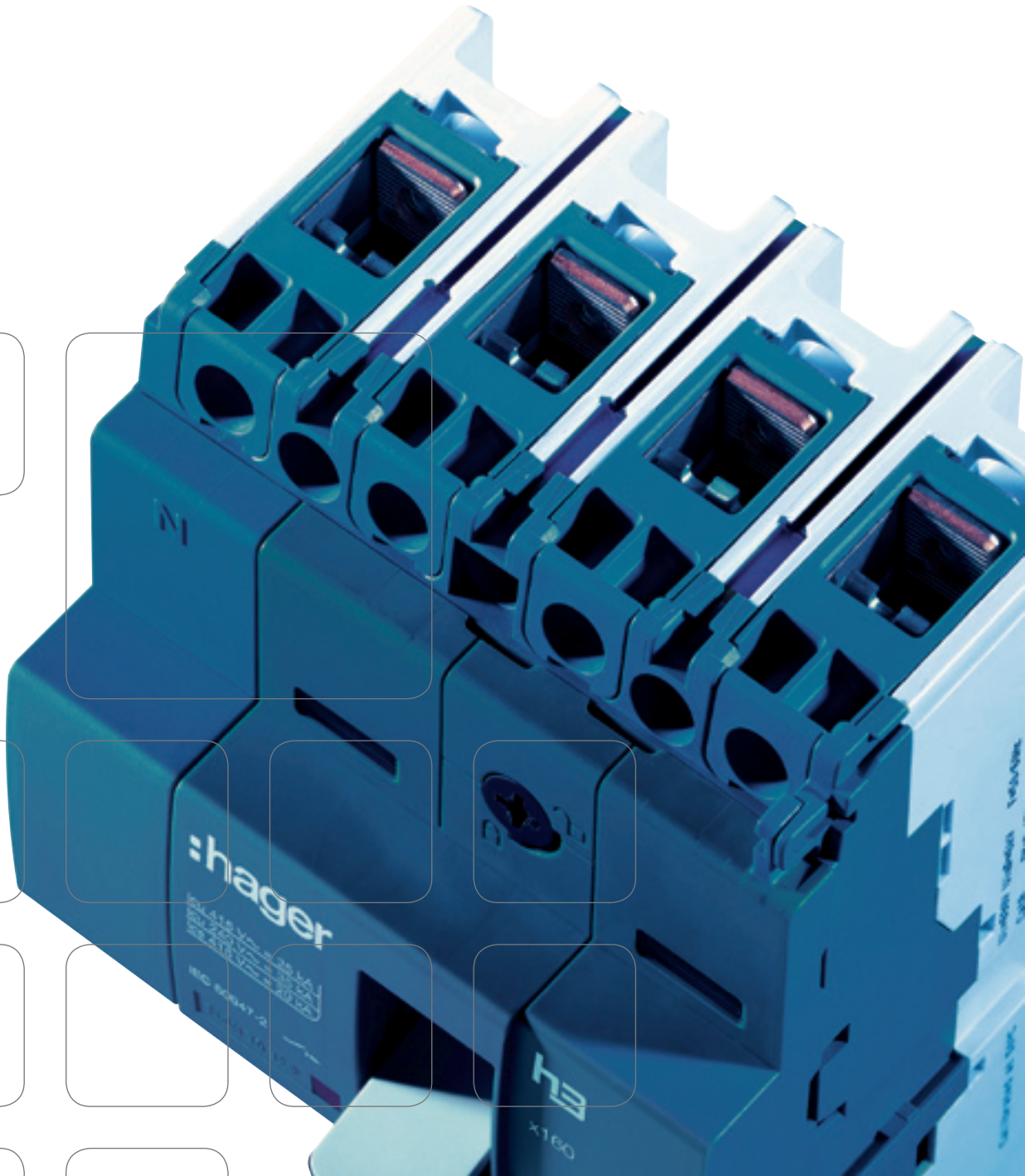
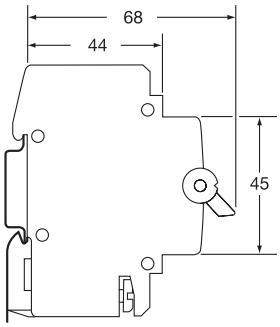
Protection devices

The complete solution

We offer a wide range of protection devices, such as miniature circuit breakers, auxiliaries and accessories, RCCB add-on blocks, single pole and switched neutral devices, 2 and 4 pole RCCB's, RCCB auxiliaries, RCBO's, HRC fuse carriers, motor starters, earth fault relays, surge protection devices and the new h3 range of moulded case circuit breakers.





Description
Protection and control of circuits against overloads and short circuits.

- In domestic installations

Technical data
Type B tripping characteristics complies with BS EN 60898.
Calibration temperature 30°C
Breaking capacity: 6kA
Voltage rating: 230 - 400V
Current rating: 6 - 63A
Electrical operations: 20,000

Connection capacity
Rigid conductor 25mm²
Flexible conductor 16mm²

MTN163

Single Pole MCBs 6kA Type B

Rating	Width (17.5mm)	Cat ref.
6A	1 Mod	**MTN106**
10A	1 Mod	**MTN110**
16A	1 Mod	**MTN116**
20A	1 Mod	**MTN120**
25A	1 Mod	**MTN125**
32A	1 Mod	**MTN132**
40A	1 Mod	**MTN140**
50A	1 Mod	**MTN150**
63A	1 Mod	**MTN163**

In 0.5 to 63A
Un : 230V-400V

Will accept accessories
see page 4.5

Description
These MCBs allow you to ensure
- Protection of circuits against short circuits
- Protection of circuits against overload current
- Control
- Isolation

Isolation
The state of isolation is clearly indicated by the "OFF" mechanical position on the toggle with the green colour.

Connection capacity
- 25mm² flexible conductor
- 35mm² rigid conductor

Complies with:
- BS EN 60898 (10kA)
- BS EN 60947-2 (15kA)

Single Pole MCBs


NCN116A

Rating	Width (17.5mm)	Cat ref. "B" Curve	Cat ref. "C" Curve	Cat ref. "D" Cruve
0.5A	1 Mod	-	**NCN100A**	**NDN100A**
1A	1 Mod	-	**NCN101A**	**NDN101A**
2A	1 Mod	-	**NCN102A**	**NDN102A**
3A	1 Mod	-	**NCN103A**	**NDN103A**
4A	1 Mod	-	**NCN104A**	**NDN104A**
6A	1 Mod	**NBN106A**	**NCN106A**	**NDN106A**
10A	1 Mod	**NBN110A**	**NCN110A**	**NDN110A**
16A	1 Mod	**NBN116A**	**NCN116A**	**NDN116A**
20A	1 Mod	**NBN120A**	**NCN120A**	**NDN120A**
25A	1 Mod	**NBN125A**	**NCN125A**	**NDN125A**
32A	1 Mod	**NBN132A**	**NCN132A**	**NDN132A**
40A	1 Mod	**NBN140A**	**NCN140A**	**NDN140A**
50A	1 Mod	**NBN150A**	**NCN150A**	**NDN150A**
63A	1 Mod	**NBN163A**	**NCN163A**	**NDN163A**

Double Pole MCBs


NCN216A

Rating	Width (35mm)	Cat ref. "B" Curve	Cat ref. "C" Curve	Cat ref. "D" Cruve
0.5A	2 Mod	-	**NCN200A**	**NDN200A**
1A	2 Mod	-	**NCN201A**	**NDN201A**
2A	2 Mod	-	**NCN202A**	**NDN202A**
3A	2 Mod	-	**NCN203A**	-
4A	2 Mod	-	**NCN204A**	**NDN204A**
6A	2 Mod	**NBN206A**	**NCN206A**	**NDN206A**
10A	2 Mod	**NBN210A**	**NCN210A**	**NDN210A**
16A	2 Mod	**NBN216A**	**NCN216A**	**NDN216A**
20A	2 Mod	**NBN220A**	**NCN220A**	**NDN220A**
25A	2 Mod	**NBN225A**	**NCN225A**	**NDN225A**
32A	2 Mod	**NBN232A**	**NCN232A**	**NDN232A**
40A	2 Mod	**NBN240A**	**NCN240A**	**NDN240A**
50A	2 Mod	**NBN250A**	**NCN250A**	**NDN250A**
63A	2 Mod	**NBN263A**	**NCN263A**	**NDN263A**

In 0.5 to 63A
Un : 230V-400V

Will accept accessories
see page 4.5

Description
These MCBs allow you to ensure
- Protection of circuits against short circuits
- Protection of circuits against overload current
- Control
- Isolation

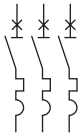
Isolation
The state of isolation is clearly indicated by the "OFF" mechanical position on the toggle with the green colour.

Connection capacity
- 25mm² flexible conductor
- 35mm² rigid conductor

Complies with:
- BS EN 60898 (10kA)
- BS EN 60947-2 (15kA)

Triple Pole MCBs

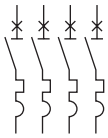

NCN316A



Rating	Width (52.5mm)	Cat ref. "B" Curve	Cat ref. "C" Curve	Cat ref. "D" Cruve
0.5A	3 Mod	-	**NCN300A**	**NDN300A**
1A	3 Mod	-	**NCN301A**	**NDN301A**
2A	3 Mod	-	**NCN302A**	**NDN302A**
3A	3 Mod	-	**NCN303A**	**NDN303A**
4A	3 Mod	-	**NCN304A**	**NDN304A**
6A	3 Mod	**NBN306A**	**NCN306A**	**NDN306A**
10A	3 Mod	**NBN310A**	**NCN310A**	**NDN310A**
16A	3 Mod	**NBN316A**	**NCN316A**	**NDN316A**
20A	3 Mod	**NBN320A**	**NCN320A**	**NDN320A**
25A	3 Mod	**NBN325A**	**NCN325A**	**NDN325A**
32A	3 Mod	**NBN332A**	**NCN332A**	**NDN332A**
40A	3 Mod	**NBN340A**	**NCN340A**	**NDN340A**
50A	3 Mod	**NBN350A**	**NCN350A**	**NDN350A**
63A	3 Mod	**NBN363A**	**NCN363A**	**NDN363A**

Four Pole MCBs

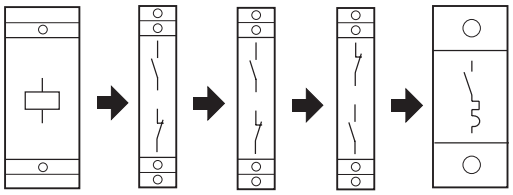

NCN416A



Rating	Width (70mm)	Cat ref. "B" Curve	Cat ref. "C" Curve	Cat ref. "D" Cruve
0.5A	4 Mod	-	**NCN400A**	**NDN400A**
1A	4 Mod	-	**NCN401A**	**NDN401A**
2A	4 Mod	-	**NCN402A**	**NDN402A**
3A	4 Mod	-	**NCN403A**	**NDN403A**
4A	4 Mod	-	**NCN404A**	**NDN404A**
6A	4 Mod	**NBN406A**	**NCN406A**	**NDN406A**
10A	4 Mod	**NBN410A**	**NCN410A**	**NDN410A**
16A	4 Mod	**NBN416A**	**NCN416A**	**NDN416A**
20A	4 Mod	**NBN420A**	**NCN420A**	**NDN420A**
25A	4 Mod	**NBN425A**	**NCN425A**	**NDN425A**
32A	4 Mod	**NBN432A**	**NCN432A**	**NDN432A**
40A	4 Mod	**NBN440A**	**NCN440A**	**NDN440A**
50A	4 Mod	**NBN450A**	**NCN450A**	**NDN450A**
63A	4 Mod	**NBN463A**	**NCN463A**	**NDN463A**

All auxiliaries are common to both single and multi-pole 10kA circuit breakers and RCCBs.

Connection capacity
4mm² flexible
6mm² rigid

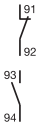



MZ201

Auxiliary Contacts 5A - 230V~

Description	Width (8.75mm)	Cat Ref.
1NO +1NC Allows remote indication of main contact status	½ Mod	**MZ201**

Auxiliary Contacts and Alarm Indiction



Description	Width (8.75mm)	Cat Ref.
Allows indication of whether and alarm indication MCB has been turned off or tripped	½ Mod	**MZ202**


MZ204

Shunt Trip

Allows remote tripping of the associated device. Operation of the coil is indicated by a flag on the product fascia.

Description	Width (17.5mm)	Cat Ref.
230V - 415Vac 110V - 130Vdc	1 Mod	**MZ203**
24 - 48Vac 12 - 48Vdc	1 Mod	**MZ204**

Under Voltage Release

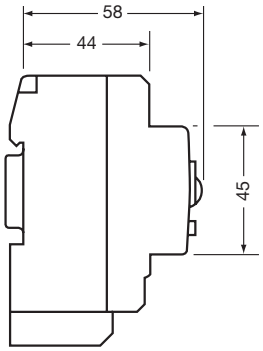
Allows MCB to be closed only when voltage is above 85% of Un. MCB will automatically trip when voltage falls to between 70-35% of Un. Operation of the coil is indicated by a flag on the product facia.

Description	Width (17.5mm)	Cat Ref.
230Vac	1 Mod	**MZ206**
48Vdc	1 Mod	**MZ205**


MZN175

Locking Kit

Description	Cat ref.
Allows locking of the device in the off position Will accept two padlocks with hasps of 4.75mm diameter max. (supplied without padlock)	**MZN175**



Description
These products provide earth fault protection when associated with the 10kA (types NBN, NCN, NDN) range of MCBs.

They are designed to be fitted to the right hand side of 2 and 4 pole MCBs and the completed unit provides protection against:
- Overload
- Short circuit
- Earth faults

Technical Data
3 Non-Adjustable sensitivities 30, 100 & 300mA
nominal voltage 230 - 400V
protection against nuisance tripping.
2 pole = 2 Modules
4 pole = 3 Modules

BS EN 61009 Appendix G

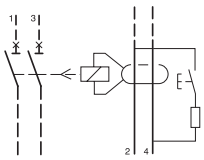
[S] Selective (time delay) versions are available in 100 & 300mA

Connection Capacity
- 16mm² Flexible
- 25mm² Rigid

All devices have a test facility.

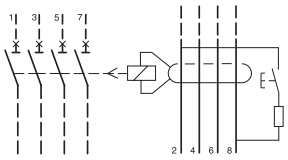
Double Pole RCCB Add-On Blocks

BD264



Sensitivity IΔn	In/A	Width (35mm)	Cat ref.
30mA	63A	2 Mod	**BD264**
100mA	63A	2 Mod	**BE264**
300mA	63A	2 Mod	**BF264**
Time Delayed [S] 100mA	63A	2 Mod	**BN264**
Time Delayed [S] 300mA	63A	2 Mod	**BP264**

Four Pole RCCB Add-On Blocks



Sensitivity IΔn	In/A	Width (52.5mm)	Cat ref.
30mA	63A	3 Mod	**BD464**
100mA	63A	3 Mod	**BE464**
300mA	63A	3 Mod	**BF464**
Time Delayed [S] 100mA	63A	3 Mod	**BN464**
Time Delayed [S] 300mA	63A	3 Mod	**BP464**

Thermal Magnetic Circuit Breakers Curves C & D In 80 to 125 A

These circuit breakers are intended for the protection of the circuits against overloads and short circuits.

HMC C Curve
15 kA
(BS EN 60898 Part 1)
15 kA for 80 - 100 - 125 A:
BS EN 60947-2
Width 1.5 mod/pole

HMD D Curve
15 kA
(BS EN 60898 Part 1)
15 kA for 80 - 100 - 125 A:
BS EN 60947-2
Width 1.5 mod/pole

HMF C Curve
10 kA
(BS EN 60898 Part 1)
10 kA for 80 - 100 - 125 A:
BS EN 60947-2
width 1.5 mod/pole

These circuit breakers are equipped with reinforced screw cages.

A label holder is integrated under the toggle to ensure the location of the product.

The “OFF” position is clearly shown by a green indicator below the toggle.

Suitable for isolation (according to BS EN 60947-2) the isolation of the circuit breakers is indicated by a green indicator on the toggle.

These circuit breakers have quick closing : fast and simultaneous closing of the contacts, independent of the handling speed.

This increases the life of the circuit breaker whatever the type of load.

Nominal Voltage
230/415 V~
Calibration setting : 30 °C
(BS EN 60898 Part 1)
Insulation voltage : 500 V

Options
Auxiliary
- To visualise the state ON or OFF of the circuit breaker,
- To ON/OFF remotely the circuit breaker

- Locking mechanism

- Terminal covers and phase separators

- RCD add-on blocks

Series HMC, HMD
- Mounting capability: bistable DIN-rail latches (2 positions) upstream and downstream facilitate the mounting of the circuit breakers on the DIN-rail.

- Terminals with tightening compensation. These circuit breakers are equipped with screw cages with tightening compensation, (reinforcement cage cable holding jaws). These elements contribute to an effective cable tightening over time.

- These circuit breakers are equipped with cable terminals of type “fast on” upstream and downstream to feed an auxiliary low voltage circuit (indicating lights, auxiliary control...)
  Max. current 6A
  Max. cable csa - 6 mm^2

Lockable Toggle
MCB can be locked in “Off” position by the integrated locking facility on the toggle. This lock allows to insert a 2.5-3.5mm plastic cable tie where you can fit a warning card if necessary and allows a safer working environment for all personnel.

RCD Add-On Blocks
Simple, quick, adjustable and fixed
1. Assembly
2. Connection
3. Locking
The assembly of the add-on block is carried out very quickly and easily. Simple and fast : it is a Hager innovation. add-on blocks 125A are available in fixed version and adjustable version.

Model	Icc / Curve	Accessories	Fast-on Connection	Tightening Comp. System	Lockable	Front Product Labelling
HMF	10kA / C	Yes	No	No	Yes	Yes
HMC, HMD	15kA / C, D	Yes	Yes	Yes	Yes	Yes

Curves C
10 kA BS EN 60898-1
10 kA BS EN 60947-2

In 80 to 125A

Tripping Curves
"C" magnetic setting between 5 to 10 In.

Use
Commercial and industrial applications.

Connection Capacity
- 35mm² flexible wire (50mm² possible with some cable pin lugs)
- 70mm² rigid wire

KEMA
Approved according to BS EN 60898-1.


HMF199T

Single Pole MCBs 10kA C Curve

Rating	Width (26.25mm)	Cat ref.
80A	1 ½ Mod	**HMF180T**
100A	1 ½ Mod	**HMF190T**
125A	1 ½ Mod	**HMF199T**


HMF299T

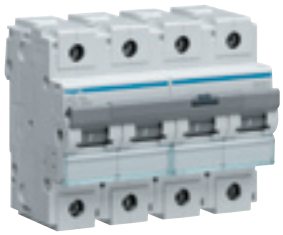
Double Pole MCBs 10kA C Curve

Rating	Width (52.5mm)	Cat ref.
80A	3 Mod	**HMF280T**
100A	3 Mod	**HMF290T**
125A	3 Mod	**HMF299T**


HMF399T

Triple Pole MCBs 10kA C Curve

Rating	Width (75.75mm)	Cat ref.
80A	4 ½ Mod	**HMF380T**
100A	4 ½ Mod	**HMF390T**
125A	4 ½ Mod	**HMF399T**


HMF499T

Four Pole MCBs 10kA C Curve

Rating	Width (105mm)	Cat ref.
80A	6 Mod	**HMF480T**
100A	6 Mod	**HMF490T**
125A	6 Mod	**HMF499T**

Curves C
15 kA BS EN 60898-1
15 kA BS EN 60947-2

In 80 to 125A

Tripping Curves
"C" magnetic setting between 5 to 10 In.

Use
Commercial and industrial applications.

Connection Capacity
- 35mm² flexible wire (50mm² possible with some cable pin lugs)
- 70mm² rigid wire

KEMA
Approved according to BS EN 60898-1.


HMC199T

Single Pole MCBs 15kA C Curve

Rating	Width (26.25mm)	Cat ref.
80A	1 ½ Mod	**HMC180T**
100A	1 ½ Mod	**HMC190T**
125A	1 ½ Mod	**HMC199T**


HMC299T

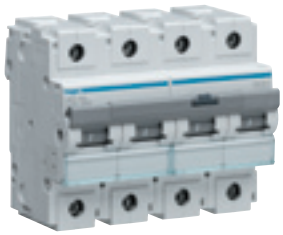
Double Pole MCBs 15kA C Curve

Rating	Width (52.5mm)	Cat ref.
80A	3 Mod	**HMC280T**
100A	3 Mod	**HMC290T**
125A	3 Mod	**HMC299T**


HMC399T

Triple Pole MCBs 15kA C Curve

Rating	Width (78.75mm)	Cat ref.
80A	4 ½ Mod	**HMC380T**
100A	4 ½ Mod	**HMC390T**
125A	4 ½ Mod	**HMC399T**


HMC499T

Four Pole MCBs 15kA C Curve

Rating	Width (105mm)	Cat ref.
80A	6 Mod	**HMC480T**
100A	6 Mod	**HMC490T**
125A	6 Mod	**HMC499T**

Curves D
15 kA BS EN 60898-1
15 kA BS EN 60947-2

In 80 to 125A

Tripping Curves
"D" magnetic setting between 10 to 20 I_n.

Use
Commercial an industrial applications.

Connection Capacity
- 35mm² flexible wire (50mm² possible with some cable pin lugs)
- 70mm² rigid wire

KEMA
Approved according to BS EN 60898-1


HMD199T

Single Pole MCBs 15kA D Curve

Rating	Width (26.25mm)	Cat ref.
80A	1 ½ Mod	**HMD180T**
100A	1 ½ Mod	**HMD190T**
125A	1 ½ Mod	**HMD199T**


HMD299T

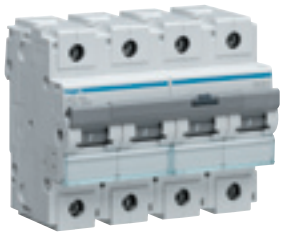
Double Pole MCBs 15kA D Curve

Rating	Width (52.5mm)	Cat ref.
80A	3 Mod	**HMD280T**
100A	3 Mod	**HMD290T**
125A	3 Mod	**HMD299T**


HMD399T

Triple Pole MCBs 15kA D Curve

Rating	Width (78.75mm)	Cat ref.
80A	4 ½ Mod	**HMD380T**
100A	4 ½ Mod	**HMD390T**
125A	4 ½ Mod	**HMD399T**


HMD499T

Four Pole MCBs 15kA D Curve

Rating	Width (105mm)	Cat ref.
80A	6 Mod	**HMD480T**
100A	6 Mod	**HMD490T**
125A	6 Mod	**HMD499T**

Terminal Covers Screw Cap

MZN130

Description	Cat ref.
To cover connection terminals and screws of circuit breaker. The screw covers can be sealed.	**MZN130**

Phase Separator

MZN131

Description	Cat ref.
1 Set of 3 Phase Separators	**MZN131**

Fixed
- High sensitivity 30 mA Instantaneous
- Low sensitivity 300 mA Instantaneous

Settings
- Sensitivity IΔn 0.3-0.5 - 1A
- Delay SΔt 0 - 60 -150 ms

These devices are intended to be fixed on the right side of the circuit breakers to form differential circuit breakers from 80 to 125A, two, three or four pole.

This "circuit breaker + block" ensures, in addition to the overload and short circuit protection, the protection of the installations against the insulation defects (300mA and 1A) and the protection of the people against the direct contacts (30mA) and indirect (300mA).

Adjustable Blocks
The setting is done by actuating the thumb wheel on the front face. The setting thumb wheels are protected by a transparent sealable cover.

Disassembly
The bistable latch (2 positions) facilitate the assembly or disassembly by the bottom of the "circuit breaker + block."

These RCD add-on blocks exist in version AC and in version A-HI.

Version AC ~
The add-on blocks are protected against unexpected tripping caused by the transitory leakage currents: lightning, capacitive loading.

High Immunity
The products with "reinforced immunity" reduce the unexpected tripping when they protect equipment generating disturbances (micro-processing, electronic ballast, etc.)

The earth fault is indicated when the handle is in lower position (yellow colour). Test button for earth fault check.

Tightening Compensation Cages
These circuit breaker blocks are equipped with screw cages with tightening compensation, reinforcement arch and cable holding jaws. These elements contribute to an effective tightening over time.

Connection Capacity
- 35mm² flexible connection (50° possible with some terminals),
- 70mm² rigid connection.

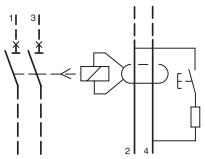
Assembly and disassembly facilitated by the drawer assembly system. The terminal cover is dependent of the add-on block. It is provided with keying systems avoiding the omission of terminal tightening downstream of the circuit breaker.

Nominal voltage: -15 +10 %
2 Poles: 230V
three and four pole: 230 / 400V
test button: 230 / 400V.

In conformity with the requirements of the Appendix G of the BS EN 61009-1.
In conformity with the requirements of standard BS EN 60947-2.

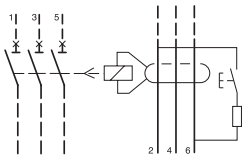
Double Pole RCD Add-On Blocks

BTC280E



Sensitivity Fixed / Adjustable IΔn	In/A	Width (105mm)	Cat ref.
Fixed 30mA	125A	6 Mod	**BDC280E**
Adjustable 0.3-0.5-1A Time Delayed S 0-60-150ms	125A	6 Mod	**BTC280E**

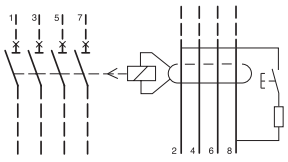
Triple Pole RCD Add-On Blocks



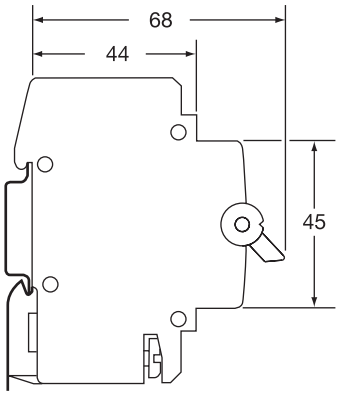
Sensitivity Fixed / Adjustable IΔn	In/A	Width (105mm)	Cat ref.
Fixed 30mA	125A	6 Mod	**BDC380E**
Adjustable 0.3-0.5-1A Time Delayed S 0-60-150ms	125A	6 Mod	**BTC380E**

Four Pole RCD Add-On Blocks

BDC480E



Sensitivity Fixed / Adjustable IΔn	In/A	Width (105mm)	Cat ref.
Fixed 30mA	125A	6 Mod	**BDC480E**
Fixed 300mA	125A	6 Mod	**BFC480E**
Adjustable 0.3-0.5-1A Time Delayed S 0-60-150ms	125A	6 Mod	**BTC480E**



Description
Protection and control of circuits against overloads and short circuits.

Technical Data
Type C tripping characteristics
Complies with BS EN 60-898
Calibration temperature 30°C
Breaking capacity - 6kA
Voltage rating - 230VAC

Connection Capacity
Rigid 16mm²
Flexible 10mm²

MLN710A

Single Pole and Switched Neutral MCB

Rating	Width (17.5mm)	Cat ref.
6A	1 Mod	**MLN706A**
10A	1 Mod	**MLN710A**
16A	1 Mod	**MLN716A**
20A	1 Mod	**MLN720A**
32A	1 Mod	**MLN732A**
40A	1 Mod	**MLN740A**

JK01B

Single Module Blank

Description	Cat ref.
Shrouds busbar and blanks spare ways	**JK01B**

MZN175

Locking Kit

Description	Cat ref.
Allows locking of the device in the off position Will accept two padlocks with hasps of 4.75mm diameter max. (supplied without padlock).	**MZN175**

Description
Protection and control of circuits against overloads and short circuits

Technical Data
Characteristics type (fuse) gF
Breaking capacity
10-20A 4kA
25 & 32A - 6kA
Voltage rating - 250VAC

Connection Capacity
Rigid 16mm^2
Flexible 10mm^2

Single Pole and Switched Neutral Fuse Carriers

Supplied without fuse fitted

L12401

Rating	Width (17.5mm)	Cat ref.
10A	1 Mod	**L12401**
16A	1 Mod	**L12501**
20A	1 Mod	**L12601**
25A	1 Mod	**L12701**
32A	1 Mod	**L12801**

Spare Fuse Type gF

Supplied without fuse fitted

Rating	Dimensions	Cat ref.
10A	8.5 x 23mm	**LF138**
16A	10.3 x 25.8mm	**LF139**
20A	8.5 x 31.5mm	**LF140**
25A	10.3 x 31.5mm	**LF141**
32A	10.3 x 38mm	**LF142**

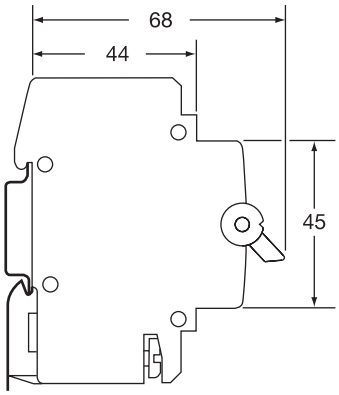
Single Module Blank

Description	Cat ref.
Shrouds busbar and blanks spare ways	**JK01B**

Locking Kit

MZN175

Description	Cat ref.
Allows locking of the device in the off position Will accept two padlocks with hasps of 4.75mm diameter max. (supplied without padlock)	**MZN175**



To open a circuit automatically in the event an earth fault between phase and earth, and/or neutral and earth. A wide range of current ratings and sensitivities are available.
Suitable for domestic, commercial and industrial applications.

Technical Data
Complies with BS EN 61008, IEC1008

Sensitivities (Fixed)
10, 30, 100, 300mA & 100 and 300mA time delayed.

Terminal capacities
16-63A Rigid 25mm²
Flexible 16mm²
80&100A Rigid 50mm²
Flexible 35mm²

Features
Positive contact indication is provided by the rectangular flag indicator
Red = Closed
Green = Open
Indication of trip is provided by the oval flag indicator
Yellow = Tripped

All RCCBs have trip free mechanisms and can be padlocked either on or off.

