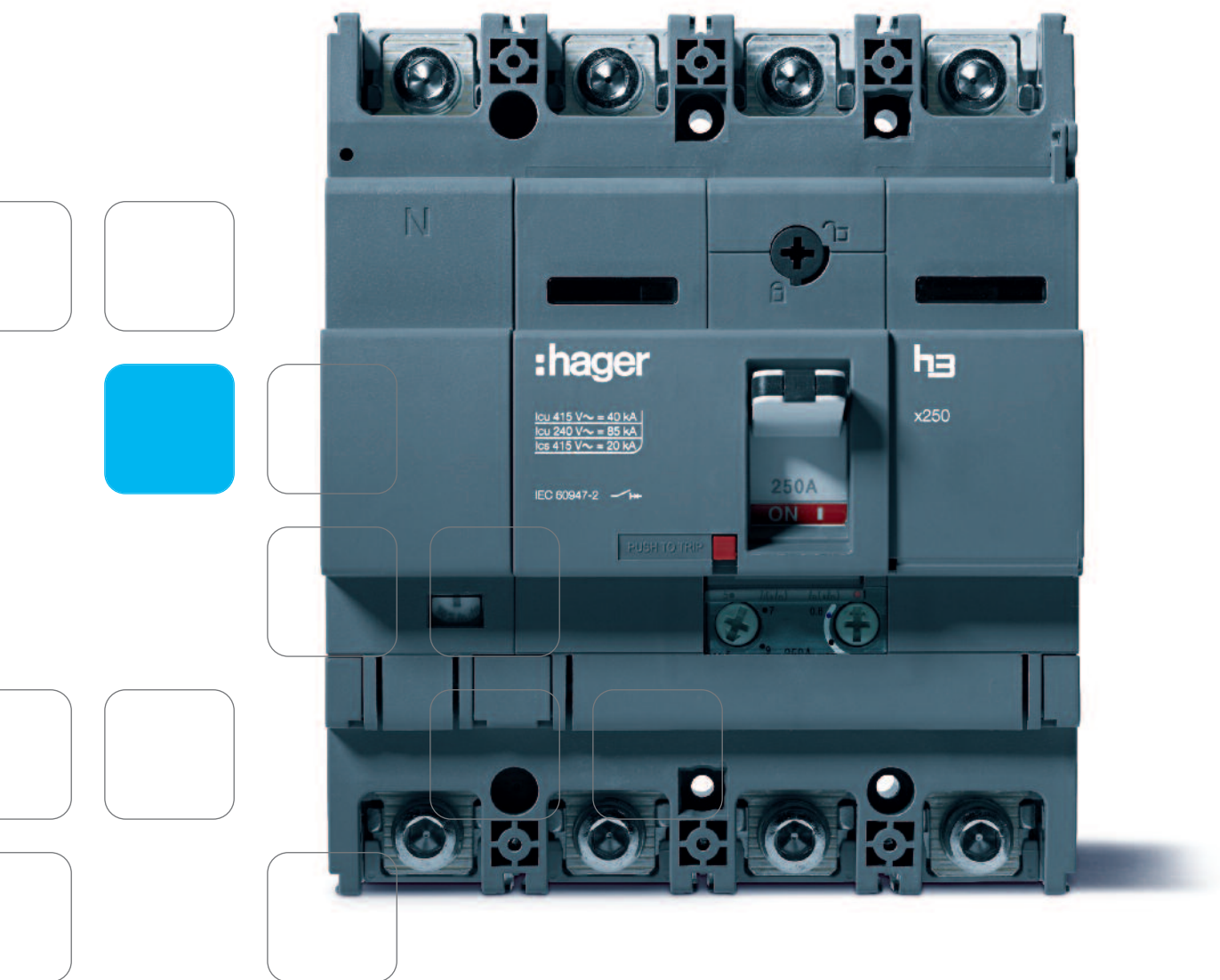


h3 MCCBs :
Low voltage protection devices



h3 MCCBs

from 16 to 1600 A

Allow the connection, protection, breaking and switching in the low voltage distribution boards.



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x250	21
h250	35
h630	50
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h3 MCCBs and trip-free switches 16 to 1600 A

Easy mounting and safety

The new **h3** range of MCCBs provides safe and easy solutions for low voltage electrical circuits protection. The state of the art circuit breakers offers both designers and installers wide range of features and benefits.

Special attention has been given to ergonomics, especially with the integration of these devices in the TP&N and panelboard.



Your benefits:

- Easy to install
- Quick, easy and safety mounting of accessories
- Wide range of rated current ratings and breaking capacities
- Calibrated at 50 Deg centigrade
- Trip-free switches

Technical data :

- Comply with IEC 60947-2
- 6 frame sizes: x160, x250, h250, h630, h1000, h1600
- Breaking capacity: 18, 25, 40, 50, 65, 70 kA
- Thermal magnetic and electronic trip units
- 1 pole to 4 poles
- Current limiting type
- Complete range of accessories
- International certification and approvals

Expert tips

1



Design by Hager
In harmony with Hager enclosures and modular products.

5



Visibility of auxiliaries fitted
Indicates type of auxiliary mounted in breaker.

2



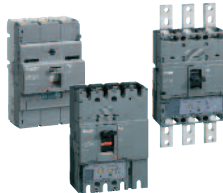
Electronic trip unit (LSI)
Is permitting total selectivity and generator protection.

6



Integrated padlocking facility
Nice solution for maintenance.

3



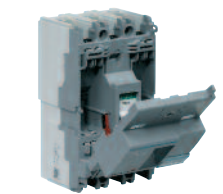
Breaking capacity
18 to 70kA, Icu 415V AC, covers all applications.

7



Complete range of accessories
Rotary handles, padlocks, motors, terminal covers.

4



Easy mounting of auxiliaries
Easy opening of secondary cover, clip-on type auxiliaries.

8



Flexible connection
Collar terminals, front and rear connections, straight connections, spreaders ...

Frame	x160				x250			h250 TM			h250 TM+	
Product	Switch	MCCB			Switch	MCCB		MCCB			MCCB	
Reference	HCA	HDA	HHA	HNA	HCB	HHB	HNB	HHG	HNG	HEG	HNH	HEH
Number of poles	[No.]	3-4	1-2-3-4	1-2-3-4	3-4			3-4			3-4	
Electrical characteristics												
Rated current	In	[A]	160		250			250			250	
Current rated range		[A]	125-160	16-125 (1P), 16-160 (2,3,4P)	250	100-250		12,5-250			12,5-250	
Rated service voltage, (AC)	Ue	[V]	220-440		220-440			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	85	85	100
(AC) 50-60 Hz 380/415 V	Icu	[kA]	-	18	25	40	-	25	40	25	50	70
(AC) 50-60 Hz 480/500/525 V	Icu	[kA]	-	6	7.5	12.5	-	-	10	10	25	45
(AC) 50-60 Hz 660/690 V	Icu	[kA]	-	-	-	6	-	-	4	-	7,5	20
(DC) 250 V - 2 poles in series	Icu	[kA]	-	12.5	20	25	-	25	25	25	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
(AC) 50-60 Hz 380/415 V	Ics	[kA]	-	18	20	25	-	20	20	19	25	36
(AC) 50-60 Hz 480/500/525 V	Ics	[kA]	-	3	4	7.5	-	-	7.5	7.5	25	30
(AC) 50-60 Hz 660/690 V	Ics	[kA]	-	-	-	3	-	-	2	-	7.5	15
(DC) 250 V - 2 poles in series	Ics	[kA]	-	7	10	13	-	13	13	19	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 isolation			ok		ok		ok		ok		ok	
Electric endurance in number of cycles			10000		10000		10000		10000		10000	
Mechanical endurance in number of operations			20000		20000		30000		30000		30000	
Operating temperature			-25 to +70°C		-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		-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		IEC 60947-2	
Releases: switch			ok	-	ok	-	-		-		-	
Releases: TM (thermomagnetic)			-	ok	-	ok	ok		ok		ok	
T fixed, M fixed			-	ok	-	ok	-		-		-	
T adjustable, M fixed			-	ok	-	-	-		-		-	
T adjustable, M adjustable			-	-	-	ok	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		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		6-8-10-13 x In	
Releases: LSI (electronic)			-	-	-	-	-		-		-	
Long delay			-	-	-	-	-		-		-	
Short delay			-	-	-	-	-		-		-	
Time delay			-	-	-	-	-		-		-	
Terminations												
Standard terminal type			lugs		lugs		lugs		lugs		lugs	
Maximum terminal capacity			95 mm²		185 mm² (cage)		120 mm² (cage)		120 mm² (cage)		120 mm² (cage)	
Terminal width	mm		17.2		25		25		25		25	
Terminal shields			ok		ok		ok		ok		ok	
Cage terminal			Z version		ok		ok		ok		ok	
Extended connections			ok		ok		ok		ok		ok	
Rear connections			no		ok		ok		ok		ok	
Dimensions												
Height	mm		130		165		165		165		165	
Width	1P	mm	-	25	-	-	-		-		-	
	2P	mm	-	50	-	-	-		-		-	
	3P	mm	75		105		105		105		105	
	4P	mm	100		140		140		140		140	
Depth		mm	68		68		68		68		97	
Weight	1P	kg	-	0,29	-	-	-		-		-	
	2P	kg	-	0,48	-	-	-		-		-	
	3P	kg	0,715		1,3		1,5		2,4		3,2	
	4P	kg	0,95		1,6		1,9					

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	75	-	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 Ir	
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		

Product		Add-on blocks h3	
Frame		x250	h630
Number of poles		4	4
Tripping access		mechanical	mechanical
Standards CEI/EN 60947-2 appendix B		ok	ok
Electrical characteristics			
Max rated current (40°) In A	In	160 - 250A	400A - 500A
Rated service voltage Ue V AC (50/60Hz)	Ue	240-415V	240-415V
Mechanical characteristics			
Top and bottom supply		ok	ok
For tripping, no additional external electrical sources		ok	ok
Possible operating with 2 active phases		ok	ok
Settings			
Sensitivity IΔn	IΔn (A)	0.03, 0.1, 0.3, 1, 3, 6A	0.03, 0.1, 0.3, 1, 3, 6A
Time delay Δt	Δt (s)	inst., 0.06, 0.15, 0.3, 0.5, 1	inst., 0.06, 0.15, 0.3, 0.5, 1
Max. opening time	ms	10	10
Delay add-on block is not possible if IΔn = 30mA		ok	ok
Selective product		ok	ok
Mechanical test button		ok	ok
Isolating test without cable removal		ok	ok
Electrical test button		ok	ok
Reset button		ok	ok
Sealable setting button		ok	ok
Isolation level signaling by led 25 and 50%		ok	ok
In running signalisation by led		ok	ok
Residual default signaling contact		ok	ok
Signaling contact 50% IΔn		ok	ok
Anti-transient	type AC	ok	ok
Pulsating current	type A	ok	ok
High immunity	type HI	yes	yes
-25°C		ok	ok
Accessories and connection			
Steel terminal cage (x3/x4)		accessories	accessories
Connection by lugs		ok	ok
Extended connections (x4)		ok	ok
Spreaders (x4)		ok	ok
Terminal covers (3P/4P)		ok	ok
Interphase barriers (x3)		ok	ok
Rigid cables connection capacity mm²		35-185	35-240
Flexible cables connection capacity mm² (with terminal)		35-150	35-185
Tightening torque Nm		12	22
Copper bar (width) in mm		25	30
Mounting			
Clips on DIN rail		no	no
Fixed on mounting plate		ok	ok
Fixation type		bottom	bottom
Mounting by customer		ok	ok
Dimensions and weight			
Dimensions (LxHxD) in mm	L	140	184
Side mounted 4P	H	107,5	133
	D	85	110
Weight	3P	/	/
	4P	1,2	2,4

			Serie	HDx	HHx	HNx	HNx	HEx
	Pole	Trip unit	In A	18kA	25kA	40kA	30kA - 50kA	65kA* - 70kA
x160	1P	TM fix/fix	16	HDA014Z	HHA014Z			
			20	HDA018Z	HHA018Z			
			25	HDA023Z	HHA023Z			
			32	HDA030Z	HHA030Z			
			40	HDA038Z	HHA038Z			
			50	HDA048Z	HHA048Z			
			63	HDA061Z	HHA061Z			
			80	HDA078Z	HHA078Z			
			100	HDA098Z	HHA098Z			
			125	HDA123Z	HHA123Z			
	2P	TM fix/fix	16	HDA015P	HHA015P			
			20	HDA019P	HHA019P			
			25	HDA024P	HHA024P			
			32	HDA031P	HHA031P			
			40	HDA039P	HHA039P			
			50	HDA049P	HHA049P			
			63	HDA062P	HHA062P			
			80	HDA079P	HHA079P			
			100	HDA099P	HHA099P			
			125	HDA124P	HHA124P			
			160	HDA159P	HHA159P			
	3P	TM fix/fix	16	HDA016P	HHA016P	HNA016P		
			20	HDA020P	HHA020P	HNA020P		
			25	HDA025P	HHA025P	HNA025P		
			32	HDA032P	HHA032P	HNA032P		
			40	HDA040P	HHA040P	HNA040P		
			50	HDA050P	HHA050P	HNA050P		
			63	HDA063P	HHA063P	HNA063P		
			80	HDA080P	HHA080P	HNA080P		
			100	HDA100P	HHA100P	HNA100P		
			125	HDA125P	HHA125P	HNA125P		
			160	HDA160P	HHA160P	HNA160P		
		TM adj/fix	16-20-25	HDA025S	HHA025S	HNA025S		
			25-32-40	HDA040S	HHA040S	HNA040S		
			40-50-63	HDA063S	HHA063S	HNA063S		
			50-63-80	HDA080S	HHA080S	HNA080S		
			63-80-100	HDA100S	HHA100S	HNA100S		
			80-100-125	HDA125S	HHA125S	HNA125S		
			100-125-160	HDA160S	HHA160S	HNA160S		
	4P 100%	TM fix/fix	16	HDA017P	HHA017P	HNA017P		
			20	HDA021P	HHA021P	HNA021P		
			25	HDA026P	HHA026P	HNA026P		
			32	HDA033P	HHA033P	HNA033P		
			40	HDA041P	HHA041P	HNA041P		
			50	HDA051P	HHA051P	HNA051P		
			63	HDA064P	HHA064P	HNA064P		
			80	HDA081P	HHA081P	HNA081P		
			100	HDA101P	HHA101P	HNA101P		
			125	HDA126P	HHA126P	HNA126P		
			160	HDA161P	HHA161P	HNA161P		
		TM adj/fix	16-20-25	HDA026S	HHA026S	HNA026S		
			25-32-40	HDA041S	HHA041S	HNA041S		
			40-50-63	HDA064S	HHA064S	HNA064S		
			50-63-80	HDA081S	HHA081S	HNA081S		
			63-80-100	HDA101S	HHA101S	HNA101S		
			80-100-125	HDA126S	HHA126S	HNA126S		
			100-125-160	HDA161S	HHA161S	HNA161S		
x250	3P	TM fix/fix	100		HHB100Z	HNB100Z		
			125		HHB125Z	HNB125Z		
			160		HHB160Z	HNB160Z		
			200		HHB200Z	HNB200Z		
			250		HHB250Z	HNB250Z		
		TM adj/adj	63-80-100			HNB100U		
			80-100-125			HNB125U		
			100-125-160			HNB160U		
			125-160-200			HNB200U		
			160-200-250			HNB250U		
	4P 0% - 4P 100%	TM fix/fix	100		HHB101Z	HNB101Z		
			125		HHB126Z	HNB126Z		
			160		HHB161Z	HNB161Z		
			200		HHB201Z	HNB201Z		
			250		HHB251Z	HNB251Z		
		TM adj/adj	63-80-100			HNB101U		
			80-100-125			HNB126U		
			100-125-160			HNB161U		
			125-160-200			HNB201U		
			160-200-250			HNB251U		

			Serie	HDx	HHx	HNx	HNx	HEx	HKx
	Pole	Trip unit	In A	18kA	25kA	40kA	30kA - 50kA	65kA* - 70kA	65kA* - 70kA
h250	3P	TM adj/adj	12,5-16-20		HHG020U		HNG020U		
			20-25-32		HHG032U		HNG032U		
			32-40-50		HHG050U			HEG050U*	
			40-50-63		HHG063U		HNG063U	HEG063U*	
			63-80-100		HHG100U		HNG100U	HEG100U*	
			80-100-125		HHG125U		HNG125U	HEG125U*	
			100-125-160		HHG160U		HNG160U	HEG160U*	
			125-160-200		HHG200U		HNG200U	HEG200U*	
			160-200-250		HHG250U		HNG250U	HEG250U*	
		TM+ adj/adj	12,5-16-20				HNH020U	HEH020U	
			20-25-32				HNH032U	HEH032U	
			32-40-50				HNH050U	HEH050U	
			40-50-63				HNH063U	HEH063U	
			63-80-100				HNH100U	HEH100U	
			80-100-125				HNH125U	HEH125U	
			100-125-160				HNH160U	HEH160U	
			125-160-200						
			160-200-250				HNH250U	HEH250U	
		LSI	16-40				HNC040U	HEC040U	
			50-125				HNC125U	HEC125U	
			100-250				HNC250U	HEC250U	
	4P	TM adj/adj	12,5-16-20				HNG021U		
			20-25-32				HNG033U		
			32-40-50				HNG051U	HEG051U	
			40-50-63				HNG064U	HEG064U	
			63-80-100				HNG101U	HEG101U	
			80-100-125				HNG126U	HEG126U	
			100-125-160				HNG161U	HEG161U	
			125-160-200				HNG201U	HEG201U	
			160-200-250				HNG251U	HEG251U	
		TM+ adj/adj	12,5-16-20				HNH021U	HEH021U	
			20-25-32				HNH033U	HEH033U	
			32-40-50				HNH051U	HEH051U	
			40-50-63				HNH064U	HEH064U	
			63-80-100				HNH101U	HEH101U	
			80-100-125				HNH126U	HEH126U	
			100-125-160				HNH161U	HEH161U	
			125-160-200						
			160-200-250				HNH251U	HEH251U	
		LSI	16-40				HNC041U	HEC041U	
			50-125				HNC126U	HEC126U	
			100-250				HNC251U	HEC251U	
h400 - h630	3P	TM adj/adj	160-200-250		HHD250U		HND250U		HKD250U
			250-320-400		HHD400U		HND400U		HKD400U
			160-400						
		LSI	250-630				HND630U		
			160-400				HND400H		
			400-630					HED400U	
	4P	TM adj/adj	250-630				HND630U	HED630U	
			160-200-250				HND251U		HKD251U
		LSI	250-320-400				HND401U		HKD401U
			160-400				HND401H	HED401U	
h1000	3P	TM	250-630				HND631U	HED631U	
			630				HNE630U	HEE630U	
			800				HNE800U	HEE800U	
		LSI	630				HNE970U	HEE970U	
			800				HNK631U	HEK631U	
			1000				HNK801U	HEK801U	
	4P	TM	630				HNE631U		
			800				HNE801U	HEE801U	
		LSI	1000				HNE971U	HEE971U	
			1250				HNK631U	HEK631U	
h1600	3P	LSI	800				HNK801U	HEK801U	
			1000				HNK801U	HEK801U	
	4P	LSI	1250				HNE631U		
			1600				HNE801U	HEE801U	

Serie				x160	x250	h630	h1000	h1600
Product	Version	Poles	In A					
Trip-free switches		3 poles	125	HCA125Z				
			160	HCA160Z				
		4 poles	125	HCA126Z				
			160	HCA161Z				
		3 poles	250		HCB250Z			
		4 poles	250		HCB251Z			
		3 poles	400			HCD400U		
			630			HCD630U		
		4 poles	400			HCD401U		
			630			HCD631U		
		3 poles	800				HCE800U	
			1000				HCE970U	
		4 poles	800				HCE801U	
			1000				HCE971U	
		3 poles	1250					HCF980U
			1600					HCF990U
		4 poles	1250					HCF981U
			1600					HCF991U
Add-on blocks	Bottom mounted	4 poles	160 adjustable		HBB161H			
			250 adjustable		HBB251H			
			400 adjustable			HBD401H		
			500 adjustable			HBD631H		

Switches and accessories for **h3** references guide

				Switches and accessories					
Products	Version	pole	In A / Ue V	x160	x250	h250	h400-h630	h1000	h1600
Auxiliaries	Shunt trip release	3/4P	24V DC	HXA001H		HXC001H			
			48V DC	HXA002H		HXC002H			
			110V DC	-		HXC008H			
			100-120V AC	HXA003H		HXC003H			
			200-240V AC	HXA004H		HXC004H			
			380-450V AC	HXA005H		HXC005H			
	Undervoltage release	3/4P	24V DC	HXA011H		HXC011H		HXE011H	
			100-120V DC	-		HXC018H		HXE018H	
			200-240V DC	-		HXC019H		HXE019H	
			100-120V AC	HXA013H		HXC013H		HXE013H	
			200-240V AC	HXA014H		HXC014H		HXE014H	
			380-450V AC	HXA015H		HXC015H		HXE015H	
	Delayed undervoltage release	3/4P	24V DC	HXA051H		HXC051H	HXD051H	HXE051H	HXF051H
		3/4P	110-120V AC	HXA053H		HXC053H	HXD053H	HXE053H	HXF053H
		3/4P	220-240V AC	HXA054H		HXC054H	HXD054H	HXE054H	HXF054H
		3/4P	380-415V AC	HXA055H		HXC055H	HXD055H	HXE055H	HXF055H
	Auxiliary contact	3/4P	1NO+1NC	HXA021H		HXC021H			
	Alarm contact	3/4P	1NO+1NC	HXA024H		HXC024H			
	Auxiliary contact - low level	3/4P	1NO+1NC	HXA025H		HXC025H			
	Alarm contact - low level	3/4P	1NO+1NC	HXA026H		HXC026H			
	Direct rotary handle			HXA030H	HXB030H	HXC030H	HXD030H	HXE030H	HXF030H
	Extended rotary handle			HXA031H	HXB031H	HXC031H	HXD031H	HXE031H	HXF031H
	Padlock			HXA039H HXA037H*	HXA039H	HXC039H	HXD039H		HXF039H
	Motor operator	3/4P	24-48V DC	-	HXB040H	HXC040H	HXD040H	HXE040H	HXF040H
			200-240V AC	-	HXB042H	HXC042H	HXD042H	HXE042H	HXF042H
	Interlocking wire type (kit)	3/4P		-	HXB065H	HXC065H	HXD065H	HXE065H	-
	Interlocking wire type (unit)			-	HXB066H	HXC066H	HXD066H	HXE066H	-
	Cable for interlock wire 1 m			-	HXB070H				-
	Cable for interlock wire 1,5 m			-	HXB071H				-
	Electrical interlock for motor type A	3/4P		-			HXD068H		-
	Electrical interlock for motor type B	3/4P		-	HXB069H (between HXB04xH or HXC04xH and HXD04xH or HXE04xH.)				-

* for HxAxxxP references - standard version handle

				Switches and accessories					
Products	Version	pole	In A / Ue V	x160	x250	h250	h400-h630	h1000	h1600
Connections	Collar terminal - copper	3P		-	-	HYC003H	HYD003H (250-400A)	-	-
		4P		-	-	HYC004H	HYD004H (250-400A)	-	-
	Collar terminal - aluminium / copper 185 mm²	3P		-	HYB001H	-	-	-	-
		4P		-	HYB002H	-	-	-	-
	Collar terminal - aluminium / copper 240 mm²	3P		-	HYB005H	-	HYD005H	-	-
		4P		-	HYB006H	-	HYD006H	-	-
	Collar terminal multiple - aluminium / copper 240 mm²	3P		-	-	-	HYD007H	HYE007H (to 800)	-
		4P		-	-	-	HYD008H	HYE008H (to 800)	-
	Extended straight connection	3/4P		HYA010H	HYB010H	HYC010H	HYD010H (250-400A) HYD013H (630A integrated)	included	included
	Extended spreader connection	3P		HYA011H	HYB011H	HYC011H	HYD011H (250-400A) HYD014H (630A)	-	-
		4P		HYA012H	HYB012H		HYD012H (250-400A) HYD015H (630A)	-	-
	Interphase barrier	3/4P	short	HYA019H		-	-	-	-
			long	HYB019H		included / HYC019 (LSI/TM+) HYB019 (TM)	included / HYD019H		
	Terminal cover for extended straight connections	3P		HYA021H	HYB021H	HYC021H (LSI / TM+) HYG021H (TM)	HYD021H	HYE021H	-
		4P		HYA022H	HYB022H	HYC022H (LSI / TM+) HYG022H (TM)	HYD022H	HYE022H	-
	Terminal cover large for spreader connection	3P		HYA023H	HYB023H	-	HYD023H	-	-
		4P		HYA024H	HYB024H	-	HYD024H	-	-
	Terminal cover short for rear connections	3P		HYA025H	HYB025H	HYC025H (LSI / TM+)	HYD025H	HYE025H	-
		4P		HYA026H	HYB026H	HYC026H (LSI / TM+)	HYD026H	HYE026H	-
	Terminal cover for collar terminal	3P		HYA027H	HYB027H	HYC027H	HYD027H	-	-
		4P		HYA028H	HYB028H	HYC028H	HYD028H	-	-
	Rear connections	3P		HYA031H (16-50A) HYA131H (63-160A) for S version	HYB031H	HYC031H (LSI / TM+) HYG031H (TM)	HYD031H (250-400A) HYD033H (630A)	HYE031H (630-800A) HYE033H (1000A)	-
		4P		HYA032H (16-50A) HYA132H (63-160A) for S version	HYB032H	HYC032H (LSI / TM+) HYG032H (TM)	HYD032H (250-400A) HYD034H (630A)	HYE032H (630-800A) HYE034H (1000A)	-
	DIN rail adaptor	3/4P		HYA033H	-	-	-	-	-
	Connecting kit (0,75mm²)	3/4P		HYA035H					
	Rail Din raiser	3/4P		HYA036H	-	-	-	-	-
	OCR sealing cover			-	-	HYC041H (LSI) HYG041H (TM)	-	-	-
	Compact lugs 16mm² D:8,5	3/4P		HYA086H	-	-	-	-	-
	Compact lugs 25mm² D:8,5	3/4P		HYA087H	-	-	-	-	-
	Compact lugs 35mm² D:8,5	3/4P		HYA088H	-	-	-	-	-
	Compact lugs 50mm² D:8,5	3/4P		HYA089H	-	-	-	-	-
	Compact lugs 70mm² D:8,5	3/4P		HYA090H	-	-	-	-	-
	Compact lugs 95mm² D:8,5	3/4P		HYA091H	-	-	-	-	-
	Compact lugs 120mm² D:8,5	3/4P		-	HYB092H	-	-	-	-
	Compact lugs 120mm² D:10	3/4P		-	-	-	HYD093H	-	-
	Compact lugs 150mm² D:8,5	3/4P		-	HYB094H	-	-	-	-
	Compact lugs 150mm² D:10,5	3/4P		-	-	-	HYD095H	-	-
	Compact lugs 185mm² D:10,5	3/4P		-	-	-	HYD096H	-	-
	Compact lugs 185mm² D:12,8	3/4P		-	-	-	HYD097H*	-	-
	Compact lugs 240mm² D:12,8	3/4P		-	-	-	HYD098H*	-	-

* with spreaders

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



HXA014H

Designation	Characteristics	Cat. ref.
Auxiliary contacts AX AL	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	24 V DC	HXA001H
	48 V DC	HXA002H
	100 - 120 V AC	HXA003H
	200 - 240 V AC	HXA004H
	380 - 450 V AC	HXA005H
Undervoltage releases UV	24 V DC	HXA011H
	100 - 120 V AC	HXA013H
	200 - 240 V AC	HXA014H
	380 - 450 V AC	HXA015H
Delayed undervoltage releases DUVR	24 V DC	HXA051H
	110 - 120 V AC	HXA053H
	220 - 240 V AC	HXA054H
	380 - 415 V AC	HXA055H



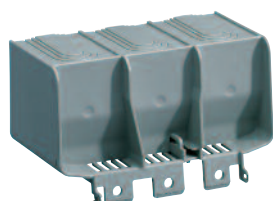
HXA030H



HXA031H



HYA021H



HYA023H

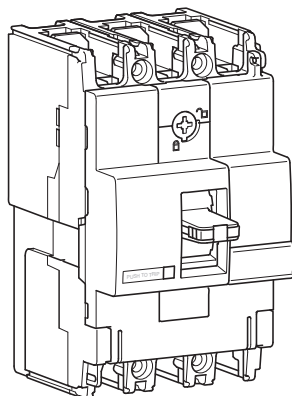


HYA027H

Designation	Characteristics	Cat. ref.	
		3P	4P
Direct rotary handle	padlockable handle max Ø 6 mm	HXA030H	HXA030H
Extended rotary handle	padlockable handle max Ø 8 mm	HXA031H	HXA031H
Padlock	for padlock integrated handle to mount on MCCB for handle locking for 3 padlock max Ø 8 mm	HXA039H	HXA039H
	for HxAxxxP references standard version handle	HXA037H	HXA037H
Extended connections	set of 4 straight connections	HYA010H	HYA010H
	set of 3 or 4 spreader connections	HYA011H	HYA012H
Interphase barriers	set of 3, height: 50 mm	HYA019H	HYA019H
	set of 3, height: 97 mm	HYB019H	HYB019H
Terminal covers	for extended straight connections	HYA021H	HYA022H
	for extended spreader connections	HYA023H	HYA024H
	for collar terminal	HYA027H	HYA028H
Din rail adaptor		HYA033H	HYA033H
Rear connections	16 to 50A	HYA031H	HYA032H
	63 to 160A	HYA131H	HYA132H
Connecting kit	0,75 mm ² set of 3 x 2 wires length: 1,30m	HYA035H	HYA035H
Rail Din raiser		HYA036H	HYA036H

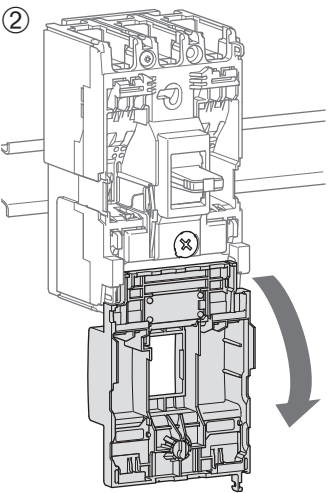
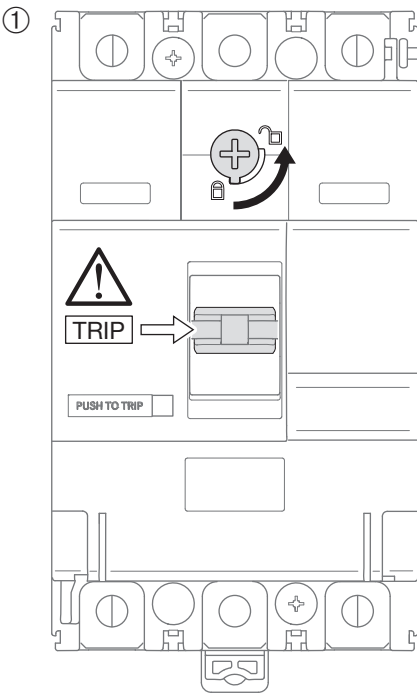
Designation	Characteristics	Cat. ref.
Ring lugs	compact lugs 16 mm ² Ø8,5	HYA086H
	compact lugs 25 mm ² Ø8,5	HYA087H
	compact lugs 35 mm ² Ø8,5	HYA088H
	compact lugs 50 mm ² Ø8,5	HYA089H
	compact lugs 70 mm ² Ø8,5	HYA090H
	compact lugs 95 mm ² Ø8,5	HYA091H

MCCBs

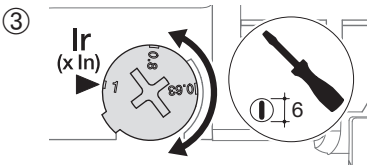


		220/240V AC IEC 60 947-2	380/415V AC IEC 60 947-2
HDA	Icu	25 kA	18 kA
	Ics	25 kA	18 kA
HHa	Icu	35 kA	25 kA
	Ics	25 kA	20 kA
HNA	Icu	85 kA	40 kA
	Ics	30 kA	25 kA
HCA	Icm	-	2,8 kA
	Icw	-	2 kA - 1s

Magnetic and thermal settings



For DIN rail mounting, use HYA033H.



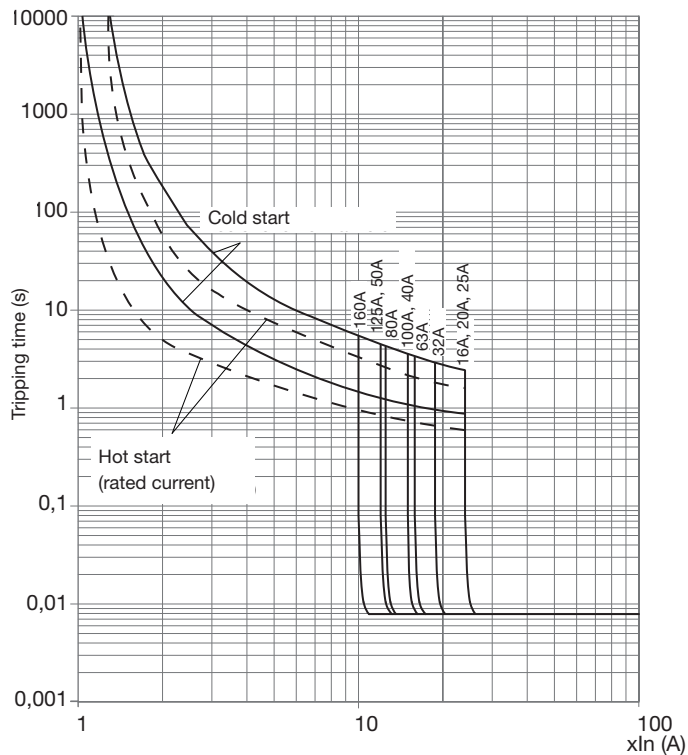
Thermal adjustment from 0,63 to 1 x In

Magnetic adjustment fixed > 10 x In

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

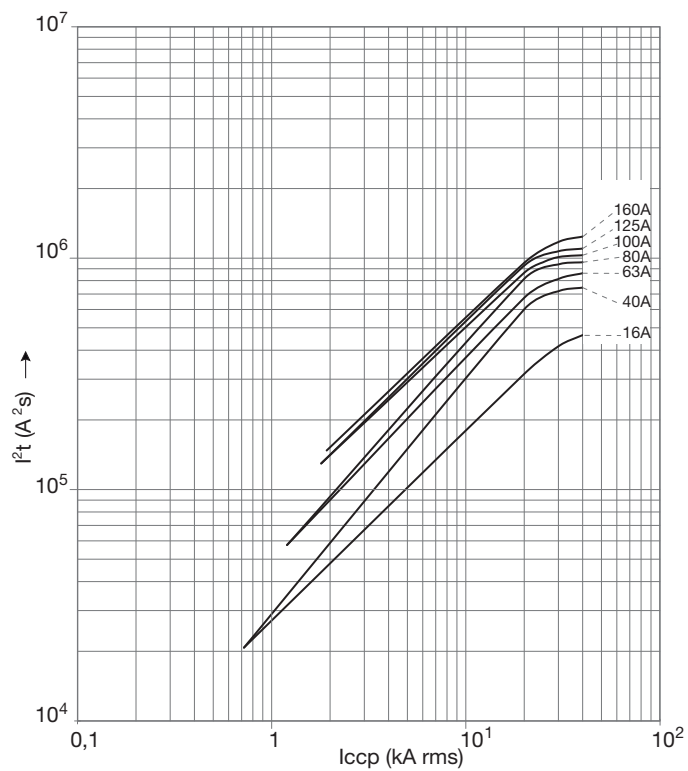
Tripping curve

MCCB x160



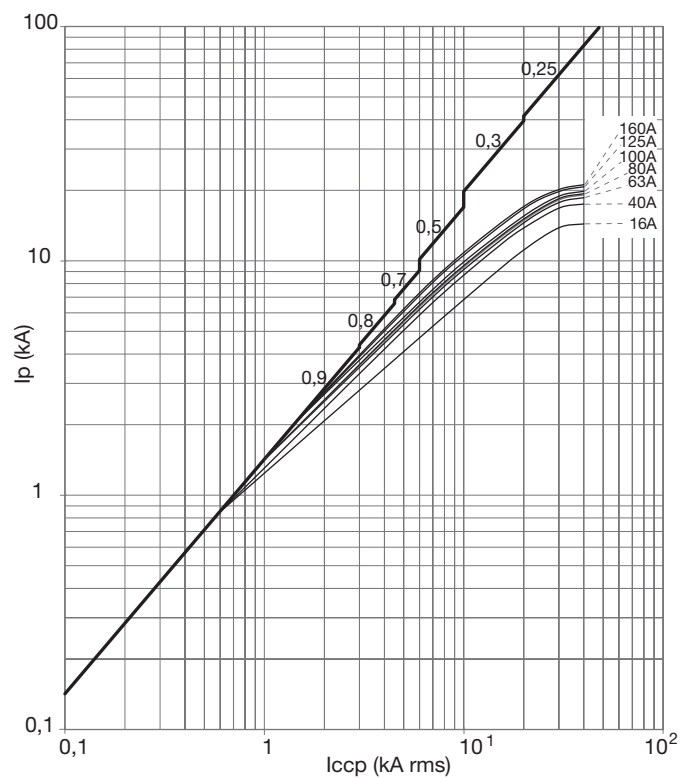
Thermal constraint curve at 400V (Let-through energy)

MCCB x160



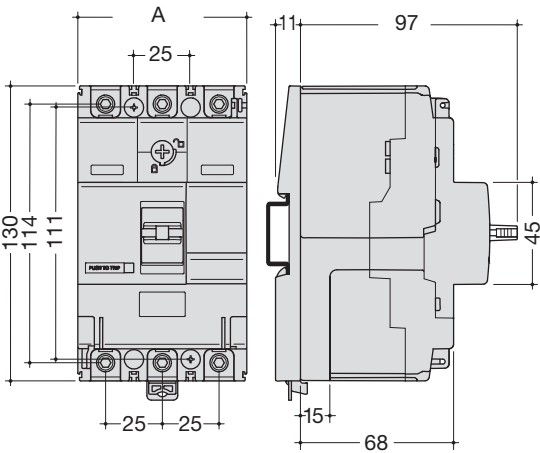
Current limiting curve at 400V (Let-through peak current)

MCCB x160



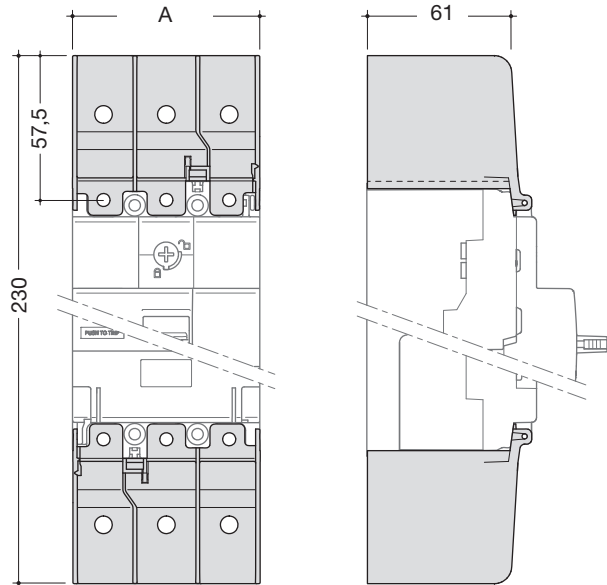
Dimensions

MCCB x160



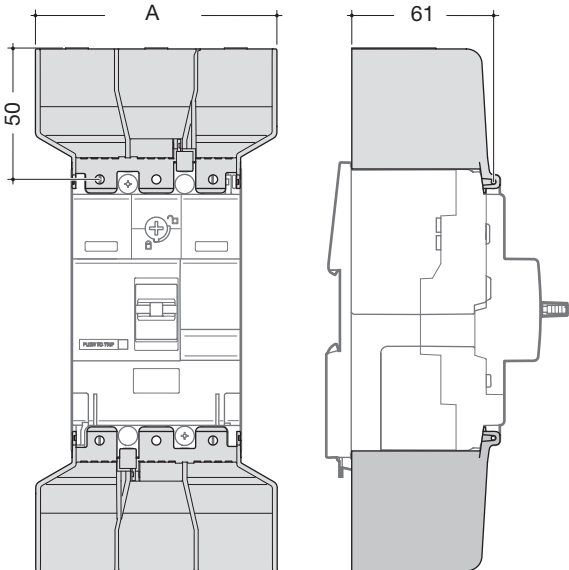
	A (mm)
1P	24,8
2P	49,5
3P	74,5
4P	99,5

Terminal covers for extended straight connections



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

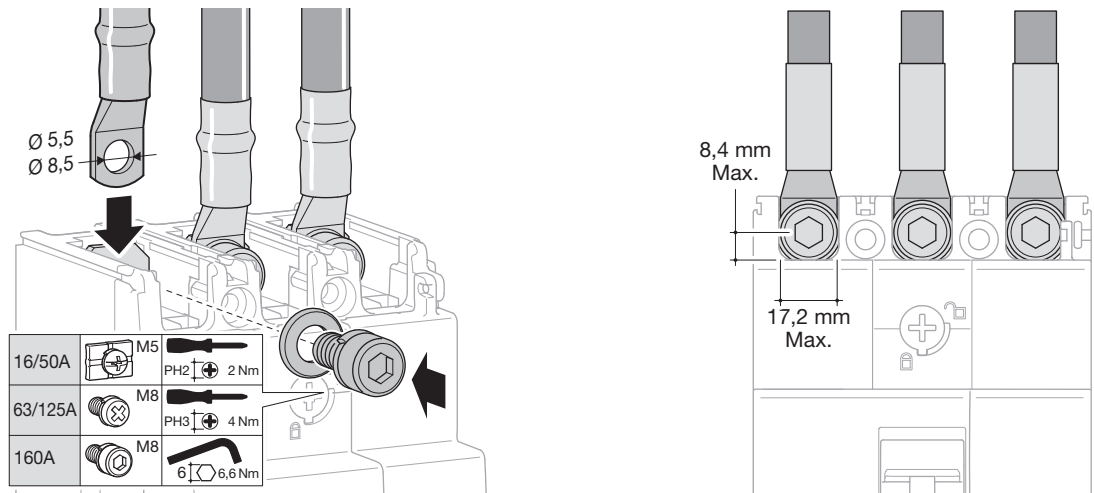
Terminal cover for extended spreader connections



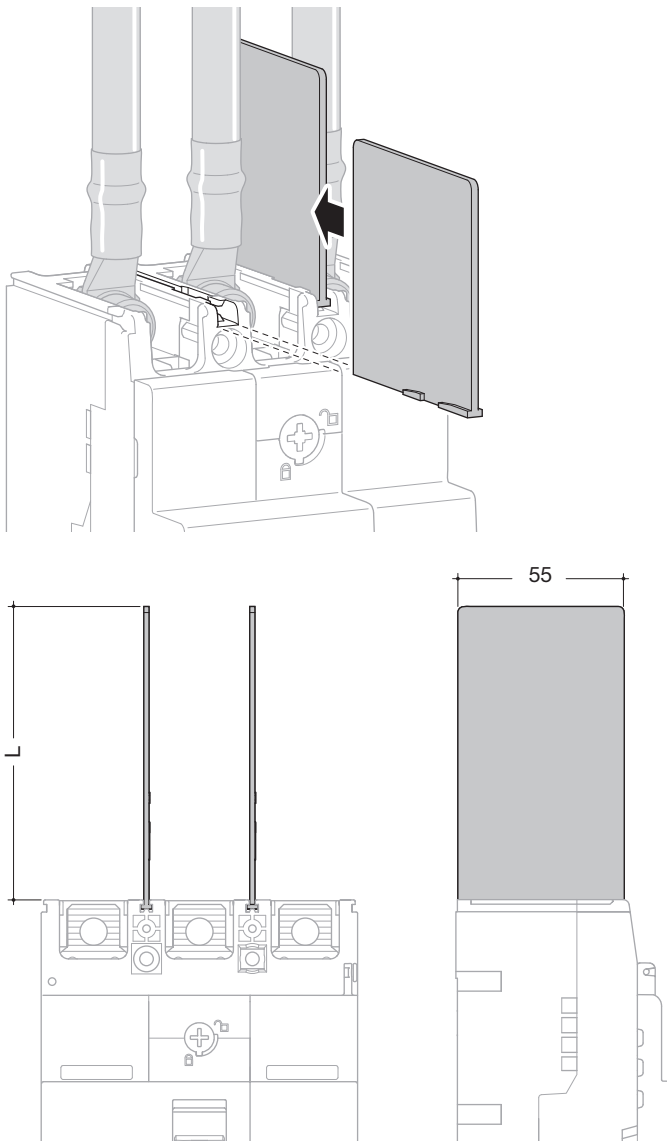
	A (mm)
3P	106,5
4P	141,5

Connection

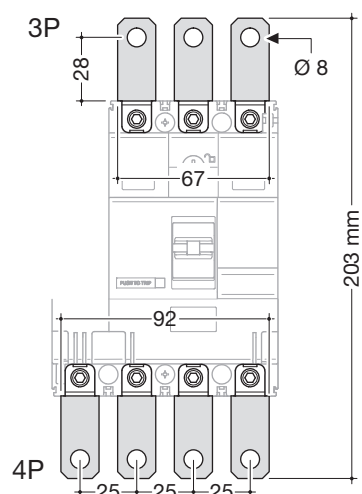
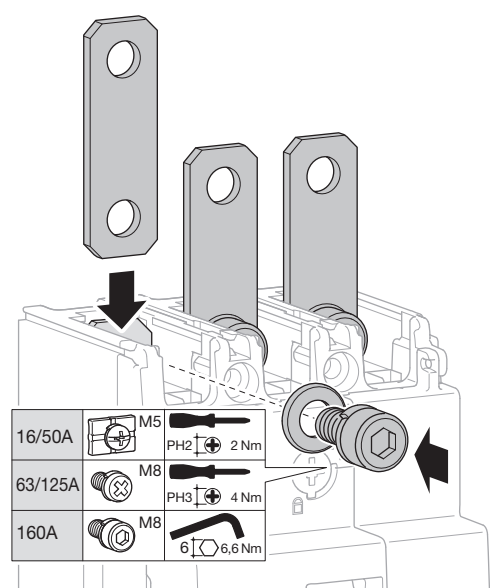
Connection with cable lugs



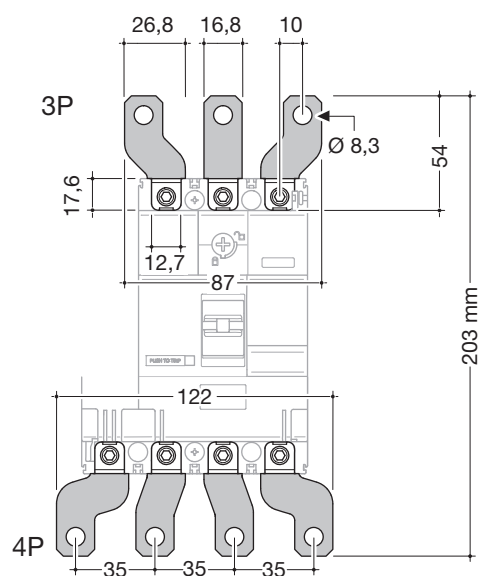
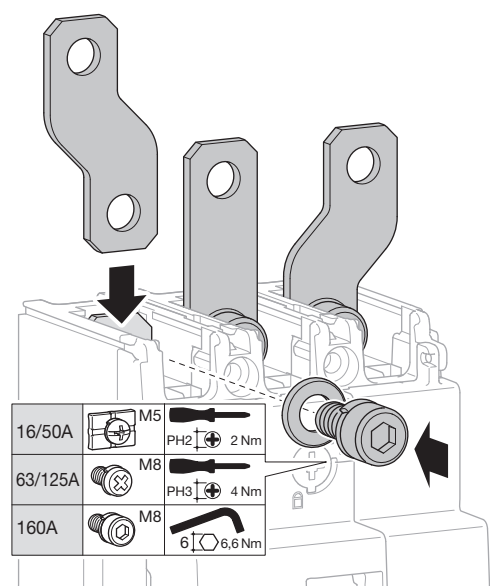
Interphase barriers



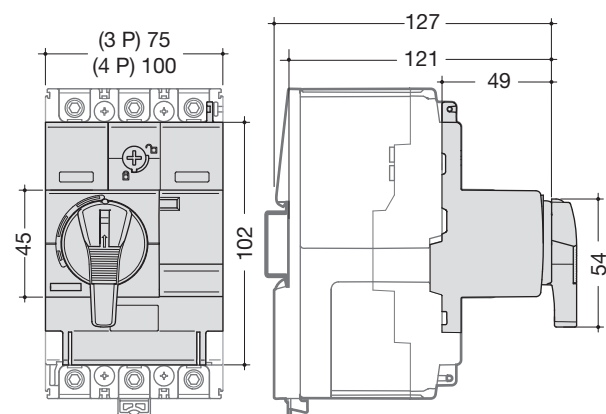
Extended straight connections



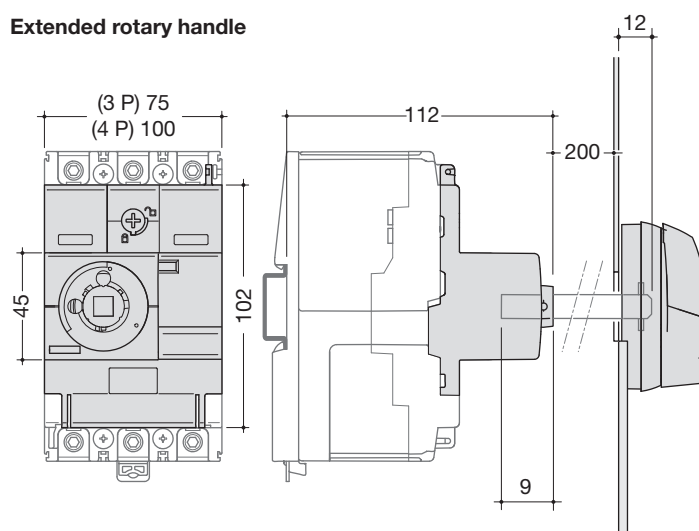
Extended spreader connections



Direct rotary handle

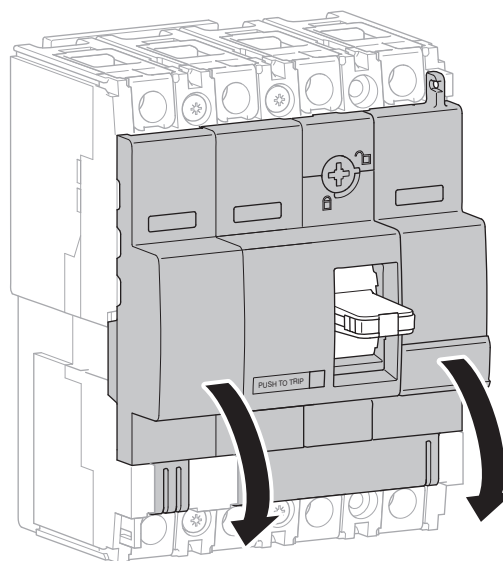
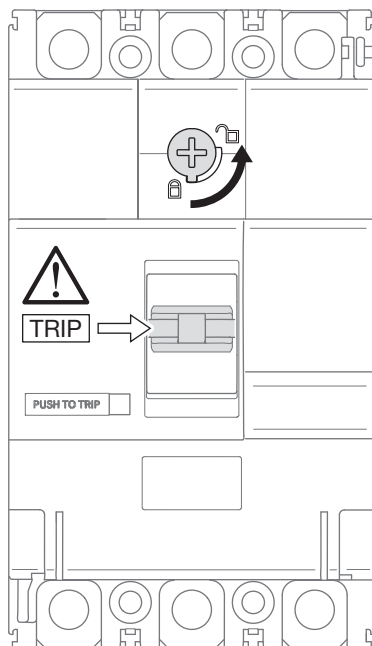


Extended rotary handle



Auxiliaries

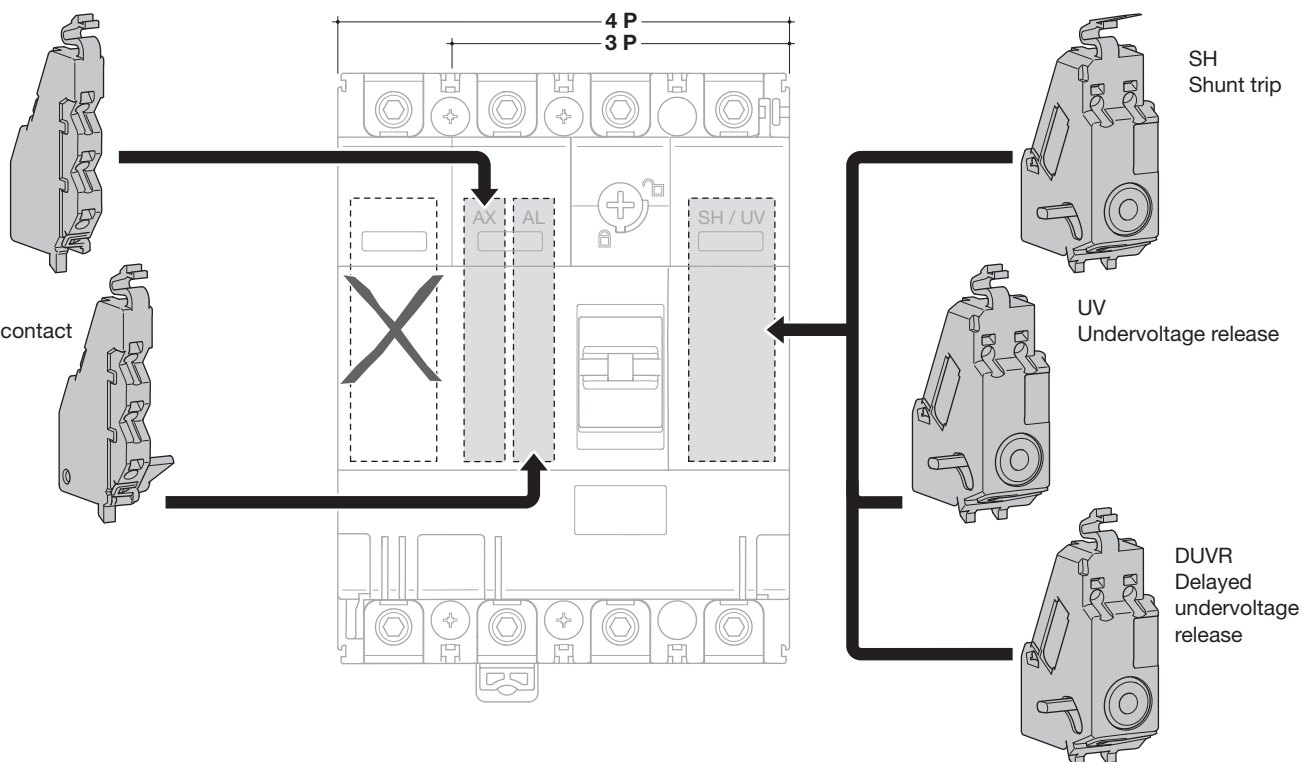
Auxiliaries for MCCBs and trip-free switches



Mounting combination for auxiliaries and releases

AX
Auxiliary contact

AL
Alarm contact



Indication contacts

- 1 changeover switch (ON/OFF): indicates the position of the MCCB is "open" or "closed".
- 1 changeover alarm contact: indicates MCCB tripping.

