

Catalogue 2020/2021

:hager

**Your reliable
partner for
intelligent
solutions.**

There's plenty to do. Let's get started.

**The time for
renovated electrical
installations and
intelligent solutions
is now.**



Dear friends and partners,

We all value experience. Routine helps us to be fast and reliable, which can save us time, money and hard work. Yet there are also moments when we need to leave the familiar behind and take advantage of golden opportunities just waiting to be discovered and seized.

This is one of those moments.

Renewable energy sources and innovative building technologies are creating opportunities to make more intelligent and energy-efficient homes.

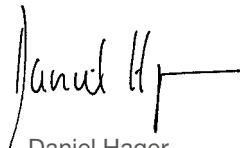
The latest studies indicate that many properties will first have to be adapted to accommodate the solar power systems, energy storage units and intelligent building controls that characterise smart homes. As of 2014, 15.3 million UK homes could benefit from improvements to aid in energy-efficient living and working. Large-scale renovation and modernisation are needed if renewable energy is to help achieve an 80 percent cut in the UK's carbon emissions by 2050.

This work requires specialists. There's plenty to do. Let's get started.

We at Hager Group will support you with the very best products, solutions and services. And we are constantly evolving and improving: we have more than 800 team members working on better products and innovative technologies to make your work easier and our customers' lives more comfortable. At the same time, we are increasing our focus on services so that we can provide you and our customers with expert support.

When it comes to change, we practice what we preach. And we rely on expert partners like you to help us set the trends for the future. This future is starting right now, and I'm looking forward to shaping it with you.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Daniel Hager', followed by a horizontal line.

Daniel Hager
Hager Group CEO

Under one roof

Members of Hager Group

:hager

B.
Berker

ELCOM.

DAITEM


diagral

EFEN 

B. BOCCHIOTTI

One family

The world is changing, and we are changing with it. As a family company, we have grown steadily over the last sixty years to become a reliable partner to expert technicians and electrical wholesalers around the world. All while remaining true to ourselves and to our values. And so we continue today, with a number of well-known brands – each with their own distinctive strengths – working together under the Hager Group umbrella.



Hager Forum in Obernai, France, is a place where we can work with customers and partners to shape the future. That makes it a perfect symbol of the innovative power of Hager Group.

hagergroup

Your trust

As a partner and customer, you can choose from the entire range of products and services offered by every member of our brand family. Our new corporate image highlights our shared strengths even more clearly. From now on, each of our brands will be easily recognisable as a 'Member of Hager Group'. The new corporate image also involves some colour and design changes. Our core promise remains the same: we will always work with you to succeed together.

Our strengths

We have huge opportunities ahead. The upcoming modernisation of existing buildings, intelligent building technology, digital services, new energy sources and technologies – all of this opens up new, exciting potential for you and for us. At the same time, business requirements are becoming more and more complex. That's why it's so important for you to have Hager Group specialists supporting you with all of their expertise. Together, we are stronger. Together, we will overcome the complex challenges of our time with simple, impressive solutions – just as we have been doing for the last six decades.

E3

Global warming, a shortage of natural resources, social cohesion and the transition to renewable energy: there are many challenges facing businesses and society today. Hager Group is pursuing a variety of initiatives to promote sustainable development with its “E3” approach.

Environ

E for Environment

We work continuously to reduce our carbon footprint. Our priorities include optimising the transport of our products and cutting the amount of energy we use in production to further reduce our Carbon footprint.



Ethics

E for Ethics

We need skilled, motivated and healthy employees in order to offer our customers the best services and products. That's why we provide all our team members with a safe, healthy working environment, support their professional growth and offer them opportunities for further development. We also promote diversity and adherence to an Ethics Code throughout the company.

ment

Energy

E for Energy

Hager Group helps its customers to save energy intelligently. We also analyse and optimise our products' environmental performance throughout development and production. By providing a detailed environmental profile for most of our products, we can be fully transparent with our customers and ourselves.

Technology as a friend



Hager Design turns technical products into familiar friends.

Before we start designing a new product, we think about the people it is going to serve. Will it assist or entertain, observe or protect, save time or save energy? Ideally, whatever it does, users will feel it is a reliable 'friend'. We need to know how to connect with people on an emotional level, to ensure that in return they feel connected to our products.

Technology for people

Responsible design builds on an ethical foundation. At Hager, this foundation is all about respecting people and caring about their well-being. And it's not just about today – we want to inspire our customers for years to come. That's why we include them in every stage of the design process – from installer to planner, to end user.

An honest brand

Hager products are world-renowned for their quality, which is visibly and tangibly unveiled in their design. The unmistakable, explicit and clear brand image tells customers straight away that these products are part of 'the family'. This is our signature, the Hager DNA, which embodies two central principles.

Friendly, serene, balanced: an honest, authentic design that blends naturally into everyday life, without gadgets or cheap effects.



Erwin van Handenhoven
Hager Group Design Director

Ingeniously simple: our products are important, but never over-the-top. If it's not necessary, we leave it out. The essence remains. Straightforward in both form and function: simple to install, simple to use. Simply Hager!

Looking ahead to the future

Hager systems are not stagnant – they are expanding, gaining more and more visibility in our customer's homes. This has implications for our present design language. We call it 'New Start'. The aim of New Start is to meet our customers where they are, and carry them with us into the future: with innovative ideas, new designs and expressive materials. The new Hager catalogue is full of 'New Starters' – along with lots of 'old friends'. Come and explore!

An engineered solution

From pre-assembled standard distribution units to bespoke composite TP&N boards, and plug in distribution boards we can provide the solution. We will even 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.

Here to help

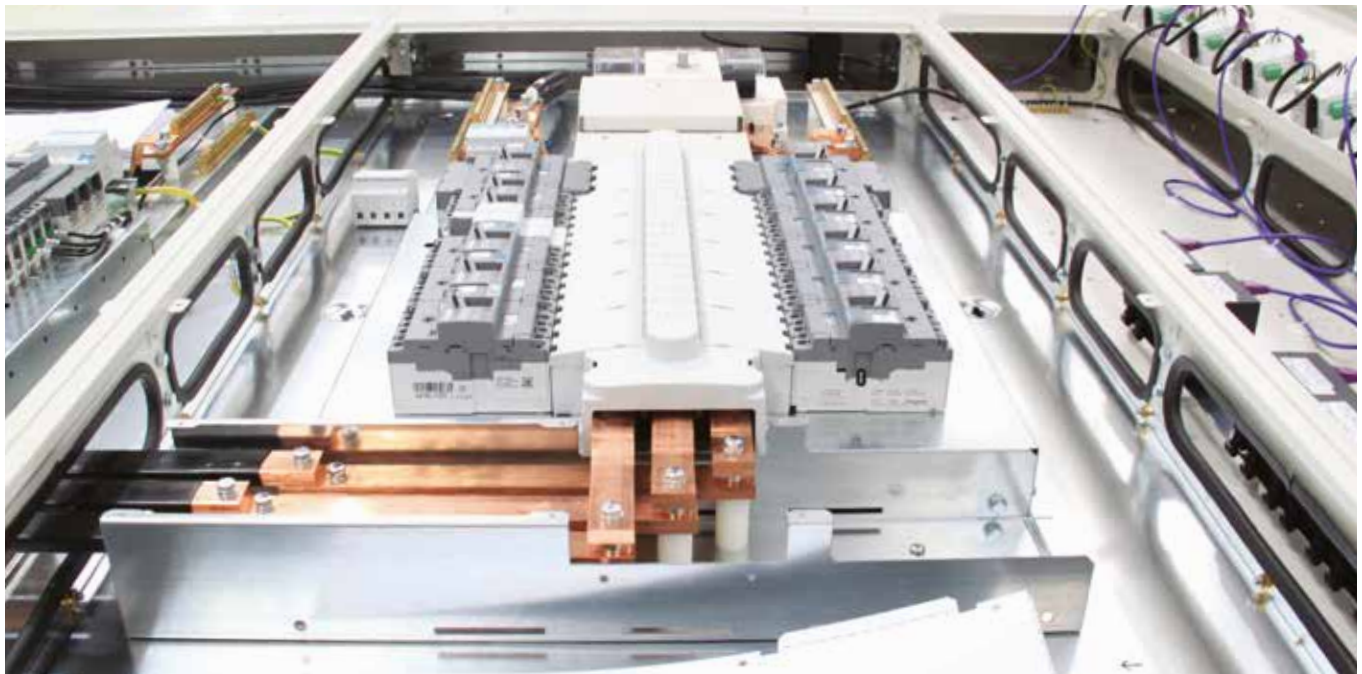
Many electrical distribution solutions require something that cannot be purchased off the shelf.

Whether it is an unusual configuration or simply speed on site, our engineered solutions supplies the answer. 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

Our lighting and power meter board is a compact solution to meet the demands of energy metering. However for special applications we also offer our full-engineered solutions design and build service, providing additional features such as data logging and web connectivity for remote meter reading.





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.

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.

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.

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

01 Commercial Distribution

Distribution Boards / Type A Distribution Boards / Type B Distribution Boards / Panelboards / Metering / Fuse Combination Switches / Switch Fuses / Switch Disconnectors / Enclosed MCCBs /

Protection Devices / MCBs / RCBOs / RCCBs / Motor Starters / Fuse Carriers / Surge Protection / Earth Fault Relays / MCCBs



1.1

02 Modular Devices & Enclosures

Enclosures / DIN Rail Enclosures / IP40 Enclosures / IP55 Enclosures / IP65 Enclosures / Enclosure Accessories

Modular Devices / Metering & Monitoring / Switching / Relays & Contactors / Push Buttons / Indication / Timers / Heating



2.1

03 Lighting, Connection & Control

Klik / Klik 4 Pin / Klik 7 Pin

Controls / Motion Detectors

Lighting / Outdoor Lighting



3.1

04 Residential Distribution

Consumer Units / Surface Mounted Consumer Units / Flush Mounted Consumer Units / Consumer Unit Accessories

Protection Devices / MCBs / RCBOs / Locking Kit / Surge Protection



4.1

05 Wiring Accessories

Sollysta / White Moulded / Decorative / Metalclad / IP66

Junction Boxes / Traditional Junction Boxes / Maintenance Free Junction Boxes / Downlighter Junction Boxes

Ceiling Accessories / Safety Lampholders / Safety Pendants



5.1

Commercial
Distribution

Modular Devices
& Enclosures

Lighting, Connection
& Control

Residential
Distribution

Wiring
Accessories

Commercial Distribution

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



Distribution Boards

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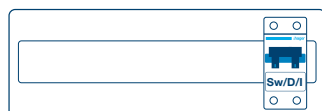
JK104

SP&N Distribution Boards

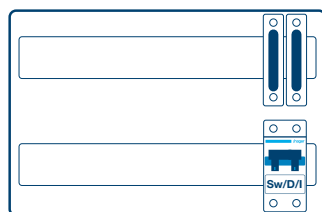
Characteristics:

- SP&N distribution boards are available from 4-28 outgoing ways. The range comes with a choice of either 100A 2 pole switch disconnecter, 63A 30mA 2 pole RCCB or 100A 30mA 2 pole RCCB, or a range of split load versions.
- Conforms to BS EN 61439-3. $I_{nA} = 63A/100A$, $I_{nC} = 63A$, $I_{CC} = 10kA$
- Cable Sizes: 100A: 50mm², 63A: 16mm²
- Ample wiring space, with provision to accept RCBO's.
- Full complement of earth and neutral terminal bars to accept up to 16mm² cable.
- Suitable for cable entry on all sides and back.
- For dimensions see page 1.47.

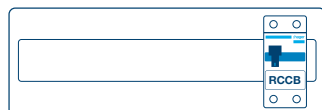
Commercial
Distribution



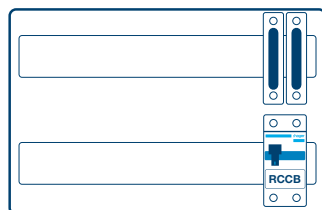
- 100A Switch Disconnecter Incomer
- 63A 30mA Switch Disconnecter Incomer



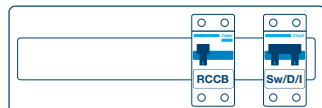
100A Switch Disconnecter Incomer
Dual Row



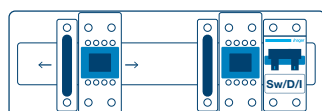
100A 30mA RCCB Incomer



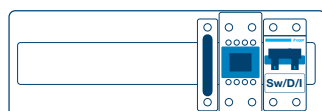
100A 30mA RCCB Incomer Dual Row



100A Switch Disconnecter Incomer &
63A 30mA RCCB



100A Dual Metered with MID Meter -
JKD114



100A Metered with MID Meter -
JKD117

Description

Size

Cat ref.

100A Switch Disconnecter Incomer

4 Way 100A Switch Disconnecter Incomer	3	JK104
6 Way 100A Switch Disconnecter Incomer	3	JK106
10 Way 100A Switch Disconnecter Incomer	4	JK110
14 Way 100A Switch Disconnecter Incomer	5	JK114
20 Way 100A Switch Disconnecter Incomer	7	JK120
28 Way 100A Switch Disconnecter Incomer Dual Row	5 (2)	JK128

63A 30mA RCCB Incomer

4 Way 63A 30mA RCCB Incomer	3	JK404H
6 Way 63A 30mA RCCB Incomer	3	JK406H
10 Way 63A 30mA RCCB Incomer	4	JK410H
14 Way 63A 30mA RCCB Incomer	5	JK414H
20 Way 63A 30mA RCCB Incomer	7	JK420H

100A 30mA RCCB Incomer

4 Way 100A 30mA RCCB Incomer	3	JK304H
6 Way 100A 30mA RCCB Incomer	3	JK306H
10 Way 100A 30mA RCCB Incomer	4	JK310H
14 Way 100A 30mA RCCB Incomer	5	JK314H
20 Way 100A 30mA RCCB Incomer	7	JK320H
28 Way 100A 30mA RCCB Incomer Dual Row	5 (2)	JK328H

100A Switch Disconnecter and 63A 30mA RCCB

6 Way Split Load Configurable 100A Switch 63A 30mA RCCB	4	JK706C
10 Way Split Load Configurable 100A Switch 63A 30mA RCCB	5	JK710C
14 Way Split Load Configurable 100A Switch 63A 30mA RCCB	7	JK714C

100A Switch Disconnecter and 100A 30mA RCCB

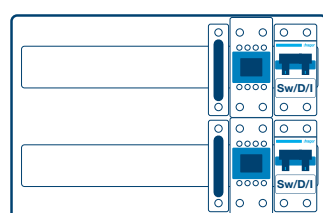
28 Way Split Load 14+14 100A Switch 100A 30mA RCCB Dual Row	5 (2)	JK527H
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100A Dual Metered with MID Meter

14 Way Dual Metered 100A Configurable MID Pulsed, Modbus	7	JKD114
22 Way Dual Metered, Dual Row 100A MID Pulsed, Modbus	5 (2)	JKD11111

100A Metered with MID Meter

17 Way Metered 100A MID Pulsed, Modbus	7	JKD117
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100A Dual Metered with MID Meter -
JKD11111

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

DIN Rail Enclosures

Characteristics:

- One, two or three row 8-66 module enclosures, fitted with DIN rails to accept any combination of Hager devices. Ample wiring space, with provision to accept RCBO's.
- Conforms to BS EN 62208. $I_{nA} = 63A/100A$, $I_{nC} = 63A$, $I_{CC} = 10kA$
- Full complement of earth and neutral terminal bars to accept up to 16mm² cable.
- Suitable for cable entry on all sides and back.
- For dimensions see page 1.47.

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



JK008

Commercial
Distribution

Invicta 3 SP&N Distribution Boards

Characteristics:

- Boards are available with 14 & 29 outgoing ways. The range comes with a 100A 2 pole switch disconnecter to accept 50mm² cable. Ample wiring space, with provision to accept RCBO's.
- Conforms to BS EN 61439-3. $I_{nA} = 63A/100A$, $I_{nC} = 63A$, $I_{CC} = 10kA$
- Full complement of earth and neutral terminal bars to accept up to 16mm² cable.
- Suitable for cable entry on all sides and back.
- Enclosures are available with plain or glazed doors.
- For dimensions see page 1.47.

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



JK114AG

Type B Distribution Boards

Invicta 3 125A, Metered Boards, IP65 Distribution Boards



Commercial
Distribution



JK106BG

¹ A **JK101SE** may be required to provide additional incoming cable space, see page 1.48.

² Full metal cover & door to comply with BS 7671 Amendment 3, where required for domestic dwelling applications.

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

Characteristics:

- Surface mounted steel enclosures, IP3XD rated available with plain, glazed & Amendment 3 door options.
- Conforms to BS EN 61439-3, $I_{nA} = 125A$, $I_{nC} = 63A$, $I_{cC} = 25kA$
- Supplied without incoming & outgoing devices. A Hager incomer kit must be used.
- Incoming cable sizes: 125A & 100A 50mm², 63A 16mm²
- For dimensions see page 1.48.

Description	Cat ref. Plain door	Cat ref. Glazed door	Cat ref. Residential Applications
4 Triple Pole Ways 125A TP&N Board	JK104B ¹	JK104BG ¹	JK104BA3 ^{1 2}
6 Triple Pole Ways 125A TP&N Board	JK106B ¹	JK106BG ¹	JK106BA3 ^{1 2}
8 Triple Pole Ways 125A TP&N Board	JK108B ¹	JK108BG ¹	JK108BA3 ^{1 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 Dual Metered Boards

Characteristics:

- Boards are supplied with a dual channel meter that offers a pulsed & modbus output.
- Conforms to BS EN 61439-3, $I_{nA} = 125A$, $I_{nC} = 63A$, $I_{cC} = 25kA$.
- Provided with meter and 125A TP switch disconnector pre-fitted. Each individual pan is fully rated at 125A.
- For dimensions see page 1.51.

Description	Max cable capacity solid	Lower pan ways	Upper pan ways	Cat ref.
4+6 Way Power & Lighting Board	50mm ²	4	6	JKD146PM
6+6 Way Power & Lighting Board	50mm ²	6	6	JKD166PM
6+4 Way Power & Lighting Board	50mm ²	6	4	JKD164PM
6+8 Way Power & Lighting Board	50mm ²	6	8	JKD168PM
8+8 Way Power & Lighting Board	50mm ²	8	8	JKD188PM
8+6 Way Power & Lighting Board	50mm ²	8	6	JKD186PM
4+16 Way Power & Lighting Board	50mm ²	4	16	JKD1416PM
16+4 Way Power & Lighting Board	50mm ²	16	4	JKD1164PM
8+12 Way Power & Lighting Board	50mm ²	8	12	JKD1812PM
12+8 Way Power & Lighting Board	50mm ²	12	8	JKD1128PM
12+12 Way Power & Lighting Board	50mm ²	12	12	JKD11212PM



JK106BD

IP65 Distribution Boards (Steel version not suitable for outdoor use)

Characteristics:

- Suitable for three phase applications where a high IP rating is required.
- Conforms to BS EN 61439-3, $I_{nA} = 125A$, $I_{nC} = 63A$, $I_{cC} = 25kA$.
- Available with either a steel (mild steel, powder coated) or Glass Reinforced Plastic (GRP) enclosure.
- Supplied without incoming and outgoing devices. A Hager incomer kit must be used.
- Available up to 125A direct connection with outgoing distribution, rated for MCBs from 0.5A to 63A.

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

MCBs & RCBOs for Invicta 3 Type B Distribution Boards - See pages 1.27-1.33 for more info

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

Incomer Kits for 125A Boards

Description	Max Cable Capacity Solid	Cat ref.
3 Pole 100A Switch Disconnecter Incomer Kit (Fits within distribution board)	50mm ²	JK11003S
4 Pole 100A Switch Disconnecter Incomer Kit (Fits within distribution board)	50mm ²	JK11004S
3 Pole 125A Switch Disconnecter Incomer Kit (Fits within distribution board)	50mm ²	JK11253S
4 Pole 125A Switch Disconnecter Incomer Kit (Fits within distribution board)	50mm ²	JK11254S
4 Pole 63A Contactor Incomer Kit includes Switch Disconnecter (fits below distribution board, 300mm high)	50mm ²	JK10634C ³
4 Pole 100A Contactor Incomer Kit includes Switch Disconnecter (fits below distribution board, 450mm high)	M8 Lug	JK11004C ³
125A Direct Connection Kit (Fits within distribution board)	50mm ²	JK11254D
4 Pole 63A 30mA RCCB Incomer Kit (Fits within distribution board)	25mm ²	JK10634RH
4 Pole 100A 30mA RCCB Incomer Kit (Fits within distribution board)	50mm ²	JK11004RH
4 Pole 100A 300mA RCCB Incomer Kit (Fits within distribution board)	50mm ²	JK11004RL
4 Pole 100A 300mA Time Delayed RCCB Incomer Kit (Fits within distribution board)	50mm ²	JK11004RLD
4 Pole 100A 100mA RCCB Incomer Kit (Fits within distribution board)	50mm ²	JK11004RM
4 Pole 100A 100mA Time Delayed RCCB Incomer Kit (Fits within distribution board)	50mm ²	JK11004RMD
125A 4 pole Changeover Incomer Kit (Fits within distribution board)	50mm ²	JK11254CO ³



JK11003S

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

Commercial
Distribution

Meter Incomer Kits for 125A Boards

Characteristics:

- Each meter pack contains: 125A incoming switch with M8 lug cable connection, meter, CT blocks plus all necessary connections and 125A direct connection kits for each associated TP&N board.
- Conforms to BS EN 61439-3, I_{NA} = 125A, I_{NC} = 63A, I_{CC} = 25kA.
- For meter incomer kit dimensions see page 1.55.
- **Note:** Distribution boards supplied separately to be assembled on site.

Description	Connection	Cat ref.
Dual kWh Meter Pack 125A Incomer Pulsed & Modbus	M8 Lug	JKD125PM
Triple kWh Meter Pack 125A Incomer Pulsed & Modbus	M8 Lug	JKD125TPM



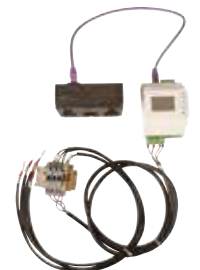
JKD125PM

Meter Packs for 125A Boards

Characteristics:

- This kit fits into the TP&N distribution board. (When fitting a meter pack to a **JK104B(G)** & **JK106B(G)**, a **JK101SE** is required to provide additional incoming cable space).
- 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).
- For sub billing metering applications please contact our Technical Service Centre on 01952 675 689.

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



JK140PM

Triple Pole RCD Add-On Blocks for MCB Devices

- For more information see page 1.29.
- For technical details see page 1.86.

Sensitivity I _{Δn}	I _n A	Width (35mm)	Cat ref.
30mA	63A	4 Mod	BD163T
100mA	63A	4 Mod	BE163T
300mA	63A	4 Mod	BF163T



BD163T

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

Type B Distribution Boards

Invicta 3 250A TP&N Boards, Tri-Metered Board, Hybrid Boards



Commercial
Distribution



JK208BG

¹ Full metal cover & door to comply with BS 7671 Amendment 3.

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

Characteristics:

- Surface mounted steel enclosures, IP3XD rated, available with plain, glazed & Amendment 3 door options.
- Conforms to BS EN 61439-3. $I_{nA} = 250A$, $I_{nC} = 63A$, $I_{cC} = 25kA$.
- Supplied without incoming and outgoing devices. A Hager incoming kit must be used.
- For dimensions see page 1.48.

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



JKD2884PM

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

Characteristics:

- Provides separate energy information for each group of outgoing devices.
- Boards are supplied with meters that offer a pulsed & modbus output.
- Provided with a 200A switch disconnector incomer pre-fitted with ample cable space.
- Conforms to BS EN 61439-3. $I_{nA} = 200A$, $I_{nC} = 63A$, $I_{cC} = 25kA$.
- For dimensions see page 1.51.

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



JK20210BG

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

Characteristics:

- A hybrid distribution board combining 2x TP ways of 27mm MCB devices to supply end loads up to 125A, with standard 18mm MCB/RCBOs for other smaller loads.
- Surface mounted steel enclosure, IP3XD rated, available with plain steel or glazed door options.
- Conforms to BS EN 61439-3. $I_{nA} = 250A$, $I_{nC} = 63A / 125A$, $I_{cC} = 25kA$
- For dimensions see page 1.49.

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

MCBs & RCBOs for Invicta 3 Type B Distribution Boards - See pages 1.27-1.33 for more info

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

MCBs Suitable for Hybrid Distribution Boards Only - See page 1.31 for more info

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

Incomer Kits for 250A Boards

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

Single Meter Packs for 250A Boards

Characteristics:

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

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



JK240PM

Double & Triple Meter / Splitter Enclosures for Standard 250A Boards

Characteristics:

- These meter modules provide a solution to distribute power across two or three, type B distribution boards from a single cabled supply at 250A rating. This solution facilitates the requirement of separately metering (kWh) different load types in a commercial building application e.g Power and Lighting or Power, Lighting and mechanical services.
- Modules as supplied with all necessary meter, CT and power cable items to link to TP boards above.
- Conforms to BS EN 61439-3
- $I_{nA} = 250A$, $I_{nC} = 63A$, $I_{cc} = 25kA$
- For meter module incomer kit dimensions see page 1.55.

Description	Connection	Cat ref.
Dual kWh Meter Module 250A Incomer Pulsed	M8 Lug	JKD250PM
Triple kWh Meter Module 250A Incomer Pulsed & Modbus	M8 Lug	JKD250TPM



JKD250PM (distribution boards are not included)

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

Type B Distribution Boards

125A & 250A DIN Extension Boxes, Cable Spreader Boxes



Commercial
Distribution



JK116EG

DIN Extension Boxes & Door Kits for 125A Primary Boards

Characteristics:

- Extension boxes have plain or glazed doors and a DIN rail for mounting modular devices.
- Conforms to BS EN 62208.
- Full width enclosure provided with sixteen modular ways per row.
- For dimensions see page 1.49.

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



JK216E

DIN Extension Boxes & Door Kits for 250A Primary Boards

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



JK101SE



JK101DK

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

Characteristics:

- Cable spreader boxes are used for additional cabling space therefore do not require doors. Optional door kits are available.
- Conforms to BS EN 62208.
- For dimensions see page 1.49.

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

Side DIN Enclosures for Primary Boards

Characteristics:

- Side extension boxes allow for the installation of DIN rail mounted devices.
- Conforms to BS EN 62208.
- Can be horizontally or vertically attached to distribution boards.
- All Side DIN Enclosures supplied with two removable gland plates.
- For dimensions see page 1.48.

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



JK104BDFG



JK208BDFG

Commercial
Distribution

Side Extension Boxes for 125A Primary Boards

Characteristics:

- Side extension boxes allow cable ways to be fitted on site.
- Conforms to BS EN 62208.
- Available in either half or full distribution board width.
- All side extension boxes supplied with two removable gland plates.
- For dimensions see page 1.49.

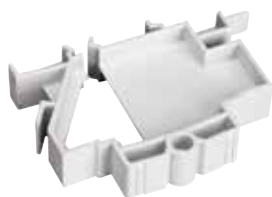
Description	Cat ref. Plain door
Side Extension Boxes for 125A Primary Boards	
4 Way Side Extension Box for JK104B(G) Full Width	JK104BSF
6 Way Side Extension Box for JK106B(G) Full Width	JK106BSF
8 Way Side Extension Box for JK108B(G) Full Width	JK108BSF
12 Way Side Extension Box for JK112B(G) Full Width	JK112BSF
16 Way Side Extension Box for JK116B(G) Full Width	JK116BSF
Side Extension Boxes for 250A Primary Boards	
8 Way Side Extension Box for JK208B(G) Full Width	JK208BSF
12 Way Side Extension Box for JK212B(G) Full Width	JK212BSF
16 Way Side Extension Box for JK216B(G) Full Width	JK216BSF
18 Way Side Extension Box for JK218B(G) Full Width	JK218BSF
24 Way Side Extension Box for JK224B(G) Full Width	JK224BSF
Half Width Side Extension Boxes for 125A Primary Boards	
4 Way Half Width Extension Box	JK104BSH
6 Way Half Width Extension Box	JK106BSH
8 Way Half Width Extension Box	JK108BSH
12 Way Half Width Extension Box	JK112BSH
16 Way Half Width Extension Box	JK116BSH
Small Half Width Filler Box	JK101BSH
Half Width Side Extension Boxes for 250A Primary Boards	
8 Way Half Width Extension Box	JK208BSH
12 Way Half Width Extension Box	JK212BSH
16 Way Half Width Extension Box	JK216BSH
18 Way Half Width Extension Box	JK218BSH
24 Way Half Width Extension Box	JK224BSH
Small Half Width Filler Box	JK201BSH



JK104BSF



JK104BSH



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
Single Pole 27mm Blank	JK02B	JK02B
JK1/2 Horizontal or Vertical Mechanical Connection Kit	JK100HK	JK100HK
Brass Gland Plate - 2.0mm	JK1PLATEB	JK2PLATEB
100A Top Tap Off Kit	JK100TAP	JK100TAP
Additional Earth Bar Kit High Integrity - 2 x 15 Connections	JK030BEB	JK030BEB
Document Clip	JK01DC	JK01DC
Neutral Connecting Block 100A	KRN190	KRN190
JK1/2 Neutral Clear Shroud	JK1/NEUTRALSHROUD	JK1/NEUTRALSHROUD
JK1/2 Busbar Stack Top Shroud	JK1/2TOPSHROUD	JK1/2TOPSHROUD
JK1/2 Main Incomer Shroud	JK1/INCOMSHROUD	JK2/INCOMSHROUD
Spare Gland Plate Including Drill Markings - 1.2mm	JK1PLATEM	JK2PLATEM



JK106BA3-DK

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

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

Invicta 3 125A & 250A Trunking Kits & Spares

Characteristics:

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



JK06TK

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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From pre-assembled standard distribution units to bespoke composite TP&N boards and plug in distribution boards, we can provide the solution.

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To find out more, call our Estimation Team on 01952 675600.

:hager



JN204BG



JN204B

Invicta 3 Panelboards (250A Incoming 125A Outgoing)

Characteristics

- Comprises of IP3XD rated enclosure, pan assembly, twin neutral and earth bars.
- Conforms to BS EN 61439-2. $I_{nA} = 250A$, $I_{nC} = 125A$, $I_{CC} = 25kA$.
- Supplied without incoming kit, JN 250A incomer kit must be used.
- Form 3B type 2 using outgoing terminal shield (form 3A without terminal shield).
- Removable side gland plates are standard. Removable gland plates are provided top and bottom for ease of installation.
- For dimensions see page 1.56.

Cable Capacity Incomers & Outgoers

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

Options

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

Outgoing MCCBs

- Adjustable thermal options on triple pole devices.

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

Incomer Kits

Description	Max cable capacity	Cat ref.
3 Pole 250A MCCB Incomer Kit (Adj. Thermal 0.63, 0.8, 1) 40kA (Magnetic 5, 7, 9, 11 x I_n)	M8 Lug	JN223BM
4 Pole 250A MCCB Incomer Kit (Adj. Thermal 0.63, 0.8, 1) 40kA (Magnetic 5, 7, 9, 11 x I_n)	M8 Lug	JN224BM
3 Pole 250A Non-Auto MCCB Incomer Kit	M8 Lug	JN223BS
4 Pole 250A Non-Auto MCCB Incomer Kit	M8 Lug	JN224BS
250A Direct Connection Kit	M8 Lug	JN224BD

Side/Top/Bottom Meter Enclosures for JN Panelboards

Characteristics

- Blanking plates not included.
- For meters see page 1.21.
- For dimensions see page 1.60.



JN11004SM



JN3003TM

Suitable for board type / Description	Apertures for Meters	Cat ref.
Side Meter Enclosures		
4 Way JN Board	2 x DIN 96 Cut-Outs	JN9502SM
6/8 Way JN Board	4 x DIN 96 Cut-Outs	JN11004SM
12 Way JN Board	6 x DIN 96 Cut-Outs	JN12506SM
16 Way JN Board	8 x DIN 96 Cut-Outs	JN15508SM

Top/Bottom Meter Enclosures

300mm Enclosure	3 x DIN 96 Cut-Outs	JN3003TM
450mm Enclosure	6 x DIN 96 Cut-Outs	JN4506TM
Blanking Plate	-	JF96BP

Corner Filler Enclosures

300mm Corner Filler Side Enclosure JN	-	JN300CF
450mm Corner Filler Side Enclosure JN	-	JN450CF

DIN Rail Extension Boxes

Characteristics

- Supplied with DIN Rail & without gland plate (utilise removed gland plate from panelboard)
- DIN rail extensions boxes have plain or glazed doors and DIN rail chassis.
- JK2 side extension boxes can be used with this range see page 1.10.
- For dimensions see page 1.50.



JN201BE

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

Cable Spreader Boxes & Door Kits

Characteristics

- Supplied without gland plates (utilise removed gland plate from panelboard)
- Cable spreader boxes are used for additional cabling space therefore do not require doors. Optional door kits are available.
- For dimensions see page 1.56.



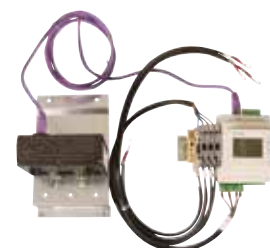
JN205BE

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

Meter Pack 250A

Characteristics

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



JN201PM

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

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



JN001BP

Outgoing Devices - See page 1.43 for more info

MCCBs - 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

MCCBs - Triple Pole Adjustable Thermal

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



JF406B

Invicta 3 Panelboards (400A Incoming 125A Outgoing)

Characteristics

- Comprises of IP3XD enclosure, pan assembly, neutral bar and earth bar.
- Conforms to BS EN 61439-2. $I_{NA} = 400A$, $I_{NC} = 125A$, $I_{CC} = 50kA$.
- Supplied without incoming kit, one of the incomer kits listed below must be used.
- Form 3B type 2 using outgoing terminal shield (form 3A without terminal shield).
- Removable gland plates are provided top and bottom for ease of installation.
- For dimensions see page 1.57.

Cable Capacity Incomers & Outgoers

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

Options

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

Outgoing MCCBs

- Adjustable thermal options on triple pole.

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

Incomer Kits for 400A Panelboards

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



JF801E

DIN Rail Extension Boxes for 400A Panelboards

Characteristics

- DIN rail extension boxes have plain or glazed doors and DIN rail chassis.
- Cable spreader boxes are used for additional cabling space therefore do not require doors. If doors are desired optional door kits are available.
- Supplied with DIN Rail and without gland plate (utilise removed gland plate from panelboard).
- For dimensions see page 1.57.

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

Cable Spreader Boxes & Door Kits for 400A Panelboards

Characteristics

- Supplied without gland plates (utilise removed gland plate from panelboard).
- Cable spreader boxes are used for additional cabling space therefore do not require doors. Optional door kits are available.
- For dimensions see page 1.57.



JF805E

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

Meter Pack 400A

Characteristics

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

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

Accessories

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



JN001BP



HXD039H

Outgoing Devices - See page 1.43 for more info

MCCBs - 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

MCCBs - Triple Pole Adjustable Thermal

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



JF608B

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

Characteristics

- Comprises of IP3XD enclosure, pan assembly, neutral bar and earth bar.
- Conforms to BS EN 61439-2. $I_{nA} = 630/800A$, $I_{nC} = 125A$, $I_{CC} = 50kA$.
- Supplied without incoming kit, one of the incomer kits listed below must be used.
- Form 3B type 2 using outgoing terminal shield (form 3A without terminal shield).
- Removable gland plates are provided top and bottom for ease of installation.
- Switch Disconnect: 630A/800A, MCCB: 400A/630A, Direct connection: 800A.
- Incoming cable lugged via M12 hexagonal bolt.
- For dimensions see page 1.57.

Cable Capacity Incomers & Outgoers

- Incomers: 400A: 2 x 240mm², 630A: 2 x 240mm² / 2 x 300mm².
- Outgoers: Single pole up to 125A - 70mm² flexible, 95mm² solid, Triple pole up to 250A - 150mm² flexible.

Outgoing MCCBs

- Adjustable thermal options on triple pole.

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

¹ Max allowed incomer of 630A on this panelboard.

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

Characteristics

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

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

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

Incomer Kits for 630A/800A Panelboards

Characteristics

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

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

DIN Rail Extension Boxes for 630A/800A Panelboards

Characteristics

- DIN rail extension boxes have plain or glazed doors and DIN rail chassis.
- Cable spreader boxes are used for additional cabling space therefore do not require doors. Optional door kits are available.
- Supplied with DIN rail and without gland plate (utilise removed gland plate from panelboard).
- For dimensions see page 1.57.



JF801E

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

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

Characteristics

- Supplied without gland plates (utilise removed gland plate from panelboard).
- Cable spreader boxes are used for additional cabling space therefore do not require doors. Optional door kits are available.
- For dimensions see page 1.57.

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

Meter Pack for 630A/800A Panelboards

Characteristics

- These meter packs fit directly into the main panelboard. Spreader box required to mount CT's.
- For Meter Enclosures see page 1.21.

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

Outgoing Devices Thermal Magnetic - See page 1.43 - 1.45 for more info

1 MCCBs x250 40kA - Triple Pole

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

1 & 2 - Please see left hand page for corresponding numbers.

2 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

2 MCCBs - 125A 25kA Triple Pole Adjustable Thermal

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



JHF812B

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

Characteristics

- Comprises of IP3XD enclosure, pan assembly, neutral bar and earth bar
- Conforms to BS EN 61439-2. $I_{nA} = 800A$, $I_{nc} = 125A$, $I_{cc} = 50kA$.
- Supplied without incoming kit, one of the incomer kits listed below must be used.
- Form 3B type 2 using outgoing terminal shield (form 3A without terminal shield).
- Removable gland plates are provided top and bottom for ease of installation.
- MCCB: 800A 3 or 4 pole.
- Incoming cable lugs 44mm pad with 2 x M12 hexagonal bolt.
- For dimensions see page 1.58.

Cable Capacity Incomers & Outgoers

Incomers: 800A MCCB: 2 x 300mm²,

Outgoers: Single pole up to 125A - 70mm² flexible, 95mm² solid, Triple pole up to 250A - 150mm² flexible.

Outgoing MCCBs

- Adjustable thermal options on triple pole.

Description	Cat ref. Plain Door	Cat ref. Glazed door
12 Triple Pole Ways 800A Panelboard	JHF812B	JHF812BG
18 Triple Pole Ways 800A Panelboard	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.
- $I_{nA} = 800A$, $I_{nc} = 250A$, $I_{cc} = 50kA$.

Description	Cat ref. Plain Door	Cat ref. Glazed door
8 Triple Pole Ways 800A Panelboard (2 x 250A ① + 6 x 125A ②)	JHF80206B	JHF80206BG
8 Triple Pole Ways 800A Panelboard (4 x 250A ① + 4 x 125A ②)	JHF80404B	JHF80404BG
12 Triple Pole Ways 800A Panelboard (2 x 250A ① + 10 x 125A ②)	JHF80210B	JHF80210BG
12 Triple Pole Ways 800A Panelboard (4 x 250A ① + 8 x 125A ②)	JHF80408B	JHF80408BG
18 Triple Pole Ways 800A Panelboard (4 x 250A ① + 14 x 125A ②)	JHF80414B	JHF80414BG
18 Triple Pole Ways 800A Panelboard (6 x 250A ① + 12 x 125A ②)	JHF80612B	JHF80612BG

MCCB Incomer Kits for 800A Panelboards

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



JN001BP

Accessories

Description	Cat ref.
Locking Kit for MCCB Incoming Device (All Ratings)	HXD039H
Allen Key Set	JF296A
End Plate for Invicta 3 800A Range	JFPLATE
Key Lock with One Key	JK222PK
x125 Frame 1 Pole Blank (3x blanks required per triple pole)	JN001BP
x250 Frame 3 Pole Blank (1x blank required per triple pole)	JF003BP
Outgoer Locking Kit (fits to toggle for up to 3 padlocks max ø 8mm ²)	HXA039H

DIN Rail Extension Boxes for 800A Panelboards

- DIN rail extension boxes have plain or glazed doors and DIN rail chassis.
- Cable spreader boxes are used for additional cabling space therefore do not require doors. Optional door kits are available.
- Supplied with DIN rail and without gland plate (utilise removed gland plate from panelboard).
- For dimensions see page 1.57.

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

Cable Spreader Boxes for 800A Panelboards

- Supplied without gland plates (utilise removed gland plate from panelboard).
- Cable spreader boxes are used for additional cabling space therefore do not require doors. Optional door kits are available.
- For dimensions see page 1.57.

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

Meter Pack for 800A Panelboards

- These meter packs fit directly into the main panelboard. Spreader box required to mount CT's.
- For Meter Enclosures see page 1.21.

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

Outgoing Devices Thermal Magnetic - See page 1.43 - 1.45 for more info.

1 MCCBs x250 40kA - Triple Pole

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

2 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

2 MCCBs - 125A 25kA Triple Pole Adjustable Thermal

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



JF12504SM



JF450CF



JF4508TM

Meter Enclosures

- Blanking plates not included (utilise removed blanking plate from panelboard).
- When selecting outgoing metering, the panelboard metering system is easily configured by selecting a side, top or combination that matches the panelboard (e.g. for the **JF406B/G** board, you can select a **JF12504SM** side mounted meter enclosure that can house 4 **ECM01** panel 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 1.58.
- Please contact us for any non-standard requirements or assembly.
- For dimensions see page 1.60.

Suitable for board type / Description	Spaces for Meters	Cat ref.
Side Meter Enclosures		
6/8 Way JF Board	4 x Din 96 Cut-Outs	JF12504SM
12 Way JF Board	6 x Din 96 Cut-Outs	JF14006SM
16 Way JF Board	8 x Din 96 Cut-Outs	JF15508SM
18 Way JF Board	9 x Din 96 Cut-Outs	JF17009SM
Blanking Plate DIN 96	-	JF96BP
Top/Bottom Meter Enclosures		
300mm Enclosure	4 x DIN 96 Cut-Outs	JF3004TM
450mm Enclosure	8 x DIN 96 Cut-Outs	JF4508TM
Blanking Plate DIN 96	-	JF96BP
Corner Filler Enclosures		
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**
- For MID approved meter options, please contact the Technical Service Centre on 01952 675 689

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 current transformer 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

Plug-in CTs

- No leads supplied with these CTs (RJ45 connection cable)
- For technical data see page 1.65.

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



EC1260CT

Commercial
Distribution

Meter Cables

Description	Cat ref.
Meter Voltage Supply Cable - PVC	
1m - Voltage Supply Cable with Fuse Carrier (For JF Meter Enclosures)	JF130VMF
1m - Voltage Supply Cable with Fuse Carrier (For JN Meter Enclosures)	JN130VMF
0.30m - 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



JFA03



JFA03

Meter to Meter Supply Cable - PVC

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

RJ45 Connection Cable

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



PGRJ1000

Accessories

- Supply voltage connector plugs are for making up your own power cable looms.

Description	Cat ref.
Supply Voltage Connector Plugs Voltage IN (Male) Connector	PG9523MALE
Supply Voltage Connector Plugs Voltage OUT (Female) connector	PG9522FEMALE
CT Output and RJ45 Lead Tester	JFT03



JFT03



PG9522FEMALE



JF12504SM



JFG416U

Cable Capacity

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

Fuse Combination Switches 20 - 800A

Characteristics

- Provides individual protection and control of circuits.
- 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

- Conforms to: BS EN 60947-3
- Rated IP31.

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

Note: Copper links for conversion to isolating switches

- For dimensions see page 1.67.

- For technical information see page 1.69.

Description	Cat ref.	Cat ref. Cable extension boxes if required
Fuse Combination Switches Single Pole & Switched Neutral		
20A Fuse Combination Switch SP&SN	JFB202U	-
32A Fuse Combination Switch SP&SN	JFB203U	-
63A Fuse Combination Switch SP&SN	JFD206U	-
100A Fuse Combination Switch SP&SN	JFE210U	JZA701
Fuse Combination Switches Triple Pole & Neutral		
20A Fuse Combination Switch TP&N	JFB302U	-
32A Fuse Combination Switch TP&N	JFB303U	-
63A Fuse Combination Switch TP&N	JFD306U	-
100A Fuse Combination Switch TP&N	JFE310U	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 & 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		
63A	JC60L	-
100A	JC10L	-
125 / 200A	JC20L	-
315 / 400A	JC40L	-
630A	JC63L	-

Switch Fuses

Characteristics

- Amendment 3 compliant switch fuses have a full metal construction to comply with BS 7671, when used in residential applications
- For dimensions see page 1.70.

Description	Cat ref.	Cat ref. Amd 3 door
4 Module Metal Unit 1 x 100A Isolator, AC22A. Connection Capacity: 50mm ² Rigid Conductor, 35mm ² Flexible Conductor, 1 x 63A Fuse	IU44-16	IU44-16D
4 Module Metal Unit 1 x 100A Isolator, AC22A. Connection Capacity: 50mm ² Rigid Conductor, 35mm ² Flexible Conductor, 1 x 80A Fuse	IU44-18	IU44-18D
4 Module Metal Unit 1 x 100A Isolator, AC22A. Connection Capacity: 50mm ² Rigid Conductor, 35mm ² Flexible Conductor, 1 x 100A Fuse	IU44-11	IU44-11D



IU44-11

Commercial
Distribution

Switch Disconnectors 20-800A

Characteristics

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

Utilisation category

- AC-21, AC-22 (page 1.71)

Product features

- Conforms to: BS EN 60947-3
- IP rating: IP31.
- For technical information see page 1.67 - 1.71.



JAB402B

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

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

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



JG01S

Cable Capacity

20 - 40A = 16mm²
63 - 100A = 35mm²

IP65 Switch Disconnectors

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

Product features

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

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

Utilisation category

- AC- 21.
- AC- 22.
- For technical information see page 1.70.

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

Auxiliary Changeover Contacts

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



JG440DC

Cable Capacity

20 - 40A = 16mm²
63 - 100A = 35mm²

IP65 Switch Disconnectors - DC

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

Product Features

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

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

Enclosed MCCBs

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

Non-Auto MCCB

- Triple pole: 125A - 250A - 400A - 630A.
- Four pole: 125A - 250A - 400A - 630A.

Specification

- Conforms to BS EN 61439-2.

Cable Capacity

- 63 - 125A: Flexible cable: min 6mm², max 70mm², Rigid cable: min 6mm², max 95mm².
- RCD add-on adjustable from 0.03A, 0.1A, 0.3A, 1A, 3A, 6A.
- Time delay - Instantaneous, 60ms, 150ms, 300ms, 500ms, 1s.
- For technical details and dimensions see page 1.73.

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



JG38BR



JG41BM



JG45BM



NCN116A

Commercial
Distribution

MCBs 10kA

Characteristics

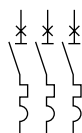
- Provides protection against short circuits, protection against overload current, control, isolation, trip free mechanism.

Isolation

- The state of isolation is clearly indicated by the "OFF" mechanical position on the toggle with the green colour.
- Connection capacity: 25mm² flexible conductor, 35mm² rigid conductor.
- Conforms to: BS EN 60898-2 (10kA), BS EN 60947-2 (15kA).



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



Triple Pole MCBs				
0.5A	3 Mod	-	NCN300A	NDN300A
1A	3 Mod	-	NCN301A	NDN301A
2A	3 Mod	-	NCN302A	NDN302A
3A	3 Mod	-	NCN303A	NDN303A
4A	3 Mod	-	NCN304A	NDN304A
6A	3 Mod	NBN306A	NCN306A	NDN306A
10A	3 Mod	NBN310A	NCN310A	NDN310A
16A	3 Mod	NBN316A	NCN316A	NDN316A
20A	3 Mod	NBN320A	NCN320A	NDN320A
25A	3 Mod	NBN325A	NCN325A	NDN325A
32A	3 Mod	NBN332A	NCN332A	NDN332A
40A	3 Mod	NBN340A	NCN340A	NDN340A
50A	3 Mod	NBN350A	NCN350A	NDN350A
63A	3 Mod	NBN363A	NCN363A	NDN363A

MCBs 10kA (Continued)

Rating	Width (1 = 17.5mm)	Cat ref. "B" Curve	Cat ref. "C" Curve	Cat ref. "D" Curve
Double Pole MCBs				
0.5A	2 Mod	-	NCN200A	NDN200A
1A	2 Mod	-	NCN201A	NDN201A
2A	2 Mod	-	NCN202A	NDN202A
3A	2 Mod	-	NCN203A	-
4A	2 Mod	-	NCN204A	NDN204A
6A	2 Mod	NBN206A	NCN206A	NDN206A
10A	2 Mod	NBN210A	NCN210A	NDN210A
16A	2 Mod	NBN216A	NCN216A	NDN216A
20A	2 Mod	NBN220A	NCN220A	NDN220A
25A	2 Mod	NBN225A	NCN225A	NDN225A
32A	2 Mod	NBN232A	NCN232A	NDN232A
40A	2 Mod	NBN240A	NCN240A	NDN240A
50A	2 Mod	NBN250A	NCN250A	NDN250A
63A	2 Mod	NBN263A	NCN263A	NDN263A
Four Pole MCBs				
0.5A	4 Mod	-	NCN400A	NDN400A
1A	4 Mod	-	NCN401A	NDN401A
2A	4 Mod	-	NCN402A	NDN402A
3A	4 Mod	-	NCN403A	NDN403A
4A	4 Mod	-	NCN404A	NDN404A
6A	4 Mod	NBN406A	NCN406A	NDN406A
10A	4 Mod	NBN410A	NCN410A	NDN410A
16A	4 Mod	NBN416A	NCN416A	NDN416A
20A	4 Mod	NBN420A	NCN420A	NDN420A
25A	4 Mod	NBN425A	NCN425A	NDN425A
32A	4 Mod	NBN432A	NCN432A	NDN432A
40A	4 Mod	NBN440A	NCN440A	NDN440A
50A	4 Mod	NBN450A	NCN450A	NDN450A
63A	4 Mod	NBN463A	NCN463A	NDN463A



NCN316A



NCN416A

Commercial
Distribution

Accessories

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



MZN175
(device & padlock
not included)



BD264



BD464

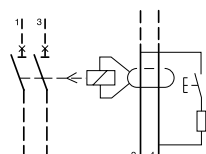
RCCB Add-On Blocks for MCB Devices

Characteristics

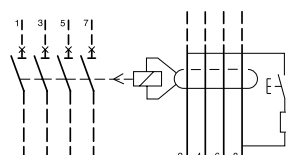
- Provide earth fault protection when associated with the 10kA (types **NBN**, **NCN**, **NDN**) range of MCBs.
- Designed to be fitted to the right hand side of 2 and 4 pole MCBs and the completed unit provides protection against overload, short circuit & earth faults.
- Protection against nuisance tripping.
- All devices have a test facility.
- Note: Not for use in fixed busbar distribution boards.

Technical Data

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



Sensitivity $I_{\Delta n}$	I_n A	Width (1 Mod = 17.5mm)	Cat ref.
Double Pole RCCB Add-On Blocks			
30mA	63A	2 Mod	BD264
100mA	63A	2 Mod	BE264
300mA	63A	2 Mod	BF264
Time Delayed 100mA	63A	2 Mod	BN264
Time Delayed 300mA	63A	2 Mod	BP264



Four Pole RCCB Add-On Blocks			
30mA	63A	3 Mod	BD464
100mA	63A	3 Mod	BE464
300mA	63A	3 Mod	BF464
Time Delayed 100mA	63A	3 Mod	BN464
Time Delayed 300mA	63A	3 Mod	BP464



BD163T

One Module Add-On Blocks for MCB Devices

Characteristics

- Compatible with **NBN**, **NCN** & **NDN** range of MCB devices.
- Can be used in combination with any Hager 3 pole 10kA MCB up to 63A. Requires the use of the adjacent outgoing way.
- Type A RCD provides added protection against 'pulsating d.c. current'
- 3 Phase earth leakage protection up to 63A.
- One module add-on block + MCB combinations suit all Hager distribution boards.
- BS EN 61009-1 Appendix G.
- For technical details see page 1.86.

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



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:hager



HMF199T



HMF299T



HMF399T



HMF499T

MCBs 80 - 125A

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

Standards

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

Connection Capacity

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

Nominal Voltage

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

Lockable Toggle

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

Rating	Width (1 = 17.5mm)	Cat ref. 10kA C Curve	Cat ref. 15kA C Curve	Cat ref. 15kA D Curve
Single Pole MCBs				
80A	1 ½ Mod	HMF180T	HMC180T	HMD180T
100A	1 ½ Mod	HMF190T	HMC190T	HMD190T
125A	1 ½ Mod	HMF199T	HMC199T	HMD199T

Double Pole MCBs

80A	3 Mod	HMF280T	HMC280T	HMD280T
100A	3 Mod	HMF290T	HMC290T	HMD290T
125A	3 Mod	HMF299T	HMC299T	HMD299T

Triple Pole MCBs

80A	4 ½ Mod	HMF380T	HMC380T	HMD380T
100A	4 ½ Mod	HMF390T	HMC390T	HMD390T
125A	4 ½ Mod	HMF399T	HMC399T	HMD399T

Four Pole MCBs

80A	6 Mod	HMF480T	HMC480T	HMD480T
100A	6 Mod	HMF490T	HMC490T	HMD490T
125A	6 Mod	HMF499T	HMC499T	HMD499T



MZN130

Terminal Covers Screw Cap

Description

To cover connection terminals and screws of circuit breaker.
The screw covers can be sealed.

Cat ref.

MZN130


MZN131

Phase Barrier

Description

1 Set of 3 Phase Separators

Cat ref.

MZN131

RCCB Add-On Blocks Type a.c. for HMF, HMC, HMD MCBs (Not suitable for Hybrid DBs)

Fixed

- High sensitivity 30 mA instantaneous, low sensitivity 300 mA instantaneous

Adjustable

- Sensitivity $I_{\Delta n}$ 0.3-0.5 - 1 A
- Delay Δt 0 - 60 - 150 ms

Adjustable Blocks

- The setting is done by actuating dial on the front face. The setting dials are protected by a transparent sealable cover.

Disassembly

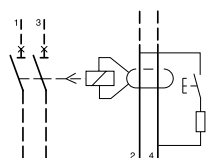
- The bistable latch (two positions) facilitate the assembly or disassembly by the bottom of the add-on block.
- These RCD add-on blocks exist in version AC.
- The earth fault is indicated when the handle is in the lower position (yellow colour). Test button for earth fault check.

Connection Capacity

- 35mm² flexible connection
- 70mm² rigid connection.

Nominal voltage

- 2 pole 230V, three & four pole: 230 / 400V
- Test button: 230 / 400V.
- Conforms with BS EN 61009-1 appendix G.
- Conforms with BS EN 60947-2.



Sensitivity
Fixed / Adjustable $I_{\Delta n}$

I_n/A

Width
(1 = 17.5mm)

Cat ref.

Double Pole RCD Add-On Blocks

Fixed 30mA

125A

6 Mod

BDC280E

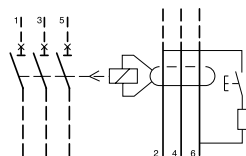
Adjustable 0.3-0.5-1A

125A

6 Mod

BTC280E

Time Delayed Δt 0-60-150ms



Triple Pole RCD Add-On Blocks

Fixed 30mA

125A

6 Mod

BDC380E

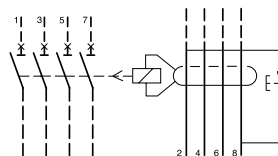
Adjustable 0.3-0.5-1A

125A

6 Mod

BTC380E

Time Delayed Δt 0-60-150ms



Four Pole RCD Add-On Blocks

Fixed 30mA

125A

6 Mod

BDC480E

Fixed 300mA

125A

6 Mod

BFC480E

Adjustable 0.3-0.5-1A

125A

6 Mod

BTC480E

Time Delayed Δt 0-60-150ms



BDC280E



BDC380E



BDC480E

Commercial
Distribution

Single Pole & Switched Neutral MCB - 6kA C Curve

Description

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

Technical Data

- Conforms to BS EN 60898
- Voltage rating - 230V a.c.

Connection Capacity

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

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



MLN710A

Single Module Blank

Description

Shrouds busbar and blanks spare ways

Cat ref.

JK01B



JK01B



ACB125



ADB106



AEC132

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

Characteristics

- Compact protection devices which combine the overcurrent functions of an MCB with the earth fault functions of an RCCB in a single unit.
- These devices are single pole & solid neutral.
- Locking kit = Cat ref.: **MZN175**.

Technical Data

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

Sensitivities (fixed)

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

Operating Voltage

- 230V a.c.

Current rating	Width (1 Mod = 17.5mm)	B Curve Cat ref.	C Curve Cat ref.
Sensitivity 30mA (10kA) B / C Curve, Type A			
6A RCBO Single Pole 30mA 10kA	1 Mod	ADA106U	ADA156U
10A RCBO Single Pole 30mA 10kA	1 Mod	ADA110U	ADA160U
16A RCBO Single Pole 30mA 10kA	1 Mod	ADA116U	ADA166U
20A RCBO Single Pole 30mA 10kA	1 Mod	ADA120U	ADA170U
25A RCBO Single Pole 30mA 10kA	1 Mod	ADA125U	ADA175U
32A RCBO Single Pole 30mA 10kA	1 Mod	ADA132U	ADA182U
40A RCBO Single Pole 30mA 10kA	1 Mod	ADA140U	ADA190U
45A RCBO Single Pole 30mA 10kA	1 Mod	ADA145U	ADA195U
Sensitivity 10mA (10kA) B / C Curve, Type A			
6A RCBO Single Pole 10mA 10kA	1 Mod	ACA106U	ACA156U
16A RCBO Single Pole 10mA 10kA	1 Mod	ACA116U	ACA166U
25A RCBO Single Pole 10mA 10kA	1 Mod	ACA125U	ACA175U
32A RCBO Single Pole 10mA 10kA	1 Mod	ACA132U	ACC182U
Sensitivity 100mA (10kA) C Curve, Type A			
10A RCBO Single Pole 100mA 10kA	1 Mod	-	AEC110
16A RCBO Single Pole 100mA 10kA	1 Mod	-	AEC116
20A RCBO Single Pole 100mA 10kA	1 Mod	-	AEC120
25A RCBO Single Pole 100mA 10kA	1 Mod	-	AEC125
32A RCBO Single Pole 100mA 10kA	1 Mod	-	AEC132

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

Characteristics

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

Technical Data

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



ADC816F

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

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

Characteristics

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

Technical Data

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



ADA990U

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

Triple Pole RCD Add-On Blocks for MCB Devices

Characteristics

- Compatible with **NBN, NCN & NDN** range of MCB devices.
- Can be used in combination with any Hager 3 pole 10kA MCB up to 63A. Requires the use of the adjacent outgoing way.
- Type A RCD provides added protection against 'pulsating d.c. current'
- 3 Phase earth leakage protection up to 63A.
- One module add-on block + MCB combinations suit all Hager distribution boards.
- BS EN 61009-1 Appendix G.
- For technical details see page 1.86.



BD163T

Sensitivity I _{Δn}	I _n A	Width (35mm)	Cat ref.
30mA	63A	4 Mod	BD163T
100mA	63A	4 Mod	BE163T
300mA	63A	4 Mod	BF163T



CDC225U



CFC425U

2 & 4 Pole RCCBs

Characteristics

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

Technical Data

- Conforms to BS EN 61008, IEC1008
- Terminal capacities: 16-63A Rigid 25mm², Flexible 16mm² / 80 & 100A Rigid 50mm², Flexible 35mm²

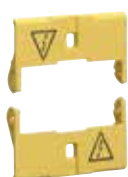
Features

- Positive contact indication is provided by the rectangular flag indicator
- Red = Closed
- Green = Open
- Indication of trip is provided by the oval flag indicator
- Yellow = Tripped
- All RCCBs have trip free mechanisms and can be padlocked either on or off with the use of a **MZN175**.

Operating Voltage

- 2P 127- 230V a.c.
- 4P 230 - 400V a.c.

Sensitivity type a.c.	2 Pole Cat ref.	4 Pole Cat ref.
2 Pole RCCB Sensitivity 10mA		
16A RCCB 10mA	CCC216U	-
2 & 4 Pole RCCBs Sensitivity 30mA		
25A RCCB 30mA	CDC225U	CDC425U
40A RCCB 30mA	CDC240U	CDC440U
63A RCCB 30mA	CDC263U	CDC463U
80A RCCB 30mA	CD280U	CD480U
100A RCCB 30mA	CD284U	CD484U
2 & 4 Pole RCCBs Sensitivity 100mA		
25A RCCB 100mA	CEC225U	CEC425U
40A RCCB 100mA	CEC240U	CEC440U
63A RCCB 100mA	CEC263U	CEC463U
80A RCCB 100mA	CE280U	CE480U
100A RCCB 100mA	CE284U	CE484U
2 & 4 Pole RCCBs Sensitivity 300mA		
25A RCCB 300mA	CFC225U	CFC425U
40A RCCB 300mA	CFC240U	CFC440U
63A RCCB 300mA	CFC263U	CFC463U
80A RCCB 300mA	CF280U	CF480U
100A RCCB 300mA	CF284U	CF484U
Time Delayed a.c. Sensitive		
100A RCCB 100mA	CN284U	CN484U
100A RCCB 300mA	CP284U	CP484U
Type A DC Sensitive		
16A RCCB 10mA	CCA216U	-
25A RCCB 30mA	CDA225U	CDA425U
40A RCCB 30mA	CDA240U	CDA440U
63A RCCB 30mA	CDA263U	CDA463U



CZN006

Terminal Covers

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

RCCB Auxiliaries

Auxiliary Interface

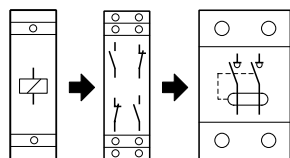
- Indicates the position of the associated RCCB on, off or tripped. Also acts as RCCB interface with standard MCB auxiliaries **MZ203-MZ206**.

Shunt Trip

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

Under Voltage Release

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



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

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



CZ001



MZ203

Auxiliaries for MCBs & RCCBs

Characteristics

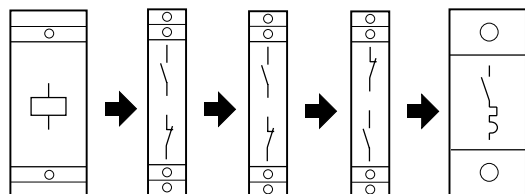
- All auxiliaries are common to both single and multi-pole 10kA circuit breakers and RCCBs.

Connection capacity

- 4mm² flexible, 6mm² rigid

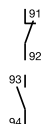
Shunt Trip: Allows remote tripping of devices. Operation of the coil is indicated by a flag on the front of the device.

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



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

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



MZ201



MZ202



MZ204



MM501N

Motor Starters

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

Technical Data

- Adjustable thermal relay
- AC 3 utilisation category

Connection capacity

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

Options

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

Current setting	Standard power ratings of 3 phase motors 50/60Hz (a.c. 3 category)		Width (1 Mod = 17.5mm)	Cat ref.
	230V (kW)	400V (kW)		
0.1 - 0.16A	-	-	-	MM501N
0.16 - 0.25A	-	0.06	2 ½ Mod	MM502N
0.25 - 0.4A	0.06	0.09	2 ½ Mod	MM503N
0.4 - 0.6A	0.09	0.12	2 ½ Mod	MM504N
0.6 - 1.0A	0.09	0.12	2 ½ Mod	MM505N
1.0 - 1.6A	0.25	0.55	2 ½ Mod	MM506N
1.6 - 2.5A	0.55	0.8	2 ½ Mod	MM507N
2.5 - 4A	0.8	1.5	2 ½ Mod	MM508N
4 - 6A	1.5	2.5	2 ½ Mod	MM509N
6 - 10A	2.5	4	2 ½ Mod	MM510N
10 - 16A	4	7.5	2 ½ Mod	MM511N
16 - 20A	5.5	9	2 ½ Mod	MM512N
20 - 25A	7.5	12.5	2 ½ Mod	MM513N



MZ520N

Auxiliary & Alarm Contacts for Motor Starters

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

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



MZ528N

Under Voltage Release for Motor Starters

- To prevent automatic restarting of the controlled device

Characteristics	Cat ref.
230V a.c. 50Hz	MZ528N
400V a.c. 50Hz	MZ529N



MZ521N

Surface Mounting Enclosure for Motor Starters

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



MZ530N

Emergency Stop Button

Description	Cat ref.
IP65 External Emergency Stop Button	MZ530N

HRC Fuse Carriers (supplied without cartridge fuse)

Characteristics

- Protection and control of circuits against overloads and short-circuits.
- Suitable for fuses which comply with BS HD 60269-1 and with the standardised performance requirements for industrial fuse links specified in BS HD 60269-2 (formerly BS 88-2).

Technical Data

- Rating voltage: 415 V a.c., 250 V d.c.
- Rated breaking capacities: 80 kA at 415 V a.c., 40 kA at 250 V d.c.
- The LS201 HRC fuse carrier is suitable for the following type of BS 88-2 cartridge fuses:
 - 2A – 8A: with nickel-plated or silver plated caps.
 - 10A – 32A: with silver plated caps only.

Characteristics	Width (1 = 17.5mm)	Cat ref.
HRC Fuse Carriers		
32A max. (Supplied without fuse)	1 Mod	LS201

HRC Spare Cartridge Fuses

2A (29 x 12.7mm)	-	L17100
4A (29 x 12.7mm)	-	L17200
6A (29 x 12.7mm)	-	L17300
8A (29 x 12.7mm)	-	L17400



LS201

Commercial
Distribution

SPSN Fuse Carriers (supplied without cartridge fuse)

Characteristics

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

Technical Data

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

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



L12401



LF140



LF138

HRC Fuse Carriers (supplied with cartridge fuse)

Characteristics

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

Technical Data

- Suitable for fuses which fully comply with BS 88-3 (Formerly BS1361).
- Short-circuit rating: 16.5kA
- Connection Capacity: Top: 16 mm² flexible cable & busbar.

Current rating	Colour	Width (1 = 17.5mm)	Cat ref. HRC Fuse Carrier	Cat ref. HRC Spare Fuse
HRC Fuse Carriers				
5A 230V	White	1 Mod	LB113	L15300
15A 230V	Blue	1 Mod	LB115	L15500
20A 230V	Yellow	1 Mod	LB116	L15600
30A 230V	Red	1 Mod	LB118	L15800
Spare Fuse Holder up to 20A	-	-	L14700	-



LB113



L14700

Surge Protection

Characteristics

- SPD's protect electrical and electronic equipment against transients, originating from lightning, switching of transformers, lighting and motors. These transient voltages 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 transient voltages, to protect sensitive and expensive electrical equipment such as TV, video, Hi-Fi, PC, alarm etc.
- The range of SPDs is separated into three types of protection:
 1. Main protection - class 1
SPDs with higher discharge current (I_{max} 10/350), to evacuate as much of the transient over-voltages associated with lightning strikes
 2. Main protection - class 2
With a discharge current (I_{max} 8/20), to evacuate as much of the transient over-voltage to earth as possible protection level ($U_p \leq 1200V$).
 3. Main protection - class 3
To cut-down the transient surge as low as possible to protect very sensitive equipment.

Technical Data

- Conforms to IEC61643-1.
- R Versions: reserve status indicator, signalling.
- D Versions: end of life indicator, auxiliary contact for remote indication.
- Connection Capacity (terminal blocks L, N & E): Rigid conductor: 10mm², Flexible conductor: 6mm².
- 230V a.c. 1A.
- 12V...10mA.

Installation and Connection

- The main protection SPDs are installed directly after the main incoming switch or RCCB
- SPDs are suitable for any supply system e.g TNCS, TNS, TT.
- Connected in parallel to the equipment to be protected.
- Protection is assured in both common and differential modes.

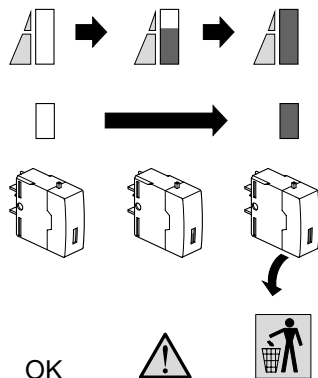
SPDs with Low Let Through Voltage Levels Type 3

- To protect very sensitive electronic equipment. This fine protection complements the main protection and can protect one or many electronic devices.
- Optimal coordination is obtained when cascaded with a main protection device.
- A green LED on the front face indicates the status of the **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.

Replacement Cartridges

- 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 1.89

Commercial
Distribution



SPN801R

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

Poles	I_{imp} L-N	I_{imp} 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)

Description	Cat ref.
Phase replacement for SPN801 , SPN801R , SPN802 , SPN802R	SPN080
Neutral replacement for SPN801 , SPN801R , SPN802 , SPN802R	SPN080N



SPN415D

Class 2 (with lifetime indicator)

Poles	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

Class 3 (Fine Protection) (with lifetime indicator)

Poles	I _n kA L-N	I _n kA N-PE	U _p kV	Width (mm)	Cat ref.
2	3	3	≤ 1.5	17.5	SPN203N

PV Applications (DC side) (with lifetime indicator)

Poles	I _n kA L-N	I _n kA N-PE	U _p kV	Single or Three Phase	Width (mm)	Cat ref.
3	12.5	25	≤ 4	-	52.5	SPV325

Replacement Cartridges

Description	Cat ref.
Phase replacement for SPN215D, SPN415D, SPN115D	SPN015D
Phase replacement for SPN215R, SPN415R, SPN115R	SPN015R
Phase replacement for SPN240D, SPN440D	SPN040D
Phase replacement for SPN240R, SPN44R	SPN040R
Neutral replacement for SPN215D, SPN415D, SPN215R, SPN415R	SPN040N



SPN040D



HR500



HR510



HR520



HR440



HR441

Earth Fault Relays

Characteristics

- Provides monitoring of earth fault currents. When the fault current rises above the selected level, the output contacts of the product operate.
- Depending on the relay selected, it can have either fixed or adjustable sensitivity. A time delay is also available for selectivity purposes. The relays are linked with detection torroids, available in circular and rectangular variants.
- Positive safety: the relay trips in the event of a break in the relay/torroid link.
- Positive reset required after a fault is detected.
- Test button for simulation of a fault.
- Protected against nuisance tripping from transients.
- Conforms to BS EN 61008.

Technical Data

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

Specific device features of HR525 & HR534.

- Display of fault current before it triggers the relay (5% to 75%).
- Extra output contact (250V 0.1A max.) to enable remote indication if fault currents over 50% of $I_{\Delta n}$.
- Remote test and reset (opto-coupled).

Connection capacity

- Relay - 1.5 to 6mm²
- Relay - torroid link: 2 wires, 25m max.
- Test and remote reset link: 3 wires, 20m max.
- For enclosure selection, please consult us.

Description	Characteristics	Width	Cat ref.
Earth Fault Relay with Separate Detection Torroids			
Earth fault relay C/O contact 5A a.c.1	Instant trip, fixed sensitivity $I_{\Delta n} = 30\text{mA}$	1 Mod	HR500
Earth fault relay C/O contact 5A a.c.1	Instant trip, fixed sensitivity $I_{\Delta n} = 300\text{mA}$	1 Mod	HR502
Earth fault relay C/O contact 6A a.c.1	Adjustable sensitivity $I_{\Delta n} = 30\text{mA}, 100\text{mA}, 300\text{mA}$ 500mA, 1A, 3A, 10A Instant trip or time delay 0.1 - 0.3 - 0.4 - 0.5 - 1 - 3 secs	3 Mod	HR510
Earth fault relay C/O contact 6A a.c.1	Adjustable sensitivity $I_{\Delta n} = 30\text{mA}, 100\text{mA}, 300\text{mA}$ 500mA, 1A, 3A, 10A LED optical scale Instant trip or time delay 0.1 - 0.3 - 0.4 - 0.5 - 1 - 3 secs	3 Mod	HR520
Earth fault relay C/O contact 6A a.c.1	Adjustable sensitivity $I_{\Delta n} = 30\text{mA}, 100\text{mA}, 300\text{mA}$ 500mA, 1A, 3A, 10A LED optical scale Instant trip or time delay 0.1 - 0.2 - 0.25 - 0.3 - 0.4 - 0.5 secs	3 Mod	HR522
Earth fault relay C/O contact 6A a.c.1	Adjustable sensitivity $I_{\Delta n} = 500\text{mA}, 1\text{A}, 3\text{A}, 5\text{A},$ 10A, 20A & 30A LED optical scale Instant trip or time delay 0.1 - 0.2 - 0.25 - 0.3 - 0.4 - 0.5 secs	3 Mod	HR523
Earth fault relay C/O contact 6A a.c.1 Trip / reclose input feature	Adjustable sensitivity $I_{\Delta n} = 30\text{mA}, 100\text{mA}, 300\text{mA},$ 500mA, 1A, 3A, 5A, 10A & 30A LCD Display Instant trip or time delay 0.02 - 0.1 - 0.3 - 0.4 - 0.5 - 1 - 3 - 5 - 10 secs	3 Mod	HR525
Earth fault relay C/O contact 6A a.c.1 Solid State relay output Trip / reclose input feature	Adjustable sensitivity $I_{\Delta n} = 30\text{mA}, 100\text{mA}, 300\text{mA},$ 500mA, 1A, 3A, 5A, 10A & 30A LCD Display Instant trip or time delay 0.02 - 0.1 - 0.3 - 0.4 - 0.5 - 1 - 3 - 5 - 10 secs	3 Mod	HR534
Earth Fault Relay with Integral Torroids			
Earth fault relay with integral torroid adjustable sensitivity 25mm ² max. cable size	Adjustable sensitivity $I_{\Delta n} = 30\text{mA}, 100\text{mA}, 300\text{mA},$ 500mA, 1A & 3A Instant trip or time delay 0.1 - 0.3 - 0.5 - 0.75 - 1 secs	4 Mod	HR440
Earth fault relay with integral torroid adjustable sensitivity 35mm ² max. cable size	Adjustable sensitivity $I_{\Delta n} = 30\text{mA}, 100\text{mA}, 300\text{mA},$ 500mA, 1A & 3A Instant trip or time delay 0.1 - 0.3 - 0.5 - 0.75 - 1 secs	6 Mod	HR441

Circular Section Torroids

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



HR702

Rectangular Section Torroids

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



HR830

Rectangular Split Torroids

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



HR820



HDA125Z

Moulded Case Circuit Breakers x160 18kA

Characteristics

- Thermal magnetic trip unit, two versions: Z version: fixed thermal and fixed magnetic. U version: adjustable thermal and fixed magnetic.
- Access to mechanical test button on cover.
- Lockable cover protects MCCB settings.
- Integrated padlocking handle: Ø 4mm.
- Connection capacity: 95mm² rigid cables, 70mm² flexible cables.
- Cage terminals
- Conforms to BS EN 60947-2.
- Fixed thermal: $1 \times I_n$
- Adjustable thermal: $0.63 - 0.8 - 1 \times I_n$
- For technical details see table on page 1.96.

Description	Breaking Capacity	Cat ref. 1 pole	Cat ref. 3 pole
Moulded Case Circuit Breakers, 18kA, Fixed Thermal			
MCCBs x160 - 16A	I_{cu} / I_{cs} : 18 kA	HDA014Z	HDA016Z
MCCBs x160 - 20A	I_{cu} / I_{cs} : 18 kA	HDA018Z	HDA020Z
MCCBs x160 - 25A	I_{cu} / I_{cs} : 18 kA	HDA023Z	HDA025Z
MCCBs x160 - 32A	I_{cu} / I_{cs} : 18 kA	HDA030Z	HDA032Z
MCCBs x160 - 40A	I_{cu} / I_{cs} : 18 kA	HDA038Z	HDA040Z
MCCBs x160 - 50A	I_{cu} / I_{cs} : 18 kA	HDA048Z	HDA050Z
MCCBs x160 - 63A	I_{cu} / I_{cs} : 18 kA	HDA061Z	HDA063Z
MCCBs x160 - 80A	I_{cu} / I_{cs} : 18 kA	HDA078Z	HDA080Z
MCCBs x160 - 100A	I_{cu} / I_{cs} : 18 kA	HDA098Z	HDA100Z
MCCBs x160 - 125A	I_{cu} / I_{cs} : 18 kA	HDA123Z	HDA125Z
MCCBs x160 - 160A	I_{cu} / I_{cs} : 18 kA	-	HDA160Z

Moulded Case Circuit Breakers, 18kA, Adjustable Thermal

MCCBs x160 - 25A	I_{cu} / I_{cs} : 18 kA	-	HDA025U
MCCBs x160 - 40A	I_{cu} / I_{cs} : 18 kA	-	HDA040U
MCCBs x160 - 63A	I_{cu} / I_{cs} : 18 kA	-	HDA063U
MCCBs x160 - 80A	I_{cu} / I_{cs} : 18 kA	-	HDA080U
MCCBs x160 - 100A	I_{cu} / I_{cs} : 18 kA	-	HDA100U
MCCBs x160 - 125A	I_{cu} / I_{cs} : 18 kA	-	HDA125U
MCCBs x160 - 160A	I_{cu} / I_{cs} : 18 kA	-	HDA160U

Moulded Case Circuit Breakers 25kA Fixed Thermal

MCCBs x160 - 16A	I_{cs} : 20 kA, I_{cu} : 25 kA	HHA014Z	HHA016Z
MCCBs x160 - 20A	I_{cs} : 20 kA, I_{cu} : 25 kA	HHA018Z	HHA020Z
MCCBs x160 - 25A	I_{cs} : 20 kA, I_{cu} : 25 kA	HHA023Z	HHA025Z
MCCBs x160 - 32A	I_{cs} : 20 kA, I_{cu} : 25 kA	HHA030Z	HHA032Z
MCCBs x160 - 40A	I_{cs} : 20 kA, I_{cu} : 25 kA	HHA038Z	HHA040Z
MCCBs x160 - 50A	I_{cs} : 20 kA, I_{cu} : 25 kA	HHA048Z	HHA050Z
MCCBs x160 - 63A	I_{cs} : 20 kA, I_{cu} : 25 kA	HHA061Z	HHA063Z
MCCBs x160 - 80A	I_{cs} : 20 kA, I_{cu} : 25 kA	HHA078Z	HHA080Z
MCCBs x160 - 100A	I_{cs} : 20 kA, I_{cu} : 25 kA	HHA098Z	HHA100Z
MCCBs x160 - 125A	I_{cs} : 20 kA, I_{cu} : 25 kA	HHA123Z	HHA125Z
MCCBs x160 - 160A	I_{cs} : 20 kA, I_{cu} : 25 kA	-	HHA160Z

Moulded Case Circuit Breakers 25kA Adjustable Thermal

MCCBs x160 - 25A	I_{cs} : 20 kA, I_{cu} : 25 kA	-	HHA025U
MCCBs x160 - 40A	I_{cs} : 20 kA, I_{cu} : 25 kA	-	HHA040U
MCCBs x160 - 63A	I_{cs} : 20 kA, I_{cu} : 25 kA	-	HHA063U
MCCBs x160 - 80A	I_{cs} : 20 kA, I_{cu} : 25 kA	-	HHA080U
MCCBs x160 - 100A	I_{cs} : 20 kA, I_{cu} : 25 kA	-	HHA100U
MCCBs x160 - 125A	I_{cs} : 20 kA, I_{cu} : 25 kA	-	HHA125U
MCCBs x160 - 160A	I_{cs} : 20 kA, I_{cu} : 25 kA	-	HHA160U

Accessories for x160 Devices

Indication contacts

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

Coil connection

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

Shunt trip

- Remote tripping of MCCBs
- Operating voltage: 0.7 to 1.1 x U_N

Under voltage release

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

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



HXA021H

HXA024H



HXA014H



HXA039H



HYA021H



HYA023H

Add-On Blocks for x160 Devices

Characteristics

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

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



HBA125H



HDA125Z

Commercial
Distribution

Moulded Case Circuit Breakers x250 25kA

Characteristics

- Thermal magnetic trip unit, two versions: Z version: fixed thermal and fixed magnetic. H version: adjustable thermal magnetic.
- Access to mechanical test button on cover.
- Lockable cover protects MCCB settings.
- Integrated padlocking handle: Ø 4mm.
- Connection capacity: 150mm² rigid cables, palm lug max. width: 25mm
- Conforms to BS EN 60947-2
- AC 22/23A.
- For technical data see page 1.106.

x250 25kA

- Fixed thermal: $1 \times I_n$
- Fixed magnetic: $> 10 \times I_n$

x250 40kA

- Adjustable thermal: 0.63, 0.8, $1 \times I_n$
- Adjustable magnetic: 6 - 8 - 10 - 13 $\times I_n$ (100 - 200A). 5 - 7 - 9 - 11 $\times I_n$ (250A).