Operating Temperature Range
- 5 to 40°C class AC
- 25 to 40°C class A

Operating Voltage
2P 110-230Vac
4P 230 - 400Vac

Width
2P - 35mm
4P - 70mm

2 Pole RCCB Sensitivity 10mA

Sensitivity type AC	Current rating	Cat ref.
10mA	16A	**CCC216U**

2 & 4 Pole RCCBs Sensitivity 30mA

CDC225U

Sensitivity type AC	Current rating	2 Pole Cat ref.	4 Pole Cat ref.
30mA	25A	**CDC225U**	**CDC425U**
30mA	40A	**CDC240U**	**CDC440U**
30mA	63A	**CDC263U**	**CDC463U**
30mA	80A	**CD280U**	**CD480U**
30mA	100A	**CD284U**	**CD484U**

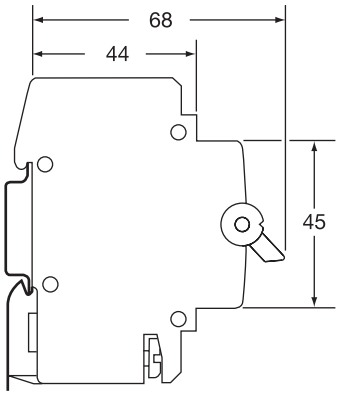
2 & 4 Pole RCCBs Sensitivity 100mA

Sensitivity type AC	Current rating	2 Pole Cat ref.	4 Pole Cat ref.
100mA	25A	**CEC225U**	**CEC425U**
100mA	40A	**CEC240U**	**CEC440U**
100mA	63A	**CEC263U**	**CEC463U**
100mA	80A	**CE280U**	**CE480U**
100mA	100A	**CE284U**	**CE484U**

2 & 4 Pole RCCBs Sensitivity 300mA

CFC425U

Sensitivity type AC	Current rating	2 Pole Cat ref.	4 Pole Cat ref.
300mA	25A	**CFC225U**	**CFC425U**
300mA	40A	**CFC240U**	**CFC440U**
300mA	63A	**CFC263U**	**CFC463U**
300mA	80A	**CF280U**	**CF480U**
300mA	100A	**CF284U**	**CF484U**



To open a circuit automatically in the event an earth fault between phase and earth, and/or neutral and earth. A wide range of current ratings and sensitivities are available. Suitable for domestic, commercial and industrial applications.

Technical Data
Complies with BS EN 61008, IEC1008

Sensitivities (Fixed)
10, 30, 100, 300mA & 100 and 300mA time delayed.

Terminal capacities
16-63A Rigid 25mm²
Flexible 16mm²
80&100A Rigid 50mm²
Flexible 35mm²

Features
Positive contact indication is provided by the rectangular flag indicator
Red = Closed
Green = Open
Indication of trip is provided by the oval flag indicator
Yellow = Tripped

All RCCBs have trip free mechanisms and can be padlocked either on or off.

Operating Temperature Range
- 5 to 40°C class AC
- 25 to 40°C class A

Operating Voltage
2P 110-230Vac
4P 230 - 400Vac

Width
2P - 35mm
4P - 70mm


CP284U

Time Delayed AC Sensitive

Sensitivity type AC	Current rating	2 Pole Cat ref.	4 Pole Cat ref.
100mA	100A	**CN284U**	**CN484U**
300mA	100A	**CP284U**	**CP484U**

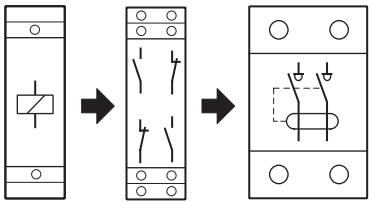

CDA425U

Type A DC Sensitive

Sensitivity type AC	Current rating	2 Pole Cat ref.	4 Pole Cat ref.
10mA	16A	**CCA216U**	**-**
30mA	25A	**CDA225U**	**CDA425U**
30mA	40A	**CDA240U**	**CDA440U**
30mA	63A	**CDA263U**	**CDA463U**

Terminal Covers

Current rating	2 Pole Cat ref.	4 Pole Cat ref.
16 - 63A	**CZN005**	**CZN006**
80 - 100A	**CZ007**	**CZ008**



MZ203 to MZ206 | CZ001 | RCCB

CZ001

Time Delayed

Indicates the position of the associated RCCB on, off or tripped. Also acts as RCCB interface with standard MCB auxiliaries MZ203-MZ206.

Description	Width (17.5mm)	Cat ref.
2 NO / 2NC 6A AC1 230V	1 Mod	**CZ001**

MZ203

Shunt Trip

Allows remote tripping of the associated device. Operation of the coil is indicated by a flag on the product fascia.

Description	Width (17.5mm)	Cat ref.
230Vac - 400Vac 110V - 130Vdc	1 Mod	**MZ203**
24 - 48Vac 12 - 48Vdc	1 Mod	**MZ204**

MZ206

Under Voltage Release

Allows RCCB to be closed, only when voltage is above 85% of Un. RCCB will automatically trip when voltage falls to between 70-35% of Un (230V). Operation of the release is indicated by a flag on the product facia.

Description	Width (17.5mm)	Cat ref.
230Vac	1 Mod	**MZ206**
48Vac	1 Mod	**MZ205**

MZN175

Locking Kit

Description	Cat ref.
Allows locking of the device in the off position. Will accept two padlocks with hasps of 4.75mm diameter max. (supplied without padlock).	**MZN175**

Compact protection devices which combine the overcurrent functions of an MCB with the earth fault functions of an RCCB in a single unit. A range of sensitivity and current ratings are available for use in domestic installations.

Technical Data
Insulated DIN clip
Complies with BS EN 61009, IEC1009
Sensitivities (fixed)
10mA and 30mA
Breaking capacity: 6kA
Flying neutral lead: 200mm

Terminal Capacities
16mm^2 rigid,
10mm^2 flexible

Application
1 module devices provide a compact solution for installation in consumer units.

These devices are 1pole & solid neutral.

Operating Voltage
127-230V AC

ADN120

Sensitivity 30mA (6kA)

Current rating	Width (17.5mm)	Type B Cat ref.
6A	1 Mod	**ADN106**
10A	1 Mod	**ADN110**
16A	1 Mod	**ADN116**
20A	1 Mod	**ADN120**
32A	1 Mod	**ADN132**
40A	1 Mod	**ADN140**
45A	1 Mod	**ADN145**
50A	1 Mod	**ADN150**

MZN175

Locking Kit

Description	Cat ref.
This allows locking of the device toggle in the off position. Will accept two padlocks with hasps of 4.75mm diameter max. (supplied without padlock).	**MZN175**

Compact protection devices which combine the overcurrent functions of an MCB with the earth fault functions of an RCCB in a single unit. A range of sensitivity and current ratings are available for use in commercial and industrial applications.

Technical Data
Insulated DIN clip
Complies with BS EN 61009, IEC1009
Sensitivities (fixed)
10mA, 30mA & 100mA
Breaking capacity: 10kA
Flying neutral lead: 700mm

Terminal Capacities
16mm² rigid,
10mm² flexible

Application
1 module devices provide a compact solution for installation in consumer units and Invicta 3 distribution boards.

These devices are single pole & solid neutral.

Operating Voltage
127-230V AC

ACB125

Sensitivity 10mA (10kA)

Current rating	Width (17.5mm)	Type B Cat ref.	Type C Cat ref.
6A	1 Mod	**ACB106**	**ACC106**
16A	1 Mod	**ACB116**	**ACC116**
25A	1 Mod	**ACB125**	**ACC125**
32A	1 Mod	**ACB132**	**ACC132**

ADB106

Sensitivity 30mA (10kA)

Current rating	Width (17.5mm)	Type B Cat ref.	Type C Cat ref.
6A	1 Mod	**ADB106**	**ADC106**
10A	1 Mod	**ADB110**	**ADC110**
16A	1 Mod	**ADB116**	**ADC116**
20A	1 Mod	**ADB120**	**ADC120**
25A	1 Mod	**ADB125**	**ADC125**
32A	1 Mod	**ADB132**	**ADC132**
40A	1 Mod	**ADB140**	**ADC140**
45A	1 Mod	**ADB145**	**ADC145**
50A	1 Mod	**ADB150**	**ADC150**

AEC132

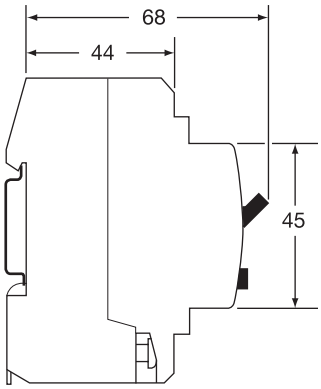
Sensitivity 100mA (10kA)

Current rating	Width (17.5mm)	Type B Cat ref.	Type C Cat ref.
16A	1 Mod	-	**AEC116**
32A	1 Mod	-	**AEC132**

MZN175

Locking Kit

Description	Cat ref.
Allows locking of the device in the off position. Will accept two padlocks with hasps of 4.75mm diameter max. (supplied without padlock).	**MZN175**



Compact protection devices which provide MCB overcurrent protection and RCCB earth fault protection in a single unit. Complies with BS EN 61009

Technical Data
The units are available with current ratings of 6A, 10A, 16A, 20A, 25A, 32A and 40A.
The device switches both the phase and neutral conductors.
All ratings have 30mA earth fault protection. The units feature indicators which show whether tripping is due to an overcurrent or earth fault.

Breaking capacity: 6kA
Voltage rating: 110-230V.
Current rating: 6-40A.
Operations
Mechanical life:
20,000 operations

Connection Capacity
Rigid conductor 25mm^2
Flexible conductor 16mm^2

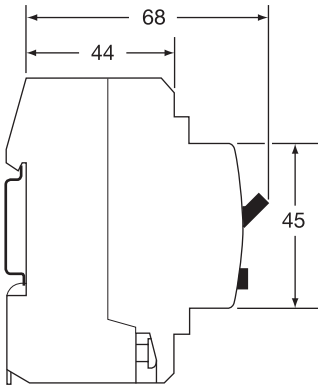
ADA990U

RCBO Single Pole and Switched Neutral

RCBO tripping current (30mA) with flying 700mm lead for neutral connection.

Note: For use in consumer units and distribution boards only.

Current rating	Width (35mm)	Type B Cat ref.	Type C Cat ref.
6A	2 Mod	**ADA906U**	**ADA956U**
10A	2 Mod	**ADA910U**	**ADA960U**
16A	2 Mod	**ADA916U**	**ADA966U**
20A	2 Mod	**ADA920U**	**ADA970U**
25A	2 Mod	**ADA925U**	**ADA975U**
32A	2 Mod	**ADA932U**	**ADA982U**
40A	2 Mod	**ADA940U**	**ADA990U**



Compact protection devices which provide MCB overcurrent protection and RCCB earth fault protection in a single unit. Complies with BS EN 61009

Technical Data
The units are available with current ratings of 6A, 10A, 16A, 20A, 25A, 32A and 40A.
The device switches both the phase and neutral conductors.
All ratings have 30mA earth fault protection. The units feature indicators which show whether tripping is due to an overcurrent or earth fault.

Breaking capacity:4.5kA
Voltage rating: 110-230V.
Current rating: 6-40A.
Operations
Mechanical life:
20,000 operations

Connection Capacity
Rigid conductor 25mm^2
Flexible conductor 16mm^2

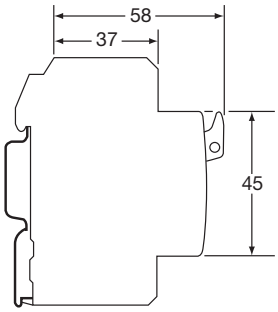
ADC816F

RCBO Single Pole and Switched Neutral Type C 4.5kA

All terminal version for cable in cable out applications e.g. local protection, caravan pitches, festive illuminations, street lighting.

Note: Not for use in fixed busbar consumer units or distribution boards.

Current rating	Width (35mm)	Type C Cat ref.
6A	2 Mod	**ADC806F**
10A	2 Mod	**ADC810F**
16A	2 Mod	**ADC816F**
20A	2 Mod	**ADC820F**
25A	2 Mod	**ADC825F**
32A	2 Mod	**ADC832F**



Protection and control of circuits against overloads and short-circuits:

Technical Data
Fuse carriers suitable for fuses which fully comply with the dimensional, power loss, fusing factor, discrimination and time-current characteristic of BS 1361

Complies with BS 1361-1971
- Short-circuit rating:16.5kA (i.e. no further consideration of fault levels is necessary)
- Colour coded ratings.

Connection Capacities
Top: 16 mm^2 flexible cable & busbar

LB113

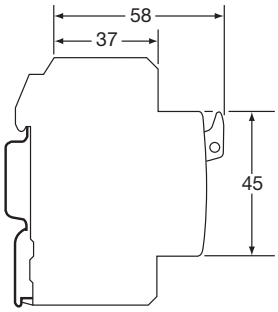
BS 1361 Fuse Carriers

Complete with cartridge fuse. For single phase applications

Current rating	Colour	Width (17.5mm)	Cat ref.
5A 230V	White	1 Mod	**LB113**
15A 230V	Blue	1 Mod	**LB115**
20A 230v	Yellow	1 Mod	**LB116**
30A 230V	Red	1 Mod	**LB118**

BS 1361 HRC Spare Cartridge Fuses

Current rating	Colour	Cat ref.
5A (23 x 6.35 x 4.8mm)	White	**L15300**
15A (26 x 10.32 x 6.4mm)	Blue	**L15500**
20A (26 x 10.32 x 6.4mm)	Yellow	**L15600**
30A (29 x 12.7 x 8mm)	Red	**L15800**
Spare Fuse Holder up to 20A	-	**L14700**



Fuse carrier 32A max.
Protection and control of circuits against overloads and short circuits in three phase circuits.

Suitable for fuses which comply with BS 88-1-1975 and with the standardised performance requirements for industrial fuse links specified in BS 88 Part 2.

Rating voltage:
415 V a.c.
250 V d.c.

- Fusing factor: class Q 1
- Rated breaking capacities:
  80 kA at 415 V a.c.
  40 kA at 250 V d.c.

BS 88 Fuse Carriers

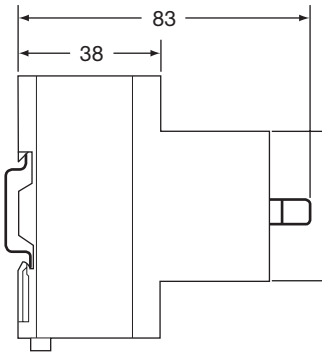
Supplied without BS 88 fuses

LS201

Characteristics	Width (17.5mm)	Cat ref.
32A max.	1 Mod	**LS201**

BS 88 HRC Spare Cartridge Fuses

Characteristics	Cat ref.
2A (29 x 12.7 x 8mm)	**L17100**
4A (29 x 12.7 x 8mm)	**L17200**
6A (29 x 12.7 x 8mm)	**L17300**
8A (29 x 12.7 x 8mm)	**L17400**
10A (29 x 12.7 x 8mm)	**L17500**
16A (29 x 12.7 x 8mm)	**L17600**
20A (29 x 12.7 x 8mm)	**L17700**
25A (29 x 12.7 x 8mm)	**L17800**
32A (29 x 12.7 x 8mm)	**L17900**



To ensure localised control and protection of single and three phase motors.

Technical Data

- Adjustable thermal relay
- AC3 utilisation category
- Connection capacity
  2 conductors
  max size: Flexible 1 to 4mm²
  Rigid 1.5 to 6mm²

Options
Undervoltage release: MZ528N, MZ529N
Auxiliary contacts: MZ520N, MZ527N
Alarm contact: MZ527N

Complies With
IEC 947-1, IEC 947-2 (appropriate parts of)

Note: Please consult us for enclosure selection

MM501N

Motor Starters

Current setting	Standard power ratings of 3 phase motors 50/60Hz (AC3 category) 230V (kW)	400V (kW)	Width (43.75mm)	Cat ref.
0.1 - 0.16A	-	-	-	**MM501N**
0.16 - 0.25A	-	0.06	2 ½ Mod	**MM502N**
0.25 - 0.4A	0.06	0.09	2 ½ Mod	**MM503N**
0.4 - 0.6A	0.09	0.12	2 ½ Mod	**MM504N**
0.6 - 1.0A	0.09	0.12	2 ½ Mod	**MM505N**
1.0 - 1.6A	0.25	0.55	2 ½ Mod	**MM506N**
1.6 - 2.5A	0.55	0.8	2 ½ Mod	**MM507N**
2.5 - 4A	0.8	1.5	2 ½ Mod	**MM508N**
4 - 6A	1.5	2.5	2 ½ Mod	**MM509N**
6 - 10A	2.5	4	2 ½ Mod	**MM510N**
10 - 16A	4	7.5	2 ½ Mod	**MM511N**
16 - 20A	5.5	9	2 ½ Mod	**MM512N**
20 - 25A	7.5	12.5	2 ½ Mod	**MM513N**

MZ520N

Auxiliary Contacts

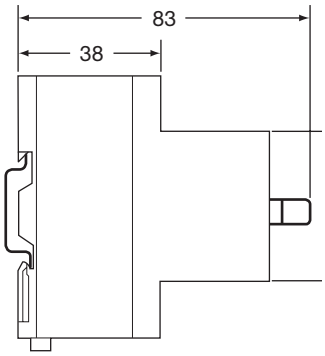
Act as an indicating device to monitor the ON or OFF position.

Characteristics	Width (8.75mm)	Cat ref.
1C + 1O 2A AC1 - 400V~	½ Mod	**MZ520N**

Alarm Contact

Mounted inside the motor starter

Characteristics	Cat ref.
1C 1A AC1 - 400V~ / 2A AC1 - 230V~	**MZ527N**



To ensure localised control and protection of single and three phase motors.

Technical Data

- Adjustable thermal relay
- AC3 utilisation category
- Connection capacity
  2 conductors
  max size: Flexible 1 to 4mm²
  Rigid 1.5 to 6mm²

Options
Undervoltage release: MZ528N, MZ529N
Auxiliary contacts: MZ520N, MZ527N
Alarm contact: MZ527N

Complies With
IEC 947-1, IEC 947-2 (appropriate parts of)

Note: Please consult us for enclosure selection

Under Voltage Release

To prevent automatic restarting of the controlled device

Characteristics	Cat ref.
230V~ 50Hz	**MZ528N**
400V~ 50Hz	**MZ529N**

Surface Mounting Enclosure

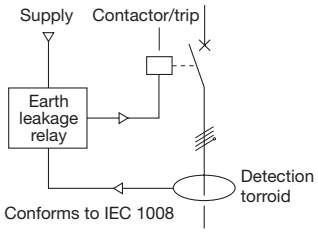
Weatherproof IP55 with a removable window

Dimensions (mm)	Cat ref.
W. 78 x H. 150 x D. 95	**MZ521N**

MZ521N

Emergency Stop Button

Description	Cat ref.
IP65, mounted on surface mounting enclosure MZ521N	**MZ530N**



These units ensure the protection of electrical installations. 30mA versions can provide supplementary protection against direct connection. This range of electronic earth fault relays provides monitoring of earth fault currents. When the fault current rises above the selected level, the output contacts of the product operate.

Depending on the relay selected, it can have either fixed or adjustable sensitivity, a time delay is also available for selectivity purposes. The relays are linked with detection torroids, 14 separate types are available, circular and rectangular in section (4.28).

Common characteristics
- Positive safety: the relay trips in the event of a break in the relay/torroid link.
- Positive reset required after a fault is detected.
- Test button for simulation of a fault.
- Protected against nuisance tripping from transients.
- DC sensitive.
- Output: 1 C/O contact 250V~ 5/6A AC1.
- Visual display of fault by red LED.

Specific device features
- LCD display on HR525 & HR534.
- Adjustment of sensitivity and delay (selectable).
- Extra positive safety contact (1C/O 250V~ 6A AC1).
- Display of fault current before it triggers the relay (5% to 75%).
- Extra output contact (250V 0.1A max.) to enable remote indication if fault currents over 50% of IΔn.
- Remote test and reset (opto-coupled).

Torroids
Circular dia. 35, 70, 105, 140, 210mm
Rectangular 70 x 175, 115 x 305, 150 x 350mm
Connection capacity
Relay - 1.5 to 6mm2
Relay - torroid link
2 wires, 25m max.
Test and remote reset link
3 wires, 20m max.
For enclosure selection, please consult us.

Width
1 Mod - 17.5mm
3 Mod - 52.5mm
4 Mod - 70mm
6 Mod - 105mm

Earth Fault Relay with Separate Detection Torroids

Designation	Characteristics	Width	Cat ref.
Earth fault relay C/O contact 5A AC1	Instant trip, fixed sensitivity IΔn = 30mA	1 Mod	**HR500**
Earth fault relay C/O contact 5A AC1	Instant trip, fixed sensitivity IΔn = 300mA	1 Mod	**HR502**
Earth fault relay C/O contact 6A AC1	Adjustable sensitivity IΔn = 30mA, 100mA, 300mA 500mA, 1A, 3A, 10A Instant trip or time delay 0.1 - 0.3 - 0.4 - 0.5 - 1 - 3 secs	3 Mod	**HR510**
Earth fault relay C/O contact 6A AC1	Adjustable sensitivity IΔn = 30mA, 100mA, 300mA 500mA, 1A, 3A, 10A LED optical scale Instant trip or time delay 0.1 - 0.3 - 0.4 - 0.5 - 1 - 3 secs	3 Mod	**HR520**
Earth fault relay C/O contact 6A AC1	Adjustable sensitivity IΔn = 30mA, 100mA, 300mA 500mA, 1A, 3A, 10A LED optical scale Instant trip or time delay 0.1 - 0.2 - 0.25 - 0.3 - 0.4 - 0.5 secs	3 Mod	**HR522**
Earth fault relay C/O contact 6A AC1	Adjustable sensitivity IΔn = 500mA, 1A, 3A, 5A, 10A, 20A & 30A LED optical scale Instant trip or time delay 0.1 - 0.2 - 0.25 - 0.3 - 0.4 - 0.5 secs	3 Mod	**HR523**
Earth fault relay C/O contact 6A AC1 Trip / reclose input feature	Adjustable sensitivity IΔn = 30mA, 100mA, 300mA, 500mA, 1A, 3A, 5A, 10A & 30A LCD Display Instant trip or time delay 0.02 - 0.1 - 0.3 - 0.4 - 0.5 - 1 - 3 - 5 - 10 secs	3 Mod	**HR525**
Earth fault relay C/O contact 6A AC1 Solid State relay output Trip / reclose input feature	Adjustable sensitivity IΔn = 30mA, 100mA, 300mA, 500mA, 1A, 3A, 5A, 10A & 30A LCD Display Instant trip or time delay 0.02 - 0.1 - 0.3 - 0.4 - 0.5 - 1 - 3 - 5 - 10 secs	3 Mod	**HR534**

Earth Fault Relays with Integral Torroids

Designation	Characteristics	Width	Cat ref.
Earth fault relay with integral torroid adjustable sensitivity 25mm² max. cable size	Adjustable sensitivity IΔn - 30mA, 100mA, 300mA, 500mA, 1A & 3A Instant trip or time delay 0.1 - 0.3 - 0.5 - 0.75 - 1 secs	4 Mod	**HR440**
Earth fault relay with integral torroid adjustable sensitivity 35mm² max. cable size	Adjustable sensitivity IΔn - 30mA, 100mA, 300mA, 500mA, 1A & 3A Instant trip or time delay 0.1 - 0.3 - 0.5 - 0.75 - 1 secs	6 Mod	**HR441**

Torroids

HR702

Circular Section Torroid

Characteristics	Cat ref.
ø 30mm	**HR700**
ø 35mm	**HR701**
ø 70mm	**HR702**
ø 105mm	**HR703**
ø 140mm	**HR704**
ø 210 mm	**HR705**

HR830

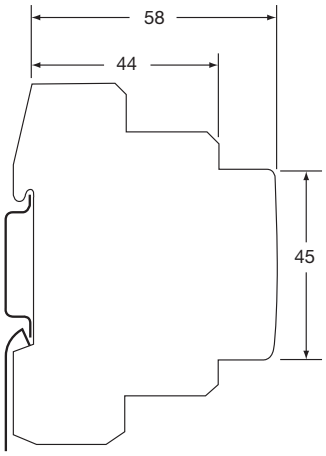
Rectangular Section Torroid

Dimensions	Cat ref.
70 x 175mm	**HR830**
115 x 305mm	**HR831**
150 x 350mm	**HR832**

HR820

Rectangular Split Torroid

Dimensions	Cat ref.
20 x 30mm	**HR820**
50 x 80mm	**HR821**
80 x 80mm	**HR822**
80 x 121mm	**HR823**
80 x 161mm	**HR824**



SPD's protect electrical and electronic equipment against transients, originating from lightning, switching of transformers, lighting and motors

These transients can cause premature ageing of equipment, downtime, or complete destruction of electronic components and materials.

SPDs are strongly recommended on installations that are exposed to transients, to protect sensitive and expensive electrical equipment such as TV, video, washing machines, Hi-Fi, PC, alarm etc.

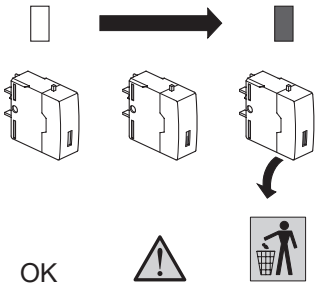
The choice of SPD depends on a number of criteria such as:
- The exposure of the building to transients.
- The sensitivity and value of the electrical equipment that requires protection.
- Earthing system
- Level of protection

The range of SPDs is separated into 2 types of protection:
1. Main protection - class 2 SPDs with higher discharge current (Imax 8/20), to evacuate as much of the transient to earth as possible
2. Fine protection - class 2 + 3 SPDs with low voltage protection level (Up ≤ 1000V), to cut-down the transient surge as low as possible to protect very sensitive equipment.

Technical Data
Complies with IEC61643-1

Reserve Status Indicator
(R versions)

End of Life Indicator
(D versions)



Auxiliary contact for remote signalling (R versions only)

230V~ 1A
12V ... 10mA

Installation and Connection
The main protection SPDs are installed directly after the main incoming switch or RCCB (type S).

SPDs can be used in any supply system e.g TNCS, TNS, TT.

Options: Replacement cartridges.

Connected in parallel to the equipment to be protected.

Protection is assured in both common and differential modes.

SPN415R

Surge Protection Devices

Un: 230/400V 50/60Hz

Designation	Width (in 17.5mm)	Cat ref.
Single pole, Up: 1.2kV at In	1 Mod	**SPN140D**
2 poles, 1ø + N with reserve indicator and auxiliary contacts, Up: 1.0kV at In	2 Mod	**SPN215R**
2 poles 1ø + N, Up: 1.0kV at In	2 Mod	**SPN215D**
4 pole 3ø + N with reserve indicator and auxiliary contacts, Up: 1.2kV at In	4 Mod	**SPN415R**
4 poles 3ø + N, Up: 1.0kV at In	4 Mod	**SPN415D**

SPDs with Low Let Through Voltage Levels
To protect very sensitive electronic equipment.
This fine protection complements the main protection and can protect 1 or many electronic devices.

Optimal coordination is obtained when cascaded with a main protection device.

Discharge current:
Imax. 8kA (8/20 wave)
a green LED on the front face indicates the status of the SPD SPN208S, connected in series with the equipment that needs to be protected (with a maximum line current of 25A).
Protection is assured in both common and differential modes

Connection Capacity
Terminal blocks L, N & E
- Rigid conductor: 10mm^2
- Flexible conductor: 6mm^2

Replacement Cartridges
These cartridges replace the cartridge in the main SPD (page 3.24).

They allow simple replacement without the need to cut-off the power supply.

Cartridges are available for all discharge currents (40kA and 15kA) with and without condition indication.

