

Catalogue 2023/2024

: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.

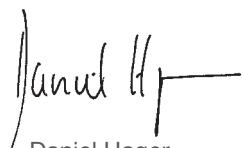
The latest studies indicate that many properties will first have to be adapted to accommodate the solar power systems, energy storage units and intelligent building controls that characterise smart homes. Many Irish homes could benefit from improvements to aid in energy-efficient living and working. Large-scale renovation and modernisation are needed if renewable energy is to help achieve a considerable reduction in carbon emissions by 2030.

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,



Daniel Hager
Hager Group CEO

Under one roof

Members of Hager Group

:hager

B.
Berker

ELCOM.

DAITEM

diagral

EFEN

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 unmistakeable, 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!

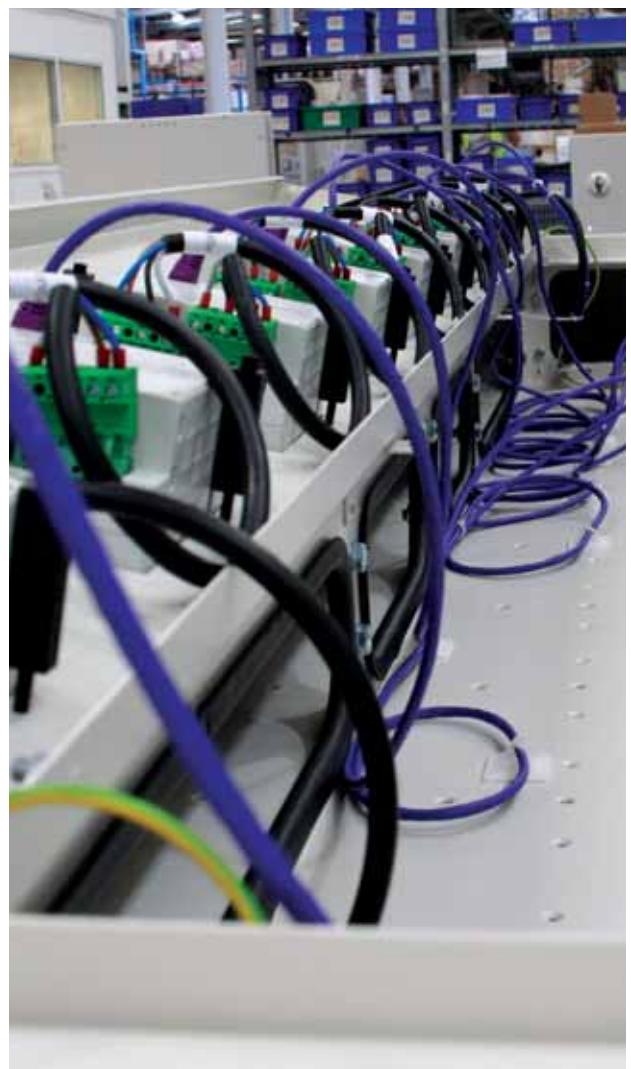
An engineered solution

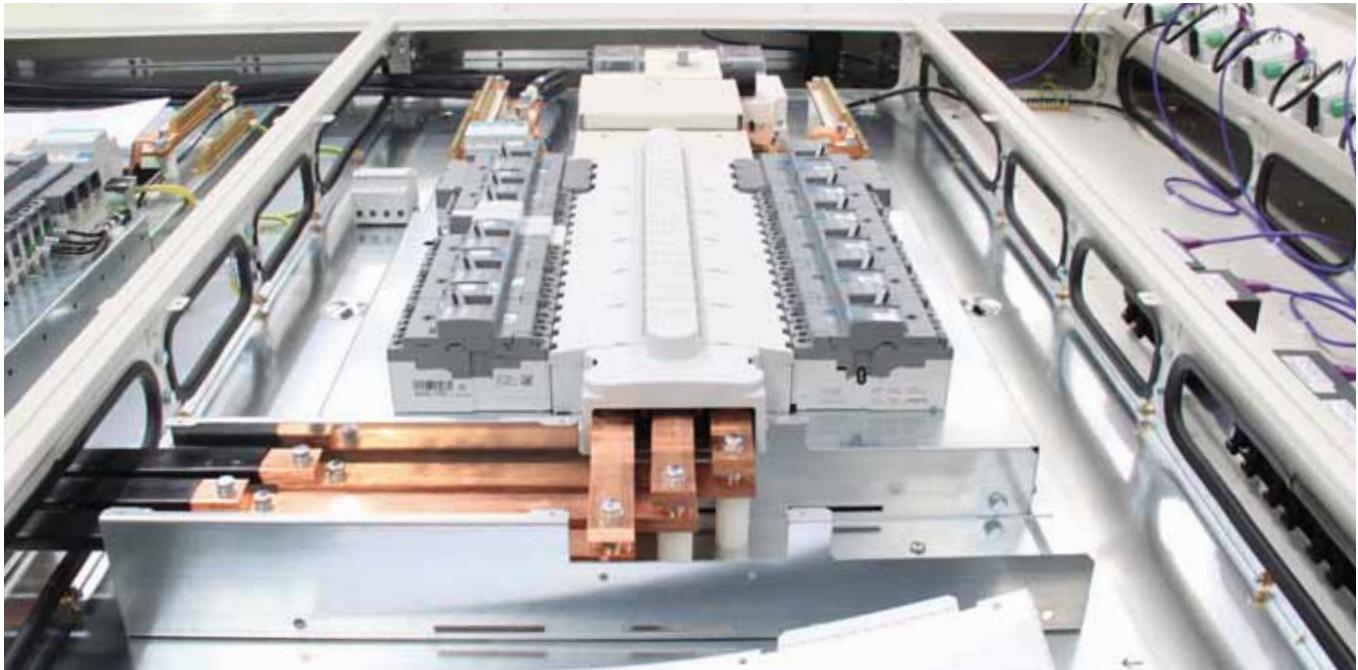
From pre-assembled standard distribution units to bespoke composite TP&N boards, and plug in distribution boards we can provide the solution. We will even deliver to site to an agreed deadline and to specification. We have the support of an experienced design engineering team and an ISO 9001:2008 manufacturing plant.

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.





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.

Engineered Consumer Units

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.

Bespoke composite system

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

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

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

Technical Service Centre

Call our Technical Team for all your national sales enquiries

Telephone our Technical Team +353 (0)1 8835844 or email Customer Services at customer.service@hager.ie

01 Commercial Distribution

Enclosures & Distribution Boards / Univers / Quadro / Orion Plus / Type A Distribution Boards / Type B Distribution Boards / Panelboards / Fuse Combination Switches / Switch Disconnectors / Enclosures for MCCBs



1.1

Devices / MCBs / RCBOs / RCCBs / Fuse Carriers / Surge Protection / Earth Fault Relays / MCCBs / ACBs / Load Break Switches / Switch Fuses / Earth Leakage Relays / Changeover Switches

02 Modular Devices & Connection

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



2.1

Connection / Insulated Busbars / Distribution Blocks / Junction Blocks / Screw Terminals / Brass Terminals / Quick Connect & Cage Terminals

03 Lighting, Connection & Control

Klik / Klik 4 Pin / Klik 7 Pin



3.1

Controls / Selecton Guide / Motion Detectors / Presence Detectors

Lighting / Outdoor Lighting

04 Residential Distribution

Consumer Units / Surface Mounted Consumer Units / Flush Mounted Consumer Units



4.1

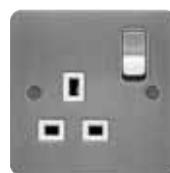
Enclosures / Surface Mounted Enclosures / Flush Mounted Enclosures

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

Switching / Switch Disconnectors

05 Wiring Accessories

Sollysta / White Moulded / Decorative / Metalclad / IP66



5.1

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

Ceiling Accessories / Safety Lampholders / Safety Pendants

06 Building Automation

KNX / Quicklink / Easy / System / Inputs, Outputs, System Components / Remote Control & Visualisation / Berker Wiring Accessories

6.1

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 Univers to Quadro boards, our commercial offering will create the perfect electrical ecosystem for a building.



Distribution Boards

| | |
|-----------------------------|-------|
| Univers | 1.3 |
| Quadro | 1.62 |
| Orion Plus | 1.98 |
| Type A Distribution Boards | 1.119 |
| Type B Distribution Boards | 1.121 |
| Panelboards | 1.129 |
| Fuse Combination Switches | 1.137 |
| Switch Disconnectors | 1.138 |
| Enclosures for MCCBs | 1.140 |
| Devices | |
| MCBs | 1.141 |
| RCBOs | 1.149 |
| RCCBs | 1.152 |
| Fuse Carriers | 1.155 |
| Surge Protection | 1.157 |
| Arc Fault Detection Devices | 1.160 |
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| MCCBs | 1.162 |
| Air Circuit Breakers | 1.181 |
| Load Break Switches | 1.182 |
| Switch Fuses | 1.185 |
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| Changeover Switches | 1.187 |
| Technical Pages | 1.191 |

Univers

A flexible system

The options offered by Univers distribution cabinets are versatile enough to meet the needs of any construction site. The wall-mounted, free-standing and modular cabinets meet the demands found in domestic, commercial and industrial buildings. The predominantly used material is sheet steel, the degree of protection ranges from IP44 to IP65.



- IP44
- Front-flush door
- For devices up to 400 A
- Wall, flush and partially recessed mounting
- Indoor installation
- Colour: RAL 9010

- FZ426 pass-through flanges installed at top and bottom
- Closure: Door plate with hinged handle and sash lock with three-point rod lock
- Surround frame with plaster compensation up to 54 mm
- 1 circuit diagram pocket
- EN 61439-1/-3
- Qty.: 1
- IK09 impact tested
- Optional doors, such as IK07 slotted doors
- Busbar bushing left and right, from H = 800 mm lateral two busbar bushings

| Protection class | | I | | Surround frame | Mounting rails 1 set = 2 rails | | |
|------------------|--|--------|-------|----------------|-----------------------------------|-----------|-----------|
| Depth in mm | | Height | Width | Mod. | Cat. ref. | Cat. ref. | Cat. ref. |
| 500 | | 300 | 36 | FP31TN2 | FZ011B | UN03A | |
| | | 550 | 72 | FP32TN2 | FZ012B | | |
| | | 800 | 108 | FP33TN2 | FZ013B | | |
| | | 1050 | 144 | FP34TN2 | FZ014B | | |
| | | 1300 | 180 | FP35TN2 | FZ015B | | |
| 650 | | 300 | 48 | FP41TN2 | FZ021B | UN04A | |
| | | 550 | 96 | FP42TN2 | FZ022B | | |
| | | 800 | 144 | FP43TN2 | FZ023B | | |
| | | 1050 | 192 | FP44TN2 | FZ024B | | |
| | | 1300 | 240 | FP45TN2 | FZ025B | | |
| 800 | | 300 | 60 | FP51TN2 | FZ11B | UN05A | |
| | | 550 | 120 | FP52TN2 | FZ12B | | |
| | | 800 | 180 | FP53TN2 | FZ13B | | |
| | | 1050 | 240 | FP54TN2 | FZ14B | | |
| | | 1300 | 300 | FP55TN2 | FZ15B | | |
| 950 | | 300 | 72 | FP61TN2 | FZ21B | UN06A | |
| | | 550 | 144 | FP62TN2 | FZ22B | | |
| | | 800 | 216 | FP63TN2 | FZ23B | | |
| | | 1050 | 288 | FP64TN2 | FZ24B | | |
| | | 1300 | 360 | FP65TN2 | FZ25B | | |
| 1100 | | 300 | 84 | FP71TN2 | FZ31B | UN07A | |
| | | 550 | 168 | FP72TN2 | FZ32B | | |
| | | 800 | 252 | FP73TN2 | FZ33B | | |
| | | 1050 | 336 | FP74TN2 | FZ34B | | |
| | | 1300 | 420 | FP75TN2 | FZ35B | | |
| 1250 | | 300 | 96 | FP81TN2 | FZ41B | UN08A | |
| | | 550 | 192 | FP82TN2 | FZ42B | | |
| | | 800 | 288 | FP83TN2 | FZ43B | | |
| | | 1050 | 384 | FP84TN2 | FZ44B | | |
| | | 1300 | 480 | FP85TN2 | FZ45B | | |
| 1400 | | 300 | 108 | FP91TN2 | FZ51B | UN09A | |
| | | 550 | 216 | FP92TN2 | FZ52B | | |
| | | 800 | 324 | FP93TN2 | FZ53B | | |
| | | 1050 | 432 | FP94TN2 | FZ54B | | |
| | | 1300 | 540 | FP95TN2 | FZ55B | | |
| 1550 | | 300 | 120 | FP01TN2 | UN10A | | |
| | | 550 | 240 | FP02TN2 | | | |
| | | 800 | 360 | FP03TN2 | | | |
| | | 1050 | 480 | FP04TN2 | | | |
| | | 1300 | 600 | FP05TN2 | | | |
| 1700 | | 300 | 132 | FP11TN2 | UN11A | | |
| | | 550 | 264 | FP12TN2 | | | |
| | | 800 | 396 | FP13TN2 | | | |
| | | 1050 | 528 | FP14TN2 | | | |
| | | 1300 | 660 | FP15TN2 | | | |

- Protection class I
- Depth 275/400 mm for devices up to 800 A
- Indoor installation
- Version with three-point rod lock
- Colour: RAL 7035 (Light grey)

- Standards: DIN VDE 0660 part 600-1, -2, -3; EN 61439-1, -2, -3
- Qty.: 1

| Cabinet type | | Wall cabinet | | |
|-----------------------------|--|---|--------------------------------------|------------------|
| Degree of protection | | IP55 | | |
| Protection class | | I $\frac{1}{2}$ | | |
| Depth in mm | | 275mm | | |
| Colour in RAL | | 7035 | | |
| With cable entries | | Top FZ402 bottom 1 x FZ408M, rest FZ406M | Mounting rails 1 set = 2 rails | |
| Height | | Width | Mod. | Cat. ref. |
| 500 | | 300 | 36 | FR31E |
| | | 550 | 72 | FR32E |
| | | 800 | 108 | FR33E |
| | | 1050 | 144 | FR34E |
| | | 1300 | 180 | FR35E |
| | | | | UN03A |
| 650 | | 300 | 48 | FR41E |
| | | 550 | 96 | FR42E |
| | | 800 | 144 | FR43E |
| | | 1050 | 192 | FR44E |
| | | 1300 | 240 | FR45E |
| | | | | UN04A |
| 800 | | 300 | 60 | FR51E |
| | | 550 | 120 | FR52E |
| | | 800 | 180 | FR53E |
| | | 1050 | 240 | FR54E |
| | | 1300 | 300 | FR55E |
| | | | | UN05A |
| 950 | | 300 | 72 | FR61E |
| | | 550 | 144 | FR62E |
| | | 800 | 216 | FR63E |
| | | 1050 | 288 | FR64E |
| | | 1300 | 360 | FR65E |
| | | | | UN06A |
| 1100 | | 300 | 84 | FR71E |
| | | 550 | 168 | FR72E |
| | | 800 | 252 | FR73E |
| | | 1050 | 336 | FR74E |
| | | 1300 | 420 | FR75E |
| | | | | UN07A |
| 1250 | | 300 | 96 | FR81E |
| | | 550 | 192 | FR82E |
| | | 800 | 288 | FR83E |
| | | 1050 | 384 | FR84E |
| | | 1300 | 480 | FR85E |
| | | | | UN08A |
| 1400 | | 300 | 108 | FR91E |
| | | 550 | 216 | FR92E |
| | | 800 | 324 | FR93E |
| | | 1050 | 432 | FR94E |
| | | 1300 | 540 | FR95E |
| | | | | UN09A |
| 1550 | | 300 | 120 | FR01E |
| | | 550 | 240 | FR02E |
| | | 800 | 360 | FR03E |
| | | 1050 | 480 | FR04E |
| | | 1300 | 600 | FR05E |
| | | | | UN10A |
| Depth in mm | | 400mm | | |
| 1400 | | 550 | 216 | FR92G |
| | | 800 | 324 | FR93G |
| | | 1050 | 432 | FR94G |
| | | | | UN09A |

| Protection class | | | | I II | |
|----------------------|--|--|----------------------|----------------|----------------------------|
| Cabinet depth in mm | | | | 275 mm | |
| Degree of protection | | | | IP54 | |
| Cabinet width in mm | | | Cabinet height in mm | Cabinet | Standard door |
| | | | | Cat. ref. | Door dimensions H x W (mm) |
| 300 | | | 500 | FR31... | FZ031R 493 x 793 |
| | | | 650 | FR41... | FZ041R 643 x 793 |
| | | | 900 | FR51... | FZ051R 793 x 793 |
| | | | 1050 | FR61... | FZ061R 943 x 793 |
| | | | 1100 | FR71... | FZ071R 1093 x 793 |
| | | | 1250 | FR81... | FZ081R 1243 x 793 |
| | | | 1400 | FR91... | FZ091R 1393 x 793 |
| | | | 1550 | FR11... | FZ011R 1543 x 793 |
| 550 | | | 500 | FR32... | FZ032R 493 x 793 |
| | | | 650 | FR42... | FZ042R 643 x 793 |
| | | | 900 | FR52... | FZ052R 793 x 793 |
| | | | 1050 | FR62... | FZ062R 943 x 793 |
| | | | 1100 | FR72... | FZ072R 1093 x 793 |
| | | | 1250 | FR82... | FZ082R 1243 x 793 |
| | | | 1400 | FR92... | FZ092R 1393 x 793 |
| | | | 1550 | FR12... | FZ012R 1543 x 793 |
| 800 | | | 500 | FR33... | FZ033R 493 x 793 |
| | | | 650 | FR43... | FZ043R 643 x 793 |
| | | | 800 | FR53... | FZ053R 793 x 793 |
| | | | 950 | FR63... | FZ063R 943 x 793 |
| | | | 1100 | FR73... | FZ073R 1093 x 793 |
| | | | 1250 | FR83... | FZ083R 1243 x 793 |
| | | | 1400 | FR93... | FZ093R 1393 x 793 |
| | | | 1550 | FR13... | FZ013R 1543 x 793 |
| 1050 | | | 500 | FR34... | FZ034R 493 x 793 |
| | | | 650 | FR44... | FZ044R 643 x 793 |
| | | | 800 | FR54... | FZ054R 793 x 793 |
| | | | 950 | FR64... | FZ064R 943 x 793 |
| | | | 1100 | FR74... | FZ074R 1093 x 793 |
| | | | 1250 | FR84... | FZ084R 1243 x 793 |
| | | | 1400 | FR94... | FZ094R 1393 x 793 |
| | | | 1550 | FR14... | FZ014R 1543 x 793 |
| 1300 | | | 500 | FR35... | FZ035R 493 x 793 |
| | | | 650 | FR45... | FZ045R 643 x 793 |
| | | | 800 | FR55... | FZ055R 793 x 793 |
| | | | 950 | FR65... | FZ065R 943 x 793 |
| | | | 1100 | FR75... | FZ075R 1093 x 793 |
| | | | 1250 | FR85... | FZ085R 1243 x 793 |
| | | | 1400 | FR95... | FZ095R 1393 x 793 |
| | | | 1550 | FR15... | FZ015R 1543 x 793 |

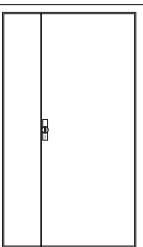
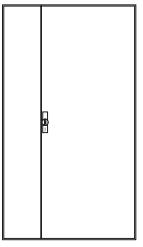
- For outdoor applications
- Protection class II
- For devices up to 630 A
- 3 mm double-bit lock
- Polyester
- Colour: RAL 7035 (Light grey)
- When installed outdoors, additional requirements must be met.
- Important information can be found in the guidelines for project development and construction of switchgear in accordance with DIN EN 61439

| Cabinet type | | Wall-mounted | | |
|-----------------------------|--------------|--|------------------|--------------|
| Degree of protection | | IP65 | | |
| Protection class | | II <input checked="" type="checkbox"/> | | |
| UV resistance | | Yes | | |
| Depth in mm | | 300 | | |
| Colour in RAL | | 7035 | | |
| Height | Width | Mod. | Cat. ref. | |
| 550 | □□ | 600 | 72 | FL32S |
| | □□□ | 850 | 108 | FL33S |
| | □□□□ | 1100 | 144 | FL34S |
| 850 | □□ | 600 | 120 | FL52S |
| | □□□ | 850 | 180 | FL53S |
| | □□□□ | 1100 | 240 | FL54S |
| 1150 | □□ | 600 | 168 | FL72S |
| | □□□ | 850 | 252 | FL73S |
| | □□□□ | 1100 | 336 | FL74S |

- Protection class I
- For devices up to 800 A
- Indoor installation
- Depth 275/400 mm
- Colour: RAL 7035 (Light grey)
- FZ402 cable entries at top, bottom open

- With base, 100 mm or 200 mm
- Sheet steel or transparent door
- To ensure compliance with the IP54 degree of protection, entry flanges must be inserted
- Standards: DIN VDE 0660 part 600-1, -2, -3; EN 61439-1, -2, -3

| Cabinet type | | | Free-standing cabinet | | | |
|-----------------------------|--------------|-------------|------------------------------|--|------------------------|--|
| Degree of protection | | | IP55 | | IP55 | |
| Depth in mm | | | 275 | | 275 | |
| Colour in RAL | | | 7035 | | 7035 | |
| With cable entries | | | Top | Top | PC I Base 200 mm | PC I Transparent door with base 200 mm |
| Height / depth | Width | Mod. | PC I Base 100 mm | PC I Transparent door with base 100 mm | PC I Base 200 mm | PC I Transparent door with base 200 mm |
| 1700 | 300 | 132 | FR11E1 | | FR11E2 | |
| | 550 | 264 | FR12E1 | | FR12E2 | |
| | 800 | 396 | FR13E1 | | FR13E2 | |
| | 1050 | 528 | FR14E1 | | FR14E2 | |
| | 1300 | 660 | FR15E1 | | FR15E2 | |
| 1850 | 300 | 144 | FR21E1 | FR21K1 | FR21E2 | FR21K2 |
| | 550 | 288 | FR22E1 | FR22K1 | FR22E2 | FR22K2 |
| | 800 | 432 | FR23E1 | FR23K1 | FR23E2 | FR23K2 |
| | 1050 | 576 | FR24E1 | FR24K1 | FR24E2 | FR24K2 |
| | 1300 | 720 | FR25E1 | FR25K1 | FR25E2 | FR25K2 |
| 1850 | 1500 | 864 | FR26E1 | FR26K1 | FR26E2 | FR26K2 |
| Depth in mm | | | 400 | 400 | | |
| 300 | 144 | FR21G1 | FR21V1 | FR21G2 | FR21V2 | |
| 550 | 288 | FR22G1 | FR22V1 | FR22G2 | FR22V2 | |
| 800 | 432 | FR23G1 | FR23V1 | FR23G2 | FR23V2 | |
| | 1050 | 576 | FR24G1 | FR24V1 | FR24G2 | FR24V2 |
| | 1300 | 720 | FR25G1 | FR25V1 | FR25G2 | FR25V2 |
| | 1550 | 864 | FR26G1 | FR26V1 | FR26G2 | FR26V2 |

| Protection class | | | | I | II | III |
|------------------------|---|-----------------------------------|--|---|--|----------------------------------|
| Cabinet depth in mm | | | | 275 – 400 mm | | |
| Degree of protection | | | | IP55 | | |
| Cabinet width in mm | | Cabinet height in mm | Cabinet | Standard door (without lock) | Cat. ref. | Door dimensions H x W (mm) |
| 1700 |  | 300 550 800 1050 1300 | FR11... FR12... FR13... FR14... FR15... | FR011R FR012R FR013R FR014R FR015R | 1843 x 293 1843 x 543 1843 x 793 1843 x 520 1843 x 770 | |
| 1850 |  | 300 550 800 1050 1300 | FR21... FR22... FR23... FR24... FR25... | FR021R FR022R FR023R FR024R FR025R | 1843 x 293 1843 x 543 1843 x 793 1843 x 520 1843 x 770 | |

Protection class I, cabinet height 500 mm

| Height | Width | Depth | Number of sections | Qty. | Cat. ref.. |
|--------|---------|--------|--------------------|------|----------------|
| 500 mm | 300 mm | 205 mm | 1 | 1 | FP31TN2 |
| 500 mm | 550 mm | 205 mm | 2 | 1 | FP32TN2 |
| 500 mm | 800 mm | 205 mm | 3 | 1 | FP33TN2 |
| 500 mm | 1050 mm | 205 mm | 4 | 1 | FP34TN2 |
| 500 mm | 1300 mm | 205 mm | 5 | 1 | FP35TN2 |



FP31TN2

Protection class I, cabinet height 650 mm

| Height | Width | Depth | Number of sections | Qty. | Cat. ref.. |
|--------|---------|--------|--------------------|------|----------------|
| 650 mm | 300 mm | 205 mm | 1 | 1 | FP41TN2 |
| 650 mm | 550 mm | 205 mm | 2 | 1 | FP42TN2 |
| 650 mm | 800 mm | 205 mm | 3 | 1 | FP43TN2 |
| 650 mm | 1050 mm | 205 mm | 4 | 1 | FP44TN2 |
| 650 mm | 1300 mm | 205 mm | 5 | 1 | FP45TN2 |



FP41TN2

Protection class I, cabinet height 800 mm

| Height | Width | Depth | Number of sections | Qty. | Cat. ref.. |
|--------|---------|--------|--------------------|------|----------------|
| 800 mm | 300 mm | 205 mm | 1 | 1 | FP51TN2 |
| 800 mm | 550 mm | 205 mm | 2 | 1 | FP52TN2 |
| 800 mm | 800 mm | 205 mm | 3 | 1 | FP53TN2 |
| 800 mm | 1050 mm | 205 mm | 4 | 1 | FP54TN2 |
| 800 mm | 1300 mm | 205 mm | 5 | 1 | FP55TN2 |



FP51TN2

Protection class I, cabinet height 950 mm

| Height | Width | Depth | Number of sections | Qty. | Cat. ref.. |
|--------|---------|--------|--------------------|------|----------------|
| 950 mm | 300 mm | 205 mm | 1 | 1 | FP61TN2 |
| 950 mm | 550 mm | 205 mm | 2 | 1 | FP62TN2 |
| 950 mm | 800 mm | 205 mm | 3 | 1 | FP63TN2 |
| 950 mm | 1050 mm | 205 mm | 4 | 1 | FP64TN2 |
| 950 mm | 1300 mm | 205 mm | 5 | 1 | FP65TN2 |



FP61TN2



FP71TN2

Protection class I, cabinet height 1100 mm

| Height | Width | Depth | Number of sections | Qty. | Cat. ref.. |
|---------|---------|--------|--------------------|------|----------------|
| 1100 mm | 300 mm | 205 mm | 1 | 1 | FP71TN2 |
| 1100 mm | 550 mm | 205 mm | 2 | 1 | FP72TN2 |
| 1100 mm | 800 mm | 205 mm | 3 | 1 | FP73TN2 |
| 1100 mm | 1050 mm | 205 mm | 4 | 1 | FP74TN2 |
| 1100 mm | 1300 mm | 205 mm | 5 | 1 | FP75TN2 |



FP81TN2

Protection class I, cabinet height 1250 mm

| Height | Width | Depth | Number of sections | Qty. | Cat. ref.. |
|---------|---------|--------|--------------------|------|----------------|
| 1250 mm | 300 mm | 205 mm | 1 | 1 | FP81TN2 |
| 1250 mm | 550 mm | 205 mm | 2 | 1 | FP82TN2 |
| 1250 mm | 800 mm | 205 mm | 3 | 1 | FP83TN2 |
| 1250 mm | 1050 mm | 205 mm | 4 | 1 | FP84TN2 |
| 1250 mm | 1300 mm | 205 mm | 5 | 1 | FP85TN2 |



FP91TN2

Protection class I, cabinet height 1400 mm

| Height | Width | Depth | Number of sections | Qty. | Cat. ref.. |
|---------|---------|--------|--------------------|------|----------------|
| 1400 mm | 300 mm | 205 mm | 1 | 1 | FP91TN2 |
| 1400 mm | 550 mm | 205 mm | 2 | 1 | FP92TN2 |
| 1400 mm | 800 mm | 205 mm | 3 | 1 | FP93TN2 |
| 1400 mm | 1050 mm | 205 mm | 4 | 1 | FP94TN2 |
| 1400 mm | 1300 mm | 205 mm | 5 | 1 | FP95TN2 |



FP01TN2

Protection class I, cabinet height 1550 mm

| Height | Width | Depth | Number of sections | Qty. | Cat. ref.. |
|---------|---------|--------|--------------------|------|----------------|
| 1550 mm | 300 mm | 205 mm | 1 | 1 | FP01TN2 |
| 1550 mm | 550 mm | 205 mm | 2 | 1 | FP02TN2 |
| 1550 mm | 800 mm | 205 mm | 3 | 1 | FP03TN2 |
| 1550 mm | 1050 mm | 205 mm | 4 | 1 | FP04TN2 |
| 1550 mm | 1300 mm | 205 mm | 5 | 1 | FP05TN2 |



FP11TN2

Protection class I, cabinet height 1700 mm

| Height | Width | Depth | Number of sections | Qty. | Cat. ref.. |
|---------|---------|--------|--------------------|------|----------------|
| 1700 mm | 300 mm | 205 mm | 1 | 1 | FP11TN2 |
| 1700 mm | 550 mm | 205 mm | 2 | 1 | FP12TN2 |
| 1700 mm | 800 mm | 205 mm | 3 | 1 | FP13TN2 |
| 1700 mm | 1050 mm | 205 mm | 4 | 1 | FP14TN2 |
| 1700 mm | 1300 mm | 205 mm | 5 | 1 | FP15TN2 |

Surround frame for IP44 wall cabinets**Features:**

- Plaster compensation without spacer max. 10 mm
- Plaster compensation with spacer max. 10 – 58 mm
- IP30



FZ012B

| Description | Qty. | Cat. ref.. |
|--|------|---------------|
| Surround frame, Univers Z, 1 panel, 500 x 300 | 1 | FZ011B |
| Surround frame, Univers Z, 2 panels, 500 x 550 | 1 | FZ012B |
| Surround frame, Univers Z, 3 panels, 500 x 800 | 1 | FZ013B |
| Surround frame, Univers Z, 4 panels, 500 x 1050 | 1 | FZ014B |
| Surround frame, Univers Z, 5 panels, 500 x 1300 | 1 | FZ015B |
| Surround frame, Univers Z, 1 panel, 600 x 300 | 1 | FZ021B |
| Surround frame, Univers Z, 2 panels, 650 x 550 | 1 | FZ022B |
| Surround frame, Univers Z, 3 panels, 650 x 800 | 1 | FZ023B |
| Surround frame, Univers Z, 4 panels, 650 x 1050 | 1 | FZ024B |
| Surround frame, Univers Z, 5 panels, 650 x 1300 | 1 | FZ025B |
| Surround frame, Univers Z, 1 panel, 800 x 300 | 1 | FZ11B |
| Surround frame, Univers Z, 2 panels, 800 x 550 | 1 | FZ12B |
| Surround frame, Univers Z, 3 panels, 800 x 800 | 1 | FZ13B |
| Surround frame, Univers Z, 4 panels, 800 x 1050 | 1 | FZ14B |
| Surround frame, Univers Z, 5 panels, 800 x 1300 | 1 | FZ15B |
| Surround frame, Univers Z, 1 panel, 950 x 300 | 1 | FZ21B |
| Surround frame, Univers Z, 2 panels, 950 x 550 | 1 | FZ22B |
| Surround frame, Univers Z, 3 panels, 950 x 800 | 1 | FZ23B |
| Surround frame, Univers Z, 4 panels, 950 x 1050 | 1 | FZ24B |
| Surround frame, Univers Z, 5 panels, 950 x 1300 | 1 | FZ25B |
| Surround frame, Univers Z, 1 panel, 1100 x 300 | 1 | FZ31B |
| Surround frame, Univers Z, 2 panels, 1100 x 550 | 1 | FZ32B |
| Surround frame, Univers Z, 3 panels, 1100 x 800 | 1 | FZ33B |
| Surround frame, Univers Z, 4 panels, 1100 x 1050 | 1 | FZ34B |
| Surround frame, Univers Z, 5 panels, 1100 x 1300 | 1 | FZ35B |
| Surround frame, Univers Z, 1 panel, 1250 x 300 | 1 | FZ41B |
| Surround frame, Univers Z, 2 panels, 1250 x 550 | 1 | FZ42B |
| Surround frame, Univers Z, 3 panels, 1250 x 800 | 1 | FZ43B |
| Surround frame, Univers Z, 4 panels, 1250 x 1050 | 1 | FZ44B |
| Surround frame, Univers Z, 5 panels, 1250 x 1300 | 1 | FZ45B |
| Surround frame, Univers Z, 1 panel, 1400 x 300 | 1 | FZ51B |
| Surround frame, Univers Z, 2 panels, 1400 x 550 | 1 | FZ52B |
| Surround frame, Univers Z, 3 panels, 1400 x 800 | 1 | FZ53B |
| Surround frame, Univers Z, 4 panels, 1400 x 1050 | 1 | FZ54B |
| Surround frame, Univers Z, 5 panels, 1400 x 1300 | 1 | FZ55B |



FZ353

Clip-on cable duct

Features:

- For IP44 cabinets of depths 205 mm
- FZ44xN plaster compensation possible using snap-in mechanism

| Description | Qty. | Cat. ref.. |
|------------------------------------|------|---------------|
| Cable duct, 1 panel, RAL 7035 | 1 | FZ351 |
| Cable duct, 2 panels, RAL 7035 | 1 | FZ352 |
| Cable duct, 3 panels, RAL 7035 | 1 | FZ353 |
| Cable duct, 4 panels, RAL 7035 | 1 | FZ354 |
| Cable duct, 5 panels, RAL 7035 | 1 | FZ355 |
| Cable duct, 1 panel, wall-mounted | 1 | FZ441 |
| Cable duct, 1 panel, clip-on | 1 | FZ441N |
| Cable duct, 2 panels, wall-mounted | 1 | FZ442 |
| Cable duct, 2 panels, clip-on | 1 | FZ442N |
| Cable duct, 3 panels, wall-mounted | 1 | FZ443 |
| Cable duct, 3 panels, clip-on | 1 | FZ443N |
| Cable duct, 4 panels, wall-mounted | 1 | FZ444 |
| Cable duct, 4 panels, clip-on | 1 | FZ444N |
| Cable duct, 5 panels, wall-mounted | 1 | FZ445 |
| Cable duct, 5 panels, clip-on | 1 | FZ445N |



FZ44N

End panels for cable duct, plug-on, for FZ44xN

Features:

- FZ44H profile holder top section for FZ44xN

| Description | Qty. | Cat. ref.. |
|------------------------------------|------|--------------|
| End panel set, r/l, for cable duct | 1 | FZ44N |



FZ598N

Door plate (spare part)

| Description | Qty. | Cat. ref.. |
|--|------|---------------|
| Door plate with hinged handle, f. IP44 cabinet | 1 | FZ598N |



FZ597N

Door lock

Features:

- With two keys for retrofitting

| Description | Qty. | Cat. ref.. |
|---|------|---------------|
| Closure, Univers cylinder lock, no. 1242E | 1 | FZ597N |
| Closure, Univers, double-bit, 3 mm | 1 | FZ449N |
| Closure, Univers, triangular lock, 7 mm | 1 | FZ450N |
| Closure, Univers, square lock, 7 mm | 1 | FZ451N |
| Closure, Univers, cylinder lock, no. 405 | 1 | FZ452N |
| Closure, Univers, cylinder lock, no. 455 | 1 | FZ453N |
| Spare key, Univers, f. FZ452N closure | 1 | FZ454 |
| Closure, Univers, cylinder lock, no. E012 | 1 | FZ455N |
| Spare key, Univers, f. FZ453N closure | 1 | FZ456 |
| Spare key, Univers, f. FZ455N closure | 1 | FZ457 |
| Spare key, Univers, f. FZ597N closure | 1 | FZ596 |

Sealing cover with closure

| Description | Qty. | Cat. ref.. |
|--|------|---------------|
| Closure, Univers, square, w/ sealing cover, 8 mm | 1 | FZ821N |
| Closure, Univers, square, w/ sealing cover, 7 mm | 1 | FZ822N |
| Closure, Univers, slit, w/ sealing cover | 1 | FZ823N |
| Closure, cylinder, w/ sealing cover, no. 1242E | 1 | FZ824N |



FZ821N

Sealing cover, retrofitted

| Description | Qty. | Cat. ref.. |
|---------------------------------------|------|--------------|
| Sealing flap, Univers, for IP44 doors | 1 | FZ226 |



FZ226

T-handles**Features:**

- FZ531N lockable, locking number 1333

| Description | Qty. | Cat. ref.. |
|--------------------------------------|------|---------------|
| Closure, Univers, T-handle | 1 | FZ530N |
| Closure, univ, T-handle, lockable | 1 | FZ531N |
| Spare key, Univers, f. FZ531 + FZ533 | 1 | FZ539 |



FZ531N

L-handles**Features:**

- FZ533N lockable, locking number 1333

| Description | Qty. | Cat. ref.. |
|--------------------------------------|------|---------------|
| Closure, Univers, L-handle | 1 | FZ532N |
| Closure, univ, L-handle, lockable | 1 | FZ533N |
| Spare key, Univers, f. FZ531 + FZ533 | 1 | FZ539 |



FZ533N

Pivoted handle**Features:**

- FZ53...N: For 40 mm profile half cylinder
- FZ518.N: With 40 mm profile half cylinder, locking number 455
- IP54

| Description | Qty. | Cat. ref.. |
|--|------|---------------|
| Pivoted handle, Univers, with cylinder | 1 | FZ518N |
| Pivoted handle, univ, f. IP44/54 cabinet | 1 | FZ534N |
| Pivoted handle, IP44/54 cabinet, sealing | 1 | FZ535N |



FZ535N

Connecting rods**Features:**

- For installing closures with pivoted handles

| Description | Qty. | Cat. ref.. |
|--|------|---------------|
| Connecting rods, Univers, f. IP44/54 closure, 500 | 1 | FZ833N |
| Connecting rods, Univers, f. IP44/54 closure, 650 | 1 | FZ834N |
| Connecting rods, Univers, f. IP44/54 closure, 800 | 1 | FZ835N |
| Connecting rods, Univers, f. IP44/54 closure, 950 | 1 | FZ836N |
| Connecting rods, Univers, f. IP44/54 closure, 1100 | 1 | FZ837N |
| Connecting rods, Univers, f. IP44/54 closure, 1250 | 1 | FZ838N |
| Connecting rods, Univers, f. IP44/54 closure, 1400 | 1 | FZ839N |



FZ833N

Closures, spare parts, miscellaneous

| Description | Qty. | Cat. ref.. |
|--------------------------------|------|---------------|
| Berlin senat tumbler, Univers, | 1 | FZ548N |



FZ503N

Spare pin**Features:**

- As replacement for T-handle
- FZ504N: Locking number 1333

| Description | Qty. | Cat. ref.. |
|---|------|---------------|
| Closure, Univers, double-bit, 3 mm | 1 | FZ501N |
| Closure, Univers, triangular lock, 7 mm | 1 | FZ502N |
| Closure, Univers, square lock, 7 mm | 1 | FZ503N |
| Closure, Univers, cylinder w/ two keys | 1 | FZ504N |



FZ737B

Connection kits for two adjacent cabinets**Features:**

- For all ZB, FP cabinet widths
- For cabinet-cabinet connection
- Kit

| Description | Qty. | Cat. ref.. |
|---|------|---------------|
| Connection kit, Univers, horizontal, IP44 | 1 | FZ737B |



FZ441B

Connection kits for two cabinets above one another**Features:**

- For IP44 cabinets above one another
- For cabinet on IP44 connecting base

| Description | Qty. | Cat. ref.. |
|---|------|---------------|
| Connection kit, Univers, vertical, 1 panel | 1 | FZ441B |
| Connection kit, Univers, vertical, 1 panel, QS | 1 | FZ441S |
| Connection kit, Univers, vertical, 2 panels | 1 | FZ442B |
| Connection kit, Univers, vertical, 2 panels, QS | 1 | FZ442S |
| Connection kit, Univers, vertical, 3 panels | 1 | FZ443B |
| Connection kit, Univers, vertical, 3 panels, QS | 1 | FZ443S |
| Connection kit, Univers, vertical, 4 panels | 1 | FZ444B |
| Connection kit, Univers, vertical, 4 panels, QS | 1 | FZ444S |
| Connection kit, Univers, vertical, 5 panels | 1 | FZ445B |



FZ738

Connection kits for cabinets on bases**Features:**

- For all IP44 cabinet widths on 100/200 mm bases (integrated in base)
- For cabinet on connecting base cabinet

| Description | Qty. | Cat. ref.. |
|---------------------------------------|------|--------------|
| Connection kit, uni., f. IP44 cabinet | 1 | FZ738 |



FZ714

Connection kits for two bases above one another**Features:**

- For all widths
- Two 100/200 mm bases arranged vertically

| Description | Qty. | Cat. ref.. |
|-----------------------------------|------|--------------|
| Connection kit, Univers, f. bases | 1 | FZ714 |

Spare doors, left

| Description | Qty. | Cat. ref.. |
|--|------|---------------|
| Door, left, f. cabinet H: 950 x W: 800 mm | 1 | FZ015N |
| Door, left, f. cabinet H: 1100 x W: 800 mm | 1 | FZ023N |
| Door, left, f. cabinet H: 1250 x W: 800 mm | 1 | FZ028N |
| Door, left, f. cabinet H: 1400 x W: 800 mm | 1 | FZ033N |



FZ015N

Spare doors, right, with rod lock

| Description | Qty. | Cat. ref.. |
|---|------|---------------|
| Door, right, f. cabinet H: 950 x W: 300 mm | 1 | FZ013N |
| Door, right, f. cabinet H: 1100 x W: 300 mm | 1 | FZ021N |
| Door, right, f. cabinet H: 1250 x W: 300 mm | 1 | FZ026N |
| Door, right, f. cabinet H: 1400 x W: 300 mm | 1 | FZ031N |



FZ013N

Special doors, right, with rod lock, for narrow areas, IP44

| Description | Qty. | Cat. ref.. |
|---|------|---------------|
| Door, right, f. cabinet H: 950 x W: 300 mm | 1 | FZ191N |
| Door, right, f. cabinet H: 1100 x W: 300 mm | 1 | FZ192N |
| Door, right, f. cabinet H: 1250 x W: 300 mm | 1 | FZ193N |
| Door, right, f. cabinet H: 1400 x W: 300 mm | 1 | FZ194N |



FZ191N

Transparent doors, width 550 mm**Features:**

- For replacement
- FZ164N: Two doors (right + left)
- Max. IP40, IK07

| Description | Number of panels | Qty. | Cat. ref.. |
|--|------------------|------|---------------|
| Door, right, f. cabinet H: 1100 x W: 550 mm | 2 | 1 | FZ102N |
| Door, right, f. cabinet H: 650 x W: 550 mm | 2 | 1 | FZ104N |
| Door, right, f. cabinet H: 800 x W: 550 mm | 2 | 1 | FZ106N |
| Door, right, f. cabinet H: 950 x W: 550 mm | 2 | 1 | FZ110N |
| Doors, ri., le., f. cabinet H: 1100 x W: 1050 mm | 4 | 1 | FZ164N |



FZ106N



UN03A

Mounting rails

Features:

- 1 panel
- 1 set = 2 rails

| Description | Qty. | Cat. ref.. |
|--|------|------------|
| 2 mounting rails, UniversN, length 300 mm | 1 | UN02A |
| 2 mounting rails, UniversN, length 450 mm | 1 | UN03A |
| 2 mounting rails, UniversN, length 600 mm | 1 | UN04A |
| 2 mounting rails, UniversN, length 750 mm | 1 | UN05A |
| 2 mounting rails, UniversN, length 900 mm | 1 | UN06A |
| 2 mounting rails, UniversN, length 1050 mm | 1 | UN07A |
| 2 mounting rails, UniversN, length 1200 mm | 1 | UN08A |
| 2 mounting rails, UniversN, length 1350 mm | 1 | UN09A |
| 2 mounting rails, UniversN, length 1500 mm | 1 | UN10A |
| 2 mounting rails, UniversN, length 1650 mm | 1 | UN11A |



UT12L

Connectors

Features:

- For connecting two mounting rails

| Description | Qty. | Cat. ref.. |
|---|------|------------|
| Mounting rail connector, UniversN (x 2) | 1 | UT12L |



UT90G

Mounting rail bracket

Features:

- UT90G: For attaching mounting rails at different levels (order two per mounting rail)
- UT90J: For attaching two mounting rails at the same level

| Description | Qty. | Cat. ref.. |
|--|------|------------|
| Mounting rail attachment, UniversN, single | 20 | UT90G |
| Mounting rail attachment, UniversN, double | 10 | UT90J |



UT12PN

Crossbar

Features:

- To intersect the vertical mounting rails inside the cabinet

| Description | Width | Qty. | Cat. ref.. |
|------------------------------|--------|------|------------|
| Crossbar, UniversN, 2 panels | 500 mm | 1 | UT12PN |
| Crossbar, UniversN, 3 panels | 750 mm | 1 | UT12QN |



UT90F

Coupling plates

UT90F features:

- For supporting two vertical, cut-to-length mounting rails
- Mounted on the retaining rails or U-rails

UT90L/R features:

- For using modules with support plates

| Description | Qty. | Cat. ref.. |
|-----------------------------|------|------------|
| Coupling plate, UniversN | 1 | UT90F |
| Coupling plate, half, left | 1 | UT90L |
| Coupling plate, half, right | 1 | UT90R |

Protective conductor connection**Features:**

- 20 x 5 mm copper bar, screws for PE fastening between mounting rails using cable lugs
- UZ010 connection points: 3 x M6, 2 x M8
- UZ020 connection points: 10 x M6, 3 x M8



UZ010

Note:

Observe protective conductor cross-sections (VDE 0660 T500)

| Description | Qty. | Cat. ref.. |
|---|------|--------------|
| Earthing bar, UniversN, Cu 20 x 5, 1 panel | 1 | UZ010 |
| Earthing bar, UniversN, Cu 20 x 5, 2 panels | 1 | UZ020 |

Protective conductor connection with M8 and M6 cable lugs

| Description | Qty. | Cat. ref.. |
|---|------|--------------|
| Earthing conductor, Univers, 25 mm ² , 300 mm long | 1 | UZ009 |



UZ009

Earthing conductor with M8 cable lug and ferrule

| Description | Qty. | Cat. ref.. |
|---|------|--------------|
| Earthing conductor, UniversN, 25 mm ² , L = 550 mm | 1 | UZ012 |



UZ012

Cable clamping rail**Features:**

- C-profile 25 x 10 mm
- Slot dimension: 11 mm
- For installation in the Univers Z-cabinet head/base section



FZ850S

A4 diagram pocket fixed with adhesive

Material: Plastic



FZ794

| Description | Qty. | Cat. ref.. |
|--|------|--------------|
| Diagram pocket, Univers, transparent, A4 | 10 | FZ794 |

A4 diagram pocket, to screw in**Features:**

- Only for doors from 550 mm width



FZ707

| Description | Qty. | Cat. ref.. |
|--|------|--------------|
| Diagram pocket, sheet steel, Univers, A4 | 1 | FZ707 |

Paint pen/can**Features:**

- For touching up paint damage
- Safety data sheets on request (EU regulations 1272)



FZ791N

| Description | Qty. | Cat. ref.. |
|--|------|---------------|
| Paint pen, 9 ml, colour RAL 9010 | 1 | FZ791N |
| Paint spray can, 150 ml, colour RAL 9010 | 1 | FZ792N |



VZ404

Cleaning agent

Features:

- For plastic surfaces in Qty.mp spray bottles

| Description | Qty. | Cat. ref.. |
|------------------------------------|------|--------------|
| Cleaning agent f. plastic surfaces | 1 | VZ404 |



FZ890N

Single mounting rail for IP44 cabinets

Length: 2000 mm

Features:

- For simMod wall-mounting of cabinet
- With four hanging clips
- Easy linking, ideal for assembled distribution boards

| Description | Qty. | Cat. ref.. |
|---------------------------------|------|---------------|
| Mounting rail, for IP44 cabinet | 1 | FZ890N |



FZ799N

Hanging clip

Features:

- 1 set = 4 clips

| Description | Qty. | Cat. ref.. |
|--------------------------------------|------|---------------|
| Hanging clip f. FZ890N mounting rail | 1 | FZ799N |



FZ803B

Suspension clip

Features:

- As wall and flush-mounting installation aid
- 1 set = 4 clips

| Description | Qty. | Cat. ref.. |
|---------------------------------|------|---------------|
| Mounting clips for IP44 cabinet | 1 | FZ803B |



FZ401

Sealing plugs

Features:

- For sealing open cable entries (top)
- 1 set, sorted according to size

| Description | Qty. | Cat. ref.. |
|-----------------------------------|------|--------------|
| Sealing plug, Univers, repair set | 1 | FZ401 |



FZ428

Flange plate

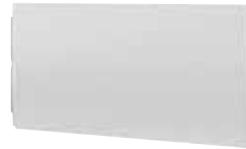
Features:

- For rear cable entry

| Description | Qty. | Cat. ref.. |
|-----------------------------------|------|--------------|
| Cable entry for IP44/IP54 cabinet | 1 | FZ428 |

Spare doors left for IP44 cabinets

| Description | Qty. | Cat. ref.. |
|--|------|---------------|
| Door, left, f.cabinet H: 500 x W: 800 mm | 1 | FZ003N |
| Door, left, f.cabinet H: 500 x W: 1050 mm | 1 | FZ004N |
| Door, left, f.cabinet H: 650 x W: 800 mm | 1 | FZ007N |
| Door, left, f.cabinet H: 650 x W: 1050 mm | 1 | FZ008N |
| Door, left, f.cabinet H: 800 x W: 800 mm | 1 | FZ011N |
| Door, left, f.cabinet H: 800 x W: 1050 mm | 1 | FZ012N |
| Door, left, f.cabinet H: 950 x W: 800 mm | 1 | FZ015N |
| Door, left, f.cabinet H: 950 x W: 1050 mm | 1 | FZ016N |
| Door, left, f.cabinet H: 500 x W: 1300 mm | 1 | FZ017N |
| Door, left, f.cabinet H: 650 x W: 1300 mm | 1 | FZ018N |
| Door, left, f.cabinet H: 800 x W: 1300 mm | 1 | FZ019N |
| Door, left, f.cabinet H: 950 x W: 1300 mm | 1 | FZ020N |
| Door, left, f.cabinet H: 1100 x W: 800 mm | 1 | FZ023N |
| Door, left, f.cabinet H: 1100 x W: 1050 mm | 1 | FZ024N |
| Door, left, f.cabinet H: 1100 x W: 1300 mm | 1 | FZ025N |
| Door, left, f.cabinet H: 1250 x W: 800 mm | 1 | FZ028N |
| Door, left, f.cabinet H: 1250 x W: 1050 mm | 1 | FZ029N |
| Door, left, f.cabinet H: 1250 x W: 1300 mm | 1 | FZ030N |
| Door, left, f.cabinet H: 1400 x W: 800 mm | 1 | FZ033N |
| Door, left, f.cabinet H: 1400 x W: 1050 mm | 1 | FZ034N |
| Door, left, f.cabinet H: 1400 x W: 1300 mm | 1 | FZ035N |
| Door, left, f.cabinet H: 1550 x W: 800 mm | 1 | FZ201N |
| Door, left, f.cabinet H: 1550 x W: 1050 mm | 1 | FZ202N |
| Door, left, f.cabinet H: 1700 x W: 800 mm | 1 | FZ205N |
| Door, left, f.cabinet H: 1700 x W: 1050 mm | 1 | FZ206N |
| Door, left, f.cabinet H: 1550 x W: 800 mm | 1 | FZ226N |
| Door, left, f.cabinet H: 1700 x W: 800 mm | 1 | FZ227N |



FZ003N

Spare doors right with rod lock, hinged handle, for IP44 cabinets

| Description | Qty. | Cat. ref.. |
|---|------|---------------|
| Door, right, f. cabinet H: 500 x W: 300 mm | 1 | FZ001N |
| Door, right, f. cabinet H: 500 x W: 550 mm | 1 | FZ002N |
| Door, right, f. cabinet H: 650 x W: 300 mm | 1 | FZ005N |
| Door, right, f. cabinet H: 650 x W: 550 mm | 1 | FZ006N |
| Door, right, f. cabinet H: 800 x W: 300 mm | 1 | FZ009N |
| Door, right, f. cabinet H: 800 x W: 550 mm | 1 | FZ010N |
| Door, right, f. cabinet H: 950 x W: 300 mm | 1 | FZ013N |
| Door, right, f. cabinet H: 950 x W: 550 mm | 1 | FZ014N |
| Door, right, f. cabinet H: 1100 x W: 300 mm | 1 | FZ021N |
| Door, right, f. cabinet H: 1100 x W: 550 mm | 1 | FZ022N |
| Door, right, f. cabinet H: 1250 x W: 300 mm | 1 | FZ026N |
| Door, right, f. cabinet H: 1250 x W: 550 mm | 1 | FZ027N |
| Door, right, f. cabinet H: 1400 x W: 300 mm | 1 | FZ031N |
| Door, right, f. cabinet H: 1400 x W: 550 mm | 1 | FZ032N |
| Door, right, f. cabinet H: 1550 x W: 300 mm | 1 | FZ199N |
| Door, right, f. cabinet H: 1550 x W: 550 mm | 1 | FZ200N |
| Door, right, f. cabinet H: 1700 x W: 300 mm | 1 | FZ203N |
| Door, right, f. cabinet H: 1700 x W: 550 mm | 1 | FZ204N |



FZ001N



Entry flange to cut out, for sealed area

Features:

- Cable entry flange for top and bottom

FZ425

| Description | Qty. | Cat. ref.. |
|---------------------------------|------|--------------|
| Cable entry flange, sealed area | 1 | FZ425 |



Pass-through flange

Features:

- Cable entry flange for top and bottom

FZ426

| Description | Qty. | Cat. ref.. |
|--------------------------------|------|--------------|
| Cable entry flange, not sealed | 1 | FZ426 |



Side closing plate

Features:

- With 3 x M50, pre-stamped

FZ427L

| Description | Qty. | Cat. ref.. |
|----------------------------------|------|---------------|
| Closing plate, left, side, IP44 | 1 | FZ427L |
| Closing plate, right, side, IP44 | 1 | FZ427R |



Entry flange to cut out

Features:

- FZ460N: With 4 x M16, 2 x M20, 2 x M16/25, 1 x M25/40/50 pre-stamped
- FZ466N: With 12 x M16, 4 x M20 pre-stamped
- FZ468N: Closed

FZ460N

| Description | Qty. | Cat. ref.. |
|-----------------------------------|------|---------------|
| IP4 cable entry flanges, Univers | 1 | FZ460N |
| IP44 cable entry flanges, Univers | 1 | FZ466N |
| IP4 cable entry flanges, Univers | 1 | FZ468N |



Threaded joint

Features:

- For M50 cable entry
- For lateral cable entries in FZ427L, FZ427R closing plates

FZ850M

| Description | Qty. | Cat. ref.. |
|--|------|---------------|
| Threaded cable joint, M50, with lock nut | 10 | FZ850M |



Cable entry for top and bottom, metal

Features:

- For earthed cabinets

FZ424N

| Description | Qty. | Cat. ref.. |
|-------------------------------|------|---------------|
| Cable entry, Univers, f. IP44 | 1 | FZ424N |



Corner connector

Features:

- For connecting busbars between two cabinets when installing on a corner
- Only for PC II

ZM75S

| Description | Qty. | Cat. ref.. |
|--|------|--------------|
| S-bar corner connector, Univers, 5 poles, 35 mm ² | 1 | ZM75S |
| S-bar corner connector, Univers, 5 poles, 70 mm ² | 1 | ZM85S |

Cable clamp**Features:**

- Up to max. 50 mm cable diameter



| Description | Qty. | Cat. ref.. | |
|---------------------------------|------|--------------|-------|
| Cable clamp for cable term. box | 1 | FZ360 | FZ360 |

Flanges**Features:**

- For IP44 cabinet



| Description | Qty. | Cat. ref.. | |
|---|------|---------------|-------|
| Flange plate, Univers, for cable term. box | 1 | FZ361 | FZ361 |
| Flange plate, Univers, for cable term. box | 1 | FZ362 | |
| Collar flange, Univers | 1 | FZ363N | |
| Connecting flange, Univers, f. cable connect. | 1 | FZ364 | |
| Cable entry, Univers, f. U84LU | 1 | FZ420 | |

Tunnel slide**Features:**

- FZ365N: For IP44 cabinets and connecting base
- For insulated routing of cables and busbars



| Description | Qty. | Cat. ref.. | |
|--------------------------------------|------|---------------|--------|
| Tunnel slide, uni., horizontal, IP44 | 1 | FZ365N | FZ365N |

Grommets

| Description | Qty. | Cat. ref.. | |
|-----------------------------------|------|--------------|--|
| Cable entry grommet, Univers, M20 | 1 | FZ366 | |
| Cable entry grommet, Univers, M25 | 1 | FZ367 | |
| Cable entry grommet, Univers, M32 | 1 | FZ368 | |
| Cable entry grommet, Univers, M40 | 1 | FZ369 | |
| Cable entry grommet, Univers, M50 | 1 | FZ370 | |
| Cable entry grommet, Univers, M60 | 1 | FZ371 | |
| Cable entry grommet, Univers, M80 | 1 | FZ372 | |

FZ366

Support plates**Features:**

- For installation in U84LS, U84LU and U84LE connection boxes (FZ374: Up to 4 x KR24P (240 mm²), 5 poles up to KR95P (95 mm²))
- FZ374: With DIN rail for feed terminals

| Description | Qty. | Cat. ref.. | |
|--|------|--------------|-------|
| Support plate, Univers, f. cable term. box | 1 | FZ373 | FZ373 |
| Support plate, Univers, f. cable term. box | 1 | FZ374 | |

FZ373



UZ01B4

DIN rail

Features:

- For fastening on the UN...A steel mounting rail

| Description | Qty. | Cat. ref.. |
|---|------|---------------|
| DIN rail, UniversN, 1 panel | 1 | UZ01B4 |
| DIN rail, H x W x D 35 x 248 x 7.5 mm, metal, | 1 | U842B |



FZ375

Transparent plate with electric flash

Features:

- For mounting in connection box as inner contact protection

| Description | Qty. | Cat. ref.. |
|--|------|--------------|
| Transparent panel, Univers, f. cable term. box | 1 | FZ375 |



FZ380

Adapter flange with edge protector

Features:

- For connecting cabinets with old (small) busbar bushings to new cabinets with large busbar bushings in IP43 cabinets

| Description | Qty. | Cat. ref.. |
|--|------|--------------|
| Adapter flange, cabinet 205 + 218 mm old/new | 1 | FZ380 |



H245ES

Connection kits

| Description | Qty. | Cat. ref.. |
|---|------|---------------|
| Connection kit, Univers Z, 5 poles, for U84LU | 1 | H245ES |
| Connection kit, Univers Z, 5 poles, for U84LU | 1 | H245EW |
| Connection kit, Univers Z, 5 poles, for U84LU | 1 | H255ES |
| Connection kit, Univers Z, 5 poles, for U84LU | 1 | H255EW |



KR15P

Terminals

Features:

- Single pole
- Loose
- 30 Nm tightening torque

| Description | Qty. | Cat. ref.. |
|--|------|--------------|
| Series terminal 35 – 150 mm ² | 1 | KR15P |
| Series terminal 25 – 95 mm ² | 1 | KR95P |

Busbar connector

Features:

- Tightening torque: 5 Nm



UM05A

| Description | Qty. | Cat. ref.. |
|--|------|--------------|
| Busbar conn., 40 mm, UniN, 12 x 5 mm, 5 poles | 1 | UM05A |
| Busbar conn., 40 mm, UniN, 12 x 10 mm, 5 poles | 1 | UM05B |
| Busbar conn., 60 mm, UniN, 20 x 5/10 mm, 4 poles | 1 | UM05C |
| Busbar conn., 60 mm, UniN, 20 x 5/10 mm, 1 pole | 1 | UM05D |
| Busbar conn., 60 mm, UniN, 12 x 5 mm, 4 poles | 1 | UM05G |
| Busbar conn., 60 mm, UniN, 12 x 10 mm, 4 poles | 1 | UM05H |
| Busbar conn., 60 mm, UniN, 12 x 5 mm, 1 pole | 1 | UM05K |
| Busbar conn., 60 mm, UniN, 12 x 10 mm, 1 pole | 1 | UM05L |

Commercial
Distribution

Busbars, 12 x 5 mm, notched, horizontal

Features:

- 12 x 5 mm, notched for horizontal use
- Surface tarnish-resistant
- 250 A: 1 x 12 x 5 mm²
- 355 A: 2 x 12 x 5 mm²
- For 40 mm and 60 mm busbar supports as well as PE/N supports



ZM11C

| Description | Length | Rated current | Qty. | Cat. ref.. |
|---|---------|---------------|------|--------------|
| Busbar, Univers Z, CU 12 x 5 mm, 1 panel | 250 mm | 250 A | 20 | ZM11C |
| Busbar, Univers Z, CU 12 x 5 mm, 2 panels | 500 mm | 250 A | 20 | ZM12C |
| Busbar, Univers Z, CU 12 x 5 mm, 3 panels | 750 mm | 250 A | 20 | ZM13C |
| Busbar, Univers Z, CU 12 x 5 mm, 4 panels | 1000 mm | 250 A | 20 | ZM14C |
| Busbar, Univers Z, CU 12 x 5 mm, 5 panels | 1250 mm | 250 A | 20 | ZM15C |

Busbars, 20 x 5 mm, horizontal

| Description | Length | Rated current | Qty. | Cat. ref.. |
|--------------------------------------|-----------|---------------|------|--------------|
| CU bar, Univers, 20 x 5 mm, 1 panel | 246.5 mm | 315 A | 10 | UM21A |
| CU bar, Univers, 20 x 5 mm, 2 panels | 496.5 mm | 315 A | 10 | UM22A |
| CU bar, Univers, 20 x 5 mm, 3 panels | 746.5 mm | 315 A | 10 | UM23A |
| CU bar, Univers, 20 x 5 mm, 4 panels | 996.5 mm | 315 A | 10 | UM24A |
| CU bar, Univers, 20 x 5 mm, 5 panels | 1246.5 mm | 315 A | 10 | UM25A |
| CU bar, Univers, 20 x 5 mm, 6 panels | 1496.5 mm | 315 A | 10 | UM26A |



UM21A

Busbars, 20 x 10 mm, horizontal

| Description | Length | Rated current | Qty. | Cat. ref.. |
|--|-----------|---------------|------|--------------|
| CU bar, Univers, 20 x 10 x 246 mm, 1 panel | 246.5 mm | 500 A | 10 | UM21B |
| CU bar, Univers, 20 x 10 mm, 2 panels | 496.5 mm | 500 A | 10 | UM22B |
| CU bar, Univers, 20 x 10 mm, 3 panels | 746.5 mm | 500 A | 10 | UM23B |
| CU bar, Univers, 20 x 10 mm, 4 panels | 996.5 mm | 500 A | 10 | UM24B |
| CU bar, Univers, 20 x 10 x 1246 mm, 5 panels | 1246.5 mm | 500 A | 5 | UM25B |
| CU bar, Univers, 20 x 10 mm, 6 panels | 1496.5 mm | 500 A | 5 | UM26B |



UM21B

Busbars, blue laminated strip

| Description | Qty. | Cat. ref.. |
|---|------|-------------|
| CU bar, blue, laminated, L x W 180 x 9 mm | 1 | N75B |



N75B



FR32E

Protection class I, cabinet height 500 mm

| Height | Width | Depth | Degree of protection | Qty. | Cat. ref.. |
|--------|---------|--------|----------------------|------|--------------|
| 500 mm | 300 mm | 275 mm | IP55 | 1 | FR31E |
| 500 mm | 550 mm | 275 mm | IP55 | 1 | FR32E |
| 500 mm | 800 mm | 275 mm | IP55 | 1 | FR33E |
| 500 mm | 1050 mm | 275 mm | IP55 | 1 | FR34E |
| 500 mm | 1300 mm | 275 mm | IP55 | 1 | FR35E |



FR42E

Protection class I, cabinet height 650 mm

| Height | Width | Depth | Degree of protection | Qty. | Cat. ref.. |
|--------|---------|--------|----------------------|------|--------------|
| 650 mm | 300 mm | 275 mm | IP55 | 1 | FR41E |
| 650 mm | 550 mm | 275 mm | IP55 | 1 | FR42E |
| 650 mm | 800 mm | 275 mm | IP55 | 1 | FR43E |
| 650 mm | 1050 mm | 275 mm | IP55 | 1 | FR44E |
| 650 mm | 1300 mm | 275 mm | IP55 | 1 | FR45E |



FR52E

Protection class I, cabinet height 800 mm

| Height | Width | Depth | Degree of protection | Qty. | Cat. ref.. |
|--------|---------|--------|----------------------|------|--------------|
| 800 mm | 300 mm | 275 mm | IP55 | 1 | FR51E |
| 800 mm | 550 mm | 275 mm | IP55 | 1 | FR52E |
| 800 mm | 800 mm | 275 mm | IP55 | 1 | FR53E |
| 800 mm | 1050 mm | 275 mm | IP55 | 1 | FR54E |
| 800 mm | 1300 mm | 275 mm | IP55 | 1 | FR55E |



FR62E

Protection class I, cabinet height 950 mm

| Height | Width | Depth | Degree of protection | Qty. | Cat. ref.. |
|--------|---------|--------|----------------------|------|--------------|
| 950 mm | 300 mm | 275 mm | IP55 | 1 | FR61E |
| 950 mm | 550 mm | 275 mm | IP55 | 1 | FR62E |
| 950 mm | 800 mm | 275 mm | IP55 | 1 | FR63E |
| 950 mm | 1050 mm | 275 mm | IP55 | 1 | FR64E |
| 950 mm | 1300 mm | 275 mm | IP55 | 1 | FR65E |

Protection class I, cabinet height 1100 mm

| Height | Width | Depth | Degree of protection Qty. | Cat. ref.. |
|---------|---------|--------|---------------------------|--------------|
| 1100 mm | 300 mm | 275 mm | IP55 1 | FR71E |
| 1100 mm | 550 mm | 275 mm | IP55 1 | FR72E |
| 1100 mm | 800 mm | 275 mm | IP55 1 | FR73E |
| 1100 mm | 1050 mm | 275 mm | IP55 1 | FR74E |
| 1100 mm | 1300 mm | 275 mm | IP55 1 | FR75E |



FR72E

Protection class I, cabinet height 1250 mm

| Height | Width | Depth | Degree of protection Qty. | Cat. ref.. |
|---------|---------|--------|---------------------------|--------------|
| 1250 mm | 300 mm | 275 mm | IP55 1 | FR81E |
| 1250 mm | 550 mm | 275 mm | IP55 1 | FR82E |
| 1250 mm | 800 mm | 275 mm | IP55 1 | FR83E |
| 1250 mm | 1050 mm | 275 mm | IP55 1 | FR84E |
| 1250 mm | 1300 mm | 275 mm | IP55 1 | FR85E |



FR82E

Protection class I, cabinet height 1400 mm

| Height | Width | Depth | Degree of protection Qty. | Cat. ref.. |
|---------|---------|--------|---------------------------|--------------|
| 1400 mm | 300 mm | 275 mm | IP55 1 | FR91E |
| 1400 mm | 550 mm | 275 mm | IP55 1 | FR92E |
| 1400 mm | 800 mm | 275 mm | IP55 1 | FR93E |
| 1400 mm | 1050 mm | 275 mm | IP55 1 | FR94E |
| 1400 mm | 1300 mm | 275 mm | IP55 1 | FR95E |



FR92E

Protection class I, cabinet height 1550 mm

| Height | Width | Depth | Degree of protection Qty. | Cat. ref.. |
|---------|---------|--------|---------------------------|--------------|
| 1550 mm | 300 mm | 275 mm | IP55 1 | FR01E |
| 1550 mm | 550 mm | 275 mm | IP55 1 | FR02E |
| 1550 mm | 800 mm | 275 mm | IP55 1 | FR03E |
| 1550 mm | 1050 mm | 275 mm | IP55 1 | FR04E |
| 1550 mm | 1300 mm | 275 mm | IP55 1 | FR05E |



FR02E

- Protection class I
- Depth 400 mm for devices up to 800 A
- Indoor installation
- Version with three-point rod lock
- Colour: RAL 7035 (Light grey)
- Standards: DIN VDE 0660 part 600-1, -2, -3; EN 61439-1, -2, -3



Protection class I, cabinet height 1400 mm

| Height | Width | Depth | Degree of protection Qty. | Cat. ref.. |
|---------|---------|--------|---------------------------|--------------|
| 1400 mm | 550 mm | 400 mm | IP55 1 | FR92G |
| 1400 mm | 800 mm | 400 mm | IP55 1 | FR93G |
| 1400 mm | 1050 mm | 400 mm | IP55 1 | FR94G |

FR92G

Cable duct for wall-mounting

RAL colour number: 7035

Features:

- Suitable for all cabinets with installation depths 275 and 400 mm
- Duct depth 150 mm or 180 mm by rotating 90°



FZ353

| Description | Qty. | Cat. ref.. |
|--------------------------------|------|--------------|
| Cable duct, 1 panel, RAL 7035 | 1 | FZ351 |
| Cable duct, 2 panels, RAL 7035 | 1 | FZ352 |
| Cable duct, 3 panels, RAL 7035 | 1 | FZ353 |
| Cable duct, 4 panels, RAL 7035 | 1 | FZ354 |
| Cable duct, 5 panels, RAL 7035 | 1 | FZ355 |

T-handles

Features:

- FZ531 lockable, locking number 1333



FZ530

| Description | Qty. | Cat. ref.. |
|--------------------------------------|------|--------------|
| Closure, Univers, T-handle | 1 | FZ530 |
| Closure, Univers, T-handle | 1 | FZ531 |
| Spare key, Univers, f. FZ531 + FZ533 | 1 | FZ539 |

L-handles

Features:

- FZ531 lockable, locking number 1333



FZ532

| Description | Qty. | Cat. ref.. |
|--------------------------------------|------|--------------|
| Closure, Univers, L-handle | 1 | FZ532 |
| Closure, Univers, L-handle | 1 | FZ533 |
| Spare key, Univers, f. FZ531 + FZ533 | 1 | FZ539 |

Pivoted handle

Features:

- 40 mm profile half cylinder installable
- Including patent fastener



FZ537

| Description | Qty. | Cat. ref.. |
|----------------------------------|------|--------------|
| Pivoted lever for FR/FG cabinets | 1 | FZ537 |

Profile half cylinder for FZ537

| Description | Qty. | Cat. ref.. |
|---------------------------------|------|-------------------|
| 1242E profile cylinder | 1 | FZ506 |
| 405 profile cylinder | 1 | FZ519 |
| 455 profile cylinder | 1 | FZ520 |
| Profile cylinder 8mm | 1 | MES-PHZ4K8 |
| Profile cylinder 7mm | 1 | MES-PHZ3K7 |
| Profile cylinder double-bit 3mm | 1 | MES-PHZDB3 |



FZ506

Connection kit for two adjacent cabinets, depth 275 and 400 mm

| Description | Qty. | Cat. ref.. |
|---------------------------------|------|---------------|
| Connector side, 275 mm cabinets | 1 | FZ721A |
| Connector side, 400 mm cabinets | 1 | FZ721B |



FZ721



FZ775

Connection kits for two cabinets above one another or cabinet on connecting base, depth 275 and 400 mm

| Description | Qty. | Cat. ref.. |
|-------------------------------|------|------------|
| Connector, vertical, 1 panel | 1 | FZ771A |
| Connector, vertical, 2 panels | 1 | FZ772A |
| Connector, vertical, 3 panels | 1 | FZ773A |
| Connector, vertical, 4 panels | 1 | FZ774A |
| Connector, vertical, 5 panels | 1 | FZ775A |
| Connector, vertical, 6 panels | 1 | FZ776A |



FZ714

Connection kits for two bases above one another**Features:**

- For all widths
- Two 100/200 mm bases arranged vertically

| Description | Qty. | Cat. ref.. |
|-----------------------------------|------|------------|
| Connection kit, Univers, f. bases | 1 | FZ714 |



UN03A

Mounting rails**Features:**

- 1 panel
- 1 set = 2 rails

| Description | Qty. | Cat. ref.. |
|--|------|------------|
| 2 mounting rails, UniversN, length 300 mm | 1 | UN02A |
| 2 mounting rails, UniversN, length 450 mm | 1 | UN03A |
| 2 mounting rails, UniversN, length 600 mm | 1 | UN04A |
| 2 mounting rails, UniversN, length 750 mm | 1 | UN05A |
| 2 mounting rails, UniversN, length 900 mm | 1 | UN06A |
| 2 mounting rails, UniversN, length 1050 mm | 1 | UN07A |
| 2 mounting rails, UniversN, length 1200 mm | 1 | UN08A |
| 2 mounting rails, UniversN, length 1350 mm | 1 | UN09A |
| 2 mounting rails, UniversN, length 1500 mm | 1 | UN10A |



UT12L

Connectors**Features:**

- For connecting two mounting rails

| Description | Qty. | Cat. ref.. |
|---|------|------------|
| Mounting rail connector, UniversN (x 2) | 1 | UT12L |



UT90G

Mounting rail bracket**Features:**

- UT90G: For attaching mounting rails at different levels (order two per mounting rail)
- UT90J: For attaching two mounting rails at the same level

| Description | Qty. | Cat. ref.. |
|--|------|------------|
| Mounting rail attachment, UniversN, single | 20 | UT90G |
| Mounting rail attachment, UniversN, double | 10 | UT90J |



UT12PN

Crossbar**Features:**

- To intersect the vertical mounting rails inside the cabinet

| Description | Width | Qty. | Cat. ref.. |
|------------------------------|--------|------|------------|
| Crossbar, UniversN, 2 panels | 500 mm | 1 | UT12PN |
| Crossbar, UniversN, 3 panels | 750 mm | 1 | UT12QN |

Lowering kit**Features:**

- For lowering the crossbar, retaining rail or U-rail, always order when using in combination with meter support plates or support plates

| Description | Qty. | Cat. ref.. |
|---|------|---------------|
| Lowering angle bracket, UniversN, 25 mm (x 2) | 1 | UZ25A |
| Low. angle bracket, uni N, 25 mm, f. coupl. pl. (x 2) | 1 | UZ25AK |
| Lowering angle bracket 50 mm (x 2) | 1 | UZ50A |
| Lowering angle bracket 50 mm,for coupling plate (x 2) | 1 | UZ50AK |



UZ25A

Coupling plates**UT90F features:**

- For supporting two vertical, cut-to-length mounting rails
- Mounted on the retaining rails or U-rails



UT90F

UT90L/R features:

- For using modules with support plates

| Description | Qty. | Cat. ref.. |
|-----------------------------|------|--------------|
| Coupling plate, UniversN | 1 | UT90F |
| Coupling plate, half, left | 1 | UT90L |
| Coupling plate, half, right | 1 | UT90R |

Protective conductor connection**Features:**

- 20 x 5 mm copper bar with screws for PE fastening between mounting rails
- UZ010 connection points: 3 x M6, 2 x M8
- UZ020 connection points: 10 x M6, 3 x M8



UZ010

Note:

Observe protective conductor cross-sections (VDE 0660 T500)

| Description | Qty. | Cat. ref.. |
|---|------|--------------|
| Earthing bar, UniversN, Cu 20 x 5, 1 panel | 1 | UZ010 |
| Earthing bar, UniversN, Cu 20 x 5, 2 panels | 1 | UZ020 |

Earthing conductor with M8 and M6 cable lugs

UZ009

Features:

- For earthing housings and mounting rails
- Uninsulated, 25 mm² with cable lug
- M8 (earthing stud of the distribution board) and M6 (connection e.g. to UZ010)
- Length 300 mm

Note:

Observe protective conductor cross-sections (VDE 0660 T500)

| Description | Qty. | Cat. ref.. |
|---|------|--------------|
| Earthing conductor, Univers, 25 mm ² , 300 mm long | 1 | UZ009 |

Earthing conductor with M8 cable lug and ferrule

UZ012

Features:

- For earthing housings and mounting rails
- Uninsulated, 25 mm² with cable lug
- M8 (earthing stud of the cabinet) and ferrule
- Length 560 mm (connection e.g. to UZ010/UZ20 or busbars)

Note:

Observe protective conductor cross-sections (VDE 0660 T500)

| Description | Qty. | Cat. ref.. |
|---|------|--------------|
| Earthing conductor, UniversN, 25 mm ² , L = 550 mm | 1 | UZ012 |



FZ800A

Bracket for retaining rail**Features:**

- For mounting the horizontal retaining rail

| Description | Qty. | Cat. ref.. |
|--|------|------------|
| Retaining rail bracket, 275, PC I, FR | 1 | FZ800A |
| Retaining rail bracket, 275, PC II, FR | 1 | FZ800B |
| Retaining rail bracket, 400, PC I, FR | 1 | FZ800C |
| Retaining rail bracket, 400, PC II, FR | 1 | FZ800D |
| Retaining rail bracket, 275, FS | 1 | FZ800E |
| Retaining rail bracket, 400, FS | 1 | FZ800F |



UT21A

Retaining rail, horizontal**Features:**

- Order suitable FZ800A – FZ800E bracket as well

| Description | Qty. | Cat. ref.. |
|------------------------|------|------------|
| Retaining rail 250 mm | 1 | UT21A |
| Retaining rail 500 mm | 1 | UT21B |
| Retaining rail 750 mm | 1 | UT21C |
| Retaining rail 1000 mm | 1 | UT21D |
| Retaining rail 1250 mm | 1 | UT21E |
| Retaining rail 1500 mm | 1 | UT21F |



FZ794

A4 diagram pocket fixed with adhesive

Material: Plastic

Features:

- FZ818, for bolting and bonding

| Description | Qty. | Cat. ref.. |
|---|------|------------|
| Diagram pocket, Univers, transparent, A4 | 10 | FZ794 |
| Diagram pocket, Univers, plastic, A4 | 1 | FZ818 |
| Diagram pocket, magnetic, A4 | 30 | FZ757M |
| Diagram pocket, self-adhesive, A4, reinforced | 20 | FZ757A4 |
| Diagram pocket, self-adhesive, A5, reinforced | 30 | FZ757A5 |



MES-LSTI7035

Paint pen, RAL 7035**Features:**

- For touching up paint damage
- Safety data sheets on request (EU regulations 1272)

| Description | Qty. | Cat. ref.. |
|---------------------------------|------|--------------|
| Paint pen, treated, 12 ml, 7035 | 1 | MES-LSTI7035 |



VZ404

Cleaning agent**Features:**

- For plastic surfaces in Qty.mp spray bottles
- Safety data sheets on request (EU regulations 1272)

| Description | Qty. | Cat. ref.. |
|------------------------------------|------|------------|
| Cleaning agent f. plastic surfaces | 1 | VZ404 |

Closing plate for side pre-stamping

| Description | Qty. | Cat. ref.. |
|---|------|--------------|
| Closing plate, side, Univers, sheet metal | 1 | FZ448 |



FZ448

Cable entries made of sheet steel for top and bottom, without pre-stamping, protection class I, with IP54 seal

RAL colour number: 7035



FZ422

| Description | Qty. | Cat. ref.. |
|----------------------------|------|--------------|
| Cable entry, Univers, IP54 | 1 | FZ422 |

Pass-through flange**Features:**

- Cable entry options:
- 24 x 9 to 11.5 mm cable diameter
- 12 x 11 to 16 mm cable diameter
- 4 x 12.5 to 20 mm cable diameter
- 2 x 13 to 27.5 mm cable diameter
- 2 x 16 to 32 mm cable diameter
- 1 x 25 to 50 mm cable diameter



FZ402

| Description | Qty. | Cat. ref.. |
|---------------------------------|------|--------------|
| Cable entry, Univers, Universal | 5 | FZ402 |



FZ404

Entry flange without pre-stamping

| Description | Qty. | Cat. ref.. |
|----------------------------|------|--------------|
| Cable entry, Univers, IP54 | 5 | FZ404 |



FZ404

Cable entries made of plastic for top and bottom, with pre-stamping, with IP54 seal**Features:**

- For 15/13 x M20 or 2 x M25 grommets and threaded joints

| Description | Qty. | Cat. ref.. |
|------------------------------|------|---------------|
| Cable entry, Univers, metric | 5 | FZ406M |
| Cable entry, Univers, metric | 5 | FZ407M |
| Cable entry, Univers, metric | 5 | FZ408M |



FZ406M

Grommet for FZ408M entry flange

| Description | Qty. | Cat. ref.. |
|---|------|---------------|
| Stepped grommet, Univers, 1 cable, d = 23 – 55 mm | 1 | FZ413M |



FZ413M

Cable entry flange with two entry grommets, PC I**Features:**

- Incl. two entry grommets
- For two cables with diameter 23 – 55 mm
- IP54 degree of protection with attached cable tie
- Flange is secured with six screws
- For the modular standing distribution cabinets, the six holes must be drilled

| Description | Qty. | Cat. ref.. |
|---|------|---------------|
| Cable entry, 2 cables D = 23 – 55 mm, PC I | 1 | FZ415E |
| Cable entry, 2 cables D = 23 – 55 mm, PC II | 1 | FZ415S |



FZ415E

**Vent cap****Features:**

- For installation in FZ408M flange plate
- Reduces degree of protection to IP2X
- Two caps in bag

FZ417

| Description | Qty. | Cat. ref.. |
|---------------------------------|------|--------------|
| Vent cap, Univers, for FT/FA/FG | 1 | FZ417 |

**Cable entry grommets****Features:**

- Can be used in IP54 cable entries with pre-stamping for grommets

FZ409M

| Description | Qty. | Cat. ref.. |
|--|------|---------------|
| 25 x cable entry grommet, Univers, M20 | 25 | FZ409M |
| 25 x cable entry grommet, Univers, M25 | 25 | FZ410M |
| 25 x cable entry grommet, Univers, M32 | 25 | FZ411M |
| 25 x cable entry grommet, Univers, M40 | 25 | FZ412M |

**Plastic flange****Features:**

- Closing parts for cabinets depth 275 mm + 400 mm
- For closing the bottom cable entries during installation, distribution boards on bases (for compliance with PC II)

FZ435A

| Description | Width | Qty. | Cat. ref.. |
|---------------------------|--------|------|---------------|
| Closing plate cable entry | 250 mm | 1 | FZ435A |

**Locking element****Features:**

- For locking the bottom plastic cable entries
- 1 set = 4 elements

FZ421A

| Description | Qty. | Cat. ref.. |
|------------------------------|------|---------------|
| Locking elements cable entry | 1 | FZ421A |

Bracket for cable clamping rail in the base

| Description | Qty. | Cat. ref.. |
|--------------------------------|------|---------------|
| Base rail bracket, 100 mm high | 1 | FZ801A |
| Base rail bracket, 200 mm high | 1 | FZ801B |



FZ801A

Cable clamping rail for bases

Height of installed product: 30 mm

| Description | Qty. | Cat. ref.. |
|--|------|---------------|
| Cable clamping rail, Univers, 1 panel | 1 | FZ7801 |
| Cable clamping rail, Univers, 2 panels | 1 | FZ7811 |
| Cable clamping rail, Univers, 3 panels | 1 | FZ7821 |
| Cable clamping rail, Univers, 4 panels | 1 | FZ8441 |
| Cable clamping rail, Univers, 5 panels | 1 | FZ8451 |
| Cable clamping rail, Univers, 6 panels | 1 | FZ8461 |



FZ7801

Hinge pin**Features:**

- Hinge pin as spare part for Univers FR distribution cabinets



FZ797A

| Description | Qty. | Cat. ref.. |
|-----------------------|------|---------------|
| 10 x spare hinge pins | 10 | FZ797A |

Contact protection cover

RAL colour number: 9010



FZ851

Features:

- For extending the lateral circumferential contact protection

| Description | Qty. | Cat. ref.. |
|---|------|--------------|
| Extension of contact protection/Univers | 1 | FZ851 |

Door wiring profiles**Features:**

- For attaching wiring ducts



FZ739A

| Description | Qty. | Cat. ref.. |
|----------------------------------|------|---------------|
| Door wiring profile, 250 mm door | 1 | FZ739A |
| Door wiring profile, 500 mm door | 1 | FZ739B |
| Door wiring profile, 750 mm door | 1 | FZ739C |

**M8 ring bolt****Features:**

- For lifting cabinets
- Set = 4 bolts

FZ831

| Description | Qty. | Cat. ref.. |
|-------------------------------------|------|--------------|
| Lifting eyebolts for FR/FS cabinets | 1 | FZ831 |

**Wall-mounting brackets, spare parts****Features:**

- Set = 4 brackets

FZ829

| Description | Qty. | Cat. ref.. |
|------------------------|------|--------------|
| Wall-mounting brackets | 1 | FZ829 |

Head and base section, spare parts

| Description | Qty. | Cat. ref.. |
|---------------------------------------|------|---------------|
| Head/base section 275 mm, FR cabinets | 1 | FZ230A |
| Head/base section 400 mm, FR cabinets | 1 | FZ230B |



FZ230A

Doors, spare parts

| Description | Qty. | Cat. ref.. |
|---|------|---------------|
| Door, Univers, for FR31* cabinets, IP55, 500 x 300 mm | 1 | FZ031R |
| Door, Univers, for FR32* cabinets, IP55, 500 x 550 mm | 1 | FZ032R |
| Door, Univers, for FR33* cabinets, IP55, 500 x 800 mm | 1 | FZ033R |
| Door, Univers, for FR34* cabinets, IP55, 500 x 1050 mm | 1 | FZ034R |
| Door, Univers, for FR35* cabinets, IP55, 500 x 1300 mm | 1 | FZ035R |
| Door, Univers, for FR41* cabinets, IP55, 650 x 300 mm | 1 | FZ041R |
| Door, Univers, for FR42* cabinets, IP55, 650 x 550 mm | 1 | FZ042R |
| Door, Univers, for FR43* cabinets, IP55, 650 x 800 mm | 1 | FZ043R |
| Door, Univers, for FR44* cabinets, IP55, 650 x 1050 mm | 1 | FZ044R |
| Door, Univers, for FR45* cabinets, IP55, 650 x 1300 mm | 1 | FZ045R |
| Door, Univers, for FR51* cabinets, IP55, 800 x 300 mm | 1 | FZ051R |
| Door, Univers, for FR52* cabinets, IP55, 800 x 550 mm | 1 | FZ052R |
| Door, Univers, for FR53* cabinets, IP55, 800 x 800 mm | 1 | FZ053R |
| Door, Univers, for FR54* cabinets, IP55, 800 x 1050 mm | 1 | FZ054R |
| Door, Univers, for FR55* cabinets, IP55, 800 x 1300 mm | 1 | FZ055R |
| Door, Univers, for FR61* cabinets, IP55, 950 x 300 mm | 1 | FZ061R |
| Door, Univers, for FR62* cabinets, IP55, 950 x 550 mm | 1 | FZ062R |
| Door, Univers, for FR63* cabinets, IP55, 950 x 800 mm | 1 | FZ063R |
| Door, Univers, for FR64* cabinets, IP55, 950 x 1050 mm | 1 | FZ064R |
| Door, Univers, for FR65* cabinets, IP55, 950 x 1300 mm | 1 | FZ065R |
| Door, Univers, for FR71* cabinets, IP55, 1100 x 300 mm | 1 | FZ071R |
| Door, Univers, for FR72* cabinets, IP55, 1100 x 550 mm | 1 | FZ072R |
| Door, Univers, for FR73* cabinets, IP55, 1100 x 800 mm | 1 | FZ073R |
| Door, Univers, for FR74* cabinets, IP55, 1100 x 1050 mm | 1 | FZ074R |
| Door, Univers, for FR75* cabinets, IP55, 1100 x 1300 mm | 1 | FZ075R |
| Door, Univers, for FR81* cabinets, IP55, 1250 x 300 mm | 1 | FZ081R |
| Door, Univers, for FR82* cabinets, IP55, 1250 x 550 mm | 1 | FZ082R |
| Door, Univers, for FR83* cabinets, IP55, 1250 x 800 mm | 1 | FZ083R |
| Door, Univers, for FR84* cabinets, IP55, 1250 x 1050 mm | 1 | FZ084R |
| Door, Univers, for FR85* cabinets, IP55, 1250 x 1300 mm | 1 | FZ085R |
| Door, Univers, for FR91* cabinets, IP55, 1400 x 300 mm | 1 | FZ091R |
| Door, Univers, for FR92* cabinets, IP55, 1400 x 550 mm | 1 | FZ092R |
| Door, Univers, for FR93* cabinets, IP55, 1400 x 800 mm | 1 | FZ093R |
| Door, Univers, for FR94* cabinets, IP55, 1400 x 1050 mm | 1 | FZ094R |



FZ031R

Features:

- For outdoor applications
- For devices up to 630 A
- 3 mm double-bit lock
- Material: Polyester



FL32S

Wall cabinets, IP65, protection class II, resistant to UV light, depth 300 mm, cabinet height 550 mm

| Height | Width | Depth | Number of panels | Qty. | Cat. ref.. |
|--------|---------|--------|------------------|------|--------------|
| 550 mm | 600 mm | 300 mm | 2 | 1 | FL32S |
| 550 mm | 850 mm | 300 mm | 3 | 1 | FL33S |
| 550 mm | 1100 mm | 300 mm | 4 | 1 | FL34S |



FL52S

Wall cabinets, IP65, protection class II, resistant to UV light, depth 300 mm, cabinet height 850 mm

| Height | Width | Depth | Number of panels | Qty. | Cat. ref.. |
|--------|---------|--------|------------------|------|--------------|
| 850 mm | 600 mm | 300 mm | 2 | 1 | FL52S |
| 850 mm | 850 mm | 300 mm | 3 | 1 | FL53S |
| 850 mm | 1100 mm | 300 mm | 4 | 1 | FL54S |



FL72S

Wall cabinets, IP65, protection class II, resistant to UV light, depth 300 mm, cabinet height 1150 mm

| Height | Width | Depth | Number of panels | Qty. | Cat. ref.. |
|---------|---------|--------|------------------|------|--------------|
| 1150 mm | 600 mm | 300 mm | 2 | 1 | FL72S |
| 1150 mm | 850 mm | 300 mm | 3 | 1 | FL73S |
| 1150 mm | 1100 mm | 300 mm | 4 | 1 | FL74S |

T-handles

Features:

- FZ531 lockable, locking number 1333

| Description | Qty. | Cat. ref.. |
|----------------------------|------|--------------|
| Closure, Univers, T-handle | 1 | FZ530 |
| Closure, Univers, T-handle | 1 | FZ531 |



FZ530

L-handles

Features:

- FZ531 lockable, locking number 1333

| Description | Qty. | Cat. ref.. |
|----------------------------|------|--------------|
| Closure, Univers, L-handle | 1 | FZ532 |
| Closure, Univers, L-handle | 1 | FZ533 |



FZ532

Pivoted handle

Features:

- FZ534: For 40 mm profile half cylinder
- FZ535: For 40 mm profile half cylinder, sealable (only possible with profile half cylinder)

| Description | Qty. | Cat. ref.. |
|----------------------------------|------|--------------|
| Closure, Univers, pivoted handle | 1 | FZ534 |
| Closure, Univers, pivoted handle | 1 | FZ535 |



FZ534

Spare key

Features:

- Locking number 1333

| Description | Qty. | Cat. ref.. |
|--------------------------------------|------|--------------|
| Spare key, Univers, f. FZ531 + FZ533 | 1 | FZ539 |



FZ539

Spare pin as replacement for standard T-handle

| Description | Qty. | Cat. ref.. |
|---|------|--------------|
| Closure, Univers, triangular lock, 7 mm | 1 | FZ502 |
| Closure, Univers, square lock, 7 mm | 1 | FZ503 |



FZ503

Threaded cable joint

| Description | Qty. | Cat. ref.. |
|---------------------------------|------|---------------|
| Threaded cable joint, IP65, M16 | 20 | VZ016M |
| Threaded cable joint, IP65, M20 | 20 | VZ020M |
| Threaded cable joint, IP65, M25 | 20 | VZ025M |
| Threaded cable joint, IP65, M32 | 20 | VZ032M |
| Threaded cable joint, IP65, M40 | 10 | VZ040M |
| Threaded cable joint, IP65, M50 | 10 | VZ050M |
| Threaded cable joint, IP65, M63 | 10 | VZ063M |



VZ016M

Threaded pressure equalisation joint

| Description | Qty. | Cat. ref.. |
|---|------|---------------|
| Threaded pressure equalisation joint, IP66, M20 | 1 | VZ020D |
| Threaded pressure equalisation joint, IP66, M25 | 1 | VZ025D |
| Threaded pressure equalisation joint, IP66, M32 | 1 | VZ032D |



VZ020D



VZ013V

Sealing plug for threaded pressure equalisation joint, suitable for M20/25

| Description | Qty. | Cat. ref.. |
|----------------------------------|------|---------------|
| Sealing plug suitable for M20/25 | 1 | VZ013V |
| Sealing plug suitable for M32 | 1 | VZ021V |



UN03A

Mounting rails

Features:

- 1 panel
- 1 set = 2 rails

| Description | Qty. | Cat. ref.. |
|--|------|--------------|
| 2 mounting rails, UniversN, length 450 mm | 1 | UN03A |
| 2 mounting rails, UniversN, length 750 mm | 1 | UN05A |
| 2 mounting rails, UniversN, length 1050 mm | 1 | UN07A |



FL863Z

Wall-mounting brackets

Features:

- Material: Plastic
- Supplied with fixing screws
- As replacement

| Description | Qty. | Cat. ref.. |
|----------------------------------|------|---------------|
| Wall-mounting brackets, RAL 7046 | 10 | FL863Z |



FZ801

Drive-in threaded bushing

Features:

- To create fixing points in the interior
- To drive in
- For fixing mounting support plates etc.

| Description | Qty. | Cat. ref.. |
|------------------------|------|--------------|
| Nut set = 100 bushings | 1 | FZ801 |



FZ818

A4 diagram pocket, to screw in

| Description | Qty. | Cat. ref.. |
|--------------------------------------|------|--------------|
| Diagram pocket, Univers, plastic, A4 | 1 | FZ818 |



UZ00VL

Earth connecting bracket

Features:

- For conductive connection between two UN...A mounting rails
- To increase mechanical strength of mounting rails
- Incl. fixing material

| Description | Qty. | Cat. ref.. |
|--------------------------------------|------|---------------|
| Connecting bracket, Univers N (x 10) | 1 | UZ00VL |

- For devices up to 800 A
- Indoor installation
- Depth 275 mm
- Colour: RAL 7035 (Light grey)
- With base
- Sheet steel or transparent door
- Standards : DIN VDE 0660 part 600-1, -2, -3; EN 61439-1, -2, -3

Note:

- FZ402 cable entries at top, bottom open
- To ensure compliance with the IP55 degree of protection and protection class II, entry flanges must be inserted at the bottom

Protection class I, cabinet height 1700 mm plus base 100 mm

| Height | Width | Depth | Degree of protection Qty. | Cat. ref.. |
|---------|---------|--------|---------------------------|---------------|
| 1800 mm | 300 mm | 275 mm | IP55 1 | FR11E1 |
| 1800 mm | 550 mm | 275 mm | IP55 1 | FR12E1 |
| 1800 mm | 800 mm | 275 mm | IP55 1 | FR13E1 |
| 1800 mm | 1050 mm | 275 mm | IP55 1 | FR14E1 |
| 1800 mm | 1300 mm | 275 mm | IP55 1 | FR15E1 |



FR13E1

Protection class I, cabinet height 1700 mm plus base 200 mm

| Height | Width | Depth | Degree of protection Qty. | Cat. ref.. |
|---------|---------|--------|---------------------------|---------------|
| 1900 mm | 300 mm | 275 mm | IP55 1 | FR11E2 |
| 1900 mm | 550 mm | 275 mm | IP55 1 | FR12E2 |
| 1900 mm | 800 mm | 275 mm | IP55 1 | FR13E2 |
| 1900 mm | 1050 mm | 275 mm | IP55 1 | FR14E2 |
| 1900 mm | 1300 mm | 275 mm | IP55 1 | FR15E2 |



FR13E2



FR22E1

Protection class I, cabinet height 1850 mm plus base 100 mm

| Height | Width | Depth | Degree of protection Qty. | Cat. ref.. |
|---------|---------|--------|---------------------------|---------------|
| 1950 mm | 300 mm | 275 mm | IP55 1 | FR21E1 |
| 1950 mm | 550 mm | 275 mm | IP55 1 | FR22E1 |
| 1950 mm | 800 mm | 275 mm | IP55 1 | FR23E1 |
| 1950 mm | 1050 mm | 275 mm | IP55 1 | FR24E1 |
| 1950 mm | 1300 mm | 275 mm | IP55 1 | FR25E1 |
| 1950 mm | 1550 mm | 275 mm | IP55 1 | FR26E1 |



FR22E2

Protection class I, cabinet height 1850 mm plus base 200 mm

| Height | Width | Depth | Degree of protection Qty. | Cat. ref.. |
|---------|---------|--------|---------------------------|---------------|
| 2050 mm | 300 mm | 275 mm | IP55 1 | FR21E2 |
| 2050 mm | 550 mm | 275 mm | IP55 1 | FR22E2 |
| 2050 mm | 800 mm | 275 mm | IP55 1 | FR23E2 |
| 2050 mm | 1050 mm | 275 mm | IP55 1 | FR24E2 |
| 2050 mm | 1300 mm | 275 mm | IP55 1 | FR25E2 |
| 2050 mm | 1550 mm | 275 mm | IP55 1 | FR26E2 |



FR22K1

Protection class I, with transparent door, cabinet height 1850 mm plus base 100 mm

| Height | Width | Depth | Degree of protection Qty. | Cat. ref.. |
|---------|---------|--------|---------------------------|---------------|
| 1950 mm | 550 mm | 275 mm | IP55 1 | FR22K1 |
| 1950 mm | 800 mm | 275 mm | IP55 1 | FR23K1 |
| 1950 mm | 1050 mm | 275 mm | IP55 1 | FR24K1 |
| 1950 mm | 1300 mm | 275 mm | IP55 1 | FR25K1 |
| 1950 mm | 1550 mm | 275 mm | IP55 1 | FR26K1 |



FR22K2

Protection class I, with transparent door, cabinet height 1850 mm plus base 200 mm

| Height | Width | Depth | Degree of protection Qty. | Cat. ref.. |
|---------|---------|--------|---------------------------|---------------|
| 2050 mm | 550 mm | 275 mm | IP55 1 | FR22K2 |
| 2050 mm | 800 mm | 275 mm | IP55 1 | FR23K2 |
| 2050 mm | 1050 mm | 275 mm | IP55 1 | FR24K2 |
| 2050 mm | 1300 mm | 275 mm | IP55 1 | FR25K2 |
| 2050 mm | 1550 mm | 275 mm | IP55 1 | FR26K2 |

Protection class I, cabinet height 1850 mm plus base 100 mm

| Height | Width | Depth | Degree of protection Qty. | Cat. ref.. |
|---------|---------|--------|---------------------------|---------------|
| 1950 mm | 300 mm | 400 mm | IP55 1 | FR21G1 |
| 1950 mm | 550 mm | 400 mm | IP55 1 | FR22G1 |
| 1950 mm | 800 mm | 400 mm | IP55 1 | FR23G1 |
| 1950 mm | 1050 mm | 400 mm | IP55 1 | FR24G1 |
| 1950 mm | 1300 mm | 400 mm | IP55 1 | FR25G1 |
| 1950 mm | 1550 mm | 400 mm | IP55 1 | FR26G1 |



FR26G1

Protection class I, cabinet height 1850 mm plus base 200 mm

| Height | Width | Depth | Degree of protection Qty. | Cat. ref.. |
|---------|---------|--------|---------------------------|---------------|
| 2050 mm | 300 mm | 400 mm | IP55 1 | FR21G2 |
| 2050 mm | 550 mm | 400 mm | IP55 1 | FR22G2 |
| 2050 mm | 800 mm | 400 mm | IP55 1 | FR23G2 |
| 2050 mm | 1050 mm | 400 mm | IP55 1 | FR24G2 |
| 2050 mm | 1300 mm | 400 mm | IP55 1 | FR25G2 |
| 2050 mm | 1550 mm | 400 mm | IP55 1 | FR26G2 |



FR21G2

Protection class I, with transparent door, cabinet height 1850 mm plus base 100 mm

| Height | Width | Depth | Degree of protection Qty. | Cat. ref.. |
|---------|---------|--------|---------------------------|---------------|
| 1950 mm | 550 mm | 400 mm | IP55 1 | FR22V1 |
| 1950 mm | 800 mm | 400 mm | IP55 1 | FR23V1 |
| 1950 mm | 1050 mm | 400 mm | IP55 1 | FR24V1 |
| 1950 mm | 1300 mm | 400 mm | IP55 1 | FR25V1 |
| 1950 mm | 1550 mm | 400 mm | IP55 1 | FR26V1 |



FR22V1

Protection class I, with transparent door, cabinet height 1850 mm plus base 200 mm

| Height | Width | Depth | Degree of protection Qty. | Cat. ref.. |
|---------|---------|--------|---------------------------|---------------|
| 2050 mm | 550 mm | 400 mm | IP55 1 | FR22V2 |
| 2050 mm | 800 mm | 400 mm | IP55 1 | FR23V2 |
| 2050 mm | 1050 mm | 400 mm | IP55 1 | FR24V2 |
| 2050 mm | 1300 mm | 400 mm | IP55 1 | FR25V2 |
| 2050 mm | 1550 mm | 400 mm | IP55 1 | FR26V2 |



FR22V2



UZ21MP

Support plate**Features:**

- Sheet steel, galvanised
- Can be used without mounting rails
- Incl. fixing material

| Description | Qty. | Cat. ref.. |
|--|------|---------------|
| Support plate, Univers, 1800 x 250 mm (H x W) | 1 | UZ21MP |
| Support plate, Univers, 1800 x 500 mm (H x W) | 1 | UZ22MP |
| Support plate, Univers, 1800 x 750 mm (H x W) | 1 | UZ23MP |
| Support plate, Univers, 1800 x 1000 mm (H x W) | 1 | UZ24MP |
| Support plate, Univers, 1800 x 1250 mm (H x W) | 1 | UZ25MP |



FZ353

Cable duct for wall-mounting**Features:**

- Suitable for all cabinets with installation depths 160, 205, 275 and 400 mm
- Duct depth 150 mm or 180 mm by rotating 90°
- RAL colour number: 7035

| Description | Qty. | Cat. ref.. |
|--------------------------------|------|--------------|
| Cable duct, 1 panel, RAL 7035 | 1 | FZ351 |
| Cable duct, 2 panels, RAL 7035 | 1 | FZ352 |
| Cable duct, 3 panels, RAL 7035 | 1 | FZ353 |
| Cable duct, 4 panels, RAL 7035 | 1 | FZ354 |
| Cable duct, 5 panels, RAL 7035 | 1 | FZ355 |



FZ530

T-handles

| Description | Qty. | Cat. ref.. |
|---|------|--------------|
| Closure, Univers, T-handle | 1 | FZ530 |
| Closure, Univers, T-handle, FZ531 lockable, locking number 1333 | 1 | FZ531 |
| Spare key, Univers, f. FZ531 + FZ533 | 1 | FZ539 |



FZ532

L-handles

| Description | Qty. | Cat. ref.. |
|--------------------------------------|------|--------------|
| Closure, Univers, L-handle | 1 | FZ532 |
| Closure, Univers, L-handle | 1 | FZ533 |
| Spare key, Univers, f. FZ531 + FZ533 | 1 | FZ539 |



FZ537

Pivoted handle**Features:**

- 40 mm profile half cylinder installable, including patent fastener

| Description | Qty. | Cat. ref.. |
|----------------------------------|------|--------------|
| Pivoted lever for FR/FG cabinets | 1 | FZ537 |



FZ506

Profile half cylinder for FZ537

| Description | Qty. | Cat. ref.. |
|---------------------------------|------|-------------------|
| 1242E profile cylinder | 1 | FZ506 |
| 405 profile cylinder | 1 | FZ519 |
| 455 profile cylinder | 1 | FZ520 |
| Profile cylinder 8mm | 1 | MES-PHZ4K8 |
| Profile cylinder 7mm | 1 | MES-PHZ3K7 |
| Profile cylinder double-bit 3mm | 1 | MES-PHZDB3 |

Connection kit for two adjacent cabinets, depth 275/400 mm

| Description | Qty. | Cat. ref.. |
|---------------------------------|------|---------------|
| Connector side, 275 mm cabinets | 1 | FZ721A |
| Connector side, 400 mm cabinets | 1 | FZ721B |



FZ721A

Connection kits for two bases above one another**Features:**

- For all widths
- Two 200 mm bases arranged vertically



FZ714

| Description | Qty. | Cat. ref.. |
|-----------------------------------|------|--------------|
| Connection kit, Univers, f. bases | 1 | FZ714 |

Mounting rails**Features:**

- 1 panel
- 1 set = 2 rails

| Description | Qty. | Cat. ref.. |
|--|------|--------------|
| 2 mounting rails, UniversN, length 300 mm | 1 | UN02A |
| 2 mounting rails, UniversN, length 450 mm | 1 | UN03A |
| 2 mounting rails, UniversN, length 600 mm | 1 | UN04A |
| 2 mounting rails, UniversN, length 750 mm | 1 | UN05A |
| 2 mounting rails, UniversN, length 900 mm | 1 | UN06A |
| 2 mounting rails, UniversN, length 1050 mm | 1 | UN07A |
| 2 mounting rails, UniversN, length 1200 mm | 1 | UN08A |
| 2 mounting rails, UniversN, length 1350 mm | 1 | UN09A |
| 2 mounting rails, UniversN, length 1500 mm | 1 | UN10A |
| 2 mounting rails, UniversN, length 1650 mm | 1 | UN11A |
| 2 mounting rails, UniversN, length 1800 mm | 1 | UN12A |



UN03A

Earth connecting bracket**Features:**

- For conductive connection between two UN...A mounting rails
- To increase mechanical strength of mounting rails
- Incl. fixing material



UZ00VL

| Description | Qty. | Cat. ref.. |
|--------------------------------------|------|---------------|
| Connecting bracket, Univers N (x 10) | 1 | UZ00VL |

Mounting rail connection kit

| Description | Qty. | Cat. ref.. |
|-------------------------------|------|----------------|
| Connector kit (x 10) U-plates | 1 | UT12HSV |



UT12HSV

Connectors**Features:**

- For connecting two mounting rails

| Description | Qty. | Cat. ref.. |
|---|------|--------------|
| Mounting rail connector, UniversN (x 2) | 1 | UT12L |



UT12L



UT90G

Mounting rail bracket**Features:**

- UT90G: For attaching mounting rails at different levels (order two per mounting rail)
- UT90J: For attaching two mounting rails at the same level



UT12PN

Crossbar**Features:**

- To intersect the vertical mounting rails inside the cabinet



UT90F

Coupling plates**UT90F features:**

- For supporting two vertical, cut-to-length mounting rails
- Mounted on the retaining rails or U-rails

UT90L/R features:

- For using modules with support plates



UZ009

Earthing conductor with M8 and M6 cable lugs**Features:**

- For earthing housings and mounting rails
- Uninsulated, 25 mm² with cable lug
- M8 (earthing stud of the distribution board) and M6 (connection e.g. to UZ010)
- Length 300 mm

Note:

Observe protective conductor cross-sections (VDE 0660 T500)



UZ012

Earthing conductor with M8 cable lug and ferrule**Features:**

- For earthing housings and mounting rails
- Uninsulated, 25 mm² with cable lug
- M8 (earthing stud of the cabinet) and ferrule
- Length 560 mm (connection e.g. to UZ010/UZ020 or busbars)

Note:

Observe protective conductor cross-sections (VDE 0660 T500)

Protective conductor connection**Features:**

- 20 x 5 mm copper bar with screws for PE fastening between mounting rails
- UZ010 connection points: 3 x M6, 2 x M8
- UZ020 connection points: 10 x M6, 3 x M8



UZ010

Note:

Observe protective conductor cross-sections (VDE 0660 T500)

| Description | Qty. | Cat. ref.. |
|---|------|--------------|
| Earthing bar, UniversN, Cu 20 x 5, 1 panel | 1 | UZ010 |
| Earthing bar, UniversN, Cu 20 x 5, 2 panels | 1 | UZ020 |

Bracket for retaining rail**Features:**

- For mounting the horizontal retaining rail



FZ800A

| Description | Qty. | Cat. ref.. |
|--|------|---------------|
| Retaining rail bracket, 275, PC I, FR | 1 | FZ800A |
| Retaining rail bracket, 275, PC II, FR | 1 | FZ800B |
| Retaining rail bracket, 400, PC I, FR | 1 | FZ800C |
| Retaining rail bracket, 400, PC II, FR | 1 | FZ800D |
| Retaining rail bracket, 275, FS | 1 | FZ800E |

Retaining rail, horizontal**Features:**

- Order suitable FZ800A – FZ800E bracket as well



UT21A

| Description | Qty. | Cat. ref.. |
|------------------------|------|--------------|
| Retaining rail 250 mm | 1 | UT21A |
| Retaining rail 500 mm | 1 | UT21B |
| Retaining rail 750 mm | 1 | UT21C |
| Retaining rail 1000 mm | 1 | UT21D |
| Retaining rail 1250 mm | 1 | UT21E |
| Retaining rail 1500 mm | 1 | UT21F |

Contact protection covers

RAL colour number: 9010



FZ851

Features:

- For extending the lateral circumferential contact protection

| Description | Qty. | Cat. ref.. |
|---|------|--------------|
| Extension of contact protection/Univers | 1 | FZ851 |

Head and base section, spare parts

Material: PC



FZ230A

| Description | Qty. | Cat. ref.. |
|---------------------------------------|------|---------------|
| Head/base section 275 mm, FR cabinets | 1 | FZ230A |
| Head/base section 400 mm, FR cabinets | 1 | FZ230B |

**A4 diagram pocket fixed with adhesive**

Material: Plastic

FZ794

| Description | Qty. | Cat. ref.. |
|---|------|----------------|
| Diagram pocket, Univers, transparent, A4 | 10 | FZ794 |
| Diagram pocket, Univers, plastic, A4 | 1 | FZ818 |
| Diagram pocket, magnetic, A4 | 30 | FZ757M |
| Diagram pocket, self-adhesive, A4, reinforced | 20 | FZ757A4 |
| Diagram pocket, self-adhesive, A5, reinforced | 30 | FZ757A5 |

Paint pen, RAL 7035**Features:**

- For touching up paint damage

| Description | Qty. | Cat. ref.. |
|---------------------------------|------|---------------------|
| Paint pen, treated, 12 ml, 7035 | 1 | MES-LSTI7035 |

**Hinge pin, spare parts**

FZ797A

| Description | Qty. | Cat. ref.. |
|-----------------------|------|---------------|
| 10 x spare hinge pins | 10 | FZ797A |



VZ404

Cleaning agent**Features:**

- For plastic surfaces in Qty.mp spray bottles

| Description | Qty. | Cat. ref.. |
|------------------------------------|------|--------------|
| Cleaning agent f. plastic surfaces | 1 | VZ404 |



FZ422

Closing plate for side pre-stamping

| Description | Qty. | Cat. ref.. |
|---|------|--------------|
| Closing plate, side, Univers, sheet metal | 1 | FZ448 |

Cable entries made of sheet steel for top and bottom, without pre-stamping, protection class I, with IP55 seal

RAL colour number: 7035

FZ422

| Description | Qty. | Cat. ref.. |
|----------------------------|------|--------------|
| Cable entry, Univers, IP54 | 1 | FZ422 |



FZ402

Pass-through flange**Features:**

- Cable entry options:
- 24 x 9 to 11.5 mm cable diameter
- 12 x 11 to 16 mm cable diameter
- 4 x 12.5 to 20 mm cable diameter
- 2 x 13 to 27.5 mm cable diameter
- 2 x 16 to 32 mm cable diameter
- 1 x 25 to 50 mm cable diameter

| Description | Qty. | Cat. ref.. |
|---------------------------------|------|--------------|
| Cable entry, Univers, Universal | 5 | FZ402 |

Entry flange without pre-stamping

| Description | Qty. | Cat. ref.. |
|----------------------------|------|--------------|
| Cable entry, Univers, IP54 | 5 | FZ404 |



FZ404

Entry flange with 15/13 x M20 or 2 x M25 pre-stamped

Features:
 - For 15/13 x M20 or 2 x M25 grommets and threaded joints

| Description | Qty. | Cat. ref.. |
|------------------------------|------|---------------|
| Cable entry, Univers, metric | 5 | FZ406M |



FZ406M

Entry flange with 8/6 x M25 or 2 x M32 pre-stamped

Features:
 - For 8/6 x M25 or 2 x M32 grommets and threaded joints

| Description | Qty. | Cat. ref.. |
|------------------------------|------|---------------|
| Cable entry, Univers, metric | 5 | FZ407M |



FZ407M

Entry flange with 2 x M25/32, 1 x M50/63 or FZ413, FZ414, FZ415 cable entries pre-stamped

Features:
 - For 2 x M25/32 grommets and threaded joint, 1 x M50/63 pre-stamped for FZ413, FZ414, FZ415 cable entries

| Description | Qty. | Cat. ref.. |
|------------------------------|------|---------------|
| Cable entry, Univers, metric | 5 | FZ408M |



FZ408M

Grommet for FZ408M entry flange

| Description | Qty. | Cat. ref.. |
|---|------|---------------|
| Stepped grommet, Univers, 1 cable, d = 23 – 55 mm | 1 | FZ413M |



FZ413M

Cable entry flange with two entry grommets, PC I

Features:
 - Incl. two entry grommets
 - For two cables with diameter 23 – 55 mm
 - IP54 degree of protection with attached cable tie
 - Flange is secured with six screws
 - For the modular standing distribution cabinets, the six holes must be drilled

| Description | Qty. | Cat. ref.. |
|---|------|---------------|
| Cable entry, 2 cables D = 23 – 55 mm, PC I | 1 | FZ415E |
| Cable entry, 2 cables D = 23 – 55 mm, PC II | 1 | FZ415S |



FZ415E

Cable entry flange with two entry grommets

Features:
 - Incl. two entry grommets
 - For two cables with diameter 30 – 72 mm
 - IP54 degree of protection with attached cable tie
 - Flange is secured with six screws
 - For the modular standing distribution cabinets, the six holes must be drilled

| Description | Qty. | Cat. ref.. |
|--|------|---------------|
| Cable entry, Univers, 2 cables D= 30 – 72 mm | 1 | FZ415N |



FZ415N

**Vent cap****Features:**

- For installation in FZ408M flange plate
- Reduces degree of protection to IP2X

FZ417

| Description | Qty. | Cat. ref.. |
|---------------------------------|------|--------------|
| Vent cap, Univers, for FT/FA/FG | 1 | FZ417 |

**Cable entry grommets****Features:**

- Can be used in IP55 cable entries with pre-stamping for grommets

FZ409M

| Description | Qty. | Cat. ref.. |
|--|------|---------------|
| 25 x cable entry grommet, Univers, M20 | 25 | FZ409M |
| 25 x cable entry grommet, Univers, M25 | 25 | FZ410M |
| 25 x cable entry grommet, Univers, M32 | 25 | FZ411M |
| 25 x cable entry grommet, Univers, M40 | 25 | FZ412M |

**Plastic flange****Features:**

- Closing parts for cabinets depth 275 mm + 400 mm
- For closing the bottom cable entries during installation, distribution boards on bases (for compliance with PC II)

FZ435A

| Description | Width | Qty. | Cat. ref.. |
|---------------------------|--------|------|---------------|
| Closing plate cable entry | 250 mm | 1 | FZ435A |

**Locking element****Features:**

- For locking the bottom plastic cable entries (IP55)
- 1 set = 2 elements

FZ421A

| Description | Qty. | Cat. ref.. |
|------------------------------|------|---------------|
| Locking elements cable entry | 1 | FZ421A |

Bases, depth 275 mm, height 100 mm, RAL 9005

| Description | Qty. | Cat. ref.. |
|---------------------------------|------|---------------|
| Base, Univers, 100 x 300 x 275 | 1 | FZ631A |
| Base, Univers, 100 x 550 x 275 | 1 | FZ632A |
| Base, Univers, 100 x 800 x 275 | 1 | FZ633A |
| Base, Univers, 100 x 1050 x 275 | 1 | FZ634A |
| Base, Univers, 100 x 1300 x 275 | 1 | FZ635A |
| Base, Univers, 100 x 1550 x 275 | 1 | FZ636A |



FZ631A

Bases, depth 275 mm, height 200 mm, RAL 9005

| Description | Qty. | Cat. ref.. |
|---------------------------------|------|---------------|
| Base, Univers, 200 x 300 x 275 | 1 | FZ641A |
| Base, Univers, 200 x 550 x 275 | 1 | FZ642A |
| Base, Univers, 200 x 800 x 275 | 1 | FZ643A |
| Base, Univers, 200 x 1050 x 275 | 1 | FZ644A |
| Base, Univers, 200 x 1300 x 275 | 1 | FZ645A |
| Base, Univers, 200 x 1550 x 275 | 1 | FZ646A |



FZ641A

Bases, depth 400 mm, height 100 mm, RAL 9005
Features:

- For 400 mm cabinets

| Description | Qty. | Cat. ref.. |
|---------------------------------|------|---------------|
| Base, Univers, 100 x 300 x 400 | 1 | FZ651A |
| Base, Univers, 100 x 550 x 400 | 1 | FZ652A |
| Base, Univers, 100 x 800 x 400 | 1 | FZ653A |
| Base, Univers, 100 x 1050 x 400 | 1 | FZ654A |
| Base, Univers, 100 x 1300 x 400 | 1 | FZ655A |
| Base, Univers, 100 x 1550 x 400 | 1 | FZ656A |



FZ651A

Bases, depth 400 mm, height 200 mm, RAL 9005
Features:

- For 400 mm cabinets

| Description | Qty. | Cat. ref.. |
|---------------------------------|------|---------------|
| Base, Univers, 200 x 300 x 400 | 1 | FZ661A |
| Base, Univers, 200 x 550 x 400 | 1 | FZ662A |
| Base, Univers, 200 x 800 x 400 | 1 | FZ663A |
| Base, Univers, 200 x 1050 x 400 | 1 | FZ664A |
| Base, Univers, 200 x 1300 x 400 | 1 | FZ665A |
| Base, Univers, 200 x 1550 x 400 | 1 | FZ666A |



FZ661A

**Bracket for cable clamping rail in the base**

FZ801A

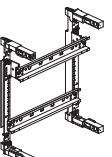
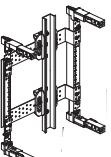
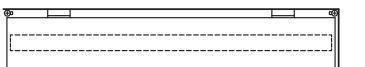
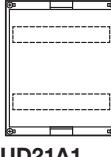
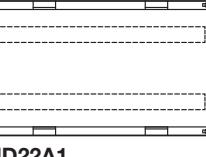
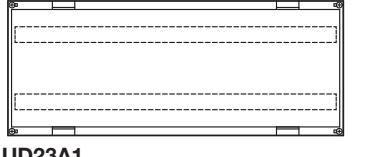
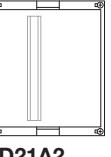
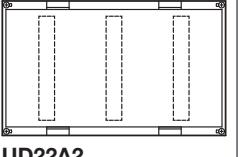
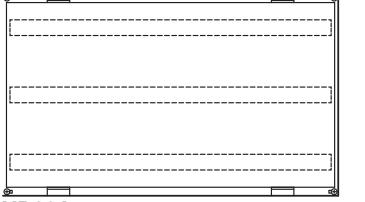
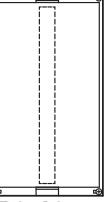
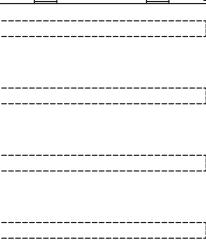
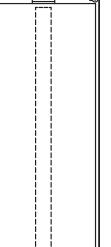
| Description | Qty. | Cat. ref.. |
|--------------------------------|------|---------------|
| Base rail bracket, 100 mm high | 1 | FZ801A |
| Base rail bracket, 200 mm high | 1 | FZ801B |

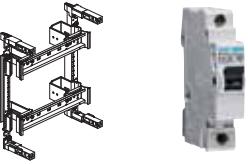
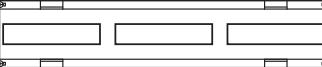
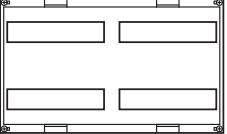
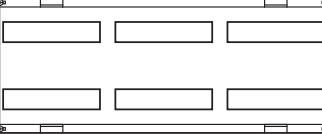
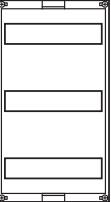
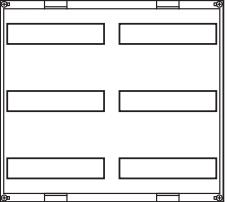
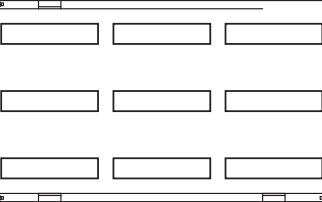
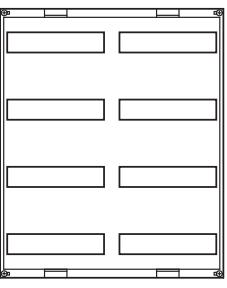
Spare doors, contains both the left and right door for double doors

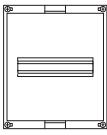
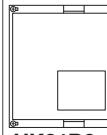
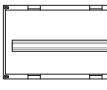
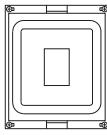
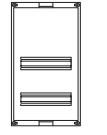
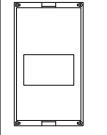
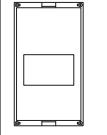
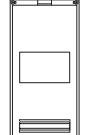
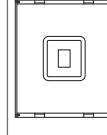
| Height | Width | Qty. | Cat. ref.. |
|---------|---------|------|---------------|
| 1500 mm | 250 mm | 1 | FZ001R |
| 1500 mm | 500 mm | 1 | FZ002R |
| 1500 mm | 750 mm | 1 | FZ003R |
| 1500 mm | 1000 mm | 1 | FZ004R |
| 1500 mm | 1250 mm | 1 | FZ005R |
| 1650 mm | 250 mm | 1 | FZ011R |
| 1650 mm | 500 mm | 1 | FZ012R |
| 1650 mm | 750 mm | 1 | FZ013R |
| 1650 mm | 1000 mm | 1 | FZ014R |
| 1650 mm | 1250 mm | 1 | FZ015R |
| 1800 mm | 250 mm | 1 | FZ021R |
| 1800 mm | 500 mm | 1 | FZ022R |
| 1800 mm | 750 mm | 1 | FZ023R |
| 1800 mm | 1000 mm | 1 | FZ024R |
| 1800 mm | 1250 mm | 1 | FZ025R |

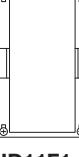
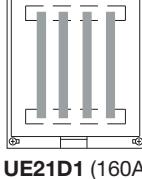
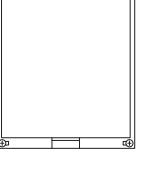
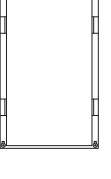
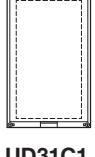
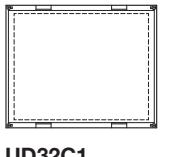
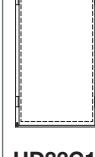
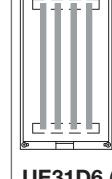
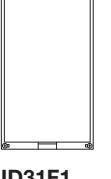
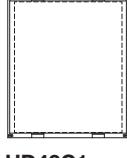
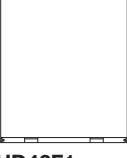


FZ025R

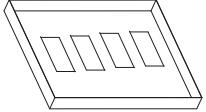
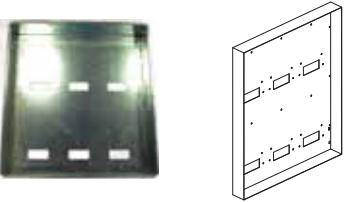
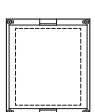
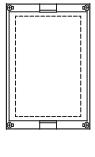
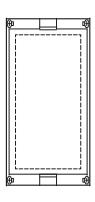
| | | | | | |
|-----------------------|--|--|--|--|--|
| Asmbly. | Blank cover with horizontal DIN-Rail, spacing 150 mm | | | with vertical DIN-rail | |
| | |  | |  | |
| Applc. | for terminals horizontal insulated parts enclosed for insulated protection | | | for terminals vertical insulated parts enclosed for insulated protection | |
| |   | | |   | |
| Height x Width | 250 | 500 | 750 | 250 | 500 |
| 150 |  UD11A1 |  UD12A1 |  UD13A1 | | |
| 300 |  UD21A1 |  UD22A1 |  UD23A1 |  UD21A2 |  UD22A2 |
| 450 |  UD31A1 |  UD32A1 |  UD33A1 |  UD31A2 | |
| 600 |  UD41A1 |  UD42A1 | |  UD41A2 | |

| | | | |
|-----------------------|---|---|---|
| Assembly | Slotted cover with horizontal DIN-Rail, spacing 150 mm | | |
| |  | | |
| Application | for modular devices with vertical wiring | | |
| |  | | |
| Height x Width | 250 | 500 | 750 |
| 150 | 1x12 module spacing  UD11B1 | 2x12 module spacing  UD12B1 | 3x12 module spacing  UD13B1 |
| 300 | 2x12 module spacing  UD21B1 | 4x12 module spacing  UD22B1 | 6x12 module spacing  UD23B1 |
| 450 | 3x12 module spacing  UD31B1 | 6x12 module spacing  UD32B1 | 9x12 module spacing  UD33B1 |
| 600 | 4x12 module spacing  UD41B1 | 8x12 module spacing  UD42B1 | |

| | | | | | | | | | | |
|-----------------------|---|---|---|--|--|--|---|---|--|-----|
| Assembly | Cover for circuit breaker or switch disconnector on Din-Rail or mounting plate | | | | | | | | | |
| |  | | | | | | | | | |
| Application | for MCCBs | | | | | | for Isolators | | for Switchfuses | |
| |  | | | | | |  | | | |
| Height x Width | 250 | 250 | 250 | 250 | 500 | 500 | 250 | 500 | 250 | 500 |
| 300 | x160  UK21A3 | x250  UK21B2 UK21B2M* *with motor mechanism | x250  UK21BL2 UK21BL2M* *with motor mechanism | | x160  UK22A2 | | 1x160A  UK21R1 | | x160  UK21L1A | |
| 450 | x250  UK31B3 UK31B4* *with RCD | x250  UK31B4M* *with motor mechanism | x250  UK31BL3 | h250  UK31C2 UK31C2M* *with motor mechanism | h400-630  UK32C2 UK32C2M* *with motor mechanism | h400-630  UK32D2 | h800-1000  UK32T1 | 1x630A  UK32N1A | 1x400A | |
| 600 | h400-630  UK41C4 UK41C3* *with RCD | | | | h400-630  UK42C5 | | 1x630A  UK42T1 | | | |
| 750 | | | | | h400-630  UK52X2 | | | | | |

| Assembly | Kits with mounting plate Blank cover with adjustable mounting plates | | | Busbar kits Blank cover with pre-fitted busbars | Kits for various applications Blank cover empty | |
|-------------------|--|--|--|---|--|---|
| |  | | | | | |
| Application | with mounting plates max depth 158mm | | | | for spare | |
| | Kit dimensions H x W (mm) | Size | Dimensions H x W (mm) | | | |
| | 150 x 250 | 11 | 100 x 194 | | | |
| | 300 x 250 | 21 | 240 x 194 | | | |
| | 450 x 250 | 31 | 390 x 194 | | | |
| | 150 x 500 | 12 | 100 x 444 | | | |
| | 300 x 500 | 22 | 240 x 444 | | | |
| | 450 x 500 | 32 | 390 x 444 | | | |
| | 600 x 500 | 42 | 540 x 444 | | | |
| | 450 x 750 | 33 | 390 x 694 | | | |
| Height x Width | 250 | 500 | 750 | 300 | 400 | 250 |
| 75 | | | | | |  UD01F1 ①  UD02F1 ① |
| 150 |  UD11C1 |  UD12C1 | | | |  UD11F1  UD12F1 |
| 300 |  UD21C1 |  UD22C1 | |  UE21D1 (160A) UE21D2 (250A) UE21D3 (400A) |  UD21F1 |  UD22F1 |
| 450 |  UD31C1 |  UD32C1 |  UD33C1 |  UE31D6 (630A) |  UD31F1 |  UD32F1 |
| 600 | |  UD42C1 | | |  UD41F1 |  UD42F1 |

① Set = 2 units

| | | | |
|-----------------------|--|-----------------------|---|
| | Assembly Fuse carriers for 22 x 58  | | Assembly Kits with mounting plate  |
| Application | for multi metering | Application | for multi metering |
| Height x Width | 250 | Height x Width | 250 500 750 |
| 300 | 4 fuse unit spaces UD21B2  | 600 |  UG42Z6 |
| 450 | 8 fuse unit spaces UD31B2  | 750 |  UG52Z9 |
| 600 | 12 fuse unit spaces UD41B2  | 1050 |  UG72Z12 |

| Asmbly. | Insulated cover | | | Horizontal slotted cover 150mm gap | | |
|----------------|---|--------|--------|---------------------------------------|--------|--------|
| AppliC. | for terminal rows, mounting plates, busbars, etc. | | | for device rows | | |
| Height x Width | 250 | 500 | 750 | 250 | 500 | 750 |
| 75 | | | | | | |
| | US01A1 | US02A1 | | | | |
| 150 | | | | | | |
| | US11A1 | US12A1 | US13A1 | US11A2 | US12A2 | US13A2 |
| | US11A5 | US12A3 | | | | |
| 300 | | | | | | |
| | US21A1 | US22A1 | US23A1 | US21A2 | US22A2 | US23A2 |
| | US21C2 | US22A8 | US21C3 | US22A9 | US22A9 | US23A2 |
| 450 | | | | | | |
| | US31A1 | US32A1 | US33A1 | US31A2 | US32A2 | US33A2 |
| | US31B1 | US32A8 | | US31B5 | US32A9 | |
| 600 | | | | | | |
| | US41A1 | US42A1 | US43A4 | US41A2 | US42A2 | |
| 750 | | | | | | |
| | US51A1 | US52A4 | US53A4 | | | |



UZ014

Lowering kit

| Description | Qty. | Cat. ref.. |
|---|------|--------------|
| Lowering kit lowers cross support rails/U rails, in connection with application, order meter base plate | | |
| 2 fields | 1 | UZ014 |
| 3 fields | 1 | UZ015 |



U841Y

Cable clip

| Description | Qty. | Cat. ref.. |
|---|------|--------------|
| Cable clip for clipping in the meter cable when no meter is mounted | 50 | U841Y |

Horizontal divider

UZ90T2 allows for increasing depth, for deep cabinets

| Description | Qty. | Cat. ref.. |
|--|------|---------------|
| Horizontal divider for dividing 2 kits with high frames, for cabinets 205mm in depth, 1 field | 1 | UZ01T1 |
| Horizontal divider for dividing 2 kits with high frames, for cabinets 205mm in depth, 2 fields | 1 | UZ02T1 |
| Horizontal divider for dividing 2 kits with high frames, for cabinets 205mm in depth, 3 fields | 1 | UZ03T1 |



UZ30T1

Vertical divider

| Description | Qty. | Cat. ref.. |
|--|------|---------------|
| Vertical divider for dividing 2 kits with high frames, for cabinets 205mm in depth | 1 | UZ30T1 |
| UZ90T2 allows for increasing depth, for deep cabinets 450mm in depth | | |

| Description | Qty. | Cat. ref.. |
|--|------|---------------|
| Vertical divider includes 6 clip-in brackets to create partitions in kits with high frame 1350mm high, for cabinets 275mm depth. UZ90T2 allows for extension for deeper cabinets. Cut to the correct length. | 1 | UZ90T1 |

Partition extension (vertical/horizontal)

| Description | Qty. | Cat. ref.. |
|---|------|---------------|
| Brings the lower frame kits (UD...B3) to the normal frame level | 1 | UZ31T1 |



UZ90T2

Extension

| Description | Qty. | Cat. ref.. |
|---|------|---------------|
| 1350 mm high, to extend UZ01T1 UZ02T1, UZ03T1, UZ30T1, UZ90T1 to the base in the 350mm deep cabinets. Can be cut to desired length. | 1 | UZ90T2 |



UZ06Z1

Screws

| Description | Qty. | Cat. ref.. |
|---------------------------------------|------|---------------|
| Screws +/- 4.2 x 9.5 mm 1 Set = 1000. | 1000 | UZ06Z1 |
| Screws +/- 4.2 x 9.5 mm 1 Set = 100. | 100 | UZ100 |
| Screws +/- 4.2 x 13 mm 1 Set = 100. | 100 | UZ06Z4 |



UZ06A1

Locking bolts

| Description | Qty. | Cat. ref.. |
|---|------|---------------|
| Locking bolts for insulated cover sealable, as spare part | 1 | UZ06A1 |

Support pillar bases

| Description | Qty. | Cat. ref. |
|---|-------------|---------------|
| Double base screws on to the vertical kit rails or carrier rails to fasten the top pillar high & low | 100 = 1 set | UZ00A1 |
| Left part of base screws on to the vertical kit rails or carrier rails to fasten the top pillar high & low | 100 = 1 set | UZ00A2 |
| Right part of base to screw on to the vertical kit rails or carrier rails to fasten the top pillar high & low | 100 = 1 set | UZ00A3 |
| Double base as spare part with fastening screws to screw on to the vertical kit rails or carrier rails to fasten the top pillar high & low | 1 | UZ00A4 |
| Left and right base part as spare part with fastening screws to screw on to the vertical kit rails or carrier rails to fasten the top pillar high & low | 2 = 1 set | UZ00A5 |



UZ00A1

Support pillar top parts

| Description | Qty. | Cat. ref. |
|--|-------------|---------------|
| Top part low to insert into the base of the support | 100 = 1 set | UZ01A1 |
| Top part low as spare part to insert into the base of the support | 1 | UZ01A2 |
| Top part, high, left to insert into the base of the support | 100 = 1 set | UZ02A1 |
| Top part, high, right to insert into the base of the support | 100 = 1 set | UZ02A2 |
| Top part high, left & right, as spare part to insert into the base of the support | 2 = 1 set | UZ02A3 |
| Adaptor for top part of pillar to tighten the PE/N rail / Modiglass pane under the cover | 2 = 1 set | UZ06A2 |
| Extensions to extend the cover by 15mm | 4 = 1 set | UZ05A1 |



UZ01A1



UZ02A1

Mounting kits

| Description | Qty. | Cat. ref. |
|--|------------|---------------|
| Raising kit for DIN Rail | 50 = 1 set | UZ02Z2 |
| Raising kit for DIN Rail with fastening screws as accessory | 2 = 1 set | UZ02Z1 |
| Lowering kit for small drop, adjustable bracket mounted | 50 = 1 set | UZ03Z1 |
| Lowering kit for small drop, as accessory, adjustable bracket mounted, with fastening screws | 2 = 1 set | UZ03Z2 |
| Lowering kit for large drop, adjustable bracket mounted | 50 = 1 set | UZ04Z1 |
| Lowering kit for large drop as accessory, adjustable bracket mounted, with fastening screws | 2 = 1 set | UZ04Z2 |



UZ02Z2



UZ03Z1



UZ31M1

Mounting plates

| Description | For cabinet height | Qty. | Cat. ref. |
|--|--------------------|------|---------------|
| Mounting plates 1-field with fixing screws | 500 mm | 1 | UZ31M1 |
| Mounting plates 1-field with fixing screws | 650 mm | 1 | UZ41M1 |
| Mounting plates 1-field with fixing screws | 800 mm | 1 | UZ51M1 |
| Mounting plates 1-field with fixing screws | 950 mm | 1 | UZ61M1 |
| Mounting plates 2-field with fixing screws | 500 mm | 1 | UZ32M1 |
| Mounting plates 2-field with fixing screws | 650 mm | 1 | UZ42M1 |
| Mounting plates 2-field with fixing screws | 800 mm | 1 | UZ52M1 |
| Mounting plates 2-field with fixing screws | 950 mm | 1 | UZ62M1 |



UZ00Z1

Insulation accessories

| Description | Qty. | Cat. ref. |
|---|-------------|---------------|
| For DIN Rail style, horizontal, with raising kit | 50 = 1 set | UZ00Z1 |
| For DIN Rail style, horizontal, with raising kit as accessory, with fastening screws | 2 = 1 set | UZ00Z2 |
| For continuous DIN Rail, horizontal and vertical, without screws | 20 = 1 set | UZ01Z1 |
| For continuous DIN Rail, horizontal and vertical, without screws as accessory, with fixing screws | 1 | UZ01Z2 |
| Fixing screws | 100 = 1 set | UZ06Z4 |
| For adjustable bracket | 50 = 1 set | UZ00Z3 |
| For adjustable bracket as accessory, with fixing screws | 2 = 1 set | UZ00Z4 |



UZ01Z1

Quadro 4

Multiple easy combinations

The Quadro4 boards and floor standing enclosures are designed for an easy assembling using 3 basic elements: back plate, sides and top and base panels or top panel and plinth.

The vertical and horizontal combination of elements makes it possible to build “tailor made” enclosures for most requirements up to 630A. Thanks to slim packaging, storage and transport are optimised.



| 260 mm depth | | Back plate | | Top and bottom panels | | Top panel and plinth | | Sides (set of 2) |
|---------------------------------------|------------------------|---|--|---|--|---|--|---------------------|
| | | | | | | | | |
| enclosures height with top and plinth | inside height capacity | ref. for enclosure width: 370 mm 620 mm | | ref. for enclosure width: 370 mm 620 mm | | ref. for enclosure width: 370 mm 620 mm | | ref. |
| - | 150 mm | - - | | - - | | - - | | - |
| 500 mm | 450 mm | FC110 FC210 | | FC415 FC416 FC425 FC426 | | FC445 FC446 FC455 FC456 | | FC010 |
| 650 mm | 600 mm | FC111 FC211 | | FC415 FC416 FC425 FC426 | | FC445 FC446 FC455 FC456 | | FC011 |
| 800 mm | 750 mm | FC112 FC212 | | FC415 FC416 FC425 FC426 | | FC445 FC446 FC455 FC456 | | FC012 |
| 950 mm | 900 mm | FC113 FC213 | | FC415 FC416 FC425 FC426 | | FC445 FC446 FC455 FC456 | | FC013 |
| 1100 mm | 1050 mm | FC114 FC214 | | FC415 FC416 FC425 FC426 | | FC445 FC446 FC455 FC456 | | FC014 |
| 1250 mm | 1200 mm | FC115 FC215 | | FC415 FC416 FC425 FC426 | | FC445 FC446 FC455 FC456 | | FC015 |
| 1400 mm | 1350 mm | FC116 FC216 | | FC415 FC416 FC425 FC426 | | FC445 FC446 FC455 FC456 | | FC016 |
| 1550 mm | 1500 mm | - - | | - - | | - - | | - |
| 1700 mm | 1650 mm | FC118 FC218 | | FC415 FC416 FC425 FC426 | | FC445 FC446 FC455 FC456 | | FC012 + FC013 |
| 1850 mm | 1800 mm | FC119 FC219 | | FC415 FC416 FC425 FC426 | | FC445 FC446 FC455 FC456 | | 2 x FC013 |

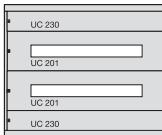
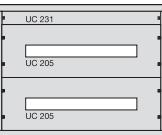
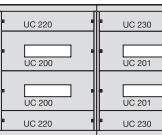
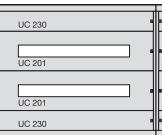
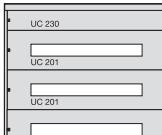
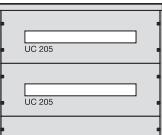
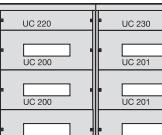
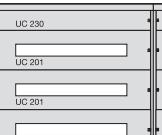
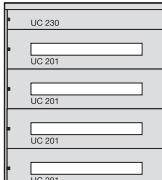
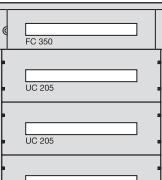
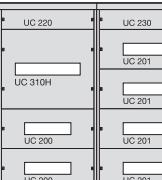
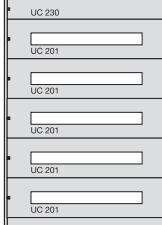
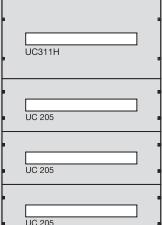
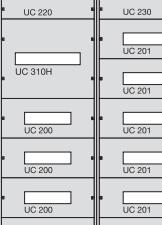
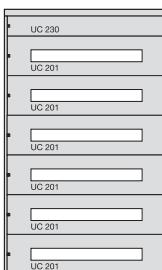
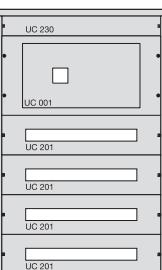
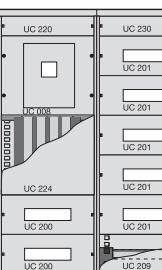
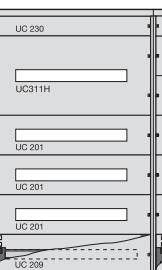
ref. in bold = IP43

| | Plain door | Transparent door | DIN rail equipment unit with door | Assembling kits | |
|--------------|--|--|-----------------------------------|-----------------|----------|
| | | | | horizontal | vertical |
| | | | | | |
| | delivered with keylock | delivered with keylock | | | |
| Doors height | ref. for enclosure width: 370 mm 620 mm | ref. for enclosure width: 620 mm | ref. width: 620 mm | ref. | ref. |
| 150 mm | - - | - | FC350 | - | - |
| 450 mm | FC310 FC330 | FC340 | - | FC120 | FC230 |
| 600 mm | FC311 FC331 | FC341 | - | FC121 | FC230 |
| 750 mm | FC312 FC332 | FC342 | - | FC122 | FC230 |
| 900 mm | FC313 FC333 | FC343 | - | FC123 | FC230 |
| 1050 mm | FC314 FC334 | FC344 | - | FC124 | FC230 |
| 1200 mm | FC315 FC335 | FC345 | - | FC125 | FC230 |
| 1350 mm | FC316 FC336 | FC346 | - | FC126 | FC230 |
| 1500 mm | FC317 FC337 | FC347 | - | - | - |
| 1650 mm | FC318 FC338 | FC348 | - | FC122 + FC123 | FC230 |
| 1800 mm | FC319 FC339 | FC349 | - | 2 x FC123 | FC230 |

Quadro 4

Examples of Equipment

:hager

| Examples of equipment for Quadro4, IP 40 enclosures : | | References of equipment units, to use and references of enclosures | | | |
|---|--|--|---|---|---|
| | width 620 mm | width 990 mm | width 1240 mm | | |
| height 450 mm |  FC210 FC010 FC425 + mod. kits centre distance 150 mm with 48 |  FC210 FC010 FC425 + mod. kits centre distance 200 mm with 48 |  UC 220 UC 230 UC 201 UC 201 UC 201 UC 230 FC210 FC010 FC425 + mod. kits centre distance 200 mm with 48 |  UC 230 UC 230 UC 201 UC 201 UC 201 UC 230 FC110 FC210 FC010 FC120 FC415 FC425 + mod. kits centre distance 150 mm with 68 | 2x FC210 FC010 2x FC425 FC120 + mod. kits centre distance 150 mm with 96 |
| height 600 mm |  FC211 FC011 FC425 + mod. kits centre distance 150 mm with 72 |  FC211 FC011 FC425 + mod. kits centre distance 200 mm with 72 |  UC 220 UC 230 UC 201 UC 201 UC 201 UC 230 FC111 FC211 FC121 FC011 FC415 FC425 + mod. kits centre distance 200 mm with 72 |  UC 230 UC 230 UC 201 UC 201 UC 201 UC 230 2x FC211 FC011 2x FC425 FC121 + mod. kits centre distance 150 mm with 144 | + mod. kits centre distance 150 mm with 72 |
| height 750 mm |  FC212 FC012 FC425 + mod. kits centre distance 150 mm with 96 |  FC212 FC012 FC425 + mod. door 24 + mod. kits centre distance 200 mm with 72 |  UC 220 UC 310H UC 230 UC 201 UC 201 UC 201 UC 201 UC 201 UC 201 UC 201 UC 201 FC112 FC212 FC012 FC122 FC415 FC425 + kit x160 + mod. kits centre distance 150 mm with 116 | | |
| height 900 mm |  FC213 FC013 FC425 + mod. kits centre distance 150 mm with 120 |  FC213 FC013 FC425 + kit x 160 + mod. kits centre distance 200 mm with 72 |  UC 310H UC 220 UC 230 UC 201 UC 201 UC 201 UC 201 UC 201 UC 201 UC 201 FC113 FC213 FC013 FC123 FC415 FC425 + kit x160 + mod. kits centre distance 150 mm with 150 | | |
| height 1050 mm |  FC214 FC014 FC425 + mod. kits centre distance 150 mm with 144 |  FC214 FC014 FC425 + kit HA 160A + mod. kits centre distance 150 mm with 96 |  UC 220 UC 230 UC 201 UC 201 UC 201 UC 230 FC114 FC214 FC014 FC124 FC415 FC425 + kit HA 160A mod. kits centre distance 150 mm with 140 + set of tilted bars + terminal blocks 22 |  UC 230 UC 230 UC 201 UC 201 UC 201 UC 230 FC114 FC214 FC014 FC124 FC415 FC425 + kit HA 160A mod. kits centre distance 150 mm with 192 + 2 terminal blocks 44 | 2x FC214 FC014 2x FC425 FC124 + kit x160 + mod. kits centre distance 150 mm with 192 + 2 terminal blocks 44 |

**Examples of equipments of
Quadro4, IP 40 enclosures :**
**References of the equipment
units, to use + needed
references of enclosures**

| width 620 mm | width 990 mm | width 1610 mm | |
|---------------------------|---------------------------|---------------------------|--|
| height 1200 mm | height 1650 mm | height 1650 mm | Commercial Distribution 2 x FC218 FC118 FC012 FC013 2 x FC122 2 x FC123 2 x FC455 FC445 + kit x250 or h250 + mod. kits centre distance 150 mm with 164 ■ + busbar downstream + departure kit x160 + grid + 2 terminal blocks 44 ■ |
| height 1350 mm | height 1800 mm | height 1800 mm | FC216 FC016 FC455 + horizontal kit x250 or h250 + mod. kits centre distance 150 mm with 120 ■ + terminal blocks 22 ■ |
| height 1650 mm | height 1800 mm | height 1800 mm | FC119 FC219 2 x FC013 2 x FC123 FC445 FC455 + kit h630 + mod. kits centre distance 150 and 200 mm with 216 ■ + vertical busbars + busbars in bottom behind modular + departure kit x160 + 2 terminal blocks 44 ■ |
| height 1650 mm | height 1800 mm | height 1800 mm | FC119 2 x FC219 2 x FC013 4 x FC123 FC445 2 x FC455 + kit h630 + mod. kits centre distance 150 mm with 336 ■ + grid + central busbars in busbar compartment + 4 terminal blocks 88 ■ + departure kit x160+ departure kit x250 or h250 |
| height 1650 mm | height 1800 mm | height 1800 mm | 2 x FC119 2 x FC219 2 x FC013 6 x FC123 2 x FC445 2 x FC455 + kit h630 + mod. kits centre distance 150 and 200 mm with 322 ■ + busbars in bottom behind modular + busbars in devices busbar compartment + horizontal distribution busbar + modular door 24 ■ + horizontal outgoing for x250 or h250 + busbar compartment for terminals outgoings for departure on terminal blocks + horizontal outgoing for x160 |



Structure of Enclosures

Characteristics

- For enclosed distribution up to 630A.
- Depth: 267 mm
- Quadro4 are composed of :
 - Back plate
 - Kit of 2 sides
 - Top and bottom panel kit
 - Top panel and plinth kit, height 150mm
 - Plain or transparent door
 - IP30, IK07 without door
 - IP40, IK08 with door
 - IP43, IK08 with door
 - Colour of sides and doors: RAL 9010
 - Colour of plinth: RAL 7042
 - All these kits allow multiple combinations of enclosures.
 - Complies to EN 50 298.

Sides and Back Plate

| Description | Height | Cat. ref. 2 sides kits | bottoms 370mm | 620mm |
|----------------------|----------|---------------------------|------------------|--------------|
| Sides and back plate | 450 mm | FC010 | FC110 | FC210 |
| | 600 mm | FC011 | FC111 | FC211 |
| | 750 mm | FC012 | FC112 | FC212 |
| | 900 mm | FC013 | FC113 | FC213 |
| | 1050 mm | FC014 | FC114 | FC214 |
| | 1200 mm | FC015 | FC115 | FC215 |
| | 1350 mm | FC016 | FC116 | FC216 |
| | 1650 mm* | - | FC118 | FC218 |
| | 1800 mm* | - | FC119 | FC219 |

*back plates delivered with 2 intermediate panels



Top and Bottom Panels

Characteristics

- Top and bottom panels delivered with the pre-mountingscrews (unloosable), cable entry

| Description | 370mm | 620mm |
|---|--------------|--------------|
| Delivered with cable entry plate in insulating material and with contractor name plate holder to ensure IP40 | FC415 | FC425 |
| Delivered with cable entry plates in insulating material to ensure IP43 and with contractor name plate holder | FC416 | FC426 |



Top Panel and Plinth

Characteristics

- Top panel and plinth delivered with the pre-mounting screws (unloosable), cable entry and 150mm height plinth

| Description | 370mm | 620mm |
|---|--------------|--------------|
| Delivered with cable entry to ensure IP40 | FC445 | FC455 |
| Delivered with cable entry to ensure IP43 | FC446 | FC456 |

Transparent and Plain Doors

Characteristics

- Transparent and plain doors delivered with adjustable hinges and key lock

| Description | Height | Cat. ref. transp. 620mm | plain 370mm | plain 620mm |
|-----------------------------|---------|----------------------------|----------------|----------------|
| Transparent and plain doors | 450 mm | FC340 | FC310 | FC330 |
| | 600 mm | FC341 | FC311 | FC331 |
| | 750 mm | FC342 | FC312 | FC332 |
| | 900 mm | FC343 | FC313 | FC333 |
| | 1050 mm | FC344 | FC314 | FC334 |
| | 1200 mm | FC345 | FC315 | FC335 |
| | 1350 mm | FC346 | FC316 | FC336 |
| | 1500 mm | FC347 | FC317 | FC337 |
| | 1650 mm | FC348 | FC318 | FC338 |
| | 1800 mm | FC349 | FC319 | FC339 |


 Commercial
Distribution

Equipment Unit with Door

Characteristics

- Equipment unit with door for modular devices and DIN rail
- Equipment 1 row, 24 for enclosure width 620 mm
- Reversible kit
- Delivered complete with lock
- Adjustable in dept



FC350

| Description | Cat. ref. 620mm |
|---|--------------------|
| Equipment unit with door for modular devices and DIN rail | FC350 |

Locks

| Description | Cat. ref. |
|--|--------------|
| Key lock n° 1242E delivered with 2 keys | FZ597 |
| key lock n° 405 delivered with 2 keys | FZ452 |
| key lock n° 455 delivered with 2 keys | FZ453 |
| lock with male square of 7 mm chrome plated with 1 key | FZ451 |
| lock with male triangle of 7 mm chrome plated with 1 key | FZ450 |
| lock with double chrome plated bar of 3mm with 1 key | FZ449 |



FZ597



FZ451

Schematics Holder

| Description | Cat. ref. |
|--|--------------|
| Flexible self-adhesive schematics holder, to stick inside the doors, A4 format | FZ794 |
| Rigid self-adhesive schematics holder, to stick inside the doors, A4 format | FZ795 |

Wall Mounting Lugs

| Description | Cat. ref. |
|--|--------------|
| Wall mounting lugs fixed at the back delivered with fastening screws, 1 set = 2 lugs | FM640 |



FM640



FC230

Connection Kits Between Enclosures

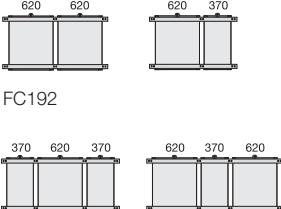
Characteristics

- For vertical association, width 370 and 620 mm, the continuity of equipments is guaranteed, 1 set is composed of 2 bolts with screws for connection of the bottoms and 2 pillars for connection on the sides
- For horizontal association the kit is common for the bottoms of width 370 and 620mm, 1 set is composed of 2 bolts with screws, 2 spacers for connection of the bottoms and to maintain the tops and bases as well as central support of front plates
- For bottom of 1650mm take : 1 FC122 + 1 FC123
- For bottom of 1800mm take : 2 FC123

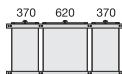


FC123

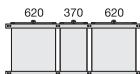
| Description | For height mm | Cat. ref. 620mm |
|----------------------------|---------------|-----------------|
| For vertical association | | FC230 |
| For horizontal association | 450 | FC120 |
| For horizontal association | 600 | FC121 |
| For horizontal association | 750 | FC122 |
| For horizontal association | 900 | FC123 |
| For horizontal association | 1050 | FC124 |
| For horizontal association | 1200 | FC125 |
| For horizontal association | 1350 | FC126 |



FC192



FC193



Horizontal Link Bars

Characteristics

- Horizontal link bars to link several enclosures to facilitate transport or fixing on the wall
- Precuts allow to adapt the bars to the desired length
- It is strongly recommended to use the link bars during the association of several bottoms
- Set of 2 bars delivered with fastening screw on enclosures

| Description | Cat. ref. |
|--|--------------|
| Set of 2 bars to connect 2 enclosures 2 x 620 mm or 1 x 620 + 1 x 370 mm | FC192 |
| Set of 2 bars to connect 3 enclosures 2 x 370 + 1 x 620 mm or 2 x 620 + 1 x 370 mm | FC193 |



FC671

Painting Kit

Characteristics

- for the final touch-up of the enclosures Quadro and their base plates
- 1 set includes : 1 can RAL 9010 for enclosures, 1 can RAL 7042 for base plates

| Description | Cat. ref. |
|--|--------------|
| Painting kit for Quadro enclosures and base plates | FC671 |



FZ402

FZ404

Cable Entry Plate

| Description | Cat. ref. |
|--|--------------|
| Cable entry plate for replacement, top and bottom IP54 | FZ402 |
| Cable entry plate for replacement, top and bottom IP43 | FZ403 |
| Cable entry plate plain | FZ404 |

Partition

| Description | Cat. ref. |
|---|--------------|
| in sheet metal for Quadro 4 and Quadro 5, width 620mm | FC664 |



FC419

Replacement Plate

| Description | Cat. ref. |
|--|--------------|
| Replacement plate in IP40, RAL 9010, width 370mm | FC419 |
| Replacement plate in IP40, RAL 9010, width 620mm | FC429 |

Quadro 5 IP55 boards and enclosures

The Quadro 5 boards and enclosures in IP55 are ideal for commercial applications such as, kitchens, hospitals, hotels, bank... Monobloc, but with large access thanks to removable sides.



| | | Enclosures depth 260 mm delivered without plinth | | | Enclosures depth 260 mm and 400 mm delivered with plinth of 150 mm | | Enclosures depth 260 mm and 400 mm delivered with plinth of 150 mm | |
|---|---------------------------------|---|------------------|--------------|--|--------------|---|--------------|
|  | |  | | |  | |  | |
| enclosures height with top and bottom or plinth | internal equipment height | enclosures width : (685mm usable) pair of 700 mm total sides | plinth 150 mm | | enclosures width : (435 mm usable) 450 mm total d. 260 mm | d.400 mm | (685 mm usa- ble) 700 mm total d. 260 mm | d. 400 mm |
| 510 mm | 450 mm | FM200 | FM400 | FM450 | - | - | - | - |
| 660 mm | 600 mm | FM201 | FM401 | FM450 | - | - | - | - |
| 810 mm | 750 mm | FM202 | FM402 | FM450 | - | - | - | - |
| 960 mm | 900 mm | FM203 | FM403 | FM450 | - | - | - | - |
| 1110 mm | 1050 mm | FM204 | FM404 | FM450 | - | - | - | - |
| 1260 mm | 1200 mm | FM205 | FM405 | FM450 | - | - | - | - |
| 1410 mm | 1350 mm | FM206 | FM406 | FM450 | - | - | - | - |
| 1710 mm | 1500 mm | - | - | - | FM107 | FM117 | FM207 | FM217 |
| 1860 mm | 1650 mm | - | - | - | FM108 | FM118 | FM208 | FM218 |
| 2010 mm | 1800 mm | - | - | - | FM109 | FM119 | FM209 | FM219 |
| vertical association kit | | FM630 | - | - | - | - | FM630 possible | - |
| horizontal association kit | | FM635 | - | - | FM635 | FM635 | FM635 | - |

| | | | | |
|---|---|--|---|--|
| Enclosures depth 260 mm and 400 mm delivered with plinth of 150 mm | Side panels | Busbar compartment and cable sleeve | Doors | |
| | | | | |
| (885 mm usable) 900 mm total d. 260 mm d. 400 mm | pair of sides d. 260 mm d. 400 mm | for enclosure: width 900 mm total d. 260 mm d. 400 mm | plain doors : width 435 mm width 685 mm width 885 mm | transparent doors: width 685 mm width 885 mm |
| - - | - - | - - | - FM530 - | FM540 - |
| - - | - - | - - | - FM531 - | FM541 - |
| - - | - - | - - | - FM532 - | FM542 - |
| - - | - - | - - | - FM533 - | FM543 - |
| - - | - - | - - | - FM534 - | FM544 - |
| - - | - - | - - | - FM535 - | FM545 - |
| - - | - - | - - | - FM536 - | FM546 - |
| FM307 | FM317 | FM407 | FM417 | FM427 FM437 FM517 FM537 FM557 FM547 FM567 |
| FM308 | FM318 | FM408 | FM418 | FM428 FM438 FM518 FM538 FM558 FM548 FM568 |
| FM309 | FM319 | FM409 | FM419 | FM429 FM439 FM519 FM539 FM559 FM549 FM569 |
| - - | - - | - - | - - | - - |
| FM635 | - | - - | - - | - - |



FM208



FM204

Enclosures and Boards

Characteristics

- The Quadro 5 enclosures are designed for enclosed distribution up to 630A.
- Delivered without sides, they can be joined horizontally and vertically to create multiple assemblies.
- The enclosures are delivered with a pre-mounted plinth.
- A cable sleeve or busbar compartment of 200mm width can be carried out in the enclosures of width 900mm.
- The Quadro 5 enclosures can be equipped with full or transparent doors. The whole of the equipment units, accessories of wiring, power distribution, can be assembled on the bottom.
- IP30 / IK08 without door. IP55 / IK10 with door
- Colour: RAL9010. Plinth colour: RAL7042
- Complies to EN 50 298, EN 60 439-1.

Enclosures with Plinth

- Depth : 260 mm and 400 mm
- Plinth height : 150 mm
- Delivered with 2 mounting lugs cover plate

| Description | Total height mm | Equipment height mm | Depth mm | Cat. ref. |
|---|-----------------|---------------------|----------|--------------|
| Inside width : 435mm total width : 450mm (with sides) | 1710 | 1500 | 260 | FM107 |
| | 1710 | 1500 | 400 | FM117 |
| | 1860 | 1650 | 260 | FM108 |
| | 1860 | 1650 | 400 | FM118 |
| | 2010 | 1800 | 260 | FM109 |
| | 2010 | 1800 | 400 | FM119 |
| Inside width : 685 mm total width : 700 mm (with sides) | 1710 | 1500 | 260 | FM207 |
| | 1710 | 1500 | 400 | FM217 |
| | 1860 | 1650 | 260 | FM208 |
| | 1860 | 1650 | 400 | FM218 |
| | 2010 | 1800 | 260 | FM209 |
| | 2010 | 1800 | 400 | FM219 |

To use with a kit for cable sleeve or busbar compartment cable sleeve or busbar compartment: 200 mm

| | | | | |
|--|------|------|-----|--------------|
| Inside width: 885 mm total width : 900 mm (with sides) | 1710 | 1500 | 260 | FM307 |
| | 1710 | 1500 | 400 | FM317 |
| | 1860 | 1650 | 260 | FM308 |
| | 1860 | 1650 | 400 | FM318 |
| | 2010 | 1800 | 260 | FM309 |
| | 2010 | 1800 | 400 | FM319 |

Boards

- Boards depth : 260 mm
- Delivered with 4 mounting lugs, cover plate
- Useful width : 685 mm, total width : 700 mm (with sides)
- RAL 9010

| Description | Total height mm | Equipment height mm | Depth mm | Cat. ref. |
|--|-----------------|---------------------|----------|--------------|
| Boards with 4 mounting lugs, cover plate | 510 | 450 | 260 | FM200 |
| | 660 | 600 | 260 | FM201 |
| | 810 | 750 | 260 | FM202 |
| | 960 | 900 | 260 | FM203 |
| | 1110 | 1050 | 260 | FM204 |
| | 1260 | 1200 | 260 | FM205 |
| | 1410 | 1350 | 260 | FM206 |

Plinth



FM450

Characteristics

- Plinth depth 260 mm, height : 150 mm, useful width : 685 mm, total width : 700 mm
- RAL 9042
- For enclosures of width 700 mm
- Delivered with 4 screws + 4 nuts + cover plates

| Description | Cat. ref. |
|--|--------------|
| Plinth depth 260 mm for enclosures of width 700 mm | FM450 |

Set of 2 sides

| Description | Total height mm | Depth mm | Cat. ref. |
|--|-----------------|----------|--------------|
| Set of 2 sides for boards and enclosures depth 260mm | 510 | 260 | FM400 |
| | 660 | 260 | FM401 |
| | 810 | 260 | FM402 |
| | 960 | 260 | FM403 |
| | 1110 | 260 | FM404 |
| | 1260 | 260 | FM405 |
| | 1410 | 260 | FM406 |


 Commercial
Distribution

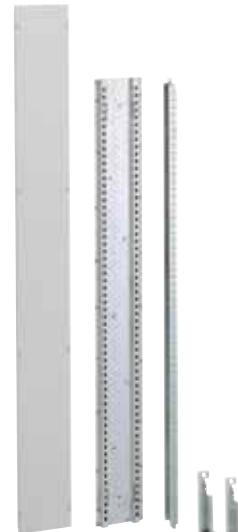
| | | | |
|-------------------------------|------|-----|--------------|
| Set of 2 sides for enclosures | 1710 | 260 | FM407 |
| | 1710 | 400 | FM417 |
| | 1860 | 260 | FM408 |
| | 1860 | 400 | FM418 |
| | 2010 | 260 | FM409 |
| | 2010 | 400 | FM419 |

FM403

Kits for Cable Compartment
Characteristics

- Kits for cable compartment allow to create a cable sheath with cable of 200mm in an enclosure of width 885mm
- Delivered with 2 fixing lugs, 1 pillar kit, 1 support of front plates and a full front plate

| Description | For enclosure | Depth mm | Cat. ref. |
|----------------------------|---------------|----------|--------------|
| Kits for cable compartment | FM307 | 260 | FM427 |
| | FM317 | 400 | FM437 |
| | FM308 | 260 | FM428 |
| | FM318 | 400 | FM438 |
| | FM309 | 260 | FM429 |
| | FM319 | 400 | FM439 |



FM428

Association Kits
Characteristics

- Kit of vertical association for boards this kit includes: 4 screws + M12 nuts, 4 washers, 1 self-adhesive seal
- Kit of horizontal association for boards and enclosures this kit includes : 6 screws + M6 nuts, 1 self-adhesive seal

| Description | Cat. ref. |
|---|--------------|
| Kit of vertical association for boards | FM630 |
| Kit of horizontal association for boards and enclosures | FM635 |



FM630

Back Plates

| Description | Cat. ref. |
|-------------------------------|--------------|
| Back plates h. 300 x w.500 mm | FM484 |
| Bac1 plates h. 600 x w.500 mm | FM486 |



FM532



FM568

Doors

Characteristics

Full Doors

- Delivered with hinges and equipped by triangle lock
- Reversible doors
- Distance between door and front plate : 58mm

Transparent Doors

- Transparent doors in sheet steel with a tempered smoked grey glass plate, thickness 3mm
- Delivered with hinges and equipped by triangle lock
- Reversible doors
- Distance between door and front plate : 54mm

| Description | Height mm | Cat. ref. 435 mm | Cat. ref. 685 mm | Cat. ref. 885 mm |
|-------------------|-----------|---------------------|---------------------|---------------------|
| Full doors | 510 | - | FM530 | - |
| | 660 | - | FM531 | - |
| | 810 | - | FM532 | - |
| | 960 | - | FM533 | - |
| | 1110 | - | FM534 | - |
| | 1260 | - | FM535 | - |
| | 1410 | - | FM536 | - |
| | 1710 | FM517 | FM537 | FM557 |
| | 1860 | FM518 | FM538 | FM558 |
| | 2010 | FM519 | FM539 | FM559 |
| Transparent doors | 510 | - | FM540 | - |
| | 660 | - | FM541 | - |
| | 810 | - | FM542 | - |
| | 960 | - | FM543 | - |
| | 1110 | - | FM544 | - |
| | 1260 | - | FM545 | - |
| | 1410 | - | FM546 | - |
| | 1710 | - | FM547 | FM567 |
| | 1860 | - | FM548 | FM568 |
| | 2010 | - | FM549 | FM569 |



FZ597

FZ449

Locks

Characteristics

- Replace the original lock for the following door heights: 510mm, 660mm, 810mm, 960mm, 1110mm, 1260mm, 1410mm



FZ451

FZ450

| Description | Cat. ref. |
|---|--------------|
| key lock n° 1242E, delivered with 2 keys | FZ597 |
| key lock n° 405, delivered with 2 keys | FZ452 |
| key lock n° 455, delivered with 2 keys | FZ453 |
| lock with male square of 7 mm, chrome plated with 1 key | FZ451 |
| lock with male triangle of 7 mm, chrome plated with 1 key | FZ450 |
| lock with double bar of 3 mm, chrome plated with 1 key | FZ449 |



FZ517

FZ850

Inserts for Locks

Characteristics

- Replace the lock of origin on the doors height: 1710mm, 1860mm, 2010mm

| Description | Cat. ref. |
|---|--------------|
| triangle insert 8 mm | FZ515 |
| square insert 6 x 6 mm | FZ516 |
| square insert 8 x 8 mm | FZ517 |
| rotary handle lock with key 1242E lock cylinder | FZ508 |
| triangle key + square + double bar | FZ850 |

Flexible Schematics Holder**Characteristics**

- Flexible schematics holder with self-adhesive to stick inside the doors

| Description | Cat. ref. |
|------------------------------------|--------------|
| Flexible schematics holder size A4 | FZ794 |



FZ794

Rigid Schematics Holder**Characteristics**

- Rigid schematics holder in sheet metal with adhesive for sticking inside the doors

| Description | Cat. ref. |
|---------------------------------|--------------|
| Rigid schematics holder size A4 | FC620 |

2 Wall Mounting Lugs**Characteristics**

- 2 wall mounting lugs for Quadro4 and Quadro5
- To fix the enclosures on the wall, the lugs can be positioned vertically and horizontally

| Description | Cat. ref. |
|----------------------|--------------|
| 2 Wall Mounting Lugs | FM640 |



FM640

2 Lifting Rings**Characteristics**

- 2 lifting rings allow the transport (lifting) of a unit
- Maximum weight 250 kg

| Description | Cat. ref. |
|--|--------------|
| 2 Lifting Rings, includes 2 rings, 2 nuts M12 screws | FM653 |



FM653

| Dimensions | | | | top and bottom frame | 4 uprights | vertical dividing upright | horizontal dividing upright | plain plate for top and bottom frames | sliding plate plate for top and bottom frames | plain door |
|----------------|--------------|---------------|--------------|----------------------|---------------|---------------------------|-----------------------------|---------------------------------------|---|-----------------------------|
| width W+w (mm) | width W (mm) | height H (mm) | depth D (mm) | | | | | | | |
| - | 450 | 1900 | 400 | FN018E | FN046E | - | - | FN078E | FN098E | FN546E |
| - | 450 | 2100 | 400 | FN018E | FN047E | - | - | FN078E | FN098E | FN547E |
| - | 450 | 1900 | 600 | FN020E | FN046E | - | - | FN080E | FN100E | FN546E |
| - | 450 | 2100 | 600 | FN020E | FN047E | - | - | FN080E | FN100E | FN547E |
| - | 450 | 1900 | 800 | FN022E | FN046E | - | - | FN082E | FN102E | FN546E |
| - | 450 | 2100 | 800 | FN022E | FN047E | - | - | FN082E | FN102E | FN547E |
| - | 700 | 1900 | 400 | FN021E | FN046E | - | - | FN081E | FN101E | FN506E |
| - | 700 | 2100 | 400 | FN021E | FN047E | - | - | FN081E | FN101E | FN507E |
| - | 700 | 1900 | 600 | FN029E | FN046E | - | - | FN089E | FN109E | FN506E |
| - | 700 | 2100 | 600 | FN029E | FN047E | - | - | FN089E | FN109E | FN507E |
| - | 700 | 1900 | 800 | FN013E | FN046E | - | - | FN073E | FN093E | FN506E |
| - | 700 | 2100 | 800 | FN013E | FN047E | - | - | FN073E | FN093E | FN507E |
| - | 900 | 1900 | 400 | FN023E | FN046E | - | - | FN083E | FN103E | FN526E |
| - | 900 | 2100 | 400 | FN023E | FN047E | - | - | FN083E | FN103E | FN527E |
| - | 900 | 1900 | 600 | FN031E | FN046E | - | - | FN091E | FN111E | FN526E |
| - | 900 | 2100 | 600 | FN031E | FN047E | - | - | FN091E | FN111E | FN527E |
| 700+200 | - | 1900 | 400 | FN023E | FN046E | FN286E | FN289E | FN083E | FN103E | FN506E⁽¹⁾ |
| 700+200 | - | 2100 | 400 | FN023E | FN047E | FN287E | FN289E | FN083E | FN103E | FN507E⁽²⁾ |
| 700+200 | - | 1900 | 600 | FN031E | FN046E | FN286E | FN291E | FN091E | FN111E | FN506E⁽¹⁾ |
| 700+200 | - | 2100 | 600 | FN031E | FN047E | FN287E | FN291E | FN091E | FN111E | FN507E⁽²⁾ |
| 700+200 | - | 1900 | 800 | FN017E | FN046E | FN286E | FN292E | FN077E | FN097E | FN506E⁽¹⁾ |
| 700+200 | - | 2100 | 800 | FN017E | FN047E | FN287E | FN292E | FN077E | FN097E | FN507E⁽²⁾ |
| 700+300 | - | 1900 | 400 | FN024E | FN046E | FN286E | FN289E | FN084E | FN104E | FN506E⁽³⁾ |
| 700+300 | - | 2100 | 400 | FN024E | FN047E | FN287E | FN289E | FN084E | FN104E | FN507E⁽⁴⁾ |
| 700+300 | - | 1900 | 600 | FN032E | FN046E | FN286E | FN291E | FN092E | FN112E | FN506E⁽³⁾ |
| 700+300 | - | 2100 | 600 | FN032E | FN047E | FN287E | FN291E | FN092E | FN112E | FN507E⁽⁴⁾ |
| 700+300 | - | 1900 | 800 | FN037E | FN046E | FN286E | FN292E | FN121E | FN117E | FN506E⁽³⁾ |
| 700+300 | - | 2100 | 800 | FN037E | FN047E | FN287E | FN292E | FN121E | FN117E | FN507E⁽⁴⁾ |

⁽¹⁾ Door + busbar compartment panel FN266
⁽²⁾ Door + busbar compartment panel FN267

⁽³⁾ Door + busbar compartment panel FN206
⁽⁴⁾ Door + busbar compartment panel FN207

| transparent doors | back panel | finishing frame (without door) | busbar compartment or cable sleeve (front/rear) | plain panel (sides) | plinth H = 100mm | Internal steel door | galvanized steel plate | functional uprights whole height 1900 mm | functional uprights partial height 1600 mm |
|-----------------------------|---------------|--------------------------------|---|---------------------|------------------|---------------------|------------------------|--|--|
| - | FN216E | - | - | FN356E | FN438E | - | FN726E | FN696E | FN896E + 2 x FN690E |
| - | FN217E | - | - | FN357E | FN438E | - | FN727E | FN697E | FN897E + 2 x FN690E |
| - | FN216E | - | - | FN366E | FN440E | - | FN726E | FN696E | FN896E + 2 x FN691E |
| - | FN217E | - | - | FN367E | FN440E | - | FN727E | FN697E | FN897E + 2 x FN691E |
| - | FN216E | - | - | FN376E | FN442E | - | FN726E | FN696E | FN896E + 2 x FN692E |
| - | FN217E | - | - | FN377E | FN442E | - | FN727E | FN697E | FN897E + 2 x FN692E |
| FN516E | FN276E | FN406E | - | FN356E | FN441E | FN700E | FN736E | FN696E | FN896E + 2 x FN690E |
| FN517E | FN277E | FN407E | - | FN357E | FN441E | FN701E | FN737E | FN697E | FN897E + 2 x FN690E |
| FN516E | FN276E | FN406E | - | FN366E | FN451E | FN700E | FN736E | FN696E | FN896E + 2 x FN691E |
| FN517E | FN277E | FN407E | - | FN367E | FN451E | FN701E | FN737E | FN697E | FN897E + 2 x FN691E |
| FN516E | FN276E | FN406E | - | FN376E | FN433E | FN700E | FN736E | FN696E | FN896E + 2 x FN692E |
| FN517E | FN277E | FN407E | - | FN377E | FN433E | FN701E | FN737E | FN697E | FN897E + 2 x FN692E |
| FN536E | FN296E | FN426E | - | FN356E | FN443E | FN706E | FN746E | FN696E | FN896E + 2 x FN690E |
| FN537E | FN297E | FN427E | - | FN357E | FN443E | FN711E | FN747E | FN697E | FN897E + 2 x FN690E |
| FN536E | FN296E | FN426E | - | FN366E | FN453E | FN706E | FN746E | FN696E | FN896E + 2 x FN691E |
| FN537E | FN297E | FN427E | - | FN367E | FN453E | FN711E | FN747E | FN697E | FN897E + 2 x FN691E |
| FN536E | FN296E | FN426E | - | FN376E | FN437E | FN706E | FN746E | FN696E | FN896E + 2 x FN692E |
| FN537E | FN297E | FN427E | - | FN377E | FN437E | FN711E | FN747E | FN697E | FN897E + 2 x FN692E |
| FN516E⁽¹⁾ | FN296E | FN426E | FN266E | FN356E | FN443E | FN706E | FN746E | FN696E | FN896E + 2 x FN690E |
| FN517E⁽²⁾ | FN297E | FN427E | FN267E | FN357E | FN443E | FN711E | FN747E | FN697E | FN897E + 2 x FN690E |
| FN516E⁽¹⁾ | FN296E | FN426E | FN266E | FN366E | FN453E | FN706E | FN746E | FN696E | FN896E + 2 x FN691E |
| FN517E⁽²⁾ | FN297E | FN427E | FN267E | FN367E | FN453E | FN711E | FN747E | FN697E | FN897E + 2 x FN691E |
| FN516E⁽¹⁾ | FN296E | FN426E | FN266E | FN376E | FN437E | FN706E | FN746E | FN696E | FN896E + 2 x FN692E |
| FN517E⁽²⁾ | FN297E | FN427E | FN267E | FN377E | FN437E | FN711E | FN747E | FN697E | FN897E + 2 x FN692E |
| FN516E⁽³⁾ | FN246E | FN406E | FN206E | FN356E | FN444E | FN700E | FN736E | FN696E | FN896E + 2 x FN690E |
| FN517E⁽⁴⁾ | FN247E | FN407E | FN207E | FN357E | FN444E | FN701E | FN737E | FN697E | FN897E + 2 x FN690E |
| FN516E⁽³⁾ | FN246E | FN406E | FN206E | FN366E | FN454E | FN700E | FN736E | FN696E | FN896E + 2 x FN691E |
| FN517E⁽⁴⁾ | FN247E | FN407E | FN207E | FN367E | FN454E | FN701E | FN737E | FN697E | FN897E + 2 x FN691E |
| FN516E⁽³⁾ | FN246E | FN406E | FN206E | FN376E | FN459E | FN700E | FN736E | FN696E | FN896E + 2 x FN692E |
| FN517E⁽⁴⁾ | FN247E | FN407E | FN207E | FN377E | FN459E | FN701E | FN737E | FN697E | FN897E + 2 x FN692E |



FN018E



FN438E

Structure

Characteristics

- For enclosed distribution up to 1600A.
- Height: 1900, 2100 mm
- Depth: 400, 600, 800 mm
- Quadro+ consists of parts to assemble : top and bottom frames, 4 uprights, cable gland plates, plinth (height 100 mm)
- IP30 / IK08 without door, IP55 / IK10 with door
- RAL 9010 (structure), RAL 7042 (plinth)
- Quadro+ join horizontally with no limit to form a complete structure. To finish the unit Quadro+ can be equipped with : side panel, back panel, panel for busbar compartment, plain or transparent doors

Top and Bottom Frames, Plinths

| Description | Width mm | Depth mm | Frame Cat. ref. | Plinth Cat. ref. |
|--------------------------------|----------|----------|-----------------|------------------|
| Top and Bottom Frames, Plinths | 450 | 400 | FN018E | FN438E |
| | 700 | 400 | FN021E | FN441E |
| | 900 | 400 | FN023E | FN443E |
| | 1000 | 400 | FN024E | FN444E |
| | 450 | 600 | FN020E | FN440E |
| | 700 | 600 | FN029E | FN451E |
| | 900 | 600 | FN031E | FN453E |
| | 1000 | 600 | FN032E | FN454E |
| | 450 | 800 | FN022E | FN442E |
| | 700 | 800 | FN013E | FN433E |
| | 900 | 800 | FN017E | FN437E |
| | 1000 | 800 | FN037E | FN459E |



FN046E FN286E

Uprights

Characteristics

Uprights

- Height: 1900, 2100 mm
- Depth: 400, 600, 800 mm

Vertical Dividing Uprights

- For sheath in cells of width: 900 mm (700 + 200) or 1000 mm (700 + 300)
- Delivered with 1 upright and fixing accessories

Functional Uprights Kits

- Do not fit in 300 mm busbar compartment or cable sleeve

Functional Uprights Partial Height

- To be equipped with (ordered separately):
- 4xFN690E for 400mm depth
- 4xFN691E for 600mm depth
- 4xFN692E for 800mm depth



FN696E

| Description | Height mm | Cat. ref. |
|---|-----------|---------------|
| Uprights, set of 4 | 1900 | FN046E |
| Uprights, set of 4 | 2100 | FN047E |
| Vertical dividing uprights, 1 upright and fixing accessories | 1900 | FN286E |
| Vertical dividing uprights, 1 upright and fixing accessories | 2100 | FN287E |
| Functional upright kits, delivered with 4 squares, 2 uprights, fixing kit, 2 supports for front plate | 1800 | FN696E |
| Functional upright kits, delivered with 4 squares, 2 uprights, fixing kit, 2 supports for front plate | 2000 | FN697E |
| Functional upright kits, for mounting without busbar on horizontal edge | 1600 | FN896E |
| Functional upright kits, for mounting without busbar on horizontal edge | 1800 | FN897E |
| Functional Uprights Partial Height | 150 | FN891E |
| Functional Uprights Partial Height | 200 | FN892E |
| Functional Uprights Partial Height | 300 | FN893E |
| Functional Uprights Partial Height | 400 | FN894E |
| Functional Uprights Partial Height | 600 | FN895E |

Profiles for Front Cover Fixing

| Description | Cat. ref. |
|-------------------------------|----------------|
| For h1900 enclosures, whole | FN696EP |
| For h1900 enclosures, partial | FN896EP |
| For h2100 enclosures, whole | FN697EP |
| For h2100 enclosures, partial | FN897EP |

Cable Gland Plates

Characteristics

- Equipped with IP55 gasket
- Open cable gland plates: adjustable thanks to a sliding plate.



FN081E



FN101E

Commercial
Distribution

Doors for Quadro+ cells

- Reversible
- Height: 1860 mm
- IP55 / IK10 protection class
- Transparent doors: with tempered glass, 3mm thick, distance between front plate and door: 70 mm
- Plain doors: distance between front plate and door: 75 mm

| Description | Width mm | Depth mm | Full Cat. ref. | Open Cat. ref. |
|---|----------|----------|----------------|----------------|
| Cable gland plates can be mounted on top and bottom | 450 | 400 | FN078E | FN098E |
| | 700 | 400 | FN081E | FN101E |
| | 900 | 400 | FN083E | FN103E |
| | 1000 | 400 | FN084E | FN104E |
| | 450 | 600 | FN080E | FN100E |
| | 700 | 600 | FN089E | FN109E |
| | 900 | 600 | FN091E | FN111E |
| | 1000 | 600 | FN092E | FN112E |
| | 450 | 800 | FN082E | FN102E |
| | 700 | 800 | FN073E | FN093E |
| | 900 | 800 | FN077E | FN097E |
| | 1000 | 800 | FN121E | FN117E |

Plain and Transparent Doors

Characteristics

- Plain and transparent doors delivered complete with hinges and with triangular key lock

| Description | Width mm | Depth mm | Plain Cat. ref. | Transparent Cat. ref. |
|---|----------|----------|-------------------------------------|-------------------------------------|
| Plain & transpar. doors delivered with hinges and triangular key lock | 450 | 1900 | FN546E | FN510E |
| | 450 | 2100 | FN547E | FN511E |
| | 700 | 1900 | FN506E | FN516E |
| | 700 | 2100 | FN507E | FN517E |
| | 900 | 1900 | FN526E | FN536E |
| | 900 | 2100 | FN527E | FN537E |
| | 1000 | 1000 | FN506E + FN206E | FN516E + FN206E |



FN510E



FN276E

Screwed Cable Compartment Panels

| Description | Width mm | Height mm | Cat. ref. |
|---|------------------|-----------|---------------|
| Panels to close sheath of 200 or 300mm. Mounted on front or back of enclosure | 900 (sheath 200) | 1900 | FN266E |
| | 900 (sheath 200) | 2100 | FN267E |
| | 1000 (shth. 300) | 1900 | FN206E |
| | 1000 (shth. 300) | 2100 | FN207E |
| Panels to be mounted on the back of the enclosure | 450 | 1900 | FN216E |
| | 450 | 2100 | FN217E |
| | 700 | 1900 | FN276E |
| | 700 | 2100 | FN277E |
| | 900 | 1900 | FN296E |
| | 900 | 2100 | FN297E |
| | 1000 | 1900 | FN246E |
| | 1000 | 2100 | FN247E |

Screwed Side Panels

| Description | Depth mm | Height mm | Cat. ref. |
|---|----------|-----------|---------------|
| Screwed side panels fixing by screws on the sides | 450 | 1900 | FN356E |
| | 450 | 2100 | FN357E |
| | 600 | 1900 | FN366E |
| | 600 | 2100 | FN367E |
| | 800 | 1900 | FN376E |
| | 800 | 2100 | FN377E |

Cover Plates

| Description | Cat. ref. |
|--|---------------|
| Cover plates to close space between two associated enclosures, to be used for each association | FN942E |



FN950

Side Juxtaposition Kits

| Description | Cat. ref. |
|--|--------------|
| Side juxtaposition kits for all the enclosures, kit with 4 galvanized steel parts 40/10e | FN950 |

Cells Connection Kits

| Description | Cat. ref. |
|---|--------------|
| Cells Connection Kits, seal 10 x 6 mm length 10 m | FN951 |



FN430E

Plinth Overlapping Kits

| Description | Cat. ref. |
|--|---------------|
| Plinth overlapping kits to superpose 2 plinths, seal 10 x 6 mm length 10 m | FN430E |



FN767

Lifting Brackets

| Description | Cat. ref. |
|---|---------------|
| Lifting brackets set of 2, delivered with M12 bolt - single | FZ767 |
| Lifting brackets set of 2, delivered with M12 bolt - double | FZ760E |



FN952

Door Blocking at Opening

| Description | Cat. ref. |
|---|--------------|
| Door blocking at opening for door width: 450 and 700 mm | FN952 |

Door Handle

| Description | Cat. ref. |
|--|--------------|
| Door handle, rotary handle lock cylinder, with key 1242E | FZ508 |

Inserts for Locks

| Description | Cat. ref. |
|---|--------------|
| Inserts for locks, replaces the lock of the original door handle FZ508 - triangle insert 8 mm | FZ515 |
| Inserts for locks, replaces the lock of the original door handle FZ508 - square insert 6 x 6 mm | FZ516 |
| Inserts for locks, replaces the lock of the original door handle FZ508 - square insert 8 x 8 mm | FZ517 |
| Inserts for locks, replaces the lock of the original door handle FZ508 - triangle key + square + double bar | FZ850 |



FN517 FN515

Rigid Diagram Holder

| Description | Cat. ref. |
|---|--------------|
| Rigid diagram holder delivered with adhesive for fixing inside doors, in sheet steel, A4 format | FZ795 |



FZ795

Ventilators

| Description | Cat. ref. |
|-----------------------------------|---------------|
| Ventilator RAL 7035, 220 V - 20 W | FL212Z |
| Ventilator RAL 7035, 220 V - 32 W | FL214Z |

Ventilation Grids

| Description | Cat. ref. |
|---------------------------------------|---------------|
| Ventilation grids IP 54, 150 x 150 m | FL220Z |
| Ventilation grids IP 54, 250 x 250 mm | FL224Z |

Painting Kit

| Description | Cat. ref. |
|--|--------------|
| Painting kit in aerosol can for the final touch-up of Quadro enclosures and base plates. 1 set includes : 1 can colour RAL 9010 for enclosures, 1 can colour RAL 7042 for base plates | FC671 |

Perforated Crossbars with Clamps

| Description | Cat. ref. |
|--|---------------|
| Crossbars to mount horizontally on enclosures sides, H=50mm step of 25mm for enclosure depth 400mm | FN690E |
| Crossbars to mount horizontally on enclosures sides, H=50mm step of 25mm for enclosure depth 600mm | FN691E |
| Crossbars to mount horizontally on enclosures sides, H=50mm step of 25mm for enclosure depth 800mm | FN692E |



FN690E

Perforated Mounting Rails

| Description | Cat. ref. |
|--|---------------|
| To mount directly on the uprights on the back of enclosure, H=50mm step of 25mm for enclosure width 450mm | FN873E |
| To mount directly on the uprights on the back of enclosure, H=50mm step of 25mm for enclosure width 700mm | FN875E |
| To mount directly on the uprights on the back of enclosure, H=50mm step of 25mm for enclosure width 900mm | FN877E |
| To mount directly on the uprights on the back of enclosure, H=50mm step of 25mm for enclosure width 1000mm | FN879E |



FN877E

Perforated Brackets

| Description | Height 50mm Cat. ref. | Height 25mm Cat. ref. |
|---|--------------------------|--------------------------|
| Assembly in depth on crossbars FN690E to FN692E, step of 25mm for enclosure width 450mm | FN863E | FN862E |
| Assembly in depth on crossbars FN690E to FN692E, step of 25mm for enclosure width 700mm | FN865E | FN864E |
| Assembly in depth on crossbars FN690E to FN692E, step of 25mm for enclosure width 900mm | FN867E | FN866E |



FN864E

Perforated Din Rails

| Description | Height 50mm Cat. ref. | Height 25mm Cat. ref. |
|--|--------------------------|--------------------------|
| To mount inside on brackets FN862E to FN867E, step of 25mm for enclosure depth 450mm | FN883E | FN882E |
| To mount inside on brackets FN862E to FN867E, step of 25mm for enclosure depth 600mm | FN885E | FN884E |
| To mount inside on brackets FN862E to FN867E, step of 25mm for enclosure depth 800mm | FN887E | FN886E |



FN883E

Finishing Frames

| Description | Width mm | Height mm | Cat. ref. |
|------------------|------------|-----------|---------------|
| Finishing frames | 700 / 1000 | 1900 | FN406E |
| | 700 / 1000 | 2100 | FN407E |
| | 900 | 1900 | FN426E |
| | 900 | 2100 | FN427E |

Internal Doors

| Description | Width mm | Height mm | Cat. ref. |
|----------------|----------|-----------|---------------|
| Internal doors | 700 | 1900 | FN700E |
| | 700 | 2100 | FN701E |
| | 900 | 1900 | FN706E |
| | 900 | 2100 | FN711E |



FN737E

Mounting Plates

| Description | Width mm | Height mm | Cat. ref. |
|-----------------|----------|-----------|---------------|
| Mounting plates | 450 | 1900 | FN726E |
| | 450 | 2100 | FN727E |
| | 700 | 1900 | FN736E |
| | 700 | 2100 | FN737E |
| | 900 | 1900 | FN746E |
| | 900 | 2100 | FN747E |



FN289E

Horizontal Partitioning Uprights

| Description | Depth mm | Cat. ref. |
|----------------------------------|----------|---------------|
| Horizontal partitioning uprights | 400 | FN289E |
| | 600 | FN291E |
| | 800 | FN292E |

Cover Plates

| Description | Depth mm | Cat. ref. |
|--------------|----------|---------------|
| Cover plates | 400 | FN942E |
| | 600 | FN943E |
| | 800 | FN944E |



UT88A

Brackets

| Description | Depth mm | Cat. ref. |
|--|----------|---------------|
| Brackets for bars support | 400 | FN970E |
| | 600 | FN971E |
| | 800 | FN972E |
| Singe brackets for copper busbars for busbars 25 x 5 mm | | UT88A |
| Singe brackets for copper busbars for busbars 50 x 5 mm | | UT88B |
| Double brackets for copper busbars for busbars 25 x 5 mm | | UT88C |
| Double brackets for copper busbars for busbars 50 x 5 mm | | UT88D |

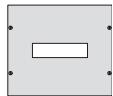
Perforated Busbars Copper

| Description | Cat. ref. |
|---|--------------|
| Perforated busbars copper 25 x 5 mm, length 1750 mm | UT87E |

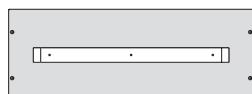
| | | | | |
|----------------------------------|--|---|---|--|
| | Load break switches with visible breaking 100 to 400A | HA switches, visual breaking 160 to 1600A | Modular devices: 10 (w.350 mm) 24 (w. 600 mm) | Full front plates + • grids for special devices • DIN rails for terminals width 600 mm UC951 |
| Equipment kits length (mm) | | | | |
| 350 | 600 | 350 | 600 | 350 |
| 50 mm | | | | UC221 |
| 75 mm | | | | UC231 |
| 100 mm | | | | UC220 |
| 150 mm | | | UC200 | UC201 |
| 200 mm | | | | UC222 |
| 300 mm | UC310H + HY170 | UC311H + HY170 | UC008 | UC001 (160A) |
| | UC332 | | UC009 | UC003 (250/400A) |
| 400 mm | | UC335 | | UC224 |
| 600 mm | | | UC005 (160A) | UC225 |
| | | | UC270 (1600A) | UC234 |
| | | | | UC960 |
| | | | | UC692 (450 mm) |
| | | | | UC964 |

| Equipment kits width (mm) | | MCCBs, trip-free switches 125 and 160A x160 | | | MCCBs, trip-free switches 250A x250 | | | MCCBs trip-free switches 250 A (electronic) h250 | |
|---------------------------|----------------------------|--|-----|-----|--|-----|-----|---|-----|
| | | 350 | 600 | 800 | 350 | 600 | 800 | 350 | 600 |
| for rotary handle | 150 class I class II | | | | | | | | |
| | 200 class I class II | | | | | | | | |
| | 300 class I class II | | | | | | | | |
| | 400 class I class II | | | | | | | | |
| | 600 class I class II | | | | | | | | |
| | 300 class II | | | | | | | | |
| for motor operator | 400 class II | | | | | | | | |
| | 600 class II | | | | | | | | |

| | | | | | | | |
|------------------|---|------------------|----------------------------------|------------------|-----------------------------------|------------------|------------------|
| | MCCBs, trip-free switches 400 and 630A h400-h630 | | MCCBs, 800 and 1000A h1000 | | MCCBs, 1250 and 1600A h1600 | | |
| 800 | 350 | 600 | 800 | 600 | 800 | 600 | |
| | | | | | | | |
| | | | | | | | |
| UC128H UC428H | | UC147H UC447H | UC148H UC448H | | | | |
| | | | | | | | |
| UC022H UC322H | | | | | | | |
| | | | | | | | |
| UC024H UC324H | UC140H UC440H | UC141H UC441H | UC142H UC442H | UC054H UC354H | UC055H UC355H | | |
| | | | | | | | |
| | UC144H UC444H | UC145H UC445H | UC146H UC446H | UC050H UC350H | UC051H UC351H | UC060H UC360H | UC061H UC361H |
| | | | | | | | |
| UC322HM | | | | | | | |
| | | | | | | | |
| | | UC441HM | UC442HM | | | | |
| | | | | | | | |
| | | | | UC350HM | UC351HM | UC360HM | UC361HM |



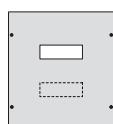
UC010H / UC310H



UC012H / UC312H



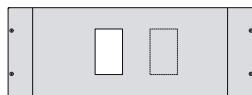
UC013HX01 / UC313H



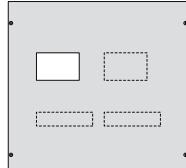
UC030H / UC330H



UC128H / UC428H



UC322HM



UC145H / UC445H



UC147H / UC447H



UC001

Equipment Kits for h3 MCCBs x160, x250, h250 LSI, h630 LSI

Characteristics

- Double Class II
- For direct or rotary handle

Composition

- 1 lowered symmetrical DIN rail fixed on mounting plate with 4 class II insulated legs, 1 sheet metal front plate, fixing accessories

Capacity

- Width 500 mm space for one more device

Equipment kits for switches with visible breaking 160 to 1600A

- For direct or rotary handle

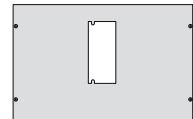
Composition

- 1 insulated mounting plate for the main device, 1 sheet metal front plate, fixing accessories
- The mounting plate for versions 160 and 250/400A in width 500mm are fitted with a symmetrical DIN rail to receive a set of distribution blocks

| Description | Height mm | Width mm | Class I Cat. ref. | Class II Cat. ref. |
|--|-----------|----------|----------------------|-----------------------|
| Equipment kits for MCCBs x160 for direct or rotary handle: vertical layout with or without add-on block | 300 | 350 | UC010H | UC310H |
| | 300 | 600 | UC011H | UC311H |
| | 300 | 800 | UC012H | UC312H |
| Equipment kits for MCCBs x160 for direct or rotary handle: horizontal layout without add-on block | 150 | 600 | UC013HX01 | UC313H |
| | 150 | 800 | UC014H | UC314H |
| | 300 | 350 | UC020H | UC320H |
| Equipment kits for MCCBs x250 for direct or rotary handle: vertical layout without add-on block | 300 | 600 | UC021H | UC321H |
| | 300 | 800 | UC022H | UC322H |
| | 400 | 350 | UC030H | UC330H |
| Equipment kits for MCCBs x250 for direct or rotary handle: vertical layout with add-on block | 400 | 600 | UC023H | UC323H |
| | 400 | 800 | UC024H | UC324H |
| | 200 | 600 | UC127H | UC427H |
| Equipment kits for MCCBs x250 for direct or rotary handle: horizontal layout with or without add-on block | 200 | 800 | UC128H | UC428H |
| | 300 | 600 | - | UC321HM |
| | 300 | 800 | - | UC322HM |
| Equip. kits for MCCBs h250 LSI for direct or rotary handle: vertical layout | 300 | 350 | UC020H | UC320H |
| | 300 | 600 | UC021H | UC321H |
| | 200 | 600 | - | UC427HL |
| Equip. kits for MCCBs h250 LSI for direct or rotary handle: horizontal layout | 200 | 800 | - | UC428HL |
| | 300 | 600 | - | UC321HM |
| | 300 | 800 | - | UC322HM |
| Equip. kits for MCCBs h250 LSI for motor operator: vertical layout without add-on block | 300 | 600 | - | UC321HM |
| | 300 | 800 | - | UC322HM |
| | 400 | 350 | UC140H | UC440H |
| Equip. kits for MCCBs h250 LSI for motor operator: vertical layout without add-on block | 400 | 600 | UC141H | UC441H |
| | 400 | 800 | UC142H | UC442H |
| | 600 | 350 | UC144H | UC444H |
| Equip. kits for MCCBs h250 LSI for direct or rotary handle: vertical layout with add-on block | 600 | 600 | UC145H | UC445H |
| | 600 | 800 | UC146H | UC446H |
| | 200 | 600 | UC147H | UC447H |
| Equip. kits for MCCBs h250 LSI for direct or rotary handle: horizontal layout with or without add-on block | 200 | 800 | UC148H | UC448H |
| | 400 | 600 | - | UC441HM |
| | 400 | 800 | - | UC442HM |
| Equip. kits for switches with visible breaking 160 to 1600A kits for switches 160 A HA452 | 300 | 350 | - | UC008 |
| | 300 | 600 | - | UC001 |
| | 250 | 350 | - | UC009 |
| ...kits for switches 250/400A HA454, HA457 | 250 | 600 | - | UC003 |
| | 600 | 600 | - | UC005 |
| ...kits for switches 630 A HA458 | 600 | 600 | - | UC005 |
| | 600 | 600 | - | UC270 |

Equipment kits for h3 MCCBs h1000 LSI and h1600 LSI
Class I version Composition

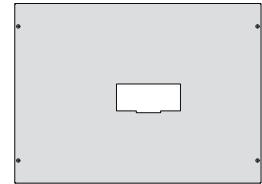
- 1 metal mounting plate
- 1 sheet metal front plate
- fixing accessories



UC054H / UC354H

Class II double insulation version Composition

- 1 mounting plate with 4 class II insulated fixing legs
- 1 sheet metal front plate
- fixing accessories

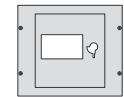


UC061H / UC361H

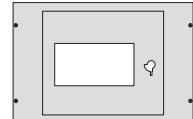
- Equipment kits for switches with visible breaking 100 to 400A, double isolation class II

- 1 mounting plate with 4 class II insulated fixing legs
- 1 sheet metal front plate
- Various accessories

| Description | Height mm | Width mm | Class I Cat. ref. | Class II Cat. ref. |
|---|-----------|----------|----------------------|-----------------------|
| Equip. kits for MCCBs h1000 LSI for direct for rotary handle: horizontal layout | 400 | 600 | UC054H | UC354H |
| | 400 | 800 | UC055H | UC355H |
| Equip. kits for MCCBs h1000 LSI for direct for rotary handle: vertical layout | 600 | 600 | UC050H | UC350H |
| | 600 | 800 | UC051H | UC351H |
| Equip. kits for MCCBs h1000 LSI for direct for motor operator: vertical layout | 600 | 600 | - | UC350HM |
| | 600 | 800 | - | UC351HM |
| Equipment kits for MCCBs h1600 LSI for direct for rotary handle: vertical layout | 600 | 600 | UC060H | UC360H |
| | 600 | 800 | UC061H | UC361H |
| Equipment kits for MCCBs h1600 LSI for direct for motor operator: vertical layout | 600 | 600 | - | UC360HM |
| | 600 | 800 | - | UC361HM |
| Equipment kits for switches with visible breaking 100 to 400A double isolation class II, kits for switches HA 100 to 200A | 300 | 350 | - | UC310H |
| | 300 | 600 | - | UC311H |
| Equip. kits for switches with visible breaking 100 to 400A double isolation class II, kits for switches 250A HA964N with direct control | 300 | 350 | - | UC332 |
| Equip. kits for switches with visible breaking 100 to 400A double isolation class II, kits for switches 400A HA966N with direct control | 400 | 600 | - | UC335 |



UC332

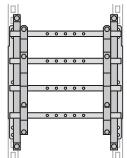
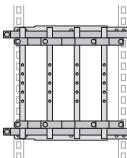
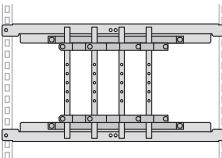
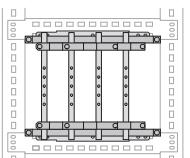
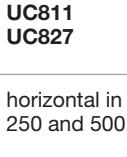
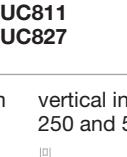
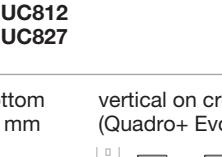
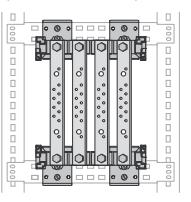
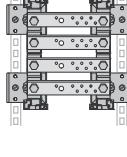
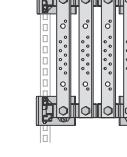
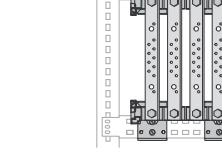
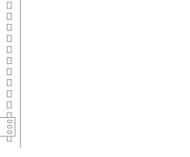
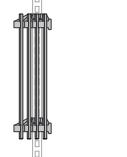
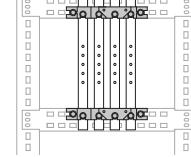
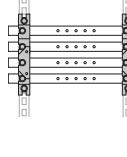
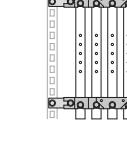
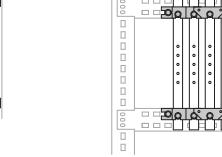
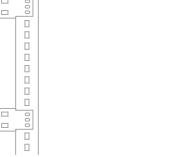
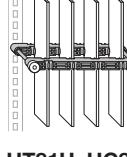
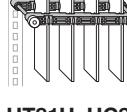


UC335

Busbar Support

Characteristics

- Several systems allow to ensure the electric distribution in the enclosures Quadro 4, Quadro 5 and Quadro+ Evo: flat busbars inclined busbars, side busbars, staged bars, 4 poles supports
- Distribution systems complete the offer: single pole distribution blocks, multi-plug repartitors, 80 to 160A modular distribution blocks
- A range of connectors allow to ensure the electrical link among some incoming devices and the distribution systems.

| Busbar supports | In | Copper bars | Application and accessories (crossbars, brackets, protective screen) | | | |
|---|--------|--|--|---|---|---|
|  UC820 | 160 A | 12 x 5 mm KS72B, KS72C | horizontal in bottom 250 and 500 mm | vertical in bottom 250 mm | vertical in bottom 500 mm | vertical on cross-bars (Quadro+ Evo) |
| | 250 A | 20 x 5 mm UC832 |  |  |  |  |
| | 400 A | 30 x 5 mm UM30A1, UM30A2, UM30A5 |  |  |  |  |
| | 630 A | 30 x 10 mm UM30A4 | UC811 UC827 | UC811 UC827 | UC812 UC827 | UT89B, UT89C UC827 |
|  UC826 | 250 A | 20 x 5 mm UC832 | horizontal in bottom 250 and 500 mm | vertical in bottom 250 and 500 mm | vertical on crossbars (Quadro+ Evo) |  |
| | 400 A | 32 x 5 mm UC842 |  |  |  |  |
| | 630 A | 30 x 10 mm UM30A4, UM30A5 |  |  |  |  |
|  UC830 | 250 A | 20 x 5 mm UC832 | on pillars in bottom |  | | |
|  UC815 | 250 A | 20 x 5 mm UC832 | horizontal in bottom 250 and 500 mm | vertical in bottom 250 mm | vertical on crossbars (Quadro5, Quadro+ Evo) |  |
| | 400 A | 32 x 5 mm UC842 |  |  |  |  |
| | | | UC816 | UC816 - UC988 | UC288 (sheath 200 mm), UT89A (sheath 300 mm), UT89B - UT89C | |
|  UC824 UC823 | 500 A | 50 x 5 mm UC844 | horizontal | | vertical | |
| | 630 A | 63 x 5 mm UC922 |  | |  | |
| | 800 A | 80 x 5 mm UC 966 |  | |  | |
| | 1000 A | 100 x 5 mm UC967 | UT81H, UC821, FN690 or FN690E, FN896 or FN896E, mount with supports UC825 or UC822 | | UC821, UC825 UT89A or FN873E (sheath 300 mm), UT89B or FN875E | |
| | 1250 A | 2 x 80 x 5 mm 2 x UC967 | | | | |
| | 1600 A | 2 x 100 x 5 mm 2 x UC967 | | | | |



UC820



UC824



UC821

Quadro Busbar Sets

Characteristics

Flat busbars to compose from 160 to 630A

- To mount on bottoms of Quadro 4, Quadro 5 enclosures and on Quadro+ Evo crossbars
- Rear vertical mounting especially adapted to carry out busbars behind the module devices
- Vertical mounting in bottom
- Horizontal mounting

Inclined busbars to compose from 250 A to 630A

- To mount behind the front plate
- Horizontal mounting possible on 250 and 500 mm bottom widths, vertical mounting possible on 250 mm bottom widths

Busbars supports to compose 500 to 1600A

- To mount vertical and horizontal distribution busbars in Quadro+ evo cells
- Up to 2 copper bars per pole
- For copper bars : 400 A, 50 x 5 mm
630 A, 63 x 10 mm
800 A, 80 x 5 mm
1000 A, 100 x 5 mm

Description

Cat. ref.

