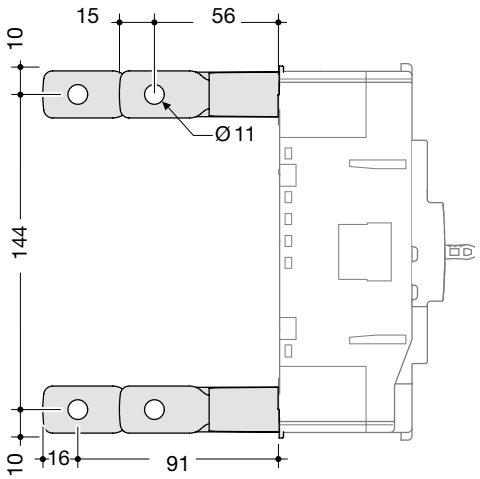


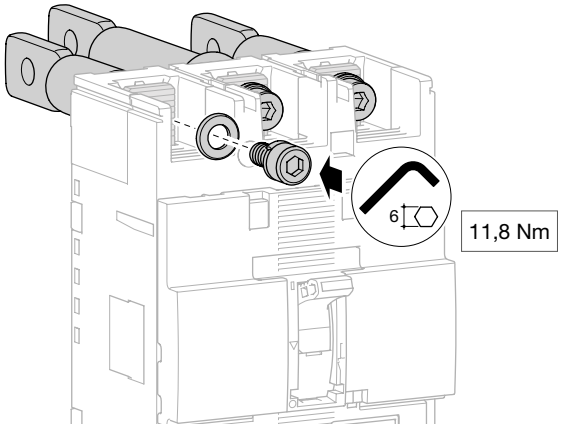
Terminals for copper conductors
HYC003H, HYC004H

	min. 35 mm²	max. 120 mm²
	min. 35 mm²	max. 120 mm²
6	19 Nm	

Rear connections (LSI only)

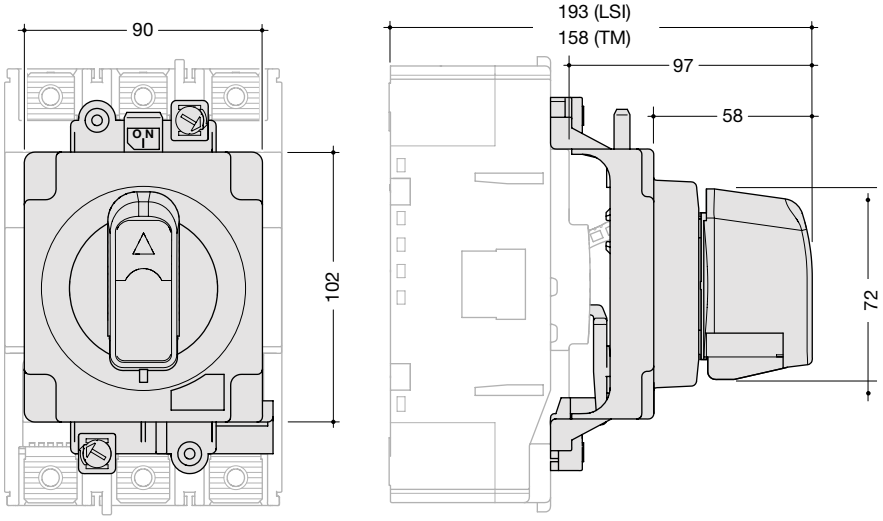




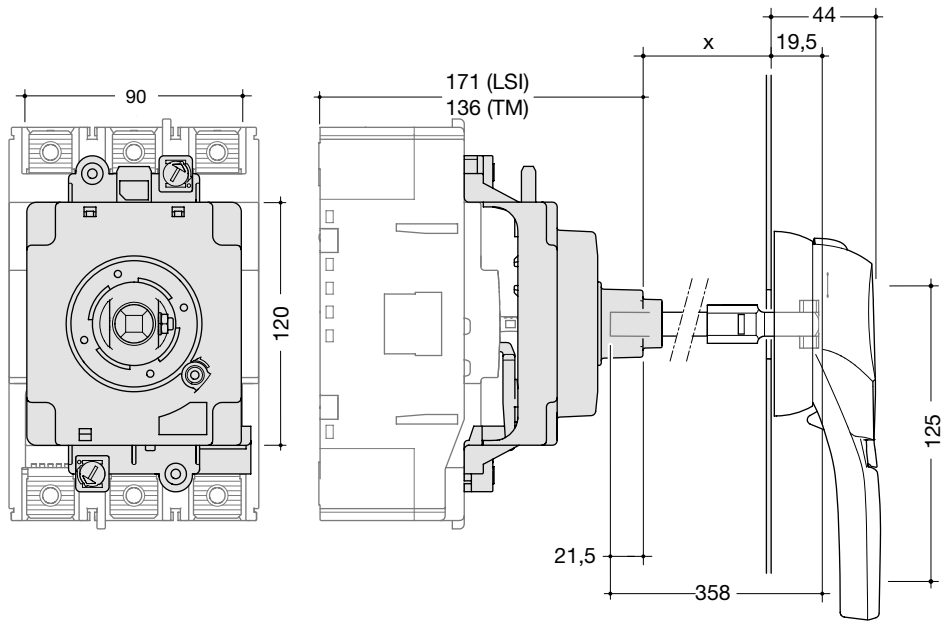


Accessories

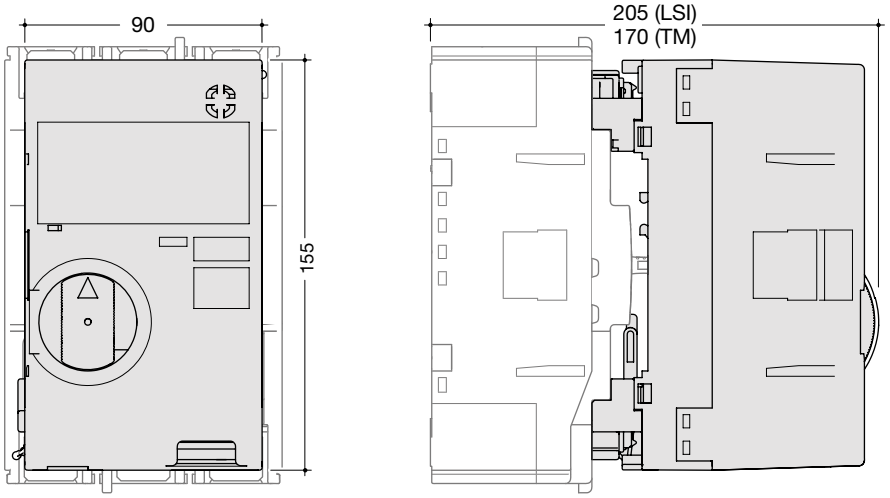
Direct rotary handle



Extended rotary handle

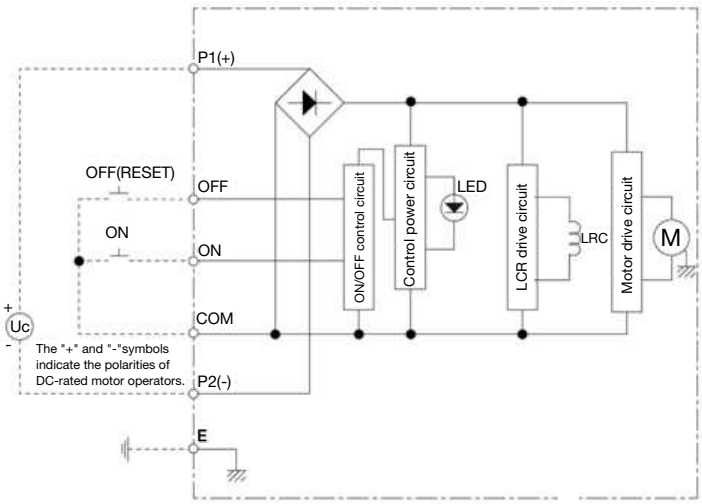


Motor operator



		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

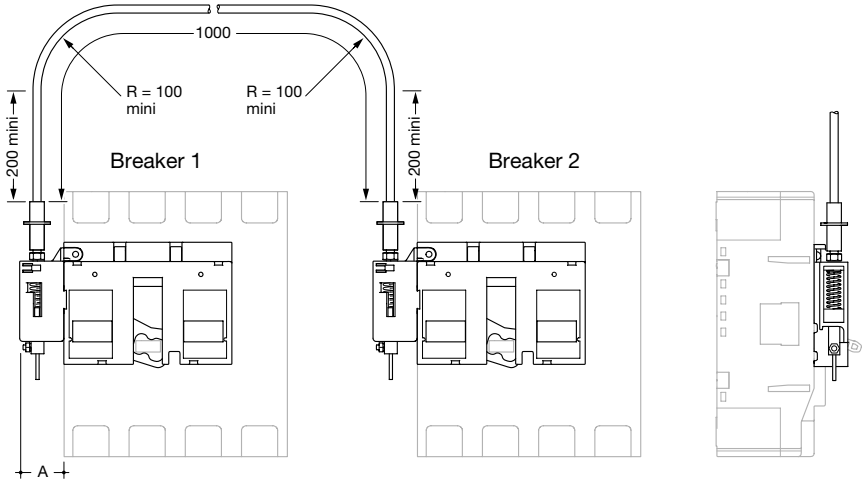
Wiring diagram



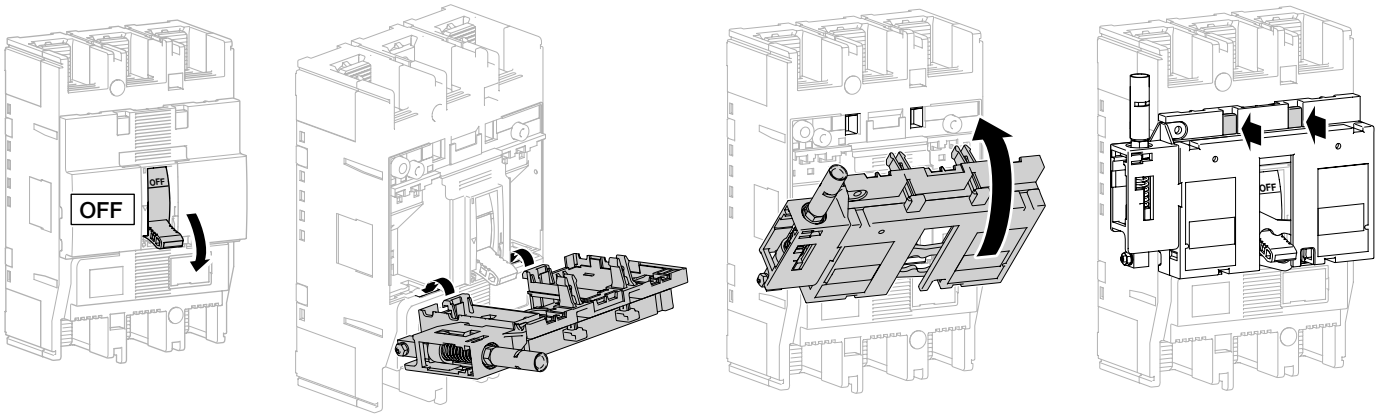
Interlocking system

Suitable with motor operator HXB04xH.
With electrical interlock for motor operator HXB068H (for 250A) or HXB069H (for 630/1000A).

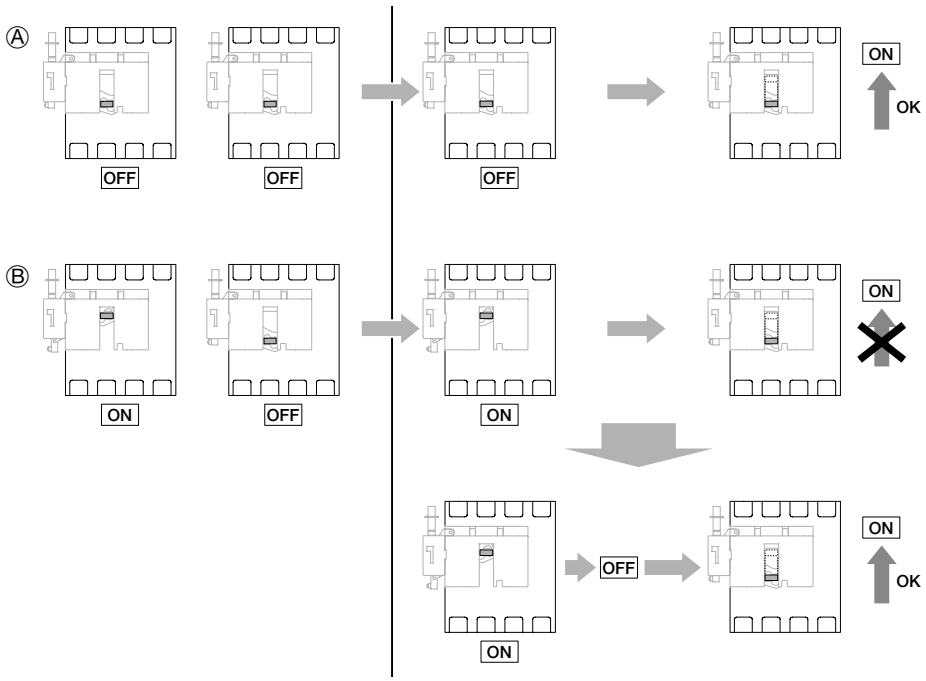
- Length HXB068H: 1500 mm
- Length HXB069H: 2100 mm



Mounting

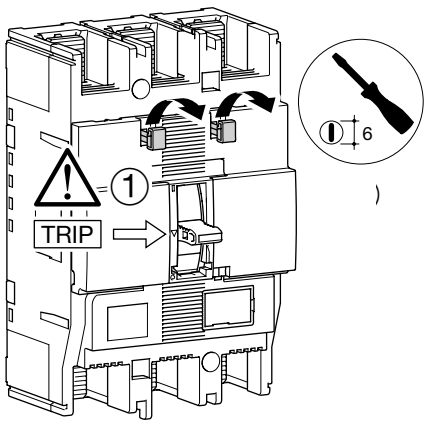


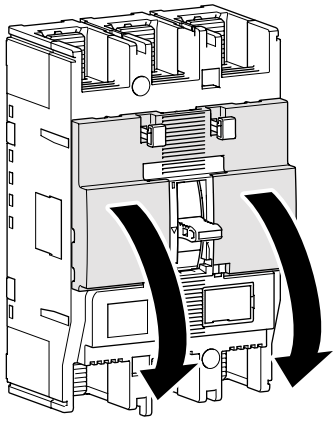
Mounting



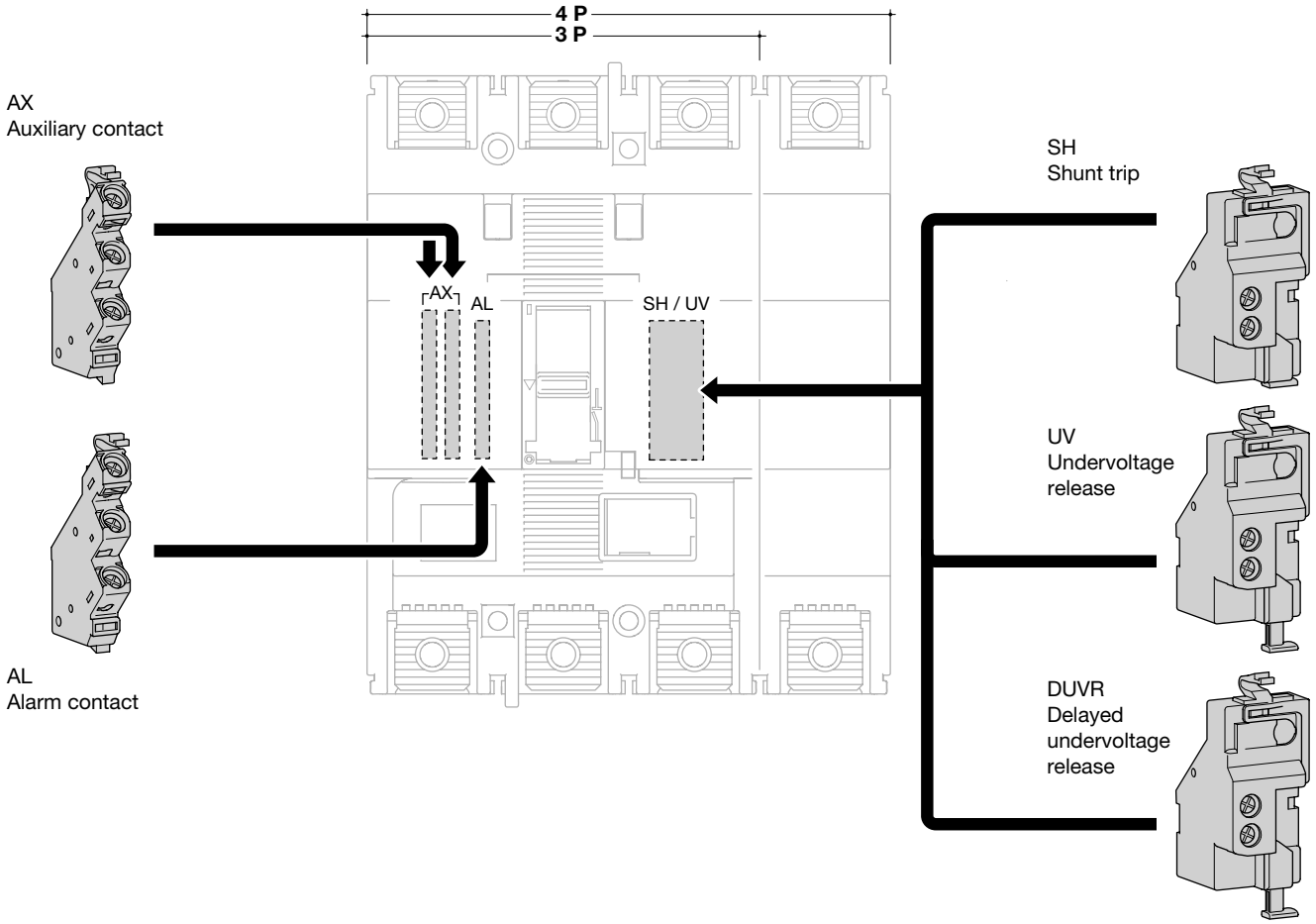
Auxiliaries

Auxiliaries for MCCBs and trip-free switches

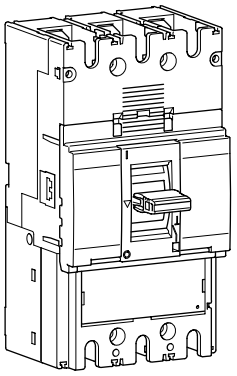




Mounting combination for auxiliaries and releases

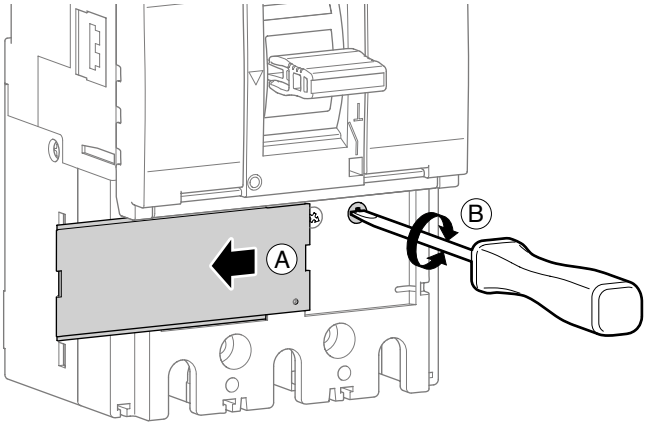


MCCBs

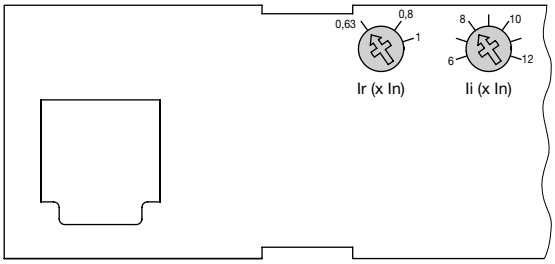


		220/240 V AC (kA)	380/415 V AC (kA)	660/690 V AC (kA)
h400/h630 HND	Icu	85	50	20
	Ics	85	50	15
h630 HED	Icu	100	70	20
	Ics	85	50	15
h630 HCD	Icm	–	9	–
	Icw	–	5 kA-0.3 s	–

Settings



Magnetic and thermal settings



Thermal adjustment from 0,63 to 1 x In

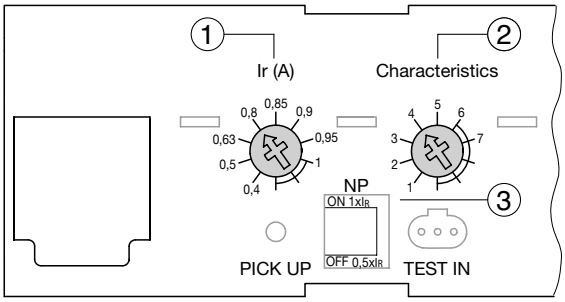
Magnetic adjustment from 6 to 12 x In

Electronic trip unit setting (LSI)

L - Long delay - protection against overloads:
Ir and tr settings

S - Short delay - protection against short circuits:
Isd and tsd settings

I - Instantaneous - max. instantaneous threshold
(< 10 ms) in case of short circuit:
2,5 to 10 x Ir (250 - 400A) and 2.5 to 8 x Ir (630A).

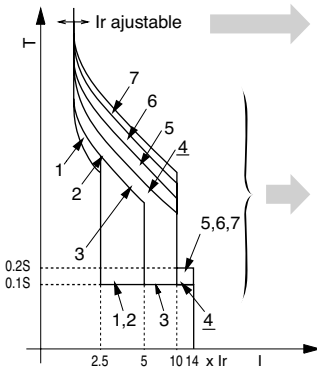


Neutral settings:

① Long delay current Ir setting

② Other curve characteristics setting (tr, Isd, tsd)

③ Neutral protection against overloads setting

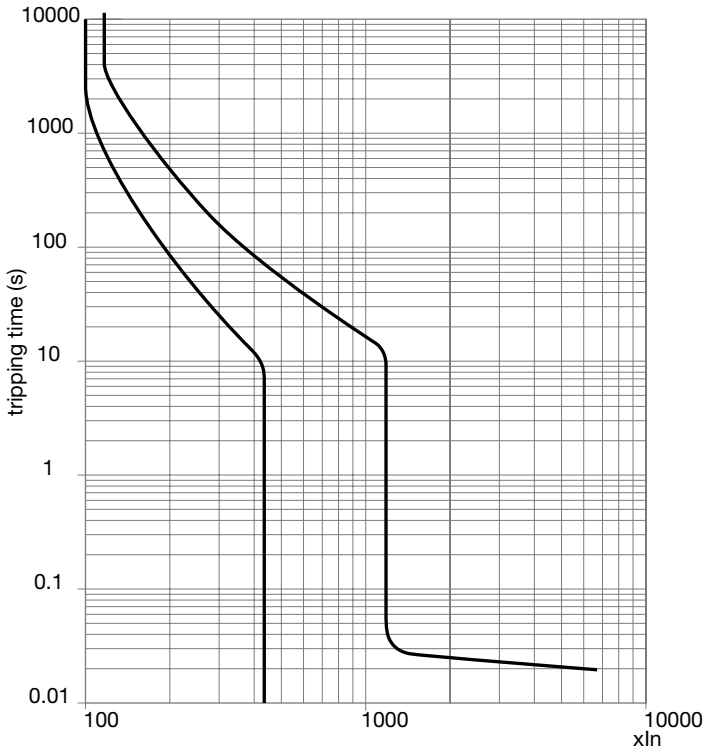


LSI		In A									
		250 A / 400 A					630 A				
		Long Time Delay		Short Time Delay		Inst	Long Time Delay		Short Time Delay		Inst
		Ir (x In)	tr (s)	isd (xlr)	tsd (s)	Ii (xlr)	Ir (x In)	tr (s)	isd (xlr)	tsd (s)	Ii (xlr)
① Ir (x In)	0.4	OK					OK				
	0.5	OK					OK				
	0.63	OK					OK				
	0.8	OK					OK				
	0.85	–					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 13 x In)		11s at 2 xlr	2.5	0.1	14 (max 10 x In)
	2		21s at 2 xlr					21s at 2 xlr			
	3			5					5		
	4		5 s at 6 xlr	10				5 s at 6 xlr	8		
	5		10 s at 6 xlr		0.2			10 s at 6 xlr		0.2	
	6		19 s at 6 xlr					16 s at 6 xlr			
	7		29 s at 6 xlr					–		–	–
③ Neutral protection	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.

