



Catalogue

Residential Distribution

We've got a wide range of consumer unit configurations & devices to suit any application, from split load to advanced protection from arc faults & surges.

:hager



Residential Distribution solutions

Changes to the wiring regulations with the release of the 18th Edition of BS 7671:2018 were published in July 2018 and came into effect on 1st January 2019.

These regulations had a significant impact on the design of residential electrical installations, which we expand upon in the following pages.

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Overload Protection

536.4.3.2

"RCCBs & switches do not provide protection against overload, therefore they shall be protected by an overcurrent protective device."

536.4.202

" ... overload protection shall not solely be based on the use of diversity factors of the downstream circuits. To achieve overload protection of RCCBs or switches, the rated current of the overcurrent protective device (OCPD) shall be selected according to the manufacturers instructions".



Devices such as switches, RCCBs etc. in distribution boards and consumer units may have historically had their rated current determined after having taken diversity into account but without having considered overload protection of the devices.

These devices do not provide protection against overload and the 18th Edition prescribes that overload protection of the switch or RCCB shall not solely be based on the use of diversity factors of the downstream circuits.

2 Pole 100A 30mA RCCB

Overload protection of switches and RCCBs can be achieved by:

Method 1

Ensure the sum of the rated current of the downstream MCBs do not exceed the rated current of the switch or RCCB (I_{nC}). This method would however need to consider the consequences of any spare ways and later additions.

Method 2

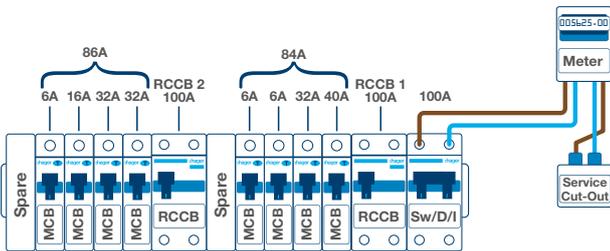
Ensure that the rated current of a switch or RCCB (I_{nC}), stated by the assembly manufacturer, is not less than the rating of the upstream OCPD. For a domestic installation this could be a 100A cut-out fuse.

Method 3

Select a consumer unit that only utilises RCBOs on outgoing circuits. Consideration will still need to be given as to the rated current of the main switch.

Example 1

Maximum demand based upon diversity = 92 A
 (100% Largest load + 40% all other loads)
 Consumer Unit I_{nA} = 100A



Method 1. Overload protection provided by:
Sum of Rated current of downstream devices

RCCB1 \geq Sum of rated current of downstream MCBs: 84 A
 RCCB2 \geq Sum of rated current of downstream MCBs: 86 A

Method 2. Overload protection provided by:
Upstream cut-out fuse

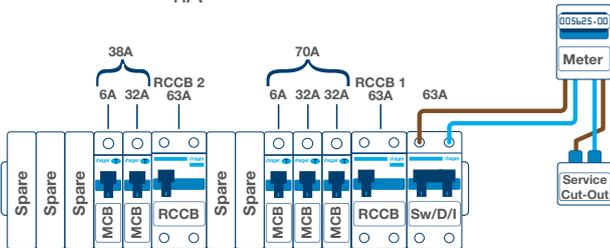
RCCBs \geq Rated current of upstream protection
 RCCBs (100 A) - Cut-out fuse 100 A
 Cut-out fuse 80 A
 Cut-out fuse 60 A

Summary

A consumer unit with a rated current of 100A (I_{nA}), with two RCCB 100A (I_{nC}) will allow the consumer unit to be installed in any single phase application up to 100A.

Example 2

Maximum demand based upon diversity = 62.4 A
 (100% Largest load + 40% all other loads)
 Consumer Unit I_{nA} = 63A



Method 1. Overload protection provided by:
Sum of Rated current of downstream devices

RCCB1 \geq Sum of rated current of downstream MCBs: 70 A
 RCCB2 \geq Sum of rated current of downstream MCBs: 38 A

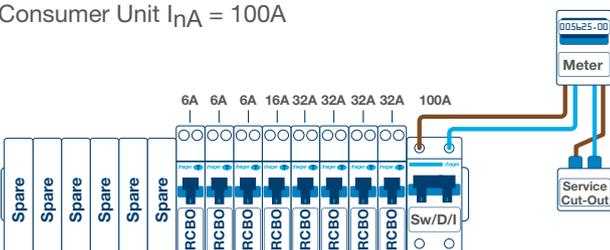
Method 2. Overload protection provided by:
Cut-out fuse

RCCBs \geq Rated current of upstream protection
 RCCBs (63 A) - Cut-out fuse 100 A
 Cut-out fuse 80 A
 Cut-out fuse 60 A

Note: Potential future loads on spare ways should be considered.

Example 3

Maximum demand based upon diversity = 84 A
 (100% Largest load + 40% all other loads)
 Consumer Unit I_{nA} = 100A



Method 3. Overload protection provided by:
Each RCBO

Method 2. Overload protection provided by:
Upstream cut-out fuse

Switch \geq Rated current of upstream protection
 Switch (100 A) - Cut-out fuse 100 A
 Cut-out fuse 80 A
 Cut-out fuse 60 A

RCD Selection

RCDs exist in various different forms and react differently depending on the presence of DC components or different frequencies. The following RCDs are available with the respective symbols and the designer or installer is required to select the appropriate device for the specific application:



Type AC

General purpose use

RCD can detect & respond to AC sinusoidal wave only.



