Commercial Distribution

Solutions for commercial & industrial premises

The specialist for electrical installations

Since 1955 we have been the specialist for electrical installations in the residential and commercial sectors. Providing everything from one source: systems and solutions with high quality, tried and tested reliability and ease of installation included as standard.

As an independent family-owned and run company Hager Group is one of the industry's leading innovators. With 11,650 employees globally, our components and solutions are produced in 28 different locations to support our customers projects in more than 125 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 9001:2008 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 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'.

A service geared to your on site needs

From pre-assembled standard distribution units to bespoke composite TP&N boards, and plug in distribution boards Hager can provide the solution, and we will deliver to site, to an agreed deadline and to specification. All the power of an experienced design engineering team and an ISO 9001:2008 manufacturing plant is just a telephone call away.

As client requirements become more sophisticated, demands on electrical installation designs have increased. Many electrical distribution solutions require something that cannot be purchased off the shelf.

Whether it is an unusual configuration or simply speed on site that is an issue, Hager's engineered solutions supplies the answer. This Engineered Solutions service puts the power of our design engineers at your fingertips. You give us the specification and we will deliver what you need with the peace of mind of factory assured quality to ISO 9001:2008.

Metering
The Hager lighting and power meter board is a compact solution to meet the demands of energy metering within non-dwelling buildings. The standard power and lighting board is available in this catalogue and comes in numerous variants to meet the majority of applications.

However for special applications we also offer our full-engineered solutions design and build service. This service can also provide additional features such as data logging and web connectivity for remote meter reading.

1

Pre-assembled standard distribution board
Factory assembly of standard distribution boards with standard incoming and outgoing devices. Providing the installer with all of the products factory assembled and ready for cabling.

2

Engineered Consumer Units
Factory assembly of non-standard consumer units, special configurations in standard enclosures or metal DIN rail enclosures. Providing an exact product that meets the requirements of your particular installation needs.

Pluggable and metered consumer units are also an option. With pluggable consumer units circuit breakers are wired to sockets fitted into the enclosure enabling final circuit cabling to be simply plugged in.

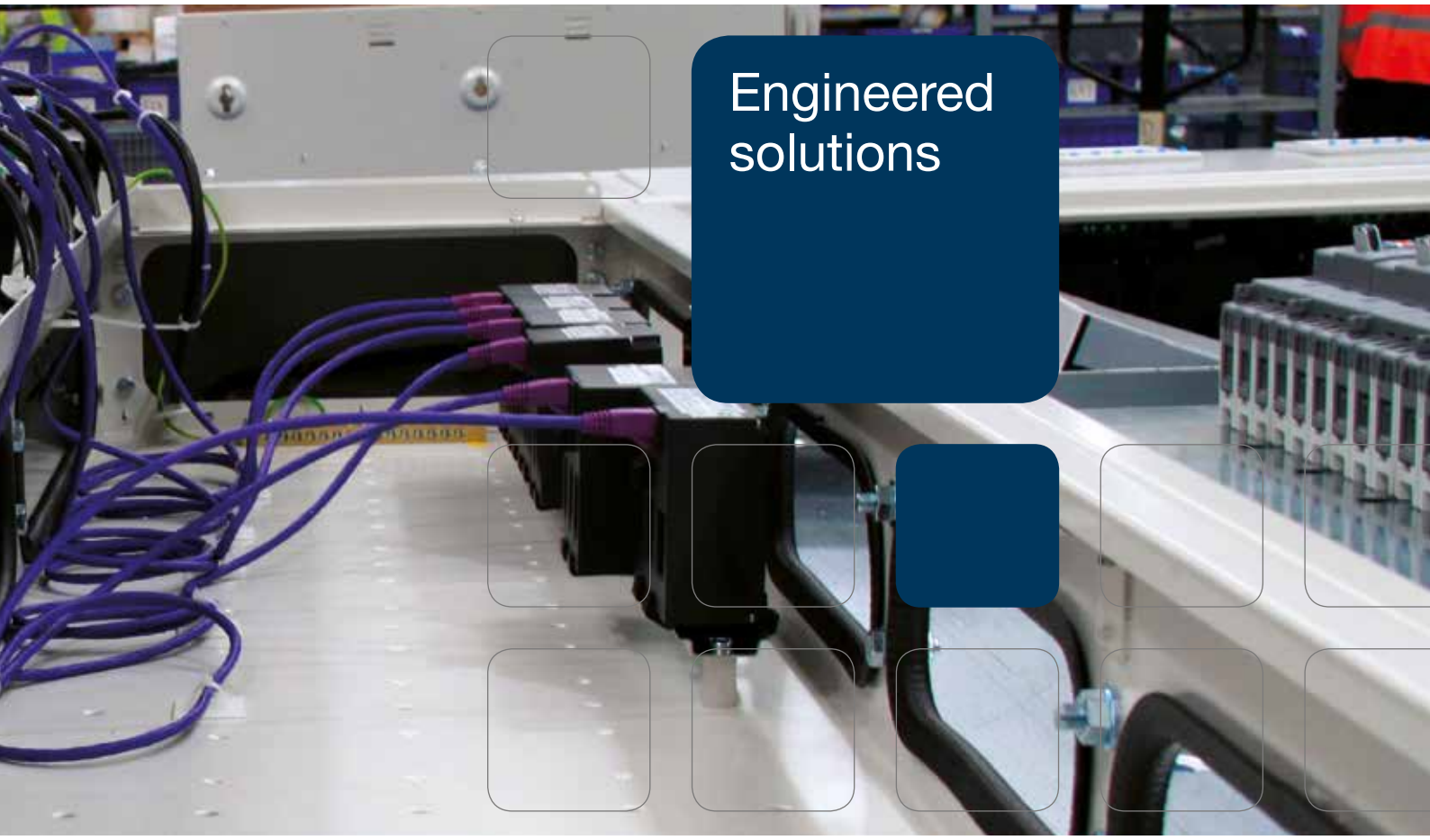
3

Bespoke composite system
Factory prepared distribution boards ready for assembly on site with apertures pre-cut to allow cable access between the various enclosures, combining Panelboards and TP&N boards into bespoke composite panels.

Standard metal distribution boards designed to accommodate customer specified OEM equipment.

To learn more about our engineered solutions offer, please contact us:

Technical Service Centre Call our Technical Services Centre for all your national sales enquiries.	**01952 675600** estimation@hager.co.uk
Technical Service Centre Faxline	**01952 675557**



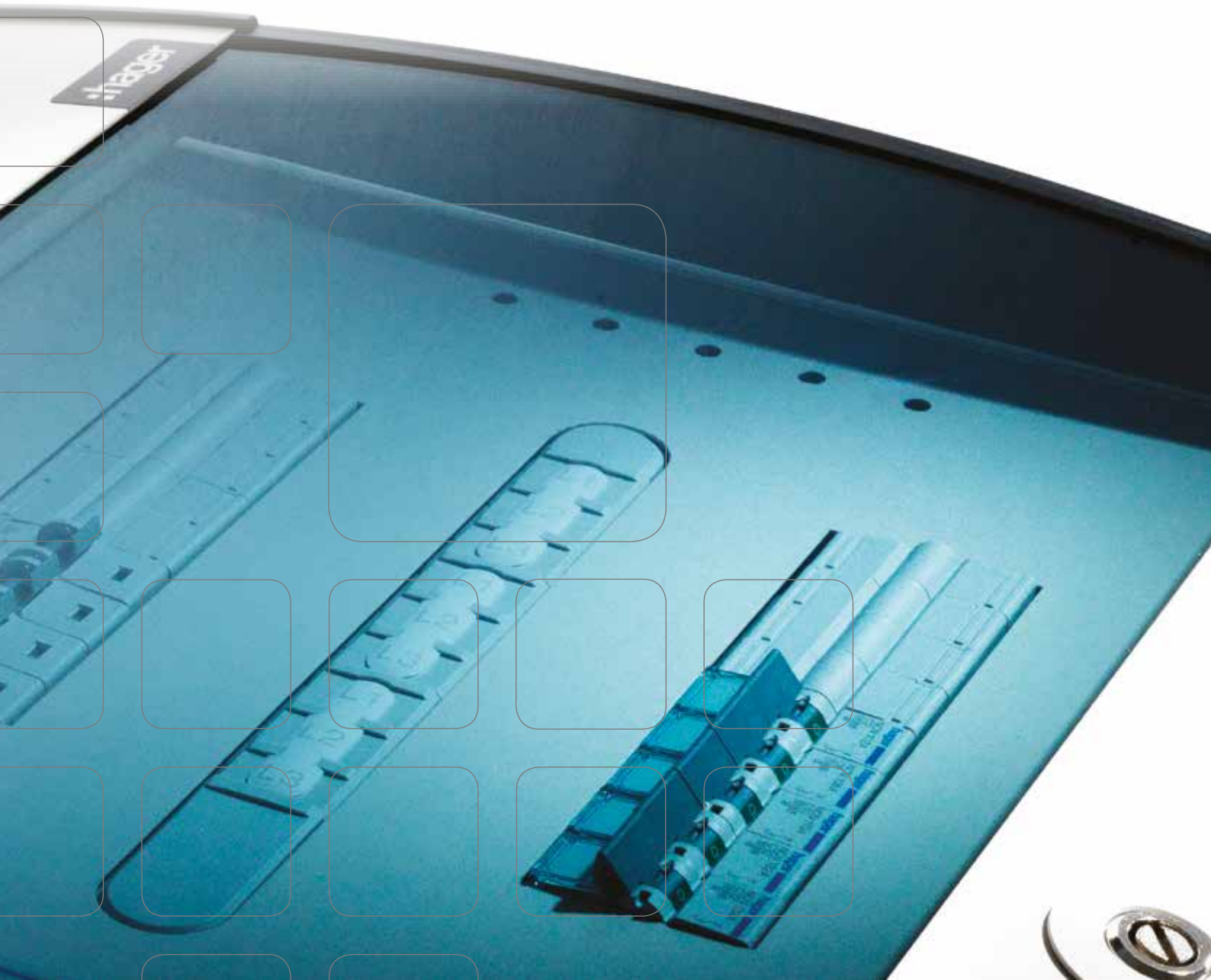
Engineered solutions

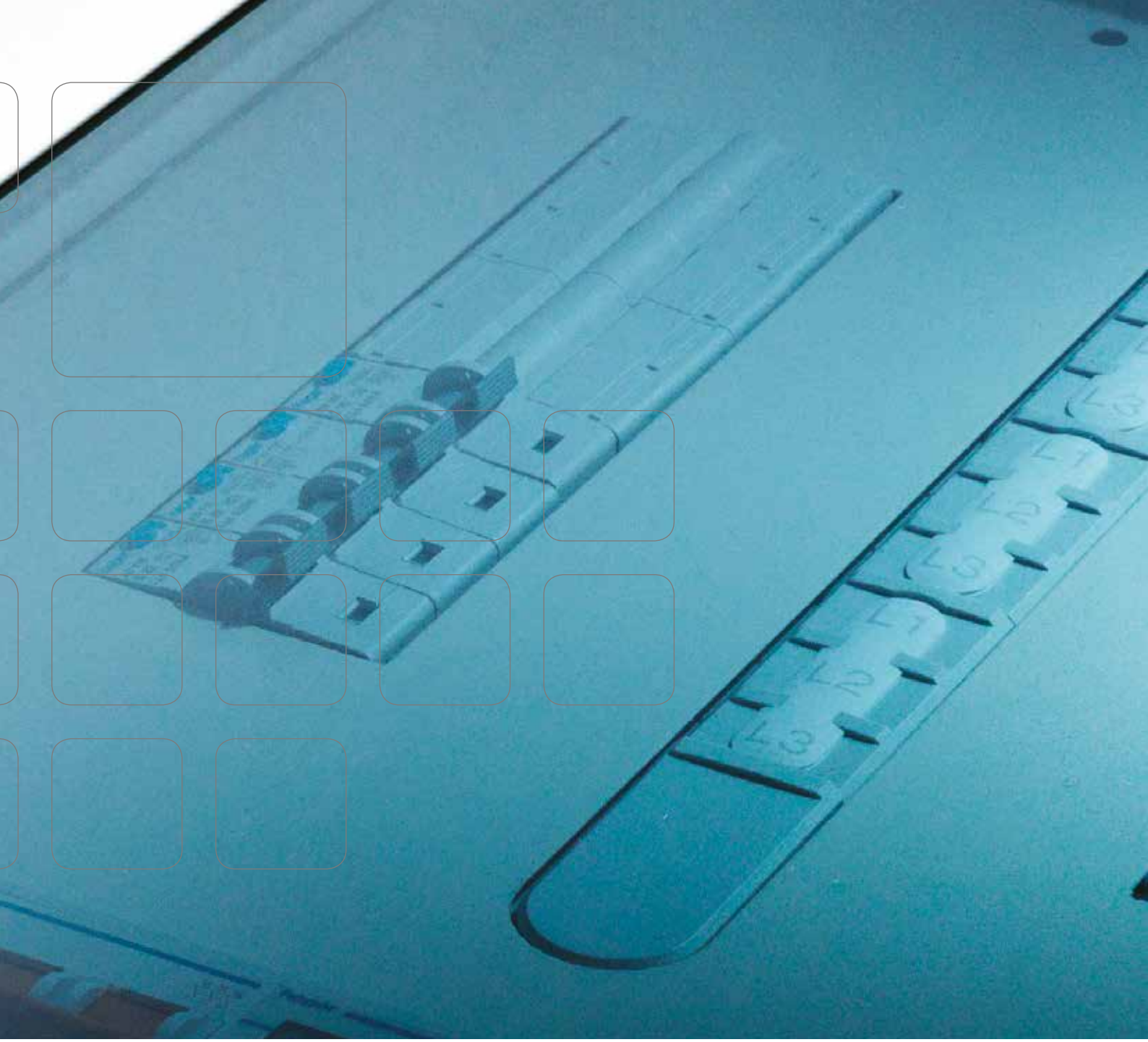
Commercial Distribution

The complete service offering

Our range of commercial electrical distribution assemblies cover A & B boards through to panelboards and metering solutions.

To support this range, we also offer enclosed fuse combination switches, enclosed switch disconnectors and enclosed MCCBs.





Invicta 3
Type 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.

Full of features

1 **Simple cable entry**
The unique patented trunking and cable entry facility means there is no need to use paxolin. Cable protection is built into the endplate cable entry.

2 **Ease of metering**
Metering can be installed next to the incoming device. Power and lighting and power, lighting and services metered boards are also available.

3 **The neutral bars**
Transparent IP2X neutral cover allows for ease of cable installation. Screws fully turned down for easy and fast cabling.

The benefits:

Clear labelling
Ease of line identification L1, L2, L3 mouldings show through when front cover is fitted.

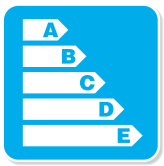
Glazed door
The Invicta 3 distribution board is arguably the best looking board on the market. Its glazed door allows a visual check of the devices without the need to open the door.

Electrical distribution is at the heart of a buildings services. Distribution boards must enable designs that meet the demands of the client, the need for more metering and the demands for energy efficient solutions through control devices or building management systems.

Invicta 3 is the perfect solution for these needs. Our range of Type B boards makes it easier for you to design and install electrical distribution systems that meet the needs of today and the future.

Metered Power & Lighting Boards

A compact solution to meet modern demands



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.

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.

Choice

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

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.

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.

Part L2 Explained

Metering energy use in new non-dwelling buildings

Guidance on metering energy use in new non-domestic buildings is provided in the approved documents L2A (Building Regulations) and the Non-Domestic Building Services Compliance Guide.

These are intended to provide guidance for some of the more common building situations. However, there may well be alternative ways of achieving compliance with the requirements.

Thus there is no obligation to adopt any particular solution contained in an Approved Document if you prefer to meet the relevant requirement in some other way.

As the building regulations are non-prescriptive, the approved documents are published to offer methods of compliance.

Meeting the requirements

There is a greater demand for off-the-shelf solutions that make the selection and installation of the distribution boards quick and easy.

The requirements for monitoring the energy metering are not always known.

- With a combined Pulsed/Modbus output meter, it can't be easier when selecting the right meter for your next job.
- This dual output enables straightforward integration to a network/building management system.

Optimised size (height & width) to meet your buildings design

- The Hager power and lighting board range is optimised for size between the two offers, maximising cable space with the deepest base (165.5mm) and a width that does not compromise room for cables

Need for an extended range to suit more applications

- With a wide range containing options to suit most applications and the only 12+12 configuration in vertical stack variant. There is a power and lighting board for every application.

The complete product from one reference

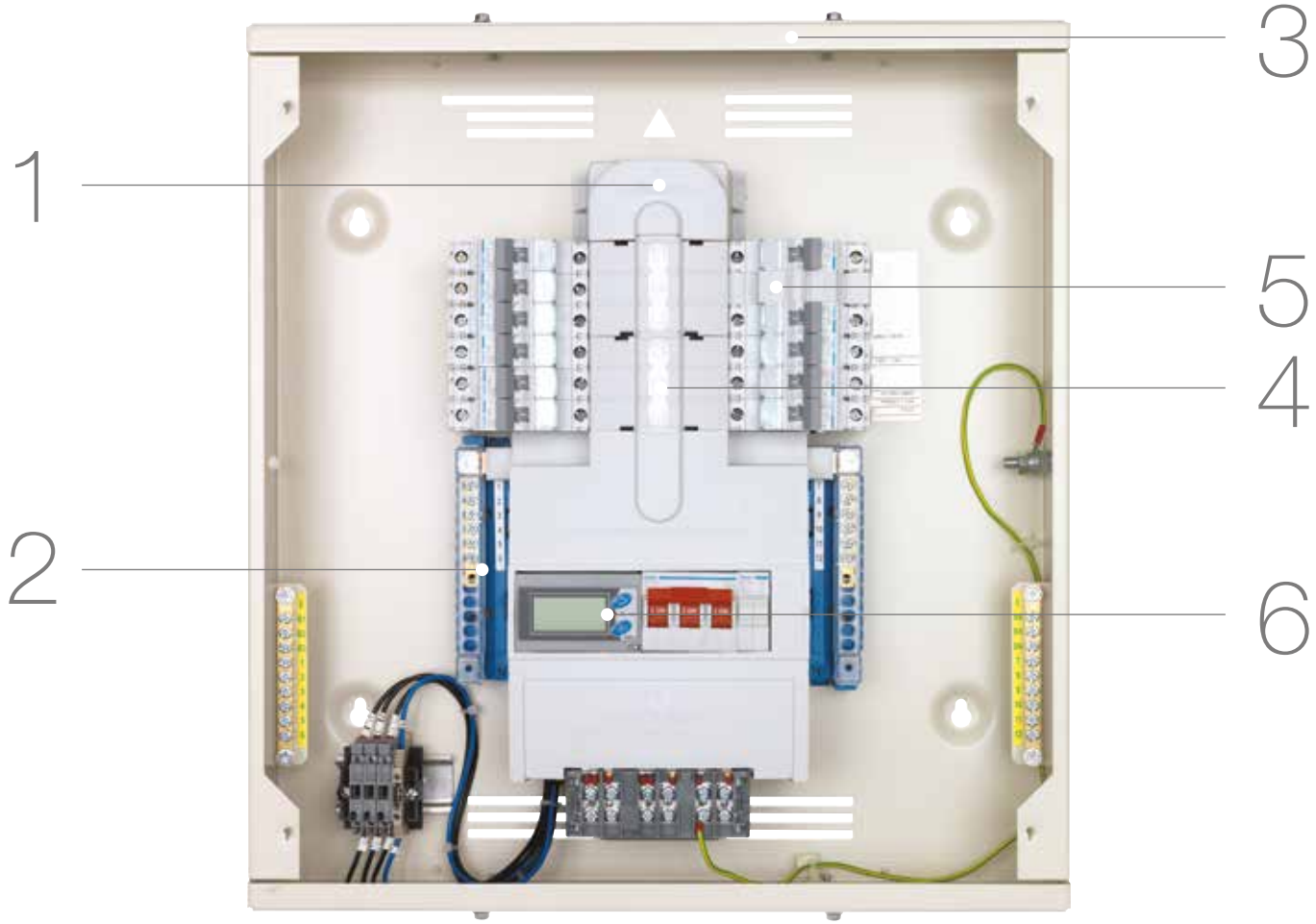
- With a pre-installed incomer and metering this our meter power & lighting and power, lighting and service board allow you to simply install the board and fit your outgoing circuit protection without the need to identify all of the component parts prior to ordering and removes the need for on-site assembly.