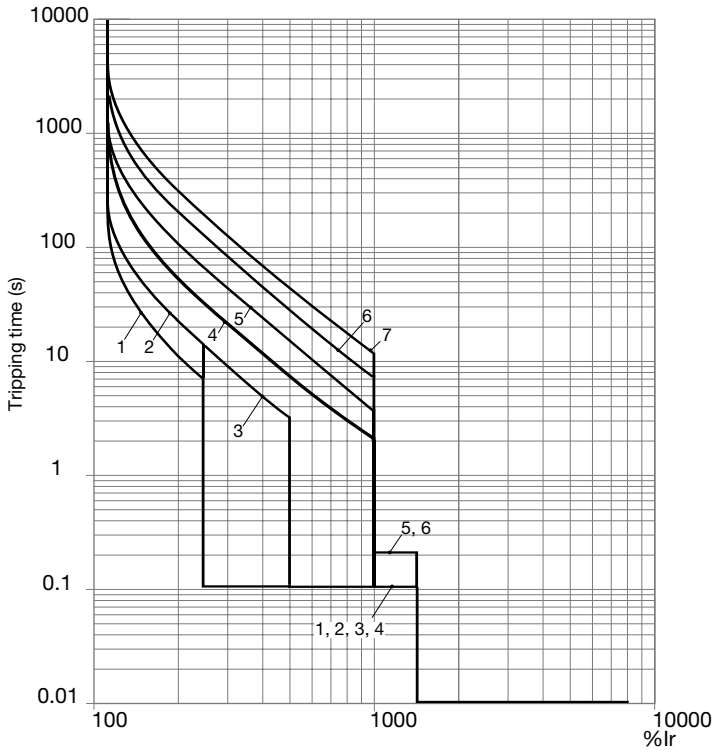
Tripping curve

MCCB h400 TM (250 and 400A)



Tripping curve

MCCB h630 LSI (250A and 400A)



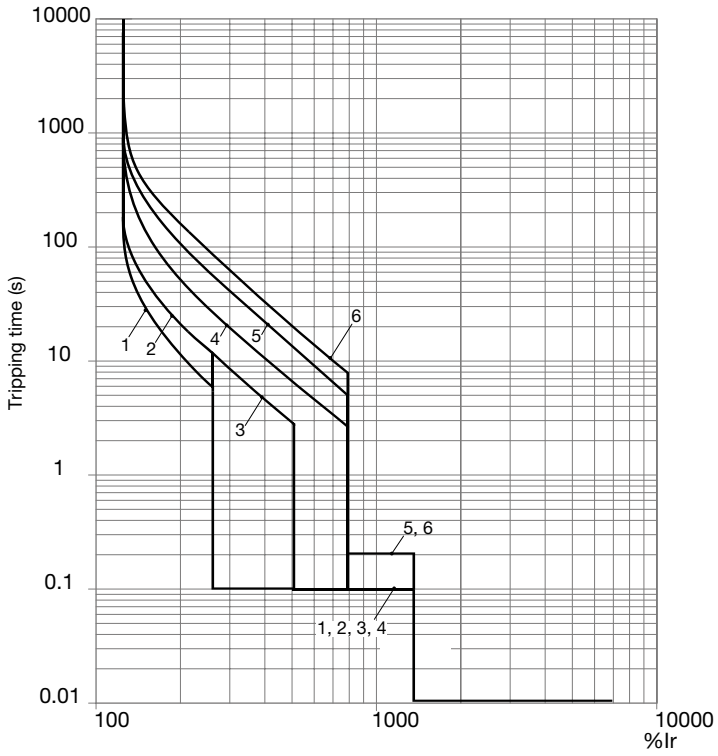
Electronic trip unit setting (LSI)

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	Ii (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)



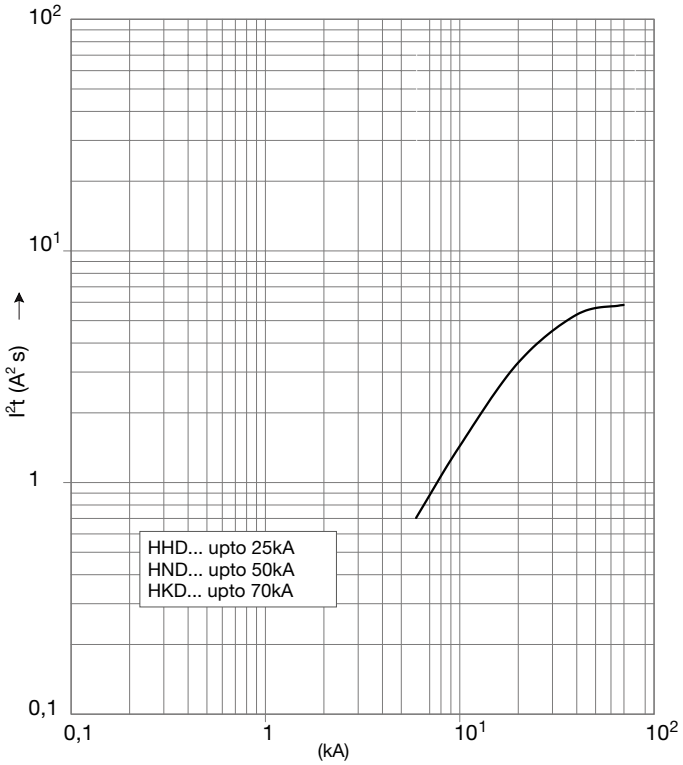
Electronic trip unit setting (LSI)

MCCB h630 LSI (630A electronic)

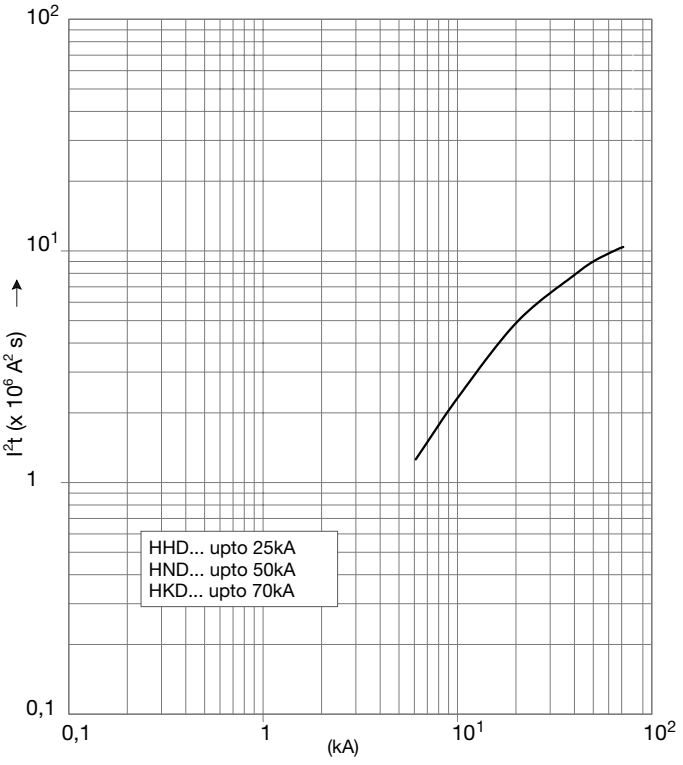
Ir (A)										
LTD Pick-up current		Ir (x In)	0.4	0.5	0.63	0.8	0.85	0.9	0.95	1
Characteristics		No.	1	2	3	4	5	6		
Standard	LTD	tr (s)	11	21	21	5	10	16		
			200% x Ir			600% x Ir				
	STD	Isd (x Ir)	2.5		5	8				
		tsd (s)	0.1			0.2				
	INST	Ii (x Ir)	14 (max : 13 x In)							
Optional	N	In (x In)	0 - 0.5 - 1							
		tn (s)	tn = tr							

Thermal constraint curve at 400V (Let-through energy)

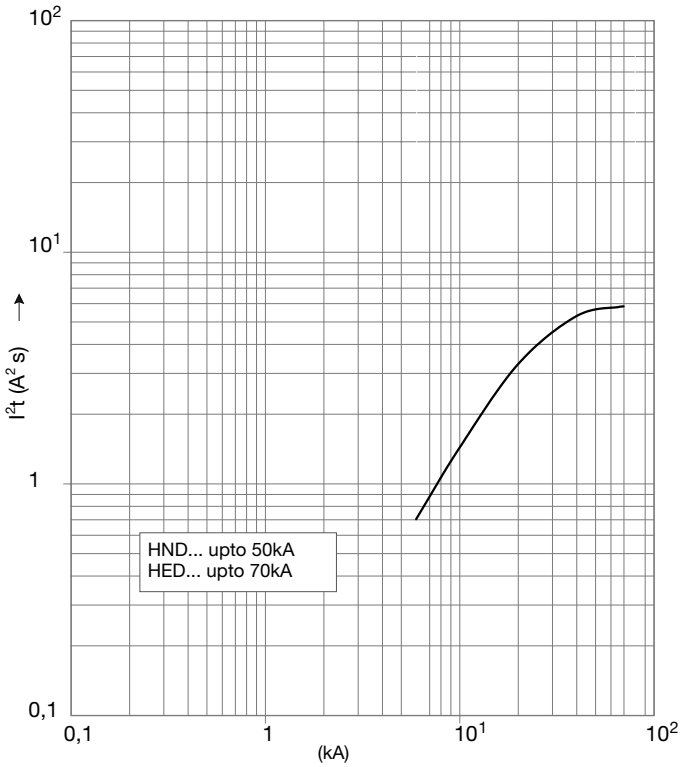
MCCB h400 TM (250A)



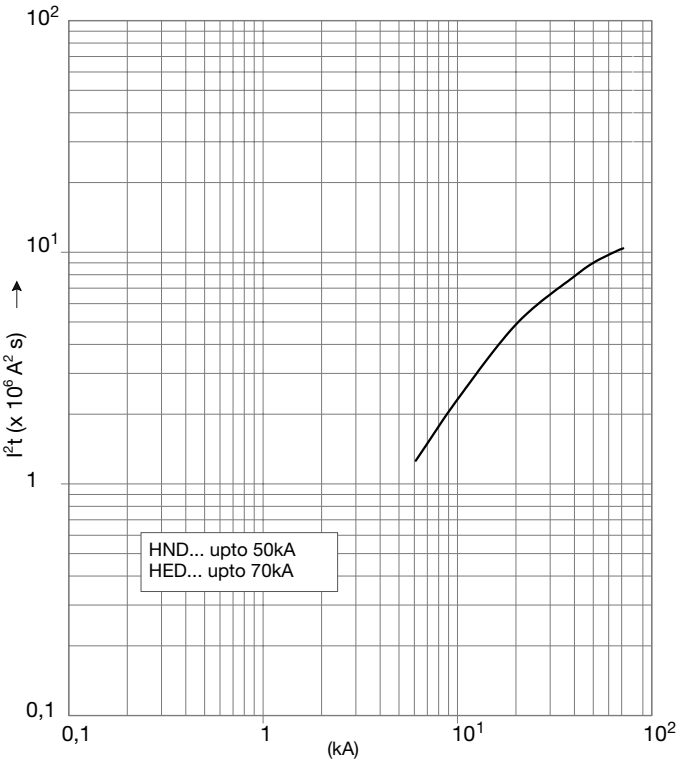
MCCB h400 TM (400A)



MCCB h630 LSI (250A and 400A)

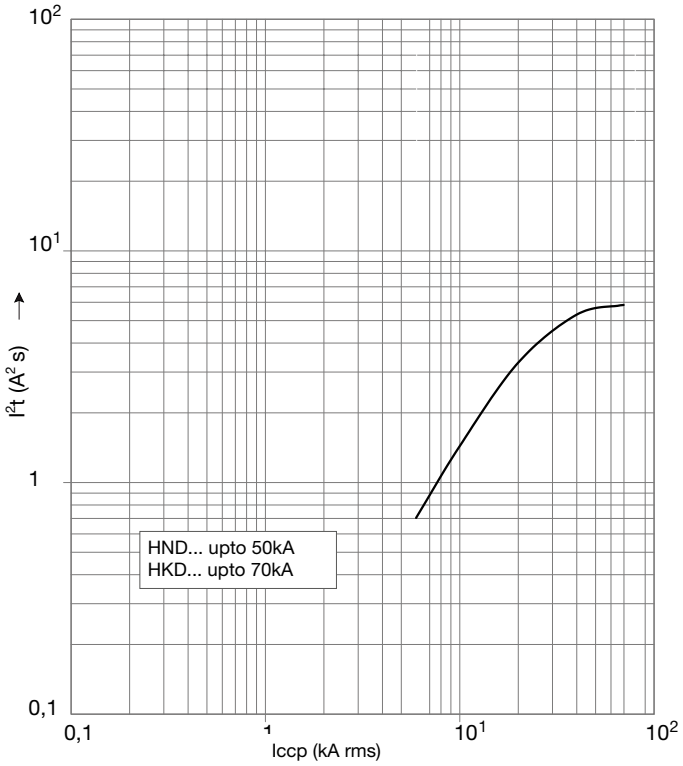


MCCB h630 LSI (630A)



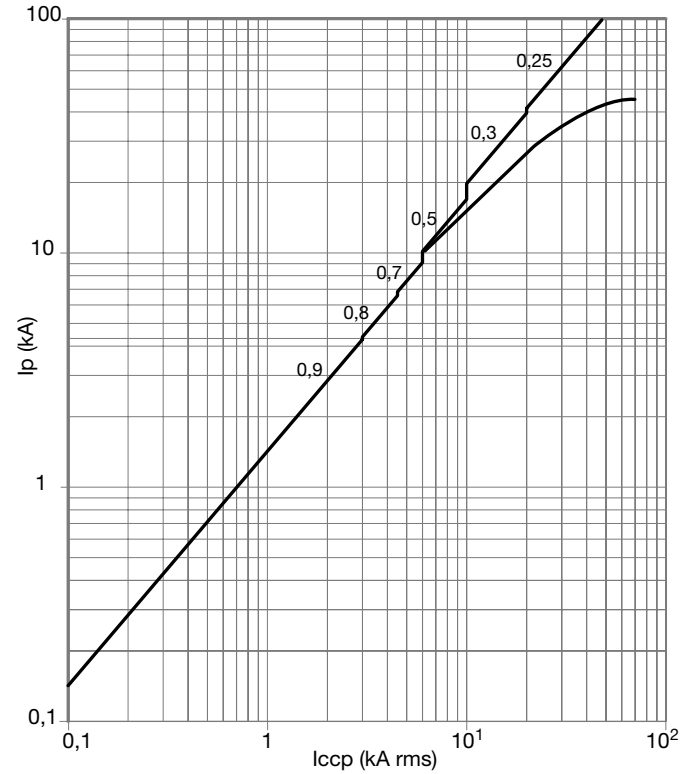
Thermal constraint curve at 400V (Let-through energy)

MCCB h630 LSI (630A)

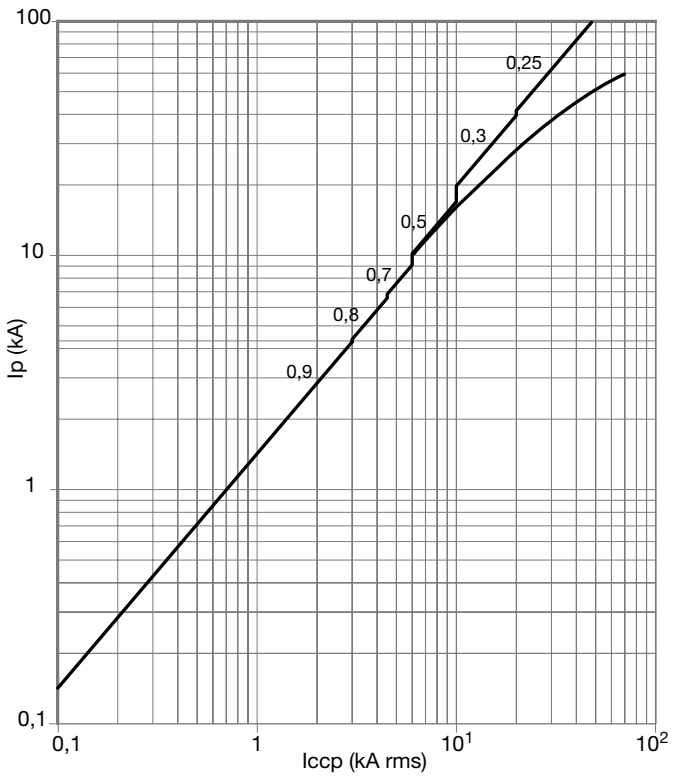


Current limiting curve at 400V (Let-through peak current)

MCCB h630 LSI (250A and 400A)
MCCB h400 TM

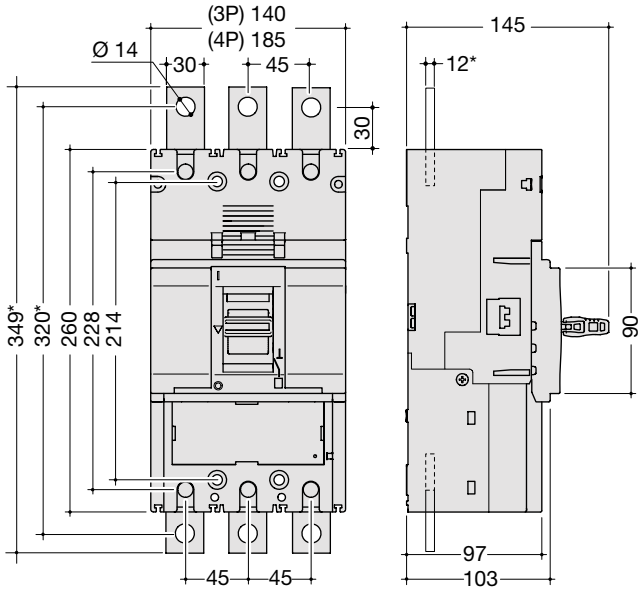


MCCB h630 LSI (630A)

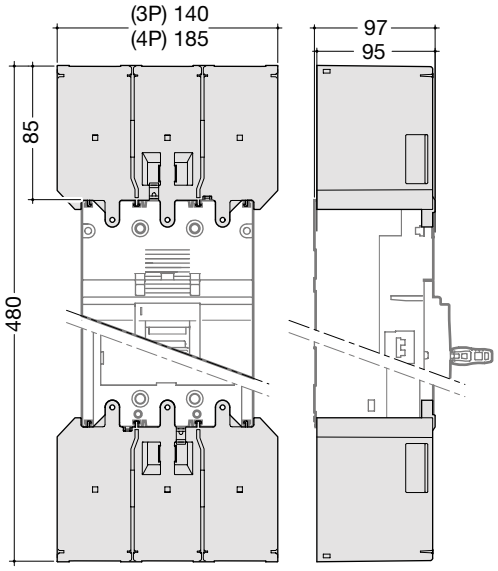


Dimensions

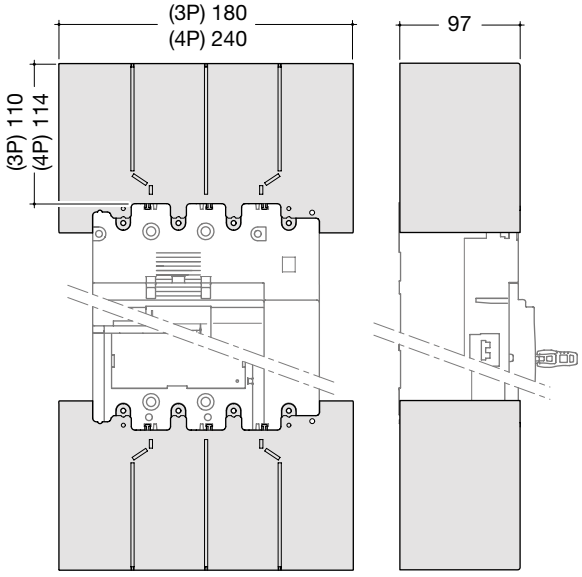
MCCBs



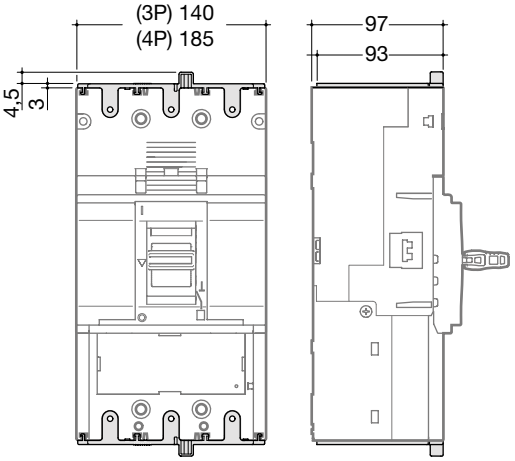
Terminal covers for extended straight connections



Terminal covers for extended spreader connections



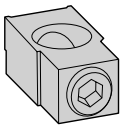
Terminal covers for rear connections and collar terminal

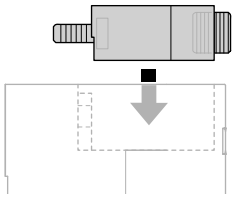


Connection

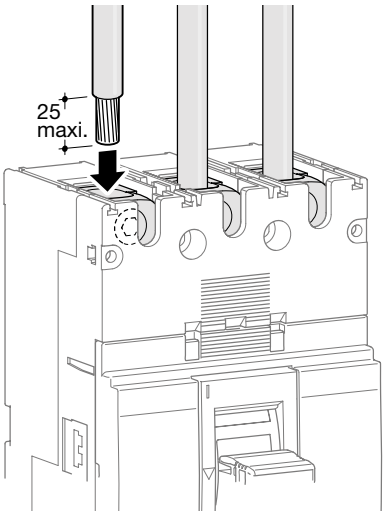
Connection for aluminium / copper conductors (h400 TM, h630 LSI)

HYD005 (3P) - HYD006H (4P)

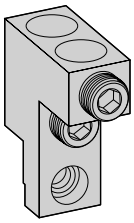


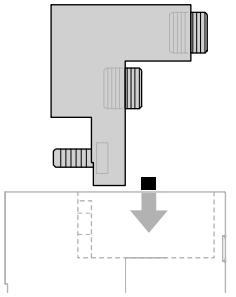


	max. 1x240 mm²
10	25 Nm



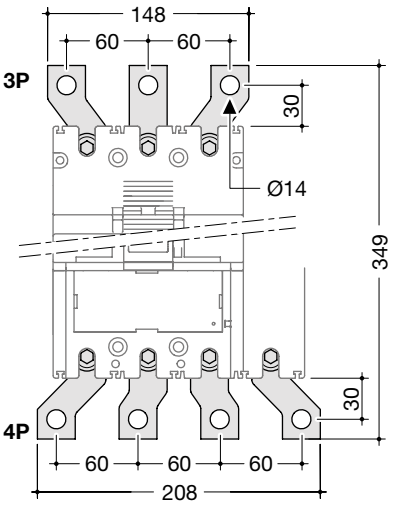
HYD007 (3P) - HYD008H (4P)