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

Accessories for x250 Devices

Indication contacts

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

Coil connection

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

Shunt trip

- Remote tripping of MCCBs
- Operating voltage: 0.7 to 1.1 x U_N

Under voltage release

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

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



HXA021H

HXA024H



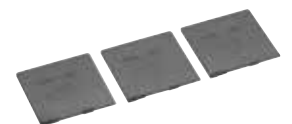
HXA014H



HXA039H



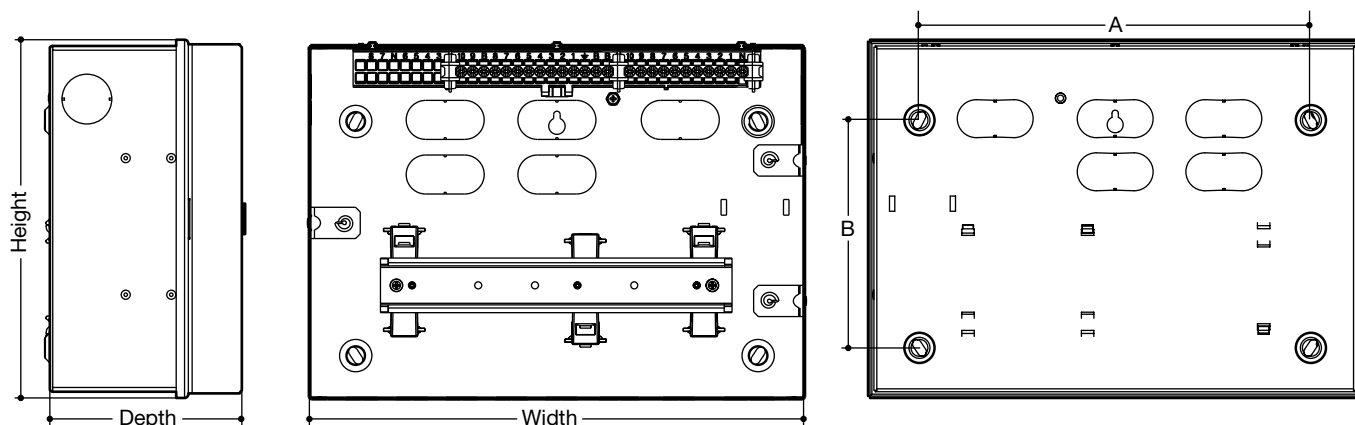
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HYB019H



HYB021H

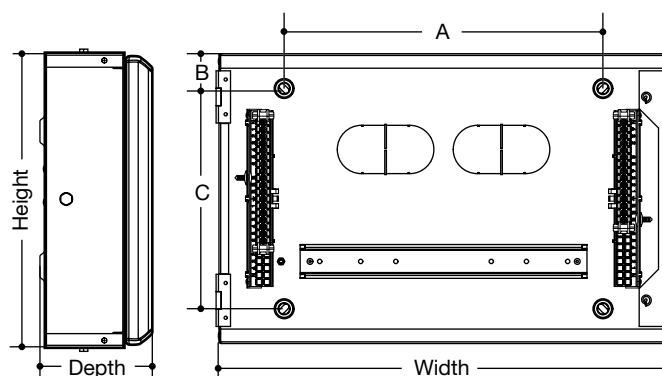


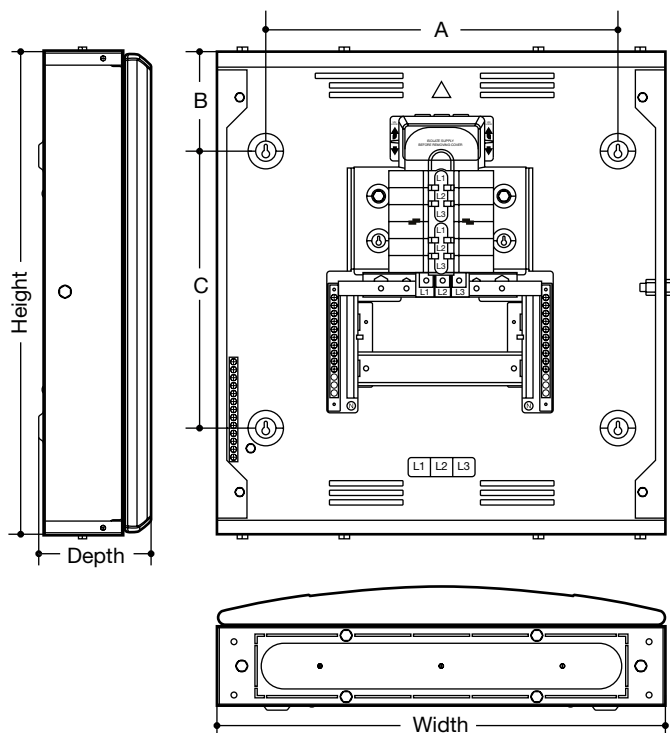
SP&N A Boards

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

Invicta 3 SP&N A Boards

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





125A Primary Boards

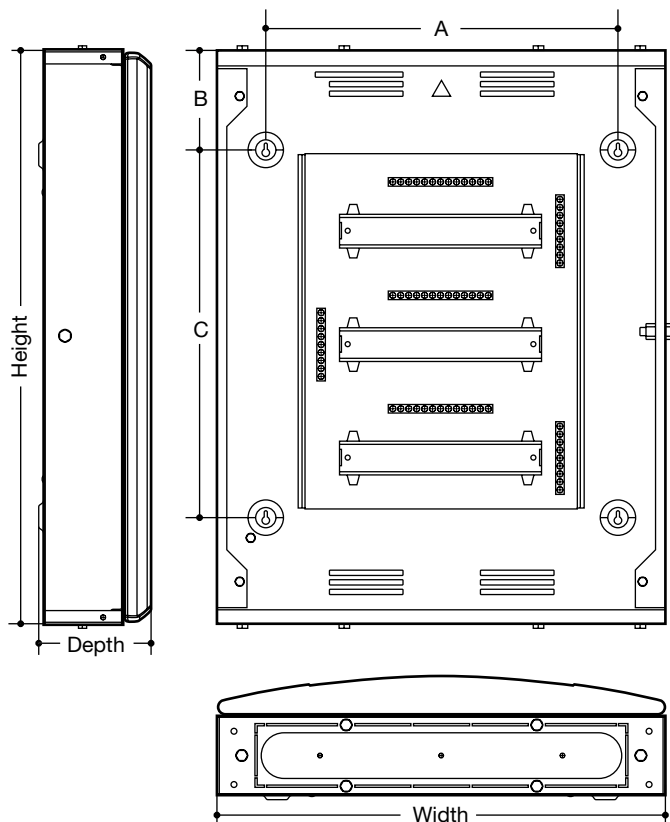
	Dimensions (mm)			Fixing Centres (mm)		
	Height	Width	Depth	A	B	C
JK104B/BG/A3	500	465	132.5	365	100	300
JK106B/BG/A3	550	465	132.5	365	100	350
JK108B/BG/A3	625	465	132.5	365	100	425
JK112B/BG/A3	850	465	132.5	365	100	650
JK116B/BG/A3	950	465	132.5	365	100	750
JK118B/BG/A3	1100	465	132.5	365	100	900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

250A Primary Boards

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

Contactor Incomers

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

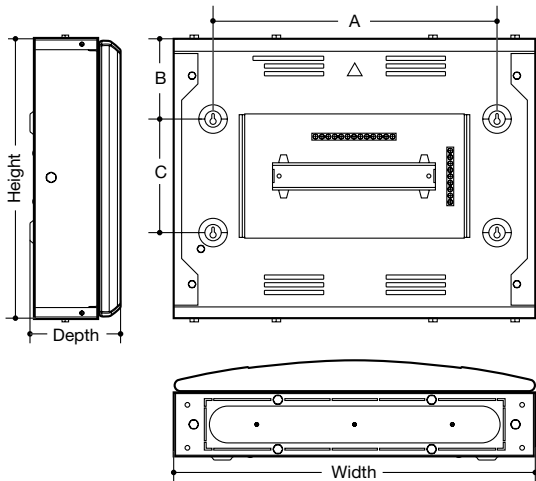


125A Side DIN Enclosures

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

250A Side DIN Enclosures

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

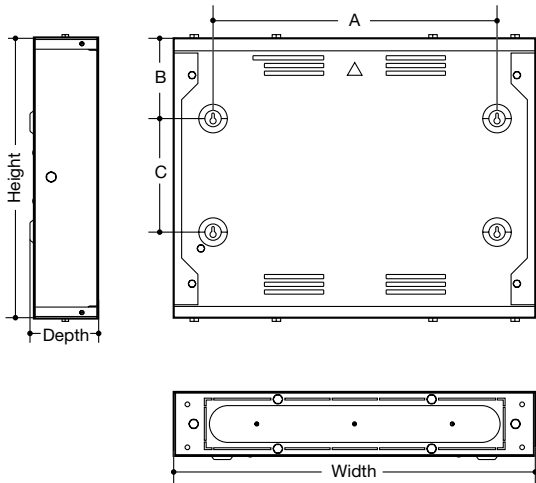


125A DIN Extension Boxes

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

250A DIN Extension Boxes

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

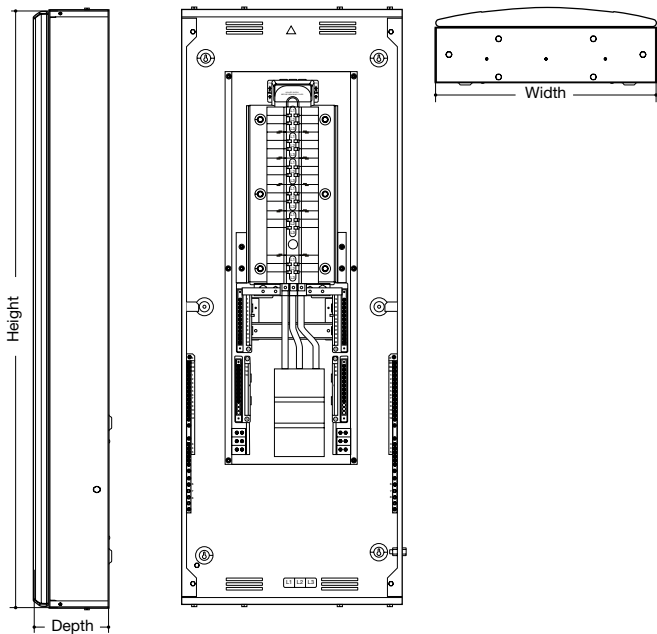


125A Cable Spreader Boxes

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

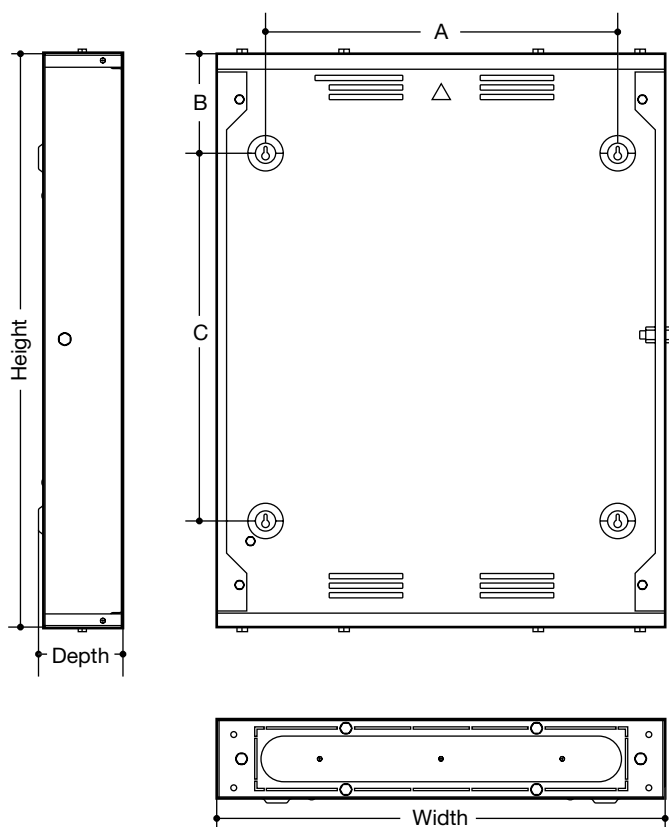
250A Cable Spreader Boxes

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



Hybrid 250A TPN Distribution Boards

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



125A Side Extension Boxes

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

250A Side Extension Boxes

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

125A Half Width Side Extension Boxes

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

250A Half Width Side Extension Boxes

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

Invicta 3 Metered Board, Dual Power & Lighting Board

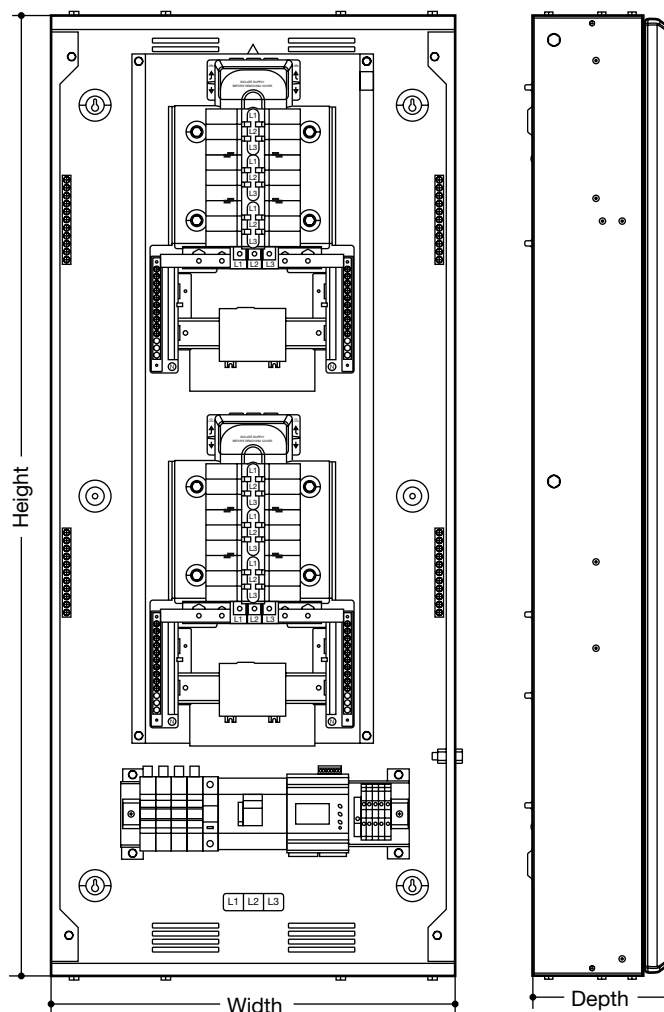
Technical Data & Dimensions

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



Meter Characteristics

Supply	60 to 300V AC, 50/60Hz (±5%)
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Serial Communication

Interface Standard and Protocol	RS485 and MODBUS RTU
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Input (CT)

Pluggable RJ45	Input 1/ Input 2
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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	0.1% of full range
For L-N Voltage > 20V	
For L-L Voltage > 35V"	1.0% of full range
Active power	
Apparent Power	1.0% of full range
Reactive Power	1.0% of full range
Power Factor	±0.01% of full Range
Active Energy	1.0% of full range
Reactive Energy	1.0% of full range
Max/Min Active Power	1.0% of full range
Max/Min Reactive Power	1.0% of full range
Max Apparent Power	1.0% of full range
Power Consumption	Less than 8VA

Characteristics	JK1**	JK2**
Standards	Designed, manufactured and tested to BS EN 61439-3	Designed, manufactured and tested to BS EN 61439-3
Busbar Current Rating	125A	250A
Busbar Type	Fully shrouded copper	Fully shrouded copper
Busbar Rating	25kA Conditional	25kA Conditional
Incoming	100A Switch	250A MCS
	125A Switch	250A MCCB
	63A contactor AC3	160A contactor AC3
	100A contactor AC3	
	Direct connection	Direct connection
	RCCB incomers	
Outgoing Ways	4, 6, 8, 12, 16, 18, 24 Triple pole outgoing ways	8, 12, 16, 18, 24 Triple pole way outgoing ways
Outgoing Protection	Type B MCB (6A to 63A, 1P & 3P) Type C, D MCB, (0.5A to 63A, 1P & 3P) 1Mod and 2Mod RCBO	Type B MCB (6A to 63A, 1P & 3P) Type C, D MCB, (0.5A to 63A, 1P & 3P) 1Mod and 2Mod RCBO
Voltage Rating in AC	230 / 415V	230 / 415V
IP Protection	IP3X to BS EN 60529	IP3X to BS EN 60529
Enclosure Body Type	Steel	Steel
Enclosure Paint Type	Powder Coat Grey White BS4800 00A01	Powder Coat Grey White BS4800 00A01
Cable Entry	Obround protected cable entry points	Obround protected cable entry points
Terminal Connection Capacity		
Incoming Line Terminal	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

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

Interface Characteristics	JKD125PM	JKD125TPM	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 with equipment and arrangements specified in Hager's technical documentation/catalogue	10kA with equipment and arrangements specified in Hager's technical documentation/catalogue	10kA with equipment and arrangements specified in Hager's technical documentation/catalogue	10kA with equipment and arrangements specified in Hager's technical documentation / catalogue
Protection against electric shock	Equipment shall be installed in an electrical system conforming to IEC 60364 / BS 7671	Equipment shall be installed in an electrical system conforming to IEC 60364 / BS 7671	Equipment shall be installed in an electrical system conforming to IEC 60364 / BS 7671	Equipment shall be installed in an electrical system conforming to IEC 60364 / BS 7671
Rated frequency (f_N)	50 Hz	50 Hz	50 Hz	50 Hz
Pollution degree	2	2	2	2
Types of system earthing for which the ASSEMBLY is designed	TNC-S, TN-S and TT when installed in an electrical system conforming to BS 7671	TNC-S, TN-S and TT when installed in an electrical system conforming to BS 7671	TNC-S, TN-S and TT when installed in an electrical system conforming to BS 7671	TNC-S, TN-S and TT when installed in an electrical system conforming to BS 7671
Intended locations	Indoor use only	Indoor use only	Indoor use only	Indoor use only
Degree of protection	IP3XD with Door Closed IP2XC with Door Open	IP3XD with Door Closed IP2XC with Door Open	IP3XD with Door Closed IP2XC with Door Open	IP3XD with Door Closed / IP2XC with Door Open
Intended use	Distribution boards intended to be operated by ordinary persons (DBO)	Distribution boards intended to be operated by ordinary persons (DBO)	Distribution boards intended to be operated by ordinary persons (DBO)	Distribution boards intended to be operated by ordinary persons (DBO)
Electromagnetic compatibility (EMC) classification	EMC Environment B	EMC Environment B	EMC Environment B	EMC Environment B
External design	Wall-mounted, surface type, enclosed assembly.	Wall-mounted, surface type, enclosed assembly.	Wall-mounted, surface type, enclosed assembly.	Wall-mounted, surface type, enclosed assembly.
Mechanical impact protection	IK05	IK05	IK05	IK05
The type of construction	Fixed parts	Fixed parts	Fixed parts	Fixed parts
Incoming Line Terminal	M8	M8	M8	M8
Incoming Neutral Terminal	M8 Lug	M8 Lug	M8 Lug	M8 Lug
Enclosure Earth Stud	M8	M8	M8	M8

Meter Characteristics

Supply	60 to 300V AC, 50/60Hz (±5%)
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Serial Communication

Interface Standard and Protocol	RS485 and MODBUS RTU
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Input (CT)

Pluggable RJ45	Input 1/ Input 2
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Output

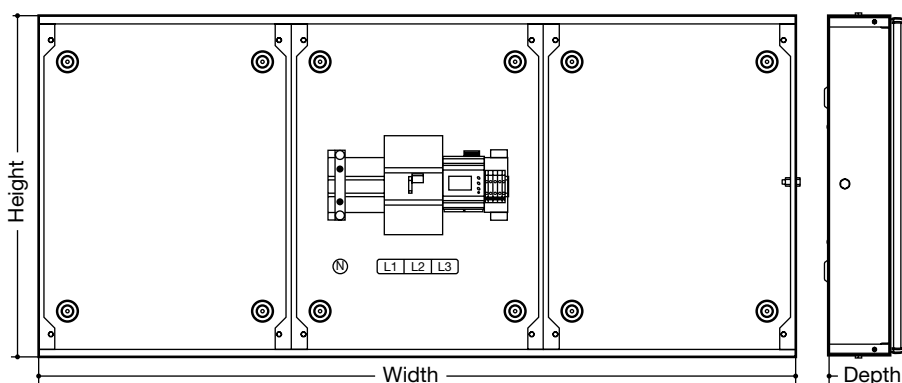
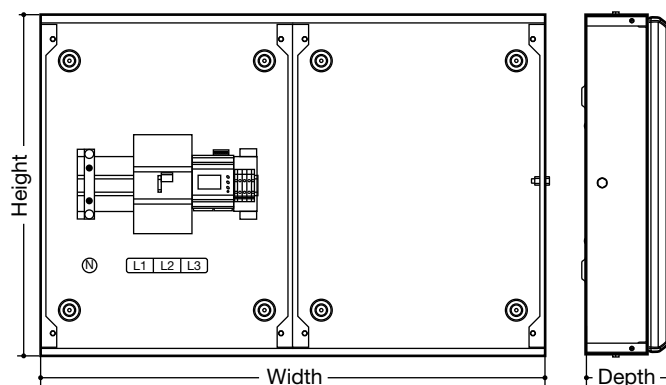
Pulse Output:	Voltage Range : 24V DC max
Current Capacity :	100mA max
Pulse Duration :	Selectable Between 0.1 to 2.0sec
Pulse Weight :	Selectable between 0.01 to 9.99kWh

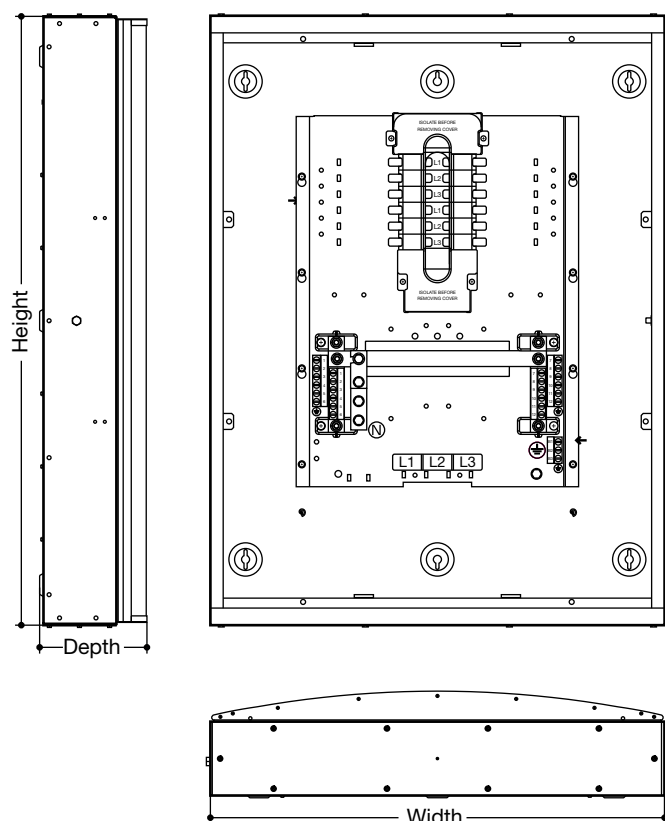
Accuracy of meter

Measurement	Accuracy
Voltage VL-N	0.5% of full range
Voltage VL-L	0.5% of full range
Current A	0.5% of full range
Frequency For L-N Voltage >20V For L-L Voltage >35V"	0.1% of full range
Active power	1.0% of full range
Apparent Power	1.0% of full range
Reactive Power	1.0% of full range
Power Factor	±0.01% of full Range
Active Energy	1.0% of full range
Reactive Energy	1.0% of full range
Max/Min Active Power	1.0% of full range
Max/Min Reactive Power	1.0% of full range
Max Apparent Power	1.0% of full range
Power Consumption	Less than 8VA

Dual & Triple Meter Incomers

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





Primary Boards

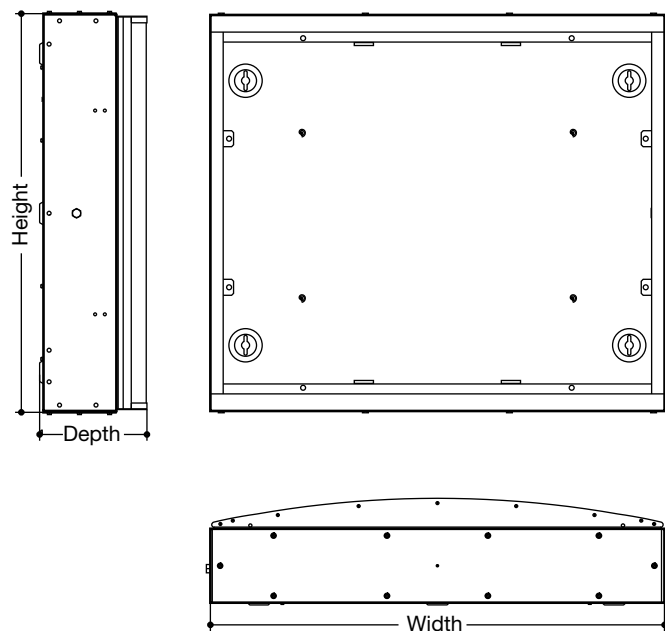
	Dimensions (mm)		
	Height	Width	Depth
JN204B/G	950	710	160
JN206B/G	1100	710	160
JN208B/G	1100	710	160
JN212B/G	1250	710	160
JN216B/G	1550	710	160

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 - 50mm² CSA Flex
 25 - 70mm² CSA Solid

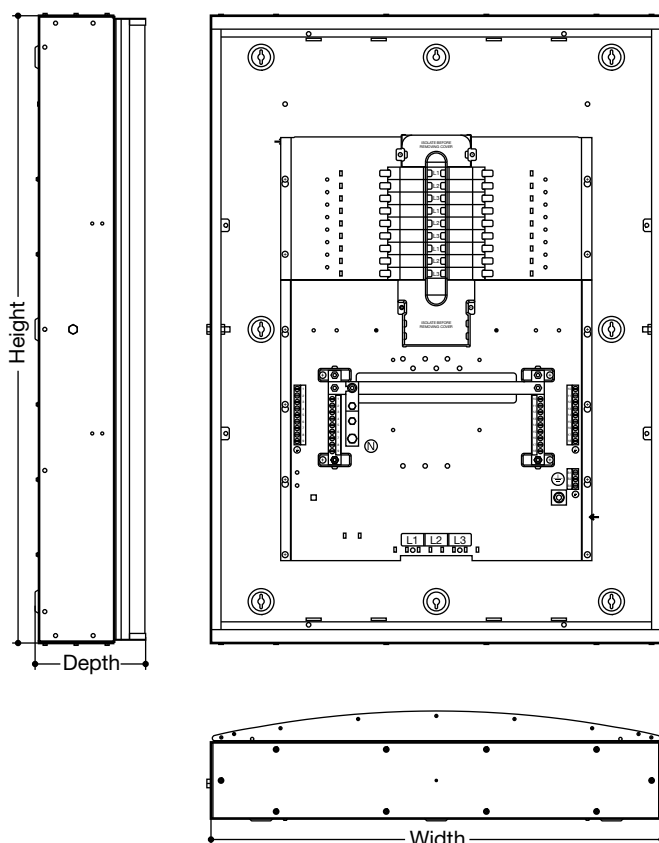
MCCB Connections	M8
Earth	M8
Neutral	M8



Extension Boxes

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

Commercial
Distribution



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

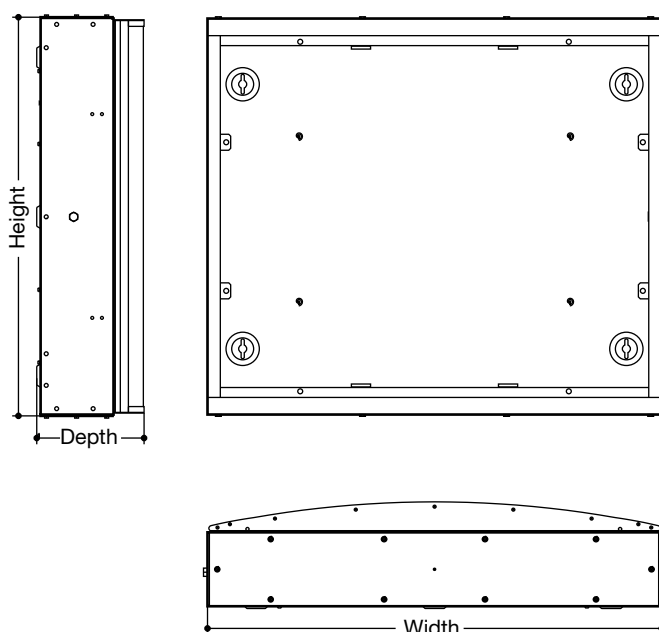
Terminals

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 - 50mm² CSA Flex
25 - 70mm² CSA Solid

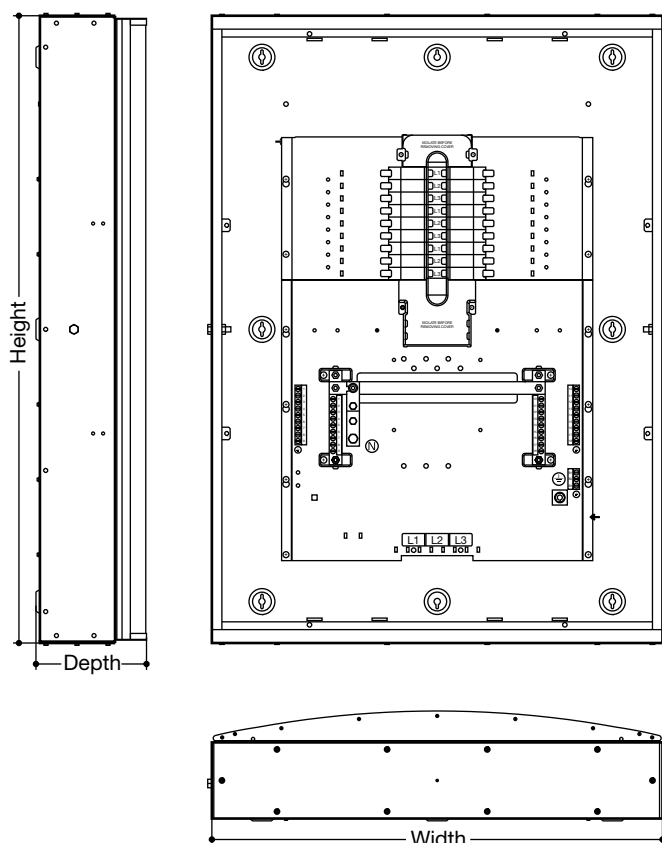
MCCB Connections:
400A M10
630A M12

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

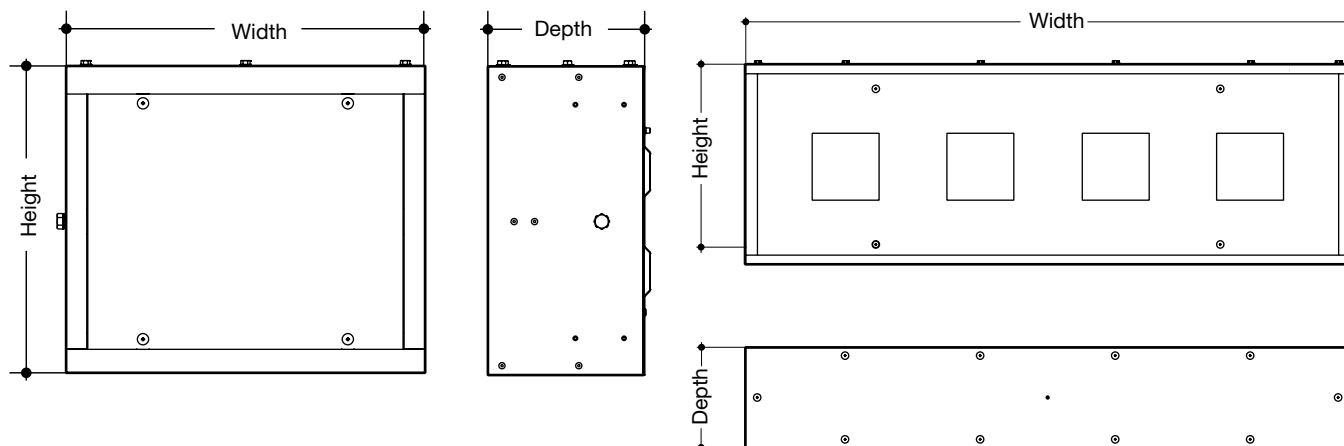
Commercial
Distribution

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)	250A Page 1.13. 400A Page 1.15. 630A/800A Page 1.17. 800A Page 1.19.	JN206BG	1
2	Identify quantity of meters required eg. 4 metered ways modbus (ECM01)	Page 1.21.	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 1.13. For JF Page 1.21.	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 1.21.	JF96BP	2 0
5	Meter voltage supply including fuses. (1st meter only includes incoming) e.g. JN130VMF	Page 1.22.	JN130VMF	1
6	Supply cable for remaining meters (Link meter to meter) e.g. PGMFT150	Page 1.22.	PGMFT150	3
7	Identify which CT's are required eg. 60 Amp Qty 1 eg. 100 Amp Qty 2 eg. 125A Qty 1	Page 1.22.	EC1260CT EC12100CT EC12125CT	1 2 1

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

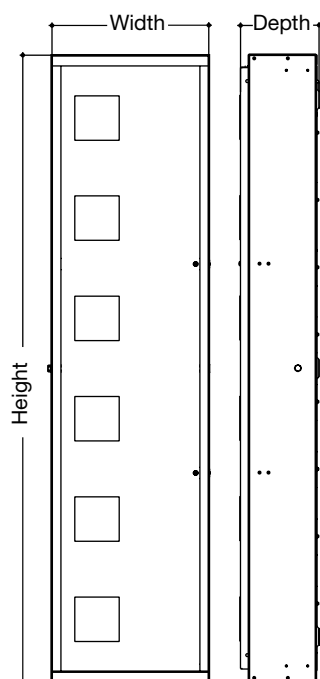


Corner Filler Enclosures

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

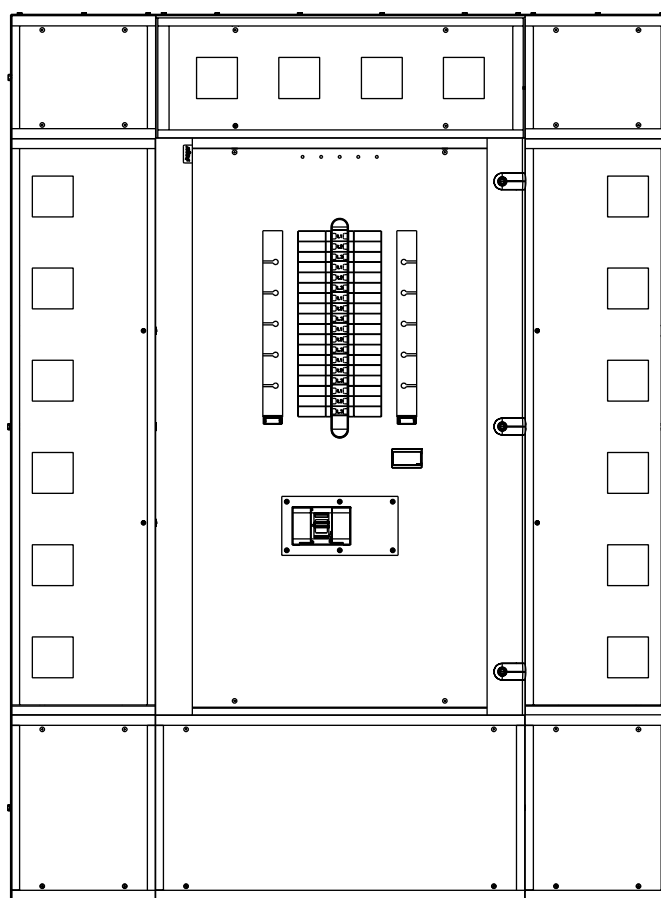
Top/Bottom Enclosures

	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



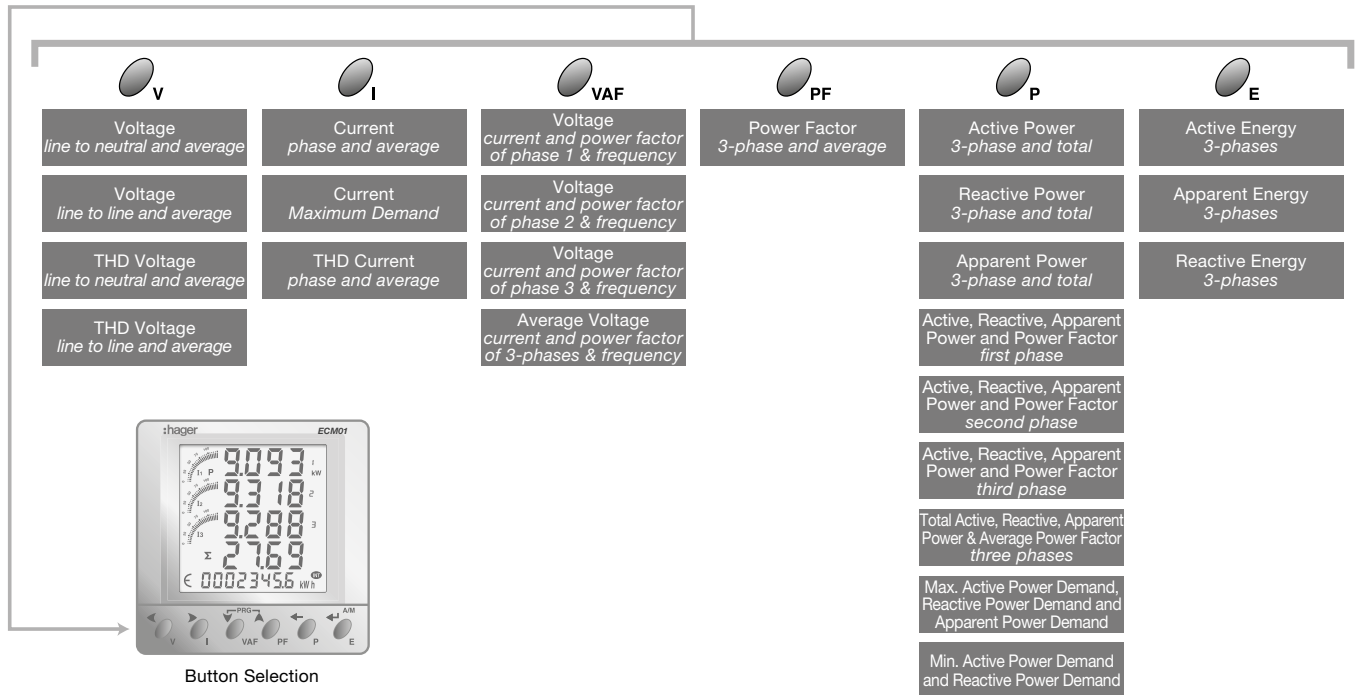
Multi-Function Meter - ECM01

Single CT Connection, DIN 96

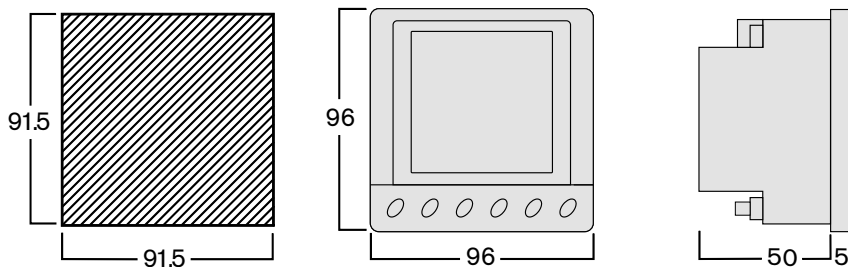
:hager

- 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

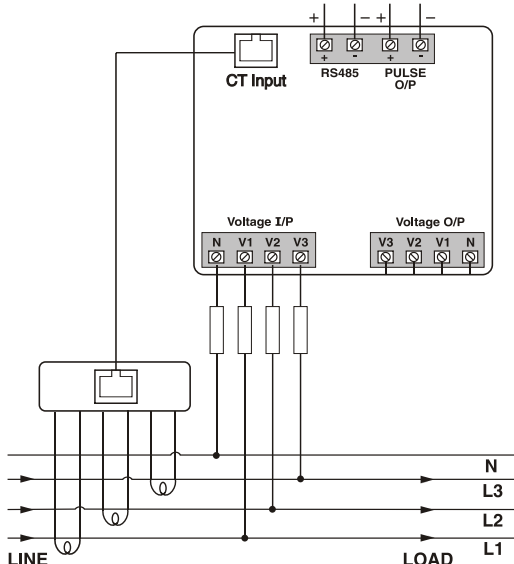
Function Diagram



Dimensions Diagram (mm)



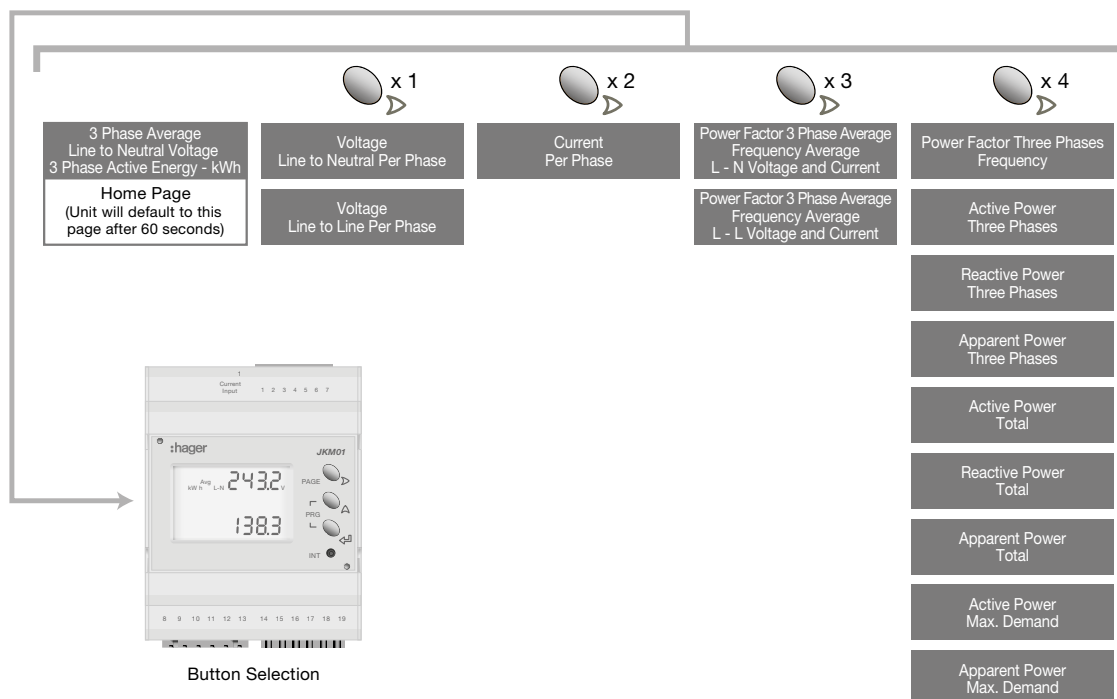
Please allow space at the rear of the meter for cable connections.



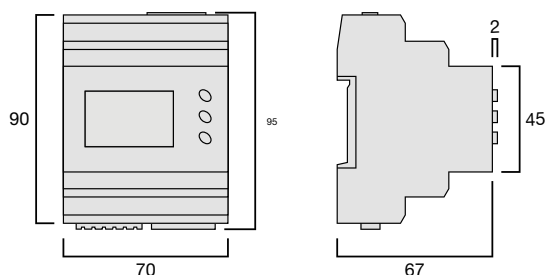
- 4 Module DIN rail mounting
- Single phase or 3 phase (4 wire) network balanced or unbalanced load
- Built-in energy pulse output and RS485 MODBUS communication
- Wide range of measured parameters (see table below)
- High quality backlit LCD display
- 330mV current transformer input
- Active energy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

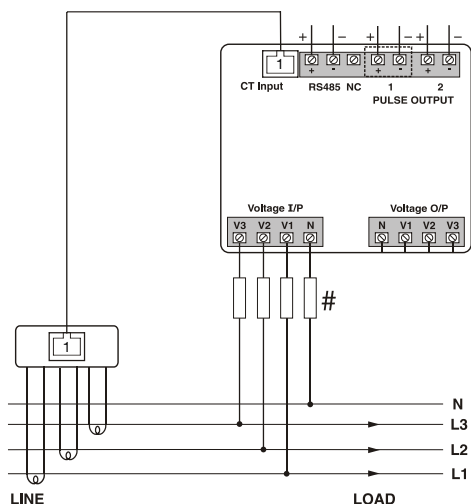
Function Diagram



Dimension Diagrams (mm)



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



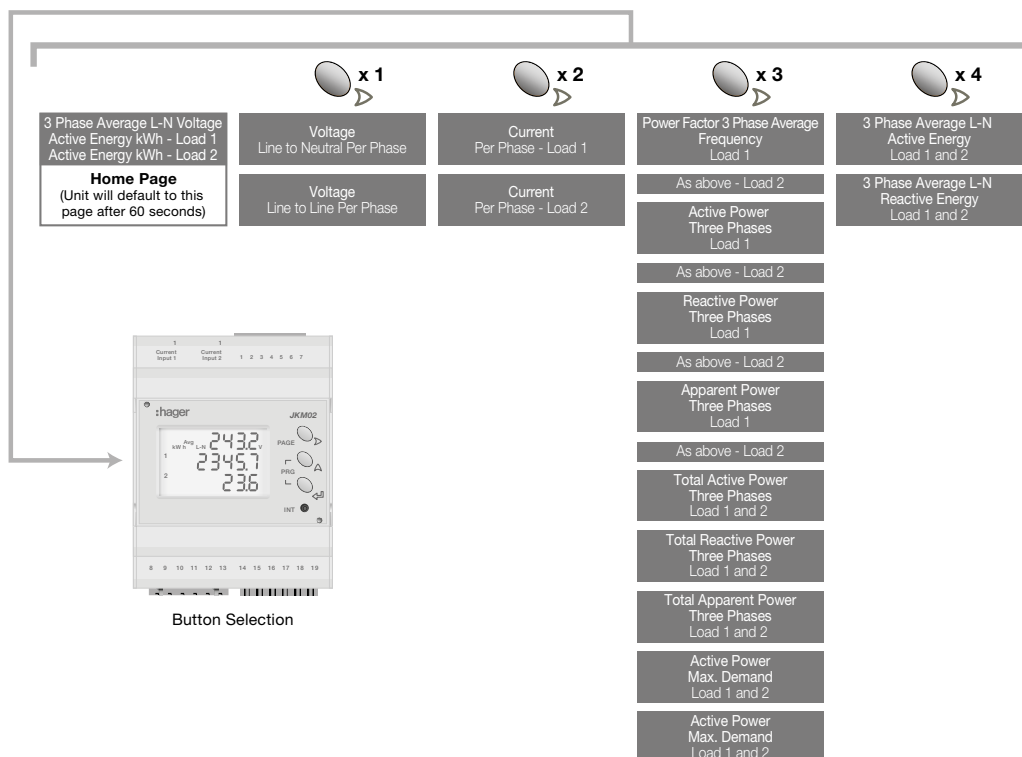
Multifunction Meter - JKM02

Dual CT Connection, Panel Mounting

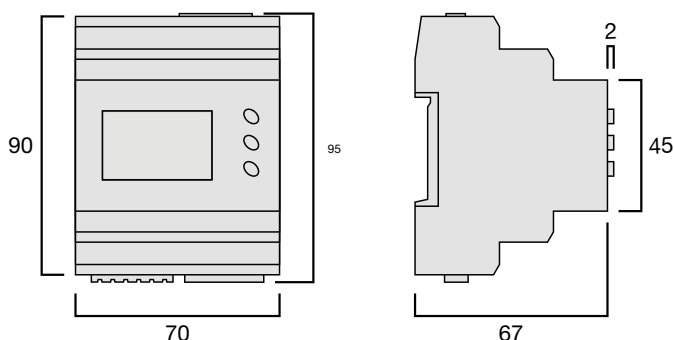
:hager

- 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 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 per load
- Programmable VT ratio
- Frequency 45/65Hz
- Selectable CT phase correction allows reversal of L1 and L3
- Weight 200g

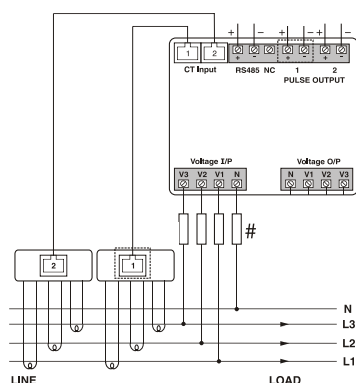
Function Diagram



Dimension Diagrams (mm)



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



- Connect up to three 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.

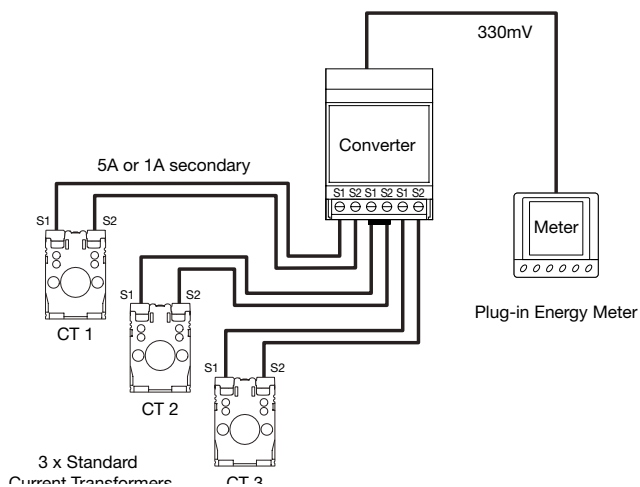
The unit has integrated protection circuitry allowing for disconnection from meter under load conditions for maintenance.

Important Note

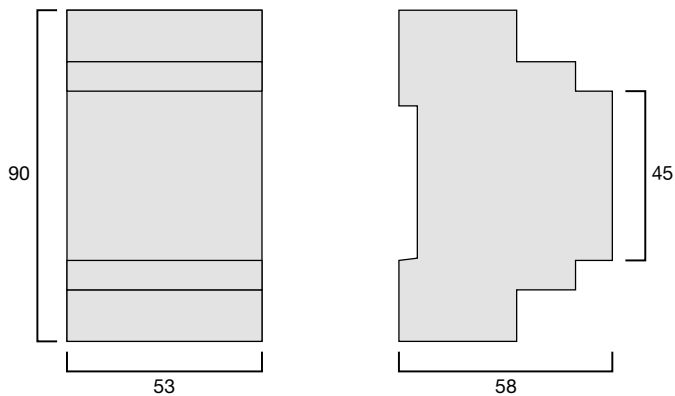
This converter does not provide electrical isolation. Current transformer secondaries may not be earthed and should be wired as shown.

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



Dimension Diagrams (mm)



Description

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

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

Installation

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

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

EC1260CT, EC12100CT, EC12125CT, EC12160CT

Current Transformer Ratios

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

330mV Secondary

EC2560CT, EC25100CT, EC2512CT, EC25160CT, EC25200CT, EC25250CT

Current Transformer Ratios

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

330mV Secondary

EC40250CT, EC40400CT, EC40630CT

Current Transformer Ratios

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

330mV Secondary

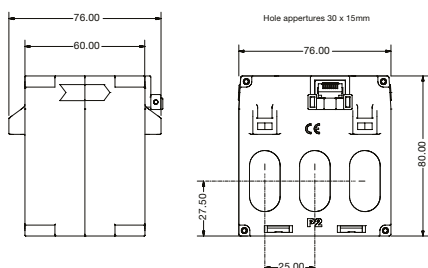
EC80800CT

Current Transformer Ratios

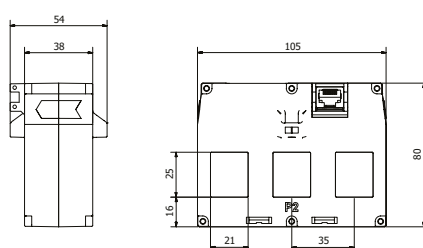
Primary Current	Output	
A	mV	Code
800	330	800

330mV Secondary

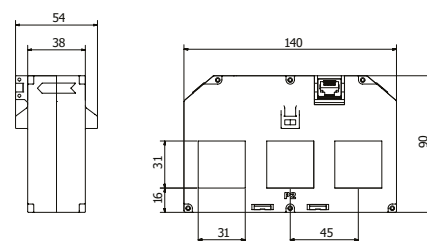
EC1260CT, EC12100CT, EC12125CT, EC12160CT



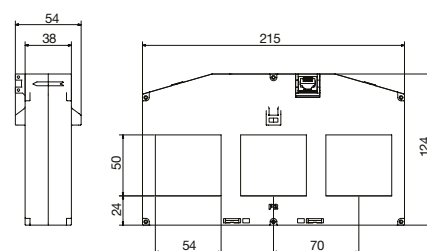
EC2560CT, EC25100CT, EC2512CT, EC25160CT, EC25200CT, EC25250CT



EC40250CT, EC40400CT, EC40630CT



EC80800CT



CT Output and RJ45 Lead Tester

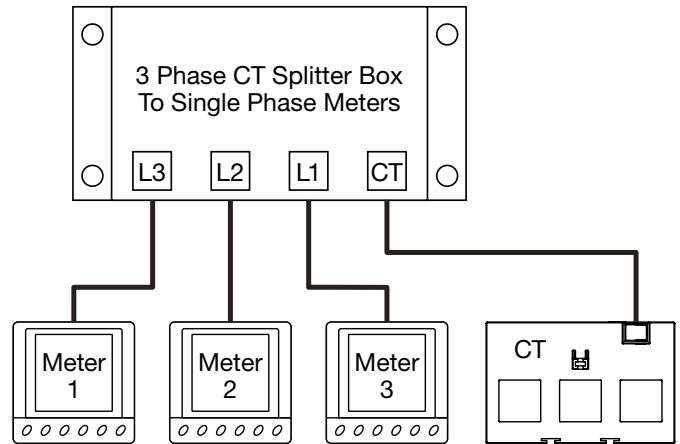
This device makes it possible to test the RJ45 patch lead used to connect the current transformer to the meter. It also enables a standard electricians multi-meter to measure the individual secondary outputs of the current transformer. To test the RJ45 patch lead, simply disconnect the lead from the 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 330mV a.c.

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.

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.

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	Description	Dimensions (mm)		
		Width	Height	Depth
JFB202U	20A SPSN	200	250	150
JFB203U	32A SPSN	200	250	150
JFB206U	63A SPSN	300	325	150
JFE210U	100A SPSN	375	400	200

TPN	Description	Dimensions (mm)		
		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	Description	Dimensions (mm)		
		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

	Rating	Dimensions (mm)		
		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	Description	Dimensions (mm)			
		Width	Height	Depth	Handle Depth
JAC316	160A TPN	250	300	150	195
JAЕ320	200A TPN	375	400	200	245
JAЕ325	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	Description	Dimensions (mm)			
		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
JAЕ420	200A TPSN	375	400	200	245
JAЕ425	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

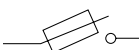
Thermal current Ith (40°C)	20A		32A		63A		100A		125A		160A		200A	
Fuse size: BS	A1		A1		A2-A3		A4		B1-B2		B1-B2		B1-B3	
Rated insulated voltage														
Ui (V)	800		800		800		800		800		800		800	
Impulse voltages Uimp	8000	8000	8000	8000	8000	8000	8000	8000	8000	8000	12000	12000	-	
Operational current 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-22 (A RMS)	200		320		630		1000		1250		1600		2000	
Withstand mechanical (number of operations)	20,000		20,000		10,000		10,000		10,000		10,000		10,000	
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 I _{th} (40°C)	250A		315A		400A		630A		800A	
Fuse size: BS	B1-B3		B1-B4		B1-B4		C1-C2		C1-C2-C3	
Rated insulated voltage U _i (V)	800		800		800		1000		1000	
Operational current I _o (A) A = Frequent operation B = Infrequent operation	A	B	A	B	A	B	A	B	A	B
415V a.c. AC-22A/AC-23B	250	250	315	315	400	400	630	630	800	800
Motor power (kW) 400V a.c.	-		160	160	220	220	355	355	-	
Reactive power 400V a.c. (kVAR)	-		125		150		2 x 125		-	
Overload capacity										
Short-circuit with fuses (kA Rms)	50		50		50		50		50	
Fuse rating (A) BS 88	250		315		400		630		800	
Making & Breaking Capacity										
Breaking capacity 400V AC-23B (A R.M.S)	2000		2520		3200		-		-	
Making capacity 400V AC-23B (A R.M.S)	2500		3150		4000		-		-	
Withstand mechanical (number of operations)	10,000		10,000		10,000		8000		8000	
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	

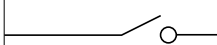
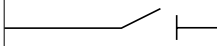



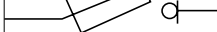
Fuse - Combination Units - BS EN 60947-3

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
Disconnecter Fuse		Isolating
Switch Disconnecter Fuse		Making, breaking and isolating
Fuse Switch		Making and breaking current
Fuse Disconnecter		Isolating
Fuse Switch Disconnecter		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.

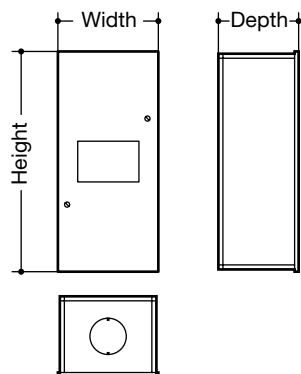
If the load was highly inductive, i.e. motor loads, then the minimum utilisation category would be AC-23A.

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.



Switch Fuses

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

IP65 Enclosed Isolating Switch

All dimensions are in mm and exclude the handle.

Add 27mm to the depth to allow for the handle on 10-25A products.

Add 32mm to the depth to allow for the handle on 40-80A products.

Description	Dimensions (mm)			
	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 I_e (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 I_k (kA)	50	50	50	50	50
Peak value (kA)	5.4	6.6	7.2	8.3	8.7
Rated short circuit making capacity (I_{cm}) (kA) 690V	2.5	2.5	2.5	3.3	3.3
Rated short time withstand current (I_{cw}) (kA) 690V (1s)	1	1.1	1.6	1.7	2.3
Rated breaking capacity I_{cn} (A) AC23					
400V $\cos \phi$ 0.35	250	270	320	480	504
Electrical endurance (number of operations)	3000	3000	3000	3000	-
Mechanical endurance (number of operations)	50,000	50,000	50,000	50,000	-
Terminals mm ²	1.5 - 16	1.5 - 16	1.5 - 16	2.5 - 35	2.3 - 35
Max. thermal torque (Nm)	1.8	1.8	1.8	2.5	2.5

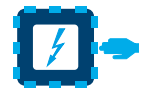
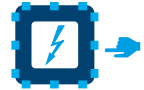
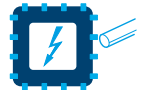
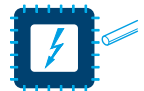


Enclosed thermal current I_{the}	20	32	63	100	125	160	200	250	315	400	630	800
Rated insulation voltage U_i (V)	800	800	800	800	800	800	800	800	800	800	1000	1000
Rated thermal current I_{the} (A)	20	32	63	100	125	160	200	250	315	400	630	800
Rated operational current												
AC21A 500VAC	20	32	63	100	125	160	160	250	250	250	630	800
AC22A 500VAC	20	32	63	100	125	125	125	250	250	250	500	800
AC21A 690VAC	20	32	63	100	125	160	160	200	200	200	500	800
AC22A 690VAC	20	32	63	100	125	125	125	125	125	125	315	800
Overload capacity												
lcw 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 U_{imp} (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 I_n	20A	32A	63A	100A	125A
Switch	3PSN	3PSN	3PSN	3PSN	3PSN
Rated Insulation Voltage U_i	800V	800V	800V	800V	800V
Rated Impulse Voltage U_{imp}	8kV	8kV	8kV	8kV	8kV
Dimensions					
Height (mm)	232	232	232	232	300
Width (mm)	175	175	175	175	200
Depth (mm)	81	81	81	81	83
Operational Current I_e (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 I_{cc}	50	50	50	25	25
I_{cw} (kA)	2.5 / 0.3s	2.5 / 0.3s	3.0 / 0.3s	5.0 / 0.3s	5.0 / 0.3s
I_{pk} (kA)	6	6	9	12	12
Cable Connection					
Max Cu cable CSA mm ²	16	16	35	70	70

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

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

The first character numeral:
Protection against foreign objects









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

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

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

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

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

Additional letter (optional)
Specific information on the product

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

Interface Characteristics	JG44BM, JG45BM, JG46BS, JG47BS	JG48BM, JG50BS, JG49BM, JG51BS	JG36BM, JG37BM, JG40BM, JG42BS, JG41BM, JG43BS	JG37BR, JG38BR	JG45BR
Rated & operational voltage (U _n / U _e)	415V a.c. 50Hz				
Rated insulation voltage (U _i)	690V a.c. 50Hz				
Rated impulse withstand voltage (U _{imp})	6kV				
Rated current of the Assembly (I _{nA})	400A	630A	JG36BM, JG37BBM -160A JG40BM, JG42BS, JG41BM, JG43BS - 250A	JG37BR - 160A JG38BR - 200A	375A
Rated conditional short-circuit current of the assembly (I _{cc})*	50kA		25kA		50kA
Rated peak withstand current (I _{pk})	105kA		52.5kA		105kA
Standards - Enclosed MCCB assembly	BS EN 61439-2				
Standards - MCCB only	BS EN 60947-2				
Rated frequency (fn)	50 Hz				
Pollution degree	3				
Types of system earthing for which the ASSEMBLY is designed	TNC-S, TN-S and TT when installed in an electrical system conforming to BS 7671				
Intended locations	Indoor use only				
Stationary assembly external design	Wall mounted				
Degree of protection	IP30 with cover fitted				
Intended use	Skilled persons only				
Electromagnetic compatibility (EMC) classification	EMC Environment B				
External design	Wall-mounted, surface type, enclosed assembly.				
Mechanical impact protection	IK05				
Form of seperation	Form 2a				
Connection of functional unit: Incoming/outgoing circuit protection	F (fixed)				
Incoming Line Terminal(s)	M10 Bolt	M12 Bolt	M8 Socket Cap Screw		M10 Bolt
Incoming Neutral Terminal	M10 Bolt		JG37BM, JG41BM, JG43BS - M8 Socket Cap Screw JG36BM, JG40BM, JG42BS - M10 Bolt	M8 Socket Cap Screw	M10 Bolt
Enclosure Earth Stud	M10	M12	M8		M10

Enclosed MCCB (63A - 125A)

Characteristics

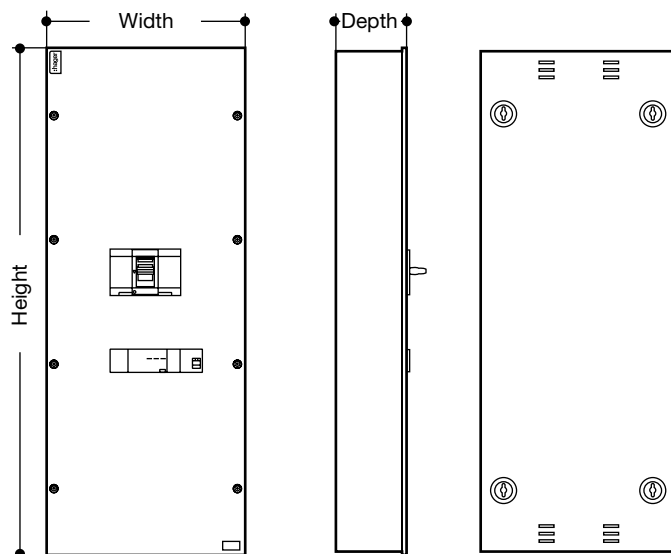
Series	JG25BM, JG26BM, JG27BM, JG27BR, JG28BM, JG29BM, JG30BM, JG31BM, JG32BM, JG33BM, JG30BR, JG34BS, JG35BS
MCCB	63A to 125A MCCB
MCCB + RCCB Add on block	63A & 100A
Voltage rating in AC	240 / 415 V
IP Protection	IP3X
Enclosure body type	Steel
Enclosure paint type	Powder coat Grey white BS 4800 00A01

Terminal Connection capacity

Maximum terminal capacity	95mm ²
Enclosure earth stud	M8

Installation

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

Torque settings

M8	13Nm
M10	22Nm
M12	45-65Nm

Electrical Characteristics

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

Table 1

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

Power Loss

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

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

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

For use with DC

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

The following parameters must be considered:

1. System voltage:

Determined by the number of poles connected in series (see **Table 14**).

2. Short circuit current:

(See **Table 14**).

3. Tripping Characteristics:

If the thermal trip remains unchanged the magnetic trip will become less sensitive requiring derating by $\sqrt{2}$ the ac value (See **Table 14**).

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

Table 13

Characteristic curve	B		C		D	
Magnetic strip	50Hz	dc	50Hz	dc	50Hz	dc
I _{rm1}	3I _n	4.5 I _n	5I _n	7.5 I _n	10 I _n	15 I _n
I _{rm2}	5I _n	7.5 I _n	10I _n	15 I _n	20 I _n	30 I _n

Table 14

Connection

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

Temperature Derating

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

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

Commercial
Distribution

Diversity Factor - Commercial Distribution boards to BS EN 61439-3

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

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

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

Frequency

Circuit breakers are designed to operate at a frequency of 50-60Hz. Should the supply differ from this then the following factors should be applied

Thermal – unchanged

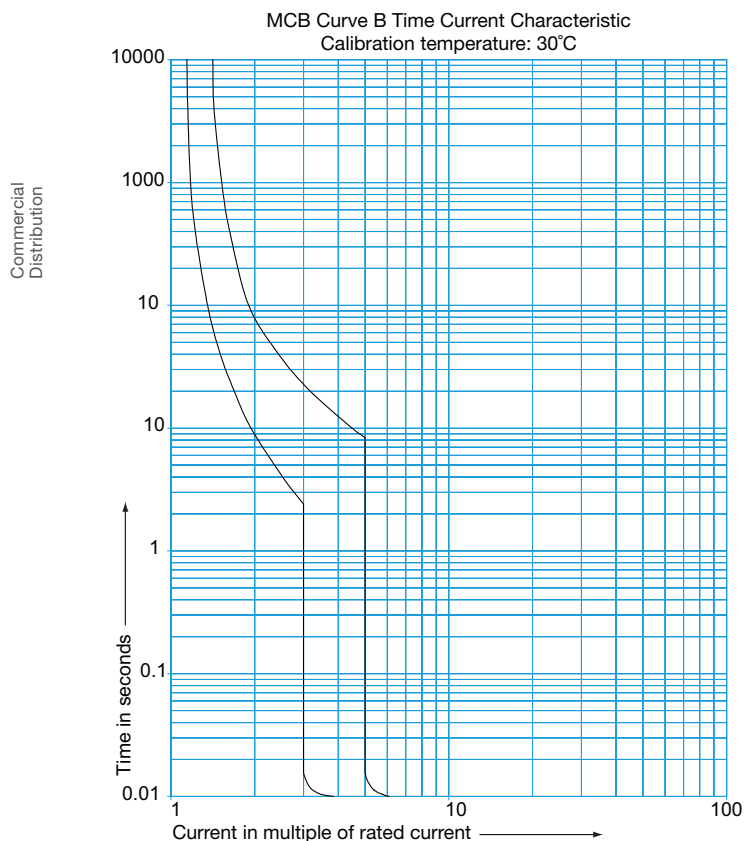
Magnetic – value multiplied by coefficient K

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

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

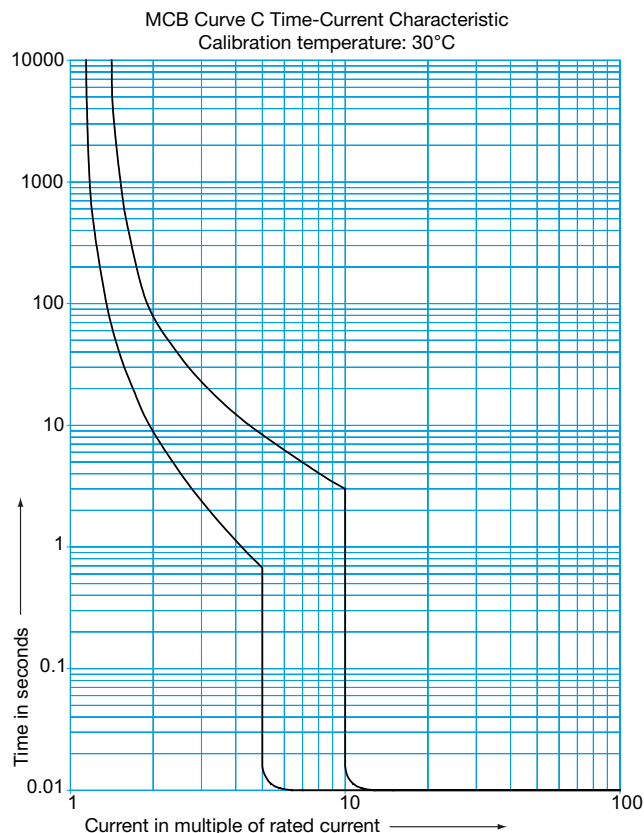
B Curve (BS EN 60898)

MCBs: MTN rated 6 - 63A
NBN rated 6 - 63A



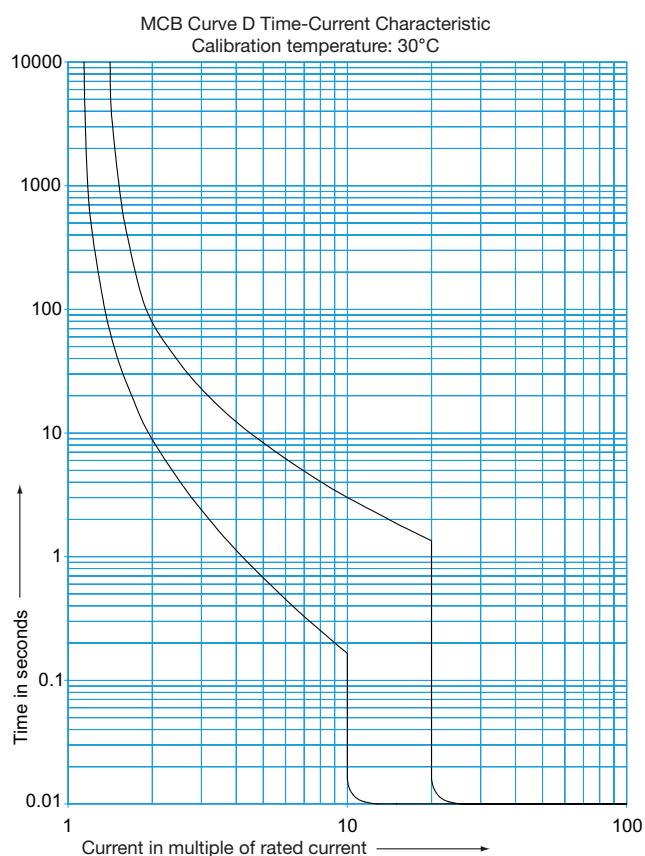
C Curve (BS EN 60898)

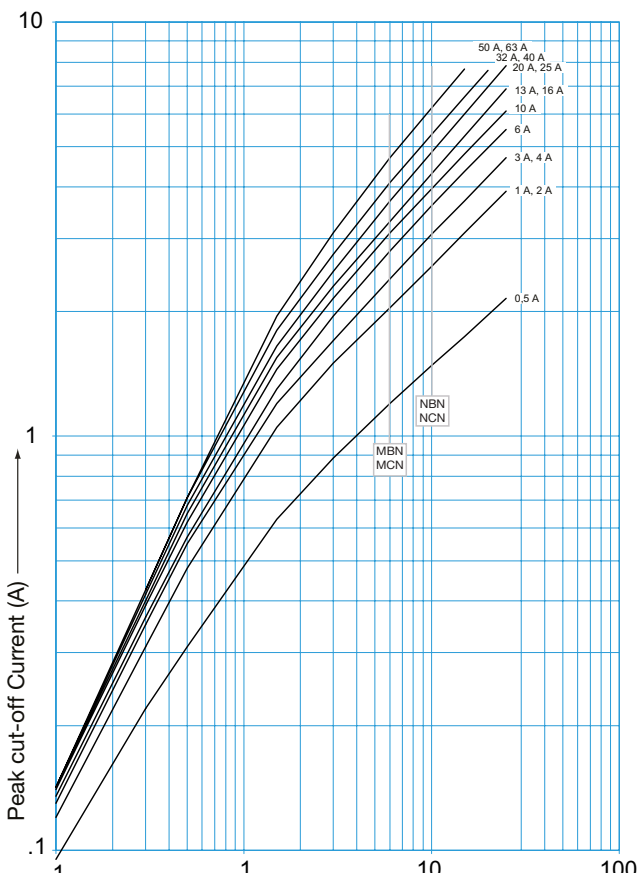
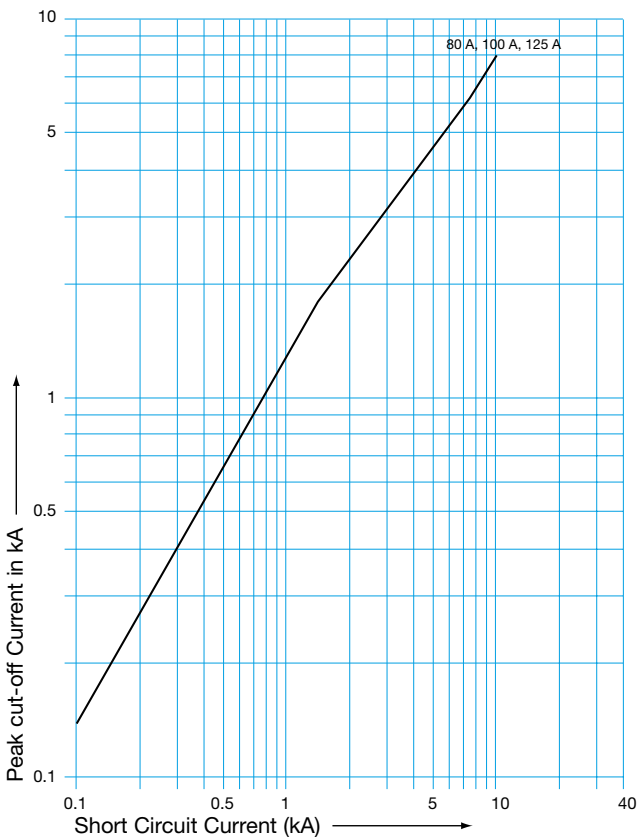
MCBs: NCN rated 0.5 - 63A
MLN rated 2 - 32A
HMF/HMC rated 80 - 125A



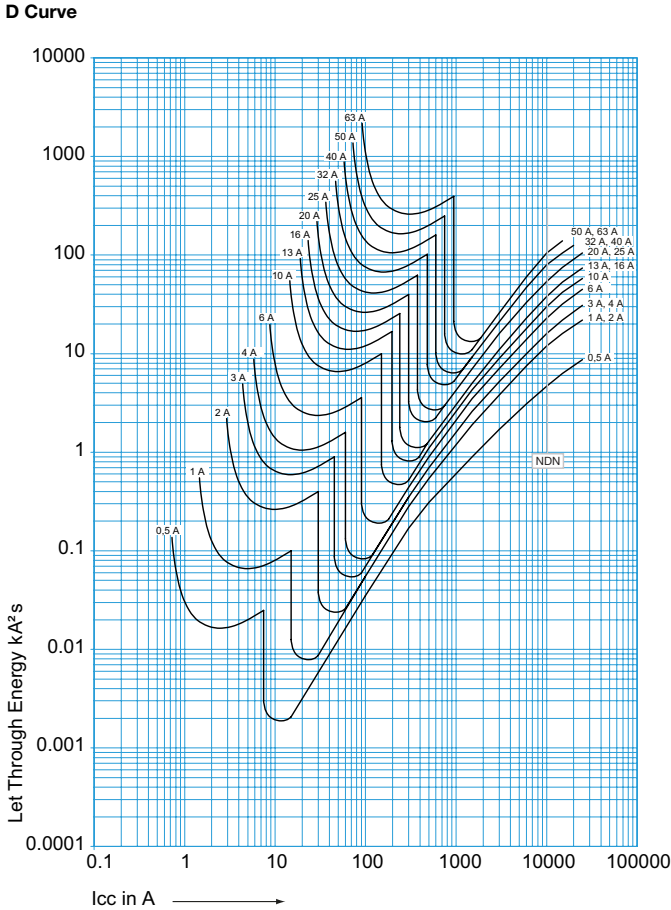
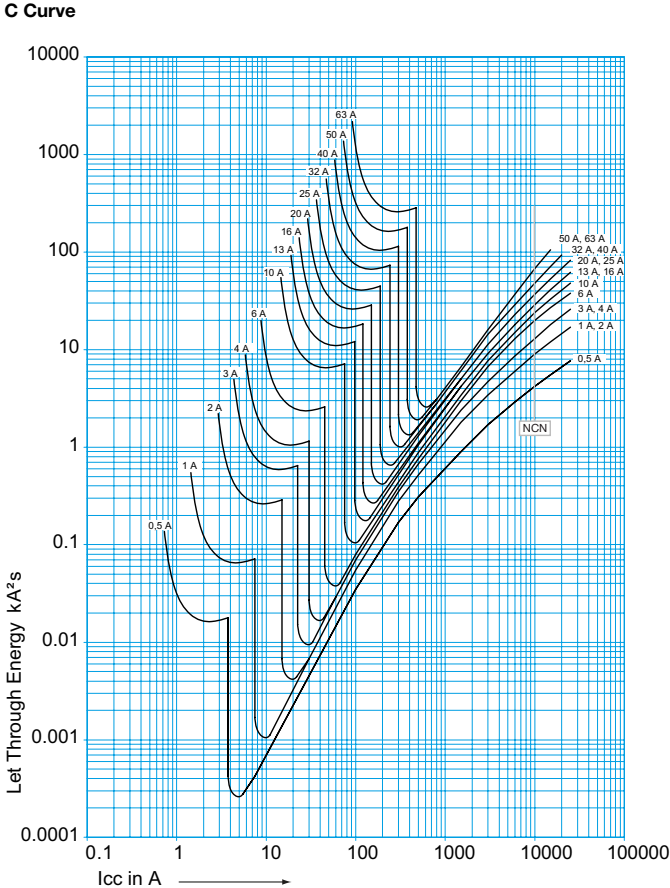
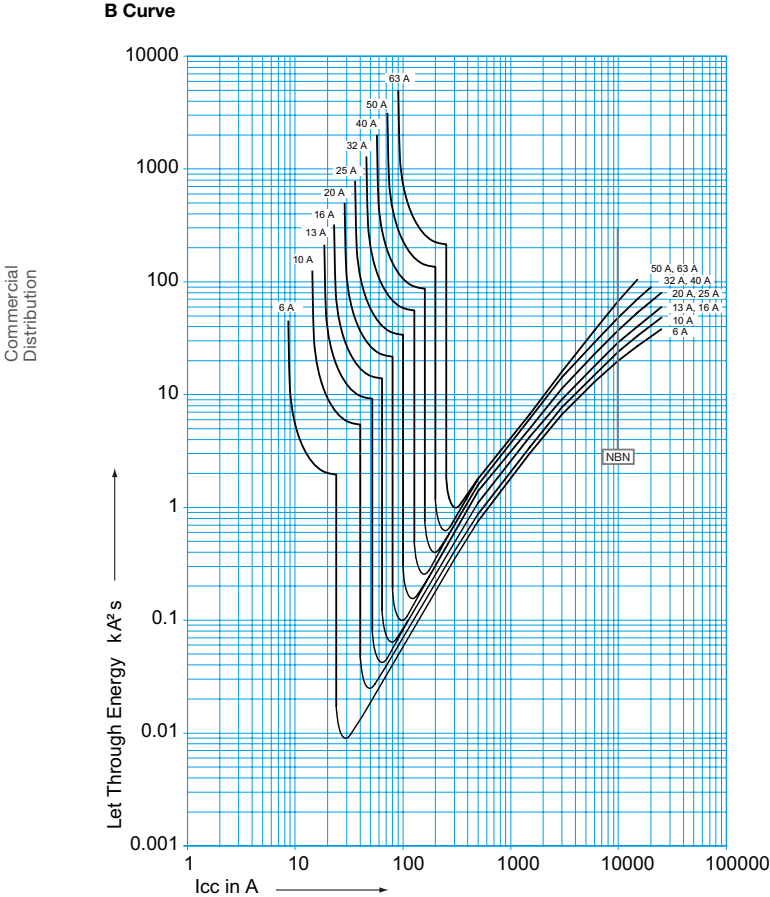
D Curve (BS EN 60898)

MCBs: NDN rated 6 - 63A
HMD rated 80 - 125A





Commercial
Distribution



Functions

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

Auxiliary Contact MZ201 (Fig 9)

Allows remote indication of the status of the device contacts to which it is associated.

Auxiliary Contact and Alarm Contact MZ202

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

Wiring Diagram

MZ201 Auxiliary Contact and Alarm Contract

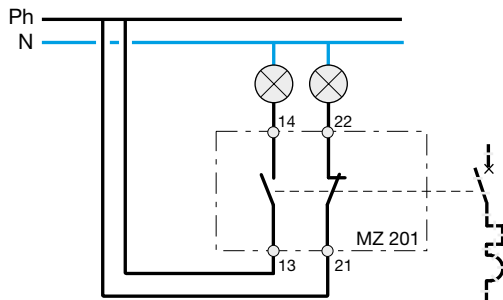


Fig. 9

Electrical Characteristics

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

Grouping / Combination of Several Auxiliaries

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

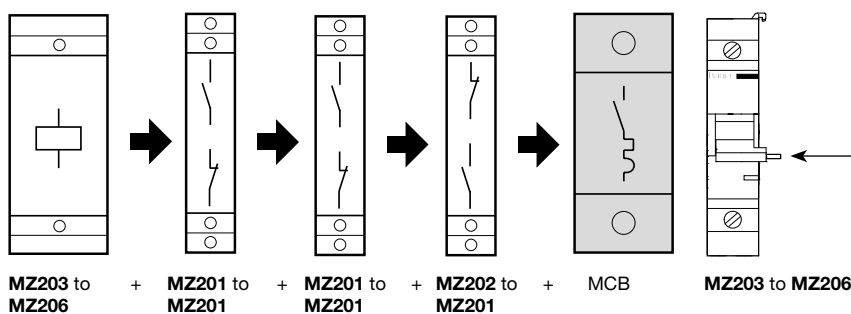


Fig. 11

MZ203 Shunt Trip*

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

MZ206 Under Voltage Release* (Fig 10)

Allows the MCB to trip when the voltage drops or by pressing a remote off switch (i.e. emergency stop).

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

MZ206 Under Voltage Release

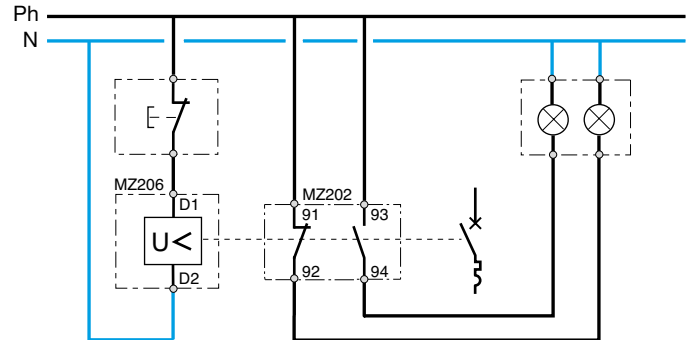


Fig. 10

Electrical connection

By terminal fitted with fixed clamp screws wiring capacity.

Flexible : 2 x 1.5mm²

Rigid : 2 x 1.5mm²

MZ203

Power - 8VA

tolerance : -15% of U_n

MZ206

Latching voltage is between 35 and 70% of U_n 230V~

Coil consumption 3VA

Max. Values (kA)			Upstream									
			B curve									
		I _n (A)	6	10	13	16	20	25	32	40	50	63
Downstream	B Curve	6	-	0.04	0.06	0.07	0.09	0.12	0.15	0.19	0.24	0.31
		10	-	-	0.06	0.07	0.09	0.11	0.15	0.19	0.24	0.30
		13	-	-	-	0.07	0.09	0.11	0.15	0.18	0.23	0.30
		16	-	-	-	-	0.09	0.11	0.14	0.18	0.23	0.29
		20	-	-	-	-	-	0.11	0.14	0.18	0.22	0.28
		25	-	-	-	-	-	-	0.14	0.18	0.22	0.28
		32	-	-	-	-	-	-	-	0.17	0.21	0.27
		40	-	-	-	-	-	-	-	-	0.21	0.27
		50	-	-	-	-	-	-	-	-	-	0.26
		63	-	-	-	-	-	-	-	-	-	-
	C Curve	0.5	0.05	0.13	0.21	0.30	0.45	0.71	1.32	2.99	7.52	T
		1	0.03	0.05	0.07	0.09	0.11	0.15	0.19	0.25	0.33	0.43
		2	0.03	0.05	0.07	0.09	0.11	0.14	0.19	0.25	0.32	0.41
		3	0.03	0.05	0.06	0.08	0.10	0.12	0.16	0.21	0.26	0.34
		4	0.03	0.05	0.06	0.08	0.10	0.12	0.16	0.20	0.25	0.33
		6	-	0.04	0.06	0.07	0.09	0.12	0.15	0.19	0.24	0.31
		8	-	0.04	0.06	0.07	0.09	0.11	0.15	0.19	0.24	0.30
		10	-	-	0.06	0.07	0.09	0.11	0.15	0.18	0.23	0.30
		13	-	-	-	0.07	0.09	0.11	0.14	0.18	0.23	0.29
		16	-	-	-	-	0.09	0.11	0.14	0.18	0.23	0.29
		20	-	-	-	-	-	0.11	0.14	0.17	0.22	0.28
		25	-	-	-	-	-	-	0.14	0.17	0.21	0.27
		32	-	-	-	-	-	-	-	0.17	0.21	0.26
		40	-	-	-	-	-	-	-	-	0.20	0.25
		50	-	-	-	-	-	-	-	-	-	0.25
		63	-	-	-	-	-	-	-	-	-	-
	D Curve	0.5	0.04	0.09	0.13	0.18	0.25	0.35	0.51	1.27	T	T
		1	0.03	0.05	0.07	0.09	0.11	0.14	0.19	0.25	0.32	0.41
		2	0.03	0.05	0.07	0.09	0.11	0.15	0.19	0.25	0.33	0.43
		3	0.03	0.05	0.06	0.08	0.10	0.12	0.16	0.20	0.26	0.33
		4	0.03	0.05	0.06	0.08	0.10	0.12	0.16	0.20	0.26	0.33
		6	-	0.04	0.06	0.07	0.09	0.11	0.15	0.19	0.24	0.30
		10	-	-	0.06	0.07	0.09	0.11	0.15	0.18	0.23	0.30
		13	-	-	-	0.07	0.09	0.11	0.14	0.18	0.22	0.28
		16	-	-	-	-	0.09	0.11	0.14	0.17	0.22	0.28
		20	-	-	-	-	-	0.11	0.14	0.17	0.21	0.27
		25	-	-	-	-	-	-	0.13	0.16	0.21	0.26
		32	-	-	-	-	-	-	-	0.16	0.20	0.25
		40	-	-	-	-	-	-	-	-	0.20	0.25
		50	-	-	-	-	-	-	-	-	-	0.25
		63	-	-	-	-	-	-	-	-	-	-

Upstream

C curve																
0.5	1	2	3	4	6	8	10	13	16	20	25	32	40	50	63	
-	-	-	-	-	-	0.07	0.09	0.11	0.14	0.18	0.23	0.29	0.37	0.47	0.59	Commercial Distribution
-	-	-	-	-	-	-	-	0.11	0.14	0.17	0.22	0.29	0.36	0.46	0.57	
-	-	-	-	-	-	-	-	-	0.14	0.17	0.22	0.28	0.35	0.45	0.56	
-	-	-	-	-	-	-	-	-	-	0.17	0.21	0.28	0.35	0.44	0.55	
-	-	-	-	-	-	-	-	-	-	-	0.21	0.27	0.34	0.43	0.54	
-	-	-	-	-	-	-	-	-	-	-	-	0.27	0.33	0.42	0.53	
-	-	-	-	-	-	-	-	-	-	-	-	-	0.32	0.41	0.51	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.40	0.51	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.48	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	0.01	0.02	0.05	0.08	0.16	0.27	0.40	0.67	1.11	2.32	5.59	T	T	T	T	
-	-	0.02	0.03	0.04	0.06	0.08	0.10	0.14	0.18	0.23	0.30	0.40	0.53	0.74	1.22	
-	-	-	0.03	0.04	0.06	0.08	0.10	0.14	0.18	0.23	0.30	0.39	0.51	0.72	1.13	
-	-	-	-	0.03	0.05	0.07	0.09	0.12	0.15	0.19	0.25	0.32	0.41	0.52	0.67	
-	-	-	-	-	0.05	0.07	0.09	0.12	0.15	0.19	0.24	0.31	0.39	0.50	0.66	
-	-	-	-	-	-	0.07	0.09	0.11	0.14	0.18	0.22	0.29	0.37	0.46	0.58	
-	-	-	-	-	-	-	0.08	0.11	0.14	0.17	0.22	0.29	0.36	0.46	0.57	
-	-	-	-	-	-	-	-	0.11	0.14	0.17	0.22	0.28	0.35	0.45	0.56	
-	-	-	-	-	-	-	-	-	0.13	0.17	0.21	0.28	0.35	0.44	0.55	
-	-	-	-	-	-	-	-	-	-	0.17	0.21	0.27	0.34	0.43	0.54	
-	-	-	-	-	-	-	-	-	-	-	0.20	0.26	0.33	0.41	0.52	
-	-	-	-	-	-	-	-	-	-	-	-	0.26	0.32	0.41	0.51	
-	-	-	-	-	-	-	-	-	-	-	-	-	0.31	0.39	0.49	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.37	0.47	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.46	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	0.01	0.02	0.04	0.06	0.10	0.16	0.22	0.34	0.46	0.77	7.50	T	T	T	T	
-	-	0.02	0.03	0.04	0.06	0.08	0.10	0.14	0.18	0.23	0.30	0.39	0.51	0.73	1.19	
-	-	-	0.03	0.04	0.06	0.08	0.10	0.14	0.18	0.23	0.30	0.40	0.53	0.74	1.15	
-	-	-	-	0.03	0.05	0.07	0.09	0.12	0.15	0.19	0.24	0.31	0.40	0.51	0.67	
-	-	-	-	-	0.05	0.07	0.09	0.12	0.15	0.19	0.24	0.32	0.40	0.51	0.67	
-	-	-	-	-	-	0.07	0.08	0.11	0.14	0.18	0.22	0.29	0.36	0.46	0.58	
-	-	-	-	-	-	-	-	0.11	0.14	0.17	0.22	0.28	0.35	0.45	0.56	
-	-	-	-	-	-	-	-	-	0.13	0.17	0.21	0.27	0.34	0.43	0.54	
-	-	-	-	-	-	-	-	-	-	0.16	0.21	0.26	0.33	0.42	0.53	
-	-	-	-	-	-	-	-	-	-	-	0.20	0.26	0.32	0.41	0.51	
-	-	-	-	-	-	-	-	-	-	-	-	0.25	0.31	0.39	0.49	
-	-	-	-	-	-	-	-	-	-	-	-	-	0.30	0.37	0.47	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.37	0.47	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.47	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Max. Values (kA)			Upstream														
			D curve														
		I _n (A)	0.5	1	2	3	4	6	10	13	16	20	25	32	40	50	63
Downstream	B Curve	6	-	-	-	-	-	-	0.14	0.19	0.23	0.29	0.37	0.48	0.60	0.74	1.04
		10	-	-	-	-	-	-	-	0.18	0.23	0.29	0.36	0.47	0.58	0.71	0.95
		13	-	-	-	-	-	-	-	-	0.22	0.28	0.35	0.46	0.57	0.69	0.90
		16	-	-	-	-	-	-	-	-	-	0.28	0.35	0.45	0.56	0.68	0.86
		20	-	-	-	-	-	-	-	-	-	-	0.34	0.44	0.54	0.67	0.84
		25	-	-	-	-	-	-	-	-	-	-	-	0.43	0.54	0.66	0.83
		32	-	-	-	-	-	-	-	-	-	-	-	-	0.52	0.65	0.81
		40	-	-	-	-	-	-	-	-	-	-	-	-	-	0.63	0.79
		50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.78
		63	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	C Curve	0.5	-	0.01	0.05	0.11	0.18	0.37	1.11	2.70	6.17	T	T	T	T	T	T
		1	-	-	0.03	0.05	0.06	0.10	0.18	0.24	0.31	0.40	0.53	0.76	1.26	2.91	8.59
		2	-	-	-	0.04	0.06	0.10	0.18	0.24	0.30	0.39	0.51	0.74	1.17	2.41	6.80
		3	-	-	-	-	0.06	0.09	0.15	0.20	0.25	0.32	0.41	0.54	0.69	0.95	1.53
		4	-	-	-	-	-	0.09	0.15	0.20	0.24	0.31	0.39	0.52	0.67	0.92	1.42
		6	-	-	-	-	-	-	0.14	0.18	0.23	0.29	0.37	0.48	0.59	0.73	1.00
		8	-	-	-	-	-	-	0.14	0.18	0.23	0.29	0.36	0.47	0.58	0.71	0.95
		10	-	-	-	-	-	-	-	0.18	0.22	0.28	0.35	0.46	0.57	0.71	0.94
		13	-	-	-	-	-	-	-	-	0.22	0.28	0.35	0.45	0.56	0.69	0.89
		16	-	-	-	-	-	-	-	-	-	0.27	0.34	0.44	0.55	0.68	0.87
		20	-	-	-	-	-	-	-	-	-	-	0.33	0.42	0.53	0.66	0.84
		25	-	-	-	-	-	-	-	-	-	-	-	0.42	0.52	0.64	0.80
		32	-	-	-	-	-	-	-	-	-	-	-	-	0.50	0.63	0.79
		40	-	-	-	-	-	-	-	-	-	-	-	-	-	0.61	0.78
		50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.77
		63	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	D Curve	0.5	-	0.01	0.04	0.07	0.11	0.21	0.46	0.99	9.81	T	T	T	T	T	T
		1	-	-	0.03	0.04	0.06	0.10	0.18	0.24	0.30	0.39	0.51	0.76	1.24	2.66	7.44
		2	-	-	-	0.05	0.06	0.10	0.18	0.24	0.31	0.40	0.53	0.76	1.19	2.46	7.61
		3	-	-	-	-	0.06	0.09	0.15	0.20	0.25	0.31	0.40	0.52	0.68	0.92	1.35
		4	-	-	-	-	-	0.09	0.15	0.20	0.25	0.32	0.40	0.53	0.69	0.91	1.26
		6	-	-	-	-	-	-	0.14	0.18	0.23	0.29	0.36	0.47	0.59	0.74	1.01
		10	-	-	-	-	-	-	-	0.18	0.22	0.28	0.35	0.46	0.57	0.71	0.94
		13	-	-	-	-	-	-	-	-	0.21	0.27	0.34	0.44	0.55	0.68	0.89
		16	-	-	-	-	-	-	-	-	-	0.26	0.33	0.43	0.54	0.67	0.86
		20	-	-	-	-	-	-	-	-	-	-	0.32	0.42	0.52	0.64	0.81
		25	-	-	-	-	-	-	-	-	-	-	-	0.40	0.49	0.63	0.80
		32	-	-	-	-	-	-	-	-	-	-	-	-	0.48	0.61	0.78
		40	-	-	-	-	-	-	-	-	-	-	-	-	-	0.60	0.77
		50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.76
		63	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Earth Fault Loop impedance (Z_s) values for MCBs and MCCBs

Below are the maximum permissible values of Z_s to obtain disconnection for compliance with BS 7671:2008 Amendment 3

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

Residual Current Devices

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

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

MCB/RCCB Co-ordination

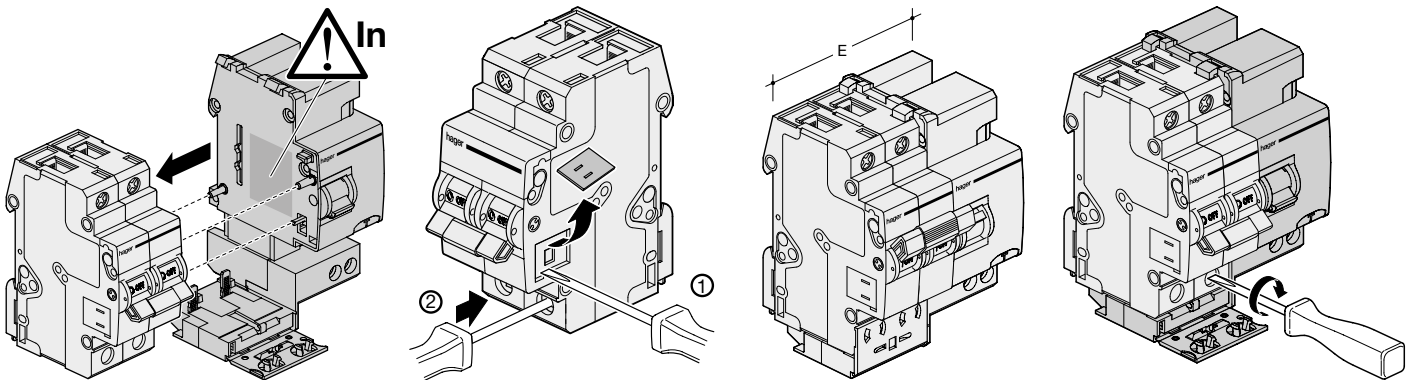
Short circuit capacity of the RCCB only

With MCB's

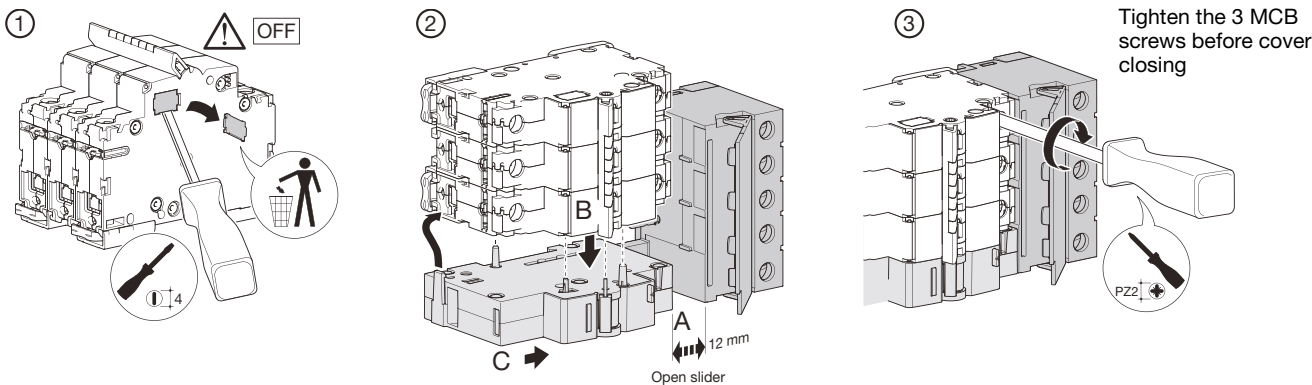
RCCB		MTN 6-63A B	NBN 6-63A B	NCN 6-63A C	NDN 6-63A D
2 poles					
16A	1500A	6kA	10kA	10kA	6kA
25A	1500A	6kA	10kA	10kA	6kA
40A	1500A	6kA	10kA	10kA	6kA
63A	1500A	6kA	10kA	10kA	6kA
80A	1500A	6kA	10kA	10kA	6kA
100A	1500A	6kA	10kA	10kA	6kA
4 poles					
16A	1500A	6kA	6kA	6kA	4.5kA
25A	1500A	6kA	6kA	6kA	4.5kA
40A	1500A	6kA	6kA	6kA	4.5kA
63A	1500A	6kA	6kA	6kA	4.5kA
80A	1500A	6kA	6kA	6kA	4.5kA
100A	1500A	6kA	6kA	6kA	4.5kA

	Double Pole RCCB Add-on Block			Four Pole RCCB Add-on Block			3 Phase Earth Leakage Protection		
I _n	≤63A								
Sensitivity	30mA	100mA	300mA	30mA	100mA	300mA	30mA	100mA	300mA
Cat ref. (Standard)	BD264	BE264	BF264	BD464	BE464	BF464	BD163T	BE163T	BF163T
Cat ref. (Time Delayed)	BN264	BP264		BN464	BP464				
MCB Suitability									
NBN	6-63A	6-63A	6-63A	6-63A	6-63A	6-63A	6-63A	6-63A	6-63A
NCN	0.5-63A	0.5-63A	0.5-63A	0.5-63A	0.5-63A	0.5-63A	0.5-63A	0.5-63A	0.5-63A
NDN	0.5-63A	0.5-63A	0.5-63A	0.5-63A	0.5-63A	0.5-63A	0.5-63A	0.5-63A	0.5-63A
Width when combined with MCB	4 Module 70mm			7 Module 122.5mm			4 Module 70mm		

Mounting
Double Pole RCCB Add-on Block



Mounting
Three Pole RCCB Add-on Block



Transformer Protection

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

Single Phase 230V

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

Three Phase 400V

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

Motor Circuit Protection

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

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

1 Phase 230V DOL Starting

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

3 Phase 400V Assisted Starting Star-Delta

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

3 Phase 400V DOL Starting

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

		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 connection		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	10mm ² solid / flexible	
L1, L2, L3, PE	max	50mm ² multi-stranded / 35mm ² flexible	
Tightening torque for terminals		7.0 Nm	
Mounting on		35mm DIN rail in accordance with EN 60715	
Enclosure material		grey thermoplastic, UL 94V-0	
Degree of protection		IP20	
Modular width		8	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 connection		Parallel connection	
Type of power supply system		TT / TN system	
Type of protection		common and differential modes	
Nominal voltage	U_N	230V/400V ac	
Rated voltage	U_c	255V ac	
Voltage protection level	U_p	≤ 1.5kV	
TOV Voltage	U_T	440V / 5s 1200V / 200ms	
Rated load current	I(L)	n/a	
	I(L-L)	n/a	
Follow current interrupting rating	I_{fi}	25kA rms 100A rms	
Nominal discharge current (8/20)	I_n	12.5kA 25kA	12.5kA 50kA
Impulse current (10/350)	I_{imp}	12.5kA 25kA	12.5kA 50kA
Max. rating of overcurrent protection	fuse	160A gL / gG	
	MCCB	n/a	160A
Short-circuit withstand capability with max. overcurrent protection	fuse	25kA rms	
	MCB	n/a	
Response time	t_A	≤ 100ns	
Operating temperature range		- 40°C+ 80°C	
Indication of SPD disconnect		Green/Red flag on L and N	Green/Red flag on L1, L2, L3 and N
Cross sectional area	min	1,5mm ² solid / flexible	
	max	35mm ² stranded / 25mm ² 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	

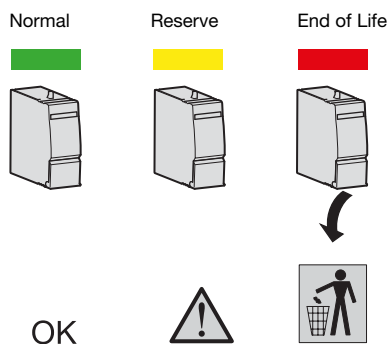
		SPN215D/R	SPN415D/R	SPN440D/R
Tested to		EN 61643-11 (VDE0675-6-11) 2002-12		
SPD type		Type 2 according to EN 61643-11		
SPD class		Class II according to IEC 61643-1		
Type of connection		Parallel connection		
Maximum continuous operating voltage U_c	Line / Neutral	$\leq 255V$		
	Neutral/ PE	$\leq 275V$		
Voltage protection level	U_p	$\leq 1kV$	$\leq 1kV$	$\leq 1.2kV$
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	1,5mm ² solid / flexible		
	max	35mm ² multi-stranded / 25mm ² 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
Auxiliary 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 connection		Parallel connection
Maximum continuous operating voltage	U_{cPV}	$\leq 1000V$
Voltage protection level	U_p	$\leq 4kV$
Voltage protection level for 5kA	U_p	$\leq 3,5kV$
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	$\leq 25ns$
Operating temperature range		- 40°C+ 80°C
Indication of SPD disconnector		green - red
Cross sectional area	min	1.5mm ² solid / flexible
	max	35mm ² multi-stranded / 25mm ² 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		Type 3 / 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	$\leq 1.25kV$
Voltage protection level (L/N - PE)	U_p	$\leq 1.5kV$
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	I_L	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	$\leq 5\mu A$
Replacement 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	$\leq 25ns$
Operating temperature range		- 25°C+ 40°C
Indication of SPD disconnector		NO
Remote signalisation contact		Green light off
Cross sectional area	min	1.5mm ² solid / flexible
	max	10mm ² stranded / 6mm ² flexible
Tightening torque for terminals		1.2 Nm
Mounting on		35mm DIN rail in accordance with EN 60715
Enclosure material		Grey thermoplastic, UL 94V-2
Degree of protection		IP20
Installation width		2 modules, DIN 43880

Reserve Indicator Light

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



	Non-Adjustable		Adjustable						
	HR500	HR502	HR510	HR520	HR522	HR523	HR525/HR534	HR440	HR441
Supply Voltage ~50/60Hz	220-240V								
Residual Voltage ~50/60Hz	500V Maximum								
Power Absorbed	3VA	5VA							
Output	Volt Free Contacts								
Contact Rating	6A / 250V AC-1								
Sensitivity IΔn	30mA	300mA	30mA / 100mA / 300mA / 500mA / 1A / 3A / 10A		500mA / 1A / 3A / 5A / 10A / 20A / 30A		30mA / 100mA / 300mA / 500mA / 1A / 3A / 5A / 10A / 30A	30mA / 100mA / 300mA / 500mA / 1A / 3A	
Instantaneous / Time Delay	Instantaneous		Instantaneous or Time Delay 0.1 - 0.3 - 0.4 - 0.5 - 1 - 3 seconds		Instantaneous or Time Delay 0.1 - 0.2 - 0.25 - 0.3 - 0.4 - 0.5 seconds		Instantaneous or Time Delay 0.02 - 0.1 - 0.3 - 0.4 - 0.5 - 1 - 3 - 5 - 10 seconds	Instantaneous or Time Delay 0.1 - 0.3s - 0.5s - 0.75s - 1s	
Torroid Withstand Capacity	50kA / 0.2s								
Distance between Torroid and Relay	50 Meter Maximum								
Relay Cable Connection <ul style="list-style-type: none">• Rigid• Flexible	1.5mm² to 10mm² 1mm² to 6mm²								
Torroid Cable Conection <ul style="list-style-type: none">• Rigid• Flexible	1.5mm² to 4mm² 1mm² to 2.5mm²								
Relay <ul style="list-style-type: none">• Working Temperature• Storage Temperature	-10°C to +55°C -25°C to +40°C		-5°C to +55°C -25°C to +40°C						
Torroid <ul style="list-style-type: none">• Working Temperature• Storage Temperature	-10°C to +70°C -40°C to +70°C		-10°C to +70°C -40°C to +70°C						

Main Characteristics

"Reset" Button

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

Test Button

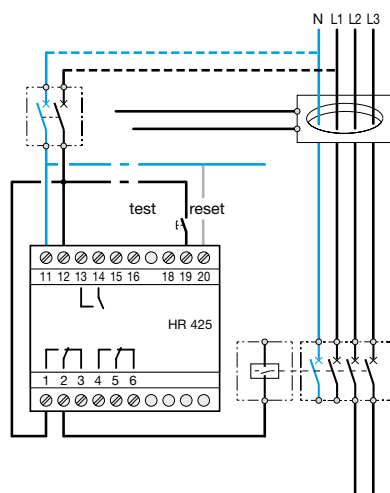
Pressing the test button allows a fault simulation which operates the relay and the output contacts. The fault level display is shown by an LED on the front of the product.