Invicta 3 Type B Boards

Meeting the needs of the 17th Edition

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.



The advantages for you:

- Flush coupling to trunking and a smooth entry for cables to meet the requirements of the regulations thanks to the cable entry end plate.
- The earth and neutral bars are positioned and designed for simpler installation.
- The neutral bars have transparent IP2X shrouding to make cabling easier.
- The metering kits fit directly into the main board saving space and the expense of buying additional extension boxes.
- Glazed door for great aesthetics and meeting the regulations.

Technical data:

- Complies with BS EN 60439-3.
- 125 Amp and 250 Amp rating, 230 / 400 V AC.
- 4, 6, 8, 12, 16, 18 & 24 triple pole outgoing ways.
- IP3X.
- Obround protected cable entry points.
- Top and bottom removable gland plates.

Quick tips

1

Top tap off

100A top tap off allows for board extensions or MCB up to 100A with connection kit.

2

Shrouded neutral bar

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

3

Trunking entry

Unique trunking entry obround system top and bottom enables quick fitting to trunking and without the extra cost in time and materials.

4

Clear labelling

L1, L2, L3 on moulding are visible with and without the front cover fitted, which show through the cover for ease of line identification.

6

Metering

Metering is integral within the main board, meaning there is no need for additional extension boxes saving time and money.

Aesthetics

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

Choice

Two choices of boards - 125A and 250A.

JK106BG

Invicta 3 (125A Incoming 63A Outgoing)

Surface mounted steel enclosures, IP3X rated available with plain, glazed and Amendment 3 door options.

Fully shrouded copper busbar, rated 25kA short circuit conditional current.

Supplied without incoming and outgoing devices. A Hager incomer kit must be used.

For Amendment 3 door kit see page 20.

Incoming cable sizes
125A & 100A 50mm²
63A 25mm²

[1] A JK101SE is required to provide additional incoming cable space, see page 18.
[2] Full metal cover & door to comply with BS EN 61439-3 including annex ZB.

For dimensions see page 45.

Description	Cat ref. Plain door	Cat ref. Glazed door	Cat ref. Amd 3 Compliant
4 Triple Pole Ways 125A TP&N Board	**JK104B** [1]	**JK104BG** [1]	**JK104BA3** [2]
6 Triple Pole Ways 125A TP&N Board	**JK106B** [1]	**JK106BG** [1]	**JK106BA3** [2]
8 Triple Pole Ways 125A TP&N Board	**JK108B** [1]	**JK108BG** [1]	**JK108BA3** [2]
12 Triple Pole Ways 125A TP&N Board	**JK112B**	**JK112BG**	**JK112BA3** [2]
16 Triple Pole Ways 125A TP&N Board	**JK116B**	**JK116BG**	**JK116BA3** [2]
18 Triple Pole Ways 125A TP&N Board	**JK118B**	**JK118BG**	**JK118BA3** [2]
24 Triple Pole Ways 125A TP&N Board	**JK124B**	**JK124BG**	**JK124BA3** [2]

JKD1416PM

125A Metered Boards

Boards are supplied with a meter that offers a pulsed & modbus output.

Provided with meter and 125A incomer pre-fitted, housed in a 250A enclosure. Each individual pan is fully rated at 125A.

For dimensions see page 48.

Description	Max cable capacity solid	Lower pan ways	Upper pan ways	Cat ref.
4+6 Way Power & Lighting Board	50mm²	4	6	**JKD146PM**
6+6 Way Power & Lighting Board	50mm²	6	6	**JKD166PM**
6+4 Way Power & Lighting Board	50mm²	6	4	**JKD164PM**
6+8 Way Power & Lighting Board	50mm²	6	8	**JKD168PM**
8+8 Way Power & Lighting Board	50mm²	8	8	**JKD188PM**
8+6 Way Power & Lighting Board	50mm²	8	6	**JKD186PM**
4+16 Way Power & Lighting Board	50mm²	4	16	**JKD1416PM**
16+4 Way Power & Lighting Board	50mm²	16	4	**JKD1164PM**
8+12 Way Power & Lighting Board	50mm²	8	12	**JKD1812PM**
12+8 Way Power & Lighting Board	50mm²	12	8	**JKD1128PM**
12+12 Way Power & Lighting Board	50mm²	12	12	**JKD11212PM**

JK106BD

IP65 Distribution Boards

Suitable for three phase applications where a high IP rating is required. Available with either a steel (mild steel, powder coated) or GRP enclosure.

Supplied without incoming and outgoing devices. A Hager incomer kit must be used.

[3] Not suitable for outdoor use.

Available up to 125A direct connection with outgoing distribution, rated for MCBs from 0.5A to 63A.

Complies with BS EN 61439-3

Number of Ways	Cat ref. Steel	Cat ref. GRP
4 Way IP65 Metal 125A TPN Board 800 x 600 x 300	**JK104BD** [3]	**JK104BF**
6 Way IP65 Metal 125A TPN Board 800 x 600 x 300	**JK106BD** [3]	**JK106BF**
8 Way IP65 Metal 125A TPN Board 800 x 600 x 300	**JK108BD** [3]	**JK108BF**
12 Way IP65 Metal 125A TPN Board 950 x 600 x 300	**JK112BD** [3]	**JK112BF**
16 Way IP65 Metal 125A TPN Board 950 x 600 x 300	**JK116BD** [3]	**JK116BF**

MCBs & RCBOs for Invicta 3 Type B Distribution Boards

Cat ref.		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)	Single Pole	-	-	-	-	-	**ADB106**	**ADB110**
RCBO (C)	Single Pole	-	-	-	-	-	**ADC106**	**ADC110**

JK11003S

125A Incomer Kits

These incomer kits will only fit the 125A board(s)

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

[5] Fits within distribution board

Description	Max cable capacity solid	Cat ref.
3 Pole 100A Switch Disconnector Incomer Kit [5]	50mm²	**JK11003S**
4 Pole 100A Switch Disconnector Incomer Kit [5]	50mm²	**JK11004S**
3 Pole 125A Switch Disconnector Incomer Kit [5]	50mm²	**JK11253S**
4 Pole 125A Switch Disconnector Incomer Kit [5]	50mm²	**JK11254S**
4 Pole 63A Contactor Incomer Kit includes Switch Disconnector (fits below distribution board, 300mm high)	50mm²	**JK10634C** [4]
4 Pole 100A Contactor Incomer Kit includes Switch Disconnector (fits below distribution board, 450mm high)	M8 Lug	**JK11004C** [4]
125A Direct Connection Kit [5]	50mm²	**JK11254D**
4 Pole 63A 30mA RCCB Incomer Kit [5]	25mm²	**JK10634RH**
4 Pole 100A 30mA RCCB Incomer Kit [5]	50mm²	**JK11004RH**
4 Pole 100A 300mA RCCB Incomer Kit [5]	50mm²	**JK11004RL**
4 Pole 100A 300mA Time Delayed RCCB Incomer Kit [5]	50mm²	**JK11004RLD**
4 Pole 100A 100mA RCCB Incomer Kit [5]	50mm²	**JK11004RM**
4 Pole 100A 100mA Time Delayed RCCB Incomer Kit [5]	50mm²	**JK11004RMD**
125A 4 pole Changeover Incomer Kit	50mm²	**JK11254CO** [4]

JKD125PM (distribution boards not included*)

125A Meter Incomer Kits (note: these meter incomers will only fit the 125A board(s))

Each fully assembled meter pack contains:
1 x 125A incoming switch to accept up to 50mm² cable, lug connection, a single meter for dual, and two meters on the triple, CT blocks plus all necessary connections and 125A direct connection kits for each required TP&N board (note: these meter incomer kits will only fit the 125A board(s)).

For meter incomer kit dimensions see page 50.

*Distribution boards supplied separately to be assembled on site.

Description	Max cable capacity solid	Cat ref.
Dual kWh Meter Pack 125A Incomer Pulsed & Modbus	50mm²	**JKD125PM**
Triple kWh Meter Pack 125A Incomer Pulsed & Modbus	50mm²	**JKD125TPM**

JK140PM

125A Meter Packs (note: these meter packs will only fit the 125A board(s))

This kit fits into the main distribution board. (*When fitting a meter pack to a* JK104B(G) & JK106B(G)*, a JK101SE is required to provide additional incoming cable space).*

For sub billing metering applications please contact our Technical Service Centre on 01952 675 689.

Each meter pack contains: Meter, 3 Pole CT Block, 3 x Fuses & Carriers on DIN rail, Wiring Loom, Incoming Shroud, Instructions (including torque settings for electrical connections).

Description	Cat ref.
Multifunction Meter Pack 125A Pulsed & Modbus Pluggable Output	**JK140PM**

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**
ADB116	**ADB120**	**ADB125**	**ADB132**	**ADB140**	**ADB145**	**-**	**-**
ADC116	**ADC120**	**ADC125**	**ADC132**	**ADC140**	**-**	**-**	

JK208BG

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

Surface mounted steel enclosures. Enclosure IP: IP3X Enclosures are available with plain, glazed & Amendment 3 door options.

Fully shrouded copper busbar, rated 25kA short circuit conditional current.

Supplied without incoming and outgoing devices. A Hager incoming kit must be used.

[1] Full metal cover & door to comply with BS EN 61439-3 including annex ZB.

Complies with BS EN 61439-3
For dimensions see page 45.

Description	Cat ref. Plain door	Cat ref. Glazed door	Cat ref. AMD 3 Compliant
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]

JKD2884PM

200A Metered Boards

Boards are supplied with meters that offer a pulsed & modbus output.

Provided with the 200A incomer pre-fitted with ample cable space.

For technical characteristics and dimensions see page 48.

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	**JKD2884PM**

MCBs & RCBOs for Invicta 3 Type B Distribution Boards

Cat ref.		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)	Single Pole	-	-	-	-	-	**ADB106**	**ADB110**
RCBO (C)	Single Pole	-	-	-	-	-	**ADC106**	**ADC110**

250A Incomer Kits (note: these incomer kits will only fit the 250A board(s))

[2] A 450mm space is required below the board for fitting

[3] Fits within distribution board

Description	Max cable capacity solid	Cat ref.
3 Pole 250A MCCB Incomer Kit [3]	M8 Lug	**JK22503M**
4 Pole 250A MCCB Incomer Kit [3]	M8 Lug	**JK22504M**
3 Pole 250A Switch Disconnector Incomer Kit [3]	M8 Lug	**JK22503S**
4 Pole 250A Switch Disconnector Incomer Kit [3]	M8 Lug	**JK22504MCS**
4 Pole 250A Direct Connection Kit [3]	M8 Lug	**JK22504D**
4 Pole 160A Contactor Incomer Kit includes Switch Disconnector (fits below distribution board, 450mm high)	M8 Lug	**JK21604C** [2]
3 Pole 125A MCCB Incomer Kit [3]	M8 Lug	**JK21253M**
4 Pole 125A MCCB Incomer Kit [3]	M8 Lug	**JK21254M**

JKD250PM (distribution boards are not incldued*)

250A Meter Incomer Kits (note: these meter incomer kits will only fit the 250A board(s))

Each meter pack contains: 1 x Incoming 250A switch to accept up to 120mm² cable with lug connection, a single meter for dual, and two meters on the triple, CT blocks plus all necessary connections and 250A direct connection kits for each required TP&N board (note: these meter incomer kits will only fit the 250A board(s)).

For meter incomer kit dimensions see page 50.

*Distribution boards supplied separately to be assembled on site.

Description	Max cable capacity solid	Cat ref.
Dual kWh Meter Pack 250A Incomer Pulsed	M8 Lug	**JKD250PM**
Triple kWh Meter Pack 250A Incomer Pulsed & Modbus	M8 Lug	**JKD250TPM**

JK240PM

250A Meter Packs (note: these incomer kits will only fit the 250A board(s))

These kits fit into the main distribution board.

Each meter pack contains: Meter, 3 Pole CT Block, 3 x Fuses & Carriers on DIN rail, Wiring Loom, Incoming shroud, Instructions (including torque settings for electrical connections).

Description	Cat ref.
Multifunction Meter Pack 250A Pulsed & Modbus Pluggable Output	**JK240PM**

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**
ADB116	**ADB120**	**ADB125**	**ADB132**	**ADB140**	**ADB145**	**-**	**-**
ADC116	**ADC120**	**ADC125**	**ADC132**	**ADC140**	**-**	**-**	

JK116EG

DIN Extension Boxes for 125A Primary Boards

Extension boxes have plain or glazed doors and a DIN rail chassis for mounting modular devices.

Complies with BS EN 62208.

Full width enclosure provided with 16 modular ways per row.

For dimensions see page 46.

Description	Cat ref. Plain door	Cat ref. Glazed door
125A 16 Way 1 Row DIN Extension Box	**JK116E**	**JK116EG**
125A 32 Way 2 Row DIN Extension Box	**JK132E**	**JK132EG**
125A 16 Way 1 Row DIN Extension Box (Amendment 3)	**JK116EA3**	**-**

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**	**-**
125A 16 Mod DIN Plain Spare Door Kit (Amendment 3)	**JK116EA3-DK**	**-**
125A 32 Mod DIN Plain Spare Door Kit (Amendment 3)	**JK132EA3-DK**	**-**
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

Cable spreader boxes are used for additional cabling space therefore do not require doors.

If doors are desired optional door kits are available.

Complies with BS EN 62208

For dimensions see page 46.

Description	125A Cat ref.	250A Cat ref.
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**

JK104BDFG

Side DIN Boxes for 125A Primary Boards

Side extension boxes allow for the installation of DIN rail mounted modular devices.

Complies with BS EN 62208.

They can be horizontally or vertically attached to distribution boards.

All Side DIN Boxes supplied with 2x removable gland plates.

For dimensions see page 45.

Description	Number of Rows	Number of DIN Module Ways	Cat ref. Glazed door
32 Way Side DIN Box for JK104B	2	32	**JK104BDFG**
32 Way Side DIN Box for JK106B	2	32	**JK106BDFG**
48 Way Side DIN Box for JK108B	3	48	**JK108BDFG**
64 Way Side DIN Box for JK112B	4	64	**JK112BDFG**
80 Way Side DIN Box for JK116B	5	80	**JK116BDFG**

JK208BDFG

Side DIN Boxes for 250A Primary Boards

Description	Number of Rows	Number of DIN Module Ways	Cat ref. Glazed door
80 Way Side DIN Box for JK208B	5	80	**JK208BDFG**
80 Way Side DIN Box for JK212B	5	80	**JK212BDFG**
96 Way Side DIN Box for JK216B	6	96	**JK216BDFG**
112 Way Side DIN Box for JK218B	7	112	**JK218BDFG**
128 Way Side DIN Box for JK224B	8	128	**JK224BDFG**

JK104BSF

Side Extension Boxes for 125A Primary Boards

Side extension boxes allow cable ways to be fitted on site.

These are available in either half or full distribution board width.

Can be used with Invicta 3 Panelboards JN & JF.

All Side Extension Boxes supplied with 2x removable gland plates.

Complies with BS EN 62208.

For dimensions see page 47.

	Cat ref. Plain door
4 Way Side Extension Box for JK104B Full Width	**JK104BSF**
6 Way Side Extension Box for JK106B Full Width	**JK106BSF**
8 Way Side Extension Box for JK108B Full Width	**JK108BSF**
12 Way Side Extension Box for JK112B Full Width	**JK112BSF**
16 Way Side Extension Box for JK1116B Full Width	**JK116BSF**

Side Extension Boxes for 250A Primary Boards

	Cat ref. Plain door
8 Way Side Extension Box for JK208B Full Width	**JK208BSF**
12 Way Side Extension Box for JK212B Full Width	**JK212BSF**
16 Way Side Extension Box for JK216B Full Width	**JK216BSF**
18 Way Side Extension Box for JK218B Full Width	**JK218BSF**
24 Way Side Extension Box for JK224B Full Width	**JK224BSF**

JK104BSH

Half Width Side Extension Boxes for 125/250A Primary Boards (Doors are not available.)

	Cat ref. 125A	Cat ref 250A
4 Way Half Width Extension Box	**JK104BSH**	**-**
6 Way Half Width Extension Box	**JK106BSH**	**-**
8 Way Half Width Extension Box	**JK108BSH**	**JK208BSH**
12 Way Half Width Extension Box	**JK112BSH**	**JK212BSH**
16 Way Half Width Extension Box	**JK116BSH**	**JK216BSH**
18 Way Half Width Extension Box	**-**	**JK218BSH**
24 Way Half Width Extension Box	**-**	**JK224BSH**
Small Half Width Filler Box	**JK101BSH**	**JK201BSH**

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	**JK125BSP**	**JK250BSP**
Single Pole Busbar Blank	**JK01B**	**JK01B**
JK1/2 Horizontal or Vertical Mechanical Connection Kit	**JK100HK**	**JK100HK**
Brass Gland Plate - 2.0mm	**JK1PLATEB**	**JK2PLATEB**
100A Top Tap Off Kit	**JK100TAP**	**JK100TAP**
Triple pole 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 A3	**JK104BA3-DK**	**-**
6 Way TPN Plain Spare Door Kit A3	**JK106BA3-DK**	**-**
8 Way TPN Plain Spare Door Kit A3	**JK108BA3-DK**	**JK208BA3-DK**
12 Way TPN Plain Spare Door Kit A3	**JK112BA3-DK**	**JK212BA3-DK**
16 Way TPN Plain Spare Door Kit A3	**JK116BA3-DK**	**JK216BA3-DK**
18 Way TPN Plain Spare Door Kit A3	**JK118BA3-DK**	**JK218BA3-DK**
24 Way TPN Plain Spare Door Kit A3	**JK124BA3-DK**	**JK224BA3-DK**

JK06TK

Invicta 3 125A & 250A Trunking Kits and Spares

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

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

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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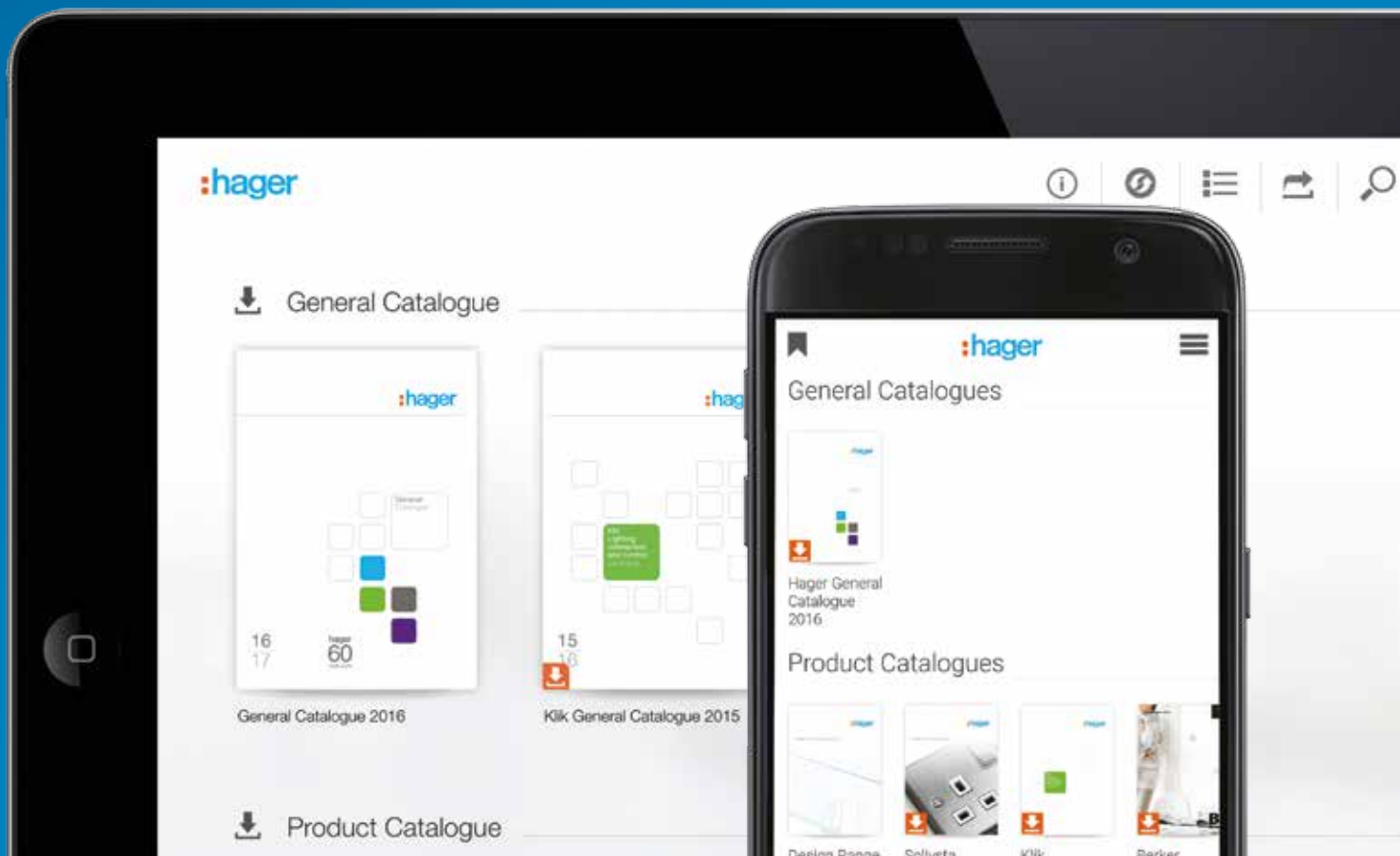


Invicta 3
Easy fit Panelboards

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 addition both the top and bottom gland plates are removable, so that the installer can prepare cable entries away from the board for convenience and to help prevent ingress of swarf and dust.