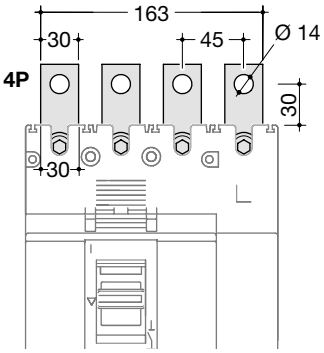


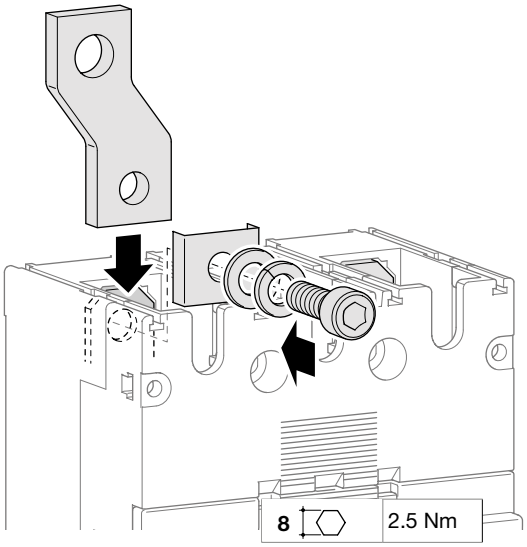


	max. 2x240 mm²
5	25 Nm

Extended straight and spreader connections

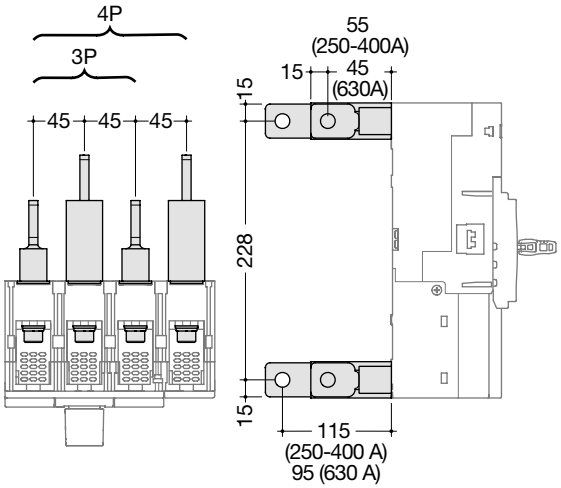


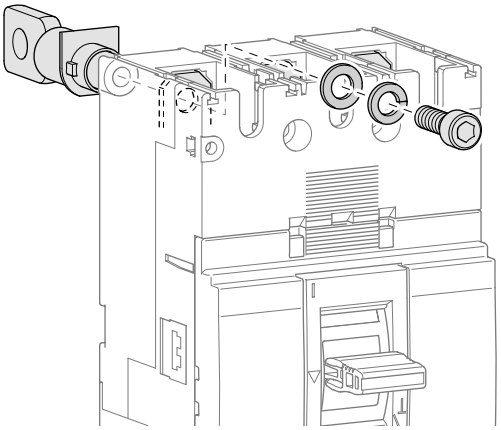




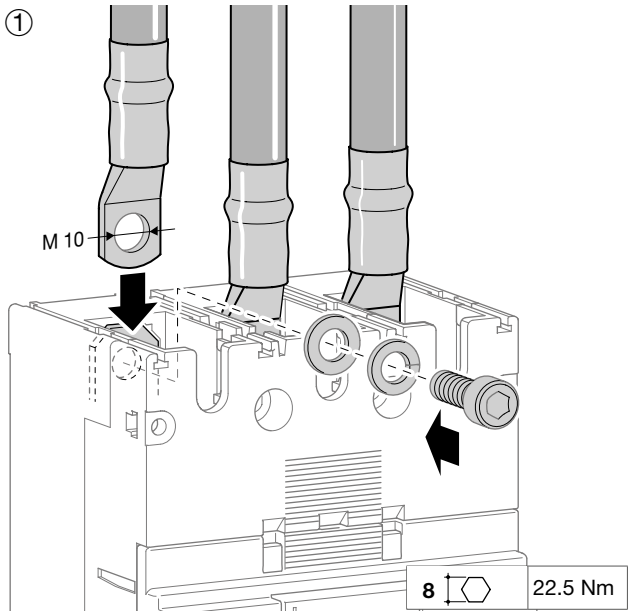
8	2.5 Nm

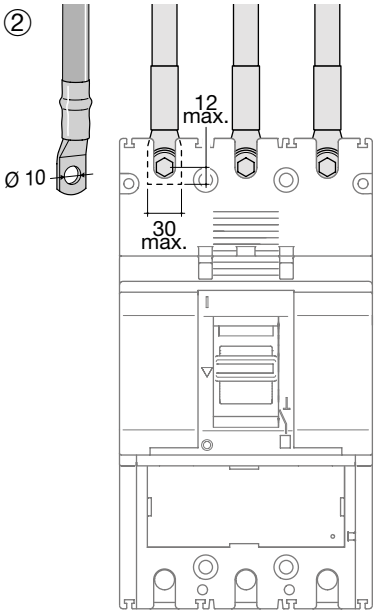
Rear connections





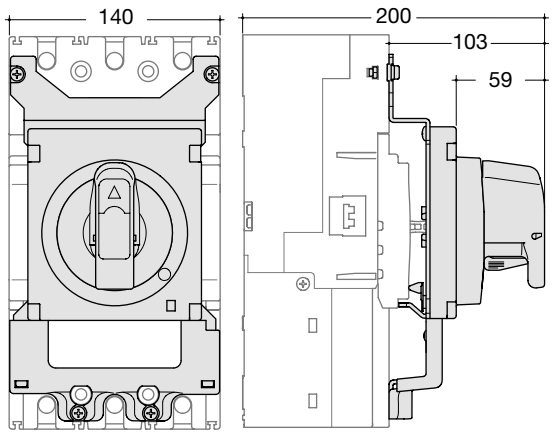
Connection with end lugs



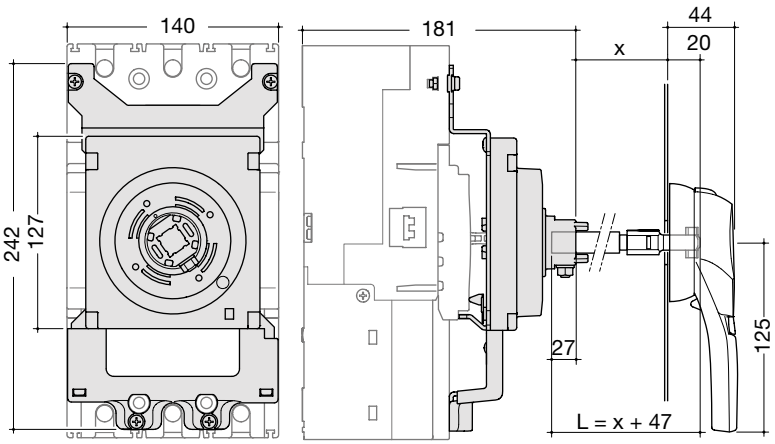


Accessories

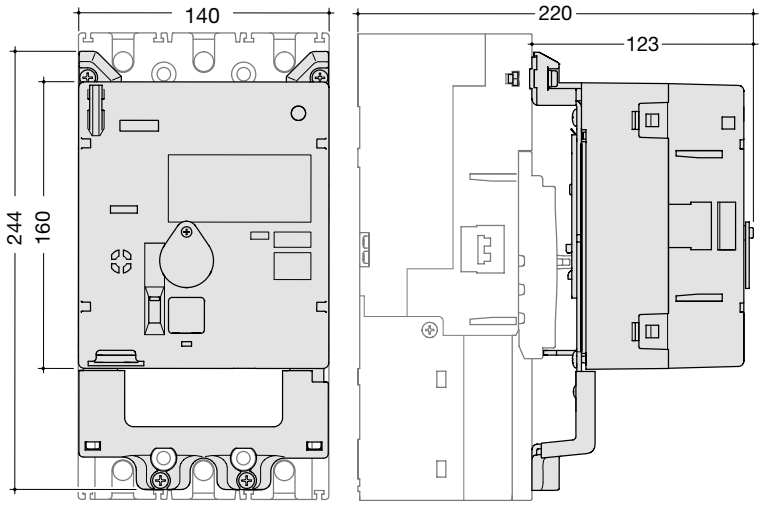
Direct rotary handle



Extended rotary handle

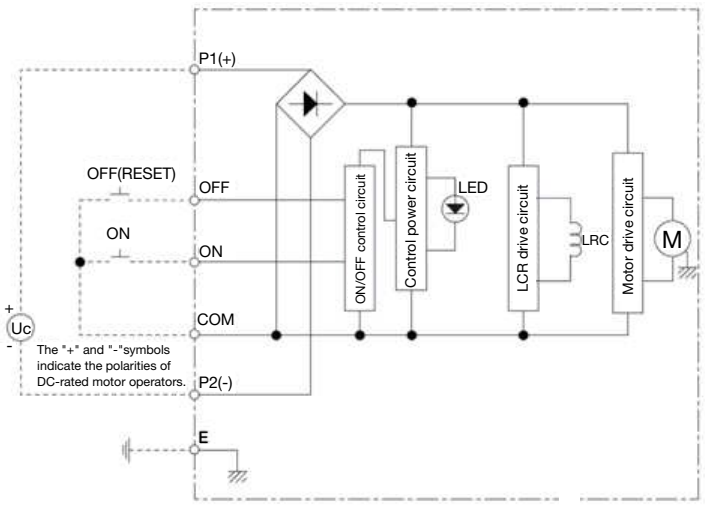


Motor operator



		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)	0.1s	
	(OFF)	1.5 s	
	(RESET)	1.5 s	
Power supply required		300VA min.	
Dielectric properties (1 min)		1000V AC	1500V AC

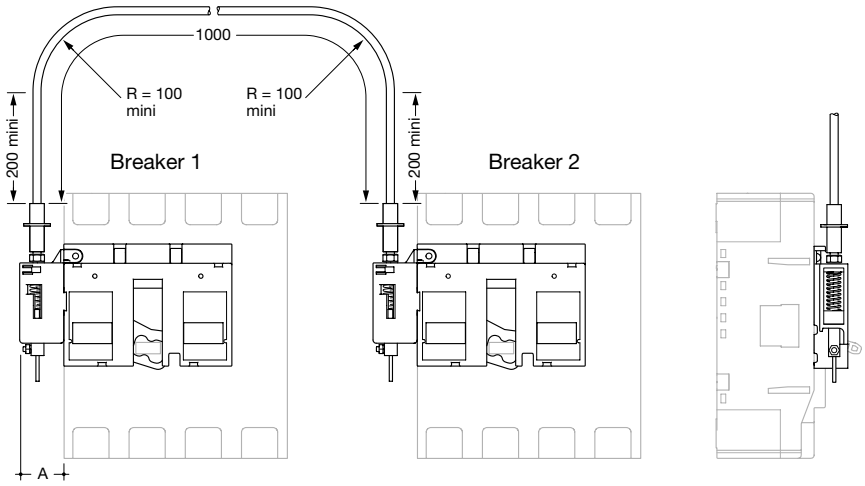
Wiring diagram



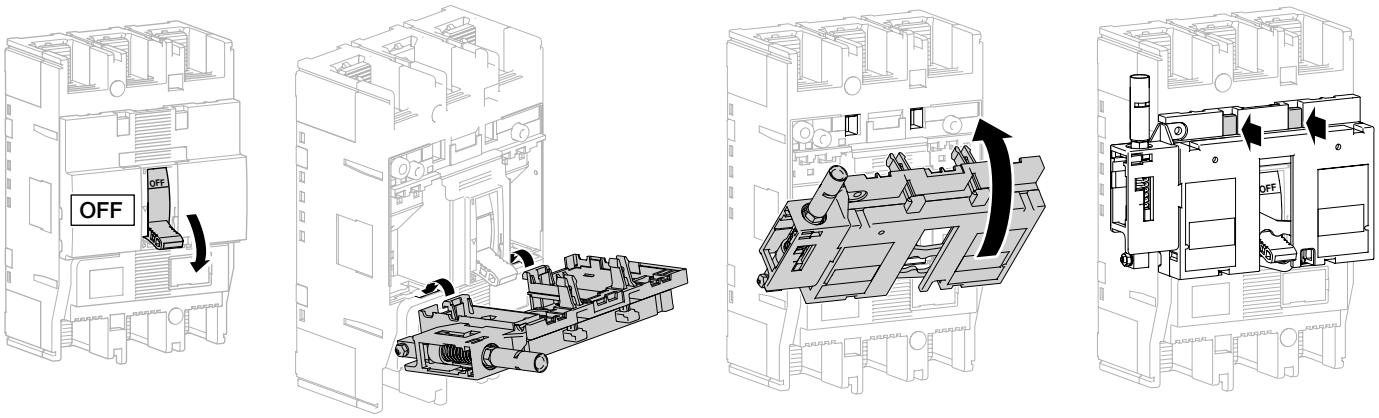
Interlocking system

Suitable with motor operator HXB04xH.
With electrical interlock for motor operator HXB068H (for 630/1000A) or HXB069H (for 250A).

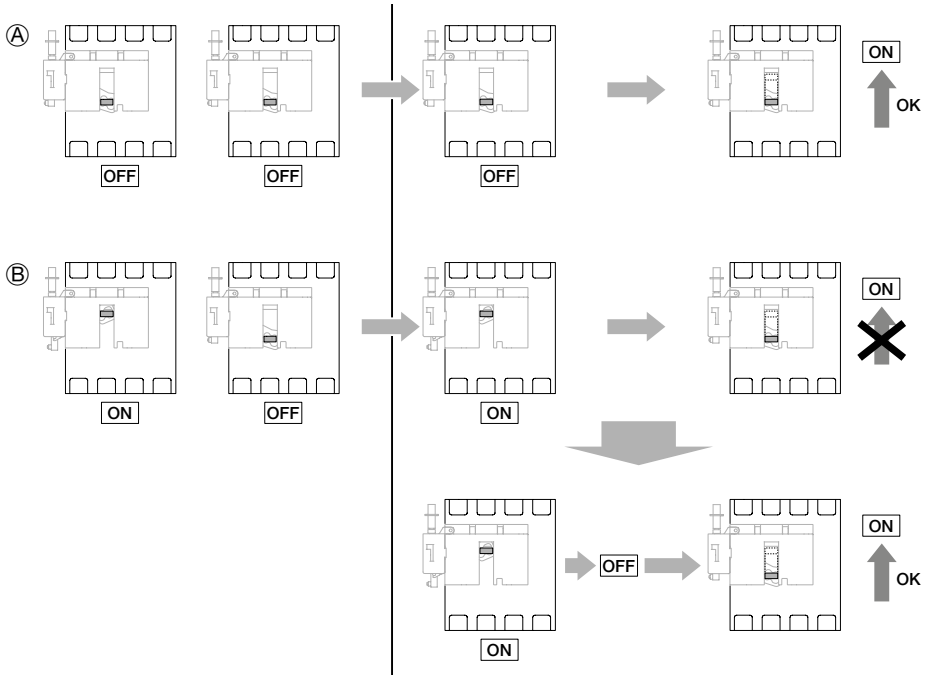
- Length HXB068H: 2100 mm
- Length HXB069H: 2100 mm



Mounting

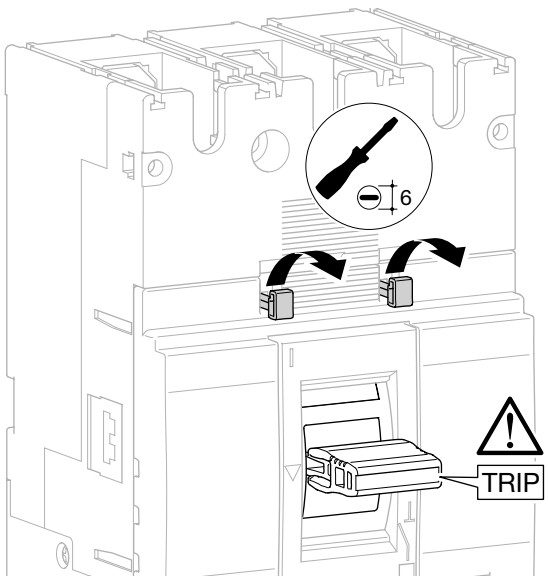


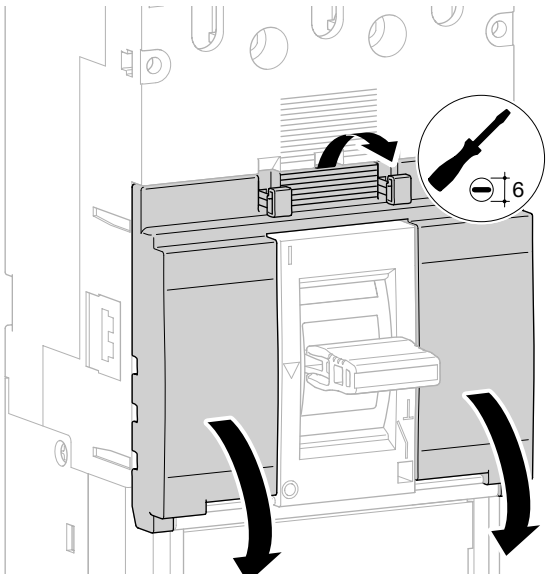
Mounting



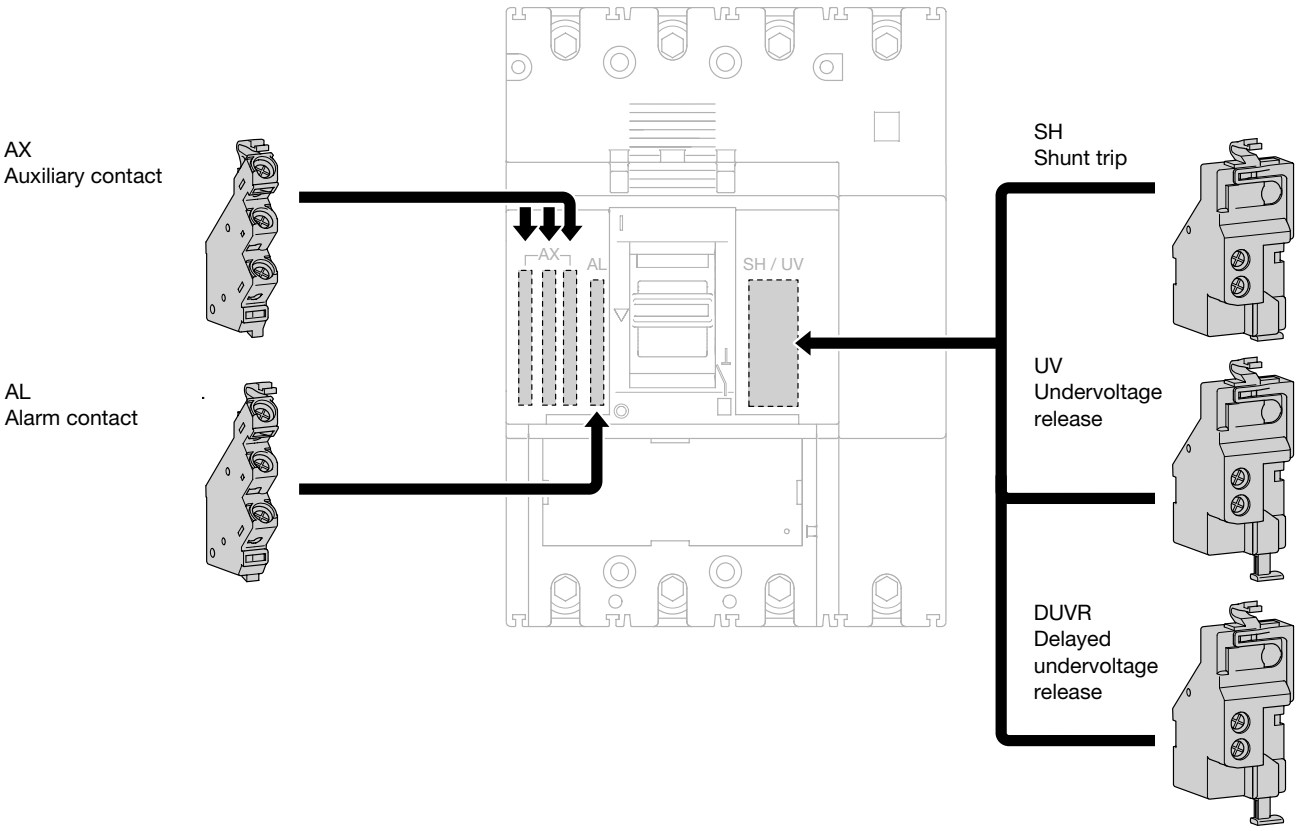
Auxiliaries

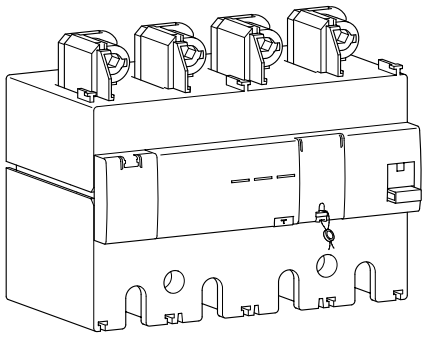
Auxiliaries for MCCBs and free tripping switches





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

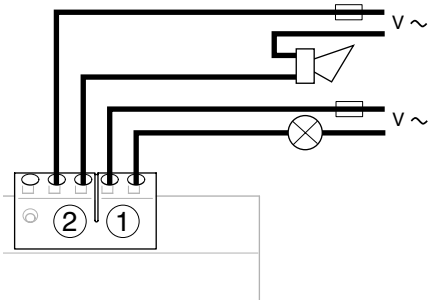
Reset button:
Signals add-on block tripping and must be acknowledged before switching on the installation.

Test button for differential functioning:
Allows to check the electrical operating of the MCCB / Add-on block association.

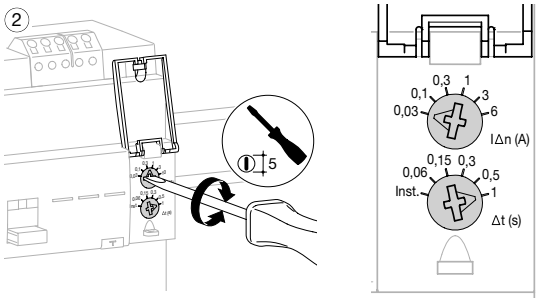
Mechanical test button:
Allows to check the mechanical operating of the MCCB / Add-on block association.

LED signaling default current level in the installation:
25% (orange) and 50% (red) IΔn; green light to signal correct operating.