Coil connection

Connection capacity:
0,75 mm² flexible or rigid cables
Optional connection cables.
The cable capacity of the terminals is 0,5 to 1,25 mm².

Shunt trip

Remotes tripping of MCCBs or trip-free switches.
Operating voltage: 0,7 to 1,1 x Un

Under voltage release

Allows the tripping of MCCBs or trip-free switches when voltage level drop between 35 and 70% of Un. Pick up voltage 0,85 x Un

Direct rotary handle

- padlockable
- equipped with front cover and handle
- fixing without any additional screw.

Extended rotary handle

- IP 55
- supplied complete with shaft and handle.



HXA021H

HXA024H

Designation	Characteristics	Cat. ref.
Auxiliary contacts AX AL	1 changeover contact 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	24 V DC	HXA001H
	48 V DC	HXA002H
	100 - 120 V AC	HXA003H
	200 - 240 V AC	HXA004H
	380 - 450 V AC	HXA005H
Undervoltage releases UV	24 V DC	HXA011H
	100 - 120 V AC	HXA013H
	200 - 240 V AC	HXA014H
	380 - 450 V AC	HXA015H
Delayed undervoltage releases DUVR	24 V DC	HXA051H
	110 - 120 V AC	HXA053H
	200 - 240 V AC	HXA054H
	380 - 415 V AC	HXA055H
Direct rotary handles	padlockable handle max Ø 6 mm	HXB030H
Extended rotary handles	padlockable handle max Ø 8 mm	HXB031H
Padlocks	to mount on MCCBs for handle locking for 3 padlocks max Ø 8 mm	HXA039H
Motor operators	24 V DC	HXB040H
	230 - 240V AC	HXB042H
Electrical interlock	for motor type A (between 2 250A)	HXB068H
	for motor type B (between 250A and other sizes)	HXB069H



HXA014H



HXB042H



HYB010H



HYB002H



HYB012H



HYB022H



HYB024H

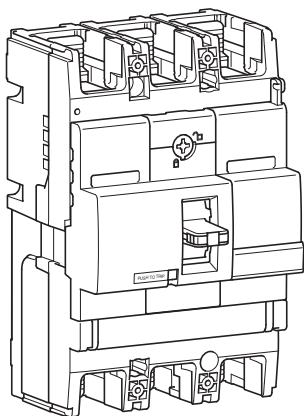


HYB031H

Designation	Characteristics	Cat. ref.	
		3P	4P
Interlocking kit	wire type set of 2 pieces and cable	HXB065H	HXB065H
Interlocking unit	wire type	HXB066H	HXB066H
Interlocking mechanical cable	1 m	HXB070H	HXB070H
	1,5 m	HXB071H	HXB071H
Collar terminals	aluminium / copper conductors 150 mm ² rigid cables 120 mm ² flexible cables	HYB001H	HYB002H
Collar terminals 240 mm²	aluminium / copper conductors	HYB005H	HYB006H
Extended connections	set of 4 pieces for straight connections	HYB010H	HYB010H
	spreader connections	HYB011H	HYB012H
Interphase barriers	set of 3, height: 97 mm	HYB019H	HYB019H
Terminal covers	for extended straight connections	HYB021H	HYB022H
	for extended spreader connections	HYB023H	HYB024H
	for rear connections	HYB025H	HYB026H
	for collar terminals	HYB027H	HYB028H
Rear connections	set of 3 or 4 pieces	HYB031H	HYB032H
Connecting kit	0,75 mm ² set of 3 x 2 wires length: 1,30m	HYA035H	HYA035H

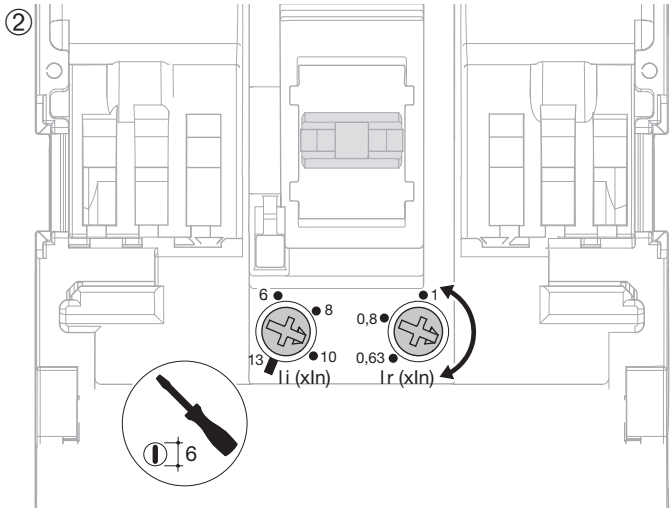
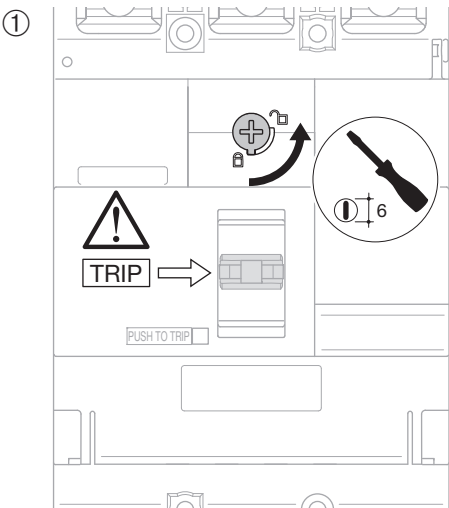
Designation	Characteristics	Cat. ref.
Ring lugs	compact lugs 35 mm ² Ø8,5	HYA088H
	compact lugs 50 mm ² Ø8,5	HYA089H
	compact lugs 70 mm ² Ø8,5	HYA090H
	compact lugs 95 mm ² Ø8,5	HYA091H
	compact lugs 120 mm ² Ø8,5	HYB092H
	compact lugs 150 mm ² Ø8,5	HYB094H

MCCBs



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

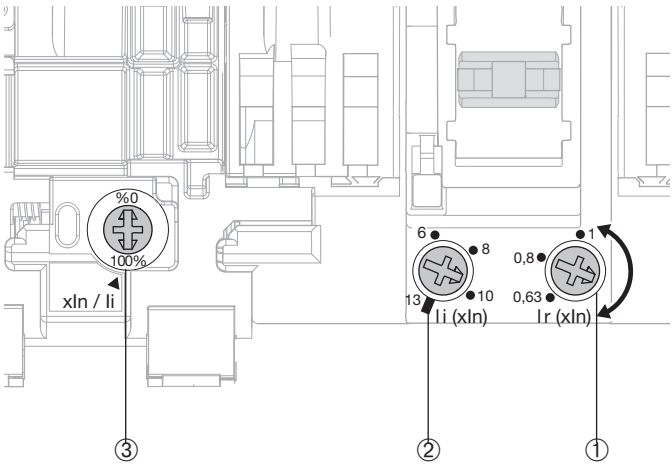
Magnetic and thermal settings



Thermal adjustment from 0,63 to 1 x In

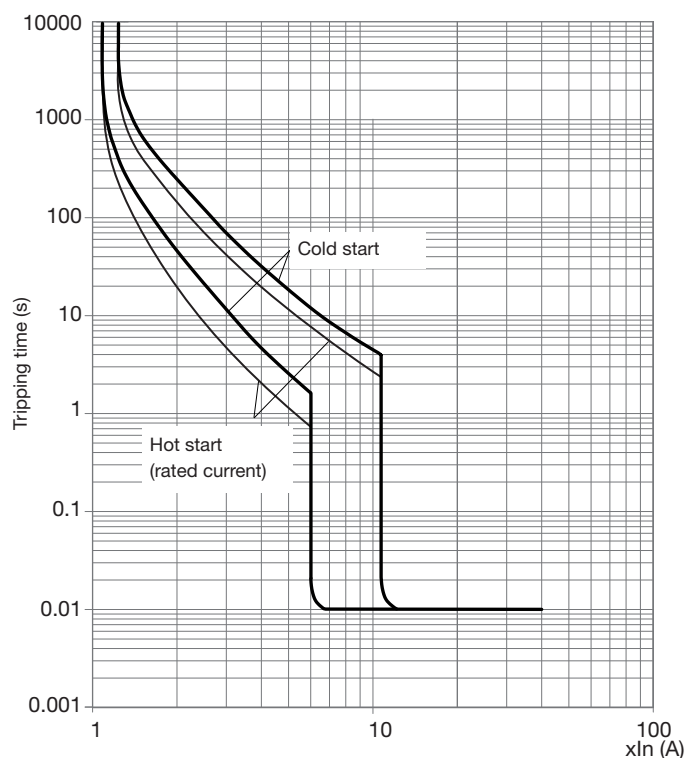
Magnetic adjustment from 6 to 13 x In (100 - 200A)
from 5 to 11 x In (250A)

	100 - 200A	250A
I _r (x I _n) ①	0,63 - 0,8 - 1 x I _n	
I _i (x I _n) ②	6 - 8 - 10 - 13 x I _n	5 - 7 - 9 - 11 x I _n
x I _n /I _i ③	0 - 100%	
	0 - 60%	



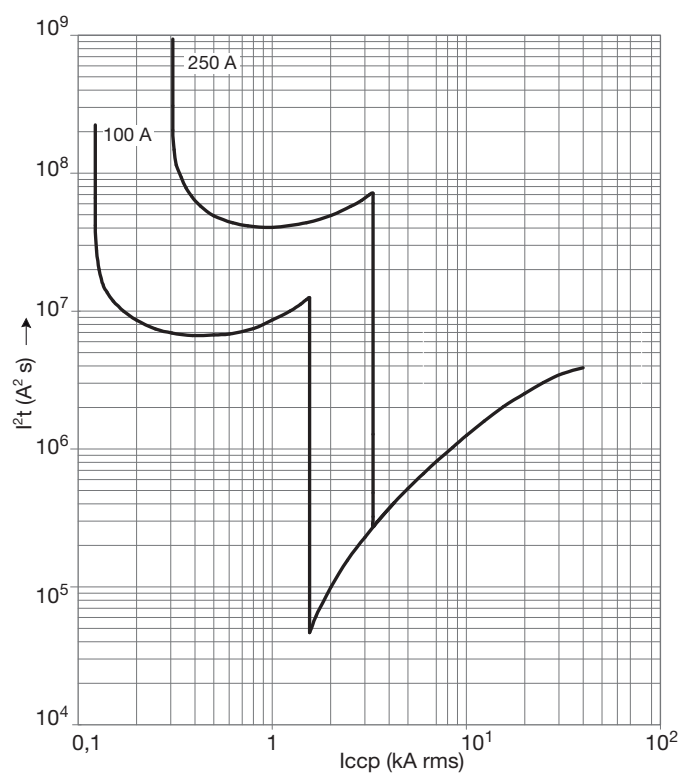
Tripping curve

MCCB x250



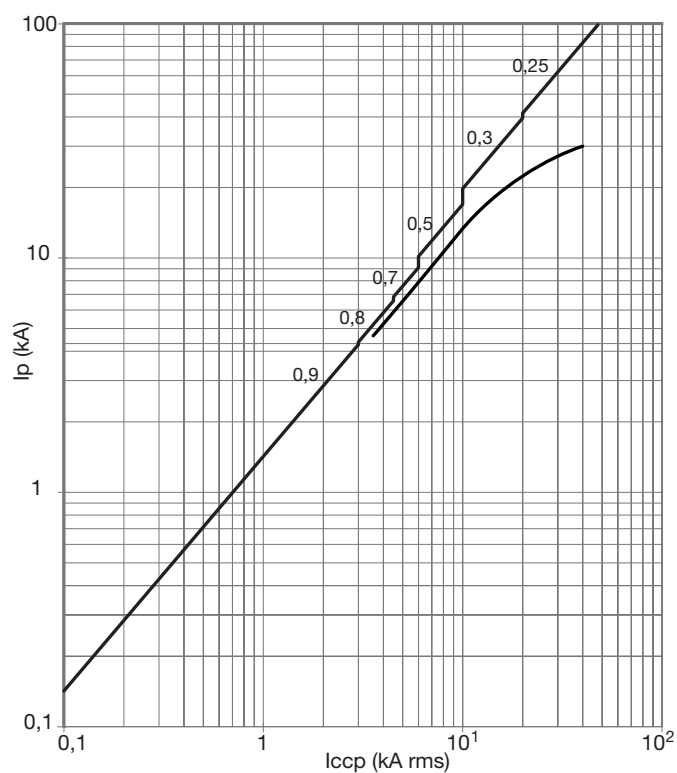
Thermal constraint curve at 400V (Let-through energy)

MCCB x250



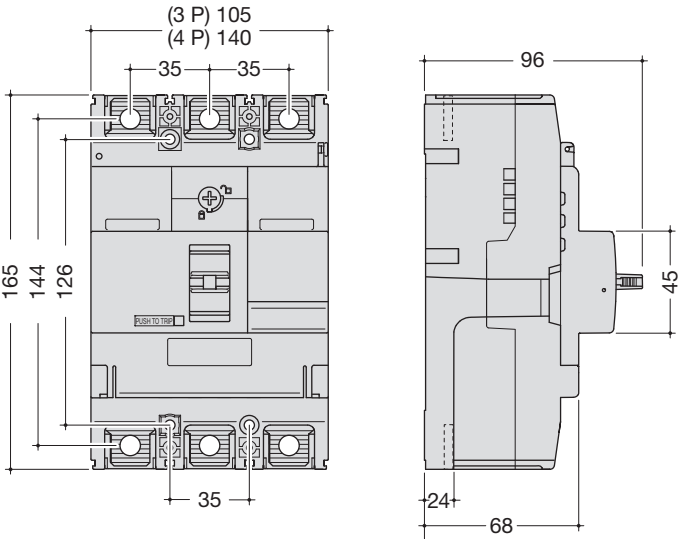
Current limiting curve at 400V (Let-through peak current)

MCCB x250

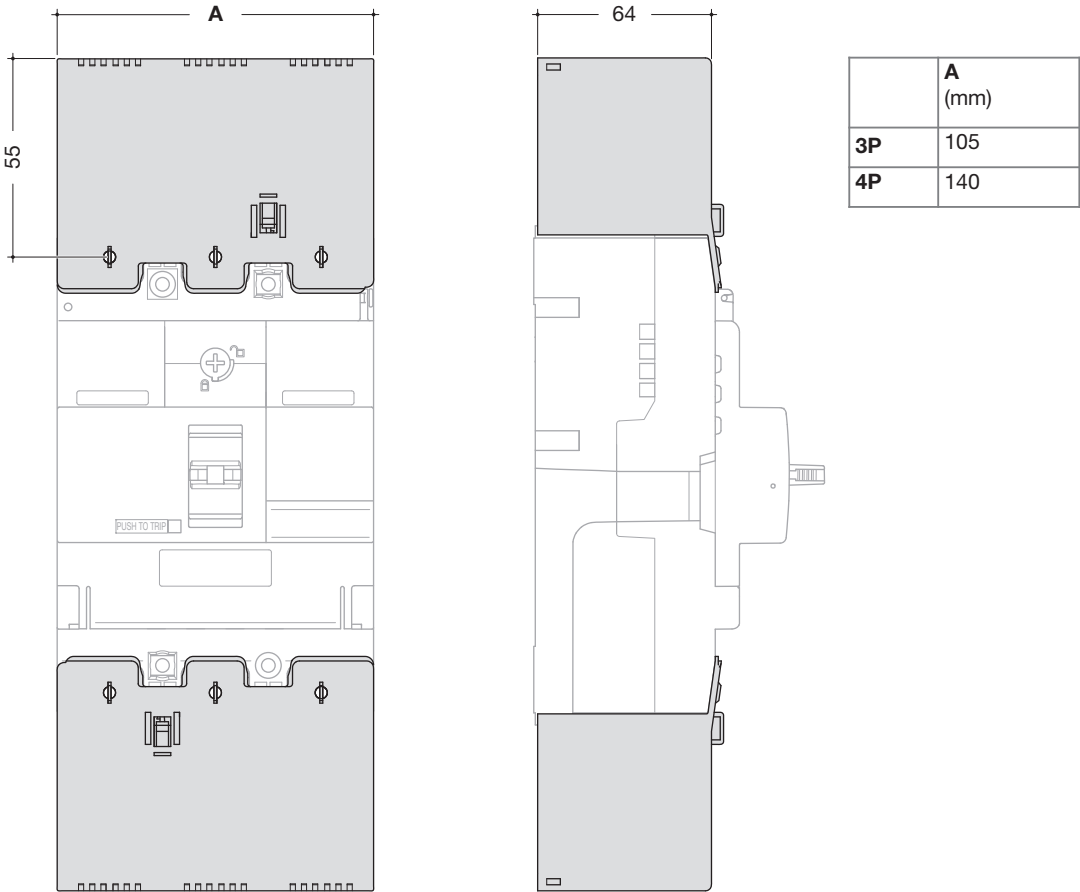


Dimensions

MCCB x250

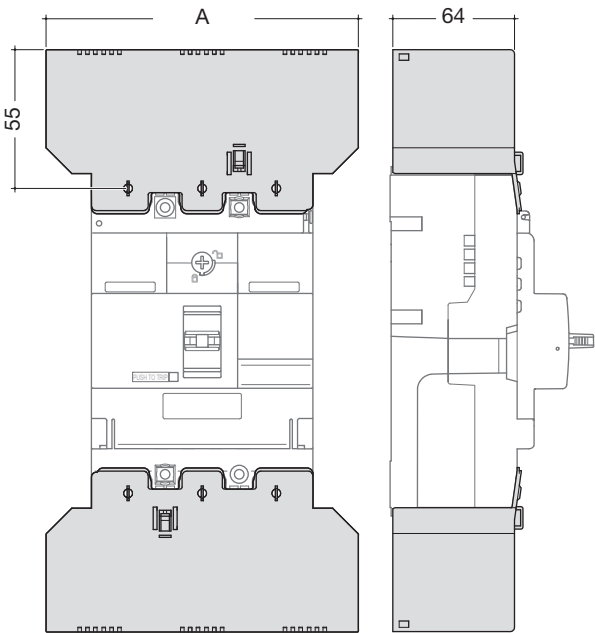


Terminal covers for extended straight connections



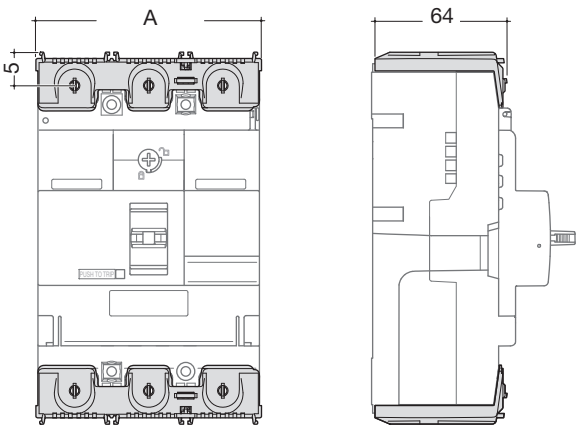
Accessories

Terminal cover for extended spreader connections



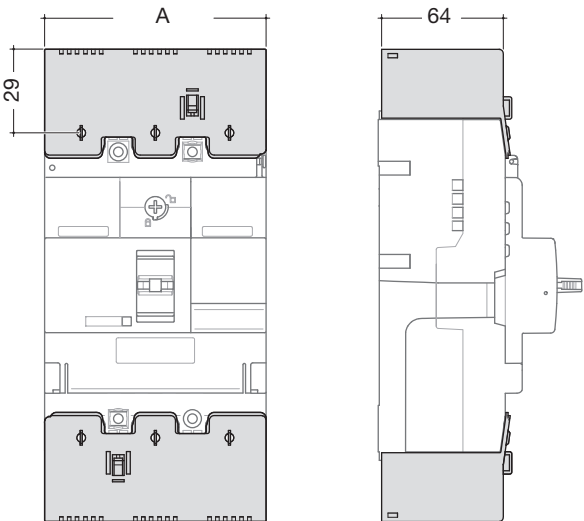
	A (mm)	B (mm)	C (mm)
3P	147,5	54,5	64
4P	196	54,5	64

Terminal cover for rear connections



	A (mm)
3P	105
4P	140

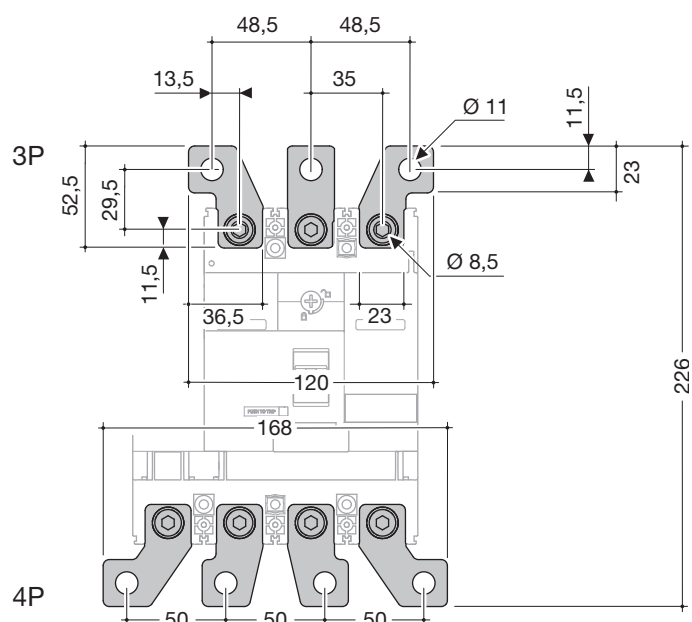
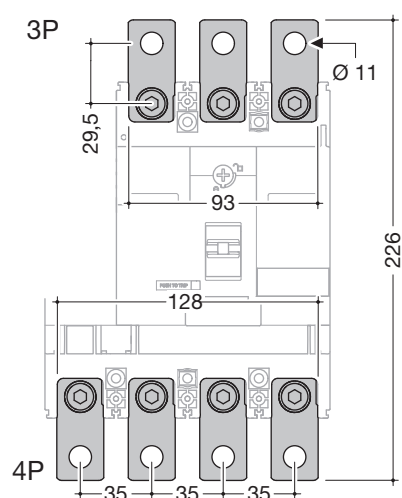
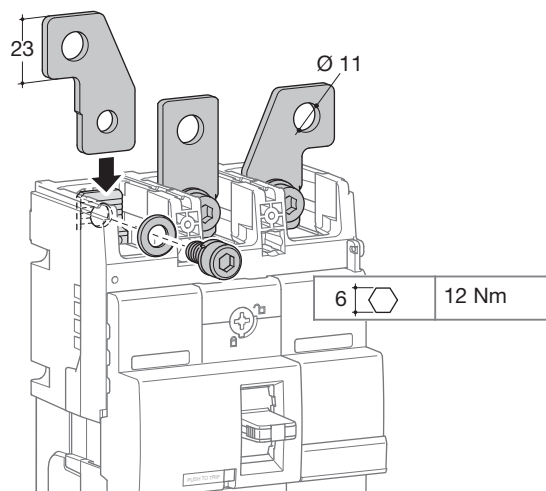
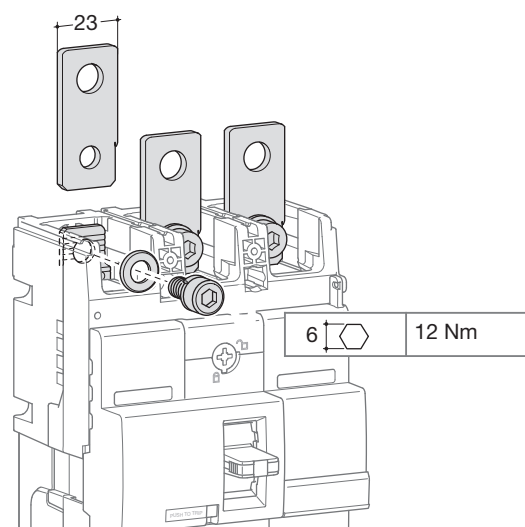
Terminal covers for collar terminals



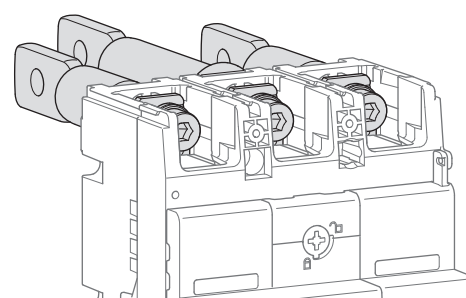
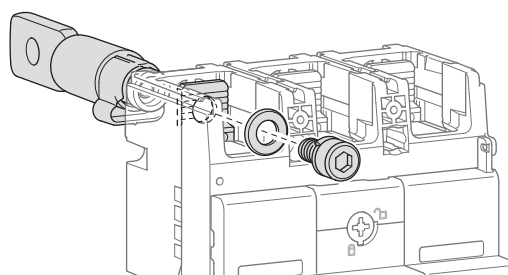
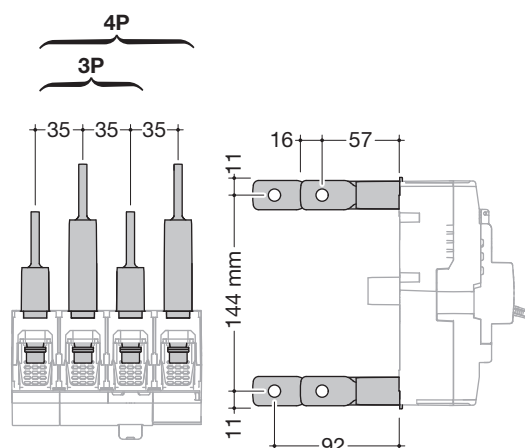
	A (mm)
3P	105
4P	140

Connection

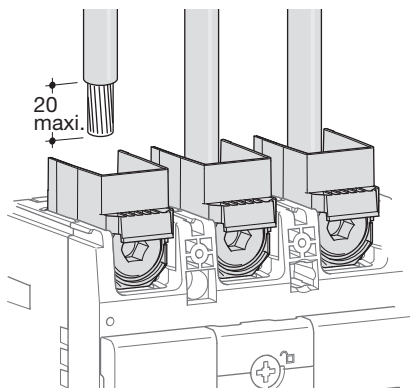
Extended straight and spreader connections



Rear connections

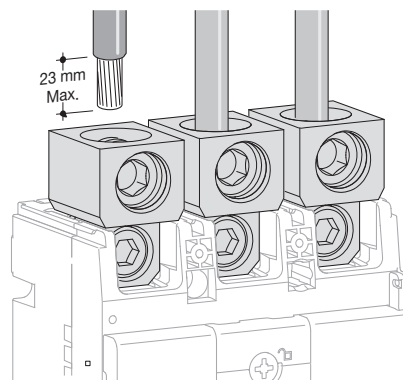


Connection by collar



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

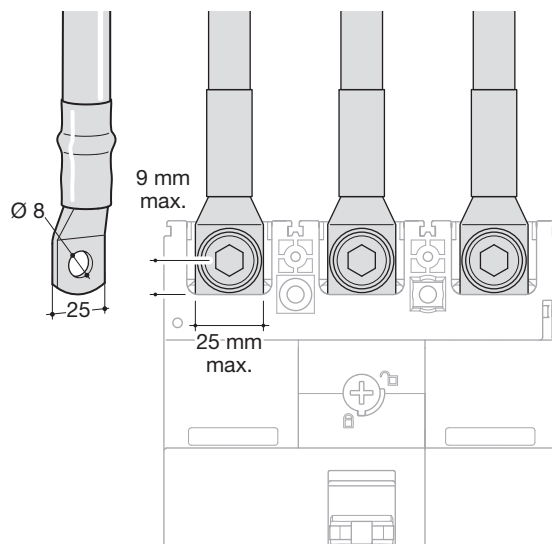
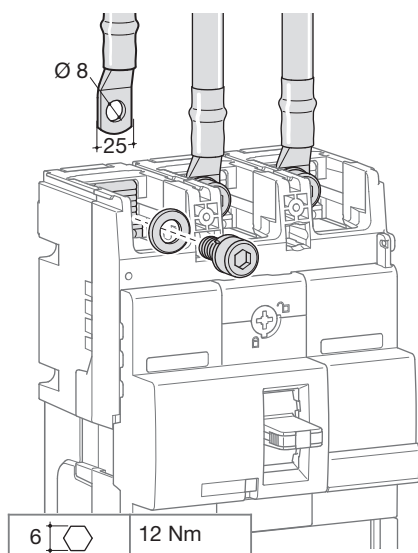
	min. 35 mm ²	max. 150 mm ²
	min. 35 mm ²	max. 185 mm ²
	35 mm ² to 50 mm ² = 25 Nm 60 mm ² to 185 mm ² = 25 Nm	



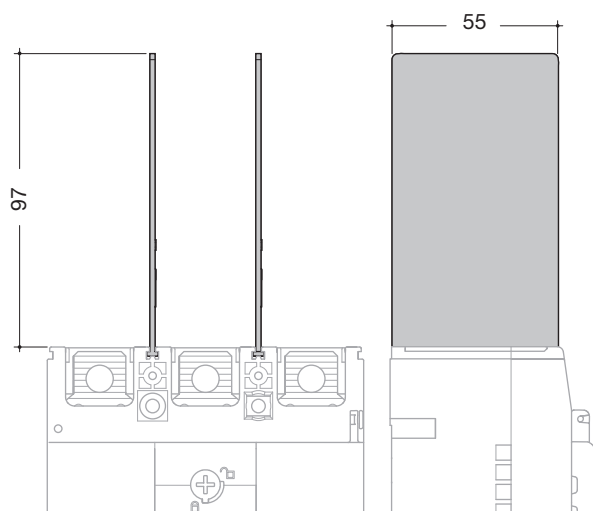
Terminals for aluminium / copper conductors (accessory)
HYB005H, HYB006H

	min. 95 mm ²	max. 240 mm ²
	95 mm ² to 240 mm ² = 25 Nm	

Connection with end lugs

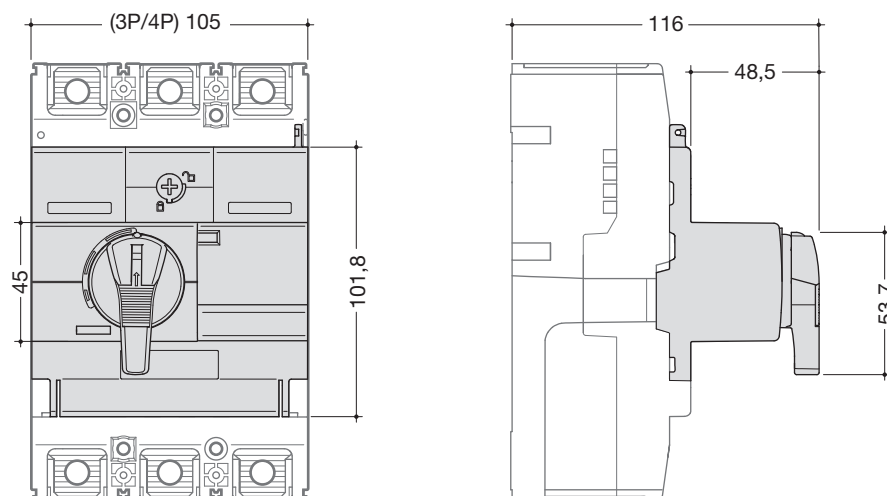


Interphase barriers

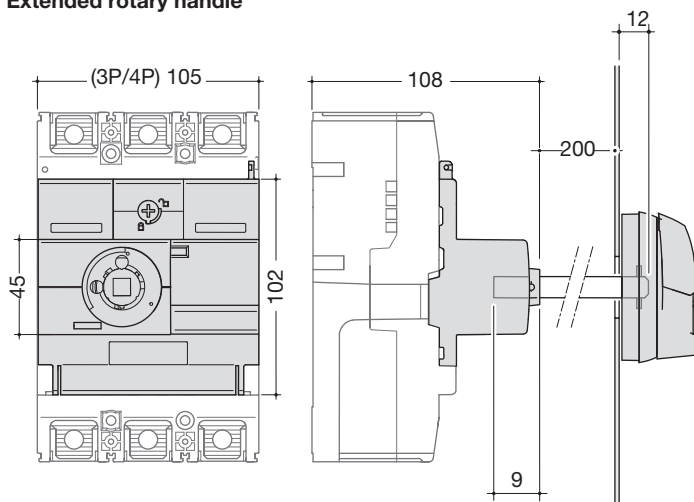


Accessories

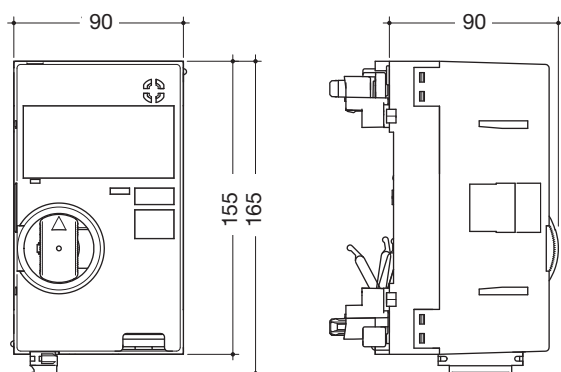
Rotary handle



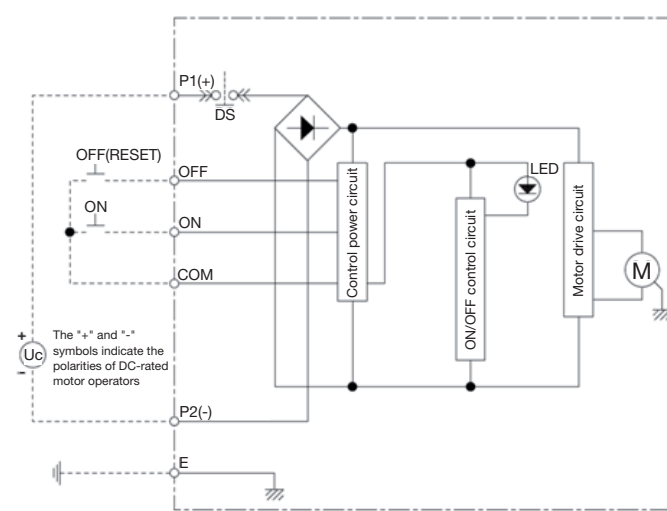
Extended rotary handle



Motor operator



Wiring diagram

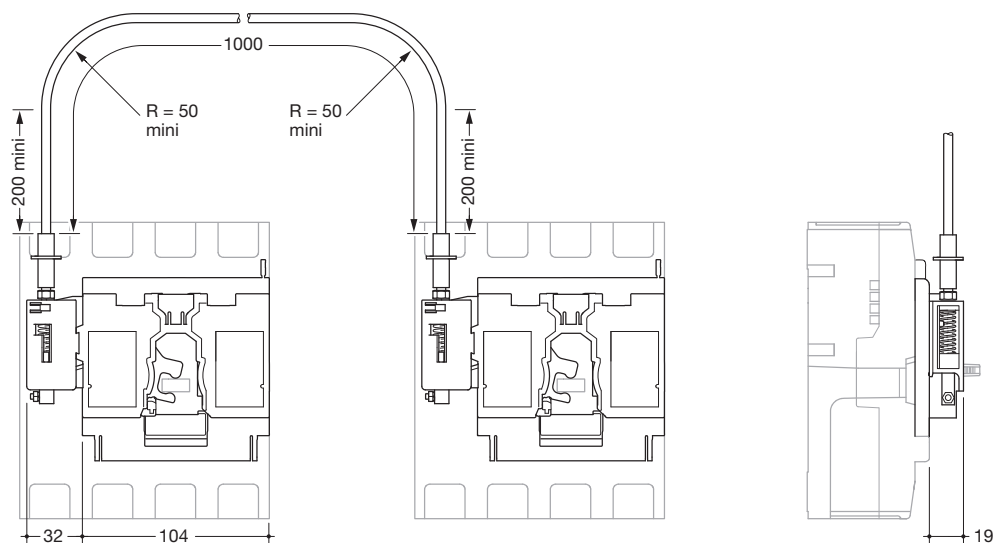


		HXB040H	HXB042H
Operating voltage		24V DC	230-240V AC
Operating current / starting current peak value (A)	24V DC	18/26	-
	230-240V AC	-	3,5/7
Operating time (s)	(ON)	0,1s	
	(OFF)	0,1s	
	(RESET)	0,1s	
Power supply required		300VA min.	
Dielectric properties (1 min)		1000V AC	1500V AC

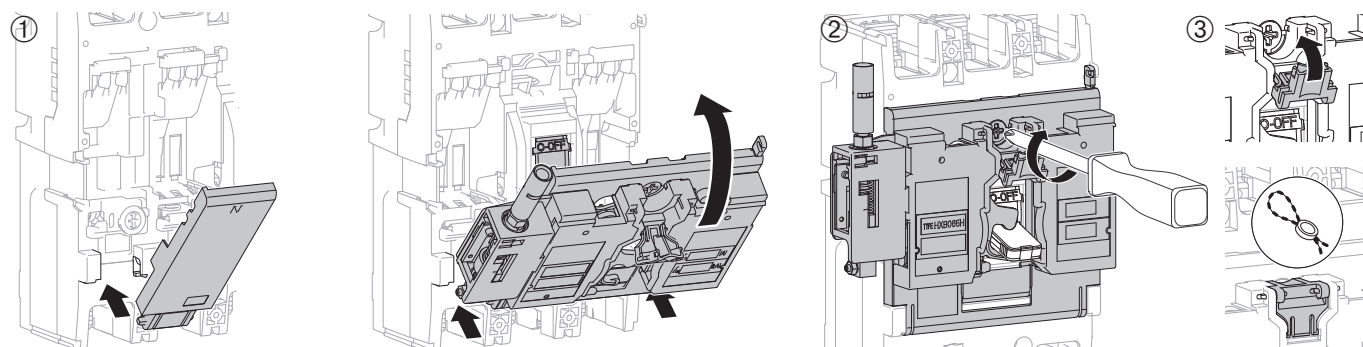
Interlocking system

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

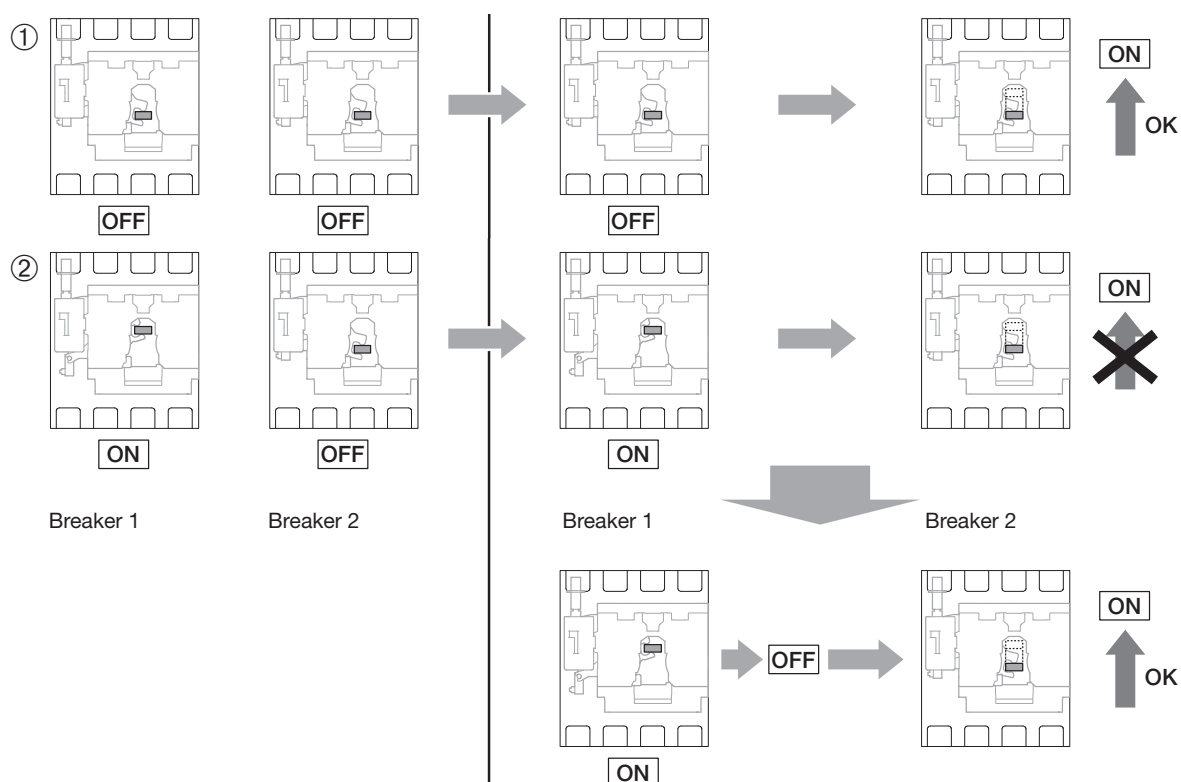
- Length HXB068H: 1500 mm
- Length HXB069H: 2100 mm



Mounting

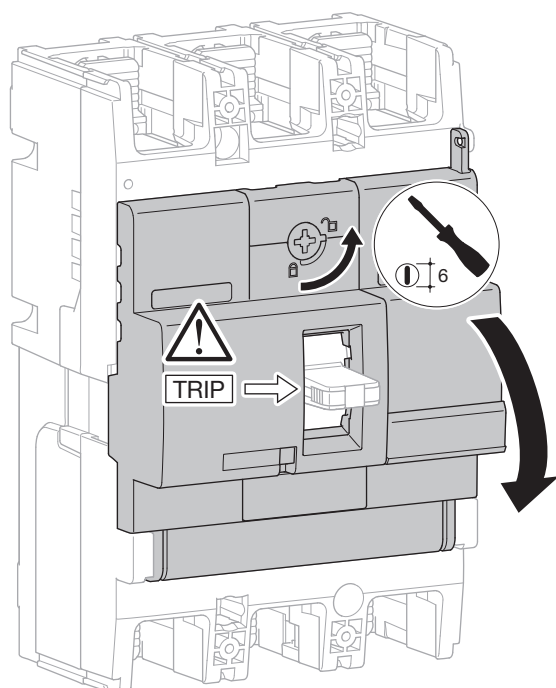


Checking the correct assembly



Auxiliaries

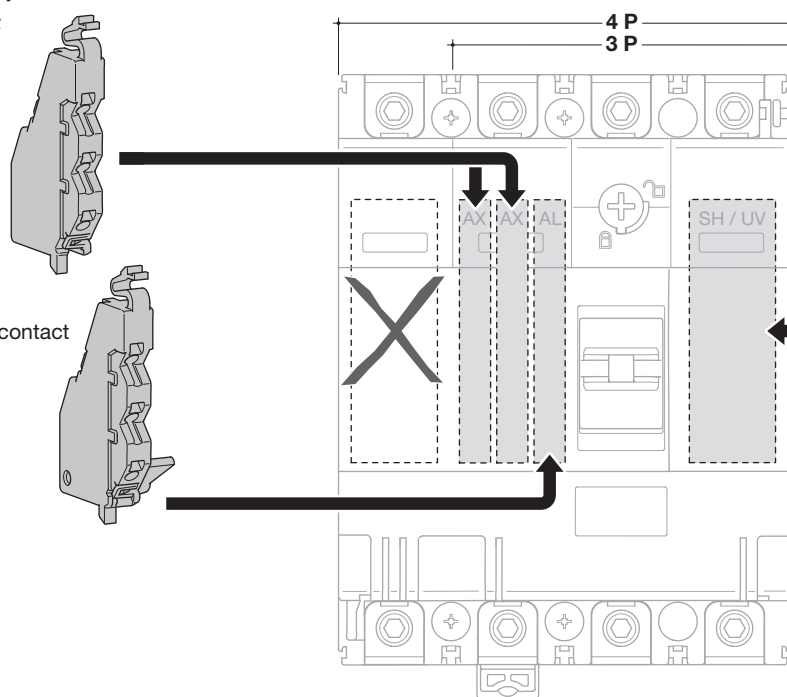
Auxiliaries for MCCBs and trip-free switches



Mounting combination for auxiliaries and releases

AX
Auxiliary contact

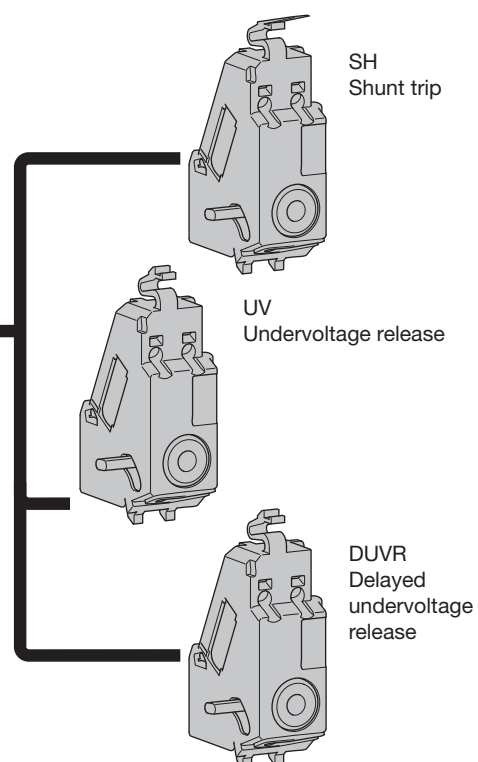
AL
Alarm contact

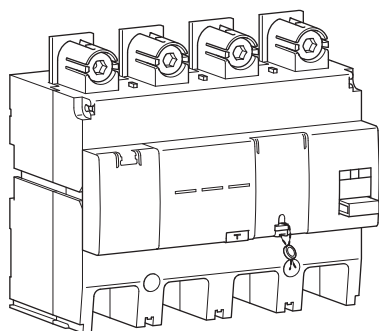


SH
Shunt trip

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).