1 **Glazed door**
The glazed door allows devices to be viewed without opening the door.

2 **Key hole fixing point**
The key hole fixing points aid the installer when fitting the board to the wall, the central 5th triangle makes levelling easier.

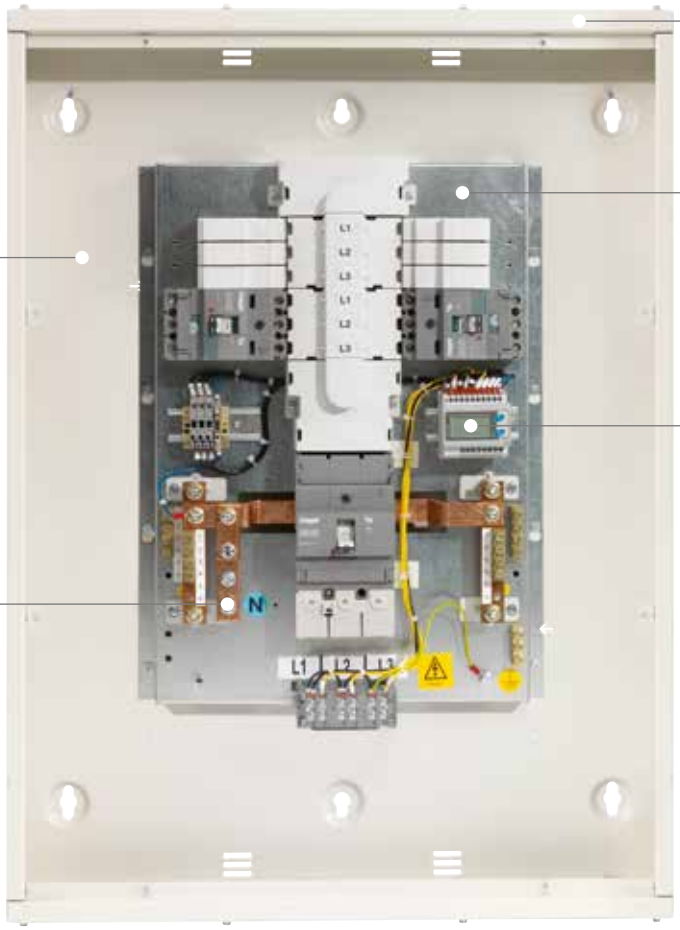
3 **Pre-wired meter packs**
Installer only has to fit the packs into the board. All internal wiring is included.

The Invicta 3 panelboard range is the most aesthetically pleasing available on the market. The glazed door, which is important not only aesthetically, but also because an ordinary person as defined by the 17th edition can view the board while it is still locked.

A wide range of accessories make the panelboards easy to adapt for onsite build and tailored solutions. These accessories include extension boxes, meter packs, DIN rail boxes and key locks.

Invicta 3 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.



The advantages for you:

- Flush coupling to trunking and a smooth entry for cables to meet the requirements of the regulations thanks to the cable entry end plate.
- The earth and neutral bars are positioned and deisgned for simpler installation.
- The metering kits fit directly into the main board saving space and saving you the expense of buying an extension box.
- Glazed door for great aesthetics and meeting the regulations.

Technical data:

- 250A, 400A, 630A & 800A rating.
- IP3X.
- Removable gland plates.

Quick tips

1

Twin earth and neutral bars

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

2

Generous cable space

Sufficient space for cable bending radii at the top, bottom and sides.

3

Removable gland plates

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

4

Pre-wired meter packs

Installer only has to fit the packs into the board. All internal wiring is included.

5

Removable pan assembly

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

6

The perfect match

The Invicta 3 panelboards have been designed to suite perfectly with the Invicta 3 Type B distribution boards.

7

Plain and Glazed Doors

The glazed door allows devices to be viewed without opening the door.

8

Accessories

Key lock, cable extension boxes, meter packs, DIN rail boxes. Invicta 3 panel boards are adaptable for contractor on site build and tailored solutions.

Specification
Complies with BS EN 61439-2.
Enclosure degree of protection: IP3X

Construction
Enclosures manufactured from 1.2mm DC01M cold reduced mild steel, phosphate pretreated and powder coated to 00A01 BS4800.

Internal separation Form 3A.
4, 6, 8, 12, 16 Triple Pole outgoing ways.

Cable Capacity Incomers
3 and 4 pole incomers.
Cable capacity 150mm^2
max lug width 25mm.
Direct connection kit.
M8 bolt.

Outgoers
1 & 3 pole MCCB 70mm^2 flexible.
1 & 3 pole MCCB 95mm^2 solid.

Busbar Ratings
Busbar rated current 250A continuous.
Busbar rated short-time withstand current 25kA for 1s direct connected (unconditional).

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

Each JN board is available with side cable entries to enable the fitting of the JN meter enclosures. Just add a 'CE' suffix. e.g. JN204BCE

Outgoing MCCBs
Adjustable thermal options on TP

Form 3B type 2 is achieved using the outgoing terminal shield.

For accessories see page 27.
For dimensions see page 53.

JN204BG

Invicta 3 Panelboards (250A Incoming 125A Outgoing)

Comprises of enclosure, pan assembly, twin neutral and earth bar.

Supplied without incoming kit (one of the incomer kits listed below must be used).

Description	Cat ref side entry Plain door	Cat ref side entry Plain door	Cat ref side entry Glazed door	Cat ref side entry Glazed door
4 Way	**JN204B**	**JN204BCE**	**JN204BG**	**JN204BGCE**
6 Way	**JN206B**	**JN206BCE**	**JN206BG**	**JN206BGCE**
8 Way	**JN208B**	**JN208BCE**	**JN208BG**	**JN208BGCE**
12 Way	**JN212B**	**JN212BCE**	**JN212BG**	**JN212BGCE**
16 Way	**JN216B**	**JN216BCE**	**JN216BG**	**JN212GBCE**

Incomer Kits (For other options contact our Technical Service Centre on 01952 675689)

Description	Max cable capacity solid	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**
250A Direct Connection Kit	M8 Lug	**JN224BD**

JN11004SM

Side Meter Enclosure (blanking plates not included)

Suitable for board type	Spaces for Meters	Cat ref.	Cat ref. pre- cut side cable entries
4 Way JN Board	2 x DIN 96 Cut-Outs	**JN9502SM**	**JN9502SMCE**
6/8 Way JN Board	4 x DIN 96 Cut-Outs	**JN11004SM**	**JN11004SMCE**
12 Way JN Board	6 x DIN 96 Cut-Outs	**JN12506SM**	**JN12506SMCE**
16 Way JN Board	8 x DIN 96 Cut-Outs	**JN15508SM**	**JN15508SMCE**

Top/Bottom Meter Enclosure

Description	Spaces for Meters	Cat ref.
300mm Enclosure	3 x DIN 96 Cut-Outs	**JN3003TM**
450mm Enclosure	6 x DIN 96 Cut-Outs	**JN4506TM**
Blanking Plate		**JF96BP**

JN3003TM

Corner Filler Enclosures

Description	Cat ref.
300mm Corner Filler Side Enclosure JN	**JN300CF**
450mm Corner Filler Side Enclosure JN	**JN450CF**

JN201BE

DIN Extension Boxes

Supplied with DIN Rail and without gland plate (JN2PLATE)

DIN Extensions Boxes have plain or glazed doors and DIN rail chassis.

JK2 side extension boxes can be used with this range see page 19.

For dimensions see page 53.

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**

JN205BE

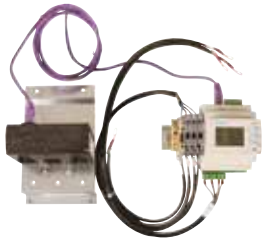
Cable Spreader Boxes & Door Kits

Supplied without gland plates (JN2PLATE)

Cable spreader boxes are used for additional cabling space therefore do not require doors. If doors are desired optional door kits are available.

For dimensions see page 53.

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



JN201PM

Meter Pack 250A

Comprises of a digital multi function meter, 3 x control circuit fuse carriers, wiring harness and CTs.

The meter pack fits directly into the main panelboard.

Description	Cat ref.
Multifunction Meter Pack 250A Pulsed & Modbus Pluggable Output	**JN201PM**

JN001BP

Accessories

Description	Cat ref.
Touch Up Paint 30ml	**JF95A**
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

MCCBs - Single Pole

Rating.	18kA Fixed Thermal Mag 10 x I_n	25kA Fixed Thermal Mag 10 x I_n
16A	**HDA014Z**	**HHA014Z**
20A	**HDA018Z**	**HHA018Z**
25A	**HDA023Z**	**HHA023Z**
32A	**HDA030Z**	**HHA030Z**
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 - 1x I_n Mag 10 x I_n	25kA Adjustable Thermal 0.63 - 0.8 - 1x I_n Mag 10 x I_n
25A	**HDA025U**	**HHA025U**
40A	**HDA040U**	**HHA040U**
63A	**HDA063U**	**HHA063U**
80A	**HDA080U**	**HHA080U**
100A	**HDA100U**	**HHA100U**
125A	**HDA125U**	**HHA125U**

Specification
Complies with BS EN 61439-2.
Enclosure degree of protection: IP3X
Internal separation
Form 3A
6, 8, 12, 16, 18 Triple Pole outgoing ways.
Form 3B type 2 is achieved using the outgoing terminal shield.

Construction
Enclosures manufactured from 1.2/1.5mm DC01M cold reduced mild steel, phosphate pretreated and powder coated to 00A01 BS4800.

Cable Capacity Incomers
3 and 4 pole incomers.
Cable capacity 240mm^2
M12 bolt.
Direct connection kit.
M10 hexagonal bolt.

Cable Capacity Outgoers
1 & 3 pole MCCB 70mm^2 flexible.
1 & 3 pole MCCB 95mm^2 solid.

Busbar Ratings
Busbar rated current:
400A continuous
Busbar rated short-time withstand current 35kA for 1s direct connected (unconditional)

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

Outgoing MCCBs
Adjustable thermal options on TP

Form 3B type 2 is achieved using the outgoing terminal shield.

For accessories see page 29.
For dimensions see page 54.


JF406B

Invicta 3 Panelboards (400A Incoming 125A Outgoing)

Comprises of enclosure, pan assembly, neutral bar and earth bar.

Supplied without incoming kit (one of the incomer kits listed below must be used).

Description	Cat ref. Plain door	Cat ref. Glazed door
6 Way	**JF406B**	**JF406BG**
8 Way	**JF408B**	**JF408BG**
12 Way	**JF412B**	**JF412BG**
16 Way	**JF416B**	**JF416BG**
18 Way	**JF418B**	**JF418BG**

Incomer Kits

For other options contact our Technical Service Centre on 01952 675689

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

Outgoing Devices

MCCBs - Single Pole

Rating.	18kA Fixed Thermal Mag 10 x I_n	25kA Fixed Thermal Mag 10 x I_n
16A	**HDA014Z**	**HHA014Z**
20A	**HDA018Z**	**HHA018Z**
25A	**HDA023Z**	**HHA023Z**
32A	**HDA030Z**	**HHA030Z**
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 - 1x I_n Mag 10 x I_n	25kA Adjustable Thermal 0.63 - 0.8 - 1x I_n Mag 10 x I_n
25A	**HDA025U**	**HHA025U**
40A	**HDA040U**	**HHA040U**
63A	**HDA063U**	**HHA063U**
80A	**HDA080U**	**HHA080U**
100A	**HDA100U**	**HHA100U**
125A	**HDA125U**	**HHA125U**

JF801E

DIN Extension Boxes (to fit JF4 & JF8 boards)

DIN 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 (JFPLATE)

For dimensions see page 54.

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**

JF805E

Cable Spreader Boxes & Door Kits (to fit JF4 & JF8 boards)

DIN 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 without gland plate (JFPLATE)

For dimensions see page 54.

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

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

Description	Cat ref.
Multifunction Meter Pack 400A Pulsed & Modbus Pluggable Output	**JF403PM**

JN001BP

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 8mm^2)	**HXA039H**
Terminal cover x160 1P long	**HYA029H**
Terminal cover x160 3P long	**HYA012H**

HXD039H

Specification
Complies with BS EN 61439-2.
Enclosure degree of protection: IP3X
Internal separation.
Form 3A.
8, 12, 18 TP outgoing ways.
Form 3B type 2 is achieved using the outgoing terminal shield.

Construction
Enclosure manufactured from 1.2/1.5mm DC01M cold reduced mild steel, phosphate pretreated and powder coated to 00A01 BS4800.

Removable gland plates are provided top and bottom for ease of installation.

The removal of the gland plates and cable spreader also allows the mounting of DIN rail extension boxes and meter packs.

Incomers
Switch Disconnector 630A/800A.
MCCB 400A/630A.
Direct connection 800A.
M12 hexagonal bolt.

Busbar Ratings
Busbar rated current: 800A
Busbar rated short time withstand current 35kA for 1x direct connection (unconditional).

Outgoing MCCBs
Single pole up to 125A - 70mm² flexible.
Single pole up to 125A - 95mm² solid.
Triple pole up to 250A -150mm² flexible.

Incomers cable capacity
400A – 2 x 240mm²
630A – 2 x 240mm² / 2 x 300mm²

For dimensions see page 54.


JF608B

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

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

Description	Cat ref. Plain door	Cat ref. Glazed door
8 Way	**JF608B** [1]	**JF608BG** [1]
12 Way	**JF812B**	**JF812BG**
18 Way	**JF818B**	**JF818BG**


JF60204B

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

These boards will accept a range of MCCB frame sizes:
- 125A frame: 16-125A SP/TP
- 250A frame: 80-250A TP only

[2] Max allowed incomer of 630A on this panelboard

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

Incomer Kits

[3] A 300mm cable spreader box (JF805E) is required for all incomer kits (see page 31).

[4] Select the required 800A rated panelboard 50kA(e.g. JF80206BG) and add the suffix 800LBS e.g. JF80206BG800LBS

Description	Max cable capacity solid	Cat ref.
4 Pole 400A Load Break Switch 25kA	M10 Lug	**JF844BSW** [3]
4 Pole 630A Load Break Switch 25kA	M12 Lug	**JF864BSW** [3]
4 Pole 800A Load Break Switch	M12 Lug	**800LBS** [3 4]
800A Direct Connection Kit 4 Pole	M12 Lug	**JF884BD** [3]
3 Pole 400A MCCB Incomer Kit 50kA Electronic LSI MCCB, Ir adjustable 0.4 – 1.0 x In	M12 Lug	**JF843BM** [3]
4 Pole 400A MCCB Incomer Kit Electronic LSI MCCB, Ir adjustable 0.4 – 1.0 x In	M12 Lug	**JF844BM** [3]
3 Pole 630A MCCB Incomer Kit 50kA Electronic LSI MCCB, Ir adjustable 0.4 – 1.0 x In	M12 Lug	**JF863BM** [3]
4 Pole 630A MCCB Incomer Kit 50kA Electronic LSI MCCB, Ir adjustable 0.4 – 1.0 x In	M12 Lug	**JF864BM** [3]

JF801E

DIN Extension Boxes (to fit JF4 & JF8 boards)

DIN 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 JFPLATE.

For dimensions see page 54.

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**

JF805E

Cable Spreader Boxes & Door Kits (to fit JF4 & JF8 boards)

DIN 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 without gland plate JFPLATE.

For dimensions see page 54.

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 800A

These meter packs fit directly into the main panelboard. Spreader box required to mount CT's.

For Meter Enclosures see page 34.

Description	Cat ref.
Multifunction Meter Pack 800A Pulsed & Modbus Pluggable Output	**JF803PM**

Outgoing Devices Thermal Magnetic

❶ MCCBs x250 40kA - Triple Pole

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

❷ MCCBs - 125A 18kA Single Pole

Rating.	18kA Fixed Thermal	25kA Fixed Thermal
16A	**HDA014Z**	**HHA014Z**
20A	**HDA018Z**	**HHA018Z**
25A	**HDA023Z**	**HHA023Z**
32A	**HDA030Z**	**HHA030Z**
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 - 1x I_n Mag 10 x I_n	25kA Adjustable Thermal 0.63 - 0.8 - 1x I_n Mag 10 x I_n
25A	**HDA025U**	**HHA025U**
40A	**HDA040U**	**HHA040U**
63A	**HDA063U**	**HHA063U**
80A	**HDA080U**	**HHA080U**
100A	**HDA100U**	**HHA100U**
125A	**HDA125U**	**HHA125U**

The Hager range of 800A panel boards has been designed to complement our Invicta 3 distribution system.

The 800A MCCB incomer board is designed specifically for applications where an adjustable 800A MCCB incomer device is required.

Specification
Complies with BS EN 61439-2
Enclosures degree of protection: IP3X
Internal Separation: Form 3A
Form 3B type 2 is achieved using the outgoing terminal shield.

Construction
The enclosure is manufactured from 1.2/1.5mm DC01M cold reduced mild steel, phosphate treated and powder coated to 00A01 BS4800.

Busbar Rated current: 800A
35kA for 1 sec.

Removable gland plates are provided top and bottom for ease of installation"

Cable Capacity
Outgoing devices
125A frame (16 - 125A)
Flexible: min 6mm², max 70mm²
Rigid: min 6mm², max 95mm²
250A frame (100 - 250A)
Lug connection: max width 25mm, M8.

Incomers Cable capacity
400A – 2 x 240mm²
630A – 2 x 240mm² / 2 x 300mm²
Lug connection bar width 44mm
2 x M12 holes

For dimensions see page 55.