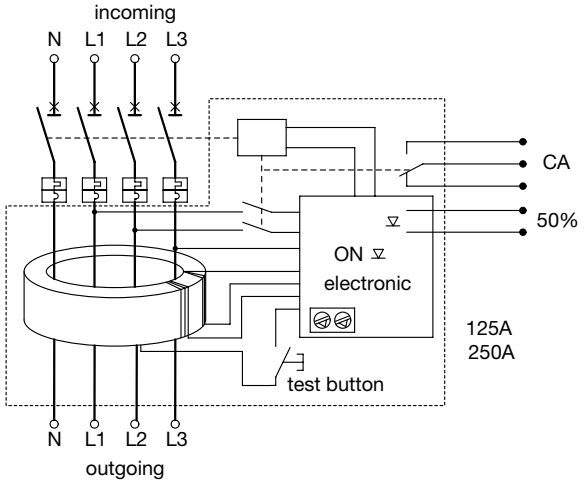
Remote tripping and advanced warning (50% IΔn) signaling thanks to these contacts:



Earth leakage current (IΔn) and delay (Δt) setting

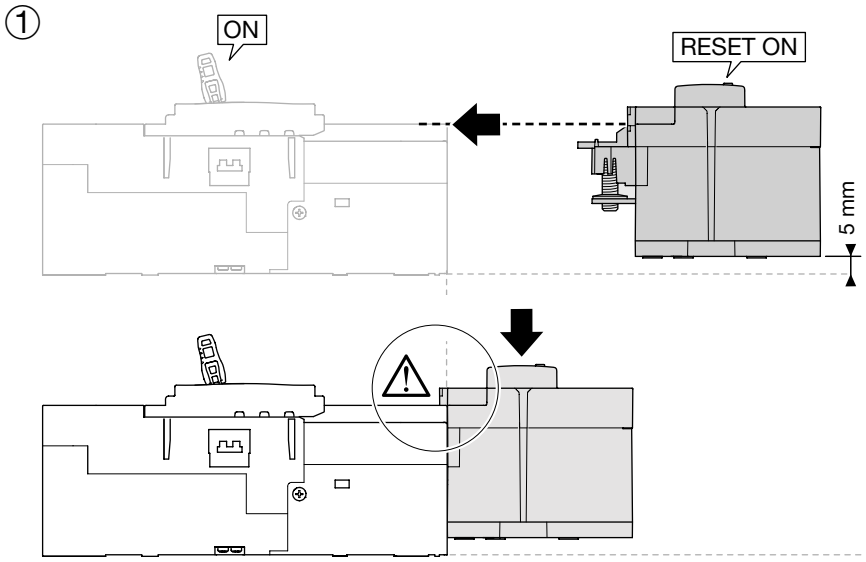


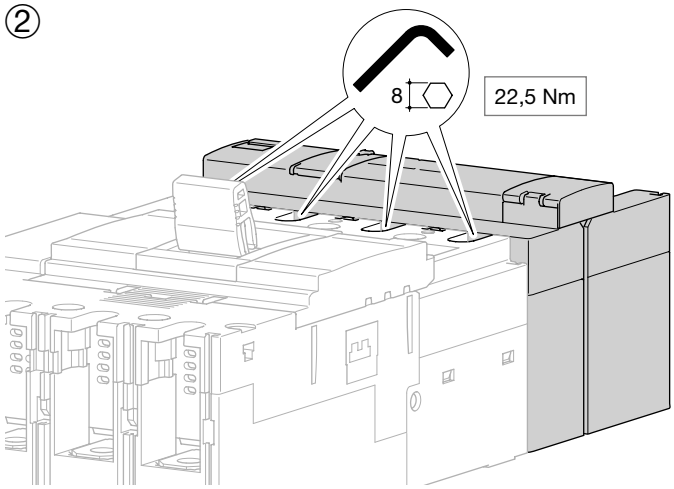
Add-on block operating

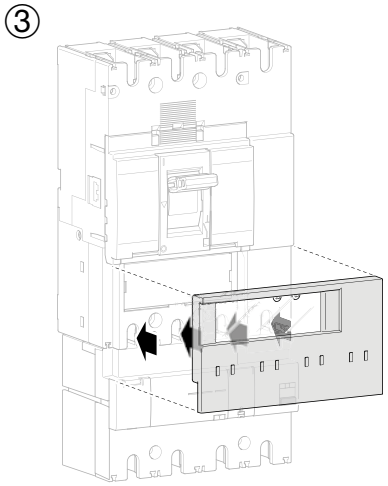


S (Δ)	A (IΔn)						
		0.03	0.1	0.3	1	3	6
	Inst.	OK	OK	OK	OK	OK	OK
	0.06	no	OK	OK	OK	OK	OK
	0.15	no	OK	OK	OK	OK	OK
	0.3	no	OK	OK	OK	OK	OK
	0.5	no	OK	OK	OK	OK	OK
	1	no	OK	OK	OK	OK	OK

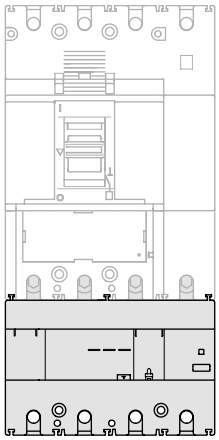
Add-on block h630 mounting





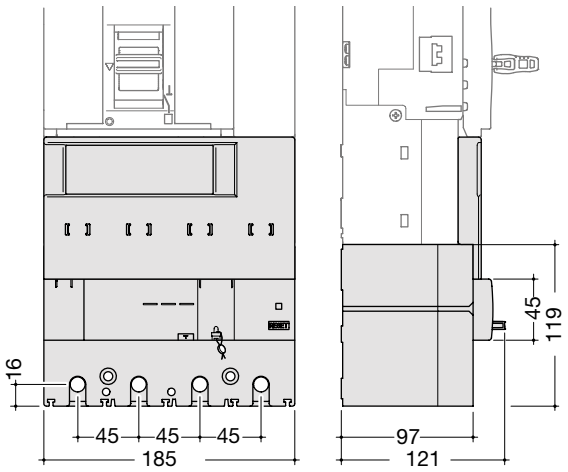


Association / Compatibility



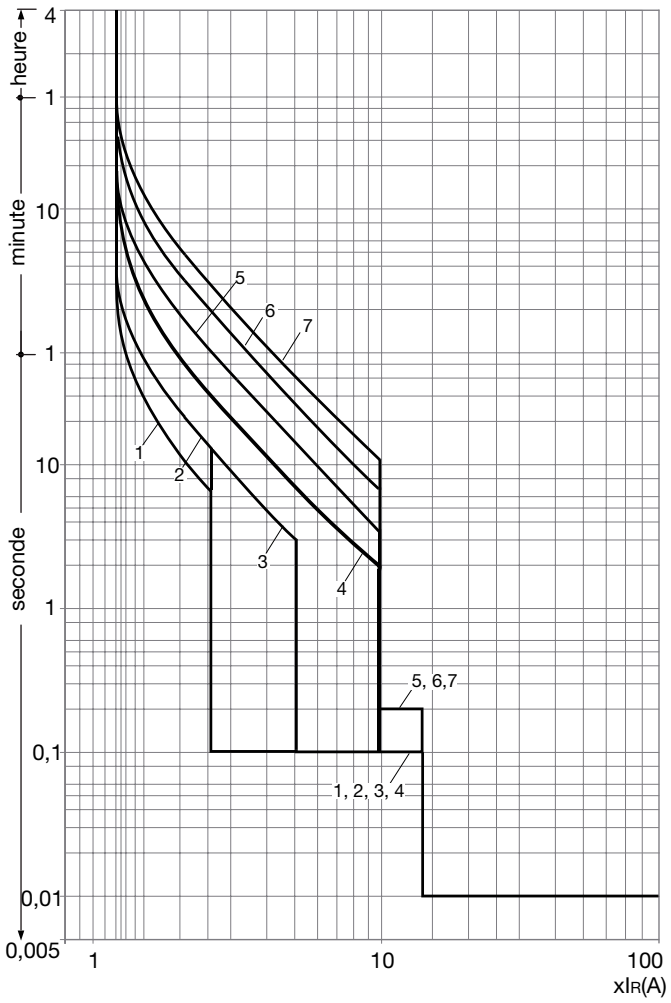
250 - 400A	630A x 0.8
HBD401H 400A	HBD631H 500A (Ie: 630A x 0.8)

Dimensions



Tripping curve

MCCB h1000 LSI (630-800A)



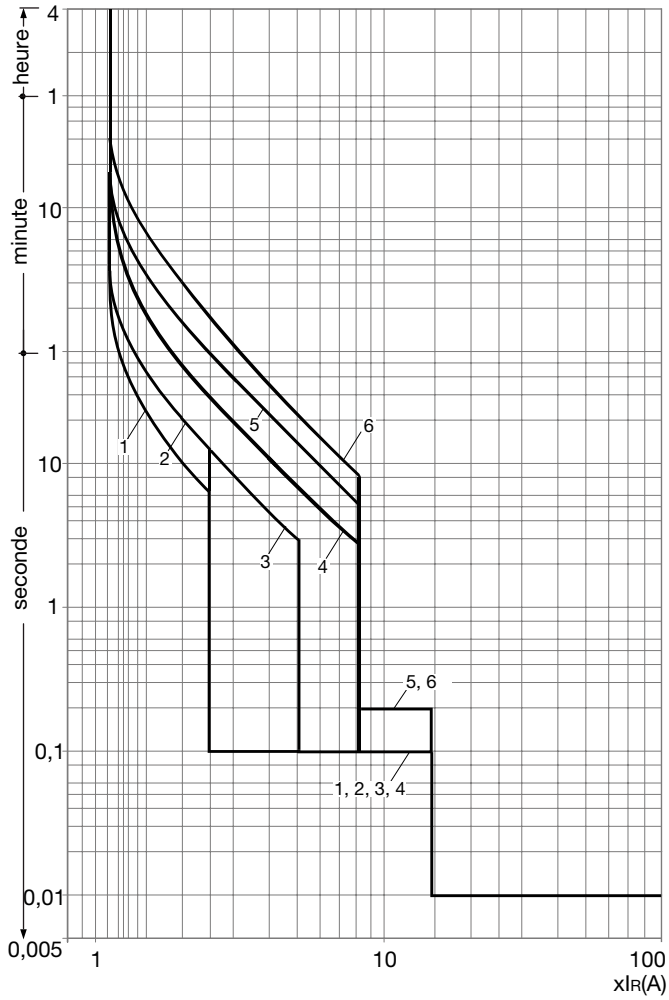
Electronic trip unit setting (LSI)

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	Ii (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)



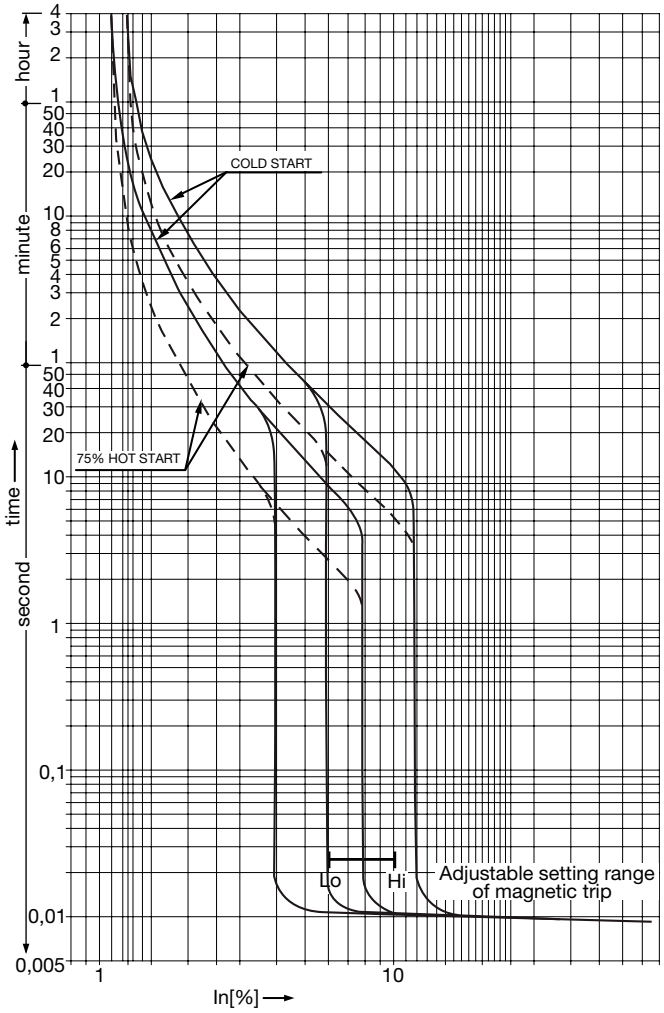
Electronic trip unit setting (LSI)

MCCBs 1000A electronic

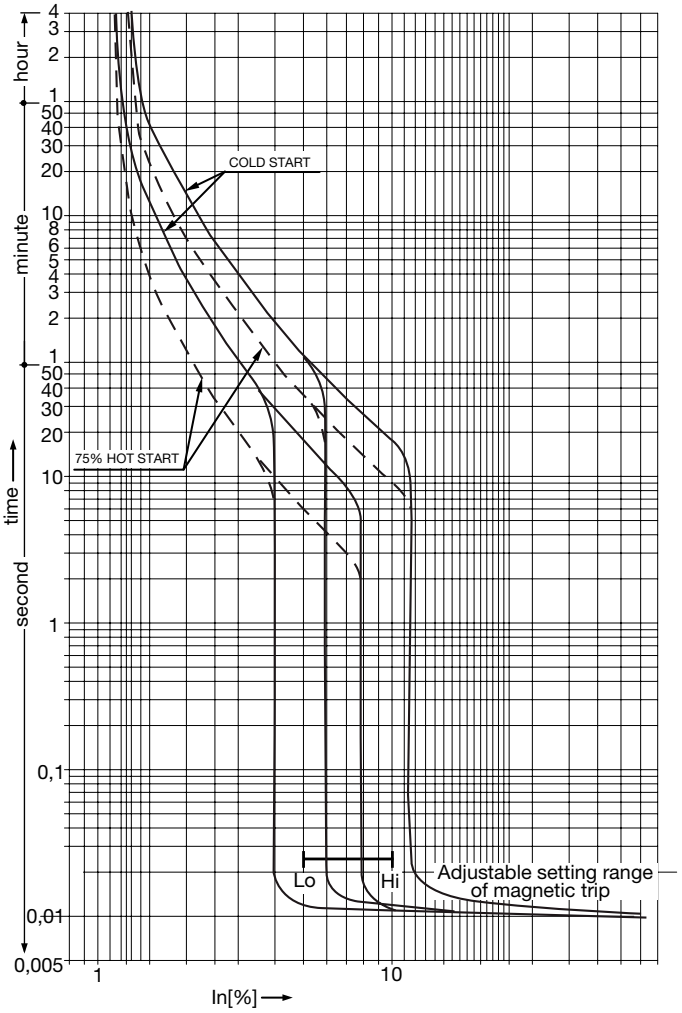
Ir (A)												
LTD Pick-up current			Ir (x In)	0.4	0.5	0.63	0.8	0.9	0.95	1		
Characteristics			No.	1	2	3	4	5	6			
Standard	LTD		tr (s)	11	21	21	5	10	16			
				200% x Ir			600% x Ir					
	STD		Isd (x Ir)	2.5		5	8					
			tsd (s)	0.1				0.2				
	INST		Ii (x Ir)	14 (max : 10 x In)								
Optional	NP		In (x In)	0.8								
			tn (s)	tn = tr								

Tripping curve

MCCB h800 TM (630A)

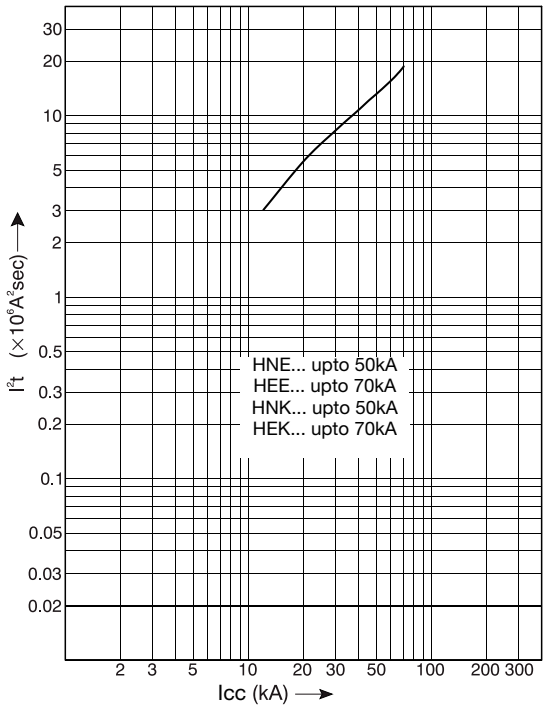


MCCB h800 TM (800A)



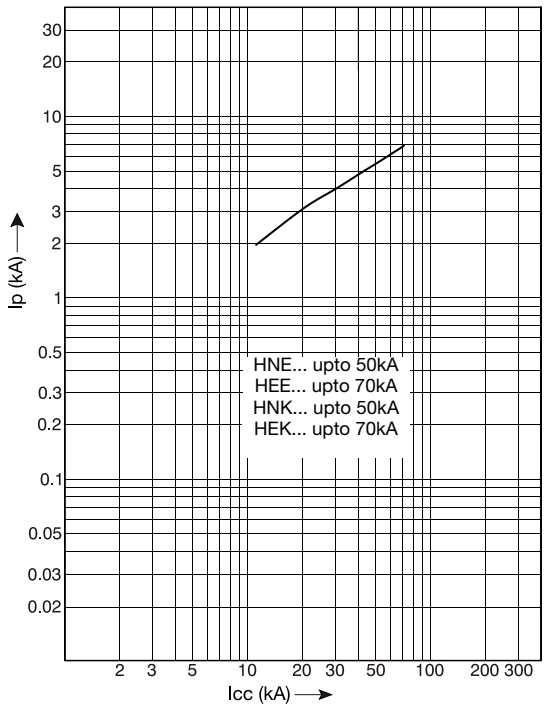
Thermal constraint curve at 400V (Let-through energy)

MCCB h1000



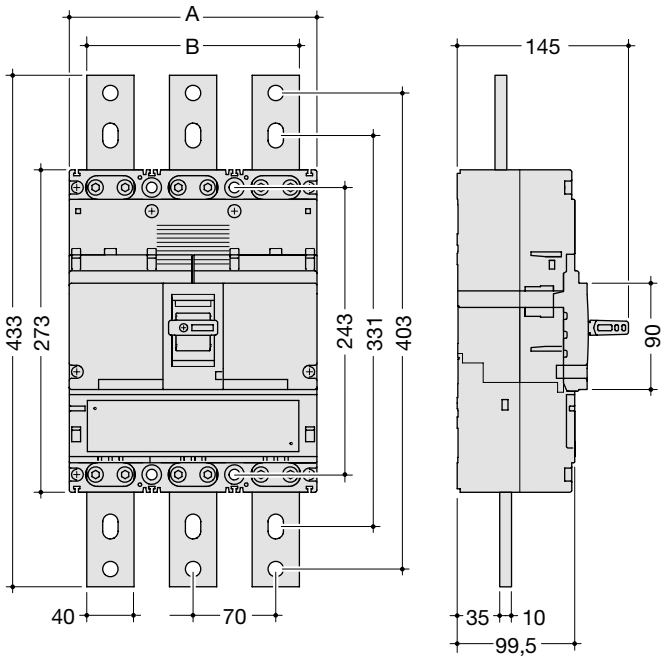
Current limiting curve at 400V (Let-through peak current)

MCCB h1000



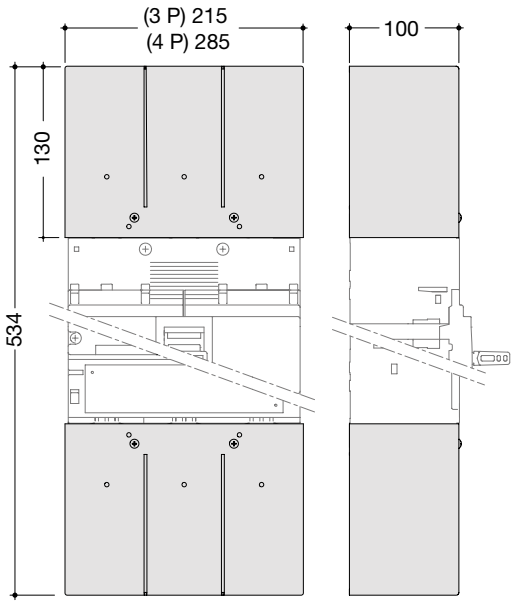
Dimensions

MCCBs



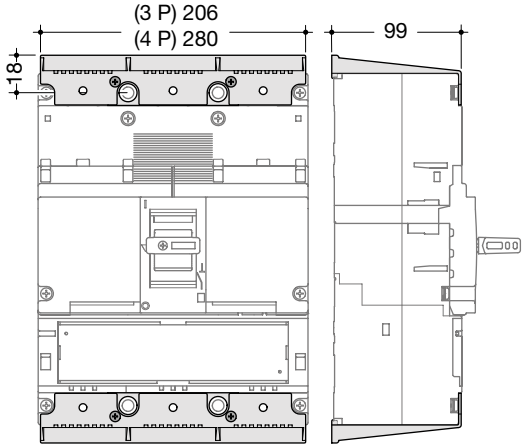
	A (mm)	B (mm)
3P	210	180
4P	280	250

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

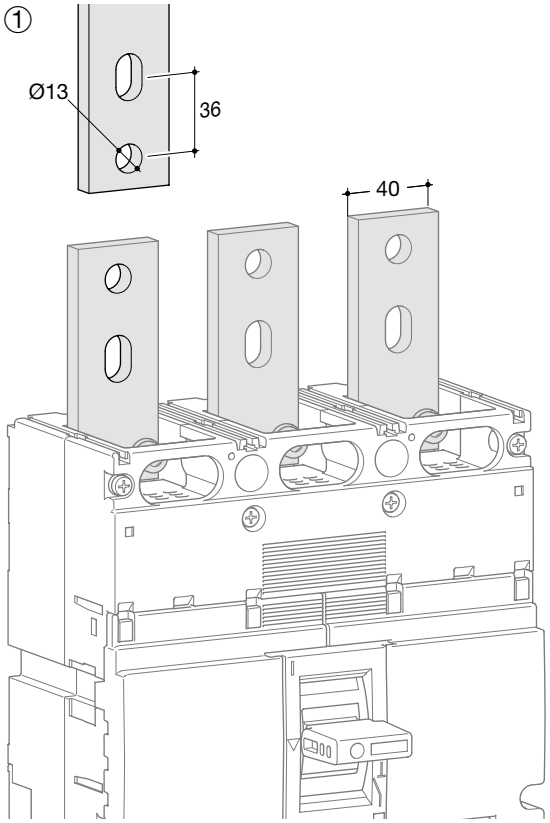


	A (mm)	B (mm)	C (mm)
3P	210	14	101
4P	280	18	99

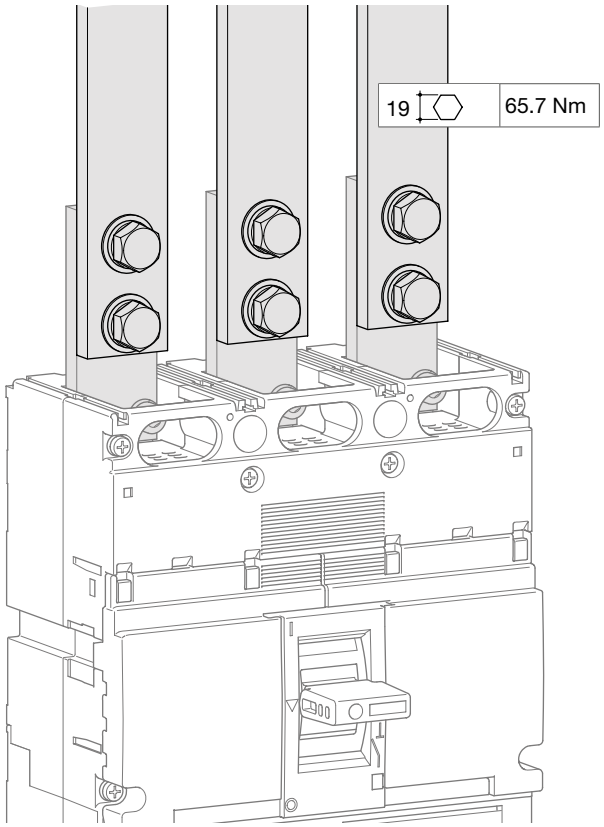
Connection

Extended straight connections

①



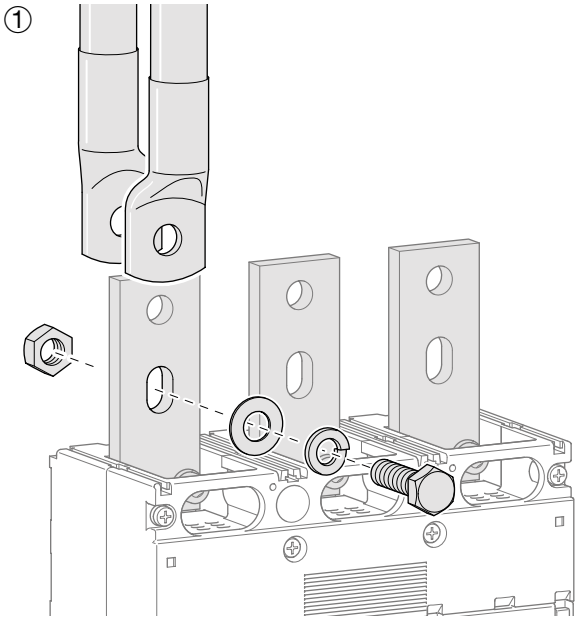
②



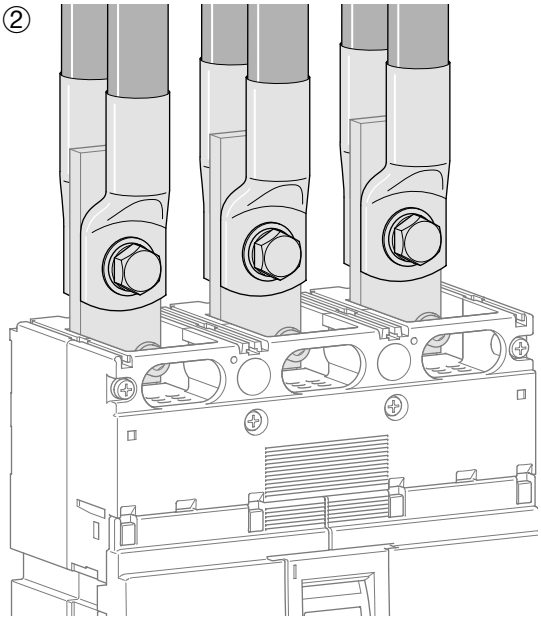
Direct cable connection on terminal
Copper with conductor max. width: 50 mm