Type A

Equipment incorporating electronic components

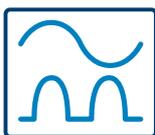
RCD can detect & respond the same as Type AC + **pulsating DC components.**



Type F

Equipment with frequency controlled speed drives

RCD can detect & respond the same as Type A + **high frequency residual current.**



Type B

Electric vehicle chargers, PV supplies



RCD can detect & respond the same as Type F + **smooth DC residual current.**

RCD

Examples of type of equipment / load

Type AC

Resistive, Capacitive, Inductive loads generally without any electronic components, typically:

- Immersion heater
 - Oven/Hob with resistive heating elements (no electronic clock/timer etc.)
 - Electric shower (no electronic display)
 - Tungsten & halogen lighting (no LED lamps and drivers)
-

Type A

Single phase with electronic components, typically:

- Single phase invertors
- Class 1 IT and Multimedia equipment
- Power supplies for Class 2 equipment
- Appliances such as a washing machine that is not frequency controlled e.g. d.c. or universal motor
- Lighting controls such as a dimmer switch and home and building electronic systems LED drivers
- Induction hobs
- Electric vehicle (EV) charging where any smooth DC fault current is less than 6 mA

Type A is also suitable for Type AC applications.

Type F

Frequency controlled equipment / appliances, typically:

- Some washing machines, dishwashers and dryers e.g. containing synchronous motors*
- Some class 1 power tools
- Some air conditioning controllers using variable frequency speed drives

Type F is also suitable for Type AC and Type A applications.

Type B

Three phase electronic equipment typically:

- Inverters for speed control
- UPS
- Electric Vehicle charging where any smooth DC fault current is greater than 6mA
- Photo voltaic
- Power Electronic Converter Systems (PECS) typically:
- Industrial machines
- Cranes

Type B is also suitable for Type AC, Type A and Type F applications.

Summary

For split load consumer units, Type A RCDs are advised as it is unlikely that any group of circuits will not require at least Type A protection.

Note: Table taken from BEAMA guide to the selection and application of residual current devices (RCDs).

Surge Protection

With everyday activities relying on electronic equipment, the whole nature of how electrical equipment is used in homes and at work has evolved.

Transient Overvoltages

Products such as computers, printers, flat screen televisions, alarms, microwaves and washing machines are common place. These can all be vulnerable to **transient overvoltages**, which can significantly reduce the equipment's lifespan through degradation and damage.

A transient overvoltage or surge is a short duration increase in voltage measured between two or more conductors. In short, this means anything from microseconds (millionths of a second) to a few milliseconds (thousandths of a second) in duration.

443.4

Protection against overvoltages shall be provided where the consequence caused by overvoltage could:

- (i) Result in serious injury to, or loss of, human life, or
- (ii) Result in the interruption of public services and/or damage to cultural heritage, or
- (iii) Result in interruption of commercial or industrial activity, or
- (iv) Affect a large number of co-located individuals.

For all other cases, a risk assessment according to regulation 443.5 shall be performed to determine if protection against transient overvoltage is required. If the risk assessment is not performed, the electrical installation shall be provided with protection against transient overvoltages, except for single dwelling units where the total value of the installation and equipment therein does not justify such protection.

443.5

Calculated risk level (CRL) is used to determine if protection against overvoltages of atmospheric origin is required. The CRL is found by the following formula:

$$CRL = f_{env}/(L_p \times N_g)$$

Where

- F_{env}** is an environmental factor selected according to Table 443.1 (Rural/Suburban or Urban)
- L_p** is the risk assessment length in km
- N_g** is the lightning ground flash density (flashes per km² per year) relevant to the location of the power line and connected structure (see figure 44.2).

If the CRL value is less than 1000 then SPD protection shall be installed. If the CRL value is 1000 or higher then SPD protection is not required for the installation.

Summary

It is unlikely that the value of an installation and the equipment therein will not justify the cost of surge protection. Hence, the risk assessment method will be the determining factor as to when surge protection is required. If the location is rural/suburban and the length of cable is unknown and the lightning flash density is at its lowest then the calculation will look like this;

$$CRL = f_{env}/(L_p \times N_g)$$

$$CRL = 85/1 \times 0.1$$

$$CRL = 850$$

Which means that surge protection will be required.

Surge Protection Devices

SPD's protect electrical and electronic equipment against transients, originating from lightning, switching of transformers, lighting and motors. These transients can cause premature aging of equipment, downtime, or complete destruction of electronic components and materials. SPDs are strongly recommended for installations that are exposed to transients, to protect sensitive and expensive electrical equipment such as TVs, washing machines, PCs, alarms etc.



Selection Criteria

Surge protection devices are classified according to their functions:

Type 1

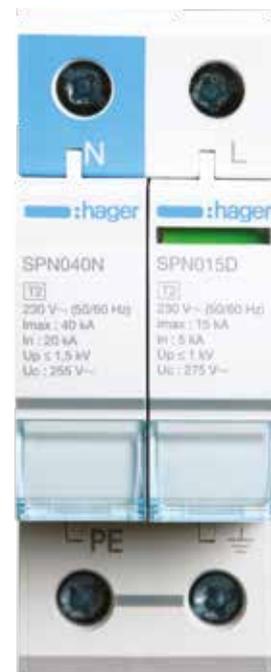
SPD which can discharge partial lightning current with a typical waveform 10/350 μ s. Usually employs spark gap technology.

Type 2

SPD which can prevent the spread of overvoltages in the electrical installations and protects equipment connected to it. It usually employs metal oxide varistor (MOV) technology and is characterised by an 8/20 μ s current wave.

Type 3

These SPDs have a low discharge capacity. They must therefore only be installed as a supplement to Type 2 SPD and in the vicinity of sensitive loads. Type 3 SPD's are characterised by a combination of voltage waves (1.2/50 μ s) and current waves (8/20 μ s).



Terminology



I_{imp} – Impulse current of 10/350 μ s waveform associated with Type 1 SPD's.

I_n – Surge current of 8/20 μ s waveform associated with Type 2 SPD's.

