2024 Update
New Products included

Catalogue

Commercial Distribution



:hager

www.nortecnica.pt

Innovative Electrical Solutions

As an independent family-owned and run company Hager Group is one of the industry's leading innovators for commercial and residential applications. With 11,400 employees globally, our components and solutions are produced in 25 different locations to support our customers projects in more than 136 countries around the world.

In the UK we have a well-established research and development team combined with global resource to meet the needs of the market. This is backed up by the UK factory having ISO 9001:2015 and an on-site ASTA recognised laboratory to BS EN ISO/IEC 17025:2005, which ensures that products and solutions meet all of the relevant British standards. The UK site also has OHSAS 18001:2007, ISO 14001:2015 and the Investors in People Bronze Award.

Working out solutions in close consultation with customers we have the vision 'to add value to peoples' lives and their buildings through smart, eco-efficient and energy saving solutions and services'.



Type A & B Distribution Boards



Our Invicta 3 Type B Boards have been developed as the solution for commercial installations. The whole nature of electrical sub and final distribution for commercial installations has changed in recent years, with demands for more outgoing ways, more RCD protection, more metering and more control devices.

In The Range
SP&N / TP&N
Invicta 3 125A / 250A
IP65
Incomer Kits
Meter Packs
Dual / Tri Metered Boards
Hybrid
Extension / Cable Spreader Boxes

Panelboards



Invicta 3 Panelboards are incredibly easy to install, the pan assembly, door and front cover can all be removed to make the product lighter when fixing to the wall. Keyhole slots and a central fifth keyhole fixing point make fitting and levelling the board even simpler.

In The Range
Invicta 3 250A / 400A / 630A / 800A
Incomer Kits
Meter Packs
Meter Enclosures
Extension / Cable Spreader Boxes
Panel & DIN Rail Meters
CTs & Meter Cables

Metering & Monitoring



UK wiring regulations and local building regulations create additional requirements for electrical distribution boards in commercial building applications. A range of incoming device options and scalable energy metering options ensure specific application requirements are met. Easy to specify and install, our metered distribution board options create scalable solutions for typical commercial building applications.

In The Range
Side / Top / bottom / Corner Meter Enclosures
Panel Meters
DIN Rail Mounted Meters
CT to Plug-in Converter
Plug-in CTs
Meter Cables

Protection Devices



For integration in to Electrical distribution systems in commercial building applications, our electrical distribution boards are available with a range of protective device incomer options. SD, MCCB and RCCB incomers are available. In addition, 4P changeover units are available for 125A Type B boards. Outgoing devices for MCB boards also include a wide range of RCBO devices covering 10mA, 30mA and 100mA applications in B and C curve.

In The Range
MCBs
RCBOs
RCCBs
Motor Starters
Fuse Carriers
Surge Protection
Earth Fault Relays
MCCBs



A thoughtful approach to Surge Protection

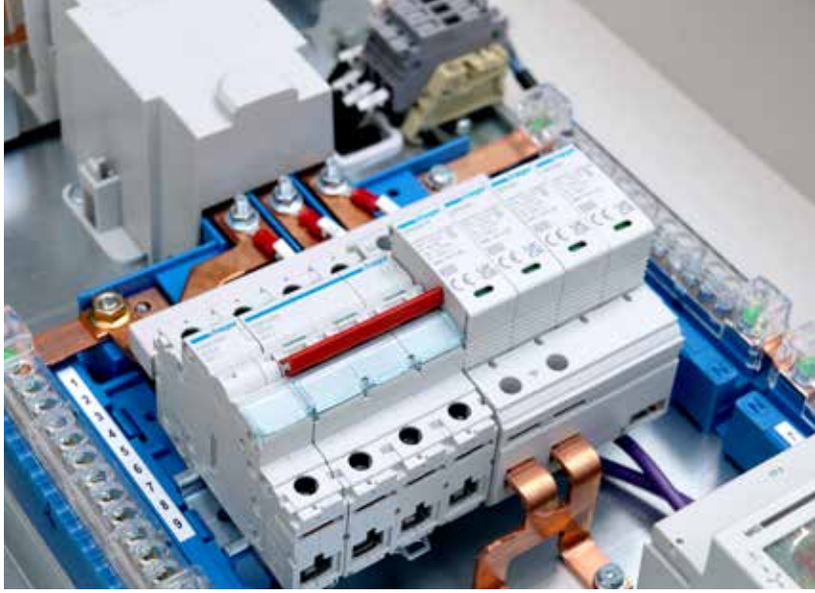
We have developed a brand new range of dedicated SPD kits, specifically for our Commercial Distribution boards.

Our kits have been created to provide optimum end equipment protection against surge transient voltages after an increased focus on this requirement in the 18th Edition wiring regulations.

Space saving integration.

Where required, board designs have been changed to enable all kits to fit within the actual distribution board, rather than in a separate enclosure next to the distribution board. This also allows for the shortest possible connection to the SPD from the incoming supply, providing optimum performance.

Our SPD kits have the additional benefit of not requiring any additional upstream protection devices, saving more space in the board for protection devices.

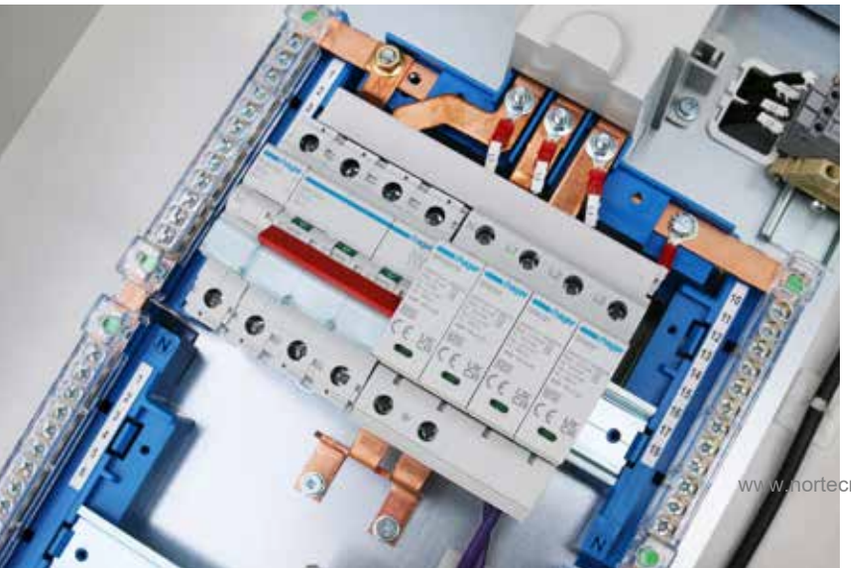


Integrated testing

The wiring regulations advise that SPD's should be selected from one manufacturer to ensure that they work well together. Our Type 1 Panelboard SPDs have been tested to ensure coordination with Type 2 SPDs in TP&N boards.

We've developed our boards and SPD kits together and tested the effective performance of how well high voltage transients are managed down to levels that don't harm electical equipment

Through development testing, we have removed the need to consider many of the application & installation variables that previously made SPD selection and installation complicated.



A solid connection

Through extensive testing we know that removing secondary protective devices, using short conductor paths to SPD's and replacing cables with solid copper Earth links dramitically improves the effectiveness of the SPD.

Without these features our testing has shown that common installation variables can easily lead to a very significant reduction in the effective performance of the SPD, potentially leaving surge voltages at a level that can damage end equipment

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Type B TP&N
Distribution Boards

Invicta 3 Type B boards have been designed for safe and simple installation, with features to benefit both installer and end user.

Take a look below to see all of the features we have designed in and how this is going to make installing a distribution board so much easier.



01
Aesthetics

Strong board aesthetics ideal for commercial offices, health care and education projects where boards may be sited in public areas.



02
Metering

A number of metering options provide a scalable solution to energy monitoring. Type B Distribution boards are also available with dual channel meters for separate monitoring of Power and lighting loads. A metered three section Type B board is also available to monitor power and lighting and mechanical services.



03
Trunking Entry

Unique trunking entry obround system top and bottom enables quick fitting to trunking and without the extra cost in time and materials. The edge is curved, ready to bring cables in without the worry of sharp edges.



04
Hybrid TP&N Board Available

Our Invicta TP&N Hybrid Distribution Board is available to provide two 3 phase loads of up to 125A or six single phase loads. The larger 80-125A MCB devices, whilst providing short circuit and overload protection, also give a disconnection point for downstream circuits (isolation). This ensures that there are no unprotected outgoing connections from the busbar system.



05
Shrouded Neutral Bar

Clear shrouded neutral bar to IP2X allows the contractor to install cables without removing the shroud. Ensures safe and easy installation.

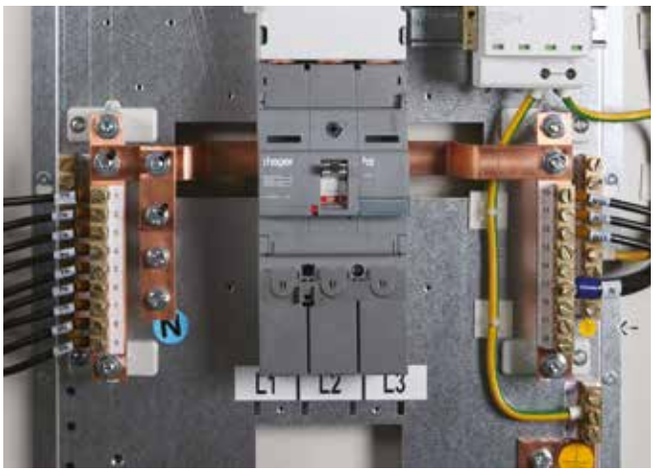
Invicta
Panelboards

Our Invicta 3 Panelboards have been designed to make installation a breeze, take a look below for a brief overview of all of the features.



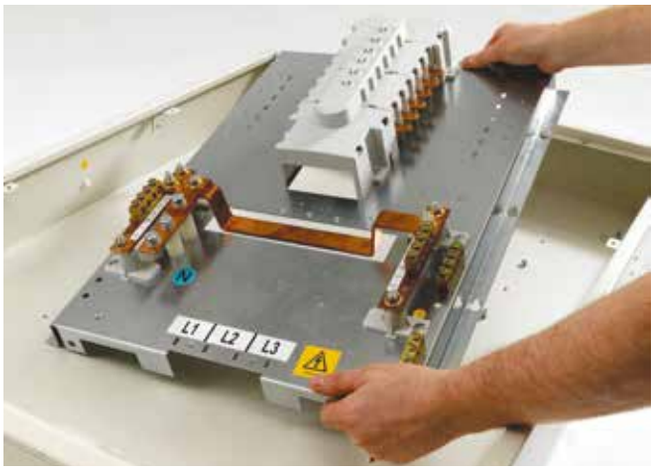
01
The Perfect Match

Our Invicta 3 panelboards have been designed to match perfectly with the Invicta 3 Type B distribution boards. The Invicta 3 Panelboard range is the most aesthetically pleasing available on the market, with its glazed door and curved edges.



02
Twin Earth & Neutral Bars

Allows easy identification of earth & neutral conductors with corresponding line conductors.



03
Removable Pan Assembly

To lighten the product when fixing to the wall, pan assemblies can also be purchased as a separate part or removed for fitting into cubicle switchboards.



04
Energy Metering

The installer only has to fit the packs into the board. All internal wiring is included. RJ45 connectors simplify the connection of CTs to meters.



05
Removable Gland Plates

The top and bottom removable gland plates allows cable entries to be prepared away from the board, preventing ingress of swarf etc.

Metered Power & Lighting Board

Monitoring Power and Lighting loads separately, creates a better understanding of the where electricity is being consumed. Our power and lighting boards employ dual channel meters and are supplied with the main incoming device pre-installed. Available as standard in a variety of configurations and sizes to suit most applications up to 24TP ways. A Tri-metered TPN board is also available as standard, where separate monitoring of Power, Lighting and Mechanical services loads in required.

01
Energy Saving



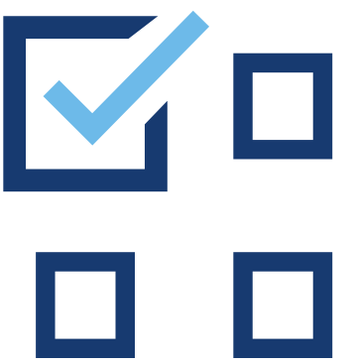
Installing and monitoring meters leads to savings of 5-10% of the energy being metered. For example, a meter that identifies pumps being left on for 24hrs, seven days a week, may save 60% of energy passing through if the pump is only used when required.

02
Building Regulations



The Building Regulations 2010 & approved document L2 recognise the valuable role of metering and include requirements of sub-metering in buildings other than dwellings.

03
Choice



There are many options to monitor energy consumption. Direct metering, measurement and estimation should all be considered.

04
Communication



Metering helps building occupiers to understand how energy is being used and lets them see the patterns of where and when energy is consumed. Useful trends can be shown from the data produced.

05
Control & Performance



Metering provides feedback to designers, manufacturers, government and the supply side industry on performance achieved, helping them to improve global energy performance by setting better targets.

Arc Fault Detection

What the regs say BS EN 62606

Arc fault detection devices (AFDD) shall be provided for single-phase AC final circuits supplying socket-outlets with a rated current not exceeding 32 A in:

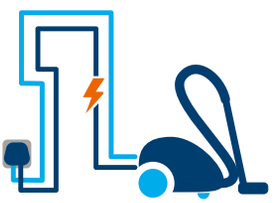
- Higher Risk Residential Buildings (HRRB)
- Houses in Multiple Occupation (HMO)
- Purpose-built student accommodation
- Care homes

For all other premises, the use of AFDDs conforming to BS EN 62606 is recommended for single-phase AC final circuits supplying socket-outlets not exceeding 32 A.
Where used, AFDDs shall be placed at the origin of the circuit to be protected.

Parallel Arc Fault

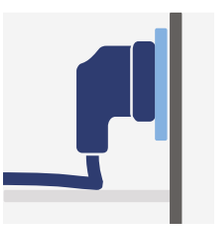


Series Arc Fault

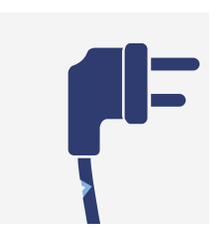


Potential Causes

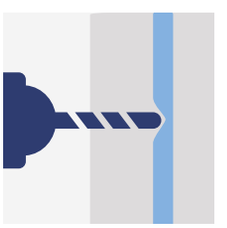
Arc faults can be caused by all types of line faults and worn contacts. An AFDD will trip the circuit when a potentially hazardous arc occurs, eliminating the resulting fire hazard.



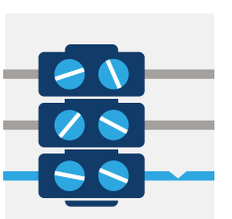
Kink/break in the cable



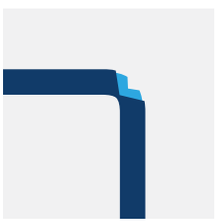
Cable wear due to frequent use



Line damage resulting from drilling or construction work



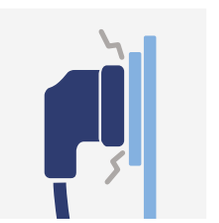
Incorrect wire stripping



Incorrect bending radii



Loose screwed connections



Defective plugs



Rodent bites

For commercial applications, our AFDD can be wired in series with MCB's / RCBO's to create a flexible approach to AFDD integration.

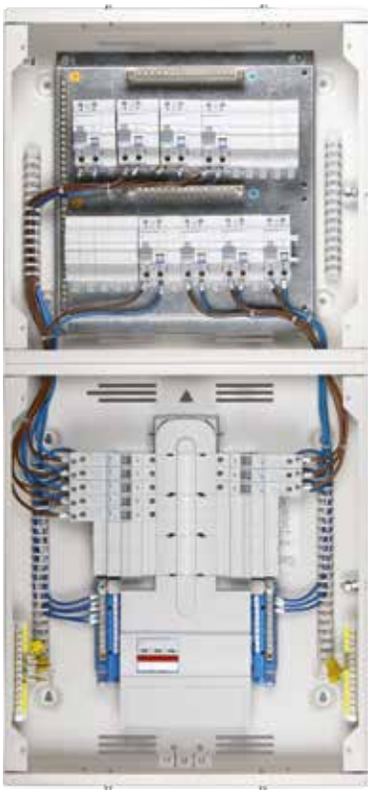
Using any of our TPN Distribution board, standard din extension enclosures provide simple and scalable accommodation for AFDD requirements.

Note: our AFDD is an MCB + AFDD, so when used in series with another OCP device, it is likely that both devices will trip under an overcurrent event.

Greater breaking capacity 10 kA

Higher prospective fault currents require devices with higher breaking capacities. So in addition to the 6kA range of AFDD for residential applications, we now offer devices with a 10kA breaking capacity, making them more suitable for typical commercial building installations.

This microprocessor based technology has been evolved to ensure algorithms profiling typical UK final circuit loads, provide safe reliable operation.



Monitoring via Microprocessor

An AFDD is activated by both series and parallel arc faults. Unlike circuit breakers or RCDs, an AFDD does not have an electromechanical trigger, but utilises electronic technology to analyse the signature (waveform) of an arc. It reliably differentiates between an arc fault and the signature (waveform) in normal switching and control events, preventing false tripping.

Effective areas of protective devices depending on fault type.

Short Circuit	Overload	Earth Fault	Serial Arc	Parallel Arc
MCB / RCBO	MCB / RCBO	RCCB / RCBO	AFDD	RCCB / RCBO / AFDD

Auxiliary contact, alarm contact and shunt trip devices are available as supplements:
- MZ201, auxiliary contact 1C + 1O
- MZ202, alarm contact 1C + 1O
- MZ203, shunt trip 230–415 V AC



AFDD with extension accessories from the MCB and RCCB/MCB range

Commercial Distribution

Powering a building to its potential, it's what we do. We have the perfect solutions to help an office, factory or industrial site save energy and keep their occupants safe. From Panelboards to our range of enhanced TP&N boards with metering capabilities, our commercial offering will create the perfect electrical ecosystem for a building.



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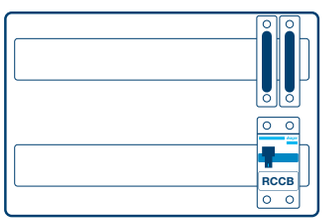
JK104



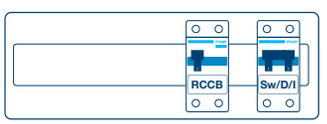
- 100A Switch Disconnector Incomer
- 63A 30mA Switch Disconnector Incomer



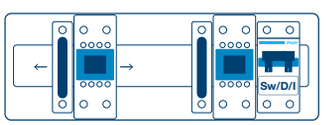
100A 30mA RCCB Incomer



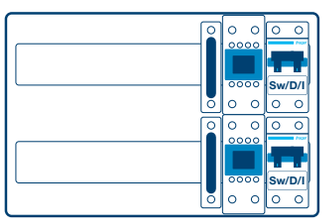
100A 30mA RCCB Incomer Dual Row



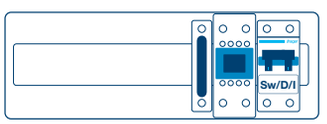
100A Switch Disconnector Incomer & 63A 30mA RCCB



100A Dual Metered with MID Meter - JKD114



100A Dual Metered with MID Meter - JKD11111



100A Metered with MID Meter - JKD117

SP&N Distribution Boards

Characteristics:
- SP&N distribution boards are available from 4-28 outgoing ways. The range comes with a choice of either 100A 2 pole switch disconnector, 63A 30mA 2 pole RCCB Type A or 100A 30mA 2 pole RCCB Type A, or a range of split load versions.
- Conforms to BS EN 61439-3. I_{nA} = 63A/100A, I_{nc} = 63A, I_{cc} = 10kA
- Cable Sizes: 100A: 50mm², 63A: 16mm²
- Ample wiring space, with provision to accept RCBO's.
- Full complement of earth and neutral terminal bars to accept up to 16mm² cable.
- Suitable for cable entry on all sides and back.

Description	Size	Cat ref.
100A Switch Disconnector Incomer		
4 Way 100A Switch Disconnector Incomer	3	**JK104**
6 Way 100A Switch Disconnector Incomer	3	**JK106**
10 Way 100A Switch Disconnector Incomer	4	**JK110**
14 Way 100A Switch Disconnector Incomer	5	**JK114**
20 Way 100A Switch Disconnector Incomer	7	**JK120**
28 Way 100A Switch Disconnector Incomer Dual Row	5 (2)	**JK128**
100A 30mA RCCB Incomer Type A		
4 Way 100A 30mA RCCB Incomer	3	**JK304H**
6 Way 100A 30mA RCCB Incomer	3	**JK306H**
10 Way 100A 30mA RCCB Incomer	4	**JK310H**
14 Way 100A 30mA RCCB Incomer	5	**JK314H**
20 Way 100A 30mA RCCB Incomer	7	**JK320H**
28 Way 100A 30mA RCCB Incomer Dual Row	5 (2)	**JK328H**
100A Switch Disconnector and 63A 30mA RCCB Type A		
6 Way Split Load Configurable 100A Switch 63A 30mA RCCB	4	**JK706C**
10 Way Split Load Configurable 100A Switch 63A 30mA RCCB	5	**JK710C**
14 Way Split Load Configurable 100A Switch 63A 30mA RCCB	7	**JK714C**
100A Switch Disconnector and 100A 30mA RCCB Type A		
28 Way Split Load 14+14 100A Switch 100A 30mA RCCB Dual Row	5 (2)	**JK527H**
100A Dual Metered with MID Meter		
14 Way Dual Metered 100A Configurable MID Pulsed, Modbus	7	**JKD114**
22 Way Dual Metered, Dual Row 100A MID Pulsed, Modbus	5 (2)	**JKD11111**
100A Metered with MID Meter		
17 Way Metered 100A MID Pulsed, Modbus	7	**JKD117**

The relevant part of the BS EN 61439 series applies to the integration of mechanical and electrical components (switching devices, control devices, busbars, functional units, etc.), into an enclosure. Hager systems such as consumer unit, distribution board and panel board ranges are certified to the appropriate part of the BS EN 61439 series. When selecting other device / enclosure arrangements our Tailored Solutions team can provide a verified solution - please contact technical support for assistance on 01952 675689.

DIN Rail Enclosures



JK008

Characteristics:
- One, two or three row 8-66 module enclosures, fitted with DIN rails to accept any combination of Hager devices. Ample wiring space, with provision to accept RCBO's.
- Conforms to BS EN 62208. I_{nA} = 63A/100A, I_{nc} = 63A, I_{cc} = 10kA
- Full complement of earth and neutral terminal bars to accept up to 16mm² cable.
- Suitable for cable entry on all sides and back.
- For dimensions see page 68.

Description	Size	Cat ref.
1 Row 8 Modules	3	**JK008**
1 Row 12 Modules	4	**JK012**
1 Row 16 Modules	5	**JK016**
1 Row 22 Modules	7	**JK022**
2 Row 24 Modules (2 x 12)	4 (2)	**JK024**
2 Row 32 Modules (2 x 16)	5 (2)	**JK032**
2 Row 44 Modules (2 x 22)	7 (2)	**JK044**
3 Row 66 Modules (3 x 22)	7 (3)	**JK066**

Invicta 3 SP&N Distribution Boards



JK114AG

Characteristics:
- Boards are available with 14 & 29 outgoing ways. The range comes with a 100A 2 pole switch disconnector to accept 50mm² cable. Ample wiring space, with provision to accept RCBO's.
- Conforms to BS EN 61439-3. I_{nA} = 63A/100A, I_{nc} = 63A, I_{cc} = 10kA
- Full complement of earth and neutral terminal bars to accept up to 16mm² cable.
- Suitable for cable entry on all sides and back.
- Enclosures are available with plain or glazed doors.
- For dimensions see page 68.

Description	Cat ref. Plain Door	Cat ref. Glazed Door
1 Row, 14 Way 100A Switch Disconnector Incomer	**JK114A**	**JK114AG**
2 Row, 29 Way 100A Switch Disconnector Incomer	**JK129A**	**JK129AG**

Type A SP&N Distribution Board SPD Kit Type 2



VME02SPD

- Consists of: 6mm earth cables, 1x double pole surge protection device with lifetime indicator & Busbar.
- Only suitable for Consumer units with Switch Disconnector incomer & is not compatible with Consumer units with RCCB incomer.

Poles	I_n kA L-N	I_n kA N-PE	U_p kV	Width (mm)	Cat ref.
2	15	25	≤ 1.2	35	**VME01SPD**
2	5	15	≤ 1.2	35	**VME02SPD**

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JK106BG

[1] A **JK101SE** may be required to provide additional incoming cable space, see page 69.

[2] Full metal cover & door where required for domestic dwelling applications.

Invicta 3 125A TP&N Distribution Boards (125A Incoming, 63A Outgoing)

Characteristics:
- Surface mounted steel enclosures, IP3XD rated available with plain, glazed & Amendment 3 door options.
- Conforms to BS EN 61439-3, I_{nA} = 125A, I_{nc} = 63A, I_{cc} = 25kA
- Supplied without incoming & outgoing devices. A Hager incomer kit must be used.
- Incoming cable sizes: 125A & 100A 50mm², 63A 16mm²
- Option with factory fitted SPD Type 2 & 4 Pole SD incomer.
- For dimensions see page 69.

Description	Cat ref. Glazed door with SPD type 2 & 125A 4P Sw	Cat ref. Plain door	Cat ref. Glazed door	Cat ref. Residential Applications
4 Triple Pole Ways 125A TP&N Board	**JK104BGSPD**	**JK104B** [1]	**JK104BG** [1]	**JK104BA3** [1 2]
6 Triple Pole Ways 125A TP&N Board	**JK106BGSPD**	**JK106B** [1]	**JK106BG** [1]	**JK106BA3** [1 2]
8 Triple Pole Ways 125A TP&N Board	**JK108BGSPD**	**JK108B** [1]	**JK108BG** [1]	**JK108BA3** [1 2]
12 Triple Pole Ways 125A TP&N Board	**JK112BGSPD**	**JK112B**	**JK112BG**	**JK112BA3** [2]
16 Triple Pole Ways 125A TP&N Board	**JK116BGSPD**	**JK116B**	**JK116BG**	**JK116BA3** [2]
18 Triple Pole Ways 125A TP&N Board	**JK118BGSPD**	**JK118B**	**JK118BG**	**JK118BA3** [2]
24 Triple Pole Ways 125A TP&N Board	**JK124BGSPD**	**JK124B**	**JK124BG**	**JK124BA3** [2]



JKD1416TM

125A Dual Metered Boards - MID Meter

Characteristics:
- Provides separate metered energy values for both Small Power and lighting grouped loads.
- Boards are supplied with a MID apporved meter that communicates via a modbus output.
- Conforms to BS EN 61439-3, I_{nA} = 125A, I_{nc} = 63A, I_{cc} = 25kA.
- 125A TP switch disconnector pre-fitted. Each individual pan is fully rated at 125A.
- For dimensions see page 72.

Description	Max cable capacity solid	Lower pan ways	Upper pan ways	Cat ref.
4+6 Way Power & Lighting Board	50mm²	4	6	**JKD146TM**
6+6 Way Power & Lighting Board	50mm²	6	6	**JKD166TM**
6+4 Way Power & Lighting Board	50mm²	6	4	**JKD164TM**
6+8 Way Power & Lighting Board	50mm²	6	8	**JKD168TM**
8+8 Way Power & Lighting Board	50mm²	8	8	**JKD188TM**
8+6 Way Power & Lighting Board	50mm²	8	6	**JKD186TM**
4+16 Way Power & Lighting Board	50mm²	4	16	**JKD1416TM**
16+4 Way Power & Lighting Board	50mm²	16	4	**JKD1164TM**
8+12 Way Power & Lighting Board	50mm²	8	12	**JKD1812TM**
12+8 Way Power & Lighting Board	50mm²	12	8	**JKD1128TM**
12+12 Way Power & Lighting Board	50mm²	12	12	**JKD11212TM**



JK106BD

IP65 Distribution Boards (Not suitable for outdoor use)

Characteristics:
- Suitable for three phase applications where a high IP rating is required.
- Conforms to BS EN 61439-3, I_{nA} = 125A, I_{nc} = 63A, I_{cc} = 25kA.
- Available with either a steel (mild steel, powder coated) or Glass Reinforced Plastic (GRP) enclosure.
- Supplied without incoming and outgoing devices. A Hager incomer kit must be used.
- Available up to 125A direct connection with outgoing distribution, rated for MCBs from 0.5A to 63A.
- JK***BD **are not** suitable for outdoor use.
- JK***BF **are** suitable for outdoor use.

Description	Cat ref. Steel	Cat ref. GRP
4 Way IP65 Metal 125A TPN Board 800 x 600 x 300	**JK104BD**	**JK104BF**
6 Way IP65 Metal 125A TPN Board 800 x 600 x 300	**JK106BD**	**JK106BF**
8 Way IP65 Metal 125A TPN Board 800 x 600 x 300	**JK108BD**	**JK108BF**
12 Way IP65 Metal 125A TPN Board 1250 x 850 x 300	**JK112BD**	**JK112BF**
16 Way IP65 Metal 125A TPN Board 1250 x 850 x 300	**JK116BD**	**JK116BF**

MCBs & RCBOs for Invicta 3 Type B TP&N Distribution Boards - See pages 44-46 for more info

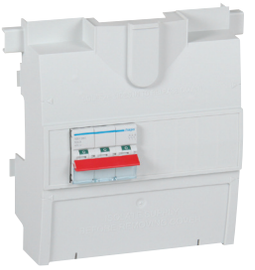
		0.5A	1A	2A	3A	4A	6A	10A
B Curve	Single Pole	-	-	-	-	-	**NBN106A**	**NBN110A**
	Triple Pole	-	-	-	-	-	**NBN306A**	**NBN310A**
C Curve	Single Pole	**NCN100A**	**NCN101A**	**NCN102A**	**NCN103A**	**NCN104A**	**NCN106A**	**NCN110A**
	Triple Pole	**NCN300A**	**NCN301A**	**NCN302A**	**NCN303A**	**NCN304A**	**NCN306A**	**NCN310A**
D Curve	Single Pole	**NDN100A**	**NDN101A**	**NDN102A**	**NDN103A**	**NDN104A**	**NDN106A**	**NDN110A**
	Triple Pole	**NDN300A**	**NDN301A**	**NDN302A**	**NDN303A**	**NDN304A**	**NDN306A**	**NDN310A**
RCBO (B Curve)	Single Pole	-	-	-	-	-	**ADB406U**	**ADB410U**
RCBO (C Curve)	Single Pole	-	-	-	-	-	**ADC406U**	**ADC410U**

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Data is subject to errors and technical modifications. ★ New.

Incomer Kits for 125A Boards

Description	Max Cable Capacity Solid	Cat ref.
3 Pole 100A Switch Disconnector Incomer Kit (Fits within distribution board)	50mm²	**JK11003S** [4 Not SPD]
4 Pole 100A Switch Disconnector Incomer Kit (Fits within distribution board)	50mm²	**JK11004S** [4]
3 Pole 125A Switch Disconnector Incomer Kit (Fits within distribution board)	50mm²	**JK11253S** [4 Not SPD]
4 Pole 125A Switch Disconnector Incomer Kit (Fits within distribution board)	50mm²	**JK11254S** [4]
4 Pole 63A Contactor Incomer Kit includes Switch Disconnector (fits below distribution board, 300mm high)	50mm²	**JK10634C** [1]
4 Pole 100A Contactor Incomer Kit includes Switch Disconnector (fits below distribution board, 450mm high)	M8 Lug	**JK11004C** [3]
125A Direct Connection Kit (Fits within distribution board)	50mm²	**JK11254D** [4]
4 Pole 100A 30mA RCCB Type A Incomer Kit (Fits within distribution board)	50mm²	**JK11004RH**
4 Pole 100A 300mA RCCB Type A Incomer Kit (Fits within distribution board)	50mm²	**JK11004RL**
4 Pole 100A 300mA Time Delayed RCCB Type A Incomer Kit (Fits within distribution board)	50mm²	**JK11004RLD**
4 Pole 100A 100mA RCCB Type A Incomer Kit (Fits within distribution board)	50mm²	**JK11004RM**
4 Pole 100A 100mA Time Delayed RCCB Type A Incomer Kit (Fits within distribution board)	50mm²	**JK11004RMD**
125A 4 pole Changeover Incomer Kit (Fits within distribution board)	50mm²	**JK11254CO** [3]



JK11003S

[3] A 300 / 450mm space is required below the board for fitting.

Side by Side Incomer Kits for 125A Boards

Characteristics:
- Complete with 125A 3P SD incomer
- Cable sets to connect to distribution boards
- Suitable for all 125A TP&N board sizes

Description	Cat ref.	
Dual kWh Meter Pack 125A Incomer Pulsed & Modbus	M8 Lug	**JKD125MID**
Triple kWh Meter Pack 125A Incomer Pulsed & Modbus	M8 Lug	**JKD125TMID**

Dimensions Page 76



JKD125MID

Surge Protection Kits for 125A Boards (including 125A Dual metered boards)

Characteristics:
- SPD kit for direct integration within 125A TPN boards
- Low U_p value assured through use of solid busbar connectors and solid copper Earth
- SPD suitable for TN / TT Earth arrangements including TNC-S (PME)
- CT2 type SPD to accommodate multiple Earthing systems.
- Coordination verified with upstream Hager Panelboard SPDs.

Description	Cat ref.
Type 1 & 2 Surge Protection Kit for 125A TP&N Boards	**JK101SPD**
Type 2 Surge Protection Kit for 125A TP&N Boards	**JK102SPD**



JK101SPD
(Incomer kit also required separately)

Meter Packs & Kits for 125A Boards - MID

Characteristics:

- **JKD1125MID** – This enclosed meter pack fits below any Hager standard 125A TPN boards. Can be used in conjunction with SPD kits – MID meter has Modbus and pulse comms 300mm high.

- **JK140MID** – This MID meter kits can be fitted within the TPN board, but is not suitable for 4 & 6 way boards. This kit can not be used, when an SPD is fitted – MID Meter has Modbus and pulse comms.

Description	Cat ref.
Meter Enclosure & MID Meter	**JKD1125MID**
Multifunction Meter Pack 125A Pulsed & Modbus	**JK140MID**



JK140MID

16A	20A	25A	32A	40A	45A	50A	63A
NBN116A	**NBN120A**	**NBN125A**	**NBN132A**	**NBN140A**	**-**	**NBN150A**	**NBN163A**
NBN316A	**NBN320A**	**NBN325A**	**NBN332A**	**NBN340A**	**-**	**NBN350A**	**NBN363A**
NCN116A	**NCN120A**	**NCN125A**	**NCN132A**	**NCN140A**	**-**	**NCN150A**	**NCN163A**
NCN316A	**NCN320A**	**NCN325A**	**NCN332A**	**NCN340A**	**-**	**NCN350A**	**NCN363A**
NDN116A	**NDN120A**	**NDN125A**	**NDN132A**	**NDN140A**	**-**	**NDN150A**	**NDN163A**
NDN316A	**NDN320A**	**NDN325A**	**NDN332A**	**NDN340A**	**-**	**NDN350A**	**NDN363A**
ADB416U	**ADB420U**	**ADB425U**	**ADB432U**	**ADB440U**	**ADB445U**	**ADB450U**	**-**
ADC416U	**ADC420U**	**ADC425U**	**ADC432U**	**ADC440U**	**ADC445U**	**ADC450U**	**-**

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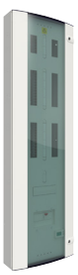
JK208BG

[1] Full metal cover & door where required for domestic dwelling applications.

Invicta 3 250A TP&N Distribution Boards (250A Incoming, 63A Outgoing)

Characteristics:
- Surface mounted steel enclosures, IP3XD rated, available with plain, glazed & Amendment 3 door options.
- Conforms to BS EN 61439-3. I_{nA} = 250A, I_{nc} = 63A, I_{cc} = 25kA.
- Supplied without incoming and outgoing devices. A Hager incoming kit must be used.
- For dimensions see page 69.

Description	Cat ref. Plain door	Cat ref. Glazed door	Cat ref. Residential Applications
8 Triple Pole Ways 250A TP&N Board	**JK208B**	**JK208BG**	**JK208BA3** [1]
12 Triple Pole Ways 250A TP&N Board	**JK212B**	**JK212BG**	**JK212BA3** [1]
16 Triple Pole Ways 250A TP&N Board	**JK216B**	**JK216BG**	**JK216BA3** [1]
18 Triple Pole Ways 250A TP&N Board	**JK218B**	**JK218BG**	**JK218BA3** [1]
24 Triple Pole Ways 250A TP&N Board	**JK224B**	**JK224BG**	**JK224BA3** [1]



JKD2884TM

200A Tri Metered Boards (Power, Lighting & Mechanical Services)

Characteristics:
- Provides separate energy information for each group of outgoing devices. Meter also provides total board power parameters.
- Boards are supplied with a MID approved meter that communicates via a modbus output.
- Provided with a 200A switch disconnector incomer pre-fitted with ample cable space.
- Conforms to BS EN 61439-3. I_{nA} = 200A, I_{nc} = 63A, I_{cc} = 25kA.
  Dimensions Page 72

Description	Max cable cap. solid	Lower pan ways	Middle pan ways	Upper pan ways	Cat ref.
8+8+4 Way Power, Lighting & Service Board	M8 Lug	8	8	4	**JKD2884TM**



JK20210BG

Hybrid 250A TP&N Distribution Boards (250A Incoming, up to 125A outgoing)

Characteristics:
- A hybrid distribution board combining 2x TP ways of 27mm MCB devices to supply end loads up to 125A, with standard 18mm MCB/RCBOs for other smaller loads.
- Surface mounted steel enclosure, IP3XD rated, available with plain steel or glazed door options.
- Conforms to BS EN 61439-3, I_{nA} = 250A, I_{nc} = 63A /125A, I_{cc} = 25kA
- For dimensions see page 70.

Description	Cat ref. Plain Door	Cat ref. Glazed Door
Hybrid 250A Distribution Boards - Supplied with 250A 3P Switch Disconnector Incomer Pre-Fitted		
250A 2+10 Way Hybrid TPN Board	**JK20210BSD**	**JK20210BGSD**
250A 2+16 Way Hybrid TPN Board	**JK20216BSD**	**JK20216BGSD**
250A 2+20 Way Hybrid TPN Board	**JK20220BSD**	**JK20220BGSD**
Hybrid 250A TPN Distribution Boards Without Incomer Supplied		
250A 2+10 Way Hybrid TPN Board	**JK20210B**	**JK20210BG**
250A 2+16 Way Hybrid TPN Board	**JK20216B**	**JK20216BG**
250A 2+20 Way Hybrid TPN Board	**JK20220B**	**JK20220BG**

MCBs & RCBOs for Invicta 3 Type B TP&N Distribution Boards - See pages 44-46 for more info

		0.5A	1A	2A	3A	4A	6A	10A
MCB B Curve	Single Pole	-	-	-	-	-	**NBN106A**	**NBN110A**
	Triple Pole	-	-	-	-	-	**NBN306A**	**NBN310A**
MCB C Curve	Single Pole	**NCN100A**	**NCN101A**	**NCN102A**	**NCN103A**	**NCN104A**	**NCN106A**	**NCN110A**
	Triple Pole	**NCN300A**	**NCN301A**	**NCN302A**	**NCN303A**	**NCN304A**	**NCN306A**	**NCN310A**
MCB D Curve	Single Pole	**NDN100A**	**NDN101A**	**NDN102A**	**NDN103A**	**NDN104A**	**NDN106A**	**NDN110A**
	Triple Pole	**NDN300A**	**NDN301A**	**NDN302A**	**NDN303A**	**NDN304A**	**NDN306A**	**NDN310A**
RCBO B Curve	Single Pole	-	-	-	-	-	**ADA106U**	**ADA110U**
RCBO C Curve	Single Pole	-	-	-	-	-	**ADA156U**	**ADA160U**

MCBs Suitable for Hybrid Distribution Boards Only - See page 50 for more info

		80A	100A	125A
MCB C Curve	Single Pole	**HMC180T**	**HMC190T**	**HMC199T**
	Triple Pole	**HMC380T**	**HMC390T**	**HMC399T**
MCB D Curve	Single Pole	**HMD180T**	**HMD190T**	**HMD199T**
	Triple Pole	**HMD380T**	**HMD390T**	**HMD399T**

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Incomer Kits for 250A Boards

Description	Connection	Cat ref.
3 Pole 250A MCCB Incomer Kit (Fits within distribution board)	M8 Lug	**JK22503M**
4 Pole 250A MCCB Incomer Kit (Fits within distribution board)	M8 Lug	**JK22504M**
3 Pole 250A Switch Disconnector Incomer Kit (Fits within distribution board)	M8 Lug	**JK22503S**
4 Pole 250A Switch Disconnector Incomer Kit (Fits within distribution board)	M8 Lug	**JK22504MCS**
4 Pole 250A Direct Connection Kit (Fits within distribution board) (Where required, use the JKD2250MID meter)	M8 Lug	**JK22504D**
4 Pole 160A Contactor Incomer Kit includes Switch Disconnector (fits below distribution board, 450mm high)	M8 Lug	**JK21604C**
3 Pole 125A MCCB Incomer Kit (Fits within distribution board)	M8 Lug	**JK21253M**
4 Pole 125A MCCB Incomer Kit (Fits within distribution board)	M8 Lug	**JK21254M**

Surge Protection Kits for 250A Boards (including 200A Tri-Metered board)

Characteristics:
- SPD kit for direct integration within 250A TPN boards
- Type 1 + 2 SPD - Low Up value assured through use of solid copper Earth link
- Fail safe design SPD facilitates direct connection to main busbars
- SPD suitable for TN / TT Earth arrangements including TNC-S (PME)
- CT2 type SPD to accommodate multiple Earthing systems
- CT2 type SPD to accommodate multiple Earthing systems

Description	Cat ref.
Type 1 & 2 Surge Protection Kit for 250A TP&N Boards	**JK201SPD**
Type 2 Surge Protection Kit for 250A TP&N Boards	**JK202SPD**



JK201SPD

Side by Side Incomer Kits for 250A TP&N Boards

Characteristics:
- Complete with 3P SD incomer
- Cable set to connect to distribution boards
- Suitable for all 250A board sizes

Description	Connection	Cat ref.
Dual kWh Meter Module 250A Incomer Pulsed	M8 Lug	**JKD250MID**
Triple kWh Meter Module 250A Incomer Pulsed & Modbus	M8 Lug	**JKD250TMID**

Dimensions Page 76

Description	Connection	Cat ref.
Type 1 SPD kit for side by side 250A TPN boards	M8 Lug	**JKD201SPD**
Type 2 SPD kit for side by side 250A TPN boards	M8 Lug	**JKD202SPD**



JKD250MID (distribution boards are not included)

Single Meter Packs for 250A Boards

Characteristics:
- Meter kit for standard 250A distribution boards & hybrid 250A distribution boards.
- Each meter pack contains: meter, 3 pole CT Block, 3 x fuses & carriers on DIN rail, wiring loom, incoming shroud & instructions.

Description	Cat ref.
MID Multifunction Meter Kit 250A Pulsed & Modbus	**JK240MID**
MID Meter Pack 250A in extension box enclosure. Required for JK20220* Distribution boards only 300mm high	**JKD2250MID**



JK240MID

16A	20A	25A	32A	40A	45A	50A	63A
NBN116A	**NBN120A**	**NBN125A**	**NBN132A**	**NBN140A**	-	**NBN150A**	**NBN163A**
NBN316A	**NBN320A**	**NBN325A**	**NBN332A**	**NBN340A**	-	**NBN350A**	**NBN363A**
NCN116A	**NCN120A**	**NCN125A**	**NCN132A**	**NCN140A**	-	**NCN150A**	**NCN163A**
NCN316A	**NCN320A**	**NCN325A**	**NCN332A**	**NCN340A**	-	**NCN350A**	**NCN363A**
NDN116A	**NDN120A**	**NDN125A**	**NDN132A**	**NDN140A**	-	**NDN150A**	**NDN163A**
NDN316A	**NDN320A**	**NDN325A**	**NDN332A**	**NDN340A**	-	**NDN350A**	**NDN363A**
ADA116U	**ADA120U**	**ADA125U**	**ADA132U**	**ADA140U**	**ADA145U**	-	-
ADA166U	**ADA170U**	**ADA175U**	**ADA182U**	**ADA190U**	-	-	-

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JK116EG

DIN Extension Boxes & Door Kits for 125A Primary Boards

Characteristics:
- Extension boxes have plain or glazed doors and a DIN rail for mounting modular devices.
- Conforms to BS EN 62208.
- Full width enclosure provided with sixteen modular ways per row.
- For dimensions see page 70.

Description	Cat ref. Plain door	Cat ref. Glazed door	Cat ref. Residential Applications
125A 16 Way 1 Row DIN Extension Box	**JK116E**	**JK116EG**	**JK116EA3**
125A 32 Way 2 Row DIN Extension Box	**JK132E**	**JK132EG**	**JK132EA3**
125A 16 Mod DIN Plain Spare Door Kit (Amendment 3)	**-**	**-**	**JK116EA3-DK**
125A 32 Mod DIN Plain Spare Door Kit (Amendment 3)	**-**	**-**	**JK132EA3-DK**



JK216E

DIN Extension Boxes & Door Kits for 250A Primary Boards

Description	Cat ref. Plain door	Cat ref. Glazed door
250A 16 Way 1 Row DIN Extension Box	**JK216E**	**JK216EG**
250A 32 Way 2 Row DIN Extension Box	**JK232E**	**JK232EG**
250A 16 Way 1 Row DIN Extension Box (Amendment 3)	**JK216EA3**	**-**
250A 32 Way 2 Row DIN Extension Box (Amendment 3)	**JK232EA3**	**-**
250A 16 Mod DIN Plain Spare Door Kit (Amendment 3)	**JK216EA3-DK**	**-**
250A 32 Mod DIN Plain Spare Door Kit (Amendment 3)	**JK232EA3-DK**	**-**



JK101SE



JK101DK

Cable Spreader Boxes & Door Kits for 125A & 250A Primary Boards

Characteristics:
- Cable spreader boxes are used for additional cabling space therefore do not require doors. Optional door kits are available.
- Conforms to BS EN 62208.

Description	Cat ref. 125A	Cat ref. 250A
Small Cable Spreader Box (supplied without a door)	**JK101SE**	**JK201SE**
Large Cable Spreader Box (supplied without a door)	**JK102LE**	**JK202LE**
Small Cable Spreader Box Door Kit	**JK101DK**	**JK101DK**
Large Cable Spreader Box Door Kit	**JK102DK**	**JK102DK**



JK08FK

(TP&N Board not included)

Invicta 3 125A Flush Kits

Characteristics:
- Suitable for flush mounting our 8 - 24 way Invicta 3 TP&N Boards - 125A.
- Distribution board not included.
- Flush mounted distribution board solution has been revalidated to meet BS EN 61439-3 - additional requirements for flush mounted solutions
- Provides low profile high aesthetic solution for open areas.

Description	Cat ref.
Flush Mounting Kit for Invicta 3 TP&N - 8 Way	**JK108FK**
Flush Mounting Kit for Invicta 3 TP&N - 12 Way	**JK112FK**
Flush Mounting Kit for Invicta 3 TP&N - 16 Way	**JK116FK**
Flush Mounting Kit for Invicta 3 TP&N - 18 Way	**JK118FK**
Flush Mounting Kit for Invicta 3 TP&N - 24 Way	**JK124FK**



JN201BE

DIN Rail Extension Boxes

Characteristics
- Supplied with DIN Rail & without gland plate (utilise removed gland plate from panelboard)
- DIN rail extensions boxes have plain or glazed doors and DIN rail chassis.
- JK2 side extension boxes can be used with this range see page 25.
- For dimensions see page 71.

Description	Cat ref. Plain Door	Cat ref. Glazed Door
1 Row 26 Mod (300mm Height)	**JN201BE**	**JN201BEG**
2 Row 52 Mod (450mm Height)	**JN203BE**	**JN203BEG**

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Side DIN Enclosures for Primary Boards

Characteristics:
- Side extension boxes allow for the installation of DIN rail mounted devices.
- Conforms to BS EN 62208.
- Can be horizontally or vertically attached to distribution boards.
- All DIN Enclosures supplied with two removable gland plates.
- For dimensions see page 69.



JK104BDFG



JK208BDFG

Description	Number of rows	Cat ref. Glazed door	Cat ref. Residential Applications
Side DIN Enclosures for 125A Primary Boards			
4 Way 32 Mod Side DIN Enclosure for **JK104B(G)**	2	**JK104BDFG**	**JK104BDFA3**
6 Way 32 Mod Side DIN Enclosure for **JK106B(G)**	2	**JK106BDFG**	**JK106BDFA3**
8 Way 48 Mod Side DIN Enclosure for **JK108B(G)**	3	**JK108BDFG**	**JK108BDFA3**
12 Way 64 Mod Side DIN Enclosure for **JK112B(G)**	4	**JK112BDFG**	**JK112BDFA3**
16 Way 80 Mod Side DIN Enclosure for **JK116B(G)**	5	**JK116BDFG**	**JK116BDFA3**
Side DIN Enclosures for 250A Primary Boards			
8 Way 80 Mod Side DIN Enclosure for **JK208B(G)**	5	**JK208BDFG**	**JK208BDFA3**
12 Way 80 Mod Side DIN Enclosure for **JK212B(G)**	5	**JK212BDFG**	**JK212BDFA3**
16 Way 96 Mod Side DIN Enclosure for **JK216B(G)**	6	**JK216BDFG**	**JK216BDFA3**
18 Way 112 Mod Side DIN Enclosure for **JK218B(G)**	7	**JK218BDFG**	**JK218BDFA3**
24 Way 128 Mod Side DIN Enclosure for **JK224B(G)**	8	**JK224BDFG**	**JK224BDFA3**

Side Extension Boxes for 125A Primary Boards

Characteristics:
- Side extension boxes allow cable ways to be fitted on site.
- Conforms to BS EN 62208.
- Available in either half or full distribution board width.
- All side extension boxes supplied with two removable gland plates.
- For dimensions see page 70.



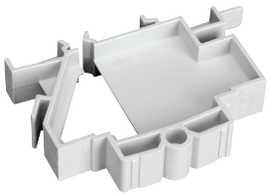
JK104BSF



JK104BSH

Description	Cat ref. Plain door
Side Extension Boxes for 125A Primary Boards	
4 Way Side Extension Box for **JK104B(G)** Full Width	**JK104BSF**
6 Way Side Extension Box for **JK106B(G)** Full Width	**JK106BSF**
8 Way Side Extension Box for **JK108B(G)** Full Width	**JK108BSF**
12 Way Side Extension Box for **JK112B(G)** Full Width	**JK112BSF**
16 Way Side Extension Box for **JK1116B(G)** Full Width	**JK116BSF**
Side Extension Boxes for 250A Primary Boards	
8 Way Side Extension Box for **JK208B(G)** Full Width	**JK208BSF**
12 Way Side Extension Box for **JK212B(G)** Full Width	**JK212BSF**
16 Way Side Extension Box for **JK216B(G)** Full Width	**JK216BSF**
18 Way Side Extension Box for **JK218B(G)** Full Width	**JK218BSF**
24 Way Side Extension Box for **JK224B(G)** Full Width	**JK224BSF**
Half Width Side Extension Boxes for 125A Primary Boards	
4 Way Half Width Extension Box	**JK104BSH**
6 Way Half Width Extension Box	**JK106BSH**
8 Way Half Width Extension Box	**JK108BSH**
12 Way Half Width Extension Box	**JK112BSH**
16 Way Half Width Extension Box	**JK116BSH**
Small Half Width Filler Box	**JK101BSH**
Half Width Side Extension Boxes for 250A Primary Boards	
8 Way Half Width Extension Box	**JK208BSH**
12 Way Half Width Extension Box	**JK212BSH**
16 Way Half Width Extension Box	**JK216BSH**
18 Way Half Width Extension Box	**JK218BSH**
24 Way Half Width Extension Box	**JK224BSH**
Small Half Width Filler Box	**JK201BSH**

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JK01B



JK222PK

Invicta 3 125A & 250A & IP65 Distribution Board Accessories

Description	125A Accessories Cat ref.	250A Accessories Cat ref.
Door Locking Kit	**JK222PK**	**JK222PK**
Spare Label Pack - All Sizes (one pack)	**JKLABELPACK**	**JKLABELPACK**
Single Phasing Kit	**JK1SPKIT**	**JK250BSP**
Single Pole Busbar Blank	**JK01B**	**JK01B**
Single Pole 27mm Blank		**JK02B**
JK1/2 Horizontal or Vertical Mechanical Connection Kit	**JK100HK**	**JK100HK**
Brass Gland Plate - 2.0mm	**JK1PLATEB**	**JK2PLATEB**
100A Top Tap Off Kit	**JK100TAP**	**JK100TAP**
Additional Earth Bar Kit High Integrity - 2 x 15 Connections	**JK030BEB**	**JK030BEB**
Document Clip	**JK01DC**	**JK01DC**
Neutral Connecting Block 100A	**KRN190**	**KRN190**
JK1/2 Neutral Clear Shroud	**JK1/NEUTRALSHROUD**	**JK1/NEUTRALSHROUD**
JK1/2 Busbar Stack Top Shroud	**JK1/2TOPSHROUD**	**JK1/2TOPSHROUD**
JK1/2 Main Incomer Shroud	**JK1/INCOMSHROUD**	**JK2/INCOMSHROUD**
Spare Gland Plate Including Drill Markings - 1.2mm	**JK1PLATEM**	**JK2PLATEM**



JK106BA3-DK

Invicta 3 125A & 250A Amendment 3 Compliant Door Kit

Description	125A Cat ref.	250A Cat ref.
4 Way TPN Plain Spare Door Kit Amendment 3	**JK104BA3-DK**	**-**
6 Way TPN Plain Spare Door Kit Amendment 3	**JK106BA3-DK**	**-**
8 Way TPN Plain Spare Door Kit Amendment 3	**JK108BA3-DK**	**JK208BA3-DK**
12 Way TPN Plain Spare Door Kit Amendment 3	**JK112BA3-DK**	**JK212BA3-DK**
16 Way TPN Plain Spare Door Kit Amendment 3	**JK116BA3-DK**	**JK216BA3-DK**
18 Way TPN Plain Spare Door Kit Amendment 3	**JK118BA3-DK**	**JK218BA3-DK**
24 Way TPN Plain Spare Door Kit Amendment 3	**JK124BA3-DK**	**JK224BA3-DK**



JK06TK

[1] 4” trunking not suitable for JKD Power & Lighting Boards.

Invicta 3 125A & 250A Trunking Kits & Spares

Characteristics:
- Each trunking kit contains a trunking channel, lid, lid joining brackets, connecting brackets and end caps.

Description	100mm 4” Cat ref.	150mm 6” Cat ref.
Trunking Kit for Invicta 3 TP&N	**JK04TK** [1]	**JK06TK**
Spare Trunking Channel	**JK04TC** [1]	**JK06TC**
Spare Lid	**JK04TL** [1]	**JK06TL**
Spare End Cap	**JK04TE** [1]	**JK06TE**
Spare Connecting Bracket	**JK04TJ** [1]	**JK06TJ**
Spare Trunking Lid Joining Bracket	**JK04TP** [1]	**JK06TP**

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From pre-assembled standard distribution units to bespoke composite TP&N boards and plug in distribution boards, we can provide the solution.
We will deliver to site to an agreed deadline and specification.
To find out more, call our Estimation Team on **01952 675600.**
:hager
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JN204BG



JN204B

Invicta 3 Panelboards (250A Incoming 125A Outgoing)

Characteristics
- Comprises of IP3XD rated enclosure, pan assembly, twin neutral and earth bars.
- Conforms to BS EN 61439-2. I_{nA} = 250A, I_{nc} = 125A, I_{cc} = 25kA.
- Supplied without incoming kit, JN 250A incomer kit must be used.
- Form 3B type 2 using outgoing terminal shield (form 3A without terminal shield).
- Removable side gland plates are standard. Removable gland plates are provided top and bottom for ease of installation.
- For dimensions see page 77.

Cable Capacity Incomers & Outgoers
- Incomers: 3 and 4 pole incomers, cable capacity 150mm², max lug width 25mm, M8 bolt, direct connection kit.
- Outgoers: 1 & 3 pole MCCB 70mm² flexible, 95mm² solid.

Options
- Key lock, meter pack, DIN rail, extension box, spreader box.

Outgoing MCCBs
- Adjustable thermal options on triple pole devices.