Connection with end lugs

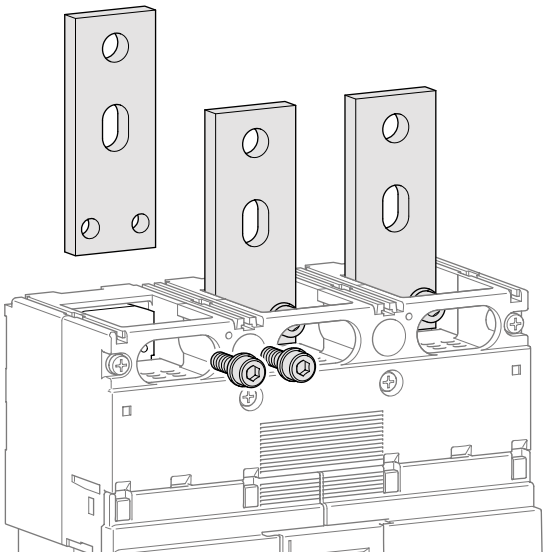
①

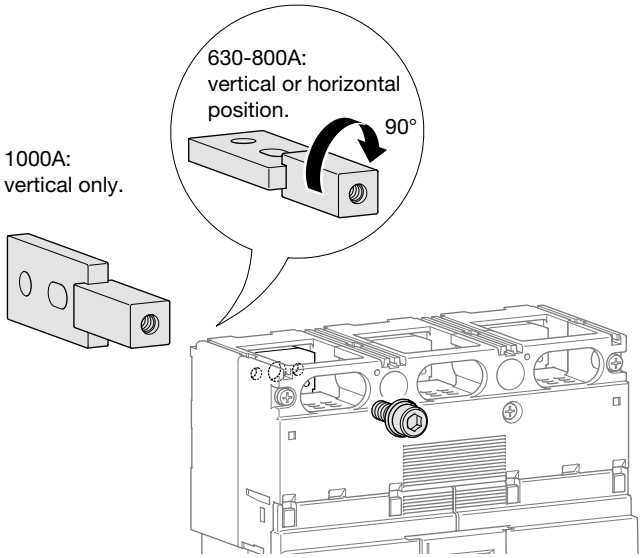


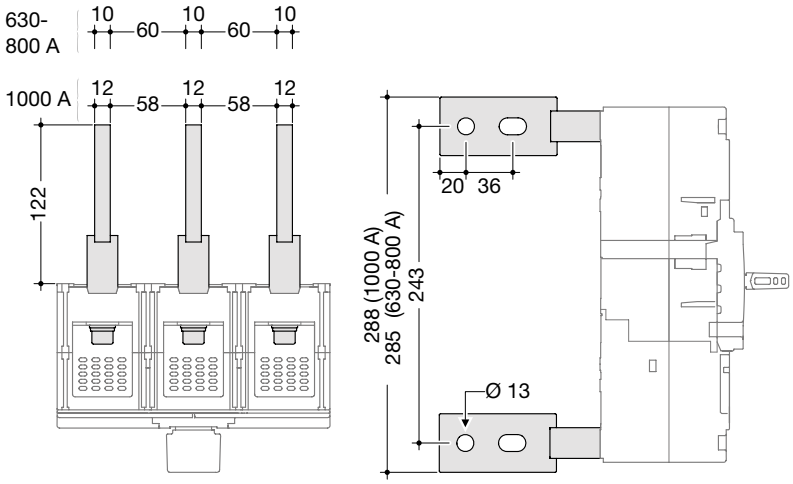
②



Rear connections

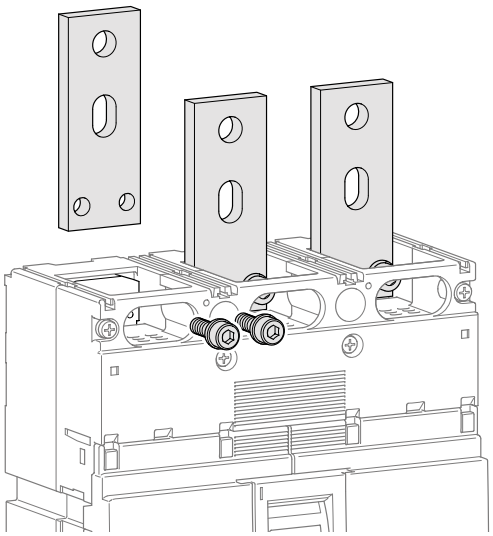


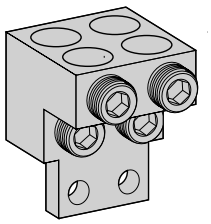


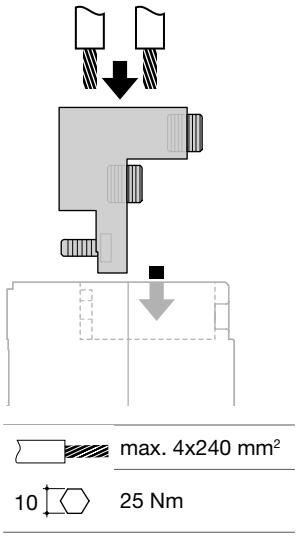


Connection for aluminium / copper conductors (h1000)

HYE007 (3P) - HYE008H (4P)

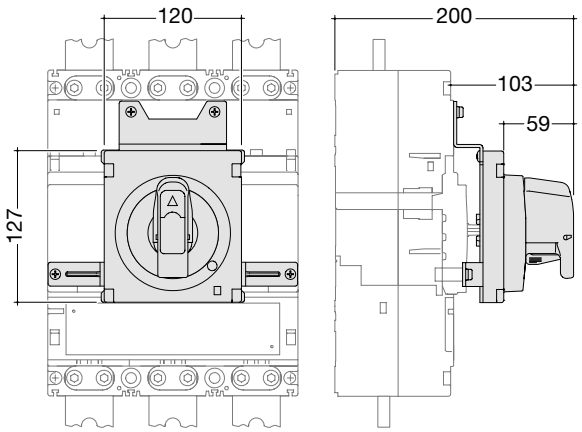




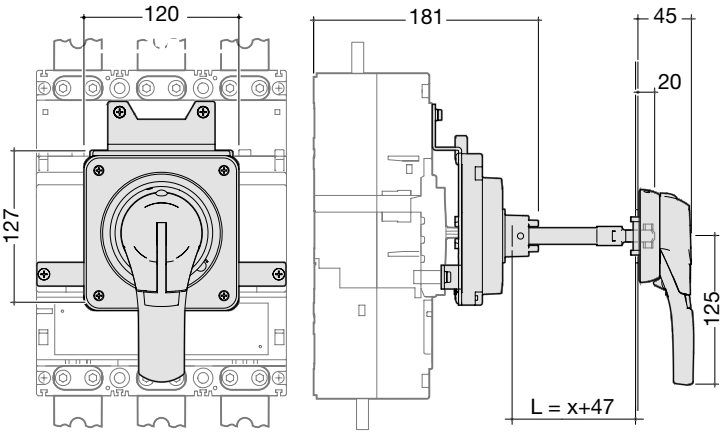


Accessories

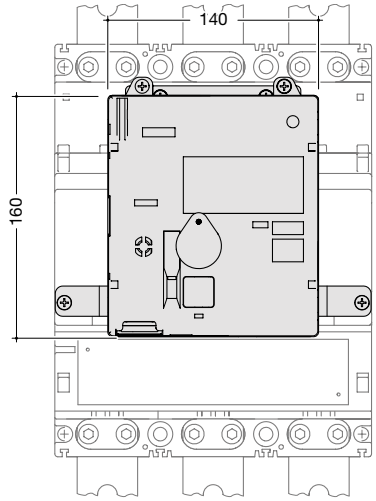
Direct rotary handle

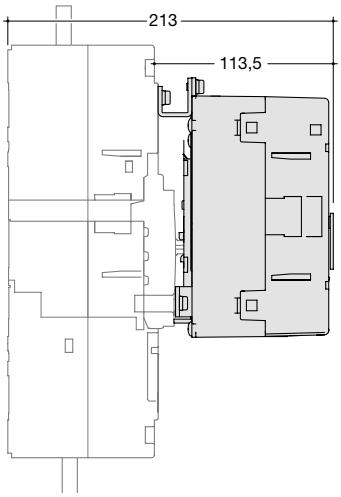


Extended rotary handle



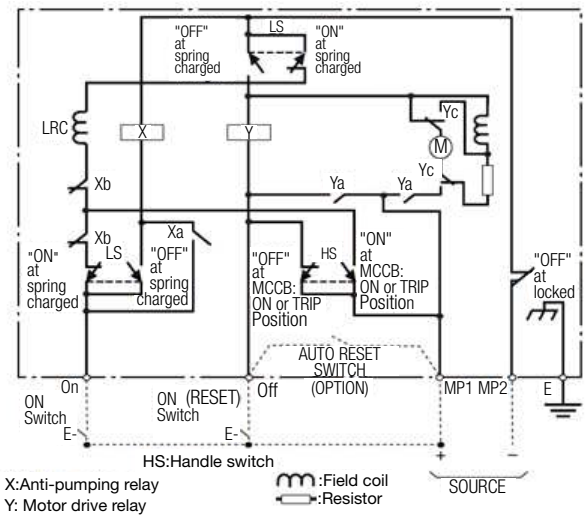
Motor operator





		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)	0.1s	
	(OFF)	1.5 s	
	(RESET)	1.5 s	
Power supply required		300VA min.	
Dielectric properties (1 min)		1000V AC	1500V AC

Wiring diagram

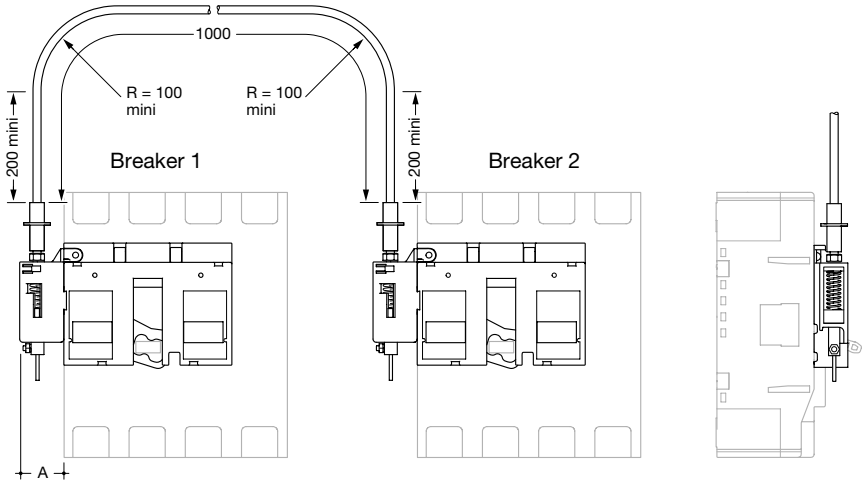


X:Anti-pumping relay
Y: Motor drive relay
LRC:Latch release coil (closing coil)
M:Motor

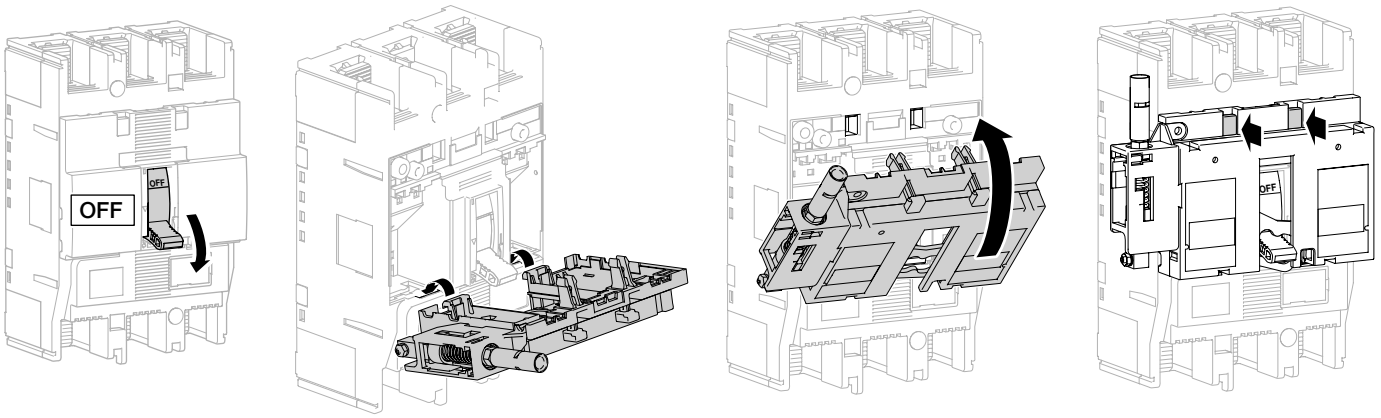
Interlocking system

Suitable with motor operator HXB04xH.
With electrical interlock for motor operator HXB068H (for 630/1000A) or HXB069H (for 250A).

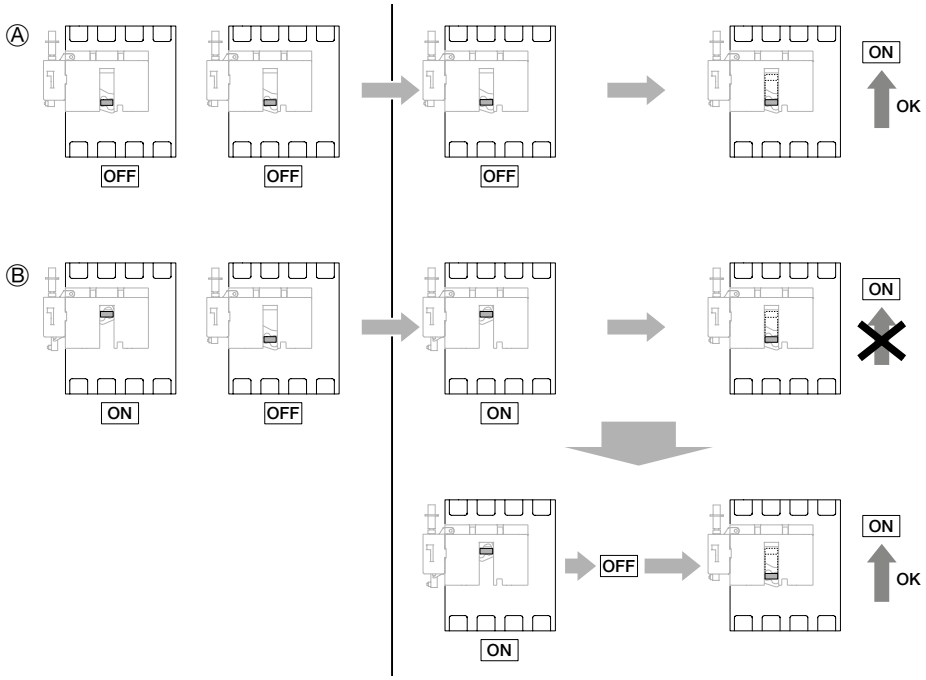
- Length HXB068H: 2100 mm
- Length HXB069H: 2100 mm



Mounting

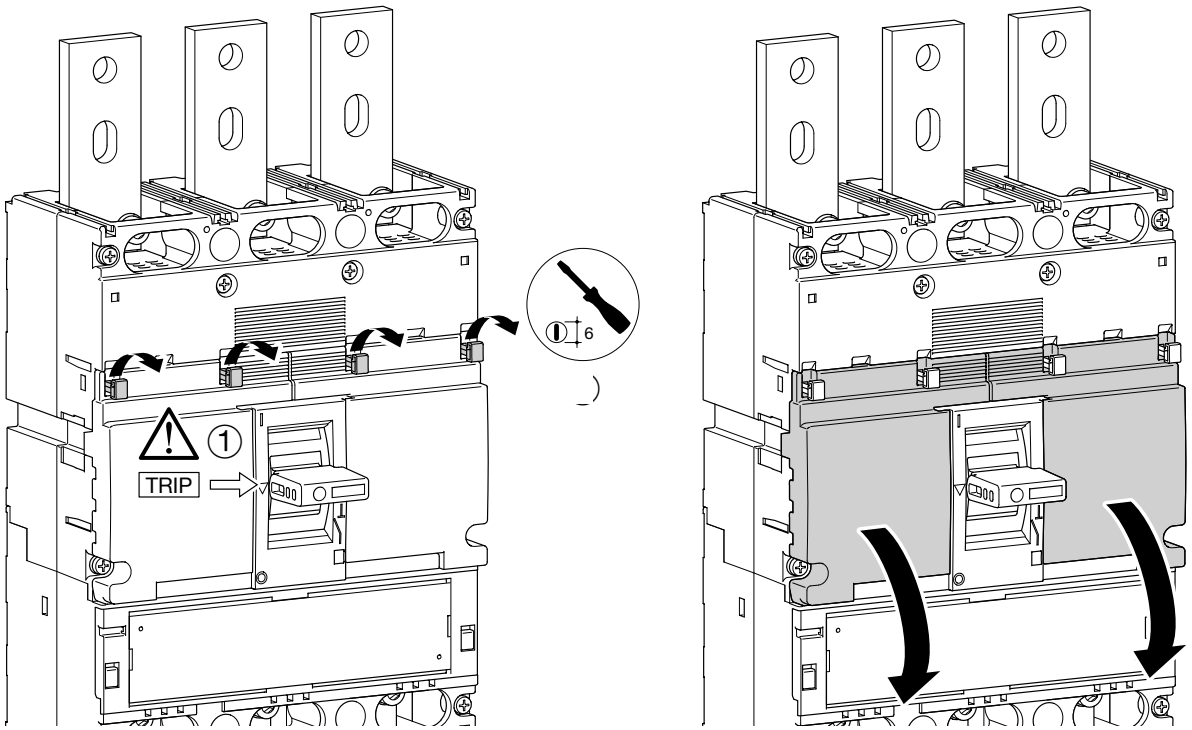


Mounting

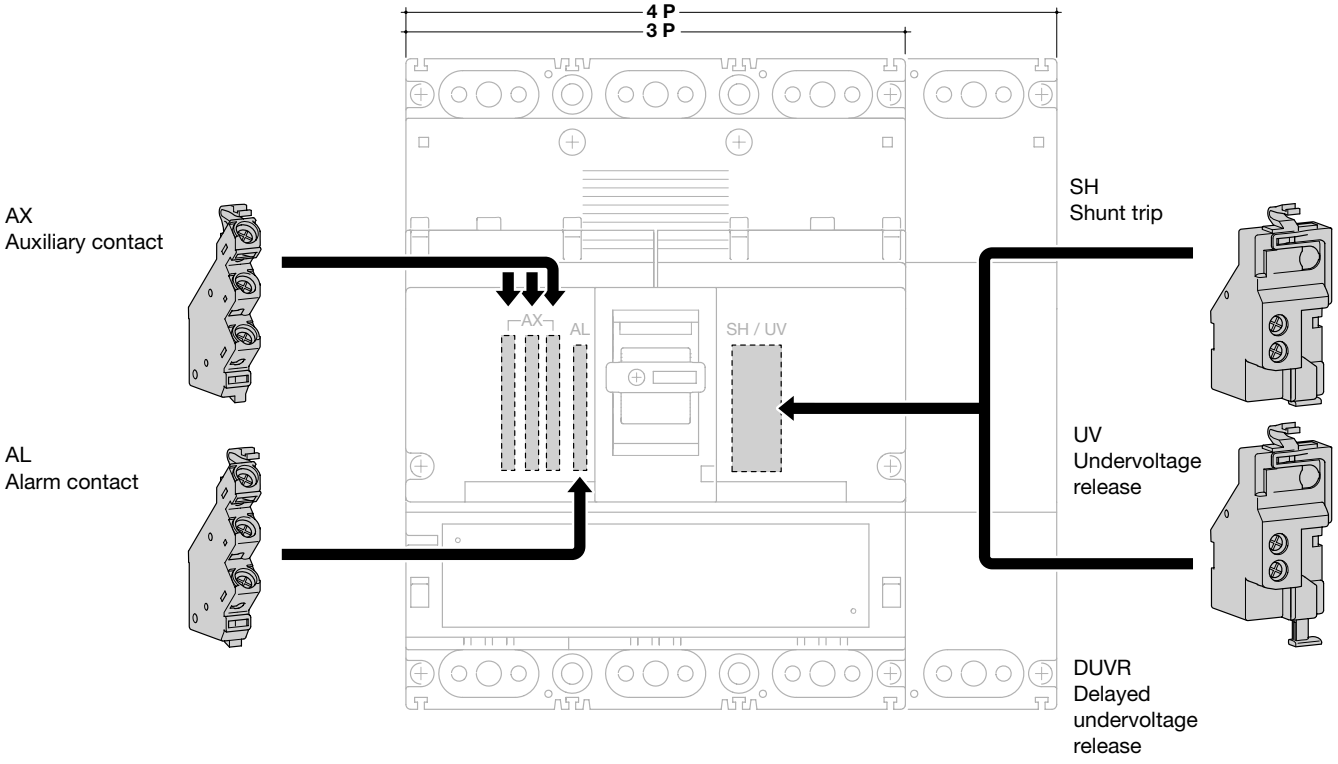


Auxiliaries

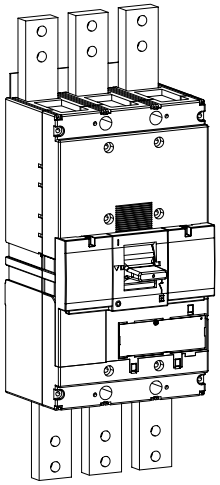
Auxiliaries for MCCBs and free tripping switches



Mounting combination for auxiliaries and releases

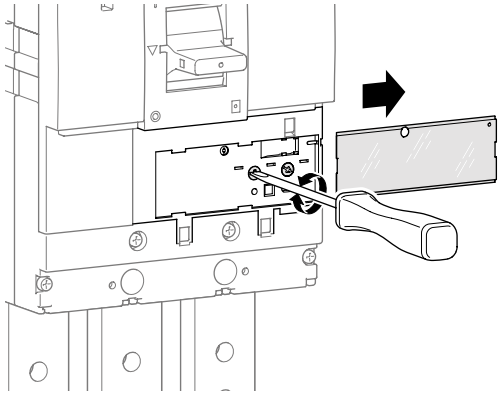


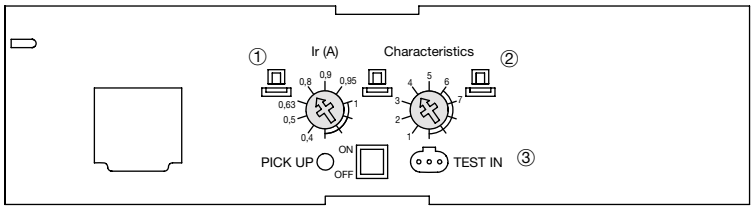
MCCBs



		220/240 V AC (kA)	380/415 V AC (kA)	660/690 V AC (kA)
HNF	Icu	100	50	25
	Ics	75	50	25
HEF	Icu	100	70	45
	Ics	75	50	34
HCF	Icm		45 kA	
	Icw		20 kA-0.3 s	

Electronic trip unit settings (LSI)

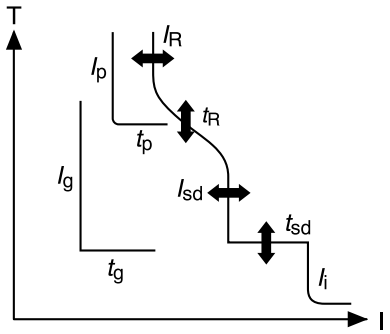




L - Long delay - protection against overloads: Ir and tr settings

S - Short delay - protection against short circuits: Isd and tsd settings

I - Instantaneous - max. instantaneous threshold (< 10 ms) in case of short circuit: 2.5 to 10 x Ir.