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.

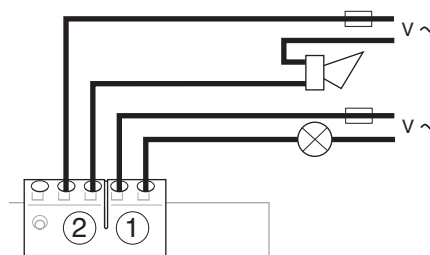
Mechanical test button :

Allows to check the mechanical operating of the MCCB / Add-on block association.

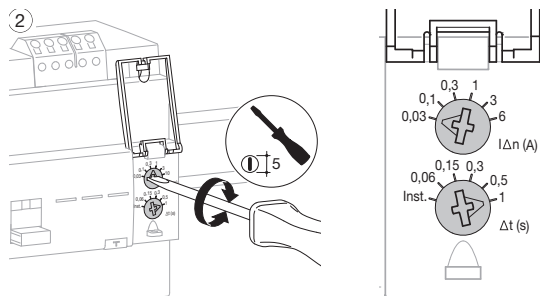
LED signaling default current level in the installation:

25% (orange) and 50% (red) $I_{\Delta n}$; green light to signal correct operating.

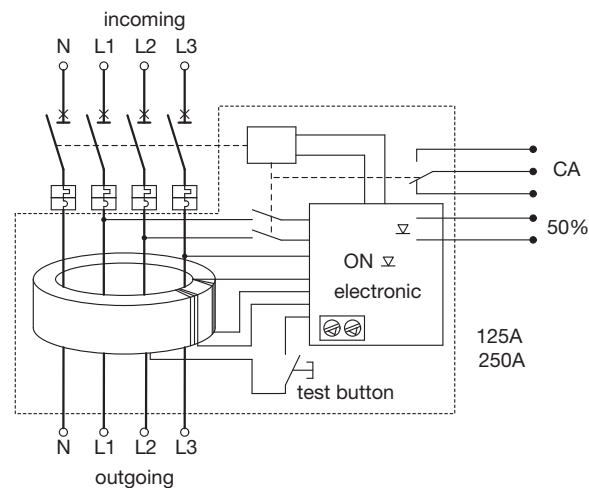
Remote tripping and advanced warning (50% $I_{\Delta n}$) signaling thanks to these contacts:



Earth leakage current ($I_{\Delta n}$) and delay (Δt) setting

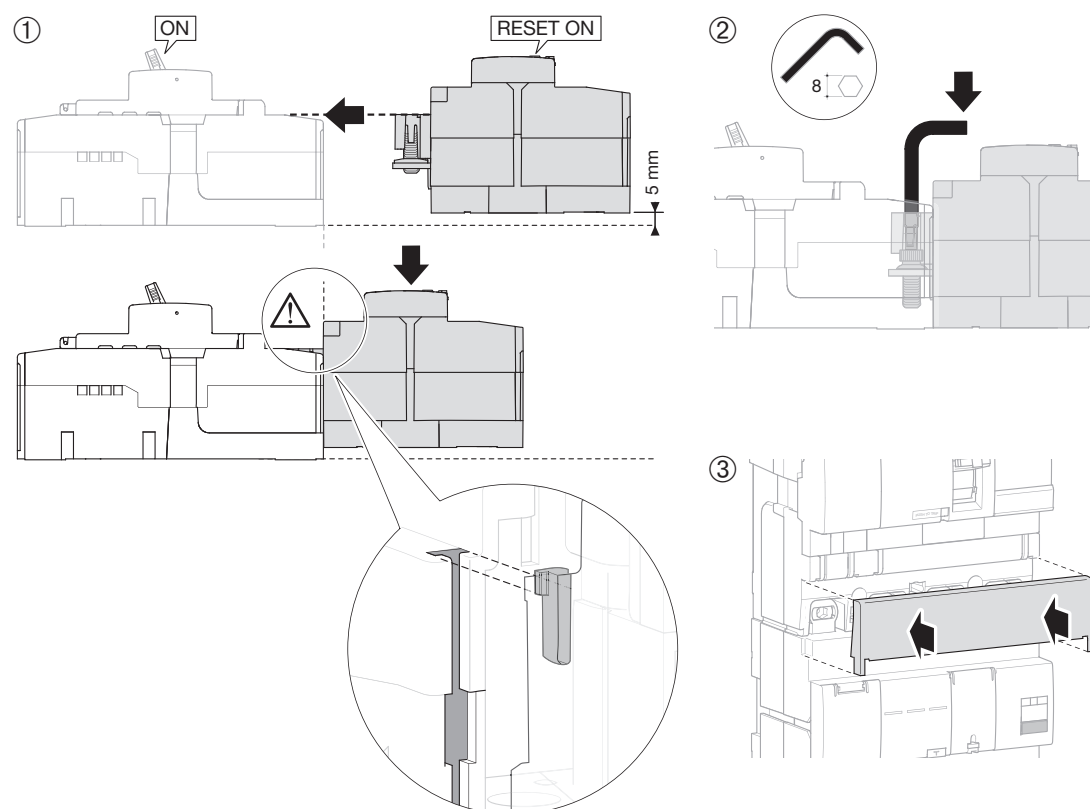


Add-on block operating

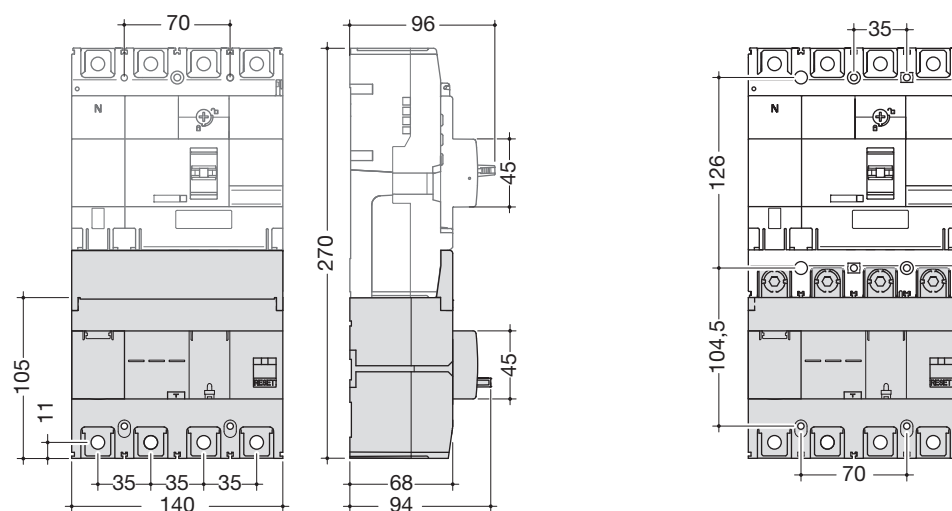


S (Δt)	A ($I_{\Delta n}$)						
		0,03	0,1	0,3	1	3	6
	Inst.	OK	OK	OK	OK	OK	OK
	0,06	no	OK	OK	OK	OK	OK
	0,15	no	OK	OK	OK	OK	OK
	0,3	no	OK	OK	OK	OK	OK
	0,5	no	OK	OK	OK	OK	OK
	1	no	OK	OK	OK	OK	OK

Add-on block mounting



Dimensions



Moulded case circuit breakers h250
Thermal magnetic trip unit:

thermal adjustment: 0.63 to 1 I_n
 magnetic adjustment:
 6-8-10-13 x I_n
 3P & 4P (3P only for 25kA)
 Mechanical test button,
 lockable settings,

Connection:

Directly on copper cable
 terminal,
 with end lug max. width: 25 mm

Comply with IEC 60 947-2.



HHG250U

Designation	Characteristics	I_n	Cat. ref.	
			3P	4P
MCCBs h250 25kA TM	breaking capacity I_{cu} : 25 kA (400/415 V AC) I_{cs} : 19 kA	20A	HHG020U	-
		32A	HHG032U	-
		50A	HHG050U	-
		63A	HHG063U	-
	adjustable thermal 0.63 to 1 x I_n adjustable magnetic 6 - 8 - 10 - 13 x I_n	100A	HHG100U	-
		125A	HHG125U	-
		160A	HHG160U	-
		200A	HHG200U	-
		250A	HHG250U	-
MCCBs h250 50kA TM	breaking capacity I_{cu} : 30 kA (20-32A) I_{cu} : 50 kA (400/415 V AC) I_{cs} : 25 kA	20A	HNG020U	HNG021U
		32A	HNG032U	HNG033U
		63A	HNG063U	HNG064U
		100A	HNG100U	HNG101U
	adjustable thermal 0.63 to 1 x I_n adjustable magnetic 6 - 8 - 10 - 13 x I_n	125A	HNG125U	HNG126U
		160A	HNG160U	HNG161U
		200A	HNG200U	HNG201U
		250A	HNG250U	HNG251U
MCCBs h250 65kA TM	breaking capacity I_{cu} : 65 kA (400/415 V AC) I_{cs} : 36 kA	50A	HEG050U	HEG051U
		63A	HEG063U	HEG064U
		100A	HEG100U	HEG101U
		125A	HEG125U	HEG126U
	adjustable thermal 0.63 to 1 x I_n adjustable magnetic 6 - 8 - 10 - 13 x I_n	160A	HEG160U	HEG161U
		200A	HEG200U	HEG201U
		250A	HEG250U	HEG251U
MCCBs h250 50kA TM+	breaking capacity I_{cu} : 50 kA (400/415 V AC) I_{cs} : 50 kA	20A	HNH020U	HNH021U
		32A	HNH032U	HNH033U
		50A	HNH050U	HNH051U
		63A	HNH063U	HNH064U
	adjustable thermal 0.63 to 1 x I_n adjustable magnetic 6 - 8 - 10 - 13 x I_n	100A	HNH100U	HNH101U
		125A	HNH125U	HNH126U
		160A	HNH160U	HNH161U
		250A	HNH250U	HNH251U
MCCBs h250 70kA TM+	breaking capacity I_{cu} : 70 kA (400/415 V AC) I_{cs} : 70 kA	20A	HEH020U	HEH021U
		32A	HEH032U	HEH033U
		50A	HEH050U	HEH051U
		63A	HEH063U	HEH064U
	adjustable thermal 0.63 to 1 x I_n adjustable magnetic 6 - 8 - 10 - 13 x I_n	100A	HEH100U	HEH101U
		125A	HEH125U	HEH126U
		160A	HEH160U	HEH161U
		250A	HEH250U	HEH251U



HNH250U

Moulded case circuit breakers h250
Electronic trip unit LSI:
 Long delay (thermal equivalent)
 adjustable: $I_r = 0.4$ to $1 \times I_n$
 short delay (magnetic equivalent)
 adjustable: 2.5 to $10 \times I_r$
 time delay: $0,1 - 0,2$ s
 3P & 4P
 Mechanical test button,
 sealable settings,

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.



HEC250U

Designation	Characteristics	In	Cat. ref.	
			3P	4P
MCCBs h250 50kA LSI	breaking capacity $I_{cu} : 50$ kA (400/415 V AC) $I_{cs} : 25$ kA	40A 125A 250A	HNC040U HNC125U HNC250U	HNC041U HNC126U HNC251U
	adjustable thermal $I_r = 0.4$ to $1 \times I_n$ adjustable magnetic 2.5 to $10 \times I_r$ 3P, 3 trip units & 4P, 3 trip units			
MCCBs h250 70kA LSI	breaking capacity $I_{cu} : 70$ kA (400/415 V AC) $I_{cs} : 70$ kA	40A 125A 250A	HEC040U HEC125U HEC250U	HEC041U HEC126U HEC251U
	adjustable thermal $I_r = 0.4$ to $1 \times I_n$ adjustable magnetic 2.5 to $10 \times I_r$ 3P, 3 trip units & 4P, 3 trip units			

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.

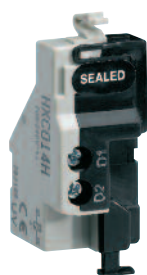


HXC021H

HXC024H



HXC004H



HXC014H



HXC030H

Designation	Characteristics	Cat. ref.
Auxiliary contacts AX AL	1 changeover contact 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	HXA025H
	low level alarm contact 125 V AC 1 NO + 1 NC	HXA026H
Shunt trips SH	24 V DC	HXC001H
	48 V DC	HXC002H
	110 V DC	HXC008H
	100 - 120 V AC	HXC003H
	200 - 240 V AC	HXC004H
	380 - 450 V AC	HXC005H
Undervoltage releases UV	24 V DC	HXC011H
	100 - 120 V DC	HXC018H
	200 - 240 V DC	HXC019H
	100 - 120 V AC	HXC013H
	200 - 240 V AC	HXC014H
	380 - 450 V AC	HXC015H
Delayed undervoltage releases DUVR	24 V DC	HXC051H
	110 - 120 V AC	HXC053H
	200 - 240 V AC	HXC054H
	380 - 415 V AC	HXC055H
Direct rotary handles	padlockable handle Ø 5 - 8 mm ² max	HXC030H
Extended rotary handles	padlockable handle Ø 5 - 8 mm ² max	HXC031H



HXC039H

Designation	Characteristics	Cat. ref.	
Padlocks	to mount on MCCBs for handle locking for 3 padlocks max Ø 5 mm	HXC039H	
Motor operators	24 V DC	HXC040H	
	230-240 V AC	HXC042H	
Interlocking kit	wire type set of 2 pieces and cable	HXC065H	
Interlocking unit	wire type	HXC066H	
Interlocking mechanical cable	1 m	HXB070H	
	1,5 m	HXB071H	
Electrical interlocks	for motor type A (between 2 250A)	HXB068H	
	for motor type B (between 250A and other size)	HXD068H	



HYC011H

Designation	Characteristics	Cat. ref.	
		3P	4P
Collar terminals	set of 3 or 4 pieces for copper conductors 120 mm ²	HYC003H	HYC004H
Extended connections	spreader connections	HYC011H	HYB012H
	straight connections	HYC010H	HYC010H
Interphase barriers	for LSI and TM+	HYC019H	HYC019H
	for TM only	HYB019H	HYB019H
Terminal covers	for extended straight connections (LSI and TM+)	HYC021H	HYC022H
	for extended straight connections (TM only)	HYG021H	HYG022H
	for rear connections (LSI only)	HYC025H	HYC026H
	for collar terminals	HYC027H	HYC028H
Rear connections	for LSI only	HYC031H	HYC032H
Connecting kit	0,75 mm ² set of 3 x 2 wires length: 1,30m	HYA035H	HYA035H
OCR sealing covers	for LSI only	HYC041H	HYC041H
	for TM only	HYG041H	HYG041H

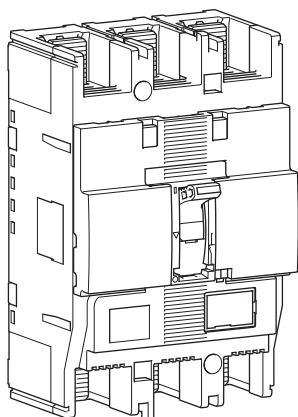


HYC022H



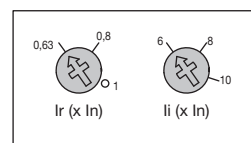
HYC031H

MCCBs



		220/240 V AC	380/415 V AC	660/690 V AC
TM HHG	Icu (kA)	35	25	-
	Ics (kA)	27	19	-
TM HNG	Icu (kA)	35	50	7,5
	Ics (kA)	65	25	7,5
TM HEG	Icu (kA)	85	65	7,5
	Ics (kA)	85	36	7,5
LSI HNC	Icu (kA)	85	50	7,5
	Ics (kA)	85	25	7,5
LSI HEC	Icu (kA)	100	70	20
	Ics (kA)	100	70	15
TM+ HNH	Icu (kA)	85	50	20
	Ics (kA)	85	50	15
TM+ HEH	Icu (kA)	100	70	20
	Ics (kA)	100	70	15

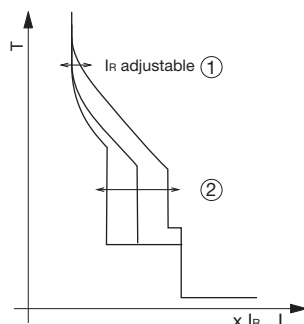
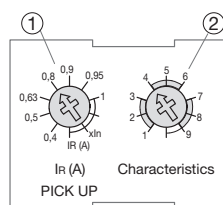
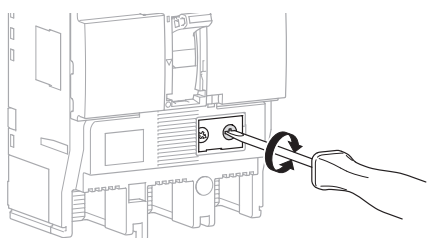
Magnetic and thermal settings (TM/TM+)



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

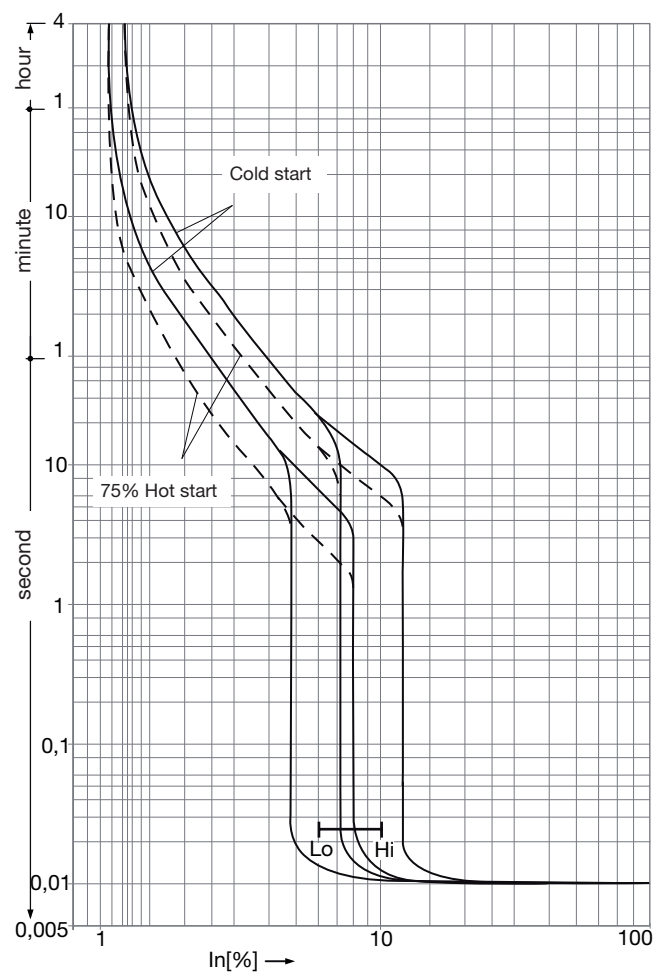
I - Instantaneous - max. instantaneous threshold (< 10 ms) in case of short circuit: 2,5 to 10 x Ir.

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

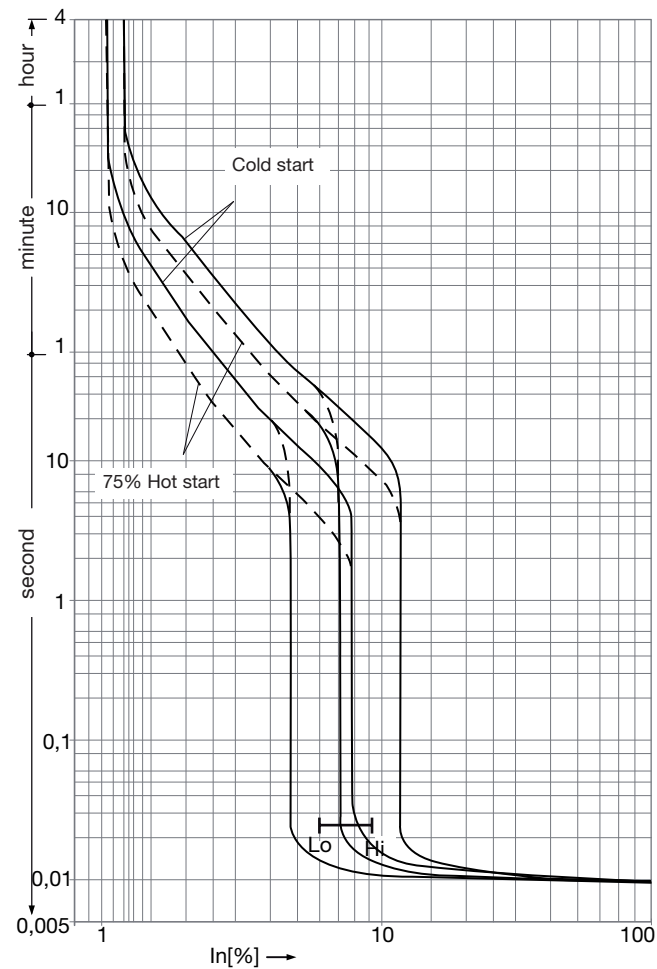
LSI		In A										
		3P					4P					
		Long Time Delay		Short Time Delay		Inst	Long Time Delay		Short Time Delay		Inst	Protection
		Ir (x In)	tr (s)	isd (xlr)	tsd (s)	li (xlr)	Ir (x In)	tr (s)	isd (xlr)	tsd (s)	li (xlr)	Neutral
Ir (x In)	0,4	OK					OK					
	0,5	OK					OK					
	0,63	OK					OK					
	0,8	OK					OK					
	0,9	OK					OK					
	0,95	OK					OK					
	1	OK					OK					
Characteristics	1		11 s at 2 xlr	2,5	0,1	14 (max 13 x In)		11 s at 2 xlr	2,5	0,1	14	no
	2		21 s at 2 xlr					5				
	3		5	7,5 s at 6 xlr				10	0,2	50%		
	4		5 s at 6 xlr	10	0,1							
	5		7,5 s at 6 xlr	0,2	21 s at 2 xlr			5	100%			
	6				7,5 s at 6 xlr			10		0,2		
	7				11 s at 6 xlr			2,5	0,1			
	8				21 s at 2 xlr			5				
	9				7,5 s at 6 xlr			10	0,2			

Tripping curve

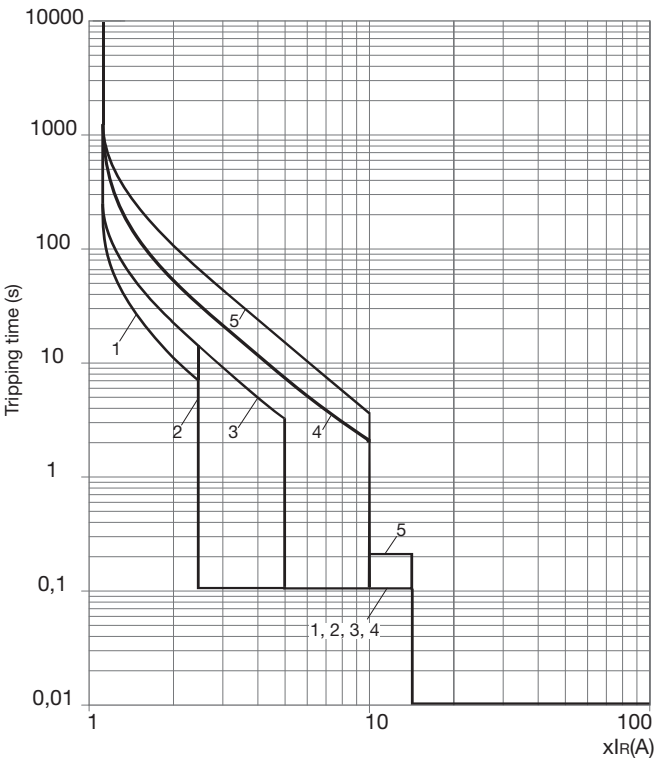
MCCB h250 TM



MCCB h250 TM+

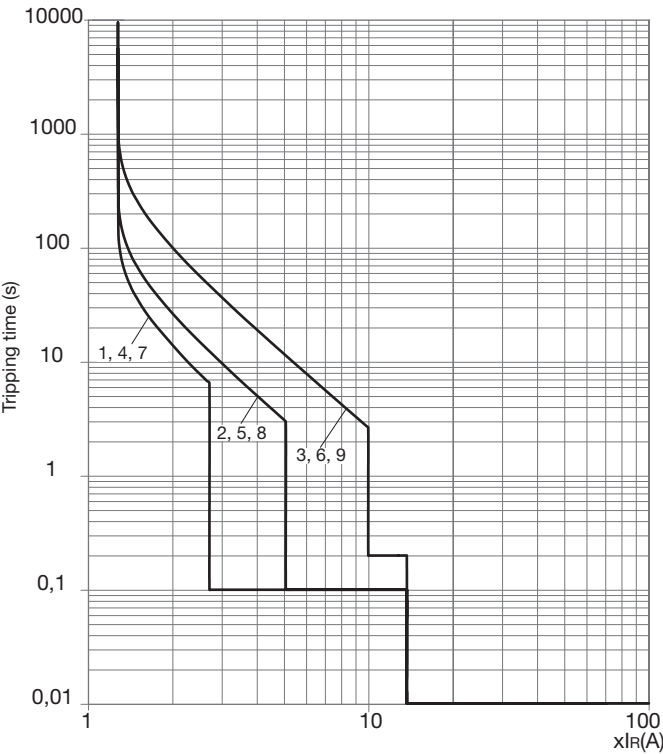


MCCB h250 3P LSI



LTD pick-up current		I _R	x I _n	0,4	0,5	0,63	0,8	0,9	0,95	1
Characteristics			No.	1	2	3	4	5		
Standard	LTD	t _R	(s)	11	21	21	5	7,5		
				200 % x I _R				600 % x I _R		
	STD	I _{sd}	x I _R	2,5	2,5	5	10	10		
		t _{sd}	(s)	0,1	0,1	0,1	0,1	0,2		
	INST	I _i	x I _R	14 (max 13 x I _n)						

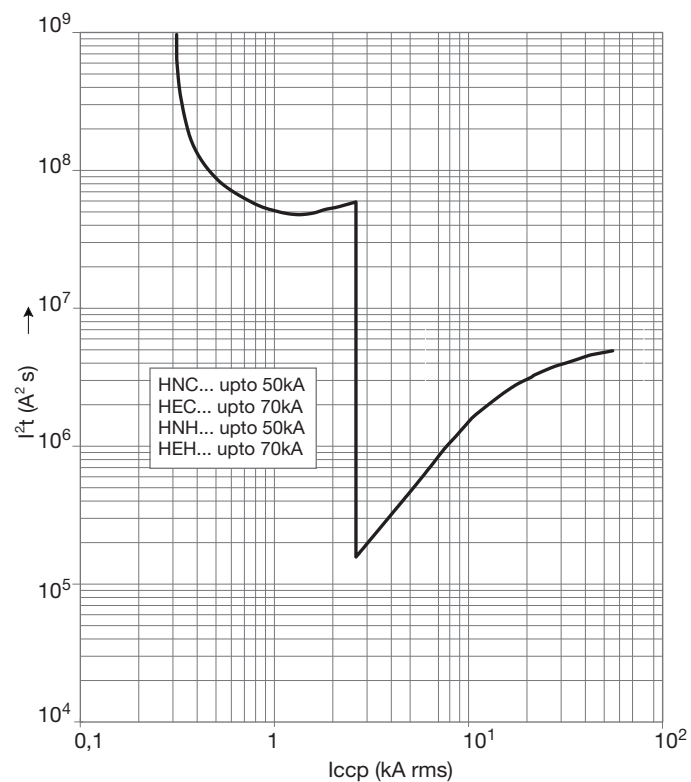
MCCB h250 4P LSI



LTD pick-up current			I _R	x I _n	0,4		0,5		0,63		0,8		0,9		0,95		1					
Characteristics				No.	1		2		3		4		5		6		7		8		9	
Standard	LTD	t _R	(s)	11 s		21 s		7,5 s		11 s		21 s		7,5 s		11 s		21 s		7,5 s		
				200 % x I _R				600% x I _R		200 % x I _R				600% x I _R		200 % x I _R				600% x I _R		
	STD	I _{sd}	x I _R	2,5		5		10		2,5		5		10		2,5		5		10		
		t _{sd}	(s)	0,1				0,2		0,1				0,2		0,1				0,2		
	INST	I _i	x I _R	14																		
	Neutral protection		x I _n	no						0,5						1						

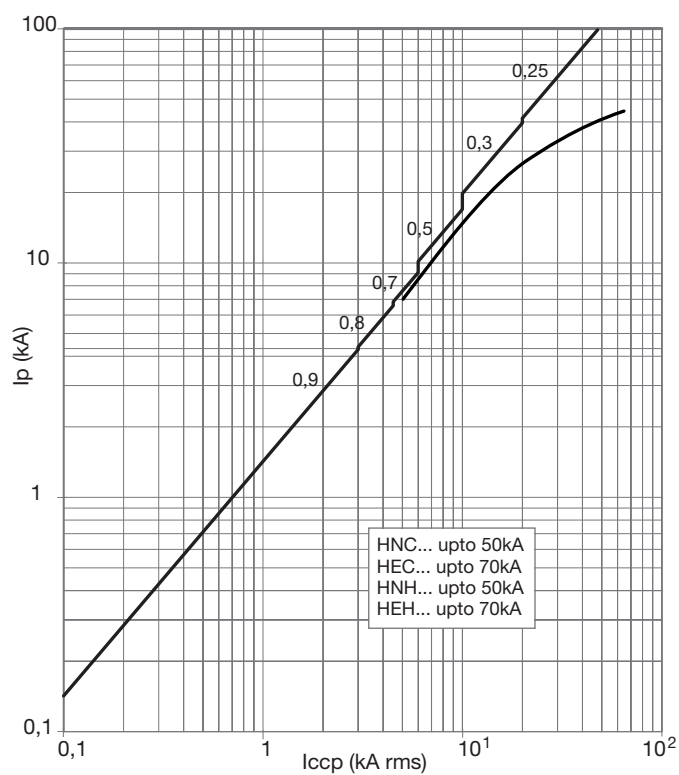
Thermal constraint curve at 400V (Let-through energy)

MCCB h250



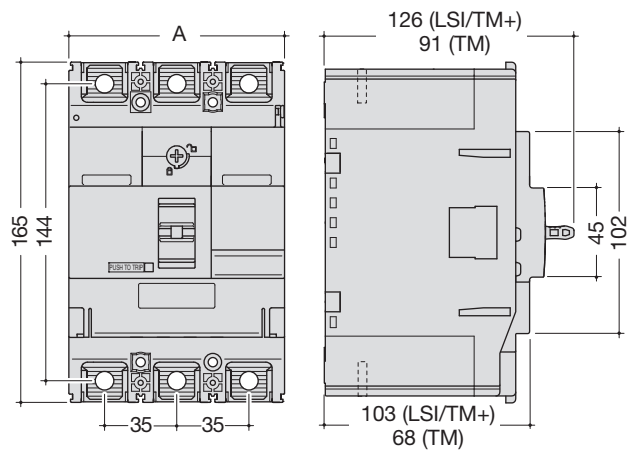
Current limiting curve at 400V (Let-through peak current)

MCCB h250



Dimensions

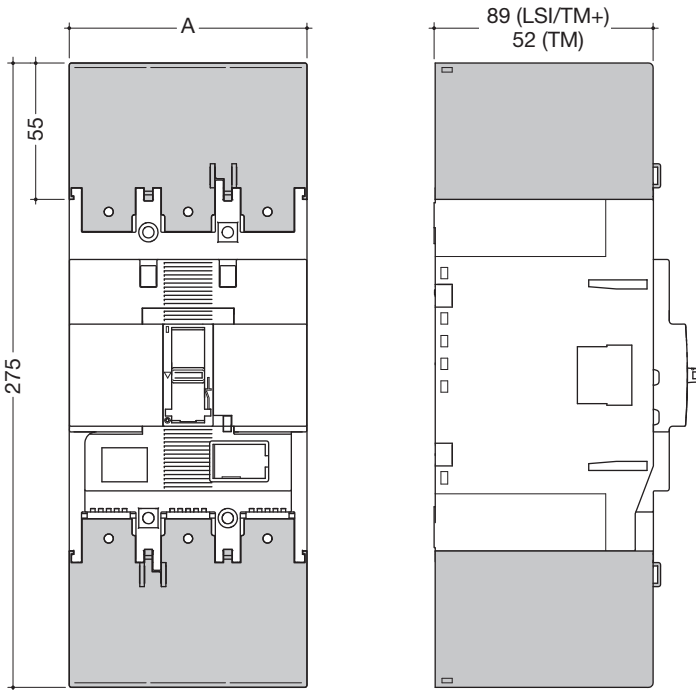
MCCBs



	A (mm)
3P	105
4P	140

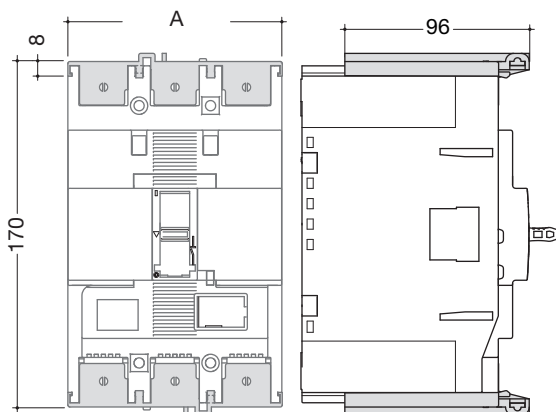
Accessories

Terminal covers for extended straight connections



	A (mm)
3P	105
4P	140

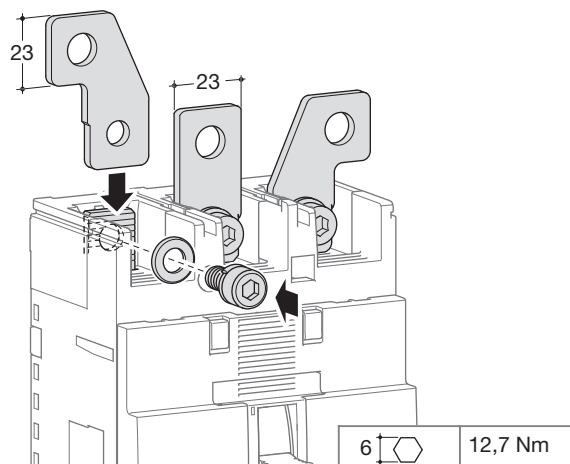
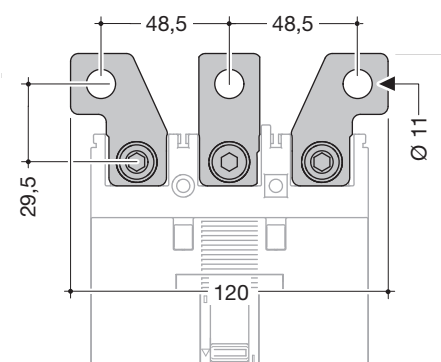
Terminal cover for rear connections (LSI/TM+ only)



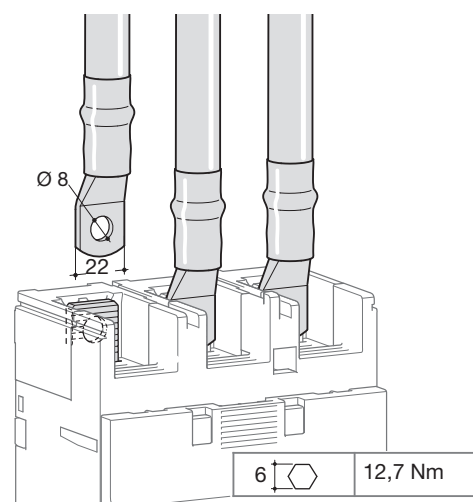
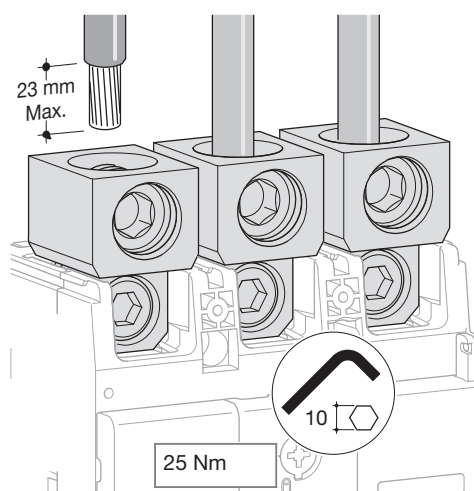
	A (mm)
3P	105
4P	140

Connection

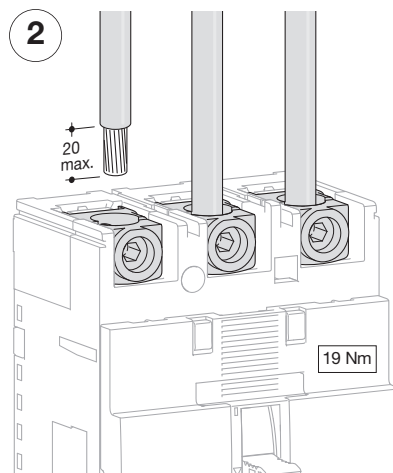
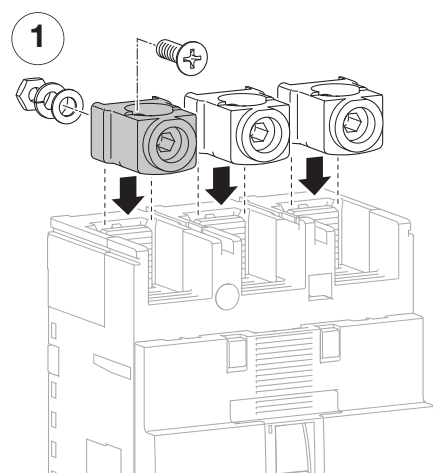
Extended straight and spreader connections



Connection with end lugs

Connection by collar 240mm² - HYB005H and HYB006H

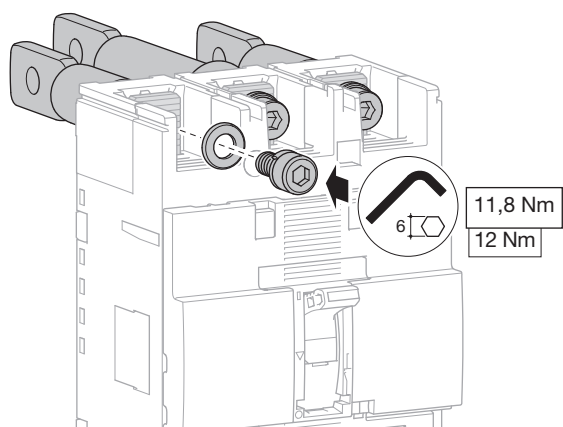
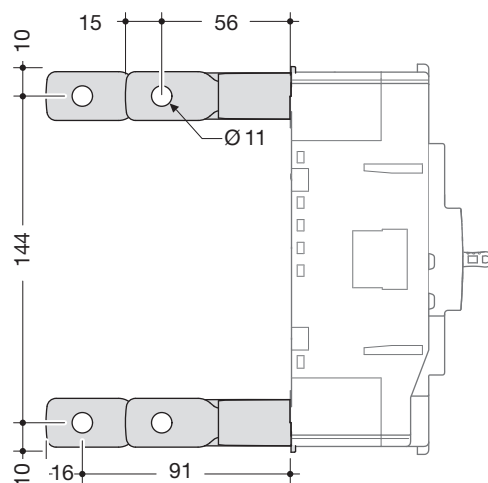
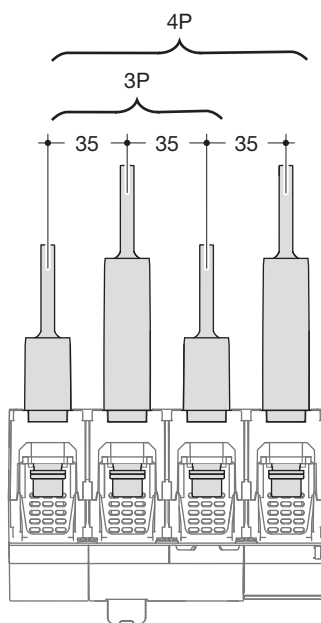
Connection by collar



Terminals for copper conductors
HYC003H, HYC004H

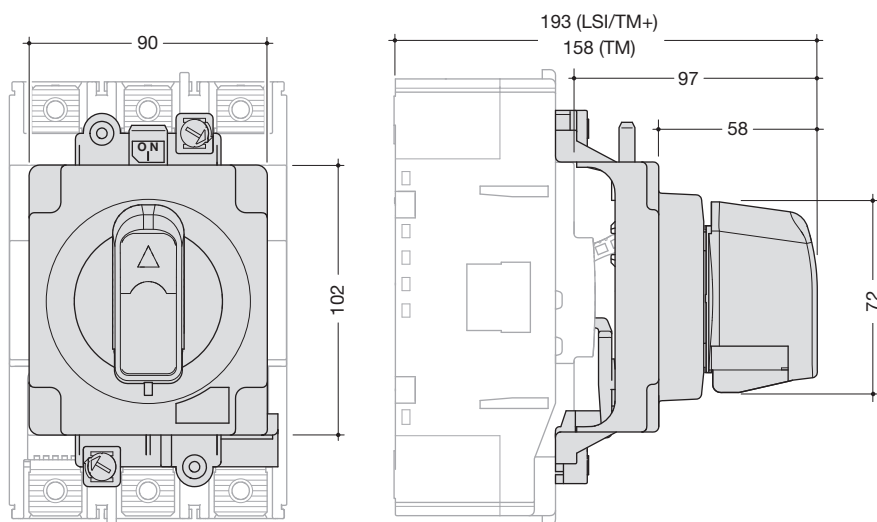
	min. 35 mm ²	max. 120 mm ²
	min. 35 mm ²	max. 120 mm ²
6 mm hex key	19 Nm	

Rear connections (LSI/TM+ only)

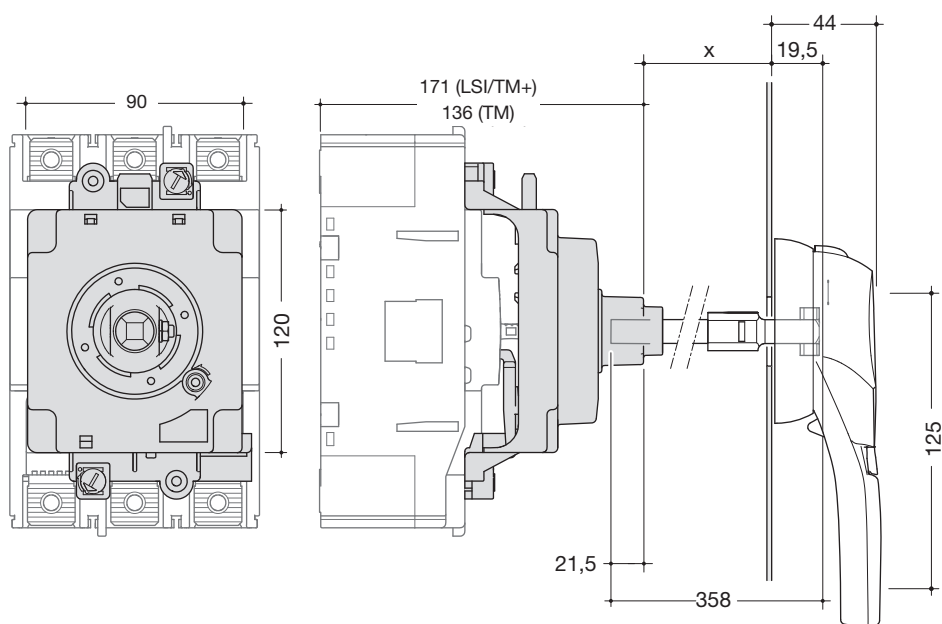


Accessories

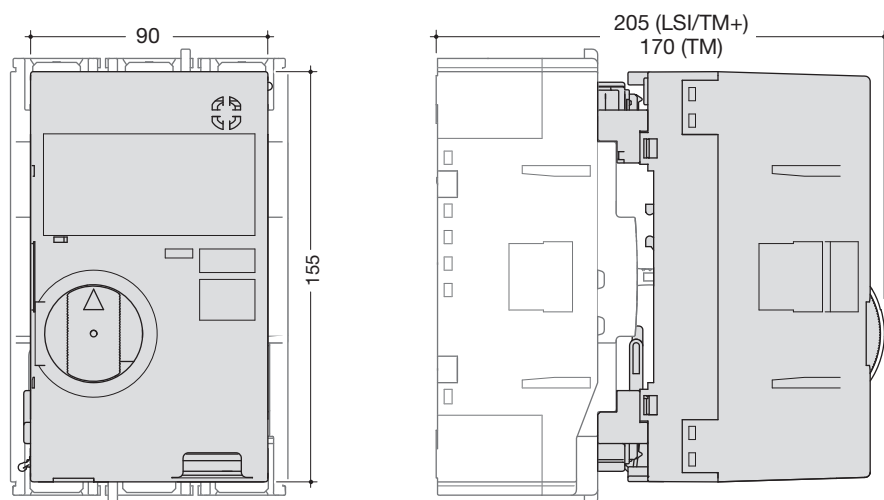
Direct rotary handle



Extended rotary handle

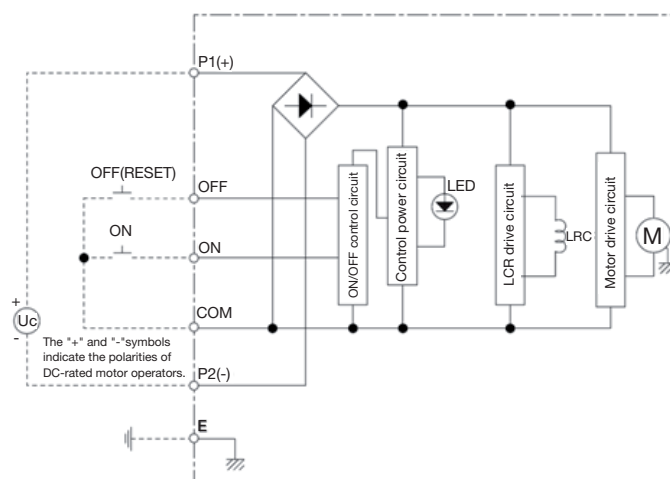


Motor operator



		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

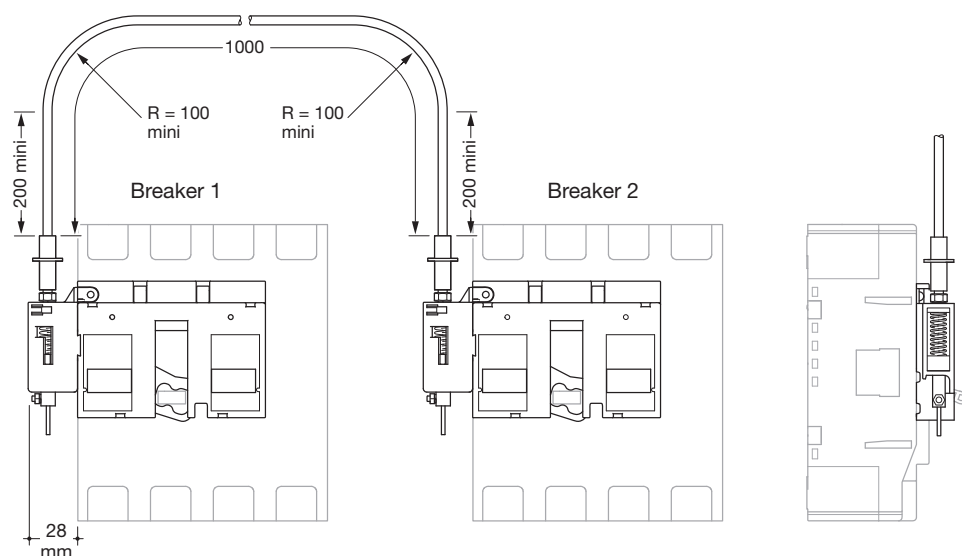
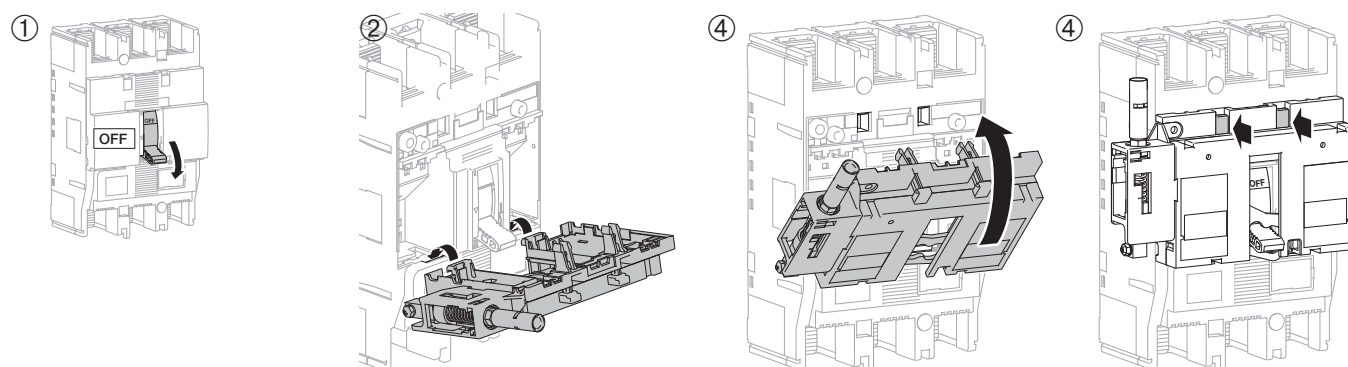
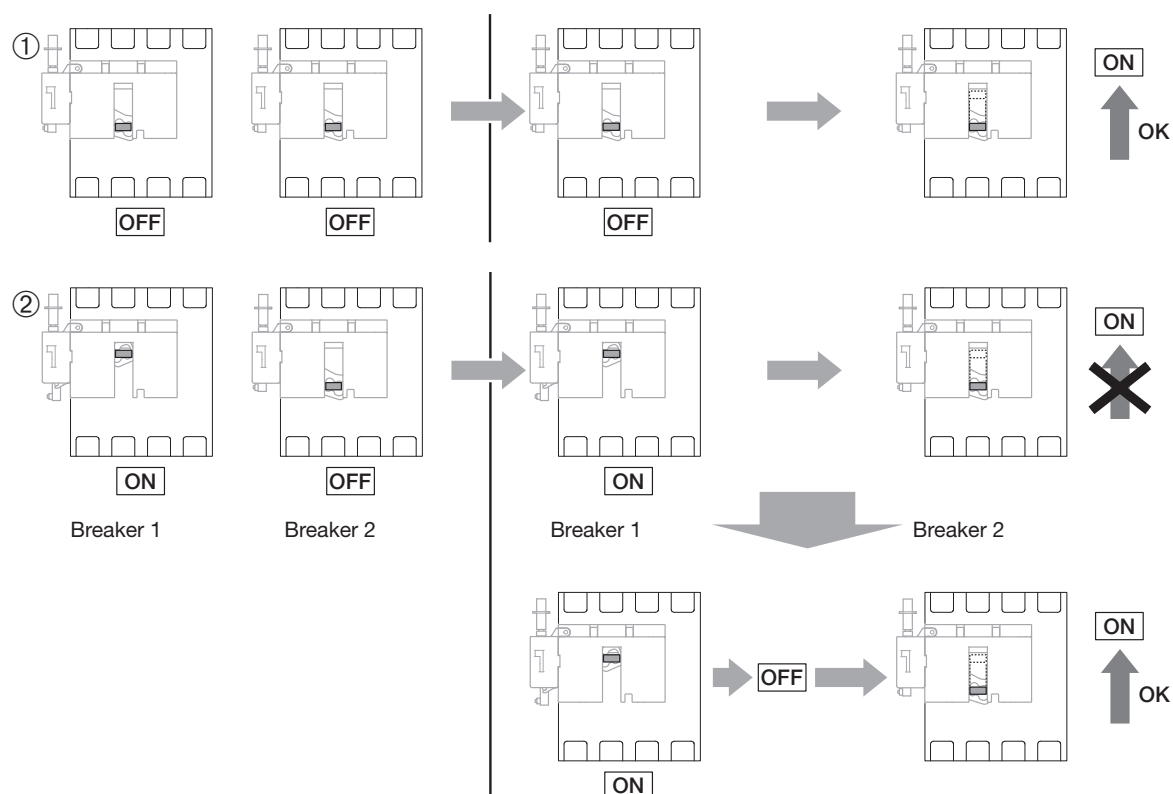
Wiring diagram



Interlocking system

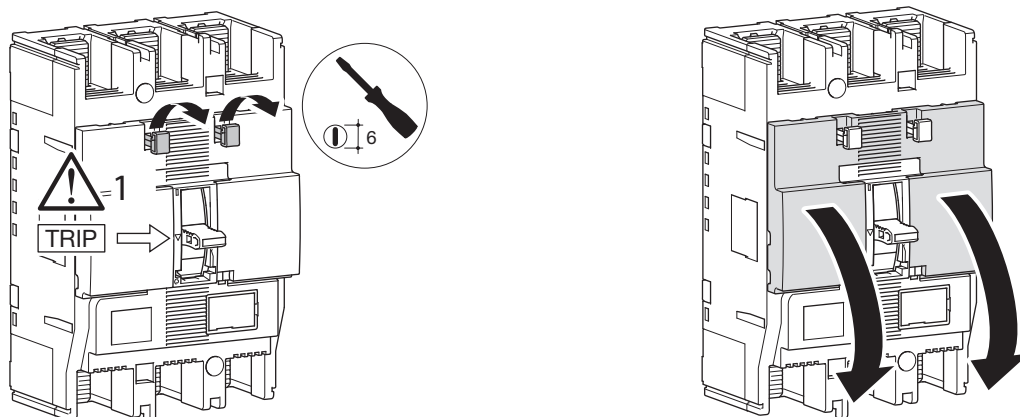
Suitable with motor operator HXC04xH.
With electrical interlock for motor operator HXB068H (for 250A) or
HXB069H (for 630/1000A).