Flat busbars to compose from 160 to 630A includes: 1 support, 3 M6 screws, 2 pillars for protective screen copper bars 160A, 12 x 5 - 250A, 20 x 5 - 400A, 32 x 5 - 630A, 30 x 10 **UC820**

Rear vertical busbars delivered with 2 cage nut and 2 M6 screws, for bottom width 250mm **UC812**

Vertical busbar in bottom delivered with 2 cage nut and 2 M6 screws, for mounting on 250mm width bottom, horizontal mounting on 250mm and 500mm width bottoms **UC811**

Protective screen to cut to the right dimensions, width 294mm height 990mm **UC827**

Inclined busbars to compose from 250A to 630A, behind the front plate.4P support: 2 supports delivered with 4 fixing parts, 8 cage nut, 16 M6 screws and 8 M8 screws, 4 pillars for protective screen. For copper bars: 250A, 20 x 5mm - 400A, 32 x 5mm - 630A, 30 x 10mm **UC826**

Protective screen, to be adapted in length, length 212mm, height 990mm **UC828**

Busbars supports to compose 500 to 1600A, 3 poles support **UC823**

Busbars supports to compose 500 to 1600A, 4 poles support for copper bars, 1 support delivered with screws and fixing parts **UC824**

Mounting brackets to mount on supports: UC824 and UC823 **UC821**

Busbars bearing for vertical mounted copper bars, includes: 1 support screw + fixing parts for the mounting on crossbars. For 3P distribution **UC822**

Busbars bearing for vertical mounted copper bars, includes: 1 support screw + fixing parts for the mounting on crossbars. For 4P distribution **UC825**



UC830



UC815

Quadro Busbar Sets

Characteristics

Sets of side bars Quadro 250A to be composed

- To mount in the sides of Quadro enclosures
- Icc peak: 36 kA
- Fixing centers of the supports: 225 mm

Sets of staged bars In 250 and 400 A - to be composed

- For vertical installation in the cable sheaths of the Quadro 4, Quadro 5 and Quadro+ Evo enclosures.
- Possibility to install directly on the bottoms of the Quadro 4, Quadro 5 and Quadro+ Evo enclosures, without using the crossbars.

Description

Cat. ref.

Sets of side bars Quadro 250 A to be composed. 4 pole supports: 2 supports delivered.

UC830

For copper bars 250A, 20 x 5mm

UC834

Protective screen, length: 1000 mm

UC815

Sets of staged bars In 250 and 400 A to be composed. 4 pole supports: 1 support delivered with 6 M6 screws and 2 cage nuts. For copper bars 250A, 20 x 5mm - 400A, 32 x 5mm

UC288

Universal crossbars. For Quadro 5, Quadro+ Evo cable sleeve. Sheath length 200mm

UC988

Universal crossbars. For Quadro 4, width 370. For Quadro 5 width 450. For Quadro+ Evo, width 400, 450. Sheath length 250mm

UC816

Protective screen kit delivered with screw, length: 620 mm

Bars Short-circuit Withstand Capacity

Vertical Mounting

| busbars fixing | nominal current | bars section (mm) | bars supports max. distance depending on short-circuit current (mm) | | | | | |
|------------------------------|-----------------|-------------------|---|-------|-------|-------|-------|-------|
| | | | 10 kA | 15 kA | 20 kA | 25 kA | 30 kA | 35 kA |
| In ≤ 250 A Icc ≤ 25 kA UC830 | 250 A | 20 x 5 | | | 300 | 200 | | |
| In ≤ 400 A Icc ≤ 35 kA UC815 | 250 A | 20 x 5 | 1000 | 1000 | 925 | 745 | 580 | 435 |
| | 400 A | 32 x 5 | 1000 | 1000 | 895 | 655 | 510 | 385 |

Horizontal Mounting

| busbars fixing | nominal current | bars section (mm) | short-circuit current depending on bottom width for Quadro 4, Quadro5 and Quadro+ Evo | |
|------------------------------|-----------------|-------------------|---|--------|
| | | | 250 mm | 500 mm |
| In ≤ 630 A Icc ≤ 35 kA UC815 | 250 A | 20 x 5 | 35 kA | 35 kA |
| | 400 A | 32 x 5 | 40 kA | 34 kA |

Copper Bars & Screws**Characteristics**

- Copper bars and screws
- The copper bars are mounted on the supports, according to; the section to use (thus intensity) and length on demand
- The connection screws must be ordered separately for the bars from 250 to 1000A

| Description | In | Length mm | Cat. ref. |
|-------------|--|-----------|---------------|
| Copper bars | 160A: 12 x 5mm copper bar, M5 tapped, delivered with screw | 245 | KS72B |
| | 160A: 12 x 5mm copper bar, M5 tapped, delivered with screw | 1000 | KS72C |
| | 250A: 20 x 5mm copper bar, M6 tapped | 1000 | UC832 |
| | 250A: 25 x 5mm copper bar, M6 tapped | 1750 | UT87E |
| | 400A: 32 x 5mm copper bar, M6 tapped | 1000 | UC842 |
| | 400A: 30 x 5mm copper bar, M6 tapped | 280 | UM30A3 |
| | 400A: 30 x 5mm copper bar, M6 tapped | 430 | UM30A1 |
| | 400A: 30 x 5mm copper bar, M6 tapped | 880 | UM30A2 |
| | 400A: 50 x 5 mm copper bar, M10 tapped | 1750 | UC844 |
| | 630A: 30 x 10 mm copper bar, M6 tapped | 430 | UM30A4 |
| | 630A: 30 x 10 mm copper bar, M6 tapped | 880 | UM30A5 |
| | 630A: 63 x 5 mm copper bar, M10 tapped | 1750 | UC922 |
| | 800A: 80 x 5 mm copper bar, M10 tapped | 1750 | UC966 |
| | 1000A: 100 x 5 mm copper bar, M10 tapped | 1750 | UC967 |
| Screws | self thread forming screws M6 x 10 | | UC856E |
| | connection screws M6 x 12 with washers | | UC851 |
| | connection screws M8 x 30 with washers | | UC853 |
| | connection screws M10 x 30 with washers | | UC855 |



KJ02A

Single Pole Distribution Blocks, Multi-Plug 4P Repartitors**Characteristics****Single pole distribution blocks**

- Monoblocs, insulated, grey colour
- Clip fixing on mounting plate DIN rail of the main devices kit, Icc peak : 36 kA

Multi-plug 4P repartitors 250 A

- Bridging of all types of equipments 2, 3 and 4 poles placed on the same DIN rail
- Facilitate phases balancing
- Incoming connection by 4 screw ranges
- Outgoing connection by insulated flexible connectors with automatic lock

Delivered with:

- 6 blue insulated wire connectors H07 V-K, 6 x 6mm² (blue) and 12 x 6mm² (black)
- 12 black insulated wire connectors H07 V-K : 6 x 6mm² (blue) and 12 x 6mm² (black)
- 2 Quadro mounting legs
- 2 Univers fixing brackets.

Single Pole Distribution Blocks, Multi-Plug 4P Repartitors

| Description | In | Length mm | Cat. ref. |
|---|--|-----------|--------------|
| Single pole distribution blocks for copper conductors | 125A: incoming: 1x70mm ² outgoing: 6x16mm ² | 27 | KJ02D |
| | 160A: incoming: 1x70mm ² outgoing: 6x16mm ² | 35 | KJ02C |
| | 250A: incoming: 1x95mm ² outgoing: 2x25mm ² , 5x16mm ² , 4x10mm ² | 45 | KJ02A |
| | 400A: incoming: 1x150 mm ² , outgoing: 2x25mm ² , 5x16mm ² , 4x10mm ² | 46 | KJ02B |



KJ03A

Multi-Plug 4P Repartitors**Characteristics**

- Multi-plug 4P repartitors. Implementation in 620 or 700mm width Quadro enclosures.
- 60 connection points per pole sections: 6mm² and 10mm².
- Acceptable In under 40°C: per pole: 250A, 40A with connector 6mm², 63A with connector 10mm²
- Icc peak : 60kA, Un: 500 V M - 50 Hz.

| Description | Cat. ref. |
|--|--------------|
| Multi-plug 4P repartitors without connectors | KJ03A |
| Multi-plug 4P repartitors with connectors | KJ03B |



KZ007

Connectors (end)

| Description | Cat. ref. |
|---|--------------|
| Connectors (end) to crimp for 6 mm ² flexible wire | KZ007 |

Connectors

| Description | In | Section | Blue Cat. ref. | Black Cat. ref. |
|---|------|-------------------|----------------|-----------------|
| Connectors for multi-plug repartitors 250 A | 40 A | 6 mm ² | KZ001 | KZ002 |
| Flexible connectors insulated wire serial H07 V-K | 40A | 6 mm ² | KZ051 | KZ052 |
| Length : 120 mm | 63A | 10mm ² | KZ004 | KZ005 |
| | 63A | 10mm ² | KZ074 | KZ075 |

Connectors

Characteristics

- Connectors
- To carry out connections
- between incoming devices and distribution system (set of busbars, distribution blocks).
- h3 MCCBs : x250, h250 LSI, h630 LSI



UC877

| Description | Includes | Possible mounting | Cat. ref. |
|---|---|--------------------|--------------|
| Connectors to connect x250 and h250 LSI MCCBs to the inclined bars set UC826 mounted in 250mm width | 4 cable with lugs, 20x3 mm ² | Quadro 4, Quadro 5 | UC877 |
| Connectors to connect h630 LSI MCCBs to inclined bars set UC826 mounted in 250mm width | 4 cables, 25x6mm ² | Quadro 4, Quadro 5 | UC868 |
| Connectors to connect the horizontal mounted x250 and h250 LSI MCCBs in 500mm width to bars set UC820 mounted behind modular devices in 500mm width | 4 cables, 25x6mm ² | Quadro 4, Quadro 5 | UC875 |

Commercial Distribution



UC875

Incoming Kits

| Description | Includes | Possible mounting | Cat. ref. |
|--|--|--------------------------------|--------------|
| Incoming kits to supply the horizontal mounted x250 and h250 LSI MCCBs in 500mm width | 1 support for cable incoming (maxi 70mm ²) 4 cables 70mm ² with lugs | Quadro 4, Quadro 5, Quadro+Evo | UC871 |
| To connect the horizontal mounted x250 and h250 LSI MCCBs in 500mm width to inclined bars set UC826 horizontal mounted | 4 cables 70mm ² with lugs | Quadro 4, Quadro 5, Quadro+Evo | UC869 |



UC871

Link Connection

| Description | Includes | Possible mounting | Cat. ref. |
|--|--------------------------------------|--------------------------------|--------------|
| Link connection to connect x250 and h250 LSI MCCBs to bars set UC826 mounted behind the modular devices in 500mm width | 4 cables 70mm ² with lugs | Quadro 4, Quadro 5, Quadro+Evo | UC879 |



UC879

Link Connectors and Bars

Characteristics

- Link connectors and bars
- To carry out connections between incoming devices and distribution system (set of busbars, repartitor blocks).

| Description | Includes | Length mm | Cat. ref. |
|---|--|-----------|--------------|
| Link connectors to connect the switches HA406N, HA407, HA408 to distribution blocks KJ02 fixed on the same line | 4 cables H 07-V-K black 50mm ² length 450mm with lugs | | UC870 |
| Link connectors to connect the switches HA452 / HA454 to distribution blocks KJ02 fixed beside the switch | 4 flexible connectors 20 x 3mm | | UC874 |
| Link connectors to connect the switches HA452/ HA454 to the side busbars | 1 set = 4 flexible connectors 20 x 3mm | | UC876 |
| Flexible copper bars to connect the switches HA452/ HA454 to the side busbars | 160A section 20 x 2mm | 2m | UM92X |
| | 250A section 20 x 3mm | 2m | UM92Y |
| | 400A section 32 x 4mm | 2m | UM92Z |
| | 630A section 32 x 6mm | 2m | UM92W |
| | 800A section 40 x 6mm | 2m | UM92V |



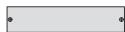
UC870



UC876



UM92Y



UC200



UC201

Equipment Kits for Modular Devices

Characteristics

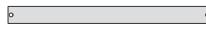
Equipment kits for modular devices

- Available in height 150 mm and 200 mm, their positioning is facilitated by gauges delivered with each kit.
- The DIN rail supports allow a fast fixing by clipping on the bottom of the enclosure.
- Front plates are mounted with screws included in the kit.

Equipment kits for terminals

- Available in height 150 mm, DIN rail adjustable in depth, 20° inclinable.

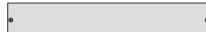
| Description | Length mm | Height mm | Cat. ref. |
|---|--------------------------|-----------|--------------|
| Equipment kits for modular devices delivered with: modular DIN rail for shoulder devices 45mm sheet metal front plate | 250mm equipment 1 row 10 | 150 | UC200 |
| | 500mm equipment 1 row 24 | 150 | UC201 |
| | 500mm equipment 1 row 24 | 200 | UC205 |
| Equipment kits for terminals delivered with DIN rail and front plate | 500mm equipment 1 row 22 | 150 | UC209 |



UC231



UC230



UC239

Full Front Plates

| Description | Height mm | 250mm Cat. ref. | 50mm Cat. ref. |
|-------------------|-----------|-----------------|----------------|
| Full front plates | 50 | UC221 | UC231 |
| | 75 | UC220 | UC230 |
| | 100 | - | UC239 |
| | 150 | UC222 | UC232 |
| | 200 | UC223 | UC233 |
| | 300 | UC224 | UC234 |
| | 400 | UC225 | UC235 |
| | 600 | UC226 | UC236 |

Adjustable DIN Rails

| Description | Cat. ref. |
|---|--------------|
| Adjustable DIN rails in depth for terminals, 20° inclinable | UC951 |



UC962

Perforated Mounting Plates

| Description | Cat. ref. |
|---|--------------|
| Perforated mounting plates for special devices | UC960 |
| Perforated mounting plates for special devices delivered with fixing supports 450mm | UC962 |
| Perforated mounting plates for special devices delivered with fixing supports 600mm | UC964 |

Clips Nuts and M5 Screws

| Description | Cat. ref. |
|---|--------------|
| Clips nuts and M5 screws for perforated mounting plates | UC969 |



UC268

Hinges for Front Plates

| Description | Cat. ref. |
|---|--------------|
| Hinges for front plates set of 2 hinges to mount on the left or the right side of the front plate | UC268 |

Cable Management Accessories

Characteristics

Cable management accessories

Several systems allow to manage the cable trunking, as well as the connections in Quadro enclosures:

- vertical slotted trunking
- horizontal slotted trunking
- cable guides

Universal crossbars

- Allow either to maintain the cables using a clamp or to mount a vertical DIN rail to create a terminal block

Cable spreader box

- Insulating material, RAL 9010
- Fixed on the top or the bottom part of the enclosures, these trunkings allow the enlargement and the arrangement of the incoming and outgoing cables and ensure the junction between the enclosures and the vertical trunking.

| Description | | Length | Cat. ref. |
|---|---------------------------|-----------|---------------|
| Vertical slotted trunking delivered with cover | width 60mm, height 80mm | 2000mm | UC916 |
| Horizontal slotted trunking delivered with cover | width 30 mm, height 80 mm | 250mm | UC911 |
| | width 30 mm, height 80 mm | 500mm | UC912 |
| Fixing supports, vertical and horizontal sheaths on the bottom of the Quadro enclosures | | | UC915 |
| Cable straps (1 set = 20 pieces) | large volume | | UZ25V1 |
| | small volume | | UZ25V2 |
| Cable guides (1 set = 20 pieces) fixing centres 150 mm | | | UZ01V1 |
| Universal crossbars for 200mm cable sheaths in 900mm width Quadro 5 | width 185mm | | UC288 |
| | width 250mm | | UC988 |
| | width 500mm | | UC289 |
| Blanking strips | | length 24 | JP024 |
| Marking strip for modular front plates includes adhesive transparent label holder marking strip | | length 10 | JE001 |
| | | length 24 | JE003 |
| Horizontal separations, metal partitions for Quadro 4 and Quadro 5 | | 620mm | FC664 |
| Cable spreader boxes, includes 2 fixing brackets, 1 bottom plate, 1 cover, 2 side cover plates | height 195mm, depth 155mm | 300mm | FZ441 |
| | height 195mm, depth 155mm | 550mm | FZ442 |
| | height 195mm, depth 155mm | 800mm | FZ443 |
| | height 195mm, depth 155mm | 1050mm | FZ444 |



UC916



UC915



UZ25V2

UZ25V1



UC288



UC988



JP024



JE003



FZ442



UC971



K070

K074



UC976



UC992



A099



A099E



A099C



A099D



A050



UC991

Connection Accessories

Characteristics

Incoming earth terminal blocks

- To mount on supplied 80mm spacers.

Outgoing connectors for PE conductors

- To mount on supplied 80mm spacers, possibility to add quickconnect terminals.

Caution: Connectors UC975S and UC976S have no equipotential connection with the structures of the enclosure.

Mounting rail

- For terminals blocks vertical or horizontal mounting
- Length: 2m

| Description | Width mm | Cat. ref. |
|---|---|---|
| Incoming earth terminal blocks | can be completed with the staples below | 250 UC971 |
| | can be completed with the staples below | 500 UC972 |
| Staples for above terminal blocks | cable section | 16mm ² K070 |
| | | 35mm ² K071 |
| | | 70mm ² K073 |
| | | 95mm ² K074 |
| Outgoing connector for PE conductors connection | includes support (1x35mm ² , 11x16 mm ² , 13x10mm ²), 2 nuts + 2 screws + spacers | 250mm UC975 |
| | | 500mm UC976 |
| Outgoing connectors quickconnect for connection of earth conductors | includes DIN rail support KN00A, terminal block KN26E, 2 nuts + 2 screws delivered with 2 decked terminals for UC976S | 250mm UC975S |
| Metal spacers | height : 80mm, M6 screw | 500mm UC992 |
| Description | Depth mm | Cat. ref. |
| Symmetrical DIN rails, DIN 46277/3, width: 35 mm | 7,5 10 15 | 7,5mm A088 10mm A098 15mm A099 |
| | A088 A098 A099 | |
| Symmetrical DIN rails perforated, width 15mm DIN 46277/2 | 5 | 5mm A099E |
| Symmetrical DIN rails perforated, width 35mm DIN 46277/3 | 5 | 5mm A099B |
| DIN rail for structure, width 250mm | 15 | 15mm A099C |
| | | |
| Special screws M6 for rail A099C | | A099D |
| Asymmetrical DIN rails, DIN 46277/1 | | A050 |
| | | |
| Cage nuts M6 | | UC990 |
| M6 x 12 screws | | UC991 |

Orion Plus IP65 enclosures

Sheet steel or glass reinforced polyester - the Orion Plus enclosures are suited for the harshest conditions and can be applied for wet and mechanical use. Even under chemical use, Orion Plus offers the ideal solution with glass reinforced polyester. The interior equipment can be realised flexibly via mounting plate or DIN rail (in 2 different versions) and so offers the suitable interior equipment system, both for the application in automation and for classical current distribution.



Orion Plus IP65 Metal Enclosures



**Orion Plus IP66
Polyester Enclosures**



Choice of Equipment:



Plain metal mounting plates for automation or non modular products



Perforated metal mounting plates for automation or non modular products



Insulated metal mounting plates for automation of non modular products



Equipment kits for modular products

**The IP65 Orion Plus
Enclosures**

These enclosures are of monobloc construction available in metal, glass reinforced polyester (GRP) with plain or transparent doors.

They constitute a large range of enclosures with heights from 300 up to 2050mm and width up to 800mm (metal) and 1100mm (polyester).

These enclosures are flexible and can be used with different types of equipments; plain, perforated or insulated metal mounting plates.

These enclosures allow:

- Installation of automation products for the control of machines or small processes
- Installation of non modular products such as contactors, transformers, etc
- Cable termination and distribution

Metal Mounting Plates

- Available in various sizes, plain, perforated, insulated for the installation of non modular equipment
- Fixed directly on the back of the enclosure or on depth adjustable guides depending on the size of the equipment.

Chassis Kits

- For modular products
- Designed for easy mounting of modular equipment. The chassis can be removed and tilted.
- Supplied complete with front cover, DIN rails and uprights.

Orion Plus Metal Enclosures



Modular Kit on Chassis



With Plain Door

| | | |
|---------------|---------------|---------------|
| FL102A | FL152A | - |
| FL104A | FL154A | FL979A |
| FL105A | FL155A | FL979A |
| FL109A | FL159A | FL981A |
| FL110A | FL160A | FL981A |
| FL111A | FL161A | FL982A |
| FL112A | FL162A | FL982A |
| FL117A | FL167A | FL983A |
| FL118A | FL168A | FL983A |
| FL119A | FL169A | - |
| FL120A | FL170A | - |
| FL121A | FL171A | - |
| FL122A | FL172A | - |
| FL123A | FL173A | - |
| FL124A | FL174A | - |
| FL125A | FL175A | - |
| FL126A | FL176A | - |
| FL127A | FL177A | - |
| FL128A | FL178A | - |
| FL129A | FL179A | - |
| FL130A | FL180A | - |

Orion Plus

IP65 Metal Enclosures Overview

:hager

Commercial
Distribution

Orion Plus enclosures sheet steel



Mounting plates plain or perforated



Equipment kits for modular chassis

| Enclosures dimensions in mm | | | modular height | qty of modules per row | max. capacity (modules) | enclosures | | plinth | mounting plates | | | internal doors | |
|--------------------------------|-------|-------|-------------------|------------------------------|-------------------------------|--------------------|-------------------------|---------------|-----------------|----------------|---------------------|----------------|---------------|
| height | width | depth | | | | with plain door | with transp. door | | h. 150 | metal plain | metal perforated | insulated | metal |
| 250* | 200* | 160* | - | - | - | FL101A* | FL151A* | - | FL401A | - | - | FL541A | - |
| 300* | 250* | 160* | - | - | - | FL102A* | FL152A* | - | FL402A | FL472A | FL422A | FL542A | - |
| 300* | 300* | 160* | - | - | - | FL103A* | FL153A* | - | FL403A | - | - | FL543A | - |
| 350 | 300 | 160 | 300 | 10 | 20 | FL104A | FL154A | - | FL404A | FL473A | FL423A | FL544A | FL643A |
| 350 | 300 | 200 | 300 | 10 | 20 | FL105A | FL155A | - | FL404A | FL473A | FL423A | FL544A | FL643A |
| 400* | 300* | 160* | - | - | - | FL106A* | FL156A* | - | FL405A | - | - | FL545A | - |
| 400* | 300* | 200* | - | - | - | FL107A* | FL157A* | - | FL405A | - | - | FL545A | - |
| 400* | 400* | 200* | - | - | - | FL108A* | FL158A* | - | FL406A | - | - | FL546A | - |
| 500 | 300 | 160 | 450 | 10 | 30 | FL109A | FL159A | - | FL407A | FL474A | FL424A | FL547A | FL644A |
| 500 | 300 | 200 | 450 | 10 | 30 | FL110A | FL160A | - | FL407A | FL474A | FL424A | FL547A | FL644A |
| 500 | 400 | 160 | 450 | 16 | 48 | FL111A | FL161A | - | FL408A | FL475A | FL425A | FL548A | FL645A |
| 500 | 400 | 200 | 450 | 16 | 48 | FL112A | FL162A | - | FL408A | FL475A | FL425A | FL548A | FL645A |
| 500* | 500* | 200* | - | - | - | FL113A* | FL163A* | - | FL409A | - | - | FL549A | - |
| 600* | 400* | 200* | - | - | - | FL114A* | FL164A* | - | FL410A | - | - | FL550A | - |
| 600* | 400* | 250* | - | - | - | FL115A* | FL165A* | - | FL410A | - | - | FL550A | - |
| 600* | 600* | 250* | - | - | - | FL116A* | FL166A* | - | FL411A | - | - | FL553A | - |
| 650 | 400 | 200 | 600 | 16 | 64 | FL117A | FL167A | - | FL412A | FL476A | FL426A | FL551A | - |
| 650 | 400 | 250 | 600 | 16 | 64 | FL118A | FL168A | - | FL412A | FL476A | FL426A | FL551A | - |
| 650 | 500 | 200 | 600 | 22 | 88 | FL119A | FL169A | FL957A | FL413A | FL477A | FL427A | FL552A | - |
| 650 | 500 | 250 | 600 | 22 | 88 | FL120A | FL170A | FL958A | FL413A | FL477A | FL427A | FL552A | - |
| 800 | 500 | 200 | 750 | 22 | 110 | FL121A | FL171A | FL957A | FL414A | FL478A | FL428A | FL554A | - |
| 800 | 500 | 250 | 750 | 22 | 110 | FL122A | FL172A | FL958A | FL414A | FL478A | FL428A | FL554A | - |
| 800 | 600 | 250 | 750 | 26 | 130 | FL123A | FL173A | FL959A | FL415A | FL479A | FL429A | FL555A | FL649A |
| 800 | 600 | 300 | 750 | 26 | 130 | FL124A | FL174A | FL960A | FL415A | FL479A | FL429A | FL555A | FL649A |
| 950 | 600 | 250 | 900 | 26 | 156 | FL125A | FL175A | FL959A | FL416A | FL480A | FL430A | FL556A | - |
| 950 | 600 | 300 | 900 | 26 | 156 | FL126A | FL176A | FL960A | FL416A | FL480A | FL430A | FL556A | - |
| 950 | 800 | 250 | 900 | 37 | 222 | FL127A | FL177A | FL961A | FL417A | FL481A | FL431A | FL557A | - |
| 950 | 800 | 300 | 900 | 37 | 222 | FL128A | FL178A | FL962A | FL417A | FL481A | FL431A | FL557A | - |
| 1250 | 600 | 250 | 1200 | 26 | 208 | FL129A | FL179A | FL959A | FL418A | FL482A | FL432A | FL558A | - |
| 1250 | 800 | 300 | 1200 | 37 | 296 | FL130A | FL180A | FL962A | FL419A | FL483A | FL433A | FL559A | - |

Plain front plates



Partial metal mounting plates
fixed or adjustable



DIN rails for
terminals



| modular equipment kits | plain front plates | | | | partial metal plates fixed | | | | partial metal plates adjustable | | | | DIN rails for terminals |
|------------------------|--------------------|--------|--------|--------|----------------------------|--------|--------|--------|---------------------------------|--------|--------|--------|-------------------------|
| | h. 50 | h. 150 | h. 200 | h. 300 | h. 150 | h. 200 | h. 300 | h. 400 | h. 150 | h. 200 | h. 300 | h. 400 | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| FL990A | - | FL711E | - | - | FL311A | - | - | - | - | - | - | - | - |
| FL990A | - | FL711E | - | - | FL311A | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| FL991A | - | FL711E | - | - | FL311A | - | - | - | - | - | - | - | - |
| FL991A | - | FL711E | - | - | FL311A | - | - | - | - | - | - | - | - |
| FL992A | FL702E | FL712E | FL722E | - | FL312A | FL322A | - | - | - | - | - | - | FL500A |
| FL992A | FL702E | FL712E | FL722E | - | FL312A | FL322A | - | - | - | - | - | - | FL500A |
| - | - | - | - | - | - | - | - | - | - | - | - | - | FL500A |
| - | - | - | - | - | - | - | - | - | - | - | - | - | FL500A |
| - | - | - | - | - | - | - | - | - | - | - | - | - | FL500A |
| - | - | - | - | - | - | - | - | - | - | - | - | - | FL500A |
| FL993A | FL702E | FL712E | FL722E | - | FL312A | FL322A | - | - | - | - | - | - | FL500A |
| FL993A | FL702E | FL712E | FL722E | - | FL312A | FL322A | - | - | FL314A | FL324A | - | - | FL500A |
| FL994A | FL703E | FL713E | FL723E | FL733E | FL313A | FL323A | FL333A | FL343A | - | - | - | - | FL501A |
| FL994A | FL703E | FL713E | FL723E | FL733E | FL313A | FL323A | FL333A | FL343A | FL315A | FL325A | FL335A | FL345A | FL501A |
| FL995A | FL703E | FL713E | FL723E | FL733E | FL313A | FL323A | FL333A | FL343A | - | - | - | - | FL501A |
| FL995A | FL703E | FL713E | FL723E | FL733E | FL313A | FL323A | FL333A | FL343A | FL315A | FL325A | FL335A | FL345A | FL501A |
| FL996A | FL704E | FL714E | FL724E | FL734E | - | - | - | - | FL316A | FL326A | FL336A | FL346A | FL502A |
| FL996A | FL704E | FL714E | FL724E | FL734E | - | - | - | - | FL316A | FL326A | FL336A | FL346A | FL502A |
| FL997A | FL704E | FL714E | FL724E | FL734E | - | - | - | - | FL316A | FL326A | FL336A | FL346A | FL502A |
| FL997A | FL704E | FL714E | FL724E | FL734E | - | - | - | - | FL316A | FL326A | FL336A | FL346A | FL502A |
| FL998A | FL705E | FL715E | FL725E | FL735E | - | - | - | - | FL317A | FL327A | FL337A | FL347A | FL503A |
| FL998A | FL704E | FL714E | FL724E | FL734E | - | - | - | - | FL316A | FL326A | FL336A | FL346A | FL502A |
| FL999A | FL705E | FL715E | FL725E | FL735E | - | - | - | - | FL317A | FL327A | FL337A | FL347A | FL503A |
| FL000A | FL705E | FL715E | FL725E | FL735E | - | - | - | - | FL316A | FL326A | FL336A | FL346A | FL502A |

Orion Plus
polyester enclosures



Metal mounting plate Internal doors



**Modular
chassis
functional
uprights**



| Enclosures dimensions in mm | | | modular height | qty of modules per row | max. capacity (modules) | enclosures | | mounting plates | | | internal doors | | modular equipment kits |
|--------------------------------|-------|-------|-------------------|------------------------------|-------------------------------|--------------------|----------------------|-----------------|---------------------|---------------|----------------|---------------|------------------------------|
| height | width | depth | | | | with plain door | with transp. door | metal plain | metal perforated | insulated | metal plain | insulated | |
| 350 | 300 | 160 | 300 | 10 | 20 | FL204B | FL254B | FL404A | FL473A | FL423A | FL544A | FL643A | - |
| 500 | 300 | 200 | 450 | 10 | 30 | FL209B | FL259B | FL407A | FL474A | FL424A | FL547A | FL644A | FL991A |
| 500 | 400 | 200 | 450 | 16 | 48 | FL213B | FL263B | FL408A | FL475A | FL425A | FL548A | FL645A | FL992A |
| 650 | 400 | 200 | 600 | 16 | 64 | FL216B | FL266B | FL412A | FL476A | FL426A | FL551A | FL646A | FL993A |
| 650 | 500 | 250 | 600 | 22 | 88 | FL221B | FL271B | FL413A | FL477A | FL427A | FL552A | FL647A | FL994A |
| 800 | 600 | 300 | 750 | 26 | 130 | FL229B | FL279B | FL415A | FL479A | FL429A | FL555A | FL649A | FL996A |

| | | |
|---------------------------|---------------------------------|------------------------|
| Enclosure with plain door | Enclosure with transparent door | modular kit on chassis |
| FL204A | FL254B | FL980A |
| FL209B | FL259B | FL981A |
| FL213B | FL263B | FL982A |
| FL216B | FL266B | FL983A |
| FL221B | FL271B | - |
| FL229B | FL279B | - |

Plain front plates



Partial metal mounting plates



DIN rail for terminal



| plain front plates | | | | partial metal plates fixed | | | | partial metal plates adjustable | | | | DIN rails for terminals |
|--------------------|---------------|---------------|---------------|----------------------------|---------------|---------------|---------------|---------------------------------|---------------|---------------|---------------|-------------------------|
| h. 50 | h. 150 | h. 200 | h. 300 | h. 150 | h. 200 | h. 300 | h. 400 | h. 150 | h. 200 | h. 300 | h. 400 | |
| - | FL711E | - | - | FL311A | - | - | - | - | - | - | - | - |
| - | FL711E | - | - | FL311A | - | - | - | - | - | - | - | - |
| FL702E | FL712E | FL722E | - | FL312A | FL322A | - | - | - | - | - | - | FL500A |
| FL702E | FL712E | FL722E | - | FL312A | FL322A | - | - | - | - | - | - | FL500A |
| FL703E | FL713E | FL723E | FL733E | FL313A | FL323A | FL333A | FL343A | - | - | - | - | FL501A |
| FL704E | FL714E | FL724E | FL734E | - | - | - | - | FL316A | FL326A | FL336A | FL346A | FL502A |

Orion Plus

Polyester Enclosures IP65 Overview

:hager

Commercial
Distribution

Polyester enclosures
depth 300 mm



Transparent doors



**Metal mounting
plates**



| | Enclosures dimensions in mm | | | | | upper section | | lower section | | enclosures | | transparent doors | | metal mounting plates | | insulated mounting plates |
|--------------------------------|-----------------------------|-------|---------------|----------------------|----------------------|-------------------|-----------------------|-------------------|----------------------|-----------------|-----------------------|-------------------|---------------|-----------------------|---------------|---------------------------|
| | height | width | modular width | modular height upper | modular height lower | qty of mod. p/row | max. capacity in mod. | qty of mod. p/row | max. capacity (mod.) | with plain door | with transparent door | upper part | lower part | plain upper section | lower section | upper section |
| single section | 550 | 600 | 500 | 450 | - | 23 | 69 | - | - | FL300B | FL500B | - | - | FL510E | - | FL550E |
| | 850 | 600 | 500 | 750 | - | 23 | 115 | - | - | FL301B | FL501B | - | - | FL511E | - | FL551E |
| | 1150 | 600 | 500 | 1050 | - | 23 | 161 | - | - | FL302B | FL502B | - | - | FL512E | - | FL552E |
| | 550 | 850 | 750 | 450 | - | 37 | 111 | - | - | FL305B | FL505B | - | - | FL520E | - | FL560E |
| | 850 | 850 | 750 | 750 | - | 37 | 185 | - | - | FL306B | FL506B | - | - | FL521E | - | FL561E |
| | 1150 | 850 | 750 | 1050 | - | 37 | 259 | - | - | FL307B | FL507B | - | - | FL522E | - | FL562E |
| | 550* | 1100 | 500+500 | 450 | - | 46 | 138 | - | - | FL310B* | FL510B* | - | - | FL530E | - | FL570E |
| | 850* | 1100 | 500+500 | 750 | - | 46 | 230 | - | - | FL311B* | FL511B* | - | - | FL531E | - | FL571E |
| | 1150* | 1100 | 500+500 | 1050 | - | 46 | 322 | - | - | FL312B* | FL512B* | - | - | FL532E | - | FL572E |
| | 600 | 600 | 500 | 450 | - | 23 | 69 | - | - | FL320B | FL520B | - | - | FL510E | - | FL550E |
| | 900 | 600 | 500 | 750 | - | 23 | 115 | - | - | FL321B | FL521B | - | - | FL511E | - | FL551E |
| | 1200 | 600 | 500 | 1050 | - | 23 | 161 | - | - | FL322B | FL522B | - | - | FL512E | - | FL552E |
| | 600 | 850 | 750 | 450 | - | 37 | 111 | - | - | FL325B | FL525B | - | - | FL520E | - | FL560E |
| | 900 | 850 | 750 | 750 | - | 37 | 185 | - | - | FL326B | FL526B | - | - | FL521E | - | FL561E |
| | 1200 | 850 | 750 | 1050 | - | 37 | 259 | - | - | FL327B | FL527B | - | - | FL522E | - | FL562E |
| | 600* | 1100 | 500+500 | 450 | - | 46 | 138 | - | - | FL330B* | FL530B* | - | - | FL530E | - | FL570E |
| | 900* | 1100 | 500+500 | 750 | - | 46 | 230 | - | - | FL331B* | FL531B* | - | - | FL531E | - | FL571E |
| | 1200* | 1100 | 500+500 | 1050 | - | 46 | 322 | - | - | FL332B* | FL532B* | - | - | FL532E | - | FL572E |
| single section with 2 sections | 1150 | 600 | 500 | 450 | 450 | 23 | 69 | 23 | 69 | FL340B | - | FL400B | FL400B | FL510E | FL510E | FL550E |
| | 1450 | 600 | 500 | 450 | 750 | 23 | 69 | 23 | 115 | FL342B | - | FL400B | FL401B | FL510E | FL511E | FL550E |
| | 1750 | 600 | 500 | 450 | 1050 | 23 | 69 | 23 | 161 | FL344B | - | FL400B | FL402B | FL510E | FL512E | FL550E |
| | 1750 | 600 | 500 | 750 | 750 | 23 | 115 | 23 | 115 | FL346B | - | FL401B | FL401B | FL511E | FL511E | FL551E |
| | 2050 | 600 | 500 | 750 | 1050 | 23 | 115 | 23 | 161 | FL348B | - | FL401B | FL402B | FL511E | FL512E | FL551E |
| | 1150 | 850 | 750 | 450 | 450 | 37 | 111 | 37 | 111 | FL350B | - | FL405B | FL405B | FL520E | FL520E | FL560E |
| | 1450 | 850 | 750 | 450 | 750 | 37 | 111 | 37 | 185 | FL352B | - | FL405B | FL406B | FL520E | FL521E | FL560E |
| | 1750 | 850 | 750 | 450 | 1050 | 37 | 111 | 37 | 259 | FL354B | - | FL405B | FL407B | FL520E | FL522E | FL560E |
| | 1750 | 850 | 750 | 750 | 750 | 37 | 185 | 37 | 185 | FL356B | - | FL406B | FL406B | FL521E | FL521E | FL561E |
| | 2050 | 850 | 750 | 750 | 1050 | 37 | 185 | 37 | 259 | FL358B | - | FL406B | FL407B | FL521E | FL522E | FL561E |
| | 1150 | 1100 | 500+500 | 450 | 450 | 46 | 138 | 46 | 138 | FL360B* | - | FL410B | FL410B | FL530E | FL530E | FL570E |
| | 1450 | 1100 | 500+500 | 450 | 750 | 46 | 138 | 46 | 230 | FL362B* | - | FL410B | FL411B | FL530E | FL531E | FL570E |
| | 1750 | 1100 | 500+500 | 450 | 1050 | 46 | 138 | 46 | 322 | FL364B* | - | FL410B | FL412B | FL530E | FL532E | FL570E |
| | 1750 | 1100 | 500+500 | 750 | 750 | 46 | 230 | 46 | 230 | FL366B* | - | FL411B | FL411B | FL531E | FL531E | FL571E |
| | 2050 | 1100 | 500+500 | 750 | 1050 | 46 | 230 | 46 | 322 | FL368B* | - | FL411B | FL412B | FL531E | FL532E | FL571E |

Internal door metal



Modular chassis functional uprights



Plain front plates



Partial metal mounting plates



DIN rail



| | | internal door | | modular kits | | plain front plates | | | | partial metal plates adjustable | | | | DIN rails for terminals |
|---------------|---------------------|------------------|------------------|------------------|---------------|--------------------|---------------|---------------|---------------|---------------------------------|---------------|---------------|---------------|-------------------------|
| lower section | metal upper section | lower section | upper section | lower section | | h.50 | h.150 | h.200 | h.300 | h.150 | h.200 | h.300 | h.400 | |
| - | FL590E | - | FL990B | - | - | FL710E | - | - | - | FL610E | FL620E | FL630A | FL640E | FL500E |
| - | FL591E | - | FL992B | - | - | FL710E | - | - | - | FL610E | FL620E | FL630A | FL640E | FL500E |
| - | FL592E | - | FL994B | - | - | FL710E | - | - | - | FL610E | FL620E | FL630A | FL640E | FL500E |
| - | FL600E | - | FL991B | - | | FL705E | FL715E | FL725E | FL735E | FL317A | FL327A | FL337A | FL347A | FL503E |
| - | FL601E | - | FL993B | - | | FL705E | FL715E | FL725E | FL735E | FL317A | FL327A | FL337A | FL347A | FL503E |
| - | FL602E | - | FL995B | - | | FL705E | FL715E | FL725E | FL735E | FL317A | FL327A | FL337A | FL347A | FL503E |
| - | 2x FL590E | - | 2x FL990B | - | - | FL710E | - | - | - | FL610E | FL620E | FL630A | FL640E | FL500E |
| - | 2x FL591E | - | 2x FL992B | - | - | FL710E | - | - | - | FL610E | FL620E | FL630A | FL640E | FL500E |
| - | 2x FL592E | - | 2x FL994B | - | - | FL710E | - | - | - | FL610E | FL620E | FL630A | FL640E | FL500E |
| - | FL590E | - | FL990B | - | - | FL710E | - | - | - | FL610E | FL620E | FL630A | FL640E | FL500E |
| - | FL591E | - | FL992B | - | - | FL710E | - | - | - | FL610E | FL620E | FL630A | FL640E | FL500E |
| - | FL592E | - | FL994B | - | - | FL710E | - | - | - | FL610E | FL620E | FL630A | FL640E | FL500E |
| - | FL600E | - | FL991B | - | | FL705E | FL715E | FL725E | FL735E | FL317A | FL327A | FL337A | FL347A | FL503E |
| - | FL601E | - | FL993B | - | | FL705E | FL715E | FL725E | FL735E | FL317A | FL327A | FL337A | FL347A | FL503E |
| - | FL602E | - | FL995B | - | | FL705E | FL715E | FL725E | FL735E | FL317A | FL327A | FL337A | FL347A | FL503E |
| - | 2x FL590E | - | 2x FL990B | - | - | FL710E | - | - | - | FL610E | FL620E | FL630A | FL640E | FL500E |
| - | 2x FL591E | - | 2x FL992B | - | - | FL710E | - | - | - | FL610E | FL620E | FL630A | FL640E | FL500E |
| - | 2x FL592E | - | 2x FL994B | - | - | FL710E | - | - | - | FL610E | FL620E | FL630A | FL640E | FL500E |
| FL550E | FL590E | FL590E | FL990B | FL990B | - | FL710E | - | - | - | FL610E | FL620E | FL630A | FL640E | FL500E |
| FL551E | FL590E | FL591E | FL990B | FL992B | - | FL710E | - | - | - | FL610E | FL620E | FL630A | FL640E | FL500E |
| FL552E | FL590E | FL592E | FL990B | FL994B | - | FL710E | - | - | - | FL610E | FL620E | FL630A | FL640E | FL500E |
| FL551E | FL591E | FL591E | FL992B | FL992B | - | FL710E | - | - | - | FL610E | FL620E | FL630A | FL640E | FL500E |
| FL552E | FL591E | FL592E | FL992B | FL994B | - | FL710E | - | - | - | FL610E | FL620E | FL630A | FL640E | FL500E |
| FL560E | FL600E | FL600E | FL991B | FL991B | FL705E | FL715E | FL725E | FL735E | FL317A | FL327A | FL337A | FL347A | FL503E | |
| FL561E | FL600E | FL601E | FL991B | FL993B | FL705E | FL715E | FL725E | FL735E | FL317A | FL327A | FL337A | FL347A | FL503E | |
| FL562E | FL600E | FL602E | FL991B | FL995B | FL705E | FL715E | FL725E | FL735E | FL317A | FL327A | FL337A | FL347A | FL503E | |
| FL561E | FL601E | FL601E | FL993B | FL993B | FL705E | FL715E | FL725E | FL735E | FL317A | FL327A | FL337A | FL347A | FL503E | |
| FL562E | FL602E | FL602E | FL991B | FL995B | FL705E | FL715E | FL725E | FL735E | FL317A | FL327A | FL337A | FL347A | FL503E | |
| FL561E | FL601E | FL601E | FL993B | FL993B | FL705E | FL715E | FL725E | FL735E | FL317A | FL327A | FL337A | FL347A | FL503E | |
| FL562E | FL601E | FL602E | FL993B | FL995B | FL705E | FL715E | FL725E | FL735E | FL317A | FL327A | FL337A | FL347A | FL503E | |
| FL570E | 2x FL590E | 2x FL590E | 2x FL990B | 2x FL990B | - | FL710E | - | - | - | FL610E | FL620E | FL630A | FL640E | FL500E |
| FL571E | 2x FL590E | 2x FL591E | 2x FL990B | 2x FL992B | - | FL710E | - | - | - | FL610E | FL620E | FL630A | FL640E | FL500E |
| FL572E | 2x FL590E | 2x FL592E | 2x FL990B | 2x FL994B | - | FL710E | - | - | - | FL610E | FL620E | FL630A | FL640E | FL500E |
| FL571E | 2x FL591E | 2x FL591E | 2x FL992B | 2x FL992B | - | FL710E | - | - | - | FL610E | FL620E | FL630A | FL640E | FL500E |
| FL572E | 2x FL591E | 2x FL592E | 2x FL992B | 2x FL994B | - | FL710E | - | - | - | FL610E | FL620E | FL630A | FL640E | FL500E |



FL113A



FL113A

Orion Plus Metal Enclosures IP65

Characteristics

- Sheet metal enclosures with plain or transparent door
- Colour RAL 7035
- IP 65 / IK 10 with door closed
- IP 30 with door open
- Insulation class: I
- Compliance to IEC 529
- Enclosures delivered with 2 removable cable entry plates top/bottom, earthings studs on enclosure body and door, easy dismountable hinges to reverse the door
- Plain or transparent door with 1 or 2 locks with triangular centre 8mm located on the non weatherproof part,
- Mounting slides
- Gasket moulded on the door

Accessories

- Locks
- Wall fixing brackets
- Metallic or insulated internal doors
- Plain or perforated metallic mounting plates
- Kits for modular equipment

| Description | Dimensions mm H x W x D | Qty. | Plain door Cat ref. | Transparent door Cat ref. |
|---------------------------------|-------------------------|------|------------------------|---------------------------------|
| Orion Plus Metal Enclosure IP65 | 250 x 200 x 160 | 1 | FL101A | FL151A |
| | 300 x 250 x 160 | 1 | FL102A | FL152A |
| | 300 x 300 x 160 | 1 | FL103A | FL153A |
| | 350 x 300 x 160 | 1 | FL104A | FL154A |
| | 350 x 300 x 200 | 1 | FL105A | FL155A |
| | 400 x 300 x 160 | 1 | FL106A | FL156A |
| | 400 x 300 x 200 | 1 | FL107A | FL157A |
| | 400 x 400 x 200 | 1 | FL108A | FL158A |
| | 500 x 300 x 160 | 1 | FL109A | FL159A |
| | 500 x 300 x 200 | 1 | FL110A | FL160A |
| | 500 x 400 x 160 | 1 | FL111A | FL161A |
| | 500 x 400 x 200 | 1 | FL112A | FL162A |
| | 500 x 500 x 200 | 1 | FL113A | FL163A |
| | 600 x 400 x 200 | 1 | FL114A | FL164A |
| | 600 x 400 x 250 | 1 | FL115A | FL165A |
| | 600 x 600 x 250 | 1 | FL116A | FL166A |
| | 650 x 400 x 200 | 1 | FL117A | FL167A |
| | 650 x 400 x 250 | 1 | FL118A | FL168A |
| | 650 x 500 x 200 | 1 | FL119A | FL169A |
| | 650 x 500 x 250 | 1 | FL120A | FL170A |
| | 800 x 500 x 200 | 1 | FL121A | FL171A |
| | 800 x 500 x 250 | 1 | FL122A | FL172A |
| | 800 x 600 x 250 | 1 | FL123A | FL173A |
| | 800 x 600 x 300 | 1 | FL124A | FL174A |
| | 950 x 600 x 250 | 1 | FL125A | FL175A |
| | 950 x 600 x 300 | 1 | FL126A | FL176A |
| | 950 x 800 x 250 | 1 | FL127A | FL177A |
| | 950 x 800 x 300 | 1 | FL128A | FL178A |
| | 1250 x 600 x 250 | 1 | FL129A | FL179A |
| | 1250 x 800 x 300 | 1 | FL130A | FL180A |



FL958A

Plinths

| Description | For enclosures | Qty. | Cat ref. |
|---------------------|--|------|---------------|
| Plinth height 50 mm | FL113A, FL119A, FL121A, FL163A, FL169A, FL171A FL120A, FL122A, FL170A, FL172A | 1 | FL957A |
| | FL116A, FL123A, FL125A, FL129A, FL166A, FL173A, FL175A, FL179A | 1 | FL958A |
| | FL124A, FL126A, FL174A, FL176A | 1 | FL959A |
| | FL127A, FL177A | 1 | FL960A |
| | FL128A, FL130A, FL178A, FL180A | 1 | FL961A |
| | | 1 | FL962A |

Accessories

| Description | Qty. | Cat ref. |
|--|------|---------------|
| Lock with key to replace existing lock, supplied with 2 keys n°427 | 10 | FL96Z |
| Locks, set of 2 locks square centre 8mm, 1 key | 10 | FL80Z |
| Locks, set of 2 locks square centre 6mm, 1 key | 10 | FL82Z |
| Locks, set of 2 locks triangular centre 8mm | 10 | FL93Z |
| Locks, set of 2 double bit 3m centre locks | 10 | FL95Z |
| Set of wall fixing brackets, metallic | 1 | FL85Z |
| Earthing kit for metal enclosures, section : 4 mm ² | 10 | FL874A |
| Vertical association kit (sealstrip + screws) | 1 | FL670A |



FL113A



FL80Z



FL95Z



FL85Z



FL874A



FL670A



FL216B

Orion Plus Polyester Enclosures IP66

Characteristics

- Glass reinforced polyester enclosures
- Colour RAL 7035
- IP 66 / IK 10 with door closed
- IP30 with door open
- insulation class : II compliance to IEC 536
- Enclosures delivered with
 - Plain or transparent door with 1 or 2 locks with triangular centre 8mm located on the non weatherproof part
 - Mounting slides
 - Gasket moulded on the door
 - Complies with IEC 60 695-2- 1/0 and 60 695-2-1/1

Accessories

- Locks
- Wall fixing brackets
- Metallic or insulated internal doors
- Plain or perforated metallic mounting plates
- Kits for modular equipment

| Description | Dimensions H x W x D mm | Plain door Cat ref. | Transp door Cat ref. |
|---|----------------------------|------------------------|-------------------------|
| Orion plus polyester boxes moulded monobloc structure | 350 x 300 x 160 | FL204B | FL254B |
| | 500 x 300 x 200 | FL209B | FL259B |
| | 500 x 400 x 200 | FL213B | FL263B |
| | 650 x 400 x 200 | FL216B | FL266B |
| | 650 x 500 x 250 | FL221B | FL271B |
| | 800 x 600 x 300 | FL229B | FL279B |

Accessories



FL96Z

| Description | Qty. | Cat ref. |
|---|------|--------------|
| Lock with key - supplied with 2 keys n.° 427 for enclosures h ≤ 800 | 10 | FL96Z |
| Plastic key - RAL7046 | 10 | FL99Z |
| Locks - set of 2 locks square centre 8mm | 10 | FL81Z |
| Locks - set of 2 locks triangular centre 8mm | 10 | FL94Z |
| Locks - set of 2 locks double bit centre 3mm | 10 | FL97Z |



FL81Z



FL97Z

Orion Plus Polyester Enclosures IP65

| Description | Dimensions mm H x W x D | Qty. | Plain door Cat ref. | Transp door Cat ref. |
|-------------------------------------|-------------------------|---------------|------------------------|-------------------------|
| Orion Plus Polyester Enclosure IP65 | | | | |
| 550 x 600 x 300 | 1 | FL300B | FL500B | |
| 550 x 850 x 300 | 1 | FL305B | FL505B | |
| 550 x 1100 x 300 | 1 | FL310B | FL510B | |
| 850 x 600 x 300 | 1 | FL301B | FL501B | |
| 850 x 850 x 300 | 1 | FL306B | FL506B | |
| 850 x 1100 x 300 | 1 | FL311B | FL511B | |
| 1150 x 600 x 300 | 1 | FL302B | FL502B | |
| 1150 x 850 x 300 | 1 | FL307B | FL507B | |
| 1150 x 1100 x 300 | 1 | FL312B | FL512B | |



FL305B

Orion Plus Polyester Enclosure IP65 delivered with a 70mm plinth

| Description | Dimensions mm H x W x D | Qty. | Plain door Cat ref. | Transp door Cat ref. |
|--|-------------------------|---------------|------------------------|-------------------------|
| Orion Plus Polyester Enclosure IP65 delivered with a 70mm plinth | | | | |
| 600 x 600 x 300 | 1 | FL320B | FL520B | |
| 600 x 850 x 300 | 1 | FL325B | FL525B | |
| 600 x 1100 x 300 | 1 | FL330B | FL530B | |
| 900 x 600 x 300 | 1 | FL321B | FL521B | |
| 900 x 850 x 300 | 1 | FL326B | FL526B | |
| 900 x 1100 x 300 | 1 | FL331B | FL531B | |
| 1200 x 600 x 300 | 1 | FL322B | FL522B | |
| 1200 x 850 x 300 | 1 | FL327B | FL527B | |
| 1200 x 1100 x 300 | 1 | FL332B | FL532B | |



FL320B

Description

| Description | Dimensions mm H x W x D | Height Upper + Lwr Section | Plain door Cat ref. | Transp door Cat ref. |
|--|-------------------------|----------------------------|------------------------|-------------------------|
| 2 enclosures with plain doors on top of each other | | | | |
| 1150 x 600 x 300 | 550+550 | FL340B | - | |
| 1150 x 850 x 300 | 550+550 | FL350B | - | |
| 1150 x 1100 x 300 | 550+550 | FL360B | - | |
| 1450 x 600 x 300 | 550+850 | FL342B | - | |
| 1450 x 850 x 300 | 550+850 | FL352B | - | |
| 1450 x 1100 x 300 | 550+850 | FL362B | - | |
| 1750 x 600 x 300 | 550+1150 | FL344B | - | |
| 1750 x 600 x 300 | 850+850 | FL346B | - | |
| 2050 x 600 x 300 | 850+1150 | FL348B | - | |
| 1750 x 850 x 300 | 550+1150 | FL354B | - | |
| 1750 x 850 x 300 | 850+850 | FL356B | - | |
| 2050 x 850 x 300 | 850+1150 | FL358B | - | |
| 1750 x 1100 x 300 | 550+1150 | FL364B | - | |
| 1750 x 1100 x 300 | 850+850 | FL366B | - | |
| 2050 x 1100 x 300 | 850+1150 | FL368B | - | |

Description

| Description | Dimensions mm H x W x D | Qty. | Plain door Cat ref. | Transp door Cat ref. |
|---------------------------------------|-------------------------|---------------|------------------------|-------------------------|
| Doors to replace standard plain doors | | | | |
| 500 x 600 | 1 | FL380B | FL400B | |
| 550 x 850 | 1 | FL385B | FL405B | |
| 550 x 1100 | 1 | FL390B | FL410B | |
| 850 x 600 | 1 | FL381B | FL401B | |
| 850 x 850 | 1 | FL386B | FL406B | |
| 850 x 1100 | 1 | FL391B | FL411B | |
| 1150 x 600 | 1 | FL382B | FL402B | |
| 1150 x 850 | 1 | FL387B | FL407B | |
| 1150 x 1100 | 1 | FL392B | FL412B | |



FL408A

Mounting Plates for Orion Plus Enclosures

Characteristics

- Plain mounting plates
- Sheet metal thickness 2mm
- Delivered with fixing screws

Mounting

- Directly on the back of the enclosures
- On the integrated slides with brackets FL450A to adjust depth

| Description | Dimensions mm H x W x D | Qty. | Cat ref. |
|---|-------------------------|------|---------------|
| FL101A, FL151A | 280 x 143 | 1 | FL401A |
| FL102A, FL152A | 280 x 193 | 1 | FL402A |
| FL103A, FL153A | 280 x 243 | 1 | FL403A |
| FL104A, FL105A, FL154A, FL155A, FL204B, FL254B | 330 x 243 | 1 | FL404A |
| FL106A, FL107A, FL156A, FL157A | 380 x 243 | 1 | FL405A |
| FL108A, FL158A | 380 x 343 | 1 | FL406A |
| FL109A, FL110A, FL159A, FL160A, FL209B, FL259B | 480 x 243 | 1 | FL407A |
| FL111A, FL112A, FL161A, FL162A, FL213B, FL263B | 480 x 343 | 1 | FL408A |
| FL300B, FL500B, FL320B, FL520B | 480 x 493 | 1 | FL510E |
| FL305B, FL505B, FL325B, FL525B | 480 x 743 | 1 | FL520E |
| FL310B, FL510B, FL330B, FL530B | 480 x 993 | 1 | FL530E |
| FL113A, FL163A | 480 x 443 | 1 | FL409A |
| FL114A, FL115A, FL164A, FL165A | 580 x 343 | 1 | FL410A |
| FL116A, FL166A | 580 x 543 | 1 | FL411A |
| FL117A, FL118A, FL167A, FL168A, FL216B, FL266B | 630 x 343 | 1 | FL412A |
| FL119A, FL120A, FL169A, FL170A, FL221B, FL271B | 630 x 443 | 1 | FL413A |
| FL121A, FL122A, FL171A, FL172A | 780 x 443 | 1 | FL414A |
| FL123A, FL124A, FL173A, FL174A, FL229B, FL279B | 780 x 543 | 1 | FL415A |
| FL501E could be installed in all the enclosures | 780 x 243 | 1 | FL501E |
| FL502E could be installed in all the enclosures | 1080 x 243 | 1 | FL502E |
| FL300B, FL500B, FL320B, FL520B | 480 x 493 | 1 | FL510E |
| FL301B, FL501B, FL321B, FL521B | 780 x 493 | 1 | FL511E |
| FL306B, FL506B, FL326B, FL526B | 780 x 743 | 1 | FL521E |
| FL311B, FL511B, FL331B, FL531B | 780 x 993 | 1 | FL531E |
| FL302B, FL502B, FL322B, FL522B | 780 x 493 | 1 | FL512E |
| FL307B, FL507B, FL327B, FL527B | 1080 x 793 | 1 | FL522E |
| FL312B, FL512B, FL332B, FL532B | 1080 x 993 | 1 | FL532E |
| FL125A, FL126A, FL175A, FL176A | 930 x 543 | 1 | FL416A |
| FL127A, FL128A, FL177A, FL178A | 930 x 743 | 1 | FL417A |
| FL129A, FL179A | 1230 x 543 | 1 | FL418A |
| FL130A, FL180A | 1230 x 743 | 1 | FL419A |



FL98Z

Miscellaneous Accessories

| Description | Qty. | Cat ref. |
|---|------|---------------|
| Cylindrical barrel triangular male 8mm | 5 | FL74Z |
| Cylindrical barrel double bar 3mm | 5 | FL75Z |
| Cylindrical barrel square male 8 x 8mm | 5 | FL76Z |
| Cylindrical barrel square male 6 x 6 mm | 5 | FL77Z |
| Lock with key, supplied with 2 keys n.° 427 | 10 | FL98Z |
| Set of M6 nuts to fix equipment directly on back | 100 | FZ801 |
| Euro handle watertight | | FZ680 |
| Set of wall fixing brackets in insulated material, delivered with fixing screws M6x12 | | FL863Z |

FL863Z

Perforated Mounting Plates for Orion Plus Enclosures

Characteristics

- Perforated mounting plates
- Sheet metal thickness 2mm
- Delivered with fixing screws

Mounting

- Directly on the back of the enclosures
- On the integrated slides with brackets FL450A to adjust depth
- Use clip with screw UC969 to fix equipment on the mounting plate.

| Description | Dimensions mm H x W x D | Qty. | Cat ref. | |
|--|-------------------------|------|---------------|--------|
| FL102A, FL152A | 280 x 193 | 1 | FL472A | FL475A |
| FL104A, FL105A, FL154A, FL155A, FL204B, FL254B | 330 x 243 | 1 | FL473A | |
| FL109A, FL110A, FL159A, FL160A, FL209B, FL259B | 480 x 243 | 1 | FL474A | |
| FL111A, FL112A, FL161A, FL162A, FL213B, FL263B | 480 x 343 | 1 | FL475A | |
| FL117A, FL118A, FL167A, FL168A, FL216B, FL266B | 630 x 343 | 1 | FL476A | |
| FL119A, FL120A, FL169A, FL170A, FL221B, FL271B | 630 x 443 | 1 | FL477A | |
| FL121A, FL122A, FL171A, FL172A | 780 x 443 | 1 | FL478A | |
| FL123A, FL124A, FL173A, FL174A, FL229B, FL279B | 780 x 543 | 1 | FL479A | |
| FL125A, FL126A, FL175A, FL176A | 930 x 543 | 1 | FL480A | |
| FL127A, FL128A, FL177A, FL178A | 930 x 743 | 1 | FL481A | |
| FL129A, FL179A | 1230 x 543 | 1 | FL482A | |
| FL130A, FL180A | 1230 x 743 | 1 | FL483A | |



Commercial
Distribution

Insulated mounting plates for Orion Enclosures

Characteristics

- Insulated mounting plates
- Insulating material, delivered with fixing screws

Mounting

- Directly on the back on the enclosures
- On the integrated slides with brackets FL450A to adjust depth



| Description | Dimensions mm H x W x D | Qty. | Cat ref. | |
|---|-------------------------|------|---------------|--------|
| FL102A, FL152A | 235 x 195 | 1 | FL422A | FL427A |
| FL104A, FL105A, FL154A, FL155A, FL204B, FL254B | 285 x 245 | 1 | FL423A | |
| FL109A, FL110A, FL159A, FL160A, FL209B, FL259B | 435 x 245 | 1 | FL424A | |
| FL111A, FL112A, FL161A, FL162A, FL213B, FL263B | 435 x 345 | 1 | FL425A | |
| FL541E could be installed in all the enclosures | 735 x 245 | 1 | FL541E | |
| FL542E could be installed in all the enclosures | 1035 x 245 | 1 | FL542E | |
| FL300B, FL500B, FL320B, FL520B | 435 x 495 | 1 | FL550E | |
| FL305B, FL505B, FL325B, FL525B | 435 x 745 | 1 | FL560E | |
| FL310B, FL510B, FL330B, FL530B | 435 x 995 | 1 | FL570E | |
| FL117A, FL118A, FL167A, FL168A, FL216B, FL266B | 585 x 345 | 1 | FL426A | |
| FL119A, FL120A, FL169A, FL170A, FL221B, FL271B | 585 x 345 | 1 | FL427A | |
| FL121A, FL122A, FL171A, FL172A | 735 x 445 | 1 | FL428A | |
| FL123A, FL124A, FL173A, FL174A, FL229B, FL279B | 735 x 545 | 1 | FL429A | |
| FL301B, FL501B, FL312B, FL512B | 735 x 495 | 1 | FL551E | |
| FL306B, FL506B, FL326B, FL526B | 735 x 745 | 1 | FL561E | |
| FL311B, FL511B, FL331B, FL531B | 735 x 995 | 1 | FL571E | |
| FL302B, FL502B, FL322B, FL522B | 1035 x 745 | 1 | FL552E | |
| FL307B, FL507B, FL327B, FL527B | 1035 x 745 | 1 | FL562E | |
| FL312B, FL512B, FL332B, FL532B | 1035 x 995 | 1 | FL572E | |
| FL125A, FL126A, FL175A, FL176A | 885 x 545 | 1 | FL430A | |
| FL127A, FL128A, FL177A, FL178A | 885 x 745 | 1 | FL431A | |
| FL129A, FL179A | 1185 x 545 | 1 | FL432A | |
| FL130A, FL180A | 1185 x 745 | 1 | FL433A | |

Clip nut screw M5

| Description | Qty. | Cat ref. |
|--|-------------------|--------------|
| Clip nut screw M5 for perforated mounting plates | 1 set = 25 pieces | UC969 |





FL552A



Internal Metal Doors for Orion Plus Enclosures

Characteristics

- Internal doors, sheet metal
- Reversible
- Delivered with fixing accessories mounting on slides with fixing frame

| Description | Qty. | Cat ref. |
|--|------|---------------|
| FL101A, FL151A | 1 | FL541A |
| FL102A, FL152A | 1 | FL542A |
| FL103A, FL153A | 1 | FL543A |
| FL104A, FL105A, FL154A, FL155A, FL204B, FL254B | 1 | FL544A |
| FL106A, FL107A, FL156A, FL157A | 1 | FL545A |
| FL108A, FL158A | 1 | FL546A |
| FL109A, FL110A, FL159A, FL160A, FL209B, FL259B | 1 | FL547A |
| FL111A, FL112A, FL161A, FL162A, FL213B, FL263B | 1 | FL548A |
| FL300B, FL500B, FL310B, FL510B, FL320B, FL520B, FL330B, FL530B | 1 | FL590E |
| FL305B, FL505B, FL325B, FL525B | 1 | FL600E |
| FL113A, FL163A | 1 | FL549A |
| FL114A, FL115A, FL164A, FL165A | 1 | FL550A |
| FL117A, FL118A, FL167A, FL168A, FL216B, FL266B | 1 | FL551A |
| FL119A, FL120A, FL169A, FL170A, FL221B, FL271B | 1 | FL552A |
| FL116A, FL166A | 1 | FL553A |
| FL121A, FL122A, FL171A, FL172A | 1 | FL554A |
| FL123A, FL124A, FL173A, FL174A, FL229B, FL279B | 1 | FL555A |
| FL580E could be installed in all the enclosures | 1 | FL580E |
| FL581E could be installed in all the enclosures | 1 | FL581E |
| FL582E could be installed in all the enclosures | 1 | FL582E |
| FL301B, FL501B, FL311B, FL511B, FL321B, FL521B, FL331B, FL531B | 1 | FL591E |
| FL306B, FL506B, FL326B, FL526B | 1 | FL601E |
| FL302B, FL502B, FL312B, FL512B, FL322B, FL522B, FL332B, FL532B | 1 | FL592E |
| FL307B, FL507B, FL327B, FL527B | 1 | FL602E |
| FL125A, FL126A, FL175A, FL176A | 1 | FL556A |
| FL127A, FL128A, FL177A, FL178A | 1 | FL557A |
| FL129A, FL179A | 1 | FL558A |
| FL130A, FL180A | 1 | FL559A |



FL646A



Internal Polyester Doors for Orion Plus Enclosures

Characteristics

- Internal doors, polyester
- Reversible
- Delivered with fixing accessories mounting on slides with delivered fixing frame

| Description | Qty. | Cat ref. |
|--|------|---------------|
| FL104A, FL105A, FL154A, FL155A, FL204B, FL254B | 1 | FL643A |
| FL109A, FL110A, FL159A, FL160A, FL209B, FL259B | 1 | FL644A |
| FL111A, FL112A, FL161A, FL162A, FL213B, FL263B | 1 | FL645A |
| FL117A, FL118A, FL167A, FL168A, FL216B, FL266B | 1 | FL646A |
| FL119A, FL120A, FL169A | 1 | FL647A |
| FL123A, FL124A, FL173A, FL174A, FL229B, FL279B | 1 | FL649A |

Functional Uprights

Characteristics

- Functional uprights for the assembly of: kit for modular equipment, kit for box section, solid panels, partial internal panels
- Fixed to the guide runners by means of brackets provided
- Prepared for vertical conduits: (1) section 25 x 60 (2) section 40 x 60

| Description | Qty. | Cat ref. |
|---|------|---------------|
| For panel height x width: 350 x (1)300 mm - H mod. 300 mm | 1 | FL461A |
| For panel height x width: 500 x (1)300 mm - H mod. 450 mm | 1 | FL462A |
| For panel height x width: 500 x (1)400 mm - H mod. 450 mm | 1 | FL462A |
| For panel height x width: 650 x (1)400 mm - H mod. 600 mm | 1 | FL463A |
| For panel height x width: 650 x (1)500 mm - H mod. 600 mm | 1 | FL463A |
| For panel height x width: 800 x (1)500 mm - H mod. 750 mm | 1 | FL465A |

Functional Uprights Continued...

| Description | Qty. | Cat ref. |
|---|------|---------------|
| For panel height x width: 800 x (2)600 mm - H mod. 750 mm | 1 | FL466A |
| For panel height x width: 950 x (2)600 mm - H mod. 900 mm | 1 | FL467A |
| For panel height x width: 950 x (2)800 mm - H mod. 900 mm | 1 | FL467A |
| For panel height x width: 1250 x (2)600 mm - H mod. 1200 mm | 1 | FL468A |
| For panel height x width: 1250 x (2)800 mm - H mod. 1200 mm | 1 | FL468A |

Functional Chassis for Modular Equipment

Characteristics

- Functional chassis for modular equipment
- Pre-assembled made up of:
 - 2 uprights
 - DIN guides
 - Modular panels in resin
 - 4 fixing brackets are fixed to the guide runners by means of the brackets provided.

| Description | Qty. | Cat ref. |
|---|------|---------------|
| For panel height x width: 350 x 300 mm, 24 mod, 2 rows of 12 mod, for steel enclosures only | 1 | FL979A |
| For panel height x width: 350 x 300 mm, 24 mod, 2 rows of 12 mod, for polyester boxes only | 1 | FL980A |
| For panel height x width: 500 x 300 mm, 36 mod, 3 rows of 12 mod | 1 | FL981A |
| For panel height x width: 500 x 400 mm, 54 mod, 3 rows of 18 mod | 1 | FL982A |
| For panel height x width: 650 x 400 mm, 72 mod, 4 rows of 18 mod | 1 | FL983A |

Sliding Guides

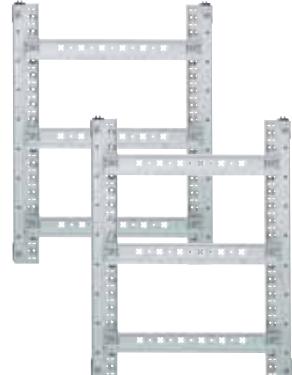
| Description | Qty. | Cat ref. |
|---|------|---------------|
| Sliding guides for polyester enclosures | 1 | FL672E |

Equipment Kits for Modular Products

Characteristics

- Equipment kits for modular products
- Mounting on functional uprights made of :
 - Fixing frame
 - 2 functional uprights for DIN rails
 - 2 uprights to fix DIN rails
 - DIN rails
 - Front plates with modular cut out h.150mm

| Description | Qty. | Cat ref. |
|--|------------------|---------------|
| FL204B, FL254B | 1 | FL990C |
| FL104A, FL105A, FL154A, FL155A | 2 rows (20 mod) | FL990A |
| FL109A, FL110A, FL159A, FL160A, FL209B, FL259B | 3 rows (30 mod) | FL991A |
| FL111A, FL112A, FL161A, FL162A, FL213B, FL263B | 3 rows (48 mod) | FL992A |
| FL300B, FL500B, FL320B, FL520B | 3 rows (69 mod) | FL990B |
| FL305B, FL505B, FL325B, FL525B | 3 rows (111 mod) | FL991B |
| FL117A, FL118A, FL167A, FL168A, FL216B, FL266B | 4 rows (64 mod) | FL993A |
| FL119A, FL120A, FL169A, FL170A, FL221B, FL271B | 4 rows (88 mod) | FL994A |
| FL121A, FL122A, FL171A, FL172A | 5 rows (110 mod) | FL995A |
| FL123A, FL124A, FL173A, FL174A, FL229B, FL279B | 5 rows (130 mod) | FL996A |
| FL301B, FL501B, FL321B, FL521B | 5 rows (115 mod) | FL992B |
| FL306B, FL506B, FL326B, FL526B | 5 rows (185 mod) | FL993B |
| FL125A, FL126A, FL175A, FL176A | 6 rows (156 mod) | FL997A |
| FL127A, FL128A, FL177A, FL178A | 6 rows (222 mod) | FL998A |
| FL302B, FL502B, FL322B, FL522B | 7 rows (161 mod) | FL994B |
| FL307B, FL507B, FL327B, FL527B | 7 rows (259 mod) | FL995B |
| FL129A, FL179A | 8 rows (208 mod) | FL999A |
| FL130A, FL180A | 8 rows (296 mod) | FL000A |



FL992A

Kit for Modular Devices H150

| Description | Width mm | Qty. | Cat ref. |
|-------------|----------|------|---------------|
| For kits | 300 | 1 | FL361A |
| For kits | 400 | 1 | FL362A |
| For kits | 500 | 1 | FL363A |
| For kits | 600 | 1 | FL364A |
| For kits | 800 | 1 | FL365A |

Kit for Modular Devices H200

| Description | Width mm | Qty. | Cat ref. |
|----------------------------------|----------|------|---------------|
| For kits FL992A, FL993A | 400 | 1 | FL366A |
| For kits FL996A, FL997A, FL 999A | 500 | 1 | FL367A |
| For kits FL991A, FL993A, FL995A, | 600 | 1 | FL368A |
| For kits FL998A, FL000A | 800 | 1 | FL369A |

Kit for Main Incomer 125/160A (Modular)

| Description | W x H mm | Qty. | Cat ref. |
|---|-----------|------|---------------|
| Kit for main incomer 125/160A (modular) | 400 x 300 | 1 | FL371A |
| Kit for main incomer 125/160A (modular) | 500 x 300 | 1 | FL372A |
| Kit for main incomer 125/160A (modular) | 600 x 300 | 1 | FL373A |
| Kit for main incomer 125/160A (modular) | 800 x 300 | 1 | FL374A |

Kit for Main Incomer 250A

| Description | W x H mm | Qty. | Cat ref. |
|---------------------------|-----------|------|----------------|
| Kit for main incomer 250A | 600 x 200 | 1 | FL380AH |
| Kit for main incomer 250A | 800 x 200 | 1 | FL381AH |
| Kit for main incomer 250A | 300 x 500 | 1 | FL391AH |
| Kit for main incomer 250A | 400 x 500 | 1 | FL392AH |
| Kit for main incomer 250A | 400 x 650 | 1 | FL393AH |

Kit for Main Incomer 400/630A

| Description | W x H mm | Qty. | Cat ref. |
|-------------------------------|-----------|------|----------------|
| Kit for main incomer 400/630A | 400 x 650 | 1 | FL399AH |

Fixed Partial Mounting plates



FL323A

| Description | W x H mm | Qty. | Cat ref. |
|-------------------------|-----------|------|---------------|
| For kits FL990A, FL991A | 300 x 150 | 1 | FL311A |
| For kits FL992A, FL993A | 400 x 150 | 1 | FL312A |
| For kits FL992A, FL993A | 400 x 200 | 1 | FL322A |
| For kits FL994A, FL995A | 500 x 150 | 1 | FL313A |
| For kits FL994A, FL995A | 500 x 200 | 1 | FL323A |
| For kits FL994A, FL995A | 500 x 300 | 1 | FL333A |
| For kits FL994A, FL995A | 500 x 400 | 1 | FL343A |

Adjustable Partial Mounting Plates

Characteristics

- Adjustable partial mounting plates
- Mounting on functional uprights
- For enclosures with a depth of 250 and 300mm



FL325A

| Description | W x H mm | Qty. | Cat ref. |
|---|---------------|------|---------------|
| For kits FL993A | 400 x 150 | 1 | FL314A |
| For kits FL993A | 400 x 200 | 1 | FL324A |
| For kits FL994A, FL995A | 500 x 150 | 1 | FL315A |
| For kits FL994A, FL995A | 500 x 200 | 1 | FL325A |
| For kits FL994A, FL995A | 500 x 300 | 1 | FL335A |
| For kits FL994A, FL995A | 500 x 400 | 1 | FL345A |
| For kits FL996A, FL997A, FL999A | 600 x 150 | 1 | FL316A |
| For kits FL996A, FL997A, FL999A | 600 x 200 | 1 | FL326A |
| For kits FL996A, FL997A, FL999A | 600 x 300 | 1 | FL336A |
| For kits FL996A, FL997A, FL999A | 600 x 400 | 1 | FL346A |
| For kits FL990B, FL992B, FL994B | 600 x 150 | 1 | FL610E |
| For kits FL990B, FL992B, FL994B | 600 x 200 | 1 | FL620E |
| For kits FL990B, FL992B, FL994B | 600 x 300 | 1 | FL630E |
| For kits FL990B, FL992B, FL994B | 600 x 400 | 1 | FL640E |
| For kits FL998A, FL000A, FL991B, FL993B, FL995B | 800/850 x 150 | 1 | FL317A |
| For kits FL998A, FL000A, FL991B, FL993B, FL995B | 800/850 x 200 | 1 | FL327A |
| For kits FL998A, FL000A, FL991B, FL993B, FL995B | 800/850 x 300 | 1 | FL337A |
| For kits FL998A, FL000A, FL991B, FL993B, FL995B | 800/850 x 400 | 1 | FL347A |

Plain Front Plates

Characteristics

- Plain front plates
- Fixed by screws of 1/4 turn
- To replace modular covers



FL712E

| Description | Height mm | Qty. | Cat ref. |
|---|-----------|------|---------------|
| For kits FL992A, FL993A, | 50 | 1 | FL702E |
| For kits FL994A, FL995A | 50 | 1 | FL703E |
| For kits FL996A, FL997A, FL999A | 50 | 1 | FL704E |
| For kits FL998A, FL000A, FL991B, FL993B, FL995B | 50 | 1 | FL705E |
| For kits FL990B, FL992B, FL994B | 150 | 1 | FL710E |
| For kits FL990A, FL991A, FL990C | 150 | 1 | FL711E |
| For kits FL992A, FL993A | 150 | 1 | FL712E |
| For kits FL994A, FL995A | 150 | 1 | FL713E |
| For kits FL996A, FL997A, FL999A | 150 | 1 | FL714E |
| For kits FL998A, FL000A, FL991B, FL993B, FL995B | 150 | 1 | FL715E |
| For kits FL992A, FL993A | 200 | 1 | FL722E |
| For kits FL994A, FL995A | 200 | 1 | FL723E |
| For kits FL996A, FL997A, FL999A | 200 | 1 | FL724E |
| For kits FL998A, FL000A, FL991B, FL993B, FL995A | 200 | 1 | FL725E |
| For kits FL994A, FL995A | 300 | 1 | FL733E |
| For kits FL996A, FL997A, FL999A | 300 | 1 | FL734E |
| For kits FL998A, FL000A, FL991B, FL993B, FL995B | 300 | 1 | FL735E |

DIN Rail for Terminals

Characteristics

- DIN rail for terminals
- Adjustable inclination : 30°
- Mounting on functional uprights



FL500A

| Description | Qty. | Cat ref. |
|---|------|---------------|
| For kits FL992A, FL993A | 1 | FL500A |
| For kits FL994A, FL995A | 1 | FL501A |
| For kits FL996A, FL997A, FL999A | 1 | FL502A |
| For kits FL998A, FL000A, FL991B, FL993B, FL995B | 1 | FL503A |
| For kits FL990B, FL992B, FL994B | 1 | FL500E |

Support for Earth and Neutral Terminals

| Description | Width mm | Qty. | Cat ref. |
|--|----------|------|---------------|
| Support for earth and neutral terminals for enclosures | 300 | 1 | FL492A |
| | 400 | 1 | FL493A |
| | 500 | 1 | FL494A |
| | 600 | 1 | FL495A |
| | 800 | 1 | FL496A |

Miscellaneous Accessories

| Description | Qty. | Cat ref. |
|---|-------|---------------|
| Mounting plate brackets; 4 brackets delivered with fixing screws | 1 set | FL450A |
| Slotted cable duct horizontal and vertical; width x depth 25 x 60 mm, length 2m | 2 | FL70Z |
| Slotted cable duct horizontal and vertical; width x depth 40 x 60 mm, length 2m | 2 | FL71Z |
| Cable guide fixing with UZ01V, section 2200 mm ² (1 set = 20 pieces) | 1 set | UZ25V1 |
| Cable guide fixing with UZ01V, section 1600 mm ² (1 set = 20 pieces) | 1 set | UZ25V2 |
| Fixing bracket for cable guide, clips on rail (1 set = 20 pieces) | 1 set | UZ01V1 |
| 1 Cable retainer plastic cover, length 2m | 1 | UT50C |
| Blanking clip, pre-cut to 1/2 mod RAL 7035, width. 4 mod | 6 | FL871Z |
| Label holder for front plates, label holder and label, width 24 mod | 1 | JE003 |
| Spray paint, colour RAL 7035 | 1 | FL672Z |
| Heater supply, 15W | 1 | FL252Z |
| Heater supply, 30W | 1 | FL253Z |
| Heater supply, 45W | 1 | FL254Z |
| Heater supply, 80W | 1 | FL255Z |
| Heater supply, 150W | 1 | FL256Z |
| Filter for FL220Z | 2 | FL230Z |
| Filter for for FL224Z | 2 | FL234Z |
| Filter for FL226Z | 2 | FL236Z |

Ventilating Fan for Enclosures



FL212Z

Characteristics

- Ventilating fan for enclosures
- Reinforced polyamide
- Colour RAL 7035 / IP54
- supply 230V

| Description | Dimensions mm | Qty. | Cat ref. |
|--|--------------------------|------|---------------|
| 20W rotation/mín. 2650/3000 airflow 57m ³ /h | w. 150 x h. 150 x d. 71 | 1 | FL210Z |
| 20W rotation/mín. 2650/3000 airflow 115m ³ /h | w. 250 x h. 250 x d. 113 | 1 | FL212Z |
| 29W rotation/mín. 2500 airflow 240m ³ /h | w. 250 x h. 250 x d. 121 | 1 | FL214Z |
| 67W rotation/mín. 2480/2650 airflow 520m ³ /h | w. 325 x h. 325 x d. 161 | 1 | FL216Z |

Air Vent with Filter IP54

| Description | Dimensions mm | Qty. | Cat ref. |
|---|-------------------------|------|---------------|
| Air Vent with Filter IP54, colour RAL7035 | w. 150 x h. 150 x d. 28 | 1 | FL220Z |
| | w. 250 x h. 250 x d. 31 | 1 | FL224Z |
| | w. 325 x h.325 x d. 161 | 1 | FL226Z |

Thermostat to Control Temperature in Enclosure



FL258Z

FL259Z

Characteristics

- Thermostat to control temperature in the enclosure
- Changeover contact
- Fixing on DIN rail
- Settings -10° to 80° C
- w. 29 x h. 68 x d. 45mm

| Description | Qty. | Cat ref. |
|---|------|---------------|
| Thermostat to control condensation contact NC | 1 | FL258Z |
| Thermostat to control fan-contact NO | 1 | FL259Z |

Invicta

The complete service offering

Over the past few years we have focused on changing the nature of sub and final distribution. The results of this are the new invicta 3 Type B Distribution Board and Invicta 3 Panelboard ranges.

We also offer a range of SP&SN distribution board, fuse combination switches, switch disconnectors, switch fuses and enclosed MCCBs.





JK104

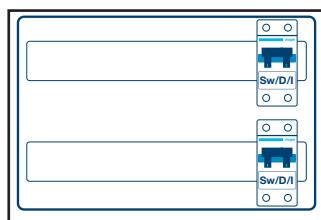
SP&N Distribution Boards

Characteristics:

- SP&N distribution boards are available from 4-28 outgoing ways. The range comes with a choice of either 100A 2 pole switch disconnector, 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 1.215

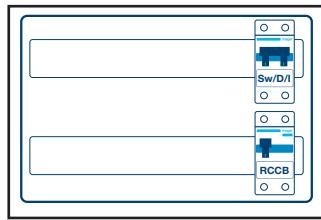


100A Switch Disconnector Incomer

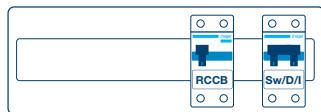

 100A Switch Disconnector Incomer
Dual Row

 63A 30mA Switch Disconnector
Incomer


100A 30mA RCCB Incomer



100A 30mA RCCB Incomer Dual Row


 100A Switch Disconnector Incomer &
63A 30mA RCCB

| Description | Size | Cat ref. |
|---|-------|---------------|
| 100A Switch Disconnector Incomer | | |
| 4 Way 100A Switch Disconnector Incomer | 3 | JK104 |
| 6 Way 100A Switch Disconnector Incomer | 3 | JK106 |
| 10 Way 100A Switch Disconnector Incomer | 4 | JK110 |
| 14 Way 100A Switch Disconnector Incomer | 5 | JK114 |
| 20 Way 100A Switch Disconnector Incomer | 7 | JK120 |
| 28 Way 100A Switch Disconnector Incomer Dual Row | 5 (2) | JK128 |
| 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 Disconnector 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 Disconnector and 100A 30mA RCCB | | |
| 28 Way Split Load 14+14 100A Switch 100A 30mA RCCB Dual Row | 5 (2) | JK527H |

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 1.215.



JK008

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

Invicta 3 SP&N Distribution Boards

Characteristics:

- Boards are available with 14 & 29 outgoing ways. The range comes with a 100A 2 pole switch disconnector to accept 50mm² cable. Ample wiring space, with provision to accept RCBO's.
- Conforms to BS EN 61439-3. $I_{nA} = 63A/100A$, $I_{nc} = 63A$, $I_{cc} = 10kA$
- Full complement of earth and neutral terminal bars to accept up to 16mm² cable.
- Suitable for cable entry on all sides and back.
- Enclosures are available with plain or glazed doors.
- For dimensions see page 1.216.



JK114AG

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

Type B Distribution Boards

Invicta 3 125A, Metered Boards, IP65 Distribution Boards



JK106BG

¹ A **JK101SE** may be required to provide additional incoming cable space, see page 1.127 & 1.217.

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, $I_{hA} = 125A$, $I_{nc} = 63A$, $I_{cc} = 25kA$
- Supplied without incoming & outgoing devices. A Hager incomer kit must be used.
- Incoming cable sizes: 125A & 100A 50mm², 63A 16mm²
- For dimensions see page 1.216

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



JKD1416PM

125A Dual Metered Boards

Characteristics:

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

| 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, $I_{hA} = 125A$, $I_{nc} = 63A$, $I_{cc} = 25kA$.
- 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 ³ | JK104BF |
| 6 Way IP65 Metal 125A TPN Board 800 x 600 x 300 | JK106BD ³ | JK106BF |
| 8 Way IP65 Metal 125A TPN Board 800 x 600 x 300 | JK108BD ³ | JK108BF |
| 12 Way IP65 Metal 125A TPN Board 1250 x 850 x 300 | JK112BD ³ | JK112BF |
| 16 Way IP65 Metal 125A TPN Board 1250 x 850 x 300 | JK116BD ³ | JK116BF |

MCBs & RCBOs for Invicta 3 Type B Distribution Boards

| | 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 |
| | Triple Pole | NCN300A | NCN301A | NCN302A | NCN303A | NCN304A | NCN306A |
| D Curve | Single Pole | NDN100A | NDN101A | NDN102A | NDN103A | NDN104A | NDN106A |
| | Triple Pole | NDN300A | NDN301A | NDN302A | NDN303A | NDN304A | NDN306A |
| 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 Disconnector Incomer Kit (Fits within distribution board) | 50mm ² | JK11003S |
| 4 Pole 100A Switch Disconnector Incomer Kit (Fits within distribution board) | 50mm ² | JK11004S |
| 3 Pole 125A Switch Disconnector Incomer Kit (Fits within distribution board) | 50mm ² | JK11253S |
| 4 Pole 125A Switch Disconnector Incomer Kit (Fits within distribution board) | 50mm ² | JK11254S |
| 4 Pole 63A Contactor Incomer Kit includes Switch Disconnector (fits below distribution board, 300mm high) | 50mm ² | JK10634C ³ |
| 4 Pole 100A Contactor Incomer Kit includes Switch Disconnector (fits below distribution board, 450mm high) | M8 Lug | JK11004C ³ |
| 125A Direct Connection Kit (Fits within distribution board) | 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

Commercial
Distribution

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

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_{hA} = 125A, I_{nc} = 63A, I_{cc} = 25kA.

- **Note:** Distribution boards supplied separately to be assembled on site.

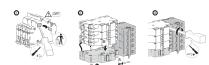
| Description | Connection | Cat ref. |
|--|------------|------------------|
| Dual kWh Meter Pack 125A Incomer Pulsed & Modbus | M8 Lug | JKD125PM |
| Triple kWh Meter Pack 125A Incomer Pulsed & Modbus | M8 Lug | JKD125TPM |



JKD125PM

Triple Pole RCD Add-On Blocks for MCB Devices

| Sensitivity I _{Δn} | I _h 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 | 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 | - | - | - |
| ADA166U | ADA170U | ADA175U | ADA182U | - | - | - |

Type B Distribution Boards

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



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. $I_{hA} = 250A$, $I_{nc} = 63A$, $I_{cc} = 25kA$.
- Supplied without incoming and outgoing devices. A Hager incoming kit must be used.
- For dimensions see page 1.216

| Description | Cat ref. Plain door | Cat ref. Glazed door | Cat ref. Residential Applications |
|-------------------------------------|------------------------|-------------------------|--------------------------------------|
| 8 Triple Pole Ways 250A TP&N Board | JK208B | JK208BG | JK208BA3¹ |
| 12 Triple Pole Ways 250A TP&N Board | JK212B | JK212BG | JK212BA3¹ |
| 16 Triple Pole Ways 250A TP&N Board | JK216B | JK216BG | JK216BA3¹ |
| 18 Triple Pole Ways 250A TP&N Board | JK218B | JK218BG | JK218BA3¹ |
| 24 Triple Pole Ways 250A TP&N Board | JK224B | JK224BG | JK224BA3¹ |



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. $I_{hA} = 200A$, $I_{nc} = 63A$, $I_{cc} = 25kA$.
- For dimensions see page 1.217

| 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. $I_{hA} + 250A$, $I_{nc} = 63A / 125A$, $I_{cc} = 25kA$
- For dimensions see page 1.217

| 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

| | 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 |
| | Triple Pole | NCN300A | NCN301A | NCN302A | NCN303A | NCN304A | NCN306A |
| MCB D Curve | Single Pole | NDN100A | NDN101A | NDN102A | NDN103A | NDN104A | NDN106A |
| | Triple Pole | NDN300A | NDN301A | NDN302A | NDN303A | NDN304A | NDN306A |
| RCBO (B) | Single Pole | - | - | - | - | ADA106U | ADA110U |
| RCBO (C) | Single Pole | - | - | - | - | ADA156U | ADA160U |

MCBs Suitable for Hybrid Distribution Boards Only

| | 80A | 100A | 125A |
|-------------|-------------|---------------|---------------|
| MCB C Curve | Single Pole | HMC180 | HMC190 |
| | Triple Pole | HMC380 | HMC399 |
| MCB D Curve | Single Pole | HMD180 | HMD190 |
| | Triple Pole | HMD380 | HMD399 |

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 1.217

| 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 | - | - | - | - |
| ADA166U | ADA170U | ADA175U | ADA182U | - | - | - | - |

Type B Distribution Boards

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



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 1.216.

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



JK216E

DIN Extension Boxes & Door Kits for 250A Primary Boards

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



JK101SE



JK101DK

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

Characteristics:

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

| Description | Cat ref. Plain door | Cat ref. Glazed door |
|--|------------------------|-------------------------|
| 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 Boxes 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 Boxes supplied with two removable gland plates.
- For dimensions see page 1.216.

| Description | Number of rows | Cat ref. Glazed door | Cat ref. Amd 3 Compliant |
|---|----------------|-------------------------|-----------------------------|
| Side DIN Boxes for 125A Primary Boards | | | |
| 4 Way 32 Mod Side DIN Box for JK104B(G) | 2 | JK104BDFG | JK104BDFA3 |
| 6 Way 32 Mod Side DIN Box for JK106B(G) | 2 | JK106BDFG | JK106BDFA3 |
| 8 Way 48 Mod Side DIN Box for JK108B(G) | 3 | JK108BDFG | JK108BDFA3 |
| 12 Way 64 Mod Side DIN Box for JK112B(G) | 4 | JK112BDFG | JK112BDFA3 |
| 16 Way 80 Mod Side DIN Box for JK116B(G) | 5 | JK116BDFG | JK116BDFA3 |



JK104BDFG

Side DIN Boxes for 250A Primary Boards

| | | | |
|--|---|------------------|-------------------|
| 8 Way 80 Mod Side DIN Box for JK208B(G) | 5 | JK208BDFG | JK208BDFA3 |
| 12 Way 80 Mod Side DIN Box for JK212B(G) | 5 | JK212BDFG | JK212BDFA3 |
| 16 Way 96 Mod Side DIN Box for JK216B(G) | 6 | JK216BDFG | JK216BDFA3 |
| 18 Way 112 Mod Side DIN Box for JK218B(G) | 7 | JK218BDFG | JK218BDFA3 |
| 24 Way 128 Mod Side DIN Box for JK224B(G) | 8 | JK224BDFG | JK224BDFA3 |



JK208BDFG

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 1.216.

| 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 |



JK104BSF

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 |



JK104BSH

Half Width Side Extension Boxes for 125A Primary Boards

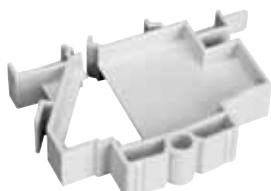
| | |
|---------------------------------|-----------------|
| 4 Way Half Width Extension Box | JK104BSH |
| 6 Way Half Width Extension Box | JK106BSH |
| 8 Way Half Width Extension Box | JK108BSH |
| 12 Way Half Width Extension Box | JK112BSH |
| 16 Way Half Width Extension Box | JK116BSH |
| Small Half Width Filler Box | JK101BSH |



JK104BSH

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 |



JK01B



JK222PK

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

| Description | 125A Accessories Cat ref. | 250A Accessories Cat ref. |
|--|------------------------------|------------------------------|
| Door Locking Kit | JK222PK | JK222PK |
| Spare Label Pack - All Sizes (one pack) | JKLABELPACK | JKLABELPACK |
| Single Phasing Kit | JK125BSP | JK250BSP |
| Single Pole Busbar Blank | JK01B | JK01B |
| JK1/2 Horizontal or Vertical Mechanical Connection Kit | JK100HK | JK100HK |
| Brass Gland Plate - 2.0mm | JK1PLATEB | JK2PLATEB |
| 100A Top Tap Off Kit | JK100TAP | JK100TAP |
| Additional Earth Bar Kit | JK030BEB | JK030BEB |
| High Integrity - 2 x 15 Connections | | |
| 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 |



Engineered solutions.

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

:hager



JK104BDFG

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 1.225.

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 |



JN201SPD



JN202SPD

250A JN Panelboard Surge Protection Device Kit

Characteristics

- SPD kit for direct integration with 250A panelboards. Failsafe design SPD facilitates direct connection to main busbars.
- SPD suitable for TN/TT Earth arrangements including TNC-S (PME). CT2 type SPD to accommodate multiple earthing systems. Solid copper Earth link for enhanced U_p performance. Supplied with mounting and connection set.

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



JN11004SM

Side/Top/Bottom Meter Enclosures for JN Panelboards

Characteristics

- Blanking plates not included. For panelboard dimensions see page 1.225.

| 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 |



JN3003TM

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 1.225.



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 1.225.



JN205BE

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

Accessories

| Description | Cat ref. |
|--|----------|
| Touch Up Paint 30ml | JF95A |
| Allen Key Set | JF296A |
| Gland Plate for Invicta 3 400A Range | JFPLATE |
| 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 |
| Terminal Cover x160 1 Pole Long | HYA029H |
| Terminal Cover x160 3 Pole Long | HYA021H |
| Neutral Barrier Kit | JN201NS |



JN001BP



HXA039H

Outgoing Devices

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.

Cable Capacity Incomers & Outgoers

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

Options

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

Outgoing MCCBs

- Adjustable thermal options on triple pole.

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

Incomer Kits for 400A Panelboards

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

400A JF Panelboard Surge Protection Device Kit



JF801SPD

| Description | Cat ref. |
|-------------------------------------|-----------------|
| SPD kit Type 1+2 for JF Panelboards | JF801SPD |



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).

| 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.



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

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 Disconnector: 630A/800A, MCCB: 400A/630A, Direct connection: 800A.
- Incoming cable lugged via M12 hexagonal bolt.

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_f adjustable 0.4 – 1.0 x I_n | M12 Lug | JF843BM |
| 4 Pole 400A MCCB Incomer Kit Electronic LSI MCCB, I_f adjustable 0.4 – 1.0 x I_n | M12 Lug | JF844BM |
| 3 Pole 630A MCCB Incomer Kit 50kA Electronic LSI MCCB, I_f adjustable 0.4 – 1.0 x I_n | M12 Lug | JF863BM |
| 4 Pole 630A MCCB Incomer Kit 50kA Electronic LSI MCCB, I_f 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).



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.

| 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.

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

Outgoing Devices Thermal Magnetic

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, $I_{hA} = 800A$, $I_{nc} = 125A$, $I_{cc} = 50kA$.
- 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.

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.
- $I_{hA} = 800A$, $I_{nc} = 250A$, $I_{cc} = 50kA$.

| 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).

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

Cable Spreader Boxes for 800A Panelboards

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

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

Meter Pack for 800A Panelboards

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

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

Outgoing Devices Thermal Magnetic

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 |

③ 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 |

Fuse Combination Switches

Fuse Combination Switches 20-800A

:hager



JFD406U



JFG416U

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

Fuse Combination Switches 20 - 800A

Characteristics

- Provides individual protection and control of circuits.
- Enclosures up to 100A are designed to provide adequate cabling space without the need for further 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: Tested & complies to IEC 60 497-3, LBS Sequence 1 & 3, FCS Sequence 1 & 4, BS EN 60947-3 Rated IP31.
- Note:** Maximum rated fuse links are fitted in all fuse combination switches. Copper links for conversion to isolating switches.

| Description | 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 | - |
| Auxiliary Contact | | |
| 1AC type NO | | HZF301 |
| 1AC type NC | | HZF302 |
| Terminal Cover | | |
| 100A | HZF201 | HZF202 |
| 125A, 160A, | - | HZF202 |
| 200A to 400A | - | HZF204 |
| 630A to 800A | - | HZF206 |
| | | HZF207 |

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
- Product features**
- Conforms to: BS EN 60947-3
- IP rating: IP31.
- For technical information see page 1.232.



JAB402B

Commercial
Distribution

Rating

Switch Disconnectors TP&N

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

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 |

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 |

Switch Disconnectors

IP65 Switch Disconnectors, Auxiliary Changeover Contacts



JG440DC

Cable Capacity20 - 40A = 16mm²63 - 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 |

Enclosures for MCCBs

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

Specification

- Conforms to BS EN 61439-2.

Cable Capacity

- 63 - 125A: Flexible cable: min 6mm², max 70mm², Rigid cable: min 6mm², max 95mm².

| Description | Cat ref. |
|---|----------------|
| Enclosure for MCCBs Single Pole & Neutral | |
| 63 - 100 -125A Single Pole MCCB | JG31BLS |
| | JG41BLS |
| Enclosure for MCCBs Triple Pole and Neutral (63-125A) | |
| 63 - 100 - 125A MCCBs Triple Pole | JG32BLS |
| Enclosure for MCCBs Triple Pole and Neutral (160-250A) | |
| 160 - 200 -250A MCCBs Triple Pole | JG40BLS |
| Enclosure for MCCBs Four Pole (63-125A) | |
| 63 - 100 125A MCCBs Four Pole | JG33BLS |
| Enclosure for MCCBs Four Pole (160-250A) | |
| 160 - 200 - 250A MCCBs Four Pole | JG41BLS |





MBN116W

MCBs 6kA**Characteristics**

- Protection and control of circuits against overloads and short circuits. Circuit isolation.
- Breaking capacity : 6kA (IEC 60 898-1). Curves : B curve: 3 to 5 In, C curve : 5 to 10 In. Poles : 1PP, 2PP, 3PP, 4PP (protected poles).
- Voltage rating: 240/400V AC. Current rating: 6 to 63A. Frequency: 50/60Hz. Climate sealed : T2.
- Connection capacity: rigid conductors : 25mm², flexible conductors : 16mm².
- Complies with IEC 60 898-1 and EN 60898-1. Will accept accessories.

Single Pole MCBs 6kA - Type C

| Description | Width (17.5mm) | Quantity | B Curve Cat ref. | C Curve Cat ref. |
|-------------|-------------------|----------|---------------------|---------------------|
| 6A | 1 Mod | 12 | MBN106W | MCN106A |
| 10A | 1 Mod | 12 | MBN110W | MCN110A |
| 16A | 1 Mod | 12 | MBN116W | MCN116A |
| 20A | 1 Mod | 12 | MBN120W | MCN120A |
| 25A | 1 Mod | 12 | MBN125W | MCN125A |
| 32A | 1 Mod | 12 | MBN132W | MCN132A |
| 40A | 1 Mod | 12 | MBN132W | MCN132A |
| 50A | 1 Mod | 12 | MBN150W | MCN150A |
| 63A | 1 Mod | 12 | MBN163W | MCN163A |



MBN232W

Double Pole MCBs 6kA - Type B & C

| Description | Width (17.5mm) | Quantity | B Curve Cat ref. | C Curve Cat ref. |
|-------------|-------------------|----------|---------------------|---------------------|
| 6A | 2 Mod | 6 | MBN206W | MCN206A |
| 10A | 2 Mod | 6 | MBN210W | MCN210A |
| 16A | 2 Mod | 6 | MBN216W | MCN216A |
| 20A | 2 Mod | 6 | MBN220W | MCN220A |
| 25A | 2 Mod | 6 | MBN225W | MCN225A |
| 32A | 2 Mod | 6 | MBN232W | MCN232A |
| 40A | 2 Mod | 6 | MBN240W | MCN240A |
| 50A | 2 Mod | 6 | MBN250W | MCN250A |
| 63A | 2 Mod | 6 | MBN263W | MCN263A |



MCN320A

Triple Pole MCBs 6kA - Type B & C

| Description | Width (17.5mm) | Quantity | C Curve Cat ref. |
|-------------|-------------------|----------|---------------------|
| 6A | 3 Mod | 4 | MCN306A |
| 10A | 3 Mod | 4 | MCN310A |
| 16A | 3 Mod | 4 | MCN316A |
| 20A | 3 Mod | 4 | MCN320A |
| 25A | 3 Mod | 4 | MCN325A |
| 32A | 3 Mod | 4 | MCN332A |
| 40A | 3 Mod | 4 | MCN340A |
| 50A | 3 Mod | 4 | MCN350A |
| 63A | 3 Mod | 4 | MCN363A |



MBN440W

Four Pole MCBs 6kA - Type B & C

| Description | Width (17.5mm) | Quantity | B Curve Cat ref. | C Curve Cat ref. |
|-------------|-------------------|----------|---------------------|---------------------|
| 6A | 4 Mod | 3 | MBN406W | MCN406A |
| 10A | 4 Mod | 3 | MBN410W | MCN410A |
| 16A | 4 Mod | 3 | MBN416W | MCN416A |
| 20A | 4 Mod | 3 | MBN420W | MCN420A |
| 25A | 4 Mod | 3 | MBN425W | MCN425A |
| 32A | 4 Mod | 3 | MBN432W | MCN432A |
| 40A | 4 Mod | 3 | MBN440W | MCN440A |
| 50A | 4 Mod | 3 | MBN450W | MCN450A |
| 63A | 4 Mod | 3 | MBN463W | MCN463A |

MCBs 6kA
Characteristics

- Protection and control of circuits against overloads and short circuits. Circuit isolation.
- Breaking capacity: 6kA (IEC 60 898-1), Curves: B curve: 3 to 5 In, C curve: 5 to 10 In.
- Poles: 1PP, 2PP, 3PP, 4PP (protected poles). Voltage rating: 240/400V AC. Current rating: 6 to 63A. Frequency: 50/60Hz
- Climate sealed: T2.
- Will not accept accessories.
- Connection capacity: rigid conductors : 25mm², flexible conductors : 16mm². Complies with IEC 60 898-1

Single Pole MCBs 6kA - Type B & C

| Description | Width (17.5mm) | Quantity | B Curve Cat ref. | C Curve Cat ref. |
|-------------|-------------------|----------|---------------------|---------------------|
| 6A | 1 Mod | 12 | MT106A | MU106A |
| 10A | 1 Mod | 12 | MT110A | MU110A |
| 16A | 1 Mod | 12 | MT116A | MU116A |
| 20A | 1 Mod | 12 | MT120A | MU120A |
| 25A | 1 Mod | 12 | MT125A | MU125A |
| 32A | 1 Mod | 12 | MT132A | MU132A |
| 40A | 1 Mod | 12 | MT140A | MU140A |
| 50A | 1 Mod | 12 | MT150A | MU150A |
| 63A | 1 Mod | 12 | MT163A | MU163A |



MU110A

Double Pole MCBs 6kA - Type B & C

| Description | Width (17.5mm) | Quantity | B Curve Cat ref. | C Curve Cat ref. |
|-------------|-------------------|----------|---------------------|---------------------|
| 6A | 2 Mod | 6 | MT206A | MU206A |
| 10A | 2 Mod | 6 | MT210A | MU210A |
| 16A | 2 Mod | 6 | MT216A | MU216A |
| 20A | 2 Mod | 6 | MT220A | MU220A |
| 25A | 2 Mod | 6 | MT225A | MU225A |
| 32A | 2 Mod | 6 | MT232A | MU232A |
| 40A | 2 Mod | 6 | MT240A | MU240A |
| 50A | 2 Mod | 6 | MT250A | MU250A |
| 63A | 2 Mod | 6 | MT263A | MU263A |



MT216A

Triple Pole MCBs 6kA - Type B & C

| Description | Width (17.5mm) | Quantity | B Curve Cat ref. | C Curve Cat ref. |
|-------------|-------------------|----------|---------------------|---------------------|
| 6A | 3 Mod | 4 | MT306A | MU306A |
| 10A | 3 Mod | 4 | MT310A | MU310A |
| 16A | 3 Mod | 4 | MT316A | MU316A |
| 20A | 3 Mod | 4 | MT320A | MU320A |
| 25A | 3 Mod | 4 | MT325A | MU325A |
| 32A | 3 Mod | 4 | MT332A | MU332A |
| 40A | 3 Mod | 4 | MT340A | MU340A |
| 50A | 3 Mod | 4 | MT350A | MU350A |
| 63A | 3 Mod | 4 | MT363A | MU363A |



MU316A

Four Pole MCBs 6kA - Type B & C

| Description | Width (17.5mm) | Quantity | B Curve Cat ref. | C Curve Cat ref. |
|-------------|-------------------|----------|---------------------|---------------------|
| 6A | 4 Mod | 3 | - | MU406A |
| 10A | 4 Mod | 3 | - | MU410A |
| 16A | 4 Mod | 3 | - | MU416A |
| 20A | 4 Mod | 3 | - | MU420A |
| 25A | 4 Mod | 3 | - | MU425A |
| 32A | 4 Mod | 3 | - | MU432A |
| 40A | 4 Mod | 3 | - | MU440A |
| 50A | 4 Mod | 3 | - | MU450A |
| 63A | 4 Mod | 3 | - | MU463A |



NCN116A

MCBs 10kA**Characteristics**

- Protection and control of circuits against overloads and short circuits. Circuit isolation. Will accept accessories.
- Breaking capacity: 10kA (IEC 60 898-1), 15kA (IEC 60 947-2).
- Curves: B curve : 3 to 5 In, C curve: 5 to 10 In, D curve: 10 to 20 In. Poles: 1PP, 2PP, 3PP, 4PP (protected poles).
- Voltage rating: 240/400V AC. Current rating: 0,5 to 63A. Frequency: 50/60Hz . Climate sealed: T2.
- Connection capacity: rigid conductors : 35mm², flexible conductors : 25mm².
- Complies with IEC 60 898-1, IEC 60 947-2, EN 60898-1 and EN 60947-2.

Single Pole MCBs 10kA - Type B C & D

| Description | Width (17.5mm) | Quantity | B Curve Cat ref. | B Curve Cat ref. | C Curve Cat ref. | D Curve Cat ref. |
|-------------|-------------------|----------|---------------------|---------------------|---------------------|---------------------|
| 0.5A | 1 Mod | 12 | - | - | NCN100A | NDN100A |
| 1A | 1 Mod | 12 | - | - | NCN101A | NDN101A |
| 2A | 1 Mod | 12 | - | - | NCN102A | NDN102A |
| 3A | 1 Mod | 12 | - | - | NCN103A | NDN103A |
| 4A | 1 Mod | 12 | - | - | NCN104A | NDN104A |
| 6A | 1 Mod | 12 | NBN106A | - | NCN106A | NDN106A |
| 10A | 1 Mod | 12 | NBN110A | - | NCN110A | NDN110A |
| 16A | 1 Mod | 12 | NBN116A | - | NCN116A | NDN116A |
| 20A | 1 Mod | 12 | NBN120A | - | NCN120A | NDN120A |
| 25A | 1 Mod | 12 | NBN125A | - | NCN125A | NDN125A |
| 32A | 1 Mod | 12 | NBN132A | - | NCN132A | NDN132A |
| 40A | 1 Mod | 12 | NBN140A | - | NCN140A | NDN140A |
| 50A | 1 Mod | 12 | NBN150A | - | NCN150A | NDN150A |
| 63A | 1 Mod | 12 | NBN163A | NBN163R | NCN163A | NDN163A |



NCN232A

Double Pole MCBs 10kA - Type B C & D

| Description | Width (17.5mm) | Quantity | B Curve Cat ref. | B Curve Cat ref. | C Curve Cat ref. | D Curve Cat ref. |
|-------------|-------------------|----------|---------------------|---------------------|---------------------|---------------------|
| 0.5A | 2 Mod | 6 | - | - | NCN200A | NDN200A |
| 1A | 2 Mod | 6 | - | - | NCN201A | NDN201A |
| 2A | 2 Mod | 6 | - | - | NCN202A | NDN202A |
| 3A | 2 Mod | 6 | - | - | NCN203A | NDN203A |
| 4A | 2 Mod | 6 | - | - | NCN204A | NDN204A |
| 6A | 2 Mod | 6 | NBN206A | - | NCN206A | NDN206A |
| 10A | 2 Mod | 6 | NBN210A | - | NCN210A | NDN210A |
| 16A | 2 Mod | 6 | NBN216A | - | NCN216A | NDN216A |
| 20A | 2 Mod | 6 | NBN220A | - | NCN220A | NDN220A |
| 25A | 2 Mod | 6 | NBN225A | - | NCN225A | NDN225A |
| 32A | 2 Mod | 6 | NBN232A | - | NCN232A | NDN232A |
| 40A | 2 Mod | 6 | NBN240A | - | NCN240A | NDN240A |
| 50A | 2 Mod | 6 | NBN250A | - | NCN250A | NDN250A |
| 63A | 2 Mod | 6 | NBN263A | NBN263R | NCN263A | NDN263A |



NDN316A

Triple Pole MCBs 10kA - Type B C & D

| Description | Width (17.5mm) | Quantity | B Curve Cat ref. | C Curve Cat ref. | D Curve Cat ref. |
|-------------|-------------------|----------|---------------------|---------------------|---------------------|
| 0.5A | 3 Mod | 4 | - | NCN300A | NDN300A |
| 1A | 3 Mod | 4 | - | NCN301A | NDN301A |
| 2A | 3 Mod | 4 | - | NCN302A | NDN302A |
| 3A | 3 Mod | 4 | - | NCN303A | NDN303A |
| 4A | 3 Mod | 4 | - | NCN304A | NDN304A |
| 6A | 3 Mod | 4 | NBN306A | NCN306A | NDN306A |
| 10A | 3 Mod | 4 | NBN310A | NCN310A | NDN310A |
| 16A | 3 Mod | 4 | NBN316A | NCN316A | NDN316A |
| 20A | 3 Mod | 4 | NBN320A | NCN320A | NDN320A |
| 25A | 3 Mod | 4 | NBN325A | NCN325A | NDN325A |
| 32A | 3 Mod | 4 | NBN332A | NCN332A | NDN332A |
| 40A | 3 Mod | 4 | NBN340A | NCN340A | NDN340A |
| 50A | 3 Mod | 4 | NBN350A | NCN350A | NDN350A |
| 63A | 3 Mod | 4 | NBN363A | NCN363A | NDN363A |

MCBs 10kA**Characteristics**

- Protection and control of circuits against overloads and short circuits. Circuit isolation.
- Breaking capacity: 10kA (IEC 60 898-1), 15kA (IEC 60 947-2).
- Curves: B curve : 3 to 5 In, C curve: 5 to 10 In, D curve : 10 to 20 In. Poles: 1PP, 2PP, 3PP, 4PP (protected poles).
- Voltage rating: 240/400V AC. Current rating: 0,5 to 63A. Frequency: 50/60Hz. Climate sealed: T2.
- Connection capacity: rigid conductors: 35mm², flexible conductors: 25mm².
- Complies with IEC 60 898-1, IEC 60 947-2, EN 60898-1 and EN 60947-2. Will accept accessories.

Four Pole MCBs 10kA - Type B C & D

NDN440A

| Description | Width (17.5mm) | Quantity | B Curve Cat ref. | C Curve Cat ref. | D Curve Cat ref. |
|-------------|-------------------|----------|---------------------|---------------------|---------------------|
| 0.5A | 4 Mod | 3 | - | NCN400A | NDN400A |
| 1A | 4 Mod | 3 | - | NCN401A | NDN401A |
| 2A | 4 Mod | 3 | - | NCN402A | NDN402A |
| 3A | 4 Mod | 3 | - | NCN403A | NDN403A |
| 4A | 4 Mod | 3 | - | NCN404A | NDN404A |
| 6A | 4 Mod | 3 | NBN406A | NCN406A | NDN406A |
| 10A | 4 Mod | 3 | NBN410A | NCN410A | NDN410A |
| 16A | 4 Mod | 3 | NBN416A | NCN416A | NDN416A |
| 20A | 4 Mod | 3 | NBN420A | NCN420A | NDN420A |
| 25A | 4 Mod | 3 | NBN425A | NCN425A | NDN425A |
| 32A | 4 Mod | 3 | NBN432A | NCN432A | NDN432A |
| 40A | 4 Mod | 3 | NBN440A | NCN440A | NDN440A |
| 50A | 4 Mod | 3 | NBN450A | NCN450A | NDN450A |
| 63A | 4 Mod | 3 | NBN463A | NCN463A | NDN463A |



BD226

RCCB Add On Blocks for MCB Devices

Characteristics

- When add-on block is associated with MCBs (types NBN, NCN, NDN), the complete unit provides an earth fault protection and protects against electrical shocks by direct or indirect contacts. They are designed to be fitted to the right hand side of 2, 3, and 4 poles MCBs.
- Sensitivity: High sensitivity: 10mA, 30mA instant tripping, Medium sensitivity: 100mA, 300mA, 500mA instant tripping / 300mA, 500mA, 1A selective (time delay). Current rating: 25 to 63A, Voltage rating: 240/400V AC. Poles: 2P, 3P, 4P. Types: AC and A types. Frequency: 50/60Hz .
- Mounting type: side mounted. Climate sealed: T2.
- Connection capacity 25A: rigid conductors: 10mm², flexible conductors: 6mm² 40A, 63A: rigid conductors: 25mm², flexible conductors: 16mm².
- AC type: Ensured for residual sinusoidal alternating currents, whether suddenly applied or slowly rising. It incorporate a filtering device preventing the risk of nuisance tripping due to the transient voltages (lightening, line disturbance on other equipment...) and transient currents (from high capacitive circuits).
- A and HI type (reinforced immunity): In addition to the characteristics of AC type, it ensured for residual pulsating direct currents, whether suddenly applied or slowly rising. They are used whenever fault currents are not sinusoidal. It reduces the unexpected tripping when they protect equipment generating disturbances like DC fault current (washing machines, speed drives, microprocessing, electronic ballast...).
- Complies with EN 61008-1.

2 Pole Add On Blocks

| Description | Width (17.5mm) | Quantity | Class AC Cat ref. | Class A & HI Cat ref. |
|------------------------|-------------------|----------|----------------------|--------------------------|
| Δn 10 mA, In/A 25A | 2 mod | 1 | BC226 | - |
| Δn 30 mA, In/A 25A | 2 mod | 1 | BD226 | BD225 |
| Δn 30mA, In/A 40A | 2 mod | 1 | BD241 | BD240 |
| Δn 30mA, In/A 63A | 2 mod | 1 | BD264 | BD263 |
| Δn 100mA, In/A 63A | 2 mod | 1 | BE264 | - |
| Δn 100mA, In/A 63A [S] | 2 mod | 1 | BN264 | - |
| Δn 300mA, In/A 25A | 2 mod | 1 | BF226 | BF225 |
| Δn 300mA, In/A 40A | 2 mod | 1 | BF241 | BF240 |
| Δn 300mA, In/A 63A | 2 mod | 1 | BF264 | BF263 |
| Δn 300mA, In/A 63A [S] | 2 mod | 1 | BP264 | - |
| Δn 500mA, In/A 63A | 2 mod | 1 | BG264 | - |
| Δn 500mA, In/A 63A [S] | 2 mod | 1 | BR264 | - |
| Δn 1A, In/A 63A [S] | 2 mod | 1 | BS264 | BS263 |



BD364

3 Pole Add On Blocks

| Description | Width (17.5mm) | Quantity | Class AC Cat ref. | Class A & HI Cat ref. |
|------------------------|-------------------|----------|----------------------|--------------------------|
| Δn 30 mA, In/A 25A | 2 mod | 1 | BD326 | BD325 |
| Δn 30 mA, In/A 40A | 3 mod | 1 | BD341 | BD340 |
| Δn 30 mA, In/A 63A | 3 mod | 1 | BD364 | BD363 |
| Δn 300mA, In/A 25A | 2 mod | 1 | BF326 | BF325 |
| Δn 300mA, In/A 40A | 3 mod | 1 | BF341 | BF340 |
| Δn 300mA, In/A 63A | 3 mod | 1 | BF364 | BF363 |
| Δn 300mA, In/A 63A [S] | 3 mod | 1 | BP364 | - |
| Δn 500mA, In/A 63A | 3 mod | 1 | BG364 | - |
| Δn 1A, In/A 63A [S] | 3 mod | 1 | BS364 | BS363 |



BD463

4 Pole Add On Blocks

| Description | Width (17.5mm) | Quantity | Class AC Cat ref. | Class A & HI Cat ref. |
|------------------------|-------------------|----------|----------------------|--------------------------|
| Δn 30 mA, In/A 25A | 2 mod | 1 | BD426 | BD425 |
| Δn 30 mA, In/A 40A | 3 mod | 1 | BD441 | BD440 |
| Δn 30 mA, In/A 63A | 3 mod | 1 | BD464 | BD463 |
| Δn 100mA, In/A 63A | 3 mod | 1 | BE464 | - |
| Δn 100mA, In/A 63A [S] | 3 mod | 1 | BN464 | - |
| Δn 300mA, In/A 25A | 2 mod | 1 | BF426 | BF425 |
| Δn 300mA, In/A 40A | 3 mod | 1 | BF441 | BF440 |
| Δn 300mA, In/A 63A | 3 mod | 1 | BF464 | BF463 |
| Δn 300mA, In/A 63A [S] | 3 mod | 1 | BP464 | - |
| Δn 500mA, In/A 63A | 3 mod | 1 | BG464 | - |
| Δn 1A, In/A 63A [S] | 3 mod | 1 | BS464 | - |

RCCB Add On Blocks for MCB Devices

Characteristics

- When add-on block is associated with MCBs (NGN, NBN, NCN, NDN, NQN, NRN, NSN), the complete unit provides an earth fault protection and protects against electrical shocks by direct or indirect contacts. They are designed to be fitted to the right hand side of 2, 3, and 4 poles MCBs.
- Sensitivity: High sensitivity: 10mA, 30mA instant tripping, Medium sensitivity: 100mA, 300mA, 500mA instant tripping / 300mA, 500mA, 1A selective (time delay).
- Current rating: 25 to 63A, Voltage rating: 240/400V AC.
- Poles: 2P, 3P, 4P. Types: AC and A types. Frequency: 50/60Hz .
- Mounting type: side mounted. Climate sealed: T2.
- Connection capacity 25A: rigid conductors: 10mm², flexible conductors: 6mm² 40A, 63A: rigid conductors: 25mm², flexible conductors: 16mm².
- AC type: Ensured for residual sinusoidal alternating currents, whether suddenly applied or slowly rising. It incorporate a filtering device preventing the risk of nuisance tripping due to the transient voltages (lightening, line disturbance on other equipment...) and transient currents (from high capacitive circuits).
- A and HI type (reinforced immunity): In addition to the characteristics of AC type, it ensured for residual pulsating direct currents, whether suddenly applied or slowly rising. They are used whenever fault currents are not sinusoidal. It reduces the unexpected tripping when they protect equipment generating disturbances like DC fault current (washing machines, speed drives, microprocessing, electronic ballast...).
- Complies with EN 61008-1.

4 Pole Add On Blocks Double Output

| Description | Width (17.5mm) | Quantity | Class AC Cat ref. | Class A & HI Cat ref. |
|--------------------|----------------|----------|-------------------|-----------------------|
| Δn 30 mA, In/A 25A | 3 mod | 1 | BDC825 | BDH825 |
| Δn 30 mA, In/A 40A | 3 mod | 1 | BDC840 | BDH840 |
| Δn 30 mA, In/A 63A | 3 mod | 1 | BDC863 | BDH863 |
| Δn 300mA, In/A 25A | 3 mod | 1 | BFC825 | BFH825 |
| Δn 300mA, In/A 40A | 3 mod | 1 | BFC840 | BFH840 |
| Δn 300mA, In/A 63A | 3 mod | 1 | BFC863 | BFH863 |
| Δn 300mA, In/A 63A | 3 mod | 1 | BPC863 | - |
| Δn 1A, In/A 63A | 3 mod | 1 | BSC863 | - |



BFC840

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.



BD163T

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

MCBs**MCBs 15kA Type B, C & D, Accessories**

HMC399

MCBs 15kA**Characteristics**

- Protection and control of circuits against overloads and short circuits.
- Circuit isolation. They can be used for installation in commercial building and industrial premises.
- Breaking capacity : 15kA (IEC 60 898-1), 15kA (IEC 60 947-2).
- Curves : B curve : 3 to 5 In, C curve : 5 to 10 In, D curve : 10 to 20 In.
- Poles : 1PP, 2PP, 3PP, 4PP (protected poles). Voltage rating : 230/400V AC.
- Current rating : 80 to 125A. Frequency : 50/60Hz.
- Will accept accessories.
- Climate sealed : T2.
- Connection capacity: rigid conductors : 70mm², flexible conductors : 35mm².
- Complies with IEC 60 898-1 and IEC 60 947-2.

Single pole MCBS

| Description | Width (17.5mm) | Quantity | B Curve Cat ref. | C Curve Cat ref. | D Curve Cat ref. |
|-------------|-------------------|----------|---------------------|---------------------|---------------------|
| 80A | 1.5 mod | 1 | HMB180 | HMC180 | HMD180 |
| 100A | 1.5 mod | 1 | HMB190 | HMC190 | HMD190 |
| 125A | 1.5 mod | 1 | HMB199 | HMC199 | HMD199 |

Double pole MCBS

| Description | Width (17.5mm) | Quantity | B Curve Cat ref. | C Curve Cat ref. | D Curve Cat ref. |
|-------------|-------------------|----------|---------------------|---------------------|---------------------|
| 80A | 3 mod | 1 | HMB280 | HMC280 | HMD280 |
| 100A | 3 mod | 1 | HMB290 | HMC290 | HMD290 |
| 125A | 3 mod | 1 | HMB299 | HMC299 | HMD299 |

Three pole MCBS

| Description | Width (17.5mm) | Quantity | B Curve Cat ref. | C Curve Cat ref. | D Curve Cat ref. |
|-------------|-------------------|----------|---------------------|---------------------|---------------------|
| 80A | 4.5 mod | 1 | HMB380 | HMC380 | HMD380 |
| 100A | 4.5 mod | 1 | HMB390 | HMC390 | HMD390 |
| 125A | 4.5 mod | 1 | HMB299 | HMC399 | HMD399 |

Four pole MCBS

HMC499

| Description | Width (17.5mm) | Quantity | B Curve Cat ref. | C Curve Cat ref. | D Curve Cat ref. |
|-------------|-------------------|----------|---------------------|---------------------|---------------------|
| 80A | 6 mod | 1 | HMB480 | HMC480 | HMD480 |
| 100A | 6 mod | 1 | HMB490 | HMC490 | HMD490 |
| 125A | 6 mod | 1 | HMB499 | HMC499 | HMD499 |



MZN130

Terminal cover / screw cap**Characteristics:**

- Sealable screw cap for MCBS HLE/HLF/HMB/HMC/HMD/HMK/HMJ/HMX

| Description | Cat ref. |
|----------------------------|---------------|
| Terminal cover / screw cap | MZN130 |

Phase separator**Characteristics:**

- 1 set of 3 pieces
- For MCBS HLE/HLF/HMB/HMC/HMD/HMK/HMJ/HMX

| Description | Cat ref. |
|-----------------|---------------|
| Phase separator | MZN131 |

RCCB Add On Blocks for MCBS Type AC

Characteristics

- When add-on block is associated with MCBS (HLE, HLF, HMB, HMC, HMD, HMJ, HMK, HMX), the complete unit provides an earth fault protection and protects against electrical shocks by direct or indirect contacts. They are designed to be fitted to the right hand side of 2, 3 and 4 poles MCBS.
- Sensitivity: High sensitivity : 30mA instant tripping (fixed). Medium sensitivity: 300mA instant tripping (fixed) / 300mA, 500mA, 1A adjustable (selective or time delay). Time delay : 0ms, 60ms or 150ms.
- Current rating : 125A. Voltage rating : 240/400V AC. Frequency : 50/60Hz . Mounting type : side mounted.
- Poles : 2P, 3P, 4P. Types : AC and A/HI types.
- Climate sealed : T2.
- Connection capacity: rigid conductors : 70mm², flexible conductors : 35mm²
- AC type : Ensured for residual sinusoidal alternating currents, whether suddenly applied or slowly rising. It incorporates a filtering device preventing the risk of nuisance tripping due to the transient voltages (lightning, line disturbance on other equipment...) and transient currents (from high capacitive circuits).
- A and HI type (reinforced immunity) : In addition to the characteristics of AC type, it ensures for residual pulsating direct currents, whether suddenly applied or slowly rising. They are used whenever fault currents are not sinusoidal. It reduces the unexpected tripping when they protect equipment generating disturbances like DC fault current (washing machines, speed drives, microprocessing, electronic ballast...).
- Adjustable block : The setting is done by actuating the thumb wheel on the front face. The setting thumb wheels are protected by a transparent sealable cover.
- Tightening compensation terminals : The circuit breakers block are equipped with screw terminals with tightening compensation, reinforced arch and cable holding jaws. These contribute to an effective tightening over time.
- Complies with IEC 61 009-1.



BTH280E

Double Pole Add On Block

| Description | In/A | Width (17.5mm) | Quantity | AC Type Cat ref. | A & HI Type Cat ref. |
|--|------|----------------|----------|------------------|----------------------|
| IΔn fixed 30mA | 125 | 6 mod | 1 | BDC280E | BDH280E |
| Adjustable 0,3 - 0,5 - 1A inst. - [S] - 150 ms | 125 | 6 mod | 1 | BTC280E | BTH280E |

Three Pole Add On Block

| Description | In/A | Width (17.5mm) | Quantity | AC Type Cat ref. | A & HI Type Cat ref. |
|--|------|----------------|----------|------------------|----------------------|
| IΔn fixed 30mA | 125 | 6 mod | 1 | BDC380E | BDH380E |
| Adjustable 0,3 - 0,5 - 1A inst. - [S] - 150 ms | 125 | 6 mod | 1 | BTC380E | BTH380E |



BTH380E

Four Pole Add On Block

| Description | In/A | Width (17.5mm) | Quantity | AC Type Cat ref. | A & HI Type Cat ref. |
|--|------|----------------|----------|------------------|----------------------|
| IΔn fixed 30mA | 125 | 6 mod | 1 | BDC480E | BDH480E |
| IΔn fixed 300mA | 125 | 6 mod | 1 | BFC480E | BFH480E |
| Adjustable 0,3 - 0,5 - 1A inst. - [S] - 150 ms | 125 | 6 mod | 1 | BTC480E | BTH480E |



BDC480E

Single Pole & Switched Neutral MCB - 6kA C Curve

Characteristics

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

Technical Data

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

Connection Capacity

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



MLN710A

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



ADA106U

RCBOs Single Pole

Characteristics

- Compact protection devices which combine the overcurrent functions of an MCB with the earth fault functions of an RCCB in a single unit. A range of sensitivity and current ratings are available for use in commercial and industrial applications.
- Insulated DIN clip.
- Complies with BS EN 61009-1, IEC61009-1
- Sensitivities (fixed) 10mA, 30mA & 100mA
- Breaking capacity: 10kA
- Flying neutral lead: 800mm
- Terminal Capacities 16mm² rigid, 10mm² flexible
- Application: 1 module devices provide a compact solution for installation in consumer units and Invicta 3 distribution boards.
- These devices are single pole & solid neutral.

Sensitivity 30mA (10kA), A Class

| Description | Width 17.5mm | B Curve Cat ref | C Curve Cat ref | D Curve Cat ref |
|---------------------------------|-----------------|--------------------|--------------------|--------------------|
| Sensitivity 30mA (10kA) Class A | 6A | 1 Mod | ADB406U | ADC406U |
| | 10A | 1 Mod | ADB410U | ADC410U |
| | 16A | 1 Mod | ADB416U | ADC416U |
| | 20A | 1 Mod | ADB420U | ADC420U |
| | 25A | 1 Mod | ADB425U | ADC425U |
| | 32A | 1 Mod | ADB425U | ADC432U |
| | 40A | 1 Mod | ADB440U | ADC440U |
| | 45A | 1 Mod | ADB445U | ADC445U |

FI / LS switch for 127 V networks, 1P + N, 6 kA, Quick Connect



ADS967D

| Current Characteristics Fi - Type | Modules | Cat ref. |
|---|---------|----------------|
| RCBO 1P+N 6kA 127V B-16A 30mA A Class QC&QB | 2 | ADS917D |
| RCBO 1P+N 6kA 127V C-16A 30mA A Class QC&QB | 2 | ADS967D |

Locking Kit



MZN175

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

RCBO Type B & C, 2 & 4 Pole
Characteristics

- Compact protection devices which provide MCB overload protection and RCD earth leakage protection (protect against electrical shocks by direct or indirect contact).
- Sensitivity: High sensitivity: 30mA instant tripping (fixed). Medium sensitivity: 300mA instant tripping (fixed).
- Current rating: 6 to 40A.
- Curves: B and C.
- Voltage rating: 230V AC.
- A type.
- Frequency: 50Hz.
- Connection capacity: rigid conductors: 25mm², flexible conductors: 16mm².
- A type: Detects residual sinusoidal alternating currents, whether suddenly applied or slowly rising. They are used whenever fault currents are not sinusoidal. It is able to detect DC fault current generated by loads like washing machines, speed drives, microprocessing, electronic ballast. Approved according to EN 61009-1.



AD916J

RCBOs Type B & C - 30mA 6kA, 2 Pole

| Description | Breaking capacity (IEC 60 898-1) | Width (17.5mm) | Quantity | B Curve Cat ref. | C Curve Cat ref. |
|-------------|----------------------------------|----------------|----------|------------------|------------------|
| 6A | 6kA | 2 mod | 1 | AD906J | AD956J |
| 10A | 6kA | 2 mod | 1 | AD910J | AD960J |
| 16A | 6kA | 2 mod | 1 | AD916J | AD966J |
| 20A | 6kA | 2 mod | 1 | AD920J | AD970J |
| 25A | 6kA | 2 mod | 1 | AD925J | AD975J |
| 32A | 6kA | 2 mod | 1 | AD932J | AD982J |
| 40A | 6kA | 2 mod | 1 | AD940J | AD990J |

RCBOs Type B & C - 30mA 10kA, 2 Pole

| Description | Breaking capacity (IEC 60 898-1) | Width (17.5mm) | Quantity | B Curve Cat ref. | C Curve Cat ref. |
|-------------|----------------------------------|----------------|----------|------------------|------------------|
| 6A | 10kA | 2 mod | 1 | ADA506D | ADA556D |
| 10A | 10kA | 2 mod | 1 | ADA510D | ADA560D |
| 16A | 10kA | 2 mod | 1 | ADA516D | ADA566D |
| 20A | 10kA | 2 mod | 1 | ADA520D | ADA570D |
| 25A | 10kA | 2 mod | 1 | ADA525D | ADA575D |
| 32A | 10kA | 2 mod | 1 | ADA532D | ADA582D |



ADA506D

RCBOs Type B & C - 300mA 6kA, 2 Pole

| Description | Breaking capacity (IEC 60 898-1) | Width (17.5mm) | Quantity | B Curve Cat ref. | C Curve Cat ref. |
|-------------|----------------------------------|----------------|----------|------------------|------------------|
| 6A | 6kA | 2 mod | 1 | - | AF956J |
| 10A | 6kA | 2 mod | 1 | - | AF960J |
| 16A | 6kA | 2 mod | 1 | - | AF966J |
| 20A | 6kA | 2 mod | 1 | - | AF970J |
| 25A | 6kA | 2 mod | 1 | - | AF975J |
| 32A | 6kA | 2 mod | 1 | - | AF982J |
| 40A | 6kA | 2 mod | 1 | - | AF990J |



ADM406C

RCBOs Type B & C - 30mA 6kA, 4 Pole

| Description | Breaking capacity (IEC 60 898-1) | Width (17.5mm) | Quantity | B Curve Cat ref. | C Curve Cat ref. |
|-------------|----------------------------------|----------------|----------|------------------|------------------|
| 6A | 6kA | 4 mod | 1 | ADM406C | ADM456C |
| 10A | 6kA | 4 mod | 1 | ADM410C | ADM460C |
| 13A | 6kA | 4 mod | 1 | ADM413C | ADM463C |
| 16A | 6kA | 4 mod | 1 | ADM416C | ADM466C |
| 20A | 6kA | 4 mod | 1 | ADM420C | ADM470C |
| 25A | 6kA | 4 mod | 1 | ADM425C | ADM475C |
| 32A | 6kA | 4 mod | 1 | ADM432C | ADM482C |
| 40A | 6kA | 4 mod | 1 | ADM440C | ADM490C |

RCBOs Type B & C - 300mA 6kA, 4 Pole

| Description | Breaking capacity (IEC 60 898-1) | Width (17.5mm) | Quantity | B Curve Cat ref. | C Curve Cat ref. |
|-------------|----------------------------------|----------------|----------|------------------|------------------|
| 6A | 6kA | 4 mod | 1 | AFM406C | AFM456C |
| 10A | 6kA | 4 mod | 1 | AFM410C | AFM460C |
| 13A | 6kA | 4 mod | 1 | AFM413C | AFM463C |
| 16A | 6kA | 4 mod | 1 | AFM416C | AFM466C |
| 20A | 6kA | 4 mod | 1 | AFM420C | AFM470C |
| 25A | 6kA | 4 mod | 1 | AFM425C | AFM475C |
| 32A | 6kA | 4 mod | 1 | AFM432C | AFM482C |
| 40A | 6kA | 4 mod | 1 | AFM440C | AFM490C |

2 & 4 Pole RCCBs

Characteristics

- Compact devices which provide RCD earth leakage protection (protect against electrical shocks by direct or indirect contacts). To open automatically in the event of an earth fault between phase and earth and/or neutral and earth.
- High sensitivity: 30mA instantaneous tripping (fixed)
- Medium sensitivity: 100mA, 300mA instantaneous or selective tripping (fixed)
- Current rating: 25 to 100A. Voltage rating: 230V AC (2P) and 400V (4P)
- Poles: 2P and 4P. Type: A, B and B+
- Frequency: 50Hz
- Connection capacity 25 to 63A: rigid conductors 25mm, flexible conductors 16mm²
- Connection capacity 80 and 100A: rigid conductors 50mm², flexible conductors 35mm²
- A type suitable for residual pulsating direct currents, whether suddenly applied or slowly rising. They are used whenever fault currents are not sinusoidal.
- B type Short-time delayed RCD to protect against smooth DC residual and AC residual currents in the frequency range up to 2 kHz.
- B+ type Short-time delayed RCD to protect against smooth DC residual and AC residual currents in the frequency range up to 100 kHz.
- Complies with EN61008-1.



CDA240U

Commercial
Distribution

RCCBs A type 6kA 10mA

| Description | In/A | Quantity | 2 Pole Cat ref. | 4 Pole Cat ref. |
|-----------------------|------|----------|--------------------|--------------------|
| RCCBs A type 6kA 10mA | 16A | 1 | CCA216U | - |

RCCBs A type 6kA 30mA

| Description | In/A | Quantity | 2 Pole Cat ref. | 4 Pole Cat ref. |
|-----------------------|------|----------|--------------------|--------------------|
| RCCBs A type 6kA 30mA | 25A | 1 | CDA225U | CDA425U |
| | 40A | 1 | CDA240U | CDA440U |
| | 63A | 1 | CDA263U | CDA463U |
| | 80A | 1 | CD283U | - |
| | 100A | 1 | CD285U | - |



CDA516D

RCCBs A type 10kA 30mA

| | | | | |
|------------------------|------|---|----------------|----------------|
| RCCBs A type 10kA 30mA | 16A | 1 | CDA516D | - |
| | 25A | 1 | CDA525D | - |
| | 40A | 1 | CDA540D | - |
| | 63A | 1 | CDA563D | - |
| | 80A | 1 | CDA580W | CDA680D |
| | 100A | 1 | CDA584W | CDA684D |
| | 125A | 1 | - | CDA690 |

RCCBs A type 6kA 100mA

| Description | In/A | Quantity | 2 Pole Cat ref. | 4 Pole Cat ref. |
|------------------------|------|----------|--------------------|--------------------|
| RCCBs A type 6kA 100mA | 40A | 1 | CE240J | CE440J |
| | 63A | 1 | CEA263N | CE463J |



CEA263N

RCCBs A type 10kA 100mA

| Description | In/A | Quantity | 2 Pole Cat ref. | 4 Pole Cat ref. |
|-------------------------|------|----------|--------------------|--------------------|
| RCCBs A type 10kA 100mA | 80A | 1 | CEA580W | CEA680W |
| | 100A | 1 | CEA584W | CEA684W |

RCCBs A type Selective 10kA 100mA

| Description | In/A | Quantity | 2 Pole Cat ref. | 4 Pole Cat ref. |
|--|------|----------|--------------------|--------------------|
| RCCBs A type Selective 10kA 100mA S | 100A | 1 | CNA584W | CNA684D |

RCCBs A type 6kA 300mA

| Description | In/A | Quantity | 2 Pole Cat ref. | 4 Pole Cat ref. |
|------------------------|------|----------|--------------------|--------------------|
| RCCBs A type 6kA 300mA | 25A | 1 | CF225J | CF425J |
| | 40A | 1 | CF240J | CF440J |
| | 63A | 1 | CF263J | CF463J |

RCCBs A type 10kA 300mA

| Description | In/A | Quantity | 2 Pole Cat ref. | 4 Pole Cat ref. |
|-------------------------|------|----------|--------------------|--------------------|
| RCCBs A type 10kA 300mA | 80A | 1 | CFA580W | CFA680U |
| RCCBs A type 10kA 300mA | 100A | 1 | - | CFA684W |

RCCBs A type Selective 10kA 300mA

| Description | In/A | Quantity | 2 Pole Cat ref. | 4 Pole Cat ref. |
|----------------------------------|------|----------|--------------------|--------------------|
| RCCBs A type 10kA 300mA S | 100A | 1 | - | CPA684D |



CDB516E

RCCBs Type B/B+ 10kA 30mA

| Description | In/A | Quantity | 2 Pole Cat ref. | 4 Pole Cat ref. |
|-------------------------|------|----------|--------------------|--------------------|
| RCCBs B type 10kA 30mA | 16A | 1 | CDB516E | - |
| RCCBs B type 10kA 30mA | 25 A | 1 | CDB525E | - |
| RCCBs B+ type 10kA 30mA | 16A | 1 | CDB516D | - |
| RCCBs B+ type 10kA 30mA | 25 A | 1 | CDB525D | - |
| RCCBs B+ type 10kA 30mA | 40A | 1 | - | CDB640D |
| RCCBs B+ type 10kA 30mA | 63 A | 1 | - | CDB663D |



CDB640D

RCCBs Type B+ 10kA 300mA

| Description | In/A | Quantity | 4 Pole Cat ref. |
|--------------------------|------|----------|--------------------|
| RCCBs B+ type 10kA 300mA | 40A | 1 | - |
| RCCBs B+ type 10kA 300mA | 63 A | 1 | - |

RCBO Add On Blocks for MCBs Type AC (Cannot be used with MT/MU MCBs)**Characteristics**

- All auxiliaries are common to both single and multi-pole circuit breakers. The auxiliaries are fitted to left hand side of devices.
- Shunt trips, and under-voltage releases fitted with a flag indicator that indicates the automatic/remote tripping of the device.
- Connection capacity: 6 mm² rigid cables, 4 mm² flexible cables
- Use of MZ203 - MZ209 on RCCBs requires use of interface auxiliary CZ001. Complies with EN62019 and IEC60947-5-1.



Commercial Distribution

Auxiliary Contacts

| Description | Width 17.5mm | Cat ref. |
|---|--------------|--------------|
| 1NO + 1NC auxiliary contact indication of main contact status | 0.5 Mod | MZ201 |

MZ212

Alarm Contacts

| Description | Width 17.5mm | Cat ref. |
|--|--------------|--------------|
| SD contact indicates a fault overcurrent (e.g. MCB tripped)on overload or short-circuit. | 0.5 Mod | MZ202 |

Shunt Trips

| Description | Width 17.5mm | Cat ref. |
|--|--------------|--------------|
| Allows remote tripping of the device 230V - 415V AC, 12V - 130V DC | 1 Mod | MZ203 |
| Allows remote tripping of the device 24V - 48V AC, 12V - 48V DC | 1 Mod | MZ204 |

Under Voltage Releases**Characteristics:**

- Allows MCB to be closed only when voltage is above 70% of Un. MCB will automatically trip when voltage falls by 35% of Un.

| Description | Width 17.5mm | Cat ref. |
|-------------|--------------|--------------|
| 48V DC | 1 Mod | MZ205 |
| 230V AC | 1 Mod | MZ206 |



MZ212

Over Voltage Releases**Characteristics:**

- Monitors the voltage between phase and neutral in a network.
- It opens the current circuit in case of over voltage by tripping the connected protection device (e.g. MCB or RCCB).
- EN 50550

| Description | Width 17.5mm | Cat ref. |
|-------------|--------------|--------------|
| 230V AC | 1 Mod | MZ212 |



MZN175

Locking Kit**Characteristics:**

- Will accept two padlocks with hasps of 4,75 mm diameter max.

| Description | Cat ref. |
|--|---------------|
| Allows locking of the device dolly in the on/off position. | MZN175 |

Sealing Kit

| Description | Cat ref. |
|-------------|---------------|
| Sealing kit | MZN176 |

Marking Strip

| Description | Cat ref. |
|--------------------------------|---------------|
| 13 modules for modular devices | MZN177 |



LS703

HRC Fuse Carriers

Characteristics

- Protection and control of circuits against overloads and short circuits
- Technical data: sizes : L31, L38, L51, L58
- Poles: 1P, 2P, 3P, 4P
- Voltage rating: 500 V AC, 690V AC. Current rating: 25 to 125A
- Frequency: 50/60Hz
- Climate sealed: T2
- Will accept accessories
- Short circuit resistance with fuse link 8,5 x 31,5 mm: 80kA - 690V~
- Short circuit resistance with fuse link 10,3 x 38 mm: 80kA - 690V~ / 120kA - 500 V~
- Short circuit resistance with fuse link 14x51 mm: 100kA - 690V
- Short circuit resistance with fuse link 22x58 mm: 100kA - 690V
- Connection capacity:
L31 (8,5x31,5): rigid conductors: 25mm², flexible conductors: 16mm²
L38 (10x38): rigid conductors : 25mm², flexible conductors: 16mm²
L51 (14x51) : rigid conductors : 35mm², flexible conductors: 25mm²
L58 (22x58): rigid conductors : 50mm², flexible conductors : 35mm²
- Complies with IEC 60 269-2, EC 60 269-2-1 and IEC 60 947-3.

L58 fuse carriers 690V - 125A

Characteristics:

- Compatible with accessories

| Description | Width 17.5mm | Quantity | Cat ref. |
|-------------------------|-----------------|----------|--------------|
| Single pole | 2 Mod | 1 | LS701 |
| Two pole | 4 Mod | 1 | LS702 |
| Three pole | 6 Mod | 1 | LS703 |
| 3 phases + neutral link | 8 Mod | 1 | LS704 |
| 1 phase + neutral link | 4 Mod | 1 | LS712 |

Characteristics:

- Accessory free

| Description | Width 17.5mm | Quantity | Cat ref. |
|-------------------------|-----------------|----------|--------------|
| single pole | 2 Mod | 6 | LR701 |
| two pole | 4 Mod | 3 | LR702 |
| three pole | 6 Mod | 2 | LR703 |
| 3 phases + neutral link | 8 Mod | 1 | LR704 |
| 1 phase + neutral link | 4 Mod | 3 | LR712 |



LS670

Microswitches

Characteristics:

- For L51 fuse carriers

| Description | Quantity | Cat ref. |
|-------------|----------|--------------|
| single pole | 1 | LS670 |
| three pole | 1 | LS671 |

Characteristics:

- For L58 fuse carriers

| Description | Quantity | Cat ref. |
|-------------|----------|--------------|
| Single pole | 1 | LS770 |
| Three pole | 1 | LS771 |

Signal lights 230V

Characteristics:

- For L51 and L58 fuse carriers



LS672

| Description | Quantity | Cat ref. |
|--------------------|----------|--------------|
| Signal lights 230V | 1 | LS672 |

Photovoltaic Fuse Carriers, SPD & Switch Disconnectors**Characteristics**

Photovoltaic fuse carriers and fuses

- DC protection of photovoltaic strings against overload and short-circuits.
- Sizes : L38 (10x38)
- Class of operation : gPV (PV fuse)
- Poles : 1P, 2P
- Voltage rating : 1000V DC for fuse carriers and 900V DC for fuses
- Fuse carriers current rating : 32A
- Fuses current rating : 2 to 20A
- Breaking capacity : 30kA
- Minimum Interrupting : $2 \times In$ (2-3-4A), $1.9 \times In$ (6-8-10-12A), $1.6 \times In$ (16-20A)
- Connection capacity: rigid conductors 16mm², flexible conductors 10mm²
- Complies with IEC 60269-2, IEC 60269-2-1 and IEC 60947-3.



L501PV

Switch disconnectors

- Designed for photovoltaic applications but fully compatible to any DC purposes.
- Contact making and break independent to operator speed.
- Poles : 4P
- Voltage rating : 1000V DC 21B
- Current rating : 32A
- Connection capacity: rigid conductors 16mm², flexible conductors 10mm²
- Complies with IEC 60 947-3.

L38 photovoltaic fuse carriers 1000V DC

| Description | In/A | Quantity | Cat ref. |
|-------------|------|----------|---------------|
| Single pole | 32 | 6 | L501PV |
| Double pole | 32 | 12 | L502PV |

Photovoltaic Cartridge Fuses 900V DC

| Description | In/A | Quantity | Cat ref. |
|--------------------------------------|------|----------|----------------|
| Photovoltaic Cartridge Fuses 900V DC | 2 | 10 | LF302PV |
| | 3 | 10 | LF303PV |
| | 4 | 10 | LF304PV |
| | 6 | 10 | LF306PV |
| | 8 | 10 | LF308PV |
| | 10 | 10 | LF310PV |
| | 12 | 10 | LF312PV |
| | 16 | 10 | LF316PV |
| | 20 | 10 | LF320PV |



LF302PV

DC Switch Disconnectors

| Description | In/A | Quantity | Cat ref. |
|--------------------|------|----------|----------------|
| 4 poles, 1000 V DC | 32 | 1 | SB432PV |



SB432PV

Double Pole Polarized Surge Protection Devices

| Description | Cat ref. |
|---|---------------|
| Photovoltaic Ucpv ≤ 1000V DC, 25kA, 4kV, class 2 with end of life indicator | SPN325 |



SPA800

Surge Protection Type 1 + 2

Technical Data

Conforms to IEC61643-1: T1 + T2
Rated operational voltage: 230/400V
Frequency: 50/60Hz
Protection level up: 1.5kV
Operating temperature: -40 to 80°C
Rated voltage Uc according to IEC61643-1: 350V

Characteristics

- For mounting on top hat rails
- Integrated remote signalling contact
- Contact type: 1 changeover contact



SPA081

Replacement plug-in module for SPA80x

| Description | Backup fuse | PU | Cat ref. |
|---------------------------------|-------------|----|---------------|
| Plug-in module LN/PEN 350V 25kA | 315A | 1 | SPA081 |



SPB140R

Surge Protection Type 2

These are used to limit the voltage to the specified values and can be connected downstream of combination protection and type 1 protection.

Surge Protection Type 2, 1 pole

Technical Data

Conforms to IEC61643-11: T2
Rated operational voltage: 230V
Frequency: 50/60Hz
Discharge capacity: 20kA
Protection level up: 1.35kV
Number of modules: 1
Operating temperature: -40 to 80°C
Rated voltage Uc according to IEC61643-1: 275V

Characteristics

- Integrated remote signalling contact
- Contact type: 1 changeover contact

| Description | Cat ref. | With remote contact Cat ref. |
|--|----------------|---------------------------------|
| Surge protection T2, 1 pole, 40kA, TNC | SPB140D | SPB140R |



SPB208D

Surge Protection Type 2, 2 pole

Technical Data

Conforms to IEC61643-11: T2
Rated operational voltage: 230V
Frequency: 50/60Hz
Discharge capacity: 20kA
Protection level up: 1.35kV
Number of modules: 2
Operating temperature: -40 to 80°C
Rated voltage Uc according to IEC61643-1: 275V

Characteristics

- Integrated remote signalling contact
- Contact type : 1 changeover contact

| Description | Cat ref. | With remote contact Cat ref. |
|---|----------------|---------------------------------|
| Surge protection T2, 2 pole, 8kA, TNS/TT | SPB208D | - |
| Surge protection T2, 2 pole, 15kA, TNS/TT | SPB215D | SPB215R |
| Surge protection T2, 2 pole, 40kA, TNS/TT | SPB240D | SPB240R |
| Surge protection T2, 2 pole, 65kA, TNS/TT | - | SPB265R |

Surge Protection Type 2, 4 pole

Technical Data

Conforms to IEC61643-11: T2
 Rated operational voltage: 230/400V
 Frequency: 50/60Hz
 Discharge capacity: 20kA
 Protection level up: 1.35kV
 Number of modules: 4
 Operating temperature: -40 to 80°C
 Rated voltage Uc according to IEC61643-1: 275V

Characteristics

- Integrated remote signalling contact
- Contact type : 1 changeover contact



SPB415R

| Description | Cat ref. | With remote contact Cat ref. |
|---|----------------|---------------------------------|
| Surge protection T2, 4 pole, 8kA, TNS/TT | SPB408D | - |
| Surge protection T2, 4 pole, 15kA, TNS/TT | SPB415D | SPB415R |
| Surge protection T2, 4 pole, 40kA, TNS/TT | SPB440D | SPB440R |
| Surge protection T2, 4 pole, 65kA, TNS/TT | - | SPB465R |



SPB008D

Replacement plug-in module Type 2

| Description | Cat ref. |
|------------------------------------|----------------|
| Cartridge L-N, In 2kA, Imax 8kA | SPB008D |
| Cartridge T2 L-N Uc 275V Up 1.35kV | SPB015 |
| Cartridge L-N, In 5kA, Imax 15kA | SPB015D |
| Cartridge T2 N-PE Uc 260V Up 1.5kV | SPB015N |
| Cartridge L-N, In 20kA, Imax 40kA | SPB040D |
| Cartridge N-PE, In 20kA, Imax 40kA | SPB040N |
| Cartridge N-PE, In 20kA, Imax 65kA | SPB065N |
| Cartridge L-N, In 20kA, Imax 65kA | SPB065R |

Surge Protection Type 2, 3 pole, PV

Technical Data

Conforms to IEC61643-1: T2
 Rated operational voltage: 1000V DC
 Protection level up: 3.7kV
 Operating temperature: -40 to 80°C

Characteristics

- Integrated remote signalling contact
- Contact type : 1 changeover contact



SPV340

| Description | Cat ref. |
|---------------------------------------|---------------|
| Surge protection T2, 3 pole, 40kA, PV | SPV340 |

Plug-in module Type 2, PV

| Nominal discharge capacity | Protection level | PU | Cat ref. |
|----------------------------|------------------|----|---------------|
| 40kA | 1.9kV | 1 | SPV040 |



SPC203N

Surge Protection Type 3

These are used to limit the voltage to $\leq 1.5\text{kV}$. Surge protection type 3 should be located as close as possible to the end of the device, so that the voltage level can be reduced to a tolerable value and recouplings can be neutralised.

Surge Protection Type 3

Technical Data

Conforms to IEC61643-11: T3
Rated operational voltage: 230V
Frequency: 50/60Hz
Protection level up: 1.4kV
Operating temperature: -40 to 80°C

Characteristics

- Integrated remote signalling contact
- Contact type: 1 changeover contact

| Description | Modules | PU. | Cat ref. |
|--------------------------------------|---------|-----|----------------|
| Surge protection T3, 1 pole + N, 5kA | 1 | 1 | SPC203N |
| Surge protection T3, 3 pole + N, 3kA | 2 | 1 | SPC403N |



SPC023N

Accessories for Surge Protection Type 3

Technical Data

Conforms to IEC61643-11: T3
Rated operational voltage: 230V
Frequency: 50/60Hz
Protection level up: 1.4kV
Operating temperature: -40 to 80°C

| Description | PU. | Cat ref. |
|--|-----|----------------|
| Plug-in module T3 1 pole Uc 264V In 5kA | 1 | SPC023N |
| Surge protection T3, N-PE Uc 264V In 3kA | 1 | SPC043N |



SPK603

Surge Protection for IP Broadband Connections

| Description | Protection level | PU. | Cat ref. |
|---------------------------------------|------------------|-----|---------------|
| Surge protection for VDSL | 250V | 1 | SPK603 |
| Surge protection for (A) DSL and ISDN | 300V | 1 | SPK602 |

Arc Fault Detection Devices with MCB

Characteristics

- Protection device which combines an MCB with Arc Fault Detection
- Conforms to EN 62606
- Current rating 6A - 40A 10kA, available in B & C curve
- Terminal Capacities, 25mm² rigid, 16mm² flexible

Description

Cat ref.

B Curve Arc Fault Detection Devices with MCB 10kA

| | |
|--------------------------------------|----------------|
| AFDD with MCB 1P+N 10kA B-6A 2 mod. | ARC506U |
| AFDD with MCB 1P+N 10kA B-10A 2 mod. | ARC510U |
| AFDD with MCB 1P+N 10kA B-13A 2 mod. | ARC513U |
| AFDD with MCB 1P+N 10kA B-16A 2 mod. | ARC516U |
| AFDD with MCB 1P+N 10kA B-20A 2 mod. | ARC520U |
| AFDD with MCB 1P+N 10kA B-25A 2 mod. | ARC525U |
| AFDD with MCB 1P+N 10kA B-32A 2 mod. | ARC532U |
| AFDD with MCB 1P+N 10kA B-40A 2 mod. | ARC540U |



Commercial
Distribution

C Curve Arc Fault Detection Devices with MCB 10kA

| | |
|--------------------------------------|----------------|
| AFDD with MCB 1P+N 10kA C-6A 2 mod. | ARC556U |
| AFDD with MCB 1P+N 10kA C-10A 2 mod. | ARC560U |
| AFDD with MCB 1P+N 10kA C-13A 2 mod. | ARC563U |
| AFDD with MCB 1P+N 10kA C-16A 2 mod. | ARC566U |
| AFDD with MCB 1P+N 10kA C-20A 2 mod. | ARC570U |
| AFDD with MCB 1P+N 10kA C-25A 2 mod. | ARC575U |
| AFDD with MCB 1P+N 10kA C-32A 2 mod. | ARC582U |
| AFDD with MCB 1P+N 10kA C-40A 2 mod. | ARC590U |



ARC540U

Arc Fault Detection Devices with RCBO

Characteristics

- Protection device which combines an RCBO with Arc Fault Detection
- Conforms to EN 62606, Current rating 6A - 25A 10kA, available in B & C curve

Description

Cat ref.

B Curve Arc Fault Detection Devices with RCBO 10kA

| | |
|--|----------------|
| AFDD with RCBO 1P+N 10kA B-6A 30mA A 3 mod. | ARF506D |
| AFDD with RCBO 1P+N 10kA B-10A 30mA A 3 mod. | ARF510D |
| AFDD with RCBO 1P+N 10kA B-16A 30mA A 3 mod. | ARF516D |
| AFDD with RCBO 1P+N 10kA B-20A 30mA A 3 mod. | ARF520D |
| AFDD with RCBO 1P+N 10kA B-25A 30mA A 3 mod. | ARF525D |



ARF506D

C Curve Arc Fault Detection Devices with RCBO 10kA

| | |
|--|----------------|
| AFDD with RCBO 1P+N 10kA C-6A 30mA A 3 mod. | ARF556D |
| AFDD with RCBO 1P+N 10kA C-10A 30mA A 3 mod. | ARF560D |
| AFDD with RCBO 1P+N 10kA C-16A 30mA A 3 mod. | ARF566D |
| AFDD with RCBO 1P+N 10kA C-20A 30mA A 3 mod. | ARF570D |
| AFDD with RCBO 1P+N 10kA C-25A 30mA A 3 mod. | ARF575D |



ARF906D

B Curve Arc Fault Detection Devices with RCBO 6kA

| | |
|---|----------------|
| AFDD with RCBO 1P+N 6kA B-6A 30mA A 3 mod. | ARF906D |
| AFDD with RCBO 1P+N 6kA B-10A 30mA A 3 mod. | ARF910D |
| AFDD with RCBO 1P+N 6kA B-16A 30mA A 3 mod. | ARF916D |
| AFDD with RCBO 1P+N 6kA B-20A 30mA A 3 mod. | ARF920D |
| AFDD with RCBO 1P+N 6kA B-25A 30mA A 3 mod. | ARF925D |



C Curve Arc Fault Detection Devices with RCBO 6kA

| | |
|---|----------------|
| AFDD with RCBO 1P+N 6kA C-6A 30mA A 3 mod. | ARF956D |
| AFDD with RCBO 1P+N 6kA C-10A 30mA A 3 mod. | ARF960D |
| AFDD with RCBO 1P+N 6kA C-16A 30mA A 3 mod. | ARF966D |
| AFDD with RCBO 1P+N 6kA C-20A 30mA A 3 mod. | ARF970D |
| AFDD with RCBO 1P+N 6kA C-25A 30mA A 3 mod. | ARF975D |

Busbar 2P for ARFxxxD 12 module 63 A 2 P

KDN263AZ

Busbar 10mod 2P with auxiliary

KDN263AZS



HR500

Earth Fault Relays

Characteristics

- SPDs with low let through voltage levels to protect very sensitive electronic equipment.
- Voltage range : 230V +/- 20%
- Network voltage: 50 to 700 V
- Frequency: 50 / 60 Hz
- Working temperature: 10 to +55°C
- Storage temperature: -25 to +70°C
- Max. cable lenght to torroids: 25m non-twisted cable 0,5 to 1,5mm², 50m twisted cable
- Standards: IEC 60755, IEC 947-2 annex B, IEC 61543 IEC 61008-1
- Torroids:
- Frequency: 50 / 60 Hz
- Working temperature: 10 to +55°C
- Storage temperature: 25 to +70°C
- IP rating: IP 41

Earth Leakage Relays Non Adjustable

| Description | Power Absorbed | Cat ref. |
|--|----------------|--------------|
| Fixed IΔn: 0,03A, instantaneous tripping | 3VA | HR500 |
| Fixed IΔn: 0,3A, instantaneous tripping | 3VA | HR502 |



HR525

Earth Leakage Relays Adjustable

| Description | Power Absorbed | Positive Safety Contact | Cat ref. |
|--|----------------|-------------------------|--------------|
| Adjst. IΔn: 0,03-0,1-0,3-0,5-1-3-10A - adjst. delay: 0-0,1-0,3-0,4-0,5-1-3 s | 5VA | 1 C/O | HR510 |
| Adjst. IΔn: 0,03-0,1-0,3-0,5-1-3-10A - adjst. delay: 0-0,1-0,3-0,4-0,5-1-3 s | 5VA | 1 C/O | HR520 |
| Adjst. IΔn: 0,03-0,1-0,3-0,5-1-3-10A - adjst. delay: 0-0,1-0,2-0,25-0,3-0,4-0,5 s | 5VA | 1 C/O | HR522 |
| Adjst. IΔn: 0,5-1-3-5-10-20-30A - adjst. delay: 0-0,1-0,2-0,25-0,3-0,4-0,5 s | 5VA | 1 C/O | HR523 |
| Adjst. IΔn: 0,03-0,1-0,3-0,5-1-3-10A - adjst. delay: 0-0,1-0,3-0,4-0,5-1-3 s | 6VA | 1 C/O | HR525 |
| Adjst. IΔn: 0,03-0,1-0,3-0,5-1-3-10A - instant/sel/adj. delay: 0-0,1-0,3-0,4-0,5-1-3 s | 6VA | 1 C/O | HR534 |



HR700

Circular Torroids

| Description | Cat ref. |
|------------------|--------------|
| Internal Ø 30 mm | HR700 |
| Internal Ø35 mm | HR741 |
| Internal Ø70 mm | HR742 |
| Internal Ø105 mm | HR743 |
| Internal Ø140 mm | HR744 |
| Internal Ø210 mm | HR745 |



HR822

Open Rectangular Torroids

| Description | Cat ref. |
|-------------|--------------|
| 80 x 80 mm | HR822 |
| 80 x 120 mm | HR823 |
| 80 x 160 mm | HR824 |



HR831

Rectangular Torroids

| Description | Cat ref. |
|--------------|--------------|
| 75 x 175 mm | HR830 |
| 115 x 305 mm | HR831 |
| 150 x 350 mm | HR832 |

Moulded Case Circuit Breakers x160
Characteristics

Thermal magnetic trip unit, 2 versions:

- Z and L versions: fixed thermal and fixed magnetic
- H version: adjustable thermal and fixed magnetic
- 1P, 3P and 4P
- Mechanical test button, lockable settings, integrated padlocking handle Ø 4mm, 3 & 4 pole devices complete with DIN clip.
- Connection capacity 95 mm² rigid cables, 70 mm² flexible cables, collar terminals. Complies with IEC 60 947-2.
- Trip-free switches. Allows tripping at distance using a voltmeterical trip unit (optional) AC 22/23A. Complies with IEC 60 947-3.


MCBs x160 18kA

| Description | In | 1 Pole Cat ref. | 3 Pole Cat ref. | 4 Pole Cat ref. |
|---|------|--------------------|--------------------|--------------------|
| Breaking capacity Ics : 18 kA (400/415 V AC) fixed thermal 1 x In, fixed magnetic >10 x In | 16A | HDA014Z | HDA016L | HDA017L |
| | 20A | HDA018Z | HDA020L | HDA021L |
| | 25A | HDA023Z | HDA025L | HDA026L |
| | 32A | HDA030Z | HDA032L | HDA033L |
| | 40A | HDA038Z | HDA040L | HDA041L |
| | 50A | HDA048Z | HDA050L | HDA051L |
| | 63A | HDA061Z | HDA063L | HDA064L |
| | 80A | HDA078Z | HDA080L | HDA081L |
| | 100A | HDA098Z | HDA100L | HDA101L |
| | 125A | HDA123Z | HDA125L | HDA126L |
| | 160A | HDA160L | HDA161L | |

MCBs x160 25kA

| Description | In | 1 Pole Cat ref. | 3 Pole Cat ref. | 4 Pole Cat ref. |
|---|------|--------------------|--------------------|--------------------|
| Breaking capacity Ics : 25 kA (400/415 V AC) fixed thermal 1x In, fixed magnetic > 10 x In | 16A | HHA014Z | - | |
| | 20A | HHA018Z | | |
| | 25A | HHA023Z | | |
| | 32A | HHA030Z | | |
| | 40A | HHA038Z | | |
| | 50A | HHA048Z | | |
| | 63A | HHA061Z | | |
| | 80A | HHA078Z | | |
| | 100A | HHA098Z | | |
| | 125A | HHA123Z | | |
| Adjustable thermal 0,63 - 0,8 - 1 x In, fixed magnetic > 10 x In | 25A | | HHA025H | HHA026H |
| | 40A | | HHA040H | HHA041H |
| | 63A | | HHA063H | HHA064H |
| | 80A | | HHA080H | HHA081H |
| | 100A | | HHA100H | HHA101H |
| | 125A | | HHA125H | HHA126H |
| | 160A | | HHA160H | HHA161H |



HNA125H

Moulded Case Circuit Breakers x160

Characteristics

- Add-on blocks for x160 devices. These devices are intended to be fixed on the right-hand side of the devices.
- Type A and HI. For fault component pulsating current.
- HI (High Immunity): the products with "reinforced immunity" reduce the unexpected tripping when they protect equipment generating disturbances (micro-processing, electronic ballast...)
- Fixed version: 300 mA sensitivity and instantaneous tripping.
- Adjustable version: adjustable sensitivity and tripping.
- Test button for differential functioning check.
- Mechanical test button.
- LED or at distance signal for tripping or advance warning (25-50% $I\Delta n$).
- Assembly and disassembly facilitated by the drawer assembly system. The terminal cover is dependent of the add-on block.
- Connection capacity: 95 mm² rigid cables, 70 mm² flexible cables.
- Complies with IEC 60 947-2 annexe B.

MCBs x160 40kA

| Description | In | 3 Pole Cat ref. | 4 Pole Cat ref. |
|--|------|--------------------|--------------------|
| Breaking capacity Ics : 20 kA (400/415 V AC) adjustable thermal 0,63 - 0,8 - 1 x In, fixed magnetic > 10 x In | 25A | HNA025H | HNA026H |
| | 40A | HNA040H | HNA041H |
| | 63A | HNA063H | HNA064H |
| | 80A | HNA080H | HNA081H |
| | 100A | HNA100H | HNA101H |
| | 125A | HNA125H | HNA126H |
| | 160A | HNA160H | HNA161H |

Trip-free Switches x 160

| Description | In | 3 Pole Cat ref. | 4 Pole Cat ref. |
|---|------|--------------------|--------------------|
| Trip-free switches x160 suitable for AC22A / AC 23A Ue: 415 V AC, Icw (1s): 2 kA | 125A | HCA125H | HCA126H |
| | 160A | HCA160H | HCA161H |



HBA161H

Add On Blocks

Characteristics

- $I\Delta n$ 300 mA fixed sensitivity, instantaneous tripping
- sensitivity $I\Delta n$, adjustable: 0,03 - 0,1 - 0,3 - 1 - 3 - 6A
- adjustable tripping: instantaneous, time delay 0,06 - 0,15 - 0,3, timer delay 0,5 - 1s

| Description | In | 3 Pole Cat ref. | 4 Pole Cat ref. |
|--------------|------|--------------------|--------------------|
| Add On Block | 125A | HBA127H | HBA128H |
| Add On Block | 125A | HBA125H | HBA126H |
| Add On Block | 160A | HBA160H | HBA161H |

Accessories for x160 Devices

Indication contacts

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

Coil connection

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

Shunt trip

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

Under voltage release

- Allows tripping of MCCBs or trip-free switches when voltage level drops between 35 & 70% of Un. Pick up voltage 0,85 x Un
- Padlockable direct rotary handle is equipped with front cover and handle, fixing without any additional screw.
- Extended rotary handle, IP 55, supplied complete with shaft and handle.



HXA021H

HXA024H

Commercial
Distribution

Auxiliary Contacts AX AL

| Description | Cat ref. |
|--|----------------|
| 1 changeover contact (ON/OFF), 250 V AC / 3A, 125 V DC / 0,4A, 1 NO + 1 NC | HXA021H |
| 1 changeover alarm contact, 250 V AC / 3A, 125 V DC / 0,4A, 1 NO + 1 NC | HXA024H |
| Low level contact (ON/OFF), 125 V AC, 1 NO + 1 NC | HXA025H |
| Low level alarm contact, 125 V AC, 1 NO + 1 NC | HXA026H |

Shunt Trips SH

| Description | Cat ref. |
|----------------|----------------|
| 24 V DC | HXA001H |
| 48 V DC | HXA002H |
| 100 - 120 V AC | HXA003H |
| 200 - 240 V AC | HXA004H |
| 380 - 450 V AC | HXA005H |

Undervoltage Releases UV

| Description | Cat ref. |
|----------------|----------------|
| 24 V DC | HXA011H |
| 100 - 120 V AC | HXA013H |
| 200 - 240 V AC | HXA014H |
| 380 - 450 V AC | HXA015H |



HXA014H

Delayed Undervoltage Releases DUVR

| Description | Cat ref. |
|----------------|----------------|
| 24 V DC | HXA051H |
| 110 - 120 V AC | HXA053H |
| 220 - 240 V AC | HXA054H |
| 380 - 415 V AC | HXA055H |

Rotary Handles

| Description | Cat ref. |
|--|----------------|
| Locking Device to Mount on MCCB for Handle Locking for 3 Padlock Max Ø 8mm | HXA030H |
| Extended Rotary Handle, Padlockable Handle max Ø 8 mm | HXA031H |



HXA030H

Padlock

| Description | 3P Cat ref. | 4P Cat ref. |
|--|----------------|----------------|
| Padlock to Mount on MCCB for Handle Locking for 3 Padlock max Ø 8 mm | HXA039H | HXA039H |



HYA015H

Collar Terminals, Connections & Barriers

| Description | 3P Cat ref. | 4P Cat ref. |
|---|----------------|----------------|
| Collar Terminals for Aluminium/Copper Conductor up to 70 / 95 mm ² | HYA005H | HYA006H |
| Extended Connections, Set of 4 Straight Connections | HYA013H | HYA013H |
| Extended Connections, Set of 3 or 4 Spreader Connections | HYA014H | HYA015H |
| Interphase Barriers, set of 3, Height: 50 mm | HYA019H | HYA019H |
| Interphase Barriers, set of 3, Height: 97 mm | HYB019H | HYB019H |



HYA021H

Terminal Covers

| Description | 3P Cat ref. | 4P Cat ref. |
|---|----------------|----------------|
| Terminal Covers for Extended Straight Connections | HYA021H | HYA022H |
| Terminal Covers for Extended Spreader Connections | HYA023H | HYA024H |
| Terminal Covers for Collar Terminal | HYA027H | HYA028H |



HYA033H

Din Rail Adaptor

| Description | 3P Cat ref. | 4P Cat ref. |
|------------------|----------------|----------------|
| Din Rail Adaptor | HYA033H | HYA033H |

Connecting Kit

| Description | 3P Cat ref. | 4P Cat ref. |
|--|----------------|----------------|
| Connecting Kit, 0,75 mm ² , Set of 3 x 2 Wires, Length: 1,30m | HYA035H | HYA035H |

Din Rail Raiser

| Description | 3P Cat ref. | 4P Cat ref. |
|-----------------|----------------|----------------|
| Din Rail Raiser | HYA036H | HYA036H |

Ring Lugs

| Description | Cat ref. |
|-------------------------------------|----------------|
| Compact Lugs 16mm ² Ø8,5 | HYA086H |
| Compact Lugs 25mm ² Ø8,5 | HYA087H |
| Compact Lugs 35mm ² Ø8,5 | HYA088H |
| Compact Lugs 50mm ² Ø8,5 | HYA089H |
| Compact Lugs 70mm ² Ø8,5 | HYA090H |
| Compact Lugs 95mm ² Ø8,5 | HYA091H |

Moulded Case Circuit Breakers x250, 3P & 4P
Characteristics

- H version: adjustable thermal and magnetic.
- Mechanical test button, lockable settings, integrated padlocking handle Ø 4mm.
- Complies with IEC 60 947-2.

Connection

- Directly on copper cable terminal, with end lug max. width: 25 mm
- Connection capacity: 185 mm² rigid cables.
- Complies with IEC 60 947-2.
- Collar terminals

Trip-free switches

- Allows tripping at distance using a voltmeterical trip unit (optional)
- Complies with IEC 60 947-3, AC 22/23A

Add-on blocks for x250 devices

- These devices are intended to be fixed at the bottom of the devices.
- Type A and HI for fault component dc pulsating current and the products with "reinforced immunity".
- Adjustable sensitivity and tripping.
- Test button for differential functioning check.
- Mechanical test button LED or at distance signal for tripping or advance warning (25 - 50% $I\Delta n$).
- Complies with IEC 60 947-2 annexe B

MCCBs x250 40kA

| Description | In | 3 Pole Cat ref. | 4 Pole Cat ref. |
|---|------|--------------------|--------------------|
| Breaking capacity Icu : 40 kA (400/415 V AC) Ics: 20 kA adjustable thermal 0,63 - 0,8 - 1x In, adjustable magnetic 6 - 8 - 10 - 13 x In (100 - 200A) 5 - 7 - 9 - 11 x In (250A) | 100A | HNB100H | HNB101H |
| | 125A | HNB125H | HNB126H |
| | 160A | HNB160H | HNB161H |
| | 200A | HNB200H | HNB201H |
| | 250A | HNB250H | HNB251H |



HNB100H

Commercial
Distribution

Trip-free Switches x250

| Description | In | 3P Cat ref. | 4P Cat ref. |
|---|------|----------------|----------------|
| Capacity suitable for AC 22/23A, Icw (1s): 3 kA | 250A | HCB250H | HCB251H |

Add-on Blocks

| Description | In | 4P Cat ref. |
|---|------|----------------|
| Adjustable sensitivity $I\Delta n$: 0,03 - 0,1 - 0,3 - 1 - 3 - 6A | 160A | HBB161H |
| adjustable tripping: instantaneous, time delay: 0,06 - 0,15 - 0,3 - 0,5 - 1 sec | 250A | HBB251H |



HBB251H



HXA021H

HXA024H

Accessories for MCCBs & Trip-free Switches x250**Indication Contacts**

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

Coil Connection

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

Shunt Trip

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

Under Voltage Release

- Allows the tripping of MCCBs or trip-free switches when voltage level drop between 35 and 70% of Un.
- Pick up voltage 0,85 x Un.
- Direct rotary handle: padlockable, equipped with front cover and handle, fixing without any additional screw.
- Extended rotary handle: IP 55, supplied complete with shaft and handle.

Auxiliary Contacts AX, AL

| Description | Cat ref. |
|--|----------|
| 1 changeover contact 250 V AC / 3A, 125 V DC / 0.4A, 1 NO + 1 NC, | HXA021H |
| 1 changeover alarm contact 250 V AC / 3A, 125 V DC / 0.4A, 1 NO + 1 NC | HXA024H |
| Low level contact (ON/OFF) 125 V AC, 1 NO + 1 NC | HXA025H |
| Low level alarm contact 125 V AC, 1 NO + 1 NC | HXA026H |

Shunt Trips SH

| Description | Cat ref. |
|----------------|----------|
| 24 V DC | HXA001H |
| 48 V DC | HXA002H |
| 100 - 120 V AC | HXA003H |
| 200 - 240 V AC | HXA004H |
| 380 - 450 V AC | HXA005H |



HXA014H

Undervoltage Releases UV

| Description | Cat ref. |
|----------------|----------|
| 24 V DC | HXA011H |
| 100 - 120 V AC | HXA013H |
| 200 - 240 V AC | HXA014H |
| 380 - 450 V AC | HXA015H |

Delayed Undervoltage Releases DUVR

| Description | Cat ref. |
|----------------|----------|
| 24 V DC | HXA051H |
| 110 - 120 V AC | HXA053H |
| 220 - 240 V AC | HXA054H |
| 380 - 415 V AC | HXA055H |

Rotary Handles

| Description | Cat ref. |
|---|----------|
| Direct Rotary Handles Padlockable Handle max Ø 6 mm | HXA030H |
| Extended Rotary Handle, Padlockable Handle max Ø 8 mm | HXA031H |

Padlock

| Description | Cat ref. |
|--|----------|
| Padlock to Mount on MCCB for Handle Locking for 3 Padlock max Ø 8 mm | HXA039H |

Motor Operators

| | |
|---------------|----------------|
| Description | Cat ref. |
| 24 V DC | HXB040H |
| 230 - 240V AC | HXB042H |



HXB042H

Electrical Interlock

| | |
|---|----------------|
| Description | Cat ref. |
| For motor type A (between 2 x 250A) | HXB068H |
| For motor type B (between 250A and other sizes) | HXB069H |

Interlocking Kit, Unit, Cable

| | |
|-------------------------------------|----------------|
| Description | Cat ref. |
| Wire type set of 2 pieces and cable | HXB065H |
| Interlocking unit, wire type | HXB066H |
| Interlocking mechanical cable 1 m | HXB070H |
| Interlocking mechanical cable 1.5 m | HXB071H |

Collar Terminals, Connections & Barriers

| Description | 3P Cat ref. | 4P Cat ref. |
|--|----------------|----------------|
| Collar terminals for aluminium / copper conductors 150 mm ² rigid cables, 120 mm ² flexible cables | HYB001H | HYB002H |
| Collar terminals 240 mm ² , aluminium / copper conductors | HYB005H | HYB006H |
| Extended connections, set of 4 pieces for straight connections | HYB010H | HYB010H |
| Extended connections, spreader connections | HYB011H | HYB012H |
| Rear connections, set of 3 or 4 pieces | HYB031H | HYB032H |
| Connecting kit, 0,75 mm ² , set of 3 x 2 wires length: 1.30m | HYA035H | HYA035H |
| Interphase barriers, set of 3, height: 97mm | HYB019H | HYB019H |



HYB002H

Terminal Covers

| Description | 3P Cat ref. | 4P Cat ref. |
|---|----------------|----------------|
| Terminal Covers for Extended Straight Connections | HYB021H | HYB022H |
| Terminal Covers for Extended Spreader Connections | HYB023H | HYB024H |
| Terminal Covers for rear connections | HYB025H | HYB026H |
| Terminal Covers for Collar Terminal | HYB027H | HYB028H |



HYB024H

Ring Lugs

| Description | Cat ref. |
|--------------------------------------|----------------|
| Compact Lugs 35mm ² Ø8.5 | HYA088H |
| Compact Lugs 50mm ² Ø8.5 | HYA089H |
| Compact Lugs 70mm ² Ø8.5 | HYA090H |
| Compact Lugs 95mm ² Ø8.5 | HYA091H |
| Compact Lugs 120mm ² Ø8.5 | HYB092H |
| Compact Lugs 150mm ² Ø8.5 | HYB094H |

Moulded Case Circuit Breakers h250

Electronic Trip Unit LSI:

- Long delay (thermal equivalent) adjustable: $I_r = 0.4$ to $1 \times I_n$
- Short delay (magnetic equivalent) adjustable: 2.5 to $10 \times I_r$
- Time delay: 0,1 - 0,2 s
- 3P & 4P
- Mechanical test button, sealable settings.

Connection:

- Directly on copper cable terminal, with end lug max. width: 25 mm
- Complies with IEC 60 947-2.

MCCBs h250 50kA LSI

| Description | I_n | 3P Cat ref. | 4P Cat ref. |
|--|-------|----------------|----------------|
| Breaking capacity I_{cu} : 50 kA (400/415 V AC) I_{cs} : 25 kA adjustable thermal $I_r = 0.4$ to $1 \times I_n$, adjustable magnetic 2.5 to $10 \times I_r$ 3P, 3 trip units & 4P, 3 trip units | 40A | HNC040H | HNC041H |
| | 125A | HNC125H | HNC126H |
| | 250A | HNC250H | HNC251H |



HEC250H

MCCBs h250 70kA LSI

| Description | I_n | 3P Cat ref. | 4P Cat ref. |
|--|-------|----------------|----------------|
| breaking capacity I_{cu} : 70 kA (400/415 V AC) I_{cs} : 70 kA adjustable thermal $I_r = 0.4$ to $1 \times I_n$, adjustable magnetic 2.5 to $10 \times I_r$ 3P, 3 trip units & 4P, 3 trip units | 40A | HEC040H | HEC041H |
| | 125A | HEC125H | HEC126H |
| | 250A | HEC250H | HEC251H |

Accessories for MCCBs h250

Indication Contacts

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

Coil Connection

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

Shunt Trip

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

Under Voltage Release

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

Direct Rotary Handle

- Padlockable
- Equipped with front cover and handle
- Fixing without any additional screw.

Extended Rotary Handle

- IP 55
- Supplied complete with shaft and handle.

Auxiliary Contacts AX AL

| Description | Cat ref. |
|--|----------------|
| 1 changeover contact 250 V AC / 3A, 125 V DC / 0.4A, 1 NO + 1 NC | HXC021H |
| 1 changeover alarm contact 250 V AC / 3A, 125 V DC / 0.4A, 1 NO + 1 NC | HXC024H |
| Low level contact (ON/OFF) 125 V AC, 1 NO + 1 NC | HXA025H |
| Low level alarm contact 125 V AC, 1 NO + 1 NC | HXA026H |



HXC021H

HXC024H

 Commercial
Distribution

Shunt Trips SH

| Description | Cat ref. |
|----------------|----------------|
| 24 V DC | HXC001H |
| 48 V DC | HXC002H |
| 110 V DC | HXC008H |
| 100 - 120 V AC | HXC003H |
| 200 - 240 V AC | HXC004H |
| 380 - 450 V AC | HXC005H |



HXC004H

Undervoltage Releases UV

| Description | Cat ref. |
|----------------|----------------|
| 24 V DC | HXC011H |
| 100 - 120 V DC | HXC018H |
| 200 - 240 V DC | HXC019H |
| 100 - 120 V AC | HXC013H |
| 200 - 240 V AC | HXC014H |
| 380 - 450 V AC | HXC015H |



HXC014H

Delayed Undervoltage Releases DUVR

| Description | Cat ref. |
|----------------|----------------|
| 24 V DC | HXC051H |
| 110 - 120 V AC | HXC053H |
| 200 - 240 V AC | HXC054H |
| 380 - 415 V AC | HXC055H |

Rotary Handles

| Description | Cat ref. |
|---|----------------|
| Direct rotary handles, padlockable handle Ø 5 - 8 mm ² max | HXC030H |
| Extended rotary handles, padlockable handle Ø 5 - 8 mm ² max | HXC053H |



HXC039H

Padlock

Description

Padlock to mount on MCCBs for handle locking for 3 padlocks max Ø 5 mm

Cat ref.

HXC039H

Motor Operators

Description

24 V DC

Cat ref.

HXC040H

230-240 V AC

HXC042H

Interlocking Kit, Unit, Cable

Description

Interlocking kit wire type set of 2 pieces and cable

Cat ref.

HXC065H

Interlocking unit wire type

HXC066H

Interlocking mechanical cable 1 m

HXB070H

Interlocking mechanical cable 1.5 m

HXB071H

Electrical Interlocks

Description

for motor type A (between 2 250A)

Cat ref.

HXB068H

for motor type B (between 250A and other size)

HXB069H



HYC011H

Collar Terminals, Connections & Barriers

Description

Collar terminals set of 3 or 4 pieces for copper conductors 120 mm²

3P Cat ref. 4P Cat ref.

HYC003H **HYC004H**

Extended connections, spreader connections

HYC011H **HYB012H**

Extended connections, straight connections

HYC010H **HYC010H**

Interphase barriers for LSI and TM+

HYC019H **HYC019H**

Interphase barriers for TM only

HYB019H **HYB019H**

Rear connections for LSI only

HYC031H **HYC032H**

Connecting kit 0,75 mm² set of 3 x 2 wires, length: 1.30m

HYA035H **HYA035H**



HYC022H

Terminal Covers

Description

Terminal Covers for extended straight connections (LSI and TM+)

3P Cat ref. 4P Cat ref.

HYC021H **HYC022H**

Terminal Covers for extended straight connections (TM only)

HYG021H **HYG022H**

Terminal Covers for rear connections (LSI only)

HYC025H **HYC026H**

Terminal Covers for collar terminals

HYC027H **HYC028H**

OCR Sealing Covers

Description

OCR Sealing Covers for LSI only

3P Cat ref. 4P Cat ref.

HYC041H **HYC041H**

OCR Sealing Covers for TM only

HYG041H **HYG041H**

Moulded Case Circuit Breakers h400, h630

Electronic trip unit LSI:

- long delay (thermal equivalent)
- adjustable: $Ir = 0.4 \text{ to } 1 \times In$
- short delay (magnetic equivalent) adjustable: 2.5 to 10 x Ir (400A), 2.5 to 8 x Ir (630A)
- time delay: 0,1 - 0,2 s, 3P & 4P (adjustable neutral 0 - 50% - 100%).
- Mechanical test button, lockable settings

Connection:

- Directly on copper cable terminal, with end lug max. width: 30 mm
- Complies with IEC 60 947-2.

Trip-free switches

- Allows remote tripping using a voltmeterical trip unit (optional)
- Complies with IEC 60 947-3. AC 23A / DC 22A.

Add-on blocks

- For h630 (LSI) devices
- These devices are intended to be fixed at the bottom of the devices.
- Fixed version: 300mA sensitivity and instantaneous tripping
- Adjustable version: sensitivity from 30mA to 6A, tripping from instantaneous to 1s delay.
- Test button for differential functioning check.
- Mechanical test button.
- LED or remote signal for tripping or advance warning (25-50% $I\Delta n$).
- Type A (for fault component DC pulsating current) and HI (reinforced immunity against unexpected tripping).
- Complies with IEC 60 947-2.

MCCBs h630 50kA LSI

| Description | In | 3P Cat ref. | 4P Cat ref. |
|--|------|----------------|----------------|
| Breaking capacity Icu : 50 kA (400/415 V AC) Ics : 50 kA adjustable thermal: $Ir = 0.4 \text{ to } 1 \times In$, adjustable magnetic: 2.5 to 10 x Ir (250-400A) 2.5 to 8 x Ir (630A), time delay: 0,1 - 0,2 s | 250A | HND250H | HND251H |
| | 400A | HND400H | HND401H |
| | 630A | HND630H | HND631H |



HND630H

MCCBs h630 70kA LSI

| Description | In | 3P Cat ref. | 4P Cat ref. |
|---|------|----------------|----------------|
| Breaking capacity Icu : 70 kA (400/415 V AC), Ics : 50 kA adjustable thermal: $Ir = 0.4 \text{ to } 1 \times In$, adjustable magnetic: 2.5 to 10 x Ir (250-400A) 2.5 to 8 x Ir (630A), time delay: 0,1 - 0,2 s | 250A | HED250H | HED251H |
| | 400A | HED400H | HED401H |
| | 630A | HED630H | HED631H |

Trip-free Switches

| Description | In | 3P Cat ref. | 4P Cat ref. |
|---|------|----------------|----------------|
| suitable for AC 22A / AC 23A, Ue : 415 V AC, Icw (0,3s) = 5kA | 400A | HCD400H | HCD401H |
| | 630A | HCD630H | HCD631H |

Add-on Blocks (only for h630)

| Description | In | 4P Cat ref. |
|---|------|----------------|
| adjustable sensitivity $I\Delta n$: 0,03 - 0,1 - 0,3 - 1 - 3 - 6A adjustable tripping, instantaneous time delay: 0,06s - 0,15s - 0,3s - 0,5 - 1s | 400A | HBD401H |
| | 500A | HBD631H |



HBD401H



HXC021H

HXC024H

Accessories for MCCBs & Trip-free Switches h400-h630

Indication Contacts

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

Coil Connection

- Connection capacity: 0,75 mm² flexible or rigid cables
- Optional connection cables.

- The cable capacity of the terminals is 0,5 to 1,25 mm².

Shunt Trip

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

Under Voltage Release

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

Direct Rotary Handle

- Padlockable
- Equipped with front cover and handle
- Fixing without any additional screw.

Extended Rotary Handle

- IP 55
- Supplied complete with shaft and handle.

Auxiliary Contacts AX AL

| Description | Cat ref. |
|--|----------|
| 1 changeover contact 250 V AC / 3A, 125 V DC / 0.4A, 1 NO + 1 NC | HXC021H |
| 1 changeover alarm contact 250 V AC / 3A, 125 V DC / 0.4A, 1 NO + 1 NC | HXC024H |
| Low level contact (ON/OFF) 125 V AC, 1 NO + 1 NC | HXC025H |
| Low level alarm contact 125 V AC, 1 NO + 1 NC | HXC026H |

Shunt Trips SH



HXC004H

| Description | Cat ref. |
|----------------|----------|
| 24 V DC | HXC001H |
| 48 V DC | HXC002H |
| 110 V DC | HXC008H |
| 100 - 120 V AC | HXC003H |
| 200 - 240 V AC | HXC004H |
| 380 - 450 V AC | HXC005H |



HXC014H

Undervoltage Releases UV

| Description | Cat ref. |
|----------------|----------|
| 24 V DC | HXC011H |
| 100 - 120 V DC | HXC018H |
| 200 - 240 V DC | HXC019H |
| 100 - 120 V AC | HXC013H |
| 200 - 240 V AC | HXC014H |
| 380 - 450 V AC | HXC015H |

Delayed Undervoltage Releases DUVR

| Description | Cat ref. |
|----------------|----------|
| 24 V DC | HXD051H |
| 100 - 120 V AC | HXD053H |
| 200 - 240 V AC | HXD054H |
| 380 - 450 V AC | HXD055H |

Rotary Handles



HXD030H

| Description | Cat ref. |
|--|----------|
| Direct rotary handle padlockable handle max Ø 6 mm | HXD030H |
| Extended rotary handles, padlockable handle max Ø 8 mm | HXD031H |

Padlock

Description

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

Cat ref.

HXD039H



HXD039H

Motor Operators

Description

24-48 V DC

100-240 V AC

3P Cat ref. 4P Cat ref.

HXD040H **HXD040H**

HXD042H **HXD042H**

Interlocking Kit, Unit, Cable

Description

Interlocking kit wire type set of 2 pieces and cable

3P Cat ref. 4P Cat ref.

HXD065H **HXD065H**

Interlocking unit wire type

HXD066H **HXD066H**

Interlocking mechanical cable 1 m

HXB070H **HXB070H**

Interlocking mechanical cable 1.5 m

HXB071H **HXB071H**

Electrical Interlocks

Description

For motor type A (between 2 630/1000A)

3P Cat ref. 4P Cat ref.

HXD068H **HXD068H**

For motor type B (between 630 and 250A)

HXB069H **HXB069H**



HYD003H

Collar Terminals, Connections & Barriers

Description

Collar terminals set of 3 or 4 pieces for copper conductors 1x35 - 240mm²

In

250 - 400A **HYD003H** **HYD004H**

Set of 3 or 4 terminals for aluminium/copper conductors 1x35 - 240mm²

250 - 400-630A **HYD005H** **HYD006H**

Set of 3 or 4 terminals for multiple aluminium/copper conductors 2x 35 - 240mm²

250 - 400-630A **HYD007H** **HYD008H**

Extended connections set of 4 pieces for straight connections

250 - 400A **HYD010H** **HYD010H**

Extended connections set of 4 pieces for straight connections

630A **HYD013H** **HYD013H**

Extended connections spreader connections

250 - 400A **HYD011H** **HYD012H**

Extended connections spreader connections

630A **HYD014H** **HYD015H**

Interphase barrier set of 4 pieces

HYD019H HYD019H

Rear connections

250 - 400A **HYD031H** **HYD032H**

Rear connections

630A **HYD033H** **HYD034H**

Connecting kit 0,75 mm², set of 3 x 2 wires length: 1.30m

HYA035H **HYA035H**



HYD022H

Terminal Covers

Description

Terminal Covers for extended straight connections

3P Cat ref. 4P Cat ref.

HYD021H **HYD022H**

Terminal Covers for extended straight connections

HYD023H **HYD024H**

Terminal Covers for rear connections

HYD025H **HYD026H**

Terminal Covers for collar terminals

HYD027H **HYD028H**

Ring Lugs

Description

Compact Lugs 120 mm² Ø10

Cat ref.

HYD093H

Compact Lugs 150 mm² Ø10.5

HYD095H

Compact Lugs 185 mm² Ø10.5

HYD096H

Compact Lugs 185 mm² Ø12.8, suitable with spreader

HYD097H

Compact Lugs 240 mm² Ø12.8 suitable with spreader

HYD098H



HNE970H

Moulded Case Circuit Breakers h1000

Electronic Trip Unit LSI

- Long delay (thermal equivalent)
- adjustable: $Ir = 0,4$ to $1 \times In$
- short delay (magnetic equivalent) adjustable: 2,5 to 10 x Ir (630-800A) and 2,5 to 8 x Ir (1000A)
- time delay: 0,1-0,2 s

Connection

- Directly on copper cable terminal, with end lug max. width: 30 mm
- Complies with IEC 60 947-2.
- 3P & 4P (adjustable neutral 0 - 50% - 100%).
- Mechanical test button, lockable settings.

Connection

- Directly on copper cable terminal, with end lug max. width: 50 mm
- Complies with IEC 60 947-2.

Trip-free Switches

- Allows tripping at distance using a voltmeterical trip unit (optional)
- Complies with IEC 60 947-3. AC 23A / DC 22A

MCCBs h1000 50kA LSI

| Description | In | 3P Cat ref. | 4P Cat ref. |
|--|-------|----------------|----------------|
| Breaking capacity Icu : 50 kA (400/415 V AC), Ics : 50 kA adjustable thermal $Ir = 0,4$ to $1 \times In$ adjustable magnetic 2,5 to 10 x Ir (630 - 800A), 2,5 to 8 x Ir (1000A) time delay: 0,1-0,2 s,neutral setting from 0-50 to 100% | 800A | HNE800H | HNE801H |
| | 1000A | HNE970H | HNE971H |

MCCBs h1000 70kA LSI

| Description | In | 3P Cat ref. | 4P Cat ref. |
|--|-------|----------------|----------------|
| Breaking capacity Icu : 70 kA (400/415 V AC) Ics : 50 kA adjustable thermal $Ir = 0,4$ to $1 \times In$ adjustable magnetic 2,5 to 10 x Ir (800A), 2,5 to 8 x Ir (1000A) time delay: 0,1-0,2 s, neutral setting from 0-50 to 100% | 800A | HEE800H | HEE801H |
| | 1000A | HEE970H | HEE971H |

Trip-free Switches

| Description | In | 3P Cat ref. | 4P Cat ref. |
|--|-------|----------------|----------------|
| Suitable for AC 22A / AC 23A, Ue : 415 V AC, Icw (0,3 s) = 10 kA | 800A | HCE800H | HCE801H |
| | 1000A | HCE970H | HCE971H |

Accessories for MCCBs & Trip-free Switches h1000

Indication Contacts

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

Coil connection

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

Shunt trip

- Remote tripping of MCCBs or trip-free switches.
- Operating voltage: 0.7 to 1.1 x Un

Under voltage release

- Allows the tripping of MCCBs or trip-free switches when voltage level drop between 35 and 70% of Un.
- Pick up voltage 0.85 x Un.