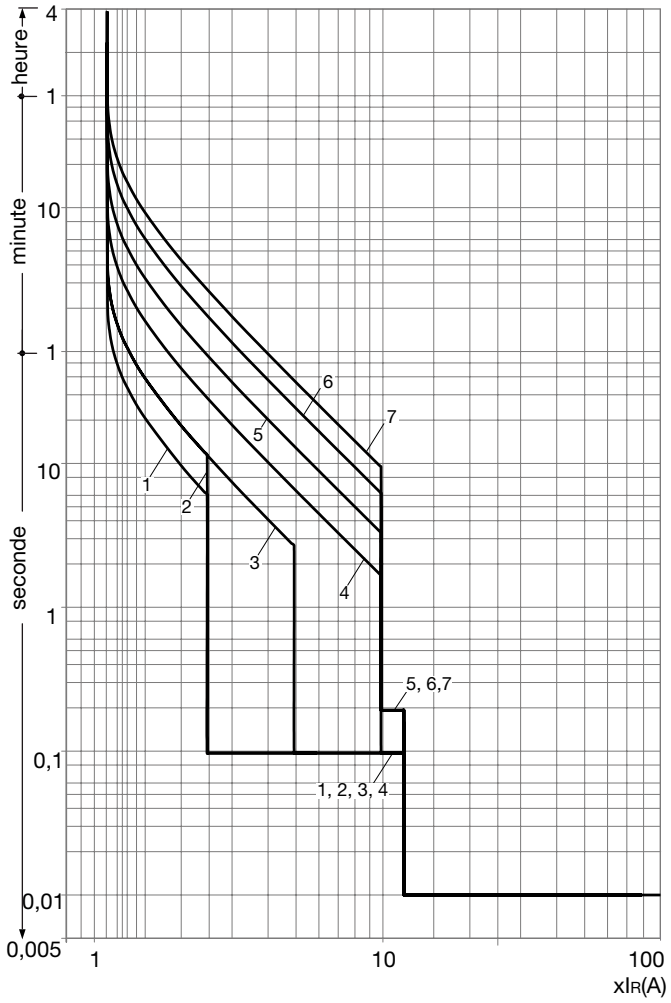
		In A				
		1250 - 1600 A				
LSI		Long Time Delay		Short Time Delay		Inst
		Ir (x In)	tr (s)	isd (xIr)	tsd (s)	Ii (xIr)
① Ir (x In)	**0.4**	OK				
	0.5	OK				
	0.63	OK				
	0.8	OK				
	0.9	OK				
	0.95	OK				
	1	OK				
② Characteristics*	**1**		11s at 2 xIr	2.5	0.1	14 (max 12 x In)
	2		21s at 2 xIr			
	3			5		
	4		5 s at 6 xIr	10		
	5		10 s at 6 xIr		0.2	
	6		19 s at 6 xIr			
	7		29 s at 6 xIr			
③ Neutral protection	0% 50% 100%					

	① Ir(A)	② Im	③ N
LSI	0.4 - 1 In	2.5 - 10 Ir	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



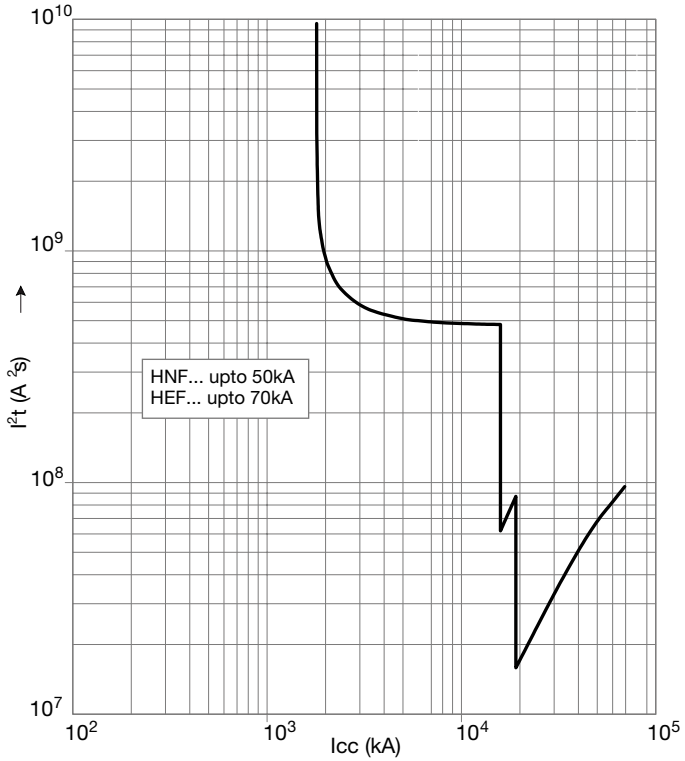
Electronic trip unit setting (LSI)

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	Ii (x Ir)	14 (max : 12 x In)						
Optional	NP	In (x Ir)	0 - 0.5 - 1						
		tn (s)	In = tr						

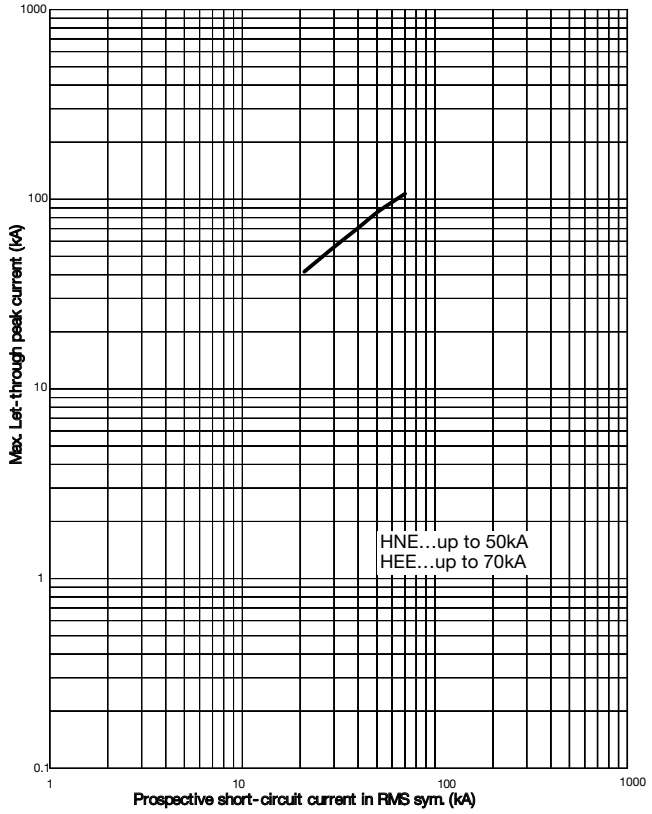
Thermal constraint curve at 400V (Let-through energy)

MCCB h1600



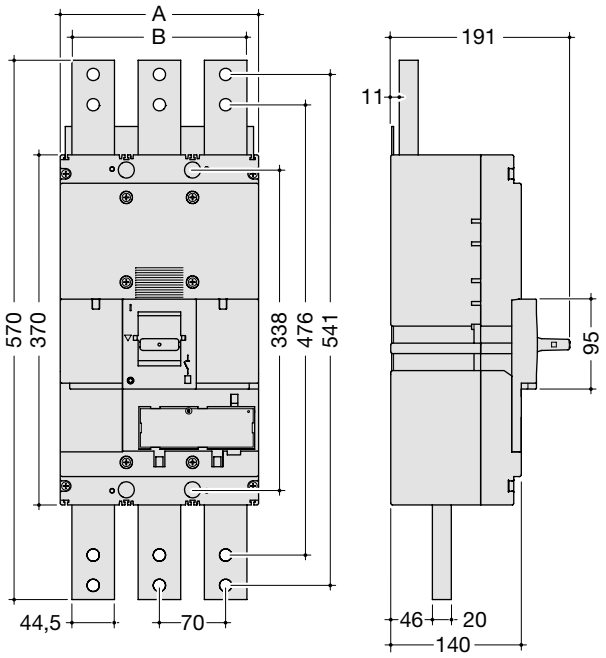
Current limiting curve at 400V (Let-through peak current)

MCCB h1600



Dimensions

MCCBs

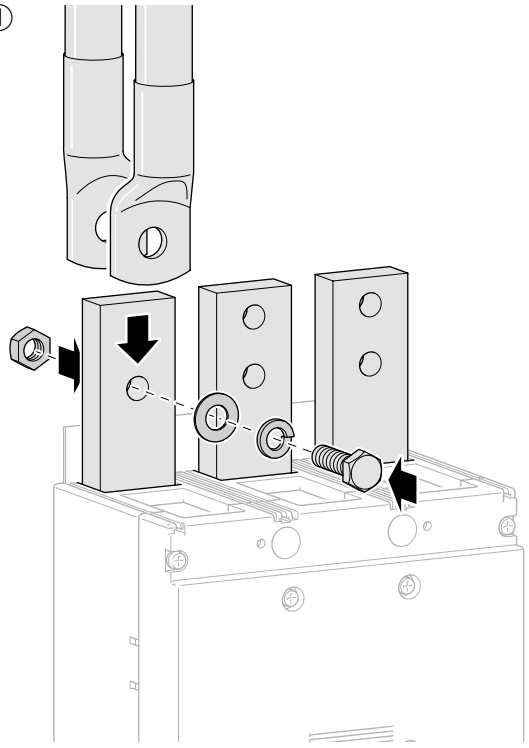


	A (mm)	**B** (mm)
3P	210	185
4P	280	255

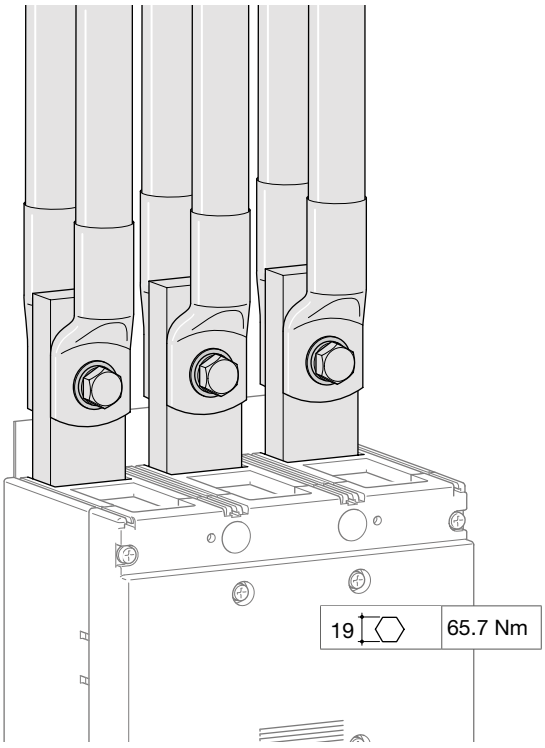
Connection

Connection with end lugs

①

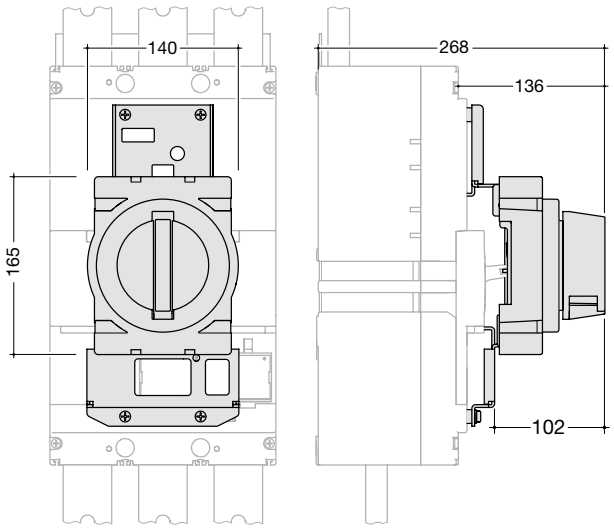


②

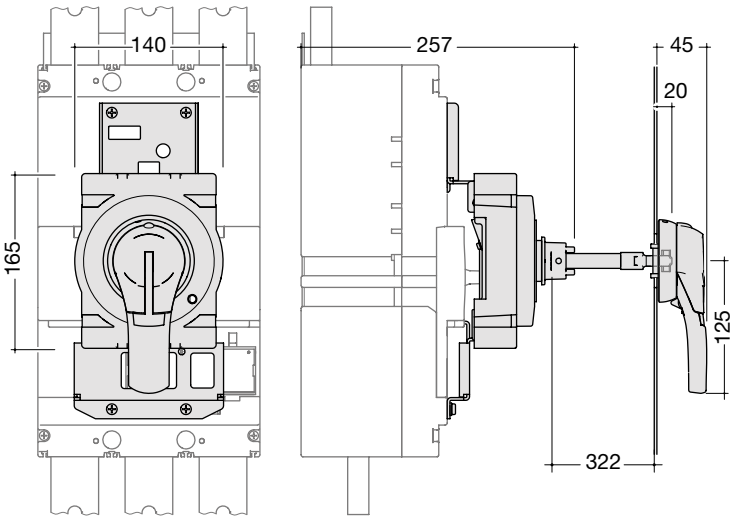


Accessories

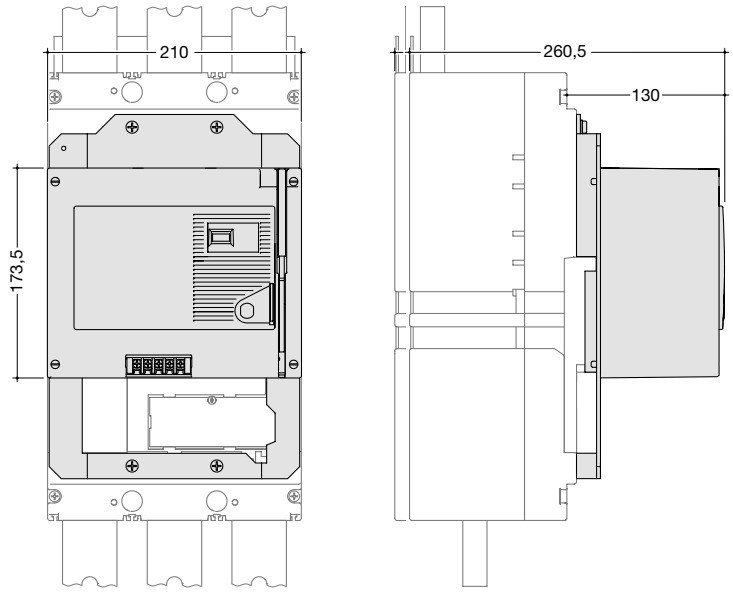
Direct rotary handle



Extended rotary handle

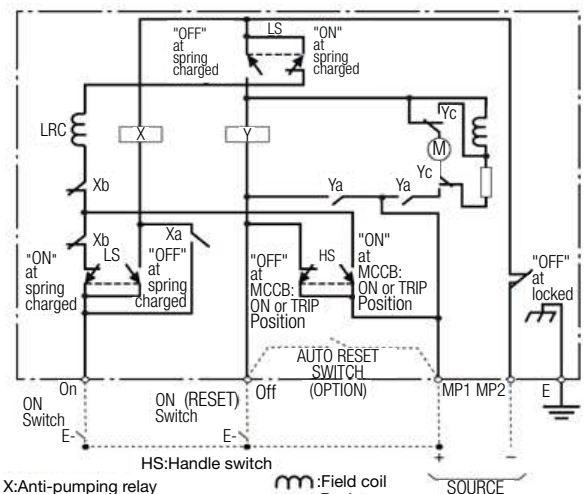


Motor operator



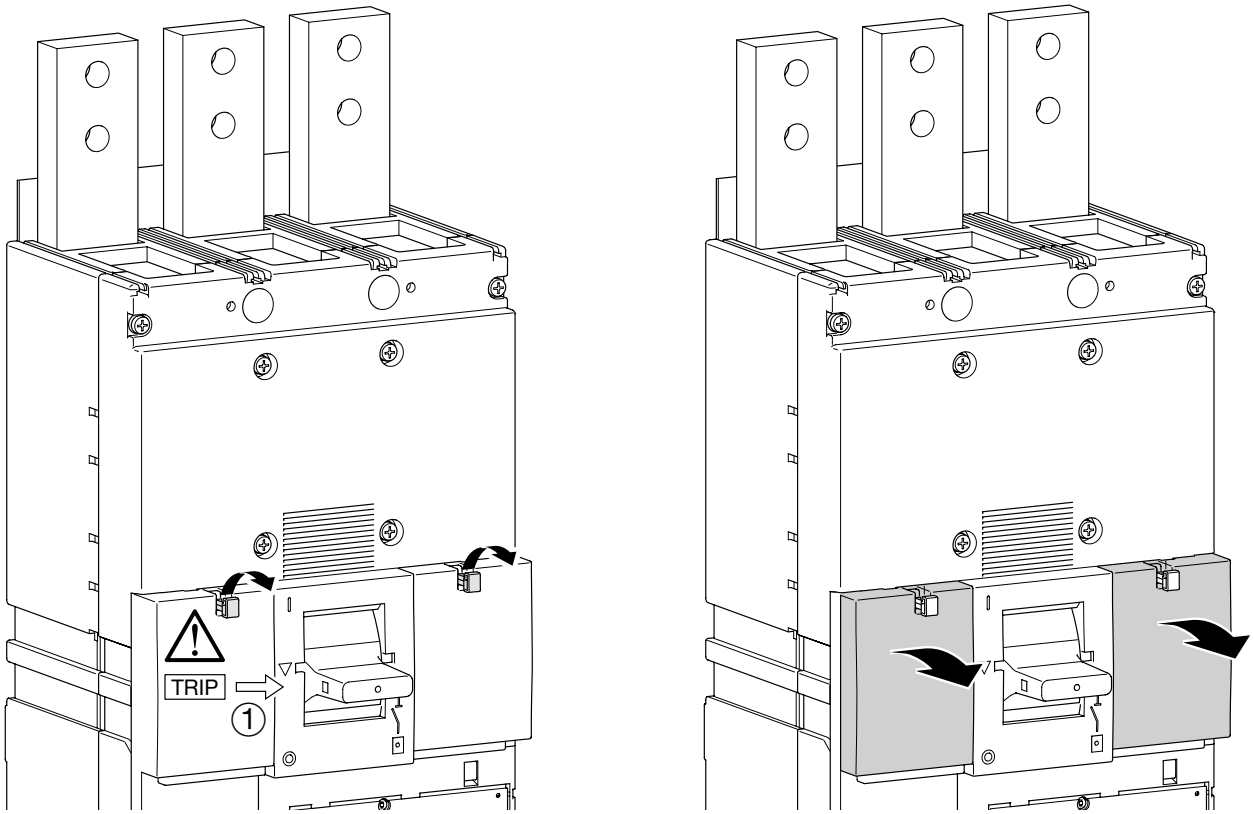
		HXF040H	HXF042H
Operating voltage		24V DC	200-230V AC
Operating current / starting current peak value (A)	24V DC	-/4,5 (ON) 4,0/12,0 (OFF, RESET)	-
	200-230V AC	-	-/1,2 (ON) 1,0/3,2 (OFF, RESET)
Operating time (s)	(ON)	0,06s	
	(OFF)	3s	
	(RESET)	3s	
Power supply required		300VA min.	
Dielectric properties (1 min)		500V AC	1500V AC