A keying system exists to prevent a line cartridge being interchanged by mistake with a neutral one and visa versa neutral cartridges have a discharge current of 65kA

Replacement Cartridges
For Phase:
SPN140D = SPN040D
SPN215D = SPN015D
SPN415D = SPN015D
SPN215R = SPN015R
SPN415R = SPN015R
For Neutral / Earth
SPN215D = SPN040N
SPN415D = SPN040N
SPN215R = SPN040N
SPN415R = SPN040N


SPN208S

Surge Protection Devices with Low Voltage Protection Level (Class 2)

Designation	Width (17.5mm)	Cat ref.
Uc: 230/400V 50/60Hz, Up (L,N/E): 1.2kV at In, Up (L/N): 1kV at In Rated at 25A 2 pole 1ø + N	1 Mod	**SPN208S**

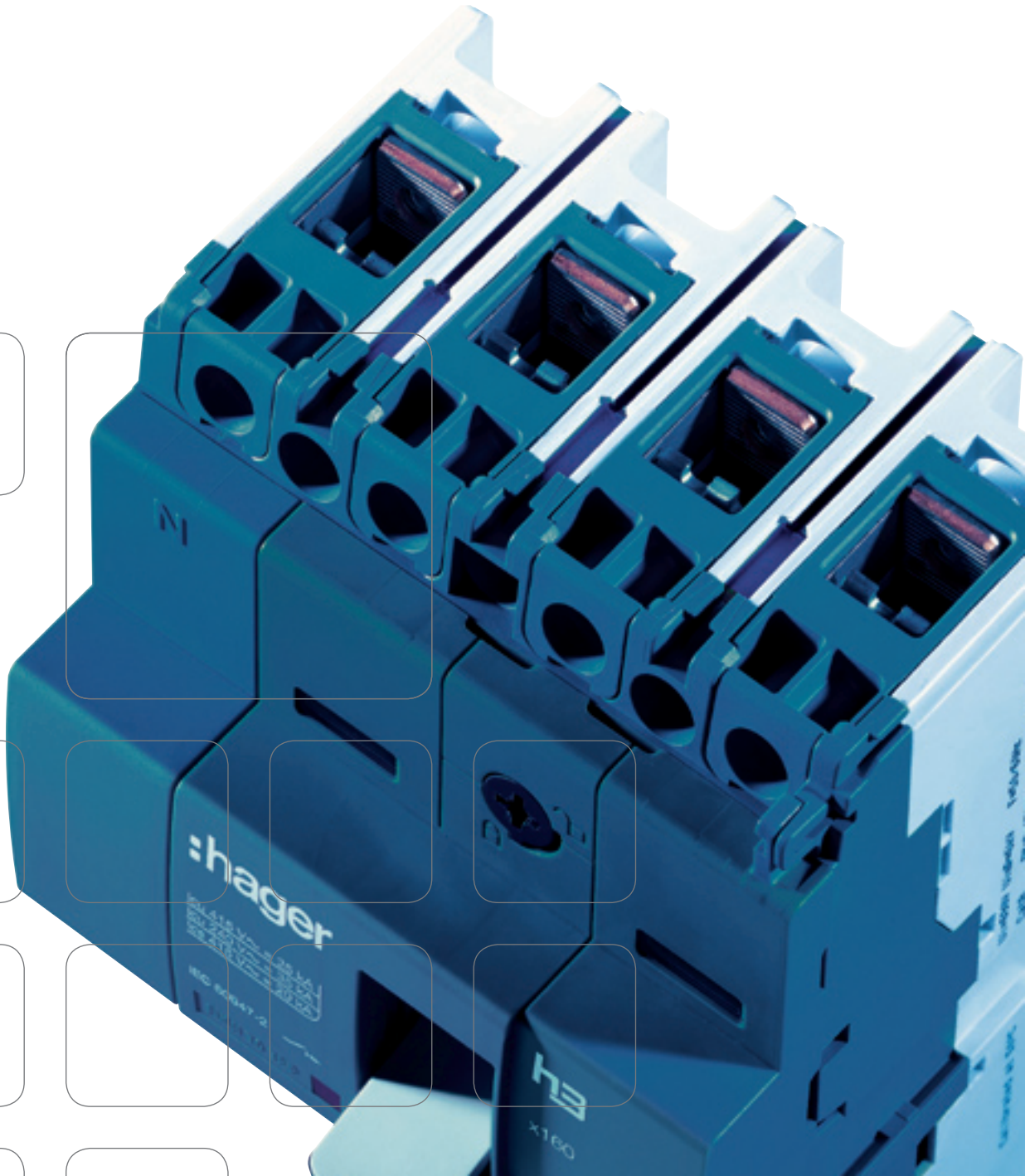
Cascading table (main protection + fine protection)
Voltage protection level: Up

Ip	Up	Up
	L, N/E	L/N
15kA	900V	800V
40kA	900V	800V
65kA	850V	750V

MCCBs

Low voltage protection devices

The new h3 range of MCCBs provides safe and easy solutions for low voltage electrical circuit protection. The state of the art circuit breakers offer both designers and installers a wide range of features and beneftis.



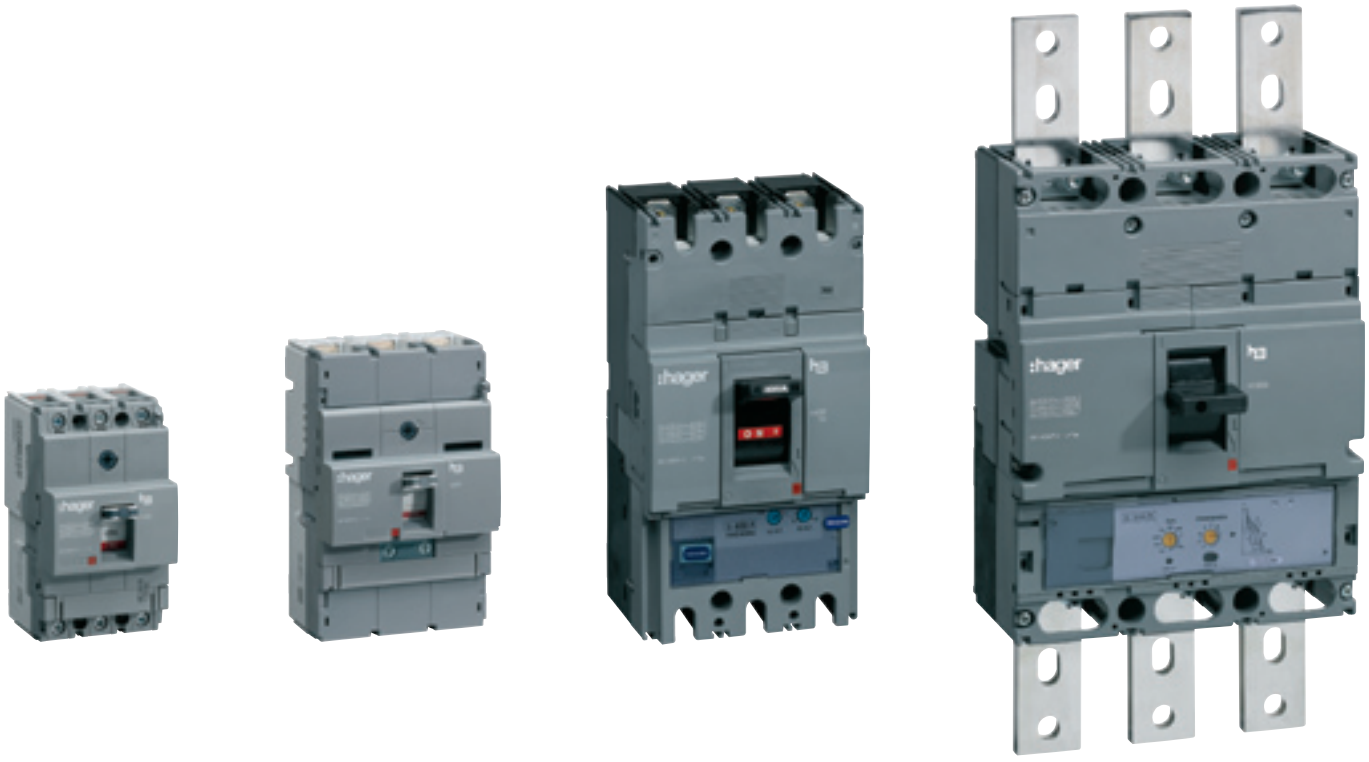
MCCBs

new

h3 MCCBs and Switch Disconnectors 16 to 800A

The new h3 range of MCCBs provides safe and easy solutions for low voltage electrical circuit protection. The state of the art circuit breakers offer both designers and installers a 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 range.



The advantages for you:

- Ease of installation.
- Quick, easy and safe mounting of accessories.
- Wide range of rated current ratings and breaking capacities.
- Calibrated at 50º centigrade.
- Switch disconnector variants.

Technical data:

- Comply with BS EN 60947-2.
- 4 frame sizes: x160, x250, h400 / h630, h1000.
- Breaking capacity: 18, 25, 40, 50.
- Thermal magnetic and electronic trip units.
- 1 pole to 4 poles.
- Current limiting type.
- Complete range of accessories.

Quick tips

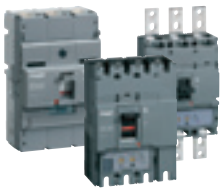
1

Hager design
Suites with Hager enclosures and modular products.

2

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

3



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

4

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

5

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

6

Integrated padlocking facility
Effective solution for maintenance.

7

Complete range of accessories
Rotary handles, padlocks, motors, terminal covers, auxiliaries, shunts, UVR's, shields etc.

8

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

Moulded Case Circuit Breakers x160
1P, 3P and 4P
Mechanical test button, lockable settings, integrated padlocking handle ø 4mm.

Thermal magnetic trip,
2 versions:
- Z version: fixed thermal and fixed magnetic
- U version: adjustable thermal and fixed magnetic
- 18 & 25kA

Connection Capacity
95mm² rigid cables
70mm² flexible cables
Complies with IEC 60947-2

Switch Disconnectors
Allows tripping at distance using a shunt trip unit (optional)
Complies with BS EN 60947-3
AC22A / AC23A

For technical details see pages 4.56-4.63.

HDA123Z

MCCB x160 18kA (400/415V AC) - Single Pole

Breaking capacity Icu: 18kA
Fixed thermal 1x In, fixed magnetic > 10x In

In	Cat ref.
16A	**HDA014Z**
20A	**HDA018Z**
25A	**HDA023Z**
32A	**HDA030Z**
40A	**HDA038Z**
50A	**HDA048Z**
63A	**HDA061Z**
80A	**HDA078Z**
100A	**HDA098Z**
125A	**HDA123Z**

HDA025U

MCCB x160 18kA (400/415V AC) - Three Pole

Breaking capacity Icu: 18kA
Adjustable thermal 0.63 - 0.8 - 1x In, fixed magnetic > 10x In

In	Cat ref.
25A	**HDA025U**
40A	**HDA040U**
63A	**HDA063U**
80A	**HDA080U**
100A	**HDA100U**
125A	**HDA125U**

HDA101U

MCCB x160 18kA (400/415V AC) - Four Pole

Breaking capacity Icu: 18kA
Adjustable thermal 0.63 - 0.8 - 1x In, fixed magnetic > 10x In

In	Cat ref.
25A	**HDA026U**
40A	**HDA041U**
63A	**HDA064U**
100A	**HDA101U**
125A	**HDA126U**

HHA123Z

MCCB x160 25kA (400/415V AC) - Single Pole

Breaking capacity Icu: 25kA
Fixed thermal 1x In, fixed magnetic > 10x In

In	Cat ref.
16A	**HHA014Z**
20A	**HHA018Z**
25A	**HHA023Z**
32A	**HHA030Z**
40A	**HHA038Z**
50A	**HHA048Z**
63A	**HHA061Z**
80A	**HHA078Z**
100A	**HHA098Z**
125A	**HHA123Z**

HHA125U

MCCB x160 25kA (400/415V AC) - Three Pole

Breaking capacity Icu: 25kA
Adjustable thermal 0.63 - 0.8 - 1x In, fixed magnetic > 10x In

In	Cat ref.
25A	**HHA025U**
40A	**HHA040U**
63A	**HHA063U**
80A	**HHA080U**
100A	**HHA100U**
125A	**HHA125U**
160A	**HHA160U**

HCA125Z

Switch Disconnectors x160 - Three & Four Pole

Suitable for AC22A / AC23A
Ue: 415V AC
Icw (1s): 2kA

In	Cat ref.
125A 3 Pole	**HCA125Z**
125A 4 Pole	**HCA126Z**

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: 0.75mm^2 flexible cables.

Shunt Trip
Remote tripping of MCCBs or switch disconnectors.
Operating voltage: 0.7 to 1.1x U_n

Under Voltage Release
Allows the tripping of MCCBs or switch disconnectors when voltage level drops between 35 and 70% of U_n. Pick up voltage 0.85x U_n.

Direct Rotary Handle
- Padlockable
- Equipped with front cover and handle
- Fitting without any additional fixings

Extended Rotary Handle
- IP55
- Supplied complete with shaft and handle

For technical details see pages 4.56-4.63.

HBA125H

125A Earth Leakage Add-on Block

Description	3P Cat ref.	4P Cat ref.
Sensitivity - Adjustability 0.03A, 0.1A, 0.3A, 1A, 3A, 10A Time Delay Settings - Instantaneous, 60ms, 150ms, 300ms, 500ms, 1s	**HBA125H**	**HBA126H**

HXA021H

Auxiliary Contacts (AX, AL)

Description	Cat ref.
1 Changeover Contact (ON/OFF), 250V AC/3A, 125V DC/0.4A, 1 NO + 1 NC AX	**HXA021H**
1 Changeover Alarm Contact, 250V AC/3A, 125V DC/0.4A, 1 NO + 1 NC AL	**HXA024H**

Shunt Trip (SH)

Description	Cat ref.
24V DC	**HXA001H**
110V AC	**HXA003H**
220 - 240V AC	**HXA004H**
380 - 440V AC	**HXA005H**

HXA014H

Undervoltage Release (UV)

Description	Cat ref.
220 - 240V AC	**HXA014H**
380 - 450V AC	**HXA015H**

HXA030H

Rotary Handles

Description	Cat ref.
Direct rotary handle, max ø 6mm, Padlockable	**HXA030H**
Exended rotary handle, max ø 8mm, Padlockable	**HXA031H**

HXA039H

Multi Padlock Adapter

Description	Cat ref.
To mount on MCCB for handle locking 3 padlocks, max ø 8mm	**HXA039H**

HYA015H

Extended Connections

Description	3P Cat ref.	4P Cat ref.
Set of 4 extended connections for lug connection outgoing	**HYA013H ***	**HYA013H ***
Set of 3 or 4 spreaders	**HYA014H**	**HYA015H**

* Use extended connection terminal cover HYA021H

Interphase Barriers

Description	3P & 4P Cat ref.
Set of 3, height: 50mm	**HYA019H**
Set of 3, height: 97mm	**HYB019H**

HYA023H

Terminal Cover (1 Set)

Description	3P Cat ref.	4P Cat ref.
For extended connections	**HYA021H**	**HYA022H**
For spreaders	**HYA023H**	**HYA024H**
For rear connections (shorts)	**HYA025H**	**HYA026H**

DIN Rail Adaptor

Description	3P Cat ref.	4P Cat ref.
DIN Rail Adaptor	**HYA033H**	**HYA034H**

Moulded Case Circuit Breakers x250
3P and 4P
Mechanical test button, lockable settings, integrated padlocking handle ø 4mm.

Connection Capacity
Directly on copper cable terminal, with end lug max. width: 25mm
Connection capacity: 185mm^2 rigid cables
Complies with BS EN 60947-2

For technical details see pages 4.64-4.72.

HNB250H

HNB161H

MCCB x250 40kA - Three Pole & Four Pole

Adjustable thermal 0.63 - 0.8 - 1x In
Adjustable magnetic 6 - 8 - 10 - 13x In (100 - 200A)
5 - 7 - 9 - 11x In (250A)

In	3P Cat ref.	4P Cat ref.
100A	**HNB100H**	**-**
125A	**HNB125H**	**-**
160A	**HNB160H**	**HNB161H**
200A	**HNB200H**	**HNB201H**
250A	**HNB250H**	**HNB251H**

Switch Disconnectors x250

Capacity suitable for AC 22/23A
Icw (1s): 3.6kA

In	3P Cat ref.	4P Cat ref.
250A	**HCB250H**	**HCB251H**

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: 0.75mm² flexible cables. Optional connection cables. The cable capacity of the terminals is 0.5 to 1.25mm².

Shunt Trip
Remote tripping of MCCBs or switch disconnectors.
Operating voltage: 0.7 to 1.1x Un

Under Voltage Release
Allows the tripping of MCCBs or switch disconnectors when voltage level drops between 35 and 70% of U_n. Pick up voltage 0.85x U_n.

Direct Rotary Handle
- Padlockable
- Equipped with front cover and handle
- Fitting without any additional fixings

Extended Rotary Handle
- IP55
- Supplied complete with shaft and handle

For technical details see pages 4.64-4.72.

250A Earth Leakage Add-on Block (4 Pole)

Description	Cat ref.
Sensitivity - Adjustability 0.03A, 0.1A, 0.3A, 1A, 3A, 10A Time Delay Settings - Instantaneous 60ms, 150ms, 300ms, 500ms & 1s	**HBB251H**


HXA024H

Auxiliary Contacts (AX, AL)

Description	Cat ref.
1 Changeover Contact (ON/OFF), 250V AC/3A, 125V DC/0.4A, 1 NO + 1 NC AX	**HXA021H**
1 Changeover Alarm Contact, 250V AC/3A, 125V DC/0.4A, 1 NO + 1 NC AL	**HXA024H**

Shunt Trip (SH)

Description	Cat ref.
24V DC	**HXA001H**
220 - 240V AC	**HXA004H**
380 - 440V AC	**HXA005H**

HXA014H

Undervoltage Release (UV)

Description	Cat ref.
220 - 240V AC	**HXA014H**
380 - 450V AC	**HXA015H**

Rotary Handles

Description	Cat ref.
Direct rotary handle, max ø 6mm, Padlockable	**HXB030H**
Extended rotary handle, max ø 8mm, Padlockable	**HXB031H**

HXA039H

Multi Padlock Adapter

Description	Cat ref.
To mount on MCCB for handle locking 3 padlocks, max ø 8mm	**HXA039H**

HYB012H

Extended Connections

Description	3P Cat ref.	4P Cat ref.
Extended Connections (set of 4 pieces)	**HYB010H**	**HYB010H**
Spreaders	**HYB011H**	**HYB012H**

Interphase Barriers

Description	3P & 4P Cat ref.
Set of 3, height: 97mm	**HYB019H**

HYB024H

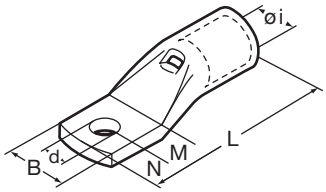
Terminal Cover (1 set)

Description	3P Cat ref.	4P Cat ref.
For extended covers	**HYB021H**	**HYB022H**
For spreaders	**HYB023H**	**HYB024H**
For rear connections short	**HYB025H**	**HYB026H**

HYB031H

Rear Connection

Description	3P Cat ref.	4P Cat ref.
Rear connection	**HYB031H**	**HYB032H**



Contained Palm Lugs for Circuit Breakers

Conductor Size Flexible sqmm	Ø Stud mm	Øi	B	M	N	L	d	Bag qty.	Cat ref.
95	8	13.5	15.5	9	8	52.5	8.4	25	**HA 19 B-M 8/15.5**
120	8	15.2	19	14	9	60	8.4	25	**HA 24 B-M 8/19**
120	10	15.2	19	14	9	60	10.5	25	**HA 24 B-M 10/19**
150	8	16.7	19	18	9	70	8.4	25	**HA 30 B-M 8/19**
150	10	16.7	19	18	9	70	10.5	25	**HA 30 B-M 10/19**
185	10	19.2	24.5	18	9	77	10.5	25	**HA 37 B-M 10/24.5**
240	10	21.1	31	13	9	80	10.5	15	**HA 48-M 10/31**
240	12	21.1	31	16	12	86	13.2	15	**HA 48-M 12/31**
240	16	21.1	31	19	17	94	17	15	**HA 48-M 16/31**
300	10	23.7	31	16	12	95	10.5	10	**HA 60 B-M 10/31**
300	12	23.7	31	16	12	95	13.2	10	**HA 60 B-M 12/31**

Moulded Case Circuit Breakers H400, H630
2 versions of trip unit:
Thermal magnetic trip unit TM:
- Thermal adjustment: from 0.63 to 1x In
- Magnetic adjustment: from 6 to 12x In

Electronic trip unit LSI:
- Long delay (thermal equivalent) adjustable: Ir = 0.4 to 1x In
- Short delay (magnetic equivalent) adjustable: 2.5 to 10x Ir (400A) 2.5 to 8x Ir (630A)
- Time delay: 0.1 - 0.2s

3P & 4P (adjustable neutral 0 - 50 - 100%).
Mechanical test button, lockable settings.

Connection Capacity
Directly on copper cable terminal, with end lug max. width: 25mm.
Connection capacity: 185mm^2 rigid cables.
Complies with IEC 60947-2.

Switch Disconnectors
Allows tripping at distance using a shunt trip unit (optional).

Complies with BS EN 60947-3 AC 23A / DC 22A.

For technical details see pages 4.73-4.82.

HND401H

MCCBs H400 50kA TM - Three Pole & Four Pole

Breaking capacity
Icu: 50kA (400/415V AC)
Ics: 50kA
Adjustable thermal 0.63 to 1x In
Adjustable magnetic 6 to 12x In

In	3P Cat ref.	4P Cat ref.
250A	**HND250H**	**HND251H**
400A	**HND400H**	**HND401H**

HND631H

MCCBs H630 50kA LSI

Breaking capacity
Icu: 50kA (400/415V AC)
Ics: 50kA
Overload protection = 0.4 to 1x In
Adjustable magnetic 2.5 to 8x Ir
Time delay: 0.1 - 0.2s

In	3P Cat ref.	4P Cat ref.
630A	**HND630H**	**HND631H**

HCD400H

Switch Disconnectors

Suitable for AC22A / AC23A
Ue: 415V AC
Icw (0.3s) = 5kA

In	3P Cat ref.	4P Cat ref.
400A	**HCD400H**	**HCD401H**
630A	**HCD630H**	**HCD631H**

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: 0.75mm² flexible cables. Optional connection cables. The cable capacity of the terminals is 0.5 to 1.25mm².

Shunt Trip
Remote tripping of MCCBs or switch disconnectors.
Operating voltage: 0.7 to 1.1x Un

Under Voltage Release
Allows the tripping of MCCBs or switch disconnectors when voltage level drops between 35 and 70% of Un. Pick up voltage 0.85x Un.

Direct Rotary Handle
- Padlockable
- Equipped with front cover and handle
- Fitting without any additional fixings

Extended Rotary Handle
- IP55
- Supplied complete with shaft and handle

For technical details see pages 4.73-4.82.

RCD Add-on Block

Description	400A Cat ref.	630A Cat ref.
Sensitivity - Adjustability 0.03A, 0.1A, 1A, 3A, 10A Time Delay Settings - Instantaneous, 60ms, 150ms, 300ms, 500ms	**HBD401H**	**HBD631H**

HXC021H

HXC024H

Auxiliary Contacts (AX, AL)

Description	Cat ref.
1 Changeover Contact, 250V AC/3A, 125V DC/0.4A, 1 NO + 1 NC AX	**HXC021H**
1 Changeover Alarm Contact, 250V AC/3A, 125V DC/0.4A, 1 NO + 1 NC AL	**HXC024H**

HXC004H

Shunt Trip (SH)

Description	Cat ref.
24V DC	**HXC001H**
200 - 240V AC	**HXC004H**
380 - 450V AC	**HXC005H**

HXC014H

Undervoltage Release (UV)

Description	Cat ref.
200 - 240V AC	**HXC014H**
380 - 450V AC	**HXC015H**

HXD030H

Rotary Handles

Description	Cat ref.
Direct rotary handle, max ø 6mm, Padlockable	**HXD030H**
Extended rotary handle, max ø 8mm, Padlockable	**HXD031H**

HXD039H

Padlock

Description	Cat ref.
To mount on MCCB for handle locking 3 padlocks, ø 5-8mm^2 max	**HXD039H**

HXD015H

Extended Connections

Description	3P Cat ref.	4P Cat ref.
400A set of 4 pieces	-	**HYD010H**
630A set of 4 pieces	-	**HYD013H**
400A spreaders	**HYD011H**	**HYD012H**
630A spreaders	**HYD014H**	**HYD015H**

HYD022H

Terminal Covers (1 set)

Description	3P Cat ref.	4P Cat ref.
For extended connections	**HYD021H**	**HYD022H**
For spreaders	**HYD023H**	**HYD024H**
For rear connections short	**HYD025H**	**HYD026H**

HYD033H

Rear Connections

Description	3P Cat ref.	4P Cat ref.
400A	**HYD031H**	**HYD032H**
630A	**HYD033H**	**HYD034H**

Moulded Case Circuit Breakers H800
Electronic trip unit LSI:
- Long delay (thermal equivalent) adjustable: Ir = 0.4 to 1x In
- Short delay (magnetic equivalent) adjustable: 2.5 to 10x Ir
- Time delay: 0.1 - 0.2s

3P & 4P (adjustable neutral 0 - 50 - 100%).
Mechanical test button, lockable settings.

Connection Capacity
Directly on copper cable terminal, with end lug max. width: 25mm.
Connection capacity: 185mm^2 rigid cables.
Complies with IEC 60947-2.

For technical details see pages 4.83-4.90.

MCCBs H1000 50kA LSI

Breaking capacity
Icu: 50kA (400/415V AC)
Ics: 50kA
Adjustable thermal Ir = 0.4 to 1x In
Adjustable magnetic 2.5 to 10x Ir
Time delay: 0.1 - 0.2s
Neutral setting from 0 - 50 - 100%

In	3P Cat ref.	4P Cat ref.
800A	**HNE800H**	**HNE801H**

HNE800H

Switch Disconnectors

Suitable for AC22A / AC23A
Ue 415V AC
Icw (0.3s) = 10kA

In	3P Cat ref.	4P Cat ref.
800A	**HCE800H**	**HCE801H**

HCE800H

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: 0.75mm² flexible cables. Optional connection cables. The cable capacity of the terminals is 0.5 to 1.25mm².

Shunt Trip
Remote tripping of MCCBs or switch disconnectors.
Operating voltage: 0.7 to 1.1x U_n

Under Voltage Release
Allows the tripping of MCCBs or switch disconnectors when voltage level drops between 35 and 70% of U_n. Pick up voltage 0.85x U_n.

Direct Rotary Handle
- Padlockable
- Equipped with front cover and handle
- Fitting without any additional fixings

Extended Rotary Handle
- IP55
- Supplied complete with shaft and handle

For technical details see pages 4.83-4.90.


HXC021H


HXC024H

Auxiliary Contacts (AX, AL)

Description	Cat ref.
1 Changeover Contact, 250V AC/3A, 125V DC/0.4A, 1 NO + 1 NC AX	**HXC021H**
1 Changeover Alarm Contact, 250V AC/3A, 125V DC/0.4A, 1 NO + 1 NC AL	**HXC024H**


HXC004H

Shunt Trip (SH)

Description	Cat ref.
24V DC	**HXC001H**
200 - 240V AC	**HXC004H**
380 - 450V AC	**HXC005H**

HXC014H

Undervoltage Release (UV)

Description	Cat ref.
220 - 240V AC	**HXC014H**
380 - 415V AC	**HXC015H**

Rotary Handles

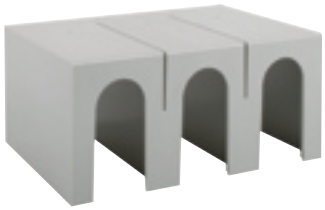
Description	Cat ref.
Direct rotary handle, Padlockable	**HXE030H**
Extended rotary handle, Padlockable	**HXE031H**

Padlock

HXD039H

Description	Cat ref.
To mount on MCCB for handle locking 3 padlocks, ø 5-8mm² max	**HXD039H**

Terminal Cover (1 set)



HYE021H

Description	3P Cat ref.	4P Cat ref.
For extended connections	**HYE021H**	**HYE022H**
For rear connections short	**HYE025H**	**HYE026H**

Rear Connection

Description	3P Cat ref.	4P Cat ref.
800A	**HYE031H**	**HYE032H**

	Version	Poles	In A / Ue V	Switches and Accessories x160	x250	h400-h630	h800 / h1000
Switches		3P	125	HCA125Z			
			160	HCA160Z			
			250		HCB250Z		
			400			HCD400U	
			630			HCD630U	
			800				HCE800U
			1000				HCE970U
		4P	125	HCA126Z			
			160	HCA161Z			
			250		HCB521Z		
			400			HCD401U	
			630				
			800				HCE801U
			1000				HCE971U
Auxiliaries	Shunt Trip Release	3/4P	24V DC	HXA001H		HXC001H	
			48V DC	HXA002H		HXC002H	
			110V AC	HXA003H		HXC003H	
			230V AC	HXA004H		HXC004H	
			400V AC	HXA005H		HXC005H	
	Undervoltage Release	3/4P	24V DC	HXA011H		HXC011H	HXE011H
			110V AC	HXA013H		HXC013H	HXE013H
			230V AC	HXA014H		HXC014H	HXE014H
			400V AC	HXA015H		HXC015H	HXE015H
	Auxiliary Contact	3/4P	1NO + 1NC	HXA021H		HXC021H	
	Alarm Contact	3/4P	1NO + 1NC	HXA024H		HXC024H	
	Direct Rotary Handle			HXA030H	HXB030H	HXD030H	HXE030H
	Extended Rotary Handle			HXA031H	HXB031H	HXD031H	HXE031H
	Padlock			HXA039H		HXD039H	
	Motor Operator	3/4P	24V DC	-	HXB040H	HXD040H	HXE040H
			220V AC	-	HXB042H	HXD042H	HXE042H
	Interlocking Wire Type	3/4P		-	HXB065H	HXD065H	HXE065H
Connections	Collar Terminal	3P		Included	HYA001	HYD003H (400)	-
		4P		Included	HYA002H	HYD004H (400)	-
	Extended Connection Straight	3/4P		HYA013H	HYB010H	HYD010H (400) HYD013H (630)	Included
	Extended Connection Spreaders	3P		HYA014H	HYB011H	HYD011H (400) HYD014H (630)	-
		4P		HYA015H	HYB012H	HYD012H (400) HYD015H (630)	-
	Interphase Barrier	3/4P	Short	HYA019H		-	-
			Long	HYB019H		Included	Included
	Terminal Cover for Extended Connections	3P		HYA021H	HYB021H	HYD021H	HYE021H
		4P		HYA022H	HYB022H	HYD022H	HYE022H
	Terminal Cover Large for Spreaders	3P		HYA023H	HYB023H	HYD023H	-
		4P		HYA024H	HYB024H	HYD024H	-
	Terminal Cover Short for Rear Connections	3P		-	HYB025H	HYD025H	HYE025H
		4P		-	HYB026H	HYD026H	HYE026H
	Terminal Cover for Collar Terminals	3P		HYA027H	HYB027H	HYD027H	-
		4P		HYA028H	HYB028H	HYD028H	-
	Rear Connections	3P		-	HYB031H	HYD031H (400) HYD033H (630)	HYE031H (400) HYE033H (630)
		4P		-	HYB032H	HYD032H (400) HYD034H (630)	HYE032H (400) HYE034H (630)
	Din Rail Adaptor	3/4P		HYA033H	-	-	-
	Compact lugs 120mm² D:10	3/4P				HYD093H	-
	Compact lugs 150mm² D:8.5	3/4P				-	-
	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 (with spreaders)	-
	Compact lugs 240mm² D:12.8	3/4P				HYD098H (with spreaders)	-