HXC021H

HXC024H

 Commercial
Distribution

Auxiliary Contacts AX AL

| Description | Cat ref. |
|--|----------|
| 1 changeover contact 250 V AC / 3A, 125 V DC / 0.4A, 1 NO + 1 NC | HXC021H |
| 1 changeover alarm contact 250 V AC / 3A, 125 V DC / 0.4A, 1 NO + 1 NC | HXC024H |
| Low level contact (ON/OFF) 125 V AC, 1 NO + 1 NC | HXC025H |
| Low level alarm contact 125 V AC, 1 NO + 1 NC | HXC026H |

Shunt Trips SH

| Description | Cat ref. |
|----------------|----------|
| 24 V DC | HXC001H |
| 48 V DC | HXC002H |
| 110 V DC | HXC008H |
| 100 - 120 V AC | HXC003H |
| 200 - 240 V AC | HXC004H |
| 380 - 450 V AC | HXC005H |



HXC004H

Undervoltage Releases UV

| Description | Cat ref. |
|----------------|----------|
| 24 V DC | HXE011H |
| 100 - 120 V DC | HXE018H |
| 200 - 240 V DC | HXE019H |
| 110 - 120 V AC | HXE013H |
| 220 - 240 V AC | HXE014H |
| 380 - 415 V AC | HXE015H |



HXE014H

Delayed Undervoltage Releases DUVR

| Description | Cat ref. |
|----------------|----------|
| 24 V DC | HXE051H |
| 110 - 120 V AC | HXE053H |
| 220 - 240 V AC | HXE054H |
| 380 - 415 V AC | HXE055H |

Rotary Handles

| Description | Cat ref. |
|---|----------|
| Direct rotary handle padlockable handle | HXE030H |
| Extended rotary handles, padlockable handle | HXE031H |



HXE030H



HXD039H

Padlock

Description

Padlock to mount on MCCBs for handle locking for 3 padlock max Ø 8mm

Cat ref.

HXD039H**Motor Operators**

Description

24-48 V DC

Cat ref.

HXE040H

100-240 V AC

HXE042H**Interlocking Kit, Unit, Cable**

Description

Interlocking kit wire type set of 2 pieces and cable

Cat ref.

HXE065H

Interlocking unit wire type

HXE066H

Interlocking mechanical cable 1 m

HXB070H

Interlocking mechanical cable 1.5 m

HXB071H**Electrical Interlocks**

Description

3P Cat ref. 4P Cat ref.

For motor type A (between 2 630/1000A)

HXD068H **HXD068H**

For motor type B (between 630 and 250A)

HXB069H **HXB069H**

HYE031H

Collar Terminals, Connections & Barriers

Description

In 3P Cat ref. 4P Cat ref.

Collar terminals for aluminium / copper conductors 4x35 - 240mm²630 - 800A **HYE007H** **HYE008H**

Interphase barrier set of 4 pieces

HYD019H **HYD019H**

Rear connections

HYE031H **HYE032H**

Rear connections

HYE033H **HYE034H**Connecting kit 0,75 mm², set of 3 x 2 wires length: 1.30m**HYA035H** **HYA035H**

Moulded Case Circuit Breakers h1600

Selection and Protection

- Electronic trip unit LSI
- Long delay (thermal equivalent) adjustable: $Ir = 0,4 \text{ to } 1 \times In$
- Short delay (magnetic equivalent) adjustable: $2,5 \text{ to } 10 \times Ir$
- Time delay: $0,1\text{-}0,2 \text{ s}$, 3 pole, 3 trip units, 4 pole, 4 trip units, adjustable neutral 0 - 50% - 100%
- Mechanical test button, lockable settings.

Connection

- Directly on copper cable terminal, with end lug max. width: 60 mm
- Complies with IEC 60 947-2.

Trip-free Switches

- Allows tripping at distance using a voltmeterical trip unit (optional)
- Complies with IEC 60 947-3. AC 23A / DC 22A.



HNF990H

MCCBs h1600 50kA LSI

| Description | In | 3P Cat ref. | 4P Cat ref. |
|--|-------|----------------|----------------|
| Breaking capacity $Icu : 50 \text{ kA}$ (400/415 V AC), $Ics: 50 \text{ kA}$ adjustable thermal $Ir = 0,4 \text{ to } 1 \times In$, adjustable magnetic 2.5 to 10 x Ir time delay: 0.1-0.2 s, neutral setting 0, 50, 100% | 1250A | HNF980H | HNF981H |
| | 1600A | HNF990H | HNF991H |

MCCBs h1600 70kA LSI

| Description | In | 3P Cat ref. | 4P Cat ref. |
|---|-------|----------------|----------------|
| Breaking capacity $Icu : 70 \text{ kA}$ (400/415 V AC), $Ics: 50 \text{ kA}$ adjustable thermal $Ir = 0,4 \text{ to } 1 \times In$, adjustable magnetic 2.5 to 10 x Ir time delay: 0.1-0.2 s, neutral setting from 0, 50, 100% | 1250A | HEF980H | HEF981H |
| | 1600A | HEF990H | HEF991H |

Trip-free Switches

| Description | In | 3P Cat ref. | 4P Cat ref. |
|---|-------|----------------|----------------|
| Suitable for AC 22A / AC 23A, $Ue : 415 \text{ V AC}$, $Icw (0,3 \text{ s}) = 20 \text{ kA}$ | 1250A | HCF980H | HCF981H |
| | 1600A | HCF990H | HCF991H |



HXC021H

HXC024H

Accessories for MCCBs & Trip-free Switches h1600

Indication Contacts

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

Coil connection

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

Shunt trip

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

Under voltage release

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

Direct rotary handle

- Padlockable
- Equipped with front cover and handle
- Fixing without any additional screw.
- **Extended rotary handle**
- IP 55
- Supplied complete with shaft and handle.

Rear connection: included

Auxiliary Contacts AX AL

| Description | Cat ref. |
|--|----------|
| 1 changeover contact 250 V AC / 3A, 125 V DC / 0,4A, 1 NO + 1 NC | HXC021H |
| 1 changeover alarm contact 250 V AC / 3A, 125 V DC / 0,4A, 1 NO + 1 NC | HXC024H |
| Low level contact (ON/OFF) 125 V AC, 1 NO + 1 NC | HXC025H |
| Low level alarm contact 125 V AC, 1 NO + 1 NC | HXC026H |



HXF004H

Shunt Trips SH

| Description | Cat ref. |
|----------------|----------|
| 24 V DC | HXF001H |
| 48 V DC | HXF002H |
| 110 V DC | HXF008H |
| 100 - 120 V AC | HXF003H |
| 200 - 240 V AC | HXF004H |
| 380 - 450 V AC | HXF005H |



HXE014H

Undervoltage Releases UV

| Description | Cat ref. |
|----------------|----------|
| 24 V DC | HXE011H |
| 100 - 120 V DC | HXE018H |
| 200 - 240 V DC | HXE019H |
| 110 - 120 V AC | HXE013H |
| 220 - 240 V AC | HXE014H |
| 380 - 415 V AC | HXE015H |

Delayed Undervoltage Releases DUVR

| Description | Cat ref. |
|----------------|----------|
| 24 V DC | HXF051H |
| 110 - 120 V AC | HXF053H |
| 220 - 240 V AC | HXF054H |
| 380 - 415 V AC | HXF055H |

Rotary Handles

| Description | Cat ref. |
|--|----------------|
| Direct rotary handle padlockable handle max Ø 8 mm | HXF030H |
| Extended rotary handles, padlockable handle max Ø 8 mm | HXF031H |

Padlock

| Description | Cat ref. |
|--|----------------|
| Padlock to mount on MCCBs for handle locking for 3 padlock max Ø 8mm | HXF039H |

Motor Operators

| Description | Cat ref. |
|----------------|----------------|
| 24 V DC | HXF040H |
| 200 - 230 V AC | HXF042H |

Interphase Barriers

| Description | Cat ref. |
|--------------------------------------|----------------|
| Interphase barriers, set of 4 pieces | HYD019H |

Connection Kit

| Description | Cat ref. |
|---|----------------|
| Connection kit 0,75 mm ² set of 3 x 2 wires, length: 1.30m | HYA035H |



Air Circuit Breakers HWT up to 6300A

- The ACB is delivered factory assembled. Various data can be displayed on LCD:
- Phase current (A) of I₁, I₂, I₃ and their max. peak current
- Line voltage (V) of V₁₂, V₂₃, V₃₁ and their max. peak voltage (or Phase voltage (V) of V_{1N}, V_{2N}, V_{3N} and their peak voltage)
- Demand active power max. (kW)
- Power factor ($\cos \phi$)
- Electric energy (kWh)
- Frequency (Hz)
- Trip history

The complete data can be displayed via the communication module as well.

The range

- 3 sizes up to 6300A
- 2 width up to 4000A
- 3P and 4P with neutral on the left
- Standard breaking capacity (S) 65, 85 and 120kA and high level capacity (H) 80 and 100kA according to the size
- One single mounting depth for fixed type
- Same cut-out on front panel for all the sizes.

For further information on Air Circuit Breakers please contact customer.service@hager.ie.

| | HWT2 | HWT3 | | HWT6 | | |
|--|---|---------------------------------|--------------------------|---|--------------------------|---------------------------|
| Series | S | H | S | H | S | |
| In | 800/1250/ | 1250/1600/ | 2500/3200 | 1600/2000/ | 4000 | 5000/6300 |
| Rated current (A) | 1600/2000 | 2000 | 2500/3200 | | | |
| In | 800/1250/ | 1250/1600/ | 2500/3200 | 1600/2000/ | 4000 | 5000/6300 |
| Neutral pole amperes frame (A) | 1600/2000 | 2000 | 2500/3200 | | | |
| Reference | HWT208S/ HWT212S/ HWT216S/ HWT220S | HWT212H/ HWT216H/ HWT220H | HWT325S/ HWT332S | HWT316H/ HWT320H/ HWT325H/ HWT332H | HWT440SB | HWT650S/ HWT663S |
| I _{cs} = I _{cu} breaking capacity in case of short-circuit | | | | | | |
| (kA, symmetrical peak current value) | 690V 440V 400/415V | 50 65 65 | 55 80 80 | 65 85 85 | 85 100 100 | 85 100 100 |
| I _{cm} rated short-circuit breaking current | | | | | | |
| (kA, asymmetrical peak current value) | 690V 440V 400/415V | 105 143 143 | 121 176 176 | 143 187 187 | 187 220 220 | 187 220 220 |
| I _{cw} rated short time withstand current | | | | | | |
| (kA r.m.s.) | 1 second 3 seconds | 65 50 | 80 55 | 85 65 | 100 75 | 100 85 |
| No of operating cycles | | | | | | |
| Mechanical life (with maintenance) | 30000 | 30000 | 20000 | 20000 | 15000 | 10000 |
| Mechanical life (without maintenance) | 15000 | 15000 | 10000 | 10000 | 8000 | 5000 |
| Electrical life (with maintenance AC 460V) | 12000 | 12000 | 7000 | 7000 | 3000 | 1000 |
| Electrical life (without maintenance AC 690V) | 10000 | 10000 | 5000 | 5000 | 2500 | 500 |
| Time | | | | | | |
| Max. opening time (sec.) | 0,03 | 0,03 | 0,03 | 0,03 | 0,03 | 0,03 |
| Max. spring charging time (sec.) | 10 | 10 | 10 | 10 | 10 | |
| Max. closing time (sec.) | 0,08 | 0,08 | 0,08 | 0,08 | 0,08 | 0,08 |
| Dimensions | | | | | | |
| Fixed type (mm) | width 3P width 4P height depth | 360 445 460 290 | 466 586 460 290 | 466 586 460 290 | - - - - | - - - - |
| Draw-out type (mm) | width 3P width 4P height depth | 354 439 460 345 | 354 439 460 345 | 460 580 460 345 | 460 580 460 345 | 799 1034 460 380 |

The following values are the same for all the sizes :

Rated operational voltage U_e (50/60Hz) - 690V

AC rated insulation voltage U_i (50/60Hz) - 1000V

Rated impulse withstand voltage U_{imp} - 12 kV

Standards : CEI 60947-2. EN 60947-2

Load Break Switches with Visual Breaking 20 to 125A

Characteristics

- Load break switches with visual breaking, 20 to 125A
- Modular design,
- To mount directly on DIN rail,
- Lockable in OFF position.
- Complies with NF EN 60 947-3.

Connection

- With collar terminals copper conductors compatible.

Connection Capacity

- HAB 20 to 63A: 16 mm² flexible or rigid cables
- HAC 60 to 100A: 35 mm² flexible or rigid cables
- HAD 100 and 125A: 70 mm² flexible or rigid cables



HAB406

Load Break Switches with Visual Breaking

| Description | In | 3P width in modules | 4P width in modules | 3P Cat ref. | 4P Cat ref. |
|--|------|---------------------|---------------------|---------------|---------------|
| Disconnector, modular design, IP20, In=Ith, AC23 | 20A | 2,6 | 3,5 | HAB302 | HAB402 |
| | 32A | 2,6 | 3,5 | HAB303 | HAB403 |
| | 40A | 2,6 | 3,5 | HAB304 | HAB404 |
| | 63A | 2,6 | 3,5 | HAB306 | HAB406 |
| | 63A | 3 | 4,5 | HAC306 | HAC406 |
| | 80A | 3 | 4,5 | HAC308 | HAC408 |
| | 100A | 3 | 4,5 | HAC310 | HAC410 |
| | 100A | 4,5 | 6 | HAD310 | HAD410 |
| | 125A | 4,5 | 6 | HAD312 | HAD412 |

External Handles

| Description | 3P Cat ref. | 4P Cat ref. |
|---|---------------|---------------|
| External handles IP55 lockable with 3 padlocks, for LBS 20 to 100A | HZC010 | HZC010 |
| External handles IP55 lockable with 3 padlocks, for LBS 100 to 125A | HZC011 | HZC011 |



HZC113

Shaft Extensions

| Description | 3P Cat ref. | 4P Cat ref. |
|------------------------------------|---------------|---------------|
| Shaft extensions 20 to 125A, 150mm | HZC111 | HZC111 |
| Shaft extensions 20 to 125A, 200mm | HZC112 | HZC112 |
| Shaft extensions 20 to 125A, 320mm | HZC113 | HZC113 |



HZC212

Terminal Shrouds

| Description | 3P Cat ref. | 4P Cat ref. |
|---|---------------|---------------|
| Terminal shrouds top and bottom 20 to 63A | HZC211 | HZC212 |
| Terminal shrouds top and bottom 63 to 100A | HZC213 | HZC214 |
| Terminal shrouds top and bottom 100 to 125A | HZC215 | HZC216 |



HZC311

Auxiliaries Contacts

| Description | 3P width in modules | 4P width in modules | 3P Cat ref. | 4P Cat ref. |
|--|---------------------|---------------------|---------------|---------------|
| Auxiliaries contacts In = 10A, 1O + 1F | 0,5 | 0,5 | HZC311 | HZC311 |
| Auxiliaries contacts In = 10A, 2F | 0,5 | 0,5 | HZC312 | HZC312 |

Load Break Switches

Load Break Switches with Visual Breaking 100 to 400A



HAE416

Load Break Switches with Visible Breaking, 100 to 400A

Characteristics

- Modular design, to mount directly on DIN rail for LBS up to 200A
- Lockable in OFF position.
- HA964N and HA966N are with double visible breaking (upstream and downstream). Mounting on plate.
- Complies with NF EN 60 947-3.

Connection

- HAE: with collar terminals copper conductors compatible
- HA308, HA408, HA964N and HA966N on terminal.

Connection capacity

- HAE 100 to 160A: 70 mm² flexible or rigid cables
- HA308, HA408: 95 mm² end lugs,
- HA964N: 150 mm² end lugs,
- HA966N: 240 mm² end lugs.

Load Break Switches with Visual Breaking

| Description | In | 3P width in modules | 4P width in modules | 3P Cat ref. | 4P Cat ref. |
|------------------------------------|------|---------------------|---------------------|---------------|---------------|
| Disconnector, modular design, IP20 | 100A | 6,5 | 8 | HAE310 | HAE410 |
| | 125A | 6,5 | 8 | HAE312 | HAE412 |
| | 160A | 6,5 | 8 | HAE316 | HAE416 |
| | 200A | 8,5 | 8,5 | HA308 | HA408 |
| | 250A | | 11,5 | - | HA964N |
| | 400A | | 19,5 | - | HA966N |

External Handles



HZC014

| Description | 3P Cat ref. | 4P Cat ref. |
|---|---------------|---------------|
| External handles IP55 lockable with 3 padlocks, for LBS 100 to 160A | HZC014 | HZC014 |
| External handles IP55 lockable with 3 padlocks, for HA308, HA408, HA964N and HA966N | HZC001 | HZC001 |

Shaft Extensions

| Description | 3P Cat ref. | 4P Cat ref. |
|--|---------------|---------------|
| Shaft extensions 200 mm, for HA308 and HA408 | HZC103 | HZC103 |
| Shaft extensions 300 mm, for HA308 and HA408 | HZC104 | HZC104 |
| Shaft extensions for HAE 100 to 160A, 150mm | HZC114 | HZC114 |
| Shaft extensions for HAE 100 to 160A, 200mm | HZC115 | HZC115 |
| Shaft extensions for HAE 100 to 160A, 320mm | HZC116 | HZC116 |

Terminal Shrouds

| Description | 3P Cat ref. | 4P Cat ref. |
|---|---------------|---------------|
| Terminal shrouds top and bottom 100 to 160A | HZC217 | HZC218 |
| Terminal shrouds top and bottom for HA408 | - | HZ062 |
| Terminal shrouds top and bottom for HA964N | HZ095 | HZ095 |
| Terminal shrouds top and bottom for HA966N | HZ096 | HZ096 |

Collar Terminals

| Description | 3P Cat ref. | 4P Cat ref. |
|--|--------------|--------------|
| Collar terminals for HA308 and HA408 copper, 95mm ² | HZ082 | HZ082 |
| Collar terminals for HA964, aluminium/copper, 185mm ² | HZ093 | HZ093 |



HZ022

Auxiliaries Contacts

| Description | 3P width in modules | 4P width in modules | 3P Cat ref. | 4P Cat ref. |
|---|---------------------|---------------------|--------------|--------------|
| Auxiliaries contacts 1NC + 1NO, for HA308 and HA408 | 0.5 | 0.5 | HZ022 | HZ022 |

Load Break Switches with Rotary Handle

Characteristics

- I_{th} (40°): 125 to 1600A, Un 400 / 690V AC
- Insulating voltage U_i: from 160 to 400A: 800V AC, 630A: 1000V AC
- Delivered with: 1 lockable handle, fixing screws and nuts, tightening programming segments
- For main and/or modular breaking, to use in commercial premises.
- 3P and 4P switches with visible breaking, with sudden double breaking, positive action opening, breaking or engagement visualisation, self cleaning silver plated copper contacts.
- Complies with EN 60 947-3.

Connection

- In 160A: 95 mm² max.
- In 250A: 150 mm² max.
- In 400A: 240 mm² max. or 2 x 150 mm² max.

Options

- Extended handle;
- Auxiliary contact.

Note

- Handle and shaft must be ordered separately.
- Fiberglass reinforced polyester case, self extinguishable, resists to creepage distance and arc, tropicalised.

Load Break Switches with Rotary Handle

| Description | In | 3P Cat ref. | 4P Cat ref. |
|--------------------------------|-------|--------------|--------------|
| switches with visible breaking | 125A | HA351 | HA451 |
| | 160A | HA352 | HA452 |
| | 200A | HA353 | HA453 |
| | 250A | HA354 | HA454 |
| | 400A | HA357 | HA457 |
| | 630A | HA358 | HA458 |
| | 800A | HA360 | HA460 |
| | 1250A | HA362 | HA462 |
| | 1600A | HA364 | HA464 |



HA358

Accessories

| Description | In | 3P Cat ref. | 4P Cat ref. |
|--|--------------------------------------|---------------|---------------|
| Auxiliary contacts suitable for HA load break switches | 1NO + 1NC, AC1, 5A, 250V 125 - 1600A | HZ023 | HZ023 |
| Rotary handles for extended shaft | 125 - 630A | HZC002 | HZC002 |
| Rotary handles for extended shaft | 800 - 1600A | HZC003 | HZC003 |
| Shaft extensions 200mm | 63 - 630A | HZC101 | HZC101 |
| Shaft extensions 320mm | 160 - 630A | HZC102 | HZC102 |
| Shaft extensions 200mm | 800 - 1600A | HZC105 | HZC105 |
| Shaft extensions 320mm | 800 - 1600A | HZC106 | HZC106 |
| Terminal shields top and bottom for switches: | HA351, HA352 | HZ033 | - |
| | HA451, HA452 | - | HZ043 |
| | HA354, HA357 | HZ034 | - |
| | HA454, HA457 | - | HZ044 |
| | HA358 | HZ035 | - |
| | HA458 | - | HZ045 |
| | HA360 | HZ036 | - |
| | HA460 | - | HZ046 |
| | HA362, HA364 | HZ037 | - |
| | HA462, HA464 | - | HZ047 |
| Terminal shrouds for switches: | HA351, HA352 | HZC201 | - |
| | HA451, HA452 | - | HZC202 |
| | HA354, HA357 | HZC203 | - |
| | HA454, HA457 | - | HZC204 |
| | HA358 | HZC205 | - |
| | HA458 | - | HZC206 |



HZC101



HFD312

Switch Fuses 3 & 4 Pole

Characteristics

- The HFD Series of Hager isolators are manually operated multipolar fuse combination switches. They break or switch off on load and provide safety isolation with protection against over current for any low voltage electrical circuit.
- Double break by phase (top and bottom of fuse)
- Protection against overcurrent by fuse circuit-breakers with high breaking capacity (100 kA eff.)
- IP2 protection with terminal shrouds
- Compact
- TEST position for testing control circuits without power using U type auxiliary contacts.

Complies with standards

- IEC 6094-3
- IEC 60269-1
- IEC 60269-2
- EN 60947-3
- DIN 43620
- VDE 0636-10
- VDE 0660 Part 107

Note: Handle and shaft must be ordered separately.

Switch Fuses 3 & 4 Pole

| Description | In | Fuse sizes | Length mm | Modules 17.5mm | 4P Cat ref. |
|----------------------|-----|------------|-----------|----------------|---------------|
| Switch fuses, 3 Pole | 63 | 000 | 120 | min. 24 | HFD306 |
| | 125 | 00 | 120 | min. 24 | HFD312 |
| | 160 | 000 | 120 | min. 24 | HFD316 |
| | 250 | 1 | 120 | min. 72 | HFD325 |
| | 400 | 2 | 120 | min. 72 | HFD340 |
| | 630 | 3 | 120 | min. 96 | HFD363 |
| Switch fuses, 4 Pole | 63 | 000 | 120 | min. 24 | HFD406 |
| | 125 | 00 | 120 | min. 24 | HFD412 |
| | 160 | 00 | 120 | min. 24 | HFD416 |
| | 250 | 1 | 120 | min. 72 | HFD425 |
| | 400 | 2 | 120 | min. 72 | HFD440 |
| | 630 | 3 | 120 | min. 96 | HFD463 |

Accessories



HZC101

| Description | | | 4P Cat ref. |
|---|---------------------------|--|---------------|
| Shaft extension 200mm | 63 to 400A | | HZC101 |
| Shaft extension 320mm | 63 to 400A | | HZC102 |
| Shaft extension 200mm | 630A | | HZF102 |
| Interlocked handle (colour black) | 63A | | HZC001 |
| | 100 to 400A | | HZC002 |
| | 630A | | HZF001 |
| Auxiliary contacts suitable for switches 63 to 630A | NO | | HZF301 |
| | NC | | HZF302 |
| Set of IP20 terminal shrouds, top or bottom | 3 poles In/A: 100 to 160A | | HZF202 |
| | 4 poles In/A: 100 to 160A | | HZF203 |
| | 3 poles In/A: 250 to 400A | | HZF204 |
| | 4 poles In/A: 250 to 400A | | HZF205 |
| | 3 poles In/A: 630A | | HZF206 |
| | 4 poles In/A: 630A | | HZF207 |
| Neutral link | In/A: 63A | | HZF501 |
| | In/A: 125 / 160A | | HZF502 |
| | In/A: 250A | | HZF503 |
| | In/A: 400A | | HZF504 |
| | In/A: 630A | | HZF505 |



HZC001



HZF502

Earth Leakage Relays & Toroidal Transformers
Characteristics

- Technical characteristics
- Voltage range : 230V +/- 20%
- Network voltage: 50 to 700 V
- Frequency: 50 / 60 Hz
- Working temperature: 10 to +55°C
- Storage temperature: -25 to +70°C
- Max. cable lenght to toroids: 25m non-twisted cable 0,5 to 1,5mm², 50m twisted cable
- Standards: IEC 60755, IEC 947-2 annex B, IEC 61543 IEC 61008-1



HR525

Torroids

- Frequency: 50 / 60 Hz
- Working temperature: 10 to +55°C
- Storage temperature: 25 to +70°C
- IP rating: IP 41

Commercial Distribution

Earth Leakage Relays Non Adjustable & Adjustable

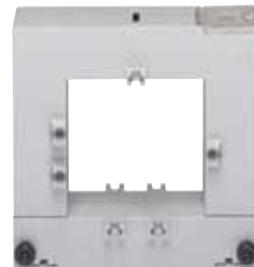
| Description | | Power absorbed | Positive safety contact | Cat ref. |
|-------------------------------------|--|----------------|-------------------------|--------------|
| Earth leakage relays non adjustable | fixed $I\Delta n$: 0.03A, instantaneous tripping | 3VA | | HR500 |
| | | 3VA | | HR502 |
| Earth leakage relays adjustable | adjustable $I\Delta n$: 0,03-0,1-0,3-0,5-1-3-10A adjustable delay: 0-0,1-0,3-0,4-0,5-1-3 s | 5VA | 1 C/O | HR510 |
| | adjustable $I\Delta n$: 0,03-0,1-0,3-0,5-1-3-10A adjustable delay: 0-0,1-0,3-0,4-0,5-1-3 s | 5VA | 1 C/O | HR520 |
| | adjustable $I\Delta n$: 0,03-0,1-0,3-0,5-1-3-10A adjustable delay: 0-0,1-0,2-0,25-0,3-0,4-0,5 s | 5VA | 1 C/O | HR522 |
| | adjustable $I\Delta n$: 0,5-1-3-5-10-20-30A adjustable delay: 0-0,1-0,2-0,25-0,3-0,4-0,5 s | 5VA | 1 C/O | HR523 |
| | adjustable $I\Delta n$: 0,03-0,1-0,3-0,5-1-3-10A adjustable delay: 0-0,1-0,3-0,4-0,5-1-3 s | 6VA | 1 C/O | HR525 |
| | adjustable $I\Delta n$: 0,03-0,1-0,3-0,5-1-3-10-30A Instantaneous / sel / adjustable delay: 0-0,1-0,3-0,4-0,5-1-3 s | 6VA | 1 C/O | HR534 |

Torroids

| Description | | Cat ref. |
|---------------------------|------------------|--------------|
| Circular torroids | Internal Ø 30 mm | HR700 |
| | Internal Ø35 mm | HR741 |
| | Internal Ø70 mm | HR742 |
| | Internal Ø105 mm | HR743 |
| | Internal Ø140 mm | HR744 |
| | Internal Ø210 mm | HR745 |
| Open rectangular torroids | 80 x 80 mm | HR822 |
| | 80 x 120 mm | HR823 |
| | 80 x 160 mm | HR824 |
| Rectangular torroids | 75 x 175 mm | HR830 |
| | 115 x 305 mm | HR831 |
| | 150 x 350 mm | HR832 |



HR700



HR822



HR831



HIM408

Manual & Modular Changeover Switches 20 to 125A

Characteristics

- Allows manual switch, changeover switch or on load power circuit permutation.
- For safety breaking.
- 3P/4P
- Modular design
- Mounting on DIN rail
- Lockable on position: I, O or II.
- Each switch can be equipped with 2 auxiliary contacts blocks max.
- One block is composed of 3 auxiliary contacts (positions I, O and II).
- Complies with EN 60 947-3.
- Connection for copper conductors with collar terminals.

Connection capacity

- HIM402/HIM404: 16 mm² flexible or rigid;
- HIM406/HIM408: 35 mm² flexible or rigid;
- HI405R/HI406R: 50 mm² flexible or rigid.

Changeover Switches

| Description | In | 3P mod width | 4P mod width | 3P Cat ref. | 4P Cat ref. |
|--|------|--------------|--------------|---------------|---------------|
| Changeover switches with visual breaking, disconnector modular design, 3 positions: 0-I-II, IP20 | 20A | 5 | 7 | HIM302 | HIM402 |
| | 40A | 5 | 7 | HIM304 | HIM404 |
| | 63A | 6 | 8 | HIM306 | HIM406 |
| | 80A | 6 | 8 | HIM308 | HIM408 |
| Changeover switches with visible breaking | 100A | | 12.5 | | HI405R |
| | 125A | | 12.5 | | HI406R |

Accessories



HZC016



HZC212



HZC311

| Description | 4P Cat ref. | 4P Cat ref. |
|---|---------------|---------------|
| External handles, 3 positions: 0-I-II, lockable with 3 padlocks, for HIM 20 to 80A | HZC016 | HZC016 |
| External handles, 3 positions: 0-I-II, lockable with 3 padlocks, for HI 100 to 125A | HZI004 | HZI004 |
| Shaft extensions for HIM 20 to 80A, 150mm | HZC111 | HZC111 |
| Shaft extensions for HIM 20 to 80A, 200mm | HZC112 | HZC112 |
| Shaft extensions for HIM 20 to 80A, 300mm | HZC113 | HZC113 |
| Shaft extensions for HI 100 to 125A, 200mm | HZC103 | HZC103 |
| Shaft extensions for HI 100 to 125A, 300mm | HZC104 | HZC104 |
| Terminal shrouds top and bottom (2 pieces), for HIM 20 to 40A | HZC211 | HZC212 |
| Terminal shrouds top and bottom (2 pieces), for HIM 63 to 80A | HZC213 | HZC214 |
| Terminal shrouds top and bottom (2 pieces), for HI 100 to 125A | - | HZ062 |
| Auxiliaries contacts (mod. width 0.5) for HIM 20 to 80A, 1NO + 1NC | HZC311 | HZC311 |
| Auxiliaries contacts (mod. width 0.5) for HIM 20 to 80A, 2NC | HZC312 | HZC312 |
| Auxiliaries contacts (mod. width 0.5) for HI 100 to 125A, 1NO + 1NC | - | HZ160R |
| Insulated busbars for HIM 20 to 40A | HZC706 | - |
| Insulated busbars for HIM 63 to 80A | - | HZC709 |
| Insulated busbars for HI 100 to 125A | - | HZ156R |
| Connection terminals for HI 100 to 125A | - | HZ082 |
| Terminal covers and connection terminals for HI 100 to 125A | - | HZ092 |

Manual & Non-Modular Changeover Switches 125 to 1600A

Characteristics

- Allows manual switch, changeover switch or on load power circuit permutation.
- For safety breaking.
- 4P.
- mounting on perforated plates or crossbars .
- lockable on position: I, O or II.
- HI452, HI454 and HI456 can be mounted in Quadro and Univers distribution boards.
- HI458 is only recommended for Quadro+. For mounting in Quadro or Univers, contact us.
- Complies with EN 60 947-3.
- Connection with terminals.



HI452

Commercial
Distribution

Manual & Non-Modular Changeover Switches 125 to 1600A

| Description | | In | Cat ref. |
|-------------------------|--------------------|-------|--------------|
| Changeover switches, 4P | non-modular design | 125A | HI451 |
| | | 160A | HI452 |
| | | 250A | HI454 |
| | | 400A | HI456 |
| | | 630A | HI458 |
| | | 800A | HI460 |
| | | 1250A | HI462 |
| | | 1600A | HI464 |

Accessories

| Description | | Cat ref. |
|--|--------------------------------|---------------|
| External handle, 3 positions: 0-I-II, locked with 3 padlocks | for HI 125 to 630A | HZI002 |
| | for HI 800 to 1600A | HZI003 |
| Shaft extension | for HI 125 to 630A, 200mm | HZC101 |
| | for HI 125 to 630A, 320mm | HZC102 |
| | for HI 800 to 1600A, 200mm | HZC105 |
| | for HI 800 to 1600A, 320mm | HZC106 |
| Terminal shrouds top and bottom (2 pieces) | for HI 125 to 200A | HZC202 |
| | for HI 200 to 400A | HZC204 |
| | for HI 400 to 630A | HZC206 |
| Auxiliaries contacts | for HI 125 to 1600A, 1NO + 1NC | HZ160 |
| Insulated busbars | for HIM 20 to 40A | HZC707 |
| | for HIM 63 to 80A | HZC709 |
| | for HI 100 to 125A | HZ156R |
| Terminal shield top and bottom | for HI460 | HZ163M |
| | for HI462 and HI464 | HZ164M |
| Busbars | for HI451 and HI452 | HZ156 |
| | for HI454 | HZ157 |
| | for HI456 | HZ158 |
| | for HI458 | HZ159 |
| | for HI460 | HZ160M |
| | for HI462 | HZ161M |
| | for HI464 | HZ162M |



HZI002



HZC101



HZ160



HZC202



HZC707



HIC416A

Manual & Modular Changeover Switches 20 to 160A

Characteristics

- Allows automated switch, changeover switch or on load power circuit permutation.
- For safety breaking.
- 4P
- lockable on position: O.
- Controller and two built-in supplies.
- Mounting on perforated plate or directly on DIN rail.
- Each product can be equipped with 2 auxiliary contacts blocks max.
- One block is composed of 3 auxiliary contacts (positions I, O and II).
- Complies with EN 60 947-3.
- Connection on copper conductors with collar terminals.
- Connection capacity 70 mm² flexible or rigid.

Motorised Changeover Switches

| Description | In | Cat ref. |
|--|------|----------------|
| Motorised Changeover Switches, 4P, modular design, 3 positions: 0-I-II | 20A | HIC402A |
| | 40A | HIC404A |
| | 63A | HIC406A |
| | 80A | HIC408A |
| | 100A | HIC410A |
| | 125A | HIC412A |
| | 160A | HIC416A |



HZI300

Accessories

| Description | Cat ref. |
|--|---------------|
| Terminal shrouds top and bottom (2 pieces), for HI 100 to 160A, sealable | HZC218 |
| Auxiliaries contacts for HIC 20 to 160A, 1NO + 1NC | HZI300 |
| Single phase voltage sensing taps for switch control circuit supply, 2 conductors / pole | HZI230 |
| Bridging bars, 2 x 4P, for 63 to 125A | HZI400 |
| Bridging bars, 2 x 4P, for 160A | HZI401 |
| Sealable cover | HZI210 |



HZI230



HZI401

Motorised & Non-Modular Changeover Switches 125 to 1600A

Characteristics

- Allows automated switch, changeover switch or on load power circuit permutation.
- For safety breaking.
- 4P.
- Lockable on position: O.
- Mounting on plain or perforated plate.
- HIB is only recommended for Quadro+. For mounting in Quadro or Univers, contact us.
- Double power supply HZI811 controls HIB switches.
- HZI812 should be used to supply HZI811 and motorized control of HIB to avoid control circuit breaking.
- Complies with NF EN 60 947-3.
- Connection with terminals.



HIB492

Commercial
Distribution

Motorised & Non-Modular Changeover Switches 125 to 1600A

| Description | In | W/o autom. transf. relay Cat ref. | With autom. transf. relay Cat ref. | With energy mgmt. Cat ref. |
|-----------------------------------|---------------------|---|--|----------------------------------|
| Motorised changeover switches, 4P | 3 positions: 0-I-II | 125A | HIB412M | HIC412G |
| | | 160A | HIB416M | HIC416G |
| | | 200A | HIB420M | HIC420G |
| | | 250A | HIB425M | HIC425G |
| | | 400A | HIB440M | HIC440G |
| | | 630A | HIB463M | HIC463G |
| | | 800A | HIB480M | HIC480G |
| | | 1000A | HIB490M | HIC490G |
| | | 1250A | HIB491M | HIC491G |
| | | 1600A | HIB492M | HIC492G |
| | | 2000A | HIB493M | HIC493G |
| | | 2500A | HIB494M | HIC494G |
| | | 3200A | HIB495M | HIC495G |

Accessories

| Description | | W/o autom. transf. relay Cat ref. | With autom. transf. relay Cat ref. |
|---|---------------------------------------|---|--|
| Terminal shrouds top & bottom, 2 pieces | for switches 125 to 200A | HZC202 | HZC202 |
| | for switches 250 to 400A | HZC204 | HZC204 |
| | for switches 630A | HZC206 | HZC206 |
| Terminal covers | for switches 125 to 160A | HZI201 | HZI201 |
| | for switches 250 to 400A | HZI202 | HZI202 |
| | for switches 630A | HZI203 | HZI203 |
| | for switches 800 to 1250A | HZI204 | HZI204 |
| | for switches 1600A | HZI205 | HZI205 |
| | for switches 2000/2500/3200A | HZI206 | HZI206 |
| Busbars | for switches 125, 160, 200A | HZ156 | HZ156 |
| | for switches 250A | HZ157 | HZ157 |
| | for switches 400A | HZ158 | HZ158 |
| | for switches 630A | HZ159 | HZ159 |
| | for switches 800 to 1000A | HZ162 | HZ162 |
| | for switches 1250A | HZ163 | HZ163 |
| | for switches 1600A | HZ164 | HZ164 |
| | for switches 2000/2500/3200A | HZ166 | HZ166 |
| Automatic transfer relays | controller | HZI811 | - |
| | double power supply | HZI812 | - |
| Remotes | changeover status display | HZI910 | HZI910 |
| | changeover status and control display | HZI911 | HZI911 |
| | auto/manual selection key | HZI010 | HZI010 |



HZC204

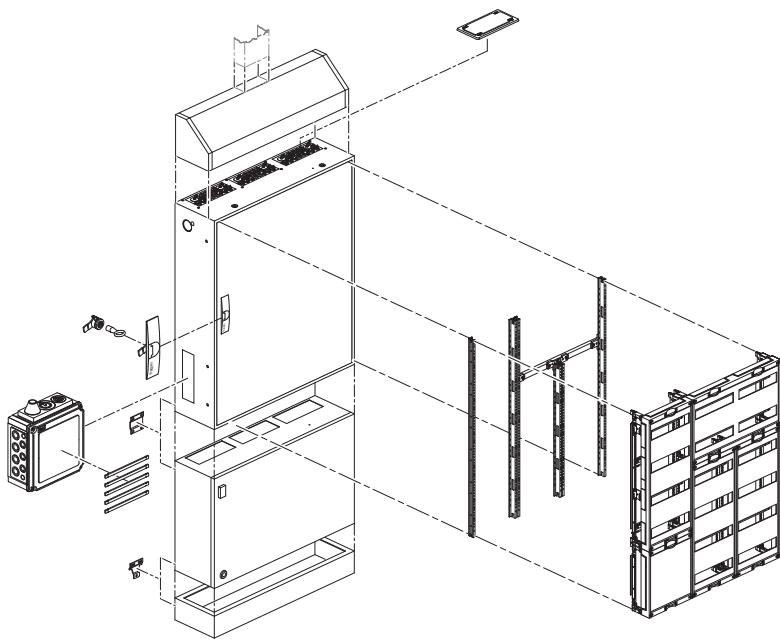


HZ159

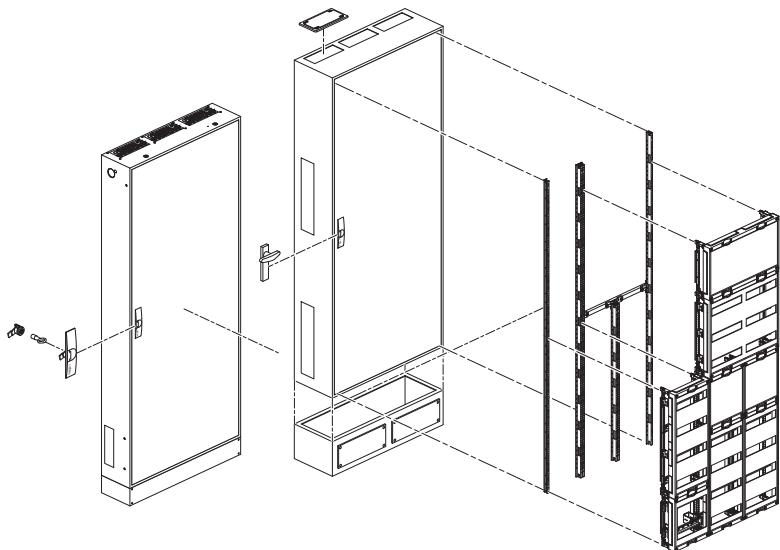


HZI811

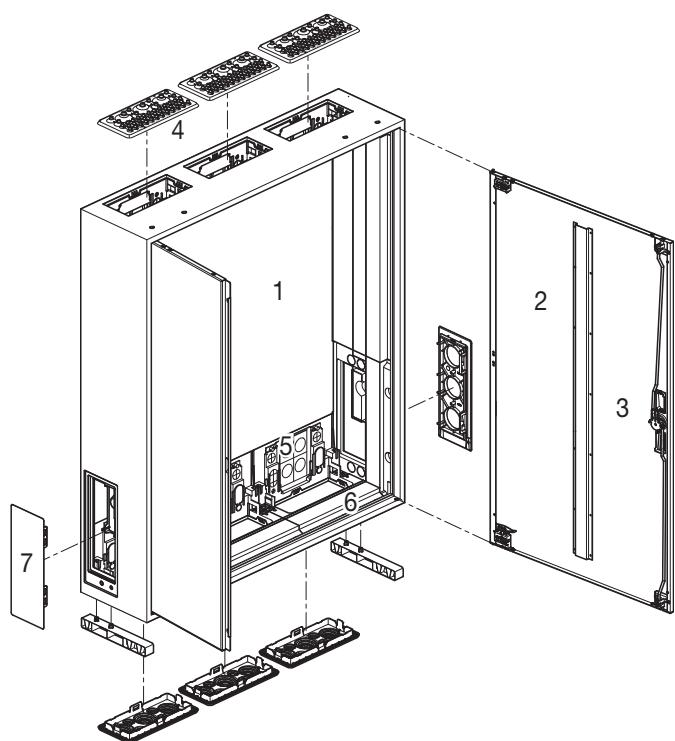
Wall cabinets



Free-standing cabinets



IP44/IP54 series

**Wall cabinets**

- Protection class II
- IP44 degree of protection
- Can be used for wall, flush and partially recessed mounting
- Height 800, 950, 1100, 1250 and 1400 mm
- Width 1 to 5 panels
- Depth 160 mm and 205 mm
- Colour: RAL 9010 (Pure white)
- For fixed indoor installation
- For mounting Univers Z and Univers N interior systems (Univers N not for cabinet depth 160 mm)

Comprising:**1 Body**

- 1 mm sheet steel, powder-coated
- Two-sided opening for busbar bushing in the lower section 7
- Can be flange-mounted adjacent to or above each other

2 Door

- 1 mm sheet steel, powder-coated
- Front-flush, can be hinged on the right or left
- Can be dismantled without tools
- Interior, adjustable hinges
- Door opening angle 110°
- Two doors from cabinet width of 800 mm

3 Door lock

- Three-point rod lock
- Sealable as standard (IP44)
- Can be replaced with other closures

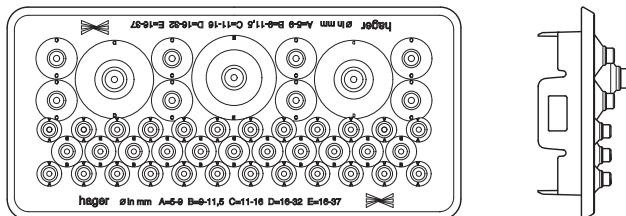
Standards and regulations

- Tested in accordance with DIN VDE 0603 part 1, with VDE symbol
- Dimensions in accordance with DIN 43870
- IP44/IP54 degree of protection in accordance with VDE 0470 part 1 (DIN EN 60529)
- IP3X degree of protection with open door
- Clearance and creepage distance in accordance with VDE 0110, part 1 and 2
- Overvoltage category IV (eHZ)
- Degree of contamination 3
- Double insulated
- 230/400 V AC, 50 Hz
- Maximum feed current 355 A

Cable entries

Cable entry flanges at the bottom and top are rotatable and can be exchanged.

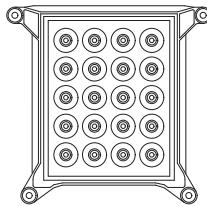
4 Cable entries per panel: Top (distribution cabinet flange)



Two-component plastic entry for tool-free processing,
46 cable entries

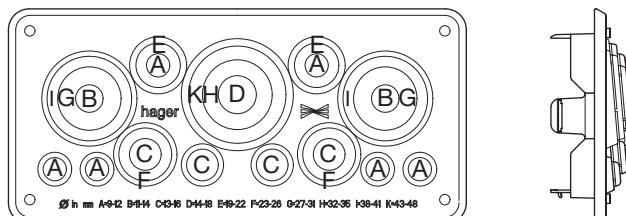
| Quantity | Type | Diameter |
|----------|------|-----------|
| 24 | A | 5–9 mm |
| 11 | B | 9–11.5 mm |
| 8 | C | 11–16 mm |
| 2 | D | 16–32 mm |
| 1 | E | 16–37 mm |

5 Rear cable entries



Cable entry at rear (accessories)
20 x 5 to 9 mm diameter

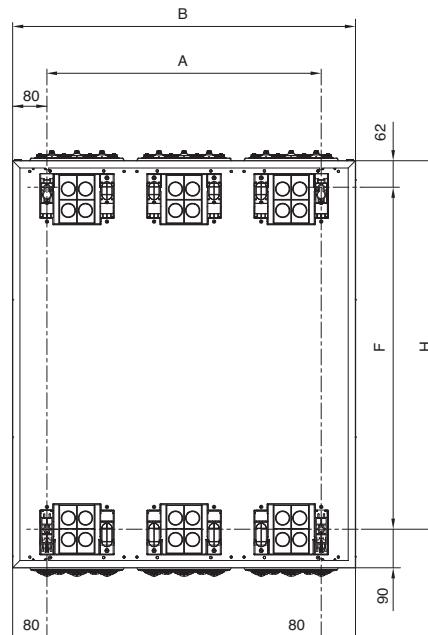
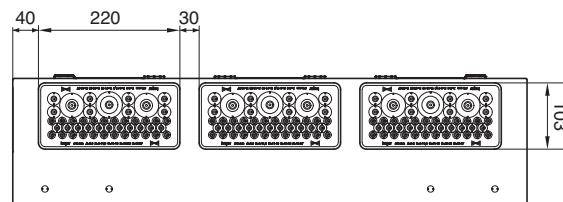
6 Cable entries per panel: Bottom (meter flange)



Two-component plastic entry for feed,
23 cable entries

| Quantity | Alternative | Type | Diameter |
|----------|-------------|------|------------|
| 4 | +2 | A | 8.5–12 mm |
| | +2 | B | 11–14 mm |
| 2 | +2 | C | 13–16 mm |
| | +1 | D | 14–18 mm |
| 2 | | E | 19–22 mm |
| 2 | | F | 23–26 mm |
| | +2 | G | 27–30.5 mm |
| | +1 | H | 32–34.5 mm |
| 2 | | I | 38–40.5 mm |
| 1 | | K | 43–47 mm |

Cable entry dimensions



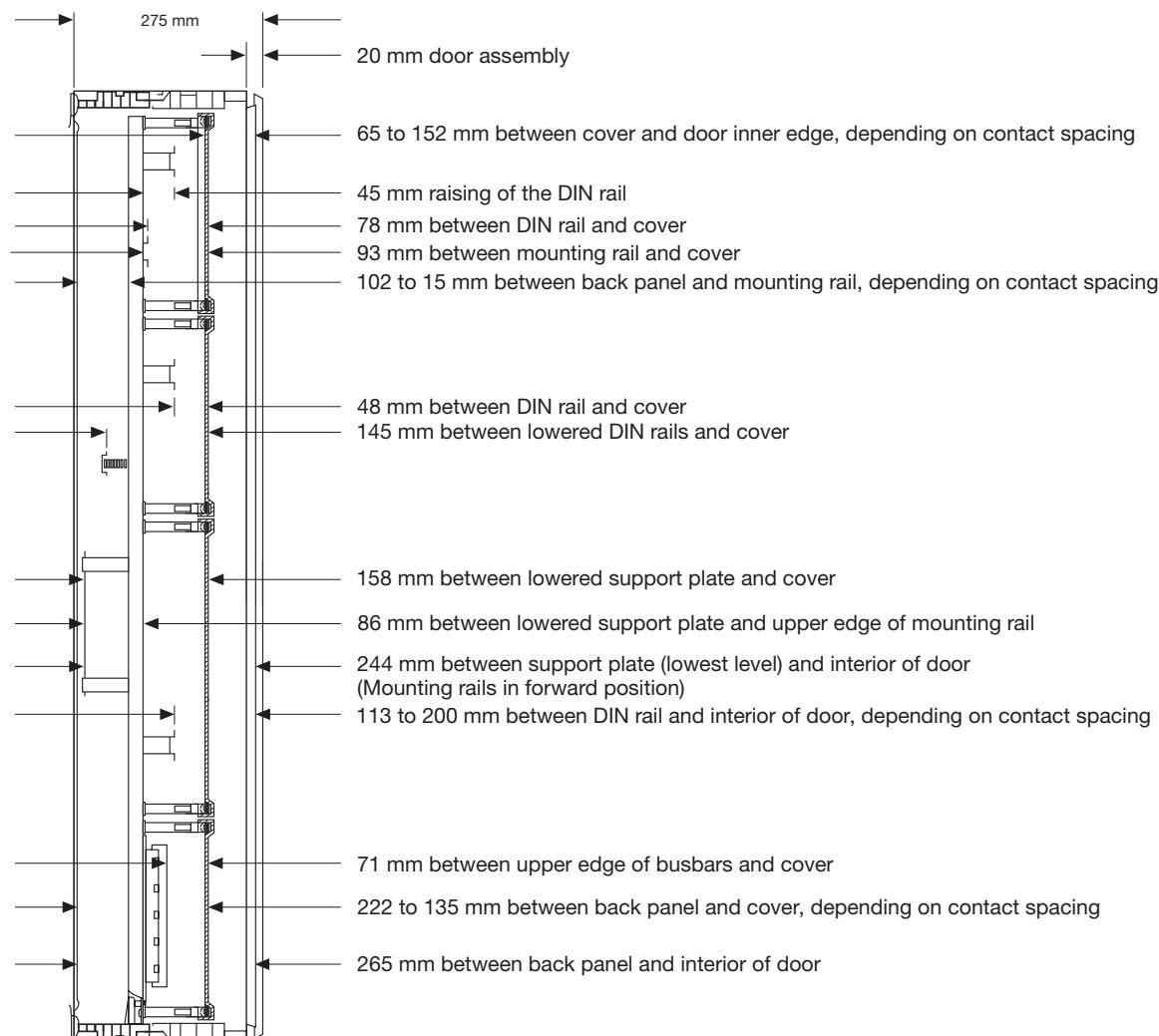
Fixing dimensions in mm

| Cabinet height H | Cabinet width W | | | | |
|----------------------------|------------------------|------|------|------|------|
| | 300 | 550 | 800 | 1050 | 1300 |
| 500 | F | 348 | 348 | 348 | 348 |
| | A | 140 | 390 | 640 | 890 |
| 650 | F | 498 | 498 | 498 | 498 |
| | A | 140 | 390 | 640 | 890 |
| 800 | F | 648 | 648 | 648 | 648 |
| | A | 140 | 390 | 640 | 890 |
| 950 | F | 798 | 798 | 798 | 798 |
| | A | 140 | 390 | 640 | 890 |
| 1100 | F | 948 | 948 | 948 | 948 |
| | A | 140 | 390 | 640 | 890 |
| 1250 | F | 1098 | 1098 | 1098 | 1098 |
| | A | 140 | 390 | 640 | 890 |
| 1400 | F | 1248 | 1248 | 1248 | 1248 |
| | A | 140 | 390 | 640 | 890 |
| 1550 | F | 1398 | 1398 | 1398 | 1398 |
| | A | 140 | 390 | 640 | 890 |
| 1700 | F | 1548 | 1548 | 1548 | 1548 |
| | A | 140 | 390 | 640 | 890 |

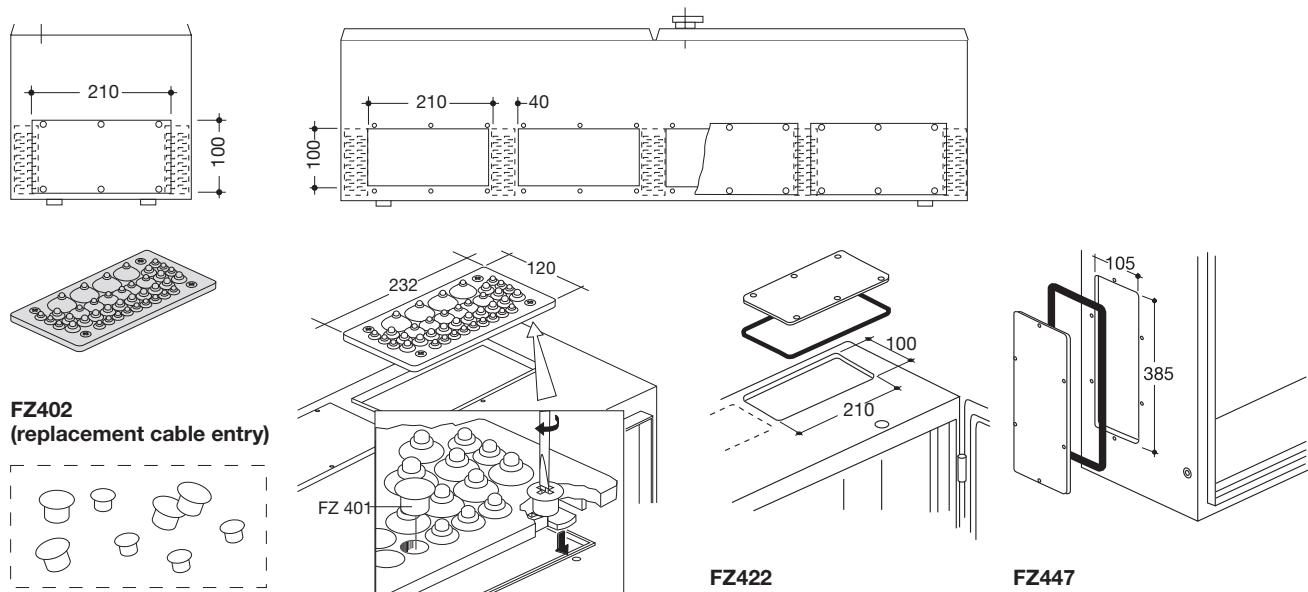
IP 54 wall cabinet, depth 275 mm – dimensions for Univers N interior system

- Measured with mounting rail in front and rear position

The mounting rails can be installed with a contact spacing of 12.5 mm in seven different depths.



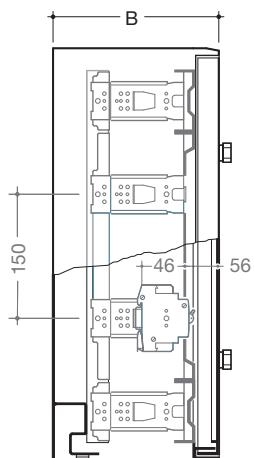
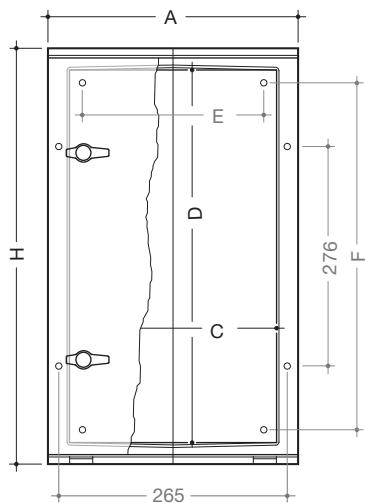
Cable entry



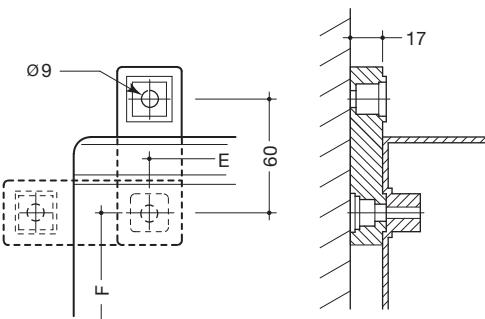
IP65 cabinets

Two-field model

Commercial Distribution

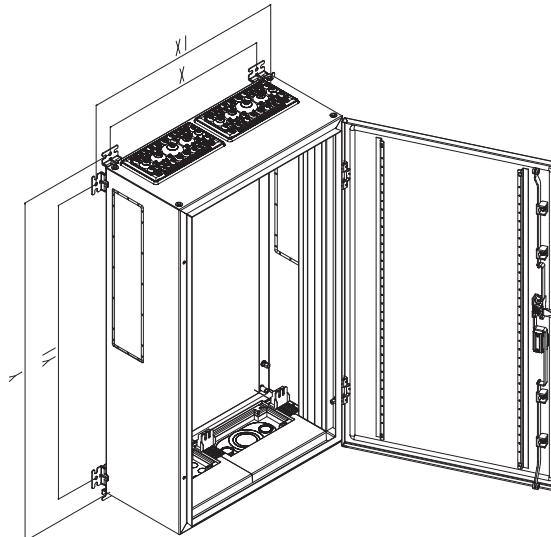
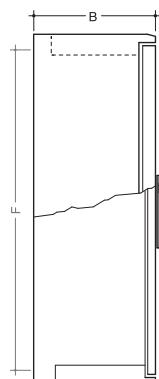
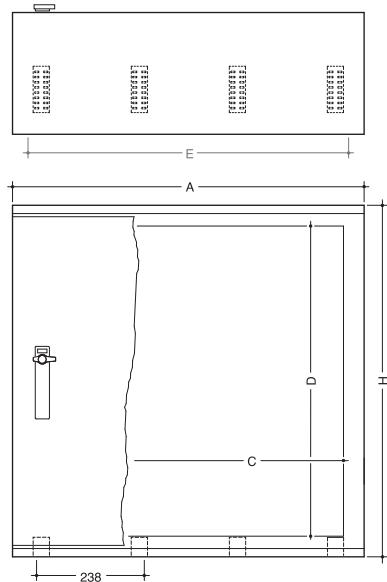


Wall-mounting support brackets



- FL32S to FL73S cabinets tested in accordance with DIN/EN/ISO 2409 (cross-cut test)
- Cross-cut rating fulfilled before and after the test
- Blistering test result passed: No blistering
- Observe installation and ambient conditions, see switchgear construction guidelines

Three-field model



Main dimensions

| IP | Order no. | Cabinet dimensions | | | | | Installation dimensions | | Number of panels | Number of rows | Number of doors | Number of bolts |
|-------|-----------|--------------------|------|-----|-----|------|-------------------------|------|------------------|----------------|-----------------|-----------------|
| | | A | H | B | C | D | E | F | | | | |
| IP 65 | FL32S | 600 | 550 | 300 | 500 | 450 | 520 | 470 | 2 | 3 | 1 | 1+ |
| | FL33S | 850 | 550 | 300 | 500 | 450 | 520 | 470 | 2 | 3 | 1 | Rod lock |
| | FL34S | 1100 | 550 | 300 | 500 | 450 | 520 | 470 | 2 | 3 | 1 | |
| | FL52S | 600 | 850 | 300 | 500 | 750 | 520 | 770 | 2 | 5 | 1 | |
| | FL53S | 850 | 850 | 300 | 750 | 750 | 770 | 770 | 3 | 5 | 1 | |
| | FL54S | 1100 | 850 | 300 | 500 | 750 | 520 | 770 | 2 | 5 | 1 | |
| | FL72S | 600 | 1150 | 300 | 500 | 1050 | 520 | 1070 | 2 | 7 | 1 | |
| | FL73S | 850 | 1150 | 300 | 750 | 1050 | 770 | 1070 | 3 | 7 | 1 | |
| | FL74S | 1100 | 1150 | 300 | 750 | 1050 | 770 | 1070 | 3 | 7 | 1 | |

IP55 free-standing cabinets, depth 275 mm and 400 mm

- Protection class I earthed and II double insulated, IP55 degree of protection
- Height 1700/1850 mm, tower housing + base
- Width: Two to six panels
- Depth 275 mm and 350 mm
- 144 – 864 space units
- Colour: RAL 7035 (Light grey)
- For fixed indoor installation

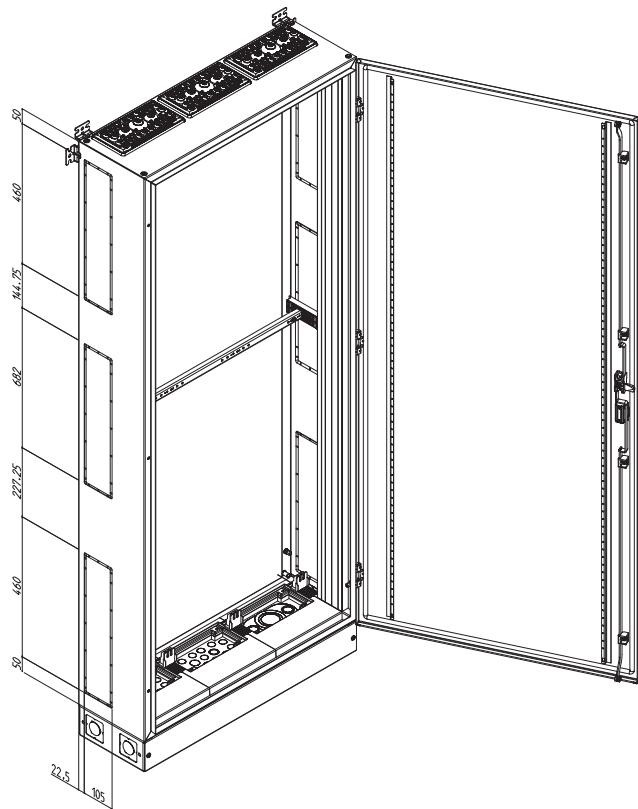
Interior system installable for network types:

- 3 AC, 50 Hz, 230/400 V
- 3 AC, 50 Hz, 400/690 V

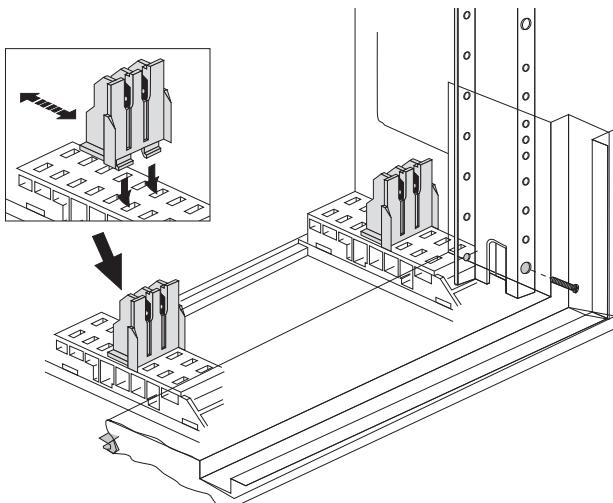
With a maximum feed current of 800 A

Caution**Depth 400 mm:**

Mounting rail attachment normally installed in position 3 or 4. If the mounting rails are positioned lower, use accessory components – contact protection extension, **FZ851** on the side.

**Fastening of the mounting rails**

IP55 wall and free-standing cabinets, depth 275/400 mm



Comprising:

Body

- 1.5 mm galvanised sheet steel, powder-coated and enamelled
- Pre-stamping on both sides for busbar bushing in bottom, top and middle section
- Parallel flange-mounting possible
- Horizontal retaining rail installed once in cabinet, without coupling plates
- 100 mm and 200 mm base included and installed.

Door

- 1.5 mm sheet steel, powder-coated and enamelled
- Flush with interior hinges, can be hinged on right or left
- Circumferential temperature and oil-resistant foamed seal
- Door opening angle 162°
- Above width of 1050 mm, double door

Door lock

- Three-point rod lock fitted as standard with pivoted handle and key plate
- Prepared for DIN profile half cylinder, can be exchanged with other closures

Cable entries per field as standard:

- Upper Universal two-component cable entry, can be replaced with all entry flanges for IP54 cabinets
- Open at bottom, entry flanges not necessary when using a base; however, use them to ensure compliance with IP54 degree of protection

Universal cable entries for IP54 cabinets

Entry options

| Number of cables | Cable diameter (mm) | Cable cross-sections from – to (mm²) | | |
|------------------|---------------------|--------------------------------------|------------------|------------------|
| | | NYM | NYY | H07RN-F |
| 24 | 9–11.5 | 3 x 1.5 – 5 x 1.5 | 1 x 4 – 1 x 16 | – |
| 12 | 11–16 | 3 x 2.5 – 5 x 4 | 1 x 16 – 3 x 6 | – |
| 4 | 12.5–20 | 3 x 4 – 5 x 10 | 3 x 2.5 – 5 x 6 | – |
| 2 | 13–27.5 | 3 x 4 – 4 x 25 | 3 x 2.5 – 4 x 25 | – |
| 2 | 16–32 | 3 x 6 – 4 x 35 | 3 x 6 – 4 x 50 | – |
| 1 | 25–50 | 4 x 25 – 5 x 25 | 3 x 25 – 3 x 240 | 1 x 120 – 4 x 70 |

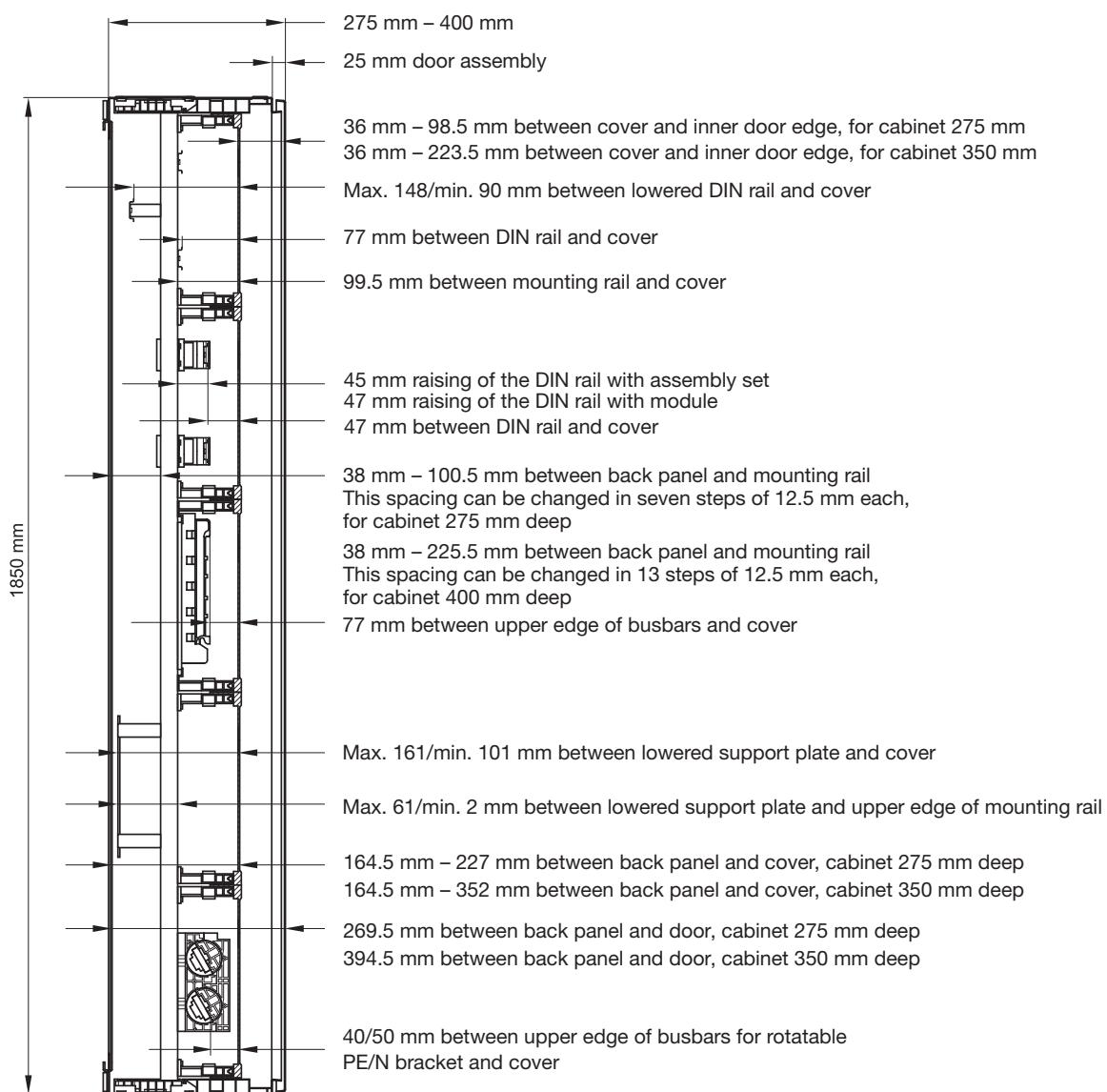
Standards and regulations

- Tested in accordance with VDE 0660, part 500
- Dimensions in accordance with DIN 43870
- IP54 degree of protection in accordance with VDE 0470, part 1 (DIN EN 60529)
- IP3X degree of protection with open door
- Clearance and creepage distance in accordance with VDE 0110, part 1 and 2/1.89
- Rated insulation voltage 800 V AC
- Overvoltage category III/IV
- Degree of contamination 3
- Insulation class II

**IP55 free-standing cabinets, depth 275 mm and 400 mm –
dimensions for Univers N interior system**

- Measured with mounting rail in front and rear position

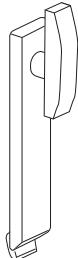
The mounting rails can be installed with a contact spacing of 12.5 mm in 7/13 (350 mm deep) different depths.



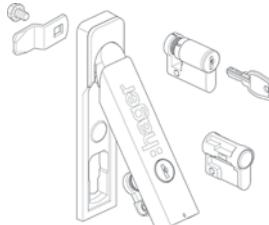
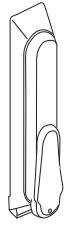
IP54 cabinets

IP54 cabinet closures

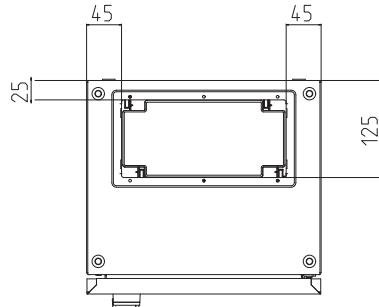
T-handle



Pivoted lever – L-handle ex-works and rotary toggle as accessory

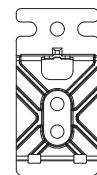
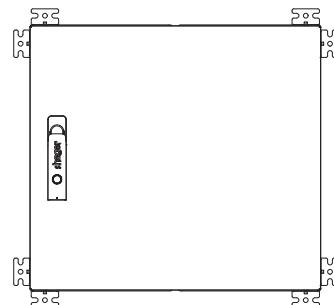


Base plate for one-panel cabinets



IP55 wall cabinets

| Depth | Height | Width | Mod. | PC I | X | Y | X1 | Y1 |
|-------|--------|-------|------|-------|------|------|------|------|
| 275 | 500 | 300 | 36 | FR31E | 245 | 540 | 340 | 410 |
| | 500 | 550 | 72 | FR32E | 495 | 540 | 590 | 410 |
| | 500 | 800 | 108 | FR33E | 745 | 540 | 840 | 410 |
| | 500 | 1050 | 144 | FR34E | 995 | 540 | 1090 | 410 |
| | 500 | 1300 | 180 | FR35E | 1245 | 540 | 1340 | 410 |
| | 650 | 300 | 48 | FR41E | 245 | 690 | 340 | 560 |
| | 650 | 550 | 96 | FR42E | 495 | 690 | 590 | 560 |
| | 650 | 800 | 144 | FR43E | 745 | 690 | 840 | 560 |
| | 650 | 1050 | 192 | FR44E | 995 | 690 | 1090 | 560 |
| | 650 | 1300 | 240 | FR45E | 1245 | 690 | 1340 | 560 |
| | 800 | 300 | 60 | FR51E | 245 | 840 | 340 | 710 |
| | 800 | 550 | 120 | FR52E | 495 | 840 | 590 | 710 |
| | 800 | 800 | 180 | FR53E | 745 | 840 | 840 | 710 |
| | 800 | 1050 | 240 | FR54E | 995 | 840 | 1090 | 710 |
| | 800 | 1300 | 300 | FR55E | 1245 | 840 | 1340 | 710 |
| | 950 | 300 | 72 | FR61E | 245 | 990 | 340 | 860 |
| | 950 | 550 | 144 | FR62E | 495 | 990 | 590 | 860 |
| | 950 | 800 | 216 | FR63E | 745 | 990 | 840 | 860 |
| | 950 | 1050 | 288 | FR64E | 995 | 990 | 1090 | 860 |
| | 950 | 1300 | 360 | FR65E | 1245 | 990 | 1340 | 860 |
| | 1100 | 300 | 84 | FR71E | 245 | 1140 | 340 | 1010 |
| | 1100 | 550 | 168 | FR72E | 495 | 1140 | 590 | 1010 |
| | 1100 | 800 | 252 | FR73E | 745 | 1140 | 840 | 1010 |
| | 1100 | 1050 | 336 | FR74E | 995 | 1140 | 1090 | 1010 |
| | 1100 | 1300 | 420 | FR75E | 1245 | 1140 | 1340 | 1010 |
| | 1250 | 300 | 96 | FR81E | 245 | 1290 | 340 | 1160 |
| | 1250 | 550 | 192 | FR82E | 495 | 1290 | 590 | 1160 |
| | 1250 | 800 | 288 | FR83E | 745 | 1290 | 840 | 1160 |
| | 1250 | 1050 | 384 | FR84E | 995 | 1290 | 1090 | 1160 |
| | 1250 | 1300 | 480 | FR85E | 1245 | 1290 | 1340 | 1160 |
| | 1400 | 300 | 108 | FR91E | 245 | 1440 | 340 | 1310 |
| | 1400 | 550 | 216 | FR92E | 495 | 1440 | 590 | 1310 |
| | 1400 | 800 | 324 | FR93E | 745 | 1440 | 840 | 1310 |
| | 1400 | 1050 | 432 | FR94E | 995 | 1440 | 1090 | 1310 |
| | 1400 | 1300 | 540 | FR95E | 1245 | 1440 | 1340 | 1310 |
| | 1550 | 300 | 108 | FR01E | 245 | 1590 | 340 | 1460 |
| | 1550 | 550 | 216 | FR02E | 495 | 1590 | 590 | 1460 |
| | 1550 | 800 | 324 | FR03E | 745 | 1590 | 840 | 1460 |
| | 1550 | 1050 | 432 | FR04E | 995 | 1590 | 1090 | 1460 |
| | 1550 | 1300 | 540 | FR05E | 1245 | 1590 | 1340 | 1460 |
| 400 | 1400 | 550 | 216 | FR92G | 495 | 1440 | 590 | 1310 |
| | 1400 | 800 | 324 | FR93G | 745 | 1440 | 840 | 1310 |
| | 1400 | 1050 | 432 | FR94G | 995 | 1440 | 1090 | 1310 |

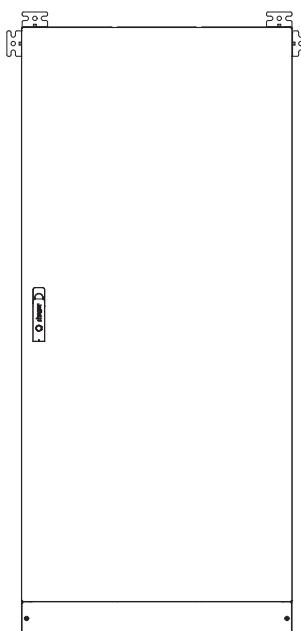


IP55 free-standing cabinets

Commercial Distribution

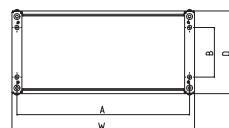
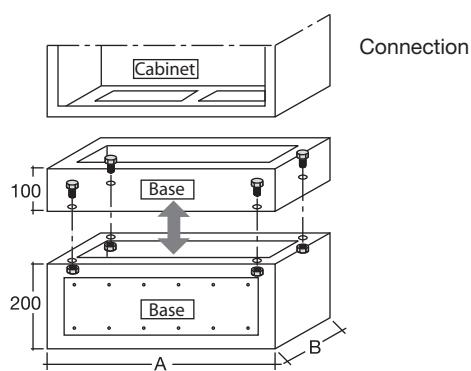
| Depth | Height | Width | Mod. | PC I with base H = 100 mm | PC I with transpa- rent door and base H = 100 mm | X | Y | X1 | Y1 | Z |
|-------|--------|-------|------|---------------------------------|--|------|------|------|------|-----|
| 275 | 1700 | 300 | 132 | FR11E1 | | 245 | 1721 | 340 | 1656 | 100 |
| | 1700 | 550 | 264 | FR12E1 | | 495 | 1721 | 590 | 1656 | 100 |
| | 1700 | 800 | 396 | FR13E1 | | 745 | 1721 | 840 | 1656 | 100 |
| | 1700 | 1050 | 528 | FR14E1 | | 995 | 1721 | 1090 | 1656 | 100 |
| | 1700 | 1300 | 660 | FR15E1 | | 1245 | 1721 | 1340 | 1656 | 100 |
| 275 | 1850 | 300 | 144 | FR21E1 | | 245 | 1871 | 340 | 1806 | 100 |
| | 1850 | 550 | 288 | FR22E1 | FR22K1 | 495 | 1871 | 590 | 1806 | 100 |
| | 1850 | 800 | 432 | FR23E1 | FR23K1 | 745 | 1871 | 840 | 1806 | 100 |
| | 1850 | 1050 | 576 | FR24E1 | FR24K1 | 995 | 1871 | 1090 | 1806 | 100 |
| | 1850 | 1300 | 720 | FR25E1 | FR25K1 | 1245 | 1871 | 1340 | 1806 | 100 |
| | 1850 | 1550 | 864 | FR26E1 | FR26K1 | 1495 | 1871 | 1590 | 1806 | 100 |
| 400 | 1850 | 300 | 144 | FR21G1 | | 245 | 1871 | 340 | 1806 | 100 |
| | 1850 | 550 | 288 | FR22G1 | FR22V1 | 495 | 1871 | 590 | 1806 | 100 |
| | 1850 | 800 | 432 | FR23G1 | FR23V1 | 745 | 1871 | 840 | 1806 | 100 |
| | 1850 | 1050 | 576 | FR24G1 | FR24V1 | 995 | 1871 | 1090 | 1806 | 100 |
| | 1850 | 1300 | 720 | FR25G1 | FR25V1 | 1245 | 1871 | 1340 | 1806 | 100 |
| | 1850 | 1550 | 864 | FR26G1 | FR26V1 | 1495 | 1871 | 1590 | 1806 | 100 |

| Depth | Height | Width | Mod. | PC I with base H = 200 mm | PC I with transpa- rent door and base H = 200 mm | X | Y | X1 | Y1 | Z |
|-------|--------|-------|------|---------------------------------|--|------|------|------|------|-----|
| 275 | 1700 | 300 | 132 | FR11E2 | | 245 | 1721 | 340 | 1656 | 100 |
| | 1700 | 550 | 264 | FR12E2 | | 495 | 1721 | 590 | 1656 | 100 |
| | 1700 | 800 | 396 | FR13E2 | | 745 | 1721 | 840 | 1656 | 100 |
| | 1700 | 1050 | 528 | FR14E2 | | 995 | 1721 | 1090 | 1656 | 100 |
| | 1700 | 1300 | 660 | FR15E2 | | 1245 | 1721 | 1340 | 1656 | 100 |
| 275 | 1850 | 300 | 144 | FR21E2 | | 245 | 1871 | 340 | 1806 | 100 |
| | 1850 | 550 | 288 | FR22E2 | FR22K2 | 495 | 1871 | 590 | 1806 | 100 |
| | 1850 | 800 | 432 | FR23E2 | FR23K2 | 745 | 1871 | 840 | 1806 | 100 |
| | 1850 | 1050 | 576 | FR24E2 | FR24K2 | 995 | 1871 | 1090 | 1806 | 100 |
| | 1850 | 1300 | 720 | FR25E2 | FR25K2 | 1245 | 1871 | 1340 | 1806 | 100 |
| | 1850 | 1550 | 864 | FR26E2 | FR26K2 | 1495 | 1871 | 1590 | 1806 | 100 |
| 400 | 1850 | 300 | 144 | FR21G2 | | 245 | 1871 | 340 | 1806 | 100 |
| | 1850 | 550 | 288 | FR22G2 | FR22V2 | 495 | 1871 | 590 | 1806 | 100 |
| | 1850 | 800 | 432 | FR23G2 | FR23V2 | 745 | 1871 | 840 | 1806 | 100 |
| | 1850 | 1050 | 576 | FR24G2 | FR24V2 | 995 | 1871 | 1090 | 1806 | 100 |
| | 1850 | 1300 | 720 | FR25G2 | FR25V2 | 1245 | 1871 | 1340 | 1806 | 100 |
| | 1850 | 1550 | 864 | FR26G2 | FR26V2 | 1495 | 1871 | 1590 | 1806 | 100 |



General description

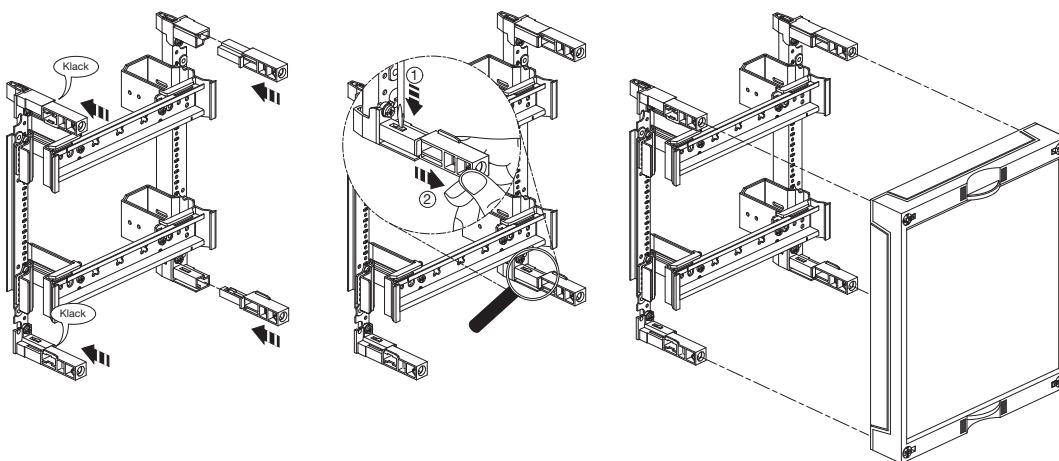
- 100 mm or 200 mm high
- Installed underneath wall cabinets or free-standing cabinets
- Cable clamping rail can be installed
- Open at top and bottom
- Body of powder-coated, enamelled 1.5 mm sheet steel

**Installation dimensions for IP55 wall cabinet bases
and free-standing cabinets 275 mm and 400 mm****Base for IP54 cabinets, vertical connection of IP54 cabinets**

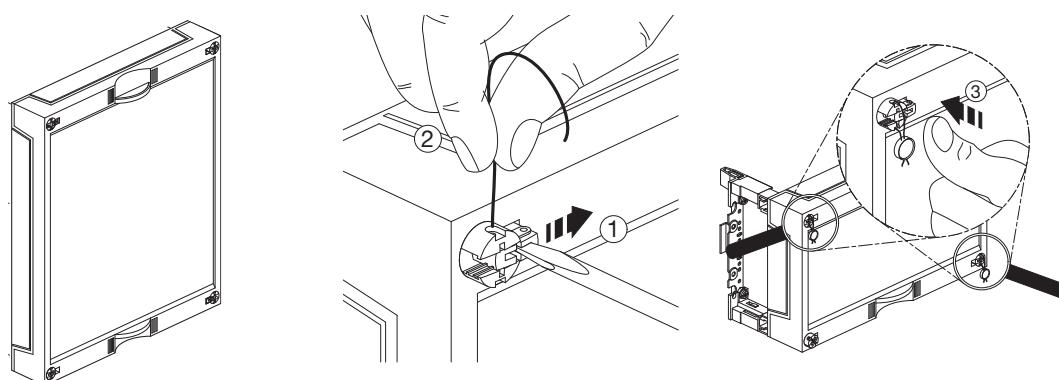
| Width | Depth | Height | A | B |
|-------|-------|--------|-----|------|
| 302 | 275 | 100 | 200 | 272 |
| 552 | 275 | 100 | 200 | 522 |
| 802 | 275 | 100 | 200 | 772 |
| 1052 | 275 | 100 | 200 | 1022 |
| 1302 | 275 | 100 | 200 | 1272 |
| 1552 | 275 | 100 | 200 | 1522 |
| 302 | 400 | 100 | 200 | 272 |
| 552 | 400 | 100 | 200 | 522 |
| 802 | 400 | 100 | 200 | 772 |
| 1052 | 400 | 100 | 200 | 1022 |
| 1302 | 400 | 100 | 200 | 1272 |
| 1552 | 400 | 100 | 200 | 1522 |

Kits for Universe N

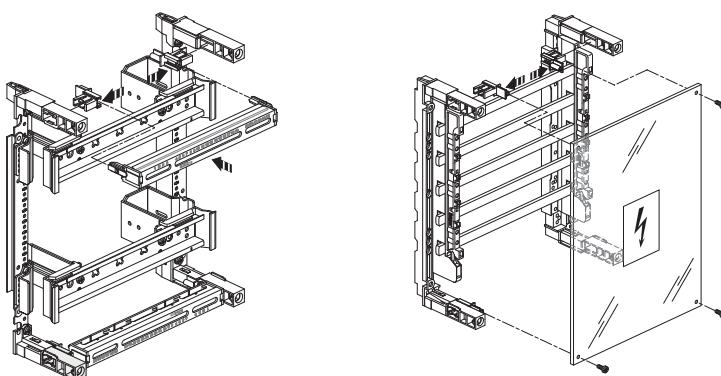
Top part of pillar included in kit with fast fitting. Easy to fit and remove.



Possible to break off edges of cover. 4 point lock by standard sealing points. Open with Phillips screwdriver.

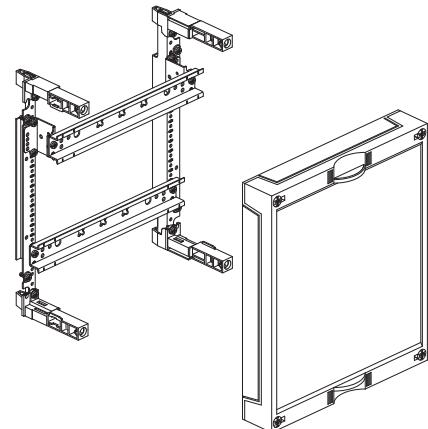


Adaptor for PE/N rails or transparent pane.



Blank cover with DIN rail horizontal for row terminals

| height x width | 250 | 500 | 750 |
|----------------|--------|--------|--------|
| 150 | UD11A1 | UD12A1 | UD13A1 |
| 300 | UD21A1 | UD22A1 | UD23A1 |
| 450 | UD31A1 | UD32A1 | UD33A1 |
| 600 | UD41A1 | UD42A1 | - |



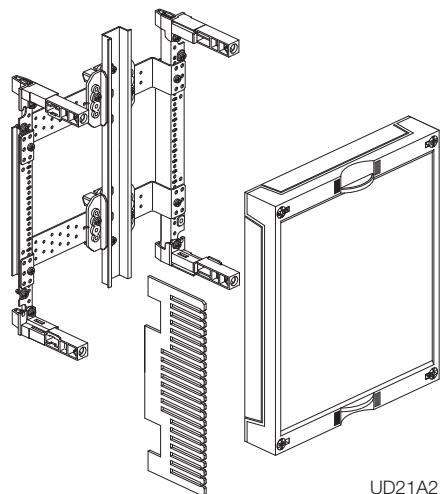
UD21A1

Particulars

- gap between DIN rail and cover = 48/78mm
- with insulation protected equipment, the DIN rails, which accommodate PE row terminals, must be mounted insulated
- insulation parts included in delivery
- modification of DIN rail level possible at any time
- when using multi-field DIN rails, there are additional fitting possibilities on the carrier rails in modular spacing 250mm (horizontal).

Blank cover with DIN rails vertical, lowered for row terminals

| height x width | 250 | 500 |
|----------------|--------|--------|
| 300 | UD21A2 | UD22A2 |
| 450 | UD31A2 | |
| 600 | UD41A2 | |



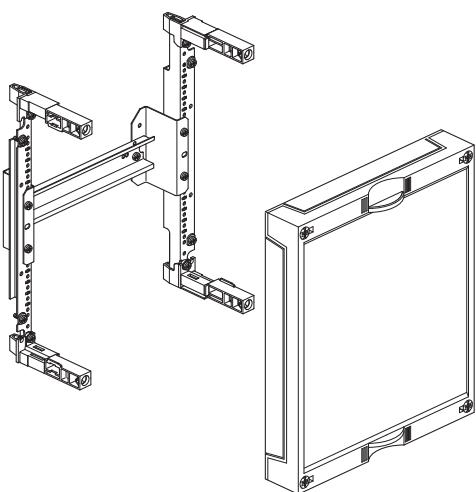
UD21A2

Particulars

- gap between cover and DIN rail (Max. lowering 99mm)
- DIN rail 35 x 15mm. Insulating parts included
- length of DIN rail for UD21A2, UD22A2 = 300mm
for UD31A2 = 450mm
for UD41A2 = 600mm

Blank cover with lowered DIN rails for terminals/cables

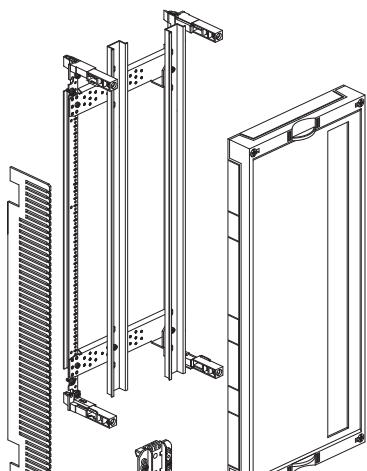
| height x width | 250 |
|----------------|--------|
| 300 | UD21A3 |
| 450 | UD31A3 |



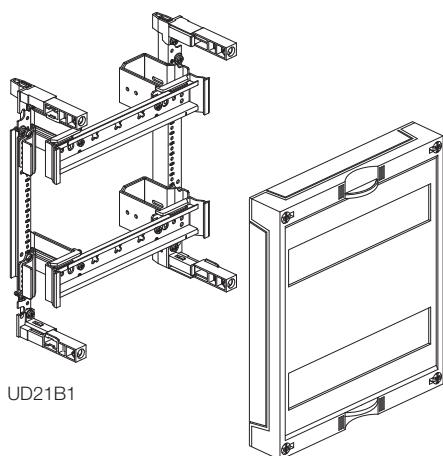
UD21A3

Particulars

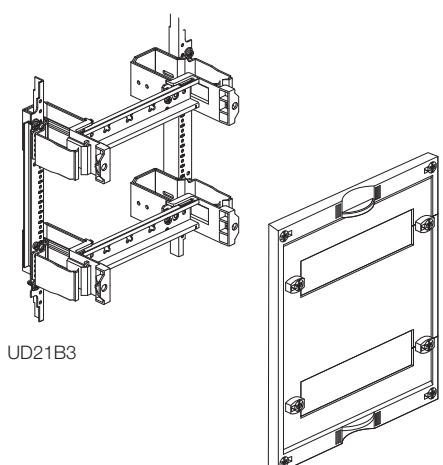
- lowering of the DIN rails with stable cross rails
- for terminals/cables of size 95-240mm²
- gap between cover and DIN rails - 120mm



UD41G3



UD21B1



UD21B3

Blank cover with DIN rail vertical for terminals & add-on devices

| height x width | 250 | 500 |
|----------------|--------|-----|
| 300 | UD21G2 | |
| 600 | UD41G2 | |

Particulars

- gap between cover and DIN rails 48/78mm
- DIN rails 35 x 15mm, can be made insulation protected. Insulation parts included.
- length of DIN rail for UD21G2 = 300mm
- length of DIN rail for UD41G2 = 600mm

Slotted cover for modular devices with vertical wiring

| height x width | 250 | 500 | 750 |
|----------------|--------|--------|--------|
| 150 | UD11B1 | UD12B1 | UD13B1 |
| 300 | UD21B1 | UD22B1 | UD23B1 |
| 450 | UD31B1 | UD32B1 | UD33B1 |
| 600 | UD41B1 | UD42B1 | |

Particulars

- DIN rail raised, for adding modular devices or switchgear
- gap between cover and DIN rails = 48mm
- 2 and 3 field kits with stabilising rails, per 250mm spacing once vertical
- integrated vertical cable support
- possible to lead wiring from front
- top part of pillar for easy wiring included
- data rails to be used for applications with Tebis EIB devices
- device slots can be covered with blanking strips S35S or lockable blanking strips ZZ34S
- 12 module spaces per device slot

Slotted cover for modular devices with extended vertical wiring

| height x width | 250 | 500 |
|----------------|--------|---------|
| 150 | UD11B3 | *UD12B3 |
| 300 | UD21B3 | *UD22B3 |
| 450 | UD31B3 | *UD32B3 |

Particulars

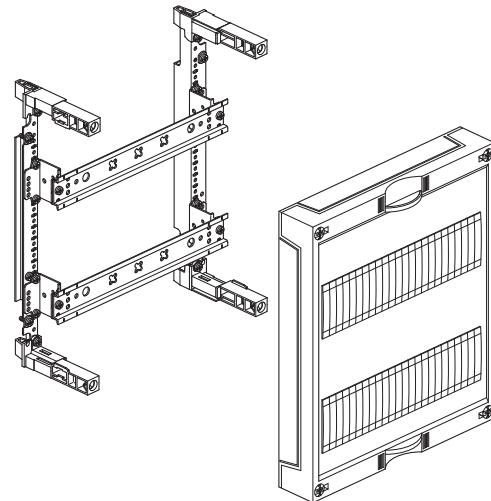
- DIN rail raised, for adding modular devices or switchgear
- gap from cover to DIN rail = 48mm
- 2 and 3 field kits with stabilising rails, per 250mm spacing once vertical
- device slots can be covered with blanking strips S35S or lockable blanking strips ZZ34S
- device slots 1 field 10 modular spaces per row
- 2 field 24 modular spaces per row
- device slots and DIN rail 430mm

Blank cover with locable blanking strips for control cable terminals and main shunt cables

| height x width | 250 |
|----------------|--------|
| 150 | UD11A4 |
| 300 | UD21A4 |

Particulars

- gap from DIN rail to cover = 47mm
 - DIN rail raised, for adding modular devices or switchgear
 - with shock protected equipment, the DIN rails, which accommodate PE row terminals, must be mounted insulated
 - DIN rails can be insulation protected with insulation part
 - DIN rail gap 125mm
 - lockable blanking strips included
- UD11A4 1 piece ZZ34S
 UD21A4 2 piece ZZ34S



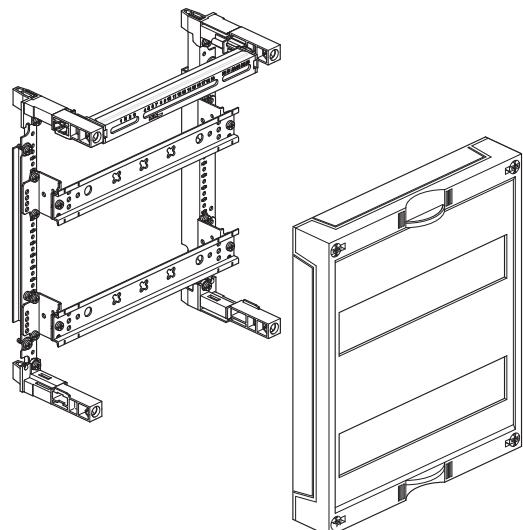
UD21A4

Slotted cover with PE/N rails for modular devices / switchgear

| height x width | 250 |
|----------------|--------|
| 300 | UD21B4 |
| 450 | UD1B4 |

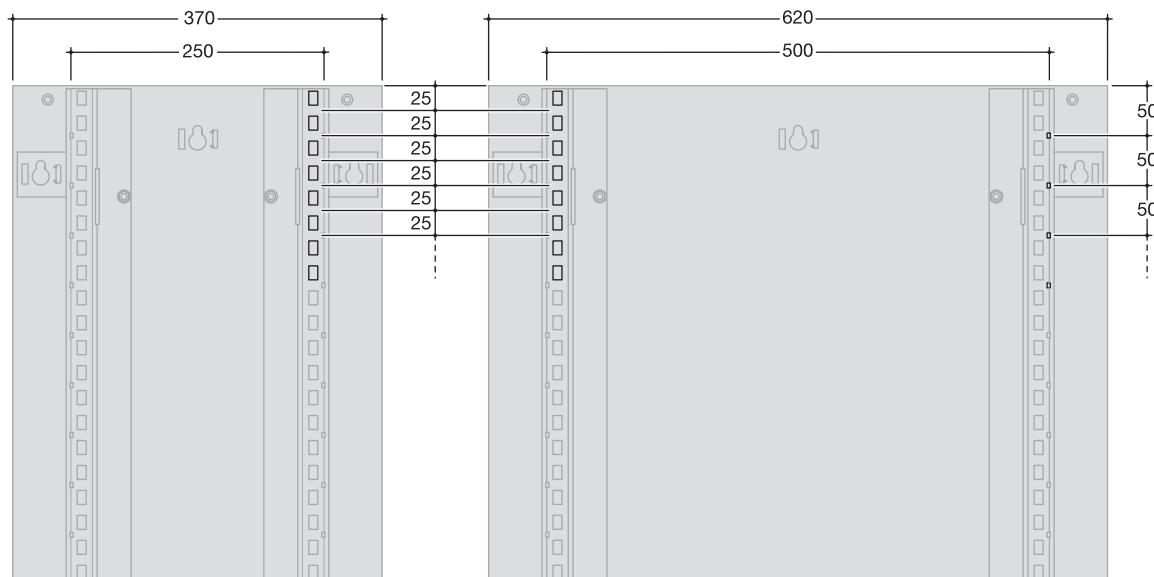
Particulars

- gap between DIN rail and cover
- with PE/N rails 2 x 13 terminal spaces
- DIN rails gap 125mm
- Spare open device slots must be covered with blanking strips S35S or lockable blanking strips ZZ34S.



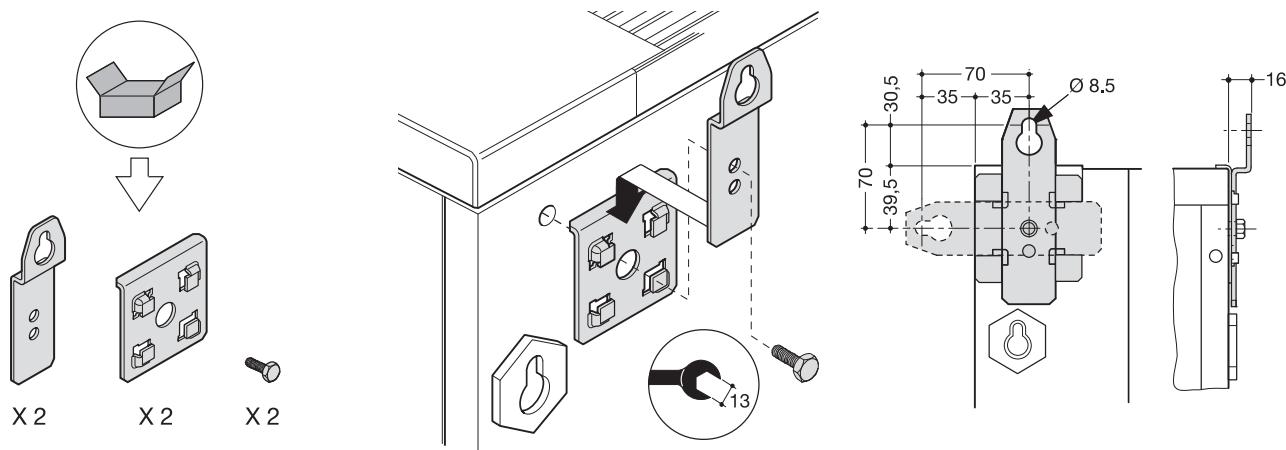
UD21B4

Back Plates (dimensions in mm)

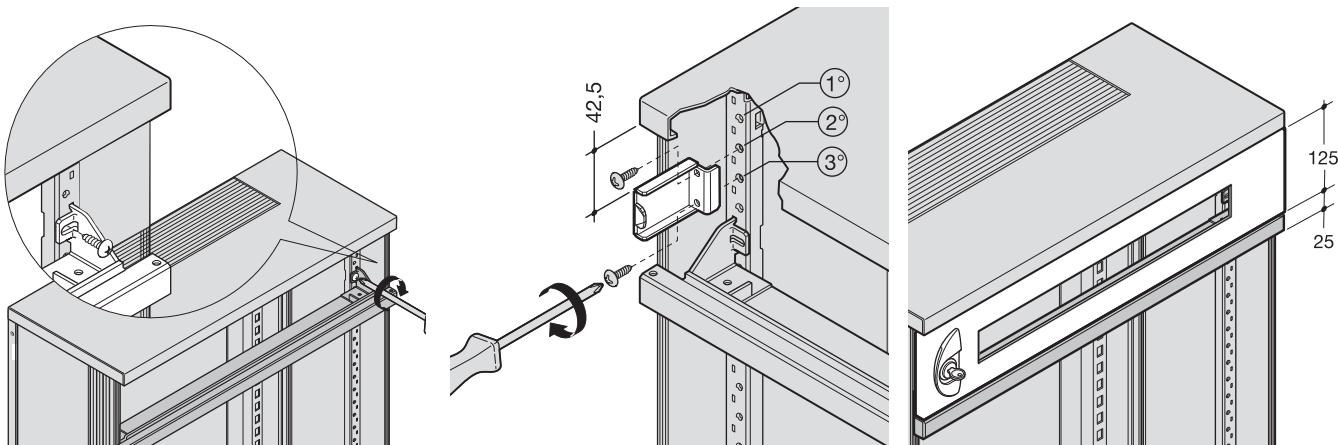


Commercial
Distribution

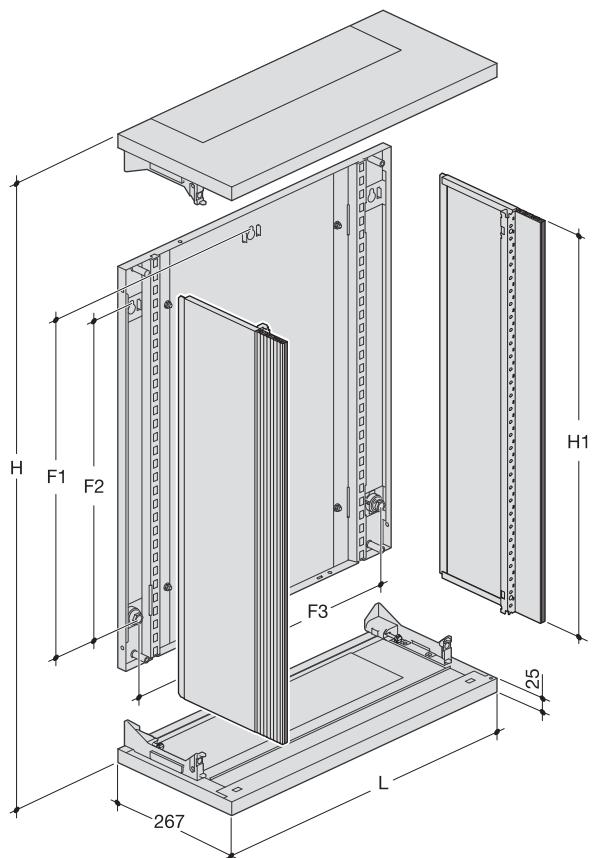
Wall Mounting Brackets FM640 (dimensions in mm)



Mounting of Hinged Front Plate Door of DIN Rail Equipment Unit (dimensions in mm)

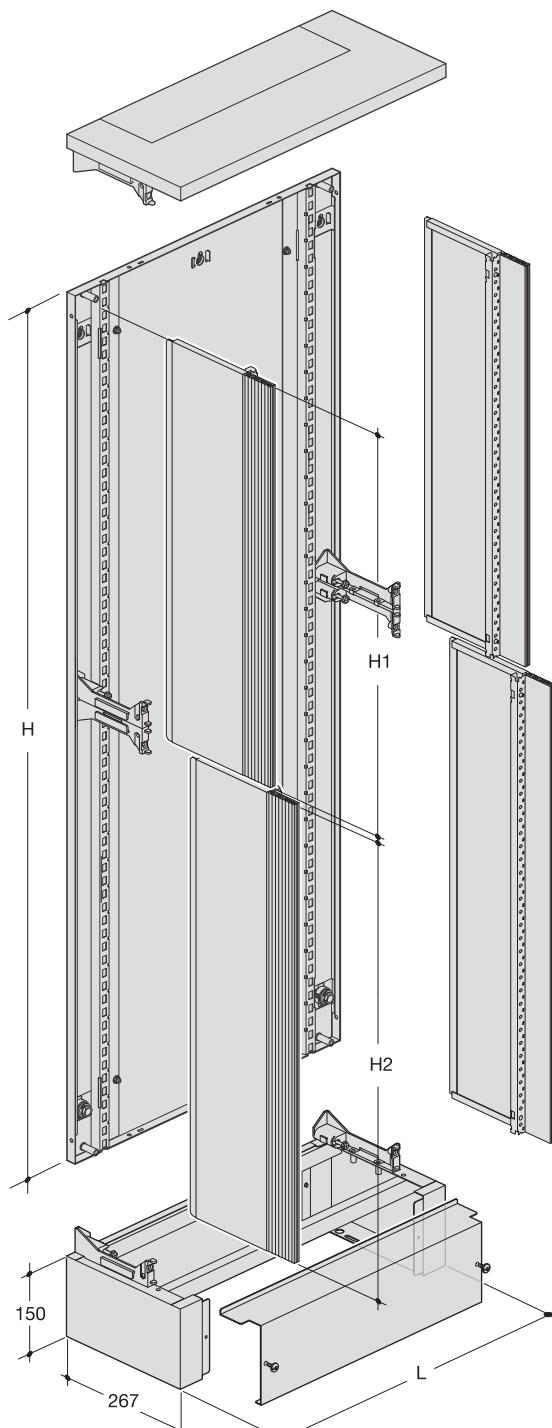


Quadro 4 Enclosures



Dimensions in mm

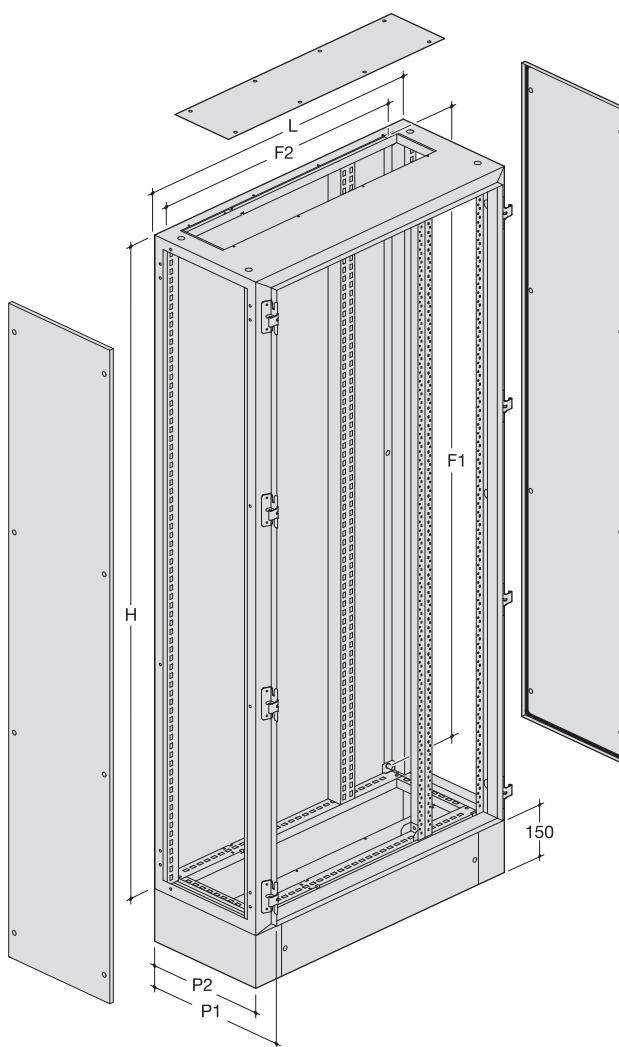
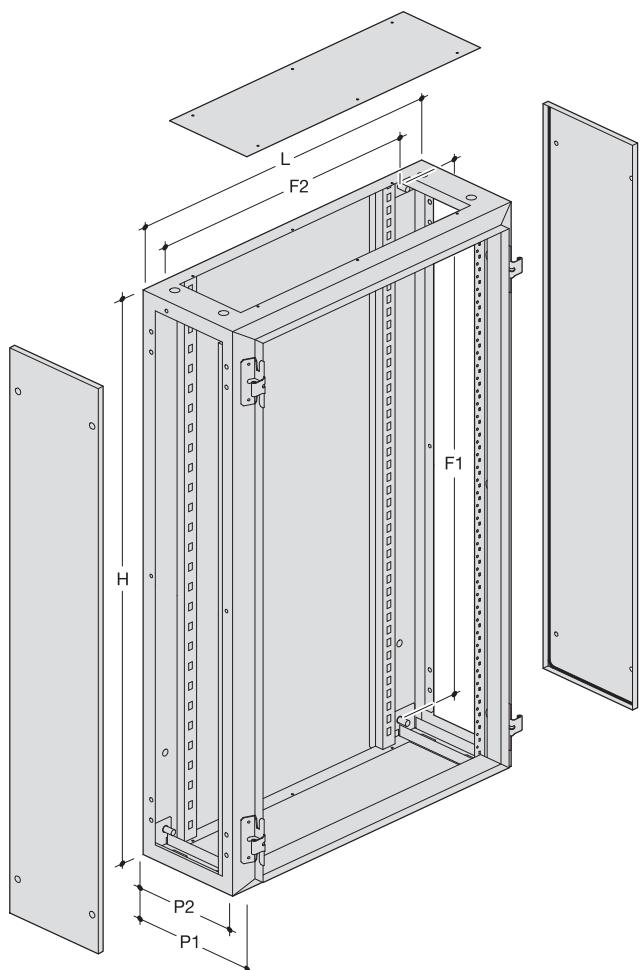
| | | fixing holes position | | | | | |
|-----------------------|-------|-----------------------|------|-----|------|------|-----|
| references bottoms | sides | H | H1 | L | F1 | F2 | F3 |
| FC110 | FC010 | 500 | 450 | 370 | 305 | 270 | 315 |
| FC210 | FC010 | 500 | 450 | 620 | 305 | 270 | 565 |
| FC111 | FC011 | 650 | 600 | 370 | 455 | 420 | 315 |
| FC211 | FC011 | 650 | 600 | 620 | 455 | 420 | 565 |
| FC112 | FC012 | 800 | 750 | 370 | 605 | 570 | 315 |
| FC212 | FC012 | 800 | 750 | 620 | 605 | 570 | 565 |
| FC113 | FC013 | 950 | 900 | 370 | 755 | 720 | 315 |
| FC213 | FC013 | 950 | 900 | 620 | 755 | 720 | 565 |
| FC114 | FC014 | 1100 | 1050 | 370 | 905 | 870 | 315 |
| FC214 | FC014 | 1100 | 1050 | 620 | 905 | 870 | 565 |
| FC115 | FC015 | 1250 | 1200 | 370 | 1055 | 1020 | 315 |
| FC215 | FC015 | 1250 | 1200 | 620 | 1055 | 1020 | 565 |
| FC116 | FC016 | 1400 | 1350 | 370 | 1205 | 1170 | 315 |
| FC216 | FC016 | 1400 | 1350 | 620 | 1205 | 1170 | 565 |



Dimensions in mm

| bottoms > 1400 | sides | H | L | H1 | H2 |
|-------------------|---------------|------|-----|-----|-----|
| FC118 | FC012 + FC013 | 1650 | 370 | 750 | 900 |
| FC218 | FC012 + FC013 | 1650 | 620 | 750 | 900 |
| FC119 | 2 X FC013 | 1800 | 370 | 900 | 900 |
| FC219 | 2 X FC013 | 1800 | 620 | 900 | 900 |

Quadro 5 Enclosures and Boards



Dimensions in mm

| references | | | fixing | | | | |
|--------------|--------------|------|--------|-----|-----|------|-----|
| bodies | sides | H | L | P1 | P2 | F1 | F2 |
| FM200 | FM400 | 510 | 700 | 260 | 220 | 430 | 570 |
| FM201 | FM401 | 660 | 700 | 260 | 220 | 580 | 570 |
| FM202 | FM402 | 810 | 700 | 260 | 220 | 730 | 570 |
| FM203 | FM403 | 960 | 700 | 260 | 220 | 880 | 570 |
| FM204 | FM404 | 1100 | 700 | 260 | 220 | 1030 | 570 |
| FM205 | FM405 | 1260 | 700 | 260 | 220 | 1180 | 570 |
| FM206 | FM406 | 1410 | 700 | 260 | 220 | 1330 | 570 |

Dimensions in mm

| references | | | fixing | | | | |
|--------------|--------------|------|--------|-----|-----|------|-----|
| bodies | sides | H | L | P1* | P2 | F1 | F2 |
| FM107 | FM407 | 1560 | 450 | 260 | 220 | 1480 | 320 |
| FM108 | FM408 | 1710 | 450 | 260 | 220 | 1630 | 320 |
| FM109 | FM409 | 1860 | 450 | 260 | 220 | 1780 | 320 |
| FM207 | FM407 | 1560 | 700 | 260 | 220 | 1480 | 570 |
| FM208 | FM408 | 1710 | 700 | 260 | 220 | 1630 | 570 |
| FM209 | FM409 | 1860 | 700 | 260 | 220 | 1780 | 570 |
| FM307 | FM407 | 1560 | 900 | 260 | 220 | 1480 | 770 |
| FM308 | FM408 | 1710 | 900 | 260 | 220 | 1630 | 770 |
| FM309 | FM409 | 1860 | 900 | 260 | 220 | 1780 | 770 |
| FM117 | FM407 | 1560 | 450 | 400 | 360 | 1480 | 320 |
| FM118 | FM408 | 1710 | 450 | 400 | 360 | 1630 | 320 |
| FM119 | FM409 | 1860 | 450 | 400 | 360 | 1780 | 320 |
| FM217 | FM407 | 1560 | 700 | 400 | 360 | 1480 | 570 |
| FM218 | FM408 | 1710 | 700 | 400 | 360 | 1630 | 570 |
| FM219 | FM409 | 1860 | 700 | 400 | 360 | 1780 | 570 |
| FM317 | FM407 | 1560 | 900 | 400 | 360 | 1480 | 770 |
| FM318 | FM408 | 1710 | 900 | 400 | 360 | 1630 | 770 |
| FM319 | FM409 | 1860 | 900 | 400 | 360 | 1780 | 770 |

Back Plates Quadro 5

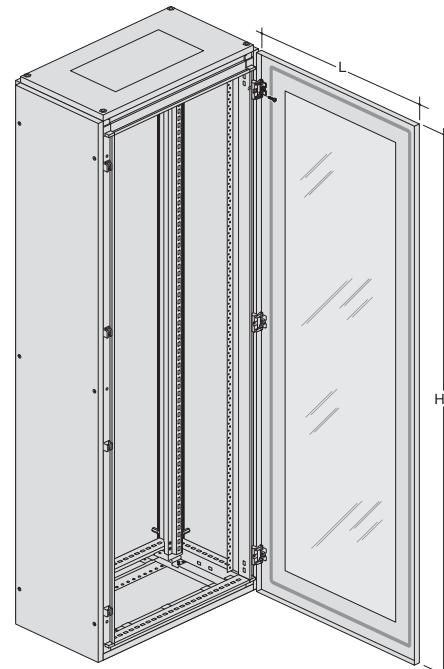
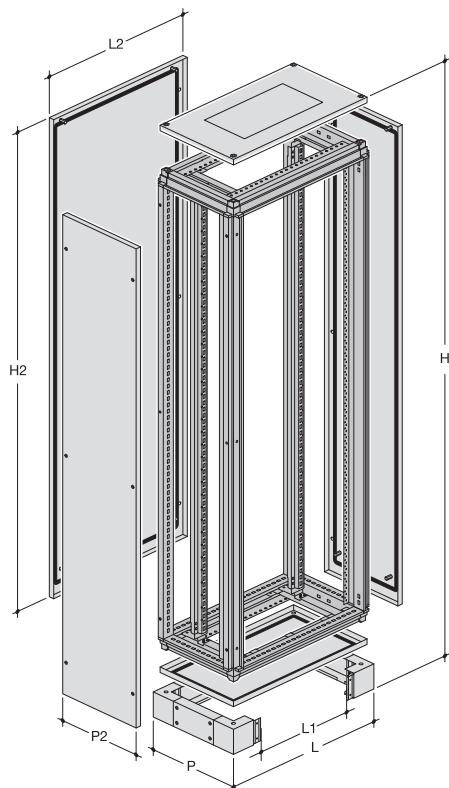


| | width (mm) | distance between pillars (mm) | top panel width (mm) |
|----------|------------|-------------------------------|----------------------|
| Quadro 5 | 450 | 250 | 350 |
| | 700 | 500 | 600 |
| | 900 | 700 | 800 |
| | | 500 + cable sleeve | 600 + 200 |

| | distance between pillars (mm) | top panel width (mm) |
|--------|-------------------------------|----------------------|
| 1 x 10 | 250 | 350 |
| 1 x 24 | 500 | 600 |
| 1 x 36 | 700 | 800 |

Quadro+ Enclosures

Commercial Distribution



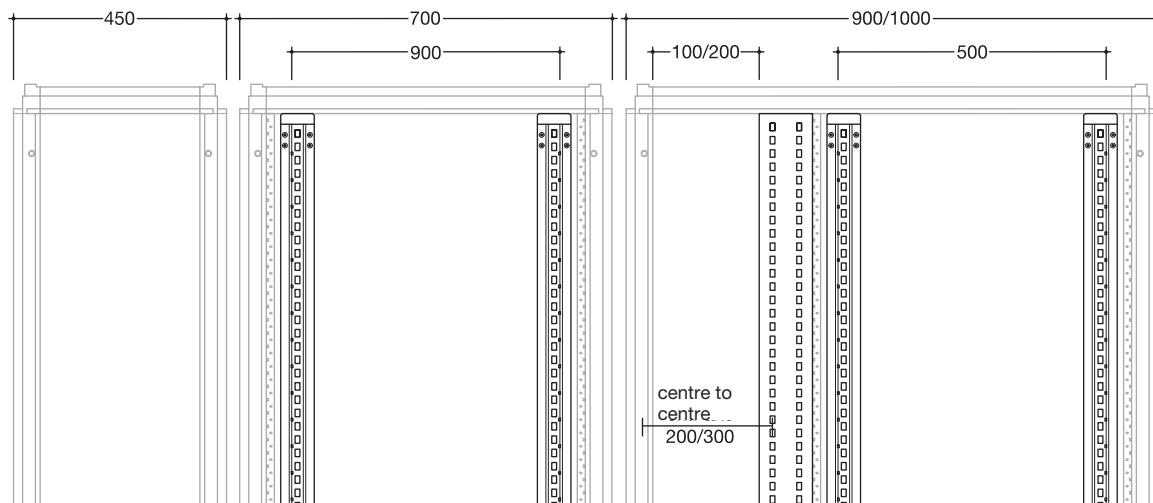
Doors height H1 : 1900 mm

Dimensions in mm

| | frame | plinth | side | back | H* | P | L1 | H2 | L2 | P2 |
|----------|---------------|---------------|---------------|---------------|------|-----|-----|------|-----|-----|
| L = 450 | FN018E | FN438E | FN356E | FN216E | 2000 | 400 | 288 | 1900 | 448 | 365 |
| L = 700 | FN021E | FN441E | FN356E | FN276E | 2000 | 400 | 538 | 1900 | 698 | 365 |
| L = 900 | FN023E | FN443E | FN356E | FN296E | 2000 | 400 | 738 | 1900 | 898 | 365 |
| L = 1000 | FN024E | FN444E | FN356E | FN246E | 2000 | 400 | 838 | 1900 | 998 | 365 |
| L = 450 | FN020E | FN440E | FN366E | FN216E | 2000 | 600 | 288 | 1900 | 448 | 565 |
| L = 700 | FN029E | FN451E | FN366E | FN276E | 2000 | 600 | 538 | 1900 | 698 | 565 |
| L = 900 | FN031E | FN453E | FN366E | FN296E | 2000 | 600 | 738 | 1900 | 898 | 565 |
| L = 1000 | FN032E | FN454E | FN366E | FN246E | 2000 | 600 | 838 | 1900 | 998 | 565 |
| L = 450 | FN022E | FN442E | FN376E | FN216E | 2000 | 800 | 288 | 1900 | 448 | 765 |
| L = 700 | FN013E | FN433E | FN376E | FN276E | 2000 | 800 | 538 | 1900 | 698 | 765 |
| L = 900 | FN017E | FN437E | FN376E | FN296E | 2000 | 800 | 738 | 1900 | 898 | 765 |
| L = 1000 | FN037E | FN459E | FN376E | FN246E | 2000 | 800 | 838 | 1900 | 998 | 765 |

* structure 1900 mm, plinth 100 mm

Back Plates Quadro+ Evo



Busbars Short-circuits Withstand Capacity
Vertical Mounting

| Busbars fixing | nominal current | bars sections (mm) | bars supports max. distance depending on short-circuit current (mm) | | | | | |
|-------------------------------------|-----------------|--------------------|---|-------|-------|-------|-------|-------|
| | | | 10 kA | 15 kA | 20 kA | 25 kA | 30 kA | 35 kA |
| In ≤ 630 A Icc ≤ 35 kA UC820 | 160 A | 12 x 5 | 1000 | 475 | 250 | 650 | 425 | 300 |
| | 250 A | 20 x 5 | 1000 | 1000 | 950 | | | |
| | 400 A | 30 x 5 | 1000 | 1000 | 1000 | 850 | 550 | 375 |
| | 630 A | 30 x 10 | 1000 | 1000 | 1000 | 1000 | 900 | 625 |

Horizontal Mounting

| Busbars fixing | nominal current | bars sections (mm) | short-circuit current depending on bottom width for Quadro 4, Quadro 5 and Quadro+ Evo | | |
|-------------------------------------|-----------------|--------------------|--|--------|--|
| | | | 250 mm | 500 mm | |
| In ≤ 630 A Icc ≤ 35 kA UC820 | 160 A | 12 x 5 | 20 kA | 15 kA | |
| | 250 A | 20 x 5 | 35 kA | 30 kA | |
| | 400 A | 30 x 5 | 45 kA | 34 kA | |
| | 630 A | 30 x 10 | 55 kA | 45 kA | |

Inclined Busbars

| Busbars fixing | nominal current | bars sections (mm) | short-circuit current depending on bottom width for Quadro 4, Quadro 5 and Quadro+ Evo | | | | | |
|--|-----------------|--------------------|--|-------|-------|-------|-------|-------|
| | | | 10 kA | 15 kA | 20 kA | 25 kA | 30 kA | 35 kA |
| In ≤ 630 A Icc ≤ 35 kA UC826 | 250 A | 20 x 5 | 1000 | 1000 | 1000 | 825 | 650 | 425 |
| | 400 A | 32 x 5 | 1000 | 1000 | 1000 | 1000 | 925 | 625 |
| | 630 A | 30 x 10 | 1000 | 1000 | 1000 | 1000 | 925 | 650 |

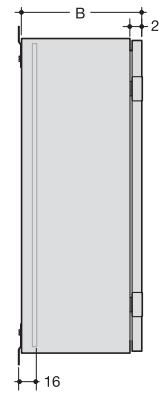
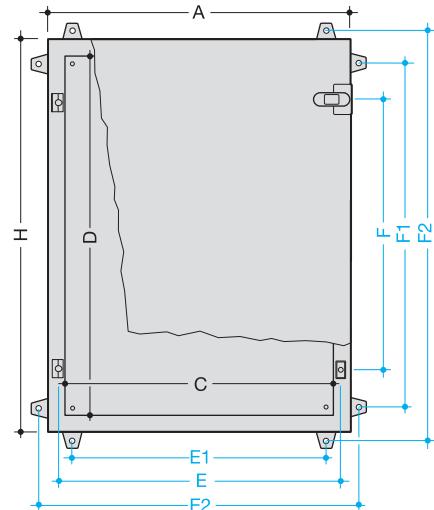
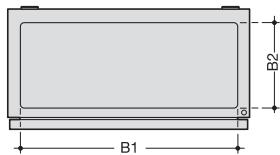
Busbars Supports (only for Quadro+ Evo)

| Busbars fixing | nominal current | bars sections (mm) | bars supports max. distance "d" depending on short-circuit current (mm) | | | | | | | | | |
|--|-----------------|--------------------|---|-------|-------|-------|-------|-------|-----|-----|-----|-----|
| | | | 12 kA | 23 kA | 30 kA | 39 kA | 52 kA | 70 kA | 3P | 4P | 3P | 4P |
| In ≤ 1600 A Icc ≤ 70 kA UC824 UC823 | 500 A | 50 x 5 | 1475 | 1350 | 800 | 725 | 625 | 575 | 450 | 425 | 350 | 325 |
| | 630 A | 63 x 5 | 1600 | 1600 | 925 | 850 | 725 | 650 | 525 | 475 | 400 | 375 |
| | 800 A | 80 x 5 | 1600 | 1600 | 1075 | 957 | 825 | 775 | 600 | 550 | 450 | 425 |
| | 1000 A | 100 x 5 | 1600 | 1600 | 1225 | 1125 | 950 | 900 | 700 | 550 | 252 | 500 |
| | 1250 A | 80 x 5 x 2 | 1600 | 1600 | 1050 | 1025 | 825 | 800 | 600 | 575 | 450 | 450 |
| | 1600 A | 100 x 5 x 2 | 1600 | 1600 | 1250 | 1200 | 975 | 950 | 725 | 700 | 550 | 525 |
| | | | | | | | | | | | 400 | 400 |

Inclined Horizontal Bars Mounting

| Busbars fixing | nominal current | bars sections (mm) | short-circuit current depending on bottom width for Quadro 4, Quadro 5 and Quadro+ Evo | | | |
|--|-----------------|--------------------|--|--------|--|--|
| | | | 250 mm | 500 mm | | |
| In ≤ 630 A Icc ≤ 35 kA UC826 | 250 A | 20 x 5 | 35 kA | 35 kA | | |
| | 400 A | 32 x 5 | 45 kA | 35 kA | | |
| | 630 A | 30 x 10 | 45 kA | 35 kA | | |

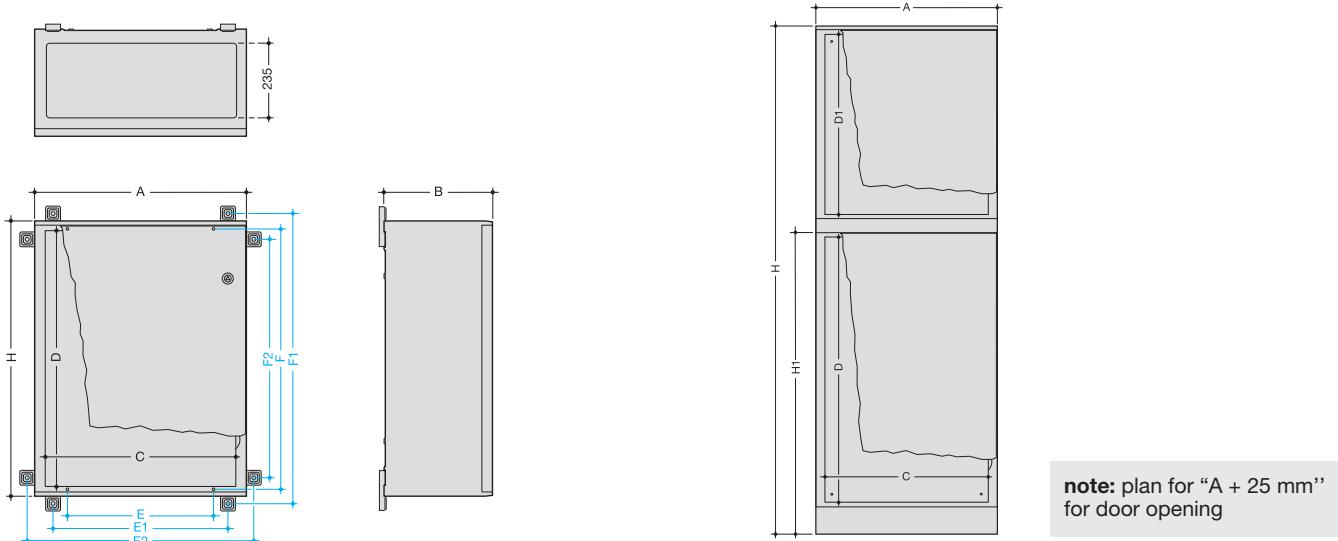
Metal Enclosure Orion Plus



Dimensions

| references | plain door | transp.door | number of rows | enclosure | | | | | | | | external fixing | | | |
|---------------|---------------|-------------|----------------|-----------|-----|-----|-----|-----|------|-----|-----|-----------------|------|----|--|
| | | | | L | A | B | B1 | B2 | C | D | E1 | E2 | F1 | F2 | |
| FL101A | FL151A | - | 200 | 250 | 160 | 145 | 80 | 150 | 200 | 160 | 270 | 170 | 282 | | |
| FL102A | FL152A | - | 250 | 300 | 160 | 195 | 80 | 200 | 250 | 210 | 320 | 220 | 332 | | |
| FL103A | FL153A | - | 300 | 300 | 160 | 245 | 80 | 250 | 250 | 260 | 370 | 220 | 332 | | |
| FL104A | FL154A | 2 | 300 | 350 | 160 | 245 | 80 | 250 | 300 | 260 | 370 | 270 | 382 | | |
| FL105A | FL155A | 2 | 300 | 350 | 200 | 245 | 120 | 250 | 300 | 260 | 370 | 270 | 382 | | |
| FL106A | FL156A | - | 300 | 400 | 160 | 245 | 80 | 250 | 350 | 260 | 370 | 320 | 432 | | |
| FL107A | FL157A | - | 300 | 400 | 200 | 245 | 120 | 250 | 350 | 260 | 370 | 320 | 432 | | |
| FL108A | FL158A | - | 400 | 400 | 200 | 345 | 120 | 350 | 350 | 360 | 470 | 320 | 432 | | |
| FL109A | FL159A | 3 | 300 | 500 | 160 | 245 | 80 | 250 | 450 | 260 | 370 | 420 | 532 | | |
| FL110A | FL160A | 3 | 300 | 500 | 200 | 245 | 120 | 250 | 450 | 260 | 370 | 420 | 532 | | |
| FL111A | FL161A | 3 | 400 | 500 | 160 | 345 | 80 | 350 | 450 | 360 | 470 | 420 | 532 | | |
| FL112A | FL162A | 3 | 400 | 500 | 200 | 345 | 120 | 350 | 450 | 360 | 470 | 420 | 532 | | |
| FL113A | FL163A | - | 500 | 500 | 200 | 445 | 120 | 450 | 450 | 460 | 570 | 420 | 532 | | |
| FL114A | FL164A | - | 400 | 600 | 200 | 345 | 120 | 350 | 550 | 360 | 470 | 520 | 632 | | |
| FL115A | FL165A | - | 400 | 600 | 250 | 345 | 170 | 350 | 550 | 360 | 470 | 520 | 632 | | |
| FL116A | FL166A | - | 600 | 600 | 250 | 545 | 170 | 550 | 550 | 560 | 670 | 520 | 632 | | |
| FL117A | FL167A | 4 | 400 | 650 | 200 | 345 | 120 | 350 | 600 | 360 | 470 | 570 | 682 | | |
| FL118A | FL168A | 4 | 400 | 650 | 250 | 345 | 170 | 350 | 600 | 360 | 470 | 570 | 682 | | |
| FL119A | FL169A | 4 | 500 | 650 | 200 | 445 | 120 | 450 | 600 | 460 | 570 | 570 | 682 | | |
| FL120A | FL170A | 4 | 500 | 650 | 250 | 445 | 170 | 450 | 600 | 460 | 570 | 570 | 682 | | |
| FL121A | FL171A | 5 | 500 | 800 | 200 | 445 | 120 | 450 | 750 | 460 | 570 | 720 | 832 | | |
| FL122A | FL172A | 5 | 500 | 800 | 250 | 445 | 170 | 450 | 750 | 460 | 570 | 720 | 832 | | |
| FL123A | FL173A | 5 | 600 | 800 | 250 | 545 | 170 | 550 | 750 | 560 | 670 | 720 | 832 | | |
| FL124A | FL174A | 5 | 600 | 800 | 300 | 545 | 220 | 550 | 750 | 560 | 670 | 720 | 832 | | |
| FL125A | FL175A | 6 | 600 | 950 | 250 | 545 | 170 | 550 | 900 | 560 | 670 | 870 | 982 | | |
| FL126A | FL176A | 6 | 600 | 950 | 300 | 545 | 220 | 550 | 900 | 560 | 670 | 870 | 982 | | |
| FL127A | FL177A | 6 | 800 | 950 | 250 | 745 | 170 | 750 | 900 | 760 | 870 | 870 | 982 | | |
| FL128A | FL178A | 6 | 800 | 950 | 300 | 745 | 220 | 750 | 900 | 760 | 870 | 870 | 982 | | |
| FL129A | FL179A | 8 | 600 | 1250 | 250 | 545 | 170 | 550 | 1200 | 560 | 670 | 1170 | 1282 | | |
| FL130A | FL180A | 8 | 800 | 1250 | 300 | 745 | 220 | 750 | 1200 | 760 | 870 | 1170 | 1282 | | |

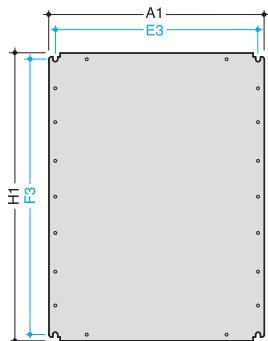
Orion Plus Polyester Enclosures



Dimensions

| references | plain door | transp. door | nr of rows | enclosures | | | | | | | | in.fixing | | external fixing | | | |
|---------------|---------------|--------------|------------|------------|------|-----|-----|------|------|-----|-----|-----------|-----|-----------------|-----|-----|----|
| | | | | L | A | A1 | A2 | B | C | D | D1 | E | F | E1 | E2 | F1 | F2 |
| FL204B | FL254B | 2 | 300 | 500 | - | - | 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 | |
| FL300B | FL500B | 3 | 600 | 550 | - | - | 300 | 500 | 450 | - | - | - | - | - | - | - | |
| FL301B | FL501B | 5 | 600 | 850 | - | - | 300 | 500 | 750 | - | - | - | - | - | - | - | |
| FL302B | FL502B | 7 | 600 | 1150 | - | - | 300 | 500 | 1050 | - | - | - | - | - | - | - | |
| FL305B | FL505B | 3 | 850 | 550 | - | - | 300 | 750 | 450 | - | - | - | - | - | - | - | |
| FL306B | FL506B | 5 | 850 | 850 | - | - | 300 | 750 | 750 | - | - | - | - | - | - | - | |
| FL307B | FL507B | 7 | 850 | 1150 | - | - | 300 | 750 | 1050 | - | - | - | - | - | - | - | |
| FL310B | FL510B | 3 | 1100 | 550 | - | - | 300 | 1000 | 450 | - | - | - | - | - | - | - | |
| FL311B | FL511B | 5 | 1100 | 850 | - | - | 300 | 1000 | 750 | - | - | - | - | - | - | - | |
| FL312B | FL512B | 7 | 1100 | 1150 | - | - | 300 | 1000 | 1050 | - | - | - | - | - | - | - | |
| FL320B | FL520B | 3 | 600 | 600 | - | - | 300 | 500 | 450 | - | - | - | - | - | - | - | |
| FL321B | FL521B | 5 | 600 | 900 | - | - | 300 | 500 | 750 | - | - | - | - | - | - | - | |
| FL322B | FL522B | 7 | 600 | 1200 | - | - | 300 | 500 | 1050 | - | - | - | - | - | - | - | |
| FL325B | FL525B | 3 | 850 | 600 | - | - | 300 | 750 | 450 | - | - | - | - | - | - | - | |
| FL326B | FL526B | 5 | 850 | 900 | - | - | 300 | 750 | 750 | - | - | - | - | - | - | - | |
| FL327B | FL527B | 7 | 850 | 1200 | - | - | 300 | 750 | 1050 | - | - | - | - | - | - | - | |
| FL330B | FL530B | 3 | 1100 | 600 | - | - | 300 | | 450 | - | - | - | - | - | - | - | |
| FL331B | FL531B | 5 | 1100 | 900 | - | - | 300 | 1000 | 750 | - | - | - | - | - | - | - | |
| FL332B | FL532B | 7 | 1100 | 1200 | - | - | 300 | 1000 | 1050 | - | - | - | - | - | - | - | |
| FL340B | - | 3+3 | 600 | 1150 | 550 | 550 | 300 | 500 | 450 | - | - | - | - | - | - | - | |
| FL342B | - | 5+3 | 600 | 1450 | 850 | 550 | 300 | 500 | 750 | 450 | - | - | - | - | - | - | |
| FL344B | - | 7+3 | 600 | 1750 | 1150 | 550 | 300 | 500 | 1050 | 450 | - | - | - | - | - | - | |
| FL346B | - | 5+5 | 600 | 1750 | 850 | 850 | 300 | 500 | 750 | 750 | - | - | - | - | - | - | |
| FL348B | - | 7+5 | 600 | 2050 | 1150 | 850 | 300 | 500 | 1050 | 750 | - | - | - | - | - | - | |
| FL350B | - | 3+3 | 850 | 1150 | 550 | 550 | 300 | 750 | 450 | 450 | - | - | - | - | - | - | |
| FL352B | - | 5+3 | 850 | 1450 | 850 | 550 | 300 | 750 | 750 | 450 | - | - | - | - | - | - | |
| FL354B | - | 7+3 | 850 | 1750 | 1150 | 550 | 300 | 750 | 1050 | 450 | - | - | - | - | - | - | |
| FL356B | - | 5+5 | 850 | 1750 | 850 | 850 | 300 | 750 | 750 | 750 | - | - | - | - | - | - | |
| FL358B | - | 7+5 | 850 | 2050 | 1150 | 850 | 300 | 750 | 1050 | 750 | - | - | - | - | - | - | |
| FL360B | - | 3+3 | 1100 | 1500 | 550 | 550 | 300 | 1000 | 450 | 450 | - | - | - | - | - | - | |
| FL362B | - | 5+3 | 1100 | 1450 | 850 | 550 | 300 | 1000 | 750 | 450 | - | - | - | - | - | - | |
| FL364B | - | 7+3 | 1100 | 1750 | 1150 | 550 | 300 | 1000 | 1050 | 450 | - | - | - | - | - | - | |
| FL366B | - | 5+5 | 1100 | 1750 | 850 | 850 | 300 | 1000 | 750 | 750 | - | - | - | - | - | - | |
| FL368B | - | 7+5 | 1100 | 2050 | 1150 | 550 | 300 | 1000 | 1050 | 750 | - | - | - | - | - | - | |

Mounting Plate



Commercial
Distribution

Dimensions

| plain plate | perforated plate | size L1 | A1 | for enclosures | insulated | size L1 | A1 |
|---------------|------------------|------------|------|---|---------------|------------|------|
| FL401A | - | 143 | 230 | FL101A, FL151A | - | - | - |
| FL402A | FL472A | 193 | 280 | FL102A, FL152A | FL422A | 195 | 235 |
| FL403A | | 243 | 280 | FL103A, FL153A | - | - | - |
| FL404A | FL473A | 243 | 330 | FL104A, FL105A, FL154A, FL155A, FL204B, FL254B | FL423A | 245 | 285 |
| FL405A | - | 243 | 380 | FL106A, FL107A, FL156A, FL157A | - | - | - |
| FL406A | - | 343 | 380 | FL108A, FL158A | - | - | - |
| FL407A | FL474A | 243 | 480 | FL109A, FL110A, FL159A, FL160A, FL209B, FL259B | FL424A | 245 | 285 |
| FL408A | FL475A | 343 | 480 | FL111A, FL112A, FL161A, FL162A, FL213B, FL263B | FL425A | 245 | 435 |
| FL510E | - | 493 | 480 | FL300B, FL500B, FL320B, FL520B | FL550E | 495 | 435 |
| FL520E | - | 743 | 480 | FL305B, FL505B, FL325B, FL525B | FL560E | 745 | 435 |
| FL530E | - | 993 | 480 | FL310B, FL510B, FL330B, FL530B | FL570E | 995 | 435 |
| FL409A | - | 443 | 480 | FL113A, FL163A | - | - | - |
| FL410A | - | 343 | 580 | FL114A, FL115A, FL164A, FL165A | - | - | - |
| FL411A | - | 543 | 580 | FL116A, FL166A | - | - | - |
| FL412A | FL476A | 343 | 630 | FL117A, FL118A, FL167A, FL168A, FL216B, FL266B | FL426A | 345 | 585 |
| FL413A | FL477A | 443 | 630 | FL119A, FL120A, FL169A, FL170A, FL221B, FL271B | FL427A | 445 | 585 |
| FL414A | FL478A | 443 | 780 | FL121A, FL122A, FL171A, FL172A | FL428A | 445 | 735 |
| FL415A | FL479A | 543 | 780 | FL123A, FL124A, FL173A, FL174A, FL229B, FL279B | FL429A | 545 | 735 |
| FL511E | - | 493 | 780 | FL301B, FL501B, FL321B, FL521B | FL551E | 495 | 735 |
| FL521E | - | 743 | 780 | FL306B, FL506B, FL326B, FL526B | FL561E | 745 | 735 |
| FL531E | - | 993 | 780 | FL311B, FL511B, FL331B, FL531B | FL571E | 995 | 735 |
| FL512E | - | 493 | 1080 | FL302B, FL502B, FL322B, FL522B | FL552E | 495 | 1035 |
| FL522E | - | 693 | 1080 | FL307B, FL507B, FL327B, FL527B | FL562E | 745 | 1035 |
| FL532E | - | 993 | 1080 | FL312B, FL512B, FL332B, FL532B | FL572E | 995 | 1035 |
| FL416A | FL480A | 543 | 930 | FL125A, FL126A, FL175A, FL176A | FL430A | 545 | 885 |
| FL417A | FL481A | 743 | 930 | FL127A, FL128A, FL177A, FL178A | FL431A | 745 | 885 |
| FL418A | FL482A | 543 | 1230 | FL129A, FL179A | FL432A | 545 | 1185 |
| FL419A | FL483A | 743 | 1230 | FL130A, FL180A | FL433A | 745 | 1185 |

Power Dissipated

IEC standard EN 60439-1 (IEC 17-13/1) standard in Table 7 shows the list of checks and tests to be carried out on BT panel types AS (series equipment subject to type testing) and ANS (series equipment partially subject to type testing).

One of the characteristics to be monitored is the overtemperature limit check to ensure that the temperatures specified in Table 3 of the standard are not exceeded for the various parts of the panel.

IEC standard EN 60439-1 requires that for ANS type panels the overtemperature limit check can be carried out by means of extrapolation of the series panels (AS) that have passed the type testing.

The extrapolation method laid down by the standard is set out in the IEC 890 publication corresponding to IEC standard 17-43 "Overtemperature determination method, by extrapolation, for non-standard (ANS) protection and control equipment assemblies for low tension (BT panels)".

To make the overtemperature limit check easier, Hager Lume have drawn up a series of tables where the maximum power values that can be dissipated P.Max (W) are shown for all the Lume panels.

These values have been determined so as to obtain the overtemperature values specified in Table 3 of IEC standard EN 60439-1 for accessible external envelopes and coverings (30K for metal surfaces and 40K for insulating surfaces) for the upper part of the panel.

The maximum power values shown in the tables that can be dissipated by the metalwork are valid for the mounting conditions of the panel considered and for the overtemperature values halfway up Δt 0.5 and in the upper part Δt 1.0 indicated.

IP65 Standard Metal Panels

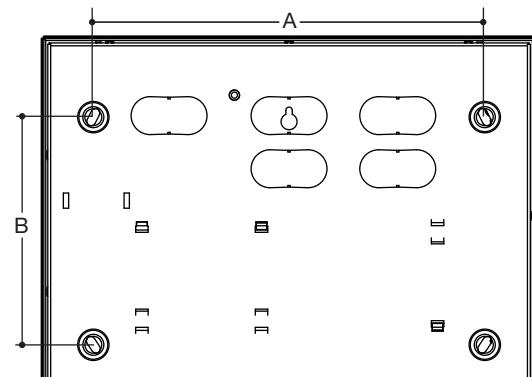
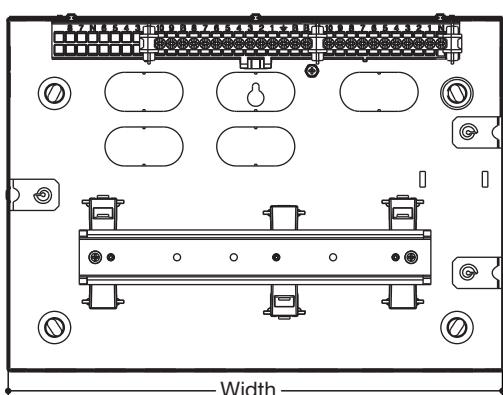
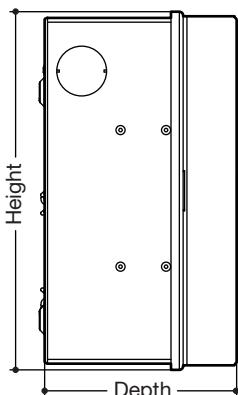
| Article | | Dimensional data (mm) | Laid | ΔT 0,5 (K) | ΔT 1,0 (K) | P. max (W) |
|---------------|---------------|-----------------------|-------|--------------------|--------------------|------------|
| FL102A | FL152A | 300 x 250 x 160 | Walls | 25,0 | 30 | 28 |
| FL104A | FL154A | 350 x 300 x 160 | Walls | 25,0 | 30 | 35 |
| FL105A | FL155A | 350 x 300 x 200 | Walls | 24,9 | 30 | 39 |
| FL109A | FL159A | 500 x 300 x 160 | Walls | 24,3 | 30 | 44 |
| FL110A | FL160A | 500 x 300 x 200 | Walls | 24,3 | 30 | 49 |
| FL111A | FL161A | 500 x 400 x 160 | Walls | 24,7 | 30 | 54 |
| FL112A | FL162A | 500 x 400 x 200 | Walls | 24,9 | 30 | 60 |
| FL117A | FL167A | 650 x 400 x 200 | Walls | 24,3 | 30 | 71 |
| FL118A | FL168A | 650 x 400 x 250 | Walls | 24,5 | 30 | 80 |
| FL119A | FL169A | 650 x 500 x 200 | Walls | 24,8 | 30 | 84 |
| FL120A | FL170A | 650 x 500 x 250 | Walls | 24,9 | 30 | 93 |
| FL121A | FL171A | 800 x 500 x 200 | Walls | 24,4 | 30 | 97 |
| FL122A | FL172A | 800 x 500 x 250 | Walls | 24,5 | 30 | 107 |
| FL123A | FL173A | 800 x 600 x 250 | Walls | 22,0 | 30 | 100 |
| FL124A | FL174A | 800 x 600 x 300 | Walls | 22,7 | 30 | 114 |
| FL125A | FL175A | 950 x 600 x 250 | Walls | 21,4 | 30 | 113 |
| FL126A | FL176A | 950 x 600 x 300 | Walls | 21,8 | 30 | 127 |
| FL127A | FL177A | 950 x 800 x 250 | Walls | 22,1 | 30 | 148 |
| FL128A | FL178A | 950 x 800 x 300 | Walls | 22,8 | 30 | 170 |
| FL129A | FL179A | 1250 x 600 x 250 | Walls | 20,0 | 30 | 134,5 |
| FL130A | FL180A | 1250 x 800 x 300 | Walls | 21,3 | 30 | 211 |

A Boards

Dimensions

:hager

Commercial Distribution

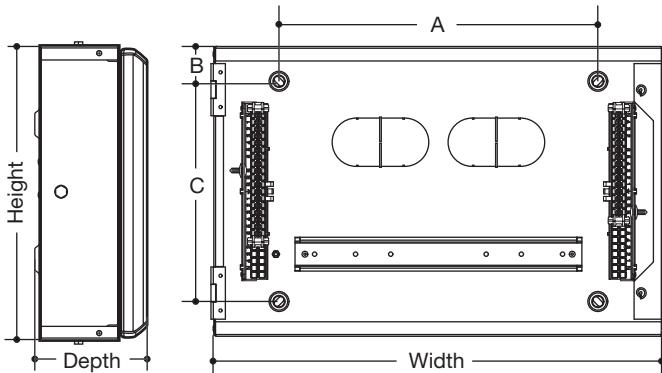


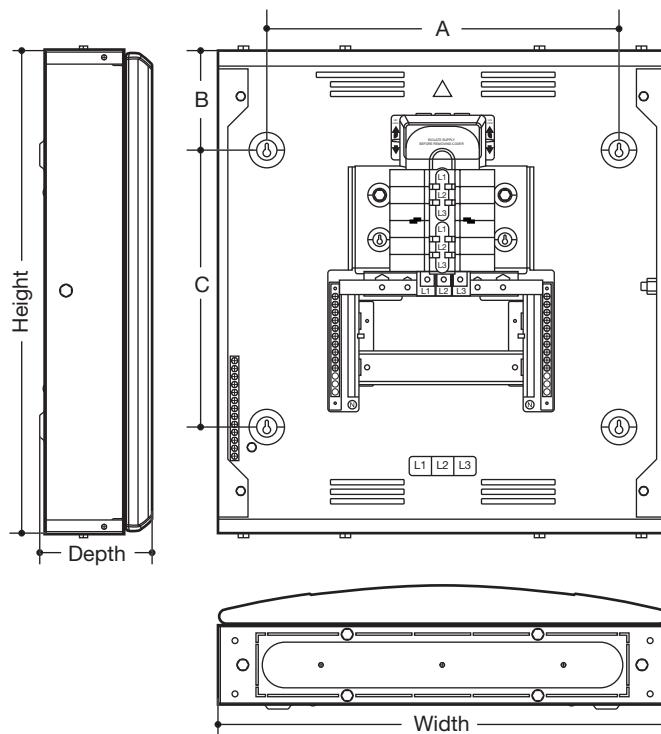
SP&N A Boards

| Enclosure Size | Dimensions | | | Fixing Centres | | Knockout Size | Nº 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 | 0 | - | - | - | 3 |
| 4 | 326 | 236 | 125 | 258 | 150 | ø 20 | 6 | 6 | - | - | - |
| | | | | | | ø 32 | 1 | 1 | 1 | 1 | - |
| | | | | | | ø 25 | 1 | 1 | - | - | - |
| | | | | | | 25 x 50 | 0 | - | - | - | 5 |
| 5 | 398 | 236 | 125 | 330 | 150 | ø 20 | 8 | 8 | - | - | - |
| | | | | | | ø 32 | 1 | 1 | 1 | 1 | - |
| | | | | | | ø 25 | 1 | 1 | - | - | - |
| | | | | | | 25 x 50 | 0 | - | - | - | 7 |
| 7 | 505 | 236 | 125 | 437 | 150 | ø 20 | 11 | 11 | - | - | - |
| | | | | | | ø 32 | 1 | 1 | 1 | 1 | - |
| | | | | | | ø 25 | 1 | 1 | - | - | - |
| | | | | | | 25 x 50 | 0 | - | - | - | 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 | 0 | - | - | - | 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 | 0 | - | - | - | 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 | 0 | - | - | - | 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

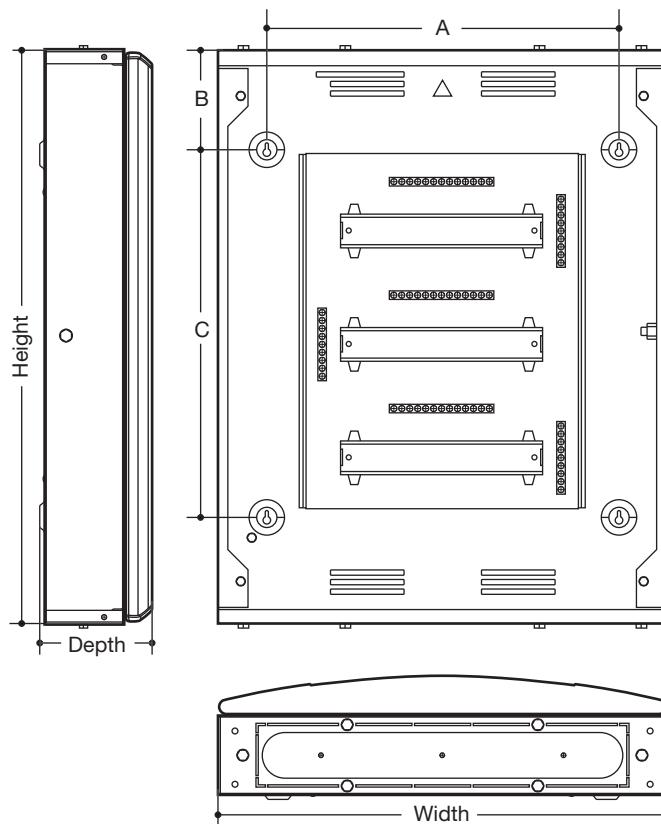
| | Dimensions (mm) | | | Fixing Centres (mm) | | |
|--------------|-----------------|-------|-------|---------------------|-----|------|
| | Height | Width | Depth | A | B | C |
| JK104B/BG/A3 | 500 | 465 | 132.5 | 365 | 100 | 300 |
| JK106B/BG/A3 | 550 | 465 | 132.5 | 365 | 100 | 350 |
| JK108B/BG/A3 | 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 |

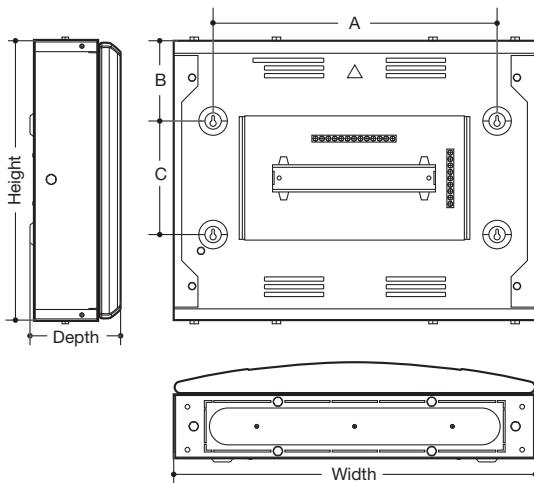


125A Side DIN Boxes

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

250A Side DIN Boxes

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

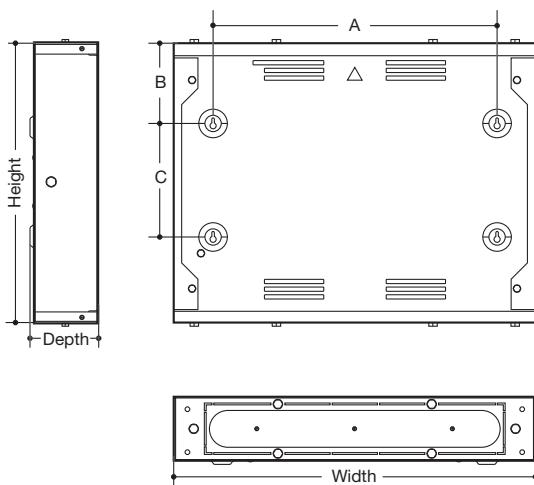


125A DIN Extension Boxes

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

250A DIN Extension Boxes

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

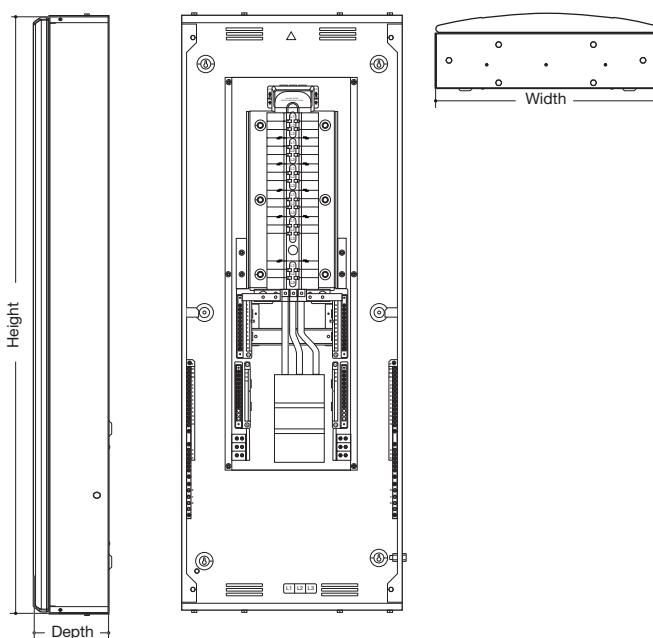


125A Cable Spreader Boxes

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

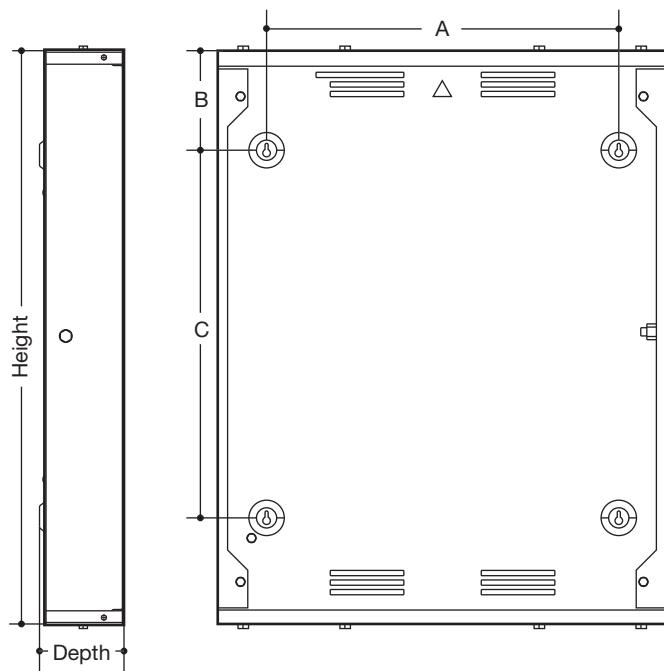
250A Cable Spreader Boxes

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



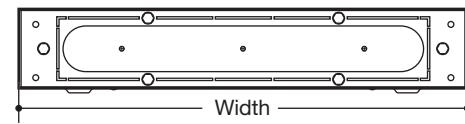
Hybrid 250A TPN Distribution Boards

| | 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 |



125A Half Width Side Extension Boxes

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

250A Half Width Side Extension Boxes

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

Invicta 3 Metered Board, Dual Power & Lighting Board

Technical Data & Dimensions

:hager

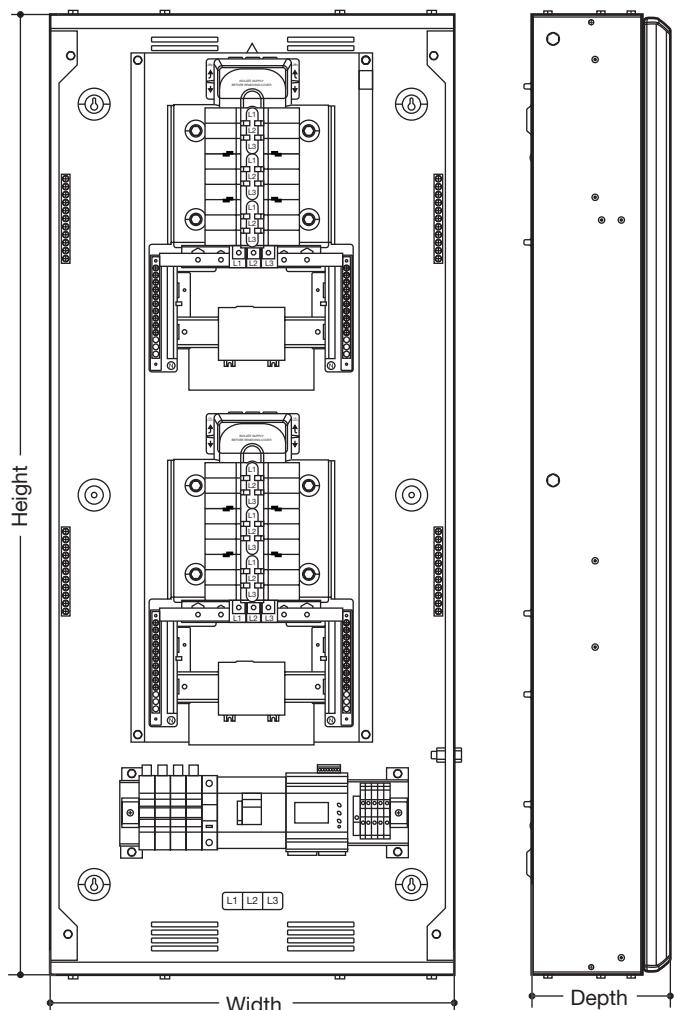
Commercial
Distribution

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 ($\pm 5\%$) |
|--------|--------------------------------------|

Serial Communication

| | |
|---------------------------------|----------------------|
| Interface Standard and Protocol | RS485 and MODBUS RTU |
|---------------------------------|----------------------|

Input (CT)

| | |
|----------------|-------------------|
| Pluggable RJ45 | Input 1 / Input 2 |
|----------------|-------------------|

Output

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

Accuracy of meter

| | |
|------------------------|----------------------------|
| Measurement | Accuracy |
| Voltage VL-N | 0.5% of full range |
| Voltage VL-L | 0.5% of full range |
| Current A | 0.5% of full range |
| Frequency | 0.1% of full range |
| For L-N Voltage > 20V | |
| For L-L Voltage > 35V" | |
| Active power | 1.0% of full range |
| Apparent Power | 1.0% of full range |
| Reactive Power | 1.0% of full range |
| Power Factor | $\pm 0.01\%$ 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 |
| | 100A Switch | 250A MCS |
| | 125A Switch | 250A MCCB |
| Incoming | 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

| Pz No. | (mm) | Cables >1.5mm ² Tightening torque (N.m) | | Cables ≤1.5mm ² Tightening torque (N.m) | | Cable Stripping (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 disconnector) | 70mm ² (switch disconnector) |
| Incoming Neutral Terminal | 50mm ² Cage | 50mm ² Cage |
| Enclosure Earth Stud | M8 | M8 |
| Standards | BS EN 61439-3 | BS EN 61439-3 |

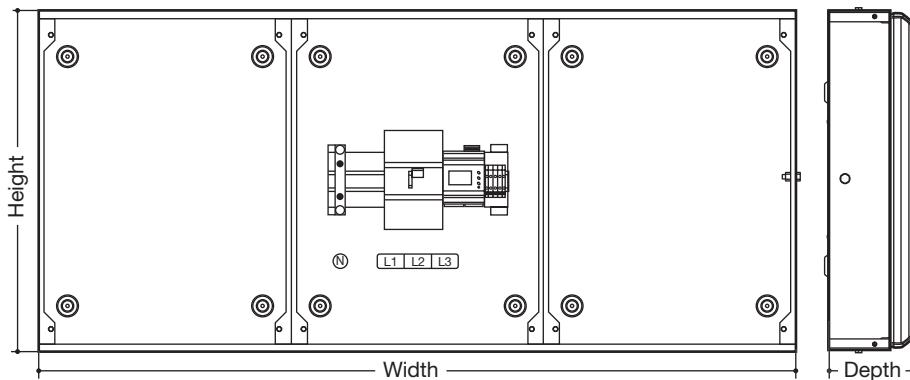
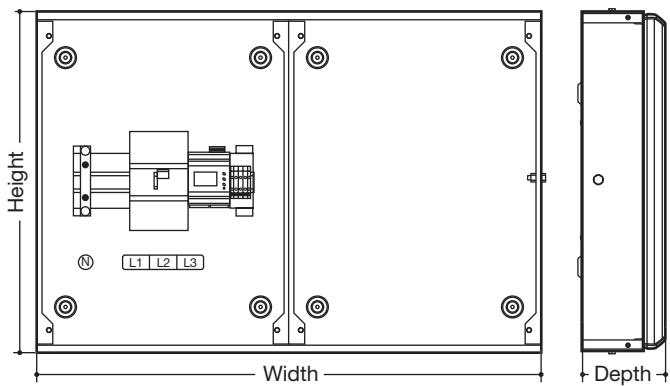
| Interface Characteristics | JKD125PM | JKD125TPM | JKD250PM | JKD250TPM |
|--|---|---|---|---|
| Rated & operational voltage (U_n / U_e) | 415V a.c. 50Hz | 415V a.c. 50Hz | 415V a.c. 50Hz | 415V a.c. 50Hz |
| Rated insulation voltage (U_i) | 690V a.c. 50Hz | 690V a.c. 50Hz | 690V a.c. 50Hz | 690V a.c. 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 |

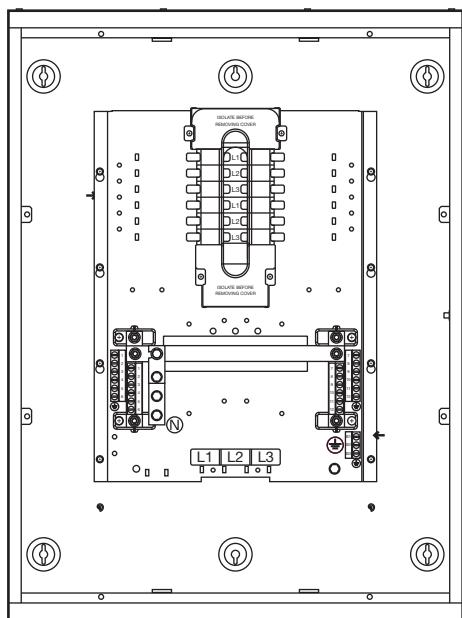
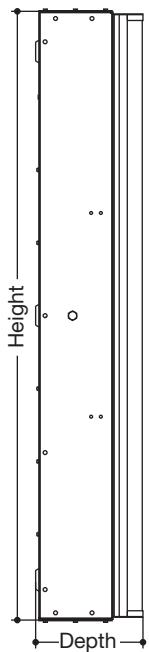
Meter Characteristics

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

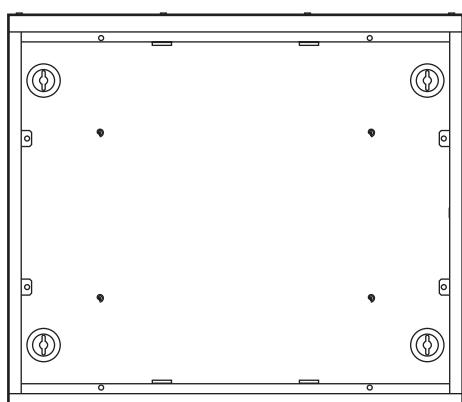
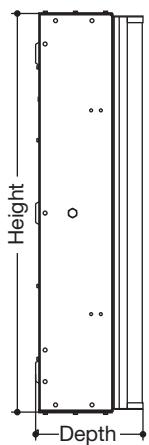
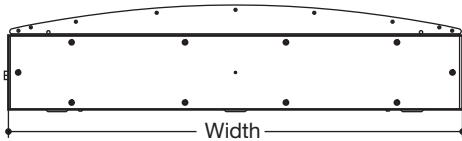
| | Dimensions (mm) | Height | Width | Depth |
|----------|-----------------|--------|-------|-------|
| JN204B/G | 950 | 710 | 160 | |
| JN206B/G | 1100 | 710 | 160 | |
| JN208B/G | 1100 | 710 | 160 | |
| JN212B/G | 1250 | 710 | 160 | |
| JN216B/G | 1550 | 710 | 160 | |

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 |

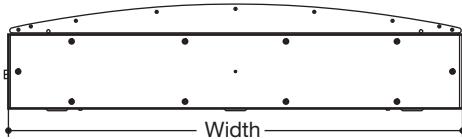
Cables outgoing ways:
25 - 50mm² CSA Flex
25 - 70mm² CSA Solid

MCCB Connections Earth Bond
Earth M8
Neutral M8



Extension Boxes

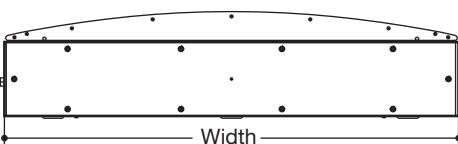
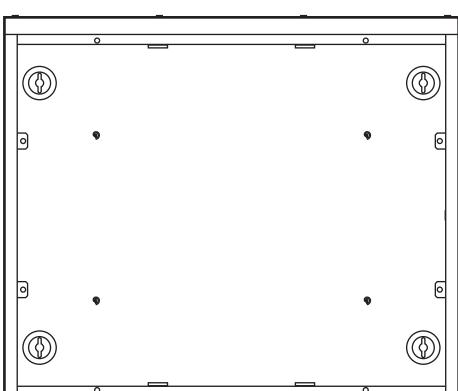
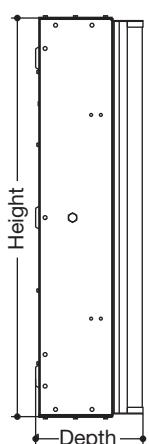
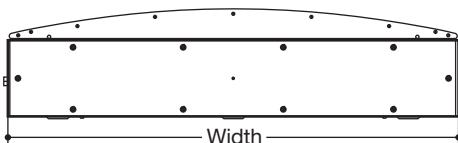
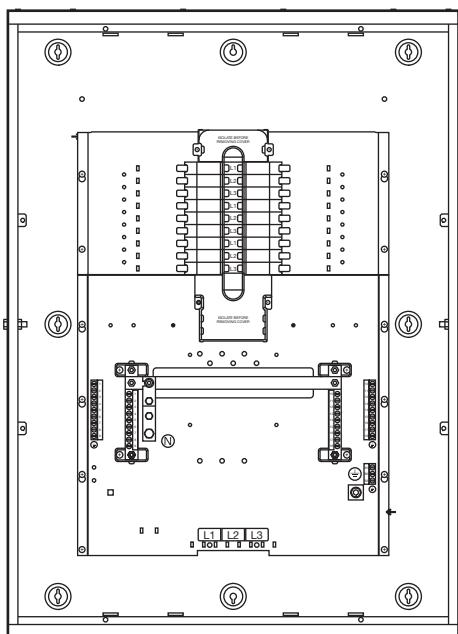
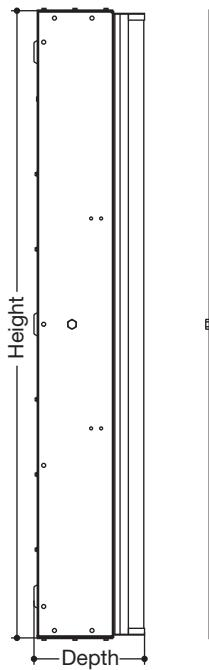
| | Dimensions (mm) | Height | Width | Depth |
|-----------|-----------------|--------|-------|-------|
| JN201BE/G | 300 | 710 | 160 | |
| JN203BE/G | 450 | 710 | 160 | |
| JN205BE | 300 | 710 | 125 | |
| JN206BE | 450 | 710 | 125 | |



Invicta 3 Panelboard - 400A, 630A, 800A Rated Dimensions

:hager

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 |
| 2 x 9 x 50mm | 2 x M8 Bolt | 2 x 12 x 50mm |
| 2 x 6 x 50mm | 4 x M8 Bolt | 2 x 12 x 50mm |
| 2 x 15 x 50mm | 2 x M8 Bolt | 2 x 18 x 50mm |
| 2 x 12 x 50mm | 4 x M8 Bolt | 2 x 18 x 50mm |
| 2 x 21 x 50mm | 4 x M8 Bolt | 2 x 27 x 50mm |
| 2 x 18 x 50mm | 6 x M8 Bolt | 2 x 27 x 50mm |

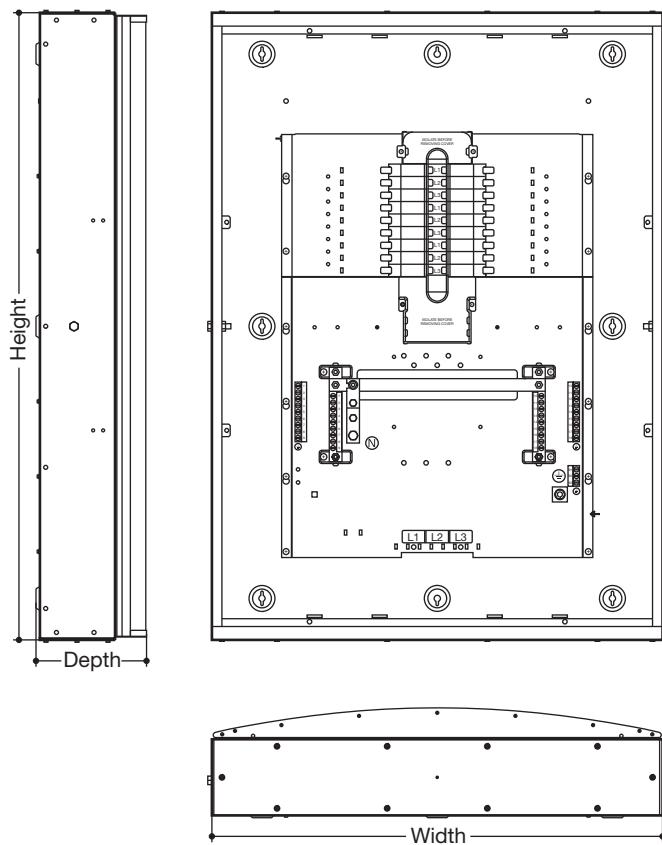
Cables outgoing ways:
25 - 50mm² CSA Flex
25 - 70mm² CSA Solid

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 |

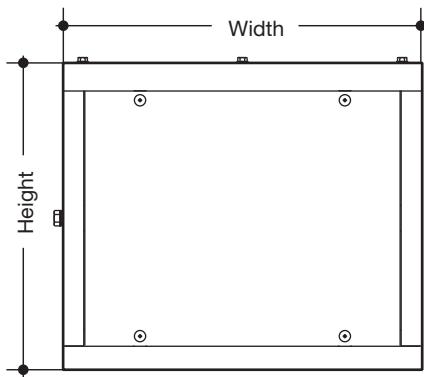
Invicta 3 Panelboard

Technical Data

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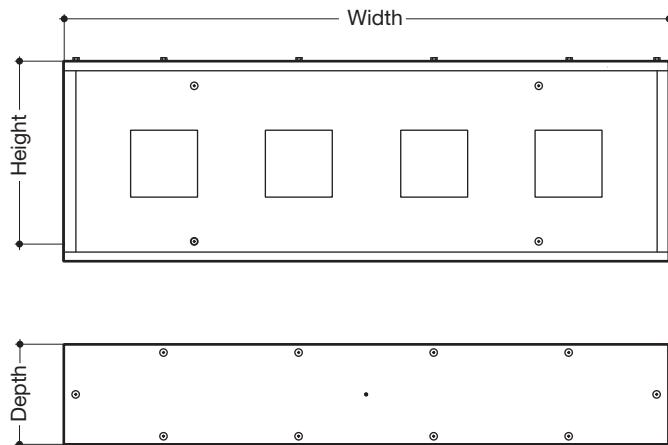
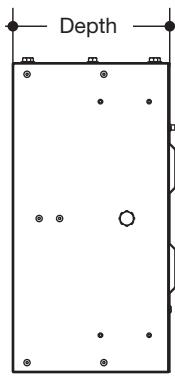
Commercial
Distribution

| Characteristics | 250A | 400A | 630 / 800A | 800A |
|---|--------------------------------------|-------------------------|---|---|
| Series | JN2** | JF4** | JF6**/JF8** | JHF8** |
| Busbar current rating | 250A | 400A | 800A | 800A (for 800A MCCB only) |
| Busbar type | Type B Fully Shrouded Copper | | | |
| Busbar rated short-time withstand current | 25kA for 1 sec | 35kA for 1 sec | 35kA for 1 sec | 35kA for 1 sec |
| Internal separation | Form 3A | | | |
| Incoming | Up to 250A MCCB, MCS | Up to 400A MCCB, MCS | Up to 630A MCCB, 800A LBS | 800A MCCB |
| Outgoing | 16 - 125A max. | 16 - 125A max. | 16 - 125A 100A - 250A | 16 - 125A 100A - 250A |
| Voltage rating in 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 50mm ² | Up to 50mm ² | Up to 50mm ² | Up to 50mm ² |
| Outgoing neutral terminals | Up to 50mm ² | Up to 50mm ² | 16A - 125A: Up to 50mm ² 100A - 250A: M8 Stud | 16A - 125A: Up to 50mm ² 100A - 250A: M8 Stud |
| Enclosure earth stud | M8 | M10 | M10 | M10 |
| Installation | | | | |
| Mounting | Surface (Wall) | | | |



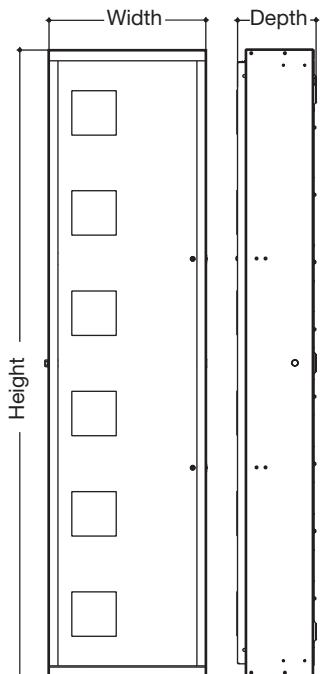
Corner Filler Enclosures

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



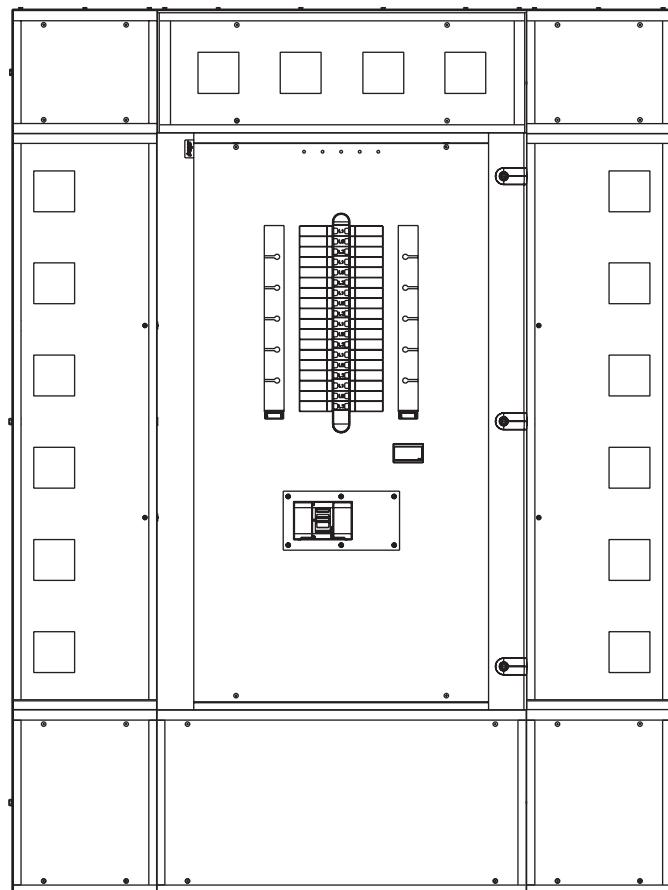
Top/Bottom Enclosures

| | 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 |



Fuse Combination Switches, Switch Disconnectors

Dimensions

:hager

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 |
| JFD206U | 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 |
| JAE320 | 200A TPN | 375 | 400 | 200 | 245 |
| JAE325 | 250A TPN | 375 | 400 | 200 | 245 |
| JAG331 | 315A TPN | 375 | 500 | 200 | 245 |
| JAG340 | 400A TPN | 375 | 500 | 200 | 245 |
| JAH363 | 630A TPN | 500 | 650 | 300 | 345 |
| JAH380 | 800A TPN | 500 | 650 | 300 | 345 |

| 4 Pole | 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 |
| JAE420 | 200A TPSN | 375 | 400 | 200 | 245 |
| JAE425 | 250A TPSN | 375 | 400 | 200 | 245 |
| JAG431 | 315A TPSN | 375 | 500 | 200 | 245 |
| JAG440 | 400A TPSN | 375 | 500 | 200 | 245 |
| JAH463 | 630A TPSN | 500 | 650 | 300 | 345 |
| JAH480 | 800A TPSN | 500 | 650 | 300 | 345 |

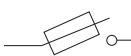
| Thermal current I_{th} (40°C) | 20A | 32A | 63A | 100A | 125A | 160A | 200A |
|---|-----------|-----------|-----------|-----------|-----------|-------------|---------|
| Fuse size: BS | A1 | A1 | A2-A3 | A4 | B1-B2 | B1-B2 | B1-B3 |
| Rated insulated voltage | | | | | | | |
| Ui (V) | 800 | 800 | 800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

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

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

Utilisation categories

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

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

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

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

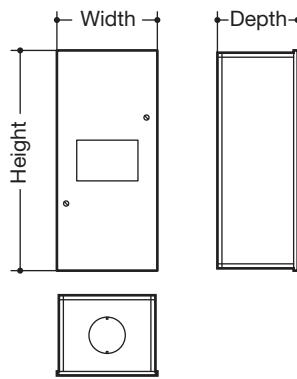
If the load was highly inductive, i.e. motor loads, then the minimum utilisation category would be AC-23A.

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

Motor Power Circuit Protection

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

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

**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 |

Switch Disconnectors

Technical Data

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| 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 | | | | | | | | | | | | |
| Icw rated short time withstand value (kA/s) | 1.26 | 1.26 | 1.5 | 1.5 | 7 | 7 | 7 | 9 | 9 | 9 | 13 | 26 |
| R.M.S value (kA) | 0.16 | 0.256 | 0.504 | 0.64 | 1 | 1.28 | 1.28 | 2 | 2 | 2 | 5.04 | 6.4 |
| Peak withstand value (kA) | - | - | - | - | 20 | 20 | 18 | 30 | 23 | 23 | 45 | 55 |
| Rated short circuit making capacity (kA) | 1.8 | 1.8 | 2.1 | 2.1 | 11.9 | 11.9 | 11.9 | 15.3 | 15.3 | 15.3 | 26 | 54.6 |
| Rated impulse withstand voltage 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 In | 20A | 32A | 63A | 100A | 125A |
| Switch | 3PSN | 3PSN | 3PSN | 3PSN | 3PSN |
| Rated Insulation Voltage U _i | 800V | 800V | 800V | 800V | 800V |
| Rated Impulse Voltage U _{imp} | 8kV | 8kV | 8kV | 8kV | 8kV |
| Dimensions | | | | | |
| Height (mm) | 232 | 232 | 232 | 232 | 300 |
| Width (mm) | 175 | 175 | 175 | 175 | 200 |
| Depth (mm) | 81 | 81 | 81 | 81 | 83 |
| Operational Current Ie (A) | | | | | |
| 415V AC - AC21A / AC21B | 20/20 | 32/32 | 63/63 | 100/100 | 125/125 |
| 415V AC - AC22A / AC22B | 20/20 | 32/32 | 63/63 | 100/100 | 125/125 |
| 415V AC - AC23A / AC23B | 20/20 | 32/32 | 63/63 | 100/100 | 125/125 |
| 500V AC - AC21A / AC21B | 20/20 | 32/32 | 63/63 | 100/100 | 125/125 |
| 500V AC - AC22A / AC22B | 20/20 | 32/32 | 63/63 | 100/100 | 125/125 |
| 500V AC - AC23A / AC23B | 20/20 | 25/25 | 63/63 | 80/80 | 100/100 |
| 690V AC - AC21A / AC21B | 20/20 | 32/32 | 63/63 | 100/100 | 125/125 |
| 690V AC - AC22A / AC22B | 20/20 | 32/32 | 40/63 | 80/100 | 100/126 |
| 690V AC - AC23A / AC23B | 20/20 | 25/25 | 40/40 | 63/63 | 63/63 |
| Operational Power in AC-23 (kW) | | | | | |
| At 415V AC | 9 | 15 | 30 | 45 | 55 |
| At 500V AC | 9 | 15 | 30 | 45 | 55 |
| At 690V AC | 11 | 15 | 30 | 45 | 55 |
| Overload Capacity | | | | | |
| Fuse rating | 20 | 32 | 63 | 100 | 125 |
| Fused Icc | 50 | 50 | 50 | 25 | 25 |
| I _{cw} (kA) | 2.5 / 0.3s | 2.5 / 0.3s | 3.0 / 0.3s | 5.0 / 0.3s | 5.0 / 0.3s |
| I _{pk} (kA) | 6 | 6 | 9 | 12 | 12 |
| Cable Connection | | | | | |
| Max Cu cable CSA mm ² | 16 | 16 | 35 | 70 | 70 |

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 ≥ than 50mm |
| 2 |  Protected against solid objects ≥ than 12.5mm |
| 3 |  Protected against solid objects ≥ than 2.5mm |
| 4 |  Protected against solid objects ≥ than 1.0mm |
| 5 |  Dust-protected |
| 6 |  Dust-tight |

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

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

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 |

Miniature Circuit Breakers

Technical Data

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Electrical Characteristics

| | MLN | MTN | NBN | NCN | NDN | HMF* | HMC* | HMD* |
|---|---------------|---------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Poles | SP+SN | SP | 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 |
| MTN | 60V | 6kA | 125V | 6kA |
| NCB NCN NDN | 60V | 10kA | 125V | 10kA |

Table 13

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

Table 14

Connection

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

Temperature Derating

MCBs are designed and calibrated to carry their rated current and to operate within their designated thermal time/current zone at 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 |

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).

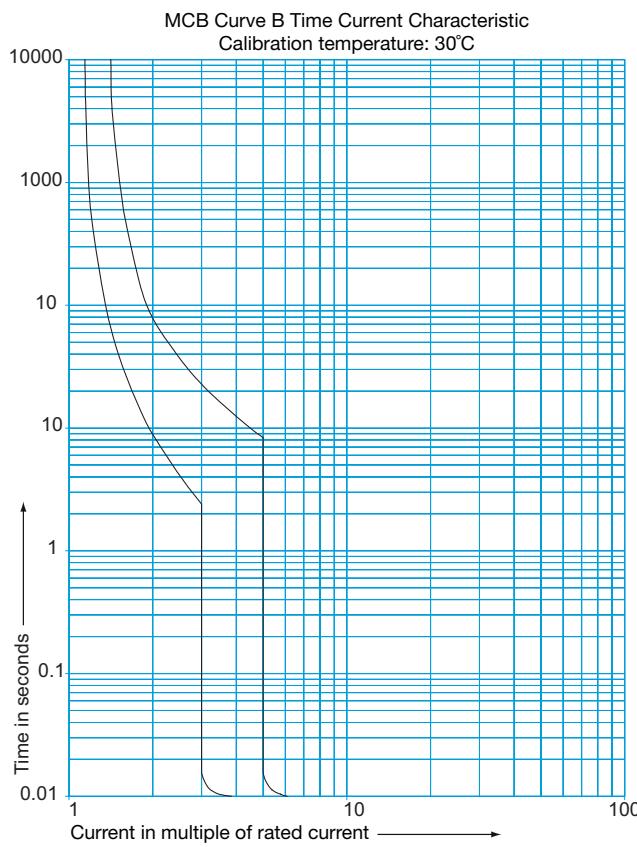
Miniature Circuit Breakers

Time Current Characteristics

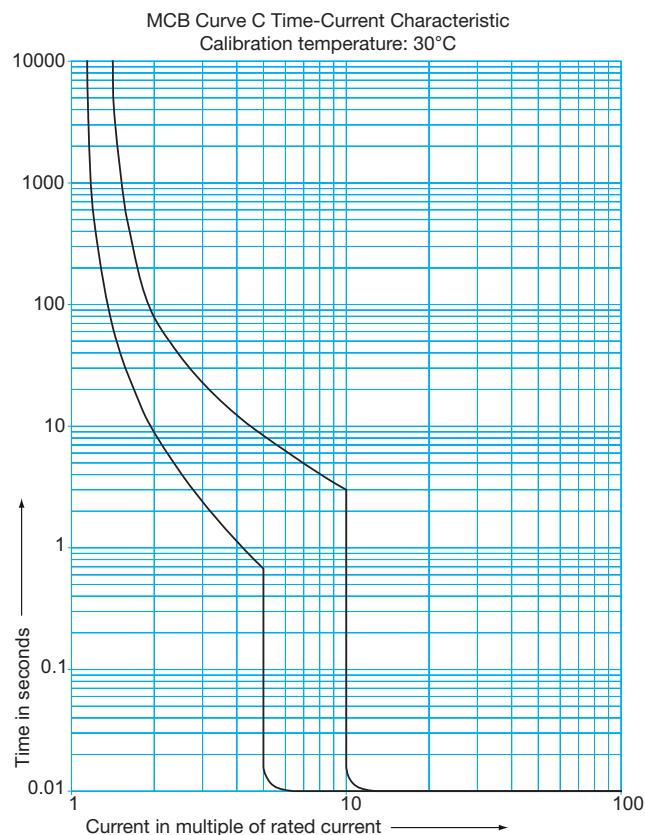
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Commercial
Distribution

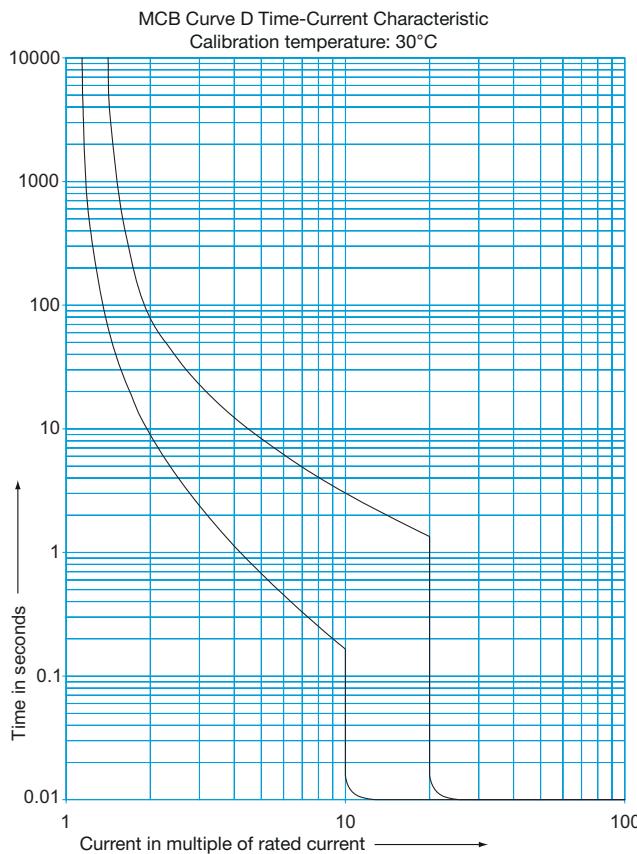
B Curve (BS EN 60898)
MCBs: MTN rated 6 - 63A
NBN rated 6 - 63A

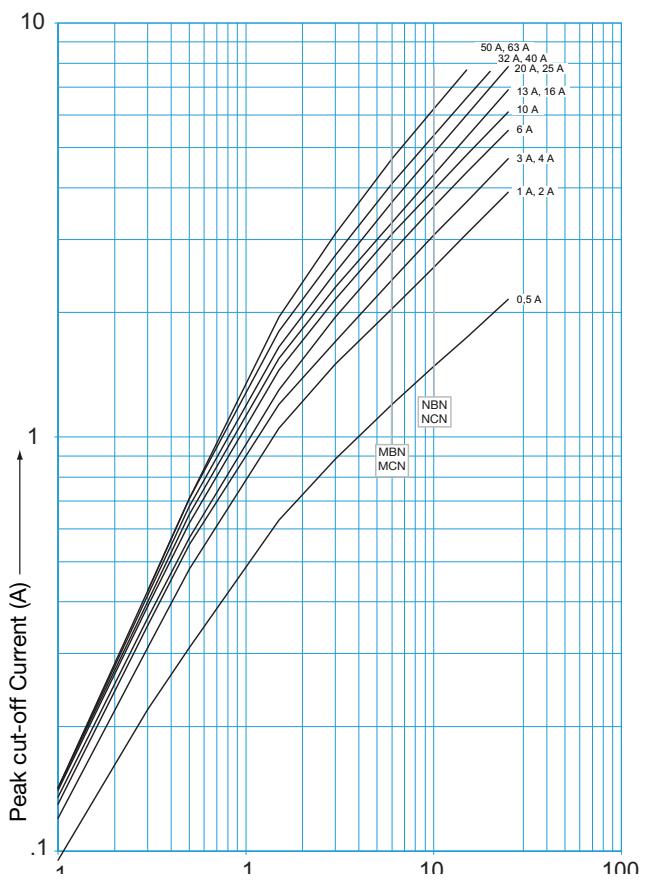
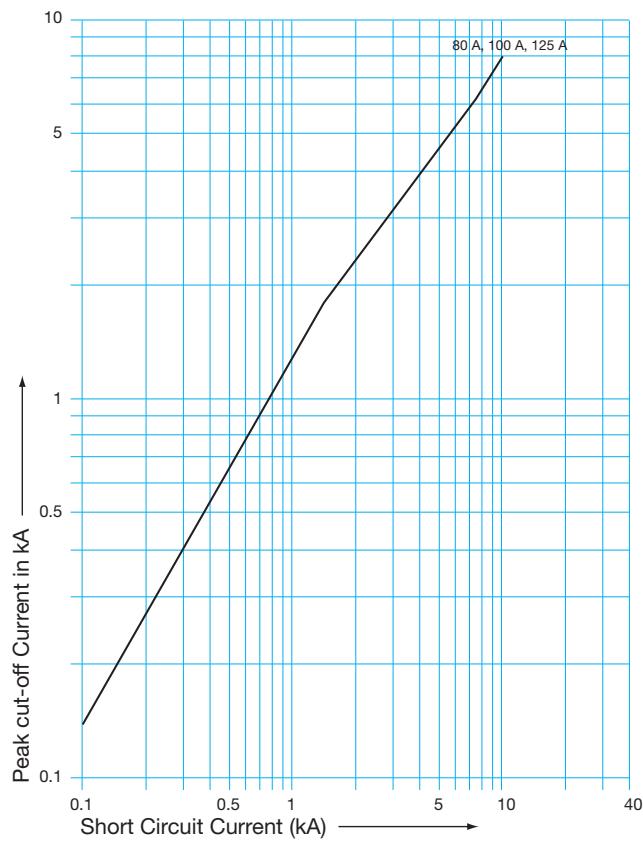


C Curve (BS EN 60898)
MCBs: NCN rated 0.5 - 63A
MLN rated 2 - 32A
HMF/HMC rated 80 - 125A



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



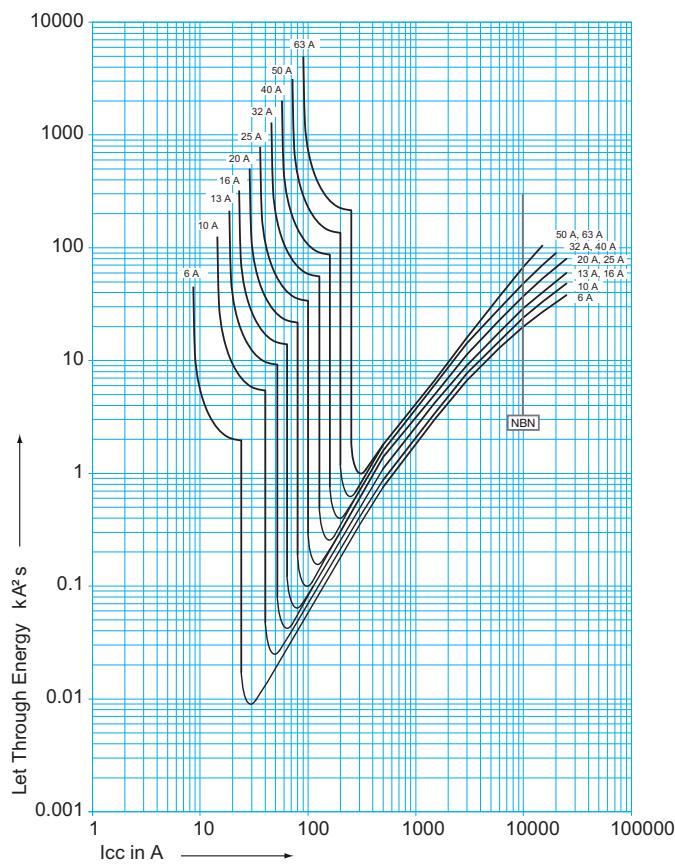


Miniature Circuit Breakers

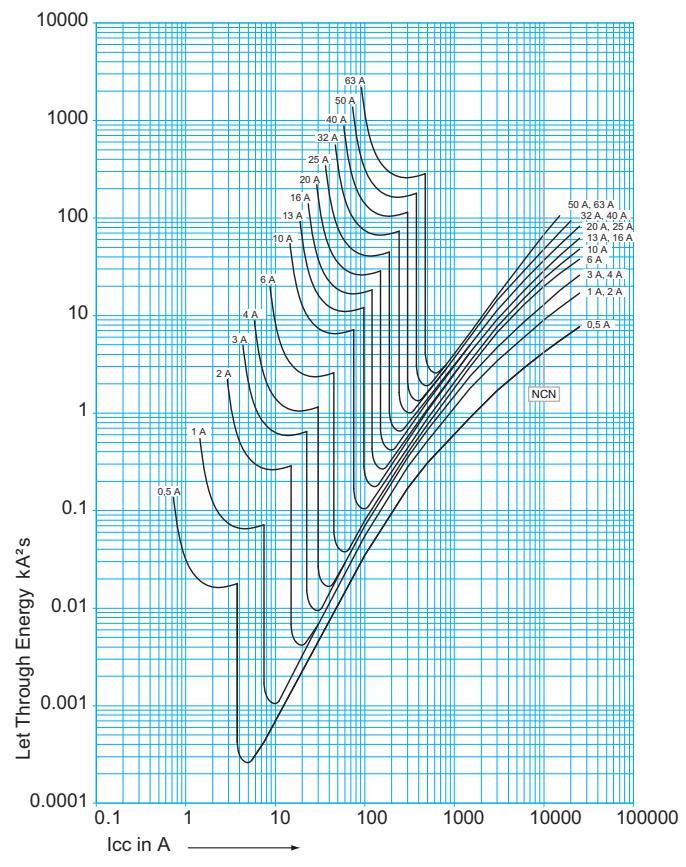
Let-Through Energy

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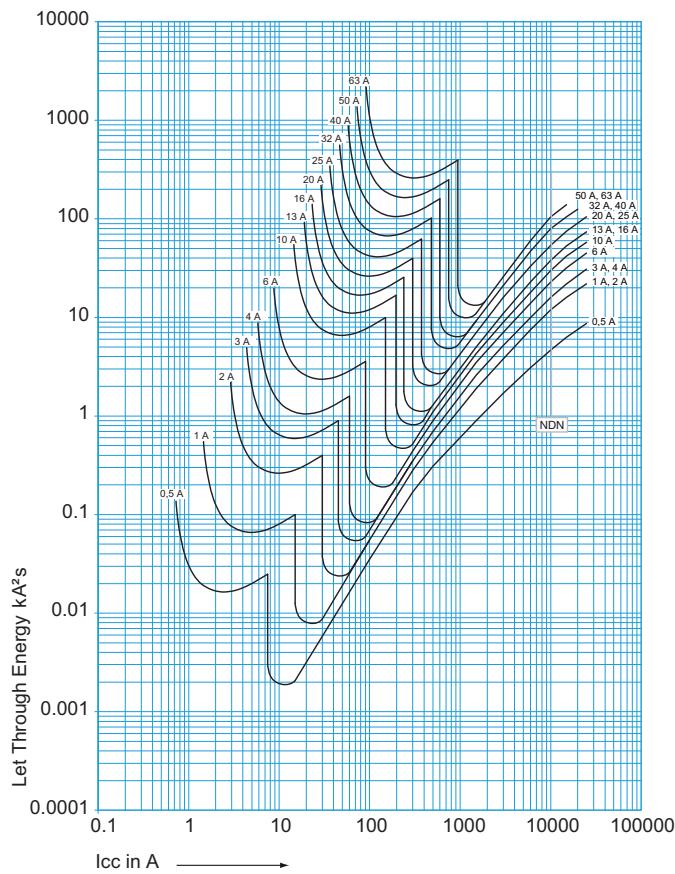
B Curve



C Curve



D Curve



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 Contact

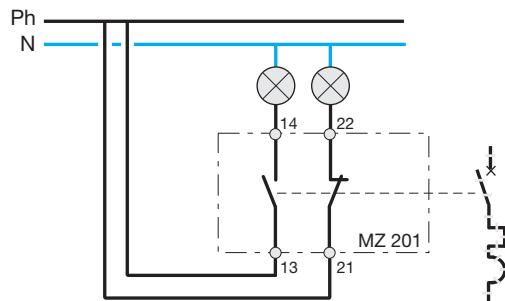


Fig. 9

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**).