Invicta 3 Panelboards (800A Incoming 125A Outgoing)

Max. 125A outgoing devices

Description	Cat ref. Plain door	Cat ref. Glazed door
12 Way	**JHF812B**	**JHF812BG**
18 Way	**JHF818B**	**JHF818BG**


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

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

Incomer Kits

Description	Cat ref. Plain door
800A 3 Pole MCCB Incomer Auto 50kA	**JHF883BM**
800A 4 Pole MCCB Incomer Auto 50kA	**JHF884BM**

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**


JN001BP

JF801E

DIN Extension Boxes (to fit JF4 & JF8 boards)

DIN 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 JFPLATE.

For dimensions see page 54.

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**

JF805E

Cable Spreader Box (to fit JF4 & JF8 boards)

DIN 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 without gland plate JFPLATE.

For dimensions see page 54.

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 800A

These meter packs fit directly into the main panelboard. Spreader box required to mount CT's.

For Meter Enclosures see page 34.

Description	Cat ref.
Multifunction Meter Pack 800A Pulsed & Modbus Pluggable Output	**JF803PM**

Outgoing Devices

❶ MCCBs x250 40kA - Triple Pole

Rating.	Cat ref.
100A	**HNB100H**
125A	**HNB125H**
160A	**HNB160H**
200A	**HNB200H**
250A	**HNB250H**

❷ MCCBs - 125A 18kA Single Pole

Rating.	18kA Fixed Thermal	25kA Fixed Thermal
16A	**HDA014Z**	**HHA014Z**
20A	**HDA018Z**	**HHA018Z**
25A	**HDA023Z**	**HHA023Z**
32A	**HDA030Z**	**HHA030Z**
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 - 1x I_n Mag 10 x I_n	25kA Adjustable Thermal 0.63 - 0.8 - 1x I_n Mag 10 x I_n
25A	**HDA025U**	**HHA025U**
40A	**HDA040U**	**HHA040U**
63A	**HDA063U**	**HHA063U**
80A	**HDA080U**	**HHA080U**
100A	**HDA100U**	**HHA100U**
125A	**HDA125U**	**HHA125U**

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 JF406 board, you can select a JF12504SM side mounted meter enclosure that can house 4 JKM01 panel mounted meters). When using both side and top/bottom meter enclosures, corner filler enclosures are available.

For help choosing your metering solution see the Method Chart on page 55.

Please contact us for any non-standard requirements or assembly.

For dimensions see page 56.

JF12504SM

JF450CF

JF4508TM

Side meter enclosures (Blanking plates not included)

Suitable for board type:	Spaces for Meters	Cat ref.
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

Description	Spaces for Meters	Cat ref.
300mm Enclosure	4 x DIN 96 Cut-Outs	**JF3004TM**
450mm Enclosure	8 x DIN 96 Cut-Outs	**JF4508TM**
Blanking Plate DIN 96		**JF96BP**

Corner Filler Enclosures

Description	Cat ref.
300mm Corner Filler Side Enclosure	**JF300CF**
450mm Corner Filler Side Enclosure	**JF450CF**

ECM01

JKM01

Panel & DIN Rail Meters

No cables supplied with these meters

For meter supply cable see JF130VMF

Description	Cat ref.
Panel Mounted Multi-Function Meter Pulsed/Modbus DIN 96	**ECM01**
DIN Mounted Multi-Function Meter Pulsed/Modbus Single Input	**JKM01**
DIN Mounted Multi-Function Meter Pulsed/Modbus Dual Input	**JKM02**

JFA03

Converter

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

JFS03

3 Phase CT Splitter Box

This 3 Phase CT Splitter Box allows the separate monitoring of each phase of a three phase current transformer on individual energy meters.

Description	Cat ref.
3 Phase CT Splitter Box	**JFS03**

JF1260CT

Plug-In CTs

No leads supplied with these CTs (RJ45 connection cable)

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

PGMF500

Meter Voltage Supply Cable - PVC - 1mm

Description	Cat ref.
1m - Voltage Supply Cable with Fuse Carrier (For JF Meter Enclosures)	**JF130VMF**
1m - Voltage Supply Cable with Fuse Carrier (For JN Meter Enclosures)	**JN130VMF**
0.30m - Hi Flex Voltage Supply Cable	**PGMF300**
0.50m - Hi Flex Voltage Supply Cable	**PGMF500**
1.00m - Hi Flex Voltage Supply Cable	**PGMF1000**
1.30m - Hi Flex Voltage Supply Cable	**PGMF1300**
2.00m - Hi Flex Voltage Supply Cable	**PGMF2000**
3.00m - Hi Flex Voltage Supply Cable	**PGMF3000**

PGMFT500

Meter to Meter Supply Cable - PVC - 1mm

Description	Cat ref.
0.15m - Hi Flex Meter to Meter Supply Cable	**PGMFT150**
0.30m - Hi Flex Meter to Meter Supply Cable	**PGMFT300**
0.50m - Hi Flex Meter to Meter Supply Cable	**PGMFT500**
1.00m - Hi Flex Meter to Meter Supply Cable	**PGMFT1000**
1.30m - Hi Flex Meter to Meter Supply Cable	**PGMFT1300**
2.00m - Hi Flex Meter to Meter Supply Cable	**PGMFT2000**
3.00m - Hi Flex Meter to Meter Supply Cable	**PGMFT3000**

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	**PGRJ3000**

PG9522FEMALE

Supply Voltage Connector Plugs

For those who want to make up their own power cable looms

Description	Cat ref.
Voltage IN (Male) Connector	**PG9523MALE**
Voltage OUT (Female) connector	**PG9522FEMALE**

JFT03

CT Output and RJ45 Lead Tester

Description	Cat ref.
CT Output and RJ45 Lead Tester	**JFT03**

JK104

JK404H

JK304H

100A Switch Disconnector Incomer

SP&N distribution boards are available from 4-28 outgoing ways. The range comes with a choice of either 100A 2P switch disconnector, 63A 30mA 2P RCCB or 100A 30mA 2P RCCB, or a range of split load versions.

Cable Sizes
100A 50mm^2
63A 25mm^2

The range has the following features:

- Ample wiring space, with provision to accept RCBO's
- Full complement of earth and neutral terminal bars to accept up to 16mm^2 cable
- Accepts most consumer unit accessories
- Suitable for cable entry/exit on all sides and back

Manufactured from 0.9mm CR4 cold reduced mild steel, phosphate pretreated and powder coated to 00A01 BS 4800.

Complies with BS EN 61439-3 Annex ZB.

For dimensions see page 70.

Description	Cat ref.
4 Way 100A Switch Disconnector Incomer	**JK104**
6 Way 100A Switch Disconnector Incomer	**JK106**
10 Way 100A Switch Disconnector Incomer	**JK110**
14 Way 100A Switch Disconnector Incomer	**JK114**
20 Way 100A Switch Disconnector Incomer	**JK120**
28 Way 100A Switch Disconnector Incomer	**JK128**

63A 30mA RCCB Incomer

Description	Cat ref.
4 Way 63A 30mA RCCB Incomer	**JK404H**
6 Way 63A 30mA RCCB Incomer	**JK406H**
10 Way 63A 30mA RCCB Incomer	**JK410H**
14 Way 63A 30mA RCCB Incomer	**JK414H**
20 Way 63A 30mA RCCB Incomer	**JK420H**

100A 30mA RCCB Incomer

Description	Cat ref.
4 Way 100A 30mA RCCB Incomer	**JK304H**
6 Way 100A 30mA RCCB Incomer	**JK306H**
10 Way 100A 30mA RCCB Incomer	**JK310H**
14 Way 100A 30mA RCCB Incomer	**JK314H**
20 Way 100A 30mA RCCB Incomer	**JK320H**
28 Way 100A 30mA RCCB Incomer	**JK328H**

100A Switch Disconnector and 63A 30mA RCCB

Description	Cat ref.
6 Way Split Load Configurable 100A Switch 63A 30mA RCCB	**JK706C**
10 Way Split Load Configurable 100A Switch 63A 30mA RCCB	**JK710C**
14 Way Split Load Configurable 100A Switch 63A 30mA RCCB	**JK714C**

100A Switch Disconnector and 100A 30mA RCCB

Description	Cat ref.
28 Way Split Load 14+14 100A Switch 100A 30mA RCCB	**JK527H**

JK008

DIN Rail Enclosures

One, two or three row 8-66 modules enclosures, fitted with DIN rails to accept any combination of Hager modular devices from the simplest switch and MCB arrangements to the more sophisticated control and protection system.

These enclosures feature:
- Ample wiring space
- Full complement of earth and neutral bars fitted as standard
- Significant knockout provision
- Plain doors only
- Optional key lock

Complies with BS EN 62208.

For dimensions see page 70.

Description	Cat ref. Plain door
1 Row 8 Way	**JK008**
1 Row 12 Way	**JK012**
1 Row 16 Way	**JK016**
1 Row 22 Way	**JK022**
2 Row 24 Way (2 x 12)	**JK024**
2 Row 32 Way (2 x 16)	**JK032**
2 Row 44 Way (2 x 22)	**JK044**
3 Row 66 Way (3 x 22)	**JK066**

JK114AG

Invicta 3 SP&N distribution boards

Boards are available with 14 & 29 outgoing ways. The range comes with a 100A 2P switch disconnector to accept 50mm^2 cable.

The range has the following features:
- Ample wiring space, with provision to accept RCBO's
- Full complement of earth and neutral terminal bars to accept up to 16mm^2 cable
- Accepts most consumer unit accessories
- Suitable for cable entry/exit on all sides and back

Enclosures are available with plain or glazed doors.

Complies with BS EN 61439-3 Annex ZB.

For dimensions see page 70.

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**

Description
The Hager range of fuse combination switches provides individual protection and control of circuits.

The enclosures up to 100A 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
AC22B - 630 - 800A
AC23A - 20 - 630A

Product features
Complies with:
BS EN 60947-3
IP31.

Note: Maximum rated fuse links are fitted in all fuse combination switches.

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

For dimensions see page 71.

For technical information see page 72.

JFD206U


JFG416U

Fuse Combination Switches Single Pole and Switched Neutral

Description	Cat ref.	Cat ref. Cable extension boxes if required
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**	**JZA701**

Fuse Combination Switches Triple Pole and 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**	**JZA701**
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 and 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**	**JZA701**
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
For conversion to isolating switches

63A	**JC60L**
100A	**JC10L**
125 / 200A	**JC20L**
315 / 400A	**JC40L**
630A	**JC63L**

Amendment 3 compliant switch fuses have a full metal construction to comply with BS EN 61439-3

For dimensions see page 73.

IU44-11

Switch Fuses

Description	Cat ref.	Cat ref. Plain 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 TP&N, TP&SN

Description
The Hager range of switch disconnector has been designed to provide individual protection and control of circuits up to 800A.

The enclosures 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.

Utilisation category
AC-21
AC-22

Product features
Complies with:
BS EN 60947-3
IP31.

Cable Capacity
20A = 16mm²
32A = 16mm²
63A = 50mm²
100A = 50mm²
125A = 50mm²
160A = 95mm²
200A = 95mm²
250A = 150mm²
315A = 185mm²
400A = 240mm²
630A = 2 x 300mm²
800A = 2 x 300mm²

For technical information see page 74.

JAB402B

Switch Disconnectors TP&N

Rating	Cat ref.	Cat ref. Cable extension boxes if required
160A	**JAC316**	**JZA700**
200A	**JAE320**	**JZA701**
250A	**JAE325**	**JZA701**
315A	**JAG331**	**JZA701**
400A	**JAG340**	**JZA701**
630A	**JAH363**	**JZA702**
800A	**JAH380**	**JZA702**

Switch Disconnectors TP&SN

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**

Description
The Hager range of switch disconnectors suites with the existing commercial offer, giving 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
Complies with: BS EN 60947-3
IP65 to BS EN 60529

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

Utilisation category
AC-21
AC-22

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

For technical information see page 73.

JG01S

IP65 Switch Disconnectors Triple Pole and Neutral

In AC 21	In 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 NO / 1 NC	**JG10A**
3 NO / 2 NC	**JG20A**

IP65 Switch Disconnectors DC

Description
These DC switches are 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 AC switches used on the outgoing side of the inverter.

Product Features
Complies with: 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.

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

JG440DC

DC Switches

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**

The devices are mounted in IP31 enclosures, with removable cable entry plates located on the top and bottom.

Both three pole devices are equipped with a fully rated neutral links.

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

Specification
Complies with BS EN 61439-2

Cable Capacity
63 - 125A
Flexible: min 6mm², max 70mm²
Rigid: min 6mm², max 95mm²

RCCB add-on adjustable from 0.03A, 0.1A, 0.3A, 1A, 3A, 6A

Time delay - Instananious, 60ms, 150ms, 300ms, 500ms, 1s

For Enclosed MCCB technical details and dimensions see page 76.

JG38BR

JG41BM

JG45BM

Enclosed MCCBs Single Pole and Neutral (63-125A)

Description	I_{cu}	Cat ref.
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 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 MCCB	Non-Auto	**JG42BS**
Enclosed MCCBs Triple Pole and Neutral (400-630A)		
400A 3-Pole Enclosed MCCB (Adjustable)	50kA	**JG44BM**
400A 3-Pole Enclosed MCCB	Non-Auto	**JG46BS**
630A 3-Pole Enclosed MCCB (Adjustable)	50kA	**JG48BM**
630A 3-Pole Enclosed MCCB	Non-Auto	**JG50BS**
Enclosed MCCBs Four Pole (63-125A)		
63A (40A-50A 63A)	18kA	**JG27BM**
63A (40A-50A 63A) + RCCB add-on	18kA	**JG27BR**
100A (63A-80A-100A)	18kA	**JG30BM**
100A (63A-80A-100A) +RCCB add-on	18kA	**JG30BR**
125A (80A-100-125A)	18kA	**JG33BM**
125A	Non-Auto	**JG35BS**
Enclosed MCCBs Four Pole (160-250A)		
160A 4-Pole Enclosed MCCB (Adjustable)	25kA	**JG37BM**
160A 4-Pole Enclosed MCCB RCCB Add On	25kA	**JG37BR**
200A 4-Pole Enclosed MCCB RCCB Add On	25kA	**JG38BR**
250A 4-Pole Enclosed MCCB (Adjustable)	25kA	**JG41BM**
250A 4-Pole Enclosed MCCB	Non-Auto	**JG43BS**
Enclosed MCCBs Four Pole (400-630A)		
400A 4-Pole Enclosed MCCB (Adjustable)	50kA	**JG45BM**
375A 4-Pole Enclosed MCCB RCCB 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**

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

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

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

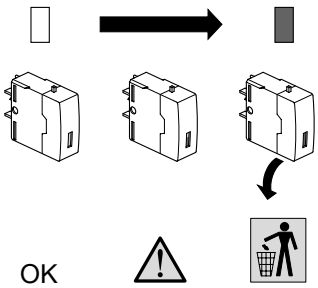
The choice of SPD depends on a number of criteria such as:
- The risk of lightening strikes
- The exposure of the building to transients.
- The sensitivity and value of the electrical equipment that requires protection.
- Earthing system
- Level of protection

The range of SPDs is separated into 3 types of protection:
1. Main protection - class 1 SPDs with higher discharge current (Imax 10/350), to evacuate as much of the transient overvoltages associated with lightening strikes
2. Main protection - class 2 With a discharge current (Imax 8/20), to evacuate as much of the transient overvoltage to earth as possible protection level (Up ≤ 1000V).
3. Main protection - class 3 To cut-down the transient surge as low as possible to protect very sensitive equipment.

Technical Data
Complies with IEC61643-1

Reserve Status Indicator
(R versions)

End of Life Indicator
(D versions)



Auxiliary contact for remote signalling (R versions only)

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

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

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

Options: Replacement cartridges.

Connected in parallel to the equipment to be protected.

Protection is assured in both common and differential modes.

SPDs with Low Let Through Voltage Levels Type 3
To protect very sensitive electronic equipment. This fine protection complements the main protection and can protect 1 or many electronic devices.

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

Discharge current
Imax. 8kA (8/20 wave)
a green LED on the front face indicates the status of the SPD SP202N, connected in series with the equipment that needs to be protected (with a maximum line current of 25A). Protection is assured in both common and differential modes

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

Replacement Cartridges
The cartridges replace the cartridge in the main SPN* devices.

They allow simple replacement without the need to cut-off the power supply.
Cartridges are available for all discharge currents (40kA and 15kA) with and without condition indication.

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

For technical details see page 66.

	TNS	TNC-S	TT
SPA201	✓	✓	✓
SPA401	✓	✓	✓
SPN801	✓	✓	×
SPN802	×	×	✓
SPN215D	✓	✓	✓
SPN415D	✓	✓	✓
SPN440D	✓	✓	✓
SP202N	✓	✓	✓

SPN801R

Class 1 + 2 (Class 1 + 2 + 3 if less than 5m) (with lifetime indicator)

Poles	I_{imp} kA L-N	I_{imp} kA N-PE	I_n L-N	I_n N-PE	U_p kV	Single or Three Phase	Width (mm)	Cat ref.	Cat ref. with remote contact
2	12.5	25	-	-	≤1.5	Single	35	**SPA201**	**-**
4	12.5	50	-	-	≤1.5	Three	70	**SPA401**	**-**
4	25	100	-	-	≤1.5	Three	140	**SPN801**	**SPN801R**
4	25	100	-	-	≤1.5	Three	140	**SPN802**	**SPN802R**

SPN080

Replacement Cartridges (SPN8* range)

Dimensions	Cat ref.
Phase replacement for SPN800, SPN800R, SPN801, SPN801R, SPN802 & SPN802R	**SPN080**
Neutral replacement for SPN801, SPN801R, SPN802, SPN802R	**SPN080N**

SPN415D

SPN040D

SP202N

SPV325

Class 2 (with lifetime indicator)

Poles	I_{imp} L-N	I_{imp} N-PE	I_n kA L-N	I_n kA N-PE	U_p kV	Single or Three Phase	Width (mm)	Cat ref.	Cat ref. with remote contact
1	-	-	5	15	≤ 1.2	Single	17.5	**SPN115D**	**SPN115R**
2	-	-	5	15	≤ 1.2	Single	35	**SPN215D**	**SPN215R**
2	-	-	15	40	≤ 1.2	Single	35	**SPN240D**	**SPN240R**
4	-	-	5	15	≤ 1.5	Three	70	**SPN415D**	**SPN415R**
4	-	-	15	40	≤ 1.5	Three	70	**SPN440D**	**SPN440R**

Replacement Cartridges

Dimensions	Cat ref.
Phase replacement for SPN215D & SPN415D	**SPN015D**
Phase replacement for SPN215R & SPN 415R	**SPN015R**
Phase replacement for SPN240D & SPN440D	**SPN040D**
Phase replacement for SPN240R & SPN44R	**SPN040R**
Neutral replacement for SPN215D, SPN415D, SPN215R & SPN415R	**SPN040N**

Class 3 (fine protection) (with lifetime indicator)

Poles	I_{imp} L-N	I_{imp} N-PE	I_n kA L-N	I_n kA N-PE	U_p kV	Single or Three Phase	Width (mm)	Cat ref.	Cat ref. with remote contact
2	-	-	3	-	≤ 1.5	Single	35	**SP202N**	-