$I_{\Delta n}$ Selector

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

Time Delay Selector

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



Sealable Settings

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

Standard Output (1 C/O contact)

Switching to state 1 on:

- Failure of the core/relay connection
- Fault current in the monitored installation

Positive Safety Outlet (1 C/O contact)

Switching to state 1: Switching on the power

Switching to state 0: Failure of the core/relay connection
fault current in the monitored installation
failure of relay supply
internal failure of relay

Optical scale display by 5 LEDs of the fault in % of $I_{\Delta n}$

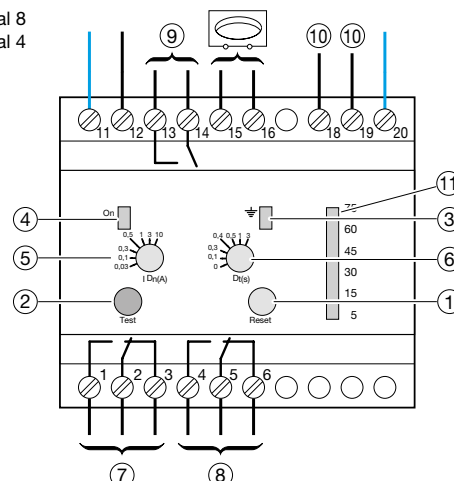
Optical scale display by (5 LEDs) of the fault in % of $I_{\Delta n}$

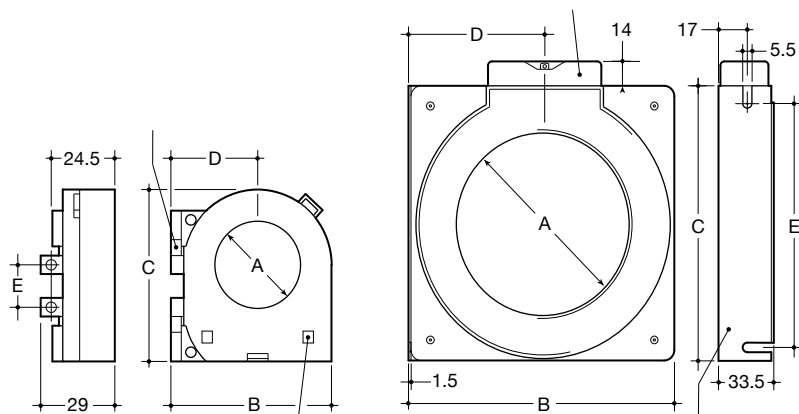
Common pin 6:

State 1 : output terminal 8

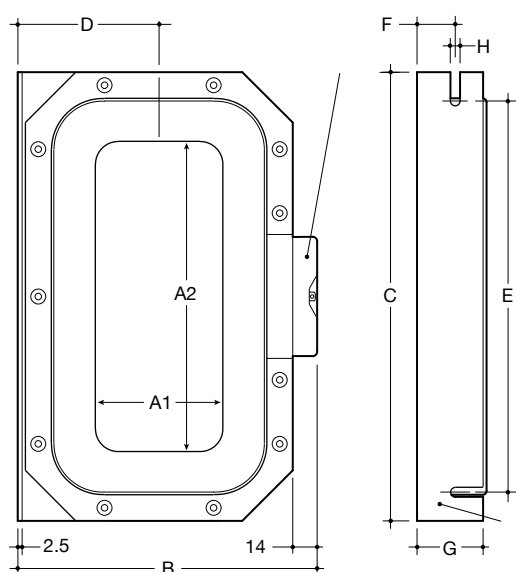
State 0 : output terminal 4

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

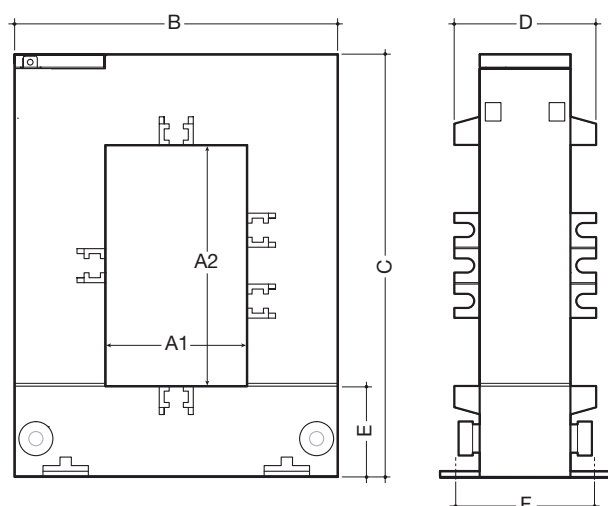




Cat ref.	Dimensions (mm)				
	A	B	C	D	E
HR700	30	70	70	30	-
HR701	35	92	86	43.5	74
HR702	70	115	118	60.5	97
HR703	105	158	162.5	84.5	140
HR704	140	218	200	103.5	183
HR705	210	290	295	150	265



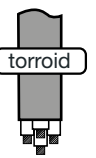


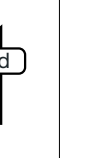



Cat ref.	Type	Dimensions (mm)								
		A1	A1	B	C	D	E	F	G	H
HR830	70x175	70	175	176	260	85	225	22	40	7.5
HR831	115x305	115	305	239	400	116	360	25	50	8.5
HR832	150x350	150	350	284	460	140	415	28	50	8.5



Cat ref.	Dimensions (mm)						
	A1	A1	B	C	D	E	F
HR820	20	30	89	110	41	32	46
HR821	50	80	114	145	50	32	46
HR822	80	80	145	145	50	32	46
HR823	80	121	145	185	50	32	46
HR824	80	161	184	244	70	37	46

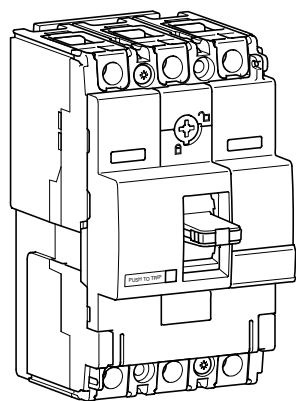
Mounting of Circular Torroids

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

Frame	x160				x250		
Product	MCS Switch		MCCB		MCS Switch	MCCB	
Reference	HCA	HDA	HHA	HNA	HCB	HHB	HNB
Number of poles	[No.] 3-4	1-2-3-4	1-2-3-4	3-4	3-4		
Electrical characteristics							
Rated current	I _n [A]	160			250		
Current rated range	[A]	125-160	16-125 (1P), 16-160 (2, 3, 4P)		250	100-250	
Rated service voltage, (AC)	U _e [V]	220-440			220-440		
Frequency	F [Hz]	50/60			50/60		
Rated insulation voltage	U _i [V]	690			800		
Rated impulse withstand voltage	U _{imp} [kV]	8			8		
Rated ultimate short-circuit breaking capacity, (I _{cu})							
(AC) 50-60 Hz 220/230 V	I _{cu} [kA]	-	25	35	85	-	35 85
(AC) 50-60 Hz 380/415 V	I _{cu} [kA]	-	18	25	40	-	25 40
(AC) 50-60 Hz 480/500/525 V	I _{cu} [kA]	-	6	7.5	12.5	-	- 10
(AC) 50-60 Hz 660/690 V	I _{cu} [kA]	-	-	-	6	-	- 4
(DC) 250 V - 2 poles in series	I _{cu} [kA]	-	12.5	20	25	-	25 25
Rated service short-circuit breaking capacity, (I _{cs})							
(AC) 50-60 Hz 220/230 V	I _{cs} [kA]	-	25	25	40	-	25 40
(AC) 50-60 Hz 380/415 V	I _{cs} [kA]	-	18	20	20	-	20 20
(AC) 50-60 Hz 480/500/525 V	I _{cs} [kA]	-	3	4	7.5	-	- 7.5
(AC) 50-60 Hz 660/690 V	I _{cs} [kA]	-	-	-	3	-	- 2
(DC) 250 V - 2 poles in series	I _{cs} [kA]	-	7	10	13	-	13 13
Rated short-circuit making capacity	I _{cm} [kA]	2.8	-	-	-	6	- -
Rated short-time withstand current for 1s	I _{cw} [kA]	2	-	-	-	3	- -
Category of use (EN 60947-2)		-	A			-	A
Calibration temperature		-	50°C			-	50°C
Derating 40°C		-	100%			-	100%
	50°C	-	100%			-	100%
	55°C	-	95%			-	94%
	60°C	-	93%			-	91%
	65°C	-	90%			-	88%
Suitability for isolation		ok				ok	
Electric endurance in number of cycles		10000				10000	
Mechanical endurance in number of operations		20000				20000	
Operating temperature		-25 to +70°C			-25 to +70°C		
Storage temperature		-35 to +70°C			-35 to +70°C		
Power loss (at I _n for 3P)	[W]	39			60		
Reference standard		IEC 60947-3	IEC 60947-2		IEC 60947-3	IEC 60947-2	
Releases: switch		ok	-		ok	-	
Releases: TM (thermomagnetic)		-	ok		-	ok	
T fixed, M fixed		-	ok (1P)		-	ok	
T adjustable, M fixed		-	ok		-	-	
T adjustable, M adjustable		-	-		-	ok	
Thermal adjustment value		-	0.63 to 1 x I _n		-	0.63 to 1 x I _n	
Magnetic adjustment value		-	-		-	6-8-10-13 x I _n (200A) 5-7-9-11 I _n (250A)	
Releases: LSI (electronic)		-	-		-	-	
Long delay		-	-		-	-	
Short delay		-	-		-	-	
Time delay		-	-		-	-	
Terminations							
Standard terminal type		cage			lugs		
Maximum terminal capacity		95 mm²			185 mm² (cage)		
Terminal width	mm	-			25		
Terminal shields		ok			ok		
Cage terminal		integrated			ok		
Extended connections		ok			ok		
Rear connections		no			ok		
Dimensions							
Height	mm	130			165		
Width	1P mm	-	25	-	-		
	2P mm	-	50	-	-		
	3P mm	75			105		
	4P mm	100			140		
Depth	mm	68			68		
Weight	1P kg	-	0.29	-	-		
	2P kg	-	0.48	-	-		
	3P kg	0.715			1.3		
	4P kg	0.95			1.6		

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

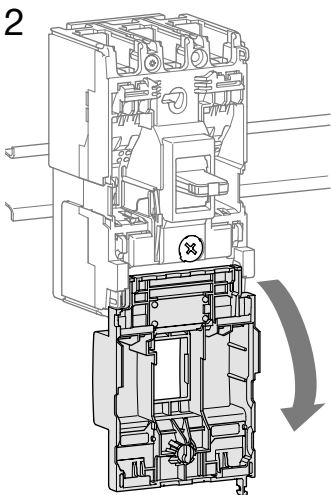
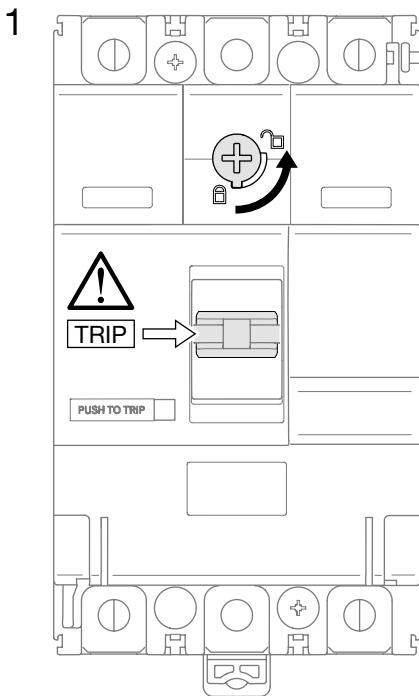
MCCBs



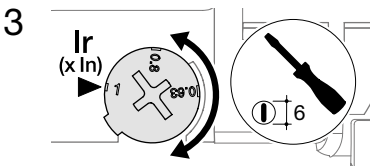
		220/240V AC IEC 60 947-2	380/415V AC IEC 60 947-2
HDA	I _{cu}	25 kA	18 kA
	I _{cs}	25 kA	18 kA
HHA	I _{cu}	35 kA	25 kA
	I _{cs}	25 kA	20 kA
HCA	I _{cm}	-	2.8 kA
	I _{cw}	-	2 kA - 1s

Commercial
Distribution

Thermal settings



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



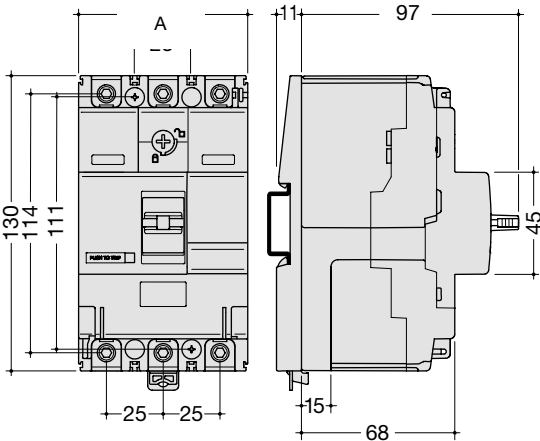
Thermal adjustment from 0.63 to 1 x I_n

Magnetic adjustment fixed > 10 x I_n

I _n	16 - 50 A	63 - 80 A	100 - 125 A	160 A
I _{mag}	600 A	1000 A	1500 A	1600 A

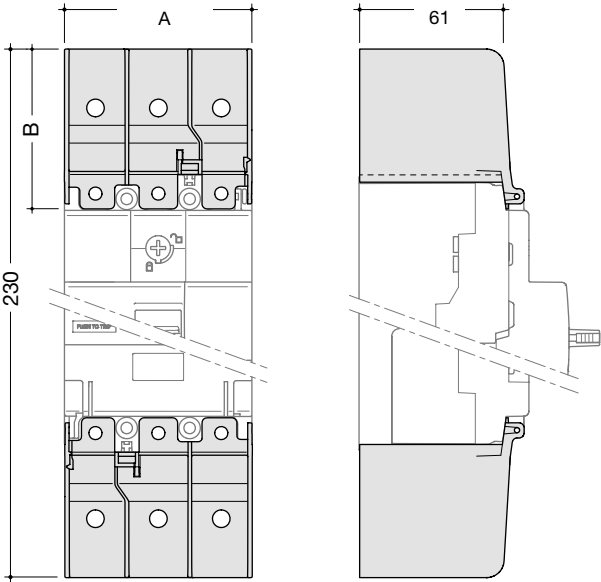
Dimensions

MCCB x160



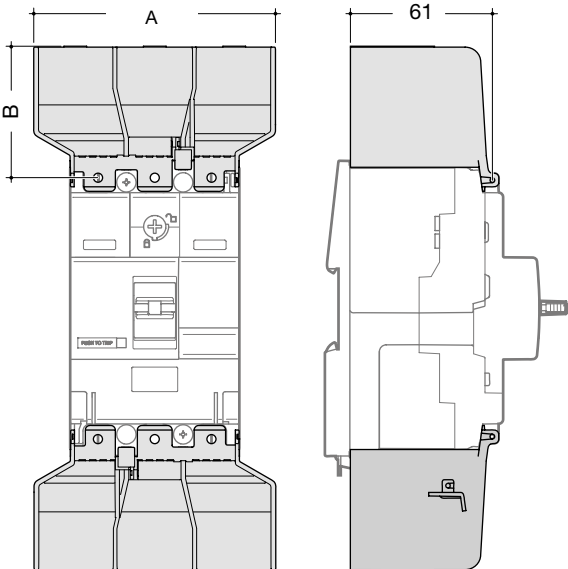
	A (mm)
1P	24.8
3P	74.5
4P	99.5

Terminal covers for extended straight connections



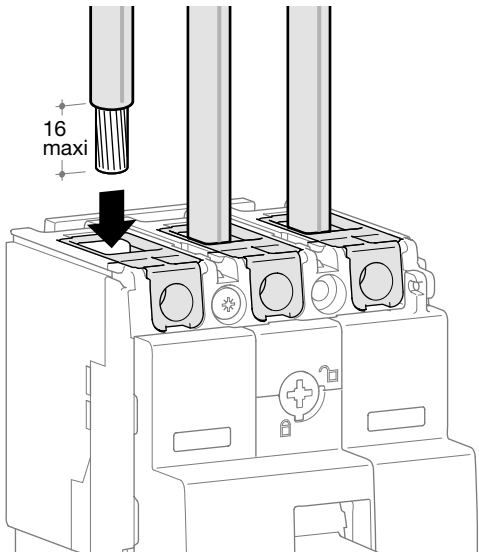
	A (mm)
1P	24.4
3P	74.5
4P	99.5

Terminal cover for extended spreader connections



	A (mm)
3P	106.5
4P	141.5

Connection with terminals



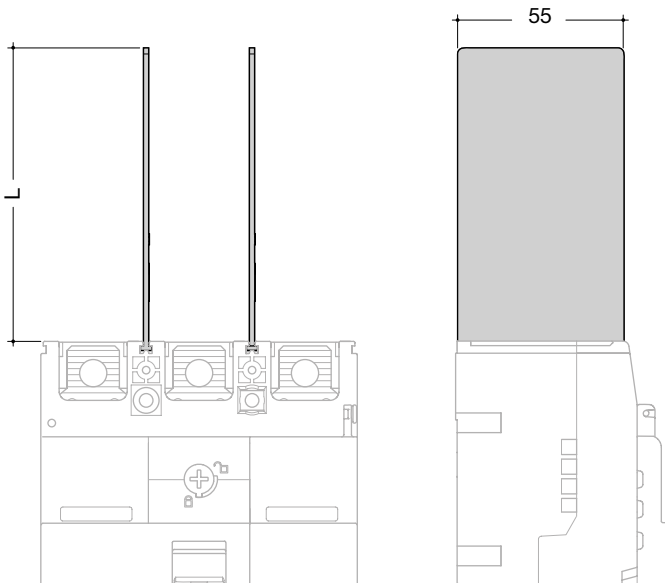
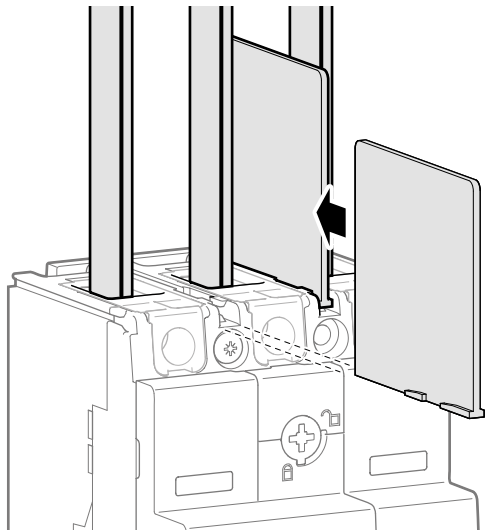
Terminals for copper conductors (standard)

	min. 6 mm ²	max. 70 mm ²
	min. 6 mm ²	max. 95 mm ²
	6 Nm	

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

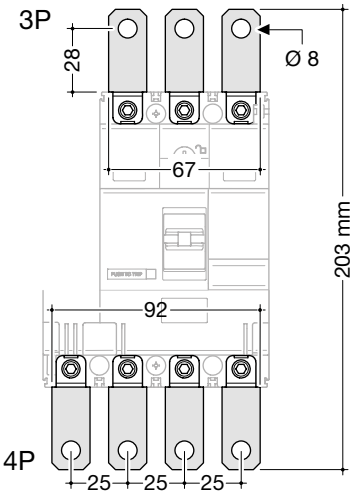
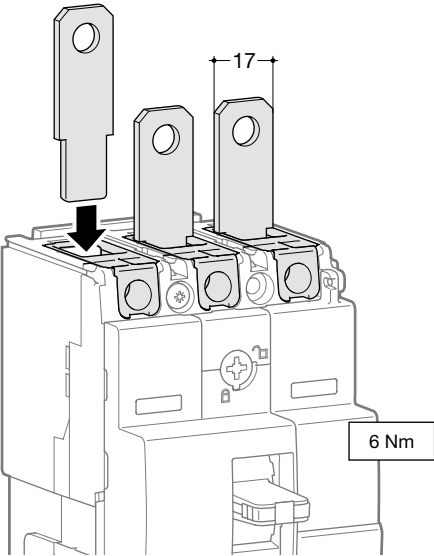
	min. 35 mm ²	max. 70 mm ²
	10 Nm	

Interphase barriers

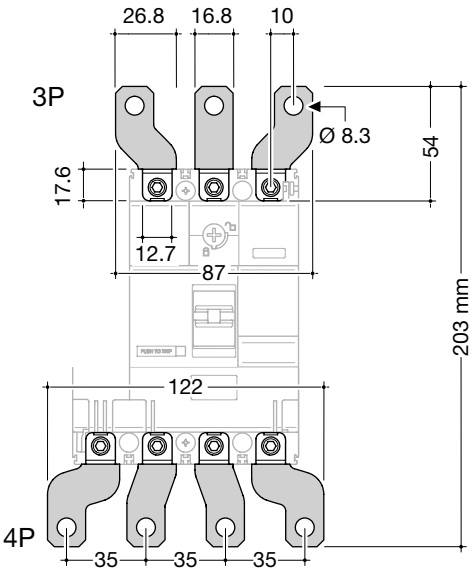
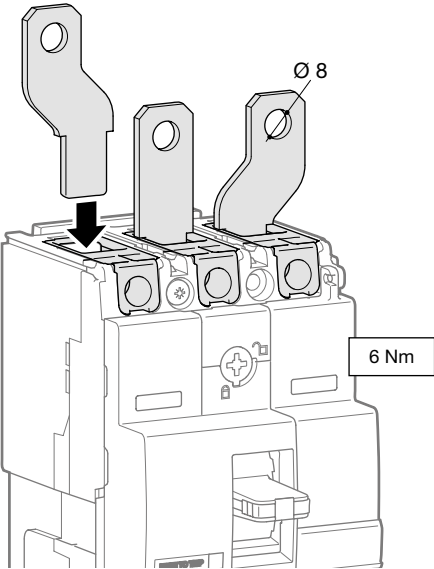


	L (mm)
HYA019H	50
HYB019H	97

Extended straight connections

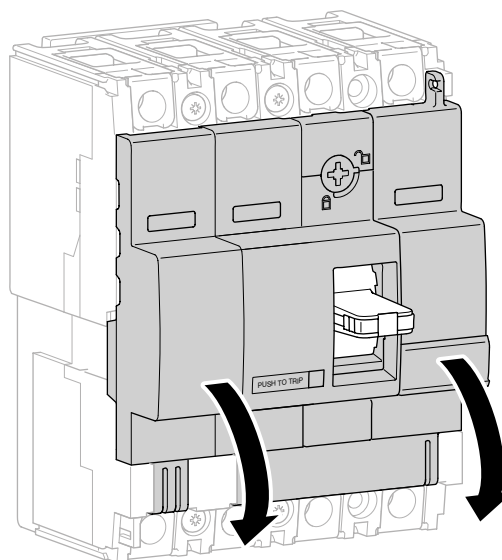
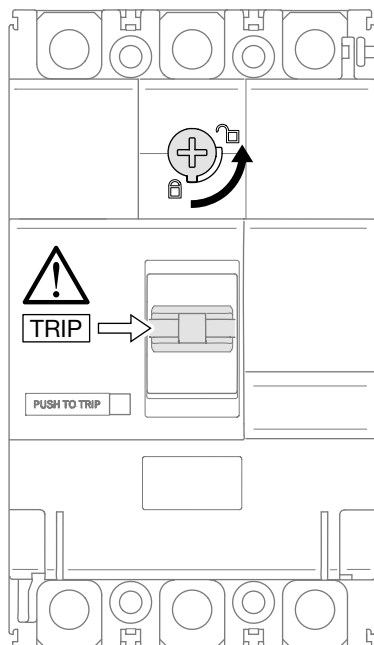


Extended spreader connections



Auxiliaries

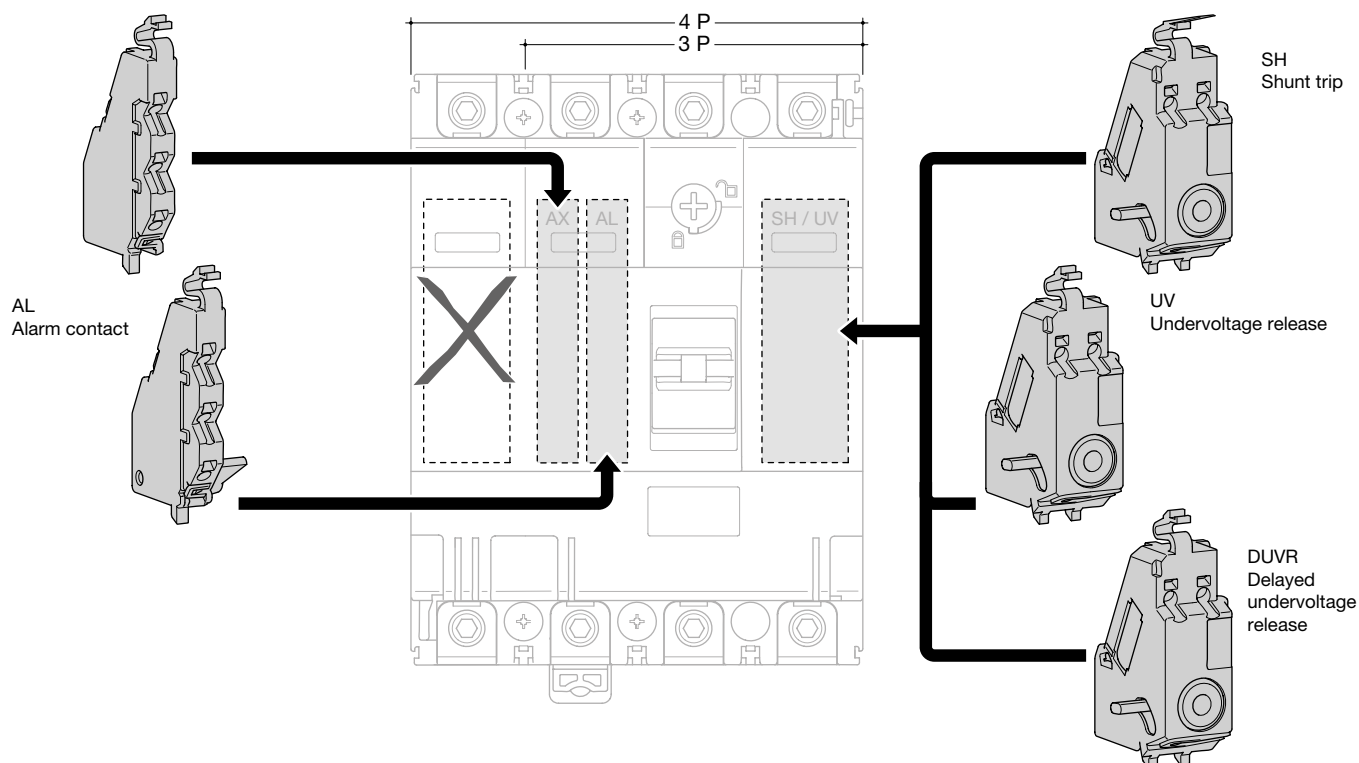
Auxiliaries for MCCBs and moulded case switches

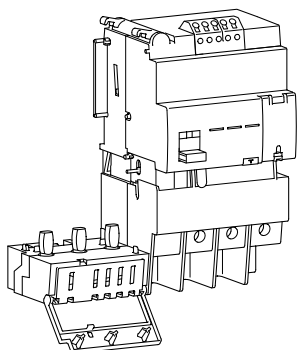


Commercial
Distribution

Mounting combination for auxiliaries and releases

AX
Auxiliary contact





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

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

Characteristics

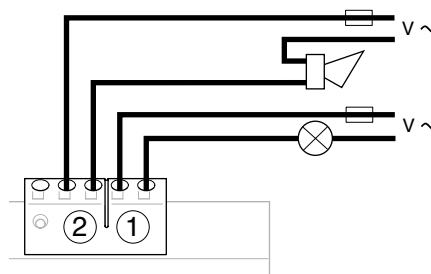
Reset button :
Signals add-on block tripping and must be reset before switching on the installation.

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

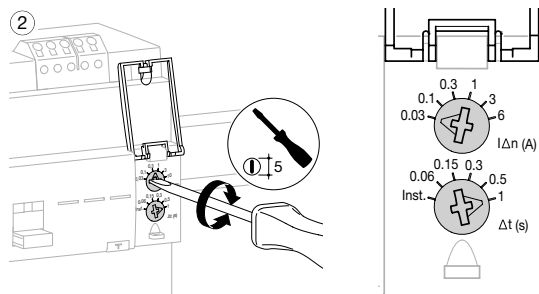
Mechanical test button :
Checks the mechanical operating of the MCCB / Add-on block association.

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

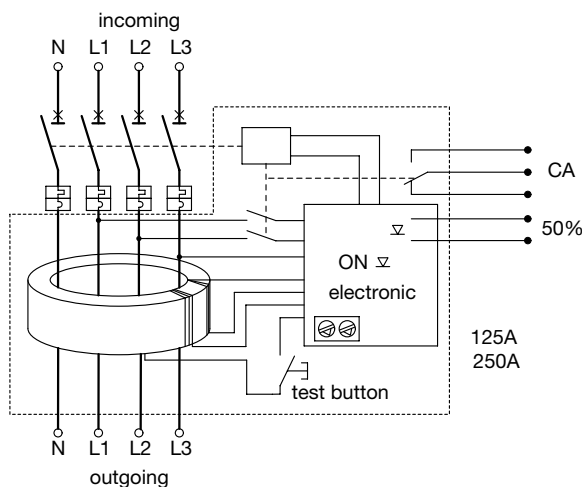
Remote tripping and advanced warning (50% $I_{\Delta n}$) signaling thanks to these contacts:



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

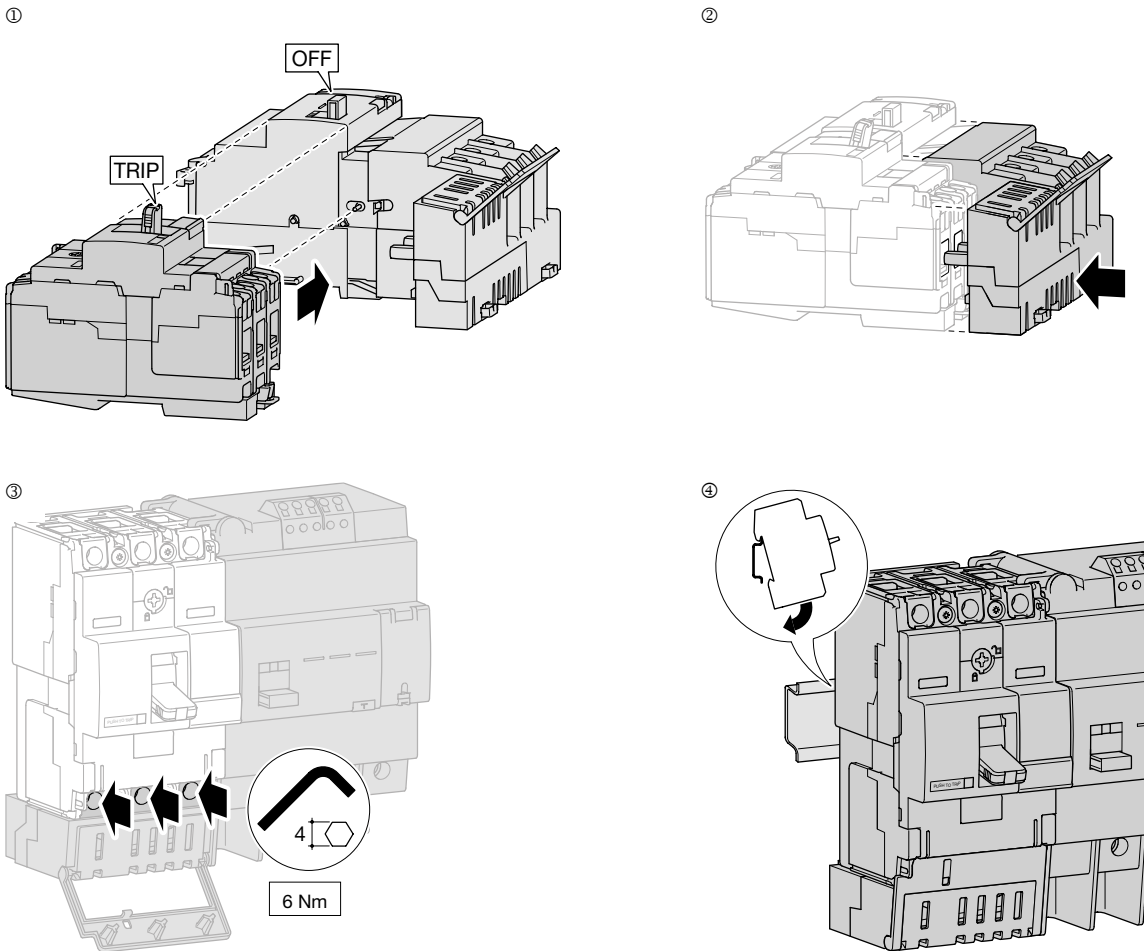


Add-on block operating



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

Add-on block mounting

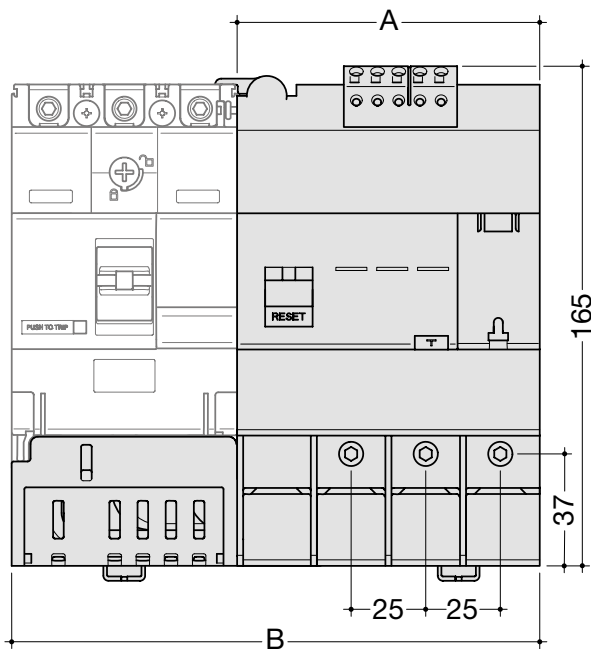


Exclusive drawer assembly system allows quick mounting and makes MCCB and add-on block association a complete monoblock unit.

Reinforced insulation connection (class II)

System avoids the omission of terminal tightening

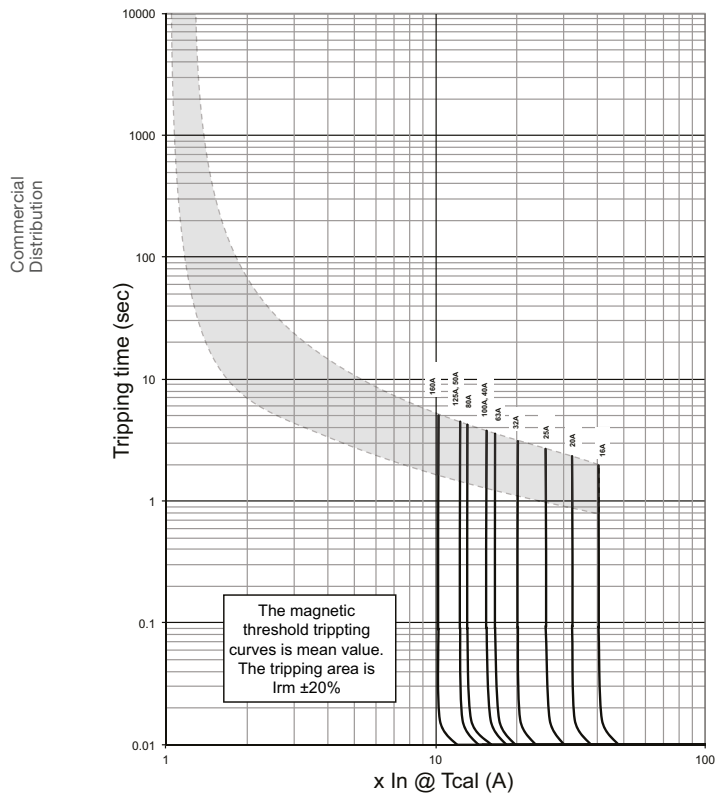
Dimensions



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

Tripping curve

MCCB x160



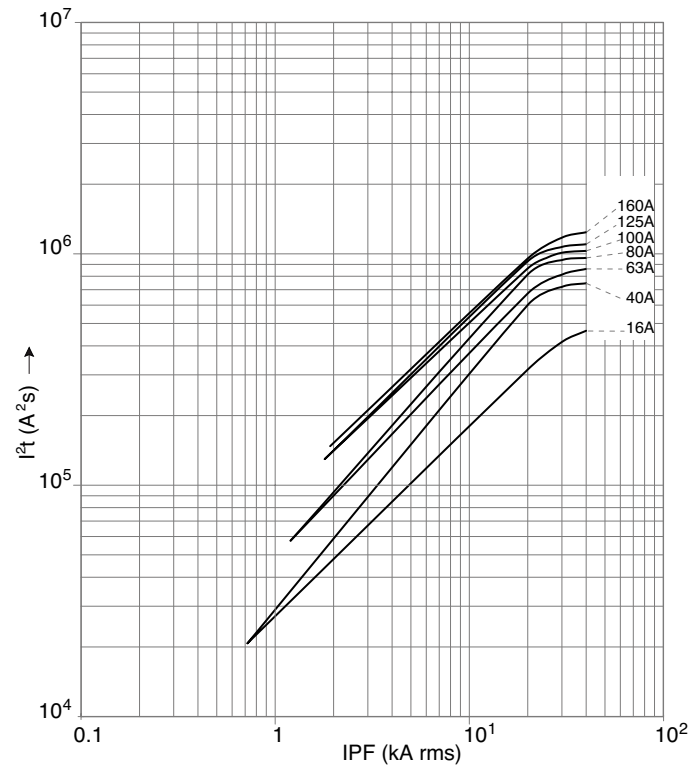
The earth fault loop impedance requirements for larger devices can be calculated by the formula given in BS7671:2008

$$Z_s \leq 230 \times C_{min}$$

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

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

MCCB x160



MCCB Disconnection Data

Earth Fault Loop Impedance Data

Disconnection time 0.2s, 0.4s, 1s

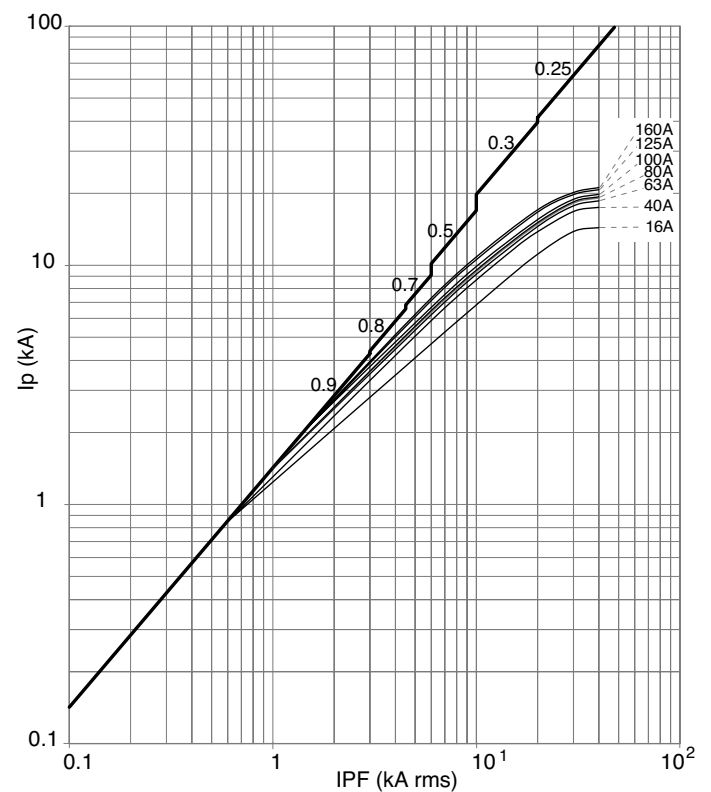
Device rating (A)	Instantaneous trip (xI_n)	Instantaneous trip (A)	add 20% tolerance (I_a)	$Z_s = (230 \times 0.95) / I_a$
16	40.3	644.8	773.8	0.28
20	32.2	644.0	773	0.28
25	25.7	643	771	0.28
32	20.13	644.2	773.0	0.28
40	15.0	600.0	720.0	0.30
50	12.0	600.0	720.0	0.30
63	16.6	1045.8	1255.0	0.17
80	13.1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

Disconnection time 5s

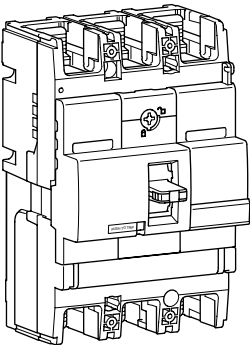
Device rating (A)	trip (xI_n)	I_a (A)	$Z_s = (230 \times 0.95) / I_a$
16	10	160	1.37
20	10	200	1.09
25	10	250	0.87
32	10	320	0.68
40	10	400	0.55
50	10	500	0.44
63	10	630	0.35
80	10	800	0.27
100	10	1000	0.22
125	10	1250	0.17
160	10	1600	0.14

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

MCCB x160



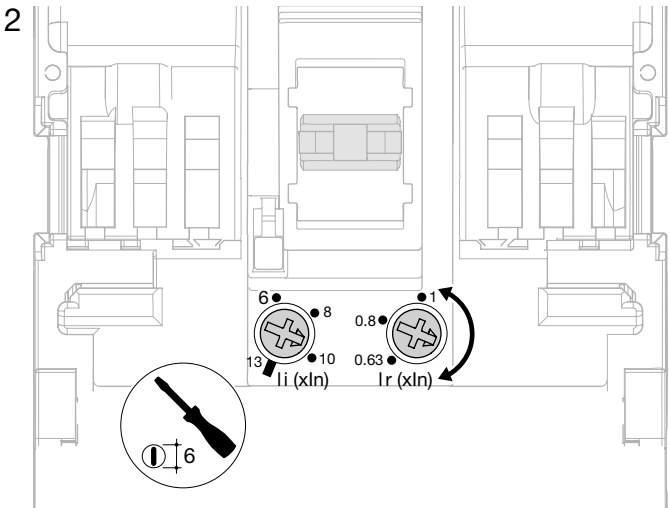
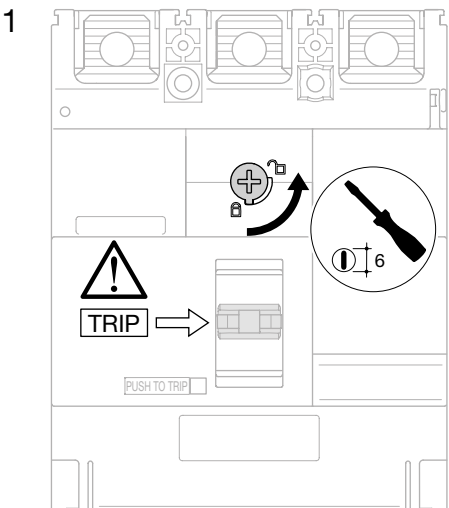
MCCBs



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

Commercial
Distribution

Magnetic and thermal settings

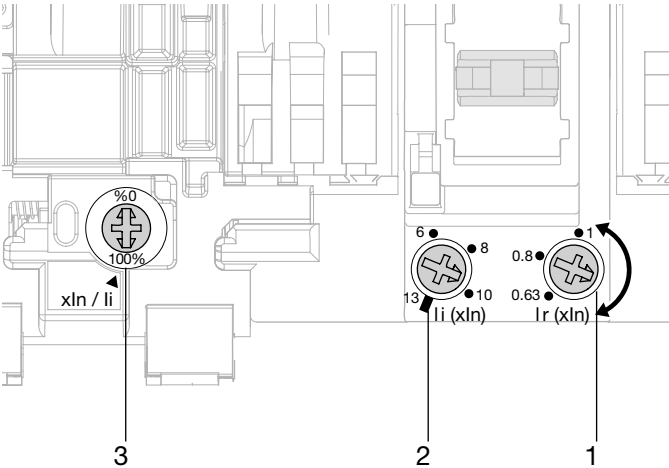


Thermal adjustment from 0.63, 0.8, 1 x I_n

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

from 5 to 11 x I_n (250A)

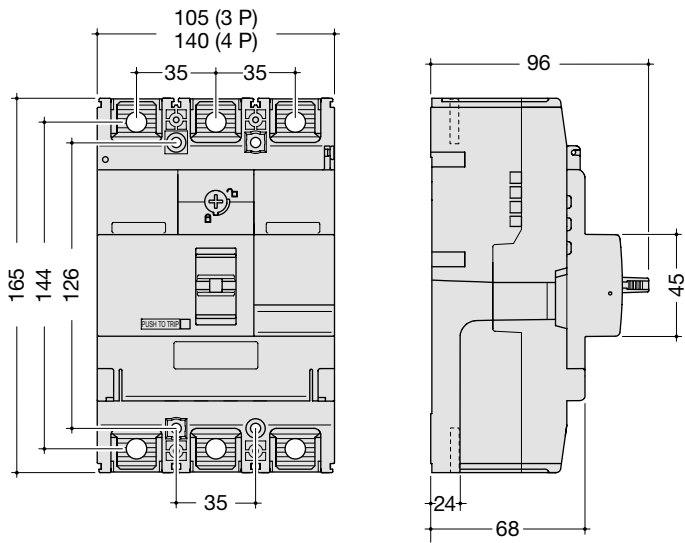
	100 - 200A	250A
I _r (x I _n) 1	0.63 - 0.8 - 1 x I _n	
I _i (x I _n) 2	6 - 8 - 10 - 13 x I _n	5 - 7 - 9 - 11 x I _n
x I _n /I _i 3	0 - 100%	
	0 - 60%	



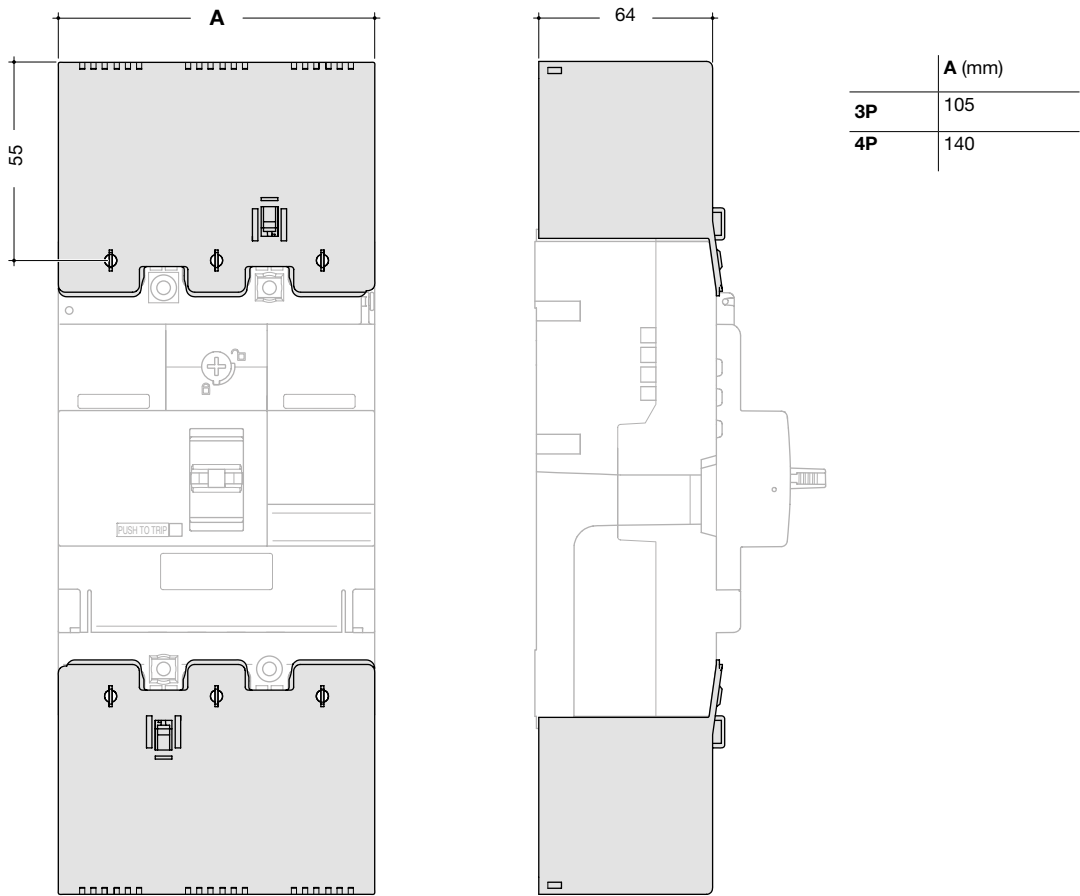
Dimensions

MCCB x250

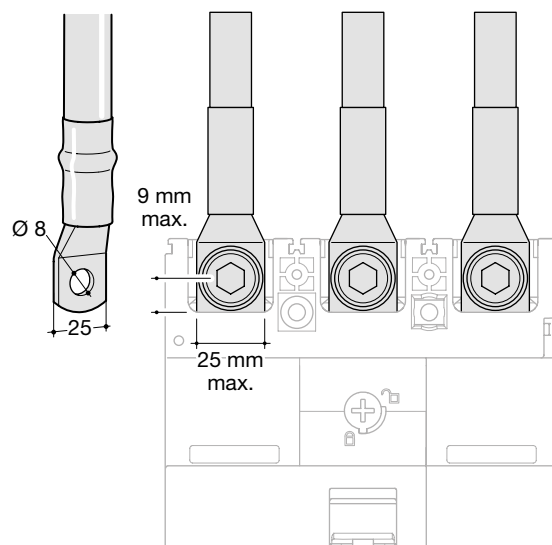
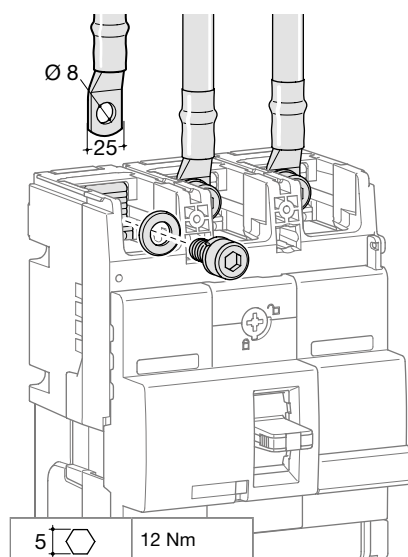
Commercial
Distribution



Terminal covers for extended straight connections

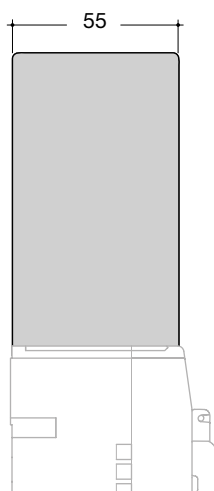
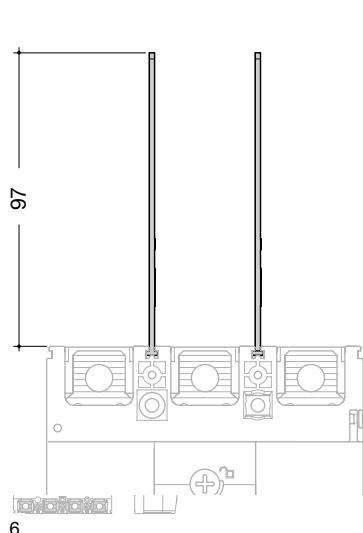


Connection with end lugs



Commercial
Distribution

Interphase barriers

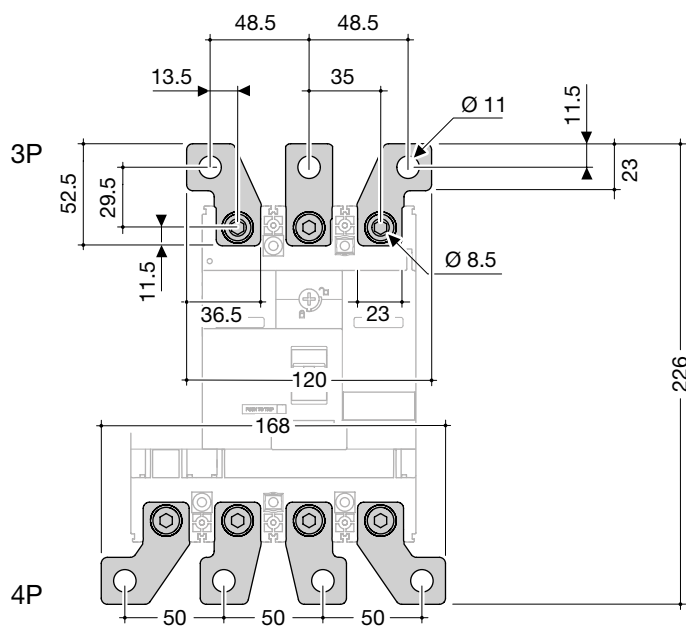
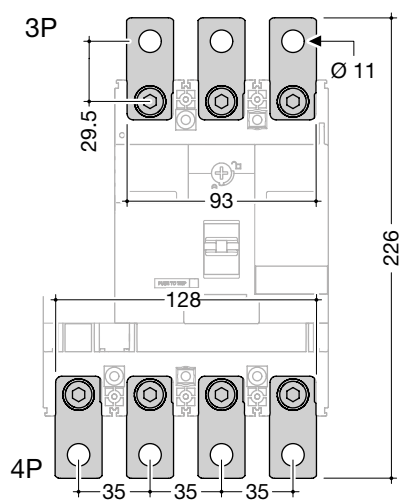
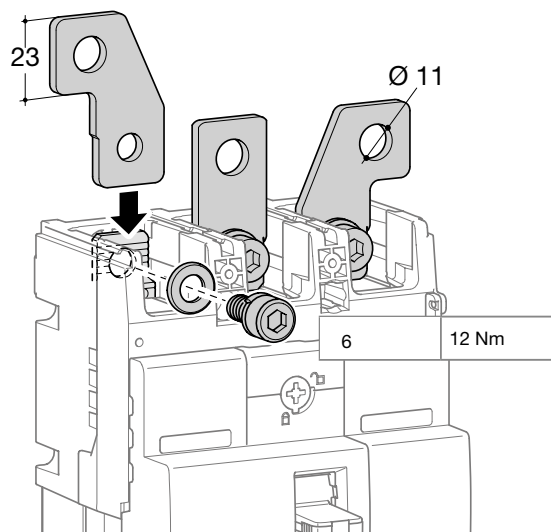
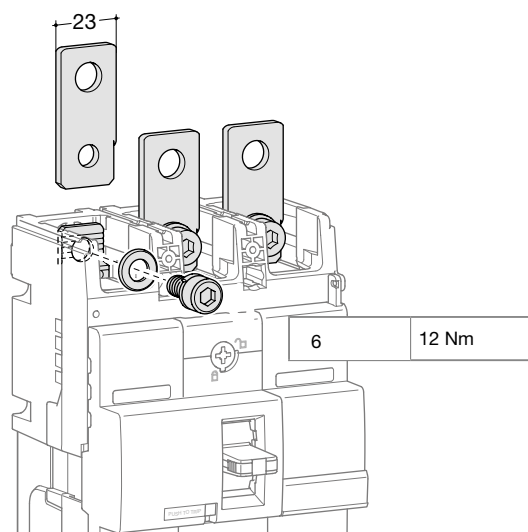


6

Connection

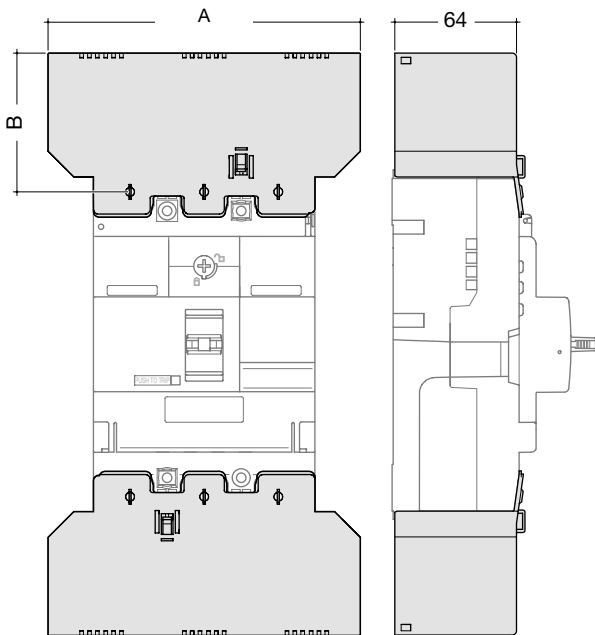
Extended straight and spreader connections

Commercial
Distribution



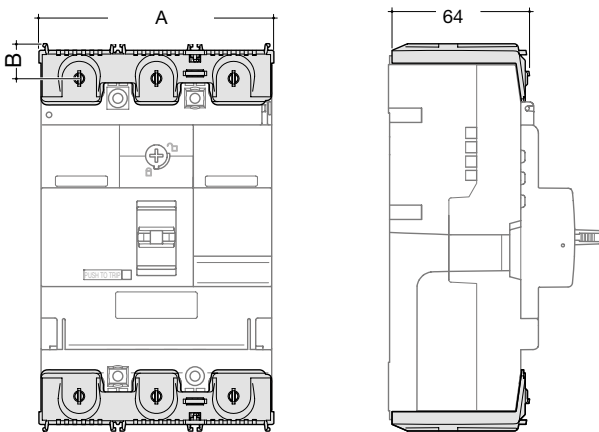
Accessories

Terminal cover for extended spreader connections



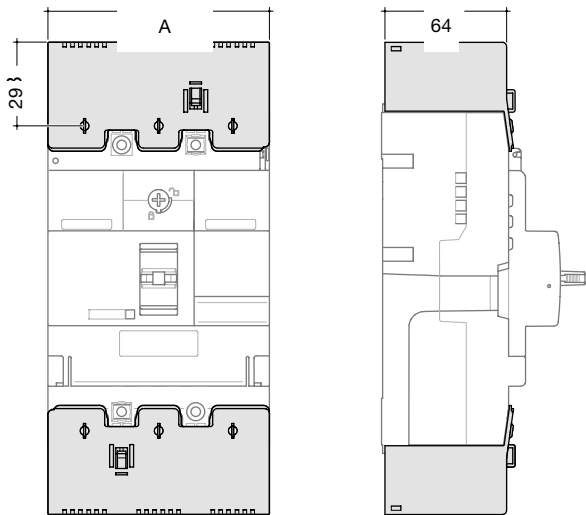
	A (mm)	B (mm)	C (mm)
3P	147.5	54.5	64
4P	196	54.5	64

Terminal cover for rear connections



	A (mm)
3P	105
4P	140

Terminal covers for collar terminals

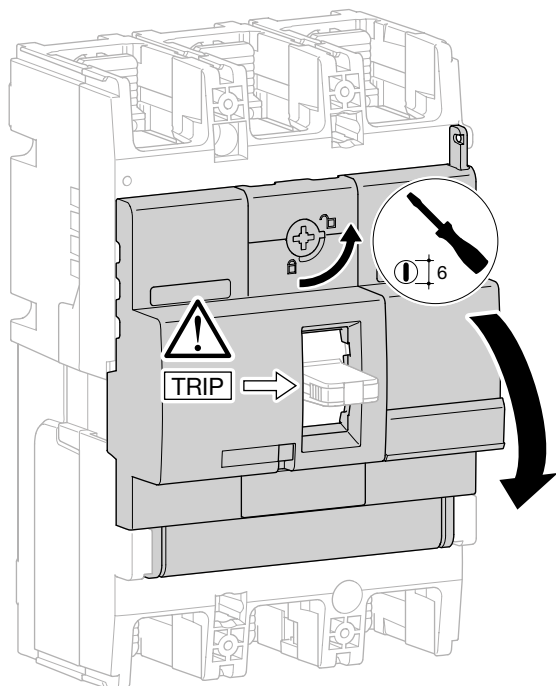


	A (mm)
3P	105
4P	140

Auxiliaries

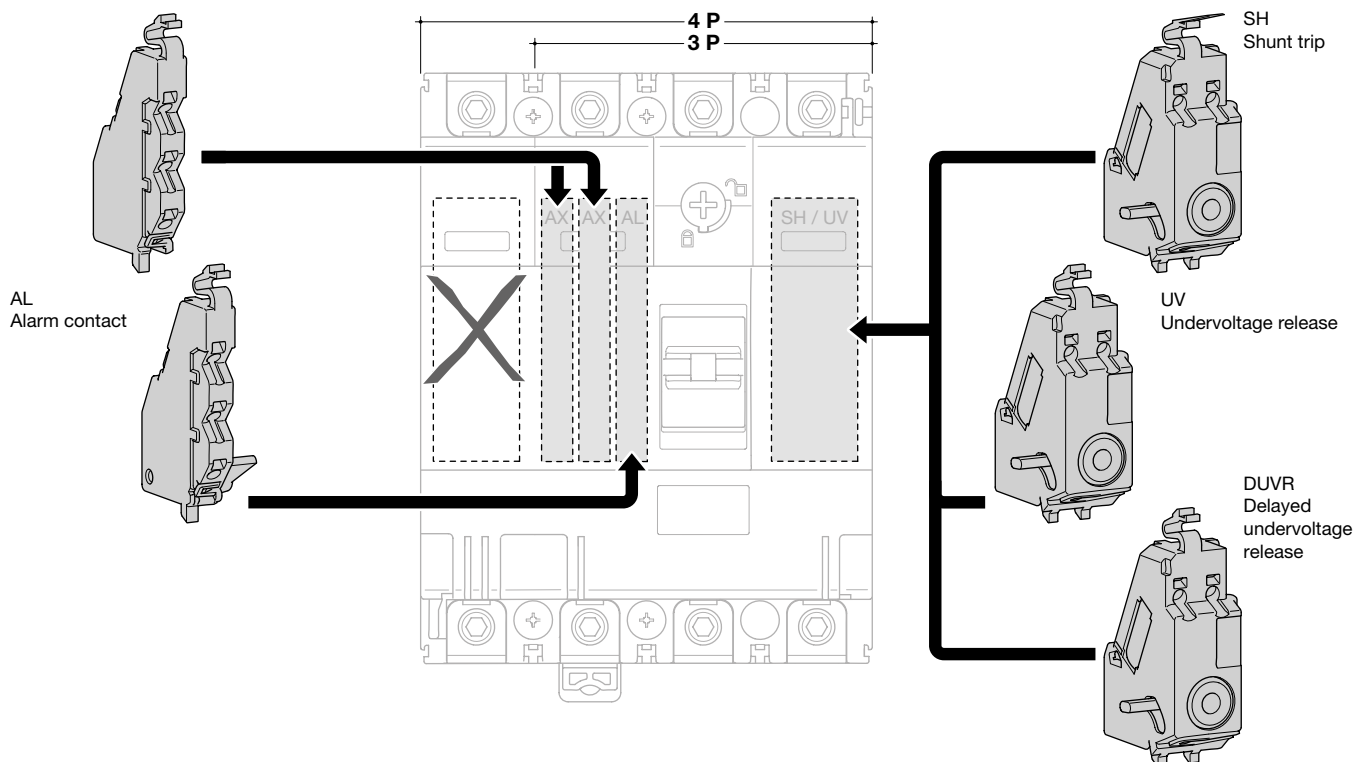
Auxiliaries for MCCBs and moulded case switches

Commercial
Distribution



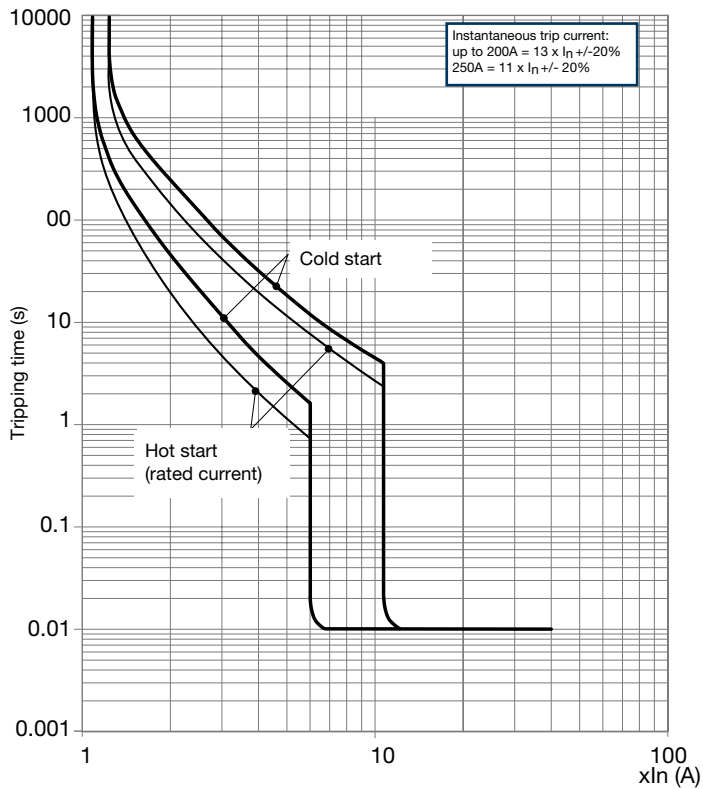
Mounting combination for auxiliaries and releases

AX
Auxiliary contact



Tripping curve

MCCB x250

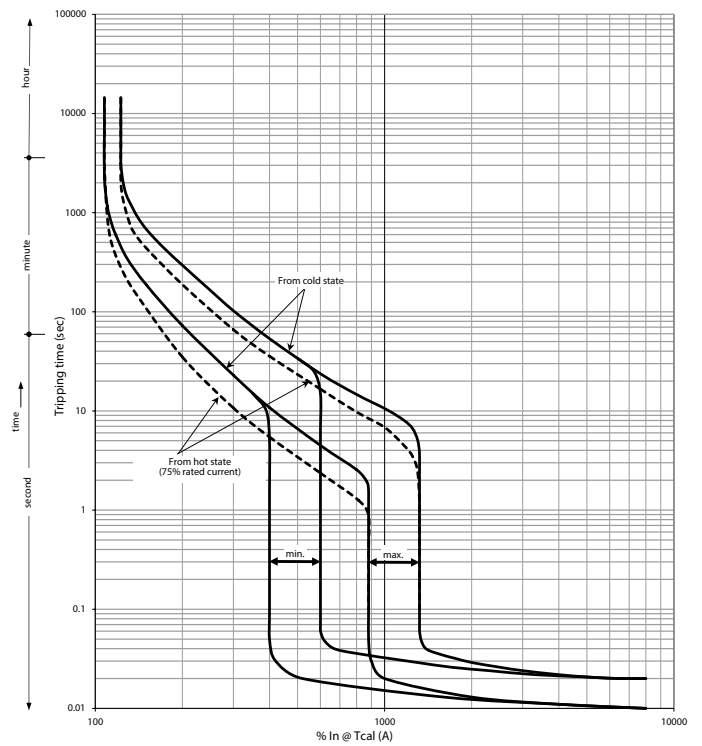


Earth fault loop impedance (Z_s) can be calculated from the formula
 $Z_s \leq \frac{230 \times 0.95}{I_a}$

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

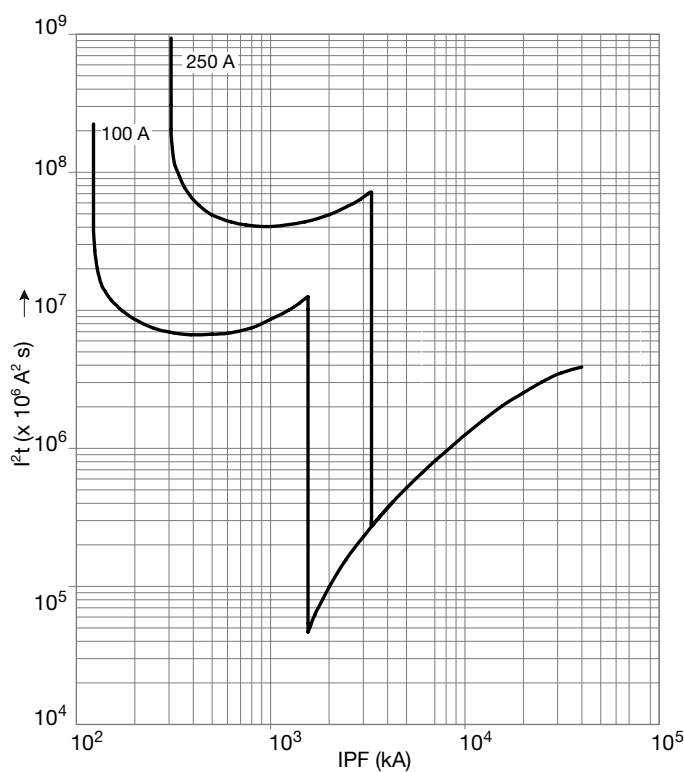
Tripping curve

MCCB h250 TM



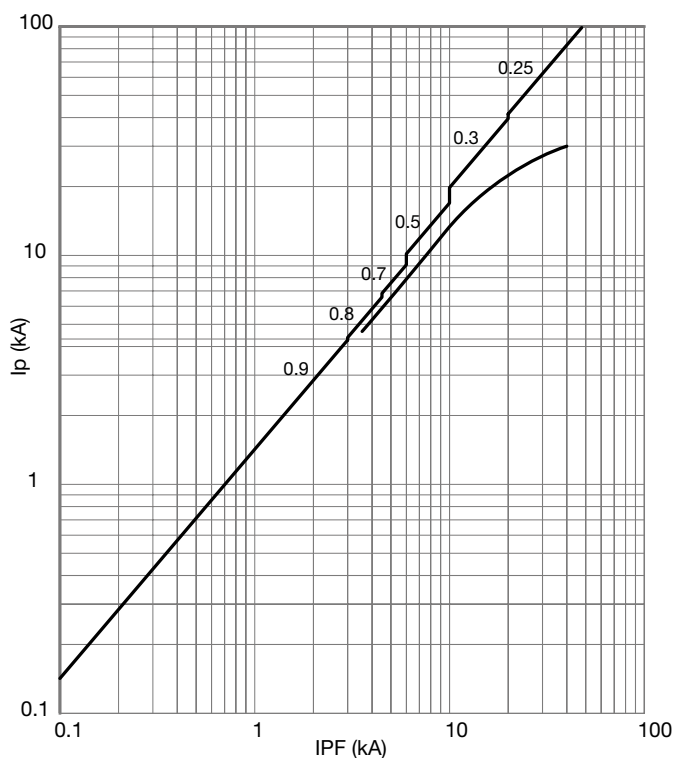
Thermal constraint curve at 400V (Let-through energy)

MCCB x250



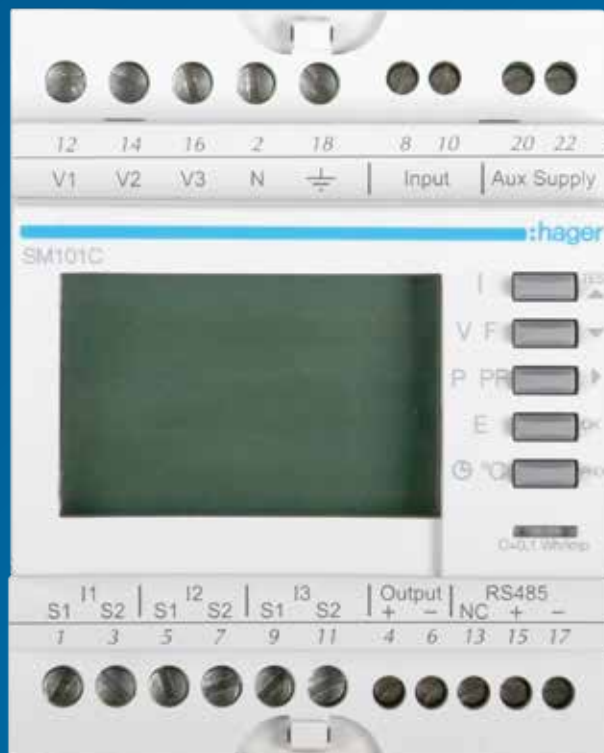
Current limiting curve at 400V (Let-through peak current)

MCCB x250



Modular Devices & Enclosures

Dimmers, time switches, meters and thermostats are among our varied range of devices, and they can all be perfectly housed in our expansive range of enclosures to tailor a building's energy to an individual's style. It's just like a home, miniaturised.



Enclosures

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IP55 Enclosures	2.7
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Devices

Metering & Monitoring	2.13
Switching	2.22
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Push Buttons	2.30
Indication	2.31
Timers	2.33
Heating	2.36

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

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VM004

DIN Rail Enclosure - Design 30

Characteristics:

- Metal DIN rail enclosures, 1 row from 4 to 22 modules.
- Design 30 enclosures come supplied with a full metal DIN rail, full complement of earth and neutral terminals along with marking labels, instructions & cable protector plate for rear knockouts.
- Optional health & safety padlock bracket & keylock available (see page: 4.19).
- Conforms to BS EN 62208.
- For dimensions see page 2.37.

Description	Size	Cat ref.	Cat ref. with Knockouts
4 Module DIN Rail Enclosure	2	VM004	VM004K
8 Module DIN Rail Enclosure	3	VM008	VM008K
12 Module DIN Rail Enclosure	4	VM012	VM012K
16 Module DIN Rail Enclosure	5	VM016	VM016K
18 Module DIN Rail Enclosure	6	VM018	VM018K
22 Module DIN Rail Enclosure	7	VM022	VM022K



VML004

DIN Rail Enclosure - Design 10

Characteristics:

- Metal DIN rail enclosures, 1 row from 4 to 22 modules.
- Design 10 enclosures come supplied with a full metal DIN rail, full complement of earth and neutral terminals along with marking labels & instructions.
- Conforms to BS EN 62208.
- For dimensions see page 2.37.

Description	Size	Cat ref.
4 Module DIN Rail Enclosure	2	VML004
8 Module DIN Rail Enclosure	3	VML008
12 Module DIN Rail Enclosure	4	VML012
16 Module DIN Rail Enclosure	5	VML016
18 Module DIN Rail Enclosure	6	VML018
22 Module DIN Rail Enclosure	7	VML022



GD102E

Mini Gamma

Characteristics:

- Insulated enclosures 1 row from 2 to 10 modules.
- Surface mounted enclosures with a rigid chassis, housing a DIN rail, IP30 Rated.
- Supplied with earth terminals (except **GD102E**), marking labels and sealing grommets.

Options: Keylock, plain or transparent door, terminals and terminal supports.

- For dimensions see page 2.38.

Description	Cat ref.
2 Modules Empty Enclosure	GD102E
4 Modules E: 2 x 16mm ² + 2 x 10mm ² (capacity to fit an additional 4 hole terminal bar on existing support)	GD104E
6 Modules E: 2 x 16mm ² + 2 x 10mm ² (capacity to fit an additional two 4 hole terminal bars or one 7 hole terminal bar on existing support)	GD106E
8 Modules E: 3 x 16mm ² + 4 x 10mm ² (capacity to fit an additional two 4 hole terminal bars or one 7 hole terminal bar on existing support)	GD108E
10 Modules E: 3 x 16mm ² + 4 x 10mm ² (capacity to fit an additional three 4 hole terminal bars or two 7 hole terminal bars on existing support)	GD110E



GD106E

Mini Gamma Plain Doors

Characteristics:

- Plain door with integrated handle (use of door increases IP rating to IP40).

Description	Cat ref.
Plain Door for GD102E	GP102P
Plain Door for GD104E	GP104P
Plain Door for GD106E	GP106P
Plain Door for GD108E	GP108P
Plain Door for GD110E	GP110P



GP108P

Mini Gamma Transparent Doors

Characteristics:

- Transparent door with integrated handle (use of door increases IP rating to IP40).

Description	Cat ref.
Transparent Door for GD102E	GP102T
Transparent Door for GD104E	GP104T
Transparent Door for GD106E	GP106T
Transparent Door for GD108E	GP108T
Transparent Door for GD110E	GP110T



GP110T

Terminal Support

Characteristics:

- Terminals not included.

Description	Cat ref.
Terminal Support for GD104E	GZ104S
Terminal Support for GD106E	GZ106S
Terminal Support for GD108E	GZ108S
Terminal Support for GD110E	GZ110S



GZ108S

Terminals (63A Rating)

Cable Capacity	Cat ref. Neutral (Blue)	Cat ref. Earth (Green)
Cable Capacity: 2 x 16mm ² + 2 x 10mm ²	GZ04N	GZ04E
Cable Capacity: 3 x 16mm ² + 4 x 10mm ²	GZ07N	GZ07E



GZ04E

Keylock

Description	Cat ref.
Keylock for Plain or Transparent Door	VZ313



VZ313



IU41

IU Enclosures

Characteristics:

- 1 row boxes 1-5 modules.
- Ideally suited for the installation of individual modular devices. (RCCBs, MCBs, RCBOs, switch disconnectors etc).
- Available without door, with plain door or with glazed door.
- Where larger cables need to be accommodated (for switch disconnectors etc.) extra cabling space is provided in the extended height versions (Recommended maximum cable size: extended height = 35mm², all other references = 6mm²).
- All boxes from 2-5 modules are fitted with an earth bar as standard and for those with doors the catch can be replaced with the optional key locking facility.
- For dimensions see page 2.38.

Description	Cat ref. Without Door	Cat ref. Plain Door	Cat ref. Glazed Door
2 Modules	IU2	IU2/D	IU2/GD
3 Modules	IU3	IU3/D	-
4 Modules	IU4	IU4/D	-
1 Module Extended Height	IU41	IU41-D	-
2 Modules Extended Height	IU42	IU42/D	-
4 Modules Extended Height	IU44	IU44/D	IU44/GD
5 Modules Extended Height	IU45	-	-

Accessories for IU Enclosures

Description	Cat ref.
Keylock with 2 Keys Suitable for All IU Enclosures Fitted with Door	IKL1

Vega Enclosures

Characteristics:

- Insulated enclosure rated IP40, 1 to 3 rows, 18 to 54 modules (RAL 9010) available with transparent or plain doors.
- **VB118**** & **VB218**** - 90A max. total load. **VB318**** & **VB418**** - 125A max. total load.
- Features a removable chassis with DIN rails for ease of installation.
- Top and bottom cable entry plates are removable and interchangeable. The door is also reversible with an integral flush handle.

Options:

- Door lock
- Note:** Not suitable for single module RCBO's.
- For dimensions see page 2.38.