U_p – The residual voltage that is measured across the terminal of the SPD when I_n is applied.

U_c – The maximum voltage which may be continuously applied to the SPD without it conducting.

Arc Fault Detection Devices

Parallel Arc Fault



Series Arc Fault



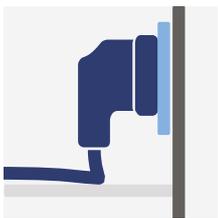
Arc fault detection devices (AFDD) use microprocessors to identify characteristic current flow and voltage curves that indicate an arc fault and automatically trip the affected circuit.

This significantly reduces the risk of fire due to faulty conductors and connections. The protective function of the AFDD has already proven its worth internationally and the use of arc fault detection devices conforming to BS EN 62606 is recommended as a means of providing additional protection in AC final circuits.

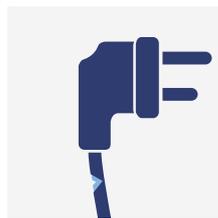
The 18th Edition of BS 7671, recommends the use of these to provide additional protection against fire.

Potential Causes

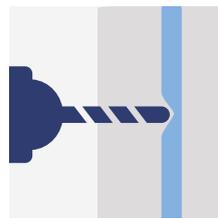
Arc faults can be caused by all types of line faults and worn contacts. An AFDD will trip the circuit when a potentially hazardous arc occurs, eliminating the resulting fire hazard.



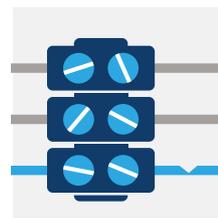
Kink/break in the cable



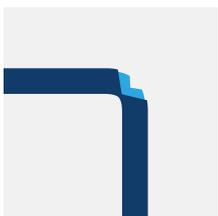
Cable wear due to frequent use



Line damage resulting from drilling or construction work



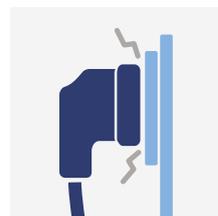
Incorrect wire stripping



Incorrect bending radii



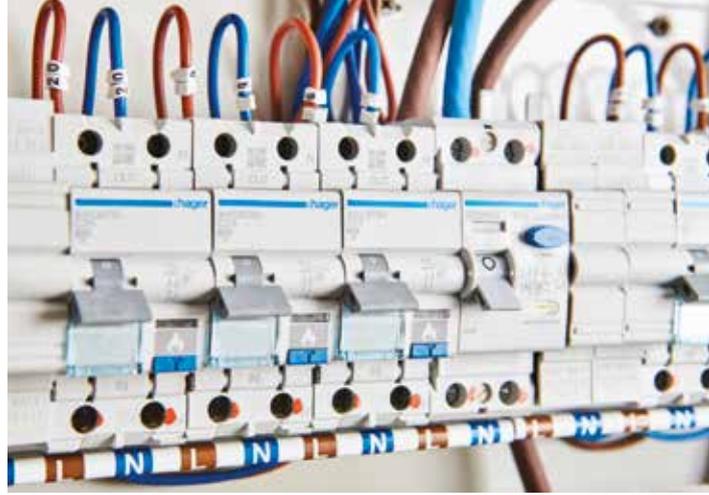
Loose screwed connections



Defective plugs



Rodent bites



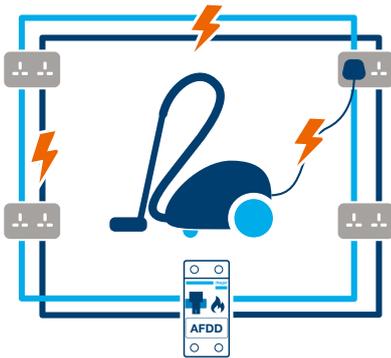
Ring Final Circuits

Contrary to common belief, AFDD's do offer protection against arc faults in-ring final circuits and to the equipment being fed from this circuit.

A series arc fault in one leg of a ring final circuit cannot occur. A break in a cable in a ring circuit will mean that both sides of that break will be at the same potential, thus not creating an arc.

Current in this instance will flow through the other leg of the ring. A radial or spur coming from a ring circuit can have a series arc, so if this occurs it will be detected. A series arc fault will be detected in equipment and flexible cables connected to the ring final circuit.

Parallel arc faults are detected and disconnected in all parts of the ring circuit and on all connected equipment.



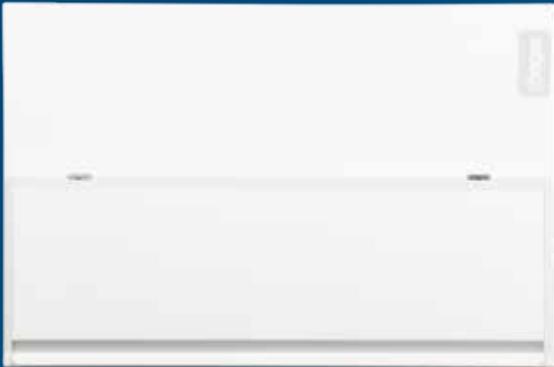
Monitoring via Microprocessor

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

Effective areas of protective devices depending on fault type.

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

Residential Distribution Consumer Units



Design 10

Design 10 is our board for all applications. As with all models in the range, there is ample cable space available even when RCBOs are fitted. The top mounted terminal rail makes the wiring of the neutral and earth connections neat and simple. Multiple fixing points are available to ease installation and a full metal DIN rail ensure the devices sit square. Available in surface and flush.



Design 30

Design 30 is our enhanced consumer unit, created to be more aesthetically pleasing whilst including extra features to ease installation. Design 30 comes with a cable clamp installed and rear cable entry plate supplied, which allows for incoming meter tails to be safely secured, eliminating stresses within the switch terminal.