Frame	**x160**			**x250**	
Product	**Switch**	**MCCB**		**Switch**	**MCCB**
Reference	**HCA**	**HDA**	**HHA**	**HCB**	**HNB**
Number of poles	**3-4**	**1-3-4**	**1-3-4**	**3-4**	
Electrical Characteristics					
Rated current (In A)	160			250	
Current rated range (A)	125-160	16-125 (1P), 16-160 (4P)		250	100-250
Rated service voltage (AC) (Ue V)	220-440			220 - 440	
Frequency (f Hz)	50/60			50/60	
Rated insulation voltage (Ui V)	690			800	
Rated impulse withstand voltage (Uimp kV)	8			8	
Rated ultimate short-circuit breaking capacity (Icu) (AC) 50-60Hz 220/230V (Icu kA)	-	25	35	-	85
(AC) 50-60Hz 380/415V (Icu kA)	**-**	**18**	**25**	**-**	**40**
(AC) 50-60Hz 480/500/525V (Icu kA)	-	-	-	-	-
(AC) 50-60Hz 660/690V (Icu kA)	-	-	-	-	-
(DC) 250V - 2 poles in series (Icu kA)	-	10	10	-	9
Rated service short-circuit breaking capacity (Ics) (AC) 50-60Hz 220/230V (Icu kA)	-	25	25	-	40
(AC) 50-60Hz 380/415V (Icu kA)	**-**	**18**	**20**	**-**	**20**
(AC) 50-60Hz 480/500/525V (Icu kA)	-	-	-	-	-
(AC) 50-60Hz 660/690V (Icu kA)	-	-	-		-
(DC) 250V - 2 poles in series (Icu kA)	-	5	5	-	5
Rated short-circuit making capacity (Icm kA)	2.8	-	-	9	-
Rated short-time withstand current for 1s (Icw kA)	2	-	-	3.6	-
Selection Category (BS EN 60947-2)	-	A		-	A
Calibration temperature	-	50ºC		-	50ºC
Derating 40ºC	-	100%		-	100%
50ºC	-	100%		-	100%
55ºC	-	95%		-	94%
60ºC	-	93%		-	91%
65ºC	-	90%		-	88%
Suitability for isolation	OK			OK	
Electric endurance in number of cycles	10,000			10,000	
Mechanical endurance in number of operations	20,000			20,000	
Operating temperature	-25 to +70ºC			-5 to +70ºC	
Storage temperature	-35 to +70ºC			-35 to +70ºC	
Power loss (at In for 3P) (W)	39			60	
Reference standard	IEC60947-3	IEC60947-2		IEC 60947-3	IEC 60947-2
Releases: switch	OK	-		OK	-
Releases: TM (thermomagnetic)	-	OK		-	OK
T fixed, M fixed	-	OK		-	OK
T adjustable, M fixed	-	OK		-	-
T adjustable, M adjustable	-	-		-	OK
Thermal adjustment value	-	0.63 to 1x In		-	0.63 to 1x In
Magnetic adjustment value	-	-		-	6-8-10-13 x In (200A) 5-7-9-11 x In (250A)
Releases: LSI (electronic)	-	-		-	-
Long delay	-	-		-	-
Short delay	-	-		-	-
Time delay	-	-		-	-

h400	h630		h800 / h1000	
MCCB	**Switch**	**MCCB**	**Switch**	**MCCB**
HND	**HCD**	**HND**	**HCE**	**HNE**
3-4	**3-4**		**3-4**	
400	630		1000	
250-400	400-630	250-630	800	
220-690	220-690		220-690	
50/60	50/60		50/60	
800	800		800	
8	8		8	
85	-	85	-	85
50	**-**	**50**	**-**	**50**
30	-	30	-	30
20	-	20	-	20
40	-	-	-	-
85	-	85	-	85
50	**-**	**50**	**-**	**50**
30	-	30	-	30
15	-	15	-	15
40	-	-	-	-
-	9	-	20	-
-	5 (0.3)	-	10kA (0.3s)	-
A	-	B (400A - A (630A)	-	B (800A)
50°C	-	50°C	-	50°C
100%	-	100%	-	100%
100%	-	100%	-	100%
95%	-	95%	-	95%
92%	-	90%	-	90%
89%	-	80%	-	80%
OK	OK		OK	
4,500	4,500		4,500	
15,000	15,000		15,000	
-25 to +70°C	-25 to +70°C		-25 to +70°C	
-35 to +70°C	-35 to +70°C		-35 to +70°C	
75	150		150	
IEC 60947-2	IEC 60947-3	IEC 60947-3	IEC 60947-3	IEC 60947-3
-	OK	-	OK	-
OK	-		-	
-	-		-	
-	-		-	
OK	-		-	
0.63 to 1x In	-		-	
6-8-10-12 x In	-		-	
-	-	OK	-	OK
-	-	0.4 to 1x Ir	-	0.4 to 1 x Ir
-	-	2.5 to 10x Ir (400A) 2.5 to 8x Ir (630A)	-	2.5 to 10x Ir (800A) 2.5 to 8x Ir (1000A)
-	-	0.1-0.2s	-	0.1-0.2s

Frame		**x160**			**x250**	
Product		**Switch**	**MCCB**		**Switch**	**MCCB**
Reference		**HCA**	**HDA**	**HHA**	**HCB**	**HNB**
Number of poles		**3-4**	**1-2-3-4**	**1-2-3-4**	**3-4**	
Accessories						
Auxiliary switches		1			1	
Alarm switches		1			1	
Shunt release		1			1	
Undervoltage release		1			1	
Rotary handle mechanism		OK			OK	
Motor operator		-			OK	
Padlockable handle		Integrated			Integrated	
Interphase barriers		OK			Integrated	
DIN rail adapter		OK			-	
Terminations						
Standard terminal type		Cage			Lugs	
Maximum terminal capacity		95mm^2			185mm^2 (Cage)	
Terminal width (mm)		-			25	
Terminal shields		OK			OK	
Cage terminal		Integrated			OK	
Extended connections		OK			OK	
Rear connections		No			OK	
Dimensions						
Height (mm)		130			165	
Width (mm)	1P	-	25		-	
	2P	-	50		-	
	3P	75			105	
	4P	100			140	
Depth (mm)		68			68	
Weight (kg)	1P	-	0.29		-	
	2P	-	0.48		-	
	3P	0.715			1.3	
	4P	0.95			1.6	

h400	h630		h800 / h1000	
MCCB	**Switch**	**MCCB**	**Switch**	**MCCB**
HND	**HCD**	**HND**	**HCE**	**HNE**
3-4	**3-4**		**3-4**	
2	2		2	
2	2		2	
2	2		2	
2	2		3	
OK	OK		OK	
OK	OK		OK	
OK	OK		OK	
Integrated	Integrated		Integrated	
-	-		-	
Lugs	Lugs		Lugs	
240mm^2 (Cage)	-		-	
30	30		45	
OK	OK		OK	
-	-		-	
Integrated	Integrated		Integrated	
OK	OK		OK	
260	260		273/433	
-	-		-	
-	-		-	
140	140		210	
185	185		280	
97	97		99.5	
-	-		-	
-	-		-	
4.3	4.3		11	
5.7	5.7		14.8	

Selectivity Chart 240 / 415 V AC according to BS EN 60947-2

Breaking capacity according to BS EN 974-2. Network: 3 phases + neutral 220 / 380 ~ 240 / 380 V AC
Notes: "T" = total discrimination (up to the breaking capacity of the downstream device)
= no discrimination

UPSTREAM →

DOWNSTREAM ↓

Limits (kA)	In	x160 TM 18 / 25 kA								
		16A	**20A**	**25A**	**32A**	**40A**	**50A**	**63A**	**80A**	**100A**
MLN MCB Ph+N 1 Module **ADA RCBO Ph+N 2 Modules** **C Curve**	**1A**	1.5	1.6	1.8	2.3	2.9	4	T	T	T
	2A	1.5	1.6	1.8	2.3	2.9	4	T	T	T
	6A	1.3	1.4	1.6	1.9	2.3	2.9	3.9	5.5	T
	10A	1.1	1.2	1.4	1.7	2	2.4	2.8	3.4	4
	16A			1.2	1.5	1.8	2	2.3	2.7	3
	20A				1.5	1.8	2	2.3	2.7	3
	25A					1.6	1.8	2	2.2	2.4
	32A						1.8	2	2.2	2.4
	40A							1.4	1.7	1.9
MTN / NBN MCB **B Curve**	**6A**	1.4	1.5	1.6	1.9	2.3	3	4	5.5	6.7
	10A	1.2	1.3	1.4	1.7	2	2.4	2.8	3.4	4
	13A		1.2	1.3	1.5	1.8	2.1	2.4	2.8	3.2
	16A			1.3	1.5	1.8	2.1	2.4	2.8	3.2
	20A				1.5	1.8	2.1	2.4	2.8	3.2
	25A					1.7	1.9	2.1	2.3	2.5
	32A						1.9	2.1	2.3	2.5
	40A							1.6	1.7	1.9
	50A								1.4	1.5
	63A									1.5
NCN MCB **C Curve**	**0.5A**	1.3	1.4	1.6	2	2.5	3.5	5.6	8.8	12
	1A	1.3	1.4	1.6	2	2.5	3.5	5.6	8.8	12
	2A	1.3	1.4	1.6	2	2.5	3.5	5.6	8.8	12
	3A	1.1	1.2	1.4	1.7	2	2.5	3.4	4.8	5.8
	4A	1.1	1.2	1.4	1.7	2	2.5	3.4	4.8	5.8
	6A	1.1	1.2	1.4	1.7	2	2.5	3.4	4.8	5.8
	10A	1	1.1	1.25	1.5	1.8	2.1	2.5	3	3.5
	13A		1	1.1	1.3	1.6	1.8	2.1	2.4	2.7
	16A			1.1	1.3	1.6	1.8	2.1	2.4	2.7
	20A				1.3	1.6	1.8	2.1	2.4	2.7
	25A					1.4	1.6	1.8	2	2.2
	32A						1.6	1.8	2	2.2
	40A							1.3	1.5	1.7
	50A								1.1	1.5
	63A									1.5
NDN MCB **D Curve**	**0.5A**	1	1.1	1.3	1.6	2	3	4.5	7.4	10
	1A	1	1.1	1.3	1.6	2	3	4.5	7.4	10
	2A	1	1.1	1.3	1.6	2	3	4.5	7.4	10
	3A	0.9	1	1.1	1.3	1.6	2.1	2.7	3.8	4.7
	4A	0.9	1	1.1	1.3	1.6	2.1	2.7	3.8	4.7
	6A	0.9	1	1.1	1.3	1.6	2.1	2.7	3.8	4.7
	10A		0.9	1	1.2	1.4	1.7	2	2.4	2.8
	13A			0.95	1.1	1.3	1.5	1.7	1.9	2.2
	16A				1.1	1.3	1.5	1.7	1.9	2.2
	20A					1.3	1.5	1.7	1.9	2.2
	25A						1.2	1.4	1.6	1.8
	32A							1.4	1.6	1.7
	40A								1.2	1.5
	50A									1.5
	63A									
HMF / HMC 1.5 Mod MCB **C Curve**	**80A**									
	100A									
	125A									
HMD 1.5 Mod MCB **D Curve**	**80A**									
	100A									
	125A									

All values are given with MCCB at the maximum setting.

		x250 TM 40 kA					h630 LSI 50 kA			h800 / h1000 LSI 50 kA		
125A	160A	100A	125A	160A	200A	250A	250A	400A	630A	630A	800A	1000A
T	T	T	T	T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T	T	T	T	T
4.9	T	4.6	T	T	T	T	T	T	T	T	T	T
3.6	4.6	3.6	4.6	T	T	T	T	T	T	T	T	T
3.6	4.6	3.6	4.6	T	T	T	T	T	T	T	T	T
2.9	3.6	2.9	3.6	4.8	T	T	T	T	T	T	T	T
2.9	3.6	2.9	3.6	4.8	T	T	T	T	T	T	T	T
2.2	2.8	2.2	2.8	3.7	5.5	T	T	T	T	T	T	T
8.6	12	7.8	11	16	T	T	T	T	T	T	T	T
4.9	6.4	4.7	6.2	8.6	14	23	T	T	T	T	T	T
3.7	4.6	3.8	4.7	6.2	9.9	17	T	T	T	T	T	T
3.7	4.6	3.8	4.7	6.2	9.9	17	T	T	T	T	T	T
3.7	4.6	3.8	4.7	6.2	9.9	17	T	T	T	T	T	T
2.9	3.6	3	3.7	4.9	7.4	1	T	T	T	T	T	T
2.9	3.6	3	3.7	4.9	7.4	13	T	T	T	T	T	T
2.2	2.8	2.3	2.8	3.8	5.9	9.9	T	T	T	T	T	T
1.8	2.3	1.8	2.3	3.2	4.9	8.6	T	T	T	T	T	T
1.5	1.8	1.4	1.8	2.4	4.2	7.7	T	T	T	T	T	T
16	23	14	20	T	T	T	T	T	T	T	T	T
16	23	14	20	T	T	T	T	T	T	T	T	T
16	23	14	20	T	T	T	T	T	T	T	T	T
6.8	8.5	6.8	8.6	12	17	T	T	T	T	T	T	T
6.8	8.5	6.8	8.6	12	17	T	T	T	T	T	T	T
6.8	8.5	6.8	8.6	12	17	T	T	T	T	T	T	T
4.3	5.6	4.1	5.4	7.6	12	20	T	T	T	T	T	T
3.2	4.1	3.2	4.1	5.6	8.3	14	T	T	T	T	T	T
3.2	4.1	3.2	4.1	5.6	8.3	14	T	T	T	T	T	T
3.2	4.1	3.2	4.1	5.6	8.3	14	T	T	T	T	T	T
2.6	3.2	2.6	3.2	4.3	6.3	11	T	T	T	T	T	T
2.6	3.2	2.6	3.2	4.3	6.3	11	T	T	T	T	T	T
2	2.5	2	2.5	3.4	5	8.5	T	T	T	T	T	T
1.5	2	1.5	1.9	2.7	4.2	7.3	T	T	T	T	T	T
1.5	1.6	1.3	1.625	2.2	3.8	6.7	T	T	T	T	T	T
13	18	12	16	24	T	T	T	T	T	T	T	T
13	18	12	16	24	T	T	T	T	T	T	T	T
13	18	12	16	24	T	T	T	T	T	T	T	T
5.7	7.3	5.5	7.2	9.9	14	23	T	T	T	T	T	T
5.7	7.3	5.5	7.2	9.9	14	23	T	T	T	T	T	T
5.7	7.3	5.5	7.2	9.9	14	23	T	T	T	T	T	T
3.4	4.4	3.3	4.3	5.9	8.6	14	T	T	T	T	T	T
2.6	3.3	2.6	3.2	4.5	6.8	11	T	T	T	T	T	T
2.6	3.3	2.6	3.2	4.5	6.8	11	T	T	T	T	T	T
2.6	3.3	2.6	3.2	4.5	6.8	11	T	T	T	T	T	T
2	2.5	2.1	2.5	3.4	5.3	8.6	T	T	T	T	T	T
2	2.5	2.1	2.5	3.4	5.3	8.6	T	T	T	T	T	T
1.5	1.8	1.5	1.9	2.4	4.1	6.8	T	T	T	T	T	T
1.5	1.6		1.9	2.4	4.1	6.8	T	T	T	T	T	T
1.5	1.6			2.08	3.1	5.3	T	T	T	T	T	T
7.4	8.2		6.6	7.3	8.6	11	T	T	T	T	T	T
	8.2			7.3	8.6	11	T	T	T	T	T	T
					8.6	11	T	T	T	T	T	T
					8.9	12	T	T	T	T	T	T
						10	T	T	T	T	T	T
							T	T	T	T	T	T

MCCB x160, x250, h400, h630, h800
Breaking capacity according to BS EN 974-2. Network: 3 phases + neutral 220 / 380 ~ 240 / 415 V AC
Notes: "T" = total discrimination (up to the breaking capacity of the downstream device)
= no discrimination

UPSTREAM →

DOWNSTREAM ↓

Icc (kA)		x160 TM											x250 TM					h400 TM		h630 LSI			h800 / h1000 LSI		
	(A)	16	20	25	32	40	50	63	80	100	125	160	100	125	160	200	250	250	400	250	400	630	630	800	1000
x160 TM 40kA	16							2	2	2.9	2.9	3	2.15	2.9	4.1	5.6	5.4	6.5	13	T	T	T	T	T	T
	20							2	2	2.9	2.9	3	2.15	2.9	4.1	5.6	5.4	6.5	13	T	T	T	T	T	T
	25							2	2	2.9	2.9	3	2.15	2.9	4.1	5.6	5.4	6.5	13	T	T	T	T	T	T
	32							1.8	1.8	2.6	2.6	2.8	2	2.6	3.6	5	4.8	5.6	10.5	T	T	T	T	T	T
	40							1.6	1.6	2.35	2.35	2.4	1.8	2.35	3.3	4.3	4.2	4.95	9.2	T	T	T	T	T	T
	50							1.6	1.6	2.35	2.35	2.4	1.8	2.35	3.15	4.23	4.15	4.8	8.8	T	T	T	T	T	T
	63									2.15	2.15	2.2	1.7	2.15	3	4.05	3.9	4.6	8.3	T	T	T	T	T	T
	80									2.15	2.15	2.2	1.7	2.15	2.9	3.9	3.8	4.35	7.9	T	T	T	T	T	T
	100											2.1		1.95	2.75	3.7	3.6	4.15	7.5	T	T	T	T	T	T
	125											2.1		1.95	2.65	3.5	3.4	4	7	T	T	T	T	T	T
	160													1.95	2.6	3.45	3.35	3.9	6.6	T	T	T	T	T	T
x250 TM 40kA	100													1.95	2.5	3.15	3.3	3.6	5.75	T	T	T	T	T	T
	125														2.5	3.15	3.3	3.6	5.75	T	T	T	T	T	T
	160															3.15	3.3	3.6	5.75	T	T	T	T	T	T
	200																3.3	3.6	5.75	T	T	T	T	T	T
	250																	3.6	5.75	T	T	T	T	T	T
h400 TM 50kA	250																		5.75	T	T	T	T	T	T
	400																				T	T	T	T	T
h630 LSI	250																		5.75		5.2	6.3	T	T	T
	400																					6.3	T	T	T
	630																						T	T	T
h800 LSI	630																							9.6	10
	800																								10

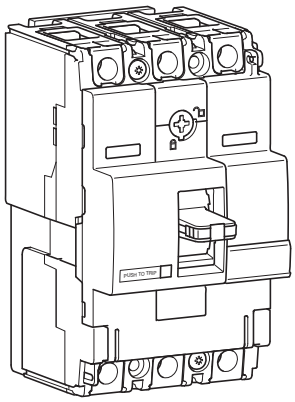
All values are given with MCCB at the maximum setting
I_{pf} prospective fault current

Fault level to which discrimination is achieved (A)
Fuses upstream / circuit breakers downstream
BS88 Fuses
Notes: "T" = represents maximum discrimination to kA rating level of the downstream device
= no discrimination

UPSTREAM →

DOWNSTREAM ↓

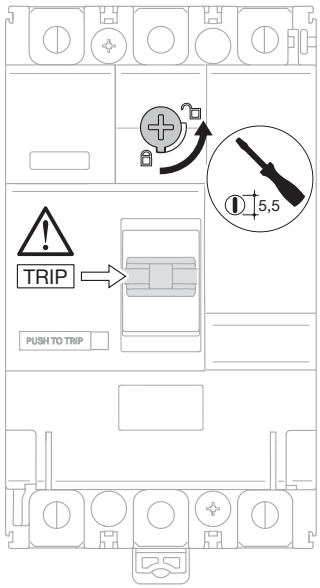
Fuse Rating		20	25	32	40	50	63	80	100	125	160	200	250	315	355	400	450	500	560	630	710	800
Breaker Rating																						
x160 Frame MCCB 18 & 25kA Versions	**16**	48	65	88	143	220	316	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	20	46	62	83	140	207	300	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	25		60	79	125	190	280	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	32			75	122	200	320	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	40				116	150	250	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	50					122	200	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	63						170	450	630	T	T	T	T	T	T	T	T	T	T	T	T	T
	80							440	630	T	T	T	T	T	T	T	T	T	T	T	T	T
	100								515	770	1200	T	T	T	T	T	T	T	T	T	T	T
	125									820	1200	T	T	T	T	T	T	T	T	T	T	T
	160										1140	T	T	T	T	T	T	T	T	T	T	T
x250 Frame MCCB 40kA	**100**								427	580	T	T	T	T	T	T	T	T	T	T	T	T
	125									547	985	T	T	T	T	T	T	T	T	T	T	T
	160										755	1226	T	T	T	T	T	T	T	T	T	T
	200											909	1642	T	T	T	T	T	T	T	T	T
	250												1402	2300	T	T	T	T	T	T	T	T
h400 Frame MCCB	**250**												1200	T	T	T	T	T	T	T	T	T
	400															T	T	T	T	T	T	T
h630 Frame MCCB	**630**												T	T	T	T	T	T	T	T	T	T
h800 / h1000 Frame MCCB	**800**																			T	T	T



		220/240V AC IEC 60 947-2	380/415 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
HCA	Icm	-	2.8 kA
	Icw	-	2 kA - 1s

Magnetic and Thermal Settings

1.



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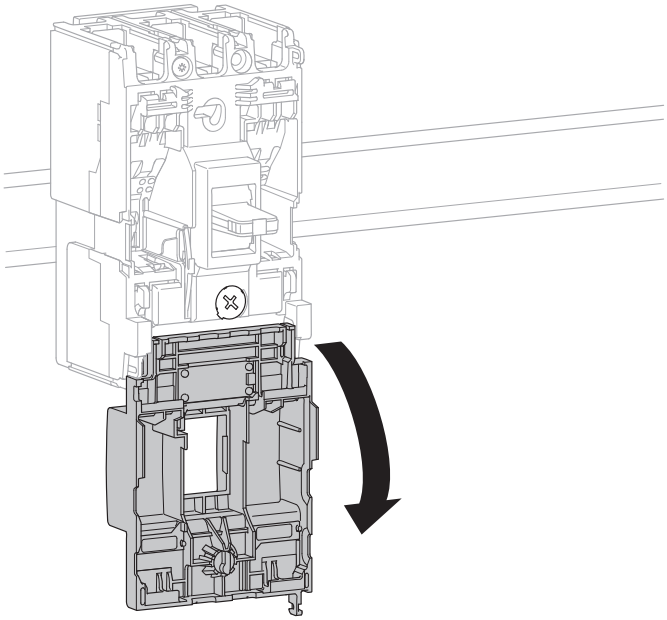
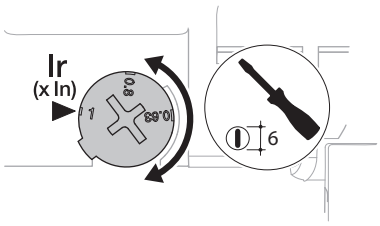


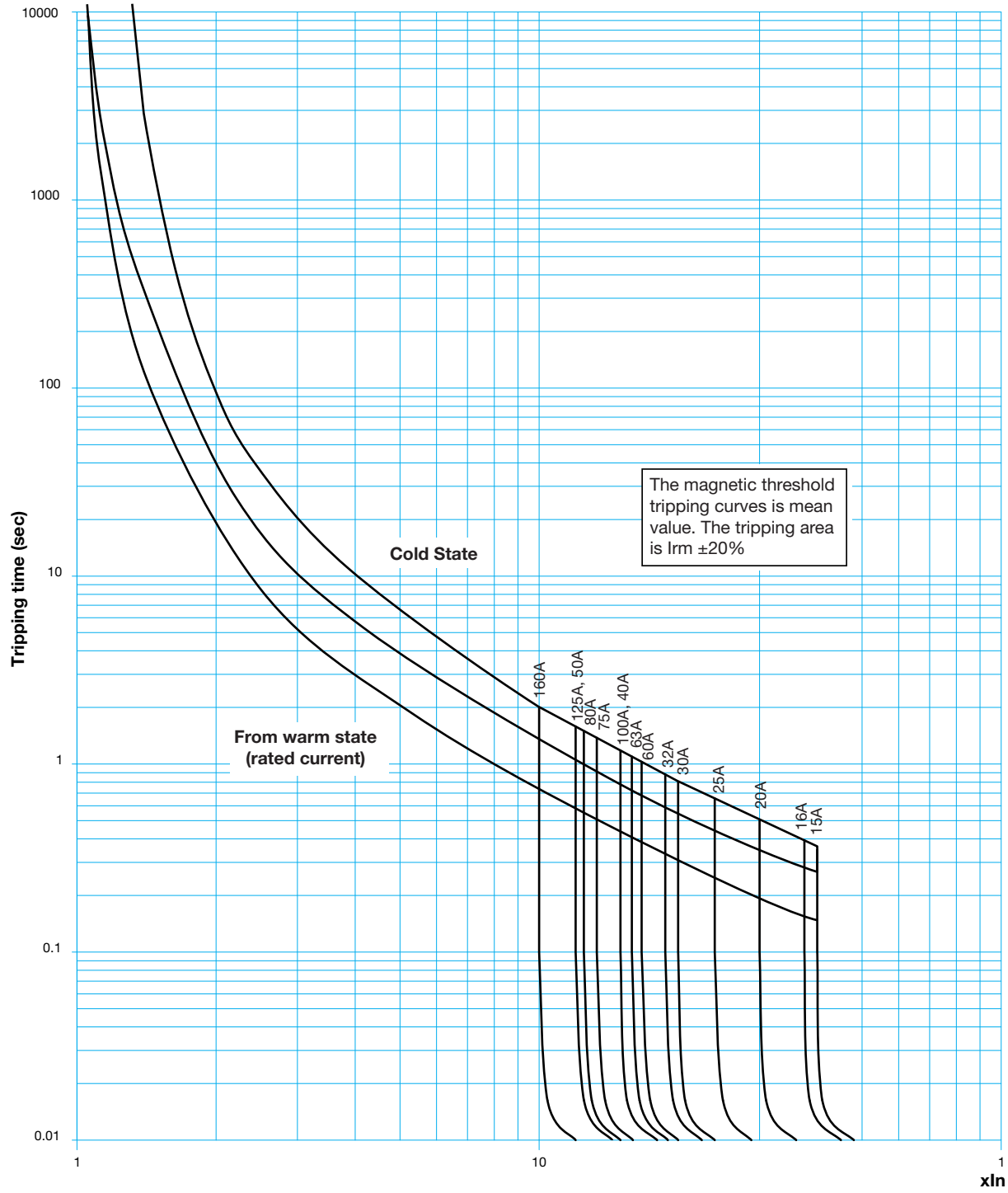
3.