Description	Cat ref. Plain door	Cat ref. Glazed door
4 Triple Pole Ways 250A Panelboard	**JN204B**	**JN204BG**
6 Triple Pole Ways 250A Panelboard	**JN206B**	**JN206BG**
8 Triple Pole Ways 250A Panelboard	**JN208B**	**JN208BG**
12 Triple Pole Ways 250A Panelboard	**JN212B**	**JN212BG**
16 Triple Pole Ways 250A Panelboard	**JN216B**	**JN216BG**

Incomer Kits

Description	Max cable capacity	Cat ref.
3 Pole 250A MCCB Incomer Kit (Adj. Thermal 0.63, 0.8, 1) 40kA (Magnetic 5, 7, 9, 11 x I_n)	M8 Lug	**JN223BM**
4 Pole 250A MCCB Incomer Kit (Adj. Thermal 0.63, 0.8, 1) 40kA (Magnetic 5, 7, 9, 11 x I_n)	M8 Lug	**JN224BM**
3 Pole 250A Non-Auto MCCB Incomer Kit	M8 Lug	**JN223BS**
4 Pole 250A Non-Auto MCCB Incomer Kit	M8 Lug	**JN224BS**
3 Pole 125A MCCB Incomer Kit	M8 Lug	**JN213BM**
4 Pole 125A MCCB Incomer Kit	M8 Lug	**JN214BM**
250A Direct Connection Kit	M8 Lug	**JN224BD**
Palm Kit for Larger Cable >50mm² to 2 x 120mm² with 10mm Bolt Fixing		**JN250SL**



JN201SPD
(Image shows Device only, kit includes connection links)

250A JN Panelboard Surge Protection Device Kit

Characteristics
- SPD kit for direct integration within 250A Panelboards
- Fail safe design SPD facilitates direct connection to main busbars
- SPD suitable for TN / TT Earth arrangements including TNC-S (PME)
- CT2 type SPD to accommodate multiple Earthing systems
- Solid copper Earth link for enhanced U_p performance
- Supplied with mounting & connection set

Description	Cat ref. Plain door
SPD kit Type 1+2 for JN Panelboards	**JN201SPD**
SPD kit Type 2 for JN Panelboards	**JN202SPD**

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Data is subject to errors and technical modifications. ★ New.

DIN Rail Extension Boxes

Characteristics
- Supplied with DIN Rail & without gland plate (utilise removed gland plate from panelboard)
- DIN rail extensions boxes have plain or glazed doors and DIN rail chassis.
- JK2 side extension boxes can be used with this range see page 25.
- For dimensions see page 71.



JN201BE

Description	Cat ref. Plain Door	Cat ref. Glazed Door
1 Row 26 Mod (300mm Height)	**JN201BE**	**JN201BEG**
2 Row 52 Mod (450mm Height)	**JN203BE**	**JN203BEG**

Cable Spreader Boxes & Door Kits

Characteristics
- Supplied without gland plates (utilise removed gland plate from panelboard)
- Cable spreader boxes are used for additional cabling space therefore do not require doors. Optional door kits are available.

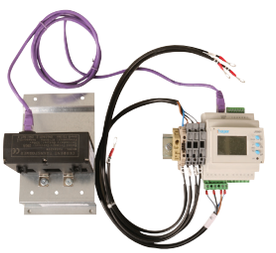


JN205BE

Description	Cat ref.
Small (300mm Height) (Door not included)	**JN205BE**
Large (450mm Height) (Door not included)	**JN206BE**
Door Kit for Small Cable Spreader Box	**JN205DK**
Door Kit for Large Cable Spreader Box	**JN206DK**

Meter Pack 250A

Characteristics
- Comprises of a digital multi function meter, three control circuit fuse carriers, wiring harness and CTs.
- The meter pack fits directly into the main panelboard.
- For metering incoming supply to the panelboard.



JN201MID

Description	Cat ref.
MID Multifunction Meter Pack 250A Pulsed & Modbus	**JN201MID**

Accessories



JN001BP

Description	Cat ref.
Allen Key Set	**JF296A**
Gland Plate for Invicta 3 (250A)	**JN2PLATE**
Key Lock with One Key	**JK222PK**
x125 Frame Blank (3x blanks required per triple pole way)	**JN001BP**
Multi Padlock Plate (for integral toggle lock, fits to toggle for up to 3 padlocks max ø8mm)	**HXA039H**
Neutral Barrier Kit	**JN201NS**

Outgoing Devices - See page 64 for more info

MCCBs - Single Pole

Rating.	18kA Fixed Thermal	25kA Fixed Thermal
16A	**HDA014E**	**HHA014E**
20A	**HDA018E**	**HHA018E**
25A	**HDA023E**	**HHA023E**
32A	**HDA030E**	**HHA030E**
40A	**HDA038Z**	**HHA038Z**
50A	**HDA048Z**	**HHA048Z**
63A	**HDA061Z**	**HHA061Z**
80A	**HDA078Z**	**HHA078Z**
100A	**HDA098Z**	**HHA098Z**
125A	**HDA123Z**	**HHA123Z**

MCCBs - Triple Pole Adjustable Thermal

Rating.	18kA Adjustable Thermal 0.63, 0.8, 1 x I_n	25kA Adjustable Thermal 0.63, 0.8, 1 x I_n
25A	**HDA025U**	**HHA025U**
40A	**HDA040U**	**HHA040U**
63A	**HDA063U**	**HHA063U**
80A	**HDA080U**	**HHA080U**
100A	**HDA100U**	**HHA100U**
125A	**HDA125U**	**HHA125U**

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JF406B

Invicta 3 Panelboards (400A Incoming 125A Outgoing)

Characteristics
- Comprises of IP3XD enclosure, pan assembly, neutral bar and earth bar.
- Conforms to BS EN 61439-2. I_{nA} = 400A, I_{nc} = 125A, I_{cc} = 50kA.
- Supplied without incoming kit, one of the incomer kits listed below must be used.
- Form 3B type 2 using outgoing terminal shield (form 3A without terminal shield).
- Removable gland plates are provided top and bottom for ease of installation.
- For dimensions see page 78.

Cable Capacity Incomers & Outgoers
- Incomers: 3 and 4 pole incomers, cable capacity: M12 bolt, direct connection kit: M10 hexagonal bolt.
- Outgoers: 1 & 3 pole MCCB: 70mm² flexible/ 95mm² solid.

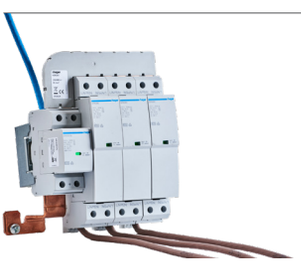
Options
- Key lock, meter pack, DIN rail, extension box, spreader box.

Outgoing MCCBs
- Adjustable thermal options on triple pole.

Description	Cat ref. Plain Door	Cat ref. Glazed door
6 Triple Pole Ways 400A Panelboard	**JF406B**	**JF406BG**
8 Triple Pole Ways 400A Panelboard	**JF408B**	**JF408BG**
12 Triple Pole Ways 400A Panelboard	**JF412B**	**JF412BG**
16 Triple Pole Ways 400A Panelboard	**JF416B**	**JF416BG**
18 Triple Pole Ways 400A Panelboard	**JF418B**	**JF418BG**

Incomer Kits for 400A Panelboards

Description	Max cable capacity solid	Cat ref.
3 Pole 400A MCCB Incomer Kit 50kA Electronic LSI MCCB, Ir adjustable 0.4 – 1.0 x I_n	M12 Lug	**JF443BM**
4 Pole 400A MCCB Incomer Kit 50kA Electronic LSI MCCB, Ir adjustable 0.4 – 1.0 x I_n	M12 Lug	**JF444BM**
3 Pole 400A Switch Disconnector Incomer Kit	M12 Lug	**JF443BS**
4 Pole 400A Switch Disconnector Incomer Kit	M12 Lug	**JF444BS**
400A Direct Connection Kit	M10 Lug	**JF444BD**



JF861SPD

400A JF Panelboard Surge Protection Device Kit

Characteristics
- SPD kit for direct integration within 400A Panelboards
- Type 1 + 2 SPD with Integrated fuses facilitates direct connect to main busbars
- SPD suitable for TN / TT Earth arrangements including TNC-S (PME)
- CT2 type SPD to accommodate multiple Earthing systems
- Solid copper Earth link for assured lower U_p performance

Description	Cat ref.
SPD kit Type 1 + 2 for JF Panelboards	**JF861SPD**



JF801E

DIN Rail Extension Boxes for 400A Panelboards

Characteristics
- DIN rail extension boxes have plain or glazed doors and DIN rail chassis.
- Cable spreader boxes are used for additional cabling space therefore do not require doors. If doors are desired optional door kits are available.
- Supplied with DIN Rail and without gland plate (utilise removed gland plate from panelboard).
- For dimensions see page 78.

Description	Cat ref. Plain Door	Cat ref. Glazed Door
1 Row 34 Mod (300mm Height)	**JF801E**	**JF801EG**
2 Row 68 Mod (450mm Height)	**JF803E**	**JF803EG**

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Data is subject to errors and technical modifications. ★ New.

Cable Spreader Boxes & Door Kits for 400A Panelboards



JF805E

Characteristics
- Supplied without gland plates (utilise removed gland plate from panelboard).
- Cable spreader boxes are used for additional cabling space therefore do not require doors. Optional door kits are available.

Description	Cat ref.
Small (300mm Height) (Door not included)	**JF805E**
Large (450mm Height) (Door not included)	**JF806E**
Small Cable Spreader Box Door Kit	**JF805DK**
Large Cable Spreader Box Door Kit	**JF806DK**

Meter Pack 400A

Characteristics
- These meter packs fit directly into the main panelboard. Suitable for single incoming cable.

Description	Cat ref.
MID Multifunction Meter Pack 400A Pulsed & Modbus	**JF403MID**

- Requires spreader box from above, order separately

Accessories

Description	Cat ref.
Locking Kit for Incoming Device (All Ratings)	**HXD039H**
Allen Key Set	**JF296A**
Gland Plate for Invicta 3 400A Range	**JFPLATE**
Key Lock with One Key	**JK222PK**
x125 Frame 1 Pole Blank (3x blanks required per triple pole)	**JN001BP**
Outgoer Locking Kit (fits to toggle for up to 3 padlocks max ø 8mm²)	**HXA039H**
Terminal Cover x160 1 Pole Long	**HYA029H**
Terminal Cover x160 3 Pole Long	**HYA021H**



JN001BP



HXD039H

Outgoing Devices - See page 64 for more info

MCCBs - Single Pole

Rating.	18kA Fixed Thermal	25kA Fixed Thermal
16A	**HDA014E**	**HHA014E**
20A	**HDA018E**	**HHA018E**
25A	**HDA023E**	**HHA023E**
32A	**HDA030E**	**HHA030E**
40A	**HDA038Z**	**HHA038Z**
50A	**HDA048Z**	**HHA048Z**
63A	**HDA061Z**	**HHA061Z**
80A	**HDA078Z**	**HHA078Z**
100A	**HDA098Z**	**HHA098Z**
125A	**HDA123Z**	**HHA123Z**

MCCBs - Triple Pole Adjustable Thermal

Rating.	18kA Adjustable Thermal 0.63, 0.8, 1 x I_n	25kA Adjustable Thermal 0.63, 0.8, 1 x I_n
25A	**HDA025U**	**HHA025U**
40A	**HDA040U**	**HHA040U**
63A	**HDA063U**	**HHA063U**
80A	**HDA080U**	**HHA080U**
100A	**HDA100U**	**HHA100U**
125A	**HDA125U**	**HHA125U**

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JF608B

Invicta 3 Panelboards (630A/800A Incoming 125A Outgoing)

Characteristics
- Comprises of IP3XD enclosure, pan assembly, neutral bar and earth bar.
- Conforms to BS EN 61439-2. I_{nA} = 630/800A, I_{nc} = 125A/250A, I_{cc} = 50kA.
- Supplied without incoming kit, one of the incomer kits listed below must be used.
- Form 3B type 2 using outgoing terminal shield (form 3A without terminal shield).
- Removable gland plates are provided top and bottom for ease of installation.
- Switch Disconnector: 630A/800A, MCCB: 400A/630A, Direct connection: 800A.
- Incoming cable lugged via M12 hexagonal bolt.
- For dimensions see page 78.

Cable Capacity Incomers & Outgoers
- Incomers: 400A: 2 x 240mm², 630A/800A: 2 x 240mm² / 2 x 300mm².
- Outgoers: X160 devices: up to 125A - 70mm² flexible, 95mm² solid,
  X250 devices: 150mm² rigid cables, palm lug max. width: 25mm

Description	Cat ref. Plain Door	Cat ref. Glazed door
8 Triple Pole Ways 630A Panelboard	**JF608B**	**JF608BG**
12 Triple Pole Ways 630A/800A Panelboard	**JF812B**	**JF812BG**
18 Triple Pole Ways 630A/800A Panelboard	**JF818B**	**JF818BG**

[1] Max allowed incomer of 630A on this panelboard.

Invicta 3 Panelboards (630A/800A Incoming 125A/250A Outgoing)

Characteristics
- These boards will accept a range of MCCB frame sizes: 125A frame: 16-125A single pole/triple pole, 250A frame: 80-250A triple pole only
- I_{nA} = 630/800A, I_{nc} = 250A, I_{cc} = 50kA.

Outgoing MCCBs
- X160 adjustable thermal option.
- X250 adjustable thermal / magnetic option.

Description	Cat ref. Plain Door	Cat ref. Glazed door
6 Triple Pole Ways Panelboard (2 x 250A ❶ + 4 x 125A ❷)	**JF60204B** [1]	**JF60204BG** [1]
8 Triple Pole Ways Panelboard (2 x 250A ❶ + 6 x 125A ❷)	**JF80206B**	**JF80206BG**
8 Triple Pole Ways Panelboard (4 x 250A ❶ + 4 x 125A ❷)	**JF80404B**	**JF80404BG**
12 Triple Pole Ways Panelboard (2 x 250A ❶ + 10 x 125A ❷)	**JF80210B**	**JF80210BG**
12 Triple Pole Ways Panelboard (4 x 250A ❶ + 8 x 125A ❷)	**JF80408B**	**JF80408BG**
18 Triple Pole Ways Panelboard (4 x 250A ❶ + 14 x 125A ❷)	**JF80414B**	**JF80414BG**
18 Triple Pole Ways Panelboard (6 x 250A ❶ + 12 x 125A ❷)	**JF80612B**	**JF80612BG**

* Select the required 630A/800A rated panelboard (e.g. **JF80206BG**) and add the suffix **800LBS** e.g. **JF80206BG800LBS**

Incomer Kits for 630A/800A Panelboards

Characteristics
- A 300mm cable spreader box (**JF805E**) is required for all incomer kits.

Description	Max cable capacity	Cat ref.
4 Pole 400A Load Break Switch 25kA	M10 Lug	**JF844BSW**
4 Pole 630A Load Break Switch 25kA	M12 Lug	**JF864BSW**
4 Pole 800A Load Break Switch	M12 Lug	***800LBS**
800A Direct Connection Kit 4 Pole	M12 Lug	**JF884BD**
3 Pole 630A MCCB Incomer Kit 50kA Electronic LSI MCCB, I_r adjustable 0.4 – 1.0 x I_n	M12 Lug	**JF863BM**
4 Pole 630A MCCB Incomer Kit 50kA Electronic LSI MCCB, I_r adjustable 0.4 – 1.0 x I_n	M12 Lug	**JF864BM**



JF861SPD

630/800A JF Panelboard Surge Protection Device Kit

Characteristics
- SPD kit for direct integration within JF Panelboards
- Type 1 + 2 SPD with Integrated fuses facilitate direct connect to main busbars
- SPD suitable for TN / TT Earth arrangements including TNC-S (PME)
- CT2 type SPD to accommodate multiple Earthing systems

Description	Cat ref.
SPD kit Type 1 + 2 for JF Panelboards	**JF861SPD**

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DIN Rail Extension Boxes for 630A/800A Panelboards



JF801E

Characteristics
- DIN rail extension boxes have plain or glazed doors and DIN rail chassis.
- Cable spreader boxes are used for additional cabling space therefore do not require doors. Optional door kits are available.
- Supplied with DIN rail and without gland plate (utilise removed gland plate from panelboard).

Description	Cat ref. Plain Door	Cat ref. Glazed door
1 Row 34 Mod (300mm Height)	**JF801E**	**JF801EG**
2 Row 68 Mod (450mm Height)	**JF803E**	**JF803EG**

Cable Spreader Boxes & Door Kits for 630A/800A Panelboards

Characteristics
- Supplied without gland plates (utilise removed gland plate from panelboard).
- Cable spreader boxes are used for additional cabling space therefore do not require doors. Optional door kits are available.

Description	Cat ref.
Small (300mm Height) (Door not included)	**JF805E**
Large (450mm Height) (Door not included)	**JF806E**
Small Cable Spreader Box Door Kit	**JF805DK**
Large Cable Spreader Box Door Kit	**JF806DK**

Meter Pack for 630A/800A Panelboards

Characteristics
- These meter packs fit directly into the main panelboard.
- For Meter Enclosures see page 39.

Description	Cat ref.
MID Multifunction Meter Pack 800A Pulsed & Modbus	**JF803MID**

- Spreader box required to mount CT's.

Outgoing MCCB devices - See page 64 - 66 for more info

❶ MCCB's 250A 40kA Tripple Pole - Thermal Magnetic

Rating.	Adjustable Thermal & Magnetic
100A	**HNB100H**
125A	**HNB125H**
160A	**HNB160H**
200A	**HNB200H**
250A	**HNB250H**

❶ & ❷ - Please see left hand page for corresponding numbers.

❷ MCCBs - 125A Single Pole - Thermal Magnetic

Rating.	18kA Fixed Thermal	25kA Fixed Thermal
16A	**HDA014E**	**HHA014E**
20A	**HDA018E**	**HHA018E**
25A	**HDA023E**	**HHA023E**
32A	**HDA030E**	**HHA030E**
40A	**HDA038Z**	**HHA038Z**
50A	**HDA048Z**	**HHA048Z**
63A	**HDA061Z**	**HHA061Z**
80A	**HDA078Z**	**HHA078Z**
100A	**HDA098Z**	**HHA098Z**
125A	**HDA123Z**	**HHA123Z**

❷ MCCB's – 125A Tripple Pole Adjustable Thermal

Rating.	18kA Adjustable Thermal 0.63, 0.8, 1 x I_n	25kA Adjustable Thermal 0.63, 0.8, 1 x I_n
25A	**HDA025U**	**HHA025U**
40A	**HDA040U**	**HHA040U**
63A	**HDA063U**	**HHA063U**
80A	**HDA080U**	**HHA080U**
100A	**HDA100U**	**HHA100U**
125A	**HDA125U**	**HHA125U**

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JHF812B

Invicta 3 Panelboards (800A Incoming, 125A Outgoing)

Characteristics
- Comprises of IP3XD enclosure, pan assembly, neutral bar and earth bar
- Conforms to BS EN 61439-2. I_{nA} = 800A, I_{nc} = 125A/250A, I_{cc} = 50kA.
- Supplied without incoming kit, one of the incomer kits listed below must be used.
- Form 3B type 2 using outgoing terminal shield (form 3A without terminal shield).
- Removable gland plates are provided top and bottom for ease of installation.
- MCCB: 800A 3 or 4 pole.
- Incoming cable lugs 44mm pad with 2 x M12 hexagonal bolt.
- For dimensions see page 79.

Cable Capacity Incomers & Outgoers
Incomers: 800A MCCB: 2 x 300mm²,
Outgoers: Single pole up to 125A - 70mm² flexible, 95mm² solid.

Outgoing MCCBs
- Adjustable thermal options on triple pole.

Description	Cat ref. Plain Door	Cat ref. Glazed door	
12 Triple Pole Ways 800A Panelboard	**JHF812B**	**JHF812BG**	125A outgoers only
18 Triple Pole Ways 800A Panelboard	**JHF818B**	**JHF818BG**	125A outgoers only



JHF80408B

Invicta 3 Panelboards (800A Incoming 125A / 250A Outgoing)

- These boards will accept two MCCB frame sizes: 125A frame: 16 - 125A, 250A frame: 100 - 250A.
- I_{nA} = 800A, I_{nc} = 250A, I_{cc} = 50kA.
- Triple pole up to 250A - 150mm² flexible.

Description	Cat ref. Plain Door	Cat ref. Glazed door
8 Triple Pole Ways 800A Panelboard (2 x 250A ❶ + 6 x 125A ❷)	**JHF80206B**	**JHF80206BG**
8 Triple Pole Ways 800A Panelboard (4 x 250A ❶ +4 x 125A ❷)	**JHF80404B**	**JHF80404BG**
12 Triple Pole Ways 800A Panelboard (2 x 250A ❶ + 10 x 125A ❷)	**JHF80210B**	**JHF80210BG**
12 Triple Pole Ways 800A Panelboard (4 x 250A ❶ + 8 x 125A ❷)	**JHF80408B**	**JHF80408BG**
18 Triple Pole Ways 800A Panelboard (4 x 250A ❶ + 14 x 125A ❷)	**JHF80414B**	**JHF80414BG**
18 Triple Pole Ways 800A Panelboard (6 x 250A ❶ + 12 x 125A ❷)	**JHF80612B**	**JHF80612BG**

MCCB Incomer Kits for 800A Panelboards

Description	Palm lug max (width)	Cat ref.
800A 3 Pole MCCB Incomer Auto 50kA	60mm	**JHF883BM**
800A 4 Pole MCCB Incomer Auto 50kA	60mm	**JHF884BM**



JN001BP

Accessories

Description	Cat ref.
Locking Kit for MCCB Incoming Device (All Ratings)	**HXD039H**
Allen Key Set	**JF296A**
End Plate for Invicta 3 800A Range	**JFPLATE**
Key Lock with One Key	**JK222PK**
x125 Frame 1 Pole Blank (3x blanks required per triple pole)	**JN001BP**
x250 Frame 3 Pole Blank (1x blank required per triple pole)	**JF003BP**
Outgoer Locking Kit (fits to toggle for up to 3 padlocks max ø 8mm²)	**HXA039H**

800A JHF Panelboard Surge protection device kit

Characteristics:
- SPD kit for direct integration within JHF Panelboards
- Type 1 + 2 SPD with integrated fuses to facilitate direct connection to main busbars
- SPD suitable for TN/TT Earth arrangements including TNC-S (PME)
- CT2 type SPD to accommodate multiple Earth arrangements

Description	Cat ref.
SPD kit Type 1 + 2 for JHF Panelboards	**JHF861SPD**

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DIN Rail Extension Boxes for 800A Panelboards

- DIN rail extension boxes have plain or glazed doors and DIN rail chassis.
- Cable spreader boxes are used for additional cabling space therefore do not require doors. Optional door kits are available.
- Supplied with DIN rail and without gland plate (utilise removed gland plate from panelboard).

Description	Cat ref. Plain Door	Cat ref. Glazed door
1 Row 34 Mod (300mm Height)	**JF801E**	**JF801EG**
2 Row 68 Mod (450mm Height)	**JF803E**	**JF803EG**

Cable Spreader Boxes for 800A Panelboards

- Supplied without gland plates (utilise removed gland plate from panelboard).
- Cable spreader boxes are used for additional cabling space therefore do not require doors. Optional door kits are available.

Description	Cat ref.
Small (300mm Height) (Door not included)	**JF805E**
Large (450mm Height) (Door not included)	**JF806E**
Small Cable Spreader Box Door Kit	**JF805DK**
Large Cable Spreader Box Door Kit	**JF806DK**

Meter Pack for 800A Panelboards

- These meter packs fit directly into the main panelboard.
- For Meter Enclosures see page 39.

Description	Cat ref.
MID Multifunction Meter Pack 800A MID Pulsed & Modbus	**JF803MID**

- Spreader box required to mount CT's.

Outgoing Devices Thermal Magnetic - See page 64 - 66 for more info.

❶ MCCBs x250 40kA - Triple Pole

Rating.	Adjustable Thermal & Magnetic
100A	**HNB100H**
125A	**HNB125H**
160A	**HNB160H**
200A	**HNB200H**
250A	**HNB250H**

❷ MCCBs - 125A 18kA Single Pole

Rating.	18kA Fixed Thermal	25kA Fixed Thermal
16A	**HDA014E**	**HHA014E**
20A	**HDA018E**	**HHA018E**
25A	**HDA023E**	**HHA023E**
32A	**HDA030E**	**HHA030E**
40A	**HDA038Z**	**HHA038Z**
50A	**HDA048Z**	**HHA048Z**
63A	**HDA061Z**	**HHA061Z**
80A	**HDA078Z**	**HHA078Z**
100A	**HDA098Z**	**HHA098Z**
125A	**HDA123Z**	**HHA123Z**

❷ MCCBs - 125A 25kA Triple Pole Adjustable Thermal

Rating.	18kA Adjustable Thermal 0.63, 0.8, 1 x I_n	25kA Adjustable Thermal 0.63, 0.8, 1 x I_n
25A	**HDA025U**	**HHA025U**
40A	**HDA040U**	**HHA040U**
63A	**HDA063U**	**HHA063U**
80A	**HDA080U**	**HHA080U**
100A	**HDA100U**	**HHA100U**
125A	**HDA125U**	**HHA125U**

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JF12504SM



JF450CF



JF4508TM

Meter Enclosures for JF Panelboards

- Gland plates not included (utilise removed Gland plate from panelboard).
- When selecting outgoing metering, the panelboard metering system is easily configured by selecting a side, top or combination that matches the panelboard (e.g. for the **JF406B/G** board, you can select a **JF12504SM** side mounted meter enclosure that can house 4 **ECM01** panel mount meters). When using both side and top/bottom meter enclosures, corner filler enclosures are available.
- Meter blanky plates **JF96BP** are required for each unused meter way.
- For help choosing your metering solution see the Method Chart on page 79.
- Please contact us for any non-standard requirements or assembly.
- For dimensions see page 81.

Suitable for board type / Description	Spaces for Meters	Cat ref.
Side Meter Enclosures		
6/8 Way JF Board	4 x Din 96 Cut-Outs	**JF12504SM**
12 Way JF Board	6 x Din 96 Cut-Outs	**JF14006SM**
16 Way JF Board	8 x Din 96 Cut-Outs	**JF15508SM**
18 Way JF Board	9 x Din 96 Cut-Outs	**JF17009SM**
Blanking Plate DIN 96	-	**JF96BP**
Top/Bottom Meter Enclosures		
300mm Enclosure	4 x DIN 96 Cut-Outs	**JF3004TM**
450mm Enclosure	8 x DIN 96 Cut-Outs	**JF4508TM**
Meter Blanking Plate DIN 96	-	**JF96BP**
Corner Filler Enclosures		
300mm Corner Filler Side Enclosure	-	**JF300CF**
450mm Corner Filler Side Enclosure	-	**JF450CF**



JN11004SM



JN3003TM

Side/Top/Bottom Meter Enclosures for JN Panelboards

Characteristics
- Blanking plates not included.
- For meters see page 39.
- For dimensions see page 81.

Suitable for board type / Description	Apertures for Meters	Cat ref.
Side Meter Enclosures		
4 Way JN Board	2 x DIN 96 Cut-Outs	**JN9502SM**
6/8 Way JN Board	4 x DIN 96 Cut-Outs	**JN11004SM**
12 Way JN Board	6 x DIN 96 Cut-Outs	**JN12506SM**
16 Way JN Board	8 x DIN 96 Cut-Outs	**JN15508SM**
Top/Bottom Meter Enclosures		
300mm Enclosure	3 x DIN 96 Cut-Outs	**JN3003TM**
450mm Enclosure	6 x DIN 96 Cut-Outs	**JN4506TM**
Meter Blanking Plate	-	**JF96BP**
Corner Filler Enclosures		
300mm Corner Filler Side Enclosure JN	-	**JN300CF**
450mm Corner Filler Side Enclosure JN	-	**JN450CF**

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Single Phase Direct Connect kWh Meters - MID Approved

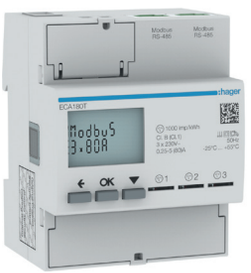
Description:
- MID approved meter range (except EC…180T)
- A range of both direct connect and CT supplied din rail mounted meters

Characteristics:
- CT supplied meters compatible with 1 A / 5A CT's (not suitable for use with cables / ct's from page 38)
- Choice of communication options – pulse output kWh, Modbus or Mbus



ECN140D

Description	Width (1 Mod =17.5mm)	Cat ref.
40A kWh Meters		
1Ph kWh Meter Direct 40A Pulsed Output 1M	1 Mod	**ECN140D**
1Ph kWh Meter Direct 40A 1M Pulsed Output MID	1 Mod	**ECP140D**
1Ph kWh Meter Direct 40A 1M MBUS MID	1 Mod	**ECM140D**
1Ph kWh Meter Direct 40A 1M MODBUS MID	1 Mod	**ECR140D**
3 x 80A kWh Meters - Not MID Approved		
1Ph kWh Meter Direct 3x80A 4M Pulsed Output	4 Mod	**ECP180T**
1Ph kWh Meter Direct 3x80A 4M MBUS	4 Mod	**ECM180T**
1Ph kWh Meter Direct 3x80A 4M MODBUS	4 Mod	**ECR180T**
80A kWh Meters		
1Ph kWh Meter Direct 80A 2M Pulsed Output MID	2 Mod	**ECP180D**
1Ph kWh Meter Direct 80A 2M MBUS MID	2 Mod	**ECM180D**
1Ph kWh Meter Direct 80A 2M MODBUS MID	2 Mod	**ECR180D**



ECA180T

Three Phase Direct Connect kWh Meters - MID Approved



ECM310D

Description	Width (1 Mod =17.5mm)	Cat ref.
80A kWh Meters		
3Ph kWh Meter Direct 80A 4M MID	4 Mod	**ECP380D**
3Ph kWh Meter Direct 80A 4M MBUS MID	4 Mod	**ECM380D**
3Ph kWh Meter Direct 80A 4M MODBUS MID	4 Mod	**ECR380D**
125A kWh Meters		
3Ph kWh Meter Direct 125A 6M S0 MID	6 Mod	**ECP310D**
3Ph kWh Meter Direct 125A 6M MBUS MID	6 Mod	**ECM310D**
3Ph kWh Meter Direct 125A 6M MODBUS MID	6 Mod	**ECR310D**

Three Phase CT Fed kWh Meters



ECM300C

Description	Width (1 Mod =17.5mm)	Cat ref.
1-5A kWh Meters		
3Ph kWh Meter via CT 1-5A 4M Pulsed Output MID	4 Mod	**ECP300C**
3Ph kWh Meter via CT 1-5A 4M MBUS MID	4 Mod	**ECM300C**
3Ph kWh Meter via CT 1-5A 4M MODBUS MID	4 Mod	**ECR300C**



HGR96EWC

Panel Mounted DIN 96 x 96 Meters

- Panel mounted meters suitable for use with Hager MCCB Panelboard enclosures
- DIN 96 x 96 mounting
- Cables not supplied with meters
- CT, CT cable & voltage reference cables to be selected from 38 - 39

Description	Cat ref.
Panel Mounted Multifunction Meter Pulse/Modbus	**ECM01**
Hager by Rayleigh MID Panel Mounted Meter Pulse/Modbus	**HGR96EWC**
Hager by Rayleigh MID Panel Mounted Meter Mbus	**HGR96EWMB**



HGR41EWC

DIN Rail Mounted Meters

- Cables & CT supplied separately
- CT, CT Cable & voltage reference cables to be selected from this page.

Description	Cat ref.
DIN Rail Mounted Plug-in Meter CT Fed	**JKM01**
DIN Rail Mounted Plug-in Meter CT Fed - Dual Channel Input	**JKM02**
Hager by Rayleigh MID DIN Rail Mounted Plug-in Meter CT Fed Pulse/Modbus	**HGR41EWC**


PGMF300


PGMFT300

Meter Cables

Description	Cat ref. Meter to Meter Supply Cable	Cat ref. Voltage Supply Cable
Meter Supply Cable - PVC		
1m - Voltage Supply Cable with Fuse Carrier (For JF Meter Enclosures)	**-**	**JF130VMF**
1m - Voltage Supply Cable with Fuse Carrier (For JN Meter Enclosures)	**-**	**JN130VMF**
0.15m - Hi Flex Supply Cable	**PGMFT150**	**-**
0.30m - Hi Flex Supply Cable	**PGMFT300**	**PGMF300**
0.50m - Hi Flex Supply Cable	**PGMFT500**	**PGMF500**
1.00m - Hi Flex Supply Cable	**PGMFT1000**	**PGMF1000**
1.30m - Hi Flex Supply Cable	**PGMFT1300**	**PGMF1300**
2.00m - Hi Flex Supply Cable	**PGMFT2000**	**PGMF2000**
3.00m - Hi Flex Supply Cable	**PGMFT3000**	**PGMF3000**


PGRJ1000

RJ45 Connection Cable

Description	Cat ref.
0.30m - RJ45 Connector Cable 67 7003	**PGRJ300**
0.50m - RJ45 Connector Cable 67 L7005 LSZH	**PGRJ500**
1.00m - RJ45 Connector Cable 67 L7005 LSZH	**PGRJ1000**
1.50m - RJ45 Connector Cable 67 L7005 LSZH	**PGRJ1500**
2.00m - RJ45 Connector Cable 67 L7005 LSZH	**PGRJ2000**
3.00m - RJ45 Connector Cable 67 L7005 LSZH	**PGRJ23000**

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Plug-in CTs

- No leads supplied with these CTs (RJ45 connection cable)
- For technical data see page 86.
- Suitable for use with ECM01, JKM01, JKM02 & Hager by Rayleigh meters.

Description	Cat ref. 125A	Cat ref. 250A	Cat ref. 400A
60A 3 Phase CT	**EC1260CT**	**EC2560CT**	**-**
100A 3 Phase CT	**EC12100CT**	**EC25100CT**	**-**
125A 3 Phase CT	**EC12125CT**	**EC25125CT**	**-**
160A 3 Phase CT	**EC12160CT**	**EC25160CT**	**-**
200A 3 Phase CT	**-**	**EC25200CT**	**-**
250A 3 Phase CT	**-**	**EC25250CT**	**EC40250CT**
400A 3 Phase CT	**-**	**-**	**EC40400CT**
630A 3 Phase CT	**-**	**-**	**EC40630CT**
800A 3 Phase CT	**-**	**-**	**EC80800CT**



EC1260CT

Converter

Description	Cat ref.
Standard CT to plug in adapter	**JFA03**



JFA03



JFD306U



JFG412U

Cable Capacity
20A = 16mm²
32A = 16mm²
63A = 25mm²
100A = 95mm² = M8 Lug
125A = 95mm² = M8 Lug
160A = 95mm² = M8 Lug
200A = 240mm² = M10 Lug
250A = 240mm² = M10 Lug
315A = 240mm² = M10 Lug
400A = 240mm² = M10 Lug
630A = 2 x 300mm² = M12 Lug
800A = 2 x 300mm² = M12 Lug

Spare Fuse types
20A = NIT20
32A = NIT32
63A = TIS63
100A = TCP100
125A = TF125
160A = TF160
200A = TF200
250A = TKF250
315A = TKF315
400A = TMF400
630A = TTM630
800A = TLM800

Fuse Combination Switches 20 - 800A

Characteristics
- Provides individual protection and control of circuits.
- Enclosures up to 800A have been designed to provide adequate cabling space without the need for additional cable spreader boxes.
- Operation of the device is through a door mounted rotary handle which is mechanically interlocked to prevent access to live conductors when the switch is in the on position. The handle is padlockable in the off position.
- All versions will accept standard BS 88 fuse links and can be converted to switch disconnector by fitting copper links.

Utilisation category
- AC22A : 20 - 250A
- AC22B : 315A - 800A

Product features
- Conforms to: BS EN 60947-3
- Rated IP41.

Note: Maximum rated fuse links are fitted in all fuse combination switches.
Note: Copper links for conversion to isolating switches
- For dimensions see page 88.
- For technical information see page 89.

Description	Cat ref.	Cat ref. Cable extension boxes if required
Fuse Combination Switches Single Pole & Switched Neutral		
20A Fuse Combination Switch SP&SN	**JFB202U**	**-**
32A Fuse Combination Switch SP&SN	**JFB203U**	**-**
63A Fuse Combination Switch SP&SN	**JFD206U**	**-**
100A Fuse Combination Switch SP&SN	**JFE210U**	**-**
Fuse Combination Switches Triple Pole & Neutral		
20A Fuse Combination Switch TP&N	**JFB302U**	**-**
32A Fuse Combination Switch TP&N	**JFB303U**	**-**
63A Fuse Combination Switch TP&N	**JFD306U**	**-**
100A Fuse Combination Switch TP&N	**JFE310U**	**-**
125A Fuse Combination Switch TP&N	**JFG312U**	**JZA701**
160A Fuse Combination Switch TP&N	**JFG316U**	**JZA701**
200A Fuse Combination Switch TP&N	**JFG320U**	**JZA701**
250A Fuse Combination Switch TP&N	**JFG325U**	**JZA701**
315A Fuse Combination Switch TP&N	**JFH331U**	**JZA702**
400A Fuse Combination Switch TP&N	**JFH340U**	**JZA702**
630A Fuse Combination Switch TP&N	**JFI363U**	**JZA703**
800A Fuse Combination Switch TP&N	**JFI380U**	**JZA703**
Fuse Combination Switches Triple Pole & Switched Neutral		
20A Fuse Combination Switch TP&SN	**JFB402U**	**-**
32A Fuse Combination Switch TP&SN	**JFB403U**	**-**
63A Fuse Combination Switch TP&SN	**JFD406U**	**-**
100A Fuse Combination Switch TP&SN	**JFE410U**	**-**
125A Fuse Combination Switch TP&SN	**JFG412U**	**JZA701**
160A Fuse Combination Switch TP&SN	**JFG416U**	**JZA701**
200A Fuse Combination Switch TP&SN	**JFG420U**	**JZA701**
250A Fuse Combination Switch TP&SN	**JFG425U**	**JZA701**
315A Fuse Combination Switch TP&SN	**JFH431U**	**JZA702**
400A Fuse Combination Switch TP&SN	**JFH440U**	**JZA702**
630A Fuse Combination Switch TP&SN	**JFI463U**	**JZA703**
800A Fuse Combination Switch TP&SN	**JFI480U**	**JZA703**
Copper Links		
63A	**JC60L**	**-**
100A	**JC10L**	**-**
125 / 250A	**JC20L**	**-**
315 / 400A	**JC40L**	**-**

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Switch Fuses


IU44-11

Characteristics
- Amendment 3 compliant switch fuses have a full metal construction to comply with BS 7671, when used in residential applications
- For dimensions see page 91.

Description	Cat ref.	Cat ref. Amd 3 door
4 Module Metal Unit 1 x 100A Isolator, AC22A. Connection Capacity: 50mm² Rigid Conductor, 35mm² Flexible Conductor, 1 x 63A Fuse	**IU44-16**	**IU44-16D**
4 Module Metal Unit 1 x 100A Isolator, AC22A. Connection Capacity: 50mm² Rigid Conductor, 35mm² Flexible Conductor, 1 x 80A Fuse	**IU44-18**	**IU44-18D**
4 Module Metal Unit 1 x 100A Isolator, AC22A. Connection Capacity: 50mm² Rigid Conductor, 35mm² Flexible Conductor, 1 x 100A Fuse	**IU44-11**	**IU44-11D**

Switch Disconnectors 20-800A


JAE420

Characteristics
- Designed to provide individual isolation of circuits up to 800A.
- Provides adequate cabling space without the need for additional cable spreader boxes.
- Operation of the device is through a door mounted rotary handle which is mechanically interlocked to prevent access to live conductors when the switch is in the on position. The handle is padlockable in the off position.

Utilisation category
- AC-22A

Product features
- Conforms to: BS EN 60947-3
- IP rating: IP41.
- For technical information see page 88 - 92.


JAH363

Rating	Cat ref.	Cat ref. Cable extension boxes if required
Switch Disconnectors Triple Pole & Neutral		
160A	**JAC316**	**JZA700**
200A	**JAE320**	**JZA701**
250A	**JAE325**	**JZA701**
315A	**JAG331**	**JZA701**
400A	**JAG340**	**JZA701**
630A	**JAH363**	**JZA702**
800A	**JAH380**	**JZA702**
Switch Disconnectors Triple Pole & Switched Neutral		
20A	**JAB402B**	**-**
32A	**JAB403B**	**-**
63A	**JAB406B**	**-**
100A	**JAB410B**	**-**
125A	**JAC412B**	**-**
160A	**JAC416**	**JZA700**
200A	**JAE420**	**JZA701**
250A	**JAE425**	**JZA701**
315A	**JAG431**	**JZA701**
400A	**JAG440**	**JZA701**
630A	**JAH463**	**JZA702**
800A	**JAH480**	**JZA702**

Cable Capacity
20A = 16mm²
32A = 16mm²
63A = 25mm²
100A = 95mm² = M8 Lug
125A = 95mm² = M8 Lug
160A = 95mm² = M8 Lug
200A = 240mm² = M10 Lug
250A = 240mm² = M10 Lug
315A = 240mm² = M10 Lug
400A = 240mm² = M10 Lug
630A = 2 x 300mm² = M12 Lug
800A = 2 x 300mm² = M12 Lug

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JG01S

Cable Capacity
20 - 40A = 16mm²
63 - 100A = 35mm²

IP65 Switch Disconnectors

- A range of enclosed switch disconnectors to IP65 for individual isolation.
- The devices are padlockable in three positions and offer plenty of cabling space. Clip on auxiliary contacts can be fitted retrospectively.

Product features
- Conforms to: BS EN 60947-3.
- IP65 to BS EN 60529.

Range: TPN 10, 16, 25, 40, 63 & 80A.

Utilisation category
- AC- 21.
- AC- 22.
- For technical information see page 91.

I_n AC 21	I_n AC 22	Cat ref.
20A	10A	**JG00S**
25A	16A	**JG01S**
40A	25A	**JG02S**
63A	40A	**JG03S**
80A	63A	**JG04S**
100A	80A	**JG05S**

Auxiliary Changeover Contacts

Description	Cat ref.
1 Normally Open / 1 Normally Closed Auxiliary Contacts 16-80A	**JG10A**
2 Normally Open / 2 Normally Closed Auxiliary Contacts 16-80A	**JG20A**



JG440DC

Cable Capacity
20 - 40A = 16mm²
63 - 100A = 35mm²

IP65 Switch Disconnectors - DC

- Used in applications such as photovoltaic installations where they isolate the incoming side of the inverter.
- They are supplied in grey with a black handle so that it is easy to distinguish them from the yellow/red A.C. switches used on the outgoing side of the inverter.

Product Features
- Conforms to: BS EN 60947-3 IP65 to BS EN 60529.
- An interlock ensures that the cover cannot be removed in both the ON and PADLOCKED OFF positions.

Rating	Utilisation Category	Cat ref.
12A at 500V DC-21B, 10A at 600V DC-21B 8A at 800V DC-21B, 6A at 440V DC-22B	DC-21B	**JG416DC**
16A at 500V DC-21B, 12A at 600V DC-21B 10A at 800V DC-21B, 6A at 440V DC-22B	DC-21B DC-22B	**JG425DC**
20A at 500V DC-21B, 16A at 600V DC-21B 12A at 800V DC-21B, 16A at 440V DC-22B	DC-21B DC-22B	**JG440DC**

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Enclosed MCCBs

- The devices are mounted in IP31 enclosures, with removable cable entry plates located on the top and bottom.
- Single & triple pole devices are equipped with fully rated neutral links.

Non-Auto MCCB
- Triple pole: 125A - 250A - 400A - 630A.
- Four pole: 125A - 250A - 400A - 630A.

Specification
- Conforms to BS EN 61439-2.

Cable Capacity
- 63 - 125A: Flexible cable: min 6mm², max 70mm², Rigid cable: min 6mm², max 95mm².
- RCD add-on adjustable from 0.03A, 0.1A, 0.3A, 1A, 3A, 6A.
- Time delay - Instantaneous, 60ms, 150ms, 300ms, 500ms, 1s.
- For technical details and dimensions see page 94.


JG38BR


JG41BM


JG45BM

Description	I_{cu}	Cat ref.
Enclosed MCCBs Single Pole & Neutral		
63A Single Pole Enclosed MCCB	18kA	**JG25BM**
100A Single Pole Enclosed MCCB	18kA	**JG28BM**
125A Single Pole Enclosed MCCB	18kA	**JG31BM**
Enclosed MCCBs Triple Pole and Neutral (63-125A)		
63A 3-Pole Enclosed MCCB (40A-50A 63A)	18kA	**JG26BM**
100A 3-Pole Enclosed MCCB (63A-80A-100A)	18kA	**JG29BM**
125A 3-Pole Enclosed MCCB (80A-100-125A)	18kA	**JG32BM**
125A 3-Pole Enclosed Non-Auto MCCB	Non-Auto	**JG34BS**
Enclosed MCCBs Triple Pole and Neutral (160-250A)		
160A 3-Pole Enclosed MCCB (Adjustable)	25kA	**JG36BM**
250A 3-Pole Enclosed MCCB (Adjustable)	25kA	**JG40BM**
250A 3-Pole Enclosed Non-Auto MCCB	Non-Auto	**JG42BS**
Enclosed MCCBs Triple Pole and Neutral (400-630A)		
400A 3-Pole Enclosed MCCB (Adjustable)	50kA	**JG44BM**
400A 3-Pole Enclosed Non-Auto MCCB	Non-Auto	**JG46BS**
630A 3-Pole Enclosed MCCB (Adjustable)	50kA	**JG48BM**
630A 3-Pole Enclosed Non-Auto MCCB	Non-Auto	**JG50BS**
Enclosed MCCBs Four Pole (63-125A)		
63A 4-Pole Enclosed MCCB (Adjustable)	18kA	**JG27BM**
63A 4-Pole Enclosed MCCB (Adjustable) + RCD Add-on	18kA	**JG27BR**
100A 4-Pole Enclosed MCCB (Adjustable)	18kA	**JG30BM**
100A 4-Pole Enclosed MCCB (Adjustable) + RCD Add-on	18kA	**JG30BR**
125A 4-Pole Enclosed MCCB (Adjustable)	18kA	**JG33BM**
125A 4-Pole Enclosed Non-Auto MCCB	Non-Auto	**JG35BS**
Enclosed MCCBs Four Pole (160-250A)		
160A 4-Pole Enclosed MCCB (Adjustable)	25kA	**JG37BM**
160A 4-Pole Enclosed MCCB RCD Add-on	25kA	**JG37BR**
200A 4-Pole Enclosed MCCB RCD Add-on	25kA	**JG38BR**
250A 4-Pole Enclosed MCCB (Adjustable)	25kA	**JG41BM**
250A 4-Pole Enclosed Non-Auto MCCB	Non-Auto	**JG43BS**
Enclosed MCCBs Four Pole (400-630A)		
400A 4-Pole Enclosed MCCB (Adjustable)	50kA	**JG45BM**
375A 4-Pole Enclosed MCCB RCD Add-on	50kA	**JG45BR**
400A 4-Pole Enclosed Non-Auto MCCB	Non-Auto	**JG47BS**
630A 4-Pole Enclosed MCCB (Adjustable)	50kA	**JG49BM**
630A 4-Pole Enclosed Non-Auto MCCB	Non-Auto	**JG51BS**

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NCN116A

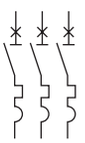
MCBs 10kA

Characteristics
- Provides protection against short circuits, protection against overload current, control, isolation, trip free mechanism.

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.
- Conforms to: BS EN 60898-2 (10kA), BS EN 60947-2 (15kA).



Rating	Width (1 Mod = 17.5mm)	Cat ref. “B” Curve	Cat ref. “C” Curve	Cat ref. “D” Curve
Single Pole MCBs				
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**



Triple Pole MCBs				
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**

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MCBs 10kA (Continued)



NCN316A



NCN416A

Rating	Width (1 = 17.5mm)	Cat ref. "B" Curve	Cat ref. "C" Curve	Cat ref. "D" Curve
Double Pole MCBs				
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**
Four Pole MCBs				
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**

Accessories



MZN175
(device & padlock
not included)

Description	Cat ref.
Padlockable Locking Kit for MCB, RCCB & RCBO	**MZN175**
Padlock with 2 keys 3/4"	**JK25A**

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RCBOs - Single Pole - 10kA B & C Curve Type A

Characteristics
- Compact protection devices which combine the overcurrent functions of an MCB with the earth fault functions of an RCCB in a single unit.
- These devices are single pole & solid neutral.
- Locking kit = Cat ref.: **MZN175.**
- New D Curve RCBO options specifically suitable for final circuits with high inrush current characteristics

Technical Data
- Conforms to IEC 61009-1, IEC 61009-2-2, EN 61009-1.

Sensitivities (fixed)
- 10mA, 30mA & 100mA.
- Flying neutral lead: 700mm.
- Terminal Capacities, 25mm² rigid, 16mm² flexible.

Operating Voltage

Current rating	Width (1 Mod = 17.5mm)	B Curve Cat ref.	C Curve Cat ref.	D Curve Cat ref.
Sensitivity 30mA (10kA) B / C Curve, Type A				
6A RCBO Single Pole 30mA 10kA	1 Mod	**ADB406U**	**ADC406U**	**ADD406U**
10A RCBO Single Pole 30mA 10kA	1 Mod	**ADB410U**	**ADC410U**	**ADD410U**
16A RCBO Single Pole 30mA 10kA	1 Mod	**ADB416U**	**ADC416U**	**ADD416U**
20A RCBO Single Pole 30mA 10kA	1 Mod	**ADB420U**	**ADC420U**	**ADD420U**
25A RCBO Single Pole 30mA 10kA	1 Mod	**ADB425U**	**ADC425U**	**ADD425U**
32A RCBO Single Pole 30mA 10kA	1 Mod	**ADB432U**	**ADC432U**	**ADD432U**
40A RCBO Single Pole 30mA 10kA	1 Mod	**ADB440U**	**ADC440U**	**-**
45A RCBO Single Pole 30mA 10kA	1 Mod	**ADB445U**	**ADC445U**	**-**
50A RCBO Single module 30mA 10kA	1 Mod	**ADB450U**	**ADC450U**	**-**
Sensitivity 10mA (10kA) B / C Curve, Type A				
6A RCBO Single Pole 10mA 10kA	1 Mod	**ACA106U**	**ACA156U**	
16A RCBO Single Pole 10mA 10kA	1 Mod	**ACA116U**	**ACA166U**	
25A RCBO Single Pole 10mA 10kA	1 Mod	**ACA125U**	**ACA175U**	
32A RCBO Single Pole 10mA 10kA	1 Mod	**ACA132U**	**ACA182U**	
40A RCBO Single Pole 10mA 10kA	1 Mod	**ACB440U**	**ACC440U**	
45A RCBO Single Pole 10mA 10kA	1 Mod	**ACB445U**	**ACC445U**	
Sensitivity 100mA (10kA) C Curve, Type A				
6A RCBO Single Pole 100mA 10kA	1 Mod	-	**AEC406U**	
10A RCBO Single Pole 100mA 10kA	1 Mod	-	**AEC410U**	
16A RCBO Single Pole 100mA 10kA	1 Mod	-	**AEC416U**	
20A RCBO Single Pole 100mA 10kA	1 Mod	-	**AEC420U**	
25A RCBO Single Pole 100mA 10kA	1 Mod	-	**AEC425U**	
32A RCBO Single Pole 100mA 10kA	1 Mod	-	**AEC432U**	
45A RCBO Single Pole 100mA 10kA	1 Mod	-	**AEC445U**	

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Arc Fault Detection Devices



Characteristics:
- Single Module Protection device that combines RCBO with Arc fault detection
- Conforms to BS EN 62606
- Rated short circuit beaking capacity Inc AC to BS EN 60898 - 6kA
- Current ratings 6A - 32A
- Available in B curve only
- Connection capacity - Rigid 25mm2, 16mm2 flexible
- Neutral cable length 1.0m
- Advanced diagnostic and firmware update on your phone, via Bluetooth through the Hager App
- Coordinated short circuit breaking capacity in conjunction with upstream Hager X160 frame size MCCB's - 10kA

Description	size	Cat ref.
6A	**1 Mod**	**ARL906U**
10A	**1 Mod**	**ARL910U**
13A	**1 Mod**	**ARL916U**
16A	**1 Mod**	**ARL920U**
20A	**1 Mod**	**ARL925U**
25A	**1 Mod**	**ARL932U**
32A	**2 Mod**	**ARC532U (10kA)**



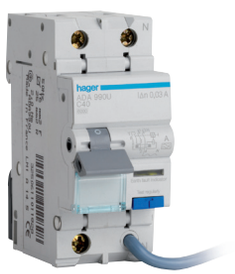
ADC816F

RCBOs - Single Pole & Switched Neutral - 4.5kA C Curve

Characteristics
- Compact protection devices which provide MCB overcurrent protection and RCCB earth fault protection in a single unit.
- The device switches both the line and neutral conductors. All ratings have 30mA earth fault protection. The units feature indicators which show whether a trip is due to an overcurrent or earth fault.

Technical Data
- Breaking capacity: 4.5kA.
- Conforms to EN 61009-1.
- Operating Voltage: 230V A.C. -15% +10% 50Hz.
- Mechanical life: 20,000 operations.
- Connection Capacity: Rigid conductor 25mm², Flexible conductor 16mm²
- **Note:** Not for use in fixed busbar consumer units or distribution boards.

Current rating	Width (1 Mod = 17.5mm)	C Curve Cat ref.
6A RCBO SPSN 4.5kA	2 Mod	**ADC806F**
10A RCBO SPSN 4.5kA	2 Mod	**ADC810F**
16A RCBO SPSN 4.5kA	2 Mod	**ADC816F**
20A RCBO SPSN 4.5kA	2 Mod	**ADC820F**
25A RCBO SPSN 4.5kA	2 Mod	**ADC825F**
32A RCBO SPSN 4.5kA	2 Mod	**ADC832F**



ADA990U

RCBOs - Single Pole & Switched Neutral - 6kA B & C Curve Type A

Characteristics
- Compact protection devices which provide MCB overcurrent protection and RCCB earth fault protection in a single unit.
- The device switches both the line 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.

Technical Data
- Breaking capacity: 6kA.
- Conforms to EN 61009-1.
- Operating Voltage: 230V A.C. +10%/-15% 50Hz.
- Mechanical life: 20,000 operations.
- Connection Capacity: Rigid conductor 25mm², Flexible conductor 16mm²
- Neutral connection flying lead - 700mm.

Current rating	Width (1 Mod = 17.5mm)	B Curve Cat ref.	C Curve Cat ref.
6A RCBO SPSN 6kA	2 Mod	**ADA906U**	**ADA956U**
10A RCBO SPSN 6kA	2 Mod	**ADA910U**	**ADA960U**
16A RCBO SPSN 6kA	2 Mod	**ADA916U**	**ADA966U**
20A RCBO SPSN 6kA	2 Mod	**ADA920U**	**ADA970U**
25A RCBO SPSN 6kA	2 Mod	**ADA925U**	**ADA975U**
32A RCBO SPSN 6kA	2 Mod	**ADA932U**	**ADA982U**
40A RCBO SPSN 6kA	2 Mod	**ADA940U**	**ADA990U**



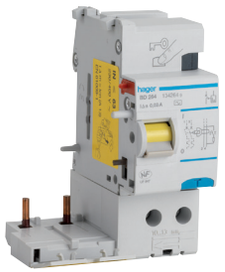
BD163T

Triple Pole RCD Add-On Blocks for MCB Devices

Characteristics
- Compatible with **NBN, NCN & NDN** range of MCB devices.
- Can be used in combination with any Hager 3 pole 10kA MCB up to 63A. Requires the use of the adjacent outgoing way.
- Type A RCD provides added protection against 'pulsating D.C. current'
- 3 Phase earth leakage protection up to 63A.
- One module add-on block + MCB combinations suit all Hager distribution boards.
- BS EN 61009-1 Appendix G.

Sensitivity $I_{\Delta n}$	I_n A	Width (35mm)	Cat ref.
30mA	63A	4 Mod	**BD163T**
100mA	63A	4 Mod	**BE163T**
300mA	63A	4 Mod	**BF163T**

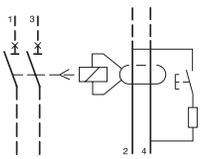
RCCB Add-On Blocks for MCB Devices



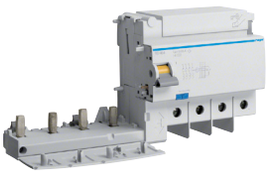
BD264

Characteristics
- Provide earth fault protection when associated with the 10kA (types **NBN**, **NCN**, **NDN**) range of MCBs.
- 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.
- Protection against nuisance tripping.
- All devices have a test facility.
- Note: Not for use in fixed busbar distribution boards.