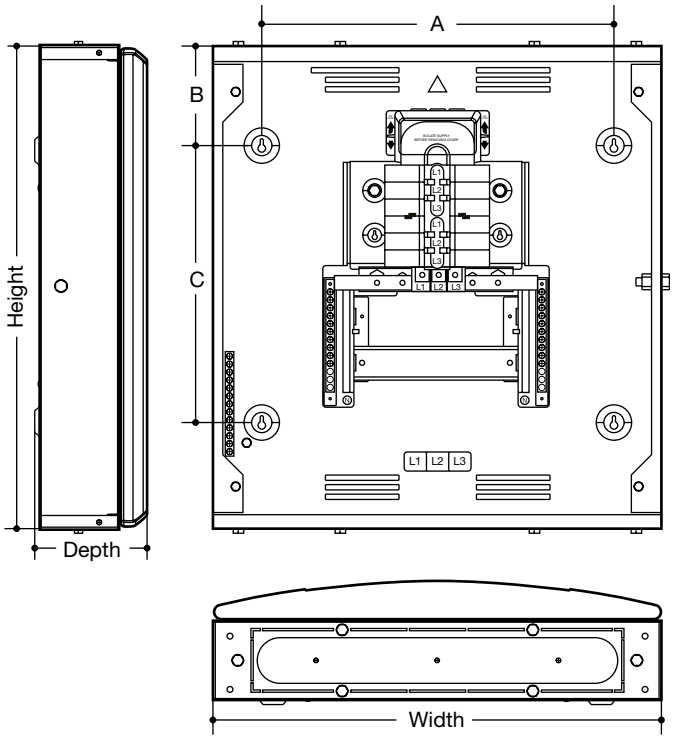
PV Applications (DC side) (with lifetime indicator)

Poles	I_{imp} L-N	I_{imp} N-PE	I_n kA L-N	I_n kA N-PE	U_p kV	Single or Three Phase	Width (mm)	Cat ref.	Cat ref. with remote contact
3	-	-	12.5	25	≤ 4	-	52.5	**SPV325**	**-**

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	50mm^2	120mm^2
Incoming Earth Terminal	M8 stud	M8 stud
Incoming Neutral Terminal	50mm^2 cage or M6 stud	M8 Stud
Outgoing Earth Terminals	16mm^2	16mm^2
Outgoing Neutral Terminals	16mm^2	16mm^2
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

Torque Settings

			Cables >1.5mm^2 Tightening torque (N.m)		Cables ≤1.5mm^2 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							
SB switch disconnectors	2	6.5	3.6	3.6	3.6	3.6	15
Circuit protection							
MTN MCB	2	6.5	2.8	2.8	2.8	2.8	13
NBN/NCN/NDN 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



125A Primary Boards

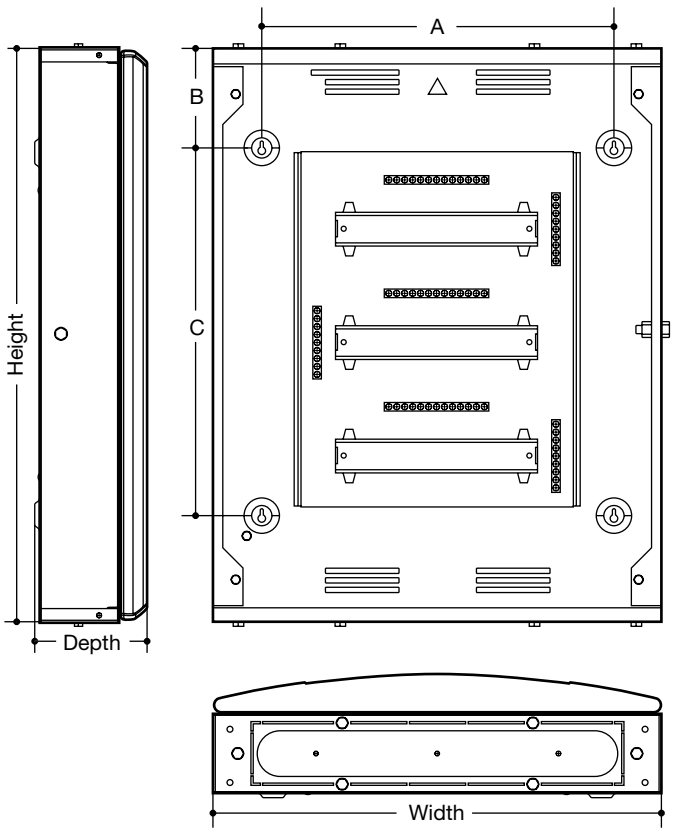
	Dimensions (mm)			Fixing Centres (mm)		
	Height	**Width**	**Depth**	**A**	**B**	**C**
JK104B/BG/A3	500	465	132.5	365	100	300
JK106B/BG/A3	550	465	132.5	365	100	350
JK108B/BG/A3	625	465	132.5	365	100	425
JK112B/BG/A3	850	465	132.5	365	100	650
JK116B/BG/A3	950	465	132.5	365	100	750
JK118B/BG/A3	1100	465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

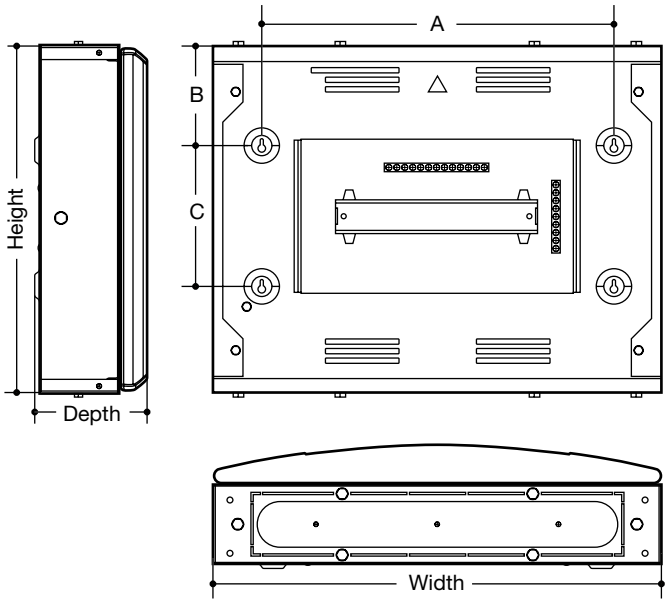


125A Side DIN Boxes

	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 Boxes

	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

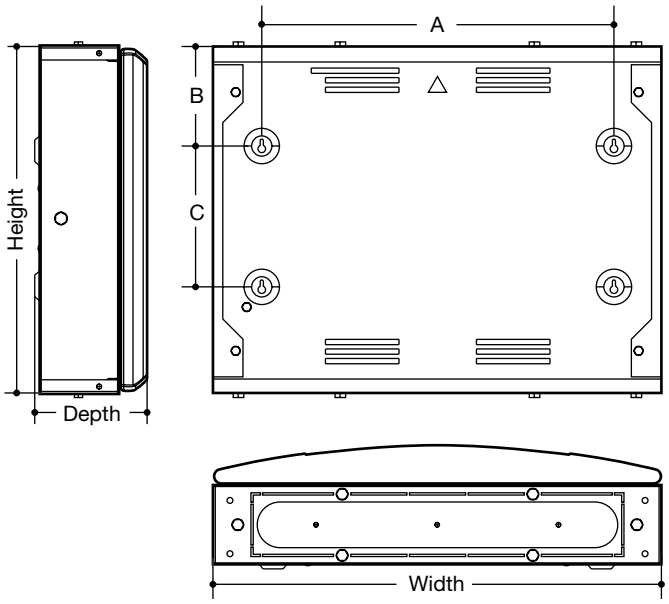


125A DIN Extension Boxes

	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

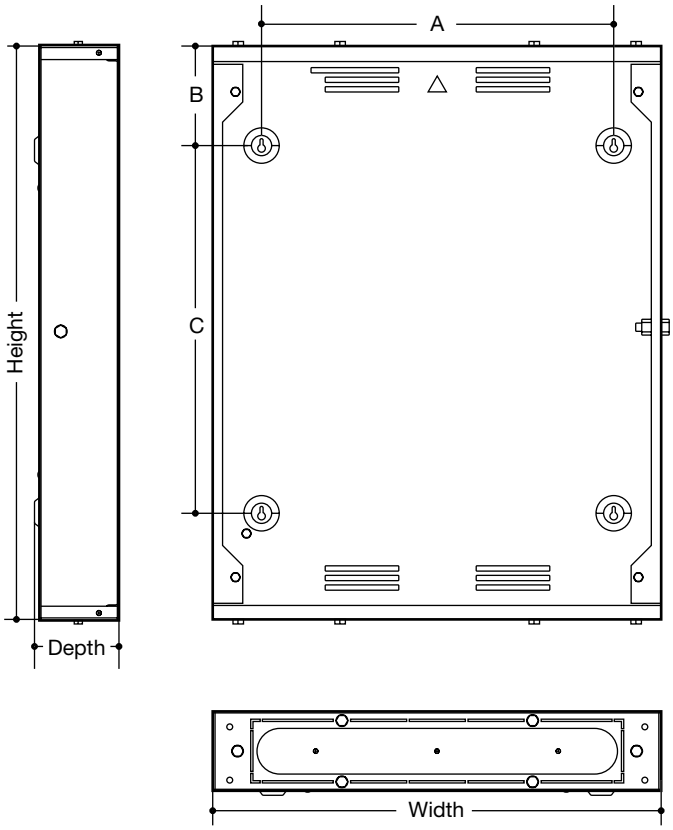


125A Cable Spreader Boxes

	Dimensions (mm)				Fixing Centres (mm)		
	Height	**Width**	**Depth without door**	**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 without door**	**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



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

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

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 (In) = 125A (RDF=1) Upper Pan (In) = 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})	10kA1 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 (fn)	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	IK05
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	M6	M6
Standards	BS EN 61439-3	BS EN 61439-3

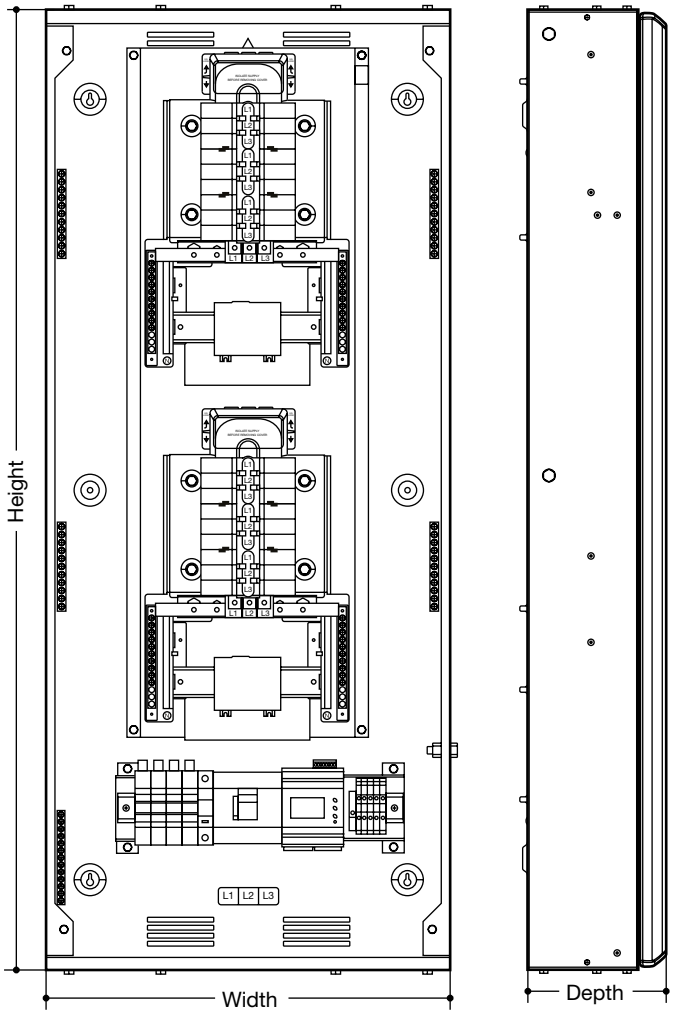
Meter Characteristics	
Supply	60 to 300V AC, 50/60Hz (±5%)
Serial Communication	
Interface Standard and Protocol	RS485 and MODBUS RTU
Input (CT)	
Pluggable RJ45	Input 1/ Input 2
Output	
Pulse Output:	Voltage Range : 24V DC max
Current Capacity :	100mA max
Pulse Duration :	Selectable Between 0.1 to 2.0sec
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
CT Primary 1 and Primary 2	5A to 10,000A (programmable for any value)

Dual Power & Lighting Boards

	Dimensions (mm)		
	Height	**Width**	**Depth**
JKD146PM	1100	465	165.5
JKD166PM	1100	465	165.5
JKD164PM	1100	465	165.5
JKD168PM	1250	465	165.5
JKD188PM	1250	465	165.5
JKD186PM	1250	465	165.5
JKD1416PM	1400	465	165.5
JKD1164PM	1400	465	165.5
JKD1812PM	1400	465	165.5
JKD1128PM	1400	465	165.5
JKD11212PM	1400	465	165.5

Triple Power, Lighting & Services Board

	Dimensions (mm)		
	Height	**Width**	**Depth**
JKD2884PM	1850	465	165.5

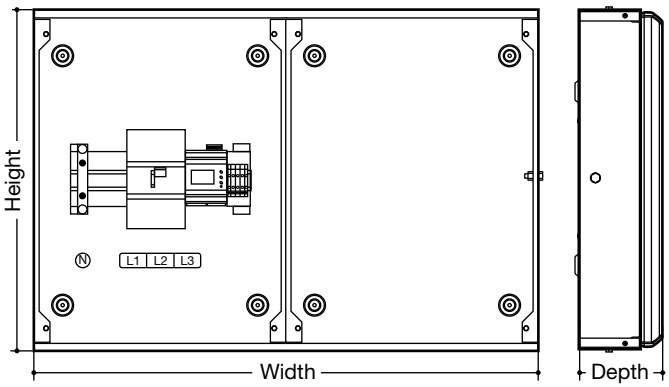


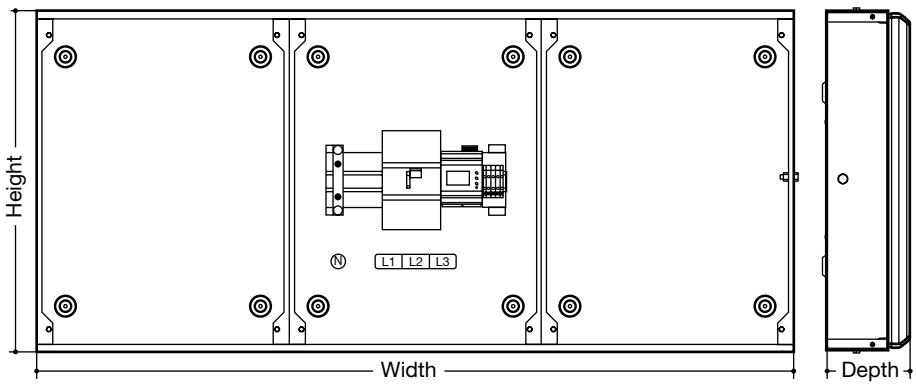
Interface Characteristics	JKD125PM	JDK125TPM	JKD250PM	JKD250TPM
Rated & operational voltage (U_n / U_e)	415V a.c. 50Hz	415V a.c. 50Hz	415V a.c. 50Hz	415V a.c. 50Hz
Rated insulation voltage (U_i)	690V a.c. 50Hz	690V a.c. 50Hz	690V a.c. 50Hz	690V a.c. 50Hz
Rated impulse withstand voltage (U_{imp})	4kV	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[1] with equipment and arrangements specified in Hager's technical documentation/catalogue	10kA[1] with equipment and arrangements specified in Hager's technical documentation/catalogue	10kA[1] 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	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 (fn)	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	Dependant upon incomer	Dependant upon incomer	Dependant upon incomer	Dependant upon incomer
Incoming Neutral Terminal	50mm² Cage	50mm² Cage	50mm² Cage	50mm² Cage
Enclosure Earth Stud	M8	M8	M8	M8

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
CT Primary 1 and Primary 2	5A to 10,000A (programmable for any value)

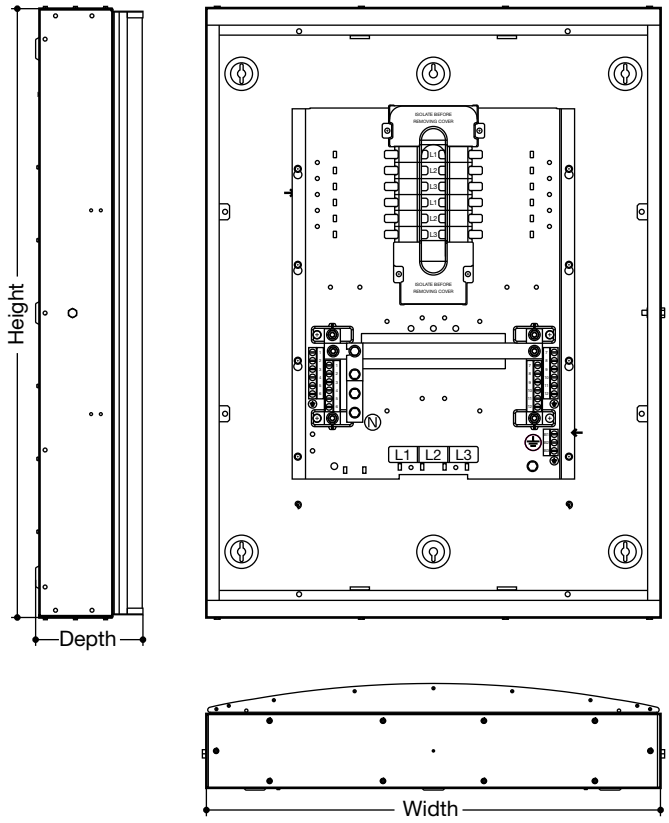
Dual & Triple Meter Incomers

	Dimensions (mm)		
	Height	**Width**	**Depth**
JKD125PM	625	930	132.5
JKD125TPM	625	1395	132.5
JKD250PM	625	930	132.5
JKD250TPM	625	1395	132.5





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 withstand 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 AC	415V	415V	415V	415V
IP Protection	IP3X			
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)			



Primary Boards

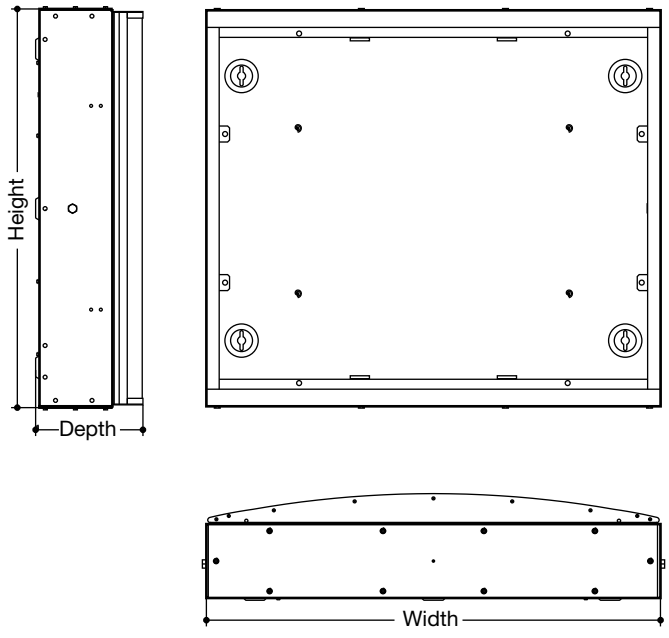
	Dimensions (mm)		
	Height	**Width**	**Depth**
JN204B/G	950	710	160
JN206B/G	1100	710	160
JN208B/G	1100	710	160
JN212B/G	1250	710	160
JN216B/G	1550	710	160