VB118PT

Description	Quick Connect Earth Terminals	Cat ref. Plain Door	Cat ref. Glazed Door
1 Row, 18 Module Surface Mounted Enclosure	4 x 25mm ² , 14 x 4mm ²	VB118PP	VB118TP
2 Rows, 36 Module Surface Mounted Enclosure	6 x 25mm ² , 20 x 4mm ²	VB218PP	VB218TP
3 Rows, 54 Module Surface Mounted Enclosure	9 x 25mm ² , 31 x 4mm ²	VB318PP	VB318TP
4 Rows, 72 Module Surface Mounted Enclosure	12 x 25mm ² , 40 x 4mm ²	VB418PP	VB418TP

Accessories

Description	Pack quantity	Cat ref.
Key Lock for Vega Type 1242E White	1	VZ310PVB
Key Lock for Vega Type 1242E Transparent	1	VZ310TVB
Key Lock for Vega Type 405E White	1	VZ311PVB
Key Lock for Vega Type 405E Transparent	1	VZ311TVB
Door White, Vega, 18 Module	1	VZ118P
Door Transparent, Vega, 18 Module	1	VZ118T
Door White, Vega, 36 Module	1	VZ218P
Door Transparent, Vega, 36 Module	1	VZ218T
Door White, Vega, 54 Module	1	VZ318P
Door Transparent, Vega, 54 Module	1	VZ318T
Door White, Vega, 72 Module	1	VZ418P
Door Transparent, Vega, 72 Module	1	VZ418T
Door Hinges for Vega	2	VZ004VB
Brass Terminal Support VF/VS 18/22 M	1	VZ704N
QC Terminal Support VF/VS 18/22 M	1	VZ708N
Slider for Trunking, Vega	1	VZ001VB
Labeling Set for Vega 18 Module	4	VZ011VB
Kit for Horizontal Junction of 2 Enclosure	1	VZ005VB
Kit for Vertical Junction of 2 Enclosure	1	VZ006VB
Clip for Circuit Designation Table	1	VZ535



VZ004VB



VZ708N

Modular Devices
& Enclosures

Terminal Blocks

Description	Length (mm)	No. Quick connect Terminals (4mm ²)	No. Screw Terminals 25mm ²	Cat ref. Neutral	Cat ref. Earth
6 Connection Terminal Block	30	5	1	KN06N	KN06E
10 Connection Terminal Block	45	8	2	KN10N	KN10E
14 Connection Terminal Block	60	11	3	KN14N	KN14E
18 Connection Terminal Block	75	14	4	KN18N	KN18E
22 Connection Terminal Block	90	17	5	KN22N	KN22E
26 Connection Terminal Block	105	20	6	KN26N	KN26E
Pack of 10 Terminal Inter-connectors	-	-	-	KN99N	KN99E



KN14E



KN10N



VE212U

Vector II Enclosures

Characteristics:

- Insulated IP55 rated enclosure, 1 to 3 rows, 3 to 36 modules (RAL 7035).
- 63A max. total load.
- Features an adjustable depth DIN rail (except **VE103U**).
- Supplied with sealing plugs to re-instate IP rating after fixing.
- 3-10 modules - vertically hinged, retainable in open position at 90°.
- 12-36 modules - horizontal hinged, can be reversed left or right.

Options:

- Door lock
- Note:** Not suitable for single module RCBO's.
- For dimensions see page 2.38.

Description	Moulded Blanks (in front cover)	Cat ref.
1 Row 3 Module IP55 Surface Mount, Transparent Door	2 x 1/2	VE103U
1 Row 6 Module IP55 Surface Mount, Transparent Door	2 x 1	VE106U
1 Row 10 Module IP55 Surface Mount, Transparent Door	2 x 1	VE110U
1 Row 12 Module IP55 Surface Mount, Transparent Door	-	VE112U
2 Row 24 Module IP55 Surface Mount, Transparent Door	-	VE212U
3 Row 36 Module IP55 Surface Mount, Transparent Door	-	VE312U



VZ428



VZ403



VZ744

Terminal Support Assembly

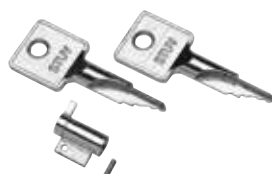
Characteristics Single Phase:

- 2 x (3 x 16mm² + 4 x 10mm²) 270mm wide
- Maximum current (I_N): 63A
- To fit 12 module wide enclosure only

Characteristics Three Phase:

- 3 x (3 x 16mm² + 2 x 10mm²) 270mm wide
- Neutral: 1 x (5 x 16mm² + 6 x 10mm²)
- Maximum current (I_N): 63A
- To fit 12 module wide enclosure only.
- **VZ744** - For fixing of additional terminal supports in bottom part of enclosure (**VE112U** and above)

Description	Cat ref.
Single Phase Connector Assembly for Vector II Enclosures (Requires VZ744)	VZ403
Three Phase Connector Assembly for Vector II Enclosures (Requires VZ744)	VZ428
Mounting Support for VZ403 & VZ428 (1 Set = 2 Supports)	VZ744



VZ311

Key Lock

Description	Cat ref.
For All Vector Enclosures with 2 Keys	VZ311

Orion - Steel Enclosures

Characteristics:

- Steel (1.5mm) IP65 rated enclosure, insulation class: I (RAL 7035).
- Mounting plates and modular chassis' are required for the installation of devices, see page 2.9.
- 2 removable gland plates for cable entry on top and bottom.
- IP65 with door closed, complies with BS EN 60529.
- Earth studs on both body and door.
- Plain, easily removable door equipped with one or two locks with triangular 8mm bit centres.

Options: Key lock, wall fixing brackets, mounting plate, equipment kits for modular devices.

Note: Not suitable for outdoor use.

- For full dimensions see page 2.39.



FL110A

Description	Dimensions (H x W x D mm)	No. of locks	Cat ref. Plain Door	Cat ref. Glazed Door
IP65 Surface Mount Enclosure	300 x 250 x 160	1	FL102A	-
IP65 Surface Mount Enclosure	350 x 300 x 160	1	FL104A	FL154A
IP65 Surface Mount Enclosure	350 x 300 x 200	1	FL105A	FL155A
IP65 Surface Mount Enclosure	500 x 300 x 200	1	FL110A	FL160A
IP65 Surface Mount Enclosure	500 x 400 x 200	1	FL112A	FL162A
IP65 Surface Mount Enclosure	650 x 400 x 200	2	FL117A	FL167A
IP65 Surface Mount Enclosure	650 x 400 x 250	2	FL118A	FL168A
IP65 Surface Mount Enclosure	650 x 500 x 250	2	FL120A	FL170A
IP65 Surface Mount Enclosure	800 x 600 x 300	2	FL124A	FL174A
IP65 Surface Mount Enclosure	950 x 600 x 300	2	FL126A	FL176A
IP65 Surface Mount Enclosure	950 x 800 x 300	2	FL128A	FL178A

Orion - GRP Enclosures

Characteristics:

- GRP IP65 rated enclosure, (RAL 7035). Door made of glass reinforced polyester (GRP).
- Mounting plates and modular chassis' are required for the installation of devices, see page 2.9.
- IP65 with door closed, complies with BS EN 60529.
- Earth studs on both body and door.
- Plain, easily removable door equipped with one or two locks with triangular 8mm bit centres.

Options: Key lock, wall fixing brackets, mounting plate, equipment kits for modular devices.

Note: Not suitable for outdoor use.

- **FL201B** made of polycarbonate.

- For full dimensions see page 2.40.



FL216B

Description	Dimensions (H x W x D mm)	No. of locks	Cat ref. Plain Door	Cat ref. Glazed Door
IP65 Surface Mount Enclosure	350 x 300 x 160	1	FL204B	FL254B
IP65 Surface Mount Enclosure	500 x 300 x 200	2	FL209B	FL259B
IP65 Surface Mount Enclosure	500 x 400 x 200	2	FL213B	FL263B
IP65 Surface Mount Enclosure	650 x 400 x 200	2	FL216B	FL266B
IP65 Surface Mount Enclosure	650 x 500 x 250	2	FL221B	FL271B
IP65 Surface Mount Enclosure	800 x 600 x 300	2	FL229B	FL279B
IP65 Surface Mount Enclosure	1200 x 850 x 300	1	FL327B	FL527B

Orion Accessories

Description	Cat ref.
Key lock to be mounted on the triangular lock, supplied with 2 keys no 427 for h ≤ 800	FL96Z
Key lock to be mounted on the triangular lock, supplied with 2 keys no 427 for h ≤ 1150	FL98Z
Replacement lock 1 set of 2 locks with male square 8mm with 1 key	FL81Z
Replacement lock 1 set of locks double-bar 3mm with 1 key	FL97Z
Plastic wall fixing brackets delivered with fixing screws M 6x12 on enclosure set of 4 pieces	FL863Z
Depth adjustment slide for enclosures 300mm	FL672E



FL96Z



FL80Z



FL95Z



FL408A

Plain Mounting Plates for Orion Enclosures

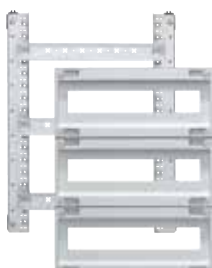
Characteristics:

- Steel sheet, zinc plated, 2mm thickness.
- Fixed directly to the back or sides of the enclosure allowing adjustable depth setting (Fixing Bracket - **FL450A**).
- For dimensions see page 2.39.

For Enclosure	Dimensions (H x W x D mm)	Cat ref. Glazed Door
FL102A, FL152A	300 x 250	FL402A
FL104A, FL105A, FL204B, FL154A, FL155A, FL254B	350 x 300	FL404A
FL110A, FL209B, FL160A, FL259B	500 x 300	FL407A
FL112A, FL213B, FL162A, FL263B	500 x 400	FL408A
FL117A, FL118A, FL216B, FL167A, FL168A, FL266B	650 x 400	FL412A
FL120A, FL221B, FL170A, FL271B	650 x 500	FL413A
FL124A, FL229B, FL174A, FL279B	800 x 600	FL415A
FL126A, FL176A	900 x 600	FL416A
FL128A, FL178A	950 x 800	FL417A
FL327B, FL527B	1150 x 850	FL522E
Adjustable Depth Fixing Bracket	-	FL450A



FL981A



FL992A

Functional Frames for Orion Enclosures

- Mounted to enclosure only for **FL980A** and **FL981A**.

On Chassis

- Comprises of: DIN rails (slide length 44mm) assembled on chassis and adjustable in depth (of front plates with slide).

On Vertical Rail

- Comprises of: 2 vertical rails, DIN rail (slide length 44mm), front plates with slit and a cross-rail allowing for the assembly of bars on to the base and slides.

For Enclosure	Rows (modules)	Cat ref. Glazed Door
FL102A, FL104A, FL105A, FL154A, FL155A	2 rows (24)	FL979A
FL204B, FL254B	2 rows (24)	FL980A
FL110A, FL209B, FL160A, FL259B	3 Rows (36)	FL981A
FL112A, FL213B, FL162A, FL162A, FL263B	3 rows (48)	FL992A
FL117A, FL118A, FL216B, FL167A, FL168A, FL266B	4 rows (64)	FL993A
FL120A, FL221B, FL170A, FL271B	4 rows (88)	FL994A
FL124A, FL229B, FL174A, FL279B	5 rows (130)	FL996A
FL126A, FL176A	6 rows (156)	FL997A
FL128A, FL178A	6 rows (222)	FL998A

Brass Terminals ≤ 60A With Support

Characteristics

- Brass terminals with or without support for neutral/earth/phase connections.

Colour Coded Supports

- Neutral = Blue, Earth = Green/Yellow, Phase = Brown.

- Insulated support can be fitted on DIN rail with **KZ060** rail clip or flat bar 12 x 2mm.

Connections: number + section	Neutral Cat ref.	Earth Cat ref.	Phase Cat ref.
2 x 16 + 2 x 10mm ² 4 Connections Length 30mm	-	-	KM04L
3 x 16 + 4 x 10mm ² 7 Connections Length 49mm	KM07N	KM07E	KM07L
5 x 16 + 5 x 10mm ² 10 Connections Length 67mm	KM10D	KM10F	-
5 x 16 + 6 x 10mm ² 11 Connections Length 73mm	KM11N	KM11E	KM11L
2 x 16 (Double Drive) + 8 x 10mm ² 10 Connections Length 69mm	KM10N	KM10E	-
6 x 16 + 7 x 10mm ² 13 Connections Length 85mm	KM13N	KM13E	-
1 x 25 + 5 x 16 + 5 x 10mm ² 11 Connections Length 85mm	-	KM11B	-
1 x 25 + 8 x 16 + 8 x 10mm ² 17 Connections Length 121mm	KM17N (2 supports)	KM17E	-
1 x 25 + 11 x 16 + 13 x 10mm ² 25 Connections Length 169mm	KM25N	KM25E	-



KM04L



KM13N

Brass Terminals ≤ 60A Without Support

Connections: number + section	Cat ref.
2 x 16 + 2 x 10mm ² 4 Connections Length 30mm	K140
3 x 16 + 4 x 10mm ² 7 Connections Length 49mm	K142
5 x 16 + 5 x 10mm ² 10 Connections Length 67mm	K143
5 x 16 + 6 x 10mm ² 11 Connections Length 73mm	K144
2 x 16 (Double Drive) + 8 x 10mm ² 10 Connections Length 69mm	K145
6 x 16 + 7 x 10mm ² 13 Connections Length 85mm	K148
1 x 25 + 5 x 16 + 5 x 10mm ² 11 Connections Length 85mm	K151
1 x 25 + 8 x 16 + 8 x 10mm ² 17 Connections Length 121mm	K156
1 x 25 + 11 x 16 + 13 x 10mm ² 25 Connections Length 169mm	K158
1 x 25 + 8 x 16 + 29 x 10mm ² Long Length Terminals Length 242mm	K159
1 x 25 + 16 x 16 + 61 x 10mm ² Fixing on Flat Bar 12 x 2 with Supports Length 482mm	K160F



K144

Terminal Supports (For K140 - K160, terminals insulating material M4 x 8 fixing screws)

Description	Cat ref.
Blue Support for Neutral	KZ012
Green / Yellow Support for Earth	KZ013
Beige Support	KZ014



KZ012

Rail Clip (For fixing terminals on DIN Rails, not for: KM04L, KM10D, KM10F, KM10N, KM10E)

Description	Cat ref.
Mounts on DIN Rail Width 50mm	KZ060



KZ060

Neutral Assembly

Description	Cat ref.
DIN Rail Mounted 5 x 16mm ² and 9 x 10mm ²	KM14N



KXA02LH

Feed Through Rail Mounted Terminals

Description

- To prewire incoming & outgoing circuits in distribution boards.

Colour Code

- Neutral = Blue
- Earth = Green / Yellow
- Phase = Beige

Phase	Rated Current	Neutral	Rated Current
KXA02LH	24A	KXA02NH	24A
KXA04LH	32A	KXA04NH	32A
KXA06LH	41A	KXA06NH	41A
KXA10L	57A	KXA10N	57A
KXA16L	76A	KXA16N	76A
KXA35L	125A	KXA35N	125A
KXB70LH	192A	KXB70NH	192A

Nominal	Min-Max	Rated Voltage	Phase Cat ref.	Neutral Cat ref.	Earth Cat ref.
2.5mm ²	(0.5mm ² - 4mm ²)	800V	KXA02LH	KXA02NH	KXA02E
4mm ²	(0.5mm ² - 6mm ²)	800V	KXA04LH	KXA04NH	KXB04E
6mm ²	(0.5mm ² - 10mm ²)	1000V	KXA06LH	KXA06NH	KXB06E
10mm ²	(1.5mm ² - 16mm ²)	400V	KXA10L	KXA10N	KXA10E
16mm ²	(1.5mm ² - 25mm ²)	400V	KXA16L	KXA16N	KXA16E
35mm ²	(6mm ² - 50mm ²)	400V	KXA35L	KXA35N	KXB35E
70mm ²	(16mm ² - 95mm ²)	1000V	KXB70LH	KXB70NH	KXB70E

Beige End Plates

Description	Width in mm	Cat ref.
For KXA02LH & KXA04LH	1.5	KWE01G
For KXA10L & KXA16L	-	KWE04G
For KXA35L	1.5	KWE03G



KWB01

End Stops

Description	Width in mm	Cat ref.
Insulated material	8.5	KWB01



K037

125A Single Pole Connection Blocks

Description	Width in mm	Cat ref.
Incoming 2 x 25mm ² , Outgoing 4 x 16mm ²	2.5	K018
Incoming 2 x 35mm ² , Outgoing 4 x 25mm ²	2.5	K037

Insulated Busbars - Prong

Description

Cat ref.

Insulated Double Pole Busbars

63A 13 Modules Single Pole Brown Insulation (Phase)

KB163P

63A 13 Modules Single Pole Blue Insulation (Neutral)

KB163N

100A 24 Modules Single Pole

K171UK

10 Endcaps for Single Pole Busbars

KZ021

Insulated Double Pole Busbars

63A 24 Modules Double Pole

KB263C

80A 56 Modules Double Pole

KB280B

10 Endcaps for Double Pole Busbars

KZ023A

Insulated Triple Pole Busbars

63A 24 Modules Triple Pole

KB363C

80A 57 Modules Triple Pole

KB380B

10 Endcaps for Triple Pole Busbars

KZ023A

Insulated Four Pole Busbars

63A 24 Modules Four Pole

KB463C

80A 56 Modules Four Pole

KB480B

10 Endcaps for Four Pole Busbars

KZ024



KB163P



KB263C



KB363C



KB463C

Insulated Busbars - Fork

Description

Cat ref.

100A 57 Modules Single Pole (Section: 20mm²)

KD190B

63A 24 Modules Double Pole (Section: 10mm²)

KDN263B

63A 57 Modules Triple Pole (Section: 10mm²)

KDN363B

63A 56 Modules Four Pole (Section 10mm²)

KDN463B



KD190B



KDN263B

Insulated Flexible Links 100A Rating

Ends of connectors

Colour

Length

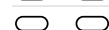
Cat ref.



Brown

122mm

KE01R



Blue

122mm

KE01B



Brown

236mm

KE02R



Blue

236mm

KE02B



Brown

330mm

KE03R



Blue

300mm

KE03B



Blue

355mm

KE04B



Brown

500mm

KE06R



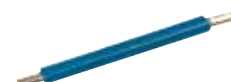
Blue

550mm

KE07B



KE01R



KE01B

○ Connection to modular device
◐ Connection to terminal bar

Insulating Strip

Description

Cat ref.

Insulation Strip for Shrouding Forked Busbars 5 Modules

KZ059



KZ059

Cable Connectors

Description

Cat ref.

Connection terminal - Cable connection up to 50mm²
Direct busbar connection 160A/ 690V

KF50SB

Prong Type Connection from the Top for Cables 25mm²

KF81A

Prong Type Connection from the Top for Cables 16mm²

KF82A

Prong Type Connection from the Side for Cables 35mm²

KF83D

Fork Type Connection from the Side for Cables 25mm²

KF84A



KF83D



EC050

Single Phase kWh Meters

Description:

- Energy meters are used to measure the active energy consumed by an installation. They allow the user to understand the real cost of an installation and to identify the consumption between the different appliances.

Characteristics:

- Complies with EN 50470-3.
- Class B
- Accuracy $\pm 1\%$.
- Energy readout: 7 digits.
- Backlit display.
- Indication of instantaneous power consumption.
- Total / partial counter.
- Pulsed output.
- Unlimited saving of measurements.
- LED flashes according to consumption.
- Display indication in case of incorrect wiring.
- Voltage 230V a.c. 50Hz.
- Direct connection.
- Current = 320mA - 32A.
- For technical data, see page 2.41.

Note:

- Use of heat dissipation inserts (cat ref. **LZ060**) are recommended on each side of direct connection meters.

Description	Width (1 Mod =17.5mm)	Cat ref.
Total counter, non resettable counter	1 Mod	EC050
Total counter, non resettable counter, pulsed output 1 pulse = 100Wh	1 Mod	EC051



EC150



EC154M

Single Phase kWh Meters - Direct 63A

Description:

- Energy meters are used to measure the active energy consumed by an installation. They allow the user to understand and control the real cost of an installation and to divide the consumption between the different appliances.
- MID approval for sub billing on **EC154M**.

Characteristics:

- Fully compliant with the European standard EN 50470-3.
- Class B
- Accuracy $\pm 1\%$.
- Energy readout: 7 digits.
- Backlit display.
- Indication of instantaneous power consumption.
- Total / partial counter (expected MID references).
- Pulsed output.
- Unlimited saving of measurements.
- LED flashes according to consumption.
- Tariff 1/ tariff 2 options.
- Display indication in case of incorrect wiring.
- Voltage 230V a.c. 50/60Hz.
- Current = 40mA - 63A.
- Max cable size = 16mm.
- For technical data, see page 2.41.

Note:

- Use of heat dissipation inserts (cat ref. **LZ060**) are recommended on each side of direct connection meters.

Description	Width (1 Mod =17.5mm)	Cat ref.
Energy meter with pulsed output and total/partial counter	3 Mod	EC150
Energy meter with pulsed output - total/partial counter and 2 tariffs	3 Mod	EC152
Energy meter with pulsed output - with MID approval	3 Mod	EC154M

Three Phase kWh Meters - Direct 63A

Description:

- Energy meters are used to measure the active energy consumed by an installation. They allow the user to understand and control the real cost of an installation and to divide the consumption between the different appliances.

Characteristics

- Fully compliant with the European standard EN 50470-3
- Class B
- Accuracy $\pm 1\%$
- Energy readout: 7 digits
- Backlit display
- Indication of instantaneous power consumption
- Total / partial counter (expected MID references)
- Pulsed output
- Unlimited saving of measurements
- LED flashes according to consumption
- Option: tariff 1 / tariff 2
- Three phase energy meters are adapted to all kind of networks
- Display indication in case of incorrect wiring
- Voltage 230/400V a.c. 50/60Hz
- Operating Current: 0.04 A to 63 A
- Max cable size = 16mm
- For technical data, see page 2.41.

Note:

- Use of heat dissipation inserts (cat ref. **LZ060**) are recommended on each side of direct connection meters.



EC350

Description	Width (1 Mod =17.5mm)	Cat ref.
Energy meter with pulsed output and total / partial counter	4 Mod	EC350
Energy meter with pulsed output - total / partial counter and 2 tariffs	4 Mod	EC352

Three Phase kWh Meters - Direct 100A

Description:

- Energy meters are used to measure the active energy consumed by an installation. They allow the user to understand and control the real cost of an installation and to divide the consumption between the different appliances.
- MID approval for sub billing on **EC364M**.

Characteristics

- Fully compliant with the European standard EN 50470-3
- Class B
- Accuracy $\pm 1\%$
- Energy readout: 7 digits
- Backlit display
- Indication of instantaneous power consumption
- Total / partial counter (expected MID references)
- Pulsed output
- Unlimited saving of measurements
- LED flashes according to consumption
- Option: tariff 1 / tariff 2
- Three phase energy meters are adapted to all kind of networks
- Display indication in case of incorrect wiring
- Voltage 230/400V a.c. 50/60Hz
- Operating Current: 0.08 A to 100 A
- Max cable size = 35mm
- For technical data, see page 2.41.

Note:

- Use of heat dissipation inserts (cat ref. **LZ060**) are recommended on each side of direct connection meters.



EC364M

Description	Width (1 Mod =17.5mm)	Cat ref.
Energy meter with pulsed output and total / partial counter	7 Mod	EC360
Energy meter with pulsed output - total / partial counter and 2 tariffs	7 Mod	EC362
Energy meter with pulsed output - with MID approval	7 Mod	EC364M
Energy meter with bidirectional counter	7 Mod	EC365B
Energy meter with KNX output	7 Mod	TE360



EC370

Three Phase kWh Meters - Connection via Current Transformers

Description:

- Energy meters are used to measure the active energy consumed by an installation. They allow the user to understand and control the real cost of an installation and to divide the consumption between the different appliances.

Characteristics

- Fully compliant with the European standard EN 50470-3
- Class B
- Accuracy $\pm 1\%$
- Energy readout: 7 digits
- Backlit display
- Indication of instantaneous power consumption
- Total / partial counter (expected MID references)
- Pulsed output
- Unlimited saving of measurements
- LED flashes according to consumption
- Option: tariff 1/ tariff 2
- Three phase energy meters are adapted to all kind of networks
- Display indication in case of incorrect wiring
- To be connected to CT with 5A on the secondary
- Voltage 230/400V a.c. 50/60Hz
- Starting current = 10mA
- Max current on CT secondary = 6A
- For technical data, see page 2.41.

Note:

- Use of heat dissipation inserts (cat ref. **LZ060**) are recommended on each side of direct connection meters.

Description	Width (1 Mod = 17.5mm)	Cat ref.
Energy meter with pulsed output and total / partial counter	4 Mod	EC370
Energy meter with pulsed output - total / partial counter and 2 tariffs	4 Mod	EC372
Energy meter with KNX output	4 Mod	TE370



SRA00505

Current Transformers (CT)

Characteristics:

- Current transformers are used to feed analogue and digital ammeters and kilowatt hour meters.
- The current on the secondary circuit (0 - 5A) is proportional to the current on primary circuit class: 1.
- Suitable for use with copper bar or cable.
- Can be mounted on a DIN rail (up to 600A CT).
- For complete list of dimensions see page 2.42.

Description	Ratio	Cat ref.
DIN Rail Mountable CT, 50A	50:5	SRA00505
DIN Rail Mountable CT, 100A	100:5	SRA01005
DIN Rail Mountable CT, 150A	150:5	SRA01505
DIN Rail Mountable CT, 200A	200:5	SRA02005
DIN Rail Mountable CT, 250A	250:5	SRA02505
DIN Rail Mountable CT, 300A	300:5	SRI03005
DIN Rail Mountable CT, 400A	400:5	SRC04005
DIN Rail Mountable CT, 600A	600:5	SRC06005
CT, 800A	800:5	SRD08005
CT, 1000A	1000:5	SRD10005
CT, 1500A	1500:5	SRD15005
CT, 2000A	2000:5	SRE20005
DIN Rail Mounting for CTs up to 600A.	-	SRZH01

Multifunction Meter

Functions		SM101E	SM101C
Current (3P _H and I _N)	Inst	✓	✓
	Max	✓	✓
	THD		✓
Voltage (L-L)	Inst	✓	✓
	THD		✓
Voltage (L-N)	Inst	✓	✓
	THD		✓
Frequency (F)	Inst	✓	✓
Power (3P, 3Q, 3S)	Inst	✓	✓
Power (ΣP, ΣQ, ΣS)	Inst	✓	✓
	Max	✓	✓
Power Factor (3PF, ΣPF)	Inst	✓	✓
Energy	+kWh		✓
	+kVar		✓
Hours counter	h	✓	✓
Internal temperature	°C		✓

Description:

- Dedicated to monitoring and reporting of electrical networks (balanced or unbalanced – 1, 2, 3 or 4 wires) The meters are connected through a CT to the network and measure all the parameters (TRMS).
- Allows communication via pulsed output and/or RS485 Jbus/Modbus.
- For technical data, see page 2.43.

Standards

- IEC 61557-12.
- IEC 62053-22 (class 0.5s).
- IEC 62053-23 (class 2).
- Connection solid & stranded 4mm² (power).
- 2.5mm² (communication).

Description	Width (1 Mod =17.5mm)	Cat ref.
Multifunction Meter	4 Mod	SM101E
Multifunction Meter with Communication Pulsed output, RS485 Jbus/Modbus communication	4 Mod	SM101C



SM101E



SM101C

Modular Devices
& Enclosures



ECM01

Panel & DIN Rail Meters

- No cables supplied with these meters
- Meter supply cable - **JF130VMF**
- For technical data, see page 2.44 - 2.46.

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



JKM01



JFA03

Converter

- For technical data, see page 2.47.

Description	Cat ref.
Standard CT to plug in adapter	JFA03

Plug-in CTs

- No leads supplied with these CTs (RJ45 connection cable)
- For technical data, see page 2.48.

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



EC1260CT

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.
- For technical data, see page 2.49.

Description	Cat ref.
3 Phase CT Splitter Box	JFS03



JFS03

Meter Voltage Supply Cable - Low Smoke Zero Halogen - 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



PGM500

Meter Voltage Supply Cable - PVC - 1mm

Description	Cat ref.
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

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

Meter to Meter Supply Cable - PVC - 1mm

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



PG9522FEMALE

Supply Voltage Connector Plugs

Characteristics:
- 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 & RJ45 Lead Tester

Description	Cat ref.
CT Output and RJ45 Lead Tester	JFT03

Hour Counter

Characteristics:

- To measure the total operating time of any circuit/load non resettable.
- For technical data, see page 2.50.

Application Example:

- Total time of plant running.
- Connection in parallel with contactor coil.
- Recording of lighting hours for relamping purposes.

Voltage
230V - 50Hz

Width
(1 Mod =17.5mm) Cat ref.
2 Mod **EC100**



EC100

Analogue Voltmeters

Characteristics:

- Single phase: direct connection.
- Three phase: use of a voltmeter selector switch **SK602** (see page 2.21).
- Frequency: 50 Hz.
- Accuracy: $\pm 2\%$.
- For technical data, see page 2.50.

Connection Capacity

- Rigid conductor 10mm².
- Flexible conductor 6mm².

Consumption
2.5VA

Width
(1 Mod =17.5mm) Cat ref.
4 Mod **SM500**



SM500

Analogue Ammeters

Characteristics:

- For domestic and commercial installations.
- Indirect reading via current transformers: 50-100-150-250-400A.
- Accuracy: $\pm 2\%$.
- Connection via a current transformer (CT).
- For technical data, see page 2.50.

Scale
0 - 50A
0 - 100A
0 - 150A
0 - 250A
0 - 400A

Width
(1 Mod =17.5mm) Cat ref.
4 Mod **SM050**
4 Mod **SM100**
4 Mod **SM150**
4 Mod **SM250**
4 Mod **SM400**



SM050

Digital Voltmeters

Characteristics:

- Three phase: use of a voltmeter selector switch **SK602** (see page 2.21).
- Voltage rating: 220/230V; 50/60Hz.
- Accuracy: $\pm 2\%$.
- Consumption: 4 VA.
- For technical data, see page 2.51.

Scale
0-500V

Width
(1 Mod =17.5mm) Cat ref.
4 Mod **SM501**



SM501

Digital Ammeters

Characteristics:

- **SM151, SM401, SM601**: reading via a current transformer (see below).
- Voltage rating: 220/230V; 50/60Hz.
- Accuracy: $\pm 1\%$.
- Consumption: 4 VA.
- For technical data, see page 2.51.

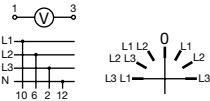
Description	Scale	Width (1 Mod =17.5mm)	Cat ref.
Reading via CT 150/5 (SRA01505)	0 - 150A	4 Mod	SM151
Reading via CT 400/5 (SRC04005)	0 - 400A	4 Mod	SM401
Reading via CT 600/5 (SRC06005)	0 - 600A	4 Mod	SM601



SM401



SK602



Voltmeter Selector

Characteristics:

- For use with Voltmeters.
- Complies with IEC 947-3, BS EN 60947-3
- Isolating voltage 500V a.c.
- Nominal current 10-20A
- 3 Ph&N
- 3 Readings between phases
- 3 Readings between phase & neutral
- Null position (no reading)

Terminal Capacity

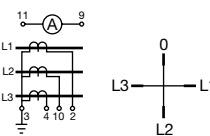
- 1 - 6mm² Flexible
- 1.5 - 10mm² Rigid

Description
20A 400V a.c.

Width
(1 Mod =17.5mm) Cat ref.
3 Mod **SK602**



SK603



Ammeter Selector

Characteristics:

- For use with Ammeters.
- Complies with IEC 947-3, BS EN 60947-3
- Isolating voltage 500V a.c.
- Nominal current 10-20A
- 4 Positions
- Use in 3 Ph&N
- Reading by phase
- Null position (no reading)
- Should be used with Current Transformer (see page 2.50)

Terminal Capacity

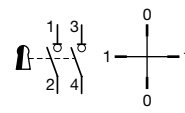
- 1 - 6mm² Flexible
- 1.5 - 10mm² Rigid

Description
20A 400V a.c.

Width
(1 Mod =17.5mm) Cat ref.
3 Mod **SK603**



SK606



Lockable Rotary Switch

Characteristics:

- For use with Voltmeters and Ammeters.
- Complies with IEC 947-3, BS EN 60947-3
- Isolating voltage 500V a.c.
- Nominal current 10-20A
- On / Off (4 Positions)

Terminal Capacity

- 1 - 6mm² Flexible
- 1.5 - 10mm² Rigid

Description
10A 400V a.c.

Width
(1 Mod =17.5mm) Cat ref.
3 Mod **SK606**

Switch Disconnectors

I_n: 25 -32A

- Shrouded cable terminal.
- Connection capacity: 16mm² rigid conductor, 10mm² flexible conductor.

I_n: 40 - 63A




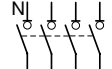
- Shrouded cable terminal.
- Connection capacity: 25mm² rigid conductor, 16mm² flexible conductor.

I_n: 80 - 125A

- Shrouded cable terminal.
- Connection capacity: 50mm² rigid conductor, 35mm² flexible conductor.

Characteristics

- Complies with BS EN 60947-3 all ratings.
- On position "I" in red & Off position "0" in green giving positive contact indication.
- For technical details see 2.52.

	Description	Width (1 Mod =17.5mm)	Cat ref.
	Single Pole Switch Disconnector		
	1x 25A 250V	1 Mod	SBN125
	1x 25A 250V Indicator Light	1 Mod	SBB125
	1x 32A 250V	1 Mod	SBN132
	1x 32A 250V Indicator Light	1 Mod	SBB132
	1x 40A 250V	1 Mod	SBN140
	1x 63A 250V	1 Mod	SBN163
	1x 80A 250V	1 Mod	SBN180
	1x 100A 250V	1 Mod	SBN190
	Double Pole Switch Disconnector		
	2x 25A 250V	1 Mod	SBN225
	2x 25A 250V Indicator Light	1 Mod	SBB225
	2x 32A 400V	1 Mod	SBN232
	2x 32A 250V Indicator Light	1 Mod	SBB232
	2x 40A 400V a.c.	2 Mod	SBN240
	2x 63A 400V a.c.	2 Mod	SBN263
	2x 80A 400V a.c.	2 Mod	SBN280
	2x 100A 400V a.c.	2 Mod	SBN290
	Triple Pole Switch Disconnector		
	3x 25A 400V a.c.	2 Mod	SBN325
	3x 32A 400V a.c.	2 Mod	SBN332
	3x 40A 400V a.c.	3 Mod	SBN340
	3x 63A 400V a.c.	3 Mod	SBN363
	3x 80A 400V a.c.	3 Mod	SBN380
	3x 100A 400V a.c.	3 Mod	SBN390
	3x 125A 400V a.c.	3 Mod	SBN399
	Four Pole Switch Disconnector		
	4x 25A 400V Neutral Left	2 Mod	SBN425
	4x 32A 400V Neutral Left	2 Mod	SBN432
	4x 40A 400V Neutral Left	4 Mod	SBN440
	4x 63A 400V Neutral Left	4 Mod	SBN463
	4x 80A 400V Neutral Left	4 Mod	SBN480
	4x 100A 400V Neutral Left	4 Mod	SBN490
	4x 125A 400V Neutral Left	4 Mod	SBN499



SBN140



SBN240



SBN340



SBN440



SFH125



SFT225





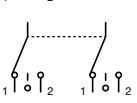
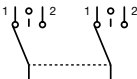
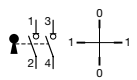


SK606

Changeover Switches

Characteristics

- Complies with BS EN 60947-3.
- For technical details see page 2.53.

	Description	Width (1 Mod =17.5mm)	Cat ref.
	2 Way Single Pole 1 x 25A 1P 250V a.c.	1 Mod	SFH125
	1 NO x 1 NC Double Pole 2 x 25A NO/NC 1P 250V a.c.	1 Mod	SFM125
	2 Way Double Pole 2 x 25A 2P 250V a.c.	2 Mod	SFH225
	Centre-off Changeover Single Pole 1 x 25A 1P 250V a.c.	1 Mod	SFT125
 SFT225 / 240	Centre-off Changeover Double Pole 2 x 25A 2P 250V a.c.	2 Mod	SFT225
	2 x 40A 2P 400V a.c.	2 Mod	SFT240
	2 x 63A 2P 400V a.c.	4 Mod	SF263
 SF263			
	Lockable Rotary Switch On/Off (4 Positions) 10A 400V a.c.	3 Mod	SK606

Light Sensitive Switch

Characteristics

- A photo-electric cell measures the light level and in conjunction with the relay provides on/off control of a circuit.
- This device controls lighting circuits in relation to ambient light, based on user settings.
- Sealable front cover.
- Outputs: 1 changeover AC1 contact 16A - 230V a.c.
- Maximum distance: 50m between photocell and controller

Application Example:

- Street lighting, display lighting, illuminated signs etc.

Connection

- Capacity: Rigid: 1.5 to 10mm², Flexible: 1 to 6mm².
- On board LED shows status of changeover contact.

Technical Data

- 4 position override switch allowing: auto, on, off, test
- 2 sensitivity ranges: 5 to 50 lux, 50 to 2000 lux.
- Supplied with a separate surface-mounted photo-electric cell **EE003**.
- Must be used in conjunction with a suitably rated contactor where load conditions demand.
- For technical data, see page 2.54.



EE100

Description	Width (1 Mod =17.5mm)	Cat ref.
Light Sensitive Switch	1 Mod	EE100

Light Sensitive Programmer

Characteristics

- To control the lighting installation in relation to time and ambient light.
- A weekly programmer associated with a light sensitive switch.
- Outputs: 1 changeover AC1 contact 16A - 230V a.c.
- Maximum distance: 50m between photocell and controller.

Working Principle

- The user programmes both on/off periods and a desired light level. The cell measures the light level within the on period.
- Depending on the light level (below or above the programmed threshold) the output will be switched on/off.
- 20 program steps, 1 minute switching increments.

Programming Function

- Programming by keys and display on LCD screen.
- On/off override facility, permanent working.
- Display and control of the programme.
- Test setting for easy adjustment.
- 2 sensitivity ranges: 5 to 50 lux, 50 to 2000 lux.
- Supplied with a separate surface-mounted photo-electric cell **EE003**.
- Must be used in conjunction with a suitably rated contactor where load conditions demand.
- For technical data, see page 2.54.



EE171

Description	Width (1 Mod =17.5mm)	Cat ref.
Light Sensitive Programmer	3 Mod	EE171

Replacement Photo Electric Cell

Description	For Cat ref.	Pack qty.	Cat ref.
Flush-mounted Photo Electric Cell	EE100, EE171	1	EE002
Surface-mounted Photo Electric Cell	EE100, EE171	1	EE003



EE002



EE003

Emergency Lighting Module

Application

- For both residential and commercial applications.
- Installed in a consumer unit or distribution board. Can be configured to provide emergency lighting.
- It can also be withdrawn from it's base, to act as a mini torch with an operating duration of 1 hour 30 mins.

Description	Width (1 Mod =17.5mm)	Cat ref.
Emergency Lighting Module	3 Mod	EE960



EE960



EVN011



EVN004

Universal Dimmers

Functional Characteristics Load	EVN011	EVN012	EVN002	EVN004
230V Incandescent/halogen lamps	300W	300W	500W	500W
ELV Halogen lamps via ferromagnetic transformer (transformer shall not be used under 75% of its nominal load)	300VA	300VA	500VA	500VA
ELV halogen & dimmable ELV LED via electronic transformer (maximum number of lamps allowed shall be calculated based on transformers output)	300VA	300VA	500VA	500VA
Dimmable compact fluorescent	60W	60W	100W	100W
230V dimmable LED lamps	60W	60W	100W (10 lamps)	100W (10 lamps)
No load consumption	0.2W	0.2W	0.2W	0.2W

Characteristics

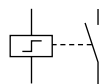
- Controls the lighting level of all types of light source: incandescent, LV halogen, ELV halogen with electronic or ferromagnetic transformer, LED lamps, ELV LED lamps with electronic transformer, fluorescent with electronic ballast.
- The EVN 300W and 500W dimmers also allow lighting level adjustment for dimmable CFL and dimmable LED lamps.
- Dimming controlled by push button: start / stop by short press, increasing / decreasing by maintaining pressure.
- Automatic load recognition.
- Soft start (progressive start) to increase the working life of lamps.
- Remembers previous dimming level.
- Protection against overheating.
- 3 modes for load learning: auto, advanced, expert (comfort version).
- Can replace a latching relay, with light level function.
- Push button (line or neutral).
- Comfort version includes scene setting by two short presses on the push button, progressive switch-off & night light.

Description	Width (1 Mod =17.5mm)	Cat ref.
300W Standard Version	1	EVN011
300W Comfort Version	1	EVN012
500W Standard Version	2	EVN002
500W Comfort Version	2	EVN004

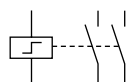
Latching Relays

Description

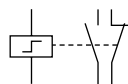
- Operate when impulsed by a signal voltage.
- The impulse can be provided via a pushbutton or pushswitch. The first pulse operates the relay and latches it to its set (opposite) state, the next operation of the pushbutton returns the relay to its reset (original) state.
- Auxiliary contacts (**EPN050, EPN051**).
- Are available for remote signalling and centralised control applications and can be easily combined with the latching relays.
- Connection: 10mm² flexible, 6mm² rigid.
- For technical details see page 2.56.



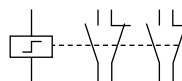
Coil	Power Circuit AC1	Width (1 Mod =17.5mm)	Cat ref.
Latching Relay 1 NO			
230V 50Hz	16A - 250V a.c.	1 Mod	EPN510
24V 50Hz	16A - 250V a.c.	1 Mod	EPN513



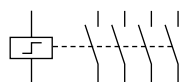
Latching Relay 2 NO			
230V 50Hz	16A - 250V a.c.	1 Mod	EPN520
24V 50Hz	16A - 250V a.c.	1 Mod	EPN524
12V 50Hz	16A - 250V a.c.	1 Mod	EPN521



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



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



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



EPN510



EPN520



EPN518

Modular Devices
& Enclosures

Auxiliary Contacts

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



EPN050

Relays

Characteristics

- To provide control of low power circuits max 16A; associated with switches, time switches etc for remote control applications.
- The relays will accept an auxiliary contact for remote signalling applications (**ESC080**).
- For the command of ELV circuits use interface relays **EN145** and **EN146**.
- For the command of high power circuits (20, 40 & 63 Amps) use contactors as shown on page 2.27.

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

Relays 2 NC + 2 NO			
230V 50Hz	16A - 250V~	2 Mod	ERC418
24V 50Hz	16A - 250V~	2 Mod	ERD418
8/12V 50Hz	16A - 250V~	1 Mod	ERL418



ERD218



ESC225S



ESC463S

Low Noise Contactors

Description

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

Technical Data

- The choice of contactor depends upon a number of parameters, e.g. The nature of the supply, the power it is switching, the characteristics of the load, the control voltage required & number of operations.

- All contactor ratings are for AC1 loads only – if the load differs from AC1 the contactor may need de-rating

- The use of **LZ060** (heat dissipation inserts) between all contactors installed or between contactors and adjacent devices is required.

- For technical data, see page 2.57.

Options

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

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



ESC001



ESC002



ESC080

Auxiliaries & Accessories

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

Standard Contactors

Description

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

Technical Data

- The choice of contactor depends upon a number of parameters, e.g. the nature of the supply, the power it is switching, the characteristics of the load, the control voltage required, number of operations.
- All contactor ratings are for AC1 loads only – if the load differs from AC1 the contactor may need de-rating (see technical characteristics on page 2.58).
- The use of **LZ060** (heat dissipation inserts) between all contactors installed or between contactors and adjacent devices is required.

Options

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

Auxiliary

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



ESC225



ESC425

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



ETC225S



ETC340



ETC425

Override Contactors

Description

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

Technical Data

- The choice of contactor depends upon a number of parameters, e.g. the nature of the supply, the power it is switching, the characteristics of the load, the control voltage required, number of operations.
- All contactors ratings are for AC1 loads only – if the load differs from AC1 the contactor may need de-rating (see technical characteristics on page 2.58).
- The use of **LZ060** (heat dissipation inserts) between all contactors installed or between contactors and adjacent devices is recommended.

Options

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

Auxiliary

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

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

Auxiliary for 25A Contactors

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

Accessories

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

Impulse & Latching

Description

- Modular pushbuttons to actuate loads either directly or via contactors etc.

Terminal Capacity

- 10mm² rigid conductor.
- 6mm² flexible conductor.
- BS EN 60947-5-1

Characteristics	Width (1 Mod =17.5mm)	Cat ref.
Pushbuttons (Impulse) 16A - 250V a.c. Without Indicator Light		
Contacts: 1 NO	1 Mod	SVN311
Contacts: 2 NO	1 Mod	SVN331
Contacts: 2 NO, Double Pushbutton	1 Mod	SVN371
Contacts: 1 NC	1 Mod	SVN321
Contacts: 2 NC	1 Mod	SVN341
Contacts: 1 NO + 1 NC	1 Mod	SVN351
Contacts: 1 NO + 1 NC, Double Pushbutton	1 Mod	SVN391
Pushbuttons (Impulse) 16A - 250V a.c. With Indicator Light		
Contacts: 1 NO : Green	1 Mod	SVN411
Contacts: 2 NO : Red	1 Mod	SVN432
Contacts: 1 NC : Red	1 Mod	SVN422
Contacts: 2 NC : Green	1 Mod	SVN441
Contacts: 1 NO + 1 NC	1 Mod	SVN452
Pushbuttons (Latching) 16A - 250V a.c. Without Indicator Light		
Contacts: 1 NO	1 Mod	SVN312
Contacts: 2 NO	1 Mod	SVN332
Contacts: 1 NC	1 Mod	SVN322
Contacts: 2 NC	1 Mod	SVN342
Contacts: 1 NO + 1 NC	1 Mod	SVN352
Pushbuttons (Latching) 16A - 250V a.c. With Indicator Light		
Contacts: 1 NO : Green	1 Mod	SVN413
Contacts: 2 NO : Green	1 Mod	SVN433



SVN311



SVN411



SVN312



SVN413



SVN121



SVN127

Indicator Lights

Characteristics

- Available with red, green, orange, blue & transparent lens.

Light Technology

- LED.

Options

- DIN rail mountable.

Connection

- Cage terminals.

Capacity

- 10mm² rigid conductor.
- 6mm² flexible conductor.
- BS EN 62094-1.

Description	Width (1 Mod =17.5mm)	Cat ref.
Indicator Lights 230V a.c.		
Indicator Colour: Green	1 Mod	SVN121
Indicator Colour: Red	1 Mod	SVN122
Indicator Colour: Orange	1 Mod	SVN123
Indicator Colour: Blue	1 Mod	SVN124
Indicator Colour: Transparent	1 Mod	SVN125
Indicator Colour: Red & Green (Double Indicator)	1 Mod	SVN126
Indicator Colour: Red x3 (Triple Indicator)	1 Mod	SVN127
Indicator Lights 12/48V		
Indicator Colour: Green	1 Mod	SVN131
Indicator Colour: Red	1 Mod	SVN132



ST313

Safety Transformers

Characteristics

- Provide Separated Extra Low Voltage (SELV) 8, 12, 24V a.c.

Technical Data

- Secondary voltages: 8V, 12V, 24V a.c.
- Cable capacities: 6mm²
- For technical data, see page 2.62.

Note:

- The transformers have a higher no load voltage. The stated voltages correspond to the voltages on nominal load.

Description	Width (1 Mod =17.5mm)	Cat ref.
230V/12-24V a.c. 50Hz, 25VA 50/60 Hz	4 Mod	ST312
230V/12-24V a.c. 50Hz, 16VA 50/60 Hz	4 Mod	ST313
230V/12-24V a.c. 50Hz, 40VA 50/60 Hz	4 Mod	ST314
230V/12-24V a.c. 50Hz, 63VA 50/60 Hz	6 Mod	ST315



ST301

Bell Transformers

Characteristics

- Provide Separated Extra Low Voltage (SELV) 8, 12, 24V a.c.

Technical Data

- Secondary voltages: 8V, 12V, 24V a.c.
- Cable capacities: 6mm².
- Bell transformers are short-circuit protected.
- For technical data, see page 2.62.

Note:

- When a bell transformer is installed in an enclosure with mains voltage equipment, 230V cable should be used on the secondary side of the transformer or extra low voltage cable should be sheathed within the enclosure.

Description	Width (1 Mod =17.5mm)	Cat ref.
230V/8V a.c. 50/60 Hz, 8-12V, 4VA	2	ST301
230V/8-12V a.c. 50/60 Hz, 8-12V, 8VA	2	ST303
230V/8-12V a.c. 50/60 Hz, 8-12V, 16VA	3	ST305

Bells

- Technical Data**
- Cable capacities: 6mm²
 - Bells: Max. continuous duty ≤ 30 minutes.
- Output**
- Bells: 85 dBA.

Description	Width (1 Mod =17.5mm)	Cat ref.
8/12V a.c., 5VA - 0.33A	1 Mod	SU212
230V a.c., 6.5VA - 0.03A	1 Mod	SU213



SU212

Buzzers

- Technical Data**
- Cable capacities: 6mm².
 - Buzzers: Max. continuous duty ≤ 30 minutes.
- Output**
- Buzzers: 78dBA.

Description	Width (1 Mod =17.5mm)	Cat ref.
8/12V a.c., 4VA - 0.33A	1 Mod	SU214
230V a.c., 6.5VA - 0.03A	1 Mod	SU215



SU214

Modular Devices
& Enclosures



EH010



EH171

Electromechanical Time Switches

Characteristics

- For hourly, daily or weekly programming.
- To control lighting, heating, ventilation, household appliances etc. to save energy and to improve comfort.

Technical Data

- Programming by captive segments.
- Manual override for 1 module products: Automatic, Permanent ON.
- Manual override for 3 module products: Automatic, Permanent ON, Permanent OFF.
- Minimum Switching Time: 15 min for daily dial, 2h for weekly dial.
- Supply failure reserve where applicable 200 hours, after being connected for 120 hours.
- For a selection chart see page 2.64, for technical data see page 2.63.

Connection

- 1-4mm².

Description	Voltage Supply	Width (1 Mod =17.5mm)	Cat ref.
1 Channel Time Switches without Supply Failure Reserve			
Daily Dial, 1 Changeover Contact, 16A 250V a.c. AC1	230V a.c. 50Hz	1 Mod	EH010
Daily Dial, 1 NO Contact, 16A 250V a.c. AC1	230V a.c. 50Hz	3 Mod	EH110
1 Channel Time Switches with Supply Failure Reserve			
Daily Dial, 1 Changeover Contact, 16A 250V a.c. AC1	230V a.c. 50/60Hz	1 Mod	EH011
Daily Dial, 1 NO Contact, 16A 250V a.c. AC1	230V a.c. 50/60Hz	3 Mod	EH111
Weekly Dial, 1 NO Contact, 16A 250V a.c. AC1	230V a.c. 50/60Hz	3 Mod	EH171

Digital Time Switches

Characteristics

- For the control of lighting, heating, household appliances, shop windows, signage etc. to improve comfort and to save energy.

EG103 and EG203 (Basic Version)

- Automatic change of summer / winter time.

EG103E/V and EG203E (Advanced Version)

- Automatic change of summer / winter time.
- Holiday mode: forcing ON or OFF between two dates, presence simulation with random switching.
- Backlit screen.
- Impulse programming capability (1s to 30 min).

Programming Key

- To allow easy back up and re-installation of the program to allow permanent program overrides.
- Programming per day or group of days.
- 56 ON / OFF programme steps.
- Permanent ON/OFF overrides.
- Temporary ON/OFF overrides bar graph indication showing the daily profile.
- Ability to disable device button controls with **EG004**.
- Programming can be completed without the need to be energised.

Connection

- **EG010 / EG071**: 0.5 to 4mm².
- **EG103 and EG203/E**: 1 to 6mm² Flexible, 1.5 to 10mm² Rigid.

Operating Voltage

- 230 a.c. 50/60 Hz (except **EG103V** - 12/24V AC/DC).
- For a selection chart see page 2.64, for technical data see pages 2.63 - 2.67.



EG071



EG103



EG203

Description	Width (1 Mod =17.5mm)	Cat ref.
1 Channel Digital Time Switch (not compatible with program key)		
Daily Cycle, 5 Adjustable pre-recorded programs 6 Switchings per day (3 on and 3 off), Output: 1 changeover contact 16A - 250V a.c. AC 1, 3 year reserve	1 Mod	EG010
Weekly Cycle, Capacity 20 program steps Output: 1 changeover contact 16A - 250V a.c. AC 1, 3 year reserve	1 Mod	EG071
1 Channel Digital Time Switch		
Weekly Cycle (Basic Version), Output: 1 changeover contact 16A - 250V a.c. AC 1, Delivered with key EG005	2 Mod	EG103
Weekly Cycle (Advanced Version), Output: 1 changeover contact 16A - 250V a.c. AC 1, Delivered with key EG005	2 Mod	EG103E
2 Channel Digital Time Switch		
Weekly Cycle (Basic Version), Output: 2 changeover contact 16A - 250V a.c. AC 1, Delivered with key EG005	2 Mod	EG203
Weekly Cycle (Advanced Version), Output: 2 changeover contact 16A - 250V a.c. AC 1, Delivered with key EG005	2 Mod	EG203E

4 Channel Digital Time Switches

Weekly and Annual Cycle

- In commercial premises timed programming often requires the use of multi-circuit equipment with large programming capacities for a weekly or annual cycle.

Applications

- Command of lighting circuits, control of heating, ventilation control, bells, alarms.

Functions

- Summer/winter time pre-programmed.
- External input for override (permanent, temporary, timed)
- The output can be defined as ON/OFF, impulse or cycle.
- 4 different cycles can be defined.
- Calculates automatically all dates linked with Easter.
- Programming for holiday period, including random mode.
- 10 specific weekly programs.
- Hour counter on each channel.
- Ability to disable device button controls with PIN code.

Connection

- Quick connect terminals.
- Capacity: 0.75 to 2.5mm².
- For a selection chart see page 2.64.



EG493E

Description	Cat ref.
4 Channel Yearly Time Switch	EG493E
Spare grey programming key for timers EG493E	EG007
USB interface between PC & key interface module, with software on CD	EG003G

Astronomical Time Switches

Characteristics

- Programming of lighting loads, with automatic change of winter / summer time.
- Expert program with individual astronomical program steps.
- Programming for day or group of days.
- Weekly programming.
- Permanent or temporary override.
- Programming for holiday period.
- Can be programmed via the PC software and the associated interface (**EG003**).
- For technical information see page 2.67.



EE180

Description	Width (1 Mod =17.5mm)	Cat ref.
1 Channel Astronomical Time Switch		
Weekly Cycle, 230V a.c., 50Hz Changeover Contact 16A AC1, Operating reserve lithium battery 5 years, Delivered with key EG005	2 Mod	EE180
2 Channel Astronomical Time Switch		
Weekly Cycle, 230V a.c., 50Hz 2 Changeover Contact 16A AC1, Operating reserve lithium battery 5 years, Delivered with key EG005	2 Mod	EE181



EE181

PC Interface & Software Tools

Description	Pack qty.	Cat ref.
USB interface between PC & key interface module, with software on CD	1	EG003G
Yellow locking key to prevent unauthorised re-programming of all EG time clocks (except EG010 , EG071)	1	EG004
Spare grey programming key for timers EG103 , EG103V , EG203 , EG103E , EG203E	1	EG005
DIN rail storage module for EG004 or EG005	1	EG006



EG003G



EG005



EMN001



EMN005

Time Lag Switches

Characteristics

- Provides control of lighting circuits with automatic switch-off after a pre-set time.
- Compact design with a 2 position switch, permanent / timed lighting control facility.

Basic Staircase Time Lag Switches

- Adjustable time delay setting 30 sec. to 10 minutes.

Multifunction Staircase Time Lag Switches

- Incorporates a pre-warning of switch OFF improving safety.
- Double delay function: 30 sec. to 10 min. 1 hour on override by pressing the push-button for more than 3 seconds. Double delay with pre-warning mode.
- For technical data see page 2.68.

Description	Pack qty.	Cat ref.
Basic Staircase Time Lag Switches		
Supply voltage 230V a.c. 50/60Hz 16A - 250V AC1 2300W incandescent halogen and fluorescent	1 Mod	EMN001
Multifunction Staircase Time Lag Switches		
Supply voltage 230V a.c. 50/60Hz 16A - 250V AC1 2300W incandescent halogen and fluorescent	1 Mod	EMN005



EZN001



EZN002



EZN004

Delay Timers

Characteristics

- For timing and automation in domestic and commercial premises. The input signal can be via various switching devices (pushbutton, latching switch, timeclock etc.) and the timed output used to control the application.

Applications

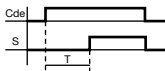

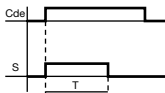
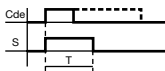
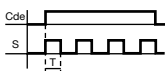
- To provide all types of automatic control i.e. lighting, ventilation, watering, machine pre-heating, cycle control etc. with automatic switch off / on after preset time.

Terminal Capacity

- 6mm² max flexible.
- 1.5 - 10mm² rigid.

Technical Data

- Voltage range: 12 to 48V DC, 12 to 230V AC.
- Adjustable: Time delay from 0.1s to 10hrs.
- Complies with BS EN 60669-2-1.
- For technical data see page 2.69 - 2.70.

	Description	Pack qty.	Cat ref.
	Delay On		
	1 changeover contact 10A / 230V a.c. AC1 Time delay T: 0.1s to 10hr	1 Mod	EZN001
	Delay Off		
	1 changeover contact 10A / 230V a.c. AC1 Time delay T: 0.1s to 10hr	1 Mod	EZN002
	Adjustable Time On		
	1 changeover contact 10A / 230V a.c. AC1 Time delay T: 0.1s to 10hr	1 Mod	EZN003
	Timer		
	1 changeover contact 10A / 230V a.c. AC1 Time delay T: 0.1s to 10hr	1 Mod	EZN004
	Symmetrical Flasher		
	1 changeover contact 10A / 230V a.c. AC1 Time delay T: 0.1s to 10hr	1 Mod	EZN005
	Delay On / Off, Adjustable Time On / Off, Timer, Symmetrical Flasher		
	1 changeover contact 10A / 230V a.c. AC1 Time delay T: 0.1s to 10hr	1 Mod	EZN006

Multi-range Thermostats

Description

- Electronic thermostats for any application requiring temperature control (from cold rooms to steam rooms).

Characteristics

- 3 working modes are possible (selected by wiring): permanent off, permanent on, cyclic operation.
- Output status is indicated via an LED.

Technical Data

- Requires sensor head, **EK081** or **EK083**.
- Voltage rating: 230V a.c. - 50/60 Hz.
- Output: 1 changeover contact, 2A AC1 - 230V a.c.
- 4 ranges: -30 to 0°C, 0 to +30°C, 30 to +60°C, 60 to +90°C.
- For technical data see page 2.71.



EK186

Description	Width (1 Mod =17.5mm)	Cat ref.
Multi-range Thermostat (Requires sensor head, EK081 or EK083)	3 Mod	EK186

Multi-Channel Thermostats

Description

- Electronic thermostats for any application requiring temperature control (from cold rooms to steam rooms).

Characteristics

- 3 working modes are possible (selected by wiring): permanent off, permanent on, cyclic operation
- Output status is indicated via an LED.

Technical Data

- Two adjustable temperature levels are selected by external signals (operation by time switch or digital programmer).
- Additionally there is an adjustable low level temperature for frost protection etc. In the event of probe disconnection the heating system is switched on one minute in every four.
- Accuracy $\pm 0.2^{\circ}\text{C}$, Voltage rating: 230V a.c. - 50/60 Hz.
- Output: 1 changeover contact, 2A AC1 - 230V a.c.
- Temperature Level 1 (Comfort) Adjustable 5 - 30°C.
- Temperature Level 2 (Night setting) Adjustable 2 - 8°C less than Level 1 setting.
- Temperature Level 3 (Frost setting) Adjustable 5 - 30°C.
- For technical data see page 2.72.



EK187

Description	Width (1 Mod =17.5mm)	Cat ref.
Multi-channel Thermostat (Requires sensor head, EK081 or EK083)	3 Mod	EK187

Sensor Head for Electronic Thermostats

Description

- Sensor to provide temperature reading to electronic thermostat.
- Can be associated with: **EK186**, **EK187** thermostats.
- For technical data see page 2.73.

Description	Cat ref.
Fixed Ambient Sensor Head	EK081
Adjustable Ambient Sensor Head	EK082
Universal Sensor Head	EK083



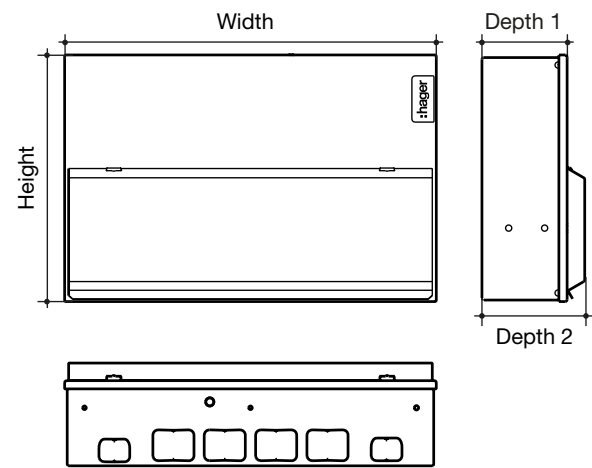
EK081



EK082

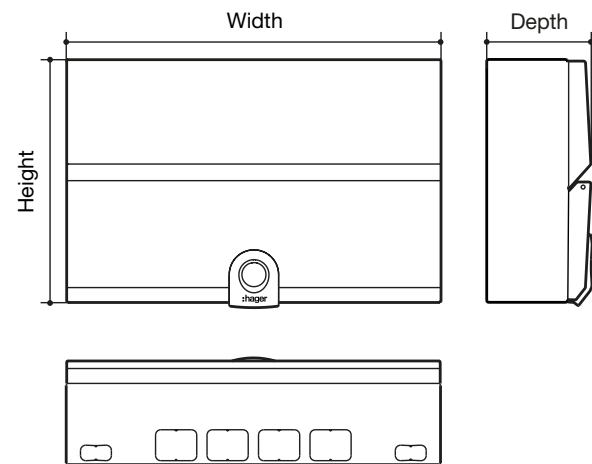


EK083



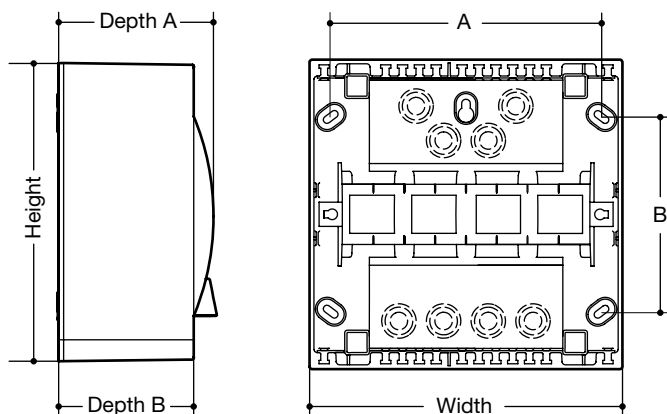
Design 10 Dimensions (mm)

	Enclosure Size					
	2	3	4	5	6	7
A	147	219	290	362	398	470
B	240	240	240	240	240	240
C	83	83	83	83	83	83
D	100	100	100	100	100	100



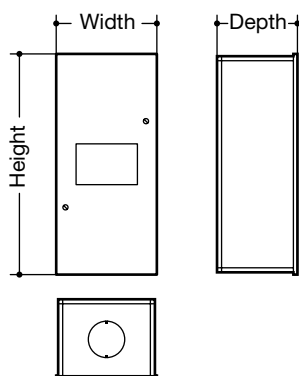
Design 30 Dimensions (mm)

	Enclosure Size					
	2	3	4	5	6	7
A	168	220	290	360	400	480
B	240	240	240	240	240	240
C	102	102	102	102	102	102



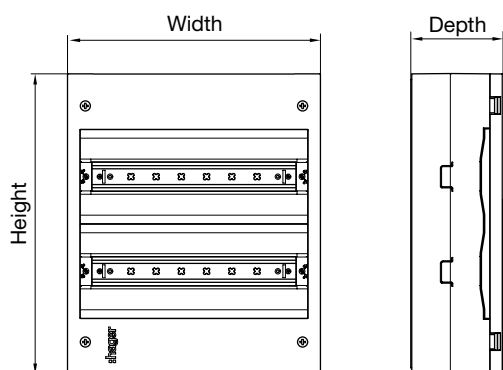
Mini Gamma Dimensions (mm)

	GD102E	GD104E	GD106E	GD108E	GD110E
Width	55	110	146	182	218
Height	160	180	180	180	180
Depth A	94	94	94	94	94
Depth B	82	82	82	82	82
A	-	86	122	159	195
B	-	114	114	114	114



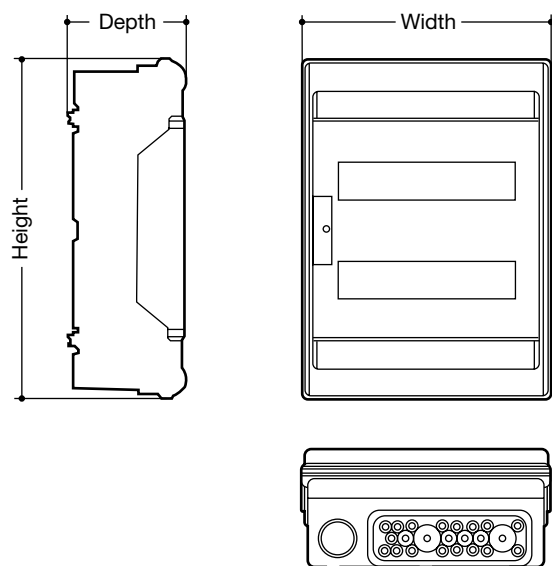
IU Enclosures Dimensions (mm)

	IU41	IU2 IU3	IU2/D IU2/GD IU3/D	IU42	IU42/D	IU4	IU4/D	IU44 IU45	IU44/D IU44/GD
Width	50	80	80	80	80	115	115	125	125
Height	152	152	152	312	312	187	187	312	312
Depth	61.5	61.5	87.5	61.5	100	61.5	87.5	73.5	99.5
Connection	EARTH ONLY								
Knockouts	2 x 20mm							None	



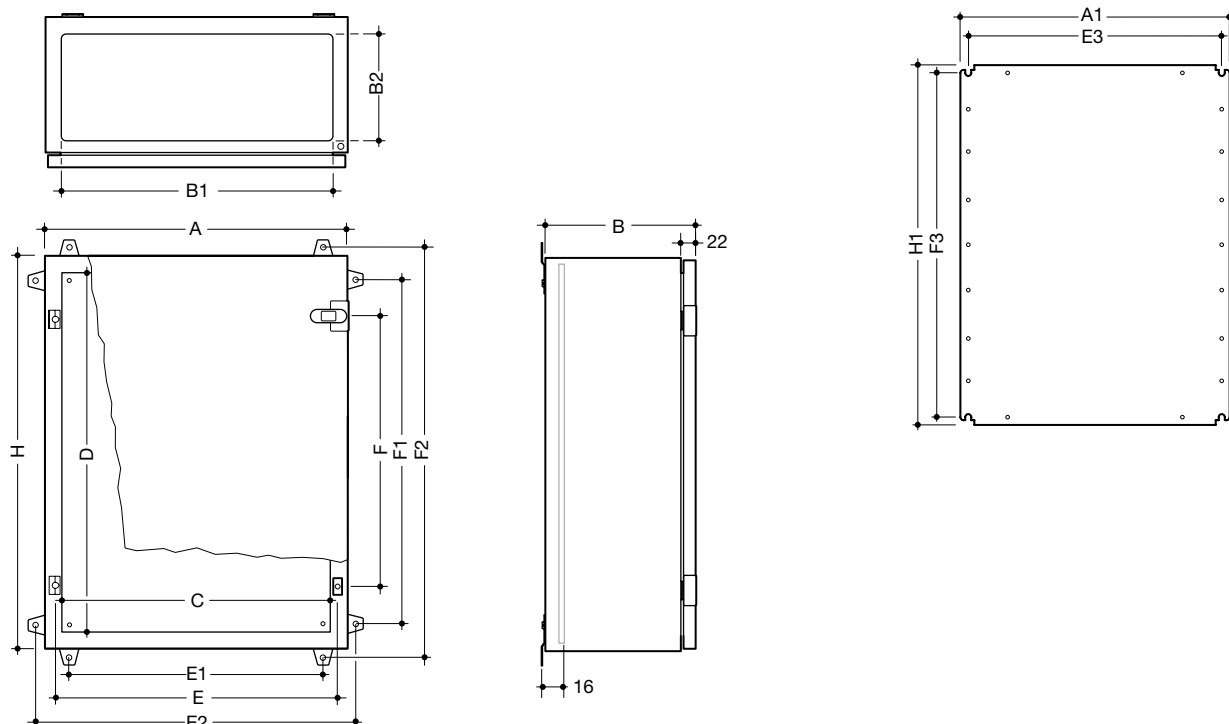
Vega Dimensions (mm)

	VB118TP VB118PP	VB218TP VB218PP	VB318TP VB318PP	VB418TP VB418PP
Width	400	400	400	400
Height	325	475	625	775
Depth	146	146	146	146
DIN Rail Distance	150	150	150	150



Vector II Dimensions (mm)

	VE103U	VE106U	VE110U	VE112U	VE212U	VE312U
Width	110	164	236	310	310	310
Height	175	190	210	302	427	552
Depth	93	113	114	151	151	151

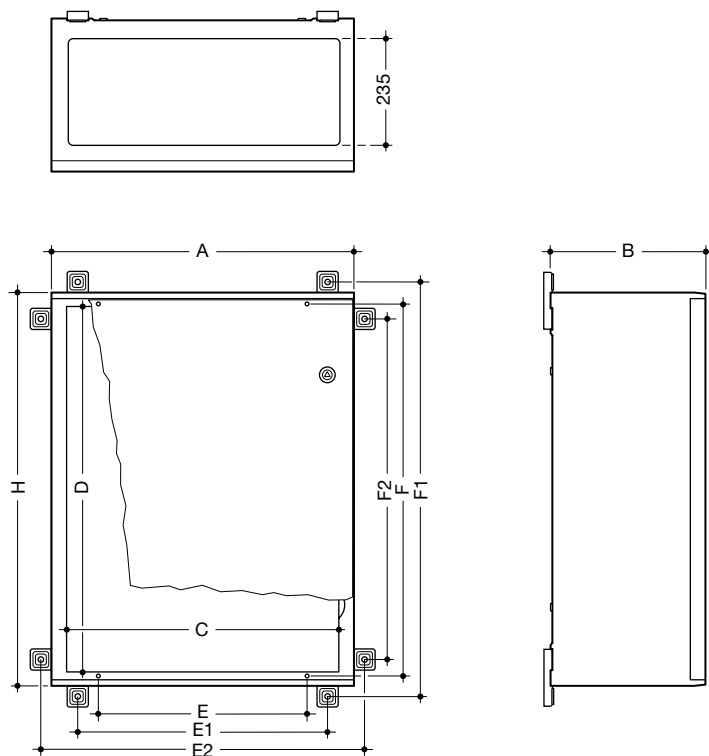


Steel Enclosures Dimensions

		Dimensions (mm)								Outside Fixing				Inside Fixing	
Cat ref. Plain Door	Cat ref. Glazed Door	Rows	A	H	B	B1	B2	C	D	E1	E2	F1	F2	E	F
FL102A	-	-	250	300	160	195	80	200	250	210	320	220	332	169	208
FL104A	FL154A	2	300	350	160	245	80	250	300	260	370	272	382	219	258
FL105A	FL155A	2	300	350	200	245	120	250	300	260	370	272	382	219	258
FL110A	FL160A	3	300	500	200	245	120	250	450	260	370	422	532	219	408
FL112A	FL162A	3	400	500	200	345	120	350	450	360	470	422	532	319	408
FL117A	FL167A	4	400	650	200	345	120	350	600	360	470	572	682	319	558
FL118A	FL168A	4	400	650	250	345	170	350	600	360	470	572	682	319	558
FL120A	FL170A	4	500	650	250	445	170	450	600	460	570	572	682	419	558
FL124A	FL174A	5	600	800	300	545	220	550	750	560	670	722	832	519	708
FL126A	FL176A	6	600	950	300	545	220	550	900	560	670	872	982	519	858
FL128A	FL178A	6	800	950	300	745	220	750	900	760	870	872	982	719	858

Mounting Plate Dimensions



		Plate dimensions (mm)		Fixing points (mm)	
Cat ref.	For enclosures	A1	H1	E3	F3
FL402A	FL102A	193	280	169	208
FL404A	FL104A, FL105A, FL204B	243	330	219	258
FL407A	FL110A, FL209B	243	480	219	258
FL408A	FL112A, FL213B	343	480	219	408
FL412A	FL117A, FL118A, FL216B	343	630	319	408
FL413A	FL120A, FL221B	443	630	319	558
FL415A	FL123A, FL124A, FL229B	543	780	319	558
FL416A	FL125A, FL126A	543	930	419	558
FL417A	FL127A, FL128A	743	930	419	558
FL522E	FL327B, FL527B	693	1080	719	858



GRP Enclosure Dimensions

Cat ref. Plain Door	Cat ref. Glazed Door	Rows	Dimensions (mm)						Inside Fixing		Outside Fixing		
			A	H	B	C	D	E	F	E1	E2	F1	F2
FL204B	FL254B	2	300	350	160	250	300	219	258	339	339	269	389
FL209B	FL259B	3	300	500	200	250	450	219	408	339	339	419	539
FL213B	FL263B	3	400	500	200	350	450	319	408	439	439	419	539
FL216B	FL266B	4	400	650	200	350	600	319	558	439	439	569	689
FL221B	FL271B	4	500	650	250	450	600	419	558	539	539	569	689
FL229B	FL279B	5	600	800	300	550	750	519	708	639	639	719	839
FL327B	FL527B	-	850	1200	300	750	1050	-	-	-	-	-	-

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

kWh Meters

Electrical Characteristics

	EC150	EC152	EC154M	EC350	EC352	EC360	EC362	EC364M	EC365B	TE360	EC370	EC372	TE370
Electrical Characteristics													
Voltage	230V~ ±15%			230V~ ±15% 400V~ ±15%									
Frequency	50/60Hz			50/60Hz									
Consumption	< 10VA and 1W			< 10 VA and 3W									
Data													
Connection	Direct										Via current transformer		
Display	Digital - 7 digits												
Accuracy	± 1% - Class B according to EN 50470-3												
I max	63A					100A					6A on CT secondary		
I starting	40mA					80mA					10mA on CT secondary		
Base current	10A					20A					5A		
LED													
	1000 blinking per kWh					500 blinking per kWh					1000 blinking per kWh		
Pulsed Ouput													
	1 pulse = 100Wh / 100ms / 27V DC max (excepted on KNX meters)												
Tariff													
	1	2	2	1	2	1	2	2	1	2	1	2	2
Mechanical Characteristics													
Width	3 Modules			4 Modules		7 Modules					4 Modules		
Protection degree	IP20 - IP51 (front part)												
Temperature	Storage temperature: -20°C to +70°C, Operating temperature: -10°C to +55°C												
Connection capacity	Rigid: 1.5 to 16mm ² Flexible: 1 to 16mm ²					Rigid: 1.5 to 35mm ² Flexible: 1 to 35mm ²					Rigid: 1.5 to 10mm ² Flexible: 1 to 6mm ²		

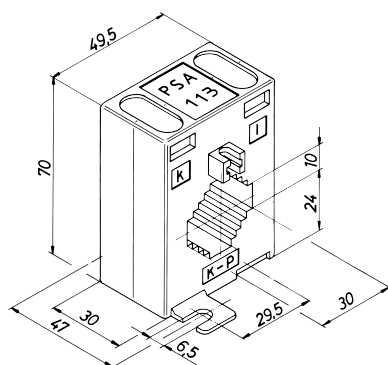
Technical Data (to EN/IEC60044-1)

Primary rated current	50 A - 2000 A
Rated secondary current	5 A
Rated frequency	50 - 60 Hz
Highest voltage for equipment U_m	720 V
Rated power-frequency withstand voltage (r.m.s.)	3 kV
Instrument security factor (FS)	FS 5
Rated continuous thermal current	$1,2 \times I_n$
current rating	120 %
Rated short time thermal current	$I_{th} = 60 \times I_n$ (max 50 kA)
Rated dynamic current:	$I_{dyn} = 2,5 \times I_{th}$ (max 120 kA)
Permissible ambient temperature	-40 °C to + 40 °C
Class of insulation in accordance with IEC 60085	E
Degree of protection DIN/EN 60529 / VDE 0470 T1	IP 20
Recommended tightening torque secondary terminals	1,5 - 2 Nm

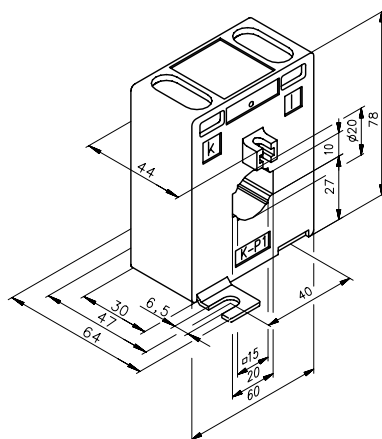
	Prim. [A]	Sec. [A]	Power [VA]	Accuracy class	Dimensions	Max. Busbar and cable Size
SRA01005	100	5	2.5	1	70 x 49,5 x 30 mm	30 x 10 mm 25 x 15 mm 20 x 20 mm
SRA01505	150	5	2.5	1		
SRA02005	200	5	2.5	1		
SRA02505	250	5	2.5	1		
SRC04005	400	5	5	1		
SRC06005	600	5	5	1		
SRA00505	50	5	1.5	1	78 x 60 x 30 mm	20 x 10 mm 15 x 15 mm Ø 20 mm
SRI03005	300	5	5	1	78 x 60 x 30 mm	40 x 12 mm Ø 28 mm
SRD08005	800	5	5	1	108 x 85 x 30 mm	60 x 10 mm 50 x 30 mm Ø 45 mm
SRD10005	1000	5	5	1		
SRD15005	1500	5	5	1		
SRE20005	2000	5	15	1	122 x 100 x 40 mm	80 x 10 mm 60 x 30 mm Ø 60 mm

Modular Devices & Enclosures

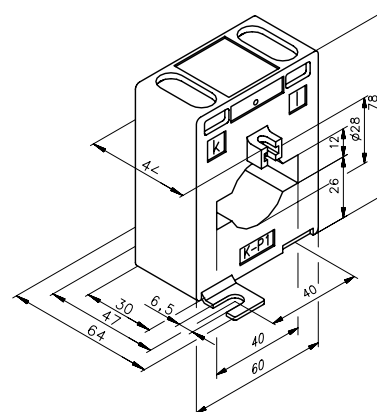
**SRA01005, SRA01505, SRA02005,
SRA02505, SRC04005, SRC06005**



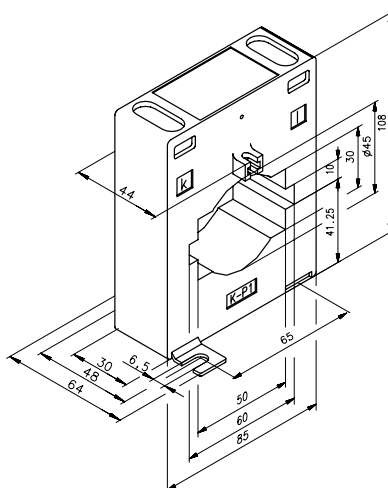
SRA00505



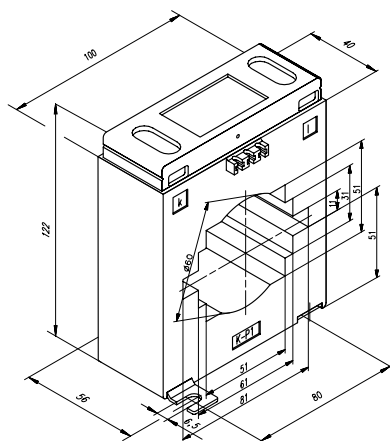
SRI03005



SRD08005, SRD10005, SRD15005



SRE20005



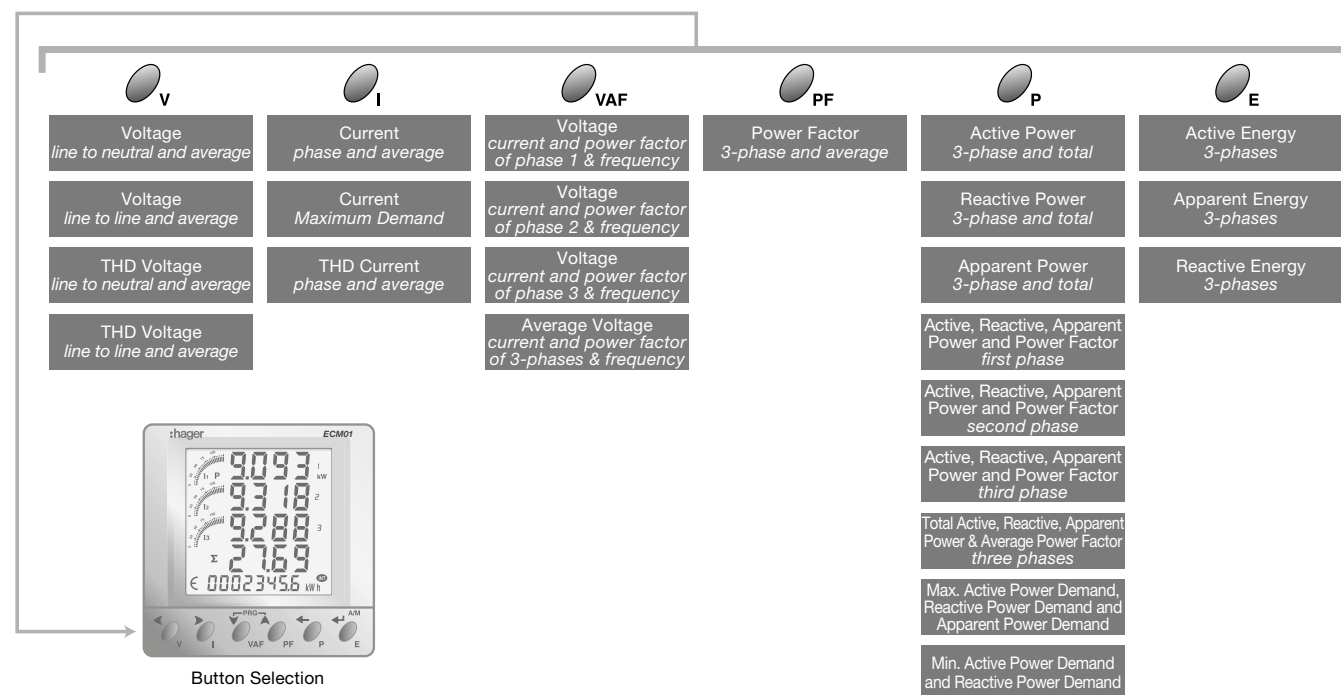
	SM101E	SM101C
Current (TRMS)		
I (1 st CT)	5A...9999A	
I (2 nd CT)	5A	
I _n	Calculated	
Minimum measuring current (2 nd CT)	5mA	
Input consumption	<0.6VA per phase	
Permanent overload (2 nd CT)	6A	
Accuracy	±0.2%	
THD		±1%
Update period	1s	
Voltage (TRMS)		
U	50V a.c....520V a.c. (Ph-Ph) 28V a.c....300V a.c. (Ph-N)	
Input consumption	<0.1VA per phase	
Permanent overload (2 nd CT)	760V a.c.	
Accuracy	±0.2%	
THD		±1%
Update period	1s	
Power		
Accuracy (P,Q)	±0.5%	
Accuracy (S)	±1%	
Accuracy (PF)	±0.02%	
Update period	1s	
Energy		
Accuracy (Ea)		Class 0.5s
Accuracy (Er)		Class 2
Update period		1s
Frequency		
F	45Hz...65Hz	
Accuracy	±0.1%	
Update period	1s	
Supply		
Voltage	200V a.c....277V a.c. ±15%	
Frequency	50/60Hz	
Consumption	<5VA	
Environment		
Protection degree	IP51 (front panel) IP20 (case)	
Operating temperature	-10°C to +55°C	
Storage temperature	-20°C to +70°C	
Insulation category	III (300V a.c. Ph-Ph)	
Degree of pollution	PD2	
Communication		
Metrological LED	N/A	0.1Wh / pulse
Pulse output	N/A	30V d.c. / 27mA Max
Communication	N/A	RS485 2/3 wires half duplex Jbus/Modbus 2,400bds...38,400bds Parity (no,odd,even) 1 or 2 Stop bytes
Connection		
Network	1BL 2BL 3BL/3NBL 4BL/4NBL	
Current/Voltage input	4mm ² (solid or stranded)	
Others	2.5mm ² (solid or stranded)	
Max torque	0.6Nm	
Shape		
Weight	205g	215g
Size	4M, 73mm x 90mm x 67mm	

- 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

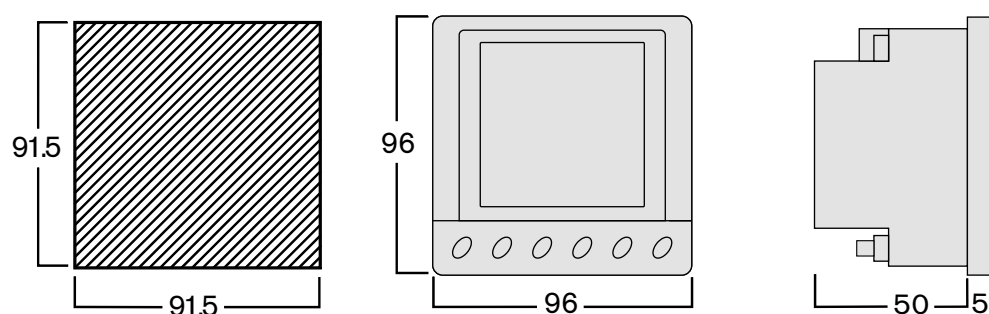
- Active energy class 1 (EN62053-21)
- Reactive energy class 2 (EN62053-23)
- Programmable VT ratio
- 3-phase: 140...460Vac measured voltage
- Single phase: 80...265Vac measured voltage
- THD up to 31st harmonic for voltage and current
- Self supplied auxiliary
- Programmable CT ratio 5 to 10,000A
- Frequency 45/65Hz

- Wide range of measured parameters (see table below)
- Selectable CT phase correction allows reversal of L1 and L3
- Single CT Connection
- Weight 230g

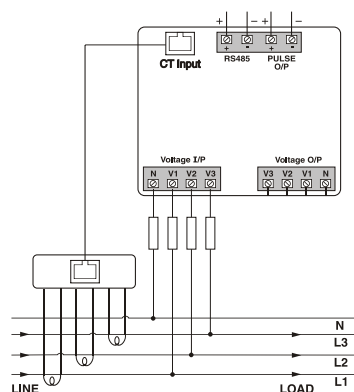
Function Diagram



Dimensions Diagram (mm)

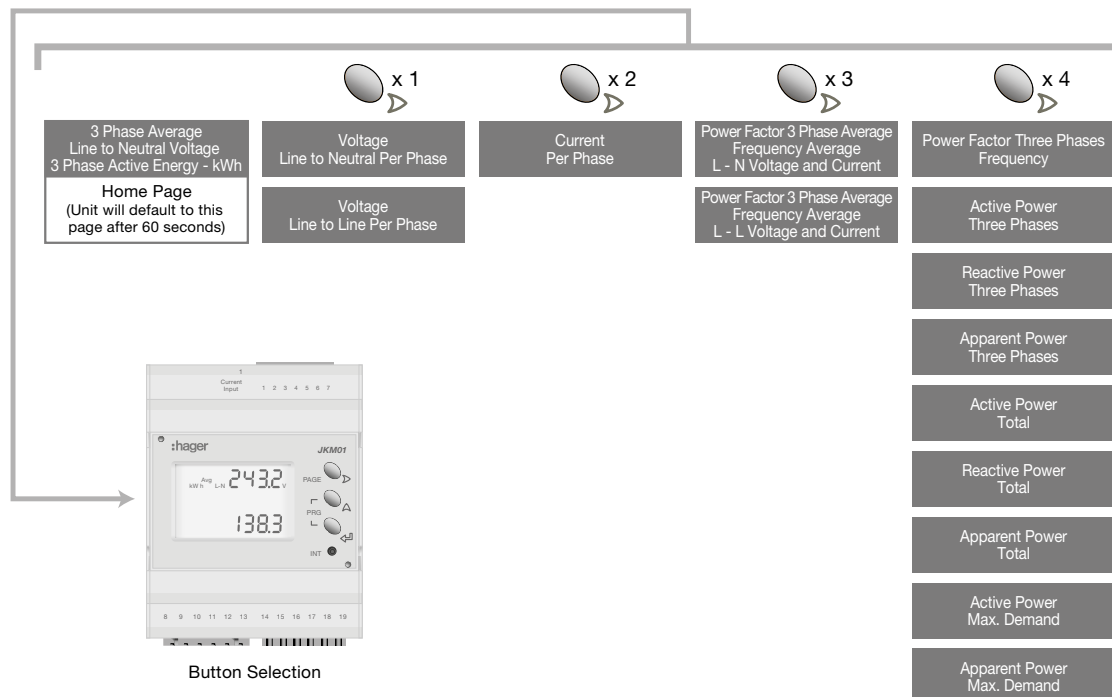


Please allow space at the rear of the meter for cable connections.