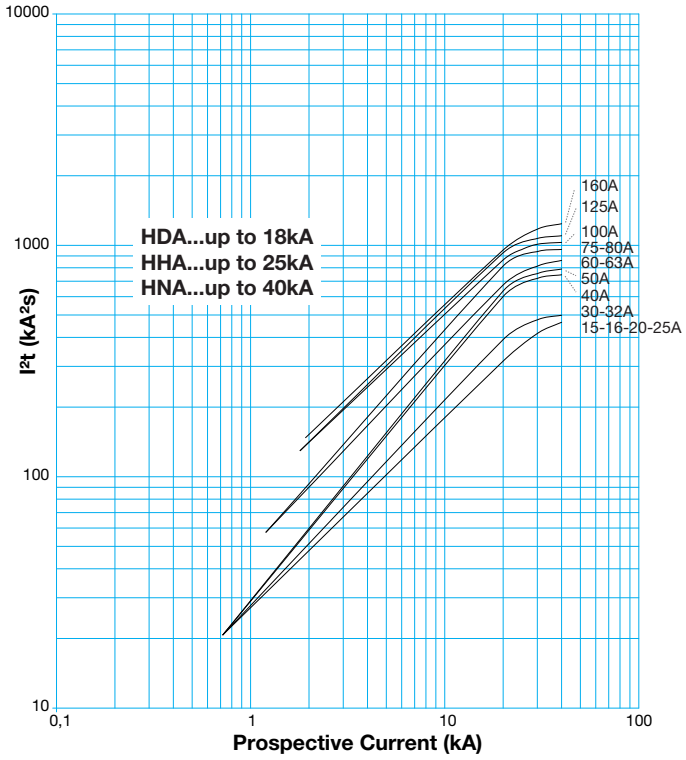
Thermal adjustment from 0.63 to 1 x In
Magnetic adjustment fixed > 10 x In

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

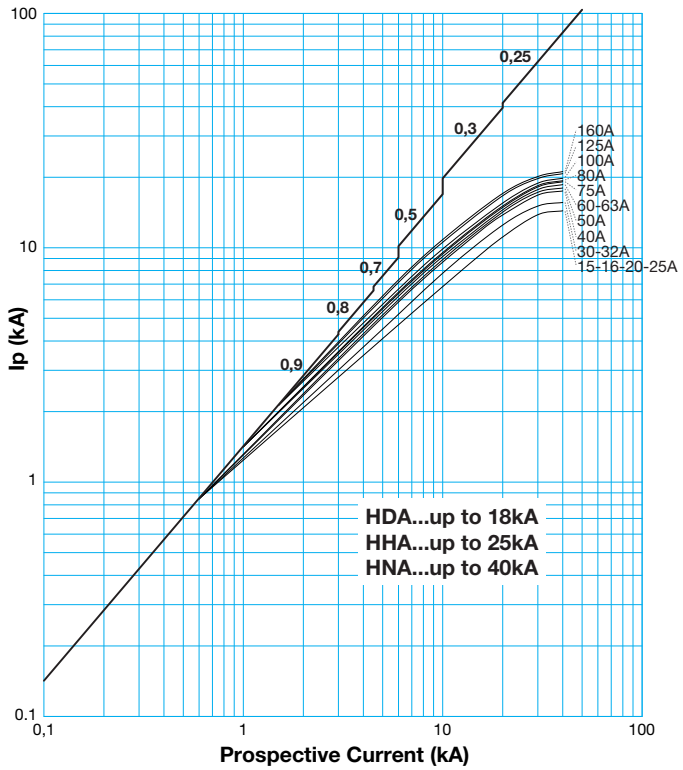
Tripping Curve
MCCB x160



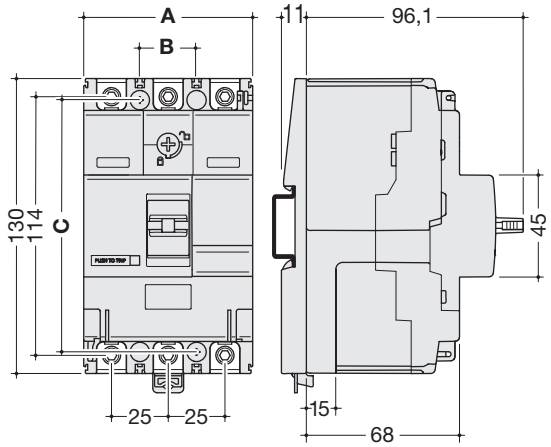
Let-Through Curve
MCCB x160



Current Limiting Curve
MCCB x160

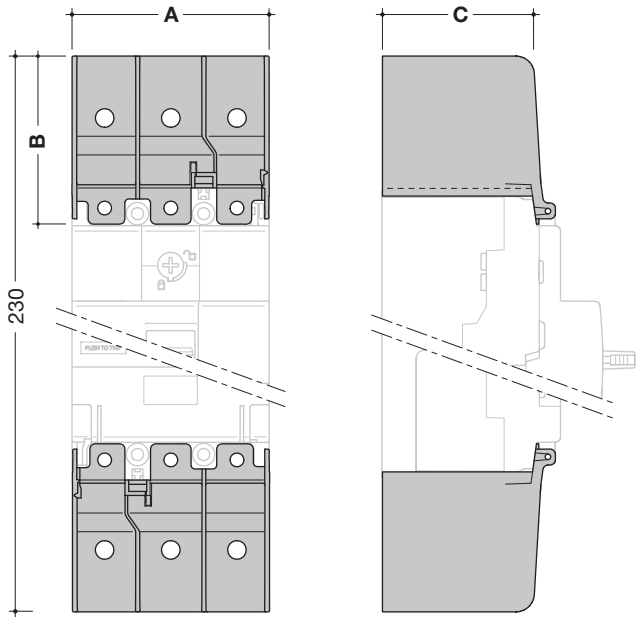


Dimensions
MCCB x160



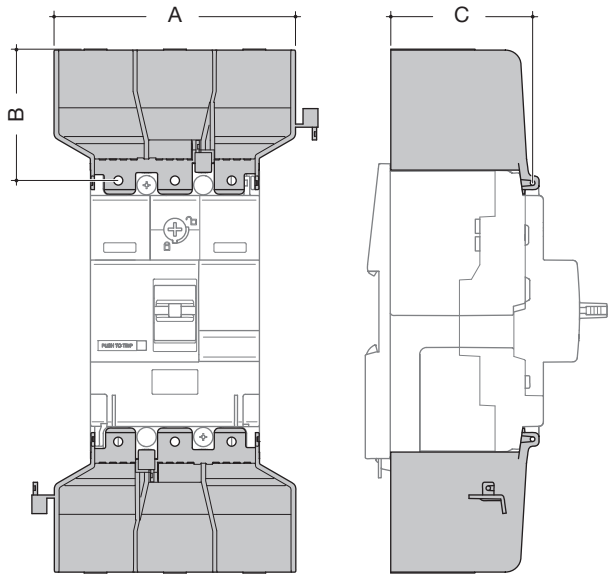
	A (mm)	B (mm)	C (mm)
1P	24.8	25	111
2P	49.5	25	111
3P	74.5	25	111
4P	99.5	25	111

Terminal Covers Front Connections
(for straight bars)



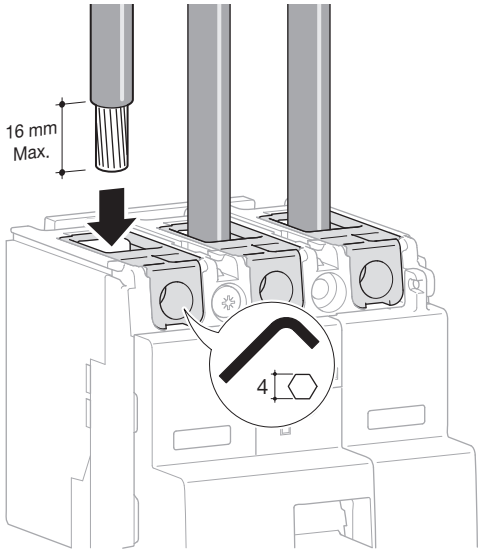
	A (mm)	B (mm)	C (mm)
1P	24.4	50	60.5
3P	74.5	50	60.5
4P	99.5	50	60.5

Terminal Cover for Extended Connections
(spreaders)



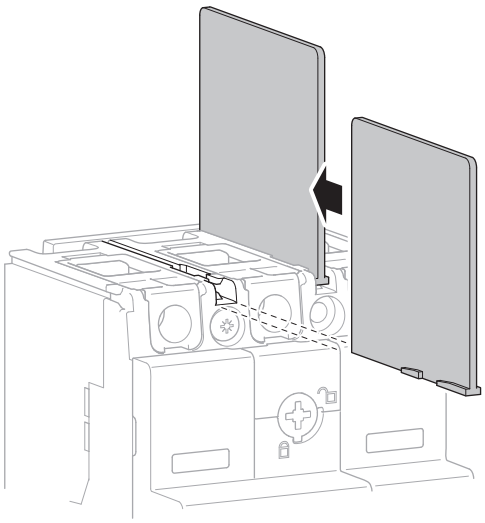
	A (mm)	B (mm)	C (mm)
3P	106.5	50	60.5
4P	141.5	50	60.5

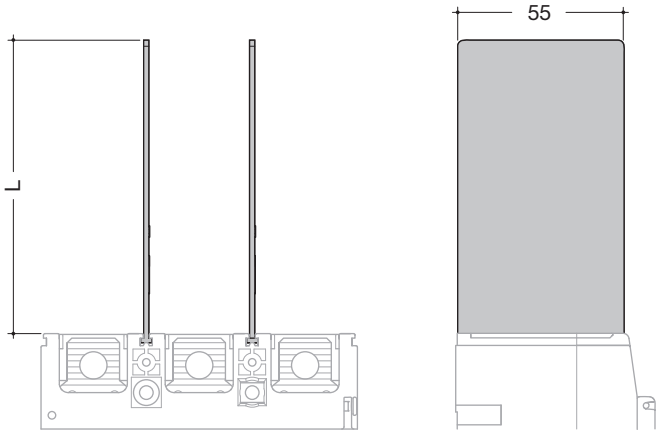
Connection with End Lugs



	min. 6mm²	max. 70mm²
	min. 6mm²	max. 95mm²
5	6.6 Nm	

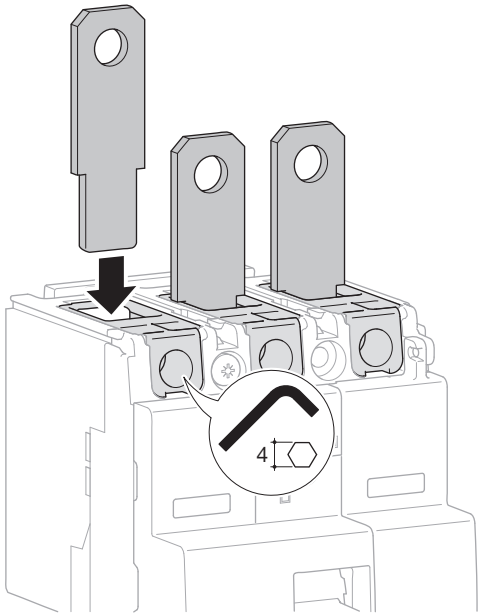
Interphase Barriers

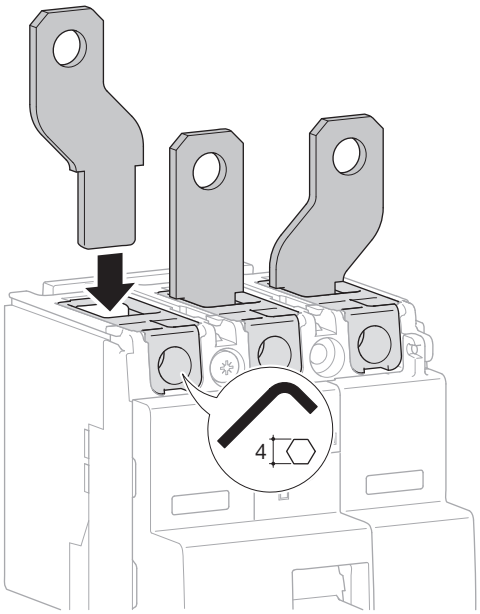


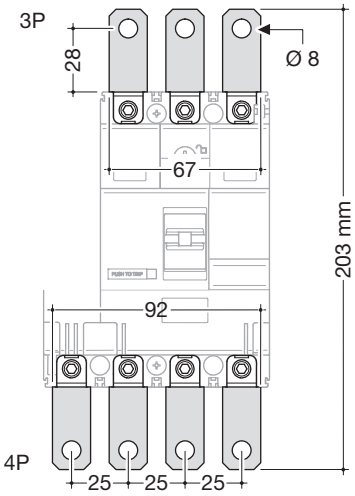


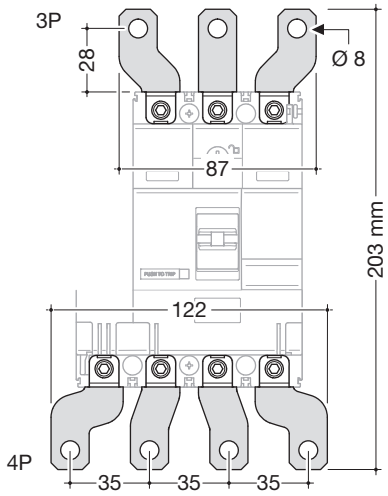
	L (mm)
HYA019H	50
HYB019H	97

Extended Connection: Straight Bars and Spreaders

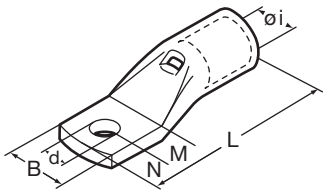






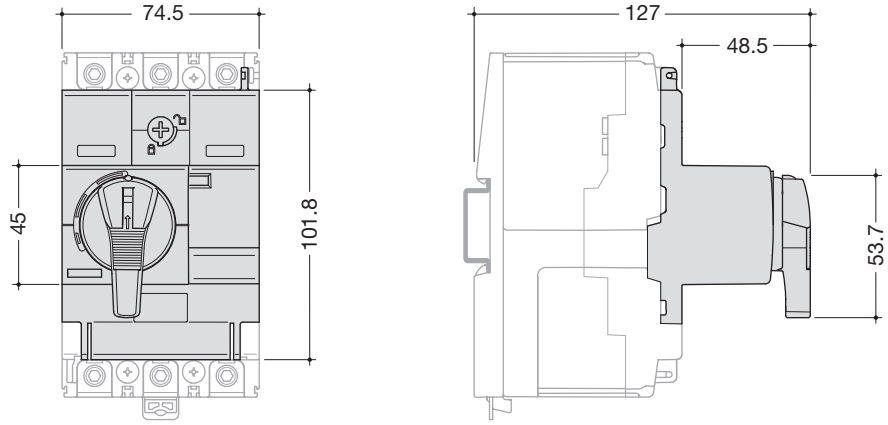


Contained Palm Lugs for Circuit Breakers

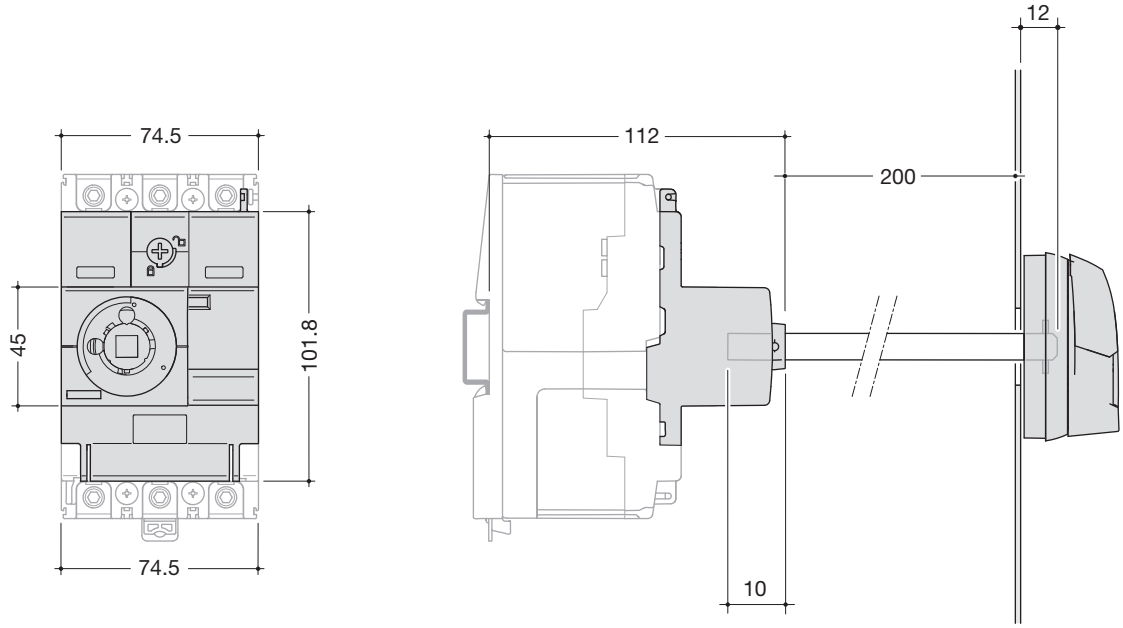


Conductor Size Flexible mm²	Ø Stud mm	Øi	B	M	N	L	d	Bag qty.	Cat ref.
95	8	13.5	15.5	9	8	52.5	8.4	25	**HA 19 B-M 8/15.5**
120	8	15.2	19	14	9	60	8.4	25	**HA 24 B-M 8/19**
120	10	15.2	19	14	9	60	10.5	25	**HA 24 B-M 10/19**
150	8	16.7	19	18	9	70	8.4	25	**HA 30 B-M 8/19**
150	10	16.7	19	18	9	70	10.5	25	**HA 30 B-M 10/19**
185	10	19.2	24.5	18	9	77	10.5	25	**HA 37 B-M 10/24.5**
240	10	21.1	31	13	9	80	10.5	15	**HA 48-M 10/31**
240	12	21.1	31	16	12	86	13.2	15	**HA 48-M 12/31**
240	16	21.1	31	19	17	94	17	15	**HA 48-M 16/31**
300	10	23.7	31	16	12	95	10.5	10	**HA 60 B-M 10/31**
300	12	23.7	31	16	12	95	13.2	10	**HA 60 B-M 12/31**

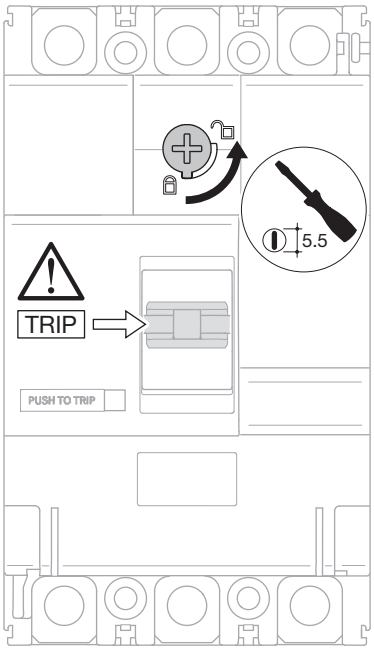
Direct Rotary Handle

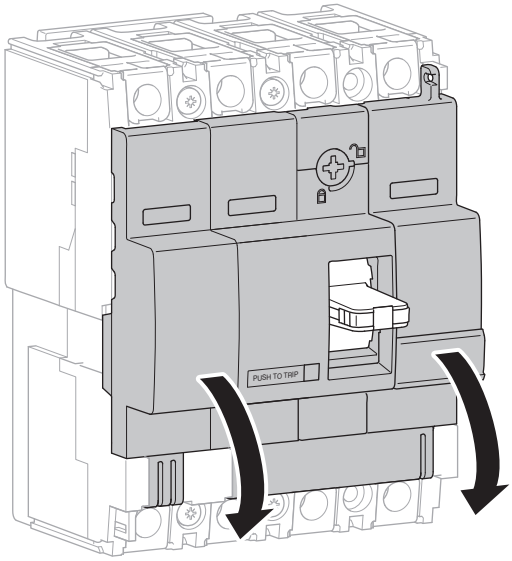


Extended Rotary Handle

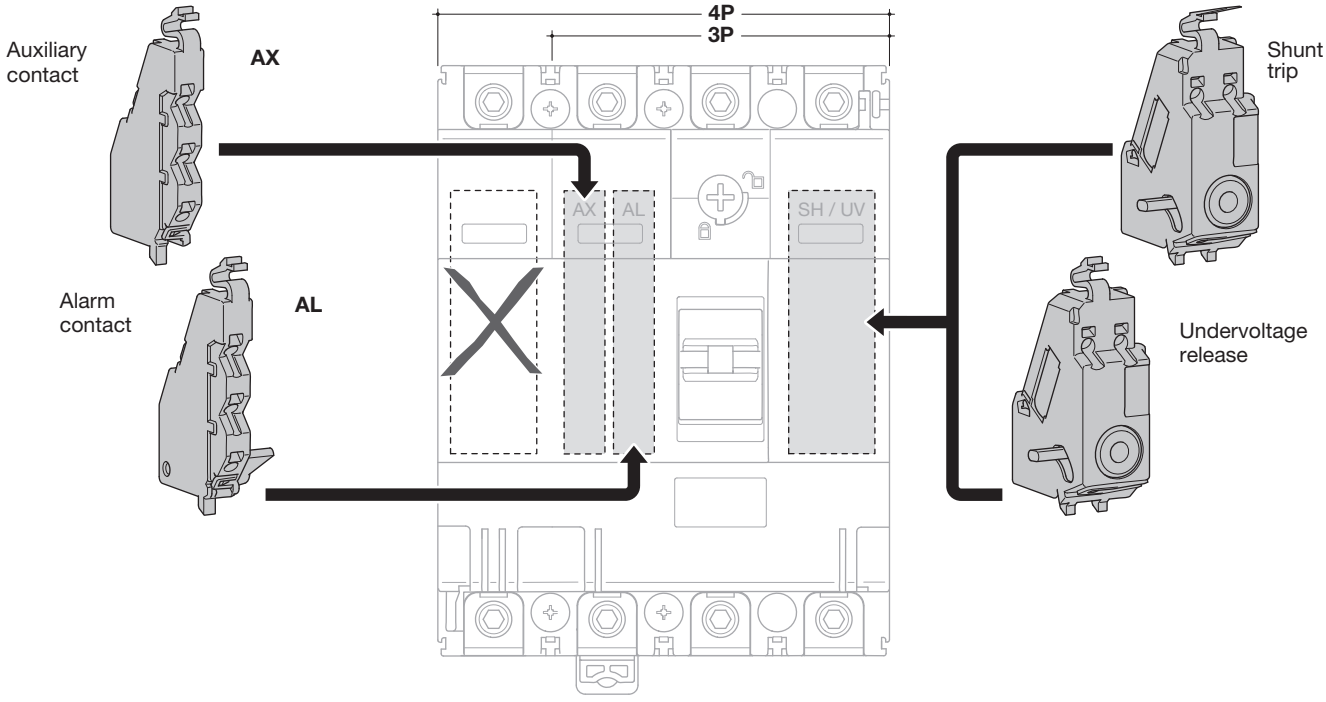


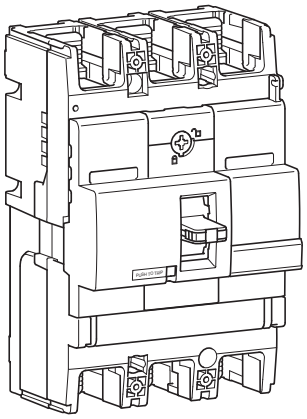
Auxiliaries
Auxiliaries for MCCBs and Tripping Switches





Mounting Combination for Auxiliaries and Releases

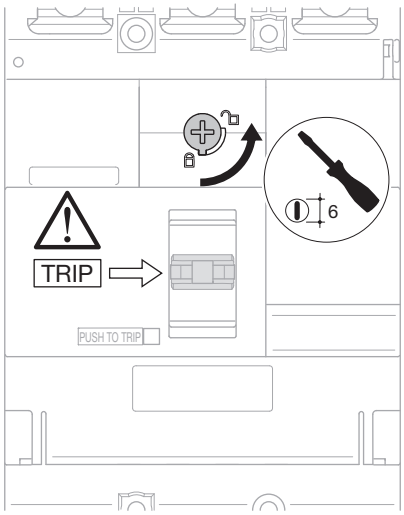




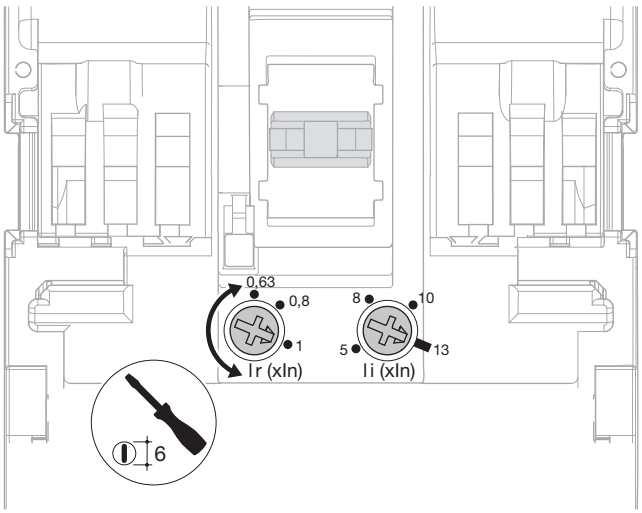
		220/240V AC IEC 60 947-2	380/415 AC IEC 60 947-2
HNB	Icu	85 kA	40 kA
	Ics	40 kA	20 kA
HCB	Icu	-	9 kA
	Ics	-	3.6 kA - 1s

Magnetic and Thermal Settings

1.

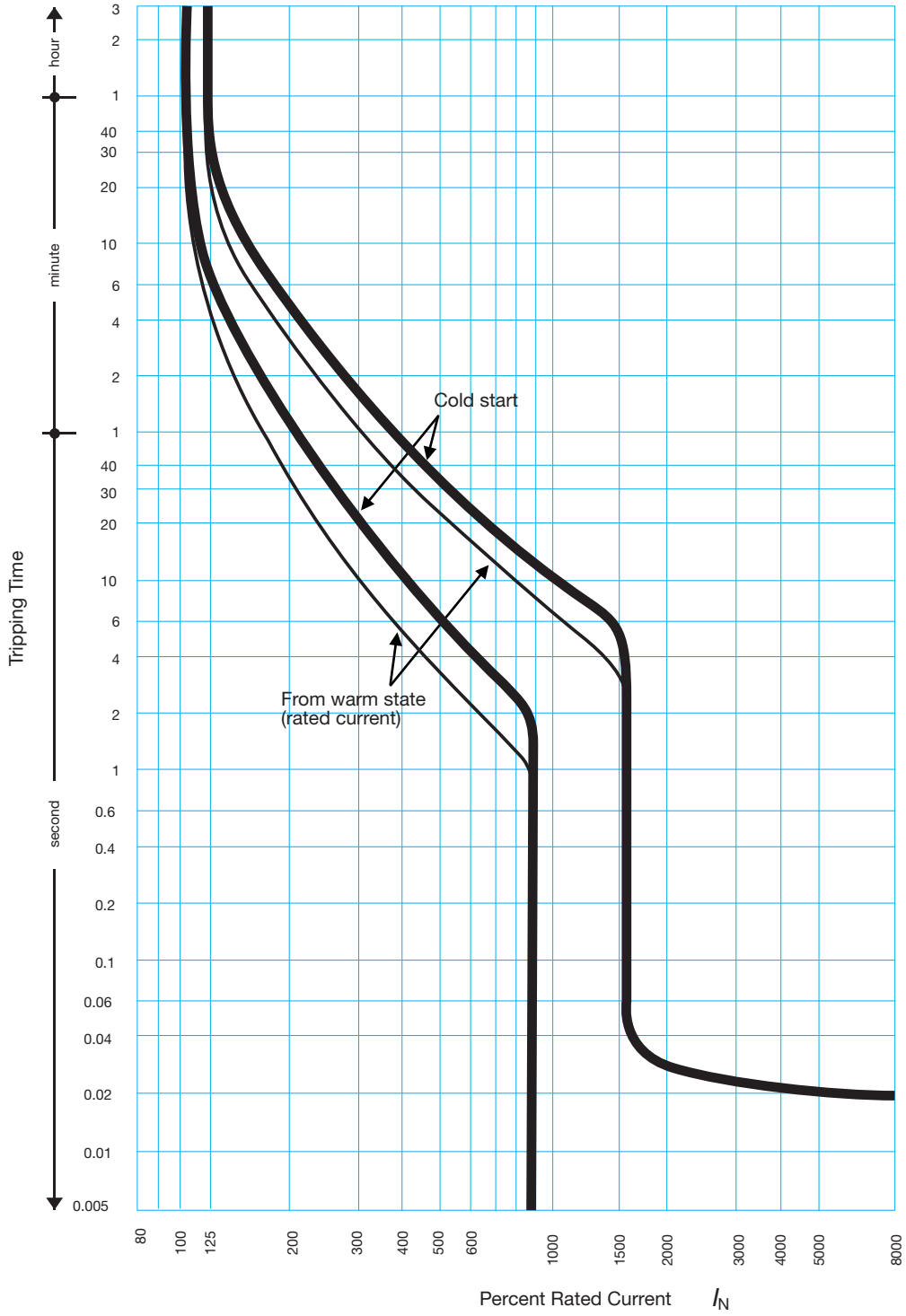


2.