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

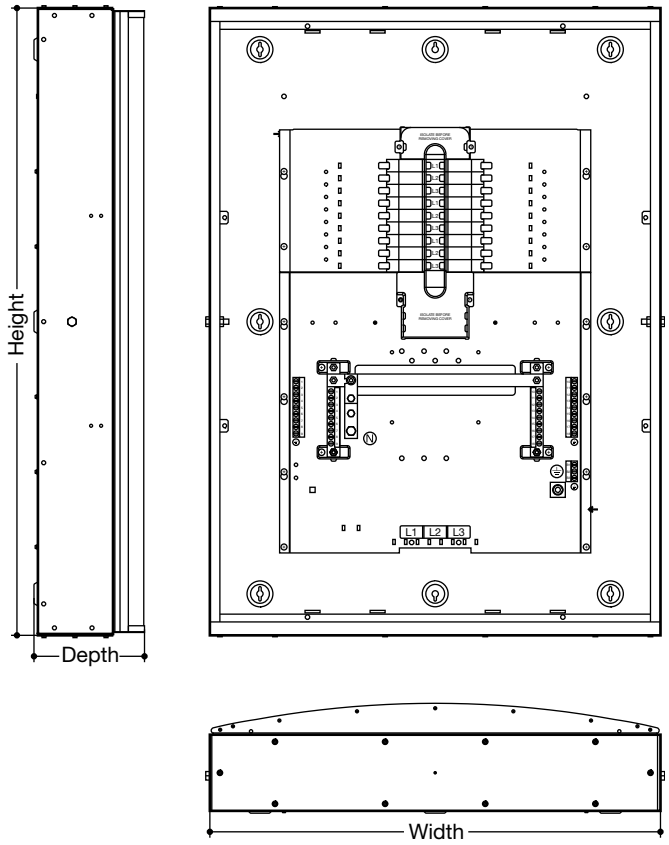
Cables outgoing ways:
25 - 50mm^2 CSA Flex
25 - 70mm^2 CSA Solid

MCCB Connections	250A M8
Earth	250A M8
Neutral	250A M8



Extension Boxes

	Dimensions (mm)		
	Height	**Width**	**Depth**
JN201BE/G	300	710	160
JN203BE/G	450	710	160
JN205BE	300	710	125
JN206BE	450	710	125



Primary Boards

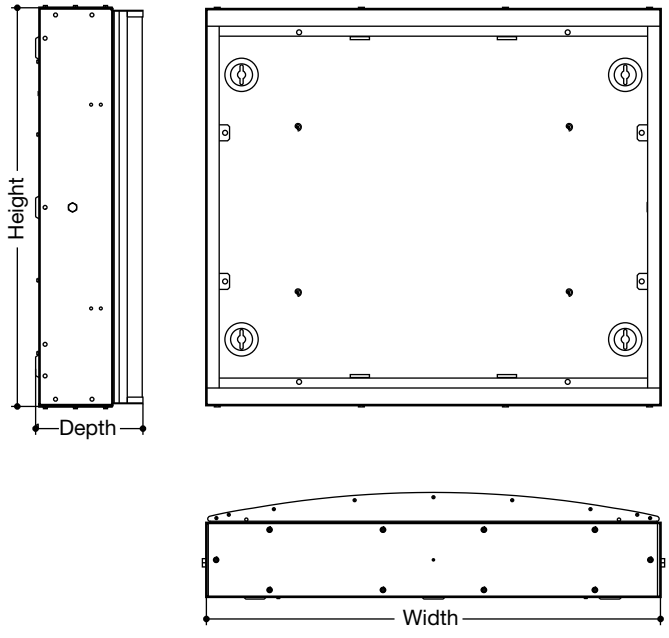
	Dimensions (mm)		
	Height	**Width**	**Depth**
JF406B/G	1250	900	220
JF408B/G	1250	900	220
JF412B/G	1400	900	220
JF416B/G	1550	900	220
JF418B/G	1700	900	220
JF808B/G	1250	900	220
JF812B/G	1400	900	220
JF818B/G	1700	900	220
JF60204B/G	1250	900	220
JF80206B/G	1250	900	220
JF80404B/G	1250	900	220
JF80210B/G	1400	900	220
JF80408B/G	1400	900	220
JF80414B/G	1700	900	220
JF80612B/G	1700	900	220

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

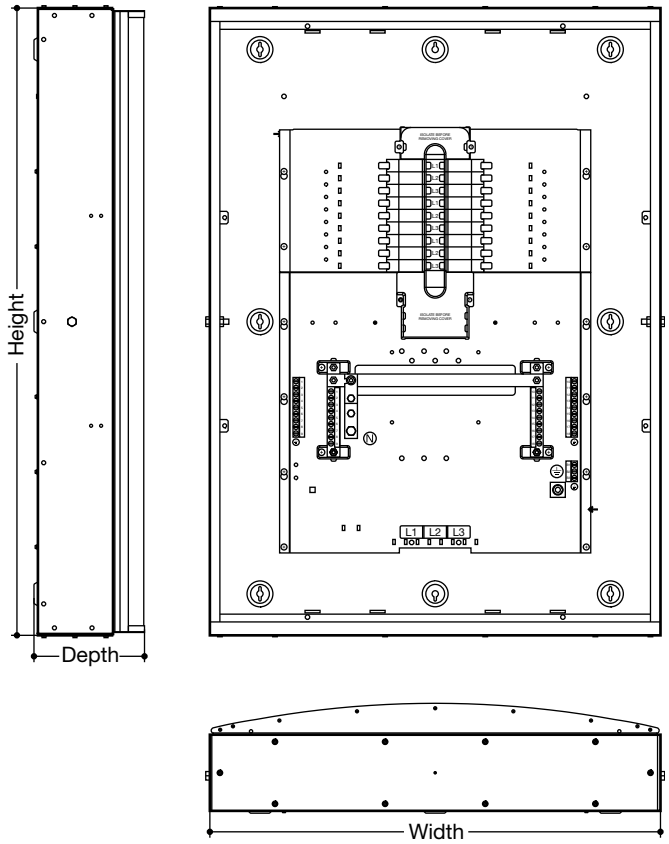
Cables outgoing ways:
25 - 50mm^2 CSA Flex
25 - 70mm^2 CSA Solid

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



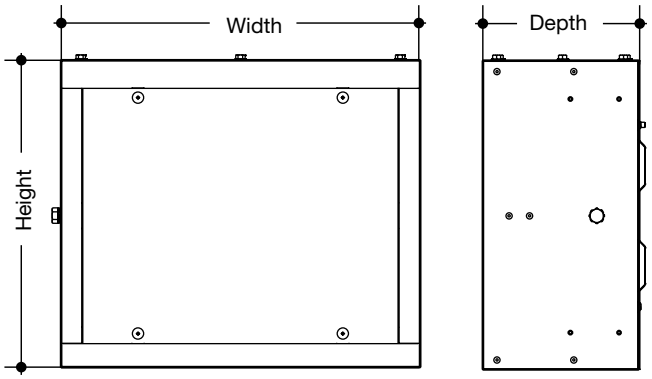
Primary Boards

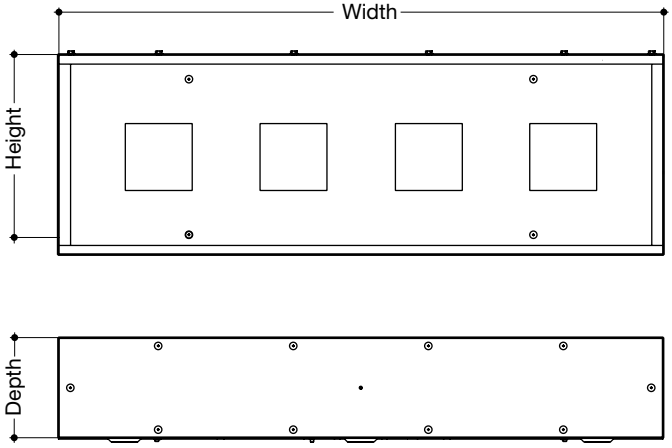
	Dimensions (mm)		
	Height	**Width**	**Depth**
JHF812B/G	2050	900	220
JHF818B/G	2200	900	220
JHF80206B/G	1900	900	220
JHF80404B/G	1900	900	220
JHF80210B/G	2050	900	220
JHF80408B/G	2050	900	220
JHF80414B/G	2200	900	220
JHF80612B/G	2200	900	220

Invicta 3 Panelboard Metering Method Chart

Use the process below to aid you in selecting the appropriate Invicta 3 Panelboard, side extension boxes, meters, meter supply cables and CT's.

Step	Selection method	Catalogue page	Order code	Qty
1	Select panelboard eg. 6 way with glazed door, (JN206BG) Note add suffix CE	250A Page 26. 400A Page 28. 630A/800A Page 30. 800A Page 32.	JN206BGCE	1
2	Identify quantity of meters required eg. 4 metered ways modbus (ECM01)	Page 34.	ECM01	4
3	Select position for meter enclosure (Top or side) eg. Top - 450mm enclosure 6xDIN 96 Cut- Outs or Side - 6/8 Way JN Board 4xDIN 96 Cut-Outs	For JN Page 26. For JF Page 34.	JN4506TM JN11004SM	1 1
4	Number of blanking plates required eg. Top - 450mm enclosure 6xDIN 96 Cut- Outs or Side - 6/8 Way JN Board 4xDIN 96 Cut-Outs	Page 34.	JF96BP	2 0
5	Meter voltage supply including fuses. (1st meter only includes incoming) e.g. JN130VMF	Page 35.	JN130VMF	1
6	Supply cable for remaining meters (Link meter to meter) e.g. PGMFT150	Page 35.	PGMFT150	3
7	Identify which CT's are required eg. 60 Amp Qty 1 eg. 100 Amp Qty 2 eg. 125A Qty 1	Page 35.	JF1260CT JF12100CT JF12125CT	1 2 1



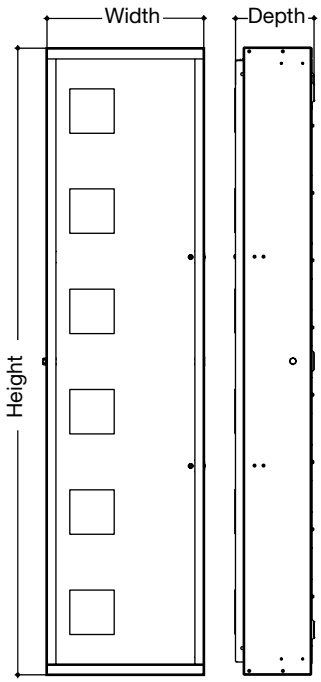


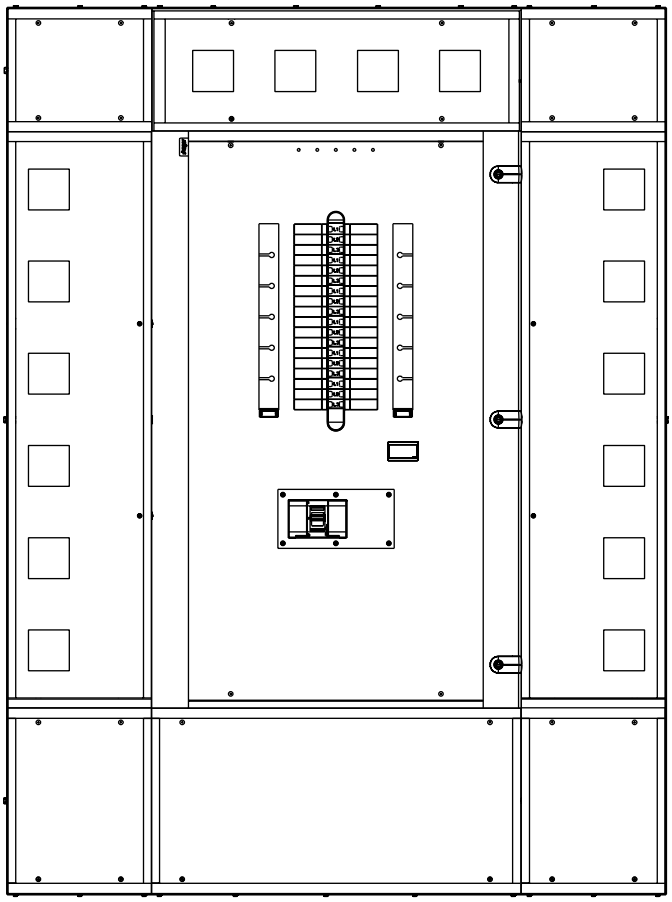
Corner Filler Enclosures

	Dimensions (mm)		
	Width	**Height**	**Depth**
JF300CF	350	300	160
JF450CF	350	450	160

Top/Bottom Enclosures

	Dimensions (mm)		
	Width	**Height**	**Depth**
JF3004TM	900	300	160
JF4508TM	900	450	160



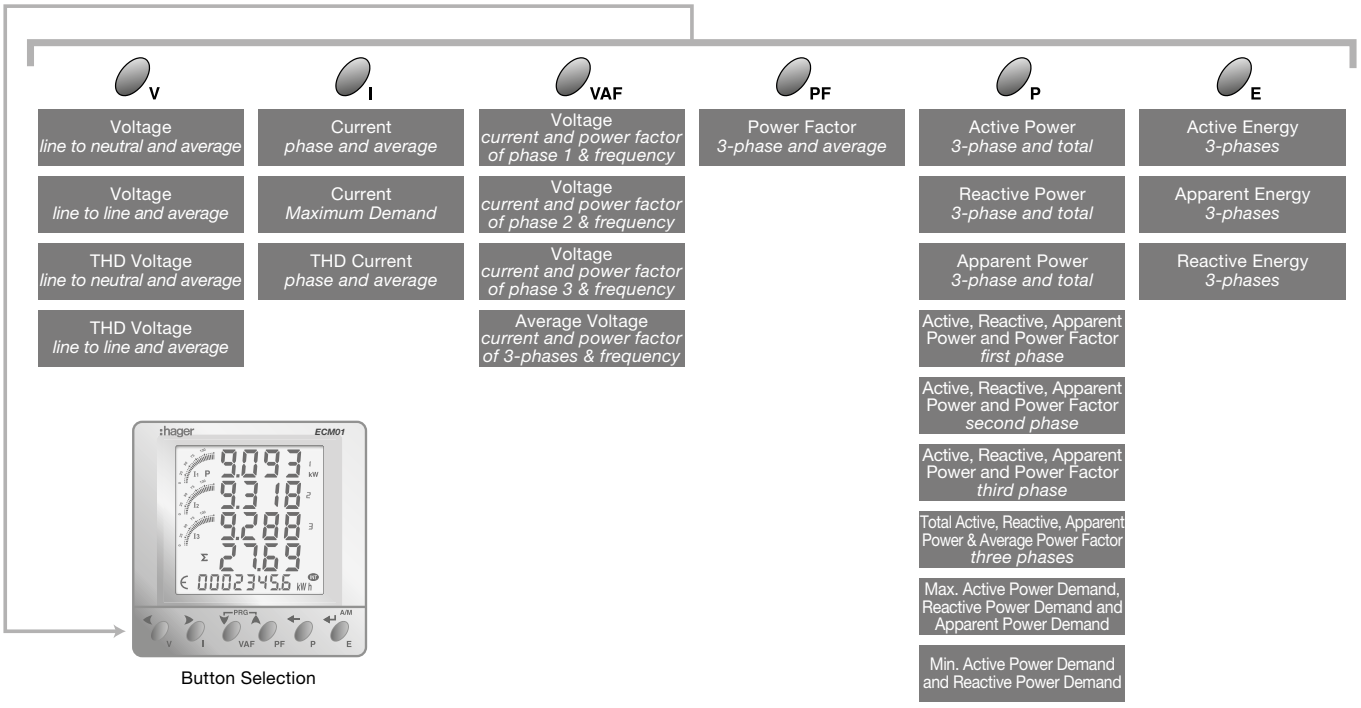


Side Enclosures

	Dimensions (mm)		
	Width	**Height**	**Depth**
JF12504SM	350	1250	160
JF14006SM	350	1400	160
JF15508SM	350	1550	160
JF17009SM	350	1700	160

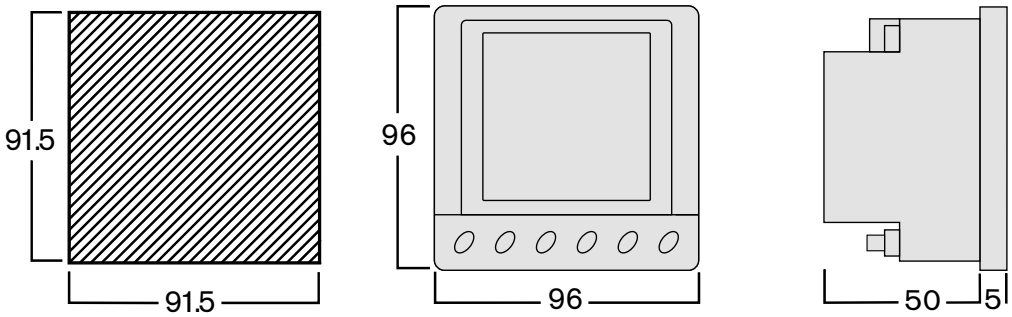
- 96 x 96mm Flush mounting
- Single phase or 3 phase 4 wire network balanced or unbalanced load
- Built in energy pulsed output or with pulsed output and RS485 (modbus)
- Backlit LCD display with bargraph current indication on every page
- Automatic or manual scrolling display
- 330mV current transformer 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

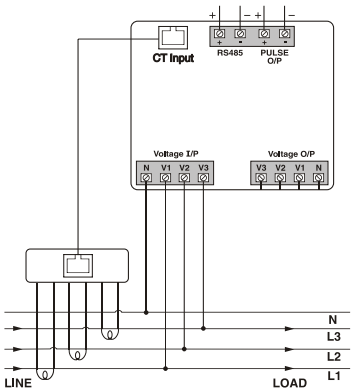


Button Selection

Dimensions Diagram (mm)

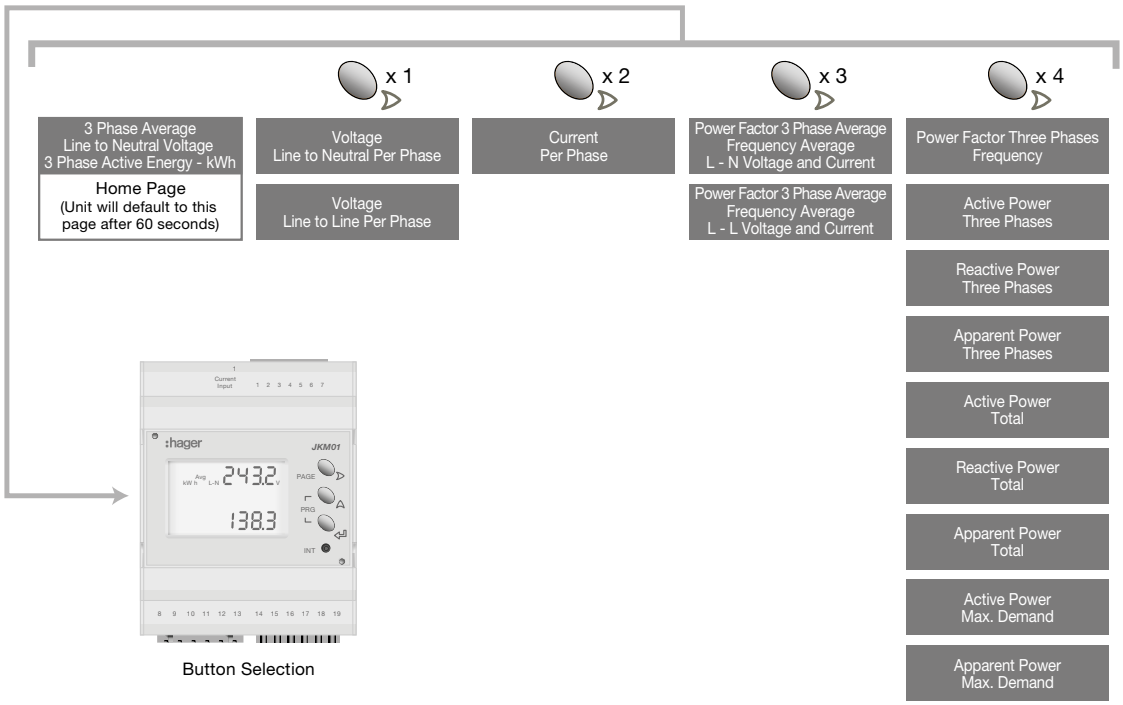


Please allow space at the rear of the meter for cable connections.