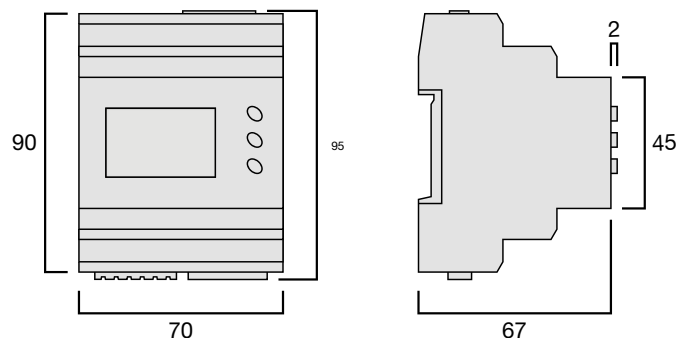


- 4 Module DIN rail mounting
- Single phase or 3 phase (4 wire) network balanced or unbalanced load
- Built-in energy pulse output and RS485 MODBUS communication
- Wide range of measured parameters (see table below)
- High quality backlit LCD display
- 330mV current transformer input
- Active energy 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
- Single CT Connection
- Weight 190g

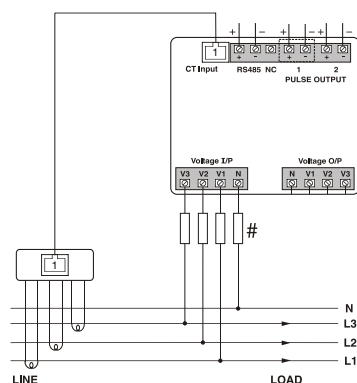
Function Diagram



Dimension Diagrams (mm)



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

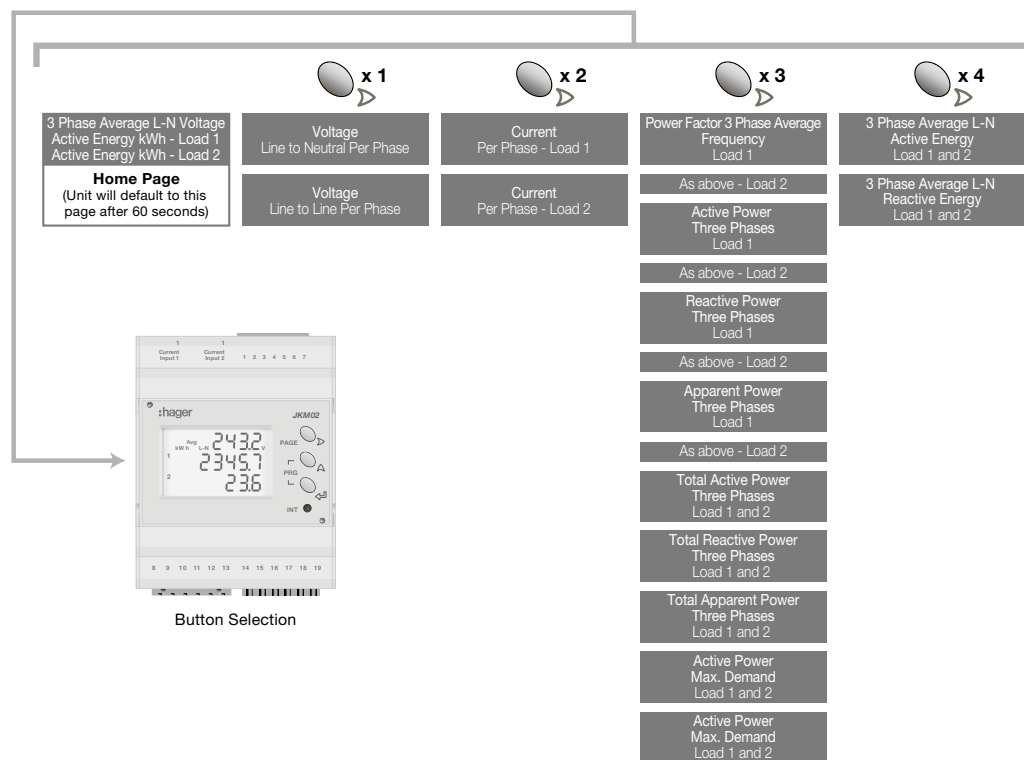


- Split Load, Dual CT input meter
- 4 Module DIN rail mounting
- Single phase or 3 phase (4 wire) network
- balanced or unbalanced load
- Built-in dual energy pulse output, one for each load and RS485 MODBUS communication
- Wide range of measured parameters (see table below)

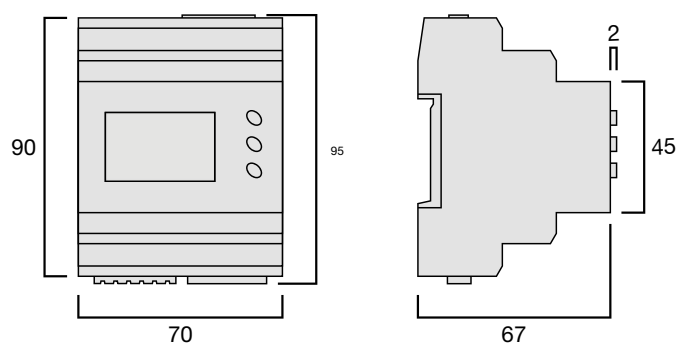
- High quality backlit LCD display
- 330mV current transformer input
- Active energy class 1 (EN62053-21)
- Reactive energy class 2 (EN62053-23)
- THD upto 31st harmonic for voltage and current
- Three-phase: 140...460Vac measured voltage
- Single phase: 80...265Vac measured voltage
- Self supplied auxiliary

- 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

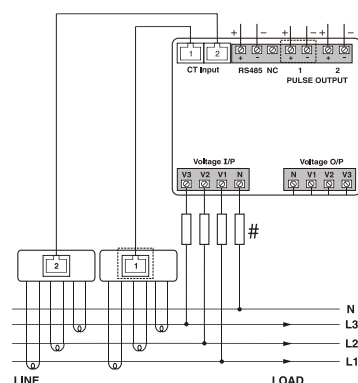
Function Diagram



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.

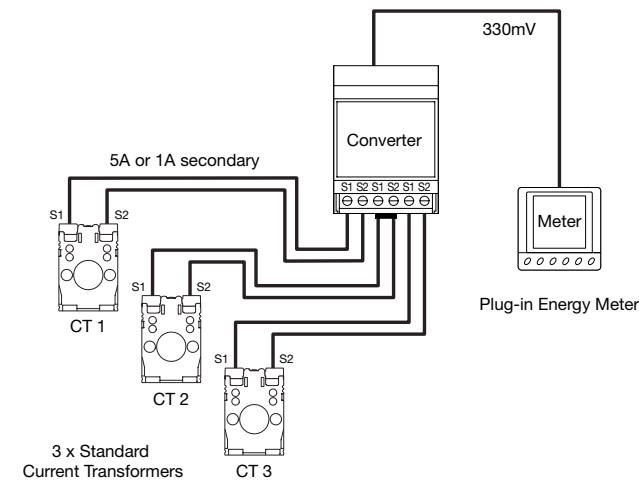
The unit has integrated protection circuitry allowing for disconnection from meter under load conditions for maintenance.

Important Note

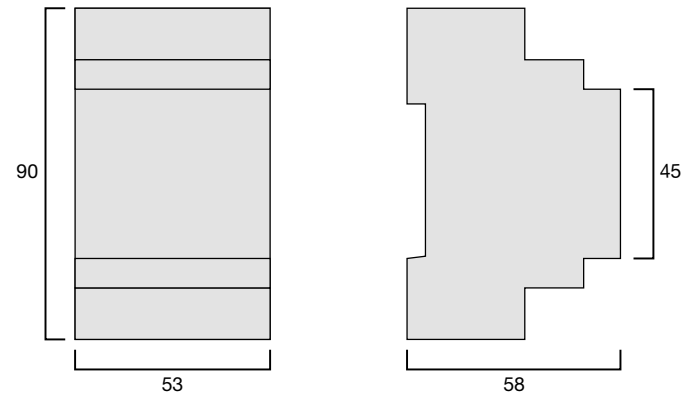
This converter does not provide electrical isolation.
Current transformer secondaries may not be earthed and should be wired as shown.

Technical Characteristics

Burden:	<2VA per channel (5A Version) <0.5VA per channel (1A Version)
Accuracy:	0.4%
Suggested Cable Size: (CT to Adaptor)	1.5mm2 or 2.5mm2 (2.5mm2 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



Dimension Diagrams (mm)



Description

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

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

Installation

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

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

EC1260CT, EC12100CT, EC12125CT, EC12160CT

Current Transformer Ratios

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

330mV Secondary

EC2560CT, EC25100CT, EC2512CT, EC25160CT, EC25200CT, EC25250CT

Current Transformer Ratios

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

330mV Secondary

EC40250CT, EC40400CT, EC40630CT

Current Transformer Ratios

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

330mV Secondary

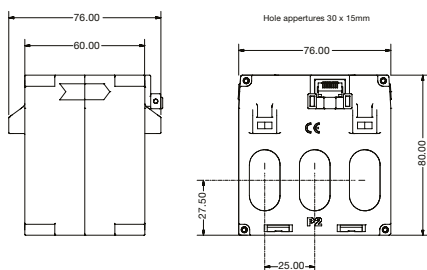
EC80800CT

Current Transformer Ratios

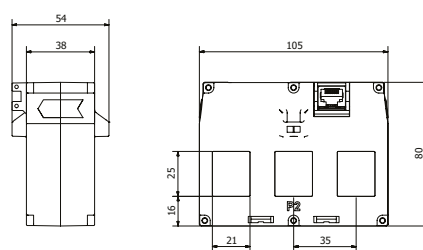
Primary Current	Output	
A	mV	Code
800	330	800

330mV Secondary

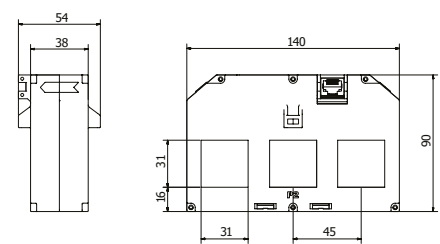
EC1260CT, EC12100CT, EC12125CT, EC12160CT



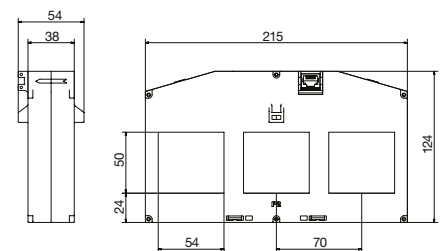
EC2560CT, EC25100CT, EC2512CT, EC25160CT, EC25200CT, EC25250CT



EC40250CT, EC40400CT, EC40630CT



EC80800CT



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.

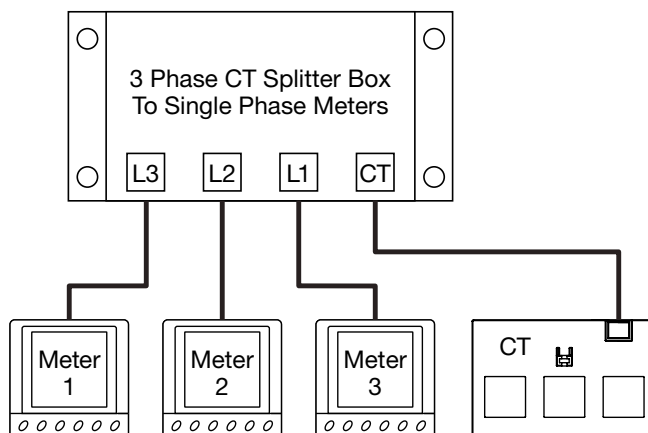
To measure the secondary output plug one end of the RJ45 patch lead into the current transformer and the other end into socket 2 on the test box. You can now use a standard multimeter to test the secondaries using the test points on the front of the test box. The output measured for each phase should be between 0 and 330mV a.c.

Cat ref. **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.

Cat ref. **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.

Cable type: PVC

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.

Cable type: PVC

RJ45 Connection Cable

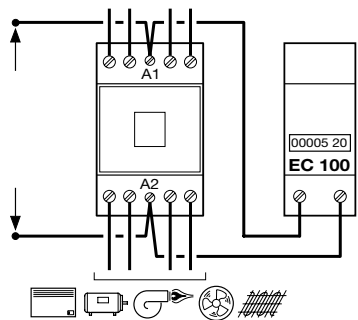
The high quality low loss Category 5e RJ45 Connection Cable provides secondary connection between the plug-in current transformer and meter.

Hours Counter
Technical Specifications

Electrical Characteristics
Working voltage: 230V~

Electrical Connection
Connection in parallel on the command of the receiver (contactor coil)

Electrical Connection



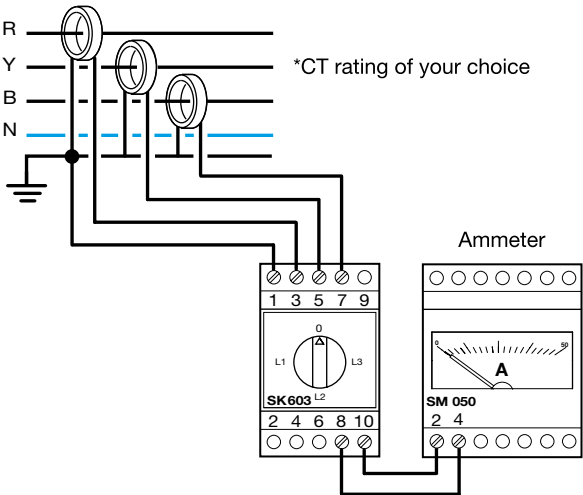
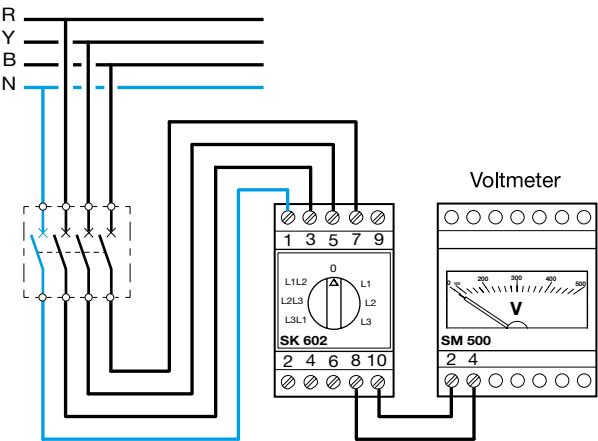
Technical Specification

Environment
Working Temperature: -25 to +50 °C
Storage Temperature: -40 to +80 °C

Connection
Flexible: 1 to 6mm²
Rigid: 1.5 to 10mm²

Cat ref.	Product	Range	Consump.	Accuracy %	Ref Temp °C	Accuracy Variation °C	Maximum Continuous	Momentary Maximum	Frequency Hz	Isolating Voltage
SM500	Voltmeter	500V	≤3 VA	1.5	23 ± 2°C	± 0.03% / °C	1.2 U _n	2U _n / 5 sec	45 - 65	2kV/50H z-1min
SM050	Ammeter with CT	0-50A	≤1.1 VA	1.5	23 ± 2°C	± 0.03% / °C	1.2 U _n	10U _n / 5 sec	45 - 65	2kV/50H z-1min
SM100		0-100A								
SM150		0-150A								
SM250		0-250A								
SM400		0-400A								

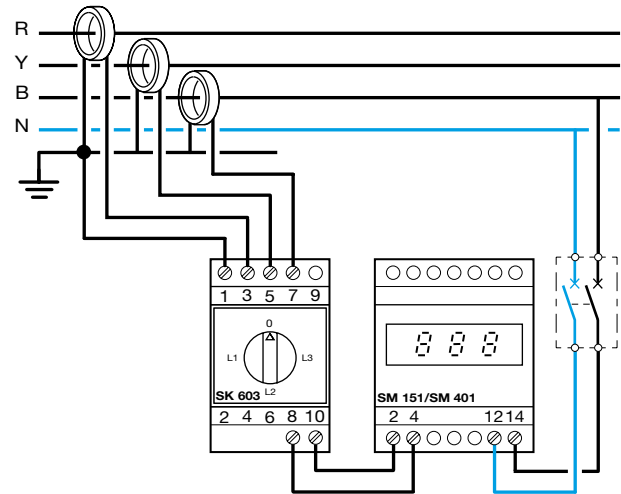
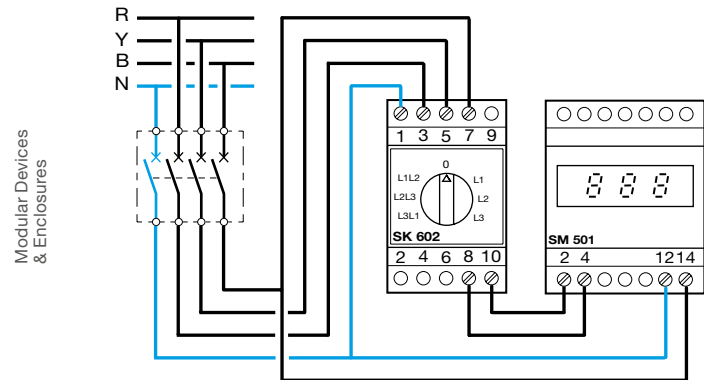
Electrical Connection



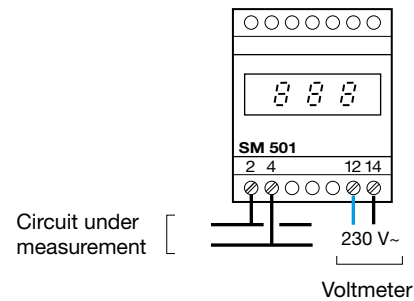
- Technical Specification
- Working voltage : 230 V~ 50/60 Hz - resolution : 1 unit
- Update of the display: 3 / seconds
- Input impedance > 1 MV for the voltmeter SM501
- Isolating resistance : 10 MV
- Maximum voltage: 660 V - number of digits : 3
- Connection
- Flexible: 6mm², Rigid: 10mm²
- Environment
- Working temperature: -10 to +55 °C
- Storage temperature : -40 to +70 °C

Cat ref.	Product	Range	Consump.	Accuracy %	Ref Temp °C	Accuracy Variation °C	Maximum Continuous	Momentary Maximum	Frequency Hz	Isolating Voltage
SM501	Voltmeter	500V	≤4.5 VA	±1	23 ± 1°C	± 0.03% / °C	1.2 U _n	2 U _n / 5 sec.	45-65	2kV/50Hz - 1 min
SM151 SM401	Ammeter with CT	0-150A 0-400A	≤1 VA	±1	23 ± 1°C	± 0.03% / °C	2 I _n	10 I _n / 5 sec.	45-65	2kV/50Hz - 1 min

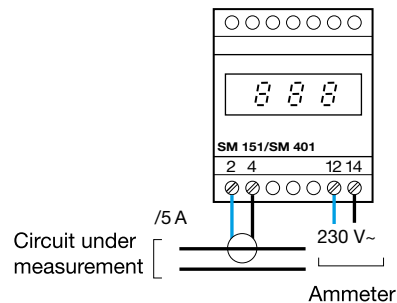
Electrical Connection



Electrical Connection
SM501



SM151, SM401



Electrical Characteristics

Family	SB								
Number of poles	1P - 2P - 3P - 4P								
Frame size	Frame size 1			Frame size 2		Frame size 3			
Thermal current I _{th} (40°C)	16A	25A	32A	40A	63A	80A	100A	125A	
Operational frequency	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	
Rated insulation voltage (U _i)	500 V	500 V	500 V	500 V	500 V	500 V	500 V	500 V	
Rated impulse withstand voltage U _{imp}	3 kV	3 kV	3 kV	6 kV	6 kV	6 kV	6 kV	6 kV	
Protection degree	2	2	2	3	3	3	3	3	
Working temperature	-20 to 50°C	-20 to 50°C	-20 to 50°C	-20 to 50°C	-20 to 50°C	-20 to 50°C	-20 to 50°C	-20 to 50°C	
Storage temperature	-40 to 80°C	-40 to 80°C	-40 to 80°C	-40 to 80°C	-40 to 80°C	-40 to 80°C	-40 to 80°C	-40 to 80°C	

Operational Currents I_e

Rated voltage		Load duty category								
Single Phase	Multi Phase									
230V AC	400V AC	AC 21A	16A	25A	32A	40A	63A	80A	100A	125A
230V AC	400V AC	AC 22B	16A	25A	32A	40A	63A	80A	100A	125A
230V AC	400V AC	AC 22A	16A	25A	32A	40A	63A	80A	100A	125A
230V AC	400V AC	AC 23A	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA

Short circuit characteristic

Rated short time withstand current 1s I _{CW} (rms)	IEC 60947-3	480A / 1sec			945A / 1 sec		1500A / 1sec		
Prospective short circuit current (rms)	EN 60669	3kA	3kA	3kA	6kA	6kA	n/a	n/a	n/a
Associated fuse links (gG)		16A	25A	32A	40A	63A	n/a	n/a	n/a

Mechanical characteristic

Rigid cable section		16 mm²	16 mm²	16 mm²	25 mm²	25 mm²	50 mm²	50 mm²	50 mm²
flexible cable section		10 mm²	10 mm²	10 mm²	16 mm²	16 mm²	35 mm²	35 mm²	35 mm²
Tightening torque		1.8 Nm	1.8 Nm	1.8 Nm	2.8 Nm	2.8 Nm	3.6 Nm	3.6 Nm	3.6 Nm
IP protection degree		20	20	20	20	20	20	20	20
Mechanical endurance (number of cycle)		100,000	100,000	100,000	30,000	30,000	20,000	20,000	20,000
Electrical endurance @ AC22 (number of cycles)		25,000	25,000	25,000	5,000	5,000	2,500	2,500	2,500

Overall dimension

Width (mm)	1P	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5
	2P	17.5	17.5	17.5	35	35	35	35	35
	3P	35	35	35	52.5	52.5	52.5	52.5	52.5
	4P	35	35	35	70	70	70	70	70
Height (mm)		83	83	83	83	83	83	83	83
Depth (mm)		72	72	72	72	72	72	72	72

Electrical Characteristics

Family		SF						
Modular size		1 module			2 module			4 module
Cat ref.		SFH125	SFM125	SFT125	SFH225	SFT225	SFT240	SF263
Thermal current I _{th} (40°C)		25A	25A	25A	25A	25A	40A	63A
Operational frequency		50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz
Rated operation voltage in AC		230V						
Rated insulation voltage (U _i)		440V	440V	440V	440V	440V	440V	500V
Rated impulse withstand voltage U _{imp}		4 kV	4 kV	3 kV	6 kV	6 kV	6 kV	4 kV
Protection degree		2	2	2	3	2	2	2
Working temperature		-20 to 50°C	-20 to 50°C	-20 to 50°C	-20 to 50°C	-20 to 50°C	-20 to 50°C	-20 to 50°C
Storage temperature		-40 to 80°C	-40 to 80°C	-40 to 80°C	-40 to 80°C	-40 to 80°C	-40 to 80°C	-40 to 80°C

Operational Currents I_e

Rated voltage	Load duty category							
400V AC	AC 22A	25A	25A	25A	25A	25A	40A	63A
400V AC	AC 22B	25A	25A	25A	25A	25A	40A	63A

Short circuit characteristic

Rated short time withstand current 1s I _{cs} (rms)	IEC 60947-3	375A / 1sec					600A / 1sec	4.5kA cond.
Prospective short circuit current (rms)	EN 60669	3kA	3kA	3kA	6kA	6kA	n/a	n/a

Mechanical characteristic

Rigid cable section		35 mm ²	35 mm ²	35mm ²	25 mm ²	25 mm ²	25 mm ²	25 mm ²
flexible cable section		10 mm ²	10 mm ²	10 mm ²	16 mm ²	16 mm ²	16 mm ²	16 mm ²
Tightening torque		1.8 Nm	1.8 Nm	1.8 Nm	1.8 Nm	1.8 Nm	1.8 Nm	1.8 Nm
IP protection degree		20	20	20	20	20	20	20
Mechanical endurance (number of cycle)		200,000	200,000	200,000	200,000	200,000	200,000	100,000
Electrical endurance @ AC22 (number of cycles)		25,000	25,000	25,000	5,000	5,000	2,500	5,000

Overall dimension

Width (mm)		17.5	17.5	17.5	35	35	35	71.5
Height (mm)		83	83	83	83	83	83	90
Depth (mm)		68	68	68	68	68	70	68

Light Sensitive Switches

Using light sensitive switches can prevent the unnecessary use of lighting circuits where sufficient daylight exists. The benefit of modular devices is the facility to set the ambient lighting level at which the device will operate, and as the device is fitted at the distribution point prevent unauthorised tampering. The remote photocell unit can be mounted up to a distance of 50 metres from the device. Two devices are available the standard **EE100** light sensitive switch and an enhanced programmable version the **EE171** that also allows time clock control.

Principle of Operation

Both devices control lighting systems according to natural illumination;

- The user sets the working level:
- The photo cell measures the external light level

The output of the **EE100** is:

- ON, when the measured level is lower than the pre-set light level
- OFF, when the measured level is higher than the pre-set light level

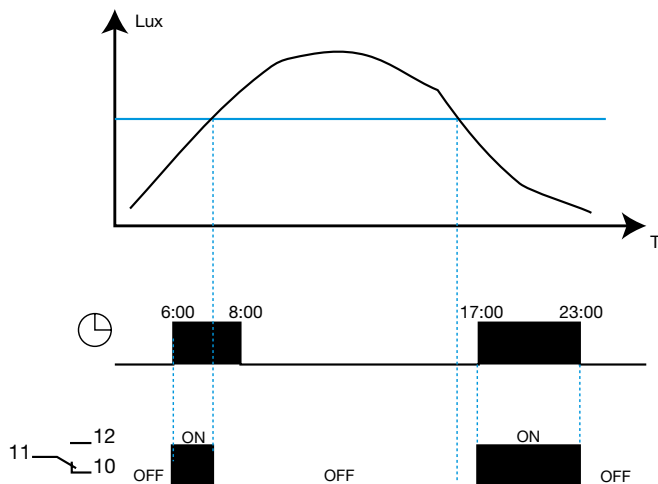
The output of the **EE171** during the programmed ON time period is:

- ON, when the measured level is lower than the pre-set light level
- OFF, when the measured level is higher than the pre-set light level

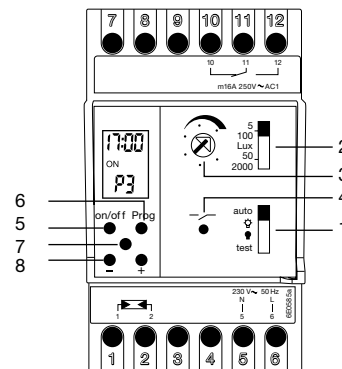
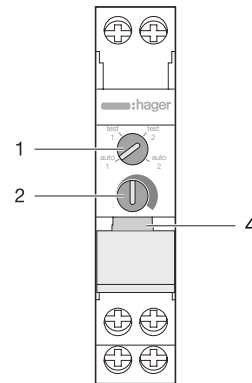
The output of the **EE171** during the programmed off time period is:

- OFF, regardless of the lighting level

The light sensitive switches include a built in time delay which avoids unnecessary switching due to temporary factors such as car headlight beams etc...



Description



The programmable light sensitive switch **EE171** has two main functions:

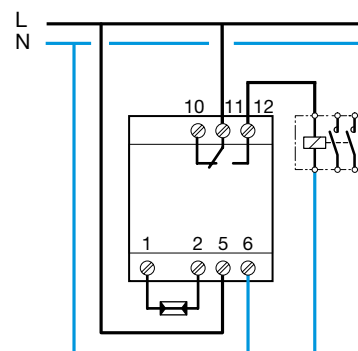
Light sensitive switch comprising

1. Override selector switch to allow permanent ON or OFF, auto or test mode
2. Lighting range selector
3. Potentiometer to set light level
4. Indicator to show output switching status

A programmer to establish the automatic operating cycle

The programmer comprises 4 keys:

5. **ON / OFF** to choose whether the circuit is on or off.
6. **Prog** to set the program and scroll program steps
7. **Reset**
8. **+** and **-** to change settings



Mounting the Cell

To ensure correct operation of the light sensitive switch, the cell must not be influenced by artificial light or direct solar radiation and should be sheltered from dust and humidity. In case of disconnection of the link between the cell and the light sensitive switch, the output of the device will be switched on. Make sure the light sensitive switch is unplugged before connecting the cell.

	EE002	EE003
Type	Flush Mounting	Surface Mounting
Dimensions (mm)	89 x 48 x 32	25 x 25 x 20 Hole 25mm
Connection	Cable 1m 2 x 0.75mm ²	0.75 to 4mm ²
Protection Class	IP54	IP54
Working & Storage Temperature	-30°C to +60°C	-30°C to +60°C

Adjustment of the Working Level

The test position of the override selector 1 makes setting the preset level easier by removing the ON and OFF delay.

Select the sensitivity range which suits your application (selector 1)
5 to 100 lux (low light level) application examples; public lighting, shop windows, signals...

50 to 2000 lux (high light level) application examples; controls of shades

At the appropriate moment of the day, put the selector 1 in test position; turn the potentiometer 2 up to the switching point (the indicator 4 lights); put the selector back to position 'auto' the normal operating mode of the device.

Technical Specification

Electrical Specification	
Voltage Rating	230V +10 -15% 50Hz
Consumption	1.5VA Max
Output	1 Voltage Free Changeover Contact
Max Breaking Capacity	AC1 16A 250V~
Incandescent Lamp	2000W 230V~
Halogen Lamp	1000W 230V~
Fluorescent Lamp Uncompensated	1000W 230V~
Compensated in Series (10µF)	1000W 230V~
// Compensated (15µF)	200W 230V~
Duo	1000W 230V~

Functional Characteristics	
Sensitivity Range	5 to 100 lux, 50 to 2000 lux
Cycle	Weekly
Programs	8 Pre-defined Program
Program Setting	1 Minute Increments*
Accuracy	+6min / annum*
Operating Reserve	Lithium Battery Total of 3 Years Supply Failure*
On and Off Delay	15 to 60s
Working Temperature	-30°C to +60°C (cell) -10°C to +50°C (modular device)
Storage Temperature	-20°C to +60°C
Protection Class (cell)	IP54
Insulation Class	II

Connection Capacity	
Modular Device	0.5 to 4mm ²
Cell	0.75 to 2.5mm ²
Max Length between Cell and Modular Device	50m
Mounting of the Cell with 2 Screws	2.5mm

* EE171 only

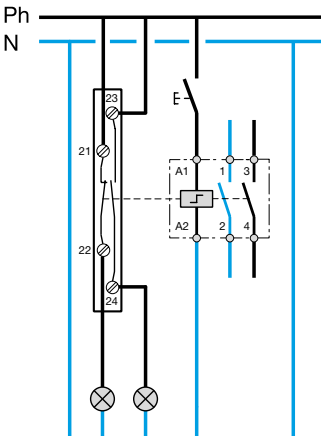
Technical Characteristics

	EPN510 EPN515 EPN520	EPN513 EPN518 EPN524	EPN519 EPN521	EPN525 EPN540	EPN528 EPN541	EPN529
Voltage	230V	24V	12V	230V	24V	12V
Start Consumption	24VA	24VA	24VA	48VA	47VA	TBC
Contact Rating AC1	-	-	16A 250V~ ¹	-	-	-
Electrical Endurance AC1 - 16A	150,000 Operations					
Mechanical Endurance	500,000 Operations					
Current in Open Position	8 mA					
Max Duration of Voltage Supply to Coil	1h					
Min Duration of Current Supply to Coil	0.1s					
Working Temperature	-5 to +40°C					
Storage Temperature	-40 to +80°C					
Connections						
Coil: Flexible Rigid	0.5 to 4mm ² 1 to 6mm ²					
Power: Flexible Rigid	1 to 6mm ² 1.5 to 10mm ²					

¹ 400~ for EPN540 and EPN541.

Auxiliary Contacts (EPN051)

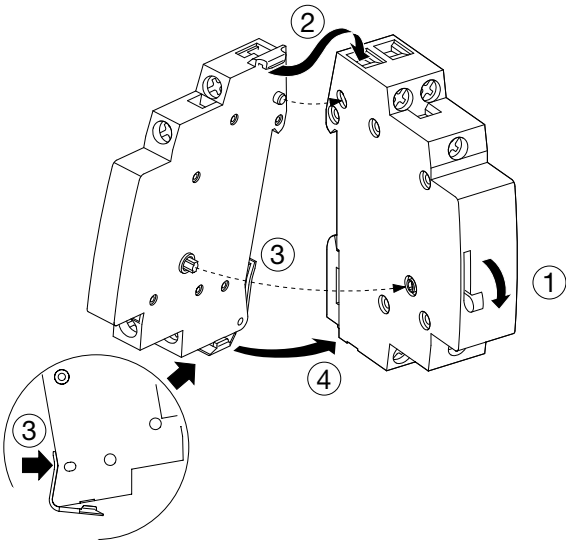
The range of latching relays have been designed for use with an auxiliary contact. The devices simply clip on the side of the relay.



Technical Characteristics

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

¹ Voltage dependant on associated relay



Heating

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

Choice of Contactors

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

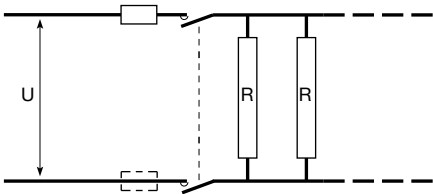
Type of Load

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

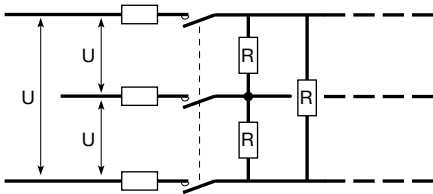
Heat Dissipation Inserts

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

Single Phase



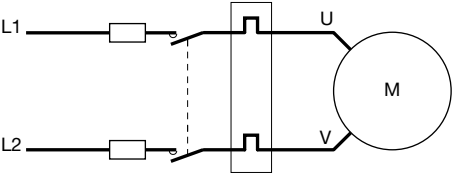
Three Phase



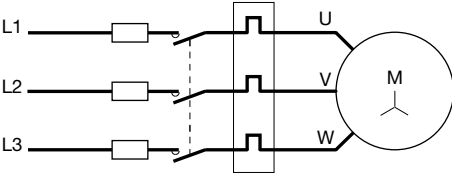
			Number of operations				
			100,000	150,000	200,000	500,000	1,000,000
Max. load in kW	230V	16A	3	2.5	1.9	0.85	0.7
		25A	4.6	4	3	1.35	1
		40A	7.3	6.3	4.7	2.2	1.6
		63A	11.6	10	7.5	3.5	2.5
	400V	16A	8.9	8	5.8	2.8	2
		25A	13.8	12	8.6	4.3	3
		40A	22	18.5	14.385	6.3	5
		63A	35	30	22.6	10.2	7.6

Contactor selection when using with motors

Single Phase 230V (AC3 or AC7b)



Three Phase 400V (AC3 or AC7b)



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

Requirements of Use

Influence of Working Temperature

Derating factor between 40°C and 50°C : 0.9

Example: Heating with convector

The maximum load of **ESC225** is 4.6kW for 50,000 operations and for a temperature <40°C.

between 40°C and 50°C, the load is 4.6 x 0.9 i.e. 4.14kW

Close Fitting

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

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

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

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

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

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

Safety Transformers

These transformers are designed to ensure personal safety, their primary winding are electrically separated from their secondary windings and they are intended to feed separated extra low voltage circuits $U \leq 50V$. A thermal overload, in the primary windings, ensures that if a short circuit or an overload occurs in the output it will not damage the device.

Bell Transformers

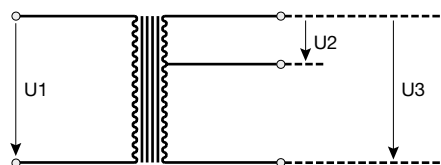
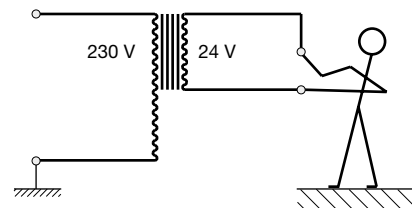
Bell transformers are similar to safety transformers but the secondary voltages do not exceed 24 volts, they are also similarly protected against short circuits and overloads, by thermal protection in the primary winding.

Compliance with the Standards

The bell and safety transformers conform with BS EN 61558. Where transformers are to be used in a common enclosure with other devices heat dissipation inserts LZ060 should be used.

Recommendation of Use

- To link only one secondary (never link both simultaneously)
- Do not connect (in series or in parallel) secondaries of different transformers



Technical Specification

	ST301	ST303	ST305	ST312	ST313	ST314	ST315
Nominal Power	4VA	8VA	16VA	25VA	16VA	40VA	63VA
Designation	Bell	Bell	Bell	Safety	Safety	Safety	Safety
Primary Voltage	230 Volts	230 Volts	230 Volts	230 Volts	230 Volts	230 Volts	230 Volts
Secondary Voltage U2	8 Volts $I_n = 0.5A$	8 Volts $I_n = 1A$	8 Volts $I_n = 2A$	12 Volts $I_n = 2.08A$	12 Volts $I_n = 1.33A$	12 Volts $I_n = 3.33A$	12 Volts $I_n = 5.25A$
Secondary Voltage U3	12 Volts $I_n = 0.33A$	12 Volts $I_n = 0.67A$	12 Volts $I_n = 1.33A$	24 Volts $I_n = 1.04A$	24 Volts $I_n = 0.67A$	24 Volts $I_n = 1.67A$	24 Volts $I_n = 2.63A$
No Load U2	12 Volts	15 Volts	12 Volts	14 Volts	16 Volts	14 Volts	14 Volts
Secondary Voltage U3	18 Volts	22 Volts	19 Volts	29 Volts	30 Volts	27Volts	27 Volts
Galvanic Insulation	4kV	4kV	4kV	4kV	4kV	4kV	4kV
Max Functional Temperature	35°C	35°C	35°C	35°C	35°C	35°C	35°C
Overload and S/C Protection	Thermal cut out in the primary winding						
Insulation Class	H	H	B	B	B	B	H

Technical Specifications

	EH011	EH010	EH111	EH110	EH171	EG103	EG103E	EG203	EG203E	EG493E
Version	Daily				Weekly					Weekly & Annual
Voltage Supply	230V 50/60Hz	230V 50Hz	230V 50/60Hz	230V 50Hz	230V 50/60Hz	230V AC 50/60Hz	230V AC 50/60Hz	230V AC 50/60Hz	230V AC 50/60Hz	230V AC 50/60Hz
Consumption	0.5VA	0.5VA	0.5VA	0.5VA	0.5VA	6VA	6VA	6VA	6VA	6VA
Output	1 NO Contact Volt Free	1 NO Contact Volt Free	1 C/O Contact Volt Free	1 C/O Contact Volt Free	1 C/O Contact Volt Free	1 Volt Free Change- over Contact	1 Volt Free Change- over Contact	2 Volt Free Change- over Contacts	2 Volt Free Change- over Contacts	2 Volt Free 2 NO Changeover Contact Contacts

Switching Capacity

AC 1	16A / 250V	16A / 250V	16A / 250V	16A / 250V	16A / 250V	16A AC 1 / 250V 4A DC 1 / 12V	16A AC 1 / 250V 4A DC 1 / 12V	16A AC 1 / 250V 4A DC 1 / 12V	16A AC 1 / 250V 4A DC 1 / 12V	10A AC 1 / 250V
Inductive Load cos 0.6	4A / 250V	4A / 250V	4A / 250V	4A / 250V	2.5A / 250V	10A / 250V	10A / 250V	10A / 250V	10A / 250V	10A / 250V
Incandescent Lamp	900W	900W	900W	900W	900W	2300W	2300W	2300W	2300W	1500W
Halogen Lighting 230V	-	-	-	-	-	2300W	2300W	2300W	2300W	1500W
Compensated Fluorescent Tubes (max 45µF)	-	-	-	-	-	400W	400W	400W	400W	400W
Non Compensated Fluorescent Tubes Compensated in Series	-	-	-	-	-	1000W	1000W	1000W	1000W	800W
Compact Fluorescent Tubes	-	-	-	-	-	500W	500W	500W	500W	400W
Minimum Current AC 1	-	-	-	-	-	100mA / 250V	100mA / 250V	100mA / 250V	100mA / 250V	100mA / 250V
Minimum Current DC 1	-	-	-	-	-	-	-	-	-	-
Galvanic Insulation Between Power Supply and Output	-	-	-	-	-	< 4 kV	< 4 kV	< 4 kV	< 4 kV	< 4 kV

Characteristics

Technology	Quartz	Quartz	Quartz	Quartz	Quartz	-	-	-	-	-
Dial	24hrs	24hrs	24hrs	24hrs	7 days	-	-	-	-	-
Minimum Switching	5min	5min	5min	5min	2h	-	-	-	-	-
Programming Capacity	-	-	-	-	-	56 Steps	56 Steps	56 Steps	56 Steps	300 Steps
Minimum Time Between 2 Steps	-	-	-	-	-	1min	1min	1min	1min	1min
Working Accuracy	1sec per day	1sec per day	1sec per day	1sec per day	1sec per day	±1.5sec / 24h	±1.5sec / 24h	±1.5sec / 24h	±1.5sec / 24h	±0.2sec / 24h
Supply Failure Reserve	200hrs	No	200hrs	No	200hrs	5 years lithium battery	5 years lithium battery	5 years lithium battery	5 years lithium battery	5 Years Lithium Battery
Reached in	120h	120h	120h	120h	120h	-	-	-	-	-
Manual Switch Type	On Auto On	Off Auto On	Off Auto On	Off Auto On	Off Auto On	-	-	-	-	-
Protection Degree	-	-	-	-	-	IP20	IP20	IP20	IP20	IP20

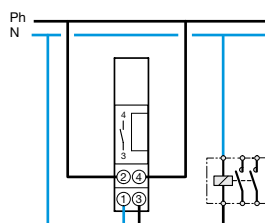
Environment

Working Temperature	-10°C to +45°C	-10°C to +45°C	-10°C to +45°C	-10°C to +45°C	-10°C to +45°C	-5°C to +45°C	-5°C to +45°C	-5°C to +45°C	-5°C to +45°C	-10°C to +45°C
Storage Temperature	-100°C to +50°C	-100°C to +50°C	-100°C to +50°C	-100°C to +50°C	-100°C to +50°C	-20°C to +70°C	-20°C to +70°C	-20°C to +70°C	-20°C to +70°C	-20°C to +70°C

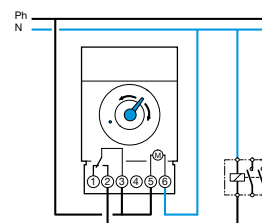
Connection

Flexible	0.5 to 4mm ²	0.5 to 4mm ²	0.5 to 4mm ²	0.5 to 4mm ²	0.5 to 4mm ²	1.5 to 10mm ²	1.5 to 10mm ²	1.5 to 10mm ²	1.5 to 10mm ²	1 to 4mm ²
Rigid	-	-	-	-	-	1 to 6mm ²	1 to 6mm ²	1 to 6mm ²	1 to 6mm ²	1.5 to 6mm ²




EH010 / EH011
230 VM ±10% 50/60Hz



EH110 / EH111 / EH171
230 VM ±10% 50/60Hz



Time Clocks/Switches Selection Chart

	Electromechanical Time Clocks		Digital Time Clocks			
	1 Channel		1 Channel		2 Channels	4 Channels
						
	1 Modules	3 Modules	1 Modules	2 Modules	2 Modules	4 Modules
	EH010 EH011	EH110 EH111 EH171	EG071 EG010	EG103 EG103E	EG203 EG203E	EG493E
Programming Cycle	Electromechanical		Digital			
	1 Channel 1 Module	3 Modules	1 Channel 1 Modules	2 Modules	2 Channels 2 Modules	4 Channels 4 Modules
24 Hours	EH010 EH011	EH110 EH111	EG010			
7 Days		EH171	EG071	EG103 EG103E	EG203 EG203E	
Annual						EG493E

Technical Characteristics - EG010

Electrical Characteristics

Voltage Supply	230V $\pm 10\%$ 50/60Hz
Consumption	1VA
Output	1 Changeover contact 16A - 250V AC 1 3A - 250V cos ϕ = 0.6 1000W Incandescent lighting

Functional Characteristics

Number of programs	5 Adjustable Pre-recorded Programs
Accuracy	± 6 min per year
Supply Failure Reserve	Total of 3 years

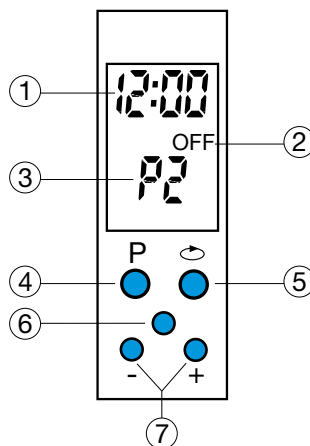
Environment

Working Temperature	-10°C to +50°C
Storage Temperature	-10°C to +60°C
Cable Capacity	1 to 4mm ²
Main Characteristics	Easy to program: 5 programs are pre-recorded. The user just has to select the program which corresponds to its use and modify time switches if necessary.

The 5 pre-registered programs are as follows:

P	Prog
P0	OFF
P1	ON
P2	6.00 23.00
P3	6.00 8.00 17.00 23.00
P4	6.00 8.00 11.00 13.00 17.00 23.00

Product Presentation



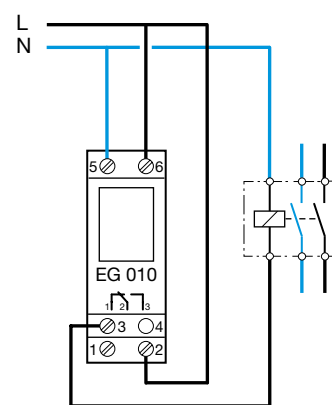
Display

1. Time
2. Circuit Status
3. Program Selection

Buttons

4. P to select the program to apply
5. Reset
6. \rightarrow to scroll program steps
7. + and - : to input time

Electrical Connection



Technical Characteristics - EG071

Electrical Characteristics

Voltage Supply	230V $\pm 10\%$ 50/60Hz
Consumption	1VA
Output	1 Changeover contact 16A - 250V AC 1 3A - 250V cos ϕ = 0.6 1000W Incandescent lighting

Functional Characteristics

Number of programs	20 Program Steps (each program step can be applied to one of several days)
Accuracy	± 6 min per year
Supply Failure Reserve	Total of 3 years

Environment

Working Temperature	-10°C to +50°C
Storage Temperature	-10°C to +60°C
Cable Capacity	1 to 4mm ²

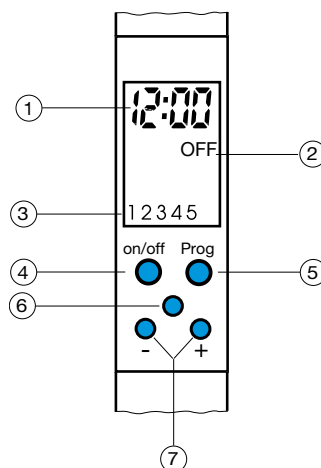
Product Presentation

Display

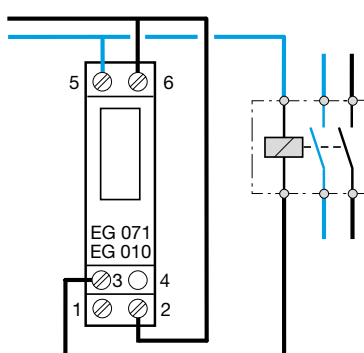
1. Time
2. Circuit Status
3. Days of the week

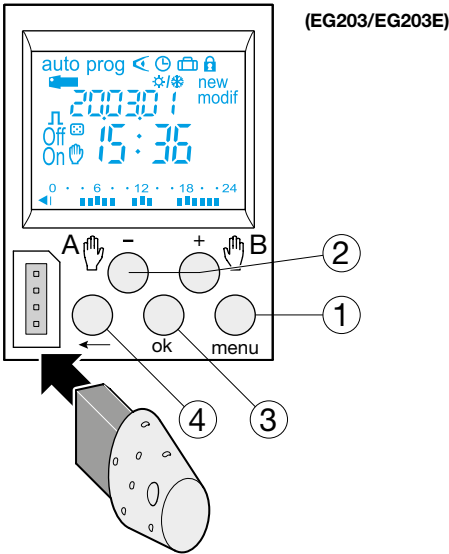
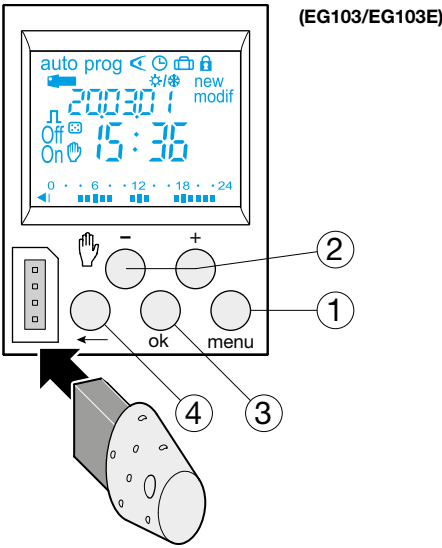
Buttons

4. ON / OFF : to select the circuit status
5. Reset
6. Prog: to program the device and scroll program steps
7. To input time and day



Electrical Connection





Keys

1.	Menu	Selection of operating mode
	Auto	Mode of running according to the program selected
	Prog	New for programming mode
	Prog	To modify an existing program
	←	Checking of the program
	⌚	Modification of time, date and selection of the winter/summer time change mode.
	📅	Holidays
2.	+ / -	Navigation or setting of values
	👤	In auto, mode, selection of overrides, waivers or random operation
3.	OK	To validate flashing information on display
4.	←	To return to the previous step

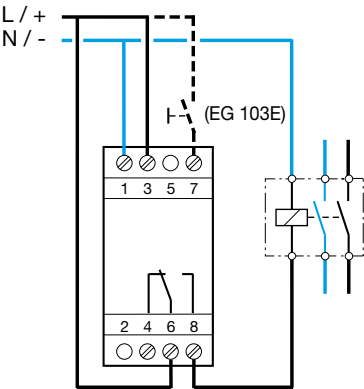
You may return into auto mode at any moment using menu.
If no action is taken for 1 min, the switch returns to auto mode.

Major Characteristics

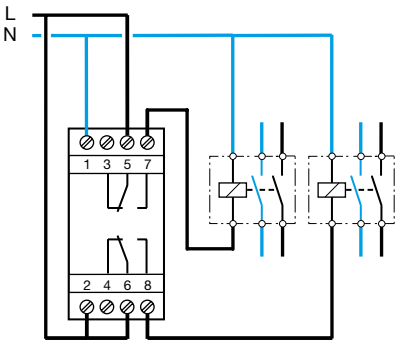
- Product delivered with current time and date set
- Automatic change of winter / summer time ⚙️/⚙️
- Programming key 🗑️
 - For permanent waivers
 - For program copy or save
- Programming for day or group of days
- 56 program steps On, Off
- Impulses ⚡ (1 sec to 30 min)*
- Permanent overrides On or Off (👤 permanent light on)
- Temporary overrides On or Off (👤 flashing)
- Holiday mode 📅 : overrides On or Off between two dates*
- Simulation of presence 🏠 *
- Display bar graph of daily profile
- Keyboard locking possible 🔒
- Programmable with power off
- Back lit display*

* Evolution models E or V only

Connection Diagram EG103*



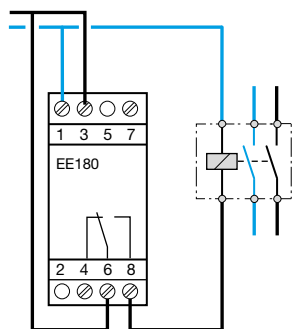
Connection Diagram EG203*



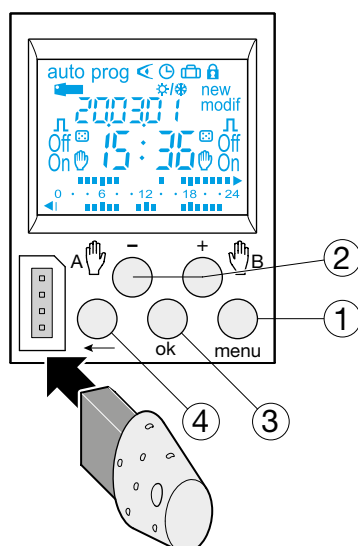
Technical Characteristics

	EE180 (1 Channel)	EE181 (2 Channel)
Width in 17.5mm Modules	2	2
Supply Voltage	230V AC (+10 % / -15%, 50/60Hz	
Number of Outputs	1	2
Characterisitics of Relay	Change over contact 16A C 1 250V /10A cos phi = 0.6	
Incandescent	2300W	
230V Halogen	2300W	
Standards	CE + CTICK and CEI 60-669	
Connection		
Flexible	1 to 6mm²	
Rigid	1.5 to 10mm²	
Environment		
Storage Temperature	-20°C to +60°C	
Working Temperature	-10°C to +55°C	
IP	IP20	
Functional Characteristics		
Display LCD	Without backlight screen	
Operating reserve	Lithium battery 5 years	
Precision	+/- 1.5s/day	
Programming Key	Yes	
Automatic change of winter / summer time	Yes	
Functions available in free programming	Weekly programming / permanent override / temporary override	
Astro Functions		
Astro mode	Yes	Independent programming for each channel
Programming of the lighting interrution	Yes (if channel Astro)	
Temporary override	15 / 30 / 60min	
Maintained ON	Adjustment common to the 2 channels	
Anticipation ON	Adjustment common to the 2 channels	

Electrical Connection EE180 : 1 Channel



Product Presentation

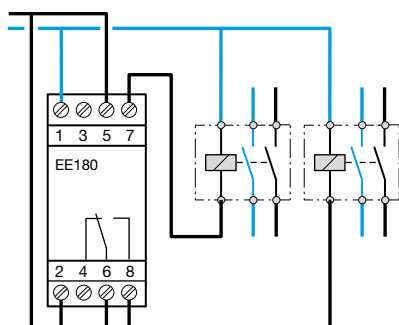


Keys

- | | |
|----------|--|
| 1. Menu | Selection of operating mode |
| Auto | Mode of running according to the program selected |
| Prog | New for programming mode |
| Prog | To modify an existing program |
| ↩ | Checking of the program |
| 🕒 | Modification of time, date and selection of the winter/summer time change mode |
| Astro | Astronomical mode |
| ★ | Indicated that the channel is in astronomical mode |
| 2. + / - | Navigation or setting of values |
| A 🖐 | In auto, mode, selection of overrides, waiver or random operation |
| B 🖐 | |
| 3. OK | To validate flashing information on display |
| 4. ⬅ | To return to the previous step |

You may return into auto mode at any moment using menu.
If no action is taken for 1 min, the switch returns to auto mode.

EE181 : 2 Channels



Time Lag Switches

A common area where time delay devices are used is stairways and corridors in multi occupancy buildings where they provide a level of energy efficiency. The EMN001 device provides basic time lag control.

Technical Specification

	EMN001	EMN002	EMN005
Electrical Characteristics			
Supply voltage	230V +10 -15% 50/60Hz	230V +10 -15% 50/60Hz	230V +10 -15% 50/60Hz
Consumption	1VA	0.5W Permanent 8W Max.	1VA
Size (Module)	1	-	1
Breaking Capacity			
AC1	16A 230V AC	4A 230V~	16A
Incandescent	2300W	1000W	2300W
Halogen 230V	2300W	1000W	2300W
Ferro Magnetic Transformer	1600W	-	-
Parallel Compensated	Capacitor 112μF	-	-
Fluorescent Lamps	1000W	-	1000W
Series Compensated	3600W	-	1000W
Electronic Transformer	2300W	-	-
Compact Fluorescent Lamps with Electronic Ballast	60 x 7W or 40 x 11W or 32 x 15W or 20 x 23W 23000W	-	-
with Conventional Ballast	-	-	-
Functional Characteristics			
Time Delay	30s to 10min	24s	30s to 10min
Retrigger	Yes	-	-
Max. Current in Rest Position	100mA	-	-
Automatic 3/4 Recognition	Yes	-	-
Local Command	Automatic / Override On	-	Automatic / Override On
Environment			
Working Temperature	-10 to +55°C	-15 to +55°C	-10 to +55°C
Storage Temperature	-20 to +60°C	-25 to +70°C	-20 to +60°C
Connection			
Flexible	1 to 6mm ²	1 to 6mm ²	1 to 6mm ²
Rigid	1.5 to 10mm ²	1.5 to 10mm ²	1.5 to 10mm ²
Connection EM001/EM002	-	2 wires 1.5	-

A: Basic Mode

Press push button to switch ON the light. After a set time (Adjustable "T"), the light will switch OFF automatically.

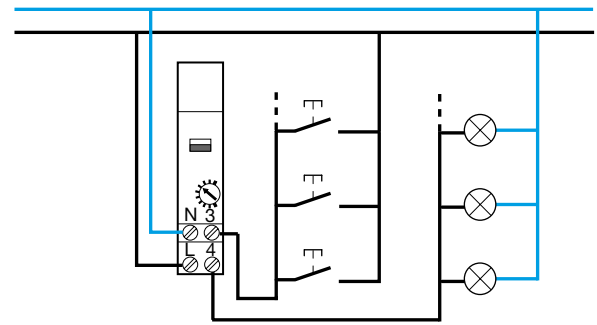
B: Prewarning Mode

A signal (blink) will appear before the end of the lighting period.

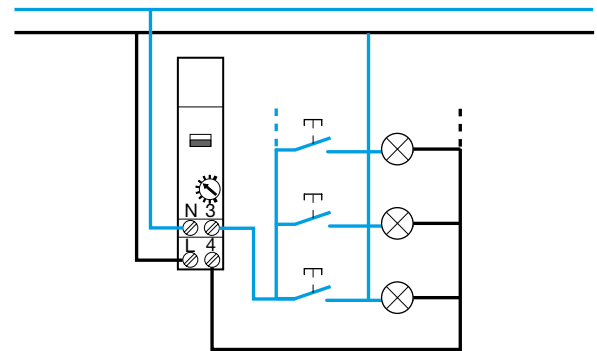
C: Double delay mode

Press push button to switch light ON. After a set time (Adjustable "T"), the light will switch OFF automatically. If you press the button for more than 3 seconds, a time lag of one hour begin.

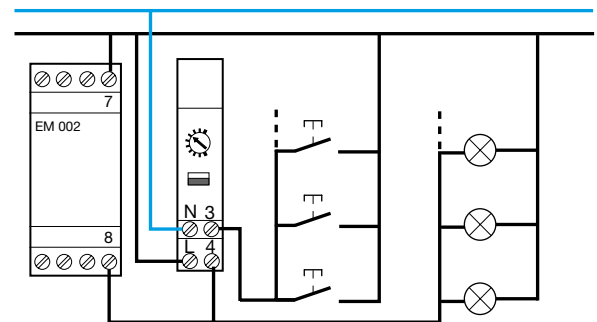
Wiring Diagrams 4-Wire



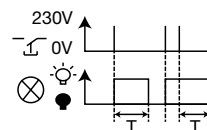
3-Wire



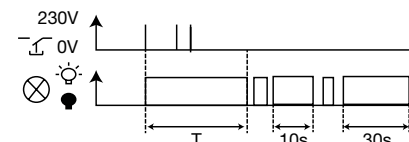
Combination EMN002 with EMN001



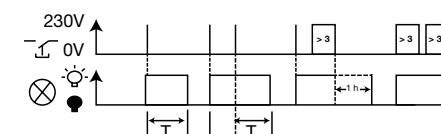
A



B



C



Delay Timers

Delay timer devices are used to control a variety of processes where the requirement is for switching circuits on, off or delaying the on or off switching for a pre-set period of time. Typical device types are:

- **Delay on** - intended to delay the starting or switching of a circuit for a set period of time following the command signal e.g. to delay the starting of motor loads where a large number of motors are to be started by the same switch to reduce the effects of the starting currents.
- **Delay off** - intended to delay the stopping or switching off of a circuit for a set period of time following the removal of the command signal e.g. to overrun an extractor following the switching off of a process that creates fumes.
- **Adjustable time on** - intended to switch on for a set period, the command signal must remain on throughout the set period e.g. to switch on two sets of heaters with one set (the boost) switching off after the set period.
- **Impulse timer** - intended to switch on for a set period, the command signal length is not important e.g. to boost a time clock controlled circuit such as a water storage heater.
- **Symmetrical timer** - intended to toggle a circuit on and off in regular time patterns e.g. to run an extractor intermittently.

Multifunction Timer - 6 Individual Functions

A = Timer.

B = Delay off (output relay opens either at end of command or after set time period - whichever is shorter).

C = Delay off.

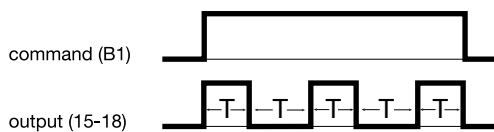
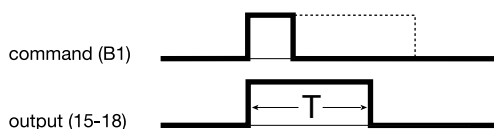
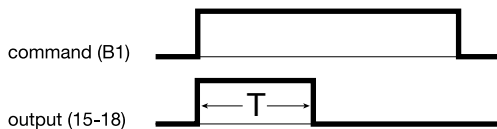
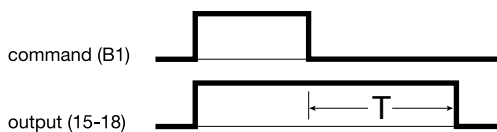
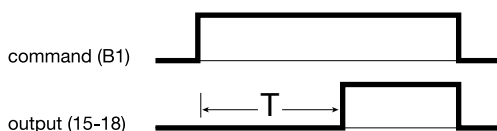
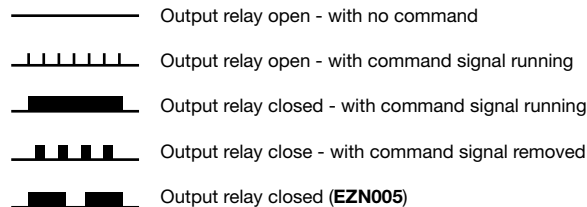
D = Delay on.

E = Delay on (output relay closes either at end of command or after set time period - whichever is shorter).

F = Symmetrical timer.

On selection - contact permanently closed

Off selection - contact permanently open

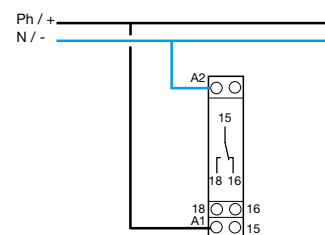


Technical Specifications

	EZN001, EZN002, EZN003, EZN004, EZN005, EZN006
Electrical Characteristics	
Supply Voltage	24-28 Vdc 12-48 Vdc (+10%) Terminals A1 & A2 12-230 Vac (+10%) Terminals A3 & A2
Output	1 Volt Free C/O Contact
Life Expectancy	
Max Load AC 1	8A / 230V~ 50,000 Cycles
Incandescent	450W~ 500,000 Cycles
Fluorescent Non Comp.	600W~ 50,000 Cycles
Inductive Load 0.6pf	5A / 230V~ 100,000 Cycles
Min Power	
AC	100mA at 230V
DC	100mA at 12V
Galvanic Isolation	2kV
Standard / Norm	BS EN 60669-2-1
Functional Characteristics	
Timer Range	0.1s - 10 hours
Min. Command Period	
AC	50ms
DC	30ms
Operating Temperature	
Working	-20°C to +50°C
Storage	-40°C to +50°C
Connection Capacity	
Flexible	1 to 6mm ²
Rigid	1.5 to 10mm ²

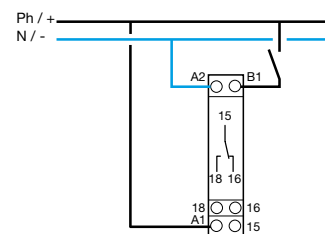
Functional characteristics EZN001, EZN003, EZN005, EZN006 (functions D,E,F)

CD : Command.
O : Output.
T : Time delay.



EZN002, EZN004, EZN006 (functions A,B,C)

indicator light (for versions with NO contact).
ON
OFF



Technical Specifications

Electrical Characteristics

Voltage Supply	230V +10 -15% 50/60Hz
Consumption	1.5VA
Output	1 Changeover Contact 2A 230V AC1

Functional Characteristics

4 Temperature Ranges	-30 to 0°C 0 to +30°C +30 to +60°C +60°C to +90°C (Varying accuracy)
----------------------	--

Environment

Working Temperature	-10 to +50°C
Storage Temperature	-20 to +70°C

Connection Capacity

Flexible	1 to 6mm ²
Rigid	1.5 to 10mm ²
Probe	Maximum Distance 50m

Main Characteristics

Multiple Applications

A single device to solve all your problems of regulation or temperature control, from cold room to incubator.

Varying Accuracy

The accuracy can be adapted according to the application. e.g.: low for ambient temperature regulation, high for incubator regulation.

Safety Feature for Probe Failure

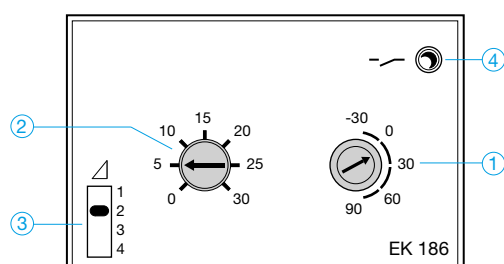
To protect the installation in case of disconnection from the probe. Various connections can be made so the thermostat will be:

- Permanent OFF
- Permanent ON
- Cyclical operation: output ON 1 minute in every 4

Display

State of output.

Product Presentation



1. Selection of the range
2. Adjustment of the temperature setting
3. Selection of temperature range
4. Display of state of output

Working Principle

The **EK186** regulates the temperature according to all or nothing principle, it can be associated with different probes, according to the application the accuracy is a function of the temperature range and is selected by a slide switch.

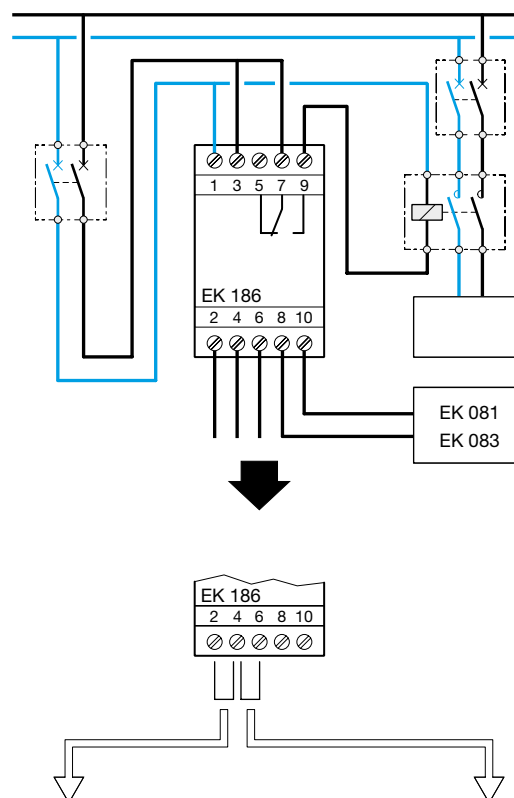
Position on Slide Switch	Temperature range °C			
	-30 to 0	0 to 30	30 to 60	60 to 90
1	± 2.15	± 2.54	± 2.98	± 3.43
2	± 0.15	± 0.18	± 0.21	± 0.24
3	± 0.38	± 0.45	± 0.53	± 0.61
4	± 1.23	± 1.45	± 1.70	± 1.96

Bold - Preferential accuracies for each temperature range.

Example of Choice of Accuracy

- Regulation of ambient temperature
Range: 0 to +30°C
Accuracy: $\pm 0.18^\circ\text{C} = 2$
- Control of hot water outgoing circuit
Range: 30 to +60°C
Accuracy: $\pm 0.53^\circ\text{C} = 3$

Electrical Connection Caution



When the temperature ranges 30 to 60°C and 60 to 90°C are selected and the temperature measured by the probe is below 30°C, the safety feature for probe failure must be "permanent on", until the measured temperature reaches the minimum temperature corresponding to the range (i.e. 30°C for the range 30°C to 60°C and 60°C for the range 60°C to 90°C).

Technical Specifications

Electrical Characteristics

Voltage Supply	230V +10 -15% 50/60Hz
Consumption	1.5VA
Output	1 Changeover Contact 2A 230V AC1

Functional Characteristics

3 Temperature Ranges Controllable by External Setting	Comfort: Adjustable from +5 to +30°C Reduced: Decrease 2 to 8°C in Comparison with Comfort Setting Frost setting: Adjustable from +5 to +30°C Accuracy ±0.2°C
--	--

Environment

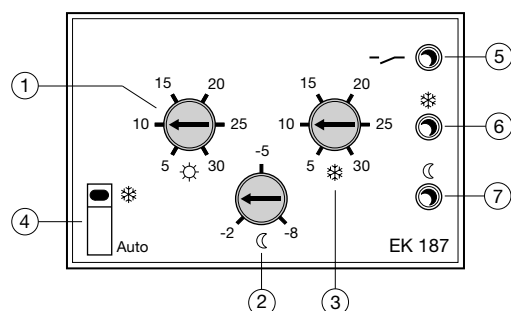
Working Temperature	-10 to +50°C
Storage Temperature	-20 to +70°C

Connection Capacity

Flexible	1 to 6mm ²
Rigid	1.5 to 10mm ²
Probe	Maximum Distance 50m

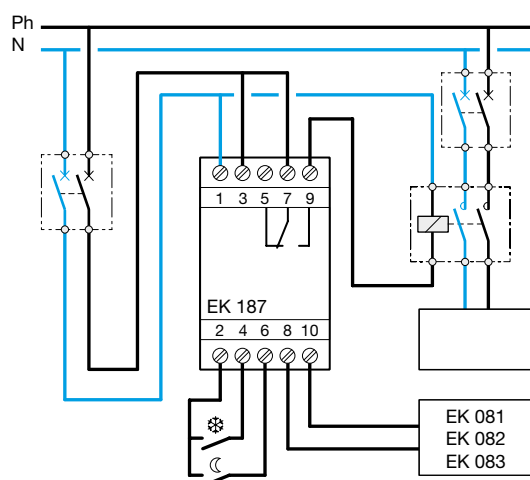
Product Presentation

1. Reference setting: comfort TO
2. Decrease in comparison with reference setting: reduced to TO
3. Frost setting
4. Frost setting override



5. Display of state of output i.e. contact position
6. LED indicating the frost override is on.
7. LED indicating the regulation in comparison with a reduced setting

Electrical Connection



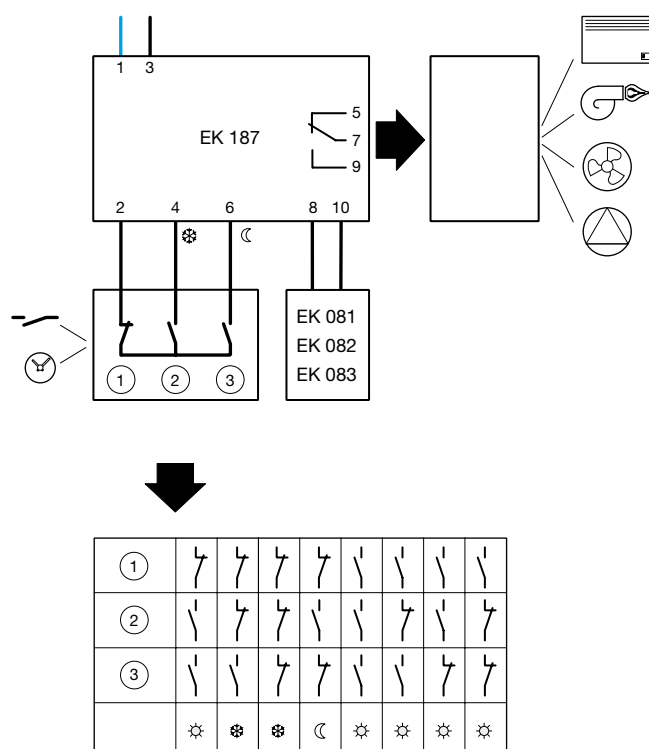
Main Characteristics

- **Temperature settings controllable by external setting** when associating a digital time switch, it is possible to regulate the heating in relation with a program established by the user.
- **2 wires link** between the probe and the unit, enables the easy replacement of the ambient thermostats of an existing installation.
- **Safety feature for "probe failure"** in case of probe disconnection, the output will be switched 1 minute in every 4; so that in case of disconnection during winter, it will protect the installation from frost.
- **Display** of state of the output and of the setting.

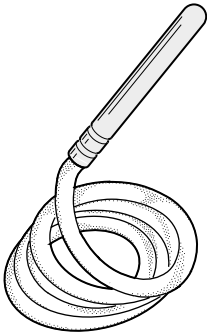
Working Principle

EK187 adjusts the temperature under the “all or nothing” principle it is associated to an ambient probe and thus works in closed loop the temperature settings are selected by external settings (contacts free of potential).

EK187 is thus generally associated to a time switch or a digital time switch in the case of absence of external signal, EK187 regulates the heating in comparison with the reference setting, a switch enables the override of the dispensation setting.



EK083 Universal Probe



- To associate with **EK186** thermostat
- To associate with **EK187** thermostat and **EK618** time programmable thermostat (for those applications insert in series with the probe a resistance of 1500Ω)

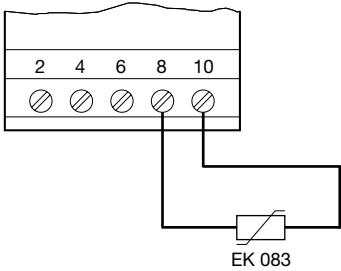
EK083: 10 kOhms at 25°C
cable length: 4m

Environment

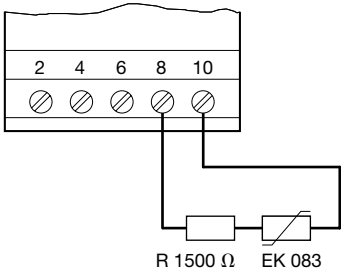
- Working temperature: -30 to +90°C
- Storage temperature: -30 to +100°C

Electrical Connection

- Associated with **EK186**



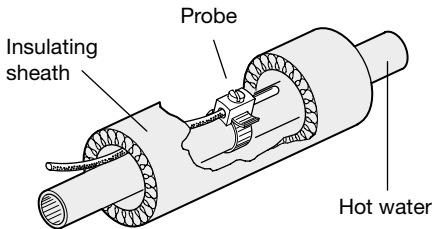
- Associated with **EK187 - EK618**



Examples of Applications

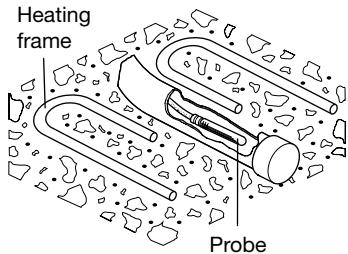
Use with the clamp collar

- For the control of hot water

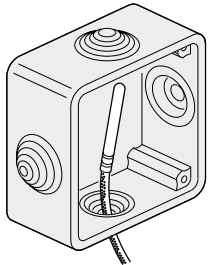


Use with the clamp collar

- Protected by a sheath for the control of floor temperature



- Used as an external probe in a weatherproof box.



Resistance of Probes According to Temperature

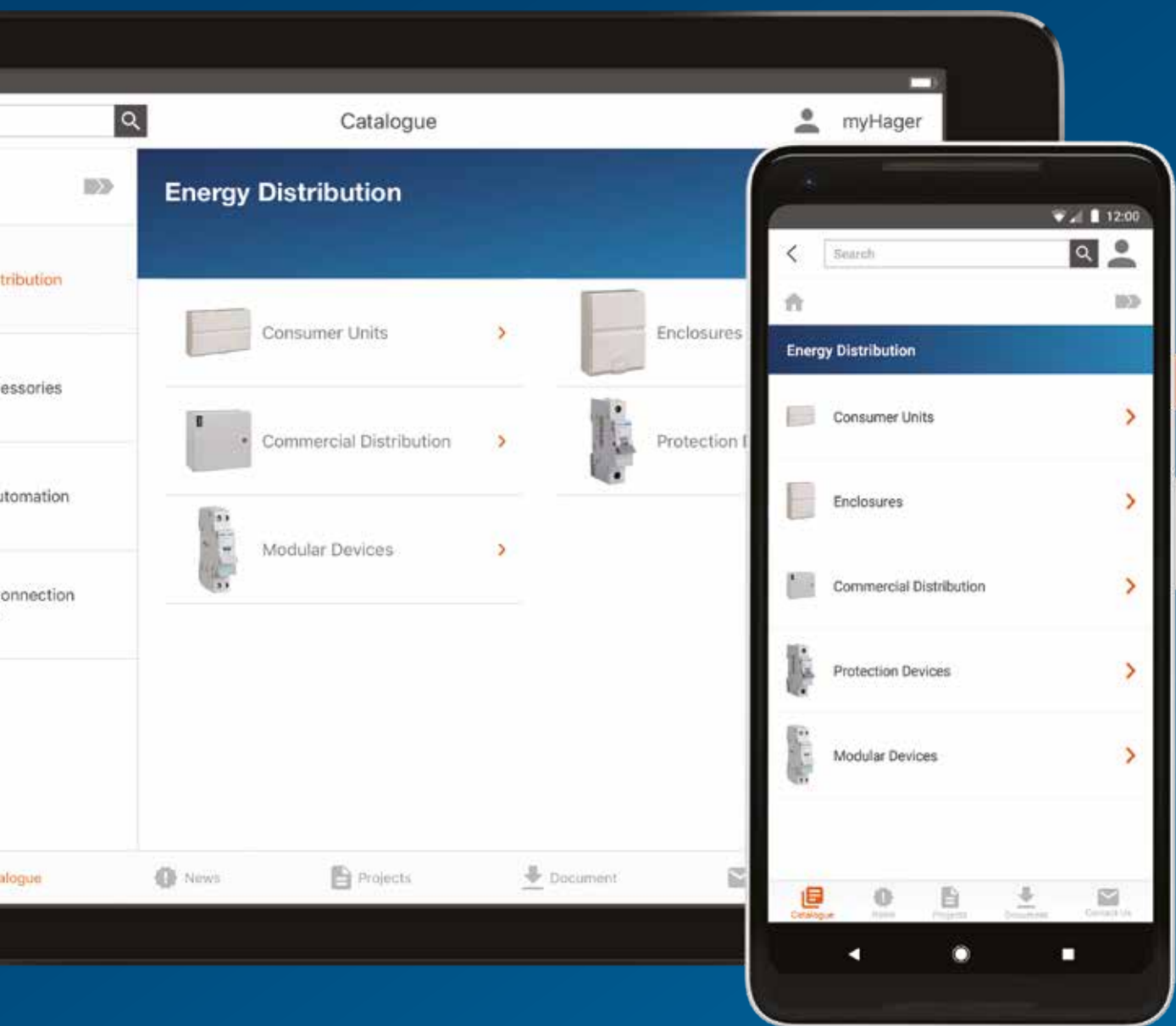
	EK083	EK081*	EK081**
Temperature °C	R (KΩ)	R (KΩ)	R (KΩ)
+90	0.91	On a wall	-
+80	1.25	1.25	2.83
+70	1.75	1.75	3.33
+50	3.60	3.60	5.18
+30	8.06	8.06	9.64
+25	10	10	11.58
+20	12.49	12.49	14.07
+15	15.71	15.71	17.28
+10	19.90	19.90	21.48
+5	25.39	25.39	26.98
+0	32.65	32.65	34.23

	EK083	EK081*	EK081**
Temperature °C	R (KΩ)	R (KΩ)	R (KΩ)
-5		42.31	-
-10	55.29	-	-
-15	72.89	-	-
-20	96.97	-	-
-25	130.24	-	-
-30	176.68	-	-

Face value at 25°C

Note: *Association with **EK186**

Association with **EK187 and **EK618**



A Catalogue in your pocket.

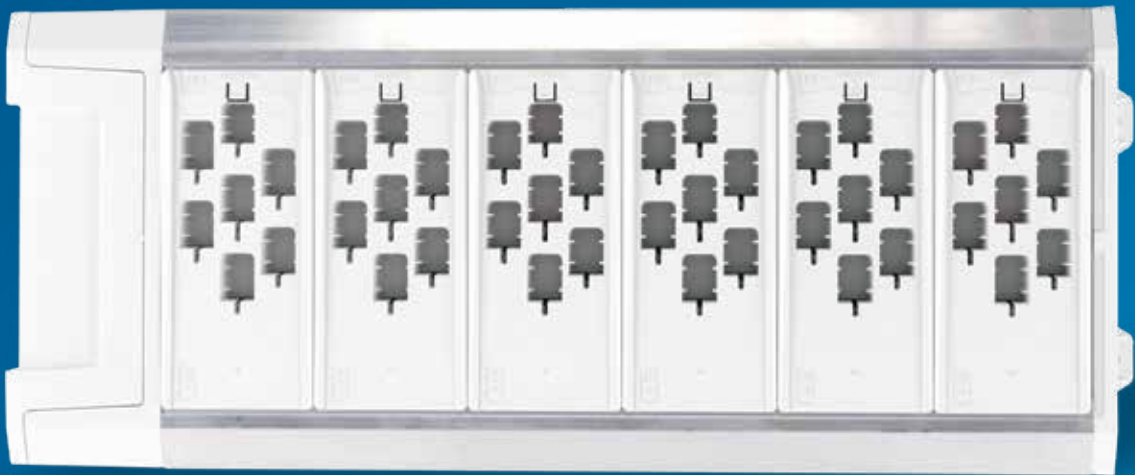
Instead of having to leaf through catalogues to find the part you want, wouldn't it be easier to search for it right from your phone or tablet? Well now you can!

Our e-Catalogue app is available now for Android and iOS devices, just download from the App Store or Google Play Store. Search Hager ecatalogue.

:hager

Lighting Connection

Lighting creates an impression. Klik, our lighting connection system provides the roots to a buildings lighting system, allowing it to adapt and grow with ease. Controls, including occupancy sensors, ensure that light is only available when needed and tailored to a users needs.



Klik	
Klik 7	3.3
Klik 4	3.11
Controls	
Motion Detectors	3.8
Technical Pages	3.22



KLMB4W

Marshalling Boxes - Wire In, Plug Out

Characteristics:

- The KLMB marshalling box allows the connection and control of multiple luminaires. The marshalling box utilises a robust extruded aluminium body.
- 7 Pole.
- 4, 6, 8, 10 & 12 outlets.
- 16A Rated BS 5733:2010 .
- Short circuit tested: 1500A conditional rating.

Description	Cat ref.
Marshalling Box, Single Supply, Wire In, Plug Out	
4 Way	KLMB4W
6 Way	KLMB6W
8 Way	KLMB8W
10 Way	KLMB10W
12 Way	KLMB12W
Marshalling Box, Dual Channel, Wire In, Plug Out	
8 Way, 4/4	KLMB244W
10 Way, 5/5	KLMB255W
12 Way, 6/6	KLMB266W



KLMB5P

Marshalling Boxes - Plug In, Plug Out

Characteristics:

- The KLMB marshalling box allows the connection and control of multiple luminaires. The marshalling box utilises a robust extruded aluminium body.
- 7 Pole.
- 5, 7, 9 & 11 outlets.
- 16A Rated BS 5733:2010 .
- Short circuit tested: 1500A conditional rating.

Description	Cat ref.
Marshalling Box, Single Supply, Plug In, Plug out	
5 Way	KLMB5P
7 Way	KLMB7P
9 Way	KLMB9P
11 Way	KLMB11P



K7B1M075WPCR

Klik 7 Pre-wired Plugs with Sockets

Characteristics:

- Connections to the luminaire are made via a pre-wired plug and lead. All leads are low smoke zero halogen and are factory connected and tested.
- Standard, digital and emergency luminaires.
- Short circuit tested: 1500A conditional rating.
- Cable standard BS 7211.

Description	Cat ref.
Pre-wired Plugs and Sockets for Standard Luminaires	
6A Luminaire Lead 1.5m 0.75mm ² 3 Core Plug to Wire + KLPCR7	K7B1M075WPCR
6A Luminaire Lead 3m 0.75mm ² 3 Core Plug to Wire + KLPCR7	K7B3M075WPCR
Pre-wired Plugs and Sockets for Standard Luminaires with Emergency	
6A Luminaire Lead 1.5m 0.75mm ² 4 Core Plug to Wire + KLPCR7	K7J1M075WPCR
6A Luminaire Lead 3m 0.75mm ² 4 Core Plug to Wire + KLPCR7	K7J3M075WPCR
Pre-wired Plugs and Sockets for Dimmable Luminaires	
6A Luminaire Lead 1.5m 0.75mm ² 5 Core Plug to Wire + KLPCR7	K7P1M075WPCR
6A Luminaire Lead 3m 0.75mm ² 5 Core Plug to Wire + KLPCR7	K7P3M075WPCR
Pre-wired Plugs and Sockets for Dimmable Luminaires with Emergency	
6A Luminaire Lead 1.5m 0.75mm ² 6 Core Plug to Wire + KLPCR7	K7T1M075WPCR
6A Luminaire Lead 3m 0.75mm ² 6 Core Plug to Wire + KLPCR7	K7T3M075WPCR

Klik 7 Pre-wired Plugs

Characteristics:

- Connections to the luminaire are made via a pre-wired plug and lead. All leads are low smoke zero halogen and are factory connected and tested.
- Standard, digital and emergency luminaires.
- Short circuit tested: 1500A conditional rating.
- Cable standard BS 7211.
- New for 2019 - references with 1m cable length will be provided as 1.5m.

We have recently improved our range of Klik 7 pre-wired leads. As part of this process, we have changed how our part references work. For example **KLB/3/0-75W** will now become **K7B3M075W**. For a full supersession chart, see page 3.19.

K7
Range

B
Function

3M
Length

075
Core Size

W
Wired or
Plug End

A Link Lead, Power

G Link Lead, Power, Emergency

K Link Lead, Power, Emergency, Switched Line

Z Link Lead, Power, Emergency, Switched Line, Control

B Standard Luminaire

J Standard Luminaire, Emergency

P Dimmable Luminaire

T Dimmable Luminaire, Emergency

E Emergency Exit Luminaire

F Switch Drop Lead

W Control, +/- & Cpc

Description

Cat ref.

Pre-wired Plugs for Standard Luminaires

6A Luminaire Lead 1.5m 0.75mm² 3 Core Plug to Wire
6A Luminaire Lead 3m 0.75mm² 3 Core Plug to Wire
6A Luminaire Lead 5m 0.75mm² 3 Core Plug to Wire
6A Luminaire Lead 7m 0.75mm² 3 Core Plug to Wire

K7B1M075W
K7B3M075W
K7B5M075W
K7B7M075W

10A Luminaire Lead 1.5m 1mm² 3 Core Plug to Wire
10A Luminaire Lead 3m 1mm² 3 Core Plug to Wire
10A Luminaire Lead 5m 1mm² 3 Core Plug to Wire
10A Luminaire Lead 7m 1mm² 3 Core Plug to Wire

K7B1M1W
K7B3M1W
K7B5M1W
K7B7M1W

16A Luminaire Lead 3m 1.5mm² 3 Core Plug to Wire
16A Luminaire Lead 5m 1.5mm² 3 Core Plug to Wire

K7B3M15W
K7B5M15W

Pre-wired Plugs for Standard Luminaires with Emergency

6A Luminaire Lead 1.5m 0.75mm² 4 Core Plug to Wire
6A Luminaire Lead 3m 0.75mm² 4 Core Plug to Wire
6A Luminaire Lead 5m 0.75mm² 4 Core Plug to Wire
6A Luminaire Lead 7m 0.75mm² 4 Core Plug to Wire
6A Luminaire Lead 9m 0.75mm² 4 Core Plug to Wire

K7J1M075W
K7J3M075W
K7J5M075W
K7J7M075W
K7J9M075W

10A Luminaire Lead 1.5m 1mm² 4 Core Plug to Wire
10A Luminaire Lead 3m 1mm² 4 Core Plug to Wire
10A Luminaire Lead 5m 1mm² 4 Core Plug to Wire
10A Luminaire Lead 7m 1mm² 4 Core Plug to Wire
10A Luminaire Lead 9m 1mm² 4 Core Plug to Wire

K7J1M1W
K7J3M1W
K7J5M1W
K7J7M1W
K7J9M1W

16A Luminaire Lead 3m 1.5mm² 4 Core Plug to Wire
16A Luminaire Lead 5m 1.5mm² 4 Core Plug to Wire

K7J3M15W
K7J5M15W

16A Luminaire Lead 3m 1.5mm² 4 Core Plug to Plug
16A Luminaire Lead 5m 1.5mm² 4 Core Plug to Plug
16A Luminaire Lead 7m 1.5mm² 4 Core Plug to Plug

K7J3M15P
K7J5M15P
K7J7M15P

Pre-wired Plugs for Emergency Exit Luminaires

16A Luminaire Lead 3m 1.5mm² 3 Core Plug to Wire
16A Luminaire Lead 5m 1.5mm² 3 Core Plug to Wire
16A Luminaire Lead 7m 1.5mm² 3 Core Plug to Wire
16A Luminaire Lead 11m 1.5mm² 3 Core Plug to Wire

K7E3M15W
K7E5M15W
K7E7M15W
K7E11M15W



K7B1M075W



K7J1M075W



K7T3M075W

Klik 7 Pre-wired Plugs for Dimmable Luminaires

Description	Cat ref.
Pre-wired Plugs for Dimmable Luminaires	
6A Luminaire Lead 1.5m 0.75mm ² 5 Core Plug to Wire	K7P1M075W
6A Luminaire Lead 3m 0.75mm ² 5 Core Plug to Wire	K7P3M075W
6A Luminaire Lead 5m 0.75mm ² 5 Core Plug to Wire	K7P5M075W
6A Luminaire Lead 7m 0.75mm ² 5 Core Plug to Wire	K7P7M075W
10A Luminaire lead 1.5m 1mm ² 5 core Plug to Wire	K7P1M1W
10A Luminaire Lead 3m 1mm ² 5 Core Plug to Wire	K7P3M1W
10A Luminaire Lead 5m 1mm ² 5 Core Plug to Wire	K7P5M1W
10A Luminaire Lead 7m 1mm ² 5 Core Plug to Wire	K7P7M1W
16A Luminaire lead 1.5m 1.5mm ² 5 core Plug to Wire	K7P1M15W
16A Luminaire Lead 3m 1.5mm ² 5 Core Plug to Wire	K7P3M15W
16A Luminaire Lead 5m 1.5mm ² 5 Core Plug to Wire	K7P5M15W
16A Luminaire Lead 7m 1.5mm ² 5 Core Plug to Wire	K7P7M15W
Pre-wired Plugs for Dimmable Luminaires with Emergency	
6A Luminaire Lead 1.5m 0.75mm ² 6 Core Plug to Wire	K7T1M075W
6A Luminaire Lead 3m 0.75mm ² 6 Core Plug to Wire	K7T3M075W
6A Luminaire Lead 5m 0.75mm ² 6 Core Plug to Wire	K7T5M075W
6A Luminaire Lead 7m 0.75mm ² 6 Core Plug to Wire	K7T7M075W
10A Luminaire Lead 1.5m 1mm ² 6 Core Plug to Wire	K7T1M1W
10A Luminaire Lead 3m 1mm ² 6 Core Plug to Wire	K7T3M1W
10A Luminaire Lead 5m 1mm ² 6 Core Plug to Wire	K7T5M1W
10A Luminaire Lead 7m 1mm ² 6 Core Plug to Wire	K7T7M1W
16A Luminaire Lead 3m 1.5mm ² 6 Core Plug to Wire	K7T3M15W
16A Luminaire Lead 5m 1.5mm ² 6 Core Plug to Wire	K7T5M15W
16A Luminaire Lead 3m 1.5mm ² 6 Core Plug to Plug	K7T3M15P
16A Luminaire Lead 5m 1.5mm ² 6 Core Plug to Plug	K7T5M15P
16A Luminaire Lead 7m 1.5mm ² 6 Core Plug to Plug	K7T7M15P

Klik 7 Pre-wired Marshalling Box Link Leads

Characteristics:

- The link leads are used to connect KLMB to KLMB. All leads are low smoke zero halogen and are factory connected and tested. Note: to ensure correct link lead selection see the connection key on page .
- 1.5mm² CSA.
- 3m, 5m & 10m lengths.
- Standard, Digital and Emergency Luminaires.
- 16A Rated.
- BS 5733:2010, BS EN 61535.
- Short circuit tested: 1500A conditional rating.
- Cable standard BS 6500 & BS 7211.