Design 50

Design 50 focuses on clean aesthetics and a flush fit for seamless integration into any home. Design 50 comes with all the installation features you would expect from us, such as an incoming cable clamp and cable protector plate, as well as a series of colour options, finishes & sizes. There's a Design 50 for any home environment.

Additional Protection



RCBOs

RCDs exist in various different forms and react differently depending on the presence of DC components or different frequencies. We offer most RCBOs for residential applications in a reduced height form, giving more space for cabling during installation.



Surge Protection

SPD's protect electrical and electronic equipment against transients, originating from lightning, switching of transformers, lighting and motors. These transients can cause premature aging of equipment, downtime, or complete destruction of electronic components and materials.

SPDs are strongly recommended for installations that are exposed to transients, to protect sensitive and expensive electrical equipment such as TVs, washing machines, PCs, alarms etc.

Arc Fault Detection

Arc fault protection devices (AFDD) use microprocessors to identify characteristic current flow and voltage curves that indicate an arc fault and automatically trip the affected circuit.

This significantly reduces the risk of fire due to faulty conductors and connections.



Design 30

Surface & Dual Row

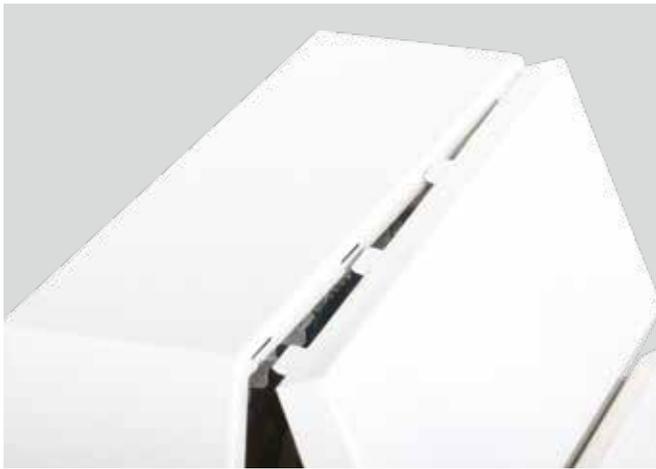
Design 30 was created with improved aesthetics and features for applications where the board would be installed in visible locations within a home. Dual row boards have been designed to accommodate large numbers of outgoing circuits & facilitate installation where horizontal space can be limited.



01

From 2 to 40 Ways

With the ability to accommodate from 2 to 40 outgoing ways, there is a solution for an incredible range of requirements from a high number of protected circuits, either MCB or RCBO, to the installation of surge protection or building automation.



02 Locate & Hold Cover

Multiple tabs along the top of the cover locate with slots in the base to hold the cover in place during installation, leaving both hands free to fix the cover to the base.



03 Cable Clamp

Incoming meter tails can be safely secured with a single screw, preventing stresses caused by movement of the meter tails outside the consumer unit from being transmitted to the terminals of the main switch.



04 Lockable

Our health & safety lock assembly provides the ability to isolate circuits and secure the consumer unit prior to occupation of a property. This is achieved with the use of the health & safety bracket (**VMHBL**) and padlock (**JK25A**). When the lock is removed, the cover can be clicked back into place, restoring the board to its original state.



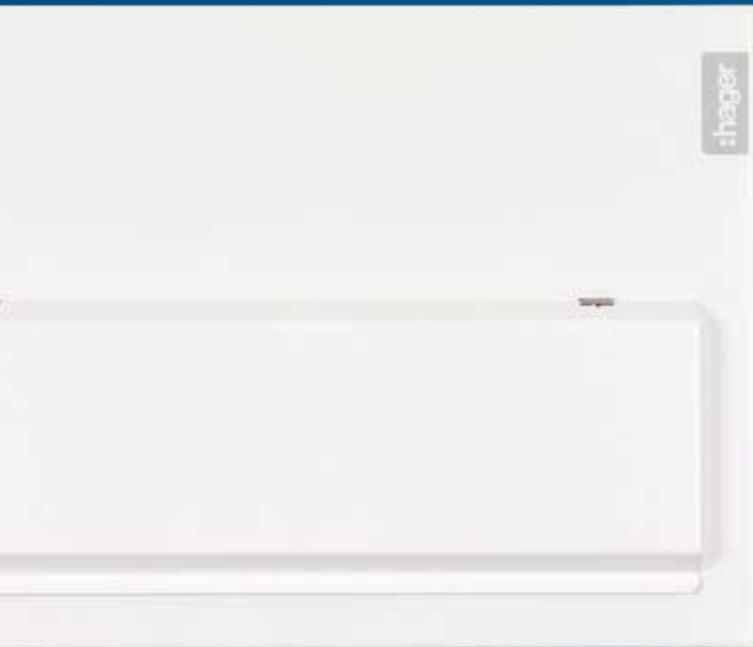
05 Cable Entry Protector Plates

Cable protector plates are used to ensure that cables can enter the consumer unit without damage from sharp edges created by the removal of knockouts. We provide solutions for meter tail entry, top wall entry of outgoing circuits and rear cable entries. Additional cable protector plates are available as accessories.

Design 10 & 50 Flush

For applications where flush fitting a board is desired, we offer two options.

We've put extra consideration into how these boards are typically installed and included features to make the job of installing them as easy and quick as possible.



01 Options

We offer flush boards in both Design 10 and Design 50 covers. Both boards have all the same installation features. Design 50 comes as standard in white, but with the option of having a bespoke finish of any RAL colour, or even a custom design can be vinyl wrapped onto the board to provide a truly individual unit for every home.