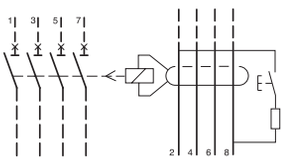
Technical Data
- Nominal voltage 230 - 400V.
- Selective (time delay) versions are available in 100mA & 300mA.
- Connection Capacity: 16mm² Flexible, 25mm² Rigid.
- Conforms to BS EN 61009 Appendix G



Sensitivity $I_{\Delta n}$	I_n A	Width (1 Mod = 17.5mm)	Cat ref.
Double Pole RCCB Add-On Blocks			
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**



BD464



Four Pole RCCB Add-On Blocks			
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**

One Module Add-On Blocks for MCB Devices



BD163T

Characteristics
- Compatible with **NBN, NCN & NDN** range of MCB devices.
- Can be used in combination with any Hager 3 pole 10kA MCB up to 63A. Requires the use of the adjacent outgoing way.
- Type A RCD provides added protection against 'pulsating D.C. current'
- 3 Phase earth leakage protection up to 63A.
- One module add-on block + MCB combinations suit all Hager distribution boards.
- BS EN 61009-1 Appendix G.
- For technical details see page 105.

Sensitivity $I_{\Delta n}$	I_n A	Width (1 Mod = 17.5mm)	Cat ref.
30mA	63A	4 Mod	**BD163T**
100mA	63A	4 Mod	**BE163T**
300mA	63A	4 Mod	**BF163T**

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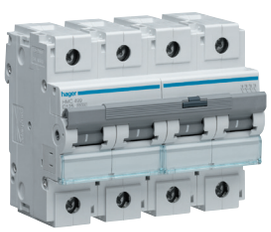
HMF199T



HMF299T



HMF399T



HMF499T

MCBs 80 - 125A

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

Standards
- 10 kA: BS EN 60898-1, 10 kA BS EN 60947-2
- 15 kA: BS EN 60898-1, 15 kA BS EN 60947-2
- I_n 80 to 125A

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

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

Lockable Toggle
- MCB can be locked in “Off” position by the integrated locking facility on the toggle.
- This lock allows the insertion of a 2.5-3.5mm plastic cable tie where you can fit a warning card if necessary, allowing a safer working environment.
- Compatible with RCD Add-On Blocks.

Rating	Width (1 = 17.5mm)	Cat ref. 10kA C Curve	Cat ref. 15kA C Curve	Cat ref. 15kA D Curve
Single Pole MCBs				
80A	1 ½ Mod	**HMF180T**	**HMC180T**	**HMD180T**
100A	1 ½ Mod	**HMF190T**	**HMC190T**	**HMD190T**
125A	1 ½ Mod	**HMF199T**	**HMC199T**	**HMD199T**
Double Pole MCBs				
80A	3 Mod	**HMF280T**	**HMC280T**	**HMD280T**
100A	3 Mod	**HMF290T**	**HMC290T**	**HMD290T**
125A	3 Mod	**HMF299T**	**HMC299T**	**HMD299T**
Triple Pole MCBs				
80A	4 ½ Mod	**HMF380T**	**HMC380T**	**HMD380T**
100A	4 ½ Mod	**HMF390T**	**HMC390T**	**HMD390T**
125A	4 ½ Mod	**HMF399T**	**HMC399T**	**HMD399T**
Four Pole MCBs				
80A	6 Mod	**HMF480T**	**HMC480T**	**HMD480T**
100A	6 Mod	**HMF490T**	**HMC490T**	**HMD490T**
125A	6 Mod	**HMF499T**	**HMC499T**	**HMD499T**



MZN130

Terminal Covers Screw Cap

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



MZN131

Phase Barrier

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

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Data is subject to errors and technical modifications. ★ New.

Single Pole & Switched Neutral MCB - 6kA C Curve

Description
- For protection and control of circuits against overloads and short circuits.

Technical Data
- Conforms to BS EN 60898
- Voltage rating - 230V A.C.

Connection Capacity
- Rigid 16mm²
- Flexible 10mm²
- Locking kit = Cat ref.: **MZN175**

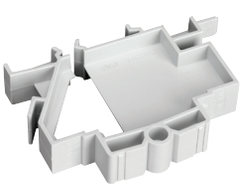


MLN710A

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

Single Module Blank

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



JK01B

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CDC225U



CFC425U

2 & 4 Pole RCCBs

Characteristics
- To open a circuit automatically in the event an earth fault between line and earth, and/or neutral and earth.

Technical Data
- Conforms to BS EN 61008, IEC1008
- 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 flag indicator
- Yellow = Tripped
- All RCCBs have trip free mechanisms and can be padlocked either on or off with the use of a **MZN175**.

Operating Voltage
- 2P 127- 230V A.C.
- 4P 230 - 400V A.C.

Sensitivity type A	2 Pole Type F Cat ref.	4 Pole Type F Cat ref.	2 Pole Type B Cat ref.	4 Pole Type B Cat ref.	2 Pole Type A Cat ref.	4 Pole Type A Cat ref.
RCCBs Sensitivity 30mA						
RCCB 25A 30mA	CDF525U ★	CDF625U ★	CDB525E ★	-	**CDA225U**	**CDA425U**
RCCB 40A 30mA	CDF540U ★	CDF640U ★	CDB540E ★	CDB640E ★	**CDA240U**	**CDA440U**
RCCB 63A 30mA	CDF563U ★	CDF663U ★	-	CDB663E ★	**CDA263U**	**CDA463U**
RCCB 80A 30mA	-	-	-	-	CDA580U ★	CDA680U ★
RCCB 100A 30mA	-	-	-	-	CDA584U ★	CDA684U ★
RCCB 125A 30mA	-	-	-	-	-	CDA690 ★
RCCBs Sensitivity 100mA						
RCCB 25A 100mA	-	-	-	-	**CEA225U**	-
RCCB 40A 100mA	-	-	-	-	**CEA240U**	**CE440J**
RCCB 63A 100mA	-	-	-	-	**CEA263U**	**CE463J**
RCCB 80A 100mA	-	-	-	-	CEA580U ★	CEA680U ★
RCCB 100A 100mA	-	-	-	-	CEA584U ★	CEA684U ★
RCCBs Sensitivity 300mA						
RCCB 25A 300mA	-	-	-	-	**CFA225U**	**CF425J**
RCCB 40A 300mA	-	-	-	-	**CFA240U**	**CF440J**
RCCB 63A 300mA	-	-	-	-	**CFA263U**	**CF463J**
RCCB 80A 300mA	-	-	-	-	-	CFA680U ★
RCCB 100A 300mA	-	-	-	-	CFA584U ★	CFA684U ★
RCCB 125A 300mA	-	-	-	-	-	CFA690 ★
RCCBs Time Delayed						
RCCB 100A 100mA	-	-	-	-	CNA584U ★	CNA684U ★
RCCB 100A 300mA	-	-	-	-	CPA584U ★	CPA684U ★



CZN006

Terminal Covers

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

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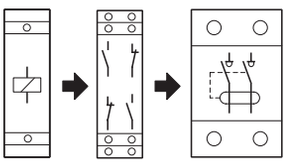
Data is subject to errors and technical modifications. ★ New.

RCCB Auxiliaries

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

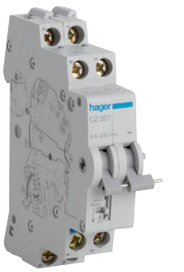
Shunt Trip
- Allows remote tripping of the associated device, operation of the coil is indicated by a flag on the front of the device.

Under Voltage Release
- Allows RCCB to be closed, only when voltage is above 85% of U_n. RCCB will automatically trip when voltage falls to between 70-35% of U_n (230V). Operation of the release is indicated by a flag on the front of the device.



MZ203 to **MZ206** **CZ001** RCCB

Description	Width (1 Mod = 17.5mm)	Cat ref.
Auxiliary Interface		
2 Normally Open / 2 Normally Closed 6A A.C.1 230V	1 Mod	**CZ001**



CZ001



MZ203

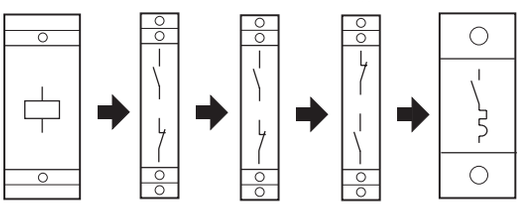
Auxiliaries for MCBs & RCCBs

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

Connection capacity
- 4mm² flexible, 6mm² rigid

Shunt Trip: Allows remote tripping of devices. Operation of the coil is indicated by a flag on the front of the device.

Under Voltage Release: Allows MCB to be closed only when voltage is above 85% of U_n. MCB will automatically trip when voltage falls to between 70-35% of U_n. Operation of the coil is indicated by a flag on the front of the device.



MZ203 to **MZ206** + **MZ201** **MZ201** + **MZ201** **MZ201** + **MZ202** **MZ201** + MCB



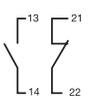
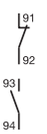
MZ201



MZ202



MZ204

	Description	Width (1 Mod = 17.5mm)	Cat ref.
	**Auxiliary Contacts 5A - 230V A.C.**		
	1NO +1NC Allows remote indication of main contact status	½ Mod	**MZ201**
	**Auxiliary Contacts & Alarm Induction**		
	Allows indication of MCB status when turned off or tripped	½ Mod	**MZ202**
	**Shunt Trip**		
	230V - 415V A.C. 110V - 130V D.C.	1 Mod	**MZ203**
	24 - 48V A.C. 12 - 48V D.C.	1 Mod	**MZ204**
	**Under Voltage Release**		
	230V A.C.	1 Mod	**MZ206**
	48V D.C.	1 Mod	**MZ205**

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EPN510



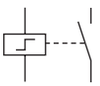
EPN520



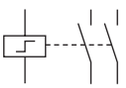
EPN518

Latching Relays

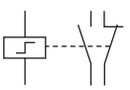
Description
- Operate when impulsed by a signal voltage.
- The impulse can be provided via a pushbutton or pushswitch. The first pulse operates the relay and latches it to its set (opposite) state, the next operation of the pushbutton returns the relay to its reset (original) state.
- Auxiliary contacts **(EPN050, EPN051)**.
- Are available for remote signalling and centralised control applications and can be easily combined with the latching relays.
- Connection: 10mm² flexible, 6mm² rigid.



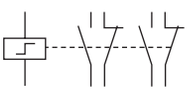
Coil	Power Circuit AC1	Width (1 Mod =17.5mm)	Cat ref.
Latching Relay 1 NO			
230V 50Hz	16A - 250V A.C.	1 Mod	**EPN510**
24V 50Hz	16A - 250V A.C.	1 Mod	**EPN513**



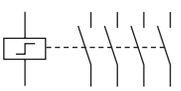
Latching Relay 2 NO			
230V 50Hz	16A - 250V A.C.	1 Mod	**EPN520**
24V 50Hz	16A - 250V A.C.	1 Mod	**EPN524**
12V 50Hz	16A - 250V A.C.	1 Mod	**EPN521**



Latching Relay 1 NC + 1 NO			
230V 50Hz	16A - 250V A.C.	1 Mod	**EPN515**
24V 50Hz	16A - 250V A.C.	1 Mod	**EPN518**
12V 50Hz	16A - 250V A.C.	1 Mod	**EPN519**



Latching Relay 2 NC + 2 NO			
230V 50Hz	16A - 250V A.C.	2 Mod	**EPN525**
24V 50Hz	16A - 250V A.C.	2 Mod	**EPN528**
12V 50Hz	16A - 250V A.C.	2 Mod	**EPN529**



Latching Relay 4 NO			
230V 50Hz	16A - 400V A.C.	2 Mod	**EPN540**
24V 50Hz	16A - 400V A.C.	2 Mod	**EPN541**



EPN050

Auxiliary Contacts

Description	Power Circuit	Width (1 Mod =17.5mm)	Cat ref.
Auxiliary Contact	2A - 250V A.C.	½ Mod	**EPN051**
Auxlliary Contacts for Centralised Control	110-230V A.C.	½ Mod	**EPN050**



ERD218

Relays

Characteristics
- To provide control of low power circuits max 16A; associated with switches, time switches etc for remote control applications.
- The relays will accept an auxiliary contact for remote signalling applications (**ESC080**).
- For the command of ELV circuits use interface relays **EN145** and **EN146**.
- For the command of high power circuits (20, 40 & 63 Amps) use contactors as shown on page 55.

Coil AC Voltage	Power Circuit AC1	Width (1 Mod =17.5mm)	Cat ref.
Relays 1 NC + 1 NO			
230V 50Hz	16A - 250V~	1 Mod	**ERC218**
24V 50Hz	16A - 250V~	1 Mod	**ERD218**
8/12V 50Hz	16A - 250V~	1 Mod	**ERL218**
Relays 2 NC + 2 NO			
230V 50Hz	16A - 250V~	2 Mod	**ERC418**
24V 50Hz	16A - 250V~	2 Mod	**ERD418**
8/12V 50Hz	16A - 250V~	1 Mod	**ERL418**

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Data is subject to errors and technical modifications. ★ New.

Low Noise Contactors



ESC225S

Description
- For the remote switching and control of power circuits where noise may be a concern i.e. hotel bedrooms etc.

Technical Data
- The choice of contactor depends upon a number of parameters, e.g. The nature of the supply, the power it is switching, the characteristics of the load, the control voltage required & number of operations.
- All contactor ratings are for AC1 loads only – if the load differs from AC1 the contactor may need de-rating
- The use of **LZ060** (heat dissipation inserts) between all contactors installed or between contactors and adjacent devices is required.
- For technical data, see page 107.

Options
- Contact choice: Normally open (NO), Normally closed (NC).



ESC463S

Description	Coil AC Voltage	Power Circuit	Width (1 Mod =17.5mm)	Cat ref.
25A 2NO	230V 50Hz	25A - 400V A.C.	1 Mod	**ESC225S**
40A 2NO	230V 50Hz	40A - 400V A.C.	3 Mod	**ESC240S**
63A 2NO	230V 50Hz	63A - 400V A.C.	3 Mod	**ESC263S**
25A 3NO	230V 50Hz	25A - 400V A.C.	2 Mod	**ESC325S**
40A 3NO	230V 50Hz	40A - 400V A.C.	3 Mod	**ESC340S**
25A 3NO + 1NC	230V 50Hz	25A - 400V A.C.	2 Mod	**ESC428S**
25A 4NO	230V 50Hz	25A - 400V A.C.	2 Mod	**ESC425S**
40A 4NO	230V 50Hz	40A - 400V A.C.	3 Mod	**ESC440S**
63A 4NO	230V 50Hz	63A - 400V A.C.	3 Mod	**ESC463S**
25A 4NC	230V 50Hz	25A - 400V A.C.	2 Mod	**ESC426S**

Auxiliaries & Accessories



ESC001



ESC002



ESC080

Description	Power Circuit	Width (1 Mod =17.5mm)	Cat ref.
Heat Dissipation Insert	-	½ Mod	**LZ060**
Sealable Terminal Cover for 1 Module Contactors	-	-	**ESC001**
Sealable Terminal Cover for 2 Module Contactors	-	-	**ESC002**
Sealable Terminal Cover for 3 Module Contactors	-	-	**ESC003**
1NO + 1NC Auxiliary Contact	6A - 250V A.C.	½ Mod	**ESC080**

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ESC225



ESC425

Standard Contactors

Description
- For the remote switching and control of power circuits (25A-63A AC1)

Technical Data
- The choice of contactor depends upon a number of parameters, e.g. the nature of the supply, the power it is switching, the characteristics of the load, the control voltage required, number of operations.
- All contactor ratings are for AC1 loads only – if the load differs from AC1 the contactor may need de-rating (see technical characteristics on page 108).
- The use of **LZ060** (heat dissipation inserts) between all contactors installed or between contactors and adjacent devices is required.

Options
- Contact choice
- Normally open (NO)
- Normally closed (NC)

Auxiliary
- All contactors will accept auxiliary, **ESC080** contact.

Description	Coil AC voltage	Power circuit AC1	Width (1 Mod =17.5mm)	Cat ref.
25A 1NO	230V 50Hz	25A - 250V~	1 Mod	**ESC125**
25A 2NO	230V 50Hz	25A - 250V~	1 Mod	**ESC225**
25A 2NO Manual Override	230V 50Hz	25A - 250V~	1 Mod	**ERC225**
40A 2NO	230V 50Hz	40A - 400V~	3 Mod	**ESC240**
63A 2NO	230V 50Hz	63A - 400V~	3 Mod	**ESC263**
25A 2NO	24V 50Hz	25A - 250V~	1 Mod	**ESD225**
25A 2NO Manual Override	24V 50Hz	25A - 250V~	1 Mod	**ERD225**
40A 2NO	24V 50Hz	40A - 250V~	3 Mod	**ESD240**
25A 2NO	24V 50Hz	25A - 250V~	1 Mod	**ESD225** ★
63A 2NO	24V AC 50Hz	63A - 250V~	3 Mod	**ESD263** ★
25A 2NC	230V 50Hz	25A - 250V~	1 Mod	**ESC226**
25A 2NO + 2NC	230V 50Hz	25A - 400V~	2 Mod	**ESC427** ★
40A 2NO + 2NC	230v 50Hz	40A - 400V~	3 Mod	**ESC442** ★
25A 1NO + 1NC	24V 50Hz	25A - 250V~	1 Mod	**ESD227**
25A 1NO + 1NC	230V 50Hz	25A - 250V~	1 Mod	**ESC227** ★
25A 3NO	230V 50Hz	25A - 400V~	2 Mod	**ESC325**
25A 3NO Manual Override	230V 50Hz	25A - 400V~	3 Mod	**ERC326**
40A 3NO	230V 50Hz	40A - 400V~	3 Mod	**ESC340**
40A 3NO + 1NC	230V 50Hz	40A - 400V~	3 Mod	**ESC443**
63A 3NO + 1NC	230V 50Hz	63A - 400V~	3 Mod	**ESC466**
25A 4NO	230V 50Hz	25A - 400V~	2 Mod	**ESC425**
40A 4NO	230V 50Hz	40A - 400V~	3 Mod	**ESC440**
63A 4NO	230V 50Hz	63A - 400V~	3 Mod	**ESC463**
25A 4NO	24V 50Hz	25A - 400V~	2 Mod	**ESD425**
25A 4NC	230V 50Hz	25A - 400V~	2 Mod	**ESC426**
40A 4NC	230V 50Hz	40A - 400V~	3 Mod	**ESC441**
63A 4NC	230V 50Hz	63A - 400V~	3 Mod	**ESC464**
63A 2NC + 2NO	230V 50Hz	63A - 250V~	3 Mod	**ESC465**

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Data is subject to errors and technical modifications. ★ **New.**

Override Contactors

Description
- Manual override facility allows temporary override, with automatic return at next coil energisation. Permanent off can also be selected. **ETC225S** is a low noise version.

Technical Data
- The choice of contactor depends upon a number of parameters, e.g. the nature of the supply, the power it is switching, the characteristics of the load, the control voltage required, number of operations.
- All contactors ratings are for AC1 loads only – if the load differs from AC1 the contactor may need de-rating (see technical characteristics on page 108).
- The use of **LZ060** (heat dissipation inserts) between all contactors installed or between contactors and adjacent devices is
- recommended.

Options
- Contact choice
- Normally open (NO)
- Normally closed (NC)

Auxiliary

Coil AC voltage	Power circuit AC1	Width (1 Mod =17.5mm)	Cat ref.
2 NO			
230V 50 Hz	25A - 250V~	1 Mod	**ETC225S**
230V 50 Hz	25A - 250V~	1 Mod	**ETC225**
3 NO			
230V 50 Hz	20A - 400V~	2 Mod	**ETC325**
230V 50 Hz	40A - 400V~	3 Mod	**ETC340**
4 NO			
230V 50 Hz	20A - 400V~	2 Mod	**ETC425**
230V 50 Hz	40A - 400V~	3 Mod	**ETC440**



ETC225S



ETC340



ETC425

Auxiliary for 25A Contactors

Power circuit AC1	Width (1 Mod =17.5mm)	Cat ref.
2A - 250V~	½ Mod	**ESC080**

Accessories

Description	Width (1 Mod =17.5mm)	Cat ref.
Heat Dissipation Insert	½ Mod	**LZ060**

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MM501N

Motor Starters

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

Technical Data
- Adjustable thermal relay
- AC 3 utilisation category

Connection capacity
- 2 conductors: Max size flexible 1 to 4mm², rigid 1.5 to 6mm²

Options
- Conforms to IEC 947-1, IEC 947-2 (appropriate parts of)

	Standard power ratings of 3 phase motors 50/60Hz (A.C. 3 category)			
Current setting	230V (kW)	400V (kW)	Width (1 Mod = 17.5mm)	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 & Alarm Contacts for Motor Starters

- Auxiliary Contacts - Act as an indicating device to monitor the ON or OFF position.
- Alarm Contact - Mounted inside the motor starter

Characteristics	Width (1 Mod = 17.5mm)	Cat ref.
Auxiliary Contacts 1 Normally Closed + 1 Normally Open 2A AC 1 - 400V A.C.	½ Mod	**MZ520N**
Alarm Contact 1 Normally Closed 1A AC 1 - 400V A.C. / 2A AC 1 - 230V A.C.	½ Mod	**MZ527N**



MZ528N

Under Voltage Release for Motor Starters

- To prevent automatic restarting of the controlled device

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



MZ521N

Surface Mounting Enclosure for Motor Starters

Description	Dimensions (H x W x D mm)	Cat ref.
IP55 Surface Mounting Enclosure for Motor Starter	78 x 150 x 95	**MZ521N**



MZ530N

Emergency Stop Button

Description	Cat ref.
IP65 External Emergency Stop Button	**MZ530N**

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Data is subject to errors and technical modifications. ★ New.

SPSN Fuse Carriers (supplied without cartridge fuse)

Characteristics
- Protection and control of circuits against overloads and short-circuits.

Technical Data
- Characteristics type (fuse) gF
- Short-circuit rating: 4kA (10-20A), 6kA (25 & 32A).
- Voltage rating - 250V A.C.
- Connection Capacity: Rigid 16mm², Flexible 10mm²

Rating	Width (1 = 17.5mm)	Cat ref. SPSN Fuse Carrier	Cat ref. Fuse Type gF
10A	1 Mod	**L12401**	**LF138**
16A	1 Mod	**L12501**	**LF139**
20A	1 Mod	**L12601**	**LF140**
25A	1 Mod	**L12701**	**LF141**
32A	1 Mod	**L12801**	**LF142**



L12401



LF140



LF138

Surge Protection Kits

Characteristics
- Developed to ensure effective protection of end equipment from fast transient overvoltages, where supplied from Hager Commercial distribution boards.
- Solid copper Earth links on all SPD kits and other design principles ensure optimum protection of end equipment through validated low U_p effective SPD performance.
- For more information on these Surge Protection Kits see distribution board pages.

Surge Protection Kits for 125A TP&N Boards	Cat ref.
Type 1 & 2 Surge Protection Kit for 125A Boards (& power and lighting boards *TM)	**JK101SPD**
Type 2 Surge Protection Kit for 125A Boards (& power and lighting boards *TM)	**JK102SPD**

Surge Protection Kits for 250A TP&N Boards	
Type 1 & 2 Surge Protection Kit for 250A Boards (& tri board - JKD2884TM)	**JK201SPD**
Type 2 Surge Protection Kit for 250A Boards (& tri board - JKD2884TM)	**JK202SPD**
Type 1 & 2 SPD kit for side by side 250A TPN boards	**JKD201SPD**
Type 2 SPD kit for side by side 250A TPN boards	**JKD202SPD**

Surge Protection Kits for JN Panelboards	
SPD kit Type 1+2 for JN Panelboards	**JN201SPD**
SPD kit Type 2 for JN Panelboards	**JN202SPD**

Surge Protection Kit for JF Panelboards	
SPD kit Type 1 + 2 for JF Panelboards	**JF861SPD**

800A JHF Panelboard Surge protection device kit

Characteristics:
- SPD kit for direct integration within JHF Panelboards
- Type 1 + 2 SPD with integrated fuses to facilitate direct connection to main busbars
- SPD suitable for TN/TT Earth arrangements including TNC-S (PME)
- CT2 type SPD to accommodate multiple Earth arrangements

Description	Cat ref.
SPD kit Type 1 + 2 for JHF Panelboards	**JHF861SPD**



VME02SPD

Type A SP&N Distribution Board SPD Kit Type 2

- Consists of: 6mm earth cables, 1x double pole surge protection device with lifetime indicator & Busbar.

Poles	I_n kA L-N	I_n kA N-PE	U_p kV	Width (mm)	Cat ref.
2	5	15	≤ 1.2	35	**VME02SPD**

Consumer Unit Type 1+2 Surge Protection Kit

- Consists of: 6mm earth cables, 1x double pole surge protection device with lifetime indicator & Busbar.

Poles	I_n kA L-N	I_n kA N-PE	U_p kV	Width (mm)	Cat ref.
2	15	25	≤ 1.2	35	**VME01SPD**

(Does not work with 100A RCCB incomer)

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Devices

(Note: 3 x SPA180 + 1x SPA180N are required for 3 Phase supply)

	SPD Type	Suitable for Earthing system	Modules	I_{imp} L -N	I_{imp} N -PE	U_p kV	In	Single or three phase system	Width (mm)	Remote contact	Integrated back-up fuse	Cat ref.
	1+2	TNS/TT	4	25kA		1.5kV		3	142.4	Yes	No	**SPA801**
	1+2	TNS/TT		12.5kA	50kA	1.2kV		3	71.2	Yes	No	**SPA932**
Type 2	2	TNS/TT	4			1.5kV	40kA	3		No	No	**SPB440D**
	2	TNS/TT	4			1.5kV	40kA	3	71.2	Yes	No	**SPB440R**
Type 3	3	TNS/TT	1	5kA		1.5kV		Single	17.5	Yes	Yes	**SPC203N**
Type 3	3	TNS/TT	2	3kA				3Phase	35.2	Yes	Yes	**SPC403N**

Description	Cat ref.
Linking busbar	**KBN381**

DC SPD

Type 2	N/A	TNS/TT	3	N/A	N/A	1.9kV		N/A	51.0	No	No	**SPV340**


SPA180


SPA180N


SPA801


SPA932


SPB440R

Replacement Cartridges

SPD part number	Cartridge part number
SPV340	**SPV040**
SPA180	**SPA080**
SPA180N	**SPA001N**
SPA801	L/N **SPA801** N/PE **SPA001N**
SPA932	L/N **SPA091** N/PE **SPB091N**
SPB440D **SPB440R**	L/N **SPB040D** N/PE **SPB040N**



HR500



HR510



HR520



HR440



HR441

Earth Fault Relays

Characteristics
- 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, available in circular and rectangular variants.
- 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.
- Conforms to BS EN 61008.

Technical Data
- Type A RCD protection.
- Output: 1 C/O contact, 250V A.C. 5/6A AC1.
- Visual display of fault by red LED.

Specific device features of HR525 & HR534.
- 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 $I_{\Delta n}$.
- Remote test and reset

Connection capacity
- Relay - 1.5 to 6mm²
- Relay - torroid link: 2 wires, 25m max.
- Test and remote reset link: 3 wires, 20m max.

Description	Characteristics	Width	Cat ref.
Earth Fault Relay with Separate Detection Torroids			
Earth fault relay C/O contact 5A A.C.1	Instant trip, fixed sensitivity $I_{\Delta n}$ = 30mA	1 Mod	**HR500**
Earth fault relay C/O contact 5A A.C.1	Instant trip, fixed sensitivity $I_{\Delta n}$ = 300mA	1 Mod	**HR502**
Earth fault relay C/O contact 6A A.C.1	Adjustable sensitivity $I_{\Delta n}$ = 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 A.C.1	Adjustable sensitivity $I_{\Delta n}$ = 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 A.C.1	Adjustable sensitivity $I_{\Delta n}$ = 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 A.C.1 Trip / reclose input feature	Adjustable sensitivity $I_{\Delta n}$ = 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**

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Circular Section Torroids

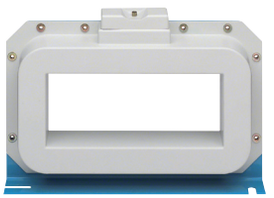
Characteristics	Cat ref.
30mm Diameter	**HR700**
35mm Diameter	**HR701**
70mm Diameter	**HR702**
105mm Diameter	**HR703**
140mm Diameter	**HR704**
210mm Diameter	**HR705**



HR702

Rectangular Section Torroids

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



HR830

Rectangular Split Torroids

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



HR820



HDA125Z

Moulded Case Circuit Breakers x160 18kA

Characteristics
- Thermal magnetic trip unit, two versions: Z/E version: fixed thermal and fixed magnetic. U version: adjustable thermal and fixed magnetic.
- Access to mechanical test button on cover.
- Lockable cover protects MCCB settings.
- Integrated padlocking handle: Ø 4mm.
- Connection capacity: 95mm² rigid cables, 70mm² flexible cables.
- Cage terminals
- Conforms to BS EN 60947-2.
- Fixed thermal: 1x I_n
- Adjustable thermal: 0.63 - 0.8 - 1 x I_n
- For technical details see table on page 121.

Description	Breaking Capacity	Cat ref. 1 pole	Cat ref. 3 pole
Moulded Case Circuit Breakers, 18kA, Fixed Thermal			
MCCBs x160 - 16A	I_{cu} / I_{cs}: 18 kA	**HDA014E** ★	**HDA016Z**
MCCBs x160 - 20A	I_{cu} / I_{cs}: 18 kA	**HDA018E** ★	**HDA020Z**
MCCBs x160 - 25A	I_{cu} / I_{cs}: 18 kA	**HDA023E** ★	**HDA025Z**
MCCBs x160 - 32A	I_{cu} / I_{cs}: 18 kA	**HDA030E** ★	**HDA032Z**
MCCBs x160 - 40A	I_{cu} / I_{cs}: 18 kA	**HDA038Z** ★	**HDA040Z**
MCCBs x160 - 50A	I_{cu} / I_{cs}: 18 kA	**HDA048Z** ★	**HDA050Z**
MCCBs x160 - 63A	I_{cu} / I_{cs}: 18 kA	**HDA061Z** ★	**HDA063Z**
MCCBs x160 - 80A	I_{cu} / I_{cs}: 18 kA	**HDA078Z** ★	**HDA080Z**
MCCBs x160 - 100A	I_{cu} / I_{cs}: 18 kA	**HDA098Z** ★	**HDA100Z**
MCCBs x160 - 125A	I_{cu} / I_{cs}: 18 kA	**HDA123Z** ★	**HDA125Z**
Moulded Case Circuit Breakers, 18kA, Adjustable Thermal			
MCCBs x160 - 25A	I_{cu} / I_{cs}: 18 kA	-	**HDA025U**
MCCBs x160 - 40A	I_{cu} / I_{cs}: 18 kA	-	**HDA040U**
MCCBs x160 - 63A	I_{cu} / I_{cs}: 18 kA	-	**HDA063U**
MCCBs x160 - 80A	I_{cu} / I_{cs}: 18 kA	-	**HDA080U**
MCCBs x160 - 100A	I_{cu} / I_{cs}: 18 kA	-	**HDA100U**
MCCBs x160 - 125A	I_{cu} / I_{cs}: 18 kA	-	**HDA125U**
Moulded Case Circuit Breakers 25kA Fixed Thermal			
MCCBs x160 - 16A	I_{cs}: 20 kA, I_{cu}: 25 kA	**HHA014E** ★	**HHA016Z**
MCCBs x160 - 20A	I_{cs}: 20 kA, I_{cu}: 25 kA	**HHA018E** ★	**HHA020Z**
MCCBs x160 - 25A	I_{cs}: 20 kA, I_{cu}: 25 kA	**HHA023E** ★	**HHA025Z**
MCCBs x160 - 32A	I_{cs}: 20 kA, I_{cu}: 25 kA	**HHA030E** ★	**HHA032Z**
MCCBs x160 - 40A	I_{cs}: 20 kA, I_{cu}: 25 kA	**HHA038Z** ★	**HHA040Z**
MCCBs x160 - 50A	I_{cs}: 20 kA, I_{cu}: 25 kA	**HHA048Z** ★	**HHA050Z**
MCCBs x160 - 63A	I_{cs}: 20 kA, I_{cu}: 25 kA	**HHA061Z** ★	**HHA063Z**
MCCBs x160 - 80A	I_{cs}: 20 kA, I_{cu}: 25 kA	**HHA078Z** ★	**HHA080Z**
MCCBs x160 - 100A	I_{cs}: 20 kA, I_{cu}: 25 kA	**HHA098Z** ★	**HHA100Z**
MCCBs x160 - 125A	I_{cs}: 20 kA, I_{cu}: 25 kA	**HHA123Z** ★	**HHA125Z**
Moulded Case Circuit Breakers 25kA Adjustable Thermal			
MCCBs x160 - 25A	I_{cs}: 20 kA, I_{cu}: 25 kA	-	**HHA025U**
MCCBs x160 - 40A	I_{cs}: 20 kA, I_{cu}: 25 kA	-	**HHA040U**
MCCBs x160 - 63A	I_{cs}: 20 kA, I_{cu}: 25 kA	-	**HHA063U**
MCCBs x160 - 80A	I_{cs}: 20 kA, I_{cu}: 25 kA	-	**HHA080U**
MCCBs x160 - 100A	I_{cs}: 20 kA, I_{cu}: 25 kA	-	**HHA100U**
MCCBs x160 - 125A	I_{cs}: 20 kA, I_{cu}: 25 kA	-	**HHA125U**

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Data is subject to errors and technical modifications. ★ **New.**

Accessories for x160 Devices

Indication contacts
- 1 changeover switch (ON/OFF): indicates the position of the MCCB “open” or “close”.
- 1 changeover alarm contact: indicates MCCB tripped.

Coil connection
- Connection capacity: 0.75 mm² flexible or rigid cables
- The cable capacity of the terminals is 0.5 to 1.25mm².

Shunt trip
- Remote tripping of MCCBs
- Operating voltage: 0.7 to 1.1 x U_n

Under voltage release
- Enables tripping of MCCBs or moulded case switches when voltage level drop between 35 and 70% of U_n. Pick up voltage 0.85 x U_n.
- Padlockable direct rotary handle is equipped with front cover and handle, fixing without additional screws.


HXA021H


HXA024H

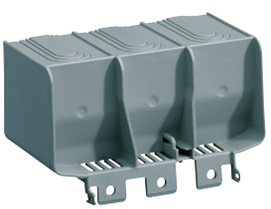
Description	Cat ref.
Auxiliary Contacts	
1 Changeover contact (On/Off), 250V A.C. / 3A, 125V D.C. / 0.4A, 1 NO+ 1NC	**HXA021H**
1 Changeover alarm contact, 250 V A.C. / 3A, 125 V D.C. / 0.4A, NO + 1 NC	**HXA024H**
Low level contact (On/Off), 125V A.C. , NO + 1 NC	**HXA025H**
Low Level alarm contact, 125 V A.C. , NO + 1 NC	**HXA026H**
Shunt Trips	
24V DC	**HXA001H**
48V DC	**HXA002H**
100-120V A.C.	**HXA003H**
200-240V A.C.	**HXA004H**
380-450V A.C.	**HXA005H**
Undervoltage Releases	
24V DC	**HXA011H**
100-120V A.C.	**HXA013H**
200-240V A.C.	**HXA014H**
380-450V A.C.	**HXA015H**
Delayed Undervoltage Releases	
24V DC	**HXA051H**
100-120V A.C.	**HXA053H**
200-240V A.C.	**HXA054H**
380-450V A.C.	**HXA055H**
Accessories	
Locking Device to Mount on MCCB for Handle Locking for 3 Padlock Max ø 8mm	**HXA039H**
Set of Three Extended Spreader Connections	**HYA014H**
Pair of Terminal Covers for Extended Straight Connections 1 Pole	**HYA029H**
Pair of Terminal Covers for Extended Straight Connections 3 Pole	**HYA021H**
Pair of Terminal Covers for Extended Spreader Connections	**HYA023H**



HXA014H

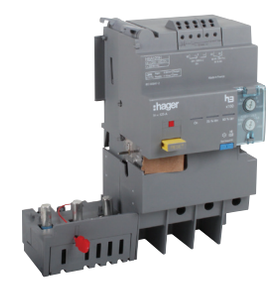

HXA039H


HYA021H


HYA023H

Add-On Blocks for x160 Devices

Characteristics
- These devices are intended to be fixed on the right side of the devices.
- Type A RCD protection for protection against pulsating D.C.
- High Immunity reduces unexpected tripping (generated by micro-processing, electronic ballast etc.).
- Fixed version: 300 mA sensitivity and instantaneous tripping, adjustable version: adjustable sensitivity and time delay.
- Test button for electrical functioning check.
- LED fault indication and auxiliary output for remote indication - (25-50% $I_{\Delta n}$).
- Assembly and disassembly facilitated by the drawer assembly system.
- Connection capacity: 95 mm² rigid cables, 70 mm² flexible cables.
- Sensitivity $I_{\Delta n}$, adjustable: 0.03 - 0.1 - 0.3 - 1 - 3 - 6A
- Adjustable tripping: instantaneous or time delay: 0.06 - 0.15 - 0.3, 0.5 - 1s
- Conforms to BS EN 60947-2.


HBA125H

Description	Cat ref. 3P
Fixed Add-on Block - 125A	**HBA127H**
Adjustable Add-on Block - 125A	**HBA125H**
Adjustable Add-on Block - 160A	**HBA160H**

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HNB100Z

Moulded Case Circuit Breakers x250 25kA

Characteristics
- Thermal magnetic trip unit, two versions: Z version: fixed thermal and fixed magnetic. H version: adjustable thermal magnetic.
- Access to mechanical test button on cover.
- Lockable cover protects MCCB settings.
- Integrated padlocking handle: Ø 4mm.
- Connection capacity: 150mm² rigid cables, palm lug max. width: 25mm
- Conforms to BS EN 60947-2
- AC 22/23A.
- For technical data see page 131.

x250 25kA
- Fixed thermal: 1x I_n
- Fixed magnetic: > 10 x I_n

x250 40kA
- Adjustable thermal: 0.63, 0.8, 1 x I_n
- Adjustable magnetic: 6 - 8 - 10 - 13 x I_n (100 - 200A). 5 - 7 - 9 - 11 x I_n (250A).

Description	Breaking capacity	Cat ref. 3P
Moulded Case Circuit Breakers 25kA - Fixed		
MCCBs x250 - 100A	I_{cs}: 20 kA, I_{cu}: 25 kA	**HHB100Z**
MCCBs x250 - 125A	I_{cs}: 20 kA, I_{cu}: 25 kA	**HHB125Z**
MCCBs x250 - 160A	I_{cs}: 20 kA, I_{cu}: 25 kA	**HHB160Z**
MCCBs x250 - 200A	I_{cs}: 20 kA, I_{cu}: 25 kA	**HHB200Z**
MCCBs x250 - 250A	I_{cs}: 20 kA, I_{cu}: 25 kA	**HHB250Z**
Moulded Case Circuit Breakers 40kA - Fixed		
MCCBs x250 - 100A	I_{cs}: 20 kA, I_{cu}: 40 kA	**HNB100Z**
MCCBs x250 - 125A	I_{cs}: 20 kA, I_{cu}: 40 kA	**HNB125Z**
MCCBs x250 - 160A	I_{cs}: 20 kA, I_{cu}: 40 kA	**HNB160Z**
MCCBs x250 - 200A	I_{cs}: 20 kA, I_{cu}: 40 kA	**HNB200Z**
MCCBs x250 - 250A	I_{cs}: 20 kA, I_{cu}: 40 kA	**HNB250Z**
Moulded Case Circuit Breakers 40kA - Adjustable		
MCCBs x250 - 100A	I_{cs}: 20 kA, I_{cu}: 40 kA	**HNB100H**
MCCBs x250 - 125A	I_{cs}: 20 kA, I_{cu}: 40 kA	**HNB125H**
MCCBs x250 - 160A	I_{cs}: 20 kA, I_{cu}: 40 kA	**HNB160H**
MCCBs x250 - 200A	I_{cs}: 20 kA, I_{cu}: 40 kA	**HNB200H**
MCCBs x250 - 250A	I_{cs}: 20 kA, I_{cu}: 40 kA	**HNB250H**

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Data is subject to errors and technical modifications. ★ New.

Accessories for x250 Devices

Indication contacts
- 1 changeover switch (ON/OFF): indicates the position of the MCCB “open” or “close”.
- 1 changeover alarm contact: indicates MCCB tripped.

Coil connection
- Connection capacity: 0.75 mm² flexible or rigid cables
- The cable capacity of the terminals is 0.5 to 1.25mm².

Shunt trip
- Remote tripping of MCCBs
- Operating voltage: 0.7 to 1.1 x U_n

Under voltage release
- Enables tripping of MCCBs or moulded case switches when voltage level drop between 35 and 70% of U_n. Pick up voltage 0.85 x U_n
- Padlockable direct rotary handle is equipped with front cover and handle, fixing without additional screws.

Description	Cat ref.
Auxiliary Contacts	
1 Changeover contact (On/Off), 250V A.C. / 3A, 125V D.C. / 0.4A, 1 NO+ 1NC	**HXA021H**
1 Changeover alarm contact, 250 V A.C. / 3A, 125 V D.C. / 0.4A, NO + 1 NC	**HXA024H**
Low level contact (On/Off), 125V A.C. , NO + 1 NC	**HXA025H**
Low Level alarm contact, 125 V A.C. , NO + 1 NC	**HXA026H**
Shunt Trips	
24V DC	**HXA001H**
48V DC	**HXA002H**
100-120V A.C.	**HXA003H**
200-240V A.C.	**HXA004H**
380-450V A.C.	**HXA005H**
Undervoltage Releases	
24V DC	**HXA011H**
100-120V A.C.	**HXA013H**
200-240V A.C.	**HXA014H**
380-450V A.C.	**HXA015H**
Delayed Undervoltage Releases	
24V DC	**HXA051H**
100-120V A.C.	**HXA053H**
200-240V A.C.	**HXA054H**
380-450V A.C.	**HXA055H**
Accessories	
Locking Device to Mount on MCCB for Handle Locking for 3 Padlock Max ø 8mm	**HXA039H**
Set of Four Extended Straight Connections	**HXB010H**
Set of Four Extended Spreader Connections	**HYB011H**
Set of Three Interphase Barriers	**HYB019H**
Pair of Terminal Covers for Extended Straight Connections	**HYB021H**
Pair of Terminal Covers for Extended Spreader Connections	**HYB023H**



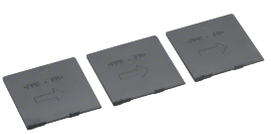
HXA021H HXA024H

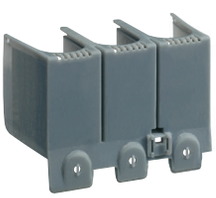


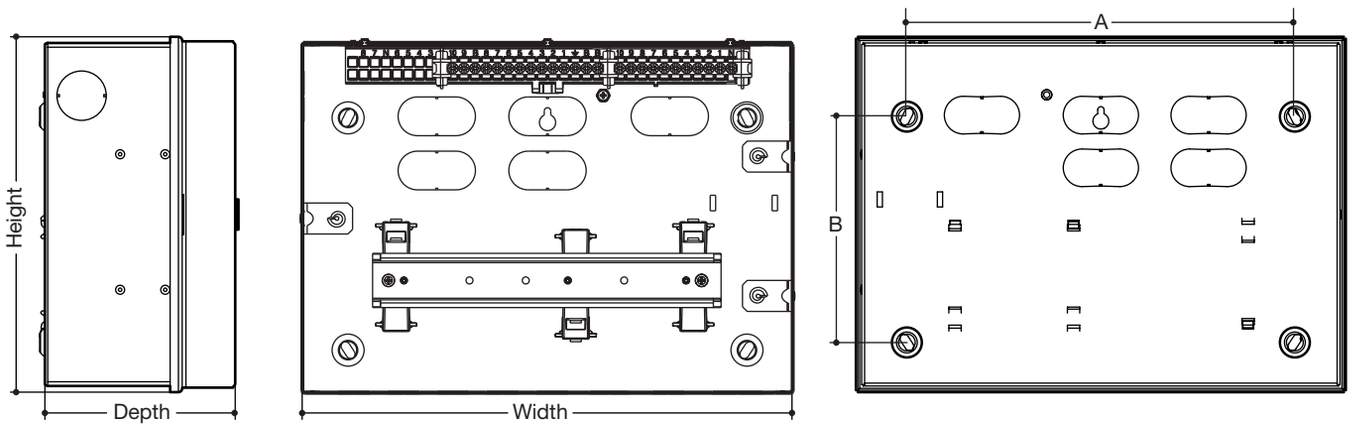
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HXA039H


HYB010H


HYB019H


HYB021H

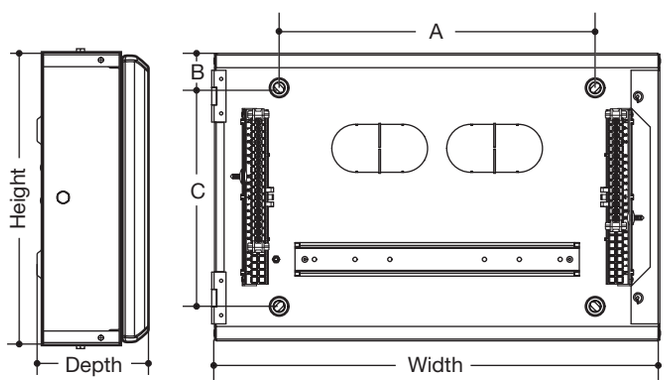


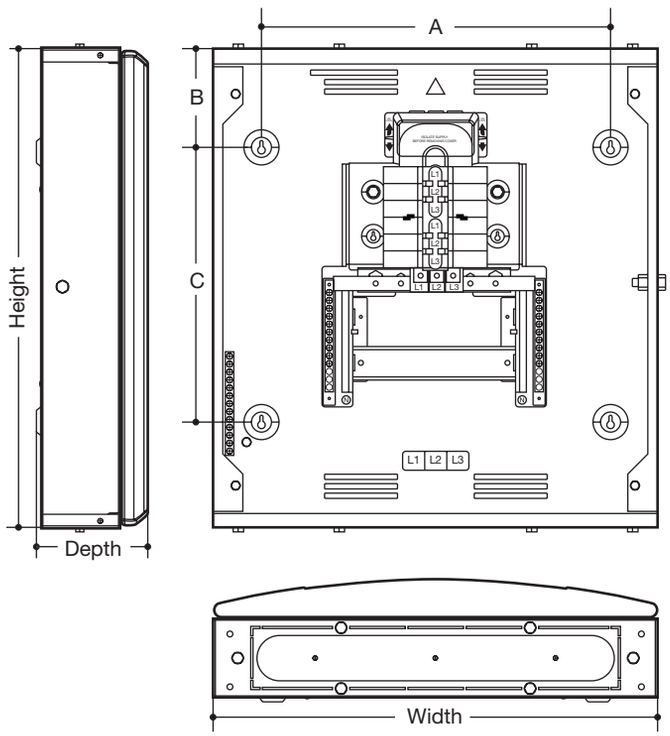
SP&N A Boards

	Dimensions			Fixing Centres		Knockout Size	N° of Knockouts				
Enclosure Size	**Width**	**Height**	**Depth**	**A**	**B**		**Top**	**Bottom**	**Left**	**Right**	**Back**
3	254	236	125	186	150	ø 20	3	3	-	-	-
						ø 32	1	1	1	1	-
						ø 25	1	1	-	-	-
						25 x 50	-	-	-	-	3
4	326	236	125	258	150	ø 20	6	6	-	-	-
						ø 32	1	1	1	1	-
						ø 25	1	1	-	-	-
						25 x 50	-	-	-	-	5
5	398	236	125	330	150	ø 20	8	8	-	-	-
						ø 32	1	1	1	1	-
						ø 25	1	1	-	-	-
						25 x 50	-	-	-	-	7
7	505	236	125	437	150	ø 20	11	11	-	-	-
						ø 32	1	1	1	1	-
						ø 25	1	1	-	-	-
						25 x 50	-	-	-	-	9
4 (2)	326	472	125	258	388	ø 20	6	6	-	-	-
						ø 32	1	1	2	2	-
						ø 25	1	1	-	-	-
						25 x 50	-	-	-	-	6
5 (2)	398	472	125	330	388	ø 20	8	8	-	-	-
						ø 32	1	1	2	2	-
						ø 25	1	1	-	-	-
						25 x 50	-	-	-	-	8
7 (2)	505	472	125	437	388	ø 20	11	11	-	-	-
						ø 32	1	1	2	2	-
						ø 25	1	1	-	-	-
						25 x 50	-	-	-	-	10

Invicta 3 SP&N A Boards

	Dimensions (mm)			Fixing Centres (mm)		
	Height	**Width**	**Depth**	**A**	**B**	**C**
JK114A/AG	300	465	107.7	350	35	228
JK129A/AG	450	465	107.7	330	35	378





125A Primary Boards

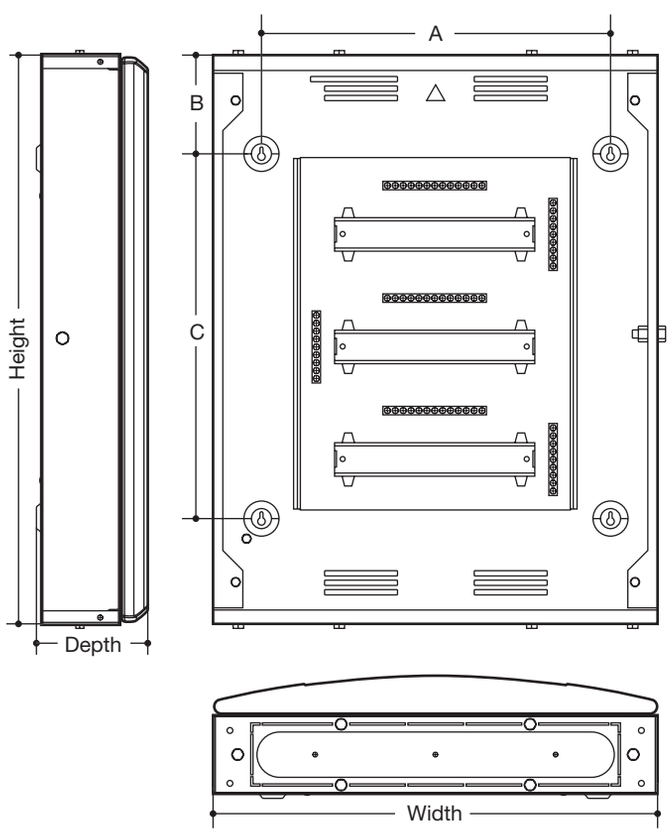
	Dimensions (mm)			Fixing Centres (mm)		
	Height	**Width**	**Depth**	**A**	**B**	**C**
JK104B/BG/A3	500	465	132.5	365	100	300
JK106B/BG/A3	550	465	132.5	365	100	350
JK108B/BG/A3	625	465	132.5	365	100	425
JK112B/BG/A3	850	465	132.5	365	100	650
JK116B/BG/A3	950	465	132.5	365	100	750
JK118B/BG/A3	1100	465	132.5	365	100	900
JK124B/BG/A3	1250	465	132.5	365	100	1050

250A Primary Boards

	Dimensions (mm)			Fixing Centres (mm)		
	Height	**Width**	**Depth**	**A**	**B**	**C**
JK208B/BG/A3	950	465	165.5	365	100	750
JK212B/BG/A3	1100	465	165.5	365	100	900
JK216B/BG/A3	1250	465	165.5	365	100	1050
JK218B/BG/A3	1400	465	165.5	365	100	1200
JK224B/BG/A3	1550	465	165.5	365	100	1350

Contactor Incomers

	Dimensions (mm)		
	Height	**Width**	**Depth**
JK10634C	300	465	165.5
JK11004C	450	465	234.5
JK21604C	450	465	234.5

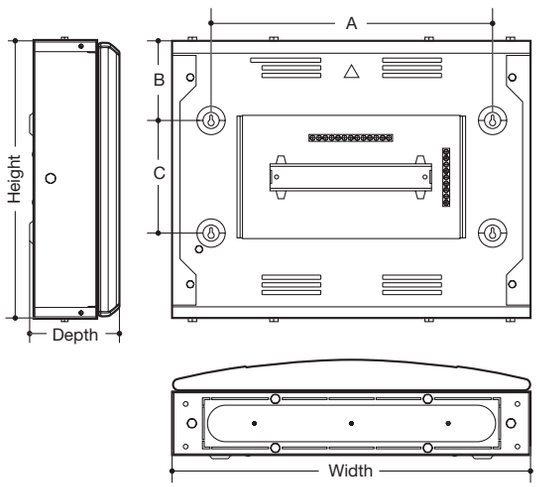


125A Side DIN Enclosures

	Dimensions (mm)			Fixing Centres (mm)		
	Height	**Width**	**Depth**	**A**	**B**	**C**
JK104BDFG	500	465	132.5	365	100	300
JK106BDFG	550	465	132.5	365	100	350
JK108BDFG	625	465	132.5	365	100	425
JK112BDFG	850	465	132.5	365	100	650
JK116BDFG	950	465	132.5	365	100	750

250A Side DIN Enclosures

	Dimensions (mm)			Fixing Centres (mm)		
	Height	**Width**	**Depth**	**A**	**B**	**C**
JK208BDFG	950	465	165.5	365	100	750
JK212BDFG	1100	465	165.5	365	100	900
JK216BDFG	1250	465	165.5	365	100	1050
JK218BDFG	1400	465	165.5	365	100	1200
JK224BDFG	1550	465	165.5	365	100	1350



125A DIN Extension Boxes

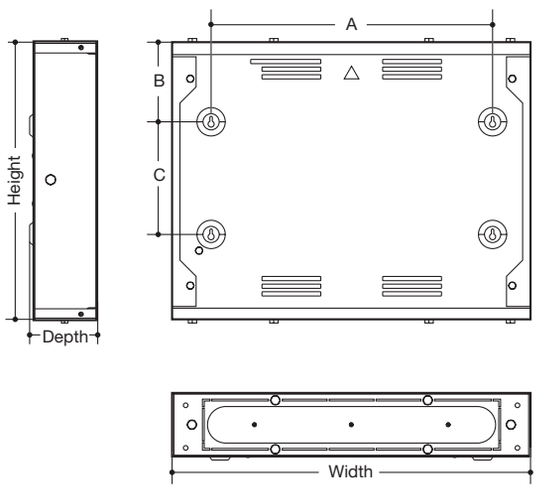
	Dimensions (mm)			Fixing Centres (mm)		
	Height	**Width**	**Depth**	**A**	**B**	**C**
JK116E/EG	300	465	132.5	365	150	-
JK132E/EG	450	465	132.5	365	80	290

250A DIN Extension Boxes

	Dimensions (mm)			Fixing Centres (mm)		
	Height	**Width**	**Depth**	**A**	**B**	**C**
JK216E/EG	300	465	165.5	365	150	-
JK232E/EG	450	465	165.5	365	80	290

Door Kits

	Dimensions (mm)			Fixing Centres (mm)		
	Height	**Width**	**Depth**	**A**	**B**	**C**
JK116EG/DK	300	465	165.5	365	150	-
JK132EG/DK	450	465	165.5	365	80	290

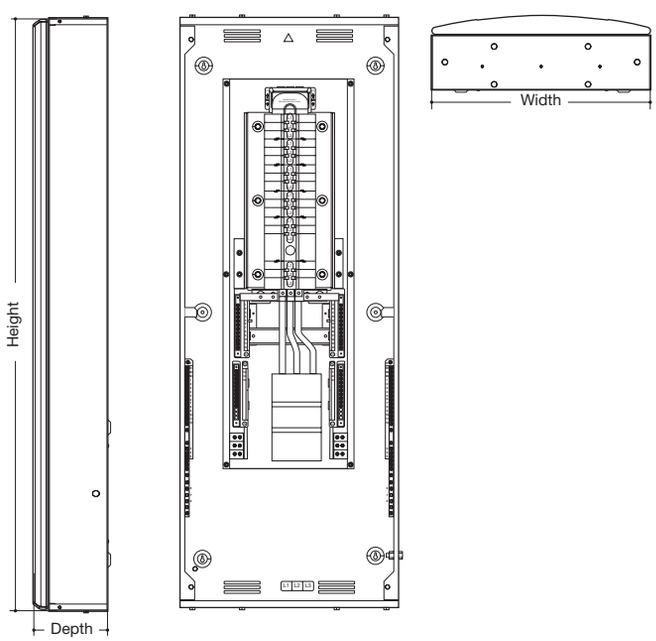


125A Cable Spreader Boxes

	Dimensions (mm)				Fixing Centres (mm)		
	Height	**Width**	**Depth**	**Depth with optional door**	**A**	**B**	**C**
JK101SE	300	465	91.5	132.5	365	150	-
JK102LE	450	465	91.5	132.5	365	80	290

250A Cable Spreader Boxes

	Dimensions (mm)				Fixing Centres (mm)		
	Height	**Width**	**Depth**	**Depth with optional door**	**A**	**B**	**C**
JK201SE	300	465	124.5	165.5	365	150	-
JK202LE	450	465	124.5	165.5	365	80	290

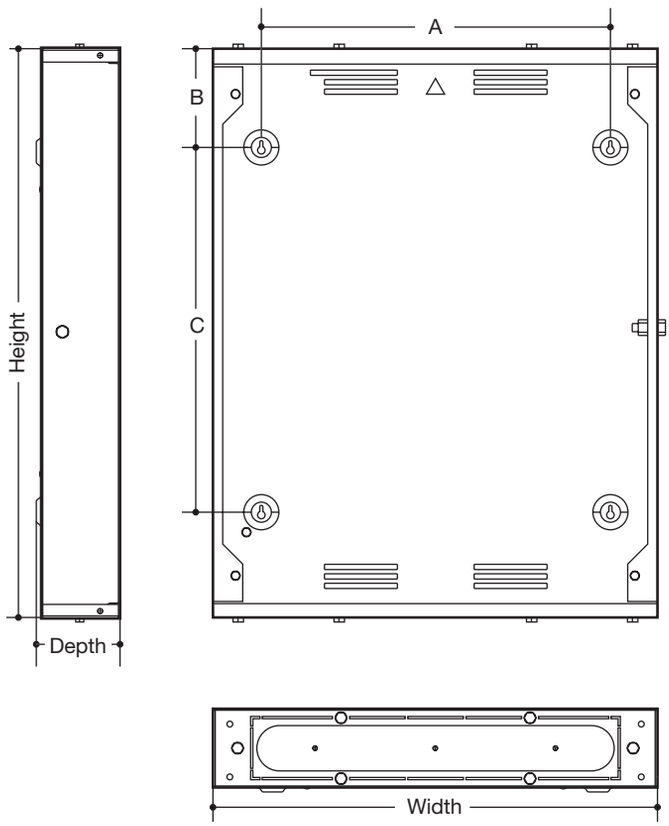


Hybrid 250A TPN Distribution Boards

	Dimensions (mm)		
	Height	**Width**	**Depth**
JK20210B/BG	1250	465	165.5
JK20216B/BG	1400	465	165.5
JK20220B/BG	1400	465	165.5
JK20210B/BGSD	1250	465	165.5
JK20216B/BGSD	1400	465	165.5
JK20220B/BGSD	1400	465	165.5

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Data is subject to errors and technical modifications.