K7A3M15P

Description	Cat ref.
Pre-wired Link Leads - L, N, CPC	
16A Luminaire Lead 10m 1.5mm ² 3 Core Plug to Plug	K7A10M15P
16A Luminaire Lead 5m 1.5mm ² 3 Core Plug to Plug	K7A5M15P
Pre-wired Link Leads - L, N, CPC, Emergency	
16A Link Lead 10m 1.5mm ² 4 Core Plug to Plug	K7G10M15P
16A Link Lead 5m 1.5mm ² 4 Core Plug to Plug	K7G5M15P
Pre-wired Link Leads - L, N, SL, CPC, Emergency	
16A Link Lead 5m 1.5mm ² 5 Core Plug to Plug	K7K5M15P
Pre-wired Link Leads - CPC, DA+, DA-	
6A DALI Link Lead 3m 0.75mm ² 3 Core Plug to Wire	K7W3M075W
6A DALI Link Lead 5m 0.75mm ² 3 Core Plug to Wire	K7W5M075W
Pre-wired Link Leads - L, N, SL, CPC, DA+, DA-, Emergency	
16A Link Lead 3m 1.5mm ² 7 Core Plug to Plug	K7Z3M15P
16A Link Lead 5m 1.5mm ² 7 Core Plug to Plug	K7Z5M15P

Ceiling Roses

Characteristics:

- 7 Pole conduit box / surface connector to allow the easy connection of digital lighting within traditional fixed wire installations. The connector is fitted directly to trunking or conduit allowing the luminaire to be connected / disconnected via the pluggable luminaire lead.
- 7 Pole.
- 16A Rated.
- Standards: BS 5733:2010.
- Short circuit tested: 1500A conditional rating.



KLPCR7

Description	Cat ref.
16A 7 Pin Ceiling Rose	KLPCR/7
16A 7 Pin Wireable Plug & Ceiling Rose	K7PLUGPCR



K7PLUGPCR

Wireable / Rewireable Plug

Characteristics:

- 7 Terminal plug, enabling you to make leads on site to the configuration required.
- Complies with BS EN 61535-2009+A1-2013
- Enables you to add the plug after cable routing, for example when cables pass through walls.

Description	Cat ref.
16A Wireable Klik 7 Plug	K7PLUG



K7PLUG



EEK515P



EEK001

Occupancy Sensors with Remote Programming & Control Options

Characteristics:

- **EEK520B** - Detector for control of digital (DSI/DALI) luminaires
- Direct control of a light load.
- Lux level and ON delay adjustable via potentiometers or **EEK001** remote control.
- DALI/DSI bus output accommodates up to 24 ballasts.
- 230V wall switch override.
- Presence or absence detection available.
- **EEK523P** - As **EEK520B** but pre-wired with 3m Lead
- **EEK525P** - As **EEK520B** but pre-wired with 5m Lead
- **EEK513P** - detector for control of standard luminaires (On/Off)
- Presence or Absence detection available.
- Programmable from **EEK001**
- 7m Range
- **EEK515P** - As **EEK513P** but pre-wired with 5m Lead
- **EEK001** - IR programming tool
- Installer remote control to commission settings.
- **EEK002** - IR remote control
- Customer remote control for override operation.
- Complies with BS EN 60669-1 & BS EN 60669-2-1.

Description	Cat ref.
Wireable Digital PIR Occupancy Sensor - Dimmable & Daylight Linked	EEK520B
Pluggable Digital PIR Occupancy Sensor 3m lead - Dimmable & Daylight Linked	EEK523P
Pluggable Digital PIR Occupancy Sensor 5m lead - Dimmable & Daylight Linked	EEK525P
Flush Mounted Standard Occupancy Sensor (without cable)	EEK510B
Pluggable PIR Occupancy Sensor 3m lead - On / Off & Daylight Linked	EEK513P
Pluggable PIR Occupancy Sensor 5m lead - On / Off & Daylight Linked	EEK515P
Pre-Wired PIR Occupancy Sensor 3m lead - On / Off & Daylight Linked	EEK513W
Programming Tool	EEK001
Remote Control for the End User	EEK002
Backbox Accessory for Surface BESA Detectors	EEK005

Semi-Recessed Occupancy Sensor

Characteristics:

- The presence area is especially suitable in offices, where there may be notional corridors.
- **EE810** - 1 channel detector
- Provides direct control of a light load or can be used as a slave with **EE811** for enlargement of detection area.
- Lux level and ON delay (duration or pulse) defined via potentiometers.
- Test mode in order to set lux level and the detection pattern.
- **EE811** - 2 channel detector
- Lux level and ON delay adjustable via potentiometers.
- Input for slave (**EE810**) and/or remote push button.
- 230V wall switch override.
- Complies with BS EN 60669-1 & BS EN 60669-2-1.



EE810

Description	Cat ref.
Presence Detector 1 Channel	EE810
Presence Detector 2 Channel	EE811
Surface Mounting Box for EE810 and EE811	EE813

Hyper Frequency Detector

Characteristics:

- The detection range diameter is adjustable from one to eight metres. The hyper frequency sensor allows for detection of movement through partitions (drywall, wood, glass) independent of temperature detection.

Features

- 230V AC.
- IP54 rated.
- Detection area 360°.
- Complies with BS EN 60669-1, BS EN 60669-2-1.



EE883

Description	Cat ref.
360° Hyper Frequency Sensor	EE883
Protection Basket for Hyper Frequency Sensor	EEK006

Corridor Motion Detector

Characteristics:

- Infra-red corridor motion detector for surface mounting.

Features

- 230V AC.
- IP54 rated.
- Detection zone of 4m x 20m.
- Overrun timer from 5 seconds to 15 minutes.
- Complies with BS EN 60669-1 & BS EN 60669-2-1.



EE880

Description	Cat ref.
PIR Corridor Motion Detector	EE880

Klik

Lighting Control Module



Klik LCM's (Lighting Control Module) enable the control of an area with up to 4 different control groups. Each group of outputs can control standard switched and/ or digital dimmable (DALI/ DSI) luminaires. The control module can be connected to up to 4 SELV occupancy sensors and up to 4 wall switch overrides (double retractive, centre off). Any switch or occupancy sensor can be assigned to any output.

The programming is carried out with iPad and communicates with the LCM via Bluetooth. We've also recently introduced an LCM which allows for local physical disconnection of bluetooth technology, for use in security sensitive applications.



SELV Switching / Dimming

Each channel is capable of being switched via one of 4 or more switch inputs.



Sensor with integral lux sensor (SELV)

This allows daylight dimming and switching utilising any natural light available



Scene setting

4 lighting scenes are possible (plus global Up/ Down-On/Off) controlled via centre-off 2 pole retractive grid switch modules and 2 separate scene profiles are available.



Partition switch

This allows total and separate control of a room with a partition and switch fitted.



Corridor hold

Linking LCMs with RJ45 lead to hold designated corridor area



Bluetooth local disconnection

LCM references with BT suffix: Bluetooth function can be locally disconnected for enhanced security applications.



Integral emergency test timers

Emergency test carried out via an emergency test switch (can be set for up to 5 hours). Whilst on test the other luminaires will dim to a pre-set value.



Presence & absence sensing

Each output channel can be set to Presence or Absence individually.



Light level offset between channels

This function allows phasing channels to set as a percentage of the lead channel (e.g. 10%, 60%, 80%, 100%).



Three level timeout

At timeout, lighting can turn Off or Dim down in three stages.



Dimming - DSI, DALI (Broadcast)

Broadcast on the required channel to all connected luminaire

Lighting Control Module with KlikLink

Characteristics:

- The KLCM allows connection and control of multiple luminaires with four separate channels.
- Switching, dimming (DSI & DALI), corridor hold, partition switching, daylight switching & dimming, scene settings, integral emergency test times, reset profiles, light level offset (channel to channel).
- Setting up of **KLCM** is accomplished via KlikLink app, available on iOS for iPad.
- For technical data, see page 3.25

Description	Cat ref.
13 Way 4 Channel LCM Wire in, Plug out	KLCM413W
13 Way 4 Channel LCM Wire in, Plug out, 230V EM Test Override	KLCM413WIET
13 Way 4 Channel LCM Wire in, Plug out, with bluetooth disconnect switch	KLCM413WBT ★
13 Way 4 Channel LCM Wire in, Plug out, 230V EM Test Override, with bluetooth disconnect switch	KLCM413WETBT ★
KlikLink iPad App (Free of charge)	Search KlikLink in iPad App Store



KLCM413W



KlikLink App (Shown on iPad, not included)

Lighting Control Module Occupancy Sensors

Characteristics:

- Klik SELV LCM occupancy sensors come complete with a 10m RJ11 lead and have integrated daylight sensing.
- Sensing options are selected via the KlikLink app (e.g. presence/absence).
- **KLCM-30S** is designed for use as a corridor sensor.
- **KLCM-50S** is designed for use as a whole room sensor.

Description	Range	Cat ref.
Klik LCM Occupancy Sensor with 1 Sensor Head	5m	KLCM-OS
Klik LCM Occupancy Sensor with 1 Sensor Head	10m	KLCM-10S
Klik LCM Corridor Sensor with 3 Sensor Heads	15 x 5m	KLCM-30S
Klik LCM Wide Area Sensor with 5 Sensor Heads	15 x 15m	KLCM-50S



KLCM-OS



KLCM-50S

Lighting Control Module Switch Drop Leads (Grey)

Characteristics:

- RJ45 to switch (wire-in) lead available in a variety of lengths.
- SELV.
- Cables supplied standard with RJ45 plug on both ends.

Note: for retractive wall switch, please see below

Description	Cat ref. Red	Cat ref. Grey
RJ45 SELV Switch Drop Lead		
5m	KLO5RJ45R	KLO5RJ45G
10m	KLO10RJ45R	KLO10RJ45G
15m	KLO15RJ45R	KLO15RJ45G
20m	KLO20RJ45R	KLO20RJ45G
30m	KLO30RJ45R	KLO30RJ45G
40m	KLO40RJ45R	KLO40RJ45G
50m	KLO50RJ45R	KLO50RJ45G
RJ45 Splitter	KLORJ45CON	



KLO15RJ45G



KLO15RJ45R

Lighting, Connection & Control

User Controls

Characteristics:

- Our Sollysta grid retractive wall switches make the perfect user control companion to the LCM.
- Other grid finishes are available, please see our Wiring Accessories Catalogue for the full range.

Description	Cat ref.
Sollysta Grid Retractive Wall Switch	
1 Gang Grid Plate	WMGP1
1 Gang Grid Frame	WMGF1
2 Way & Centre Off Retractive Wall Switch	WMGS13R



WMGS13R



KLDS4

Marshalling Boxes

Characteristics:

- Klik marshalling boxes are used in conjunction with Klik 3 and 4 pin plugs to connect luminaires within an area. The Klik marshalling box can be separated into two independently switched circuits. These circuits can be controlled via wall switch or occupancy sensor.
- Complies with BS 5733:2010.
- Main terminal rating: 16 Amps.
- Socket outlet rating: 6 Amps.
- Separate terminals for flexible conductors, rating: 10 Amps.
- Short circuit tested 1500A conditional rating.
- Socket outlets accept either Klik lighting (3 pin) plugs, Klik auxiliary (4 pin) plugs.

Description

4 Way Klik Lighting Distribution Unit
6 Way Klik Lighting Distribution Unit
8 Way Klik Lighting Distribution Unit
10 Way Klik Lighting Distribution Unit
12 Way Klik Lighting Distribution Unit

Cat ref.

KLDS4
KLDS6
KLDS8
KLDS10
KLDS12



KLDS6BLACK

6 Way Klik Lighting Distribution Unit - Black

KLDS6BLACK ★



PCR2000/1.0

3 Pin Pre-wired 6A Plug-in Ceiling Rose

Characteristics:

- 6A pre-wired plug-in ceiling roses are used to connect luminaires to a fixed wiring installation.
- Complies with BS 6972 and BS 5733:2010.
- PVC flexible cord complies with BS EN 50525-2-11.
- Low smoke zero halogen flexible cord, complies with BS EN 50525-3-11.
- All leads have prepared ends.

Description	Box Quantity	PVC Cat ref.	LSZH Cat ref.
6A Plug-in Ceiling Rose with 0.75mm² Flexible Cord			
1 Metre	10	PCR2000/1.0	PCR2000/LSF/1.0
2 Metre	10	PCR2000/2.0	PCR2000/LSF/2.0
3 Metre	5	PCR2000/3.0	PCR2000/LSF/3.0
4 Metre	5	PCR2000/4.0	PCR2000/LSF/4.0
6A Plug-in Ceiling Rose with 1mm² Flexible Cord			
2 Metre	10	PCR2000/1.0PVC/2	PCR2000/1.0LSF/2
3 Metre	5	PCR2000/1.0PVC/3	PCR2000/1.0LSF/3
4 Metre	5	PCR2000/1.0PVC/4	PCR2000/1.0LSF/4
5 Metre	5	PCR2000/1.0PVC/5	PCR2000/1.0LSF/5



CR64AX/1.0

4 Pin (Including Auxiliary) Pre-wired 6A Plug-in Ceiling Rose

Characteristics:

- Auxiliary 6A pre-wired plug-in ceiling roses are used to connect luminaires to a fixed wiring installation.
- Complies with BS 6972 and BS 5733:2010.
- PVC flexible cord complies with BS EN 50525-2-11.
- Low smoke zero halogen flexible cord, complies with BS EN 50525-3-11.
- All leads have prepared ends.

Description	Box Quantity	PVC Cat ref.	LSZH Cat ref.
6A Pre-wired Ceiling Rose with 0.75mm² Flexible Cord			
1 Metre	10	CR64AX/1.0	CR64AX/LSF/1.0
2 Metre	10	CR64AX/2.0	CR64AX/LSF/2.0
3 Metre	5	CR64AX/3.0	CR64AX/LSF/3.0
4 Metre	5	CR64AX/4.0	CR64AX/LSF/4.0
6A Pre-wired Ceiling Rose with 1mm² Flexible Cord			
2 Metre	10	CR64AX/1.0PVC/2	CR64AX/1.0LSF/2
3 Metre	5	CR64AX/1.0PVC/3	CR64AX/1.0LSF/3
4 Metre	5	CR64AX/1.0PVC/4	CR64AX/1.0LSF/4
5 Metre	5	CR64AX/1.0PVC/5	CR64AX/1.0LSF/5

3 Pin Pre-wired 6A Plugs

Characteristics:

- 6A pre-wired plugs are used to connect luminaires to a Klik ceiling rose or marshalling box. All leads have prepared ends.
- Complies with BS 6972 and BS 5733:2010.
- PVC flexible cord complies with BS EN 50525-2-11.
- Low smoke zero halogen flexible cord, complies with BS EN 50525-3-11.

Description	Quantity	PVC Cat ref.	LSZH Cat ref.
6A Pre-wired Plugs with 0.75mm² Flexible Cord			
1 Metre	10	P22/1.0	P22/LSF/1.0
2 Metre	10	P22/2.0	P22/LSF/2.0
3 Metre	5	P22/3.0	P22/LSF/3.0
4 Metre	5	P22/4.0	P22/LSF/4.0

6A Pre-wired Plugs with 1mm² Flexible Cord

2 Metre	10	P22/1.0PVC/2	P22/1.0LSF/2
3 Metre	5	P22/1.0PVC/3	P22/1.0LSF/3
4 Metre	5	P22/1.0PVC/4	P22/1.0LSF/4
5 Metre	5	P22/1.0PVC/5	P22/1.0LSF/5



4 Pin (Including Auxiliary) Pre-wired 6A Plugs - White

Characteristics:

- Klik auxiliary 6A pre-wired plugs are used to connect luminaires to a Klik ceiling rose or marshalling box.
- Complies with BS 6972 and BS 5733:2010.
- PVC flexible cord complies with BS EN 50525-2-11.
- Low smoke zero halogen flexible cord, complies with BS EN 50525-3-11.
- All leads have prepared ends.

Description	Quantity	PVC Cat ref.	LSZH Cat ref.
6A Pre-wired Plugs with 0.75mm² Flexible Cord			
1 Metre	10	P64AX/1.0	P64AX/LSF/1.0
2 Metre	10	P64AX/2.0	P64AX/LSF/2.0
3 Metre	5	P64AX/3.0	P64AX/LSF/3.0
4 Metre	5	P64AX/4.0	P64AX/LSF/4.0

6A Pre-wired Plugs with 1mm² Flexible Cord

2 Metre	10	P64AX/1.0PVC/2	P64AX/1.0LSF/2
3 Metre	5	P64AX/1.0PVC/3	P64AX/1.0LSF/3
4 Metre	5	P64AX/1.0PVC/4	P64AX/1.0LSF/4
5 Metre	5	P64AX/1.0PVC/5	P64AX/1.0LSF/5



4 Pin (Including Auxiliary) Pre-wired 6A Plugs - Red

Characteristics:

- Klik auxiliary 6A pre-wired plugs are used to connect luminaires to a Klik ceiling rose or marshalling box.
- Complies with BS 6972 and BS 5733:2010.
- PVC flexible cord complies with BS EN 50525-2-11.
- Low smoke zero halogen flexible cord, complies with BS EN 50525-3-11.
- All leads have prepared ends.

Description	Quantity	PVC Cat ref.	LSZH Cat ref.
6A Pre-wired Plugs with 0.75mm² Flexible Cord			
1 Metre	10	P64AXR/1.0	P64AXR/LSF/1.0
2 Metre	10	P64AXR/2.0	P64AXR/LSF/2.0
3 Metre	5	P64AXR/3.0	P64AXR/LSF/3.0
4 Metre	5	P64AXR/4.0	P64AXR/LSF/4.0

6A Pre-wired Plugs with 1mm² Flexible Cord

2 Metre 1.00mm² Flexible Cord	10	P64AXR/1.0PVC/2	P64AXR/1.0LSF/2
3 Metre 1.00mm² Flexible Cord	5	P64AXR/1.0PVC/3	P64AXR/1.0LSF/3
4 Metre 1.00mm² Flexible Cord	5	P64AXR/1.0PVC/4	P64AXR/1.0LSF/4
5 Metre 1.00mm² Flexible Cord	5	P64AXR/1.0PVC/5	P64AXR/1.0LSF/5





PCR2000

3 Pin Plug-in Ceiling Rose & Cover

Characteristics:

- The 6A plug-in ceiling rose is used to offer a pluggable connection for luminaires. The luminaire can be connected and disconnected under load.
- Complies with BS 5733:2010.
- Sockets have 4 terminations: line, neutral, CPC and loop-in.
- Plugs have 3 terminations: line, neutral and CPC.
- Fixing: 50.8mm Standard Diagonal (BESA).

Description	Quantity	Cat ref.
3 Pin Plug-in Ceiling Rose White	10	PCR2000
3 Pin Plug-in Ceiling Rose Black	10	PCR2000BLACK ★



CR64AX/R

4 Pin (including Auxiliary) Plug-in Ceiling Rose & Cover

Characteristics:

- Klik 6A pre-wired plug-in ceiling roses are used to connect luminaires to a fixed wiring installation. Auxiliary contact available, a typical use is for emergency lighting.
- Complies with BS 6972 and BS 5733:2010.
- Sockets have 5 terminations: line, neutral, CPC, auxiliary and loop-in.
- Plugs have 4 terminations: line, neutral, CPC and auxiliary.

Description	Quantity	Cat ref.
4 Pin Plug-in Ceiling Rose White	10	CR64AX
4 Pin Plug-in Ceiling Rose Red	10	CR64AX/R



A1/R

Spare Ceiling Rose Cover

Description	Quantity	Cat ref.
Ceiling Rose Cover White	10	A1
Ceiling Rose Cover Red	10	A1/R
Ceiling Rose Cover Black	10	A1BLACK ★



P22

3 Pin Plug

Characteristics:

- Klik 3 pin plugs are used to connect into a Klik socket giving a pluggable connection to luminaires.
- Complies with BS 6972 and BS 5733:2010.
- Suitable for use with any Klik 3 or 4 pin socket.
- **P22** plug is supplied in a plug-in ceiling rose, cat ref. **PCR2000**.
- Plugs have 3 terminations: line, neutral and CPC.

Warning: Plugs must not be fitted on the supply side of any installation - they must be connected to the load / fitting / appliance side of the installation.

Description	Quantity	Cat ref.
3 Pin Plug White	10	P22
3 Pin Plug Black	10	P22BLACK ★



P64AX/R

4 Pin (Including Auxiliary) Plug

Characteristics:

- Klik plugs with auxiliary pin are used to connect into the Klik sockets giving a pluggable connection to luminaires.
- Complies with BS 6972 and BS 5733:2010.
- Suitable for use with any Klik 4 pin sockets.
- **P64AX** plug is supplied in a plug-in ceiling rose, Cat. ref. **CR64AX**.
- Plugs have 4 terminations: line, neutral, CPC and auxiliary.

Warning: Plugs must not be fitted on the supply side of any installation - they must be connected to the load / fitting / appliance side of the installation.

Description	Quantity	Cat ref.
4 Pin Plug White	10	P64AX
4 Pin Plug Red	10	P64AX/R

3 Pin Plug Socket Outlets

Characteristics:

- 6A socket outlets are used in conjunction with 6A plugs to provide a pluggable connection to luminaires.
- Complies with BS 6972 and BS 5733:2010.
- Suitable for use with standard Klik 3 pin plug.
- **S27** socket is supplied in plug-in ceiling rose, Cat. Ref. **PCR2000**.
- **S27** socket will accept **A1** cover.
- **S26/TC** socket is an **S26** architrave socket pre-assembled with a trunking clamp.

Description	Quantity	Cat ref.
3 Pin Round Socket White	10	S27



S27

4 Pin (Including Auxiliary) Plug Socket Outlets

Characteristics:

- Klik auxiliary 6A socket outlets are used in conjunction with Klik auxiliary 6A plugs to provide a pluggable connection to luminaires.
- Complies with BS 6972 and BS 5733:2010.
- Suitable for use with standard Klik 4 pin plug.
- **S64AX** socket is supplied in plug-in ceiling rose, Cat. Ref. **PCR2000**.
- **S64AX** socket will accept **A1** cover.
- **S65AX** socket is a square variant.
- All sockets have 5 terminations: line, neutral, CPC, auxiliary and loop-in.
- Can be used with Klik 3 or 4 pin plug.

Description	Quantity	Cat ref.
4 Pin Round Socket White	10	S64AX
4 Pin Round Socket Black	10	S64BLACK ★



S64AX



S64BLACK

Moulded Mounting Boxes

Description	Quantity	Cat ref.
Round Surface Box White	10	MB2



MB2



EEK513W



EE815B

Occupancy Sensors with Remote Programming & Control Options

Characteristics:

- Comes complete with integral photocell and the facility for wall switch override.
- Can be programmed for absence or presence.
- Range 7m diameter for large movements, 5m diameter for small movements.
- Factory presets, lux = 400, time = 20 min, presence detection.

Description	Cat ref.
Flush Mounted Standard Occupancy Sensor, Pre-Wired 3m	EEK513W
Flush Mounted Standard Occupancy Sensor (without cable)	EEK510B
Klik Occupancy Sensor 6 Amp Long Range	KLOS6LR
Flush Mounted Standard Occupancy Sensor (without cable) - Black	EE815B ★



EEK001

EEK002

Remote Controls for EEK Sensors Only

Characteristics:

- **EEK001** programming tool is easy to use with 2 memory settings to enable repeatability.
- **EEK002** remote control comes with a wall mounting bracket for storage and allows room occupant to have control of lighting output.

Description	Cat ref.
Programming Tool	EEK001
Remote Control	EEK002



EEK005



EEK005B

Accessories

Description

- Backbox for surface/conduit mounting of flush sensors
- Backbox for surface/conduit mounting of flush sensors - Black

Cat ref.
EEK005
EEK005B ★

Occupancy Sensors

- Characteristics:
- Adjustment achieved by potentiometer only
 - Automatic switching of electric loads depending on heat motion and ambient brightness
 - **EE804A**: Surface-mounted installation
 - **EE805A**: Cavity/Flush installation (75mm hole diameter)
 - Combination of presence and motion detector with enhanced detection sensitivity in the central presence-detection area
 - Response brightness adjustable
 - Delay time adjustable
 - Coverage 360 degrees, Diameter 6m @ 2.5m, (motion) enhanced detection area 4m Diameter (presence) @ 2.5m
 - Factory presets: Lux = 200, Time = 3 Minutes

Description	Cat ref.
Movement Detector 360° Surface Mounted	EE804A
Movement Detector 360° Flush Mounted	EE805A



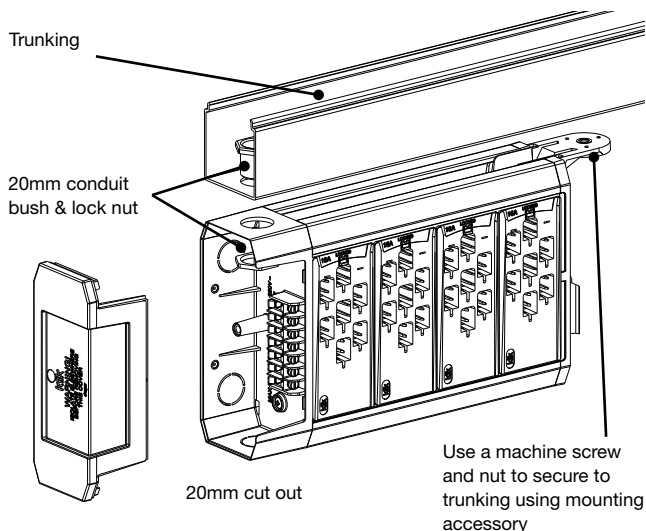
EE804A



EE805A

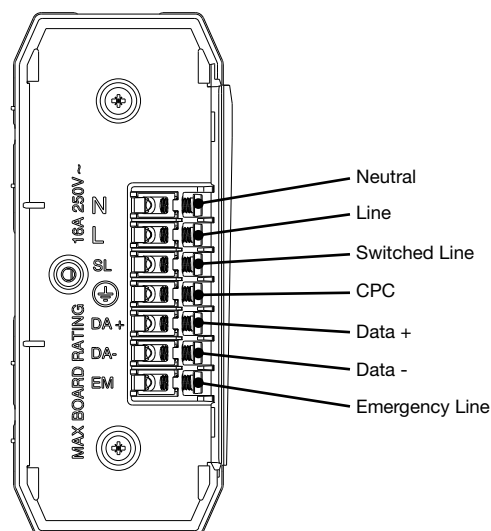
Mounting Options for Trunking

Mounting Accessory can be clipped into the rear or top channel slot. It can be easily removed by inserting a screwdriver in the RELEASE slot.



Fixed Wiring Connection

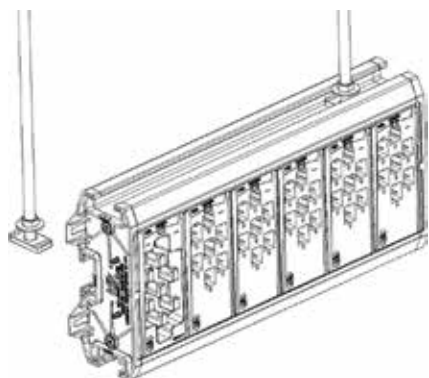
Klik 7 Pin LMB has seven screw terminals available to the installer and are arranged in the end cap as per diagram. DA+/DA- connections can be used for DALI/DSI control.



Mounting Options for Drop Rod (Lighting Marshalling Box)

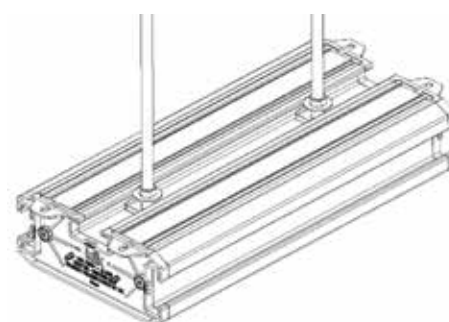
Option 1.

Klik 7 Pin LMB features open ends to allow you to slide the box into position before tightening for easier installation, or push the box up on to the nut and rotate to locate and tighten to secure.



Option 2.

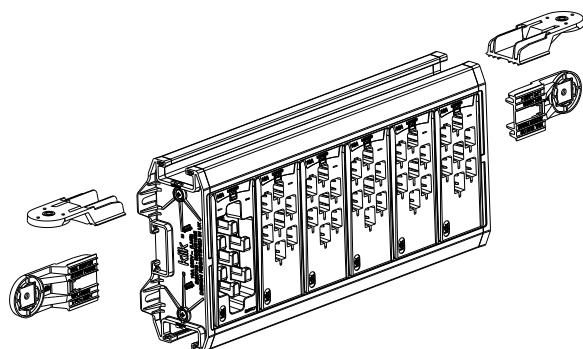
Single sided LMB can be mounted from the top as option 1 or from the rear as shown. Note: Double sided LMBs can only be mounted with option 1.



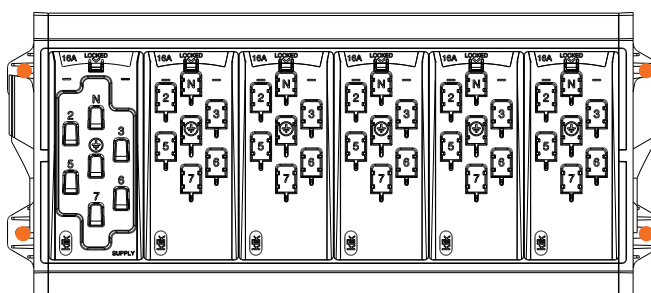
Mounting Options for Wall & Ceiling

Klik 7 Pin LMB includes the Klik mounting accessory, this makes it much easier to mount LMB with Nail Guns or traditional fixings. 2 accessories are included with each LMB. Mounting Accessory can be clipped into the rear or top channel slot. It can be easily removed by inserting a screwdriver in the RELEASE slot.

Note: Double sided LMB can only be mounted on top channel slot.

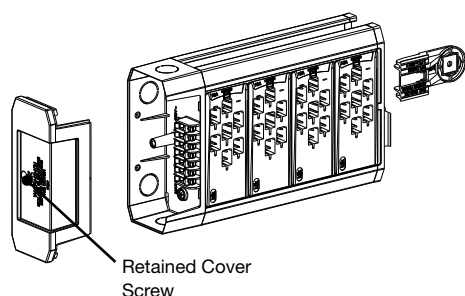


Screw mounting tabs (x4)



Lighting Marshalling Boxes (LMB) - Fixed Wiring

16A Rated LMB Complying to BS 5733:2010



KLMB4W



KLMB6W



KLMB8W



KLMB10W

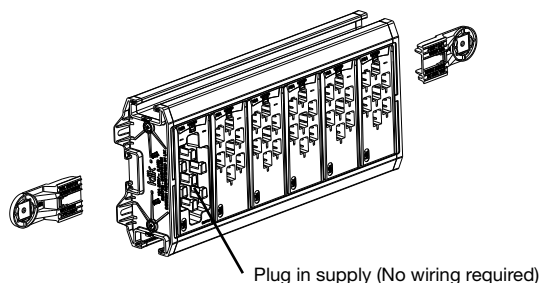


KLMB12W



Lighting Marshalling Boxes (LMB) - Pluggable

16A Rated LMB Complying to BS 5733:2010



KLMB5P



KLMB7P



KLMB9P

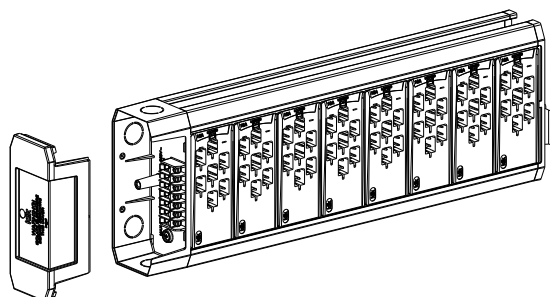


KLMB11P



Dual Channel Lighting Marshalling Boxes (LMB) - Fixed Wiring

16A Rated LMB complying to BS 5733:2010



KLMB244W



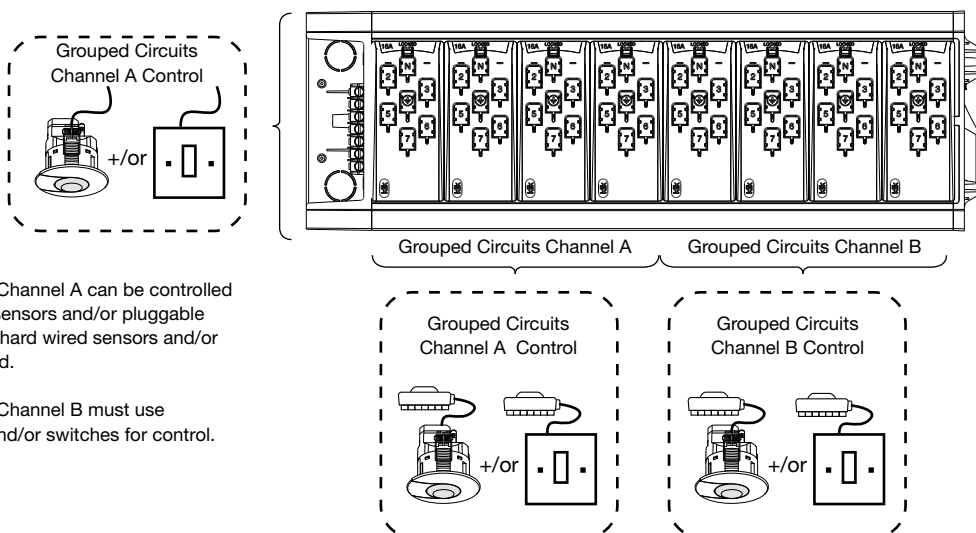
KLMB255W



KLMB266W



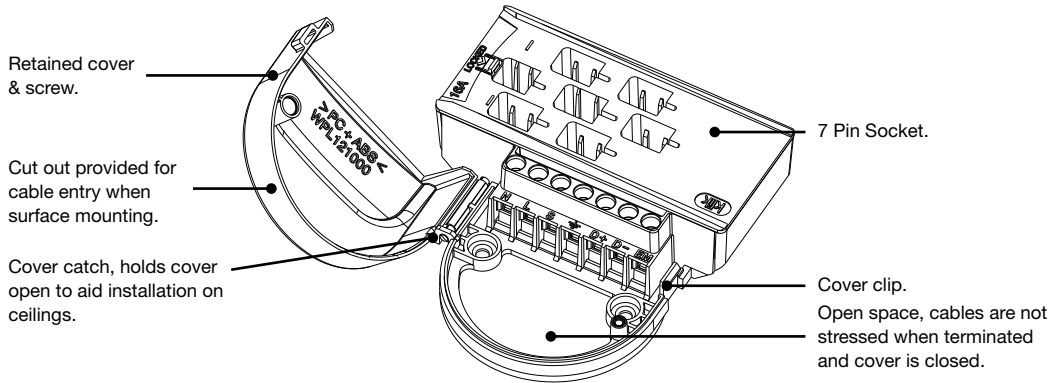
Grouped Circuits - Control



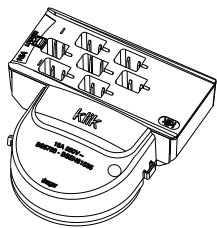
1. Grouped Circuits Channel A can be controlled by using pluggable sensors and/or pluggable switch. Alternatively hard wired sensors and/or switches can be used.
2. Grouped Circuits Channel B must use pluggable sensors and/or switches for control.

Previous Part Reference	Description	New Part Reference	New Description
KLA/10/1-5P	16A Lighting Link Lead 10m 1.5mm 3 Core P-P	K7A10M15P ★	16A Lighting Link Lead 10m 1.5mm 3 Core P-P
KLA/5/1-5P	16A Lighting Link Lead 5m 1.5mm 3 Core P-P	K7A5M15P ★	16A Lighting Link Lead 5m 1.5mm 3 Core P-P
KLB/1/0-75W	16A Lighting Lead 1m 0.75mm 3 Core P-W	K7B1M075W ★	16A Lighting Lead 1.5m 0.75mm 3 Core P-W
KLB/1/1W	16A Lighting Lead 1m 1mm 3 Core P-W	K7B1M1W ★	16A Lighting Lead 1.5m 1mm 3 Core P-W
KLB/3/0-75W	16A Lighting Lead 3m 0.75mm 3 Core P-W	K7B3M075W ★	16A Lighting Lead 3m 0.75mm 3 Core P-W
KLB/3/1W	16A Lighting Lead 3m 1mm 3 Core P-W	K7B3M1W ★	16A Lighting Lead 3m 1mm 3 Core P-W
KLB/5/0-75W	16A Lighting Lead 5m 0.75mm 3 Core P-W	K7B5M075W ★	16A Lighting Lead 5m 0.75mm 3 Core P-W
KLB/5/1W	16A Lighting Lead 5m 1mm 3 Core P-W	K7B5M1W ★	16A Lighting Lead 5m 1mm 3 Core P-W
KLE/3/1-5W	16A Lighting Lead 3m 1.5mm 3 Core P-W	K7E3M15W ★	16A Lighting Lead 3m 1.5mm 3 Core P-W
KLE/5/1-5W	16A Lighting Lead 5m 1.5mm 3 Core P-W	K7E5M15W ★	16A Lighting Lead 5m 1.5mm 3 Core P-W
KLK/10/1-5P	16A Lighting Link Lead 10m 1.5mm 4 Core P-P	K7G10M15P ★	16A Lighting Link Lead 10m 1.5mm 4 Core P-P
KLK/5/1-5P	16A Lighting Link Lead 5m 1.5mm 4 Core P-P	K7G5M15P ★	16A Lighting Link Lead 5m 1.5mm 4 Core P-P
KLJ/1/0-75W	16A Lighting Lead 1m 0.75mm 4 Core P-W	K7J1M075W ★	16A Lighting Lead 1.5m 0.75mm 4 Core P-W
KLJ/1/1W	16A Lighting Lead 1m 1mm 4 Core P-W	K7J1M1W ★	16A Lighting Lead 1.5m 1mm 4 Core P-W
KLJ/3/0-75W	16A Lighting Lead 3m 0.75mm 4 Core P-W	K7J3M075W ★	16A Lighting Lead 3m 0.75mm 4 Core P-W
KLJ/3/1-5P	16A Lighting Lead 3m 1.5mm 4 Core P-P	K7J3M15P ★	16A Lighting Lead 3m 1.5mm 4 Core P-P
KLJ/3/1W	16A Lighting Lead 3m 1mm 4 Core P-W	K7J3M1W ★	16A Lighting Lead 3m 1mm 4 Core P-W
KLJ/5/0-75W	16A Lighting Lead 5m 0.75mm 4 Core P-W	K7J5M075W ★	16A Lighting Lead 5m 0.75mm 4 Core P-W
KLJ/5/1-5P	16A Lighting Lead 5m 1.5mm 4 Core P-P	K7J5M15P ★	16A Lighting Lead 5m 1.5mm 4 Core P-P
KLJ/5/1W	16A Lighting Lead 5m 1mm 4 Core P-W	K7J5M1W ★	16A Lighting Lead 5m 1mm 4 Core P-W
KLK/5/1-5P	16A Lighting Link Lead 5m 1.5mm 5 Core P-P	K7K5M15P ★	16A Lighting Link Lead 5m 1.5mm 5 Core P-P
KLP/1/0-75W	16A Lighting Lead 1m 0.75mm 5 Core P-W	K7P1M075W ★	16A Lighting Lead 1.5m 0.75mm 5 Core P-W
KLP/1/1-5W	16A Lighting lead 1m 1.5mm2 5 core P-W	K7P1M15W ★	16A Lighting lead 1.5m 1.5mm2 5 core P-W
KLP/1/1W	10A Lighting lead 1m 1mm2 5 core P-W	K7P1M1W ★	10A Lighting lead 1.5 1mm2 5 core P-W
KLP/3/0-75W	16A Lighting Lead 3m 0.75mm 5 Core P-W	K7P3M075W ★	16A Lighting Lead 3m 0.75mm 5 Core P-W
KLP/3/1-5W	16A Lighting Lead 3m 1.5mm 5 Core P-W	K7P3M15W ★	16A Lighting Lead 3m 1.5mm 5 Core P-W
KLP/3/1W	16A Lighting Lead 3m 1mm 5 Core P-W	K7P3M1W ★	16A Lighting Lead 3m 1mm 5 Core P-W
KLP/5/0-75W	16A Lighting Lead 5m 0.75mm 5 Core P-W	K7P5M075W ★	16A Lighting Lead 5m 0.75mm 5 Core P-W
KLP/5/1-5W	16A Lighting Lead 5m 1.5mm 5 Core P-W	K7P5M15W ★	16A Lighting Lead 5m 1.5mm 5 Core P-W
KLP/5/1W	16A Lighting Lead 5m 1mm 5 Core P-W	K7P5M1W ★	16A Lighting Lead 5m 1mm 5 Core P-W
KLT/1/0-75W	16A Lighting Lead 1m 0.75mm 6 Core P-W	K7T1M075W ★	16A Lighting Lead 1.5m 0.75mm 6 Core P-W
KLT/1/1W	16A Lighting Lead 1m 1mm 6 Core P-W	K7T1M1W ★	16A Lighting Lead 1.5m 1mm 6 Core P-W
KLT/3/0-75W	16A Lighting Lead 3m 0.75mm 6 Core P-W	K7T3M075W ★	16A Lighting Lead 3m 0.75mm 6 Core P-W
KLT/3/1-5P	16A Lighting Lead 3m 1.5mm 6 Core P-P	K7T3M15P ★	16A Lighting Lead 3m 1.5mm 6 Core P-P
KLT/3/1W	16A Lighting Lead 3m 1mm 6 Core P-W	K7T3M1W ★	16A Lighting Lead 3m 1mm 6 Core P-W
KLT/5/0-75W	16A Lighting Lead 5m 0.75mm 6 Core P-W	K7T5M075W ★	16A Lighting Lead 5m 0.75mm 6 Core P-W
KLT/5/1-5P	16A Lighting Lead 5m 1.5mm 6 Core P-P	K7T5M15P ★	16A Lighting Lead 5m 1.5mm 6 Core P-P
KLT/5/1W	16A Lighting Lead 5m 1mm 6 Core P-W	K7T5M1W ★	16A Lighting Lead 5m 1mm 6 Core P-W
KLTB/1/1-5W	16A T Connector 1m 1.5mm 3 Core P-W	K7B1M15WTEE ★	16A T Connector 1.5m 1.5mm 3 Core P-W
KL TJ/1/1-5W	16A T Connector 1m 1.5mm 4 Core P-W	K7J1M15WTEE ★	16A T Connector 1.5m 1.5mm 4 Core P-W
KLTP/1/1-5W	16A T Connector 1m 1.5mm 5 Core P-W	K7P1M15WTEE ★	16A T Connector 1.5m 1.5mm 5 Core P-W
KLTT/1/1-5W	16A T Connector 1m 1.5mm 6 Core P-W	K7T1M15WTEE ★	16A T Connector 1.5m 1.5mm 6 Core P-W
KLZ/3/1-5P	16A Lighting Link Lead 3m 1.5mm 7 Core P-P	K7Z3M15P ★	16A Lighting Link Lead 3m 1.5mm 7 Core P-P
KLZ/5/1-5P	16A Lighting Link Lead 5m 1.5mm 7 Core P-P	K7Z5M15P ★	16A Lighting Link Lead 5m 1.5mm 7 Core P-P

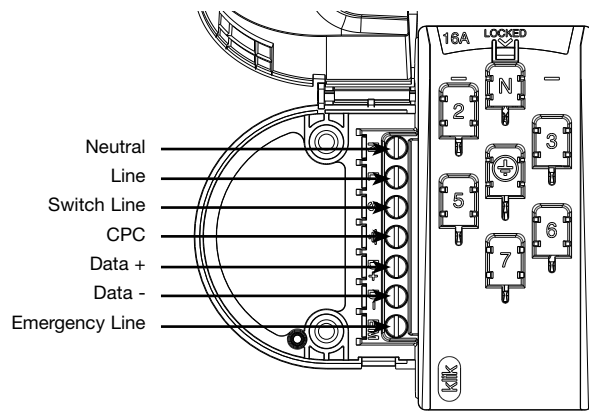
KLPCR - Surface Mount Connector



PCR can be mounted in two ways, firstly on to conduit box or secondly direct on to a surface.



Terminating cables.
Terminal screws are retained in pockets.
Max Terminal Capacity 2x4mm²
Conductor strip length: 10mm.

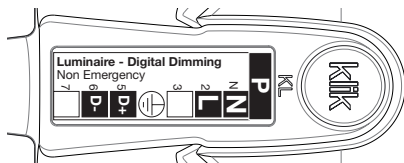


K7PLUG Wireable Plug Configurations and Labels

Self Adhesive ID Labels:

Apply label for the type of lead you are making.

Lighting configurations for on / off and dimmable solutions.



Luminaire Connections

On/Off Non Emergency	7 6 5 3 2 N B
On/Off Switched Emergency	7 6 5 3 2 N J
Digital Dimming Non Emergency	7 6 5 3 2 N P
Digital Dimming Emergency	7 6 5 3 2 N T
Emergency Exit	7 6 5 3 2 N E

Switch Drops

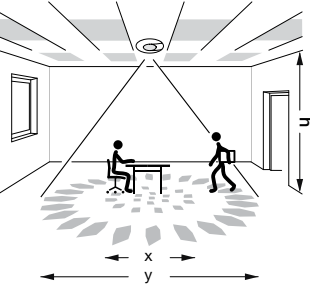
1 Gang - 1 Way or Retractive N/O for Digital OS Wall Dimming Control	7 6 5 3 2 N D
Retractive N/O Switch Absence or Override off for OS	7 6 5 3 2 N L
Switch Drop for Emergency Key Switch	7 6 5 3 2 N C
2 Gang, 1 Way plus Emergency Key Switch	7 6 5 3 2 N H
2 Gang, 2 Way Plus Emergency Key Switch	7 6 5 3 2 N R

Link Lead

Power Only	7 6 5 3 2 N A
Power with Emergency	7 6 5 3 2 N G
Power with Switching and Emergency	7 6 5 3 2 N K
Power, Switched Line, Control & Emergency	7 6 5 3 2 N Z
DALI Link Lead	7 6 5 3 2 N W

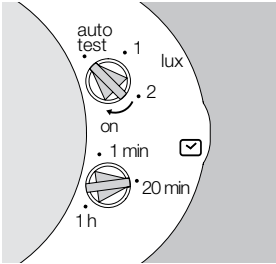
EEK Sensors

Detection areas

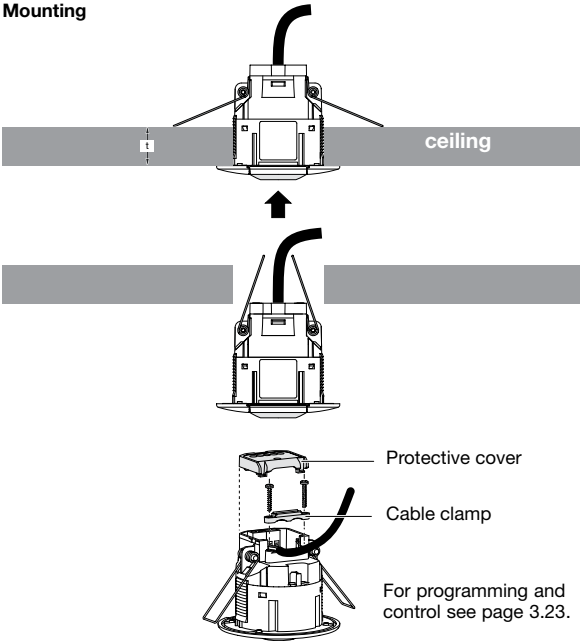


H	2.5m	3m	3.5m
X	5m	5m	5m
Y	7m	8m	9m

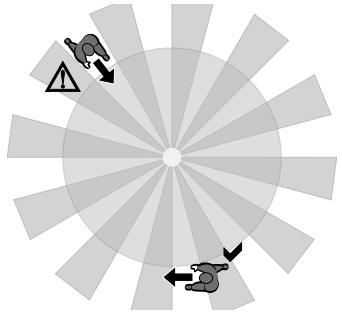
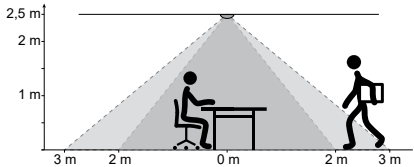
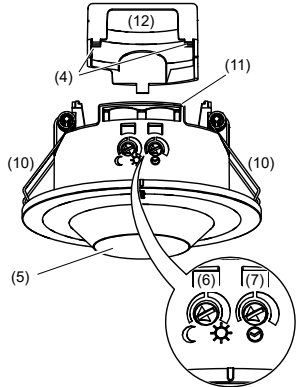
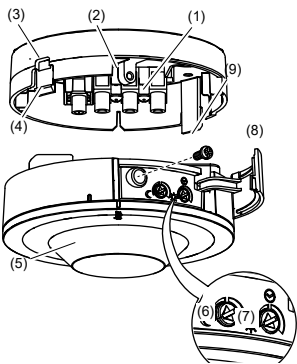
Settings EEK513P/EEK515P
EEK523P/EEK525P



Mounting

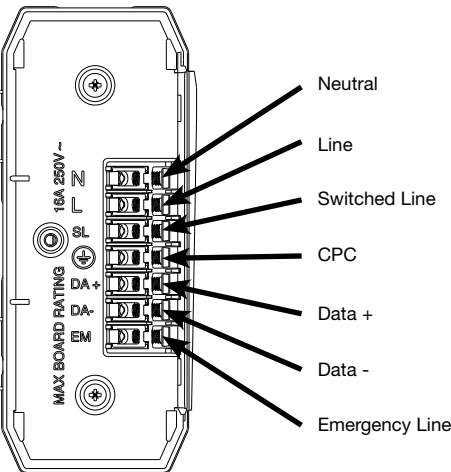


EE804A / EE805A Sensors



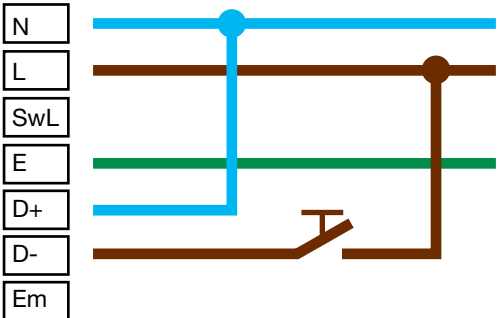
1. Connecting terminals
2. Mounting device locking screw
3. Release opening
4. Fastening grids
5. Detector lens
6. Response brightness potentiometer
7. Potentiometer delay time
8. Cover for potentiometer
9. Locking screw
10. Fixing springs
11. Strain relief with mounting device for cable ties
12. Cover for connection compartment

Manual dimming with retractable switch (no OS)



Hager Sollysta retractable wall switch references

Description	Cat ref.
1 Gang Grid Plate	WMGP1
1 Gang Grid Frame	WMGF1
2 Way & Centre Off Retractive Wall Switch	WMGS13R



Klik 7 Pin Product Standards

Product Description	Klik Product identification	BS number	Description
Klik 7 pin Marshalling Boxes	KLMB*W / P	BS 5733:2010	General Requirements for Electrical Accessories.
Occupancy Sensor	EEK*	IEC 60669-1, IEC 60669-2-1	Switches for household & similar fixed electrical installations Part 2-1 for Electronic switches.
Conduit Box / Surface Connector	KLPCR/7	BS 5733:2010	General requirements for Luminaire supporting couplers for domestic, light industrial & commercial use.
Luminaire Leads	K7B*, K7J*, K7P*, K7T*	BS 5733:2010 BS EN 61535	Thermosetting insulated & thermoplastic sheathed cables for voltages up to & including 450 / 750 V for electric power & lighting & having low emission of smoke & corrosive gases when affected by fire.
LS0H Flexible Cord	Supplied with luminaire lead	BS 6500:2000 BS 7211:2012	Thermosetting insulated & thermoplastic sheathed cables for voltages up to & including 450 / 750 V for electric power & lighting & having low emission of smoke & corrosive gases when affected by fire.

Klik 4 Pin Product Standards

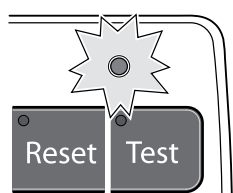
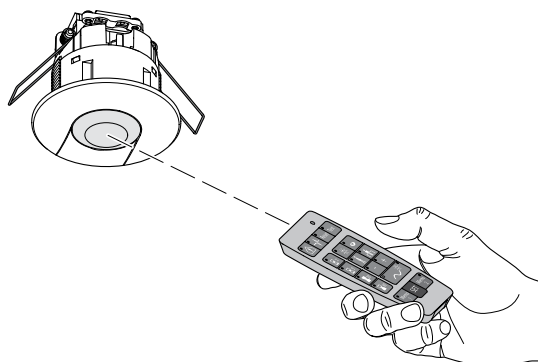
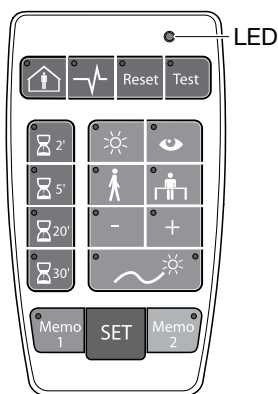
Product Description	Klik Product identification	BS number	Description
Klik Distribution Boxes	KLDS KLMB	BS 5733:2010	General requirements for Electrical Accessories
Occupancy Sensor	EEK*W	BS EN 60669-1, BS EN 60669-2-1	Switches for household & similar fixed electrical installations Part 2-1 for Electronic switches.
Mounting Boxes	MB	BS 5733:2010	General requirements for Electrical Accessories
Klik Ceiling Roses, Plugs, Outlets & Pre-Wired Leads	S, P, PCR	BS 5733:2010 BS 6972:1988	General requirements for Electrical Accessories General requirements for Luminaire supporting couplers for domestic, light industrial & commercial use Installation couplers intended for permanent connection in fixed installations
PVC Flexible Cord	PVC	BS 6500:2000	Thermosetting insulated & thermoplastic sheathed cables for voltages up to & including 450 / 750 V for electric power & lighting & having low emission of smoke & corrosive gases when affected by fire.
LSF Flexible Cord	LS0H	BS 6500:2000 BS 7211:1998	Thermosetting insulated & thermoplastic sheathed cables for voltages up to & including 450 / 750 V for electric power & lighting & having low emission of smoke & corrosive gases when affected by fire.

Product Materials

Klik plugs and sockets feature solid brass terminals and phosphor bronze contacts for good conductivity. Moulded components are manufactured from high quality thermoplastics.

Klik Terminal Capacities

	Number of Conductors				
	0.75mm ²	1.0mm ²	1.5mm ²	2.5mm ²	4.0mm ²
Socket Outlets	-	5	4	3	2
Plugs P22, P64X, K7PLUG	1	1	1	-	-



The acknowledgment LED blinks during the sending of the IR message.

Technical specification
Power supply: 1x 3V CR2032
Shelf life of battery: 2½ years
Protection index: IP 30

Use

The remote control allows the user to set or modify presence detector settings. When the potentiometer is on auto test it allows single and multiple settings. The SET key is used to send the IR messages to the occupancy sensors. Multiple settings can be stored in Memo 1 and Memo 2 and re-called to set several devices.

Single setting

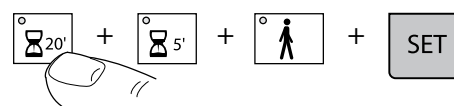
Example: reset



Multiple settings

Define the parameters to be changed and press SET to send.

Example: for 25 minutes and corridor use, press 20', 5' and corridor.

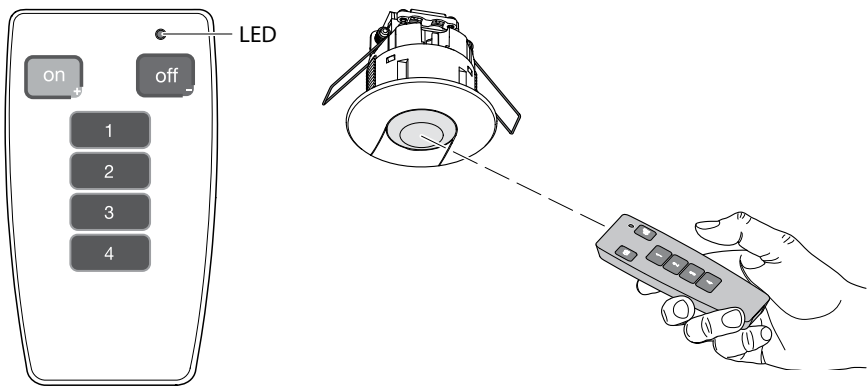


In the case of 2 opposite states the green LED denotes ON and red LED denotes OFF (except Presence / Absence).

When no function is selected all LED's are OFF.

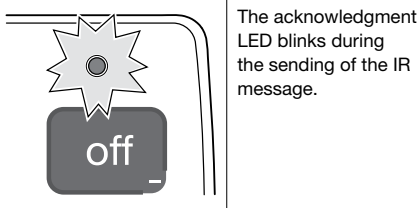
Settings available

Key	Meaning	Indication	Function
	Presence	Green LED on	Presence on (automation mode)
	Absence	Red LED on	Absence on (semi automatic mode)
	Power Up	Green LED on	The light is automatically switched on for 30 seconds after power up
		Red LED on	During warm up phase, the light output is off
Reset	Reset	LED on	To return to factory settings (Lux = 400, time = 20 min, presence on, power up off and cell active)
Test	Test	LED on	To validate the detection area
	Time	LED on	To set the time It is possible to add times together e.g. press 2' and 5' for a time value of 7'
	Day level 1000 Lux	LED on	To set the value to 1000 Lux
	Learn	LED on	To learn the current Lux level
	Corridor 200 Lux	LED on	To set the value to 200 Lux
	Office 400 Lux	LED on	To set the value to 400 Lux
+	Lux +	LED on	To increase the Lux level (+100)
-	Lux -	LED on	To decrease the Lux level (-100)
	Active cell	Green LED on	The light is continuously measured
	Passive cell	RED LED on	The sensor will not switch the light off even if the ambient luminosity is sufficient
Memo and set Key	Meaning	Indication	Function
Memo 1	Press	LED is on until a setting is changed	To load/unload Memo 1
	Long press	LED is on for 5s, then will blink until released. After release, the LED goes off in case of setting change	To save the current setting as Memo 1
Memo 2	Press	LED is on until a setting is changed	To load/unload Memo 2
	Long press	LED is on for 5s, then will blink until released. After release, the LED goes off in case of setting change	To save the current setting as Memo 2
SET	Short press (<5s)	LED flashes	To send an IR message of the current setting
	Long press (>5s but <10s) only available if no setting active	LED blinks until release press	To toggle automatic mode on DALI/DSI



Use
The remote control allows the user to set or modify settings on the presence detectors **EEK513W** and **EEK510B**.

Each button corresponds to a command.

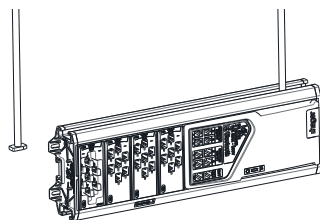


Technical specification
Power supply: 1x 3V CR2032
Shelf life of battery: 3½ years
Protection index: IP 30

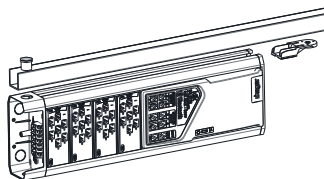
Settings available

Key	Action	Function	Product Type
on +	Short Press (< 5s.)	On	EEK513W / EEK510B
	Long Press (> 5s.)	Dim up	EEK513W / EEK510B
off -	Short Press	Off	EEK513W / EEK510B
	Long Press (> 5s.)	Dim down	EEK513W / EEK510B
1	Short Press	To start scene 1	
2	Short Press	To start scene 2	
3	Short Press	To start scene 3	
4	Short Press	To start scene 4	

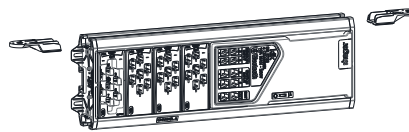
Fixing Methods



Drop Rods

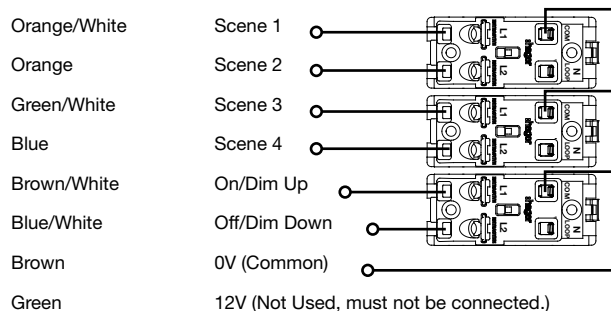


Trunking
(Not possible for plug-in **KLCM412P**)



Direct: e.g. nail gun or screw fixing
(not possible for hard-wire **KLCM413W**)

Switch inputs - 1 to 4 (retractive wall switch ref: WMGS13R)

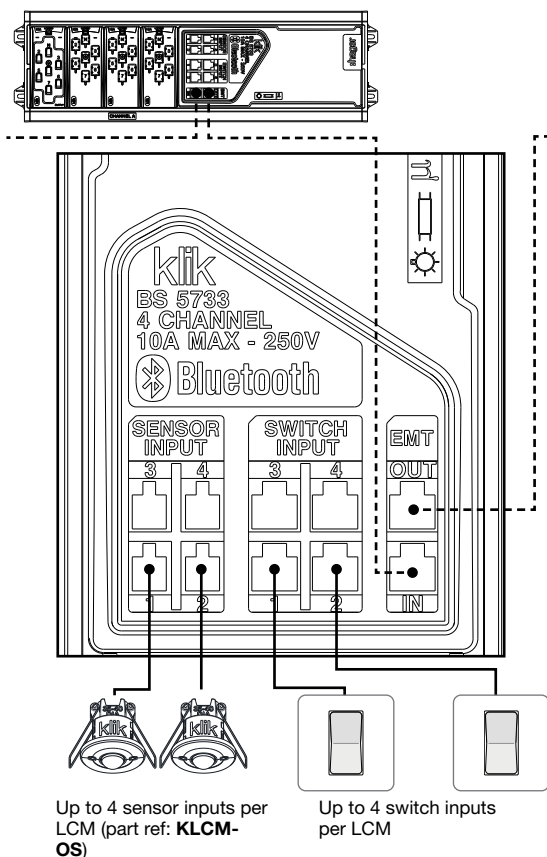


Emergency test in & out

Orange/White	Override - All Outputs On
Orange	Override - All Outputs Off
Green/White	Corridor Hold Line
Blue	Emergency Test (Timer 1)
Blue/White	Emergency Test (Timer 2)
Green	Emergency Test (Timer 3)
Brown	Common
Brown/White	Not Used.

Occupancy Sensor Technical Characteristics

Technical Characteristics	KLCM-OS	KLCM-10S	KLCM-30S	KLCM-50S
Supply Voltage	12V DC	SELV (12VDC)	SELV (12VDC)	SELV (12VDC)
Detection Area	Motion area: diameter 6m (product installed at 2½m height) presence area: diameter 6m (product installed at 2½m height)	360° 10m	360° 5m to 15m	360° 15m
Receiver Class	2	2	2	2
Parasitic Power		.672mW	.672mW	1.044mW
Duration of lighting output operation	Via KlikLink App & LCM	Via KlikLink App & LCM	Via KlikLink App & LCM	Via KlikLink App & LCM
Luminosity threshold	Via KlikLink App & LCM	Via KlikLink App & LCM	Via KlikLink App & LCM	Via KlikLink App & LCM
Recommended installation height	2.5m	2.5m	2.5m	2.5m
Operating temperature	-20°C to +60°C	-20°C to +50°C	-20°C to +50°C	-20°C to +50°C
Storage temperature	-2°C to +70°C	-35°C to +70°C	-35°C to +70°C	-35°C to +70°C
Insulation class	II	II	II	II
Protection rating	IP41	IP41	IP41	IP41
Standards	BS EN 55015:2013	BS EN55015:2013, BS EN61547:2009	BS EN55015:2013, BS EN61547:2009	BS EN55015:2013, BS EN61547:2009
Maximum installation altitude	2000m	2000m	2000m	2000m
Polution degree	2	2	2	2
Connection	RJ11	RJ11 6P4C	RJ11 6P4C	RJ11 6P4C
Dimensions		High: 70mm, Diameter: 101mm	High: 70mm, Diameter: 101mm	High: 70mm, Diameter: 101mm
Weight		110 grams	110 grams	110 grams
Mounting hole diameter		85mm	85mm	85mm



- Plug-in sensor and switch control
- Any port can be configured via the KlikLink App.
- Grouping LCMs via RJ45 leads for corridor hold and groups for emergency test
- Programmed via the KlikLink app. Download from the App Store.

Wiring accessories from the Sollysta Grid range

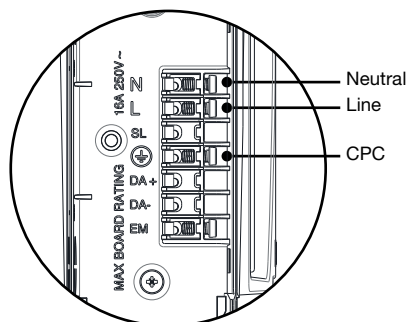
Centre off retractive switch module	WMGS13R
White moulded Grid Plates	WMGPx (1,2,3,4,6 & 8) G
Grid Frames	WMGFx (1,2 & 3/4) G

Technical Characteristics

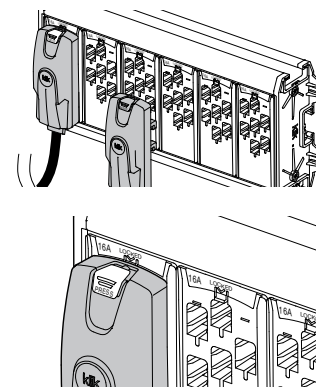
Number of channels	4
Number of outputs per channel	3 (hard wired LCM has 4 outputs on channel A)
Number of sensor inputs	4 (KLCM-OS 10S / 30S / 50S)
Number of switch inputs	4
Supply Voltage	230V AC 50Hz
Rated current	10A (total load)
Rated current each connector	10A
Complies with	BS 5733:2010, BS EN 60669-2-5 BS EN 61535:2009 - (Excluding clauses 10.1 and 10.3 due to Aluminium enclosure)
IP protection	IP20
Connection for programming	Bluetooth Smart (Bluetooth 4) (only available on Apple iPad)
Dimensions	Height 145mm Width 440mm Depth 58mm Weight 1.9kg

Supply input connection

Hard wired



Pluggable



- Connecting the supply lead: plug in and push down
- Disconnecting the supply lead: press button and push up.

Plug colour coding

White: Luminaire Lead
Red: Luminaire & Emergency
Black: Link Lead

Klik 4

				
+ 3m Lead, Flush Mount	Wireable, Flush Mount	Klik 4 Direct Plug-In	Wireable, Surface Mount	Wireable, Flush Mount

Technical characteristics	EEK513W	EEK510B/EE815B	KLOS6LR	EE804A	EE805A
Supply voltage	230V~ 50Hz	230V~ 50Hz	230V - 50Hz	230V - 50Hz	230V - 50Hz
Detection type	Presence	Presence	Presence	Motion / Presence	Motion / Presence
Parasitic power	270mW	270mW	-	0.3W	0.3W
Detection (Length)	7m	7m	25m	6m	6m
Detection (Width)	7m	7m	-	6m	6m
Detection angle	360°	360°	6-18°	360°	360°
Detection frequency	-	-	-	-	-
Receiver class	-	-	-	-	-
Standby consumption	2.4VA/270mW	2.4VA/270mW	-	-	-
Duration of lighting output operation (S1)	1min to 1hour	1min to 1hour	10 Secs to 40 Mins	5s - 30min	5s - 30min
Duration of time delay (S2)	-	-	-	-	-
Luminosity threshold	5 to 1000 Lux	5 to 1000 Lux	30 Lux	5 - 1000	5 - 1000
Recommended installation height	2.5m	2.5m	2.5m	2.5m	2.5m
Operating temperature	-10°C to +45°C	-10°C to +45°C	-	-5 - +45	-5 - +45
Storage temperature	-20°C to +60°C	-20°C to +60°C	-	-25 - +70	-25 - +70
Insulation class	II	II	-	11	11
Protection rating	IP41	IP41	IP20	IP21	IP21
Standards	BS EN 60669-1 BS EN 60669-2-1	BS EN 60669-1 BS EN 60669-2-1	-		
Pollution degree	2	2	-		
Connection stranded	0.5mm² to 1.5mm²	0.5mm² to 1.5mm²	-	1mm - 2.5mm	1mm - 2.5mm
Connection solid	0.5mm² to 1.5mm²	0.5mm² to 1.5mm²	-	1mm - 2.5mm	1mm - 2.5mm
Switching channel	1	1	1	1	1
Lighting loads 230V~ AC1	16A	16A	6A	10A	10A
Switching capacity (Incandescent)	2300W	2300W	1500W	2300W	2300W
Halogen lamps LV	-	-	-		
Halogen ELV (12 or 24V) via ferromagnetic or electronic transformer	1500W	1500W	-	2300W	2300W
Compact fluorescent	23 X 23W	23 X 23W	1500W Max	20 x 20W	20 x 20W
LED	20 X20W	20 X20W	500W Max	20 x 20W	20 x 20W
Parallel compensated fluorescent tubes	1000W	1000W	500W Max	1000W	1000W
Fluorescent tubes non-compensated	1000W	1000W	-	1000W	1000W
Electronic ballast	-	-	750W-	1000W	1000W
DSI/DALI ballast	-	-	-	-	-
Remote programming	EEK001	EEK001	-	-	-
Remote control	EEK002	EEK002	-	-	-
Adjustable shutters (supplied)	✗	✗	✗	✗	✗
Dimensions (L*W*H)	80 x 80 x 70mm	80 x 80 x 70mm	80 x 80 x 50mm	ø 100 x 50mm	ø 90 x 61mm

Klik 7

Special Applications



**On / Off, Plug-In
Flush, 3m / 5m**



**Digital, Plug-In
Flush, 3m / 5m**



**Digital, Wireable,
Flush**



**Wireable, Surface
Mount, Corridor**



**Wireable, Surface
Mount, Hyper
Frequency**

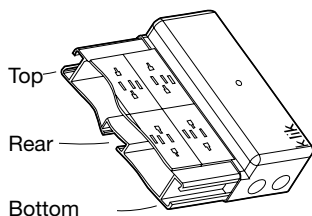


**Wireable, Semi-Recessed,
1 / 2 Channel**

EEK513P EEK515P	EEK523P EEK525P	EEK520B	EE880	EE883	EE810 / EE811	
230V~ 50Hz	230V~ 50Hz	230V~ 50Hz	230V~ 50Hz	230V~ 50Hz	230V~ 50Hz	
Presence	Presence	Presence	Motion	Motion	Presence	
60mW	60mW	60mW	1W	1W	1.2W	
7m	7m	7m	20m	1m to 8m	15.5m	
7m	7m	7m	4m	1m to 8m	8m	
360°	360°	360°	360°	360°	360°	
-	-	-	-	5.8 Ghz ± 0.075 Ghz	-	
-	-	-	-	2	-	
60mW	60mW	60mW	1W	1W	1.2W	
1min to 1hour	1min to 1hour	1min to 1hour	5sec to 15 min	5sec to 15 min	1min to 30min	
-	-	-	-	-	30sec to 60min	
5 to 1000 Lux	5 to 1000 Lux	5 to 1000 Lux	2 to 2000 lux	2... 2000 lux	5 to 1200Lux	
2.5m	2.5m	2.5m	3 m	2.5 m	3 m	
-10°C to +45°C	-10°C to +45°C	-10°C to +45°C	20°C to +50°C	20°C to +50°C	0°C to +45°C	
-20°C to +60°C	-20°C to +60°C	-20°C to +60°C	35°C to +70°C	35°C to +70°C	10°C to +60°C	
II	II	II	II	II	II	
IP41	IP41	IP41	IP54	IP54	IP41	
BS EN 60669-1 BS EN 60669-2-1	BS EN 60669-1 BS EN 60669-2-1	BS EN 60669-1 BS EN 60669-2-1	BS EN 60669-1 BS EN 60669-2-1	BS EN 60669-2-1 EN 300 440-1 V1.3.1	BS EN 60669-1 BS EN 60669-2-1	
2	2	2	2	2	2	
0.5mm² to 1.5mm²	0.5mm² to 1.5mm²	0.5mm² to 1.5mm²	Max 1.5mm²	Max 1.5mm²	1mm² to 4mm²	
0.5mm² to 1.5mm²	0.5mm² to 1.5mm²	0.5mm² to 1.5mm²	Max 1.5mm²	Max 1.5mm²	1mm² to 4mm²	
1	1	1	1	1	1	2
-	-	-	10A	10A	16A	2A
-	-	-	2300W	2300W	2300W	
-	-	-	2300W	2300W	-	
-	-	-	1500VA	1500VA	1500W	
-	-	-	20 x 20W	20 x 20W	20 X 18W	
-	-	-	20 x 20W	20 x 20W	20 X 18W	
-	-	-	1000W/C=110µf	1000W/C=110µf	290W/C=32µf	
-	-	-	1200W	1200W	-	
-	-	-	580W	580W	1000W	
Yes (24)	Yes (24)	Yes (24)	-	-	-	
EEK001	EEK001	EEK001	x	x	x	
EEK002	EEK002	EEK002	x	x	x	
x	x	x	x	x	x	
80 x 80 x 70mm	80 x 80 x 70mm	80 x 80 x 70mm	125 x 125 x 60mm		110 x 110 x 70mm	

Mounting Methods

- Hanging from ceiling suspension system with Caddy Clips™
- Direct fixing to lighting trunking
- Direct fixing to ceiling or wall with No. 8 screws



Drop rods on sides



Screw to surface

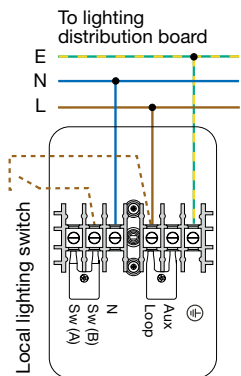


Drop rods on rear



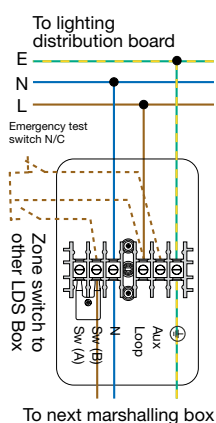
Local Lighting Switch Control

Permanent emergency feed



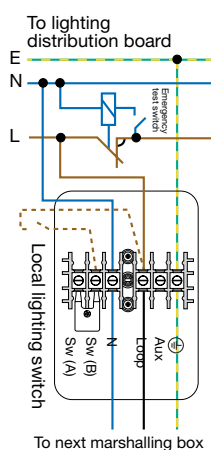
Local Lighting Switch Control

Centralised emergency test via key switch

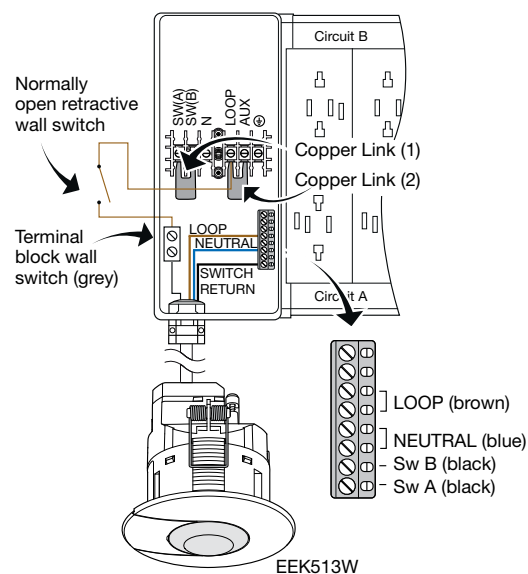


Zone Lighting Control

Local emergency test control

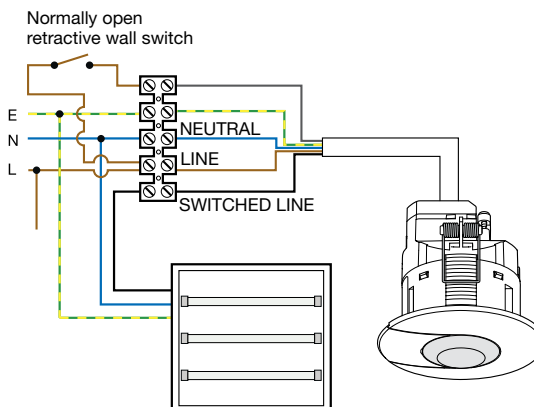


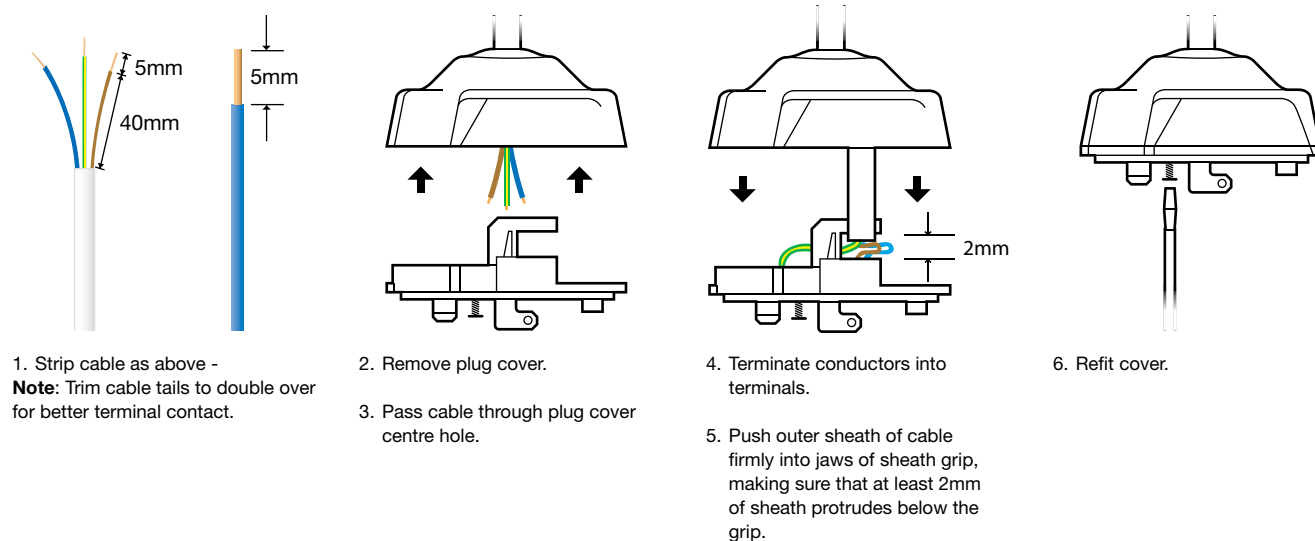
All ways switched by a single Hager EEK513W occupancy sensor



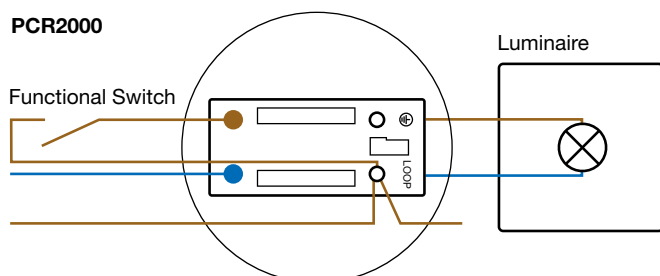
Switch wire to be connected as required.

Connected directly to a single luminaire

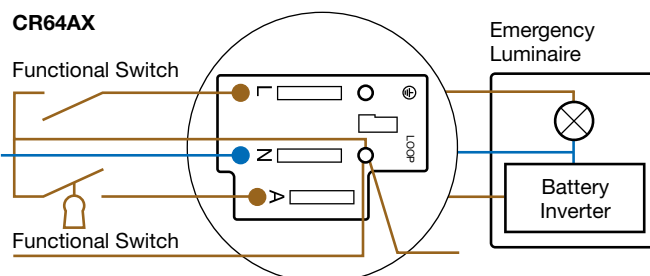




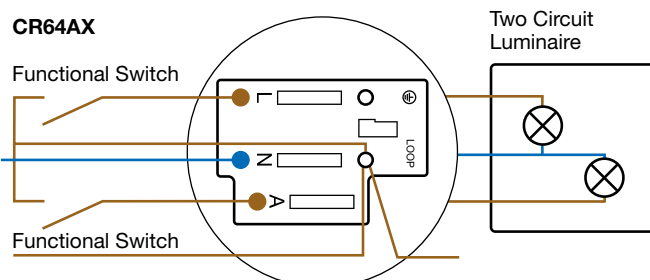
PCR2000



CR64AX



CR64AX



Note: earth connections omitted for clarity

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Residential Distribution

Functional, stylish, and innovative, our Design Range of consumer units provide an exceptional option for any home. In addition, we offer MCB's and RCBO's as well as new surge protection and arc fault detection solutions to provide optimal protection.



Consumer Units	
Surface Mounted Consumer Units	
Design 10	4.3
Design 30	4.7
Flush Mounted Consumer Units	
Design 10	4.11
Design 50	4.12
Consumer Unit Accessories	4.13
Protection Devices	
MCBs	4.15
RCCBs	4.15
RCBOs	4.16
Arc Fault Detection Devices	4.16
Surge Protection	4.16
Technical Pages	4.17

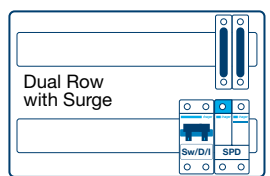
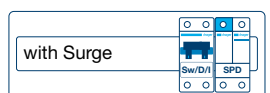
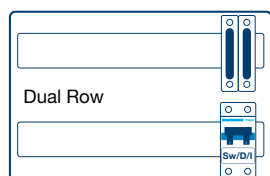


VML106

Switch Disconnector Incomer

Characteristics:

- All Design 10 consumer units contain top, bottom & rear knockouts and a meter tail cable entry plate (**VM04CE**) as standard- see page 4.17 for knockout sizes.
- Supplied with a full metal DIN rail, 100A switch disconnector incomer and a full complement of earth and neutral terminals along with marking labels, busbar and instructions.
- References ending in **SPD** come with a Type 2 SPD fitted.
- Recommended for use with TT systems when utilising RCBO on all outgoing circuits.
- We also recommend the use of cable clamp (**VA10MT**) for use on TT systems, available as an accessory.
- Conforms to BS EN 61439-3 Including Annex ZB (16kA rating).
- For accessories see page 4.13, for dimensions see page 4.17, refer to board sizes below.



Description	Size	Cat ref.	Cat ref. With Round Knockouts
6 Way 100A Switch Disconnector Incomer	3	VML106	VML106RK
10 Way 100A Switch Disconnector Incomer	4	VML110	VML110RK
14 Way 100A Switch Disconnector Incomer	5	VML114	VML114RK
20 Way 100A Switch Disconnector Incomer	7	VML120	VML120RK
8 Way 100A Switch Disconnector Incomer with Factory Fitted Surge Protection	4	VML108SPD	VML108SPDRK
12 Way 100A Switch Disconnector Incomer with Factory Fitted Surge Protection	5	VML112SPD	VML112SPDRK
18 Way 100A Switch Disconnector Incomer with Factory Fitted Surge Protection	7	VML118SPD	VML118SPDRK
6 + 6 Way Dual Row 100A Switch Disconnector Incomer	3 (2)	VML10606	-
10 + 10 Way Dual Row 100A Switch Disconnector Incomer	4 (2)	VML11010	-
14 + 14 Way Dual Row 100A Switch Disconnector Incomer	5 (2)	VML11414	-
20 + 20 Way Dual Row 100A Switch Disconnector Incomer	7 (2)	VML12020	-
8 + 10 Way Dual Row 100A Switch Disconnector Incomer with Factory Fitted Surge Protection	4(2)	VML10810SPD	-
12 + 14 Way Dual Row 100A Switch Disconnector Incomer with Factory Fitted Surge Protection	5(2)	VML11214SPD	-
16 + 20 Way Dual Row 100A Switch Disconnector Incomer with Factory Fitted Surge Protection	7(2)	VML11820SPD	-



VML310AH

RCCB Incomer

Characteristics:

- All Design 10 consumer units contain top, bottom & rear knockouts and a meter tail cable entry plate (**VM04CE**) as standard- see page 4.17 for knockout sizes.
- Supplied with a full metal DIN rail, 40A, 63A or 100A 30mA Type A RCCB incomer and a full complement of earth and neutral terminals along with marking labels, busbar and instructions.
- Conforms to BS EN 61439-3 Including Annex ZB (16kA rating).
- For accessories see page 4.13, for dimensions see page 4.17, refer to board sizes below.



Description	Size	Cat ref.
6 Way 100A 30mA Type A RCCB Incomer	3	VML306AH
10 Way 100A 30mA Type A RCCB Incomer	4	VML310AH
14 Way 100A 30mA Type A RCCB Incomer	5	VML314AH

Split Load

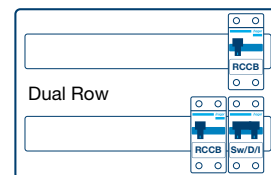
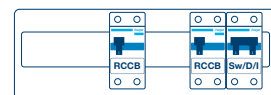
Characteristics:

- All Design 10 consumer units contain top, bottom & rear knockouts and a meter tail cable entry plate (**VM04CE**) as standard- see page 4.17 for knockout sizes.
- Supplied with 2 x Type A RCCBs, a full metal DIN rail, 100A switch disconnecter incomer and a full complement of earth and neutral terminals along with marking labels, busbar and instructions.
- Conforms to BS EN 61439-3 Including Annex ZB (16kA rating).
- * 100A device in these boards are de-rated to 80A.
- For accessories see page 4.13, for dimensions see page 4.17.