02 Removable Frame

The frame contains the incomer, neutral and earth terminals and the cable clamp. This can be removed whilst the building work is completed and quickly re-installed into the back-box later. It is then secured with the use of four wing nuts, removing the need for any special tools.



03 Installation Depth

To allow for a range of installation depths within a wall, the frame is adjustable. There are flanges on the frame which sit on the finished surface of the wall, helping to ensure that the devices always protrude through the front cover uniformly and that the cover fits flat to the wall, ensuring that the finished installation looks the part.



04 Cable Clamp

A cable clamp comes as standard on all of our flush fit boards to help prevent any movement of meter tails being transmitted to the terminals of the main switch and to secure the tails in place inside the board.



05 Back Box Installation

Knockouts on the top, bottom, sides and rear of the back box allow for multiple cable entry options. Oval knockouts can be protected with 38mm open grommet (**VMGROM**). Raised sides on the back box give a reference for plasterboarding with multiple fixing points throughout to ensure a secure installation.

Tailored Solutions

From fitting devices through to bespoke engineering, Tailored Solutions provides a complete service for any project.

For your project we can offer a solution which can meet the most demanding of challenges. From design & engineering through to logistics, our Tailored Solutions service offers unrivalled support & peace of mind for you and your business.



Design & engineering input at the pre-order stage

Our teams will design and engineer a bespoke solution at an early stage for your project. The teamwork approach ensures that we can accommodate even the most demanding requirement.



Technical support throughout the project life-cycle

Our dedicated Tailored Solutions team are all based on the same site, and are on hand throughout the life-cycle of the project, with expert knowledge and understanding of your requirements.



Factory tested and assembled before despatch

Our rigorous factory testing ensures any tailored solution is fully compliant to the latest regulations and your specification, ensuring minimised risk and total confidence on product performance.



Delivery and call off schedules

We will deliver the solution to you exactly when you need it, directly to site, all at once or piece by piece. We tailor our delivery to suit your needs.



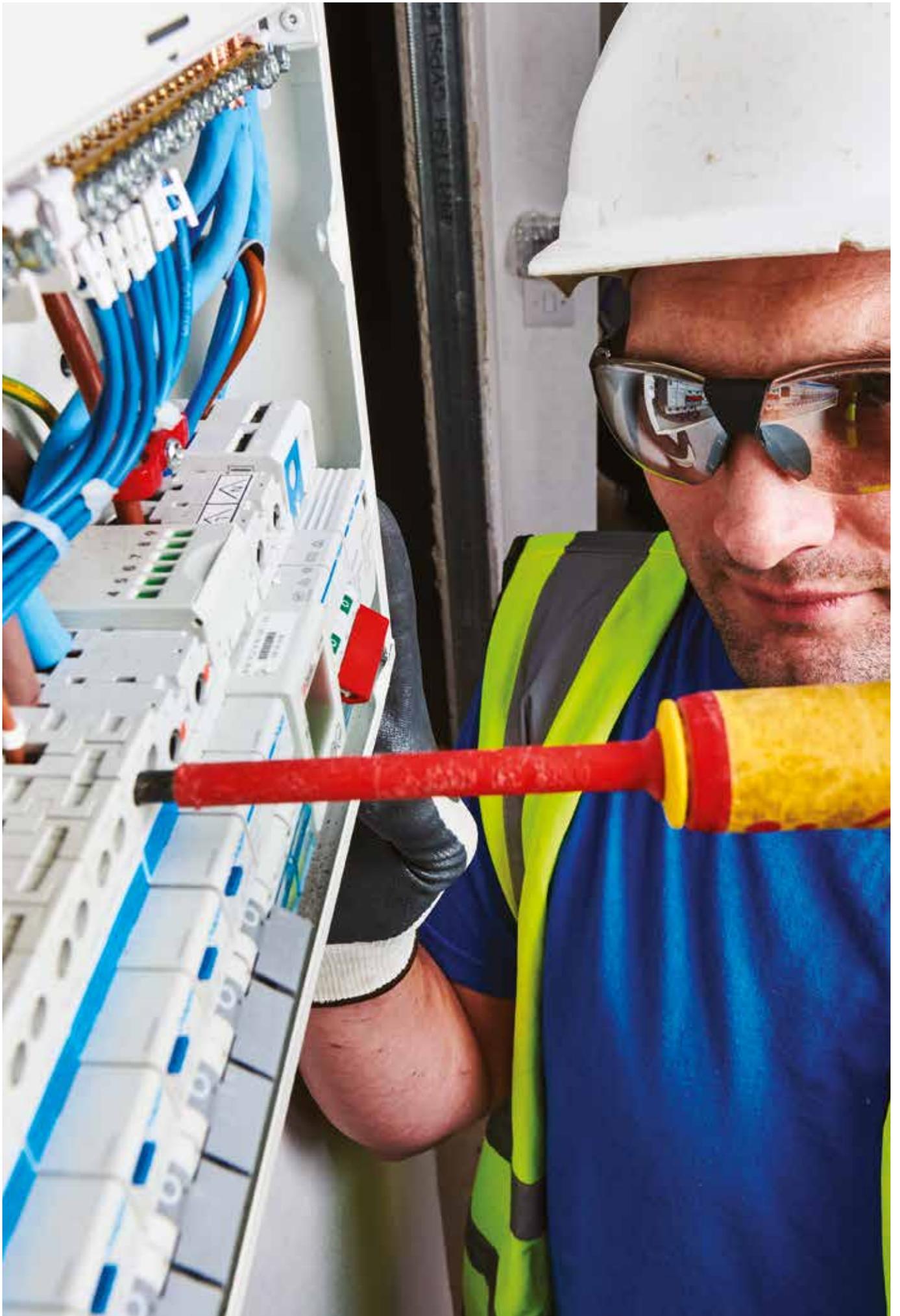
Site specific logistics

For even the most demanding of sites, with specific delivery time slots and access restrictions, our team will make sure the solution is on site when and where you need it.