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

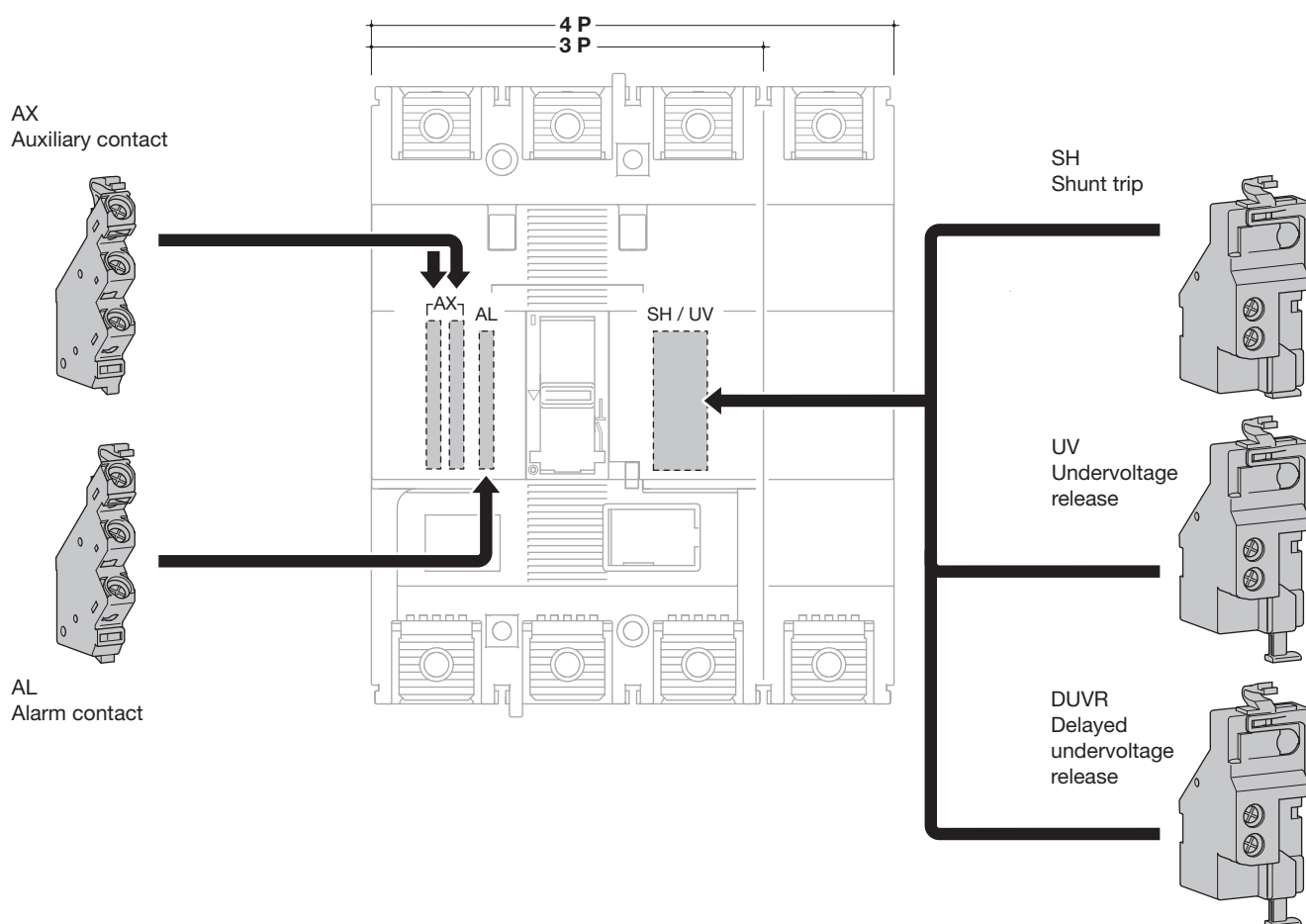
**Mounting****Checking the correct assembly**

Auxiliaries

Auxiliaries for MCCBs and trip-free switches



Mounting combination for auxiliaries and releases



**Moulded case circuit breakers
h400, h630**
Thermal magnetic trip unit TM:

- thermal adjustment:

 from 0.63 to 1 x I_n

- magnetic adjustment:

 from 6 to 12 x I_n
Connection:

Directly on copper cable

terminal,

with end lug max. width: 30 mm

Comply with IEC 60 947-2.



HHD400U

Designation	Characteristics	In	Cat. ref.	
			3P	4P
MCCBs h400 25kA TM	breaking capacity	250A	HHD250U	-
	Icu : 25 kA (400/415 V AC) Ics: 25 kA	400A	HHD400U	-
	adjustable thermal: 0.63 to 1 x I _n adjustable magnetic: 6 to 12 x I _n			
MCCBs h400 50kA TM	breaking capacity	250A	HND250U	HND251U
	Icu : 50 kA (400/415 V AC) Ics: 50 kA	400A	HND400U	HND401U
	adjustable thermal: 0.63 to 1 x I _n adjustable magnetic: 6 to 12 x I _n			
MCCBs h400 70kA TM	breaking capacity	250A	HKD250U	HKD251U
	Icu : 70 kA (400/415 V AC) Ics: 50 kA	400A	HKD400U	HKD401U
	adjustable thermal: 0.63 to 1 x I _n adjustable magnetic: 6 to 12 x I _n			

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



HXC004H



HXC014H



HXD030H



HXD039H

Auxiliary contacts

AX

AL

1 changeover contact
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 trips

SH

24 V DC
48 V DC
110 V DC
100 - 120 V AC
200 - 240 V AC
380 - 450 V AC

HXC001H

HXC002H

HXC008H

HXC003H

HXC004H

HXC005H

Undervoltage releases

UV

24 V DC
100 - 120 V DC
200 - 240 V DC
100 - 120 V AC
200 - 240 V AC
380 - 450 V AC

HXC011H

HXC018H

HXC019H

HXC013H

HXC014H

HXC015H

Delayed undervoltage releases

DUVR

24 V DC
100 - 120 V AC
200 - 240 V AC
380 - 450 V AC

HXD051H

HXD053H

HXD054H

HXD055H

Designation

Characteristics

Cat. ref.

Direct rotary handle

padlockable handle
max Ø 6 mm

HXD030H

Extended rotary handle

padlockable handle
max Ø 8 mm

HXD031H

Padlock

to mount on MCCBs for
handle locking
for 3 padlock
Ø 5 - 8 mm² max

HXD039H



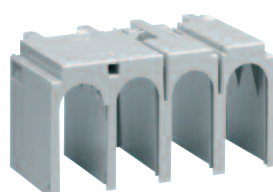
HXD042H



HYD003H



HYD015H



HYD022H

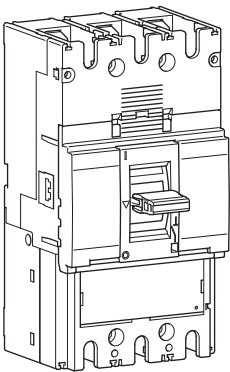


HYD033H

Designation	Characteristics	In	Cat. ref.	
			3P	4P
Motor operators	24-48 V DC		HXD040H	HXD040H
	100-240 V AC		HXD042H	HXD042H
Interlocking kit	wire type set of 2 pieces and cable		HXD065H	HXD065H
Interlocking unit	wire type		HYD066H	HYD066H
Interlocking mechanical cable	1 m		HXB070H	HXB070H
	1,5 m		HXB071H	HXB071H
Electrical interlocks	for motor type A (between 2 630/1000A)		HXD068H	HXD068H
	for motor type B (between 630 and 250A)		HXB069H	HXB069H
Collar terminals	set of 3 or 4 terminals for copper conductors 1 x 35 - 240 mm ²	250 - 400A	HYD003H	HYD004H
	set of 3 or 4 terminals for aluminium / copper conductors 1 x 35 - 240 mm ²	250 - 400 - 630A	HYD005H	HYD006H
	set of 3 or 4 terminals for multiple aluminium / copper conductors 2 x 35 - 240 mm ²	250 - 400 - 630A	HYD007H	HYD008H
Extended connections	set of 4 pieces for straight connections	250 - 400A 630A	HYD010H HYD013H	HYD010H HYD013H
	spreader connections	250 - 400A 630A	HYD011H HYD014H	HYD012H HYD015H
Interphase barrier	set of 4 pieces		HYD019H	HYD019H
Terminal covers	for extended straight connections		HYD021H	HYD022H
	for extended spreader connections		HYD023H	HYD024H
	for rear connections		HYD025H	HYD026H
	for collar terminals		HYD027H	HYD028H
Rear connections		250 - 400A 630A	HYD031H HYD033H	HYD032H HYD034H
Connecting kit	0,75 mm ² set of 3 x 2 wires length: 1,30m		HYA035H	HYA035H

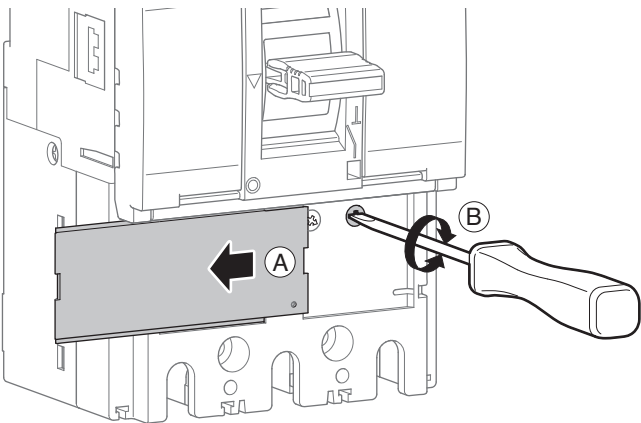
Designation	Characteristics	Cat. ref.
Ring lugs	compact lugs 120 mm ² Ø10	HYD093H
	compact lugs 150 mm ² Ø10,5	HYD095H
	compact lugs 185 mm ² Ø10,5	HYD096H
	compact lugs 185 mm ² Ø12,8 suitable with spreader	HYD097H
	compact lugs 240 mm ² Ø12,8 suitable with spreader	HYD098H

MCCBs

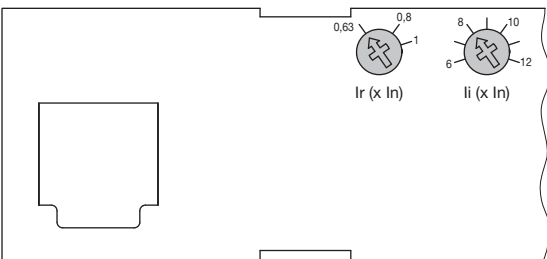


		220/240 V AC	380/415 V AC	660/690 V AC
h400 TM/h630 LSI HND	Icu (kA)	85	50	20
	Ics (kA)	85	50	15
h400 TM HKD	Icu (kA)	100	70	20
	Ics (kA)	85	50	15
h400 TM HHD	Icu (kA)	35	25	-
	Ics (kA)	35	25	-
h630 LSI HED	Icu (kA)	100	70	20
	Ics (kA)	85	50	15
h630 HCD	Icm (kA)	-	9	-
	Icw (kA)	-	5 kA-0,3 s	-

Settings



Magnetic and thermal settings (TM)



Thermal adjustment from 0,63 to 1 x In

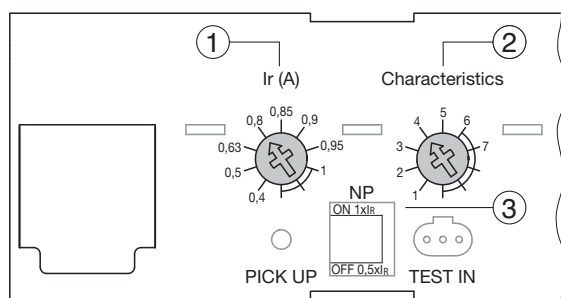
Magnetic adjustment from 6 to 12 x In

Electronic trip unit setting (LSI)

L - Long delay - protection against overloads: I_r and t_r settings

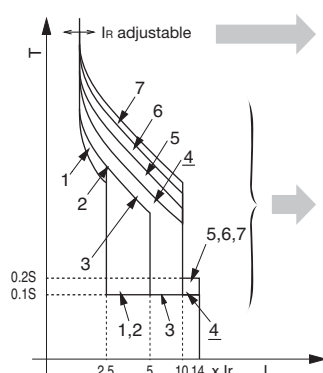
S - Short delay - protection against short circuits: I_{sd} and t_{sd} settings

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



Neutral settings:

- ① Long delay current I_r setting
- ② Other curve characteristics setting (t_r , I_{sd} , t_{sd})
- ③ Neutral protection against overloads setting



LSI		In A									
		250 A / 400 A					630 A				
		Long Time Delay		Short Time Delay		Inst	Long Time Delay		Short Time Delay		Inst
		I_r (x I_n)	t_r (s)	I_{sd} (xlr)	t_{sd} (s)	I_i (xlr)	I_r (x I_n)	t_r (s)	I_{sd} (xlr)	t_{sd} (s)	I_i (xlr)
①	I_r (x I_n)	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 I_n)	11s at 2 xlr	2,5	0,1	14 (max 10 x I_n)	
		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%									

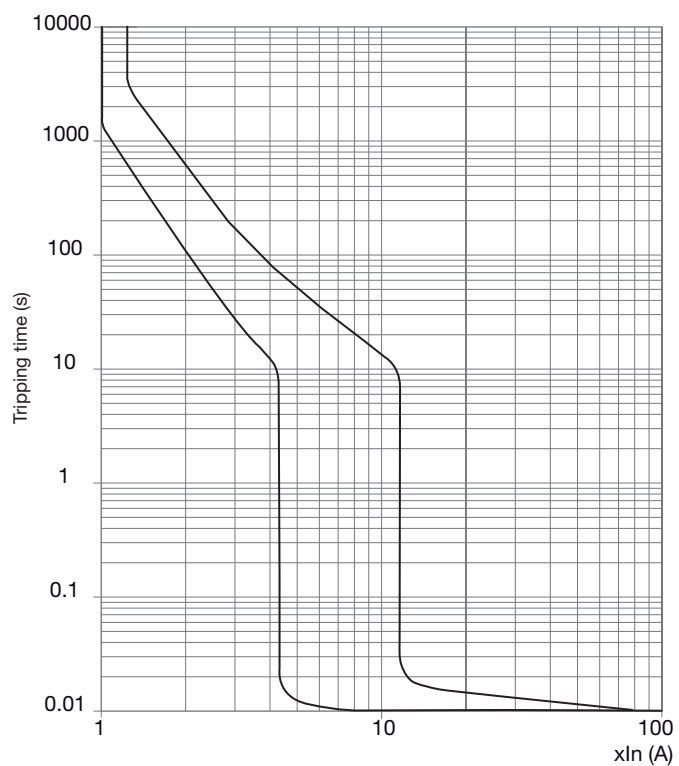
(*) Characteristic 1 : use for generators protection.

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.

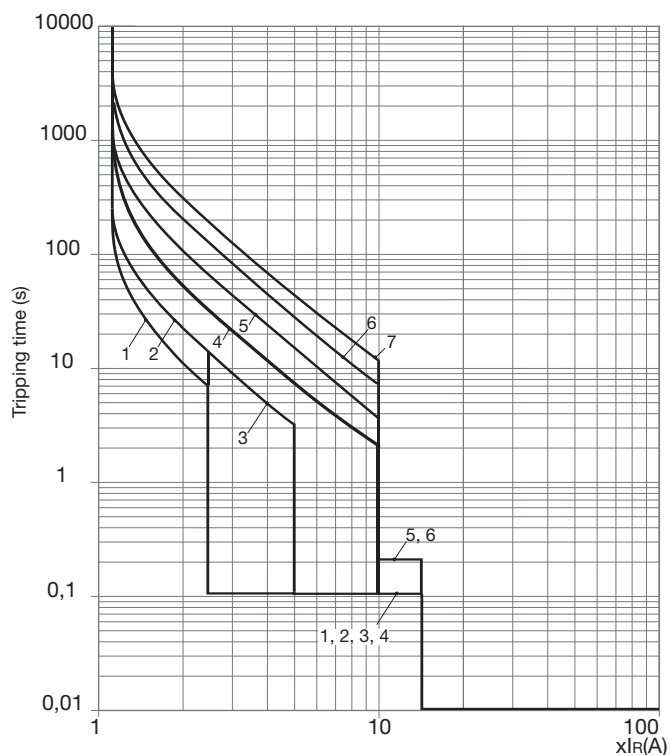
Tripping curve

MCCB h400 TM (250 and 400A)



Tripping curve

MCCB h630 LSI (250A and 400A)



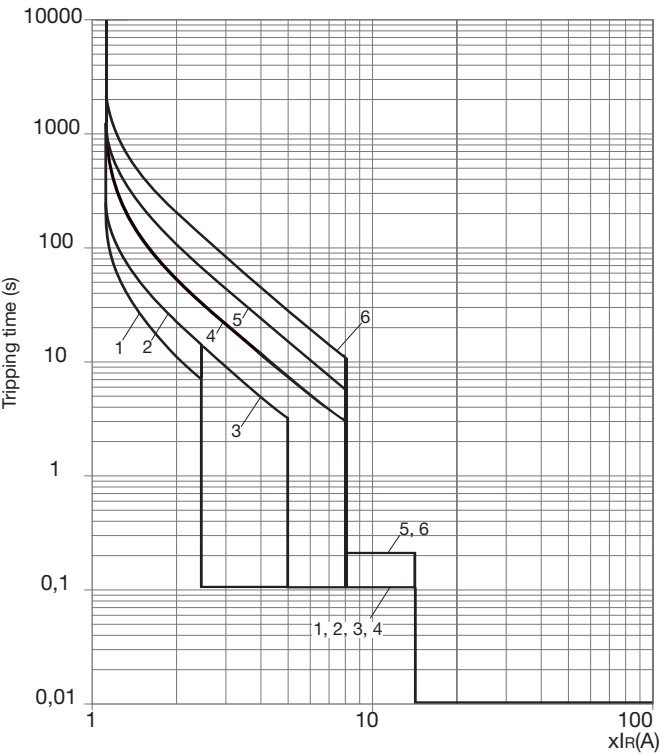
Electronic trip unit setting (LSI)

MCCB h630 LSI (250A and 400A)

I _R (A)												
LTD Pick-up current			I _R	x I _n	0,4	0,5	0,63	0,8	0,9	0,95	1	
Characteristics				No.	1	2	3	4	5	6	7	
Standard	LTD	t _R	(s)	11	21	21	5	10	19	29		
				200% x I _R				600% x I _R				
	STD	I _{sd}	x I _R	2,5		5	10					
		t _{sd}	(s)	0,1						0,2		
	INST	li	x I _R	14 (max : 13 x I _n)								
Optional	N	I _N	x I _n	0 - 0,5 - 1								
		t _N	(s)	t _N = t _R								

Tripping curve

MCCB h630 LSI (630A electronic)



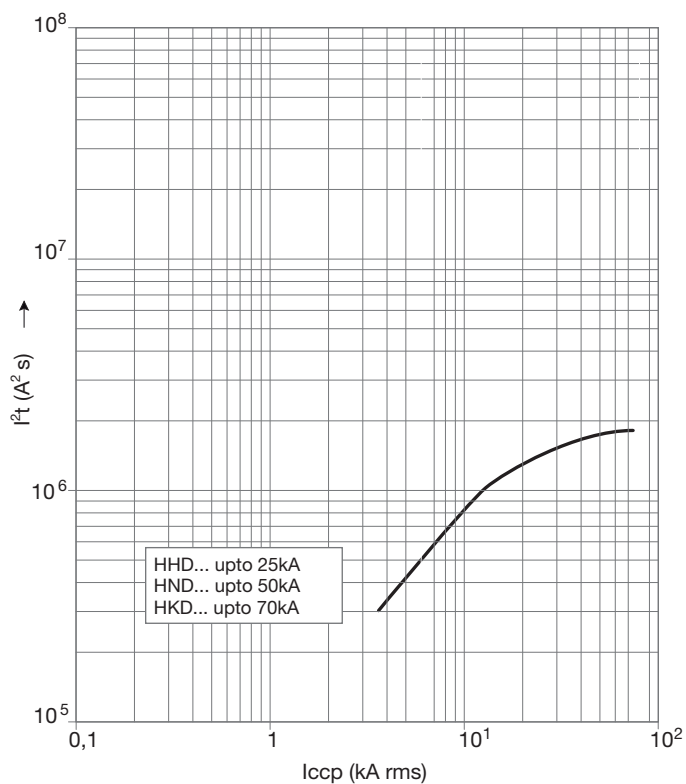
Electronic trip unit setting (LSI)

MCCB h630 LSI (630A electronic)

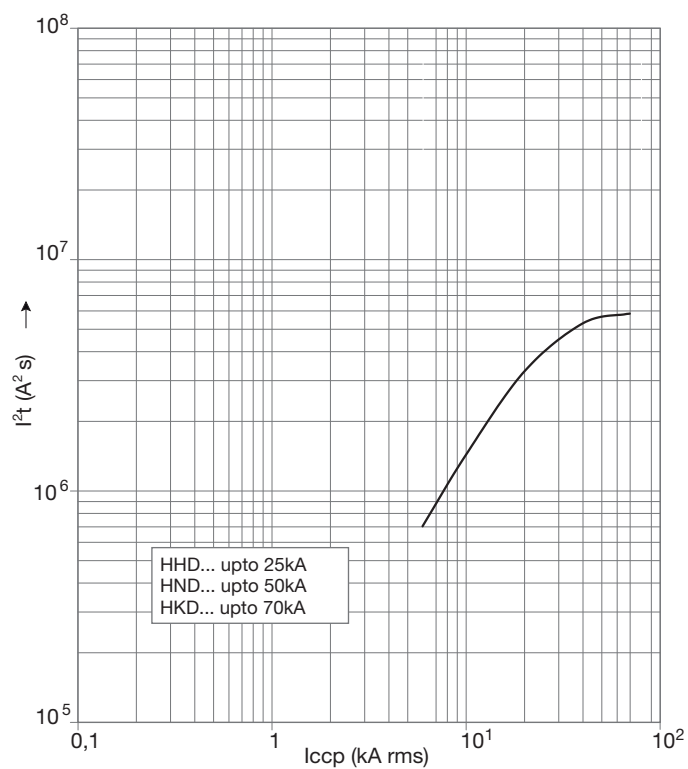
I _R (A)												
LTD Pick-up current		I _R	x I _n	0,4	0,5	0,63	0,8	0,85	0,9	0,95	1	
Characteristics			No.	1	2	3	4	5	6			
Standard	LTD	t _R	(s)	11	21	21	5	10	16			
				200% x I _R				600% x I _R				
	STD	I _{sd}	x I _R	2,5		5	8					
		t _{sd}	(s)	0,1				0,1				
		INST	I _i	x I _R	14 (max : 10 x I _n)							
Optional	N	I _N	x I _n	0 - 0,5 - 1								
		t _N	(s)	t _N = t _R								

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

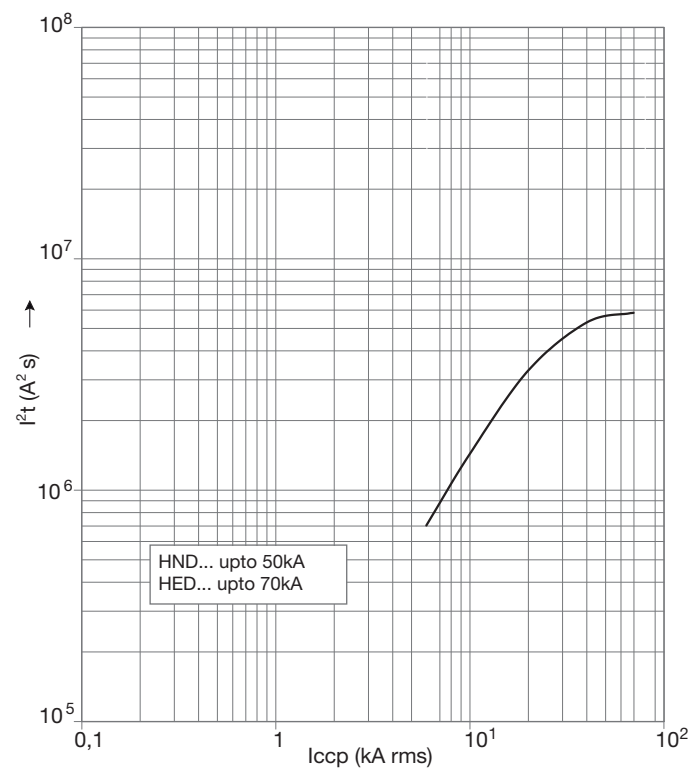
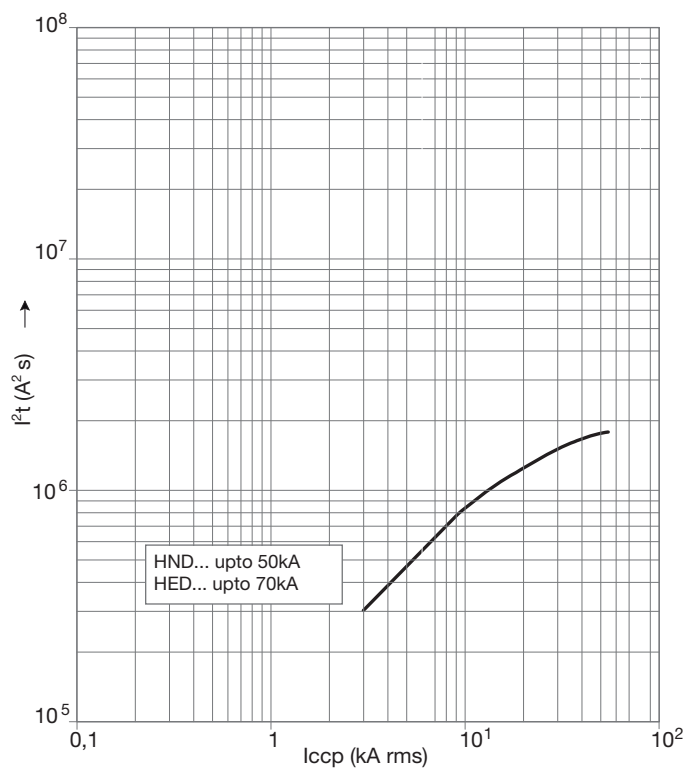
MCCB h400 TM (250A)



MCCB h400 TM (400A)

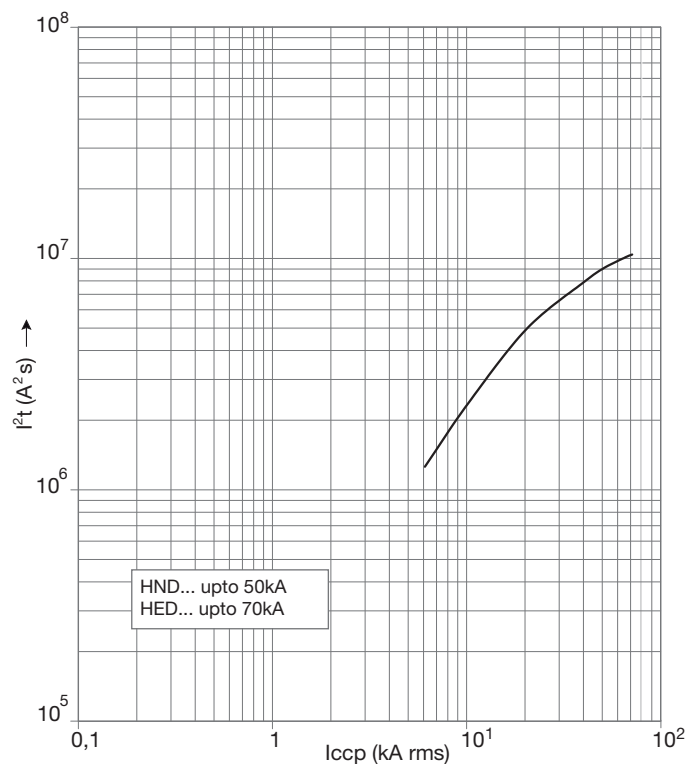


MCCB h630 LSI (250A)



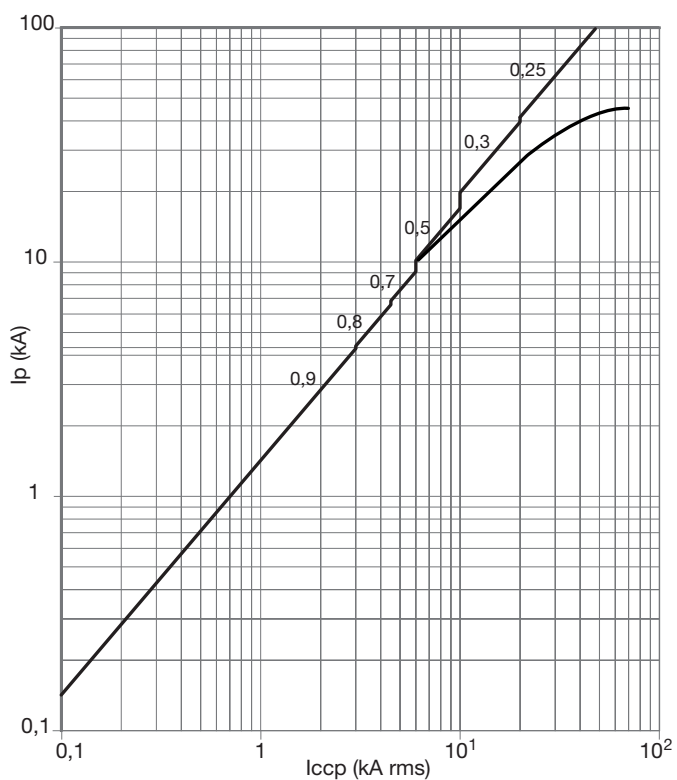
Thermal constraint curve at 400V (Let-through energy)

MCCB h630 LSI (630A)

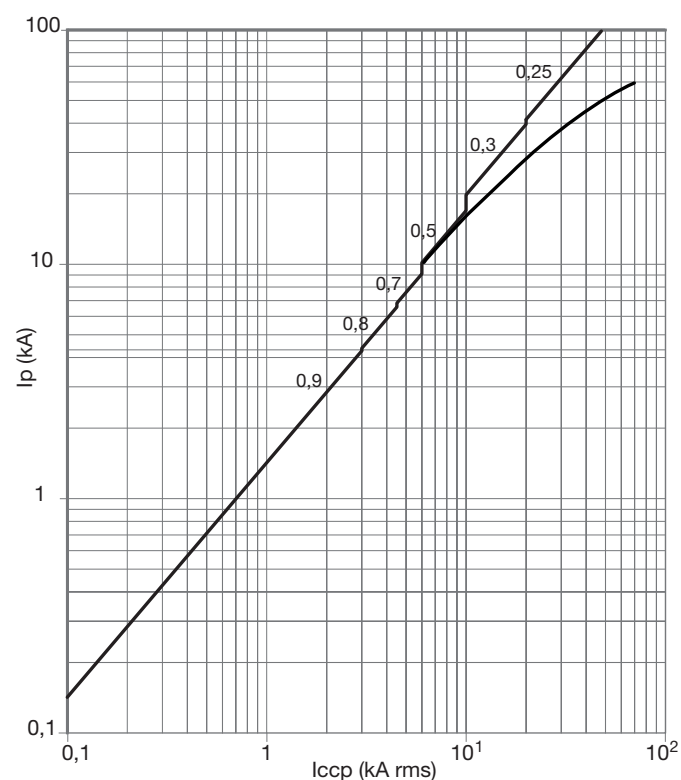


Current limiting curve at 400V (Let-through peak current)

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

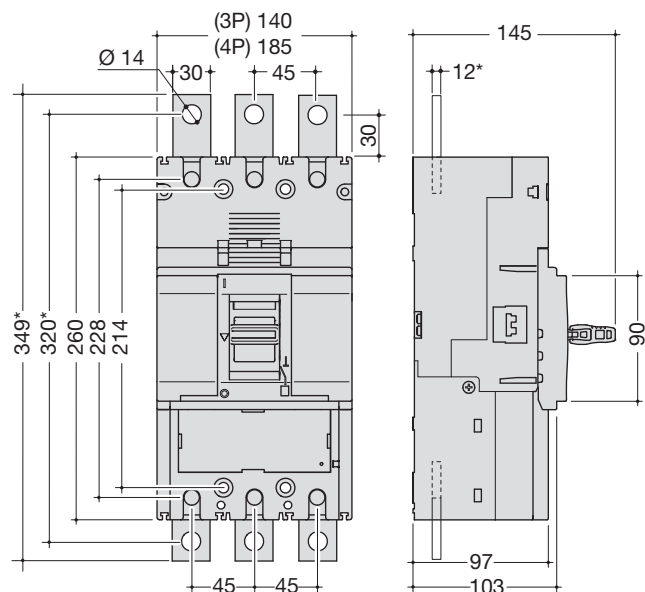


MCCB h630 LSI (630A)

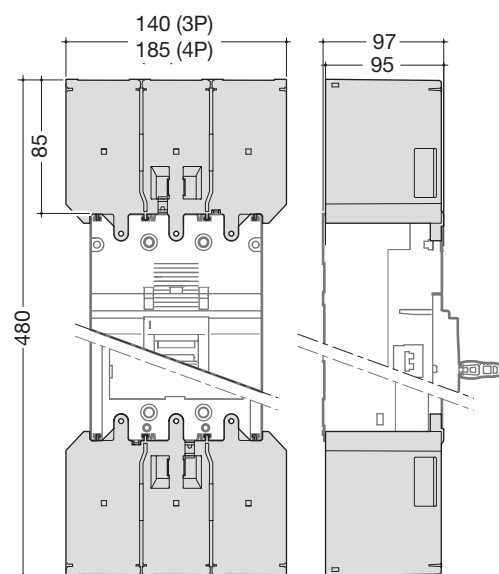


Dimensions

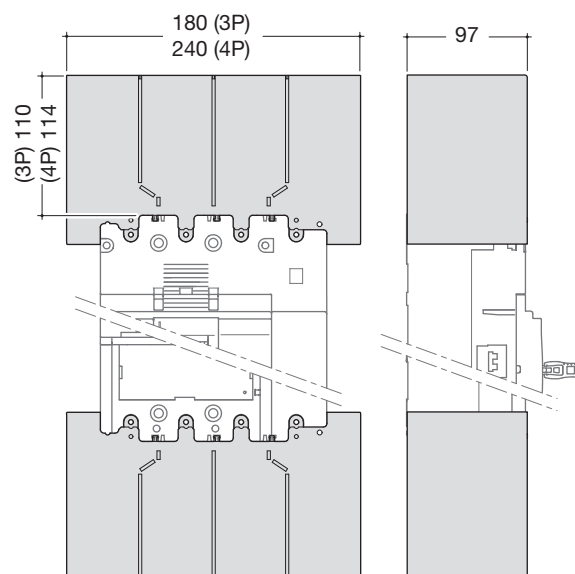
MCCBs



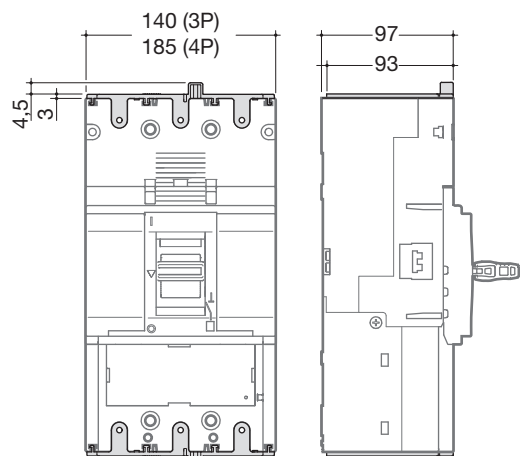
Terminal covers for extended straight connections



Terminal covers for extended spreader connections



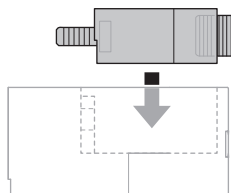
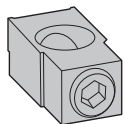
Terminal covers for rear connections and collar terminal



Connection

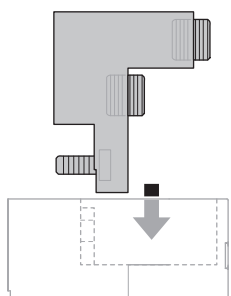
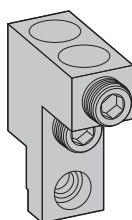
Connection for aluminium / copper conductors (h400 TM, h630 LSI)

HYD005 (3P) - HYD006H (4P)

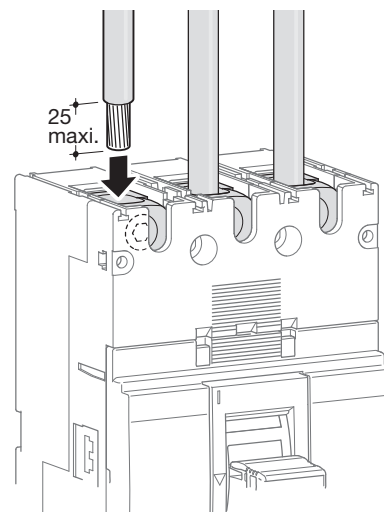


	max. 1x240 mm ²
10	25 Nm

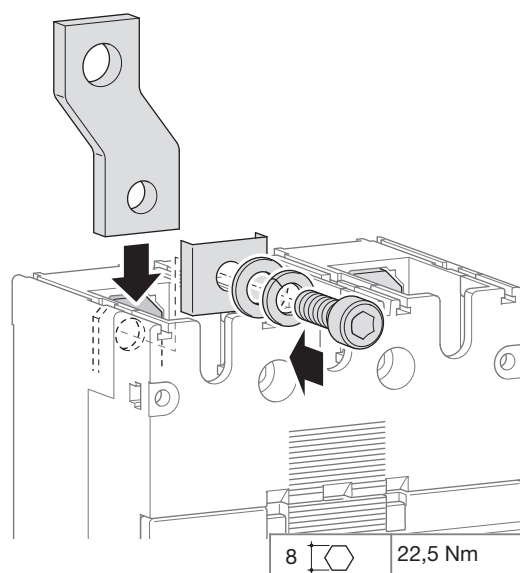
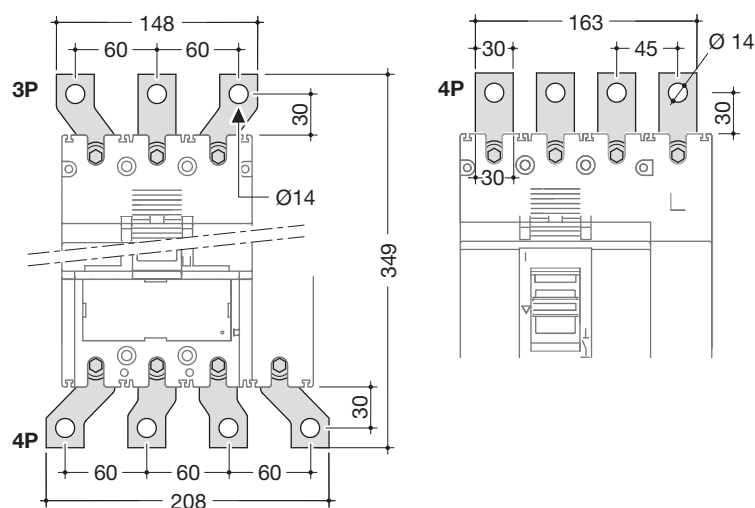
HYD007 (3P) - HYD008H (4P)



	max. 2x240 mm ²
10	25 Nm

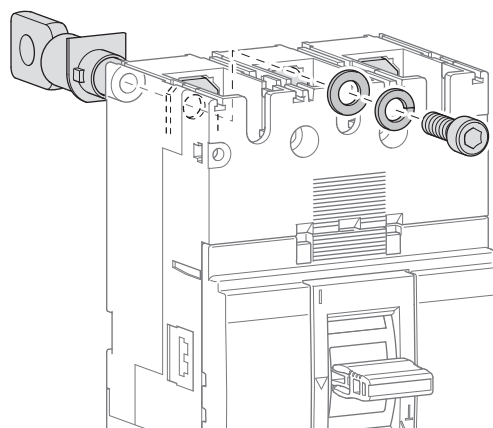
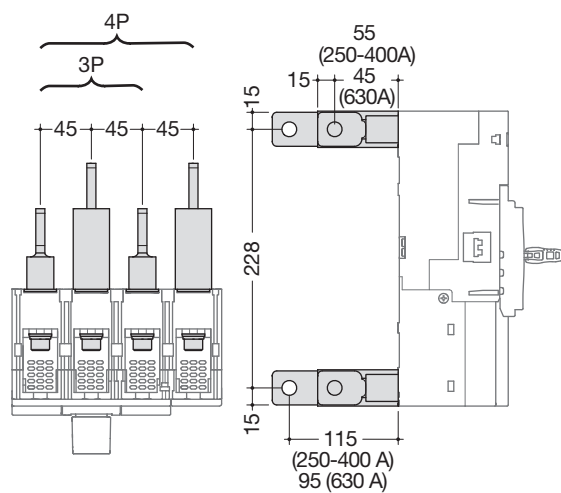


Extended straight and spreader connections

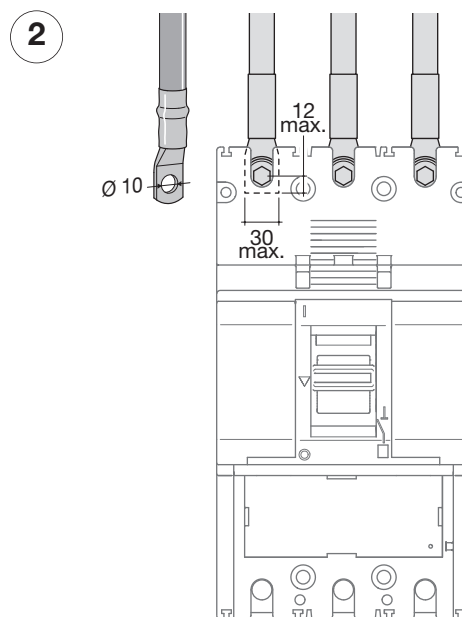
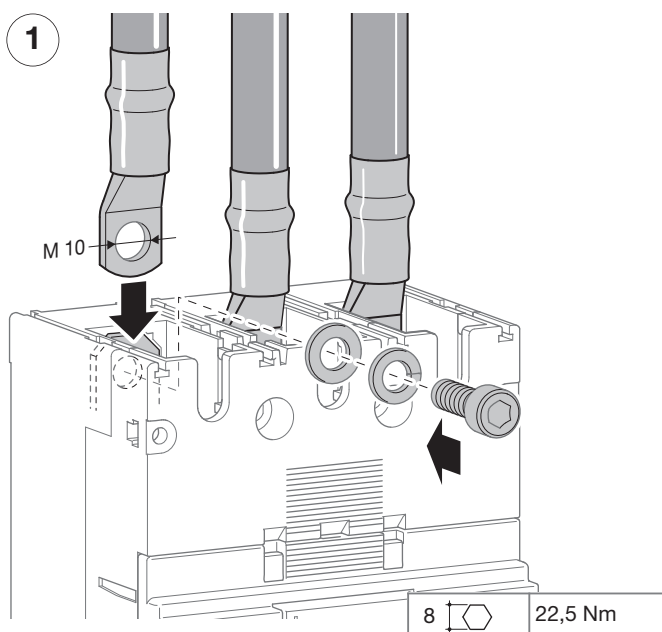


8	22,5 Nm
---	---------

Rear connections

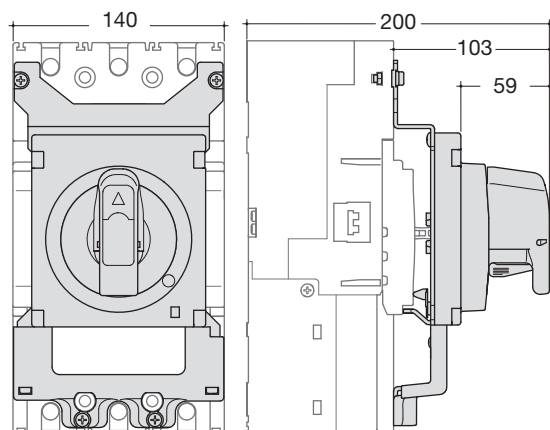


Connection with end lugs

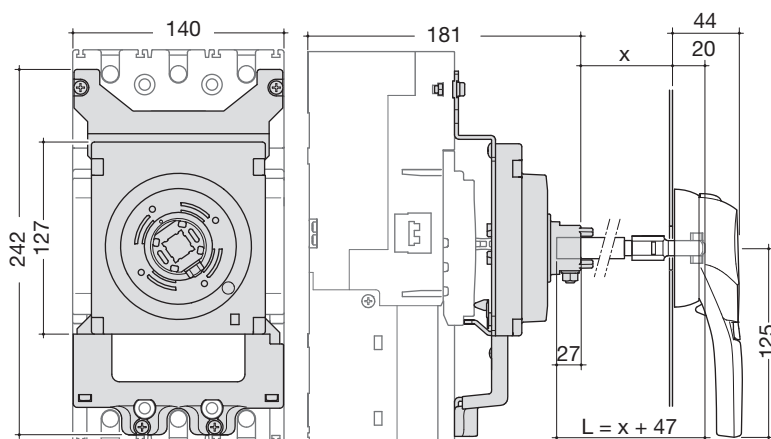


Accessories

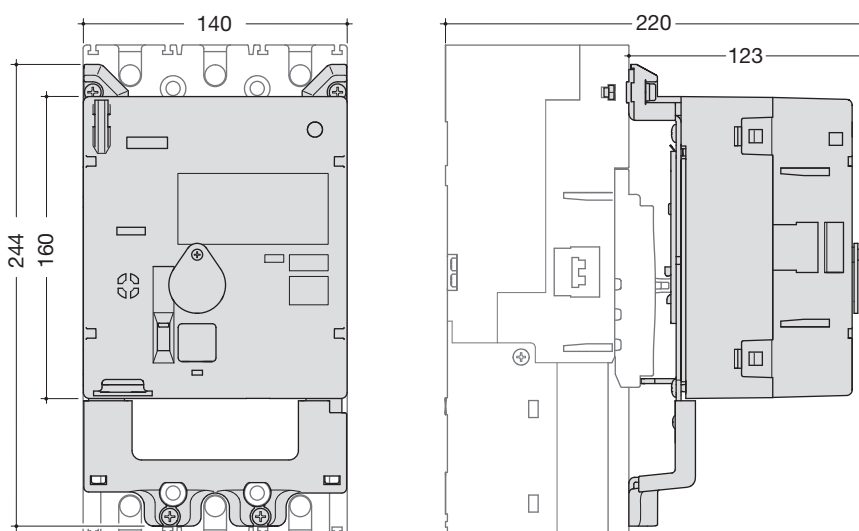
Direct rotary handle



Extended rotary handle

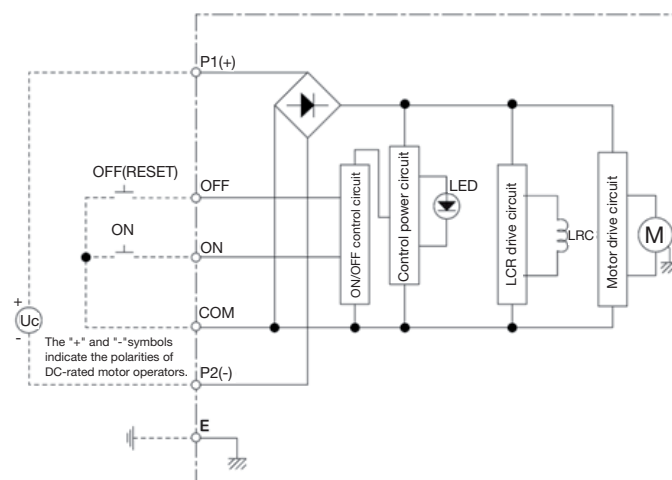


Motor operator



		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



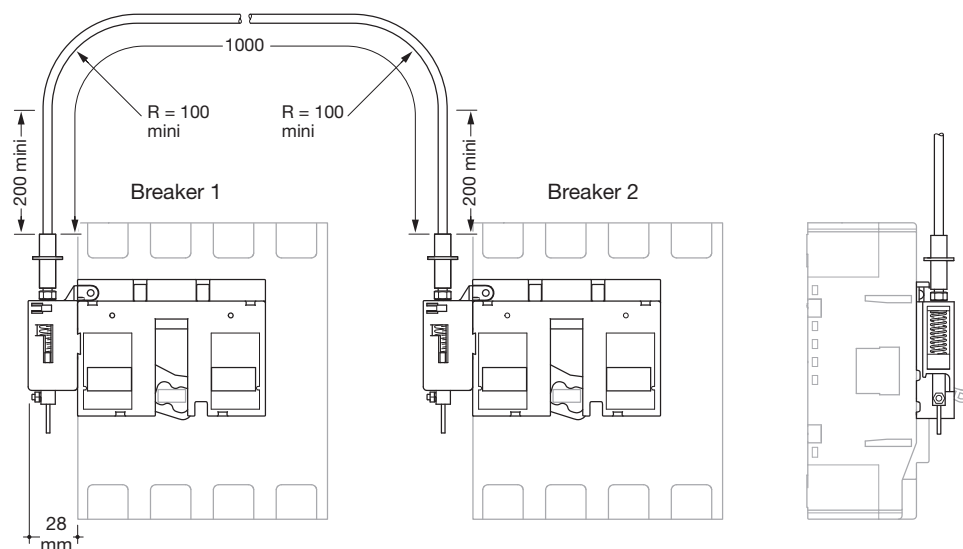
Interlocking system

Suitable with motor operator HXD04xH.