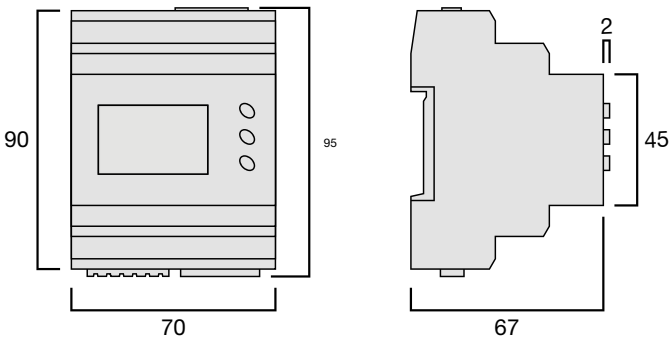
- 4 Module DIN rail mounting
- Single phase or 3 phase (4 wire) network balanced or unbalanced load
- Built-in energy pulse output and RS485 MODBUS communication
- Wide range of measured parameters (see table below)
- High quality backlit LCD display
- 330mV current transformer input
- Active energy 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

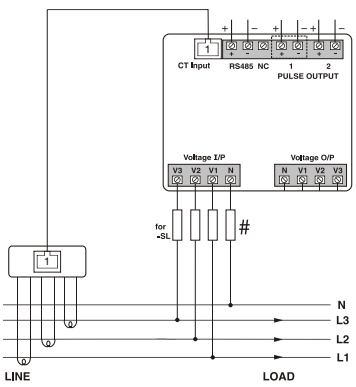


Button Selection

Dimension Diagrams (mm)



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

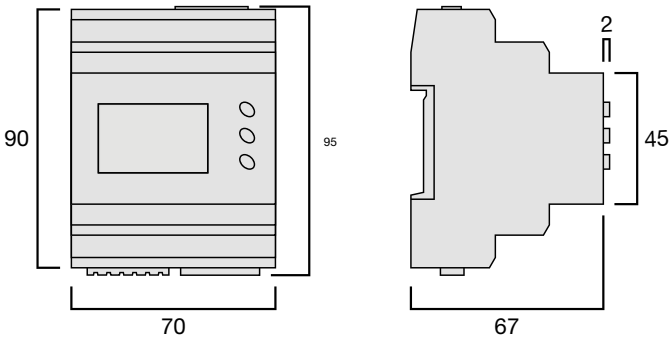


- Split Load, Dual CT input meter
- 4 Module DIN rail mounting
- Single phase or 3 phase (4 wire) network balanced or unbalanced load
- Built-in dual energy pulse output, one for each load and RS485 MODBUS communication
- Wide range of measured parameters (see table below)
- High quality backlit LCD display
- 330mV current transformer input
- Active energy class 1 (EN62053-21)
- Reactive energy class 2 (EN62053-23)
- THD upto 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 per load
- Programmable VT ratio
- Frequency 45/65Hz
- Selectable CT phase correction allows reversal of L1 and L3
- Weight 200g

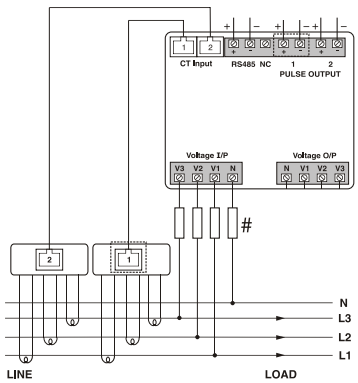
Function Diagram

Button Selection

Dimension Diagrams (mm)



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



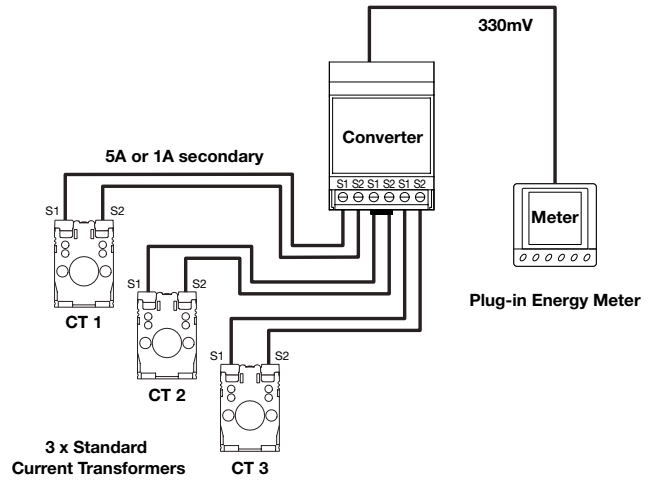
- Connect up to 3 standard or split core CT's (1A or 5A secondaries)
- Integrated protection circuitry

Standard CT to plug-in Adaptor

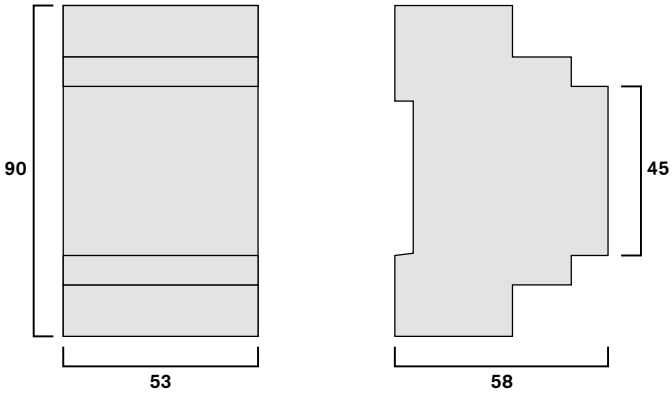
The JFA03 converter allows for the connection of up to three standard current transformers, or standard split-core current transformers (with 1A or 5A secondary's), to the plug-in system.

The unit has integrated protection circuitry allowing for disconnection from meter under load conditions for maintenance.

Important Note
This converter does not provide electrical isolation.
Current transformer secondaries may not be earthed and should be wired as shown.



Dimension Diagrams (mm)



Technical Specification

Burden:	<2VA per channel (5A Version) <0.5VA per channel (1A Version)
Accuracy:	0.4%
Suggested Cable Size: (CT to Adaptor)	1.5mm^2 or 2.5mm^2 (2.5mm^2 Max.)
Mounting:	DIN rail 35mm
Termination:	CT to adaptor - Rising clamp screw terminals Adaptor to Meter - RJ45 Patch

Cable

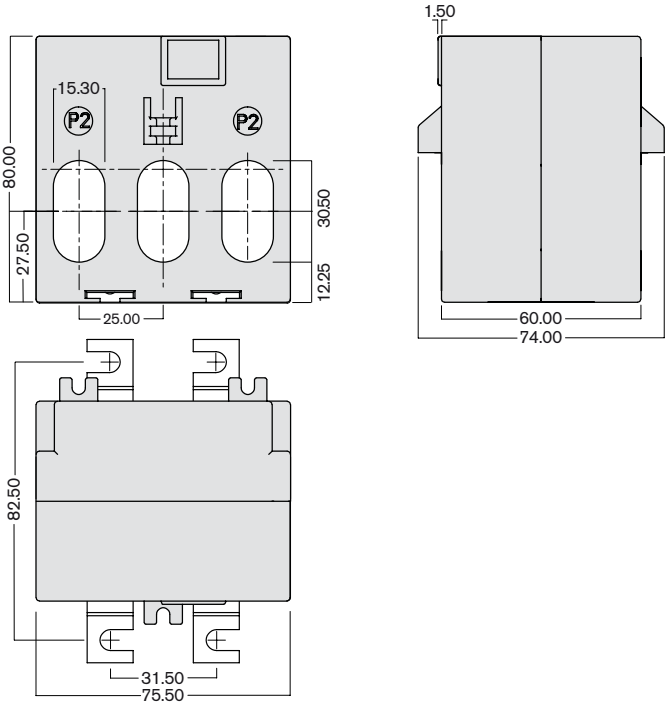
Operating Temperature:	–10°C…+45°C
Storage Temperature:	–25°C…+70°C

- Accuracy Class 1
- Aperture: 3 @ 15.5 x 30mm
- Primary Current: 60 to 160A
- 25mm hole centres
- Housing Material Self extinguishing Nylon IEC185 classification VO according to UL-94
- Reference standard EN60044-8
- Weight : 500g

Description
This is a 75mm wide three phase measuring current transformer designed for use with Hager x160 MCCBs and the plug-in multifunction power meters. This current transformer has three 15.5 x 30mm holes and is available with primary currents from 60 to 160A. (x160 frame MCCBs)
Internal safety circuitry is provided which limits the output voltage to a safe level, allowing the transformer secondary to be left disconnected under load.

Fixing
Busbar mounting and fixing feet included.

Dimensions (mm)



Accessories
DIN rail mounting clip.

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.

Current Transformer Ratios

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

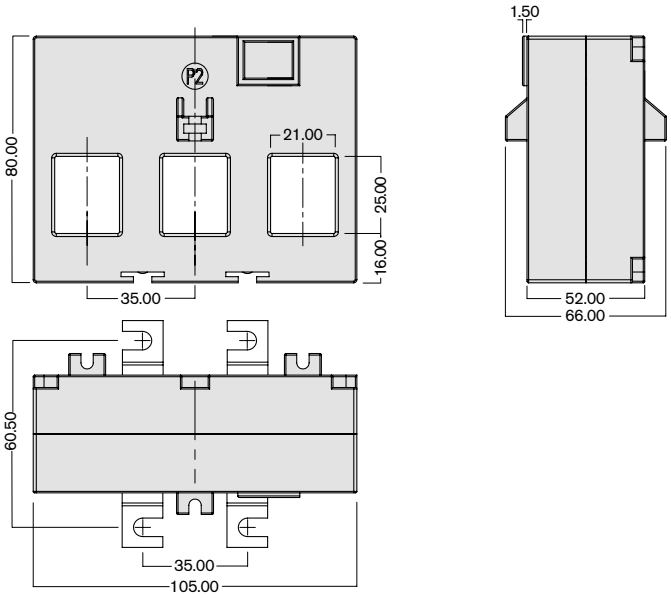
330mV Secondary

- Accuracy Class 1
- Aperture: 3 @ 21 x 25mm
- Primary Current: 60 to 250A
- 35mm hole centres
- Housing Material Self extinguishing Nylon IEC185 classification VO according to UL-94
- Reference standard EN60044-8
- Weight : 550g

Description
This is a 105mm wide three phase measuring current transformer designed for use with Hager x250 MCCBs and the plug-in multifunction power meters. This current transformer has three 21 x 25mm holes and is available with primary currents from 60 to 250A. (x250, h250 frame MCCBs)
Internal safety circuitry is provided which limits the output voltage to a safe level, allowing the transformer secondary to be left disconnected under load.

Fixing
Busbar mounting and fixing feet included.

Dimensions (mm)



Accessories
DIN rail mounting clip.

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.

Current Transformer Ratios

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

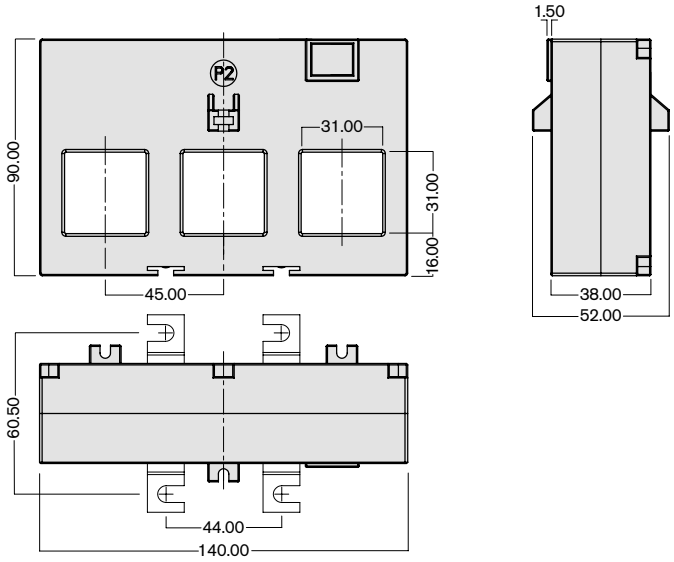
330mV Secondary

- Accuracy Class 1
- Aperture: 3 @ 31 x 31mm
- Primary Current: 250 to 630A
- 45mm hole centres
- Housing Material Self extinguishing Nylon IEC185 classification VO according to UL-94
- Reference standard EN60044-8
- Weight : 680g

Description
This is a 140mm wide three phase measuring current transformer designed for use with the plug-in multifunction power meters. This current transformer has three 31 x 31mm holes and is available with primary currents from 250 to 630A. (h630 frame)
Internal safety circuitry is provided which limits the output voltage to a safe level, allowing the transformer secondary to be left disconnected under load.

Fixing
Busbar mounting and fixing feet included.

Dimensions (mm)



Accessories
DIN rail mounting clip.

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.

Current Transformer Ratios

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

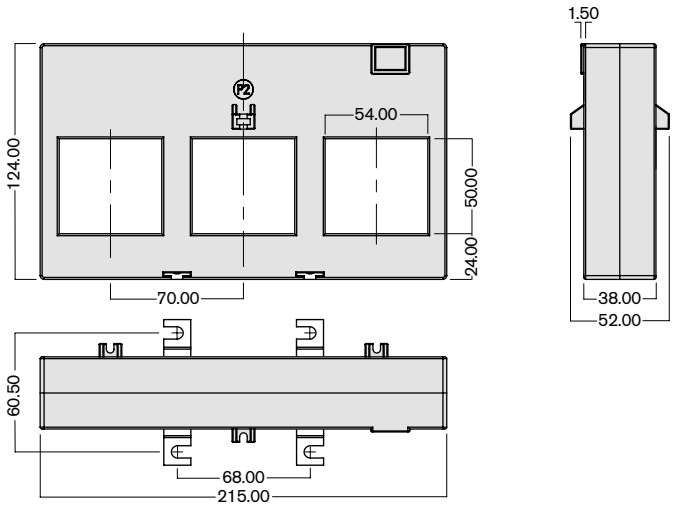
330mV Secondary

- Accuracy Class 1
- Aperture: 3 @ 54 x 50mm
- Primary Current: 800
- 70mm hole centres
- Housing Material Self extinguishing Nylon IEC185 classification VO according to UL-94
- Reference standard EN60044-8
- Weight : 1200g

Description
This is a 215mm wide three phase measuring current transformer designed for use with the plug-in multifunction power meters. This current transformer has three 54 x 50mm holes and is available with primary currents from 800.
Internal safety circuitry is provided which limits the output voltage to a safe level, allowing the transformer secondary to be left disconnected under load.

Fixing
Busbar mounting and fixing feet included.

Dimensions (mm)



Accessories
DIN rail mounting clip.

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.

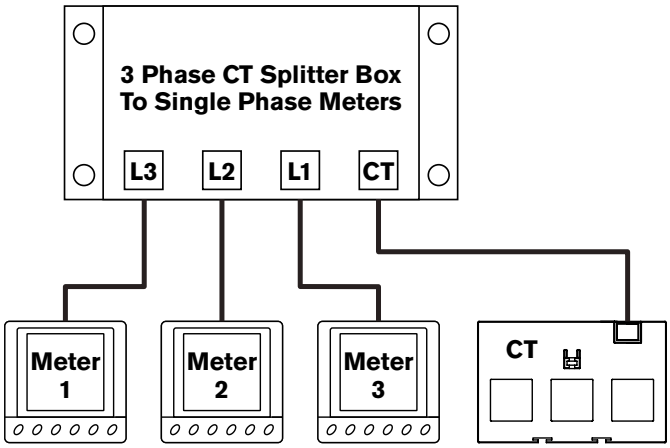
Current Transformer Ratios

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

CT Output and RJ45 Lead Tester

This device makes it possible to test the RJ45 patch lead used to connect the current transformer to the meter. It also enables a standard electricians multimeter to measure the individual secondary outputs of the current transformer.
To test the RJ45 patch lead, simply disconnect the lead from the meter and current transformer. Plug one end into socket 1 and the other end into socket 2 on the test box. Press the test button - the Green LED will light to indicate the lead is OK or the Red LED will light to indicate a faulty lead. When the lead is proven to be OK you can then check the individual secondary outputs of the current transformer. To measure the secondary output plug one end of the RJ45 patch lead into the current transformer and the other end into socket 2 on the test box. You can now use a standard multimeter to test the secondaries using the test points on the front of the test box. The output measured for each phase should be between 0 and 330mVac.
Model Reference: JFT03

3 Phase CT Splitter Box
This 3 Phase CT Splitter Box allows the separate monitoring of each phase of a three phase current transformer on individual energy meters.
Model Reference: JFS03



Meter Voltage Supply Cable

Our high quality Meter Voltage Supply Cables are fitted with a plug at one end and insulated bootlace ferrules at the other and provide power to the plug-in meter from your mains supply. Two type of cable material are available:- LSZH (Low Smoke Zero Halogen).

Meter to Meter Supply Cable

Our high quality Meter to Meter Voltage Supply Cables are fitted with a plug at one end and socket at the other. This allows multiple plug-in meters to be energised from a common supply. Up to 32 meters can be powered in a 'daisy chain' arrangement using this method.
Two type of cable material are available:- LSZH (Low Smoke Zero Halogen).

RJ45 Connection Cable

The high quality low loss Category 5e RJ45 Connection Cable provides secondary connection between the plug-in current transformer and meter.