125A Side Extension Boxes

	Dimensions (mm)			Fixing Centres (mm)		
	Height	**Width**	**Depth**	**A**	**B**	**C**
JK104BSF	500	465	91.5	365	100	300
JK106BSF	550	465	91.5	365	100	350
JK108BSF	625	465	91.5	365	100	425
JK112BSF	850	465	91.5	365	100	650
JK116BSF	950	465	91.5	365	100	750

250A Side Extension Boxes

	Dimensions (mm)			Fixing Centres (mm)		
	Height	**Width**	**Depth**	**A**	**B**	**C**
JK208BSF	950	465	124.5	365	100	750
JK212BSF	1100	465	124.5	365	100	900
JK216BSF	1250	465	124.5	365	100	1050
JK218BSF	1400	465	124.5	365	100	1200
JK224BSF	1550	465	124.5	365	100	1350

125A Half Width Side Extension Boxes

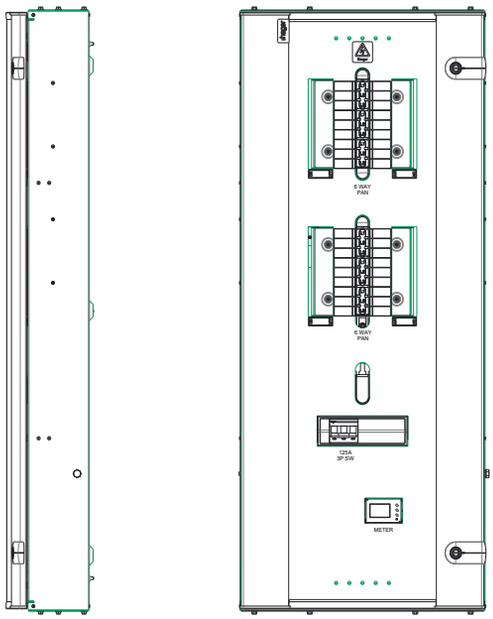
	Dimensions (mm)			Fixing Centres (mm)		
	Height	**Width**	**Depth**	**A**	**B**	**C**
JK104BSH	500	232.5	91.5	170	100	300
JK106BSH	550	232.5	91.5	170	100	350
JK108BSH	625	232.5	91.5	170	100	425
JK112BSH	850	232.5	91.5	170	100	650
JK116BSH	950	232.5	91.5	170	100	750
JK101BSH	300	232.5	91.5	170	100	100

250A Half Width Side Extension Boxes

	Dimensions (mm)			Fixing Centres (mm)		
	Height	**Width**	**Depth**	**A**	**B**	**C**
JK208BSH	950	232.5	124.5	170	100	750
JK212BSH	1100	232.5	124.5	170	100	900
JK216BSH	1250	232.5	124.5	170	100	1050
JK218BSH	1400	232.5	124.5	170	100	1200
JK224BSH	1550	232.5	124.5	170	100	1350
JK201BSH	300	232.5	124.5	170	100	100

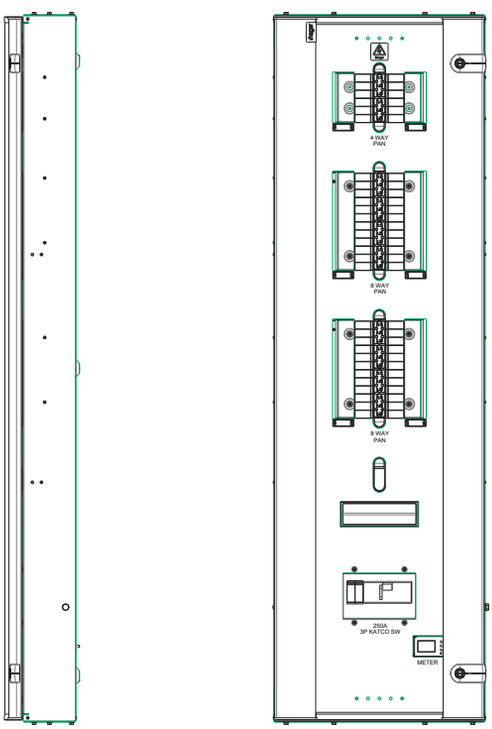
Dual Power & Lighting Boards

	Dimensions (mm)		
	Height	**Width**	**Depth**
JKD146TM	1100	465	165.5
JKD166TM	1100	465	165.5
JKD164TM	1100	465	165.5
JKD168TM	1250	465	165.5
JKD188TM	1250	465	165.5
JKD186TM	1250	465	165.5
JKD1416TM	1400	465	165.5
JKD1164TM	1400	465	165.5
JKD1812TM	1400	465	165.5
JKD1128TM	1400	465	165.5
JKD11212TM	1400	465	165.5



Triple Power, Lighting & Services Board

	Dimensions (mm)		
	Height	**Width**	**Depth**
JKD2884TM	1550	465	165.5



Torque Settings

			Cables >1.5mm² Tightening torque (N.m)		Cables ≤1.5mm² Tightening torque (N.m)		Cable Stripping (mm)
	Pz No.	**(mm)**	**Single Cable**	**Multi Cables**	**Single Cable**	**Multi Cable**	
Consumer unit terminals							
Earth and neutral terminal bars	2	6.5	2	2	1.5	1.5	10
Isolation							
Switch Disconnectors / Surge	2	6.5	3.6	3.6	3.6	3.6	15
Circuit protection							
MCB	2	6.5	2.8	2.8	2.8	2.8	13
RCBO	2	5.5	2.1	2.1	2.1	2.1	13
RCCB	2	5.5	2.8	2.8	2.8	2.8	13
AFDD	2	2	2.1	2.1	2.1	2.1	13

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Data is subject to errors and technical modifications.

Meter Characteristics	
Supply	60 to 300V AC, 50/60Hz (±5%)
Serial Communication	
Interface Standard and Protocol	RS485 and MODBUS RTU
Input (CT)	
Pluggable RJ45	Input 1/ Input 2
Output	
Pulse Output:	Voltage Range : 24V DC max
Current Capacity :	100mA max
Pulse Duration :	Selectable Between 0.1 to 2.0sec
Pulse Weight :	Selectable between 0.01 to 9.99kWh
Accuracy of meter	
Measurement	Accuracy
Voltage VL-N	0.5% of full range
Voltage VL-L	0.5% of full range
Current A	0.5% of full range
Frequency For L-N Voltage > 20V For L-L Voltage > 35V"	0.1% of full range
Active power	1.0% of full range
Apparent Power	1.0% of full range
Reactive Power	1.0% of full range
Power Factor	±0.01% of full Range
Active Energy	1.0% of full range
Reactive Energy	1.0% of full range
Max/Min Active Power	1.0% of full range
Max/Min Reactive Power	1.0% of full range
Max Apparent Power	1.0% of full range
Power Consumption	Less than 8VA

Characteristics	**JK1****	**JK2****
Standards	Designed, manufactured and tested to BS EN 61439-3	Designed, manufactured and tested to BS EN 61439-3
Busbar Current Rating	125A	250A
Busbar Type	Fully shrouded copper	Fully shrouded copper
Busbar Rating	25kA Conditional	25kA Conditional
Incoming	100A Switch	250A MCS
	125A Switch	250A MCCB
	63A contactor AC3	160A contactor AC3
	100A contactor AC3	Direct connection
	Direct connection	
	RCCB incomers	
Outgoing Ways	4, 6, 8, 12, 16, 18, 24 Triple pole outgoing ways	8, 12, 16, 18, 24 Triple pole way outgoing ways
Outgoing Protection	Type B MCB (6A to 63A, 1P & 3P) Type C, D MCB, (0.5A to 63A, 1P & 3P) 1Mod and 2Mod RCBO	Type B MCB (6A to 63A, 1P & 3P) Type C, D MCB, (0.5A to 63A, 1P & 3P) 1Mod and 2Mod RCBO
Voltage Rating in AC	230 / 415V	230 / 415V
IP Protection	IP3X to BS EN 60529	IP3X to BS EN 60529
Enclosure Body Type	Steel	Steel
Enclosure Paint Type	Powder Coat Grey White BS4800 00A01	Powder Coat Grey White BS4800 00A01
Cable Entry	Obround protected cable entry points	Obround protected cable entry points
Terminal Connection Capacity		
Incoming Line Terminal	50mm²	120mm²
Incoming Earth Terminal	M8 stud	M8 stud
Incoming Neutral Terminal	50mm² cage or M6 stud	M8 Stud
Outgoing Earth Terminals	16mm²	16mm²
Outgoing Neutral Terminals	16mm²	16mm²
Enclosure Earth Stud	M8	M8
Installation		
Mounting	4 x key hole fixing holes plus central top key hole for one fixing hanging / levelling Surface Wall Mount	4 x key hole fixing holes plus central top key hole for one fixing hanging / levelling Surface Wall Mount
Gland Plate	Top and bottom removable	Top and bottom removable
Integrated Locking System	Coin lock as standard, key lock as accessory	Coin lock as standard, key lock as accessory

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Interface Characteristics	**Dual Power & Lighting Boards**	**Triple Power, Lighting & Services Board**
Rated & operational voltage (U_n / U_e)	415V A.C. 50Hz	415V A.C. 50Hz
Rated insulation voltage (U_i)	690V A.C. 50Hz	690V A.C. 50Hz
Rated impulse withstand voltage (U_{imp})	4kV	4kV
Rated current of the Assembly (I_{nA})	125A	200A
Rated current of pan assembly	Lower Pan (I_n) = 125A (RDF=1) Upper Pan (I_n) = 125A (RDF=1)	Lower Pan (I_n) = 125A (RDF=1) Middle Pan (I_n) = 125A (RDF=1) Upper Pan (I_n) = 125A (RDF=1)
Rated current of an Outgoing Circuit (I_{nc})	MCB 0.5A - 63A (marked rated current on device) RCBO 6A - 45A (marked rated current on device)	MCB 0.5A - 63A (marked rated current on device) RCBO 6A - 45A (marked rated current on device)
Rated conditional short-circuit current of the assembly (I_{cc})	10kA with equipment and arrangements specified in Hager's technical documentation/catalogue	10kA[1] with equipment and arrangements specified in Hager's technical documentation/catalogue
Protection against electric shock	Equipment shall be installed in an electrical system conforming to IEC 60364 / BS 7671	Equipment shall be installed in an electrical system conforming to IEC 60364 / BS 7671
Rated Diversity Factor (RDF) / Values of assumed loading	10 way to 24 way = 0.5 Note: RDF only applies to continuously and simultaneously loaded circuits.	10 way to 24 way = 0.5 Note: RDF only applies to continuously and simultaneously loaded circuits.
Rated frequency (f_n)	50 Hz	50 Hz
Pollution degree	2	2
Types of system earthing for which the assembly is designed	TNC-S, TN-S and TT when installed in an electrical system conforming to BS 7671	TNC-S, TN-S and TT when installed in an electrical system conforming to BS 7671
Intended locations	Indoor use only	Indoor use only
Stationary Assembly		
Degree of protection	IP3XD with Door Closed IP2XC with Door Open	IP3XD with Door Closed IP2XC with Door Open
Intended use	Distribution boards intended to be operated by ordinary persons (DBO)	Distribution boards intended to be operated by ordinary persons (DBO)
Electromagnetic compatibility (EMC) classification	EMC Environment B	EMC Environment B
External design	Wall-mounted, surface type, enclosed assembly.	Wall-mounted, surface type, enclosed assembly.
Mechanical impact protection	IK05	IK05
The type of construction	Fixed parts	Fixed parts
DBO Type	Type B DBO	Type B DBO
Incoming Line Terminal	70mm² (switch disconnector)	70mm² (switch disconnector
Incoming Neutral Terminal	50mm² Cage	50mm² Cage
Enclosure Earth Stud	M8	M8
Standards	BS EN 61439-3	BS EN 61439-3

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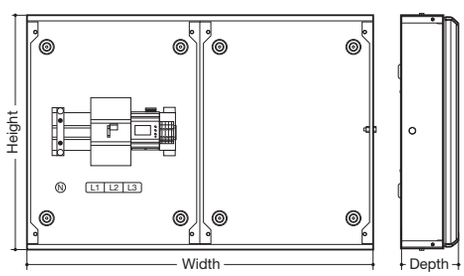
Interface Characteristics	**JKD125MID**	**JKD125TMID**	**JKD250MID**	**JKD250TMID**
Rated & operational voltage (U_n / U_e)	415V A.C. 50Hz	415V A.C. 50Hz	415V A.C. 50Hz	415V A.C. 50Hz
Rated insulation voltage (U_i)	690V A.C. 50Hz	690V A.C. 50Hz	690V A.C. 50Hz	690V A.C. 50Hz
Rated impulse withstand voltage (U_{imp})	4kV	4kV	4kV	4kV
Rated current of the Assembly (I_{nA})	125A Right Side Pan Assembly (I_n) 125A Left Side Pan Assembly (I_n) 125A	125A Right Side Pan Assembly (I_n) 125A Middle Pan Assembly (I_n) 125A Left Side Pan Assembly (I_n) 125A	250A Right Side Pan Assembly (I_n) 250A Left Side Pan Assembly (I_n) 250A	250A Right Side Pan Assembly (I_n) 200A Middle Pan Assembly (I_n) 200A Left Side Pan Assembly (I_n) 200A
Rated conditional short-circuit current of the assembly (I_{cc})	10kA with equipment and arrangements specified in Hager's technical documentation/catalogue	10kA with equipment and arrangements specified in Hager's technical documentation/catalogue	10kA with equipment and arrangements specified in Hager's technical documentation/catalogue	10kA with equipment and arrangements specified in Hager's technical documentation / catalogue
Protection against electric shock	Equipment shall be installed in an electrical system conforming to IEC 60364 / BS 7671	Equipment shall be installed in an electrical system conforming to IEC 60364 / BS 7671	Equipment shall be installed in an electrical system conforming to IEC 60364 / BS 7671	Equipment shall be installed in an electrical system conforming to IEC 60364 / BS 7671
Rated frequency (f_n)	50 Hz	50 Hz	50 Hz	50 Hz
Pollution degree	2	2	2	2
Types of system earthing for which the ASSEMBLY is designed	TNC-S, TN-S and TT when installed in an electrical system conforming to BS 7671	TNC-S, TN-S and TT when installed in an electrical system conforming to BS 7671	TNC-S, TN-S and TT when installed in an electrical system conforming to BS 7671	TNC-S, TN-S and TT when installed in an electrical system conforming to BS 7671
Intended locations	Indoor use only	Indoor use only	Indoor use only	Indoor use only
Degree of protection	IP3XD with Door Closed IP2XC with Door Open	IP3XD with Door Closed IP2XC with Door Open	IP3XD with Door Closed IP2XC with Door Open	IP3XD with Door Closed / IP2XC with Door Open
Intended use	Distribution boards intended to be operated by ordinary persons (DBO)	Distribution boards intended to be operated by ordinary persons (DBO)	Distribution boards intended to be operated by ordinary persons (DBO)	Distribution boards intended to be operated by ordinary persons (DBO)
Electromagnetic compatibility (EMC) classification	EMC Environment B	EMC Environment B	EMC Environment B	EMC Environment B
External design	Wall-mounted, surface type, enclosed assembly.	Wall-mounted, surface type, enclosed assembly.	Wall-mounted, surface type, enclosed assembly.	Wall-mounted, surface type, enclosed assembly.
Mechanical impact protection	IK05	IK05	IK05	IK05
The type of construction	Fixed parts	Fixed parts	Fixed parts	Fixed parts
Incoming Line Terminal	M8	M8	M8	M8
Incoming Neutral Terminal	M8 Lug	M8 Lug	M8 Lug	M8 Lug
Enclosure Earth Stud	M8	M8	M8	M8

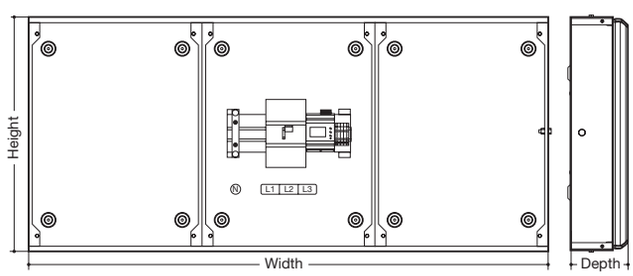
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Meter Characteristics	
Supply	60 to 300V AC, 50/60Hz (±5%)
Serial Communication	
Interface Standard and Protocol	RS485 and MODBUS RTU
Input (CT)	
Pluggable RJ45	Input 1/ Input 2
Output	
Pulse Output:	Voltage Range : 24V DC max
Current Capacity :	100mA max
Pulse Duration :	Selectable Between 0.1 to 2.0sec
Pulse Weight :	Selectable between 0.01 to 9.99kWh
Accuracy of meter	
Measurement	Accuracy
Voltage VL-N	0.5% of full range
Voltage VL-L	0.5% of full range
Current A	0.5% of full range
Frequency For L-N Voltage >20V For L-L Voltage >35V"	0.1% of full range
Active power	1.0% of full range
Apparent Power	1.0% of full range
Reactive Power	1.0% of full range
Power Factor	±0.01% of full Range
Active Energy	1.0% of full range
Reactive Energy	1.0% of full range
Max/Min Active Power	1.0% of full range
Max/Min Reactive Power	1.0% of full range
Max Apparent Power	1.0% of full range
Power Consumption	Less than 8VA

Dual & Triple Meter Incomers

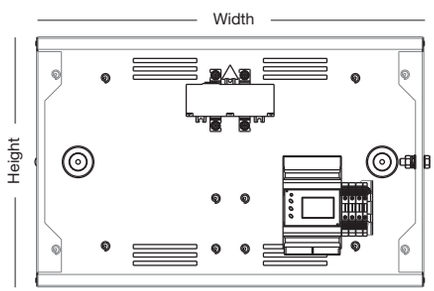
	Dimensions (mm)		
	Height	**Width**	**Depth**
JKD125MID	450	930	132.5
JKD125TMID	450	1395	132.5
JKD250MID	625	930	165.5
JKD250TMID	625	1395	165.5



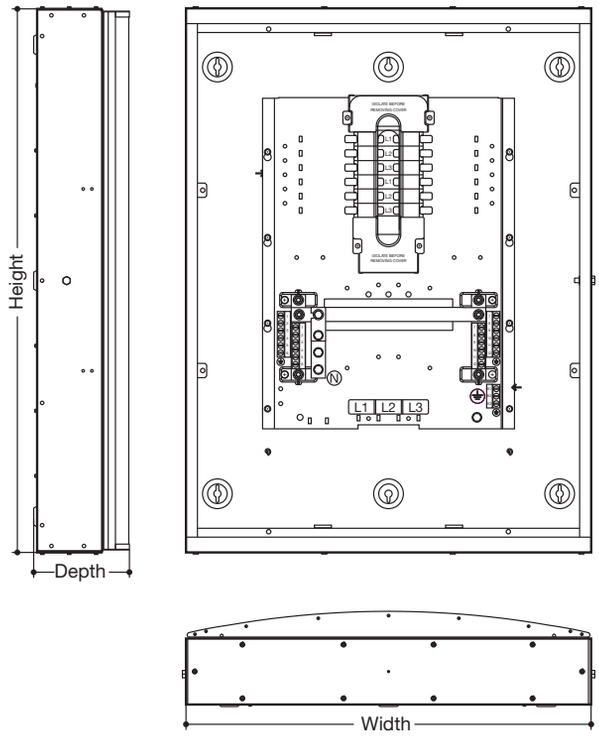


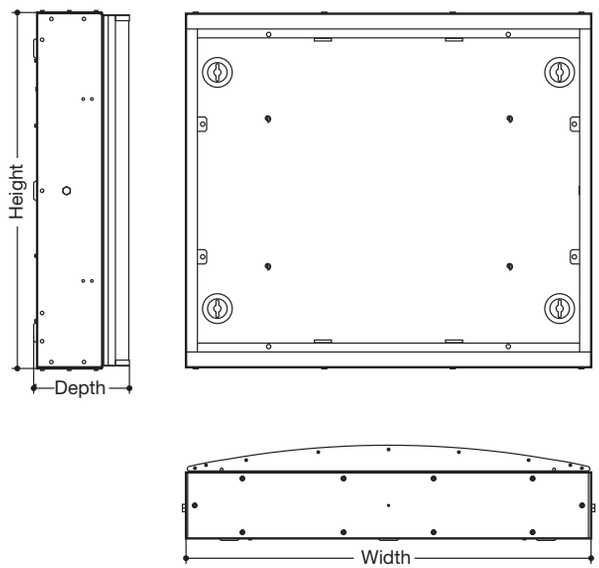
TP&N Board Meter Enclosures

JKD1125MID	300	465	132.5
JKD2250MID	300	465	165.5



Data is subject to errors and technical modifications.





Primary Boards

	Dimensions (mm)			
	Height	**Width**	**Depth**	**Spare Door Cat Refs**
JN204B/G	950	710	160	**JN204BG/D**
JN206B/G	1100	710	160	**JN206BG/D**
JN208B/G	1100	710	160	**JN208BG/D**
JN212B/G	1250	710	160	**JN212BG/D**
JN216B/G	1550	710	160	**JN216BG/D**

Terminals

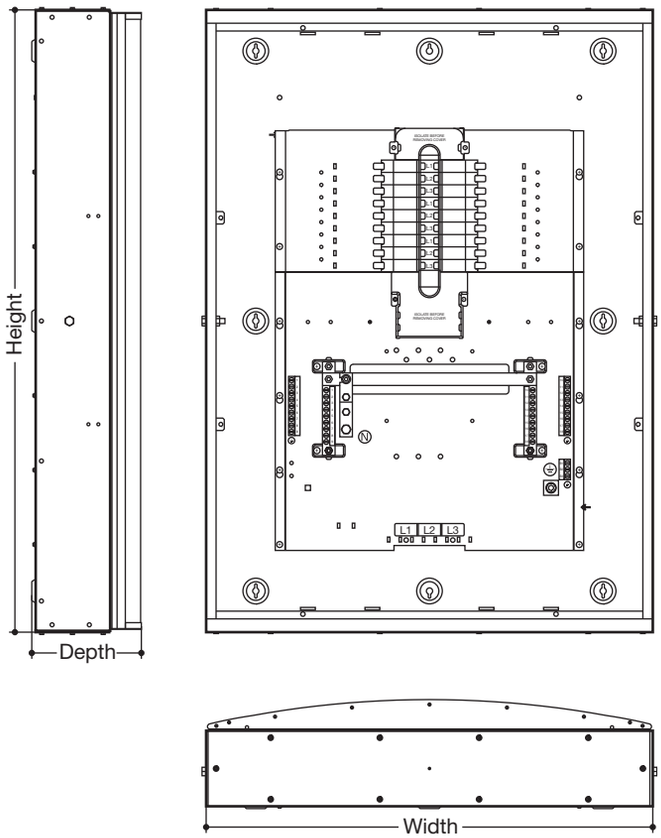
Neutral	**Earth**	**Bond**
2 x 6 x 50mm	2 x 6 x 50mm	1 x 3 x 50mm
2 x 9 x 50mm	2 x 9 x 50mm	1 x 3 x 50mm
2 x 12 x 50mm	2 x 12 x 50mm	1 x 3 x 50mm
2 x 18 x 50mm	2 x 18 x 50mm	1 x 3 x 50mm
2 x 24 x 50mm	2 x 24 x 50mm	1 x 3 x 50mm

Cables outgoing ways:
25 - 50mm^2 CSA Flex
25 - 70mm^2 CSA Solid

MCCB Connections	M8
Earth	M8
Neutral	M8

Extension Boxes

	Dimensions (mm)		
	Height	**Width**	**Depth**
JN201BE/G	300	710	160
JN203BE/G	450	710	160
JN205BE	300	710	130
JN206BE	450	710	130



Primary Boards

	Dimensions (mm)			
	Height	**Width**	**Depth**	**Spare Door Cat Refs**
JF406B/G	1250	900	220	**JF812BG/D**
JF408B/G	1250	900	220	**JF812BG/D**
JF412B/G	1400	900	220	**JF814BG/D**
JF416B/G	1550	900	220	**JF815BG/D**
JF418B/G	1700	900	220	**JF817BG/D**
JF808B/G	1250	900	220	**JF812BG/D**
JF812B/G	1400	900	220	**JF814BG/D**
JF818B/G	1700	900	220	**JF817BG/D**
JF60204B/G	1250	900	220	**JF812BG/D**
JF80206B/G	1250	900	220	**JF812BG/D**
JF80404B/G	1250	900	220	**JF812BG/D**
JF80210B/G	1400	900	220	**JF814BG/D**
JF80408B/G	1400	900	220	**JF814BG/D**
JF80414B/G	1700	900	220	**JF817BG/D**
JF80612B/G	1700	900	220	**JF817BG/D**

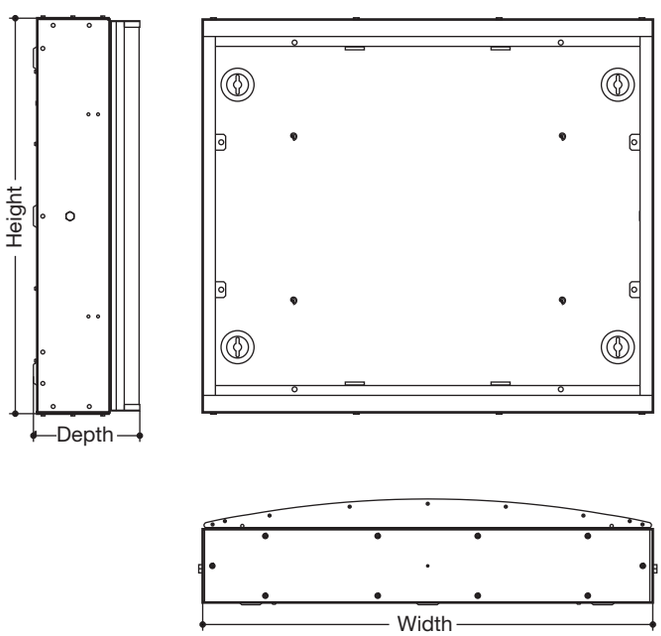
Terminals

Neutral		**Earth**	**Bond**
2 x 9 x 50mm		2 x 9 x 50mm	1 x 3 x 50
2 x 12 x 50mm		2 x 12 x 50mm	1 x 3 x 50
2 x 18 x 50mm		2 x 18 x 50mm	1 x 3 x 50
2 x 24 x 50mm		2 x 24 x 50mm	1 x 3 x 50
2 x 12 x 50mm		2 x 12 x 50mm	1 x 3 x 50
2 x 18 x 50mm		2 x 18 x 50mm	1 x 3 x 50
2 x 27 x 50mm		2 x 27 x 50mm	1 x 3 x 50
2 x 6 x 50mm	2 x M8 Bolt	2 x 9 x 50mm	1 x 3 x 50
2 x 9 x 50mm	2 x M8 Bolt	2 x 12 x 50mm	1 x 3 x 50
2 x 6 x 50mm	4 x M8 Bolt	2 x 12 x 50mm	1 x 3 x 50
2 x 15 x 50mm	2 x M8 Bolt	2 x 18 x 50mm	1 x 3 x 50
2 x 12 x 50mm	4 x M8 Bolt	2 x 18 x 50mm	1 x 3 x 50
2 x 21 x 50mm	4 x M8 Bolt	2 x 27 x 50mm	1 x 3 x 50
2 x 18 x 50mm	6 x M8 Bolt	2 x 27 x 50mm	1 x 3 x 50

Cables outgoing ways:
25 - 50mm^2 CSA Flex
25 - 70mm^2 CSA Solid

MCCB Connections:
400A M10
630A M12

Earth:
400A M10
630A M10

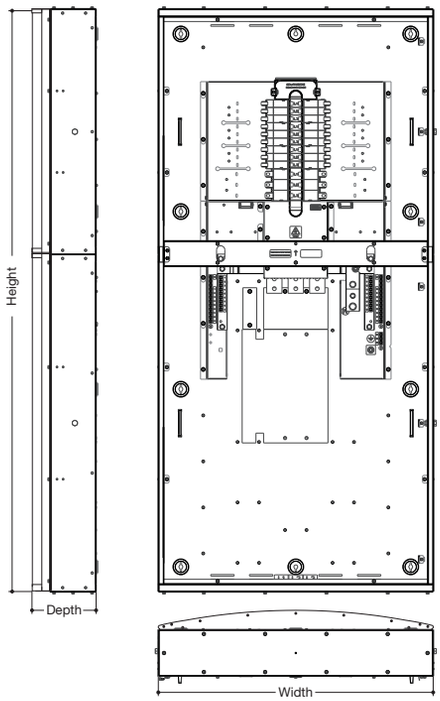


Extension Boxes

	Dimensions (mm)		
	Height	**Width**	**Depth**
JF801E/G	300	900	220
JF803E/G	450	900	220
JF805E	300	900	158
JF806E	450	900	158

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Primary Boards

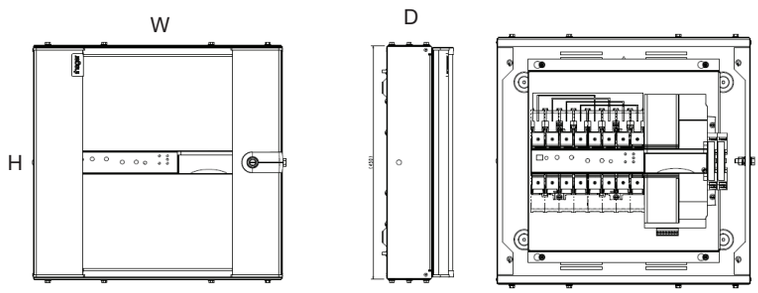
	Dimensions (mm)		
	Height	**Width**	**Depth**
JHF812B/G	2050	900	220
JHF818B/G	2200	900	220
JHF80206B/G	1900	900	220
JHF80404B/G	1900	900	220
JHF80210B/G	2050	900	220
JHF80408B/G	2050	900	220
JHF80414B/G	2200	900	220
JHF80612B/G	2200	900	220

Invicta 3 Panelboard Metering Example

Example below: 250A, 6 way panelboard, requiring 4 outgoing meters (not including incomers & outgoers).

Step	Selection method	Order code	Quantity
1	Select panelboard eg. 6 way with glazed door	**JN206BG**	1
2	Identify quantity of meters required eg. 4 metered ways modbus (If MID required, use **HGR96EWC**)	**ECM01**	4
3	Select position for meter enclosure (Top or side) eg. Side - 6/8 Way JN Board 4xDIN 96 Cut-Outs (If top mount required, use **JN4506TM**)	**JN11004SM**	1
4	Number of blanking plates required eg. Side - 6/8 Way JN Board 4xDIN 96 Cut-Outs	**JF96BP**	2
5	Meter voltage supply cable.	**JN130VMF**	1
6	Supply cable for remaining meters (Link meter to meter)	**PGMFT150**	3
7	Identify which CT's are required eg. 100 Amp	**EC12100CT**	4

Characteristics	**250A**	**400A**	**630 / 800A**	**800A**
Series	JN2**	JF4**	JF6**/JF8**	JHF8**
Busbar current rating	250A	400A	800A	800A (for 800A MCCB only)
Busbar type	Type B Fully Shrouded Copper			
Busbar rated short-time with-stand current	25kA for 1 sec	35kA for 1 sec	35kA for 1 sec	35kA for 1 sec
Internal separation	Form 3A			
Incoming	Up to 250A MCCB, MCS	Up to 400A MCCB, MCS	Up to 630A MCCB, 800A LBS	800A MCCB
Outgoing	16 - 125A max.	16 - 125A max.	16 - 125A 100A - 250A	16 - 125A 100A - 250A
Voltage rating in A.C.	415V	415V	415V	415V
IP Protection	IP30			
Enclosure body type	Steel			
Enclosure paint type	Powder coat Grey White BS 4800 00A01			
Cable entry	Via Gland Plates			
Terminal Connection capacity				
Incoming earth terminal	M8	M10	M10	M10
Incoming neutral terminal	M8	M12	M12	M12
Outgoing earth terminals	Up to 50mm²	Up to 50mm²	Up to 50mm²	Up to 50mm²
Outgoing neutral terminals	Up to 50mm²	Up to 50mm²	16A - 125A: Up to 50mm² 100A - 250A: M8 Stud	16A - 125A: Up to 50mm² 100A - 250A: M8 Stud
Enclosure earth stud	M8	M10	M10	M10
Installation				
Mounting	Surface (Wall)			

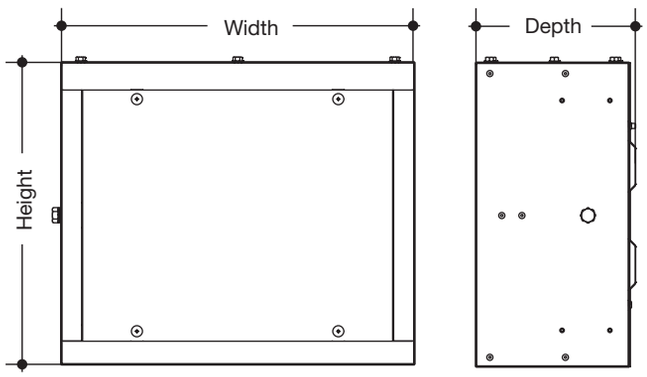


Enclosed ATS

	Dimensions (mm)			
	Width	**Height**	**Depth**	**Weight**
JK140ATS	465	450	132.5	10.5
JK163ATS	465	450	132.5	10.5
JK180ATS	465	450	132.5	10.5
JK100ATS	465	450	132.5	10.5
JK125ATS	465	450	132.5	10.5

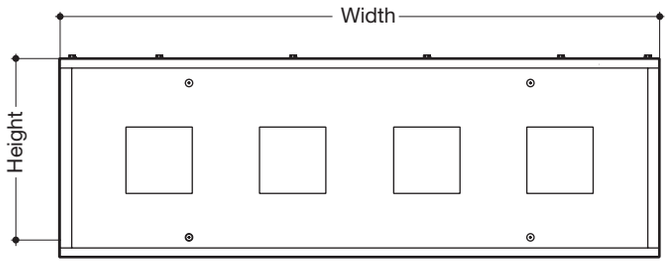
Corner Filler Enclosures

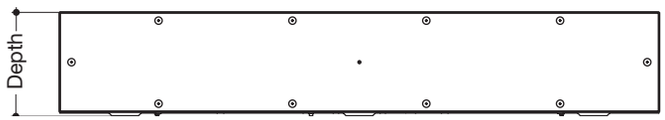
	Dimensions (mm)			
JF	**Width**	**Height**	**Depth**	**Number of cutouts**
JF300CF	350	300	160	-
JF450CF	350	450	160	-
JN				
JN300CF	300	710	160	-
JN450CF	450	710	160	-



Top/Bottom Enclosures

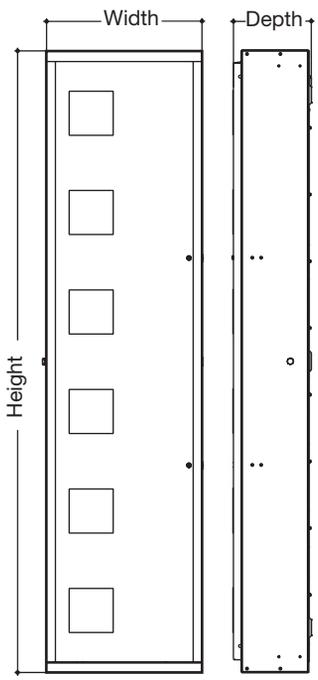
	Dimensions (mm)			
JF	**Width**	**Height**	**Depth**	**Number of cutouts**
JF3004TM	900	300	160	4
JF4508TM	900	450	160	8
JN				
JN3003TM	710	300	130	3
JN4506TM	710	450	130	6

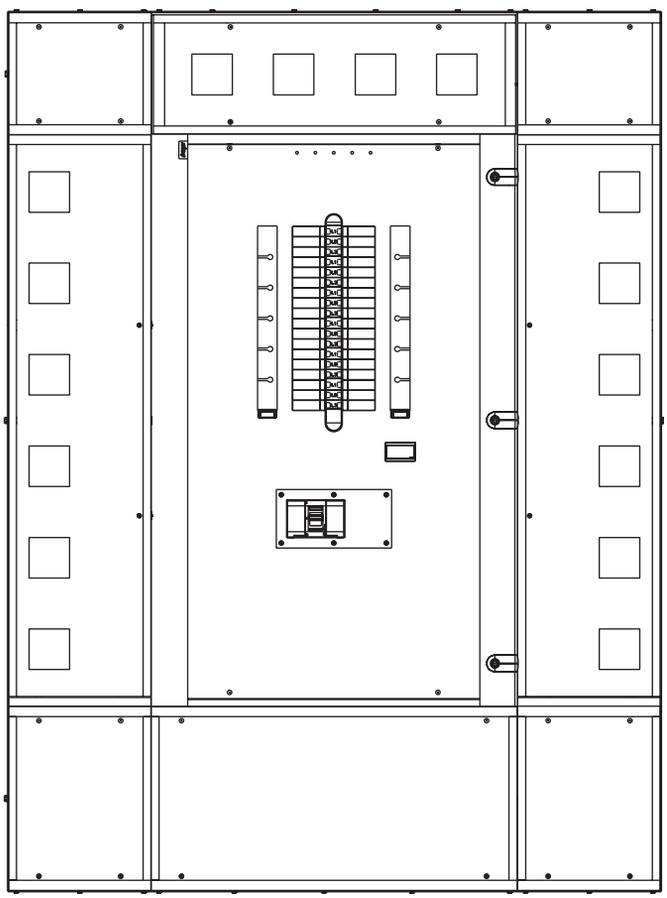




Side Enclosures

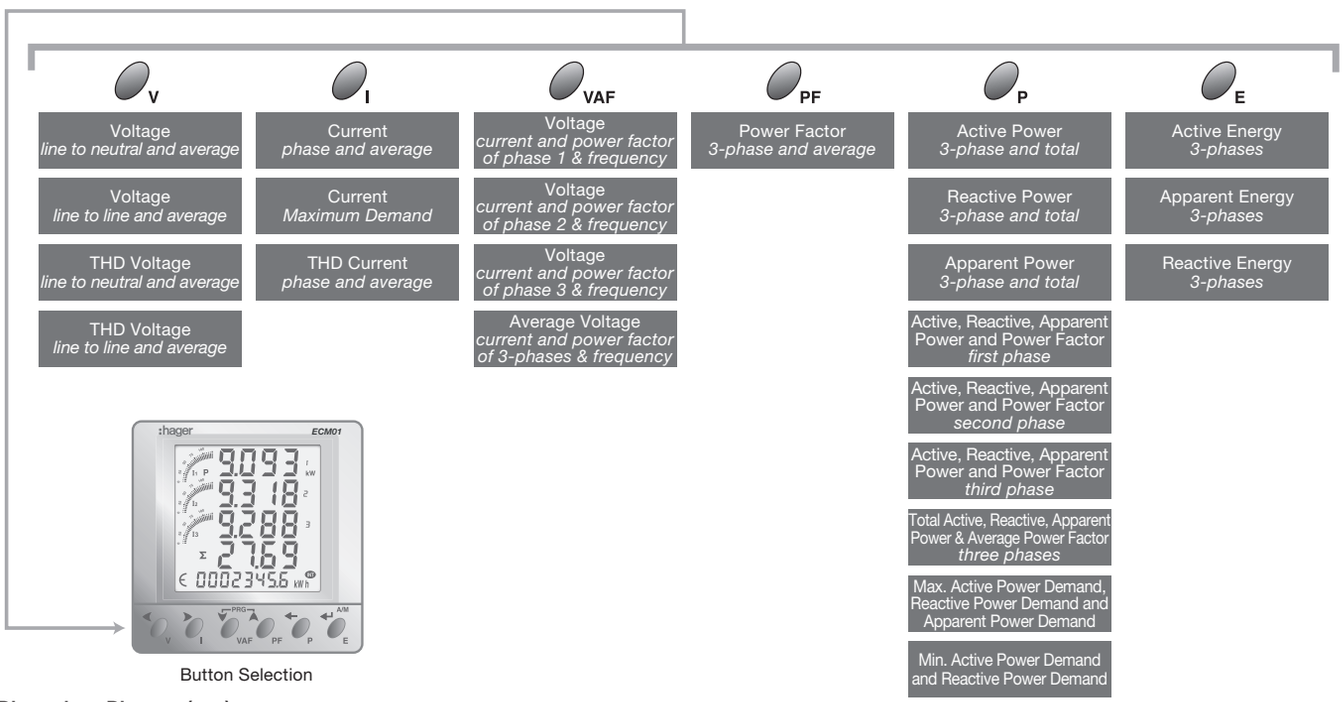
	Dimensions (mm)			
JF	**Width**	**Height**	**Depth**	**Number of cutouts**
JF12504SM	350	1250	160	4
JF14006SM	350	1400	160	6
JF15508SM	350	1550	160	8
JF17009SM	350	1700	160	9
JN				
JN9502SM	350	950	143	2
JN11004SM	350	1100	143	4
JN12506SM	350	1250	143	6
JN15508SM	350	1550	143	8





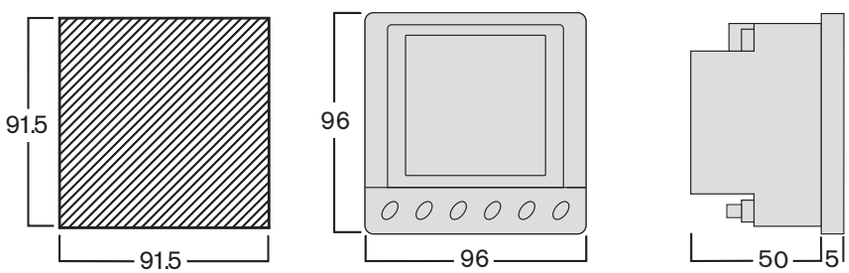
- 96 x 96mm Flush mounting
- Single phase or 3 phase (4 wire) network balanced or unbalanced load
- Built in energy pulsed output or with pulsed output and RS485 (modbus)
- Backlit LCD display with bargraph current indication on every page
- Automatic or manual scrolling display
- 330mV current transformer input
- Active energy class 1 (EN62053-21)
- Reactive energy class 2 (EN62053-23)
- Programmable VT ratio
- 3-phase: 140…460Vac measured voltage
- Single phase: 80…265Vac measured voltage
- THD up to 31st harmonic for voltage and current
- Self supplied auxiliary
- Programmable CT ratio 5 to 10,000A
- Frequency 45/65Hz
- Wide range of measured parameters (see table below)
- Selectable CT phase correction allows reversal of L1 and L3
- Weight 230g

Function Diagram

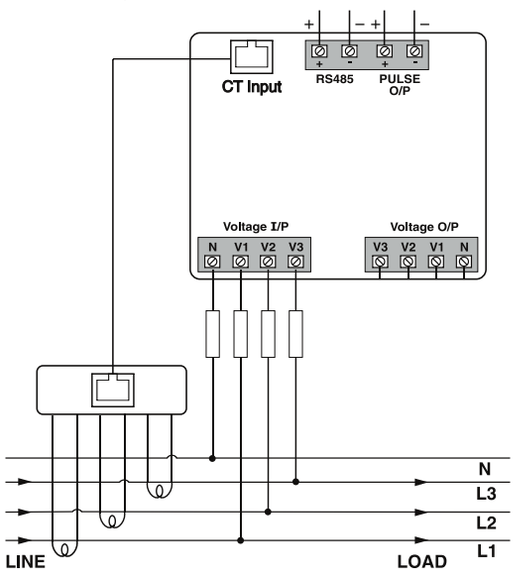


Button Selection

Dimensions Diagram (mm)

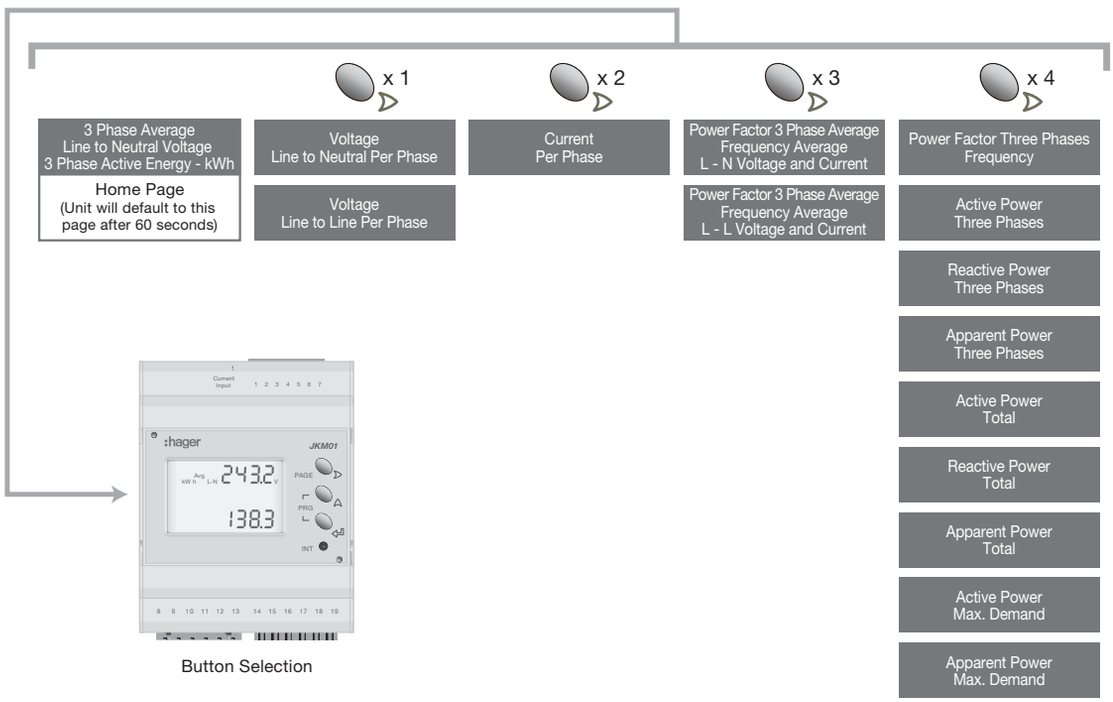


Please allow space at the rear of the meter for cable connections.



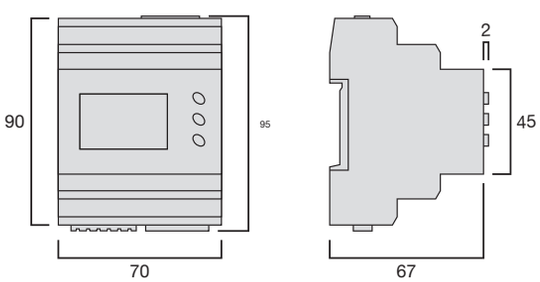
- 4 Module DIN rail mounting
- Single phase or 3 phase (4 wire) network balanced or unbalanced load
- Built-in energy pulse output and RS485 MODBUS communication
- Wide range of measured parameters (see table below)
- High quality backlit LCD display
- 330mV current transformer input
- Active energy class 1 (EN62053-21)
- Reactive energy class 2 (EN62053-23)
- THD up to 31st harmonic for voltage and current
- 3-phase: 140…460Vac measured voltage
- Single phase: 80…265Vac measured voltage
- Self supplied auxiliary
- Programmable CT ratio 5…10,000A
- Programmable VT ratio
- Frequency 45/65Hz
- Selectable CT phase correction allows reversal of L1 and L3
- Weight 190g

Function Diagram

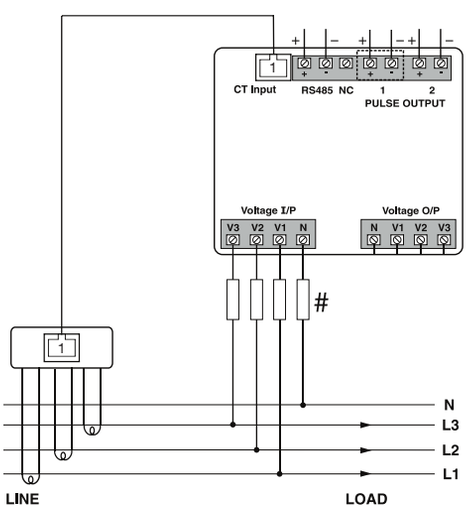


Button Selection

Dimension Diagrams (mm)



Please allow space above and below the meter for cable connections.



Description
Designed for use with Hager x160 MCCBs and the plug-in multifunction power meters.

Internal safety circuitry is provided which limits the output voltage to a safe level, allowing the transformer secondary to be left disconnected under load.

Installation
The CT uses plug-in technology allowing much faster installation, saving you time and money. Additionally, all our three phase current transformers have been designed with hole centres and apertures to fit most standard industrial circuit breakers.

	EC1260CT, EC12100CT, EC12125CT, EC12160CT	EC2560CT, EC25100CT, EC2512CT, EC25160CT, EC25200CT, EC25250CT	EC40250CT, EC40400CT, EC40630CT	EC80800CT
Accuracy Class	1	1	1	1
Aperture	3 @ 15.5 x 30mm	3 @ 21 x 25mm	3 @ 31 x 31mm	3 @ 54 x 50mm
Width	75mm	105mm	140mm	215mm
Primary Current	60 to 160A	60 to 250A	250 to 630A	800A
Hole Centres	25mm	35mm	45mm	70mm
Housing Material	Self extinguishing Nylon IEC185 classification VO according to UL-94			
Reference Standard	EN6004-8			
Weight	500g	550g	680g	1200g

EC1260CT, EC12100CT, EC12125CT, EC12160CT

Current Transformer Ratios

Primary Current	Output	
60	330	**060**
100	330	**100**
125	330	**125**
160	330	**160**

330mV Secondary

EC2560CT, EC25100CT, EC2512CT, EC25160CT, EC25200CT, EC25250CT

Current Transformer Ratios

Primary Current	Output	
60	330	**060**
100	330	**100**
125	330	**125**
160	330	**160**
200	330	**200**
250	330	**250**

330mV Secondary

EC40250CT, EC40400CT, EC40630CT

Current Transformer Ratios

Primary Current	Output	
250	330	**250**
400	330	**400**
630	330	**630**

330mV Secondary

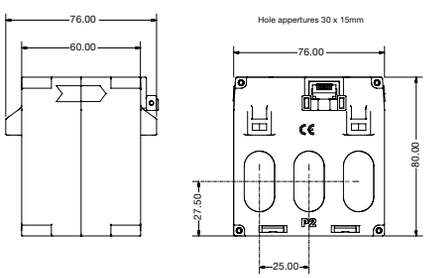
EC80800CT

Current Transformer Ratios

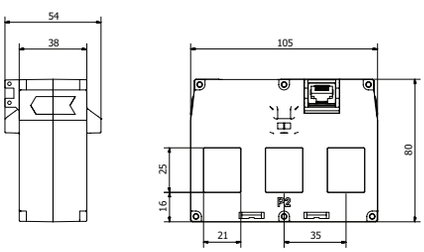
Primary Current	Output	
A	mV	Code
800	330	**800**

330mV Secondary

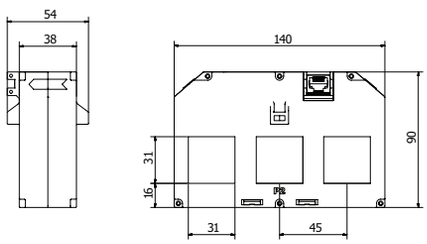
EC1260CT, EC12100CT, EC12125CT, EC12160CT



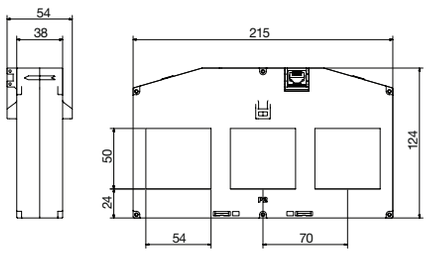
EC2560CT, EC25100CT, EC2512CT, EC25160CT, EC25200CT, EC25250CT



EC40250CT, EC40400CT, EC40630CT



EC80800CT



Data is subject to errors and technical modifications.

Fuse Combination Switches

All dimensions are in mm and exclude the handle.
Add 45mm to the depth to allow for the handle (110mm for 630 / 800A)

SPSN		Dimensions (mm)		
	Description	**Width**	**Height**	**Depth**
JFB202U	20A SPSN	200	250	150
JFB203U	32A SPSN	200	250	150
JFD206U	63A SPSN	300	325	150
JFE210U	100A SPSN	375	400	200

TPN		Dimensions (mm)		
	Description	**Width**	**Height**	**Depth**
JFB302U	20A TPN	200	250	150
JFB303U	32A TPN	200	250	150
JFD306U	63A TPN	300	325	150
JFE310U	100A TPN	375	400	200
JFG312U	125A TPN	375	500	200
JFG316U	160A TPN	375	500	200
JFG320U	200A TPN	375	500	200
JFG325U	250A TPN	375	500	200
JFH331U	315A TPN	500	650	300
JFH340U	400A TPN	500	650	300
JFI363U	630A TPN	600	800	350
JFI380U	800A TPN	600	800	350

TPSN		Dimensions (mm)		
	Description	**Width**	**Height**	**Depth**
JFB402U	20A TPSN	200	250	150
JFB403U	32A TPSN	200	250	150
JFD406U	63A TPSN	300	325	150
JFE410U	100A TPSN	375	400	200
JFG412U	125A TPSN	375	500	200
JFG416U	160A TPSN	375	500	200
JFG420U	200A TPSN	375	500	200
JFG425U	250A TPSN	375	500	200
JFH431U	315A TPSN	500	650	300
JFH440U	400A TPSN	500	650	300
JFI463U	630A TPSN	600	800	350
JFI480U	800A TPSN	600	800	350

Cable Extension Boxes

	Dimensions (mm)		
	Width	**Height**	**Depth**
JZA700	250	200	150
JZA701	375	200	200
JZA702	500	250	300
JZA703	600	300	350

Switch Disconnectors

All dimensions are in mm and exclude the handle.

3 Pole		Dimensions (mm)			
	Description	**Width**	**Height**	**Depth**	**Handle Depth**
JAC316	160A TPN	250	300	150	190
JAE320	200A TPN	375	400	200	240
JAE325	250A TPN	375	400	200	240
JAG331	315A TPN	375	500	200	240
JAG340	400A TPN	375	500	200	240
JAH363	630A TPN	500	650	300	340
JAH380	800A TPN	500	650	300	340

4 Pole		Dimensions (mm)			
	Description	**Width**	**Height**	**Depth**	**Handle Depth**
JAB402B	20A TPSN	175	232	65	78
JAB403B	32A TPSN	175	232	65	78
JAB406B	63A TPSN	175	232	65	81
JAB410B	100A TPSN	200	300	80	97
JAC412B	125A TPSN	200	300	80	97
JAC416	160A TPSN	250	300	150	190
JAE420	200A TPSN	375	400	200	240
JAE425	250A TPSN	375	400	200	240
JAG431	315A TPSN	375	500	200	240
JAG440	400A TPSN	375	500	200	240
JAH463	630A TPSN	500	650	300	340
JAH480	800A TPSN	500	650	300	340

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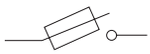
Data is subject to errors and technical modifications.