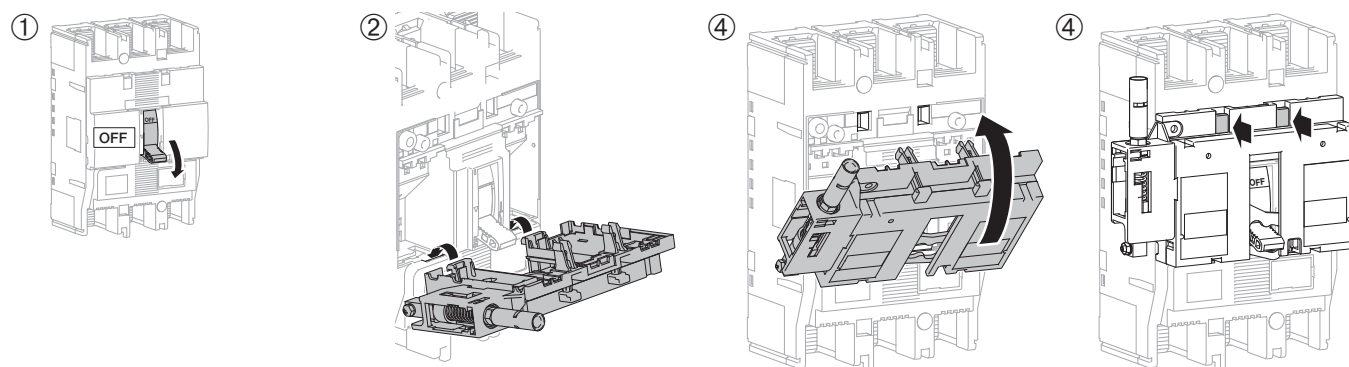
With electrical interlock for motor operator HXD068H (for 630/1000A) or HXB069H (for 250A).

- Length HXD068H: 2100 mm

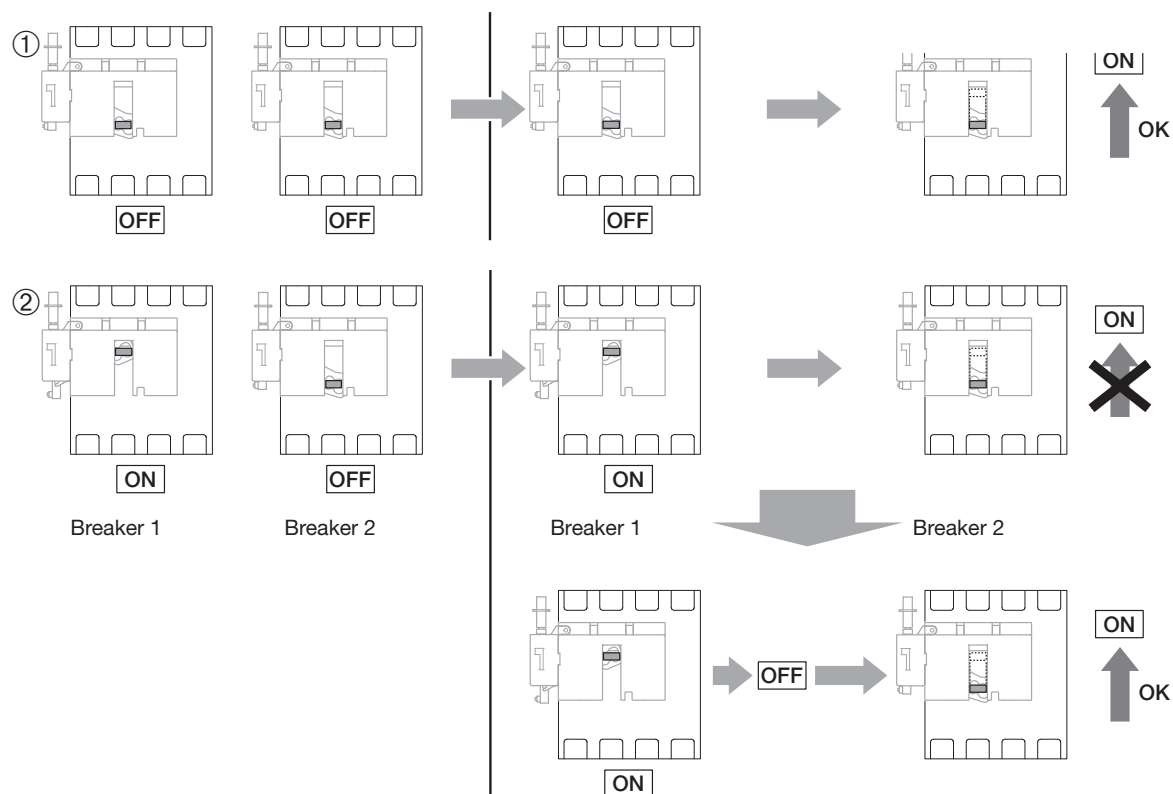
- Length HXB069H: 2100 mm



Mounting

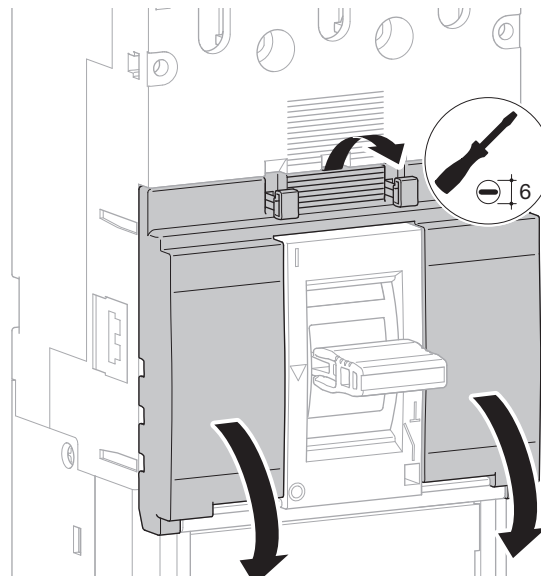
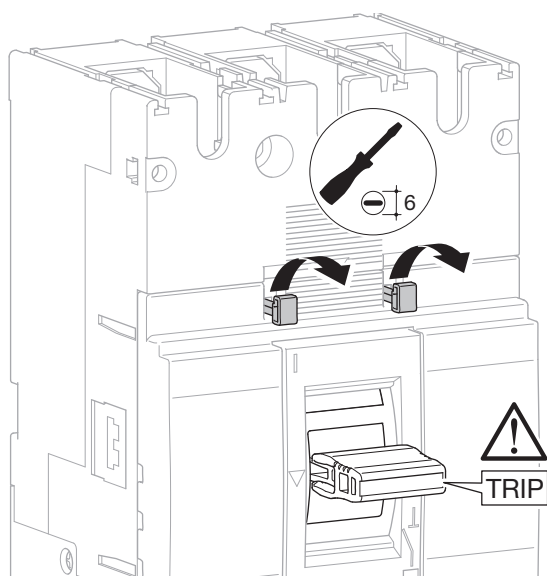


Checking the correct assembly

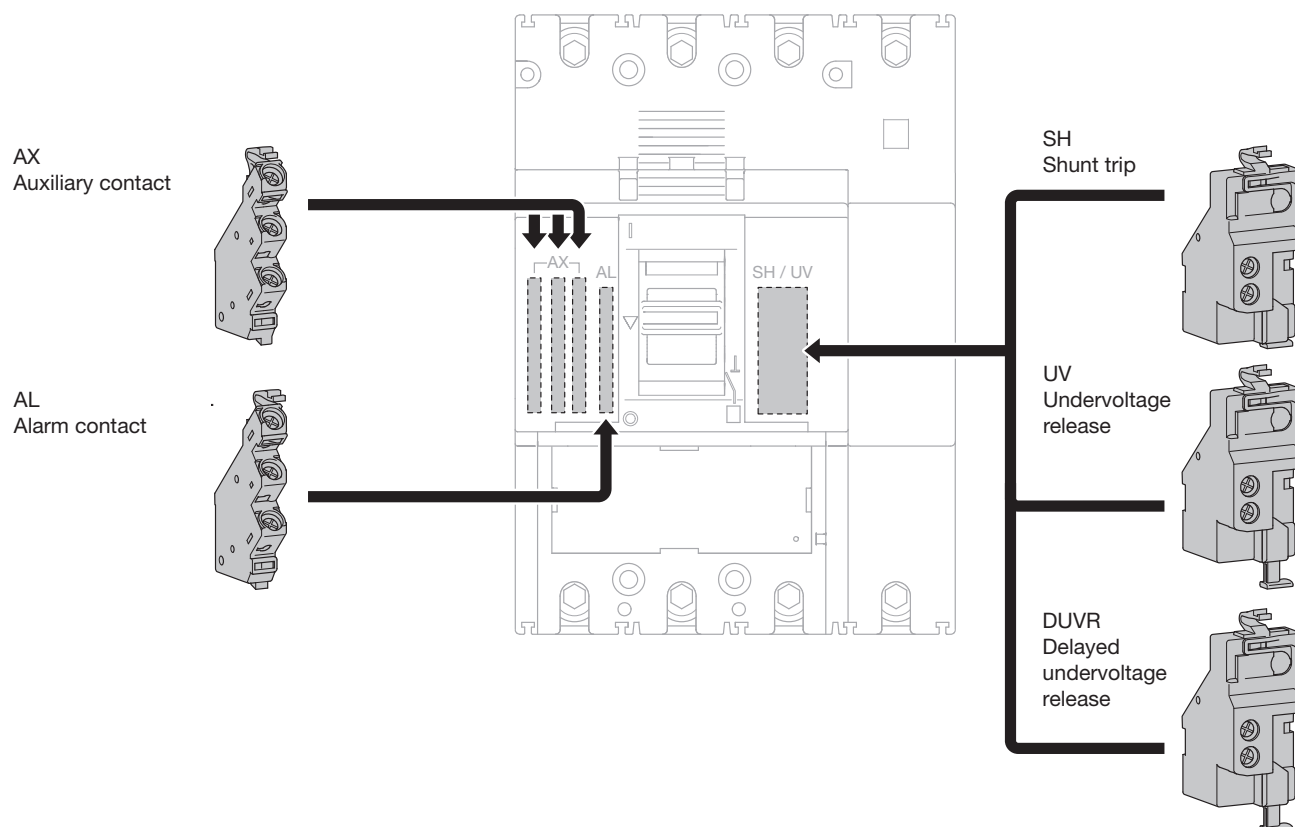


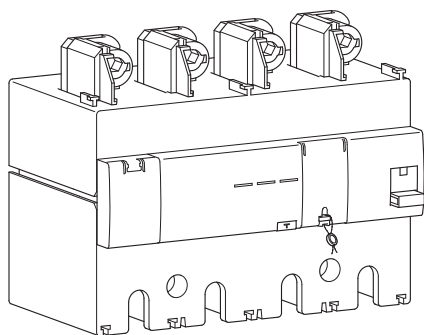
Auxiliaries

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).

Characteristics

Reset button :

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

Test button for differential functioning :

Allows to check the electrical operating of the MCCB / Add-on block association.

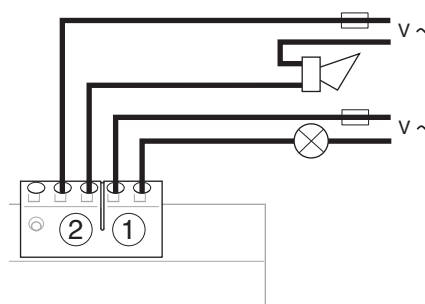
Mechanical test button :

Allows to check the mechanical operating of the MCCB / Add-on block association.

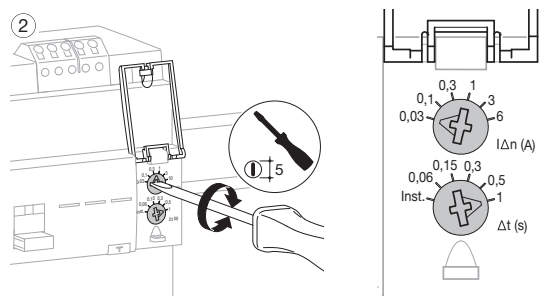
LED signaling default current level in the installation:

25% (orange) and 50% (red) $I_{\Delta n}$; green light to signal correct operating.

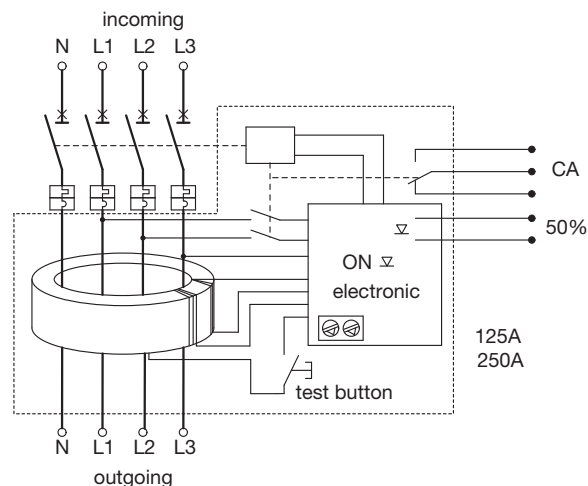
Remote tripping and advanced warning (50% $I_{\Delta n}$) signaling thanks to these contacts:



Earth leakage current ($I_{\Delta n}$) and delay (Δt) setting

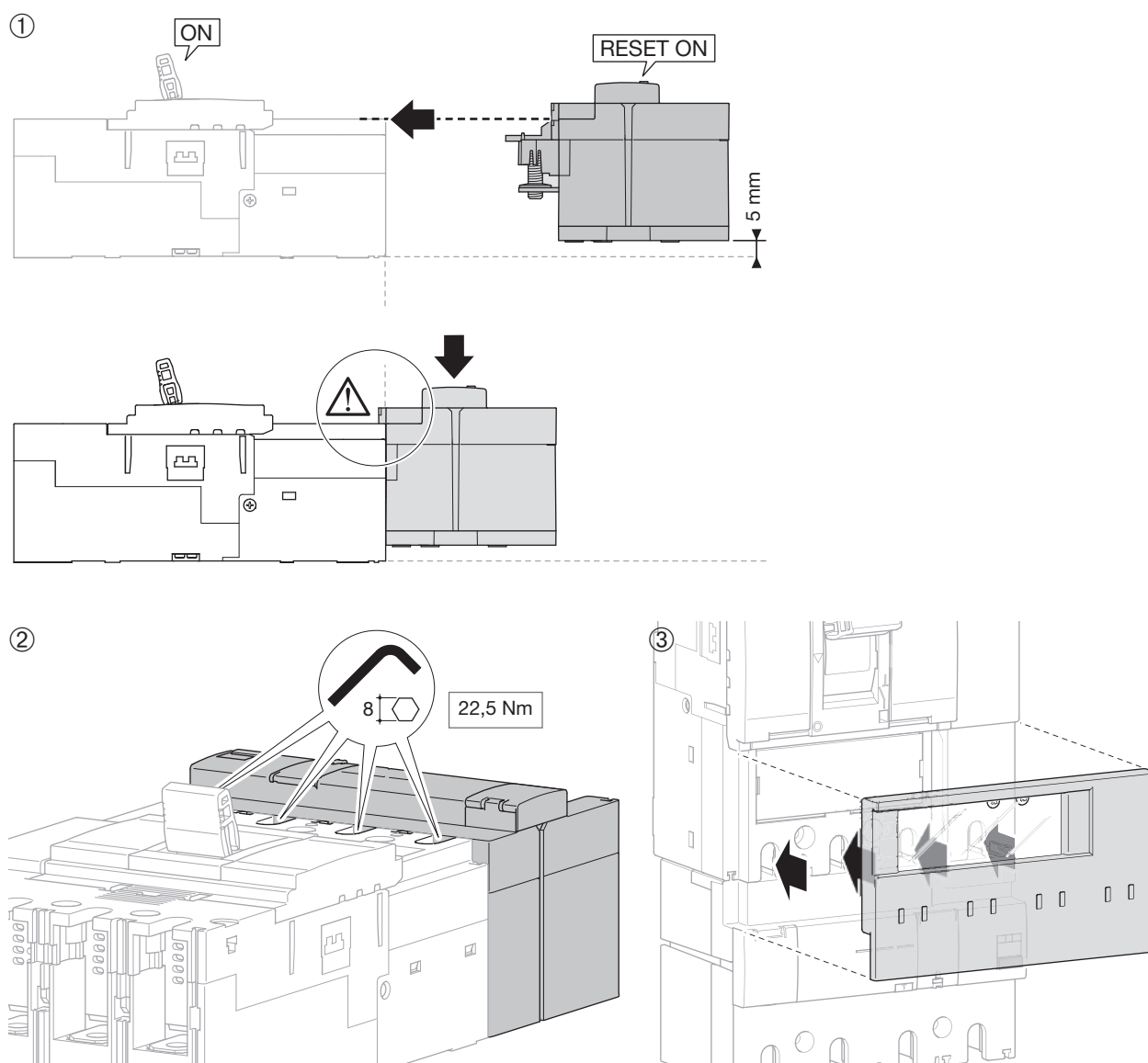


Add-on block operating

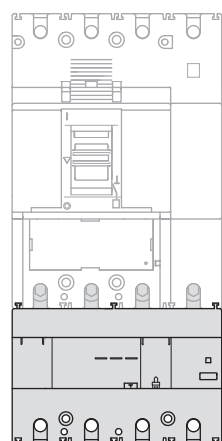


S (Δt)	A ($I_{\Delta n}$)						
		0,03	0,1	0,3	1	3	6
	Inst.	OK	OK	OK	OK	OK	OK
	0,06	no	OK	OK	OK	OK	OK
	0,15	no	OK	OK	OK	OK	OK
	0,3	no	OK	OK	OK	OK	OK
	0,5	no	OK	OK	OK	OK	OK
	1	no	OK	OK	OK	OK	OK

Add-on block mounting

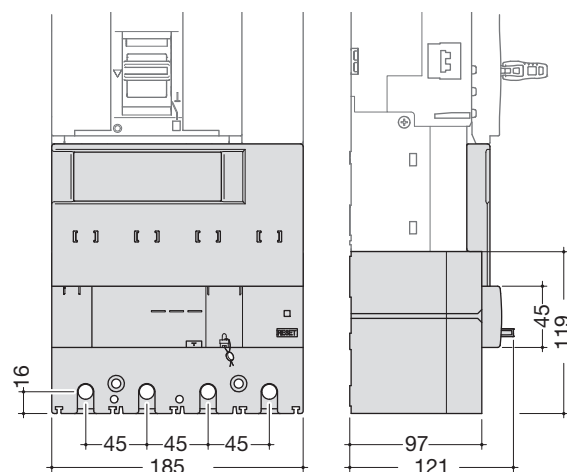


Association / Compatibility



250 - 400A	630A x 0,8
HBD401H 400A	HBD631H 500A (le: 630A x 0,8)

Dimensions



Moulded case circuit breakers h800**Thermal magnetic trip unit TM:**

- thermal adjustment: from 0.63 to 1 x I_n
- magnetic adjustment: from 5 to 10 x I_n

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:
I_r = 0,4 to 1 x I_n
- short delay (magnetic equivalent) adjustable:
2,5 to 10 x I_r (630-800A) and 2,5 to 8 x I_r (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



HNE970U

Designation	Characteristics	I _n	Cat. ref.	
			3P	4P
MCCBs h800 50kA TM	breaking capacity I _{cu} : 50 kA (400/415 V AC) I _{cs} : 50 kA	630A	HNK630U	HNK631U
	adjustable thermal 0.63 to 1 x I _n adjustable magnetic 5 to 10 x I _n	800A	HNK800U	HNK801U
MCCBs h800 70kA TM	breaking capacity I _{cu} : 70 kA (400/415 V AC) I _{cs} : 50 kA	630A	HEK630U	HEK631U
	adjustable thermal 0.63 to 1 x I _n adjustable magnetic 5 to 10 x I _n	800A	HEK800U	HEK801U
MCCBs h1000 50kA LSI	breaking capacity I _{cu} : 50 kA (400/415 V AC) I _{cs} : 50 kA	630A	HNE630U	HNE631U
	adjustable thermal I _r = 0,4 to 1 x I _n adjustable magnetic 2,5 to 10 x I _r (630 - 800A) 2,5 to 8 x I _r (1000A) time delay: 0,1-0,2 s	800A	HNE800U	HNE801U
	neutral setting from 0-50 to 100%	1000A	HNE970U	HNE971U
MCCBs h1000 70kA LSI	breaking capacity I _{cu} : 70 kA (400/415 V AC) I _{cs} : 50 kA	800A	HEE800U	HEE801U
	adjustable thermal I _r = 0,4 to 1 x I _n adjustable magnetic 2,5 to 10 x I _r (800A) 2,5 to 8 x I _r (1000A) time delay: 0,1-0,2 s neutral setting from 0-50 to 100%	1000A	HEE970U	HEE971U
Trip-free switches	suitable for AC 22A / AC 23A U _e : 415 V AC I _{cw} (0,3 s) = 10 kA	800A	HCE800U	HCE801U
		1000A	HCE970U	HCE971U

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



HXC021H



HXC024H



HXC004H



HXE014H

Designation	Characteristics	Cat. ref.
Auxiliary contacts AX AL	1 changeover contact 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 trips SH	24 V DC	HXC001H
	48 V DC	HXC002H
	110 V DC	HXC008H
	100 - 120 V AC	HXC003H
	200 - 240 V AC	HXC004H
	380 - 450 V AC	HXC005H
Undervoltage releases UV	24 V DC	HXE011H
	100 - 120 V DC	HXE018H
	200 - 240 V DC	HXE019H
	110 - 120 V AC	HXE013H
	220 - 240 V AC	HXE014H
	380 - 415 V AC	HXE015H
Delayed undervoltage releases DUVR	24 V DC	HXE051H
	110 - 120 V AC	HXE053H
	220 - 240 V AC	HXE054H
	380 - 415 V 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.

Designation	Characteristics	In	Cat. ref.	
			3P	4P
Electrical interlock	for motor type A (between 2 630/1000A)		HXD068H	HXD068H
	for motor type B (between 1000A and 250A)		HXB069H	HXB069H
Collar terminals	Terminals for aluminium / copper conductors 4 x 35 - 240 mm ²	630-800A	HYE007H	HYE008H
Connecting kits	0,75 mm ² set of 3 x 2 wires length: 1,30m		HYA035H	HYA035H
Interphase barrier	set of 4 pieces		HYD019H	HYD019H
Terminal covers	for extended connections		HYE021H	HYE022H
	for rear connections		HYE025H	HYE026H
Rear connections		630-800A	HYE031H	HYE032H
		1000A	HYE033H	HYE034H



HYE031H

Designation	Characteristics	Cat. ref.	
Direct rotary handles	padlockable handle	HXE030H	
Extended rotary handles	padlockable handle	HXE031H	
Padlocks	to mount on MCCB for handle locking for 3 padlocks max Ø 8 mm	HXD039H	
Motor operators	24 - 48V DC	HXE040H	
	100 - 240V AC	HXE042H	
Interlocking kit	wire type set of 2 pieces and cable	HXE065H	
Interlocking unit	wire type	HXE066H	
Interlocking mechanical cable	1 m	HXB070H	
	1,5 m	HXB071H	

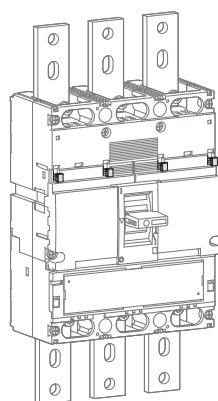


HXE030H

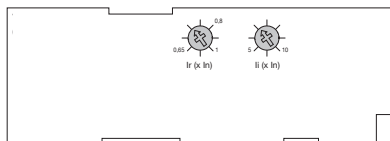


HXD039H

MCCBs

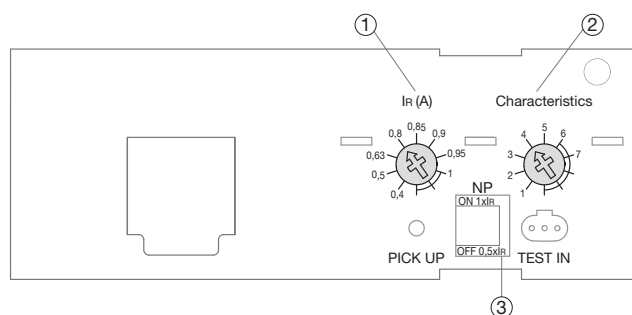
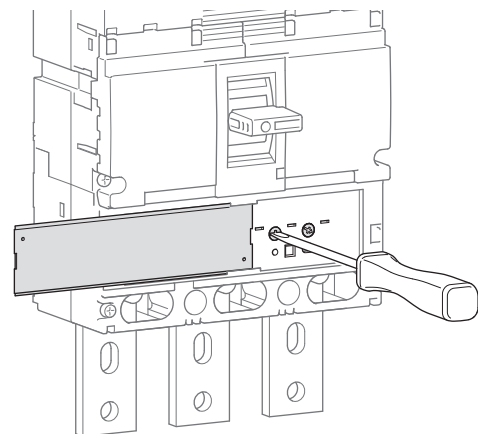


Magnetic and thermal settings



		220/240 V AC		380/415 V AC	660/690 V AC
		630 / 800A	1000A	630 / 800 / 1000A	630 / 800 / 1000A
LSI HNE	Icu (kA)	85	75	50	20
	Ics (kA)	85	75	50	20
LSI HEE	Icu (kA)	100	100	70	20
	Ics (kA)	100	75	50	20
TM HNK	Icu (kA)	85	-	50	20
	Ics (kA)	85	-	50	20
TM HEK	Icu (kA)	100	-	70	20
	Ics (kA)	75	-	50	20
HCE	Icm (kA)	-	-	17	-
	Icw (kA)	-	-	10kA - 0,3s	-

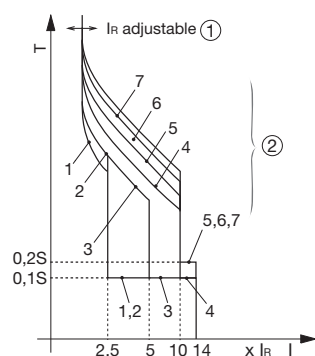
Electronic trip unit settings (LSI)



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 (630-800A) and 2,5 to 8 x Ir (1000A).



		In A									
		630-800 A					1000 A				
LSI		Long Time Delay		Short Time Delay		Inst	Long Time Delay		Short Time Delay		Inst
		Ir (x In)	tr (s)	isd (xlr)	tsd (s)	li (xlr)	Ir (x In)	tr (s)	isd (xlr)	tsd (s)	li (xlr)
① Ir (x In)	0,4	OK					OK				
	0,5	OK					OK				
	0,63	OK					OK				
	0,8	OK					OK				
	0,9	OK					OK				
	0,95	OK					OK				
	1	OK					OK				
② Characteristics*	1		11s at 2 xlr	2,5	0,1	14 (max 12 x In)		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	0,2	
	5		10 s at 6 xlr		0,2			10 s at 6 xlr			
	6		19 s at 6 xlr					16 s at 6 xlr			
	7		29 s at 6 xlr					-		-	-
③ Neutral protection	0%										
	50%										
	100%										

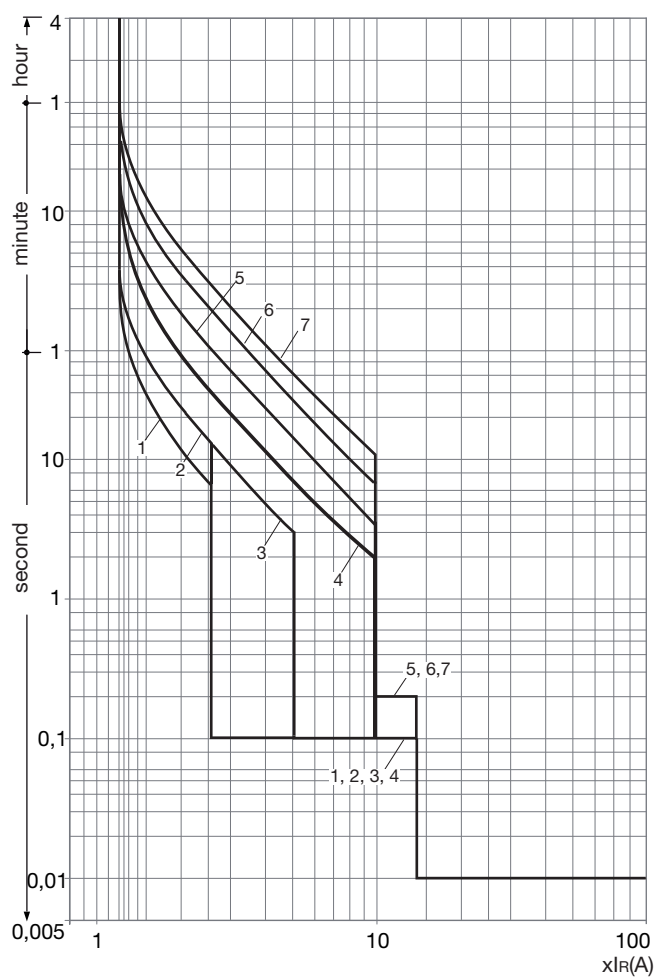
(*) Characteristic 1 : use for generators protection.

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 h1000 LSI (630-800A)



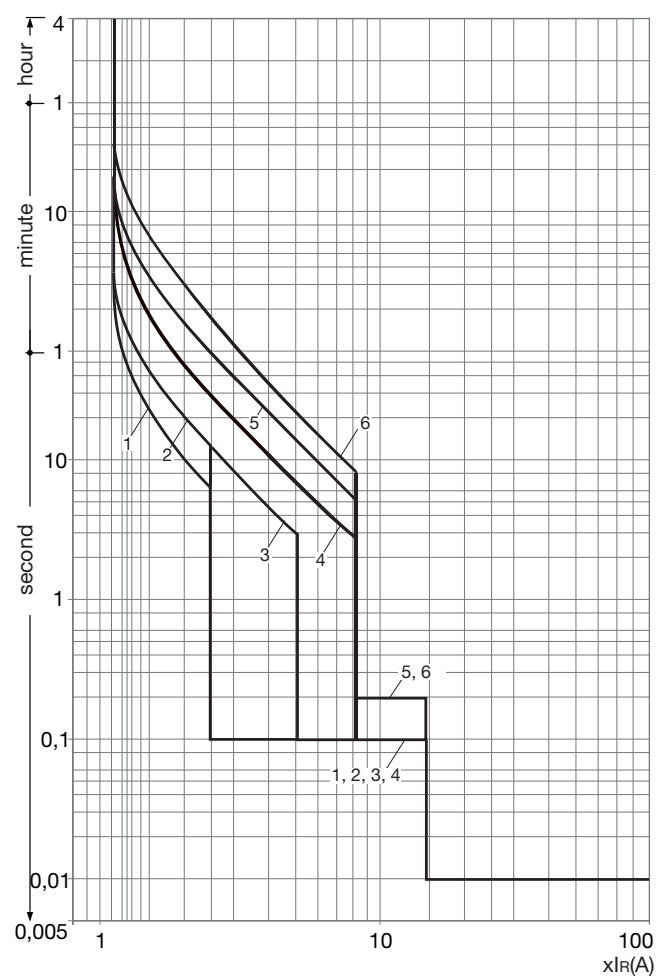
Electronic trip unit setting (LSI)

MCCBs 630-800A electronic

I _R (A)											
LTD Pick-up current		I _R	x ln	0,4	0,5	0,63	0,8	0,9	0,95	1	
Characteristics			No.	1	2	3	4	5	6	7	
Standard	LTD	t _R	(s)	11	21	21	5	10	19	29	
				200% x I _R			600% x I _R				
	STD	Isd	x I _R	2,5		5	10				
		tsd	(s)	0,1					0,2		
		INST	li	x I _R	14 (max : 12 x ln)						
Optional	NP	I _N	x ln	0 - 0,5 - 1							
		t _N	(s)	I _N =t _R							

Tripping curve

MCCB h1000 LSI (1000A)



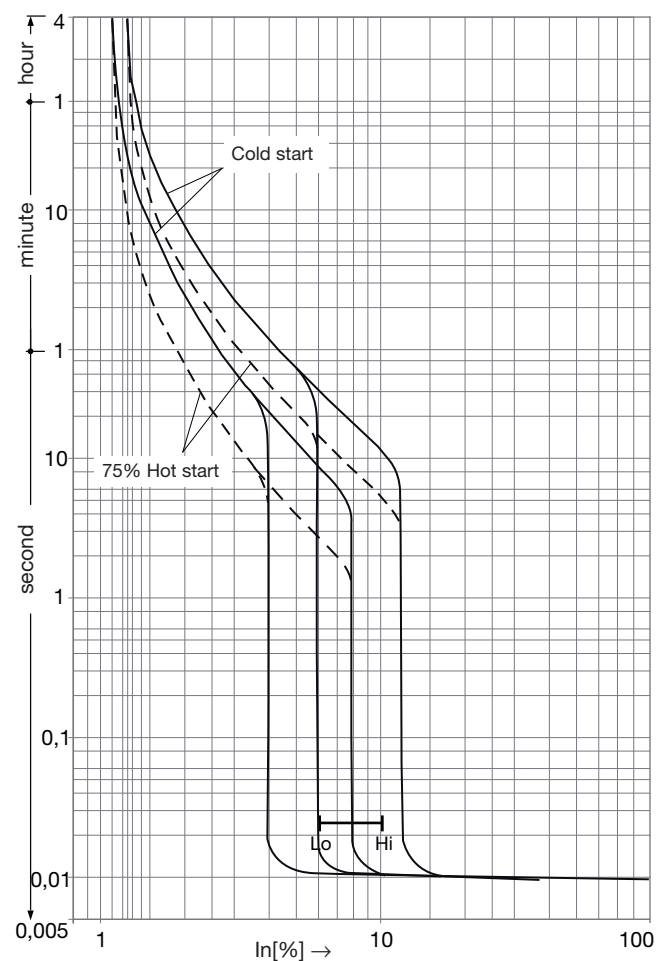
Electronic trip unit setting (LSI)

MCCBs 1000A electronic

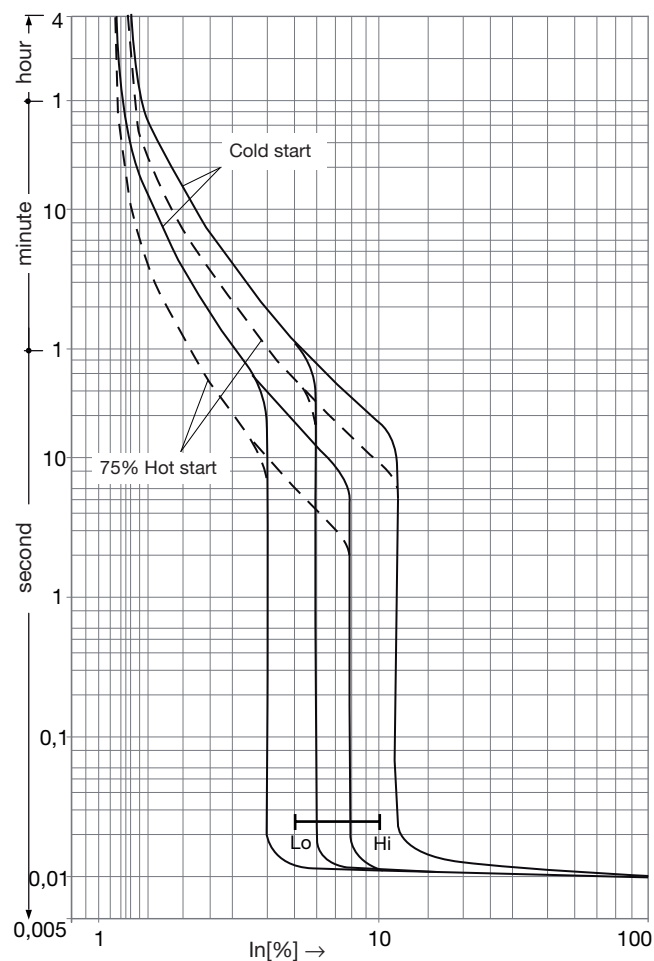
I _R (A)											
LTD Pick-up current		I _R	x ln	0,4	0,5	0,63	0,8	0,9	0,95	1	
Characteristics			No.	1	2	3	4	5	6		
Standard	LTD	t _R	(s)	11	21	21	5	10	16		
				200% x I _R				600% x I _R			
	STD	Isd	x I _R	2,5		5	8				
		tsd	(s)	0,1						0,2	
	INST	li	x I _R	14 (max : 10 x ln)							
Optional	NP	I _N	x ln	0 - 0,5 - 1							
		t _N	(s)	I _N =t _R							

Tripping curve

MCCB h800 TM (630A)

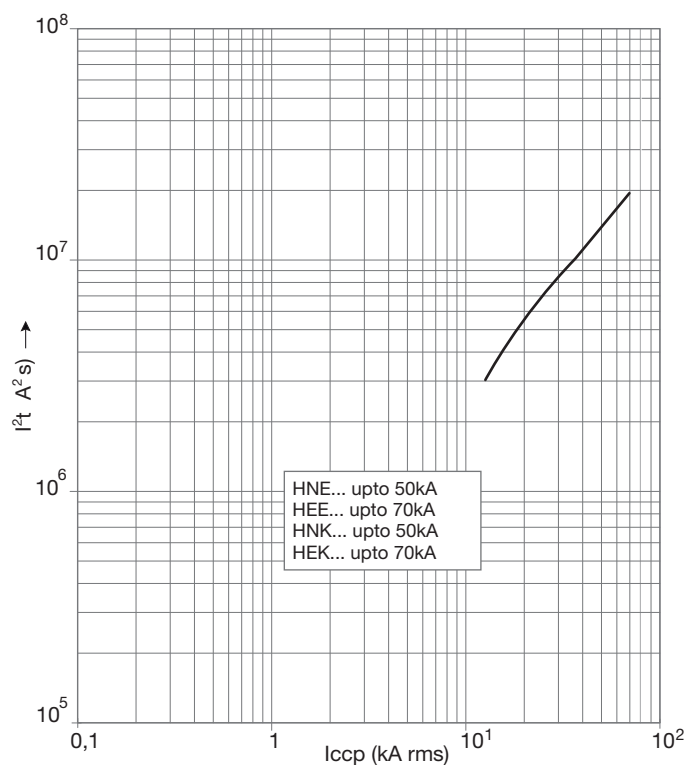


MCCB h800 TM (800A)



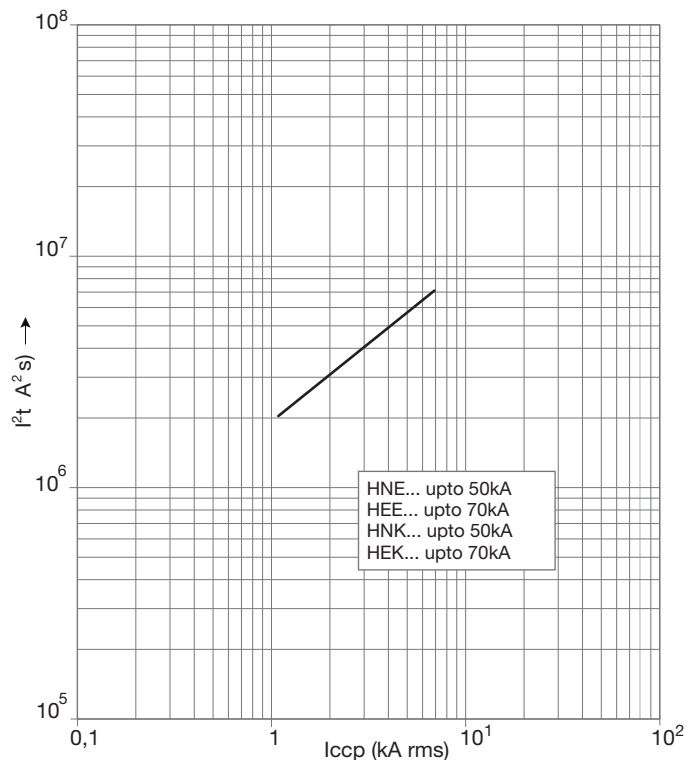
Thermal constraint curve at 400V (Let-through energy)

MCCB h1000



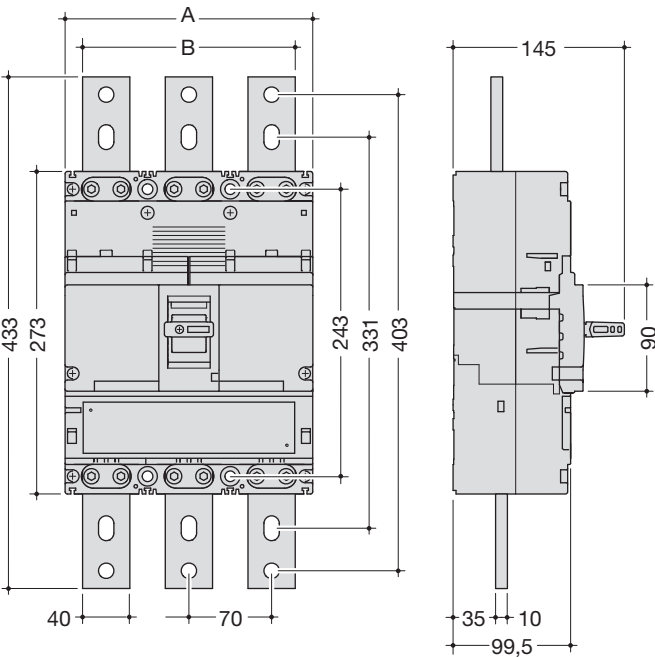
Current limiting curve at 400V (Let-through peak current)

MCCB h1000



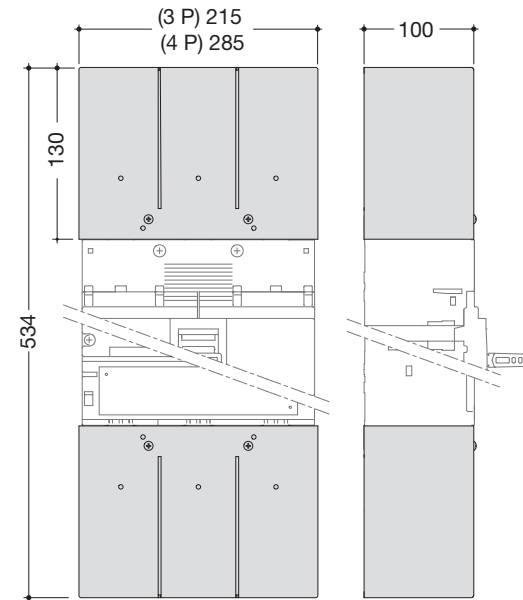
Dimensions

MCCBs

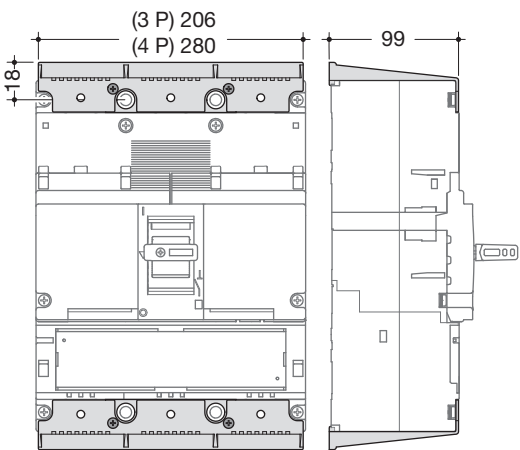


	A (mm)	B (mm)
3P	210	180
4P	280	250

Terminal covers for extended straight connections

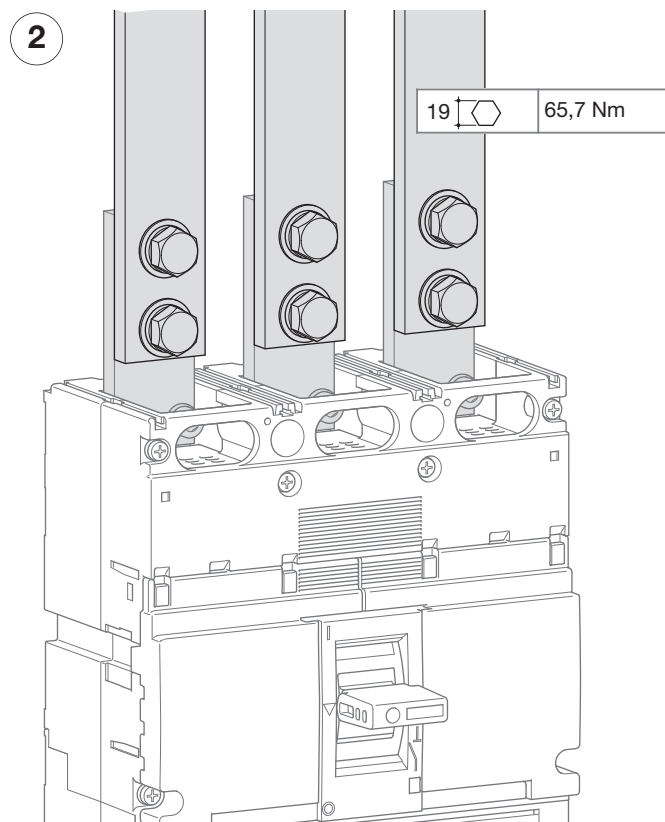
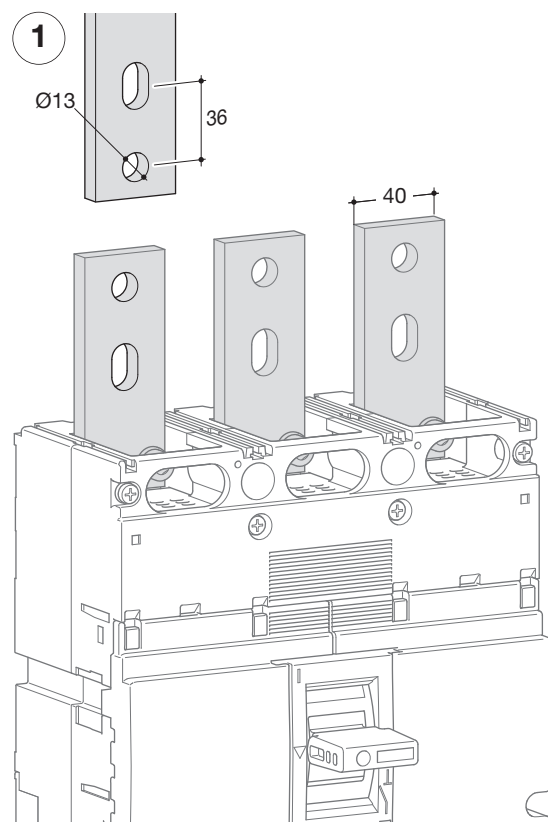


Terminal covers for rear connections



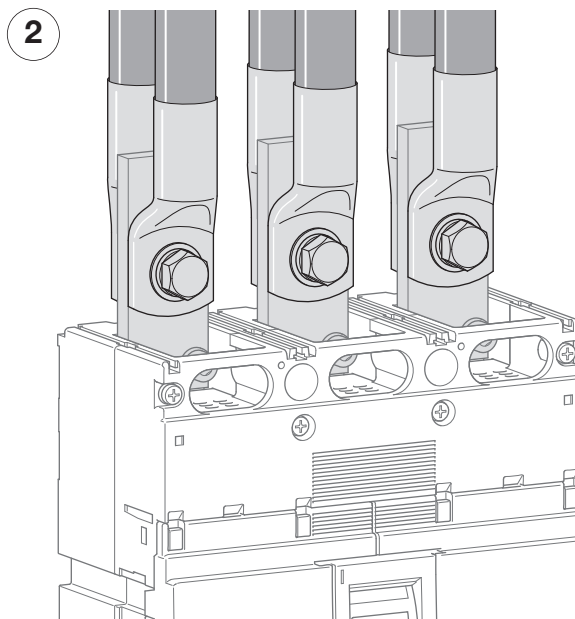
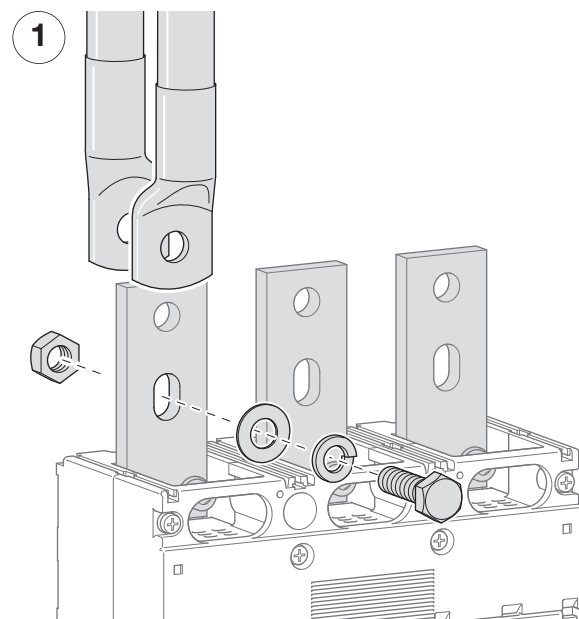
Connection

Extended straight connections

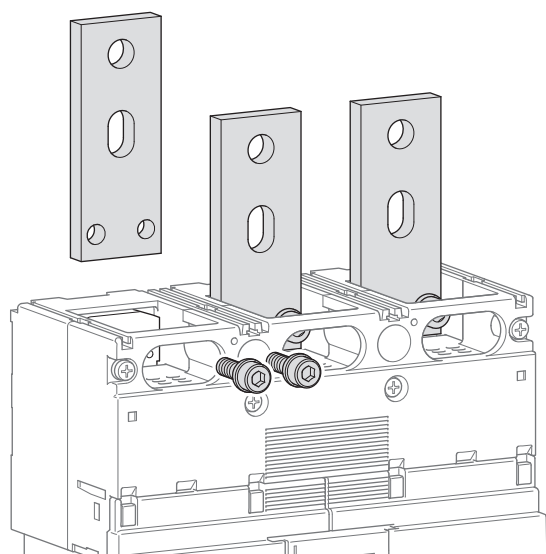


Direct cable connection on terminal
Copper with conductor max. width: 50 mm

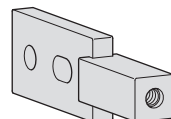
Connection with end lugs



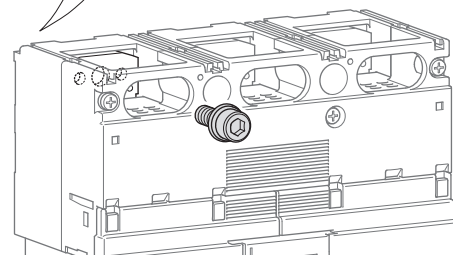
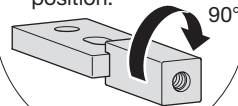
Rear connections



1000A:
vertical only.