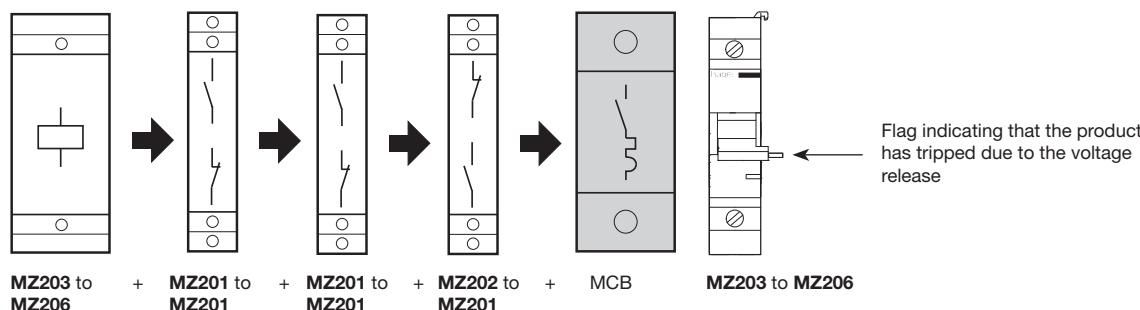


Fig. 11

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

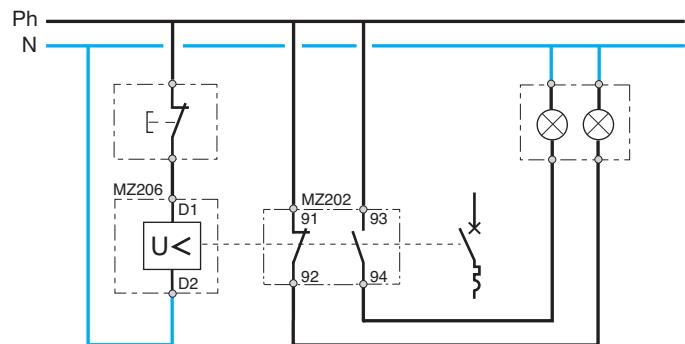


Fig. 10

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

Miniature Circuit Breakers

Discrimination Compatibility Chart

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Commercial
Distribution

Max. Values (kA)

Upstream

| | | I _n (A) | B curve | | | | | | | | | |
|---------|------------|--------------------|---------|------|------|------|------|------|------|------|------|------|
| | | | 6 | 10 | 13 | 16 | 20 | 25 | 32 | 40 | 50 | 63 |
| B Curve | Downstream | 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 | Downstream | 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 | Downstream | 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 |
| - | - | - | - | - | - | - | - | 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 | - |

Miniature Circuit Breakers

Discrimination Compatibility Chart

:hager

Commercial
Distribution

| Max. Values (kA) | | Upstream | | | | | | | | | | | | | | | |
|------------------|---------|----------|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| | | D curve | | | | | | | | | | | | | | | |
| | | I_{nA} | 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 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Upstream | 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

| | Max Let-Through Energy (kA ² s) at PSCC | | | Max Z_s (ohms) | |
|--------------------------|--|------|------|------------------|-------|
| I_n | 3kA | 6kA | 10kA | 0.2 - 1s sec | 5 sec |
| MTN/NBN (B Curve) | | | | | |
| 6 | 5.9 | 10.5 | 15 | 7.28 | 7.28 |
| 10 | 6.5 | 12.2 | 21.5 | 4.37 | 4.37 |
| 16 | 8.0 | 17.5 | 30 | 2.73 | 2.73 |
| 20 | 8.8 | 19.5 | 34 | 2.19 | 2.19 |
| 25 | 10 | 21 | 38 | 1.75 | 1.75 |
| 32 | 11 | 24 | 42 | 1.37 | 1.37 |
| 40 | 12.5 | 29 | 50 | 1.09 | 1.09 |
| 50 | 15 | 34 | 61 | 0.87 | 0.87 |
| 63 | 16 | 38 | 72 | 0.69 | 0.69 |
| NCN/HM (C Curve) | | | | | |
| 0.5 | 0.01 | 0.01 | 0.01 | 43.7 | 62.43 |
| 1 | 4.0 | 7.0 | 10 | 21.85 | 31.21 |
| 2 | 4.0 | 7.0 | 10 | 10.93 | 15.61 |
| 3 | 5.0 | 10.0 | 15 | 7.28 | 10.40 |
| 4 | 5.9 | 10.5 | 15 | 5.46 | 7.80 |
| 6 | 5.9 | 10.5 | 15 | 3.64 | 5.20 |
| 10 | 6.5 | 12.2 | 21.5 | 2.19 | 3.12 |
| 16 | 8.0 | 17.5 | 30 | 1.37 | 1.95 |
| 20 | 8.8 | 19.5 | 34 | 1.09 | 1.56 |
| 25 | 10 | 21 | 38 | 0.87 | 1.25 |
| 32 | 11 | 24 | 42 | 0.68 | 0.98 |
| 40 | 12.5 | 29 | 50 | 0.55 | 0.78 |
| 50 | 15 | 34 | 61 | 0.44 | 0.62 |
| 63 | 16 | 38 | 72 | 0.35 | 0.50 |
| 80 | - | - | - | 1.27 | 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

Technical Data

:hager

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)

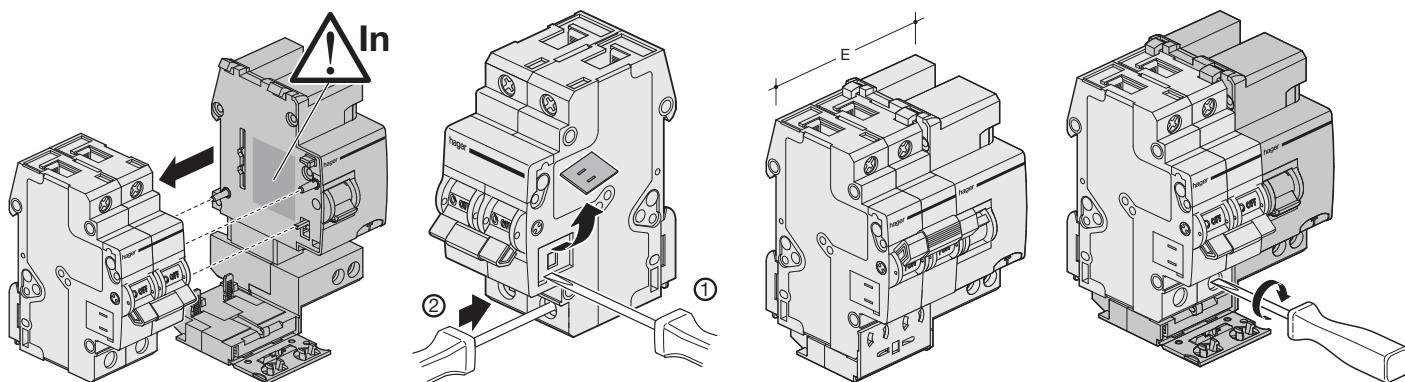
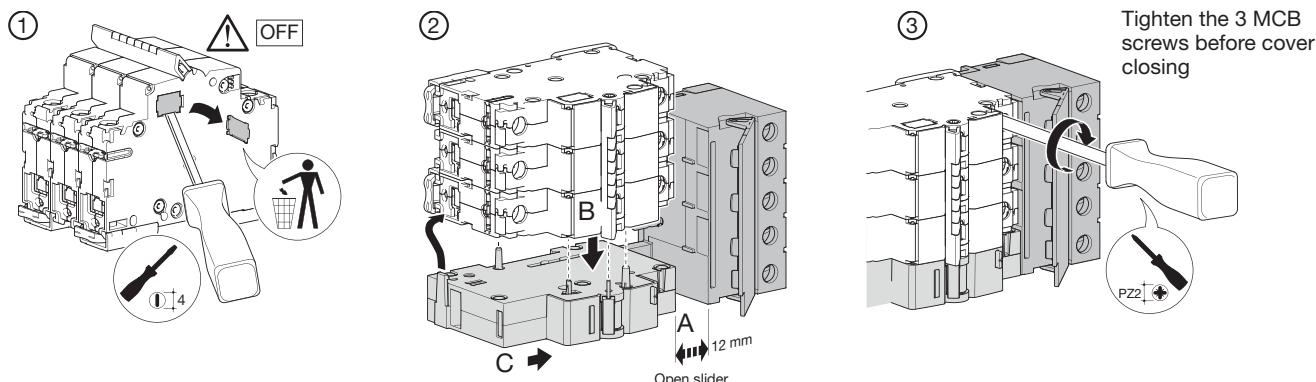
Residual current circuit breakers (RCCB) protect against earth faults only and not short circuits. They are usually therefore used in conjunction with overcurrent protective devices.

MCB/RCCB Co-ordination

Short circuit capacity of the RCCB | With MCB's only

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

| | Double Pole RCCB Add-on Block | | | Four Pole RCCB Add-on Block | | | 3 Phase Earth Leakage Protection | | |
|------------------------------|-------------------------------|--------------|--------------|-----------------------------|--------------|--------------|----------------------------------|---------------|---------------|
| I_n | $\leq 63A$ | | | | | | | | |
| 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

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

Three Phase 400V

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

Motor Circuit Protection

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

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

1 Phase 230V DOL Starting

| 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

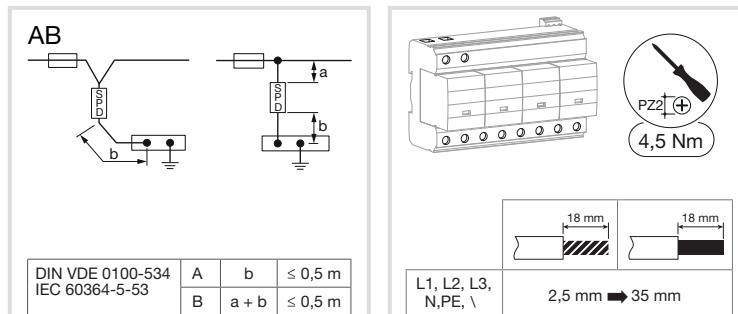
| kW | hp | FLC A | Recommended Circuit Breaker | | |
|------|-----|-------|-----------------------------|---------|--------------|
| | | | (A) NCN | (A) NDN | HRC Fuse (A) |
| 3 | 4 | 6.3 | 16 | 10 | 16 |
| 4 | 5.5 | 8.2 | 20 | 10 | 16 |
| 5.5 | 7.5 | 11.2 | 32 | 16 | 20 |
| 7.5 | 10 | 14.4 | 40 | 25 | 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

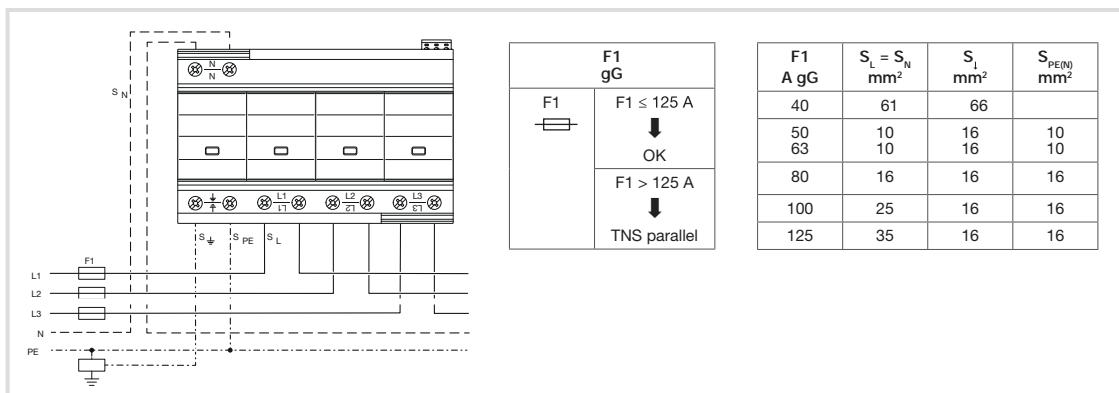
| | | | Recommended Circuit Breaker | | | |
|------|------|-------|-----------------------------|----------------|----------------|--------------|
| kW | hp | FLC A | (A) NBN | (A) NCN | (A) NDN | HRC Fuse (A) |
| 0.18 | 0.25 | 0.87 | - | 2 | - | 4 |
| 0.25 | 0.33 | 1.17 | - | 3 | - | 4 |
| 0.37 | 0.5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

| SPA801 | |
|------------------------------|--|
| Tested to | EN 61643-11, IEC 61643-11 |
| SPD type / class | Type 1 + Type 2 Class 1 + Class 2 |
| Nominal voltage | U_n |
| Rated voltage | U_c |
| Voltage protection level | U_p |
| Residual current | I_{PE} |
| Impulse current (10/350) TNS | I_{imp} |
| Impulse current (10/350) TNS | I_{imp} |
| Short Circuit Current Rating | I_{scrr} |
| Rated load current | I_{fi} |
| TNS,TT (serial/parallel) | OK |
| IT, TNC | OK |
| F1 max (serial) | 125 A gG |
| F1 max (Parallel) | 315A gG |
| Humidity | 5%...95% |
| 9°C | -40/+80°C (+60°C by serial connection) |
| Ports | 1 |
| IP Code | 20 (built in) |
| LxWxH | 95 mm x 143 mm x 74mm |

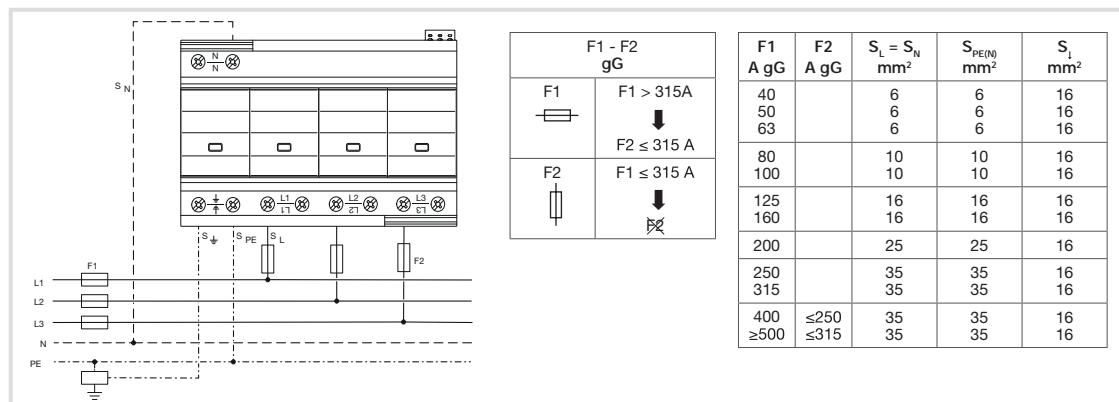
Connection



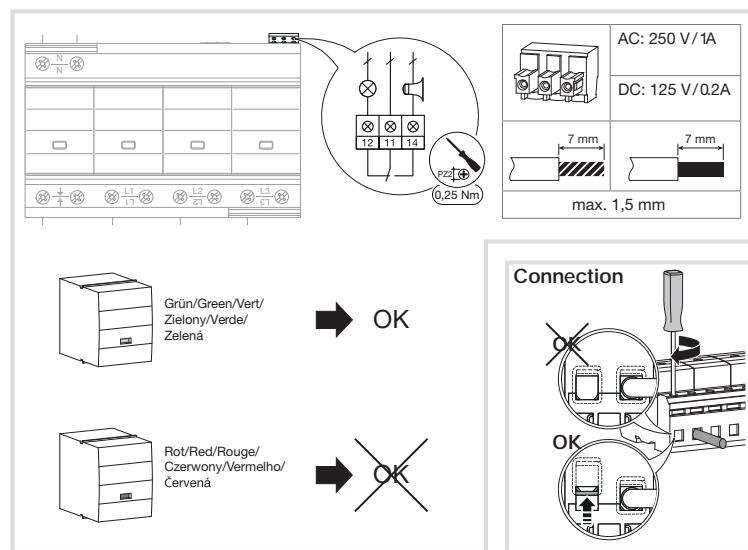
TT/TNS Serial Wiring



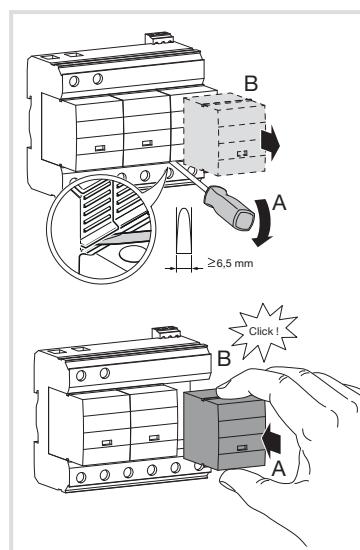
TT/TNS Parallel Wiring



Fault Indication



SPA081 SPA001N



Surge Protection Devices

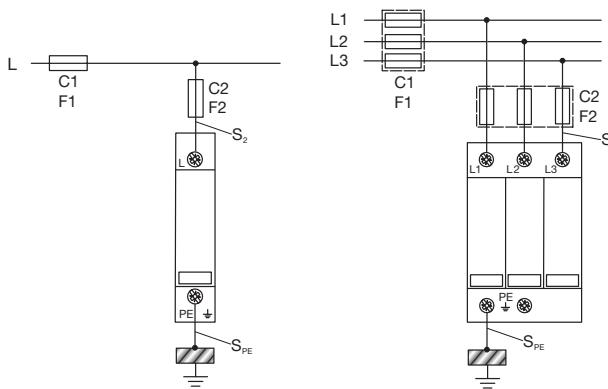
Type 2 / Class II, SPB***D/R

:hager

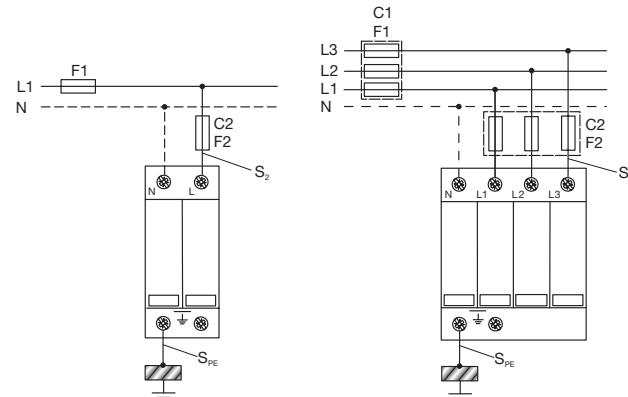
| | SPBX15D/R | SPBX40D/R | SPBX65R | | |
|-------------------------------------|---------------------------|---|----------------------|--|--|
| Tested to | EN 61643-11, IEC 61643-11 | | | | |
| TT/TN/TNC-S | OK | | | | |
| Nominal voltage | U_n | 240/415V (50/60Hz) | | | |
| Residual current (N-PE) | I_{PE} | <5µA (SPB2xxx, SPB4XXX) <0.4mA (SPB1XXX, SPB3XXX) | | | |
| Rated loaded current | I_{fi} | 100Arms | | | |
| Humidity | 5% ...95% | | | | |
| 9°C | -40/+80°C | | | | |
| Ports | 1 | | | | |
| IP Code | 20 (built in) | | | | |
| Rated voltage | U_c | 275V (L-N); 260V (N-PE) 320V (L-N); 264V (N-PE)-SPBX65R | | | |
| Nominal discharge current (8/20 µs) | I_n | 5kA | 20kA | | |
| Maximum discharge current (8/20 µs) | I_{max} | 15kA | 40kA | | |
| Voltage protection level | U_p | $\leq 1kV$ | $\leq 1.35kV$ | | |
| C2 max. hager | 32A "C" | | | | |
| F2 max | 125A gG | | | | |
| Short circuit current rating | I_{scrr} | 25 kA _{rms} | 25 kA _{rms} | | |
| Replacement cartridge L-N | SPB015D | | | | |
| Replacement Cartridge N-PE | SPB040N | | | | |

| | LxWxH (mm) | LxWxH (mm) |
|----|--|---------------------------|
| | $I_{max} = 15 \text{ kA}, 40 \text{ kA}$ | $I_{max} = 65 \text{ kA}$ |
| 1P | 65.7 x 17.5 x 98.7 | 77.5 x 17.5 x 98.7 |
| 2P | 65.7 x 35.6 x 98.7 | 77.5 x 35.6 x 98.7 |
| 3P | 65.7 x 53 x 98.7 | 77.5 x 53 x 98.7 |
| 4P | 65.7 x 71 x 98.7 | 77.5 x 71 x 98.7 |

1P-3P (TN-C)



2P-4P (TN-S/TT)



| Backup fuse | | |
|-------------|------------------------------------|------------------------------------|
| | SPBx15D/R SPBx40D/R | SPBx65R |
| F1 | F1 >125 A gG ↓ F2 ≤ 125 A gG | F1 >160 A gG ↓ F2 ≤ 160 A gG |
| F2 | F1 ≤ 125 A gG ↓ ☒ | F1 ≤ 160 A gG ↓ ☒ |

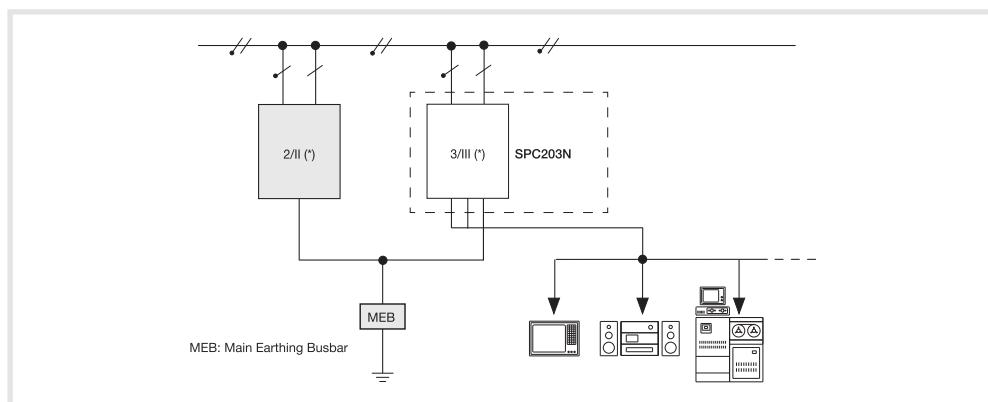
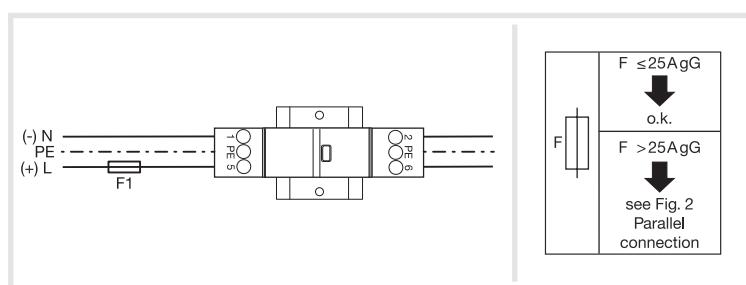
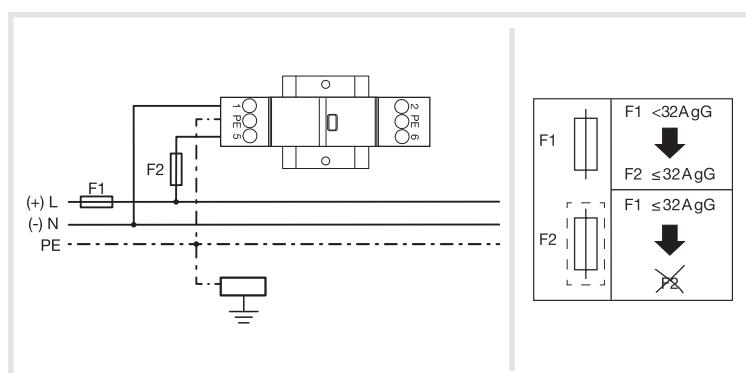
| Backup MCB* (Isc = 10 kA) | | |
|---------------------------|----------------------------------|----------------------------------|
| | SPBx15D/R SPBx40D/R | SPBx65R |
| C1 | C1 >32A "C" ↓ C2 ≤ 32A "C" | C1 >63A "C" ↓ C2 ≤ 63A "C" |
| C2 | C1 ≤ 32A "C" ↓ ☒ | C1 ≤ 63A "C" ↓ ☒ |

| Type | | | SPBx15x SPBx40x | SPBx65R |
|---------|--------------------------------|---------------------------------|--------------------|---------|
| F1 A/gG | S ₂ mm ² | S _{PE} mm ² | F2 A/gG | F2 A/gG |
| 25 | 6 | 6 | - | - |
| 35 | 6 | 6 | - | - |
| 40 | 6 | 6 | - | - |
| 50 | 6 | 6 | - | - |
| 63 | 10 | 10 | - | - |
| 80 | 10 | 10 | - | - |
| 100 | 16 | 16 | - | - |
| 125 | 16 | 16 | - | - |
| 160 | 25 | 25 | 125 | - |
| >160 | 25 | 25 | 125 | 160 |

Characteristics

| | | |
|-------------------------------------|---------------------------|-----------------------------|
| Tested to | EN 61643-11, IEC 61643-11 | |
| System | TNS-TT | |
| F1 max | 25A/32A (gG/B/C) | |
| Nominal discharge current (8/20 µs) | I_n | L(N)/PE, L/N = 5kA |
| Short circuit current rating | I_{scrr} | 10kA _{rms} |
| Residual current (N-PE) | I_{PE} | <5µA |
| Nominal voltage | U_n | 230 V (50/60 Hz) |
| Rated voltage | U_c | 264 V (50/60 Hz) |
| | U_{oc} | L(N)/PE, L/N = 6kV |
| Voltage protection level | U_p | L/N ≤ 1.4kV, L(N)/PE≤ 1.4kV |
| Humidity | 5%...95% | |
| 9°C | -40/+80°C | |
| Ports | 1 | |
| IP code | IP20 (built in) | |
| L x W x H | 101mm x 17.7mm x 74.5mm | |
| | I_L | 26A (30°) |

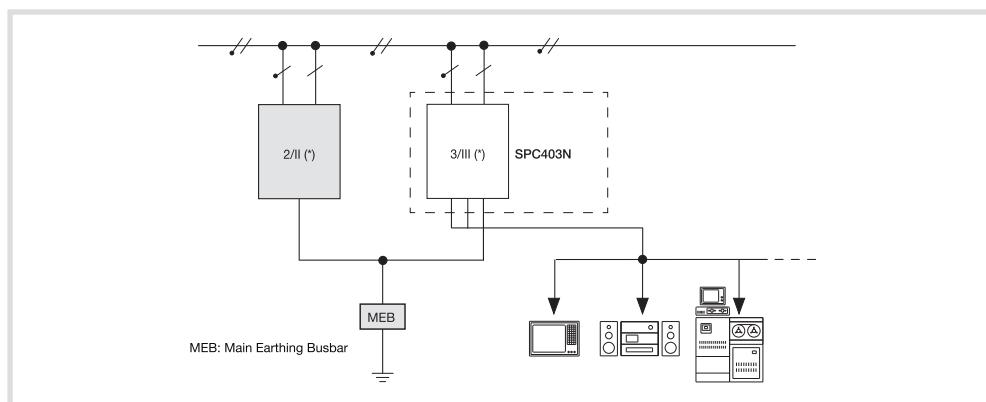
Indoor use only - there is no distance from the SPD to any earthed conductive surface required

**Serial Connection****Parallel Connection**

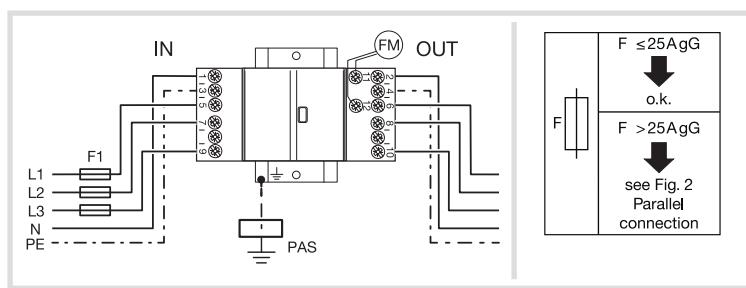
Characteristics

| | | |
|-------------------------------------|---------------------------|--|
| Tested to | EN 61643-11, IEC 61643-11 | |
| System | TT, TN | |
| F1 max | 25A (gG/B/C) | |
| Nominal discharge current (8/20 µs) | I_n | L1-L2-L3(N)/PE, L1-L2-L3/N = 3kA |
| Short circuit current rating | I_{scrr} | 15kA _{rms} |
| Residual current (N-PE) | I_{PE} | <5µA |
| Nominal voltage | U_n | 230 V/400 V (50/60 Hz) |
| Rated voltage | U_c | 264 V (50/60 Hz) |
| | U_{oc} | L1-L2-L3(N)/PE, L1-L2-L3/N = 6kV |
| Voltage protection level | U_p | L1-L2-L3/N ≤ 1.4kV, L1-L2-L3/N/PE≤ 1.5kV |
| Humidity | | 5%...95% |
| 9°C | | -40/+70°C |
| Ports | | 1 |
| IP code | | IP20 (built in) |
| L x W x H | | 90mm x 36mm x 73mm |
| | I_L | 26A (30°) |

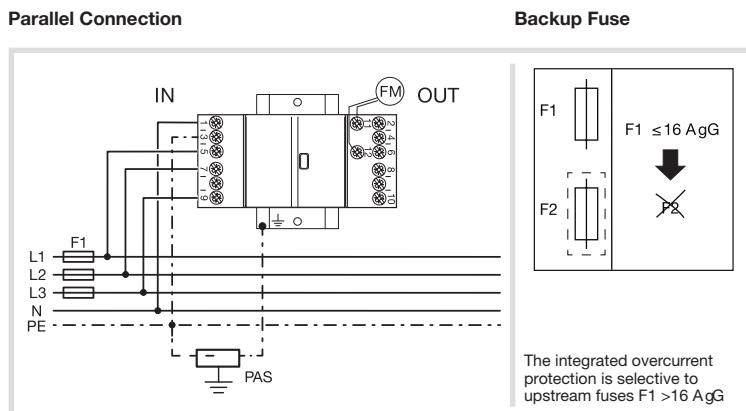
Indoor use only - there is no distance from the SPD to any earthed conductive surface required



Serial Connection



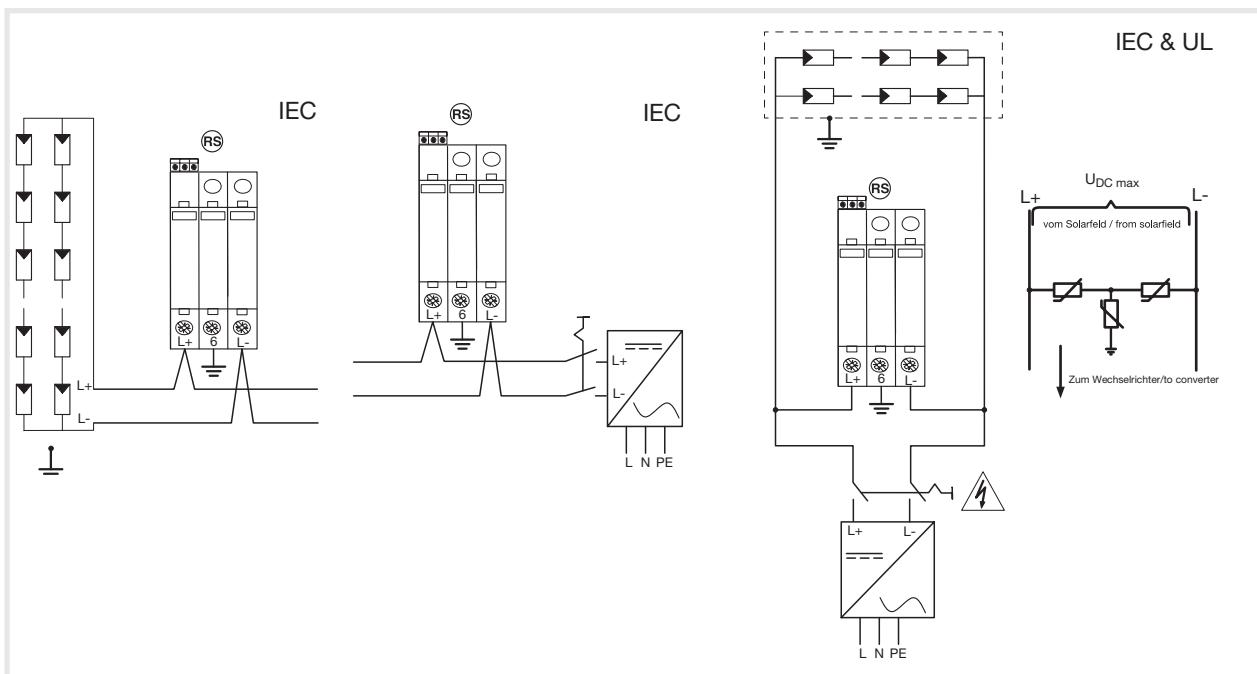
Backup Fuse



Backup Fuse

Characteristics

| | | |
|---|-------------|----------------------------|
| Tested to | EN 50539-11 | |
| Voltage protection level | U_p | $\leq 3.7\text{kV}$ |
| Rated voltage | U_{cpv} | $\leq 1170\text{ V DC}$ |
| Nominal Discharge Current (8/20 μs) | I_n | 15kA |
| Short Circuit Current Rating | I_{scpv} | 2000A |
| | I_L | 80A |
| | I_{max} | 40kA (8/20 μs) |
| Residual Current AC | $I_{pe,AC}$ | $\leq 250\mu\text{A}$ |
| Residual Current DC | $I_{pe,DC}$ | $\leq 20\mu\text{A}$ |
| Humidity | | 5%...95% |
| 9°C | | -40/+80°C |
| Ports | | 1 |
| IP code | | IP20 (built in) |
| L x W x H | | 98.7mm x 52.4mm x 65.7mm |

Indoor use only

| | 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 $I_{\Delta n}$ | 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 | 1.5mm ² to 10mm ² • Rigid • Flexible | | | | | | | | | | | | | | |
| Torroid Cable Connection | 1.5mm ² to 4mm ² 1mm ² to 2.5mm ² • Rigid • Flexible | | | | | | | | | | | | | | |
| Relay | -10°C to +55°C -25°C to +40°C | | -5°C to +55°C -25°C to +40°C | | | | | | | | | | | | |
| Torroid | -10°C to +70°C -40°C to +70°C | | -10°C to +70°C -40°C to +70°C | | | | | | | | | | | | |
| • Working Temperature | | | | | | | | | | | | | | | |
| • Storage Temperature | | | | | | | | | | | | | | | |
| • Working Temperature | | | | | | | | | | | | | | | |
| • Storage Temperature | | | | | | | | | | | | | | | |

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

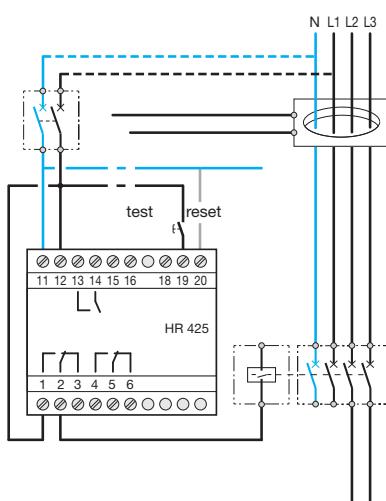
Pressing the test button allows a fault simulation which operates the relay and the output contacts. The fault level display is shown by an LED on the front of the product.

$I_{\Delta n}$ 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

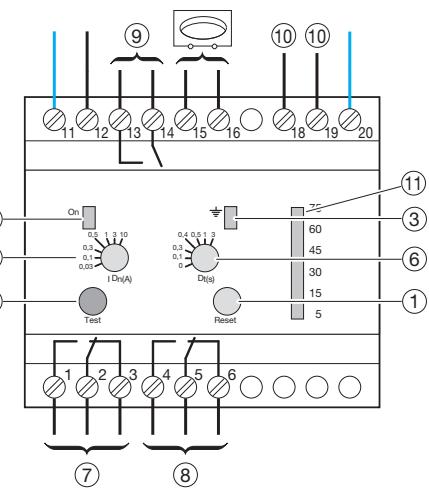
7. Standard output

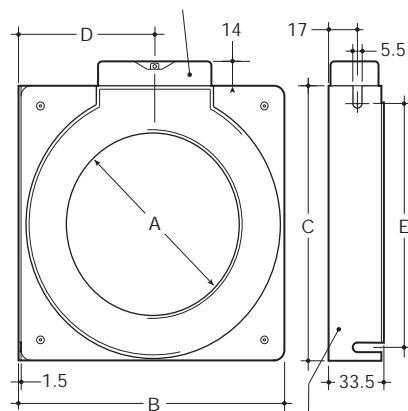
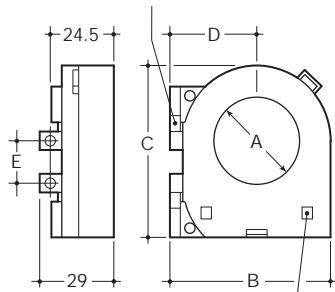
8. Safety output

9. Prealarm output

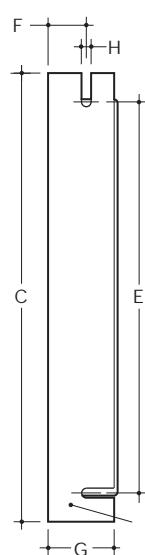
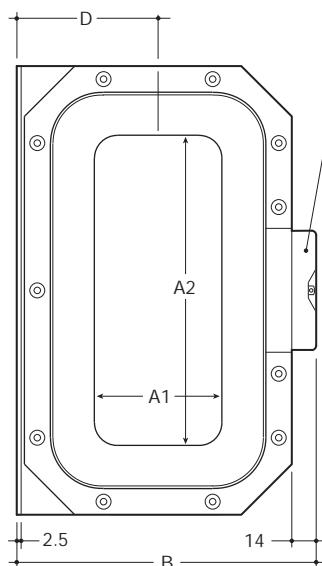
10. Remote reset

11. Optical scale

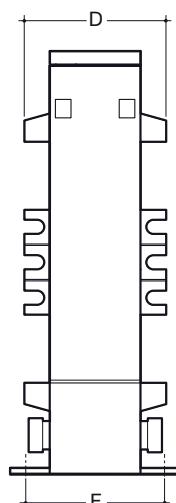
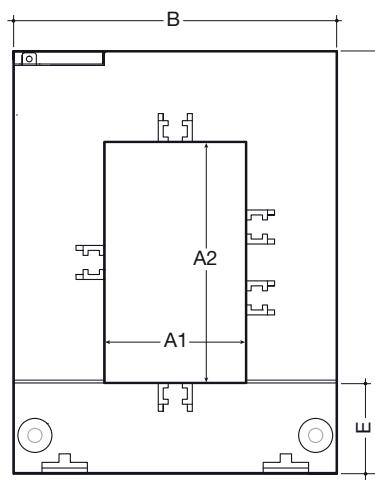




| Cat ref. | Dimensions (mm) | | | | |
|----------|-----------------|-----|-------|-------|-----|
| | A | B | C | D | E |
| HR700 | 30 | 70 | 70 | 30 | - |
| HR701 | 35 | 92 | 86 | 43.5 | 74 |
| HR702 | 70 | 115 | 118 | 60.5 | 97 |
| HR703 | 105 | 158 | 162.5 | 84.5 | 140 |
| HR704 | 140 | 218 | 200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

Torroids

Selection Chart

:hager

Mounting of Circular Torroids

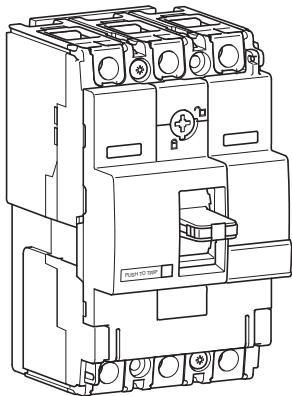
Commercial Distribution

| | | With Cables | | | | | | |
|-----------|------------------|---|---|---|---|---|---|---|
| | Type of Torroids | 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 | |  |  |  |  |  |  |  |
| 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 mm ² | | | | 185 mm ² (cage) | | | | | |
| Terminal width | mm | - | | | | 25 | | | | |
| Terminal shields | ok | | | | ok | | | | | |
| Cage terminal | integrated | | | | ok | | | | | |
| Extended connections | ok | | | | ok | | | | | |
| Rear connections | no | | | | ok | | | | | |
| Dimensions | | | | | | | | | | |
| Height | mm | 130 | | | | 165 | | | | |
| Width | 1P mm | - | 25 | | | - | | | | |
| | 2P mm | - | 50 | | | - | | | | |
| | 3P mm | 75 | | | | 105 | | | | |
| | 4P mm | 100 | | | | 140 | | | | |
| Depth | mm | 68 | | | | 68 | | | | |
| Weight | 1P kg | - | 0.29 | | | - | | | | |
| | 2P kg | - | 0.48 | | | - | | | | |
| | 3P kg | 0.715 | | | | 1.3 | | | | |
| | 4P kg | 0.95 | | | | 1.6 | | | | |

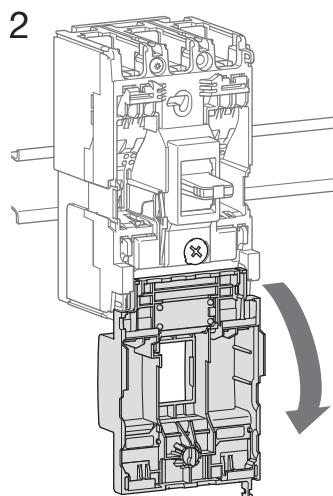
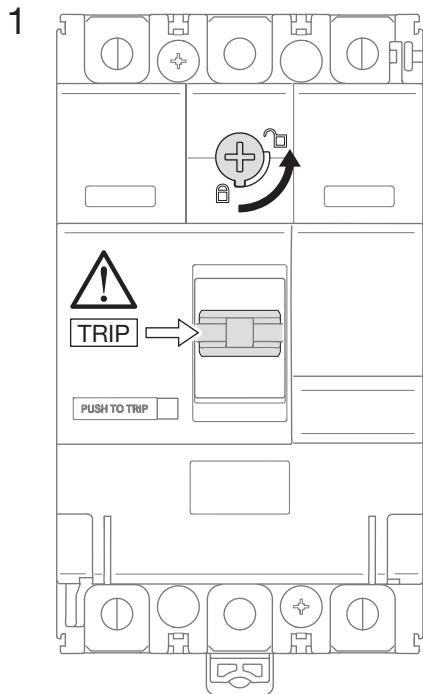
| Product Frame | Add-on blocks | | | |
|---|--------------------|------------|--------------------------------|--------------------------------|
| | x160 | x160 | x250 | |
| Number of poles | 3 , 4 | 3 , 4 | 4 | |
| Tripping Access | mechanical | mechanical | mechanical | |
| Standards CEI/EN 60947-2 appendix B | ✓ | ✓ | ✓ | |
| Electrical Characteristics | | | | |
| Max rated current (40) I_n A | I_n | 125A | 125 - 160A | 160 - 250A |
| Rated service voltage U_e V AC (50/60Hz) | U_e | 240 - 415V | 240 - 415V | 240 - 415V |
| Mechanical Characteristics | | | | |
| Top and bottom supply | ✓ | ✓ | ✓ | |
| For tripping, no additional external electrical sources | ✓ | ✓ | ✓ | |
| Possible operating with two active phases | ✓ | ✓ | ✓ | |
| Settings | | | | |
| Sensitivity $I_{\Delta n}$ | $I_{\Delta n}$ (A) | 300mA | 0.03, 0.1, 0.3, 1, 3, 6A | 0.03, 0.1, 0.3, 1, 3, 6A |
| Time delay Δt | Δt (s) | inst. | inst., 0.06, 0.15, 0.3, 0.5, 1 | inst., 0.06, 0.15, 0.3, 0.5, 1 |
| Max. opening time | ms | 10 | 10 | 10 |
| Delay add-on block is not possible if $I_{\Delta n} = 30mA$ | | - | ✓ | ✓ |
| Selective product | | - | ✓ | ✓ |
| Mechanical test button | | ✓ | ✓ | ✓ |
| Isolating test without cable removal | | ✓ | ✓ | ✓ |
| Electrical test button | | ✓ | ✓ | ✓ |
| Reset button | | ✓ | ✓ | ✓ |
| Sealable setting button | | - | ✓ | ✓ |
| Isolation level signaling by led 25 and 50% | | - | ✓ | ✓ |
| I_n running signalisation by led | | - | ✓ | ✓ |
| Residual default signaling contact | | ✓ | ✓ | ✓ |
| Signaling contact 50% 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

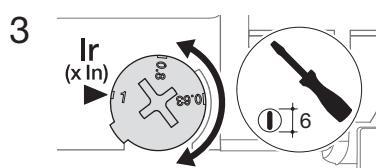


| | | 220/240V AC IEC 60 947-2 | 380/415V AC IEC 60 947-2 |
|------------|----------|-----------------------------|-----------------------------|
| HDA | I_{cu} | 25 kA | 18 kA |
| | I_{cs} | 25 kA | 18 kA |
| HHA | I_{cu} | 35 kA | 25 kA |
| | I_{cs} | 25 kA | 20 kA |
| HCA | I_{cm} | - | 2.8 kA |
|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

Thermal settings



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



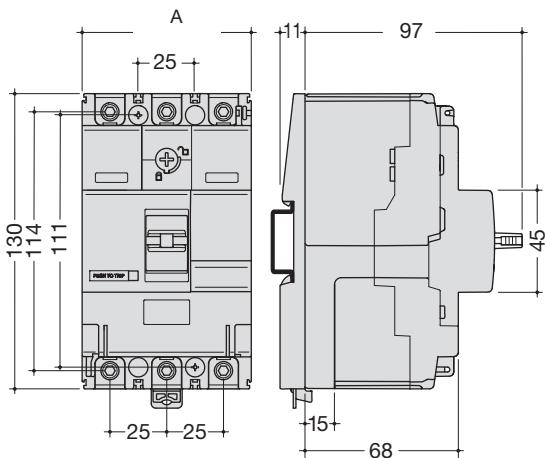
Thermal adjustment from 0.63 to $1 \times I_n$

Magnetic adjustment fixed $> 10 \times I_n$

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

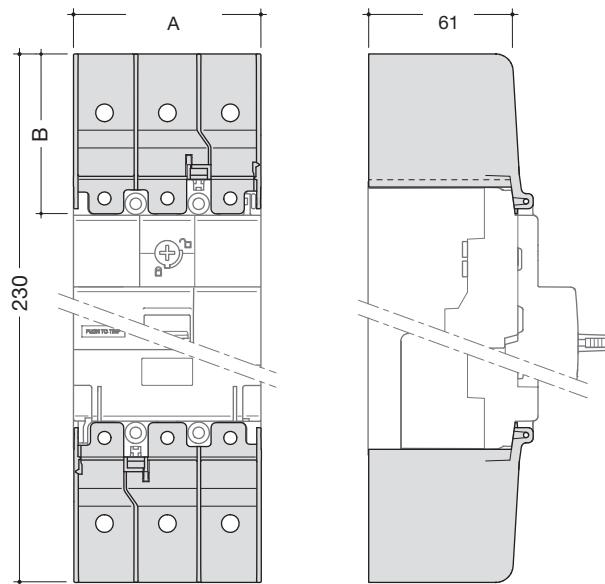
Dimensions

MCCB x160



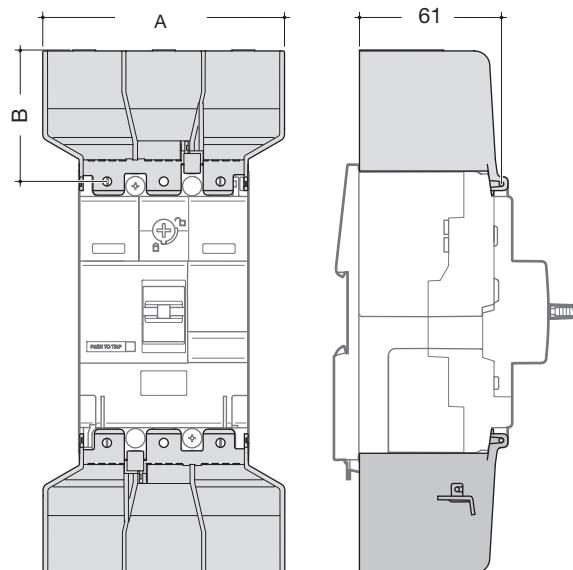
| | A (mm) |
|-----------|--------|
| 1P | 24.8 |
| 3P | 74.5 |
| 4P | 99.5 |

Terminal covers for extended straight connections



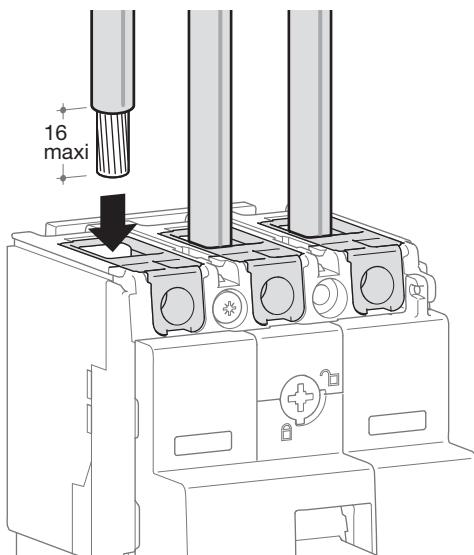
| | A (mm) |
|-----------|--------|
| 1P | 24.4 |
| 3P | 74.5 |
| 4P | 99.5 |

Terminal cover for extended spreader connections



| | A (mm) |
|-----------|--------|
| 3P | 106.5 |
| 4P | 141.5 |

Connection with terminals



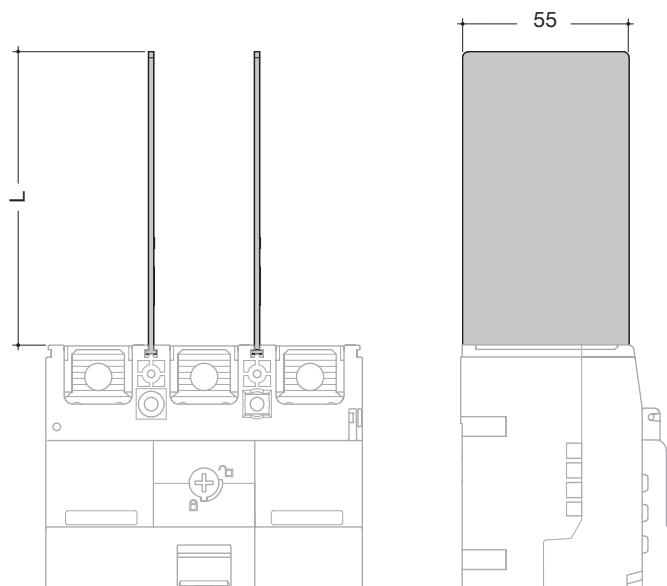
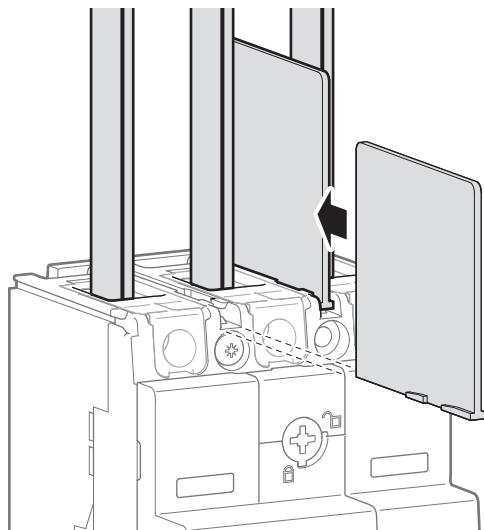
Terminals for copper conductors (standard)

| | | |
|---|------------------------|-------------------------|
| | min. 6 mm ² | max. 70 mm ² |
| | min. 6 mm ² | max. 95 mm ² |
| 4 | 6 Nm | |

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

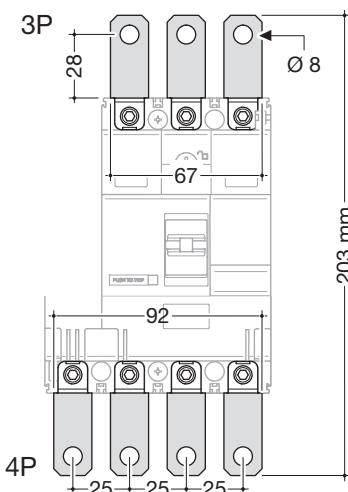
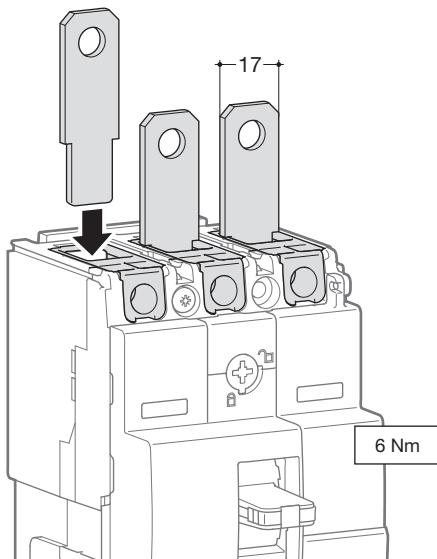
| | | |
|---|-------------------------|-------------------------|
| | min. 35 mm ² | max. 70 mm ² |
| 5 | 10 Nm | |

Interphase barriers

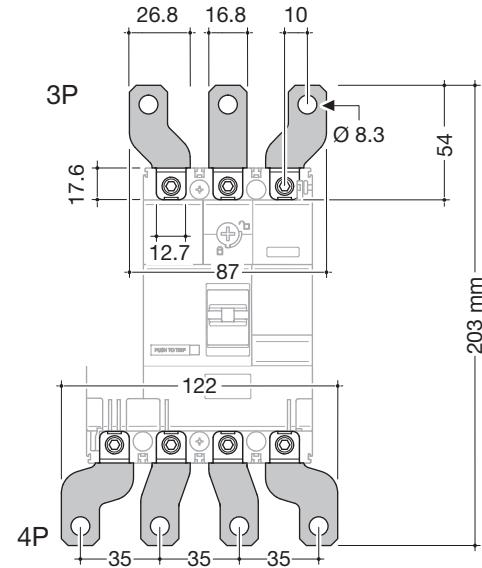
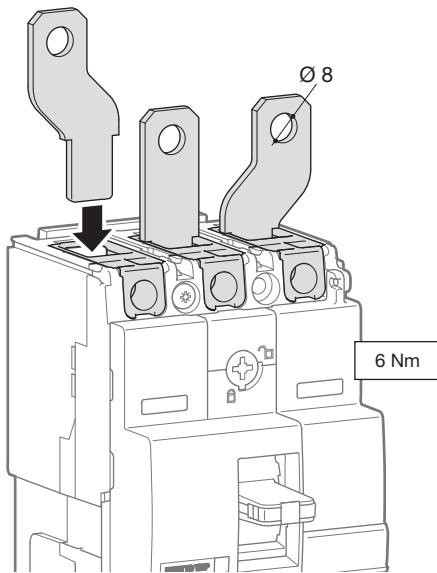


| | L (mm) |
|----------------|--------|
| HYA019H | 50 |
| HYB019H | 97 |

Extended straight connections

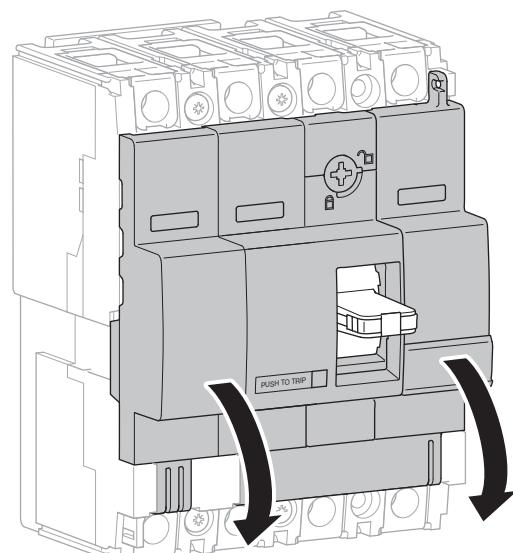
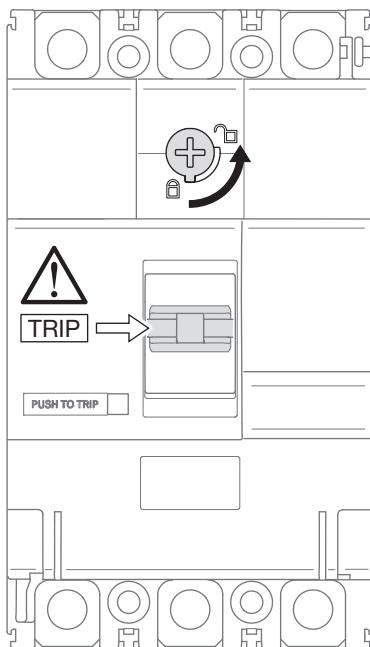
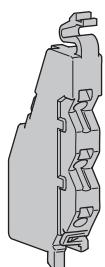
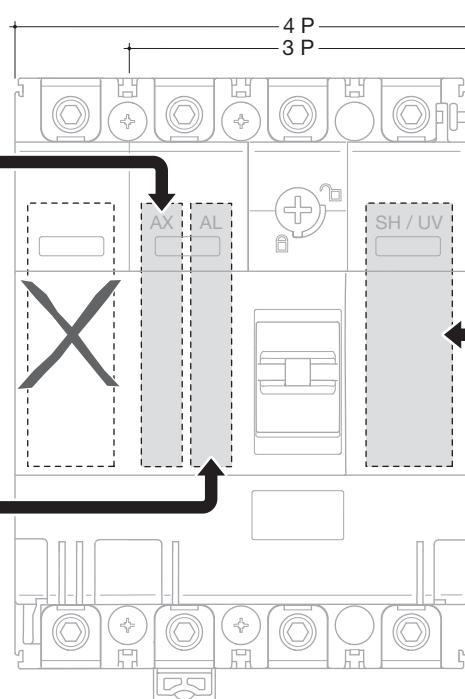
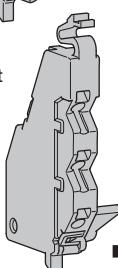
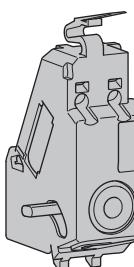
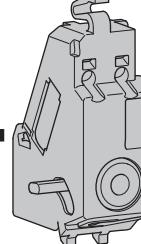


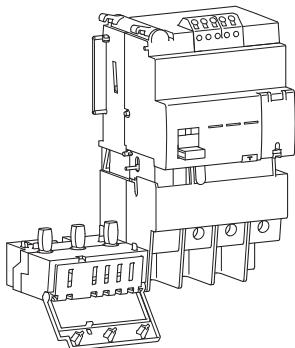
Extended spreader connections



Auxiliaries

Auxiliaries for MCCBs and moulded case switches

**Mounting combination for auxiliaries and releases**AX
Auxiliary contactAL
Alarm contactSH
Shunt tripUV
Undervoltage releaseDUVR
Delayed undervoltage release



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

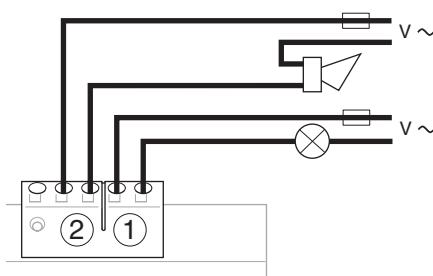
Reset button :
Signals add-on block tripping and must be reset before switching on the installation.

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

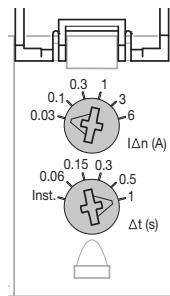
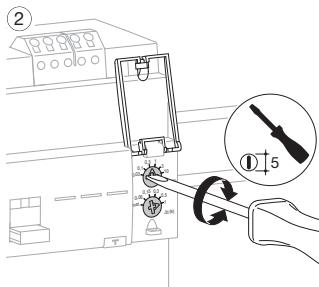
Mechanical test button :
Checks the mechanical operating of the MCCB / Add-on block association.

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

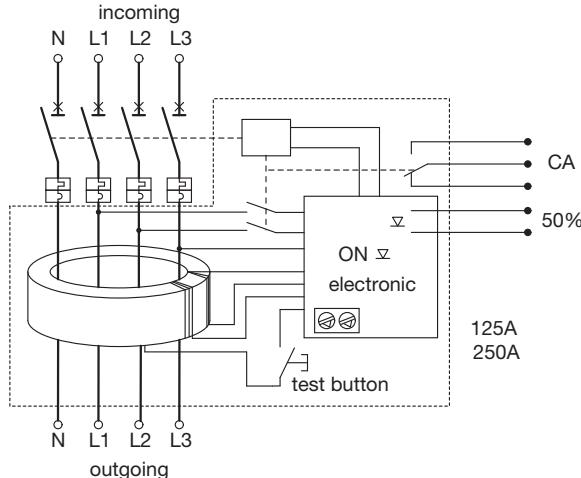
Remote tripping and advanced warning (50% $I_{\Delta n}$) signaling thanks to these contacts:



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

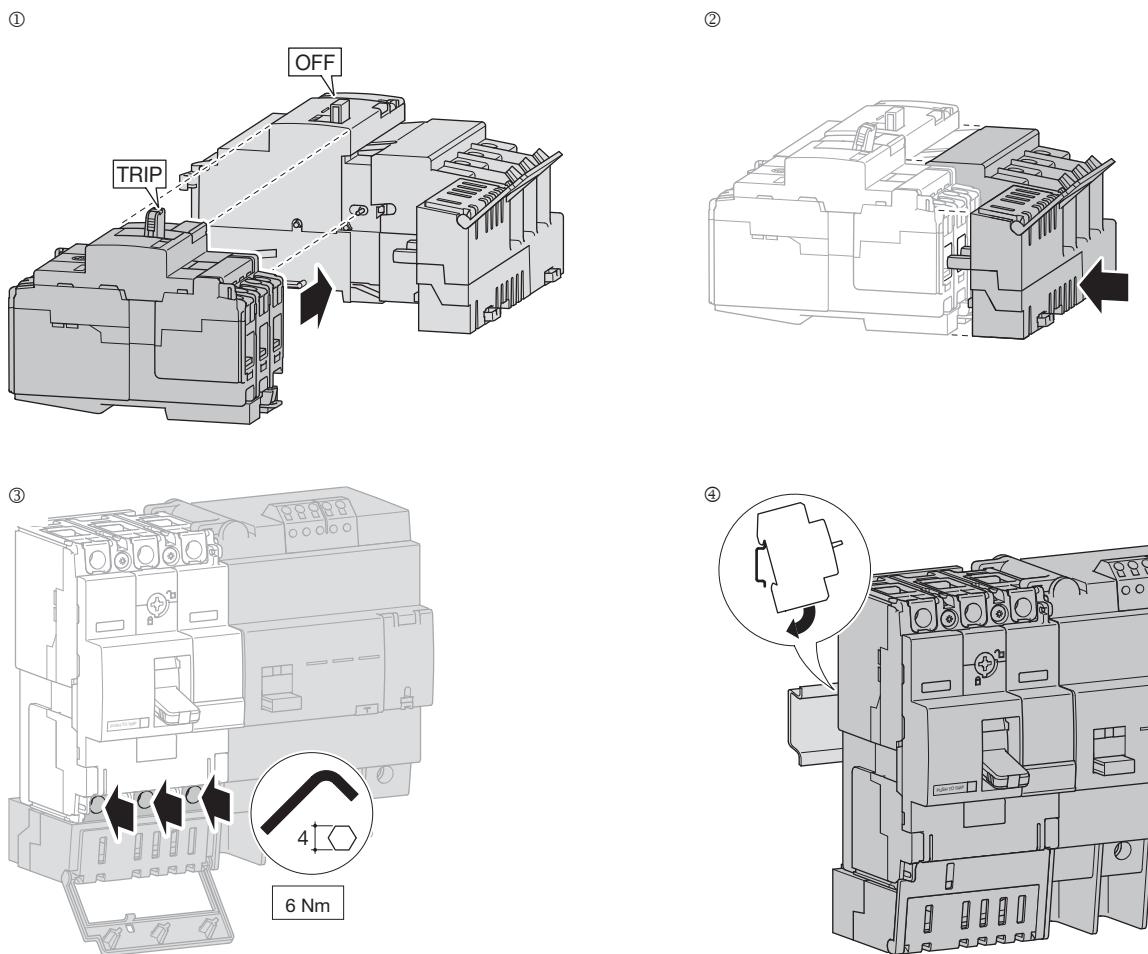


Add-on block operating



| 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

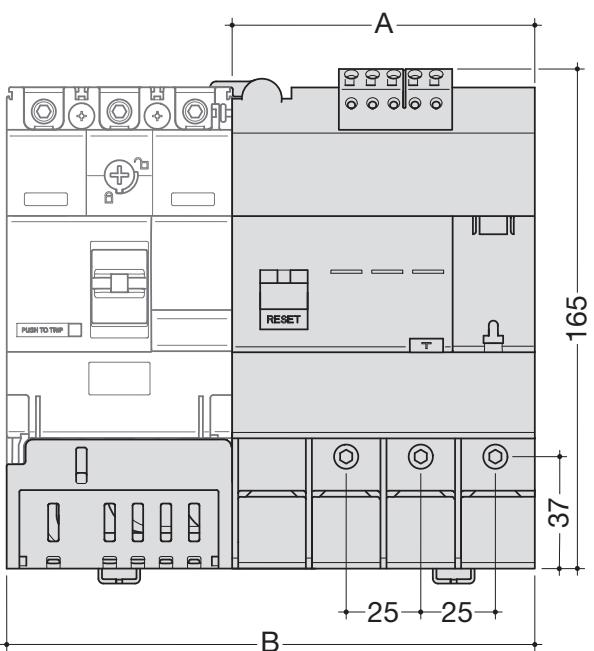


Exclusive drawer assembly system allows quick mounting and makes MCCB and add-on block association a complete monoblock unit.

Reinforced insulation connection (class II)

System avoids the omission of terminal tightening

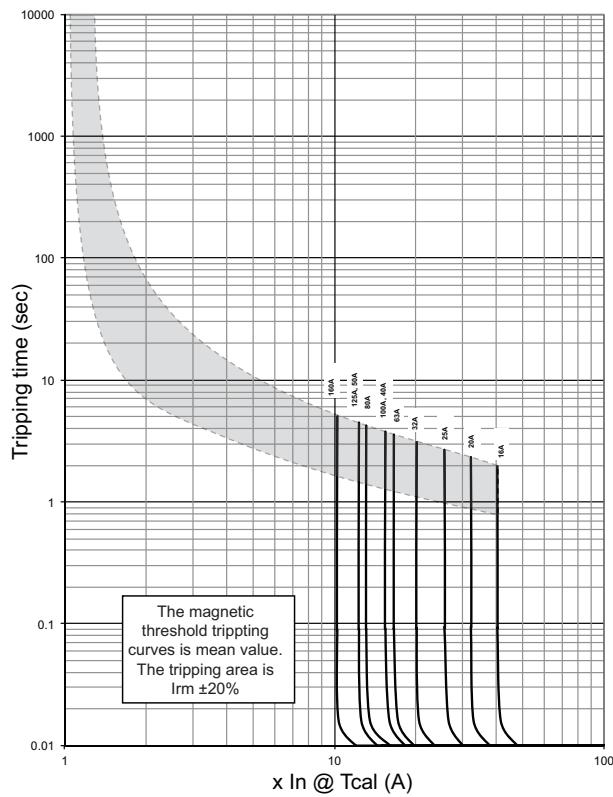
Dimensions



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

Tripping curve

MCCB x160



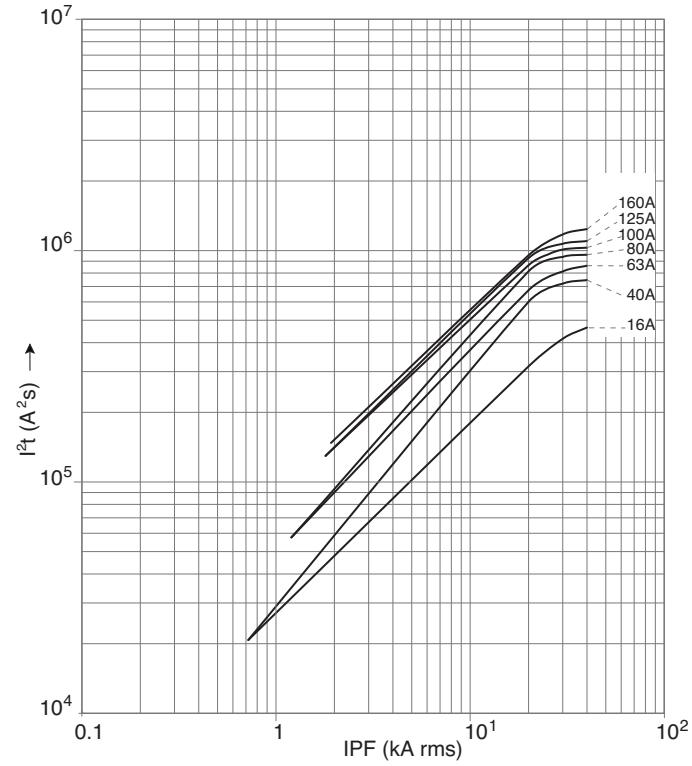
The earth fault loop impedance requirements for larger devices can be calculated by the formula given in BS7671:2008

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

Where $I_a = I_h$ of MCCB x Mag setting $\times 1.2$

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

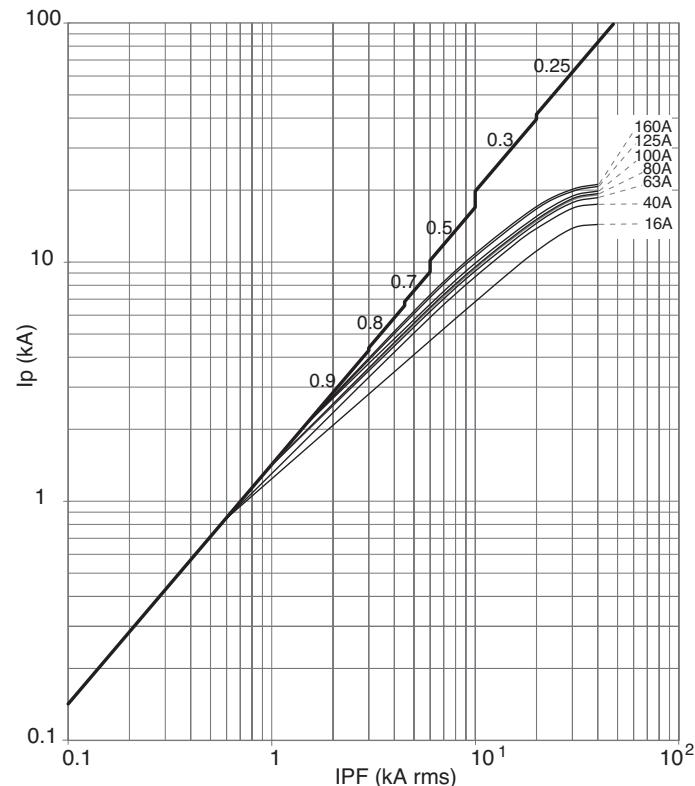
| Device rating (A) | Instantaneous trip (xI_n) | Instantaneous trip (A) | add 20% tolerance (I_a) | $Z_s = (230 \times 0.95) / I_a$ |
|-------------------|-------------------------------|------------------------|-----------------------------|---------------------------------|
| 16 | 40.3 | 644.8 | 773.8 | 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

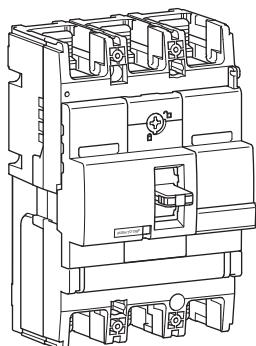
| Device rating (A) | trip (xI_n) | I_a (A) | $Z_s = (230 \times 0.95) / I_a$ |
|-------------------|-----------------|-----------|---------------------------------|
| 16 | 10 | 160 | 1.37 |
| 20 | 10 | 200 | 1.09 |
| 25 | 10 | 250 | 0.87 |
| 32 | 10 | 320 | 0.68 |
| 40 | 10 | 400 | 0.55 |
| 50 | 10 | 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

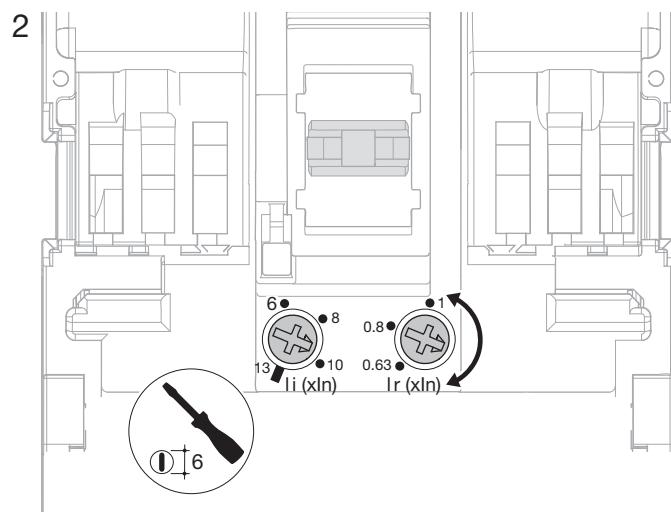
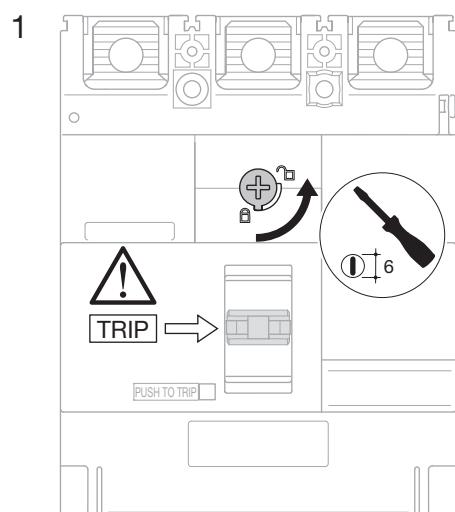


MCCBs



| | | 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 |

Magnetic and thermal settings

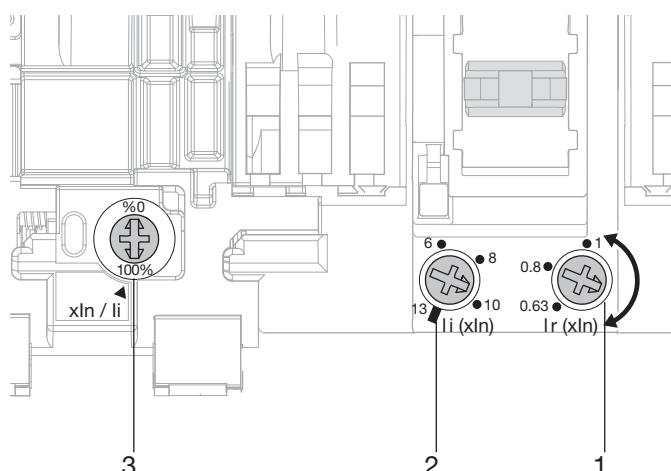


Thermal adjustment from 0.63, 0.8, 1 $\times I_n$

Magnetic adjustment from 6 to 13 $\times I_n$ (100 - 200A)

from 5 to 11 $\times I_n$ (250A)

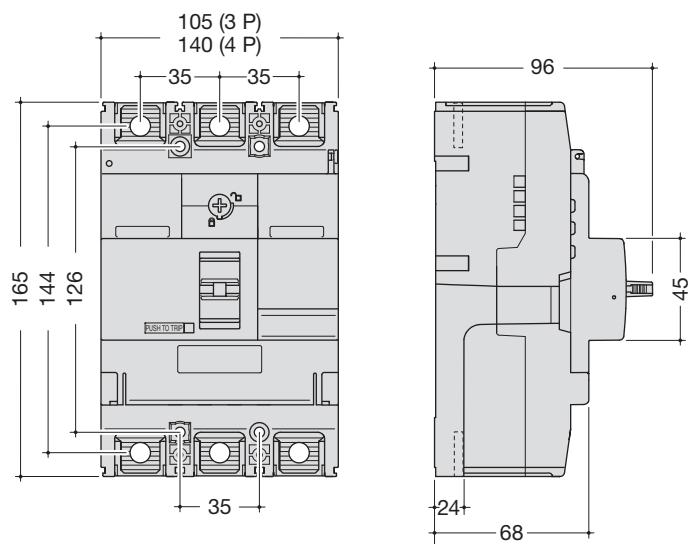
| | 100 - 200A | 250A |
|-----------------|------------------------------|-----------------------------|
| $I_r (x I_n)$ 1 | 0.63 - 0.8 - 1 $\times I_n$ | |
| $I_i (x I_n)$ 2 | 6 - 8 - 10 - 13 $\times I_n$ | 5 - 7 - 9 - 11 $\times I_n$ |
| $x I_n / i$ 3 | 0 - 100% | |
| | 0 - 60% | |



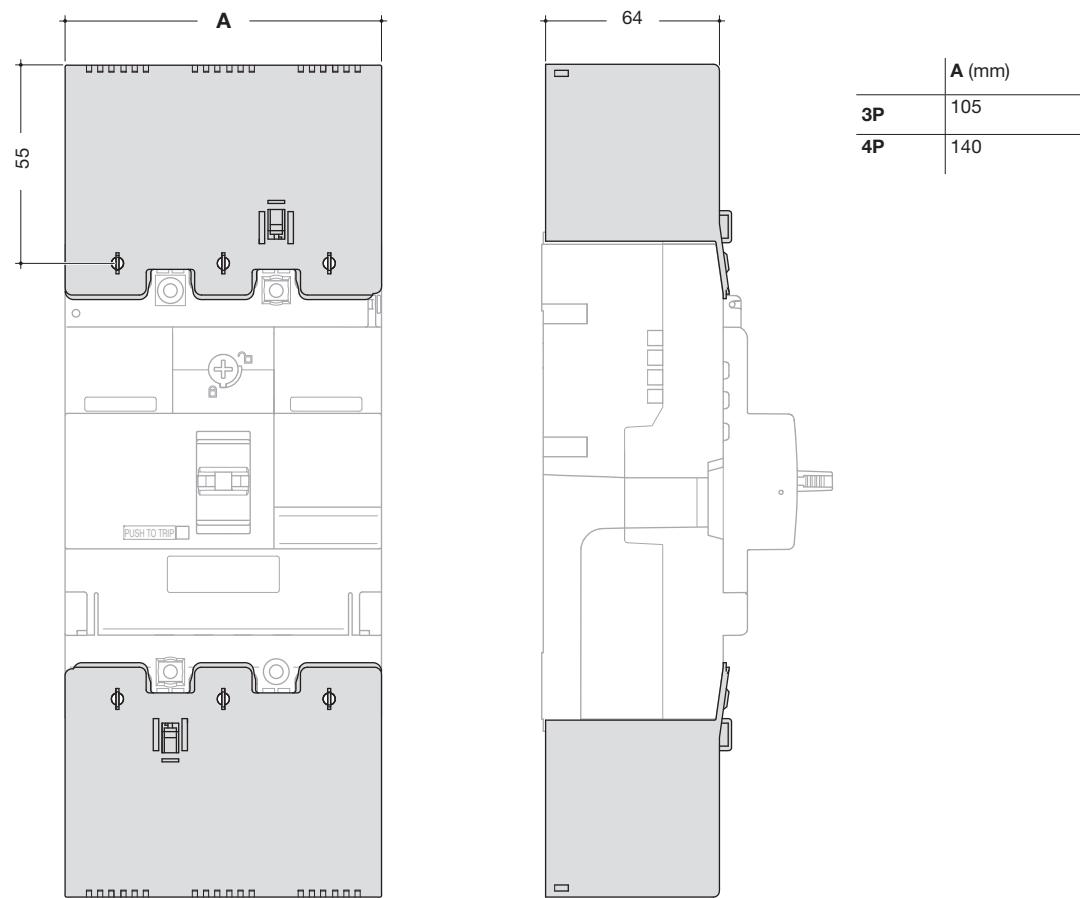
Dimensions

MCCB x250

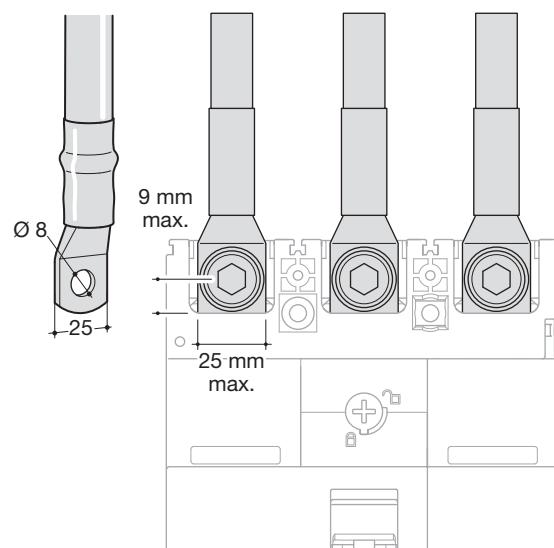
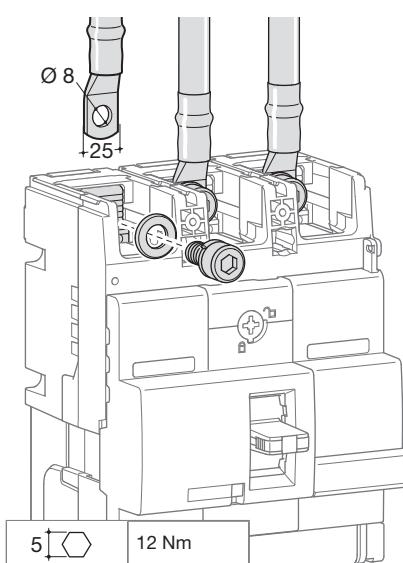
Commercial
Distribution



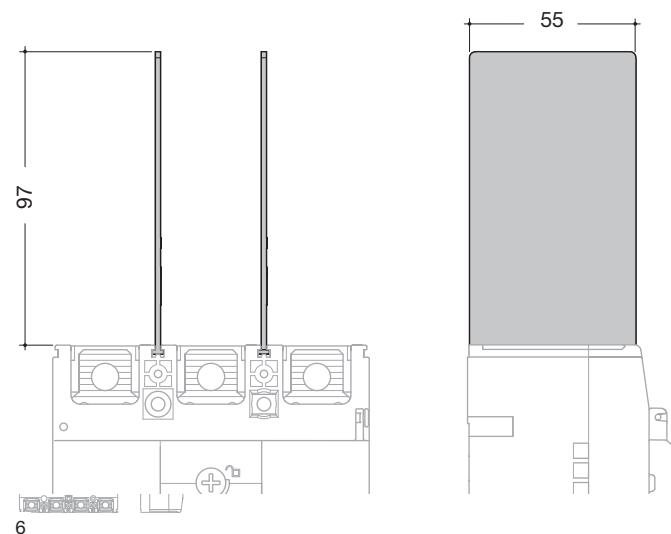
Terminal covers for extended straight connections



Connection with end lugs

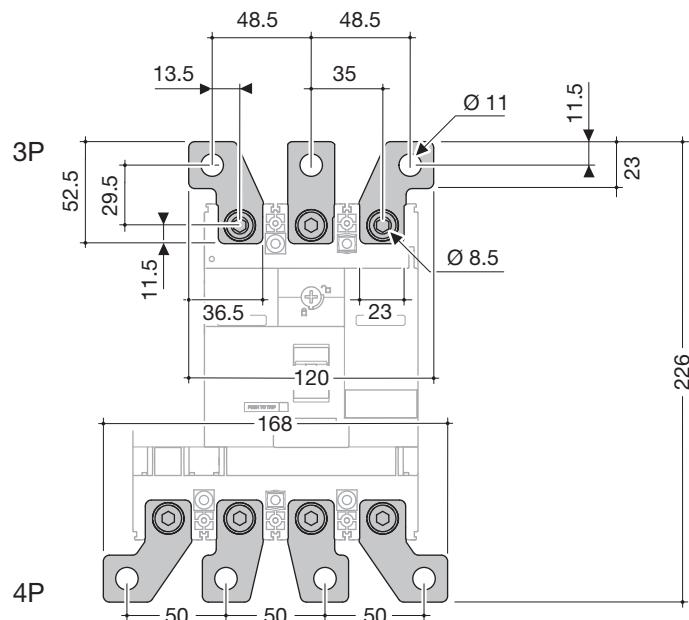
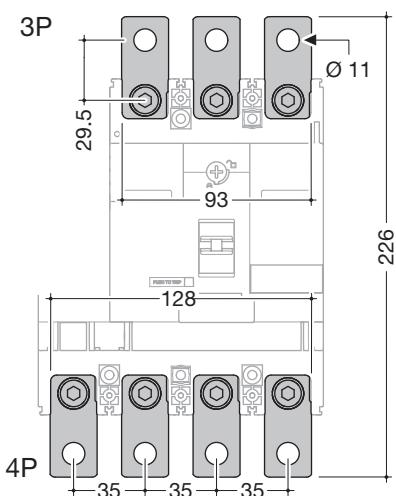
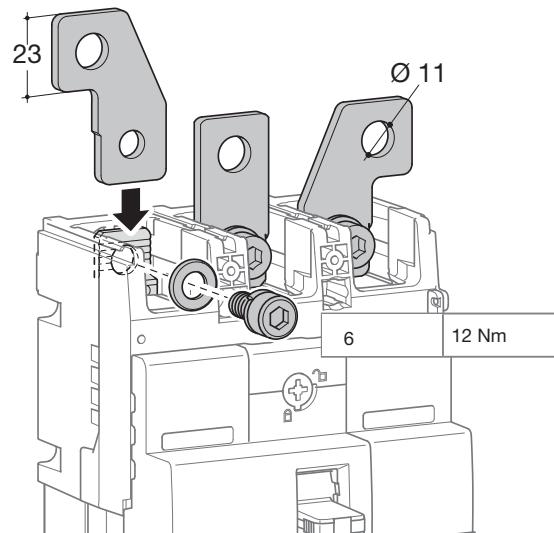
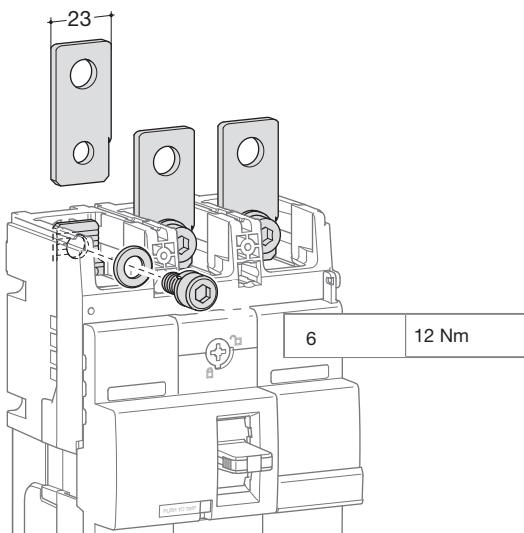


Interphase barriers



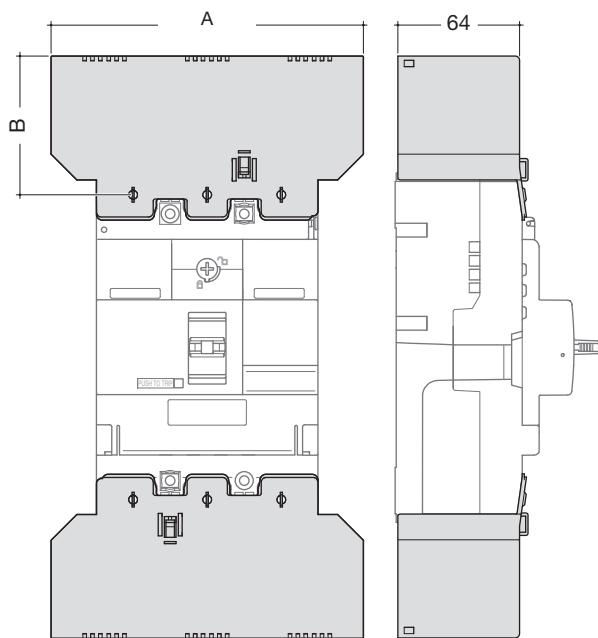
Connection

Extended straight and spreader connections



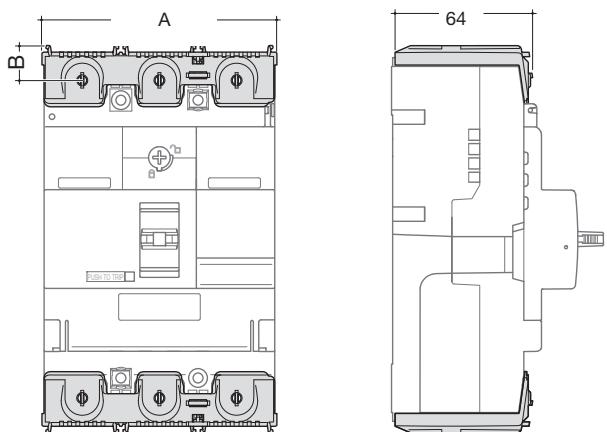
Accessories

Terminal cover for extended spreader connections



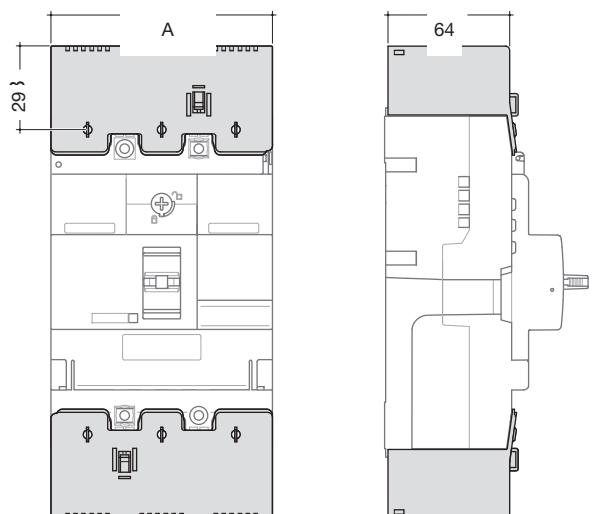
| | A (mm) | B (mm) | C (mm) |
|----|-----------|-----------|-----------|
| 3P | 147.5 | 54.5 | 64 |
| 4P | 196 | 54.5 | 64 |

Terminal cover for rear connections



| | A (mm) |
|----|-----------|
| 3P | 105 |
| 4P | 140 |

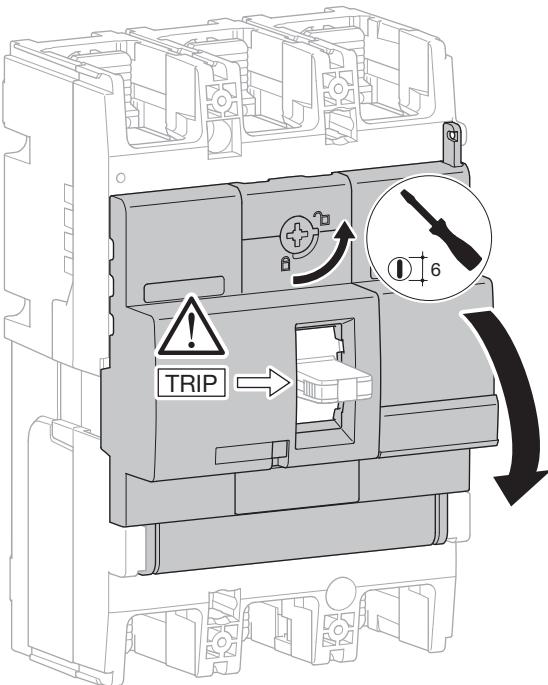
Terminal covers for collar terminals



| | A (mm) |
|----|-----------|
| 3P | 105 |
| 4P | 140 |

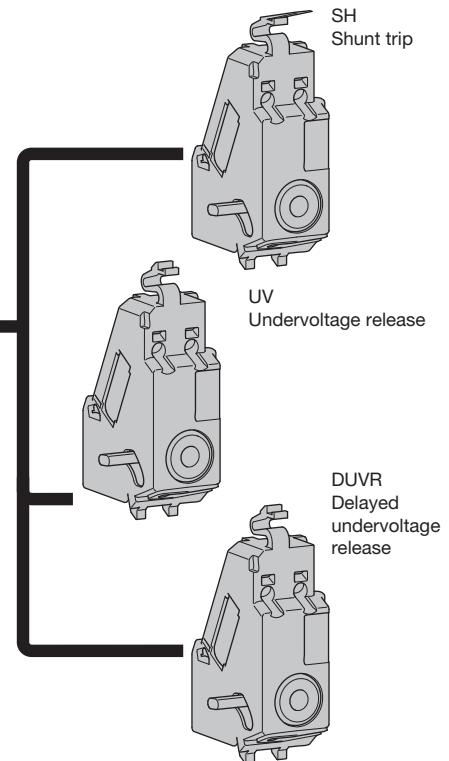
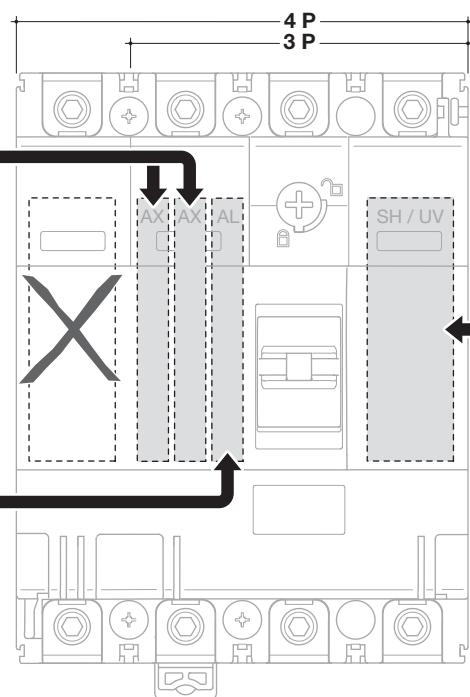
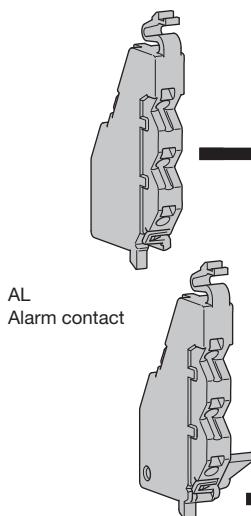
Auxiliaries

Auxiliaries for MCCBs and moulded case switches



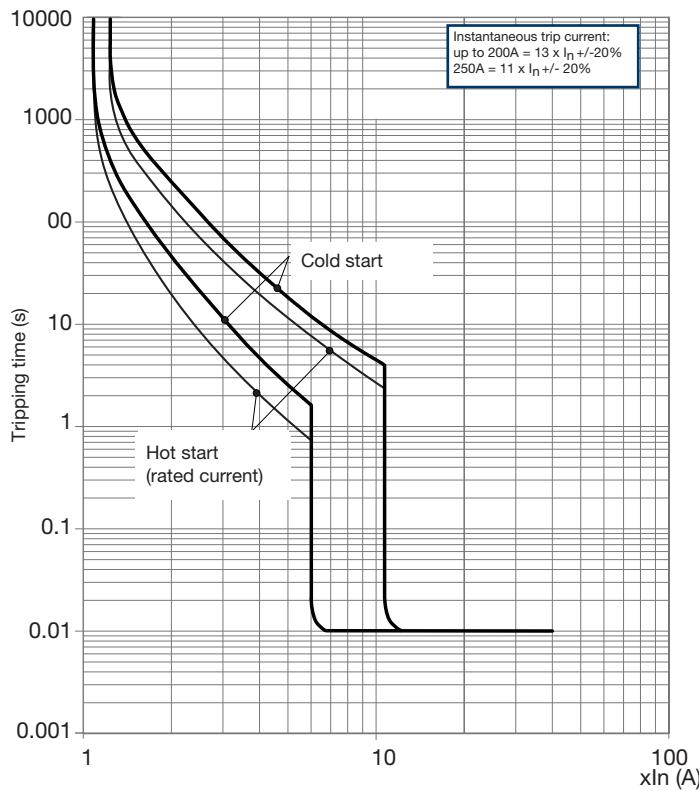
Mounting combination for auxiliaries and releases

AX
Auxiliary contact



Tripping curve

MCCB x250

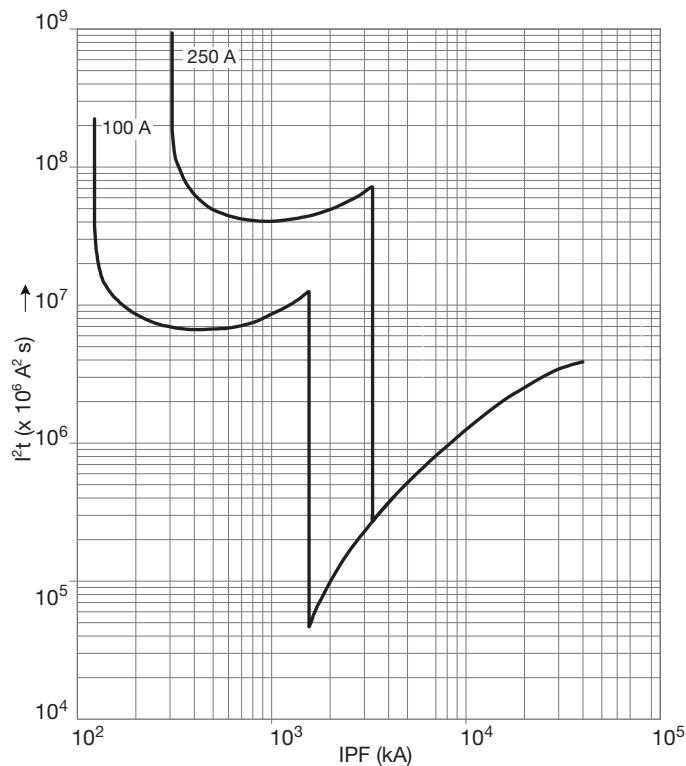


Earth fault loop impedance (Z_s) can be calculated from the formula
 $Z_s \leq 230 \times 0.95$

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

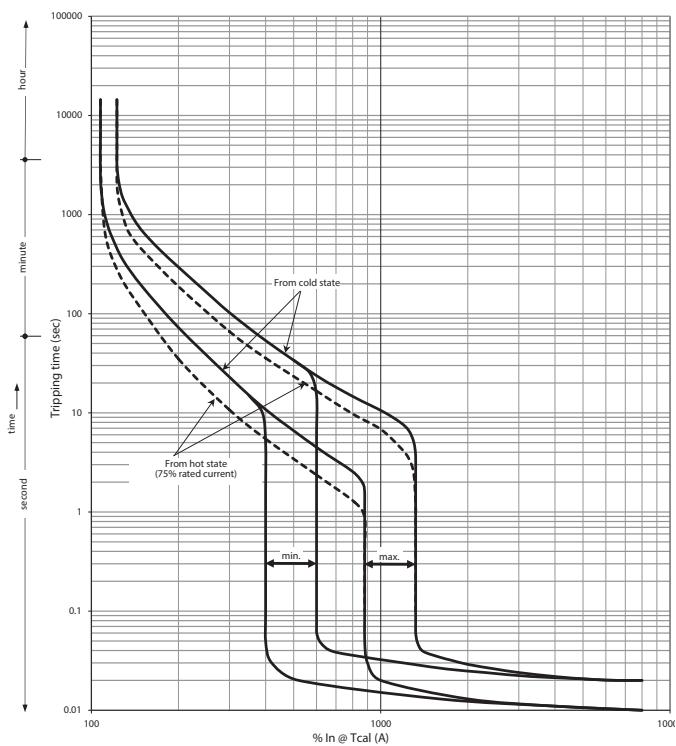
Thermal constraint curve at 400V (Let-through energy)

MCCB x250



Tripping curve

MCCB h250 TM

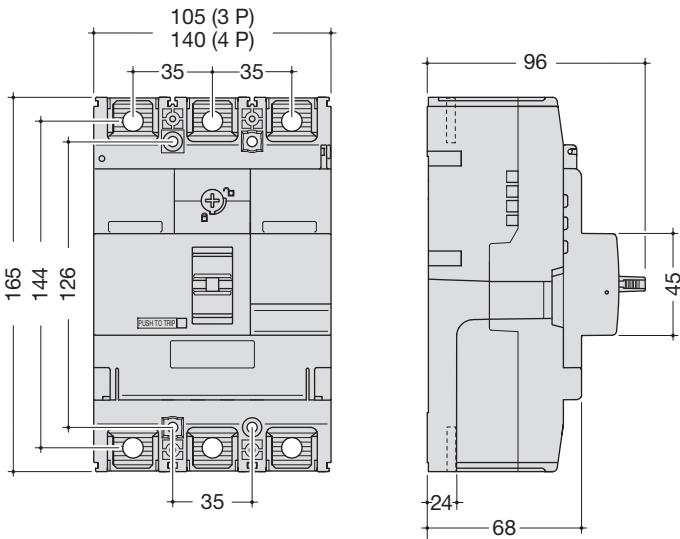


Commercial
Distribution

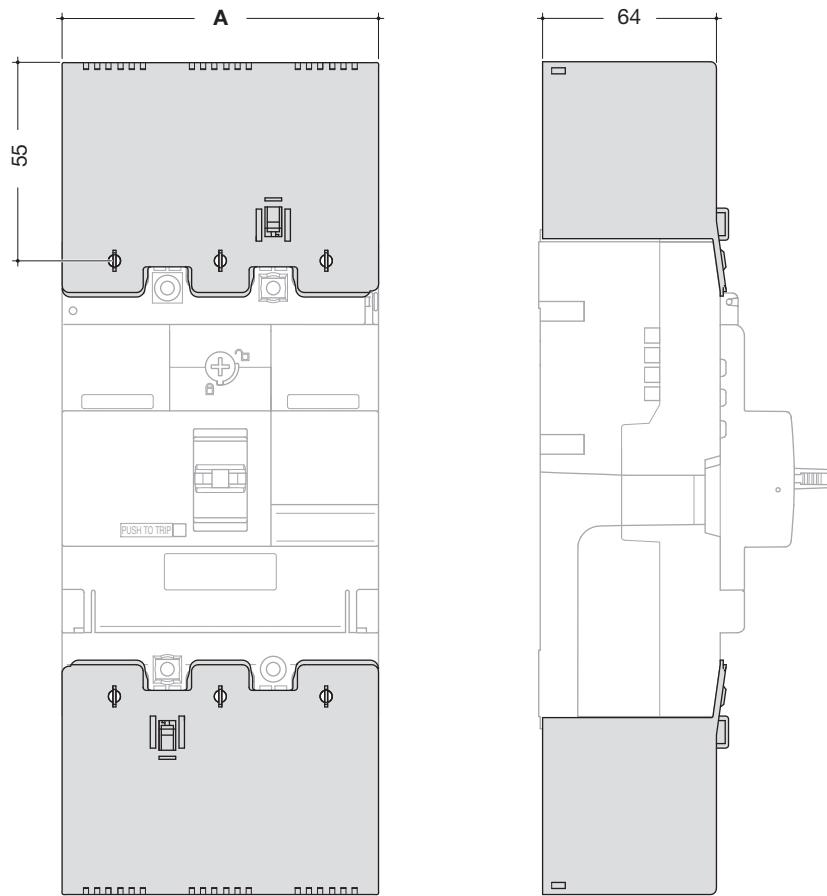
Dimensions

MCCB x250

Commercial
Distribution



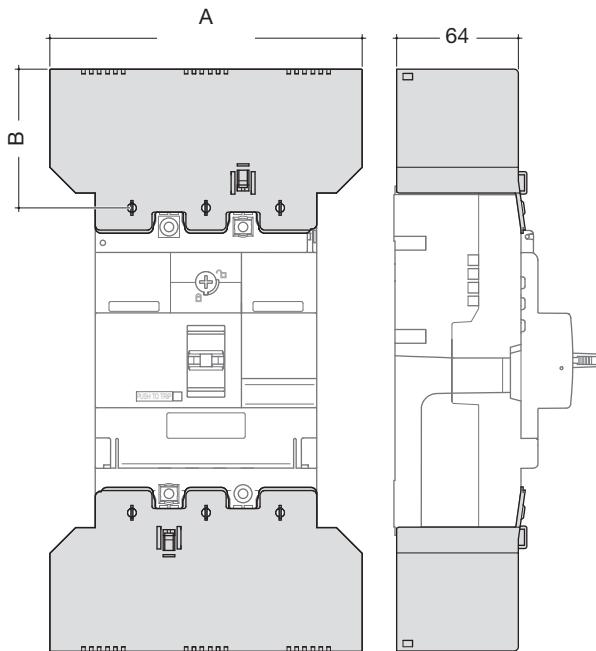
Terminal covers for extended straight connections



| | A (mm) |
|----|-----------|
| 3P | 105 |
| 4P | 140 |

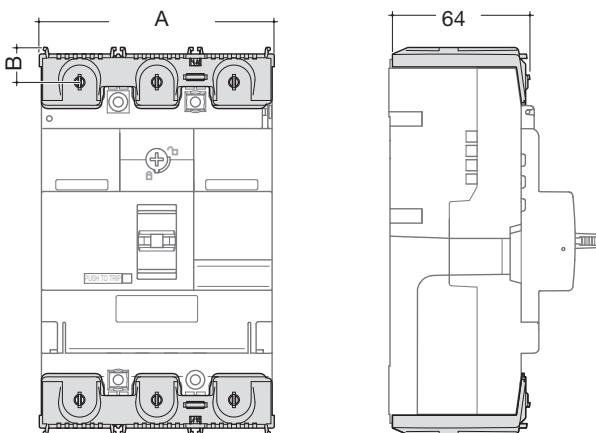
Accessories

Terminal cover for extended spreader connections



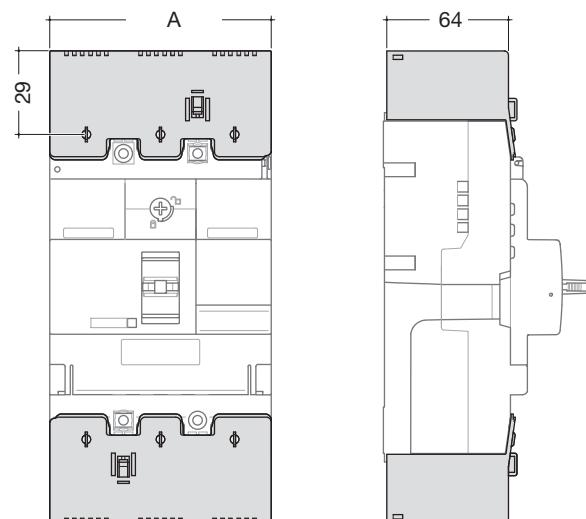
| | A (mm) | B (mm) | C (mm) |
|----|-----------|-----------|-----------|
| 3P | 147,5 | 54,5 | 64 |
| 4P | 196 | 54,5 | 64 |

Terminal cover for rear connections



| | A (mm) |
|----|-----------|
| 3P | 105 |
| 4P | 140 |

Terminal covers for collar terminals

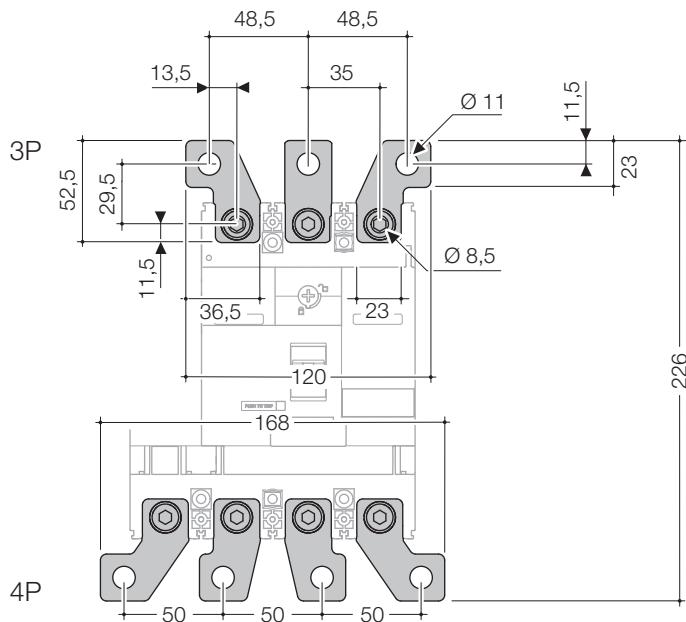
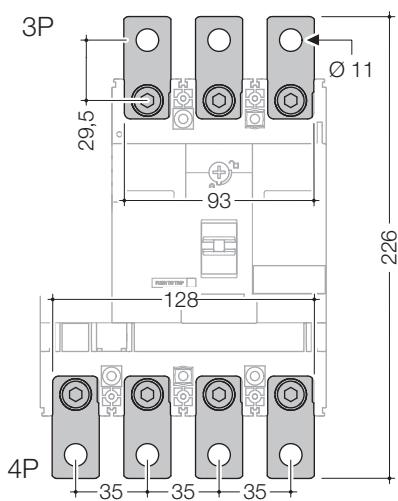
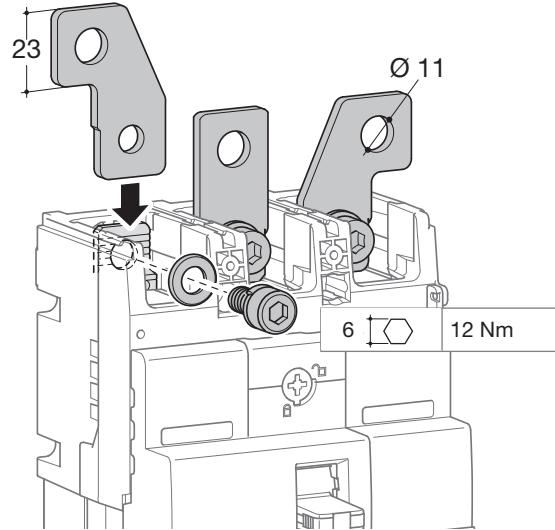
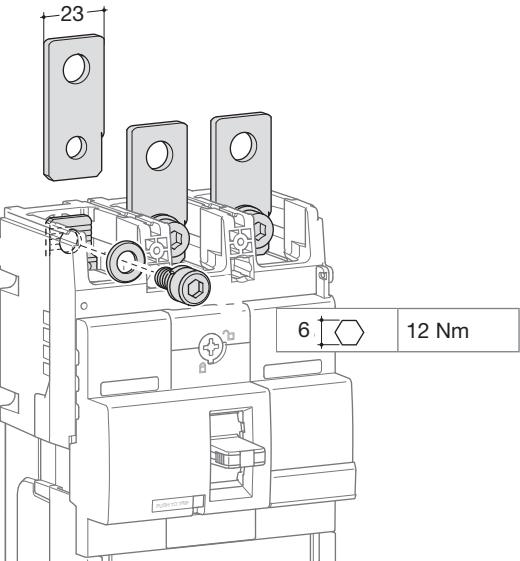


| | A (mm) |
|----|-----------|
| 3P | 105 |
| 4P | 140 |

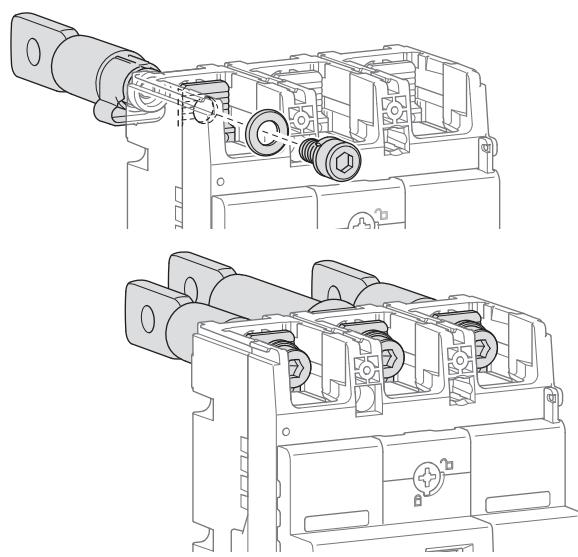
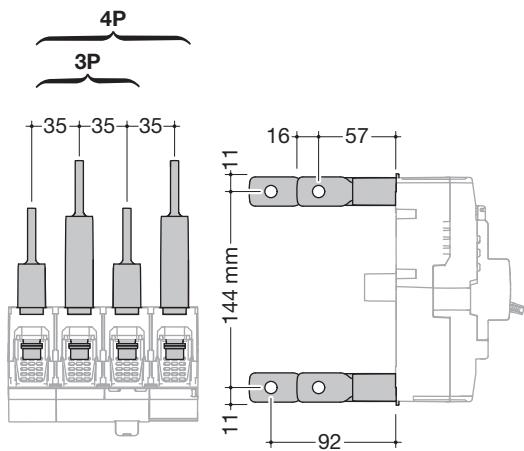
Connection

Extended straight and spreader connections

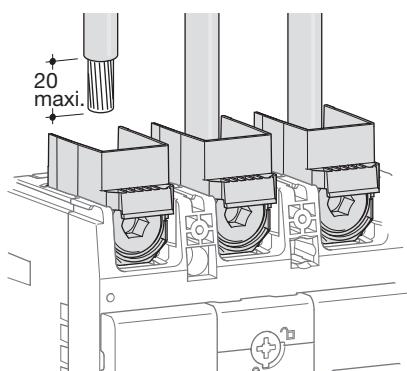
Commercial Distribution



Rear connections

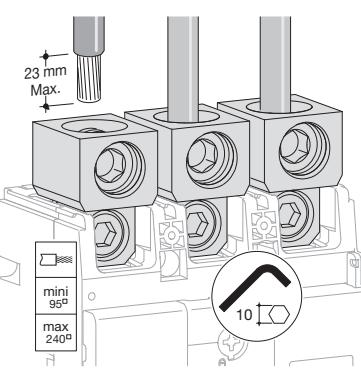


Connection by collar



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

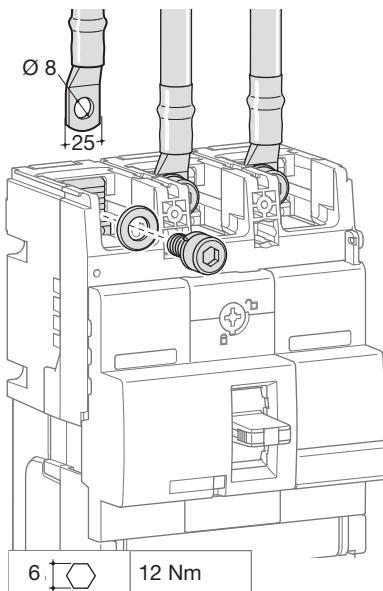
| | | |
|--|---|--------------------------|
| | min. 35 mm ² | max. 150 mm ² |
| | min. 35 mm ² | max. 185 mm ² |
| | 35 mm ² to 50 mm ² = 25 Nm 60 mm ² to 185 mm ² = 25 Nm | |



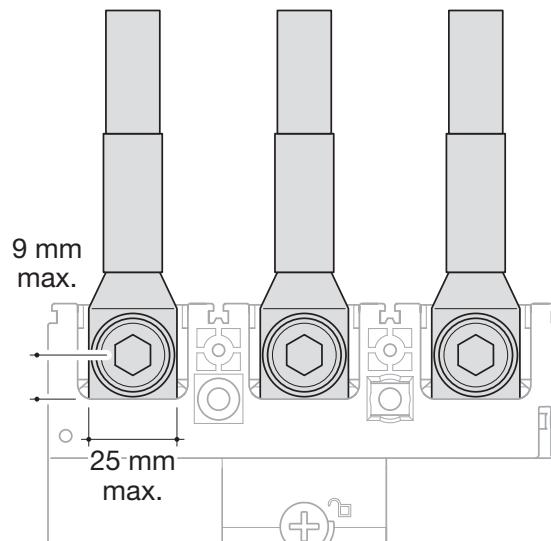
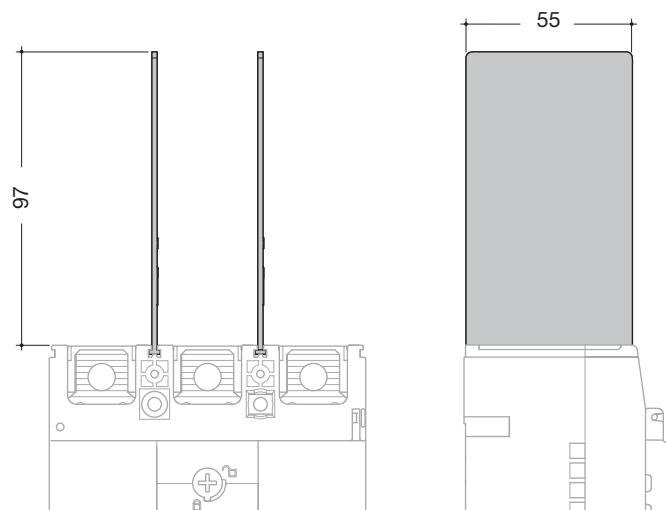
Terminals for aluminium / copper conductors (accessory)
HYB005H, HYB006H

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

Connection with end lugs



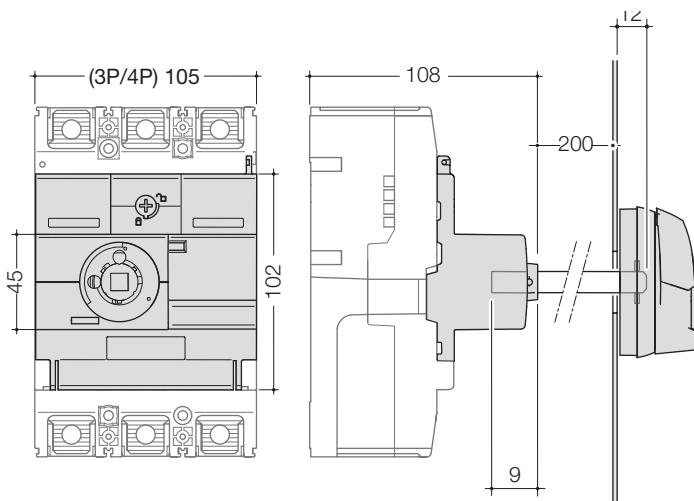
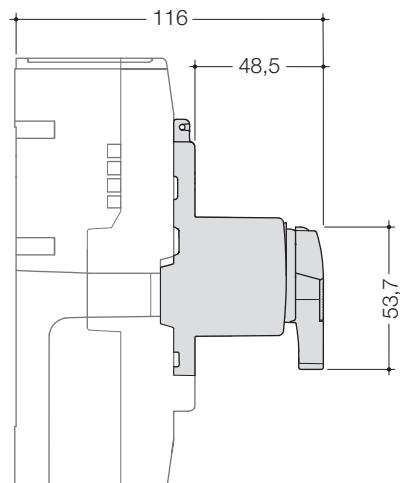
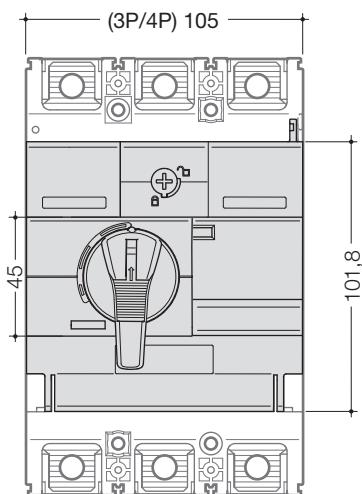
Interphase barriers



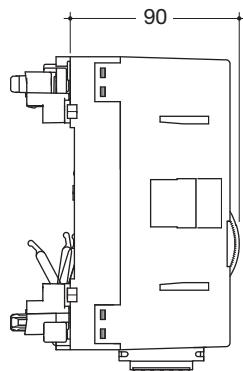
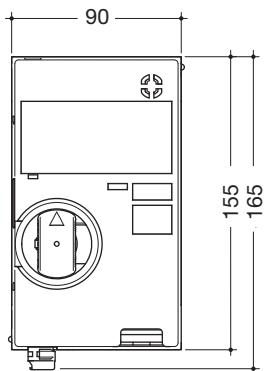
Accessories

Rotary handle

Commercial Distribution

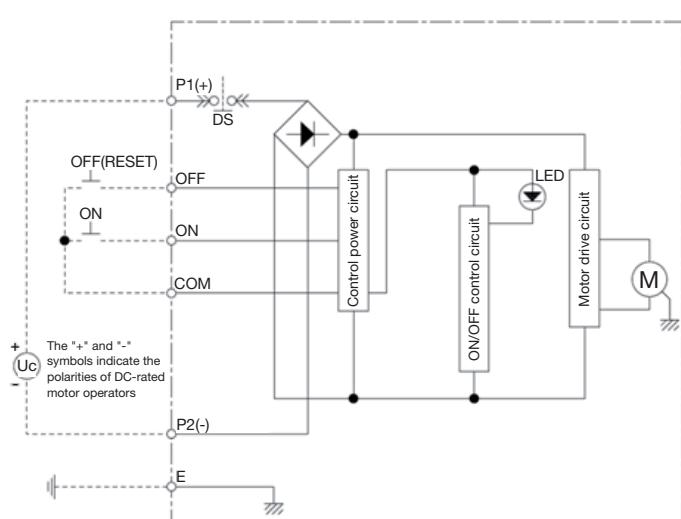


Motor operator



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

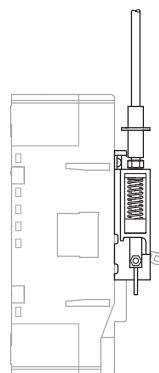
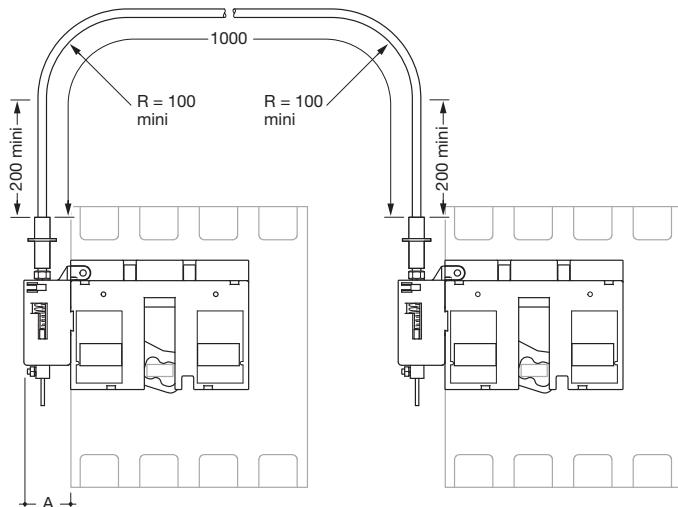
Wiring diagram



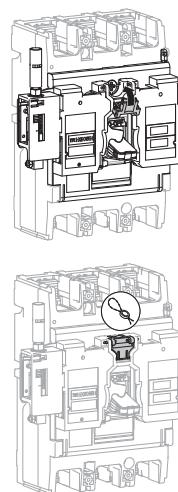
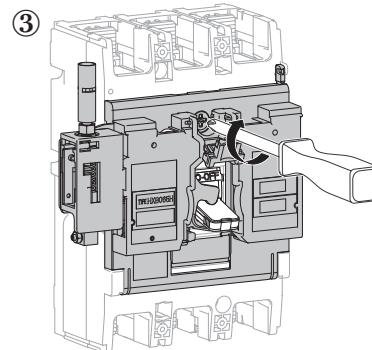
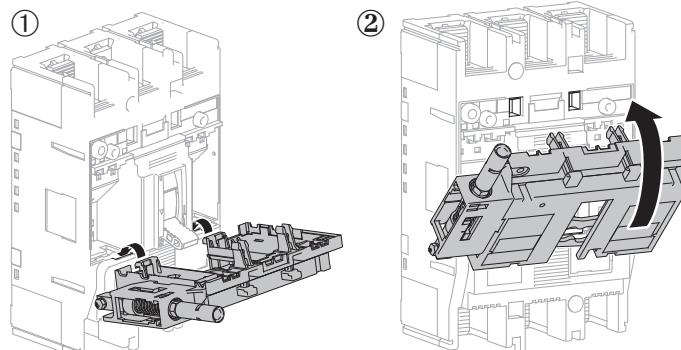
Interlocking system

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

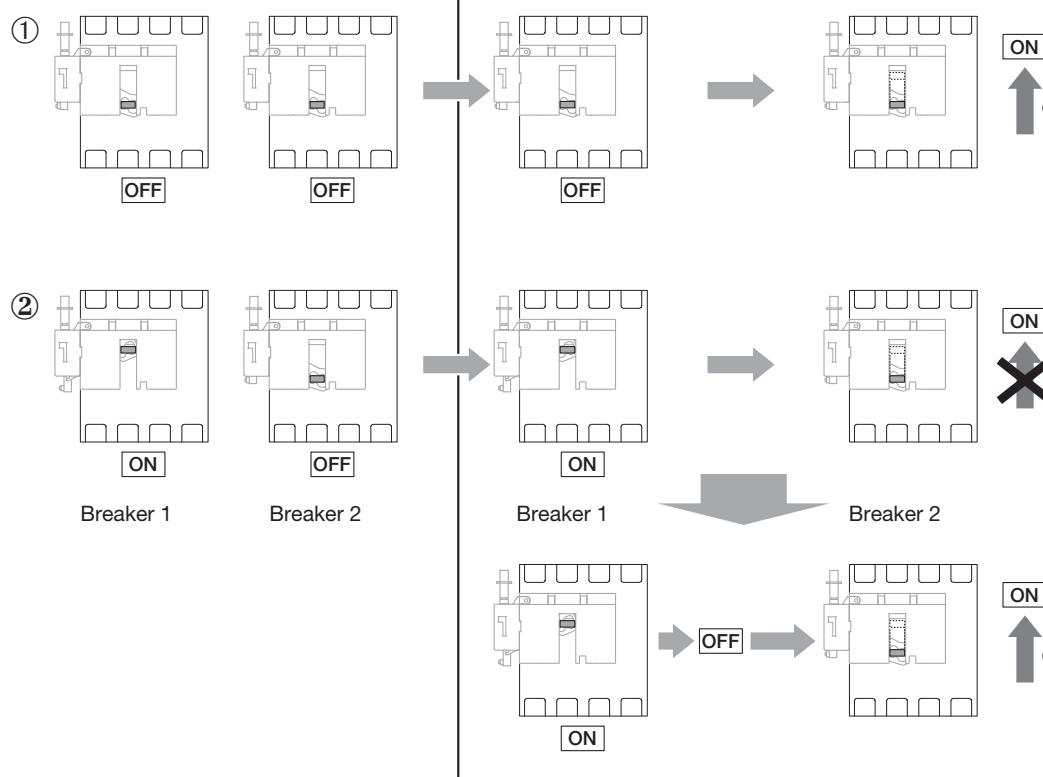
- Length HXB068H: 1500 mm
- Length HXB069H: 2100 mm



Mounting

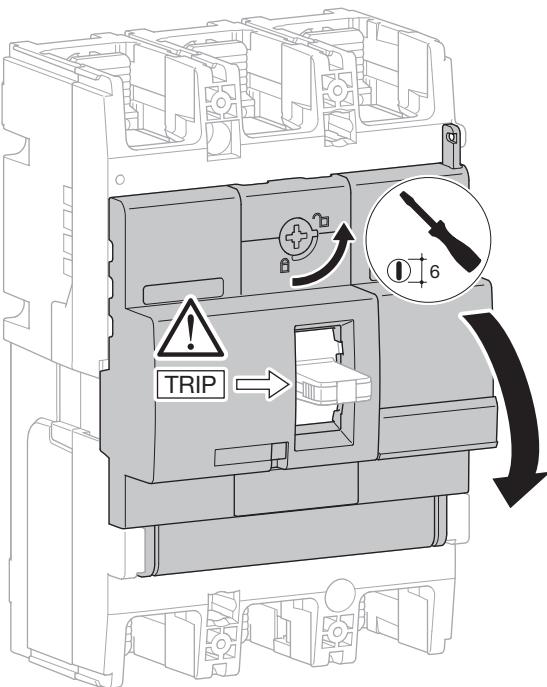


Checking the correct assembly



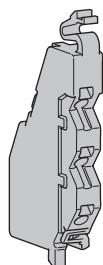
Auxiliaries

Auxiliaries for MCCBs and trip-free switches

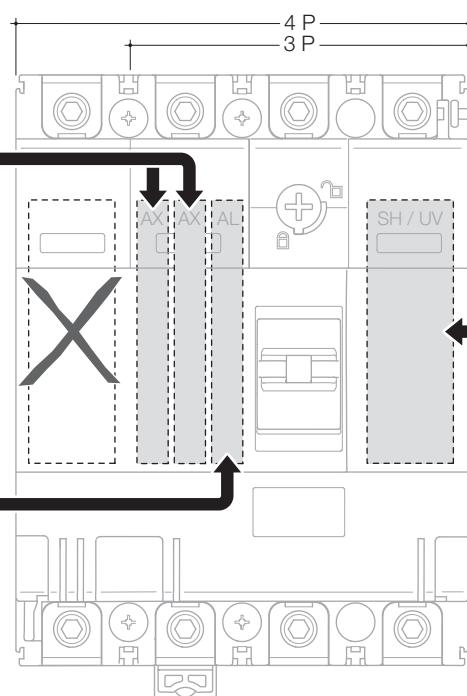
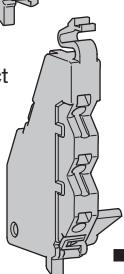


Mounting combination for auxiliaries and releases

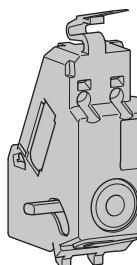
AX
Auxiliary contact



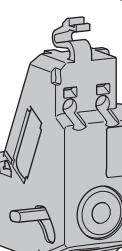
AL
Alarm contact



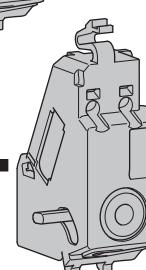
SH
Shunt trip

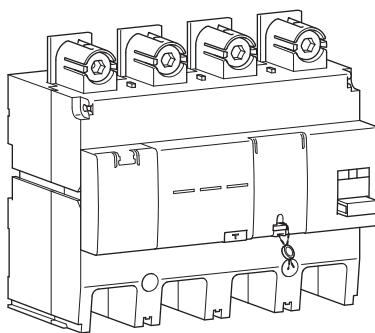


UV
Undervoltage release



DUVR
Delayed undervoltage release

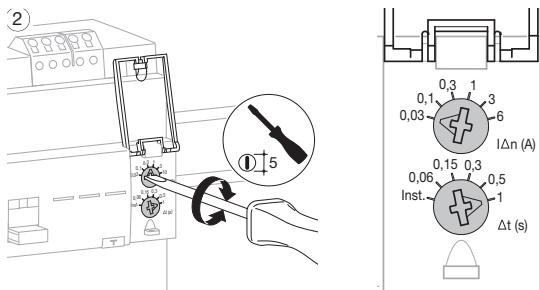




When associated with MCCB, the add-on block provides an earth fault protection and protects against electrical shocks by direct or indirect contacts.

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

Earth leakage current ($I\Delta n$) and delay (Δt) setting



| (Δt) s | A ($I\Delta n$) | | | | | |
|--------|-------------------|------|-----|-----|----|----|
| | | 0,03 | 0,1 | 0,3 | 1 | 3 |
| 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 |

Characteristics

Reset button :

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

Test button for differential operating :

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

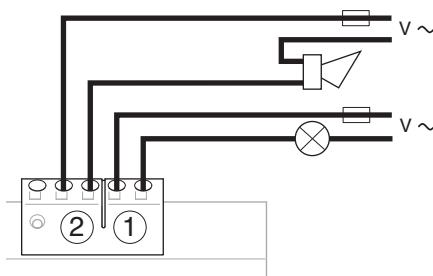
Mechanical test button :

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

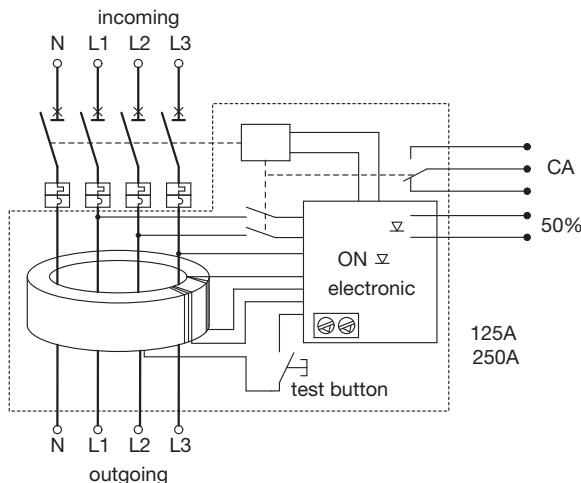
LED signaling default current level in the installation:

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

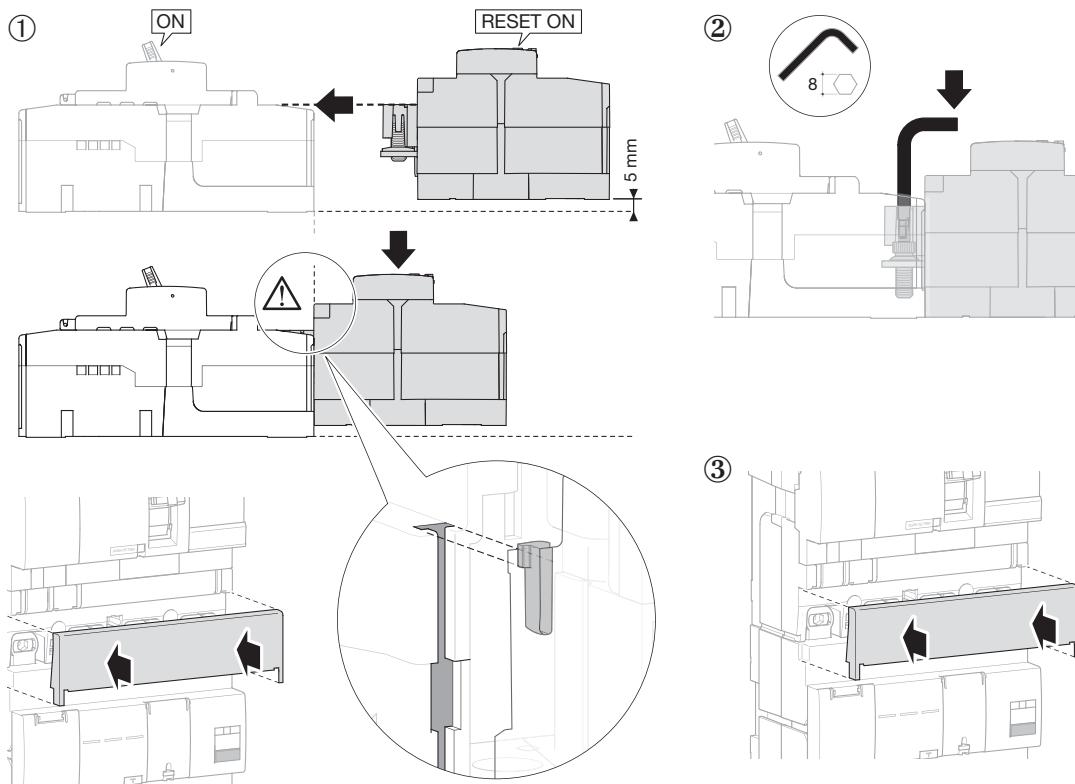
Remote tripping and advanced warning (50% $I\Delta n$) signaling thanks to these contacts:



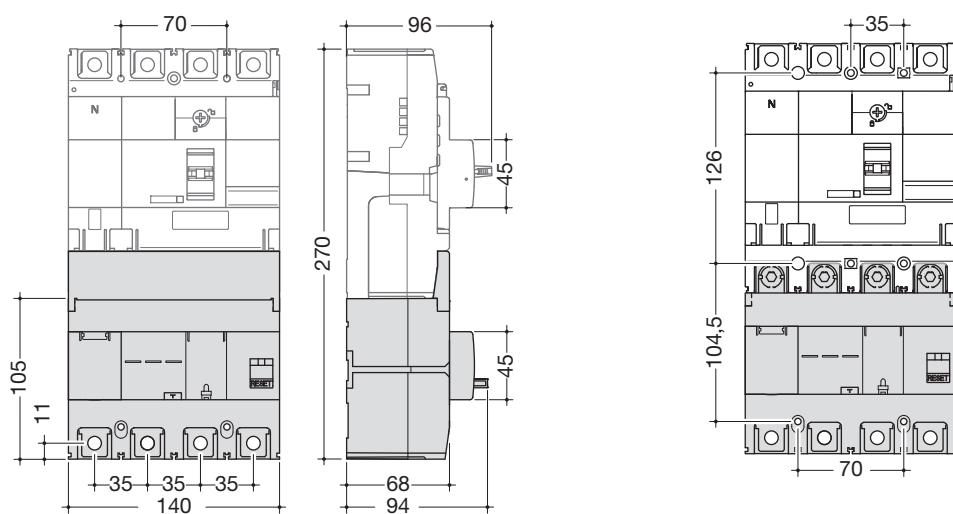
Add-on block operating



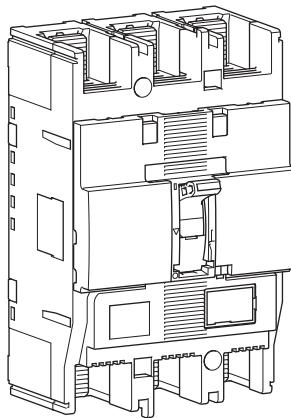
Add-on block mounting



Dimensions

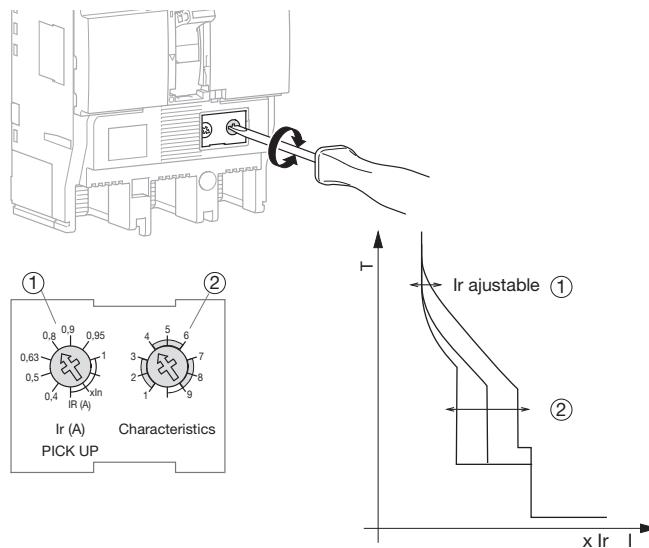


MCCBs



| | | 220/240 V AC | 380/415 V AC | 660/690 V AC |
|-----|----------|--------------|--------------|--------------|
| LSI | Icu (kA) | 85 | 50 | 7,5 |
| HNC | Ics (kA) | 85 | 25 | 7,5 |
| LSI | Icu (kA) | 100 | 70 | 20 |
| HEC | Ics (kA) | 100 | 70 | 15 |

Electronic trip unit setting (LSI)



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

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

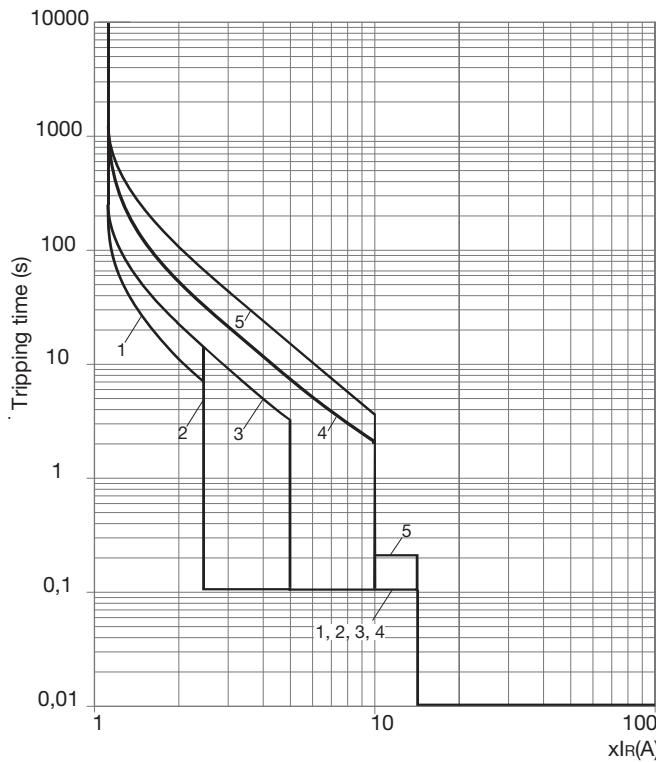
I - Instantaneous - max. instantaneous threshold (< 10 ms) in case of short circuit: 2,5 to 10 x Ir.

| Use | Characteristics (*) | |
|----------------------|---------------------|-----------------|
| | 3 P | 4 P |
| Generator protection | pos. 1 | pos. 1, 4 and 7 |
| Standard protection | pos. 2 and 3 | pos. 2, 5 and 8 |
| Motor protection | pos. 4 and 5 | pos. 3, 6 and 9 |

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

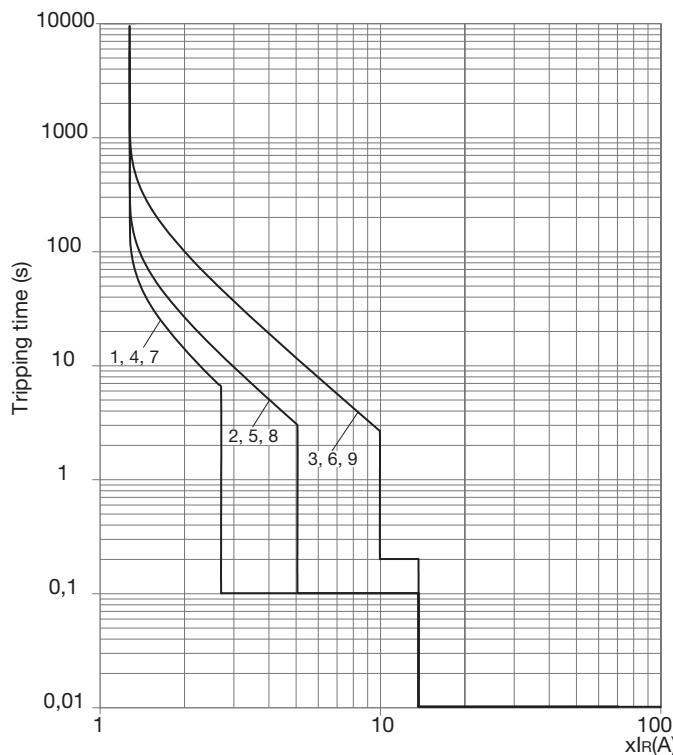
MCCB h250 3P LSI

Commercial
Distribution



| LTD pick-up current | | I_r | $x I_n$ | 0,4 | 0,5 | 0,63 | 0,8 | 0,9 | 0,95 | 1 |
|---------------------|------|----------|--------------|---------------------------|-----|------|--------------------|-----|------|---|
| Characteristics | | | No. | 1 | 2 | 3 | 4 | 5 | | |
| Standard | LTD | t_r | (s) | 11 | 21 | 21 | 5 | 7,5 | | |
| | | | | 200 % $\times I_r$ | | | 600 % $\times I_r$ | | | |
| | STD | I_{sd} | $\times I_r$ | 2,5 | 2,5 | 5 | 10 | 10 | | |
| | | t_{sd} | (s) | 0,1 | 0,1 | 0,1 | 0,1 | 0,2 | | |
| | INST | I_i | $\times I_r$ | 14 (max 13 $\times I_n$) | | | | | | |

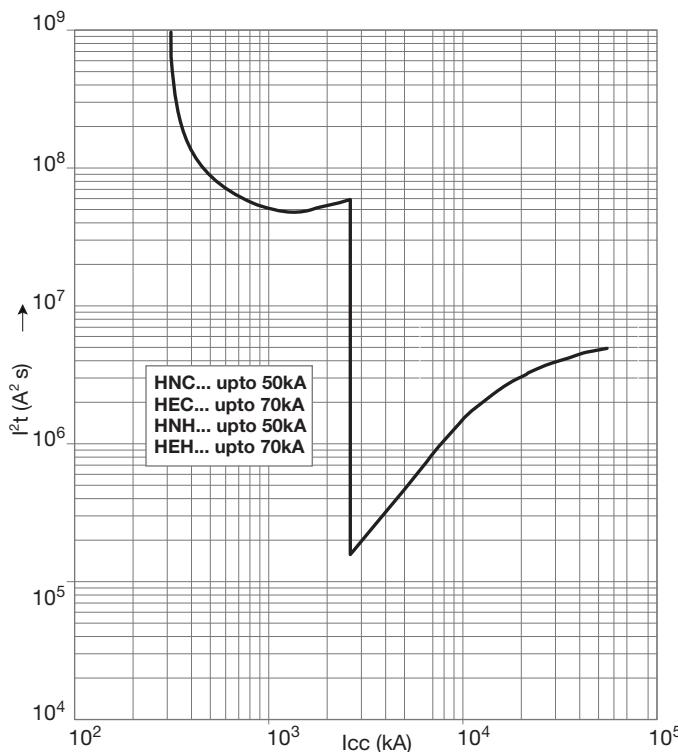
MCCB h250 4P LSI



| LTD pick-up current | | IR | x In | 0,4 | 0,5 | 0,63 | 0,8 | 0,9 | 0,95 | 1 | | |
|---------------------|---------------------------|------|------|------------|-----------|-------|------------|-----------|-------|------------|-----------|-------|
| Characteristics | | | No. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Standard | LTD | tR | (s) | 11 s | 21 s | 7,5 s | 11 s | 21 s | 7,5 s | 11 s | 21 s | 7,5 s |
| | | | | 200 % x IR | 600% x IR | | 200 % x IR | 600% x IR | | 200 % x IR | 600% x IR | |
| | STD | lsd | x IR | 2,5 | 5 | 10 | 2,5 | 5 | 10 | 2,5 | 5 | 10 |
| | | tsd | (s) | 0,1 | | 0,2 | 0,1 | | 0,2 | 0,1 | | 0,2 |
| | INST | li | x IR | | | | 14 | | | | | |
| | Neutral protection | x In | | no | | | 0,5 | | | 1 | | |

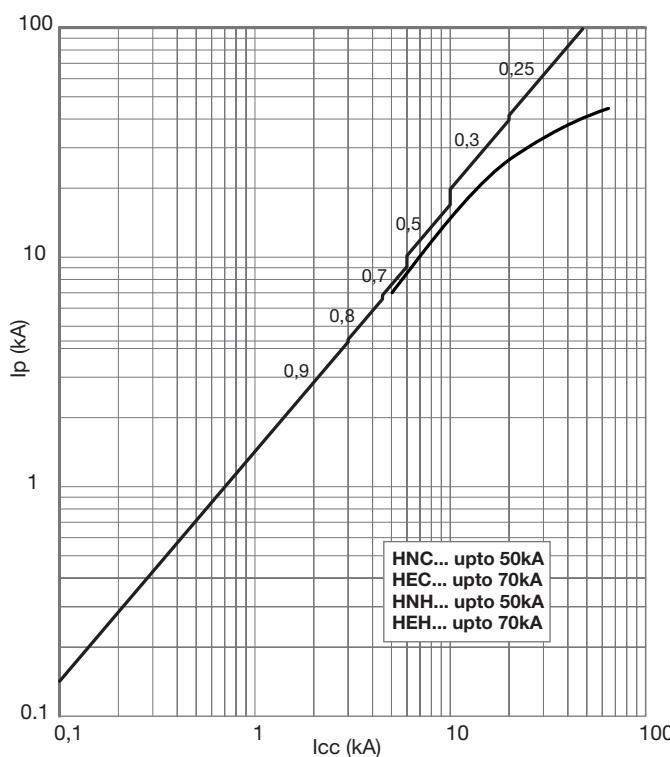
Thermal constraint curve at 400V (Let-through energy)

MCCB h250



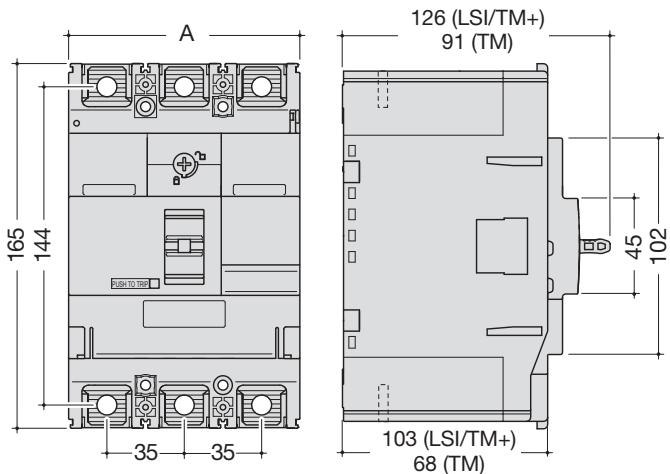
Current limiting curve at 400V (Let-through peak current)

MCCB h250



Dimensions

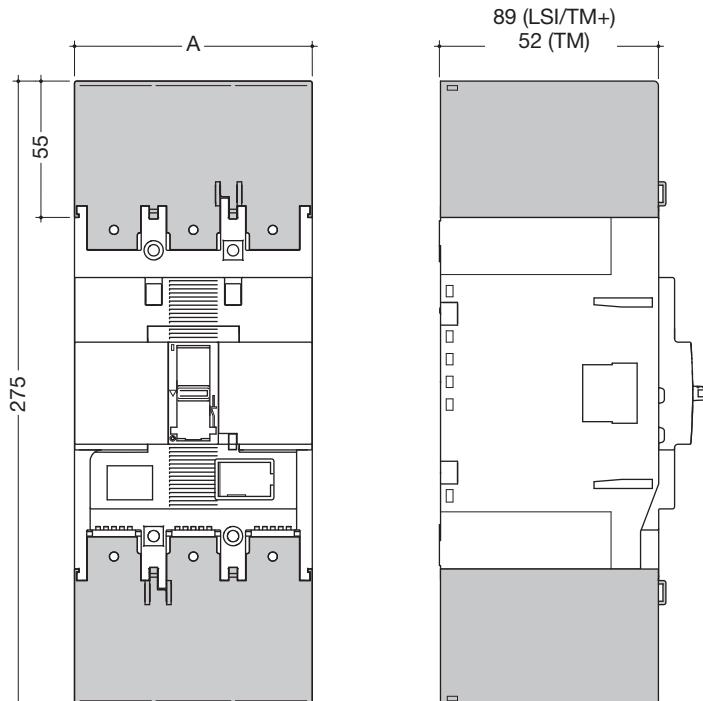
MCCBs



| | A (mm) |
|----|-----------|
| 3P | 105 |
| 4P | 140 |

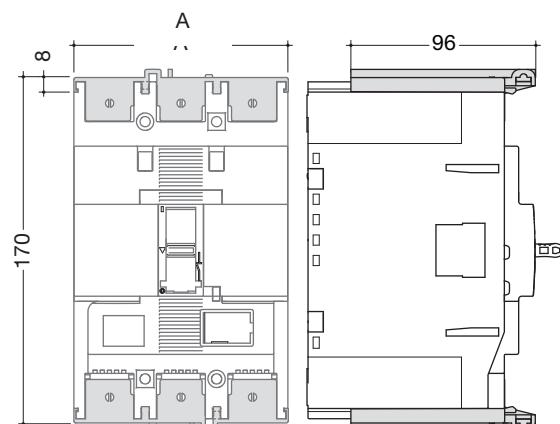
Accessories

Terminal covers for extended straight connections



| | A (mm) |
|----|-----------|
| 3P | 105 |
| 4P | 140 |

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

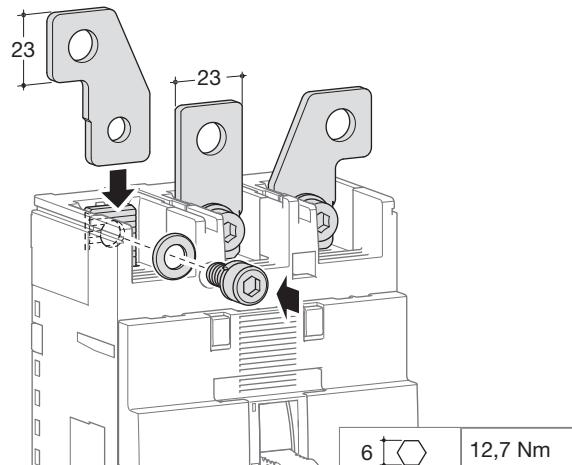
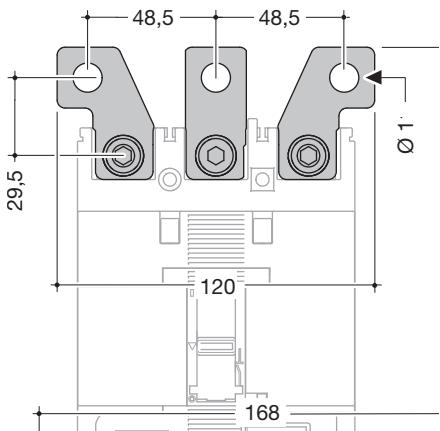


| | A (mm) |
|----|-----------|
| 3P | 105 |
| 4P | 140 |

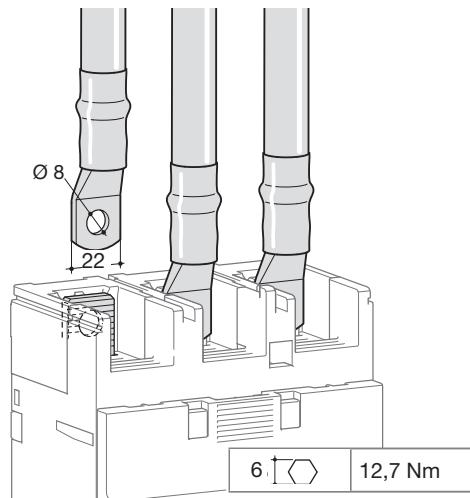
Connection

Extended straight and spreader connections

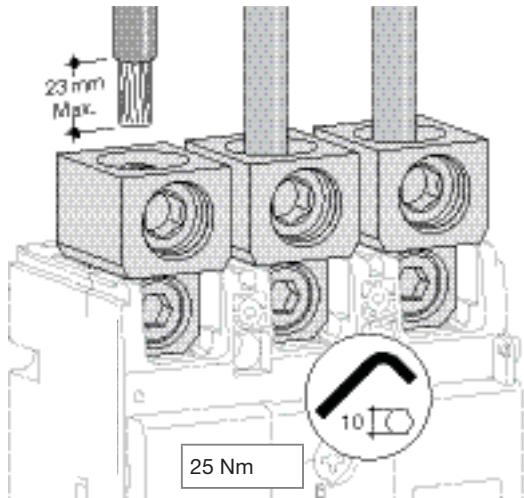
Commercial Distribution



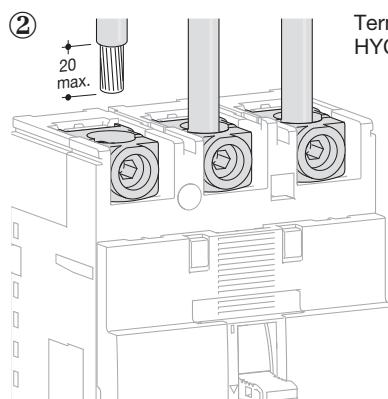
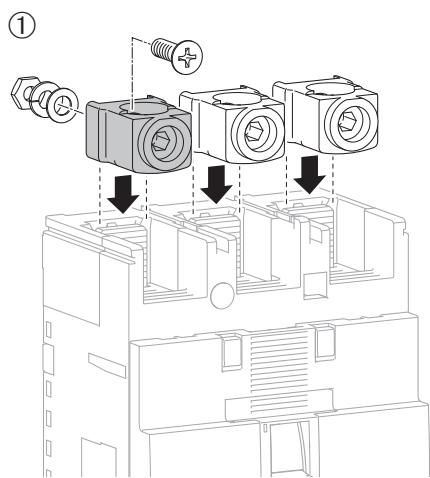
Connection with end lugs



Connection by collar 240mm² - HYB005H and HYB006H



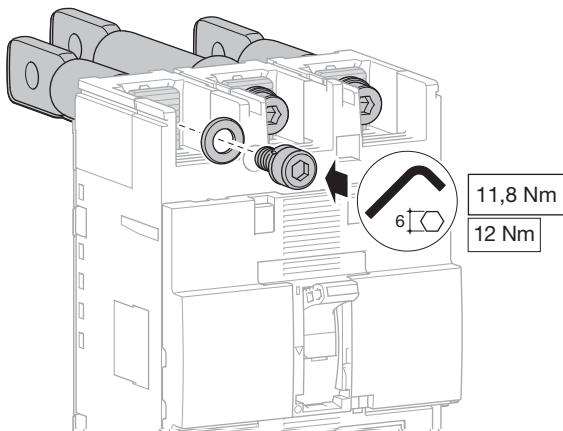
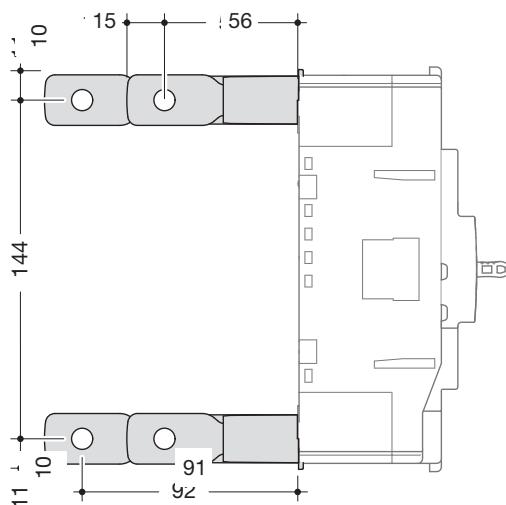
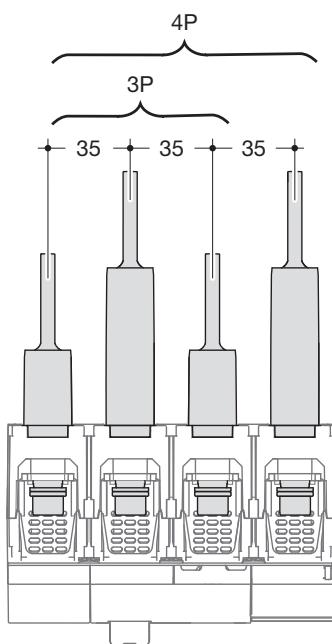
Connection by collar



Terminals for copper conductors
HYC003H, HYC004H

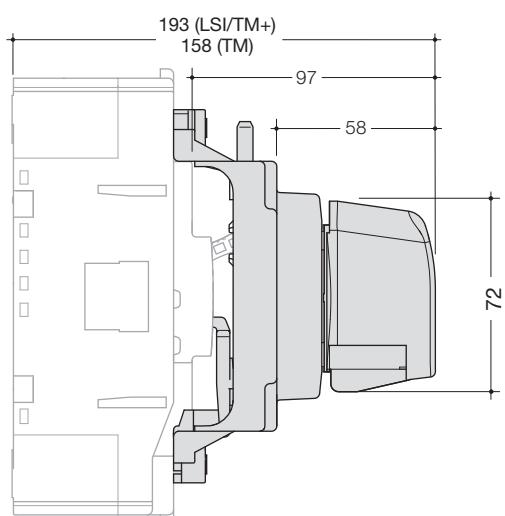
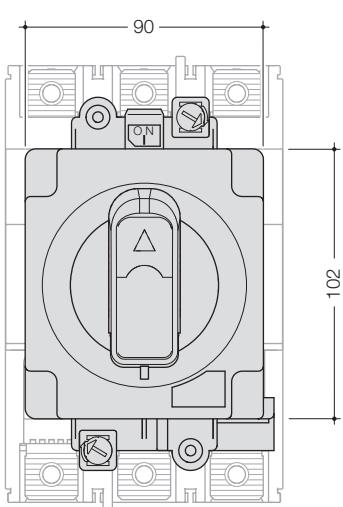
| | | |
|---|-------------------------|--------------------------|
| | min. 35 mm ² | max. 120 mm ² |
| | min. 35 mm ² | max. 120 mm ² |
| 6 | 19 Nm | |

Rear connections (LSI/TM+ only)



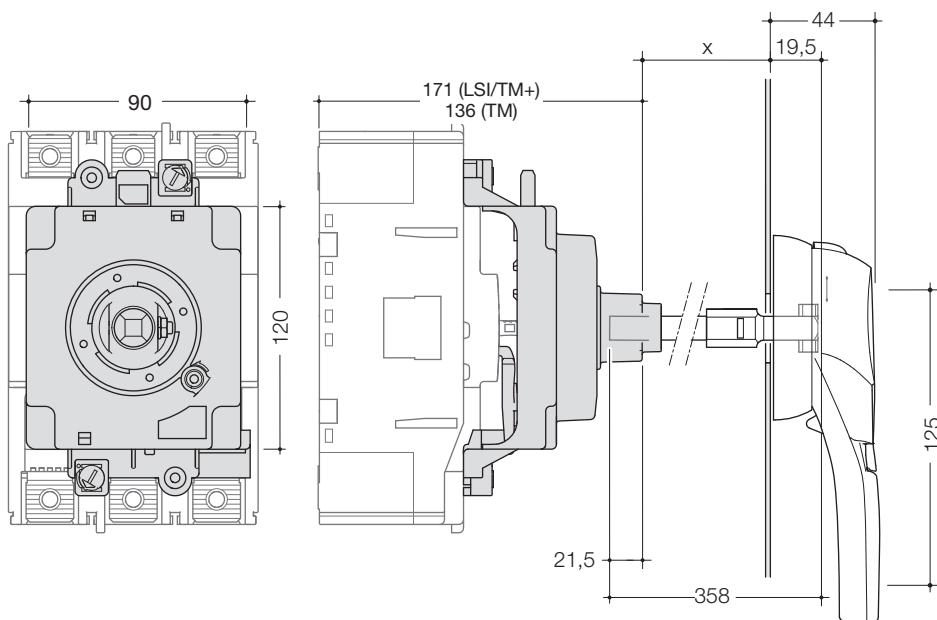
Accessories

Direct rotary handle

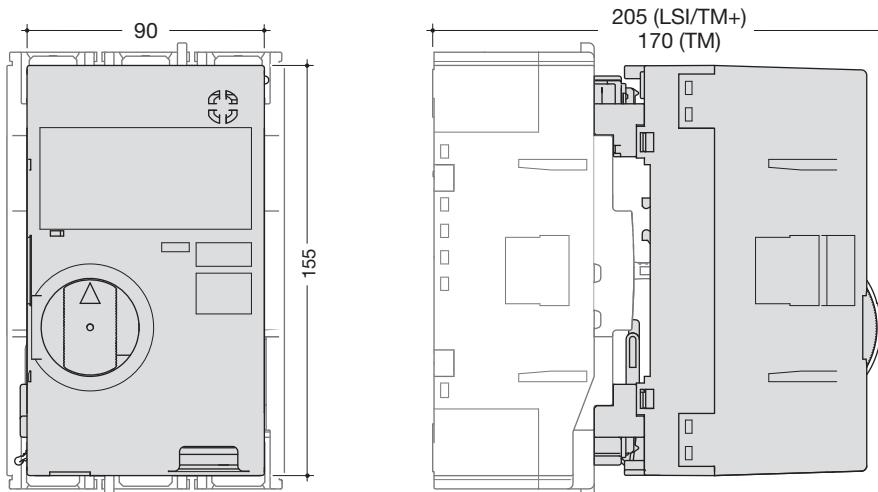


Extended rotary handle

Commercial
Distribution

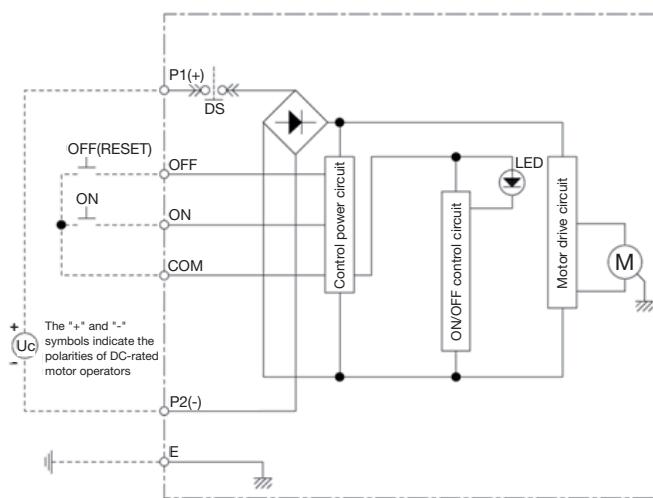


Motor operator



| | HXC040H | HXC042H |
|---|--|-------------|
| Operating voltage | 24V DC | 230-240V AC |
| Operating current / starting current peak value (A) | 24V DC 18/26 230-240V AC - | - 3,5/7 |
| Operating time (s) | (ON) 0,1s (OFF) 0,1s (RESET) 0,1s | |
| Power supply required | 300VA min. | |
| Dielectric properties (1 min) | 1000V AC | 1500V AC |

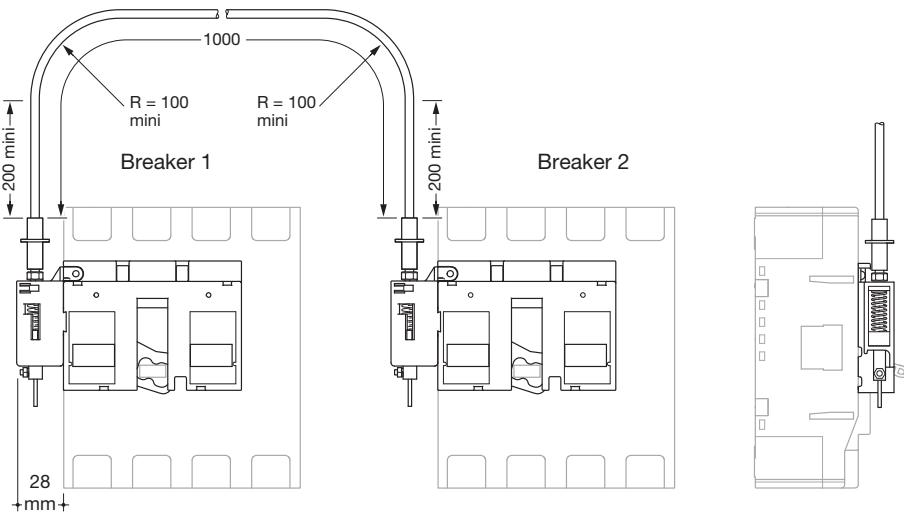
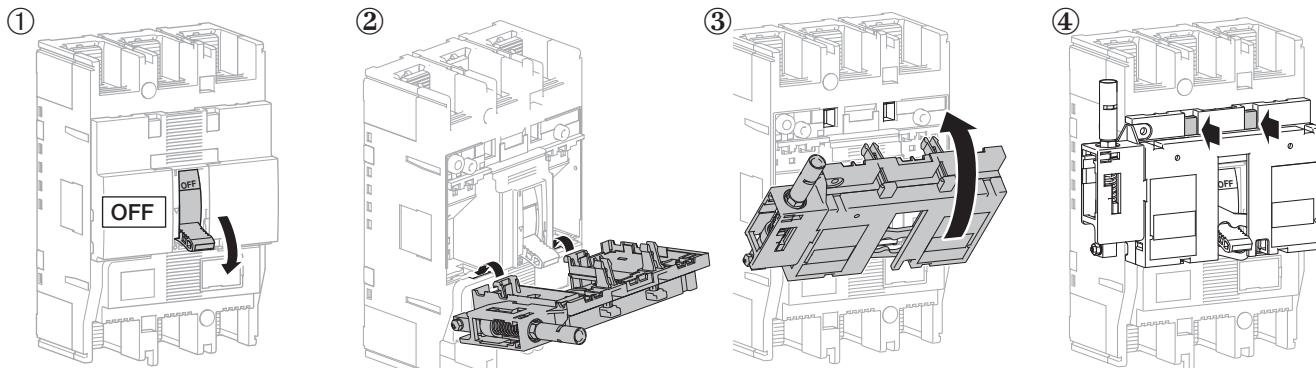
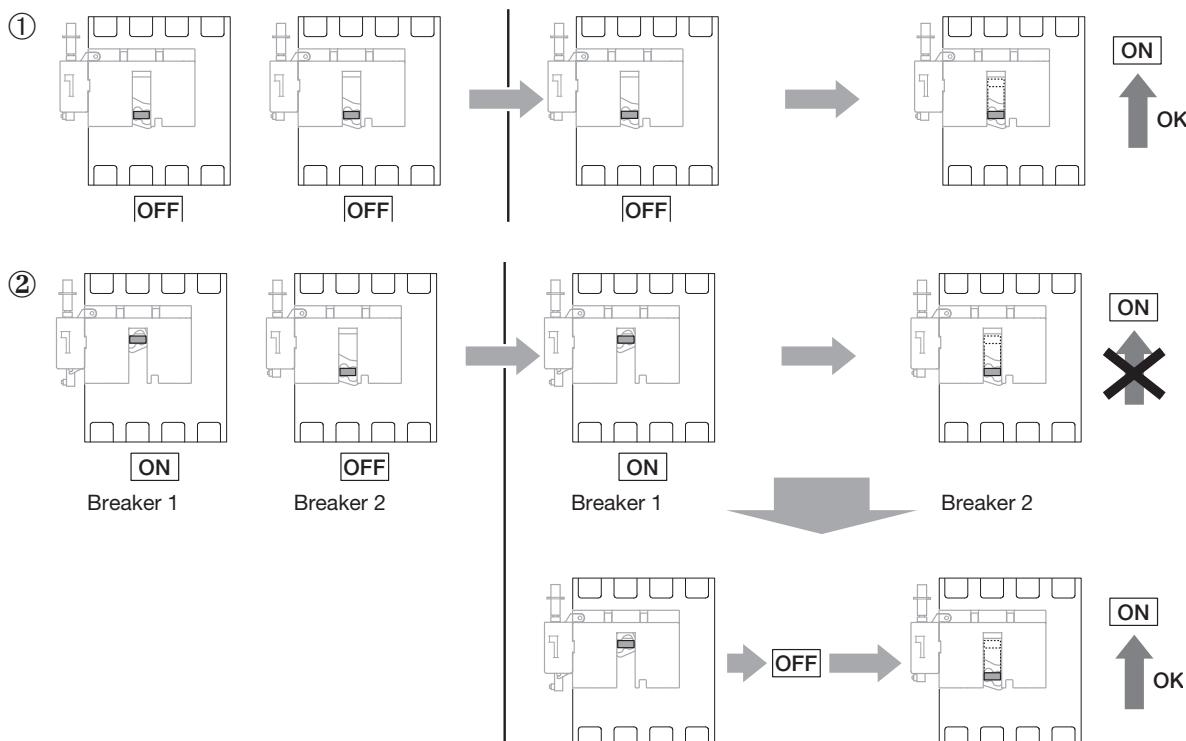
Wiring diagram



Interlocking system

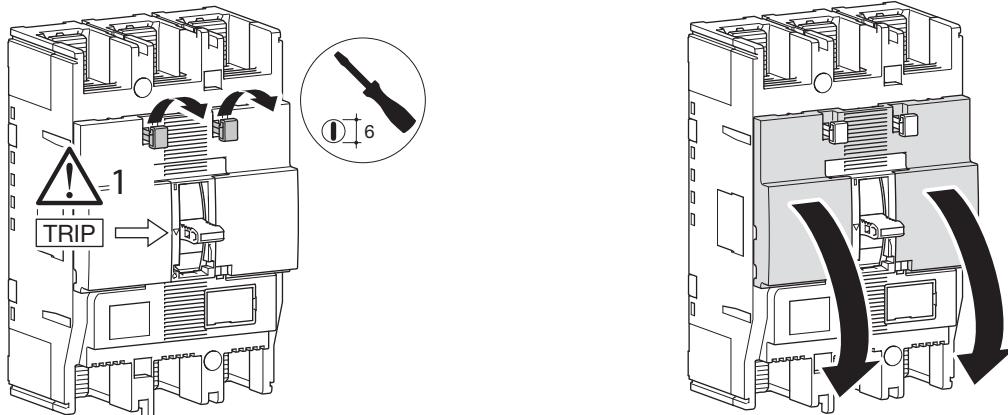
Suitable with motor operator HXC04xH.
With electrical interlock for motor operator HXB068H (for 250A) or HXB069H (for 630/1000A).

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

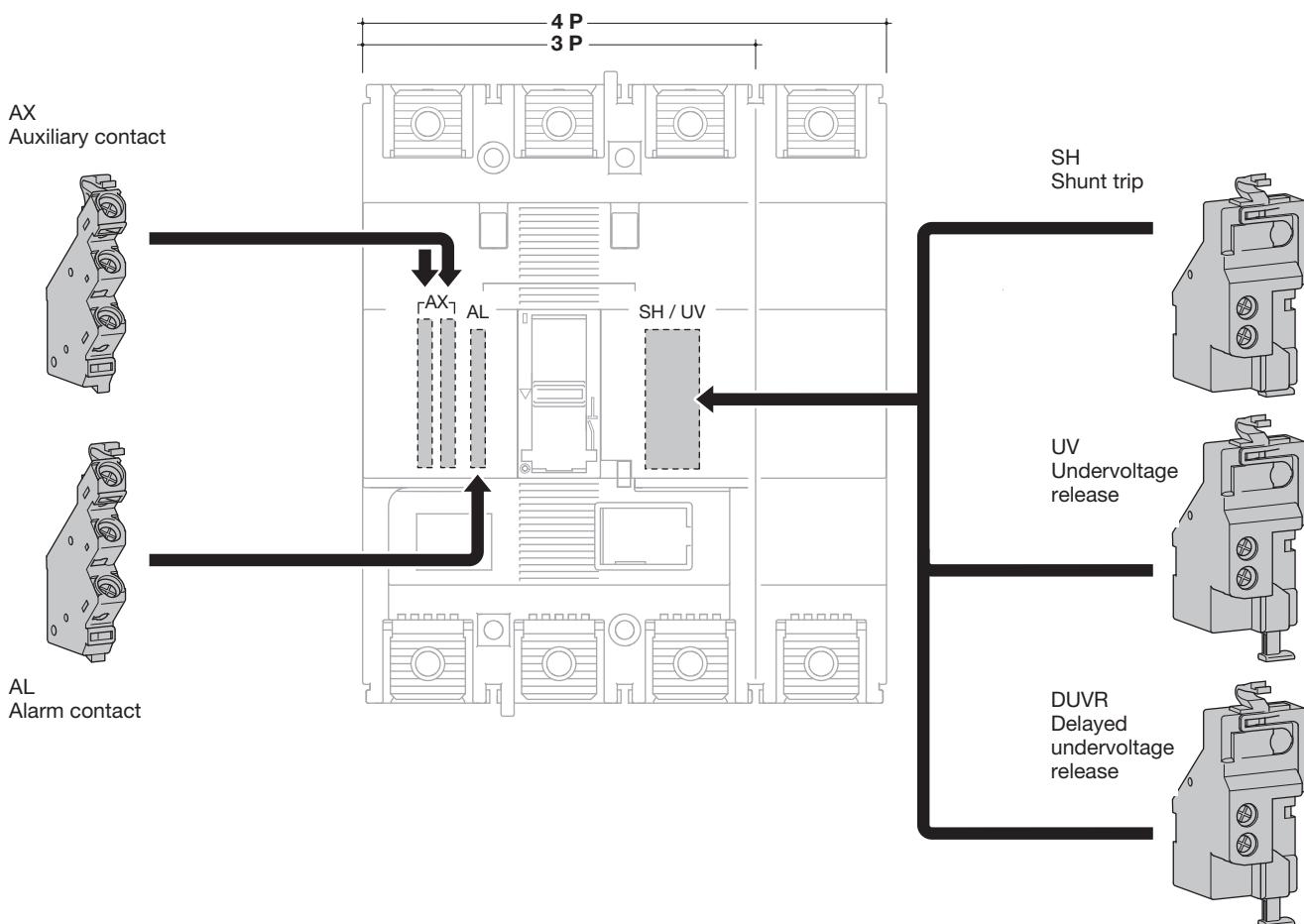
**Mounting****Checking the correct assembly**

Auxiliaries

Auxiliaries for MCCBs and trip-free switches



Mounting combination for auxiliaries and releases

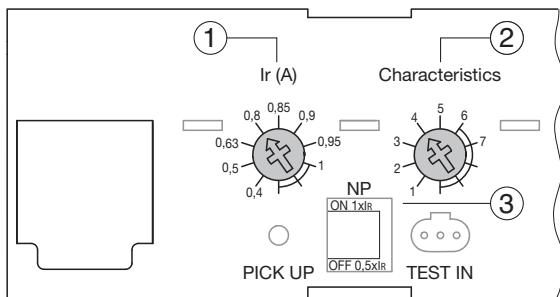


Electronic trip unit setting (LSI)

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

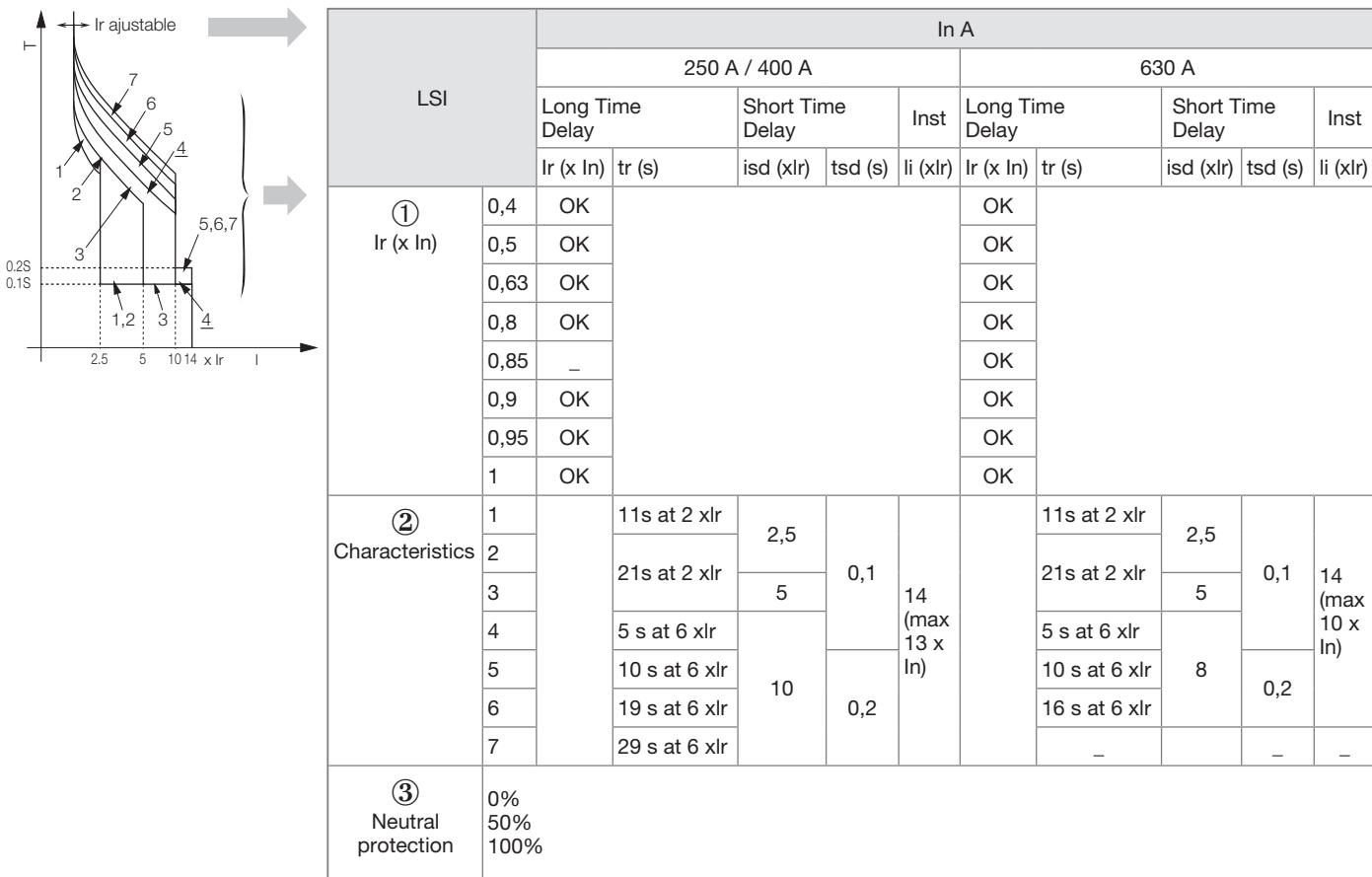
S - Short delay - protection against short circuits: Isd and tsd settings

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



Neutral settings:

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



(*) Characteristic 1 : use for generators protection.

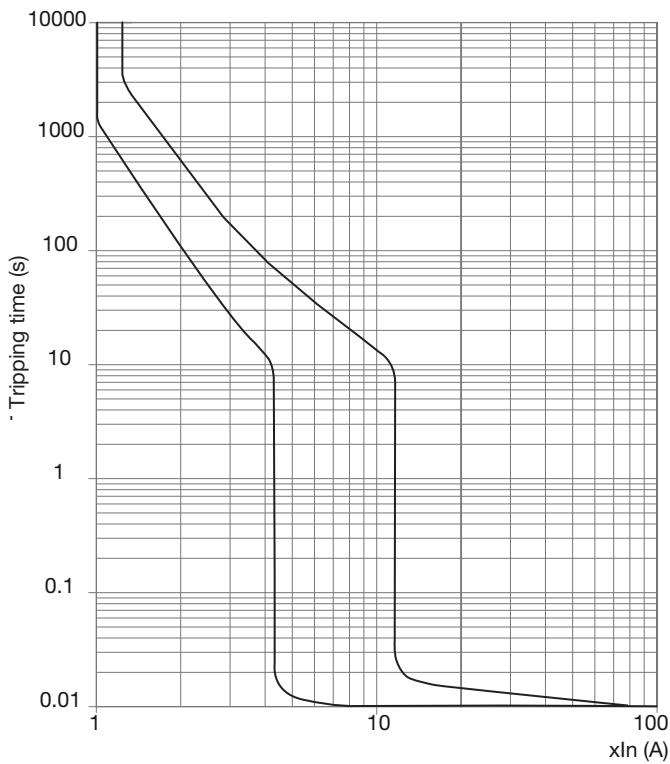
Characteristic 2 to 4 - standard protection : options allow coordination optimisation with other products.

Characteristic 5 to 7 - motor protection: use positions according to motor starting characteristics.