Thermal current Ith (40ºC)	**20A**		**32A**		**63A**		**100A**		**125A**		**160A**		**200A**	
Fuse size: BS	A1		A1		A2-A3		A4		B1-B2		B1-B2		B1-B2	
Rated insulated voltage														
Ui (V)	800		800		800		800		800		800		800	
Impulse voltages Uimp (V)	8000	8000	8000	8000	8000	8000	8000	8000	8000	8000	12000	12000	8000	8000
Operational current I_e (A) A = Frequent operation B = Infrequent operation	A	B	A	B	A	B	A	B	A	B	A	B	A	B
415V ac AC-22A/AC-23B	20	20	32	32	63	63	100	100	125	125	160	160	200	200
Motor power (kW) 400V ac	9		15		30		51		63		80		100	
Reactive power 400V ac (kVAr)	15		45		25		45		55		60		75	
Overload capacity														
Short-circuit with fuses (kA RMS)	50		50		50		50		50		50		50	
Fuse rating (A) BS 88	20		32		63		100		125		160		200	
Making & Breaking Capacity														
Breaking capacity 400V AC-23B (A RMS)	160		256		500		800		1000		1280		1600	
Making capacity 400V AC-22 (A RMS)	200		320		630		1000		1250		1600		2000	
Withstand mechanical (number of operations)	20,000		20,000		10,000		10,000		10,000		10,000		10,000	
Minimum tightening torque (Nm)	2		2		2.5		8.3		8.3		8.3		20	
Connection (mm²)														
Minimum Cu cable section	2.5		2.5		10		25		50		50		95	
Maximum Cu cable section	16		16		25		95		95		95		240	
Maximum terminal lug selection	-		-		-		M8		M8		M8		M10	
Fuse types	NIT20		NIT32		BA063		CEO100		DD125		DD160		DD200	

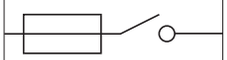
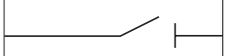
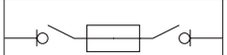
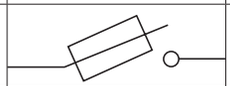
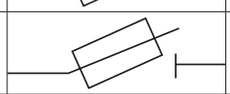
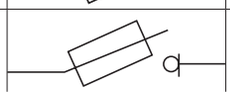
Thermal current I_{th} (40ºC)	**250A**		**315A**		**400A**		**630A**		**800A**	
Fuse size: BS	B1-B3		B1-B3		B1-B4		C1-C2		C1-C3	
Rated insulated voltage Uimp (V)	8000	8000	8000	8000	8000	8000	12000	12000	12000	12000
Operational current I_e (A) A = Frequent operation B = Infrequent operation	A	B	A	B	A	B	A	B	A	B
415V A.C. AC-22A/AC-23B	250	250	315	315	400	400	630	630	800	800
Motor power (kW) 400V A.C.	-		160	160	220	220	355	355	-	
Reactive power 400V A.C. (kVAR)	-		125		150		2 x 125		-	
Overload capacity										
Short-circuit with fuses (kA Rms)	50		50		50		50		50	
Fuse rating (A) BS 88	250		315		400		630		800	
Making & Breaking Capacity										
Breaking capacity 400V AC-23B (A R.M.S)	2000		2520		3200		-		-	
Making capacity 400V AC-23B (A R.M.S)	2500		3150		4000		-		-	
Withstand mechanical (number of operations)	10,000		10,000		10,000		8000		8000	
Minimum tightening torque (Nm)	20		20		20		40		40	
Connection (mm²)										
Minimum Cu cable section	95		185		185		2 x 150		2 x 185	
Maximum Cu cable section	240		240		240		3 x 300		3 x 300	
Maximum terminal lug selection	M10		M10		M10		M12		M12	
Fuse types	ED250		ED315		ED400		FF630		GF800	

Fuse - Combination Units - BS EN 60947-3
Many people are attracted to fuse-combination units by their simplicity in application and their reliability in operation. They are particularly useful for use on very high prospective fault level systems where the high energy limiting characteristic of the HRC fuse can be effectively utilised.
In the past fuse-combination units came in two forms:

Switch Fuse  A switch in which one or more poles have a fuse in series.

Fuse Switch  A switch in which one or more poles have a fuse carrier/link which forms the moving contact.

The definitions of these two basic types of fuse combination units have now been extended to include units suitable for making, breaking and isolation and units which are only suitable for providing isolation for maintenance work.

Definition	Symbol	Function
Switch Fuse		Making and breaking current
Disconnector Fuse		Isolating
Switch Disconnector Fuse		Making, breaking and isolating
Fuse Switch		Making and breaking current
Fuse Disconnector		Isolating
Fuse Switch Disconnector		Making, breaking and isolating

However, in order to keep the selection of fuse-combination units as simple as possible, Hager offer a range of high performance double break switch-fuses, which also satisfy the isolating requirement of the British standard. These are correctly shown as and defined as a Fuse Combination Switch.

Switch disconnectors - BS EN 60947-3. A range of switch disconnectors (isolators) are available for use on lower current ratings from 20A to 125A. These switches are rated at AC-22 and provide a cost effective alternative to the fuse combination switch, especially where the utilisation category AC-23 is not required. ie; mixed resistive and inductive loads.

Utilisation categories
Utilisation categories are not new but they are important because they help the designer or specifier identify the correct unit for a particular application.

The designation of the utilisation category is made up of three parts:

1. The prefix AC or DC, which indicates the nature of the current.
2. The two digit number, which indicates the type of application the unit is suitable for:
   - 20 Connecting and disconnecting under no-load.
   - 21 Switching of resistive loads.
   - 22 Switching of mixed resistive and inductive loads.
   - 23 Switching of highly inductive loads.
3. The suffix A or B, which indicates whether the unit is suitable for frequent or infrequent operation.
   - A Frequent operation
   - B Infrequent operation.

For example a fuse-combination unit feeding a 400V AC circuit of mixed resistive and inductive loads which would need to be operated frequently would require a minimum utilisation category of AC-22A.

If the load was highly inductive, i.e. motor loads, then the minimum utilisation category would be AC-23A.

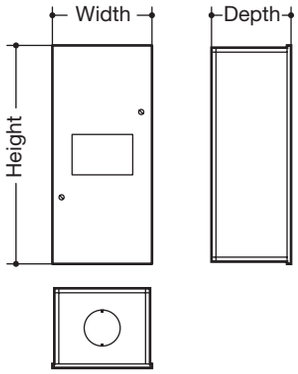
Generally, category AC-23 does not cover the switching of capacitors. Usually this is the subject of agreement between manufacturer and user.

Motor Power Circuit Protection
Fuse-combination units can be used very effectively for motor power circuit protection, the energy limiting HRC fuse offering very good protection to its associated starter. Category AC-23A should be specified for this duty. Special motor circuit protection fuse links are available which eliminate the need to fit a larger bodied fuse just to take care of the starting current of the motor.

The protection of motor power circuits should not be confused with the direct switching of a single motor. If a fuse-combination unit is required to perform this function then it must comply with the requirements of Appendix A of BS EN 60947-3 which makes provision for different utilisation categories for this application.

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Data is subject to errors and technical modifications.



Switch Fuses

	Dimensions (mm)				
	Width	**Height**	**Depth**	**Depth with Door**	**Knockouts**
IU44-16	115	187	61.5	-	2 x 25mm
IU44-18	125	312	73.5	-	None
IU44-11	125	312	73.5	-	None
IU44-16-D	125	312	74	96	None
IU44-18-D	125	312	74	96	None
IU44-11-D	125	312	74	96	None

IP65 Enclosed Isolating Switch

All dimensions are in mm and exclude the handle.
Add 27mm to the depth to allow for the handle on 10-25A products.
Add 32mm to the depth to allow for the handle on 40-80A products.

		Dimensions (mm)		
Description		**Width**	**Height**	**Depth**
JG00S	10A TPN	100	136	74
JG01S	16A TPN	100	136	105
JG02S	25A TPN	100	136	105
JG03S	40A TPN	136	201	105
JG04S	63A TPN	136	201	118
JG05S	80A TPN	136	201	118

Enclosed thermal current I_{the}	**16**	**25**	**40**	**63**	**80**
Rated insulation voltage U_i (V)	690	690	690	690	690
Rated thermal current I_{the} (A)	25	40	63	80	100
Rated operational current					
AC21 400V Ie (A)	25	40	63	80	100
AC22 400V	16	25	40	63	100
AC22 400V cos phi 0.65	16	20	32	63	100
AC23 400V	16	20	32	63	100
AC23 400V cos phi 0.35	16	15	25	40	63
Rated operational power					
AC23 230V (kW)	4	5.5	7.5	11	15
AC23 400V	7.5	11	15	22	30
Rated fused short circuit current					
Back-up fuse (A)	63	63	63	80	100
R.M.S value Ik (kA)	50	50	50	50	50
Peak value (kA)	5.4	6.6	7.2	8.3	8.7
Rated short circuit making capacity (Icm) (kA) 690V	2.5	2.5	2.5	3.3	3.3
Rated short time withstand current (Icw) (kA) 690V (1s)	1	1.1	1.6	1.7	2.3
Rated breaking capacity Icn (A) AC23					
400V cos phi 0.35	250	270	320	480	504
Electrical endurance (number of operations)	3000	3000	3000	3000	-
Mechanical endurance (number of operations)	50,000	50,000	50,000	50,000	-
Terminals mm^2	1.5 - 16	1.5 - 16	1.5 - 16	2.5 - 35	2.3 - 35
Max. thermal torque (Nm)	1.8	1.8	1.8	2.5	2.5

Enclosed thermal current I_{the}	**20**	**32**	**63**	**100**	**125**	**160**	**200**	**250**	**315**	**400**	**630**	**800**
Rated insulation voltage U_i (V)	800	800	800	800	800	800	800	800	800	800	1000	1000
Rated thermal current I_{the} (A)	20	32	63	100	125	160	200	250	315	400	630	800
Rated operational current												
AC21A 500VAC	20	32	63	100	125	160	160	250	250	250	630	800
AC22A 500VAC	20	32	63	100	125	125	125	250	250	250	500	800
AC21A 690VAC	20	32	63	100	125	125	160	160	200	200	500	800
AC22A 690VAC	20	32	40	100	125	125	160	160	125	125	315	800
Overload capacity												
Icw rated short time withstand value (kA)	1.26	1.26	1.5	2.75	7	7	9	9	9	9	13	35
R.M.S value (kA)	0.16	0.256	0.504	0.64	1	1.28	1.28	2	2	2	5.04	6.4
Peak withstand value (kA)	1.77	1.77	2.12	3.90	9.87	9.87	12.69	12.69	23.00	23.00	45.00	55.00
Rated short circuit making capacity (kA)	1.8	1.8	2.1	3.9	11.9	11.9	15.3	15.3	15.3	15.3	26	73.5
Rated impulse withstand voltage Uimp (kV)	8	8	8	8	8	8	8	8	8	8	12	12
Mechanical endurance (number of operations)	20,000	20,000	20,000	15,000	10,000	10,000	10,000	10,000	10,000	5,000	5,000	5,000
Maximum cable size	16	16	35	70	50	95	95	150	185	240	2 x 300	2 x 300
Tightening torque (Nm)	0.8	0.8	1.0	1.4	20	20	20	20	20	20	20	-

Product Reference	**JAB402B**	**JAB403B**	**JAB406B**	**JAB410B**	**JAC412B**
Thermal Current In	20A	32A	63A	100A	125A
Switch	3PSN	3PSN	3PSN	3PSN	3PSN
Rated Insulation Voltage U_i	800V	800V	800V	800V	800V
Rated Impulse Voltage U_{imp}	8kV	8kV	8kV	8kV	8kV
Dimensions					
Height (mm)	232	232	232	232	300
Width (mm)	175	175	175	175	200
Depth (mm)	81	81	81	81	83
Operational Current Ie (A)					
415V AC - AC21A / AC21B	20/20	32/32	63/63	100/100	125/125
415V AC - AC22A / AC22B	20/20	32/32	63/63	100/100	125/125
415V AC - AC23A / AC23B	20/20	32/32	63/63	100/100	125/125
500V AC - AC21A / AC21B	20/20	32/32	63/63	100/100	125/125
500V AC - AC22A / AC22B	20/20	32/32	63/63	100/100	125/125
500V AC - AC23A / AC23B	20/20	25/25	63/63	80/80	100/100
690V AC - AC21A / AC21B	20/20	32/32	63/63	100/100	125/125
690V AC - AC22A / AC22B	20/20	32/32	40/63	80/100	100/126
690V AC - AC23A / AC23B	20/20	25/25	40/40	63/63	63/63
Operational Power in AC-23 (kW)					
At 415V AC	9	15	30	45	55
At 500V AC	9	15	30	45	55
At 690V AC	11	15	30	45	55
Overload Capacity					
Fuse rating	20	32	63	100	125
Fused Icc	50	50	50	25	25
I_{cw} (kA)	2.5 / 0.3s	2.5 / 0.3s	3.0 / 0.3s	5.0 / 0.3s	5.0 / 0.3s
I_{pk} (kA)	6	6	9	12	12
Cable Connection					
Max Cu cable CSA mm^2	16	16	35	70	70

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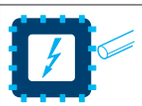
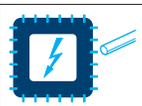
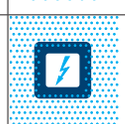
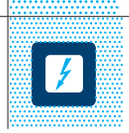
Data is subject to errors and technical modifications.

The IP rating for all low voltage enclosures up to 1000 V A.C. and 1500 V D.C. is defined in identical fashion by the standards EN 60529 - IEC 529. It comprises the letters IP followed by two character numerals and or additional/ supplementary letters.

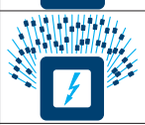
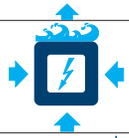
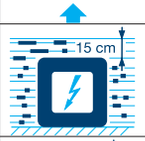
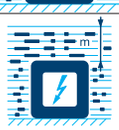
The first character numeral indicates the degree of protection provided by the enclosure against access to hazardous parts by preventing or limiting the ingress of a part of the human body or an object held by a person and ingress of solid foreign objects.

The second character numeral indicates the degree of protection provided by the enclosure with respect to harmful effects on the equipment due to the ingress of water. An X signifies that the tests are not applicable to the product.

The first character numeral:
Protection against foreign objects

IP	Description	
0		Non-protected
1		Protected against solid objects ≥ than 50mm
2		Protected against solid objects ≥ than 12.5mm
3		Protected against solid objects ≥ than 2.5mm
4		Protected against solid objects ≥ than 1.0mm
5		Dust-protected
6		Dust-tight

The second character numeral:
Protection against ingress of water with harmful effects

IP	Description	
0		Non-protected
1		Protected against dripping water
2		Protected against dripping water when tilted up to 15°
3		Protected against spraying water
4		Protected against splashing water
5		Protected against jetting
6		Protected against powerful jetting
7		Protected against the effect of temporary immersion
8		Protected against continuous immersion

Additional letter (optional)
Protection of people against access to hazardous parts

	Description
A	Protected against access to hazardous parts with the back of the hand
B	Protected against access to hazardous parts with a finger
C	Protected against access to hazardous parts with a tool - ø 2.5mm
D	Protected against access to hazardous parts with a tool - ø 1mm

Additional letter (optional)
Specific information on the product

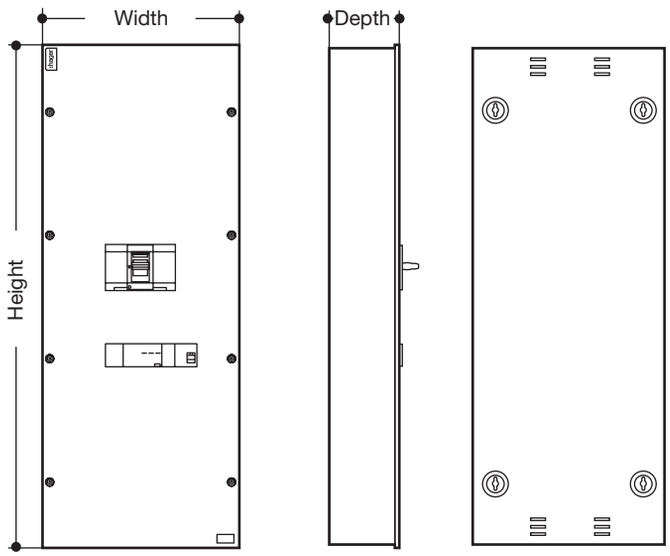
	Description
H	High voltage apparatus
M	Motion during water test
S	Stationary during water test
W	Weather conditions

Interface Characteristics	JG44BM, JG45BM, JG46BS, JG47BS	JG48BM, JG50BS, JG49BM, JG51BS	JG36BM, JG37BM, JG40BM, JG42BS, JG41BM, JG43BS	JG37BR, JG38BR	JG45BR
Rated & operational voltage (U_n / U_e)	415V A.C. 50Hz				
Rated insulation voltage (U_i)	690V A.C. 50Hz				
Rated impulse withstand voltage (U_{imp})	6kV				
Rated current of the Assembly (I_{nA})	400A	630A	**JG36BM, JG37BBM** -160A **JG40BM, JG42BS, JG41BM, JG43BS** - 250A	**JG37BR** - 160A **JG38BR** - 200A	375A
Rated conditional short-circuit current of the assembly (I_{cc})*	50kA		25kA		50kA
Standards - Enclosed MCCB assembly	BS EN 61439-2				
Standards - MCCB only	BS EN 60947-2				
Rated frequency (fn)	50 Hz				
Pollution degree	3				
Types of system earthing for which the ASSEMBLY is designed	TNC-S, TN-S and TT when installed in an electrical system conforming to BS 7671				
Intended locations	Indoor use only				
Stationary assembly external design	Wall mounted				
Degree of protection	IP30 with cover fitted				
Intended use	Skilled persons only				
Electromagnetic compatibility (EMC) classification	EMC Environment B				
External design	Wall-mounted, surface type, enclosed assembly.				
Mechanical impact protection	IK05				
Form of seperation	Form 2a				
Connection of functional unit: Incoming/outgoing circuit protection	F (fixed)				
Incoming Line Terminal(s)	M10 Bolt	M12 Bolt	M8 Socket Cap Screw		M10 Bolt
Incoming Neutral Terminal	M10 Bolt		**JG37BM, JG41BM, JG43BS -** M8 Socket Cap Screw **JG36BM, JG40BM, JG42BS** - M10 Bolt	M8 Socket Cap Screw	M10 Bolt
Enclosure Earth Stud	M10	M12	M8		M10

Enclosed MCCB (63A - 125A)

Characteristics

Series	JG25BM, JG26BM, JG27BM, JG27BR, JG28BM, JG29BM, JG30BM, JG31BM, JG32BM, JG33BM, JG30BR, JG34BS, JG35BS
MCCB	63A to 125A MCCB
MCCB + RCCB Add on block	63A & 100A
Voltage rating in AC	240 / 415 V
IP Protection	IP3X
Enclosure body type	Steel
Enclosure paint type	Powder coat Grey white BS 4800 00A01
Terminal Connection capacity	
Maximum terminal capacity	95mm²
Enclosure earth stud	M8
Installation	
Mounting	Wall



	Dimensions (mm)			(kg)
	Height	**Depth**	**Width**	**Weight**
JG25BM	420	106	200	3.9
JG26BM	420	106	200	4.5
JG27BM	420	106	200	4.5
JG27BR	420	106	300	20
JG28BM	420	106	200	3.9
JG29BM	420	106	200	4.5
JG30BM	420	106	200	4.5
JG31BM	420	106	200	3.9
JG32BM	420	106	200	4.5
JG33BM	420	106	200	4.5
JG30BR	420	106	300	8
JG34BS	420	106	200	4.5
JG35BS	420	106	200	4.5
JG44BM	900	151	400	21.9
JG46BS	900	151	400	21.9
JG45BM	900	151	400	23.2
JG47BS	900	151	400	23.2
JG48BM	1130	153	500	29.6
JG50BS	1130	153	500	29.6
JG49BM	1130	153	500	32.1
JG51BS	1130	153	500	32.1
JG36BM	660	135	260	10.5
JG37BM	660	135	260	10.5
JG40BM	660	135	260	10.5
JG42BS	660	135	260	10.5
JG41BM	660	135	260	10.5
JG43BS	660	135	260	10.5
JG37BR	865	120	260	11.5
JG38BR	865	120	260	11.5
JG45BR	1019	151	400	21.9

Torque settings	
M8	13Nm
M10	22Nm
M12	45-65Nm

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Electrical Characteristics

	MLN	MTN	NBN	NCN	NDN	HMF*	HMC*	HMD*
Poles	SP+SN	SP	SP DP TP 4P	SP DP TP 4P	SP DP TP 4P	SP DP TP 4P		
Rated Operational Voltage U_e (V)	230	230	230 / 400	230 / 400	230 / 400	230/400		
Nominal Current	6 - 40A	6 - 63A	6 - 63A	0.5 - 63A	0.5 - 63A	80 - 125A		
Breaking Capacity (I_{cn}) to BS EN 60898	6kA	6kA	10kA	10kA	10kA	10kA	15kA	
Breaking Capacity (I_{cs}) to BS EN 60898	6kA	6kA	7.5kA	7.5kA	7.5kA	7.5kA	7.5kA	
Breaking Capacity (I_{cu}) to BS EN 60947 Part 2	N/A	N/A	15kA	15kA	15kA	N/A	15kA	
Breaking Capacity (I_{cs}) to BS EN 60947 Part 2	N/A	N/A	7.5kA	7.5kA	7.5kA	N/A	7.5kA	
Rated Insulation Voltage U_i (V)	500V	500V	500V	500V	500V	500V		
Rated Impulse Voltage U_{imp} (kV)	4kV	4kV	6kV	6kV	6kV	6kV		
Electrical Endurance	10,000 cycles	10,000 cycles						
Connection of Auxiliaries	No		Yes					

Table 1

*Din rail mount only, not for use in fixed busbar distribution boards.

Power Loss
The power loss of MCB's is closely controlled by the standards and is calculated on the basis of the voltage drop across the main terminals measured at rated current. The power loss of our circuit breakers is very much lower than that required by the British Standard, so in consequences run cooler and are less affected when mounted together.

The table below gives the watts loss per pole at rated current.

MCB Rated current (A)	0.5	1	2	3	4	6	10	13	16	20	25	32	40	50	63
Watts loss per pole	1.2	1.3	1.5	2.0	1.8	1.4	1.9	2.1	2.5	2.8	3.2	3.8	4.0	4.5	5.1

For use with DC
Because of their quick make and break design and excellent arc quenching capabilities, our circuit breakers are suitable for DC applications.

The following parameters must be considered:
1. System voltage:
Determined by the number of poles connected in series (see **Table 14**).

2. Short circuit current:
(See **Table 14**).

3. Tripping Characteristics:
If the thermal trip remains unchanged the magnetic trip will become less sensitive requiring derating by √2 the ac value (See **Table 14**).

No. of poles	**1 pole**		**2 poles in series**	
Range	max voltage	breaking capacity L/R=15ms	Max voltage	breaking capacity L/R=15ms
MTN	60V	6kA	125V	6kA
NCB NCN NDN	60V	10kA	125V	10kA

Table 13

Characteristic curve	**B**		**C**		**D**	
Magnetic strip	50Hz	dc	50Hz	dc	50Hz	dc
Irm1	3In	4.5 In	5In	7.5 In	10 In	15 In
Irm2	5In	7.5 In	10In	15 In	20 In	30 In

Table 14

Connection
The circuit breaker can have the line\load connected to either the top or bottom terminals

Temperature Derating
MCBs are designed and calibrated to carry their rated current and to operate within their designated thermal time/current zone at 30ºC. Testing is carried out with the breaker mounted singly in a vertical plane in a controlled environment. Therefore if the circuit breaker is required to operate in conditions which differ from the reference conditions, certain factors have to be applied to the standard data.

I_n (A)	-25ºC	-20ºC	-15ºC	-10ºC	-5ºC	0ºC	5ºC	10ºC	15ºC	20ºC	25ºC	30ºC	35ºC	40ºC	45ºC	50ºC	55ºC	60ºC
0.5	0.72	0.7	0.68	0.66	0.64	0.62	0.6	0.58	0.56	0.54	0.52	0.5	0.48	0.46	0.44	0.42	-	-
1	1.44	1.4	1.36	1.32	1.28	1.24	1.2	1.16	1.12	1.08	1.04	1	0.96	0.92	0.88	0.84	0.8	0.76
2	2.88	2.8	2.72	2.64	2.56	2.48	2.4	2.32	2.24	2.16	2.08	2	1.92	1.84	1.76	1.68	1.6	1.52
3	4.32	4.2	4.08	3.96	3.84	3.72	3.6	3.48	3.36	3.24	3.12	3	2.88	2.76	2.64	2.52	2.4	2.28
4	5.76	5.6	5.44	5.28	5.12	4.96	4.8	4.64	4.48	4.32	4.16	4	3.84	3.68	3.52	3.36	3.2	3.04
6	8.64	8.4	8.16	7.92	7.68	7.44	7.2	6.96	6.72	6.48	6.24	6	5.76	5.52	5.28	5.04	4.8	4.56
10	14.4	14	13.6	13.2	12.8	12.4	12	11.6	11.2	10.8	10.4	10	9.6	9.2	8.8	8.4	8	7.6
13	18.7	18.2	17.7	17.2	16.6	16.1	15.6	15.1	14.6	14.0	13.5	13	12.5	12	11.4	10.9	10.4	9.9
15	21.6	21	20.4	19.8	19.2	18.6	18	17.4	16.8	16.2	15.6	15	14.4	13.8	13.2	12.6	12	11.4
16	23	22.4	21.8	21.1	20.5	19.8	19.2	18.6	17.9	17.3	16.6	16	15.4	14.7	14.1	13.4	12.8	12.2
20	28.8	28	27.2	26.4	25.6	24.8	24	23.2	22.4	21.6	20.8	20	19.2	18.4	17.6	16.8	16	15.2
25	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19
32	46.1	44.8	43.5	42.2	41	39.7	38.4	37.1	35.8	34.6	33.3	32	30.7	29.4	28.2	26.9	25.6	24.3
40	57.6	56	54.4	52.8	51.2	49.6	48	46.4	44.8	43.2	41.6	40	38.4	36.8	35.2	33.6	32	30.4
50	-	-	-	-	-	62	60	58	56	54	52	50	48	46	44	42	40	38
63	-	-	-	-	-	-	-	-	-	-	-	63	60.5	58	55.4	52.9	50.4	47.9

Diversity Factor - Commercial Distribution boards to BS EN 61439-3
Consideration should be given to the proximity heating effect of the breakers when fully loaded and mounted together in groups.

Adjacent circuit breakers having a load 'on' time exceeding 30 minutes or where the load not exceeding 30 minutes has an 'off' time less than the 'on' time, will need to have the rated diversity factor applied.

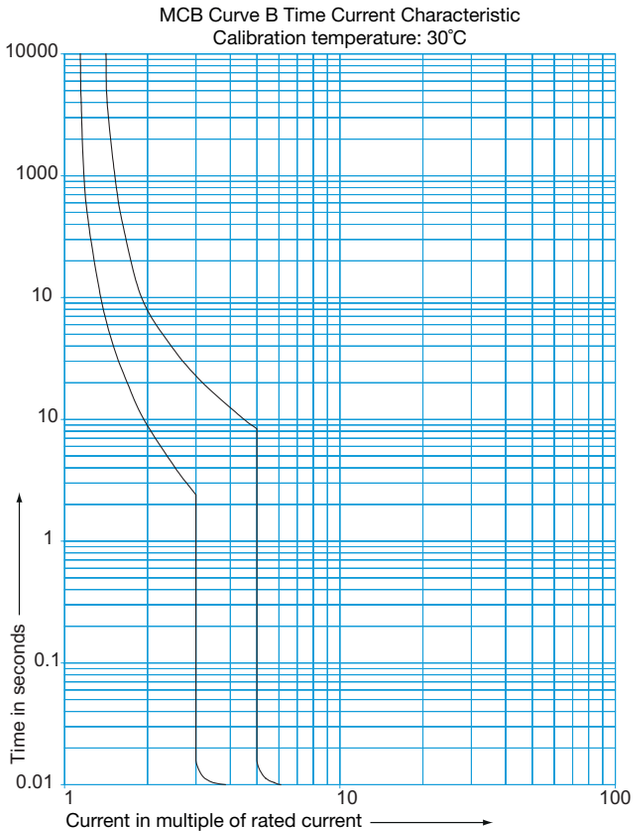
No. of Outgoing Circuits	Assumed Loading Factor
2 and 3	0.8
4 and 5	0.7
6 to 9 inclusive	0.6
10 and above	0.5

Frequency
Circuit breakers are designed to operate at a frequency of 50-60Hz. Should the supply differ from this then the following factors should be applied
Thermal – unchanged
Magnetic – value multiplied by coefficient K

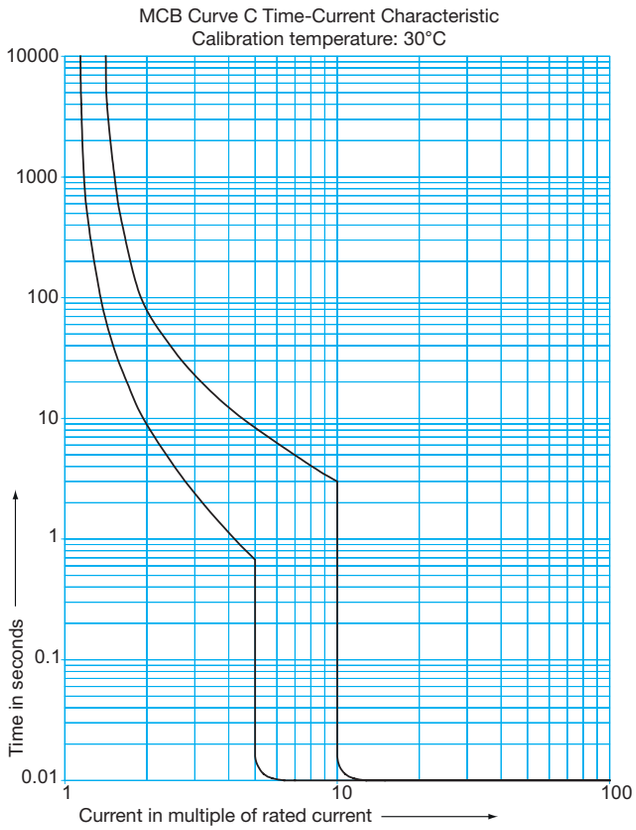
F (Hz)	17Hz - 60Hz	100Hz	200Hz	400Hz
K	1	1.1	1.2	1.5

Consideration should be given to the proximity heating effect of the breakers when fully loaded and mounted together in groups. (continuously & simultaneously loaded).

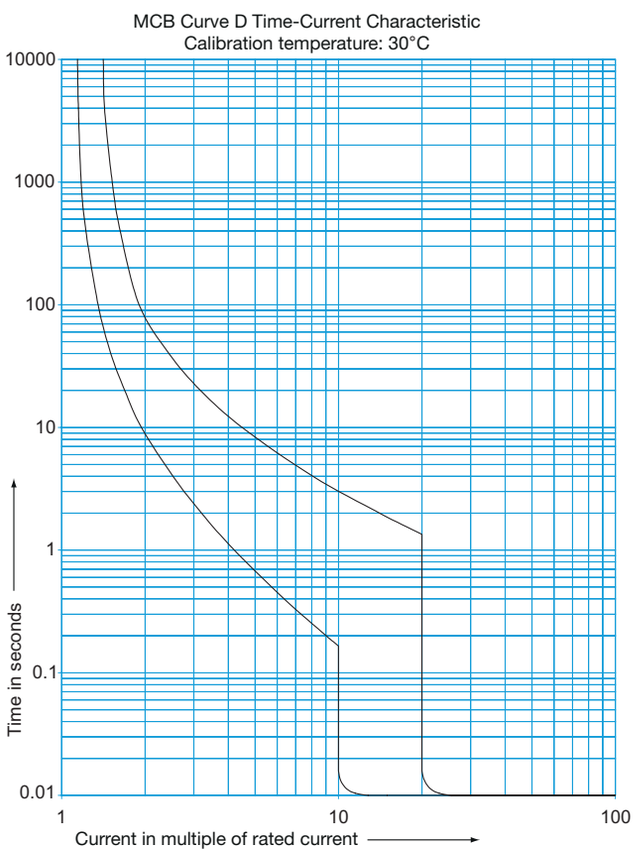
B Curve (BS EN 60898)
MCBs: MTN rated 6 - 63A
NBN rated 6 - 63A



C Curve (BS EN 60898)
MCBs: NCN rated 0.5 - 63A
MLN rated 2 - 32A
HMF/HMC rated 80 - 125A

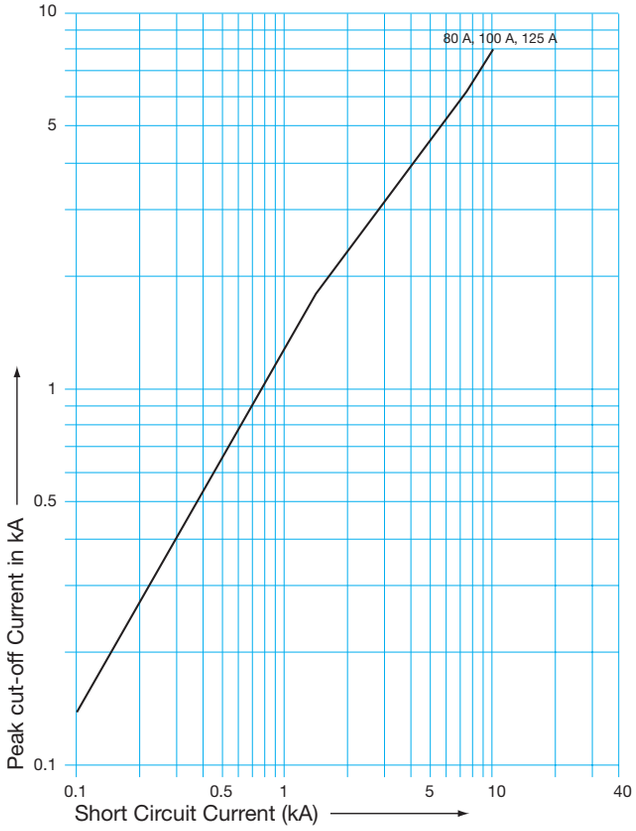


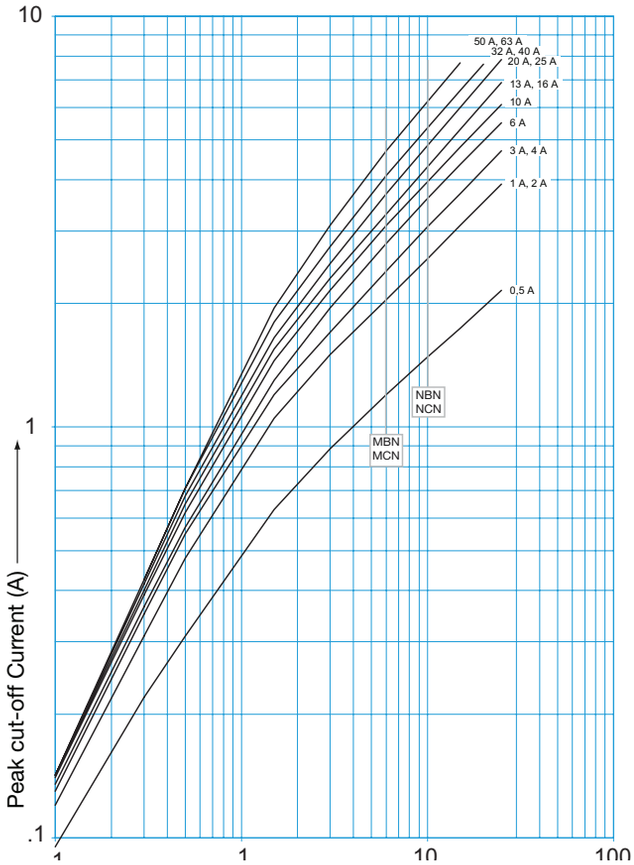
D Curve (BS EN 60898)
MCBs: NDN rated 6 - 63A
HMD rated 80 - 125A



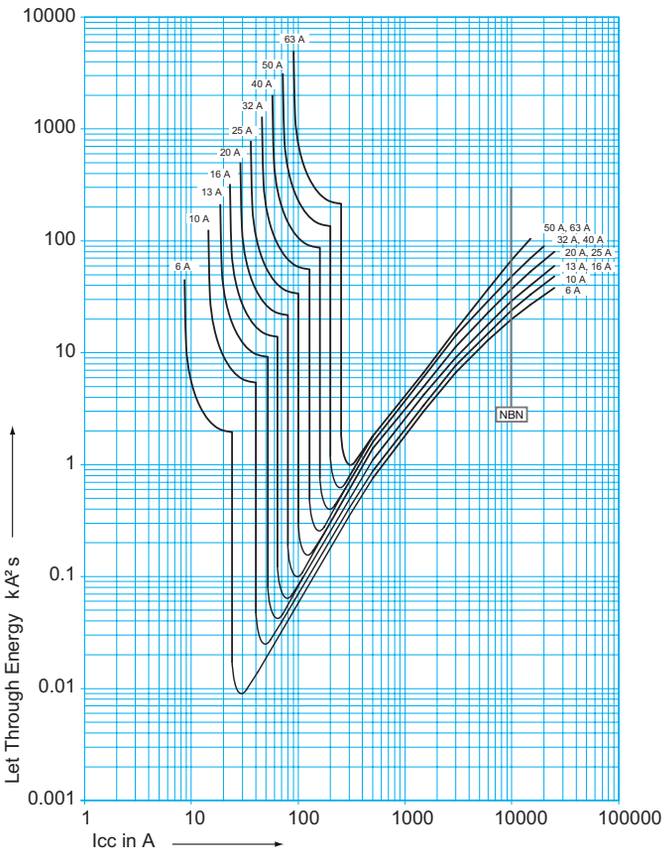
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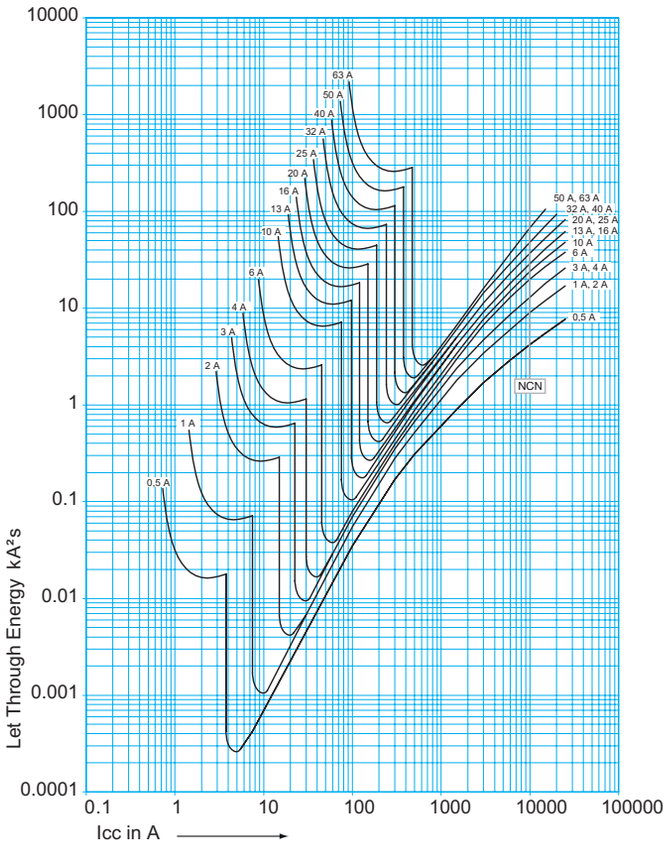

10
5
1
0.5
0.1
80 A, 100 A, 125 A
Peak cut-off Current in kA
0.1
0.5
1
5
10
40
Short Circuit Current (kA)


10
1
.1
50 A, 63 A
32 A, 40 A
20 A, 25 A
13 A, 16 A
10 A
6 A
3 A, 4 A
1 A, 2 A
0,5 A
NBN
NCN
MBN
MCN
Peak cut-off Current (A)
1
10
100

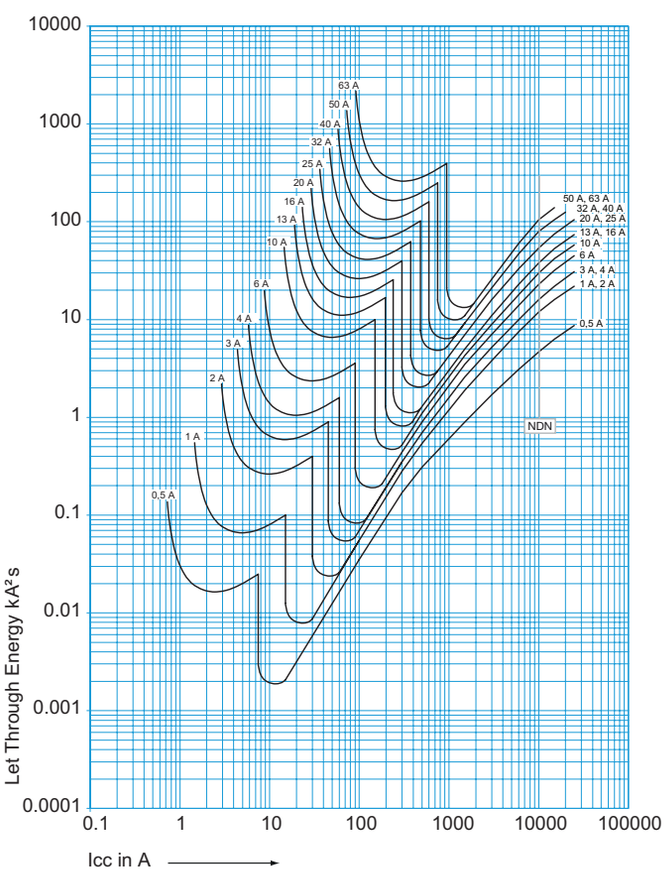
B Curve



C Curve



D Curve



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Functions
Tripping and indication auxiliary contacts are common to the range of multi-pole 10kA MCBs, and RCCBs. They should be mounted on the left hand side of the device.

Auxiliary Contact MZ201 (Fig 9)
Allows remote indication of the status of the device contacts to which it is associated.

Auxiliary Contact and Alarm Contact MZ202
This accessory has two separate functions. Like the **MZ201** auxiliary contact, however the alarm contact will provide indication if the breaker trips under fault conditions.

Wiring Diagram
MZ201 Auxiliary Contact and Alarm Contract

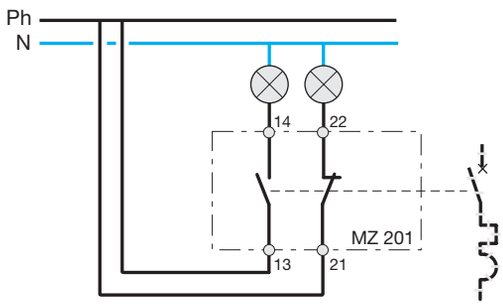


Fig. 9

Electrical Characteristics

MZ201/MZ206	MZ203	MZ206
1 x O 1 x C Contact 230V ~ 6A AC-1		
	230 - 415~ 110 - 130...	230V~ 50Hz

MZ203 Shunt Trip*
Allows tripping of the device by feeding the coil. The contacts also allow for remote indication of operation.

MZ206 Under Voltage Release* (Fig 10)
Allows the MCB to trip when the voltage drops or by pressing a remote off switch (i.e. emergency stop).

* Indication that the product has tripped due to the voltage release is provided by a flag on the product.

MZ206 Under Voltage Release

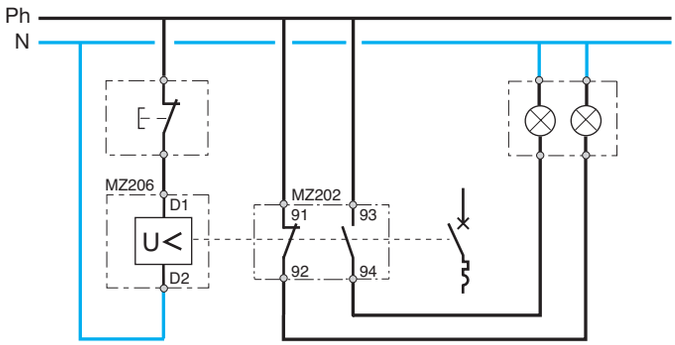


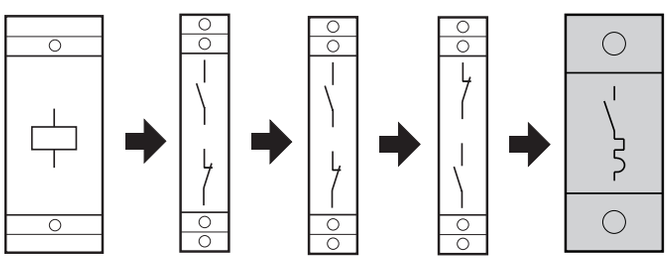
Fig. 10

Electrical connection
By terminal fitted with fixed clamp screws wiring capacity.
Flexible : 2 x 1.5mm2
Rigid : 2 x 1.5mm2

MZ203
Power - 8VA
tolerance : -15% of U_n

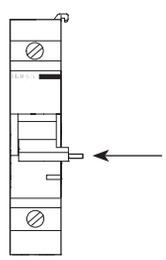
MZ206
Latching voltage is between 35 and 70% of U_n 230V~
Coil consumption 3VA

Grouping / Combination of Several Auxiliaries
On 2, 3 and 4 pole MCBs it is possible to associate 3 auxiliaries – 2 indication auxiliaries and 1 release auxiliary. In this case, it is important to first fix the indication auxiliary (**MZ201** and **MZ202**) and then the release auxiliary (**MZ203** and **MZ206**).



MZ203 to **MZ206** + **MZ201** to **MZ201** + **MZ201** to **MZ201** + **MZ202** to **MZ201** + MCB

Fig. 11



Flag indicating that the product has tripped due to the voltage release

MZ203 to **MZ206**

Fig. 12

Earth Fault Loop impedance (Z_S) values for MCBs and MCCBs
Below are the maximum permissible values of Z_S to obtain disconnection for compliance with BS 7671:2018 Amendment 1:2020

	Max Let-Through Energy (kA^2s) at PSCC			Max Z_S (ohms)	
I_n	3kA	6kA	10kA	0.2 - 1s sec	5 sec
MTN/NBN (B Curve)					
6	5.9	10.5	15	7.28	7.28
10	6.5	12.2	21.5	4.37	4.37
16	8.0	17.5	30	2.73	2.73
20	8.8	19.5	34	2.19	2.19
25	10	21	38	1.75	1.75
32	11	24	42	1.37	1.37
40	12.5	29	50	1.09	1.09
50	15	34	61	0.87	0.87
63	16	38	72	0.69	0.69
NCN/HM (C Curve)					
0.5	0.01	0.01	0.01	43.7	62.43
1	4.0	7.0	10	21.85	31.21
2	4.0	7.0	10	10.93	15.61
3	5.0	10.0	15	7.28	10.40
4	5.9	10.5	15	5.46	7.80
6	5.9	10.5	15	3.64	5.20
10	6.5	12.2	21.5	2.19	3.12
16	8.0	17.5	30	1.37	1.95
20	8.8	19.5	34	1.09	1.56
25	10	21	38	0.87	1.25
32	11	24	42	0.68	0.98
40	12.5	29	50	0.55	0.78
50	15	34	61	0.44	0.62
63	16	38	72	0.35	0.50
80	-	-	-	0.27	0.39
100	-	-	-	0.22	0.31
125	-	-	-	0.1	0.25
NDN (D Curve)					
0.5	0.01	0.01	0.01	21.85	62.43
1	4.0	7.0	10	10.93	31.21
2	4.0	7.0	10	5.46	15.61
3	5.0	10.0	15	3.64	10.40
4	5.9	10.5	15	2.73	7.80
6	5.9	10.5	15	1.82	5.20
10	6.5	12.2	21.5	1.09	3.12
16	8.0	17.5	30	0.68	1.95
20	8.8	19.5	34	0.55	1.56
25	10	21	38	0.44	1.25
32	11	24	42	0.34	0.98
40	12.5	29	50	0.27	0.78
50	15	34	61	0.22	0.62
63	16	38	72	0.17	0.50
80				0.14	0.39
100				0.11	0.31
125				0.09	0.25

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Residual Current Devices
A residual current device (RCD) is the generic term for a device which simultaneously performs the functions of detection of the residual current, comparison of this value with the rated residual operating value and opening the protected circuit when the residual current exceeds this value. These devices can take several different forms I.e. Residual Current Circuit Breaker (RCCB), Residual Current Circuit Breaker with integral Overload protection (RCBO), or a residual current device incorporated within a socket outlet or other accessory (SRCD)

Residual current circuit breakers (RCCB) protect against earth faults only and not short circuits. They are usually therefore used in conjunction with overcurrent protective devices.

MCB/RCCB Co-ordination

Short circuit capacity of the RCCB only		With MCB's			
RCCB		**MTN 6-63A B**	**NBN 6-63A B**	**NCN 6-63A C**	**NDN 6-63A D**
2 poles					
16A	1500A	6kA	10kA	10kA	6kA
25A	1500A	6kA	10kA	10kA	6kA
40A	1500A	6kA	10kA	10kA	6kA
63A	1500A	6kA	10kA	10kA	6kA
80A	1500A	6kA	10kA	10kA	6kA
100A	1500A	6kA	10kA	10kA	6kA
4 poles					
16A	1500A	6kA	6kA	6kA	4.5kA
25A	1500A	6kA	6kA	6kA	4.5kA
40A	1500A	6kA	6kA	6kA	4.5kA
63A	1500A	6kA	6kA	6kA	4.5kA
80A	1500A	6kA	6kA	6kA	4.5kA
100A	1500A	6kA	6kA	6kA	4.5kA

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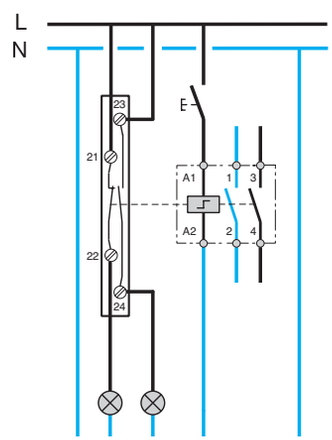
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Technical Characteristics

	EPN510 EPN515 EPN520	EPN513 EPN518 EPN524	EPN519 EPN521	EPN525 EPN540	EPN528 EPN541	EPN529
Voltage	230V	24V	12V	230V	24V	12V
Start Consumption	24VA	24VA	24VA	48VA	47VA	TBC
Contact Rating AC1	-	-	16A 250V~[1]	-	-	-
Electrical Endurace AC1 - 16A	150,000 Operations					
Mechanical Endurance	500,000 Operations					
Current in Open Position	8 mA					
Max Duration of Voltage Supply to Coil	1h					
Min Duration of Current Supply to Coil	0.1s					
Working Temperature	-5 to +40ºC					
Storage Temperature	-40 to +80ºC					
Connections						
Coil: Flexible Rigid	0.5 to 4mm² 1 to 6mm²					
Power: Flexible Rigid	1 to 6mm² 1.5 to 10mm²					

[1] 400~ for **EPN540** and **EPN541**.

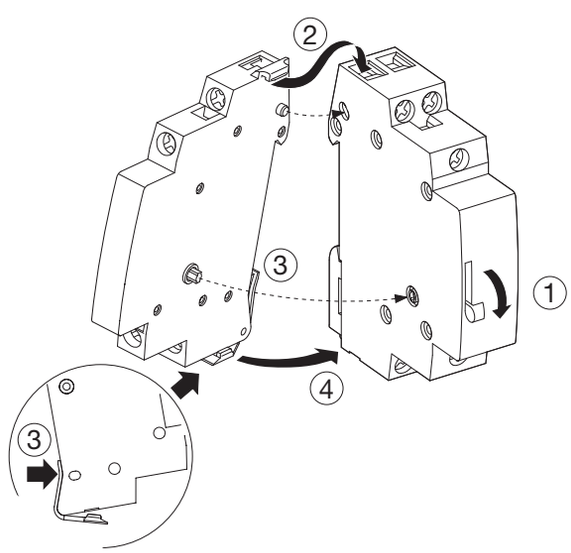
Auxiliary Contacts (EPN051)
The range of latching relays have been designed for use with an auxiliary contact. The devices simply clip on the side of the relay.



Technical Characteristics

	EPN051
Voltage	-
Contact Rating	2A / 250V
Imin / 230V	15mA

[1] Voltage dependant on associated relay



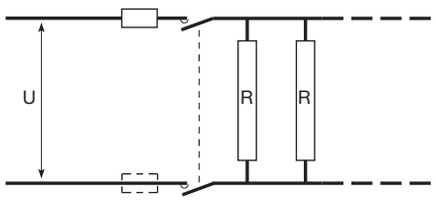
Heating
The choice of the contactor depends on the mechanical endurance (number of operations) and on the electrical heating load
i.e. resistive elements, infra-red element, convectors.

Choice of Contactors
The choice of contactor is dependant upon many parameters
i.e. operating voltage, size of contacts, number of operations, ambient temperature, type of load supplied etc.

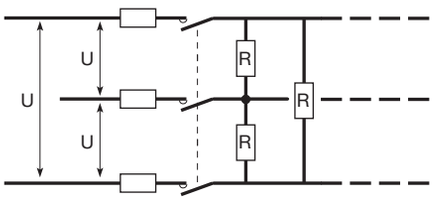
Type of Load
Loads are categorised into various AC ratings, (AC1, AC2, AC3 etc.) and the higher the AC rating the more inductive the load becomes.
All Hager contactor ratings are given at AC1, therefore they must be de-rated if used on other types of AC load.

Heat Dissipation Inserts
The ambient temperature around a contactor can affect its life expectancy, therefore, we strongly recommend that heat dissipation inserts (**LZ060**) are fitted between all contactors and adjacent devices.

Single Phase



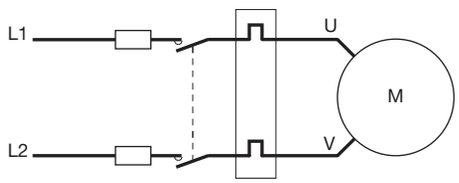
Three Phase



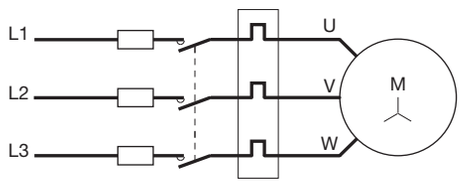
			Number of operations				
			100,000	**150,000**	**200,000**	**500,000**	**1,000,000**
Max. load in kW	230V	16A	3	2.5	1.9	0.85	0.7
		25A	4.6	4	3	1.35	1
		40A	7.3	6.3	4.7	2.2	1.6
		63A	11.6	10	7.5	3.5	2.5
	400V	16A	8.9	8	5.8	2.8	2
		25A	13.8	12	8.6	4.3	3
		40A	22	18.5	14.385	6.3	5
		63A	35	30	22.6	10.2	7.6

Contactor selection when using with motors

Single Phase 230V (AC3 or AC7b)



Three Phase 400V (AC3 or AC7b)



			Choice of Contactor According to control diagram	
	Single Phase with Capacitor 230V	**Three Phase (AC3 or AC7) 400V**	**2 Wires**	**3 Wires**
Maximum load in kW	0.88		2 pole 25A	
	2.6		2 pole 40A	
		2.6		3 pole 25A
		7.8		3 pole 40A
		10		3 pole 63A

Requirements of Use
Influence of Working Temperature
Derating factor between 40°C and 50°C : 0.9
Example: Heating with convector
The maximum load of **ESC225** is 4.6kW for 50,000 operations and for a temperature <40°C.
between 40°C and 50°C, the load is 4.6 x 0.9 i.e. 4.14kW

Close Fitting
It is necessary to put a heat dissipation insert (reference **LZ060**) between each contactor.