VM966H

Description	Size	Cat ref.	Cat ref. With Round Knockouts
6 Way 3+3 80A Switch 2x 80A 30mA RCCB*	4	VML933H*	VML933RK*
10 Way 5+5 100A Switch 2x 100A 30mA RCCB	5	VML955H	VML955RK
12 Way 6+6 100A Switch 2x 100A 30mA RCCB	6	VML966H	VML966RK
14 Way 6+6+2 100A Switch 3x 100A 30mA RCCB	7	VML9662	-
4 + 6 Way Dual Row 100A Switch 2x 100A 30mA RCCB	3(2)	VML946H	-
8 + 10 Way Dual Row 100A Switch 2x 100A 30mA RCCB	4(2)	VML90810H	-
12 + 14 Way Dual Row 100A Switch 2x 100A 30mA RCCB	5(2)	VML91214H	-
18 + 20 Way Dual Row 100A Switch 2x 100A 30mA RCCB	7(2)	VML91820H	-



Configurable High Integrity

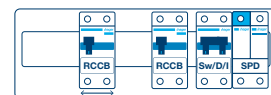
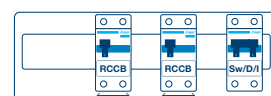
Characteristics:

- Metal split load and configurable consumer units with the ability to protect selected circuits with RCBOs/MCBs and the remainder of circuits split across two RCCBs.
- All Design 10 consumer units contain top, bottom & rear knockouts and a meter tail cable entry plate (**VM04CE**) as standard- see page 4.17 for knockout sizes.
- Supplied with 2 x Type A RCCBs, a full metal DIN rail, 100A switch disconnecter incomer and a full complement of earth and neutral terminals along with marking labels, busbar and instructions.
- References ending in **SPD** come with a Type 2 SPD fitted.
- Conforms to BS EN 61439-3 Including Annex ZB (16kA rating).
- For accessories see page 4.13, for dimensions see page 4.17.

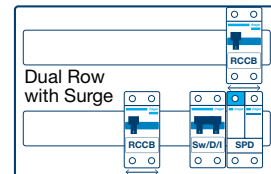
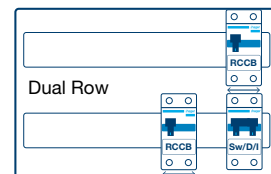


VML912C

Description	Size	Cat ref.	Cat ref. With Round Knockouts
10 Way 100A Switch 2x 100A 30mA RCCB	5	VML910C	-
12 Way 100A Switch 2x 100A 30mA RCCB	6	VML912C	-
16 Way 100A Switch 2x 100A 30mA RCCB	7	VML916C	-
10 Way High Integrity 100A Switch 2x 100A 30mA RCCB	5	VML910CU	-
12 Way High Integrity 100A Switch 2x 100A 30mA RCCB	6	VML912CU	-
16 Way High Integrity 100A Switch 2x 100A 30mA RCCB	7	VML916CU	VML916CURK
8 Way High Integrity 100A Switch 2x 100A 30mA RCCB with Factory Fitted Surge Protection	5	VML908CUSPD	VML908CUSPDRK
10 Way High Integrity 100A Switch 2x 100A 30mA with Factory Fitted Surge Protection	6	VML910CUSPD	VML910CUSPDRK
14 Way High Integrity 100A Switch 2x 100A 30mA RCCB with Factory Fitted Surge Protection	7	VML914CUSPD	VML914CUSPDRK
8+10 Way Dual Row High Integrity 100A Switch 2x 100A	4(2)	VML90810CU	-
12+14 Way Dual Row High Integrity 100A Switch 2x 100A	5(2)	VML91214CU	-
18+20 Way Dual Row High Integrity 100A Switch 2x 100A	7(2)	VML91820CU	-
6+10 Way Dual Row High Integrity 100A Switch 2x 100A 30mA RCCB with Factory Fitted Surge Protection	4(2)	VML90610CUSPD	-
10+14 Way Dual Row High Integrity 100A Switch 2x 100A 30mA Type RCCB with Factory Fitted Surge Protection	5(2)	VML91014CUSPD	-
16+20 Way Dual Row High Integrity 100A Switch 2x 100A 30mA RCCB with Factory Fitted Surge Protection	7(2)	VML91620CUSPD	-
12 Way Configurable, 100A Switch 1x 100A 30mA RCCB (Remaining Ways for RCBOs)	5	VML512AC	-
18 Way Configurable, 100A Switch 1x 100A 30mA RCCB (Remaining Ways for RCBOs)	7	VML518AC	-

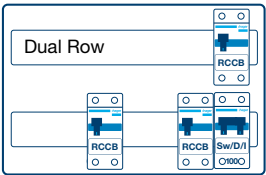
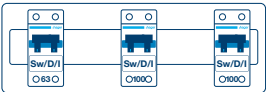
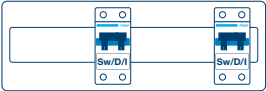


with Surge





VML918C



Multi Tariff

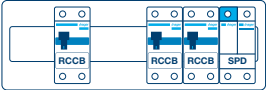
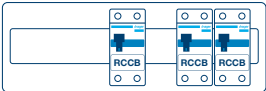
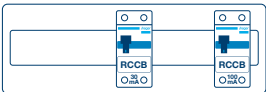
Characteristics:

- All Design 10 consumer units contain top, bottom & rear knockouts and a meter tail cable entry plate (VM04CE) as standard- see page 4.17 for knockout sizes.
- Supplied with Type A RCCBs, a full metal DIN rail, multiple switch disconnector incomers and a full complement of earth and neutral terminals along with marking labels, busbar and instructions.
- Conforms to BS EN 61439-3 Including Annex ZB (16kA rating).
- For accessories see page 4.13, for dimensions see page 4.17.

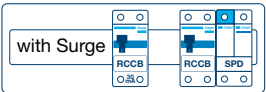
Description	Size	Cat ref.
18 Way Twin Tariff Configurable 2x 100A Switch	7	VML918C
12 Way Multi Tariff 6+5+1 2x100A 1x 63A Switch	6	VML9651
10 Way Split Load 5+5 100A Switch 2x 100A Type A RCCB 1x 100A Type A RCCB Incomer 14 Ways Dual Row	4 (2)	VML955914H



VML912TG



with Surge



Time Delayed RCCB Incomer

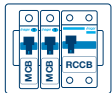
Characteristics:

- All Design 10 consumer units contain top, bottom & rear knockouts and a meter tail cable entry plate (VM04CE) as standard- see page 4.17 for knockout sizes.
- Supplied with Type A RCCBs, a full metal DIN rail 100A 100mA time delayed incomer and a full complement of earth and neutral terminals along with marking labels, busbar, meter tail clamp and instructions.
- Recommended for use with TT systems (meter tail clamp secures meter tails to prevent accidental disconnection and contact with metal enclosure).
- References ending in **SPD** come with a Type 2 SPD fitted.
- Conforms to BS EN 61439-3 Including Annex ZB (16kA rating).
- For accessories see page 4.13, for dimensions see page 4.17, refer to board sizes below.

Description	Size	Cat ref.
12 Way Configurable 100A 100mA Time Delay Type A RCCB 100A 30mA Type A RCCB	5	VML912TG
12 Way 100A 100mA Time Delay Type A RCCB 2x 100A 30mA Type A RCCB	6	VML966TG
10 Way 100A 100mA Time Delayed + 2 x 100A RCCB with Factory Fitted Surge Protection	6	VML955TGSPD
10 Way Configurable 100A 100mA Time Delayed RCCB +100A 30mA with Factory Fitted Surge Protection	5	VML910TGSPD



VML24AH



Garage Boards

Characteristics:

- Consumer unit comes complete with Type A RCCB, 40A 30mA RCCB Incomer, 32A MCB and 6A MCB, earth & neutral connections, busbar, grommet strip, marking labels & Instructions.
- All Design 10 consumer units contain top, bottom & rear knockouts and a meter tail cable entry plate (VM04CE) as standard- see page 4.17 for knockout sizes.
- Cable protector plate for rear knockouts is available as an accessory. (VM02CE)
- Conforms to BS EN 61439-3
- For dimensions see page 4.17.

Description	Size	Cat ref.
2 Way 40A 30mA Type A RCCB with 1x 32A & 1x 6A MCB	2	VML24AH

Arc Fault Protection

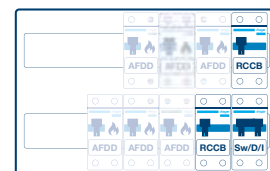
Characteristics:

- Metal split load board with 100A incomer and 2 x 100A RCCBs.
- Supplied with Type A RCCBs
- Supplied with double pole busbar system.
- All Design 10 consumer units contain top, bottom & rear knockouts and a meter tail cable entry plate (**VM04CE**) as standard- see page 4.17 for knockout sizes.
- Supplied with Type A RCCBs, a full metal DIN rail, switch disconnector incomer and a full complement of earth and neutral terminals along with marking labels, busbar and instructions.
- Conforms to BS EN 61439-3, Annex ZB (16kA Rating)
- Suitable for use with Hager 2 pole Arc Fault Detection Devices **ARC*****
- For accessories see page 4.13, for dimensions see page 4.17, refer to board sizes below.



VMLA90405H

Description	Size	Cat ref.
5 + 4 Way Dual Row, 100A Switch Disconnector 2x 100A 30mA RCCB, 2 Pole Busbar, for Arc Fault Detection devices	4(2)	VMLA90405H
6 + 7 Way Dual Row, 100A Switch Disconnector 2x 100A 30mA RCCB, 2 Pole Busbar, for Arc Fault Detection devices	5(2)	VMLA90607H
9 + 10 Way Dual Row, 100A Switch Disconnector 2x 100A 30mA RCCB, 2 Pole Busbar, for Arc Fault Detection devices	7(2)	VMLA90910H
5 + 7 Way Dual Row, 100A Switch Disconnector 2x 100A 30mA RCCB, 2 Pole Busbar, + Surge Protection Devices, for Arc Fault Detection Devices	5(2)	VMLA90507HSPD
8 + 10 Way Dual Row, 100A Switch Disconnector 2x 100A 30mA RCCB, 2 Pole Busbar, + Surge Protection Devices, for Arc Fault Detection Devices	7(2)	VMLA90810HSPD



Arc Fault Detection Devices

Characteristics:

- Protection device which combines an MCB with an Arc Fault Detection Device.
- Complies with BS EN 62606
- Current rating 6A - 40A 6kA
- Available in B & C curve
- Connection capacity - Rigid=25mm², Flexible = 16mm²

Description	Width (1 Mod =17.5mm)	Cat ref. B Curve	Cat ref. C Curve
6A	2 Mod	ARC906U	ARC956U
10A	2 Mod	ARC910U	ARC960U
16A	2 Mod	ARC916U	ARC966U
20A	2 Mod	ARC920U	ARC970U
25A	2 Mod	ARC925U	ARC975U
32A	2 Mod	ARC932U	ARC982U
40A	2 Mod	ARC940U	ARC990U



ARC906U

Tailored Solutions

We can provide the right solution that meets your specification. If your enquiry falls out of the standard offer, for example if you require AFDD in combination with MCBs, RCCBs or RCBOs, Tailored Solutions can meet your requirements.

For more information on this service, see page 18.

Interested in Tailored Solutions?

Telephone: **01952 675 689**

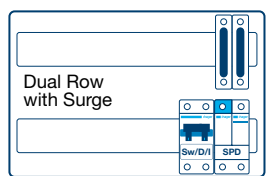
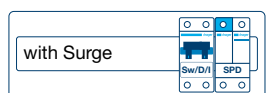
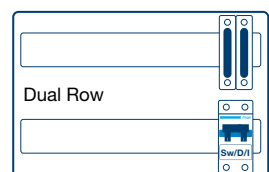
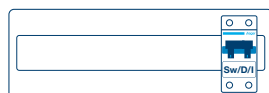
Online form: **go.hager.com/tailored**



Residential
Distribution



VM106



Switch Disconnecter Incomer

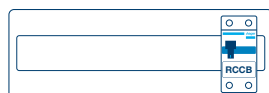
Characteristics:

- All consumer units contain rear cable entry. Boards with knockouts have top & bottom knockouts. A meter tail cable entry plate (**VM04CE**) is provided as standard - see page 4.17 for knockout sizes.
- Supplied with a full metal DIN rail, 100A switch disconnecter incomer and a full complement of earth and neutral terminals along with marking labels, busbar, instructions, rear cable protector plate and meter tail clamp.
- References ending in **SPD** come with a Type 2 SPD fitted.
- Recommended for use with TT systems when utilising RCBOs on outgoing circuits.
- Conforms to BS EN 61439-3 Including Annex ZB (16kA rating).
- For accessories see page 4.13, for dimensions see page 4.17, refer to board sizes below.

Description	Size	Cat ref.	Cat ref. With Knockouts
6 Way 100A Switch Disconnecter Incomer	3	VM106	VM106K
10 Way 100A Switch Disconnecter Incomer	4	VM110	VM110K
14 Way 100A Switch Disconnecter Incomer	5	VM114	VM114K
20 Way 100A Switch Disconnecter Incomer	7	VM120	VM120K
8 Way 100A Switch Disconnecter Incomer with Factory Fitted Surge Protection	4	VM108SPD	VM108KSPD
12 Way 100A Switch Disconnecter Incomer with Factory Fitted Surge Protection	5	VM112SPD	VM112KSPD
18 Way 100A Switch Disconnecter Incomer with Factory Fitted Surge Protection	7	VM118SPD	VM118KSPD
6+6 Way Dual Row 100A Switch Disconnecter Incomer	3 (2)	VM10606	VM10606K
10+10 Way Dual Row 100A Switch Disconnecter Incomer	4 (2)	VM11010	VM11010K
14+14 Way Dual Row 100A Switch Disconnecter Incomer	5 (2)	VM11414	VM11414K
20+20 Way Dual Row 100A Switch Disconnecter Incomer	7 (2)	VM12020	VM12020K
8 + 10 Way Dual Row 100A Switch Disconnecter Incomer with Factory Fitted Surge Protection	4(2)	VM10810SPD	VM10810KSPD
12 + 14 Way Dual Row 100A Switch Disconnecter Incomer with Factory Fitted Surge Protection	5(2)	VM11214SPD	VM11214KSPD
16 + 20 Way Dual Row 100A Switch Disconnecter Incomer with Factory Fitted Surge Protection	7(2)	VM11820SPD	VM11820KSPD



VM410AH



RCCB Incomer

Characteristics:

- All consumer units contain rear cable entry. Boards with knockouts have top & bottom knockouts. A meter tail cable entry plate (**VM04CE**) is provided as standard - see page 4.17 for knockout sizes.
- Supplied with a full metal DIN rail, 40A, 63A or 100A 30mA Type A RCCB incomer and a full complement of earth and neutral terminals along with marking labels, busbar, instructions, rear cable protector plate and meter tail clamp.
- Conforms to BS EN 61439-3 Including Annex ZB (16kA rating).
- For accessories see page 4.13, for dimensions see page 4.17, refer to board sizes below.

Description	Size	Cat ref.	Cat ref. With Knockouts
6 Way 100A 30mA Type A RCCB Incomer	3	VM306AH	VM306AHK
10 Way 100A 30mA Type A RCCB Incomer	4	VM310AH	VM310AHK
14 Way 100A 30mA Type A RCCB Incomer	5	VM314AH	VM314AHK

Split Load

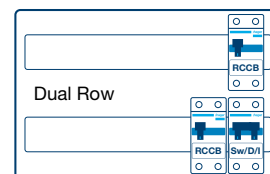
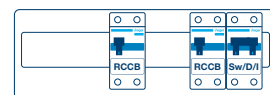
Characteristics:

- All consumer units contain rear cable entry. Boards with knockouts have top & bottom knockouts. A meter tail cable entry plate (**VM04CE**) is provided as standard - see page 4.17 for knockout sizes.
- Supplied with Type A RCCBs, a full metal DIN rail, 100A switch disconnecter incomer, 2 100A RCCBs and a full complement of earth and neutral terminals along with marking labels, busbar, instructions, rear cable protector plate and meter tail clamp.
- Conforms to BS EN 61439-3 Including Annex ZB (16kA rating).
- For accessories see page 4.13, for dimensions see page 4.17, refer to board sizes below.



VM955H

Description	Size	Cat ref.	Cat ref. With Knockouts
10 Way Split Load 5+5 100A Switch 2x 100A 30mA RCCB	5	VM955H	VM955HK
12 Way Split Load 6+6 100A Switch 2x 100A 30mA RCCB	6	VM966H	VM966HK
4+6 Way Dual Row 100A Switch 2x 100A 30mA RCCB	3 (2)	VM946H	VM946HK
8+10 Way Dual Row 100A Switch 2x 100A 30mA RCCB	4 (2)	VM90810H	VM90810HK
12+14 Way Dual Row 100A Switch 2x 100A 30mA RCCB	5 (2)	VM91214H	VM91214HK
18+20 Way Dual Row 100A Switch 2x 100A 30mA RCCB	7 (2)	VM91820H	VM91820HK



Configurable High Integrity

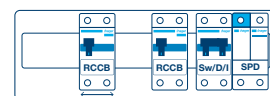
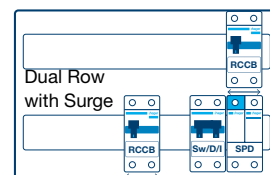
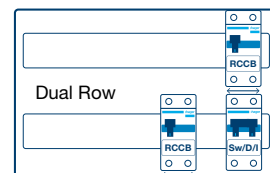
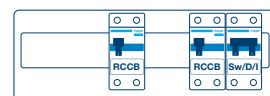
Characteristics:

- Metal split load and configurable consumer units with ability to protect selected circuits with RCBOs/MCBs and the remainder of circuits split across two RCCBs.
- All consumer units contain rear cable entry. Boards with knockouts have top & bottom knockouts. A meter tail cable entry plate (**VM04CE**) is provided as standard - see page 4.17 for knockout sizes.
- Supplied with Type A RCCBs, a full metal DIN rail, 100A switch disconnecter incomer, 2 100A RCCBs and a full complement of earth and neutral terminals along with marking labels, busbar, instructions, rear cable protector plate and meter tail clamp.
- References ending in **SPD** come with a Type 2 SPD fitted.
- Conforms to BS EN 61439-3 Including Annex ZB (16kA rating).
- For accessories see page 4.13, for dimensions see page 4.17, refer to board sizes below.



VM916CU

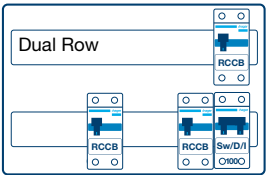
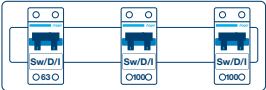
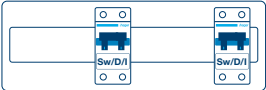
Description	Size	Cat ref.	Cat ref. With Knockouts
10 Way High Integrity 100A Switch 2x 100A 30mA RCCB	5	VM910CU	VM910CUK
12 Way High Integrity 100A Switch 2x 100A 30mA RCCB	6	VM912CU	VM912CUK
16 Way High Integrity 100A Switch 2x 100A 30mA RCCB	7	VM916CU	VM916CUK
8 Way High Integrity 100A Switch 2x 100A 30mA RCCB with Factory Fitted Surge Protection	5	VM908CUSPD	VM908CUKSPD
10 Way High Integrity 100A Switch 2x 100A 30mA RCCB with Factory Fitted Surge Protection	6	VM910CUSPD	VM910CUKSPD
14 Way High Integrity 100A Switch 2x 100A 30mA RCCB with Factory Fitted Surge Protection	7	VM914CUSPD	VM914CUKSPD
8+10 Way Dual Row High Integrity 100A Switch 2x 100A	4(2)	VM90810CU	VM90810CUK
12+14 Way Dual Row High Integrity 100A Switch 2x 100A	5(2)	VM91214CU	VM91214CUK
18+20 Way Dual Row High Integrity 100A Switch 2x 100A	7(2)	VM91820CU	VM91820CUK
6+10 Way Dual Row High Integrity 100A Switch 2x 100A 30mA RCCB with Factory Fitted Surge Protection	4(2)	VM90610CUSPD	VM90610CUKSPD
10+14 Way Dual Row High Integrity 100A Switch 2x 100A 30mA RCCB with Factory Fitted Surge Protection	5(2)	VM91014CUSPD	VM91014CUKSPD
16+20 Way Dual Row High Integrity 100A Switch 2x 100A 30mA RCCB with Factory Fitted Surge Protection	7(2)	VM91620CUSPD	VM916CUKSPD
12 Way Configurable, 100A Switch 1x 100A 30mA RCCB (Remaining Ways for RCBOs)	5	VM512AC	VM512ACK
18 Way Configurable, 100A Switch 1x 100A 30mA RCCB (Remaining Ways for RCBOs)	7	VM518AC	VM518ACK



with Surge



VM918C



Multi Tariff

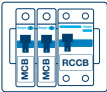
Characteristics:

- All consumer units contain rear cable entry. Boards with knockouts have top & bottom knockouts. A meter tail cable entry plate (**VM04CE**) is provided as standard - see page 4.17 for knockout sizes.
- Supplied with Type A RCCBs, a full metal DIN rail, multiple switch disconnector incomers and a full complement of earth and neutral terminals along with marking labels, busbar, instructions, rear cable protector plate and meter tail clamp.
- Conforms to BS EN 61439-3 Including Annex ZB (16kA rating).
- For accessories see page 4.13, for dimensions see page 4.17, refer to board sizes below.

Description	Size	Cat ref.	Cat ref. With Knockouts
12 Way Multi Tariff 6+5+1 2x 100A 1x 63A	6	VM9651	VM9651K
18 Way Twin Tariff Configurable 2x 100A Switch	7	VM918C	VM918CK
10 Way Dual Row Split Load 5+5 100A Switch 2x 100A RCCB 1x 100A RCCB Incomer 14 Ways	5 (2)	VM955914H	VM955914HK



VM24AH



Garage Board

Characteristics:

- Consumer unit comes complete with Type A RCCBs, 40A 30mA RCCB Incomer, 32A MCB and 6A MCB, earth & neutral connections, busbar, cable protector plate, grommet strip, meter tail clamp, marking labels & instructions.
- All consumer units contain rear cable entry. Boards with knockouts have top & bottom knockouts. A meter tail cable entry plate (**VM04CE**) is provided as standard - see page 4.17 for knockout sizes.
- For dimensions see page 4.17, refer to board sizes below.

Description	Size	Cat ref.	Cat ref. With Knockouts
2 Way 40A 30mA Type A RCCB with 1x 32A & 1x 6A MCB	2	VM24AH	VM24AHK

Arc Fault Detection

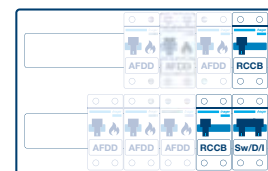
Characteristics:

- Metal split load board with 100A incomer and 2 x 100A RCCBs.
- Supplied with Type A RCCBs
- Supplied with double pole busbar system.
- All consumer units contain rear cable entry. Boards with knockouts have top & bottom knockouts. A meter tail cable entry plate (**VM04CE**) is provided as standard - see page 4.17 for knockout sizes.
- Supplied with Type A RCCBs, a full metal DIN rail, switch disconnector incomer and a full complement of earth and neutral terminals along with marking labels, busbar, instructions, rear cable protector plate and meter tail clamp.
- Conforms to BS EN 61439-3 including Annexe ZB
- Suitable for use with Hager AFDD ARC***
- For accessories see page 4.13, for dimensions see page 4.17, refer to board sizes below.



VMA933H

Description	Size	Cat ref.	Cat ref. With Knockouts
4+5 Way, Dual Row, 100A Switch Disconnector 2x 100A 30mA RCCB, 2 Pole Busbar, for Arc Fault Detection Devices	4(2)	VMA90405H ★	VMA90405HK ★
6+7 Way, Dual Row, 100A Switch Disconnector 2x 100A 30mA RCCB, 2 Pole Busbar, for Arc Fault Detection Devices	5(2)	VMA90607H ★	VMA90607HK ★
9+10 Way, Dual Row, 100A Switch Disconnector 2x 100A 30mA RCCB, 2 Pole Busbar, for Arc Fault Detection Devices	7(2)	VMA90910H ★	VMA90910HK ★
5 + 7 Way, Dual Row, 100A Switch Disconnector 2x 100A 30mA RCCB, 2 Pole Busbar + Surge Protection Devices, for Arc Fault Detection Devices	5(2)	VMA90507HSPD ★	VMA90507HKSPD ★
8 + 10 Way, Dual Row, 100A Switch Disconnector 2x 100A 30mA RCCB, 2 Pole Busbar + Surge Protection Devices, for Arc Fault Detection Devices	7(2)	VMA90810HSPD ★	VMA90810HKSPD ★



Arc Fault Detection Devices

Characteristics:

- Protection device which combines an MCB with an Arc Fault Detection Device.
- Complies with BS EN 62606
- Current rating 6A - 40A 6kA
- Available in B & C curve
- Connection capacity - Rigid=25mm², Flexible = 16mm²

Description	Width (1 Mod =17.5mm)	Cat ref. B Curve	Cat ref. C Curve
6A	2 Mod	ARC906U	ARC956U
10A	2 Mod	ARC910U	ARC960U
16A	2 Mod	ARC916U	ARC966U
20A	2 Mod	ARC920U	ARC970U
25A	2 Mod	ARC925U	ARC975U
32A	2 Mod	ARC932U	ARC982U
40A	2 Mod	ARC940U	ARC990U



ARC906U

Tailored Solutions

We can provide the right solution that meets your specification. If your enquiry falls out of the standard offer, for example if you require AFDD in combination with MCBs, RCCBs or RCBOs, Tailored Solutions can meet your requirements.

For more information on this service, see page 18.

Interested in Tailored Solutions?

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Residential
Distribution



VMLF110



Switch Disconnecter Incomer

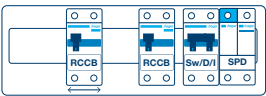
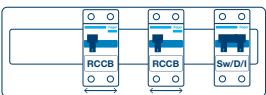
Characteristics:

- All consumer units contain rear cable entry, along with top & bottom knockouts.
- Supplied with a full metal DIN rail, 100A switch disconnecter incomer and a full complement of earth and neutral terminals along with marking labels, busbar, instructions, rear cable protector plate and meter tail clamp.
- Recommended for use with TT systems when utilising RCBO on outgoing circuits.
- Conforms to BS EN 61439-3 including Annex ZB (16kA rating).
- Adjustable depth in wall 72mm-92mm.
- For dimensions see page 4.18.

Description	Size	Cat ref.
10 Way Flush 100A Switch Disconnecter Incomer	4	VMLF110
14 Way Flush 100A Switch Disconnecter Incomer	5	VMLF114
20 Way Flush 100A Switch Disconnecter Incomer	7	VMLF120



VMLF910CU



with Surge

Configurable High Integrity

Characteristics:

- Metal split load and configurable consumer units with ability to protect selected circuits with RCBOs and the remainder of circuits split across two RCCBs.
- All consumer units contain rear cable entry, along with top & bottom knockouts.
- Supplied with a full metal DIN rail, 100A switch disconnecter incomer and 2 Type A RCCBs and a full complement of earth and neutral terminals along with marking labels, busbar, instructions, rear cable protector plate and meter tail clamp.
- References ending in **SPD** come with a Type 2 SPD fitted.
- Conforms to BS EN 61439-3 Including Annex ZB (16kA rating).
- Adjustable depth in wall 72mm-92mm.
- For dimensions see page 4.18.

Description	Max Unprotected Ways	Size	Cat ref.
10 Way Flush High Integrity 100A Switch 2x 100A 30mA Type A RCCB	3	5	VMLF910CU
12 Way Flush High Integrity 100A Switch 2x 100A 30mA Type A RCCB	3	6	VMLF912CU
16 Way Flush High Integrity 100A Switch 2x 100A 30mA Type A RCCB	6	7	VMLF916CU
8 Way High Integrity 100A Switch 2x 100A 30mA RCCB Type A with Factory Fitted Surge Protection		5	VMLF908CUSPD
10 Way High Integrity 100A Switch 2x 100A 30mA RCCB Type A with Factory Fitted Surge Protection		6	VMLF910CUSPD
14 Way High Integrity 100A Switch 2x 100A 30mA RCCB Type A with Factory Fitted Surge Protection		7	VMLF914CUSPD

Switch Disconnecter Incomer

Characteristics:

- All consumer units contain rear cable entry, along with top & bottom knockouts.
- Supplied with a full metal DIN rail, 100A switch disconnector incomer and a full complement of earth and neutral terminals along with marking labels, busbar, instructions, rear cable protector plate and meter tail clamp.
- Recommended for use with TT systems when utilising RCBO on outgoing circuits.
- References ending in **SPD** come with a Type 2 SPD fitted.
- Conforms to BS EN 61439-3 including Annex ZB (16kA rating).
- Adjustable depth in wall 72mm-92mm.
- For dimensions see page 4.17.

Description	Size	Cat ref.
10 Way 100A Switch Disconnecter Incomer	4	VSR110
14 Way 100A Switch Disconnecter Incomer	5	VSR114
20 Way 100A Switch Disconnecter Incomer	7	VSR120
12 Way 100A Switch Disconnecter Incomer with Factory Fitted Surge Protection	5	VSR112SPD
18 way 100A Switch Disconnecter Incomer with Factory Fitted Surge Protection	7	VSR118SPD



VSR114



Configurable High Integrity

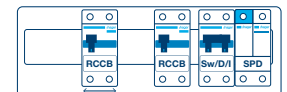
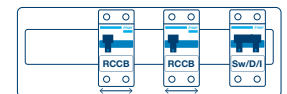
Characteristics:

- Metal split load and configurable consumer units with the ability to protect selected circuits with RCCBs/MCBs and the remainder of circuits split across two RCCBs.
- All consumer units contain rear cable entry, along with top & bottom knockouts.
- Supplied with a full metal DIN rail, 100A switch disconnector incomer and 2 Type A RCCBs and a full complement of earth and neutral terminals along with marking labels, busbar, instructions, rear cable protector plate and meter tail clamp.
- References ending in **SPD** come with a Type 2 SPD fitted.
- Conforms to BS EN 61439-3 Including Annex ZB (16kA rating).
- Adjustable depth in wall 72mm-92mm.
- For dimensions see page 4.17.

Description	Max Unprotected Ways	Size	Cat ref.
10 Way High Integrity Split Load 100A Switch 2x 100A 30mA RCCB	3	5	VSR910CU
12 Way High Integrity Split Load 100A Switch 2x 100A 30mA RCCB	3	6	VSR912CU
16 Way High Integrity Split Load 100A Switch 2x 100A 30mA RCCB	6	7	VSR916CU
8 Way High Integrity 100A Switch 2x 100A 30mA RCCB with Factory Fitted Surge Protection	3	5	VSR908CUSPD
10 Way High Integrity 100A Switch 2x 100A 30mA RCCB with Factory Fitted Surge Protection	3	6	VSR910CUSPD
14 Way High Integrity 100A Switch 2x 100A 30mA RCCB with Factory Fitted Surge Protection	6	7	VSR914CUSPD



VSR910C



with Surge



VM02CE



VM03CB

VM03CE



VM04CB

VM04CE

Cable Protector Plate

Characteristics:

- Provides protection against sharp edges for cables entering a consumer unit.
- **VM01CE:** Simply insert protector plate and bend over tabs inside board.
- **VM02CE:** Designed to fit into the aperture left by the removal of a rear knockout on the Design 10, Design 30 & Design 50 Consumer Unit. (Included as standard with Design 30 & 50 consumer units). Break away sections as required and simply push into place.
- **VM03/04:** Simply clip into place to allow cable entry or blanking of removed knockouts.

Description	Quantity	Cat ref.
Cable Protector Plate (Metal)	1	VM01CE
Cable Protector Plate (Insulated)	5	VM02CE
Top Wall Cable Protector Plate (30mm x 40mm)	10	VM03CE
Top Wall Cable Protector Plate (30mm x 40mm) Closed	10	VM03CB
Meter Tail Entry Cable Protector Plate (25mm x 30mm)	10	VM04CE
Meter Tail Entry Cable Protector Plate (25mm x 30mm) Closed	10	VM04CB



VA10MT

Cable Clamp

Characteristics:

- Secures supply cables on entry to main incoming device, eliminating any movement of the cables being transmitted to the terminals.
- Simply insert supply cables through clamp into incoming device & secure with fixing provided.
- (Included as standard with Design 30 & 50 consumer units)

Description	Cat ref.
Cable Clamp for Meter Tails	VA10MT



VMLOCK

Locks

Characteristics:

- **VMLOCK** allows door to be lockable. Simply remove the centre of the lock surround and the knockout behind, and fit lock.
- Provides the ability to lock the consumer unit during the installation process.
- Can only be used with Design 30 consumer units.

Description	Cat ref.
Design 30 Door Locking Kit	VMLOCK
Health & Safety Padlock Bracket	VMHBL
Padlock	JK25A
Design 50 Safety Lock (Pack of 6, Supplied without Padlock)	VS RHBL
Padlock (Accessory for Design 50 Safety Lock, Sold Individually)	JK25A
Design 50 Door Locking Device	VSRLCK



VMGROM

Grommets & Grommet Strip

Characteristics:

- Grommet for protecting against sharp edges on knockouts.

Description	Quantity	Cat ref.
Grommet strip 5 metres	1 Strip	VM05GS
38mm open grommet for use with VMLF* back boxes	10	VMGROM



VM01SP

Stand-off Plate

Characteristics:

- The rear stand off plate provides 12mm of clearance at the rear of the consumer unit to allow surface mounted cables to enter the board from the rear avoiding any potential IP issues with the top of the board. Supplied with two cable protector plates as standard.

Description	Cat ref.
Rear stand off plates VM & VML VM01SP	VM01SP

Other Accessories

Description	Cat ref.
1 Module Busbar Blank	JK01B
Neutral Link	VAN00
Dual Tariff Link Kit	VAK0D
Split Load Link Kit	VAK0S
Triple Tariff Link Kit	VAK0T
8 Module Busbar	VAB08
12 Module Busbar	VAB12
16 Module Busbar	VAB16
21 Module Busbar	VAB21
Spare Terminal Bar Support Clips (Quantity - 5)	VAT00
Terminal Bar 2 Way with Two Support Clips	VAT02
Terminal Bar 3 Way with Two Support Clips	VAT03
Terminal Bar 4 Way with Two Support Clips	VAT04
Terminal Bar 5 Way with Two Support Clips	VAT05
Terminal Bar 6 Way with Two Support Clips	VAT06
Terminal Bar 7 Way with Two Support Clips	VAT07
Terminal Bar 8 Way with Two Support Clips	VAT08
Terminal Bar 9 Way with Two Support Clips	VAT09
Terminal Bar 10 Way with Two Support Clips	VAT10
Terminal Bar 11 Way with Two Support Clips	VAT11
Terminal Bar 12 Way with Two Support Clips	VAT12
Terminal Bar 13 Way with Two Support Clips	VAT13
Terminal Bar 14 Way with Two Support Clips	VAT14
Terminal Bar 15 Way with Two Support Clips	VAT15
Terminal Bar 16 Way with Two Support Clips	VAT16
Terminal Bar 17 Way with Two Support Clips	VAT17
Terminal Bar 18 Way with Two Support Clips	VAT18
Terminal Bar 19 Way with Two Support Clips	VAT19
Terminal Bar 20 Way with Two Support Clips	VAT20
Terminal Bar 21 Way with Two Support Clips	VAT21
Terminal Bar 22 Way with Two Support Clips	VAT22
Terminal Bar 23 Way with Two Support Clips	VAT23
Terminal Bar 24 Way with Two Support Clips	VAT24
Label Pack	VAP00



JK01B



VAB08



VAN00

Locking Kit

Characteristics:

- Allows MCBs, RCCBs and RCBOs to be locked in the off position.
- Will accept two padlocks with hasps of 4.75mm diameter max (supplied without padlock).

Description	Cat ref.
Padlockable Locking Kit for MCB, RCCB & RCBO (Padlock not Included)	MZN175
Padlock with 2 keys 3/4"	JK25A



MZN175



MTN106

MCBs - Single Pole, B Curve, 6kA

Characteristics:

- Protection and control of circuits against overloads and short circuits for use in domestic installations.
- Complies with BS EN 60898.
- Voltage rating: 230V
- Current rating: 6 - 63A
- Connection capacity: Rigid = 25mm², Flexible = 16mm²
- Calibration temperature: 30°C

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



CDC225U

2 Pole RCCBs

Characteristics

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

Technical Data

- Conforms to BS EN 61008, IEC1008
- Terminal capacities: 16-63A Rigid 25mm², Flexible 16mm² / 80 & 100A Rigid 50mm², Flexible 35mm²

Features

- Positive contact indication is provided by the rectangular flag indicator
- Red = Closed
- Green = Open
- Indication of trip is provided by the oval flag indicator
- Yellow = Tripped
- All RCCBs have trip free mechanisms and can be padlocked either on or off with the use of a **MZN175**.

Operating Voltage

- 2P 127- 230V a.c.



CDF525U

Sensitivity type A	2 Pole Type A Cat ref.	2 Pole Type F Cat ref.	2 Pole Type B Cat ref.
RCCBs Sensitivity 30mA			
RCCB 25A 30mA	CDA225U	CDF525U ★	CDB525E ★
RCCB 40A 30mA	CDA240U	CDF540U ★	CDB540E ★
RCCB 63A 30mA	CDA263U	CDF563U ★	-
RCCB 80A 30mA	CD283U	-	-
RCCB 100A 30mA	CD285U	-	-

RCCBs Sensitivity 100mA

RCCB 25A 100mA	CEA225U	-	-
RCCB 40A 100mA	CEA240U	-	-
RCCB 63A 100mA	CEA263U	-	-
RCCB 80A 100mA	CEA580U ★	-	-
RCCB 100A 100mA	CEA584U ★	-	-

RCCBs Sensitivity 300mA

RCCB 25A 300mA	CFA225U	-	-
RCCB 40A 300mA	CFA240U	-	-
RCCB 63A 300mA	CFA263U	-	-
RCCB 100A 300mA	CF285U	-	-

RCCBs Time Delayed

RCCB 100A 100mA	CNA584U ★	-	-
RCCB 100A 300mA	CPA584U ★	-	-



CDB525E

RCBOs - Single Pole, B Curve, 6kA, 30mA, Type A

Characteristics

- Protection devices which combine the overcurrent functions of an MCB with the earth fault functions of an RCCB.
- Complies with BS EN 61009-1, BS IEC 1009-2-2
- Single module width
- Sensitivity: 30mA
- Current rating: 6 - 45A
- Connection capacity: Rigid = 16mm², Flexible = 10mm²
- Flying neutral lead: 300mm
- Single pole & solid neutral
- Type A (Pulsating DC Sensitive)
- Operational Voltage: 127-230V AC



ADA332G

Description	Cat ref.
6A	ADA306G
10A	ADA310G
16A	ADA316G
20A	ADA320G
25A	ADA325G
32A	ADA332G

Full Height RCBO - Single Pole, B Curve, 6kA, 30mA, Type A

40A	ADA140G
45A	ADA145G

Arc Fault Detection Devices

Characteristics:

- Protection device which combines an MCB with an Arc Fault Detection Device.
- Complies with BS EN 62606
- Current rating 6A - 40A 6kA
- Available in B & C curve
- Connection capacity - Rigid=25mm², Flexible = 16mm²

Description	Width (1 Mod =17.5mm)	Cat ref. B Curve	Cat ref. C Curve
6A	2 Mod	ARC906U	ARC956U
10A	2 Mod	ARC910U	ARC960U
16A	2 Mod	ARC916U	ARC966U
20A	2 Mod	ARC920U	ARC970U
25A	2 Mod	ARC925U	ARC975U
32A	2 Mod	ARC932U	ARC982U
40A	2 Mod	ARC940U	ARC990U



ARC906U

Consumer Unit Type 2 Surge Protection Kit

- Consists of: 6mm² neutral, line & earth cables, 1x double pole surge protection device with lifetime indicator.
- For more surge protection devices and for technical information please see pages 4.20 to 4.22

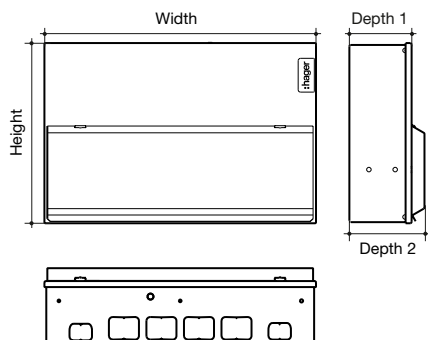
Poles	I _n kA L-N	I _n kA N-PE	U _p kV	Width (mm)	Cat ref.
2	5	15	≤ 1.2	35	VM02SPD



VM02SPD

Replacement Cartridges

Description	Cat ref.
Line replacement for VM02SPD	SPD015D
Neutral replacement for VM02SPD	SPD040N

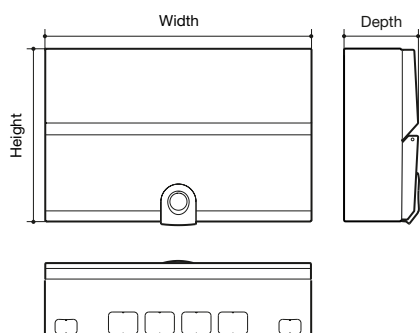


Design 10 Dimensions (mm)

	Enclosure Size					
	2	3	4	5	6	7
Height	246	246	246	246	246	246
Width	155	227	299	370	406	478
Depth 1	83	83	83	83	83	83
Depth 2	100	100	100	100	100	100

Boards with Square Knockouts		Number of Knockouts					
<input type="checkbox"/>	Top Face 30 x 25 (mm)	2	2	2	2	2	2
<input type="checkbox"/>	Top Face 40 x 30 (mm)	0	2	4	4	6	6
<input type="checkbox"/>	Back 100 x 50 (mm)	1	1	1	3	3	3
<input type="checkbox"/>	Bottom Face 30 x 25 (mm)	2	3	4	4	5	5

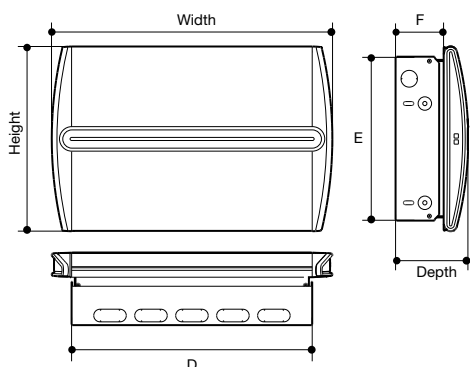
Boards with Round Knockouts		Number of Knockouts					
<input type="radio"/>	Top/Bottom Face 20mm	x	x	x	5	6	8
<input type="radio"/>	Top/Bottom Face 25mm	x	x	x	2	2	2
<input type="radio"/>	Top/Bottom Face 32mm	x	x	x	2	2	2
<input type="radio"/>	Back 100 x 50mm	x	x	x	3	3	3



Design 30 Dimensions (mm)

	Enclosure Size					
	2	3	4	5	6	7
Height	240	240	240	240	240	240
Width	149	221	293	364	400	472
Depth	102.5	102.5	102.5	102.5	102.5	102.5

		Number of Knockouts					
<input type="checkbox"/>	Top Face 30 x 25 (mm)	2	2	2	2	2	2
<input type="checkbox"/>	Top Face 40 x 30 (mm)	0	2	4	4	6	6
<input type="checkbox"/>	Back 100 x 50 (mm)	1	1	1	3	3	3
<input type="checkbox"/>	Bottom Face 30 x 25 (mm)	2	3	4	4	5	5



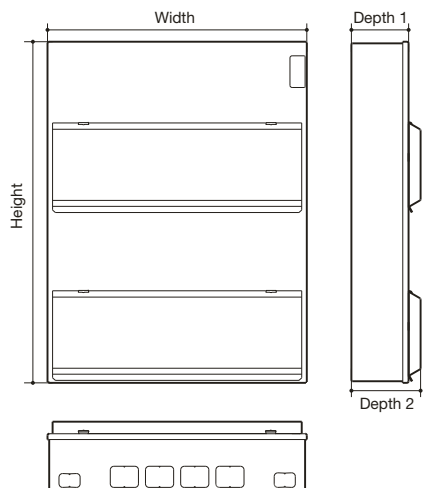
Design 50 Dimensions (mm)

	Enclosure Size			
	4	5	6	7
Height	284	284	284	284
Width	359	431	467	539
Depth	105	105	105	105
D	298	370	406	478
E	252	252	252	252
F	72	72	72	72

		Number of Knockouts			
<input type="radio"/>	Top Face 50 x 20 (mm)	4	5	6	7
<input type="radio"/>	Bottom Face 50 x 20 (mm)	4	5	6	7
<input type="radio"/>	Back 100 x 50 (mm)	2	2	2	3
<input type="radio"/>	Left Face 20.8 (mm)	1	1	1	1

Adjustable Depth Base

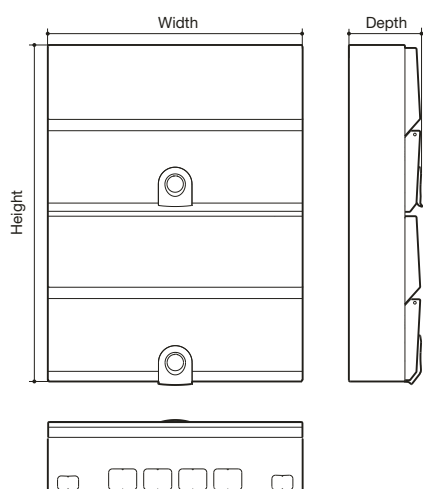
The base assembly is adjustable from 72mm to 92mm. At 72mm this allows for a 60mm studwork and 12mm of plasterboard.



Dual Row Design 10 Dimensions (mm)

	Enclosure Size				
	3 (2)	4 (2)	5 (2)	6 (2)	7 (2)
Height	486	486	486	486	486
Width	227	299	370	406	478
Depth 1	83	83	83	83	83
Depth 2	100	100	100	100	100

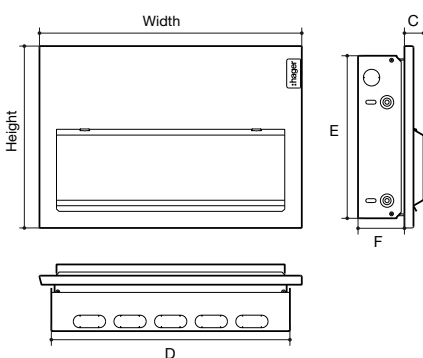
	Number of Knockouts				
<input type="checkbox"/> Top Face 30 x 25 (mm)	2	2	2	2	2
<input type="checkbox"/> Top Face 40 x 30 (mm)	2	4	4	6	6
<input type="checkbox"/> Back 100 x 50 (mm)	2	2	6	6	6
<input type="checkbox"/> Bottom Face 30 x 25 (mm)	3	4	4	5	5



Dual Row Design 30 Dimensions (mm)

	Enclosure Size				
	3 (2)	4 (2)	5 (2)	6 (2)	7 (2)
Height	480	480	480	480	480
Width	221	293	364	400	472
Depth	102.5	102.5	102.5	102.5	102.5

	Number of Knockouts				
<input type="checkbox"/> Top Face 30 x 25 (mm)	2	2	2	2	2
<input type="checkbox"/> Top Face 40 x 30 (mm)	2	4	4	6	6
<input type="checkbox"/> Back 100 x 50 (mm)	2	2	6	6	6
<input type="checkbox"/> Bottom Face 30 x 25 (mm)	3	4	4	5	5



Flush Design 10 Dimensions (mm)



	Enclosure Size			
	4	5	6	7
Height	282	282	282	282
Width	335	407	443	515
C	32	32	32	32
D	298	370	406	478
E	252	252	252	252
F	72	72	72	72

	Number of Knockouts			
<input type="checkbox"/> Top Face 50 x 20 (mm)	4	5	6	7
<input type="checkbox"/> Bottom Face 50 x 20 (mm)	4	5	6	7
<input type="checkbox"/> Back 100 x 50 (mm)	2	2	2	3
<input type="checkbox"/> Left Face 20.8 (mm)	1	1	1	1

**Consumer Unit
Maximum Unprotected Ways**

	Enclosure Size					
	5	6	7	4(2)	5(2)	7(2)
Max Unprotected Ways	3	3	6	3	7	11

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							
Switch Disconnectors / Surge	2	6.5	3.6	3.6	3.6	3.6	15
Circuit protection							
MCB	2	6.5	2.8	2.8	2.8	2.8	13
RCBO	2	5.5	2.1	2.1	2.1	2.1	13
RCCB	2	5.5	2.8	2.8	2.8	2.8	13
AFDD	2	2	2.1	2.1	2.1	2.1	13

MTN Electrical Characteristics.

Poles	Rated Operational Voltage U _e (V)	Nominal Current	Breaking Capacity (I _{cn}) to BS EN 60898	Breaking Capacity (I _{cs}) to BS EN 60898	Rated Insulation Voltage U _i (V)	Rated Impulse Voltage U _{imp} (kV)	Electrical Endurance	Connection of Auxiliaries
Single Pole	230	6 - 63A	6kA	6kA	500V	4kV	10,000 cycles	No

Power Loss

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

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

MCB Rated current (A)	6	10	16	20	25	32	40	50	63
Watts loss per pole	1.3	1.8	2.4	2.7	3.0	4.4	4.8	5.2	7.4

Connection

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

Temperature Derating

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

I _n (A)	-25°C	-20°C	-15°C	-10°C	-5°C	0°C	5°C	10°C	15°C	20°C	25°C	30°C	35°C	40°C	45°C	50°C	55°C	60°C
6	8.64	8.4	8.16	7.92	7.68	7.44	7.2	6.96	6.72	6.48	6.24	6	5.76	5.52	5.28	5.04	4.8	4.56
10	14.4	14	13.6	13.2	12.8	12.4	12	11.6	11.2	10.8	10.4	10	9.6	9.2	8.8	8.4	8	7.6
16	23	22.4	21.8	21.1	20.5	19.8	19.2	18.6	17.9	17.3	16.6	16	15.4	14.7	14.1	13.4	12.8	12.2
20	28.8	28	27.2	26.4	25.6	24.8	24	23.2	22.4	21.6	20.8	20	19.2	18.4	17.6	16.8	16	15.2
25	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19
32	46.1	44.8	43.5	42.2	41	39.7	38.4	37.1	35.8	34.6	33.3	32	30.7	29.4	28.2	26.9	25.6	24.3
40	57.6	56	54.4	52.8	51.2	49.6	48	46.4	44.8	43.2	41.6	40	38.4	36.8	35.2	33.6	32	30.4
50	-	-	-	-	-	62	60	58	56	54	52	50	48	46	44	42	40	38
63	-	-	-	-	-	-	-	-	-	-	-	63	60.5	58	55.4	52.9	50.4	47.9

Characteristics

- SPD's protect electrical and electronic equipment against transients, originating from lightning, switching of transformers, lighting and motors. These transient voltages 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 transient voltages, to protect sensitive and expensive electrical equipment such as TV, video, Hi-Fi, PC, alarm etc.
- The range of SPDs is separated into 3 types of protection:
 - 1. Main protection - Type 1** - SPDs with higher discharge current (I_{max} 10/350), to evacuate as much of the transient over-voltages associated with lightning strikes
 - 2. Main protection - Type 2** - With a discharge current (I_{max} 8/20), to evacuate as much of the transient over-voltage to earth as possible protection level ($U_p \leq 1200V$).
 - 3. Main protection - Type 3** - To cut-down the transient surge as low as possible to protect very sensitive equipment.

Technical Data

- Complies with IEC61643-1.
- D Versions: end of life indicator, auxiliary contact for remote indication.
- R Versions: reserve status indicator, signalling.
- Connection Capacity (terminal blocks L, N & E): Rigid conductor: 10mm², Flexible conductor: 6mm².
- 230V a.c. 1A. 12V...10mA.

Installation and Connection

- The main protection SPDs are installed directly after the main incoming switch or RCCB
- Connected in parallel to the equipment to be protected.
- Protection is assured in both common and differential modes.

Replacement Cartridges

- 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 40kA.

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

I_n kA L-N	I_n kA N-PE	I_{imp} L-N	I_{imp} N-PE	U_p kV	Width (mm)	Cat ref.	Cat ref. with remote contact
-	-	12.5	25	≤ 1.5	35	SPA201	-

Type 2 (with lifetime indicator)

5	15	-	-	≤ 1.0	35	SPD215D	SPN215R
15	40	-	-	≤ 1.2	35	SPN240D	SPN240R

Type 3 (Fine Protection) (with lifetime indicator)

3	3	-	-	≤ 1.25	17.5	SPN203N	-
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PV Applications (DC side) (with lifetime indicator)

12.5	25			≤ 4	52.5	SPV325	-
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SPN240R

Replacement Cartridges

Description	Cat ref.
Line replacement for SPD215D	SPD015D
Line replacement for SPN215R	SPN015R
Line replacement for SPN240D	SPN040D
Line replacement for SPN240R	SPN040R
Neutral replacement for SPD215D, SPN215R, SPN240D, SPN240R	SPD040N
Neutral replacement for SPN203N	SPN023N



SPN040D

SPA201 Technical Characteristics

		SPA201
Tested to		EN 61643-11 2002-12
SPD type / class		Type 1 + Type 2
Energy-coordinated protection effect on terminal equipment ≤ 5 m		Type 1 + Type 2 + Type 3
Type of connection		Parallel connection
Type of power supply system		TT / TN system
Type of protection		common and differential modes
Nominal voltage	U_n	230V/400V AC
Rated voltage	U_c	255V AC
Voltage protection level	U_p	≤ 1.5 kV
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
Impulse current (10/350)	I_{imp}	12.5kA 25kA
Max. rating of overcurrent protection	fuse	160A gL / gG
	MCCB	160A
Short-circuit withstand capability with max. overcurrent protection	fuse	25kA rms
	MCB	n/a
Response time	t_A	≤ 100 ns
Operating temperature range		- 40°C+ 80°C
Indication of SPD disconnector		Green/Red flag on L and N
Cross sectional area	min	1,5mm ² solid / flexible
	max	35mm ² stranded / 25mm ² 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
Weight		275 g
Approval marking		KEMA

SPN215D/R Technical Characteristics

		SPN215D/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 connection		Parallel connection
Maximum continuous operating voltage U_c	Line / Neutral	≤ 255 V
	Neutral/ PE	≤ 275 V
Voltage protection level	U_p	≤ 1 kV
Nominal discharge current (8/20 μ s) L-PE	I_n	5kA
Max. discharge current (8/20 μ s) N-PE	I_{max}	15kA
Short-circuit withstand capability with max. overcurrent protection		10kA - 32A
Operating temperature range		- 40°C+ 80°C
Indication of SPD disconnector		Green - Yellow - Red
Cross sectional area	min	1,5mm ² solid / flexible
	max	35mm ² multi-stranded / 25mm ² 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
Auxiliary contact. Voltage/ nominal current (only applicable on the R suffix products)		230V/ 0.5A
		12Vdc
		10mA

SPV325 Technical Characteristics

		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 connection		Parallel connection
Maximum continuous operating voltage	U_{cpv}	$\leq 1000V$
Voltage protection level	U_p	$\leq 4kV$
Voltage protection level for 5kA	U_p	$\leq 4kV$
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	$\leq 25ns$
Operating temperature range		- 40°C 80°C
Indication of SPD disconnector		green - red
Cross sectional area	min	1.5mm ² solid / flexible
	max	35mm ² multi-stranded / 25mm ² 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

SPN203N Technical Characteristics

		SPN203N
Tested to		EN 61643-11 (VDE0675-6-11) 2007-08
SPD type / class		T3 / III
Ports		one port
Type of connection		Series / parallel
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	$\leq 1.25kV$
Voltage protection level (L/N - PE)	U_p	$\leq 1.5kV$
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	I	25A
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	$\leq 5\mu A$
Replacement cartridge		NO
Maximal rating of overcurrent protection	fuse	25A gL / gG
	MCB	25A B curve
Short-circuit withstand capability with max. overcurrent protection	fuse	6kA eff ac
	MCB	1kA eff ac
Response time	t_A	$\leq 25ns$
Operating temperature range		- 25°C 40°C
Indication of SPD disconnector		Green red
Cross sectional area	min	1.5mm ² solid / flexible
	max	10mm ² stranded / 6mm ² 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		1 modules, DIN 43880

Residential
Distribution

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Wiring Accessories

Our expansive range of Sollysta Wiring Accessories have been designed from the beginning to be installer friendly, tactile & safe.

Connect cables and install lamps securely with our Ceiling Accessories and Junction Boxes.



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WMPS11

Wall Switches

Characteristics:

- Unique patented loop terminal allows neutral looping at the switch.
- Complies with BS EN 60669-1, a.c only.
- 'X' rated - No need to derate for fluorescent loads.
- Clear terminal markings: 1-way L1, 2-way L2
- Capacity of each terminal - 2 x 4.0mm² conductors.
- For mounting boxes see selection chart on page 5.45.
- For multigang switches use of a 25mm mounting box will provide increased wiring space.
- Supplied with M3.5 x 20mm long fixing screws and screw covers.

Description	Cat ref.
10AX Wall Switches	
1 Gang 1 Way	WMPS11
1 Gang 1 Way Printed 'Fan'	WMPS11/FAN
1 Gang 2 Way	WMPS12
2 Gang 2 Way	WMPS22
3 Gang 2 Way	WMPS32
4 Gang 2 Way	WMPS42
6 Gang 2 Way	WMPS62
1 Gang 2 Way Wide Rocker	WMPS12W
2 Gang 2 Way Wide Rocker	WMPS22W



WMPS16

Intermediate Switches

Characteristics:

- Complies with BS EN 60669-1, a.c only.
- 'X' rated - No need to derate for fluorescent loads.
- Clear terminal markings.
- Capacity of each terminal - 2 x 4.0mm² conductors.
- For mounting boxes see selection chart on page 5.45.
- For multigang switches use of a 25mm mounting box will provide increased wiring space.
- Supplied with M3.5 x 20mm long fixing screws and screw covers.

Description	Cat ref.
Intermediate Switch	WMPS16



WMPS12W

Push Switches

Characteristics:

- Unique patented loop terminal allows neutral looping at the switch.
- Complies with BS EN 60669-1, a.c only.
- 'X' rated - No need to derate for fluorescent loads.
- Clear terminal markings: 1-way L1, 2-way L2
- Capacity of each terminal - 2 x 4.0mm² conductors.
- For mounting boxes see selection chart on page 5.45.
- For multigang switches use of a 25mm mounting box will provide increased wiring space.
- Supplied with M3.5 x 20mm long fixing screws and screw covers.

Description	Cat ref.
Push Switches	
Retractive Switch	WMPS12R
With Bell Symbol	WMPS12RB
With Wide Rocker	WMPS12RW



WMPS3PIF

Isolator Switches

Characteristics:

- Complies with BS EN 60669-2-4
- Rated conditional short circuit current (I_{nc}) 1500A tested with Hager **MTN110** 6kA B curve MCB.
- Capacity of each terminal 2 x 4.0mm² conductors.
- For mounting boxes see selection chart on page 5.45.
- Supplied with M3.5 x 20mm long fixing screws and screw covers.

Description	Cat ref.
3 Pole Isolator Switches	
Isolator Switch	WMPS3PI
Isolator Switch with Fan Symbol	WMPS3PIF

Dimmer Plate Kits

Characteristics:

- Suitable for most D shaft push and rotary dimmer switch modules
- Maintains Solysta aesthetic for a wide range of manufacturers switches
- Plate and matching button(s) supplied
- Supplied with M3.5 x 30mm long fixing screws and screw covers.

Description	Cat ref.
1 Gang Rotary Dimmer Switch Plate Kit	WMDRP1KIT ★
2 Gang Rotary Dimmer Switch Plate Kit	WMDRP2KIT ★
3 Gang Rotary Dimmer Switch Plate Kit	WMDRP3KIT ★
4 Gang Rotary Dimmer Switch Plate Kit	WMDRP4KIT ★



WMDRP1KIT
(Each kit comes with matching button(s))

Rotary Push Button Dimmer Switches

Characteristics:

- Quick press for on/off with rotary dimming control.
- 1 or 2 way switching.
- Supplied with M3.5 x 30mm long fixing screws and screw covers.
- Complies with BS EN 60669-2-1 (excluding clause 26 EMC requirements).

Mains Halogen

- Suitable for mains halogen lamps without the need for derating.
- Not suitable for fluorescent, LED or inductive loads.

LED

- Leading edge functionality compatible with many dimmable LED lamps & fittings
- Thermal safety fuse for short circuit protection



WMDR1/400R

Description	Cat ref.
Rotary Push Button Dimmer Switches (LED)	
1 Gang 400W	WMDR1L ★
2 Gang 250W	WMDR2L ★

Rotary Push Button Dimmer Switches (Mains Halogen)

1 Gang 400W	WMDR1/400R
2 Gang 250W	WMDR2/250R

Push Button Dimmer Switches

Characteristics:

- Stylish flush button with quick press for on/off.
- Hold button down to dim or brighten light level.
- Leading edge.
- Soft start feature prolongs lamp life.
- Suitable for dimming mains and dimmable transformer extra low voltage lamps.
- Complies with BS EN 60669-2-1 (including BS EN 55015).
- Automatic switch off in event of transformer instability, protects the dimmer and the transformer.
- Supplied with M3.5 x 30mm long fixing screws and screw covers.



WMDS1

Description	Cat ref.
Push Button Dimmer Switches	
1 Gang 400W	WMDS1
2 Gang 250W	WMDS2
3 Gang 250W	WMDS3
4 Gang 250W	WMDS4

Resistive Load for LED Applications	WMRESLOAD
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WMSS82



WMS51



WMSS82USB

Switched & Unswitched Socket Outlets

Characteristics:

- Unique patented three part safety shutter.
- Complies with BS 1363-2, a.c. only.
- Double pole switching mechanism on switched sockets.
- Twin socket comes with twin earth as standard.
- All terminal screws grouped in-line and upward facing for ease of installation.
- Clear printed and engraved terminal markings.
- Capacity of each terminal: 3 x 4mm² conductors switched & unswitched (for other sized conductors see terminal capacities on page 5.46).
- **WMSS82USB(S) - Warning:** To avoid possible damage to the product or spurious insulation readings, please disconnect the product before carrying out insulation resistance testing.
- **WMSS82USB(S)** USB output: 5V d.c. 2.4A total max.
- For mounting boxes see selection chart on page 5.45.
- Supplied with M3.5 x 30mm long fixing screws and screw covers.

Description	Cat ref.
Switched Socket Outlets	
13A 1 Gang Double Pole	WMSS81
13A 2 Gang Double Pole Dual Earth	WMSS82
13A 2 Gang Double Pole Dual Earth & Two USB Ports	WMSS82USB
13A 2 Gang Double Pole Dual Earth & Two USB Ports & 10mm Spacer	WMSS82USBS
10mm Spacer for 2 Gang Sockets	WMUSBS
13A 2 Gang Double Pole Dual Earth Outboard Rockers	WMSS82O
13A 1 Gang Double Pole with LED Indicator	WMSS81N
13A 2 Gang Double Pole Dual Earth with LED Indicator	WMSS82N
13A 2 Gang Double Pole Dual Earth Outboard Rockers & LED Indicator	WMSS82ON
15A 1 Gang	WMSS115

Unswitched Socket Outlets

13A 1 Gang	WMS81
13A 2 Gang Dual Earth	WMS82
5A 1 Gang	WMS51



WMCC50



WMCC50N

Cooker Control Unit

Characteristics:

- Complies with BS 4177.
- Switch and socket are double pole.
- Twin earth as standard.
- Main switch is suitable for isolation.
- All terminals are upward facing for ease of installation.
- Clearly printed terminal marking.
- Capacity of terminals: 2 x 6.0mm², 1 x 16.0mm².
- For mounting boxes see selection chart on page 5.45.
- Supplied with M3.5 x 30mm long fixing screws and screw covers.

Description	Cat ref.
45A Cooker Control Unit	WMCC50
45A Cooker Control Unit with LED Indicator	WMCC50N

Outlet Plates

Characteristics:

- Complies with BS 5733
- Terminal capacity: 20A 2 x 6.0mm², 45A 2 x 10.0mm² conductors
- 20A plate features 2 separate terminals for each of Line, Neutral and Earth so flexible and fixed wiring do not occupy the same terminal.
- Single screw fast fix cable clamp.
- Supplied with M3.5 x 30mm long fixing screws and screw covers.
- 45A features large open brass terminals for ease of installation.
- Protective red washer must be used under cable clamp to prevent damage to cable.



WMP2FO

Description	Cat ref.
Outlet Plates	
20A Flex Outlet Plate	WMP2FO
45A Cooker Cable Outlet with Terminals	WMP50FO

Switched & Unswitched Fused Connection Units (13A)

Characteristics:

- Complies with BS 1363-4.
- Single screw fast fix cable clamp, accommodates up to 1.5mm² flexible cord.
- All terminals are upward facing with clearly printed terminal markings for ease of installation.
- Capacity of each terminal 2 x 6.0mm² conductors.
- Supplied with M3.5 x 30mm long fixing screws and screw covers.
- For mounting boxes see selection chart on page 5.45.
- We also offer a bespoke printing service for your individual requirements. Please contact our Estimation Team on 01952 675594 for further details.

Description

Cat ref.

13A Switched Fused Connection Units

FCU	WMSSU83
FCU With Flex Outlet	WMSSU83FO
FCU With LED Indicator	WMSSU83N
FCU With LED Indicator & Flex Outlet	WMSSU83FON
FCU With 3A Fuse	WMSSU83/3A

13A Unswitched Fused Connection Units

FCU	WMSU83
With Flex Outlet	WMSU83FO

13A Unswitched Fused Connection Units - Printed Text

Printed - 'Plinth Heater'	WMSU83PH
Printed - 'Storage Heater'	WMSU83SH

13A Switched Fused Connection Units - Printed Text

Printed 'Boiler'	WMSSU83/BO
Printed 'Central Heating'	WMSSU83/CTLHTG
Printed 'Dishwasher'	WMSSU83/DW
Printed 'Extract Fan'	WMSSU83/EF
Printed 'Fan'	WMSSU83/FAN
Printed 'Fridge Freezer'	WMSSU83/FF
Printed 'Freezer'	WMSSU83/FRE
Printed 'Fridge'	WMSSU83/FRI
Printed 'Heating'	WMSSU83/HTG
Printed 'Heater'	WMSSU83/HTR
Printed 'Shower Pump'	WMSSU83/SHWRPUMP
Printed 'Socket Below'	WMSSU83/SKTBELOW
Printed 'Tumble Dryer'	WMSSU83/TD
Printed 'Washing Machine'	WMSSU83/WM

13A Switched Fused Connection Units with Flex Outlet - Printed Text

Printed 'Boiler'	WMSSU83FO/BO
Printed 'Dishwasher'	WMSSU83FO/DW
Printed 'Extractor Fan'	WMSSU83FO/EF
Printed 'Fridge Freezer'	WMSSU83FO/FF
Printed 'Freezer'	WMSSU83FO/FRE
Printed 'Fridge'	WMSSU83FO/FRI
Printed 'Heating'	WMSSU83FO/HTG
Printed 'Heater'	WMSSU83FO/HTR
Printed 'Tumble Dryer'	WMSSU83FO/TD
Printed 'Washing Machine'	WMSSU83FO/WM



WMSSU83



WMSSU83N

Continued overleaf

Unswitched & Switched Fused Connection Units (13A) - Continued

Description	Cat ref.
13A Switched Fused Connection Units with LED Indicator - Printed Text	
Printed 'Boiler'	WMSSU83N/BO
Printed 'Dishwasher'	WMSSU83N/DW
Printed 'Extractor Fan'	WMSSU83N/EF
Printed 'Fan'	WMSSU83N/FAN
Printed 'Freezer'	WMSSU83N/FRE
Printed 'Fridge'	WMSSU83N/FRI
Printed 'Hob'	WMSSU83N/HB
Printed 'Heating'	WMSSU83N/HTG
Printed 'Tumble Dryer'	WMSSU83N/TD
Printed 'Washing Machine'	WMSSU83N/WM
13A Switched Fused Connection Units with LED Indicator & Flex Outlet - Printed Text	
Printed 'Boiler'	WMSSU83FON/BO
Printed 'Dishwasher'	WMSSU83FON/DW
Printed 'Extractor Fan'	WMSSU83FON/EF
Printed 'Fan'	WMSSU83FON/FAN
Printed 'Freezer'	WMSSU83FON/FRE
Printed 'Fridge'	WMSSU83FON/FRI
Printed 'Hob'	WMSSU83FON/HB
Printed 'Heating'	WMSSU83FON/HTG
Printed 'Tumble Dryer'	WMSSU83FON/TD
Printed 'Washing Machine'	WMSSU83FON/WM



WMDP84FON

Double Pole Switches (20A)

Characteristics:

- Complies with BS EN 60669-1, a.c. only.
- Single screw fast fix cable clamp, accommodates up to 1.5mm² flexible cord.
- All terminals are upward facing with clearly printed terminal markings for ease of installation.
- Capacity of each terminal 2 x 6.0mm² conductors.
- For mounting boxes see selection chart on page 5.45.
- Supplied with M3.5 x 30mm long fixing screws and screw covers.
- We also offer a bespoke printing service for your individual requirements. Please contact our Estimation Team on 01952 675594 for further details.

Description	Cat ref.
20A Double Pole Switches	
20A Double Pole Switch	WMDP84
With Flex Outlet	WMDP84FO
With LED Indicator	WMDP84N
With LED Indicator & Flex Outlet	WMDP84FON
20A Double Pole Switched - Printed Text	
Printed 'Dishwasher'	WMDP84/DW
Printed 'Freezer'	WMDP84/FRE
Printed 'Fridge'	WMDP84/FRI
Printed 'Tumble Dryer'	WMDP84/TD
Printed 'Washing Machine'	WMDP84/WM
20A Double Pole Switches with Flex Outlet - Printed Text	
Printed 'Freezer'	WMDP84FO/FRE
Printed 'Fridge'	WMDP84FO/FRI

Double Pole Switches (20A) (Continued)

20A Double Pole Switches with LED Indicator & Flex Outlet - Printed Text

Printed 'Dishwasher'	WMDP84FON/DW
Printed 'Fan'	WMDP84FON/FAN
Printed 'Freezer'	WMDP84FON/FRE
Printed 'Fridge'	WMDP84FON/FRI
Printed 'Tumble Dryer'	WMDP84FON/TD
Printed 'Washing Machine'	WMDP84FON/WM
Printed 'Waterheater'	WMDP85FON



WMDP85N

20A Double Pole Switches with LED Indicator - Printed Text

Printed 'Dishwasher'	WMDP84N/DW
Printed 'Fan'	WMDP84N/FAN
Printed 'Freezer'	WMDP84N/FRE
Printed 'Fridge'	WMDP84N/FRI
Printed 'Tumble Dryer'	WMDP84N/TD
Printed 'Washing Machine'	WMDP84N/WM
Printed 'Waterheater'	WMDP85N

Double Pole Switches (50A)

Characteristics:

- Complies with BS EN 60669-2-4.
- Rated conditional short circuit current (I_{nc}) 1500A tested with Hager **MTN150** 6kA B curve MCB.
- All terminal screws upward facing for ease of installation.
- Clearly printed terminal marking.
- Capacity of each terminal: 2 x 6mm², 1 x 10mm².
- For mounting boxes see selection chart on page 5.45.
- Supplied with M3.5 x 30mm long fixing screws and screw covers.
- We also offer a bespoke printing service for your individual requirements. Please contact our Estimation Team on 01952 675594 for further details.

Description	Cat ref.
50A Double Pole Switches	
With LED Indicator (1 Gang)	WMDP50N
Vertical with LED Indicator (2 Gang)	WMDP50VN



WMDP50N

50A Double Pole Switches with LED Indicator - Printed Text

Printed 'Cooker'	WMDP50N/CK
Printed 'Hob'	WMDP50N/HB
Printed 'Oven'	WMDP50N/OV
Printed 'Shower'	WMDP50N/SH

50A Double Pole Vertical Switches with LED Indicator - Printed Text

Printed 'Cooker' (2 Gang)	WMDP50VN/CK
Printed 'Hob' (2 Gang)	WMDP50VN/HB
Printed 'Oven' (2 Gang)	WMDP50VN/OV



WMSO100

Shaver Socket

- Characteristics:**
- Complies with BS EN 61558-2-5.
 - Capacity of each terminal 2 x 2.5mm² conductors.
 - Designed for use in bathrooms and shower rooms and incorporates a double wound transformer for an earth free supply.
 - Designed to supply electric shavers rated 50 VA or less.
 - Input 230V a.c. output dual voltage 230V a.c. and 115V a.c. outlets. Rating 20VA on either voltage.
 - Primary circuit protected by a self resetting thermal overload device.
 - Insertion of shaver plug automatically switches on the transformer.
 - Supplied with M3.5 x 30mm long fixing screws and screw covers.

Description	Cat ref.
Shaver Socket 115/230 Volt	WMSO100



WMBTM

Telephone & Data

- Characteristics:**
- BT sockets comply with BS 6312-2.
 - Supplied with fitted cable tie.
 - Quick connection with insulation displacement terminals.
 - Clearly printed terminal marking.
 - Supplied with M3.5 x 20mm long fixing screws and screw covers.

Description	Cat ref.
Telephone & Data	
BT Master Telephone Outlet	WMBTM
BT Secondary Telephone Outlet	WMBTS
RJ11 Socket	WMRJ11
RJ45 Socket	WMRJ45
IDC Tools (bag of 10)	IDCTOOL



WMQX

TV & Satellite

- Characteristics:**
- TV outlets comply with BS 3041.
 - Satellite outlets comply with BS EN 50083-2.
 - Fully screened.
 - DAB compatible.
 - Supplied with M3.5 x 20mm fixing screws.

Description	Cat ref.
TV & Satellite	
Single F Type Satellite Outlet Screened	WMSAT
Single Co-Ax TV Socket Outlet Male	WMTVM
Single Co-Ax TV Socket Outlet Female	WMTVF
Double TV & FM/DAB Co-Ax Socket Outlet	WMDX
Triplexer TV, FM/DAB & Satellite Outlet	WMTX
Quadplexer TV, FM/DAB, Satellite 1 & Satellite 2 Outlet	WMQX

Euro Style Accommodation Plates

Characteristics:

- Carrier plates facilitate installation of industry standard modules.
- Easy to configure for all applications.
- Robust retention of modules in operation.
- Quick release of modules for maintenance.

Description	Cat ref.
Euro Style Accommodation Plates	
1 Module	WMP1EU
2 Modules	WMP2EU
4 Modules	WMP4EU



WMP2EU

Euro Style Modules

Characteristics:

- Please note: these euro modules are industry standard units and are not colour matched to Sollysta plates.

Description	Mod Width	Cat ref. (White)	Cat ref. (Black)
Euro Style Modules			
BT Telephone Master	1	WMMBTM	WMMBTMB
BT Telephone Secondary	1	WMMBTS	WMMBTB
RJ11 - Modem	1	WMMRJ11	WMMRJ11B
RJ45 - Cat 6 UTP	1	WMMRJ45	WMMRJ45B
Phono Plugs - Red/Black - Gold Plated	1	WMMPP	-
Speaker Terminal Posts - Gold Plated	1	WMMSP	-
Single IEC Female Non Isolated	1	WMMTVF	WMMTVFB
Single IEC Male Non Isolated	1	WMMTVM	WMMTVMB
Single Satellite F Connector	1	WMMSAT	WMMSATB
Single Blank	1	WMMB	WMMBB
PIR Occupancy Sensor 5m	1	WMMPIR05X	-
PIR Occupancy Sensor 10m	1	WMMPIR10X	-
HDMI	2	WMMHDMI	WMMHDMIB
Triplexer - TV, Satellite & FM Radio	2	WMMTX	WMMTXB
Quadplexer - TV, Satellite, FM Radio & Return	2	WMMQX	WMMQXB



WMMBTM



WMMSAT



WMMQXB



WMCS11

Light Switches

Characteristics:

- Complies with BS EN 60669-1.
- 'X' rated - no need to de-rate for fluorescent loads.
- Earth terminal in base.
- Switch will operate at up to an angle of 45°.
- Pull cords 1.5m long.
- Capacity of each terminal: 2 x 1.5mm² conductors.

Description

Cat ref.

6A Ceiling Switch

1 Way

WMCS11

2 Way

WMCS12



WMCS3PIF

Fan Isolator Switches

Characteristics:

- Complies with BS EN 60669-2-4.
- Terminal capacity: 3 x 1.5mm².
- Supplied with M3.5 x 30mm long fixing screws and screw covers.

Description

Cat ref.

10A 3 Pole Ceiling Switch

Printed with Fan Symbol & 'Isolator'

WMCS3PIF

Printed 'Isolator'

WMCS3PI

Printed with Fan Symbol

WMCS3PF



WMCS50N

Shower Switches

Characteristics:

- Complies with BS EN 60669-2-4.
- Rated conditional short circuit current (I_{nc}) 1500A tested with Hager **MTN150** 6kA B Curve MCB.
- Suitable for use with showers up to 11.5kW.
- Position of the contacts shown by flag indicator.
- Supplied with M3.5 x 30mm fixing screws.
- Capacity of each terminal: 1 x 16mm² conductors.

Description

Cat ref.

50A 2 Pole Isolating with LED Indicator

WMCS50N

Accessories for Ceiling Switches

Description

Cat ref.

Single Spare Pull Cord

PULLCORD

Grid Plates

Description	Cat ref.
Grid Plates	
1 Gang	WMGP1
2 Gang	WMGP2
3 Gang	WMGP3
4 Gang	WMGP4
6 (2 x 3) Gang	WMGP6
8 (2 x 4) Gang Grid Plate	WMGP8
1 Gang Grid Plate Grey	WMGP1G
2 Gang Grid Plate Grey	WMGP2G
3 Gang Grid Plate Grey	WMGP3G
4 Gang Grid Plate Grey	WMGP4G
6 (2 x 3) Gang Grid Plate Grey	WMGP6G
8 (2 x 4) Gang Grid Plate Grey	WMGP8G



WMGP2

Grid Frames

Description	Cat ref.
1 Gang	WMGF1
2 Gang	WMGF2
3/4 Gang	WMGF34



WMGF34

Grid Switches

Characteristics:

- Complies with BS EN 606691-1 switches, BS 5733 fuse carrier.
- Shallowest switch modules which clip in from the front for ease of installation and maintenance.
- Terminal screw can be accessed with modules clipped into frames.
- Frames locate to finished wall level.
- Frames clip together to ease alignment for 6 gang and 8 gang applications.
- We also offer a bespoke printing service for your individual requirements. Please contact our Sales Service Centre on 01952 675612 for further details.

Description	Cat ref. White Insert	Cat ref. Black Insert
Grid Switches		
Blank Module	WMGB1	-
20AX 2 Way Single Pole Switch	WMGS12	-
20A Intermediate Switch	WMGS16	-
20A 2 Way Retractive Switch	WMGS22R	-
20A 1 Way Double Pole Switch	WMGSDP2	-
20A 1 Way Double Pole Switch with LED Indicator	WMGSDP2N	-
20A Double Pole Key Switch	WMGKS	-
20A Double Pole Key Switch Printed 'Emergency Lighting Test'	WMGKS/EL	-
13A Fuse Carrier	WMGFU13	-
Dimmer Slave Switch	WMGSD1S	WMGSD1SB
Dimmer Switch Leading Edge	WMGSD1L	WMGSD1LB
Dimmer Switch Trailing Edge	WMGSD1T	WMGSD1TB
Red Indicator	WMINDRED	WMINDREDB
2 Way & Centre Off Latching Switch	WMGS13L	WMGS13LB
2 Way & Centre Off Latching Switch Red Rocker	WMGS13LR	-
2 Way & Centre Off Retractive Switch	WMGS13R	WMGS13RB
2 Way & Centre Off Retractive Switch Red Rocker	WMGS13RR	-
13A Fused Connection Unit Unswitched with LED Indicator	WMGSU83N	-



WMGKS



WMGB1



WMINDRED



WMGSDP2/CHD



WMGSDP2/EF

Grid Switches (Continued)

Characteristics:

- Complies with BS EN 606691-1 switches, BS 5733 fuse carrier.
- Shallowest switch modules which clip in from the front for ease of installation and maintenance.
- Terminal screw can be accessed with modules clipped into frames.
- Frames locate to finished wall level.
- Frames clip together to ease alignment for 6 gang and 8 gang applications.
- We also offer a bespoke printing service for your individual requirements. Please contact our Sales Service Centre on 01952 675612 for further details.

Description	Cat ref. White Insert	Cat ref. Black Insert
20A 1 Way Double Pole Grid Switches - Printed		
Printed 'Boiler'	WMGSDP2/BOI	-
Printed 'Cooker Hood'	WMGSDP2/CHD	WMGSDP2B/CHD
Printed 'Dishwasher'	WMGSDP2/DW	WMGSDP2B/DW
Printed 'Extract Fan'	WMGSDP2/EF	WMGSDP2B/EF
Printed 'Fridge Freezer'	WMGSDP2/FF	WMGSDP2B/FF
Printed 'Freezer'	WMGSDP2/FRE	WMGSDP2B/FRE
Printed 'Fridge'	WMGSDP2/FRI	WMGSDP2B/FRI
Printed 'Hob'	WMGSDP2/HB	WMGSDP2B/HB
Printed 'Heating'	WMGSDP2/HTG	WMGSDP2B/HTG
Printed 'Microwave'	WMGSDP2/MW	WMGSDP2B/MW
Printed 'Micro Wave'	WMGSDP2MW2	-
Printed 'Tumble Dryer'	WMGSDP2/TD	WMGSDP2B/TD
Printed 'Waste Disposal'	WMGSDP2/WD	WMGSDP2B/WD
Printed 'Washing Machine'	WMGSDP2/WM	WMGSDP2B/WM
Printed 'Oven'	WMGSDP2/OV	WMGSDP2B/OV
Printed 'Wine Cooler'	WMGSDP2/WC	WMGSDP2B/WC
Printed 'Hot Water'	WMGSDP2/HW	WMGSDP2B/HW
Printed 'Coffee Maker'	WMGSDP2/CM	WMGSDP2B/CM
Printed 'Hot Drawer'	WMGSDP2/HD	WMGSDP2B/HD
Printed 'Fan Boost'	WMGSDP2/FB	WMGSDP2B/FB
Printed 'Outside Light'	WMGSDP2/OL	-
Printed 'Outside Socket'	WMGSDP2/OS	-
Printed 'Plinth Heater'	WMGSDP2/PH	-
20A 1 Way Double Pole Grid Switches with LED Indicator - Printed		
Printed 'Cooker Hood'	WMGSDP2N/CHD	WMGSDP2NB/CHD
Printed 'Dishwasher'	WMGSDP2N/DW	WMGSDP2NB/DW
Printed 'Extract Fan'	WMGSDP2N/EF	WMGSDP2NB/EF
Printed 'Fridge Freezer'	WMGSDP2N/FF	WMGSDP2NB/FF
Printed 'Freezer'	WMGSDP2N/FRE	WMGSDP2NB/FRE
Printed 'Fridge'	WMGSDP2N/FRI	WMGSDP2NB/FRI
Printed 'Hob'	WMGSDP2N/HB	WMGSDP2NB/HB
Printed 'Heating'	WMGSDP2N/HTG	WMGSDP2NB/HTG
Printed 'Microwave'	WMGSDP2N/MW	WMGSDP2NB/MW
Printed 'Tumble Dryer'	WMGSDP2N/TD	WMGSDP2NB/TD
Printed 'Waste Disposal'	WMGSDP2N/WD	WMGSDP2NB/WD
Printed 'Washing Machine'	WMGSDP2N/WM	WMGSDP2NB/WM
Printed 'Oven'	WMGSDP2N/OV	-
Printed 'Outside Light'	WMGSDP2N/OL	-
Printed 'Outside Socket'	WMGSDP2N/OS	-
Printed 'Plinth Heater'	WMGSDP2N/PH	-

Blank Plates

Single Blank Plate
Twin Blank Plate

WMP1
WMP2



WMP1



WMP2

Patress Boxes

Characteristics:

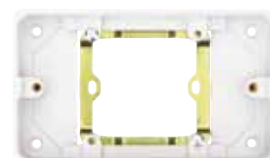
- Complies with BS EN 60670-1.
- Depth quoted is internal depth.
- Colour and footprint match all Sollysta White Moulded wiring accessories.

Description

Single 20mm Deep Moulded Box
Single 28mm Deep Moulded Box
Single 46mm Deep Moulded Box
Twin 28mm Deep Moulded Box
Twin 46mm Deep Moulded Box with Cable Clamps
46mm Deep Moulded Shaver Box
20mm Single to Twin Converter Frame
Single 14mm Deep Spacer for Base Flex Outlet

Cat ref.

WMPB1/20
WMPB1/28
WMPB1/46
WMPB2/28
WMPB2/46CC
WMPB2/46
WMPB2/20
WMPB1/BFO



WMPB2/20

Accessories

Description

Single Spare Pull Cord
Pack of 100 Push Fit Screw Covers
IDC Tools (bag of 10)

Cat ref.

PULLCORD
SCREWCOVER
IDCTOOL



PULLCORD

Hotel Key Card Switch

Characteristics:

- Includes indicator light to aid locating which is switched off when the card is inserted.
- Complies with BS EN 60669-1.
- Supplied with M3.5 x 25mm long fixing screws and screw covers.

Description

Key Tag Switch with Key Card (time delay 60s)

Quantity

5

Cat ref.

XH9001



XH9001



WMSS82OG



WMPS12WG

Part M Wiring Accessories

Characteristics:

- Designed to satisfy Buildings Regulations Approved Document M (referred to as Part M)
- All products comply with their relevant British Standards
- Switches have wide rockers and dark face plates for clear visibility and ease of actuation
- Sockets have outboard rockers to ensure correct switching of appliances and dark face plates for ease of identification of switch position
- Grid modules can be found on page 5.12. Euro modules can be found on page 5.10.

Description	Cat ref. (Grey Faceplate)
Wall Switches	
10AX 1 Gang 2 Way Wide Rocker	WMPS12WG
10AX 2 Gang 2 Way Wide Rocker	WMPS22WG
Intermediate Switch	
Wide Rocker	WMPS16WG
Push Switches	
Wide Rocker	WMPS12RWG
Wide Rocker Printed 'Fan Boost'	WMPS12RWG/FB
Double Pole Switched Socket Outlets	
13A 1 Gang	WMSS81G
13A 2 Gang with Outboard Rockers	WMSS82OG
Switched Fused Connection Units	
13A with LED Indicator	WMSSU83NG
13A with LED Indicator Printed 'Extract Hood'	WMSSU83NG/EH
Double Pole Switches	
20A 1 Gang with LED Indicator	WMDP84NG
50A 2 Gang with LED Indicator	WMDP50NG
50A 2 Gang with LED Indicator Printed 'Cooker'	WMDP50NG/CK
Grid Plates	
1 Gang Grid Plate	WMGP1G
2 Gang Grid Plate	WMGP2G
3 Gang Grid Plate	WMGP3G
4 Gang Grid Plate	WMGP4G
6 Gang Grid Plate (2 x 3)	WMGP6G
8 Gang Grid Plate (2 x 4)	WMGP8G
Euro Style Accommodation Plates	
1 Module	WMP1EUG
2 Modules	WMP2EUG
4 Modules	WMP4EUG

Specific Equipment Wiring Accessories

- Characteristics:**
- Red rockers aid ease of identification for safe switching of specific equipment
 - Red face plates ensure products are easy to locate
 - A range of printed options is available for specific functions

Description	Cat ref. (White Faceplate, Red Rocker)	Cat ref. (Red Faceplate, Red Rocker)
Double Pole Switched Socket Outlets		
13A 1 Gang	WMSS81R	WMSS81RR
13A 2 Gang	WMSS82R	WMSS82RR
13A 2 Gang with Outboard Rockers	WMSS82OR	WMSS82ORR
13A 2 Gang Switched Socket Printed 'Cleaners Socket'	WMSS82R/CS	-
13A 2 Gang Switched Socket Printed 'UPS Protected'	WMSS82R/UPS	-
Switched Fused Connection Units		
13A Fused Connection Unit Switched	WMSSU83R	-
13A Fused Connection Unit Red Face (White Fuse Cover)	WMSU83R	-
13A Fused Connection Unit Switched	-	WMSSU83RR



WMSS82R/CS



WMSS82ORR



WMSSU83RR



WRPS12PSB



WRPS12BSB



WRPS12BNB



Wall Switches Raised Plate

Characteristics:

- Unique patented LOOP terminal to allow neutral looping at the switch.
- Complies with BS EN 60669-1, a.c. only.
- 'X' rated - No need to de-rate for fluorescent loads.
- Capacity of each terminal 2 x 4.0mm² conductors.
- For mounting boxes see selection chart on page 5.45.
- For multi-gang switches, use of a 25mm mounting box will provide increased wiring space.
- Supplied with M3.5 x 20mm long fixing screws.

Description	Cat ref. White Insert	Cat ref. Black Insert
Raised Plate 10AX 1 Gang 2 Way		
Polished Steel	WRPS12PSW	WRPS12PSB
Brushed Steel	WRPS12BSW	WRPS12BSB
Black Nickel	-	WRPS12BNB
Raised Plate 10AX 2 Gang 2 Way		
Polished Steel	WRPS22PSW	WRPS22PSB
Brushed Steel	WRPS22BSW	WRPS22BSB
Black Nickel	-	WRPS22BNB
Raised Plate 10AX 3 Gang 2 Way		
Polished Steel	WRPS32PSW	WRPS32PSB
Brushed Steel	WRPS32BSW	WRPS32BSB
Black Nickel	-	WRPS32BNB
Raised Plate 10AX 4 Gang 2 Way		
Polished Steel	WRPS42PSW	WRPS42PSB
Brushed Steel	WRPS42BSW	WRPS42BSB
Black Nickel	-	WRPS42BNB
Raised Plate 10AX 1 Gang 2 Way Wide Rocker		
Polished Steel	WRPS12WPSW	WRPS12WPSB
Brushed Steel	WRPS12WBSW	WRPS12WBSB
Black Nickel	-	WRPS12WBNB
Raised Plate 10AX 2 Gang 2 Way Wide Rocker		
Polished Steel	WRPS22WPSW	WRPS22WPSB
Brushed Steel	WRPS22WBSW	WRPS22WBSB
Black Nickel	-	WRPS22WBNB
Raised Plate Intermediate Switch		
Polished Steel	WRPS16PSW	WRPS16PSB
Brushed Steel	WRPS16BSW	WRPS16BSB
Black Nickel	-	WRPS16BNB

Wall Switches Flat Plate

Characteristics:

- Unique patented LOOP terminal to allow neutral looping at the switch.
- Complies with BS EN 60669-1, a.c. only.
- 'X' rated - No need to de-rate for fluorescent loads.
- Capacity of each terminal 2 x 4.0mm² conductors.
- For mounting boxes see selection chart on page 5.45.
- For multi-gang switches use of a 25mm mounting box will provide increased wiring space.
- Supplied with M3.5 x 20mm long fixing screws.