Tripping curve

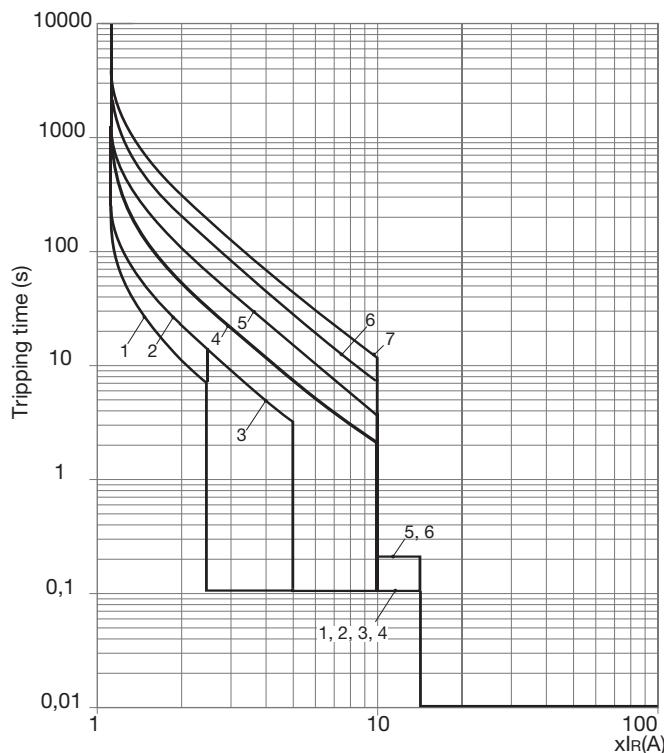
MCCB h400 TM (250 and 400A)

Commercial
Distribution



Tripping curve

MCCB h630 LSI (250A and 400A)

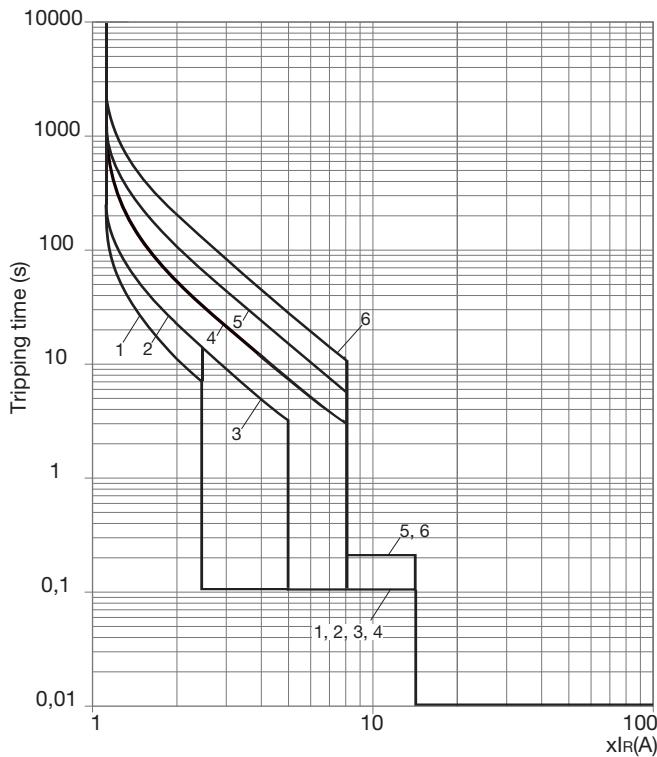
**Electronic trip unit setting (LSI)**

MCCB h630 LSI (250A and 400A)

| IR (A) | | | | | | | | | | |
|---------------------|------|-----|------|--------------------|-----|------|-----|-----|-----------|----|
| LTD Pick-up current | | IR | x In | 0,4 | 0,5 | 0,63 | 0,8 | 0,9 | 0,95 | 1 |
| Characteristics | | | No. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Standard | LTD | tR | (s) | 11 | 21 | 21 | 5 | 10 | 19 | 29 |
| | | | | 200% x IR | | | | | 600% x IR | |
| | STD | lsd | x IR | 2,5 | | 5 | 10 | | | |
| | | tsd | (s) | 0,1 | | | | 0,2 | | |
| Optional | INST | li | x IR | 14 (max : 13 x In) | | | | | | |
| | N | IN | x In | 0 - 0,5 - 1 | | | | | | |
| | | tN | (s) | tN = tR | | | | | | |

Tripping curve

MCCB h630 LSI (630A electronic)



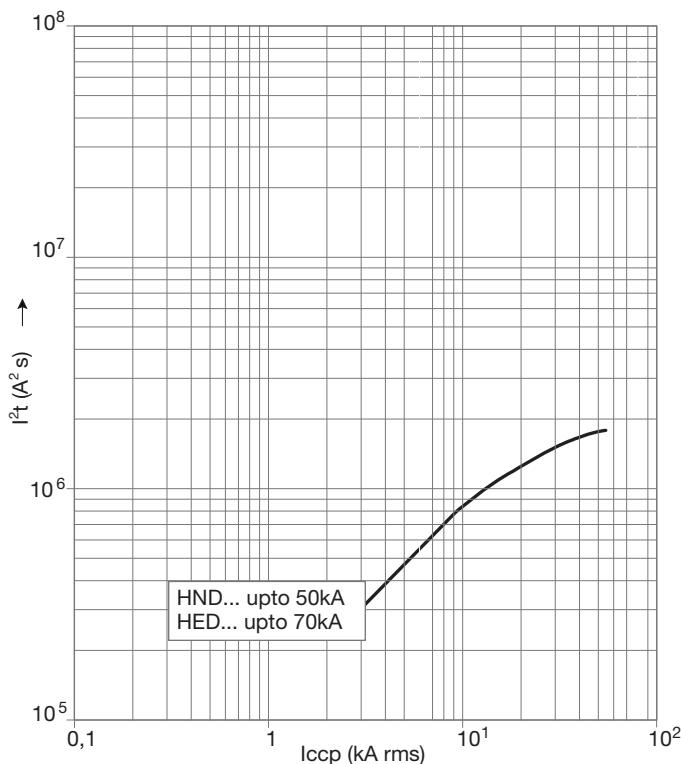
Electronic trip unit setting (LSI)

MCCB h630 LSI (630A electronic)

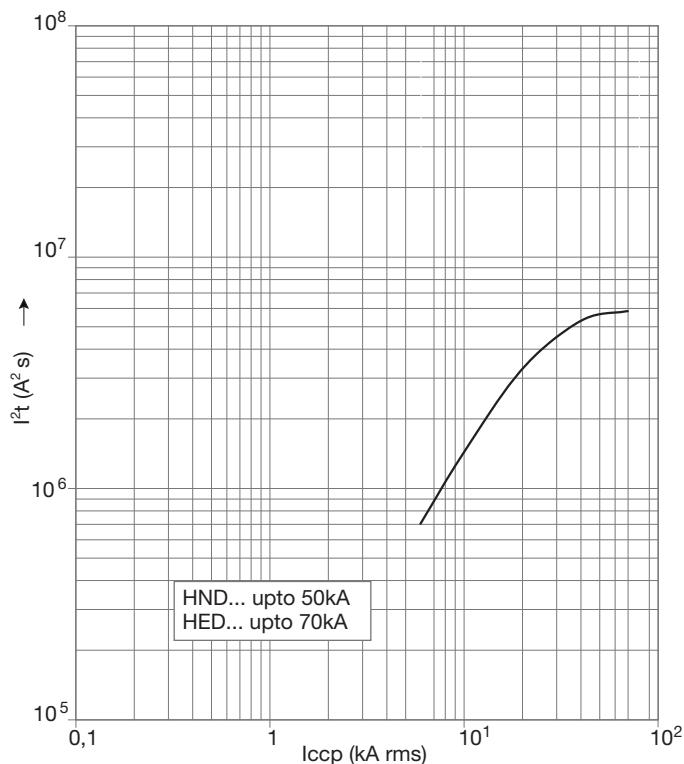
| IR (A) | | | | | | | | | | | |
|---------------------|------|-----------------|-------------|---------------------------|-------------|-----|------------------|-----|------|-----|------|
| LTD Pick-up current | | | IR | $x In$ | 0,4 | 0,5 | 0,63 | 0,8 | 0,85 | 0,9 | 0,95 |
| Characteristics | | | No.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

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

MCCB h630 LSI (250A)

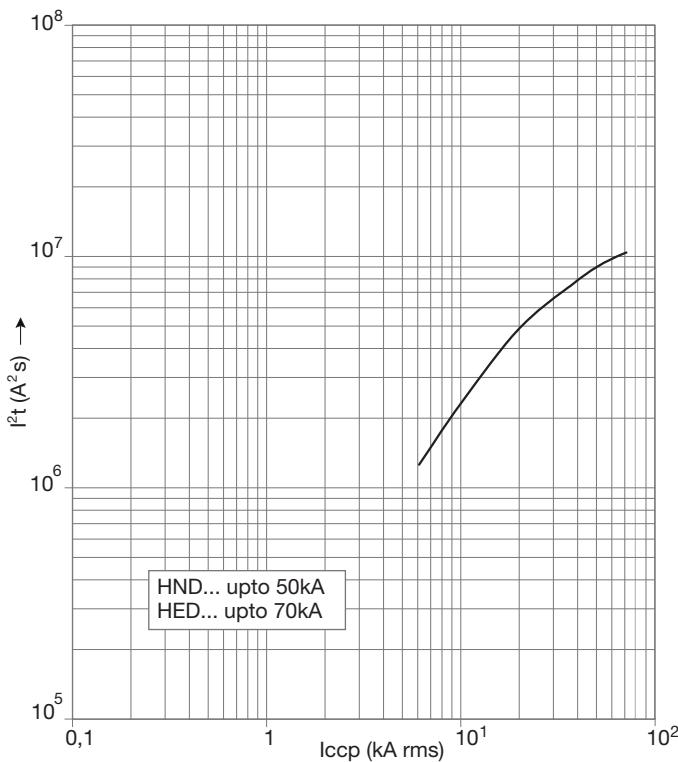


MCCB h630 LSI (400A)



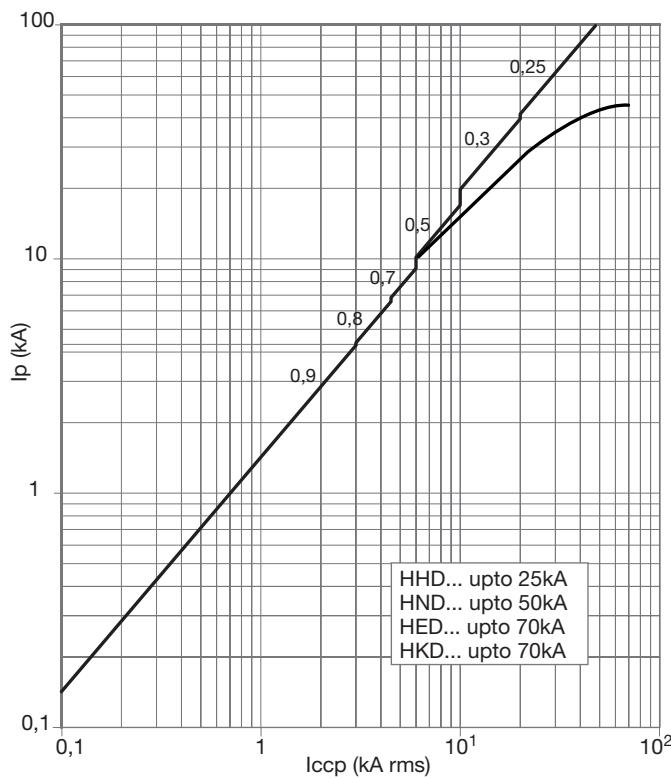
Thermal constraint curve at 400V (Let-through energy)

MCCB h630 LSI (630A)

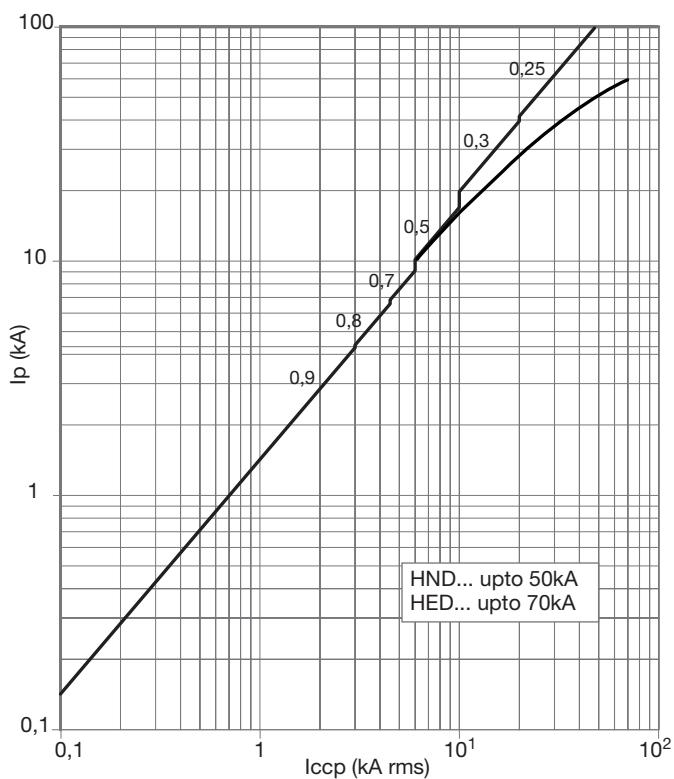


Current limiting curve at 400V (Let-through peak current)

MCCB h630 LSI (250A and 400A)

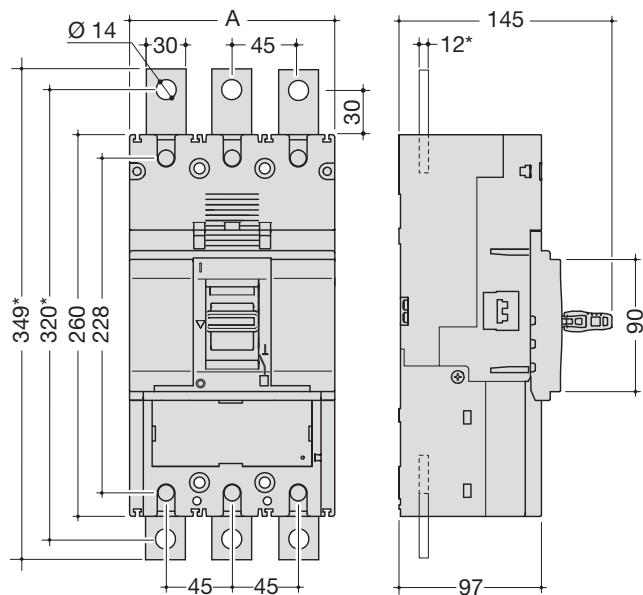


MCCB h630 LSI (630A)

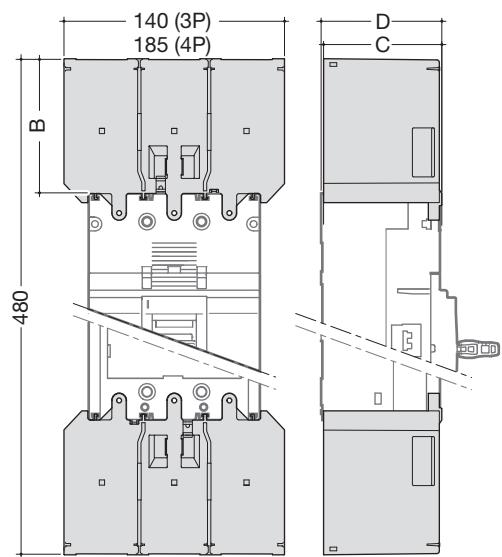


Dimensions

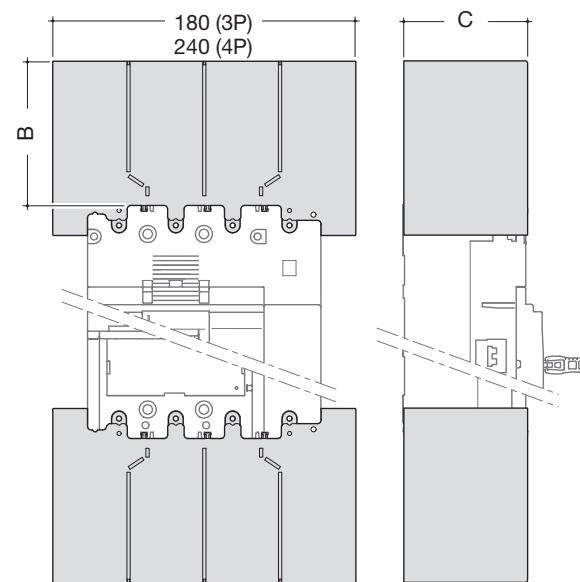
MCCBs



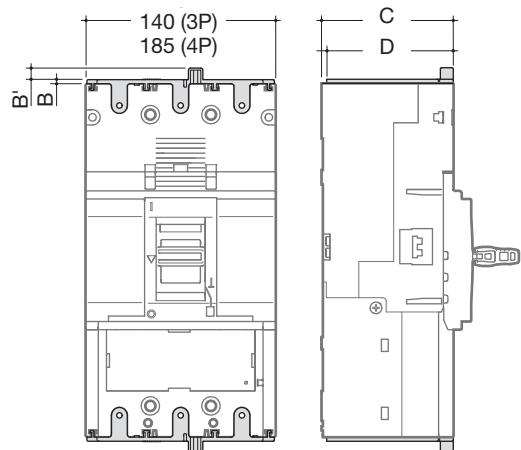
Terminal covers for extended straight connections



Terminal covers for extended spreader connections



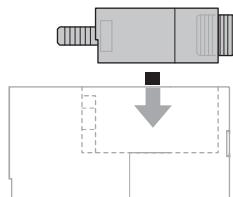
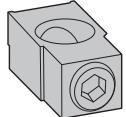
Terminal covers for rear connections and collar terminal



Connection

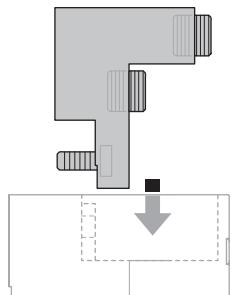
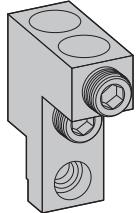
Connection for aluminium / copper conductors
(h630 LSI)

HYD005 (3P) - HYD006H (4P)



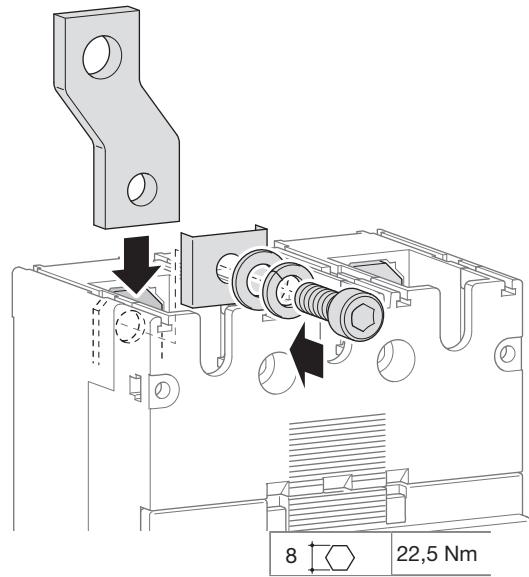
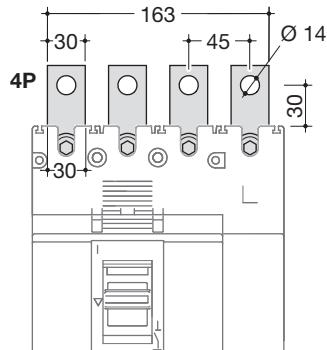
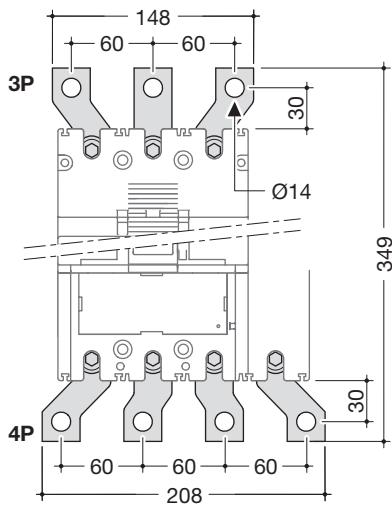
| | |
|----|----------------------------|
| | max. 1x240 mm ² |
| 10 | 25 Nm |

HYD007 (3P) - HYD008H (4P)

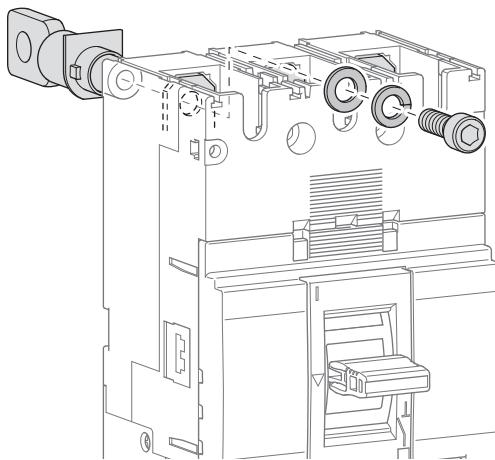
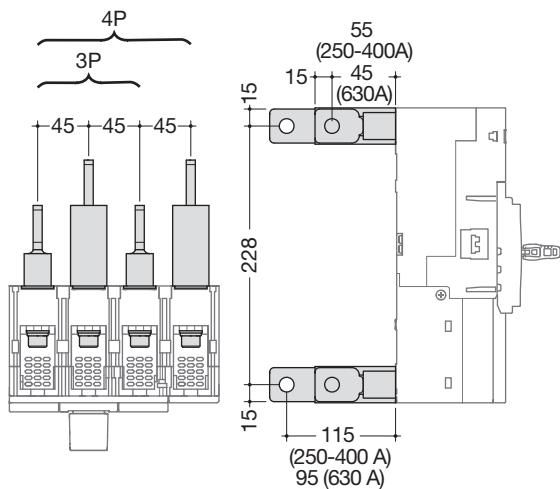


| | |
|----|----------------------------|
| | max. 2x240 mm ² |
| 10 | 25 Nm |

Extended straight and spreader connections

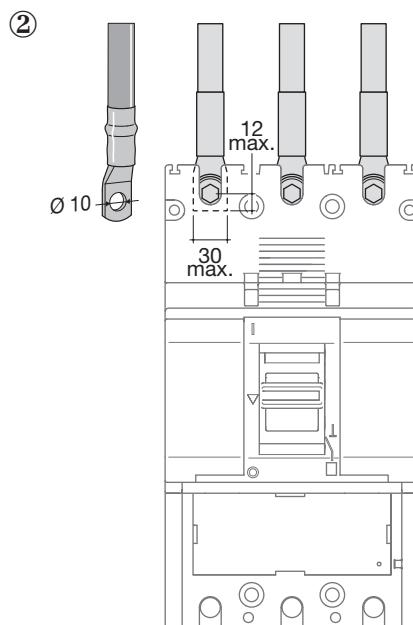
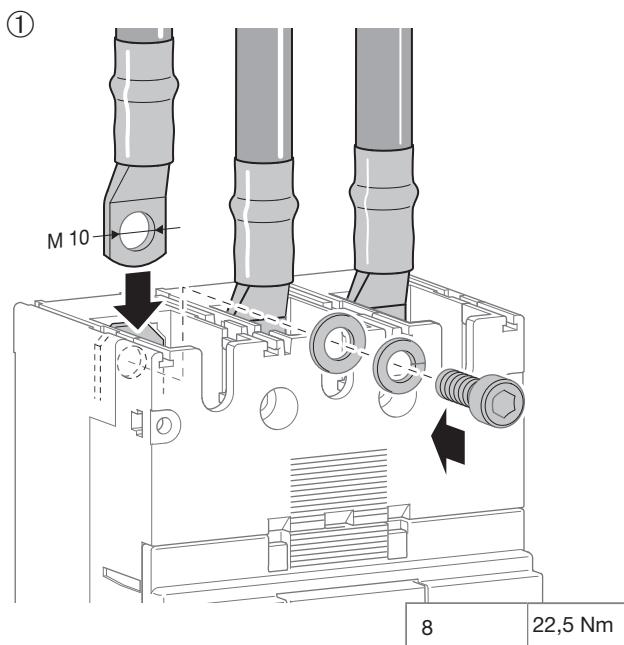


Rear connections



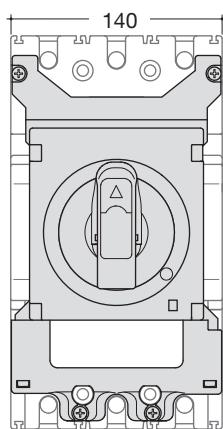
Commercial
Distribution

Connection with end lugs

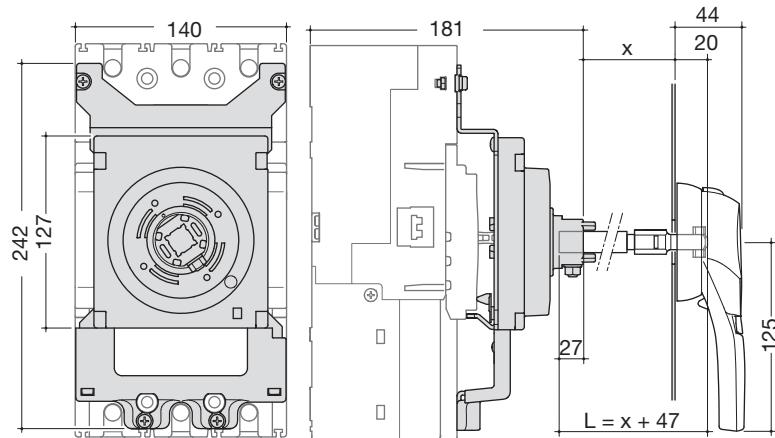


Accessories

Direct rotary handle

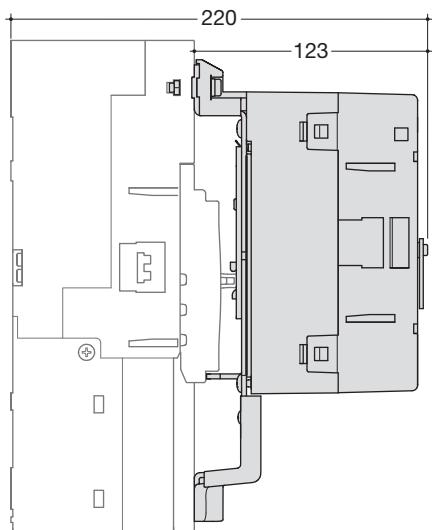
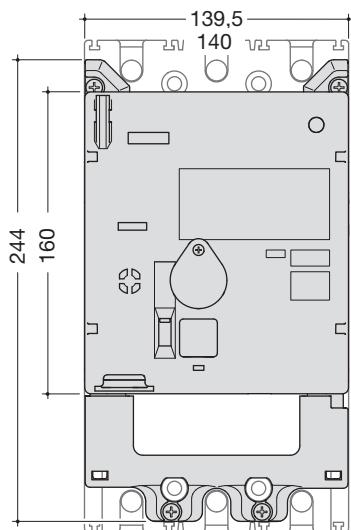


Extended rotary handle



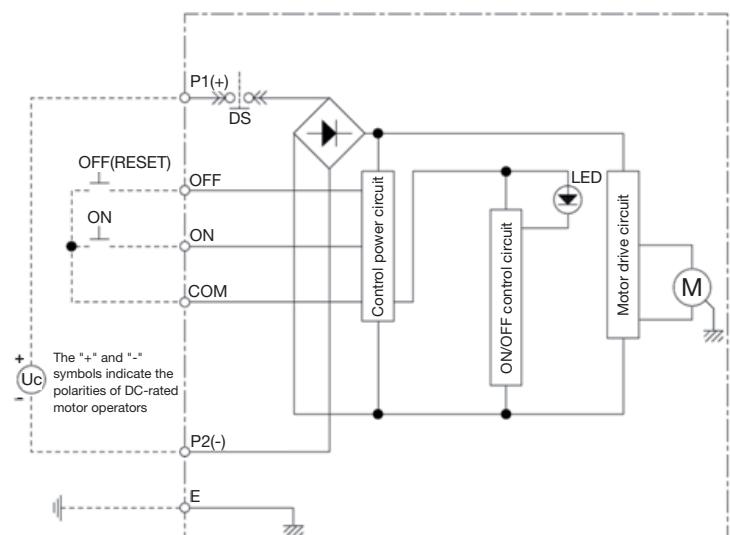
Commercial Distribution

Motor operator



| | | HXD040H | HXD042H |
|---|-------------|------------------------------------|------------------------------------|
| Operating voltage | | 24-48V DC | 100-240V AC |
| Operating current/starting current peak value (A) | 24V DC | -/9,2 (ON) 4,3/9,8 (OFF, RESET) | - |
| | 48V DC | -/3,8 (ON) 2,0/5,2 (OFF, RESET) | - |
| | 100-110V AC | - | -/1,9 (ON) 1,3/3,8 (OFF, RESET) |
| | 200-240V AC | - | -/3,3 (ON) 0,9/3,8 (OFF, RESET) |
| Operating time (s) | (ON) | 0,1s | |
| | (OFF) | 1,5 s | |
| | (RESET) | 1,5 s | |
| Power supply required | | 300VA min. | |
| Dielectric properties (1 min) | | 1000V AC | 1500V AC |

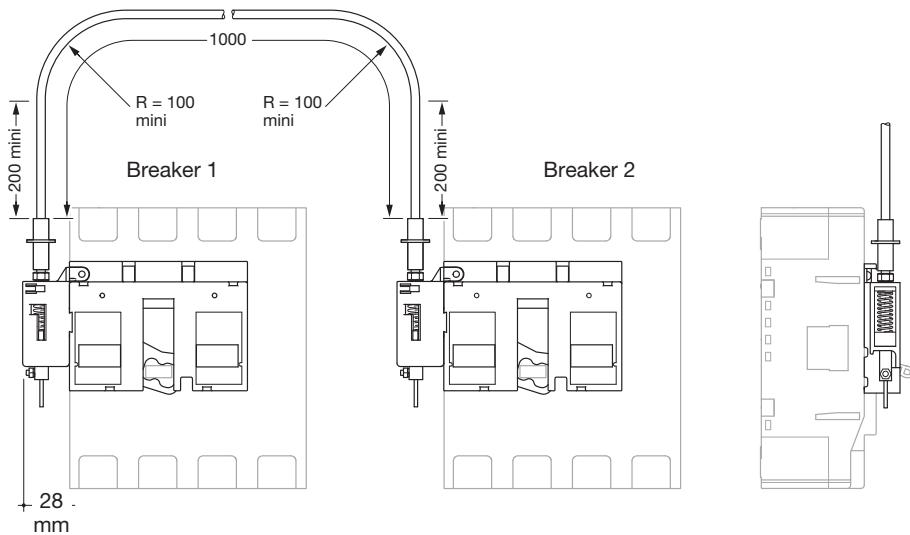
Wiring diagram



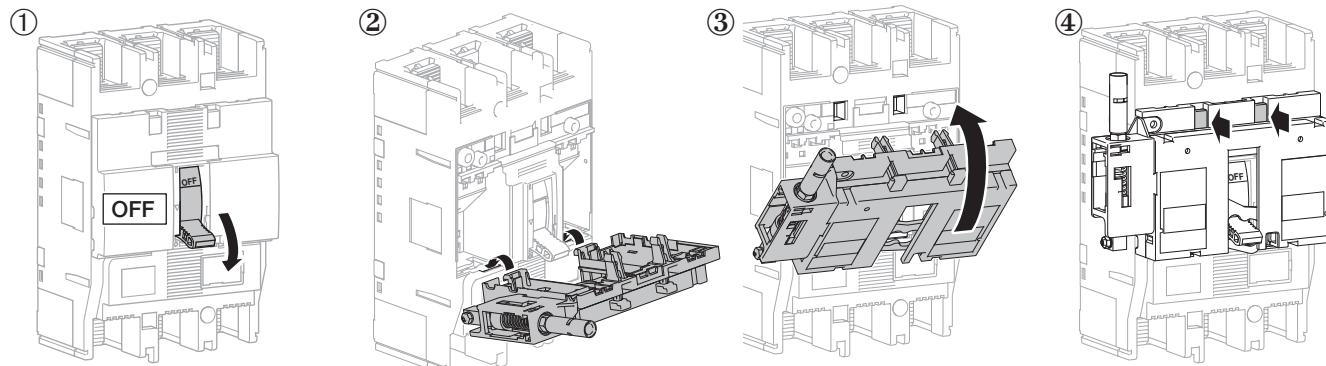
Interlocking system

Suitable with motor operator HXD04xH.
With electrical interlock for motor operator HXD068H (for 630/1000A) or HXB069H (for 250A).

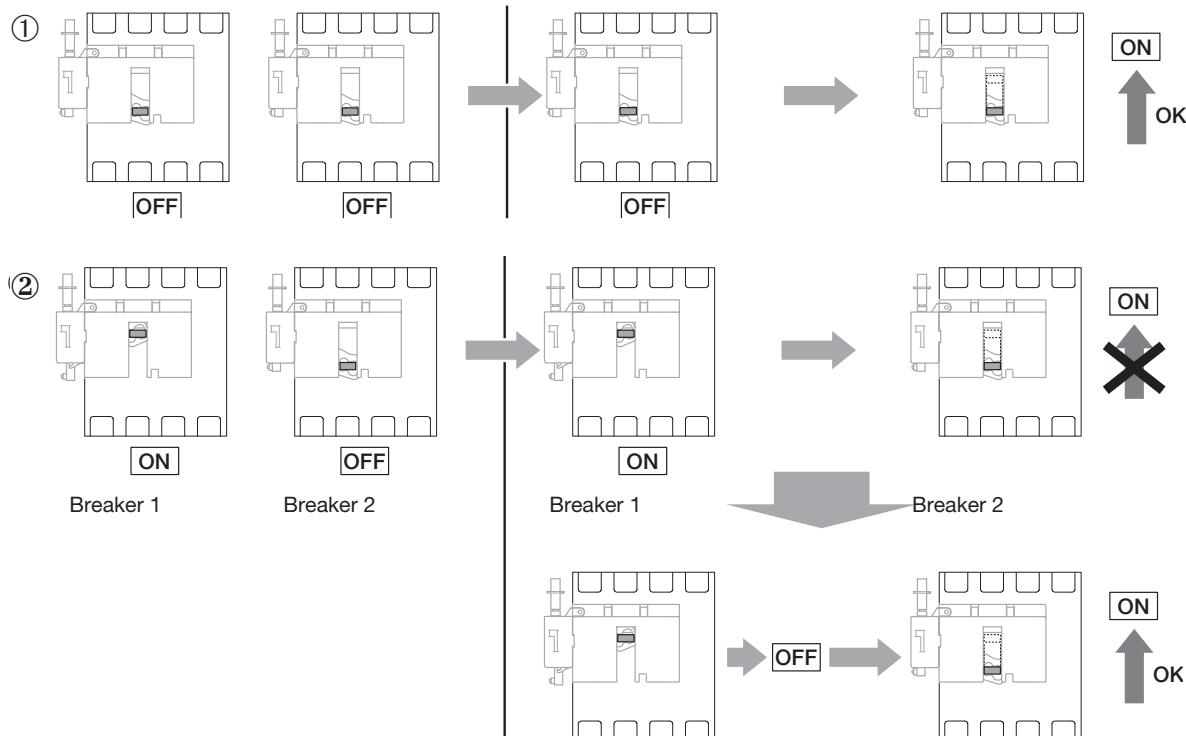
- Length HXD068H: 2100 mm
- Length HXB069H: 2100 mm

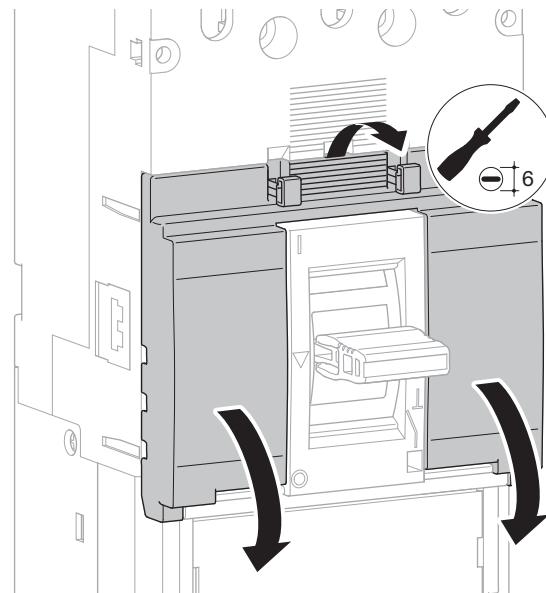
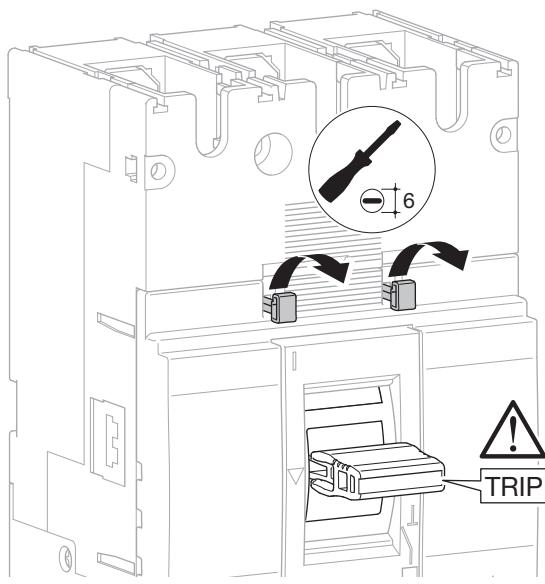


Mounting

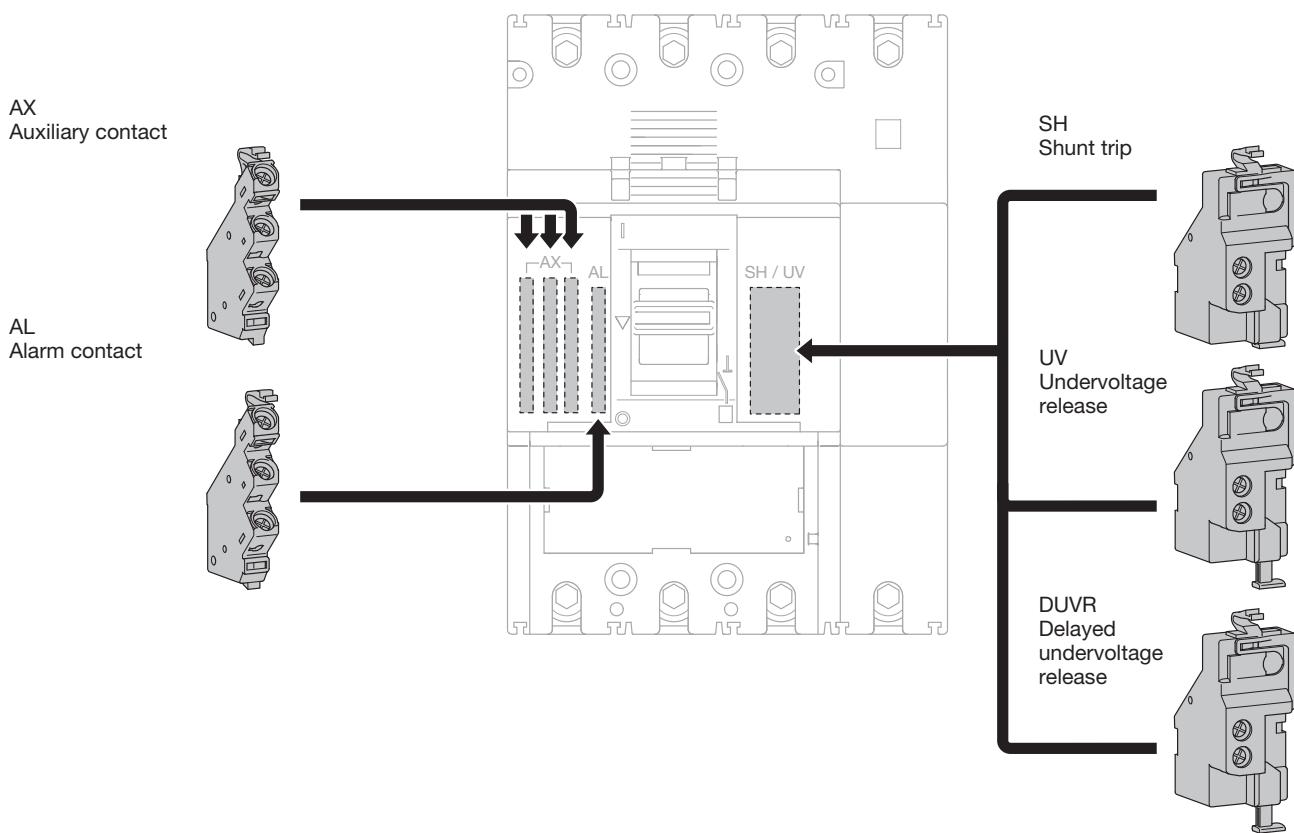


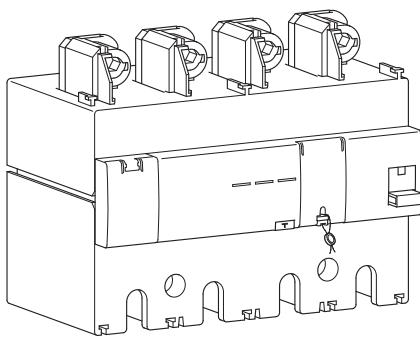
Checking the correct assembly





Mounting combination for auxiliaries and releases

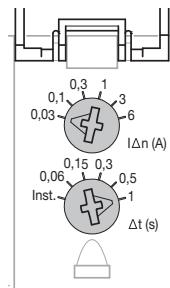
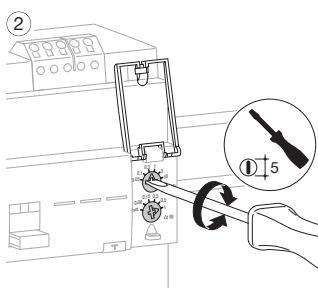




When associated with MCCB, the add-on block provides an earth fault protection and protects against electrical shocks by direct or indirect contacts.

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

Earth leakage current ($I\Delta n$) and delay (Δt) setting



Characteristics

Reset button :

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

Test button for differential functioning :

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

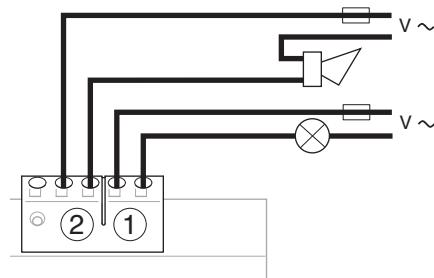
Mechanical test button :

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

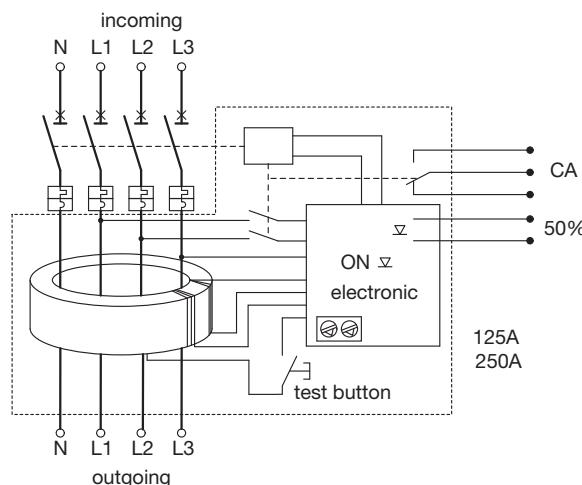
LED signaling default current level in the installation:

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

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

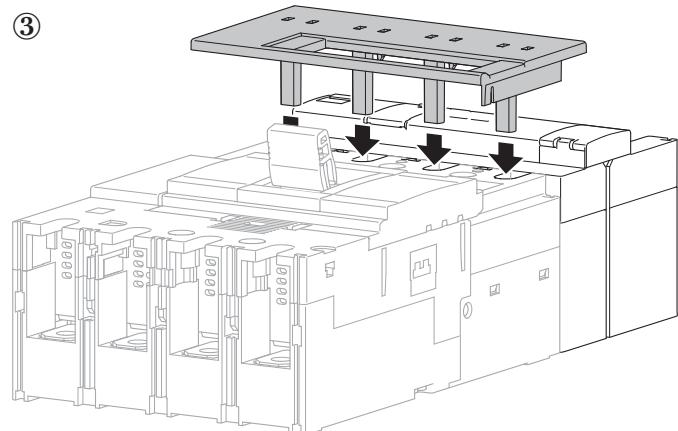
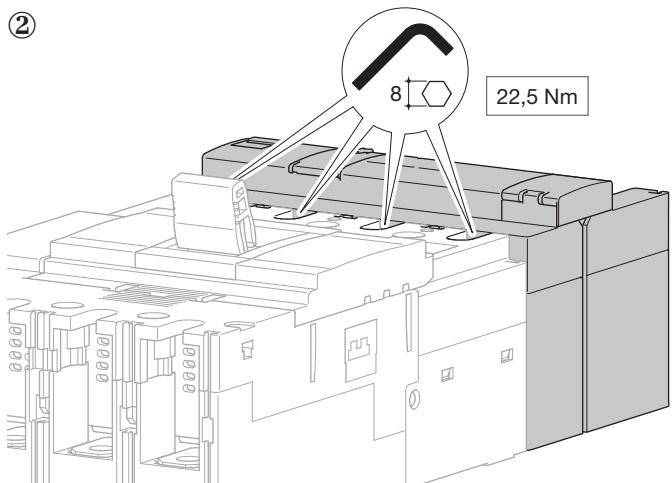
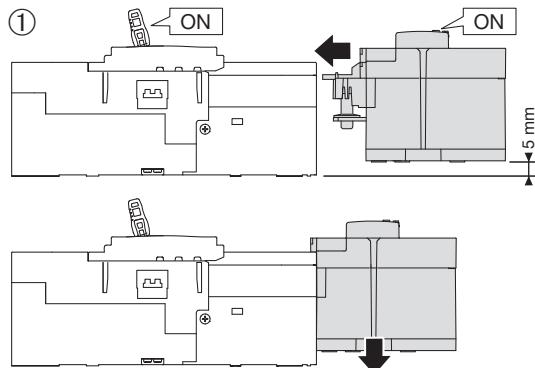


Add-on block operating

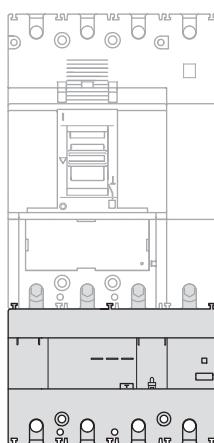


| $(I\Delta n)$ S | A ($I\Delta n$) | | | | | |
|-----------------|-------------------|-----|-----|----|----|----|
| | 0,03 | 0,1 | 0,3 | 1 | 3 | 6 |
| Inst. | OK | OK | OK | OK | OK | OK |
| 0,06 | no | OK | OK | OK | OK | OK |
| 0,15 | no | OK | OK | OK | OK | OK |
| 0,3 | no | OK | OK | OK | OK | OK |
| 0,5 | no | OK | OK | OK | OK | OK |
| 1 | no | OK | OK | OK | OK | OK |

Add-on block mounting

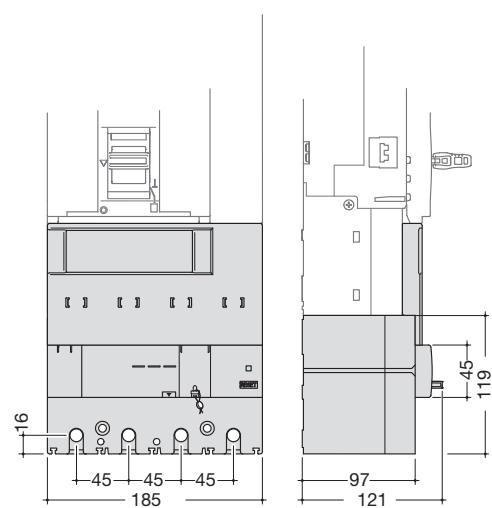


Association / Compatibility

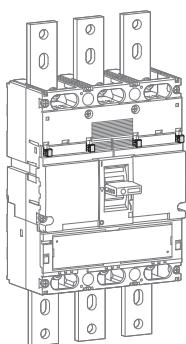


| | |
|-----------------|-------------------------------------|
| 250 - 400A | 630A x 0,8 |
| HBD401H 400A | HBD631H 500A (le: 630A x 0,8) |

Dimensions

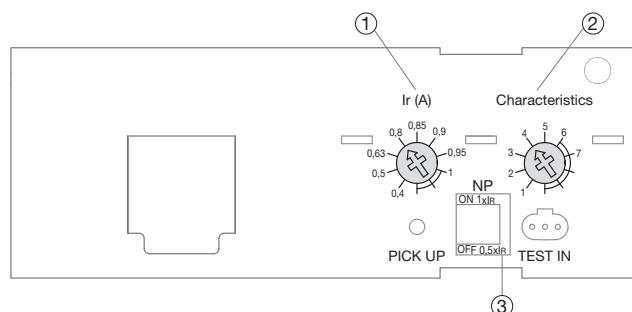
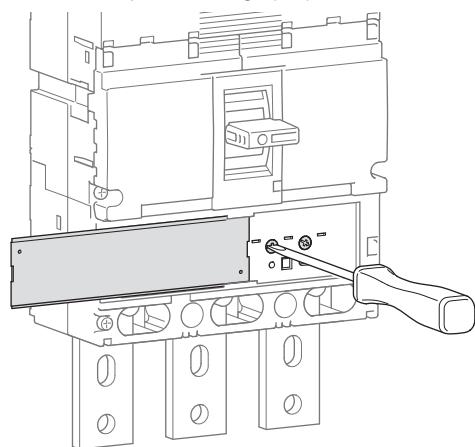


MCCBs



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

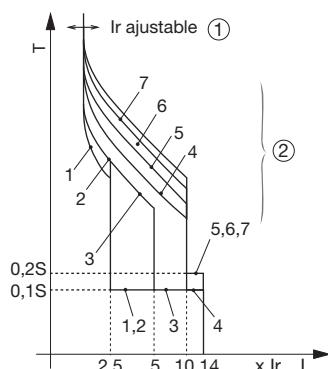
Electronic trip unit settings (LSI)



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

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

I - Instantaneous - max. instantaneous threshold (< 10 ms) in case of short circuit: 2,5 to 10 x Ir (630-800A) and 2,5 to 8 x Ir (1000A).



| LSI | | In A | | | | | | | | | |
|-----|----------------------|-----------------|--------|------------------|---------|----------|------------------|--------|------------------|---------|----------|
| | | 630-800 A | | | | | 1000 A | | | | |
| | | Long Time Delay | | Short Time Delay | | Inst | Long Time Delay | | Short Time Delay | | Inst |
| ① | Ir (x In) | Ir (x In) | tr (s) | isd (xlr) | tsd (s) | li (xlr) | Ir (x In) | tr (s) | isd (xlr) | tsd (s) | li (xlr) |
| | 0,4 | OK | | | | | OK | | | | |
| | 0,5 | OK | | | | | OK | | | | |
| | 0,63 | OK | | | | | OK | | | | |
| | 0,8 | OK | | | | | OK | | | | |
| | 0,9 | OK | | | | | OK | | | | |
| | 0,95 | OK | | | | | OK | | | | |
| ② | Characteristics* | 1 | | 11s at 2 xlr | 2,5 | 0,1 | 14 (max 12 x In) | | 11s at 2 xlr | 2,5 | 0,1 |
| | | 2 | | 21s at 2 xlr | | | | | 21s at 2 xlr | | 5 |
| | | 3 | | | 5 | | | | | 5 | |
| | | 4 | | 5 s at 6 xlr | 10 | | | | 5 s at 6 xlr | 8 | |
| | | 5 | | 10 s at 6 xlr | | 0,2 | | | 10 s at 6 xlr | | 0,2 |
| | | 6 | | 19 s at 6 xlr | | | | | 16 s at 6 xlr | | |
| | | 7 | | 29 s at 6 xlr | | | | | | - | - |
| | ③ Neutral protection | 0% | | | | | | | | | |
| | | 50% | | | | | | | | | |
| | | 100% | | | | | | | | | |

(*) Characteristic 1 : use for generators protection.

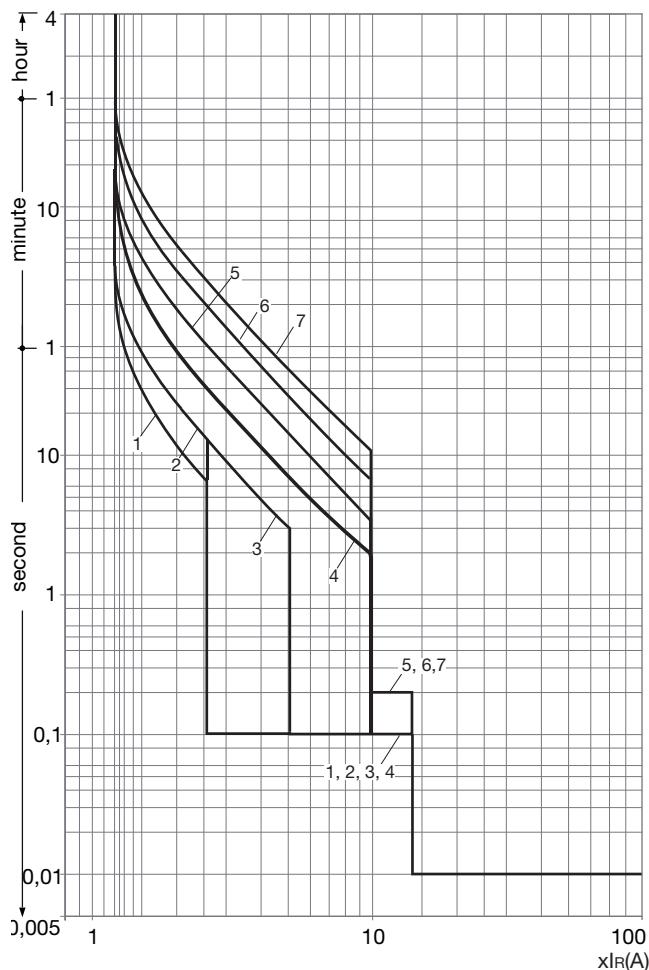
Characteristic 2 to 4 - standard protection : options allow coordination optimisation with other products.

Characteristic 5 to 7 - motor protection: use positions according to motor starting characteristics.

Tripping curve

MCCB h1000 LSI (800A)

Commercial Distribution



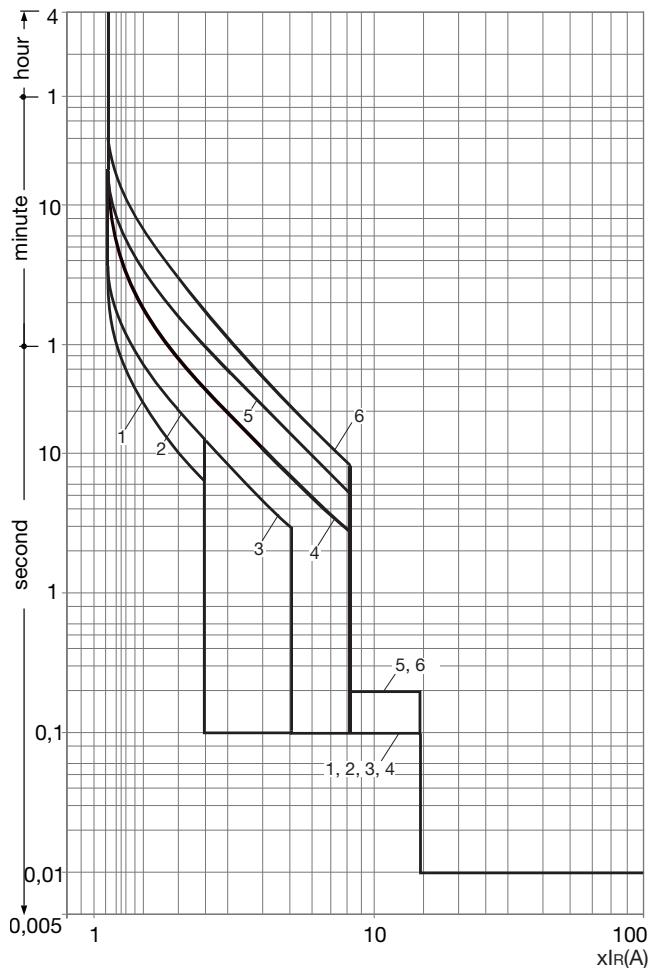
Electronic trip unit setting (LSI)

MCCBs 800A electronic

| IR (A) | | | | | | | | | | | | |
|---------------------|-----|-----------------|-------------|---------------------------|-----|-----|------|-----|------------------|------|---|--|
| LTD Pick-up current | | | IR | $x In$ | 0,4 | 0,5 | 0,63 | 0,8 | 0,9 | 0,95 | 1 | |
| Characteristics | | | No. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | | |
| Standard | LTD | tR | (s) | 11 | 21 | 21 | 5 | 10 | 19 | 29 | | |
| | | | | 200% \times IR | | | | | 600% \times IR | | | |
| | STD | I _{sd} | \times IR | 2,5 | | 5 | 10 | | | | | |
| | | t _{sd} | (s) | 0,1 | | | | | 0,2 | | | |
| Optional | NP | I _i | \times IR | 14 (max : 12 \times In) | | | | | | | | |
| | | t _N | (s) | IN=tR | | | | | | | | |

Tripping curve

MCCB h1000 LSI (1000A)

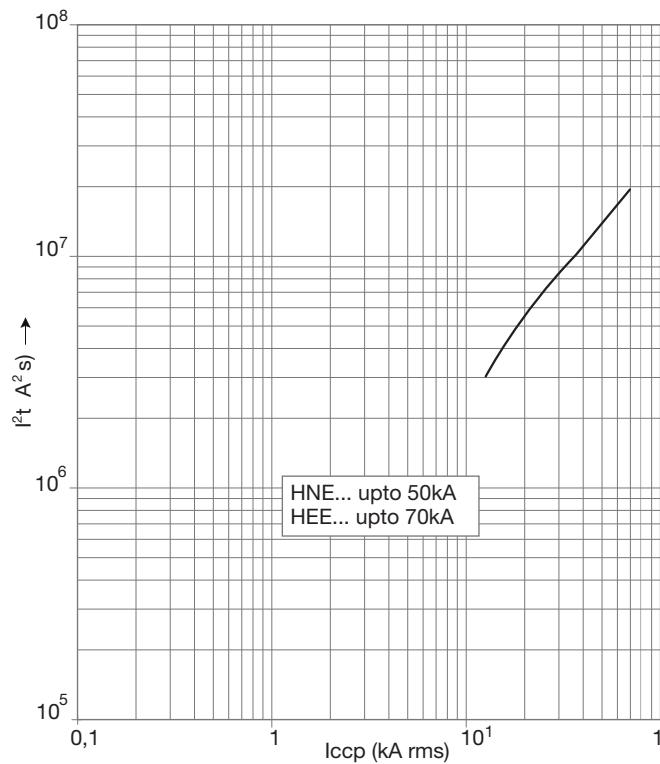
**Electronic trip unit setting (LSI)**

MCCBs 1000A electronic

| IR (A) | | | | | | | | | | | |
|---------------------|-----|------|--------|------------------|---------------------------|-----|------|------------------|-----|------|---|
| LTD Pick-up current | | | IR | $x In$ | 0,4 | 0,5 | 0,63 | 0,8 | 0,9 | 0,95 | 1 |
| Characteristics | | | No. | 1 | 2 | 3 | 4 | 5 | 6 | | |
| Standard | LTD | tR | (s) | 11 | 21 | 21 | 5 | 10 | 16 | | |
| | | | | 200% \times IR | | | | 600% \times IR | | | |
| | STD | Isd | $x IR$ | 2,5 | | 5 | 8 | | | | |
| | | tsd | (s) | 0,1 | | | | 0,2 | | | |
| Optional | NP | INST | li | $x IR$ | 14 (max : 10 \times In) | | | | | | |
| | | IN | $x In$ | 0 - 0,5 - 1 | | | | | | | |
| | tN | (s) | IN=tR | | | | | | | | |

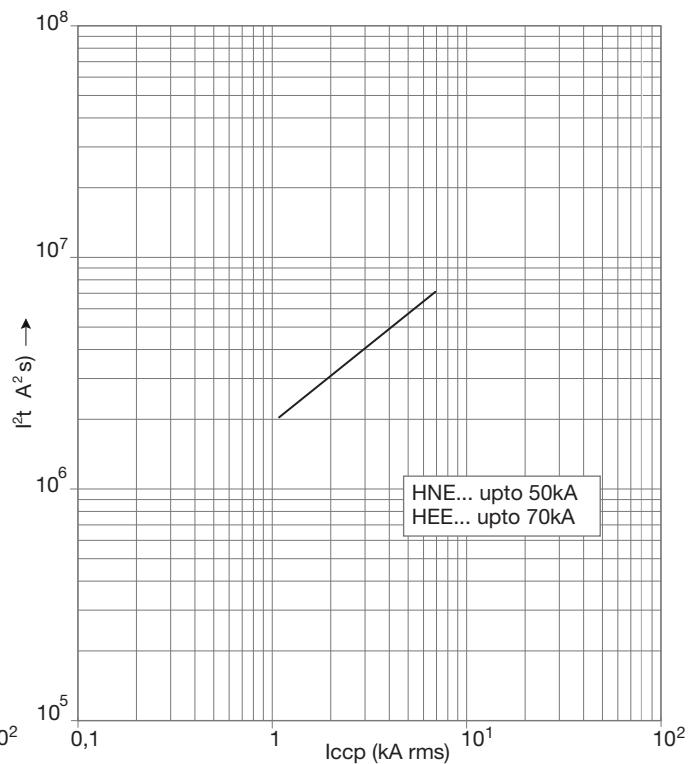
Thermal constraint curve at 400V (Let-through energy)

MCCB h1000



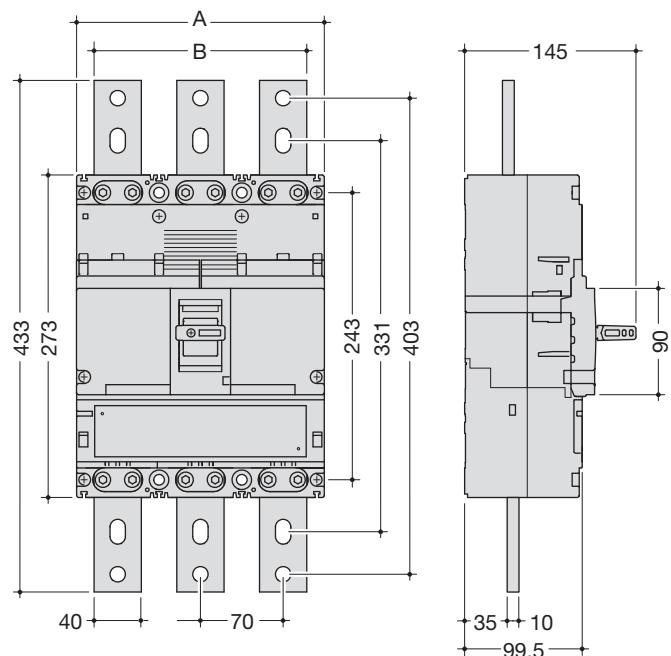
Current limiting curve at 400V (Let-through peak current)

MCCB h1000



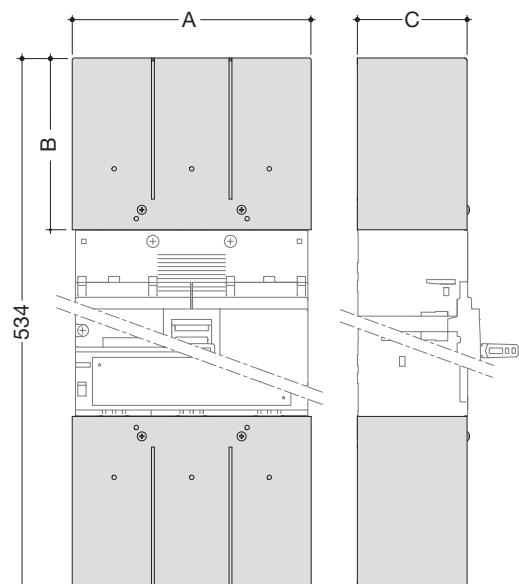
Dimensions

MCCBs

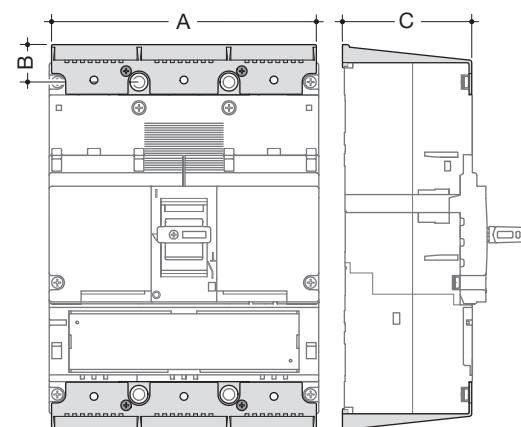


| | A (mm) | B (mm) |
|----|--------|--------|
| 3P | 210 | 180 |
| 4P | 280 | 250 |

Terminal covers for extended straight connections

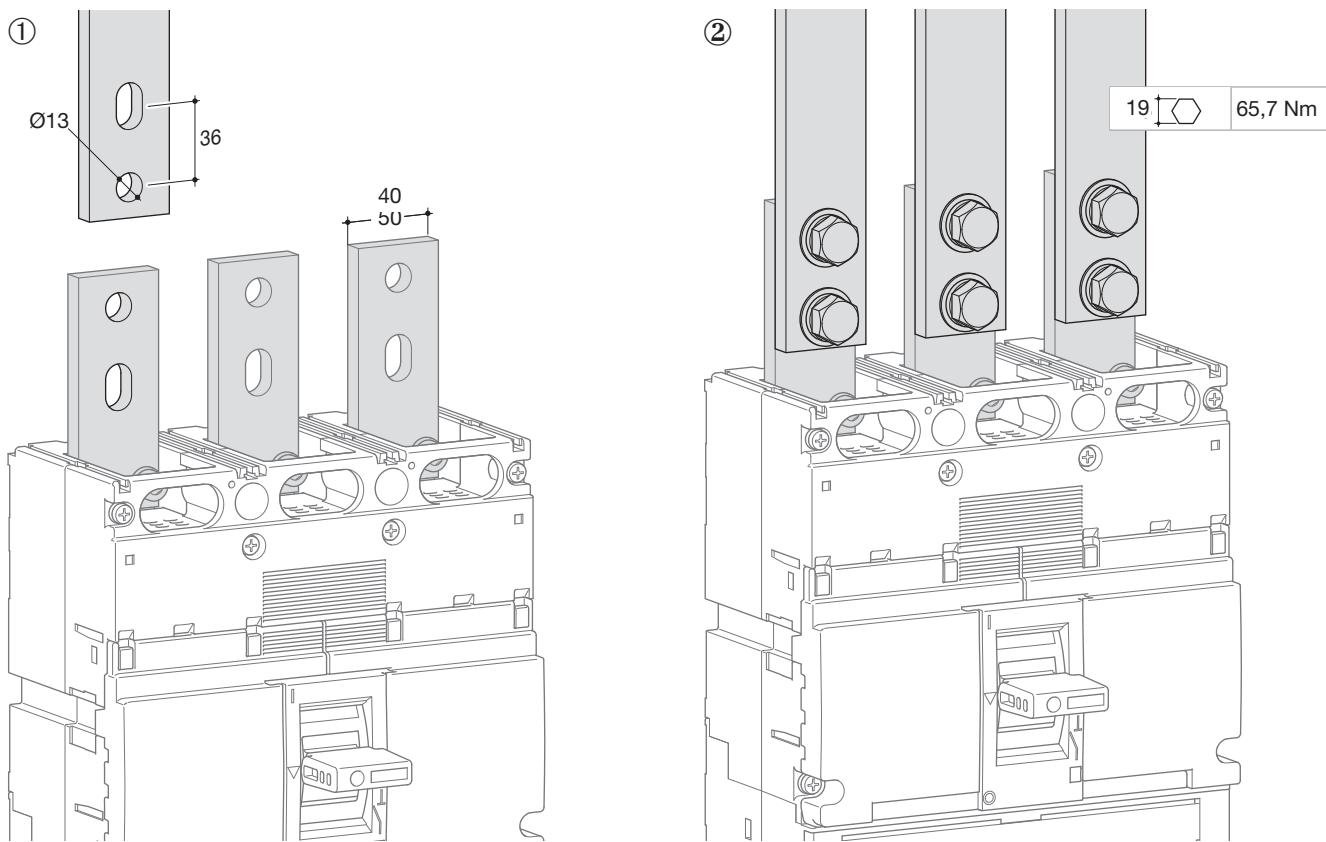


Terminal covers for rear connections



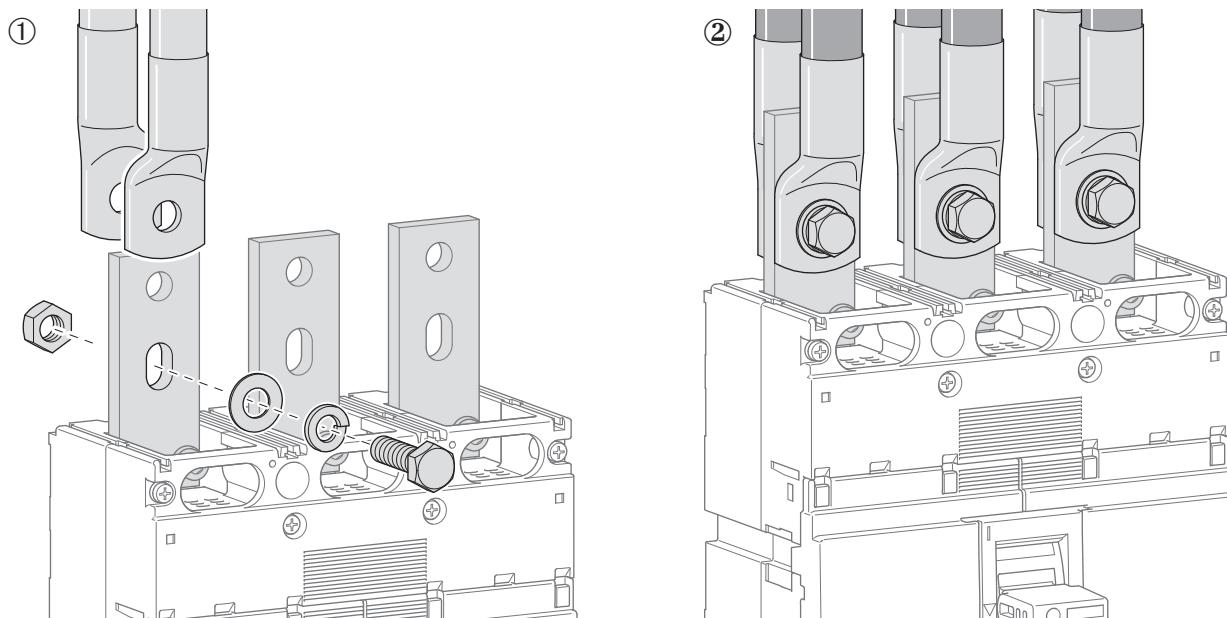
Connection

Extended straight connections

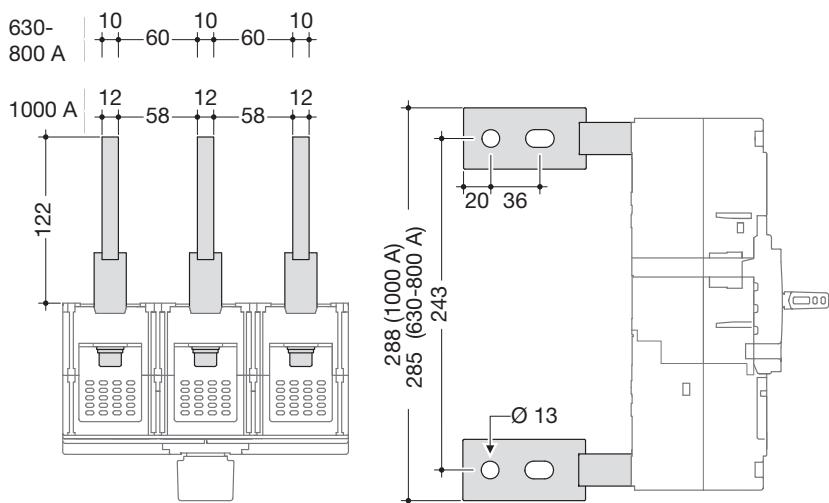
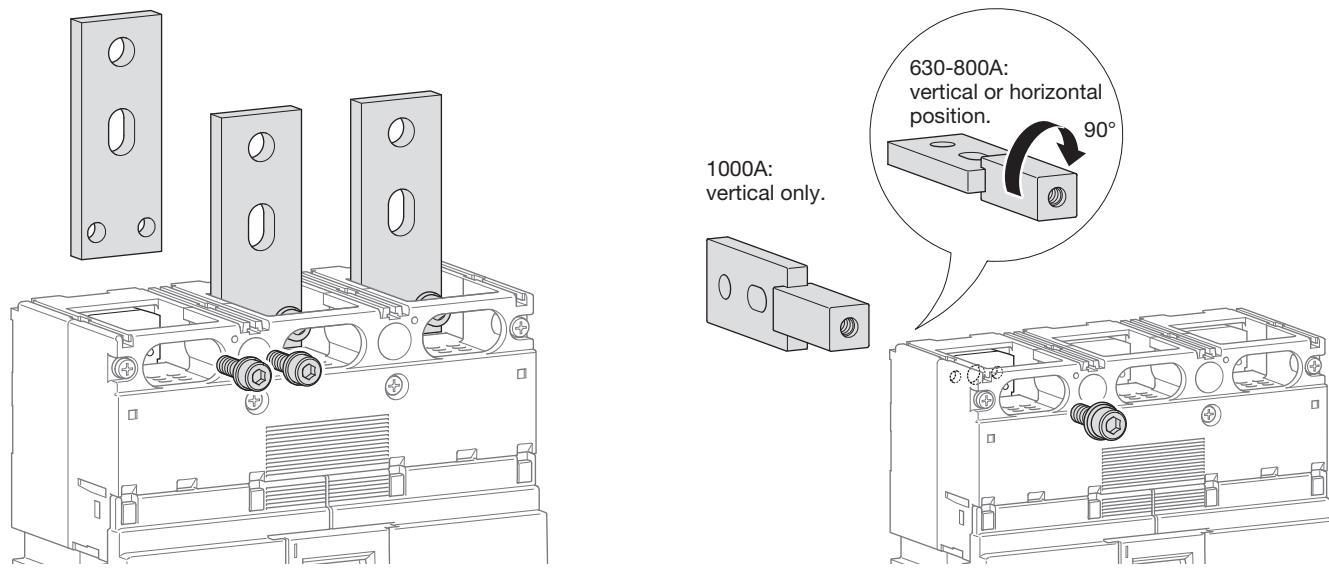


Direct cable connection on terminal
Copper with conductor max. width: 50 mm

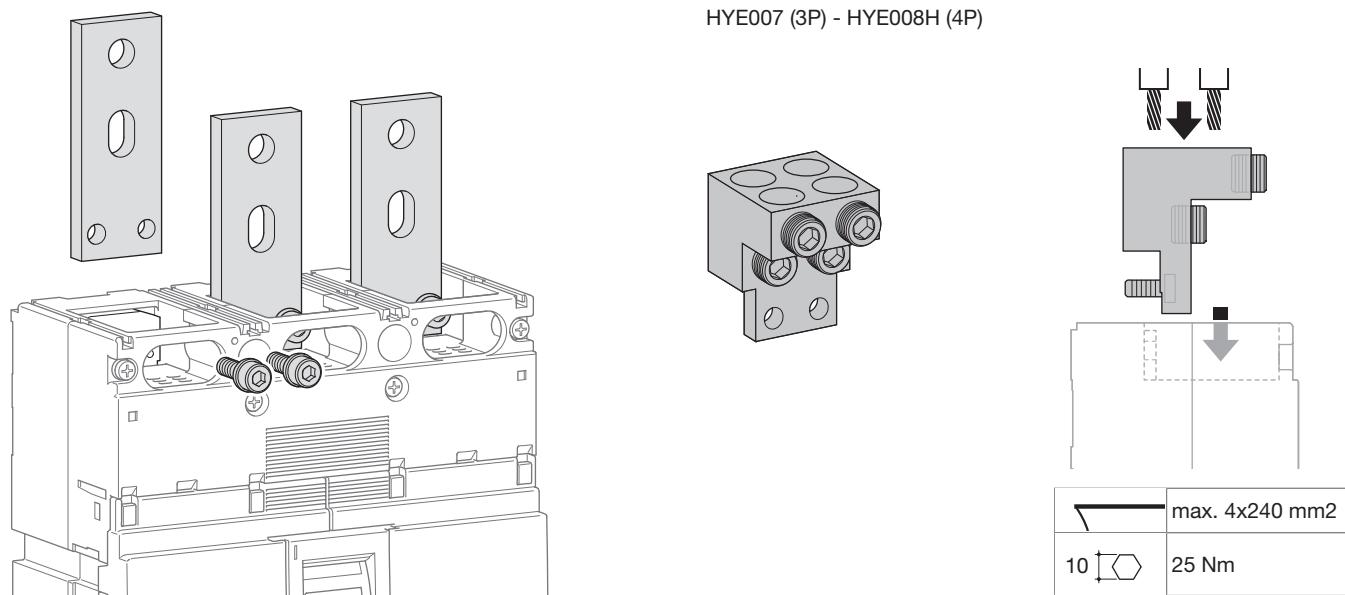
Connection with end lugs



Rear connections

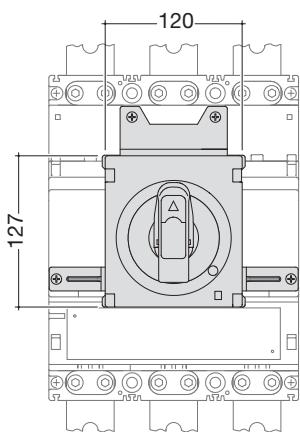


Connection for aluminium / copper conductors (h1000)

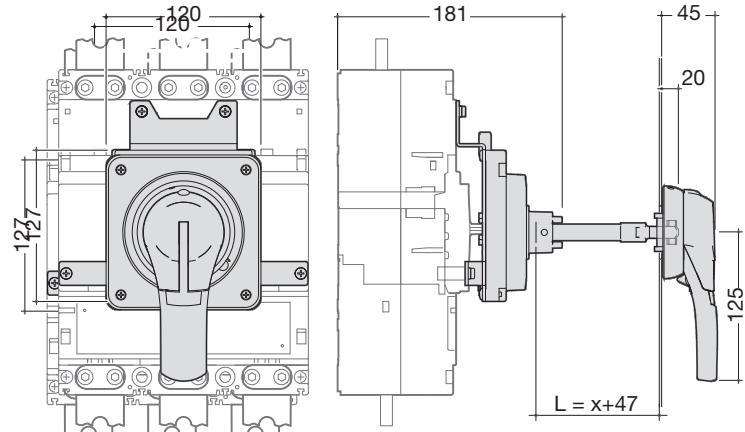


Accessories

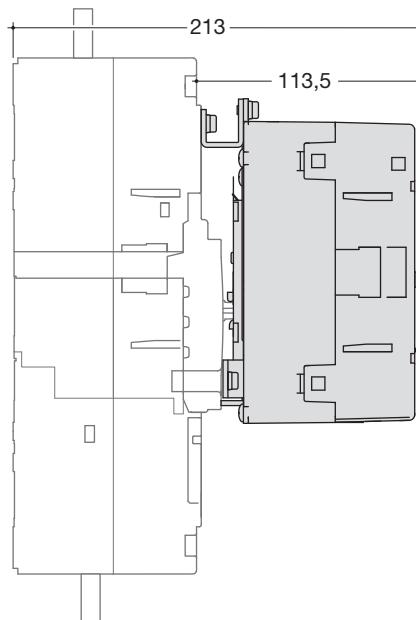
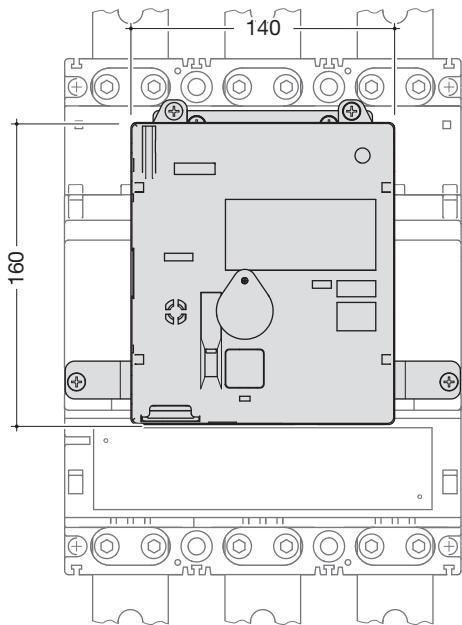
Direct rotary handle



Extended rotary handle

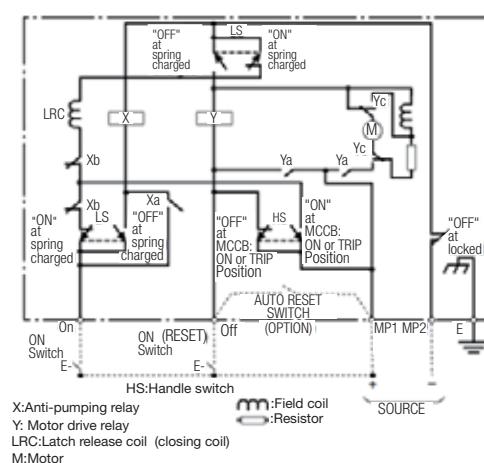


Motor operator



| | | HXE040H | HXE042H |
|--|-------------|----------------------------------|------------------------------------|
| Operating voltage | 24V DC | 24-48V DC | 100-240V AC |
| Operating current/startup current peak value (A) | 24V DC | -/12 (ON) 6/11,5 (OFF, RESET) | - |
| | 48V DC | -/7 (ON) 3,2/6,5 (OFF, RESET) | - |
| | 100-110V AC | - | -/2,2 (ON) 1,7/3,5 (OFF, RESET) |
| | 200-240V AC | - | -/2,2 (ON) 1,3/3,5 (OFF, RESET) |
| Operating time (s) | (ON) | 0,1s | |
| | (OFF) | 1,5 s | |
| | (RESET) | 1,5 s | |
| Power supply required | 300VA min. | | |
| Dielectric properties (1 min) | 1000V AC | 1500V AC | |

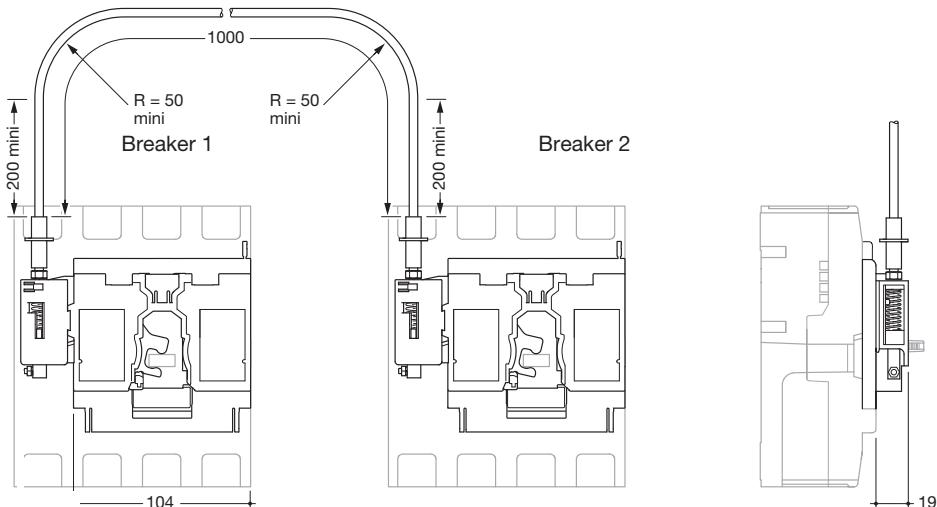
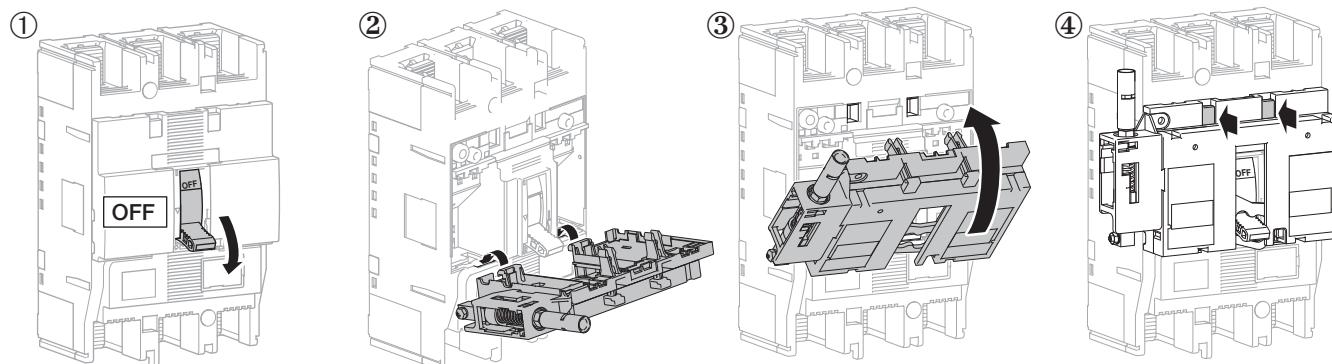
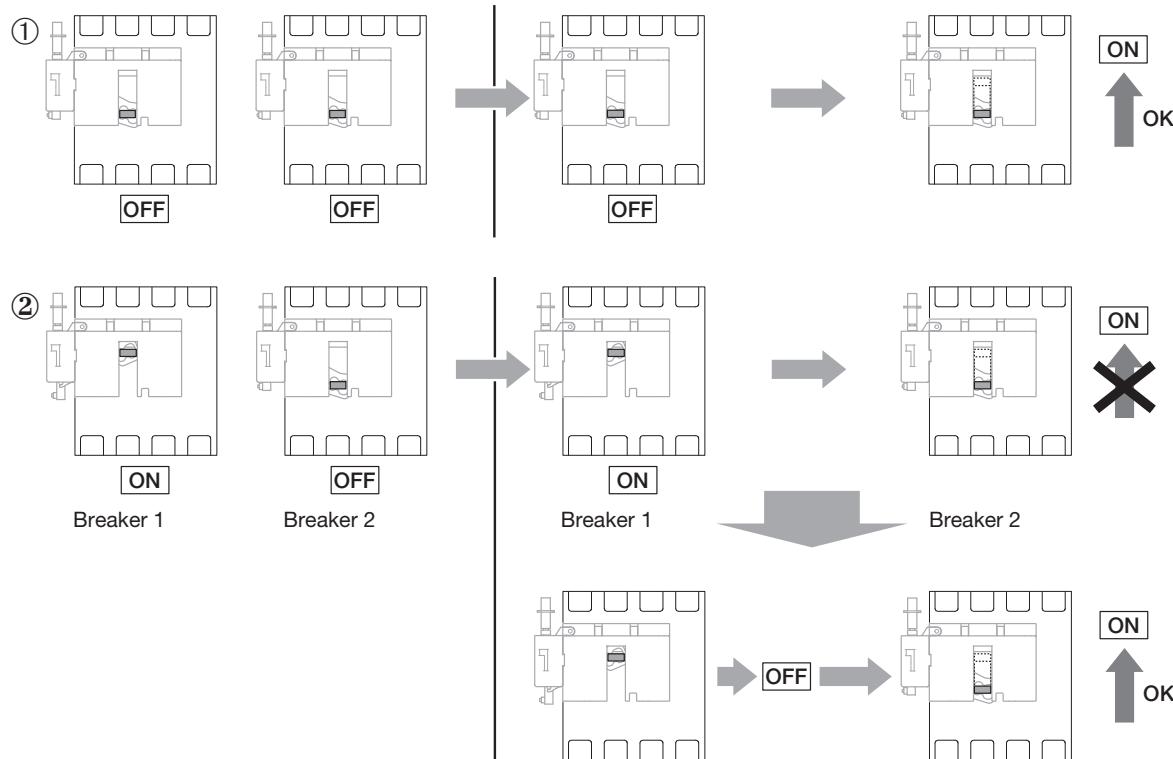
Wiring diagram



Interlocking system

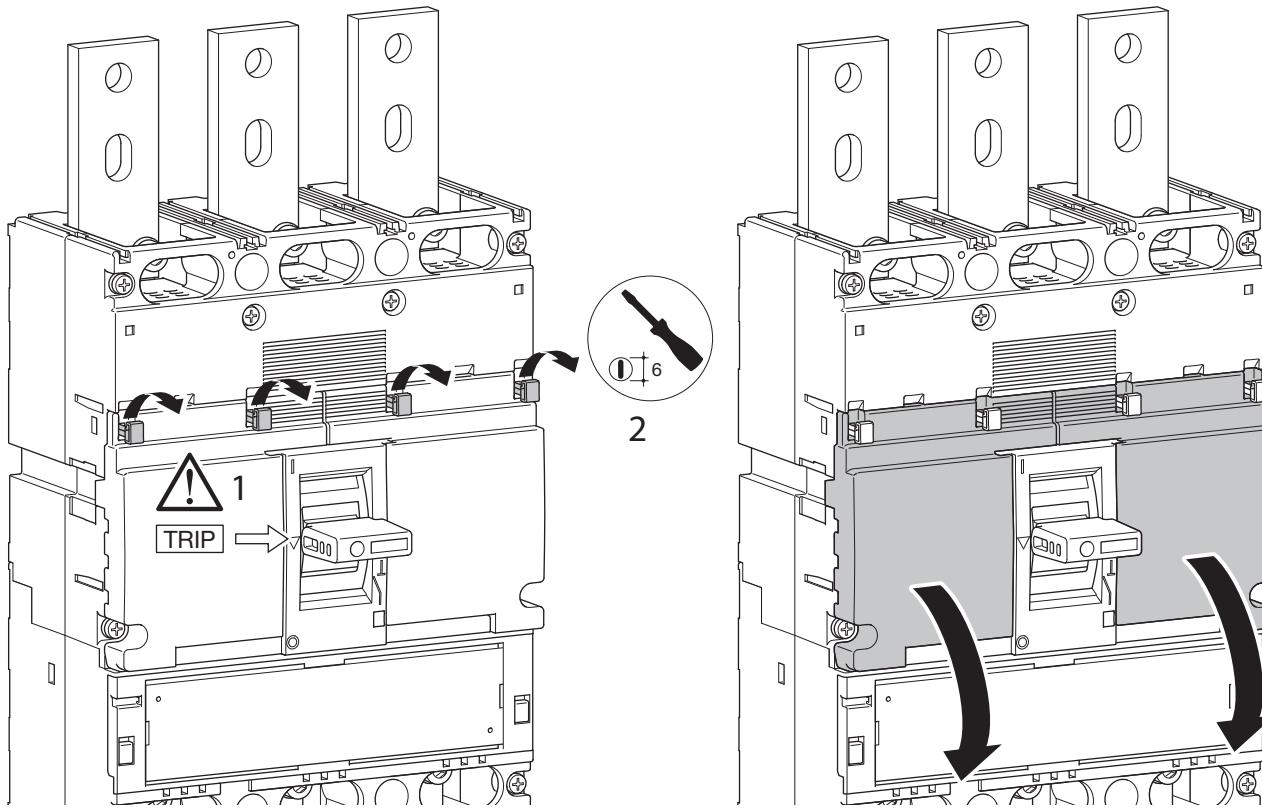
Suitable with motor operator HXE04xH.
With electrical interlock for motor operator HXD068H (for 630/1000A) or HXB069H (for 250A).

- Length HXD068H: 2100 mm
- Length HXB069H: 2100 mm

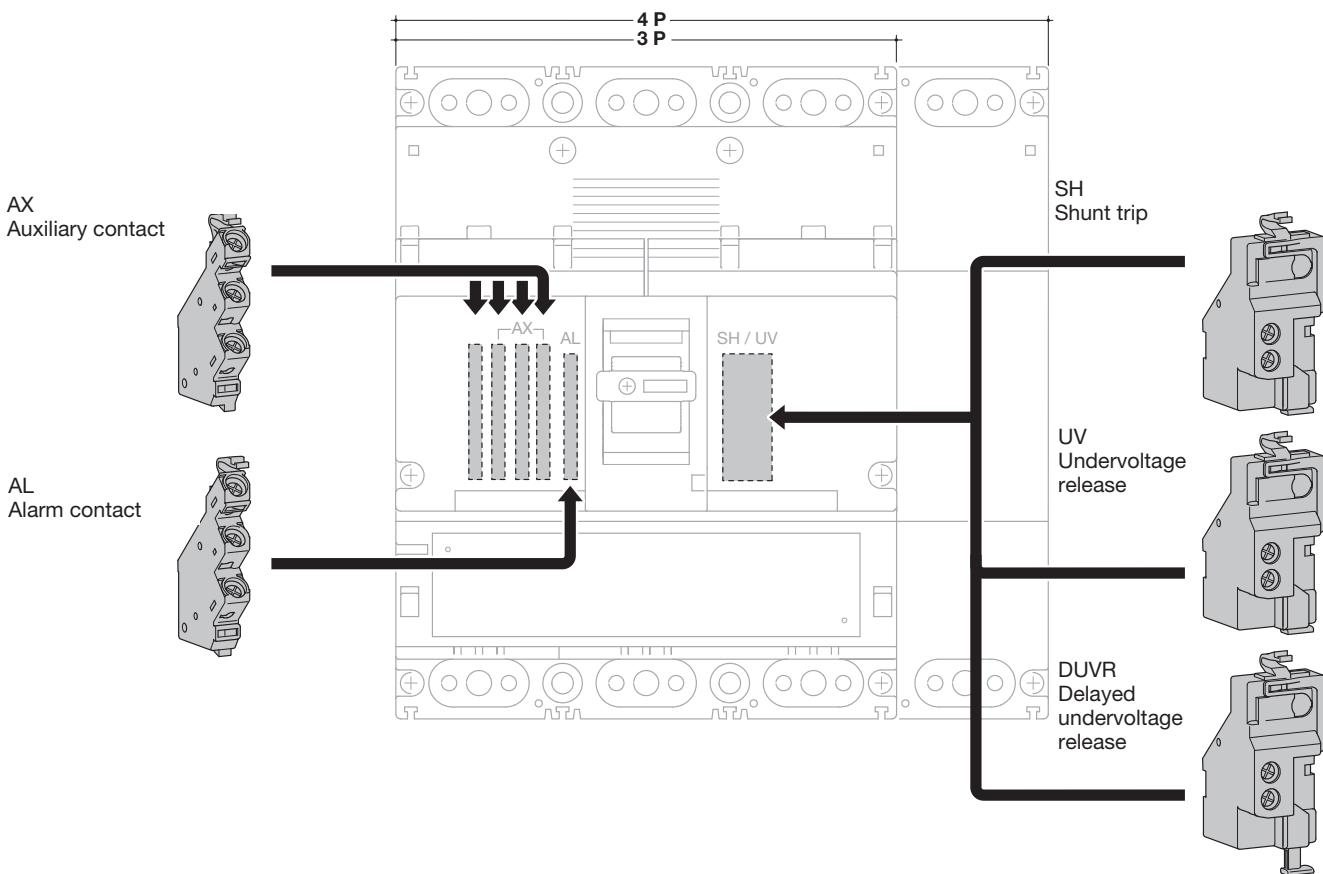
**Mounting****Checking the correct assembly**

Auxiliaries

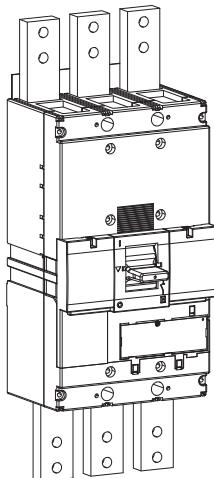
Auxiliaries for MCCBs and free tripping switches



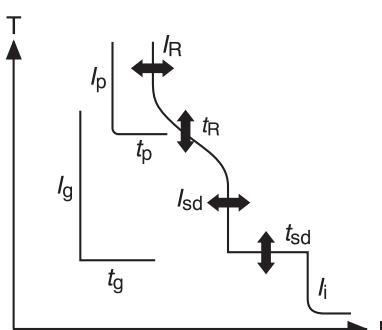
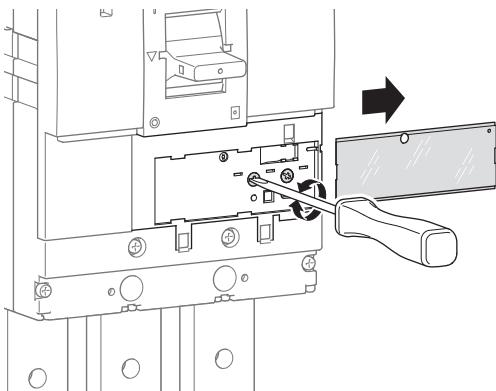
Mounting combination for auxiliaries and releases



MCCBs



Electronic trip unit settings (LSI)



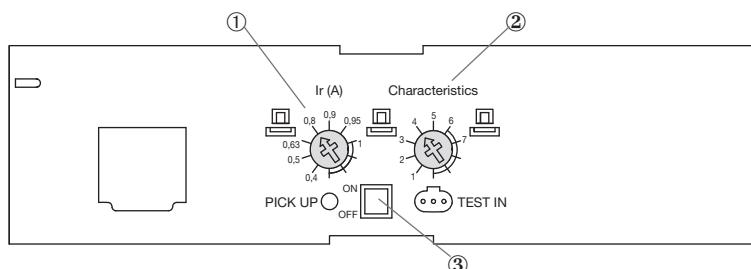
| | ① Ir(A) | ② Im | ③ N |
|-----|------------|-------------|--------------------|
| LSI | 0,4 - 1 In | 2,5 - 10 Ir | 0% 50% 100 % |

(*) Characteristic 1 : use for generators protection.

Characteristic 2 to 4 - standard protection : options allow coordination optimisation with other products.

Characteristic 5 to 7 - motor protection: use positions according to motor starting characteristics.

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



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

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

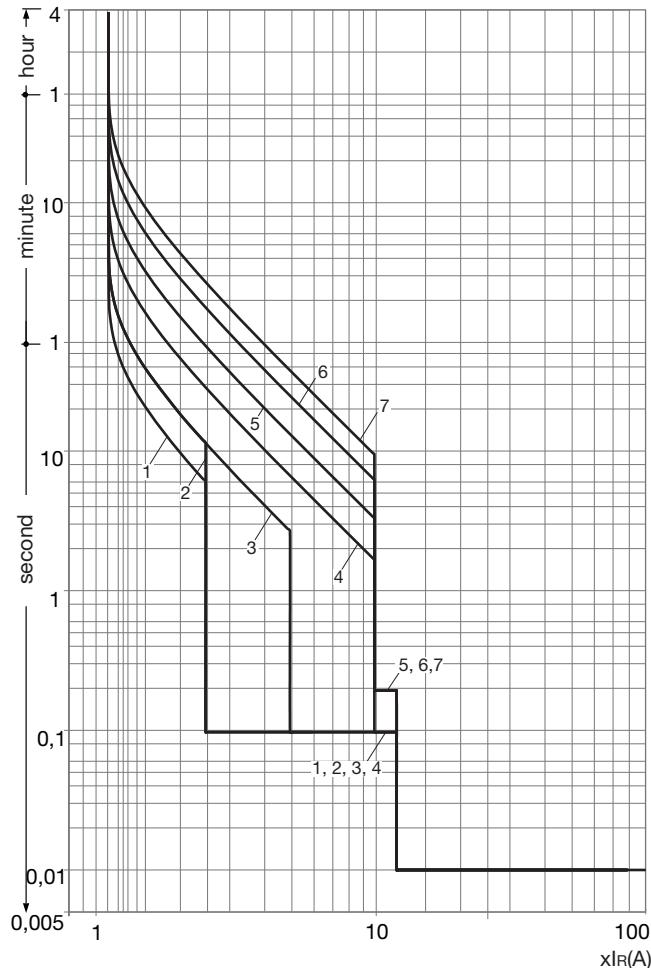
I - Instantaneous - max. instantaneous threshold (< 10 ms) in case of short circuit: 2,5 to 10 x Ir.

| LSI | In A | | | | |
|----------------------|-------------------|--------|------------------|---------|----------|
| | 1250 - 1600 A | | | | |
| | Long Time Delay | | Short Time Delay | | Inst |
| | Ir (x In) | tr (s) | isd (xlr) | tsd (s) | li (xlr) |
| ① Ir (x In) | 0,4 | OK | | | |
| | 0,5 | OK | | | |
| | 0,63 | OK | | | |
| | 0,8 | OK | | | |
| | 0,9 | OK | | | |
| | 0,95 | OK | | | |
| | 1 | OK | | | |
| ② Characteristics* | 1 | | 11s at 2 xlr | 2,5 | |
| | 2 | | 21s at 2 xlr | 5 | |
| | 3 | | | | 0,1 |
| | 4 | | 5 s at 6 xlr | | |
| | 5 | | 10 s at 6 xlr | | |
| | 6 | | 19 s at 6 xlr | 10 | |
| | 7 | | 29 s at 6 xlr | | 0,2 |
| ③ Neutral protection | 14 (max 12 x In) | | | | |
| | | | | | |
| | 0% 50% 100% | | | | |

Tripping curve

MCCB h1600 LSI

Commercial
Distribution



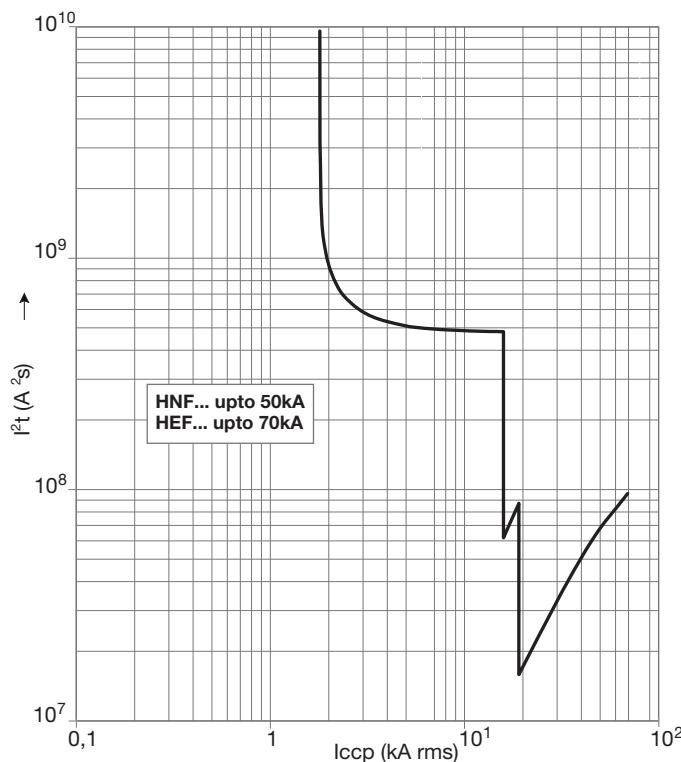
Electronic trip unit setting (LSI)

MCCBs 1250A and 1600A electronic

| IR (A) | | | | | | | | | | | |
|---------------------|--|------|-----------------|-------------|---------------------------|-----|------|------------------|-----|------|----|
| LTD Pick-up current | | IR | $x In$ | | 0,4 | 0,5 | 0,63 | 0,8 | 0,9 | 0,95 | 1 |
| Characteristics | | No. | 1 | | 2 | 3 | 4 | 5 | 6 | 7 | |
| Standard | | LTD | tR | (s) | 11 | 21 | 21 | 5 | 10 | 19 | 29 |
| | | | | | 200% \times IR | | | 600% \times IR | | | |
| | | STD | I _{sd} | \times IR | 2,5 | | 5 | 10 | | | |
| | | | t _{sd} | (s) | 0,1 | | | 0,2 | | | |
| Optional | | INST | I _i | \times IR | 14 (max : 12 \times In) | | | | | | |
| NP | | IN | \times In | 0 - 0,5 - 1 | | | | | | | |
| | | tN | (s) | IN=tR | | | | | | | |

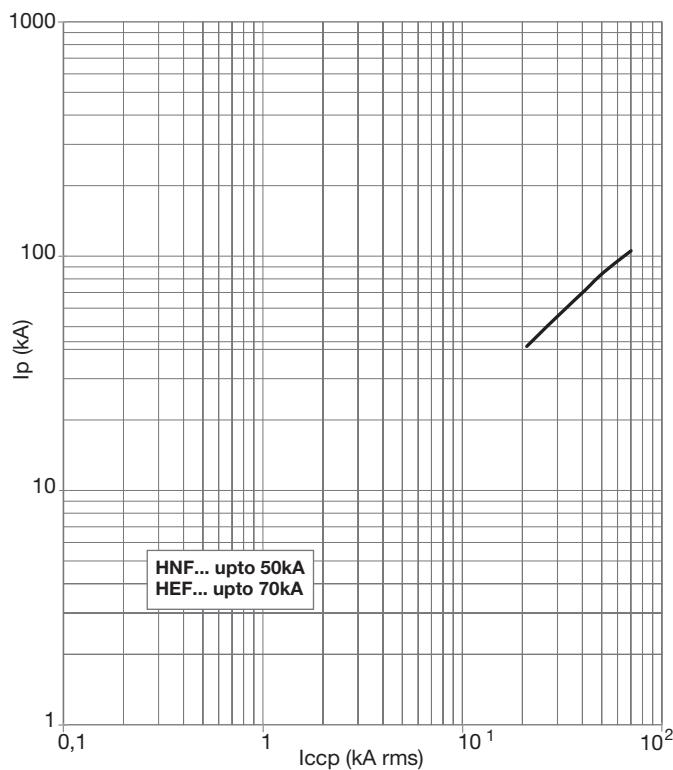
Thermal constraint curve at 400V (Let-through energy)

MCCB h1600



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

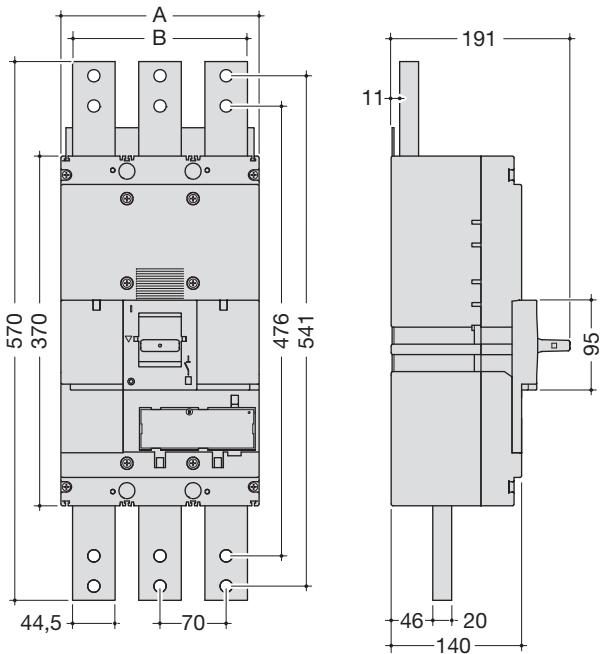
MCCB h1600



Dimensions

MCCBs

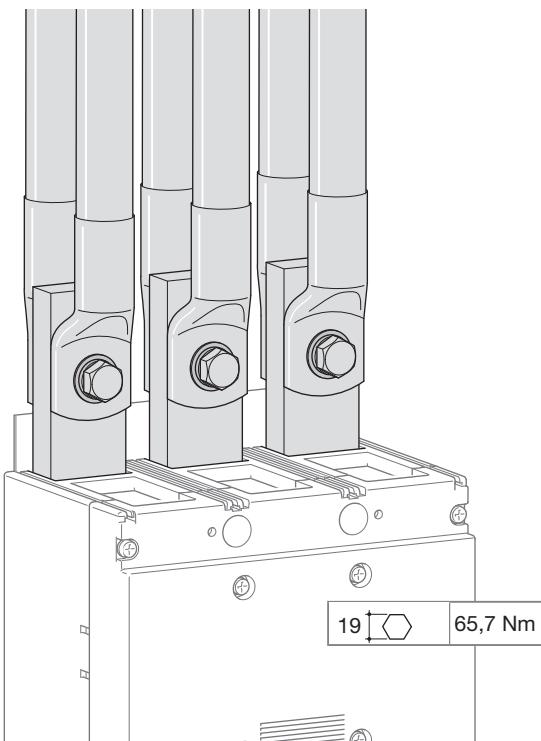
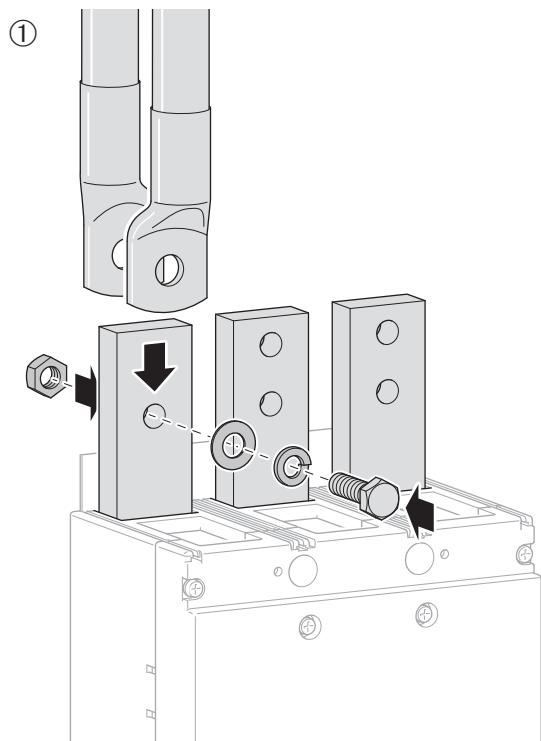
Commercial
Distribution



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

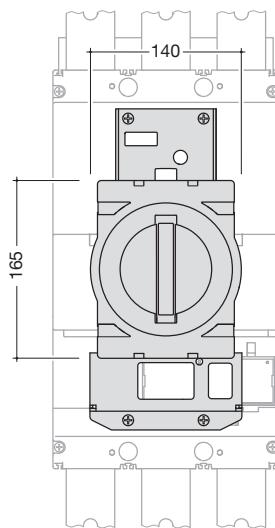
Connection

Connection with end lugs

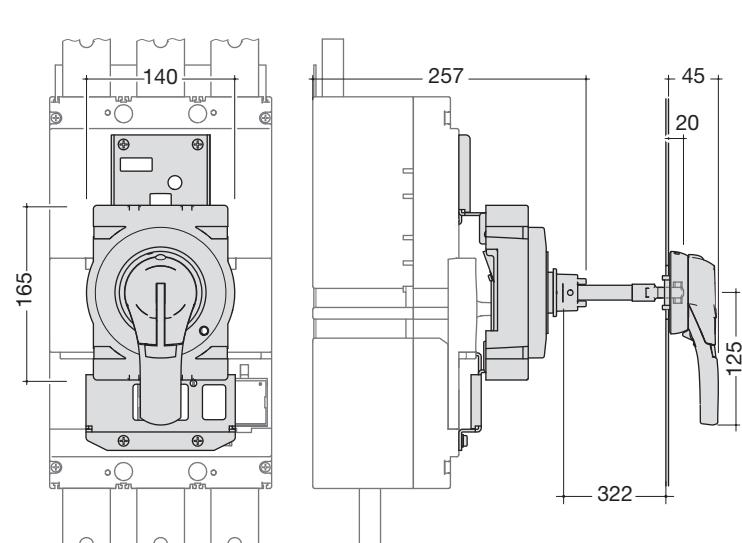


Accessories

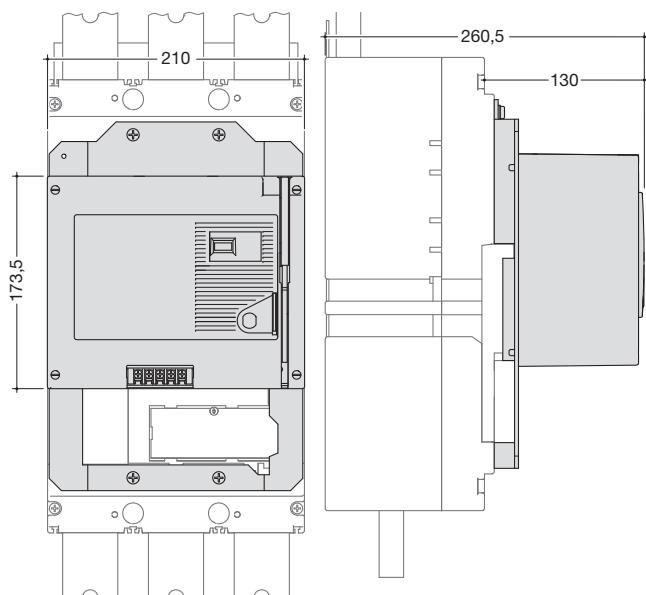
Direct rotary handle



Extended rotary handle

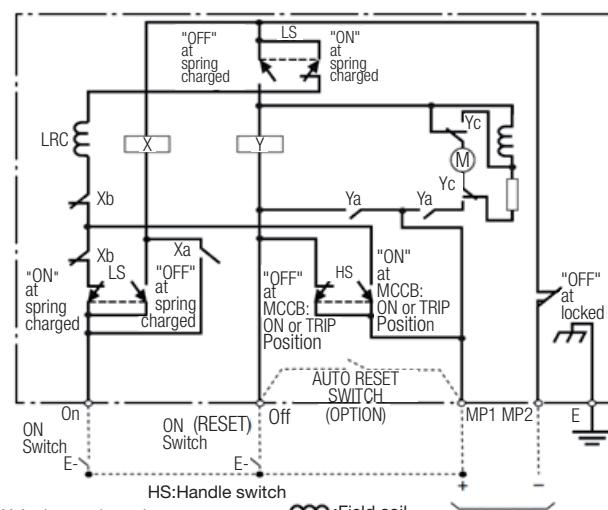


Motor operator



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

Wiring diagram



X:Anti-pumping relay

Y: Motor drive relay

LRC:Latch release coil (closing coil)

M:Motor

Cascading According to IEC 60947-2

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



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

Commercial Distribution

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

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

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

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

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

Cascading According to IEC 60947-2

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

:hager

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

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

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

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

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

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

Cascading According to IEC 60947-2

MCCBs / Switches, RCDs, RCBOs, MCBs

:hager

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

Commercial Distribution

| | | | | | Upstream | | | | | | | | | |
|-----------------------------------|--|---------|---------------|--------|-------------------------------------|----------------|-------|---------|-------|---------|-------|-------|-------|-------|
| | | | | | x160 TM | | | x250 TM | | h250 TM | | | | |
| | | | | | HDA | HHA | HNA | HHB | HNB | HHG | HNG | HEG | | |
| | | | | | IEC 69898 IEC 61008 IEC 61009 | IEC 60947-2 | 18 kA | 25 kA | 40 kA | 25 kA | 40 kA | 25 kA | 50 kA | 65 kA |
| Switches | SB1xx, SB3xx, SB4xx | 32A | 1P, 3P, 4P | | | | 2.2 | 2.2 | 2.2 | - | - | - | - | |
| | SB1xx, SB3xx, SB4xx | 63A | 1P, 3P, 4P | | | | 3.1 | 3.1 | 3.1 | - | - | - | - | |
| | SB1xx, SB3xx, SB4xx | 100A | 1P, 3P, 4P | | | | 4.8 | 4.8 | 4.8 | 4.6 | 4.6 | - | - | |
| Switches | SB2xx | 32A | 2P | | | | 2.3 | 2.3 | 2.3 | - | - | - | - | |
| | SB2xx | 63A | 2P | | | | 3.4 | 3.4 | 3.4 | - | - | - | - | |
| | SB2xx | 100A | 2P | | | | 5.5 | 5.5 | 5.5 | 4.6 | 4.6 | - | - | |
| IDL 2P/4P | SA2xx | 80A | 2P | | | | 6.7 | 6.7 | 6.7 | 5.1 | 5.1 | 5 | 5 | |
| | SA4xx | 80A | 4P | | | | 5.7 | 5.7 | 5.7 | 5.1 | 5.1 | 5 | 5 | |
| RCD 2P/4P | CCxxx, CDxxx, CFxxx, CGxxx | 63A | 2P | | | | 4.25 | 4.25 | 4.25 | 3.7 | 3.7 | - | - | |
| | | 63A | 4P | | | | 3.8 | 3.8 | 3.8 | 3.7 | 3.7 | - | - | |
| | | 100A | 2P | | | | 5.5 | 5.5 | 5.5 | 4.6 | 4.6 | - | - | |
| | | 100A | 4P | | | | 4.8 | 4.8 | 4.8 | 4.6 | 4.6 | - | - | |
| MCB Ph+N under 240V | MFS, MFN | 32A | C | 3 kA | - | 3.3 | 3.3 | 3.3 | - | - | - | - | - | |
| | MJN, MHN | 40A | B, C | 4.5 kA | 6 kA | 8 | 8 | 8 | 6.5 | 6.5 | 6 | 6 | 6 | |
| | MLN, MLU | 40A | C | 6 kA | 7.5 kA | 12.5 | 12.5 | 12.5 | 9.7 | 9.7 | 7.5 | 7.5 | 7.5 | |
| MCB Spinx Ph+N under 240V | 3PP: NFT3xx, NGT3xx 3PP+N: NFT8xx, NGT8xx | 40A | C, D | 6 kA | 10 kA | 18 | 20 | 20 | 14.1 | 20 | 10.1 | 10.1 | 10.1 | |
| | Ph+N: NFT7xx, NGT7xx | 40A | C, D | 6 kA | 10 kA | 18 | 18 | 18 | 14.1 | 14.1 | 10.1 | 10.1 | 10.1 | |
| | Ph+N: MHT7xx, MJT7xx | 40A | B, C | 4.5 kA | 6 kA | 8 | 8 | 8 | 6.5 | 6.5 | 6 | 6 | 6 | |
| RCBO 2 mod 1PP+N under 240V | ADC, ADH | 32A | C | 3 kA | - | 3.3 | 3.3 | 3.3 | - | - | - | - | - | |
| | Ax8xx | 40A | C | 4.5 kA | 6 kA | 8 | 8 | 8 | 6.5 | 6.5 | 6 | 6 | 6 | |
| | Ax9xx | 40A | C | 6 kA | 10 kA | 18 | 18 | 18 | 14 | 14 | 10 | 10 | 10 | |
| RCBO 1 mod 1PP+N under 240V | AC1xx, AD1xx, AE1xx, AF1xx, ACx1xx, ADx1xx, AEx1xx | 40A | B, C | 10 kA | 15 kA | 18 | 25 | 40 | 25 | 40 | 25 | 25 | 25 | |
| | | 50A | B, C | 6 kA | 10 kA | 18 | 20 | 20 | 14.1 | 14.1 | 10.1 | 10.1 | 10.1 | |
| MCB Ocean 2 & v1 1 mod | MV, MW | 63A | B, C | 3 kA | 4.5 kA | 5.4 | 5.4 | 5.4 | 5.2 | 5.2 | - | - | - | |
| | MX, MY | 63A | B, C | 4.5 kA | 6 kA | 8 | 8 | 8 | 6.5 | 6.5 | 6 | 6 | 6 | |
| | MU, MT | 63A | B, C | 6 kA | 10 kA | 18 | 20 | 20 | 14.1 | 14.1 | 10.1 | 10.1 | 10.1 | |
| | NB, NC, ND | 63A | B, C, D | 10 kA | 15 kA | 18 | 25 | 40 | 25 | 40 | 25 | 25 | 25 | |
| MCB GDE 1 mod | MVN, MWN | 63A | B, C | 3 kA | - | 3.3 | 3.3 | 3.3 | - | - | - | - | - | |
| | MXN, MYN | 63A | B, C | 4.5 kA | - | 5.4 | 5.4 | 5.4 | 5.2 | 5.2 | - | - | - | |
| | MBN, MCN, MTN, MUN, MP | 63A | B, C | 6 kA | - | 8 | 8 | 8 | 6.5 | 6.5 | 6 | 6 | 6 | |
| MCB GTE 1 mod | MBA, MCA, NEN, NFN, NGN | 63A | B, C, D | 6 kA | 10 kA | 18 | 25 | 30 | 20 | 25 | 15 | 18 | 20 | |
| | NBN, NCN, NDN, NKN | 63A | B, C, D | 10 kA | 15 kA | 18 | 25 | 40 | 25 | 40 | 25 | 25 | 25 | |
| | 20A | B, C, D | - | 25 kA | 18 | 25 | 40 | 25 | 40 | 25 | 50 | 65 | | |
| | NQN, NRN, NSN | 40A | B, C, D | - | 20 kA | 18 | 25 | 40 | 25 | 40 | 25 | 50 | 55 | |
| | 63A | B, C, D | - | 15 kA | 18 | 25 | 40 | 25 | 40 | 25 | 50 | 25 | | |
| | MMN2xx, MMN3xx | 12A | magn. | - | 25 kA | 18 | 25 | 40 | 25 | 40 | 25 | 50 | 65 | |
| | MMN2xx, MMN3xx | 25A | magn. | - | 20 kA | 18 | 25 | 40 | 25 | 40 | 25 | 50 | 53.4 | |
| MCB DEFI 125 1,5 mod | HLE, HLF, HLG, HME, HMF, HMG | 125A | B, C | 10 kA | 15 kA | 18 | 25 | 40 | 25 | 40 | 25 | 50 | 25 | |
| | HMB, HMC, HMD | 125A | B, C, D | 15 kA | 15 kA | 18 | 25 | 40 | 25 | 40 | 25 | 50 | 25 | |
| | HMJ, HMK | 125A | C | - | 30 kA | 18 | 25 | 40 | 25 | 40 | 25 | 50 | 65 | |
| | HMX | 63A | C | - | 50 kA | 18 | 25 | 40 | 25 | 40 | 25 | 50 | 65 | |

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

Cascading According to IEC 60947-2

MCCBs / Switches, RCDs, RCBOs, MCBs

:hager

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

Commercial Distribution

| | | | | | Upstream | | | | | | | | | |
|-----------------------------------|--|------|---------------|--------|-------------------------------------|-------------|-------|---------|--------|-------|---------|-------|-------|-------|
| | | | | | x160 TM | | | x250 TM | | | h250 TM | | | |
| | | | | | HDA | HHA | HNA | HHB | HNB | HHG | HNG | HEG | | |
| | | | | | IEC 69898 IEC 61008 IEC 61009 | IEC 60947-2 | 25 kA | 35 kA | 85 kA | 35 kA | 85 kA | 35 kA | 85 kA | 85 kA |
| Switches | SB1xx, SB3xx, SB4xx | 32A | 1P, 3P, 4P | | | 2.5 | 2.5 | 2.5 | - | - | - | - | - | - |
| | SB1xx, SB3xx, SB4xx | 63A | 1P, 3P, 4P | | | 4 | 4 | 4 | - | - | - | - | - | - |
| | SB1xx, SB3xx, SB4xx | 100A | 1P, 3P, 4P | | | 7.7 | 7.7 | 7.7 | 4.6 | 4.6 | - | - | - | - |
| Switches | SB2xx | 32A | 2P | | | 2.7 | 2.7 | 2.7 | - | - | - | - | - | - |
| | SB2xx | 63A | 2P | | | 4.4 | 4.4 | 4.4 | - | - | - | - | - | - |
| | SB2xx | 100A | 2P | | | 9 | 9 | 9 | 4.6 | 4.6 | - | - | - | - |
| IDL 2P/4P | SA2xx | 80A | 2P | | | 11.5 | 11.5 | 11.5 | 5.1 | 5.1 | - | - | - | - |
| | SA4xx | 80A | 4P | | | 9.9 | 9.9 | 9.9 | 5.1 | 5.1 | - | - | - | - |
| RCD 2P/4P | CCxxx, CDxxx, CFxxx, CGxxx | 63A | 2P | | | 6.2 | 6.2 | 6.2 | 3.7 | 3.7 | - | - | - | - |
| | | 63A | 4P | | | 5.5 | 5.5 | 5.5 | 3.7 | 3.7 | - | - | - | - |
| | | 100A | 2P | | | 9 | 9 | 9 | 4.6 | 4.6 | - | - | - | - |
| | | 100A | 4P | | | 7.7 | 7.7 | 7.7 | 4.6 | 4.6 | - | - | - | - |
| MCB Ph+N under 240V | MFS, MFN | 32A | C | 3 kA | - | 4.5 | 4.5 | 4.5 | 3.5 | 3.5 | - | - | - | - |
| | MJN, MHN | 40A | B, C | 4.5 kA | 6 kA | 15 | 15 | 15 | 6.5 | 6.5 | 6 | 6 | 6 | 6 |
| | MLN, MLU | 40A | C | 6 kA | 7.5 kA | 24 | 24 | 24 | 9 | 9 | 9 | 9 | 9 | 9 |
| MCB Spinx Ph+N under 240V | NFT7xx, NGT7xx | 40A | C, D | 6 kA | 10 kA | 25 | 35 | 45 | 15 | 20 | 18 | 18 | 18 | 18 |
| | MHT7xx, MJT7xx | 40A | B, C | 4.5 kA | 6 kA | 15 | 15 | 15 | 6.5 | 6.5 | 6 | 6 | 6 | 6 |
| RCBO 2 mod 1PP+N under 240V | ADC, ADH | 32A | C | 3 kA | - | 4.5 | 4.5 | 4.5 | 3.5 | 3.5 | - | - | - | - |
| | Ax8xx | 40A | C | 4.5 kA | 6 kA | 15 | 15 | 15 | 6.5 | 6.5 | 6 | 6 | 6 | 6 |
| | Ax9xx | 40A | C | 6 kA | 10 kA | 25 | 35 | 45 | 15 | 15 | 18 | 18 | 18 | 18 |
| RCBO 1 mod 1PP+N under 240V | AC1xx, AD1xx, AE1xx, AF1xx, ACx1xx, ADx1xx, AEx1xx | 40A | B, C | 10 kA | 15 kA | 25 | 35 | 45 | 35 | 85 | 35 | 85 | 85 | 85 |
| | | 50A | B, C | 6 kA | 10 kA | 25 | 35 | 45 | 15 | 15 | 18 | 18 | 18 | 18 |
| RCBO 2PP | ADA2xxN | 32A | B, C | 10 kA | 10 kA | 25 | 35 | 45 | 15 | 15 | 18 | 18 | 18 | 18 |
| MCB GDE 1 mod | MVN, MWN | 63A | B, C | 4.5 kA | - | - | - | - | - | - | - | - | - | - |
| | MXN, MYN | 63A | B, C | 6 kA | - | 15 | 15 | 15 | 6.5 | 6.5 | 6 | 6 | 6 | 6 |
| | MP 5xx under 240V | 63A | ICP-M | 6 kA | - | 8 | 8 | 8 | 6.5 | 6.5 | 6 | 6 | 6 | 6 |
| | MUN 5xx under 240V | 40A | C | 6 kA | - | 8 | 8 | 8 | 6.5 | 6.5 | 6 | 6 | 6 | 6 |
| | MBN, MCN, MTN, MUN, MP | 63A | B, C | 10 kA | - | 25 | 35 | 45 | 15 | 15 | 18 | 18 | 18 | 18 |
| MCB GTE 1 mod | NFN 7xx under 240V | 63A | C | 6 kA | 10 kA | 18 | 18 | 18 | 14.1 | 15.1 | 10.1 | 10.1 | 10.1 | 10.1 |
| | MBA, MCA, NEN, NFN, NGN | 63A | B, C, D | 10 kA | 20 kA | 25 | 35 | 85 | 35 | 85 | 35 | 85 | 85 | 85 |
| | NBN, NCN, NDN, NKN | 63A | B, C, D | 10 kA | 30 kA | 25 | 35 | 85 | 35 | 85 | 35 | 85 | 85 | 85 |
| | | 20A | B, C, D | - | 50 kA | 25 | 35 | 85 | 35 | 85 | 35 | 85 | 85 | 85 |
| | NQN, NRN, NSN | 40A | B, C, D | - | 40 kA | 25 | 35 | 85 | 35 | 85 | 35 | 85 | 85 | 85 |
| | | 63A | B, C, D | - | 30 kA | 25 | 35 | 85 | 35 | 85 | 35 | 85 | 85 | 85 |
| | MMN2xx, MMN3xx | 12A | magn. | - | 50 kA | 25 | 35 | 85 | 35 | 85 | 35 | 85 | 85 | 85 |
| MCB DEF1 125 1,5 mod | MMN2xx, MMN3xx | 25A | magn. | - | 40 kA | 25 | 35 | 85 | 35 | 85 | 35 | 85 | 85 | 85 |
| | HLE, HLF, HLG, HME, HMF, HMG | 125A | B, C | 15 kA | 30 kA | 25 | 35 | 85 | 35 | 85 | 35 | 85 | 85 | 85 |
| | HMB, HMC, HMD | 125A | B, C, D | 15 kA | 30 kA | 25 | 35 | 85 | 35 | 85 | 35 | 85 | 85 | 85 |
| | HMJ, HMK | 125A | C | - | 60 kA | 25 | 35 | 85 | 35 | 85 | 35 | 85 | 85 | 85 |
| | | | | | HMX | 63A | C | - | 100 kA | 25 | 35 | 85 | 35 | 85 |

Discrimination Chart According to IEC 60947-2

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

:hager

Commercial Distribution

| | Icc (kA) | Upstream | x160 TM 18/25/40 kA | | | | | | x250 TM 25/40 kA | | | | | | h250 TM 25/50/65 kA | | | | | | | | | | | | |
|-------------------|------------------------|----------|------------------------|-----|-----|------|------|-----|---------------------|------|------|------|------|------|------------------------|------|-----|------|------|------|---------------|------|------|---|--|--|--|
| | | | Downstream | | | | | | HDA, HHA, HNA | | | | | | HHB, HNB | | | | | | HHG, HNG, HEG | | | | | | |
| | | (A) | 16 - 50 | 63 | 80 | 100 | 125 | 160 | 100 | 125 | 160 | 200 | 225 | 250 | 20 | 32 | 50 | 63 | 100 | 125 | 160 | 200 | 250 | | | | |
| HDA HHA HNA | x160 TM 18/25/40 kA | 16 | - | 2 | 2 | 2.9 | 2.9 | 3 | 2.15 | 2.9 | 4.1 | 5.6 | 5.5 | 5.4 | - | - | - | 1.2 | 2.15 | 2.9 | 4.1 | 5.6 | 5.4 | | | | |
| | | 20 | - | 2 | 2 | 2.9 | 2.9 | 3 | 2.15 | 2.9 | 4.1 | 5.6 | 5.5 | 5.4 | - | - | - | 1.2 | 2.15 | 2.9 | 4.1 | 5.6 | 5.4 | | | | |
| | | 25 | - | 2 | 2 | 2.9 | 2.9 | 3 | 2.15 | 2.9 | 4.1 | 5.6 | 5.5 | 5.4 | - | - | - | 1.2 | 2.15 | 2.9 | 4.1 | 5.6 | 5.4 | | | | |
| | | 32 | - | 1.8 | 1.8 | 2.6 | 2.6 | 2.7 | 2 | 2.6 | 3.6 | 5 | 4.9 | 4.8 | - | - | - | 1.15 | 2 | 2.6 | 3.6 | 5 | 4.8 | | | | |
| | | 40 | - | 1.6 | 1.6 | 2.35 | 2.35 | 2.4 | 1.8 | 2.35 | 3.3 | 4.3 | 4.25 | 4.2 | - | - | - | 1.1 | 1.8 | 2.35 | 3.3 | 4.3 | 4.2 | | | | |
| | | 50 | - | 1.6 | 1.6 | 2.35 | 2.35 | 2.4 | 1.8 | 2.35 | 3.15 | 4.25 | 4.2 | 4.15 | - | - | - | 1.1 | 1.8 | 2.35 | 3.15 | 4.25 | 4.15 | | | | |
| | | 63 | - | - | - | 2.15 | 2.15 | 2.2 | 1.7 | 2.15 | 3 | 4.05 | 4 | 3.9 | - | - | - | 1.7 | 2.15 | 3 | 4.05 | 3.9 | | | | | |
| | | 80 | - | - | - | 2.15 | 2.15 | 2.2 | 1.7 | 2.15 | 2.9 | 3.9 | 3.9 | 3.8 | - | - | - | 1.7 | 2.15 | 2.9 | 3.9 | 3.8 | | | | | |
| | | 100 | - | - | - | - | - | 2.1 | - | 1.95 | 2.75 | 3.7 | 3.7 | 3.6 | - | - | - | - | - | 1.95 | 2.75 | 3.7 | 3.6 | | | | |
| | | 125 | - | - | - | - | - | 2.1 | - | - | 2.65 | 3.5 | 3.5 | 3.4 | - | - | - | - | - | - | 2.65 | 3.5 | 3.4 | | | | |
| | | 160 | - | - | - | - | - | - | - | - | 3.45 | 3.4 | 3.35 | - | - | - | - | - | - | - | - | 3.45 | 3.35 | | | | |
| HHB HNB | x250 TM 25/40 kA | 100 | - | - | - | - | - | - | 1.95 | 2.5 | 3.15 | 3.2 | 3.3 | - | - | - | - | - | - | 1.95 | 2.5 | 3.15 | 3 | | | | |
| | | 125 | - | - | - | - | - | - | - | 2.5 | 3.15 | 3.2 | 3.3 | - | - | - | - | - | - | - | 2.5 | 3.15 | 3 | | | | |
| | | 160 | - | - | - | - | - | - | - | - | 3.15 | 3.2 | 3.3 | - | - | - | - | - | - | - | - | 3.15 | 3 | | | | |
| | | 200 | - | - | - | - | - | - | - | - | 3.2 | 3.3 | - | - | - | - | - | - | - | - | - | - | 3 | | | | |
| | | 225 | - | - | - | - | - | - | - | - | - | 3.3 | - | - | - | - | - | - | - | - | - | - | 3 | | | | |
| | | 250 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | | |
| HHG HNG HEG | h250 TM 25/50/65 kA | 20 | - | - | - | - | - | - | 1.55 | 1.95 | 2.5 | 3.15 | 3.2 | 3.3 | - | 0.41 | 0.6 | 1 | 1.55 | 1.95 | 2.5 | 3.15 | 3 | | | | |
| | | 32 | - | - | - | - | - | - | 1.55 | 1.95 | 2.5 | 3.15 | 3.2 | 3.3 | - | - | 0.6 | 1 | 1.55 | 1.95 | 2.5 | 3.15 | 3 | | | | |
| | | 50 | - | - | - | - | - | - | 1.55 | 1.95 | 2.5 | 3.15 | 3.2 | 3.3 | - | - | - | 1 | 1.55 | 1.95 | 2.5 | 3.15 | 3 | | | | |
| | | 63 | - | - | - | - | - | - | 1.55 | 1.95 | 2.5 | 3.15 | 3.2 | 3.3 | - | - | - | - | 1.55 | 1.95 | 2.5 | 3.15 | 3 | | | | |
| | | 100 | - | - | - | - | - | - | - | 1.95 | 2.5 | 3.15 | 3.2 | 3.3 | - | - | - | - | - | 1.95 | 2.5 | 3.15 | 3 | | | | |
| | | 125 | - | - | - | - | - | - | - | 2.5 | 3.15 | 3.2 | 3.3 | - | - | - | - | - | - | - | 2.5 | 3.15 | 3 | | | | |
| | | 160 | - | - | - | - | - | - | - | - | 3.15 | 3.2 | 3.3 | - | - | - | - | - | - | - | - | 3.15 | 3 | | | | |
| | | 200 | - | - | - | - | - | - | - | - | 3.2 | 3.3 | - | - | - | - | - | - | - | - | - | - | 3 | | | | |
| | | 250 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | | |
| HNH HEH | h250 TM+ 50/70 kA | 20 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | |
| | | 32 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | |
| | | 50 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | |
| | | 63 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | |
| | | 100 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | |
| | | 125 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | |
| | | 160 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | |
| | | 250 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | |
| HNC HEC | h250 LSI 50/70 kA | 40 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | |
| | | 125 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | |
| | | 250 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | |
| | | 300 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | |
| HHD HND HKD | h400 TM 25/50/70 kA | 350 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | |
| | | 400 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | |
| | | 250 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | |
| | | 300 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | |
| HND HED | h630 LSI 50/70kA | 350 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | |
| | | 400 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | |
| | | 500 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | |
| | | 600 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | |
| | | 630 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | |
| HNK HEK | h800 TM 50/70 kA | 630 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | |
| | | 800 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | |
| | | 1000 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | |
| HNF HEF | h1000 LSI 50/70 kA | 1250 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | |
| | | 1600 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | |

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

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

"-" = no discrimination

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

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

| | | | Upstream | | | | |
|------------|-----------|-------------|-------------------------------------|---------------------------------------|-------------------------------------|--|--|
| | | | frame II, type HW208S | frame II, type HW212S | frame II, type HW212H | frame II, type HW216S | frame II, type HW216H |
| | | | max rated current 800A 400-500-630A | max rated current 1250A 630-800-1000A | max rated current 800A 400-500-630A | max rated current 1600A 800-1000-1250A | max rated current 1600A 800-1000-1250A |
| | | IEC 60947-2 | | 65 kA | 65 kA | 80 kA | 65 kA |
| | | IEC 60439-1 | | 65kA | 65 kA | 80 kA | 65 kA |
| Downstream | x160 TM | HDA | 18 kA | 40 kA | 18/30 | 18/30 | 18/30 |
| | x160 TM | HHA | 25 kA | 50 kA | 25/40 | 25/40 | 25/40 |
| | x160 TM | HNA | 40 kA | 100 kA | 40/50 | 40/50 | 40/50 |
| | x250 TM | HHB | 25 kA | 50 kA | 25/40 | 25/40 | 25/40 |
| | x250 TM | HNB | 40 kA | 100 kA | 40/50 | 40/50 | 40/50 |
| | h250 TM | HHG | 25 kA | 50 kA | 25/40 | 25/40 | 25/40 |
| | h250 TM | HNG | 50 kA | 100 kA | 50/60 | 50/60 | 50/60 |
| | h250 TM | HEG | 65 kA | 100 kA | 65/65 | 67/70 | 65/65 |
| | h250 TM+ | HNH | 50 kA | 60 kA | 50/60 | 50/60 | 50/60 |
| | h250 TM+ | HEH | 70 kA | 80 kA | 65/65 | 70/80 | 65/65 |
| | h250 LSI | HNC | 50 kA | 100 kA | 50/60 | 50/60 | 50/60 |
| | h250 LSI | HEC | 70 kA | 100 kA | 65/65 | 70/80 | 65/65 |
| | h400 TM | HHD | 25 kA | 50 kA | 25/40 | 25/40 | 25/40 |
| | h400 TM | HND | 50 kA | 100 kA | 50/60 | 50/60 | 50/60 |
| | h400 TM | HKD | 70 kA | 80 kA | 65/65 | 70/80 | 65/65 |
| | h630 LSI | HND | 50 kA | 100 kA | 50/60 | 50/60 | 50/60 |
| | h630 LSI | HED | 70 kA | 100 kA | 65/65 | 70/80 | 65/65 |
| | h800 TM | HNK | 50 kA | 60 kA | 50/60 | 50/60 | 50/60 |
| | h800 TM | HEK | 70 kA | 80 kA | 65/65 | 70/80 | 65/65 |
| | h1000 LSI | HNE | 50 kA | 100 kA | - | 50/60 | 50/60 |
| | h1000 LSI | HEE | 70 kA | 100 kA | - | 65/65 | 70/80 |
| | h1600 LSI | HNF | 50 kA | 100 kA | - | - | 50/60 |
| | h1600 LSI | HEF | 70 kA | 100 kA | - | - | 65/65 |

Max. cascading value in kA rms according to IEC 947-2 and IEC 60439-1 Network: 3 phases + neutral 127/220 - 138/240 VAC

| | | | Upstream | | | | |
|------------|-----------|-------------|-------------------------------------|---------------------------------------|-------------------------------------|--|--|
| | | | frame II, type HW208S | frame II, type HW212S | frame II, type HW212H | frame II, type HW216S | frame II, type HW216H |
| | | | max rated current 800A 400-500-630A | max rated current 1250A 630-800-1000A | max rated current 800A 400-500-630A | max rated current 1600A 800-1000-1250A | max rated current 1600A 800-1000-1250A |
| | | IEC 60947-2 | | 65 kA | 65 kA | 80 kA | 65 kA |
| | | IEC 60439-1 | | 65kA | 65 kA | 80 kA | 65 kA |
| Downstream | x160 TM | HDA | 25 kA | 40 kA | 25/40 | 25/40 | 25/40 |
| | x160 TM | HHA | 35 kA | 50 kA | 35/50 | 35/50 | 35/50 |
| | x160 TM | HNA | 85 kA | 100 kA | 65/65 | 80/80 | 65/65 |
| | x250 TM | HHB | 35 kA | 50 kA | 35/50 | 35/50 | 35/50 |
| | x250 TM | HNB | 85 kA | 100 kA | 65/65 | 80/80 | 65/65 |
| | h250 TM | HHG | 35 kA | 50 kA | 35/50 | 35/50 | 35/50 |
| | h250 TM | HNG | 85 kA | 100 kA | 65/65 | 80/80 | 65/65 |
| | h250 TM | HEG | 85 kA | 100 kA | 65/65 | 80/80 | 65/65 |
| | h250 TM+ | HNH | 85 kA | 100 kA | 65/65 | 80/80 | 65/65 |
| | h250 TM+ | HEH | 100 kA | 100 kA | 65/65 | 80/80 | 65/65 |
| | h250 LSI | HNC | 85 kA | 100 kA | 65/65 | 80/80 | 65/65 |
| | h250 LSI | HEC | 100 kA | 100 kA | 65/65 | 80/80 | 65/65 |
| | h400 TM | HHD | 35 kA | 50 kA | 35/50 | 35/50 | 35/50 |
| | h400 TM | HND | 85 kA | 100 kA | 65/65 | 80/80 | 65/65 |
| | h400 TM | HKD | 100 kA | 100 kA | 65/65 | 80/80 | 65/65 |
| | h630 LSI | HND | 85 kA | 100 kA | 65/65 | 80/80 | 65/65 |
| | h630 LSI | HED | 100 kA | 100 kA | 65/65 | 80/80 | 65/65 |
| | h800 TM | HNK | 85 kA | 100 kA | 65/65 | 80/80 | 65/65 |
| | h800 TM | HEK | 100 kA | 100 kA | 65/65 | 80/80 | 65/65 |
| | h1000 LSI | HNE | 85 kA | 100 kA | - | 65/65 | 80/80 |
| | h1000 LSI | HEE | 100 kA | 100 kA | - | 65/65 | 80/80 |
| | h1600 LSI | HNF | 85 kA | 100 kA | - | - | 65/65 |
| | h1600 LSI | HEF | 100 kA | 100 kA | - | - | 65/65 |

Discrimination Chart According to IEC 60947-2

ACBs / MCCBs

:hager

Commercial Distribution

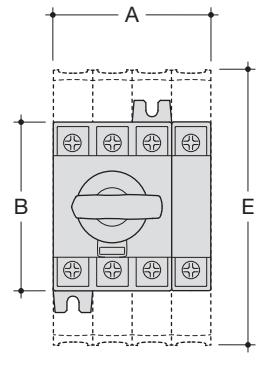
| | Icc (kA) | Upstream | frame II, type HW208S | | | | frame II, type HW212S frame II, type HW212H | | | | frame II, type HW216S frame II, type HW216H | | | | frame II, type HW220S frame II, type HW220H | | | |
|-------------------|------------------------|----------|--|-----|-----|-----|---|-----|------|------|---|------|------|------|---|------|------|------|
| | Downstream | | max rated current 800A Icu = Ics = 65 kA @ 440V | | | | max rated current 1250A Icu = Ics = 65 kA @ 440V Icu = Ics = 80 kA @ 440V | | | | max rated current 1600A Icu = Ics = 65 kA @ 440V Icu = Ics = 80 kA @ 440V | | | | max rated current 2000A Icu = Ics = 65 kA @ 440V Icu = Ics = 80 kA @ 440V | | | |
| | | | OCR: AGR-11Bx, AGR-21Bx, AGR-31Bx IR, tR of the MCCB / lsd, tsd of the ACB > lsd, tsd of the MCCB / li = 16 x ln, NON, MCR ON | | | | | | | | | | | | | | | |
| | | (A) | 400 | 500 | 630 | 800 | 630 | 800 | 1000 | 1250 | 800 | 1000 | 1250 | 1600 | 1000 | 1250 | 1600 | 2000 |
| HDA HHA HNA | x160 TM 18/25/40 kA | 16 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
| | | 20 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
| | | 25 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
| | | 32 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
| | | 40 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
| | | 50 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
| | | 63 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
| | | 80 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
| | | 100 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
| | | 125 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
| | | 160 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
| HHB HNB | x250 TM 25/40 kA | 100 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
| | | 125 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
| | | 160 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
| | | 200 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
| | | 225 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
| | | 250 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
| HHG HNG HEG | h250 TM 25/50/65 kA | 20 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
| | | 32 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
| | | 50 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
| | | 63 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
| | | 100 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
| | | 125 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
| | | 160 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
| | | 200 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
| | | 250 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
| HNH HEH | h250 TM+ 50/70 kA | 20 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
| | | 32 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
| | | 50 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
| | | 63 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
| | | 100 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
| | | 125 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
| | | 160 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
| HNC HEC | h250 LSI 50/70 kA | 40 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
| | | 125 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
| | | 250 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
| | | | | | | | | | | | | | | | | | | |
| HHD HND HKD | h400 TM 25/50/70 kA | 250 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
| | | 300 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
| | | 350 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
| | | 400 | - | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
| HND HED | h630 LSI 50/70kA | 250 | - | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
| | | 400 | - | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
| | | 500 | - | - | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
| | | 600 | - | - | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
| | | 630 | - | - | - | T | - | T | T | T | T | T | T | T | T | T | T | T |
| | | | | | | | | | | | | | | | | | | |
| HNK HEK | h800 TM 50/70 kA | 630 | - | - | - | T | - | T | T | T | T | T | T | T | T | T | T | T |
| | | 800 | - | - | - | - | - | - | T | T | - | T | T | T | T | T | T | T |
| HNE HEE | h1000 LSI 50/70 KA | 630 | - | - | - | T | - | T | T | T | T | T | T | T | T | T | T | T |
| | | 700 | - | - | - | T | - | T | T | T | T | T | T | T | T | T | T | T |
| | | 800 | - | - | - | - | - | - | T | T | - | T | T | T | T | T | T | T |
| | | 7000 | - | - | - | - | - | - | - | T | - | - | T | T | - | T | T | T |
| HNF HEF | h1600 LSI 50/70 kA | 800 | - | - | - | - | - | - | T | T | - | T | T | T | T | T | T | T |
| | | 1250 | - | - | - | - | - | - | - | - | - | - | T | - | - | T | - | T |
| | | 1600 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | T |

Breaking capacity according to IEC 947-2. Network : 3 phases + neutral 220/380 ~ 240/415 V AC
notes : "T" = total discrimination (up to the breaking capacity of the downstream device)

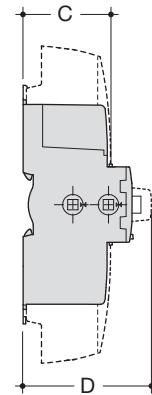
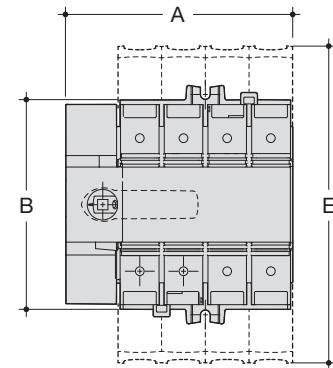
"-" = no discrimination

HAB, HAC, HAE switches

HAB402, HAB403, HAB404, HAB406, HAC408



HAE410, HAE412, HAE416



Dimensions (in mm)

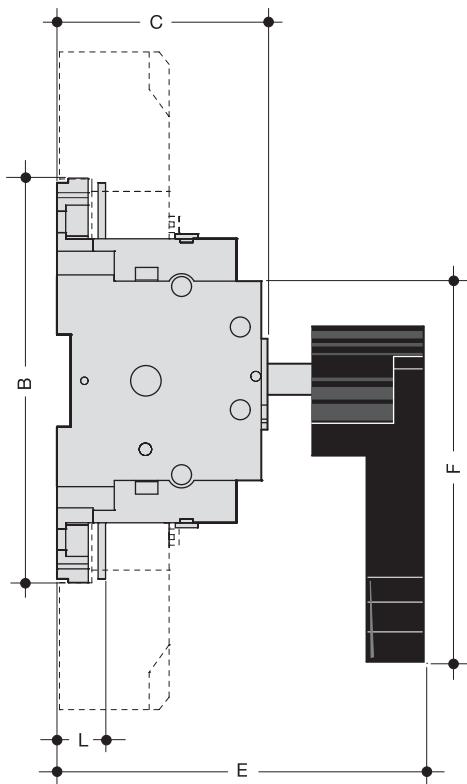
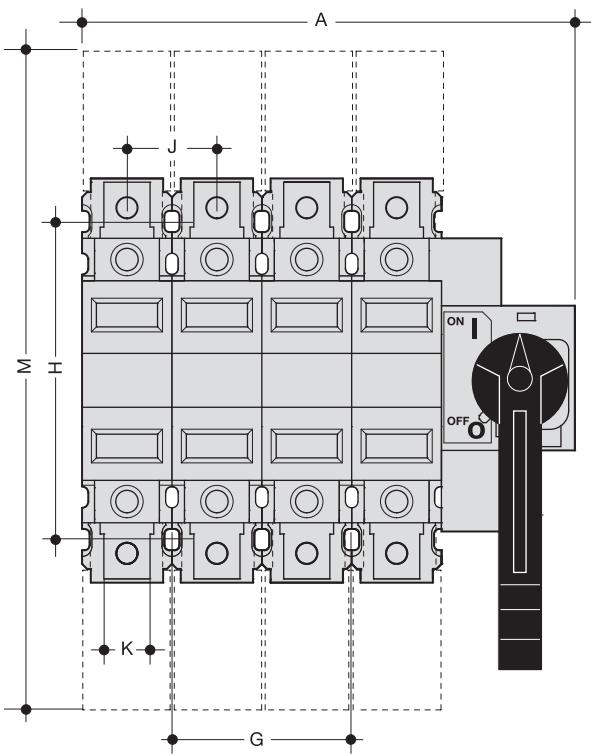
| | with visual breaking | | | | with visible breaking | |
|---|-----------------------------------|------|-----------------------------------|------|---------------------------|--|
| | HAB302, HAB303, HAB304, HAB306 | | HAB402, HAB403, HAB404, HAB406 | | HAC306, HAC308, HAC310 | |
| A | 45 | 60 | 54 | 71.5 | 135 | |
| B | 68 | 68 | 76 | 76 | 124.5 | |
| C | 48,5 | 48.5 | 48,5 | 48.5 | 50.5 | |
| D | 75 | 75 | 75 | 75 | 76 | |
| E | 110 | 110 | 110 | 110 | 189 | |

Technical characteristics

| | HAB302 HAB402 | HAB303 HAB403 | HAB304 HAB404 | HAB306 HAB406 | HAC306 HAC406 | HAC308 HAC408 | HAC310 HAC410 | HAD310 HAD410 | HAD312 HAD412 | HAE310 HAE410 | HAE312 HAE412 | HAE316 HAE416 |
|--|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| In | 20 A | 32 A | 40 A | 63 A | 63 A | 80 A | 100 A | 100 A | 125A | 100 A | 125 A | 160 A |
| rated insulation voltage U_i (V) | 800 | 800 | 800 | 800 | 800 | 800 | 800 | 800 | 800 | 800 | 800 | 800 |
| rated impulse withstand voltage U_{imp} (kV) | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 |
| AC 22 at 400 V (A) | 20 | 32 | 40 | 63 | 63 | 80 | 100 | 100 | 125 | 100 | 125 | 160 |
| AC 23 at 400 V (A) | 20 | 32 | 40 | 63 | 63 | 80 | 100 | 100 | 100 | 100 | 125 | 125 |
| motor power AC 23A à 400 VM (kW) | 9 | 15 | 18.5 | 30 | 30 | 37 | 45 | 45 | 55 | 45 | 55 | 75 |
| rated short-circuit breaking capacity (kA) in association with gG DIN fuse | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 100 | 65 | 50 |
| current rated range (A) | 20 | 32 | 40 | 63 | 63 | 80 | 100 | 100 | 125 | 100 | 125 | 160 |
| short-circuit making capacity I_{cc} (A peak) | 6 000 | 6 000 | 6 000 | 9 000 | 9 000 | 9 000 | 9 000 | 12 000 | 12 000 | 12 000 | 12 000 | 12 000 |
| rated short-time withstand current (kA eff) for 1s lcw | 2.5 | 2.5 | 2.5 | 2.5 | 3 | 3 | 3 | 5 | 5 | 7 | 7 | 7 |
| mechanical endurance (nr of operations) | 100 000 | 100 000 | 100 000 | 100 000 | 100 000 | 100 000 | 100 000 | 100 000 | 100 000 | 50 000 | 50 000 | 50 000 |
| connection (mm ²) | 16 | 16 | 16 | 16 | 35 | 35 | 35 | 70 | 70 | 70 | 70 | 70 |

HA switches

HA964N - HA966N



Commercial
Distribution

Technical characteristics

| | HA964N | HA966N |
|--|--------|--------|
| electrical characteristics | | |
| rated current | 250 A | 400 A |
| rated insulation voltage U_i (V) | 800 | 800 |
| rated impulse withstand voltage U_{imp} (kV) | 8 | 8 |
| AC 22A at 400 V (A) | 250 | 400 |
| AC 23A at 400 V (A) | 250 | 400 |
| rated short-circuit breaking capacity (A) | | |
| dynamic effect (peak) | 11 900 | 15 300 |
| thermal effect (eff. 1 s) | 7 000 | 9 000 |
| rated short-circuit current (kA) | 80 | 50 |
| with gl - gG fuses | 250 A | 400 A |
| mechanical endurance (nr of operations) | 10 000 | 10 000 |
| electrical connection | | |
| cage terminal (mm^2) | 185 | - |
| bolt terminal ($\varnothing \text{ mm}$) | M 8 | M 8 |
| lugs (mm^2) | 150 | 240 |

Dimensions (in mm)

| | HA964N | HA966N |
|---|--------|--------|
| A | 201 | 344 |
| B | 162 | 214 |
| C | 85 | 80 |
| E | 140 | 135 |
| F | 145 | 145 |
| G | 72 | 132 |
| H | 130 | 172 |
| J | 36 | 66 |
| K | 18 | 45 |
| L | 20 | 20 |
| M | 268 | 360 |

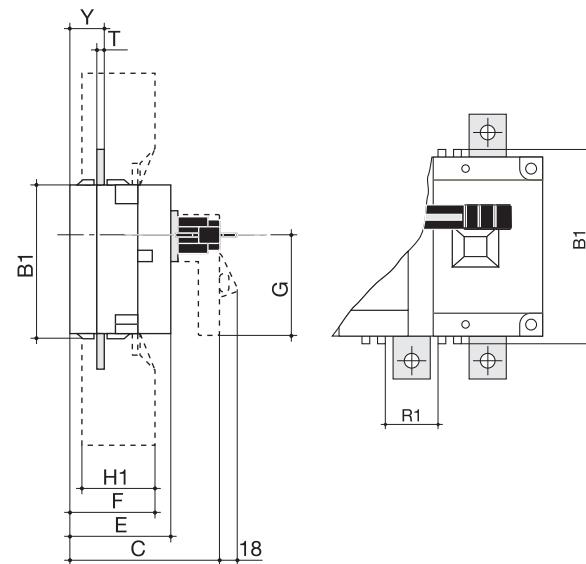
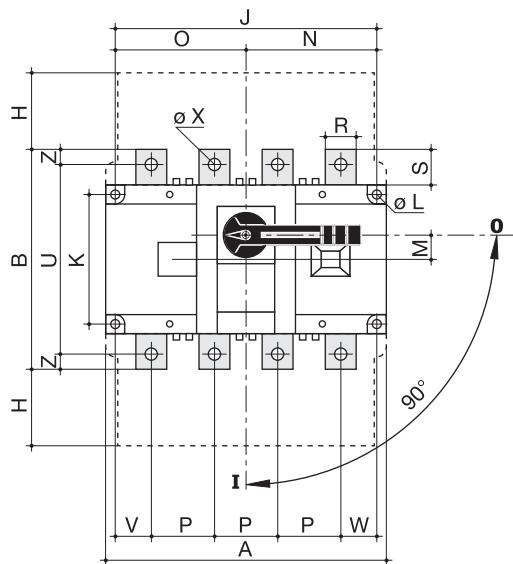
Load break Switches with Rotary Handle

125 to 1600A

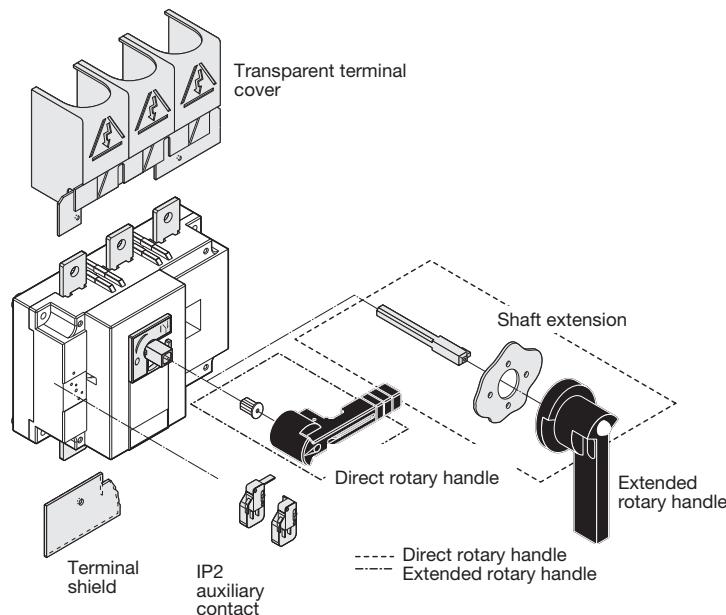
:hager

HA351, HA451, HA352, HA452, HA454, HA454, HA357, HA457, HA358, HA458 switches

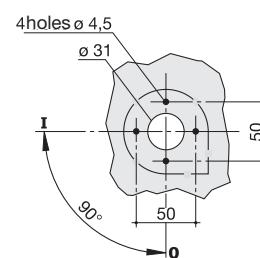
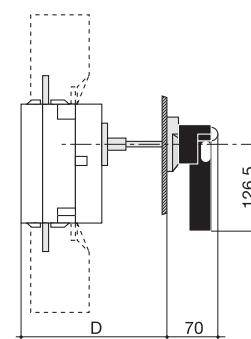
Commercial Distribution



Mounting



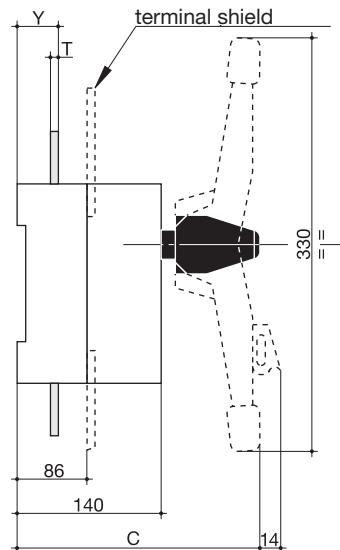
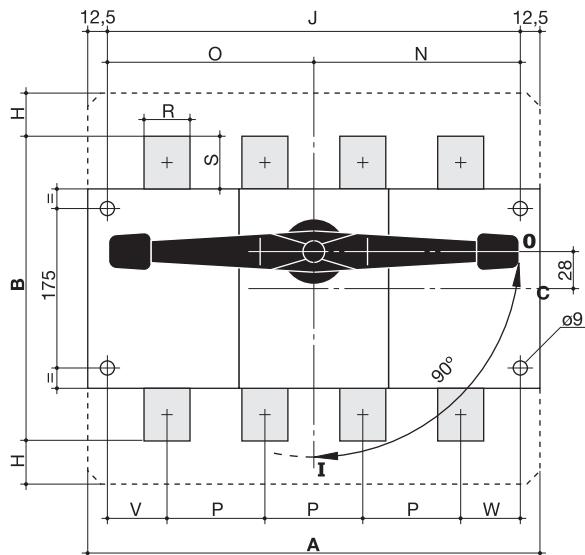
Extended rotary handle



Dimensions for switches from 125A to 630A (rotary handle)

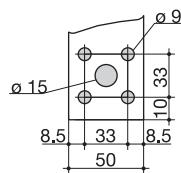
| Ref. | In(A) | A | B | B1 | C | D | E | F | G | H | H1 | J | K | L | M | N | O | P | R | Rr1 | S | T | U | V | W | X | Y | Z |
|-------|-------|-----|-----|-----|-----|---------|-----|----|-----|----|----|-----|-----|-----|----|-----|-----|----|----|------|----|-----|-----|------|------|----|------|----|
| HA351 | 125A | 140 | 135 | 93 | 120 | 124/354 | 65 | 50 | 80 | 50 | 40 | 120 | 65 | 5,5 | 15 | 75 | 75 | 36 | 20 | 20,5 | 25 | 3,5 | 115 | 22 | 20 | 9 | 20,5 | 10 |
| HA451 | 125A | 170 | 135 | 93 | 120 | 124/354 | 65 | 50 | 80 | 50 | 40 | 150 | 65 | 5,5 | 15 | 75 | 75 | 36 | 20 | 20,5 | 25 | 3,5 | 115 | 22 | 20 | 9 | 20,5 | 10 |
| HA352 | 160A | 140 | 135 | 93 | 120 | 124/354 | 65 | 50 | 80 | 50 | 40 | 120 | 65 | 5,5 | 15 | 75 | 75 | 36 | 20 | 20,5 | 25 | 3,5 | 115 | 22 | 20 | 9 | 20,5 | 10 |
| HA452 | 160A | 170 | 135 | 93 | 120 | 124/354 | 65 | 50 | 80 | 50 | 40 | 150 | 65 | 5,5 | 15 | 75 | 75 | 36 | 20 | 20,5 | 25 | 3,5 | 115 | 22 | 20 | 9 | 20,5 | 10 |
| HA354 | 250A | 190 | 160 | 108 | 130 | 135/365 | 75 | 60 | 115 | 60 | 50 | 160 | 80 | 5,5 | 20 | 105 | 105 | 50 | 25 | 25,5 | 30 | 3,5 | 130 | 33 | 27 | 11 | 22,5 | 15 |
| HA454 | 250A | 230 | 160 | 108 | 130 | 135/365 | 75 | 60 | 115 | 60 | 50 | 210 | 80 | 5,5 | 20 | 105 | 105 | 50 | 25 | 25,5 | 30 | 3,5 | 130 | 33 | 27 | 11 | 22,5 | 15 |
| HA357 | 400A | 190 | 170 | 108 | 130 | 135/365 | 75 | 60 | 115 | 60 | 50 | 160 | 80 | 5,5 | 20 | 105 | 105 | 50 | 25 | 25,5 | 30 | 3,5 | 130 | 33 | 27 | 11 | 22,5 | 15 |
| HA457 | 400A | 230 | 170 | 108 | 130 | 135/365 | 75 | 60 | 115 | 60 | 50 | 210 | 80 | 5,5 | 20 | 105 | 105 | 50 | 25 | 25,5 | 30 | 3,5 | 130 | 33 | 27 | 11 | 22,5 | 15 |
| HA358 | 630A | 230 | 260 | 170 | 165 | 167/397 | 110 | 89 | 115 | 70 | 75 | 210 | 140 | 7 | 30 | 135 | 135 | 65 | 45 | 45,5 | 50 | 5 | 220 | 37,5 | 37,5 | 13 | 36 | 20 |
| HA458 | 630A | 290 | 260 | 170 | 165 | 167/397 | 110 | 89 | 115 | 70 | 75 | 270 | 140 | 7 | 30 | 135 | 135 | 65 | 45 | 45,5 | 50 | 5 | 220 | 37,5 | 37,5 | 13 | 36 | 20 |

HA360, HA362, HA364, HA460, HA462, HA464 switches with rotary handle

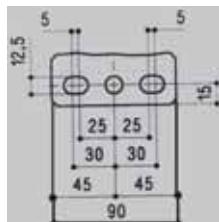


Connection terminals

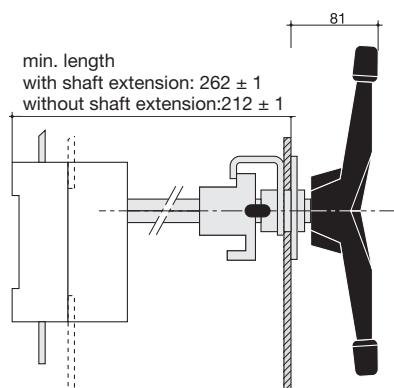
800A



1250-1600A



Rotary handle



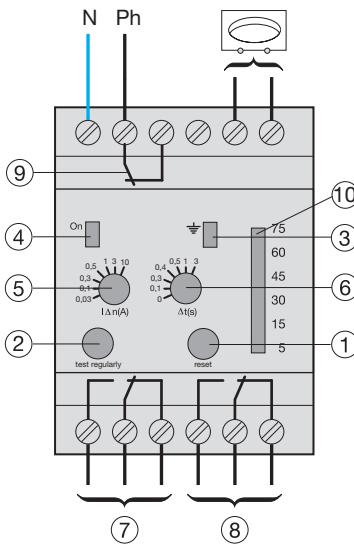
Switches with rotary handle from 800A to 1600A

| Ref. | In(A) | A | B | C | H | J | N | O | P | R | S | T | V | W | Y |
|-------|-------|-----|-----|-----|------|-----|-------|-------|-----|----|------|---|------|------|------|
| HA360 | 800 | 280 | 320 | 214 | 50 | 255 | 127,5 | 127,5 | 80 | 50 | 60,5 | 7 | 47,5 | 47,5 | 46,5 |
| HA460 | 800 | 360 | 320 | 214 | 50 | 335 | 167,5 | 167,5 | 80 | 50 | 60,5 | 7 | 47,5 | 47,5 | 46,5 |
| HA362 | 1250 | 372 | 288 | 215 | 66,5 | 347 | 173,5 | 173,5 | 120 | 90 | 44 | 8 | 53,5 | 53,5 | 47,5 |
| HA462 | 1250 | 492 | 288 | 215 | 66,5 | 467 | 233,5 | 233,5 | 120 | 90 | 44 | 8 | 53,5 | 53,5 | 47,5 |
| HA364 | 1600 | 372 | 288 | 215 | 66,5 | 347 | 173,5 | 173,5 | 120 | 90 | 44 | 8 | 53,5 | 53,5 | 47,5 |
| HA464 | 1600 | 492 | 288 | 215 | 66,5 | 467 | 233,5 | 233,5 | 120 | 90 | 44 | 8 | 53,5 | 53,5 | 47,5 |

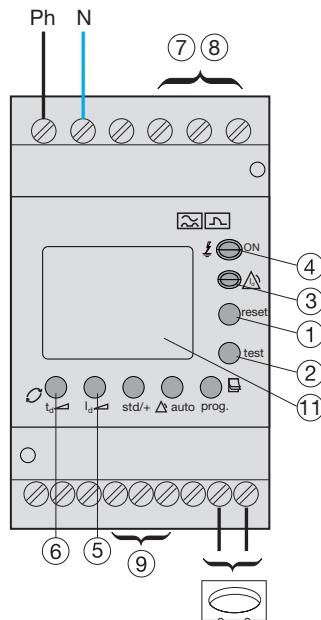
Technical characteristics

| | HR500 | HR502 | HR510 | HR520 | HR525 | HR534 |
|--|---|--|--|---|---|-------|
| supply voltage M 50/60 Hz | 230 V ± 20% | | | | | |
| supervised power voltage M 50/60 Hz | 50 to 700 V | | | | | |
| standard output 1 OF (tripping at 85 % of $I\Delta n \pm 15 \%$) | yes | yes | yes | yes | yes | yes |
| positive safety output | yes | yes | yes | yes | yes | yes |
| pre-alarm fault output | no | no | yes | yes | yes | yes |
| external test and reset button | no | no | no | no | yes | yes |
| sensitivity $I\Delta n$ | 30 mA | 300 mA | 30 - 100 - 300 - 500 mA - 1 - 3 - 10 A | 30 - 100 - 300 - 500 mA - 1 - 3 - 10 - 30 A | | |
| temporization ($\pm 20\%$) | instantaneous | | inst., 0,1-0,3--0,4-0,5-1-3s | inst., 0,1-0,3--0,4-0,5-1-3-5s | inst., S- 0,02 - 0,1 - 0,3 - 0,4 - 0,5 - 1 - 3 - 5 - 10 s | |
| A type | yes | yes | yes | yes | yes | yes |
| high immunity HI | yes | yes | yes | yes | no | no |
| consumption | 3 VA | 3 VA | 5 VA | 5 VA | 6 VA | 6 VA |
| control output | free potential changeover switch | | | | | |
| breaking capacity (standard output, positive safety, pre-alarm 50%) | 5 A / 250 V AC1 | | 6 A / 250 V AC1 | | | |
| torroid allowed overload | 30 kA / 100 ms | | | | | |
| voltage for reset and test push buttons | 100 to 250 V | | | | | |
| maxi length of test/reset connection | 200 m | | | | | |
| maxi length of torroid/relay connection | 50 m maxi with twisted cable 1,5 - 25 m non-twisted cable | | | | | |
| relay connection : collar terminal | rigid | 1,5 mm ² to 4 mm ² | | | 0,5 mm ² to 2 mm ² | |
| torroid connection | flexible | 1 mm ² to 2,5 mm ² | | | 0,5 mm ² to 2 mm ² | |
| | rigid | 1,5 mm ² to 4 mm ² | | | 0,5 mm ² to 2 mm ² | |
| | flexible | 1 mm ² to 6 mm ² | | | 0,5 mm ² to 2 mm ² | |
| operating temperature | - 10 to +55 °C | | | | | |
| storage temperature | - 25 to +70 °C | | | | | |

HR510, HR520



HR525

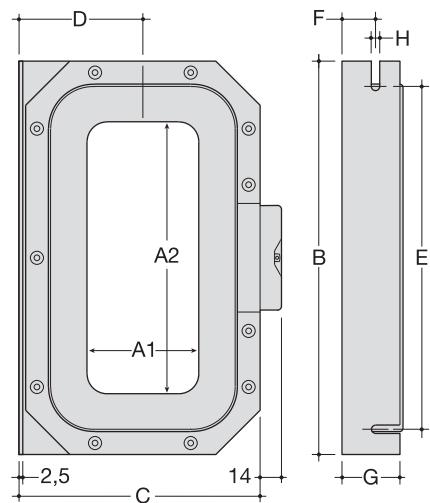


Product presentation :

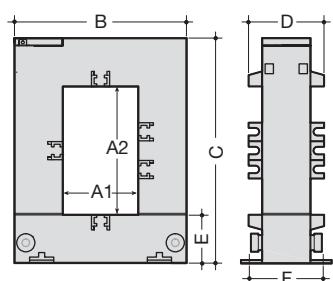
- ① reset push button
- ② test push button
- ③ fault indicator
- ④ supply indicator
- ⑤ $I\Delta n$ ratings (A)
- ⑥ temporization Δt (s)
- ⑦ standard output 1 OF
- ⑧ pre-alarm output
- ⑨ bargraph : indicates continuously the value of the leakage current, 5 to 15 %, 15 to 30 %, 30 to 45 %, 45 to 60 % and 60 to 75 % of $I\Delta n$.
- ⑩ leakage current, 5 to 15 %, 15 to 30 %, 30 to 45 %, 45 to 60 % and 60 to 75 % of $I\Delta n$.
- ⑪ LCD display

Technical characteristics

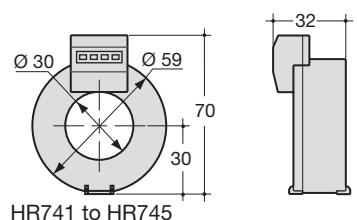
Rectangular toroids :
HR830, HR831, HR832



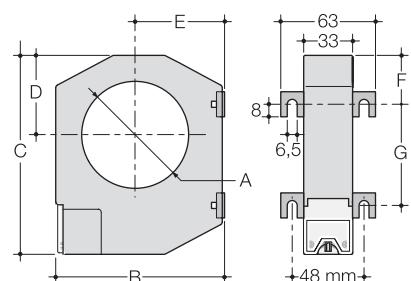
Open rectangular toroids:
HR820 to HR824



Circular toroids :
HR700



HR741 to HR745



Dimensions for rectangular and circular toroids (in mm)

| ref. | A | A1 | A2 | B | C | D | E | F | G | H |
|-------|---|-----|-----|-----|-----|-----|-----|----|----|-----|
| HR830 | - | 70 | 175 | 260 | 162 | 85 | 225 | 22 | 40 | 7,5 |
| HR831 | - | 115 | 305 | 400 | 225 | 116 | 360 | 25 | 48 | 8,5 |
| HR832 | - | 150 | 350 | 460 | 270 | 140 | 415 | 28 | 48 | 8,5 |

Dimensions for open rectangular toroids (in mm)

| ref. | A1 | A2 | 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 |

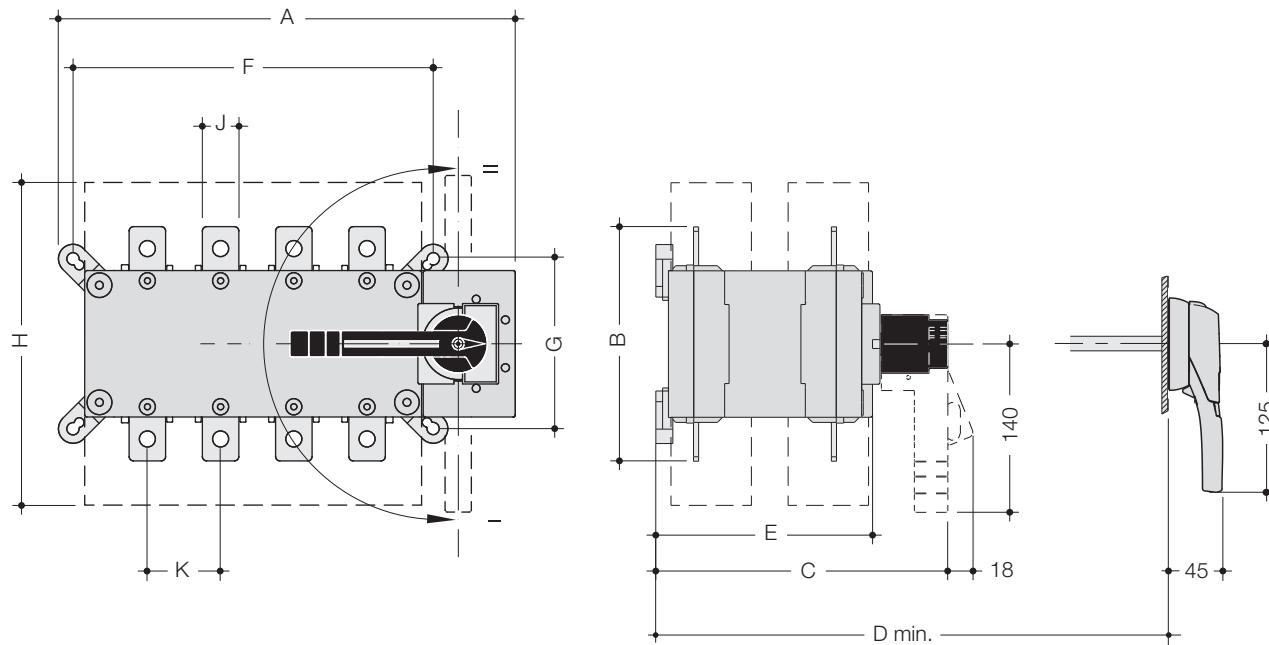
Torroid capacity

| Torroid inner diameter | | U 1000 R2V copper (1 conductor) | U 1000 R2V copper (1 conductor) | U 1000 R2V copper (2 conductors) | U 1000 R2V copper (4 conductors) | U 1000 R2V copper (4 conductors) stripped | U 1000 R2V copper (2 conductors) stripped |
|------------------------|-------|---------------------------------|-----------------------------------|----------------------------------|----------------------------------|---|---|
| 30 | HR700 | 4 x 16 mm ² | 2 x 50 mm ² | 35 mm ² | 35 mm ² | 35 mm ² | 50 mm ² |
| 35 | HR701 | 4 x 25 mm ² | 2 x 70 mm ² | 35 mm ² | 50 mm ² | 35 mm ² | 70 mm ² |
| 70 | HR702 | 4 x 185 mm ² | 2 x 400 or 4 x 150mm ² | 35 mm ² | 240 mm ² | 35 mm ² | 300 mm ² |
| 105 | HR703 | 4 x 500 mm ² | 2 x 630 or 4 x 185mm ² | 35 mm ² | 300 mm ² | 35 mm ² | 300 mm ² |
| 140 | HR704 | 4 x 630 mm ² | 2 x 630 or 4 x 240mm ² | 35 mm ² | 300 mm ² | 35 mm ² | 300 mm ² |
| 210 | HR705 | 4 x 630 mm ² | 2 x 630 or 4 x 240mm ² | 35 mm ² | 300 mm ² | 35 mm ² | 300 mm ² |
| 70 x 175 | HR830 | 4 x 630 mm ² | 2 x 630 or 4 x 240mm ² | 35 mm ² | 300 mm ² | 35 mm ² | 300 mm ² |
| 115 x 305 | HR831 | 4 x 630 mm ² | 2 x 630 or 4 x 240mm ² | 35 mm ² | 300 mm ² | 35 mm ² | 300 mm ² |
| 150 x 350 | HR832 | 4 x 630 mm ² | 2 x 630 or 4 x 240mm ² | 35 mm ² | 300 mm ² | 35 mm ² | 300 mm ² |
| 20 x 30 | HR820 | 4 x 16 mm ² | 2 x 70 mm ² | 35 mm ² | 10 mm ² | 35 mm ² | 16 mm ² |
| 50 x 80 | HR821 | 4 x 240 mm ² | 2 x 630 or 4 x 185mm ² | 35 mm ² | 120 mm ² | 35 mm ² | 150 mm ² |
| 80 x 80 | HR822 | 4 x 500 mm ² | 2 x 630 or 4 x 185mm ² | 35 mm ² | 300 mm ² | 35 mm ² | 300 mm ² |
| 80 x 120 | HR823 | 4 x 630 mm ² | 2 x 630 or 4 x 240mm ² | 35 mm ² | 300 mm ² | 35 mm ² | 300 mm ² |
| 80 x 160 | HR824 | 4 x 630 mm ² | 2 x 630 or 4 x 240mm ² | 35 mm ² | 300 mm ² | 35 mm ² | 300 mm ² |

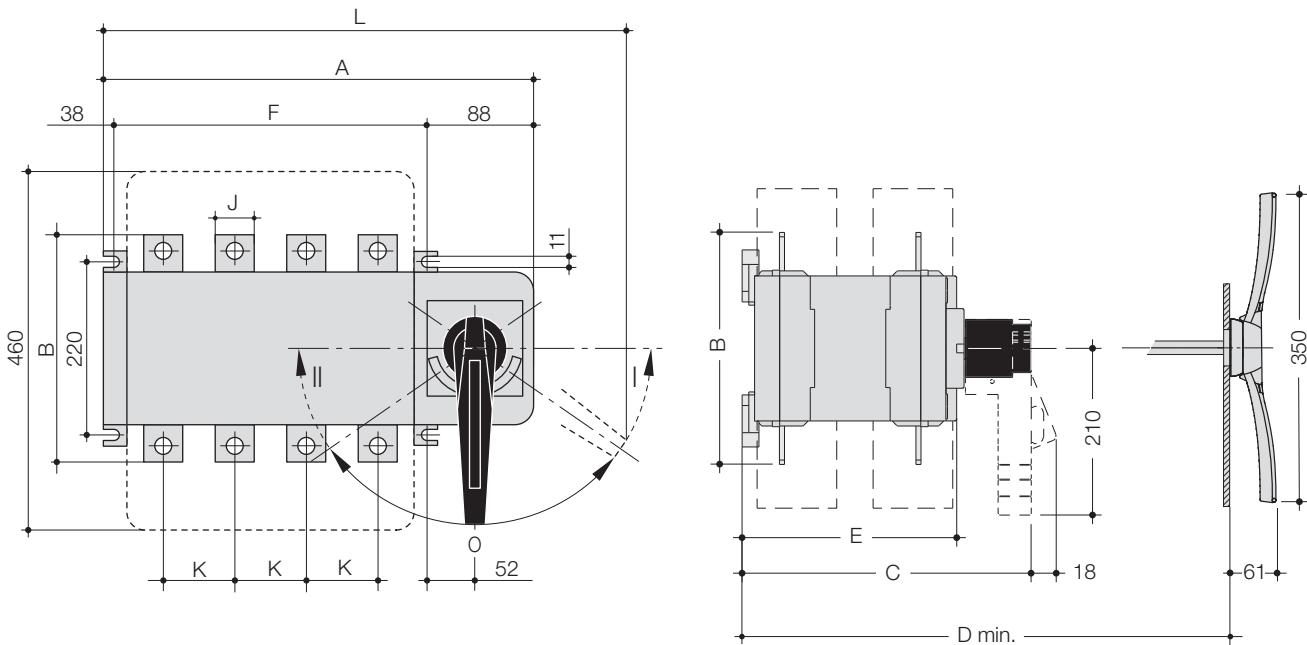
| Torroid inner diameter | | H07 V - U copper (1 conductor) | H07 V - U copper (1 conductor) |
|------------------------|-------|--------------------------------|------------------------------------|
| 30 | HR700 | 4 x 35 mm ² | 2 x 70 mm ² |
| 35 | HR701 | 4 x 50 mm ² | 2 x 95 mm ² |
| 70 | HR702 | 4 x 240 mm ² | 2 x 400 or 4 x 185 mm ² |
| 105 | HR703 | 4 x 400 mm ² | 2 x 400 or 4 x 240 mm ² |
| 140 | HR704 | 4 x 400 mm ² | 2 x 400 or 4 x 240 mm ² |
| 210 | HR705 | 4 x 400 mm ² | 2 x 400 or 4 x 240 mm ² |
| 70 x 175 | HR830 | 4 x 400 mm ² | 2 x 400 or 4 x 240 v |
| 115 x 305 | HR831 | 4 x 400 mm ² | 2 x 400 or 4 x 240 mm ² |
| 150 x 350 | HR832 | 4 x 400 mm ² | 2 x 400 or 4 x 240 mm ² |
| 20 x 30 | HR820 | 4 x 10 mm ² | 2 x 35 mm ² |
| 50 x 80 | HR821 | 4 x 185 mm ² | 2 x 240 mm ² |
| 80 x 80 | HR822 | 4 x 400 mm ² | 2 x 400 or 4 x 240 v |
| 80 x 120 | HR823 | 4 x 400 mm ² | 2 x 400 or 4 x 240 mm ² |
| 80 x 160 | HR824 | 4 x 400 mm ² | 2 x 400 or 4 x 240 mm ² |

Changeover switches

HI452, HI454, HI456, HI458



HI460, HI462, HI464



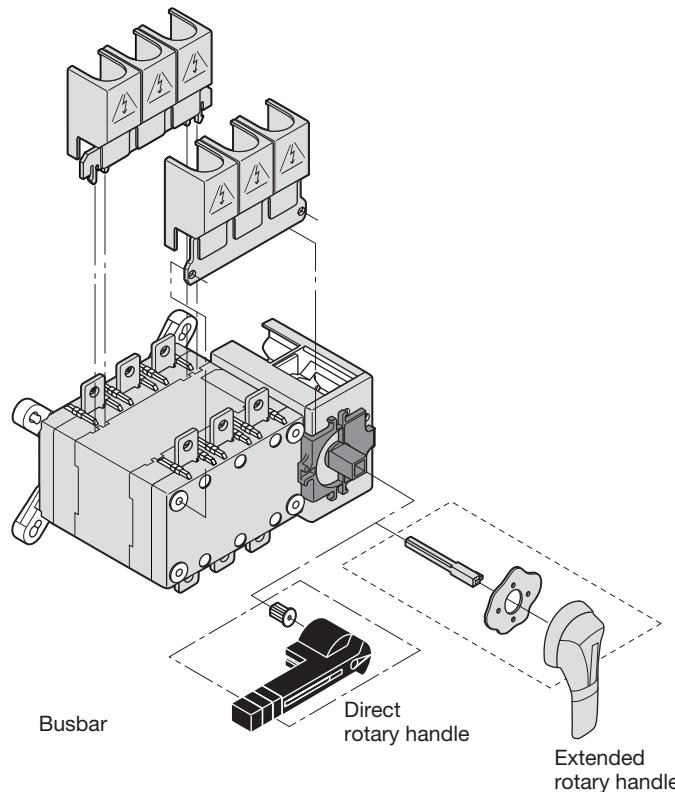
Dimensions (in mm)

| | A | B | C | D mini. | E | F | G | H | J | K | L |
|--------------|-----|-----|-----|---------|-----|-----|-----|-----|----|-----|-----|
| HI452 | 251 | 135 | 218 | 208 | 148 | 186 | 101 | 235 | 20 | 36 | - |
| HI454 | 312 | 160 | 218 | 208 | 148 | 246 | 116 | 280 | 25 | 50 | - |
| HI456 | 312 | 170 | 218 | 208 | 148 | 246 | 116 | 280 | 35 | 50 | - |
| HI458 | 379 | 260 | 295 | 285 | 225 | 306 | 176 | 400 | 45 | 65 | - |
| HI460 | 460 | 320 | 374 | 390 | 302 | 335 | 220 | 460 | 50 | 80 | 609 |
| HI462 | 592 | 330 | 374 | 390 | 302 | 467 | 220 | 460 | 60 | 120 | 741 |
| HI464 | 592 | 360 | 374 | 390 | 302 | 467 | 220 | 460 | 90 | 120 | 741 |

Technical characteristics

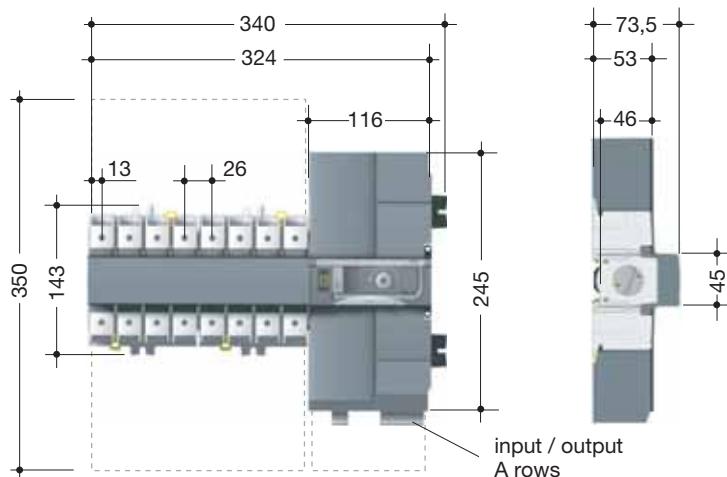
| | HI452 | HI454 | HI456 | HI458 | HI460 | HI462 | HI464 |
|--|--------|--------|--------|---------|---------|---------|---------|
| In | 160 A | 250 A | 400 A | 630 A | 800 A | 1250 A | 1600 A |
| insulation voltage Ui (V) | 800 | 800 | 800 | 1000 | 1000 | 1000 | 1000 |
| impulse withstand voltage Uimp (kV) | 8 | 12 | 8 | 12 | 12 | 12 | 12 |
| Ie AC 22, 400 V (A) | 160 | 250 | 400 | 630 | 800 | 1250 | 1600 |
| Ie AC 23, 400 V (A) | 160 | 250 | 250 | 500 | 800 | 1250 | 1600 |
| operational power AC 23A à 400 VM (kW) | 80 | 132 | 220 | 280 | 450 | 710 | 710 |
| short circuit current with gG DIN fuses (kA) | 100 | 50 | 18 | 70 | 50 | 100 | 100 |
| associated fuse rated (A) | 160 | 250 | 400 | 630 | 800 | 1250 | 2 x 800 |
| rated short circuit making capacity Icm (A peak) | 12 | 17 | 15,3 | 30 | 48 | 75 | 86 |
| rated short time withstand current Icw (kA/1s) | 7 | 9 | 9 | 13 | 26 | 50 | 50 |
| mechanical endurance (cycles) | 10 000 | 10 000 | 10 000 | 5 000 | 3000 | 4000 | 4000 |
| connection for lugs (mm ²) | 95 | 150 | 240 | 2 x 300 | 2 x 300 | 4 x 185 | 6 x 185 |

Mounting



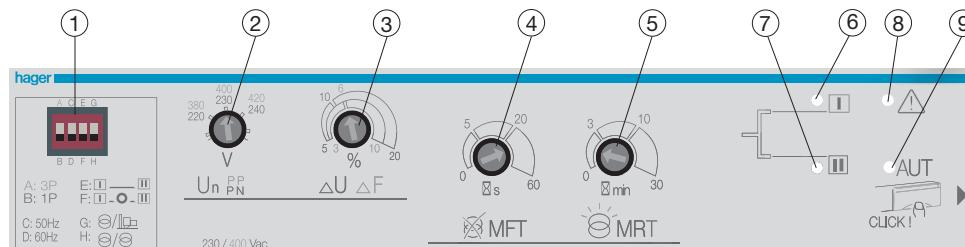
Changeover switches

HIC406A, HIC408A, HIC410A, HIC 412A, HIC416A



| | HIC402A | HIC404A | HIC406A | HIC408A | HIC410A | HIC412A | HIC416A |
|---|---------|---------|---------|---------|---------|---------|---------|
| In | 20 A | 40 A | 63 A | 80 A | 100 A | 125 A | 160 A |
| rated insulation voltage U_i (V) | 800 | 800 | 800 | 800 | 800 | 800 | 800 |
| rated impulse withstand voltage U_{imp} (kV) | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| I_e AC 22, 400 V (A) | 20 | 40 | 63 | 80 | 100 | 125 | 160 |
| I_e AC 23, 400 V (A) | 20 | 43 | 63 | 80 | 100 | 125 | 160 |
| operational power AC 23 A at 400 V~ (kW) | 9 | 18,5 | 30 | 37 | 45 | 45 | 63 |
| short circuit current with gG DIN fuses (kA) | 50 | 50 | 50 | 50 | 50 | 50 | 50 |
| associated fuse rated (A) | 20 | 40 | 63 | 80 | 100 | 125 | 160 |
| short circuit making capacity I_{cc} (A peak) | 17 | 17 | 17 | 17 | 17 | 17 | 17 |
| rated short time withstand current I_{cw} (kA/1s) | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| mechanical endurance (cycles) | 10 000 | 10 000 | 10 000 | 10 000 | 10 000 | 10 000 | 10 000 |
| connection (mm ²) | 70 | 70 | 70 | 70 | 70 | 70 | 70 |

Settings



① small switches configurator : single or three phase network, 50 or 60 Hz frequency, 0 position stay option - 0 or 2 s.

On O position, network/network or network/genset mode (source 1 priority or not after external validation via inputs 207 and 208 of A row).

② rated insulation voltage setting U_n

③ voltage threshold / frequency setting (ΔU : 5 to 20 %, ΔF : 2 to 10 %, hysteresis $\Delta U/F$ 20%)

④ safety switch temporization (0 to 60 s)

⑤ return to O position temporization (0 to 30 min.)

⑥ source I status indicator

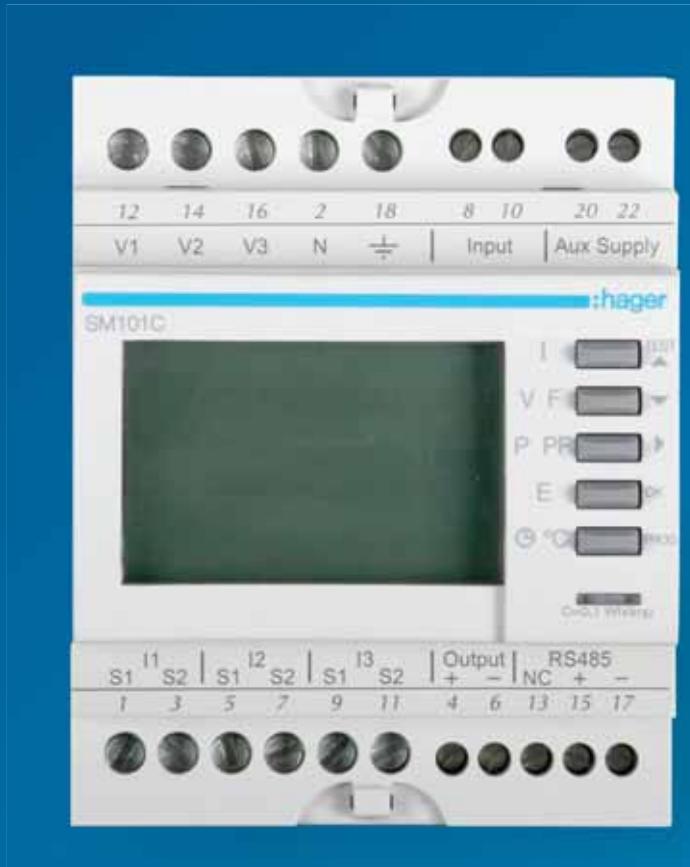
⑦ source II status indicator

⑧ product status indicator

⑨ automatic/manual mode indicator

Modular Devices & Connection

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.



Devices

| | |
|--------------------------------|------|
| Metering & Monitoring | 2.3 |
| Switching | 2.7 |
| Contactors | 2.14 |
| Relays | 2.20 |
| Push Buttons | 2.23 |
| Indication | 2.24 |
| Timers | 2.26 |
| Connection | |
| Insulated Busbars | 2.31 |
| Distribution Blocks | 2.32 |
| Junction Blocks | 2.33 |
| Screw Terminals | 2.34 |
| Brass Terminals | 2.39 |
| Quick Connect & Cage Terminals | 2.41 |
| Technical Pages | 2.43 |

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 - 01 8835844.



ECN140D

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 loads.

Characteristics:

- Complies with EN 50470-3.
- Class B
- Energy readout: 7 digits.
- Backlit display.
- Indication of instantaneous power consumption.
- Total / partial counter.
- Storage of energy values.
- LED flashes according to consumption.
- Display indication in case of incorrect wiring.
- Voltage 230V a.c. 50Hz.
- Direct connection.
- Current = 40A.

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 | ECN140D |



ECP140D



SMC120R

Single Phase kWh Meters - Direct 40A & 80A

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 loads.

Characteristics:

- Fully compliant with the European standard EN 50470-3.
- Class B
- Accuracy ±1%.
- Energy readout: 7 digits.
- Backlit display.
- Indication of instantaneous power consumption.
- Total / partial counter.
- 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.
- Max cable size = 16mm.
- MID approved.
- Pulsed output/modbus available.
- Sealable terminal cover.

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. |
|--|--------------------------|----------------|
| Single phase kWh meter direct 40A MID SO | 1 Mod | ECP140D |
| Single phase kWh meter direct 40A MID Modbus | 1 Mod | ECR140D |
| Single phase kWh meter direct 80A MID SO | 2 Mod | ECP180D |
| Single phase kWh meter direct 80A MID Modbus | 2 Mod | ECR180D |
| 120 Ohm end resistor for Modbus RTU | - | SMC120R |



ECP180T

Single Phase kWh Meters - Multi Tarriff

Description

- Single phase kWh meter direct 3 x 80A SO
- Single phase kWh meter direct 3 x 80A Modbus
- 120 Ohm end resistor for Modbus RTU

Width
(1 Mod =17.5mm)

4 Mod

4 Mod

-

Cat ref.

ECP180T

ECR180T

SMC120R

Three Phase kWh Meters - Direct**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 loads.

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
- MID approved
- Pulsed output/modbus available
- 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: 250mA to 125A
- Max cable size = 16mm
- Sealable terminal cover.



ECP380D

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. |
|--|--------------------------|----------------|
| Three phase kWh meter direct 80A MID SO | 4 Mod | ECP380D |
| Three phase kWh meter direct 80A MID Modbus | 4 Mod | ECR380D |
| Three phase kWh meter direct 125A MID SO | 6 Mod | ECP310D |
| Three phase kWh meter direct 125A MID Modbus | 6 Mod | ECR310D |
| 120 Ohm end resistor for Modbus RTU | - | SMC120R |



ECP300C

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 loads.

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
- MID approved
- Pulsed output/modbus available
- 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 = 1mA
- Max current on CT secondary = 6A
- Sealable terminal cover

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. |
|--|--------------------------|----------------|
| Three phase kWh meter via CT, 1A or 5A, MID SO | 4 Mod | ECP300C |
| Three phase kWh meter via CT, 1A or 5A, MID Modbus | 4 Mod | ECR300C |
| 120 Ohm end resistor for Modbus RTU | - | SMC120R |



TXF121

KNX Interface for Energy Meters

Description:

- The KNX interface for TXF121 energy meters allows remote reading of data and values from single phase and three phase hager energy meters.

| Description | Width (1 Mod =17.5mm) | Cat ref. |
|--------------------------------|--------------------------|---------------|
| KNX Interface for Energy Meter | 1 Mod | TXF121 |

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 2.44.

| 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 |



SRA00505



SBN140

Switch Disconnectors

- For use as a switch disconnector in all types of circuits.
- Complies with: IEC 60947-3 for all ratings and to EN60669 for ratings from 16A to 63A

Features

- All switches have a green / red indication on the toggle giving positive contact indication.

Technical data

- Utilisation category AC22A 230V / 400V
- In: 16A to 32A frame size 1. Connection capacity: 16mm² - rigid conductor, 10mm² - flexible conductor
- In: 32A to 63A frame size 2. Connection capacity: 25mm² - rigid conductor, 16mm² - flexible conductor
- In: 63A to 125A frame size 3. Connection capacity: 50mm² - rigid conductor, 35mm² - flexible conductor

| Description | Frame size | Mod. width | Pack qty. | Cat ref. |
|---|------------|------------|-----------|---------------|
| Single pole switch disconnectors | | | | |
| 1 x 16A - 230V AC | 1 | 1 | 12 | SBN116 |
| 1 x 25A - 230V AC | 1 | 1 | 12 | SBN125 |
| 1 x 32A - 230V AC | 1 | 1 | 12 | SBN132 |
| 1 x 32A* - 230V AC | 2 | 1 | 12 | SBN133 |
| 1 x 40A - 230V AC | 2 | 1 | 12 | SBN140 |
| 1 x 63A - 230V AC | 2 | 1 | 12 | SBN163 |
| 1 x 63A* - 230V AC | 3 | 1 | 12 | SBN164 |
| 1 x 80A - 230V AC | 3 | 1 | 12 | SBN180 |
| 1 x 100A - 230V AC | 3 | 1 | 12 | SBN190 |
| 1 x 125A - 230V AC | 3 | 1 | 12 | SBN199 |



SBN240

| Description | Frame size | Mod. width | Pack qty. | Cat ref. |
|---|------------|------------|-----------|---------------|
| Double pole switch disconnectors | | | | |
| 2 x 16A - 230V AC | 1 | 1 | 12 | SBN216 |
| 2 x 25A - 230V AC | 1 | 1 | 12 | SBN225 |
| 2 x 32A - 230V AC | 1 | 1 | 12 | SBN232 |
| 2 x 32A* - 230V AC | 2 | 2 | 6 | SBN233 |
| 2 x 40A - 400V AC | 2 | 2 | 6 | SBN240 |
| 2 x 63A - 400V AC | 2 | 2 | 6 | SBN263 |
| 2 x 63A* - 400V AC | 3 | 2 | 6 | SBN264 |
| 2 x 80A - 400V AC | 3 | 2 | 6 | SBN280 |
| x 2 x 100A - 400V AC | 3 | 2 | 6 | SBN290 |
| 2 x 125A - 400V AC | 3 | 2 | 6 | SBN299 |



SBN340

| Description | Frame size | Mod. width | Pack qty. | Cat ref. |
|--|------------|------------|-----------|---------------|
| Three pole switch disconnectors | | | | |
| 3 x 16A - 400V AC | 1 | 2 | 6 | SBN316 |
| 3 x 25A - 400V AC | 1 | 2 | 6 | SBN325 |
| 3 x 32A - 400V AC | 1 | 2 | 6 | SBN332 |
| 3 x 32A* - 400V AC | 2 | 3 | 4 | SBN333 |
| 3 x 40A - 400V AC | 2 | 3 | 4 | SBN340 |
| 3 x 63A - 400V AC | 2 | 3 | 4 | SBN363 |
| 3 x 63A* - 400V AC | 3 | 3 | 4 | SBN364 |
| 3 x 80A - 400V AC | 3 | 3 | 4 | SBN380 |
| 3 x 100A - 400V AC | 3 | 3 | 4 | SBN390 |
| 3 x 125A - 400V AC | 3 | 3 | 4 | SBN399 |



SBN440

| Description | Frame size | Mod. width | Pack qty. | Cat ref. |
|---------------------------------------|------------|------------|-----------|---------------|
| Four pole switch disconnectors | | | | |
| 4 x 16A - 400V AC | 1 | 2 | 6 | SBN416 |
| 4 x 25A - 400V AC | 1 | 2 | 6 | SBN425 |
| 4 x 32A - 400V AC | 1 | 2 | 6 | SBN432 |
| 4 x 32A* - 400V AC | 2 | 4 | 3 | SBN433 |
| 4 x 40A - 400V AC | 2 | 4 | 3 | SBN440 |
| 4 x 63A - 400V AC | 2 | 4 | 3 | SBN463 |
| 4 x 63A* - 400V AC | 3 | 4 | 3 | SBN464 |
| 4 x 80A - 400V AC | 3 | 4 | 3 | SBN480 |
| 4 x 100A - 400V AC | 3 | 4 | 3 | SBN490 |
| 4 x 125A - 400V AC | 3 | 4 | 3 | SBN499 |

Switch Disconnectors

- For use as a switch disconnector in all types of circuits.
- Complies with: IEC 60947-3 for all ratings and to EN60669 for ratings from 16A to 63A.

Features

- All switches have a green / red indication on the toggle giving positive contact indication.

Technical data

- Utilisation category AC22A 230V / 400V
- In: 16A to 32A frame size 1.
- Connection capacity: 16mm² - rigid conductor, 10mm² - flexible conductor
- In: 32A to 63A frame size 2.
- In: 80A to 125A frame size 3.
- Connection capacity: 50mm² - rigid conductor, 35mm² - flexible conductor



SBR163

| Description | Frame size | Mod. width | Pack qty. | Cat ref. |
|-------------|------------|------------|-----------|----------|
|-------------|------------|------------|-----------|----------|

Single pole switch disconnectors

| | | | | |
|--------------------|---|---|----|---------------|
| 1 x 40A - 230V AC | 2 | 1 | 12 | SBR140 |
| 1 x 63A - 230V AC | 2 | 1 | 12 | SBR163 |
| 1 x 80A - 230V AC | 3 | 1 | 12 | SBR180 |
| 1 x 100A - 230V AC | 3 | 1 | 12 | SBR190 |
| 1 x 125A - 230V AC | 3 | 1 | 12 | SBR199 |



| Description | Frame size | Mod. width | Pack qty. | Cat ref. |
|-------------|------------|------------|-----------|----------|
|-------------|------------|------------|-----------|----------|

Double pole switch disconnectors

| | | | | |
|--------------------|---|---|---|---------------|
| 2 x 40A - 400V AC | 2 | 2 | 6 | SBR240 |
| 2 x 63A - 400V AC | 3 | 2 | 6 | SBR263 |
| 2 x 80A - 400V AC | 3 | 2 | 6 | SBR280 |
| 2 x 100A - 400V AC | 3 | 2 | 6 | SBR290 |
| 2 x 125A - 400V AC | 3 | 2 | 6 | SBR299 |



SBR263

| Description | Frame size | Mod. width | Pack qty. | Cat ref. |
|-------------|------------|------------|-----------|----------|
|-------------|------------|------------|-----------|----------|

Three pole switch disconnectors

| | | | | |
|--------------------|---|---|---|---------------|
| 3 x 40A - 400V AC | 2 | 3 | 4 | SBR340 |
| 3 x 63A - 400V AC | 2 | 3 | 4 | SBR363 |
| 3 x 80A - 400V AC | 3 | 3 | 4 | SBR380 |
| 3 x 100A - 400V AC | 3 | 3 | 4 | SBR390 |
| 3 x 125A - 400V AC | 3 | 3 | 4 | SBR399 |



SBR399

| Description | Frame size | Mod. width | Pack qty. | Cat ref. |
|-------------|------------|------------|-----------|----------|
|-------------|------------|------------|-----------|----------|

Four pole switch disconnectors

| | | | | |
|--------------------|---|---|---|---------------|
| 4 x 63A - 400V AC | 2 | 4 | 3 | SBR463 |
| 4 x 100A - 400V AC | 3 | 4 | 3 | SBR490 |
| 4 x 125A - 400V AC | 3 | 4 | 3 | SBR499 |



SBR499



SBT116

Switch Disconnectors with Indicator Light

- For use as a switch disconnector in all types of circuits.
- Complies with:
- IEC 60947-3 and EN60669

Features

- Orange LED indicator light.
- LED life time: 100 000 h.
- All switches have a green / red indication on the toggle giving positive contact indication

Technical data

- Utilisation category AC22A 230V / 400V
- In: 16A to 32A frame size 1.
- Connection capacity: 16mm² - rigid conductor, 10mm² - flexible conductor

| Description | Frame size | Mod. width | Pack qty. | Cat ref. |
|--|------------|------------|-----------|---------------|
| Single pole switch disconnectors with indicator light top | | | | |
| 1 x 16A - 230V AC | 1 | 1 | 12 | SBT116 |
| 1 x 25A - 230V AC | 1 | 1 | 12 | SBT125 |
| 1 x 32A - 230V AC | 1 | 1 | 12 | SBT132 |

| Description | Frame size | Mod. width | Pack qty. | Cat ref. |
|---|------------|------------|-----------|---------------|
| Single pole switch disconnectors with indicator light bottom | | | | |
| 1 x 16A - 230V AC | 1 | 1 | 12 | SBB116 |
| 1 x 25A - 230V AC | 1 | 1 | 12 | SBB125 |
| 1 x 32A - 230V AC | 1 | 1 | 12 | SBB132 |

| Description | Frame size | Mod. width | Pack qty. | Cat ref. |
|--|------------|------------|-----------|---------------|
| Double pole switch disconnectors with indicator light top | | | | |
| 2 x 16A - 230V AC | 1 | 1 | 12 | SBT216 |
| 2 x 25A - 230V AC | 1 | 1 | 12 | SBT225 |
| 2 x 32A - 230V AC | 1 | 1 | 12 | SBT232 |

| Description | Frame size | Mod. width | Pack qty. | Cat ref. |
|---|------------|------------|-----------|---------------|
| Double pole switch disconnectors with indicator light bottom | | | | |
| 2 x 16A - 230V AC | 1 | 1 | 12 | SBB216 |
| 2 x 25A - 230V AC | 1 | 1 | 12 | SBB225 |
| 2 x 32A - 230V AC | 1 | 1 | 12 | SBB232 |

| Description | Frame size | Mod. width | Pack qty. | Cat ref. |
|---|------------|------------|-----------|---------------|
| Double pole switch disconnectors with indicator light top & bottom | | | | |
| 2 x 16A - 230V AC | 1 | 1 | 12 | SBM216 |
| 2 x 25A - 230V AC | 1 | 1 | 12 | SBM225 |
| 2 x 32A - 230V AC | 1 | 1 | 12 | SBM232 |

Auxiliaries & Accessories**Auxiliary contact**

- The auxiliary contact is common to the whole range of switch disconnectors from 16A to 125A with or without indicator light

Features

- The auxiliary contact have a mechanical indicator to show the position of the contact

Technical data

- Utilisation category AC12A 230V / 400V

- Connection capacity: 10mm² - rigid conductor, 6mm² - flexible conductor

Sealable terminal shrouds

- The sealable terminal shroud is compatible with switch disconnectors ratings from 32A to 63A frame size 2.

- For ratings from 63A to 125A frame size 3 switch disconnector, only the visible part is compatible to protect the front screw heads.

Phase barrier shield

- The phase barrier shield is compatible with switch disconnectors ratings ratings from 32A to 125A frame size 2&3.

Padlocking kit

- Allows to lock the device in the OFF and ON positions.

- Will accept two padlocks with hasps of 4.75mm diameter max. (supplied without padlock).



ESC080

Description

Auxiliary contact 1NO + 1NC

Compatible with disconnector switches from 16 to 125A

Mod. width

Pack qty.

Cat ref.

0.5

1

ESC080

Description

Terminal shroud Compatible with switch disconnector from 32A to 63A frame size 2

To shroud the connection terminal and screws. The screw cover can be sealed.

Pack qty.

Cat ref.

4

MZN120

MZN120

Description

Phase barrier shield

Phase barrier shield

Pack qty.

Cat ref.

3

MZN121

MZN121

Description

Padlocking kit

Padlocking kit

Pack qty.

Cat ref.

2

MZN175

MZN175



SFT232

Switch Disconnectors

- For use as a switch disconnector in all types of circuits.
 - Complies with: IEC 60947-3 for all ratings and to EN60669 for ratings from 16A to 63A
- Technical data**
- Utilisation category AC22A 230V / 400V
 - In: 16A to 40A frame size 1.
 - Connection capacity: 16mm² - rigid conductor, 10mm² - flexible conductor

| Description | Frame size | Mod. width | Pack qty. | Cat ref. |
|--|------------|------------|-----------|---------------|
| Centre OFF changeover switch I-0-II and common point on top | | | | |
| 1 x 25A - 230V AC | 1 | 1 | 12 | SFT125 |
| 1 x 32A - 230V AC | 1 | 1 | 12 | SFT132 |
| 1 x 40A - 230V AC | 1 | 1 | 12 | SFT140 |
| 2 x 25A - 230V AC | 1 | 2 | 6 | SFT225 |
| 2 x 32A - 230V AC | 1 | 2 | 6 | SFT232 |
| 2 x 40A - 230V AC | 1 | 2 | 6 | SFT240 |
| 3 x 40A - 400V AC | 1 | 3 | 4 | SFT340 |
| 4 x 40A - 230V AC | 1 | 4 | 3 | SFT440 |



SFB125

| Description | Frame size | Mod. width | Pack qty. | Cat ref. |
|---|------------|------------|-----------|---------------|
| Centre OFF changeover switch I-0-II and common point on bottom | | | | |
| 1 x 16A - 230V AC | 1 | 1 | 12 | SFB116 |
| 1 x 25A - 230V AC | 1 | 1 | 12 | SFB125 |
| 1 x 32A - 230V AC | 1 | 1 | 12 | SFB132 |
| 2 x 16A - 230V AC | 1 | 2 | 6 | SFB216 |
| 2 x 25A - 230V AC | 1 | 2 | 6 | SFB225 |
| 2 x 32A - 230V AC | 1 | 2 | 6 | SFB232 |



SFH125

| Description | Frame size | Mod. width | Pack qty. | Cat ref. |
|---|------------|------------|-----------|---------------|
| Changeover switch I-II and common point on top | | | | |
| 1 x 25A - 230V AC | 1 | 1 | 12 | SFH125 |
| 1 x 32A - 230V AC | 1 | 1 | 12 | SFH132 |
| 2 x 25A - 230V AC | 1 | 2 | 6 | SFH225 |
| 2 x 32A - 230V AC | 1 | 2 | 6 | SFH232 |

| Description | Frame size | Mod. width | Pack qty. | Cat ref. |
|--|------------|------------|-----------|---------------|
| Changeover switch I-II and common point on bottom | | | | |
| 1 x 16A - 230V AC | 1 | 1 | 12 | SFL116 |
| 1 x 25A - 230V AC | 1 | 1 | 12 | SFL125 |
| 1 x 32A - 230V AC | 1 | 1 | 12 | SFL132 |
| 2 x 16A - 230V AC | 1 | 2 | 6 | SFL216 |
| 2 x 25A - 230V AC | 1 | 2 | 6 | SFL225 |
| 2 x 32A - 230V AC | 1 | 1 | 6 | SFL232 |

| Description | Frame size | Mod. width | Pack qty. | Cat ref. |
|-------------------------------|------------|------------|-----------|---------------|
| Changeover switch I-II | | | | |
| 1 x 25A - 230V AC | 1 | 1 | 12 | SFM125 |
| 1 x 32A - 230V AC | 1 | 1 | 12 | SFM132 |

| Description | Cat ref. |
|--|--------------|
| Centre-off changeover double pole | |
| 2 pole changeover switch 63A I-0-II | SF263 |

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 2.47.