630-800A:
vertical or horizontal
position.



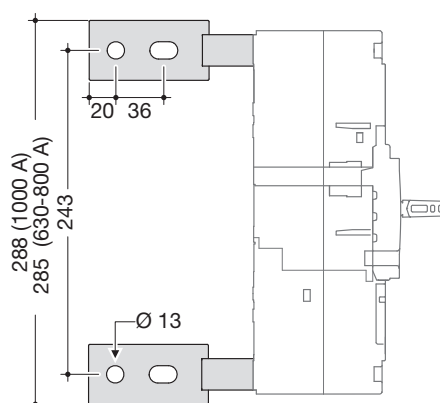
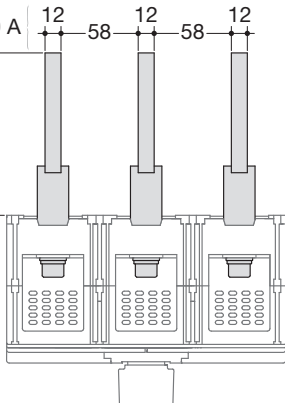
630-
800 A

10 60 10 60 10

1000 A

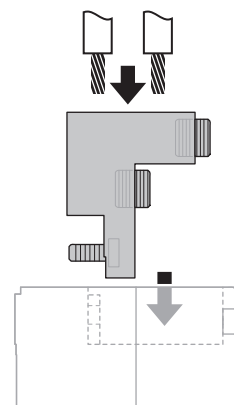
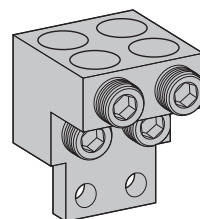
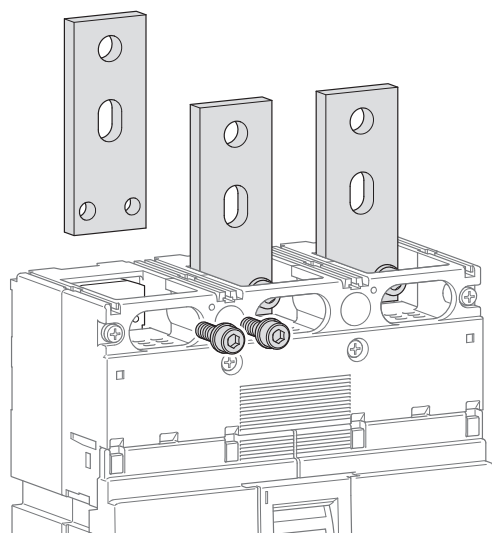
12 58 12 58 12

122



Connection for aluminium / copper conductors (h1000)

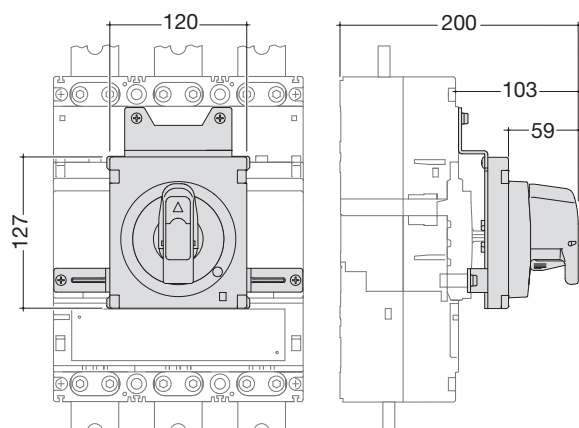
HYE007 (3P) - HYE008H (4P)



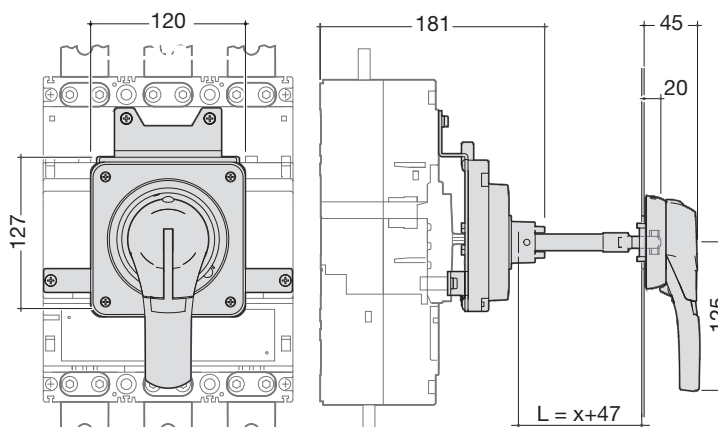
	max. 4x240 mm ²
10	25 Nm

Accessories

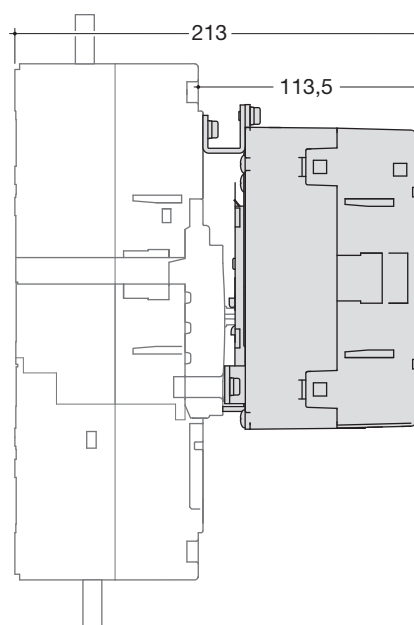
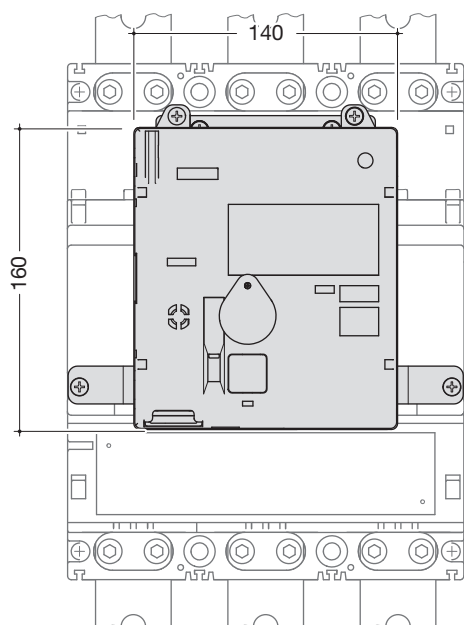
Direct rotary handle



Extended rotary handle

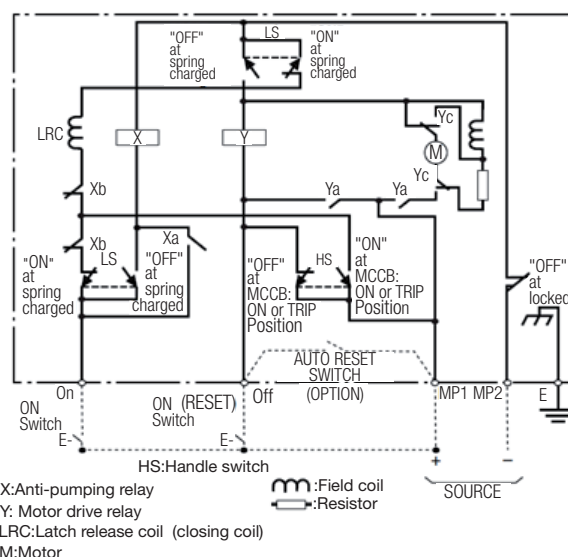


Motor operator



		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



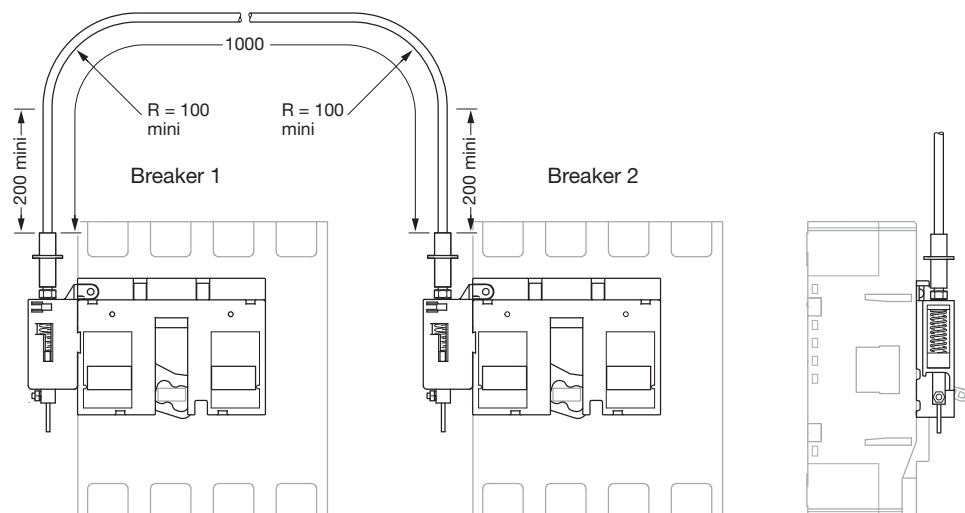
Interlocking system

Suitable with motor operator HXE04xH.

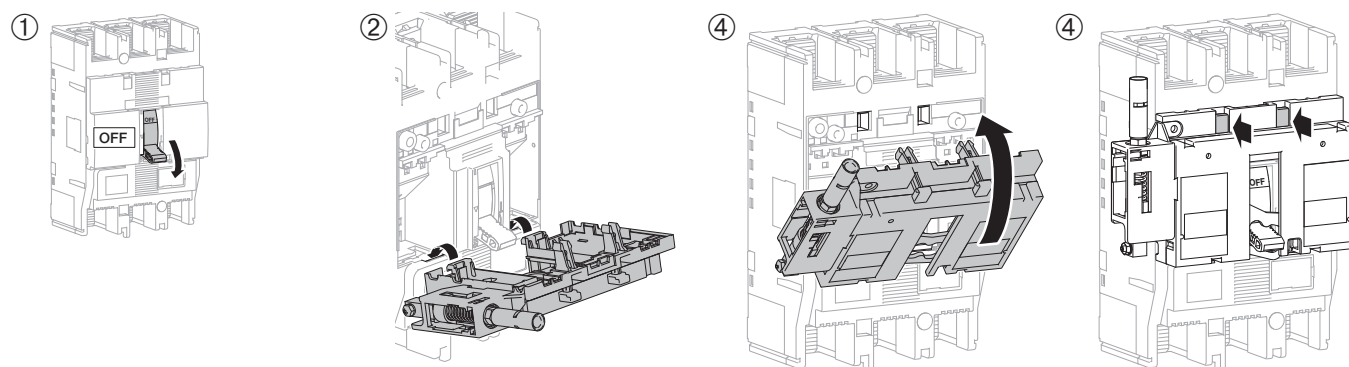
With electrical interlock for motor operator HXD068H (for 630/1000A) or HXB069H (for 250A).

- Length HXD068H: 2100 mm

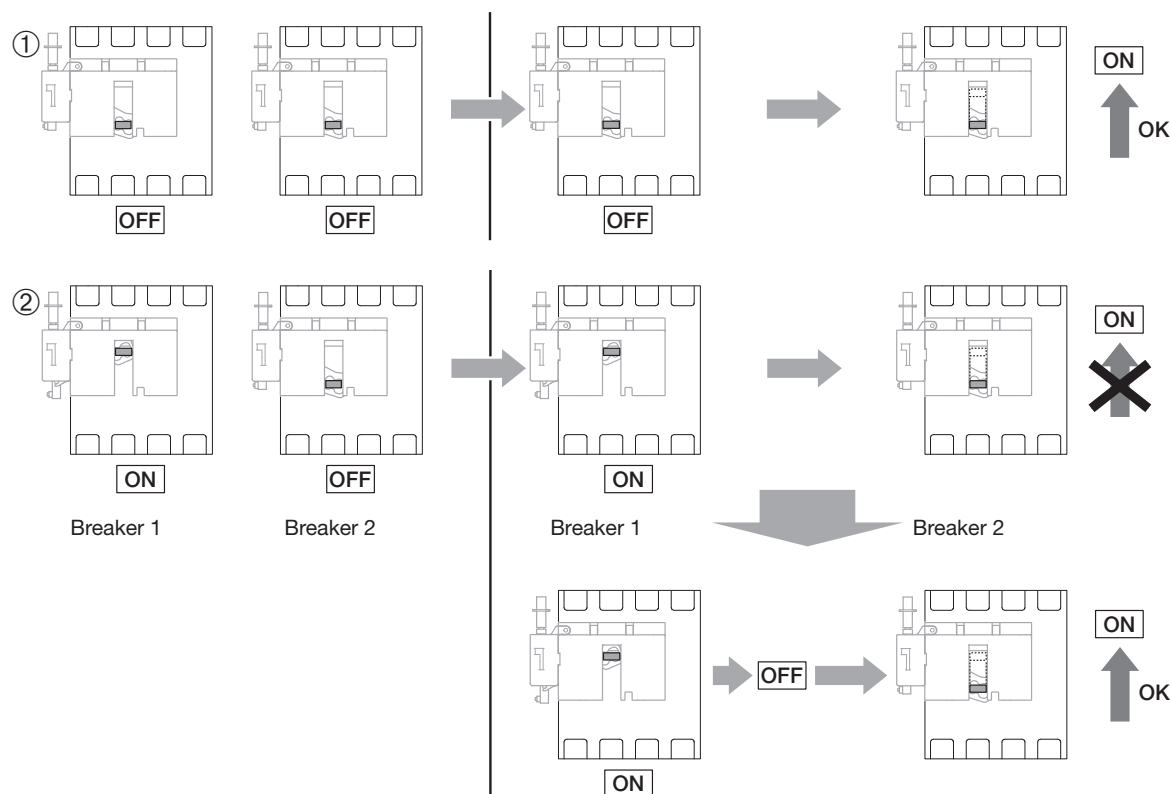
- Length HXB069H: 2100 mm



Mounting

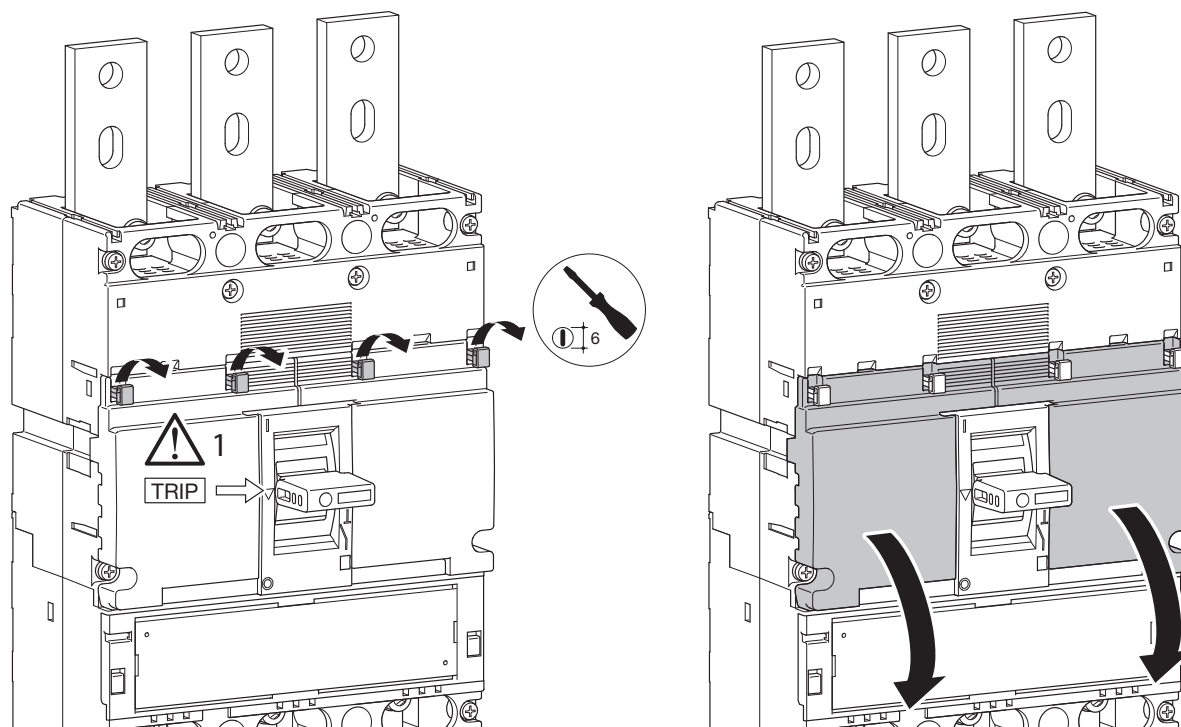


Checking the correct assembly

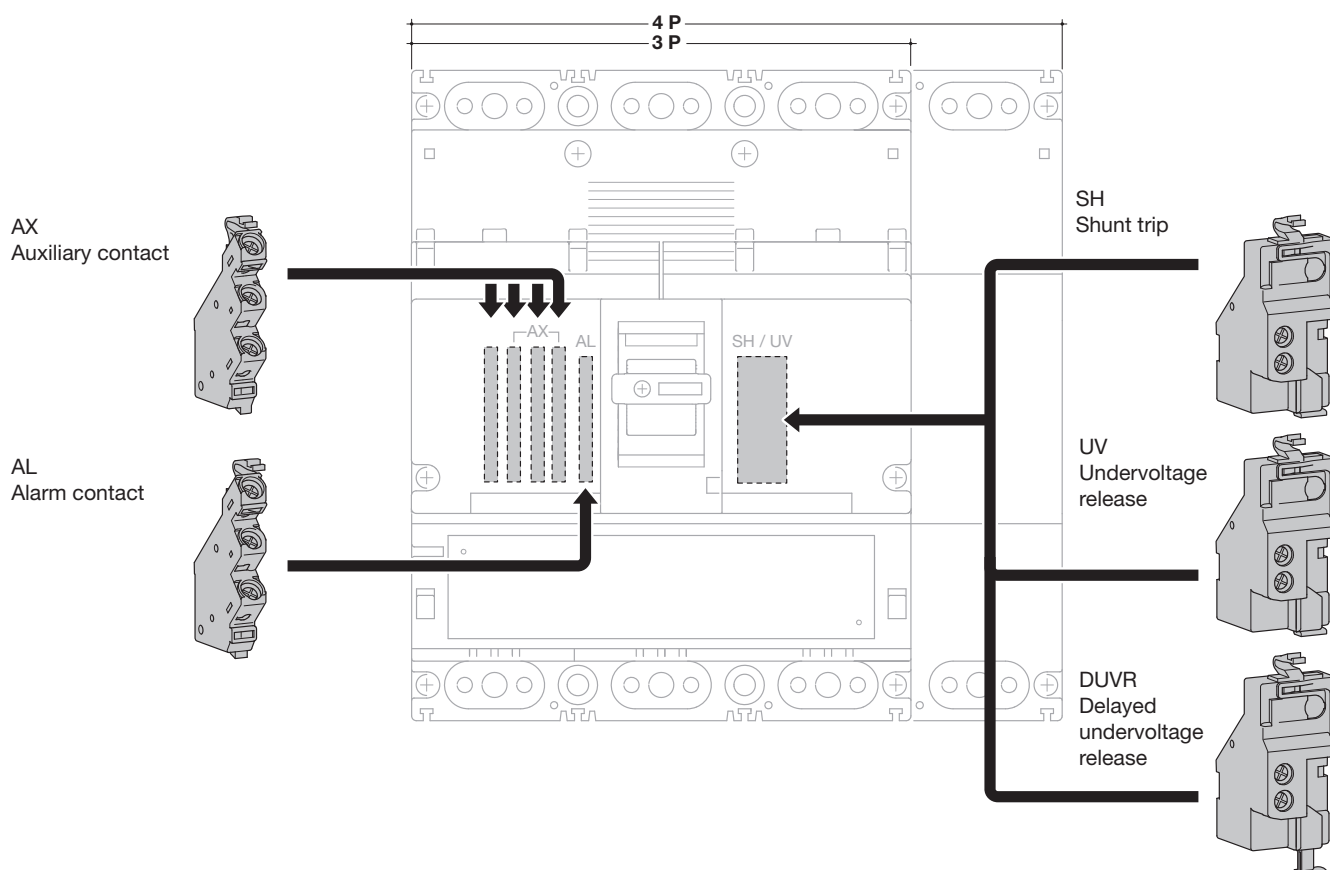


Auxiliaries

Auxiliaries for MCCBs and free tripping switches



Mounting combination for auxiliaries and releases



Moulded case circuit breakers h1600, selection and protection

Electronic trip unit LSI
 - Long delay (thermal equivalent) adjustable:
 $I_r = 0,4$ to $1 \times I_n$
 - short delay (magnetic equivalent) adjustable:
 $2,5$ to $10 \times I_r$
 - time delay: $0,1-0,2$ s

3 pole, 3 trip units,
 4 pole, 4 trip units,
 adjustable neutral 0 - 50% - 100%

Mechanical test button,
 lockable settings.

Connection:

Directly on copper cable terminal,
 with end lug max. width: 60 mm

Comply with IEC 60 947-2.

Trip-free switches

Allows tripping at distance using a voltmetrical trip unit (optional)

Comply with IEC 60 947-3.
 AC 23A / DC 22A



HNF990U

Designation	Characteristics	In	Cat. ref.	
			3P	4P
MCCBs h1600 50kA LSI	breaking capacity I_{cu} : 50 kA (400/415 V AC) I_{cs} : 50 kA	1250A	HNF980U	HNF981U
	adjustable thermal $I_r = 0,4$ to $1 \times I_n$ adjustable magnetic $2,5$ to $10 \times I_r$ time delay: $0,1-0,2$ s neutral setting 0, 50, 100%	1600A	HNF990U	HNF991U
MCCBs h1600 70kA LSI	breaking capacity I_{cu} : 70 kA (400/415 V AC) I_{cs} : 50 kA	1250A	HEF980U	HEF981U
	adjustable thermal $I_r = 0,4$ to $1 \times I_n$ adjustable magnetic $2,5$ to $10 \times I_r$ time delay: $0,1-0,2$ s neutral setting from 0, 50, 100%	1600A	HEF990U	HEF991U
Trip-free switches	suitable for AC 22A / AC 23A U_e : 415 V AC I_{cw} (0,3 s) = 20 kA	1250A	HCF980U	HCF981U
		1600A	HCF990U	HCF991U

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.

Rear connection: included



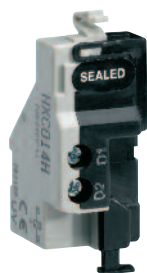
HXC 021H



HXC 024H



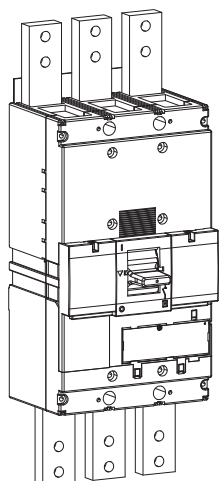
HXC 004H



HXC 014H

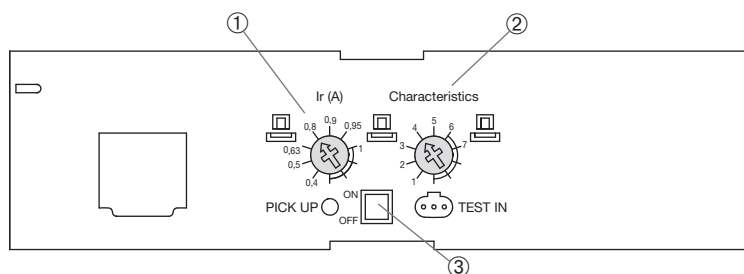
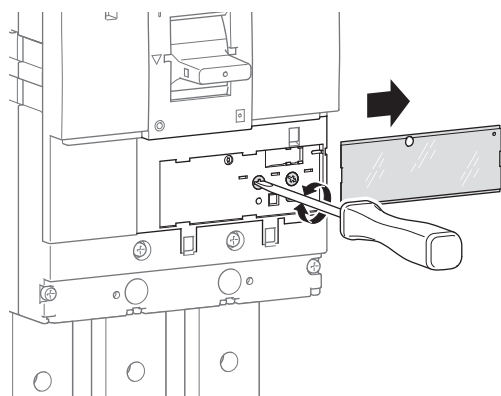
Designation	Characteristics	Cat. ref.
Auxiliary contacts		
AX	1 changeover contact 250 V AC / 3A	HXC021H
AL	125 V DC / 0,4A 1 NO + 1 NC	
	1 changeover alarm contact 250 V AC / 3A	HXC024H
	125 V DC / 0,4A 1 NO + 1 NC	
	low level contact (ON/OFF) 125 V AC	HXC025H
	1 NO + 1 NC	
	low level alarm contact 125 V AC	HXC026H
	1 NO + 1 NC	
Shunt trips		
SH	24 V DC	HXC001H
	48 V DC	HXC002H
	110 V DC	HXC008H
	100 - 120 V AC	HXC003H
	200 - 240 V AC	HXC004H
	380 - 450 V AC	HXC005H
Undervoltage releases		
UV	24 V DC	HXE011H
	100 - 120 V DC	HXE018H
	200 - 240 V DC	HXE019H
	110 - 120 V AC	HXE013H
	220 - 240 V AC	HXE014H
	380 - 415 V AC	HXE015H
Delayed undervoltage releases		
DUVR	24 V DC	HXF051H
	110 - 120 V AC	HXF053H
	220 - 240 V AC	HXF054H
	380 - 415 V AC	HXF055H
Direct rotary handle	padlockable handle, max Ø 8 mm	HXF030H
Extended rotary handle	padlockable handle, max Ø 8 mm	HXF031H
Padlock	to mount on MCCB for handle locking for 3 padlocks max Ø 8 mm	HXF039H
Motor operators		
	24 V DC	HXF040H
	200 - 230 V AC	HXF042H
Interphase barriers	set of 4 pieces	HYD019H
Connection kit	0,75 mm ² set of 3 x 2 wires length: 1,30m	HYA035H

MCCBs



		220/240 V AC	380/415 V AC	660/690 V AC
HNF	Icu (kA)	100	50	25
	Ics (kA)	75	50	25
HEF	Icu (kA)	100	70	45
	Ics (kA)	75	50	34
HCF	Icm (kA)	-	45	-
	Icw (kA)	-	20 kA-0,3 s	-

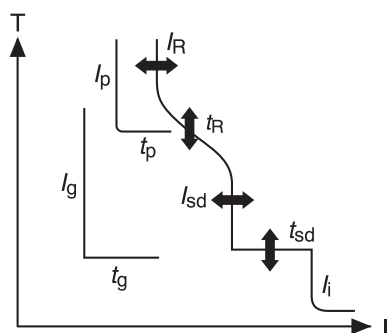
Electronic trip unit settings (LSI)



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.



	① Ir(A)	② Im	③ N
LSI	0,4 - 1 In	2,5 - 10 Ir	0% 50% 100 %

LSI		In A				
		1250 - 1600 A				
		Long Time Delay		Short Time Delay		Inst
		Ir (x In)	tr (s)	isd (xlr)	tsd (s)	li (xlr)
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 xlr	2,5	0,1	14 (max 12 x In)
	2		21s at 2 xlr			
	3			5		
	4		5 s at 6 xlr	10	0,2	
	5		10 s at 6 xlr			
	6		19 s at 6 xlr			
	7		29 s at 6 xlr			
③ Neutral protection	0%					
	50%					
	100%					

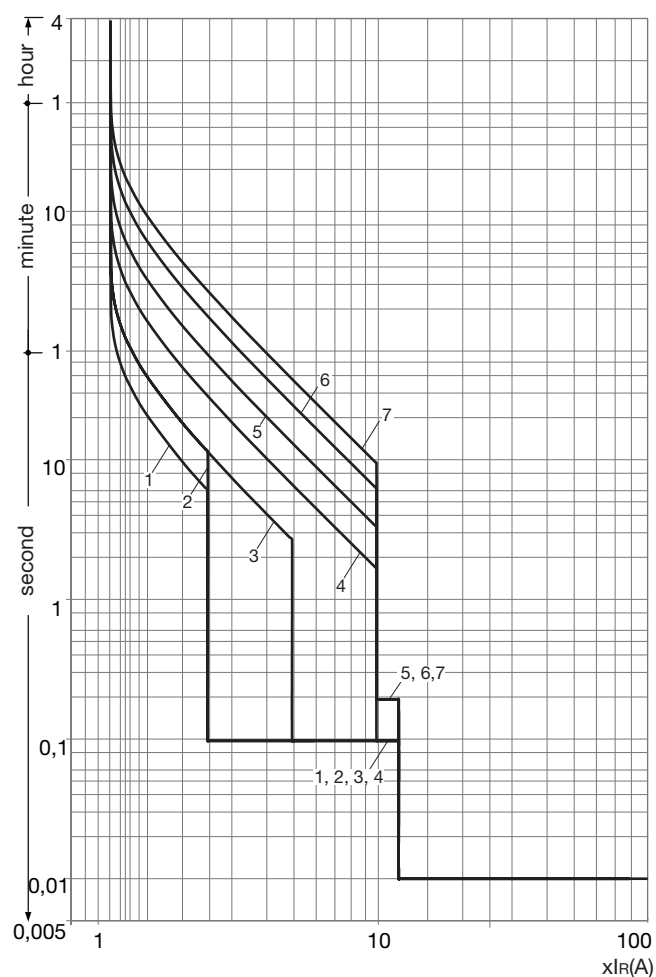
(*) Characteristic 1 : use for generators protection.

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 h1600 LSI



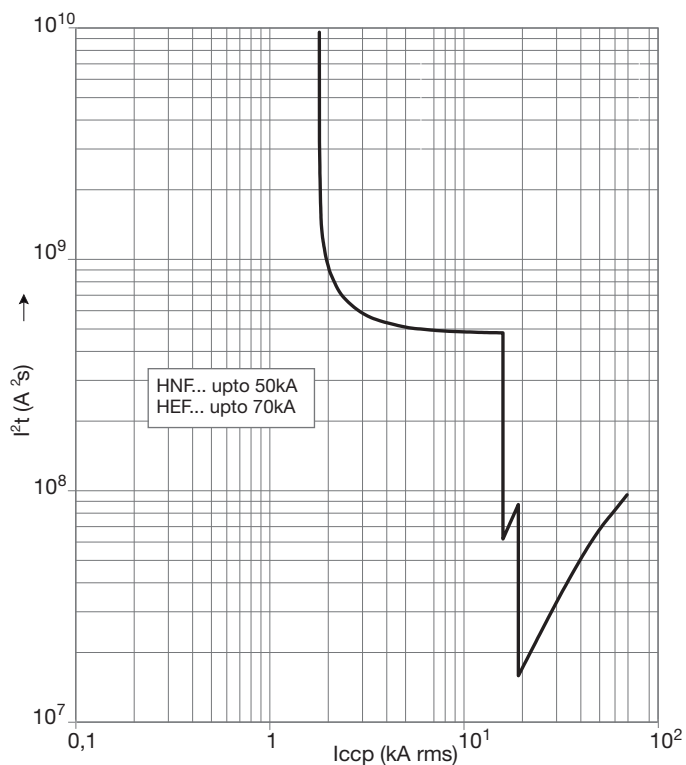
Electronic trip unit setting (LSI)

MCCBs 1250A and 1600A electronic

I _R (A)											
LTD Pick-up current			I _R	x ln	0,4	0,5	0,63	0,8	0,9	0,95	1
Characteristics			No.	1	2	3	4	5	6	7	
Standard	LTD	t _R	(s)	11	21	21	5	10	19	29	
				200% x I _R				600% x I _R			
	STD	Isd	x I _R	2,5		5	10				
		tsd	(s)	0,1						0,2	
		INST	li	x I _R	14 (max : 12 x ln)						
Optional	NP	I _N	x ln	0 - 0,5 - 1							
		t _N	(s)	I _N =t _R							

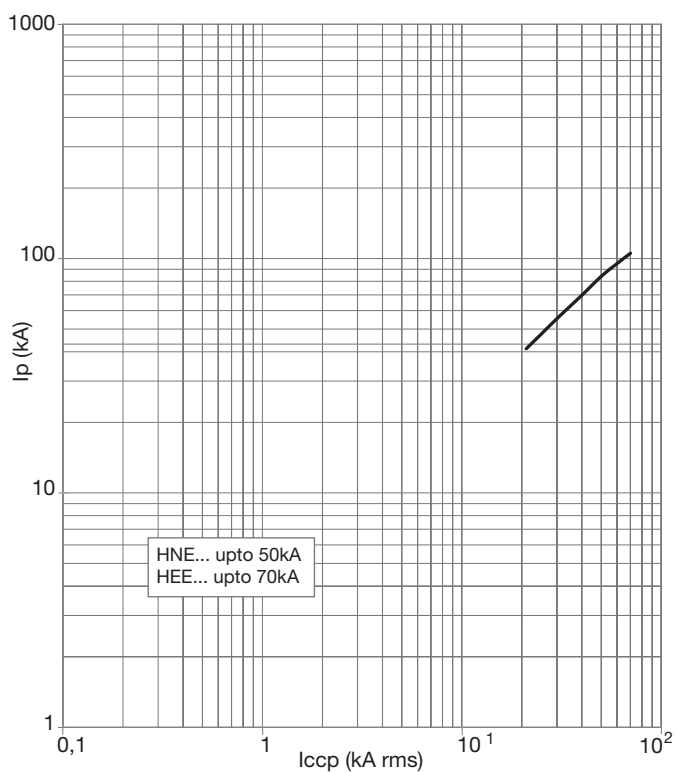
Thermal constraint curve at 400V (Let-through energy)

MCCB h1600



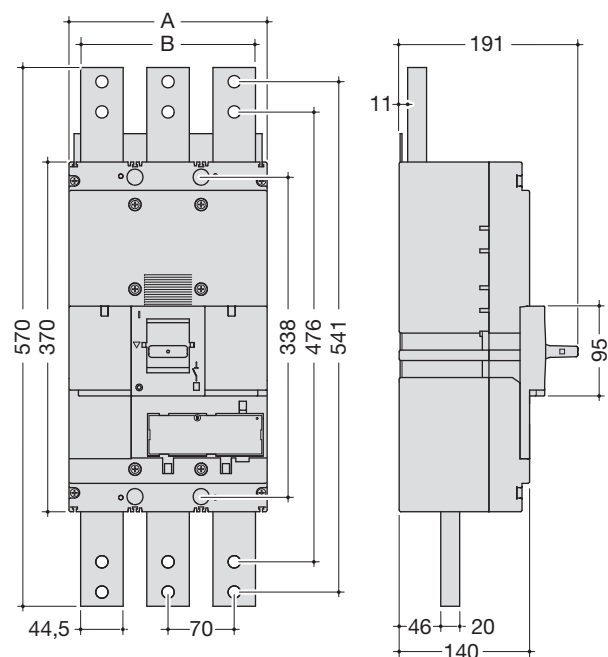
Current limiting curve at 400V (Let-through peak current)

MCCB h1600



Dimensions

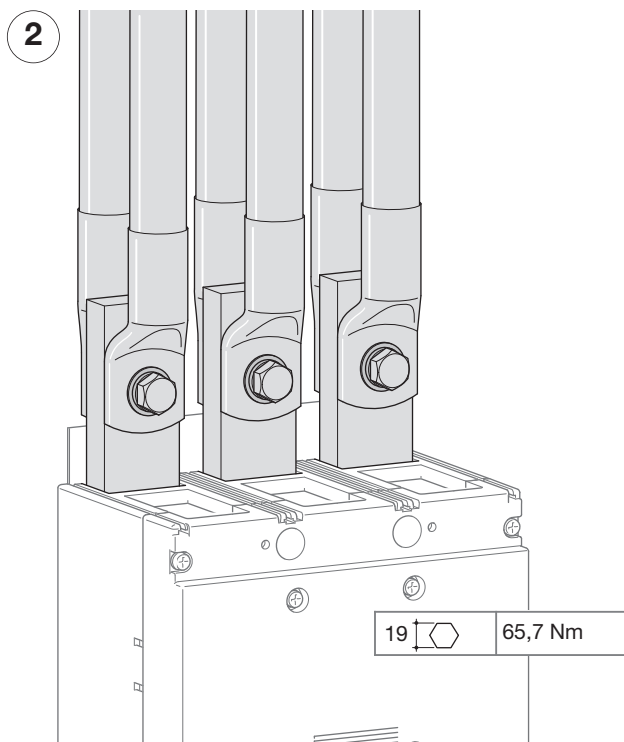
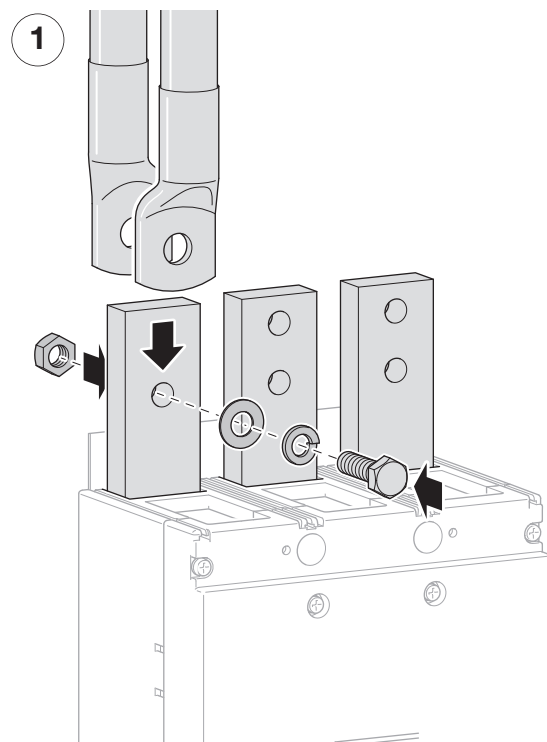
MCCBs



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

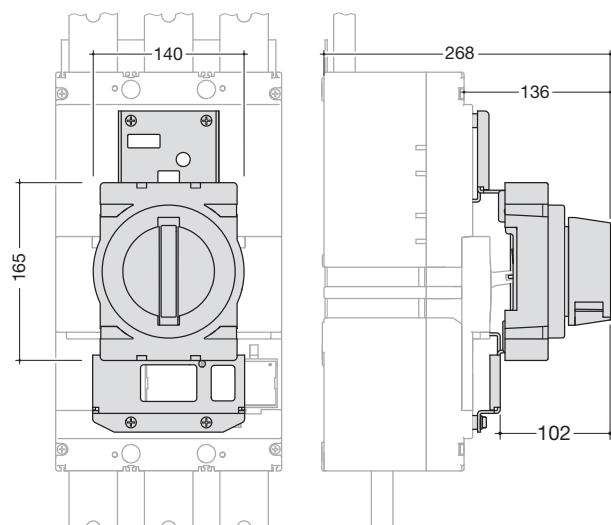
Connection

Connection with end lugs

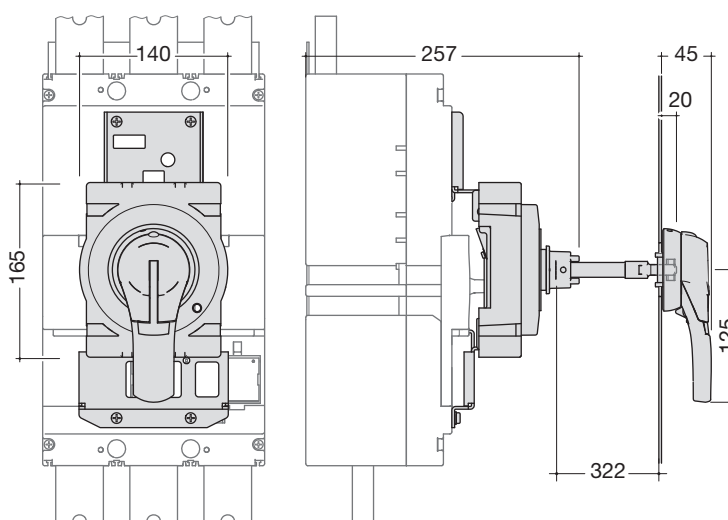


Accessories

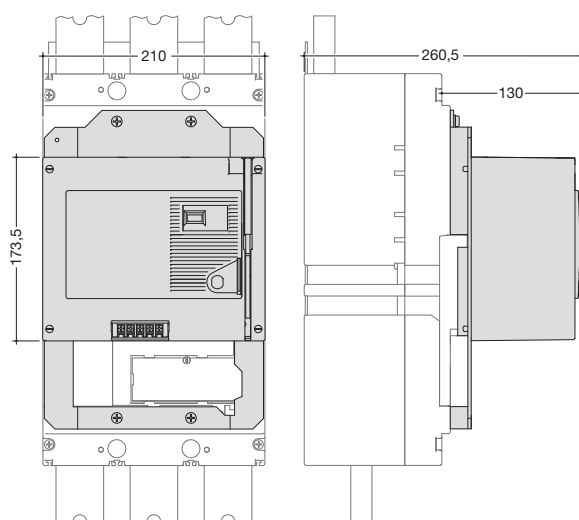
Direct rotary handle



Extended rotary handle

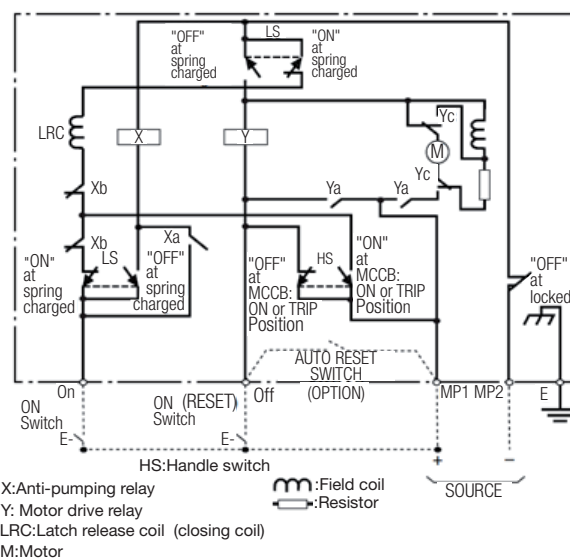


Motor operator



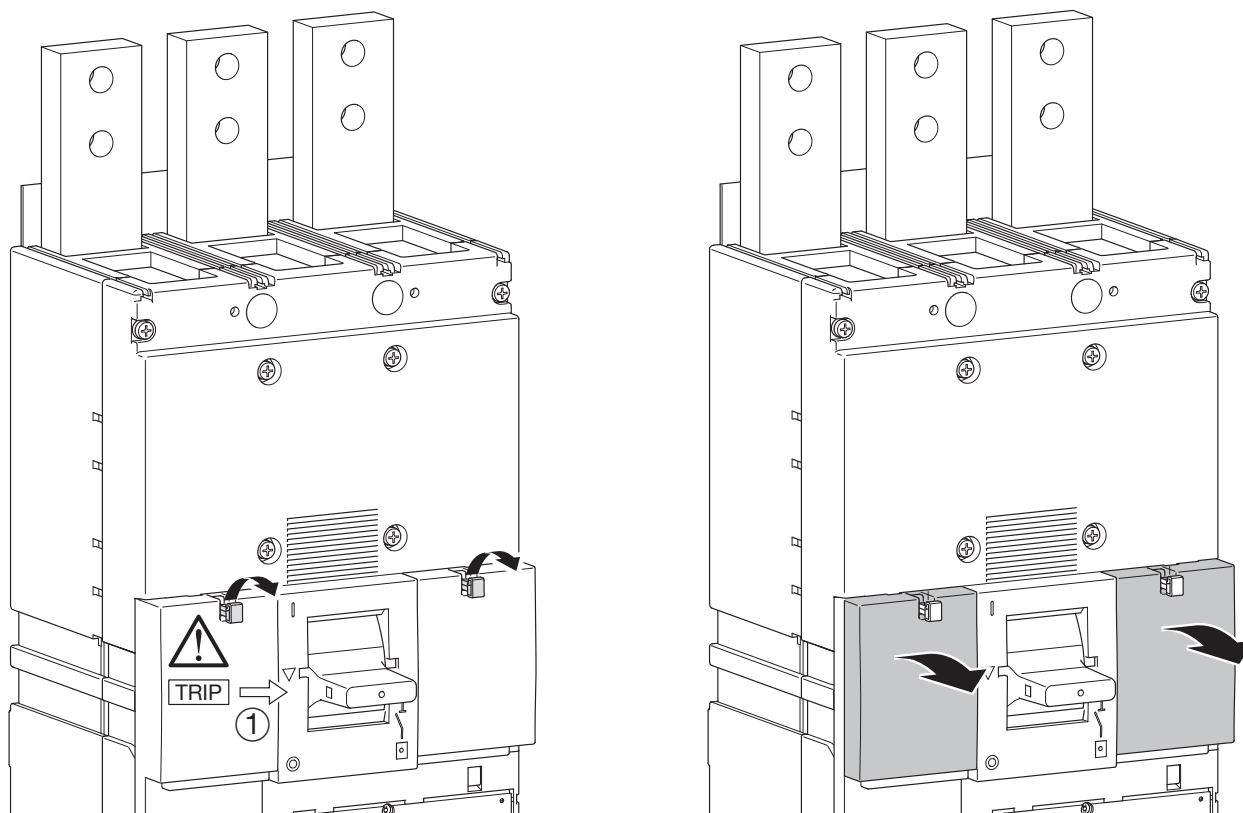
		HXF040H	HXF042H
Operating voltage		24V DC	200-230V AC
Operating current / starting current peak value (A)	24V DC	-/4,5 (ON) 4,0/12,0 (OFF, RESET)	-
	200-230V AC	-	-/1,2 (ON) 1,0/3,2 (OFF, RESET)
Operating time (s)	(ON)	0,06s	
	(OFF)	3s	
	(RESET)	3s	
Power supply required		300VA min.	
Dielectric properties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