Interested in Tailored Solutions?

Telephone: **01952 675 689**

Online form: **go.hager.com/tailored**



Residential Distribution

Functional, stylish, and innovative, our Design Range of consumer units provide an exceptional option for any home. In addition, we offer MCB's and RCBO's as well as new surge protection and arc fault detection solutions to provide optimal protection.



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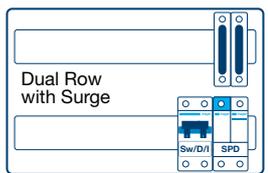
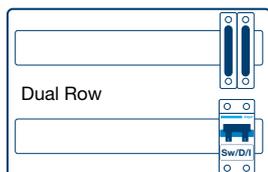


VML106

Switch Disconnector Incomer

Characteristics:

- All Design 10 consumer units contain top, bottom & rear knockouts and a meter tail cable entry plate (**VM04CE**) as standard- see page 36 for knockout sizes.
- Supplied with a full metal DIN rail, 100A switch disconnector incomer and a full complement of earth and neutral terminals along with marking labels, busbar and instructions.
- References ending in **SPD** come with a Type 2 SPD fitted.
- Recommended for use with TT systems when utilising RCBO on all outgoing circuits.
- We also recommend the use of cable clamp (**VA10MT**) for use on TT systems, available as an accessory.
- Conforms to BS EN 61439-3 Including Annex ZB (16kA rating).
- For accessories see page 32, for dimensions see page 36, refer to board sizes below.



Description	Size	Cat ref.	Cat ref. With Round Knockouts
2 Way 63A Switch Disconnector Incomer	2	VML202	VML202RK
6 Way 63A Switch Disconnector Incomer	3	VML206	VML206RK
6 Way 100A Switch Disconnector Incomer	3	VML106	VML106RK
10 Way 100A Switch Disconnector Incomer	4	VML110	VML110RK
14 Way 100A Switch Disconnector Incomer	5	VML114	VML114RK
20 Way 100A Switch Disconnector Incomer	7	VML120	VML120RK
8 Way 100A Switch Disconnector Incomer with Factory Fitted Surge Protection	4	VML108SPD	VML108SPDRK
12 Way 100A Switch Disconnector Incomer with Factory Fitted Surge Protection	5	VML112SPD	VML112SPDRK
18 Way 100A Switch Disconnector Incomer with Factory Fitted Surge Protection	7	VML118SPD	VML118SPDRK
6 + 6 Way Dual Row 100A Switch Disconnector Incomer	3 (2)	VML10606	-
10 + 10 Way Dual Row 100A Switch Disconnector Incomer	4 (2)	VML11010	-
14 + 14 Way Dual Row 100A Switch Disconnector Incomer	5 (2)	VML11414	-
20 + 20 Way Dual Row 100A Switch Disconnector Incomer	7 (2)	VML12020	-
8 + 10 Way Dual Row 100A Switch Disconnector Incomer with Factory Fitted Surge Protection	4(2)	VML10810SPD	-
12 + 14 Way Dual Row 100A Switch Disconnector Incomer with Factory Fitted Surge Protection	5(2)	VML11214SPD	-
18 + 20 Way Dual Row 100A Switch Disconnector Incomer with Factory Fitted Surge Protection	7(2)	VML11820SPD	-



VML310AH

RCCB Incomer

Characteristics:

- All Design 10 consumer units contain top, bottom & rear knockouts and a meter tail cable entry plate (**VM04CE**) as standard- see page 36 for knockout sizes.
- Supplied with a full metal DIN rail, 40A, 63A or 100A 30mA Type A RCCB incomer and a full complement of earth and neutral terminals along with marking labels, busbar and instructions.
- Conforms to BS EN 61439-3 Including Annex ZB (16kA rating).
- For accessories see page 32, for dimensions see page 36, refer to board sizes below.



Description	Size	Cat ref.	Cat ref. With Round Knockouts
2 Way 63A 30mA Type A RCCB Incomer	2	VML402AH	-
6 Way 63A 30mA Type A RCCB Incomer	3	VML406AH	-
10 Way 63A 30mA Type A RCCB Incomer	4	VML410AH	-
6 Way 100A 30mA Type A RCCB Incomer	3	VML306AH	VML306AHRK
10 Way 100A 30mA Type A RCCB Incomer	4	VML310AH	VML310AHRK
14 Way 100A 30mA Type A RCCB Incomer	5	VML314AH	VML314AHRK

Split Load

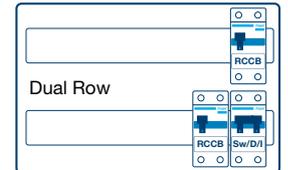
Characteristics:

- All Design 10 consumer units contain top, bottom & rear knockouts and a meter tail cable entry plate (**VM04CE**) as standard- see page 36 for knockout sizes.
- Supplied with 2 x Type A RCCBs, a full metal DIN rail, 100A switch disconnecter incomer and a full complement of earth and neutral terminals along with marking labels, busbar and instructions.
- Conforms to BS EN 61439-3 Including Annex ZB (16kA rating).
- * 100A device in these boards are de-rated to 80A.
- For accessories see page 32, for dimensions see page 36.