Description	Cat ref. White Insert	Cat ref. Black Insert
Flat Plate 10AX 1 Gang 2 Way		
Polished Steel	WFPS12PSW	WFPS12PSB
Brushed Steel	WFPS12BSW	WFPS12BSB
Black Nickel	-	WFPS12BNB
Flat Plate 10AX 2 Gang 2 Way		
Polished Steel	WFPS22PSW	WFPS22PSB
Brushed Steel	WFPS22BSW	WFPS22BSB
Black Nickel	-	WFPS22BNB
Flat Plate 10AX 3 Gang 2 Way		
Polished Steel	WFPS32PSW	WFPS32PSB
Brushed Steel	WFPS32BSW	WFPS32BSB
Black Nickel	-	WFPS32BNB
Flat Plate 10AX 4 Gang 2 Way		
Polished Steel	WFPS42PSW	WFPS42PSB
Brushed Steel	WFPS42BSW	WFPS42BSB
Black Nickel	-	WFPS42BNB
Flat Plate 10AX 1 Gang 2 Way Wide Rocker		
Polished Steel	WFPS12WPSW	WFPS12WPSB
Brushed Steel	WFPS12WBSW	WFPS12WBSB
Black Nickel	-	WFPS12WBNB
Flat Plate 10AX 2 Gang 2 Way Wide Rocker		
Polished Steel	WFPS22WPSW	WFPS22WPSB
Brushed Steel	WFPS22WBSW	WFPS22WBSB
Black Nickel	-	WFPS22WBNB
Flat Plate Intermediate Switch		
Polished Steel	WFPS16PSW	WFPS16PSB
Brushed Steel	WFPS16BSW	WFPS16BSB
Black Nickel	-	WFPS16BNB



WFPS22PSW



WFPS22WBSW



WFPS12BNB





WFDRP1BSKIT



WFDRP1PSKIT



WFDRP4BSKIT

Dimmer Plate Kits

Characteristics:

- Suitable for most D shaft push and rotary dimmer switch modules
- Maintains Solysta aesthetic for a wide range of manufacturers switches
- Plate and matching button(s) supplied
- Supplied with M3.5 x 30mm long fixing screws and screw covers.

Description	Cat ref. Flat Plate	Cat ref. Raised Plate
1 Gang Dimmer Switch Plate Kit		
Polished Steel	WFDRP1PSKIT ★	WRDRP1PSKIT ★
Brushed Steel	WFDRP1BSKIT ★	WRDRP1BSKIT ★
2 Gang Dimmer Switch Plate Kit		
Polished Steel	WFDRP2PSKIT ★	WRDRP2PSKIT ★
Brushed Steel	WFDRP2BSKIT ★	WRDRP2BSKIT ★
3 Gang Dimmer Switch Plate Kit		
Polished Steel	WFDRP3PSKIT ★	WRDRP3PSKIT ★
Brushed Steel	WFDRP3BSKIT ★	WRDRP3BSKIT ★
4 Gang Dimmer Switch Plate Kit		
Polished Steel	WFDRP4PSKIT ★	WRDRP4PSKIT ★
Brushed Steel	WFDRP4BSKIT ★	WRDRP4BSKIT ★



WRDS2BN



WFDS1PS



WRDS3PS

Dimmers - Flat & Raised Plate

Characteristics:

- Quick press for ON/OFF, hold button down to dim or brighten light level.
- Leading edge.
- Soft start feature prolongs lamp life.
- Suitable for dimming mains and dimmable transformer extra low voltage lamps.
- Automatic switch off in the case of transformer instability, protects the dimmer and the transformer.
- WR references supplied with M3.5 x 30mm long fixing screws.
- WF references supplied with M3.5 x 20mm long fixing screws.

Description	Cat ref. Flat Plate	Cat ref. Raised Plate
1 Gang Dimmer 400W		
Polished Steel	WFDS1PS	WRDS1PS
Brushed Steel	WFDS1BS	WRDS1BS
Black Nickel	WFDS1BN	WRDS1BN
2 Gang Dimmer 250W		
Polished Steel	WFDS2PS	WRDS2PS
Brushed Steel	WFDS2BS	WRDS2BS
Black Nickel	WFDS2BN	WRDS2BN
3 Gang Dimmer 250W		
Polished Steel	WFDS3PS	WRDS3PS
Brushed Steel	WFDS3BS	WRDS3BS
Black Nickel	WFDS3BN	WRDS3BN
4 Gang Dimmer 250W		
Polished Steel	WFDS4PS	WRDS4PS
Brushed Steel	WFDS4BS	WRDS4BS
Black Nickel	WFDS4BN	WRDS4BN

Isolator Switches Raised Plate

Characteristics:

- Complies with BS EN 60669-2-4.
- Capacity of each terminal 2 x 4.0mm² conductors.
- For mounting boxes see selection chart on page 5.45.
- WR references supplied with M3.5 x 30mm long fixing screws.
- WF references supplied with M3.5 x 20mm long fixing screws.

Description	Cat ref. White Insert	Cat ref. Black Insert
Raised Plate 3 Pole Fan Isolator Switch		
Polished Steel	WRPS3PIPSW	WRPS3PIPSB
Brushed Steel	WRPS3PIBSW	WRPS3PIBSB
Black Nickel	-	WRPS3PIBNB



WRPS3PIPSW



WFPS3PIBNB

Isolator Switches Flat Plate

Description	Cat ref. White Insert	Cat ref. Black Insert
Flat Plate 3 Pole Fan Isolator Switch		
Polished Steel	WFPS3PIPSW	WFPS3PIPSB
Brushed Steel	WFPS3PIBSW	WFPS3PIBSB
Black Nickel	-	WFPS3PIBNB

Socket Outlets Raised Plates

Characteristics:

- Unique patented three part safety shutter.
- Complies with BS 1363 Part 2, a.c only.
- Double pole switching mechanism on switched sockets.
- Twin socket comes with twin earth as standard.
- All terminals are upward facing with clearly printed terminal markings for ease of installation.
- Capacity of each terminal: 3 x 4mm² conductors, switched & unswitched (for other sized conductors see terminal capacities on page 5.46).
- For mounting boxes see selection chart on page 5.45.
- WR references supplied with M3.5 x 30mm long fixing screws.
- WF references supplied with M3.5 x 20mm long fixing screws.
- **Sockets with USB connections - Warning:** To avoid possible damage to the product or spurious insulation readings, please disconnect the product before carrying out insulation resistance testing.
- **Sockets with USB connections:** USB output: 5V d.c. 2.4A total max.
- All decorative USB sockets come with spacer colour matched to insert and 30mm & 20mm screws.

Description	Cat ref. White Insert	Cat ref. Black Insert
Raised Plate 1 Gang Double Pole Switched Socket		
Polished Steel	WRSS81PSW	WRSS81PSB
Brushed Steel	WRSS81BSW	WRSS81BSB
Black Nickel	-	WRSS81BNB



WRSS81BNB



WRSS82PSW-USB

Raised Plate 2 Gang Double Pole Switched Socket Dual Earth

Polished Steel	WRSS82PSW	WRSS82PSB
Brushed Steel	WRSS82BSW	WRSS82BSB
Black Nickel	-	WRSS82BNB

Raised Plate 5A 1 Gang Unswitched Socket

Polished Steel	WRS51PSW	WRS51PSB
Brushed Steel	WRS51BSW	WRS51BSB
Black Nickel	-	WRS51BNB

Raised Plate 2 Gang Double Pole Dual Earth Switched Socket & Two USB Ports

Polished Steel	WRSS82PSW-USB	WRSS82PSB-USB
Brushed Steel	WRSS82BSW-USB	WRSS82BSB-USB
Black Nickel		WRSS82BNB-USB



WFSS81BSW



WFSS82BNB-USB



WFSS82BSW-USB

Socket Outlets Flat Plates

Description	Cat ref. White Insert	Cat ref. Black Insert
Flat Plate 1 Gang Double Pole Switched Socket		
Polished Steel	WFSS81PSW	WFSS81PSB
Brushed Steel	WFSS81BSW	WFSS81BSB
Black Nickel	-	WFSS81BNB
Flat Plate 2 Gang Double Pole Switched Socket Dual Earth		
Polished Steel	WFSS82PSW	WFSS82PSB
Brushed Steel	WFSS82BSW	WFSS82BSB
Black Nickel	-	WFSS82BNB
Flat Plate 5A 1 Gang Unswitched Socket		
Polished Steel	WFS51PSW	WFS51PSB
Brushed Steel	WFS51BSW	WFS51BSB
Black Nickel	-	WFS51BNB
Raised Plate 2 Gang Double Pole Dual Earth Switched Socket & Two USB Ports		
Polished Steel	WFSS82PSW-USB	WFSS82PSB-USB
Brushed Steel	WFSS82BSW-USB	WFSS82BSB-USB
Black Nickel		WFSS82BNB-USB



WRCC50NPSB



WRCC50BNB

Cooker Control Unit Raised Plate

Characteristics:

- Complies with BS 4177.
- Switch and socket are double pole with twin earth as standard.
- Main switch is suitable for isolation.
- All terminals are upward facing with clearly printed terminal markings for ease of installation.
- Capacity of terminals 2 x 6.0mm², 1 x 16.0mm².
- For mounting boxes see selection chart on page 5.45.
- WR references supplied with M3.5 x 30mm long fixing screws.
- WF references supplied with M3.5 x 20mm long fixing screws.

Description	Cat ref. White Insert	Cat ref. Black Insert
Raised Plate 45A Cooker Control Unit		
Polished Steel	WRCC50NPSW	WRCC50NPSB
Brushed Steel	WRCC50NBSW	WRCC50NBSB
Black Nickel	-	WRCC50BNB



WFCC50NPSW

Cooker Control Unit Flat Plate

Description	Cat ref. White Insert	Cat ref. Black Insert
Flat Plate 45A Cooker Control Unit		
Polished Steel	WFCC50NPSW	WFCC50NPSB
Brushed Steel	WFCC50NBSW	WFCC50NBSB
Black Nickel	-	WFCC50BNB

Fused Connection Units Raised Plate

Characteristics:

- Complies with BS 1363-4.
- Single screw fast fix cable clamp accommodates up to 1.5mm² flexible cord.
- All terminals are upward facing with clearly printed terminal markings for ease of installation.
- Capacity of each terminal 2 x 6.0 mm² conductors.
- For mounting boxes see selection chart on page 5.45.
- WR references supplied with M3.5 x 30mm long fixing screws.
- WF references supplied with M3.5 x 20mm long fixing screws.

Description	Cat ref. White Insert	Cat ref. Black Insert
Raised Plate 13A FCU Switched		
Polished Steel	WRSSU83PSW	WRSSU83PSB
Brushed Steel	WRSSU83BSW	WRSSU83BSB
Black Nickel	-	WRSSU83BNB

Raised Plate 13A FCU Switched with Flex Outlet

Polished Steel	WRSSU83FOPSW	WRSSU83FOPSB
Brushed Steel	WRSSU83FOBSW	WRSSU83FOBSB
Black Nickel	-	WRSSU83FOBNB

Raised Plate 13A FCU Unswitched

Polished Steel	WRSU83PSW	WRSU83PSB
Brushed Steel	WRSU83BSW	WRSU83BSB
Black Nickel	-	WRSU83BNB



WRSSU83FOBSW

Fused Connection Units Flat Plate

Description	Cat ref. White Insert	Cat ref. Black Insert
Flat Plate 13A FCU Switched		
Polished Steel	WFSSU83PSW	WFSSU83PSB
Brushed Steel	WFSSU83BSW	WFSSU83BSB
Black Nickel	-	WFSSU83BNB

Flat Plate 13A FCU Switched with Flex Outlet

Polished Steel	WFSSU83FOPSW	WFSSU83FOPSB
Brushed Steel	WFSSU83FOBSW	WFSSU83FOBSB
Black Nickel	-	WFSSU83FOBNB

Flat Plate 13A FCU Unswitched

Polished Steel	WFSU83PSW	WFSU83PSB
Brushed Steel	WFSU83BSW	WFSU83BSB
Black Nickel	-	WFSU83BNB



WFSSU83BSW



WFSSU83FOBNB



WRDP84BNB

Double Pole Switches Raised Plate (20A)

Characteristics:

- Complies with BS EN 60699-2-4 a.c. only.
- Single screw fast fix cable clamp accommodates up to 1.5mm² flexible cord.
- All terminals are upward facing with clearly printed terminal markings for ease of installation.
- Capacity of each terminal 2 x 6.0mm² conductors.
- For mounting boxes see selection chart on page 5.45.
- WR references supplied with M3.5 x 30mm long fixing screws.
- WF references supplied with M3.5 x 20mm long fixing screws.

Description	Cat ref. White Insert	Cat ref. Black Insert
Raised Plate 20A Double Pole Switch		
Polished Steel	WRDP84PSW	WRDP84PSB
Brushed Steel	WRDP84BSW	WRDP84BSB
Black Nickel	-	WRDP84BNB
Raised Plate 20A Double Pole Switch with Flex Outlet		
Polished Steel	WRDP84FOPSW	WRDP84FOPSB
Brushed Steel	WRDP84FOBSW	WRDP84FOBSB
Black Nickel	-	WRDP84FOBNB
Raised Plate 20A Double Pole Switch with LED Indicator		
Polished Steel	WRDP84NPSW	WRDP84NPSB
Brushed Steel	WRDP84NBSW	WRDP84NBSB
Black Nickel	-	WRDP84NBNB



WFDP84FOPSW

Double Pole Switches Flat Plate (20A)

Description	Cat ref. White Insert	Cat ref. Black Insert
Flat Plate 20A Double Pole Switch		
Polished Steel	WFDP84PSW	WFDP84PSB
Brushed Steel	WFDP84BSW	WFDP84BSB
Black Nickel	-	WFDP84BNB
Flat Plate 20A Double Pole Switch with Flex Outlet		
Polished Steel	WFDP84FOPSW	WFDP84FOPSB
Brushed Steel	WFDP84FOBSW	WFDP84FOBSB
Black Nickel	-	WFDP84FOBNB
Flat Plate 20A Double Pole Switch with LED Indicator		
Polished Steel	WFDP84NPSW	WFDP84NPSB
Brushed Steel	WFDP84NBSW	WFDP84NBSB
Black Nickel	-	WFDP84NBNB



WFDP84BSW

Double Pole Switches Raised Plate (50A)

Characteristics:

- Complies with BS EN 60669-2-4.
- Rated conditional short circuit current (I_{nc}) 1500A tested with Hager **MTN150** 6kA B curve MCB.
- All terminals are upward facing with clearly printed terminal markings for ease of installation.
- Capacity of each terminal 2 x 6mm², 1 x 10mm².
- For mounting boxes see selection chart on page 5.45.
- WR references supplied with M3.5 x 30mm long fixing screws.
- WF references supplied with M3.5 x 20mm long fixing screws.

Description	Cat ref. White Insert	Cat ref. Black Insert
Raised Plate 50A Double Pole Switch 1 Gang with LED Indicator		
Polished Steel	WRDP50NPSW	WRDP50NPSB
Brushed Steel	WRDP50NBSW	WRDP50NBSB
Black Nickel	-	WRDP50NBNS



WRDP50NPBB

Double Pole Switches Flat Plate (50A)

Description	Cat ref. White Insert	Cat ref. Black Insert
Flat Plate 50A Double Pole Switch 1 Gang with LED Indicator		
Polished Steel	WFDP50NPSW	WFDP50NPSB
Brushed Steel	WFDP50NBSW	WFDP50NBSB
Black Nickel	-	WFDP50NBNS



WFDP50NPSB

Shaver Socket Raised Plate

Characteristics:

- Complies with BS EN 61558-2-5.
- Capacity of each terminal 2 x 2.5mm² conductors.
- Designed for use in bath/shower rooms & incorporates a double wound transformer for an earth free supply.
- Designed to supply electric shavers rated 50 VA or less.
- Input 230V a.c. output dual voltage 230V a.c. and 115V a.c. outlets.
- Rating 20VA on either voltage.
- Primary circuit protected by a self resetting thermal overload device.
- Insertion of shaver plug automatically switches on the transformer.
- WR references supplied with M3.5 x 30mm long fixing screws.
- WF references supplied with M3.5 x 20mm long fixing screws.

Description	Cat ref. White Insert	Cat ref. Black Insert
Raised Plate 115/230V Shaver Socket		
Polished Steel	WRSO100PSW	WRSO100PSB
Brushed Steel	WRSO100BSW	WRSO100BSB
Black Nickel	-	WRSO100BNB



WRSO100PSW

Shaver Socket Flat Plate

Description	Cat ref. White Insert	Cat ref. Black Insert
Flat Plate 115/230V Shaver Socket		
Polished Steel	WFSO100PSW	WFSO100PSB
Brushed Steel	WFSO100BSW	WFSO100BSB
Black Nickel	-	WFSO100BNB



WFSO100PSW



WRBTMBSW

Telephone & Data Raised Plate

Characteristics:

- BT sockets comply with BS 6312-2.
- Supplied with fitted cable tie.
- Quick connection with insulation displacement terminals.
- Clearly printed terminal marking.
- WR references supplied with M3.5 x 30mm long fixing screws.
- WF references supplied with M3.5 x 20mm long fixing screws.

Description	Cat ref. White Insert	Cat ref. Black Insert
Raised Plate BT Master Telephone Outlet		
Polished Steel	WRBTMPSW	WRBTMPSB
Brushed Steel	WRBTMBSW	WRBTMBSB
Black Nickel	-	WRBTMBNB
Raised Plate BT Secondary Telephone Outlet		
Polished Steel	WRBTSPSW	WRBTSPSB
Brushed Steel	WRBTSBSW	WRBTSBSB
Black Nickel	-	WRBTSBNB
Raised Plate RJ45 Socket		
Polished Steel	WRRJ45PSW	WRRJ45PSB
Brushed Steel	WRRJ45BSW	WRRJ45BSB
Black Nickel	-	WRRJ45BNB



WFBTMBNB

Telephone & Data Flat Plate

Description	Cat ref. White Insert	Cat ref. Black Insert
Flat Plate BT Master Telephone Outlet		
Polished Steel	WFBTMPSW	WFBTMPSB
Brushed Steel	WFBTMBSW	WFBTMBNB
Black Nickel	-	WFBTMBNB
Flat Plate BT Secondary Telephone Outlet		
Polished Steel	WFBTSPSW	WFBTSPSB
Brushed Steel	WFBTSBSW	WFBTSBSB
Black Nickel	-	WFBTSBNB
Flat Plate RJ45 Socket		
Polished Steel	WFRJ45PSW	WFRJ45PSB
Brushed Steel	WFRJ45BSW	WFRJ45BSB
Black Nickel	-	WFRJ45BNB



WFBTMPSW

TV & Satellite Raised Plate

Characteristics:

- TV outlets comply with BS 3041.
- Satellite outlets comply with BS EN 50083-2.
- Fully screened.
- DAB compatible.
- WR references supplied with M3.5 x 30mm long fixing screws.
- WF references supplied with M3.5 x 20mm long fixing screws.

Description	Cat ref. White Insert	Cat ref. Black Insert
Raised Plate Single F Type Satellite Outlet Screened		
Polished Steel	WRSATPSW	WRSATPSB
Brushed Steel	WRSATBSW	WRSATBSB
Black Nickel	-	WRSATBNB
Raised Plate Single CO-AX TV Outlet Female		
Polished Steel	WRTVFPSW	WRTVFPSB
Brushed Steel	WRTVFBW	WRTVFBBSB
Black Nickel	-	WRTVFBNB
Raised Plate Triplexer TV, FM/DAB & Satellite Outlet		
Polished Steel	WRTXPSW	WRTXPSB
Brushed Steel	WRTXBSW	WRTXBSB
Black Nickel	-	WRTXBNB
Raised Plate Quadplexer TV, FM/DAB, Satellite 1 & Satellite 2 Outlet		
Polished Steel	WRQXPSW	WRQXPSB
Brushed Steel	WRQXBSW	WRQXBSB
Black Nickel	-	WRQXBNB



WRSATBSW



WRSATPSW



WRTXBNB

TV & Satellite Flat Plate

Description	Cat ref. White Insert	Cat ref. Black Insert
Flat Plate Single F Type Satellite Outlet Screened		
Polished Steel	WFSATPSW	WFSATPSB
Brushed Steel	WFSATBSW	WFSATBSB
Black Nickel	-	WFSATBNB
Flat Plate Single CO-AX TV Outlet Female		
Polished Steel	WFTVFPSW	WFTVFPSB
Brushed Steel	WFTVFBW	WFTVFBBSB
Black Nickel	-	WFTVFBNB
Flat Plate Triplexer TV, FM/DAB & Satellite Outlet		
Polished Steel	WFTXPSW	WFTXPSB
Brushed Steel	WFTXBSW	WFTXBSB
Black Nickel	-	WFTXBNB
Flat Plate Quadplexer TV, FM/DAB, Satellite 1 & Satellite 2 Outlet		
Polished Steel	WFQXPSW	WFQXPSB
Brushed Steel	WFQXBSW	WFQXBSB
Black Nickel	-	WFQXBNB



WFTVFBW



WFDXBSW



WRP1EUPSB



WRP1EUPSB



WFP1EUBSB



WFP1EUBNB



WFTVLPPSW

Euro Frontplates Raised Plate

Characteristics:

- Carrier plates facilitate installation of industry standard modules.
- Easy to configure for all applications.
- Quick release of modules for maintenance.
- WR references supplied with M3.5 x 30mm long fixing screws.
- WF references supplied with M3.5 x 20mm long fixing screws.

Description	Cat ref. White Insert	Cat ref. Black Insert
Raised Plate 1 Module		
Polished Steel	WRP1EUPSW	WRP1EUPSB
Brushed Steel	WRP1EUBSW	WRP1EUBSB
Black Nickel	-	WRP1EUBNB
Raised Plate 2 Modules		
Polished Steel	WRP2EUPSW	WRP2EUPSB
Brushed Steel	WRP2EUBSW	WRP2EUBSB
Black Nickel	-	WRP2EUBNB
Raised Plate 4 Modules		
Polished Steel	WRP4EUPSW	WRP4EUPSB
Brushed Steel	WRP4EUBSW	WRP4EUBSB
Black Nickel	-	WRP4EUBNB

Euro Frontplates Flat Plate

Description	Cat ref. White Insert	Cat ref. Black Insert
Flat Plate 1 Module		
Polished Steel	WFP1EUPSW	WFP1EUPSB
Brushed Steel	WFP1EUBSW	WFP1EUBSB
Black Nickel	-	WFP1EUBNB
Flat Plate 2 Modules		
Polished Steel	WFP2EUPSW	WFP2EUPSB
Brushed Steel	WFP2EUBSW	WFP2EUBSB
Black Nickel	-	WFP2EUBNB
Flat Plate 4 Modules		
Polished Steel	WFP4EUPSW	WFP4EUPSB
Brushed Steel	WFP4EUBSW	WFP4EUBSB
Black Nickel	-	WFP4EUBNB

Euro Lounge Plates

Description	Cat ref. White Insert	Cat ref. Black Insert
Flat Plate Lounge Plate for TV, Power & Data		
Polished Steel	WFTVLPPSW	WFTVLPPSB
Brushed Steel	WFTVLPPSW	WFTVLPPSB
Black Nickel	-	WFTVLPPNB
White Metal	WFTVLPPW	-
Raised Plate Lounge Plate for TV, Power & Data		
White Metal	WRTVLPPW	-
Lounge Plate Back Box		
Steel	WFTVBOX	-

Euro Style Modules

Description	Mod Width	Cat ref. (White)	Cat ref. (Black)
BT Telephone Master Euromodule	1	WMMBTM	WMMBTMB
BT Telephone Secondary Euromodule	1	WMMBTS	WMMBTMB
RJ11 - Modem Euromodule	1	WMMRJ11	WMMRJ11B
RJ45 - Cat 6 UTP Euromodule	1	WMMRJ45	WMMRJ45B
Phono Plugs - Red/Black - Gold Plated Euromodule	1	WMMPP	-
Speaker Terminal Posts - Gold Plated Euromodule	1	WMMSP	-
Single IEC Female Non Isolated Euromodule	1	WMMTVF	WMMTVFB
Single IEC Male Non Isolated Euromodule	1	WMMTVM	WMMTVMB
Single Satellite F Connector Euromodule	1	WMMSAT	WMMSATB
Single Blank Euromodule	1	WMMB	WMMBB
PIR Occupancy Sensor Euromodule 5m	1	WMMPIR05X	-
PIR Occupancy Sensor Euromodule 10m	1	WMMPIR10X	-
HDMI Module	2	WMMHDMI	WMMHDMIB
Triplexer - TV, Satellite & FM Radio Euromodule	2	WMMTX	WMMTXB
Quadplexer - TV, Satellite, FM Radio & Return Euromodule	2	WMMQX	WMMQXB



WMMBTM

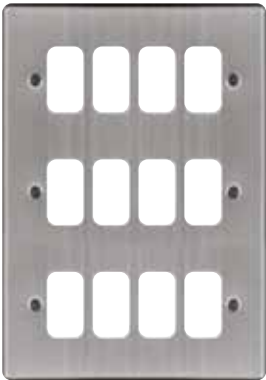
WMMBTMB



WMMQXB



WFGP1PS



WRGP12BS

Grid Plates Raised Plate

Description	Cat ref.
Raised Plate 1 Gang Grid Plate	
Polished Steel	WRGP1PS
Brushed Steel	WRGP1BS
Black Nickel	WRGP1BN
Raised Plate 2 Gang Grid Plate	
Polished Steel	WRGP2PS
Brushed Steel	WRGP2BS
Black Nickel	WRGP2BN
Raised Plate 3 Gang Grid Plate	
Polished Steel	WRGP3PS
Brushed Steel	WRGP3BS
Black Nickel	WRGP3BN
Raised Plate 4 Gang Grid Plate	
Polished Steel	WRGP4PS
Brushed Steel	WRGP4BS
Black Nickel	WRGP4BN
Raised Plate 6 Gang (3 x 2) Grid Plate	
Polished Steel	WRGP6PS
Brushed Steel	WRGP6BS
Black Nickel	WRGP6BN
Raised Plate 8 Gang (4 x 2) Grid Plate	
Polished Steel	WRGP8PS
Brushed Steel	WRGP8BS
Black Nickel	WRGP8BN
Raised Plate 12 Gang (4 x 3) Grid Plate	
Polished Steel	WRGP12PS
Brushed Steel	WRGP12BS
Black Nickel	WRGP12BN

Grid Plates Flat Plate

Description	Cat ref.
Flat Plate 1 Gang Grid Plate	
Polished Steel	WFGP1PS
Brushed Steel	WFGP1BS
Black Nickel	WFGP1BN
Flat Plate 2 Gang Grid Plate	
Polished Steel	WFGP2PS
Brushed Steel	WFGP2BS
Black Nickel	WFGP2BN
Flat Plate 3 Gang Grid Plate	
Polished Steel	WFGP3PS
Brushed Steel	WFGP3BS
Black Nickel	WFGP3BN
Flat Plate 4 Gang Grid Plate	
Polished Steel	WFGP4PS
Brushed Steel	WFGP4BS
Black Nickel	WFGP4BN
Flat Plate 6 Gang (3 x 2) Grid Plate	
Polished Steel	WFGP6PS
Brushed Steel	WFGP6BS
Black Nickel	WFGP6BN
Flat Plate 8 Gang (4 x 2) Grid Plate	
Polished Steel	WFGP8PS
Brushed Steel	WFGP8BS
Black Nickel	WFGP8BN
Flat Plate 12 Gang (4 x 3) Grid Plate	
Polished Steel	WFGP12PS
Brushed Steel	WFGP12BS
Black Nickel	WFGP12BN



WFGP1PS



WFGP2BS

Grid Frames

Description	Cat ref.
Frames for White Moulded and Decorative Raised Plate ranges	
1 Gang Frame	WMGF1
2 Gang Frame	WMGF2
3/4 Gang Frame	WMGF34
Frames for Decorative Flat Plate ranges	
1 Gang Frame	WFGF1
2 Gang Frame	WFGF2
3/4 Gang Frame	WFGF34



WMGF34



WMGKS



WMGB1



WMINDRED



WMGSDP2/CHD



WMGSDP2/EF

Grid Switches - White Moulded Finish

Characteristics:

- Complies with BS EN 606691-1 switches, BS 5733 fuse carrier.
- Shallowest switch modules which clip in from the front for ease of installation and maintenance.
- Terminal screw can be accessed with modules clipped into frames.
- Frames locate to finished wall level.
- Frames clip together to ease alignment for 6 gang and 8 gang applications.
- We also offer a bespoke printing service for your individual requirements. Please contact our Sales Service Centre on 01952 675612 for further details.

Description	Cat ref. White Insert	Cat ref. Black Insert
Grid Switches		
Blank Module	WMGB1	-
20AX 2 Way Single Pole Switch	WMGS12	-
20A Intermediate Switch	WMGS16	-
20A 2 Way Retractive Switch	WMGS22R	-
20A 1 Way Double Pole Switch	WMGSDP2	-
20A 1 Way Double Pole Switch with LED Indicator	WMGSDP2N	-
20A Double Pole Key Switch	WMGKS	-
20A Double Pole Key Switch Printed 'Emergency Lighting Test'	WMGKS/EL	-
13A Fuse Carrier	WMGFU13	-
Dimmer Slave Switch	WMGSD1S	WMGSD1SB
Dimmer Switch Leading Edge	WMGSD1L	WMGSD1LB
Dimmer Switch Trailing Edge	WMGSD1T	WMGSD1TB
Red Indicator	WMINDRED	WMINDREDB
2 Way & Centre Off Latching Switch	WMGS13L	WMGS13LB
2 Way & Centre Off Latching Switch Red Rocker	WMGS13LR	-
2 Way & Centre Off Retractive Switch	WMGS13R	WMGS13RB
2 Way & Centre Off Retractive Switch Red Rocker	WMGS13RR	-
13A Fused Connection Unit Unswitched with LED	WMGSU83N	-
20A 1 Way Double Pole Grid Switches - Printed		
Printed 'Boiler'	WMGSDP2/BOI	-
Printed 'Cooker Hood'	WMGSDP2/CHD	WMGSDP2B/CHD
Printed 'Dishwasher'	WMGSDP2/DW	WMGSDP2B/DW
Printed 'Extract Fan'	WMGSDP2/EF	WMGSDP2B/EF
Printed 'Fridge Freezer'	WMGSDP2/FF	WMGSDP2B/FF
Printed 'Freezer'	WMGSDP2/FRE	WMGSDP2B/FRE
Printed 'Fridge'	WMGSDP2/FRI	WMGSDP2B/FRI
Printed 'Hob'	WMGSDP2/HB	WMGSDP2B/HB
Printed 'Heating'	WMGSDP2/HTG	WMGSDP2B/HTG
Printed 'Microwave'	WMGSDP2/MW	WMGSDP2B/MW
Printed 'Micro Wave'	WMGSDP2MW2	-
Printed 'Tumble Dryer'	WMGSDP2/TD	WMGSDP2B/TD
Printed 'Waste Disposal'	WMGSDP2/WD	WMGSDP2B/WD
Printed 'Washing Machine'	WMGSDP2/WM	WMGSDP2B/WM
Printed 'Oven'	WMGSDP2/OV	WMGSDP2B/OV
Printed 'Wine Cooler'	WMGSDP2/WC	WMGSDP2B/WC
Printed 'Hot Water'	WMGSDP2/HW	WMGSDP2B/HW
Printed 'Coffee Maker'	WMGSDP2/CM	WMGSDP2B/CM
Printed 'Hot Drawer'	WMGSDP2/HD	WMGSDP2B/HD
Printed 'Fan Boost'	WMGSDP2/FB	WMGSDP2B/FB
Printed 'Outside Light'	WMGSDP2/OL	-
Printed 'Outside Socket'	WMGSDP2/OS	-
Printed 'Plinth Heater'	WMGSDP2/PH	-

Grid Switches - Printed

Characteristics:

- Complies with BS EN 606691-1 switches, BS 5733 fuse carrier.
- Shallowest switch modules which clip in from the front for ease of installation and maintenance.
- Terminal screw can be accessed with modules clipped into frames.
- Frames locate to finished wall level.
- Frames clip together to ease alignment for 6 gang and 8 gang applications.
- We also offer a bespoke printing service for your individual requirements. Please contact our Sales Service Centre on 01952 675612 for further details.

Description	Cat ref. White Insert	Cat ref. Black Insert
20A 1 Way Double Pole Grid Switches with LED Indicator - Printed		
Printed 'Cooker Hood'	WMGSDP2N/CHD	WMGSDP2NB/CHD
Printed 'Dishwasher'	WMGSDP2N/DW	WMGSDP2NB/DW
Printed 'Extract Fan'	WMGSDP2N/EF	WMGSDP2NB/EF
Printed 'Fridge Freezer'	WMGSDP2N/FF	WMGSDP2NB/FF
Printed 'Freezer'	WMGSDP2N/FRE	WMGSDP2NB/FRE
Printed 'Fridge'	WMGSDP2N/FRI	WMGSDP2NB/FRI
Printed 'Hob'	WMGSDP2N/HB	WMGSDP2NB/HB
Printed 'Heating'	WMGSDP2N/HTG	WMGSDP2NB/HTG
Printed 'Microwave'	WMGSDP2N/MW	WMGSDP2NB/MW
Printed 'Tumble Dryer'	WMGSDP2N/TD	WMGSDP2NB/TD
Printed 'Waste Disposal'	WMGSDP2N/WD	WMGSDP2NB/WD
Printed 'Washing Machine'	WMGSDP2N/WM	WMGSDP2NB/WM
Printed 'Oven'	WMGSDP2N/OV	-
Printed 'Outside Light'	WMGSDP2N/OL	-
Printed 'Outside Socket'	WMGSDP2N/OS	-
Printed 'Plinth Heater'	WMGSDP2N/PH	-



WMGSDP2N/CHD



WMGSDP2N/DW



WMGSDP2N/EF



WMGSDP2N/FF



WMGB1BSW



WMGS12PSB



WMGB1BNB



WMGB1BSW

Grid Switches - Decorative Finish

Characteristics:

- Complies with BS EN 606691-1 switches, BS 5733 fuse carrier.
- Shallowest switch modules for ease of installation.
- Modules clip from the front for ease of installation and maintenance.
- Terminal screw can be accessed with modules clipped into frames.
- Frames locate to finished wall level.
- Frames clip to ease alignment for 6 gang and 8 gang applications.

Description	Cat ref. White Insert	Cat ref. Black Insert
20AX 2 Way Single Pole Switch		
Polished Steel	WMGS12PSW	WMGS12PSB
Brushed Steel	WMGS12BSW	WMGS12BSB
Black Nickel	-	WMGS12BNB
20A Intermediate Switch		
Polished Steel	WMGS16PSW	WMGS16PSB
Brushed Steel	WMGS16BSW	WMGS16BSB
Black Nickel	-	WMGS16BNB
20A 2 Way Retractive Switch		
Polished Steel	WMGS22RPSW	WMGS22RPSB
Brushed Steel	WMGS22RBSW	WMGS22RBSB
Black Nickel	-	WMGS22RBNB
20A 1 Way Double Pole Switch		
Polished Steel	WMGSDP2PSW	WMGSDP2PSB
Brushed Steel	WMGSDP2BSW	WMGSDP2BSB
Black Nickel	-	WMGSDP2BNB
13A Fuse Carrier		
Polished Steel	WMGFU13PSW	WMGFU13PSB
Brushed Steel	WMGFU13BSW	WMGFU13BSB
Black Nickel	-	WMGFU13BNB
Blank Module		
Polished Steel	WMGB1PSW	WMGB1PSB
Brushed Steel	WMGB1BSW	WMGB1BSB
Black Nickel	-	WMGB1BNB

Blank Plates Raised Plate

Characteristics:

- WR references supplied with M3.5 x 30mm long fixing screws.
- WF references supplied with M3.5 x 20mm long fixing screws.

Description	Cat ref.
Raised Plate Switch Blank Plate	
Polished Steel	WRP1PS
Brushed Steel	WRP1BS
Black Nickel	WRP1BN
Raised Plate Twin Blank Plate	
Polished Steel	WRP2PS
Brushed Steel	WRP2BS
Black Nickel	WRP2BN



WRP2PS

Blank Plates Flat Plate

Description	Cat ref.
Flat Plate Switch Blank Plate	
Polished Steel	WFP1PS
Brushed Steel	WFP1BS
Black Nickel	WFP1BN
Flat Plate Twin Blank Plate	
Polished Steel	WFP2PS
Brushed Steel	WFP2BS
Black Nickel	WFP2BN



WFP1BS



WPPS12W



WPPS12



Metalclad Wall Switches (10A)

Characteristics:

- Unique patented LOOP terminal to allow neutral looping at the switch.
- Complies with BS EN 60669-1, a.c only.
- 'X' rated - No need to de-rate for fluorescent loads.
- Capacity of each terminal 2 x 4.0mm² conductors.

Description	Cat ref. Plate Only	Cat ref. With Backbox Without Knockouts	Cat ref. With Backbox With Knockouts
Wall Switches White			
10AX 1 Gang 2 Way Wall Switch	WPPS12W	-	-
10AX 2 Gang 2 Way Wall Switch	WPPS22W	-	-
10AX 3 Gang 2 Way Wall Switch	WPPS32W	-	-
10AX Push Switch	WPPS12RW	-	-
Wall Switches Grey			
10AX 1 Gang 2 Way Wall Switch	WPPS12	WPPS12B	WPPS12BKO
10AX 2 Gang 2 Way Wall Switch	WPPS22	WPPS22B	WPPS22BKO
10AX 3 Gang 2 Way Wall Switch	WPPS32	WPPS32B	WPPS32BKO
10AX Push Switch	WPPS12R	WPPS12RB	WPPS12RBKO

Metalclad Wall Switches (20A)

Characteristics:

- Unique patented LOOP terminal to allow neutral looping at the switch.
- Complies with BS EN 60669-1, a.c only.
- Capacity of each terminal 2 x 6.0mm² conductors.



WPDP84FO

Description	Cat ref. Plate Only	Cat ref. With Backbox Without Knockouts	Cat ref. With Backbox With Knockouts
Wall Switches White			
20A Double Pole Switch with Flex Outlet	WPDP84FOW	-	-
20A Double Pole Switch with LED Indicator & Flex Outlet	WPDP84FONW	-	-
Wall Switches Grey			
20A Double Pole Switch with Flex Outlet	WPDP84FO	WPDP84FOB	WPDP84FOBKO
20A Double Pole Switch with LED Indicator & Flex Outlet	WPDP84FON	WPDP84FONB	WPDP84FONBKO



WPDP50N

Metalclad Wall Switches (50A)

Characteristics:

- Unique patented LOOP terminal to allow neutral looping at the switch.
- Complies with BS EN 60669-2-4.
- Capacity of each terminal 2 x 6.0mm² conductors.

Description	Cat ref. Plate Only	Cat ref. With Backbox Without Knockouts	Cat ref. With Backbox With Knockouts
Wall Switches White			
50A Double Pole Switch 1 Gang with LED Indicator	WPDP50NW	-	-
Wall Switches Grey			
50A Double Pole Switch 1 Gang with LED Indicator	WPDP50N	WPDP50NB	WPDP50NBKO

Metalclad Socket Outlets

Characteristics:

- Unique patented three part safety shutter.
- Complies with BS 1363-2, a.c. only.
- Double pole switching mechanism on switched sockets.
- Twin socket comes with twin earth as standard.
- Terminal screws grouped in-line and upward facing for ease of installation with clear printed and engraved terminal markings.
- Capacity of each terminal: 5 x 2.5mm² conductors switched; 4 x 2.5mm² unswitched (for other sized conductors see terminal capacities on page 5.46).
- **Sockets with USB - Warning:** To avoid possible damage to the product or spurious insulation readings, please disconnect the product before carrying out insulation resistance testing.
- **Sockets with USB** - USB output: 5V d.c. 2.4A total max.

Description	Cat ref. Plate Only	Cat ref. With Backbox Without Knockouts	Cat ref. With Backbox With Knockouts
Switched Socket Outlets White			
1 Gang Double Pole Switched Socket	WPSS81W	-	-
1 Gang Double Pole Switched Socket with LED Indicator	WPSS81NW	-	-
2 Gang Double Pole Switched Socket	WPSS82W	-	-
2 Gang Double Pole Switched Socket with LED Indicator	WPSS82NW	-	-
2 Gang Double Pole Switched Socket Outboard Rockers	WPSS82OW	-	-
2 Gang Double Pole Switched Socket with Two USB Ports	WPSS82W-USB	-	-

Switched Socket Outlets Grey

1 Gang Double Pole Switched Socket	WPSS81	WPSS81B	WPSS81BKO
1 Gang Double Pole Switched Socket with LED Indicator	WPSS81N	WPSS81NB	WPSS81NBKO
2 Gang Double Pole Switched Socket	WPSS82	WPSS82B	WPSS82BKO
2 Gang Double Pole Switched Socket with LED Indicator	WPSS82N	WPSS82NB	WPSS82NBKO
2 Gang Double Pole Switched Socket Outboard Rockers	WPSS82O	WPSS82OB	WPSS82OBKO
2 Gang Double Pole Switched Socket with Two USB Ports	WPSS82-USB	WPSS82B-USB	WPSS82BKO-USB



WPSS81W



WPSS81



WPSS82W-USB

Metalclad Fuse Connection Units

Characteristics:

- Complies with BS 1363-4.
- Single screw fast fix cable clamp accommodates up to 1.5mm² flexible cord.
- All terminals are upward facing with clearly printed terminal markings for ease of installation.
- Capacity of each terminal 2 x 6.0 mm² conductors.

Description	Cat ref. Plate Only	Cat ref. With Backbox Without Knockouts	Cat ref. With Backbox With Knockouts
Fuse Connection Units White			
13A FCU Unswitched with Flex Outlet	WPSU83FOW	-	-
13A FCU Switched with Flex Outlet	WPSSU83FOW	-	-
13A FCU Switched with LED Indicator & Flex Outlet	WPSSU83FONW	-	-

Fuse Connection Units Grey

13A FCU Unswitched with Flex Outlet	WPSU83FO	WPSU83FOB	WPSU83FOBKO
13A FCU Switched with Flex Outlet	WPSSU83FO	WPSSU83FOB	WPSSU83FOBKO
13A FCU Switched with LED Indicator & Flex Outlet	WPSSU83FON	WPSSU83FONB	WPSSU83FONBKO



WPSU83FOW



WPSSU83FON



WPGP1W



WPGP1

Metalclad Grid Plates

Characteristics:

- For Grid Switches, please see page 5.31.

Description	Cat ref. Plate Only	Cat ref. With Backbox Without Knockouts	Cat ref. With Backbox With Knockouts
Grid Plates White			
Grid plate 1 Gang	WPGP1W	-	-
Grid plate 2 Gang	WPGP2W	-	-
Grid plate 3 Gang	WPGP3W	-	-
Grid plate 4 Gang	WPGP4W	-	-
Grid plate 6 Gang	WPGP6W	-	-
Grid plate 8 Gang	WPGP8W	-	-
Grid Plates Grey			
Grid plate 1 Gang	WPGP1	WPGP1B	WPGP1BKO
Grid plate 2 Gang	WPGP2	WPGP2B	WPGP2BKO
Grid plate 3 Gang	WPGP3	WPGP3B	WPGP3BKO
Grid plate 4 Gang	WPGP4	WPGP4B	WPGP4BKO
Grid plate 6 Gang	WPGP6	WPGP6B	WPGP6BKO
Grid plate 8 Gang	WPGP8	WPGP8B	WPGP8BKO



WMGF34

Grid Frames

Description	Cat ref.
Frames for White Moulded, Decorative & Metalclad Raised Plate ranges	
1 Gang Frame	WMGF1
2 Gang Frame	WMGF2
3/4 Gang Frame	WMGF34



WMGKS



WMGB1



WMINDRED

Grid Switches - White Moulded Finish

Characteristics:

- Complies with BS EN 60669-1 switches, BS 5733 fuse carrier.
- Shallowest switch modules which clip in from the front for ease of installation and maintenance.
- Terminal screw can be accessed with modules clipped into frames.
- Frames locate to finished wall level.
- Frames clip together to ease alignment for 6 gang and 8 gang applications.
- We also offer a bespoke printing service for your individual requirements. Please contact our Sales Service Centre on 01952 675612 for further details.

Description	Cat ref. White Insert	Cat ref. Black Insert
Grid Switches		
Blank Module	WMGB1	-
20AX 2 Way Single Pole Switch	WMGS12	-
20A Intermediate Switch	WMGS16	-
20A 2 Way Retractive Switch	WMGS22R	-
20A 1 Way Double Pole Switch	WMGSDP2	-
20A 1 Way Double Pole Switch with LED Indicator	WMGSDP2N	-
20A Double Pole Key Switch	WMGKS	-
20A Double Pole Key Switch Printed 'Emergency Lighting Test'	WMGKS/EL	-
13A Fuse Carrier	WMGFU13	-
Dimmer Slave Switch	WMGSD1S	WMGSD1SB
Dimmer Switch Leading Edge	WMGSD1L	WMGSD1LB
Dimmer Switch Trailing Edge	WMGSD1T	WMGSD1TB
Red Indicator	WMINDRED	WMINDREDB
2 Way & Centre Off Latching Switch	WMGS13L	WMGS13LB
2 Way & Centre Off Latching Switch Red Rocker	WMGS13LR	-
2 Way & Centre Off Retractive Switch	WMGS13R	WMGS13RB
2 Way & Centre Off Retractive Switch Red Rocker	WMGS13RR	-
13A Fused Connection Unit Unswitched with LED	WMGSU83N	-

20A 1 Way Double Pole Grid Switches - Printed

Printed 'Boiler'	WMGSDP2/BOI	-
Printed 'Cooker Hood'	WMGSDP2/CHD	WMGSDP2B/CHD
Printed 'Dishwasher'	WMGSDP2/DW	WMGSDP2B/DW
Printed 'Extract Fan'	WMGSDP2/EF	WMGSDP2B/EF
Printed 'Fridge Freezer'	WMGSDP2/FF	WMGSDP2B/FF
Printed 'Freezer'	WMGSDP2/FRE	WMGSDP2B/FRE
Printed 'Fridge'	WMGSDP2/FRI	WMGSDP2B/FRI
Printed 'Hob'	WMGSDP2/HB	WMGSDP2B/HB
Printed 'Heating'	WMGSDP2/HTG	WMGSDP2B/HTG
Printed 'Microwave'	WMGSDP2/MW	WMGSDP2B/MW
Printed 'Micro Wave'	WMGSDP2MW2	-
Printed 'Tumble Dryer'	WMGSDP2/TD	WMGSDP2B/TD
Printed 'Waste Disposal'	WMGSDP2/WD	WMGSDP2B/WD
Printed 'Washing Machine'	WMGSDP2/WM	WMGSDP2B/WM
Printed 'Oven'	WMGSDP2/OV	WMGSDP2B/OV
Printed 'Wine Cooler'	WMGSDP2/WC	WMGSDP2B/WC
Printed 'Hot Water'	WMGSDP2/HW	WMGSDP2B/HW
Printed 'Coffee Maker'	WMGSDP2/CM	WMGSDP2B/CM
Printed 'Hot Drawer'	WMGSDP2/HD	WMGSDP2B/HD
Printed 'Fan Boost'	WMGSDP2/FB	WMGSDP2B/FB
Printed 'Outside Light'	WMGSDP2/OL	-
Printed 'Outside Socket'	WMGSDP2/OS	-
Printed 'Plinth Heater'	WMGSDP2/PH	-



WMGSDP2/CHD



WMGSDP2/EF

Grid Switches with LED Indicator - Printed

Characteristics:

- Complies with BS EN 606691-1 switches, BS 5733 fuse carrier.
- Shallowest switch modules which clip in from the front for ease of installation and maintenance.
- Terminal screw can be accessed with modules clipped into frames.
- Frames locate to finished wall level.
- Frames clip together to ease alignment for 6 gang and 8 gang applications.
- We also offer a bespoke printing service for your individual requirements. Please contact our Sales Service Centre on 01952 675612 for further details.

Description	Cat ref. White Insert	Cat ref. Black Insert
20A 1 Way Double Pole Grid Switches with LED Indicator - Printed		
Printed 'Cooker Hood'	WMGSDP2N/CHD	WMGSDP2NB/CHD
Printed 'Dishwasher'	WMGSDP2N/DW	WMGSDP2NB/DW
Printed 'Extract Fan'	WMGSDP2N/EF	WMGSDP2NB/EF
Printed 'Fridge Freezer'	WMGSDP2N/FF	WMGSDP2NB/FF
Printed 'Freezer'	WMGSDP2N/FRE	WMGSDP2NB/FRE
Printed 'Fridge'	WMGSDP2N/FRI	WMGSDP2NB/FRI
Printed 'Hob'	WMGSDP2N/HB	WMGSDP2NB/HB
Printed 'Heating'	WMGSDP2N/HTG	WMGSDP2NB/HTG
Printed 'Microwave'	WMGSDP2N/MW	WMGSDP2NB/MW
Printed 'Tumble Dryer'	WMGSDP2N/TD	WMGSDP2NB/TD
Printed 'Waste Disposal'	WMGSDP2N/WD	WMGSDP2NB/WD
Printed 'Washing Machine'	WMGSDP2N/WM	WMGSDP2NB/WM
Printed 'Oven'	WMGSDP2N/OV	-
Printed 'Outside Light'	WMGSDP2N/OL	-
Printed 'Outside Socket'	WMGSDP2N/OS	-
Printed 'Plinth Heater'	WMGSDP2N/PH	-



WMGSDP2N/CHD



WMGSDP2N/DW



WMGSDP2N/EF



WPP1EUW



WPP1EU

Metalclad Euro Plates

Characteristics:

- Carrier plates facilitate installation of industry standard modular data outlets.
- Easy to configure for all applications.
- Quick release of modules for maintenance.
- Available as plate only for installation with standard wall box.

Description	Cat ref. Plate Only	Cat ref. With Backbox Without Knockouts	Cat ref. With Backbox With Knockouts
Euro Plates White			
1 Module Euro Plate	WPP1EUW	-	-
2 Module Euro Plate	WPP2EUW	-	-
4 Module Euro Plate	WPP4EUW	-	-
Euro Plates Grey			
1 Module Euro Plate	WPP1EU	WPP1EUB	WPP1EUBKO
2 Module Euro Plate	WPP2EU	WPP2EUB	WPP2EUBKO
4 Module Euro Plate	WPP4EU	WPP4EUB	WPP4EUBKO



WMMBTM

WMMSAT



WMMQXB

Euro Style Modules

Description	Mod Width	Cat ref. (White)	Cat ref. (Black)
BT Telephone Master Euromodule	1	WMMBTM	WMMBTMB
BT Telephone Secondary Euromodule	1	WMMBTS	WMMBTSB
RJ11 - Modem Euromodule	1	WMMRJ11	WMMRJ11B
RJ45 - Cat 6 UTP Euromodule	1	WMMRJ45	WMMRJ45B
Phono Plugs - Red/Black - Gold Plated Euromodule	1	WMMPP	-
Speaker Terminal Posts - Gold Plated Euromodule	1	WMMSP	-
Single IEC Female Non Isolated Euromodule	1	WMMTVF	WMMTVFB
Single IEC Male Non Isolated Euromodule	1	WMMTVM	WMMTVMB
Single Satellite F Connector Euromodule	1	WMMSAT	WMMSATB
Single Blank Euromodule	1	WMMB	WMMBB
PIR Occupancy Sensor Euromodule 5m	1	WMMPIR05X	-
PIR Occupancy Sensor Euromodule 10m	1	WMMPIR10X	-
HDMI Module	2	WMMHDMI	WMMHDMIB
Triplexer - TV, Satellite & FM Radio Euromodule	2	WMMTX	WMMTXB
Quadplexer - TV, Satellite, FM Radio & Return Euromodule	2	WMMQX	WMMQXB

Metalclad Back Boxes

Description	Cat ref. With Backbox Without Knockouts	Cat ref. With Backbox With Knockouts
Accessories White		
Single Backbox	WPB140W	WPB140KOW
Twin Backbox	WPB240W	WPB240KOW
Two Row Twin Backbox	WPB6840W	WPB6840KOW
Accessories Grey		
Single Backbox	WPB140	WPB140KO
Twin Backbox	WPB240	WPB240KO
Two Row Twin Backbox	WPB6840	WPB6840KO



WPB140W



WPB140KO

Metalclad Blank Plates

Description	Cat ref. Plate Only	Cat ref. With Backbox Without Knockouts	Cat ref. With Backbox With Knockouts
Blank Plates White			
Single Blank Plate	WPP1W	-	-
Twin Blank Plate	WPP2W	-	-
Blank Plates Grey			
Single Blank Plate	WPP1	WPP1B	WPP1BKO
Twin Blank Plate	WPP2	WPP2B	WPP2BKO



WPP1W



WPP1



WXPSS12

Wall Switches

Characteristics:

- IP66 rating conforms to BS EN 60529 : 1992.
- Functional products tested and certified to BS EN 60669-1, a.c. only.
- Robust and rugged enclosures designed to withstand the elements.
- Cable entries: 90 x 90 = 4x20, 1x20 & 1x25

Description	Dimensions (mm)	
	(W x H)	Cat ref.
10AX 1 Gang 2 Way Switch	90 x 90	WXPSS12
10AX 2 Gang 2 Way Switch	90 x 90	WXPSS22
20AX Double Pole 1 Gang 1 Way Switch	90 x 90	WXPDP84
10A 1 Gang Bell Push Switch	90 x 90	WXPSS12B



WXPSS82

Socket Outlets

Characteristics:

- IP66 rating conforms to BS EN 60529 : 1992.
- Functional products tested and certified to BS 1363 Part 2, a.c. only.
- Robust and rugged enclosures designed to withstand the elements.
- Unique double hinge allows lid to open a full 180 degrees.
- Fixing point for padlock.
- Cable entries: 103 x 116.5 = 4x20, 1x20 & 1x25
- 164 x 116.5 = 6x20, 1x20 & 1x25

Description	Dimensions (mm)	
	(W x H)	Cat ref.
13A 1 Gang Double Pole Unswitched Socket	103 x 116.5	WXPSS81
13A 1 Gang Double Pole Switched Socket	103 x 116.5	WXPSS81
13A 2 Gang Double Pole Unswitched Socket	164 x 116.5	WXPSS82
13A 2 Gang Double Pole Switched Socket	164 x 116.5	WXPSS82



WXPSSU83FO

Fused Connection Units

Characteristics:

- IP66 rating conforms to BS EN 60529 : 1992.
- Functional products tested and certified to BS 1363-4.
- Robust and rugged enclosures designed to withstand the elements.
- Unique double hinge allows lid to open a full 180 degrees.
- Fixing point for padlock.
- Cable entries: 103 x 116.5 = 4x20, 1x20 & 1x25

Description	Dimensions (mm)	
	(W x H)	Cat ref.
13A Double Pole Fused Connect Unit with Flex Outlet	103 x 116.5	WXPSSU83FO



WXPSS81EV

Electric Vehicle Socket Outlet

Characteristics:

- IP66 rating conforms to BS EN 60529 : 1992.
- Functional products tested and certified to BS 1363 Part 2, a.c. only.
- Robust and rugged enclosures designed to withstand the elements.
- Unique double hinge allows lid to open a full 180 degrees.
- Fixing point for padlock.
- Cable entries: 103 x 116.5 = 4x20, 1x20 & 1x25

Description	Dimensions (mm)	
	(W x H)	Cat ref.
13A 1 Gang Double Pole Switched Socket	103 x 116.5	WXPSS81EV

Maintenance Free Junction Box

Characteristics:

- Complies with BS EN 60670-22.
- Suitable for use in inaccessible areas.
- Spring fit terminals do not relax over time.
- Four separate cable terminations per connector.
- Comes complete with incoming and outgoing cable clamps.
- Junction box selection chart see page 5.48.



J804

Description	Terminal capacity	Pack qty.	Cat ref.
Maintenance Free 32A - 3 Terminals	4 x 4mm ² x (0.5 - 4.0)	10	J803
Maintenance Free 20A - 4 Terminals	4 x 4mm ² x (0.5 - 4.0)	10	J804

Downlighter Junction Box

Characteristics:

- Comes complete with incoming and outgoing cable clamps to prevent strain on terminations.
- Three plate terminals with separate terminals for flexible cords.
- Complies with BS EN 60670-22.
- Fits through a 58mm diameter hole.
- 3 plate terminal style with captive terminal screws.
- Separate terminals for flexible cords.
- Current rating: 16 Amp.
- Junction box selection chart see page 5.48.



J501

Description	Terminal capacity	Pack qty.	Cat ref.
Downlighter Junction Box	3 x (3 x 1.5mm ²) 1 x (2 x 1.5mm ²)	10	J501

Traditional Junction Box

Characteristics:

- Complies with BS EN 60670-22.
- Slot terminals are ideal for taking spurs off uncut ring or loop circuit cables.
- Solid machined brass terminals.
- Junction box covers secured by single centre screws.
- Junction box selection chart see page 5.48.



J201

Description	Terminal capacity (mm ²)	Pack qty.	Cat ref.
Knockout Slot Terminal Junction Box 20A 4 Terminal	3 x 1.5	10	J201
Selective Entry Slot Terminal Junction Box 20A 4 Terminal	3 x 1.5	10	J301
Selective Entry Slot Terminal Junction Box 30A 3 Terminal	4 x 2.5	10	J401
Selective Entry Slot Terminal Junction Box 20A 6 Terminal	3 x 1.5	10	J601

Junction / Adaptable Box

Characteristics:

- Junction box cover secured by two screws
- Accepts 16mm x 16mm and /or 16mm x 25mm mini-trunking.
- Junction box selection chart see page 5.48.

Description	Terminal capacity	Pack qty.	Cat ref.
No Terminals	-	10	J701



SEL212

Safety Lampholders

Characteristics:

- Complies with BS EN 7895.
- T2 heat resistance rating: 210°C.
- Automatically disconnect power at the contacts when the lamp is removed.
- 50.8mm fixing centres for non-access versions. Use with mounting blocks **MB326E/MT**.
- Body angle of angled battens set at 30°.
- Access lampholders have integral **RL624** ceiling rose base and heat resisting PVC tails.

Description	Pack qty.	Cat ref.
Safety Bayonet Cap Cord Grip Lampholders		
Cord Grip Lampholders - Short Skirt	20	SEL212



SEL354

Safety Straight Batten Lampholders

Three Terminal - Home Office Shield	20	SEL354
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Safety Access Batten Lampholders

Straight 2 Terminal Body, 3 Terminal and Earth Base - Home Office Shield	10	SEL96T
Angled 2 Terminal Body, 3 Terminal and Earth Base - Home Office Shield	10	SEL106T



SEL96T

Safety Access Batten Lampholder with Safety Cover

Batten Lampholder with Safety Cover	10	SEL96TSC
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624SEL212/6

Safety Pendants Sets with Access Ceiling Rose

Characteristics:

- Pendant set complies with BS EN 60598-1.
- Capacity of each terminal: 3 x 1.00mm² conductor.
- Barriers between terminals.
- Flexible pendant cord restraining hooks.
- Fixing centres 50.8mm.
- Feet on base to aid mounting on uneven surfaces.
- Three separate knockouts accept 1, 2 or 3 x 1.5mm² conductors.
- Optional halo **RL602**.

Description	Pack qty.	Cat ref.
Safety Pendants Sets with Access Ceiling Rose		
Pendant Set 6" - Short Skirt	10	624SEL212/6
Pendant Set 9" - Short Skirt	10	624SEL212/9
Pendant Set 12" - Short Skirt	10	624SEL212/12
Pendant Set with Access Ceiling Rose with Safety Cover		
Pendant Set 6" with Safety Cover	10	624SEL212SC6

Super Access Terminal Bank Type Ceiling Rose

Characteristics:

- Capacity of each terminal: 3 x 1.00mm² conductor
- Common base with 'access' batten lampholders.
- Barriers between terminals.
- Flexible pendant cord restraining hooks.
- Fixing centres 50.8mm.
- Feet on base to aid mounting on uneven surfaces.
- Three separate knockouts accept 1, 2 or 3 x 1.5mm² conductors.
- Optional halo **RL602** (see below)

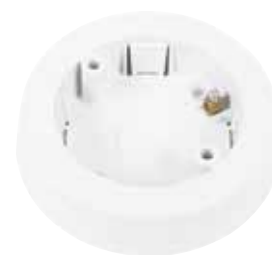
Description	Dimensions	Pack qty.	Cat ref.
Three Terminals	81 Diameter x 26 (halo = 108mm diameter)	10	RL624

Mounting Blocks

Characteristics:

- Capacity of earth terminal for mounting blocks: 3 x 1.5mm².
- Cable knockout entries: **MB326E/MT** - centrally in base. Four on periphery will accept 16mm x 16mm or 16mm x 25mm mini trunking.

Description	Dimensions	Pack qty.	Cat ref.
Round Mounting Box with Earth Terminal	81 x 19	20	MB326E/MT
Round Surface Box 30mm Deep	84 x 30	10	MB2



MB326E/MT

Lampholder Skirts

Characteristics:

- Suitable for use with any lampholder or batten lampholder.

Description	Pack qty.	Cat ref.
Short Skirt	50	HAL70
Home Office Shield	50	HAL72

Halo

Description	Pack qty.	Cat ref.
Halo (108mm Diameter)	20	RL602



RL602

Product Reference	Product Description	Standard Surface Box Reference	Deep Surface Box Reference
WMBTM	BT Master Telephone Outlet	WMPB1/28	WMPB1/46
WMBTS	BT Secondary Telephone Outlet	WMPB1/28	WMPB1/46
WMCC50	50A Cooker Control Unit	WMPB2/46CC	N/A
WMCC50N	50A Cooker Control Unit with LED Indicator	WMPB2/46CC	N/A
WMDP50N	50A Double Pole Switch 1 Gang with LED Indicator	WMPB1/46	N/A
WMDP50VN	50A Double Pole Switch 2 Gang Vertical with LED Indicator	WMPB2/46	N/A
WMDP84	20A Double Pole Switch	WMPB1/28	WMPB1/46
WMDP84FO	20A Double Pole Switch with Flex Outlet	WMPB1/28	WMPB1/46
WMDP84FON	20A Double Pole Switch with LED Indicator & Flex Outlet	WMPB1/28	WMPB1/46
WMDP84N	20A Double Pole Switch with LED Indicator	WMPB1/28	WMPB1/46
WMDP85FON	20A Double Pole Switch with LED Indicator & Flex Outlet Printed Water Heater	WMPB1/28	WMPB1/46
WMDP85N	20A Double Pole Switch with LED Indicator Printed Water Heater	WMPB1/28	WMPB1/46
WMDS1	1 Gang Dimmer	WMPB1/28	WMPB1/46
WMDS2	2 Gang Dimmer	WMPB1/28	WMPB1/46
WMDS3	3 Gang Dimmer	WMPB2/28	WMPB2/46
WMDS4	4 Gang Dimmer	WMPB2/28	WMPB2/46
WMDX	Double TV & FM/DAB CO-AX Socket Outlet	WMPB1/28	WMPB1/46
WMP1	Single Blank Plate	WMPB1/20	WMPB1/28
WMP2	Twin Blank Plate	WMPB2/28	N/A
WMP2FO	Flex Outlet Plate 20A	WMPB1/20	WMPB1/28
WMP50FO	Cooker Cable Outlet with Terminals	WMPB1/46	N/A
WMPS11	10AX 1 Gang 1 Way Wall Switch	WMPB1/20	WMPB1/28
WMPS12	10AX 1 Gang 2 Way Wall Switch	WMPB1/20	WMPB1/28
WMPS12R	Push Switch	WMPB1/20	WMPB1/28
WMPS12RB	Push Switch with Bell Symbol	WMPB1/20	WMPB1/28
WMPS12W	10AX 1 Gang 2 Way Wall Switch Wide Rocker	WMPB1/20	WMPB1/28
WMPS16	Intermediate Switch	WMPB1/20	WMPB1/28
WMPS22	10AX 2 Gang 2 Way Wall Switch	WMPB1/20	WMPB1/28
WMPS22W	10AX 2 Gang 2 Way Wall Switch Wide Rocker	WMPB1/20	WMPB1/28
WMPS32	10AX 3 Gang 2 Way Wall Switch	WMPB1/20	WMPB1/28
WMPS3PI	3 Pole Isolator Switch	WMPB1/20	WMPB1/28
WMPS3PIF	3 Pole Isolator Switch with Fan Symbol	WMPB1/20	WMPB1/28
WMPS42	10AX 4 Gang 2 Way Wall Switch	WMPB2/28	WMPB2/28
WMQX	Quadplexer TV & FM/DAB & SAT1 & SAT2	WMPB1/28	WMPB1/46
WMRJ11	RJ11 Socket	WMPB1/28	WMPB1/46
WMRJ45	RJ45 Socket	WMPB1/28	WMPB1/46
WMS51	5A 1 Gang Unswitched Socket	WMPB1/28	WMPB1/46
WMS81	13A 1 Gang Unswitched Socket	WMPB1/28	WMPB1/46
WMS82	13A 2 Gang Unswitched Socket Dual Earth	WMPB2/28	WMPB2/46
WMSAT	Single F Type Satellite Outlet Screened	WMPB1/28	WMPB1/46
WMSO100	115/230V Shaver Outlet	WMPB2/46	N/A
WMSS81	1 Gang Double Pole Switched Socket	WMPB1/28	WMPB1/46
WMSS82	2 Gang Double Pole Switched Socket Dual Earth	WMPB2/28	WMPB2/46
WMSS82O	2 Gang Double Pole Switched Outlet Outboard Rockers	WMPB2/28	WMPB2/46
WMSSU83	13A Fused Connection Unit Switched	WMPB1/28	WMPB1/46
WMSSU83FO	13A Fused Connection Unit Switched with Flex Outlet	WMPB1/28	WMPB1/46
WMSSU83FON	13A Fused Connection Unit Switched with LED Indicator & Flex Outlet	WMPB1/28	WMPB1/46
WMSSU83N	13A Fused Connection Unit Switched with LED Indicator	WMPB1/28	WMPB1/46
WMSU83	13A Fused Connection Unit Unswitched	WMPB1/28	WMPB1/46
WMSU83FO	13A Fused Connection Unit Unswitched with Flex Outlet	WMPB1/28	WMPB1/46
WMTVF	Single CO-AX TV Socket Outlet Female	WMPB1/28	WMPB1/46
WMTVM	Single CO-AX TV Socket Outlet Male	WMPB1/28	WMPB1/46
WMTX	TriplexerTV & FM/DAB & SAT Outlet	WMPB1/28	WMPB1/46

Accessory Type	Rating	Maximum number of conductors per terminal (Solid or Stranded conductors BS 6004)						
		1.0 mm ²	1.5 mm ²	2.5 mm ²	4.0 mm ²	6.0 mm ²	10.0 mm ²	16.0 mm ²
Plate & Ceiling Accessories	10AX	4	4	3	2	-	-	-
Dimmer Switches	10AX	4	3	-	-	-	-	-
BS 546 Socket Outlet	5A	3	3	3	2	2	-	-
Shaver Socket	10A	4	3	2	-	-	-	-
Fused Connection Units	13A	-	-	3	2	2	-	-
BS 1363 Socket Outlets	13A	-	-	3	3	2	-	-
BS546 Socket Outlet	15A	-	-	3	3	2	-	-
Flex Outlet Plates	20A	5	4	3	2	2	-	-
Double Pole Switches	20A	-	-	3	2	2	1	-
Double Pole Switches	45/50A	-	-	-	3	2	1	1
Cooker Control Unit	45A	-	-	-	3	2	1	1
Cooker Connection Outlet	45A	-	-	-	2	3	-	-
Grid Switches	20AX	4	4	3	2	-	-	-

Printed Products

Many of our Sollysta wiring accessories are available with printed options, such as Washing Machine, Dishwasher etc.

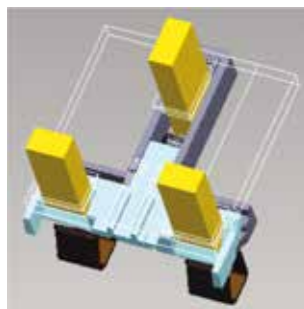
For a full list of products generally available from stock please go to www.hager.co.uk/printedproducts

We also offer a bespoke printing service for your individual requirements. Please contact our Sales Service Centre on 01952 675612 for further details.

Unique Safety Shutter

Socket outlets have apertures for plug pins and therefore will have a shutter mechanism that prevents access to live parts unless the earth pin is also present and has been inserted first. This however can be either intentionally or inadvertently defeated by inserting something into the earth pin aperture.

All Sollysta sockets have a unique patented three pin shutter system that not only requires the earth pin to be inserted first, but the simultaneous insertion of the live and neutral pins as well, before the shutter mechanism is activated. This enhances the safety by making it more difficult to defeat the mechanism and therefore reducing the risk of electric shock.



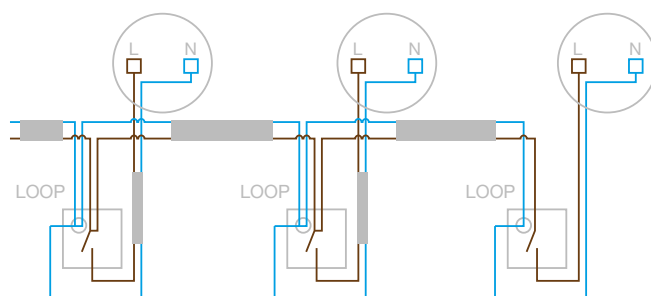
Neutral Loop Terminal

Today it is increasingly likely that there is a decorative light fitting or even downlighters fitted in place of a standard pendant. These fittings are rarely provided with a neutral loop terminal.

It has also become more popular to make the loop connection at the switch. This has the advantage of the connections being accessible and at a more convenient working height.

However, this leaves the problem of terminating the neutral conductor.

One solution is to connect the neutral to a connector block inside the wall box, which takes up extra space. Another is to use the Sollysta light switch which has a unique neutral loop terminal.









loop
terminal

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

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

The first character numeral:
Protection against foreign objects









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

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 - \varnothing 2.5mm
D	Protected against access to hazardous parts with a wire - \varnothing 1mm

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.

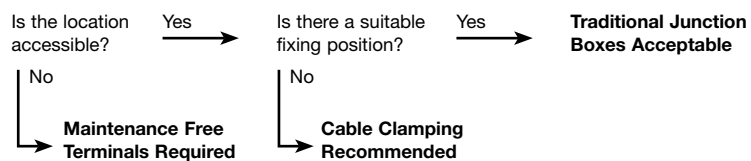
The second character numeral:
Protection against ingress of water with harmful effects

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

Additional letter (in option)
Specific information on the product

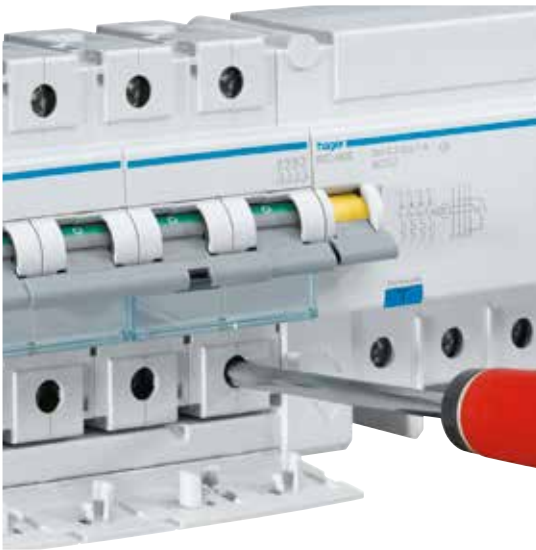
	Description
H	High voltage apparatus
M	Motion during water test
S	Stationary during water test
W	Weather conditions

Junction Box Selection Chart



Description	N° of Terminals	Terminal Rating	Reference	Benefits / Considerations
Downlighter Junction Box	3 x 3 x 1.5mm ² 1 x 2 x 1.5mm ²	16A	J501	Provided with cable clamps and separate terminals for flex
Maintenance Free Junction Box	3 x 4 x (0.5-4.0mm ²)	32A	J803	Suitable for use in inaccessible locations
	4 x 4 x (0.5 - 4.0mm ²)	20A	J804	
Traditional Junction Boxes	4	20A	J201	Acceptable for locations which are accessible
	4	20A	J301	
	3	30A	J401	
	6	20A	J601	

Counterfeiting: A plague gaining ground



The counterfeiting of products is gaining ground around the world. Counterfeiting does not only concern luxury items, but also covers electrical products where people's safety is endangered.

Counterfeit products do not bring any guarantee of safety or quality. These products can be dangerous, contain inappropriate materials or be of poor quality. In certain cases only the external appearance is preserved and the vital functions are removed to reduce the costs.



check.hager.com

Authentication Process

All of our circuit breakers, switches and earth leakage circuit breakers have been assigned a unique identification number which can be located on the side of the product. The identification number from each product is then stored in a protected database. If it doesn't have a number, then please contact us immediately.

Dedicated Website

Our customers can access this database to check the authenticity of a hager product by going to 'check.hager.com'. The website will immediately check the validity of the identification number on the product and confirm if it is authentic or a suspected counterfeit.

Action Plan

If you think you have a counterfeit product, contact Hager on 01952 675612 along with the details of the wholesaler from which the product was purchased. We will then take all the appropriate information and collect the product for analysis. If necessary we will take appropriate legal action.

Ethical Charter

As a manufacturer we commit to:

- Providing our customers with the means to check the authenticity of our products
- Communicating the results of any investigations

Our distributors commit:

- To make sure that products purchased are not counterfeit.
- To inform the manufacturers of any offers to counterfeit products
- To support the actions of manufacturers.

To ensure customers can check the authenticity of our products we have set up a simple and rapid procedure called: check.hager.com

1. In these Terms the following expressions shall have the following meanings:
 - 1.1 "Buyer" the purchaser of the Goods from the Seller.
 - 1.2 "Seller" Hager Limited.
 - 1.3 "Contract" the contract for the sale and purchase of the Goods made pursuant to these Terms.
 - 1.4 "Delivery" delivery of the Goods in accordance with these Terms.
 - 1.5 "Delivery Address" the location for Delivery agreed by the Seller and the Buyer (save where it is agreed that the Buyer shall collect the Goods from the Seller's premises).
 - 1.6 "Delivery Date" the date for Delivery agreed by the Seller and the Buyer.
 - 1.7 "Force Majeure" any circumstances beyond the reasonable control of the Seller.
 - 1.8 "Goods" the products which the Seller has agreed to supply to the Buyer pursuant to these Terms.
 - 1.9 "Loss" all actions claims demands losses (direct, indirect, consequential or otherwise) expenses costs actions and proceedings.
 - 1.10 "Payment Terms" the terms of payment in respect of the Price (and where relevant any delivery order or handling charges) which unless otherwise agreed by the Buyer and the Seller shall require payment not later than the last day of the month following that in which the Seller notifies the Buyer that the Goods are ready for despatch or have been dispatched.
 - 1.11 "Price" the price of the Goods as set out in the Seller's current price list at the date of despatch.
 - 1.12 "Quotation" includes any quotation, estimate, or tender given or made by the Seller.
 - 1.13 "Terms" the terms and conditions set out herein including any special terms and conditions agreed in writing by the Seller and the Buyer.
 - 1.14 "Product Lifetime" is the reasonable lifetime of a wiring accessory product in this catalogue and is taken to be 25 years from the date of manufacture.
2. All orders are accepted and all contracts are made subject to the Terms which shall prevail and be effective notwithstanding any variations or additions contained in any order or other document submitted by the Buyer including without limitation any standard conditions of purchase of the Buyer. No modification, of these Terms shall be binding upon the Seller unless made in writing by a duly authorised employee of the Seller.
3. A Quotation does not constitute an offer by the Seller to supply Goods and every acceptance of any Quotation by the Buyer shall be deemed an offer by the Buyer to purchase Goods from the Seller and will not be binding on the Seller until the Seller has given written acknowledgement or acceptance of such order.
4. The Seller reserves the right by giving notice to the Buyer at any time before Delivery to increase the price of the Goods or any installment of the Goods to reflect any increase in their cost of production, delivery, provision or otherwise which is due to Force Majeure, including but not by way of limitation any fluctuations in the cost of raw materials.
5. Unless otherwise agreed by the Buyer and the Seller, the Price shall be for Delivery to the Delivery Address. The Price shall include carriage and transit insurance costs to the Delivery Address. The Price is exclusive of any VAT (which will be applied in accordance with the legislation in force at the tax point date) for which the Buyer will be additionally liable.
6. In addition to the price, an order charge of £10 shall be payable by the buyer on orders under the value of £250 (per order number). The Seller reserves the right to charge the Buyer a reasonable handling charge for special deliveries made at the Buyer's request.
7. The Seller shall be entitled to send the invoice for the Goods to the Buyer immediately the Goods have been dispatched or when they are ready for despatch but are prevented or delayed from being dispatched due to Force Majeure.
8. The Buyer shall pay the Price plus any VAT strictly in accordance with the Payment Terms. The Seller will afford the Buyer a 2.5% discount on the Price if payment is made on or before the due date. Non-compliance with the Seller's terms of payment shall constitute default without reminder. In case of default the Seller may without prejudice to any other of its rights under these Terms charge interest to accrue on a daily basis at the rate of 3% per month from the date upon which payment falls due to the actual date of payment such interest to be paid monthly. Except where insolvency laws provide otherwise the Buyer shall not be entitled to withhold or set off payment for Goods for any reason whatsoever.
9. If the Buyer shall fail to fulfil the Payment Terms in respect of any invoice of the Seller the Seller may demand payment of all outstanding balances from the Buyer whether due or not and/or cancel all outstanding orders and/or decline to make further deliveries except upon receipt of cash or satisfactory securities.
10. In addition to any right or lien to which the Seller may by law be entitled the Seller shall in the event of the Buyer's insolvency or the Buyer failing to render payment for any Goods supplied by the Seller when due be entitled to a general lien on all goods of the Buyer in the Seller's possession for the unpaid price of any Goods sold and delivered by the Seller under the same or any other contract.
11. In addition and without prejudice to its other rights the Seller may on 14 days notice to the Buyer sell any goods of the Buyer on which the Seller has a lien and shall be deemed the Buyer's agent for the purposes of effecting such sale. The Seller may apply the proceeds of sale towards the satisfaction of sums due from the Buyer without prejudice to the Seller's right to recover the balance thereof from the Buyer.
12. Any date or period set out in a Quotation or the Seller's acceptance of order or which is otherwise agreed by the Seller and the Buyer for the delivery of the Goods or any part of them is approximate only and time shall not be of the essence of such delivery. If the Seller is prevented from delivering any Goods at the time provided for delivery by reason of Force Majeure then the period for delivery shall in any event be extended by the time lost due to such Force Majeure.
13. Delivery shall be made by the Seller supplying the Goods to the Delivery Address and the Buyer shall be responsible for the unloading of the Goods at the Delivery Address and the cost thereof. Where the Seller and the Buyer agree in writing that the Buyer shall collect the Goods from the Seller's premises the Buyer shall arrange at its expense unless otherwise agreed in writing for the carriage of the Goods (including cost of insurance in transit) and the Goods shall be deemed to have been delivered upon their loading upon the carrier and for the purpose of these Terms "Delivery" shall be construed accordingly.
14. Should the Buyer fail to take Delivery on or before the Delivery Date the Seller shall be entitled:
 - 14.1 If it has not already done so to invoice such Goods forthwith and to take the invoice into account;
 - 14.2 To treat the Contract as repudiated by the Buyer and without prejudice to any other right it may have against the Buyer the Seller shall be entitled to resell the Goods and shall be entitled to be indemnified by the Buyer for any Loss which it suffers.
15. The Seller reserves the right to deliver the Goods by installments and where it does so each delivery shall constitute a separate contract and any failure by the Seller to deliver any one or more of the installments in accordance with these Terms or any claim by the Buyer in respect of any one or more installments shall not entitle the Buyer to treat the Contract as a whole as repudiated.
16. The Buyer shall store and transport the Goods in conditions that will preserve the Goods in good condition. The Buyer shall comply with all reasonable requests made by the Seller with regard to the conditions in which the Goods are to be stored and transported.
17. Packing cases and cartons in which the Goods are supplied are non-returnable and provided free of charge.
18.
 - 18.1 If the Goods are to be manufactured by the Seller in accordance with a specification submitted by the Buyer, the Buyer shall indemnify the Seller against all Loss suffered by the Seller in connection with any claim by a third party that the manufacture and/or supply of the Goods to such specification infringes the rights of any third party.
 - 18.2 Unless otherwise agreed in writing all copyright and design rights in any drawings created by the Seller in the performance of the Contract shall vest in the Seller and remain the property of the Seller notwithstanding the purchase of the Goods by the Buyer.
19.
 - 19.1 Subject as expressly provided for herein all warranties, conditions, or other terms implied by statute or common law are excluded to the fullest extent permitted by law and the Seller shall have no liability to the Buyer other than as expressly set out herein.
 - 19.2 The Seller makes no warranty as to the accuracy of all general drawings including weights and dimensions issued by the Seller and such drawings and any descriptions and illustrations contained in any catalogue, price list or other advertising material are for information only and are a general description of the Goods and do not form part of the Contract.
 - 19.3 The Buyer shall be deemed to have inspected and quantified the Goods upon Delivery and the Seller shall have no liability to the Buyer in relation to short delivery or damage to the Goods in transit which was apparent on inspection or which would have been apparent on reasonable inspection unless such short delivery or damage is notified to the Seller and the carriers in writing within 3 days of Delivery specifying (in such detail as the Supplier shall reasonably require) the shortage in or damage to the Goods.
 - 19.4 The Seller shall have no liability to the Buyer in relation to non-delivery of the Goods unless such non-delivery is notified to the Seller in writing within 10 days of the Delivery Date.
 - 19.5 Where any valid claim in respect of short delivery or non-delivery of or damage to the Goods is notified to the Seller in accordance with these Terms, the Seller shall be entitled to supply goods to remedy any short delivery or non-delivery or damage free of charge or, at the Seller's discretion refund to the Buyer the price of the relevant Goods but the Seller shall have no further liability to the Buyer except in the case of death or personal injury caused by the negligence of the Seller.
 - 19.6 Where the Seller does not manufacture the Goods or any part thereof the Seller shall have no liability in relation to any defect in or failing of the Goods other than to use its reasonable endeavours to pass to the Buyer the benefit of any guarantee given in respect of the Goods or part thereof by their manufacturer.
 - 19.7.1 The company undertakes to replace or repair at its discretion products should they become inoperable within the time periods as outlined in the following table:

Brand	Product Lifetime	10 Years	2 Years
Hager Wiring Accessories	✓		
Metalclad ranges		✓	
Dimmer Switches, Shaver Units, Portable Lamps			✓
Klik	✓		
Occupancy Sensors			✓
Hager			✓

- 19.7.2 In all cases defects shall be taken as arising solely from faulty materials and or workmanship and the defective goods must always be returned to Hager Ltd and Hager Ltd must be notified of the defect or suspected defect immediately the same became known to the Buyer. The Guarantee will be invalidated if the product has not been installed or maintained in accordance with the Company's instructions, has not been used appropriately or if any attempt has been made to rectify, dismantle or alter the product in any way.
- 19.8 The Seller shall not be liable to repair or replace defective Goods or part thereof if the Goods or part thereof have been subject to any misuse, unauthorised repair replacement modification or alteration.
- 19.9 The Seller shall not be liable for any Loss suffered by the Buyer due to the Seller's failure to meet its obligations under the Contract due to Force Majeure.
- 19.10 Except in respect of death or personal injury caused by the Seller's negligence, the Seller shall have no liability to the Buyer for any loss of profit, business, contracts, revenues or anticipated savings or for any special indirect or consequential damage or loss of any nature whatsoever and whether caused by the negligence of the Seller or its employees, or agents) which arises out of or in connection with the supply of the Goods and/or their use or resale by the Buyer, except as may otherwise be expressly provided for in these Terms.
- 19.11 For the avoidance of doubt nothing herein contained shall be deemed to exclude or restrict the Seller's liability for death or personal injury arising due to the Seller's negligence.
20. The risk in the Goods shall pass to the Buyer immediately upon Delivery.
21. The Buyer shall indemnify the Seller against all Loss (including without limitation the Price in respect of Goods completed, costs incurred by the Seller in respect of partially completed Goods, reasonable cancellation charges incurred by the Seller due to any subcontracts entered into to perform the Contract and estimated profits on the Goods under the Contract on which work by the Seller has not been started) suffered by the Seller which arises as a result of the cancellation of the Contract by the Buyer, the breach by the Buyer of any provision of the Contract or the negligence of the Buyer or any of its representatives.
22. Until payment by the Buyer in full of the Price of the Goods and any other monies due to the Seller in respect of all other products supplied or agreed to be sold by the Seller to the Buyer (including but without limitation any costs of delivery):
- 22.1 The property in the Goods shall remain in the Seller and the Buyer shall hold the same as the fiduciary agent of and bailee for the Seller;
- 22.2 The Buyer shall store the Goods separately from other products in a manner which makes them readily identifiable as being the property of the Seller and shall keep them protected and insured but shall be entitled to resell or use the Goods in the ordinary course of its business.
23. Until such time as property in the Goods has passed to the Buyer (and provided that the Goods are still in existence and have not been resold) the Seller shall be entitled at any time to require the Buyer to deliver up the Goods to the Seller and if the Buyer fails to do so forthwith the Seller or its agents may enter the premises of the Buyer and take possession of any Goods in which property remains in the Seller and remove and dispose of them as the Seller thinks fit. The Seller shall apply the proceeds of disposal (after deduction of all expenses) in discharge of the amount unpaid by the Buyer.
- 24.
- 24.1 Save as may be otherwise agreed in writing between the Seller and the Buyer where Goods are supplied for export from the United Kingdom they shall be charged for and delivered FOB the air or sea port of shipment and the Seller shall not be obliged to give the Buyer the notice specified in Section 32(3) of the Sale of Goods Act 1979.
- 24.2 The Buyer shall be responsible for complying with any legislation or regulations governing the importation of the Goods into the country of destination and for the payment of any duties thereon. In particular, if any licence or consent of any government or other authority shall be required for the acquisition, carriage or use of the Goods by the Buyer the Buyer shall obtain the same at its own expense and if necessary produce evidence of the same to the Seller on demand. Failure to do so shall not entitle the Buyer to withhold or delay payment of the Price. Any additional expenses or charges incurred by the Seller resulting from such failure shall be for the Buyer's account.
- 24.3 The seller supplies the goods to the buyer on the sole basis that goods are on-sold by the buyer to suitably qualified, professional installers only.

25. If the Buyer:
- 25.1 Shall default in or commit any breach of any of its obligations to the Seller under these Terms; or
- 25.2 Shall be involved in any legal proceedings in which its solvency is in question; or
- 25.3 Being a company shall present a petition or have a petition presented for its winding up or convene a meeting to pass a resolution for voluntary winding up or have a receiver appointed over all or any part of its assets or call a meeting of or enter into any composition or arrangement with its creditors or being an individual shall be presented with a bankruptcy petition; or
- 25.4 Shall cease or threaten to cease to trade or if in the opinion of the Seller serious doubts arise as to the Buyer's solvency then in any such case the Seller shall immediately become entitled (without prejudice to its other claims and rights under the Contract) to suspend further performance of the Contract for such time as it shall in its absolute discretion think fit or (whether or not notice of such a suspension shall have been given) to treat the Contract as wrongfully repudiated by the Buyer and forthwith terminate the Contract (either with or without notice to the Buyer) and if the Goods have been delivered but not paid for the Price shall become immediately due and payable notwithstanding any previous agreement to the contrary.
26. All Contracts shall be governed by English Law and the English Courts shall have nonexclusive jurisdiction for the hearing of any dispute between the parties.
27. These Terms supersede all previous Conditions of Sale of the Seller.
28. The Seller shall be entitled to assign or sub-contract all or any of its rights and obligations hereunder. The Buyer shall not be entitled to assign transfer sub-contract or otherwise delegate any of its rights or obligations hereunder.
29. It is a condition of any sale under these terms and conditions that both parties shall abide by the principles of The Electrical Installation Industry Charter adopted by the major electrical industry trade bodies and consequently shall avoid the distribution of counterfeit and/or non-compliant electrical products.

Conditions of Use

The products listed in this publication should be installed by suitably qualified professional personnel in accordance with the company's instructions, requirements of relevant legislation, regulations (including IEE Wiring Regulations) and the accepted practice in the industry



End of life treatment of electrical/electronic equipment and batteries in the European Union Countries.

The crossed-out 'wheeled bin symbol' marked on the equipment or its packaging, indicates that the product is not to be disposed of with unsorted municipal / household waste. Please check with your local authority or retailer for recycling and collection advice. This will enable you to contribute to the disposal, treatment and recycling in an environmentally sound way and help prevent potential negative effects on the environment and human health.



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