EEN100

| Description | Width (1 Mod =17.5mm) | Cat ref. |
|---|--------------------------|---------------|
| Light Sensitive Switch- delivered with: a separate surface photo electric cell EEN003 | 1 Mod | EEN100 |
| Light Sensitive Switch - delivered with: a separate flush photo electric cell EEN002 | 1 Mod | EEN101 |
| Two Channels Light Sensitive Switch | | EE200 |
| Two Channels Light Sensitive Switch EE200 delivered with surface cell EE003 | | EE201 |
| Two Channels Light Sensitive Switch for Cascading | | EE202 |
| Two Chnls. Light Sens. Sw. for Cascading EE202 delivered with surface cell EEN003 | | EE203 |
| Compact light switch IP 55 / integrated cell, basic 8A (without settings) | | EE701 |
| Compact light switch IP 55 / integrated cell, enhanced 16A (with settings) | | EE702 |

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 2.47.



EE171

| Description | Width | Cat ref. |
|--|-------|--------------|
| Light Sensitive Programmer with Surface Cell | 3 Mod | EE110 |
| Light Sensitive Programmer | 3 Mod | EE171 |

Astronomical Time Switch**Characteristics**

- Astronomical time switches must be used in conjunction with a suitable rated contactor. Weekly cycle. Delivered with key EG005. Protected cable clamps capacity: rigid : 1.5 to 10mm², flexible : 1 to 6mm²



EE180

Replacement Photo Electric Cell

| Description | For Cat ref. | Pack qty. | Cat ref. |
|-------------------------------------|----------------------|-----------|--------------|
| Flush-mounted Photo Electric Cell | EEN100, EE171 | 1 | EE002 |
| Surface-mounted Photo Electric Cell | EEN100, EE171 | 1 | EE003 |



EVN011



EVN004



EV100



EV108



LZ060

Universal Dimmers

| | EVN011 | EVN012 | EVN002 | EVN004 | EV100 | EV102 | EV106 | EV108 |
|---|--------------------------|--------|--------|---------------------------|--------------------|--------|--------------------|-------|
| Supply voltage | 230 V +/- 10 % | | | | | | | |
| Frequency | 50/60 Hz | | | 50 Hz | | | | |
| Load consumption | 0,2 W | | | 3 W | | | | |
| Load control type | direct | | | | | | through dimmer | |
| Remote power | 300 W | 500 W | | 20 to 1000 W | | | contact 10A - 230V | |
| Compatible load types : | | | | | | | | |
| - Incandescent 230 V | 300 W | 500 W | | 1000 W | | | - | |
| - Halogen 230 V | 300 W | 500 W | | 1000 W | | | - | |
| - VLV halogen with transformer | 300 VA | 500 VA | | 1000 VA | | | - | |
| - Dimmable fluocompact | 60 W | 100 W | | - | | | - | |
| - Fluocompact & LED not dimmable | - | - | | - | | | - | |
| - Dimmable LED 230 V | 60 W | 100 W | | - | | | - | |
| 1/10 V control | - | | | 1 input | 1 input/ output | | 1 output | |
| 1/10 V control status | - | | | slave | slav./mast. | master | | |
| I max. authorized for PB light | 5 mA | - | 5 mA | - | | | | |
| max. PB-dimmers distance or 1-10 V control | 50 m | | | | | | | |
| dim PB and ON/OFF on module | no | yes | | | | | | |
| Number of preset lighting levels | - | | 1 | - | 2 | - | 3 | |
| Preset lighting levels control entry | - | | 1 | - | 2 | - | 2 | |
| Min. and max. dim lighting setting | - | | | yes | | | | |
| On/Off status indication output | - | | | 1 contact O | - | | | |
| Values digital display | - | | | | yes | | | |
| Max. power dissipation | 2,1 W | 4,5 W | | 15 W | | 6 W | | |
| IP | IP 20 | | | | | | | |
| Operating temperature | - 10°C to + 45°C | | | | | | | |
| Storage temperature | - 25°C to + 70°C | | | - 20°C to + 60°C | | | | |
| Rigid connection | 1,5 to 6 mm ² | | | 1,5 to 10 mm ² | | | | |
| Flexible connection | 1 to 6 mm ² | | | 1 to 6 mm ² | | | | |

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) | Pack qty. | Cat ref. |
|-------------------------------------|--------------------------|-----------|---------------|
| 300W Standard Version | 1 Mod | 1 | EVN011 |
| 300W Comfort Version | 1 Mod | 1 | EVN012 |
| 500W Standard Version | 2 Mod | 1 | EVN002 |
| 500W Comfort Version | 2 Mod | 1 | EVN004 |
| 1000W Standard Version | 5 Mod | 1 | EV100 |
| 1000W Advanced Version | 5 Mod | 1 | EV102 |
| 1/10V Pilot Dimmer Standard Version | 4 Mod | 1 | EV106 |
| 1/10V Pilot Dimmer Advanced Version | 4 Mod | 1 | EV108 |
| Heat Dissipation Insert | 0.5 Mod | 12 | LZ060 |

| Description | 230V | | 110/127V |
|-------------------|---|--|---------------------|
| | Standard Contactors | Hum-free Contactors | Standard Contactors |
| 1 Normally Open | ESC125 (25A-250V) | | |
| 1 Normally Closed | ESC126 (25A-250V) | | |
| 2 Normally Open | ESC225 (25A-250V) ESC240 (40A-440V) ESC263 (63A-440V) | ESC225S (25A-250V) ESC240S (40A-440V) ESC263S (63A-440V) | ESM225 (25A-250V) |
| 2 Normally Closed | ESC226 (25A-250V) ESC241 (40A-440V) ESC264 (63A-440V) | | |
| 1 NO & 1 NC | ESC227 (25A-250V) | | ESM227 (25A-250V) |
| 3 Normally Open | ESC325 (25A-440V) ESC340 (40A-440V) ESC363 (63A-440V) | ESC325S (25A-440V) ESC340S (40A-440V) ESC363S (63A-440V) | |
| 4 Normally Open | ESC425 (25A-440V) ESC440 (40A-440V) ESC463 (63A-440V) | ESC425S (25A-440V) ESC440S (40A-440V) ESC463S (63A-440V) | ESM440 (40A-440V) |
| 4 Normally Closed | ESC426 (25A-440V) ESC441 (40A-440V) ESC464 (63A-250V) | ESC426S (25A-440V) | |
| 2 NO & 2 NC | ESC427 (25A-440V) ESC442 (40A-250V) ESC465 (63A-440V) | ESC427S (25A-440V) | |
| 3 NO & 1 NC | ESC428 (25A-440V) ESC443 (40A-440V) ESC466 (63A-440V) | ESC428S (25A-440V) | |

| Description | 24V | | 12V | | 8/12V |
|-------------------|---|--|---|--|---------------------|
| | Standard Contactors | Hum-free Contactors | Standard Contactors | Hum-free Contactors | Standard Contactors |
| 1 Normally Open | ESD125 (25A-250V) | | | | ESL125 (25A-250V) |
| 1 Normally Closed | | | | | |
| 2 Normally Open | ESD225 (25A-250V) ESD240 (40A-440V) ESD263 (63A-440V) | ESD225S (25A-250V) ESD240S (40A-440V) ESD263S (63A-440V) | ESL240 (40A-440V) ESL263 (63A-440V) | ESL225S (25A-250V) ESL240S (40A-440V) ESL263S (63A-440V) | ESL225 (25A-250V) |
| 2 Normally Closed | ESD226 (25A-250V) ESD241 (40A-440V) ESD264 (63A-440V) | | ESL241 (40A-440V) ESL264 (63A-440V) | | ESL226 (25A-250V) |
| 1 NO & 1 NC | ESD227 (25A-250V) | | | | ESL227 (25A-250V) |
| 3 Normally Open | | ESD325S (25A-440V) | | | |
| 4 Normally Open | ESD425 (25A-440V) ESD440 (40A-440V) ESD463 (63A-440V) | ESD425S (25A-440V) ESD440S (40A-440V) ESD463S (63A-440V) | ESL425 (25A-440V) ESL440 (40A-440V) ESL463 (63A-440V) | ESL425S (25A-440V) ESL440S (40A-440V) ESL463S (63A-440V) | |
| 4 Normally Closed | ESD426 (25A-250V) ESD464 (63A-250V) | ESD426S (25A-440V) | ESL426 (25A-440V) | ESL426S (25A-440V) | |
| 2 NO & 2 NC | ESD427 (25A-440V) | ESD427S (25A-440V) | ESL427 (25A-440V) | ESL427S (25A-440V) | |
| 3 NO & 1 NC | ESD428 (25A-440V) | ESD428S (25A-440V) | ESL428 (25A-440V) | ESL428S (25A-440V) | |



ESC225



ESD263



ESC325



ESC425



ESC463

Contactors

- Contactors are essential power devices to control heating, lighting or ventilation systems.
- They are recommended in association with control and energy management devices (thermostats, delay timers, programmers...)
- Standard 1 module and 2 module versions are recommended for applications where a reduced consumption and heating dissipation are needed.
- Complies to IEC 61095.
- The contactors can be associated with the auxiliary contact ESC080 for remote signalling.
- It is recommended to use a heat dissipation insert LZ060 between each 3 products.

| Description | Type | Coil AC 50 Hz | In power circuit AC7-a / AC1 | Width | Pack qty. | Cat ref. |
|-------------|---------|------------------|---------------------------------|-------|---------------|---------------|
| Contactor | 1NO | 230 V | 25A-250V | 1 Mod | 12 | ESC125 |
| | | 24V | 25A-250V | 1 Mod | 1 | ESD125 |
| | | 8/12V | 25A-250V | 1 Mod | 1 | ESL125 |
| | 1NC | 230V | 25A-250V | 1 Mod | 1 | ESC126 |
| | 2NO | 230V | 25A-250V | 1 Mod | 12 | ESC225 |
| | | 40A-440V | 3 Mod | 1 | ESC240 | |
| | | 63A-440V | 3 Mod | 1 | ESC263 | |
| | 2NO | 24V | 25A-250V | 1 Mod | 12 | ESD225 |
| | | 40A-440V | 3 Mod | 1 | ESD240 | |
| | | 63A-440V | 3 Mod | 1 | ESD263 | |
| | 2NO | 12V | 40A-440V | 3 Mod | 1 | ESL240 |
| | | 63A-440V | 3 Mod | 1 | ESL263 | |
| | 2NO | 8/12V | 25A-250V | 1 Mod | 1 | ESL225 |
| | 2NO | 110/127V | 25A-250V | 1 Mod | 1 | ESM225 |
| | 2NC | 230V | 25A-250V | 1 Mod | 12 | ESC226 |
| | | 40A-440V | 3 Mod | 1 | ESC241 | |
| | | 63A-440V | 3 Mod | 1 | ESC264 | |
| | 2NC | 24V | 25A-250V | 1 Mod | 1 | ESD226 |
| | | 40A-440V | 3 Mod | 1 | ESD241 | |
| | | 63A-440V | 3 Mod | 1 | ESD264 | |
| | 2NC | 12V | 40A-440V | 3 Mod | 1 | ESL241 |
| | | 63A-440V | 3 Mod | 1 | ESL264 | |
| | 2NC | 8/12V | 25A-250V | 1 Mod | 1 | ESL226 |
| | 1NO+1NC | 230V | 25A-250V | 1 Mod | 12 | ESC227 |
| | | 24V | 25A-250V | 1 Mod | 1 | ESD227 |
| | | 8/12V | 25A-250V | 1 Mod | 1 | ESL227 |
| | | 110/127V | 25A-250V | 1 Mod | 1 | ESM227 |
| | 3NO | | 25A-440V | 2 Mod | 6 | ESC325 |
| | | | 40A-440V | 3 Mod | 4 | ESC340 |
| | | | 63A-440V | 3 Mod | 1 | ESC363 |
| | 4NO | 230 V | 25A-440V | 2 Mod | 6 | ESC425 |
| | | | 40A-440V | 3 Mod | 4 | ESC440 |
| | | | 63A-440V | 3 Mod | 4 | ESC463 |
| | 4NO | 24V | 25A-440V | 2 Mod | 2 | ESD425 |
| | | | 40A-440V | 3 Mod | 3 | ESD440 |
| | | | 63A-440V | 3 Mod | 3 | ESD463 |

| Description | Type | Coil AC 50 Hz | In power circuit AC7-a / AC1 | Width | Pack qty. | Cat ref. |
|-------------|---------|------------------|---------------------------------|-------|-----------|---------------|
| Contactor | 4NO | 12 V | 25A-250V | 2 Mod | 1 | ESL425 |
| | | | 40A-440V | 3 Mod | 1 | ESL440 |
| | | | 63A-440V | 3 Mod | 1 | ESL463 |
| | 4NO | 110/127V | 40A-440V | 3 Mod | 1 | ESM440 |
| | 4NC | 230V | 25A-440V | 2 Mod | 1 | ESC426 |
| | | | 40A-440V | 3 Mod | 1 | ESC441 |
| | | | 63A-250V | 3 Mod | 1 | ESC464 |
| | 4NC | 24V | 25A-250V | 2 Mod | 1 | ESD426 |
| | | | 63A-250V | 3 Mod | 1 | ESD464 |
| | 4NC | 12V | 25A-440V | 2 Mod | 1 | ESL426 |
| | 2NO+2NC | 230V | 25A-440V | 2 Mod | 1 | ESC427 |
| | | | 40A-440V | 3 Mod | 1 | ESC442 |
| | | | 63A-440V | 3 Mod | 4 | ESC465 |
| | 2NO+2NC | 24V | 25A-440V | 2 Mod | 1 | ESD427 |
| | 2NO+2NC | 12V | 25A-440V | 2 Mod | 1 | ESL427 |
| | 3NO+1NC | 230V | 25A-440V | 2 Mod | 6 | ESC428 |
| | | | 40A-440V | 3 Mod | 4 | ESC443 |
| | | | 63A-440V | 3 Mod | 1 | ESC466 |
| | 3NO+1NC | 24V | 25A-440V | 2 Mod | 1 | ESD428 |
| | 3NO+1NC | 12V | 25A-440V | 2 Mod | 1 | ESL428 |



ESC225S



ESC425S



ESC463S

Hum-free Contactors

- Contactors are essential power devices to control heating, lighting or ventilation systems.
- They are recommended in association with other control and energy management devices (thermostats, delay timers, programmers...)
- The hum-free versions are recommended for housing applications where silent operating is requested.
- Complies to IEC 61095.
- The contactors can be associated with the auxiliaries contact ESC080 for remote signaling, except the ESx225S.
- It is recommended to use a heat dissipation insert LZ060 between each product.

| Description | Type | Coil AC 50 Hz | In power circuit AC7-a / AC1 | Width | Pack qty. | Cat ref. |
|--------------------|---------|---------------------------|---------------------------------|-------|-----------|----------------|
| Hum-free contactor | 2NO | 230 V 50/60 Hz 220V DC | 25A-250V | 1 Mod | 12 | ESC225S |
| | | | 40A-440V | 3 Mod | 4 | ESC240S |
| | | | 63A-440V | 3 Mod | 4 | ESC263S |
| | 2NO | 24V 50Hz 24V DC | 25A-250V | 1 Mod | 1 | ESD225S |
| | | | 40A-440V | 3 Mod | 1 | ESD240S |
| | | | 63A-440V | 3 Mod | 1 | ESD263S |
| | 2NO | 12V 50Hz 12V DC | 25A-250V | 1 Mod | 1 | ESL225S |
| | | | 40A-440V | 3 Mod | 1 | ESL240S |
| | | | 63A-440V | 3 Mod | 1 | ESL263S |
| | 3NO | 230V 50/60 Hz 220V DC | 25A-440V | 2 Mod | 6 | ESC325S |
| | | | 40A-440V | 3 Mod | 1 | ESC340S |
| | | | 63A-440V | 3 Mod | 1 | ESC363S |
| | 3NO | 24V 50Hz 24V DC | 25A-440V | 2 Mod | 1 | ESD325S |
| | 4NO | 230V 50/60 Hz 220V DC | 25A-440V | 2 Mod | 6 | ESC425S |
| | | | 40A-440V | 3 Mod | 1 | ESC440S |
| | | | 63A-440V | 3 Mod | 1 | ESC463S |
| | 4NO | 24V 50Hz 24V DC | 25A-440V | 2 Mod | | ESD425S |
| | | | 40A-440V | 3 Mod | | ESD440S |
| | | | 63A-440V | 3 Mod | | ESD463S |
| | 4NO | 12V 50Hz 12V DC | 25A-440V | 2 Mod | 1 | ESL425S |
| | | | 40A-440V | 3 Mod | 1 | ESL440S |
| | | | 63A-440V | 3 Mod | 1 | ESL463S |
| | 4NC | 230V 50/60 Hz 220V DC | 25A-440V | 2 Mod | 1 | ESC426S |
| | | 24V 50 Hz 24V DC | 25A-440V | 2 Mod | 1 | ESD426S |
| | | 12V 50Hz 12V DC | 25A-440V | 2 Mod | 1 | ESL426S |
| | 2NO+2NC | 230V 50/60 Hz 220V DC | 25A-440V | 2 Mod | 1 | ESC427S |
| | | 24V 50Hz 24V DC | 25A-440V | 2 Mod | 1 | ESD427S |
| | | 12V 50 Hz 12V DC | 25A-440V | 2 Mod | 1 | ESL427S |
| | 3NO+1NF | 230V 50/60 Hz 220V DC | 25A-440V | 2 Mod | 1 | ESC428S |
| | | 24V 50Hz 24V DC | 25A-440V | 2 Mod | 1 | ESD428S |
| | | 12V 50 Hz 12V DC | 25A-440V | 2 Mod | 1 | ESL428S |

Override Contactors

- For the remote switching and control of power circuits.
- They are equipped with a 3 position manual control button: permanent ON, automatic mode, permanent OFF.
- Can be associated with the auxiliary contact ESC080 for remote signaling.
- Complies to IEC 61095.
- Auxiliary contact
- Associated with a contactor, it allows remote signaling.
- It is recommended to use a heat dissipation insert LZ060 between each 3 products.

| Description | Type | Coil AC 50 Hz | In power circuit AC7-a / AC1 | Width | Pack qty. | Cat ref. |
|--------------------|---------|------------------|---------------------------------|-------|-----------|---------------|
| Override contactor | 1NO | 230V | 25A-250V | 1 Mod | 12 | ERC125 |
| | 2NO | 230V | 25A-250V | 1 Mod | 12 | ERC225 |
| | | | 40A-440V | 3 Mod | 4 | ESC240 |
| | | | 63A-440V | 3 Mod | 1 | ERC263 |
| | 2NO | 24V | 25A-250V | 1 Mod | 1 | ERD225 |
| | | | 40A-440V | 3 Mod | 1 | ERD240 |
| | | | 63A-440V | 3 Mod | 1 | ERD263 |
| | 8/12V | | 25A-250V | 3 Mod | 1 | ERL225 |
| | | | 40A-440V | 3 Mod | 1 | ERL240 |
| | | | 63A-440V | 3 Mod | 6 | ERL263 |
| | 2NC | 230V | 25A-250V | 1 Mod | 12 | ERC226 |
| | 3NO | 230V | 25A-440V | 2 Mod | 6 | ERC325 |
| | 4NO | 230V | 25A-440V | 2 Mod | 6 | ERC425 |
| | | 24V | 25A-440V | 2 Mod | 6 | ERD425 |
| | | 12V | 25A-440V | 2 Mod | 1 | ERL425 |
| | 4NC | 230V | 25A-440V | 2 Mod | 1 | ERC426 |
| | 2NO+2NC | 230V | 25A-440V | 2 Mod | 1 | ERC427 |
| | 3NO+1NC | 230V | 25A-440V | 2 Mod | 1 | ERC428 |



ERC225



ERC425

Night & Day Contactors

- Night & day contactors allows the functioning of electrical devices during off-peak hours, especially storage heaters and water-heaters.
- The manual override allows: temporary override with automatic return at next coil energization, permanent switch-off in case of long leave.
- Standard 1z and 2z versions are recommended for applications where a reduced consumption and heating dissipation are needed.
- The hum-free versions ETCx25S are recommended for housing applications where silent operating is requested.
- Hum-free operating is guaranteed in time, switching noise is reduced.
- Complies to NF EN 61095



ETC225



ETC425S

| Description | Type | Coil AC | In power circuit AC7-a / AC1 | Mod Width 17,5 mm | Pack qty. | Cat ref. |
|---------------------------------|---------|--------------------------|---------------------------------|----------------------|-----------|----------------|
| Night & Day Contactors | 2NO | 230V 50Hz | 25A-250V | 1 | 1 | ETC225 |
| | 2NC | 230V 50Hz | 25A-250V | 1 | 1 | ETC226 |
| | 1NO+1NC | 230V 50Hz | 25A-400V | 1 | 1 | ETC227 |
| | 3NO | 230V 50Hz | 25A-440V | 2 | 1 | ETC325 |
| | | 230V 50Hz | 40A-440V | 3 | 1 | ETC340 |
| | | 230V 50Hz | 63A-440V | 3 | 1 | ETC363 |
| | 4NO | 230V 50Hz | 25A-440V | 2 | 1 | ETC425 |
| | | 230V 50Hz | 40A-440V | 3 | 1 | ETC440 |
| | | 230V 50Hz | 63A-440V | 3 | 1 | ETC463 |
| Hum-free Night & Day Contactors | 2NO | 230V 0/60Hz 220V DC | 25A-250V | 1 | 1 | ETC225S |
| | 3NO | 230V 0/60Hz 220V DC | 25A-250V | 2 | 1 | ETC325S |
| | 4NO | 230V 50/60 Hz 220V DC | 25A-250V | 2 | 1 | ETC425S |



ERC225S



ERC425S

Hum-free Override Contactors

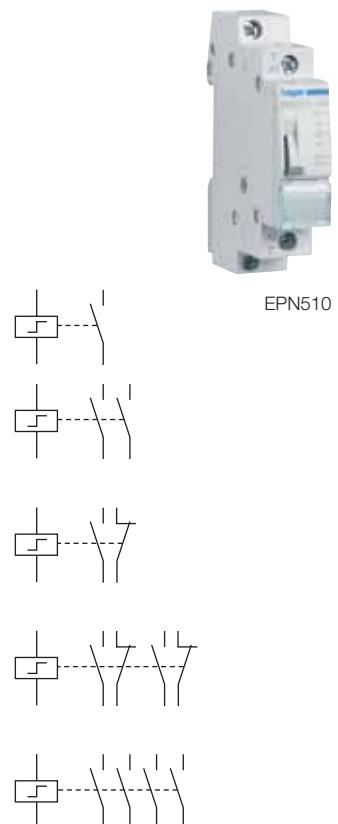
- For the remote switching and control of power circuits.
- They are equipped with a 3 position manual control button: permanent ON, automatic mode, permanent OFF.
- The hum-free versions are recommended for housing applications where silent operating is requested.
- Complies to IEC 61095.
- Can be associated with the auxiliary contact ESC080, except 1 module hum-free contactors (ERC225S).
- It is recommended to use a heat dissipation insert LZ060 between each product.

| Description | Type | Coil AC 50 Hz | In power circuit AC7-a / AC1 | Width | Pack qty. | Cat ref. |
|---------------------------------|------|--------------------------|---------------------------------|-------|-----------|----------------|
| Hum-free override contactor 2NO | | 230V 50/60 Hz 220V DC | 25A-250V | 1 Mod | 1 | ERC225S |
| | | 40A-440V | 3 Mod | 1 | | ESC240S |
| | | 24V 50Hz 24V DC | 40A-440V | 3 Mod | 1 | ERD240S |
| | | 63A-440V | 3 Mod | 1 | | ERD263S |
| | | 12V 50Hz 12V DC | 40A-440V | 3 Mod | 1 | ERL240S |
| | | 63A-440V | 3 Mod | 1 | | ERL263S |
| | 3NO | 230V 50/60 Hz 220V DC | 25A-440V | 2 Mod | 6 | ERC325S |
| | 4NO | 230V 50/60 Hz 220V DC | 25A-440V | 2 Mod | 1 | ERC425S |
| | | 24V 50Hz 24V DC | 25A-440V | 2 Mod | 1 | ERD425S |
| | | 12V 50Hz 12V DC | 25A-440V | 2 Mod | 1 | ERL425S |

Latching Relays

- Latching relays - operate when impaled 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
- 1 Mod = 17.5mm, 2 Mod = 35mm, 3 Mod = 52.5mm, 4 Mod = 70mm

| Description | Coil | Power circuit AC1 | Mod. Width | Cat ref. |
|----------------------------|-----------|-------------------|------------|---------------|
| Latching Relay 1 NO | 230V 50Hz | 16A - 250V~ | 1 | EPN510 |
| | 24V 50Hz | 16A - 250V~ | 1 | EPN513 |
| Latching Relay 2 NO | 230V 50Hz | 16A - 250V~ | 1 | EPN520 |
| | 24V 50Hz | 16A - 250V~ | 1 | EPN524 |
| | 12V 50Hz | 16A - 250V~ | 1 | EPN521 |
| Latching Relay 1 NC + 1NO | 230V 50Hz | 16A - 250V~ | 1 | EPN515 |
| | 24V 50Hz | 16A - 250V~ | 1 | EPN518 |
| | 12V 50Hz | 16A - 250V~ | 1 | EPN519 |
| Latching Relay 2 NC + 2 NO | 230V 50Hz | 16A - 250V~ | 2 | EPN525 |
| | 24V 50Hz | 16A - 250V~ | 2 | EPN528 |
| | 12V 50Hz | 16A - 250V~ | 2 | EPN529 |
| Latching Relay 4 NO | 230V 50Hz | 16A - 400V~ | 2 | EPN540 |
| | 24V 50Hz | 16A - 400V~ | 2 | EPN541 |



Modular Devices
& Connection

Auxiliary Contacts

| Description | Power circuit | Mod. Width | Cat ref. |
|--|---------------|------------|---------------|
| Auxiliary Contact | 2A - 250V~ | 0.5 | EPN051 |
| Auxiliary Contacts for Centralised Control | 24A - 230V~ | 0.5 | EPN050 |



EPN540



ERD218



ERC418



EN145

Relays, Hum-free, Interface**Relays**

- To provide remote control of low power circuits max.16A.
- They are equipped with a 3 position manual control button: permanent ON, automatic mode, permanent OFF.
- Complies to IEC 61095.
- It is recommended to use a heat dissipation insert LZ060 between each 3 products.

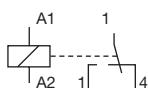
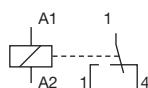
Auxiliary contact

- Associated with a relay, it allows remote signaling.
- Mechanical status indicator

Interface relays

- Power contacts adapted to very low voltage circuits. It is operating silently.
- A signal indicates when the coil is under voltage.
- These relays ensure a galvanic isolation between LV and VLV up to 4kV.

| Description | Type | Coil AC 50 Hz | Power circuit AC7-a / AC1 | Mod. Width 17,5 mm | Pack qty. | Cat ref. | |
|-------------------------|---------|---|---------------------------|-----------------------|-----------|----------------|--|
| Relays | 2NO | 230V | 16A - 250V~ | 1 | 1 | ERC216 | |
| | | 24V | 16A - 250V~ | 1 | 1 | ERD216 | |
| | | 8/12V | 16A - 250V~ | 1 | 1 | ERL216 | |
| | 2NC | 230V | 16A - 250V~ | 1 | 1 | ERC217 | |
| | | 24V | 16A - 250V~ | 1 | 1 | ERD217 | |
| | | 8/12V | 16A - 250V~ | 1 | 1 | ERL217 | |
| | 1NO+1NC | 230V | 16A - 250V~ | 1 | 12 | ERC218 | |
| | | 24V | 16A - 250V~ | 1 | 1 | ERD218 | |
| | | 8/12V | 16A - 250V~ | 1 | 1 | ERL218 | |
| | 3NO | 230V | 16A-440V | 2 | 1 | ERC316 | |
| | | 230V | 16A-440V | 2 | 1 | ERC416 | |
| | | 230V | 16A-440V | 2 | 1 | ERC418 | |
| | 2NO+2NC | 230V | 16A-440V | 2 | 1 | ERD418 | |
| | | 24V | 16A-440V | 2 | 1 | ERD418S | |
| | | 12V | 16A-440V | 2 | 1 | ERL418 | |
| Hum-free Relays | 2NO+2NC | 24V AC/DC | 16A-440V | 2 | 1 | ERD418S | |
| | | 12V AC/DC | 16A-440V | 2 | 1 | ERL418S | |
| Interface relays VLV/LV | | coil voltage: 10 to 26V AC/DC output: 1 changeover contact max. 5A 230V AC min. 10mA - 12V DC | | | | EN145 | |
| Interface relays LV/LVL | | coil voltage: 230V AC output: 1 changeover contact max. 5A 230V AC min. 10mA - 12V DC | | | | EN146 | |



Auxiliaries for Contactors and Relays

Auxiliary contact

- Associated with a relay or a contactor, it allows to show the product status or remote signaling.
- Not compatible with 1 module hum-free contactors and EN145 / EN146.

Heat dissipation insert

- It is recommended to use a heat dissipation insert LZ060 between each 3 products.

Sealing covers

- Not compatible with EN145 / EN146.

| Description | | Mod. Width 17.5mm | Pack qty. | Cat ref. |
|--|-------------------------|----------------------|-----------|---------------|
| Auxiliary contact In power circuit AC7-a / AC1 | 1NO+1NF 6A-250V | 0.5 | 1 | ESC080 |
| Sealing cover | for 1 module contactors | 1 | 10 | ESC001 |
| | for 2 module contactors | 2 | 10 | ESC002 |
| | for 3 module contactors | 3 | 10 | ESC003 |
| Heat dissipation insert | | 0.5 | 12 | LZ060 |



ESC080



ESC002



LZ060



SVN311



SVN411



SVN312



SVN413

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 |
| Contacts: 2 NO | 1 Mod | SVN371 |
| Contacts: 2NO + Green Push Button | 1 Mod | SVN373 |

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 |
| Contacts: 2 NO : Green | 1 Mod | SVN461 |
| Contacts: 2 NO : Red | 1 Mod | SVN462 |

Pushbuttons (Latching) 16A - 250V a.c. Without Indicator Light

| | | |
|-----------------------|-------|---------------|
| Contacts: 1 NO | 1 Mod | SVN312 |
| Contacts: 1 NC | 1 Mod | SVN321 |
| 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 |
| Contacts: 2 NO : Green | 1 Mod | SVN463 |
| Contacts: 2 NO : Red | 1 Mod | SVN464 |

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.



SVN121

| 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 Colour: Clear (Double Indicator) | 1 Mod | SVN128 |
| Indicator Colour: Red/Orange/Green (Triple Indicator) | 1 Mod | SVN129 |
| Indicator Colour: Green (Triple Indicator) | 1 Mod | SVN221 |
| Indicator Colour: Red/Orange/Blue (Triple Indicator) | 1 Mod | SVN222 |



SVN127

Indicator Lights 12/48V

| | | |
|-----------------------------|-------|---------------|
| Indicator Colour: Green | 1 Mod | SVN131 |
| Indicator Colour: Red | 1 Mod | SVN132 |
| Indicator Colour: Orange | 1 Mod | SVN133 |
| Indicator Colour: Blue | 1 Mod | SVN134 |
| Indicator Colour: Clear | 1 Mod | SVN135 |
| Indicator Colour: Green/Red | 1 Mod | SVN136 |

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



ST313

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/12V a.c. 50Hz, 20VA 50/60 Hz | 4 Mod | ST309 |
| 230V/24V a.c. 50Hz, 20VA 50/60 Hz | 4 Mod | ST310 |
| 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.

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 |



SU212

Bells

Technical Data

- Cable capacities: 6mm²
- Bells: Max. continuous duty ≤ 30 minutes.

Output

- Bells: 85 dBA.

Description

8/12V a.c., 5VA - 0.33A

230V a.c., 6.5VA - 0.03A

Width
(1 Mod =17.5mm)

1 Mod

Cat ref.

SU212

1 Mod

SU213



SU214

Buzzers

Technical Data

- Cable capacities: 6mm².
- Buzzers: Max. continuous duty ≤ 30 minutes.

Output

- Buzzers: 78dBA.

Description

8/12V a.c., 4VA - 0.33A

230V a.c., 6.5VA - 0.03A

Width
(1 Mod =17.5mm)

1 Mod

Cat ref.

SU214

1 Mod

SU215

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, Permanent OFF.
- 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 120 hours.
- For a selection chart see page 2.56, for technical data see page 2.55.

Connection

- 1-6mm².



EHN010

| Description | Voltage Supply | Width (1 Mod =17.5mm) | Cat ref. |
|---|----------------|--------------------------|---------------|
| 1 Channel Time Switches without Supply Failure Reserve | | | |
| Daily Dial, 1 NO Changeover Contact, 16A 250V AC1 | 230V a.c. 50Hz | 1 Mod | EHN010 |
| Daily Dial, 1 NO Contact, 16A 250V a.c. AC1 | 230V a.c. 50Hz | 3 Mod | EHN110 |



EHN171

| Description | Voltage Supply | Width (1 Mod =17.5mm) | Cat ref. |
|--|-------------------|--------------------------|---------------|
| 1 Channel Time Switches with Supply Failure Reserve | | | |
| Daily Dial, 1 Changeover Contact, 16A 250V AC1 | 230V a.c. 50/60Hz | 1 Mod | EHN011 |
| Daily Dial, 1 NO Contact, 16A 250V AC1 | 230V a.c. 50/60Hz | 3 Mod | EHN111 |
| Weekly Dial, 1 NO Contact, 16A 250V AC1 | 230V a.c. 50/60Hz | 3 Mod | EHN171 |



EG071



EG103



EG203

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).

| 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 AC 1, 3 year reserve | 1 Mod | EG010 |
| Weekly Cycle, Capacity 20 program steps, 230V 50/60 Hz | 1 Mod | EG170 |
| Weekly Cycle, Capacity 20 program steps Output: 1 changeover contact 16A - 250V AC 1, 3 year reserve | 1 Mod | EG071 |
| 1 Channel Digital Time Switch | | |
| Weekly Cycle (Basic Version), Output: 1 changeover contact 16A - 250V AC 1, Delivered with key EG005 | 2 Mod | EG103 |
| Weekly Cycle (Advanced Version), Output: 1 changeover contact 16A - 250V AC 1, Delivered with key EG005 | 2 Mod | EG103E |
| Capacity : 56 program steps, Output: 1 changeover contact, μ 16A - 250V~ AC1 | 2 Mod | EG103B |
| Capacity: 56 program step, Output: 1 changeover contact, μ 16A - AC1 - 12/24 V AC/DC, 50/60 Hz | 2 Mod | EG103V |
| 2 Channel Digital Time Switch (not compatible with program key) | | |
| Capacity : 20 program steps to be divided between the 2 channels 230V 50/60 Hz | 3 Mod | EG210 |
| 2 Channel Digital Time Switch | | |
| Weekly Cycle (Basic Version), Output: 2 changeover contact 16A - 250V AC 1, Delivered with key EG005 | 2 Mod | EG203 |
| Weekly Cycle (Advanced Version), Output: 2 changeover contact 16A - 250V AC 1, Delivered with key EG005 | 2 Mod | EG203E |
| Capacity: 56 program steps, Output: 2 changeover contacts, μ 16A - 250V~ AC1 | 2 Mod | EG203B |
| Capacity: 20 program steps to be divided between the 2 channels 230v 50/60 Hz | 3 Mod | EG270 |
| 2 Channels Yearly Time Switch, Voltage Rating: 230V~ 50/60 Hz. Output: 2 changeover contacts, 10A - 250V~ AC1 | 4 Mod | EG293B |

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 2.56.



EG493E

| Description | Width (1 Mod =17.5mm) | Cat ref. |
|--|--------------------------|---------------|
| 4 Channel Yearly Time Switch | 4 Mod | EG493E |
| Spare grey programming key for timers EG493E | | EG007 |
| Interface between PC & key interface module, with software on CD | | EG003 |
| Interface between PC & key interface module, with USB | | EG003U |
| 4 Channel Weekly Time Switch. Voltage Rating: 230V~ 50/60 Hz, Output: 4 changeover contacts, 16A - 230V~ AC1 | 4 Mod | EG470 |
| 4 Channel Weekly Time Switch. Output: 2 changeover contacts + 2NO contacts, 10A - 250V ~ AC1. Delivered with programming key. | 4 Mod | EG403E |

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 2.59.



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**



EE181

| Description | Width (1 Mod =17.5mm) | Cat ref. |
|---|--------------------------|----------|
| 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**

PC Interface & Software Tools

| Description | Pack qty. | Cat ref. |
|--|-----------|---------------|
| Interface between PC & key interface module, with software on CD | | EG003 |
| Interface between PC & key interface module, with USB | 1 | EG003U |
| 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 |



EG003U



EMN001

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 2.60.



EMN005

| 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

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 2.61.



EZN002

| 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 |

| Description | Pack qty. | Cat ref. |
|--|-----------|---------------|
| Delay Off 1 changeover contact 10A / 230V a.c. AC1 Time delay T:0.1s to 10hr | 1 Mod | EZN002 |



EZN004

| Description | Pack qty. | Cat ref. |
|---|-----------|---------------|
| Adjustable Time On 1 changeover contact 10A / 230V a.c. AC1 Time delay T:0.1s to 10hr | 1 Mod | EZN003 |

| Description | Pack qty. | Cat ref. |
|--|-----------|---------------|
| Timer 1 changeover contact 10A / 230V a.c. AC1 Time delay T:0.1s to 10hr | 1 Mod | EZN004 |

| Description | Pack qty. | Cat ref. |
|--|-----------|---------------|
| Symmetrical Flasher 1 changeover contact 10A / 230V a.c. AC1 Time delay T:0.1s to 10hr | 1 Mod | EZN005 |

| Description | Pack qty. | Cat ref. |
|---|-----------|---------------|
| 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 |

Connection Of Devices

Insulated busbars, junction blocks, distribution blocks, terminals... all that is needed to quickly and efficiently mount devices in enclosures and distribution boards.





Prong Insulated Busbars

Characteristics

- Brown or blue insulated busbars
- For MCBs Ph+N and fuse carriers 1 module spacing.
- Single, double, three and four pole busbars for multipolar MCB from 0,5 to 63A for multipolar, single pole fuse carriers and SB switches.

| Description | Section | In | Width | Cat ref. |
|--|--------------------|------|--------------|---------------|
| Single pole 63A to be equipped with protection profiles brown (phase) | 10 mm ² | 63A | 13 modules | KB163P |
| Single pole 63A to be equipped with protection profiles blue (neutral) | 10 mm ² | 63A | 13 modules | KB163N |
| Single pole 100A | 20 mm ² | 100A | 24 mod. | KB190C |
| | 20 mm ² | 100A | 57 mod. (1m) | KB190B |
| Double pole | 10 mm ² | 63A | 12 mod. | KB263A |
| | 10 mm ² | 63A | 24 mod. | KB263C |
| | 16 mm ² | 80A | 56 mod. (1m) | KB280B |
| Three pole | 10 mm ² | 63A | 12 mod. | KB363A |
| | 10 mm ² | 63A | 24 mod. | KB363C |
| | 16 mm ² | 80A | 57 mod. (1m) | KB380B |
| Four pole to be equipped with busbar ends | 10 mm ² | 63A | 12 mod. | KB463A |
| | 10 mm ² | 63A | 24 mod. | KB463C |
| | 16 mm ² | 80A | 56 mod. (1m) | KB480B |



End Caps (to insulate ends of the busbars)

| Description | Cat ref. |
|---|---------------|
| End caps for single busbars | KZ021 |
| End caps for double busbars KB263A, KB263C | KZ022 |
| End caps for double/three pole busbars for KB280B, KB363A, KDN263B, KB363C, KB380B, KDN363B | KZ023A |
| End caps for four pole busbars KB463A, KB463C, KB480B, KDN463B | KZ024 |



Protection profiles

| Description | Width | Cat ref. |
|--|-----------|--------------|
| Protection profiles to insulate the spare prongs | 5 modules | KZ059 |



Insulated Busbars & Accessories

Characteristics

Fork insulated busbars

- For modular devices equipped with biconnect terminals; multipolar MCBs from 0,5 to 63A (without Ph+N), RCCBs
- Connection terminals KF83A, KF83C and KF83D are compatible with aluminium and copper conductors.

| Description | Section | In | Width | Cat ref. |
|--|--------------------|------|--------------|----------------|
| Fork insulated busbars single pole, 1 mod. step, insulated | 20 mm ² | 100A | 57 mod.(1m) | KD190B |
| Fork insulated busbars double pole, 2 mod. step, insulated | 10mm ² | 63A | 56 mod.(1m) | KDN263B |
| Fork insulated busbars three pole, 3 mod. step, insulated | 10 mm ² | 63A | 57 mod.(1m) | KDN363B |
| Fork insulated busbars 4 pole, 1 mod. step, insulated (L1,L2,L3,N ...) | 10 mm ² | 63A | 56 mod.(1m) | KDN463B |
| Fork insulated busbars 3 x (P + N) (L1 N,L2 N,L3 N,L1 N,L2 N,L3 N ...) | 16 mm ² | 80A | 12 mod. | KDN451D |
| Fork insulated busbars 3 x (P + N) (L1 N,L2 N,L3 N,L1 N,L2 N,L3 N ...) | 16 mm ² | 80A | 57 mod. (1m) | KDN451E |



| | |
|---|--------------|
| Fork connection terminals for fork busbars terminals cable incoming : lateral connection, capacity: 1 x 25 mm ² , cable tightening with 2 screws | KF84A |
| Prong connection terminals for devices with screw terminal cable incoming : top connection, capacity: 2 x 16 mm ² cable tightening with 2 screws | KF82A |
| Connection terminals for KB163P and KB83B cable incoming : lateral, connection capacity: 1 x 25 mm ² , cable tightening with 1 screw | KF83A |
| Connection terminals for KB163P and KB83B cable incoming : lateral, connection capacity: 2 x 25 mm ² , cable tightening with 1 screw | KF83B |
| Connection terminals for busbars KB190B for KB263 to KB463 cable incoming : lateral or top,connection capacity: 1 x 25 mm ² ,(35 mm ² rigid) | KF83C |
| Connection terminals for KBN663A to KBN663C cable incoming : lateral or top,connection capacity: 2 x 25 mm ² flexible, (35 mm ² rigid) | KF83D |

Distribution Blocks

Characteristics

Single Pole Distribution Blocks

- Monoblocs, insulated for copper conductor
- Ui: 500V
- Fixing on DIN rail, mounting plate and main devices plate kits.

Stepped Distribution Blocks

- Modular, monobloc for copper conductors
- Removable front cover
- Ui: 500V
- Fixing on DIN rail
- Equipped with an insulated rear plate
- Complies with IEC 60 998-1 and IEC 60947-7-1.

| Description | | Width mm | Cat ref. |
|--|---|----------------------|---------------|
| Single pole distribution blocks | 125A, lsc peak: 30kA, incoming: 1 x 35 + 1 x 16 mm ² , outgoing: 6 x 16 mm ² | 27 mm | KJ02D |
| | 160A, lsc peak: 50kA incoming: 1 x 70 mm ² , outgoing: 6 x 16 mm ² | 35 mm | KJ02C |
| | 250A, lsc peak: 50kA, incoming: 1 x 95 mm ² , outgoing: 2 x 25 + 5 x 16 + 4 x 10 mm ² | 45 mm | KJ02A |
| | 400A, lsc peak: 50kA, incoming: 1 x 150 mm ² outgoing: 2 x 25 + 5 x 16 + 4 x 10 mm ² | 45 mm | KJ02B |
| Modular distribution monobloc fixing on DIN rail, on mounting plate | 100A - four pole, lsc peak: 20kA - Ui: 500V phase: 1 x 25 + 2 x 10 + 5 x 6 mm ² flexible neutral: 1 x 25 + 6 x 10 + 4 x 6 mm ² flexible h. 74,5 x d. 45 mm | 98 mm, (5.5 mod.) | KJ02E |
| Modular distribution blocks fixing on DIN rail, on mounting plate | Brass busbar terminal 4P 100A | | KJ100A |
| | Brass busbar terminal 4P 125A | | KJ125B |
| | Brass busbar terminal 4P 160A | | KJ160A |
| | Supplementary Neutral Bar 100A, 7 connections | | KJ07NB |
| | Supplementary Neutral Bar 125A, 12 connections | | KJ12NB |
| | Supplementary Neutral Bar 125A, 15 connections | | KJ15NB |



4 x KJ02A



KJ02E



KJ100A



KJ125B



KJ03A



KZ007



KZ001 / KZ002

Multi-Connection Distribution Blocks

Characteristics

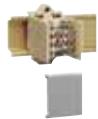
Four Pole Multi-Connection System 250A

- To supply 2, 3 and 4 pole devices.
- For Quadro enclosures 620 or 700 mm wide.
- Incoming connection with 4 screw lugs.
- Outcoming connection with insulated flexible connectors.

Delivered with

- 6 insulated blue cables (6 x 6 mm²),
- 12 insulated brown cables (12 x 6 mm²),
- 2 fixation lugs for Quadro system.

| Description | | | Cat ref. |
|--|--|-----------------------|-------------------|
| Four pole multi-connection system 250A | 60 outgoing connections: - 25 neutral outgoings - 12 outgoings per phase section: 6 and 10 mm ² withstand current under 40°C: - per pole: 250A - 40A with connector 6 mm ² - 63A with connector 10mm ² lsc peak: 60kA, Un: 500 V AC - 50Hz | without connectors | KJ03A |
| | | with connectors | KJ03B |
| Connector terminals | to crimp flexible wire of 6 mm ² | | KZ007 |
| | | Blue Cat ref. | Brown Cat ref. |
| Cables with connector for KJ03A | 40A, 6 mm ² | KZ001 | KZ002 |
| | 40A, 6 mm ² | KZ051 | KZ052 |
| | 63A, 10 mm ² | KZ004 | KZ005 |
| | 63A, 10 mm ² | KZ074 | KZ075 |



K018



K024



K037



KR95P / KR15P



K010

Junction Blocks

Characteristics

- For 16 to 35 mm² copper conductors.
- In max: 125A
- To facilitate incoming cables connection and deviations in distribution boards and enclosures: fixing on DIN rail
- for K024 and K025 blocks, the mounting can be horizontal or vertical.

Junction terminals

- For 25 to 150 mm² copper or aluminium conductors.

| Description | Width | Cat ref. |
|--|--|--------------|
| Junction blocks, connection per pole: incoming: 2 x 25 mm ² , outgoing: 4 x 16 mm ² delivered with front protection covers | 1 pole, w. 40 x h. 55 x d. 40 mm 2.5 mod. | K018 |
| | 2 pole, w. 65 x h. 55 x d. 35 mm 4 modules | K023 |
| | 4 pole, w. 120 x h. 55 x d. 45 mm 7 modules | K024 |
| | 5 pole, w. 150 x h. 55 x d. 45 mm 8.5 mod. | K025 |
| Junction blocks, connection per pole: incoming: 2 x 35 mm ² , outgoing: 4 x 16 mm ² | 1 pole, w. 41 x h. 55 x d. 53 mm 2.5 mod. | K037 |
| Junction terminals fixing on DIN rails can be mounted in Univers and Quadro enclosures | tighten by hexagonal wrench 25 to 95mm ² 25 mm | KR95P |
| | tighten by hexagonal wrench 35 to 50mm ² 31 mm | KR15P |
| Connecting bars fixing on DIN rails | 2 x 5 connecting for 2,5 mm ² cables | K010 |
| Grounding connection separate wedges | section 50 mm ² , delivered with 2 plates equipped with 70 mm ² cable clamps | K085 |

Screw Terminals

Characteristics

- Screw terminals
- Tracking resistance KC > 600
- Temperature range 120°C
- For all rail dimensions according to DIN 50022
- Secure fit on all non-standardised, commercially available support profiles 35mm in width
- Mounting or removing transverse to rail possible in both directions
- Uniform dimensions reduce the required accessories
- Built-in, self-loosening protection; vibration and vibration proof
- Large clamping range; suitable for two conductors of the same cross section (for PE only 1 conductor)
- Guided control of conductor in the open terminals by conical insertion funnel
- Screwdriver guidance by arranged sunk clamping screws
- Retained screws when loosening, particularly important for mechanical screwdrivers
- All parts contained in terminal support
- Compact design with side wire entry
- Takes flexible conductors with ferrule to rated cross section
- Low contact resistance due to high contact forces


KXA10LH

Phase Feed Through Terminals

Characteristics

- 400V or 800V
- Colour beige
- The following can be used with 1000V photovoltaic applications: KXA06LH, KXA10LH, KXA16LH, KXB35LH, KXB70LH, and KXB150LH. A rated current of 1000V applies as long as the stripping length, the clearance and creepage distance comply with VDE0110/01.89.

| Description | Dimensions | Pack qty. | Cat ref. |
|---|------------------------------|-----------|-----------------|
| 2.5 ² Through phase 800V/24A | w. 5 x d. 48.5 x h. 44.5 mm | 100 | KXA02LH |
| 4 ² Through phase 800V/32A | w. 6 x d. 48.5 x h. 44.5 mm | 100 | KXA04LH |
| 6 ² Through phase 1000V/41A | w. 8 x d. 53.5 x h. 48 mm | 100 | KXA06LH |
| 10 ² Through phase 400V/57A | w. 10 x d. 51.5 x h. 58 mm | 50 | KXA10L |
| 10 ² Through phase 800V/24A | w. 10 x d. 55 x h. 53.8 mm | 50 | KXA10LH |
| 16 ² Through phase 400V/76A | w. 12 x d. 51.5 x h. 58 mm | 50 | KXA16L |
| 16 ² Through phase 1000V/71A | w. 12 x d. 57.5 x h. 59.3 mm | 50 | KXA16LH |
| 35 ² Through phase 400V/125A | w. 16 x d. 51.5 x h. 58 mm | 20 | KXA35L |
| 35 ² Through phase 1000V/125A | w. 16 x d. 67.6 x h. 70.6 mm | 20 | KXB35LH |
| 70 ² Through phase 1000V/192A | w. 24 x d. 81.2 x h. 76.8 mm | 20 | KXB70LH |
| 150 ² Through phase 1000V/309A | w. 28 x d. 98.6 x h. 96 mm | 10 | KXB150LH |

Phase Terminal Blocks

| Description | Dimensions | Pack qty. | Cat ref. |
|--|-----------------------------|-----------|----------------|
| 2.5 ² Tiered phase 500V/24A | w. 5 x d. 63.9 x h. 65.8 mm | 100 | KXA02LX |
| 4 ² Tiered phase 400V/32A | w. 6 x d. 63 x h. 61.6 mm | 100 | KXA04LX |
| 4 ² Earth tiered | w. 6.2 x d. 63.2 x h. 59 mm | 100 | KXB04EX |

Neutral Terminals

Characteristics

- 400V or 800V
- Colour blue
- Cross sectional area for solid conductors
- The following can be used with 1000V photovoltaic applications: KXA06NH, KXA10NH, KXA16NH, KXB35NH, KXB70NH, and KXB150LH. A rated current of 1000V applies as long as the stripping length, the clearance and creepage distance comply with VDE0110/01.89.

| Description | Dimensions | Pack qty. | Cat ref. |
|---|------------------------------|-----------|-----------------|
| 2.5 ² Through neutral 800V/24A | w. 5 x d. 48.5 x h. 44.5 mm | 100 | KXA02NH |
| 4 ² Through neutral 800V/32A | w. 6 x d. 48.5 x h. 44.5 mm | 100 | KXA04NH |
| 6 ² Through neutral 1000V/41A | w. 8 x d. 53.5 x h. 48 mm | 100 | KXA06NH |
| 10 ² Through neutral 400V/57A | w. 10 x d. 51.5 x h. 58 mm | 50 | KXA10N |
| 10 ² Through neutral 1000V/57A | w. 10 x d. 55 x h. 53.8 mm | 50 | KXA10NH |
| 16 ² Through neutral 400V/76A | w. 12 x d. 51.5 x h. 58 mm | 50 | KXA16N |
| 16 ² Through neutral 1000V/71A | w. 12 x d. 57.5 x h. 59.3 mm | 50 | KXA16NH |
| 35 ² Through neutral 400V/125A | w. 16 x d. 51.5 x h. 58 mm | 20 | KXA35N |
| 35 ² Through neutral 1000V/125A | w. 16 x d. 67.6 x h. 70.6 mm | 20 | KXB35NH |
| 70 ² Through neutral 1000V/192A | w. 24 x d. 98.6 x h. 96 mm | 20 | KXB70NH |
| 150 ² Through neutral 1000V/309A | w. 28 x d. 98.6 x h. 96 mm | 10 | KXB150NH |


KXA10NH



KXA10E

Earth Terminals

Characteristics

- Colour yellow/green
- Cross sectional area for solid conductors

| Description | Dimensions | Pack qty. | Cat ref. |
|---------------------------------------|------------------------------|-----------|----------------|
| 2,5 ² Protective conductor | w. 5 x d. 48.5 x h. 48.6 mm | 100 | KXA02E |
| 4 ² Protective conductor | w. 6 x d. 48.5 x h. 51 mm | 100 | KXB04E |
| 6 ² Protective conductor | w. 8 x d. 53.5 x h. 54 mm | 100 | KXB06E |
| 10 ² Protective conductor | w. 10 x d. 51.5 x h. 58 mm | 50 | KXA10E |
| 10 ² Protective conductor | w. 10 x d. 55 x h. 54 mm | 50 | KXB10E |
| 16 ² Protective conductor | w. 12 x d. 57.5 x h. 57.5 mm | 50 | KXB16E |
| 16 ² Protective conductor | w. 12 x d. 51.5 x h. 58 mm | 50 | KXA16E |
| 35 ² Protective conductor | w. 16 x d. 67.6 x h. 63 mm | 20 | KXB35E1 |
| 35 ² Protective conductor | w. 16 x d. 51.5 x h. 58 mm | 20 | KXB35E |

Neutral Terminals

Characteristics

- Neutral separation 400V
- Colour blue
- The N disconnect terminal blocks can be used in cases with a degree of protection of at least IP54 according to IEC 60529 for photovoltaic applications 1000V can be used. It then applies 1000V/6kV/2

| Description | Dimensions | Pack qty. | Cat ref. |
|---|-----------------------------|-----------|----------------|
| 4 ² Neutral terminal 400V/25A | w. 6 x d. 48.5 x h. 53.5 mm | 100 | KXA04ND |
| 10 ² Neutral terminal 400V/45A | w. 10 x d. 51.5 x h. 58 mm | 50 | KXA10ND |
| 16 ² Neutral terminal 400V/62A | w. 12 x d. 51.5 x h. 58 mm | 50 | KXA16ND |

Three Conductor Terminal Blocks with Disconnect Slide

Characteristics

- 400V / 6kV / 3
- For phase-, N-, and PE
- With disconnect slide to neutral separation on busbars 10 x 3 mm

| Description | Dimensions | Pack qty. | Cat ref. |
|---|---------------------------|-----------|----------------|
| 4 ² /1 x N- Disconnect L/ 1 x Through/1 x PE | w. 6 x d. 51.5 x h. 90 mm | 50 | KXA04I3 |

Three Conductor Terminal Blocks

Characteristics

- N- isolation switching over separation
- For phase-, N-, and PE
- 400V/6kV/3
- Cannot be used with busbar
- Connect at either end of group of terminals

| Description | Dimensions | Pack qty. | Cat ref. |
|--|---------------------------|-----------|----------------|
| 4 ² /1 x N Disconnect L/ 1 x Through/1 x PE | w. 6 x d. 51.5 x h. 90 mm | 50 | KXA04I1 |

Three Wire Terminals without N- Separation

Characteristics

- Without neutral separation
- For phase-, N-, and PE
- 400V/6kV/3

| Description | Dimensions | Pack qty. | Cat ref. |
|---|---------------------------|-----------|----------------|
| 4 ² /1 x Through N/1 x Through L/ 1 x PE | w. 6 x d. 51.5 x h. 90 mm | 50 | KXA04I2 |

Supplementary Terminals**Characteristics**

- Cannot be used with busbar
- Connect at either end of group of terminals

| Description | Dimensions | Pack qty. | Cat ref. |
|--|---------------------------|-----------|----------------|
| 4 ² /2 x Through L | w. 6 x d. 51.5 x h. 90 mm | 50 | KXA04I4 |
| 4 ² /1 x Through L | w. 6 x d. 51.5 x h. 90 mm | 50 | KXA04I5 |
| 4 ² /2 x Through L/1 x PE | w. 6 x d. 51.5 x h. 90 mm | 50 | KXA04I6 |
| 4 ² /1 x Plug fuse/1 x Through L/1 x PE | w. 6 x d. 51.5 x h. 90 mm | 50 | KXA04I7 |



KXA04I5

Knife Disconnect Terminal Block**Characteristics**

- Open or closed, sealed
- Colour of release lever signals the open state
- 800V/8kV/3

| Description | Dimensions | Pack qty. | Cat ref. |
|--|---------------------------|-----------|----------------|
| 4 ² Knife disconnect terminal block, 800V/20A | w. 8 x d. 49.5 x h. 48 mm | 50 | KXA04KD |



KXA04KD

Fuse Terminals**Characteristics**

- Open or closed, sealed
- Storage space for a spare fuse
- 800V/8kV/3

| Description | Dimensions | Pack qty. | Cat ref. |
|---|------------------------------|-----------|----------------|
| 4 ² G Fuse terminals (5 x 30) Max. 63A | w. 8 x d. 54.5 x h. 77.2 mm | 50 | KXB04F5 |
| 4 ² G Fuse terminals (6.3 x 32) Max. 10A | w. 10 x d. 54.5 x h. 77.2 mm | 50 | KXB04F6 |



KXB04F5

Through Terminals, Vertically Bridged**Characteristics**

- 400V/5kV/3
- Colour black
- Internal vertical bridged

| Description | Dimensions | Pack qty. | Cat ref. |
|---|-----------------------------|-----------|----------------|
| 2.5 ² Tiered internal bridged 500V/24A | w. 5 x d. 63.9 x h. 65.8 mm | 100 | KXA02VB |
| 4 ² Tiered internal bridged 400V/32A | w. 6 x d. 70.5 x h. 61.6 mm | 100 | KXA04VB |



KXA02VB



KWE01B

Endplates Through Terminals

| Description | Pack qty. | Cat ref. |
|-------------------------------|-----------|----------------|
| Endplate for KXA02LH, KXA04LH | 10 | KWE01G |
| Endplate for KXA02NH, KXA04NH | 10 | KWE01B |
| Endplate for KXA02E | 10 | KWE01GR |
| Endplate for KXA06NH | 10 | KWE02B |
| Endplate for KXA10L, KXA16L | 10 | KWE04G |
| Endplate for KXA10N, KXA16N | 10 | KWE04B |
| Endplate for KXA10LH | 10 | KWE05G |
| Endplate for KXA10NH | 10 | KWE05B |
| Endplate for KXA10E, KXA16E | 10 | KWE04GR |
| Endplate for KXA16LH | 10 | KWE06G |
| Endplate for KXA16NH | 10 | KWE06B |
| Endplate for KXA35L | 10 | KWE03G |
| Endplate for KXA35N | 10 | KWE03B |

Endplates Three Wire Terminals

| Description | Pack qty. | Cat ref. |
|-------------------------------------|-----------|---------------|
| Endplate for KXA04I1 I2 I3 I4 I5 I6 | 10 | KWE21G |
| Endplate for KXA04I7 | 10 | KWE22G |

Endplates N Disconnect Terminal Blocks

| Description | Pack qty. | Cat ref. |
|-------------------------------|-----------|---------------|
| Endplate for KXA16ND, KXA10ND | 10 | KWE17B |
| Endplate for KXA04ND | 10 | KWE24B |

Endplate Tiered and Vertically Bridged Through Terminals

| Description | Pack qty. | Cat ref. |
|-------------------------------|-----------|---------------|
| Endplate for KXA02VB, KXA02LX | 10 | KWE25G |
| Endplate for KXA04VB, KXA04LX | 10 | KWE26G |



KWE27G

Endplate Knife Disconnect Terminals

| Description | Pack qty. | Cat ref. |
|---------------------|-----------|---------------|
| Endplate for KXA04D | 10 | KWE27G |



KWJ150C3

Non Insulated Cross Connector

| Description | Pack qty. | Cat ref. |
|---|-----------|-----------------|
| Connecting link 70mm ² , 2 fold | 10 | KWJ70C2 |
| Connecting link 70mm ² , 3 fold | 10 | KWJ70C3 |
| Connecting link 150mm ² , 2 fold | 10 | KWJ150C2 |
| Connecting link 150mm ² , 3 fold | 10 | KWJ150C3 |



KWL001

Marking Tags

Characteristics

- KW001: Box of 10 digits 0-9 to 50 individual labeling strips, KW002/03/04: numbered sequentially per 25 strips, KW002: numbers 1-100, KW003: numbers 101-200, KW004: L1, L2, L3, N, PE

| Description | Pack qty. | Cat ref. |
|---|-----------|---------------|
| Designation clips box (0-9) | 1 | KWL001 |
| Designation clips 0-100 (25 strips) | 1 | KWL002 |
| Designation clips 101-200 (25 strips) | 1 | KWL003 |
| Designation clips L1, L2, L3, N, PE (25 strips) | 1 | KWL004 |

Insulated Cross Connector

| Description | Pack qty. | Cat ref. |
|---|-----------|-----------------|
| Insulated jumper bar 2.5 ² , 2 fold | 10 | KWJ02B2 |
| Insulated jumper bar 2.5 ² , 3 fold | 10 | KWJ02B3 |
| Insulated jumper bar 2.5 ² , 4 fold | 10 | KWJ02B4 |
| Insulated jumper bar 2.5 ² , 5 fold | 10 | KWJ02B5 |
| Insulated jumper bar 2.5 ² , 10 fold | 10 | KWJ02B10 |
| Insulated jumper bar 4mm ² , 2 fold | 10 | KWJ04A2 |
| Insulated jumper bar 4mm ² , 3 fold | 10 | KWJ04A3 |
| Insulated jumper bar 4mm ² , 4 fold | 10 | KWJ04A4 |
| Insulated jumper bar 4mm ² , 5 fold | 10 | KWJ04A5 |
| Insulated jumper bar 4 ² , 10 fold | 10 | KWJ04A10 |
| Insulated jumper bar 4 ² , 12 fold | 10 | KWJ04A12 |
| Insulated jumper bar 4 ² , 2 fold | 10 | KWJ04B2 |
| Insulated jumper bar 4 ² , 3 fold | 10 | KWJ04B3 |
| Insulated jumper bar 4 ² , 4 fold | 10 | KWJ04B4 |
| Insulated jumper bar 4 ² , 5 fold | 10 | KWJ04B5 |
| Insulated jumper bar 4 ² , 10 fold | 10 | KWJ04B10 |
| Insulated jumper bar 6 ² , 2 fold | 10 | KWJ06B2 |
| Insulated jumper bar 6 ² , 3 fold | 10 | KWJ06B3 |
| Insulated jumper bar 6 ² , 4 fold | 10 | KWJ06B4 |
| Insulated jumper bar 6 ² , 5 fold | 10 | KWJ06B5 |
| Insulated jumper bar 6 ² , 10 fold | 10 | KWJ06B10 |
| Insulated jumper bar 10 ² , 2 fold | 10 | KWJ10B2 |
| Insulated jumper bar 10 ² , 3 fold | 10 | KWJ10B3 |
| Insulated jumper bar 10 ² , 10 fold | 10 | KWJ10B10 |
| Insulated jumper bar 16 ² , 2 fold | 10 | KWJ16A2 |
| Insulated jumper bar 16 ² , 3 fold | 10 | KWJ16A3 |
| Insulated jumper bar 16 ² , 10 fold | 10 | KWJ16A10 |
| Insulated jumper bar 35 ² , 2 fold | 10 | KWJ35A2 |
| Insulated jumper bar 35 ² , 3 fold | 10 | KWJ35A3 |
| Insulated jumper bar 35 ² , 10 fold | 10 | KWJ35A10 |



KWJ35A10

Non Insulated Cross Connector

| Description | Pack qty. | Cat ref. |
|---|-----------|-----------------|
| Connecting link 70mm ² , 2 fold | 10 | KWJ70C2 |
| Connecting link 70mm ² , 3 fold | 10 | KWJ70C3 |
| Connecting link 150mm ² , 2 fold | 10 | KWJ150C2 |
| Connecting link 150mm ² , 3 fold | 10 | KWJ150C3 |



KWJ150C3

Busbar for N Disconnect Terminal Blocks

| Description | Pack qty. | Cat ref. |
|-------------|-----------|---------------|
| N Busbar | 1 | KW1NBB |

Busbar Terminals for Busbar 10 x 3mm

| Description | Pack qty. | Cat ref. |
|---|-----------|---------------|
| Busbar terminal 16 ² | 50 | KW16ST |
| Busbar terminal 16 ² - 35 ² | 20 | KW35ST |



KW16ST

End Clamp (material: plastic)

| Description | Pack qty. | Cat ref. |
|------------------------------|-----------|--------------|
| End clamp 35mm ² | 100 | KWB01 |
| End clamp 150mm ² | 100 | KWB02 |



KWB01



KM04L



KM08L



KM07N



KM10B



KM10E



KM13N



KM11B



K151



KM25N



K158



K159

Brass Terminals

Characteristics

- Brass terminals
- For earth, neutral, phase copper conductors.
- In max: 60A

Version without base:

- Can be mounted using KZ bases or rail. Delivered with screws.

Version with base:

- To be clipped on 12 x 2 mm rails.

- Earth: green/yellow base
- Neutral: blue base
- Phase: beige base

| | Description | Connection Section | With base neutral Cat ref. | With base earth Cat ref. | With base phase Cat ref. | Without base Cat ref. |
|-------|-----------------------------|--|-------------------------------|-----------------------------|-----------------------------|---|
| KM04L | Brass terminals with base | 2x 6 + 2x10mm ² 4 connections plot length 30mm | - | - | KM04L | K140 |
| KM08L | | 4x16 + 4x10mm ² 8 connections 2 plot length 30mm | - | - | KM08L | - |
| KM07N | | 3x16 + 4x10mm ² 7 connections plot length 49mm | KM07N | KM07E | KM07L | K142 |
| KM10B | | 5x16 + 5x10mm ² 10 connections plot length 67mm | KM10A | KM10B | KM10C | K143 |
| KM10E | | 5x16 + 6x10mm ² 11 connections plot length 73mm | KM11N | KM11E | KM11L | K144 |
| KM13N | | 2x16 (dbl. drive)+ 8x10 mm ² 10 connections plot length 69mm | KM10N | KM10E | KM10L | K145 |
| KM11B | | 6x16 + 7x10mm ² 13 connections plot length 85mm | KM13N | KM13E | - | K148 |
| K151 | | 1x25+5x16 + 5x10mm ² 11 connections plot length 85mm | - | KM11B | - | K151 |
| KM25N | | 1x25 + 8x16 + 8x10mm ² 17 connections plot length 121mm | KM17N | KM17E | - | K156 |
| K158 | | 1x25+11x16+13x10mm ² 25 connections plot length 169mm | KM25N | KM25E | - | K158 |
| K159 | Brs. terminals without base | 1x25 + 8x16 + 29x10 mm ² , length 242mm 1x25 + 16x16 + 61x10 mm ² , length 482mm 1x25 + 33x16 + 129x10 mm ² ,length 992mm | | | | K159 K160 K162 |



KZ012



KZ014

Bases

Characteristics

- Bases for brass terminals K140 to K162
- Insulated material
- M4 x 8 fixing screws

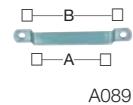
| Description | Cat ref. |
|--|------------------------------|
| Bases for brass terminals K140 to K162 insulated material M4 x 8 fixing screws | KZ012 |
| | blue base, for neutral |
| | green/yellow base, for earth |
| | beige base, for phase |

Bases & Rails for Terminals & Blocks
Characteristics
Bases for Brass Terminals

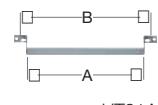
- For the mounting of the KM brass terminals without base.
- Material: flat bar 12 x 2 mm.

Mounting Rails

- For the mounting of junction blocks and terminals into enclosures.
- Electro-zinc coated and bichromated.
- Length: 2m



A089



UT91A

Description

Flat bar supports for terminal strips for brass terminals with base

Dimensions

for one brass terminal

Cat ref.
A089

Pinch carriers UT91A for brass terminals with base

1 span (250 mm)

A089

Brass terminals supports for brass terminals with base

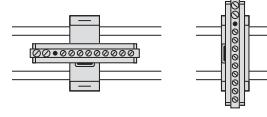
for mounting in all boards

A090

Rail fixing clips KZ060F to fix brass terminals on DIN rails with bases
KZ012, KZ013 and KZ014

mounting on DIN rail

width 20 mm

KZ060F


horizontally

vertically

A090



KZ060F

Symmetrical rails, DIN 46277/3, width: 35 mm

1 span (250 mm)

depth 7.5 mm

A088


A088



A098



A099

depth 10 mm

A098

depth 15 mm

A099

Asymmetrical rails, DIN 46277/1

1 span (250 mm)

depth 7.5 mm

A050

Insulated Brass Terminals
Description

Brass terminals insulated green, earth, IP20

Pack qty.

7 x 16mm²
Cat ref.
KM07EF

Brass terminals insulated blue, neutral, IP20

7 x 16mm²

1

KM07NF

Brass terminals insulated green, earth, IP20

12 x 16mm²

1

KM12EF

Brass terminals insulated blue, neutral, IP20

12 x 16mm²

1

KM12NF


KM07EF



KM12NF



KN06P



KN22N



KN26E

Quick Connect & Cage Terminals

Characteristics

- For earth, neutral, phase copper conductors.
- The terminals are equipped with direct plug-in quickconnect terminals for 1,5 to 4 mm² plug-in wires and cage terminals for 1,5 to 25 mm² standard wires.
- Can be clipped on premounted bases for volta, vector, vega D, gala and gamma enclosures.
- Available as accessories.
- Complies with EN 60998. For technical information see page 2.59.

| Description | Terminal qty. quick connect 1.5 to 4mm ² | Cage 1.5 to 25mm ² | Blue neutral Cat ref. | Brown phase Cat ref. | Green/yellow earth Cat ref. |
|-----------------------|---|-------------------------------|-----------------------|----------------------|-----------------------------|
| Quickconnect and cage | 5 | 1 | KN06N | KN06P | KN06E |
| | 8 | 2 | KN10N | KN10P | KN10E |
| | 11 | 3 | KN14N | KN14P | KN14E |
| | 14 | 4 | KN18N | KN18P | KN18E |
| | 17 | 5 | KN22N | KN22P | KN22E |
| | 20 | 6 | KN26N | KN26P | KN26E |

Accessories



KN99P/N/E



VZ710



VZ711



GZ30A



KN00A



KN07N



KN04P

| Description | Cat ref. |
|--|---|
| Equipotential bridgings to connect 2 quickconnect terminals | for neutral terminals (pack of 10) KN99N |
| | for phase terminals (pack of 10) KN99P |
| | for earth terminals (pack of 10) KN99E |
| Bases for quickconnect terminals | for volta, vector VZ711 |
| | vega 18 surface VZ710 |
| | gamma GZ30A |
| | FW enclosure UZ00K1 |
| Universal bases for terminals to be fixed on 12 x 2 mm flat bars of DIN rails in Quadro and Univers enclosures | length: 105 mm pre-cut base to fit with the terminals dimensions KN00A |
| Incoming cage terminals allow the connection of cables up to 25 mm ² Ui = 630V, 90A, can be clipped on quickconnect bases | neutral terminals: 4 x 25 mm ² KN04N |
| | neutral terminals: 7 x 25 mm ² KN07N |
| | phase terminals: 4 x 25 mm ² KN04P |
| | phase terminals: 7 x 25 mm ² KN07P |



Engineered solutions.

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

:hager

| | 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 Output

| | |
|--|---|
| | 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)

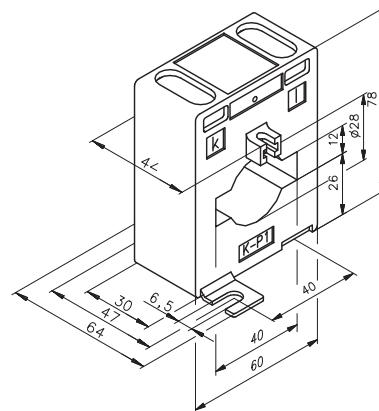
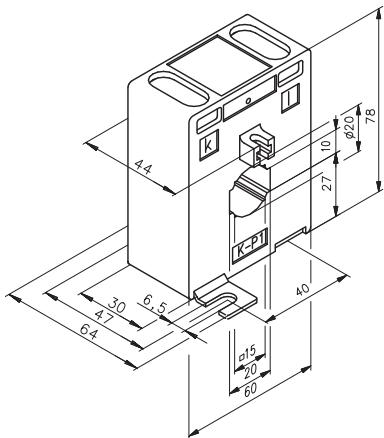
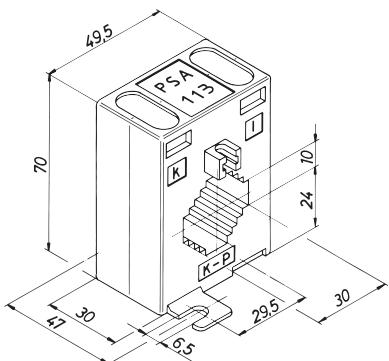
| | |
|---|--|
| Primary rated current | 50 A - 2000 A |
| Rated secondary current | 5 A |
| Rated frequency | 50 - 60 Hz |
| Highest voltage for equipment U_m | 720 V |
| Rated power-frequency withstand voltage (r.m.s.) | 3 kV |
| Instrument security factor (FS) | FS 5 |
| Rated continuous thermal current | $1,2 \times I_n$ |
| 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 |

SRA01005, SRA01505, SRA02005,
SRA02505, SRC04005, SRC06005

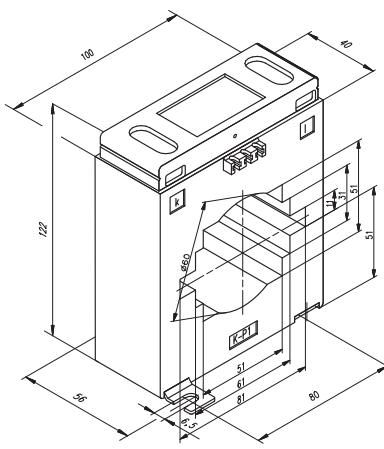
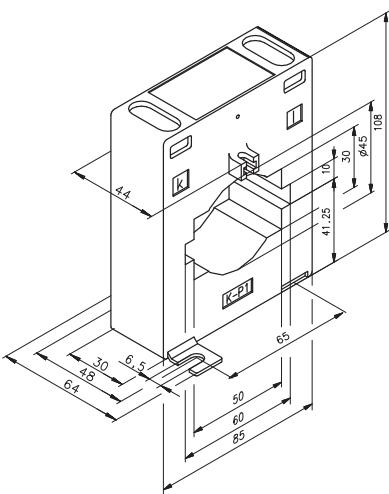
SRA00505

SRI03005



SRD08005, SRD10005, SRD15005

SRE20005



Electrical Characteristics Changeover Switches

| Family | SF | | | | | | |
|---------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | 1 module | | | 2 module | | | 4 module |
| | SFH125 | SFM125 | SFT125 | SFH225 | SFT225 | SFT240 | SF263 |
| | 25A | 25A | 25A | 25A | 25A | 40A | 63A |
| | 50 / 60 Hz |
| | 230V | | | | | | |
| | 440V | 440V | 440V | 440V | 440V | 440V | 500V |
| | 4 KV | 4 KV | 3 KV | 6 KV | 6 KV | 6 KV | 4 KV |
| | 2 | 2 | 2 | 3 | 2 | 2 | 2 |
| Working temperature | -20 to 50°C |
| Storage temperature | -40 to 80°C |

Operational Currents I_e

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

Short circuit characteristic

| | | | | | | |
|---|-------------|-------------|-----|-----|-------------|-------------|
| Rated short time withstand current 1s lcw (rms) | IEC 60947-3 | 375A / 1sec | | | 600A / 1sec | 4.5kA cond. |
| Prospective short circuit current (rms) | EN 60669 | 3kA | 3kA | 3kA | 6kA | 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 |
| 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 |

Electrical Characteristics Switch Disconnectors

| Family | SBx / SFx | SBx | SBx |
|--------------------------------------|-------------------|-----------------|-------------------------|
| Number of pole | 1P - 2P - 3P - 4P | | |
| Frame size | frame size 1 | frame size 2 | frame size 3 |
| Comply to standard | IEC 60947-3 | ok | ok |
| | IEC 60669-2-4 | ok | - |
| Thermal current Ith (40°C) | 16A 25A 32A | 32A 40A 63A | 63A 80A 100A 125A |
| Operational frequency | 50/60 Hz | 50/60 Hz | 50/60 Hz |
| Rated insulation voltage (Ui) | 440V | 440V | 440V |
| Rated impulse withstand voltage Uimp | 3kV | 6 kV | 6 kV |
| Protection degree | 3 (SB) / 2 (SF) | 3 | 3 |
| Working temperature | -20 to 50°C | | |
| Storage temperature | -40 to 80°C | | |

Operational Currents I_e

| Rated voltage | load duty category | | | | | | |
|------------------------|------------------------|-----|-----|-----|-----|-----|-----|
| AC 21-A ⁽¹⁾ | | 16A | 25A | 32A | 32A | 40A | 63A |
| 400V AC | AC 22-A ⁽¹⁾ | 16A | 25A | 32A | 32A | 40A | 63A |
| | AC 23-A ⁽¹⁾ | 10A | 10A | 10A | 32A | 40A | 40A |

Short circuit characteristics

| | | | |
|---|--------------|---|-----------------------------|
| Rated short time withstand current 1s lcw (rms) | IEC 60947-3 | 240A 375A 480A 480A 600A 945A | 945A 960A 1200A 1500A |
| Prospective short circuit current (rms) | EN 60669-2-4 | 3kA | 6kA |

Mechanical characteristics

| | | | |
|--|--------------------|--------------------|--------------------|
| Rigid cable section | 16 mm ² | 25 mm ² | 50 mm ² |
| Flexible cable section | 10 mm ² | 16 mm ² | 35 mm ² |
| Tightening torque | 1.8 Nm | 2.8 Nm | 3.6 Nm |
| Busbar thickness | n/a | 1 to 1.5 mm | 1.5 to 2 mm |
| IP protection degree | 20 | | |
| Mechanical endurance (number of cycles) | 100000 | 30000 | 20000 |
| Electrical endurance @ AC22 (number of cycles) | 25000 | 5000 | 2500 |

⁽¹⁾ A category: frequent operation

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 **EEN100** 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 user sets the working level:
 - The photo cell measures the external light level

The output of the **EEN100** 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

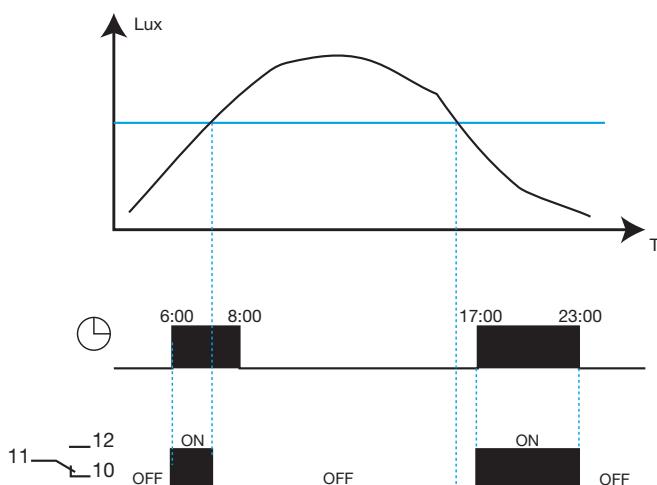
The output of the **EE171** during the programmed ON time period is:

- 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

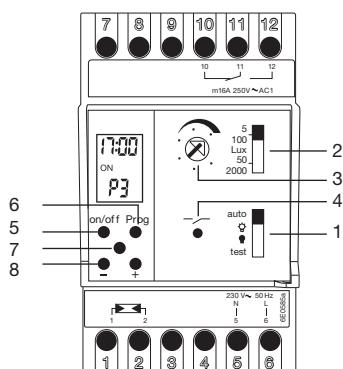
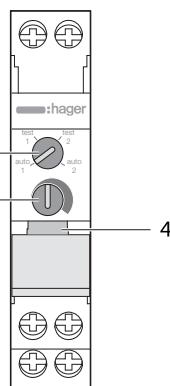
The output of the **EE171** during the programmed off time period is:

- 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



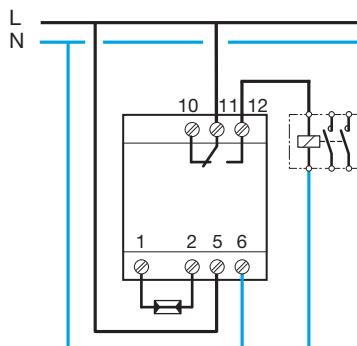
The programmable light sensitive switch **EE171** has two main functions:

Light sensitive switch comprising

1. Override selector switch to allow permanent ON or OFF, auto on 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:

- 1. 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

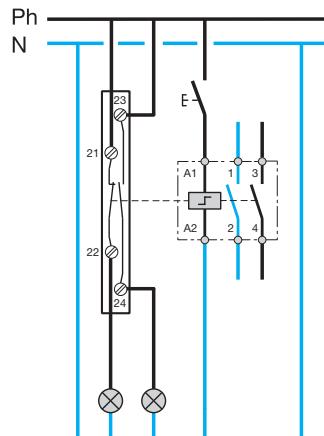
Technical Characteristics

| | 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 | | | | 0.5 to 4mm ² | | |
| Rigid | | | | 1 to 6mm ² | | |
| Power: | | | | | | |
| Flexible | | | | 1 to 6mm ² | | |
| Rigid | | | | 1.5 to 10mm ² | | |

¹ 400~ for EPN540 and EPN541.

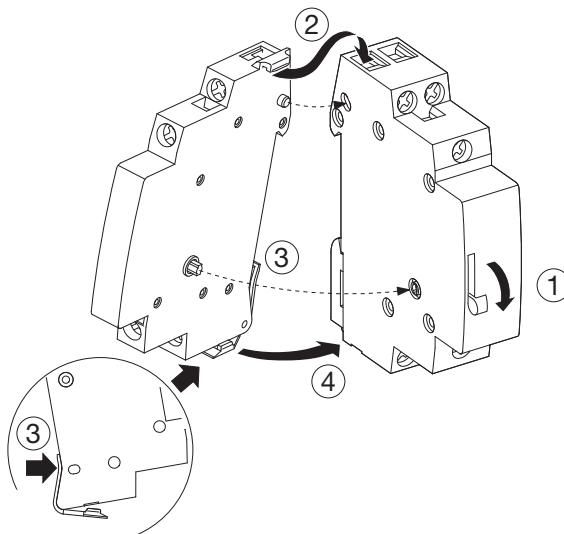
Auxiliary Contacts (EPN051)

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.

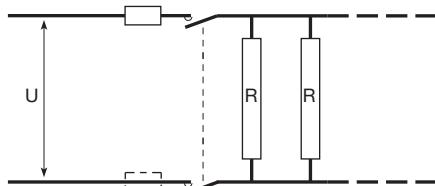
Type of Load

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.

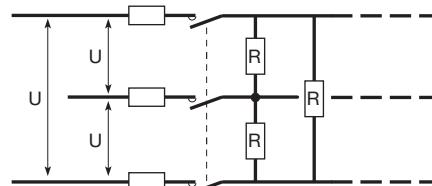
Heat Dissipation Inserts

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



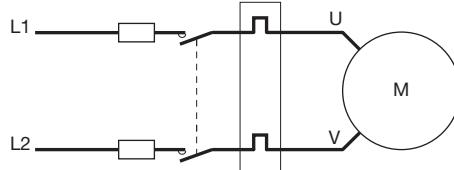
Three Phase



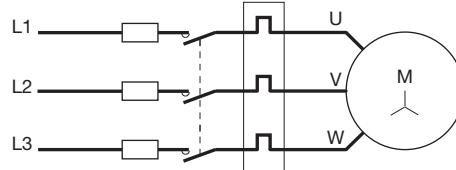
| | | Number of operations | | | | | |
|-----------------|------|----------------------|---------|---------|---------|-----------|-----|
| | | 100,000 | 150,000 | 200,000 | 500,000 | 1,000,000 | |
| Max. load in kW | 230V | 16A | 3 | 2.5 | 1.9 | 0.85 | 0.7 |
| | 230V | 25A | 4.6 | 4 | 3 | 1.35 | 1 |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



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

Requirements of Use

Influence of Working Temperature

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

Example: Heating with convector

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

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

Close Fitting

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

| Description | | Modular contact | | | | | | Auxiliary contact |
|---|--|----------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|----------------------|
| Standard conformity | | EN 61095 | | | | | | |
| Approvals | | NF - VDE- IMQ - KEMA - RMC / CCC | | | | | | |
| Number of modules | | Relay | Contactor | Relay | Contactor | Contactor | Contactor | |
| 1 | | | | 2 | | 3 | | 1/2 |
| 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 (Ui _{imp}) | 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 le | 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 le | 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 @ le 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 |
| | | 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...10mm ² | 1...10mm ² | 1...10mm ² | 1...10mm ² | 4...25mm ² | 4...25mm ² | 1...6mm ² |
| | Flexible | 1...6mm ² | 1...6mm ² | 1...6mm ² | 1...6mm ² | 4...16mm ² | 4...16mm ² | 1...6mm ² |
| 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...10mm ² | 1...10mm ² | 1...10mm ² | 1...10mm ² | 1...10mm ² | 1...10mm ² | - |
| | Flexible | 1...6mm ² | 1...6mm ² | 1...6mm ² | 1...6mm ² | 1...6mm ² | 1...6mm ² | - |
| 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.

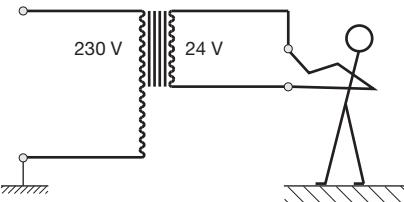
| | Lamp Power | 16A | 25A | 16A + | 25A + | 40A | 63A |
|--|------------|-----|-----|-------|-------|-----|-----|
| Compact fluo lamps | | | | | | | |
| Compact fluo lamp with external electronic ballast | 5W | 11 | 15 | 17 | 27 | 49 | 76 |
| | 7W | 11 | 15 | 17 | 27 | 49 | 76 |
| | 9W | 9 | 13 | 16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

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

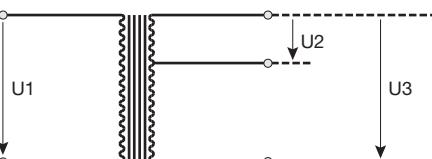
| | Lamp Power | 16A | 25A | 16A + | 25A + | 40A | 63A |
|---|------------|-----|-----|-------|-------|-----|-----|
| Discharge lamps | | | | | | | |
| High-pressure mercury-vapor lamps - without compensation | 50W | 9 | 14 | 17 | 28 | 32 | 50 |
| | 80W | 6 | 9 | 11 | 18 | 24 | 37 |
| | 125W | 3 | 5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

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 $I_n = 5.25A$ |
| | 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 |

Electromechanical & Digital Time Switches

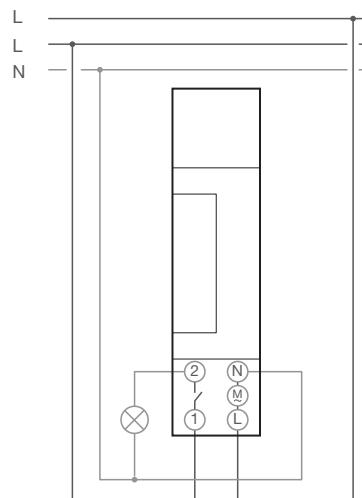
Technical data

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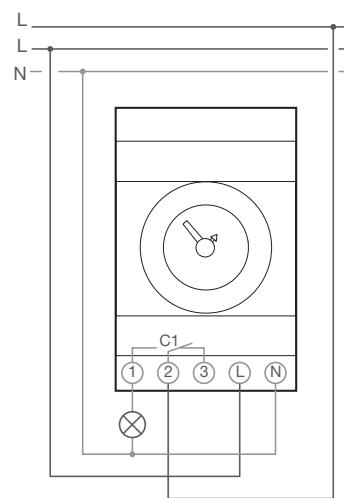
Technical Specifications

| | EHN011 | EHN010 | EHN110 | EHN111 | EHN171 | EG103E | EG203E | EG493E |
|--|---------------------------------|---------------------------------|-------------------------------|-------------------------------|-------------------------------|--|---|--|
| Version | Daily | | | | | Weekly | | |
| Voltage Supply | 230V 50/60Hz | 230V 50Hz | 230V 50Hz | 230V 50/60Hz | 230V 50/60Hz | 230VAC 50/60Hz | 230VAC 50/60Hz | 230VAC 50/60Hz |
| Consumption | 0.5W | 1W | 0.9W | 0.5W | 0.5W | 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 | 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 AC1 /250V 4A DC 1 /12V | 16A AC1 /250V 4A DC 1 /12V | 10A AC1 /250V |
| Inductive Load cos 0.6 | 4A / 250V | 4A / 250V | 4A / 250V | 4A / 250V | 2.5A / 250V | 10A / 250V | 10A / 250V | 10A / 250V |
| Incandescent Lamp | 1000W | 1000W | 1100W | 900W | 900W | 2300W | 2300W | 1500W |
| LED Lamp ≤2W >2W | 30W (15x2W) 300W (20x15W) | 30W (15x2W) 300W (20x15W) | 20W 180W | 20W 180W | 20W 180W | - | - | - |
| Halogen Lighting | 1000W | 1000W | 1100W | 1100W | 1100W | 2300W | 2300W | 1500W |
| Fluorescent lamps (electronic ballast) | 600W (10x58W) | 600W (10x58W) | - | - | - | - | - | - |
| Fluorescent lamps With ballast Without ballast | 600VA(max 70µF) 1000VA | 600VA(max 70µF) 1000VA | - | - | - | - | - | - |
| Compensated Fluorescent Tubes (max 45µF) | - | - | 400VA | 400VA | 400VA | 400W | 400W | 400W |
| Non Compensated Fluorescent Tubes Compensated in Series | - | - | 1100VA | 1100VA | 1100VA | 1000W | 1000W | 800W |
| Compact Fluorescent Tubes | 150W | 150W | 90W | 90W | 90W | 500W | 500W | 400W |
| Minimum Current AC 1 | - | - | - | - | - | 100mA / 250V | 100mA / 250V | 100mA / 250V |
| Minimum Current DC 1 | - | - | - | - | - | - | - | - |
| Galvanic Insulation Between Power Supply and Output | - | - | - | - | - | < 4 kV | < 4 kV | < 4 kV |
| Characteristics | | | | | | | | |
| Technology | Quartz | Quartz | Quartz | Quartz | Quartz | - | - | - |
| Dial | 24hrs | 24hrs | 24hrs | 24hrs | 7 days | - | - | - |
| Minimum Switching | 15min | 15min | 15min | 15min | 2h | - | - | - |
| Programming Capacity | - | - | - | - | - | 56 Steps | 56 Steps | 300 Steps |
| Minimum Time Between 2 Steps | - | - | - | - | - | 1min | 1min | 1min |
| Working Accuracy | 1sec per day | 1sec per day | Network synchronous | 1sec per day | 1sec per day | ±1.5sec / 24h | ±1.5sec / 24h | ±0.2sec / 24h |
| Supply Failure Reserve | 120hrs | No | No | 120hrs | 120hrs | 5 Yrs lithium battery | 5 Yrs lithium battery | 5 Yrs Lithium Battery |
| Manual Switch Type | Off Auto On | Off Auto On | Off Auto On | Off Auto On | Off Auto On | - | - | - |
| Protection Degree | - | - | - | - | - | IP20 | IP20 | IP20 |
| Environment | | | | | | | | |
| Working Temperature | -10°C to +50°C | -20°C to +50°C | -20°C to +55°C | -10°C to +55°C | -10°C to +55°C | -5°C to +45°C | -5°C to +45°C | -10°C to +45°C |
| Storage Temperature | -25°C to +70°C | -25°C to +70°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 | -20°C to +70°C |
| Connection | | | | | | | | |
| Flexible | 1 to 6mm ² | 1 to 6mm ² | 1 to 6mm ² | 1 to 6mm ² | 1 to 6mm ² | 1.5 to 10mm ² | 1.5 to 10mm ² | 1 to 4mm ² |
| Rigid | - | - | - | - | - | 1 to 6mm ² | 1 to 6mm ² | 1.5 to 6mm ² |

EHN010 / EHN011
230 VM ±10% 50/60Hz



EHN110 / EHN111 / EHN171
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 |
| | EHN010 EHN011 | EHN110 EHN111 EHN171 | 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 | EHN010 EHN011 | EHN110 EHN111 | EG010 | | | |
| 7 Days | | EHN171 | EG071 | EG103 EG103E | EG203 EG203E | |
| Annual | | | | | | EG493E |

1 Channel Digital Time Switch - EG010, EG071

Technical Data

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Technical Characteristics - EG010

Electrical Characteristics

| | |
|----------------|--|
| Voltage Supply | 230V ±10% 50/60Hz |
| Consumption | 1VA |
| Output | 1 Changeover contact 16A - 250V AC 1 3A - 250V cosw = 0.6 1000W Incandescent lighting |

Functional Characteristics

| | |
|------------------------|------------------------------------|
| Number of programs | 5 Adjustable Pre-recorded Programs |
| Accuracy | ±6min 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 |

Technical Characteristics - EG071

Electrical Characteristics

| | |
|----------------|--|
| Voltage Supply | 230V ±10% 50/60Hz |
| Consumption | 1VA |
| Output | 1 Changeover contact 16A - 250V AC 1 3A - 250V cosw = 0.6 1000W Incandescent lighting |

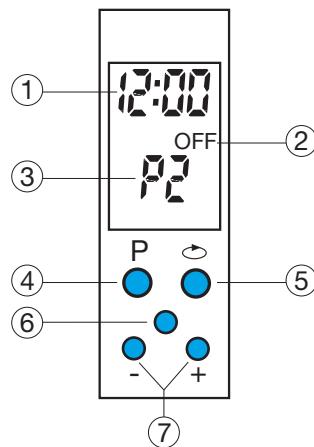
Functional Characteristics

| | |
|------------------------|--|
| Number of programs | 20 Program Steps (each program step can be applied to one of several days) |
| Accuracy | ±6min 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



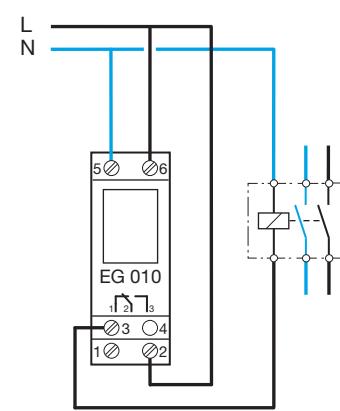
Display

1. Time
2. Circuit Status
3. Program Selection

Buttons

4. P to select the program to apply
5. Reset
6. ↪ to scroll program steps
7. + and - : to input time

Electrical Connection



Product Presentation

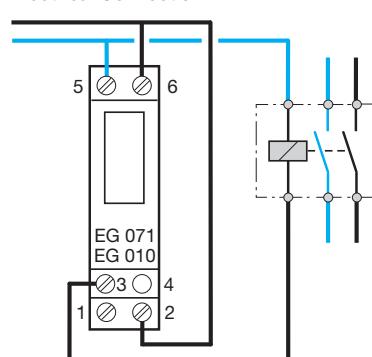
Display

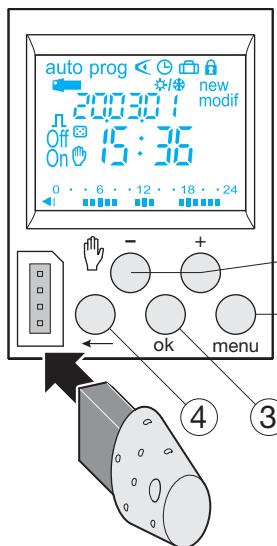
1. Time
2. Circuit Status
3. Days of the week

Buttons

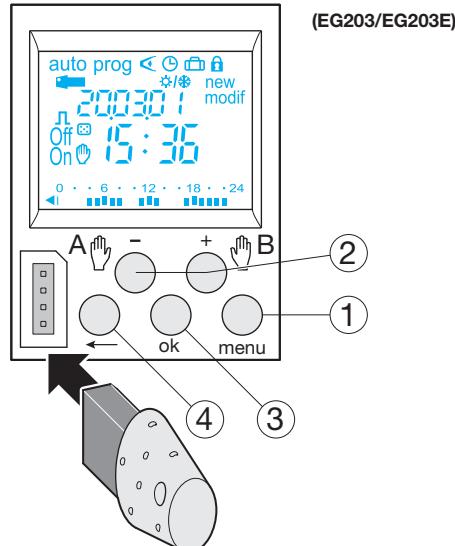
4. ON / OFF : to select the circuit status
5. Reset
6. Prog: to program the device and scroll program steps
7. To input time and day

Electrical Connection





(EG103/EG103E)

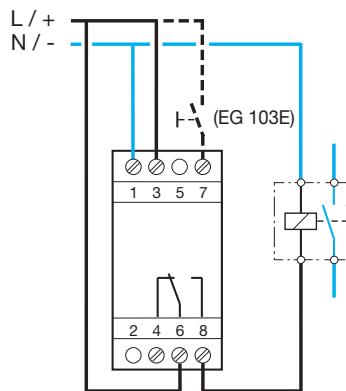


(EG203/EG203E)

Keys

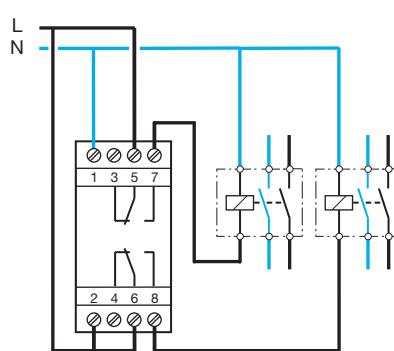
| | | |
|----|-------|---|
| 1. | Menu | Selection of operating mode |
| | Auto | Mode of running according to the program selected |
| | Prog | New for programming mode |
| | Prog | To modify an existing program |
| | ◀ | Checking of the program |
| | ⌚ | Modification of time, date and selection of 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.

Connection Diagram EG103***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*

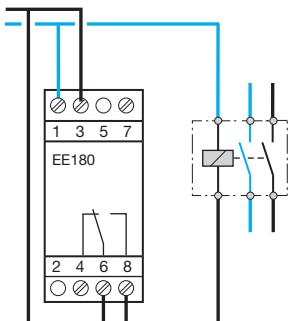
* Evolution models E or V only

Connection Diagram EG203*

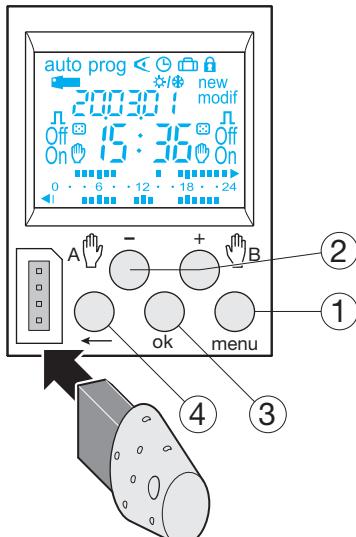
Technical Characteristics

| | 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 |
| Characteristics 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 6mm ² | |
| Rigid | 1.5 to 10mm ² | |
| 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 interruption | 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

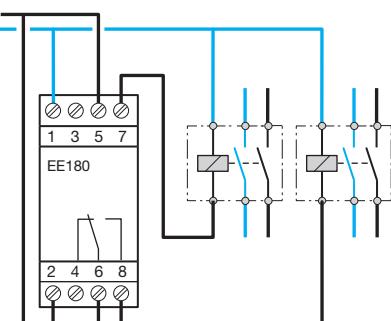


Keys

- | | |
|----------|--|
| 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

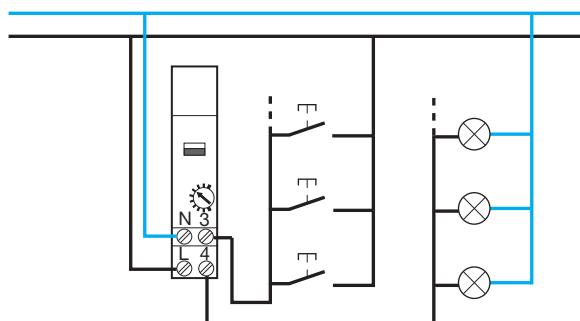
Press push button to switch ON the light. After a set time (Adjustable "T", the light will switch OFF automatically.

B: Prewarning Mode

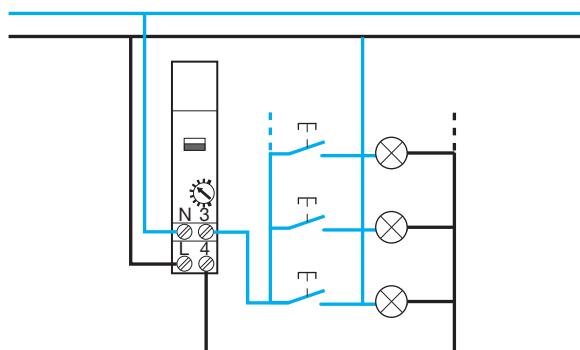
A signal (blink) will appear before the end of the lighting period.

C: Double delay mode

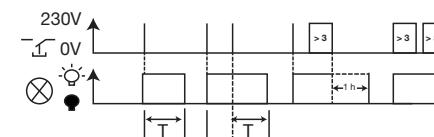
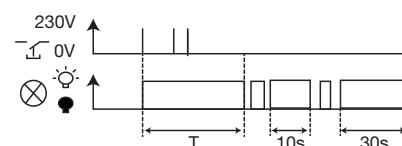
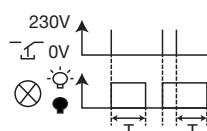
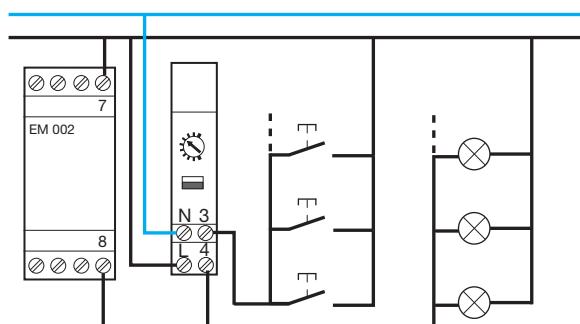
Press push button to switch light ON. After a set time (Adjustable "T", the light will switch OFF automatically. If you press the button for more than 3 seconds, a time lag of one hour begin.

Wiring Diagrams
4-Wire

3-Wire



Combination EMN002 with EMN001



Delay Timers

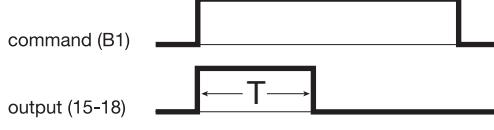
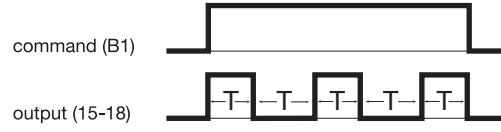
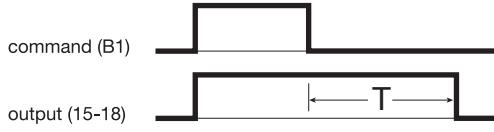
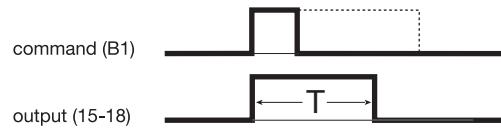
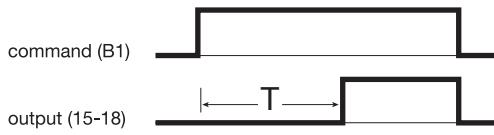
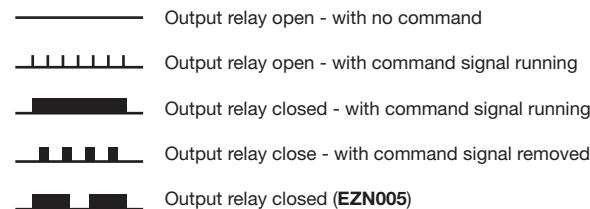
Delay timer devices are used to control a variety of processes where the requirement is for switching circuits on, off or delaying the on or off switching for a pre-set period of time. Typical device types are:

- **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 - which ever is shorter).
- C** = Delay off.
- D** = Delay on.
- E** = Delay on (output relay closes either at end of command or after set time period - which ever 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

| 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

| 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 |

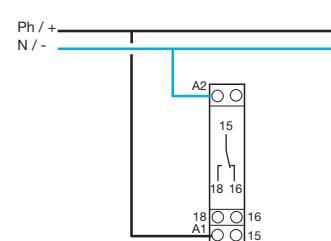
Functional characteristics

EZN001, EZN003, EZN005, EZ006

_____, _____
(functions D,E,F)

CD : Command.

O : Output.



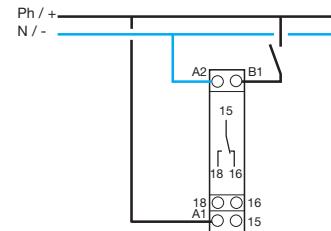
EZN002, EZN004, EZN006

(functions A,B,C)

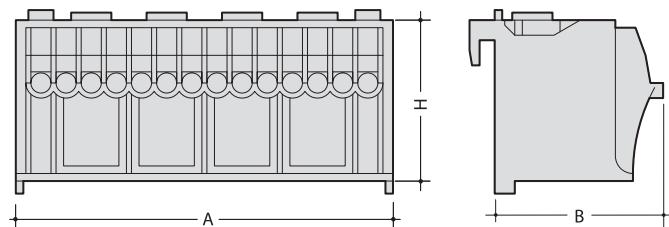
indicator light (for versions with NO contact).

ON

OFF

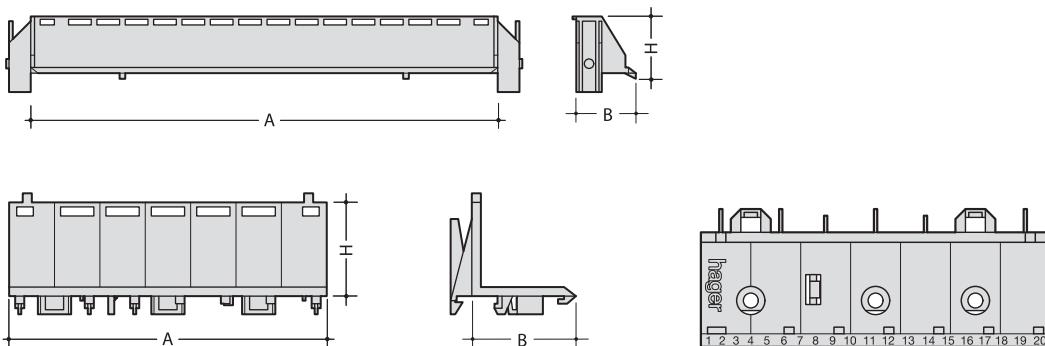


Neutral, earth and phase terminals



| | Quick Connect Terminals | | | | | | | Cage Terminals | |
|---|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|----------------|----------------|--|
| | KN06N KN06P KN06E | KN10N KN10P KN10E | KN14N KN14P KN14E | KN18N KN18P KN18E | KN22N KN22P KN22E | KN26N KN26P KN26E | KN04N KN04P | KN07N KN07P | |
| H | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | |
| A | 30 | 45 | 60 | 75 | 90 | 105 | 45 | 75 | |
| B | 34 | 34 | 34 | 34 | 34 | 34 | 18 | 18 | |

Terminal Supports

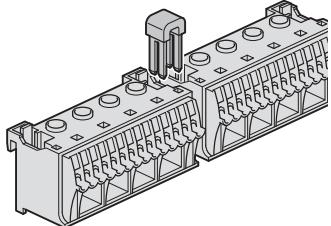
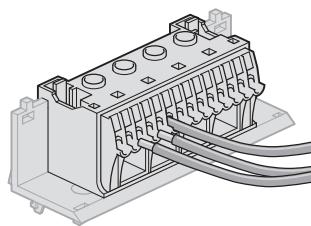
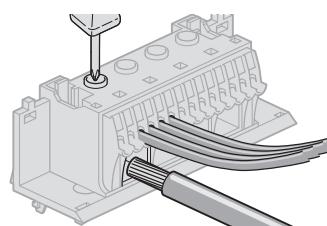


| | VZ711 volta, vector | VZ710 vega, vega D | GZ30A gamma | KN00A universal supports |
|--------|------------------------|-----------------------|----------------|--------------------------------|
| H | 32 | 35 | 30 | 35 |
| A | 240 | 315 | 195 | 105 |
| B | 42 | 42 | 42 | 42 |
| Number | 47 | 62 | 38 | 20 |

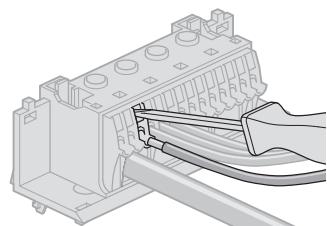
The number indicates the quantity of quickconnect terminals on the support.

Connection

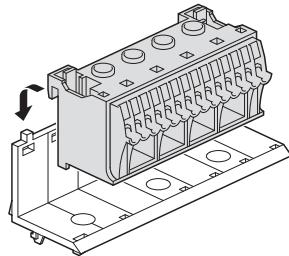
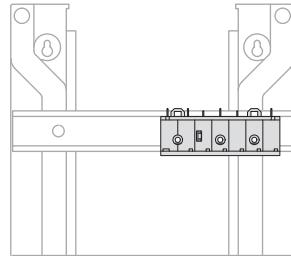
Bridge for 2 terminals

Quick Connect 1.5 to 4 mm² wiresMax. 25 mm² wires in a cage terminal

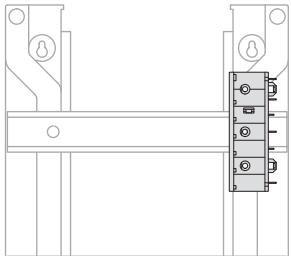
Disconnecting with screwdriver


Mounting

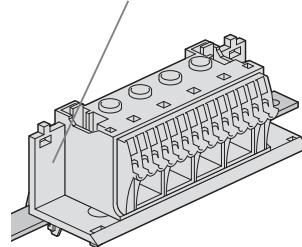
Clipping on terminal bases and universal bases

Universal support :
Horizontal mounting on DIN rail

Vertical mounting on DIN rail



Divisible universal support



Combinations: quantity of Quick Connect terminals on the bases

| Quick Connect terminals | KN06N/P/E | KN10N/P/E KN04N/P | KN14N/P/E | KN18N/P/E KN07N/P | KN22N/P/E | KN26N/P/E |
|-------------------------|-----------|----------------------|-----------|----------------------|-----------|-----------|
| Number of blocks | 1 | 1.5 | 2 | 2.5 | 3 | 3.5 |

| Quick Connect terminals bases | VZ710 Vega 18 surface, Vega D | GZ30A Gamma | VZ711 vector, volta, Gala, Vega 18 flush | KN00A universal support |
|-------------------------------|----------------------------------|----------------|---|----------------------------|
| number of blocks | 10.5 | 6.5 | 8 | 3.5 |

The bases above accept blocks combinations (neutral, phase and earth).
 Connection between same terminals is done using equipotential bridgings (KN99x).

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.



| | Page |
|------------------------------|------|
| Klik | |
| Klik 7 | 3.3 |
| Klik 4 | 3.13 |
| Controls | |
| Klik 7 Controls | 3.7 |
| Klik 4 Controls | 3.17 |
| Special Application Controls | 3.8 |
| Technical Pages | 3.19 |



KLMB6WG

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.
- 6 & 12 outlets.
- 16A Rated BS 5733:2010 .
- Short circuit tested: 1500A conditional rating.

Description

Cat ref.

Marshalling Box, Single Supply, Wire In, Plug Out

6 Way

KLMB6WG

12 Way

KLMB12WG



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

Klik 7 Pre-wired Plugs

Characteristics:

- Connections to luminaire is made via pre wired plug and lead. All leads are low smoke zero halogen and carry CPR rating Dca- S1b, d2, a2.
- Standard, digital and emergency luminaires.
- Short circuit tested: 1500A conditional rating.
- Cable standard EN 61535.
- 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 **K7B3M075W** will now become **K7B3M075WDCA**. For a full supersession chart, see page 3.21.



| K7 | B | 3M | 075 | W | DCA |
|---|----------|-----------|----------------------|----------------------------|------------|
| Range | Function | Length | Core Size | Wired or Plug End | CPR Rating |
| Z Link Lead, Power, Emergency, Switched Line, Control | | | B Standard Luminaire | | |
| J Standard Luminaire, Emergency | | | F Switch Drop Lead | | |
| T Dimmable Luminaire, Emergency | | | | E Emergency Exit Luminaire | |
| | | | | P Dimmable Luminaire | |

| Description | Cat ref. |
|--|-----------------------|
| Pre-wired Plugs for Standard Luminaires | |
| 6A Luminaire Lead 3m 0.75mm ² 3 Core Plug to Wire | K7B3M075WDCA * |
| 6A Luminaire Lead 5m 0.75mm ² 3 Core Plug to Wire | K7B5M075WDCA * |
| 10A Luminaire Lead 3m 1mm ² 3 Core Plug to Wire | K7B3M1WDCA * |
| 10A Luminaire Lead 5m 1mm ² 3 Core Plug to Wire | K7B5M1WDCA * |
| 16A Luminaire Lead 5m 1.5mm ² 3 Core Plug to Wire | K7B5M15WDCA * |
| 10A Luminaire Lead 3m 1mm ² 4 Core Plug to Wire | K7J3M1WDCA * |
| 10A Luminaire Lead 5m 1mm ² 4 Core Plug to Wire | K7J5M1WDCA * |
| Pre-wired Plugs for Emergency Exit Luminaires | |
| 16A Luminaire Lead 3m 1.5mm ² 3 Core Plug to Wire | K7E3M15WDCA * |
| 16A Luminaire Lead 5m 1.5mm ² 3 Core Plug to Wire | K7E5M15WDCA * |
| 16A Luminaire Lead 7m 1.5mm ² 3 Core Plug to Wire | K7E7M15WDCA * |



K7T3M075WDCA

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 | K7P1M075WDCA ★ |
| 6A Luminaire Lead 3m 0.75mm ² 5 Core Plug to Wire | K7P3M075WDCA ★ |
| 6A Luminaire Lead 5m 0.75mm ² 5 Core Plug to Wire | K7P5M075WDCA ★ |
| 6A Luminaire Lead 7m 0.75mm ² 5 Core Plug to Wire | K7P7M075WDCA ★ |
| 10A Luminaire lead 1.5m 1mm ² 5 core Plug to Wire | K7P1M1WDCA ★ |
| 10A Luminaire Lead 3m 1mm ² 5 Core Plug to Wire | K7P3M1WDCA ★ |
| 10A Luminaire Lead 5m 1mm ² 5 Core Plug to Wire | K7P5M1WDCA ★ |
| 10A Luminaire Lead 7m 1mm ² 5 Core Plug to Wire | K7P7M1WDCA ★ |
| 16A Luminaire lead 1.5m 1.5mm ² 5 core Plug to Wire | K7P1M15WDCA ★ |
| 16A Luminaire Lead 3m 1.5mm ² 5 Core Plug to Wire | K7P3M15WDCA ★ |
| 16A Luminaire Lead 5m 1.5mm ² 5 Core Plug to Wire | K7P5M15WDCA ★ |
| 16A Luminaire Lead 7m 1.5mm ² 5 Core Plug to Wire | K7P7M15WDCA ★ |
| Pre-wired Plugs for Dimmable Luminaires with Emergency | |
| 6A Luminaire Lead 1.5m 0.75mm ² 6 Core Plug to Wire | K7T1M075WDCA ★ |
| 6A Luminaire Lead 3m 0.75mm ² 6 Core Plug to Wire | K7T3M075WDCA ★ |
| 6A Luminaire Lead 5m 0.75mm ² 6 Core Plug to Wire | K7T5M075WDCA ★ |
| 6A Luminaire Lead 7m 0.75mm ² 6 Core Plug to Wire | K7T7M075WDCA ★ |
| 10A Luminaire Lead 1.5m 1mm ² 6 Core Plug to Wire | K7T1M1WDCA ★ |
| 10A Luminaire Lead 3m 1mm ² 6 Core Plug to Wire | K7T3M1WDCA ★ |
| 10A Luminaire Lead 5m 1mm ² 6 Core Plug to Wire | K7T5M1WDCA ★ |

Klik 7 Pre-wired Plugs for Switch Drops



K7F5M1WDCA

Characteristics:

- The switch drop pre-wired lead allows plug in switch to KLMB connection. All leads are low smoke zero halogen and are factory connected and tested.
- 16A Rated.
- Short circuit tested: 1500A conditional rating.
- Cable standard BS 7211.
- **Note: for other switch drop options, use wireable plug, see page 3.22.**

| Description | Cat ref. |
|---|----------------------|
| Pre-wired Plugs for Switch Drops | |
| 10A Switch Drop Lead 5m 1mm ² 4 Core Plug to Wire | K7F5M1WDCA ★ |
| 10A Switch Drop Lead 10m 1mm ² 4 Core Plug to Wire | K7F10M1WDCA ★ |
| 10A Switch Drop Lead 15m 1mm ² 4 Core Plug to Wire | K7F15M1WDCA ★ |

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 3.4 .
- 1.5mm² CSA.
- 3m, & 5m lengths.
- Standard, Digital and Emergency Luminaires.
- 16A Rated.
- EN 61535.
- Short circuit tested: 1500A conditional rating.



K7Z3M15PDCA

Description

Cat ref.

Pre-wired Link Leads - L, N, SL, CPC, DA+, DA-, Emergency16A Link Lead 5m 1.5mm² 7 Core Plug to Plug**K7Z5M15PDCA ★****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

KLPCR7**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.



K7PLUG

Description

Cat ref.

16A Wireable Klik 7 Plug

K7PLUG



EE816



EED503



EED513



EE807



EED518

Occupancy Sensors with Remote Programming & Control Options

- **EE816** - Detector for control of digital (DSI/DALI) luminaires
- Direct control of a light load.
- Lux level and ON delay adjustable via potentiometers or **EE807** remote control.
- DALI/DSI bus output accommodates up to 24 ballasts.
- 230V wall switch override.
- Presence or absence detection available.
- Presence or Absence detection available.
- Programmable from **EE807**
- 7m Range
- **EE807** - IR programming tool
- Installer remote control to commission settings.
- **EE808** - IR remote control
- Customer remote control for override operation.
- Complies with EN 60669-2-1.
- **EED503, EED513, EER503, EER513** -
 - For spaces requiring modern, high-performance equipment
 - Can be adjusted with the EE807 remote control
 - Controlled with the EE808 remote control
 - Can function as both master and slave
 - Zero-crossing contact compatible with LED loads
 - LED status visible on the front of the product
 - 20m Range
 - Commercial applications, office floors, reception areas, high traffic areas

| Description | Cat ref. |
|--|-----------------|
| Wireable Digital PIR Occupancy Sensor - Dimmable & Daylight Linked | EE816 |
| Large area motion/presence detector 20 m, DALI 2 flush mounted | EED503 ★ |
| Large area motion/presence detector 20 m, DALI 2 surface mounted | EED513 ★ |
| Large area motion/presence detector 20 m, ON/OFF flush mounted | EER503 ★ |
| Large area motion/presence detector 20 m, ON/OFF surface mounted | EER513 ★ |

| Description | Cat ref. |
|--|---------------|
| Programming Tool | EE807 |
| Remote Control for the End User | EE808 |
| Backbox Accessory for Surface BESA Detectors | EEK005 |

| Description | Cat ref. |
|---------------------------------|----------|
| High Bay, High Ceiling Detector | |

| Description | Cat ref. |
|--|-----------------|
| Motion detector for high ceilings 22 x 12 metres, DALI 2 surface mounted | EED518 ★ |
| Motion detector for high ceilings 22 x 12 metres, ON/OFF surface mounted | EER518 ★ |

Occupancy Sensors

Characteristics

EE810, EE811 and EE812

- High performance presence detector that will be used in premises or in passage areas, where they increase comfort and reduce drastically the energy costs.



Combination of a presence area and a motion area.

- The presence area is especially interesting in offices, where the motion area may be used in long corridors.
- Head rotation for detection area adjustment.
- Settings via potentiometers.



EE810

Applications

EE810 - 1 channel detector

- Direct control of a light load or used as a slave for detection area enlargement.
- Lux level and ON delay setting via potentiometers.
- Test mode in order to set lux level and the detection pattern.

EE811 - 2 channels detector

- Light relay output for direct control of a light load.
- Presence output potential free relay.
- Lux level, on delay setting for light channel and presence channel via potentiometers.
- Input for slave (EE810) and/or override push button.

EE812 - Light regulator 1/10V

- Light regulator with 1/10V output in order to control electronic ballasts and/or Hager dimmers EV100/EV102.
- Detector especially dedicated for energy saving and comfort purpose.
- Input for slave (EE810) and/or override pushbutton in order to modify the setpoints.
- Lux level, On delay for light channel and min level via potentiometers.
- 3 functional modes : no dimming, dimming with local setpoint, dimming with remote setpoint.

EE813 : accessory to surface mounting.

Complies with IEC 60 609-1 and 60 669-2-1.

| Description | Cat ref. |
|---|--------------|
| Presence detector 1 channel | EE810 |
| Presence detector 2 channels | EE811 |
| Presence detector 1/10V | EE812 |
| Mounting accessory for surface mounting can be used with EE810, EE811, EE812 | EE813 |
| Presence detector monobloc on/off, switched phase 16A AC1 230V, power supply: 230V AC, 360° | EE815 |
| Presence detector monobloc DALI/DSI for lighting regulation, power supply: 230V AC, 360° | EE816 |

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.



EE883

Features

- 230V AC.
- IP54 rated.
- Detection area 360°.
- Complies with BS EN 60669-1, BS EN 60669-2-1.

| Description | Cat ref. |
|--|---------------|
| 360° Hyper Frequency Sensor | EE883 |
| Protection Basket for Hyper Frequency Sensor | EKK006 |

Corridor Motion Detector

EE880 - Infra-red corridor motion detector for surface mounting.

- 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.
- **EED505, EED515, EER505, EER515** -For spaces requiring modern, high-performance equipment
- Can be adjusted with the EE807 remote control
- Controlled with the EE808 remote control
- Can function as both master and slave
- Zero-crossing contact compatible with LED loads
- LED status visible on the front of the product
- 30x5m Range



EE880

| Description | Flush Cat ref. | Surface Cat ref. |
|---|-----------------|------------------|
| PIR Corridor Motion Detector 4x20 metres | | EE880 |
| Corridor motion detector 30 x 5 metres ON/OFF | EER505 ★ | EER515 ★ |
| Corridor motion detector 30 x 5 metres DALI 2 | EED505 ★ | EED515 ★ |



EE820

Motion Detectors

Characteristics:

- These devices are made for automatic control of lighting in both the residential and private/public industry sectors.
- They automatically switch on lighting when a person's movement is detected and light is needed. The lights turn off after a preset duration.

EE820/821, EE830/831, EE840/841, EE825/826, EE827/828

- This waterproof detector range (IP55) is mainly dedicated to outdoor applications.
- They are equipped with Fresnel lenses that permit to get a high detection performance.
- Detector 140° for access control and perimeter lighting
- 200° models to survey a house facade
- 360° to cover a house corner
- The fixing accessories allow ceiling and corner mounting.
- Settings: The timer and the lux level are set locally, via potentiometer.

Complies to IEC 60 669-1 and 60 669-2-1.

Standard IR Detectors

Characteristics:

- Surface
- 230 V~ 50/60 Hz
- Lux: 5 to 1000 lux
- Timer: pulse, 5s to 15 min
- Contact 10A AC1

| Description | Version | Cat ref. |
|---|-------------------------------|------------------------------|
| Standard wall-mounted IR detectors | | |
| Phase outlet 230V 10A resistive | 140° white 140° anthracite | EE820 EE821 |
| | 200° white 200° anthracite | EE830 EE831 |
| Dry contact outlet 230V 10A resistive | 360° white 360° anthracite | EE840 EE841 |



EE850

| Description | Version | Cat ref. |
|--|---------------------------------------|------------------------------|
| Enhanced wall-mounted IR detectors | | |
| Dry contact outlet 230V 16A resistive setting and override through IR remote control | 140° white 140° anthracite | EE850 EE851 |
| | 220° white 220° anthracite | EE860 EE861 |
| | 220/360° white 220/360° anthracite | EE870 EE871 |
| IR remote control for enhanced detectors, setting and lighting control functions | | EE806 |



EE825

| Description | Version | Cat ref. |
|---|---------------------|------------------------------|
| Mounting accessories | | |
| Corner mounting accessories for standard 140° and 200°detectors | white anthracite | EE825 EE826 |
| Corner mounting accessories for standard 360° enhanced & radio TRExxx detectors | white anthracite | EE855 EE856 |
| Ceiling mounting accessories for standard 140° and 200°detectors | white anthracite | EE827 EE828 |



Klik LCM

Lighting Control Module



Most lighting control requires commissioning.

Klik LCM can be set up using our easy programming tool KlikLink, allowing quick and easy commissioning, whether completed by the contractor or a commissioning engineer.

:hager

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.



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



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.



KLCM413WETBT

| Description | Cat ref. |
|---|---|
| 13 Way 4 Channel LCM Wire in, Plug out, 230V EM Test Override | KLCM413WETBT |
| KlikLink iPad App | Search KlikLink in iPad App Store |



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-3OS** is designed for use as a corridor sensor.
- **KLCM-5OS** 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-3OS |
| Klik LCM Wide Area Sensor with 5 Sensor Heads | 15 x 15m | KLCM-5OS |



KLCM-OS



KLCM-5OS

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

User Controls

Characteristics:

- Our Sollsta 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. |
|--|----------------|
| Sollsta Grid Retractive Wall Switch | |
| 1 Gang Grid Plate | WMGP1 |
| 1 Gang Grid Frame | WMGF1 |
| 2 Way & Centre Off Retractive Wall Switch | WMGS13R |



WMGS13R



KLDS4



KLDS6BLACK

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 | White Cat ref. | Black Cat ref. |
|--|----------------|-------------------|
| 4 Way Klik Lighting Distribution Unit | KLDS4 | |
| 6 Way Klik Lighting Distribution Unit | KLDS6 | KLDS6BLACK |
| 8 Way Klik Lighting Distribution Unit | KLDS8 | |
| 10 Way Klik Lighting Distribution Unit | KLDS10 | |
| 12 Way Klik Lighting Distribution Unit | KLDS12 | |



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.
- Connections to luminaire is made via pre wired plug and lead. All leads are low smoke zero halogen and carry CPR rating Dca- S1b, d2, a2.
- All leads have prepared ends.

| Description | Box Qty. | LSZH Cat ref. |
|--|----------|----------------------------|
| 6A Plug-in Ceiling Rose with 0.75mm² Flexible Cord | | |
| 1 Metre | 10 | K4PCR20001M075DCA ★ |
| 2 Metre | 10 | K4PCR20002M075DCA ★ |
| 3 Metre | 5 | K4PCR20003M075DCA ★ |
| 4 Metre | 5 | K4PCR20004M075DCA ★ |

6A Plug-in Ceiling Rose with 1mm² Flexible Cord

| | | |
|---------|----|--------------------------|
| 2 Metre | 10 | K4PCR20002M1DCA ★ |
| 3 Metre | 5 | K4PCR20003M1DCA ★ |
| 4 Metre | 5 | K4PCR20004M1DCA ★ |
| 5 Metre | 5 | K4PCR20005M1DCA ★ |



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.
- Connections to luminaire is made via pre wired plug and lead. All leads are low smoke zero halogen and carry CPR rating Dca- S1b, d2, a2
- All leads have prepared ends.

| Description | Box Qty. | LSZH Cat ref. |
|--|----------|----------------------------|
| 6A Pre-wired Ceiling Rose with 0.75mm² Flexible Cord | | |
| 1 Metre | 10 | K4PCR64AX1M075DCA ★ |
| 2 Metre | 10 | K4PCR64AX2M075DCA ★ |
| 3 Metre | 5 | K4PCR64AX3M075DCA ★ |
| 4 Metre | 5 | K4PCR64AX4M075DCA ★ |

6A Pre-wired Ceiling Rose with 1mm² Flexible Cord

| | | |
|---------|----|--------------------------|
| 2 Metre | 10 | K4PCR64AX2M1DCA ★ |
| 3 Metre | 5 | K4PCR64AX3M1DCA ★ |
| 4 Metre | 5 | K4PCR64AX4M1DCA ★ |
| 5 Metre | 5 | K4PCR64AX5M1DCA ★ |

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.
- Connections to luminaire is made via pre wired plug and lead. All leads are low smoke zero halogen and carry CPR rating Dca- S1b, d2, a2.

| Description | Quantity | LSZH Cat ref. |
|---------------------------|----------|---------------------------------|
| 6A Pre-wired Plugs | | |
| 2 Metre | 10 | K4P222M075DCA ★ |
| 3 Metre | 5 | K4P223M075DCA ★ |
| 4 Metre | 5 | K4P224M075DCA ★ |

6A Pre-wired Plugs with 1mm² Flexible Cord

| Description | Quantity | LSZH Cat ref. |
|--|----------|-------------------------------|
| 6A Pre-wired Plugs with 1mm² Flexible Cord | | |
| 2 Metre | 10 | K4P222M1DCA ★ |
| 3 Metre | 5 | K4P223M1DCA ★ |
| 4 Metre | 5 | K4P224M1DCA ★ |
| 5 Metre | 5 | K4P225M1DCA ★ |

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.
- Connections to luminaire is made via pre wired plug and lead. All leads are low smoke zero halogen and carry CPR rating Dca- S1b, d2, a2
- All leads have prepared ends.

| Description | Quantity | LSZH Cat ref. |
|---|----------|-----------------------------------|
| 6A Pre-wired Plugs with 0.75mm² Flexible Cord | | |
| 2 Metre | 10 | K4P64AX2M075DCA ★ |
| 3 Metre | 5 | K4P64AX3M075DCA ★ |
| 4 Metre | 5 | K4P64AX4M075DCA ★ |

6A Pre-wired Plugs with 1mm² Flexible Cord

| Description | Quantity | LSZH Cat ref. |
|--|----------|---------------------------------|
| 6A Pre-wired Plugs with 1mm² Flexible Cord | | |
| 2 Metre | 10 | K4P64AX2M1DCA ★ |
| 3 Metre | 5 | K4P64AX3M1DCA ★ |
| 4 Metre | 5 | K4P64AX4M1DCA ★ |
| 5 Metre | 5 | K4P64AX5M1DCA ★ |

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.
- Connections to luminaire is made via pre wired plug and lead. All leads are low smoke zero halogen and carry CPR rating Dca- S1b, d2, a2.
- All leads have prepared ends.

| Description | Quantity | LSZH Cat ref. |
|---|----------|------------------------------------|
| 6A Pre-wired Plugs with 0.75mm² Flexible Cord | | |
| 2 Metre | 10 | K4P64AXR2M075DCA ★ |
| 3 Metre | 5 | K4P64AXR3M075DCA ★ |
| 4 Metre | 5 | K4P64AXR4M075DCA ★ |

6A Pre-wired Plugs with 1mm² Flexible Cord

| Description | Quantity | LSZH Cat ref. |
|--|----------|----------------------------------|
| 6A Pre-wired Plugs with 1mm² Flexible Cord | | |
| 2 Metre 1.00mm ² Flexible Cord | 10 | K4P64AXR2M1DCA ★ |
| 3 Metre 1.00mm ² Flexible Cord | 5 | K4P64AXR3M1DCA ★ |
| 4 Metre 1.00mm ² Flexible Cord | 5 | K4P64AXR4M1DCA ★ |
| 5 Metre 1.00mm ² Flexible Cord | 5 | K4P64AXR5M1DCA ★ |



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

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. |
|---|----------|---------------|
| Ultra Flush Socket White | 10 | S21 |
| Architrave Socket White | 10 | S26 |
| Architrave Socket comes with Trunking Clamp | 10 | S26/TC |
| 3 Pin Round Socket White | 10 | S27 |
| Ultra Flush Round Socket White | 10 | S28 |



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

Moulded Mounting Boxes

| Description | Quantity | Cat ref. |
|-------------------------|----------|------------|
| Round Surface Box White | 10 | MB2 |



MB2



EE815

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

Flush Mounted Standard Occupancy Sensor (without cable)

Cat ref.

EE815



EE807

EE808

Remote Controls for Sensors

Characteristics:

- **EE807** programming tool is easy to use with 2 memory settings to enable repeatability.
- **EE808** remote control comes with a wall mounting bracket for storage and allows room occupant to have control of lighting output.

Description

Programming Tool

Cat ref.

EE807

Remote Control

EE808



EE005

Accessories

Description

Backbox Accessory for Surface BESA Detectors

Cat ref.

EEK005



EE804A

Occupancy/Movement 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



EE805A

Description

Occupancy/Movement Detector 360° Surface Mounted

Cat ref.

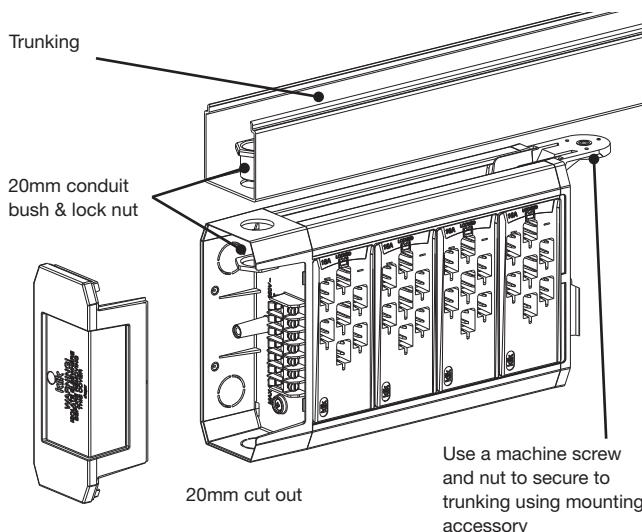
EE804A

Occupancy/Movement Detector 360° Flush Mounted

EE805A

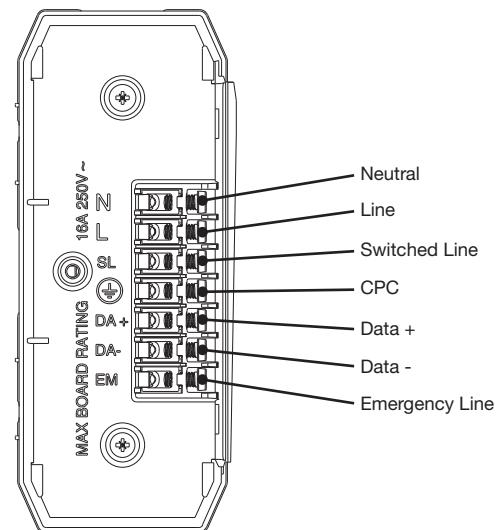
Mounting Options for Trunking

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

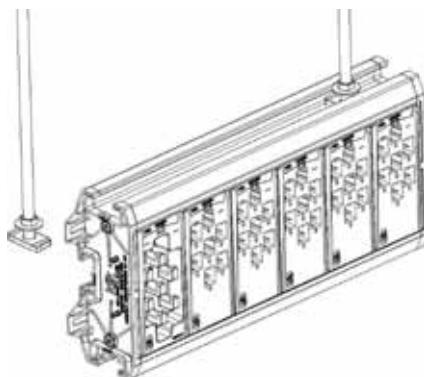
Klik 7 Pin LMB has seven screw terminals available to the installer and are arranged in the end cap as per diagram. DA+/DA- connections can be used for DALI/DSI control.



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.

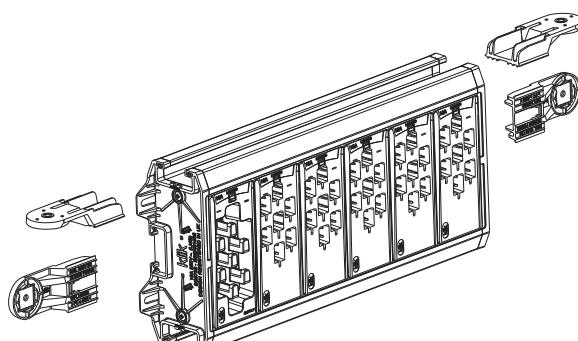
Single sided LMB can be mounted from the top as option 1 or from the rear as shown. Note: Double sided LMBs can only be mounted with option 1.



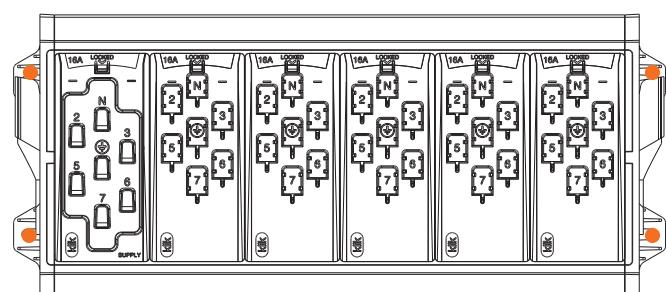
Mounting Options for Wall & Ceiling

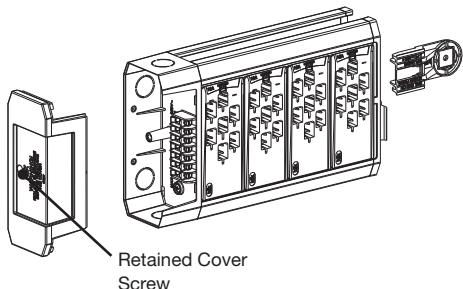
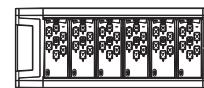
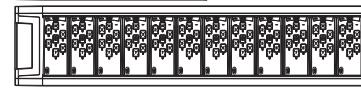
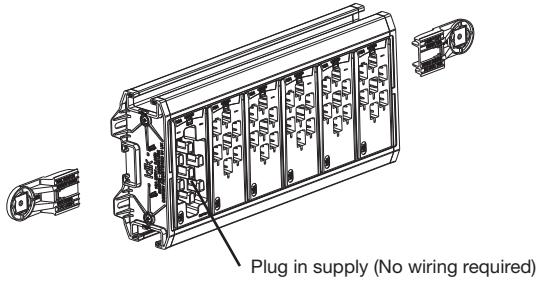
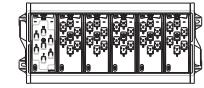
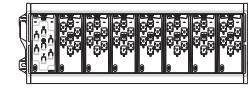
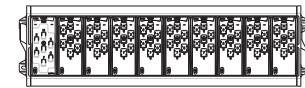
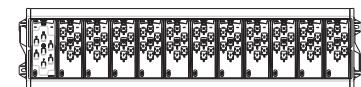
Klik 7 Pin LMB includes the Klik mounting accessory, this makes it much easier to mount LMB with Nail Guns or traditional fixings. 2 accessories are included with each LMB. Mounting Accessory can be clipped into the rear or top channel slot. It can be easily removed by inserting a screwdriver in the 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**KLMB6W****KLMB12W****Lighting Marshalling Boxes (LMB) - Pluggable**
16A Rated LMB Complying to BS 5733:2010**KLMB5P****KLMB7P****KLMB9P****KLMB11P**

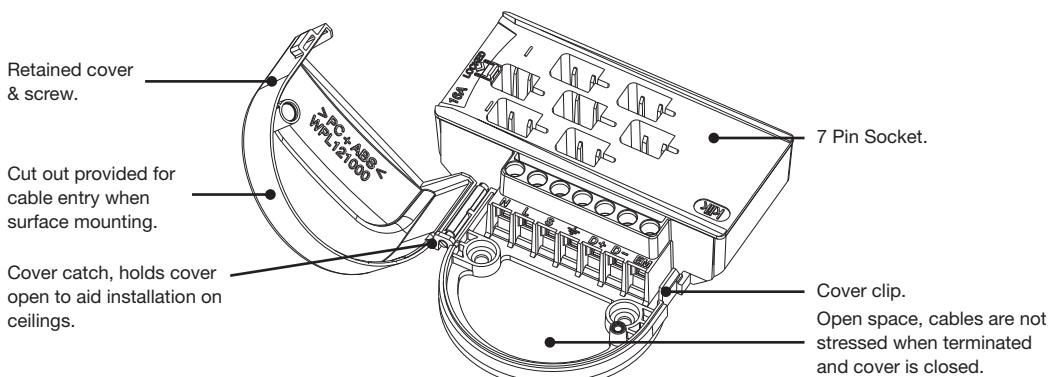
Klik 7

Supersession Table for Leads

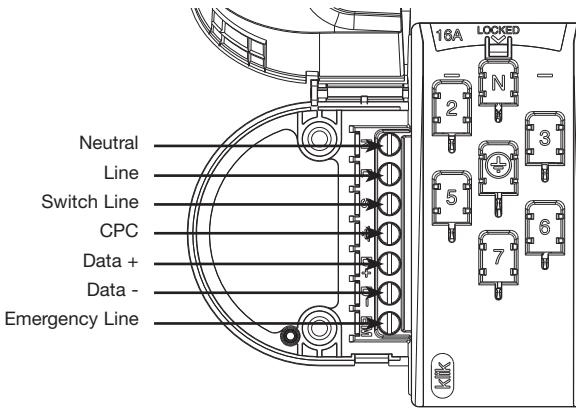
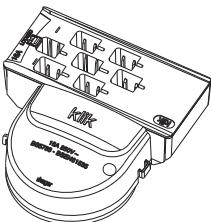


| Previous Reference | Description | New Reference | New Description |
|--------------------|--|-----------------------|--|
| K7B3M075W | 6A Lighting Lead 3m 0.75mm 3 Core P-W | K7B3M075WDCA ★ | 6A Lighting Lead 3m 0.75mm 3 Core P-W |
| K7B3M1W | 10A Lighting Lead 3m 1mm 3 Core P-W | K7B3M1WDCA ★ | 10A Lighting Lead 3m 1mm 3 Core P-W |
| K7B5M075W | 6A Lighting Lead 5m 0.75mm 3 Core P-W | K7B5M075WDCA ★ | 6A Lighting Lead 5m 0.75mm 3 Core P-W |
| K7B5M1W | 10A Lighting Lead 5m 1mm 3 Core P-W | K7B5M1WDCA ★ | 10A Lighting Lead 5m 1mm 3 Core P-W |
| K7E3M15W | 16A Lighting Lead 3m 1.5mm 3 Core P-W | K7E3M15WDCA ★ | 16A Lighting Lead 3m 1.5mm 3 Core P-W |
| K7E5M15W | 16A Lighting Lead 5m 1.5mm 3 Core P-W | K7E5M15WDCA ★ | 16A Lighting Lead 5m 1.5mm 3 Core P-W |
| K7F5M1W | 10A Switch Drop Lead 5m 1mm 4 Core P-W | K7F5M1WDCA ★ | 10A Switch Drop Lead 5m 1mm 4 Core P-W |
| K7E7M15W | 16A Luminaire Lead 7m 1.5mm ² 3 Core Plug to Wire | K7E7M15WDCA ★ | 16A Luminaire Lead 7m 1.5mm ² 3 Core Plug to Wire |
| K7F10M1W | 10A Switch Drop Lead 10m 1mm 4 Core P-W | K7F10M1WDCA ★ | 10A Switch Drop Lead 10m 1mm 4 Core P-W |
| K7F15M1W | 10A Switch Drop Lead 15m 1mm 4 Core P-W | K7F15M1WDCA ★ | 10A Switch Drop Lead 15m 1mm 4 Core P-W |
| K7J3M1W | 10A Lighting Lead 3m 1mm 4 Core P-W | K7J3M1WDCA ★ | 10A Lighting Lead 3m 1mm 4 Core P-W |
| K7J5M1W | 10A Lighting Lead 5m 1mm 4 Core P-W | K7J5M1WDCA ★ | 10A Lighting Lead 5m 1mm 4 Core P-W |
| K7P1M075W | 6A Lighting Lead 1.5m 0.75mm 5 Core P-W | K7P1M075WDCA ★ | 6A Lighting Lead 1.5m 0.75mm 5 Core P-W |
| K7P1M15W | 16A Lighting lead 1m 1.5mm 5 core P-W | K7P1M15WDCA ★ | 16A Lighting lead 1.5m 1.5mm 5 core P-W |
| K7P1M1W | 10A Lighting lead 1m 1mm 5 core P-W | K7P1M1WDCA ★ | 10A Lighting lead 1.5 1mm 5 core P-W |
| K7P3M075W | 6A Lighting Lead 3m 0.75mm 5 Core P-W | K7P3M075WDCA ★ | 6A Lighting Lead 3m 0.75mm 5 Core P-W |
| K7P3M15W | 16A Lighting Lead 3m 1.5mm 5 Core P-W | K7P3M15WDCA ★ | 16A Lighting Lead 3m 1.5mm 5 Core P-W |
| K7P3M1W | 10A Lighting Lead 3m 1mm 5 Core P-W | K7P3M1WDCA ★ | 10A Lighting Lead 3m 1mm 5 Core P-W |
| K7P5M075W | 6A Lighting Lead 5m 0.75mm 5 Core P-W | K7P5M075WDCA ★ | 6A Lighting Lead 5m 0.75mm 5 Core P-W |
| K7P5M15W | 16A Lighting Lead 5m 1.5mm 5 Core P-W | K7P5M15WDCA ★ | 16A Lighting Lead 5m 1.5mm 5 Core P-W |
| K7P7M15W | 16A Lighting Lead 7m 1.5mm 5 Core P-W | K7P7M15WDCA ★ | 16A Lighting Lead 5m 1.5mm 5 Core P-W |
| K7P5M1W | 10A Lighting Lead 5m 1mm 5 Core P-W | K7P5M1WDCA ★ | 10A Lighting Lead 5m 1mm 5 Core P-W |
| K7P7M1W | 10A Lighting Lead 7m 1mm 5 Core P-W | K7P7M1WDCA ★ | 10A Lighting Lead 7m 1mm 5 Core P-W |
| K7T1M075W | 6A Lighting Lead 1.5m 0.75mm 6 Core P-W | K7T1M075WDCA ★ | 6A Lighting Lead 1.5m 0.75mm 6 Core P-W |
| K7T1M1W | 10A Lighting Lead 1.5m 1mm 6 Core P-W | K7T1M1WDCA ★ | 10A Lighting Lead 1.5m 1mm 6 Core P-W |
| K7T3M075W | 6A Lighting Lead 3m 0.75mm 6 Core P-W | K7T3M075WDCA ★ | 6A Lighting Lead 3m 0.75mm 6 Core P-W |
| K7T3M1W | 10A Lighting Lead 3m 1mm 6 Core P-W | K7T3M1WDCA ★ | 10A Lighting Lead 3m 1mm 6 Core P-W |
| K7T5M075W | 6A Lighting Lead 5m 0.75mm 6 Core P-W | K7T5M075WDCA ★ | 6A Lighting Lead 5m 0.75mm 6 Core P-W |
| K7T7M075W | 6A Lighting Lead 7m 0.75mm 6 Core P-W | K7T7M075WDCA ★ | 6A Lighting Lead 7m 0.75mm 6 Core P-W |
| K7T5M1W | 10A Lighting Lead 5m 1mm 6 Core P-W | K7T5M1WDCA ★ | 10A Lighting Lead 5m 1mm 6 Core P-W |
| K7B5M15W | 16A Lighting Lead 5m 1.5mm ² 3 Core Plug to Wire | K7B5M15WDCA ★ | 16A Lighting Lead 5m 1.5mm ² 3 Core Plug to Wire |
| K7Z3M15P | 16A Lighting Link Lead 3m 1.5mm 7 Core P-P | K7Z3M15PDCA ★ | 16A Lighting Link Lead 3m 1.5mm 7 Core P-P |
| K7Z5M15P | 16A Lighting Link Lead 5m 1.5mm 7 Core P-P | K7Z5M15PDCA ★ | 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.

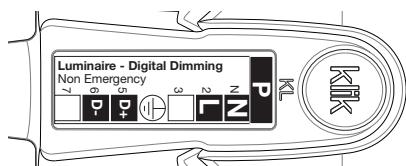


K7PLUG Wireable Plug Configurations and Labels

Self Adhesive ID Labels:

Apply label for the type of lead you are making.

Lighting configurations for on / off and dimmable solutions.



Luminaire Connections

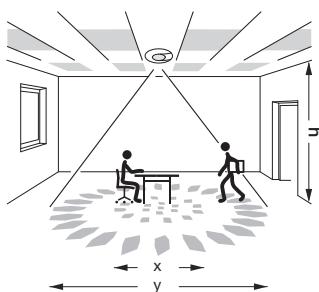
| | | | | | | | |
|----------------------------------|---|----------------|----|----|---|---|---|
| On/Off Non Emergency | 7 | 6 | 5 | 3 | 2 | N | B |
| On/Off Switched Emergency | 7 | E _m | 6 | 5 | 3 | 2 | N |
| Digital Dimming Non Emergency | 7 | D- | D+ | 3 | 2 | N | P |
| Digital Dimming Emergency | 7 | E _m | D- | D+ | 3 | 2 | N |
| Emergency Exit | 7 | E _m | 6 | 5 | 3 | 2 | N |

Switch Drops

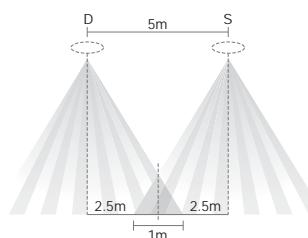
| | | | | | | | |
|---|---|----------------|----|----|---|---|---|
| 1 Gang - 1 Way or Retractive N/O for Digital OS Wall Dimming Control | 7 | 6 | 5 | 3 | 2 | N | D |
| Retractive N/O Switch Absense or Override off for OS | 7 | E _m | 6 | 5 | 3 | 2 | N |
| Switch Drop for Emergency Key Switch | 7 | E _m | 6 | 5 | 3 | 2 | N |
| 2 Gang, 1 Way plus Emergency Key Switch | 7 | E _m | 6 | 5 | 3 | 2 | N |
| 2 Gang, 2 Way Plus Emergency Key Switch | 7 | E _m | D- | D+ | 3 | 2 | N |

Link Lead

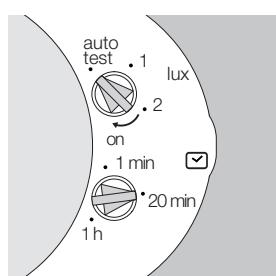
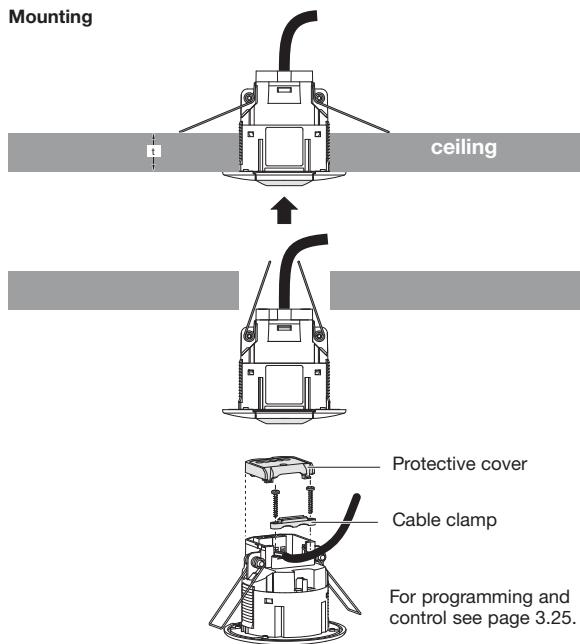
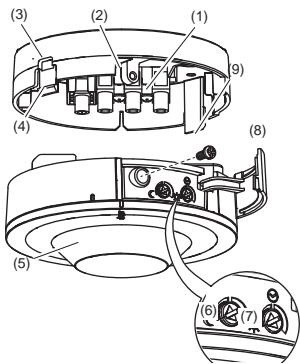
| | | | | | | | |
|--|---|----------------|----|----|---|---|---|
| Power Only | 7 | 6 | 5 | 3 | 2 | N | A |
| Power with Emergency | 7 | E _m | 6 | 5 | 3 | 2 | N |
| Power with Switching and Emergency | 7 | E _m | 6 | 5 | 3 | 2 | N |
| Power, Switched Line, Control & Emergency | 7 | E _m | D- | D+ | 3 | 2 | N |
| DALI Link Lead | 7 | E _m | D- | D+ | 3 | 2 | N |

EEK Sensors**Detection areas**

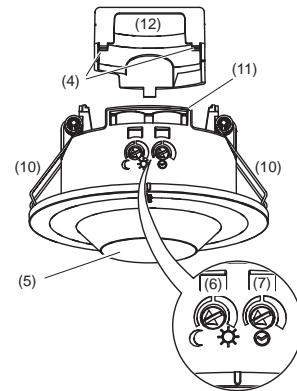
| | | | |
|---|------|----|------|
| H | 2.5m | 3m | 3.5m |
| X | 5m | 5m | 5m |
| Y | 7m | 8m | 9m |



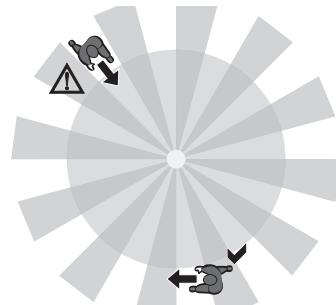
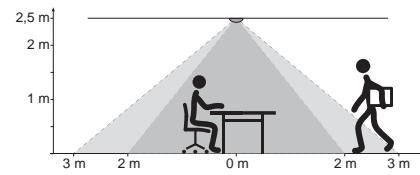
**Settings EEK513P/EEK515P
EEK523P/EEK525P**

**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



Klik 7 Pin Product Standards

| Product Description | Klik Product identification | BS number | Description |
|--|-------------------------------------|-------------------------------|--|
| Klik 7 pin Marshalling Boxes | KLMB*W | 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 | KLB*, KLJ*, KLP*, KLT* | 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. |
| LSOH 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

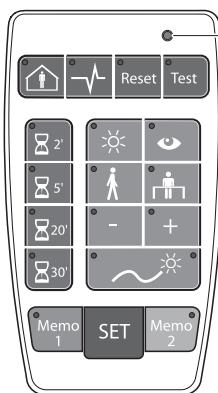
| Product Description | Klik Product identification | BS number | Description |
|---|--------------------------------|-----------------------------------|---|
| Klik Distribution Boxes | KLDS KLMB | BS 5733:2010 | General requirements for Electrical Accessories |
| Occupancy Sensor | EEK*W | BS EN 60669-1, 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 K7* | 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 |
| LSF Flexible Cord | LSOH | 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

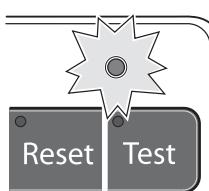
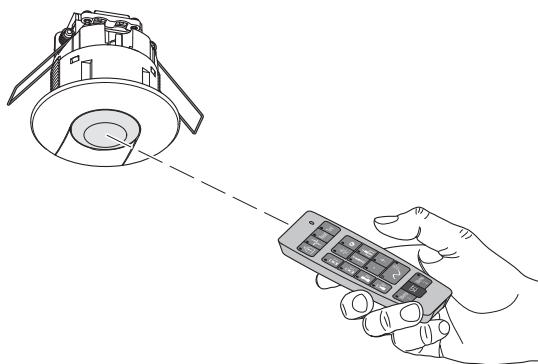
Klik plugs and sockets feature solid brass terminals and phosphor bronze contacts for good conductivity. Moulded components are manufactured from high quality thermoplastics.

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, P26 K7PLUG | 1 | 1 | 1 | - | - |



LED



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.

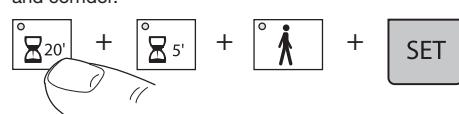
Single setting

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.

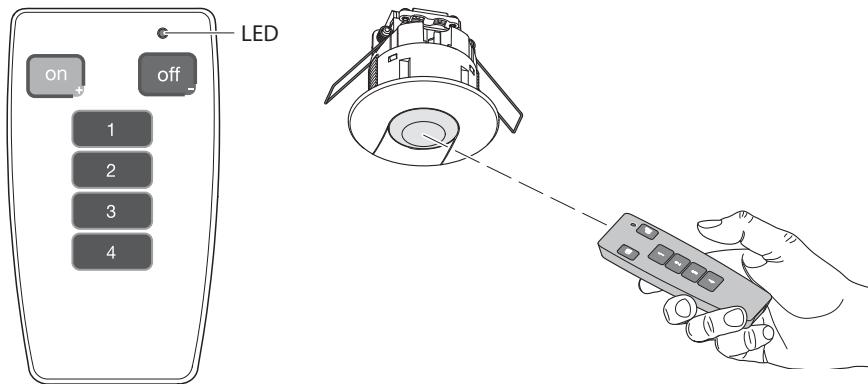


In the case of 2 opposite states the green LED denotes ON and red LED denotes OFF (except Presence / Absence).

When no function is selected all LED's are OFF.

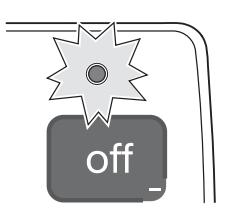
Settings available

| 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 **EE815**.

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 | EE815 |
| | Long Press (> 5s.) | Dim up | EE815 |
| off - | Short Press | Off | EE815 |
| | Long Press (> 5s.) | Dim down | EE815 |
| 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 | |

Occupancy Sensor Selection Chart

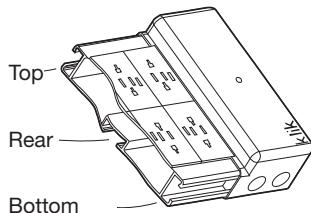
:hager

| Klik 4 | | | |
|---|--|-------------------------|-----------------------|
| | Wireable, Flush Mount | Wireable, Surface Mount | Wireable, Flush Mount |
| Technical characteristics | EE815 | EE804A | EE805A |
| Supply voltage | 230V~ 50Hz | 230V - 50Hz | 230V - 50Hz |
| Detection type | Presence | Motion / Presence | Motion / Presence |
| Parasitic power | 270mW | 0.3W | 0.3W |
| Detection (Length) | 7m | 6m | 6m |
| Detection (Width) | 7m | 6m | 6m |
| Detection angle | 360° | 360° | 360° |
| Detection frequency | - | - | - |
| Receiver class | - | - | - |
| Standby consumption | 2.4VA/270mW | - | - |
| | 1min to 1hour | 5s - 30min | 5s - 30min |
| Duration of time delay (S2) | - | - | - |
| Luminosity threshold | 5 to 1000 Lux | 5 - 1000 | 5 - 1000 |
| Recommended installation height | 2.5m | 2.5m | 2.5m |
| Operating temperature | -10°C to +45°C | -5 - +45 | -5 - +45 |
| Storage temperature | -20°C to +60°C | -25 - +70 | -25 - +70 |
| Insulation class | II | 11 | 11 |
| Protection rating | IP41 | IP21 | IP21 |
| Standards | BS EN 60669-1 BS EN 60669-2-1 | | |
| Pollution degree | 2 | | |
| Connection stranded | 0.5mm ² to 1.5mm ² | 1mm - 2.5mm | 1mm - 2.5mm |
| Connection solid | 0.5mm ² to 1.5mm ² | 1mm - 2.5mm | 1mm - 2.5mm |
| Switching channel | 1 | 1 | 1 |
| Lighting loads 230V~ AC1 | 16A | 10A | 10A |
| Switching capacity (Incandescent) | 2300W | 2300W | 2300W |
| Halogen lamps LV | - | | |
| Halogen ELV (12 or 24V) via ferromagnetic or electronic transformer | 1500W | 2300W | 2300W |
| Compact fluorescent | 23 X 23W | 20 x 20W | 20 x 20W |
| LED | 20 X20W | 20 x 20W | 20 x 20W |
| Parallel compensated fluorescent tubes | 1000W | 1000W | 1000W |
| Fluorescent tubes non-compensated | 1000W | 1000W | 1000W |
| Electronic ballast | - | 1000W | 1000W |
| DSI/DALI ballast | - | - | - |
| Remote programming | EE807 | - | - |
| Remote control | EE808 | - | - |
| Adjustable shutters (supplied) | x | x | x |
| Dimensions (L*W*H) | 80 x 80 x 70mm | ø 100 x 50mm | ø 90 x 61mm |

| Klik 7 | Special Applications | | | | |
|----------------------------------|-----------------------------------|--|--|---|--|
| | | | | | |
| Digital, Wireable, Flush | Wireable, Surface Mount, Corridor | Wireable, Surface Mount, Hyper Frequency | Wireable, Semi-Recessed, 1 / 2 Channel | Large area motion/presence detector 20 m Flush / surface | |
| EE815 | EE880 | EE883 | EE810 / EE811 | EER503/EER513 | |
| 230V~ 50Hz | 230V~ 50Hz | 230V~ 50Hz | 230V~ 50Hz | 230 V v, +10%/-15%, 240 V v, +6/-6% 50/60 Hz | |
| Presence | Motion | Motion | Presence | Motion and presence detector | |
| 60mW | 1W | 1W | 1.2W | | |
| 7m | 20m | 1m to 8m | 15.5m | 20m | |
| 7m | 4m | 1m to 8m | 8m | 10m | |
| 360° | 360° | 360° | 360° | 360° | |
| - | - | 5.8 Ghz ± 0.075 Ghz | - | | |
| - | - | 2 | - | | |
| 60mW | 1W | 1W | 1.2W | < 0.5 W | |
| 1min to 1hour | 5sec to 15 min | 5sec to 15 min | 1min to 30min | | |
| - | - | - | 30sec to 60min | | |
| 5 to 1000 Lux | 2 to 2000 lux | 2... 2000 lux | 5 to 1200Lux | | |
| 2.5m | 3 m | 2.5 m | 3 m | | |
| -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 | 35°C to +70°C | 35°C to +70°C | 10°C to +60°C | | |
| II | II | II | II | | |
| IP41 | IP54 | IP54 | IP41 | | |
| BS EN 60669-1 BS EN 60669-2-1 | BS EN 60669-1 BS EN 60669-2-1 | BS EN 60669-2-1 EN 300 440-1 V1.3.1 | BS EN 60669-1 BS EN 60669-2-1 | | |
| 2 | 2 | 2 | 2 | | |
| 0.5mm² to 1.5mm² | Max 1.5mm² | Max 1.5mm² | 1mm² to 4mm² | | |
| 0.5mm² to 1.5mm² | Max 1.5mm² | Max 1.5mm² | 1mm² to 4mm² | | |
| 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) | - | - | - | | |
| EE807 | x | x | x | EE807 | |
| EE808 | x | x | x | EE808 | |
| x | x | x | x | | |
| 80 x 80 x 70mm | 125 x 125 x 60mm | | 110 x 110 x 70mm | (Ø x H) 85 x 75.9 mm flush mounted EER503 (Ø x H) 105 x 59.7 mm surface mounted EER513 | |

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



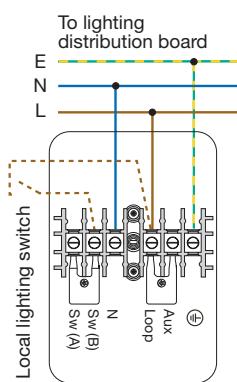
Screw to surface



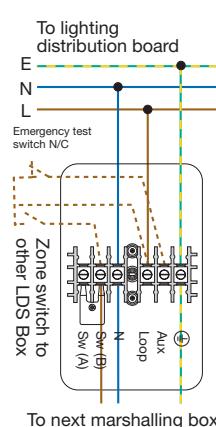
Drop rods on rear



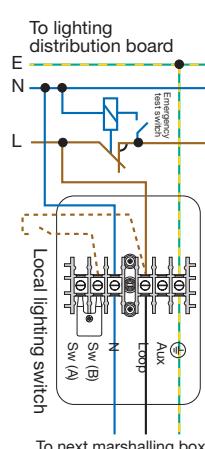
Local Lighting Switch Control
Permanent emergency feed



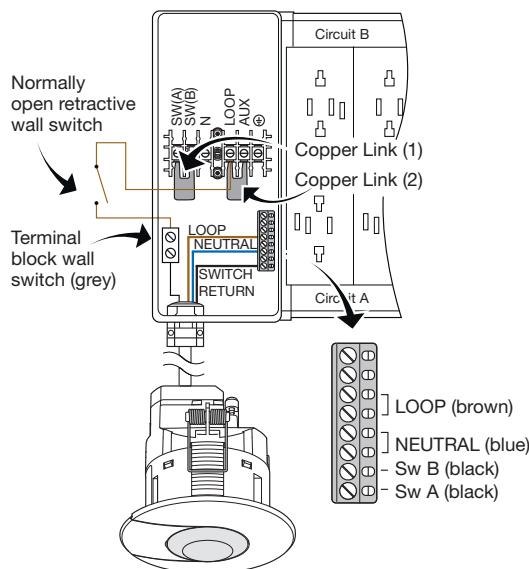
Local Lighting Switch Control
Centralised emergency test via key switch



Zone Lighting Control
Local emergency test control

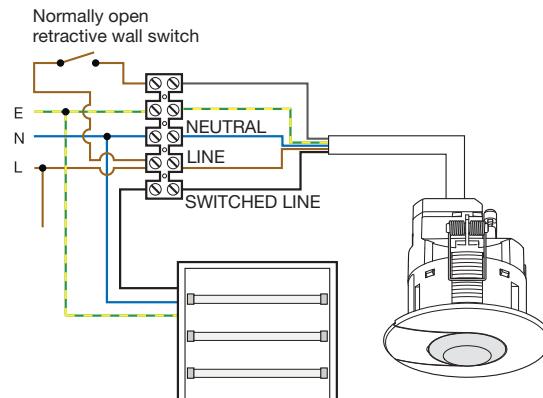


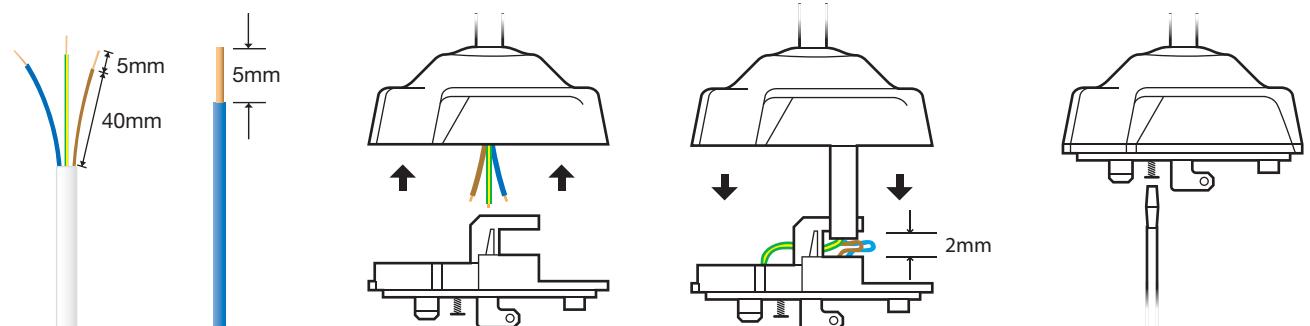
All ways switched by a single Hager occupancy sensor



Switch wire to be connected as required.

Connected directly to a single luminaire





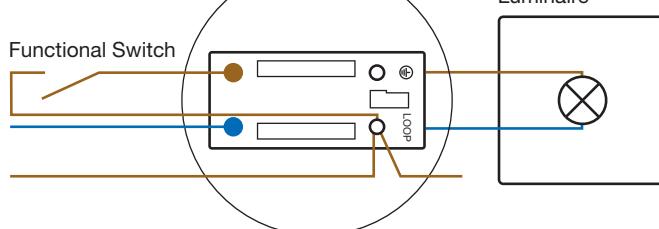
1. Strip cable as above -
Note: Trim cable tails to double over for better terminal contact.

2. Remove plug cover.
3. Pass cable through plug cover centre hole.

4. Terminate conductors into terminals.
5. Push outer sheath of cable firmly into jaws of sheath grip, making sure that at least 2mm of sheath protrudes below the grip.

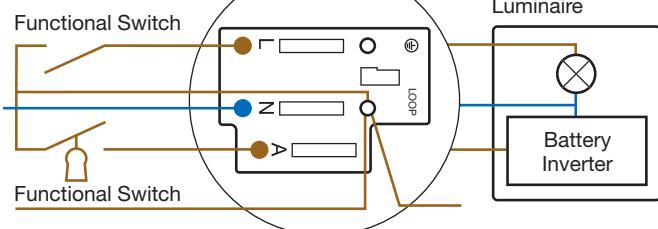
6. Refit cover.

PCR2000

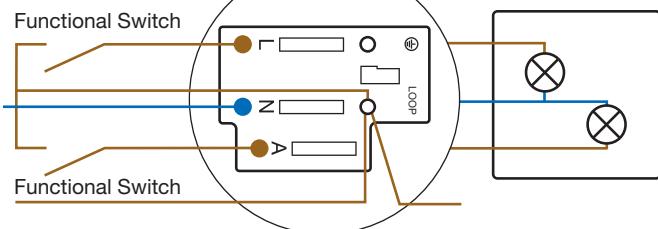


Note: earth connections omitted for clarity

CR64AX



CR64AX



Residential Distribution.

If home is where the heart is, then the consumer unit is its heartbeat. Discover our range of consumer units and small enclosures (conforming to I.S.10101 regulations and EN 61439-3 standards) are available in functional, stylish and innovative options for any home. Whilst our protection devices, including RCCBs, MCB's and RCBO's, offer protection from any unwanted bumps in the road.



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SBE8101



SBE8101SPD

I.S.10101 Gamma IP30

Characteristics:

- Surface mounting enclosures, 1 - 4 rows, 13 - 52 modules.
- Conforms to EN 61439-3 and I.S.10101
- Made of insulating material coloured RAL 9010.
- Insulating chassis and frame.
- Fixed DIN rail for devices of a maximum shoulder measurement of 45mm.
- Distance between rail 125mm
- Premarked cable entries on top, bottom and side.
- Delivered with plain door and back plate, blanking strips and marking strip
- Optional; additional connection assemblies, cable trunking, back plates, plain and transparent doors, door locks.

| | Description | Dimensions mm | Pre-fitted devices | Cat ref. |
|-------------------|----------------------|------------------------|---|--------------------|
| Incomer: Isolator | | | | |
| | 1 row 13 modules | h.250 x w.250 x d.103 | 1 x 80A Isolator (SBR280) 1 x 63A RCD (CDA263U) 4 x 20A MCB (MBN120W) 1 x 32A MCB (MBN132W) 2 x 6A RCBO (ADA306G) | SBE7101 |
| | 2 rows 26 modules | h.375 x w. 250 x d.103 | same as SBE7101 | SBE8101 |
| | 3 rows 39 modules | h.500 x w. 250 x d.103 | same as SBE7101 | SBE9101 |
| | 4 rows 52 modules | h.625 x w. 250 x d.103 | same as SBE7101 | SBE10101 |
| | 2 rows 26 modules SP | h.375 x w. 250 x d.103 | 1 x 80A Isolator (SBR280) 1 x 63A RCD (CDA263U) 4 x 20A MCB (MBN120W) 1 x 32A MCB (MBN132W) 2 x 6A RCBO (ADA306G) 1 x 2P Surge Protection Device | SBE8101SPD |
| | 3 rows 39 modules | h.500 x w. 250 x d.103 | same as SBE8101SPD | SBE9101SPD |
| | 4 rows 52 modules | h.625 x w. 250 x d.103 | same as SBE8101SPD | SBE10101SPD |
| Incomer: MCB | | | | |
| | 2 rows 26 modules | h.375 x w. 250 x d.103 | 1 x 63A MCB (NBN263R) 1 x 63A RCD (CDA263U) 4 x 20A MCB (MBN120W) 1 x 32A MCB (MBN132W) 2 x 6A RCBO (ADA306G) | SBM8101 |
| | 3 rows 39 modules | h.500 x w. 250 x d.103 | same as SBM8101 | SBM9101 |
| | 4 rows 52 modules | h.625 x w. 250 x d.103 | same as SBM8101 | SBM10101 |
| | 2 rows 26 modules | h.375 x w. 250 x d.103 | 1 x 63A MCB (NBN263R) 1 x 63A RCD (CDA263U) 4 x 20A MCB (MBN120W) 1 x 32A MCB (MBN132W) 2 x 6A RCBO (ADA306G) 1 x 2P Surge Protection Device | SBM8101SPD |
| | 3 rows 39 modules | h.500 x w. 250 x d.103 | same as SBM8101SPD | SBM9101SPD |
| | 4 rows 52 modules | h.625 x w. 250 x d.103 | same as SBM8101SPD | SBM10101SPD |

I.S.10101 Meter Tail Kit

| | Description | Dimensions mm | Pre-fitted devices | Cat ref. |
|--|-----------------|----------------------|--|------------------|
| | 1 row 3 modules | h.175 x w.110 x d.95 | Meter Tail Protection Unit B Type 10kA MCB + VE103L enclosure | MCU10101B |
| | 1 row 3 modules | h.175 x w.110 x d.95 | Meter Tail Protection Unit C Type 10kA MCB + VE103L enclosure | MCU10101C |

Gamma IP30

Characteristics:

- Surface mounting enclosures, 1- 4 rows, 13 - 52 modules.
- Conforms to EN 61439-3.
- Made of insulating material coloured RAL 9010.
- Insulating chassis and frame.
- Fixed DIN rail for devices of a maximum shoulder measurement of 45mm.
- Distance between rail 125mm
- Premarked cable entries on top, bottom and side.
- Delivered with plain door and back plate, blanking strips and marking strip
- Optional; additional connection assemblies, cable trunking, back plates, plain and transparent doors, door locks.



SBE700

| Description | Dimensions mm | Pre-fitted devices | Qty. | Cat ref. |
|-------------------|------------------------|---|------|----------------|
| 1 row 13 modules | h.250 x w.250 x d.103 | 1 x 80A Isolator (SBR180) 1 x 40A RCD (CDA240U) 1 x 32A MCB (MBN132W) 2 x 10A MCB (MBN110W) 4 x 20A MCB (MBN120W) | 1 | SBE700 |
| 2 rows 26 modules | h.375 x w. 250 x d.103 | 1 x 80A Isolator (SBR180) 1 x 40A RCD (CDA263U) 1 x 32A MCB (MBN132W) 2 x 10A MCB (MBN110W) 4 x 20A MCB (MBN120W) | 1 | SBE800 |
| 3 rows 39 modules | h.500 x w. 250 x d.103 | Same devices as SBE800 | 1 | SBE900 |
| 4 rows 52 modules | h.625 x w. 250 x d.103 | Same devices as SBE800 | | SBE1000 |
| 1 row 13 modules | h.250 x w. 250 x d.103 | 1 x 63A MCB (NBN163R) 1 x 40A RCD (CDA240U) 1 x 32A MCB (MBN132W) 2 x 10A MCB (MBN110W) 4 x 20A MCB (MBN120W) | 1 | SBM700 |
| 2 rows 26 modules | h.500 x w. 250 x d.103 | 1 x 63A MCB (NBN163R) 1 x 40A RCD (CDA263U) 1 x 32A MCB (MBN132W) 2 x 10A MCB (MBN110W) 4 x 20A MCB (MBN120W) | 1 | SBM800 |
| 3 rows 39 modules | h.500 x w. 250 x d.103 | Same devices as SBM800 | 1 | SBM900 |
| 4 rows 52 modules | h.625 x w. 250 x d.103 | Same devices as SBM800 | 1 | SBM1000 |



SBM900

Meter Tail Kit

| Description | Dimensions mm | Pre-fitted devices | Qty. | Cat ref. |
|-----------------|----------------------|----------------------------|------|--------------|
| 1 row 3 modules | h.175 x w.110 x d.95 | VE103L Enclosure + NBN163R | 1 | MCU63 |
| 1 row 3 modules | h.175 x w.110 x d.95 | VE103L Enclosure + NCN163A | 1 | MCU64 |



MCU63

Shower Changeover Units

| Description | Qty. | Cat ref. |
|---|------|--------------|
| Priority c/o unit | 1 | SHN1 |
| Non priority c/o unit c/w door | 1 | SHN2 |
| 3 shower c/o unit c/w door (non priority) | 1 | SHN3 |
| 7 way consumer unit c/w 2 shower non priority | 1 | CU684 |



SHN1



GP213P GP213T

Doors - Plain & Transparent

Characteristics:

- Doors for gamma enclosures offer an additional protection of modular devices and increases ingress protection to IP40.
- Plain (RAL 9010) or transparent.
- Conforms to IEC 60695-2-10, IEC 60695-2-11: 850°C.

| Description | Qty. | Cat ref. |
|---|------|---------------|
| Plain door depth: 30 mm for SBx700 | 1 | GP113P |
| Plain door depth: 30 mm for SBxSBx800 | 1 | GP213P |
| Plain door depth: 30 mm for SBxSBx900 | 1 | GP313P |
| Transparent door depth: 30 mm for SBx700 | 1 | GP113T |
| Transparent door depth: 30 mm for SBxSBx800 | 1 | GP213T |
| Transparent door depth: 30 mm for SBxSBx900 | 1 | GP313T |

Door Lock with Key

Characteristics:

- Door lock with key for doors GP113P, GP213P, GP313P, GP113T, GP213T, GP313T.

| Description | Qty. | Cat ref. |
|--------------------|------|--------------|
| Door lock with key | 1 | GZ35A |



GS113D

Back Plates

Characteristics:

- Back plate insulated material for enclosure SBx700, SBx800, SBx900.

| Description | Qty. | Cat ref. |
|-----------------------|------|---------------|
| Back plate for SBx700 | 1 | GS113D |
| Back plate for SBx800 | 1 | GS213D |
| Back plate for SBx900 | 1 | GS313D |

S35S



Blanking Strips

Characteristics:

- Blanking strip to blank unused rows.

| Description | Qty. | Cat ref. |
|---------------------------------|------|--------------|
| Blanking strip width 12 modules | 10 | S35S |
| Blanking strip width 0.5 module | 10 | P031F |
| Blanking strip width 1 module | 10 | P032F |

KB163P



KB163N

Busbars

| Description | Mod. width | Qty. | Cat ref. |
|--|------------|------|---------------|
| Single Pole 63A to be equipped with protection profiles, brown (phase), 10mm ² | 13 | 1 | KB163P |
| Single Pole 63A to be equipped with protection profiles, blue (neutral), 10mm ² | 13 | 1 | KB163N |

I.S.10101 Vega Consumer Units

Consumer units with opaque or transparent doors, 1 - 4 rows, 18 - 72 modules.

Insulated unit, color RAL 9010, for energy distribution in residential installations or small commercial premises. The chassis is removable one at a time and the DIN rails are removable one by one, using the clips. The DIN rails can be lowered to accommodate devices with a higher shoulder. For technical details see page 4.39.



VB8101T

The cabinet offers plenty of cabling space

- Between DIN rail and cabinet bottom: 47.5 mm,
- Between lowered DIN rail and bottom of cabinet: 18 mm
- Lateral wiring space between wall and DIN rail: 30 mm
- Distance between DIN rail: 150 mm



VB8101TSPD

The cable entry plates are provided with clips which may also be screwed.

Delivered with

"Easy Wall Fixation" fastening system with plugs to guarantee class II, drawing board, shutters, label holder with marking labels, quickconnect grounding modules.

Options

- Lock with key nr. 1242E or 405
- IP41 kit
- Horizontal or vertical combination kits
- Wiring ducts
- Plate with flexible cable entries

Characteristics

- IP40 (with door) / IK07
- Insulation class: II
- In 90 A for 1 and 2-row enclosures
- In 125 A for 3 and 4-row enclosures
- Incandescent wire: 650 ° C

Norms

CEBEC

Conforms with EN 60670-24, EN 61439-3 and I.S.10101

| Description | Dimensions mm | Plain Door Cat ref. | Transparent Door Cat ref. |
|---|-----------------------|------------------------|------------------------------|
| Enclosure 1 row, 18 mod. E: 2x(1x25 + 5x16 + 5x10) N: 2x(1x25 + 5x16 + 5x10) 1 x 80A Isolator (SBR280) 1 x 63A RCD (CDA263U) 4 x 20A MCB (MBN120W) 1 x 32A MCB (MBN132W) 2 x 6A RCBO (ADA306G) | w.400 x h.325 x d.146 | VB7101P | VB7101T |
| Enclosure 2 rows, 36 mod. E: 2x(1x25 + 8x16 + 8x10) N: 2x(1x25 + 8x16 + 8x10) Same devices as VB7101P | w.400 x h.475 x d.146 | VB8101P | VB8101T |
| Enclosure 3 rows, 54 mod. E: 2x(1x25 + 11x16 + 13x10) N: 2x(1x25 + 11x16 + 13x10) Same devices as VB7101P | w.400 x h.625 x d. 14 | VB9101P | VB9101T |
| Enclosure 4 rows, 72 mod. E: 2x(1x25 + 11x16 + 13x10) N: 2x(1x25 + 11 x16 + 13x10) + 2x(1x25 + 5x16 + 5x10) Same devices as VB7101P | w.400 x h.775 x d.146 | VB10101P | VB10101T |
| Enclosure 1 row, 18 mod. E: 2x(1x25 + 5x16 + 5x10) N: 2x(1x25 + 5x16 + 5x10) 1 x 80A Isolator (SBR280) 1 x 63A RCD (CDA263U) 4 x 20A MCB (MBN120W) 1 x 32A MCB (MBN132W) 2 x 6A RCBO (ADA306G) 1 x 2P Surge Protection Device | w.400 x h.325 x d.146 | VB7101PSPD | VB7101TSPD |
| Enclosure 2 rows, 36 mod. E: 2x(1x25 + 8x16 + 8x10) N: 2x(1x25 + 8x16 + 8x10) Same devices as VB7101PSPD | w.400 x h.475 x d.146 | VB8101PSPD | VB8101TSPD |
| Enclosure 3 rows, 54 mod. E: 2x(1x25 + 11x16 + 13x10) N: 2x(1x25 + 11x16 + 13x10) Same devices as VB7101PSPD | w.400 x h.625 x d. 14 | VB9101PSPD | VB9101TSPD |
| Enclosure 4 rows, 72 mod. E: 2x(1x25 + 11x16 + 13x10) N: 2x(1x25 + 11 x16 + 13x10) + 2x(1x25 + 5x16 + 5x10) Same devices as VB7101PSPD | w.400 x h.775 x d.146 | VB10101PSPD | VB10101TSPD |



VB800P



VB800T

Vega Consumer Units

Consumer units with opaque or transparent doors, 1 - 4 rows, 18 - 72 modules.

Insulated unit, color RAL 9010, for energy distribution in residential installations or small commercial premises.

The chassis is removable one at a time and the DIN rails are removable one by one, using the clips. The DIN rails can be lowered to accommodate devices with a higher shoulder. For technical details see page 4.39.

The cabinet offers plenty of cabling space

- Between DIN rail and cabinet bottom: 47.5 mm,
- Between lowered DIN rail and bottom of cabinet: 18 mm
- Lateral wiring space between wall and DIN rail: 30 mm
- Distance between DIN rail: 150 mm

The cable entry plates are provided with clips which may also be screwed.

Delivered with

"Easy Wall Fixation" fastening system with plugs to guarantee class II, drawing board, shutters, label holder with marking labels, quickconnect grounding modules.

Options

- Lock with key nr. 1242E or 405
- IP41 kit
- Horizontal or vertical combination kits
- Wiring ducts
- Plate with flexible cable entries

Characteristics

- IP40 (with door) / IK07
- Insulation class: II
- In 90 A for 1 and 2-row enclosures
- In 125 A for 3 and 4-row enclosures
- Incandescent wire: 650 ° C

Norms

CEBEC

Conforms with EN 60670-24 and EN 61439-3

| Description | Dimensions mm | Cat ref. |
|---|---|----------------|
| Enclosure with transparent door 1 row, 18 modules | w.400 x h.325 x d.146 | VB700T |
| | E: 2x(1x25 + 5x16 + 5x10) N: 2x(1x25 + 5x16 + 5x10) 1 x 80A Isolator (SBR180) 1 x 40A RCD (CDA240U) 1 x 32A MCB (MBN132W) 2 x 10A MCB (MBN110W) 4 x 20A MCB (MBN120W) | |
| Enclosure with opaque door 1 row, 18 modules | w.400 x h.325 x d.146 | VB700P |
| | E: 2x(1x25 + 5x16 + 5x10) N: 2x(1x25 + 5x16 + 5x10) Same devices as VB700T | |
| Enclosure with transp. door 2 rows, 36 modules | w.400 x h.475 x d.146 | VB800T |
| | E: 2x(1x25 + 8x16 + 8x10) N: 2x(1x25 + 8x16 + 8x10) Same devices as VB700T | |
| Enclosure with opaque door 2 rows, 36 modules | w.400 x h.475 x d.146 | VB800P |
| | E: 2x(1x25 + 8x16 + 8x10) N: 2x(1x25 + 8x16 + 8x10) Same devices as VB700T | |
| Enclosure with transparent door 3 rows, 54 modules | w.400 x h.625 x d. 14 | VB900T |
| | E: 2x(1x25 + 11x16 + 13x10) N: 2x(1x25 + 11x16 + 13x10) Same devices as VB700T | |
| Enclosure with opaque door 3 rows, 54 modules | w.400 x h.625 x d.146 | VB900P |
| | E: 2x(1x25 + 11x16 + 13x10) N: 2x(1x25 + 11x16 + 13x10) Same devices as VB700T | |
| Enclosure with transparent door 4 rows, 72 modules | w.400 x h.775 x d.146 | VB1000T |
| | E: 2x(1x25 + 11x16 + 13x10) N: 2x(1x25 + 11x16 + 13x10) + 2x(1x25 + 5x16 + 5x10) Same devices as VB700T | |
| Enclosure with opaque door 4 rows, 72 modules | w.400 x h.775 x d.146 | VB1000P |
| | E: 2x(1x25 + 11x16 + 13x10) N: 2x(1x25 + 11x16 + 13x10) + 2x(1x25 + 5x16 + 5x10) Same devices as VB700T | |

Vega Enhanced Consumer Units

Consumer units with transparent doors, 2 - 3 rows, 36 - 54 modules.

Insulated unit, color RAL 9010, for energy distribution in residential installations or small commercial premises.
Suitable for use with enhanced 16kVA supply.

The cabinet offers plenty of cabling space

- Between DIN rail and cabinet bottom: 47.5 mm,
- Between lowered DIN rail and bottom of cabinet: 18 mm
- Lateral wiring space between wall and DIN rail: 30 mm
- Distance between DIN rail: 150 mm

The cable entry plates are provided with clips which may also be screwed.

Delivered with

"Easy Wall Fixation" fastening system with plugs to guarantee class II, drawing board, shutters, label holder with marking labels, quickconnect grounding modules.



VBE880A

Options

- Lock with key nr. 1242E or 405
- IP41 kit
- Horizontal or vertical combination kits
- Wiring ducts
- Plate with flexible cable entries

Characteristics

- IP40 (with door) / IK07
- Insulation class: II
- In 90 A for 2-row enclosures
- In 125 A for 3-row enclosures
- Incandescent wire: 650 ° C

Norms

CEBEC

Conforms with EN 60670-24 and EN 61439-3

| Description | | Dimensions mm | Cat ref. |
|---|--|-----------------------|----------------|
| Enclosure with transparent door 2 rows, 36 modules | E: 2x(1x25 + 8x16 + 8x10) N: 2x(1x25 + 8x16 + 8x10) 1 x 80A Isolator (SBR180) 1 x 80A RCD (CD283U) 1 x 32A MCB (MBN132W) 2 x 10A MCB (MBN110W) 4 x 20A MCB (MBN120W) | w.400 x h.475 x d.146 | VBE880A |
| Enclosure with opaque door 3 rows, 54 modules | E: 2x(1x25 + 11x16 + 13x10) N: 2x(1x25 + 11x16 + 13x10) Same devices as VBE880A | w.400 x h.625 x d.146 | VBE980A |

| Description | For enclosure | Cat ref. |
|--|---|------------------------------------|
| Transparent door (supplied as spare part) | VB118W | VZ118T |
| | VB218W | VZ218T |
| | VB318W | VZ318T |
| | VB418W | VZ418T |
| Opaque door (supplied as spare part) | VB118J | VZ118P |
| | VB218J | VZ218P |
| | VB318J | VZ318P |
| | VB418J | VZ418P |
| Key lock delivered with 2 keys | for transparent door: lock 1242E for opaque door: lock 1242E | VZ310TVB VZ310PVB |



VZ318T VZ318P



VZ310PVB

Refer to page 4.12 for additional terminals



I.S.10101 Volta VF Series

Characteristics:

- Distribution enclosures with metallic door 2 to 4 rows, 24 to 48 modules.
- Conforms to EN 61439-3 and I.S.10101
- Flush mounting in brick or partition walls removable chassis.
- For devices of shoulder measurement 47mm, distance between rails 125mm, flush part made out of insulated material, frame and door manufactured from metal, reversible door with integrated handle, sealable from cover, colour RAL 9010, complete with plain door.
- Options; key lock, connection assembly.

VF8101



VF8101SPD

| | Description | Dimensions mm | Pre-fitted devices | Qty. | Cat ref. |
|--|--------------------|----------------------|---|------|-------------------|
| | 2 rows, 24 modules | w.348 x h.505 x d.89 | 1 x 80A Isolator (SBR280) 1 x 63A RCD (CDA263U) 4 x 20A MCB (MBN120W) 1 x 32A MCB (MBN132W) 2 x 6A RCBO (ADA306G) | 1 | VF8101 |
| | 3 rows, 36 modules | w.348 x h.630 x d.89 | same as VF8101 | 1 | VF9101 |
| | 4 rows, 48 modules | w.348 x h.755 x d.89 | same as VF8101 | 1 | VF10101 |
| | 2 rows, 24 modules | w.348 x h.505 x d.89 | 1 x 80A Isolator (SBR280) 1 x 63A RCD (CDA263U) 4 x 20A MCB (MBN120W) 1 x 32A MCB (MBN132W) 2 x 6A RCBO (ADA306G) 1 x 2P Surge Protection Device | | VF8101SPD |
| | 3 rows, 36 modules | w.348 x h.630 x d.89 | same as VF8101SPD | | VF9101SPD |
| | 4 rows, 48 modules | w.348 x h.755 x d.89 | same as VF8101SPD | | VF10101SPD |

Volta VF Series

Characteristics:

- Distribution enclosures with metallic door 1 to 4 rows, 12 to 48 modules.
- Conforms to EN 61439-3.
- Flush mounting in brick or partition walls removable chassis.
- For devices of shoulder measurement 47mm, distance between rails 125mm, flush part made out of insulated material, frame and door manufactured from metal, reversible door with integrated handle, sealable from cover, colour RAL 9010, complete with plain door.
- Options; key lock, connection assembly.



| Description | Dimensions mm | Pre-fitted devices | Qty. | Cat ref. | |
|--------------------|----------------------|---|------|---------------|-------|
| 1 row, 12 modules | w.348 x h.356 x d.89 | 1 x 80A Isolator (SBR180) 1 x 40A RCD (CDA240U) 1 x 32A MCB (MBN132W) 2 x 10A MCB (MBN110W) 4 x 20A MCB (MBN120W) | 1 | VF700 | VF700 |
| 2 rows, 24 modules | w.348 x h.505 x d.89 | 1 x 80A Isolator (SBR180) 1 x 63A RCD (CDA263U) 1 x 32A MCB (MBN132W) 2 x 10A MCB (MBN110W) 4 x 20A MCB (MBN120W) | 1 | VF800 | |
| 3 rows, 36 modules | w.348 x h.630 x d.89 | same as VF800 | 1 | VF900 | |
| 4 rows, 48 modules | w.348 x h.755 x d.89 | same as VF800 | 1 | VF1000 | |

Doors - Steel & Transparent

Characteristics:

- Doors for Volta consumer units VF700, VF800 and VF900.

| Description | Qty. | Transp. door Cat ref. | Steel door & frame Cat ref. |
|------------------------------|------|--------------------------|-----------------------------------|
| Door for VF700 consumer unit | 1 | VZ131 | VZ261 |
| Door for VF800 consumer unit | 1 | VZ132 | VZ262 |
| Door for VF900 consumer unit | 1 | VZ133 | VZ263 |

Keylock Standard

Characteristics:

- Keylock for Volta consumer unit, delivered with 2 keys

| Description | Qty. | Cat ref. |
|------------------------------|------|--------------|
| Keylock standard with 2 keys | 1 | VZ303 |

Blanking Strip

Characteristics:

- Blanking strip to blank unused rows.



S35S

| Description | Qty. | Cat ref. |
|---|------|-------------|
| Blanking strip width 12 modules premarked | 10 | S35S |

Connection Assembly

Characteristics:

- Connection assembly single phase and TP + N63A



VZ403

| Description | Qty. | Cat ref. |
|---|------|--------------|
| Connection assembly single phase, 2 x (3 x 16 + 4 x 10) | 1 | VZ403 |
| TP + N63A, 3 x (3 x 16 + 2 x 10), 1 x (5 x 16 + 6 x 10) | 1 | VZ428 |

Busbars

| Description | Mod. width | Qty. | Cat ref. |
|--|------------|------|---------------|
| Single Pole 63A to be equipped with protection profiles, brown (phase), 10mm ² | 13 | 1 | KB163P |
| Single Pole 63A to be equipped with protection profiles, blue (neutral), 10mm ² | 13 | 1 | KB163N |



KB163P



KB163N



IP30 IK 07

Gamma 13

Characteristics:

- IP30 surface mounting enclosures 1 to 4 rows, from 13 to 52 modules. IP 30 - IK 07 (without door), IP 40 - IK 07 (with door).
- Enclosures are of an insulating material coloured RAL 9010.
- Insulating chassis and frame.
- Fixed DIN rail for devices of a maximum shoulder measurement of 45mm.
- Distance between rails 125mm.
- Premarked cable entries on top, bottom and side.
- Delivered with marking strip and blanking clips.
- DIN rail distance between centres: 125 mm.
- IEC 60 695-2-10 and 11: 750°C for enclosures, doors and 960°C for plates.
- Complies with IEC 61439-3.
- Options: Doors, back plates and key locks.
- For technical details see page 4.38.



GD113H



GD213H

| Description | Dimensions mm | Brass terminal | Module blanks | Cat ref. |
|----------------|-----------------------|---|---------------|---------------|
| 1 row, 13 mod | w.250 x h.250 x d.103 | N: 1 x 25 + 11 x 16 + 13 x 10 N: 1 x 25 + 8 x 16 + 8 x 10 E: 1 x 25 + 11 x 16 + 13 x 10 | 6 mod | GD113H |
| 2 rows, 26 mod | w.250 x h.375 x d.103 | N: 1 x 25 + 11 x 16 + 13 x 10 N: 1 x 25 + 8 x 16 + 8 x 10 E: 1 x 25 + 11 x 16 + 13 x 10 | 6 mod | GD213H |
| 3 rows, 39 mod | w.250 x h.500 x d.103 | N: 1 x 25 + 11 x 16 + 13 x 10 N: 1 x 25 + 8 x 16 + 8 x 10 E: 1 x 25 + 11 x 16 + 13 x 10 | 13 mod | GD313H |
| 4 rows, 52 mod | w.250 x h.625 x d.103 | N: 1 x 25 + 11 x 16 + 13 x 10 E: 1 x 25 + 11 x 16 + 13 x 10 | 13 mod | GD413H |

GD313H



Accessories

Characteristics

Doors

- Doors for gamma enclosures offer an additional protection of modular devices and increases ingress protection to IP40.
- Plain (RAL9010) or transparent
- Delivered with: 2 hinges, Latch, 2 screws
- Options: Lock
- EC 60 695-2-10 and 11. 750°C: enclosures, doors, 960°C: plates

GP213P-GP213T



S35S

| Description | Transp. door Cat ref. | Plain door Cat ref. |
|--|--------------------------|------------------------|
| Door depth: 30mm | for GD113H GP113T | GP113P |
| | for GD213H GP213T | GP213P |
| | for GD313H GP313T | GP313P |
| | for GD413H GP413T | GP413P |
| Door lock with key for doors GD113P to GD413P and GD113T to GD413T | | GZ35A |
| Back plate insulated material | for GD113H | GS113D |
| | for GD213H | GS213D |
| | for GD313H | GS313D |
| | for GD413H | GS413D |
| Blanking strip to blank unused rows, pack qty. 10 | 12 modules | S35S |
| | ½ module | P031F |
| | 1 module | P032F |

Gamma 18

Characteristics:

- Enclosures 1 to 4 rows, from 18 to 72 modules.
- Delivered with: IP2X earth terminal + terminal support, IP2X Ph + N terminals (except 1R) + mounting plate (except 1 & 2R) accessories for vertical and horizontal connecting (except 1R), marking strip, blanking clips.
- IP 30 - IK 07 (without door) IP 30 - IK 07 (with door)
- Distance between rails 125mm.
- IEC 60 695-2-10 and 11. 750°C: enclosures, 960°C: plates.
- Options: Doors, backplates, keylocks.
- Complies with IEC61 439-3.
- Screw-type terminal bars cannot be fitted to Gamma 18 enclosures.