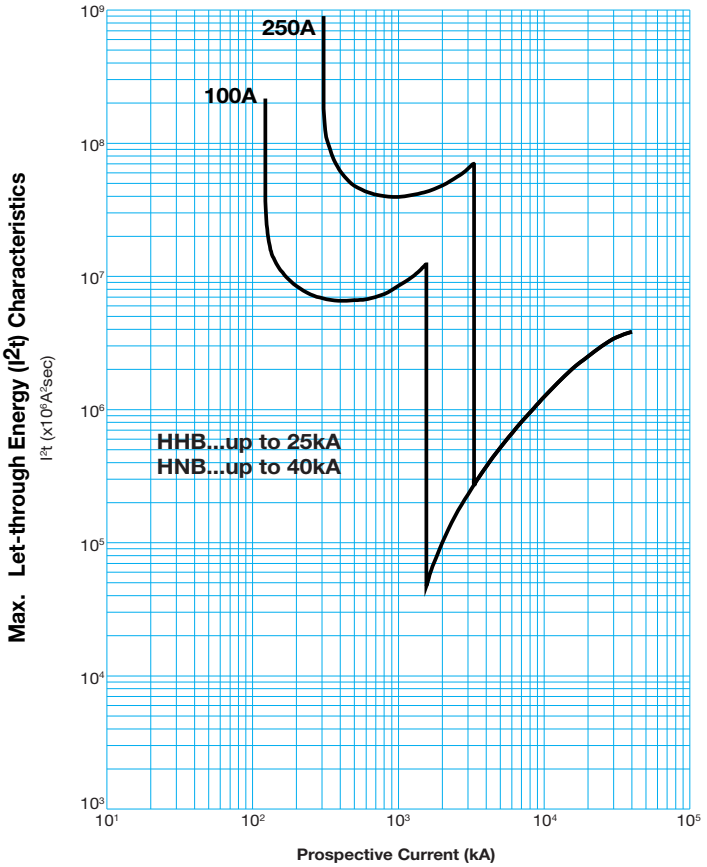


Thermal adjustment from 0.63 to 1 x In

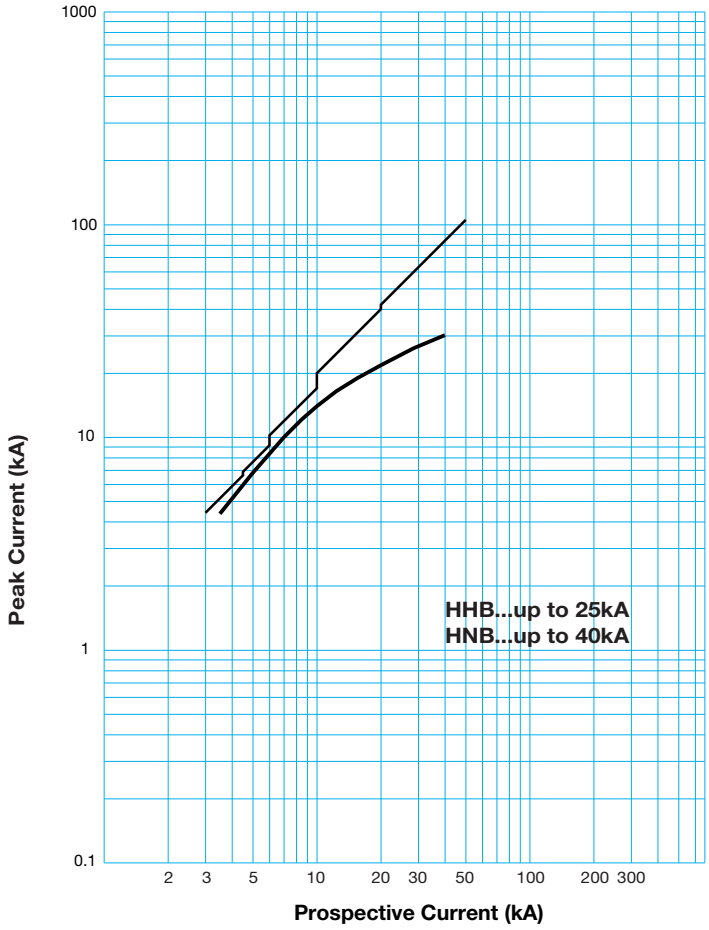
Magnetic adjustment from 6 to 13 x In (100 - 200A)
from 5 to 11 x In (250A)


Tripping Time
hour
minute
second
3
2
1
40
30
20
10
6
4
2
1
40
30
20
10
6
4
2
1
0.6
0.4
0.2
0.1
0.06
0.04
0.02
0.01
0.005
Cold start
From warm state
(rated current)
80
100
125
200
300
400
500
600
1000
1500
2000
3000
4000
5000
8000
Percent Rated Current I_N

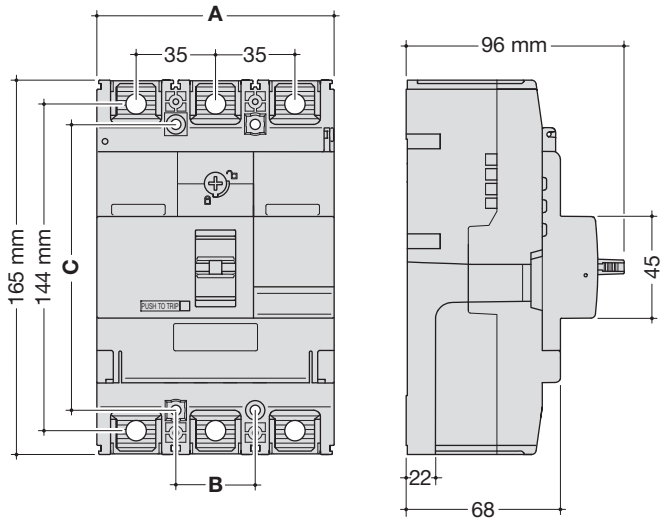
Let-Through Curve
MCCB x250



Current Limiting Curve
MCCB x250

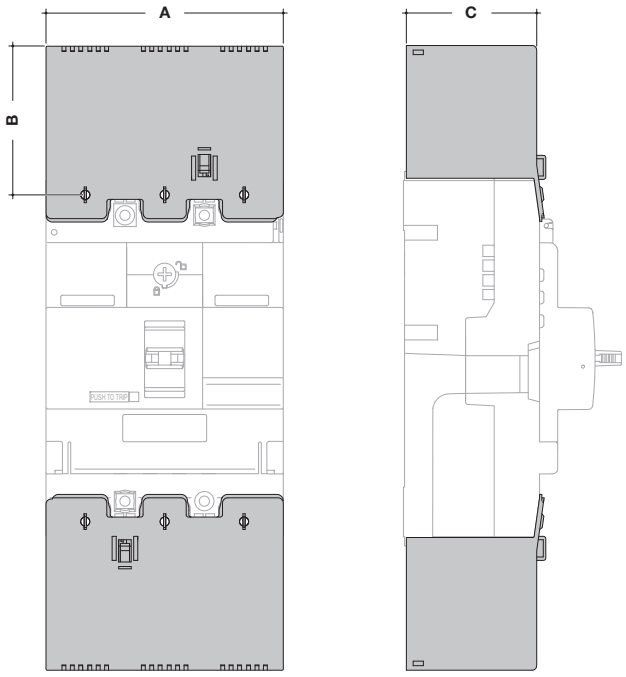


Dimensions
MCCB x160



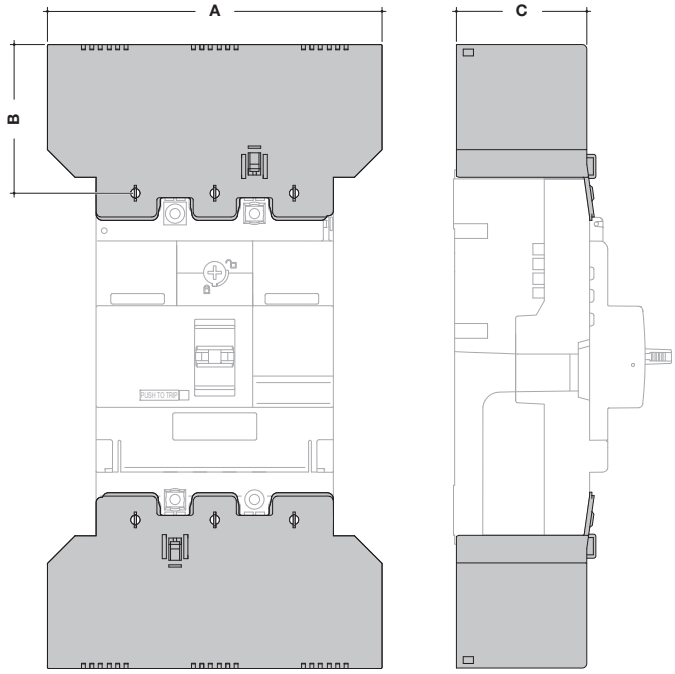
	A (mm)	B (mm)	C (mm)
3P	104.5	35	126
4P	139.5	35	126

Terminal Covers Front Connections
(for straight bars)



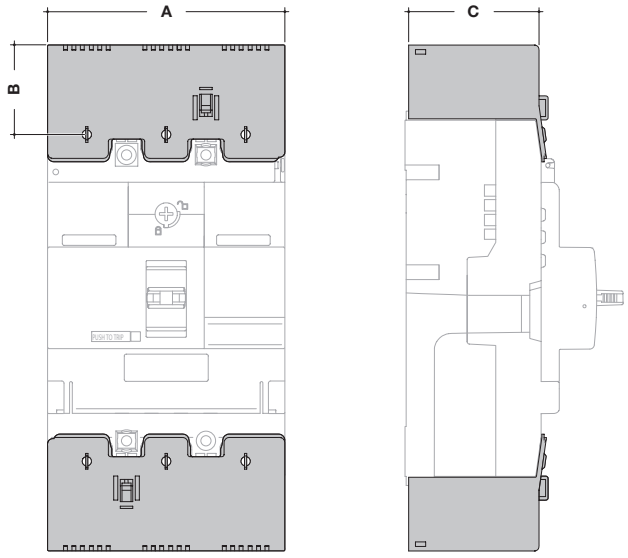
	A (mm)	B (mm)	C (mm)
3P	104.8	54.5	64
4P	139.8	54.5	64

Terminal Covers for Extended Connections
(spreaders)



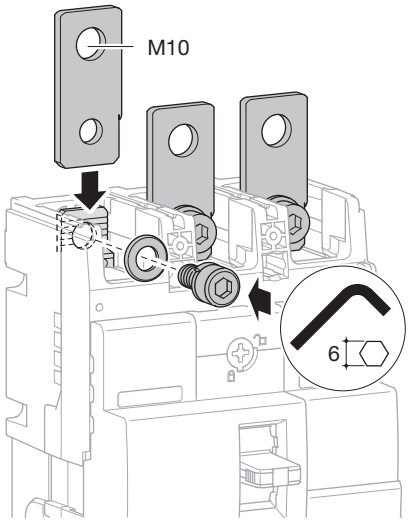
	A (mm)	B (mm)	C (mm)
3P	147.5	54.5	64
4P	196	54.5	64

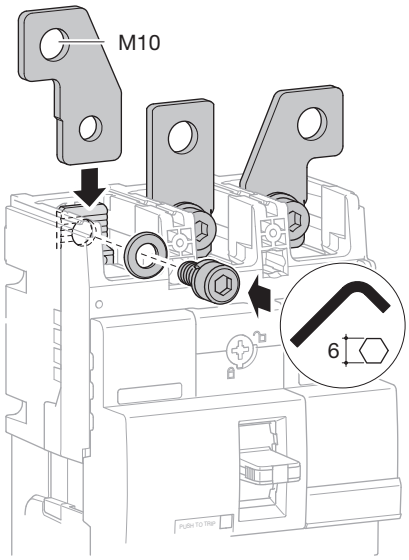
Terminal Covers for Collar Terminals

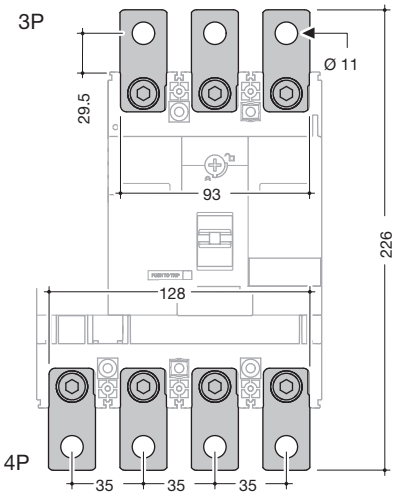


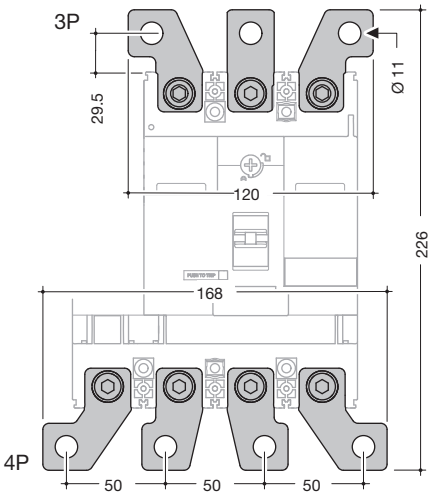
	A (mm)	B (mm)	C (mm)
3P	104.8	28.5	64
4P	139.8	28.5	64

Extended Connection with Spreaders

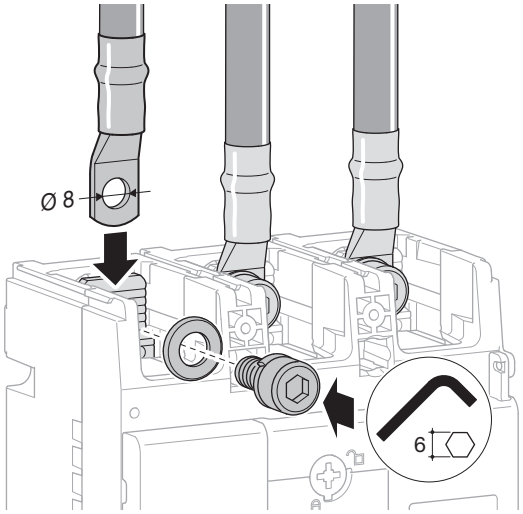


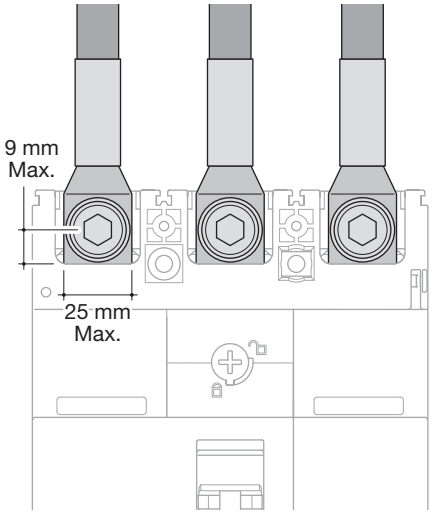






Connection with End Lugs

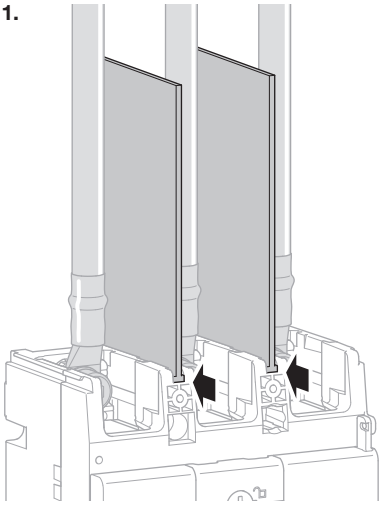




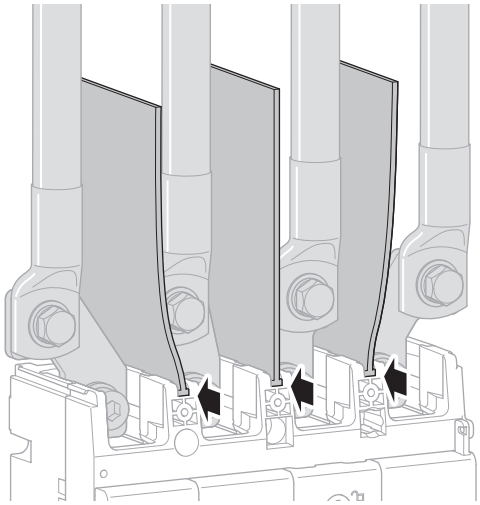
5 12.7 Nm

Interphase Barriers

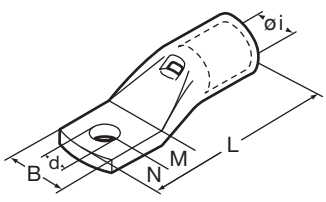
1.



2.

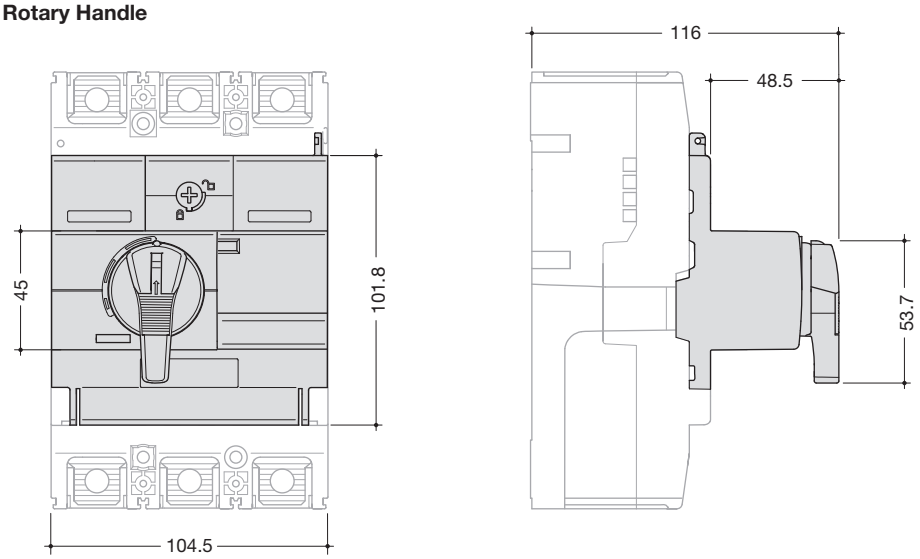


Contained Palm Lugs for Circuit Breakers

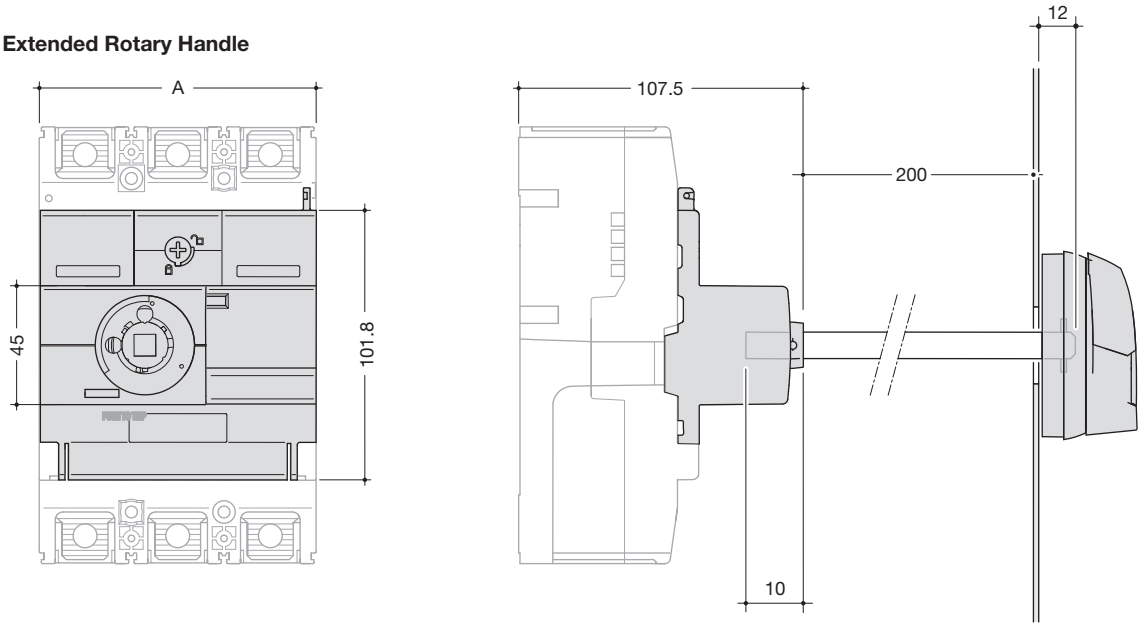


Conductor Size Flexible mm²	Ø Stud mm	Øi	B	M	N	L	d	Bag qty.	Cat ref.
95	8	13.5	15.5	9	8	52.5	8.4	25	**HA 19 B-M 8/15.5**
120	8	15.2	19	14	9	60	8.4	25	**HA 24 B-M 8/19**
120	10	15.2	19	14	9	60	10.5	25	**HA 24 B-M 10/19**
150	8	16.7	19	18	9	70	8.4	25	**HA 30 B-M 8/19**
150	10	16.7	19	18	9	70	10.5	25	**HA 30 B-M 10/19**
185	10	19.2	24.5	18	9	77	10.5	25	**HA 37 B-M 10/24.5**
240	10	21.1	31	13	9	80	10.5	15	**HA 48-M 10/31**
240	12	21.1	31	16	12	86	13.2	15	**HA 48-M 12/31**
240	16	21.1	31	19	17	94	17	15	**HA 48-M 16/31**
300	10	23.7	31	16	12	95	10.5	10	**HA 60 B-M 10/31**
300	12	23.7	31	16	12	95	13.2	10	**HA 60 B-M 12/31**

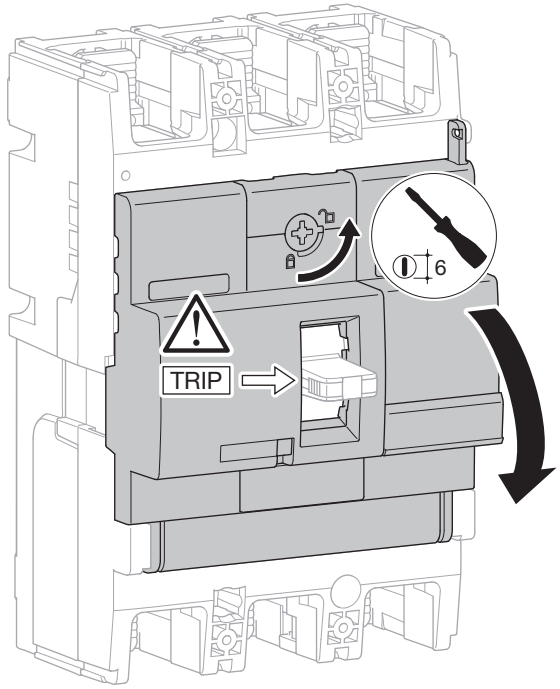
Rotary Handle



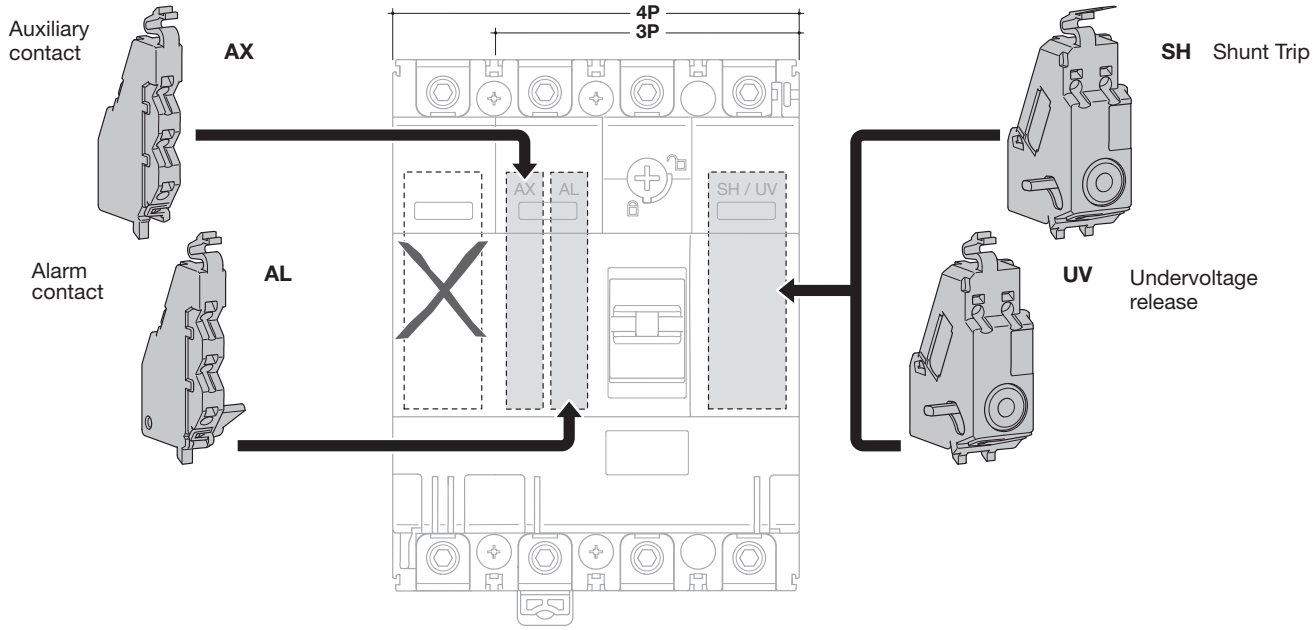
Extended Rotary Handle

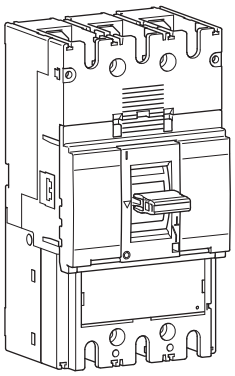


Auxiliaries for MCCBs and Tripping Switches



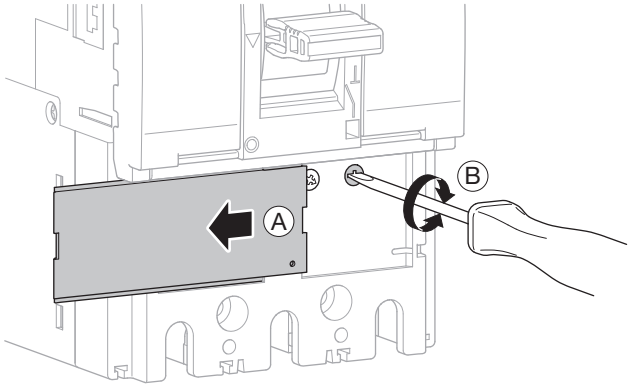
Mounting combination for auxiliaries and releases



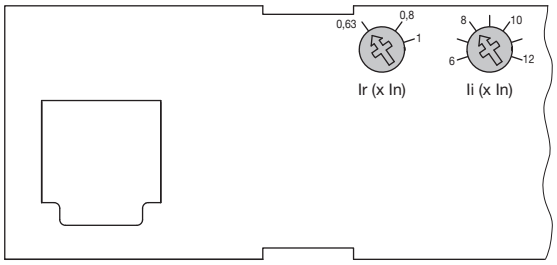


		220/240V AC (kA)	380/415 AC (kA)	660/690 V AC (kA)
h400/h630 **HNB**	Icu	85	50	20
	Ics	85	50	15
h630 **HCB**	Icm	-	9	-
	Icw	-	5kA - 0.3s	-

Settings



Magnetic and Thermal Settings

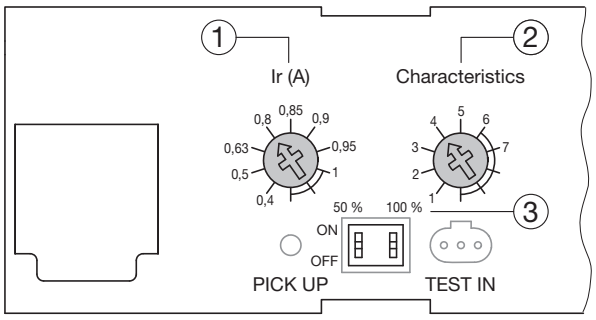


Thermal adjustment from 0.63 to 1 x In
Magnetic adjustment from 6 to 12 x In

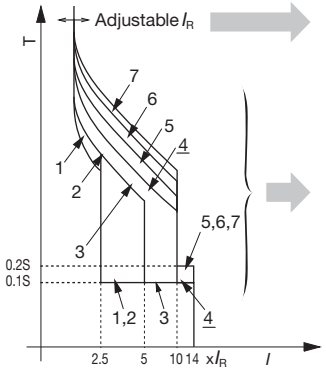
L - Long delay - protection against overload: Ir and tr settings

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

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

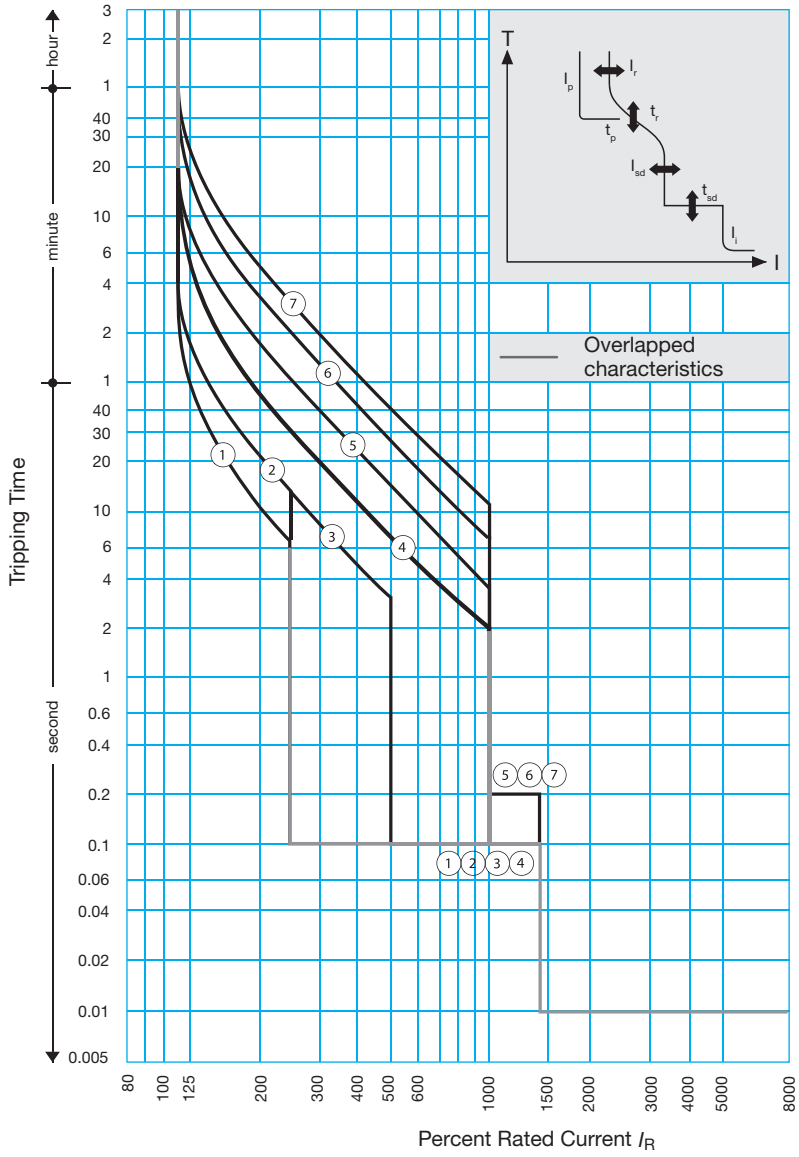


Neutral Settings:
1. Long delay current Ir setting
2. Other curve characteristics setting (tr, Isd, tsd)
3. Neutral protection against overloads setting



LSI		In A									
		250A / 400A					630A				
		Long Time Delay		Short Time Delay		Inst	Long Time Delay		Short Time Delay		Inst
		Ir (x In)	tr (s)	isd (xlr)	tsd (s)	Ii (xlr)	Ir (x In)	tr (s)	isd (xlr)	tsd (s)	Ii (xlr)
1. Ir (x In)	0.4	OK					OK				
	0.5	OK					OK				
	0.63	OK					OK				
	0.8	OK					OK				
	0.85	-					OK				
	0.9	OK					OK				
	0.95	OK					OK				
	1	OK					OK				
2. Characteristics	1		11s at 2 xlr	2.5	0.1	14 (max 13 x In)		11s at 2 xlr	2.5	0.1	14 (max 10 x In)
	2		21s at 2 xlr					21s at 2 xlr			
	3			5					5		
	4		5s at 6 xlr	10				5s at 6 xlr	8		
	5		10s at 6 xlr		0.2			10s at 6 xlr		0.2	
	6		19s at 6 xlr					16s at 6 xlr			
	7		29s at 6 xlr					-			-
3. Neutral protection	0% 50% 100%										

MCCB h630 LSI (250A and 400A)