Wiring diagram

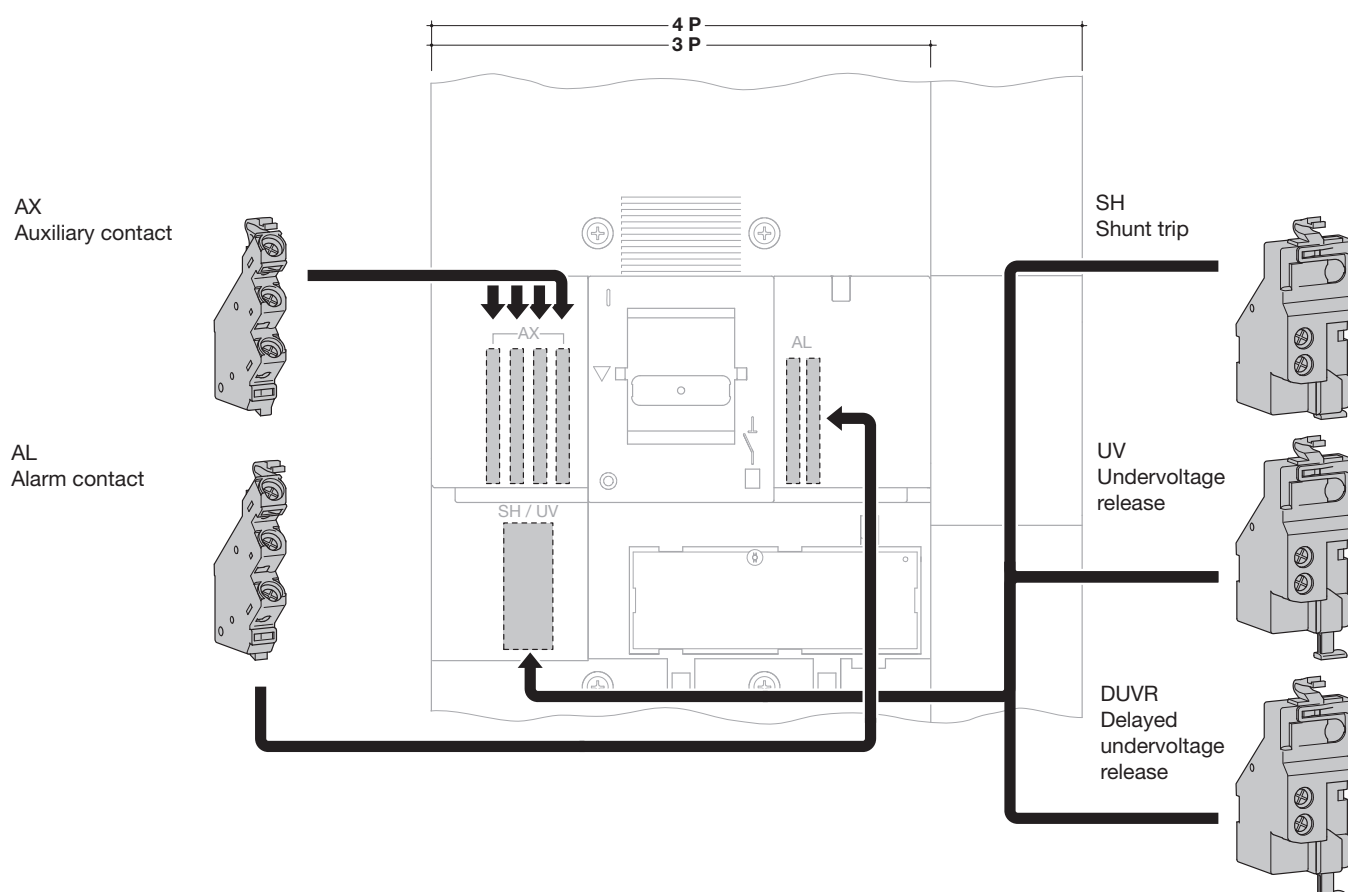


Auxiliaries

Auxiliaries for MCCBs and free tripping switches



Mounting combination for auxiliaries and releases



Cascading according to IEC 60947-2

MCCBs x160, x250, h250, h400, h630, h800, h1000, h1600

Max. cascading value in kA rms according to IEC 947-2 Network: 3 phases + neutral 220/380 - 240/415 VAC

				Upstream									
				x160 TM			x250 TM		h250 TM			h250 TM+	
				HDA	HHA	HNA	HHB	HNB	HHG	HNG	HEG	HNH	HEH
			IEC 60947-2	18 kA	25 kA	40 kA	25 kA	40 kA	25 kA	50 kA	65 kA	50 kA	70 kA
Downstream	x160 TM	HDA	18 kA	18	25	40	25	40	25	40	40	50	70
		HHA	25 kA	-	25	40	25	40	25	50	65	50	70
		HNA	40 kA	-	-	40	25	40	25	50	65	50	70
	x250 TM	HHB	25 kA	-	-	-	25	40	25	50	65	50	70
		HNB	40 kA	-	-	-	-	40	-	50	65	50	70
	h250 TM	HHG	25 kA	-	-	-	25	40	25	50	65	50	70
		HNG	50 kA	-	-	-	-	-	-	50	65	50	70
		HEG	65 kA	-	-	-	25	40	25	50	65	50	70
	h250 TM+	HNH	50 kA	-	-	-	-	-	-	50	65	50	70
		HEH	70 kA	-	-	-	-	-	-	-	65	-	70
	h250 LSI	HNC	50 kA	-	-	-	-	-	-	50	65	50	70
		HEC	70 kA	-	-	-	-	-	-	-	-	-	70
	h400 TM	HHD	25 kA	-	-	-	-	-	-	-	-	-	-
		HND	50 kA	-	-	-	-	-	-	-	-	-	-
		HKD	70 kA	-	-	-	-	-	-	-	-	-	-
	h630 LSI	HND	50 kA	-	-	-	-	-	-	-	-	-	-
		HED	70 kA	-	-	-	-	-	-	-	-	-	-
	h800 TM	HNK	50 kA	-	-	-	-	-	-	-	-	-	-
		HEK	70 kA	-	-	-	-	-	-	-	-	-	-
	h1000 LSI	HNE	50 kA	-	-	-	-	-	-	-	-	-	-
		HEE	70 kA	-	-	-	-	-	-	-	-	-	-
	h1600 LSI	HNF	50 kA	-	-	-	-	-	-	-	-	-	-
		HEF	70 kA	-	-	-	-	-	-	-	-	-	-

Max. cascading value in kA rms according to IEC 947-2 Network: 3 phases + neutral 127/220 - 138/240 VAC
or downstream devices in single-phase network: 3 phases + neutral 220/380 - 240/415 VAC

				Upstream									
				x160 TM			x250 TM		h250 TM			h250 TM+	
				HDA	HHA	HNA	HHB	HNB	HHG	HNG	HEG	HNH	HEH
			IEC 60947-2	25 kA	35 kA	85 kA	35 kA	85 kA	35 kA	85 kA	85 kA	85 kA	100 kA
Downstream	x160 TM	HDA	25 kA	25	35	85	35	85	35	85	85	85	100
		HHA	35 kA	-	35	85	35	85	35	85	85	85	100
		HNA	85 kA	-	-	85	35	85	35	85	85	85	100
	x250 TM	HHB	35 kA	-	-	-	35	85	35	85	85	85	100
		HNB	85 kA	-	-	-	-	85	-	85	85	85	100
	h250 TM	HHG	35 kA	-	-	-	35	85	35	85	85	85	100
		HNG	85 kA	-	-	-	-	85	-	85	85	85	100
		HEG	85 kA	-	-	-	-	85	-	85	85	85	100
	h250 TM+	HNH	85 kA	-	-	-	-	-	-	85	85	85	100
		HEH	100 kA	-	-	-	-	-	-	-	85	85	100
	h250 LSI	HNC	85 kA	-	-	-	-	85	-	85	85	85	100
		HEC	100 kA	-	-	-	-	-	-	-	-	-	100
	h400 TM	HHD	35 kA	-	-	-	-	-	-	-	-	-	-
		HND	85 kA	-	-	-	-	-	-	-	-	-	-
		HKD	100 kA	-	-	-	-	-	-	-	-	-	-
	h630 LSI	HND	85 kA	-	-	-	-	-	-	-	-	-	-
		HED	100 kA	-	-	-	-	-	-	-	-	-	-
	h800 TM	HNK	85 kA	-	-	-	-	-	-	-	-	-	-
		HEK	100 kA	-	-	-	-	-	-	-	-	-	-
	h1000 LSI	HNE	85 kA	-	-	-	-	-	-	-	-	-	-
		HEE	100 kA	-	-	-	-	-	-	-	-	-	-
	h1600 LSI	HNF	100 kA	-	-	-	-	-	-	-	-	-	-
		HEF	100 kA	-	-	-	-	-	-	-	-	-	-

h250 LSI		h400 TM			h630 LSI		h800 TM		h1000 LSI		h1600 LSI	
HNC	HEC	HHD	HND	HKD	HND	HED	HNK	HEK	HNE	HEE	HNF	HEF
50 kA	70 kA	25 kA	50 kA	70 kA	50 kA	70 kA	50 kA	70 kA	50 kA	70 kA	50 kA	70 kA
50	70	25	34	24	24	24	25	25	25	25	18	18
50	70	25	50	55	50	55	45	45	45	45	28	28
50	70	25	50	70	50	70	50	70	50	70	50	50
50	70	25	50	55	50	55	45	45	45	45	28	28
50	70	25	50	70	50	70	50	70	50	70	50	50
50	70	25	50	55	50	55	45	45	45	45	28	28
50	70	25	50	70	50	70	50	70	50	70	50	70
50	70	25	50	55	50	55	45	45	50	70	28	28
50	70	25	50	70	50	70	50	70	50	70	50	70
50	70	25	50	70	50	70	50	70	50	70	50	70
50	70	25	50	70	50	70	50	70	50	70	50	70
-	70	25	50	70	50	70	50	70	50	70	50	70
-	-	25	50	55	50	55	45	45	45	45	28	28
-	-	-	50	70	50	70	50	70	50	70	50	70
-	-	-	-	70	50	70	50	70	50	70	50	70
-	-	-	-	-	50	70	50	70	50	70	50	70
-	-	-	-	-	-	70	50	70	50	70	50	70
-	-	-	-	-	-	-	50	70	50	70	50	70
-	-	-	-	-	-	-	-	70	-	70	50	70
-	-	-	-	-	-	-	-	-	50	70	50	70
-	-	-	-	-	-	-	-	-	-	70	50	70
-	-	-	-	-	-	-	-	-	-	-	50	70
-	-	-	-	-	-	-	-	-	-	-	-	70

h250 LSI		h400 TM			h630 LSI		h800 TM		h1000 LSI		h1600 LSI	
HNC	HEC	HHD	HND	HKD	HND	HED	HNK	HEK	HNE	HEE	HNF	HEF
85 kA	100 kA	35 kA	85 kA	100 kA	85 kA	100 kA	85 kA	100 kA	85 kA	100 kA	100 kA	100 kA
85	100	35	85	100	85	100	57	57	57	57	30	30
85	100	35	85	100	85	100	85	100	85	100	45	45
85	100	35	85	100	85	100	85	100	85	100	100	100
85	100	35	85	100	85	100	85	100	85	100	45	45
85	100	35	85	100	85	100	85	100	85	100	100	100
85	100	35	85	100	85	100	85	100	85	100	45	45
85	100	35	85	100	85	100	85	100	85	100	100	100
85	100	35	85	100	85	100	85	100	85	100	100	100
85	100	35	85	70	85	100	85	100	85	100	100	100
85	100	35	85	70	85	100	85	100	85	100	100	100
85	100	35	85	100	85	100	85	100	85	100	100	100
-	100	35	85	100	85	100	85	100	85	100	100	100
-	-	35	85	100	85	100	85	100	85	100	45	45
-	-	-	85	100	85	100	85	100	85	100	100	100
-	-	-	-	70	85	100	85	100	85	100	100	100
-	-	-	-	-	85	100	85	100	85	100	100	100
-	-	-	-	-	-	100	85	100	85	100	100	100
-	-	-	-	-	-	-	85	100	85	100	100	100
-	-	-	-	-	-	-	-	100	-	100	100	100
-	-	-	-	-	-	-	-	-	85	100	100	100
-	-	-	-	-	-	-	-	-	-	100	100	100
-	-	-	-	-	-	-	-	-	-	-	100	100
-	-	-	-	-	-	-	-	-	-	-	100	100

Cascading according to IEC 60947-2

MCCBs x160, x250, h250, h400, h630, h800, h1000, h1600

Max. cascading value in kA rms according to IEC 947-2 Network: 3 phases + neutral 220/380 - 240/415 VAC

				Upstream									
				x160 TM			x250 TM		h250 TM			h250 TM+	
				HDA	HHA	HNA	HHB	HNB	HHG	HNG	HEG	HNH	HEH
			IEC 60947-2	18 kA	25 kA	40 kA	25 kA	40 kA	25 kA	50 kA	65 kA	50 kA	70 kA
Downstream	x160	HCA		18	25	40	25	40	25	50	65	50	70
	x250	HCB		-	-	-	25	40	25	50	65	50	70
	h630	HCD		-	-	-	-	-	-	-	-	-	-
	h1000	HCE		-	-	-	-	-	-	-	-	-	-
	h1600	HCF		-	-	-	-	-	-	-	-	-	-

Max. cascading value in kA rms according to IEC 947-2 Network: 3 phases + neutral 127/220 - 138/240 VAC
or downstream devices in single-phase network: 3 phases + neutral 220/380 - 240/415 VAC

				Upstream									
				x160 TM			x250 TM		h250 TM			h250 TM+	
				HDA	HHA	HNA	HHB	HNB	HHG	HNG	HEG	HNH	HEH
			IEC 60947-2	25 kA	35 kA	85 kA	35 kA	85 kA	35 kA	85 kA	85 kA	85 kA	100 kA
Downstream	x160	HCA		25	35	85	35	85	35	85	85	85	100
	x250	HCB		-	-	-	35	85	35	85	85	85	100
	h250	HCD		-	-	-	-	-	-	-	-	-	-
	h250	HCE		-	-	-	-	-	-	-	-	-	-
	h250	HCF		-	-	-	-	-	-	-	-	-	-

h250 LSI		h400 TM			h630 LSI		h800 TM		h1000 LSI		h1600 LSI	
HNC	HEC	HHD	HND	HKD	HND	HED	HNK	HEK	HNE	HEE	HNF	HEF
50 kA	70 kA	25 kA	50 kA	70 kA	50 kA	70 kA	50 kA	70 kA	50 kA	70 kA	50 kA	70 kA
25	70	25	50	70	50	70	50	70	50	70	50	70
25	70	25	50	70	50	70	50	70	50	70	50	70
-	-	-	-	70	50	70	50	70	50	70	50	70
-	-	-	-	-	-	-	50	70	50	70	50	70
-	-	-	-	-	-	-	-	-	-	-	50	70

h250 LSI		h400 TM			h630 LSI		h800 TM		h1000 LSI		h1600 LSI	
HNC	HEC	HHD	HND	HKD	HND	HED	HNK	HEK	HNE	HEE	HNF	HEF
85 kA	100 kA	35 kA	85 kA	100 kA	85 kA	100 kA	85 kA	100 kA	85 kA	100 kA	100 kA	100 kA
35	100	35	85	100	85	100	85	100	100	100	100	100
35	100	35	85	100	85	100	85	100	100	100	100	100
-	-	-	-	100	85	100	85	100	100	100	100	100
-	-	-	-	-	-	-	85	100	100	100	100	100
-	-	-	-	-	-	-	-	-	-	-	100	100

Cascading according to IEC 60947-2 MCCBs / Switches, RCDs, RCBOs, MCBs

Max. cascading value in kA rms according to IEC 947-2 Network: 3 phases + neutral 220/380 - 240/415 VAC

							Upstream								
							x160 TM			x250 TM		h250 TM			
							HDA	HHA	HNA	HHB	HNB	HHG	HNG	HEG	
					IEC 60898 IEC 61008 IEC 61009	IEC 60947-2	18 kA	25 kA	40 kA	25 kA	40 kA	25 kA	50 kA	65 kA	
Downstream	Switches	SB1xx, SB3xx, SB4xx	32A	1P, 3P, 4P			2.2	2.2	2.2	-	-	-	-	-	
		SB1xx, SB3xx, SB4xx	63A	1P, 3P, 4P			3.1	3.1	3.1	-	-	-	-	-	
		SB1xx, SB3xx, SB4xx	100A	1P, 3P, 4P			4.8	4.8	4.8	4.6	4.6	-	-	-	
	Switches	SB2xx	32A	2P			2.3	2.3	2.3	-	-	-	-	-	
		SB2xx	63A	2P			3.4	3.4	3.4	-	-	-	-	-	
		SB2xx	100A	2P			5.5	5.5	5.5	4.6	4.6	-	-	-	
	IDL 2P/4P	SA2xx	80A	2P			6.7	6.7	6.7	5.1	5.1	5	5	5	
		SA4xx	80A	4P			5.7	5.7	5.7	5.1	5.1	5	5	5	
	RCD 2P/4P	CCxxx, CDxxx, CExxx, CFxxx, CGxxx	63A	2P			4.25	4.25	4.25	3.7	3.7	-	-	-	
			63A	4P			3.8	3.8	3.8	3.7	3.7	-	-	-	
			100A	2P			5.5	5.5	5.5	4.6	4.6	-	-	-	
			100A	4P			4.8	4.8	4.8	4.6	4.6	-	-	-	
	MCB Ph+N under 240V	MFS, MFN	32A	C	3 kA	-	3.3	3.3	3.3	-	-	-	-	-	
		MJN, MHN	40A	B, C	4.5 kA	6 kA	8	8	8	6.5	6.5	6	6	6	
		MLN, MLU	40A	C	6 kA	7.5 kA	12.5	12.4	12.5	9.7	9.7	7.5	7.5	7.5	
	MCB Spinx Ph+N under 240V	3PP: NFT3xx, NGT3xx 3PP+N: NFT8xx, NGT8xx	40A	C, D	6 kA	10 kA	18	20	20	14.1	20	10.1	10.1	10.1	
			Ph+N: NFT7xx, NGT7xx	40A	C, D	6 kA	10 kA	18	18	18	14.1	14.1	10.1	10.1	10.1
			Ph+N: MHT7xx, MJT7xx	40A	B, C	4.5 kA	6 kA	8	8	8	6.5	6.5	6	6	6
	RCBO 2 mod 1PP+N under 240V	ADC, ADH	32A	C	3 kA	-	3.3	3.3	3.3	-	-	-	-	-	
		Ax8xx	40A	C	4.5 kA	6 kA	8	8	8	6.5	6.5	6	6	6	
		Ax9xx	40A	C	6 kA	10 kA	18	18	18	14	14	10	10	10	
	RCBO 1 mod 1PP+N under 240V	AC1xx, AD1xx, AE1xx, AF1xx, ACx1xx, ADx1xx, AEx1xx	40A	B, C	10 kA	15 kA	18	25	40	25	40	25	25	25	
			50A	B, C	6 kA	10 kA	18	20	20	14.1	14.1	10.1	10.1	10.1	
	MCB Ocean 2 & v1 1 mod	MV, MW	63A	B, C	3 kA	4.5 kA	5.4	5.4	5.4	5.2	5.2	-	-	-	
		MX, MY	63A	B, C	4.5 kA	6 kA	8	8	8	6.5	6.5	6	6	6	
		MU, MT	63A	B, C	6 kA	10 kA	18	20	20	14.1	14.1	10.1	10.1	10.1	
		NB, NC, ND	63A	B, C, D	10 kA	15 kA	18	25	40	25	40	25	25	25	
	MCB GDE 1 mod	MVN, MWN	63A	B, C	3 kA	-	3.3	3.3	3.3	-	-	-	-	-	
		MXN, MYN	63A	B, C	4.5 kA	-	5.4	5.4	5.4	5.2	5.2	-	-	-	
		MBN, MCN, MTN, MUN, MP	63A	B, C	6 kA	-	8	8	8	6.5	6.5	6	6	6	
MCB GTE 1 mod	MBA, MCA, NEN, NFN, NGN	63A	B, C, D	6 kA	10 kA	18	25	30	20	25	15	18	20		
		NBN, NCN, NDN, NKN	63A	B, C, D	10 kA	15 kA	18	25	40	25	40	25	25	25	
	NQN, NRN, NSN	20A	B, C, D	-	25 kA	18	25	40	25	40	25	50	65		
		40A	B, C, D	-	20 kA	18	25	40	25	40	25	50	55		
		63A	B, C, D	-	15 kA	18	25	40	25	40	25	50	25		
	MMN2xx, MMN3xx	12A	magn.	-	25 kA	18	25	40	25	40	25	50	65		
	MMN2xx, MMN3xx	25A	magn.	-	20 kA	18	25	40	25	40	25	50	53.4		
MCB DEFI 125 1,5 mod	HLE, HLF, HLG, HME, HMF, HMG	125A	B, C	10 kA	15 kA	18	25	40	25	40	25	50	25		
	HMB, HMC, HMD	125A	B, C, D	15 kA	15 kA	18	25	40	25	40	25	50	25		
	HMJ, HMK	125A	C	-	30 kA	18	25	40	25	40	25	50	65		
	HMX	63A	C	-	50 kA	18	25	40	25	40	25	50	65		

h250 TM+		h250 LSI		h400 TM			h630 LSI		h800 TM		h1000 LSI		h1600 LSI	
HNH	HEH	HNC	HEC	HHD	HND	HKD	HND	HED	HNK	HEK	HNE	HEE	HNF	HEF
50 kA	70 kA	50 kA	70 kA	25 kA	50 kA	70 kA	50 kA	70 kA	50 kA	70 kA	50 kA	70 kA	50 kA	70 kA
3.5	3.5	3.5	3.5	-	-	-	-	-	-	-	-	-	-	-
3.9	3.9	3.9	3.9	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.5	3.5	3.5	3.5	-	-	-	-	-	-	-	-	-	-	-
3.9	3.10	3.11	3.12	-	-	-	-	-	-	-	-	-	-	-
4.7	4.7	4.7	4.7	-	-	-	-	-	-	-	-	-	-	-
5.3	5.3	5.3	5.3	-	-	-	-	-	-	-	-	-	-	-
5.3	5.3	5.3	5.3	-	-	-	-	-	-	-	-	-	-	-
5.3	5.3	5.3	5.3	-	-	-	-	-	-	-	-	-	-	-
5.3	5.3	5.3	5.3	-	-	-	-	-	-	-	-	-	-	-
4.7	4.7	4.7	4.7	-	-	-	-	-	-	-	-	-	-	-
4.7	4.7	4.7	4.7	-	-	-	-	-	-	-	-	-	-	-
4.1	4.1	4.1	4.1	-	-	-	-	-	-	-	-	-	-	-
6.5	6.5	6.5	6.5	-	-	-	-	-	-	-	-	-	-	-
9	9	9	9	9	9	7.7	7.7	7.7	-	-	-	-	-	-
20	20	20	20	13.6	13.6	20	20	20	10	10	10	10	10	10
14	14	14	14	13.6	13.6	10.1	10.1	10.1	10	10	10	10	10	10
6.5	6.5	6.5	6.5	6	6	6	6	6	6	6	6	6	6	6
4.1	4.1	4.1	4.1	-	-	-	-	-	-	-	-	-	-	-
6.5	6.5	6.5	6.5	-	-	-	-	-	-	-	-	-	-	-
14	14	14	14	14	14	10	10	10	-	-	-	-	-	-
46	46	46	46	23	23	18.6	18.6	18.6	18	18	18	18	-	-
14	14	14	14	13.6	13.6	10.1	10.1	10.1	-	-	-	-	-	-
5.1	5.1	5.1	5.1	-	-	-	-	-	-	-	-	-	-	-
6.5	6.5	6.5	6.5	-	-	-	-	-	-	-	-	-	-	-
14	14	14	14	13.6	13.6	10.1	10.1	10.1	-	-	-	-	-	-
47	47	47	47	23	23	18.6	18.6	18.6	18	18	18	18	-	-
4.1	4.1	4.1	4.1	-	-	-	-	-	-	-	-	-	-	-
5.1	5.1	5.1	5.1	-	-	-	-	-	-	-	-	-	-	-
6.5	6.5	6.5	6.5	-	-	-	-	-	-	-	-	-	-	-
25	35	25	35	15	20	20	20	20	18	18	18	18	-	-
47	47	47	47	23	23	20	20	20	18	18	18	18	-	-
50	70	50	70	25	50	58	50	58	44	44	44	44	28	28
50	70	50	70	25	44	29	29	29	30	30	30	30	20	20
47	47	47	47	25	33	19	19	19	18	18	18	18	-	-
50	70	50	70	25	50	58	50	58	44	44	44	44	28	28
50	70	50	70	25	44	29	29	29	30	30	30	30	20	20
47	47	47	47	23	23	18.6	18.6	18.6	18	18	18	18	-	-
47	47	47	47	23	23	19	19	19	18	18	18	18	-	-
50	70	50	70	25	50	70	50	70	50	65	50	65	34	34
50	70	50	70	25	50	70	50	70	50	70	50	70	50	70

Cascading according to IEC 60947-2 MCCBs / Switches, RCDs, RCBOs, MCBs

Max. cascading value in kA rms according to IEC 947-2 Network: 3 phases + neutral 127/220 - 138/240 VAC
or downstream devices in single-phase network: 3 phases + neutral 220/380 - 240/415 VAC

						Upstream								
						x160 TM			x250 TM		h250 TM			
						HDA	HHA	HNA	HHB	HNB	HHG	HNG	HEG	
						25 kA	35 kA	85 kA	35 kA	85 kA	35 kA	85 kA	85 kA	
						IEC 69898 IEC 61008 IEC 61009	IEC 60947-2							
Downstream	Switches	SB1xx, SB3xx, SB4xx	32A	1P, 3P, 4P				2.5	2.5	2.5	-	-	-	-
		SB1xx, SB3xx, SB4xx	63A	1P, 3P, 4P				4	4	4	-	-	-	-
		SB1xx, SB3xx, SB4xx	100A	1P, 3P, 4P				7.7	7.7	7.7	4.6	4.6	-	-
	Switches	SB2xx	32A	2P				2.7	2.7	2.7	-	-	-	-
		SB2xx	63A	2P				4.4	4.4	4.4	-	-	-	-
		SB2xx	100A	2P				9	9	9	4.6	4.6	-	-
	IDL 2P/4P	SA2xx	80A	2P				11.5	11.5	11.5	5.1	5.1	-	-
		SA4xx	80A	4P				9.9	9.9	9.9	5.1	5.1	-	-
	RCD 2P/4P	CCxxx, CDxxx, CExxx, CFxxx, CGxxx	63A	2P				6.2	6.2	6.2	3.7	3.7	-	-
			63A	4P				5.5	5.5	5.5	3.7	3.7	-	-
			100A	2P				9	9	9	4.6	4.6	-	-
			100A	4P				7.7	7.7	7.7	4.6	4.6	-	-
	MCB Ph+N under 240V	MFS, MFN	32A	C	3 kA	-		4.5	4.5	4.5	3.5	3.5	-	-
		MJN, MHN	40A	B, C	4.5 kA	6 kA		15	15	15	6.5	6.5	6	6
		MLN, MLU	40A	C	6 kA	7.5 kA		24	24	24	9	9	9	9
	MCB Spinx Ph+N under 240V	NFT7xx, NGT7xx	40A	C, D	6 kA	10 kA		25	35	45	15	20	18	18
		MHT7xx, MJT7xx	40A	B, C	4.5 kA	6 kA		15	15	15	6.5	6.5	6	6
	RCBO 2 mod 1PP+N under 240V	ADC, ADH	32A	C	3 kA	-		4.5	4.5	4.5	3.5	3.5	-	-
		Ax8xx	40A	C	4.5 kA	6 kA		15	15	15	6.5	6.5	6	6
		Ax9xx	40A	C	6 kA	10 kA		25	35	45	15	15	18	18
	RCBO 1 mod 1PP+N under 240V	AC1xx, AD1xx, AE1xx, AF1xx, ACx1xx, ADx1xx, AEx1xx	40A	B, C	10 kA	15 kA		25	35	45	35	85	35	85
			50A	B, C	6 kA	10 kA		25	35	45	15	15	18	18
	RCBO 2PP	ADA2xxN	32A	B, C	10 kA	10 kA		25	35	45	15	15	18	18
	MCB Ocean 2 & V1	MV, MW	63A	B, C	4.5 kA	6 kA		15	15	15	6.5	6.5	6	-
		MX, MY	63A	B, C	6 kA	10kA		25	35	45	15	15	18	18
		MU, MT	63A	B, C	10 kA	10 kA		25	35	45	15	15	18	18
		NB, NC, ND	63A	B, C, D	15 kA	20 kA		25	35	85	35	85	35	85
	MCB GDE 1 mod	MVN, MWN	63A	B, C	4.5 kA	-		-	-	-	-	-	-	-
		MXN, MYN	63A	B, C	6 kA	-		15	15	15	6.5	6.5	6	6
		MP 5xx under 240V	63A	ICP-M	6 kA	-		8	8	8	6.5	6.5	6	6
		MUN 5xx under 240V	40A	C	6 kA	-		8	8	8	6.5	6.5	6	6
		MBN, MCN, MTN, MUN, MP	63A	B, C	10 kA	-		25	35	45	15	15	18	18
	MCB GTE 1 mod	NFN 7xx under 240V	63A	C	6 kA	10 kA		18	18	18	14.1	15.1	10.1	10.1
		MBA, MCA, NEN, NFN, NGN	63A	B, C, D	10 kA	20 kA		25	35	85	35	85	35	85
		NBN, NCN, NDN, NKN	63A	B, C, D	10 kA	30 kA		25	35	85	35	85	35	85
		NQN, NRN, NSN	20A	B, C, D	-	50 kA		25	35	85	35	85	35	85
			40A	B, C, D	-	40 kA		25	35	85	35	85	35	85
			63A	B, C, D	-	30 kA		25	35	85	35	85	35	85
		MMN2xx, MMN3xx	12A	magn.	-	50 kA		25	35	85	35	85	35	85
		MMN2xx, MMN3xx	25A	magn.	-	40 kA		25	35	85	35	85	35	85
	MCB DEFI 125 1,5 mod	HLE, HLF, HLG, HME, HMF, HMG	125A	B, C	15 kA	30 kA		25	35	85	35	85	35	85
		HMB, HMC, HMD	125A	B, C, D	15 kA	30 kA		25	35	85	35	85	35	85
		HMJ, HMK	125A	C	-	60 kA		25	35	85	35	85	35	85
		HMX	63A	C	-	100 kA		25	35	85	35	85	35	85

h250 TM+		h250 LSI		h400 TM			h630 LSI		h800 TM		h1000 LSI		h1600 LSI	
HNH	HEH	HNC	HEC	HHD	HND	HKD	HND	HED	HNK	HEK	HNE	HEE	HNF	HEF
85 kA	100 kA	85 kA	100 kA	35 kA	85 kA	100 kA	85 kA	100 kA	85 kA	100 kA	85 kA	100 kA	100 kA	100 kA
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	6	6	-	-	-	-	-	-	-	-	-
-	-	-	-	6	6	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	7	6	7	8.2	8.2	7.2	7.2	7.2	-	-	-	-	-	-
9	12	9	12	13.5	13.5	10	10	10	-	-	-	-	-	-
20	40	20	40	19	19	15	15	15	10	10	10	10	10	10
6	7	6	7	8.2	8.2	7.2	7.2	7.2	6	6	6	6	6	6
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	7	6	7	8.2	8.2	7.2	7.2	7.2	-	-	-	-	-	-
18	40	18	40	19	19	15	15	15	14	14	14	14	-	-
85	100	85	100	35	42	37	37	37	27	27	27	27	16	16
18	40	18	40	19	19	15	15	15	14	14	14	14	-	-
18	40	18	40	19	19	15	15	15	14	14	14	14	-	-
6	7	6	7	8.2	8.2	7.2	7.2	7.2	-	-	-	-	-	-
18	40	18	40	19	19	15	15	15	14	14	14	14	-	-
18	40	18	40	19	19	15	15	15	14	14	14	14	-	-
85	100	85	100	35	64	63	63	63	40	40	40	40	21	21
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	7	6	7	8.2	8.2	7.2	7.2	7.2	-	-	-	-	-	-
6.5	6.5	6.5	6.5	-	-	-	-	-	-	-	-	-	-	-
6.5	6.5	6.5	6.5	-	-	-	-	-	-	-	-	-	-	-
18	40	18	40	19	19	15	15	15	14	14	14	14	-	-
14	14	14	14	13.6	13.6	10.1	10.1	10.1	-	-	-	-	-	-
85	100	85	100	35	64	63	63	63	40	40	40	40	27	27
85	100	85	100	35	85	100	85	100	85	85	85	85	37	37
85	100	85	100	35	85	100	85	100	85	100	85	100	85	85
85	100	85	100	35	85	100	85	100	85	100	85	100	55	55
85	100	85	100	35	85	100	85	100	85	100	85	100	37	37
85	100	85	100	35	85	100	85	100	85	100	85	100	85	85
85	100	85	100	35	85	100	85	100	85	100	85	100	55	55
85	100	85	100	35	85	100	85	100	85	100	85	100	37	37
85	100	85	100	35	85	100	85	100	85	100	85	100	37	37
85	100	85	100	35	85	100	85	100	85	100	85	100	100	100
85	100	85	100	35	85	100	85	100	85	100	85	100	100	100

Discrimination chart according to IEC 60947-2

MCCBs x160, x250, h250, h400, h630, h800, h1000, h1600

	Icc (kA)	Upstream	x160 TM 18/25/40 kA							x250 TM 25/40 kA							h250 TM 25/50/65 kA									
	Downstream		HDA, HHA, HNA							HHB, HNB							HHG, HNG, HEG									
	(A)	16 - 50	63	80	100	125	160	100	125	160	200	225	250	20	32	50	63	100	125	160	200	250				
HDA HHA HNA	x160 TM 18/25/40 kA	16	-	2	2	2.9	2.9	3	2.15	2.9	4.1	5.6	5.5	5.4	-	-	-	1.2	2.15	2.9	4.1	5.6	5.4			
		20	-	2	2	2.9	2.9	3	2.15	2.9	4.1	5.6	5.5	5.4	-	-	-	1.2	2.15	2.9	4.1	5.6	5.4			
		25	-	2	2	2.9	2.9	3	2.15	2.9	4.1	5.6	5.5	5.4	-	-	-	1.2	2.15	2.9	4.1	5.6	5.4			
		32	-	1.8	1.8	2.6	2.6	2.7	2	2.6	3.6	5	4.9	4.8	-	-	-	1.15	2	2.6	3.6	5	4.8			
		40	-	1.6	1.6	2.35	2.35	2.4	1.8	2.35	3.3	4.3	4.25	4.2	-	-	-	1.1	1.8	2.35	3.3	4.3	4.2			
		50	-	1.6	1.6	2.35	2.35	2.4	1.8	2.35	3.15	4.25	4.2	4.15	-	-	-	1.1	1.8	2.35	3.15	4.25	4.15			
		63	-	-	-	2.15	2.15	2.2	1.7	2.15	3	4.05	4	3.9	-	-	-	-	1.7	2.15	3	4.05	3.9			
		80	-	-	-	2.15	2.15	2.2	1.7	2.15	2.9	3.9	3.9	3.8	-	-	-	-	1.7	2.15	2.9	3.9	3.8			
		100	-	-	-	-	-	2.1	-	1.95	2.75	3.7	3.7	3.6	-	-	-	-	-	1.95	2.75	3.7	3.6			
		125	-	-	-	-	-	2.1	-	-	2.65	3.5	3.5	3.4	-	-	-	-	-	-	2.65	3.5	3.4			
		160	-	-	-	-	-	-	-	-	-	3.45	3.4	3.35	-	-	-	-	-	-	-	3.45	3.35			
HHB HNB	x250 TM 25/40 kA	100	-	-	-	-	-	-	-	1.95	2.5	3.15	3.2	3.3	-	-	-	-	-	1.95	2.5	3.15	3			
		125	-	-	-	-	-	-	-	-	2.5	3.15	3.2	3.3	-	-	-	-	-	-	2.5	3.15	3			
		160	-	-	-	-	-	-	-	-	-	3.15	3.2	3.3	-	-	-	-	-	-	-	3.15	3			
		200	-	-	-	-	-	-	-	-	-	-	3.2	3.3	-	-	-	-	-	-	-	-	3			
		225	-	-	-	-	-	-	-	-	-	-	-	3.3	-	-	-	-	-	-	-	-	3			
		250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
HHG HNG HEG	h250 TM 25/50/65 kA	20	-	-	-	-	-	-	1.55	1.95	2.5	3.15	3.2	3.3	-	0.41	0.6	1	1.55	1.95	2.5	3.15	3			
		32	-	-	-	-	-	-	1.55	1.95	2.5	3.15	3.2	3.3	-	-	0.6	1	1.55	1.95	2.5	3.15	3			
		50	-	-	-	-	-	-	1.55	1.95	2.5	3.15	3.2	3.3	-	-	-	1	1.55	1.95	2.5	3.15	3			
		63	-	-	-	-	-	-	1.55	1.95	2.5	3.15	3.2	3.3	-	-	-	-	1.55	1.95	2.5	3.15	3			
		100	-	-	-	-	-	-	-	1.95	2.5	3.15	3.2	3.3	-	-	-	-	-	1.95	2.5	3.15	3			
		125	-	-	-	-	-	-	-	-	2.5	3.15	3.2	3.3	-	-	-	-	-	-	2.5	3.15	3			
		160	-	-	-	-	-	-	-	-	-	3.15	3.2	3.3	-	-	-	-	-	-	-	3.15	3			
		200	-	-	-	-	-	-	-	-	-	-	3.2	3.3	-	-	-	-	-	-	-	-	3			
		250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
HNH HEH	h250 TM+ 50/70 kA	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
		32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
		50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
		63	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
		100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
		125	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
		160	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
		250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
HNC HEC	h250 LSI 50/70 kA	40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
		125	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
		250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
HHD HND HKD	h400 TM 25/50/70 kA	250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
		300	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
		350	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
		400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
HND HED	h630 LSI 50/70kA	250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
		400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
		500	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
		600	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
		630	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
HNK HEK	h800 TM 50/70 kA	630	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
		800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
HNE HEE	h1000 LSI 50/70 kA	630	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
		700	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
		800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
		7000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
HNF HEF	h1600 LSI 50/70 kA	800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
		1250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
		1600	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					

Breaking capacity according to IEC 947-2. Network : 3 phasis + neutral 220/380 ~ 240/415 V AC

notes : "T" = total discrimination (up to the breaking capacity of the downstream device)

"-" = no discrimination

h250 TM+ 50/70 kA								h250 LSI 50/70 kA			h400 TM 25/50/70 kA				h630 LSI 25/40 kA					h800 TM 25/40 kA		h1000 LSI 25/40 kA				h1600 LSI 25/40 kA		
HNN, HEH								HNC, HEC			HHD, HND, HKD				HND, HED					HNN, HEK		HNE, HEE				HNF, HEF		
20	32	50	63	100	125	160	250	40	125	250	250	300	350	400	250	400	500	600	630	630	800	630	700	800	1000	800	1250	1600
-	-	-	1.1	1.9	2.6	4.1	5.4	T	T	T	6.5	8.8	10.5	13	T	T	T	T	T	18.6	28	T	T	T	T	T	T	T
-	-	-	1.1	1.9	2.6	4.1	5.4	T	T	T	6.5	8.5	10.5	13	T	T	T	T	T	18.6	28	T	T	T	T	T	T	T
-	-	-	1.1	1.9	2.6	4.1	5.4	T	T	T	6.5	8.5	10.5	13	T	T	T	T	T	18.6	28	T	T	T	T	T	T	T
-	-	-	1	1.8	2.4	3.6	4.8	T	T	T	5.6	7.3	8.8	10.5	T	T	T	T	T	15.4	22.5	T	T	T	T	T	T	T
-	-	-	1	1.6	2.2	3.3	4.2	-	T	T	4.95	6.2	7.6	9.2	T	T	T	T	T	13.3	18.9	T	T	T	T	T	T	T
-	-	-	1	1.6	2.2	3.15	4.15	-	T	T	4.8	6	7.45	8.8	T	T	T	T	T	13	18.5	T	T	T	T	T	T	T
-	-	-	-	1.5	2	3	3.6	-	T	T	4.6	5.8	7.1	8.3	T	T	T	T	T	12.5	18.2	T	T	T	T	T	T	T
-	-	-	-	1.5	2	2.9	3.8	-	T	T	4.35	5.6	6.8	7.9	T	T	T	T	T	11.7	16.6	T	T	T	T	T	T	T
-	-	-	-	-	1.8	2.75	3.6	-	T	T	4.15	5.4	6.5	7.5	T	T	T	T	T	11.2	15.9	T	T	T	T	T	T	T
-	-	-	-	-	-	2.65	3.4	-	1.65	T	4	5	6	7	T	T	T	T	T	10	14.2	T	T	T	T	T	T	T
-	-	-	-	-	-	-	3.35	-	-	T	3.9	4.9	5.9	6.6	T	T	T	T	T	9.7	13.5	T	T	T	T	T	T	T
-	-	-	-	-	1.8	2.5	3	-	T	T	3.6	4.3	5	5.75	T	T	T	T	T	7.6	9.6	T	T	T	T	T	T	T
-	-	-	-	-	-	2.5	3	-	1.65	T	3.6	4.3	5	5.75	T	T	T	T	T	7.6	9.6	T	T	T	T	T	T	T
-	-	-	-	-	-	-	3	-	-	T	3.6	4.3	5	5.75	T	T	T	T	T	7.6	9.6	T	T	T	T	T	T	T
-	-	-	-	-	-	-	3	-	-	T	3.6	4.3	5	5.75	T	T	T	T	T	7.6	9.6	T	T	T	T	T	T	T
-	-	-	-	-	-	-	3	-	-	T	3.6	4.3	5	5.75	T	T	T	T	T	7.6	9.6	T	T	T	T	T	T	T
-	-	-	-	-	-	-	-	-	-	3.25	-	4.3	5	5.75	T	T	T	T	T	7.6	9.6	T	T	T	T	T	T	T
-	0.38	0.6	0.9	1.45	1.8	2.5	3	T	T	T	3.6	4.3	5	5.75	T	T	T	T	T	7.6	9.6	T	T	T	T	T	T	T
-	-	0.6	0.9	1.45	1.8	2.5	3	T	T	T	3.6	4.3	5	5.75	T	T	T	T	T	7.6	9.6	T	T	T	T	T	T	T
-	-	-	0.9	1.45	1.8	2.5	3	-	T	T	3.6	4.3	5	5.75	T	T	T	T	T	7.6	9.6	T	T	T	T	T	T	T
-	-	-	-	1.45	1.8	2.5	3	-	T	T	3.6	4.3	5	5.75	T	T	T	T	T	7.6	9.6	T	T	T	T	T	T	T
-	-	-	-	-	1.8	2.5	3	-	T	T	3.6	4.3	5	5.75	T	T	T	T	T	7.6	9.6	T	T	T	T	T	T	T
-	-	-	-	-	-	2.5	3	-	1.65	T	3.6	4.3	5	5.75	T	T	T	T	T	7.6	9.6	T	T	T	T	T	T	T
-	-	-	-	-	-	-	3	-	-	T	3.6	4.3	5	5.75	T	T	T	T	T	7.6	9.6	T	T	T	T	T	T	T
-	-	-	-	-	-	-	3	-	-	T	3.6	4.3	5	5.75	T	T	T	T	T	7.6	9.6	T	T	T	T	T	T	T
-	-	-	-	-	-	-	-	-	-	3.25	3.6	4.3	5	5.75	T	T	T	T	T	7.6	9.6	T	T	T	T	T	T	T
-	0.38	0.6	0.9	1.45	1.8	2.5	3	T	T	T	4.2	4.8	5.2	5.9	T	T	T	T	T	8.2	10	T	T	T	T	T	T	T
-	-	0.6	0.9	1.45	1.8	2.5	3	T	T	T	4.2	4.8	5.2	5.9	T	T	T	T	T	8.2	10	T	T	T	T	T	T	T
-	-	-	0.9	1.45	1.8	2.5	3	-	T	T	4.2	4.8	5.2	5.9	T	T	T	T	T	8.2	10	T	T	T	T	T	T	T
-	-	-	-	1.45	1.8	2.5	3	-	T	T	4.2	4.8	5.2	5.9	T	T	T	T	T	8.2	10	T	T	T	T	T	T	T
-	-	-	-	-	1.8	2.5	3	-	T	T	4.2	4.8	5.2	5.9	T	T	T	T	T	8.2	10	T	T	T	T	T	T	T
-	-	-	-	-	-	2.5	3	-	1.65	T	4.2	4.8	5.2	5.9	T	T	T	T	T	8.2	10	T	T	T	T	T	T	T
-	-	-	-	-	-	-	3	-	-	T	4.2	4.8	5.2	5.9	T	T	T	T	T	8.2	10	T	T	T	T	T	T	T
-	-	-	-	-	-	-	-	-	-	3.25	-	4.8	5.2	5.9	T	T	T	T	T	8.2	10	T	T	T	T	T	T	T
-	-	-	-	-	-	-	-	-	1.625	3.25	4.2	4.8	5.2	5.9	T	T	T	T	T	8.2	10	T	T	T	T	T	T	T
-	-	-	-	-	-	-	-	-	-	3.25	4.2	4.8	5.2	5.9	T	T	T	T	T	8.2	10	T	T	T	T	T	T	T
-	-	-	-	-	-	-	-	-	-	-	-	4.8	5.2	5.9	-	T	T	T	T	8.2	10	T	T	T	T	T	T	T
-	-	-	-	-	-	-	-	-	-	3.25	-	4.3	5	5.75	3.25	T	T	T	T	8.2	10	T	T	T	T	T	T	T
-	-	-	-	-	-	-	-	-	-	-	-	-	5	5.75	-	T	T	T	T	8.2	10	T	T	T	T	T	T	T
-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.75	-	T	T	T	T	8.2	10	T	T	T	T	T	T	T
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	T	T	T	8.2	10	T	T	T	T	T	T	T
-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.75	-	5.2	T	T	T	8.2	10	T	T	T	T	T	T	T
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.3	T	T	8.2	10	T	T	T	T	T	T	T
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.3	T	8.2	10	T	T	T	T	T	T	T
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.3	8.2	10	7.55	T	T	T	T	T	T
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.2	10	-	T	T	T	T	T	T
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.3	-	10	-	T	T	T	T	T	T
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	T	-	T	T
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	-	9.6	T	T	T	T	T	T
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	-	-	9.6	T	15	T	T	T
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	T	-	T	T
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	-	T	T	T
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	T
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Discrimination chart according to IEC 60947-2