GD218A

| Description | Dimensions mm | Quick connect | Module blanks | Cat ref. |
|----------------|-----------------------|--|---------------|---------------|
| 1 row, 18 mod | w.355 x h.250 x d.103 | E: 4 x 25 + 14 x 4 mm ² | 6 mod | GD118A |
| 2 rows, 36 mod | w.355 x h.375 x d.103 | Ph: 2 x 16 + 2 x 10 mm ² N: 2 x 16 + 2 x 10 mm ² E: 6 x 25 + 20 x 4 mm ² | 12 mod | GD218A |
| 3 rows, 54 mod | w.355 x h.500 x d.103 | Ph: 3 x 16 + 4 x 10 mm ² N: 3 x 16 + 4 x 10 mm ² E: 8 x 25 + 28 x 4 mm ² | 18 mod | GD318A |
| 4 rows, 72 mod | w.355 x h.625 x d.103 | Ph: 3 x 16 + 4 x 10 mm ² N: 3 x 16 + 4 x 10 mm ² E: 10 x 25 + 34 x 4 mm ² | 24 mod | GD418A |

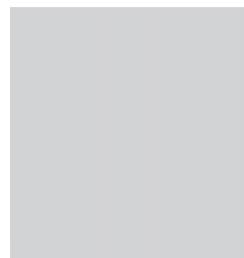
Accessories

| Description | Transp. door Cat ref. | Plain door Cat ref. |
|---|--------------------------|------------------------|
| Plain and transparent doors, depth: 30mm for GD118A, GD018A for GD218A | GP118T | GP118P |
| for GD318A | GP218T | GP218P |
| for GD418A | GP318T | GP318P |
| | GP418T | GP418P |

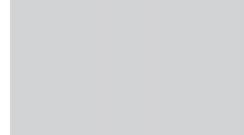


GP118P-GP118T

| Description | Cat ref. |
|---|--------------|
| Keylock for plain and transparent doors | GZ35A |



| Description | Cat ref. |
|---|---------------|
| Back plates, insulated material, class II, to mount on the back of gamma 18 enclosure | GS118D |
| for GD118A | GS218D |
| for GD218A | GS318D |
| for GD318A | GS418D |



| Description | Modules | Cat ref. |
|---|---------|--------------|
| Blanking clips to blank unused rows | ½ mod | P031 |
| | 1 mod | P032 |
| Blanking strip to blank a complete unused row | 18 mod | JP015 |

GS218D

Additional Terminals

| Description | Terminal block with support | | Cat ref. |
|--|-----------------------------|-------------------|-------------|
| | Neutral Cat. ref | Earth Cat. ref | |
| Terminal block 3 x 16 + 4 x 10 mm ² | KM07N | KM07E | K142 |
| Terminal block 5 x 16 + 6 x 10 mm ² | KM11N | KM11E | K144 |
| Terminal block 6 x 16 + 7 x 10 mm ² | KM13N | KM13E | K148 |
| Terminal block 1 x 25 + 8 x 16 + 8 x 10 mm ² | KM17N | KM17E | K156 |
| Terminal block 1 x 25 + 11 x 16 + 3 x 10 mm ² | KM25N | KM25E | K158 |



KM07N



KM13N



KM25N



GD104N



GD108N

Mini Gamma Enclosures

Characteristics

- Enclosures 1 row, from 2 to 10 modules
- Surface mounting enclosures, rigid bottom with fixed DIN rail for devices of a maximum shoulder measurement 47mm
- Sealable cover.
- With marking strips and screw cap cover for class II
- IEC 60 695-2-1/0 and 60 695-2-1/1.
- For technical details see page 4.38.

Options

- Door lock with key
- Plain or transparent door
- Earth and neutral terminals



| Description | Brass terminal | Cat ref. |
|---|--|---------------|
| 1 row, 2 modules, w. 55 x h. 160 x d. 82 mm | | GD102N |
| 1 row, 4 modules w. 110 x h. 180 x d. 82 mm | E: 2 x 16 + 2 x 10, N: 2 x 16 + 2 x 10 | GD104N |
| 1 row, 6 modules, w. 146 x h. 180 x d. 82 mm | E: 2 x 16 + 2 x 10, N: 2 x 16 + 2 x 10 | GD106N |
| 1 row, 8 modules, w. 182 x h. 180 x d. 82 mm | E: 3 x 16 + 4 x 10, N: 3 x 16 + 4 x 10 | GD108N |
| 1 row, 10 modules, w. 218 x h. 180 x d. 82 mm | E: 3 x 16 + 4 x 10, N: 3 x 16 + 4 x 10 | GD110N |



GP102T



GD104S

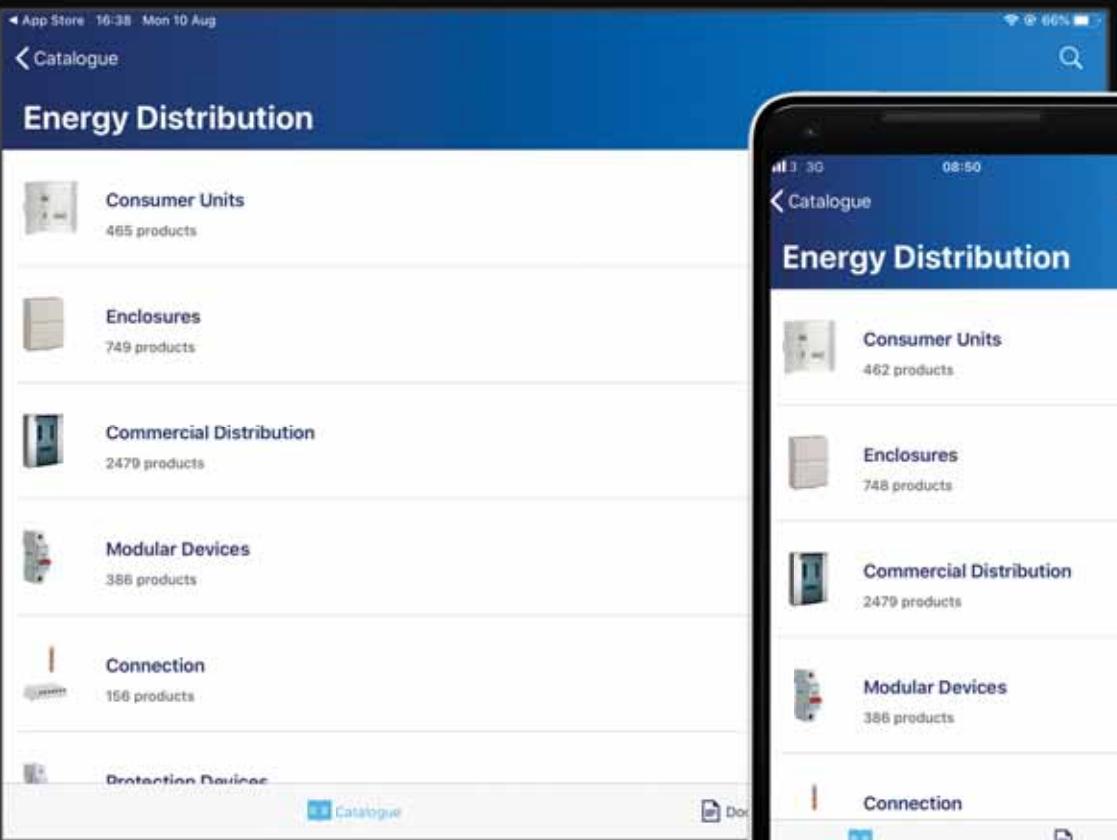


GZ04N

Accessories

| Description | Transp. door Cat ref. | Plain door Cat ref. |
|------------------------------|-----------------------------|-----------------------------|
| Doors with integrated handle | for GD102N GP102T | for GD102P GP102P |
| | for GD104N GP104T | for GD104P GP104P |
| | for GD106N GP106T | for GD106P GP106P |
| | for GD108N GP108T | for GD108P GP108P |
| | for GD110N GP110T | for GD110P GP110P |

| Description | Cat ref. |
|---|---------------|
| Keylock for plain or transparent door | VZ313 |
| N-terminal 4 connections 2 x 16 + 2 x 10 | GZ04N |
| N-terminal 7 connections 3 x 16 + 4 x 10 | GZ07N |
| PE-terminal 4 connections 2 x 16 + 2 x 10 | GZ04E |
| PE-terminal 7 connections 3 x 16 + 4 x 10 | GZ07E |
| Terminal support for GD104N | GZ104S |
| Terminal support for GD106N | GZ106S |
| Terminal support for GD108N | GZ108S |
| Terminal support for GD110N | GZ110S |



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VB318W



VB318J

Vega Enclosures

Enclosures with opaque or transparent doors, 1 - 4 rows, 18 - 72 modules.

Insulated enclosure, color RAL 9010, for energy distribution in residential installations or small commercial premises. The chassis is removable one at a time and the DIN rails are removable one by one, using the clips. The DIN rails can be lowered to accommodate devices with a higher shoulder. For technical details see page 4.39.

The cabinet offers plenty of cabling space

- Between DIN rail and cabinet bottom: 47.5 mm,
- Between lowered DIN rail and bottom of cabinet: 18 mm
- Lateral wiring space between wall and DIN rail: 30 mm
- Distance between DIN rail: 150 mm

The cable entry plates are provided with clips which may also be screwed.

Delivered with

"Easy Wall Fixation" fastening system with plugs to guarantee class II, drawing board, shutters, label holder with marking labels, quickconnect grounding modules.

Options

- Lock with key nr. 1242E or 405
- IP41 kit
- Horizontal or vertical combination kits
- Wiring ducts
- Plate with flexible cable entries

Characteristics

- IP40 (with door) / IK07
- Insulation class: II
- In 90 A for 1 and 2-row enclosures
- In 125 A for 3 and 4-row enclosures
- Incandescent wire: 650 ° C

Norms

CEBEC

Conforms with EN 60670-24 et EN 61439-3

| Description | Dimensions mm | Cat ref. |
|---|-----------------------|---------------|
| Enclosure with transparent door 1 row, 18 modules | w.400 x h.325 x d.146 | VB118W |
| Enclosure with opaque door 1 row, 18 modules | w.400 x h.325 x d.146 | VB118J |
| Enclosure with transp. door 2 rows, 36 modules | w.400 x h.475 x d.146 | VB218W |
| Enclosure with opaque door 2 rows, 36 modules | w.400 x h.475 x d.146 | VB218J |
| Enclosure with transparent door 3 rows, 54 modules | w.400 x h.625 x d.14 | VB318W |
| Enclosure with opaque door 3 rows, 54 modules | w.400 x h.625 x d.146 | VB318J |
| Enclosure with transparent door 4 rows, 72 modules | w.400 x h.775 x d.146 | VB418W |
| Enclosure with opaque door 4 rows, 72 modules | w.400 x h.775 x d.146 | VB418J |



VZ318T

VZ318P



VZ318P

Accessories

| Description | For enclosure | Cat ref. |
|---|---|------------------------------------|
| Transparent door (supplied as spare part) | VB118W | VZ118T |
| | VB218W | VZ218T |
| | VB318W | VZ318T |
| | VB418W | VZ418T |
| Opaque door (supplied as spare part) | VB118J | VZ118P |
| | VB218J | VZ218P |
| | VB318J | VZ318P |
| | VB418J | VZ418P |
| Key lock delivered with 2 keys | for transparent door: lock 1242E for opaque door: lock 1242E | VZ310TVB VZ310PVB |

Refer to page 4.12 for additional terminals

Vector Enclosures IP55

Characteristics:

- Surface mounting enclosures with transparent doors
- 1 to 4 rows from 2 to 48 modules
- 1 to 3 rows from 18 to 54 modules
- Adjustable DIN rail for shoulder measurement 47 and 63 mm
- Transparent hinged cover (2 to 10) or door (12 to 54)
- 2 lateral knock outs for cable entry or coupling pieces
- With premarked knock outs for bushes or cable glands M20, M25, M32, M40 and M50
- Delivered with loose cable bushes
- Colour : light grey RAL 7035
- Nominal Voltage : U_i 400V~
- Nominal current : 63A at 230/400V~
- IP65 IK07 < 12 modules (IP65 when fitted with IP65 rated cable glands)
- IK08 > 12 modules
- Class II
- IEC 61 439-3
- IEC 60 695-2-10 and 60 695-2-11: 850°C
- For technical details see page 4.40.



VE212R



VE106R



VE110L

| Description | E: 2x16 + 2x10 mm ² N: 2x16 + 2x10 mm ² | Dimensions mm w.111 x h.175 x d.93 | Cat ref. |
|--|--|---------------------------------------|---------------|
| Surface mounting enclosures with transparent door, 1 row 2 + 1 mod. | E: 2x16 + 2x10 mm ² N: 2x16 + 2x10 mm ² | w.111 x h.175 x d.93 | VE103L |
| Surface mounting enclosures with transparent door, 1 row, 4 + 2 mod. | E: 3x16 + 4x10 mm ² N: 3x16 + 4x10 mm ² | w.165 x h.190 x d.113 | VE106R |
| Surface mounting enclosures with transparent door, 1 row, 8 + 2 mod. | E: 5x16 + 6x10 mm ² N: 5x16 + 6x10 mm ² | w.237 x h.210 x d.114 | VE110L |
| Surface mounting enclosures with transparent door, 1 row, 12 mod. | E: 1x25 + 5x16 +7x10 mm ² N: 1x25 + 5x16 +7x10 mm ² N: 6x16 +7x10 mm ² | w.310 x h.302 x d.151 | VE112R |
| Surface mounting enclosures with transparent door, 2 rows, 24 mod. | E: 1x25 + 11x16 +13x10 mm ² N: 1x25 + 5x16 +7x10 mm ² N: 1x25 + 5x16 +7x10 mm ² | w.310 x h.427 x d.151 | VE212R |
| Surface mounting enclosures with transparent door, 3 rows, 36 mod. | E: 1x25 + 8x16 +8x10 mm ² N: 1x25 + 8x16 +8x10 mm ² N: 1x25 + 8x16 +8x10 mm ² | w.310 x h.552 x d.151 | VE312R |
| Surface mounting enclosures with transparent door, 4 rows, 48 mod. | E: 1x25 + 11x16 +13x10 mm ² E: 1x25 + 11x16 +13x10 mm ² N: 1x25 + 11x16 +13x10 mm ² N: 1x25 + 11x16 +13x10 mm ² | w.310 x h.677 x d.151 | VE412Y |
| Surface mounting enclosures with transparent door, 1 row, 18 mod. | E: 1x25 + 11x16 +13x10 mm ² N: 1x25 + 5x16 +7x10 mm ² , N: 1x25 + 5x16 +7x10 mm ² | w.418 x h.302 x d.151 | VE118R |
| Surface mounting enclosures with transparent door, 2 rows, 36 mod. | E: 1x25 + 8x16 +8x10 mm ² N: 1x25 + 8x16 +8x10 mm ² , N: 1x25 + 8x16 +8x10 mm ² | w.418 x h.452 x d.151 | VE218R |
| Surface mounting enclosures with transparent door, 3 rows, 54 mod. | E: 1x25 + 11x16 +13x10 mm ² N: 1x25 + 11x16 +13x10 mm ² , N: 1x25 + 11x16 +13x10 mm ² | w.418 x h.602 x d.151 | VE318Y |

Residential Distribution

Accessories

| Description | | Cat ref. |
|--|--|---------------|
| Single phase connection assembly 63A, snaps on lateral support | 2x(3x16 + 4x10mm ²) | VZ403 |
| Three phase + N connection assembly 63A, snaps on lateral support | 3x(3x16 + 2x10mm ²), 1x(5x16 + 6x10mm ²) | VZ428 |
| Lock with 2 keys for all enclosures from 2 to 54 modules | | VZ311 |
| Coupling sleeve to juxtapose enclosures, reduces IP to IP54 fit on lateral PG21 knock outs of the enclosures VE112, VE212, VE112, VE212, VE312, VE412, VE118, VE218, VE318 | | VZ754 |
| Cable entry reduction of ingress protection to IP54 | 14xM20 + 10xM25 + 2xM32 | VZ758 |
| IP65 cable gland, M20 | | VZ020M |
| Blanking strips RAL 7035 | 6 modules | VZ413 |
| | 12 modules | VZ415 |
| | 18 modules | VZ416 |
| Brackets for terminal support | | VZ744 |



VZ403



VZ754



VZ744

Refer to page 4.12 for additional terminals



VS108TDI



VS212TDI



VS412TDI

Golf Enclosures

Characteristics:

- Surface mounted distribution box from 1 to 4 rows, from 4 to 72 modules.
- Opaque or transparent door for devices up to 70 mm installation depth.
- DIN profile for modular devices 47 mm under the cover.
- Distance between the DIN profiles axis 125 mm.
- Distribution boards manufactured from plastic material.
- Door can be fitted on right or left without dismounting the cover.
- Optional lock with keys.
- Door opens up to 180°
- Enclosure can be installed either way up.
- Cable entries for cable, conduit and trunking.

Components included

- Brass screw-type terminals
- Directly fixed DIN rails to the wall box allow enough room behind for wiring.
- Marking stickers.
- Towers to fix cable ties for clear cable management are included, cable-retaining clips are optional (except in 4 and 8 module enclosures).
- Door protected by a plastic film.
- Carton packaging.

Technical data

- IP rating: IP30 without door, IP40 with door, IK07
- Isolation Class II
- White colour RAL 9010
- Rated current for devices up to 63 A
- Rated insulation: 400 V a.c./50 Hz
- Glow wiring test: 650°C
- Certification according to IEC 61 439-3.
- All products conform to the ROHS and WEEE directives.
- For technical details see page 4.41.

| Description | Dimensions mm | Cat ref. |
|---|--|---|
| Golf surface mounted enclosure 1 row 4 modules | N: 2x16mm ² + 2x10mm ² E: 2x16mm ² + 2x10mm ² N: 2x16mm ² + 2x10mm ² | h.184 x w.138 x d.99 VS104TDI |
| Golf surface mounted enclosure 1 row 8 modules | N: 3x16mm ² + 4x10mm ² E: 2x16mm ² + 3x10mm ² N: 2x16mm ² + 3x10mm ² | h.184 x w.210 x d.99 VS108TDI |
| Golf surface mounted enclosure 1 row 12 modules | N: 3x16mm ² + 4x10mm ² E: 3x16mm ² + 4x10mm ² N: 3x16mm ² + 4x10mm ² | h.252 x w.282 x d.99 VS112TDI |
| Golf surface mounted enclosure 1 row 18 modules | N: 3x16mm ² + 4x10 mm ² E: 1x25mm ² + 4x16mm ² + 5x10mm ² N: 3x16mm ² + 3x10mm ² | h.257 x w.426 x d.72 VS118TDI |
| Golf surface mounted enclosure 1 rows 22 modules | N: 3x16mm ² + 4x10mm ² E: 6x16mm ² + 7x10mm ² N: 6x16mm ² + 7x10mm ² | h.252 x w.462 x d.99 VS122TDI |
| Golf surface mounted enclosure 2 rows 24 modules | N: 5x16mm ² + 5x10mm ² E: 4x16mm ² + 5x10mm ² N: 4x16mm ² + 5x10mm ² | h.377 x w.282 x d.99 VS212TDI |
| Golf surface mounted enclosure 2 rows 36 modules | N: 3 x 16mm ² + 4 x 10mm ² E: 1x25mm ² + 6x16mm ² + 7x10mm ² N: 3 x 16mm ² + 4 x 10mm ² | h.377 x w.390 x d.99 VS218TDI |
| Golf surface mounted enclosure 3 rows 36 modules | N: 5x16mm ² + 6x10mm ² E: 5x16mm ² + 6x10mm ² N: 5x16mm ² + 6x10mm ² | h.500 x w.282 x d.99 VS312TDI |
| Golf surface mounted enclosure 3 rows 54 modules | N: 3x16mm ² + 4x10mm ² E: 1x25mm ² + 7x16mm ² + 8x10mm ² N: 3x16 mm ² + 4x10mm ² | h.500 x w.390 x d.99 VS318TDI |
| Golf surface mounted enclosure 4 row 48 modules | N: 5x16mm ² + 6x10mm ² E: 6x16mm ² + 8x10mm ² N: 5x16mm ² + 6x10mm ² | h.647 x w.282 x d.99 VS412TDI |
| Golf surface mounted enclosure 4 rows 72 modules | N: 3 x 16 mm ² + 4 x 10 mm ² E: 1x25mm ² + 8x16mm ² + 9x10mm ² N: 3x16mm ² + 4x10mm ² | h.647 x w.390 x d.99 VS418TDI |

Accessories

Characteristics

New golf enclosures include an excellent range of accessories, every single feature is designed to save time and increase simplicity of mounting. It is also possible to find spare parts and additional accessories to the range, such as keys, locks and doors. Plain doors made of plastic material, RAL 9010. Transparent doors made of polycarbonate.

| Description | For enclosure | Transp. door Cat ref. | Plain door Cat ref. |
|--|---------------|--------------------------|------------------------|
| Doors (spare parts) | VF/VS104 | VZ621N | VZ601N |
| | VF/VS108 | VZ622N | VZ602N |
| | VF/VS112 | VZ623N | VZ603N |
| | VF/VS212 | VZ624N | VZ604N |
| | VF/VS312 | VZ625N | VZ605N |
| | VF/VS412 | VZ626N | VZ606N |
| | VF/VS118 | VZ627N | VZ607N |
| | VF/VS218 | VZ628N | VZ608N |
| | VF/VS318 | VZ629N | VZ609N |
| | VF/VS418 | VZ630N | VZ610N |
| Lock, supplied with 2 keys | | VZ794N | |
| Cable guides VF/VS, 4 pieces | | VZ699N | |
| Class II caps VS and horizontal assembly kit, 4 pieces | | VZ789N | |
| Brick wall mounting brackets, 4 pieces | | VZ786N | |
| Transparent label holder VF/VS 450 mm, 5 pieces | | VZ787N | |
| Labelling sticker, 10 pieces | | VZ788N | |



VZ610N



VZ630N



VZ794N



VZ699N



VZ789N



VZ786N



VZ787N

Additional Terminals

| Description | Terminal block with support | | Terminal block w/o support |
|--|-----------------------------|-------------------|----------------------------|
| | Neutral Cat. ref | Earth Cat. ref | Cat ref. |
| Terminal block 3 x 16 + 4 x 10 mm ² | KM07N | KM07E | K142 |
| Terminal block 5 x 16 + 6 x 10 mm ² | KM11N | KM11E | K144 |
| Terminal block 6 x 16 + 7 x 10 mm ² | KM13N | KM13E | K148 |
| Terminal block 1 x 25 + 8 x 16 + 8 x 10 mm ² | KM17N | KM17E | K156 |
| Terminal block 1 x 25 + 11 x 16 + 3 x 10 mm ² | KM25N | KM25E | K158 |



KM07N



KM13N



KM25N



DR32SIE



HE47SN-IRL

DR Metal Enclosures

Characteristics

- Easy to install
- Removable DIN chassis
- Height adjustable DIN chassis
- Centre distance between two rows is 150mm
- Removable door
- Removable prepunched top and bottom gland plates

Technical Data

- 1.2mm thickness sheet steel with Epoxy powder coating in RAL 9002
- IP4x
- Suitable for modular incomers and outgoings only
- Accessories like key lock, joining kits, etc.
- Boards can be assembled vertically
- Complies with BS EN61439-1 and EN61439-3.
- For technical details see page 4.42.

| Description | Dimensions mm | Cat ref. |
|--|-----------------------|-------------------|
| Enclosure, 1 row 16 modules, N: $3 \times 16\text{mm}^2 + 4 \times 10\text{mm}^2$, E: $1 \times 25\text{mm}^2 + 8 \times 16\text{mm}^2 + 8 \times 10\text{mm}^2$, N: $1 \times 25\text{mm}^2 + 5 \times 16\text{mm}^2 + 5 \times 10\text{mm}^2$ | h.325 x w.405 x d.120 | DR16SIE |
| Enclosure, 2 rows 32 modules, N: $6 \times 16\text{mm}^2 + 7 \times 10\text{mm}^2$, E: $1 \times 25\text{mm}^2 + 14 \times 16\text{mm}^2 + 16 \times 10\text{mm}^2$, N: $1 \times 25\text{mm}^2 + 8 \times 16\text{mm}^2 + 8 \times 10\text{mm}^2$ | h.480 x w.405 x d.120 | DR32SIE |
| Enclosure, 1 rows 6 + 9 modules, E: $15 \times 16\text{mm}^2$, N: $9 \times 16\text{mm}^2 + 5 \times 16\text{mm}^2$ | h.230 x w.390 x d.90 | HE47SN-IRL |



FW424WT

FW2 Metal Enclosures

Characteristics

- FW2 surface enclosure
- Metal inserts / cover plates
- Depth 150mm
- For devices up to 125A
- From 3 (36 modules) to (252 modules) 7 rows
- Complete with door, metal covers and PE/N terminals
- Colour RAL 9010
- Cable entry top and bottom
- IP30
- Complies with EN61439-1.

| Description | Dimensions mm | Cat ref. |
|--|--------------------------|----------------|
| Enclosure, 3 rows, 36 modules, brass terminals $2 \times (6 \times 16^2 + 7 \times 10^2)$ | h. 641 x w. 355 x d.150 | FW312WT |
| Enclosure, 3 rows, 72 modules, brass terminals $2 \times (1 \times 25^2 + 8 \times 16^2 + 8 \times 10^2)$ | h. 641 x w. 571 x d.150 | FW324WT |
| Enclosure, 4 rows, 48 modules, brass terminals $2 \times (6 \times 16^2 + 7 \times 10^2)$ | h. 791 x w. 355 x d.150 | FW412WT |
| Enclosure, 4 rows, 96 modules, brass terminals $2 \times (1 \times 25^2 + 11 \times 16^2 + 13 \times 10^2)$ | h. 791 x w. 571 x d.150 | FW424WT |
| Encl. 4 rows, 144 mod., brass terminals $2 \times (1 \times 25^2 + 11 \times 16^2 + 13 \times 10^2), 2 \times (6 \times 16^2 + 7 \times 10^2)$ | h. 791 x w. 787 x d.150 | FW436WT |
| Enclosure, 5 rows, 60 modules, brass terminals $1 \times (1 \times 25^2 + 8 \times 16^2 + 8 \times 10^2)$ | h. 941 x w. 355 x d.150 | FW512WT |
| Enclosure, 5 rows, 120 modules, brass terminals $2 \times (1 \times 25^2 + 11 \times 16^2 + 13 \times 10^2)$ | h. 941 x w. 571 x d.150 | FW524WT |
| Encl. 5 rows, 180 mod. brs. term. $2 \times (1 \times 25^2 + 11 \times 16^2 + 13 \times 10^2), 2 \times (1 \times 25^2 + 8 \times 16^2 + 8 \times 10^2)$ | h. 941 x w. 787 x d.150 | FW536WT |
| Encl. 6 rows, 72 mod. brass terminals $1 \times (1 \times 25^2 + 8 \times 16^2 + 8 \times 10^2), 1 \times (6 \times 16^2 + 7 \times 10^2)$ | h. 1091 x w. 355 x d.150 | FW612WT |
| Enclosure, 6 rows, 144 modules, brass terminals $2 \times (1 \times 25^2 + 11 \times 16^2 + 13 \times 10^2)$ | h. 1091 x w. 571 x d.150 | FW624WT |
| Encl. 6 rows, 216 mod. brs. term. $2 \times (1 \times 25^2 + 11 \times 16^2 + 13 \times 10^2), 2 \times (1 \times 25^2 + 8 \times 16^2 + 8 \times 10^2)$ | h. 1091 x w. 787 x d.150 | FW636WT |
| Enclosure, 7 rows, 252 modules, brass terminals | h. 1241 x w. 787 x d.150 | FW736WT |

Accessories for FW2 Enclosures

| Description | For enclosure | Modules | Qty. | Cat ref. |
|--|---------------|---------|------|----------------|
| Terminal support and cable strain-relief bar | FWx12FT | 12 | 1 | FZ12H |
| | FWx12FT | 24 | 1 | FZ24H |
| | FWx36FT | 36 | 1 | FZ36H |
| Keylock | | | 1 | FZ597 |
| Door with frame | FW312FT | | 1 | FW312FD |
| | FW324FT | | 1 | FW324FD |
| | FW412FT | | 1 | FW412FD |
| | FW424FT | | 1 | FW424FD |
| | FW436FT | | 1 | FW436FD |
| | FW512FT | | 1 | FW512FD |
| | FW524FT | | 1 | FW524FD |
| | FW536FT | | 1 | FW536FD |
| | FW612FT | | 1 | FW612FD |
| | FW624FT | | 1 | FW624FD |
| | FW636FT | | 1 | FW636FD |
| | FW736FT | | 1 | FW736FD |



FZ24H + KM25N



FZ597



FW424FD

Additional Terminals

| Description | Terminal block with support | | Cat ref. |
|--|-----------------------------|-------------------|-------------|
| | Neutral Cat. ref | Earth Cat. ref | |
| Terminal block 3 x 16 + 4 x 10 mm ² | KM07N | KM07E | K142 |
| Terminal block 5 x 16 + 6 x 10 mm ² | KM11N | KM11E | K144 |
| Terminal block 6 x 16 + 7 x 10 mm ² | KM13N | KM13E | K148 |
| Terminal block 1 x 25 + 8 x 16 + 8 x 10 mm ² | KM17N | KM17E | K156 |
| Terminal block 1 x 25 + 11 x 16 + 3 x 10 mm ² | KM25N | KM25E | K158 |



KM07N



KM13N



KM25N



FWB52

FW Metal Enclosures

Characteristics

- Distribution enclosures
- Extra slim depth 160 mm
- Insulation class: II - IP44
- For devices up to 125A
- 3 to 7 rows, 1 to 7 sections, from 36 to 336 modules
- For distribution< 125A in commercial installations
- For modular devices on DIN rails, max. depth 96 mm, shoulder measuring 47mm, depth: 160 mm
- Enclosure manufactured from sheet steel
- Colour RAL 9010 (pure white)
- Polyester front covers width 1 section
- 12 modules per row
- 125 mm between DIN rails
- 63 A connection assembly with earth and neutral bar in each section
- Quick Connect terminals
- For technical details see page 4.43.

Ingress protection

- IP44 to IEC 529
- Class II, additional internal insulation by polystyrene plates (P.S.), glow wire test till 850°C, extinguishing = 5 sec.

Rated insulated Voltage

- UI : 400 V ~
- In : 125A - three phase 380 V ~

Options

- Trimming frame
- Lock with key
- Separators
- Connection assembly TP+N 63A
- Sealing kit

| Description | Height mm | w. x d. mm | Fields | Rows | Modules | Cat ref. |
|-----------------------------|-----------|------------|--------|------|---------|--------------|
| FW metal surface enclosures | 500 | 300 x 160 | 1 | 3 | 36 | FWB31 |
| | 500 | 550 x 160 | 2 | 3 | 72 | FWB32 |
| | 500 | 800 x 160 | 3 | 3 | 108 | FWB33 |
| | 500 | 1050 x 160 | 4 | 3 | 144 | FWB34 |
| | 650 | 300 x 160 | 1 | 4 | 48 | FWB41 |
| | 650 | 550 x 160 | 2 | 4 | 96 | FWB42 |
| | 650 | 800 x 160 | 3 | 4 | 144 | FWB43 |
| | 650 | 1050 x 160 | 4 | 4 | 192 | FWB44 |
| | 800 | 300 x 160 | 1 | 5 | 60 | FWB51 |
| | 800 | 550 x 160 | 2 | 5 | 120 | FWB52 |
| | 800 | 800 x 160 | 3 | 5 | 180 | FWB53 |
| | 800 | 1050 x 160 | 4 | 5 | 240 | FWB54 |
| | 950 | 300 x 160 | 1 | 6 | 72 | FWB61 |
| | 950 | 550 x 160 | 2 | 6 | 144 | FWB62 |
| | 950 | 800 x 160 | 3 | 6 | 216 | FWB63 |
| | 950 | 1050 x 160 | 4 | 6 | 288 | FWB64 |
| | 1100 | 300 x 160 | 1 | 7 | 84 | FWB71 |
| | 1100 | 550 x 160 | 2 | 7 | 168 | FWB72 |
| | 1100 | 800 x 160 | 3 | 7 | 252 | FWB73 |
| | 1100 | 1050 x 160 | 4 | 7 | 336 | FWB74 |

Accessories

Characteristics

Complete spans for modular devices and telecom applications can be easily integrated in the enclosure and combined according to needs.

| Description | Height mm | Width mm | No. of spans | Rows | Modules. | Cat ref. |
|---|-----------|----------|--------------|------|----------|---------------|
| Mounting kits for enclosures 500mm | 450 | 250 | 1 | 3 | 36 | UW31V |
| Mounting kits for enclosures 650mm | 600 | 250 | 1 | 4 | 48 | UW41V |
| Mounting kits for enclosures 800mm | 750 | 250 | 1 | 5 | 60 | UW51V |
| Mounting kits for enclosures 950mm | 900 | 250 | 1 | 6 | 72 | UW61V |
| Mounting kits for enclosures 1100mm | 1050 | 250 | 1 | 7 | 84 | UW71V |
| Kits for perforated mounting plates (to be used with partitions) | 310 | 248 | 1 | 3 | | UN31TN |
| | 310 | 498 | 2 | 3 | | UN32TN |
| | 460 | 248 | 1 | 4 | | UN41TN |
| | 460 | 498 | 2 | 4 | | UN42TN |
| | 610 | 248 | 1 | 5 | | UN51TN |
| | 610 | 498 | 2 | 5 | | UN52TN |
| | 760 | 248 | 1 | 6 | | UN61TN |
| | 760 | 498 | 2 | 6 | | UN62TN |
| | 910 | 248 | 1 | 7 | | UN71TN |
| | 910 | 498 | 2 | 7 | | UN72TN |
| Perforated mounting plates | 240 | 248 | 1 | 2 | | UZ21M6 |
| | 310 | 248 | 1 | 3 | | UZ31M5 |
| | 390 | 248 | 1 | 3 | | UZ31M6 |
| | 310 | 498 | 2 | 3 | | UZ32M5 |
| | 460 | 248 | 1 | 4 | | UZ41M5 |
| | 570 | 248 | 1 | 4 | | UZ41M6 |
| | 460 | 498 | 2 | 4 | | UZ42M5 |
| | 610 | 248 | 1 | 5 | | UZ51M5 |
| | 610 | 498 | 2 | 5 | | UZ52M5 |
| | 760 | 248 | 1 | 6 | | UZ61M5 |
| | 760 | 498 | 2 | 6 | | UZ62M5 |



UW61V



UN61TN



UZ61M5

| | | | | | | |
|--|----------------------------|--|--|--|--|---------------|
| Set of 2 uprights for enclosure h.500 mm | | | | | | UN03A |
| Set of 2 uprights for enclosure h.650 mm | | | | | | UN04A |
| Set of 2 uprights for enclosure h.800 mm | | | | | | UN05A |
| Set of 2 uprights for enclosure h.950 mm | | | | | | UN06A |
| Set of 2 uprights for enclosure h.1100 mm | | | | | | UN07A |
| Connection earth for perforated plates | 400mm, 1,5 mm ² | | | | | UL01G1 |
| Connection assembly TP+N 63A, to be fitted on the uprights of the 1 section wide chassis 3 x (1x25 + 2x16 +3x10), N: 1x25 + 3x16 + 7x10 | | | | | | F010 |



UN03A

| | | | | | | |
|--|-----|-----|---|---|----|---------------|
| Opened protective covers DIN rails with distance between the centres: 125mm, for modular devices | 150 | 250 | 1 | 1 | 12 | US11A3 |
| | 300 | 250 | 1 | 2 | 24 | US21A3 |
| | 450 | 250 | 1 | 3 | 36 | US31A3 |
| | 600 | 250 | 1 | 4 | 48 | US41A5 |
| | 750 | 250 | 1 | 5 | 60 | US51A5 |
| | 900 | 250 | 1 | 6 | 72 | US61A5 |
| Closed protective covers | 150 | 250 | 1 | 1 | 12 | US11A1 |
| | 300 | 250 | 1 | 2 | 24 | US21A1 |
| | 450 | 250 | 1 | 3 | 36 | US31A1 |
| | 600 | 250 | 1 | 4 | 48 | US41A1 |
| | 750 | 250 | 1 | 5 | 60 | US51A1 |
| | 150 | 500 | 2 | 1 | 24 | US12A1 |
| | 300 | 500 | 2 | 2 | 48 | US22A1 |
| | 450 | 500 | 2 | 3 | 72 | US32A1 |
| | 600 | 500 | 2 | 4 | 96 | US42A1 |
| | 150 | 500 | 3 | 1 | 24 | US13A1 |
| | 300 | 500 | 3 | 2 | 48 | US23A1 |
| | 450 | 500 | 3 | 3 | 72 | US33A1 |



US11A3



F010



UZ04A1

UZ05A1



UZ03A1



UZ01A2



UZ40F1



ZZ10H



UZ25V2

UZ01V2



FZ803B



FZ890N



U850S



UT26B

Accessories

| Description | Qty. | Cat ref. |
|---|-------|---------------|
| Double towers with screw | 1 | UZ04A1 |
| Top tower overpart, 15 mm / 1 set = 4 pieces | 1 set | UZ05A1 |
| Tower underparts with bar | 1 | UZ03A1 |
| Low tower underparts | 1 | UZ01A2 |
| Partitions vertical for enclosures height 500 mm | 1 | UZ30F1 |
| Partitions vertical for enclosures height 650 mm | 1 | UZ40F1 |
| Partitions vertical for enclosures height 800 mm | 1 | UZ50F1 |
| Partitions vertical for enclosures height 950 mm | 1 | UZ60F1 |
| Partitions vertical for enclosures height 1100 mm | 1 | UZ70F1 |
| Partitions horizontal for 1 span width | 1 | ZZ10H |
| Cable guides, strap small section, 1 set = 20 pieces | 1set | UZ25V2 |
| Fixing support for cable guide, vertical, clip fixing | 1 | UZ01V2 |
| Wall fixing brackets, for flush and surface mounting, 1 set = 4 pieces | 1set | FZ803B |
| Suspension rail length: 2 m, to mount enclosures, delivered with 4 brackets | 1set | FZ890N |
| Suspension brackets for wall fixing rails FZ890N | 1 | FZ799N |
| Strain relief rails length: 140mm for mounting on lower/upper part profile C 25 x 10 mm, slot 11mm | 1 | U850S |
| Mounting plates with adjustable angle brackets, h.115 x w.210 mm, lowering 29 mm | 1 | UT26A |
| Mounting plates with adjustable angle brackets, h.215 x w.210 mm, lowering 29 mm | 1 | UT26B |
| Locks with 2 keys, to replace the original lock | 1 | FZ597N |
| Sealing caps without cap | 1 | FZ226 |
| Sealing caps with cap, male square 8 mm centre, plastic | 1 | FZ821N |
| Sealing caps with cap, male square 6 mm centre, metal | 1 | FZ822N |
| Sealing caps with cap, with slot, plastic | 1 | FZ823N |
| Sealing caps with cap, with lock cylinder | 1 | FZ824N |
| Rails 7.5 mm lowered, 1 span, lowering up to 21 mm | 1 | UT22B |
| Rails 7.5 mm lowered, 1 span, lowering up to 32 mm | 1 | U82A |
| Diagram holders, flexible, A4 format, self adhesive to stick inside the doors | 10 | FZ794 |
| Diagram holders, rigid, A4 format, made of metal sheet, delivered with fixing screws (from door height 800 mm and width 550 mm) | 1 | FZ707 |
| Cable entry plate replacement | 1 | FZ403 |
| Touch up paint for final touch colour RAL 9010 (pure white) | 1 | FZ791N |
| Blanking strips length 221 mm, to blank opening 9 mm pre-cut, RAL 9010 (pure white) | 10 | S35S |
| Blank strips length 221 mm, lockable, to blank & lock opening 9 mm pre-cut, RAL 9010 (pure white) | 10 | ZZ34S |
| Identifier strips, 1 span, to stick on protection plates, delivered with label (1 set = 12 pieces) | 1 set | UZ005 |
| Identifier labels, 1 span, to insert in UZ005 identifier strip, available on sheet (1 sheet = 12 labels) | 1 | UZ006 |
| Marking systems, 1 set = 10 pieces, sheet "circuits caption" to stick on the inner side of the door | 1 set | VZ717 |
| Marking strips, 1 set = 10 pieces, transparent strip, with 14 module length label | 1 set | VZ602 |
| Connection assemblies for Quick Connect | 1 | UZ00K1 |
| Universal adapters | | KN00A |
| Level adapters | | UZ00K2 |

Accessories

| Description | Height mm | Width mm | For enclosure | Cat ref. |
|---|---------------|----------|--------------------|---------------------|
| Finishing frame max. adjustment 45 mm for enclosures: | | | | |
| | 500 | 300 | FWB31 | FZ011B |
| | 500 | 550 | FWB32 | FZ012B |
| | 500 | 800 | FWB33 | FZ013B |
| | 500 | 1050 | FWB34 | FZ014B |
| | 650 | 300 | FWB41 | FZ021B |
| | 650 | 550 | FWB42 | FZ022B |
| | 650 | 800 | FWB43 | FZ023B |
| | 650 | 1050 | FWB44 | FZ024B |
| | 800 | 300 | FWB51 | FZ11B |
| | 800 | 550 | FWB52 | FZ12B |
| | 800 | 800 | FWB53 | FZ13B |
| | 800 | 1050 | FWB54 | FZ14B |
| | 950 | 300 | FWB61 | FZ21B |
| | 950 | 550 | FWB62 | FZ22B |
| | 950 | 800 | FWB63 | FZ23B |
| | 950 | 1050 | FWB64 | FZ24B |
| | 1100 | 300 | FWB71 | FZ31B |
| | 1100 | 550 | FWB72 | FZ32B |
| | 1100 | 800 | FWB73 | FZ33B |
| | 1100 | 1050 | FWB74 | FZ34B |
| Description | For enclosure | Qty. | Left door Cat ref. | Right door Cat ref. |
| Plain doors | FWB31 | 1 | - | FZ001N |
| | FWB32 | 1 | - | FZ002N |
| | FWB33 | 1 | FZ003N | FZ002N |
| | FWB34 | 1 | FZ004N | FZ002N |
| | FWB41 | 1 | - | FZ005N |
| | FWB42 | 1 | - | FZ006N |
| | FWB43 | 1 | FZ007N | FZ006N |
| | FWB44 | 1 | FZ008N | FZ006N |
| | FWB51 | 1 | - | FZ009N |
| | FWB52 | 1 | - | FZ010N |
| | FWB53 | 1 | FZ011N | FZ010N |
| | FWB54 | 1 | FZ012N | FZ010N |
| | FWB61 | 1 | - | FZ013N |
| | FWB62 | 1 | - | FZ014N |
| | FWB63 | 1 | FZ015N | FZ014N |
| | FWB64 | 1 | FZ016N | FZ014N |
| | FWB71 | 1 | - | FZ021N |
| | FWB72 | 1 | - | FZ022N |
| | FWB73 | 1 | FZ023N | FZ022N |
| | FWB74 | 1 | FZ024N | FZ022N |
| Slotted doors | FWB42 | 1 | - | FZ006NV |
| | FWB43 | 1 | FZ007NV | FZ006NV |
| | FWB51 | 1 | - | FZ009NV |
| | FWB52 | 1 | - | FZ010NV |
| | FWB53 | 1 | FZ011NV | FZ010NV |
| | FWB62 | 1 | - | FZ014NV |
| | FWB71 | 1 | - | FZ021NV |
| | FWB72L | 1 | - | FZ022NV |



FZ22B



FZ001N



FZ106N



FZ401



FZ598N



FZ425



FZ428



UZ06A1

Accessories

| Description | For enclosure Height mm | For enclosure Width mm | For enclosure Cat. ref. | Cat ref. |
|---|-------------------------|------------------------|-------------------------|---------------|
| Transparent doors, w. 550mm, 2 sections | 500 | 550 to 1050 | FWB32, FWB33, FWB34 | FZ107N |
| | 650 | 550 to 1050 | FWB42S, FWB43S, FWB44S | FZ104N |
| | 800 | 550 to 1050 | FWB52S, FWB53S, FWB54S | FZ106N |
| | 950 | 550 to 1050 | FWB62S, FWB63S, FWB64S | FZ110N |
| | 1100 | 550 to 1050 | FWB72S, FWB73S, FWB74S | FZ102N |
| Transparent doors, w. 300mm, 1 section | 500 | 300 | FWB31 | FZ105N |
| | 650 | 300 | FWB41 | FZ108N |

All transparent doors can also use for appliance FW flush mounting.

| Description | Cat ref. |
|--|---------------|
| Set of stoppers to block opened cable entries | FZ401 |
| Door shield with handle with camlock, IP44 | FZ598N |
| Cable entry for top and bottom | FZ425 |
| Cable entry for rear cable entry | FZ428 |
| Fixing screws for plates, spare screws, sealable for plate | UZ06A1 |

Volta Enclosures

Characteristics

- Distribution enclosure with metallic door, 1 to 4 rows, 12 to 48 modules
 - Assembly of devices: to 63A
 - Quick connection for the cover with 90° screw, sealable
 - Reversible frame with 15mm perpendicularity adjustment
 - Integrated spirit level
 - Reversible door with integrated handle
 - Frame height 9mm
 - Brass terminal
 - Side cabling channel
 - Colour : RAL 9010 (pure white)
 - IEC 61439-3. For technical details see page 4.45



VU24|E

Delivered with:

- Neutral and earth terminals
 - Plaster connection
 - Clip for circuit designation table on door (except 12 module enclosure)
 - IEC60695-2-10 IEC60695-2-11: 850°C

| Description | Dimensions mm | Cat ref. |
|---|-----------------|---------------|
| Volta flush mounting enclosure, 1 row 12 modules, N: (1x25 + 5x16 + 7x10) + (1x25 + 3x16 + 7x10), E: (1x25 + 5x16 + 7x10) | h. 356 x w. 348 | VU12IE |
| Volta flush mounting enclosure, 2 rows 24 modules, N: (1x25 + 7x16 + 9x10) + (1x25 + 3x16 + 7x10), E: (1x25 + 7x16 + 9x10) | h. 505 x w. 348 | VU24IE |
| Volta flush mounting enclosure, 3 rows 36 modules, N: (1x25 + 9x16 + 12x10) + (1x25 + 3x16 + 7x10), E: (1x25 + 9x16 + 12x10) | h. 630 x w. 348 | VU36IE |
| Volta flush mounting enclosure, 4 rows 48 modules, N: (1x25 + 11x16 + 13x10) + (1x25 + 3x16 + 7x10), E: (1x25 + 11x16 + 13x10) | h. 755 x w. 348 | VU48IE |



VI | 36 | E

Accessories

| Description | 1 Qty. | Cat ref. |
|---|--|--------------------------------------|
| Keylock standard | 1 | VZ302N |
| Spare keys, set of 2 keys, for lock VZ302N | 1 set | VZ304N |
| Lock bolts, set of 2 lock bolts | 1 set | VZ225N |
| Transpar. door for flush mounting Volta encl. frame w. 40mm, Colour RAL 9010 white | 1 row | VZ131N |
| | 2 rows | VZ132N |
| | 3 rows | VZ133N |
| | 4 rows | VZ134N |
| Raising frame to convert strnd. version into "flat" version with 72mm installation depth | for VU12IE for VU24IE for VU36IE for VU48IE | 1 1 1 1 |
| Support frame for mirror and picture insert | support frame, Volta, 2 rows, white support frame, Volta, 3 rows, white support frame, Volta, 2 rows, black support frame, Volta, 3 rows, black support frame, Volta, 2 rows, matt silver support frame, Volta, 3 rows, matt silver support frame, Volta, 2 rows, sky blue support frame, Volta, 3 rows, sky blue | 1 1 1 1 1 1 1 1 |
| Mirror | mirror for Volta, 2 rows mirror for Volta, 3 rows | 1 1 |
| Picture insert | picture insert, Volta, 2 rows picture insert, Volta, 3 rows | 1 1 |
| Pinboard door black expanded plastic plate with aluminium frame colour: silver, for Volta, 2 rows | 1 | VZ292N |
| Pinboard door black expanded plastic plate with aluminium frame colour: silver, for Volta, 3 rows | 1 | VZ293N |
| Mounting kit for hollow wall distribution enclosures | 1 | VZ405N |



VZ131N



VZ808N



VZ003N

Refer to page 4-27 for additional terminals



VF104TDI



VF212TDI



VF312TDI

Golf Enclosures

Characteristics

- Flush mounted distribution boxes from 1 to 4 rows, from 4 to 48 modules
- Opaque or transparent door for devices up to 70 mm installation depth
- DIN profile for modular
- devices 47 mm under the cover
- Distance between the DIN rails axis 125 mm
- Distribution boards manufactured from plastic material
- Door can be fitted on right or left without dismounting the cover
- Door opens up to 180°. Wall box and cover can be installed either way up
- Removable cable entry slider
- Cable entries for cable and conduit
- Complies with IEC 61 439-3

Delivered with

- Brass screw-type terminals
- Marking stickers
- Towers to fix cable ties for clear cable management are included, cable retaining clips are optional (except in 4 and 8 module enclosures.)
- Door protected by a plastic film
- Carton packaging
- DIN rails directly fixed to the wall box allow room for wiring behind them

Optional

- Lock and key
- Cable retaining clips

| Description | Wall niche dimensions mm | Cat ref. |
|--|--------------------------|-----------------|
| Golf flush mounted enclosure, 1 row 4 mod. N: 2x16mm ² + 2x10mm ² , E: 2x16mm ² + 2x10mm ² , N: 2x16mm ² + 2x10mm ² | h.189 x w.170 x d.72 | VF104TDI |
| Golf flush mounted enclosure, 1 row 8 mod. N: 3x16mm ² + 4x10mm ² E: 3x16mm ² + 3x10mm ² , N: 3x16mm ² + 3x10mm ² | h.189 x w.242 x d.72 | VF108TDI |
| Golf flush mounted enclosure, 1 row 12 mod. N: 3x16mm ² + 5x10mm ² , E: 3x16mm ² + 4x10mm ² , N: 3x16mm ² + 4x10 mm ² | h.257 x w.318 x d.72 | VF112TDI |
| Golf flush mounted enclosure, 1 row 22 mod.N: 3x16mm ² + 4x10mm ² E: 6x16mm ² + 7x10mm ² , N: 6x16mm ² + 7x10mm ² | h.257 x w.498 x d.72 | VF122TDI |
| Golf flush mounted enclosure, 2 rows 24 mod. N: 5x16mm ² + 5x10mm ² , E: 4x16mm ² + 5x10mm ² , N: 4x16mm ² + 5x10mm ² | h.382 x w.318 x d.72 | VF212TDI |
| Golf flush mounted enclosure, 3 rows 36 mod. N: 5x16mm ² + 6x10mm ² , E: 5x16 mm ² + 6x10 mm ² , N: 5x16mm ² + 6x10mm ² | h.507 x w.318 x d.72 | VF312TDI |
| Golf flush mounted enclosure, 4 rows 48 mod. N: 5 x 16 mm ² + 6 x 10 mm ² , E: 6 x 16 mm ² + 7 x 10 mm ² , N: 6 x 16 mm ² + 7 x 10 mm ² | h.652 x w.318 x d.72 | VF412TDI |



KM07N



KM13N



KM25N

Additional Terminals

| Description | Terminal block with support | Terminal block w/o support | |
|---|-----------------------------|----------------------------|-------------|
| | Neutral Cat. ref. | Earth Cat. ref. | Cat. ref. |
| Terminal block 3 x 16 + 4 x 10 mm ² | KM07N | KM07E | K142 |
| Terminal block 5 x 16 + 6 x 10 mm ² | KM11N | KM11E | K144 |
| Terminal block 6 x 16 + 7 x 10 mm ² | KM13N | KM13E | K148 |
| Terminal block 1 x 25 + 8 x 16 + 8 x 10 mm ² | KM17N | KM17E | K156 |
| Terminal block 1 x 25 +11 x 16 + 3 x 10 mm ² | KM25N | KM25E | K158 |

FW Enclosures
Characteristics

- Complete FW flush enclosure, with PE/N terminals per field DIN Rail 35 x 7.5mm, 125mm gap
- For devices up to 125A
- Complete boards come with door, DIN Rail chassis and shock protective cover
- Quick Connect Terminals for ease and safety
- Cable entries top and bottom
- Flat trimming frames
- Colour: RAL 9010 (pure white)
- Integrated cable rails
- Depth 112 mm
- Material: sheet steel
- Complies with IEC 61 439-3., IEC 60 695-2-10, IEC 60 695-2-11
- Glow wire test: 850°C
- For technical details see page 4.47.



FWU62S

| Description | h. x w. mm | PE/N Terminals | Fields | Rows | Modules | Cat ref. |
|--------------------|------------|----------------------|--------|------|---------|---------------|
| FW flush enclosure | 500 x 300 | 2 x 10 + 1 x 18 | 1 | 3 | 36 | FWU31S |
| | 500 x 550 | 2 x 10 + 1 x 18 | 2 | 3 | 72 | FWU32S |
| | 500 x 800 | 2 x 10 + 1 x 18 | 3 | 3 | 108 | FWU33S |
| | 650 x 300 | 2 x 10 + 1 x 22 | 1 | 4 | 48 | FWU41S |
| | 650 x 550 | 2 x 10 + 1 x 22 | 2 | 4 | 96 | FWU42S |
| | 650 x 800 | 2 x 10 + 1 x 22 | 3 | 4 | 144 | FWU43S |
| | 800 x 300 | 2 x 10 + 1 x 22 | 1 | 5 | 60 | FWU51S |
| | 800 x 550 | 2 2 x 10 + 1 x 22 25 | 2 | 5 | 120 | FWU52S |
| | 800 x 800 | 2 x 10 + 1 x 22 | 3 | 5 | 180 | FWU53S |
| | 950 x 300 | 2 x 10 + 1 x 22 | 1 | 6 | 72 | FWU61S |
| | 950 x 550 | 2 x 10 + 1 x 22 | 2 | 6 | 144 | FWU62S |
| | 950 x 800 | 2 x 10 + 1 x 22 | 3 | 6 | 216 | FWU63S |
| | 1100 x 300 | 2 x 10 + 1 x 22 | 1 | 7 | 84 | FWU71S |
| | 1100 x 550 | 2 x 10 + 1 x 22 | 2 | 7 | 168 | FWU72S |
| | 1100 x 800 | 2 x 10 + 1 x 22 | 3 | 7 | 252 | FWU73S |

For non Quick Connect Terminal, use KMxxx accessories below.

Accessories

| Description | PE/N Terminals | Section in mm ² | Qty. | Cat ref. |
|--|-------------------|-------------------------------|------|--------------|
| PE + N connections snap on lateral support | 2 x 13 each | 6 x 16, 7 x 10 | 2 | KM13A |
| | 2 x 22 each | 10 x 16, 12 x 10 | 2 | KM22A |
| | 2 x 25 each | 11 x 16, 14 x 10 | 2 | KM25A |
| | 4 x 5 each | 1 x 25, 2 x 16, 2 x 10 | 1 | KM05B |



KM25A



KM05B



CDA240U

RCCBs A type 6kA and 10kA 30mA

- Compact devices which provide RCD earth leakage protection (protect against electrical shocks by direct or indirect contacts). To open automatically in the event of an earth fault between phase and earth and/or neutral and earth.
- High sensitivity: 30mA instantaneous tripping (fixed)
- Medium sensitivity: 100mA, 300mA instantaneous or selective tripping (fixed)
- Current rating: 25 to 125A. Voltage rating: 230V AC (2P). Poles: 2P. Type: A. Frequency: 50Hz
- Connection capacity 25 to 63A: rigid conductors 25mm², flexible conductors 16mm²
- Connection capacity 80 and 100A: rigid conductors 50mm², flexible conductors 35mm²
- A type suitable for residual pulsating direct currents, whether suddenly applied or slowly rising. They are used whenever fault currents are not sinusoidal. Complies with EN61008-1. For technical details see page 4.51.



CDA516D

| Description | In/A | Quantity | Cat ref. |
|---------------------------------|------|----------|----------------|
| RCCBs A type, 6kA 30mA, 2 Pole | 25A | 1 | CDA225U |
| | 40A | 1 | CDA240U |
| | 63A | 1 | CDA263U |
| | 80A | 1 | CD283U |
| | 100A | 1 | CD285U |
| RCCBs A type, 10kA 30mA, 2 Pole | 16A | 1 | CDA516D |
| | 25A | 1 | CDA525D |
| | 40A | 1 | CDA540D |
| | 63A | 1 | CDA563D |

MCBs Type B & C 6kA Single Pole

- Protection and control of circuits against overloads and short circuits.
- Circuit isolation..
- Breaking capacity : 6kA (IEC 60 898-1).
- Curves : B curve : 3 to 5 In. Voltage rating : 240/400V AC. Current rating : 6 to 63A.
- Frequency : 50/60Hz. Climate sealed : T2.
- Will accept accessories, except MUxxxx.
- Connection capacity: rigid conductors : 25mm², flexible conductors : 16mm².
- Complies with IEC 60 898-1 and EN 60898-1



MBN116W

| Description | Width (17.5mm) | Quantity | B Curve Cat ref. | C Curve Cat ref. | C Curve without accessories Cat ref. |
|-------------|-------------------|----------|---------------------|---------------------|---|
| 6A | 1 Mod | 12 | MBN106W | MCN106A | MU106A |
| 10A | 1 Mod | 12 | MBN110W | MCN110A | MU110A |
| 16A | 1 Mod | 12 | MBN116W | MCN116A | MU116A |
| 20A | 1 Mod | 12 | MBN120W | MCN120A | MU120A |
| 25A | 1 Mod | 12 | MBN125W | MCN125A | MU125A |
| 32A | 1 Mod | 12 | MBN132W | MCN132A | MU132A |
| 40A | 1 Mod | 12 | MBN140W | MCN140A | MU140A |
| 50A | 1 Mod | 12 | MBN150W | MCN150A | MU150A |
| 63A | 1 Mod | 12 | MBN163W | MCN163A | MU163A |



ADA106U

RCBOs Type B & C - 30mA 6kA, 1 Pole

- Compact protection devices which combine the overcurrent functions of an MCB with the earth fault functions of an RCCB in a single unit. A range of sensitivity and current ratings are available for use in domestic installations.
- Insulated DIN clip
- Complies with BS EN 61009-1, IEC61009-1, IEC61009-2-2,
- Sensitivities (fixed)
- 10mA and 30mA
- Breaking capacity: 10kA. Flying neutral lead: 200mm
- Terminal Capacities: 25mm² rigid, 16mm² flexible
- Application: 1 module devices provide a compact solution for installation in consumer units.
- These devices are 1 pole & solid neutral. Operating Voltage: 230V(AC) + 10%/-15% 50H. Locking kit = MZN175

| Description | Width (17.5mm) | Quantity | B Curve Cat ref. | C Curve Cat ref. |
|-------------|-------------------|----------|---------------------|---------------------|
| 6A | 1 Mod | 1 | ADA106U | ADA156U |
| 10A | 1 Mod | 1 | ADA110U | ADA160U |
| 16A | 1 Mod | 1 | ADA116U | ADA166U |
| 20A | 1 Mod | 1 | ADA120U | ADA170U |
| 25A | 1 Mod | 1 | ADA125U | ADA175U |
| 32A | 1 Mod | 1 | ADA132U | ADA182U |

Reduced Height RCBOs Type B - 30mA 6kA, 1 Pole

- Reduced height RCBO is designed to give more space in the consumer unit. The functional earth has been removed to allow easier installation.
- Compact protection devices which provide MCB overload protection and RCD earth leakage protection (protect against electrical shocks by direct or indirect contact).
- Sensitivity: High sensitivity: 30mA instant tripping (fixed). Medium sensitivity: 300mA instant tripping (fixed).
- Current rating: 6 to 32A.
- Curves: B.
- Voltage rating: 230V AC.
- A type.
- Frequency: 50Hz.
- Connection capacity: rigid conductors: 25mm², flexible conductors: 16mm².
- A type: Detects residual sinusoidal alternating currents, whether suddenly applied or slowly rising. They are used whenever fault currents are not sinusoidal. It is able to detect DC fault current generated by loads like washing machines, speed drives, microprocessing, electronic ballast.
- Approved according to EN 61009-1.



ADA307G

| Description | Breaking capacity (IEC 60 898-1) | Width (17.5mm) | Quantity | B Curve Cat ref. |
|-------------|----------------------------------|----------------|----------|------------------|
| 6A | 6kA | 1 mod | 1 | ADA307G |
| 10A | 6kA | 1 mod | 1 | ADA311G |
| 16A | 6kA | 1 mod | 1 | ADA317G |
| 20A | 6kA | 1 mod | 1 | ADA321G |
| 25A | 6kA | 1 mod | 1 | ADA326G |
| 32A | 6kA | 1 mod | 1 | ADA333G |

Standard Height RCBOs Type B - 30mA 6kA, 1 Pole

| Description | Breaking capacity (IEC 60 898-1) | Width (17.5mm) | Quantity | Cat ref. |
|-------------|----------------------------------|----------------|----------|----------------|
| 40A | 6kA | 1 mod | 1 | ADA140G |
| 45A | 6kA | 1 mod | 1 | ADA145G |

RCBOs Type B & C - 30mA 6kA, 2 Pole

- Compact protection devices which provide MCB overload protection and RCD earth leakage protection (protect against electrical shocks by direct or indirect contact).
- Sensitivity: High sensitivity: 30mA instant tripping (fixed). Medium sensitivity: 300mA instant tripping (fixed).
- Current rating: 6 to 40A.
- Curves: B. Voltage rating: 230V AC.
- Frequency: 50Hz.
- Connection capacity: rigid conductors: 25mm², flexible conductors: 16mm².
- A type: Detects residual sinusoidal alternating currents, whether suddenly applied or slowly rising. They are used whenever fault currents are not sinusoidal. It is able to detect DC fault current generated by loads like washing machines, speed drives, microprocessing, electronic ballast.
- Approved according to EN 61009-1. **(Suitable for use in ROI)**



AD916J

| Description | Breaking capacity (IEC 60 898-1) | Width (17.5mm) | Quantity | B Curve Cat ref. | C Curve Cat ref. |
|-------------|----------------------------------|----------------|----------|------------------|------------------|
| 6A | 6kA | 2 mod | 1 | AD906J | AD956J |
| 10A | 6kA | 2 mod | 1 | AD910J | AD960J |
| 16A | 6kA | 2 mod | 1 | AD916J | AD966J |
| 20A | 6kA | 2 mod | 1 | AD920J | AD970J |
| 25A | 6kA | 2 mod | 1 | AD925J | AD975J |
| 32A | 6kA | 2 mod | 1 | AD932J | AD982J |
| 40A | 6kA | 2 mod | 1 | AD940J | AD990J |

RCBOs Type B & C - 30mA 10kA, 2 Pole

| Description | Breaking capacity (IEC 60 898-1) | Width (17.5mm) | Quantity | B Curve Cat ref. | C Curve Cat ref. |
|-------------|----------------------------------|----------------|----------|------------------|------------------|
| 6A | 10kA | 2 mod | 1 | ADA506D | ADA556D |
| 10A | 10kA | 2 mod | 1 | ADA510D | ADA560D |
| 16A | 10kA | 2 mod | 1 | ADA516D | ADA566D |
| 20A | 10kA | 2 mod | 1 | ADA520D | ADA570D |
| 25A | 10kA | 2 mod | 1 | ADA525D | ADA575D |
| 32A | 10kA | 2 mod | 1 | ADA532D | ADA582D |



ADA506D



ADS967D

FI / LS switch for 127 V networks, 1P + N, 6 kA, Quick Connect

| Current Characteristics Fi - Type | Modules | Cat ref. |
|---|---------|----------------|
| RCBO 1P+N 6kA 127V B-16A 30mA A Class QC&QB | 2 | ADS917D |
| ROBO 1P+N 6kA 127V C-16A 30mA A Class QC&QB | 2 | ADS967D |

See Modular Devices & Connection page 2.31 for suitable busbars.



MZN175

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 |



ARC906U

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) | B Curve Cat ref. | B Curve Cat ref. |
|-------------|--------------------------|---------------------|---------------------|
| 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 |

Surge Protection Type 1 + 2

Technical Data

Conforms to IEC61643-1: T1 + T2
 Rated operational voltage: 230/400V
 Frequency: 50/60Hz
 Protection level up: 1.5kV
 Operating temperature: -40 to 80°C
 Rated voltage Uc according to IEC61643-1: 350V



SPA800

Characteristics

- For mounting on top hat rails
- Integrated remote signalling contact
- Contact type: 1 changeover contact

| Backup fuse | Earthing network | Modules | Nominal discharge capacity | Total discharge capacity | VPE | Cat ref. |
|-------------|------------------|---------|----------------------------|--------------------------|-----|---------------|
| 315A | TN-C | 6 | 25kA | 75 | 1 | SPA800 |
| 315A | TT/TN-S | 8 | 25kA | 100 | 1 | SPA801 |



SPA081

Replacement plug-in module for SPA80x

| Description | Backup fuse | PU | Cat ref. |
|---------------------------------|-------------|----|---------------|
| Plug-in module LN/PEN 350V 25kA | 315A | 1 | SPA081 |

Surge Protection Type 2

These are used to limit the voltage to the specified values and can be connected downstream of combination protection and type 1 protection.

Surge Protection Type 2, 1 pole

Technical Data

Conforms to IEC61643-11: T2
 Rated operational voltage: 230V
 Frequency: 50/60Hz
 Discharge capacity: 20kA
 Protection level up: 1.35kV
 Number of modules: 1
 Operating temperature: -40 to 80°C
 Rated voltage Uc according to IEC61643-1: 275V



SPB140R

Characteristics

- Integrated remote signalling contact
- Contact type: 1 changeover contact

| Description | Cat ref. | With remote contact Cat ref. |
|--|----------------|---------------------------------|
| Surge protection T2, 1 pole, 40kA, TNC | SPB140D | SPB140R |

Surge Protection Type 2, 2 pole

Technical Data

Conforms to IEC61643-11: T2
 Rated operational voltage: 230V
 Frequency: 50/60Hz
 Discharge capacity: 20kA
 Protection level up: 1.35kV
 Number of modules: 2
 Operating temperature: -40 to 80°C
 Rated voltage Uc according to IEC61643-1: 275V



SPB208D

Characteristics

- Integrated remote signalling contact
- Contact type : 1 changeover contact

| Description | Cat ref. | With remote contact Cat ref. |
|---|----------------|---------------------------------|
| Surge protection T2, 2 pole, 8kA, TNS/TT | SPB208D | - |
| Surge protection T2, 2 pole, 15kA, TNS/TT | SPB215D | SPB215R |
| Surge protection T2, 2 pole, 40kA, TNS/TT | SPB240D | SPB240R |
| Surge protection T2, 2 pole, 65kA, TNS/TT | - | SPB265R |



SPB415R

Surge Protection Type 2, 4 pole

Technical Data

Conforms to IEC61643-11: T2
 Rated operational voltage: 230/400V
 Frequency: 50/60Hz
 Discharge capacity: 20kA
 Protection level up: 1.35kV
 Number of modules: 4
 Operating temperature: -40 to 80°C
 Rated voltage Uc according to IEC61643-1: 275V

Characteristics

- Integrated remote signalling contact
- Contact type : 1 changeover contact



SPB008D

| Description | Cat ref. | With remote contact Cat ref. |
|---|----------------|---------------------------------|
| Surge protection T2, 4 pole, 8kA, TNS/TT | SPB408D | - |
| Surge protection T2, 4 pole, 15kA, TNS/TT | SPB415D | SPB415R |
| Surge protection T2, 4 pole, 40kA, TNS/TT | SPB440D | SPB440R |
| Surge protection T2, 4 pole, 65kA, TNS/TT | - | SPB465R |

Replacement plug-in module Type 2

| Description | Cat ref. |
|------------------------------------|----------------|
| Cartridge L-N, In 2kA, Imax 8kA | SPB008D |
| Cartridge T2 L-N Uc 275V Up 1.35kV | SPB015 |
| Cartridge L-N, In 5kA, Imax 15kA | SPB015D |
| Cartridge T2 N-PE Uc 260V Up 1.5kV | SPB015N |
| Cartridge L-N, In 20kA, Imax 40kA | SPB040D |
| Cartridge N-PE, In 20kA, Imax 40kA | SPB040N |
| Cartridge N-PE, In 20kA, Imax 65kA | SPB065N |
| Cartridge L-N, In 20kA, Imax 65kA | SPB065R |



SPV340

Surge Protection Type 2, 3 pole, PV

Technical Data

Conforms to IEC61643-1: T2
 Rated operational voltage: 1000V DC
 Protection level up: 3.7kV
 Operating temperature: -40 to 80°C

Characteristics

- Integrated remote signalling contact
- Contact type : 1 changeover contact

| Description | Cat ref. |
|---------------------------------------|---------------|
| Surge protection T2, 3 pole, 40kA, PV | SPV340 |

Plug-in module Type 2, PV

| Nominal discharge capacity | Protection level | PU | Cat ref. |
|----------------------------|------------------|----|---------------|
| 40kA | 1.9kV | 1 | SPV040 |

Surge Protection Type 3

These are used to limit the voltage to $\leq 1.5\text{kV}$. Surge protection type 3 should be located as close as possible to the end of the device, so that the voltage level can be reduced to a tolerable value and recouplings can be neutralised.

Surge Protection Type 3

Technical Data

Conforms to IEC61643-11: T3
 Rated operational voltage: 230V
 Frequency: 50/60Hz
 Protection level up: 1.4kV
 Operating temperature: -40 to 80°C



SPC203N

Characteristics

- Integrated remote signalling contact
- Contact type: 1 changeover contact

| Description | Modules | PU. | Cat ref. |
|--------------------------------------|---------|-----|----------------|
| Surge protection T3, 1 pole + N, 5kA | 1 | 1 | SPC203N |
| Surge protection T3, 3 pole + N, 3kA | 2 | 1 | SPC403N |

Accessories for Surge Protection Type 3

Technical Data

Conforms to IEC61643-11: T3
 Rated operational voltage: 230V
 Frequency: 50/60Hz
 Protection level up: 1.4kV
 Operating temperature: -40 to 80°C



SPC023N

| Description | PU. | Cat ref. |
|--|-----|----------------|
| Plug-in module T3 1 pole Uc 264V In 5kA | 1 | SPC023N |
| Surge protection T3, N-PE Uc 264V In 3kA | 1 | SPC043N |

Surge Protection for IP Broadband Connections

| Description | Protection level | PU. | Cat ref. |
|---------------------------------------|------------------|-----|---------------|
| Surge protection for VDSL | 250V | 1 | SPK603 |
| Surge protection for (A) DSL and ISDN | 300V | 1 | SPK602 |



SPK603



SBN140

Switch Disconnectors

- For use as a switch disconnector in all types of circuits.
- Complies with: IEC 60947-3 for all ratings and to EN60669 for ratings from 16A to 63A

Features

- All switches have a green / red indication on the toggle giving positive contact indication.

Technical data

- Utilisation category AC22A 230V / 400V
- In: 16A to 32A frame size 1. Connection capacity: 16mm² - rigid conductor, 10mm² - flexible conductor
- In: 32A to 63A frame size 2. Connection capacity: 25mm² - rigid conductor, 16mm² - flexible conductor
- In: 63A to 125A frame size 3. Connection capacity: 50mm² - rigid conductor, 35mm² - flexible conductor



| Description | Frame size | Mod. width | Qty. | Cat ref. |
|---|------------|------------|------|---------------|
| Single pole switch disconnectors | | | | |
| 1 x 16A - 230V AC | 1 | 1 | 12 | SBN116 |
| 1 x 25A - 230V AC | 1 | 1 | 12 | SBN125 |
| 1 x 32A - 230V AC | 1 | 1 | 12 | SBN132 |
| 1 x 32A* - 230V AC | 2 | 1 | 12 | SBN133 |
| 1 x 40A - 230V AC | 2 | 1 | 12 | SBN140 |
| 1 x 63A - 230V AC | 2 | 1 | 12 | SBN163 |
| 1 x 63A* - 230V AC | 3 | 1 | 12 | SBN164 |
| 1 x 80A - 230V AC | 3 | 1 | 12 | SBN180 |
| 1 x 100A - 230V AC | 3 | 1 | 12 | SBN190 |
| 1 x 125A - 230V AC | 3 | 1 | 12 | SBN199 |



| Description | Frame size | Mod. width | Qty. | Cat ref. |
|---|------------|------------|------|---------------|
| Double pole switch disconnectors | | | | |
| 2 x 16A - 230V AC | 1 | 1 | 12 | SBN216 |
| 2 x 25A - 230V AC | 1 | 1 | 12 | SBN225 |
| 2 x 32A - 230V AC | 1 | 1 | 12 | SBN232 |
| 2 x 32A* - 230V AC | 2 | 2 | 6 | SBN233 |
| 2 x 40A - 400V AC | 2 | 2 | 6 | SBN240 |
| 2 x 63A - 400V AC | 2 | 2 | 6 | SBN263 |
| 2 x 63A* - 400V AC | 3 | 2 | 6 | SBN264 |
| 2 x 80A - 400V AC | 3 | 2 | 6 | SBN280 |
| x 2 x 100A - 400V AC | 3 | 2 | 6 | SBN290 |
| 2 x 125A - 400V AC | 3 | 2 | 6 | SBN299 |



| Description | Frame size | Mod. width | Qty. | Cat ref. |
|--|------------|------------|------|---------------|
| Three pole switch disconnectors | | | | |
| 3 x 16A - 400V AC | 1 | 2 | 6 | SBN316 |
| 3 x 25A - 400V AC | 1 | 2 | 6 | SBN325 |
| 3 x 32A - 400V AC | 1 | 2 | 6 | SBN332 |
| 3 x 32A* - 400V AC | 2 | 3 | 4 | SBN333 |
| 3 x 40A - 400V AC | 2 | 3 | 4 | SBN340 |
| 3 x 63A - 400V AC | 2 | 3 | 4 | SBN363 |
| 3 x 63A* - 400V AC | 3 | 3 | 4 | SBN364 |
| 3 x 80A - 400V AC | 3 | 3 | 4 | SBN380 |
| 3 x 100A - 400V AC | 3 | 3 | 4 | SBN390 |
| 3 x 125A - 400V AC | 3 | 3 | 4 | SBN399 |



| Description | Frame size | Mod. width | Qty. | Cat ref. |
|---------------------------------------|------------|------------|------|---------------|
| Four pole switch disconnectors | | | | |
| 4 x 16A - 400V AC | 1 | 2 | 6 | SBN416 |
| 4 x 25A - 400V AC | 1 | 2 | 6 | SBN425 |
| 4 x 32A - 400V AC | 1 | 2 | 6 | SBN432 |
| 4 x 32A* - 400V AC | 2 | 4 | 3 | SBN433 |
| 4 x 40A - 400V AC | 2 | 4 | 3 | SBN440 |
| 4 x 63A - 400V AC | 2 | 4 | 3 | SBN463 |
| 4 x 63A* - 400V AC | 3 | 4 | 3 | SBN464 |
| 4 x 80A - 400V AC | 3 | 4 | 3 | SBN480 |
| 4 x 100A - 400V AC | 3 | 4 | 3 | SBN490 |
| 4 x 125A - 400V AC | 3 | 4 | 3 | SBN499 |



SBN340



SBN440

Switch Disconnectors

- For use as a switch disconnector in all types of circuits.
- Complies with: IEC 60947-3 for all ratings and to EN60669 for ratings from 16A to 63A.

Features

- All switches have a green / red indication on the toggle giving positive contact indication.

Technical data

- Utilisation category AC22A 230V / 400V
- In: 16A to 32A frame size 1.
- Connection capacity: 16mm² - rigid conductor, 10mm² - flexible conductor
- In: 32A to 63A frame size 2.
- In: 80A to 125A frame size 3.
- Connection capacity: 50mm² - rigid conductor, 35mm² - flexible conductor



SBR163

| Description | Frame size | Mod. width | Qty. | Cat ref. |
|-------------|------------|------------|------|----------|
|-------------|------------|------------|------|----------|

Single pole switch disconnectors

| | | | | |
|--------------------|---|---|----|---------------|
| 1 x 40A - 230V AC | 2 | 1 | 12 | SBR140 |
| 1 x 63A - 230V AC | 2 | 1 | 12 | SBR163 |
| 1 x 80A - 230V AC | 3 | 1 | 12 | SBR180 |
| 1 x 100A - 230V AC | 3 | 1 | 12 | SBR190 |
| 1 x 125A - 230V AC | 3 | 1 | 12 | SBR199 |



| Description | Frame size | Mod. width | Qty. | Cat ref. |
|-------------|------------|------------|------|----------|
|-------------|------------|------------|------|----------|

Double pole switch disconnectors

| | | | | |
|--------------------|---|---|---|---------------|
| 2 x 40A - 400V AC | 2 | 2 | 6 | SBR240 |
| 2 x 63A - 400V AC | 3 | 2 | 6 | SBR263 |
| 2 x 80A - 400V AC | 3 | 2 | 6 | SBR280 |
| 2 x 100A - 400V AC | 3 | 2 | 6 | SBR290 |
| 2 x 125A - 400V AC | 3 | 2 | 6 | SBR299 |



SBR263

| Description | Frame size | Mod. width | Qty. | Cat ref. |
|-------------|------------|------------|------|----------|
|-------------|------------|------------|------|----------|

Three pole switch disconnectors

| | | | | |
|--------------------|---|---|---|---------------|
| 3 x 40A - 400V AC | 2 | 3 | 4 | SBR340 |
| 3 x 63A - 400V AC | 2 | 3 | 4 | SBR363 |
| 3 x 80A - 400V AC | 3 | 3 | 4 | SBR380 |
| 3 x 100A - 400V AC | 3 | 3 | 4 | SBR390 |
| 3 x 125A - 400V AC | 3 | 3 | 4 | SBR399 |



SBR399

| Description | Frame size | Mod. width | Qty. | Cat ref. |
|-------------|------------|------------|------|----------|
|-------------|------------|------------|------|----------|

Four pole switch disconnectors

| | | | | |
|--------------------|---|---|---|---------------|
| 4 x 63A - 400V AC | 2 | 4 | 3 | SBR463 |
| 4 x 100A - 400V AC | 3 | 4 | 3 | SBR490 |
| 4 x 125A - 400V AC | 3 | 4 | 3 | SBR499 |



SBR499



SBT116

Switch Disconnectors with Indicator Light

- For use as a switch disconnector in all types of circuits.
- Complies with:
- IEC 60947-3 and EN60669

Features

- Orange LED indicator light.
- LED life time: 100 000 h.
- All switches have a green / red indication on the toggle giving positive contact indication

Technical data

- Utilisation category AC22A 230V / 400V
- In: 16A to 32A frame size 1.
- Connection capacity: 16mm² - rigid conductor, 10mm² - flexible conductor

| Description | Frame size | Mod. width | Qty. | Cat ref. |
|--|------------|------------|------|---------------|
| Single pole switch disconnectors with indicator light top | | | | |
| 1 x 16A - 230V AC | 1 | 1 | 12 | SBT116 |
| 1 x 25A - 230V AC | 1 | 1 | 12 | SBT125 |
| 1 x 32A - 230V AC | 1 | 1 | 12 | SBT132 |

| Description | Frame size | Mod. width | Qty. | Cat ref. |
|---|------------|------------|------|---------------|
| Single pole switch disconnectors with indicator light bottom | | | | |
| 1 x 16A - 230V AC | 1 | 1 | 12 | SBB116 |
| 1 x 25A - 230V AC | 1 | 1 | 12 | SBB125 |
| 1 x 32A - 230V AC | 1 | 1 | 12 | SBB132 |

| Description | Frame size | Mod. width | Qty. | Cat ref. |
|--|------------|------------|------|---------------|
| Double pole switch disconnectors with indicator light top | | | | |
| 2 x 16A - 230V AC | 1 | 1 | 12 | SBT216 |
| 2 x 25A - 230V AC | 1 | 1 | 12 | SBT225 |
| 2 x 32A - 230V AC | 1 | 1 | 12 | SBT232 |

| Description | Frame size | Mod. width | Qty. | Cat ref. |
|---|------------|------------|------|---------------|
| Double pole switch disconnectors with indicator light bottom | | | | |
| 2 x 16A - 230V AC | 1 | 1 | 12 | SBB216 |
| 2 x 25A - 230V AC | 1 | 1 | 12 | SBB225 |
| 2 x 32A - 230V AC | 1 | 1 | 12 | SBB232 |

| Description | Frame size | Mod. width | Qty. | Cat ref. |
|---|------------|------------|------|---------------|
| Double pole switch disconnectors with indicator light top & bottom | | | | |
| 2 x 16A - 230V AC | 1 | 1 | 12 | SBM216 |
| 2 x 25A - 230V AC | 1 | 1 | 12 | SBM225 |
| 2 x 32A - 230V AC | 1 | 1 | 12 | SBM232 |

Auxiliaries & Accessories

Auxiliary contact

- The auxiliary contact is common to the whole range of switch disconnectors from 16A to 125A with or without indicator light

Features

- The auxiliary contact have a mechanical indicator to show the position of the contact

Technical data

- Utilisation category AC12A 230V / 400V

- Connection capacity: 10mm² - rigid conductor, 6mm² - flexible conductor

Sealable terminal shrouds

- The sealable terminal shroud is compatible with switch disconnectors ratings from 32A to 63A frame size 2.

- For ratings from 63A to 125A frame size 3 switch disconnector, only the visible part is compatible to protect the front screw heads.

Phase barrier shield

- The phase barrier shield is compatible with switch disconnectors ratings ratings from 32A to 125A frame size 2&3.

Padlocking kit

- Allows to lock the device in the OFF and ON positions.

- Will accept two padlocks with hasps of 4.75mm diameter max. (supplied without padlock).



ESC080

Description

Auxiliary contact 1NO + 1NC

Compatible with disconnector switches from 16 to 125A

Mod. width Qty. Cat ref.

0.5 1 **ESC080**

Description

Terminal shroud Compatible with switch disconnector from 32A to 63A frame size 2

To shroud the connection terminal and screws. The screw cover can be sealed.

Qty. Cat ref.

4 **MZN120**



MZN120

Description

Phase barrier shield

Phase barrier shield

Qty. Cat ref.

3 **MZN121**



MZN121

Description

Padlocking kit

Padlocking kit

Qty. Cat ref.

2 **MZN175**



MZN175



SFT232

Switch Disconnectors

- For use as a switch disconnector in all types of circuits.
 - Complies with: IEC 60947-3 for all ratings and to EN60669 for ratings from 16A to 63A
- Technical data**
- Utilisation category AC22A 230V / 400V
 - In: 16A to 40A frame size 1.
 - Connection capacity: 16mm² - rigid conductor, 10mm² - flexible conductor

| Description | Frame size | Mod. width | Qty. | Cat ref. |
|--|------------|------------|------|---------------|
| Centre OFF changeover switch I-0-II and common point on top | | | | |
| 1 x 25A - 230V AC | 1 | 1 | 12 | SFT125 |
| 1 x 32A - 230V AC | 1 | 1 | 12 | SFT132 |
| 1 x 40A - 230V AC | 1 | 1 | 12 | SFT140 |
| 2 x 25A - 230V AC | 1 | 2 | 6 | SFT225 |
| 2 x 32A - 230V AC | 1 | 2 | 6 | SFT232 |
| 2 x 40A - 230V AC | 1 | 2 | 6 | SFT240 |
| 3 x 40A - 400V AC | 1 | 3 | 4 | SFT340 |
| 4 x 40A - 230V AC | 1 | 4 | 3 | SFT440 |



SFB125

| Description | Frame size | Mod. width | Qty. | Cat ref. |
|---|------------|------------|------|---------------|
| Centre OFF changeover switch I-0-II and common point on bottom | | | | |
| 1 x 16A - 230V AC | 1 | 1 | 12 | SFB116 |
| 1 x 25A - 230V AC | 1 | 1 | 12 | SFB125 |
| 1 x 32A - 230V AC | 1 | 1 | 12 | SFB132 |
| 2 x 16A - 230V AC | 1 | 2 | 6 | SFB216 |
| 2 x 25A - 230V AC | 1 | 2 | 6 | SFB225 |
| 2 x 32A - 230V AC | 1 | 2 | 6 | SFB232 |



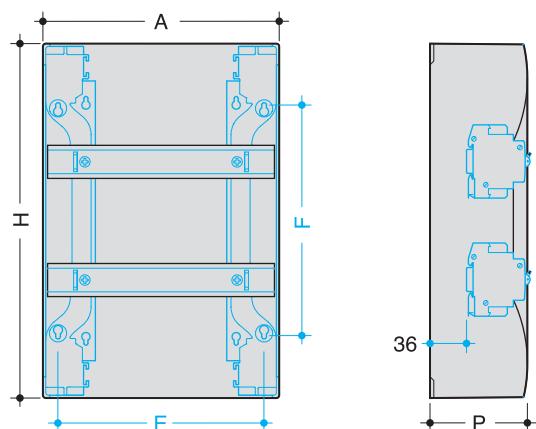
SFH125

| Description | Frame size | Mod. width | Qty. | Cat ref. |
|---|------------|------------|------|---------------|
| Changeover switch I-II and common point on top | | | | |
| 1 x 25A - 230V AC | 1 | 1 | 12 | SFH125 |
| 1 x 32A - 230V AC | 1 | 1 | 12 | SFH132 |
| 2 x 25A - 230V AC | 1 | 2 | 6 | SFH225 |
| 2 x 32A - 230V AC | 1 | 2 | 6 | SFH232 |

| Description | Frame size | Mod. width | Qty. | Cat ref. |
|--|------------|------------|------|---------------|
| Changeover switch I-II and common point on bottom | | | | |
| 1 x 16A - 230V AC | 1 | 1 | 12 | SFL116 |
| 1 x 25A - 230V AC | 1 | 1 | 12 | SFL125 |
| 1 x 32A - 230V AC | 1 | 1 | 12 | SFL132 |
| 2 x 16A - 230V AC | 1 | 2 | 6 | SFL216 |
| 2 x 25A - 230V AC | 1 | 2 | 6 | SFL225 |
| 2 x 32A - 230V AC | 1 | 1 | 6 | SFL232 |

| Description | Frame size | Mod. width | Qty. | Cat ref. |
|-------------------------------|------------|------------|------|---------------|
| Changeover switch I-II | | | | |
| 1 x 25A - 230V AC | 1 | 1 | 12 | SFM125 |
| 1 x 32A - 230V AC | 1 | 1 | 12 | SFM132 |

Gamma 13

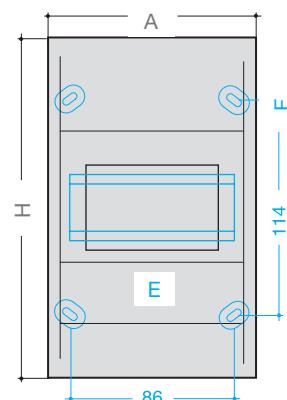


Dimensions

| References | Dimensions (mm) | | | Fixing centers | |
|------------|-----------------|-----|-----|----------------|-----|
| | A | H | P | E | F |
| GD113H | 250 | 250 | 103 | 180 | 177 |
| GD213H | 250 | 375 | 103 | 180 | 302 |
| GD313H | 250 | 500 | 103 | 180 | 427 |
| GD413H | 250 | 625 | 103 | 180 | 552 |

Note : allow 28 mm extra in width for door opening.

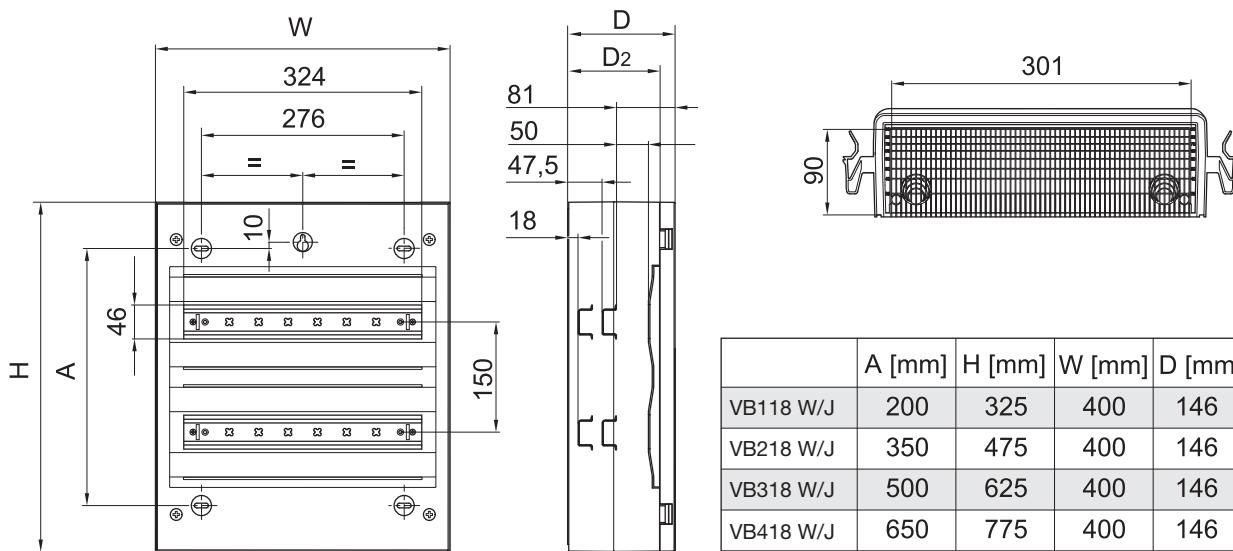
Mini Gamma



Dimensions

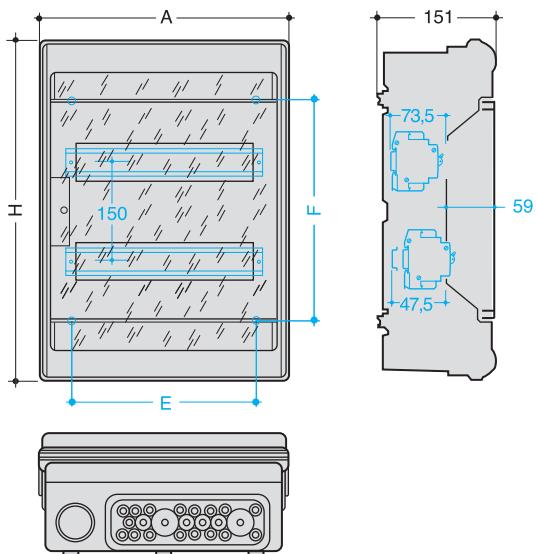
| References | Dimensions (mm) | | | Fixing centers | |
|------------|-----------------|-----|-------|----------------|-----|
| | A | H | depth | E | F |
| GD102E | 55 | 160 | 82 | - | - |
| GD104E | 110 | 180 | 82 | 86 | 114 |
| GD106E | 146 | 180 | 82 | 124 | 114 |
| GD108E | 182 | 180 | 82 | 158 | 114 |
| GD110E | 218 | 180 | 82 | 194 | 114 |

Vega



| | A [mm] | H [mm] | W [mm] | D [mm] | D ₂ [mm] |
|-----------|--------|--------|--------|--------|---------------------|
| VB118 W/J | 200 | 325 | 400 | 146 | 126 |
| VB218 W/J | 350 | 475 | 400 | 146 | 126 |
| VB318 W/J | 500 | 625 | 400 | 146 | 126 |
| VB418 W/J | 650 | 775 | 400 | 146 | 126 |

VE212R - 2 Rows 24 Modules

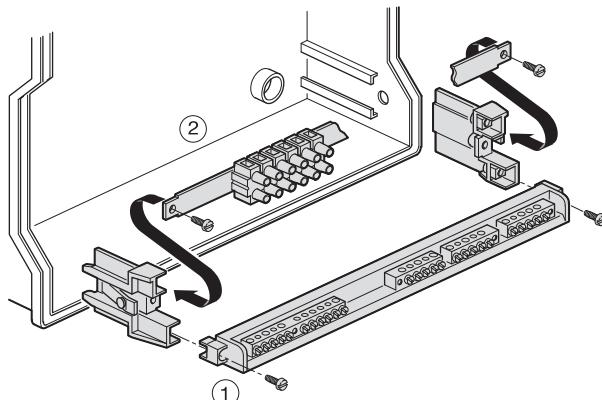


Dimensions in mm

| Ref. | R | enclosure dimension | | fixing centres | |
|--------|----|---------------------|-----|----------------|---------|
| | | A | H | E | F |
| VE103L | 3 | 1 | 111 | 175 | - 147 |
| VE106R | 6 | 1 | 165 | 190 | 108 158 |
| VE110L | 10 | 1 | 237 | 210 | 180 173 |
| VE112R | 12 | 1 | 310 | 302 | 230 155 |
| VE212R | 24 | 2 | 310 | 427 | 230 280 |
| VE312R | 36 | 3 | 310 | 552 | 230 405 |
| VE412F | 48 | 4 | 310 | 677 | 230 550 |
| VE118R | 18 | 1 | 418 | 302 | 338 155 |
| VE218R | 36 | 2 | 418 | 452 | 338 305 |
| VE318Y | 54 | 3 | 418 | 602 | 338 455 |

Connection assembly

Mounting on insulating support at both end of the chassis
Additional connection assembly : VZ403 or VZ428



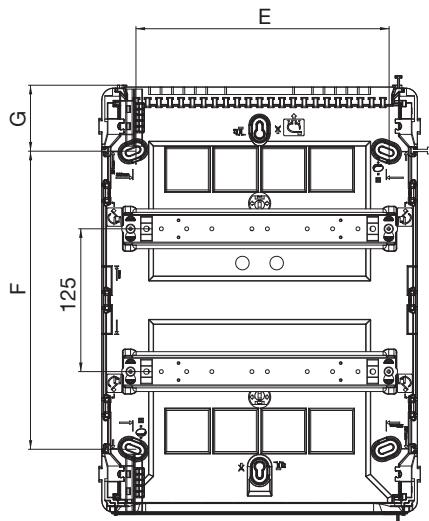
| Ref. | knock outs | side mounted |
|--------|---|--------------|
| VE103L | 2 x M20 | - |
| VE106R | 1 x M20 + 1 x M25 + 1 x M20/32 | 2 x 16 |
| VE110L | 1 x M20/32 + 1 x M25 + 3 x M20 | 2 x 16 |
| VE112R | 2 x M20/32/40 + 2 x M25/32 + 3 x M25 + 6 x M20 | 2 x 21 |
| VE212R | 1 x M20/40/50 + 2 x M20/32 + 12 x M25 + 2 x M20 | 2 x 21 |
| VE312R | 2 x M20/32/40 + 2 x M25/32 + 3 x M25 + 6 x M20 | 3 x 21 |
| VE412F | 1 x M20/40/50 + 2 x M20/32 + 12 x M25 + 2 x M20 | 3 x 21 |
| VE118R | 2 x M20/32/40 + 2 x M25/32 + 3 x M25 + 6 x M20 | 4 x 21 |
| VE218R | 1 x M20/40/50 + 2 x M20/32 + 12 x M25 + 2 x M20 | 4 x 21 |
| VE318R | 2 x M20/32/40 + 2 x M25/32 + 3 x M25 + 6 x M20 | 5 x 21 |

Cable Entries

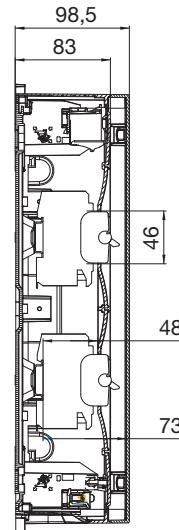
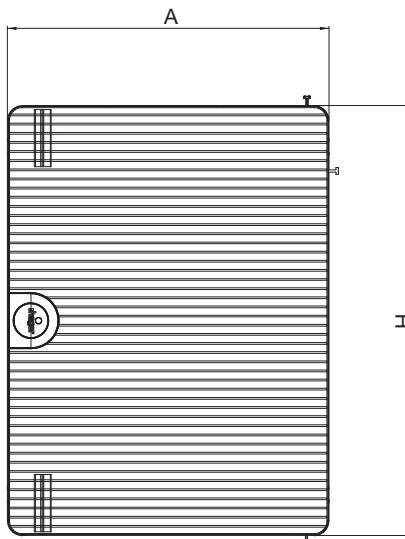
Cable entries top/bottom

One side cable entry optimised for use of trunking, knockout-type.

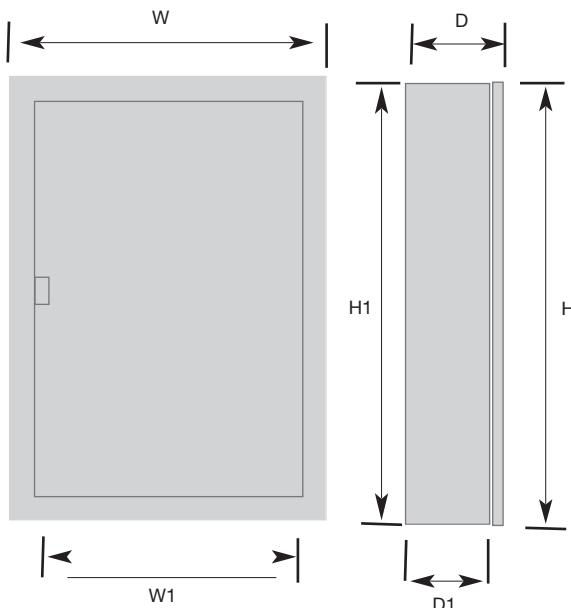
The other side pre cuts with diameters 20 mm, 25 mm, 32 mm and 40 mm the wall box is 180° turnable.



| Ref. | Dimension | | Wall fixation | | |
|-----------------|-----------|-------|---------------|-------|-------|
| | A | H | E | F | G |
| VS104... | 1 row 4 | 137,5 | 183,5 | 101 | 68 |
| VS108... | 1 row 8 | 209,5 | 183,5 | 173,5 | 68 |
| VS112... | 1 row 12 | 281,5 | 251,5 | 221,5 | 135,5 |
| VS212... | 2 row 12 | 281,5 | 376,5 | 221,5 | 260,5 |
| VS312... | 3 row 12 | 281,5 | 500 | 221,5 | 385,5 |
| VS412... | 4 row 12 | 281,5 | 646,5 | 221,5 | 491 |
| VS118... | 1 row 18 | 389,5 | 251,5 | 329,5 | 135,5 |
| VS218... | 2 row 18 | 389,5 | 376,5 | 329,5 | 260,5 |
| VS318... | 3 row 18 | 389,5 | 500 | 329,5 | 385,5 |
| VS418... | 4 row 18 | 389,5 | 646,5 | 329,5 | 491 |
| VS122... | 1 row 22 | 461,5 | 251,5 | 401,5 | 135,5 |

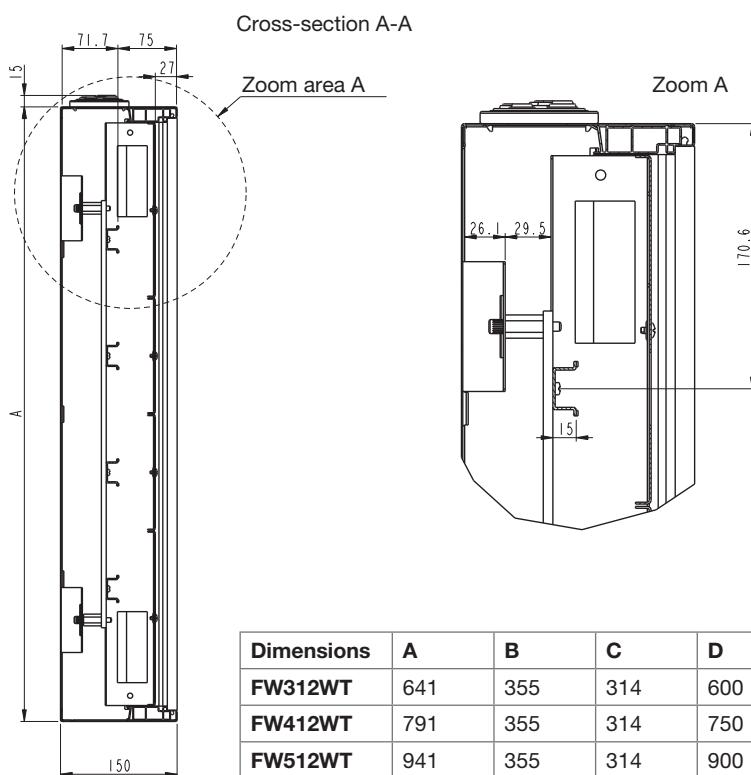
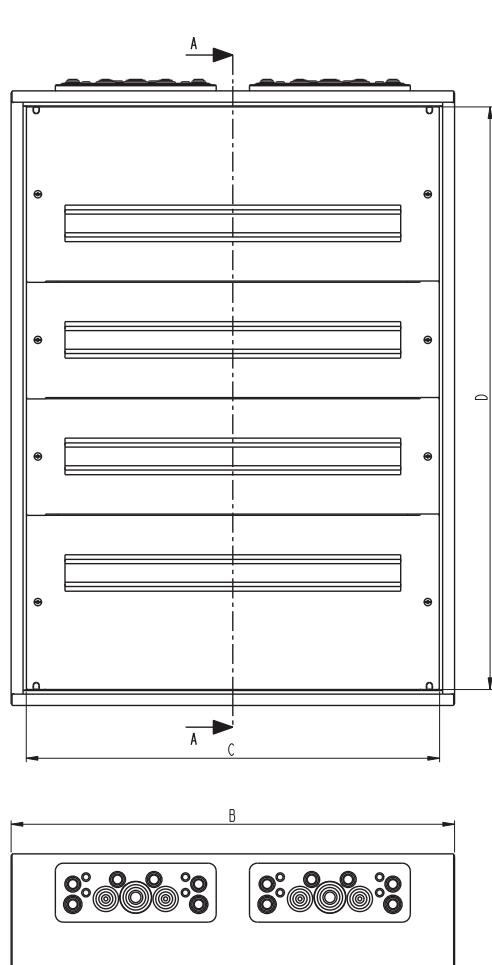


DR Metal Enclosure (surface)



| Reference | H | W | H1 | W1 | D1 |
|--------------|----------|----------|-----------|-----------|-----------|
| DR16S | 325 | 405 | 320 | 400 | 110 |
| DR32S | 475 | 405 | 470 | 400 | 110 |

FW2 Metal Enclosure (surface)



| Dimensions | A | B | C | D |
|----------------|----------|----------|----------|----------|
| FW312WT | 641 | 355 | 314 | 600 |
| FW412WT | 791 | 355 | 314 | 750 |
| FW512WT | 941 | 355 | 314 | 900 |
| FW612WT | 1091 | 355 | 314 | 1050 |
| FW324WT | 641 | 571 | 530 | 600 |
| FW424WT | 791 | 571 | 530 | 750 |
| FW524WT | 941 | 571 | 530 | 900 |
| FW624WT | 1091 | 571 | 530 | 1050 |
| FW436WT | 791 | 787 | 746 | 750 |
| FW536WT | 941 | 787 | 746 | 900 |
| FW636WT | 1091 | 787 | 746 | 1050 |
| FW736WT | 1241 | 787 | 746 | 1200 |

FW Metal Enclosures General Description

Surface mounting enclosures for domestic and commercial electrical distribution.

Included in delivery :

- enclosures with door,
- carrier rails with complete board,
- device covers with 46mm slots, with complete board,

Complies with Standards :

IEC 61 439-3

Nominal Voltage:

AC 230/400V, 50Hz

Current rating:

for devices up to 125A

Protection class:

II (insulation protected)

IP rating:

IP44

Protection details:

Protection against direct contact: IP3X behind the door
Protection with indirect contact: insulation protection

Door :

frontal fastening, with internal hinges, all adjustable, removable without tools, optionnally attachable on right or left, width from 800mm double door, opening angle 110°.

Door lock :

twist release lock, exchangeable with other locks, 3 point bar locks on double door cabinet.

Quick Connect Terminals or brass terminals :

(according the versions) :
please contact us

Colour :

RAL 9010 (pure white)

Cable entries :

cable entry plates top and bottom made of plastic to feed in the cable from the front.

Material :

Housing and door made of steel, powder coated.

Carrier rails :

Steel, powder coated.

Supports :

Plastic

Device rails :

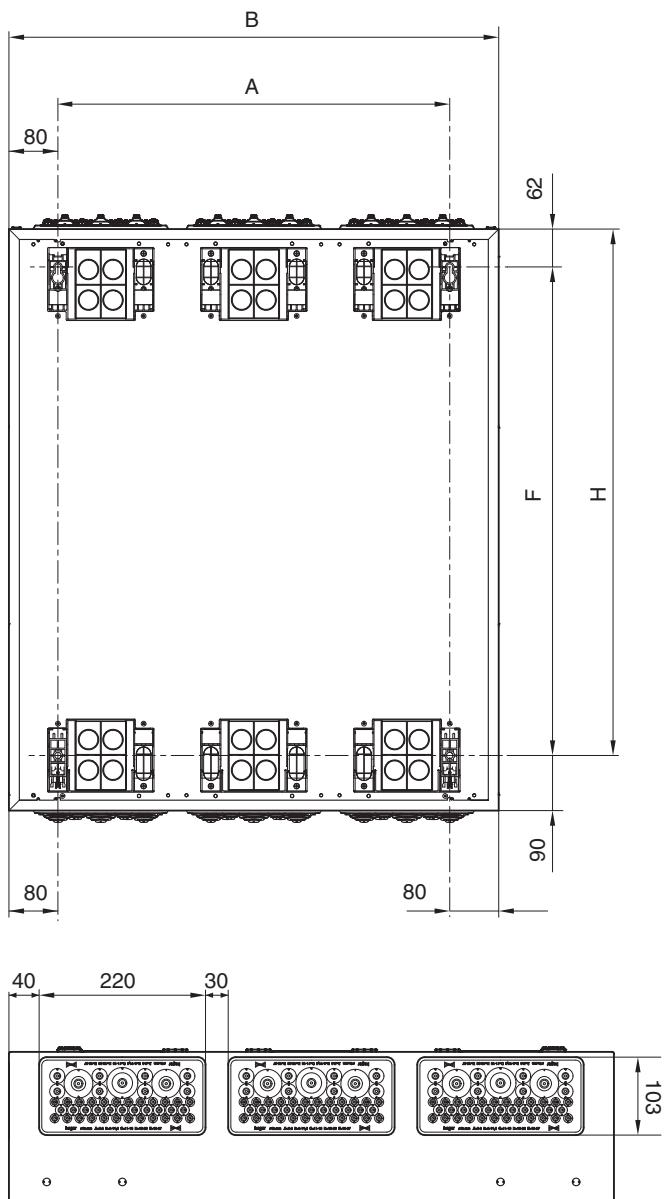
Steel, galvanised

Covers and knockouts :

Plastic

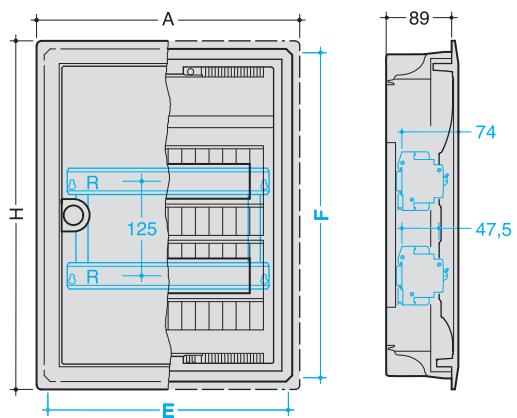
| | height (mm) | width (mm) | depth (mm) | DIN rails (12 z) | fields across | No of modules | IP class (standard) |
|--------------|-------------|------------|------------|------------------|---------------|---------------|---------------------|
| FWB31 | 500 | 300 | 161 | 3 | 1 | 36 | IP44 |
| FWB32 | | 550 | 161 | 3 | 2 | 72 | IP44 |
| FWB33 | | 800 | 161 | 3 | 3 | 108 | IP44 |
| FWB34 | | 1050 | 161 | 3 | 4 | 144 | IP44 |
| FWB41 | 650 | 300 | 161 | 4 | 1 | 48 | IP44 |
| FWB42 | | 550 | 161 | 4 | 2 | 96 | IP44 |
| FWB43 | | 800 | 161 | 4 | 3 | 144 | IP44 |
| FWB44 | | 1050 | 161 | 4 | 4 | 192 | IP44 |
| FWB51 | 800 | 300 | 161 | 5 | 1 | 60 | IP44 |
| FWB52 | | 550 | 161 | 5 | 2 | 120 | IP44 |
| FWB53 | | 800 | 161 | 5 | 3 | 180 | IP44 |
| FWB54 | | 1050 | 161 | 5 | 4 | 240 | IP44 |
| FWB61 | 950 | 300 | 161 | 6 | 1 | 72 | IP44 |
| FWB62 | | 550 | 161 | 6 | 2 | 144 | IP44 |
| FWB63 | | 800 | 161 | 6 | 3 | 216 | IP44 |
| FWB64 | | 1050 | 161 | 6 | 4 | 288 | IP44 |
| FWB71 | 1100 | 300 | 161 | 7 | 1 | 84 | IP44 |
| FWB72 | | 550 | 161 | 7 | 2 | 168 | IP44 |
| FWB73 | | 800 | 161 | 7 | 3 | 252 | IP44 |
| FWB74 | | 1050 | 161 | 7 | 4 | 336 | IP44 |

FWB surface enclosures



| Ref. | dimensions | | | |
|--------------|------------|------|-----|-----|
| | H | B | A | F |
| FWB31 | 500 | 300 | 348 | 140 |
| FWB32 | 500 | 550 | 348 | 390 |
| FWB33 | 500 | 800 | 348 | 640 |
| FWB34 | 500 | 1050 | 348 | 890 |
| FWB41 | 650 | 300 | 498 | 140 |
| FWB42 | 650 | 550 | 498 | 390 |
| FWB43 | 650 | 800 | 498 | 640 |
| FWB44 | 650 | 1050 | 498 | 890 |
| FWB51 | 800 | 300 | 648 | 140 |
| FWB52 | 800 | 550 | 648 | 390 |
| FWB53 | 800 | 800 | 648 | 640 |
| FWB54 | 800 | 1050 | 648 | 890 |
| FWB61 | 950 | 300 | 798 | 140 |
| FWB62 | 950 | 550 | 798 | 390 |
| FWB63 | 950 | 800 | 798 | 640 |
| FWB64 | 950 | 1050 | 798 | 890 |
| FWB71 | 1100 | 300 | 948 | 140 |
| FWB72 | 1100 | 550 | 948 | 390 |
| FWB73 | 1100 | 800 | 948 | 640 |
| FWB74 | 1100 | 1050 | 948 | 890 |

VU24IE - 2 rows 24 modules

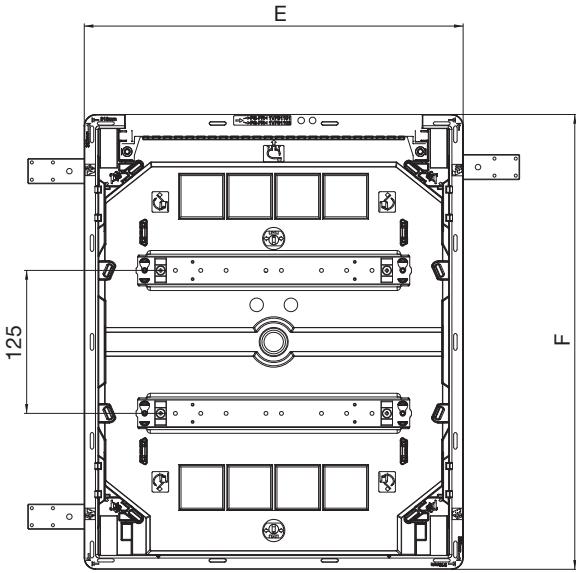


Dimensions in mm

| Ref. | | R | Enclosure dimension | | Wall box hollow wall | |
|---------------|----|---|---------------------|-----|----------------------|-----|
| | | | A | H | E | F |
| VU12IE | 12 | 1 | 348 | 356 | 315 | 322 |
| VU24IE | 24 | 2 | 348 | 505 | 315 | 471 |
| VU36IE | 36 | 3 | 348 | 630 | 315 | 596 |
| VU48IE | 48 | 4 | 348 | 755 | 315 | 721 |

Cable Entries**Top/bottom**

One side cable entry slide, knockout-type, (VF104... and VF108...). The other side pre cuts with diameters 20 mm, 25 mm, 32 mm and 40 mm the wall box is 180° turnable (slider can be placed at top or bottom).

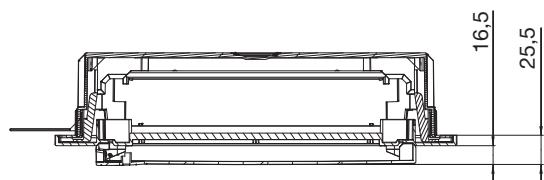
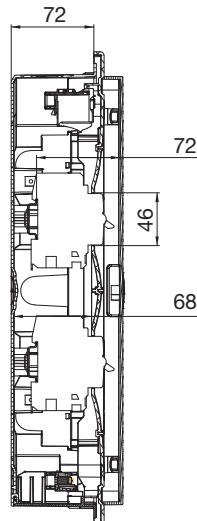
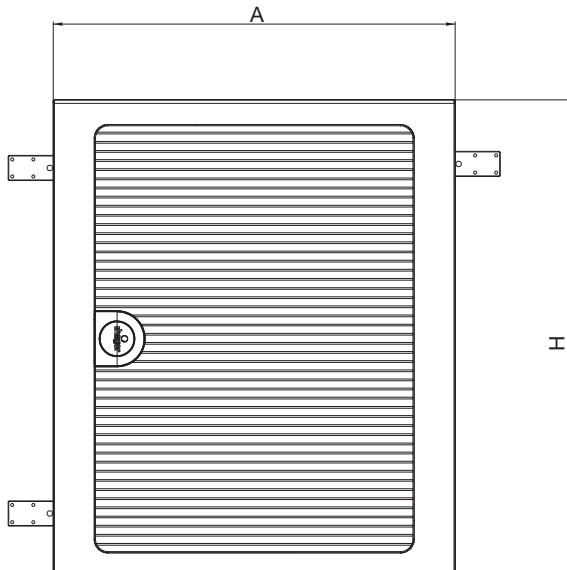
**Side**

Each one knockout Ø 25 mm on the left and right in the upper and lower connection space.

As of 2 rows, knockouts Ø 25 mm on the left and right between the device rows. (no knockouts at 4 and 8 module enclosures).

| Ref. | Dimension (mm) | | | | |
|-----------------|----------------|-----|------------|-----|-----|
| | Frame | | Wall niche | | |
| | A | H | E | F | |
| VF104... | 1 row 4 | 204 | 225 | 170 | 189 |
| VF108... | 1 row 8 | 275 | 225 | 242 | 189 |
| VF112... | 1 row 12 | 352 | 293 | 318 | 257 |
| VF212... | 2 row 12 | 352 | 418 | 318 | 382 |
| VF312... | 3 row 12 | 352 | 543 | 318 | 507 |
| VF412... | 4 row 12 | 352 | 688 | 318 | 652 |
| VF118... | 1 row 18 | 460 | 293 | 426 | 257 |
| VF218... | 2 row 18 | 460 | 418 | 426 | 382 |
| VF318... | 3 row 18 | 460 | 543 | 426 | 507 |
| VF418... | 4 row 18 | 460 | 688 | 426 | 652 |
| VF122... | 1 row 22 | 532 | 293 | 498 | 257 |

For the wall niche, these dimensions are minimal.



General Description

Flush mounting enclosures for domestic and commercial electrical distribution.

Included in delivery :

- enclosures with door,
- carrier rails with complete board,
- device covers with 46mm slots, with complete board,
- comes fitted with quickconnect

Quick Connect Terminals in complete boards or with brass terminals (according the versions)

Complies with Standards :

IEC 61 439-3

Nominal voltage:

AC 400V / 50Hz

Current rating:

for devices up to 125A

Protection class:

II (insulation protected)

IP rating:

IP30

Protection details:

Protection against direct contact: IP3X behind the door

Protection with indirect contact: insulation protection

Door lock :

twist release lock, exchangeable with other locks, 3 point bar locks on double door cabinet.

Quick Connect Terminals :

built in per field to every complete board quickconnect

Colour :

RAL 9010 (pure white)

Cable entries :

cable entry plates top and bottom made of plastic to feed in the cable from the front.

Material :

Housing and door made of steel, powder coated.

Carrier rails :

Steel, powder coated.

Supports :

Plastic

Device rails :

Steel, galvanised

Covers and knockouts :

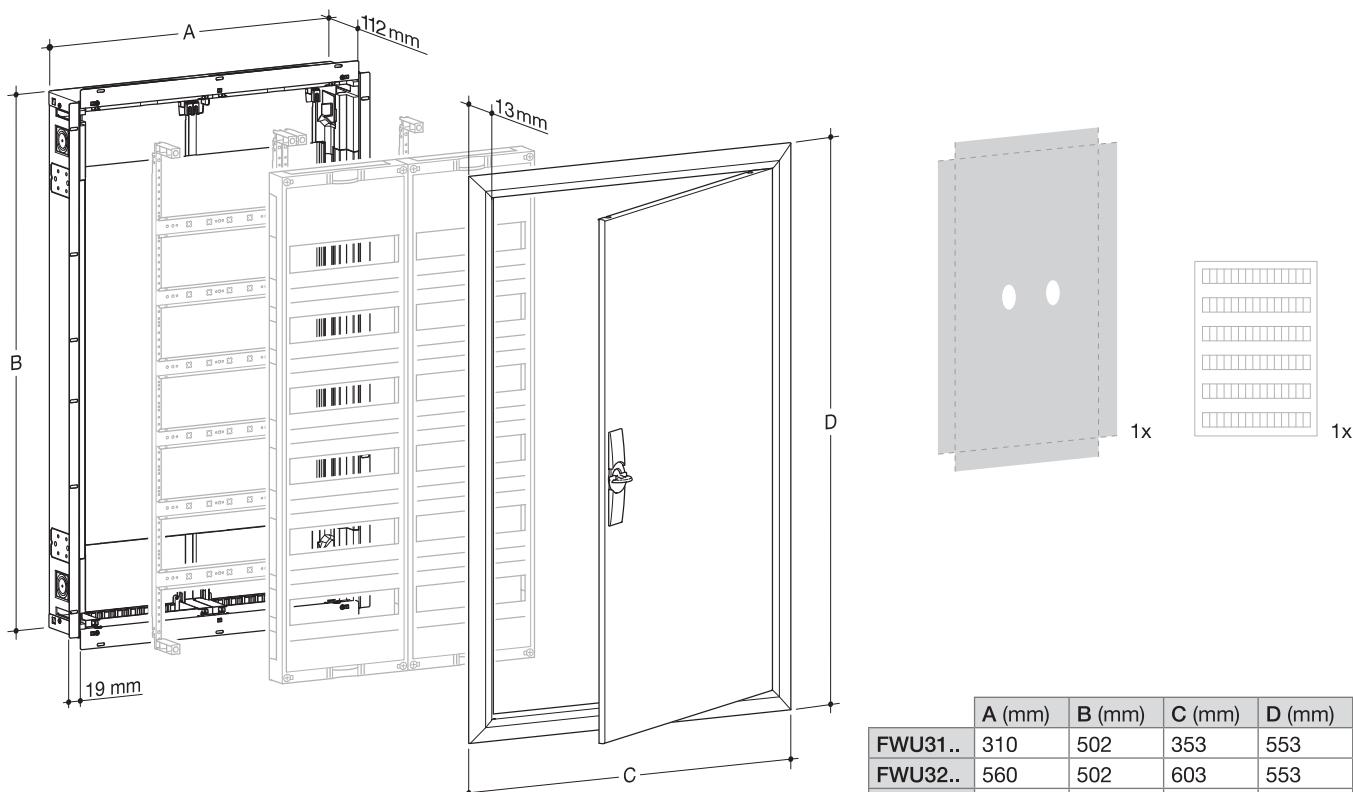
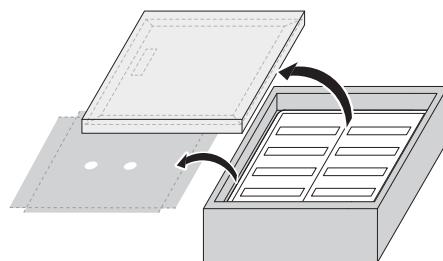
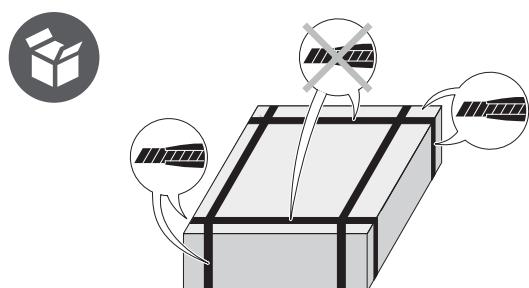
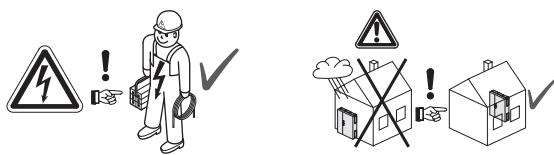
Plastic

Door :

frontal fastening, with internal hinges, all adjustable, removable without tools, optionnally attachable on right or left, width from 800mm double door, opening angle 110°.

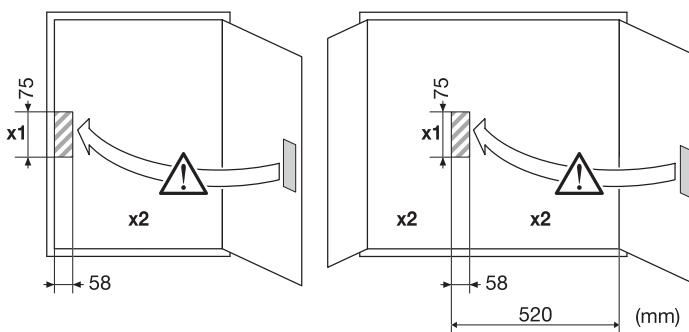
| | height (mm) | width (mm) | depth (mm) | DIN rails (12 z) | fields across | Nr of modules | IP class (standard) |
|---------------|----------------|---------------|---------------|---------------------|---------------|---------------|------------------------|
| FWU31S | 500 | 300 | 112 | 3 | 1 | 36 | IP30 |
| FWU32S | | 550 | 112 | 3 | 2 | 72 | IP30 |
| FWU33S | | 800 | 112 | 3 | 3 | 108 | IP30 |
| FWU41S | 650 | 300 | 112 | 4 | 1 | 48 | IP30 |
| FWU42S | | 550 | 112 | 4 | 2 | 96 | IP30 |
| FWU43S | | 800 | 112 | 4 | 3 | 144 | IP30 |
| FWU51S | 800 | 300 | 112 | 5 | 1 | 60 | IP30 |
| FWU52S | | 550 | 112 | 5 | 2 | 120 | IP30 |
| FWU53S | | 800 | 112 | 5 | 3 | 180 | IP30 |
| FWU61S | 950 | 300 | 112 | 6 | 1 | 72 | IP30 |
| FWU62S | | 500 | 112 | 6 | 2 | 144 | IP30 |
| FWU63S | | 800 | 112 | 6 | 3 | 216 | IP30 |
| FWU71S | 1100 | 300 | 112 | 7 | 1 | 84 | IP30 |
| FWU72S | | 550 | 112 | 7 | 2 | 168 | IP30 |
| FWU73S | | 800 | 112 | 7 | 3 | 252 | IP30 |

FW Flush Enclosures - Mounting instructions

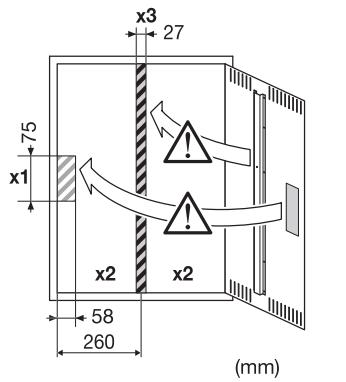


| | A (mm) | B (mm) | C (mm) | D (mm) |
|---------|--------|--------|--------|--------|
| FWU31.. | 310 | 502 | 353 | 553 |
| FWU32.. | 560 | 502 | 603 | 553 |
| FWU33.. | 810 | 502 | 853 | 553 |
| FWU41.. | 310 | 652 | 353 | 703 |
| FWU42.. | 560 | 652 | 603 | 703 |
| FWU43.. | 810 | 652 | 853 | 703 |
| FWU51.. | 310 | 802 | 353 | 853 |
| FWU52.. | 560 | 802 | 603 | 853 |
| FWU53.. | 810 | 802 | 853 | 853 |
| FWU61.. | 310 | 952 | 353 | 1003 |
| FWU62.. | 560 | 952 | 603 | 1003 |
| FWU63.. | 805 | 952 | 853 | 1003 |
| FWU71.. | 310 | 1102 | 353 | 1153 |
| FWU72.. | 560 | 1102 | 603 | 1153 |
| FWU73.. | 810 | 1102 | 853 | 1153 |

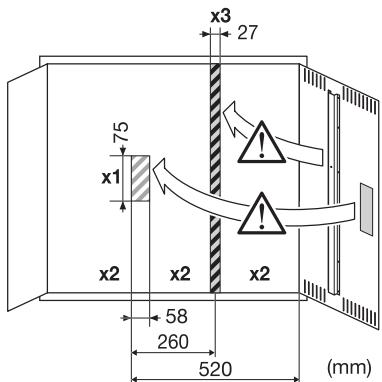
FWU31, 41, 51, 61, 71... FWU33, 43...



FWU52, 62, 72...

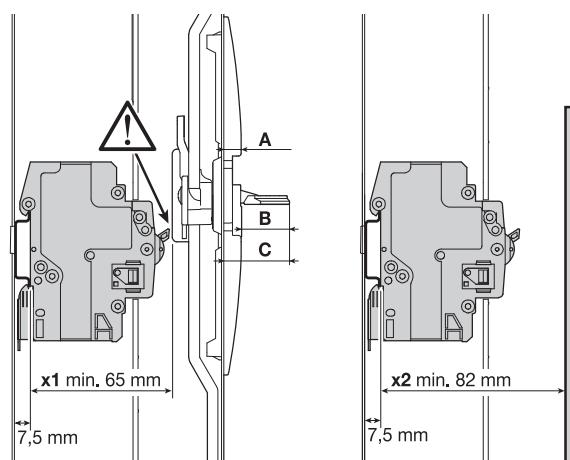
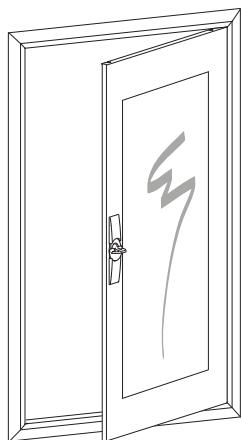
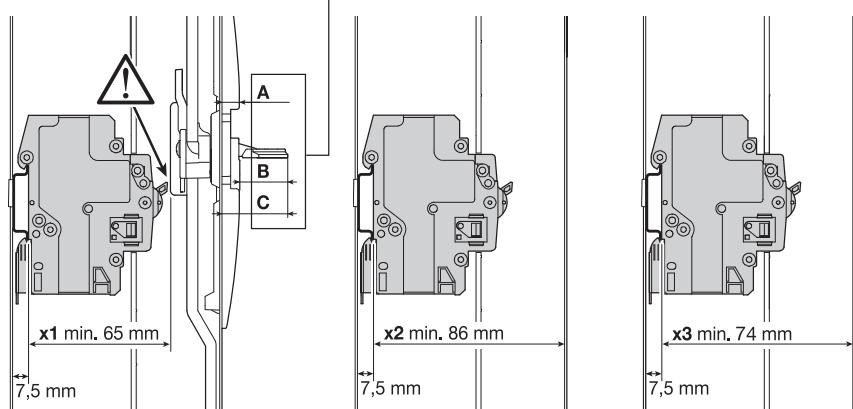
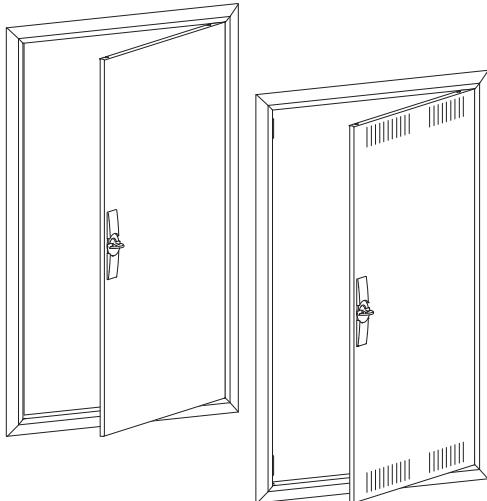


FWU53, 63, 73...

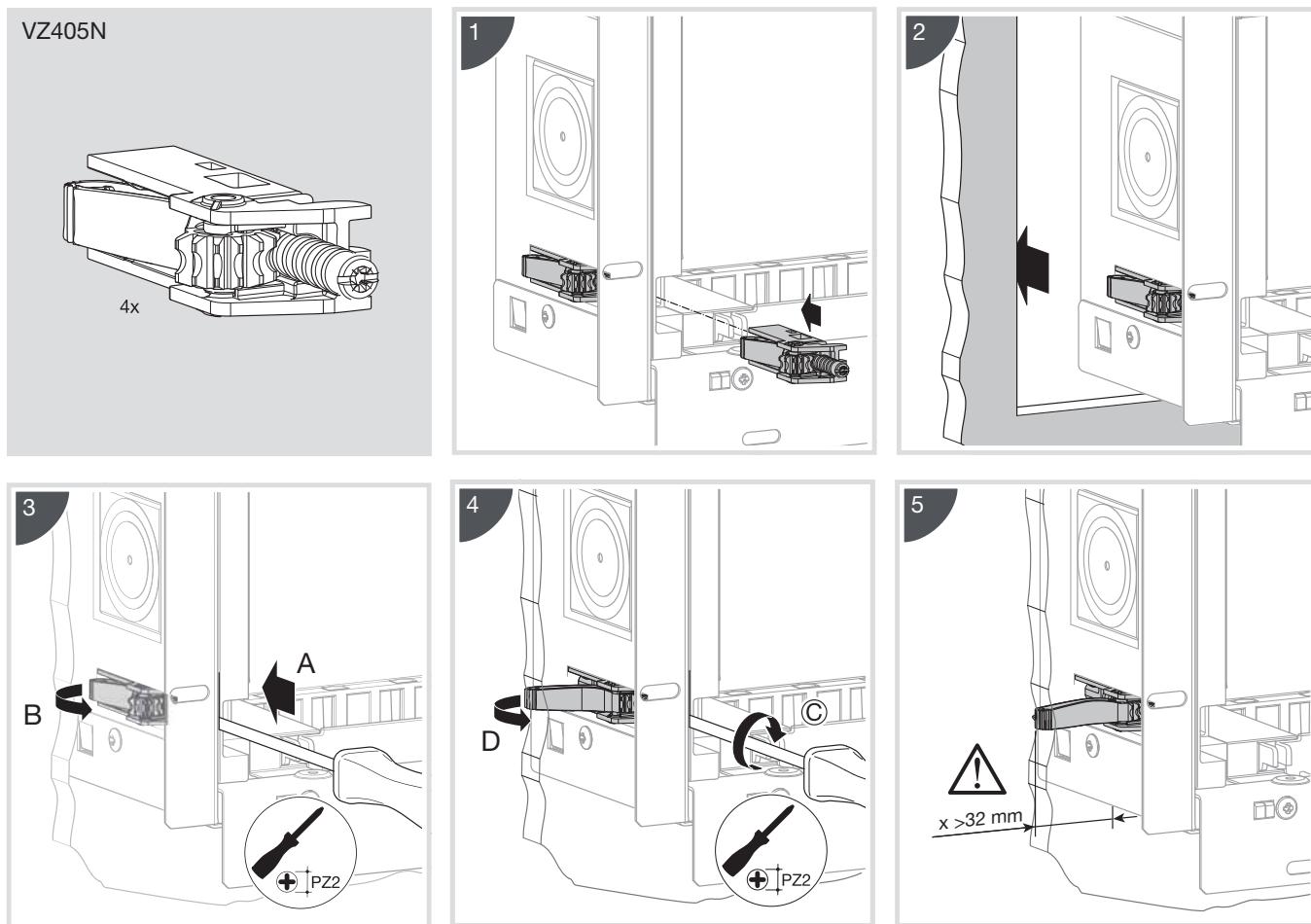


| | A (mm) | B (mm) | C (mm) |
|--------|--------|--------|--------|
| FZ598N | 8,5 | 23 | 31,5 |
| FZ598 | 6 | 17 | 23 |

Residential
Distribution



Mounting Hollow Wall Anchor Accessory

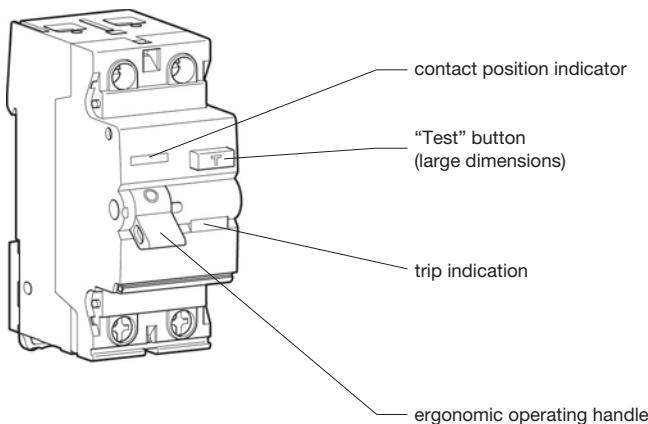


Mounting the VZ405N hollow wall anchor in wall cabinets.

Keeping space free around the sides in the wall cavity

To mount the VZ405N hollow wall anchor, a minimum distance of 32 mm must be kept free around the sides so that the hollow wall anchor can be flipped forward unhampered.

RCCBs



Contact positioning indicator

The mechanical indicator on the front of RCCB shows the physical position of the contacts.

- Red indication for closed contacts
- Green indication for open contacts

The green indication is the guarantee that the contacts are open and that the terminals are not live.

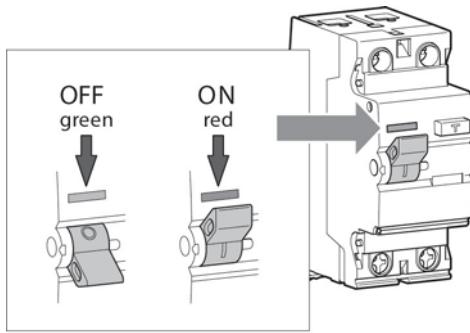
Trip indicator

The status of the RCCB can be visualised by the colour of the trip indicator in addition to the position of the operating lever.

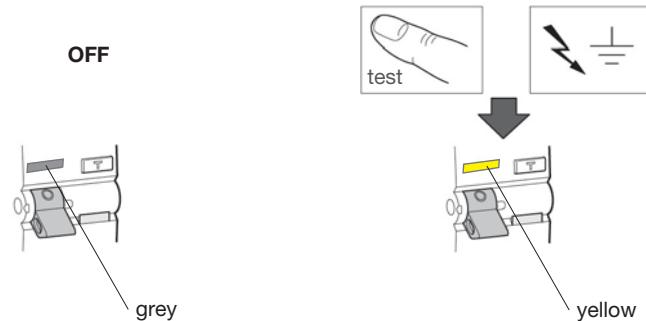
- Grey indication for normal conditions (even when operating lever is in ON/OFF position)
- Yellow indication for tripped condition, operating lever in OFF position.

Similar condition exists when TEST button is pushed or RCCB is remotely tripped via protection auxiliaries.

Positive contact indication



Earth leakage fault indication



Residual Current Devices

A residual current device (RCCB) 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.

For fixed domestic installations and similar applications we have two types :

- Residual current operated circuit-breaker without integral over-current protection (RCCBs) which should comply with the requirements of IEC 61 008
- Residual current operated circuit-breaker with integral over-current protection (RCBOs) which should comply with the requirements of IEC 61 009

Both RCCBs and RCBOs are further divided into types depending on their operating function :

Type AC For which tripping is ensured for residual sinusoidal alternating currents, whether suddenly applied or slowly rising. Marked with the symbol:



Type A For which tripping is ensured for residual sinusoidal alternating currents and residual pulsating direct currents, whether suddenly applied or slowly rising. Marked with the symbol:



Type S For selectivity, with time-delay. Marked with the symbol:



RCCBs must be protected against short-circuits by means of circuit-breakers or fuses. RCBOs have their own built short-circuit protection, up to its rated value.

The drawing opposite shows how a torroid is located around the line and neutral conductors to measure the magnetic fields created by the current flowing in these conductors. The sum of the magnetic fields set up by these currents (which takes into consideration both the magnitude and phase relationship of the currents) is detected by the torroid.

In a normal healthy circuit the vector sum of the current values added together will be zero. Current flowing to earth, due to a line earth fault, will return via the earth conductor, and regardless of load conditions will register as a fault. This current flow will give rise to a residual current (I_{res}) which will be detected by the device.

It is most important that the line and neutral conductors are passed through the torroid. A common cause of nuisance operation is the failure to connect the neutral through the device.

RCCBs work just as well on three phase or three phase and neutral circuits, but when the neutral is distributed it must pass through the torroid.

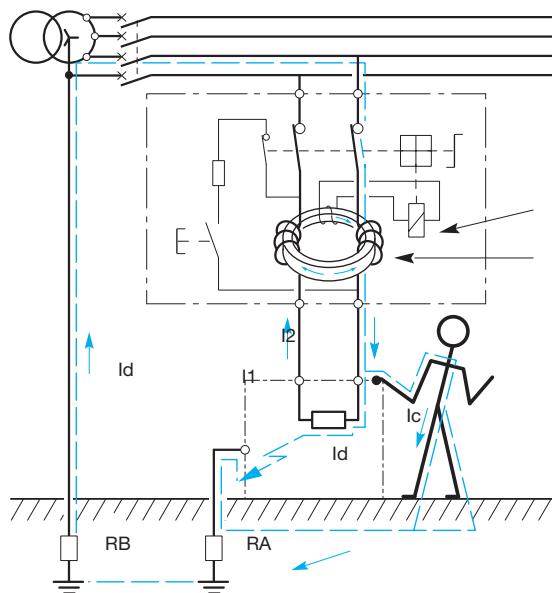
RCCBs are not suitable for use on DC systems and unearthing networks.

RCCBs – domestic installation

RCCBs can be installed in two ways:

1. whole house protection.
2. selective protection.

Principle



Current flowing through torroid in healthy circuit

$$I_{res} = I_1 - I_2 = 0$$

Current flowing through torroid in circuit with earth fault I_3

$$I_{res} = I_1 - I_2 + I_3 = I_3$$

Whole house protection is provided typically by a consumer unit where the RCCB device serves as the main switch. Although very popular this suffers from a disadvantage: all circuits are disconnected in the event of fault. Selective protection can be provided by associating the RCCB with identified high risk circuits by adopting one or more of the following :

- Split busbar consumer unit:
All circuits are fed via an overall isolator and selected circuits fed additionally via the RCCB. Typical circuits fed direct are lighting, freezer, storage heating; and circuits fed via the RCCB are socket outlets, garage circuits. This concept minimises inconvenience in the event of fault.

Individual RCBO

Each separate final circuit requiring protection by a RCD can be supplied through an RCBO. This method provides the best solution for minimising inconvenience.

Nuisance tripping

All Hager RCCBs incorporate a filtering device preventing the risk of nuisance tripping due to transient Voltages (lightning, line disturbances on other equipment...) and transient currents (from high capacitive circuit).

Pulsating DC fault current sensitive

Increasingly, semi-conductors are also extensively used in computers, VDUs, printers, plotters... all of which may be fed from the mains electrical supply. The presence of semi-conductors may result in the normal sinusoidal AC waveform being modified. For example, the waveform may be rectified or, as in asymmetric phase control devices, the waveform may be chopped. The resulting waveforms are said to have a pulsating DC component.

In the event of an earth fault occurring in equipment containing semi-conductor devices, there is a probability that the earth fault current will contain a pulsating DC component.

Standard type AC may not respond to this type of earth fault current and the intended degree of protection will not be provided.

Use of RCCBs

RCCBs offer excellent protection against earth fault currents; the main areas of application being as follows:

- **Z_s value too high to allow disconnection in the required time**

Where the overcurrent protection or a circuit breaker cannot provide disconnection within the specified time because the earth fault loop impedance is too high the addition of RCCB protection may well solve the problem without any other change in the system. Because of its high sensitivity to earth fault current and its rapid operating time, in most cases the RCCB will ensure disconnection within the specified time. This is achieved without any detriment to overcurrent discrimination because, unlike the situation in a fuse based system, the increased sensitivity is obtained without increasing sensitivity to overcurrent faults. Use of RCCBs in this way can be particularly useful for construction sites and bathrooms where disconnection times are more stringent than for standard installations. (Construction sites - 0.2s at 220-277V, bathrooms - 0.4s).

The limitation to this technique is the requirement that the rated residual operating current multiplied by Z_s should not exceed 50V. This is to avoid the danger of exposed conductive parts reaching an unacceptably high Voltage level.

Residual current protection can even be added to a completed distribution system where the value of Z_s is excessive, either because of a design oversight or subsequent wiring modification.

- **Protection against shock by direct contact**

So far we have considered shock by indirect contact only. Direct contact is defined thus:

Direct contact - contact of persons or livestock with live parts which may result in electric shock. The consideration here is not the hazard of parts becoming live as a result of a fault but the possibility of touching circuit conductors which are intentionally live.

RCCBs, although affording good protection against the potentially lethal effects of electric shock, must not be used as the sole means of protection against shock by direct contact. The Electricity at Work Act recommends the use of RCCBs, "...danger may be reduced by the use of a residual current device but states that this should be "...considered as a second line of defence". The Wiring Regulations defines the other measures that should be taken i.e.

- insulation of live parts.
- barriers or enclosures.
- obstacles.
- placing live parts out of reach.

Additionally an RCCB used for this purpose should have:

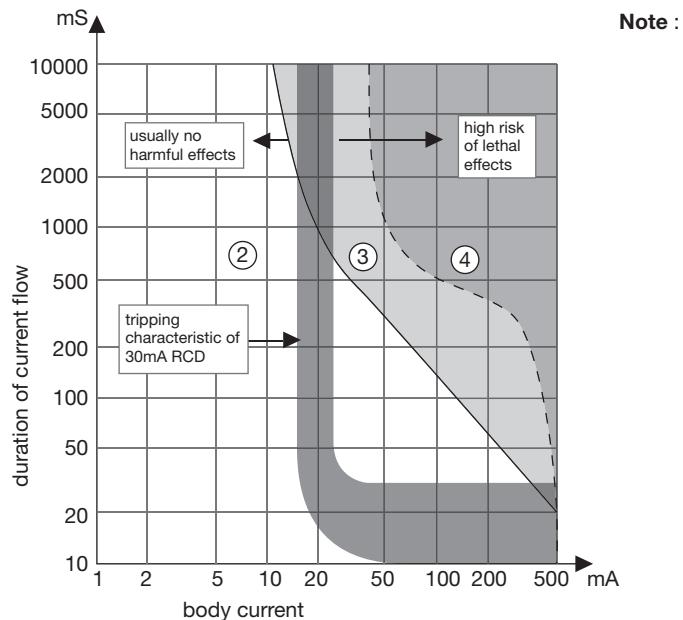
- a sensitivity of 30mA
- an operating time not exceeding 40mS at a residual current of 150mA.

The specified sensitivity is based on research that has been carried out to estimate the effect various levels and duration of current can have on the human body. This experience is summarised in a graph shown in 'IEC 479-1: Effects of current passing through the human body'. A simplified version of this graph is shown opposite. It shows that very small currents can be tolerated for reasonably long periods and moderate currents for very short periods. It can be seen, for instance, that 100mA for 100mS or 20mA for 500mS will not normally cause any harmful effect. 200mA for 200mS or 50mA for 500mS which are in Zone 3, would be more dangerous; and shock levels in Zone 4 carry a risk of lethal consequences.

The tripping characteristic for a 30mA RCCB is also shown in the graph. It shows the level of current required to cause the RCCB to trip, for example; 50mA will cause a trip but not 10mA.

Comparing its characteristic with the various zones on the graph it can be seen that the 30mA RCCB gives a very good measure of protection against the hazards associated with electric shock. Where a higher level of protection is required, for example in laboratories, 10mA devices are available.

IEC 60 479-1



Note :

Although RCCBs are extremely effective devices they must never be used as the only method of protection against electric shock. With or without RCCBs protection all electrical equipment should be kept in good condition and should never be worked on live.

Protection against shock outside the equipotential bonding zone

Bonding conductors are used in an installation to maintain metallic parts, as near as possible, to the same potential as earth. Working with portable equipment outside this equipotential bonding zone, e.g. in the car park of a factory, introduces additional shock hazards. Socket outlets rated 32A or less 'which may be reasonably expected to supply portable equipment for use outdoors' should have at least one socket nominated for outdoor use. This socket should be equipped with 30 mA RCCB protection unless fed from an isolating transformer or similar device, or fed from a reduced Voltage.

Protection in special situations

The use of RCCBs is obligatory or recommended in the following situations:

- caravans: 30mA RCCB should be used.
- TT systems.
- swimming pools: 30mA RCCB for socket outlets in Zone B obligatory; recommended in Zone C.
- agricultural and horticultural: 30mA RCCB for socket outlets and for the purpose of protection against fire, $RCCB \leq 0.5A$ sensitivity.
- construction sites: 30mA RCCB recommended.

Portable equipment

With the exception mentioned above, where a socket is specifically designated for work outside the equipotential bonding zone, the Wiring Regulations demand the use of RCCBs to protect the users of portable equipment. It is widely recognised that their use has made a significant contribution to safety in the workplace and the home.

Protection against fire hazards

The provisions in the Wiring Regulations for protection against shock by indirect contact ensure rapid disconnection under earth fault assuming the fault has negligible impedance. Under such conditions the fault current, as we have seen, is sufficiently great to cause the overcurrent protection device to quickly disconnect the fault. However high impedance faults can arise where the fault current is sufficient to cause considerable local heat without being high enough to cause tripping of the overcurrent protective device. The heat generated at the point of the fault may initiate a fire long before the fault has deteriorated into a low impedance connection to earth.

The provision of residual current protection throughout a system or in vulnerable parts of a system will greatly reduce the hazard of fire caused by such faults.

PEN conductors

The use of RCCBs with PEN conductors is prohibited. A PEN conductor is a single conductor combining the functions of neutral conductor and protective conductor. This being so, when the PEN conductor is taken through the torroid of an RCCB, earth faults will go undetected because the return path for the earth fault current is included in the residual sum.

Auxiliary contacts

A range of auxiliaries, alarm and shunt contacts are available for Hager RCCBs.

Supply entry

Top or bottom feed.

Auxiliaries for MCBs & RCCBs

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

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.

MZ203 Shunt Trip*

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

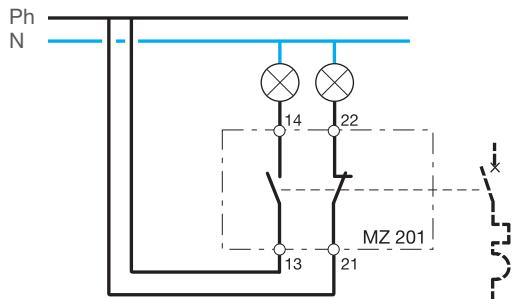
MZ206 Under Voltage Release*

Allows the MCB to trip when the Voltage drops or by pressing a remote off switch (ie emergency stop).

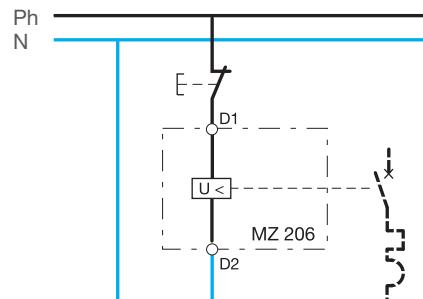
* Indication that the product has tripped due to the Voltage release is provided by a flag on the product.

Wiring diagram

MZ201 auxiliary contact or MZ202 alarm contact



MZ206 under Voltage release



Electrical characteristics

| | MZ201/MZ206 | MZ203 | MZ206 |
|--|--|-----------------------------|------------------|
| | 1 x O 1 x C contact 230V AC 6A - AC1 | | |
| | | 230/415 V AC 110/130 ... | 230V AC 50 Hz |

Electrical connection

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

MZ203

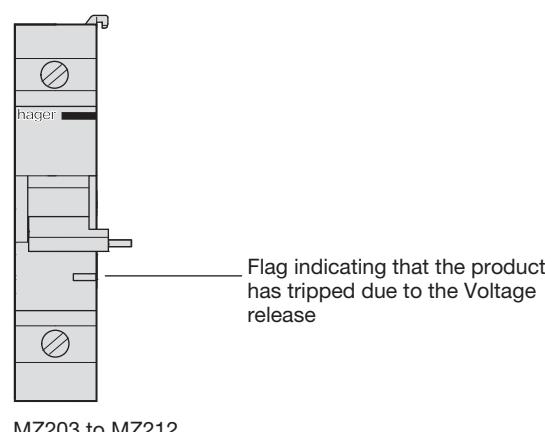
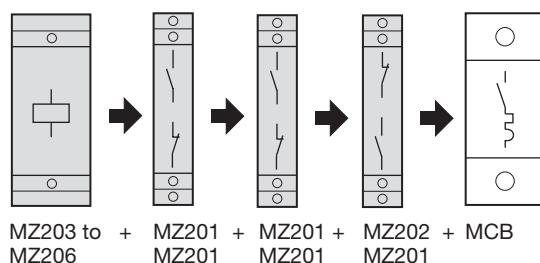
Power - 8VA
tolerance : -15% of Un

MZ206

Latching Voltage is between 35 and 70% of Un 230V AC
Coil consumption 3VA

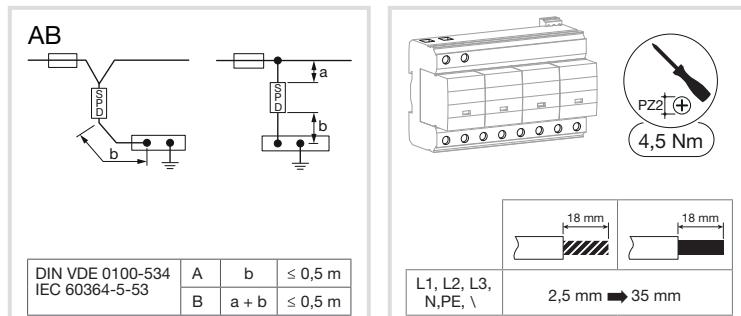
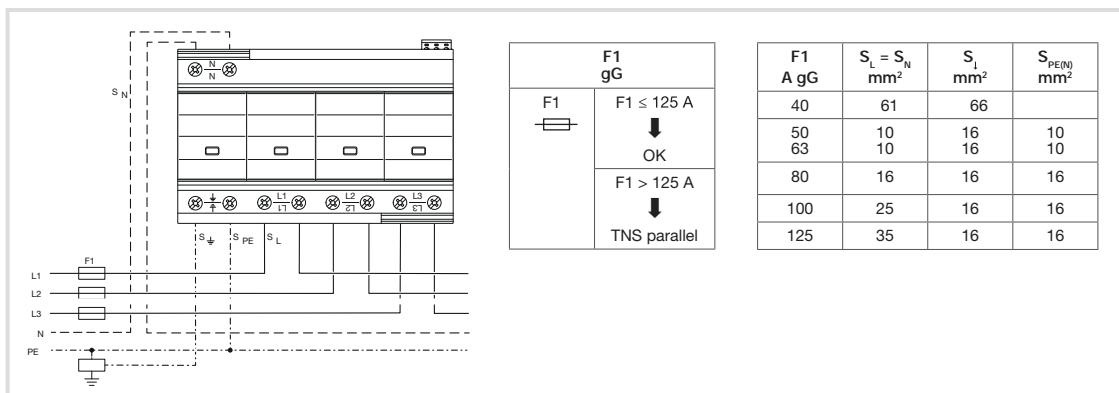
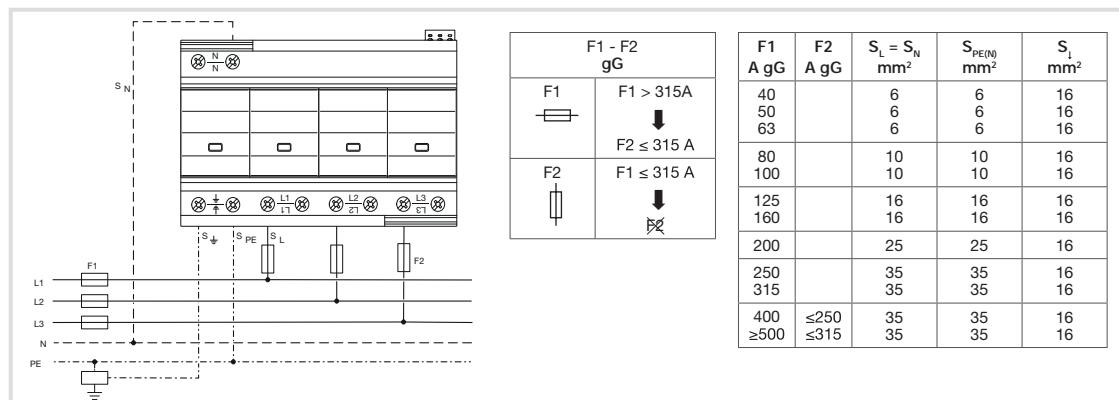
Grouping / Combination of Several Auxiliaries

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

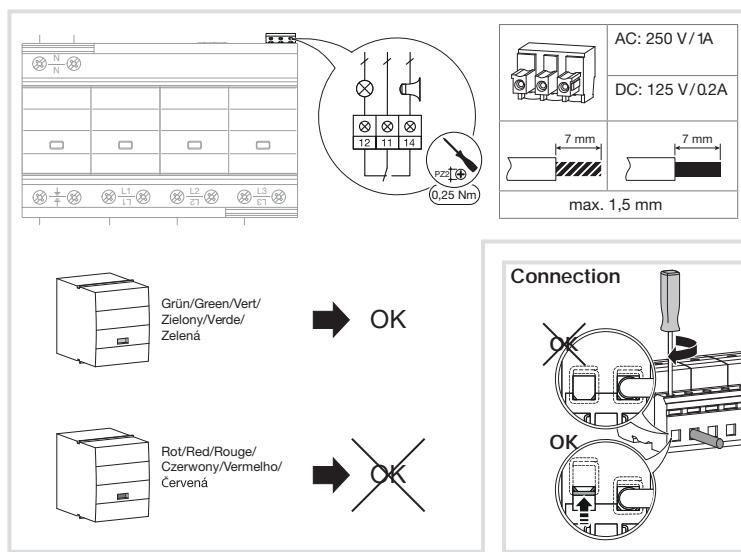


SPA801

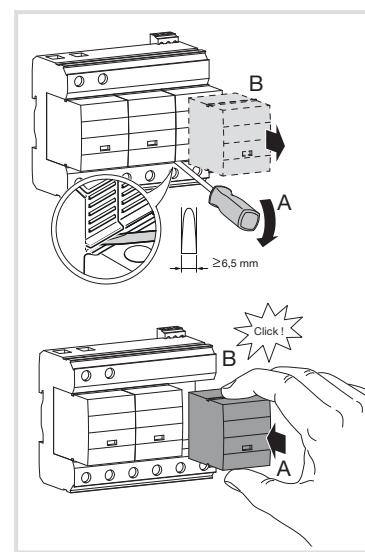
| | | |
|------------------------------|-----------------------------------|--|
| Tested to | EN 61643-11, IEC 61643-11 | |
| SPD type / class | Type 1 + Type 2 Class 1 + Class 2 | |
| Nominal voltage | U_n | 240/415V (6=50/60 Hz) Tolerance: 0V... U_c |
| Rated voltage | U_c | 350V (50/60 Hz) |
| Voltage protection level | U_p | $\leq 1.5\text{kV}$ |
| Residual current | I_{PE} | $\leq 0.01\text{mA}$ |
| Impulse current (10/350) TNS | I_{imp} | 25kA (L-N-PE) 100kA (L1,L2,L3,N -PE) |
| Impulse current (10/350) TNS | I_{imp} | 25kA (L-N) 100kA (L1, L2,L3, N -PE) |
| Short Circuit Current Rating | I_{scrr} | 50kArms |
| Rated load current | I_{fi} | 50kA rms |
| TNS,TT (serial/parallel) | | OK |
| IT, TNC | | OK |
| F1 max (serial) | | 125 A gG |
| F1 max (Parallel) | | 315A gG |
| Humidity | | 5%...95% |
| 9°C | | -40/+80°C (+60°C by serial connection) |
| Ports | | 1 |
| IP Code | | 20 (built in) |
| LxWxH | | 95 mm x 143 mm x 74mm |

Connection**TT/TNS Serial Wiring****TT/TNS Parallel Wiring**

Fault Indication

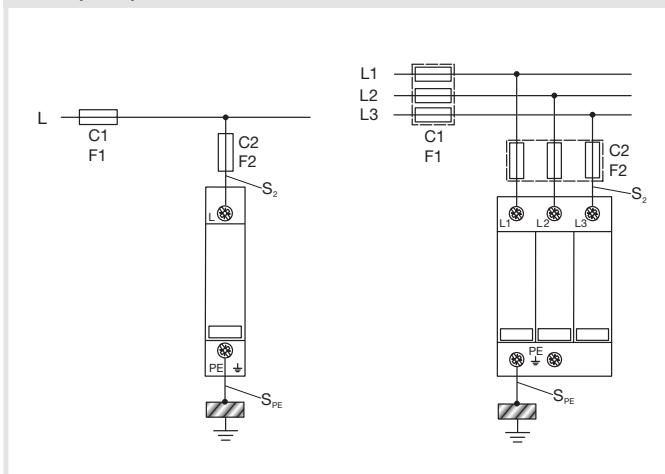
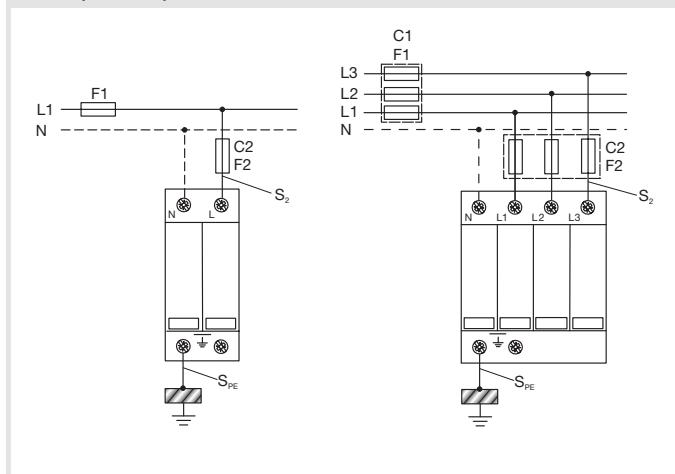


SPA081 SPA001N



| | SPBX15D/R | SPBX40D/R | SPBX65R |
|-------------------------------------|---------------------------|---|----------------------|
| Tested to | EN 61643-11, IEC 61643-11 | | |
| TT/TN/TNC-S | OK | | |
| Nominal voltage | U_n | 240/415V (50/60Hz) | |
| Residual current (N-PE) | I_{PE} | <5µA (SPB2xxx, SPB4XXX) <0.4mA (SPB1XXX, SPB3XXX) | |
| Rated loaded current | I_{fi} | 100Arms | |
| Humidity | | 5% ...95% | |
| 9°C | | -40/+80°C | |
| Ports | | 1 | |
| IP Code | | 20 (built in) | |
| Rated voltage | U_c | 275V (L-N); 260V (N-PE) 320V (L-N); 264V (N-PE)-SPBX65R | |
| Nominal discharge current (8/20 µs) | I_n | 5kA | 20kA |
| Maximum discharge current (8/20 µs) | I_{max} | 15kA | 40kA |
| Voltage protection level | U_p | $\leq 1kV$ | $\leq 1.35kV$ |
| C2 max. hager | | 32A "C" | 32A "C" |
| F2 max | | 125A gG | 160A gG |
| Short circuit current rating | I_{scrr} | 25 kA _{rms} | 25 kA _{rms} |
| Replacement cartridge L-N | | SPB015D | SPB040D |
| Replacement Cartrdidge N-PE | | SPB040N | SPB065N |

| | LxWxH (mm) | LxWxH (mm) |
|----|--|---------------------------|
| | $I_{max} = 15 \text{ kA}, 40 \text{ kA}$ | $I_{max} = 65 \text{ kA}$ |
| 1P | 65.7x17.5x98.7 | 77.5x17.5x98.7 |
| 2P | 65.7x35.6x98.7 | 77.5x35.6x98.7 |
| 3P | 65.7x53x98.7 | 77.5 x53x98.7 |
| 4P | 65.7x71x98.7 | 77.5 x71x98.7 |

1P-3P (TN-C)**2P-4P (TN-S/TT)**Residential
Distribution

| Backup fuse | | |
|-------------|------------------------------------|------------------------------------|
| | SPBx15D/R SPBx40D/R | SPBx65R |
| F1 | F1 >125 A gG ↓ F2 ≤ 125 A gG | F1 >160 A gG ↓ F2 ≤ 160 A gG |
| F2 | F1 ≤ 125 A gG ↓ ☒ | F1 ≤ 160 A gG ↓ ☒ |

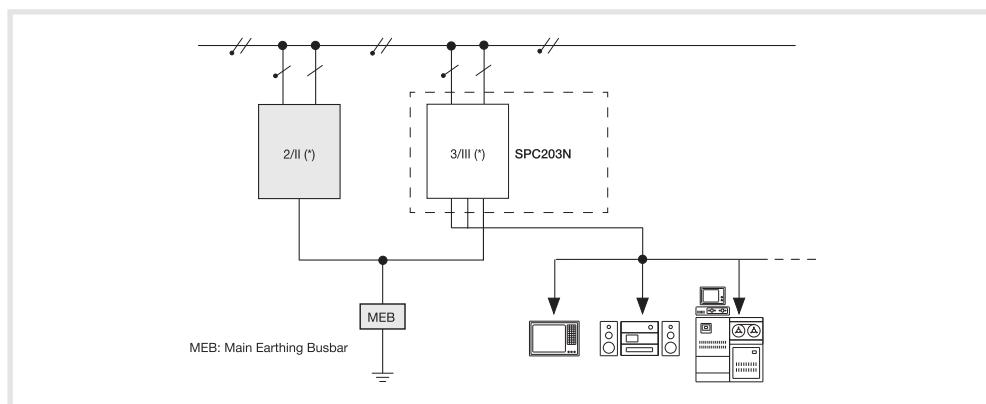
| Backup MCB* (Isc = 10 kA) | | |
|---------------------------|----------------------------------|----------------------------------|
| | SPBx15D/R SPBx40D/R | SPBx65R |
| C1 | C1 >32A "C" ↓ C2 ≤ 32A "C" | C1 >63A "C" ↓ C2 ≤ 63A "C" |
| C2 | C1 ≤ 32A "C" ↓ ☒ | C1 ≤ 63A "C" ↓ ☒ |

| Type | | SPBx15x SPBx40x | SPBx65R | |
|---------|--------------------------------|---------------------------------|---------|---------|
| F1 A/gG | S _s mm ² | S _{pe} mm ² | F2 A/gG | F2 A/gG |
| 25 | 6 | 6 | - | - |
| 35 | 6 | 6 | - | - |
| 40 | 6 | 6 | - | - |
| 50 | 6 | 6 | - | - |
| 63 | 10 | 10 | - | - |
| 80 | 10 | 10 | - | - |
| 100 | 16 | 16 | - | - |
| 125 | 16 | 16 | - | - |
| 160 | 25 | 25 | 125 | - |
| >160 | 25 | 25 | 125 | 160 |

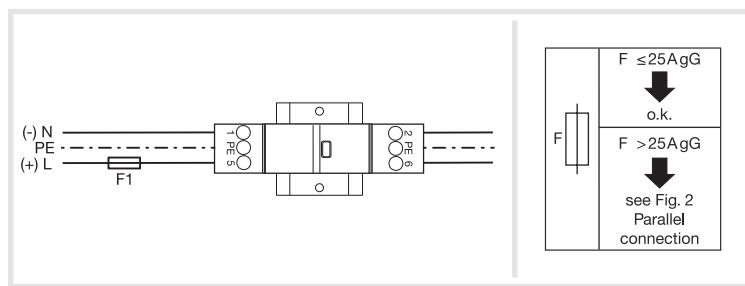
Characteristics

| | | |
|--|---------------------------|--|
| Tested to | EN 61643-11, IEC 61643-11 | |
| System | TNS-TT | |
| F1 max | 25A/32A (gG/B/C) | |
| Nominal discharge current (8/20 μ s) | I_n | L(N)/PE, L/N = 5kA |
| Short circuit current rating | I_{scrr} | 10kA _{rms} |
| Residual current (N-PE) | I_{PE} | <5 μ A |
| Nominal voltage | U_n | 230 V (50/60 Hz) |
| Rated voltage | U_c | 264 V (50/60 Hz) |
| | U_{oc} | L(N)/PE, L/N = 6kV |
| Voltage protection level | U_p | L/N \leq 1.4kV, L(N)/PE \leq 1.4kV |
| Humidity | 5%...95% | |
| 9°C | -40/+80°C | |
| Ports | 1 | |
| IP code | IP20 (built in) | |
| L x W x H | 101mm x 17.7mm x 74.5mm | |
| | I_L | 26A (30°) |

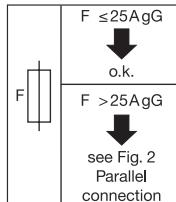
Indoor use only - there is no distance from the SPD to any earthed conductive surface required



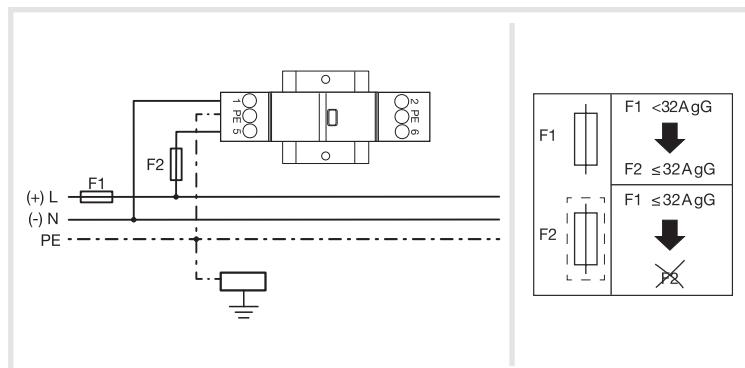
Serial Connection



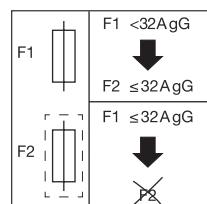
Backup Fuse



Parallel Connection



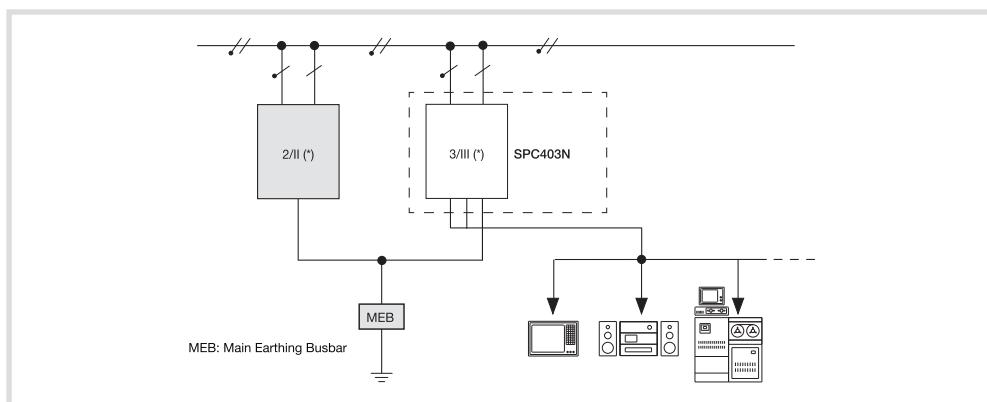
Backup Fuse



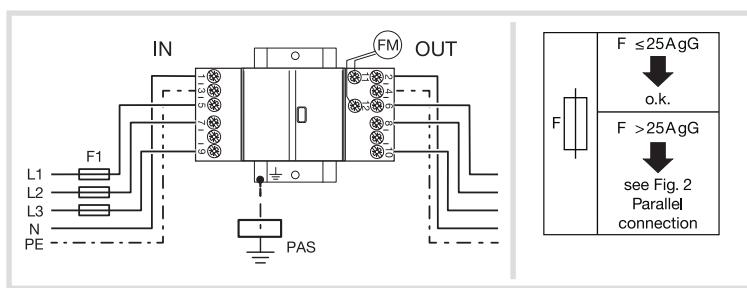
Characteristics

| | | |
|-------------------------------------|---------------------------|--|
| Tested to | EN 61643-11, IEC 61643-11 | |
| System | TT, TN | |
| F1 max | 25A (gG/B/C) | |
| Nominal discharge current (8/20 µs) | I_n | L1-L2-L3(N)/PE, L1-L2-L3/N = 3kA |
| Short circuit current rating | I_{scrr} | 15kA _{rms} |
| Residual current (N-PE) | I_{PE} | <5µA |
| Nominal voltage | U_n | 230 V/400 V (50/60 Hz) |
| Rated voltage | U_c | 264 V (50/60 Hz) |
| | U_{oc} | L1-L2-L3(N)/PE, L1-L2-L3/N = 6kV |
| Voltage protection level | U_p | L1-L2-L3/N ≤ 1.4kV, L1-L2-L3/N/PE≤ 1.5kV |
| Humidity | 5%...95% | |
| 9°C | -40/+70°C | |
| Ports | 1 | |
| IP code | IP20 (built in) | |
| L x W x H | 90mm x 36mm x 73mm | |
| | I_L | 26A (30°) |

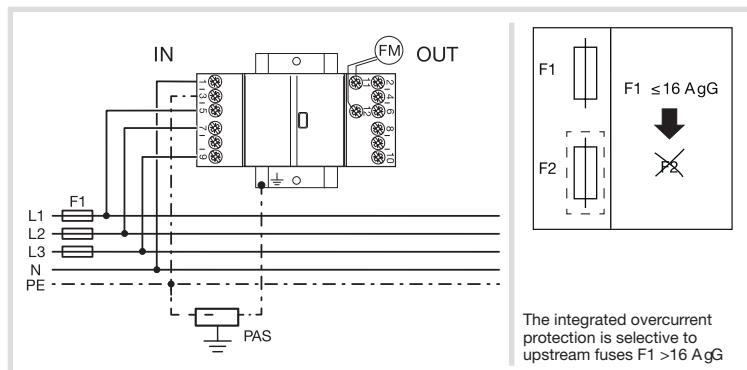
Indoor use only - there is no distance from the SPD to any earthed conductive surface required



Serial Connection



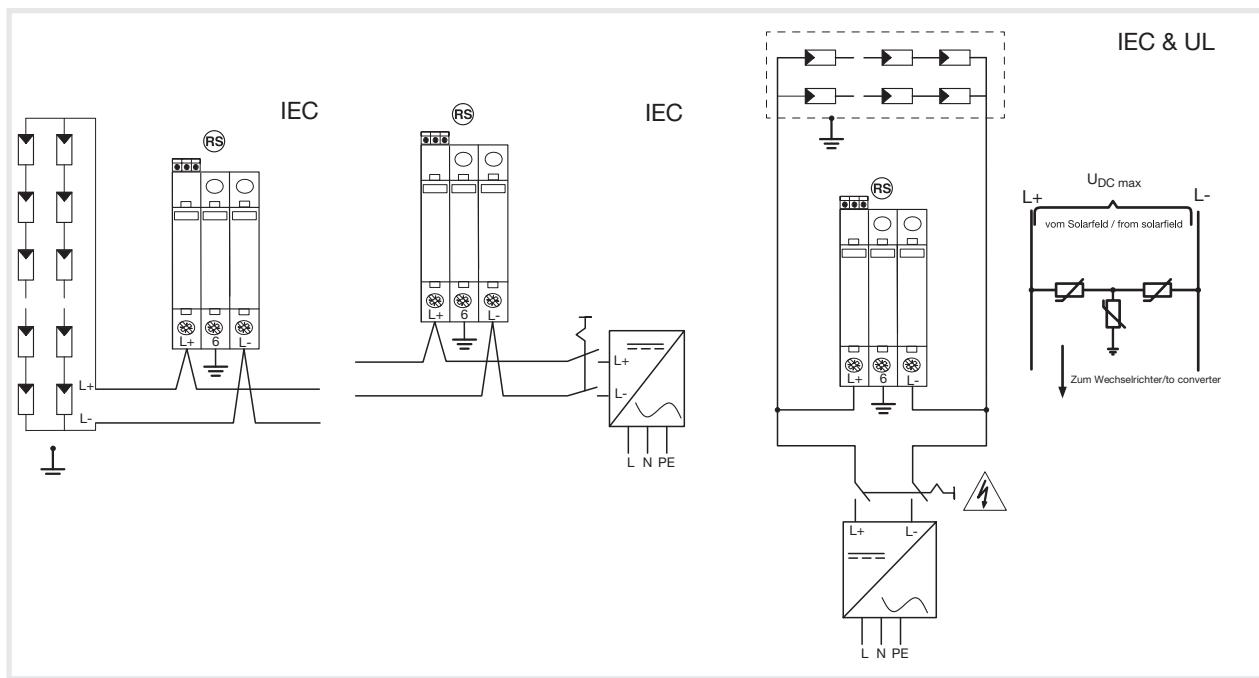
Parallel Connection



Characteristics

| | | |
|---|-------------|----------------------------|
| Tested to | EN 50539-11 | |
| Voltage protection level | U_p | $\leq 3.7\text{kV}$ |
| Rated voltage | U_{cpv} | $\leq 1170\text{ V DC}$ |
| Nominal Discharge Current (8/20 μs) | I_n | 15kA |
| Short Circuit Current Rating | I_{scpv} | 2000A |
| | I_L | 80A |
| | I_{max} | 40kA (8/20 μs) |
| Residual Current AC | $I_{pe,AC}$ | $\leq 250\mu\text{A}$ |
| Residual Current DC | $I_{pe,DC}$ | $\leq 20\mu\text{A}$ |
| Humidity | | 5%...95% |
| 9°C | | -40/+80°C |
| Ports | | 1 |
| IP code | | IP20 (built in) |
| L x W x H | | 98.7mm x 52.4mm x 65.7mm |

Indoor use only



Basic Principles

The proper selection of the correct circuit protective device requires an understanding of the potential hazards against which protection for safety is required. The Wiring Regulations identify several hazards:

- electric shock
- thermal effects
- overcurrent
- underVoltage
- isolation

Electric shock

Electric shock is divided into two parts:

- direct contact: contact with parts which result in an electric shock in normal service
- indirect contact: contact with exposed conductive parts which result in an electric shock in case of a fault.

To protect against direct contact the Wiring Regulations suggest the following basic measures should be taken:

- (1) by insulation of live parts
- (2) by enclosures or barriers
- (3) by obstacles
- (4) by placing out of reach

To protect against indirect contact the Wiring Regulations suggest the following basic measures should be taken:

- (1) earthed equipotential bonding and automatic disconnection of supply
- (2) use of class II equipment or equivalent insulation
- (3) non-conducting location
- (4) earth-free local equipotential bonding
- (5) electrical separation

Of these five measures, the first is by far the most commonly used:

- (1) earthed equipotential bonding and automatic disconnection of supply:

In each installation main equipotential bonding conductors shall connect the main earthing terminal of the installation; this metalwork comprises exposed conductive parts which are part of the electrical installation itself and extraneous conductive parts including the following:

- main water pipes
- gas installation pipes
- other service pipes and ducting
- risers of central heating and air conditioning systems
- exposed metal parts of the building structure

This bonding creates a zone within which any Voltages appearing between exposed conductive parts and extraneous conductive parts, are minimised; the earth fault loop impedance must have a value low enough to allow sufficient current to flow for the circuit protective device to operate rapidly to disconnect the supply; disconnection must be sufficiently fast so that Voltages appearing on the bonded metalwork cannot persist long enough to cause danger; depending on the operating characteristics of the protective device and the earth impedance, such disconnection may be achieved either by overcurrent devices, Fuses, Miniature Circuit Breakers, (i.e. MCBs) or by Residual Current Devices, (i.e. RCCBs).

Thermal Effect

Refers to heat generated by the electrical equipment in normal use and under fault conditions. The proper selection of equipment complying with the latest product standards is essential in providing protection against thermal effects.

Overcurrent

Defined as a current exceeding the rated value of the circuit components. It may be caused by the overloading of a healthy circuit or it may take the form of a short-circuit current, defined as an "overcurrent resulting from a fault of negligible impedance between live conductors having a difference in potential under normal operating conditions". Overcurrent protection may be provided by using fuses or circuit breakers singly or in combination.

UnderVoltage

Refers to the dangers that could be caused by the reduction or loss in Voltage and the subsequent restoration, such as the unexpected re-starting of motors or the automatic closing of protective devices. The proper selection of control and protective devices must take the protection against underVoltage into consideration.

Isolation

Every circuit shall be provided with means of isolation (except in certain cases) to prevent or remove hazards associated with the installation, equipment and machines. The new standards for circuit breakers and switch-fuses now take this into account.

Protection against shock by indirect contact

Indirect contact - is the contact of persons or livestock with exposed conductive parts made live by a fault and which may result in electric shock. An example would be where the insulation of an electric heater has broken down resulting in a live conductor internally touching the casing. This could result in the heater casing being raised to a hazardous Voltage level, causing electric shock to a person touching it.

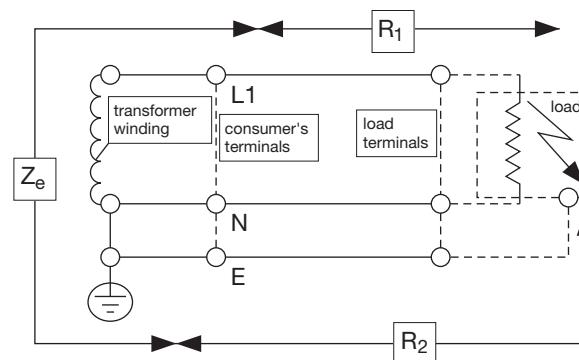
Two important measures must be taken to prevent this hazard:

- the impedance of circuit conductors is kept to a minimum.
- The earth fault loop impedance (Z_s) is used as a measure of the circuit impedance under fault conditions.
- the overcurrent device protecting the circuit is selected to rapidly disconnect an earth fault.

The effect of these two measures is inter-related.

1. By ensuring that the circuit protective conductor is of a low impedance, the Voltage to which the live casing is raised, under fault conditions, is kept to a minimum.
2. The low impedance path provided by the circuit conductors and the circuit protective conductor will result in a high level of current in the event of an earth fault. This high fault current ensures that the overcurrent protective device will disconnect the fault in a short time, reducing the interval during which the casing of the faulty equipment is live.

Components of earth fault loop impedance (Z_s) in a system.



(Earth fault at load between conductor and casing).

$$Z_s = Z_e + (R_1 + R_2)$$

Earth fault loop impedance (Z_s)

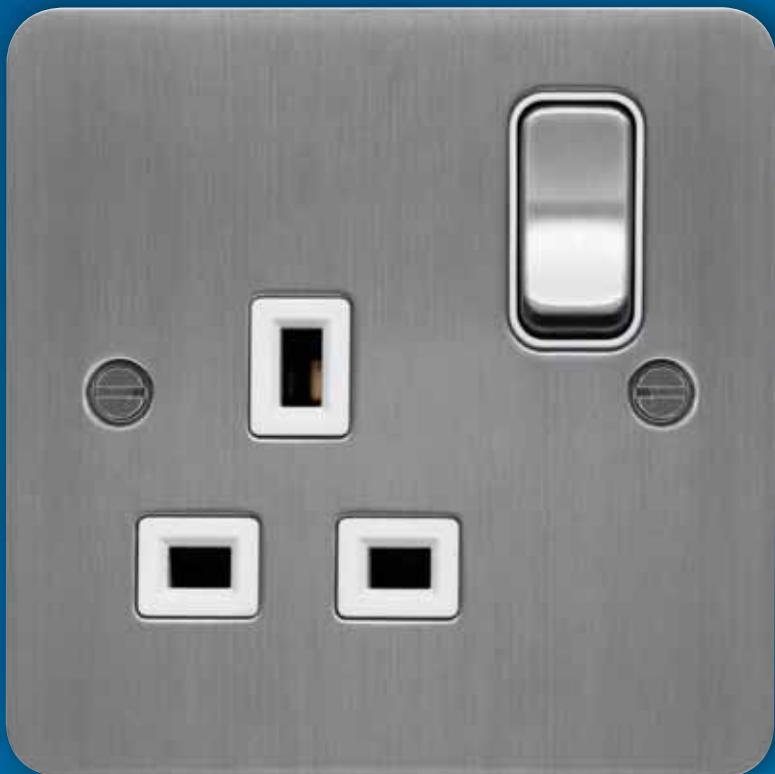
To ensure the impedance of conductors in a circuit is sufficiently low the system designer has to establish the value of the earth fault loop impedance.

Z_s - is a measure of the earth fault current loop, comprising the phase conductor and the earth conductor. It comprises the complete loop including the winding of the transformer from which the circuit is supplied as defined by the following:

Z_e - is the part of the earth fault loop impedance external to the installation, its value can be measured or a nominal value can be obtained from the supply authority.

Wiring Accessories

Our beautiful range of Sollysta wiring accessories include Decorative, IP66, Metalclad and USB connectivity. Connect wires securely with our Junction Boxes and dazzle from up high with our range of ceiling accessories.



Sollysta

| | |
|---------------|-----|
| White Moulded | 5.3 |
|---------------|-----|

| | |
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| Decorative | 5.17 |
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| Metalclad | 5.37 |
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|------|------|
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Junction Boxes

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| Traditional Junction Boxes | 5.42 |
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| Maintenance Free Junction Boxes | 5.42 |
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| Downlighter Junction Boxes | 5.42 |
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Ceiling Accessories

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| Safety Lampholders | 5.43 |
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| Technical Pages | 5.45 |
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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.

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:

- 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.

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.

Description

Cat ref.

Push Switches

| | |
|------------------------|----------|
| With Retractive Switch | WMPS12R |
| With Bell Symbol | WMPS12RB |
| With Wide Rocker | WMPS12RW |

Rotary Push Button Dimmer Kits**Characteristics:**

- Suitable for most D shaft push and rotary dimmer switch modules
- Maintains Sollsta aesthetic for a wide range of manufacturer's switches
- Plate and matching button(s) supplied.
- Supplied with M3.5 x 30mm long fixing screws and screw covers

| Description | Cat ref. |
|---|------------------|
| Rotary Push Button Dimmer Switches | |
| 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 |

Isolator Switches**Characteristics:**

- Complies with BS EN 60669-2-4
- Rated conditional short circuit current (I_{sc}) 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.

| Description | Cat ref. |
|---------------------------------|-----------------|
| 3 Pole Isolator Switches | |
| Isolator Switch | WMPS3PI |
| Isolator Switch with Fan Symbol | WMPS3PIF |

**Immersion Switch****Characteristics:**

- Complies with BS EN 60669-2-4.
- LED indication.
- 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.

| Description | Cat ref. |
|-------------------------|----------------|
| Immersion Switch | |
| Immersion Switch | WMIMS1N |



WMIMS1N



WMSS82

Switched & Unswitched Socket Outlets (13A)

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 2.5mm² conductors switched; 3 x 2.5mm² 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 resistance testing, please disconnect the product before carrying out insulation resistance testing.
- **WMSS82USB(S) USB output:** 5V DC 2.4A total max.
- For mounting boxes see selection chart on page 5.45
- Supplied with M3.5 x 30mm long fixing screws.



WMS51



WMSS82USB

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 |
| 13A 2 Gang Double Pole Dual Earth & Two USB A+C Ports | WMSS82-USBAC |
| 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 |

Unswitched Socket Outlets

| | |
|-----------------------|--------------|
| 13A 1 Gang | WMS81 |
| 13A 2 Gang Dual Earth | WMS82 |
| 5A 1 Gang | WMS51 |



WMP2FO

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.
- 45A features large open brass terminals for ease of installation.
- Protective red washer must be used under cable clamp to prevent damage to cable.

Description

Cat ref.

Outlet Plates

| | |
|--|----------------|
| 20A Flex Outlet Plate | WMP2FO |
| 45A Cooker Cable Outlet with Terminals | WMP50FO |

Unswitched & Switched 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.
- For mounting boxes see selection chart on page 5.45
- We also offer a bespoke printing service for your individual requirements. Please contact our Customer Service at customer.service@hager.ie.



WMSSU83

| Description | Cat ref. |
|--|----------|
| 13A Unswitched Fused Connection Units | |
| FCU | WMSU83 |
| With Flex Outlet | WMSU83FO |

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 |



WMSSU83N

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 |

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 'Tumbledryer' | WMSSU83FON/TD |
| Printed 'Washing Machine' | WMSSU83FON/WM |

Continued overleaf

Unswitched & Switched Fused Connection Units (13A) - Continued

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
- Supplied with M3.5 x 30mm long fixing screws.
- We also offer a bespoke printing service for your individual requirements. Please contact our Customer Service at customer.service@hager.ie for further details.

| 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 |



WMDP84FON

Double Pole Switches (20A)

Characteristics:

- Complies with BS EN 60669-1, AC 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.
- We also offer a bespoke printing service for your individual requirements. Please contact our Customer Service at customer.service@hager.ie 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' | WMDP84DW |
| 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 |
| Printed 'Tumble Dryer' | WMDP84FO/TD |
| Printed 'Washing Machine' | WMDP84FO/WM |

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.
- We also offer a bespoke printing service for your individual requirements. Please contact our Customer Service at customer.service@hager.ie 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, toothbrushes, and similar appliances rated 50 VA or less.
- Input 230V AC output dual voltage 230V AC and 115V AC 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.

Description

Shaver Socket 115/230 Volt

Cat ref.

WMSO100



WMRJ45

Data

Characteristics:

- Supplied with fitted cable tie.
- Quick connection with insulation displacement terminals.
- Clearly printed terminal marking.
- Supplied with M3.5 x 20mm long fixing screws.

Description

Data

RJ11 Socket

Cat ref.

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

TV & Satellite

Single F Type Satellite Outlet Screened

Cat ref.

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



XH9001

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.

Description

Key Tag Switch with Key Card (time delay 60s)

Quantity Cat ref.

5 **XH9001**

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 | WMMBTSB |
| 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 |
| Diplexer - TV & FM Radio | 2 | WMMDX | WMMDXB |
| 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.

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

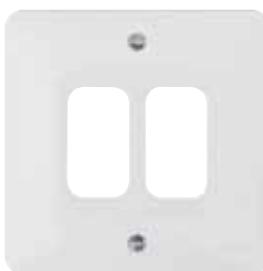
Cat ref.

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. |
|--------------------|---------------|
| Grid Frames | |
| 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 Customer Service at customer.service@hager.ie 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 | WMGS22RB |
| 20A 1 Way Double Pole Switch | WMGSDP2 | - |
| 20A 1 Way Double Pole Switch with LED Indicator | WMGSDP2N | - |
| 20A Double Pole Key Switch | WMGKS | WMGKSB |
| 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 Customer Service at customer.service@hager.ie for further details.

Description

Cat ref. White Insert Cat ref. Black Insert

20A 1 Way Double Pole Grid Switches - Printed

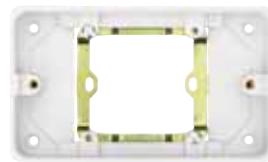
| | | |
|---------------------------|--------------------|---------------------|
| Printed 'Cooker Hood' | WMGSDP2/CHD | WMGSDP2B/CHD |
| Printed 'Dishwasher' | WMGSDP2/DW | WMGSDP2B/DW |
| Printed 'Extract Fan' | WMGSDP2/EF | WMGSDP2B/EF |
| Printed 'Fridge Freezer' | WMGSDP2/FF | WMGSDP2B/FF |
| Printed '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' | WMGSDP2/MW2 | WMGSDP2B/MW2 |
| 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 Socket' | WMGSDP2/OS | WMGSDP2B/OS |
| Printed 'Steam Oven' | WMGSDP2/SOV | |
| Printed 'Boiler' | WMGSDP2/BOI | - |
| Printed 'Outside Light' | WMGSDP2/OL | - |
| 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 | WMGSDP2NB/OV |
| Printed 'Outside Socket' | WMGSDP2N/OS | - |
| Printed 'Outside Light' | WMGSDP2N/OL | - |
| Printed 'Plinth Heater' | WMGSDP2N/PH | - |

Pattress Boxes**Characteristics:**

- Complies with BS EN 60670-1.
- Depth quoted is internal depth.
- Colour and footprint match all Sollysta White Moulded wiring accessories.



WMPB2/20

| Description | Cat ref. |
|--|-------------------|
| Single 20mm Deep Moulded Box | WMPB1/20 |
| Single 28mm Deep Moulded Box | WMPB1/28 |
| Single 46mm Deep Moulded Box | WMPB1/46 |
| Twin 28mm Deep Moulded Box | WMPB2/28 |
| Twin 46mm Deep Moulded Box with Cable Clamps | WMPB2/46CC |
| 46mm Deep Moulded Shaver Box | WMPB2/46 |
| 20mm Single to Twin Converter Frame | WMPB2/20 |
| Single 14mm Deep Spacer for Base Flex Outlet | WMPB1/BFO |

Accessories

| Description | Cat ref. |
|-----------------------------------|-------------------|
| Single Spare Pull Cord | PULLCORD |
| Pack of 100 Push Fit Screw Covers | SCREWCOVER |
| IDC Tools (bag of 10) | IDCTOOL |
| Single Blank Plate | WMP1 |
| Twin Blank Plate | WMP2 |



PULLCORD



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 |
| 13A with LED Indicator Printed 'Panel Heater' | WMSSU83NG/PH |
| 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

Double Pole Switched Socket Outlets

| | Cat ref. (White Faceplate, Red Rocker) | Cat ref. (Red Faceplate, Red Rocker) |
|--|--|--|
| 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 Supply' | WMSS82R/CS | - |
| 13A 2 Gang Switched Socket Printed 'Emergency Supply' | WMSS82R/ES | - |
| 13A 2 Gang Switched Socket Printed 'Do Not Switch Off' | WMSS82R/DNS | - |
| 13A 2 Gang Switched Socket Printed 'UPS Protected' | WMSS82R/UPS | - |



WMSS82R/CS



WMSS82ORR



WMSSU83RR

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 |



WRPS12PSB

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.



WRPS12BSB



WRPS12BNB

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.



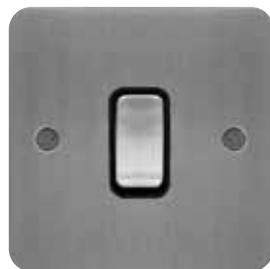
WFPS22PSW

| 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 |



WFPS22WSW

| Description | WFPS22PSW | WFPS22PSB |
|----------------|-----------|-----------|
| Polished Steel | WFPS22PSW | WFPS22PSB |
| Brushed Steel | - | WFPS22BNB |



WFPS12BNB

| Description | WFPS32PSW | WFPS32PSB |
|----------------|-----------|-----------|
| Polished Steel | WFPS32PSW | WFPS32PSB |
| Brushed Steel | - | WFPS32BNB |



loop terminal

| Description | WFPS42PSW | WFPS42PSB |
|----------------|-----------|-----------|
| Polished Steel | WFPS42PSW | WFPS42PSB |
| Brushed Steel | - | WFPS42BNB |

| Description | WFPS12WPSW | WFPS12WPSB |
|----------------|------------|------------|
| Polished Steel | WFPS12WPSW | WFPS12WPSB |
| Brushed Steel | - | WFPS12BNB |

| Description | WFPS16PSW | WFPS16PSB |
|----------------|-----------|-----------|
| Polished Steel | WFPS16PSW | WFPS16PSB |
| Brushed Steel | - | WFPS16BNB |

| Description | WFPS16BSW | WFPS16BSB |
|----------------|-----------|-----------|
| Polished Steel | WFPS16BSW | WFPS16BSB |
| Brushed Steel | - | WFPS16BNB |

| Description | WFPS16BNB |
|--------------|-----------|
| Black Nickel | WFPS16BNB |

Dimmers Raised Plate

Characteristics:

- Suitable for most D shaft push and rotary dimmer switch modules
- Maintains Sollsta aesthetic for a wide range of manufacturer's switches
- Plate and matching button(s) supplied.
- Supplied with M3.5 x 30mm long fixing screws

| Description | Cat ref. |
|-------------|----------|
|-------------|----------|

Raised Dimmer Switch Front Plate

| | |
|---|--------------------|
| 1G Dimmer Switch Plate Kit Brushed Steel | WRDRP1BSKIT |
| 1G Dimmer Switch Plate Kit Polished Steel | WRDRP1PSKIT |
| 2G Dimmer Switch Plate Kit Brushed Steel | WRDRP2BSKIT |
| 2G Dimmer Switch Plate Kit Polished Steel | WRDRP2PSKIT |
| 3G Dimmer Switch Plate Kit Brushed Steel | WRDRP3BSKIT |
| 3G Dimmer Switch Plate Kit Polished Steel | WRDRP3PSKIT |
| 4G Dimmer Switch Plate Kit Brushed Steel | WRDRP4BSKIT |
| 4G Dimmer Switch Plate Kit Polished Steel | WRDRP4PSKIT |

Dimmers Flat Plate

| Description | Cat ref. |
|-------------|----------|
|-------------|----------|

Flat Dimmer Switch Front Plate

| | |
|---|--------------------|
| 1G Dimmer Switch Plate Kit Brushed Steel | WFDRP1BSKIT |
| 1G Dimmer Switch Plate Kit Polished Steel | WFDRP1PSKIT |
| 2G Dimmer Switch Plate Kit Brushed Steel | WFDRP2BSKIT |
| 2G Dimmer Switch Plate Kit Polished Steel | WFDRP2PSKIT |
| 3G Dimmer Switch Plate Kit Brushed Steel | WFDRP3BSKIT |
| 3G Dimmer Switch Plate Kit Polished Steel | WFDRP3PSKIT |
| 4G Dimmer Switch Plate Kit Brushed Steel | WFDRP4BSKIT |
| 4G Dimmer Switch Plate Kit Polished Steel | WFDRP4PSKIT |

Isolator Switches

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



Flat Plate 3 Pole Fan Isolator Switch

| | | |
|----------------|-------------------|-------------------|
| Polished Steel | WFPS3PIPSW | WFPS3PIPSB |
| Brushed Steel | WFPS3PIBSW | WFPS3PIBSB |
| Black Nickel | - | WFPS3PIBNB |

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: 5 x 2.5mm² conductors, switched; 4 x 2.5mm² 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 DC 2.4A total max.
- All decorative USB sockets come with spacer colour matched to insert.



WRSS81BNB

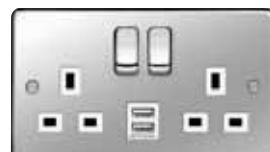
Description

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

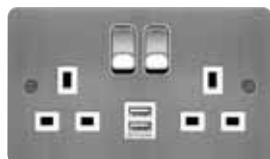
| | | |
|----------------|-----------------------|-----------------------|
| Polished Steel | WRSS82PSW-USBS | WRSS82PSB-USBS |
| Brushed Steel | WRSS82BSW-USBS | WRSS82BSB-USBS |
| Black Nickel | | WRSS82BNB-USBS |



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 |
| Flat Plate 2 Gang Double Pole Dual Earth Switched Socket & Two USB Ports | | |
| Polished Steel | WFSS82PSW-USBS | WFSS82PSB-USBS |
| Brushed Steel | WFSS82BSW-USBS | WFSS82BSB-USBS |
| Black Nickel | WFSS82BNB-USBS | |

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.



WRSSU83FOBSW

| 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 |

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 |



WFSU83BSW

Flat Plate 13A FCU Switched with Flex Outlet

| | | |
|----------------|---------------------|---------------------|
| Polished Steel | WFSSU83FOPSW | WFSSU83FOPSB |
| Brushed Steel | WFSSU83FOBSW | WFSSU83FOBSB |
| Black Nickel | - | WFSSU83FOBNB |



WFSSU83FOBNB

Flat Plate 13A FCU Unswitched

| | | |
|----------------|------------------|------------------|
| Polished Steel | WFSU83PSW | WFSU83PSB |
| Brushed Steel | WFSU83BSW | WFSU83BSB |
| Black Nickel | - | WFSU83BNB |



WRDP84BNB

Double Pole Switches Raised Plate (20A)

Characteristics:

- Complies with BS EN 60699-2-4 AC 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 | WFDP84PSW |
| Brushed Steel | WFDP84BSW | WFDP84BSW |
| Black Nickel | - | WFDP84BNB |



WFDP84BSW

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 |

Double Pole Switches Raised Plate (50A)

Characteristics:

- Complies with BS EN 60669-2-4.
- Rated conditional short circuit current (I_{pc}) 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.



WRDP50NBSW

| 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 | - | WRDP50NBNB |

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 | - | WFDP50NBNB |



WFDP50NPSB

Tall Double Pole Switches Raised Plate (50A)

| Description | Cat ref. White Insert | Cat ref. Black Insert |
|---|-----------------------|-----------------------|
| Raised Plate 50A Tall Double Pole Switch 1 Gang with LED Indicator | | |
| Polished Steel | WRDP50VNPSW | WRDP50VNPSB |
| Brushed Steel | WRDP50VNBSW | WRDP50VNBSB |
| Black Nickel | - | WRDP50VNBNB |

Tall Double Pole Switches Flat Plate (50A)

| Description | Cat ref. White Insert | Cat ref. Black Insert |
|---|-----------------------|-----------------------|
| Flat Plate 50A Tall Double Pole Switch 1 Gang with LED Indicator | | |
| Polished Steel | WFDP50VNPSW | WFDP50VNPSB |
| Brushed Steel | WFDP50VNBSW | WFDP50VNBSB |
| Black Nickel | - | WFDP50VNBNB |



WFDP50VNBSB



WRSO100PSW

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, toothbrushes, and similar appliances rated 50 VA or less.
- Input 230V AC output dual voltage 230V AC and 115V AC 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 |

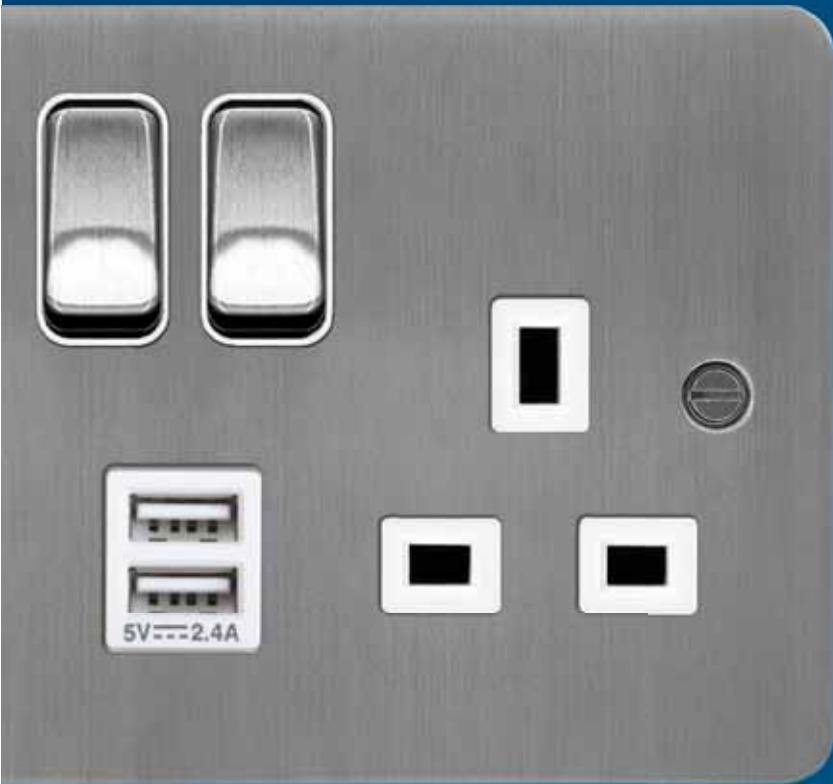


WFSO100PSW

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 |

Sollysta Decorative Double Socket with USB



Style & Substance

With built-in intelligent connection for improved charging speed and our patented three pin shutter mechanism, it has all of the high quality Sollysta features you have come to love.