VM966H

Description	Size	Cat ref.	Cat ref. With Round Knockouts
6 Way 3+3 80A Switch 2x 80A 30mA RCCB*	4	VML933H*	VML933RK*
10 Way 5+5 100A Switch 2x 100A 30mA RCCB	5	VML955H	VML955RK
12 Way 6+6 100A Switch 2x 100A 30mA RCCB	6	VML966H	VML966RK
14 Way 6+6+2 100A Switch 3x 100A 30mA RCCB	7	VML9662	-
4 + 6 Way Dual Row 100A Switch 2x 100A 30mA RCCB	3(2)	VML946H	-
8 + 10 Way Dual Row 100A Switch 2x 100A 30mA RCCB	4(2)	VML90810H	-
12 + 14 Way Dual Row 100A Switch 2x 100A 30mA RCCB	5(2)	VML91214H	-
18 + 20 Way Dual Row 100A Switch 2x 100A 30mA RCCB	7(2)	VML91820H	-



Configurable High Integrity

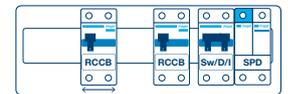
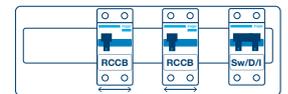
Characteristics:

- Metal split load and configurable consumer units with the ability to protect selected circuits with RCBOs/MCBs and the remainder of circuits split across two RCCBs.
- All Design 10 consumer units contain top, bottom & rear knockouts and a meter tail cable entry plate (**VM04CE**) as standard- see page 36 for knockout sizes.
- Supplied with 2 x Type A RCCBs, a full metal DIN rail, 100A switch disconnecter incomer and a full complement of earth and neutral terminals along with marking labels, busbar and instructions.
- References ending in **SPD** come with a Type 2 SPD fitted.
- Conforms to BS EN 61439-3 Including Annex ZB (16kA rating).
- For accessories see page 32, for dimensions see page 36.

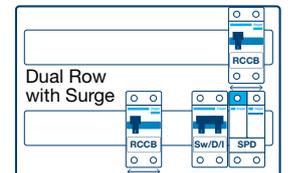
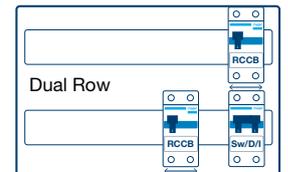


VML912C

Description	Size	Cat ref.	Cat ref. With Round Knockouts
10 Way 100A Switch 2x 100A 30mA RCCB	5	VML910C	-
12 Way 100A Switch 2x 100A 30mA RCCB	6	VML912C	-
16 Way 100A Switch 2x 100A 30mA RCCB	7	VML916C	-
10 Way High Integrity 100A Switch 2x 100A 30mA RCCB	5	VML910CU	VML910CURK
12 Way High Integrity 100A Switch 2x 100A 30mA RCCB	6	VML912CU	-
16 Way High Integrity 100A Switch 2x 100A 30mA RCCB	7	VML916CU	VML916CURK
8 Way High Integrity 100A Switch 2x 100A 30mA RCCB with Factory Fitted Surge Protection	5	VML908CUSPD	VML908CUSPDRK
10 Way High Integrity 100A Switch 2x 100A 30mA with Factory Fitted Surge Protection	6	VML910CUSPD	VML910CUSPDRK
14 Way High Integrity 100A Switch 2x 100A 30mA RCCB with Factory Fitted Surge Protection	7	VML914CUSPD	VML914CUSPDRK
8+10 Way Dual Row High Integrity 100A Switch 2x 100A	4(2)	VML90810CU	-
12+14 Way Dual Row High Integrity 100A Switch 2x 100A	5(2)	VML91214CU	-
18+20 Way Dual Row High Integrity 100A Switch 2x 100A	7(2)	VML91820CU	-
6+10 Way Dual Row High Integrity 100A Switch 2x 100A 30mA RCCB with Factory Fitted Surge Protection	4(2)	VML90610CUSPD	-
10+14 Way Dual Row High Integrity 100A Switch 2x 100A 30mA Type RCCB with Factory Fitted Surge Protection	5(2)	VML91014CUSPD	-
16+20 Way Dual Row High Integrity 100A Switch 2x 100A 30mA RCCB with Factory Fitted Surge Protection	7(2)	VML91620CUSPD	-
12 Way Configurable, 100A Switch 1x 100A 30mA RCCB (Remaining Ways for RCBOs)	5	VML512AC	-
18 Way Configurable, 100A Switch 1x 100A 30mA RCCB (Remaining Ways for RCBOs)	7	VML518AC	-

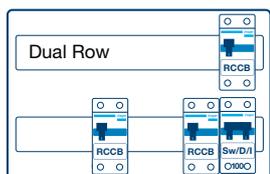
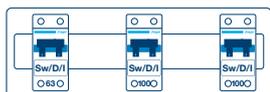
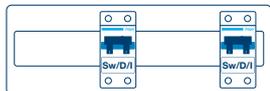


with Surge





VML918C



Multi Tariff

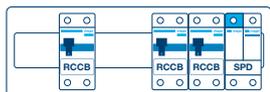
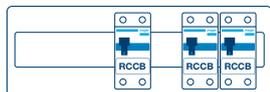
Characteristics:

- All Design 10 consumer units contain top, bottom & rear knockouts and a meter tail cable entry plate (**VM04CE**) as standard- see page 36 for knockout sizes.
- Supplied with Type A RCCBs, a full metal DIN rail, multiple switch disconnecter incomers and a full complement of earth and neutral terminals along with marking labels, busbar and instructions.
- Conforms to BS EN 61439-3 Including Annex ZB (16kA rating).
- For accessories see page 32, for dimensions see page 36.