Wiring diagram

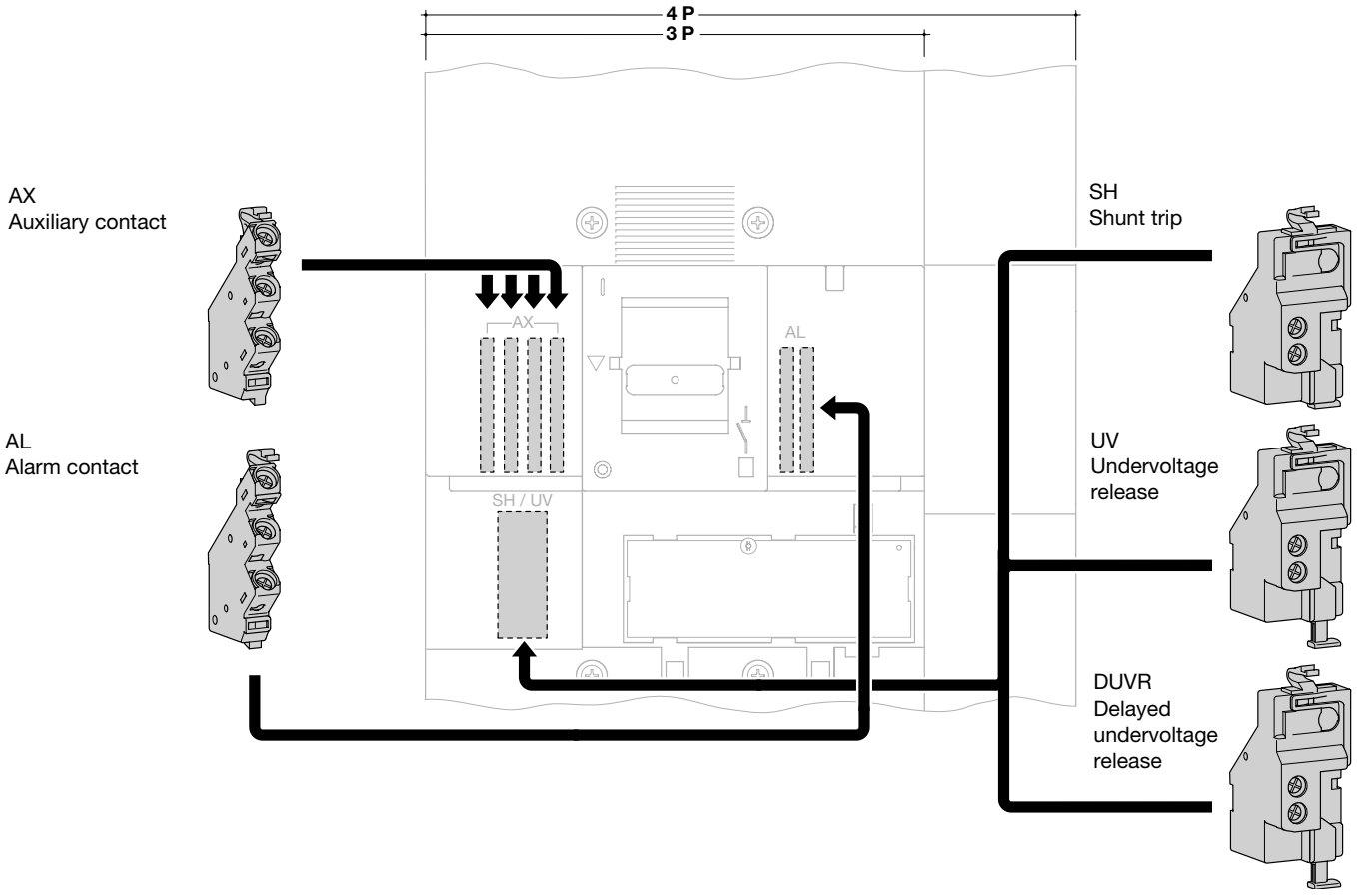


Auxiliaries

Auxiliaries for MCCBs and free tripping switches



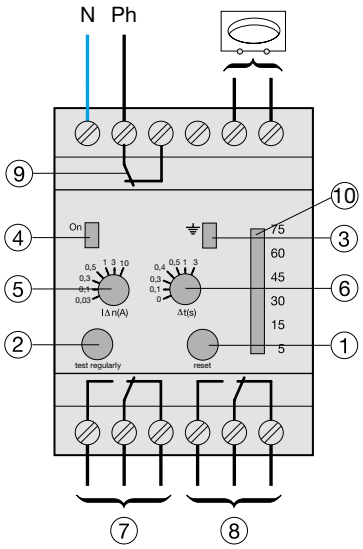
Mounting combination for auxiliaries and releases



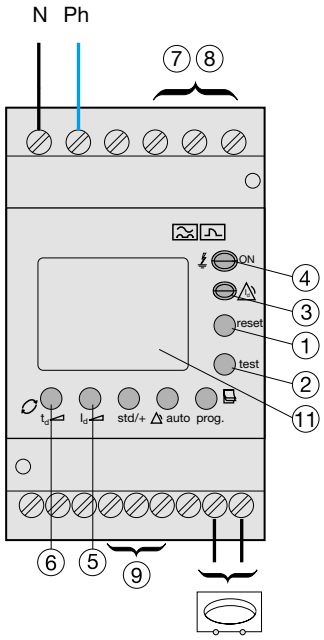
Technical characteristics

	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 IΔn ± 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 IΔn	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., S - 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
consommation	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

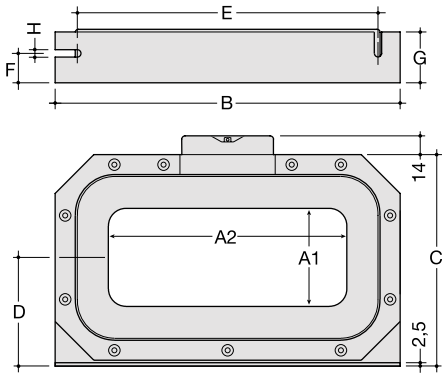


Product presentation :

① reset push button
② test push button
③ fault indicator
④ supply indicator
⑤ IΔn 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 IΔn.
⑪ LCD display

Technical characteristics

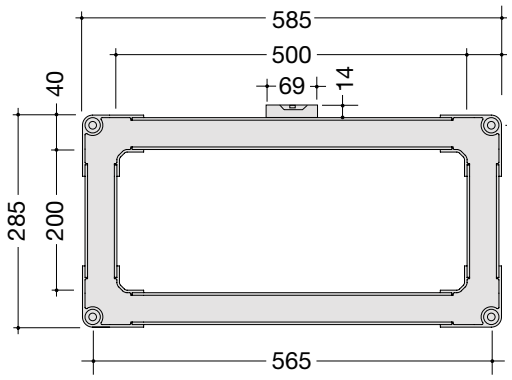
Rectangular torroids :
HR830, HR831, HR832



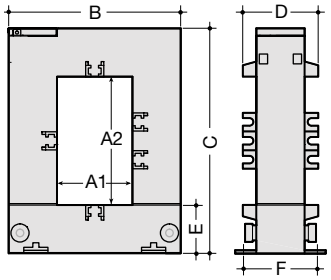
Dimensions for rectangular and circular torroids (in mm)

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

HR833



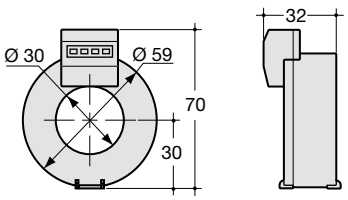
Open rectangular torroids:
HR820 to HR824



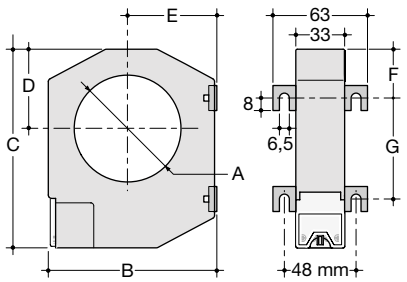
Dimensions for open rectangular torroids (in mm)

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

Circular torroids :
HR700



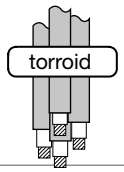
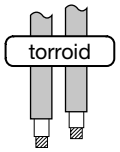
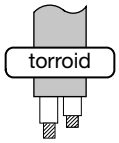
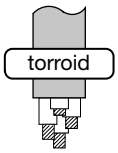
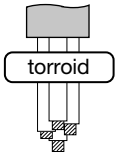
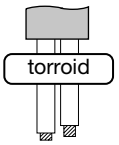
HR741 to HR745

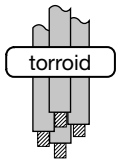
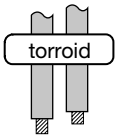


Dimensions for circular torroids (in mm)

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

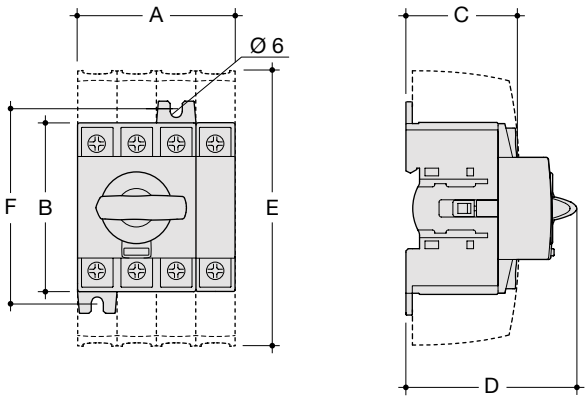
Torroid capacity

Torroid inner diameter		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 
30	**HR700**	4 x 16 mm²	2 x 50 mm²	35 mm²	35 mm²	35 mm²	50 mm²
35	**HR701**	4 x 25 mm²	2 x 70 mm²	35 mm²	50 mm²	35 mm²	70 mm²
70	**HR702**	4 x 185 mm²	2 x 400 mm² or 4 x 150 mm²	35 mm²	240 mm²	35 mm²	300 mm²
105	**HR703**	4 x 500 mm²	2 x 630 mm² or 4 x 185 mm²	35 mm²	300 mm²	35 mm²	300 mm²
140	**HR704**	4 x 630 mm²	2 x 630 mm² or 4 x 240 mm²	35 mm²	300 mm²	35 mm²	300 mm²
210	**HR705**	4 x 630 mm²	2 x 630 mm² or 4 x 240 mm²	35 mm²	300 mm²	35 mm²	300 mm²
70 x 175	**HR830**	4 x 630 mm²	2 x 630 mm² or 4 x 240 mm²	35 mm²	300 mm²	35 mm²	300 mm²
115 x 305	**HR831**	4 x 630 mm²	2 x 630 mm² or 4 x 240 mm²	35 mm²	300 mm²	35 mm²	300 mm²
150 x 350	**HR832**	4 x 630 mm²	2 x 630 mm² or 4 x 240 mm²	35 mm²	300 mm²	35 mm²	300 mm²
20 x 30	**HR820**	4 x 16 mm²	2 x 70 mm²	35 mm²	10 mm²	35 mm²	16 mm²
50 x 80	**HR821**	4 x 240 mm²	2 x 630 mm² or 4 x 185 mm²	35 mm²	120 mm²	35 mm²	150 mm²
80 x 80	**HR822**	4 x 500 mm²	2 x 630 mm² or 4 x 185 mm²	35 mm²	300 mm²	35 mm²	300 mm²
80 x 120	**HR823**	4 x 630 mm²	2 x 630 mm² or 4 x 240 mm²	35 mm²	300 mm²	35 mm²	300 mm²
80 x 160	**HR824**	4 x 630 mm²	2 x 630 mm² or 4 x 240 mm²	35 mm²	300 mm²	35 mm²	300 mm²
200 x 500	**HR833**	4 x 630 mm²	2 x 630 mm² or 4 x 240 mm²	35 mm²	300 mm²	35 mm²	300 mm²

Torroid inner diameter		H07 V - U copper (1 conductor) 	H07 V - U copper (1 conductor) 
30	**HR700**	4 x 35 mm²	2 x 70 mm²
35	**HR701**	4 x 5 mm²	2 x 95 mm²
70	**HR702**	4 x 240 mm²	2 x 400 mm² or 4 x 185 mm²
105	**HR703**	4 x 400 mm²	2 x 400 mm² or 4 x 240 mm²
140	**HR704**	4 x 400 mm²	2 x 400 mm² or 4 x 240 mm²
210	**HR705**	4 x 400 mm²	2 x 400 mm² or 4 x 240 mm²
70 x 175	**HR830**	4 x 400 mm²	2 x 400 mm² or 4 x 240 mm²
115 x 305	**HR831**	4 x 400 mm²	2 x 400 mm² or 4 x 240 mm²
150 x 350	**HR832**	4 x 400 mm²	2 x 400 mm² or 4 x 240 mm²
20 x 30	**HR820**	4 x 10 mm²	2 x 35 mm²
50 x 80	**HR821**	4 x 185 mm²	2 x 240 mm²
80 x 80	**HR822**	4 x 400 mm²	2 x 400 mm² or 4 x 240 mm²
80 x 120	**HR823**	4 x 400 mm²	2 x 400 mm² or 4 x 240 mm²
80 x 160	**HR824**	4 x 400 mm²	2 x 400 mm² or 4 x 240 mm²
200 x 500	**HR833**	4 x 400 mm²	2 x 400 mm² or 4 x 240 mm²

HAB, HAC, HAE switches

HAB402, HAB403, HAB404, HAB406, HAC408



Dimensions (in mm)

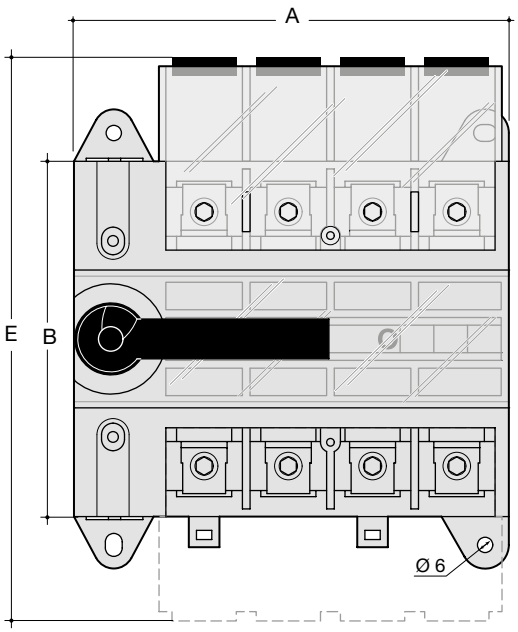
	HAB302, HAB303, HAB304, HAB306	HAB402, HAB403, HAB404, HAB406	HAC306, HAC308, HAC310	HAC406, HAC408, HAC410
A	45	60	52.5	70
B	68	68	76	76
C	48.5	48.5	48.5	48.5
D	75	75	75	75
E	110	110	110	110
F	75	75	85	85

Technical characteristics

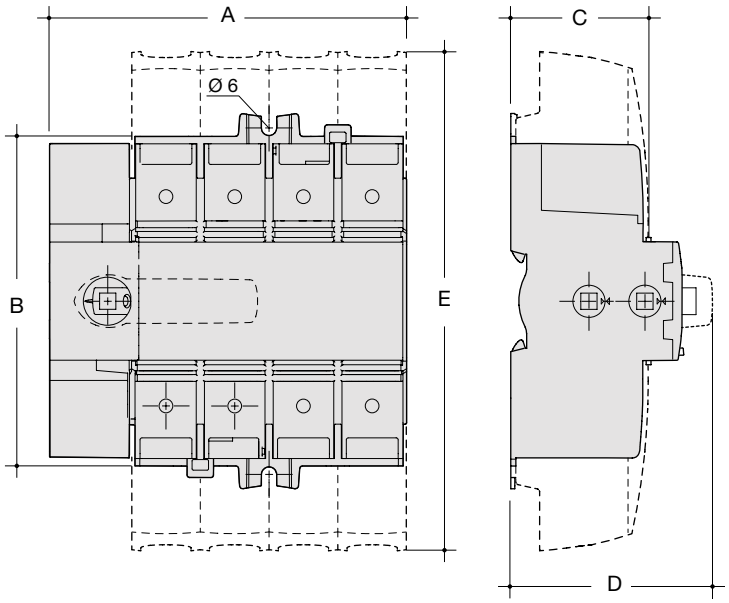
		HAB302 HAB402	HAB303 HAB403	HAB304 HAB404	HAB306 HAB406	HAC306 HAC406	HAC308 HAC408	HAC310 HAC410	HAD310 HAD410	HAD312 HAD412
In		20 A	32 A	40 A	63 A	63 A	80 A	100 A	100 A	125 A
rated insulation voltage Ui	(V)	800	800	800	800	800	800	800	800	800
rated impulse withstand voltage Uimp	(kV)	8	8	8	8	8	8	8	8	8
Ie AC 22B at 400 V	(A)	20	32	40	63	63	80	100	100	125
Ie 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 Icc	(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 Icw	(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)

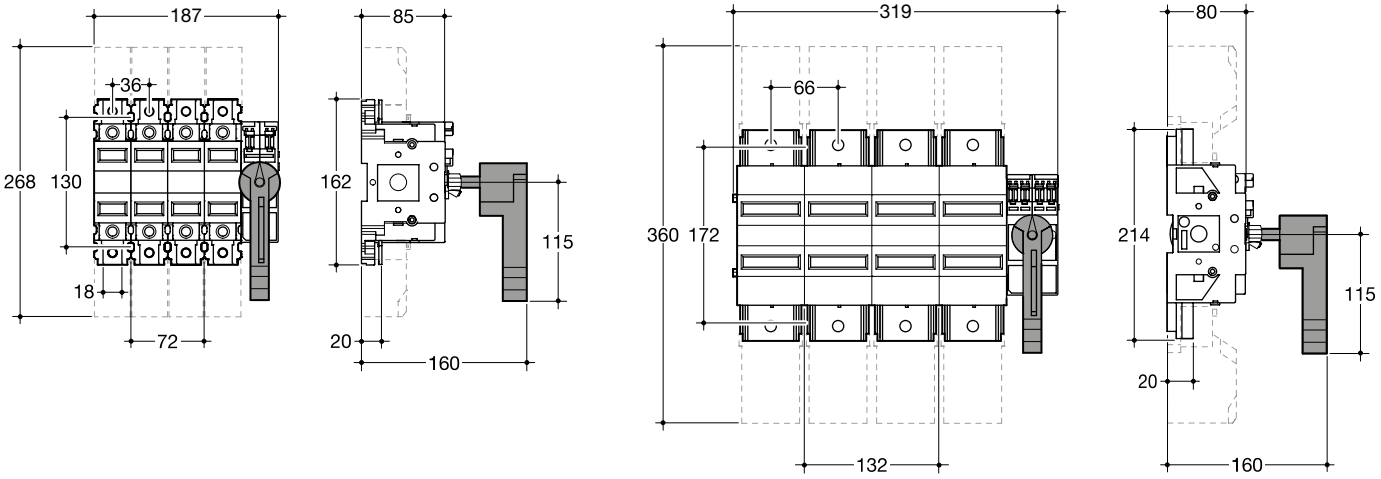
	HA406N, HA407, HA408	HAE410, HAE412, HAE416
A	142	135
B	116	124.5
C	44	50.5
D	86.3	76
E	183	189

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 Ui	(V)	750	750	750	800	800	800
rated impulse withstand voltage Uimp	(kV)	8	8	8	8	8	8
Ie AC 22B at 400 V	(A)	125	160	160	100	125	160
Ie 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 Icc	(A peak)	20 000	20 000	20 000	12 000	12 000	12 000
rated short-time withstand current for 1s Icw	(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

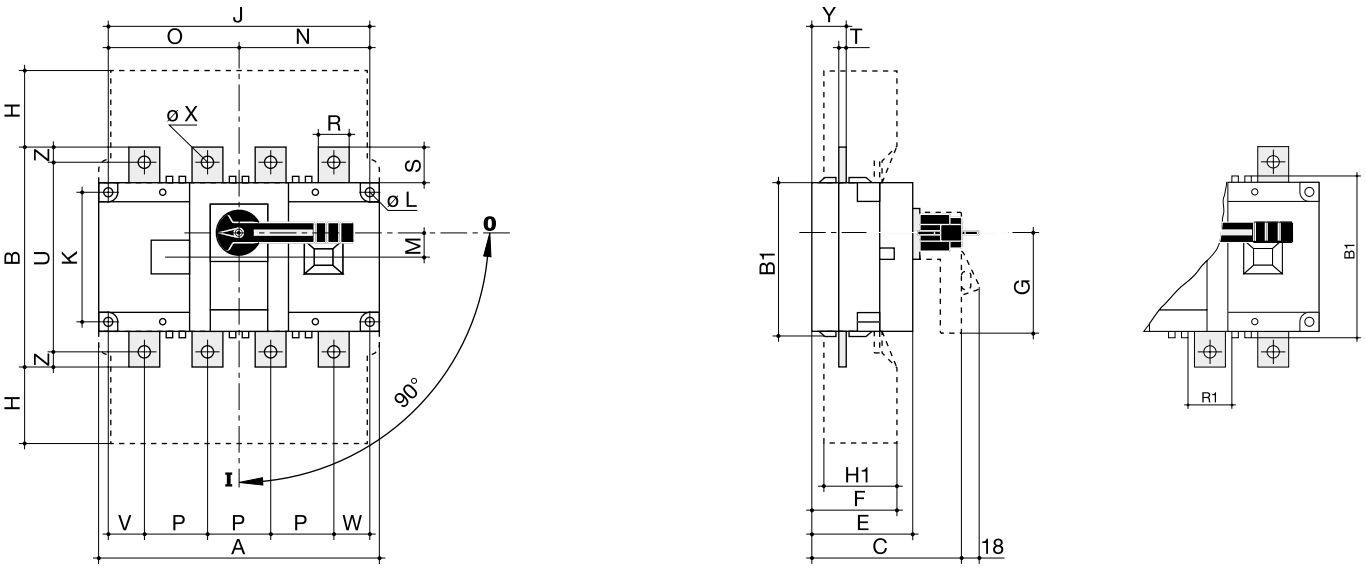
HA964N - HA966N



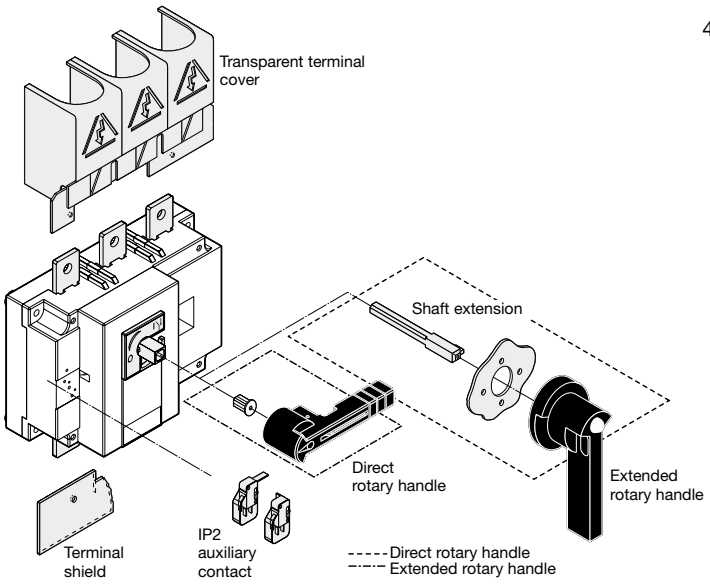
Technical characteristics

		HA964N	HA966N
electrical characteristics			
rated current		250 A	400 A
rated insulation voltage Ui	(V)	800	800
rated impulse withstand voltage Uimp	(kV)	8	8
Ie AC 22 at 400 V	(A)	250	400
Ie 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

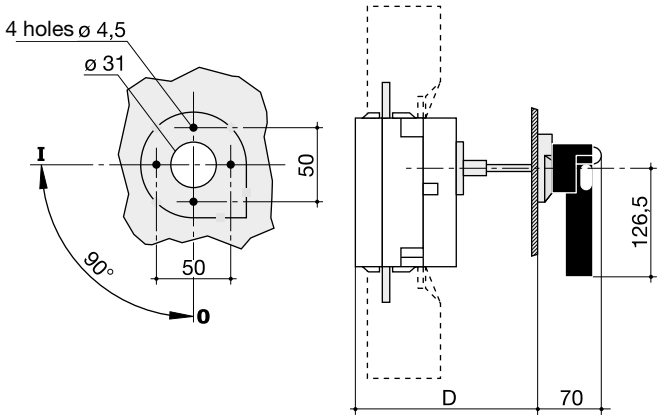
HA351, HA451, HA352, HA452, HA354, HA454, HA357, HA457, HA358, HA458 switches