For more information visit hager.ie

:hager



WRRJ45PSW

Data Raised Plate

Characteristics:

- 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 RJ45 Socket

Polished Steel

WRRJ45PSW **WRRJ45PSB**

Brushed Steel

WRRJ45BSW **WRRJ45BSB**

Black Nickel

- **WRRJ45BNB**



WFRJ45PSB

Data Flat Plate

Description

Cat ref. White Insert Cat ref. Black Insert

Flat Plate RJ45 Socket

Polished Steel

WFRJ45PSW **WFRJ45PSB**

Brushed Steel

WFRJ45BSW **WFRJ45BSB**

Black Nickel

- **WFRJ45BNB**

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 |



WRSATBSW

Raised Plate Single CO-AX TV Outlet Female

| | | |
|----------------|-----------------|----------------|
| Polished Steel | WRTVFPSW | WRTVFPB |
| Brushed Steel | WRTVFBSW | WRTVFB |
| Black Nickel | - | WRTVFB |



WRSATPSW

Raised Plate Double TV & FM/DAB CO-AX Socket Outlet

| | | |
|----------------|----------------|----------------|
| Polished Steel | WRDXPSW | WRDXPSB |
| Brushed Steel | WRDXBSW | WRDXBSB |
| Black Nickel | - | WRDXBNB |



WRTXBNB

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 |

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 |



WFTVFB

Flat Plate Single CO-AX TV Outlet Female

| | | |
|----------------|-----------------|----------------|
| Polished Steel | WFTVFPSW | WFTVFPB |
| Brushed Steel | WFTVFBSW | WFTVFB |
| Black Nickel | - | WFTVFB |



WFDXBSW

TV & Satellite Flat Plate Continued

| Description | Cat ref. White Insert | Cat ref. Black Insert |
|---|-----------------------|-----------------------|
| Flat Plate Double TV & FM/DAB CO-AX Socket Outlet | | |
| Polished Steel | WFDXPSW | WFDXPSB |
| Brushed Steel | WFDXBSW | WFDXBSB |
| Black Nickel | - | WFDXBNB |
| 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 |



WRP1EUPSB

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

Characteristics:

- Carrier plates facilitate installation of industry standard modular data outlets.
- 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 |
|-------------|-----------------------|-----------------------|
|-------------|-----------------------|-----------------------|

Flat Plate 1 Module

| | | |
|----------------|------------------|------------------|
| Polished Steel | WFP1EUPSW | WFP1EUPSB |
| Brushed Steel | WFP1EUBSW | WFP1EUBSB |
| Black Nickel | - | WFP1EUBNB |



WFP1EUBSB

Flat Plate 2 Modules

| | | |
|----------------|------------------|------------------|
| Polished Steel | WFP2EUPSW | WFP2EUPSB |
| Brushed Steel | WFP2EUBSW | WFP2EUBSB |
| Black Nickel | - | WFP2EUBNB |



WFP2EUBNB

Flat Plate 4 Modules

| | | |
|----------------|------------------|------------------|
| Polished Steel | WFP4EUPSW | WFP4EUPSB |
| Brushed Steel | WFP4EUBSW | WFP4EUBSB |
| Black Nickel | - | WFP4EUBNB |



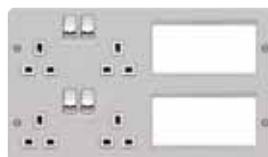
WMMBTM WMMSAT

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 |
| Diplexer - TV & FM Radio Euromodule | 2 | WMMDX | WMMDXB |
| Triplexer - TV, Satellite & FM Radio Euromodule | 2 | WMMTX | WMMTXB |
| Quadplexer - TV, Satellite, FM Radio & Return Euromodule | 2 | WMMQX | WMMQXB |



WMMQXB



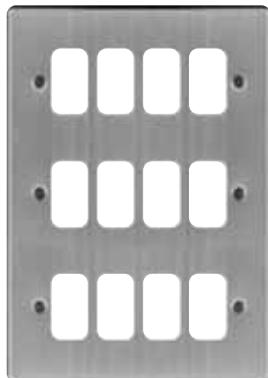
WFTVLPPSW

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 | WFTVLPBSW | WFTVLPBSB |
| Black Nickel | - | WFTVLPBNB |
| White Metal | WFTVLPWW | - |
| Raised Plate Lounge Plate for TV, Power & Data | | |
| White Metal | WRTVLPWW | - |
| Lounge Plate Back Box | | |
| Steel | WFTVBOX | - |



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
Brushed Steel
Black Nickel

WFGP1PS
WFGP1BS
WFGP1BN



WFGP1PS

Flat Plate 2 Gang Grid Plate

Polished Steel
Brushed Steel
Black Nickel

WFGP2PS
WFGP2BS
WFGP2BN



WFGP2BS

Flat Plate 3 Gang Grid Plate

Polished Steel
Brushed Steel
Black Nickel

WFGP3PS
WFGP3BS
WFGP3BN

Flat Plate 4 Gang Grid Plate

Polished Steel
Brushed Steel
Black Nickel

WFGP4PS
WFGP4BS
WFGP4BN

Flat Plate 6 Gang (3 x 2) Grid Plate

Polished Steel
Brushed Steel
Black Nickel

WFGP6PS
WFGP6BS
WFGP6BN

Flat Plate 8 Gang (4 x 2) Grid Plate

Polished Steel
Brushed Steel
Black Nickel

WFGP8PS
WFGP8BS
WFGP8BN

Flat Plate 12 Gang (4 x 3) Grid Plate

Polished Steel
Brushed Steel
Black Nickel

WFGP12PS
WFGP12BS
WFGP12BN

Grid Frames

Description

Cat ref.

Frames for White Moulded and Decorative Raised Plate ranges

1 Gang Frame
2 Gang Frame
3/4 Gang Frame

WMGF1
WMGF2
WMGF34



WMGF34

Frames for Decorative Flat Plate ranges

1 Gang Frame
2 Gang Frame
3/4 Gang Frame

WFGF1
WFGF2
WFGF34



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 Customer Service at customer.service@hager.ie 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 | WMGS22RB |
| 20A 1 Way Double Pole Switch | WMGSDP2 | - |
| 20A 1 Way Double Pole Switch with LED Indicator | WMGSDP2N | - |
| 20A Double Pole Key Switch | WMGKS | WMGKSB |
| 20A Double Pole Key Switch Printed 'Emergency Lighting Test' | WMGKS/EL | - |
| 13A Fuse Carrier | WMGFU13 | - |
| Dimmer 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 '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' | WMGSDP2/MW2 | WMGSDP2B/MW2 |
| 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 Socket' | WMGSDP2/OS | WMGSDP2B/OS |
| Printed 'Steam Oven' | WMGSDP2/SOV | |
| Printed 'Boiler' | WMGSDP2/BOI | - |
| Printed 'Outside Light' | WMGSDP2/OL | - |
| 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 Customer Service at customer.service@hager.ie 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 |  WMGSDP2N/CHD |
| Printed 'Dishwasher' | WMGSDP2N/DW | WMGSDP2NB/DW |  WMGSDP2N/DW |
| Printed 'Extract Fan' | WMGSDP2N/EF | WMGSDP2NB/EF |  WMGSDP2N/EF |
| Printed 'Fridge Freezer' | WMGSDP2N/FF | WMGSDP2NB/FF |  WMGSDP2N/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 |  WMGSDP2N/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 | WMGSDP2NB/OV | |
| Printed 'Outside Socket' | WMGSDP2N/OS | - | |
| Printed 'Outside Light' | WMGSDP2N/OL | - | |
| Printed 'Plinth Heater' | WMGSDP2N/PH | - | |



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.



WMGS12PSB



WMGB1BNB



WMGB1PSW

| 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.



WRP2PS

| 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 |

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



WPPS12



WPDP50VN



WPPS3I



WPSS81

Metalclad Wall Switches

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.
- 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 |
|-------------|---------------------|---|--------------------------------------|
|-------------|---------------------|---|--------------------------------------|

Wall Switches Grey

| | | | |
|---|------------------|-------------------|---------------------|
| 50A Double Pole Switch 1 Gang with LED Indicator | WPDP50N | WPDP50NB | WPDP50NBKO |
| 20A Double Pole Switch with Flex Outlet | WPDP84FO | WPDP84FOB | WPDP84FOBKO |
| 20A Double Pole Switch with LED Indicator & Flex Outlet | WPDP84FON | WPDP84FONB | WPDP84FONBKO |
| 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 |

Tall Double Pole Switches Raised Plate (50A)

| Description | Cat ref. White Insert | Cat ref. Black Insert |
|---|-----------------------|-----------------------|
| Raised Plate 50A Tall Double Pole Switch 2 Gang with LED Indicator | WPDP50VN | - |

Isolator Switches

Characteristics:

- Complies with BS 60669-2-4
- Rated short circuit current 1500A tested with Hager MTN110 6kA curve MCB
- Terminal conductors 2x 4.0mm²
- Supplied with M3.5 x 30mm fixing screws

| Description | Cat ref. |
|-------------------------------|---------------|
| 3 Pole Isolator Switch | WPPS3I |

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).
- Available as plate only for installation with standard wall box.
- **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 DC 2.4A total max.

| Description | Cat ref. Plate Only | Cat ref. With Backbox Without Knockouts | Cat ref. With Backbox With Knockouts |
|---|---------------------|---|--------------------------------------|
| Socket Outlets Grey | | | |
| 1 Gang Double Pole Switch Socket | WPSS81 | WPSS81B | WPSS81BKO |
| 1 Gang Double Pole Switch Socket with LED Indicator | WPSS81N | WPSS81NB | WPSS81NBKO |
| 2 Gang Double Pole Switch Socket | WPSS82 | WPSS82B | WPSS82BKO |
| 2 Gang Double Pole Switch Socket with LED Indicator | WPSS82N | WPSS82NB | WPSS82NBKO |
| 2 Gang Double Pole Switch Socket Outboard Rockers | WPSS82O | WPSS82OB | WPSS82OBKO |
| 2 Gang Double Pole Switch Socket with Two USB Ports | WPSS82-USB | WPSS82B-USB | WPSS82BKO-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.
- Available as plate only for installation with standard wall box.



WPSSU83FON

| Description | Cat ref. Plate Only | Cat ref. With Backbox Without Knockouts | Cat ref. With Backbox With Knockouts |
|---|---------------------|---|--------------------------------------|
| 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 |

Metalclad Grid Plates
Characteristics:

- For Grid Switches, please see page 5.12

| Description | Cat ref. Plate Only | Cat ref. With Backbox Without Knockouts | Cat ref. With Backbox With Knockouts |
|-------------------------|---------------------|---|--------------------------------------|
| 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 |



WPGP1



WPGP2



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 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 |
| Diplexer - TV & FM Radio Euromodule | 2 | WMMDX | WMMDXB |
| Triplexer - TV, Satellite & FM Radio Euromodule | 2 | WMMTX | WMMTXB |
| Quadplexer - TV, Satellite, FM Radio & Return Euromodule | 2 | WMMQX | WMMQXB |

Metalclad Accessories

| Description | Cat ref. Plate Only | Cat ref. With Backbox Without Knockouts | Cat ref. With Backbox With Knockouts |
|-------------------------|---------------------|---|--------------------------------------|
| Accessories Grey | | | |
| Single Backbox | - | WPB140 | WPB140KO |
| Twin Backbox | - | WPB240 | WPB240KO |
| Two Row Twin Backbox | - | WPB6840 | WPB6840KO |
| Single Blank Plate | WPP1 | WPP1B | WPP1BKO |
| Twin Blank Plate | WPP2 | WPP2B | WPP2BKO |



WPB140KO



WXPPS12

Wall Switches

Characteristics:

- IP66 rating conforms to BS EN 60529 : 1992.
- Functional products tested and certified to BS EN 60669-1, AC 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. |
|-------------------------------------|----------------------------|-----------------|
| 10A 1 Gang 2 Way Switch | 90 x 90 | WXPPS12 |
| 10A 2 Gang 2 Way Switch | 90 x 90 | WXPPS22 |
| 20A Double Pole 1 Gang 1 Way Switch | 90 x 90 | WXPDP84 |
| 10A 1 Gang Bell Push Switch | 90 x 90 | WXPPS12B |



WXPSS82

Socket Outlets

Characteristics:

- IP66 rating conforms to BS EN 60529 : 1992.
- Functional products tested and certified to BS 1363 Part 2, AC 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 |

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.



J501

| Description | Terminal capacity (mm²) | 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 |

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 | 3 x 4mm² x (0.5 - 4.0) | 10 | J803 |
| Maintenance Free 20A - 4 Terminals | 4 x 4mm² 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 1.5mm²) 1 x (2 x 1.5mm²) | 10 | J501 |

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.

Wiring
Accessories

| Description | Terminal capacity | Pack qty. | Cat ref. |
|---|-------------------|-----------|----------------|
| No Terminals | - | 10 | J701 |
| With Terminal Block, Cable Ties & Related Wiring Card | 4 x 1.5mm² | 10 | J701/TB |

J701/TB



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.
- All pendants incorporate automatic cord grips and sleeve caps for ease of flexible cord stripping.



SEL354

| Description | Pack qty. | Cat ref. |
|-------------|-----------|----------|
|-------------|-----------|----------|

Safety Bayonet Cap Cord Grip Lampholders

| | | |
|--|----|---------------|
| Cord Grip Lampholders - Short Skirt | 20 | SEL212 |
| Cord Grip Lampholders - Home Office Shield | 20 | SEL214 |

Safety Straight Batten Lampholders

| | | |
|-------------------------------------|----|---------------|
| Three Terminal - Home Office Shield | 20 | SEL354 |
|-------------------------------------|----|---------------|



SEL96T

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 |



624SEL212/6

Safety Pendants Sets with Access to 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 to 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 |
| Shield Pendant Set 6" - Home Office Shield | 10 | 624SEL214/6 |

Safety Lampholders with Safety Covers

| | | |
|-------------------------------------|----|---------------------|
| Pendant Set 6" with Safety Cover | 10 | 624SEL212SC6 |
| Batten Lampholder with Safety Cover | 10 | SEL96TSC |

Super Access Terminal Bank Type Ceiling Rose

Characteristics:

- Pendant set complies with BS EN 60598-1.
- 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 |

Low Energy Pendant

| Description | Pack qty. | Cat ref. |
|---|-----------|-----------------|
| Low Energy Pendant to accomodate GU10-L1 lamp | 1 | LEL212/6 |



LEL212/6

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 (Home Office Shield and Shade Ring)

Characteristics:

- Suitable for use with any lampholder or batten lampholder.

| Description | Pack qty. | Cat ref. |
|--------------------|-----------|--------------|
| Short Skirts | 50 | HAL70 |
| Home Office Shield | 50 | HAL72 |



RL602

Halo

| Description | Pack qty. | Cat ref. |
|-----------------------|-----------|--------------|
| Halo (108mm Diameter) | 20 | 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 |
| 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.

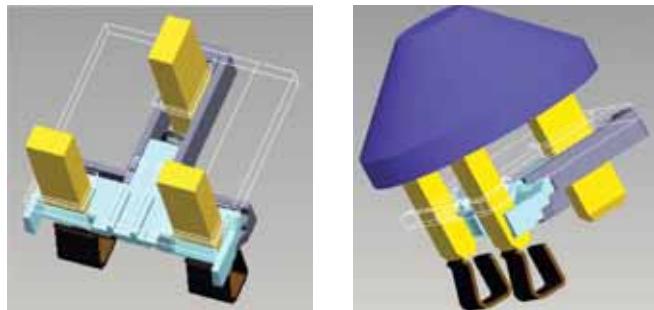
For a full list of products generally available from stock please go to www.hager.ie/printedproducts.

We also offer a bespoke printing service for your individual requirements. Please contact our Customer Service at customer.service@hager.ie 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.

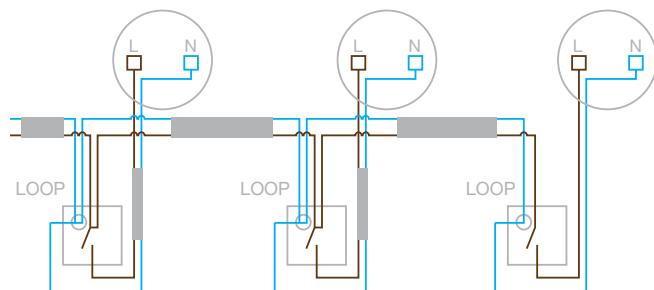
**Neutral Loop Terminal**

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.



IP Ratings

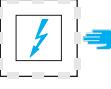
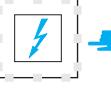
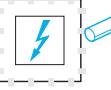
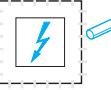
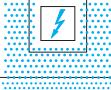
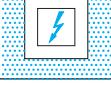
International Protection (IP) Chart

:hager

The IP rating for all low voltage enclosures up to 1000 V AC and 1500 V DC 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.

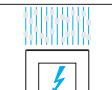
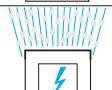
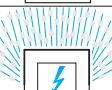
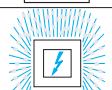
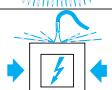
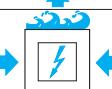
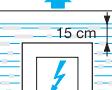
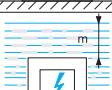
The first character numeral indicates the degree of protection provided by the enclosure against access to hazardous parts by preventing or limiting the ingress of a part of the human body or an object held by a person and ingress of solid foreign objects.

The first character numeral:
Protection against foreign objects

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

The second character numeral 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

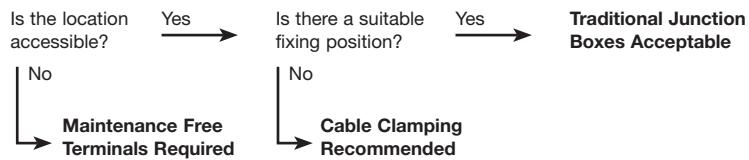
| IP | Description |
|----|---|
| 0 | Non-protected |
| 1 |  Protected against vertically falling water drops |
| 2 |  Protected against vertically falling water drops when enclosure titled up to 15° |
| 3 |  Protected against spraying water |
| 4 |  Protected against splashing water |
| 5 |  Protected against water jets |
| 6 |  Protected against powerful water jets |
| 7 |  Protected against the effect of temporary immersion in water 15 cm |
| 8 |  Protected against continuous immersion in water m |

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

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

Additional letter (in option)
Specific information on the product

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

Junction Box Selection Chart


| Description | Nº 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 | |

IP Ratings

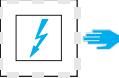
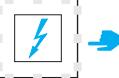
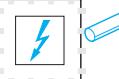
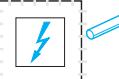
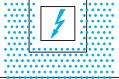
International Protection (IP) Chart

:hager

The IP rating for all low voltage enclosures up to 1000 V AC and 1500 V DC 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 |
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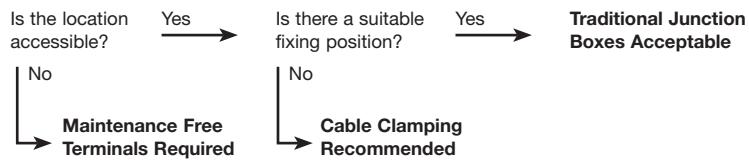
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| | 3 | 30A | J401 | |
| | 6 | 20A | J601 | |

KNX Building Automation

A building which can think for itself? The future is here. Our building automation offer in Tebis.KNX can turn a building into an intelligent machine. It provides true control of heating, lighting and privacy and creates energy savings all year round. Be in control or let it do the work for you. Automation so intuitive, you won't even know it's there.



06

| | Page |
|---|------|
| KNX Overview | 6.3 |
| KNX Quicklink | 6.5 |
| KNX Easy | 6.9 |
| KNX System | 6.19 |
| KNX Inputs, Outputs & System Components | 6.21 |
| KNX Remote Control & Visualisation | 6.22 |
| Berker Wiring Accessories | 6.23 |

Hager makes things easy KNX overview

KNX is an established standard everywhere, and one that our whole system range is fluent in. Any easy installation can be extended using quicklink wireless solutions or imported fully into the ETS software. Hager considers it essential that each one of its customers experiences this consistent concept, and by providing it, ensures they benefit from a solution that will hold up over the long term and offer as many expansion options as possible. **Guaranteed fit for the future**

Comparison of systems



quicklink wireless modules

- Solution for individual rooms
- Retrofitting of existing buildings

Visit hager.ie to view our full KNX solutions catalogue or contact us to request a printed catalogue.



easy configurations

- Complete solution for residential buildings
- Excellent functions for private households

Visit hager.ie to view our full KNX easy catalogue or contact us to request a printed catalogue.



system programming

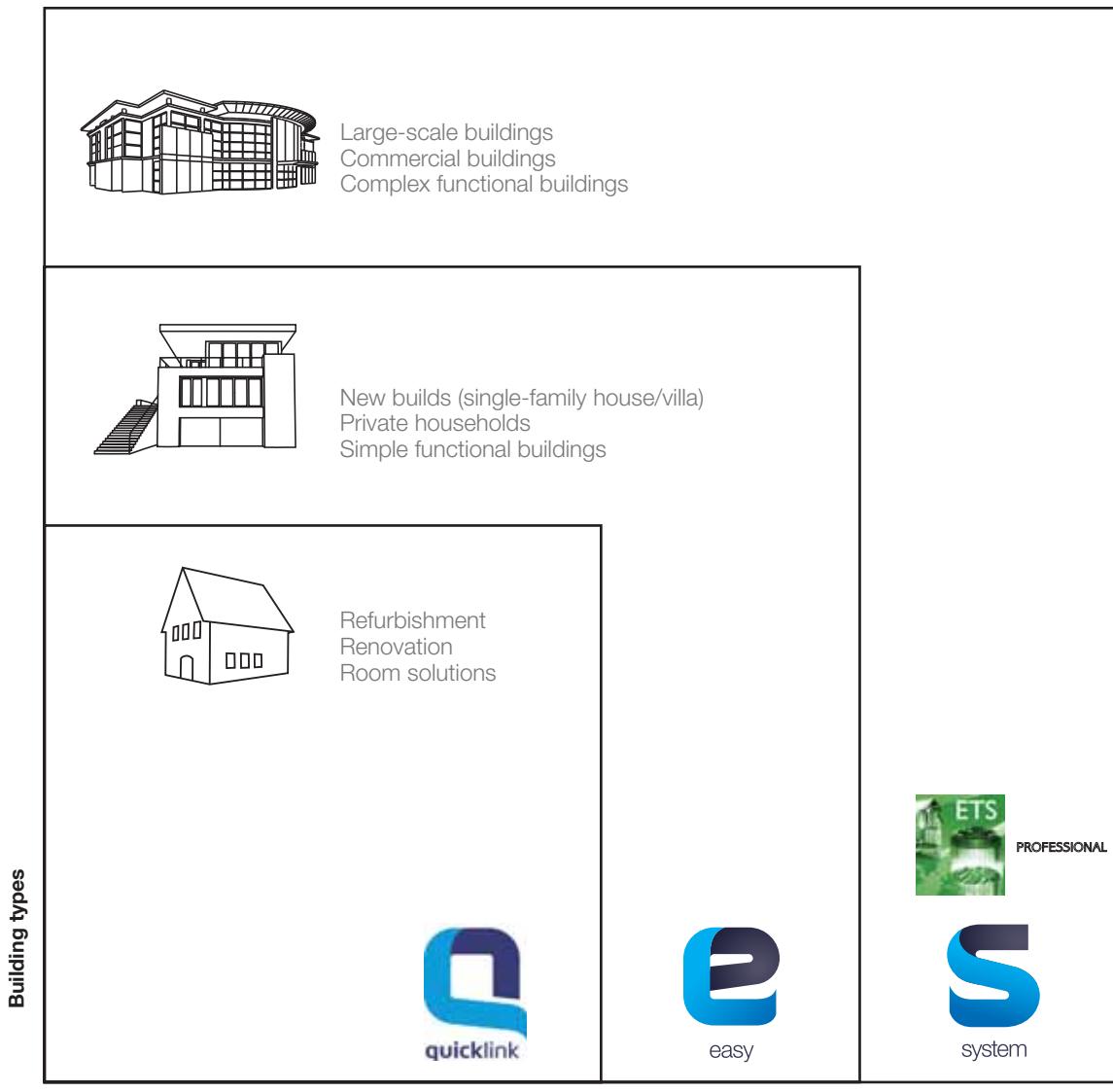
- Premium solution for residential buildings
- Meets complex requirements of functional buildings

Visit hager.ie to view our full KNX solutions catalogue or contact us to request a printed catalogue.

T +353 (0)1 8835844

E customer.service@hager.ie

W hager.ie



Come and join us in the wireless revolution

If you're considering retrofitting, modernizing or upgrading a house, you're probably tempted by the benefits of a smart home. But the cost and time of hard-wiring systems may make you think twice.

Fortunately, there's a simple solution. With coviva, you can transform existing electrical installations into a smart home without any construction work or cable routing.

Simply combine coviva's micromodules with a smartbox and the coviva app to create a smart home that's easy to install, monitor and control.

Micromodules: the foundation of home automation

When it comes to home retrofitting, less is more.

Less cabling through the walls and less rebuilding work means more convenience for you. And it's all possible thanks to coviva micromodules.

Micromodules are the first step towards a smart home.

Once installed behind existing switches or connection boxes, they communicate wirelessly to automate multiple functions throughout the home, including lights and blinds.



Quick installation. Easy implementation

Once the micromodules are connected, they're ready to go.

In an instant, they can control dimming settings, on/off switches and raise/lower functions.*

Universal controls

Each micromodule can be linked to a button, which is fast and easy to program.

Superior wireless reach

The micromodules are designed to deliver exceptional wireless reach. Indoors, they can cross through 2 concrete slabs and still transmit up to 30 meters. Outdoors, their range extends as far as 100 meters in an open field.

Update as desired with **KNX standard.**

Some providers of smart home solutions use closed proprietary systems. Hager uses the internationally-recognized KNX standard, which is compatible with more than 300 brands. Which means you can guarantee your customers a high-quality system well into the future.

quicklink

The perfect retrofit solution, quicklink is our wireless alternative to Intelligent Building System technologies. There's no need to lay costly control lines. And, with no programming tools required, system launch couldn't be easier.

easy

Designed for new constructions and extensive renovations, easy offers a simple solution for configuring a KNX system quickly and intuitively. All you need is an easy configuration server, a tablet and the easy app. And if you want to expand your easy configuration in the future, just add a quicklink wireless solution.

KNX ETS

ETS is the standard software used in building automation. The bus system, its actuators and its sensors are used for a wide range of applications – to control lights and blinds, regulate the temperature in individual rooms and much more.



Hager offers a complete
range of KNX systems
and a variety of applications

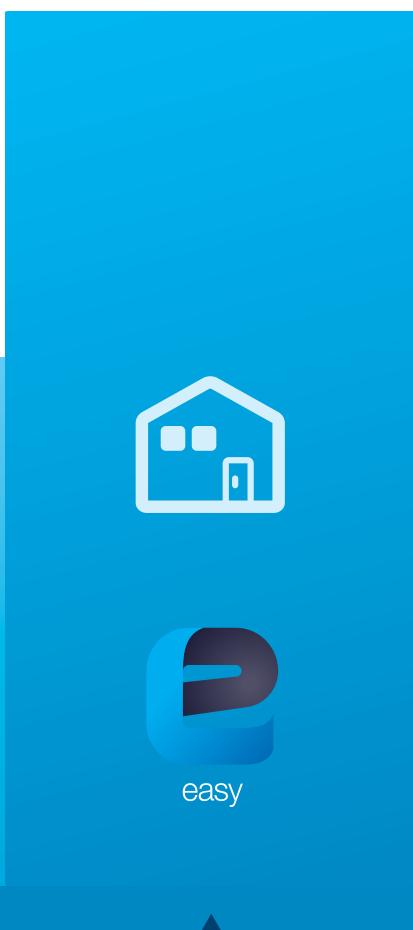
system (ETS)

High-end solutions for residential,
commercial and administrative
buildings



easy Complete home solutions

quicklink wireless module
For individual rooms and retrofitting



Making it really easy

To create an intelligent home



You can program lighting scenarios to suit your customers' wishes, allowing them to create the atmosphere they are looking for quickly and easily. **Dimming control for setting the mood.**



Design, operation and functionality at the peak of perfection. Hager makes smart home solutions an affordable option for anyone, with technology that is making inroads into average private households. Your customers are sure to love the new level of convenience it affords them.
Intelligent control centre.





The system makes operating roller shutters and blinds convenient and so easy, even a child could do it. The option to shade or darken a space at the touch of a button creates more comfortable surroundings for your customers.

Raised potential.

The option to switch everything off saves customers looking back over their shoulders after leaving the house. The simple control concept creates an intelligent home – even when the occupants are outside it.

Reassuring security solution.



easy installation



The easy configuration server is at the heart of the system. It is connected to the KNX system and acts as an intelligent partner during configuration. The easy configuration server forms the programming interface between the KNX installation and you while you are performing the configuration work on a tablet. Central management.

The new easy actuators are equipped with all the functions that residential buildings need – whether these involve switching lights on and off or dimming them, moving blinds, creating light scenes, or adapting to wind and weather conditions. easy systems come complete with all the security and comfort functions customers expect.

Visually speaking, the only way in which the easy actuators differ is their light-grey operation buttons – and inside the system, the easy functionality is virtually the sole difference.

Whether customers want to switch lights on and off and move blinds using combination actuators, or dim state-of-the-art lighting using dim actuators, easy actuators are capable of all this and more.



The new flush-mounted switching outputs are available as 1gang and 2gang switching outputs (in two versions). The 1gang output can be used for all types of lighting control – meaning not just switching lights on and off, but time, override, logic and scene functions too. With the 2gang output, there is the option of controlling two lighting circuits, a roller shutter/blind motor or a fan (2-stage activation).

A new feature comes in the form of the actuators that have been specifically developed for project business, which accommodate a high number of channels at an attractive price. In the 16gang and 20gang versions for lighting and blinds, as well as the 12gang versions for blinds at 230 V, they combine a large number of channels within a small space.



easy products

A place in the sun

The new easy actuators feature not only multifunctional binary outputs, but also specialist KNX blind outputs. Together with the new GPS weather station, this makes it possible to create a variety of comfort scenarios – including gradual roller shutter motions or blind slats that rotate in line with the sun. This both creates a more comfortable atmosphere for users and reduces lighting and heating costs.



KNX weather station with GPS

The new weather station, featuring a GPS antenna, measures precipitation, temperature, wind speed and the sun's position with accuracy. Based on this information, convenient shade and heat protection functions – such as position tracking and sun tracking – can be configured for up to four building facades.

This allows blinds to be used for cooling in summer and sunlight to be used for heating in winter. It is also possible to program a rain, frost and wind alarm, with 3 stages in each case. The date, time and exact location coordinates are received via the GPS signal, and the station switches from summer to winter time automatically. The easy visualisation concept allows advanced functions to be added, such as set-point settings, process logic and timers. The weather station is mounted horizontally on the outer wall, enabling the sensors to detect sun, wind and rain without obstructions.

KNX blind outputs

Five easy actuators with an option of 4, 8 or – a new addition – 12 outputs are available for activating roller shutter and blind motors. The 12gang output can normally be used to control any kind of shutters found in a small bungalow. The 12gang output is supplied with 230 V. Depending on the rated voltage of the roller shutter and blind motors, the 4gang and 8gang outputs are available for either 230 V or a 24 V extra-low voltage.





easy configuration

KNX easy provides an intuitive means of configuring KNX systems. Just connect to the new easy service tool wirelessly using a tablet – and from that point, everything practically runs itself. **Brilliantly simple.**



Step 1: Reading in

Once you have created a new project, activate the 'Start discovery' function. All the KNX products installed in the system, plus their inputs and outputs, will now be read in and listed according to their number. The software distinguishes between wired and radio products. This allows you to check whether all the installed devices have been detected.



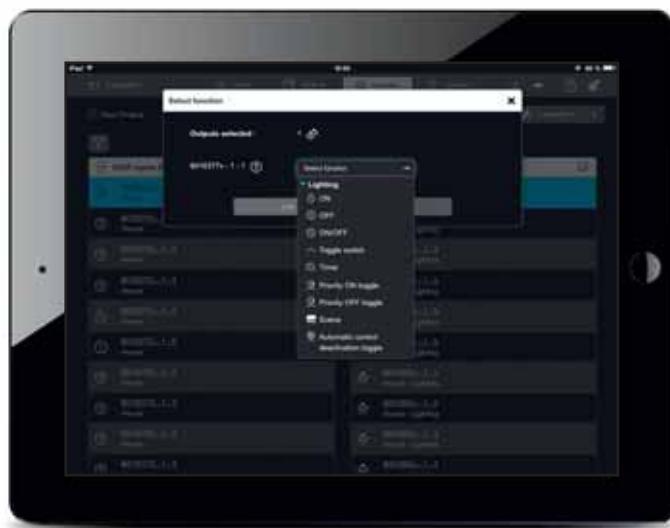
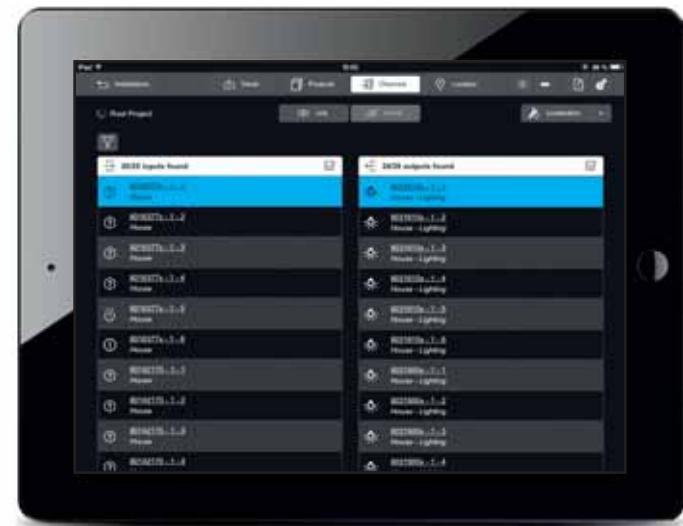
Step 2: Labelling

easy speaks in plain language – meaning no abbreviated forms and no codes! You start by creating a simple name for the building, then giving names to each individual room and assigning the rooms to each floor. The next step is to label all the KNX products with all the inputs and outputs. Once the individual functions and their parameters have been defined, the inputs and outputs are assigned to the rooms that have been created.

Step 3: Linking

You now select the inputs and outputs you require using the touchscreen function. You can simultaneously select multiple inputs and outputs that you wish to link. A filter function makes it possible to create quick and simple links for group switching, for instance.

Once you have selected the channels to be linked, press the 'Link' symbol.



Step 4: Function

The final step involves choosing the appropriate function. You may want the button to switch the lighting on or off, for example – but whatever the case, a whole range of KNX functions is available for selection. Once you have selected the function, operation can start immediately.

easy operation

The new KNX sensors from Berker provide the perfect partners to easy actuators. Their design lines might be familiar, but they have a new stand-out feature – a reimagined sensibility. This allows customers to find the perfect solution to suit any need – from the attractively priced push-button option to the dimmable push-button, all the way through to the intuitive room controller. All the sensors can be combined with one another. **A versatile selection.**



Switch, illuminate, protect

The new KNX push-buttons with integrated BCU (bus coupling unit) appear so simple from the outside, but are so smart on the inside: they easily connect to the in-house KNX system via the integrated bus coupling unit. Rockers in the centre allow the upper and lower push-button areas to be assigned separate functions. The 1gang push-button is able to trigger two control commands and the 2gang push-button four control commands. Each rocker has a status LED that also serves as orientation lighting. The LED colour can be customised as red, green or blue as well. And to stop any sticky fingers making off with such an appealing item, the push-button module and supporting ring can be bolted firmly together – the perfect thief deterrent.

New:

1gang to 4gang KNX push-button

Switch on your senses. The new Berker KNX push-buttons make it possible to produce entire scenes and logic combinations. Users are also invited to use their senses of vision, hearing and touch, thanks to LEDs that can be dimmed in any required RGB colour combination, an integrated buzzer that can be felt when it is activated via the easy configuration, and a built-in temperature sensor to which a second sensor can be connected if required – for underfloor heating, to take one example.

Available in the design lines S, B, Q, K and R in all standard colours.



KNX room thermostat and room controller

The new Berker KNX room thermostat and room controller make an impact not once, but twice – thanks both to their attractive design and to their innovative operating concept featuring the wipe-and-type function that is exclusive to Berker. Simply wipe along the sensor strip and tap to select from a whole range of building functions. **Beautifully smart.**



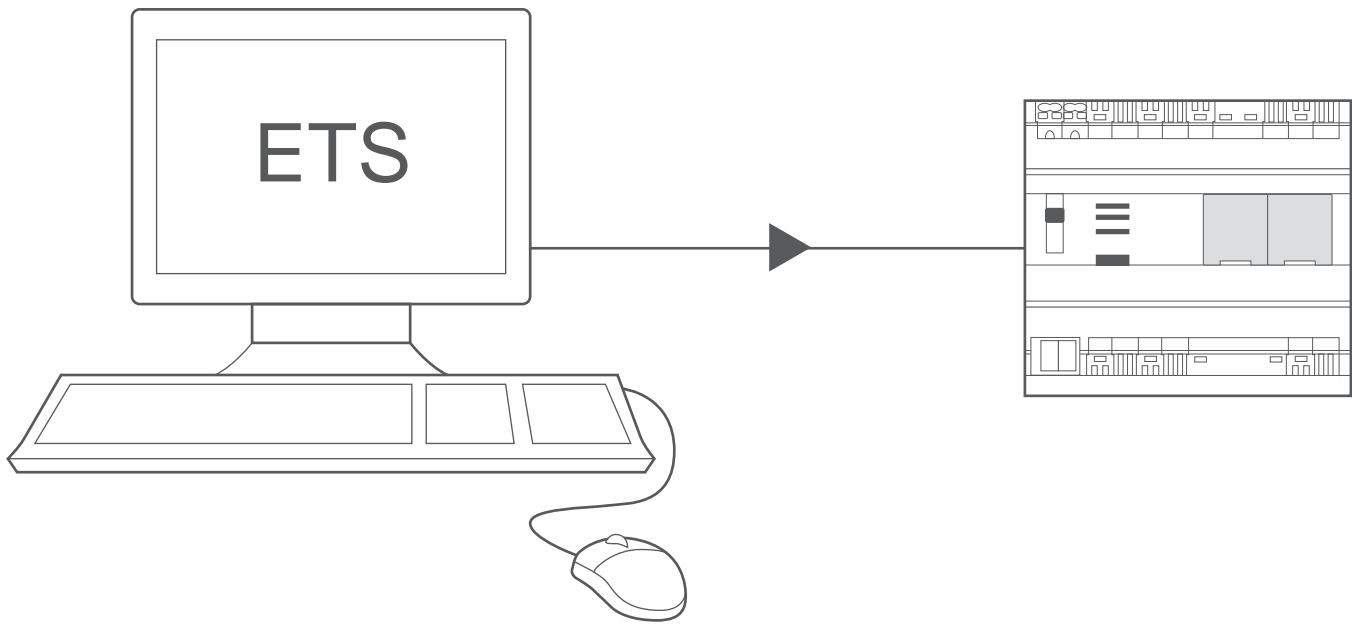
System programming premium KNX solution

For large-scale and commercial projects requesting a whole range of functionalities, system is the most adapted solution.

Our KNX system range has been developed for the most complex and demanding installations. Our wide range of KNX devices offers very advanced configuration possibilities in ETS software.

The range of KNX modules consists in output devices for shutters and lighting management as well as binary modules with current measurement.





Configuration

ETS is the software used for the configuration of every KNX solution. To configure the products, the computer has to be plugged to the installation via a gateway.

The software includes many features, such as:

- easy and quick integration of wireless KNX products in the installation
- user-friendly interface
- simple database
- possibility to track changes related to the project...

Benefits

- Efficient installation: ETS 5 configuration software has become so simple and intuitive to use for a quick configuration
- A wide range of products to answer all type of projects
- Comfort as its best: possibility to set unlimited number of various scenarios
- Safer installations: would any problem occur, it is possible to troubleshoot easily and quickly



KNX inputs, outputs and system components

With KNX, a building provides a significant contribution to looking after itself: motion detectors activate lighting as necessary. Windows and doors left open by accident are signalled using magnetic contacts and can be closed automatically. In addition, when the windows are open, the heating/cooling system reduces output. Using the KNX bus system, your house can learn to adapt to changed environmental conditions.



KNX remote control and visualisation

Intuitive control: one interface to manage your home.
domovea is the dashboard for your home, providing you with intuitive control of the different devices in your home. Lights, shutters, heating, air conditioning or alarm system; for each room or the full floor... It's so simple to use: everything can be controlled from one single point.
You can enjoy domovea from your home computer, laptop, smartphone, tablet or dedicated touch panel, all with the same look & feel.



Berker B.IQ

A wide array of alternative materials and colours have been added to the convenient variety of KNX functionality of the Berker B.IQ.

- Frameless KNX push-button with full-material rockers (glass, stainless steel and aluminium)
- High scope of functions in the KNX applications through devices integrating thermostats
- The attractive appearance is rounded off using white status LEDs and a blue operation LED
- Suitable variants for all materials and colours of sockets in the Berker B.7 switch range.



Berker TS Sensor

Understatement is an art, and the Berker TS Sensor makes it perfect. Up to eight functions are concealed under a pure surface that is practically flush with the wall, and can be custom-labelled on request. A single touch is all it takes to control lights, heating or blinds. In this way, the Berker TS Sensor can offer an exciting variety of possibilities – and, at the same time, still seems as calm as possible.



Berker TS/TS Crystal

Behind its elegantly purist exterior, there is an unexpected wealth of technical options: the Berker TS allows operation, not only of multiple light sources, but, if so desired, also of intelligent building control systems. With their fine platform and switching knobs MADE WITH SWAROVSKI ELEMENTS, the Berker TS Crystal lends refinement to any atmosphere.



Berker R.1/R.3 Touch Sensors

Just right for the switch programmes in the R.-Design is the Berker Touch Sensor – in a soft (R.1) and cornered (R.3) contour as well as in the glass surfaces black and polar white.

The KNX-Touch Sensor has the same assembly height as the switches in the R.-Design.

With its integrated bus coupling unit, a variety of building functions can be read and controlled through it.



tebis



quicklink wireless modules

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- Retrofitting of existing buildings

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easy configurations

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system programming

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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 peoples 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

| | | | | | | | |
|--------------|-------------|---------|-------------|---------|-------|-----------------|-------|
| # | | ADA195U | 1.151 | BD226 | 1.145 | BTH480E | 1.148 |
| 52031 | 3.18 | ADA310G | 4.30 | BD240 | 1.145 | | |
| 52032 | 3.18 | ADA316G | 4.30 | BD263 | 1.145 | | |
| 52035 | 3.18 | ADA320G | 4.30 | BD264 | 1.145 | | |
| 52038 | 3.18 | ADA325G | 4.30 | BD325 | 1.145 | | |
| 52045 | 3.18 | ADA332G | 4.30 | BD326 | 1.145 | | |
| 52541 | 3.18 | ADA506D | 1.150, 4.30 | BD340 | 1.145 | | |
| 52542 | 3.18 | ADA510D | 1.150, 4.30 | BD341 | 1.145 | | |
| 52545 | 3.18 | ADA516D | 1.150, 4.30 | BD363 | 1.145 | | |
| 52546 | 3.18 | ADA520D | 1.150, 4.30 | BD364 | 1.145 | | |
| 624SEL212/12 | 5.45 | ADA525D | 1.150, 4.30 | BD425 | 1.145 | | |
| 624SEL212/6 | 5.45 | ADA532D | 1.150, 4.30 | BD426 | 1.145 | | |
| 624SEL212/9 | 5.45 | ADA556D | 1.150, 4.30 | BD440 | 1.145 | | |
| 624SEL212SC6 | 5.45 | ADA560D | 1.150, 4.30 | BD441 | 1.145 | | |
| 624SEL214/6 | 5.45 | ADA566D | 1.150, 4.30 | BD463 | 1.145 | | |
| 800LBS | 1.133 | ADA570D | 1.150, 4.30 | BD464 | 1.145 | | |
| A | | ADA575D | 1.150, 4.30 | BDC280E | 1.148 | | |
| | | ADA582D | 1.150, 4.30 | BDC380E | 1.148 | | |
| | | ADM406C | 1.150 | BDC480E | 1.148 | | |
| A050 | 1.97, 2.40 | ADM410C | 1.150 | BDC825 | 1.146 | CDA580W | 1.151 |
| A088 | 1.97, 2.40 | ADM413C | 1.150 | BDC840 | 1.146 | CDA584W | 1.151 |
| A089 | 2.40 | ADM416C | 1.150 | BDC863 | 1.146 | CDA680D | 1.151 |
| A090 | 2.40 | ADM420C | 1.150 | BDH280E | 1.148 | CDA684D | 1.151 |
| A098 | 1.97, 2.40 | ADM425C | 1.150 | BDH380E | 1.148 | CDA690 | 1.151 |
| A099 | 1.97, 2.40 | ADM432C | 1.150 | BDH480E | 1.148 | CDB516D | 1.152 |
| A099B | 1.97 | ADM440C | 1.150 | BDH825 | 1.146 | CDB516E | 1.152 |
| A099C | 1.97 | ADM456C | 1.150 | BDH840 | 1.146 | CDB525D | 1.152 |
| A099D | 1.97 | ADM460C | 1.150 | BDH863 | 1.146 | CDB525E | 1.152 |
| A099E | 1.97 | ADM463C | 1.150 | BE163T | 1.122 | CDB640D | 1.152 |
| A1 | 3.15 | ADM466C | 1.150 | BE264 | 1.145 | CDB663D | 1.152 |
| A1/R | 3.15 | ADM470C | 1.150 | BE464 | 1.145 | CE240J | 1.151 |
| A1BLACK | 3.15 | ADM475C | 1.150 | BF163T | 1.122 | CE281J | 1.152 |
| ACA106U | 1.151 | ADM482C | 1.150 | BF225 | 1.145 | CE285J | 1.152 |
| ACA110U | 1.149 | ADM490C | 1.150 | BF226 | 1.145 | CE440J | 1.151 |
| ACA116U | 1.149 | ADS917D | 1.149, 4.31 | BF240 | 1.145 | CE463J | 1.151 |
| ACA120U | 1.149 | ADS967D | 1.149, 4.31 | BF241 | 1.145 | CE481J | 1.152 |
| ACA125U | 1.149 | AF956J | 1.150 | BF263 | 1.145 | CE485J | 1.152 |
| ACA132U | 1.149 | AF960J | 1.150 | BF264 | 1.145 | CEA263N | 1.151 |
| ACA140U | 1.149 | AF966J | 1.150 | BF325 | 1.145 | CEA580W | 1.151 |
| ACA145U | 1.149 | AF970J | 1.150 | BF326 | 1.145 | CEA584W | 1.151 |
| ACA156U | 1.149 | AF975J | 1.150 | BF340 | 1.145 | CEA680W | 1.151 |
| ACA160U | 1.149 | AF982J | 1.150 | BF341 | 1.145 | CEA684W | 1.151 |
| ACA166U | 1.149 | AF990J | 1.150 | BF363 | 1.145 | CF225J | 1.152 |
| ACA170U | 1.149 | ARC506U | 1.158 | BF364 | 1.145 | CF240J | 1.152 |
| ACA175U | 1.149 | ARC510U | 1.158 | BF425 | 1.145 | CF263J | 1.152 |
| ACA182U | 1.149 | ARC513U | 1.158 | BF426 | 1.145 | CF280C | 1.152 |
| ACA190U | 1.149 | ARC516U | 1.158 | BF440 | 1.145 | CF284C | 1.152 |
| ACA195U | 1.149 | ARC520U | 1.158 | BF441 | 1.145 | CF425J | 1.152 |
| AD906J | 1.150, 4.30 | ARC525U | 1.158 | BF463 | 1.145 | CF440J | 1.152 |
| AD910J | 1.150, 4.30 | ARC532U | 1.158 | BF464 | 1.145 | CF463J | 1.152 |
| AD916J | 1.150, 4.30 | ARC540U | 1.158 | BFC480E | 1.148 | CF480C | 1.152 |
| AD920J | 1.150, 4.30 | ARC556U | 1.158 | BFC825 | 1.146 | CF484C | 1.152 |
| AD925J | 1.150, 4.30 | ARC560U | 1.158 | BFC840 | 1.146 | CFA580W | 1.152 |
| AD932J | 1.150, 4.30 | ARC563U | 1.158 | BFC863 | 1.146 | CFA680U | 1.152 |
| AD940J | 1.150, 4.30 | ARC566U | 1.158 | BFH480E | 1.148 | CFA684W | 1.152 |
| AD956J | 1.150, 4.30 | ARC575U | 1.158 | BFH825 | 1.146 | CFB640D | 1.152 |
| AD960J | 1.150, 4.30 | ARC582U | 1.158 | BFH863 | 1.146 | CFB663D | 1.152 |
| AD966J | 1.150, 4.30 | ARC590U | 1.158 | BG264 | 1.145 | CN284J | 1.152 |
| AD970J | 1.150, 4.30 | ARC906U | 4.31 | BG364 | 1.145 | CN484A | 1.152 |
| AD975J | 1.150, 4.30 | ARC910U | 4.31 | BG464 | 1.145 | CNA584W | 1.152 |
| AD982J | 1.150, 4.30 | ARC916U | 4.31 | BN264 | 1.145 | CNA684D | 1.152 |
| AD990J | 1.150, 4.30 | ARC920U | 4.31 | BN464 | 1.145 | CP280E | 1.152 |
| ADA106U | 1.121, 4.29 | ARC925U | 4.31 | BP264 | 1.145 | CP284J | 1.152 |
| ADA110U | 1.121, 4.29 | ARC932U | 4.31 | BP364 | 1.145 | CP484D | 1.152 |
| ADA116U | 1.122, 4.29 | ARC940U | 4.31 | BP464 | 1.145 | CPA684D | 1.152 |
| ADA120U | 1.122, 4.29 | ARC956U | 4.31 | BPC863 | 1.146 | CR64AX | 3.15 |
| ADA125U | 1.122, 4.29 | ARC960U | 4.31 | BR264 | 1.145 | CR64AX/1.0 | 3.13 |
| ADA132U | 1.122, 4.29 | ARC966U | 4.31 | BS263 | 1.145 | CR64AX/1.0LSF/2 | 3.13 |
| ADA140G | 4.30 | ARC970U | 4.31 | BS264 | 1.145 | CR64AX/1.0LSF/3 | 3.13 |
| ADA140U | 1.149 | ARC975U | 4.31 | BS363 | 1.145 | CR64AX/1.0LSF/4 | 3.13 |
| ADA145G | 4.30 | ARC982U | 4.31 | BS364 | 1.145 | CR64AX/1.0LSF/5 | 3.13 |
| ADA145U | 1.149 | ARC990U | 4.31 | BS464 | 1.145 | CR64AX/1.0PVC/2 | 3.13 |
| ADA156U | 1.121, 4.29 | | | BSC863 | 1.146 | CR64AX/1.0PVC/3 | 3.13 |
| ADA160U | 1.123, 4.29 | | | BTC280E | 1.148 | CR64AX/1.0PVC/4 | 3.13 |
| ADA166U | 1.122, 4.29 | | | BTC380E | 1.148 | CR64AX/1.0PVC/5 | 3.13 |
| ADA170U | 1.122, 4.29 | BC226 | 1.145 | BTC480E | 1.148 | CR64AX/2.0 | 3.13 |
| ADA175U | 1.122, 4.29 | BD163T | 1.122 | BTH280E | 1.148 | CR64AX/3.0 | 3.13 |
| ADA182U | 1.122, 4.29 | BD225 | 1.145 | BTH380E | 1.148 | CR64AX/4.0 | 3.13 |
| ADA190U | 1.151 | | | | | CR64AX/LSF/1.0 | 3.13 |

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|----------------|------------|---------|------|---------|------------------|----------|------|
| CR64AX/LSF/2.0 | 3.13 | EEN101 | 2.12 | ERD263S | 2.19 | ESD463S | 2.17 |
| CR64AX/LSF/3.0 | 3.13 | EG003 | 2.28 | ERD418 | 2.21 | ESD464 | 2.16 |
| CR64AX/LSF/4.0 | 3.13 | EG003U | 2.28 | ERD418S | 2.21 | ESL125 | 2.15 |
| CR64AX/R | 3.15 | EG004 | 2.28 | ERD425 | 2.18 | ESL225 | 2.15 |
| CU684 | 4.4 | EG005 | 2.28 | ERD425S | 2.19 | ESL225S | 2.17 |
| | | EG006 | 2.28 | ERL216 | 2.21 | ESL226 | 2.15 |
| D | | EG007 | 2.28 | ERL217 | 2.21 | ESL227 | 2.15 |
| | | EG010 | 2.27 | ERL218 | 2.21 | ESL240 | 2.15 |
| DR16SIE | 4.19 | EG071 | 2.27 | ERL225 | 2.18 | ESL240S | 2.17 |
| DR32SIE | 4.19 | EG103 | 2.27 | ERL240 | 2.18 | ESL241 | 2.15 |
| | | EG103B | 2.27 | ERL240S | 2.19 | ESL263 | 2.15 |
| E | | EG103E | 2.27 | ERL263 | 2.18 | ESL263S | 2.17 |
| | | EG103V | 2.27 | ERL263S | 2.19 | ESL264 | 2.15 |
| ECN140D | 2.3 | EG170 | 2.27 | ERL418 | 2.21 | ESL425 | 2.16 |
| ECP140D | 2.3 | EG203 | 2.27 | ERL418S | 2.21 | ESL425S | 2.17 |
| ECP180D | 2.3 | EG203B | 2.27 | ERL425 | 2.18 | ESL426 | 2.16 |
| ECP180T | 2.3 | EG203E | 2.27 | ERL425S | 2.19 | ESL426S | 2.17 |
| ECP180T | 2.3 | EG210 | 2.27 | ESC001 | 2.22 | ESL427 | 2.16 |
| ECP300C | 2.5 | EG270 | 2.27 | ESC002 | 2.22 | ESL427S | 2.17 |
| ECP310D | 2.4 | EG293B | 2.27 | ESC003 | 2.22 | ESL428 | 2.16 |
| ECP380D | 2.4 | EG403E | 2.28 | ESC080 | 2.10, 2.22, 4.36 | ESL428S | 2.17 |
| ECR140D | 2.3 | EG470 | 2.28 | ESC125 | 2.15 | ESL440 | 2.16 |
| ECR180D | 2.3 | EG493E | 2.28 | ESC126 | 2.15 | ESL440S | 2.17 |
| ECR180T | 2.3 | EH010 | 2.26 | ESC225 | 2.15 | ESL463 | 2.16 |
| ECR300C | 2.5 | EH011 | 2.26 | ESC225S | 2.17 | ESL463S | 2.17 |
| ECR310D | 2.4 | EH071 | 2.26 | ESC226 | 2.15 | ESM225 | 2.15 |
| ECR380D | 2.4 | EH110 | 2.26 | ESC227 | 2.15 | ESM227 | 2.15 |
| EE002 | 2.12 | EH111 | 2.26 | ESC240 | 2.15, 2.18 | ESM440 | 2.16 |
| EE003 | 2.12 | EH171 | 2.26 | ESC240S | 2.17, 2.19 | ETC225 | 2.18 |
| EE110 | 2.12 | EH191 | 2.26 | ESC241 | 2.15 | ETC225S | 2.18 |
| EE171 | 2.12 | EH209 | 2.26 | ESC263 | 2.15 | ETC226 | 2.18 |
| EE180 | 2.12, 2.28 | EH210 | 2.26 | ESC263S | 2.17 | ETC227 | 2.18 |
| EE181 | 2.12, 2.28 | EH211 | 2.26 | ESC264 | 2.15 | ETC325 | 2.18 |
| EE200 | 2.12 | EH271 | 2.26 | ESC325 | 2.15 | ETC325S | 2.18 |
| EE201 | 2.12 | EH901 | 2.26 | ESC325S | 2.17 | ETC340 | 2.18 |
| EE202 | 2.12 | EH902 | 2.26 | ESC340 | 2.15 | ETC363 | 2.18 |
| EE203 | 2.12 | EMN001 | 2.29 | ESC340S | 2.17 | ETC425 | 2.18 |
| EE600 | 3.18 | EMN005 | 2.29 | ESC363 | 2.15 | ETC425S | 2.18 |
| EE610 | 3.18 | EN145 | 2.21 | ESC363S | 2.17 | ETC440 | 2.18 |
| EE701 | 2.12 | EN146 | 2.21 | ESC425 | 2.15 | ETC463 | 2.18 |
| EE702 | 2.12 | EPN050 | 2.20 | ESC425S | 2.17 | EV100 | 2.13 |
| EE804A | 3.17 | EPN051 | 2.20 | ESC426 | 2.16 | EV102 | 2.13 |
| EE805A | 3.17 | EPN510 | 2.20 | ESC426S | 2.17 | EV106 | 2.13 |
| EE806 | 3.9 | EPN513 | 2.20 | ESC427 | 2.16 | EV108 | 2.13 |
| EE807 | 3.7, 3.17 | EPN515 | 2.20 | ESC427S | 2.17 | EVN002 | 2.13 |
| EE808 | 3.7, 3.17 | EPN518 | 2.20 | ESC428 | 2.16 | EVN004 | 2.13 |
| EE810 | 3.8 | EPN519 | 2.20 | ESC428S | 2.17 | EVN011 | 2.13 |
| EE811 | 3.8 | EPN520 | 2.20 | ESC440 | 2.15 | EVN012 | 2.13 |
| EE812 | 3.8 | EPN521 | 2.20 | ESC440S | 2.17 | EZN001 | 2.29 |
| EE813 | 3.8 | EPN524 | 2.20 | ESC441 | 2.16 | EZN002 | 2.29 |
| EE815 | 3.8, 3.17 | EPN525 | 2.20 | ESC442 | 2.16 | EZN003 | 2.29 |
| EE816 | 3.8 | EPN528 | 2.20 | ESC443 | 2.16 | EZN004 | 2.29 |
| EE820 | 3.9 | EPN529 | 2.20 | ESC463 | 2.15 | EZN005 | 2.29 |
| EE821 | 3.9 | EPN540 | 2.20 | ESC463S | 2.17 | EZN006 | 2.29 |
| EE825 | 3.9 | EPN541 | 2.20 | ESC464 | 2.16 | | |
| EE826 | 3.9 | ERC125 | 2.18 | ESC465 | 2.16 | | |
| EE827 | 3.9 | ERC216 | 2.21 | ESC466 | 2.16 | F | |
| EE828 | 3.9 | ERC217 | 2.21 | ESD125 | 2.15 | F010 | 4.22 |
| EE830 | 3.9 | ERC218 | 2.21 | ESD225 | 2.15 | FC010 | 1.63 |
| EE831 | 3.9 | ERC225 | 2.18 | ESD225S | 2.17 | FC011 | 1.63 |
| EE840 | 3.9 | ERC225S | 2.19 | ESD226 | 2.15 | FC012 | 1.63 |
| EE841 | 3.9 | ERC226 | 2.18 | ESD227 | 2.15 | FC013 | 1.63 |
| EE850 | 3.9 | ERC263 | 2.18 | ESD240 | 2.15 | FC014 | 1.63 |
| EE851 | 3.9 | ERC316 | 2.21 | ESD240S | 2.17 | FC015 | 1.63 |
| EE855 | 3.9 | ERC325 | 2.18 | ESD241 | 2.15 | FC016 | 1.63 |
| EE856 | 3.9 | ERC325S | 2.19 | ESD263 | 2.15 | FC110 | 1.63 |
| EE860 | 3.9 | ERC416 | 2.21 | ESD263S | 2.17 | FC111 | 1.63 |
| EE861 | 3.9 | ERC418 | 2.21 | ESD264 | 2.15 | FC112 | 1.63 |
| EE870 | 3.9 | ERC425 | 2.18 | ESD325S | 2.17 | FC113 | 1.63 |
| EE871 | 3.9 | ERC425S | 2.19 | ESD425 | 2.15 | FC114 | 1.63 |
| EE880 | 3.8 | ERC426 | 2.18 | ESD425S | 2.17 | FC115 | 1.63 |
| EE883 | 3.8 | ERC427 | 2.18 | ESD426 | 2.16 | FC116 | 1.63 |
| EEK005 | 3.7, 3.17 | ERC428 | 2.18 | ESD426S | 2.17 | FC118 | 1.63 |
| EEK006 | 3.8 | ERD216 | 2.21 | ESD427 | 2.16 | FC119 | 1.63 |
| EEK513P | 3.7 | ERD217 | 2.21 | ESD427S | 2.17 | FC120 | 1.64 |
| EEK513W | 3.7, 3.17 | ERD218 | 2.21 | ESD428 | 2.16 | FC121 | 1.64 |
| EEK515P | 3.7 | ERD225 | 2.18 | ESD428S | 2.17 | FC122 | 1.64 |
| EEK520B | 3.7 | ERD240 | 2.18 | ESD440 | 2.15 | FC123 | 1.64 |
| EEK523P | 3.7 | ERD240S | 2.19 | ESD440S | 2.17 | FC124 | 1.64 |
| EEK525P | 3.7 | ERD263 | 2.18 | ESD463 | 2.15 | FC125 | 1.64 |
| EEN100 | 2.12 | | | | | | |

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|--------|-------|--------|-------|---------|-------|--------|-------|
| FC126 | 1.64 | FL123A | 1.100 | FL314A | 1.102 | FL405A | 1.101 |
| FC192 | 1.69 | FL124A | 1.100 | FL315A | 1.102 | FL405B | 1.105 |
| FC193 | 1.69 | FL125A | 1.100 | FL316A | 1.102 | FL406A | 1.101 |
| FC210 | 1.63 | FL126A | 1.100 | FL317A | 1.102 | FL406B | 1.105 |
| FC211 | 1.63 | FL127A | 1.100 | FL320B | 1.105 | FL407A | 1.101 |
| FC212 | 1.63 | FL128A | 1.100 | FL321B | 1.105 | FL407B | 1.105 |
| FC213 | 1.63 | FL129A | 1.100 | FL322A | 1.102 | FL408A | 1.101 |
| FC214 | 1.63 | FL130A | 1.100 | FL322B | 1.105 | FL409A | 1.101 |
| FC215 | 1.63 | FL151A | 1.107 | FL323A | 1.102 | FL410A | 1.101 |
| FC216 | 1.63 | FL152A | 1.100 | FL324A | 1.102 | FL410B | 1.105 |
| FC218 | 1.63 | FL153A | 1.101 | FL325A | 1.102 | FL411A | 1.101 |
| FC219 | 1.63 | FL154A | 1.100 | FL325B | 1.105 | FL411B | 1.105 |
| FC230 | 1.64 | FL155A | 1.100 | FL326A | 1.102 | FL412A | 1.101 |
| FC310 | 1.64 | FL156A | 1.101 | FL326B | 1.105 | FL412B | 1.105 |
| FC311 | 1.64 | FL157A | 1.101 | FL327A | 1.102 | FL413A | 1.101 |
| FC312 | 1.64 | FL158A | 1.101 | FL327B | 1.105 | FL414A | 1.101 |
| FC313 | 1.64 | FL159A | 1.100 | FL32S | 1.7 | FL415A | 1.101 |
| FC314 | 1.64 | FL160A | 1.100 | FL330B | 1.105 | FL416A | 1.101 |
| FC315 | 1.64 | FL161A | 1.100 | FL331B | 1.105 | FL417A | 1.101 |
| FC316 | 1.64 | FL162A | 1.100 | FL332B | 1.105 | FL418A | 1.101 |
| FC317 | 1.64 | FL163A | 1.101 | FL333A | 1.102 | FL419A | 1.101 |
| FC318 | 1.64 | FL164A | 1.101 | FL335A | 1.102 | FL422A | 1.101 |
| FC319 | 1.64 | FL165A | 1.101 | FL336A | 1.102 | FL423A | 1.101 |
| FC330 | 1.64 | FL166A | 1.101 | FL337A | 1.102 | FL424A | 1.101 |
| FC331 | 1.64 | FL167A | 1.100 | FL33S | 1.7 | FL425A | 1.101 |
| FC332 | 1.64 | FL168A | 1.100 | FL340B | 1.105 | FL426A | 1.101 |
| FC333 | 1.64 | FL169A | 1.100 | FL342B | 1.105 | FL427A | 1.101 |
| FC334 | 1.64 | FL170A | 1.100 | FL343A | 1.102 | FL428A | 1.101 |
| FC335 | 1.64 | FL171A | 1.100 | FL344B | 1.105 | FL429A | 1.101 |
| FC336 | 1.64 | FL172A | 1.100 | FL345A | 1.102 | FL430A | 1.101 |
| FC337 | 1.64 | FL173A | 1.100 | FL346A | 1.102 | FL431A | 1.101 |
| FC338 | 1.64 | FL174A | 1.100 | FL346B | 1.105 | FL432A | 1.101 |
| FC339 | 1.64 | FL175A | 1.100 | FL347A | 1.102 | FL433A | 1.101 |
| FC340 | 1.64 | FL176A | 1.100 | FL348B | 1.105 | FL450A | 1.117 |
| FC341 | 1.64 | FL177A | 1.100 | FL34S | 1.7 | FL461A | 1.113 |
| FC342 | 1.64 | FL178A | 1.100 | FL350B | 1.105 | FL462A | 1.113 |
| FC343 | 1.64 | FL179A | 1.100 | FL352B | 1.105 | FL463A | 1.113 |
| FC344 | 1.64 | FL180A | 1.100 | FL354B | 1.105 | FL465A | 1.113 |
| FC345 | 1.64 | FL204A | 1.103 | FL356B | 1.105 | FL466A | 1.114 |
| FC346 | 1.64 | FL204B | 1.103 | FL358B | 1.105 | FL467A | 1.114 |
| FC347 | 1.64 | FL209B | 1.103 | FL360B | 1.105 | FL468A | 1.114 |
| FC348 | 1.64 | FL210Z | 1.117 | FL361A | 1.115 | FL472A | 1.101 |
| FC349 | 1.64 | FL212Z | 1.82 | FL362A | 1.115 | FL473A | 1.101 |
| FC350 | 1.64 | FL213B | 1.103 | FL362B | 1.105 | FL474A | 1.101 |
| FC415 | 1.63 | FL214Z | 1.82 | FL363A | 1.115 | FL475A | 1.101 |
| FC416 | 1.63 | FL216B | 1.103 | FL364A | 1.115 | FL476A | 1.101 |
| FC419 | 1.69 | FL216Z | 1.117 | FL364B | 1.105 | FL477A | 1.101 |
| FC425 | 1.63 | FL220Z | 1.82 | FL365A | 1.115 | FL478A | 1.101 |
| FC426 | 1.63 | FL221B | 1.103 | FL366A | 1.115 | FL479A | 1.101 |
| FC429 | 1.69 | FL224Z | 1.82 | FL366B | 1.105 | FL480A | 1.101 |
| FC445 | 1.63 | FL226Z | 1.117 | FL367A | 1.115 | FL481A | 1.101 |
| FC446 | 1.63 | FL229B | 1.103 | FL368A | 1.115 | FL482A | 1.101 |
| FC455 | 1.63 | FL230Z | 1.117 | FL368B | 1.105 | FL483A | 1.101 |
| FC456 | 1.63 | FL234Z | 1.117 | FL369A | 1.115 | FL492A | 1.117 |
| FC620 | 1.76 | FL236Z | 1.117 | FL371A | 1.115 | FL493A | 1.117 |
| FC664 | 1.69 | FL252Z | 1.117 | FL372A | 1.115 | FL494A | 1.117 |
| FC671 | 1.69 | FL253Z | 1.117 | FL373A | 1.115 | FL495A | 1.117 |
| FL000A | 1.102 | FL254B | 1.103 | FL374A | 1.115 | FL496A | 1.117 |
| FL101A | 1.101 | FL254Z | 1.117 | FL380AH | 1.115 | FL500A | 1.102 |
| FL102A | 1.100 | FL255Z | 1.117 | FL380B | 1.110 | FL500B | 1.105 |
| FL103A | 1.101 | FL256Z | 1.117 | FL381AH | 1.115 | FL500E | 1.106 |
| FL104A | 1.100 | FL258Z | 1.117 | FL381B | 1.110 | FL501A | 1.102 |
| FL105A | 1.100 | FL259B | 1.103 | FL382B | 1.110 | FL501B | 1.105 |
| FL106A | 1.101 | FL259Z | 1.117 | FL385B | 1.110 | FL501E | 1.111 |
| FL107A | 1.101 | FL263B | 1.103 | FL386B | 1.110 | FL502A | 1.102 |
| FL108A | 1.101 | FL266B | 1.103 | FL387B | 1.110 | FL502B | 1.105 |
| FL109A | 1.100 | FL271B | 1.103 | FL390B | 1.110 | FL502E | 1.111 |
| FL110A | 1.100 | FL279B | 1.103 | FL391AH | 1.115 | FL503A | 1.102 |
| FL111A | 1.100 | FL300B | 1.105 | FL391B | 1.110 | FL503E | 1.106 |
| FL112A | 1.100 | FL301B | 1.105 | FL392AH | 1.115 | FL505B | 1.105 |
| FL113A | 1.101 | FL302B | 1.105 | FL392B | 1.110 | FL506B | 1.105 |
| FL114A | 1.101 | FL305B | 1.105 | FL393AH | 1.115 | FL507B | 1.105 |
| FL115A | 1.101 | FL306B | 1.105 | FL399AH | 1.115 | FL510B | 1.105 |
| FL116A | 1.101 | FL307B | 1.105 | FL400B | 1.105 | FL510E | 1.105 |
| FL117A | 1.100 | FL310B | 1.105 | FL401A | 1.101 | FL511B | 1.105 |
| FL118A | 1.100 | FL311A | 1.102 | FL401B | 1.105 | FL511E | 1.105 |
| FL119A | 1.100 | FL311B | 1.105 | FL402A | 1.101 | FL512B | 1.105 |
| FL120A | 1.100 | FL312A | 1.102 | FL402B | 1.105 | FL512E | 1.105 |
| FL121A | 1.100 | FL312B | 1.105 | FL403A | 1.101 | FL520B | 1.105 |
| FL122A | 1.100 | FL313A | 1.102 | FL404A | 1.101 | FL520E | 1.105 |

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|--------|-------|--------|-------|--------|------|---------|------|
| FL521B | 1.105 | FL71Z | 1.117 | FM318 | 1.73 | FN091E | 1.77 |
| FL521E | 1.105 | FL722E | 1.102 | FM319 | 1.73 | FN092E | 1.77 |
| FL522B | 1.105 | FL723E | 1.102 | FM400 | 1.74 | FN093E | 1.77 |
| FL522E | 1.105 | FL724E | 1.102 | FM401 | 1.74 | FN097E | 1.77 |
| FL525B | 1.105 | FL725E | 1.102 | FM402 | 1.74 | FN098E | 1.77 |
| FL526B | 1.105 | FL72S | 1.7 | FM403 | 1.74 | FN100E | 1.77 |
| FL527B | 1.105 | FL733E | 1.102 | FM404 | 1.74 | FN101E | 1.77 |
| FL52S | 1.7 | FL734E | 1.102 | FM405 | 1.74 | FN102E | 1.77 |
| FL530B | 1.105 | FL735E | 1.102 | FM406 | 1.74 | FN103E | 1.77 |
| FL530E | 1.105 | FL73S | 1.7 | FM407 | 1.74 | FN104E | 1.77 |
| FL531B | 1.105 | FL74S | 1.7 | FM408 | 1.74 | FN109E | 1.77 |
| FL531E | 1.105 | FL74Z | 1.111 | FM409 | 1.74 | FN111E | 1.77 |
| FL532B | 1.105 | FL75Z | 1.111 | FM417 | 1.74 | FN112E | 1.77 |
| FL532E | 1.105 | FL76Z | 1.111 | FM418 | 1.74 | FN117E | 1.77 |
| FL53S | 1.7 | FL77Z | 1.111 | FM419 | 1.74 | FN121E | 1.77 |
| FL541A | 1.101 | FL80Z | 1.108 | FM427 | 1.74 | FN206E | 1.78 |
| FL541E | 1.112 | FL81Z | 1.109 | FM428 | 1.74 | FN207E | 1.78 |
| FL542A | 1.101 | FL82Z | 1.108 | FM429 | 1.74 | FN216E | 1.78 |
| FL542E | 1.112 | FL85Z | 1.108 | FM437 | 1.74 | FN217E | 1.78 |
| FL543A | 1.101 | FL863Z | 1.39 | FM438 | 1.74 | FN246E | 1.78 |
| FL544A | 1.101 | FL871Z | 1.117 | FM439 | 1.74 | FN247E | 1.78 |
| FL545A | 1.101 | FL874A | 1.108 | FM450 | 1.73 | FN266E | 1.78 |
| FL546A | 1.101 | FL93Z | 1.108 | FM484 | 1.74 | FN267E | 1.78 |
| FL547A | 1.101 | FL94Z | 1.109 | FM486 | 1.74 | FN276E | 1.78 |
| FL548A | 1.101 | FL957A | 1.101 | FM517 | 1.75 | FN277E | 1.78 |
| FL549A | 1.101 | FL958A | 1.101 | FM518 | 1.75 | FN286E | 1.77 |
| FL54S | 1.7 | FL959A | 1.101 | FM519 | 1.75 | FN287E | 1.77 |
| FL550A | 1.101 | FL95Z | 1.108 | FM530 | 1.75 | FN289E | 1.77 |
| FL550E | 1.105 | FL960A | 1.101 | FM531 | 1.75 | FN291E | 1.77 |
| FL551A | 1.101 | FL961A | 1.101 | FM532 | 1.75 | FN292E | 1.77 |
| FL551E | 1.105 | FL962A | 1.101 | FM533 | 1.75 | FN296E | 1.78 |
| FL552A | 1.101 | FL96Z | 1.108 | FM534 | 1.75 | FN297E | 1.78 |
| FL552E | 1.105 | FL979A | 1.100 | FM535 | 1.75 | FN356E | 1.78 |
| FL553A | 1.101 | FL97Z | 1.109 | FM536 | 1.75 | FN357E | 1.78 |
| FL554A | 1.101 | FL980A | 1.103 | FM537 | 1.75 | FN366E | 1.78 |
| FL555A | 1.101 | FL981A | 1.100 | FM538 | 1.75 | FN367E | 1.78 |
| FL556A | 1.101 | FL982A | 1.100 | FM539 | 1.75 | FN376E | 1.78 |
| FL557A | 1.101 | FL983A | 1.100 | FM540 | 1.75 | FN377E | 1.78 |
| FL558A | 1.101 | FL98Z | 1.111 | FM541 | 1.75 | FN406E | 1.78 |
| FL559A | 1.101 | FL990A | 1.102 | FM542 | 1.75 | FN407E | 1.78 |
| FL560E | 1.105 | FL990B | 1.106 | FM543 | 1.75 | FN426E | 1.78 |
| FL561E | 1.105 | FL990C | 1.114 | FM544 | 1.75 | FN427E | 1.78 |
| FL562E | 1.105 | FL991A | 1.102 | FM545 | 1.75 | FN430E | 1.81 |
| FL570E | 1.105 | FL991B | 1.106 | FM546 | 1.75 | FN433E | 1.78 |
| FL571E | 1.105 | FL992A | 1.102 | FM547 | 1.75 | FN437E | 1.78 |
| FL572E | 1.105 | FL992B | 1.106 | FM548 | 1.75 | FN438E | 1.78 |
| FL580E | 1.113 | FL993A | 1.102 | FM549 | 1.75 | FN440E | 1.78 |
| FL581E | 1.113 | FL993B | 1.106 | FM557 | 1.75 | FN441E | 1.78 |
| FL582E | 1.113 | FL994A | 1.102 | FM558 | 1.75 | FN442E | 1.78 |
| FL590E | 1.106 | FL994B | 1.106 | FM559 | 1.75 | FN443E | 1.78 |
| FL591E | 1.106 | FL995A | 1.102 | FM567 | 1.75 | FN444E | 1.78 |
| FL592E | 1.106 | FL995B | 1.106 | FM568 | 1.75 | FN451E | 1.78 |
| FL600E | 1.106 | FL996A | 1.102 | FM569 | 1.75 | FN453E | 1.78 |
| FL601E | 1.106 | FL997A | 1.102 | FM630 | 1.74 | FN454E | 1.78 |
| FL602E | 1.106 | FL998A | 1.102 | FM635 | 1.74 | FN459E | 1.78 |
| FL610E | 1.106 | FL999A | 1.102 | FM640 | 1.68 | FN506E | 1.77 |
| FL620E | 1.106 | FL99Z | 1.109 | FM653 | 1.76 | FN507E | 1.77 |
| FL630A | 1.106 | FM107 | 1.73 | FN013E | 1.77 | FN510E | 1.80 |
| FL630E | 1.116 | FM108 | 1.73 | FN017E | 1.77 | FN511E | 1.80 |
| FL640E | 1.106 | FM109 | 1.73 | FN018E | 1.77 | FN516 | 1.78 |
| FL643A | 1.101 | FM117 | 1.73 | FN020E | 1.77 | FN516E | 1.78 |
| FL644A | 1.101 | FM118 | 1.73 | FN021E | 1.77 | FN517E | 1.78 |
| FL645A | 1.101 | FM119 | 1.73 | FN022E | 1.77 | FN526E | 1.77 |
| FL646A | 1.103 | FM200 | 1.73 | FN023E | 1.77 | FN527E | 1.77 |
| FL647A | 1.103 | FM201 | 1.73 | FN024E | 1.77 | FN536E | 1.78 |
| FL649A | 1.101 | FM202 | 1.73 | FN029E | 1.77 | FN537E | 1.78 |
| FL670A | 1.108 | FM203 | 1.73 | FN031E | 1.77 | FN546E | 1.77 |
| FL672E | 1.114 | FM204 | 1.73 | FN032E | 1.77 | FN547E | 1.77 |
| FL672Z | 1.117 | FM205 | 1.73 | FN037E | 1.77 | FN690E | 1.82 |
| FL702E | 1.102 | FM206 | 1.73 | FN046E | 1.77 | FN691E | 1.82 |
| FL703E | 1.102 | FM207 | 1.73 | FN047E | 1.77 | FN692E | 1.82 |
| FL704E | 1.102 | FM208 | 1.73 | FN073E | 1.77 | FN696E | 1.78 |
| FL705E | 1.102 | FM209 | 1.73 | FN077E | 1.77 | FN696EP | 1.79 |
| FL70Z | 1.117 | FM217 | 1.73 | FN078E | 1.77 | FN697E | 1.78 |
| FL710E | 1.106 | FM218 | 1.73 | FN080E | 1.77 | FN697EP | 1.79 |
| FL711E | 1.102 | FM219 | 1.73 | FN081E | 1.77 | FN700E | 1.78 |
| FL712E | 1.102 | FM307 | 1.73 | FN082E | 1.77 | FN701E | 1.78 |
| FL713E | 1.102 | FM308 | 1.73 | FN083E | 1.77 | FN706E | 1.78 |
| FL714E | 1.102 | FM309 | 1.73 | FN084E | 1.77 | FN711E | 1.78 |
| FL715E | 1.102 | FM317 | 1.73 | FN089E | 1.77 | FN726E | 1.78 |

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|---------|------|---------|-----|---------|------|---------|------------|
| FN727E | 1.78 | FP92TN2 | 1.4 | FR34E | 1.25 | FWU31S | 4.28 |
| FN736E | 1.78 | FP93TN2 | 1.4 | FR34E | 1.5 | FWU32S | 4.28 |
| FN737E | 1.78 | FP94TN2 | 1.4 | FR35E | 1.5 | FWU33S | 4.28 |
| FN746E | 1.78 | FP95TN2 | 1.4 | FR41E | 1.5 | FWU41S | 4.28 |
| FN747E | 1.78 | FR011R | 1.9 | FR42E | 1.5 | FWU42S | 4.28 |
| FN862E | 1.82 | FR012R | 1.9 | FR43E | 1.5 | FWU43S | 4.28 |
| FN863E | 1.82 | FR013R | 1.9 | FR44E | 1.5 | FWU51S | 4.28 |
| FN864E | 1.82 | FR014R | 1.9 | FR45E | 1.5 | FWU52S | 4.28 |
| FN865E | 1.82 | FR015R | 1.9 | FR51E | 1.5 | FWU53S | 4.28 |
| FN866E | 1.82 | FR01E | 1.5 | FR52E | 1.5 | FWU61S | 4.28 |
| FN867E | 1.82 | FR021R | 1.9 | FR53E | 1.5 | FWU62S | 4.28 |
| FN873E | 1.82 | FR022R | 1.9 | FR54E | 1.5 | FWU63S | 4.28 |
| FN875E | 1.82 | FR023R | 1.9 | FR55E | 1.5 | FWU71S | 4.28 |
| FN877E | 1.82 | FR024R | 1.9 | FR61E | 1.5 | FWU72S | 4.28 |
| FN879E | 1.82 | FR025R | 1.9 | FR62E | 1.5 | FWU73S | 4.28 |
| FN882E | 1.82 | FR02E | 1.5 | FR63E | 1.5 | FZ001N | 1.20, 4.24 |
| FN883E | 1.82 | FR03E | 1.5 | FR64E | 1.5 | FZ001R | 1.52 |
| FN884E | 1.82 | FR04E | 1.5 | FR65E | 1.5 | FZ002N | 1.20, 4.24 |
| FN885E | 1.82 | FR05E | 1.5 | FR71E | 1.5 | FZ002R | 1.52 |
| FN886E | 1.82 | FR11E1 | 1.8 | FR72E | 1.5 | FZ003N | 1.20 |
| FN887E | 1.82 | FR11E2 | 1.8 | FR73E | 1.5 | FZ003R | 1.52 |
| FN891E | 1.79 | FR12E1 | 1.8 | FR74E | 1.5 | FZ004N | 1.20 |
| FN892E | 1.79 | FR12E2 | 1.8 | FR75E | 1.5 | FZ004R | 1.52 |
| FN893E | 1.79 | FR13E1 | 1.8 | FR81E | 1.5 | FZ005N | 1.20, 4.24 |
| FN894E | 1.79 | FR13E2 | 1.8 | FR82E | 1.5 | FZ005R | 1.52 |
| FN895E | 1.79 | FR14E1 | 1.8 | FR83E | 1.5 | FZ006N | 1.20, 4.24 |
| FN896E | 1.79 | FR14E2 | 1.8 | FR84E | 1.5 | FZ006NV | 4.24 |
| FN896EP | 1.79 | FR15E1 | 1.8 | FR85E | 1.5 | FZ007N | 1.20 |
| FN897E | 1.79 | FR15E2 | 1.8 | FR91E | 1.5 | FZ008N | 1.20 |
| FN897EP | 1.79 | FR21E1 | 1.8 | FR92E | 1.5 | FZ009N | 1.20, 4.24 |
| FN942E | 1.81 | FR21E2 | 1.8 | FR92G | 1.5 | FZ009NV | 4.24 |
| FN943E | 1.83 | FR21G1 | 1.8 | FR93E | 1.5 | FZ010N | 1.20, 4.24 |
| FN944E | 1.83 | FR21G2 | 1.8 | FR93G | 1.5 | FZ010NV | 4.24 |
| FN950 | 1.81 | FR21K1 | 1.8 | FR94E | 1.5 | FZ011B | 1.4, 4.24 |
| FN951 | 1.81 | FR21K2 | 1.8 | FR94G | 1.5 | FZ011N | 1.20 |
| FN952 | 1.81 | FR21V1 | 1.8 | FR95E | 1.5 | FZ011R | 1.6 |
| FN970E | 1.83 | FR21V2 | 1.8 | FW312FD | 4.20 | FZ012B | 1.4, 4.24 |
| FN971E | 1.83 | FR22E1 | 1.8 | FW312WT | 4.19 | FZ012N | 1.20 |
| FN972E | 1.83 | FR22E2 | 1.8 | FW324FD | 4.20 | FZ012R | 1.6 |
| FP01TN2 | 1.4 | FR22G1 | 1.8 | FW324WT | 4.19 | FZ013B | 1.4, 4.24 |
| FP02TN2 | 1.4 | FR22G2 | 1.8 | FW412FD | 4.20 | FZ013N | 1.16, 4.24 |
| FP03TN2 | 1.4 | FR22K1 | 1.8 | FW412WT | 4.19 | FZ013R | 1.6 |
| FP04TN2 | 1.4 | FR22K2 | 1.8 | FW424FD | 4.20 | FZ014B | 1.4, 4.24 |
| FP05TN2 | 1.4 | FR22V1 | 1.8 | FW424WT | 4.19 | FZ014N | 1.20, 4.24 |
| FP11TN2 | 1.4 | FR22V2 | 1.8 | FW436FD | 4.20 | FZ014NV | 4.24 |
| FP12TN2 | 1.4 | FR23E1 | 1.8 | FW436WT | 4.19 | FZ014R | 1.6 |
| FP13TN2 | 1.4 | FR23E2 | 1.8 | FW512FD | 4.20 | FZ015B | 1.4 |
| FP14TN2 | 1.4 | FR23G1 | 1.8 | FW512WT | 4.19 | FZ015N | 1.16 |
| FP15TN2 | 1.4 | FR23G2 | 1.8 | FW524FD | 4.20 | FZ015R | 1.6 |
| FP31TN2 | 1.4 | FR23K1 | 1.8 | FW524WT | 4.19 | FZ016N | 1.20 |
| FP32TN2 | 1.4 | FR23K2 | 1.8 | FW536FD | 4.20 | FZ017N | 1.20 |
| FP33TN2 | 1.4 | FR23V1 | 1.8 | FW536WT | 4.19 | FZ018N | 1.20 |
| FP34TN2 | 1.4 | FR23V2 | 1.8 | FW612FD | 4.20 | FZ019N | 1.20 |
| FP35TN2 | 1.4 | FR24E1 | 1.8 | FW612WT | 4.19 | FZ020N | 1.20 |
| FP41TN2 | 1.4 | FR24E2 | 1.8 | FW624FD | 4.20 | FZ021B | 1.4, 4.24 |
| FP42TN2 | 1.4 | FR24G1 | 1.8 | FW624WT | 4.19 | FZ021N | 1.16, 4.24 |
| FP43TN2 | 1.4 | FR24G2 | 1.8 | FW636FD | 4.20 | FZ021NV | 4.24 |
| FP44TN2 | 1.4 | FR24K1 | 1.8 | FW636WT | 4.19 | FZ021R | 1.52 |
| FP45TN2 | 1.4 | FR24K2 | 1.8 | FW736FD | 4.20 | FZ022B | 1.4, 4.24 |
| FP51TN2 | 1.4 | FR24V1 | 1.8 | FW736WT | 4.19 | FZ022N | 1.20, 4.24 |
| FP52TN2 | 1.4 | FR24V2 | 1.8 | FWB31 | 4.21 | FZ022NV | 4.24 |
| FP53TN2 | 1.4 | FR25E1 | 1.8 | FWB32 | 4.21 | FZ022R | 1.52 |
| FP54TN2 | 1.4 | FR25E2 | 1.8 | FWB33 | 4.21 | FZ023B | 1.4, 4.24 |
| FP55TN2 | 1.4 | FR25G1 | 1.8 | FWB34 | 4.21 | FZ023N | 1.16 |
| FP61TN2 | 1.4 | FR25G2 | 1.8 | FWB41 | 4.21 | FZ023R | 1.52 |
| FP62TN2 | 1.4 | FR25K1 | 1.8 | FWB42 | 4.21 | FZ024B | 1.4, 4.24 |
| FP63TN2 | 1.4 | FR25K2 | 1.8 | FWB43 | 4.21 | FZ024N | 1.20 |
| FP64TN2 | 1.4 | FR25V1 | 1.8 | FWB44 | 4.21 | FZ024R | 1.52 |
| FP65TN2 | 1.4 | FR25V2 | 1.8 | FWB51 | 4.21 | FZ025B | 1.4 |
| FP71TN2 | 1.4 | FR26E1 | 1.8 | FWB52 | 4.21 | FZ025N | 1.20 |
| FP72TN2 | 1.4 | FR26E2 | 1.8 | FWB53 | 4.21 | FZ025R | 1.52 |
| FP73TN2 | 1.4 | FR26G1 | 1.8 | FWB54 | 4.21 | FZ026N | 1.16 |
| FP74TN2 | 1.4 | FR26G2 | 1.8 | FWB61 | 4.21 | FZ027N | 1.20 |
| FP75TN2 | 1.4 | FR26K1 | 1.8 | FWB62 | 4.21 | FZ028N | 1.16 |
| FP81TN2 | 1.4 | FR26K2 | 1.8 | FWB63 | 4.21 | FZ029N | 1.20 |
| FP82TN2 | 1.4 | FR26V1 | 1.8 | FWB64 | 4.21 | FZ030N | 1.20 |
| FP83TN2 | 1.4 | FR26V2 | 1.8 | FWB71 | 4.21 | FZ031N | 1.16 |
| FP84TN2 | 1.4 | FR31E | 1.5 | FWB72 | 4.21 | FZ031R | 1.6 |
| FP85TN2 | 1.4 | FR32E | 1.5 | FWB73 | 4.21 | FZ032N | 1.20 |
| FP91TN2 | 1.4 | FR33E | 1.5 | FWB74 | 4.21 | FZ032R | 1.6 |

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|--------|------------|--------|------------|--------|------------|---------|------------|
| FZ033N | 1.16 | FZ355 | 1.13 | FZ453N | 1.13 | FZ739C | 1.34 |
| FZ033R | 1.6 | FZ35B | 1.4 | FZ454 | 1.13 | FZ757A4 | 1.31 |
| FZ034N | 1.20 | FZ360 | 1.22 | FZ455N | 1.13 | FZ757A5 | 1.31 |
| FZ034R | 1.6 | FZ361 | 1.22 | FZ456 | 1.13 | FZ757M | 1.31 |
| FZ035N | 1.20 | FZ362 | 1.22 | FZ457 | 1.13 | FZ760E | 1.81 |
| FZ035R | 1.6 | FZ363N | 1.22 | FZ45B | 1.4 | FZ767 | 1.81 |
| FZ041R | 1.6 | FZ364 | 1.22 | FZ460N | 1.21 | FZ771A | 1.29 |
| FZ042R | 1.6 | FZ365N | 1.22 | FZ466N | 1.21 | FZ772A | 1.29 |
| FZ043R | 1.6 | FZ366 | 1.22 | FZ468N | 1.21 | FZ773A | 1.29 |
| FZ044R | 1.6 | FZ367 | 1.22 | FZ501N | 1.15 | FZ774A | 1.29 |
| FZ045R | 1.6 | FZ368 | 1.22 | FZ502 | 1.38 | FZ775A | 1.29 |
| FZ051R | 1.6 | FZ369 | 1.22 | FZ502N | 1.15 | FZ776A | 1.29 |
| FZ052R | 1.6 | FZ36H | 4.20 | FZ503 | 1.38 | FZ7801 | 1.34 |
| FZ053R | 1.6 | FZ370 | 1.22 | FZ503N | 1.15 | FZ7811 | 1.34 |
| FZ054R | 1.6 | FZ371 | 1.22 | FZ504N | 1.15 | FZ7821 | 1.34 |
| FZ055R | 1.6 | FZ372 | 1.22 | FZ506 | 1.28 | FZ791N | 1.18, 4.23 |
| FZ061R | 1.6 | FZ373 | 1.22 | FZ508 | 1.75 | FZ792N | 1.18 |
| FZ062R | 1.6 | FZ374 | 1.22 | FZ515 | 1.75 | FZ794 | 1.18, 4.23 |
| FZ063R | 1.6 | FZ375 | 1.23 | FZ516 | 1.75 | FZ795 | 1.68 |
| FZ064R | 1.6 | FZ380 | 1.23 | FZ517 | 1.75 | FZ797A | 1.34 |
| FZ065R | 1.6 | FZ401 | 1.19, 4.25 | FZ518N | 1.14 | FZ799N | 1.19, 4.23 |
| FZ071R | 1.6 | FZ402 | 1.32 | FZ519 | 1.28 | FZ800A | 1.31 |
| FZ072R | 1.6 | FZ403 | 1.69, 4.23 | FZ51B | 1.4 | FZ800B | 1.31 |
| FZ073R | 1.6 | FZ404 | 1.32 | FZ520 | 1.28 | FZ800C | 1.31 |
| FZ074R | 1.6 | FZ406M | 1.32 | FZ52B | 1.4 | FZ800D | 1.31 |
| FZ075R | 1.6 | FZ407M | 1.32 | FZ530 | 1.28 | FZ800E | 1.31 |
| FZ081R | 1.6 | FZ408M | 1.32 | FZ530N | 1.14 | FZ800F | 1.31 |
| FZ082R | 1.6 | FZ409M | 1.33 | FZ531 | 1.28 | FZ801 | 1.39 |
| FZ083R | 1.6 | FZ410M | 1.33 | FZ531N | 1.14 | FZ801A | 1.34 |
| FZ084R | 1.6 | FZ411M | 1.33 | FZ532 | 1.28 | FZ801B | 1.34 |
| FZ085R | 1.6 | FZ412M | 1.33 | FZ532N | 1.14 | FZ803B | 1.19, 4.23 |
| FZ091R | 1.6 | FZ413M | 1.32 | FZ533 | 1.28 | FZ818 | 1.31 |
| FZ092R | 1.6 | FZ415E | 1.32 | FZ533N | 1.14 | FZ821N | 1.14, 4.23 |
| FZ093R | 1.6 | FZ415N | 1.48 | FZ534 | 1.38 | FZ822N | 1.14, 4.23 |
| FZ094R | 1.6 | FZ415S | 1.32 | FZ534N | 1.14 | FZ823N | 1.14, 4.23 |
| FZ095R | 1.6 | FZ417 | 1.33 | FZ535 | 1.38 | FZ824N | 1.14, 4.23 |
| FZ102N | 1.16, 4.25 | FZ41B | 1.4 | FZ535N | 1.14 | FZ829 | 1.35 |
| FZ105N | 4.25 | FZ420 | 1.22 | FZ537 | 1.28 | FZ831 | 1.35 |
| FZ106N | 1.16, 4.25 | FZ421A | 1.33 | FZ539 | 1.14 | FZ833N | 1.14 |
| FZ107N | 4.25 | FZ422 | 1.32 | FZ53B | 1.4 | FZ834N | 1.14 |
| FZ108N | 4.25 | FZ424N | 1.21 | FZ548N | 1.15 | FZ835N | 1.14 |
| FZ110N | 1.16, 4.25 | FZ425 | 1.21, 4.25 | FZ54B | 1.4 | FZ836N | 1.14 |
| FZ11B | 1.4, 4.24 | FZ426 | 1.21 | FZ55B | 1.4 | FZ837N | 1.14 |
| FZ12B | 1.4, 4.24 | FZ427L | 1.21 | FZ596 | 1.13 | FZ838N | 1.14 |
| FZ12H | 4.20 | FZ427R | 1.21 | FZ597 | 1.68, 4.20 | FZ839N | 1.14 |
| FZ13B | 1.4, 4.24 | FZ428 | 1.19, 4.25 | FZ597N | 1.13, 4.23 | FZ8441 | 1.34 |
| FZ14B | 1.4, 4.24 | FZ42B | 1.4 | FZ598N | 1.13, 4.25 | FZ8451 | 1.34 |
| FZ15B | 1.4 | FZ435A | 1.33 | FZ631A | 1.50 | FZ8461 | 1.34 |
| FZ164N | 1.16 | FZ43B | 1.4 | FZ632A | 1.50 | FZ850 | 1.75 |
| FZ191N | 1.16 | FZ441 | 1.13 | FZ633A | 1.50 | FZ850M | 1.21 |
| FZ192N | 1.16 | FZ441B | 1.15 | FZ634A | 1.50 | FZ850S | 1.18 |
| FZ193N | 1.16 | FZ441N | 1.13 | FZ635A | 1.50 | FZ851 | 1.34 |
| FZ194N | 1.16 | FZ441S | 1.15 | FZ636A | 1.50 | FZ890N | 1.19, 4.23 |
| FZ199N | 1.20 | FZ442 | 1.13 | FZ641A | 1.50 | | |
| FZ200N | 1.20 | FZ442B | 1.15 | FZ642A | 1.50 | | |
| FZ201N | 1.20 | FZ442N | 1.13 | FZ643A | 1.50 | | |
| FZ202N | 1.20 | FZ442S | 1.15 | FZ644A | 1.50 | GD102N | 4.13 |
| FZ203N | 1.20 | FZ443 | 1.13 | FZ645A | 1.50 | GD104N | 4.13 |
| FZ204N | 1.20 | FZ443B | 1.15 | FZ646A | 1.50 | GD106N | 4.13 |
| FZ205N | 1.20 | FZ443N | 1.13 | FZ651A | 1.50 | GD108N | 4.13 |
| FZ206N | 1.20 | FZ443S | 1.15 | FZ652A | 1.50 | GD110N | 4.13 |
| FZ21B | 1.4, 4.24 | FZ444 | 1.13 | FZ653A | 1.50 | GD113H | 4.11 |
| FZ226 | 1.14, 4.23 | FZ444B | 1.15 | FZ654A | 1.50 | GD118A | 4.12 |
| FZ226N | 1.20 | FZ444N | 1.13 | FZ655A | 1.50 | GD213H | 4.11 |
| FZ227N | 1.20 | FZ444S | 1.15 | FZ656A | 1.50 | GD218A | 4.12 |
| FZ22B | 1.4, 4.24 | FZ445 | 1.13 | FZ661A | 1.50 | GD313H | 4.11 |
| FZ230A | 1.36 | FZ445B | 1.15 | FZ662A | 1.50 | GD318A | 4.12 |
| FZ230B | 1.36 | FZ445N | 1.13 | FZ663A | 1.50 | GD413H | 4.11 |
| FZ23B | 1.4, 4.24 | FZ448 | 1.32 | FZ664A | 1.50 | GD418A | 4.12 |
| FZ24B | 1.4, 4.24 | FZ449 | 1.68 | FZ665A | 1.50 | GP102P | 4.13 |
| FZ24H | 4.20 | FZ449N | 1.13 | FZ666A | 1.50 | GP102T | 4.13 |
| FZ25B | 1.4 | FZ44B | 1.4 | FZ680 | 1.111 | GP104P | 4.13 |
| FZ31B | 1.4, 4.24 | FZ44N | 1.13 | FZ707 | 1.18, 4.23 | GP104T | 4.13 |
| FZ32B | 1.4, 4.24 | FZ450 | 1.68 | FZ714 | 1.15 | GP106P | 4.13 |
| FZ33B | 1.4, 4.24 | FZ450N | 1.13 | FZ721A | 1.28 | GP106T | 4.13 |
| FZ34B | 1.4, 4.24 | FZ451 | 1.68 | FZ721B | 1.28 | GP108P | 4.13 |
| FZ351 | 1.13 | FZ451N | 1.13 | FZ737B | 1.15 | GP108T | 4.13 |
| FZ352 | 1.13 | FZ452 | 1.68 | FZ738 | 1.15 | GP110P | 4.13 |
| FZ353 | 1.13 | FZ452N | 1.13 | FZ739A | 1.34 | GP110T | 4.13 |
| FZ354 | 1.13 | FZ453 | 1.68 | FZ739B | 1.34 | GP113P | 4.11, 4.5 |

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|--------|-----------------|------------|-------|---------|-------|---------|-------|
| GP113T | 4.11, 4.5 | HAE312 | 1.181 | HED251H | 1.170 | HIC406A | 1.187 |
| GP118P | 4.12 | HAE316 | 1.181 | HED400H | 1.170 | HIC408A | 1.187 |
| GP118T | 4.12 | HAE410 | 1.181 | HED401H | 1.170 | HIC410A | 1.187 |
| GP213P | 4.11, 4.5 | HAE412 | 1.181 | HED630H | 1.170 | HIC412A | 1.187 |
| GP213T | 4.11, 4.5 | HAE416 | 1.181 | HED631H | 1.170 | HIC412E | 1.188 |
| GP218P | 4.12 | HAL70 | 5.46 | HEE800H | 1.173 | HIC412G | 1.188 |
| GP218T | 4.12 | HAL72 | 5.46 | HEE801H | 1.173 | HIC416A | 1.187 |
| GP313P | 4.11, 4.5 | HBA125H | 1.161 | HEE970H | 1.173 | HIC416E | 1.188 |
| GP313T | 4.11, 4.5 | HBA126H | 1.161 | HEE971H | 1.173 | HIC416G | 1.188 |
| GP318P | 4.12 | HBA127H | 1.161 | HEF980H | 1.176 | HIC420E | 1.188 |
| GP318T | 4.12 | HBA128H | 1.161 | HEF981H | 1.176 | HIC420G | 1.188 |
| GP413P | 4.11 | HBA160H | 1.161 | HEF990H | 1.176 | HIC425G | 1.188 |
| GP413T | 4.11 | HBA161H | 1.161 | HEF991H | 1.176 | HIC440E | 1.188 |
| GP418P | 4.12 | HBB161H | 1.164 | HFD306 | 1.183 | HIC440G | 1.188 |
| GP418T | 4.12 | HBB251H | 1.164 | HFD312 | 1.183 | HIC463E | 1.188 |
| GS113D | 4.11, 4.5 | HBD401H | 1.170 | HFD316 | 1.183 | HIC463G | 1.188 |
| GS118D | 4.12 | HBD631H | 1.170 | HFD325 | 1.183 | HIC480E | 1.188 |
| GS213D | 4.11, 4.5 | HCA125H | 1.161 | HFD340 | 1.183 | HIC480G | 1.188 |
| GS218D | 4.12 | HCA126H | 1.161 | HFD363 | 1.183 | HIC490E | 1.188 |
| GS313D | 4.11, 4.5 | HCA160H | 1.161 | HFD406 | 1.183 | HIC490G | 1.188 |
| GS318D | 4.12 | HCA161H | 1.161 | HFD412 | 1.183 | HIC491E | 1.188 |
| GS413D | 4.11 | HCB250H | 1.164 | HFD416 | 1.183 | HIC491G | 1.188 |
| GS418D | 4.12 | HCB251H | 1.164 | HFD425 | 1.183 | HIC492E | 1.188 |
| GZ04E | 4.13 | HCD400H | 1.170 | HFD440 | 1.183 | HIC492G | 1.188 |
| GZ04N | 4.13 | HCD401H | 1.170 | HFD463 | 1.183 | HIC493E | 1.188 |
| GZ07E | 4.13 | HCD630H | 1.170 | HHA014Z | 1.130 | HIC493G | 1.188 |
| GZ07N | 4.13 | HCD631H | 1.170 | HHA018Z | 1.130 | HIC494E | 1.188 |
| GZ104S | 4.13 | HCE800H | 1.173 | HHA023Z | 1.130 | HIC494G | 1.188 |
| GZ106S | 4.13 | HCE801H | 1.173 | HHA025H | 1.160 | HIC495E | 1.188 |
| GZ108S | 4.13 | HCE970H | 1.173 | HHA025U | 1.130 | HIC495G | 1.188 |
| GZ110S | 4.13 | HCE971H | 1.173 | HHA026H | 1.160 | HIM302 | 1.185 |
| GZ30A | 2.41 | HCF980H | 1.176 | HHA030Z | 1.130 | HIM304 | 1.185 |
| GZ35A | 4.11, 4.12, 4.5 | HCF981H | 1.176 | HHA038Z | 1.130 | HIM306 | 1.185 |
| | | HCF990H | 1.176 | HHA040H | 1.160 | HIM308 | 1.185 |
| | | HCF991H | 1.176 | HHA040U | 1.130 | HIM402 | 1.185 |
| | | HDA014Z | 1.130 | HHA041H | 1.160 | HIM404 | 1.185 |
| H245ES | 1.23 | HDA016L | 1.160 | HHA048Z | 1.130 | HIM406 | 1.185 |
| H245EW | 1.23 | HDA017L | 1.160 | HHA061Z | 1.130 | HIM408 | 1.185 |
| H255ES | 1.23 | HDA018Z | 1.130 | HHA063H | 1.160 | HMB180 | 1.147 |
| H255EW | 1.23 | HDA020L | 1.160 | HHA063U | 1.130 | HMB190 | 1.147 |
| HA308 | 1.181 | HDA021L | 1.160 | HHA064H | 1.160 | HMB199 | 1.147 |
| HA351 | 1.182 | HDA023Z | 1.130 | HHA078Z | 1.130 | HMB280 | 1.147 |
| HA352 | 1.182 | HDA025L | 1.160 | HHA080H | 1.160 | HMB290 | 1.147 |
| HA353 | 1.182 | HDA025U | 1.130 | HHA080U | 1.130 | HMB299 | 1.147 |
| HA354 | 1.182 | HDA026L | 1.160 | HHA081H | 1.160 | HMB380 | 1.147 |
| HA357 | 1.182 | HDA030Z | 1.130 | HHA098Z | 1.130 | HMB390 | 1.147 |
| HA358 | 1.182 | HDA032L | 1.160 | HHA100H | 1.160 | HMB480 | 1.147 |
| HA360 | 1.182 | HDA033L | 1.160 | HHA100U | 1.130 | HMB490 | 1.147 |
| HA362 | 1.182 | HDA038Z | 1.130 | HHA101H | 1.160 | HMB499 | 1.147 |
| HA364 | 1.182 | HDA040L | 1.160 | HHA123Z | 1.130 | HMC180 | 1.123 |
| HA408 | 1.181 | HDA040U | 1.130 | HHA125H | 1.160 | HMC190 | 1.123 |
| HA451 | 1.182 | HDA041L | 1.160 | HHA125U | 1.130 | HMC199 | 1.123 |
| HA452 | 1.182 | HDA048Z | 1.130 | HHA126H | 1.160 | HMC280 | 1.147 |
| HA453 | 1.182 | HDA050L | 1.160 | HHA160H | 1.160 | HMC290 | 1.147 |
| HA454 | 1.182 | HDA051L | 1.160 | HHA161H | 1.160 | HMC299 | 1.147 |
| HA457 | 1.182 | HDA061Z | 1.130 | HI405R | 1.185 | HMC380 | 1.123 |
| HA458 | 1.182 | HDA063L | 1.160 | HI406R | 1.185 | HMC390 | 1.123 |
| HA460 | 1.182 | HDA063U | 1.130 | HI451 | 1.186 | HMC399 | 1.123 |
| HA462 | 1.182 | HDA064L | 1.160 | HI452 | 1.186 | HMC480 | 1.147 |
| HA464 | 1.182 | HDA078Z | 1.130 | HI454 | 1.186 | HMC490 | 1.147 |
| HA964N | 1.181 | HDA080L | 1.160 | HI456 | 1.186 | HMC499 | 1.147 |
| HA966N | 1.181 | HDA080U | 1.130 | HI458 | 1.186 | HMD180 | 1.123 |
| HAB302 | 1.180 | HDA081L | 1.160 | HI460 | 1.186 | HMD190 | 1.123 |
| HAB303 | 1.180 | HDA098Z | 1.130 | HI462 | 1.186 | HMD199 | 1.123 |
| HAB304 | 1.180 | HDA100L | 1.160 | HI464 | 1.186 | HMD280 | 1.147 |
| HAB306 | 1.180 | HDA100U | 1.130 | HIB412M | 1.188 | HMD290 | 1.147 |
| HAB402 | 1.180 | HDA101L | 1.160 | HIB416M | 1.188 | HMD299 | 1.147 |
| HAB403 | 1.180 | HDA123Z | 1.130 | HIB420M | 1.188 | HMD380 | 1.123 |
| HAB404 | 1.180 | HDA125L | 1.160 | HIB425M | 1.188 | HMD390 | 1.123 |
| HAB406 | 1.180 | HDA125U | 1.130 | HIB440M | 1.188 | HMD399 | 1.123 |
| HAC306 | 1.180 | HDA126L | 1.160 | HIB463M | 1.188 | HMD480 | 1.147 |
| HAC308 | 1.180 | HDA160L | 1.160 | HIB480M | 1.188 | HMD490 | 1.147 |
| HAC310 | 1.180 | HDA161L | 1.160 | HIB490M | 1.188 | HMD499 | 1.147 |
| HAC406 | 1.180 | HE47SN-IRL | 4.19 | HIB491M | 1.188 | HNA025H | 1.161 |
| HAC408 | 1.180 | HEC040H | 1.167 | HIB492M | 1.188 | HNA026H | 1.161 |
| HAC410 | 1.180 | HEC041H | 1.167 | HIB493M | 1.188 | HNA040H | 1.161 |
| HAD310 | 1.180 | HEC125H | 1.167 | HIB494M | 1.188 | HNA041H | 1.161 |
| HAD312 | 1.180 | HEC126H | 1.167 | HIB495M | 1.188 | HNA063H | 1.161 |
| HAD410 | 1.180 | HEC250H | 1.167 | HIC225E | 1.188 | HNA064H | 1.161 |
| HAD412 | 1.180 | HEC251H | 1.167 | HIC402A | 1.187 | HNA080H | 1.161 |
| HAE310 | 1.181 | HED250H | 1.170 | HIC404A | 1.187 | HNA081H | 1.161 |

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|---------|-------|---------|-------|---------|-------|---------|-------|
| HNA100H | 1.161 | HXB069H | 1.166 | HYA023H | 1.163 | HYE032H | 1.175 |
| HNA101H | 1.161 | HXB070H | 1.166 | HYA024H | 1.163 | HYE033H | 1.175 |
| HNA125H | 1.161 | HXB071H | 1.166 | HYA027H | 1.163 | HYE034H | 1.175 |
| HNA126H | 1.161 | HXC001H | 1.168 | HYA028H | 1.163 | HYG021H | 1.169 |
| HNA160H | 1.161 | HXC002H | 1.168 | HYA029H | 1.130 | HYG022H | 1.169 |
| HNA161H | 1.161 | HXC003H | 1.168 | HYA033H | 1.163 | HYG041H | 1.169 |
| HNB100H | 1.134 | HXC004H | 1.168 | HYA035H | 1.163 | HZ022 | 1.181 |
| HNB101H | 1.164 | HXC005H | 1.168 | HYA036H | 1.163 | HZ023 | 1.182 |
| HNB125H | 1.134 | HXC008H | 1.168 | HYA086H | 1.163 | HZ033 | 1.182 |
| HNB126H | 1.164 | HXC011H | 1.168 | HYA087H | 1.163 | HZ034 | 1.182 |
| HNB160H | 1.134 | HXC013H | 1.168 | HYA088H | 1.163 | HZ035 | 1.182 |
| HNB161H | 1.164 | HXC014H | 1.168 | HYA089H | 1.163 | HZ036 | 1.182 |
| HNB200H | 1.134 | HXC015H | 1.168 | HYA090H | 1.163 | HZ037 | 1.182 |
| HNB201H | 1.164 | HXC018H | 1.168 | HYA091H | 1.163 | HZ043 | 1.182 |
| HNB250H | 1.134 | HXC019H | 1.168 | HYB001H | 1.166 | HZ044 | 1.182 |
| HNB251H | 1.164 | HXC021H | 1.168 | HYB002H | 1.166 | HZ045 | 1.182 |
| HNC040H | 1.167 | HXC024H | 1.168 | HYB005H | 1.166 | HZ046 | 1.182 |
| HNC041H | 1.167 | HXC025H | 1.171 | HYB006H | 1.166 | HZ047 | 1.182 |
| HNC125H | 1.167 | HXC026H | 1.171 | HYB010H | 1.166 | HZ062 | 1.181 |
| HNC126H | 1.167 | HXC030H | 1.168 | HYB011H | 1.166 | HZ082 | 1.181 |
| HNC250H | 1.167 | HXC039H | 1.169 | HYB012H | 1.166 | HZ092 | 1.185 |
| HNC251H | 1.167 | HXC040H | 1.169 | HYB019H | 1.163 | HZ093 | 1.181 |
| HND250H | 1.170 | HXC042H | 1.169 | HYB021H | 1.166 | HZ095 | 1.181 |
| HND251H | 1.170 | HXC051H | 1.168 | HYB022H | 1.166 | HZ096 | 1.181 |
| HND400H | 1.170 | HXC053H | 1.168 | HYB023H | 1.166 | HZ156 | 1.186 |
| HND401H | 1.170 | HXC054H | 1.168 | HYB024H | 1.166 | HZ156R | 1.185 |
| HND630H | 1.170 | HXC055H | 1.168 | HYB025H | 1.166 | HZ157 | 1.186 |
| HND631H | 1.170 | HXC065H | 1.169 | HYB026H | 1.166 | HZ158 | 1.186 |
| HNE800H | 1.173 | HXC066H | 1.169 | HYB027H | 1.166 | HZ159 | 1.186 |
| HNE801H | 1.173 | HXD030H | 1.171 | HYB028H | 1.166 | HZ160 | 1.186 |
| HNE970H | 1.173 | HXD031H | 1.171 | HYB031H | 1.166 | HZ160M | 1.186 |
| HNE971H | 1.173 | HXD039H | 1.132 | HYB032H | 1.166 | HZ160R | 1.185 |
| HNF980H | 1.176 | HXD040H | 1.172 | HYB092H | 1.166 | HZ161M | 1.186 |
| HNF981H | 1.176 | HXD042H | 1.172 | HYB094H | 1.166 | HZ162 | 1.188 |
| HNF990H | 1.176 | HXD051H | 1.171 | HYC003H | 1.169 | HZ162M | 1.186 |
| HNF991H | 1.176 | HXD053H | 1.171 | HYC004H | 1.169 | HZ163 | 1.188 |
| HR500 | 1.159 | HXD054H | 1.171 | HYC010H | 1.169 | HZ163M | 1.186 |
| HR502 | 1.159 | HXD055H | 1.171 | HYC011H | 1.169 | HZ164 | 1.188 |
| HR510 | 1.159 | HXD065H | 1.172 | HYC019H | 1.169 | HZ164M | 1.186 |
| HR520 | 1.159 | HXD066H | 1.172 | HYC021H | 1.169 | HZ166 | 1.188 |
| HR522 | 1.159 | HXD068H | 1.172 | HYC022H | 1.169 | HZC001 | 1.181 |
| HR523 | 1.159 | HXE011H | 1.174 | HYC025H | 1.169 | HZC002 | 1.182 |
| HR525 | 1.159 | HXE013H | 1.174 | HYC026H | 1.169 | HZC003 | 1.182 |
| HR534 | 1.159 | HXE014H | 1.174 | HYC027H | 1.169 | HZC010 | 1.180 |
| HR700 | 1.159 | HXE015H | 1.174 | HYC028H | 1.169 | HZC011 | 1.180 |
| HR741 | 1.159 | HXE018H | 1.174 | HYC031H | 1.169 | HZC014 | 1.181 |
| HR742 | 1.159 | HXE019H | 1.174 | HYC032H | 1.169 | HZC016 | 1.185 |
| HR743 | 1.159 | HXE030H | 1.174 | HYC041H | 1.169 | HZC101 | 1.182 |
| HR744 | 1.159 | HXE031H | 1.174 | HYD003H | 1.172 | HZC102 | 1.182 |
| HR745 | 1.159 | HXE040H | 1.175 | HYD004H | 1.172 | HZC103 | 1.181 |
| HR822 | 1.159 | HXE042H | 1.175 | HYD005H | 1.172 | HZC104 | 1.181 |
| HR823 | 1.159 | HXE051H | 1.174 | HYD006H | 1.172 | HZC105 | 1.182 |
| HR824 | 1.159 | HXE053H | 1.174 | HYD007H | 1.172 | HZC106 | 1.182 |
| HR830 | 1.159 | HXE054H | 1.174 | HYD008H | 1.172 | HZC111 | 1.180 |
| HR831 | 1.159 | HXE055H | 1.174 | HYD010H | 1.172 | HZC112 | 1.180 |
| HR832 | 1.159 | HXE065H | 1.175 | HYD011H | 1.172 | HZC113 | 1.180 |
| HXA001H | 1.162 | HXE066H | 1.175 | HYD012H | 1.172 | HZC114 | 1.181 |
| HXA002H | 1.162 | HXF001H | 1.177 | HYD013H | 1.172 | HZC115 | 1.181 |
| HXA003H | 1.162 | HXF002H | 1.177 | HYD014H | 1.172 | HZC116 | 1.181 |
| HXA004H | 1.162 | HXF003H | 1.177 | HYD015H | 1.172 | HZC201 | 1.182 |
| HXA005H | 1.162 | HXF004H | 1.177 | HYD019H | 1.172 | HZC202 | 1.182 |
| HXA011H | 1.162 | HXF005H | 1.177 | HYD021H | 1.172 | HZC203 | 1.182 |
| HXA013H | 1.162 | HXF008H | 1.177 | HYD022H | 1.172 | HZC204 | 1.182 |
| HXA014H | 1.162 | HXF030H | 1.178 | HYD023H | 1.172 | HZC205 | 1.182 |
| HXA015H | 1.162 | HXF031H | 1.178 | HYD024H | 1.172 | HZC206 | 1.182 |
| HXA021H | 1.162 | HXF039H | 1.178 | HYD025H | 1.172 | HZC211 | 1.180 |
| HXA024H | 1.162 | HXF040H | 1.178 | HYD026H | 1.172 | HZC212 | 1.180 |
| HXA025H | 1.162 | HXF042H | 1.178 | HYD027H | 1.172 | HZC213 | 1.180 |
| HXA026H | 1.162 | HXF051H | 1.177 | HYD028H | 1.172 | HZC214 | 1.180 |
| HXA030H | 1.162 | HXF053H | 1.177 | HYD031H | 1.172 | HZC215 | 1.180 |
| HXA031H | 1.162 | HXF054H | 1.177 | HYD032H | 1.172 | HZC216 | 1.180 |
| HXA039H | 1.130 | HXF055H | 1.177 | HYD033H | 1.172 | HZC217 | 1.181 |
| HXA051H | 1.162 | HY170 | 1.84 | HYD034H | 1.172 | HZC218 | 1.181 |
| HXA053H | 1.162 | HYA005H | 1.163 | HYD093H | 1.172 | HZC311 | 1.180 |
| HXA054H | 1.162 | HYA006H | 1.163 | HYD095H | 1.172 | HZC312 | 1.180 |
| HXA055H | 1.162 | HYA013H | 1.163 | HYD096H | 1.172 | HZC706 | 1.185 |
| HXB040H | 1.166 | HYA014H | 1.163 | HYD097H | 1.172 | HZC707 | 1.186 |
| HXB042H | 1.166 | HYA015H | 1.163 | HYD098H | 1.172 | HZC709 | 1.185 |
| HXB065H | 1.166 | HYA019H | 1.163 | HYE007H | 1.175 | HZF001 | 1.183 |
| HXB066H | 1.166 | HYA021H | 1.130 | HYE008H | 1.175 | HZF102 | 1.183 |
| HXB068H | 1.166 | HYA022H | 1.163 | HYE031H | 1.175 | HZF201 | 1.137 |

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| HZF202 | 1.137 | JF412B | 1.131 | JG33BLS | 1.140 | JK108B | 1.121 |
| HZF203 | 1.137 | JF412BG | 1.131 | JG40BLS | 1.140 | JK108BA3 | 1.121 |
| HZF204 | 1.137 | JF416B | 1.131 | JG416DC | 1.139 | JK108BA3-DK | 1.127 |
| HZF205 | 1.137 | JF416BG | 1.131 | JG41BLS | 1.140 | JK108BD | 1.121 |
| HZF206 | 1.137 | JF418B | 1.131 | JG425DC | 1.139 | JK108BDFA3 | 1.126 |
| HZF207 | 1.137 | JF418BG | 1.131 | JG440DC | 1.139 | JK108BDFG | 1.126 |
| HZF301 | 1.137 | JF443BM | 1.131 | JHF80206B | 1.135 | JK108BF | 1.121 |
| HZF302 | 1.137 | JF443BS | 1.131 | JHF80206BG | 1.135 | JK108BG | 1.121 |
| HZF501 | 1.183 | JF444BD | 1.131 | JHF80210B | 1.135 | JK108BSF | 1.126 |
| HZF502 | 1.183 | JF444BM | 1.131 | JHF80210BG | 1.135 | JK108BSH | 1.126 |
| HZF503 | 1.183 | JF444BS | 1.131 | JHF80404B | 1.135 | JK110 | 1.119 |
| HZF504 | 1.183 | JF60204B | 1.133 | JHF80404BG | 1.135 | JK11003S | 1.122 |
| HZF505 | 1.183 | JF60204BG | 1.133 | JHF80408B | 1.135 | JK11004C | 1.122 |
| HZI002 | 1.186 | JF608B | 1.133 | JHF80408BG | 1.135 | JK11004RH | 1.122 |
| HZI003 | 1.186 | JF608BG | 1.133 | JHF80414B | 1.135 | JK11004RL | 1.122 |
| HZI004 | 1.185 | JF801E | 1.131 | JHF80414BG | 1.135 | JK11004RLD | 1.122 |
| HZI010 | 1.188 | JF801EG | 1.131 | JHF80612B | 1.135 | JK11004RM | 1.122 |
| HZI201 | 1.188 | JF801SPD | 1.131 | JHF80612BG | 1.135 | JK11004RMD | 1.122 |
| HZI202 | 1.188 | JF80206B | 1.133 | JHF812B | 1.135 | JK11004S | 1.122 |
| HZI203 | 1.188 | JF80206BG | 1.133 | JHF812BG | 1.135 | JK11253S | 1.122 |
| HZI204 | 1.188 | JF80210B | 1.133 | JHF818B | 1.135 | JK11254CO | 1.122 |
| HZI205 | 1.188 | JF80210BG | 1.133 | JHF818BG | 1.135 | JK11254D | 1.122 |
| HZI206 | 1.188 | JF803E | 1.131 | JHF883BM | 1.135 | JK11254S | 1.122 |
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| HZI230 | 1.187 | JF803PM | 1.134 | JK008 | 1.120 | JK112BA3 | 1.121 |
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| HZI910 | 1.188 | JF80414BG | 1.133 | JK024 | 1.120 | JK112BG | 1.121 |
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| | | JF806E | 1.132 | JK04TJ | 1.127 | JK116BA3 | 1.121 |
| J | | JF812B | 1.133 | JK04TK | 1.127 | JK116BA3-DK | 1.127 |
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| J301 | 5.43 | JF818BG | 1.133 | JK066 | 1.120 | JK116BDFG | 1.126 |
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| J501 | 5.43 | JF844BM | 1.133 | JK06TE | 1.127 | JK116BG | 1.121 |
| J601 | 5.43 | JF844BSW | 1.133 | JK06TJ | 1.127 | JK116BSF | 1.126 |
| J701 | 5.43 | JF863BM | 1.133 | JK06TK | 1.127 | JK116BSH | 1.126 |
| J701/TB | 5.43 | JF864BM | 1.133 | JK06TL | 1.127 | JK116E | 1.125 |
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| JAG431 | 1.138 | JFE410U | 1.137 | JK104BD | 1.121 | JK132E | 1.125 |
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| JAH380 | 1.138 | JFG320U | 1.137 | JK104BF | 1.121 | JK132EG | 1.125 |
| JAH463 | 1.138 | JFG325U | 1.137 | JK104BG | 1.121 | JK1PLATEB | 1.127 |
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| JC20L | 1.137 | JFG420U | 1.137 | JK106 | 1.119 | JK201BSH | 1.126 |
| JC40L | 1.137 | JFG425U | 1.137 | JK10634C | 1.122 | JK201SE | 1.125 |
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| JE003 | 1.96 | JFH440U | 1.137 | JK106BA3-DK | 1.127 | JK20210BSD | 1.123 |
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| JK208BA3 | 1.123 | JKD1416PM | 1.121 | K7A10M15P | 3.6 | KB190B | 2.31 |
| JK208BA3-DK | 1.127 | JKD146PM | 1.121 | K7A5M15P | 3.6 | KB190C | 2.31 |
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| JK216BSH | 1.126 | JN205BE | 1.130 | K7G5M15P | 3.6 | KJ02C | 1.93, 2.32 |
| JK216E | 1.125 | JN205DK | 1.130 | K7J1M075W | 3.4 | KJ02D | 1.93, 2.32 |
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| JK218BA3 | 1.123 | JN208B | 1.129 | K7J3M15P | 3.4 | KJ100A | 2.32 |
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| JK218BDFG | 1.126 | JN212BG | 1.129 | K7J5M075W | 3.4 | KJ15NB | 2.32 |
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| JK218BSF | 1.126 | JN216BG | 1.129 | K7J5M15W | 3.4 | KLCM-10S | 3.12 |
| JK218BSH | 1.126 | JN223BM | 1.129 | K7J5M1W | 3.4 | KLCM-3OS | 3.12 |
| JK222PK | 1.127 | JN223BS | 1.129 | K7J7M075W | 3.4 | KLCM412P | 3.12 |
| JK224B | 1.123 | JN224BD | 1.129 | K7J7M15P | 3.4 | KLCM413W | 3.12 |
| JK224BA3 | 1.123 | JN224BM | 1.129 | K7J7M1W | 3.4 | KLCM413WIET | 3.12 |
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| JK224BG | 1.123 | JN300CF | 1.129 | K7P1M075W | 3.5 | KLDS12 | 3.13 |
| JK224BSF | 1.126 | JN4506TM | 1.129 | K7P1M075WPCR | 3.3 | KLDS4 | 3.13 |
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| JK22503M | 1.124 | JN9502SM | 1.129 | K7P1M1W | 3.5 | KLDS6BLACK | 3.13 |
| JK22503S | 1.124 | JP015 | 4.12 | K7P3M075W | 3.5 | KLDS8 | 3.13 |
| JK22504D | 1.124 | JP024 | 1.96 | K7P3M075WPCR | 3.3 | KLMB10W | 3.3 |
| JK22504M | 1.124 | JZA700 | 1.138 | K7P3M15W | 3.5 | KLMB11P | 3.3 |
| JK22504MCS | 1.124 | JZA701 | 1.137 | K7P3M1W | 3.5 | KLMB12W | 3.3 |
| JK232E | 1.125 | JZA702 | 1.137 | K7P5M075W | 3.5 | KLMB244W | 3.3 |
| JK232EA3 | 1.125 | JZA703 | 1.137 | K7P5M15W | 3.5 | KLMB244WD | 3.3 |
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| JK250BSP | 1.127 | | | K7P7M1W | 3.5 | KLMB284WD | 3.3 |
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| JK2PLATEM | 1.127 | K023 | 2.33 | K7T1M075W | 3.5 | KLMB6W | 3.3 |
| JK304H | 1.119 | K024 | 2.33 | K7T1M075WPCR | 3.3 | KLMB7P | 3.3 |
| JK306H | 1.119 | K025 | 2.33 | K7T1M1W | 3.5 | KLMB8W | 3.3 |
| JK310H | 1.119 | K037 | 2.33 | K7T3M075W | 3.5 | KLMB9P | 3.3 |
| JK314H | 1.119 | K070 | 1.97 | K7T3M075WPCR | 3.3 | KLO10RJ45G | 3.12 |
| JK320H | 1.119 | K071 | 1.97 | K7T3M15P | 3.5 | KLO10RJ45R | 3.12 |
| JK328H | 1.119 | K073 | 1.97 | K7T3M15W | 3.5 | KLO15RJ45G | 3.12 |
| JK404H | 1.119 | K074 | 1.97 | K7T3M1W | 3.5 | KLO15RJ45R | 3.12 |
| JK406H | 1.119 | K085 | 2.33 | K7T5M075W | 3.5 | KLO20RJ45G | 3.12 |
| JK410H | 1.119 | K140 | 2.39 | K7T5M15P | 3.5 | KLO20RJ45R | 3.12 |
| JK414H | 1.119 | K142 | 2.39, 4.12, 4.18, 4.20, 4.27 | K7T5M15W | 3.5 | KLO30RJ45G | 3.12 |
| JK420H | 1.119 | K143 | 2.39 | K7T5M1W | 3.5 | KLO30RJ45R | 3.12 |
| JK527H | 1.119 | K144 | 2.39, 4.12, 4.18, 4.20, 4.27 | K7T7M075W | 3.5 | KLO40RJ45G | 3.12 |
| JK706C | 1.119 | K145 | 2.39 | K7T7M15P | 3.5 | KLO40RJ45R | 3.12 |
| JK710C | 1.119 | K148 | 2.39, 4.12, 4.18, 4.20, 4.27 | K7T7M1W | 3.5 | KLO50RJ45G | 3.12 |
| JK714C | 1.119 | K151 | 2.39 | K7W3M075W | 3.6 | KLO50RJ45R | 3.12 |
| JKD11212PM | 1.121 | K156 | 2.39, 4.12, 4.18, 4.20, 4.27 | K7W5M075W | 3.6 | KLO5RJ45G | 3.12 |
| JKD1128PM | 1.121 | K158 | 2.39, 4.12, 4.18, 4.20, 4.27 | K7Z3M15P | 3.6 | KLO5RJ45R | 3.12 |

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| KLPCR7 | 3.6 | KWE01GR | 2.37 | KXA10L | 2.34 | LS704 | 1.154 |
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| KM05B | 4.28 | KWE03B | 2.37 | KXA10N | 2.34 | LS770 | 1.154 |
| KM07E | 2.39 | KWE03G | 2.37 | KXA10ND | 2.35 | LS771 | 1.154 |
| KM07E | 4.27 | KWE04B | 2.37 | KXA10NH | 2.34 | LZ060 | 2.13 |
| KM07EF | 2.40 | KWE04G | 2.37 | KXA16E | 2.35 | LZ060 | 2.22 |
| KM07L | 2.39 | KWE04GR | 2.37 | KXA16L | 2.34 | M | |
| KM07N | 2.39 | KWE05B | 2.37 | KXA16LH | 2.34 | | |
| KM07N | 4.27 | KWE05G | 2.37 | KXA16N | 2.34 | | |
| KM07NF | 2.40 | KWE06B | 2.37 | KXA16ND | 2.35 | MB2 | 3.16 |
| KM08L | 2.39 | KWE06G | 2.37 | KXA16NH | 2.34 | MB2 | 5.46 |
| KM10A | 2.39 | KWE17B | 2.37 | KXA35L | 2.34 | MB326E/MT | 5.46 |
| KM10B | 2.39 | KWE21G | 2.37 | KXA35N | 2.34 | MBN106W | 1.141 |
| KM10C | 2.39 | KWE22G | 2.37 | KXB04E | 2.35 | MBN106W | 4.29 |
| KM10E | 2.39 | KWE24B | 2.37 | KXB04EX | 2.34 | MBN110W | 1.141 |
| KM10L | 2.39 | KWE25G | 2.37 | KXB04F5 | 2.36 | MBN110W | 4.29 |
| KM10N | 2.39 | KWE26G | 2.37 | KXB04F6 | 2.36 | MBN116W | 1.141 |
| KM11B | 2.39 | KWE27G | 2.37 | KXB06E | 2.35 | MBN116W | 4.29 |
| KM11E | 2.39 | KWJ02B10 | 2.38 | KXB10E | 2.35 | MBN120W | 1.141 |
| KM11E | 4.27 | KWJ02B2 | 2.38 | KXB150LH | 2.34 | MBN120W | 4.29 |
| KM11L | 2.39 | KWJ02B3 | 2.38 | KXB150NH | 2.34 | MBN125W | 1.141 |
| KM11N | 2.39 | KWJ02B4 | 2.38 | KXB16E | 2.35 | MBN125W | 4.29 |
| KM11N | 4.27 | KWJ02B5 | 2.38 | KXB35E | 2.35 | MBN132W | 1.141 |
| KM12EF | 2.40 | KWJ04A10 | 2.38 | KXB35E1 | 2.35 | MBN132W | 4.29 |
| KM12NF | 2.40 | KWJ04A12 | 2.38 | KXB35LH | 2.34 | MBN140W | 4.29 |
| KM13A | 4.28 | KWJ04A2 | 2.38 | KXB35NH | 2.34 | MBN150W | 1.141 |
| KM13E | 2.39 | KWJ04A3 | 2.38 | KXB70LH | 2.34 | MBN150W | 4.29 |
| KM13E | 4.27 | KWJ04A4 | 2.38 | KXB70NH | 2.34 | MBN163W | 1.141 |
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| KM13N | 4.27 | KWJ04B10 | 2.38 | KZ001 | 2.32 | MBN206W | 1.141 |
| KM17E | 2.39 | KWJ04B2 | 2.38 | KZ002 | 1.93 | MBN210W | 1.141 |
| KM17E | 4.27 | KWJ04B3 | 2.38 | KZ002 | 2.32 | MBN216W | 1.141 |
| KM17N | 2.39 | KWJ04B4 | 2.38 | KZ004 | 1.93 | MBN220W | 1.141 |
| KM17N | 4.27 | KWJ04B5 | 2.38 | KZ004 | 2.32 | MBN225W | 1.141 |
| KM22A | 4.28 | KWJ06B10 | 2.38 | KZ005 | 1.93 | MBN232W | 1.141 |
| KM25A | 4.28 | KWJ06B2 | 2.38 | KZ005 | 2.32 | MBN240W | 1.141 |
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| KM25E | 4.27 | KWJ06B4 | 2.38 | KZ007 | 2.32 | MBN263W | 1.141 |
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| KN00A | 4.23 | KWJ10B3 | 2.38 | KZ021 | 2.31 | MBN320W | 1.141 |
| KN04N | 2.41 | KWJ150C2 | 2.37 | KZ022 | 2.31 | MBN325W | 1.141 |
| KN04P | 2.41 | KWJ150C2 | 2.38 | KZ023A | 2.31 | MBN332W | 1.141 |
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| KN06P | 2.41 | KWJ16A10 | 2.38 | KZ051 | 2.32 | MBN363W | 1.141 |
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| KN07P | 2.41 | KWJ16A3 | 2.38 | KZ052 | 2.32 | MBN410W | 1.141 |
| KN10E | 2.41 | KWJ35A10 | 2.38 | KZ059 | 2.31 | MBN416W | 1.141 |
| KN10N | 2.41 | KWJ35A2 | 2.38 | KZ060F | 2.40 | MBN420W | 1.141 |
| KN10P | 2.41 | KWJ35A3 | 2.38 | KZ074 | 1.93 | MBN425W | 1.141 |
| KN14E | 2.41 | KWJ70C2 | 2.37 | KZ074 | 2.32 | MBN432W | 1.141 |
| KN14N | 2.41 | KWJ70C2 | 2.38 | KZ075 | 1.93 | MBN440W | 1.141 |
| KN14P | 2.41 | KWJ70C3 | 2.37 | KZ075 | 2.32 | MBN450W | 1.141 |
| KN18E | 2.41 | KWJ70C3 | 2.38 | L | | MBN463W | 1.141 |
| KN18N | 2.41 | KWL001 | 2.37 | L | | MCN106A | 1.141 |
| KN18P | 2.41 | KWL002 | 2.37 | L | | MCN106A | 4.29 |
| KN22E | 2.41 | KWL003 | 2.37 | L501PV | 1.155 | MCN110A | 1.141 |
| KN22N | 2.41 | KWL004 | 2.37 | L502PV | 1.155 | MCN110A | 4.29 |
| KN22P | 2.41 | KXA02E | 2.35 | LEL212/6 | 5.46 | MCN116A | 1.141 |
| KN26E | 2.41 | KXA02LH | 2.34 | LF302PV | 1.155 | MCN116A | 4.29 |
| KN26N | 2.41 | KXA02LX | 2.34 | LF303PV | 1.155 | MCN120A | 1.141 |
| KN26P | 2.41 | KXA02NH | 2.34 | LF304PV | 1.155 | MCN120A | 4.29 |
| KN99E | 2.41 | KXA02VB | 2.36 | LF306PV | 1.155 | MCN125A | 1.141 |
| KN99N | 2.41 | KXA04I1 | 2.35 | LF308PV | 1.155 | MCN125A | 4.29 |
| KN99P | 2.41 | KXA04I2 | 2.35 | LF310PV | 1.155 | MCN132A | 1.141 |
| KR15P | 1.23 | KXA04I3 | 2.35 | LF312PV | 1.155 | MCN132A | 4.29 |
| KR15P | 2.33 | KXA04I4 | 2.36 | LF316PV | 1.155 | MCN140A | 4.29 |
| KR95P | 1.23 | KXA04I5 | 2.36 | LF320PV | 1.155 | MCN150A | 1.141 |
| KR95P | 2.33 | KXA04I6 | 2.36 | LR701 | 1.154 | MCN150A | 4.29 |
| KRN190 | 1.127 | KXA04I7 | 2.36 | LR702 | 1.154 | MCN163A | 1.141 |
| KS72B | 1.92 | KXA04KD | 2.36 | LR703 | 1.154 | MCN163A | 4.29 |
| KS72C | 1.92 | KXA04LH | 2.34 | LR704 | 1.154 | MCN206A | 1.141 |
| KW16ST | 2.38 | KXA04LX | 2.34 | LR712 | 1.154 | MCN210A | 1.141 |
| KW1NB | 2.38 | KXA04ND | 2.35 | LS670 | 1.154 | MCN216A | 1.141 |
| KW35ST | 2.38 | KXA04NH | 2.34 | LS671 | 1.154 | MCN220A | 1.141 |
| KWB01 | 2.38 | KXA04VB | 2.36 | LS672 | 1.154 | MCN225A | 1.141 |
| KWB02 | 2.38 | KXA06LH | 2.34 | LS701 | 1.154 | MCN232A | 1.141 |
| KWE01B | 2.37 | KXA06NH | 2.34 | LS702 | 1.154 | MCN240A | 1.141 |

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|--------------|-------|---------|-------|---------|-------|----------------|-------|
| MCN250A | 1.141 | MU216A | 1.142 | NBN432A | 1.144 | NDN216A | 1.143 |
| MCN263A | 1.141 | MU220A | 1.142 | NBN440A | 1.144 | NDN220A | 1.143 |
| MCN306A | 1.141 | MU225A | 1.142 | NBN450A | 1.144 | NDN225A | 1.143 |
| MCN310A | 1.141 | MU232A | 1.142 | NBN463A | 1.144 | NDN232A | 1.143 |
| MCN316A | 1.141 | MU240A | 1.142 | NCN100A | 1.121 | NDN240A | 1.143 |
| MCN320A | 1.141 | MU250A | 1.142 | NCN101A | 1.121 | NDN250A | 1.143 |
| MCN325A | 1.141 | MU263A | 1.142 | NCN102A | 1.121 | NDN263A | 1.143 |
| MCN332A | 1.141 | MU306A | 1.142 | NCN103A | 1.121 | NDN300A | 1.121 |
| MCN340A | 1.141 | MU310A | 1.142 | NCN104A | 1.121 | NDN301A | 1.121 |
| MCN350A | 1.141 | MU316A | 1.142 | NCN106A | 1.121 | NDN302A | 1.121 |
| MCN363A | 1.141 | MU320A | 1.142 | NCN110A | 1.121 | NDN303A | 1.121 |
| MCN406A | 1.141 | MU325A | 1.142 | NCN116A | 1.122 | NDN304A | 1.121 |
| MCN410A | 1.141 | MU332A | 1.142 | NCN120A | 1.122 | NDN306A | 1.121 |
| MCN416A | 1.141 | MU340A | 1.142 | NCN125A | 1.122 | NDN310A | 1.121 |
| MCN420A | 1.141 | MU350A | 1.142 | NCN132A | 1.122 | NDN316A | 1.122 |
| MCN425A | 1.141 | MU363A | 1.142 | NCN140A | 1.122 | NDN320A | 1.122 |
| MCN432A | 1.141 | MU406A | 1.142 | NCN150A | 1.122 | NDN325A | 1.122 |
| MCN440A | 1.141 | MU410A | 1.142 | NCN163A | 1.122 | NDN332A | 1.122 |
| MCN450A | 1.141 | MU416A | 1.142 | NCN200A | 1.143 | NDN340A | 1.122 |
| MCN463A | 1.141 | MU420A | 1.142 | NCN201A | 1.143 | NDN350A | 1.122 |
| MCU10101B | 4.3 | MU425A | 1.142 | NCN202A | 1.143 | NDN363A | 1.122 |
| MCU10101C | 4.3 | MU432A | 1.142 | NCN203A | 1.143 | NDN400A | 1.144 |
| MCU63 | 4.4 | MU440A | 1.142 | NCN204A | 1.143 | NDN401A | 1.144 |
| MCU64 | 4.4 | MU450A | 1.142 | NCN206A | 1.143 | NDN402A | 1.144 |
| MES-LSTI7035 | 1.31 | MU463A | 1.142 | NCN210A | 1.143 | NDN403A | 1.144 |
| MES-PHZ3K7 | 1.28 | MZ201 | 1.153 | NCN216A | 1.143 | NDN404A | 1.144 |
| MES-PHZ4K8 | 1.28 | MZ202 | 1.153 | NCN220A | 1.143 | NDN406A | 1.144 |
| MES-PHZDB3 | 1.28 | MZ203 | 1.153 | NCN225A | 1.143 | NDN410A | 1.144 |
| MLN706A | 1.148 | MZ204 | 1.153 | NCN232A | 1.143 | NDN416A | 1.144 |
| MLN710A | 1.148 | MZ205 | 1.153 | NCN240A | 1.143 | NDN420A | 1.144 |
| MLN716A | 1.148 | MZ206 | 1.153 | NCN250A | 1.143 | NDN425A | 1.144 |
| MLN720A | 1.148 | MZ212 | 1.153 | NCN263A | 1.143 | NDN432A | 1.144 |
| MLN732A | 1.148 | MZN120 | 2.10 | NCN300A | 1.121 | NDN440A | 1.144 |
| MLN740A | 1.148 | MZN120 | 4.36 | NCN301A | 1.121 | NDN450A | 1.144 |
| MT106A | 1.142 | MZN121 | 2.10 | NCN302A | 1.121 | NDN463A | 1.144 |
| MT110A | 1.142 | MZN121 | 4.36 | NCN303A | 1.121 | | |
| MT116A | 1.142 | MZN130 | 1.147 | NCN304A | 1.121 | | |
| MT120A | 1.142 | MZN131 | 1.147 | NCN306A | 1.121 | | |
| MT125A | 1.142 | MZN175 | 1.149 | NCN310A | 1.121 | P031 | 4.12 |
| MT132A | 1.142 | MZN175 | 2.10 | NCN316A | 1.122 | P031F | 4.11 |
| MT140A | 1.142 | MZN175 | 4.31 | NCN320A | 1.122 | P031F | 4.55 |
| MT150A | 1.142 | MZN175 | 4.36 | NCN325A | 1.122 | P032 | 4.12 |
| MT163A | 1.142 | MZN176 | 1.153 | NCN332A | 1.122 | P032F | 4.11 |
| MT206A | 1.142 | MZN177 | 1.153 | NCN340A | 1.122 | P032F | 4.5 |
| MT210A | 1.142 | | | NCN350A | 1.122 | P22 | 3.15 |
| MT216A | 1.142 | | | NCN363A | 1.122 | P22/1.0 | 3.14 |
| MT220A | 1.142 | | | NCN400A | 1.144 | P22/1.0LSF/2 | 3.14 |
| MT225A | 1.142 | N75B | 1.24 | NCN401A | 1.144 | P22/1.0LSF/3 | 3.14 |
| MT232A | 1.142 | NBN106A | 1.121 | NCN402A | 1.144 | P22/1.0LSF/4 | 3.14 |
| MT240A | 1.142 | NBN110A | 1.121 | NCN403A | 1.144 | P22/1.0LSF/5 | 3.14 |
| MT250A | 1.142 | NBN116A | 1.122 | NCN404A | 1.144 | P22/1.0PVC/2 | 3.14 |
| MT263A | 1.142 | NBN120A | 1.122 | NCN406A | 1.144 | P22/1.0PVC/3 | 3.14 |
| MT306A | 1.142 | NBN125A | 1.122 | NCN410A | 1.144 | P22/1.0PVC/4 | 3.14 |
| MT310A | 1.142 | NBN132A | 1.122 | NCN416A | 1.144 | P22/1.0PVC/5 | 3.14 |
| MT316A | 1.142 | NBN140A | 1.122 | NCN420A | 1.144 | P22/2.0 | 3.14 |
| MT320A | 1.142 | NBN150A | 1.122 | NCN425A | 1.144 | P22/3.0 | 3.14 |
| MT325A | 1.142 | NBN163A | 1.122 | NCN432A | 1.144 | P22/4.0 | 3.14 |
| MT332A | 1.142 | NBN163R | 1.143 | NCN440A | 1.144 | P22/LSF/1.0 | 3.14 |
| MT340A | 1.142 | NBN206A | 1.143 | NCN450A | 1.144 | P22/LSF/2.0 | 3.14 |
| MT350A | 1.142 | NBN210A | 1.143 | NCN463A | 1.144 | P22/LSF/3.0 | 3.14 |
| MT363A | 1.142 | NBN216A | 1.143 | NDN100A | 1.121 | P22/LSF/4.0 | 3.14 |
| MU106A | 1.142 | NBN220A | 1.143 | NDN101A | 1.121 | P22BLACK | 3.15 |
| MU106A | 4.29 | NBN225A | 1.143 | NDN102A | 1.121 | P64AX | 3.15 |
| MU110A | 1.142 | NBN232A | 1.143 | NDN103A | 1.121 | P64AX/1.0 | 3.14 |
| MU110A | 4.29 | NBN240A | 1.143 | NDN104A | 1.121 | P64AX/1.0LSF/2 | 3.14 |
| MU116A | 1.142 | NBN250A | 1.143 | NDN106A | 1.121 | P64AX/1.0LSF/3 | 3.14 |
| MU116A | 4.29 | NBN263A | 1.143 | NDN110A | 1.121 | P64AX/1.0LSF/4 | 3.14 |
| MU120A | 1.142 | NBN306A | 1.121 | NDN116A | 1.122 | P64AX/1.0LSF/5 | 3.14 |
| MU120A | 4.29 | NBN310A | 1.121 | NDN120A | 1.122 | P64AX/1.0PVC/2 | 3.14 |
| MU125A | 1.142 | NBN316A | 1.122 | NDN125A | 1.122 | P64AX/1.0PVC/3 | 3.14 |
| MU125A | 4.29 | NBN320A | 1.122 | NDN132A | 1.122 | P64AX/1.0PVC/4 | 3.14 |
| MU132A | 1.142 | NBN325A | 1.122 | NDN140A | 1.122 | P64AX/1.0PVC/5 | 3.14 |
| MU132A | 4.29 | NBN332A | 1.122 | NDN150A | 1.122 | P64AX/2.0 | 3.14 |
| MU140A | 1.142 | NBN340A | 1.122 | NDN163A | 1.122 | P64AX/3.0 | 3.14 |
| MU140A | 4.29 | NBN350A | 1.122 | NDN200A | 1.143 | P64AX/4.0 | 3.14 |
| MU150A | 1.142 | NBN363A | 1.122 | NDN201A | 1.143 | P64AX/LSF/1.0 | 3.14 |
| MU150A | 4.29 | NBN406A | 1.144 | NDN202A | 1.143 | P64AX/LSF/2.0 | 3.14 |
| MU163A | 1.142 | NBN410A | 1.144 | NDN203A | 1.143 | P64AX/LSF/3.0 | 3.14 |
| MU163A | 4.29 | NBN416A | 1.144 | NDN204A | 1.143 | P64AX/LSF/4.0 | 3.14 |
| MU206A | 1.142 | NBN420A | 1.144 | NDN206A | 1.143 | P64AX/R | 3.15 |
| MU210A | 1.142 | NBN425A | 1.144 | NDN210A | 1.143 | P64AXR/1.0 | 3.14 |

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|------------------|------------|-------------|------|------------|------|---------|-------|
| P64AXR/1.0LSF/2 | 3.14 | SBM10101SPD | 4.3 | SBN433 | 4.33 | SFH125 | 2.11 |
| P64AXR/1.0LSF/3 | 3.14 | SBM216 | 2.9 | SBN440 | 2.7 | SFH125 | 4.37 |
| P64AXR/1.0LSF/4 | 3.14 | SBM216 | 4.35 | SBN440 | 4.33 | SFH132 | 2.11 |
| P64AXR/1.0LSF/5 | 3.14 | SBM225 | 2.9 | SBN463 | 2.7 | SFH132 | 4.37 |
| P64AXR/1.0PVC/2 | 3.14 | SBM225 | 4.35 | SBN463 | 4.33 | SFH225 | 2.11 |
| P64AXR/1.0PVC/3 | 3.14 | SBM232 | 2.9 | SBN464 | 2.7 | SFH225 | 4.37 |
| P64AXR/1.0PVC/4 | 3.14 | SBM232 | 4.35 | SBN464 | 4.33 | SFH232 | 2.11 |
| P64AXR/1.0PVC/5 | 3.14 | SBM700 | 4.4 | SBN480 | 2.7 | SFH232 | 4.37 |
| P64AXR/2.0 | 3.14 | SBM800 | 4.4 | SBN480 | 4.33 | SFL116 | 2.11 |
| P64AXR/3.0 | 3.14 | SBM8101 | 4.3 | SBN490 | 2.7 | SFL116 | 4.37 |
| P64AXR/4.0 | 3.14 | SBM8101SPD | 4.3 | SBN490 | 4.33 | SFL125 | 2.11 |
| P64AXR/LSF/1.0 | 3.14 | SBM900 | 4.4 | SBN499 | 2.7 | SFL125 | 4.37 |
| P64AXR/LSF/2.0 | 3.14 | SBM9101 | 4.3 | SBN499 | 4.33 | SFL132 | 2.11 |
| P64AXR/LSF/3.0 | 3.14 | SBM9101SPD | 4.3 | SBR140 | 2.8 | SFL132 | 4.37 |
| P64AXR/LSF/4.0 | 3.14 | SBN116 | 2.7 | SBR140 | 4.34 | SFL216 | 2.11 |
| PCR2000 | 3.15 | SBN116 | 4.33 | SBR163 | 2.8 | SFL216 | 4.37 |
| PCR2000/1.0 | 3.13 | SBN125 | 2.7 | SBR163 | 4.34 | SFL225 | 2.11 |
| PCR2000/1.0LSF/2 | 3.13 | SBN125 | 4.33 | SBR180 | 2.8 | SFL225 | 4.37 |
| PCR2000/1.0LSF/3 | 3.13 | SBN132 | 2.7 | SBR180 | 4.34 | SFL232 | 2.11 |
| PCR2000/1.0LSF/4 | 3.13 | SBN132 | 4.33 | SBR190 | 2.8 | SFL232 | 4.37 |
| PCR2000/1.0LSF/5 | 3.13 | SBN133 | 2.7 | SBR190 | 4.34 | SFM125 | 2.11 |
| PCR2000/1.0PVC/2 | 3.13 | SBN133 | 4.33 | SBR199 | 2.8 | SFM125 | 4.37 |
| PCR2000/1.0PVC/3 | 3.13 | SBN140 | 2.7 | SBR199 | 4.34 | SFM132 | 2.11 |
| PCR2000/1.0PVC/4 | 3.13 | SBN140 | 4.33 | SBR240 | 2.8 | SFM132 | 4.37 |
| PCR2000/1.0PVC/5 | 3.13 | SBN163 | 2.7 | SBR240 | 4.34 | SFT125 | 2.11 |
| PCR2000/2.0 | 3.13 | SBN163 | 4.33 | SBR263 | 2.8 | SFT125 | 4.37 |
| PCR2000/3.0 | 3.13 | SBN164 | 2.7 | SBR263 | 4.34 | SFT132 | 2.11 |
| PCR2000/4.0 | 3.13 | SBN164 | 4.33 | SBR280 | 2.8 | SFT132 | 4.37 |
| PCR2000/LSF/1.0 | 3.13 | SBN180 | 2.7 | SBR280 | 4.34 | SFT140 | 2.11 |
| PCR2000/LSF/2.0 | 3.13 | SBN180 | 4.33 | SBR290 | 2.8 | SFT140 | 4.37 |
| PCR2000/LSF/3.0 | 3.13 | SBN190 | 2.7 | SBR290 | 4.34 | SFT225 | 2.11 |
| PCR2000/LSF/4.0 | 3.13 | SBN190 | 4.33 | SBR299 | 2.8 | SFT225 | 4.37 |
| PCR2000BLACK | 3.15 | SBN199 | 2.7 | SBR299 | 4.34 | SFT232 | 2.11 |
| PULLCORD | 5.11, 5.14 | SBN199 | 4.33 | SBR340 | 2.8 | SFT232 | 4.37 |
| | | SBN216 | 2.7 | SBR340 | 4.34 | SFT240 | 2.11 |
| | | SBN225 | 2.7 | SBR363 | 2.8 | SFT240 | 4.37 |
| | | | | | 4.34 | SFT340 | 2.11 |
| R | | | | | | | |
| RL602 | 5.46 | SBN225 | 4.33 | SBR380 | 2.8 | SFT340 | 4.37 |
| RL624 | 5.46 | SBN232 | 2.7 | SBR380 | 4.34 | SFT440 | 2.11 |
| | | SBN232 | 4.33 | SBR390 | 2.8 | SFT440 | 4.37 |
| S | | | | | | | |
| S21 | 3.16 | SBN240 | 4.33 | SBR463 | 2.8 | SMC120R | 2.3 |
| S26 | 3.16 | SBN263 | 2.7 | SBR463 | 4.34 | SMC120R | 2.3 |
| S26/TC | 3.16 | SBN263 | 4.33 | SBR490 | 2.8 | SMC120R | 2.4 |
| S27 | 3.16 | SBN264 | 2.7 | SBR490 | 4.34 | SMC120R | 2.5 |
| S28 | 3.16 | SBN264 | 4.33 | SBR499 | 2.8 | SPA201 | 1.156 |
| S35S | 4.10 | SBN280 | 2.7 | SBR499 | 4.34 | SPA201 | 4.32 |
| S35S | 4.11 | SBN280 | 4.33 | SBT116 | 2.9 | SPA401 | 1.156 |
| S35S | 4.23 | SBN290 | 2.7 | SBT116 | 4.35 | SPD008D | 4.32 |
| S35S | 4.5 | SBN290 | 4.33 | SBT125 | 2.9 | SPD008N | 4.32 |
| S64AX | 3.16 | SBN299 | 2.7 | SBT125 | 4.35 | SPD015D | 4.32 |
| S64BLACK | 3.16 | SBN299 | 4.33 | SBT132 | 2.9 | SPD040N | 4.32 |
| S65AX | 3.16 | SBN316 | 2.7 | SBT132 | 4.35 | SPD140D | 4.32 |
| SB432PV | 1.155 | SBN316 | 4.33 | SBT216 | 2.9 | SPD215D | 1.156 |
| SBB116 | 2.9 | SBN325 | 2.7 | SBT216 | 4.35 | SPD215D | 4.32 |
| SBB116 | 4.35 | SBN325 | 4.33 | SBT225 | 2.9 | SPD240D | 4.32 |
| SBB125 | 2.9 | SBN332 | 2.7 | SBT225 | 4.35 | SPD415D | 4.32 |
| SBB125 | 4.35 | SBN332 | 4.33 | SBT232 | 2.9 | SPD440D | 4.32 |
| SBB132 | 2.9 | SBN333 | 2.7 | SBT232 | 4.35 | SPK102 | 1.157 |
| SBB132 | 4.35 | SBN333 | 4.33 | SCREWCOVER | 5.14 | SPK102 | 4.32 |
| SBB216 | 2.9 | SBN340 | 2.7 | SEL106T | 5.45 | SPK103 | 1.157 |
| SBB216 | 4.35 | SBN340 | 4.33 | SEL212 | 5.45 | SPK103 | 4.32 |
| SBB225 | 2.9 | SBN363 | 2.7 | SEL214 | 5.45 | SPN015D | 1.157 |
| SBB225 | 4.35 | SBN363 | 4.33 | SEL354 | 5.45 | SPN015R | 1.157 |
| SBB232 | 2.9 | SBN364 | 2.7 | SEL96T | 5.45 | SPN015R | 4.32 |
| SBB232 | 4.35 | SBN364 | 4.33 | SEL96TSC | 5.45 | SPN023N | 1.157 |
| SBE1000 | 4.4 | SBN380 | 2.7 | SF263 | 2.11 | SPN023N | 4.32 |
| SBE10101 | 4.3 | SBN380 | 4.33 | SFB116 | 2.11 | SPN040D | 1.157 |
| SBE10101SPD | 4.3 | SBN390 | 2.7 | SFB116 | 4.37 | SPN040D | 4.32 |
| SBE700 | 4.4 | SBN390 | 4.33 | SFB125 | 2.11 | SPN040N | 1.157 |
| SBE7101 | 4.3 | SBN399 | 2.7 | SFB125 | 4.37 | SPN040R | 1.157 |
| SBE800 | 4.4 | SBN399 | 4.33 | SFB132 | 2.11 | SPN040R | 4.32 |
| SBE8101 | 4.3 | SBN416 | 2.7 | SFB132 | 4.37 | SPN043N | 1.157 |
| SBE8101SPD | 4.3 | SBN416 | 4.33 | SFB216 | 2.11 | SPN065N | 1.157 |
| SBE900 | 4.4 | SBN425 | 2.7 | SFB216 | 4.37 | SPN065N | 4.32 |
| SBE9101 | 4.3 | SBN425 | 4.33 | SFB225 | 2.11 | SPN065R | 1.157 |
| SBE9101SPD | 4.3 | SBN432 | 2.7 | SFB225 | 4.37 | SPN065R | 4.32 |
| SBM1000 | 4.4 | SBN432 | 4.33 | SFB232 | 2.11 | SPN080 | 1.157 |
| SBM10101 | 4.3 | SBN433 | 2.7 | SFB232 | 4.37 | SPN080N | 1.157 |

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| SPN115D | 1.156 | SVN222 | 2.24 | UC221 | 1.84 | UC869 | 1.94 |
| SPN115D | 4.32 | SVN311 | 2.23 | UC222 | 1.84 | UC870 | 1.94 |
| SPN115R | 1.156 | SVN312 | 2.23 | UC223 | 1.84 | UC871 | 1.94 |
| SPN115R | 4.32 | SVN321 | 2.23 | UC224 | 1.84 | UC874 | 1.94 |
| SPN140D | 1.156 | SVN321 | 2.23 | UC225 | 1.84 | UC875 | 1.94 |
| SPN203N | 1.157 | SVN322 | 2.23 | UC226 | 1.84 | UC876 | 1.94 |
| SPN203N | 4.32 | SVN331 | 2.23 | UC230 | 1.84 | UC877 | 1.94 |
| SPN208D | 1.156 | SVN332 | 2.23 | UC231 | 1.84 | UC879 | 1.94 |
| SPN208D | 4.32 | SVN341 | 2.23 | UC232 | 1.84 | UC911 | 1.96 |
| SPN215R | 1.156 | SVN342 | 2.23 | UC233 | 1.84 | UC912 | 1.96 |
| SPN215R | 4.32 | SVN351 | 2.23 | UC234 | 1.84 | UC915 | 1.96 |
| SPN240D | 1.156 | SVN352 | 2.23 | UC235 | 1.84 | UC916 | 1.96 |
| SPN240R | 1.156 | SVN371 | 2.23 | UC236 | 1.84 | UC922 | 1.92 |
| SPN240R | 4.32 | SVN371 | 2.23 | UC239 | 1.84 | UC951 | 1.95 |
| SPN265R | 1.156 | SVN373 | 2.23 | UC268 | 1.95 | UC960 | 1.84 |
| SPN265R | 4.32 | SVN391 | 2.23 | UC270 | 1.84 | UC962 | 1.95 |
| SPN325 | 1.155 | SVN411 | 2.23 | UC288 | 1.91 | UC964 | 1.84 |
| SPN403N | 1.157 | SVN413 | 2.23 | UC289 | 1.96 | UC966 | 1.92 |
| SPN408D | 1.156 | SVN422 | 2.23 | UC310H | 1.84 | UC967 | 1.92 |
| SPN408D | 4.32 | SVN432 | 2.23 | UC311H | 1.84 | UC969 | 1.95 |
| SPN415D | 1.156 | SVN433 | 2.23 | UC312H | 1.85 | UC971 | 1.97 |
| SPN415R | 1.156 | SVN441 | 2.23 | UC313H | 1.85 | UC972 | 1.97 |
| SPN415R | 4.32 | SVN452 | 2.23 | UC314H | 1.85 | UC975 | 1.97 |
| SPN440D | 1.156 | SVN461 | 2.23 | UC320H | 1.85 | UC975S | 1.97 |
| SPN440R | 1.156 | SVN462 | 2.23 | UC321H | 1.85 | UC976 | 1.97 |
| SPN440R | 4.32 | SVN463 | 2.23 | UC321HM | 1.85 | UC976S | 1.97 |
| SPN465R | 1.156 | SVN464 | 2.23 | UC322H | 1.85 | UC988 | 1.91 |
| SPN465R | 4.32 | | | UC322HM | 1.85 | UC990 | 1.97 |
| SPN504 | 4.32 | | | UC323H | 1.85 | UC991 | 1.97 |
| SPN505 | 4.32 | | | UC324H | 1.85 | UC992 | 1.97 |
| SPN801 | 1.156 | TTCC510S | 3.7 | UC330H | 1.85 | UD01F1 | 1.56 |
| SPN801R | 1.156 | TKK513PE | 3.7 | UC332 | 1.84 | UD02F1 | 1.56 |
| SPN802 | 1.156 | TKK515PE | 3.7 | UC335 | 1.84 | UD11A1 | 1.53 |
| SPN802R | 1.156 | TKK523PE | 3.7 | UC350H | 1.86 | UD11B1 | 1.54 |
| SPV025 | 1.157 | TKK525PE | 3.7 | UC350HM | 1.86 | UD11C1 | 1.56 |
| SPV025E | 1.157 | TXF121 | 2.5 | UC351H | 1.86 | UD11F1 | 1.56 |
| SPV025E | 4.32 | | | UC351HM | 1.86 | UD12A1 | 1.53 |
| SPV325 | 1.157 | | | UC354H | 1.86 | UD12B1 | 1.54 |
| SPV325 | 4.32 | | | UC355H | 1.86 | UD12C1 | 1.56 |
| SRA00505 | 2.6 | | | UC360H | 1.86 | UD12F1 | 1.56 |
| SRA01005 | 2.6 | U82A | 4.23 | UC360HM | 1.86 | UD13A1 | 1.53 |
| SRA01505 | 2.6 | U841Y | 1.59 | UC361H | 1.86 | UD13B1 | 1.54 |
| SRA02005 | 2.6 | U842B | 1.23 | UC361HM | 1.86 | UD21A1 | 1.53 |
| SRA02505 | 2.6 | U850S | 4.23 | UC427H | 1.85 | UD21A2 | 1.53 |
| SRC04005 | 2.6 | UC001 | 1.84 | UC427HL | 1.87 | UD21B1 | 1.54 |
| SRC06005 | 2.6 | UC003 | 1.84 | UC428H | 1.85 | UD21B2 | 1.57 |
| SRD08005 | 2.6 | UC005 | 1.84 | UC428HL | 1.87 | UD21C1 | 1.56 |
| SRD10005 | 2.6 | UC008 | 1.84 | UC440H | 1.86 | UD21F1 | 1.56 |
| SRD15005 | 2.6 | UC009 | 1.84 | UC441H | 1.86 | UD22A1 | 1.53 |
| SRE20005 | 2.6 | UC010H | 1.85 | UC441HM | 1.86 | UD22A2 | 1.53 |
| SRI03005 | 2.6 | UC011H | 1.85 | UC442H | 1.86 | UD22B1 | 1.54 |
| SRZH01 | 2.6 | UC012H | 1.85 | UC442HM | 1.86 | UD22C1 | 1.56 |
| ST301 | 2.24 | UC013HX01 | 1.85 | UC444H | 1.86 | UD22F1 | 1.56 |
| ST303 | 2.24 | UC014H | 1.85 | UC445H | 1.86 | UD23A1 | 1.53 |
| ST305 | 2.24 | UC020H | 1.85 | UC446H | 1.86 | UD23B1 | 1.54 |
| ST309 | 2.24 | UC021H | 1.85 | UC447H | 1.86 | UD31A1 | 1.53 |
| ST310 | 2.24 | UC022H | 1.85 | UC448H | 1.86 | UD31A2 | 1.53 |
| ST312 | 2.24 | UC023H | 1.85 | UC692 | 1.84 | UD31B1 | 1.54 |
| ST313 | 2.24 | UC024H | 1.85 | UC811 | 1.90 | UD31B2 | 1.57 |
| ST314 | 2.24 | UC030H | 1.85 | UC812 | 1.90 | UD31C1 | 1.56 |
| ST315 | 2.24 | UC050H | 1.86 | UC815 | 1.91 | UD31C2 | 1.56 |
| SU212 | 2.25 | UC051H | 1.86 | UC816 | 1.91 | UD31F1 | 1.56 |
| SU213 | 2.25 | UC054H | 1.86 | UC820 | 1.90 | UD32A1 | 1.53 |
| SU214 | 2.25 | UC055H | 1.86 | UC821 | 1.90 | UD32B1 | 1.54 |
| SU215 | 2.25 | UC060H | 1.86 | UC822 | 1.90 | UD32C1 | 1.56 |
| SVN121 | 2.24 | UC061H | 1.86 | UC823 | 1.90 | UD32C2 | 1.56 |
| SVN122 | 2.24 | UC127H | 1.85 | UC824 | 1.90 | UD32F1 | 1.56 |
| SVN123 | 2.24 | UC128H | 1.85 | UC825 | 1.90 | UD33A1 | 1.53 |
| SVN124 | 2.24 | UC140H | 1.86 | UC826 | 1.90 | UD33B1 | 1.54 |
| SVN125 | 2.24 | UC141H | 1.86 | UC827 | 1.90 | UD33C1 | 1.56 |
| SVN126 | 2.24 | UC142H | 1.86 | UC828 | 1.90 | UD33C2 | 1.56 |
| SVN127 | 2.24 | UC144H | 1.86 | UC830 | 1.91 | UD41A1 | 1.53 |
| SVN128 | 2.24 | UC145H | 1.86 | UC832 | 1.92 | UD41A2 | 1.53 |
| SVN129 | 2.24 | UC146H | 1.86 | UC834 | 1.91 | UD41B1 | 1.54 |
| SVN131 | 2.24 | UC147H | 1.86 | UC842 | 1.92 | UD41B2 | 1.57 |
| SVN132 | 2.24 | UC148H | 1.86 | UC844 | 1.92 | UD41F1 | 1.56 |
| SVN133 | 2.24 | UC200 | 1.84 | UC851 | 1.92 | UD42A1 | 1.53 |
| SVN134 | 2.24 | UC201 | 1.84 | UC853 | 1.92 | UD42B1 | 1.54 |
| SVN135 | 2.24 | UC205 | 1.84 | UC855 | 1.92 | UD42C1 | 1.56 |
| SVN136 | 2.24 | UC209 | 1.95 | UC856E | 1.92 | UD42F1 | 1.56 |
| SVN221 | 2.24 | UC220 | 1.84 | UC868 | 1.94 | UE21D1 | 1.56 |

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|----------|------|---------|-------|--------|------|-------------|------|
| UE21D2 | 1.56 | UN51TN | 4.22 | UT90F | 1.17 | UZ32M5 | 4.22 |
| UE21D3 | 1.56 | UN52TN | 4.22 | UT90G | 1.17 | UZ40F1 | 4.23 |
| UE31D6 | 1.56 | UN61TN | 4.22 | UT90J | 1.17 | UZ41M1 | 1.61 |
| UG42Z1 | 1.57 | UN62TN | 4.22 | UT90L | 1.17 | UZ41M5 | 4.22 |
| UG52Z9 | 1.57 | UN71TN | 4.22 | UT90R | 1.17 | UZ41M6 | 4.22 |
| UG72Z12 | 1.57 | UN72TN | 4.22 | UT91A | 2.40 | UZ42M1 | 1.61 |
| UK21A3 | 1.55 | US01A1 | 1.58 | UW31V | 4.22 | UZ42M5 | 4.22 |
| UK21B2 | 1.55 | US02A1 | 1.58 | UW41V | 4.22 | UZ50A | 1.30 |
| UK21B2M | 1.55 | US11A1 | 1.58 | UW51V | 4.22 | UZ50AK | 1.30 |
| UK21BL2 | 1.55 | US11A1 | 4.22 | UW61V | 4.22 | UZ50F1 | 4.23 |
| UK21BL2M | 1.55 | US11A2 | 1.58 | UW71V | 4.22 | UZ51M1 | 1.61 |
| UK21L1A | 1.55 | US11A3 | 4.22 | UZ005 | 4.23 | UZ51M5 | 4.22 |
| UK21S1 | 1.55 | US11A5 | 1.58 | UZ006 | 4.23 | UZ52M1 | 1.61 |
| UK22A2 | 1.55 | US12A1 | 1.58 | UZ009 | 1.18 | UZ52M5 | 4.22 |
| UK31B3 | 1.55 | US12A1 | 4.22 | UZ00A1 | 1.60 | UZ60F1 | 4.23 |
| UK31B4 | 1.55 | US12A2 | 1.58 | UZ00A2 | 1.60 | UZ61M1 | 1.61 |
| UK31B4M | 1.55 | US12A3 | 1.58 | UZ00A3 | 1.60 | UZ61M5 | 4.22 |
| UK31BL3 | 1.55 | US13A1 | 1.58 | UZ00A4 | 1.60 | UZ62M1 | 1.61 |
| UK31C2 | 1.55 | US13A1 | 4.22 | UZ00A5 | 1.60 | UZ62M5 | 4.22 |
| UK31C2M | 1.55 | US13A2 | 1.58 | UZ00K1 | 2.41 | UZ70F1 | 4.23 |
| UK32C2 | 1.55 | US21A1 | 1.58 | UZ00K1 | 4.23 | UZ90T1 | 1.59 |
| UK32C2M | 1.55 | US21A1 | 4.22 | UZ00K2 | 4.23 | UZ90T2 | 1.59 |
| UK32D2 | 1.55 | US21A2 | 1.58 | UZ00VL | 1.39 | | |
| UK32N1A | 1.55 | US21A3 | 4.22 | UZ00Z1 | 1.61 | V | |
| UK32T1 | 1.55 | US21C2 | 1.58 | UZ00Z2 | 1.61 | | |
| UK41C3 | 1.55 | US21C3 | 1.58 | UZ00Z3 | 1.61 | VB1000P | 4.7 |
| UK41C4 | 1.55 | US22A1 | 1.58 | UZ00Z4 | 1.61 | VB1000T | 4.7 |
| UK42C5 | 1.55 | US22A1 | 4.22 | UZ010 | 1.18 | VB10101P | 4.6 |
| UK42T1 | 1.55 | US22A2 | 1.58 | UZ012 | 1.18 | VB10101PSPD | 4.6 |
| UK52X2 | 1.55 | US22A8 | 1.58 | UZ014 | 1.59 | VB10101T | 4.6 |
| UL01G1 | 4.22 | US22A9 | 1.58 | UZ015 | 1.59 | VB118J | 4.15 |
| UM05A | 1.24 | US23A1 | 1.58 | UZ01A1 | 1.60 | VB118W | 4.15 |
| UM05B | 1.24 | US23A1 | 4.22 | UZ01A2 | 1.60 | VB218J | 4.15 |
| UM05C | 1.24 | US23A2 | 1.58 | UZ01A2 | 4.23 | VB218W | 4.15 |
| UM05D | 1.24 | US31A1 | 1.58 | UZ01B4 | 1.23 | VB318J | 4.15 |
| UM05G | 1.24 | US31A1 | 4.22 | UZ01T1 | 1.59 | VB318W | 4.15 |
| UM05H | 1.24 | US31A2 | 1.58 | UZ01V1 | 1.96 | VB418J | 4.15 |
| UM05K | 1.24 | US31A3 | 4.22 | UZ01V2 | 4.23 | VB418W | 4.15 |
| UM05L | 1.24 | US31B1 | 1.58 | UZ01Z1 | 1.61 | VB700P | 4.7 |
| UM21A | 1.24 | US31B5 | 1.58 | UZ01Z2 | 1.61 | VB700T | 4.7 |
| UM21B | 1.24 | US32A1 | 1.58 | UZ020 | 1.18 | VB7101P | 4.6 |
| UM22A | 1.24 | US32A1 | 4.22 | UZ02A1 | 1.60 | VB7101PSPD | 4.6 |
| UM22B | 1.24 | US32A2 | 1.58 | UZ02A2 | 1.60 | VB7101T | 4.6 |
| UM23A | 1.24 | US32A8 | 1.58 | UZ02A3 | 1.60 | VB7101TSPD | 4.6 |
| UM23B | 1.24 | US32A9 | 1.58 | UZ02T1 | 1.59 | VB800P | 4.7 |
| UM24A | 1.24 | US33A1 | 1.58 | UZ02Z1 | 1.60 | VB800T | 4.7 |
| UM24B | 1.24 | US33A1 | 4.22 | UZ02Z2 | 1.60 | VB8101P | 4.6 |
| UM25A | 1.24 | US33A2 | 1.58 | UZ03A1 | 4.23 | VB8101PSPD | 4.6 |
| UM25B | 1.24 | US41A1 | 1.58 | UZ03T1 | 1.59 | VB8101T | 4.6 |
| UM26A | 1.24 | US41A1 | 4.22 | UZ03Z1 | 1.60 | VB8101TSPD | 4.6 |
| UM26B | 1.24 | US41A2 | 1.58 | UZ03Z2 | 1.60 | VB900P | 4.7 |
| UM30A1 | 1.92 | US41A5 | 4.22 | UZ04A1 | 4.23 | VB900T | 4.7 |
| UM30A2 | 1.92 | US42A1 | 1.58 | UZ04Z1 | 1.60 | VB9101P | 4.6 |
| UM30A3 | 1.92 | US42A1 | 4.22 | UZ04Z2 | 1.60 | VB9101PSPD | 4.6 |
| UM30A4 | 1.92 | US42A2 | 1.58 | UZ05A1 | 1.60 | VB9101T | 4.6 |
| UM30A5 | 1.92 | US43A4 | 1.58 | UZ05A1 | 4.23 | VB9101TSPD | 4.6 |
| UM92V | 1.94 | US51A1 | 1.58 | UZ06A1 | 1.59 | VB9101TSPD | 4.6 |
| UM92W | 1.94 | US51A1 | 4.22 | UZ06A1 | 4.25 | VBE800A | 4.8 |
| UM92X | 1.94 | US51A5 | 4.22 | UZ06A2 | 1.60 | VBE900A | 4.8 |
| UM92Y | 1.94 | US52A4 | 1.58 | UZ06Z1 | 1.59 | VE103L | 4.16 |
| UM92Z | 1.94 | US53A4 | 1.58 | UZ06Z4 | 1.59 | VE106R | 4.16 |
| UN02A | 1.17 | US61A5 | 4.22 | UZ07Z1 | 1.59 | VE110L | 4.16 |
| UN03A | 1.4 | UT12HSV | 1.44 | UZ100 | 1.59 | VE112R | 4.16 |
| UN03A | 4.22 | UT12L | 1.17 | UZ21M6 | 4.22 | VE118R | 4.16 |
| UN04A | 1.4 | UT12PN | 1.17 | UZ21MP | 1.43 | VE212R | 4.16 |
| UN04A | 4.22 | UT12QN | 1.17 | UZ22MP | 1.43 | VE218R | 4.16 |
| UN05A | 1.4 | UT21A | 1.31 | UZ23MP | 1.43 | VE312R | 4.16 |
| UN05A | 4.22 | UT21B | 1.31 | UZ24MP | 1.43 | VE318Y | 4.16 |
| UN06A | 1.4 | UT21C | 1.31 | UZ25A | 1.30 | VE412Y | 4.16 |
| UN06A | 4.22 | UT21D | 1.31 | UZ25AK | 1.30 | VF1000 | 4.10 |
| UN07A | 1.4 | UT21E | 1.31 | UZ25MP | 1.43 | VF10101 | 4.9 |
| UN07A | 4.22 | UT21F | 1.31 | UZ25V1 | 1.96 | VF10101SPD | 4.9 |
| UN08A | 1.4 | UT22B | 4.23 | UZ25V2 | 1.96 | VF104TDI | 4.27 |
| UN09A | 1.4 | UT26A | 4.23 | UZ25V2 | 4.23 | VF108TDI | 4.27 |
| UN10A | 1.4 | UT26B | 4.23 | UZ30F1 | 4.23 | VF112TDI | 4.27 |
| UN11A | 1.4 | UT50C | 1.117 | UZ30T1 | 1.59 | VF122TDI | 4.27 |
| UN12A | 1.44 | UT87E | 1.83 | UZ31M1 | 1.61 | VF127TDI | 4.27 |
| UN31TN | 4.22 | UT88A | 1.83 | UZ31M5 | 4.22 | VF312TDI | 4.27 |
| UN32TN | 4.22 | UT88B | 1.83 | UZ31M6 | 4.22 | VF412TDI | 4.27 |
| UN41TN | 4.22 | UT88C | 1.83 | UZ31T1 | 1.59 | VF700 | 4.10 |
| UN42TN | 4.22 | UT88D | 1.83 | UZ32M1 | 1.61 | VF800 | 4.10 |

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|-----------|------|-------------|------|-------------|------|-------------|------|
| VF8101 | 4.9 | VZ418T | 4.8 | WFDP84BSW | 5.23 | WFP1PS | 5.36 |
| VF8101SPD | 4.9 | VZ418T | 4.15 | WFDP84FOBNB | 5.23 | WFP2BN | 5.36 |
| VF900 | 4.10 | VZ428 | 4.10 | WFDP84FOBSW | 5.23 | WFP2BS | 5.36 |
| VF9101 | 4.9 | VZ428 | 4.16 | WFDP84FOBSW | 5.23 | WFP2EUBNB | 5.30 |
| VF9101SPD | 4.9 | VZ601N | 4.18 | WFDP84FOPBB | 5.23 | WFP2EUBSB | 5.30 |
| VM02SPDIE | 4.32 | VZ602 | 4.23 | WFDP84FOPBW | 5.23 | WFP2EUBSW | 5.30 |
| VS104TDI | 4.17 | VZ602N | 4.18 | WFDP84FOPSB | 5.23 | WFP2EUPBB | 5.30 |
| VS108TDI | 4.17 | VZ603N | 4.18 | WFDP84FOPSW | 5.23 | WFP2EUPBW | 5.30 |
| VS112TDI | 4.17 | VZ604N | 4.18 | WFDP84NBNB | 5.23 | WFP2EUPSB | 5.30 |
| VS118TDI | 4.17 | VZ605N | 4.18 | WFDP84NBSB | 5.23 | WFP2EUPSW | 5.30 |
| VS122TDI | 4.17 | VZ606N | 4.18 | WFDP84NBSW | 5.23 | WFP2PB | 5.36 |
| VS212TDI | 4.17 | VZ607N | 4.18 | WFDP84NPBB | 5.23 | WFP2PS | 5.36 |
| VS218TDI | 4.17 | VZ608N | 4.18 | WFDP84NPBW | 5.23 | WFP4EUBNB | 5.30 |
| VS312TDI | 4.17 | VZ609N | 4.18 | WFDP84NPSB | 5.23 | WFP4EUBSB | 5.30 |
| VS318TDI | 4.17 | VZ610N | 4.18 | WFDP84NPSW | 5.23 | WFP4EUBSW | 5.30 |
| VS412TDI | 4.17 | VZ621N | 4.18 | WFDP84PBW | 5.23 | WFP4EUPBB | 5.30 |
| VS418TDI | 4.17 | VZ622N | 4.18 | WFDP84PSW | 5.23 | WFP4EUPBW | 5.30 |
| VU12IE | 4.26 | VZ623N | 4.18 | WFDS1BN | 5.19 | WFP4EUPSB | 5.30 |
| VU24IE | 4.26 | VZ624N | 4.18 | WFDS1BS | 5.19 | WFP4EUPSW | 5.30 |
| VU36IE | 4.26 | VZ625N | 4.18 | WFDS1PB | 5.19 | WFPS12BNB | 5.18 |
| VU48IE | 4.26 | VZ626N | 4.18 | WFDS1PS | 5.19 | WFPS12BSB | 5.18 |
| VZ013V | 1.39 | VZ627N | 4.18 | WFDS2BN | 5.19 | WFPS12BSW | 5.18 |
| VZ016M | 1.38 | VZ628N | 4.18 | WFDS2BS | 5.19 | WFPS12PBB | 5.18 |
| VZ020D | 1.38 | VZ629N | 4.18 | WFDS2PB | 5.19 | WFPS12PBW | 5.18 |
| VZ020M | 1.38 | VZ630N | 4.18 | WFDS2PS | 5.19 | WFPS12PSB | 5.18 |
| VZ020M | 4.16 | VZ699N | 4.18 | WFDS3BN | 5.19 | WFPS12PSW | 5.18 |
| VZ021V | 1.39 | VZ710 | 2.41 | WFDS3BS | 5.19 | WFPS12WBNNB | 5.18 |
| VZ025D | 1.38 | VZ711 | 2.41 | WFDS3PB | 5.19 | WFPS12WBSB | 5.18 |
| VZ025M | 1.38 | VZ717 | 4.23 | WFDS3PS | 5.19 | WFPS12WBSW | 5.18 |
| VZ032D | 1.38 | VZ744 | 4.16 | WFDS4BN | 5.19 | WFPS12WPBB | 5.18 |
| VZ032M | 1.38 | VZ754 | 4.16 | WFDS4BS | 5.19 | WFPS12WPBW | 5.18 |
| VZ040M | 1.38 | VZ758 | 4.16 | WFDS4PB | 5.19 | WFPS12WPSB | 5.18 |
| VZ050M | 1.38 | VZ786N | 4.18 | WFDS4PS | 5.19 | WFPS12WPSW | 5.18 |
| VZ063M | 1.38 | VZ787N | 4.18 | WFDXBNB | 5.29 | WFPS16BNB | 5.18 |
| VZ111N | 4.26 | VZ788N | 4.18 | WFDXBSB | 5.29 | WFPS16BSB | 5.18 |
| VZ112N | 4.26 | VZ789N | 4.18 | WFDXBSW | 5.29 | WFPS16BSW | 5.18 |
| VZ113N | 4.26 | VZ794N | 4.18 | WFDXPBB | 5.29 | WFPS16PBB | 5.18 |
| VZ114N | 4.26 | VZ801N | 4.26 | WFDXPBW | 5.29 | WFPS16PBW | 5.18 |
| VZ118P | 4.8 | VZ802N | 4.26 | WFDXPSB | 5.29 | WFPS16PSB | 5.18 |
| VZ118P | 4.15 | VZ803N | 4.26 | WFDXPSW | 5.29 | WFPS16PSW | 5.18 |
| VZ118T | 4.8 | VZ804N | 4.26 | WFGF1 | 5.32 | WFPS22BNB | 5.18 |
| VZ118T | 4.15 | VZ807N | 4.26 | WFGF2 | 5.32 | WFPS22BSB | 5.18 |
| VZ131 | 4.10 | VZ808N | 4.26 | WFGF34 | 5.32 | WFPS22BSW | 5.18 |
| VZ131N | 4.26 | VZ809N | 4.26 | WFGP12BN | 5.32 | WFPS22PBB | 5.18 |
| VZ132 | 4.10 | VZ810N | 4.26 | WFGP12BS | 5.32 | WFPS22PBW | 5.18 |
| VZ132N | 4.26 | VZ811N | 4.26 | WFGP12PB | 5.32 | WFPS22PSB | 5.18 |
| VZ133 | 4.10 | VZ812N | 4.26 | WFGP12PS | 5.32 | WFPS22PSW | 5.18 |
| VZ133N | 4.26 | VZ813N | 4.26 | WFGP1BN | 5.32 | WFPS22WBNNB | 5.18 |
| VZ134N | 4.26 | VZ814N | 4.26 | WFGP1BS | 5.32 | WFPS22WBSB | 5.18 |
| VZ218P | 4.8 | | | WFGP1PB | 5.32 | WFPS22WBSW | 5.18 |
| VZ218P | 4.15 | | | WFGP1PS | 5.32 | WFPS22WPBB | 5.18 |
| VZ218T | 4.8 | | | WFGP2BN | 5.32 | WFPS22WPBW | 5.18 |
| VZ218T | 4.15 | | | WFGP2BS | 5.32 | WFPS22WPSB | 5.18 |
| VZ225N | 4.26 | WFBTMBNB | 5.27 | WFGP2PB | 5.32 | WFPS22WPSW | 5.18 |
| VZ261 | 4.10 | WFBTMBSB | 5.27 | WFGP2PS | 5.32 | WFPS32BNB | 5.18 |
| VZ262 | 4.10 | WFBTMBSW | 5.27 | WFGP3BN | 5.32 | WFPS32BSB | 5.18 |
| VZ263 | 4.10 | WFBTMPBB | 5.27 | WFGP3BS | 5.32 | WFPS32BSW | 5.18 |
| VZ292N | 4.26 | WFBTMSPB | 5.27 | WFGP3PB | 5.32 | WFPS32PBB | 5.18 |
| VZ293N | 4.26 | WFBTMSPW | 5.27 | WFGP3PS | 5.32 | WFPS32PBW | 5.18 |
| VZ302N | 4.26 | WFBTSBNB | 5.27 | WFGP4BN | 5.32 | WFPS32PSB | 5.18 |
| VZ303 | 4.10 | WFBTSBSB | 5.27 | WFGP4BS | 5.32 | WFPS32PSW | 5.18 |
| VZ304N | 4.26 | WFBTSBSW | 5.27 | WFGP4PB | 5.32 | WFPS3PIBNB | 5.20 |
| VZ310PVB | 4.8 | WFBTSPBB | 5.27 | WFGP4PS | 5.32 | WFPS3PIBSB | 5.20 |
| VZ310PVB | 4.15 | WFBTSPBW | 5.27 | WFGP6BN | 5.32 | WFPS3PIBSW | 5.20 |
| VZ310TVB | 4.8 | WFBTSPSB | 5.27 | WFGP6BS | 5.32 | WFPS3PIPBB | 5.20 |
| VZ310TVB | 4.15 | WFBTSPSW | 5.27 | WFGP6PB | 5.32 | WFPS3PIPBW | 5.20 |
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| WMSS81R | 5.16 | WPB140W | 5.40 | WPP2EU | 5.39 | WPSSU83FONBKOW | 5.38 |
| WMSS81RR | 5.16 | WPB240 | 5.40 | WPP2EUB | 5.39 | WPSSU83FONBW | 5.38 |
| WMSS82 | 5.5 | WPB240KO | 5.40 | WPP2EUBKO | 5.39 | WPSSU83FONW | 5.38 |
| WMSS82N | 5.5 | WPB240KOW | 5.40 | WPP2EUBKOW | 5.39 | WPSSU83FOW | 5.38 |
| WMSS82O | 5.5 | WPB240W | 5.40 | WPP2EUBW | 5.39 | WPSU83FO | 5.38 |
| WMSS82OG | 5.15 | WPB6840 | 5.40 | WPP2EUW | 5.39 | WPSU83FOB | 5.38 |
| WMSS82ON | 5.5 | WPB6840KO | 5.40 | WPP2W | 5.40 | WPSU83FOBK0 | 5.38 |
| WMSS82OR | 5.16 | WPB6840KOW | 5.40 | WPP4EU | 5.39 | WPSU83FOBKOW | 5.38 |
| WMSS82ORR | 5.16 | WPB6840W | 5.40 | WPP4EUB | 5.39 | WPSU83FOBW | 5.38 |
| WMSS82R | 5.16 | WPDP50N | 5.37 | WPP4EUBKO | 5.39 | WPSU83FOW | 5.38 |
| WMSS82R/CS | 5.16 | WPDP50NB | 5.37 | WPP4EUBKOW | 5.39 | WRBTMBNB | 5.27 |
| WMSS82R/DNS | 5.16 | WPDP50NBKO | 5.37 | WPP4EUBW | 5.39 | WRBTMBSB | 5.27 |
| WMSS82R/ES | 5.16 | WPDP50NBKOW | 5.37 | WPP4EUW | 5.39 | WRBTMBSW | 5.27 |
| WMSS82R/UPS | 5.16 | WPDP50NBW | 5.37 | WPPS12 | 5.37 | WRBTMPBB | 5.27 |
| WMSS82RR | 5.16 | WPDP50NW | 5.37 | WPPS12B | 5.37 | WRBTMPBW | 5.27 |

| | | | | | | | |
|-------------|------|------------|------|---------------|------|--------------|------|
| WRBTMPSB | 5.27 | WRGP3PB | 5.31 | WRPS32PBB | 5.17 | WRSSU83FOPBW | 5.22 |
| WRBTMPSW | 5.27 | WRGP3PS | 5.31 | WRPS32PBW | 5.17 | WRSSU83FOPSB | 5.22 |
| WRBTSBNB | 5.27 | WRGP4BN | 5.31 | WRPS32PSB | 5.17 | WRSSU83FOPSW | 5.22 |
| WRBTSBSB | 5.27 | WRGP4BS | 5.31 | WRPS32PSW | 5.17 | WRSSU83PBB | 5.22 |
| WRBTSBSW | 5.27 | WRGP4PB | 5.31 | WRPS3PIBNB | 5.20 | WRSSU83PBW | 5.22 |
| WRBTSPBB | 5.27 | WRGP4PS | 5.31 | WRPS3PIBSB | 5.20 | WRSSU83PSB | 5.22 |
| WRBTSPBW | 5.27 | WRGP6BN | 5.31 | WRPS3PIBSW | 5.20 | WRSSU83PSW | 5.22 |
| WRBTSPSB | 5.27 | WRGP6BS | 5.31 | WRPS3PIPBB | 5.20 | WRSU83BNB | 5.22 |
| WRBTSPSW | 5.27 | WRGP6PB | 5.31 | WRPS3PIPBW | 5.20 | WRSU83BSB | 5.22 |
| WRDP50NBNB | 5.24 | WRGP6PS | 5.31 | WRPS3PIPSB | 5.20 | WRSU83BSW | 5.22 |
| WRDP50NBSB | 5.24 | WRGP8BN | 5.31 | WRPS3PIPFW | 5.20 | WRSU83PBB | 5.22 |
| WRDP50NBSW | 5.24 | WRGP8BS | 5.31 | WRPS42BNB | 5.17 | WRSU83PBW | 5.22 |
| WRDP50NPBB | 5.24 | WRGP8PB | 5.31 | WRPS42BSB | 5.17 | WRSU83PSB | 5.22 |
| WRDP50NPBW | 5.24 | WRGP8PS | 5.31 | WRPS42BSW | 5.17 | WRSU83PSW | 5.22 |
| WRDP50NPSB | 5.24 | WRP1BN | 5.36 | WRPS42PBB | 5.17 | WRTVFBNB | 5.28 |
| WRDP50NPSW | 5.24 | WRP1BS | 5.36 | WRPS42PBW | 5.17 | WRTVFBSB | 5.28 |
| WRDP50VNBNB | 5.24 | WRP1EUBNB | 5.29 | WRPS42PSB | 5.17 | WRTVFBFW | 5.28 |
| WRDP50VNBSB | 5.24 | WRP1EUBSB | 5.29 | WRPS42PSW | 5.17 | WRTVFPBB | 5.28 |
| WRDP50VNBSW | 5.24 | WRP1EUBSW | 5.29 | WRQXBNB | 5.28 | WRTVFPBW | 5.28 |
| WRDP50VNPPB | 5.24 | WRP1EUPBB | 5.29 | WRQXBSB | 5.28 | WRTVFPWB | 5.28 |
| WRDP50VNPPW | 5.24 | WRP1EUPBW | 5.29 | WRQXBSW | 5.28 | WRTVFPWS | 5.28 |
| WRDP50VNPSB | 5.24 | WRP1EUPSB | 5.29 | WRQXPBB | 5.28 | WRTVLPWW | 5.31 |
| WRDP50VNPSW | 5.24 | WRP1EUPSW | 5.29 | WRQXPBW | 5.28 | WRTXBNB | 5.28 |
| WRDP84BNB | 5.23 | WRP1PB | 5.36 | WRQXPSB | 5.28 | WRTXBSB | 5.28 |
| WRDP84BSB | 5.23 | WRP1PS | 5.36 | WRQXPSW | 5.28 | WRTXBSW | 5.28 |
| WRDP84BSW | 5.23 | WRP2BN | 5.36 | WRRJ45BNB | 5.27 | WRTXPBB | 5.28 |
| WRDP84FOBNB | 5.23 | WRP2BS | 5.36 | WRRJ45BSB | 5.27 | WRTXPBW | 5.28 |
| WRDP84FOBSB | 5.23 | WRP2EUBNB | 5.29 | WRRJ45BSW | 5.27 | WRTXPSB | 5.28 |
| WRDP84FOBSW | 5.23 | WRP2EUBSB | 5.29 | WRRJ45PBB | 5.27 | WRTXPSW | 5.28 |
| WRDP84FOPBB | 5.23 | WRP2EUBSW | 5.29 | WRRJ45PBW | 5.27 | WXPDP84 | 5.41 |
| WRDP84FOPBW | 5.23 | WRP2EUPBB | 5.29 | WRRJ45PSB | 5.27 | WXPPS12 | 5.41 |
| WRDP84FOPSB | 5.23 | WRP2EUPBW | 5.29 | WRRJ45PSW | 5.27 | WXPPS12B | 5.41 |
| WRDP84FOPSW | 5.23 | WRP2EUPSB | 5.29 | WRS51BNB | 5.20 | WXPPS22 | 5.41 |
| WRDP84NBNB | 5.23 | WRP2EUPSW | 5.29 | WRS51BSB | 5.20 | WPXPS1 | 5.41 |
| WRDP84NBSB | 5.23 | WRP2PB | 5.36 | WRS51BSW | 5.20 | WPXPS2 | 5.41 |
| WRDP84NBSW | 5.23 | WRP2PS | 5.36 | WRS51PBB | 5.20 | WPXPS81 | 5.41 |
| WRDP84NPBB | 5.23 | WRP4EUBNB | 5.29 | WRS51PBW | 5.20 | WPXPS82 | 5.41 |
| WRDP84NPBW | 5.23 | WRP4EUBSB | 5.29 | WRS51PSB | 5.20 | WPXSSU83FO | 5.41 |
| WRDP84NPBW | 5.23 | WRP4EUBSW | 5.29 | WRS51PSW | 5.20 | X | |
| WRDP84NPSW | 5.23 | WRP4EUPBB | 5.29 | WRSATBNB | 5.28 | Z | |
| WRDP84PBB | 5.23 | WRP4EUPBW | 5.29 | WRSATBSB | 5.28 | XH9001 | 5.9 |
| WRDP84PBW | 5.23 | WRP4EUPSB | 5.29 | WRSATBSW | 5.28 | | |
| WRDP84PSB | 5.23 | WRP4EUPSW | 5.29 | WRSATPBB | 5.28 | | |
| WRDP84PSW | 5.23 | WRP12BNB | 5.17 | WRSATPBW | 5.28 | | |
| WRDS1BN | 5.19 | WRPS12BSB | 5.17 | WRSATPSB | 5.28 | | |
| WRDS1BS | 5.19 | WRPS12BSW | 5.17 | WRSATPSW | 5.28 | | |
| WRDS1PB | 5.19 | WRPS12PBB | 5.17 | WRSO100BNB | 5.25 | ZM11C | 1.24 |
| WRDS1PS | 5.19 | WRPS12PBW | 5.17 | WRSO100BSB | 5.25 | ZM12C | 1.24 |
| WRDS2BN | 5.19 | WRPS12PSB | 5.17 | WRSO100BSW | 5.25 | ZM13C | 1.24 |
| WRDS2BS | 5.19 | WRPS12PSW | 5.17 | WRSO100PBB | 5.25 | ZM14C | 1.24 |
| WRDS2PB | 5.19 | WRPS12WBNB | 5.17 | WRSO100PBW | 5.25 | ZM15C | 1.24 |
| WRDS2PS | 5.19 | WRPS12WBSB | 5.17 | WRSO100PSB | 5.25 | ZM75S | 1.21 |
| WRDS3BN | 5.19 | WRPS12WBSW | 5.17 | WRSO100PSW | 5.25 | ZM85S | 1.21 |
| WRDS3BS | 5.19 | WRPS12WPBB | 5.17 | WRSS81BNB | 5.20 | ZZ10H | 4.23 |
| WRDS3PB | 5.19 | WRPS12WPBW | 5.17 | WRSS81BSB | 5.20 | ZZ34S | 4.23 |
| WRDS3PS | 5.19 | WRPS12WPSB | 5.17 | WRSS81BSW | 5.20 | | |
| WRDS4BN | 5.19 | WRPS12WPSW | 5.17 | WRSS81PBB | 5.20 | | |
| WRDS4BS | 5.19 | WRPS16BNB | 5.17 | WRSS81PBW | 5.20 | | |
| WRDS4PB | 5.19 | WRPS16BSB | 5.17 | WRSS81PSB | 5.20 | | |
| WRDS4PS | 5.19 | WRPS16BSW | 5.17 | WRSS81PSW | 5.20 | | |
| WRDXBNB | 5.28 | WRPS16PBB | 5.17 | WRSS82BNB | 5.20 | | |
| WRDXBSB | 5.28 | WRPS16PBW | 5.17 | WRSS82BNB-USB | 5.20 | | |
| WRDXBSW | 5.28 | WRPS16PSB | 5.17 | WRSS82BSB | 5.20 | | |
| WRDXPBB | 5.28 | WRPS16PSW | 5.17 | WRSS82BSB-USB | 5.20 | | |
| WRDXPBW | 5.28 | WRPS22BNB | 5.17 | WRSS82BSW | 5.20 | | |
| WRDXPSB | 5.28 | WRPS22BSB | 5.17 | WRSS82BSW-USB | 5.20 | | |
| WRDXPSW | 5.28 | WRPS22BSW | 5.17 | WRSS82PBB | 5.20 | | |
| WRGP12BN | 5.31 | WRPS22PBB | 5.17 | WRSS82PBB-USB | 5.20 | | |
| WRGP12BS | 5.31 | WRPS22PBW | 5.17 | WRSS82PBW | 5.20 | | |
| WRGP12PB | 5.31 | WRPS22PSB | 5.17 | WRSS82PBW-USB | 5.20 | | |
| WRGP12PS | 5.31 | WRPS22PSW | 5.17 | WRSS82PSB | 5.20 | | |
| WRGP1BN | 5.31 | WRPS22WBNB | 5.17 | WRSS82PSB-USB | 5.20 | | |
| WRGP1BS | 5.31 | WRPS22WBSB | 5.17 | WRSS82PSW | 5.20 | | |
| WRGP1PB | 5.31 | WRPS22WBSW | 5.17 | WRSS82PSW-USB | 5.20 | | |
| WRGP1PS | 5.31 | WRPS22WPBB | 5.17 | WRSSU83BNB | 5.22 | | |
| WRGP2BN | 5.31 | WRPS22WPBW | 5.17 | WRSSU83BSB | 5.22 | | |
| WRGP2BS | 5.31 | WRPS22WPSB | 5.17 | WRSSU83BSW | 5.22 | | |
| WRGP2PB | 5.31 | WRPS22WPSW | 5.17 | WRSSU83FOBNB | 5.22 | | |
| WRGP2PS | 5.31 | WRPS32BNB | 5.17 | WRSSU83FOBSB | 5.22 | | |
| WRGP3BN | 5.31 | WRPS32BSB | 5.17 | WRSSU83FOBSW | 5.22 | | |
| WRGP3BS | 5.31 | WRPS32BSW | 5.17 | WRSSU83FOPBB | 5.22 | | |

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 €12/£8 shall be payable by the Buyer on orders under the value of €300/£200. 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. 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 Republic of Ireland/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 Sale of Goods and Services Act 1980.
- 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 Irish Law and the Irish 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.

Conditions of Use

All products sold by Hager Ltd. (Ireland) should be installed by suitably qualified professional personnel in accordance with the company's instructions, requirements of relevant legislation, regulations (including ETCI & IEE Wiring Regulations) and the accepted practice in the industry.



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