MCCBs / RCBOs and MCBs

Icc (kA)		Upstream	x160 TM 18/25/40 kA												x250 TM 25/40 kA												h250 TM 25/50/65 kA											
			HDA, HHA, HNA												HHB, HNB												HHG, HNG, HEG											
Downstream	(A)	16	20	25	32	40	50	63	80	100	125	160	100	125	160	200	225	250	20	32	50	63	100	125	160	200	250	32	50	63	100	125	160	200	250			
MCB 1 module / multi SPHINX range (10 kA max IEC 60947- 2)	C curve	6	1.2	1.2	1.2	1.2	1.2	2.7	2.7	5.9	5.9	6.7	3.9	5.9	9.6	T	T	0.3	0.7	1.1	1.7	3.9	5.9	9.6	T	T	T											
		10	1.1	1.1	1.1	1.1	1.1	2.3	2.3	4.9	4.9	5.5	3.2	4.9	8	T	T	0.3	0.6	1	1.4	3.2	4.9	8	T	T	T											
		16	1	1	1	1	1	2.1	2.1	4.4	4.4	4.9	2.8	4.4	6.9	T	T	0.3	0.6	0.9	1.3	2.8	4.4	6.9	T	9.8	T											
		20	-	0.9	0.9	0.9	0.9	1.8	1.8	3.6	3.6	4.1	2.5	3.6	5.6	8.5	9.4	0.3	0.5	0.8	1.2	2.5	3.6	5.6	8.5	7.9	8.9											
		25	-	-	0.9	0.9	0.9	1.8	1.8	3.6	3.6	4.1	2.5	3.6	5.6	8.5	9.4	-	0.5	0.8	1.2	2.5	3.6	5.6	8.5	7.9	8.9											
		32	-	-	-	0.9	0.9	1.6	1.6	3	3	3.4	2.1	3	4.7	7	7.8	-	0.5	0.8	1.1	2.1	3	4.7	7	6.5	7.1											
		40	-	-	-	0.9	0.9	1.6	1.6	3	3	3.4	2.1	3	4.7	7	7.8	-	-	0.8	1.1	2.1	3	4.7	7	6.5	7.1											
	D curve	6	1.1	1.1	1.1	1.1	1.1	2.5	2.5	5.5	5.5	6.2	3.6	5.5	9.1	T	T	0.3	0.6	1	1.5	3.6	5.5	9.1	T	T	T											
		10	1	1	1	1	1	2.1	2.1	4.4	4.4	5	2.8	4.4	7.2	T	T	0.3	0.6	0.9	1.3	2.8	4.4	7.2	T	T	T											
		16	0.9	0.9	0.9	0.9	0.9	1.9	1.9	3.8	3.8	4.3	2.5	3.8	5.9	9.3	T	0.3	0.5	0.9	1.2	2.5	3.8	5.9	9.3	8.6	T											
		20	-	0.9	0.9	0.9	0.9	1.6	1.6	3.1	3.1	3.6	2.2	3.1	4.9	7.3	8.1	0.3	0.5	0.8	1.2	2.2	3.1	4.9	7.3	6.7	8.7											
		25	-	-	0.9	0.9	0.9	1.6	1.6	3.1	3.1	3.6	2.2	3.1	4.9	7.3	8.1	-	0.5	0.8	1.2	2.2	3.1	4.9	7.3	6.7	8.7											
		32	-	-	-	0.8	0.8	1.4	1.4	2.6	2.6	2.9	1.9	2.6	3.9	5.5	5.9	-	0.5	0.8	1.1	1.9	2.6	3.9	5.5	5.2	6.9											
		40	-	-	-	0.8	0.8	1.4	1.4	2.6	2.6	2.9	1.9	2.6	3.9	5.5	5.9	-	-	0.8	1.1	1.9	2.6	3.9	5.5	5.2	6.9											
RCBO Ph+N 1 module AC1xx, AD1xx, AE1xx, AF1xx, AC5xx, AD5xx, AE5xx, AF5xx, AC9xx, AD9xx, AE9xx, AF9xx, ACx1xx, ADx1xx, AEx1xx (10kA max IEC 61009)	B curve	6	1.3	1.3	1.3	1.3	1.3	2.6	2.6	5.5	5.5	6.3	3.8	5.5	8.4	T	T	T	0.33	0.5	1.1	1.6	3.8	5.5	8.4	T	T											
		10	1.1	1.1	1.1	1.1	1.1	2.3	2.3	4.6	4.6	5.3	3.1	4.6	7	T	T	T	0.31	0.5	0.95	1.5	3.1	4.6	7	T	T											
		16	0.96	0.96	0.96	0.96	0.96	2.1	2.1	3.9	3.9	4.4	2.6	3.9	5.7	T	T	T	0.3	0.5	0.88	1.4	2.6	3.9	5.7	10	9.1											
		20	-	0.9	0.9	0.9	0.9	1.8	1.8	3.3	3.3	3.7	2.4	3.3	4.8	8.1	9.1	8.1	0.29	0.5	0.81	1.4	2.4	3.3	4.8	8.1	7.5											
		25	-	-	0.9	0.9	0.9	1.8	1.8	3.3	3.3	3.7	2.4	3.3	4.8	8.1	9.1	7	0.29	0.5	0.81	1.3	2.4	3.3	4.8	8.1	7.5											
		32	-	-	-	0.83	0.83	1.6	1.6	2.8	2.8	3.2	2.1	2.8	4.2	7	8	7	-	5	0.76	1.2	2.1	2.8	4.2	7	6.4											
		40	-	-	-	0.8	0.8	1.4	1.4	2.4	2.4	2.8	1.8	2.4	3.6	T	T	T	-	-	0.74	1.1	1.8	2.4	3.6	6	5.5											
		45	-	-	-	-	0.8	1.4	1.4	2.4	2.4	2.8	1.8	2.4	3.6	T	T	T	-	-	0.74	1.1	1.8	2.4	3.6	T	5.5											
		50	-	-	-	-	0.8	1.4	1.4	2.4	2.4	2.8	1.8	2.4	3.6	T	T	T	-	-	0.74	1.1	1.8	2.4	3.6	T	5.5											
	C curve	6	1.3	1.3	1.3	1.3	1.3	2.6	2.6	5.5	5.5	6.3	3.8	5.5	8.4	T	T	T	0.33	0.5	1.1	1.6	3.8	5.5	8.4	T	T											
		10	1.1	1.1	1.1	1.1	1.1	2.3	2.3	4.6	4.6	5.3	3.1	4.6	7	T	T	T	0.31	0.5	0.95	1.5	3.1	4.6	7	T	T											
		16	0.96	0.96	0.96	0.96	0.96	2.1	2.1	3.9	3.9	4.4	2.6	3.9	5.7	T	T	T	0.3	0.5	0.88	1.4	2.6	3.9	5.7	10	9.1											
		20	-	0.9	0.9	0.9	0.9	1.8	1.8	3.3	3.3	3.7	2.4	3.3	4.8	8.1	9.1	8.1	0.29	0.5	0.81	1.4	2.4	3.3	4.8	8.1	7.5											
		25	-	-	0.9	0.9	0.9	1.8	1.8	3.3	3.3	3.7	2.4	3.3	4.8	8.1	9.1	7	0.29	0.5	0.81	1.3	2.4	3.3	4.8	8.1	7.5											
		32	-	-	-	0.83	0.83	1.6	1.6	2.8	2.8	3.2	2.1	2.8	4.2	7	8	7	-	5	0.76	1.2	2.1	2.8	4.2	7	6.4											
		40	-	-	-	0.8	0.8	1.4	1.4	2.4	2.4	2.8	1.8	2.4	3.6	T	T	T	-	-	0.74	1.1	1.8	2.4	3.6	6	5.5											
		45	-	-	-	-	0.8	1.4	1.4	2.4	2.4	2.8	1.8	2.4	3.6	T	T	T	-	-	0.74	1.1	1.8	2.4	3.6	T	5.5											
		50	-	-	-	-	0.8	1.4	1.4	2.4	2.4	2.8	1.8	2.4	3.6	T	T	T	-	-	0.74	1.1	1.8	2.4	3.6	T	5.5											
MCB 1 module / pole, Ocean2 and V1 ranges MV, MW, MX, MY, MU, MT, NB, NC, ND (10 kA max IEC 60898)	B curve	6	1.3	1.3	1.3	1.3	1.3	2.7	2.7	5.9	5.9	6.6	3.7	5.9	9.8	T	T	T	0.35	0.65	1.1	1.7	3.7	5.9	9.8	T	T											
		10	1.1	1.1	1.1	1.1	1.1	2.3	2.3	4.9	4.9	5.3	3.1	4.9	8	T	T	T	0.35	0.59	1	1.5	3.1	4.9	8	T	T											
		13	0.96	0.96	0.96	0.96	0.96	2	2	4.2	4.2	4.8	2.7	4.2	6.9	T	T	T	0.33	0.54	0.92	1.4	2.7	4.2	6.9	T	9.8											
		16	0.96	0.96	0.96	0.96	0.96	2	2	4.2	4.2	4.8	2.7	4.2	6.9	T	T	T	0.32	0.54	0.92	1.4	2.7	4.2	6.9	T	9.8											
		20	-	0.9	0.9	0.9	0.9	1.8	1.8	3.6	3.6	4	2.4	3.6	5.6	8.5	T	9.3	0.31	0.52	0.86	1.2	2.4	3.6	5.6	8.3	7.9											
		25	-	-	0.9	0.9	0.9	1.8	1.8	3.6	3.6	4	2.4	3.6	5.6	8.5	T	9.3	-	0.52	0.86	1.2	2.4	3.6	5.6	8.3	7.9											
		32	-	-	-	0.83	0.83	1.5	1.5	3	3	3.3	2.1	3	4.6	7	9	7.8	-	0.5	0.8	1.15	2.1	3	4.6	7	6.4											
		40	-	-	-	0.83	0.83	1.5	1.5	3	3	3.3	2.1	3	4.6	7	9	7.8	-	-	0.8	1.15	2.1	3	4.6	7	6.4											
		50	-	-	-	-	0.8	1.4	1.4	2.6	2.6	2.8	1.8	2.6	3.7	5.4	6.6	6	-	-	0.78	1.1	1.8	2.6	3.7	5.3	5											
		63	-	-	-	-	-	1.4	1.4	2.6	2.6	2.7	1.8	2.6	3.7	5.4	6.6	6	-	-	-	1.1	1.8	2.6	3.7	5.3	5											
	C curve	0,5	5	5	5	5	5	T	T	T	T	T	T	T	T	T	T	T	0.8	1.8	4.5	8.6	T	T	T	T	T											
		1	1.7	1.7	1																																	

h250 TM+ 50/70 kA									h250 LSI 50/70 kA				h400 TM 25/50/70 kA				h630 LSI 50/70 kA					h800 TM 50/70 kA		h1000 LSI 50/70 kA					h1600 LSI 50/70 kA		
HNH, HEH									HNG, HEG				HHD, HND, HKD				HND, HED					HNK, HEK		HNE, HEE					HNF, HEF		
20	32	50	63	100	125	160	250		40	125	250	250	300	350	400	250	400	500	600	630	630	800	630	700	800	1000	800	1250	1600		
0.3	0.6	1.1	1.5	3.3	5.1	9.6	T		0.7	4.2	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
0.3	0.5	1	1.3	2.8	4.2	8	T		0.6	3.5	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
0.3	0.5	0.9	1.2	2.5	3.7	6.9	9.8		0.6	3	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
0.3	0.5	0.8	1.1	2.2	3.1	5.6	7.9		0.6	2.6	9.1	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
-	0.5	0.8	1.1	2.2	3.1	5.6	7.9		0.6	2.6	9.1	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
-	0.5	0.8	1	1.9	2.7	4.7	6.5		0.5	2.3	7.6	9.2	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
-	-	0.8	1	1.9	2.7	4.7	6.5		0.5	2.3	7.6	9.2	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
0.3	0.6	1	1.4	3	4.7	9.1	T		0.7	3.9	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
0.3	0.5	0.9	1.2	2.5	3.8	7.2	T		0.6	3	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
0.3	0.5	0.9	1.1	2.2	3.3	5.9	8.6		0.6	2.7	10	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
0.3	0.5	0.8	1.1	2	2.8	4.9	6.7		0.6	2.4	7.8	9.4	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
-	0.5	0.8	1.1	2	2.8	4.9	6.7		0.6	2.4	7.8	9.4	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
-	0.5	0.8	1	1.7	2.3	3.9	5.2		0.5	2	5.8	7	9.5	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
-	-	0.8	1	1.7	2.3	3.9	5.2		0.5	2	5.8	7	9.5	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
0.33	0.6	1.1	1.4	3	5	8.4	T		T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
0.31	0.54	0.95	1.2	2.4	4	7	T		T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
0.3	0.5	0.88	1.1	2.2	3.4	5.7	9.1		T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
0.29	0.48	0.81	1.05	2	3	4.8	7.5		T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
0.29	0.48	0.81	1.05	2	3	4.8	7.5		T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
-	0.46	0.76	0.93	1.7	2.6	4.2	6.4		T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
-	-	0.74	0.9	1.5	2.4	3.6	5.5		T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
-	-	0.74	0.9	1.5	2.4	3.6	5.5		T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
-	-	0.74	0.9	1.5	2.4	3.6	5.5		T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
0.33	0.6	1.1	1.4	3	5	8.4	T		T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
0.31	0.54	0.95	1.2	2.4	4	7	T		T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
0.3	0.5	0.88	1.1	2.2	3.4	5.7	9.1		T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
0.29	0.48	0.81	1.05	2	3	4.8	7.5		T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
0.29	0.48	0.81	1.05	2	3	4.8	7.5		T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
-	0.46	0.76	0.93	1.7	2.6	4.2	6.4		T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
-	-	0.74	0.9	1.5	2.4	3.6	5.5		T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
-	-	0.74	0.9	1.5	2.4	3.6	5.5		T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
-	-	0.74	0.9	1.5	2.4	3.6	5.5		T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
0.35	0.59	1.1	1.4	3.5	5.2	9.8	T		T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
0.35	0.51	1	1.3	2.9	4.3	8	T		T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
0.33	0.49	0.92	1.2	2.6	3.8	6.9	9.8		T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
0.32	0.49	0.92	1.2	2.6	3.8	6.9	9.8		T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
0.31	0.47	0.86	1.1	2.3	3.2	5.6	7.9		T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
-	0.47	0.86	1.1	2.3	3.2	5.6	7.9		T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
-	0.45	0.8	0.95	1.9	2.7	4.6	6.4		T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
-	-	0.8	0.95	1.9	2.7	4.6	6.4		T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
-	-	0.78	0.92	1.7	2.3	3.7	5		-	T	T	8	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
-	-	-	0.92	1.7	2.3	3.7	5		-	T	T	8	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
0.8	1.6	4.5	6.5	T	T	T	T		T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
0.42	0.75	1.4	2	6.5	T	T	T		T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
0.42	0.75	1.4	2	8.5	T	T	T		T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
0.36	0.61	1.3	1.5	4.6	7	T	T		T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
0.36	0.61	1.3	1.5	4.6	7	T	T		T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
0.35	0.59	1.1	1.4	3.5	5.2	9.8	T		T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
0.35	0.51	1	1.3	2.9	4.3	8	T		T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
0.33	0.49	0.92	1.2	2.6	3.8	6.9	9.8		T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
0.32	0.49	0.92	1.2	2.6	3.8	6.9	9.8		T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
0.31	0.47	0.86	1.1	2.3	3.2	5.6	7.9		T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
-	0.47	0.86	1.1	2.3	3.2	5.6	7.9		T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
-	0.45	0.8	0.95	1.9	2.7	4.6	6.4		T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
-	-	0.8																													

Discrimination chart according to IEC 60947-2

MCCBs / RCBOs and MCBs

Icc (kA)		Upstream	x160 TM 18/25/40 kA												x250 TM 25/40 kA								h250 TM 25/50/65 kA									
			HDA, HHA, HNA												HHB, HNB								HHG, HNG, HEG									
Downstream		(A)	16	20	25	32	40	50	63	80	100	125	160		100	125	160	200	225	250		20	32	50	63	100	125	160	200	250		
MCB 1 module / pole, GTE range MBA, MCA, NEN, NFN, NGN, NBN, NCN, NDN, NKN (15 kA max IEC 60947- 2)	B curve	6	1.3	1.3	1.3	1.3	1.3	1.3	2.7	2.7	5.8	5.8	6.7	3.8	5.8	9.6	T	T	T	T	T	0.35	0.65	1.2	1.7	3.8	5.8	9.6	T	T		
		10	1.2	1.2	1.2	1.2	1.2	1.2	2.2	2.2	4.8	4.8	5.4	3.1	4.8	8	13	T	T	T	T	0.33	0.58	1	1.5	3.1	4.8	8	13	12		
		13	0.97	0.97	0.97	0.97	0.97	0.97	2	2	4.3	4.3	4.8	2.8	4.3	6.9	11	13	12	0.32	0.55	0.92	1.4	2.8	4.3	6.9	11	9.7				
		16	0.97	0.97	0.97	0.97	0.97	0.97	2	2	4.3	4.3	4.8	2.8	4.3	6.9	11	13	12	0.32	0.55	0.92	1.4	2.8	4.3	6.9	11	9.7				
		20	-	0.92	0.92	0.92	0.92	0.92	1.8	1.8	3.6	3.6	4	2.4	3.6	5.5	8.3	10	9.3	0.31	0.53	0.85	1.3	2.4	3.6	5.5	8.3	7.7				
		25	-	-	0.92	0.92	0.92	0.92	1.8	1.8	3.6	3.6	4	2.4	3.6	5.5	8.3	10	9.3	-	0.53	0.85	1.3	2.4	3.6	5.5	8.3	7.7				
		32	-	-	-	0.84	0.84	0.84	1.5	1.5	3	3	3.4	2.1	3	4.7	6.9	8	7.7	-	0.5	0.8	1.2	2.1	3	4.7	6.9	6.4				
		40	-	-	-	-	0.84	0.84	1.5	1.5	3	3	3.4	2.1	3	4.7	6.9	8	7.7	-	-	0.8	1.2	2.1	3	4.7	6.9	6.4				
		50	-	-	-	-	-	0.81	1.4	1.4	2.5	2.5	2.8	1.8	2.5	3.7	5.4	6.2	6	-	-	0.78	1.1	1.8	2.5	3.7	5.4	5				
		63	-	-	-	-	-	-	1.4	1.4	2.5	2.5	2.8	1.8	2.5	3.7	5.4	6.2	6	-	-	-	1.1	1.8	2.5	3.7	5.4	5				
	C curve	0,5	5	5	5	5	5	5	T	T	T	T	T	T	T	T	T	T	T	T	T	0.8	1.8	4.5	8.5	T	T	T	T	T		
		1	1.6	1.6	1.6	1.6	1.6	1.6	4.8	4.8	12	12	14	7.1	12	T	T	T	T	T	T	0.42	0.85	1.5	2.6	7.1	12	T	T	T		
		2	1.6	1.6	1.6	1.6	1.6	1.6	4.8	4.8	12	12	14	7.1	12	T	T	T	T	T	T	0.42	0.85	1.5	2.6	7.1	12	T	T	T		
		3	1.4	1.4	1.4	1.4	1.4	1.4	3.5	3.5	8	8	9.2	5.1	8	14	T	T	T	T	T	0.37	0.7	1.3	2	5.1	8	14	T	T		
		4	1.4	1.4	1.4	1.4	1.4	1.4	3.5	3.5	8	8	9.2	5.1	8	14	T	T	T	T	T	0.37	0.7	1.3	2	5.1	8	14	T	T		
		6	1.3	1.3	1.3	1.3	1.3	1.3	2.7	2.7	5.8	5.8	6.7	3.8	5.8	9.6	T	T	T	T	T	0.35	0.65	1.2	1.7	3.8	5.8	9.6	T	T		
		10	1.2	1.2	1.2	1.2	1.2	1.2	2.2	2.2	4.8	4.8	5.4	3.1	4.8	8	13	T	T	T	T	0.33	0.58	1	1.5	3.1	4.8	8	13	12		
		13	0.97	0.97	0.97	0.97	0.97	0.97	2	2	4.3	4.3	4.8	2.8	4.3	6.9	11	13	12	0.32	0.55	0.92	1.4	2.8	4.3	6.9	11	9.7				
		16	0.97	0.97	0.97	0.97	0.97	0.97	2	2	4.3	4.3	4.8	2.8	4.3	6.9	11	13	12	0.32	0.55	0.92	1.4	2.8	4.3	6.9	11	9.7				
		20	-	0.92	0.92	0.92	0.92	0.92	1.8	1.8	3.6	3.6	4	2.4	3.6	5.5	8.3	10	9.3	0.31	0.53	0.85	1.3	2.4	3.6	5.5	8.3	7.7				
		25	-	-	0.92	0.92	0.92	0.92	1.8	1.8	3.6	3.6	4	2.4	3.6	5.5	8.3	10	9.3	-	0.53	0.85	1.3	2.4	3.6	5.5	8.3	7.7				
		32	-	-	-	0.84	0.84	0.84	1.5	1.5	3	3	3.4	2.1	3	4.7	6.9	8	7.7	-	0.5	0.8	1.2	2.1	3	4.7	6.9	6.4				
		40	-	-	-	-	0.84	0.84	1.5	1.5	3	3	3.4	2.1	3	4.7	6.9	8	7.7	-	-	0.8	1.2	2.1	3	4.7	6.9	6.4				
		50	-	-	-	-	-	0.81	1.4	1.4	2.5	2.5	2.8	1.8	2.5	3.7	5.4	6.2	6	-	-	0.78	1.1	1.8	2.5	3.7	5.4	5				
		63	-	-	-	-	-	-	1.4	1.4	2.5	2.5	2.8	1.8	2.5	3.7	5.4	6.2	6	-	-	-	1.1	1.8	2.5	3.7	5.4	5				
	D curve	0,5	4.3	4.3	4.3	4.3	4.3	4.3	14	14	T	T	T	T	T	T	T	T	T	T	T	0.8	1.8	4	7	T	T	T	T	T		
		1	1.6	1.6	1.6	1.6	1.6	1.6	4.6	4.6	11	11	13	6.8	11	T	T	T	T	T	T	0.42	0.84	1.5	2.6	6.8	11	T	T	T		
		2	1.6	1.6	1.6	1.6	1.6	1.6	4.6	4.6	11	11	13	6.8	11	T	T	T	T	T	T	0.42	0.84	1.5	2.6	6.8	11	T	T	T		
		3	1.4	1.4	1.4	1.4	1.4	1.4	3.2	3.2	7.4	7.4	8.5	4.6	7.4	13	T	T	T	T	T	0.36	0.7	1.3	2.6	4.6	7.4	13	T	T		
		4	1.4	1.4	1.4	1.4	1.4	1.4	3.2	3.2	7.4	7.4	8.5	4.6	7.4	13	T	T	T	T	T	0.36	0.7	1.3	1.9	4.6	7.4	13	T	T		
		6	1.2	1.2	1.2	1.2	1.2	1.2	2.4	2.4	5.4	5.4	6.2	3.4	5.4	9	T	T	T	T	T	0.34	0.62	1.05	1.5	3.4	5.4	9	T	14		
		10	0.98	0.98	0.98	0.98	0.98	0.98	2	2	4.3	4.3	4.9	2.8	4.3	7.2	12	14	13	0.33	0.56	0.93	1.4	2.8	4.3	7.2	12	10.5				
		13	0.92	0.92	0.92	0.92	0.92	0.92	1.8	1.8	3.7	3.7	4.2	2.5	3.7	6	9.2	11	11	0.32	0.54	0.88	1.3	2.5	3.7	6	9.2	8.4				
		16	0.92	0.92	0.92	0.92	0.92	0.92	1.8	1.8	3.7	3.7	4.2	2.5	3.7	6	9.2	11	11	0.32	0.54	0.88	1.3	2.5	3.7	6	9.2	8.4				
		20	-	0.86	0.86	0.86	0.86	0.86	1.6	1.6	3.2	3.2	3.4	2.2	3.2	4.8	7.1	8.5	7.9	0.31	0.52	0.82	1.2	2.2	3.2	4.8	7.1	6.7				
		25	-	-	0.86	0.86	0.86	0.86	1.6	1.6	3.2	3.2	3.4	2.2	3.2	4.8	7.1	8.5	7.9	-	0.52	0.82	1.2	2.2	3.2	4.8	7.1	6.7				
		32	-	-	-	0.81	0.81	0.81	1.5	1.5	2.5	2.5	2.7	1.8	2.5	3.7	5.4	7.2	5.9	-	0.5	0.78	1.1	1.8	2.5	3.7	5.4	5.1				
		40	-	-	-	-	0.81	0.81	1.5	1.5	2.5	2.5	2.7	1.8	2.5	3.7	5.4	7.2	5.9	-	-	0.78	1.1	1.8	2.5	3.7	5.4	5.1				
		50	-	-	-	-	-	0.78	1.4	1.4	2.4	2.4	2.5	1.7	2.4	3.3	4.6	6.2	5	-	-	0.76	1	1.7	2.4	3.3	4.6	4.3				
		63	-	-	-	-	-	-	1.4	1.4	2.4	2.4	2.5	1.7	2.4	3.3	4.6	6.2	5	-	-	-	1	1.7	2.4	3.3	4.6	4.3				

Breaking capacity according to IEC 947-2. Network : 3 phasis + neutral 220/380 ~ 240/415 V AC

notes : "T" = total discrimination (up to the breaking capacity of the downstream device)

"-" = no discrimination

h250 TM+ 50/70 kA								h250 LSI 50/70 kA			h400 TM 25/50/70 kA				h630 LSI 50/70 kA					h800 TM 50/70 kA		h1000 LSI 50/70 kA				h1600 LSI 50/70 kA		
HNH, HEH								HNG, HEG			HHD, HND, HKD				HND, HED					HNK, HEK		HNE, HEE				HNF, HEF		
20	32	50	63	100	125	160	250	40	125	250	250	300	350	400	250	400	500	600	630	630	800	630	700	800	1000	800	1250	1600
0.35	0.59	1.2	1.5	3.3	5	9.6	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.33	0.52	1	1.4	2.8	4.2	8	12	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.32	0.5	0.92	1.3	2.5	3.7	6.9	9.7	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.32	0.5	0.92	1.3	2.5	3.7	6.9	9.7	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.31	0.48	0.85	1.1	2.2	3.1	5.5	7.7	T	T	T	11	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	0.48	0.85	1.1	2.2	3.1	5.5	7.7	T	T	T	11	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	0.46	0.8	1	1.9	2.6	4.7	6.4	T	T	T	9	14	14	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	-	0.8	1	1.9	2.6	4.7	6.4	T	T	T	9	14	14	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	-	0.78	0.95	1.6	2.3	3.7	5	-	T	T	7	10	10	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	-	-	0.95	1.6	2.3	3.7	5	-	T	T	7	10	10	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.8	1.6	4.5	7	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.42	0.74	1.5	2.2	6.2	10	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.42	0.74	1.5	2.2	6.2	10	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.37	0.61	1.3	1.7	4.5	7	14	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.37	0.61	1.3	1.7	4.5	7	14	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.35	0.59	1.2	1.5	3.3	5	9.6	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.33	0.52	1	1.4	2.8	4.2	8	12	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.32	0.5	0.92	1.3	2.5	3.7	6.9	9.7	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.32	0.5	0.92	1.3	2.5	3.7	6.9	9.7	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.31	0.48	0.85	1.1	2.2	3.1	5.5	7.7	T	T	T	11	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	0.48	0.85	1.1	2.2	3.1	5.5	7.7	T	T	T	11	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	0.46	0.8	1	1.9	2.6	4.7	6.4	T	T	T	9	14	14	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	-	0.8	1	1.9	2.6	4.7	6.4	T	T	T	9	14	14	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	-	0.78	0.95	1.6	2.3	3.7	5	-	T	T	7	10	10	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	-	-	0.95	1.6	2.3	3.7	5	-	T	T	7	10	10	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.8	1.6	4	5.5	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.42	0.72	1.5	2	5.8	10	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.42	0.72	1.5	2	5.8	10	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.36	0.6	1.3	1.6	4	6.6	13	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.36	0.6	1.3	1.6	4	6.6	13	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.34	0.53	1.05	1.4	3	5	9	14	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.33	0.5	0.93	1.2	2.5	4	7.2	10.5	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.32	0.48	0.88	1.1	2.2	3.4	6	8.4	T	T	T	12	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.32	0.48	0.88	1.1	2.2	3.4	6	8.4	T	T	T	12	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.31	0.46	0.82	1	1.9	2.8	4.8	6.7	T	T	T	9.5	8	8	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	0.46	0.82	1	1.9	2.8	4.8	6.7	T	T	T	9.5	8	8	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	0.44	0.78	0.95	1.7	2.4	3.7	5.1	T	T	T	7	10	10	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	-	0.78	0.95	1.7	2.4	3.7	5.1	T	T	T	7	10	10	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	-	0.76	0.9	1.6	2.2	3.3	4.3	T	T	T	5.8	14	14	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	-	-	0.9	1.6	2.2	3.3	4.3	T	T	T	5.8	14	14	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T

Discrimination chart according to IEC 60947-2

MCCBs / RCBOs and MCBs

Icc (kA)		Upstream	x160 TM 18/25/40 kA												x250 TM 25/40 kA												h250 TM 25/50/65 kA											
			HDA, HHA, HNA												HHB, HNB												HHG, HNG, HEG											
Downstream	(A)	16	20	25	32	40	50	63	80	100	125	160	100	125	160	200	225	250	20	32	50	63	100	125	160	200	250	32	50	63	100	125	160	200	250			
MCB 1 module / pole, GTE range NQN, NRN, NSN (25 kA max IEC 60947- 2)	B curve	6	1.3	1.3	1.3	1.3	1.3	2.7	2.7	5.8	5.8	6.7	3.8	5.8	9.6	15	20	17	0.35	0.65	1.2	1.7	3.8	5.8	9.6	15	14											
		10	1.2	1.2	1.2	1.2	1.2	2.2	2.2	4.8	4.8	5.4	3.1	4.8	8	13	16	14	0.33	0.58	1	1.5	3.1	4.8	8	13	12											
		13	0.97	0.97	0.97	0.97	0.97	2	2	4.3	4.3	4.8	2.8	4.3	6.9	11	13	12	0.32	0.55	0.92	1.4	2.8	4.3	6.9	11	9.7											
		16	0.97	0.97	0.97	0.97	0.97	2	2	4.3	4.3	4.8	2.8	4.3	6.9	11	13	12	0.32	0.55	0.92	1.4	2.8	4.3	6.9	11	9.7											
		20	-	-	0.92	0.92	0.92	0.92	1.8	1.8	3.6	3.6	4	2.4	3.6	5.5	8.3	10	9.3	0.31	0.53	0.85	1.3	2.4	3.6	5.5	8.3	7.7										
		25	-	-	0.92	0.92	0.92	0.92	1.8	1.8	3.6	3.6	4	2.4	3.6	5.5	8.3	10	9.3	-	0.53	0.85	1.3	2.4	3.6	5.5	8.3	7.7										
		32	-	-	-	0.84	0.84	0.84	1.5	1.5	3	3	3.4	2.1	3	4.7	6.9	8	7.7	-	0.5	0.8	1.2	2.1	3	4.7	6.9	6.4										
		40	-	-	-	-	0.84	0.84	1.5	1.5	3	3	3.4	2.1	3	4.7	6.9	8	7.7	-	-	0.8	1.2	2.1	3	4.7	6.9	6.4										
		50	-	-	-	-	-	0.81	1.4	1.4	2.5	2.5	2.8	1.8	2	3.7	5.4	6.2	6	-	-	0.78	1.1	1.8	2.5	3.7	5.4	5										
		63	-	-	-	-	-	-	1.4	1.4	2.5	2.5	2.8	1.8	2.5	3.7	5.4	6.2	6	-	-	-	1.1	1.8	2.5	3.7	5.4	5										
	C curve	0,5	5	5	5	5	5	17	17	T	T	T	T	T	T	T	T	T	0.8	1.8	4.5	8.5	T	T	T	T	T											
		1	1.6	1.6	1.6	1.6	1.6	4.8	4.8	12	12	14	7.1	12	20	T	T	T	0.42	0.85	1.5	2.6	7.1	12	20	T	T											
		2	1.6	1.6	1.6	1.6	1.6	4.8	4.8	12	12	14	7.1	12	20	T	T	T	0.42	0.85	1.5	2.6	7.1	12	20	T	T											
		3	1.4	1.4	1.4	1.4	1.4	3.5	3.5	8	8	9.2	5.1	8	14	22	T	T	0.37	0.7	1.3	2	5.1	8	14	22	20											
		4	1.4	1.4	1.4	1.4	1.4	3.5	3.5	8	8	9.2	5.1	8	14	22	T	T	0.37	0.7	1.3	2	5.1	8	14	22	20											
		6	1.3	1.3	1.3	1.3	1.3	2.7	2.7	5.8	5.8	6.7	3.8	5.8	9.6	15	20	17	0.35	0.65	1.2	1.7	3.8	5.8	9.6	15	14											
		10	1.2	1.2	1.2	1.2	1.2	2.2	2.2	4.8	4.8	5.4	3.1	4.8	8	13	16	14	0.33	0.58	1	1.5	3.1	4.8	8	13	12											
		13	0.97	0.97	0.97	0.97	0.97	2	2	4.3	4.3	4.8	2.8	4.3	6.9	11	13	12	0.32	0.55	0.92	1.4	2.8	4.3	6.9	11	9.7											
		16	0.97	0.97	0.97	0.97	0.97	2	2	4.3	4.3	4.8	2.8	4.3	6.9	11	13	12	0.32	0.55	0.92	1.4	2.8	4.3	6.9	11	9.7											
		20	-	-	0.92	0.92	0.92	0.92	1.8	1.8	3.6	3.6	4	2.4	3.6	5.5	8.3	10	9.3	0.31	0.53	0.85	1.3	2.4	3.6	5.5	8.3	7.7										
		25	-	-	0.92	0.92	0.92	0.92	1.8	1.8	3.6	3.6	4	2.4	3.6	5.5	8.3	10	9.3	-	0.53	0.85	1.3	2.4	3.6	5.5	8.3	7.7										
		32	-	-	-	0.84	0.84	0.84	1.5	1.5	3	3	3.4	2.1	3	4.7	6.9	8	7.7	-	0.5	0.8	1.2	2.1	3	4.7	6.9	6.4										
		40	-	-	-	-	0.84	0.84	1.5	1.5	3	3	3.4	2.1	3	4.7	6.9	8	7.7	-	-	0.8	1.2	2.1	3	4.7	6.9	6.4										
		50	-	-	-	-	-	0.81	1.4	1.4	2.5	2.5	2.8	1.8	2.5	3.7	5.4	6.2	6	-	-	0.78	1.1	1.8	2.5	3.7	5.4	5										
		63	-	-	-	-	-	-	1.4	1.4	2.5	2.5	2.8	1.8	2.5	3.7	5.4	6.2	6	-	-	-	1.1	1.8	2.5	3.7	5.4	5										
	D curve	0,5	4.3	4.3	4.3	4.3	4.3	14	14	T	T	T	18	T	T	T	T	T	-	1.8	-	7	18	T	T	T	T											
		1	1.6	1.6	1.6	1.6	1.6	4.6	4.6	11	11	13	6.8	11	19	T	T	T	-	0.84	-	7	6.8	11	19	T	T											
		2	1.6	1.6	1.6	1.6	1.6	4.6	4.6	11	11	13	6.8	11	19	T	T	T	-	0.84	-	7	6.8	11	19	T	T											
		3	1.4	1.4	1.4	1.4	1.4	3.2	3.2	7.4	7.4	8.8	4.6	7.4	13	21	T	24	-	0.7	-	2.6	4.6	7.4	13	21	19											
		4	1.4	1.4	1.4	1.4	1.4	3.2	3.2	7.4	7.4	8.5	4.6	7.4	13	21	T	24	-	0.7	-	1.9	4.6	7.4	13	21	19											
		6	1.2	1.2	1.2	1.2	1.2	2.4	2.4	5.4	5.4	6.2	3.4	5.4	9	15	18	16	-	0.62	-	1.5	3.4	5.4	9	15	14											
		10	0.98	0.98	0.98	0.98	0.98	2	2	4.3	4.3	4.9	2.8	4.3	7.2	12	14	13	-	0.56	-	1.4	2.8	4.3	7.2	12	10.5											
		13	0.92	0.92	0.92	0.92	0.92	1.8	1.8	3.7	3.7	4.2	2.5	3.7	6	9.2	11	11	-	0.54	-	1.3	2.5	3.7	6	9.2	8.4											
		16	0.92	0.92	0.92	0.92	0.92	1.8	1.8	3.7	3.7	4.2	2.5	3.7	6	9.2	11	11	-	0.54	-	1.3	2.5	3.7	6	9.2	8.4											
		20	-	-	0.86	0.86	0.86	0.86	1.6	1.6	3.2	3.2	3.4	2.2	3.2	4.8	7.1	8.5	7.9	-	0.52	-	1.2	2.2	3.2	4.8	7.1	6.7										
		25	-	-	0.86	0.86	0.86	0.86	1.6	1.6	3.2	3.2	3.4	2.2	3.2	4.8	7.1	8.5	7.9	-	0.52	-	1.2	2.2	3.2	4.8	7.1	6.7										
		32	-	-	-	0.81	0.81	0.81	1.5	1.5	2.5	2.5	2.7	1.8	2.5	3.7	5.4	7.2	5.9	-	0.5	-	1.1	1.8	2.5	3.7	5.4	5.1										
		40	-	-	-	-	0.81	0.81	1.5	1.5	2.5	2.5	2.7	1.8	2.5	3.7	5.4	7.2	5.9	-	-	-	1.1	1.8	2.5	3.7	5.4	5.1										
		50	-	-	-	-	-	0.78	1.4	1.4	2.4	2.4	2.5	1.7	2.4	3.3	4.6	6.2	5	-	-	-	1.7	2.4	3.3	4.6	4.3											
		63	-	-	-	-	-	-	1.4	1.4	2.4	2.4	2.5	1.7	2.4	3.3	4.6	6.2	5	-	-	-	1	1.7	2.4	3.3	4.6	4.3										
MCB 1.5 module / pole, DEFI125 range HLE, HLF, HLG, HME, HMF, HMG, HMB, HMC, HMD (15 kA max IEC 60947- 2)	B curve	80	-	-	-	-	-	-	1.3	2.3	2.3	2.5	1.6	2.3	3.2	4.2	5	4.6	-	0.5	-	1	1.6	2.3	3.2	4.2	4											
		100	-	-	-	-	-	-	1.3	2.3	2.3	2.5	1.6	2.3	3.2	4.2	5	4.6	-	0.5	-	1	1.6	2.3	3.2	4.2	4											
		125	-	-	-	-	-	-	1.3	2.3	2.3	2.5	1.6	2.3	3.2	4.2	5	4.6	-	0.5	-	1	1.6	2.3	3.2	4.2	4											
	C curve	80	-	-</																																		

h250 TM+ 50/70 kA								h250 LSI 50/70 kA			h400 TM 25/50/70 kA				h630 LSI 50/70 kA					h800 TM 50/70 kA		h1000 LSI 50/70 kA				h1600 LSI 50/70 kA		
HNH, HEH								HNG, HEG			HHD, HND, HKD				HND, HED					HNK, HEK		HNE, HEE				HNF, HEF		
20	32	50	63	100	125	160	250	40	125	250	250	300	350	400	250	400	500	600	630	630	800	630	700	800	1000	800	1250	1600
0.35	0.59	1.2	1.5	3.3	5	9.6	14	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
0.33	0.52	1	1.4	2.8	4.2	8	12	T	T	T	18	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
0.32	0.5	0.92	1.3	2.5	3.7	6.9	9.7	T	T	T	15	20	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
0.32	0.5	0.92	1.3	2.5	3.7	6.9	9.7	T	T	T	15	20	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
0.31	0.48	0.85	1.1	2.2	3.1	5.5	7.7	T	T	T	12	16	22	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
-	0.48	0.85	1.1	2.2	3.1	5.5	7.7	T	T	T	12	16	22	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
-	0.46	0.8	1	1.9	2.6	4.7	6.4	T	T	T	10	13	18	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
-	0.46	0.8	1	1.9	2.6	4.7	6.4	T	T	T	10	13	18	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
-	0.46	0.78	0.95	1.6	2.3	3.7	5	-	T	T	7.5	10	14	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
-	0.46	-	0.95	1.6	2.3	3.7	5	-	T	T	7.5	10	14	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
0.8	1.6	4.5	7	22	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
0.42	0.74	1.5	2.2	6.2	10	20	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
0.42	0.74	1.5	2.2	6.2	10	20	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
0.37	0.61	1.3	1.7	4.5	7	14	20	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
0.37	0.61	1.3	1.7	4.5	7	14	20	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
0.35	0.59	1.2	1.5	3.3	5	9.6	14	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
0.33	0.52	1	1.4	2.8	4.2	8	12	T	T	T	18	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
0.32	0.5	0.92	1.3	2.5	3.7	6.9	9.7	T	T	T	15	20	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
0.32	0.5	0.92	1.3	2.5	3.7	6.9	9.7	T	T	T	15	20	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
0.31	0.48	0.85	1.1	2.2	3.1	5.5	7.7	T	T	T	12	16	22	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
-	0.48	0.85	1.1	2.2	3.1	5.5	7.7	T	T	T	12	16	22	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
-	0.46	0.8	1	1.9	2.6	4.7	6.4	T	T	T	10	13	18	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
-	0.46	0.8	1	1.9	2.6	4.7	6.4	T	T	T	10	13	18	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
-	0.46	0.78	0.95	1.6	2.3	3.7	5	-	T	T	7.5	10	14	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
-	0.46	-	0.95	1.6	2.3	3.7	5	-	T	T	7.5	10	14	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
0.8	1.6	4	5.5	15	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
0.42	0.72	1.5	2	5.8	10	19	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
0.42	0.72	1.5	2	5.8	10	19	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
0.36	0.6	1.3	1.6	4	6.6	13	19	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
0.36	0.6	1.3	1.6	4	6.6	13	19	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
0.34	0.53	1.05	1.4	3	5	9	14	T	T	T	20	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
0.33	0.5	0.93	1.2	2.5	4	7.2	10.5	T	T	T	14	22	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
0.32	0.48	0.88	1.1	2.2	3.4	6	8.4	T	T	T	12	17	24	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
0.32	0.48	0.88	1.1	2.2	3.4	6	8.4	T	T	T	12	17	24	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
0.31	0.46	0.82	1	1.9	2.8	4.8	6.7	T	T	T	9.5	14	17	22	T	T	T	T	T	T	T	T	T	T	T	T	T	
-	0.46	0.82	1	1.9	2.8	4.8	6.7	T	T	T	9.5	14	17	22	T	T	T	T	T	T	T	T	T	T	T	T	T	
-	0.44	0.78	0.95	1.7	2.4	3.7	5.1	T	T	T	7	10	13	17	T	T	T	T	T	T	T	T	T	T	T	T	T	
-	-	0.78	0.95	1.7	2.4	3.7	5.1	T	T	T	7	10	13	17	T	T	T	T	T	T	T	T	T	T	T	T	T	
-	-	0.76	0.9	1.6	2.2	3.3	4.3	T	T	T	5.8	8	10	15	T	T	T	T	T	T	T	T	T	T	T	T	T	
-	-	-	0.9	1.6	2.2	3.3	4.3	T	T	T	5.8	8	10	15	T	T	T	T	T	T	T	T	T	T	T	T	T	
-	-	-	-	1.5	2	3.2	4	T	T	T	7	7.2	8.8	14	T	T	T	T	T	T	T	T	T	T	T	T	T	
-	-	-	-	-	2	3.2	4	-	T	T	7	7.2	8.8	14	T	T	T	T	T	T	T	T	T	T	T	T	T	
-	-	-	-	-	-	3.2	4	-	T	T	7	7.2	8.8	14	T	T	T	T	T	T	T	T	T	T	T	T	T	
-	-	-	-	-	1.5	2	3.2	4	-	T	T	7	7.2	8.8	14	T	T	T	T	T	15	T	T	T	T	T	T	
-	-	-	-	-	2	3.2	4	-	T	T	7	7.2	8.8	14	T	T	T	T	T	15	T	T	T	T	T	T	T	
-	-	-	-	-	-	3.2	4	-	T	T	7	7.2	8.8	14	T	T	T	T	T	15	T	T	T	T	T	T	T	
-	-	-	-	-	-	3.2	4	-	T	T	7	7.2	8.8	14	T	T	T	T	T	15	T	T	T	T	T	T	T	
-	-	-	-	-	-	3.2	4	-	T	T	7	7.2	8.8	14	T	T	T	T	T	15	T	T	T	T	T	T	T	
-	-	-	-	-	-	3.2	4	-	T	T	7	7.2	8.8	14	T	T	T	T	T	15	T	T	T	T	T	T	T	
-	-	-	-	-	-	3.2	4	-	T	T	7	7.2	8.8	14	T	T	T	T	T	15	T	T	T	T	T	T	T	
-	-	-	-	-	-	3.2	4	-	T	T	7	7.2	8.8	14	T	T	T	T	T	15	T	T	T	T	T	T	T	
-	-	-	-	-	-	3.2	4	-	T	T	7	7.2	8.8	14	T	T	T	T	T	15	T	T	T	T	T	T	T	
-	-	-	-	-	-	3.2	4	-	T	T	7	7.2	8.8	14	T	T	T	T	T	15	T	T	T	T	T	T	T	
-	-	-	-	-	-	3.2	4	-	T	T	7	7.2	8.8	14	T	T	T	T	T	15	T	T	T	T	T	T	T	

Discrimination chart according to IEC 60947-2

ACBs / MCCBs

	Icc (kA)	Upstream	frame I, HWG				frame I, HWN						
	Downstream		Icu = Ics = 50 kA @ 415V				Icu = Ics = 65 kA @ 415V						
			OCR: LSI or LSIG with OCR with Ir=1xIn, Tr>24s at 6Ir, Is=10In, Ts>20ms, Ip=Max										
		(A)	630	800	1000	1250	630	800	1000	1250	1600	2000	
HDA HHA HNA	x160 TM 18/25/40 kA	16	T	T	T	T	T	T	T	T	T	T	
		20	T	T	T	T	T	T	T	T	T	T	
		25	T	T	T	T	T	T	T	T	T	T	
		32	T	T	T	T	T	T	T	T	T	T	
		40	T	T	T	T	T	T	T	T	T	T	
		50	T	T	T	T	T	T	T	T	T	T	
		63	T	T	T	T	T	T	T	T	T	T	
		80	T	T	T	T	T	T	T	T	T	T	
		100	T	T	T	T	T	T	T	T	T	T	
		125	T	T	T	T	T	T	T	T	T	T	
		160	T	T	T	T	T	T	T	T	T	T	
HHB HNB	x250 TM 25/40 kA	100	T	T	T	T	T	T	T	T	T	T	
		125	T	T	T	T	T	T	T	T	T	T	
		160	T	T	T	T	T	T	T	T	T	T	
		200	T	T	T	T	T	T	T	T	T	T	
		225	T	T	T	T	T	T	T	T	T	T	
		250	T	T	T	T	T	T	T	T	T	T	
HHG HNG HEG	h250 TM 25/50/65 kA	20	T	T	T	T	T	T	T	T	T	T	
		32	T	T	T	T	T	T	T	T	T	T	
		50	T	T	T	T	T	T	T	T	T	T	
		63	T	T	T	T	T	T	T	T	T	T	
		100	T	T	T	T	T	T	T	T	T	T	
		125	T	T	T	T	T	T	T	T	T	T	
		160	T	T	T	T	T	T	T	T	T	T	
		200	T	T	T	T	T	T	T	T	T	T	
HNH HEH	h250 TM+ 50/70 kA	20	T	T	T	T	T	T	T	T	T	T	
		32	T	T	T	T	T	T	T	T	T	T	
		50	T	T	T	T	T	T	T	T	T	T	
		63	T	T	T	T	T	T	T	T	T	T	
		100	T	T	T	T	T	T	T	T	T	T	
		125	T	T	T	T	T	T	T	T	T	T	
		160	T	T	T	T	T	T	T	T	T	T	
		250	T	T	T	T	T	T	T	T	T	T	
HNC HEC	h250 LSI 50/70 kA	40	T	T	T	T	T	T	T	T	T	T	
		125	T	T	T	T	T	T	T	T	T	T	
		250	T	T	T	T	T	T	T	T	T	T	
HHD HND HKD	h400 TM 25/50/70 kA	250	T	T	T	T	T	T	T	T	T	T	
		300	T	T	T	T	T	T	T	T	T	T	
		350	T	T	T	T	T	T	T	T	T	T	
		400	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	
		400	T	T	T	T	T	T	T	T	T	T	
		500	T	T	T	T	T	T	T	T	T	T	
		600	T	T	T	T	T	T	T	T	T	T	
		630	-	T	T	T	-	T	T	T	T	T	
HNK HEK	h800 TM 50/70 kA	630	-	-	T	T	-	-	T	T	T	T	
		800	-	-	T	T	-	-	T	T	T	T	
HNE HEE	h1000 LSI 50/70 kA	630	-	-	T	T	-	-	T	T	T	T	
		700	-	-	T	T	-	-	T	T	T	T	
		800	-	-	T	T	-	-	T	T	T	T	
		7000	-	-	-	T	-	-	-	T	T	T	
HNF HEF	h1600 LSI 50/70 kA	800	-	-	T	T	-	-	T	T	T	T	
		1250	-	-	-	-	-	-	-	-	T	T	
		1600	-	-	-	-	-	-	-	-	-	T	

Breaking capacity according to IEC 60947-2. Network : 3 phasis + neutral 220/380 ~ 240/415 V AC

notes : "T" = total discrimination (up to the breaking capacity of the downstream device)

"-" = no discrimination

frame II, HWS							frame III, HWP	
Icu = Ics = 80 kA @ 415V							Icu = Ics = 100 kA @ 415V	
800	1000	1250	1600	2000	2500	3200	3200	4000
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
-	T	T	T	T	T	T	T	T
-	T	T	T	T	T	T	T	T
-	T	T	T	T	T	T	T	T
-	T	T	T	T	T	T	T	T
-	T	T	T	T	T	T	T	T
-	-	T	T	T	T	T	T	T
-	T	T	T	T	T	T	T	T
-	-	-	T	T	T	T	T	T
-	-	-	-	T	T	T	T	T

Cascading according to IEC 60947-2 and IEC 60439-1 ACBs / MCCBs

Max. cascading value in kA rms according to IEC 947-2 and IEC 60439-1 Network: 3 phases + neutral 220/380 - 240/415 VAC

				Upstream			
				frame I, HWG	frame I HWN		
				rated current 630-800- 1000-1250A	rated current 630-800- 1000-1250A	rated current 1600A	rated current 2000A
				IEC 60947-2	50 kA	65 kA	65 kA
Downstream	x160 TM	HDA	18 kA	18	18	18	18
		HHA	25 kA	25	25	25	25
		HNA	40 kA	40	40	40	40
	x250 TM	HHB	25 kA	25	25	25	25
		HNB	40 kA	40	40	40	40
	h250 TM	HHG	25 kA	25	25	25	25
		HNG	50 kA	50	50	50	50
		HEG	65 kA	50	65	65	65
	h250 TM+	HNH	50 kA	50	50	50	50
		HEH	70 kA	50	65	65	65
	h250 LSI	HNC	50 kA	50	50	50	50
		HEC	70 kA	50	65	65	65
	h400 TM	HHD	25 kA	25	25	25	25
		HND	50 kA	50	50	50	50
		HKD	70 kA	50	65	65	65
	h630 LSI	HND	50 kA	50	50	50	50
		HED	70 kA	50	65	65	65
	h800 TM	HNK	50 kA	50	50	50	50
		HEK	70 kA	50	65	65	65
	h1000 LSI	HNE	50 kA	50	50	50	50
		HEE	70 kA	50	65	65	65
	h1600 LSI	HNF	50 kA	-	-	50	50
		HEF	70 kA	-	-	65	65

frame II, HWS	frame II, HWS	frame II, HWS	frame III, HWP
rated current 800A	rated current 1000A	rated current 1600- 2000-2500-3200A	rated current 3200- 4000A
80 kA	80 kA	80 kA	100 kA
18	18	18	18
25	25	25	25
40	40	40	40
25	25	25	25
40	40	40	40
25	25	25	25
50	50	50	50
65	65	65	65
50	50	50	50
70	70	70	70
50	50	50	50
70	70	70	70
25	25	25	25
50	50	50	50
70	70	70	70
50	50	50	50
70	70	70	70
50	50	50	50
70	70	70	70
-	50	50	50
-	70	70	70
-	-	50	50
-	-	70	70

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