Mounting



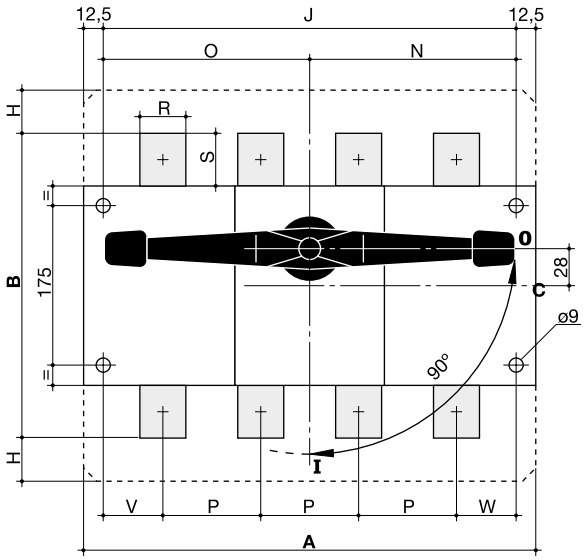
Extended rotary handle

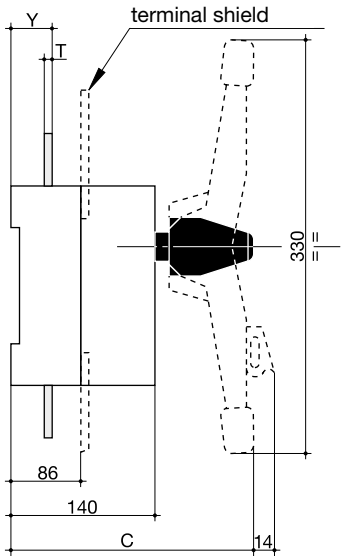


Dimensions fo switches from 125A to 630A (rotary handle)

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

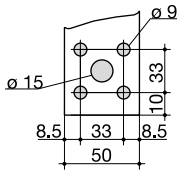
HA360, HA362, HA364, HA460, HA462, HA464 switches with rotary handle



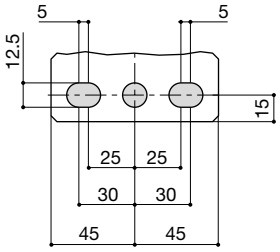


Connection terminals

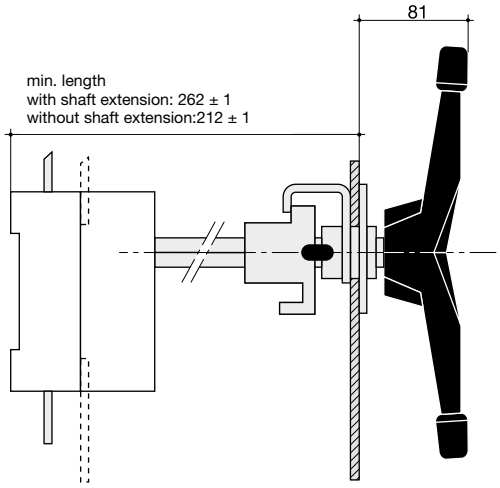
800A



1250-1600A



Rotary handle

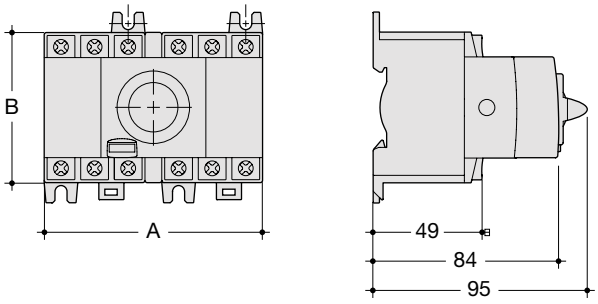


Dimensions fo switches from 125A to 630A (rotary handle)

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

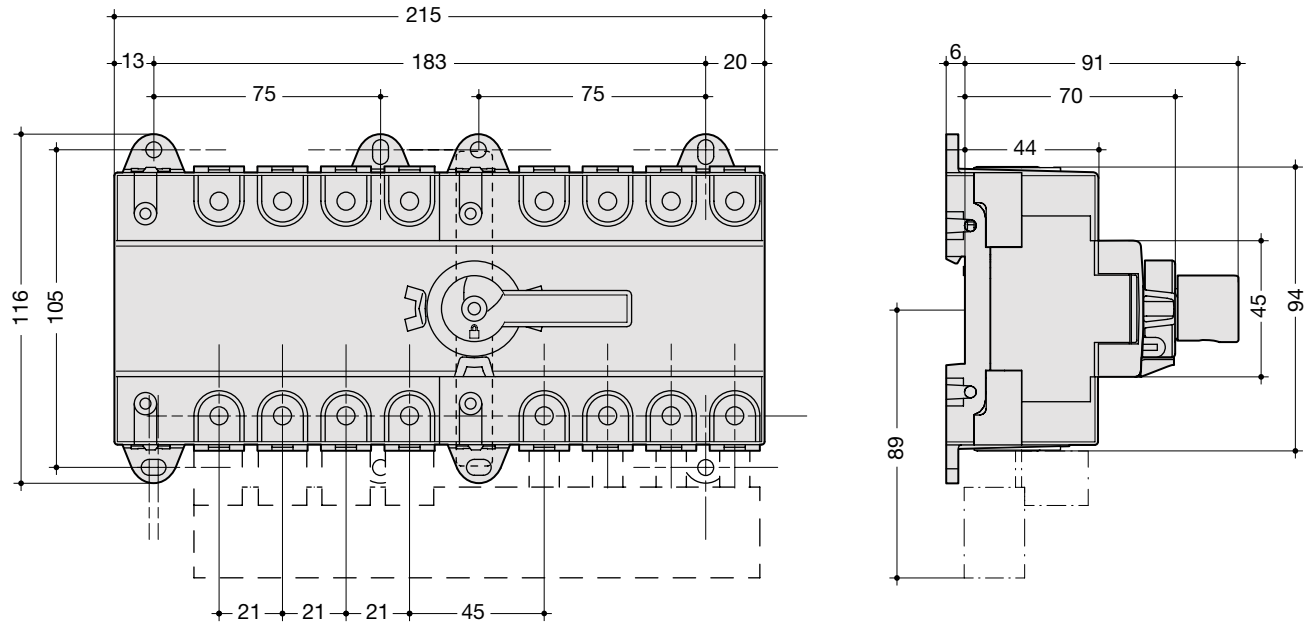
HIM302, HIM304, HIM306, HIM308, HIM402, HIM404, HIM406, HIM408



Dimensions (in mm)

	HIM302 HIM304	HIM402 HIM404	HIM306 HIM308	HIM406 HIM408
A	97.5	127.5	105	140
B	68		76	

HI405R and HI406R

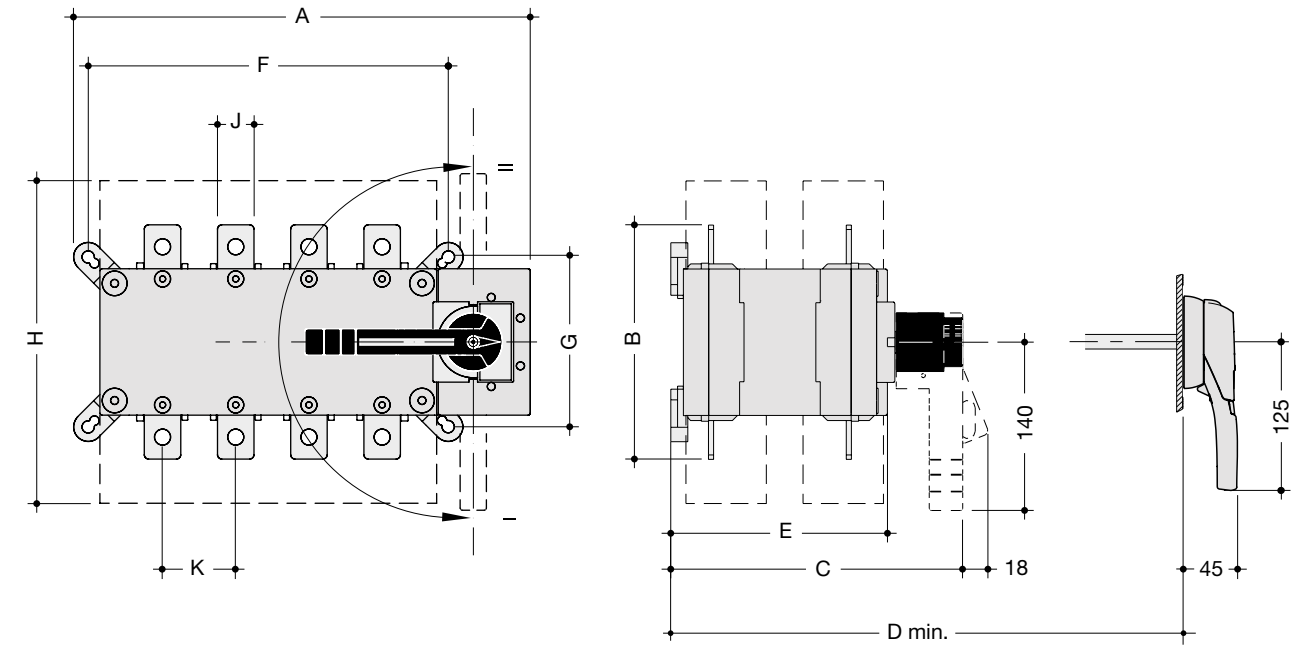


Technical characteristics

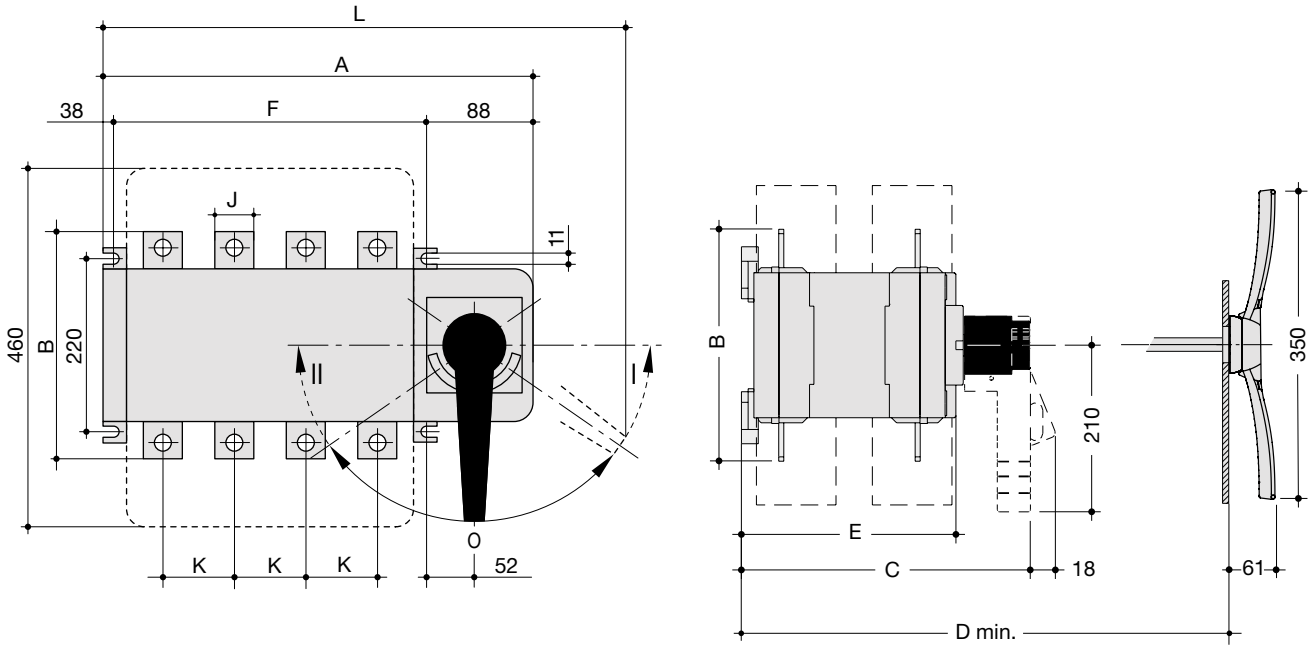
		HIM302 HIM402	HIM304 HIM404	HIM306 HIM406	HIM308 HIM408	HI405R	HI406R
In		20 A	40 A	63 A	80 A	100 A	125 A
insulation voltage Ui	(V)	800	800	800	800	690	690
impulse withstand voltage Uimp	(kV)	8	8	8	8	8	8
Ie AC 22 at 400 V	(A)	20	40	63	80	100	125
Ie AC 23 at 400 V	(A)	20	40	63	80	63	63
operational power 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 Icc	(kA peak)	6	6	9	9	12	12
rated short-time withstand current Icw	(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



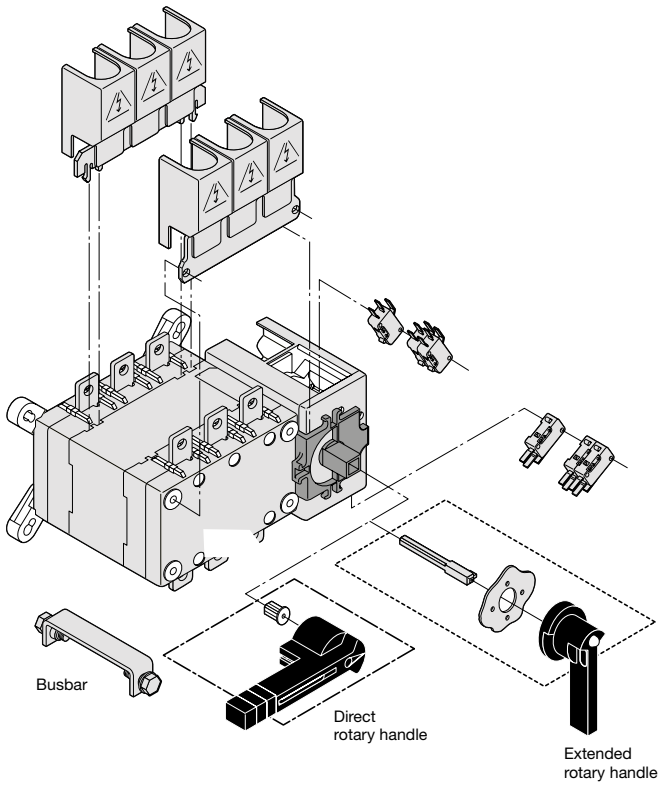
Dimensions fo switches from 125A to 630A (rotary handle)

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

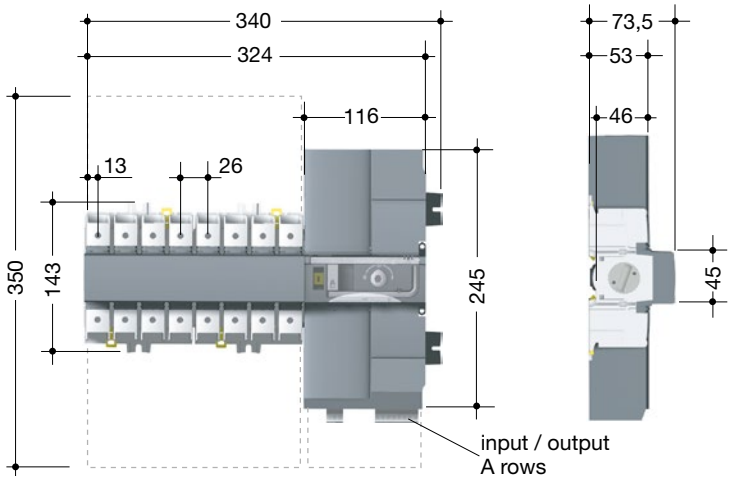
		HI452	HI454	HI456	HI458	HI460	HI462	HI464
In		160 A	250 A	400 A	630 A	800 A	1250 A	1600 A
insulation voltage Ui	(V)	800	800	800	1000	1000	1000	1000
impulse withstand voltage Uimp	(kV)	8	12	8	12	12	12	12
Ie AC 22 at 400 V	(A)	160	250	400	630	800	1250	1600
Ie AC 23 at 400 V	(A)	160	250	250	500	800	1250	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 Icm	(A peak)	12	147	15.3	30	48	75	86
rated short-time withstand current Icw	(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

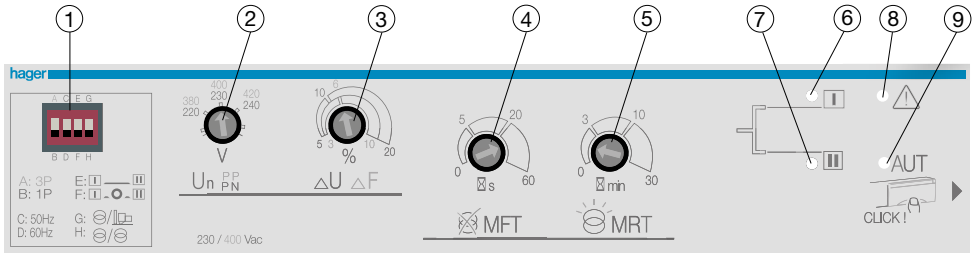
HIC406A, HIC408A, HIC410A, HIC 412A, HIC416A



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 Ui	(V)	800	800	800	800	800	800	800
rated impulse withstand voltage Uimp	(kV)	6	6	6	6	6	6	6
Ie AC 22 at 415 V	(A)	20	40	63	80	100	125	160
Ie 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 Icc	(A peak)	17	17	17	17	17	17	17
rated short-time withstand current Icw 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 Un

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)

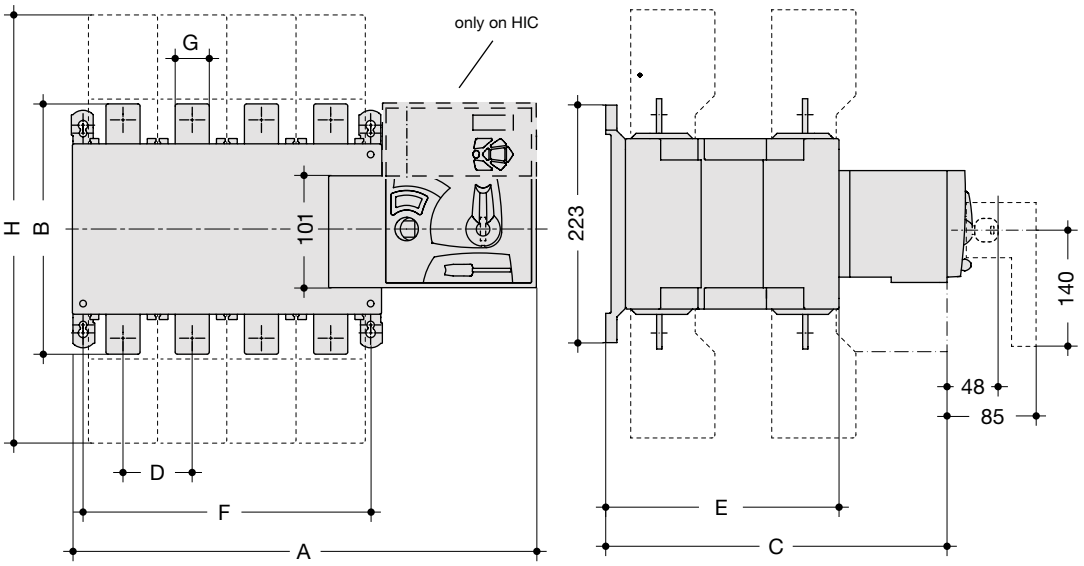
⑦ source II status indicator (LED ON: Source I available)

⑧ product status indicator (LED ON: fault, LED OFF: product ok)

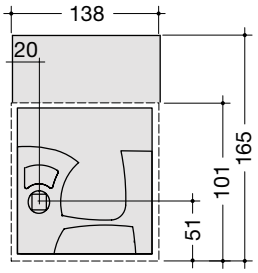
⑨ automatic/manual mode indicator (LED ON: Auto mode, LED OFF: Manual mode)

Changeover switches

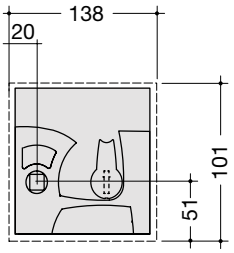
HIB425M, HIB440M, HIB463M, HIC425E et G, HIC440E et G, HIC463E et G



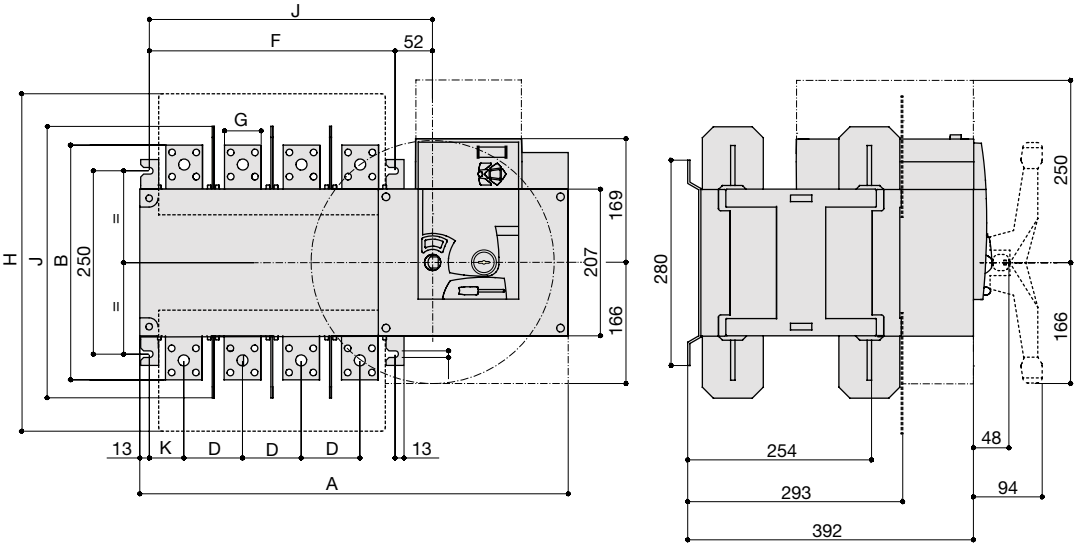
HIC4xxE and G



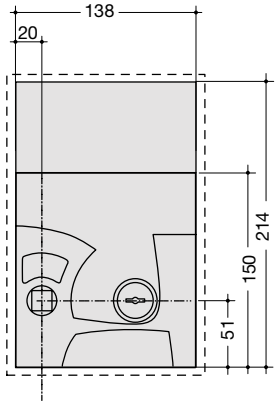
HIB4xxM



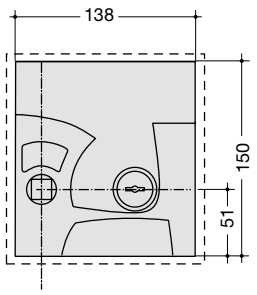
HIB480, HIB490, HIB491, HIB492, HIC480, HIC490, HIC491, HIC492



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 Ui	(V)	800	1000	1000	1000	1000	1000	1000
rated impulse withstand voltage Uimp	(kV)	12	12	12	12	12	12	12
Ie AC 22B, 415 V	(A)	250	400	630	800	1000	1250	1600
Ie AC 23A / AC 23B, 415 V	(A)	200/200	400/400	630/630	800/800	1000/1000	1250/1250	1250/1250
rated operational current Ie AC 31B, 415 V	(A)	250	400	630	800	1000	1250	1600
rated operational current Ie AC 32B sous 415 V	(A)	200	400	500	800	1000	1250	1600
rated operational current Ie 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 Icm	(kA peak)	22	22	17	48	73.5	73.5	110
rated short time withstand current Icw	(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