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Description			Modular contact						Auxiliary contact
Standard conformity			EN 61095						
Approvals			NF - VDE- IMQ - KEMA - RMC / CCC						
			Relay	Contactor	Relay	Contactor	Contactor	Contactor	Contactor
Number of modules			1		2		3		½
Thermal current Ith (40ºC)			16A	25A	16A	25A	40A	63A	6A
Rated frequency			50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz
Rated insulation voltage (U_i)			250V	250V	440V	440V	440V	440V	250V
Rated impulse withstand voltage (U_{imp})			4kV	4kV	4kV	4kV	4kV	4kV	4kV
Polution Degree			2	2	2	2	2	2	2
Rated Operating currents and power ratings in AC									
AC-1 / AC-7a	Rated operational currents Ie		16A	16A	16A	25A	40A	63A	-
	Rated operational power	230V	3kW	4.6kW	3kW	4.6kW	7.3kW	11.6kW	-
		400V	-	-	8.9kW	13.8kW	22kW	35kW	-
AC-3 / AC-7b	Rated operational currents Ie		5.5A	8.5A	5.5A	8.5A	25A	32A	-
	Rated operational power	230V	570W	880W	570W	880W	2.6kW	3.3kW	-
		400V	-	-	1.7kW	2.6kW	7.8kW	10kW	-
AC-12	Rated operational currents i.e. @ 230V		-	-	-	-	-	-	6A
AC-15	Rated operational currents i.e. @ 230V		-	-	-	-	-	-	2A
Mechanical and Electrical Endurances									
Mechanical endurance		Number of operations	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
Electrical endurance @ Ie AC7a (AC12 for aux contact)		Number of operations	60,000	60,000	60,000	60,000	60,000	60,000	60,000
MCB Protected short-circuit withstand									
Prospected short-circuit current		rms	1kA	3kA	1kA	3kA	3kA	3kA	1kA
Associated protection			MCB C16-6kA	MCB C25-6kA	MCB C16-6kA	MCB C25-6kA	MCB C40-10kA	MCB C63-10kA	6A 10x38 gG Fuse
Power dissipation									
Power dissipation per current path			1W	1.5W	1W	1.5W	3.2W	5W	0.4W
Magnetic system for Eco and standard contactor									
Pick-up			2.2W	2.2W	2.8W	2.8W	5W	5W	-
Coil consumption			2.2W	2.2W	2.8W	2.8W	5W	5W	-
Closing delay			25ms	25ms	25ms	25ms	25ms	25ms	-
Opering delay			15ms	15ms	15ms	15ms	20ms	20ms	-
Connection									
Main contact cable section		Rigid	1...10mm²	1...10mm²	1...10mm²	1...10mm²	4...25mm²	4...25mm²	1...6mm²
		Flexible	1...6mm²	1...6mm²	1...6mm²	1...6mm²	4...16mm²	4...16mm²	1...6mm²
Main contact connection screw		Type	M3.4	M3.4	M3.4	M3.4	M5	M5	M3.4
		Posidrive	PZ2	PZ2	PZ2	PZ2	PZ2	PZ2	PZ2
		Max. tight. torque	1.2Nm	1.2Nm	1.2Nm	1.2Nm	2Nm	2Nm	1.2Nm
Coil connection cable section		Rigid	1...10mm²	1...10mm²	1...10mm²	1...10mm²	1...10mm²	1...10mm²	-
		Flexible	1...6mm²	1...6mm²	1...6mm²	1...6mm²	1...6mm²	1...6mm²	-
Coil connection screw		Type	M3.5	M3.5	M3.5	M3.5	M4	M4	-
		Posidrive	PZ2	PZ2	PZ2	PZ2	PZ2	PZ2	-
		Max. tight. torque	1.2Nm	1.2Nm	1.2Nm	1.2Nm	1.5Nm	1.5Nm	-
Working temperature									
			-10ºC to +50ºC						
Storage temperature									
			-40ºC to +80ºC						

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Data is subject to errors and technical modifications.

Lighting systems with electronic ballasts cause inrush current peaks. Therefore we recommend you use the chart below to determinate the maximum amount of lamps that can be connected to a Hager contactor: The chart gives the maximum amount of lamps per contact. In 2014 the performances of the contactors in combination with lights increased. The products identified on the front face with the '+' can accept a higher number of lamps. For these products, see the figures in the column with the '+' in the header.

	Lamp Power	16A	25A	16A +	25A +	40A	63A
Compact fluo lamps							
Compact fluo lamp with external electronic ballast	5W	11	15	17	27	49	76
	7W	11	15	17	27	49	76
	9W	9	13	16	26	40	63
	11W	9	13	16	26	40	63
	15W	7	11	14	22	36	57
	18W	7	11	14	22	36	57
	20W	7	11	14	22	36	57
	23W	7	11	14	22	36	57
	26W	7	11	14	22	36	57
Compact fluo lamp with integrated electronic ballast	5W	17	27	34	54	86	135
	7W	17	27	34	54	86	135
	9W	17	27	34	54	86	135
	11W	17	27	34	54	86	135
	15W	17	27	34	54	86	135
	18W	13	20	25	40	63	100
	20W	13	20	25	40	63	100
	23W	13	20	25	40	63	100
	26W	13	20	25	40	63	100
Incandescent lamps							
Tungsten & halogen lamps 230V	40W	32	50	36	57	76	120
	60W	21	33	28	45	67	105
	75W	17	27	24	38	63	100
	100W	13	20	17	28	41	65
	150W	8	13	11	18	29	45
	200W	6	9	8	14	22	35
	300W	4	7	6	10	15	23
	500W	2	3	3	6	9	14
	1000W	0	0	1	2	4	7
Tungsten & halogen lamps 12 ou 24V	20W	13	20	25	40	139	218
	35W	8	13	16	26	82	129
	50W	6	9	11	18	60	94
	75W	4	6	7	12	52	82
	100W	2	3	3	6	35	55
	150W	1	2	2	4	20	31
LED							
LED 230V with integrated electronic ballast - non dimmable	4W	17	27	34	54	86	135
	4.5W	17	27	34	54	86	135
	6W	17	27	34	54	86	135
	7W	17	27	34	54	86	135
	8W	17	27	34	54	86	135
	12W	17	27	34	54	86	135
	17W	13	20	25	40	63	101
	18W	13	20	25	40	63	101
	22W	13	20	25	40	63	101
	30W	9	14	17	28	44	70
	34W	9	14	17	28	44	70
	40W	9	14	17	28	44	70
	50W	7	11	14	22	35	55
LED 230V with integrated electronic ballast - dimmable	4W	38	60	76	120	159	250
	5.5W	38	60	76	120	159	250
	6W	38	60	76	120	159	250
	7W	38	60	76	120	159	250
	8W	38	60	76	120	159	250
	12W	38	60	76	120	159	250
	17W	28	44	56	88	118	185
	18W	28	44	56	88	118	185
	22W	28	44	56	88	118	185
	30W	20	31	39	62	82	130
	34W	20	31	39	62	82	130
	40W	20	31	39	62	82	130
	50W	16	24	30	48	65	102
LED 230V headlight with integrated electronic ballast	100W	-	-	3	5	6	9
	150W	-	-	1	3	4	6
	200W	-	-	1	2	4	6
LED 12V with separated transformer - dimmable	1W	38	60	76	120	180	220
	2.5W	38	60	76	120	180	220
	4W	38	60	76	120	180	220
	5W	38	60	76	120	180	220
	7W	38	60	76	120	160	200
	10W	38	60	76	120	160	200
	15W	28	44	56	88	160	200

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	Lamp Power	16A	25A	16A +	25A +	40A	63A
Fluorescent tubes							
T5 double - uncompensated	2 x 18W	13	20	25	40	50	78
	2 x 20W	12	19	24	38	50	78
	2 x 36W	12	15	19	30	44	69
	2 x 40W	10	13	16	26	40	63
	2 x 42W	9	12	15	24	40	63
	2 x 58W	7	9	11	18	27	42
	2 x 65W	6	8	10	16	27	42
	2 x 80W	5	7	8	14	22	35
	2 x 115W	4	5	6	10	16	25
T5 double - serie compensation	2 x 18W	7	11	14	22	34	53
	2 x 20W	7	11	14	22	29	45
	2 x 36W	6	10	12	20	27	42
	2 x 40W	6	10	12	20	27	42
	2 x 42W	6	10	12	20	27	42
	2 x 58W	6	10	12	20	25	39
	2 x 65W	5	7	8	14	23	36
	2 x 80W	5	7	8	14	20	31
	2 x 115W	4	5	6	10	17	25
T5 single - electronic ballast	15W	7	11	14	22	36	57
	18W	7	11	14	22	36	57
	20W	7	11	14	22	36	57
	36W	7	11	14	22	34	53
	40W	7	11	14	22	29	45
	42W	7	11	14	22	29	45
	58W	6	10	12	20	27	42
	65W	6	10	12	20	27	42
	80W	6	10	12	20	27	42
	115W	6	10	12	20	25	39
T5 double - electronic ballast	2 x 18W	7	11	14	22	34	53
	2 x 20W	7	11	14	22	29	45
	2 x 36W	6	10	12	20	27	42
	2 x 40W	6	10	12	20	27	42
	2 x 42W	6	10	12	20	27	42
	2 x 58W	6	10	12	20	25	39
	2 x 65W	5	7	8	14	23	36
	2 x 80W	5	7	8	14	20	31
	2 x 115W	4	5	6	10	17	25
Fluorescent tubes							
T5 single - uncompensated	15W	13	20	19	30	70	100
	18W	13	20	19	30	70	100
	20W	12	19	19	30	70	100
	36W	12	15	17	28	60	90
	40W	10	13	16	26	60	90
	42W	9	12	15	24	55	83
	58W	7	9	10	17	35	56
	65W	6	8	10	17	35	56
	80W	5	7	9	15	30	48
	115W	4	5	6	10	20	32
	140W	3	5	6	10	16	26
T5 single - paralell compensation	15W	7	11	12	20	36	57
	18W	7	11	12	20	36	57
	20W	7	11	12	20	36	57
	36W	7	11	12	20	34	53
	40W	7	11	12	20	29	45
	42W	7	11	12	20	29	45
	58W	6	10	9	15	27	42
	65W	6	10	9	15	27	42
	80W	6	10	9	15	27	42
	115W	6	10	9	15	25	39

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Data is subject to errors and technical modifications.

	Lamp Power	16A	25A	16A +	25A +	40A	63A
Discharge lamps							
High-pressure mercury-vapor lamps - without compensation	50W	9	14	17	28	32	50
	80W	6	9	11	18	24	37
	125W	3	5	6	10	18	28
	250W	2	3	3	6	10	15
	400W	1	1	1	2	6	9
	700W	0	0	0	0	4	5
High-pressure mercury-vapor lamps - paralell compensation	50W	7	11	14	22	26	40
	80W	5	8	10	16	22	34
	125W	3	5	6	10	15	23
	250W	2	3	3	6	9	14
	400W	1	1	1	2	5	8
	700W	0	0	0	0	3	5
	1000W	0	0	0	0	2	3
Low pressure sodium lamps - without compensation	18W	8	10	8	12	17	23
	35W	4	6	7	9	14	20
	55W	3	6	7	9	14	20
	90W	2	4	5	6	9	14
	135W	1	3	3	4	6	8
	180W	1	2	2	4	6	8
Low pressure sodium lamps - paralell compensation	18W	5	7	5	8	12	24
	35W	4	6	4	7	10	23
	55W	3	5	3	5	10	19
	90W	2	3	3	4	8	16
	135W	1	2	1	2	5	7
	180W	1	2	1	2	5	6
High pressure sodium lamps - without compensation	35W	11	14	15	24	30	50
	50W	9	12	10	15	22	34
	70W	8	9	8	12	18	28
	110W	6	8	6	10	14	22
	150W	4	7	5	8	10	16
	250W	2	4	3	5	6	10
	400W	0	1	1	2	4	6
	1000W	0	1	1	1	2	3
High pressure sodium-vapour lamps - electronic ballast or parallel compensation	35W	6	9	11	18	31	50
	50W	6	9	11	18	22	35
	70W	4	6	7	12	16	25
	110W	3	5	6	8	13	21
	150W	3	5	4	6	8	13
	250W	2	3	3	4	7	11
	400W	1	1	1	2	5	8
	1000W	0	0	0	1	2	3
Metal halide lamps - without compensation	35W	12	24	19	30	42	55
	70W	10	15	12	17	26	36
	150W	6	7	8	12	14	20
	250W	3	5	5	8	9	14
	400W	1	2	2	4	6	9
	1000W	0	0	0	0	3	5
Metal halide lamps - electronic ballast or parallel compensation	35W	6	10	12	18	22	39
	70W	5	8	10	13	22	39
	150W	3	5	6	8	12	22
	250W	3	5	6	7	9	16
	400W	1	1	1	2	5	7
	1000W	0	0	0	1	2	3

Transformer Protection
Tables 19 & 20 show the recommended MCB's for the protection of single phase (230V) and three phase (400V) transformers.

Single Phase 230V

		Recommended MCB		
Transformer Rating (VA)	Primary Current	**NBN**	**NCN**	**NDN**
50	0.22	-	1	6
100	0.43	-	2	6
200	0.87	-	3	6
250	1.09	6	4	6
300	1.30	10	4	6
400	1.74	10	6	6
500	2.17	16	10	6
750	3.26	16	10	6
1000	4.35	25	16	10
2500	10.87	63	40	20
5000	21.74	-	63	32
7500	32.60	-	-	50
10000	43.48	-	-	63

Three Phase 400V

		Recommended MCB		
Transformer Rating (VA)	Primary Current	**NBN**	**NCN**	**NDN**
500	0.72	-	3	6
750	1.08	6	4	6
1000	1.44	10	6	6
2000	2.88	16	10	6
3000	4.33	25	16	10
4000	5.77	32	20	10
5000	7.21	40	25	16
7500	10.82	63	32	20
10000	14.43	-	50	25
15000	21.64	-	63	32
20000	28.86	-	-	50
25000	36.07	-	-	63

Motor Circuit Protection
Tables 28,29,30 and 31 give general recommendations for the selection of circuit breakers and HRC fuses for the protection of motor power circuits and are based on the assumptions shown in Table 28 for a cage motor running at approximately 1400 Rev/Min.

Motor Rating	DOL Starting Conditions	Assisted Start Conditions
Up to 0.75kW	5 x FLC for 6 secs	2.5 x FLC for 15 secs
1.1 to 7.5kW	6 x FLC for 10 secs	2.5 x FLC for 15 secs
11 to 75kW	7 x FLC for 10 secs	2.5 x FLC for 15 secs
90 to 160kW	6 x FLC for 15 secs	2.5 x FLC for 20 secs

1 Phase 230V DOL Starting

			Recommended Circuit Breaker			
kW	hp	FLC A	(A) **NBN**	(A) **NCN**	(A) **NDN**	Fuse (A)
0.18	0.25	2.8	16	10	10	10
0.25	0.33	3.2	16	10	10	16
0.37	0.5	3.5	16	10	10	16
0.55	0.75	4.8	20	16	16	16
0.75	1.0	6.2	25	20	20	20
1.1	1.5	8.7	40	25	25	25
1.5	2.0	11.8	50	32	32	32
2.2	3.0	17.5	-	50	50	40
3.0	4.0	20	-	63	63	50
3.75	5.0	24	-	-	-	63
5.5	7.5	36	-	-	-	80
7.5	10	47	-	-	-	100

3 Phase 400V Assisted Starting Star-Delta

			Recommended Circuit Breaker		
kW	hp	FLC A	(A) **NCN**	(A) **NDN**	HRC Fuse (A)
3	4	6.3	16	10	16
4	5.5	8.2	20	10	16
5.5	7.5	11.2	32	16	20
7.5	10	14.4	40	25	25
11	15	21	50	32	32
15	20	27	-	40	35
18.5	25	32	-	50	40
22	30	38	-	63	50
30	40	51	-	-	63
37	50	63	-	-	80
45	60	76	-	-	80
55	75	91	-	-	100
75	100	124	-	-	160
90	125	154	-	-	200
110	150	183	-	-	200
132	175	219	-	-	250
150	200	240	-	-	315
160	220	257	-	-	315

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3 Phase 400V DOL Starting

			Recommended Circuit Breaker			
kW	hp	FLC A	(A) **NBN**	(A) **NCN**	(A) **NDN**	HRC Fuse (A)
0.18	0.25	0.87	-	2	-	4
0.25	0.33	1.17	-	3	-	4
0.37	0.5	1.2	-	3	-	4
0.55	0.75	1.8	-	4	-	6
0.75	1.0	2.0	10	6	6	6
1.1	1.5	2.6	16	10	6	10
1.5	2.0	3.5	16	10	10	16
2.2	3.0	4.4	20	16	16	16
3.0	4.0	6.3	25	20	20	20
4.0	5.5	8.2	32	25	25	25
5.5	7.5	11.2	50	40	40	32
7.5	10	14.4	63	50	50	40
11	15	21	-	-	-	63
15	20	27	-	-	-	80
18.5	25	32	-	-	-	80
22	30	38	-	-	-	80
30	40	51	-	-	-	100
37	50	63	-	-	-	125
45	60	76	-	-	-	125
55	75	91	-	-	-	160
75	100	124	-	-	-	200
90	125	154	-	-	-	250
110	150	183	-	-	-	315
132	175	219	-	-	-	355
150	200	240	-	-	-	355
160	220	257	-	-	-	355

		SPN802 / SPN802R	
Tested to		EN 61643-11 (VDE0675-6-11) 2002-12	
		L1/L2/L3 => N	N => PE
SPD type / class		Type 1 + Type 2 / I / B	
Type of connection		Parallel connection	
Type of power supply system		TN/TT - System	
Type of protection		Common and differential modes	
Nominal voltage	U_N	230V / 400V ac	
Rated voltage	U_c	255V ac	
Voltage protection level	U_p	≤ 1.5kV	255V ac
TOV-voltage	U_T	440V / 5s	1200V / 200ms
Rated load current	I(L)	315A	
	I(L-L)	125A	
Follow current interrupting rating	I_{fi}	50 kA	100kA
Nominal discharge current (8/20)	I_n	25kA	100kA
Impulse current (10/350)	I_{imp}	25kA	100kA
Residual current	I_{PE}	≤ 100mA	
Max. rating of overcurrent protection	fuse	125A gL / gG serial or 315A parallel	
	MCCB	125A serial or 160A parallel	
Short-circuit withstand capability with max. overcurrent protection	fuse	25kA ac	
	MCCB	25kA ac	
Response time	t_A	< 100ns	
Operating temperature range		- 40°C ….+ 60°C	
Indication of SPD disconnector		Green - red on L1, L2, L3, N	
Cross sectional area	min	10mm² solid / flexible	
L1, L2, L3, PE	max	50mm² multi-stranded / 35mm² flexible	
Tightening torque for terminals		7.0 Nm	
Mounting on		35mm DIN rail in accordance with EN 60715	
Enclosure material		grey thermoplastic, UL 94V-0	
Degree of protection		IP20	
Modular width		8	
Weight		1272 g	
Approval marking		VDE	

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		SPA201	SPA401
Tested to		EN 61643-11 2002-12	
SPD type / class		Type 1 + Type 2 / Class I	
Energy-coordinated protection effect on terminal equipment		Type 1 + Type 2	
Energy-coordinated protection effect on terminalequipment ≤ 5 m		Type 1 + Type 2 + Type 3	
Type of connection		Parallel connection	
Type of power supply system		TT / TN system	
Type of protection		common and differential modes	
Nominal voltage	U_N	230V/400V ac	
Rated voltage	U_c	255V ac	
Voltage protection level	U_p	≤ 1.5kV	
TOV Voltage	U_T	440V / 5s 1200V / 200ms	
Rated load current	I(L)	n/a	
	I(L-L)	n/a	
Follow current interrupting rating	I_{fi}	25kA rms 100A rms	
Nominal discharge current (8/20)	I_n	12.5kA 25kA	12.5kA 50kA
Impulse current (10/350)	I_{imp}	12.5kA 25kA	12.5kA 50kA
Max. rating of overcurrent protection	fuse	160A gL / gG	
	MCCB	n/a	160A
Short-circuit withstand capability with max. overcurrent protection	fuse	25kA rms	
	MCB	n/a	
Response time	t_A	≤ 100ns	
Operating temperature range		- 40°C ….+ 80°C	
Indication of SPD disconnector		Green/Red flag on L and N	Green/Red flag on L1, L2, L3 and N
Cross sectional area	min	1,5mm² solid / flexible	
	max	35mm² stranded / 25mm² flexible	
Tightening torque for terminals		4 Nm	
Mounting on		35mm DIN rail in accordance with EN 60715	
Enclosure material		grey thermoplastic, UL 94V-0	
Degree of protection		IP20	
Modular width		2	4
Weight		275 g	480 g
Approval marking		KEMA	

		SPN215D/R	SPN415D/R	SPN440D/R
Tested to		EN 61643-11 (VDE0675-6-11) 2002-12		
SPD type		Type 2 according to EN 61643-11		
Type of connection		Parallel connection		
Maximum continuous operationg voltage U_c	Line / Neutal	≤ 255V		
	Neutral/ PE	≤ 275V		
Voltage protection level	U_p	≤ 1kV	≤ 1kV	≤ 1.2kV
Nominal discharge current (8/20 µs) [(DC+/DC-) --> PE]	I_n	5kA	5kA	15kA
Max. discharge current (8/20 µs)	I_{max}	15kA	15kA	40kA
Short-circuit withstand capability with max. overcurrent protection		10kA - 32A	10kA - 32A	20kA - 32A
Operating temperature range		- 40°C ….+ 80°C		
Indication of SPD disconnector		Green - Red		
Cross sectional area	min	1,5mm² solid / flexible		
	max	35mm² multi-stranded / 25mm² flexible		
Tightening torque for terminals		4.0 Nm		
Mounting on		35mm DIN rail in accordance with EN 60715		
Enclosure material		grey thermoplastic, UL 94V-0		
Degree of protection		IP20		
Modular width (DIN 43880)		2	2	4
Auiliary contact. Voltage/ nominal current (only applicable on the R suffix products)		230V/ 0.5A 12Vdc 10mA		

		SPV325
Tested to		EN 61643-11 (VDE0675-6-11) 2002-12
SPD type		Type 2 according to EN 61643-11
Type of connection		Parallel connection
Maximum continuous operationg voltage	Uc_{PV}	≤ 1000V
Voltage protection level	U_p	≤ 4kV
Voltage protection level for 5kA	U_p	≤ 3,5kV
Total discharge current (8/20 µs)	I_{total}	40kA
Nominal discharge current (8/20 µs)	I_n	12.5kA
Max. discharge current (8/20 µs)	I_{max}	25kA
Short-circuit withstand capability with max. overcurrent protection	I_{scwPV}	50 A / 1000 V DC
Response time	t_A	≤ 25ns
Operating temperature range		- 40°C ….+ 80°C
Indication of SPD disconnector		green - red
Cross sectional area	min	1.5mm² solid / flexible
	max	35mm² multi-stranded / 25mm² flexible
Tightening torque for terminals		4.0 Nm
Mounting on		35mm DIN rail in accordance with EN 60715
Enclosure material		Grey thermoplastic, UL 94V-0
Degree of protection		IP20
Installation width		3 modules, DIN 43880
Weight		316g

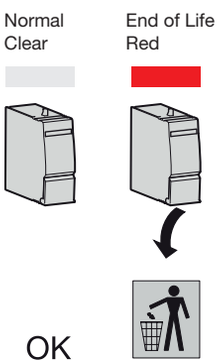
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Characteristics		
Tested to		EN 61643-11 (VDE0675-6-11) 2007-08
SPD type		Type 3
Ports		one port
Type of connection		Parallel connection
Type of power supply system		TT / TN system
Nominal voltage	U_N	230V ac
Rated voltage	U_c	255V ac
Voltage protection level (L- N)	U_p	≤ 1.25kV
Voltage protection level (L/N - PE)	U_p	≤ 1.5kV
TOV - Characteristic (L - N)	U_T	335V / 5s
TOV - Characteristic (L/N - PE) (I)	U_T	400V / 5s
TOV - Characteristic (L/N - PE) (II)	U_T	1200V / 200 ms
Rated load current	IL	16 Aeff
Nominal discharge current (8/20)	I_n	3kA
Maximal discharge current (8/20)	I_{max}	5kA
Combination wave (1,2/50 - 8/20) (L - N)	U_{oc}	6 kV
Combination wave (1,2/50 - 8/20) (L/N - PE)	U_{oc}	10 kV
Residual current	IPE	≤ 5µA
Remplacement cartridge		NO
Maximal rating of overcurrent protection	fuse	16 A gL / gG
	MCB	16A B curve
Short-circuit withstand capability with max. overcurrent protection	fuse	6kA eff ac
	MCB	1kA eff ac
Response time	t_A	≤ 25ns
Operating temperature range		- 25°C ….+ 40°C
Indication of SPD disconnector		NO
Remote signalisation contact		Green light off
Cross sectional area	min	1.5mm² solid / flexible
	max	10mm² stranded / 6mm² flexible
Tightening torque for terminals		1.2 Nm
Mounting on		35mm DIN rail in accordance with EN 60715
Enclosure material		Grey thermoplastic, UL 94V-2
Degree of protection		IP20
Installation width		2 modules, DIN 43880

Reserve Indicator Light

Neutral cartridges cannot be put into spares reserved for phase cartridges and visa versa.



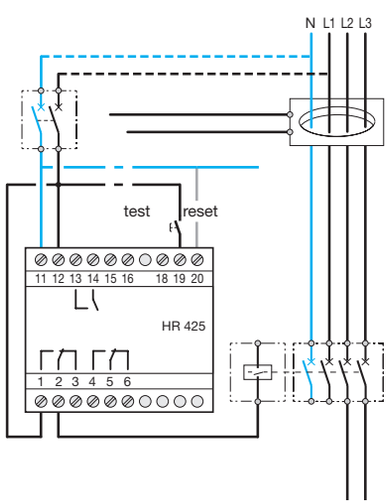
	Non-Adjustable		Adjustable						
	HR500	**HR502**	**HR510**	**HR520**	**HR522**	**HR523**	**HR525/HR534**	**HR440**	**HR441**
Supply Voltage ~50/60Hz	220-240V								
Residual Voltage ~50/60Hz	500V Maximum								
Power Absorbed	3VA	5VA							
Output	Volt Free Contacts								
Contact Rating	6A / 250V AC-1								
Sensitivity IΔn	30mA	300mA	30mA / 100mA / 300mA / 500mA / 1A / 3A / 10A			500mA / 1A / 3A / 5A / 10A / 20A / 30A	30mA / 100mA / 300mA / 500mA / 1A / 3A / 5A / 10A / 30A	30mA / 100mA / 300mA / 500mA / 1A / 3A	
Instantaneous / Time Delay	Instantaneous		Instantaneous or Time Delay 0.1 - 0.3 - 0.4 - 0.5 - 1 - 3 seconds		Instantaneous or Time Delay 0.1 - 0.2 - 0.25 - 0.3 - 0.4 - 0.5 seconds		Instantaneous or Time Delay 0.02 - 0.1 - 0.3 - 0.4 - 0.5 - 1 - 3 - 5 - 10 seconds	Instantaneous or Time Delay 0.1 - 0.3s - 0.5s - 0.75s - 1s	
Torroid Withstand Capacity	50kA / 0.2s								
Distance between Torroid and Relay	50 Meter Maximum								
Relay Cable Connection • Rigid • Flexible	1.5mm² to 10mm² 1mm² to 6mm²								
Torroid Cable Conection • Rigid • Flexible	1.5mm² to 4mm² 1mm² to 2.5mm²								
Relay • Working Temperature • Storage Temperature	-10ºC to +55ºC -25ºC to +40ºC		-5ºC to +55ºC -25ºC to +40ºC						
Torroid • Working Temperature • Storage Temperature	-10ºC to +70ºC -40ºC to +70ºC		-10ºC to +70ºC -40ºC to +70ºC						

Main Characteristics
"Reset" Button
When pressed, the output remains switched and return to normal is obtained by either: by pressing the "reset" clear pushbutton or cutting off the power supply. If the "reset" button is not pressed the device remains in the fault position.

Test Button
Pressing the test button allows a fault simulation which operates the relay and the output contacts.The fault level display is shown by an LED on the front of the product.

IΔn Selector
Sensitivity setting: 0.03A instantaneous
0.1A/0.3A/1A and 3A time delay

Time Delay Selector
Adjustable time setting - instantaneous / 0.13s / 0.3s / 1s and 3s



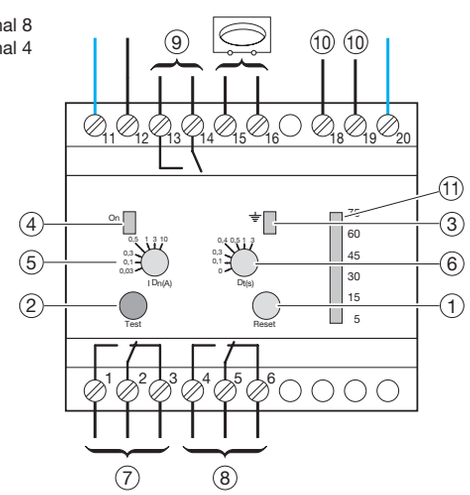
Sealable Settings
A sealable cover prevents interference once the settings have been made.

Standard Output (1 C/O contact)
Switching to state 1 on:
• Failure of the core/relay connection
• Fault current in the monitored installation

Positive Safety Outlet (1 C/O contact)
Switching to state 1: Switching on the power
Switching to state 0: Failure of the core/relay connection
fault current in the monitored installation
failure of relay supply
internal failure of relay

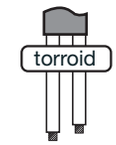
Optical scale display by 5 LEDs of the fault in % of $I_{\Delta n}$
Optical scale display by (5 LEDs) of the fault in % of $I_{\Delta n}$
Common pin 6:
State 1 : output terminal 8
State 0 : output terminal 4

1. Reset push button
2. Test push button
3. Fault signal LED
4. Device on indicator
5. Sensitivity setting
6. Time delay setting
7. Standard output
8. Safety output
9. Prealarm output
10. Remore reset
11. Optical scale



Data is subject to errors and technical modifications.

Mounting of Circular Torroids

	With Cables							
		U 1000 R2V Sinlge Pole	U 1000 R2V Single Pole	U 1000 R2V Multi Pole	U 1000 R2V Multi Pole	U 1000 R2V Multi Pole	H07 V - U Single Pole	H07 V - U Single Pole
Ø	Type of Torroids							
30	**HR700**	4 x 16mm²	2 x 50mm²	35mm²	35mm²	50mm²	4 x 35mm²	2 x 70mm²
35	**HR701**	4 x 25mm²	2 x 70mm²	50mm²	35mm²	70mm²	4 x 50mm²	2 x 95mm²
70	**HR702**	4 x 185mm²	2 x 400mm² or 4 x 150mm²	240mm²	35mm²	300mm²	4 x 240mm²	2 x 400 or 4 x 185mm²
105	**HR703**	4 x 500mm²	2 x 630mm² or 4 x 185mm²	300mm²	35mm²	300mm²	4 x 400mm²	2 x 400 or 4 x 240mm²
140	**HR704**	4 x 630mm²	2 x 630mm² or 4 x 240mm²	300mm²	35mm²	300mm²	4 x 400mm²	2 x 400 or 4 x 240mm²
210	**HR705**	4 x 630mm²	2 x 630mm² or 4 x 240mm²	300mm²	35mm²	300mm²	4 x 400mm²	2 x 400 or 4 x 240mm²
70 x 175	**HR830**	4 x 630mm²	2 x 630mm² or 4 x 240mm²	300mm²	35mm²	300mm²	4 x 400mm²	2 x 400 or 4 x 240mm²
115 x 305	**HR831**	4 x 630mm²	2 x 630mm² or 4 x 240mm²	300mm²	35mm²	300mm²	4 x 400mm²	2 x 400 or 4 x 240mm²
150 x 350	**HR832**	4 x 630mm²	2 x 630mm² or 4 x 240mm²	300mm²	35mm²	300mm²	4 x 400mm²	2 x 400 or 4 x 240mm²
20 x 30	**HR820**	4 x 16mm²	2 x 70mm²	10mm²	35mm²	16mm²	4 x 10mm²	2 x 35mm²
50 x 80	**HR821**	4 x 240mm²	2 x 630mm² or 4 x 185mm²	120mm²	35mm²	150mm²	4 x 185mm²	2 x 240mm²
80 x 80	**HR822**	4 x 500mm²	2 x 630mm² or 4 x 185mm²	300mm²	35mm²	300mm²	4 x 400mm²	2 x 400 or 4 x 240mm²
80 x 120	**HR823**	4 x 630mm²	2 x 630mm² or 4 x 240mm²	300mm²	35mm²	300mm²	4 x 400mm²	2 x 400 or 4 x 240mm²
80 x 160	**HR824**	4 x 630mm²	2 x 630mm² or 4 x 240mm²	300mm²	35mm²	300mm²	4 x 400mm²	2 x 400 or 4 x 240mm²

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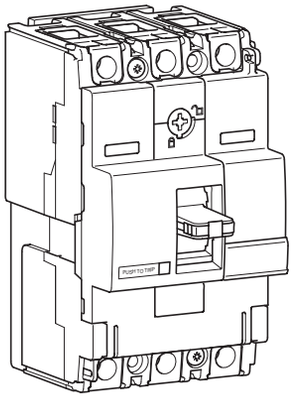
Frame			**x160**				**x250**		
Product			**MCS Switch**	**MCCB**			**MCS Switch**	**MCCB**	
Reference			**HCA**	**HDA**	**HHA**	**HNA**	**HCB**	**HHB**	**HNB**
Number of poles		[No.]	3-4	1-2-3-4	1-2-3-4	3-4	3-4		
Electrical characteristics									
Rated current	I_n	[A]	160				250		
Current rated range		[A]	125-160	16-125 (1P), 16-160 (2, 3, 4P)			250	100-250	
Rated service voltage, (AC)	U_e	[V]	220-440				220-440		
Frequency	F	[Hz]	50/60				50/60		
Rated insulation voltage	U_i	[V]	690				800		
Rated impulse withstand voltage	U_{imp}	[kV]	8				8		
Rated ultimate short-circuit breaking capacity, (I_{cu})									
(AC) 50-60 Hz 220/230 V	I_{cu}	[kA]	-	25	35	85	-	35	85
(AC) 50-60 Hz 380/415 V	I_{cu}	[kA]	-	18	25	40	-	25	40
(AC) 50-60 Hz 480/500/525 V	I_{cu}	[kA]	-	6	7.5	12.5	-	-	10
(AC) 50-60 Hz 660/690 V	I_{cu}	[kA]	-	-	-	6	-	-	4
(DC) 250 V - 2 poles in series	I_{cu}	[kA]	-	12.5	20	25	-	25	25
Rated service short-circuit breaking capacity, (I_{cs})									
(AC) 50-60 Hz 220/230 V	I_{cs}	[kA]	-	25	25	40	-	25	40
(AC) 50-60 Hz 380/415 V	I_{cs}	[kA]	-	18	20	20	-	20	20
(AC) 50-60 Hz 480/500/525 V	I_{cs}	[kA]	-	3	4	7.5		-	7.5
(AC) 50-60 Hz 660/690 V	I_{cs}	[kA]	-	-	-	3	-	-	2
(DC) 250 V - 2 poles in series	I_{cs}	[kA]	-	7	10	13	-	13	13
Rated short-circuit making capacity	I_{cm}	[kA]	2.8	-	-	-	6	-	-
Rated short-time withstand current for 1s	I_{cw}	[kA]	2	-	-	-	3	-	-
Category of use (EN 60947-2)			-	A			-	A	
Calibration temperature			-	50°C			-	50°C	
Derating 40°C			-	100%			-	100%	
	50°C		-	100%			-	100%	
	55°C		-	95%			-	94%	
	60°C		-	93%			-	91%	
	65°C		-	90%			-	88%	
Suitability for isolation			ok				ok		
Electric endurance in number of cycles			10000				10000		
Mechanical endurance in number of operations			20000				20000		
Operating temperature			-25 to +70°C				-25 to +70°C		
Storage temperature			-35 to +70°C				-35 to +70°C		
Power loss (at I_n for 3P)		[W]	39				60		
Reference standard			IEC 60947-3	IEC 60947-2			IEC 60947-3	IEC 60947-2	
Releases: switch			ok	-			ok	-	
Releases: TM (thermomagnetic)			-	ok			-	ok	
T fixed, M fixed			-	ok (1P)			-	ok	
T adjustable, M fixed			-	ok (3/4 P)			-	-	
T adjustable, M adjustable			-	-			-	ok	
Thermal adjustment value			-	0.63 to 1 x I_n			-	0.63 to 1 x I_n	
Magnetic adjustment value			-	-			-	6-8-10-13 x I_n (200A) 5-7-9-11 I_n (250A)	
Releases: LSI (electronic)			-	-			-	-	
Long delay			-	-			-	-	
Short delay			-	-			-	-	
Time delay			-	-			-	-	
Terminations									
Standard terminal type			cage				lugs		
Maximum terminal capacity			95 mm²				185 mm² (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	1P	mm	-	25		-	-		
	2P	mm	-	50		-	-		
	3P	mm	75				105		
	4P	mm	100				140		
Depth		mm	68				68		
Weight	1P	kg	-	0.29		-	-		
	2P	kg	-	0.48		-	-		
	3P	kg	0.715				1.3		
	4P	kg	0.95				1.6		

Product Frame		Add-on blocks		
		x160	x160	x250
Number of poles		3 , 4	3 , 4	4
Tripping Access		mechanical	mechanical	mechanical
Standards CEI/EN 60947-2 appendix B		✓	✓	✓
Electrical Characteristics				
Max rated current (40) I_n A	I_n	125A	125 - 160A	160 - 250A
Rated service voltage U_e V AC (50/60Hz)	U_e	240 - 415V	240 - 415V	240 - 415V
Mechanical Characteristics				
Top and bottom supply		✓	✓	✓
For tripping, no additional external electrical sources		✓	✓	✓
Possible operating with two active phases		✓	✓	✓
Settings				
Sensitivity $I_{\Delta n}$	$I_{\Delta n}$ (A)	300mA	0.03, 0.1, 0.3, 1, 3, 6A	0.03, 0.1, 0.3, 1, 3, 6A
Time delay Δt	Δt (s)	inst.	inst., 0.06, 0.15, 0.3, 0.5, 1	inst., 0.06, 0.15, 0.3, 0.5, 1
Max. opening time	ms	10	10	10
Delay add-on block is not possible if $I_{\Delta n}$ = 30mA		-	✓	✓
Selective product		-	✓	✓
Mechanical test button		✓	✓	✓
Isolating test without cable removal		✓	✓	✓
Electrical test button		✓	✓	✓
Reset button		✓	✓	✓
Sealable setting button		-	✓	✓
Isolation level signaling by led 25 and 50%		-	✓	✓
I_n running signalisation by led		-	✓	✓
Residual default signaling contact		✓	✓	✓
Signaling contact 50% Idn		-	✓	✓
Anti-transient	type AC	✓	✓	✓
Pulsating DC current	type A	✓	✓	✓
High immunity	type HI	✓	✓	✓
-25°C		✓	✓	✓
Accessories and connection				
Steel terminal cage (x3/x4)		✓	✓	accessories
Connection by lugs		-	-	✓
Extended connections (x4)		✓	✓	✓
Spreaders (x4)		✓	✓	✓
Terminal covers (3P/4P)		-	-	✓
Interphase barriers (x3)		✓	✓	✓
Rigid cables connection capacity mm²		4 - 95	4 - 95	35 - 185
Flexible cables connection capacity mm²	(with terminal)	4 - 70	4 - 70	35 - 150
Tightening torque Nm		6	6	12
Copper bar (width) in mm		-	-	25
Mounting				
Clips on DIN rail		✓	✓	-
Fixed on mounting plate		-	-	✓
Fixation type		side	side	bottom
Mounting by customer		✓	✓	✓
Dimensions and weight				
Dimensions (WxHxD) in mm Side mounted 4P	W	100	100	140
	H	165	165	107.5
	D	95	95	85
Weight	3P	1.4	1.4	-
	4P	1.55	1.55	1.2

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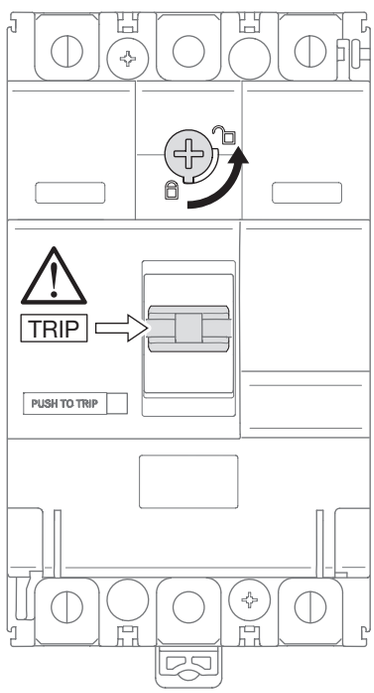
MCCBs



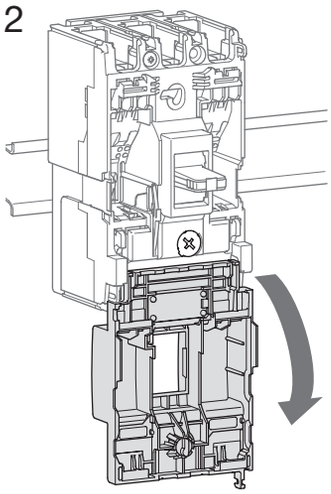
		220/240V AC IEC 60 947-2	380/415V AC IEC 60 947-2
HDA	I_{cu}	25 kA	18 kA
	I_{cs}	25 kA	18 kA
HHA	I_{cu}	35 kA	25 kA
	I_{cs}	25 kA	20 kA
HCA	I_{cm}	-	2.8 kA
	I_{cw}	-	2 kA - 1s

Thermal settings

1

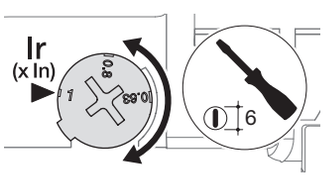


2



For DIN rail mounting, use **HYA033H**.

3



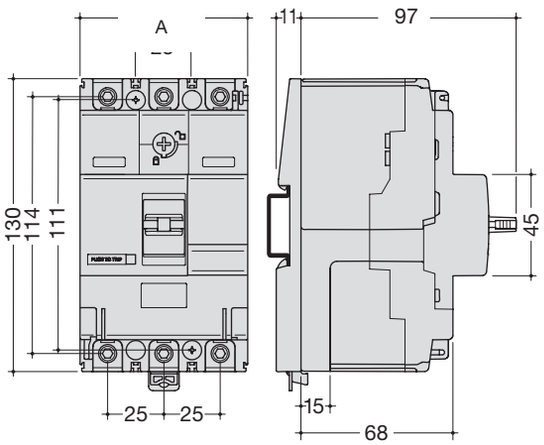
Thermal adjustment from 0.63 to 1 x I_n

Magnetic adjustment fixed > 10 x I_n

I_n	16 - 50 A	63 - 80 A	100 - 125 A	160 A
I_{mag}	600 A	1000 A	1500 A	1600 A

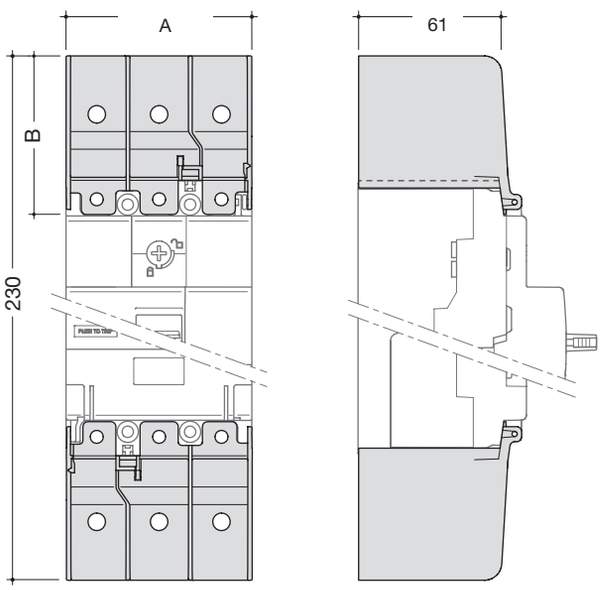
Dimensions

MCCB x160



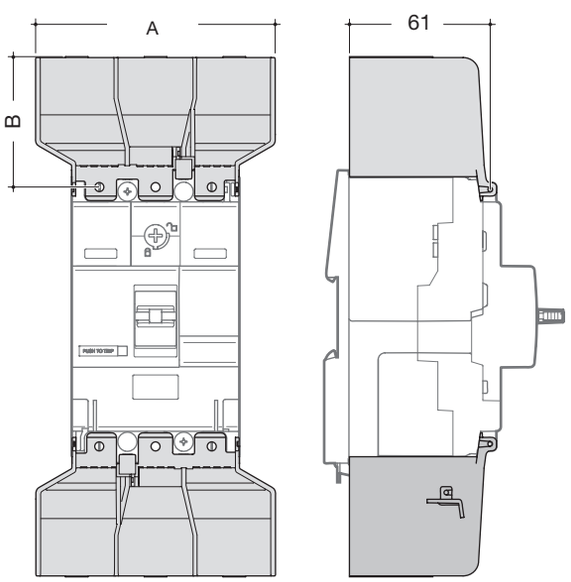
	A (mm)
1P	24.8
3P	74.5
4P	99.5

Terminal covers for extended straight connections



	A (mm)
1P	24.4
3P	74.5
4P	99.5

Terminal cover for extended spreader connections

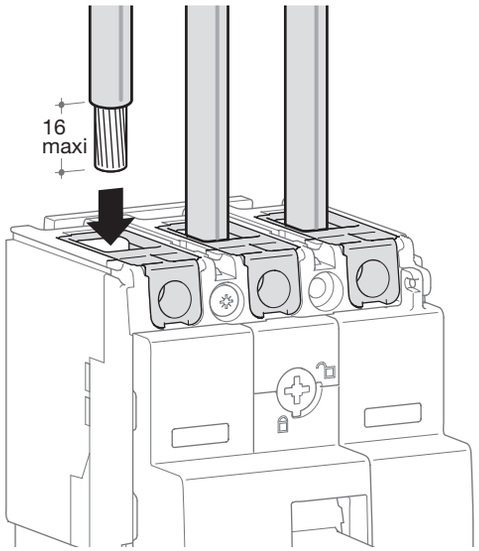


	A (mm)
3P	106.5
4P	141.5

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Connection with terminals



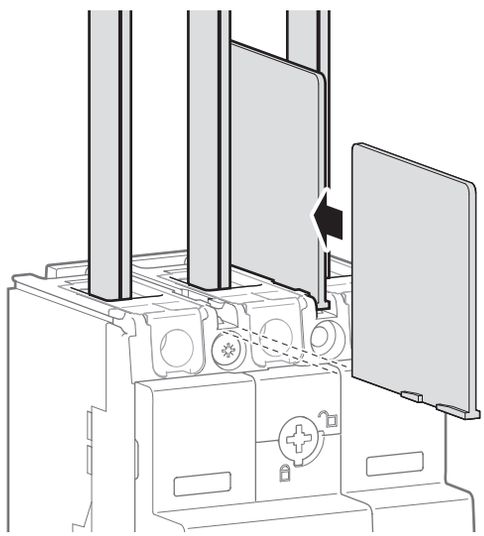
Terminals for copper conductors (standard)

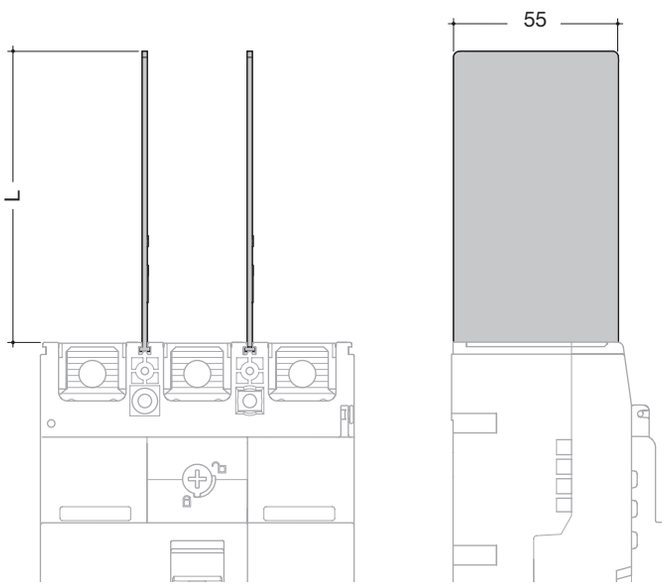
	min. 6 mm²	max. 70 mm²
	min. 6 mm²	max. 95 mm²
4	6 Nm	

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

	min. 35 mm²	max. 70 mm²
5	10 Nm	

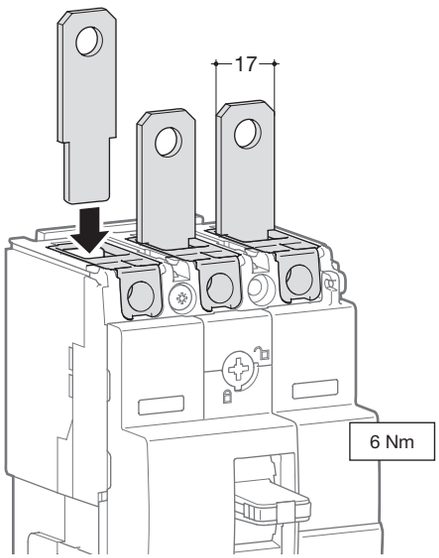
Interphase barriers

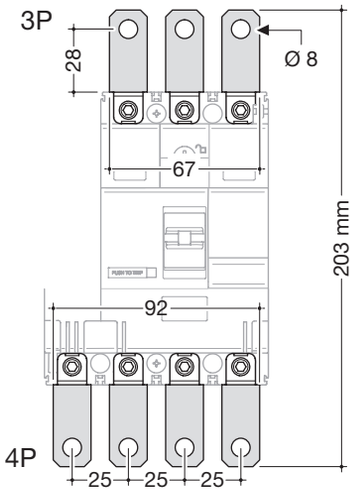




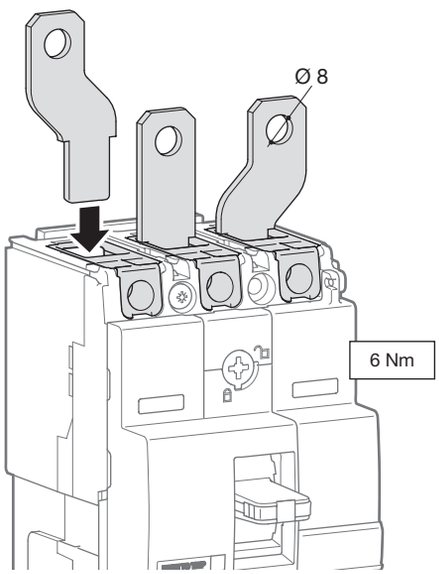
	L (mm)
HYA019H	50
HYB019H	97

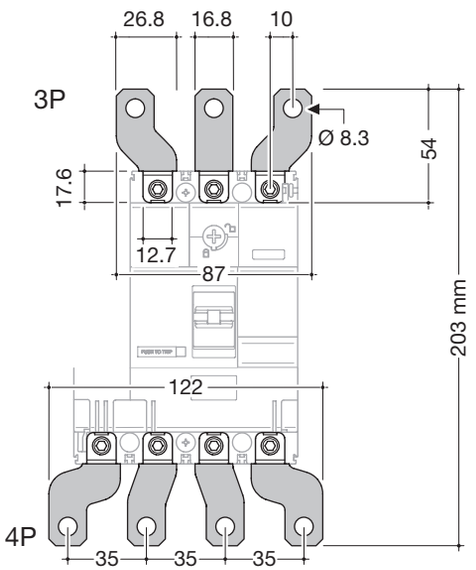
Extended straight connections





Extended spreader connections

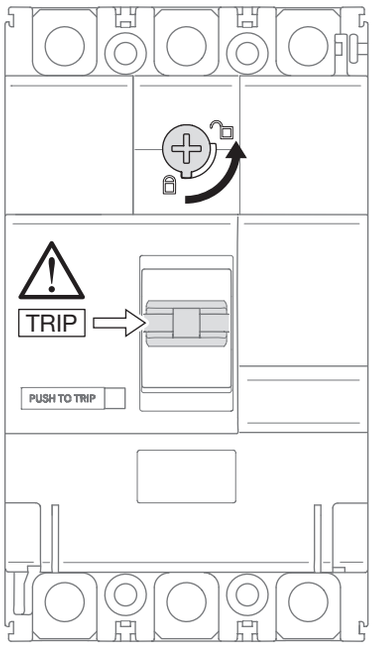


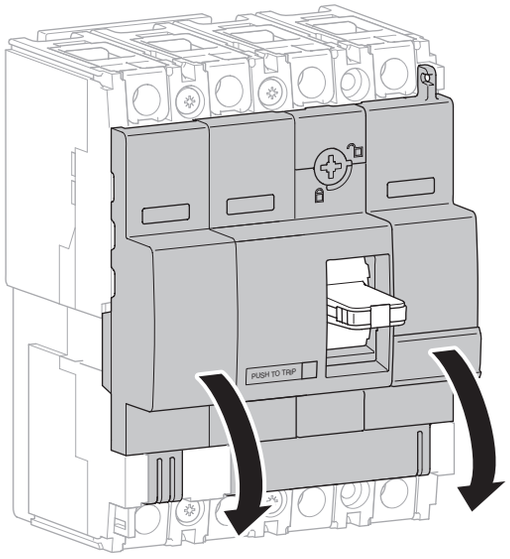


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Auxiliaries

Auxiliaries for MCCBs and moulded case switches

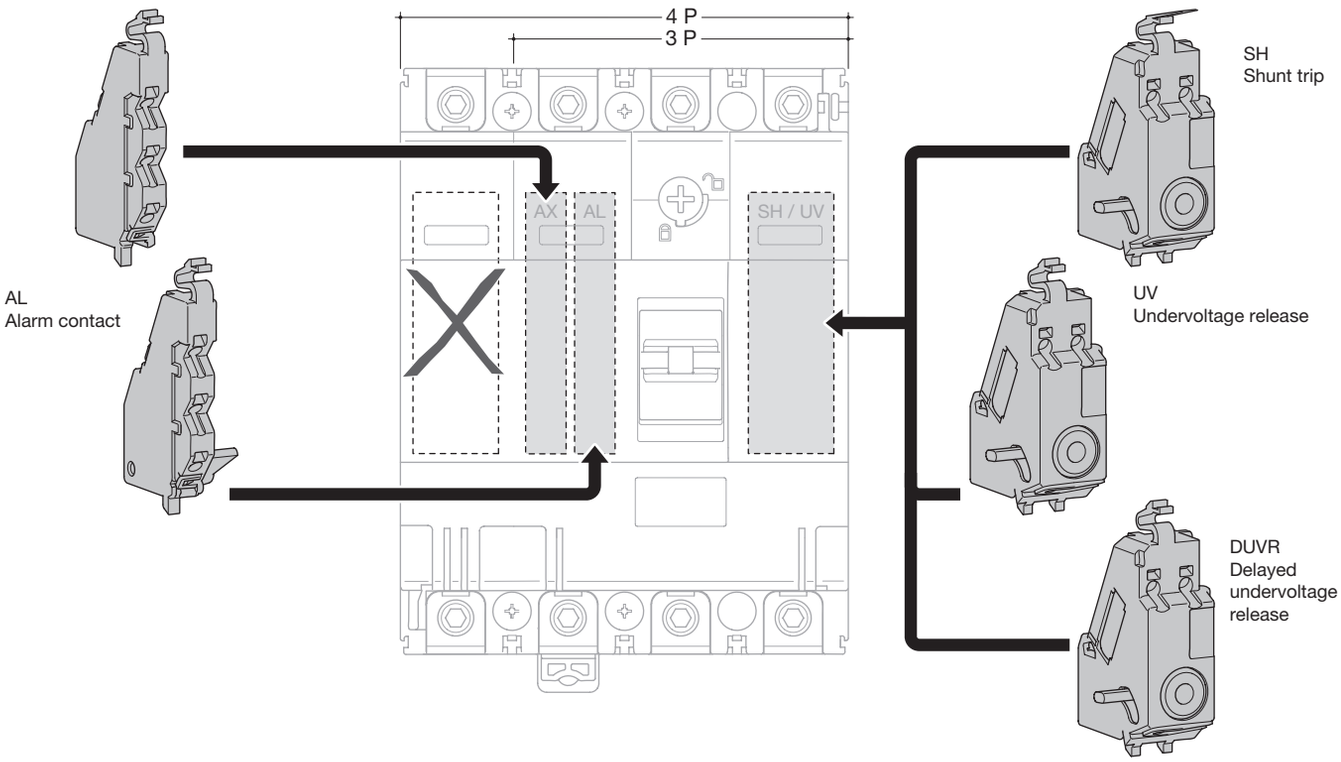


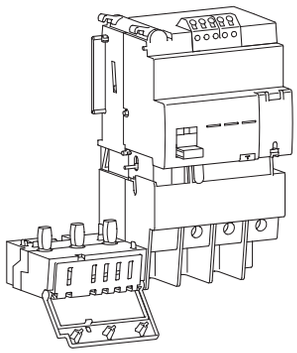


Mounting combination for auxiliaries and releases

AX
Auxiliary contact

AL
Alarm contact





When associated with MCCB, the add-on block provides an earth fault protection and protects against electrical shocks by direct or indirect contact.

The add-on blocks are protected against nuisance tripping caused by transient voltages. It's able to detect sinusoidal alternating currents and residual pulsating direct currents (A type). It also avoids miss tripping (HI type - High Immunity).