How to Order / Model Reference

eg **PGRJ** 300

Part Number	PGRJ
Cable Length	
0.3m - RJ45 connector cable (300mm)	**300**
0.5m - RJ45 connector cable (500mm)	**500**
1.0m - RJ45 connector cable (1000mm)	**1000**
1.5m - RJ45 connector cable (1500mm)	**1500**
2.0m - RJ45 connector cable (2000mm)	**2000**
3.0m - RJ45 connector cable (3000mm)	**3000**

Other lengths available on request (Max. 15m)

PVC/PVC - 1mm²

eg **PGMF** 300

Part Number	PGMF
Cable Length	
0.3m - Voltage Supply Cable (300mm)	**300**
0.5m - Voltage Supply Cable (500mm)	**500**
1.0m - Voltage Supply Cable (1000mm)	**1000**
1.3m - Voltage Supply Cable (1300mm)	**1300**
2.0m - Voltage Supply Cable (2000mm)	**2000**
3.0m - Voltage Supply Cable (3000mm)	**3000**

Other lengths available on request (Max. 15m)

PVC/PVC - 1mm²

eg **PGMFT** 300

Part Number	PGMFT
Cable Length	
0.15m - Supply Link Cable (150mm)	**150**
0.3m - Supply Link Cable (300mm)	**300**
0.5m - Supply Link Cable (500mm)	**500**
1.0m - Supply Link Cable (1000mm)	**1000**
1.3m - Supply Link Cable (1300mm)	**1300**
2.0m - Supply Link Cable (2000mm)	**2000**
3.0m - Supply Link Cable (3000mm)	**3000**

Other lengths available on request (Max. 15m)

		SPN801 / SPN801R	SPN802 / SPN802R	
Tested to		EN 61643-11 (VDE0675-6-11) 2002-12	EN 61643-11 (VDE0675-6-11) 2002-12	
		L1/L2/L3/N => PE	L1/L2/L3 => N	N => PE
SPD type / class		Type 1 + Type 2 / I / B		
Type of connexion		Parallel connection		
Type of power supply system		TN-S - System	TT - System	
Type of protection		Common modes	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	100kA	25kA	100kA
Impulse current (10/350)	I_{imp}	100kA	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	50kA ac	25kA ac	
	MCCB	50kA ac	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		6	8	
Weight		1260 g	1272 g	
Approval marking		VDE		

		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 connexion		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	

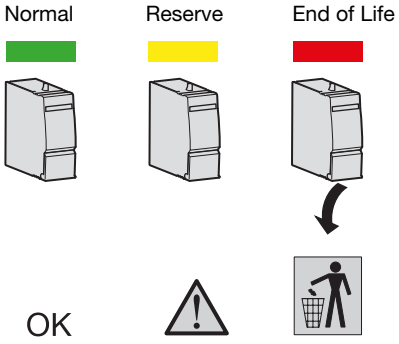
		SPN215D/R	SPN415D/R	SPN440D/R
Tested to		EN 61643-11 (VDE0675-6-11) 2002-12		
SPD type		Type 2 according to EN 61643-11		
SPD class		Class II according to IEC 61643-1		
Type of connexion		Parallel connection		
Maximum continuous operationg voltage U_c	Line / Neutal	≤ 255V		
	Neutral/ PE	≤ 275V		
Voltage 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) [(DC+/DC-) --> PE]	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 - Yellow - 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		

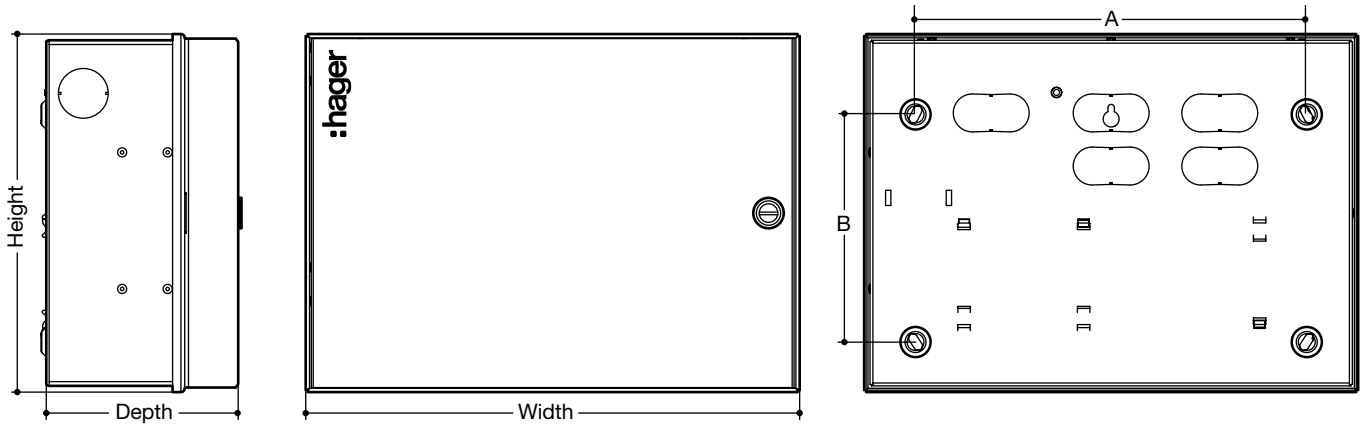
		SPV325
Tested to		EN 61643-11 (VDE0675-6-11) 2002-12
SPD type		Type 2 according to EN 61643-11
SPD class		Class II according to IEC 61643-1
Type of connexion		Parallel connection
Maximum continuous operationg voltage	Uc_{PV}	≤ 1000V
Voltage protection level	U_p	≤ 4kV
Voltage protection level for 5kA	U_p	≤ 3,5kV
Total discharge current (8/20 µs)	I_{total}	40kA
Nominal discharge current (8/20 µs) [(DC+/DC-) --> PE]	I_n	12.5kA
Max. discharge current (8/20 µs) [(DC+/DC-) --> PE]	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

Characteristics		
Tested to		EN 61643-11 (VDE0675-6-11) 2007-08
SPD type / class		T3 / III
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.



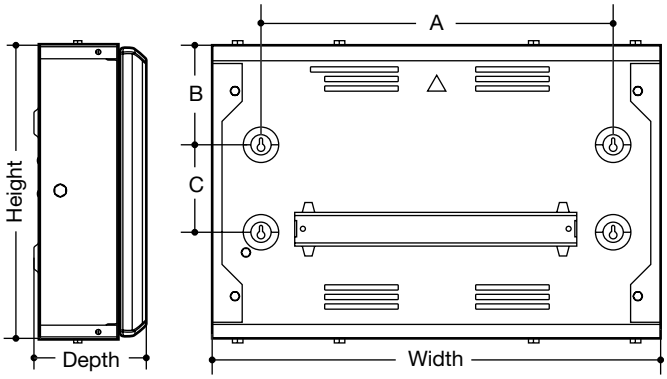


SP&N A Boards

	Dimensions			Fixing Centres		Knockout Size	Nº of Knockouts				
Modules	**Width**	**Height**	**Depth**	**A**	**B**		**Top**	**Bottom**	**Left**	**Right**	**Back**
8	254	236	125	186	150	ø 20	3	3	-	-	-
						ø 32	1	1	1	1	-
						ø 25	1	1	-	-	-
						25 x 50 ⬭	-	-	-	-	3
12	326	236	125	258	150	ø 20	6	6	-	-	-
						ø 32	1	1	1	1	-
						ø 25	1	1	-	-	-
						25 x 50 ⬭	-	-	-	-	5
16	398	236	125	330	150	ø 20	8	8	-	-	-
						ø 32	1	1	1	1	-
						ø 25	1	1	-	-	-
						25 x 50 ⬭	-	-	-	-	7
22	505	236	125	437	150	ø 20	11	11	-	-	-
						ø 32	1	1	1	1	-
						ø 25	1	1	-	-	-
						25 x 50 ⬭	-	-	-	-	9
2 x 12	326	472	125	258	388	ø 20	6	6	-	-	-
						ø 32	1	1	2	2	-
						ø 25	1	1	-	-	-
						25 x 50 ⬭	-	-	-	-	6
2 x 16	398	472	125	330	388	ø 20	8	8	-	-	-
						ø 32	1	1	2	2	-
						ø 25	1	1	-	-	-
						25 x 50 ⬭	-	-	-	-	8
2 x 22	505	472	125	437	388	ø 20	11	11	-	-	-
						ø 32	1	1	2	2	-
						ø 25	1	1	-	-	-
						25 x 50 ⬭	-	-	-	-	10
3 x 22	505	708	125	437	624	ø 20	11	11	-	-	-
						ø 32	1	1	3	3	-
						ø 25	1	1	-	-	-
						25 x 50 ⬭	-	-	-	-	15

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



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 for Fuse Combination Switches

		Dimensions (mm)		
	Rating	**Width**	**Height**	**Depth**
JZA701	125 / 250A	375	200	200
JZA702	315 / 400A	500	250	300
JZA703	630 / 800A	600	300	350

Switch Disconnectors

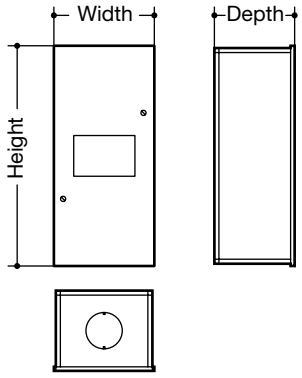
All dimensions are in mm and exclude the handle.

3 Pole		Dimensions (mm)			
	Description	**Width**	**Height**	**Depth**	**Handle Depth**
JAC316	160A TPN	250	300	150	195
JAE320	200A TPN	375	400	200	245
JAE325	250A TPN	375	400	200	245
JAG331	315A TPN	375	500	200	245
JAG340	400A TPN	375	500	200	245
JAH363	630A TPN	500	650	300	345
JAH380	800A TPN	500	650	300	345

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	195
JAE420	200A TPSN	375	400	200	245
JAE425	250A TPSN	375	400	200	245
JAG431	315A TPSN	375	500	200	245
JAG440	400A TPSN	375	500	200	245
JAH463	630A TPSN	500	650	300	345
JAH480	800A TPSN	500	650	300	345

Thermal current Ith (40ºC)	20A		32A		63A		100A		125A		160A		200A	
Fuse size: BS	A1		A1		A2-A3		A4		B1-B2		B1-B2		B1-B3	
Rated insulated voltage														
Ui (V)	800		800		800		800		800		800		800	
Impulse voltages Uimp	8000	8000	8000	8000	8000	8000	8000	8000	8000	8000	12000	12000	-	
Operational current Ie (A)	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-23B (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	
Tightening torque	2		2		6		9		9		9		20	
Connection (mm²)														
Minimum Cu cable section	2.5		2.5		10		25		35		50		70	
Maximum Cu cable section	16		16		25		95		95		95		240	
Fuse types	NIT20		NIT32		TIS63		TCP100		TF125		TF160		TF200	

Thermal current Ith (40ºC)	250A		315A		400A		630A		800A	
Fuse size: BS	B1-B3		B1-B4		B1-B4		C1-C2		C1-C2-C3	
Rated insulated voltage Ui (V)	800		800		800		1000		1000	
Impulse voltages Uimp	-		-		-		-		-	
Operational current Ie (A) A = Frequent operation B = Infrequent operation	A	B	A	B	A	B	A	B	A	B
415V ac AC-22A/AC-23B	250	250	315	315	400	400	630	630	800	800
Motor power (kW) 400V ac	-		160	160	220	220	355	355	-	
Reactive power 400V ac (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	
Tightening torque (Nm)	-		20		20		40		40	
Connection (mm²)										
Minimum Cu cable section	70		185		185		2 x 150		2 x 150	
Maximum Cu cable section	240		240		240		2 x 300		2 x 300	
Fuse types	TKF250		TKF315		TMF400		TTM630		TLM800	



Switch Fuses

	Dimensions (mm)					
	Width	**Height**	**Depth**	**Depth with Door**	**Connection**	**Knockouts**
IU4-16	115	187	61.5	-	Earth only	2 x 25mm
IU44-18	125	312	73.5	-	Earth only	None
IU44-11	125	312	73.5	-	Earth only	None
IU4-16-D	125	312	74	96	Earth only	None
IU4-18-D	125	312	74	96	Earth only	None
IU4-11-D	125	312	74	96	Earth only	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.

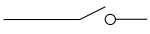
		Dimensions (mm)		
	Description	**Width**	**Height**	**Depth**
JG00S	10A TPN	100	136	74
JG01S	16A TPN	100	136	105
JG02S	25A TPN	100	136	105
JG03S	40A TPN	136	201	105
JG04S	63A TPN	136	201	118
JG05S	80A TPN	136	201	118

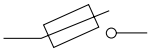
Enclosed thermal current I_{the}	**16**	**25**	**40**	**63**	**80**
Rated insulation voltage U_i (V)	690	690	690	690	690
Rated thermal current I_{the} (A)	25	40	63	80	100
Rated operational current					
AC21 400V Ie (A)	25	40	63	80	100
AC22 400V	16	25	40	63	100
AC22 400V cos phi 0.65	16	20	32	63	100
AC23 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	20	32	63	100	125	125	125	250	250	250	500	800
AC21A 690VAC	20	32	63	100	125	160	160	200	200	200	500	800
AC22A	20	32	63	100	125	125	125	125	125	125	315	800
Overload capacity												
Icw rated short time withstand value (kA/s)	1.26	1.26	1.5	1.5	7	7	7	9	9	9	13	26
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)	-	-	-	-	20	20	18	30	23	23	45	55
Rated short circuit making capacity (kA)	1.8	1.8	2.1	2.1	11.9	11.9	11.9	15.3	15.3	15.3	26	54.6
Rated impulse withstand voltage Uimp (kV)	8	8	8	8	8	8	8	8	8	8	12	12
Mechanical endurance (number of operations)	100,000	100,000	100,000	100,000	10,000	10,000	10,000	10,000	10,000	5,000	5,000	5,000
Maximum cable size	16	16	50	50	50	95	95	150	185	240	2 x 300	2 x 300
Tightening torque (Nm)	2	2	4	4	9	9	9	20	20	20	20	-

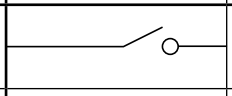
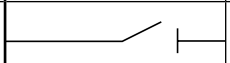
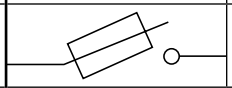
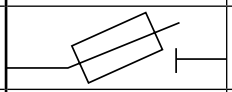
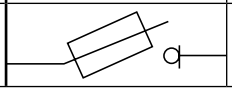
Product Reference	**JAB402B**	**JAB403B**	**JAB406B**	**JAB410B**	**JAC412B**
Thermal Current In	20A	32A	63A	100A	125A
Switch	3PSN	3PSN	3PSN	3PSN	3PSN
Rated Insulation Voltage Ui	800V	800V	800V	800V	800V
Rated Impulse Voltage Uimp	8kV	8kV	8kV	8kV	8kV
Dimensions					
Height (mm)	232	232	232	232	300
Width (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
Icw	2.5 / 0.3s	2.5 / 0.3s	3.0 / 0.3s	5.0 / 0.3s	5.0 / 0.3s
Ipk	6	6	9	12	12
Cable Connection					
Max Cu cable CSA mm^2	16	16	35	70	70

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.

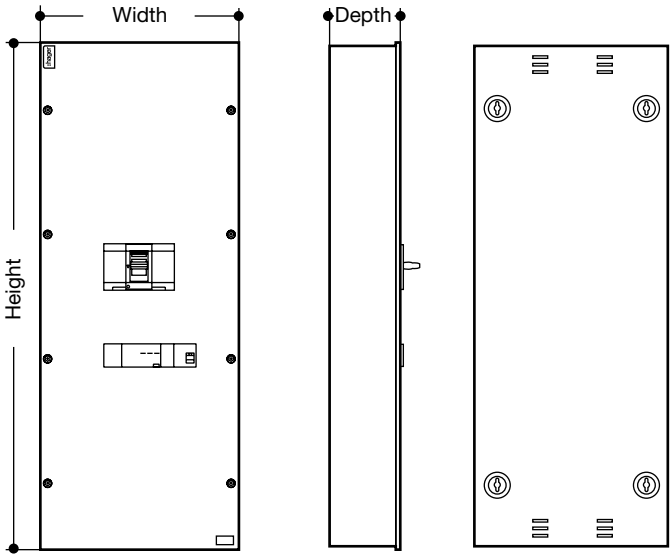
The protection of motor power circuits should not be confused with the direct switching of a single motor. If a fuse-combination unit is required to perform this function then it must comply with the requirements of Appendix A of BS EN 60947-3 which makes provision for different utilisation categories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

Interface Characteristics	JG44BM, JG45BM, JG46BS, JG47BS	JG48BM, JG50BS, JG49BM, JG51BS	JG36BM, JG37BM, JG40BM, JG42BS, JG41BM, JG43BS
Rated & operational voltage (U_n / U_e)	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
Rated impulse withstand voltage (U_{imp})	6kV	6kV	6kV
Rated current of the Assembly (I_{nA})	400A	630A	**JG36BM, JG37BBM** -160A **JG40BM, JG42BS, JG41BM, JG43BS** - 250A
Rated conditional short-circuit current of the assembly (I_{cc})*	50kA	50kA	25kA
Rated peak withstand current (I_{pk})	105kA	105kA	52.5kA
Standards - Enclosed MCCB assembly	BS EN 61439-2	BS EN 61439-2	BS EN 61439-2
Standards - MCCB only	BS EN 60947-2	BS EN 60947-2	BS EN 60947-2
Rated frequency (fn)	50 Hz	50 Hz	50 Hz
Pollution degree	3	3	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	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
Stationary assembly external design	Wall mounted	Wall mounted	Wall mounted
Degree of protection	IP3X with cover fitted	IP3X with cover fitted	IP3X with cover fitted
Intended use	Skilled persons only	Skilled persons only	Skilled persons only
Electromagnetic compatibility (EMC) classification	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.
Mechanical impact protection	IK05	IK05	IK05
Form of seperation	Form 2a	Form 2a	Form 2a
Connection of functional unit: -Incoming/outgoing circuit protection	F (fixed)	F (fixed)	F (fixed)
Incoming Line Terminal(s)	M10 Bolt	M12 Bolt	M8 Socket Cap Screw
Incoming Neutral Terminal	M10 Bolt	M10 Bolt	**JG37BM, JG41BM, JG43BS -** M8 Socket Cap Screw **JG36BM, JG40BM, JG42BS** - M10 Bolt
Enclosure Earth Stud	M10	M12	M8

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

	JG37BR, JG38BR	JG45BR
	415V a.c. 50Hz	415V a.c. 50Hz
	690V a.c. 50Hz	690V a.c. 50Hz
	6kV	6kV
	JG37BR - 160A **JG38BR** - 200A	375A
	25kA	50kA
	52.5kA	105kA
	BS EN 61439-2	BS EN 61439-2
	BS EN 60947-2	BS EN 60947-2
	50 Hz	50 Hz
	3	3
	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
	Indoor use only	Indoor use only
	Wall mounted	Wall mounted
	IP3X with cover fitted	IP3X with cover fitted
	Skilled persons only	Skilled persons only
	EMC Environment B	EMC Environment B
	Wall-mounted, surface type, enclosed assembly.	Wall-mounted, surface type, enclosed assembly.
	IK05	IK05
	Form 2a	Form 2a
	F (fixed)	F (fixed)
	M8 Socket Cap Screw	M10 Bolt
	M8 Socket Cap Screw	M10 Bolt
	M8	M10



	Dimensions (mm)			
	Height	**Depth**	**Width**	**Weight**
JG25BM	420	106	200	-
JG26BM	420	106	200	-
JG27BM	420	106	200	-
JG27BR	420	106	300	-
JG28BM	420	106	200	-
JG29BM	420	106	200	-
JG30BM	420	106	200	-
JG31BM	420	106	200	-
JG32BM	420	106	200	-
JG33BM	420	106	200	-
JG30BR	420	106	300	-
JG34BS	420	106	200	-
JG35BS	420	106	200	-
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

The Ingress Protection (IP) 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 (in option)
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 (in option)
Specific information on the product

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

Sustainability at Hager Group: ε3 ethics environment energy

Nobody knows what tomorrow will bring.

That is why at Hager Group we have chosen to anticipate risks and seize our opportunities proactively. We invest in our employees and their training, in energy efficiency and future technologies, in fair trade relations and we work actively to continuously improve our eco-balance sheet. We may be giving up more profit in the short term, but we are convinced that this is the way to achieve lasting success.

E for ethics:

The way we behave with our employees, our partners and all stakeholders. We want to provide safe and healthy working conditions, equal opportunities and career development to all our employees and promote ethical behaviour.

E for environment:

We act with respect for the planet, to help preserve it. We optimise our resources by avoiding the use of hazardous substances and limiting the amount of harmful emissions and waste.

E for energy:

40% of global energy production is used inside buildings, a significant proportion of it in the form of electricity. Energy management is Hager Group's speciality. We want to create value in a responsible way, shared with our suppliers, customers and other stakeholders. This includes, in particular all the solutions and services we offer our customers for safe, efficient and intelligent use of energy in buildings.

"As a family-owned company, it is in our nature to remain sustainable!"

Daniel Hager

For detailed information about E3, visit hager.co.uk/e3

Hager Ltd.
Hortonwood 50
Telford
Shropshire
TF1 7FT

Sales Service Centre Hotline: 01952 675612
Sales Service Centre Faxline: 01952 675645
sales@hager.co.uk

Technical Helpline: 01952 675689
Technical Faxline: 01952 675557
technical@hager.co.uk
www.hager.co.uk

Hager Ltd. Ireland
Unit M2
Furry Park Industrial Estate
Swords Road
Santry
Dublin 9, D90 NY19
Ireland

Republic of Ireland Tel: 1890 551 502
Republic of Ireland Fax: 1890 551 503

Northern Ireland Tel: 00 44 7968 147444
Northern Ireland Fax: 00 353 1 8869520
customer.service@hager.ie
www.hager.ie

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