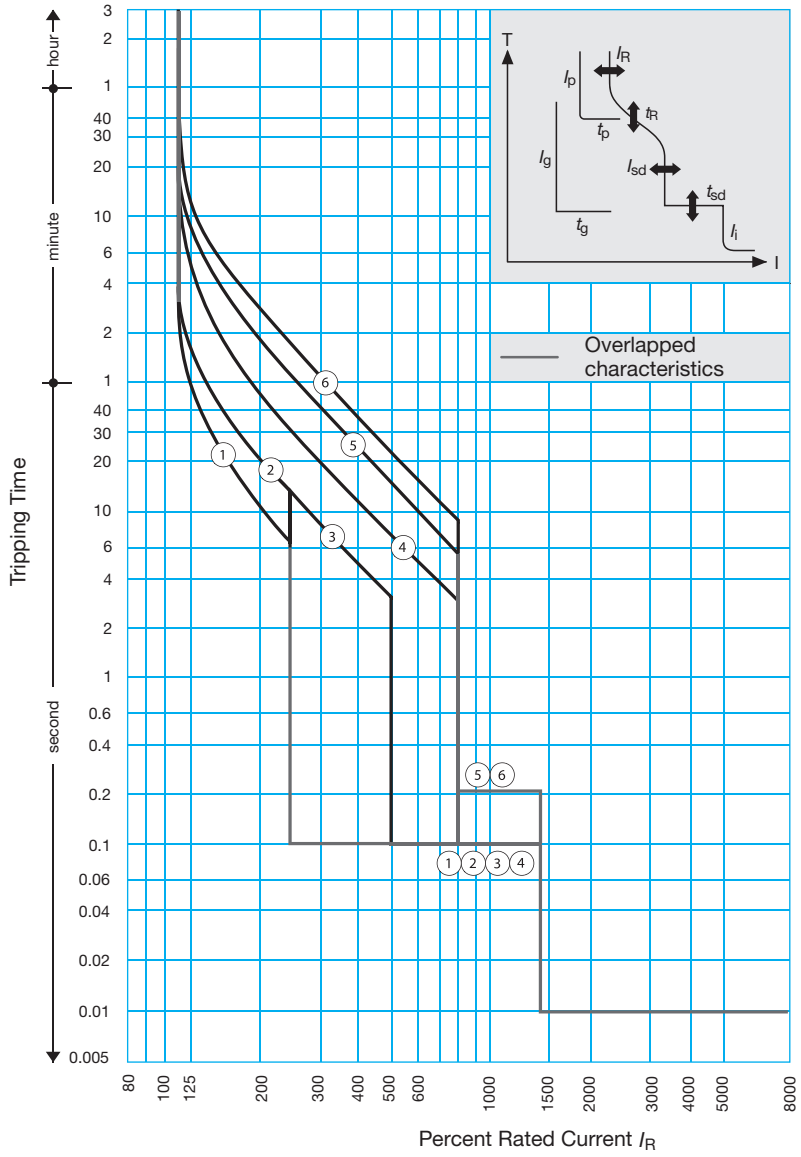


Electronic Trip Unit Setting (LSI)

MCCB h630 LSI (250A and 400A)

IR (A)										
LTD Pick-up Current		**IR**	x/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**	**rR**	(s)	11	21	21	5	10	19	29
				200% x Ir			600% x Ir			
	STD	**Isd**	x/R	2.5		5	10			
		tsd	(s)	0.1			0.2			
	INST	**Ii**	x/R	14 (max : 13 x In						
Optional	**N**	**In**	x/n	0 - 0.5 - 1						
		tN	(s)	tN = tR						

MCCB h630 LSI (630A electronic)



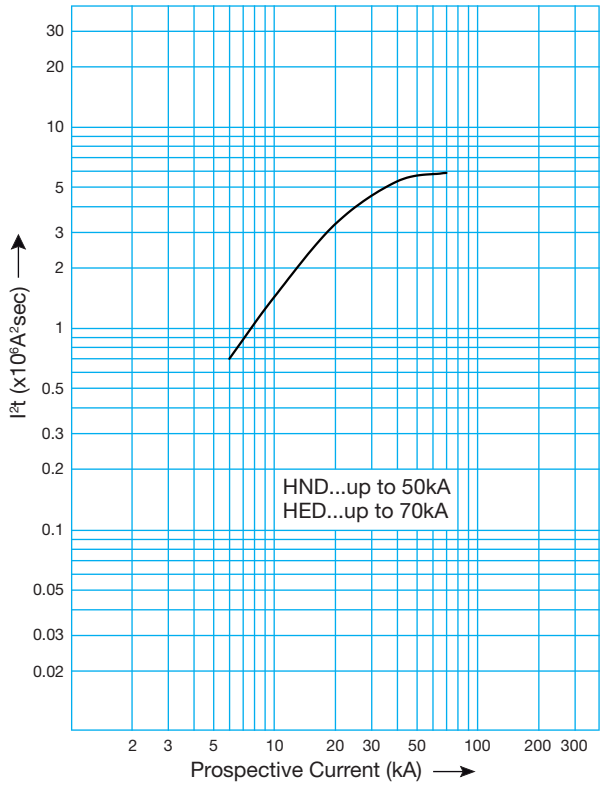
Electronic Trip Unit Setting (LSI)

MCCB h630 LSI (630A electronic)

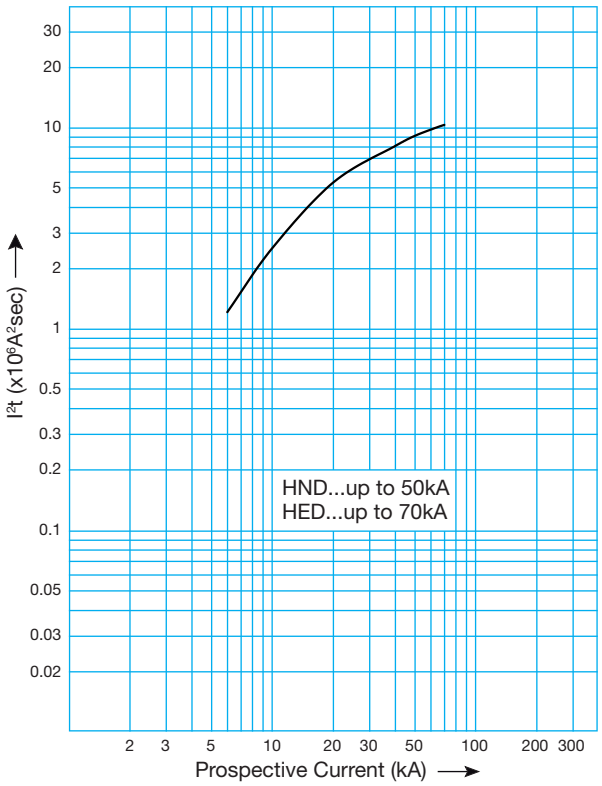
IR (A)											
LTD Pick-up Current		**IR**	x/n	0.4	0.5	0.63	0.8	0.85	0.9	0.95	1
Characteristics			No.	1	2	3	4	5	6		
Standard	**LTD**	**rR**	(s)	11	21	21	5	10	16		
				200% x I R			600% x I R				
	STD	**Isd**	x/R	2.5		5	8				
		tsd	(s)	0.1			0.2				
	INST	**Ii**	x/R	14 (max : 13 x In)							
Optional	**N**	**In**	x/n	0 - 0.5 - 1							
		tN	(s)	tN=tR							

Thermal Constraint Curve

MCCB h630 (250A and 400A)

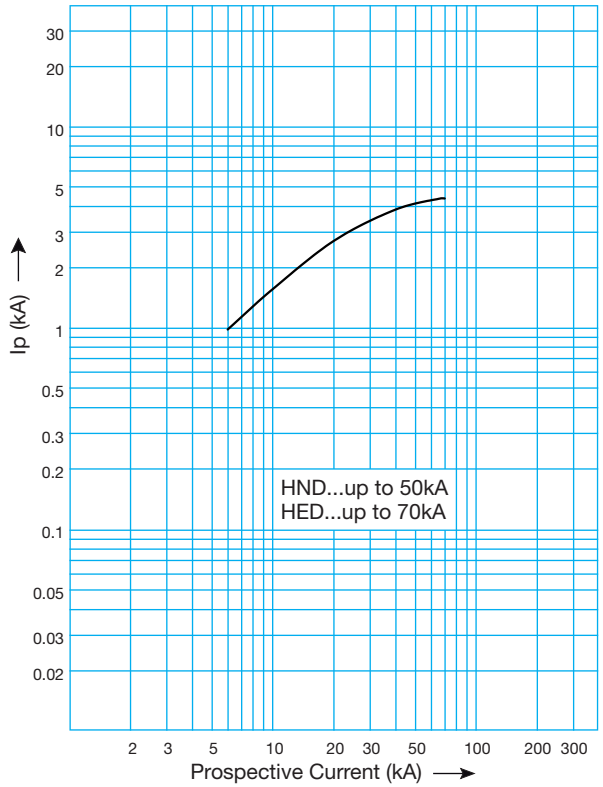


MCCB h630 (630A)

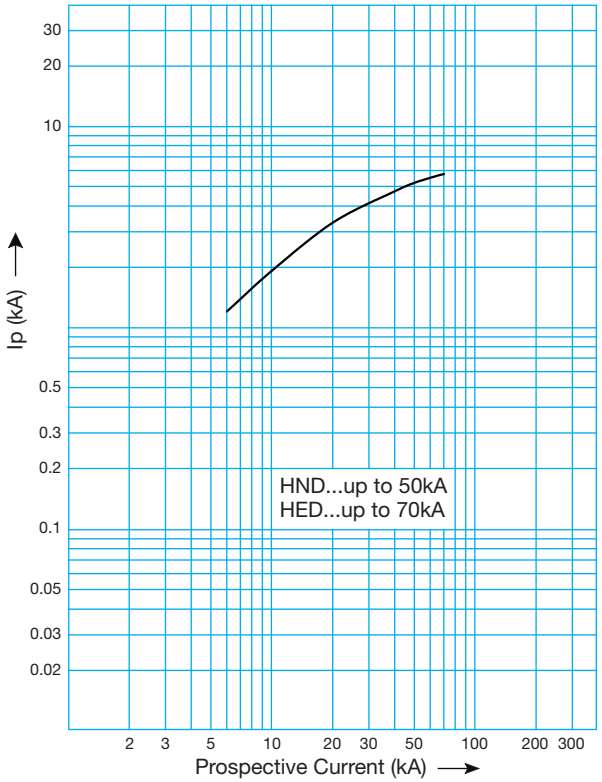


Current Liming Curve

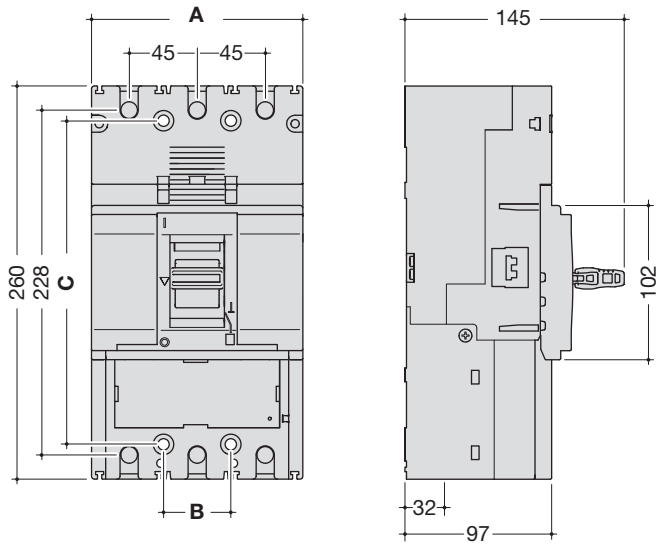
MCCB h630 (250A and 400A)



MCCB h630 (630A)

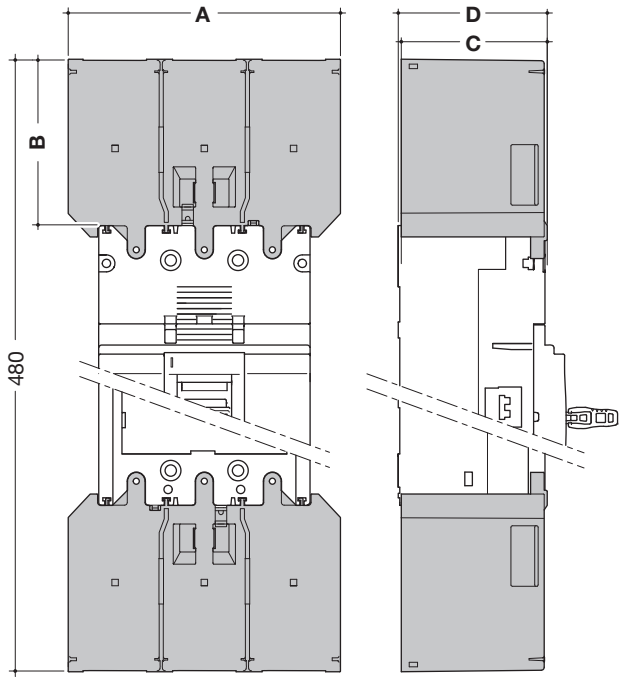


MCCBs



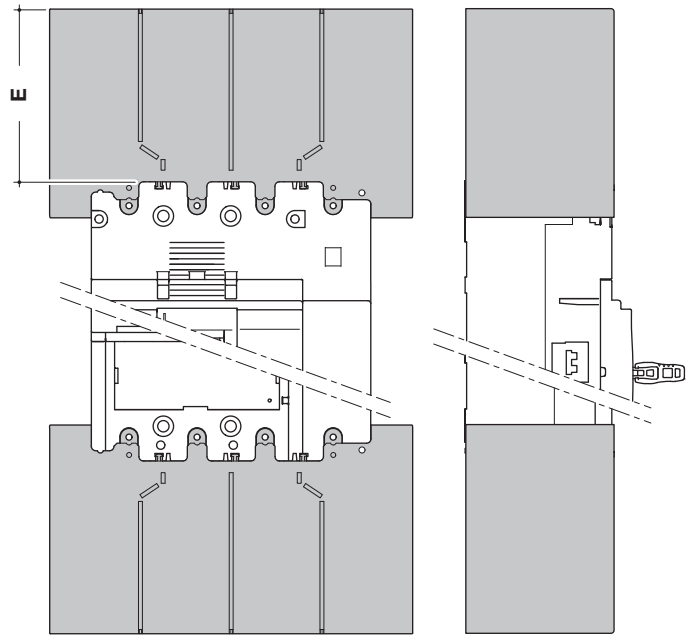
	A (mm)	B (mm)	C (mm)
3P	139.7	45	214
4P	184.7	45	214

Terminal Covers Front Connections (for Straight Bars)



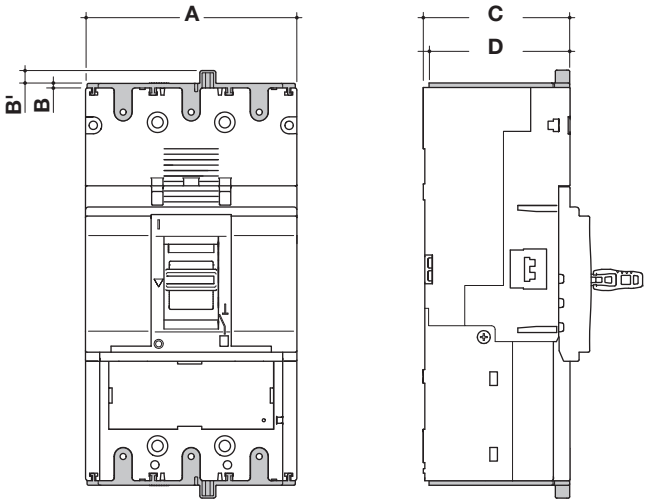
	A (mm)	B (mm)	C (mm)	D (mm)
3P	180	126	94.5	93
4P	240	130	98	93

Terminal Covers for Extended Connections (spreaders)



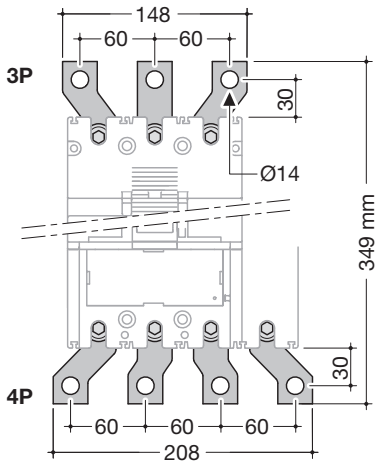
	A (mm)	B (mm)	C (mm)	D (mm)
3P	140	110	97	96
4P	185	114	99	98

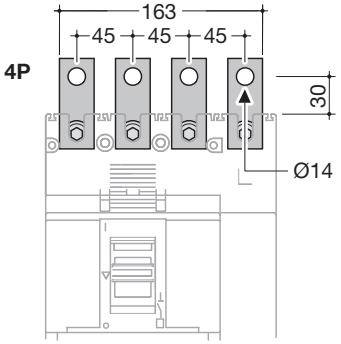
Terminal Covers for Rear Connections and Collar Terminal

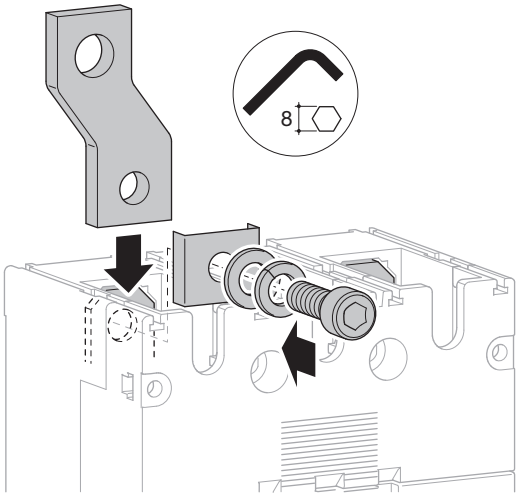


	A (mm)	B (mm)	B' (mm)	C (mm)	D (mm)
3P	140	3	4.5	97	93
4P	185	3	4.5	97	93

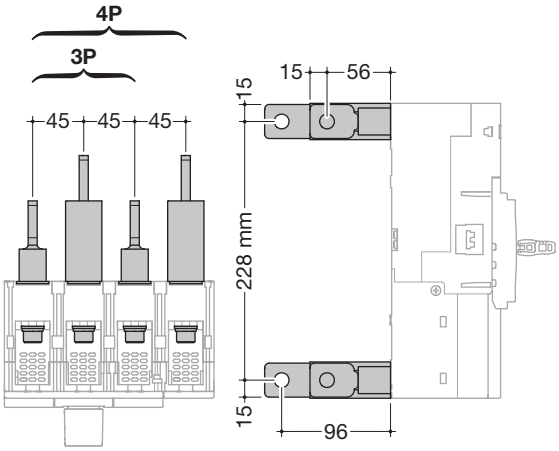
Extended Connection and Spreaders

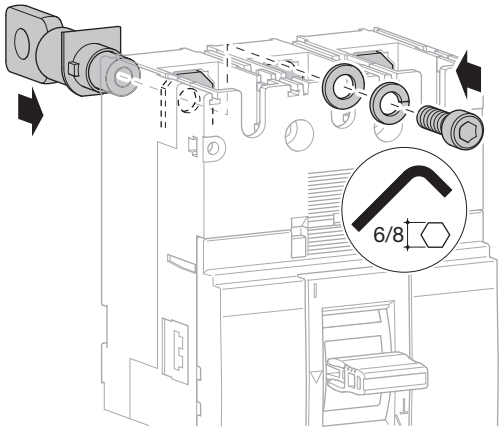






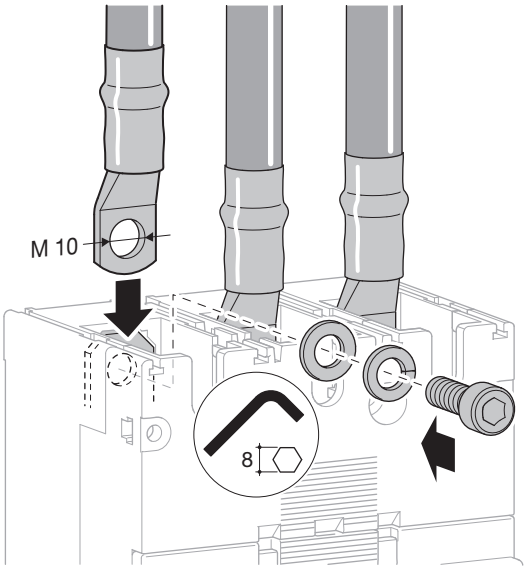
Rear Connections





Connection with End Lugs

1.



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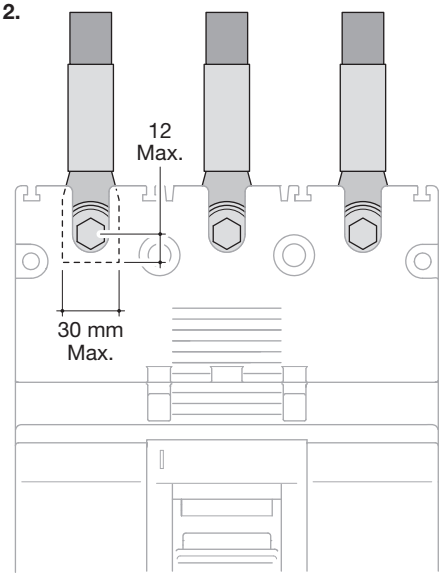
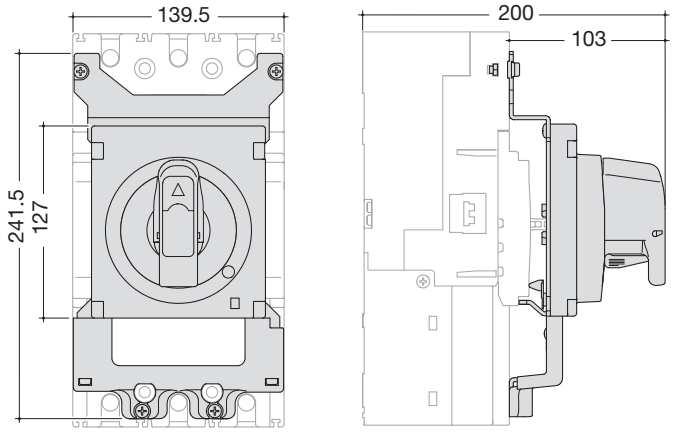
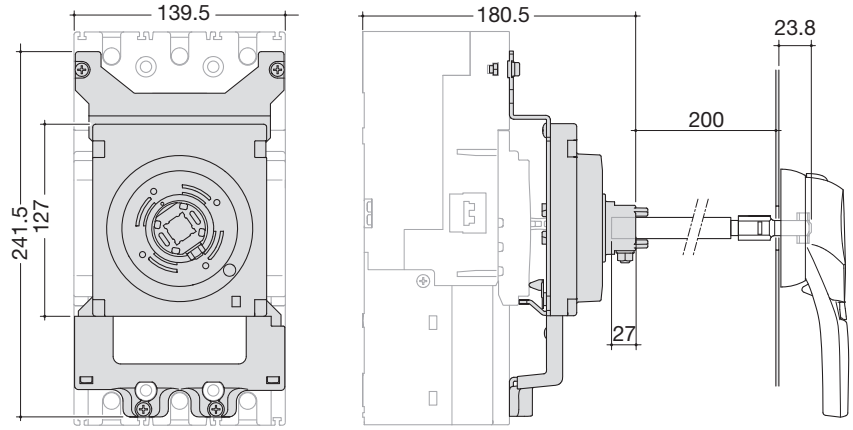


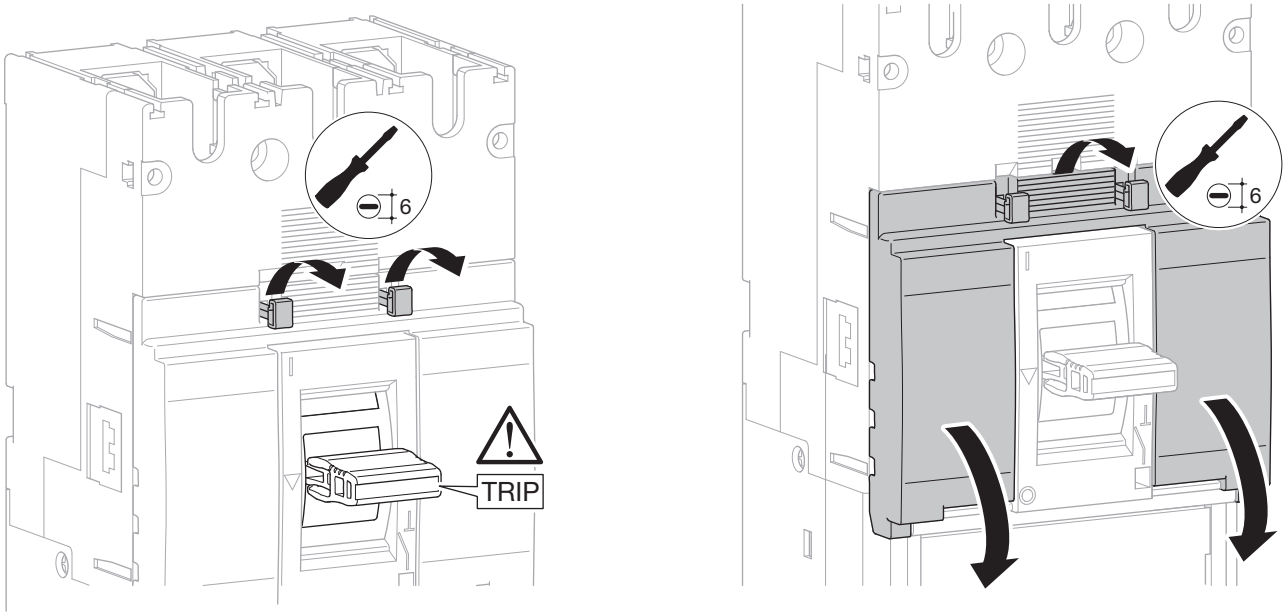
Direct Rotary Handle



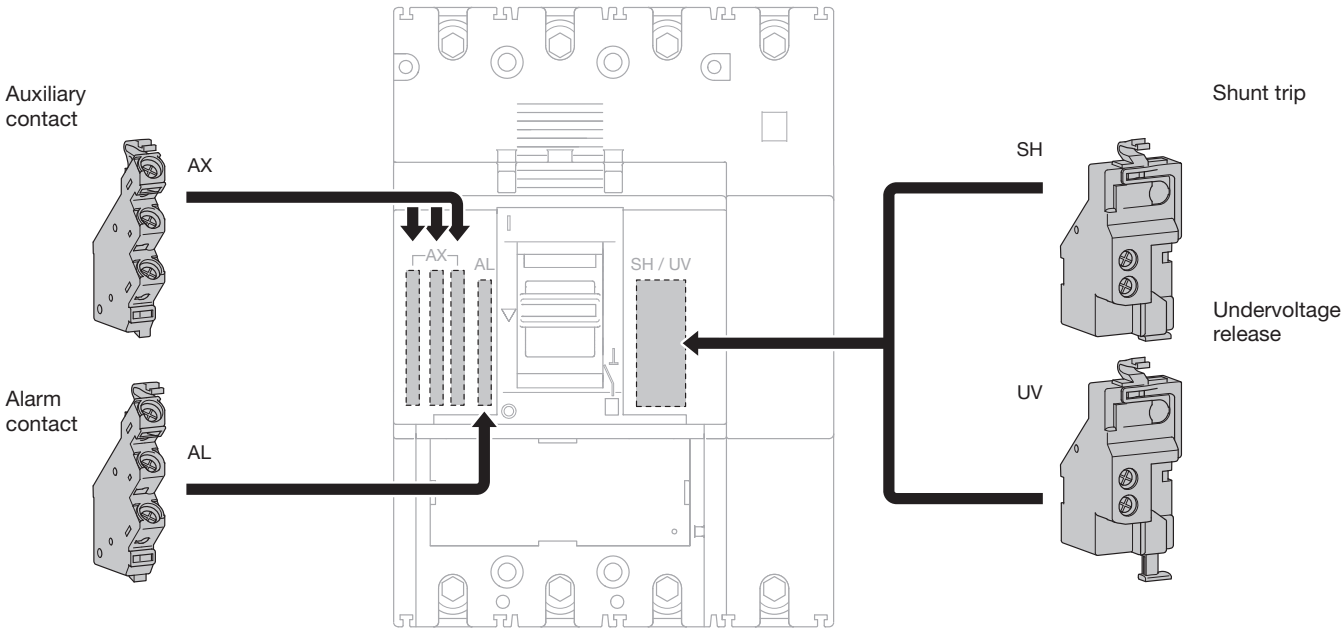
Extended Rotary Handle

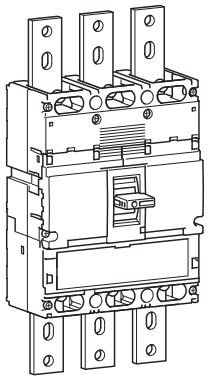


Auxiliaries for MCCBs and Free Tripping Switches

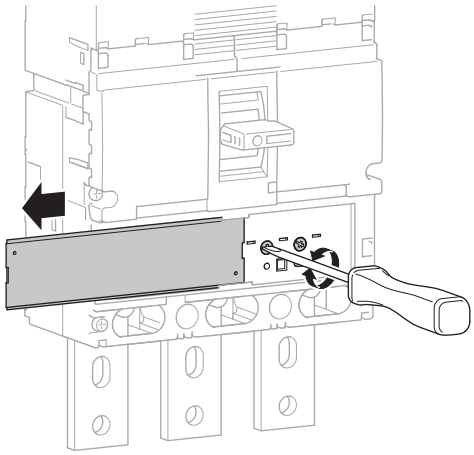


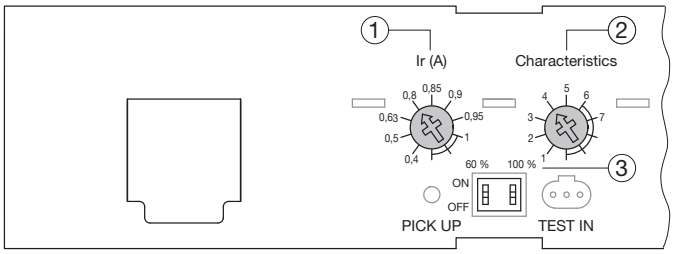
Mounting Combination for Auxiliaries and Releases