Characteristics

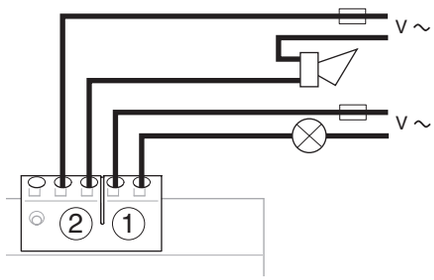
Reset button :
Signals add-on block tripping and must be reset before switching on the installation.

Test button for RCD function :
Checks the electrical operating of the MCCB / Add-on block association.

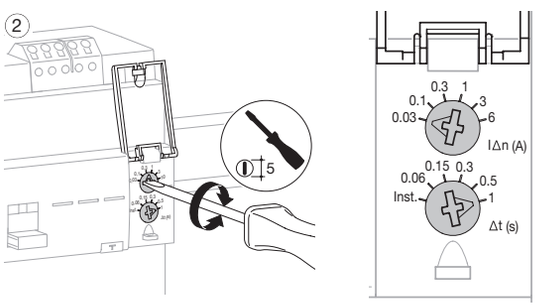
Mechanical test button :
Checks the mechanical operating of the MCCB / Add-on block association.

LED signaling residual current level in the installation:
25% (orange) and 50% (red) $I_{\Delta n}$; green light to signal correct operating.

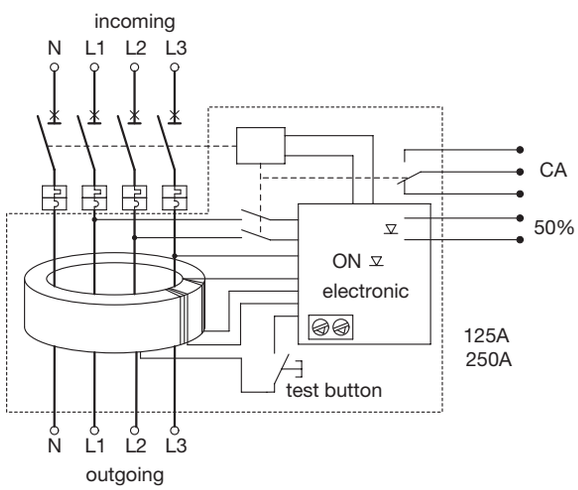
Remote tripping and advanced warning (50% $I_{\Delta n}$) signaling thanks to these contacts:



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



Add-on block operating



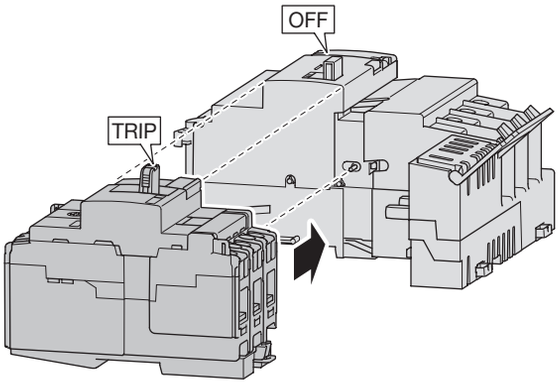
S (Δt)	A ($I_{\Delta n}$)						
	0.03	0.1	0.3	1	3	6
Inst.	OK	OK	OK	OK	OK	OK
0.06	no	OK	OK	OK	OK	OK
0.15	no	OK	OK	OK	OK	OK
0.3	no	OK	OK	OK	OK	OK
0.5	no	OK	OK	OK	OK	OK
1	no	OK	OK	OK	OK	OK

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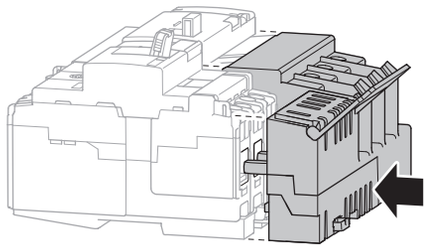
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Add-on block mounting

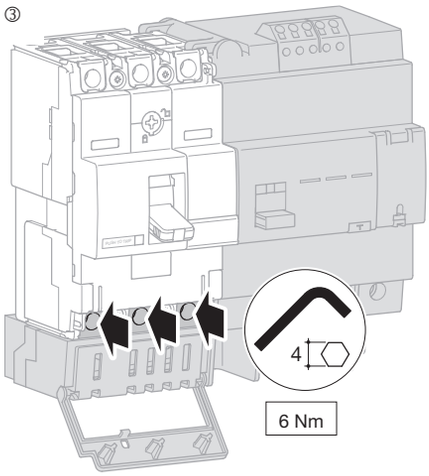
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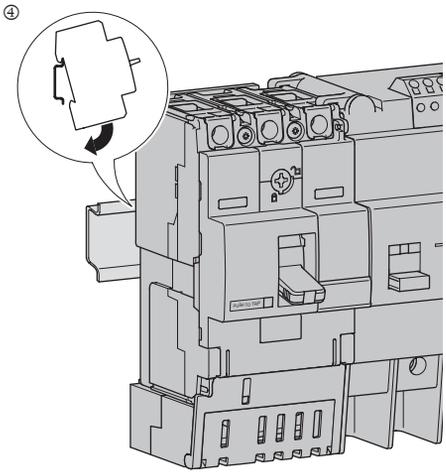
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③



④

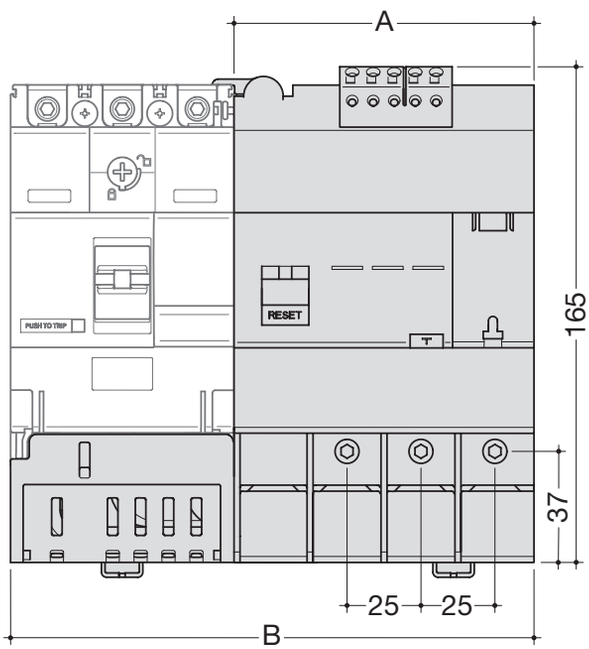


Exclusive drawer assembly system allows quick mounting and makes MCCB and add-on block association a complete monoblock unit.

Reinforced insulation connection (class II)

System avoids the omission of terminal tightening

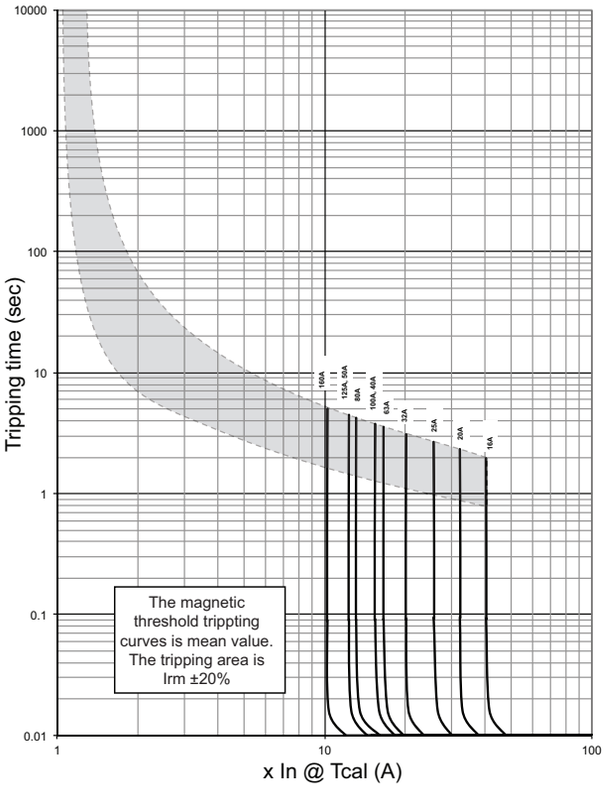
Dimensions



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

Tripping curve

MCCB x160



MCCB Disconnection Data

Earth Fault Loop Impedance Data
Disconnection time 0.2s, 0.4s, 1s

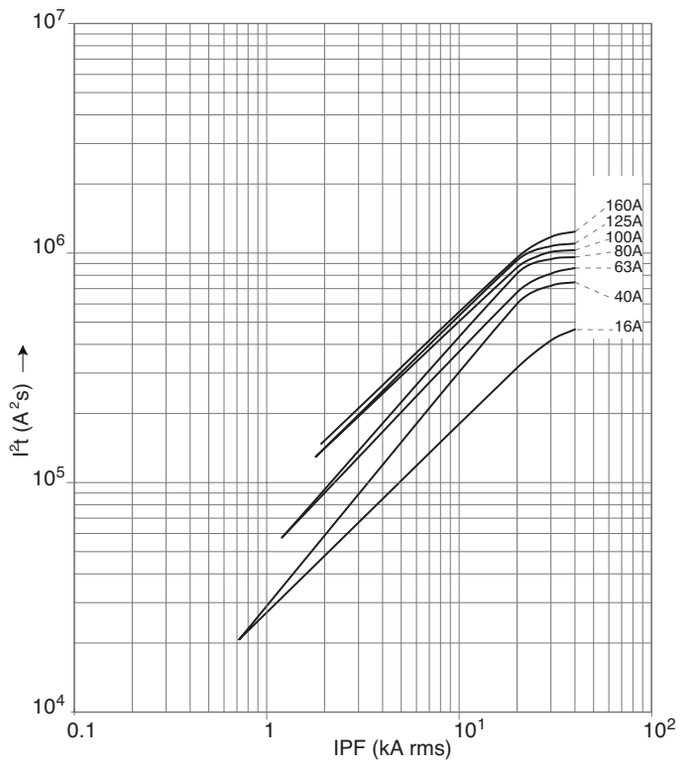
Device rating (A)	Instantaneous trip (xI_n)	Instantaneous trip (A)	add 20% tolerance (I_a)	Zs = (230 x 0.95) / I_a
16	40.3	644.8	773.8	0.28
20	32.2	644.0	773	0.28
25	25.7	643	771	0.28
32	20.13	644.2	773.0	0.28
40	15.0	600.0	720.0	0.30
50	12.0	600.0	720.0	0.30
63	16.6	1045.8	1255.0	0.17
80	13.1	1048.0	1258	0.17
100	15.4	1540.0	1848.0	0.12
126	12.3	1538	1845.0	0.12
160	10.22	1635.2	1962.2	0.11

Disconnection time 5s

Device rating (A)	trip (xI_n)	I_a (A)	Zs = (230 x 0.95) / I_a
16	10	160	1.37
20	10	200	1.09
25	10	250	0.87
32	10	320	0.68
40	10	400	0.55
50	10	500	0.44
63	10	630	0.35
80	10	800	0.27
100	10	1000	0.22
125	10	1250	0.17
160	10	1600	0.14

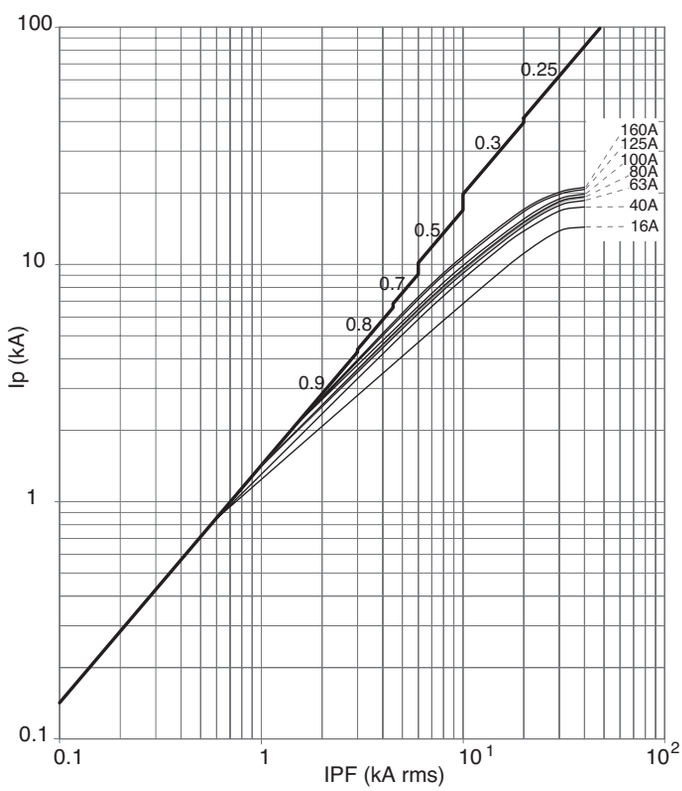
Thermal constraint curve at 400V (Let-through energy)

MCCB x160



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

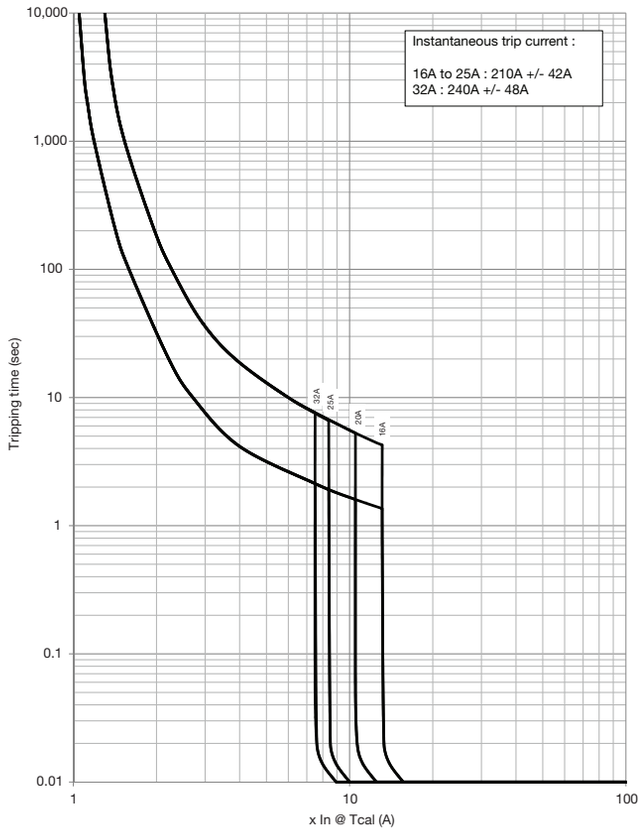
MCCB x160



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Data is subject to errors and technical modifications.

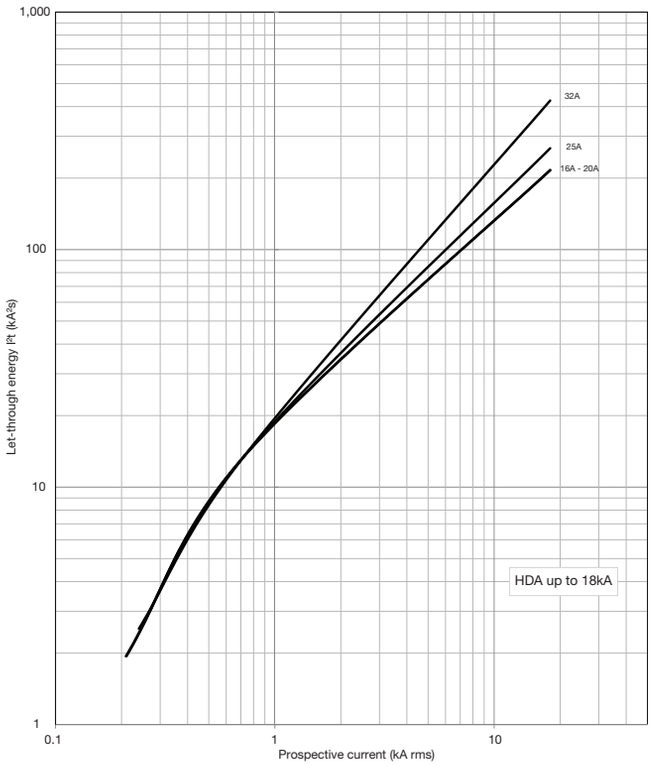
Tripping Curve SP MCCB x160 16A - 32A



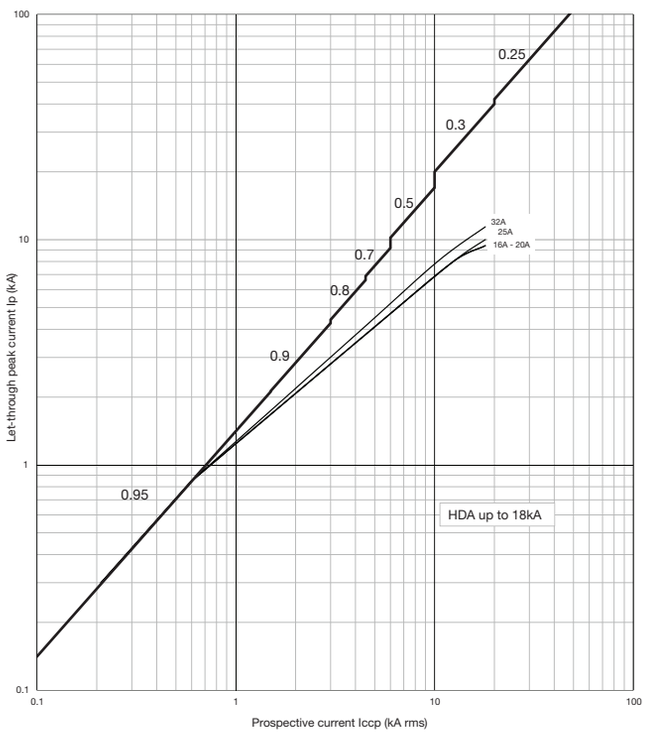
Earth Fault Loop Impedance Data	To BS 7671:2018			
Disconnection time 0.2s, 0.4s, 1s				
Device rating (A)	Instantaneous trip (xIn)	Instantaneous trip (A)	add 20% tolerance (Ia)	Zs = 230 x Cmin / Ia
16	13.0	210.0	252.0	0.87
20	10.5	210.0	252.0	0.87
25	8.5	210.0	252.0	0.87
32	7.5	240.0	288.0	0.76

Earth Fault Loop Impedance Data	To BS 7671:2018			
Disconnection time 5s				
Device rating (A)	Instantaneous trip (xIn)	Instantaneous trip (A)	If Magnetic trip add 20% tolerance (Ia)	Zs = 230 x Cmin / Ia
16	11.0	176.0	176.0	1.24
20	10.5	210.0	210.0	0.99
25	8.5	212.5	255.0	0.86
32	7.5	240.0	288.0	0.76

Thermal constraint curve at 230V (Let through energy)



Current limiting curve at 230V (Let through peak current)

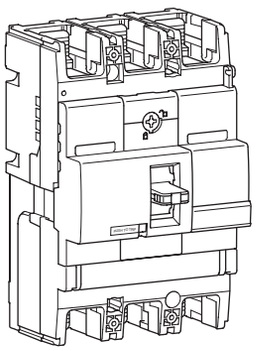


The earth fault loop impedance requirements for larger devices can be calculated by the formula given in BS7671:2008

$$Zs \leq \frac{230 \times Cmin}{I_a}$$

Where $I_a = I_n$ of MCCB x Mag setting x 1.2

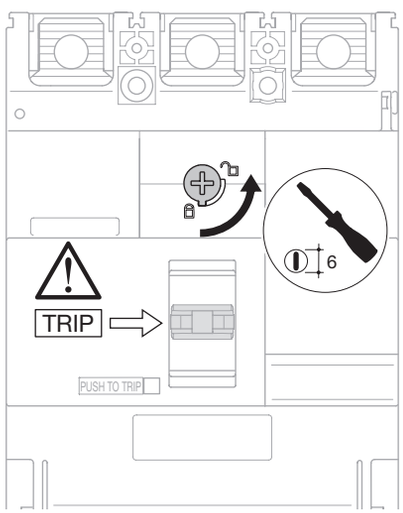
MCCBs



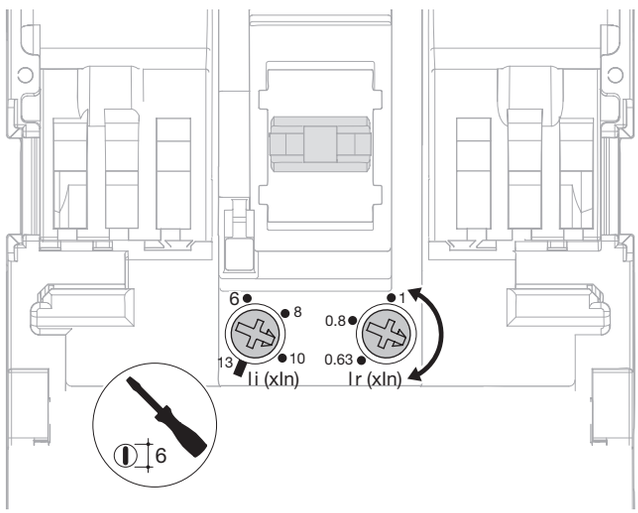
		220/240V AC IEC 60 947-2	380/415V AC IEC 60 947-2
HHB	Icu	35 kA	25 kA
	Ics	25 kA	20 kA
HNB	Icu	85 kA	40 kA
	Ics	40 kA	20 kA
HCB	Icm	-	9 kA
	Icw	-	3 kA - 1s

Magnetic and thermal settings

1



2

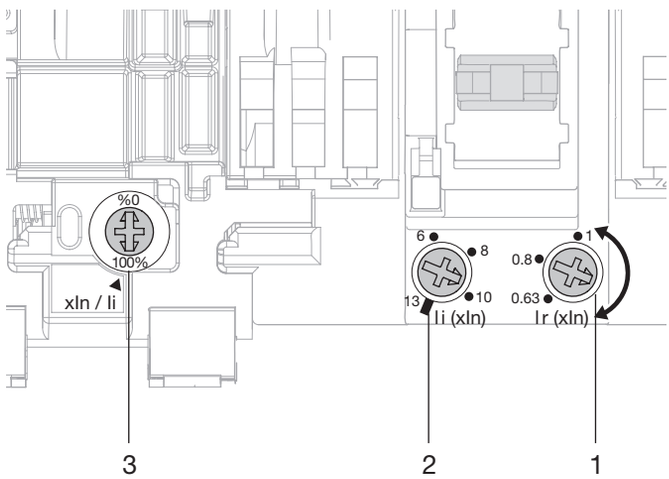


Thermal adjustment from 0.63, 0.8, 1 x I_n

Magnetic adjustment from 6 to 13 x I_n (100 - 200A)

from 5 to 11 x I_n (250A)

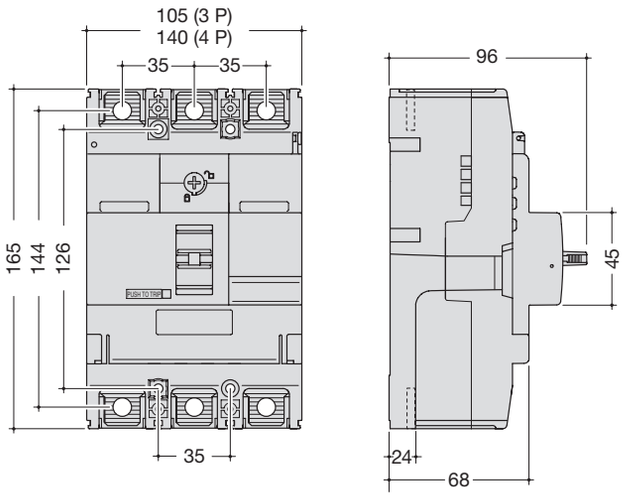
	100 - 200A	250A
I_r (x I_n) 1	0.63 - 0.8 - 1 x I_n	
I_i (x I_n) 2	6 - 8 - 10 - 13 x I_n	5 - 7 - 9 - 11 x I_n
x I_n/I_i 3	0 - 100%	
	0 - 60%	



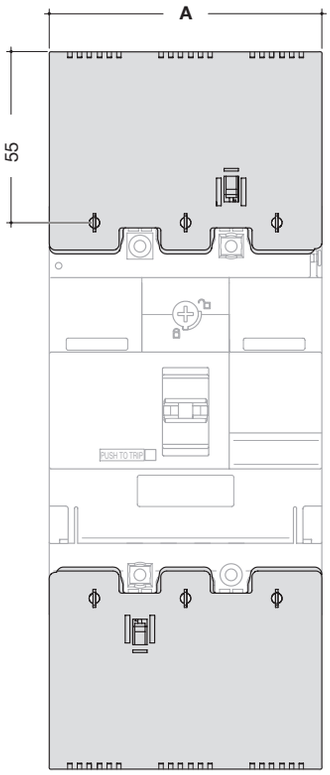
Data is subject to errors and technical modifications.

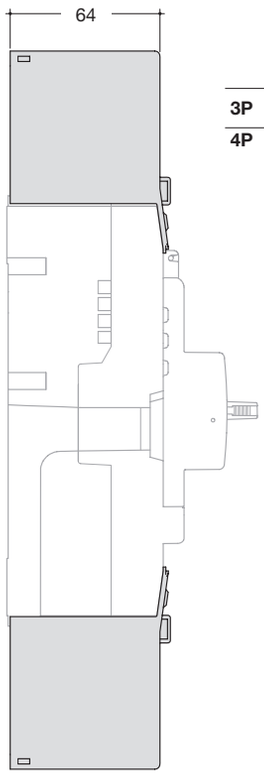
Dimensions

MCCB x250



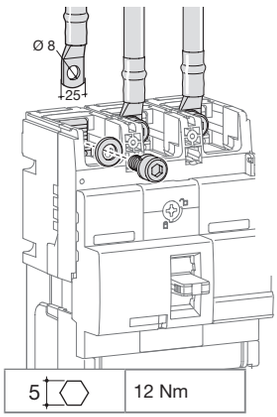
Terminal covers for extended straight connections

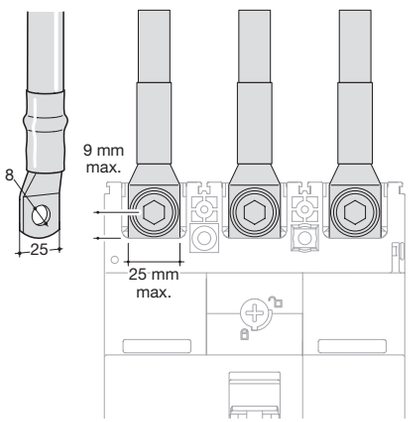




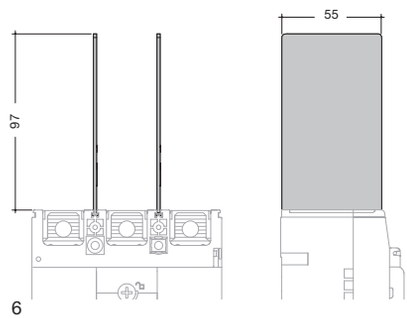
	A (mm)
3P	105
4P	140

Connection with end lugs



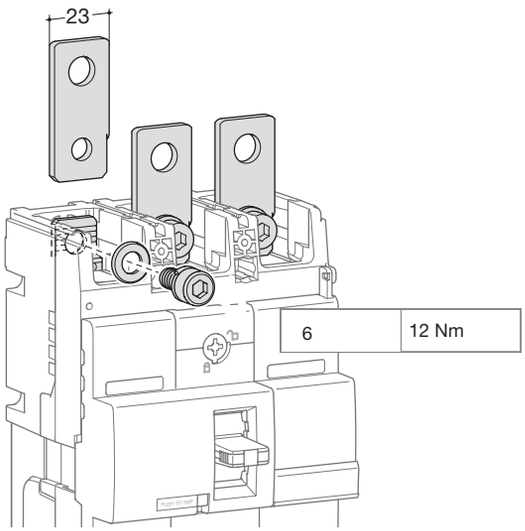


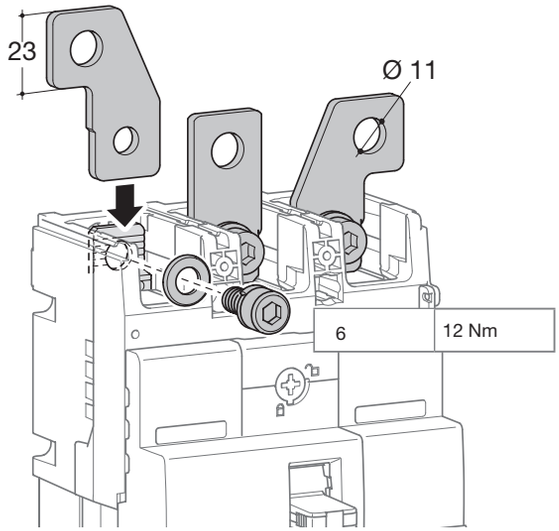
Interphase barriers

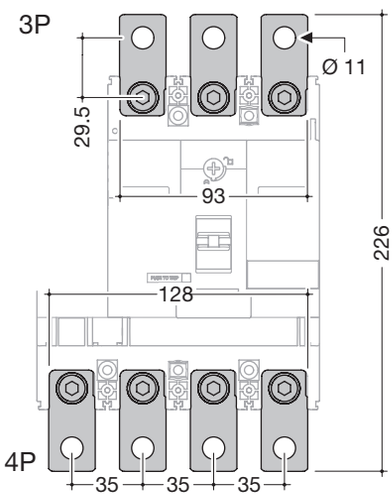


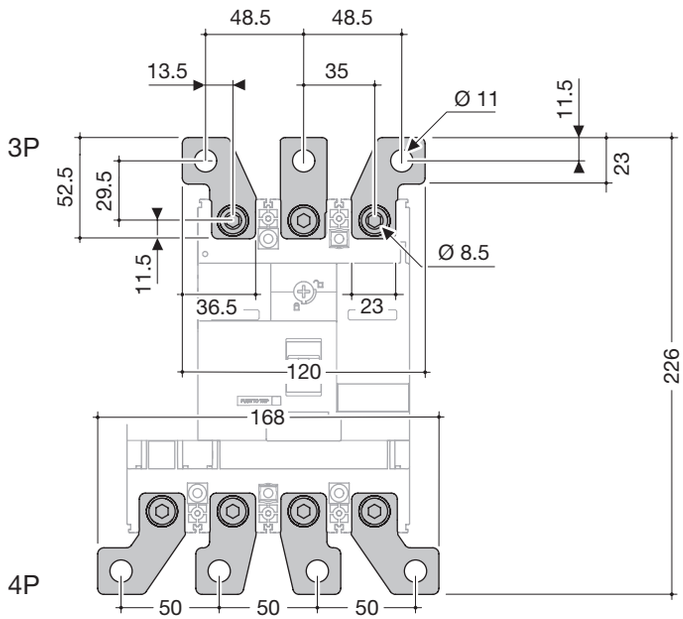
Connection

Extended straight and spreader connections





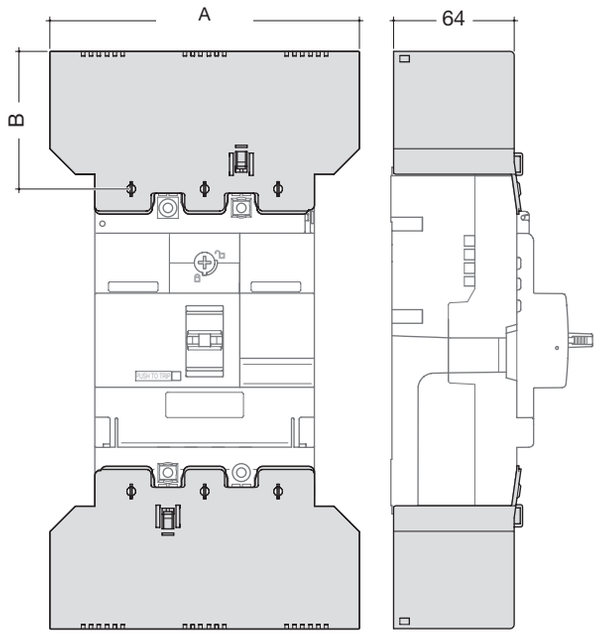




Data is subject to errors and technical modifications.

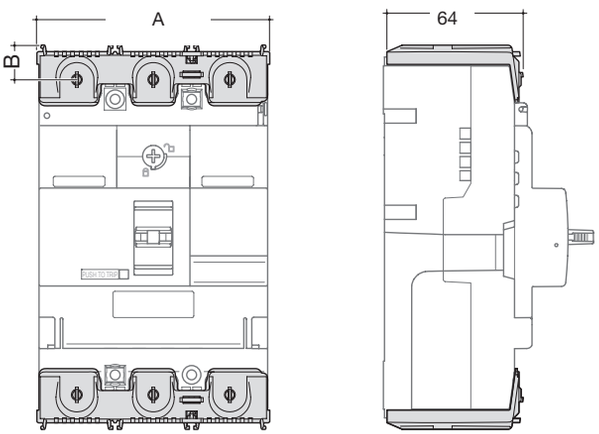
Accessories

Terminal cover for extended spreader connections



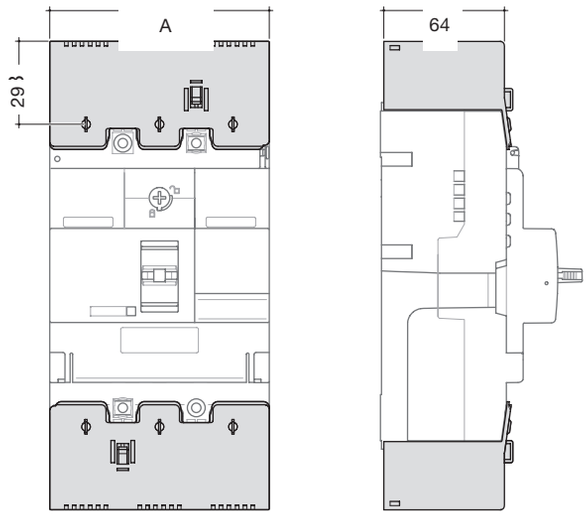
	A (mm)	**B** (mm)	**C** (mm)
3P	147.5	54.5	64
4P	196	54.5	64

Terminal cover for rear connections



	A (mm)
3P	105
4P	140

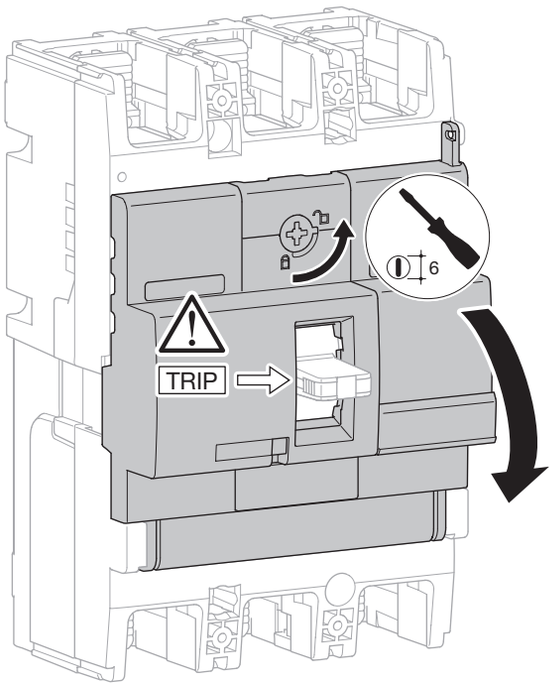
Terminal covers for collar terminals



	A (mm)
3P	105
4P	140

Auxiliaries

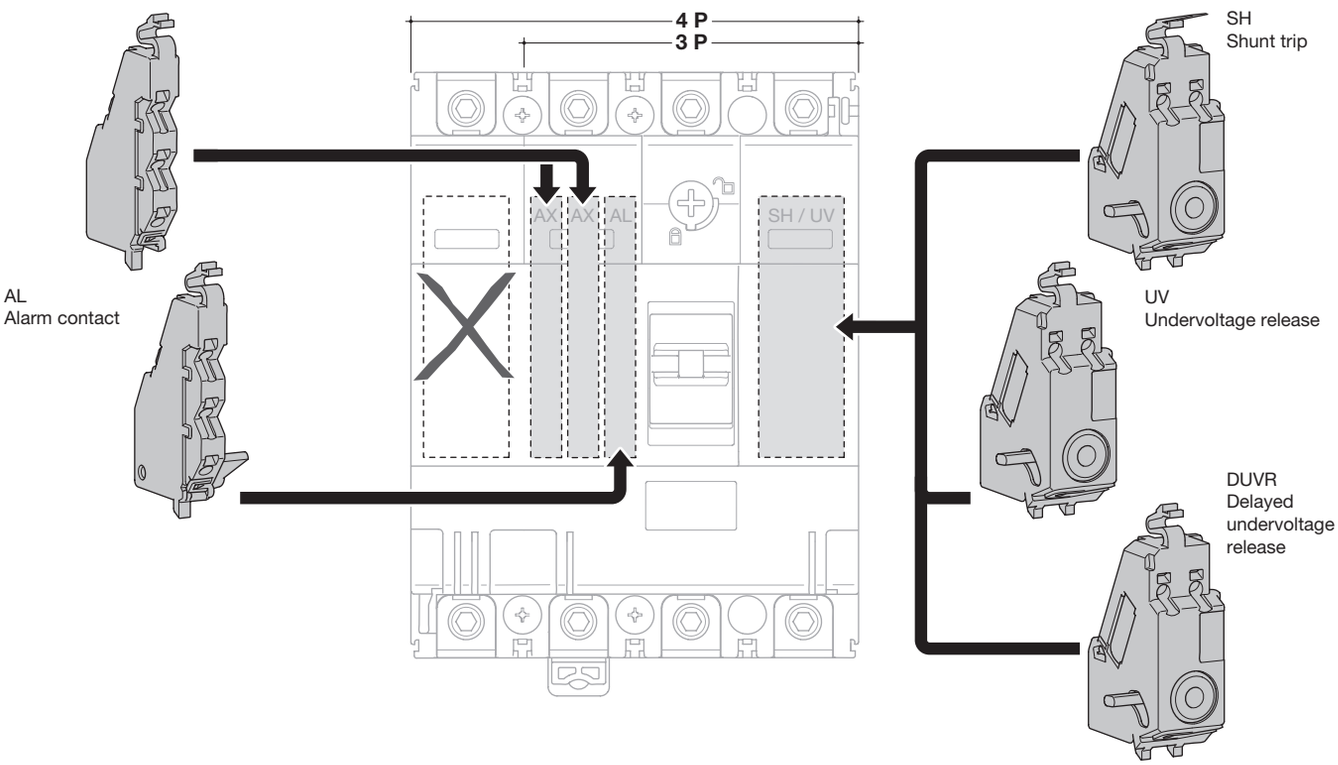
Auxiliaries for MCCBs and moulded case switches



Mounting combination for auxiliaries and releases

AX
Auxiliary contact

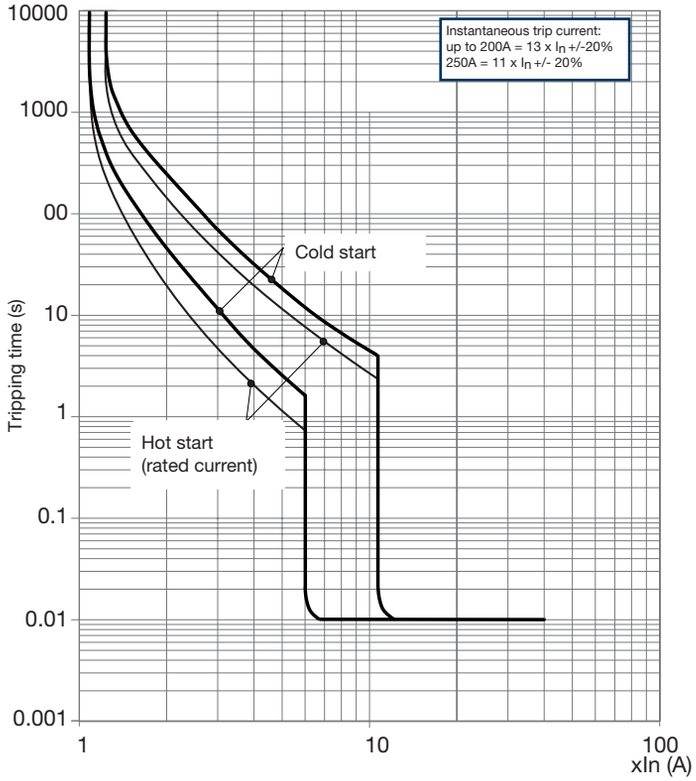
AL
Alarm contact



Data is subject to errors and technical modifications.

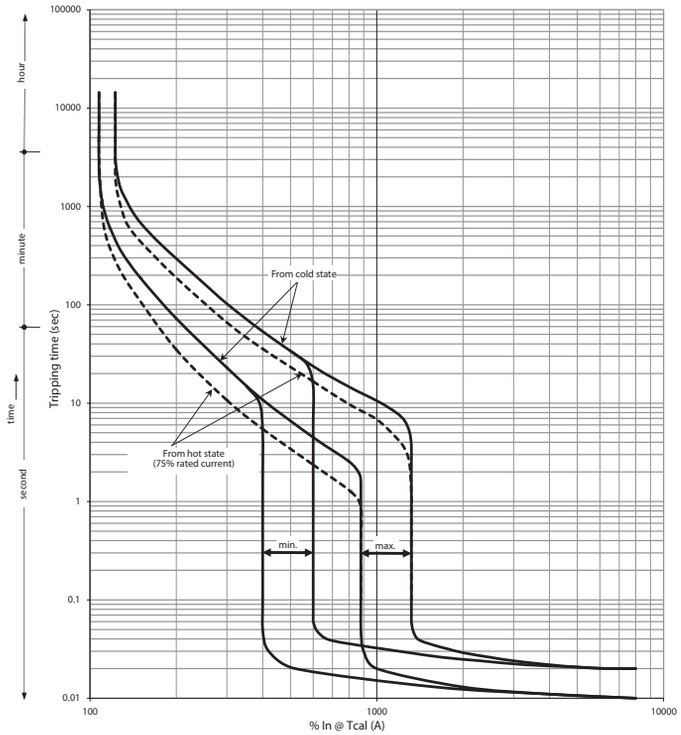
Tripping curve

MCCB x250



Tripping curve

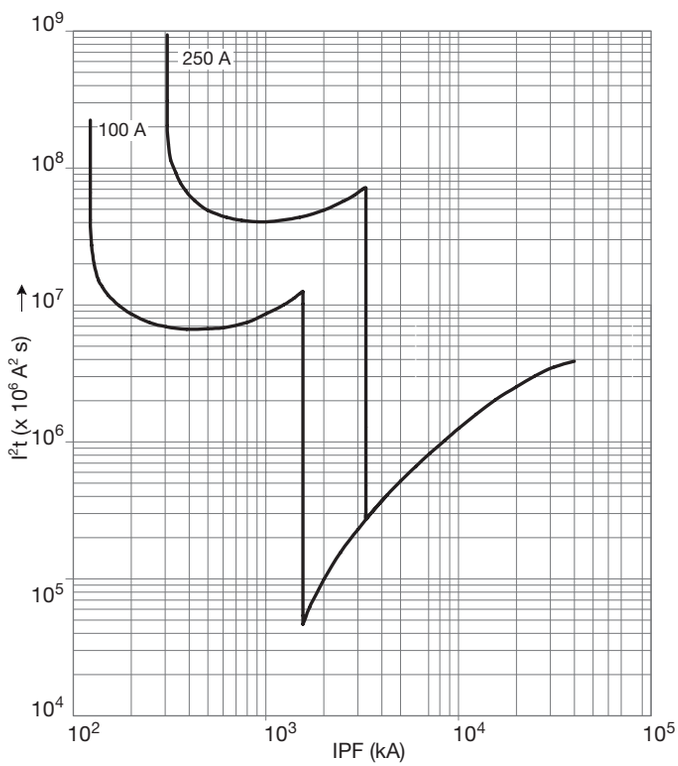
MCCB h250 TM



Earth fault loop impedance (Zs) can be calculated from the formula
$Zs \leq \frac{230 \times 0.95}{I_a}$
Where $I_a = I_n$ of MCCB x mag setting x 1.2

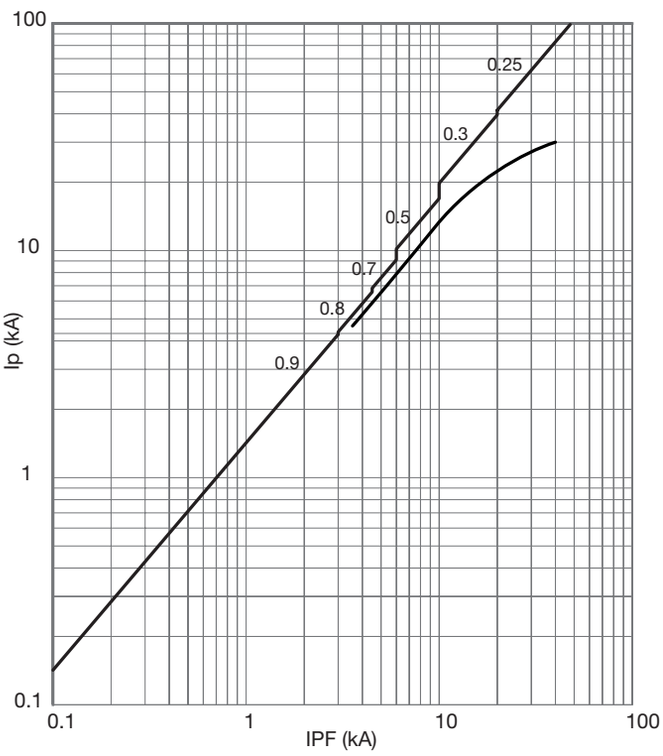
Thermal constraint curve at 400V (Let-through energy)

MCCB x250



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

MCCB x250



Upstream

Max Values (kA)		Fuse BS 88										
	I_n (A)	10	16	20	25	32	40	45	50	63	80	100
Downstream												
MTN B Curve	6A	80	80	80	80	80	80	80	80	80	6	6
	10A	80	80	80	80	80	80	80	80	80	6	6
	16A	-	80	80	80	80	80	80	80	80	42	6
	20A	-	-	80	80	80	80	80	80	80	42	6
	25A	-	-	-	80	80	80	80	80	80	42	6
	32A	-	-	-	-	80	80	80	80	80	42	6
	40A	-	-	-	-	-	80	80	80	80	42	6
	50A	-	-	-	-	-	-	-	80	80	42	6
	63A	-	-	-	-	-	-	-	-	80	42	23
NBN B Curve	6A	80	80	80	80	80	80	80	80	80	80	15
	10A	80	80	80	80	80	80	80	80	80	80	15
	16A	-	80	80	80	80	80	80	80	80	80	80
	20A	-	-	80	80	80	80	80	80	80	80	80
	25A	-	-	-	80	80	80	80	80	80	80	80
	32A	-	-	-	-	80	80	80	80	80	80	80
	40A	-	-	-	-	-	80	80	80	80	80	80
	50A	-	-	-	-	-	-	-	80	80	80	80
	63A	-	-	-	-	-	-	-	-	80	80	80
NCN C Curve	0,5A	80	15	15	15	15	15	15	15	15	15	15
	1A	80	80	80	80	80	80	80	15	15	15	15
	2A	80	80	80	80	80	80	80	15	15	15	15
	3A	80	80	80	80	80	80	80	80	80	15	15
	4A	80	80	80	80	80	80	80	80	80	15	15
	6A	80	80	80	80	80	80	80	80	80	80	15
	10A	80	80	80	80	80	80	80	80	80	80	80
	16A	-	80	80	80	80	80	80	80	80	80	80
	20A	-	-	80	80	80	80	80	80	80	80	80
	25A	-	-	-	80	80	80	80	80	80	80	80
	32A	-	-	-	-	80	80	80	80	80	80	80
	40A	-	-	-	-	-	80	80	80	80	80	80
	50A	-	-	-	-	-	-	-	80	80	80	80
	63A	-	-	-	-	-	-	-	-	80	80	80
NDN D Curve	0,5A	80	15	15	15	15	15	15	15	15	15	15
	1A	80	80	80	80	80	80	80	15	15	15	15
	2A	80	80	80	80	80	80	80	15	15	15	15
	3A	80	80	80	80	80	80	80	80	80	15	15
	4A	80	80	80	80	80	80	80	80	80	15	15
	6A	80	80	80	80	80	80	80	80	80	80	15
	10A	80	80	80	80	80	80	80	80	80	80	80
	16A	-	80	80	80	80	80	80	80	80	80	80
	20A	-	-	80	80	80	80	80	80	80	80	80
	25A	-	-	-	80	80	80	80	80	80	80	80
	32A	-	-	-	-	80	80	80	80	80	80	80
	40A	-	-	-	-	-	80	80	80	80	80	80
	50A	-	-	-	-	-	-	-	80	80	80	80
	63A	-	-	-	-	-	-	-	-	80	80	80
HMC / HMF C Curve	80A	-	-	-	-	-	-	-	-	-	80	80
	100A	-	-	-	-	-	-	-	-	-	-	80
	125A	-	-	-	-	-	-	-	-	-	-	-
HMD D Curve	80A	-	-	-	-	-	-	-	-	-	80	80
	100A	-	-	-	-	-	-	-	-	-	-	80
	125A	-	-	-	-	-	-	-	-	-	-	-

Data is subject to errors and technical modifications.

Max Values (kA)

Upstream

Fuse BS 88

Downstream		In	10A	16A	20A	25A	32A	40A	45A	50A	63A	80A	100A
	ADA3G** B Curve, 6kA, Type A	6A	80	80	80	80	80	80	80	80	80	6	6
		10A	80	80	80	80	80	80	80	80	80	42	6
		16A	-	80	80	80	80	80	80	80	80	42	6
		20A	-	-	80	80	80	80	80	80	80	42	6
		32A	-	-	-	-	80	80	80	80	80	42	6
		40A	-	-	-	-	-	80	80	80	80	42	6
		45A	-	-	-	-	-	-	80	80	80	42	6
	ADA1U** B Curve, 10kA, Type A	6A	80	80	80	80	80	80	80	80	80	80	10
		10A	80	80	80	80	80	80	80	80	80	80	10
		16A	-	80	80	80	80	80	80	80	80	80	10
		20A	-	-	80	80	80	80	80	80	80	80	10
		25A	-	-	-	80	80	80	80	80	80	80	10
		32A	-	-	-	-	80	80	80	80	80	80	80
		40A	-	-	-	-	-	80	80	80	80	80	80
		45A	-	-	-	-	-	-	80	80	80	80	80
	ADA1U** C Curve, 6kA, Type A	6A	80	80	80	80	80	80	80	80	80	80	10
		10A	80	80	80	80	80	80	80	80	80	80	10
		16A	-	-	80	80	80	80	80	80	80	80	10
		20A	-	-	-	80	80	80	80	80	80	80	10
		25A	-	-	-	-	80	80	80	80	80	80	80
		32A	-	-	-	-	-	80	80	80	80	80	80
		40A	-	-	-	-	-	-	80	80	80	80	80

Upstream

Downstream	Max Values (kA)	NBN B Curve										NCN C Curve													
	I_n (A)	6	10	13	16	20	25	32	40	50	63	0.5	1	2	3	4	6	10	13	16	20	25	32	40	50	63
ADA1U** B Curve, 10kA Type A	6A	15	15	15	15	15	15	15	15	15	15	-	-	-	-	-	15	15	15	15	15	15	15	15	15	15
	10A	-	15	15	15	15	15	15	15	15	15	-	-	-	-	-	-	15	15	15	15	15	15	15	15	15
	16A	-	-	-	15	15	15	15	15	15	15	-	-	-	-	-	-	-	-	15	15	15	15	15	15	15
	20A	-	-	-	-	15	15	15	15	15	15	-	-	-	-	-	-	-	-	-	15	15	15	15	15	15
	25A	-	-	-	-	-	15	15	15	15	15	-	-	-	-	-	-	-	-	-	-	15	15	15	15	15
	32A	-	-	-	-	-	-	15	15	15	15	-	-	-	-	-	-	-	-	-	-	-	15	15	15	15
	40A	-	-	-	-	-	-	-	15	15	15	-	-	-	-	-	-	-	-	-	-	-	-	15	15	15
	45A	-	-	-	-	-	-	-	-	15	15	-	-	-	-	-	-	-	-	-	-	-	-	-	15	15
ADA1U** C Curve, 10kA, Type A	6A	15	15	15	15	15	15	15	15	15	15	-	-	-	-	-	15	15	15	15	15	15	15	15	15	15
	10A	-	15	15	15	15	15	15	15	15	15	-	-	-	-	-	-	15	15	15	15	15	15	15	15	15
	16A	-	-	-	15	15	15	15	15	15	15	-	-	-	-	-	-	-	-	15	15	15	15	15	15	15
	20A	-	-	-	-	15	15	15	15	15	15	-	-	-	-	-	-	-	-	-	15	15	15	15	15	15
	25A	-	-	-	-	-	15	15	15	15	15	-	-	-	-	-	-	-	-	-	-	15	15	15	15	15
	32A	-	-	-	-	-	-	15	15	15	15	-	-	-	-	-	-	-	-	-	-	-	15	15	15	15
	40A	-	-	-	-	-	-	-	15	15	15	-	-	-	-	-	-	-	-	-	-	-	-	15	15	15
	45A	-	-	-	-	-	-	-	-	15	15	-	-	-	-	-	-	-	-	-	-	-	-	-	15	15

Upstream

Downstream	Max Values (kA)	NDN D Curve															HMB B Curve			HMC / HMF C Curve			HMD D Curve		
	I_n (A)	0.5	1	2	3	4	6	10	13	16	20	25	32	40	50	63	80	100	125	80	100	125	80	100	125
ADA1U** B Curve, 10kA Type A	6A	-	-	-	-	-	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
	10A	-	-	-	-	-	-	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
	16A	-	-	-	-	-	-	-	-	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
	20A	-	-	-	-	-	-	-	-	-	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
	25A	-	-	-	-	-	-	-	-	-	-	15	15	15	15	15	15	15	15	15	15	15	15	15	15
	32A	-	-	-	-	-	-	-	-	-	-	-	15	15	15	15	15	15	15	15	15	15	15	15	15
	40A	-	-	-	-	-	-	-	-	-	-	-	-	15	15	15	15	15	15	15	15	15	15	15	15
	45A	-	-	-	-	-	-	-	-	-	-	-	-	-	15	15	15	15	15	15	15	15	15	15	15
ADA1U** C Curve, 10kA, Type A	6A	-	-	-	-	-	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
	10A	-	-	-	-	-	-	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
	16A	-	-	-	-	-	-	-	-	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
	20A	-	-	-	-	-	-	-	-	-	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
	25A	-	-	-	-	-	-	-	-	-	-	15	15	15	15	15	15	15	15	15	15	15	15	15	15
	32A	-	-	-	-	-	-	-	-	-	-	-	15	15	15	15	15	15	15	15	15	15	15	15	15
	40A	-	-	-	-	-	-	-	-	-	-	-	-	15	15	15	15	15	15	15	15	15	15	15	15
	45A	-	-	-	-	-	-	-	-	-	-	-	-	-	15	15	15	15	15	15	15	15	15	15	15

Upstream

Downstream	Max Values (kA)		NKN / NBN / NCN / NDN	HMC / HMF C Curve	HMD D Curve
		Icn	15kA	15kA	15kA
	ARC9*** B Curve	6kA	15	12	12
	ARC9*** C Curve	6kA	15	12	12
	ARC5*** B Curve	10kA	15	15	15
	ARC5*** C Curve	10kA	15	15	15

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Data is subject to errors and technical modifications.

Upstream

Downstream: Max Values (kA)	x160			x250		H250 TM		H250 TM+		H250 LSI	
	18kA	25kA	40kA	25kA	40kA	25kA	50kA	50kA	70kA	50kA	70kA
	TM			TM		TM		TM+		LSI	
NBN /NCN / NDN	18	20	40	25	40	25	50	23	50	23	50
HMC C Curve	18	25	40	25	40	25	50	23	50	23	50
HMD D Curve	18	25	40	25	40	25	50	23	50	23	50

Upstream

Downstream: Max Values (kA)		**HDA** x160 18 / 25kA											x250 25 / 40kA				
	In	16	20	25	32	40	50	63	80	100	125	160	100A	125A	160A	200A	250A
RCBO - ADA1U** B Curve, 10kA Type A	6A	18	18	18	18	18	18	18	18	18	18	18	13	13	13	13	13
	10A	18	18	18	18	18	18	18	18	18	18	18	13	13	13	13	13
	16A	18	18	18	18	18	18	18	18	18	18	18	13	13	13	13	13
	20A	-	18	18	18	18	18	18	18	18	18	18	13	13	13	13	13
	25A	-	-	18	18	18	18	18	18	18	18	18	13	13	13	13	13
	32A	-	-	-	18	18	18	18	18	18	18	18	13	13	13	13	13
	40A	-	-	-	-	18	18	18	18	18	18	18	13	13	13	13	13
	45A	-	-	-	-	-	18	18	18	18	18	18	13	13	13	13	13
	6A	18	18	18	18	18	18	18	18	18	18	18	13	13	13	13	13
RCBO - ADA1U** C Curve, 10kA, Type A	10A	18	18	18	18	18	18	18	18	18	18	18	13	13	13	13	13
	16A	18	18	18	18	18	18	18	18	18	18	18	13	13	13	13	13
	20A	-	18	18	18	18	18	18	18	18	18	18	13	13	13	13	13
	25A	-	-	18	18	18	18	18	18	18	18	18	13	13	13	13	13
	32A	-	-	-	18	18	18	18	18	18	18	18	13	13	13	13	13
	40A	-	-	-	-	18	18	18	18	18	18	18	13	13	13	13	13
	45A	-	-	-	-	-	18	18	18	18	18	18	13	13	13	13	13

Upstream

Downstream: Max Values (kA)		**HDA / HHA** x160 TM		**HHB / HNB** x250 TM		**HHG / HNG / HEG** h250 TM			**HNC / HEC** h250 LSI		**HND / HED** h630 LSI		**HNE / HEE** h1000 LSI		**HNF / HEF** h1600 LSI	
		18kA	25kA	25kA	40kA	25kA	50kA	65kA	50kA	70kA	50kA	70kA	50kA	70kA	50kA	70kA
HDA / HHA x160 TM	18kA	-	25kA	25kA	40kA	25kA	40kA	40kA	40kA	40kA	40kA	40kA	40kA	40kA	40kA	40kA
	25kA	-	-	-	40kA	-	50kA	65kA	50kA	70kA	50kA	50kA	50kA	50kA	50kA	50kA
HHB / HNB x250 TM	25kA	-	-	-	40kA	-	50kA	65kA	50kA	70kA	50kA	50kA	50kA	50kA	50kA	50kA
	40kA	-	-	-	-	-	50kA	65kA	50kA	70kA	50kA	70kA	50kA	70kA	50kA	50kA
HHG / HNG / HEG h250 TM	25kA	-	-	-	40kA	-	50kA	65kA	50kA	70kA	50kA	50kA	50kA	50kA	50kA	50kA
	50kA	-	-	-	-	-	-	65kA	-	70kA	-	70kA	-	70kA	-	70kA
	65kA	-	-	-	-	-	-	-	-	70kA	-	70kA	-	70kA	-	70kA
HNC / HEC h250 LSI	50kA	-	-	-	-	-	-	-	-	70kA	-	70kA	-	70kA	-	70kA
	70kA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HND / HED h630 LSI	50kA	-	-	-	-	-	-	-	-	-	-	70kA	-	70kA	-	70kA
	70kA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HNE / HEE h1000 LSI	50kA	-	-	-	-	-	-	-	-	-	-	-	-	70kA	-	70kA
	70kA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HNF / HEF h1600 LSI	50kA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	70kA
	70kA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Upstream

Downstream		Max Values (kA) I_n	Fuse BS88										
			10A	16A	20A	25A	32A	40A	45A	50A	63A	80A	100A
MTN B Curve		6A	0.20	0.20	0.30	0.40	0.60	1.30	1.80	2.50	4.00	T	T
		10A	-	0.20	0.30	0.40	0.50	1.10	1.50	2.10	3.30	T	T
		16A	-	-	0.30	0.30	0.40	0.90	1.20	1.70	2.70	5.30	T
		20A	-	-	-	0.30	0.40	0.80	1.10	1.50	2.30	4.70	T
		25A	-	-	-	-	0.40	0.70	0.90	1.30	2.10	4.10	T
		32A	-	-	-	-	-	-	0.50	0.70	1.10	2.20	T
		40A	-	-	-	-	-	-	-	0.90	1.50	2.90	T
		50A	-	-	-	-	-	-	-	-	1.30	2.50	T
		63A	-	-	-	-	-	-	-	-	-	2.10	5.30
NBN B curve		6A	-	-	-	-	-	0.80	1.10	1.60	2.80	6.40	T
		10A	-	-	-	-	-	0.70	1.00	1.40	2.40	5.10	T
		16A	-	-	-	-	-	0.60	0.80	1.10	1.90	4.10	13.60
		20A	-	-	-	-	-	0.50	0.70	1.00	1.70	3.60	11.00
		25A	-	-	-	-	-	-	0.60	0.90	1.50	3.10	9.00
		32A	-	-	-	-	-	-	0.60	0.80	1.30	2.70	7.40
		40A	-	-	-	-	-	-	-	0.70	1.10	2.30	6.10
		50A	-	-	-	-	-	-	-	0.60	1.00	1.90	5.10
		63A	-	-	-	-	-	-	-	-	-	1.60	4.30
NCN C curve		0,5A	8.70	T	T	T	T	T	T	T	T	T	T
		1A	-	-	-	-	0.90	3.40	6.50	T	T	T	T
		2A	-	-	-	-	0.70	2.70	4.80	T	T	T	T
		3A	-	-	-	-	0.50	1.50	2.20	3.30	6.20	T	T
		4A	-	-	-	-	-	1.30	2.00	3.00	5.50	T	T
		6A	-	-	-	-	-	1.00	1.40	1.90	3.10	6.50	T
		10A	-	-	-	-	-	0.80	1.10	1.50	2.20	4.00	11.40
		16A	-	-	-	-	-	0.70	1.00	1.20	1.90	3.40	8.40
		20A	-	-	-	-	-	0.70	0.90	1.10	1.70	3.10	7.40
		25A	-	-	-	-	-	0.60	0.80	1.00	1.60	2.90	6.70
		32A	-	-	-	-	-	-	-	0.90	1.40	2.70	6.20
		40A	-	-	-	-	-	-	-	-	1.30	2.40	5.70
		50A	-	-	-	-	-	-	-	-	-	1.90	4.80
		63A	-	-	-	-	-	-	-	-	-	-	4.40
NDN D curve		0,5A	12.70	T	T	T	T	T	T	T	T	T	T
		1A	-	-	-	0.50	1.00	3.40	5.90	T	T	T	T
		2A	-	-	-	-	0.90	3.00	5.10	T	T	T	T
		3A	-	-	-	-	0.70	1.80	2.70	3.90	7.30	T	T
		4A	-	-	-	-	0.50	1.30	2.10	3.10	5.60	T	T
		6A	-	-	-	-	-	1.00	1.40	1.80	2.90	5.60	T
		10A	-	-	-	-	-	0.90	1.20	1.50	2.30	4.30	14.80
		16A	-	-	-	-	-	0.70	1.00	1.30	2.00	3.60	8.90
		20A	-	-	-	-	-	-	0.90	1.10	1.70	3.20	7.80
		25A	-	-	-	-	-	-	-	1.00	1.50	2.90	7.00
		32A	-	-	-	-	-	-	-	-	1.30	2.50	5.90
		40A	-	-	-	-	-	-	-	-	-	2.20	5.10
		50A	-	-	-	-	-	-	-	-	-	-	4.20
		63A	-	-	-	-	-	-	-	-	-	-	-

Upstream

Downstream	Max Values (kA) I_n	Fuse BS88 10A	16A	20A	25A	32A	40A	50A	63A	80A	100A
ADA3G** B Curve, 6kA, 30mA Type A	6A	0.10	0.20	0.30	0.40	0.50	1.00	1.60	3.00	T	T
	10A	-	0.20	0.30	0.40	0.50	0.90	1.50	2.70	6.00	T
	16A		-	0.20	0.30	0.50	0.90	1.40	2.30	4.80	T
	20A				0.30	0.40	0.80	1.30	2.10	4.30	T
	32A					-	0.60	1.10	1.50	3.10	T
	40A						-	1.00	1.40	2.80	T
	45A							1.10	1.60	2.90	T
ADA1U** B Curve, 10kA, 30mA Type A	6A	0.10	0.20	0.30	0.40	0.50	1.00	1.60	3.00	7.10	T
	10A	-	0.20	0.30	0.40	0.50	0.90	1.50	2.70	6.00	T
	16A			0.20	0.30	0.50	0.90	1.40	2.30	4.80	T
	20A				0.30	0.40	0.80	1.30	2.10	4.30	T
	25A				-	0.40	0.70	1.20	1.80	4.00	T
	32A					-	0.60	1.10	1.50	3.10	8.40
	40A						-	1.00	1.40	2.80	7.70
	45A							1.10	1.60	2.90	7.00
ADA1U** C Curve, 10kA, 30mA Type A	6A	0.10	0.10	0.20	0.30	0.50	1.10	2.00	3.30	6.80	T
	10A	-	-	0.20	0.30	0.40	0.90	1.50	2.50	5.40	T
	13A		-	-	-	0.40	0.80	1.40	2.20	4.50	T
	16A			-	-	-	0.70	1.20	1.90	3.70	T
	20A				-	-	-	1.10	1.70	3.50	T
	25A					-	-	-	1.30	2.60	7.50
	32A						-	-	-	2.40	6.60
	40A							-	1.30	2.60	6.20

Upstream

Downstream	Max Values (kA)	I_{cn}	I_n max	10A	16A	20A	25A	32A	35A	40A	50A	63A	80A	100A
ARCxxx 1Ph+N B	**ARC906D**	6kA	6A	0.50	1.00	2.30	2.80	3.80	T	T	T	T	T	T
	ARC910D		10A	-	0.70	1.40	1.70	2.20	3.50	4.30	T	T	T	T
	ARC916D		16A	-	0.50	1.30	1.50	1.90	2.90	3.30	T	T	T	T
	ARC920D		20A	-	-	1.10	1.30	1.70	2.60	3.00	T	T	T	T
	ARC925D		25A	-	-	-	1.10	1.50	2.40	2.80	5.40	T	T	T
ARCxxx 1Ph+N C	**ARC956D**	6kA	6A	0.80	1.10	2.40	2.80	4.00	T	T	T	T	T	T
	ARC960D		10A	0.50	0.80	1.40	1.60	2.10	3.40	4.10	T	T	T	T
	ARC966D		16A	-	-	1.30	1.50	1.90	3.00	3.50	T	T	T	T
	ARC970D		20A	-	-	-	-	1.50	2.30	2.60	5.20	T	T	T
	ARC975D		25A	-	-	-	-	-	2.20	2.50	4.80	T	T	T
ARCxxx 1Ph+N B	**ARC506D**	10kA	6A	0.50	1.00	2.30	2.80	3.80	7.00	8.70	T	T	T	T
	ARC510D		10A	-	0.70	1.40	1.70	2.20	3.50	4.30	T	T	T	T
	ARC516D		16A	-	0.50	1.30	1.50	1.90	2.90	3.30	6.90	T	T	T
	ARC520D		20A	-	-	1.10	1.30	1.70	2.60	3.00	6.00	T	T	T
	ARC525D		25A	-	-	-	1.10	1.50	2.40	2.80	5.40	8.80	T	T
ARCxxx 1Ph+N C	**ARC556D**	10kA	6A	0.80	1.10	2.40	2.80	4.00	7.20	8.40	T	T	T	T
	ARC560D		10A	0.50	0.80	1.40	1.60	2.10	3.40	4.10	T	T	T	T
	ARC566D		16A	-	-	1.30	1.50	1.90	3.00	3.50	7.50	T	T	T
	ARC570D		20A	-	-	-	-	1.50	2.30	2.60	5.20	T	T	T
	ARC575D		25A	-	-	-	-	-	2.20	2.50	4.80	9.10	T	T

Max Values (kA)		Upstream																							
		NBN B curve																							
	I_n	6A	10A	13A	16A	20A	25A	32A	40A	50A	63A	1A	2A	3A	4A	6A	10A	13A	16A	20A	25A	32A	40A	50A	63A
NBN B curve	6A	-	0.06	0.10	0.14	0.20	0.25	0.45	0.59	0.75	0.93	-	-	-	-	-	0.20	0.27	0.38	0.56	0.79	0.89	1.13	1.44	1.77
	10A	-	-	-	0.10	0.15	0.20	0.38	0.54	0.68	0.85	-	-	-	-	-	-	0.23	0.32	0.51	0.73	0.81	1.03	1.32	1.63
	13A	-	-	-	0.10	0.15	0.20	0.38	0.54	0.68	0.85	-	-	-	-	-	-	0.23	0.32	0.51	0.73	0.81	1.03	1.32	1.63
	16A	-	-	-	-	0.11	0.14	0.28	0.46	0.60	0.75	-	-	-	-	-	-	-	-	-	-	0.72	0.92	1.17	1.45
	20A	-	-	-	-	-	0.11	-	0.39	0.56	0.70	-	-	-	-	-	-	-	-	-	-	0.67	0.85	1.09	1.35
	25A	-	-	-	-	-	-	-	0.33	0.51	0.64	-	-	-	-	-	-	-	-	-	-	0.61	0.78	1.00	1.24
	32A	-	-	-	-	-	-	-	-	0.41	0.57	-	-	-	-	-	-	-	-	-	-	-	0.70	0.90	1.11
	40A	-	-	-	-	-	-	-	-	0.30	0.51	-	-	-	-	-	-	-	-	-	-	-	-	0.80	0.99
	50A	-	-	-	-	-	-	-	-	-	0.38	-	-	-	-	-	-	-	-	-	-	-	-	-	0.87
	63A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Downstream NCN C curve	0,5A	0.06	0.13	0.19	0.66	2.17	4.35	T	T	T	T	0.01	0.04	0.06	0.10	0.16	0.45	0.75	T	T	T	T	T	T	T
	1A	0.03	0.06	0.08	0.12	0.16	0.18	0.28	0.38	0.50	0.79	-	0.02	0.03	0.04	0.05	0.11	0.14	0.25	0.35	0.57	0.71	1.18	1.98	3.08
	2A	0.03	0.05	0.07	0.10	0.13	0.15	0.23	0.31	0.41	0.55	-	-	0.02	0.03	0.05	0.11	0.13	0.21	0.29	0.44	0.50	0.84	1.43	2.24
	3A	-	0.05	0.06	0.08	0.10	0.11	0.17	0.22	0.28	0.35	-	-	-		-	0.09	0.11	0.15	0.21	0.30	0.34	0.44	0.64	0.99
	4A	-	0.04	0.06	0.07	0.10	0.11	0.16	0.21	0.27	0.34	-	-	-	-	-	0.09	0.11	0.15	0.20	0.29	0.32	0.42	0.58	0.87
	6A	-	-	0.06	0.07	0.09	0.10	0.15	0.19	0.24	0.30	-	-	-	-	-	0.08	0.10	0.13	0.18	0.25	0.28	0.36	0.47	0.63
	10A	-	-	-	-	0.08	0.09	0.14	0.17	0.22	0.28	-	-	-	-	-	-	0.09	0.12	0.16	0.24	0.27	0.35	0.45	0.59
	13A	-	-	-	-	0.08	0.09	0.14	0.17	0.22	0.28	-	-	-	-	-	-	0.09	0.12	0.16	0.24	0.27	0.35	0.45	0.59
	16A	-	-	-	-	-	-	0.13	0.17	0.22	0.27	-	-	-	-	-	-	-	-	-	0.23	0.26	0.33	0.43	0.54
	20A	-	-	-	-	-	-	-	0.17	0.21	0.26	-	-	-	-	-	-	-	-	-	0.22	0.25	0.32	0.41	0.52
	25A	-	-	-	-	-	-	-	-	-	0.26	-	-	-	-	-	-	-	-	-	-	0.24	0.31	0.40	0.50
	32A	-	-	-	-	-	-	-	-	-	0.25	-	-	-	-	-	-	-	-	-	-	-	0.31	0.39	0.48
	40A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.39	0.48
	50A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.48
	63A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NDN D curve	0,5A	0.05	0.10	0.15	0.45	1.14	2.19	T	T	T	T	0.01	0.02	0.04	0.06	0.10	0.25	0.33	8.51	T	T	T	T	T	T
	1A	0.03	0.05	0.07	0.12	0.16	0.19	0.30	0.41	0.58	0.88	-	-	0.02	0.04	0.05	0.11	0.13	0.27	0.38	0.65	0.80	1.28	2.06	3.10
	2A	-	0.05	0.06	0.10	0.13	0.16	0.26	0.35	0.47	0.70	-	-	-	0.03	0.05	0.10	0.13	0.23	0.32	0.52	0.65	1.02	1.64	2.44
	3A	-	0.04	0.06	0.08	0.10	0.12	0.18	0.24	0.31	0.41	-	-	-	-	-	0.09	0.11	0.16	0.22	0.34	0.38	0.51	0.81	1.18
	4A	-	-	-	0.07	0.09	0.11	0.17	0.22	0.29	0.37	-	-	-	-	-	0.08	0.10	0.15	0.21	0.31	0.35	0.47	0.70	1.03
	6A	-	-	-	-	0.09	0.10	0.14	0.19	0.24	0.30	-	-	-	-	-	-	0.10	0.13	0.18	0.26	0.29	0.37	0.49	0.66
	10A	-	-	-	-	-	-	-	0.17	0.22	0.28	-	-	-	-	-	-	-	-	-	0.24	0.27	0.34	0.45	0.59
	13A	-	-	-	-	-	-	-	0.17	0.22	0.28	-	-	-	-	-	-	-	-	-	0.24	0.27	0.34	0.45	0.59
	16A	-	-	-	-	-	-	-	-	-	0.26	-	-	-	-	-	-	-	-	-	-	-	0.32	0.42	0.53
	20A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.31	0.40	0.50
	25A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.40	0.49
	32A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.48
	40A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	50A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	63A																								

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Data is subject to errors and technical modifications.

Upstream

Max Values (kA)		**NDN** D curve														**HMC** C curve			**HMD** D curve		
	I_n	0,5A	1A	2A	3A	4A	6A	10A	16A	20A	25A	32A	40A	50A	63A	80A	100A	125A	80A	100A	125A
NBN B curve	6A	-	-	-	-	-	0.14	0.35	0.67	0.80	1.06	1.49	1.62	2.33	2.65	2.61	3.08	3.2	5.2	4.65	5.45
	10A	-	-	-	-	-	-	-	0.61	0.73	0.97	1.37	1.49	2.14	2.44	2.4	2.84	2.95	4.8	4.29	5.03
	13A	-	-	-	-	-	-	-	0.61	0.73	0.97	1.37	1.49	2.14	2.44	2.4	2.84	2.95	4.8	4.29	5.03
	16A	-	-	-	-	-	-	-	-	-	0.86	1.21	1.32	1.91	2.17	2.14	2.53	2.63	4.29	3.84	4.5
	20A	-	-	-	-	-	-	-	-	-	0.80	1.13	1.23	1.78	2.02	1.99	2.36	2.45	4.01	3.58	4.2
	25A	-	-	-	-	-	-	-	-	-	-	1.04	1.13	1.64	1.86	1.84	2.17	2.26	3.7	3.3	3.88
	32A	-	-	-	-	-	-	-	-	-	-	-	1.01	1.47	1.67	1.65	1.96	2.03	3.33	2.97	3.49
	40A	-	-	-	-	-	-	-	-	-	-	-	-	1.31	1.50	1.48	1.75	1.82	2.99	2.67	3.13
	50A	-	-	-	-	-	-	-	-	-	-	-	-	-	1.32	1.3	1.54	1.61	2.64	2.36	2.77
	63A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.13	1.34	1.39	2.29	2.04	2.4
NCN C curve	0,5A	0.01	0.02	0.06	0.10	0.16	0.26	1.44	T	T	T	T	T	T	T	T	T	T	T	T	T
	1A	-	-	0.03	0.05	0.07	0.10	0.20	0.44	0.58	1.03	2.13	2.54	5.48	7.56	7.26	T	T	T	T	T
	2A	-	-	-	0.04	0.06	0.09	0.17	0.36	0.44	0.73	1.53	1.84	4.05	5.34	5.17	7.8	8.64	T	T	T
	3A	-	-	-	-	-	-	0.14	0.25	0.30	0.41	0.69	0.82	1.74	2.27	2.2	3.12	3.37	T	7.6	T
	4A	-	-	-	-	-	-	0.14	0.24	0.29	0.39	0.62	0.73	1.50	1.93	1.87	2.6	2.8	7.27	5.85	7.96
	6A	-	-	-	-	-	-	0.12	0.21	0.26	0.34	0.48	0.54	0.95	1.16	1.13	1.47	1.56	3.29	2.77	3.53
	10A	-	-	-	-	-	-	-	0.20	0.24	0.32	0.47	0.51	0.87	1.05	1.03	1.31	1.38	2.8	2.38	2.99
	13A	-	-	-	-	-	-	-	0.20	0.24	0.32	0.47	0.51	0.87	1.05	1.03	1.31	1.38	2.8	2.38	2.99
	16A	-	-	-	-	-	-	-	-	0.23	0.31	0.44	0.48	0.79	0.95	0.93	1.17	1.24	2.44	2.09	2.61
	20A	-	-	-	-	-	-	-	-	-	0.30	0.43	0.47	0.75	0.89	0.87	1.09	1.15	2.22	1.91	2.36
	25A	-	-	-	-	-	-	-	-	-	0.29	0.42	0.46	0.73	0.86	0.85	1.06	1.11	2.13	1.84	2.27
	32A	-	-	-	-	-	-	-	-	-	-	-	0.44	0.68	0.81	0.79	0.99	1.04	1.98	1.71	2.11
	40A	-	-	-	-	-	-	-	-	-	-	-	-	0.67	0.80	0.78	0.97	1.02	1.92	1.66	2.04
	50A	-	-	-	-	-	-	-	-	-	-	-	-	-	0.80	0.78	0.96	1.01	1.84	1.6	1.95
	63A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.74	0.91	0.95	1.73	1.51	1.84
NDN D curve	0,5A	-	0.02	0.08	0.14	0.25	0.46	4.05	T	T	T	T	T	T	T	T	T	T	T	T	T
	1A	-	-	0.03	0.04	0.06	0.10	0.19	0.48	0.66	1.13	2.20	2.59	5.27	7.35	7	T	T	T	T	T
	2A	-	-	-	0.04	0.06	0.08	0.16	0.41	0.53	0.90	1.74	2.05	4.12	5.27	5.12	7.66	8.54	T	T	T
	3A	-	-	-	-	0.05	0.08	0.14	0.28	0.34	0.47	0.86	1.00	1.96	2.48	2.41	3.28	3.51	9.71	7.35	T
	4A	-	-	-	-	-	-	0.13	0.25	0.31	0.43	0.75	0.87	1.71	2.16	2.1	2.86	3.06	8.08	6.1	9.07
	6A	-	-	-	-	-	-	0.12	0.21	0.26	0.35	0.51	0.57	0.99	1.20	1.18	1.51	1.6	3.32	2.8	3.55
	10A	-	-	-	-	-	-	-	0.20	0.24	0.32	0.47	0.51	0.87	1.05	1.03	1.31	1.38	2.8	2.38	2.99
	13A	-	-	-	-	-	-	-	0.20	0.24	0.32	0.47	0.51	0.87	1.05	1.03	1.31	1.38	2.8	2.38	2.99
	16A	-	-	-	-	-	-	-	-	0.22	0.30	0.43	0.47	0.77	0.92	0.9	1.13	1.19	2.34	2	2.49
	20A	-	-	-	-	-	-	-	-	-	0.29	0.42	0.46	0.73	0.87	0.85	1.07	1.12	2.16	1.86	2.3
	25A	-	-	-	-	-	-	-	-	-	-	0.41	0.45	0.71	0.84	0.82	1.02	1.07	2.03	1.76	2.16
	32A	-	-	-	-	-	-	-	-	-	-	-	0.43	0.69	0.81	0.8	0.99	1.04	1.94	1.68	2.06
	40A	-	-	-	-	-	-	-	-	-	-	-	-	0.67	0.79	0.77	0.96	1	1.86	1.61	1.97
	50A	-	-	-	-	-	-	-	-	-	-	-	-	-	0.76	-	0.92	0.97	1.76	1.53	1.86
	63A															-	-	0.94	1.68	1.47	1.78

Downstream

Upstream

Downstream		Max Values (kA) In	NBN B Curve									NCN C Curve												
			6A	10A	16A	20A	25A	32A	40A	50A	63A	0,5A	1A	2A	3A	4A	6A	10A	16A	20A	25A	32A	40A	50A	63A
ADA1**U B Curve, 10kA Type A		6A	-	0.05	0.08	0.09	0.11	0.16	0.20	0.25	0.31	-	-	-	-	-	-	0.09	0.14	0.19	0.26	0.29	0.37	0.48	0.61
		10A	-	-	0.07	0.09	0.11	0.15	0.19	0.24	0.30	-	-	-	-	-	-	-	0.14	0.18	0.26	0.29	0.36	0.46	0.58
		16A	-	-	-	0.09	0.10	0.15	0.19	0.23	0.29	-	-	-	-	-	-	-	-	-	0.25	0.28	0.35	0.45	0.56
		20A	-	-	-	-	-	0.15	0.18	0.23	0.29	-	-	-	-	-	-	-	-	-	-	0.27	0.34	0.44	0.55
		25A	-	-	-	-	-	0.14	0.18	0.23	0.28	-	-	-	-	-	-	-	-	-	-	0.27	0.34	0.43	0.53
		32A	-	-	-	-	-	-	-	0.22	0.27	-	-	-	-	-	-	-	-	-	-	-	-	-	0.51
		40A	-	-	-	-	-	-	-	-	0.27	-	-	-	-	-	-	-	-	-	-	-	-	-	0.50
		45A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ADA1**U C Curve, 10kA, Type A		6A	-	-	0.08	0.09	0.11	0.15	0.19	0.24	0.30	-	-	-	-	-	-	0.09	0.14	0.18	0.26	0.29	0.37	0.47	0.60
		10A	-	-	-	0.09	0.10	0.15	0.19	0.24	0.29	-	-	-	-	-	-	-	0.14	0.18	0.25	0.28	0.36	0.45	0.57
		16A	-	-	-	-	-	0.15	0.19	0.23	0.29	-	-	-	-	-	-	-	-	-	0.25	0.28	0.35	0.45	0.56
		20A	-	-	-	-	-	-	0.18	0.23	0.29	-	-	-	-	-	-	-	-	-	-	0.27	0.34	0.44	0.54
		25A	-	-	-	-	-	-	-	0.22	0.28	-	-	-	-	-	-	-	-	-	-	-	0.33	0.42	0.52
		32A	-	-	-	-	-	-	-	-	0.27	-	-	-	-	-	-	-	-	-	-	-	-	-	0.50
		40A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.48
		45A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Upstream

Downstream		Max Values (kA) I_n	NDN D Curve														HMC / HMF C Curve			HMD D Curve		
			0,5A	1A	2A	3A	4A	6A	10A	16A	20A	25A	32A	40A	50A	63A	80A	100A	125A	80A	100A	125A
ADA1**U B Curve, 10kA Type A		6A	-	-	-	-	-	-	0.14	0.22	0.27	0.35	0.49	0.55	0.86	1.01	1.00	1.23	1.29	2.92	2.38	3.18
		10A	-	-	-	-	-	-	-	0.22	0.26	0.34	0.48	0.52	0.81	0.95	0.93	1.14	1.19	2.60	2.11	2.83
		16A	-	-	-	-	-	-	-	-	0.25	0.33	0.46	0.50	0.77	0.90	0.89	1.08	1.13	2.34	1.92	2.54
		20A	-	-	-	-	-	-	-	-	-	0.32	0.45	0.49	0.76	0.88	0.87	1.06	1.11	2.17	1.81	2.34
		25A	-	-	-	-	-	-	-	-	-	-	0.44	0.48	0.73	0.85	0.84	1.02	1.07	2.05	1.71	2.21
		32A	-	-	-	-	-	-	-	-	-	-	-	-	0.69	0.80	0.79	0.94	0.99	1.77	1.49	1.90
		40A	-	-	-	-	-	-	-	-	-	-	-	-	-	0.78	0.76	0.92	0.95	1.67	1.43	1.80
		45A	-	-	-	-	-	-	-	-	-	-	-	-	-	0.84	0.83	0.97	1.01	1.71	1.46	1.83
ADA1**U C Curve, 10kA, Type A		6A	-	-	-	-	-	-	0.13	0.22	0.26	0.34	0.48	0.53	0.84	0.99	0.97	1.20	1.26	2.84	2.31	3.09
		10A	-	-	-	-	-	-	-	0.21	0.25	0.33	0.47	0.51	0.80	0.93	0.91	1.12	1.17	2.51	2.04	2.72
		16A	-	-	-	-	-	-	-	-	-	0.33	0.46	0.50	0.77	0.89	0.87	1.06	1.11	2.24	1.84	2.43
		20A	-	-	-	-	-	-	-	-	-	-	0.45	0.49	0.75	0.87	0.85	1.03	1.08	2.10	1.74	2.27
		25A	-	-	-	-	-	-	-	-	-	-	-	0.47	0.72	0.83	0.81	0.99	1.03	1.96	1.62	2.11
		32A	-	-	-	-	-	-	-	-	-	-	-	-	-	0.78	0.77	0.92	0.96	1.70	1.45	1.83
		40A	-	-	-	-	-	-	-	-	-	-	-	-	-	0.75	0.73	0.88	0.92	1.62	1.40	1.74
		45A	-	-	-	-	-	-	-	-	-	-	-	-	-	0.82	0.80	0.95	0.98	1.63	1.42	1.75

Upstream

Max Values (kA)		I_{cn}		NBN B curve									NCN C curve												
			I_n max	6A	10A	16A	20A	25A	32A	40A	50A	63A	0,5A	1A	2A	3A	4A	6A	10A	16A	20A	25A	32A	40A	50A	63A
AFDD **ARCxxx** 1Ph+N B	**ARC906D**	6kA	6A	-	0.04	0.07	0.08	0.09	0.15	0.20	0.26	0.34	-	-	-	-	-	-	0.08	0.13	0.18	0.28	0.32	0.44	0.59	0.77
	ARC910D		10A	-	-	0.07	0.08	0.09	0.14	0.19	0.25	0.32	-	-	-	-	-	-	-	0.13	0.17	0.26	0.30	0.40	0.53	0.68
	ARC916D		16A	-	-	-	-	0.09	0.14	0.18	0.24	0.31	-	-	-	-	-	-	-	-	-	-	0.29	0.39	0.51	0.65
	ARC920D		20A	-	-	-	-	-	0.14	0.18	0.23	0.30	-	-	-	-	-	-	-	-	-	-	0.28	0.37	0.48	0.61
	ARC925D		25A	-	-	-	-	-	0.14	0.18	0.23	0.29	-	-	-	-	-	-	-	-	-	-	-	0.36	0.48	0.60
AFDD **ARCxxx** 1Ph+N C	**ARC956D**	6kA	6A	-	-	0.07	0.08	0.09	0.15	0.20	0.26	0.34	-	-	-	-	-	-	0.08	0.13	0.18	0.28	0.32	0.44	0.60	0.77
	ARC960D		10A	-	-	-	0.08	0.09	0.14	0.19	0.24	0.32	-	-	-	-	-	-	-	0.13	0.17	0.26	0.30	0.39	0.53	0.67
	ARC966D		16A	-	-	-	-	-	0.14	0.18	0.24	0.31	-	-	-	-	-	-	-	-	-	-	0.29	0.38	0.51	0.64
	ARC970D		20A	-	-	-	-	-	-	0.18	0.23	0.30	-	-	-	-	-	-	-	-	-	-	0.28	0.37	0.48	0.60
	ARC975D		25A	-	-	-	-	-	-	-	0.23	0.29	-	-	-	-	-	-	-	-	-	-	-	0.36	0.47	0.59
AFDD **ARCxxx** 1Ph+N B	**ARC506D**	10kA	6A	-	0.04	0.07	0.08	0.09	0.15	0.20	0.26	0.34	-	-	-	-	-	-	0.08	0.13	0.18	0.28	0.32	0.44	0.59	0.77
	ARC510D		10A	-	-	0.07	0.08	0.09	0.14	0.19	0.25	0.32	-	-	-	-	-	-	-	0.13	0.17	0.26	0.30	0.40	0.53	0.68
	ARC516D		16A	-	-	-	-	0.09	0.14	0.18	0.24	0.31	-	-	-	-	-	-	-	-	-	-	0.29	0.39	0.51	0.65
	ARC520D		20A	-	-	-	-	-	0.14	0.18	0.23	0.30	-	-	-	-	-	-	-	-	-	-	0.28	0.37	0.48	0.61
	ARC525D		25A	-	-	-	-	-	0.14	0.18	0.23	0.29	-	-	-	-	-	-	-	-	-	-	-	0.36	0.48	0.60
AFDD **ARCxxx** 1Ph+N C	**ARC556D**	10kA	6A	-	-	0.07	0.08	0.09	0.15	0.20	0.26	0.34	-	-	-	-	-	-	0.08	0.13	0.18	0.28	0.32	0.44	0.60	0.77
	ARC560D		10A	-	-	-	0.08	0.09	0.14	0.19	0.24	0.32	-	-	-	-	-	-	-	0.13	0.17	0.26	0.30	0.39	0.53	0.67
	ARC566D		16A	-	-	-	-	-	0.14	0.18	0.24	0.31	-	-	-	-	-	-	-	-	-	-	0.29	0.38	0.51	0.64
	ARC570D		20A	-	-	-	-	-	-	0.18	0.23	0.30	-	-	-	-	-	-	-	-	-	-	0.28	0.37	0.48	0.60
	ARC575D		25A	-	-	-	-	-	-	-	0.23	0.29	-	-	-	-	-	-	-	-	-	-	-	0.36	0.47	0.59

Downstream

Max Values (kA)		I_{cn}		NDN D curve														HMC C curve			HMD D curve		
			I_n max	0,5A	1A	2A	3A	4A	6A	10A	16A	20A	25A	32A	40A	50A	63A	80A	100A	125A	80A	100A	125A
AFDD **ARCxxx** 1Ph+N B	**ARC906D**	6kA	6A	-	-	-	-	-	-	0.12	0.23	0.29	0.40	0.62	0.69	1.09	1.27	1.25	1.57	1.72	5.27	4.07	5.87
	ARC910D		10A	-	-	-	-	-	-	-	0.22	0.27	0.37	0.55	0.61	0.93	1.08	1.06	1.29	1.35	3.37	2.68	3.71
	ARC916D		16A	-	-	-	-	-	-	-	-	-	0.36	0.53	0.58	0.88	1.02	1.01	1.22	1.27	2.91	2.34	3.19
	ARC920D		20A	-	-	-	-	-	-	-	-	-	-	0.50	0.55	0.83	0.95	0.94	1.13	1.17	2.43	1.98	2.65
	ARC925D		25A	-	-	-	-	-	-	-	-	-	-	0.49	0.54	0.81	0.93	0.91	1.10	1.14	2.20	1.84	2.37
AFDD **ARCxxx** 1Ph+N C	**ARC956D**	6kA	6A	-	-	-	-	-	-	0.12	0.23	0.29	0.40	0.62	0.69	1.09	1.28	1.25	1.57	1.70	4.58	3.64	5.03
	ARC960D		10A	-	-	-	-	-	-	-	0.21	0.27	0.37	0.55	0.60	0.92	1.07	1.05	1.27	1.33	3.30	2.62	3.63
	ARC966D		16A	-	-	-	-	-	-	-	-	-	0.36	0.53	0.58	0.87	1.01	0.99	1.20	1.26	2.85	2.29	3.12
	ARC970D		20A	-	-	-	-	-	-	-	-	-	-	0.50	0.55	0.82	0.94	0.92	1.11	1.16	2.36	1.92	2.56
	ARC975D		25A	-	-	-	-	-	-	-	-	-	-	-	0.53	0.79	0.91	0.89	1.07	1.11	2.19	1.79	2.38
AFDD **ARCxxx** 1Ph+N B	**ARC506D**	10kA	6A	-	-	-	-	-	-	0.12	0.23	0.29	0.40	0.62	0.69	1.09	1.27	1.25	1.57	1.69	4.57	3.64	5.03
	ARC510D		10A	-	-	-	-	-	-	-	0.22	0.27	0.37	0.55	0.61	0.93	1.08	1.06	1.29	1.35	3.10	2.53	3.38
	ARC516D		16A	-	-	-	-	-	-	-	-	-	0.36	0.53	0.58	0.88	1.02	1.01	1.22	1.27	2.73	2.24	2.96
	ARC520D		20A	-	-	-	-	-	-	-	-	-	-	0.50	0.55	0.83	0.95	0.94	1.13	1.17	2.33	1.93	2.52
	ARC525D		25A	-	-	-	-	-	-	-	-	-	-	0.49	0.54	0.81	0.93	0.91	1.10	1.14	2.14	1.81	2.30
AFDD **ARCxxx** 1Ph+N C	**ARC556D**	10kA	6A	-	-	-	-	-	-	0.12	0.23	0.29	0.40	0.62	0.69	1.09	1.28	1.25	1.56	1.68	4.12	3.35	4.48
	ARC560D		10A	-	-	-	-	-	-	-	0.21	0.27	0.37	0.55	0.60	0.92	1.07	1.05	1.27	1.33	3.04	2.47	3.31
	ARC566D		16A	-	-	-	-	-	-	-	-	-	0.36	0.53	0.58	0.87	1.01	0.99	1.20	1.26	2.68	2.20	2.90
	ARC570D		20A	-	-	-	-	-	-	-	-	-	-	0.50	0.55	0.82	0.94	0.92	1.11	1.16	2.25	1.88	2.43
	ARC575D		25A	-	-	-	-	-	-	-	-	-	-	-	0.53	0.79	0.91	0.89	1.07	1.11	2.12	1.76	2.29

Upstream

Downstream		**Max Values (kA)**	**x160** 18/25/40kA TM **HDA**											**x250** 25/40kATM					**H250** 50/70kA LSI		
		I_n	16A	20A	25A	32A	40A	50A	63A	80A	100A	125A	160A	100A	125A	160A	200A	250A	40A	125A	250A
RCBO **ADA1**U** B Curve 10kA type A		6A	1.35	1.35	1.35	1.35	1.35	1.35	3.33	3.33	7.07	7.07	7.98	4.35	6.72	T	T	T	T	T	T
		10A	1.26	1.26	1.26	1.26	1.26	1.26	2.96	2.96	6.31	6.31	7.15	3.87	5.99	9.78	T	T	T	T	T
		16A	-	1.19	1.19	1.19	1.19	1.19	2.64	2.64	5.45	5.45	6.13	3.42	5.19	8.18	T	T	T	T	T
		20A		-	1.16	1.16	1.16	1.16	2.44	2.44	4.73	4.73	5.27	3.08	4.53	6.97	T	T	T	T	T
		25A			-	1.12	1.12	1.12	2.30	2.30	4.49	4.49	5.00	2.92	4.29	6.59	9.81	T	T	T	T
		32A				-	1.03	1.03	1.98	1.98	3.77	3.77	4.19	2.49	3.61	5.45	8.22	9.15	T	T	T
		40A					-	1.00	1.87	1.87	3.59	3.59	3.99	2.35	3.43	5.20	7.85	8.75	T	T	T
		45A						1.05	1.90	1.90	3.56	3.56	3.94	2.38	3.41	5.09	7.38	8.12	T	T	T
RCBO **ADA1**** C curve 10kA type A		6A	1.33	1.33	1.33	1.33	1.33	1.33	3.23	3.23	6.91	6.91	7.85	4.22	6.55	T	T	T	T	T	T
		10A	1.23	1.23	1.23	1.23	1.23	1.23	2.85	2.85	6.00	6.00	6.81	3.71	5.71	9.35	T	T	T	T	T
		16A	-	1.17	1.17	1.17	1.17	1.17	2.54	2.54	5.22	5.22	5.87	3.28	4.97	7.92	T	T	T	T	T
		20A			1.13	1.13	1.13	1.13	2.36	2.36	4.69	4.69	5.25	3.01	4.48	7.03	T	T	T	T	T
		25A			-	1.08	1.08	1.08	2.20	2.20	4.38	4.38	4.90	2.81	4.18	6.50	9.84	T	T	T	T
		32A					1.01	1.01	1.90	1.90	3.65	3.65	4.06	2.40	3.50	5.30	7.96	8.85	T	T	T
		40A						0.97	1.80	1.80	3.42	3.42	3.79	2.26	3.27	4.92	7.25	8.03	T	T	T
		45A						1.02	1.81	1.81	3.40	3.40	3.76	2.27	3.26	4.86	7.13	7.92	T	T	T

Upstream

Max Values (kA)		x160 18 / 25 / 40kA TM											x250 25 / 40kA TM					H250 25 / 50 / 65kA TM									H250 50 / 70kA LSI		
	I_n	16A	20A	25A	32A	40A	50A	63A	80A	100A	125A	160A	100A	125A	160A	200A	250A	20	32	50	63	100	125	160	200	250	40A	125A	250A
NBN B curve	6A	1.20	1.63	2.22	3.13	4.26	5.81	7.92	T	T	T	T	T	T	T	T	T	1.63	2.22	3.13	4.26	5.81	7.92	T	T	T	T	T	T
	10A	1.11	1.52	2.07	2.91	3.97	5.41	7.35	T	T	T	T	T	T	T	T	T	1.52	2.07	2.91	3.97	5.41	7.35	T	T	T	T	T	T
	16A	-	1.34	1.83	2.59	3.54	4.83	6.61	8.97	T	T	T	9.94	T	T	T	T	1.34	1.83	2.59	3.54	4.83	6.61	T	T	T	T	T	T
	20A	-	-	1.70	2.40	3.27	4.46	6.13	8.38	T	T	T	9.30	T	T	T	T	-	1.70	2.40	3.27	4.46	6.13	T	T	T	T	T	T
	25A	-	-	-	2.24	3.04	4.13	5.68	7.73	T	T	T	8.56	T	T	T	T	-	-	2.24	3.04	4.13	5.68	T	T	T	-	T	T
	32A	-	-	-	-	2.74	3.73	5.14	7.03	9.30	9.30	T	7.77	T	T	T	T	-	-	-	2.74	3.73	5.14	T	T	T	-	T	T
	40A	-	-	-	-	-	3.33	4.57	6.32	8.36	8.36	9.06	6.99	9.24	T	T	T	-	-	-	-	3.33	4.57	T	T	T	-	T	T
	50A	-	-	-	-	-	-	4.01	5.57	7.42	7.42	8.04	6.20	8.19	T	T	T	-	-	-	-	-	4.01	T	T	T	-	T	T
	63A	-	-	-	-	-	-	-	4.78	6.45	6.45	6.99	5.34	7.13	9.68	T	T	-	-	-	-	-	-		T	T	-	T	T
NCN C curve	0,5A	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	1A	2.05	6.26	T	T	T	T	T	T	T	T	T	T	T	T	T	T	6.26	T	T	T	T	T	T	T	T	T	T	T
	2A	0.56	2.46	8.16	T	T	T	T	T	T	T	T	T	T	T	T	T	2.46	T	T	T	T	T	T	T	T	T	T	T
	3A	-	-	1.28	3.81	8.22	T	T	T	T	T	T	T	T	T	T	T	-	3.81	T	T	T	T	T	T	T	T	T	T
	4A	-	-	0.79	2.88	7.43	T	T	T	T	T	T	T	T	T	T	T	-	2.88	T	T	T	T	T	T	T	T	T	T
	6A	-	-	-	0.81	1.78	3.89	7.47	T	T	T	T	T	T	T	T	T	-	0.81	3.89	7.47	T	T	T	T	T	T	T	T
	10A	-	-	-	0.67	1.34	2.69	5.53	9.18	T	T	T	T	T	T	T	T	-	0.67	2.69	5.53	T	T	T	T	T	T	T	T
	16A	-	-	-	0.58	0.97	1.63	2.79	4.87	7.76	7.76	8.79	5.86	9.06	T	T	T	-	0.58	1.63	2.79	5.86	9.06	T	T	T	-	T	T
	20A	-	-	-	0.56	0.91	1.50	2.50	4.25	6.80	6.80	7.65	5.08	7.87	T	T	T	-	0.56	1.50	2.50	5.08	7.87	T	T	T	-	T	T
	25A	-	-	-	0.54	0.88	1.44	2.39	4.05	6.48	6.48	7.25	4.83	7.45	T	T	T	-	0.54	1.44	2.39	4.83	7.45	T	T	T	-	T	T
	32A	-	-	-	-	0.84	1.37	2.26	3.80	6.12	6.12	6.79	4.52	6.96	T	T	T	-	-	1.37	2.26	4.52	6.96	T	T	T	-	T	T
	40A	-	-	-	-	-	1.31	2.13	3.50	5.56	5.56	6.29	4.13	6.46	9.78	T	T	-	-	1.31	2.13	4.13	6.46	9.78	T	T	-	T	T
	50A	-	-	-	-	-	-	1.99	3.23	5.07	5.07	5.78	3.80	5.96	8.66	T	T	-	-	-	1.99	3.80	5.96	8.66	T	T	-	-	T
	63A	-	-	-	-	-	-	-	3.11	4.85	4.85	5.51	3.65	5.68	8.29	T	T	-	-	-	-	3.65	5.68	8.29	T	T	-	-	T
NDN D curve	0,5A	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	1A	-	2.94	T	T	T	T	T	T	T	T	T	T	T	T	T	T	2.94	T	T	T	T	T	T	T	T	T	T	T
	2A	-	1.41	9.75	T	T	T	T	T	T	T	T	T	T	T	T	T	1.41	T	T	T	T	T	T	T	T	T	T	T
	3A	-	-	0.84	3.54	8.47	T	T	T	T	T	T	T	T	T	T	T	-	3.54	T	T	T	T	T	T	T	T	T	T
	4A	-	-	0.66	2.58	7.29	T	T	T	T	T	T	T	T	T	T	T	-	2.58	T	T	T	T	T	T	T	T	T	T
	6A	-	-	-	0.70	1.61	3.69	7.40	T	T	T	T	T	T	T	T	T	-	0.70	3.69	7.40	T	T	T	T	T	T	T	T
	10A	-	-	-	0.63	1.25	2.47	5.00	8.48	T	T	T	9.90	T	T	T	T	-	0.63	2.47	5.00	9.90	T	T	T	T	-	T	T
	16A	-	-	-	0.56	0.95	1.62	2.81	4.96	7.83	7.83	8.83	6.00	9.09	T	T	T	-	0.56	1.62	2.81	6.00	9.09	T	T	T	-	T	T
	20A	-	-	-	0.54	0.89	1.47	2.47	4.24	6.74	6.74	7.52	5.07	7.72	T	T	T	-	0.54	1.47	2.47	5.07	7.72	T	T	T	-	T	T
	25A	-	-	-	0.52	0.85	1.39	2.32	3.93	6.32	6.32	7.05	4.68	7.24	T	T	T	-	0.52	1.39	2.32	4.68	7.24	T	T	T	-	-	T
	32A	-	-	-	-	0.83	1.34	2.18	3.62	5.82	5.82	6.52	4.30	6.68	T	T	T	-	-	1.34	2.18	4.30	6.68	T	T	T	-	-	T
	40A	-	-	-	-	-	1.26	2.04	3.33	5.28	5.28	6.02	3.93	6.18	9.25	T	T	-	-	1.26	2.04	3.93	6.18	9.25	T	T	-	-	T
	50A	-	-	-	-	-	-	1.94	3.11	4.85	4.85	5.51	3.65	5.68	8.29	T	T	-	-	-	1.94	3.65	5.68	8.29	T	T	-	-	-
	63A	-	-	-	-	-	-	-	2.93	4.49	4.49	5.08	3.41	5.24	7.77	9.58	T	-	-	-	-	3.41	5.24	7.77	9.58	T	-	-	-
HMC / HMF C curve	80A	-	-	-	-	-	-	-	-	3.29	3.29	3.65	2.61	3.74	5.58	7.03	7.51	-	-	-	-	2.61	3.74	5.58	7.03	7.51	-	T	T
	100A	-	-	-	-	-	-	-	-	-	3.29	3.65	-	3.74	5.58	7.03	7.51	-	-	-	-	-	3.74	5.58	7.03	7.51	-	T	T
	125A	-	-	-	-	-	-	-	-	-	-	3.65	-	-	5.58	7.03	7.51	-	-	-	-	-	-	5.58	7.03	7.51	-	-	T
HMD D curve	80A	-	-	-	-	-	-	-	-	3.25	3.25	3.52	2.71	3.59	4.90	5.86	6.27	-	-	-	-	2.71	3.59	4.90	5.86	6.27	-	T	T
	100A	-	-	-	-	-	-	-	-	-	-	-	-	-	4.90	5.86	6.27	-	-	-	-	-	-	4.90	5.86	6.27	-	-	T
	125A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.86	6.27	-	-	-	-	-	-	-	5.86	6.27	-	T	T

Downstream

Upstream

Max. values (kA)		x160 TM 18 / 25 kA								x250 TM 25 / 40 kA								h250 TM 25 / 50 / 65 kA								h250 LSI 70 kA				h630 LSI 50 / 70 kA				h1000 LSI 50 / 70 kA				h1600 LSI 50 / 70 kA	
	In (A)	16	20	25	32	40	50	63	80	100	125	160	200	250	20	32	50	63	100	125	160	200	250	40	125	250	40	125	250	400	630	630	800	1000	1250	1600	1250	1600
Downstream																																							
x160TM 18 / 25 kA	16	-	-	-	-	-	-	2	2	2.9	2.9	3	2.15	5.4	-	-	-	1.2	2.15	2.9	4.1	5.6	5.4	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	20	-	-	-	-	-	-	2	2	2.9	2.9	3	2.15	5.4	-	-	-	1.2	2.15	2.9	4.1	5.6	5.4	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	25	-	-	-	-	-	-	2	2	2.9	2.9	3	2.15	5.4	-	-	-	1.2	2.15	2.9	4.1	5.6	5.4	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	32	-	-	-	-	-	-	1.8	1.8	2.6	2.6	2.7	2	4.8	-	-	-	1.15	2	2.6	3.6	5	4.8	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	40	-	-	-	-	-	-	1.6	1.6	2.35	2.35	2.4	1.8	4.2	-	-	-	1.1	1.8	2.35	3.3	4.3	4.2	-	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	50	-	-	-	-	-	-	1.6	1.6	2.35	2.35	2.4	1.8	4.15	-	-	-	1.1	1.8	2.35	3.15	4.25	4.15	-	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	63	-	-	-	-	-	-	-	-	2.15	2.15	2.2	1.7	3.9	-	-	-	-	1.7	2.15	3	4.05	3.9	-	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	80	-	-	-	-	-	-	-	-	2.15	2.15	2.2	1.7	3.8	-	-	-	-	1.7	2.15	2.9	3.9	3.8	-	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	100	-	-	-	-	-	-	-	-	-	-	2.1	-	3.6	-	-	-	-	-	1.95	2.75	3.7	3.6	-	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	125	-	-	-	-	-	-	-	-	-	-	2.1	-	3.4	-	-	-	-	-	-	2.65	3.5	3.4	-	1.65	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	160	-	-	-	-	-	-	-	-	-	-	-	-	3.35	-	-	-	-	-	-	-	3.45	3.35	-	-	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
x250 TM 25 / 40kA	100	-	-	-	-	-	-	-	-	-	1.95	2.5	3.15	3.3	-	-	-	-	-	1.95	2.5	3.15	3	-	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	125	-	-	-	-	-	-	-	-	-	-	2.5	3.15	3.3	-	-	-	-	-	-	2.5	3.15	3	-	1.65	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	160	-	-	-	-	-	-	-	-	-	-	-	3.15	3.3	-	-	-	-	-	-	-	3.15	3	-	-	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	200	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	3	-	-	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.25	T	T	T	T	T	T	T	T	T	T	T	T	T	T
h250TM 25 / 50 / 65kA	20	-	-	-	-	-	-	-	-	-	-	-	-	3.3	-	0.41	0.6	1	1.55	1.95	2.5	3.15	3	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	32	-	-	-	-	-	-	-	-	-	-	-	-	3.3	-	-	0.6	1	1.55	1.95	2.5	3.15	3	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	50	-	-	-	-	-	-	-	-	-	-	-	-	3.3	-	-	-	1	1.55	1.95	2.5	3.15	3	-	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	63	-	-	-	-	-	-	-	-	-	-	-	-	3.3	-	-	-	-	1.55	1.95	2.5	3.15	3	-	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	100	-	-	-	-	-	-	-	-	-	-	-	-	3.3	-	-	-	-	-	1.95	2.5	3.15	3	-	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	125	-	-	-	-	-	-	-	-	-	-	-	-	3.3	-	-	-	-	-	-	2.5	3.15	3	-	1.65	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	160	-	-	-	-	-	-	-	-	-	-	-	-	3.3	-	-	-	-	-	-	-	3.15	3	-	-	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	200	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	3	-	-	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.25	T	T	T	T	T	T	T	T	T	T	T	T	T
h250LSI 70kA	40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.63	3.25	T	T	T	T	T	T	T	T	T	T
	125	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.25	T	T	T	T	T	T	T	T	T	T
	250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	T	T	T	T	T	T	T	T	T	T
h630LSI 50 / 70kA	250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	T	T	T	T	T	T	T	T	T
	400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	T	T	T	T	T	T	T	T	T
	630	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	T	T	T	T	T	T	T	T
h1000LSI 50 / 70kA	630	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	T	T	T	T	T	T	T	T
	800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	T	T	T	T	T	T	T
	1000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	T	T	T	T	T	T
h1600LSI 50 / 70kA	1250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	T	-	-	-	T
	1600	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Data is subject to errors and technical modifications.

Upstream

Downstream	**Max Values (kA)**	IEC60898-1	I_{cn}	I_n max	**x160** 18/25/40kA TM											**x250** 25/40kA TM				
					16A	20A	25A	32A	40A	50A	63A	80A	100A	125A	160A	100A	125A	160A	200A	250A
	AFDD **ARCxxx** 1Ph+N B	**ARC906D**	6kA	6A	1.89	1.89	1.89	1.89	1.89	1.89	T	T	T	T	T	T	T	T	T	T
		ARC910D		10A	1.42	1.42	1.42	1.42	1.42	1.42	3.90	3.90	T	T	T	5.25	T	T	T	T
		ARC916D		16A	-	1.33	1.33	1.33	1.33	1.33	3.34	3.34	T	T	T	4.44	T	T	T	T
		ARC920D		20A	n/a	-	1.23	1.23	1.23	1.23	2.76	2.76	T	T	T	3.61	5.58	T	T	T
		ARC925D		25A	n/a	n/a	-	1.20	1.20	1.20	2.47	2.47	4.80	4.80	5.35	3.13	4.59	T	T	T
	AFDD **ARCxxx** 1Ph+N C	**ARC956D**	6kA	6A	1.85	1.85	1.85	1.85	1.85	1.85	5.29	5.29	T	T	T	T	T	T	T	T
		ARC960D		10A	1.40	1.40	1.40	1.40	1.40	1.40	3.81	3.81	T	T	T	5.15	T	T	T	T
		ARC966D		16A	-	1.32	1.32	1.32	1.32	1.32	3.27	3.27	T	T	T	4.35	T	T	T	T
		ARC970D		20A	n/a	-	1.21	1.21	1.21	1.21	2.68	2.68	T	T	T	3.49	5.36	T	T	T
		ARC975D		25A	n/a	n/a	-	1.16	1.16	1.16	2.49	2.49	5.24	5.24	T	3.24	4.98	T	T	T
	AFDD **ARCxxx** 1Ph+N B	**ARC506D**	10kA	6A	1.84	1.84	1.84	1.84	1.84	1.84	5.28	5.28	T	T	T	7.12	T	T	T	T
		ARC510D		10A	1.42	1.42	1.42	1.42	1.42	1.42	3.53	3.53	7.50	7.50	8.48	4.61	7.12	T	T	T
		ARC516D		16A	-	1.33	1.33	1.33	1.33	1.33	3.08	3.08	6.35	6.35	7.14	3.99	6.05	T	T	T
		ARC520D		20A	n/a	-	1.23	1.23	1.23	1.23	2.62	2.62	5.21	5.21	5.83	3.35	4.98	7.72	T	T
		ARC525D		25A	n/a	n/a	-	1.20	1.20	1.20	2.38	2.38	4.42	4.42	4.88	2.97	4.24	6.28	8.97	T
	AFDD **ARCxxx** 1Ph+N C	**ARC556D**	10kA	6A	1.81	1.81	1.81	1.81	1.81	1.81	4.69	4.69	T	T	T	6.14	9.52	T	T	T
		ARC560D		10A	1.40	1.40	1.40	1.40	1.40	1.40	3.46	3.46	7.40	7.40	8.37	4.53	7.03	T	T	T
		ARC566D		16A	-	1.32	1.32	1.32	1.32	1.32	3.03	3.03	6.24	6.24	7.02	3.91	5.94	9.43	T	T
		ARC570D		20A	n/a	-	1.21	1.21	1.21	1.21	2.53	2.53	4.94	4.94	5.51	3.21	4.72	7.25	T	T
		ARC575D		25A	n/a	n/a	-	1.16	1.16	1.16	2.39	2.39	4.72	4.72	5.28	3.04	4.51	6.97	T	T

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