		220/240 V AC (kA)	380/415 V AC (kA)	660/690 V AC (kA)
HNE	Icu	85	50	20
	Ics	85	50	20
HCD	Icm	-	20	-
	Icw	-	1 kA - 0.3s	-

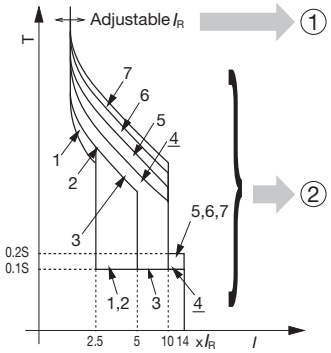




L - Long delay - protection against overloads: Ir and tr settings

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

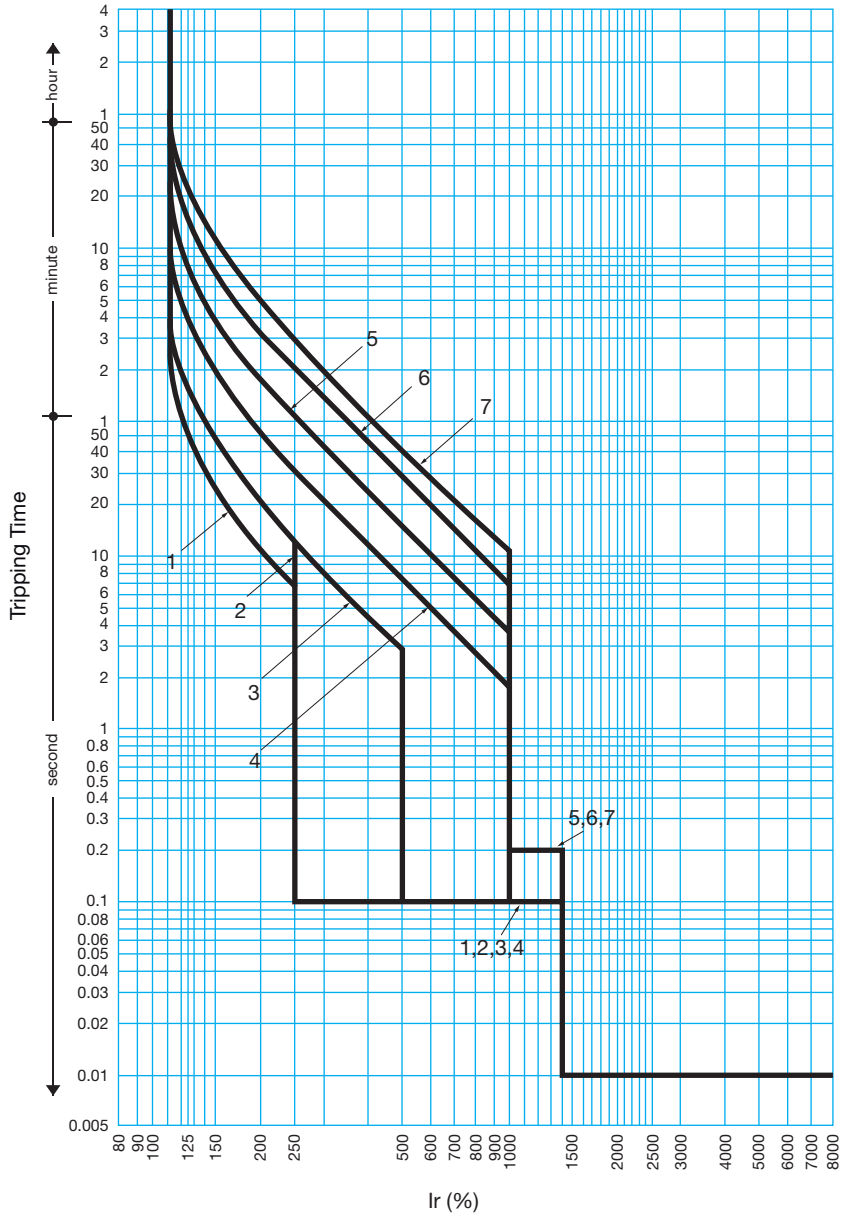
I - Instantaneous - max. instantaneous threshold (< 10 ms) in case of short circuit: 2.5 to 10 x Ir



	1. Ir(A)	2. Im	3. N
LSI	0.4 - 1 In	2 - 10 Ir	0% 50% 100%

LSI		In A				
		250A / 400A				
		Long Time Delay		Short Time Delay		Inst
		Ir (x In)	tr (s)	isd (xIr)	tsd (s)	Ii (xIr)
1. Ir (x In)	0.4	OK				
	0.5	OK				
	0.63	OK				
	0.8	OK				
	0.85	-				
	0.9	OK				
	0.95	OK				
	1	OK				
2. Characteristics	1		11s at 2 xIr	2.5	0.1	14 (max 12 x In)
	2		21s at 2 xIr			
	3			5		
	4		5s at 6 xIr	10		
	5		10s at 6 xIr		0.2	
	6		19s at 6 xIr			
	7		29s at 6 xIr			
3. Neutral protection	0% 50% 100%					

MCCB h800 LSI (800A)



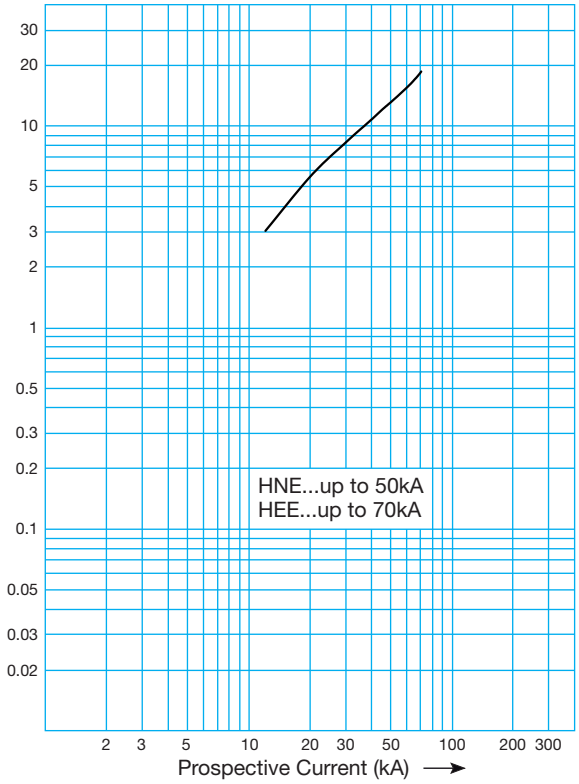
Electronic Trip Unit Setting (LSI)

MCCBs 800A electronic

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

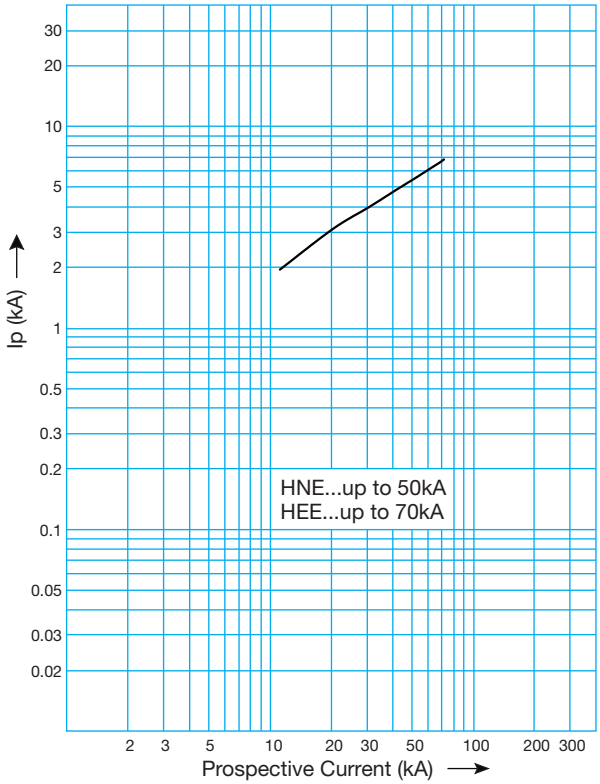
Thermal Constraint Curve

MCCB h800

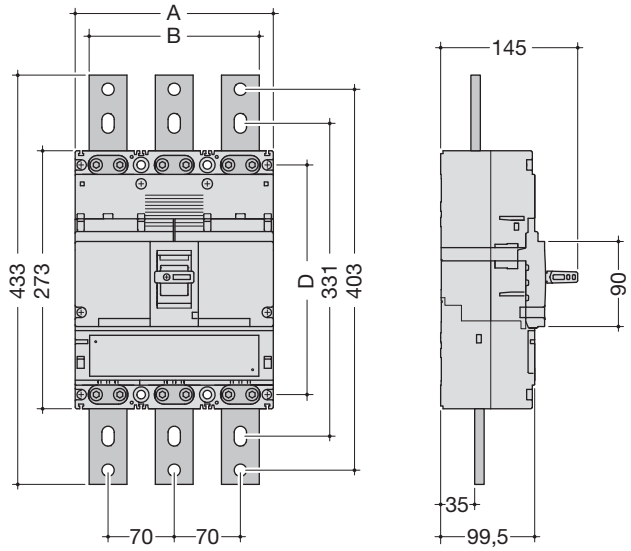


Current Limiting Curve

MCCB h800

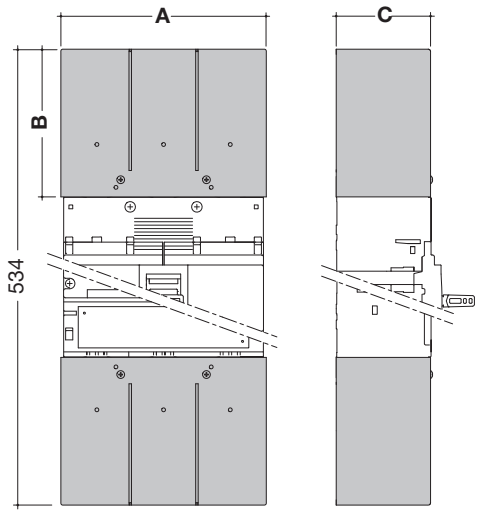


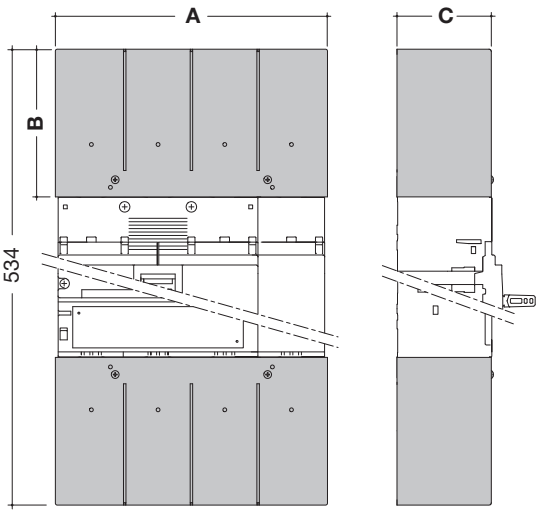
MCCBs



	A (mm)	B (mm)	C (mm)
3P	209.6	180	243
4P	279.6	250	243

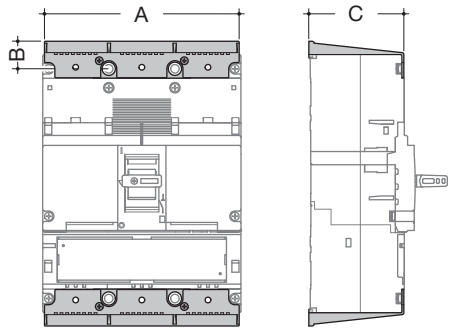
Terminal Covers Front Connectors (for straight bars)





	A (mm)	B (mm)	C (mm)
3P	215	130	99.5
4P	285	130	99.5

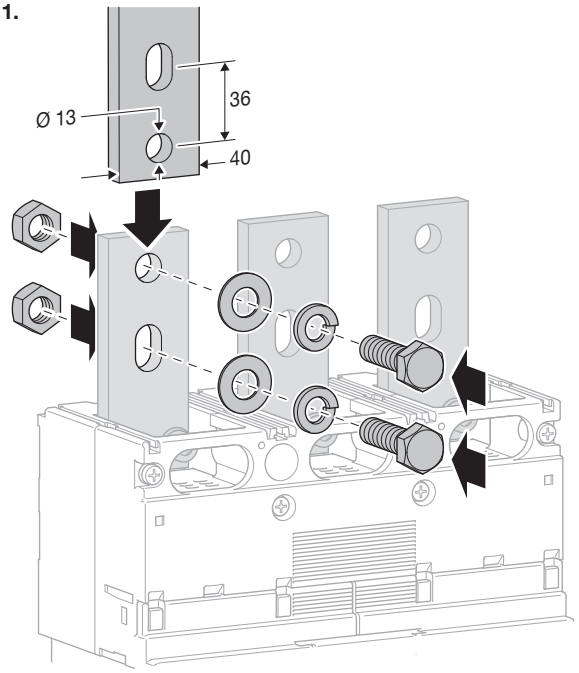
Terminal Covers for Rear Connections



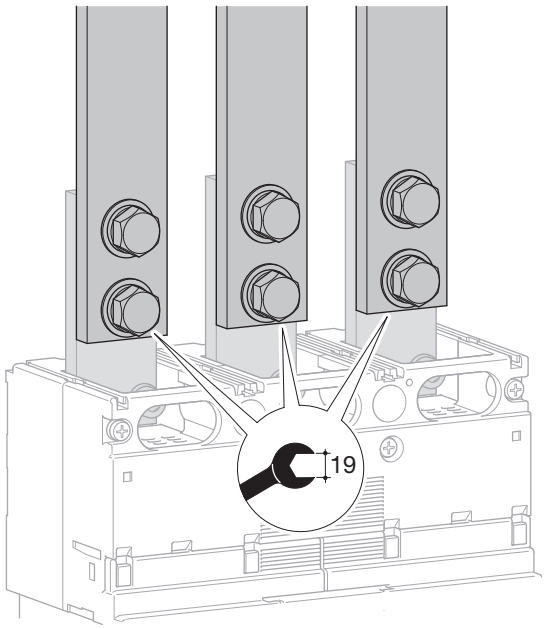
	A (mm)	B (mm)	C (mm)
3P	206	18	102
4P	280	18	102

Extended Connection

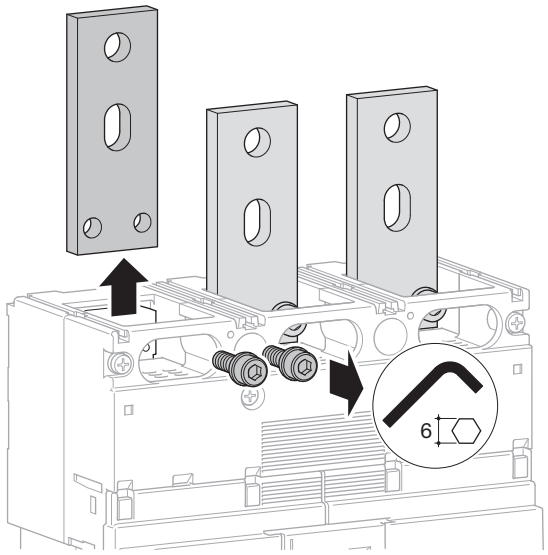
1.

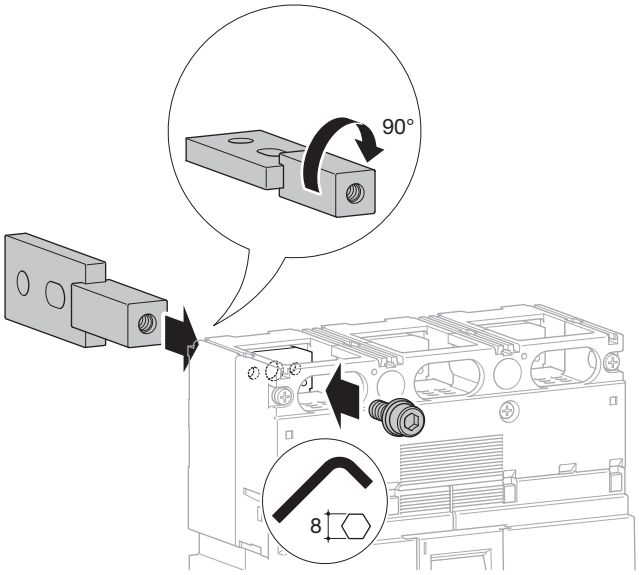


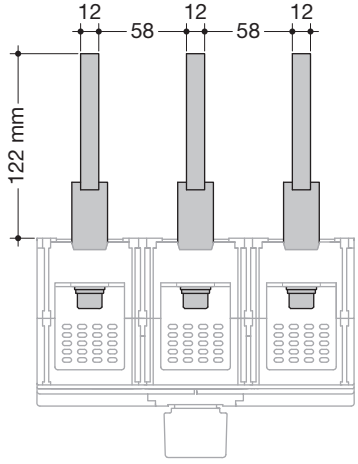
2.

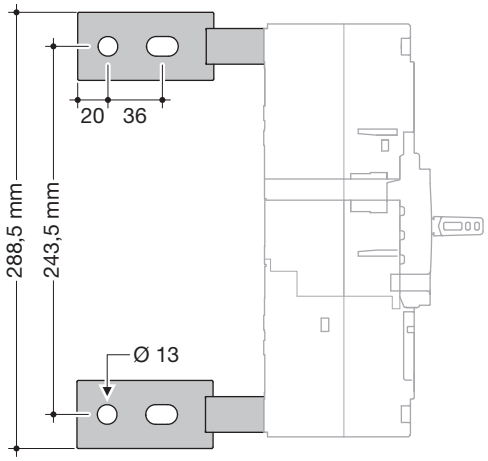


Rear Connections



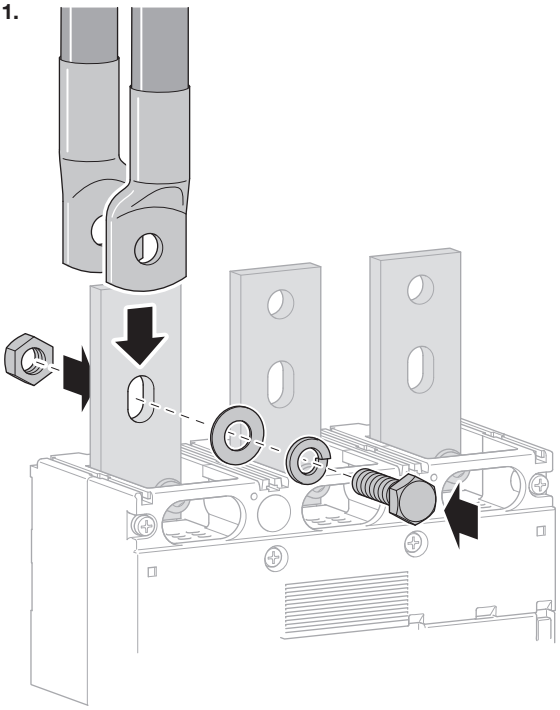




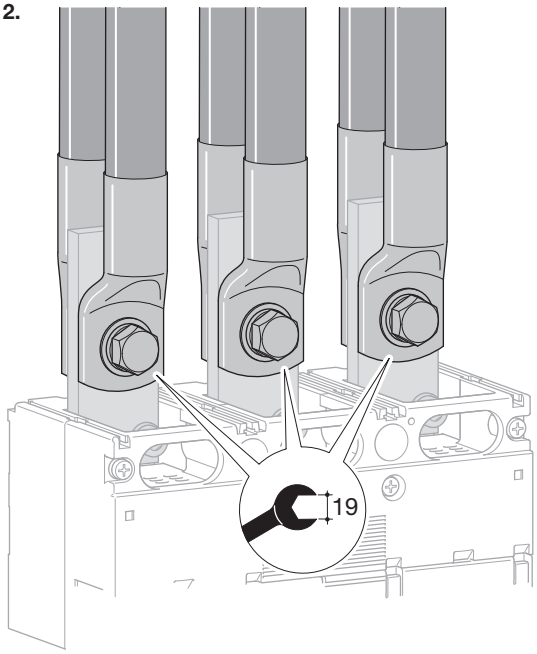


Connection with End Lugs

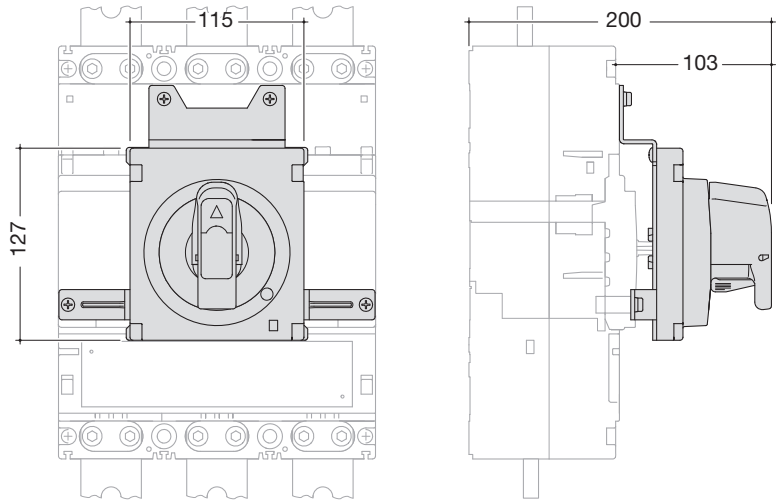
1.



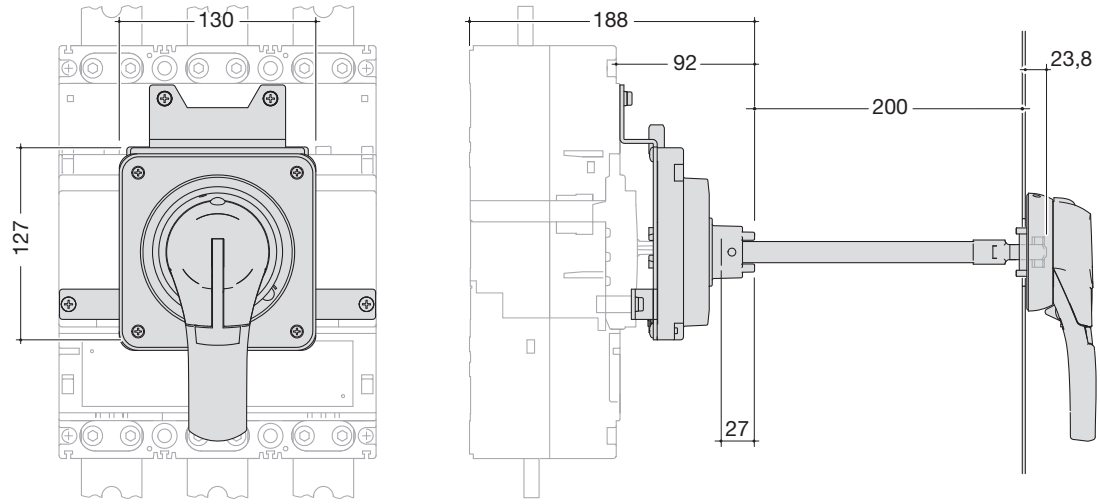
2.



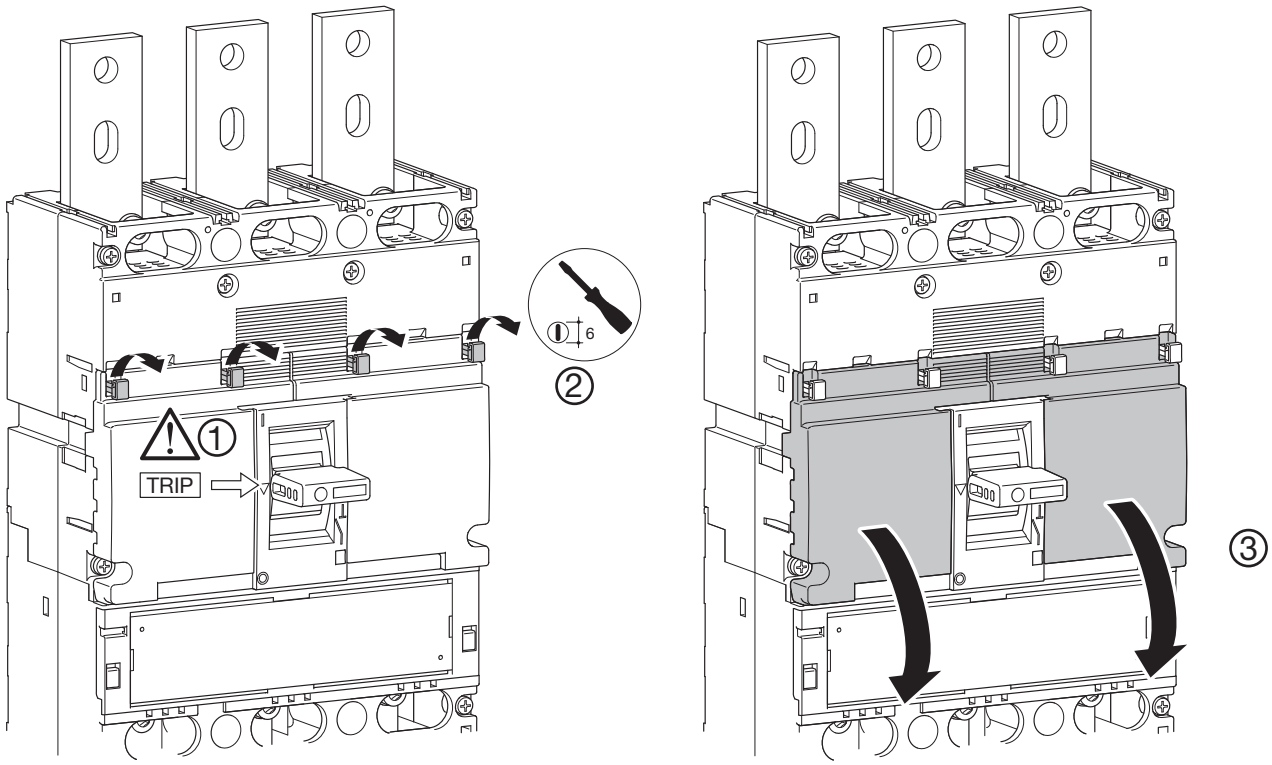
Direct Rotary Handle



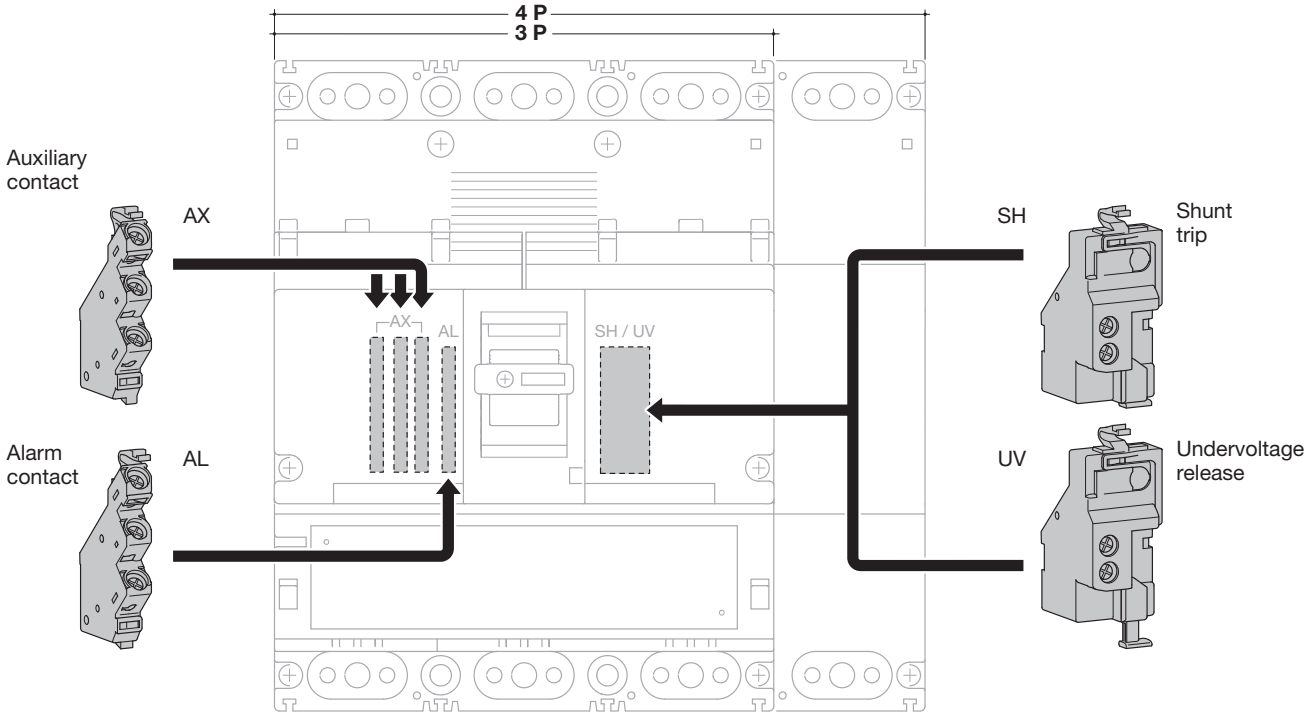
Extended Rotary Handle



Auxiliaries for MCCBs and Free Tripping Switches



Mounting Combination for Auxiliaries and Releases



Downlighter junction box

Ticks all the boxes

The IEE Wiring Regulations state that terminals shall not be subject to undue stress, i.e. taking weight of cables or fittings. Currently a high proportion of junction boxes are installed behind downlighters or decorative light fittings, where moving the junction box in to position after wiring could cause stress on the terminations.

With the J501 downlighter junction box, all of these obstacles can be overcome.

Turn to section 8, Junction Boxes & Ceiling Accessories to find out more.