Description	Size	Cat ref.
18 Way Twin Tariff Configurable 2x 100A Switch	7	VML918C
12 Way Multi Tariff 6+5+1 2x100A 1x 63A Switch	6	VML9651
10 Way Split Load 5+5 100A Switch 2x 100A Type A RCCB 1x 100A Type A RCCB Incomer 14 Ways Dual Row	5 (2)	VML955914H



VML912TG



with Surge



with Surge

Time Delayed RCCB Incomer

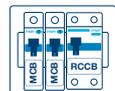
Characteristics:

- All Design 10 consumer units contain top, bottom & rear knockouts and a meter tail cable entry plate (**VM04CE**) as standard- see page 36 for knockout sizes.
- Supplied with Type A RCCBs, a full metal DIN rail 100A 100mA time delayed incomer and a full complement of earth and neutral terminals along with marking labels, busbar, meter tail clamp and instructions.
- Recommended for use with TT systems (meter tail clamp secures meter tails to prevent accidental disconnection and contact with metal enclosure).
- References ending in **SPD** come with a Type 2 SPD fitted.
- Conforms to BS EN 61439-3 Including Annex ZB (16kA rating).
- For accessories see page 32, for dimensions see page 36, refer to board sizes below.

Description	Size	Cat ref.
12 Way Configurable 100A 100mA Time Delay Type A RCCB 100A 30mA Type A RCCB	5	VML912TG
12 Way 100A 100mA Time Delay Type A RCCB 2x 100A 30mA Type A RCCB	6	VML966TG
10 Way 100A 100mA Time Delayed + 2 x 100A RCCB with Factory Fitted Surge Protection	6	VML955TGSPD
10 Way Configurable 100A 100mA Time Delayed RCCB +100A 30mA with Factory Fitted Surge Protection	5	VML910TGSPD



VML24AH



Garage Boards

Characteristics:

- Consumer unit comes complete with Type A RCCB, 40A 30mA RCCB Incomer, 32A MCB and 6A MCB, earth & neutral connections, busbar, grommet strip, marking labels & Instructions.
- All Design 10 consumer units contain top, bottom & rear knockouts and a meter tail cable entry plate (**VM04CE**) as standard- see page 36 for knockout sizes.
- Cable protector plate for rear knockouts is available as an accessory. (**VM02CE**)
- Conforms to BS EN 61439-3
- For dimensions see page 36.

Description	Size	Cat ref.
2 Way 40A 30mA Type A RCCB with 1x 32A & 1x 6A MCB	2	VML24AH

Arc Fault Protection

Characteristics:

- Metal split load board with 100A incomer and 2 x 100A RCCBs.
- Supplied with Type A RCCBs
- Supplied with double pole busbar system.
- All Design 10 consumer units contain top, bottom & rear knockouts and a meter tail cable entry plate (**VM04CE**) as standard- see page 36 for knockout sizes.
- Supplied with Type A RCCBs, a full metal DIN rail, switch disconnector incomer and a full complement of earth and neutral terminals along with marking labels, busbar and instructions.
- Conforms to BS EN 61439-3, Annex ZB (16kA Rating)
- Suitable for use with Hager 2 pole Arc Fault Detection Devices **ARC*****
- For accessories see page 32, for dimensions see page 36, refer to board sizes below.



VMLA90405H

Description	Size	Cat ref.
5 + 4 Way Dual Row, 100A Switch Disconnector 2x 100A 30mA RCCB, 2 Pole Busbar, for Arc Fault Detection devices	4(2)	VMLA90405H
6 + 7 Way Dual Row, 100A Switch Disconnector 2x 100A 30mA RCCB, 2 Pole Busbar, for Arc Fault Detection devices	5(2)	VMLA90607H
9 + 10 Way Dual Row, 100A Switch Disconnector 2x 100A 30mA RCCB, 2 Pole Busbar, for Arc Fault Detection devices	7(2)	VMLA90910H
5 + 7 Way Dual Row, 100A Switch Disconnector 2x 100A 30mA RCCB, 2 Pole Busbar, + Surge Protection Devices, for Arc Fault Detection Devices	5(2)	VMLA90507HSPD
8 + 10 Way Dual Row, 100A Switch Disconnector 2x 100A 30mA RCCB, 2 Pole Busbar, + Surge Protection Devices, for Arc Fault Detection Devices	7(2)	VMLA90810HSPD



Arc Fault Detection Devices

Characteristics:

- Protection device which combines an MCB with an Arc Fault Detection Device.
- Complies with BS EN 62606
- Current rating 6A - 40A 6kA
- Available in B & C curve
- Connection capacity - Rigid=25mm², Flexible = 16mm²



ARC906U

Description	Width (1 Mod =17.5mm)	Cat ref. B Curve	Cat ref. C Curve
6A	2 Mod	ARC906U	ARC956U
10A	2 Mod	ARC910U	ARC960U
16A	2 Mod	ARC916U	ARC966U
20A	2 Mod	ARC920U	ARC970U
25A	2 Mod	ARC925U	ARC975U
32A	2 Mod	ARC932U	ARC982U
40A	2 Mod	ARC940U	ARC990U

Tailored Solutions

We can provide the right solution that meets your specification. If your enquiry falls out of the standard offer, for example if you require AFDD in combination with MCBs, RCCBs or RCBOs, Tailored Solutions can meet your requirements.

For more information on this service, see page 18.

Interested in Tailored Solutions?

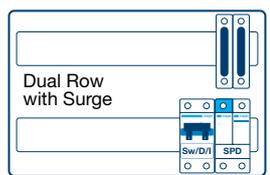
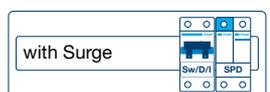
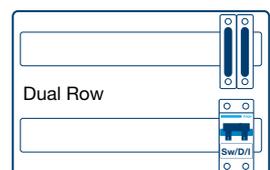
Telephone: **01952 675 689**

Online form: **go.hager.com/tailored**





VM106



Switch Disconnect Incomer

Characteristics:

- All consumer units contain rear cable entry. Boards with knockouts have top & bottom knockouts. A meter tail cable entry plate (**VM04CE**) is provided as standard - see page 36 for knockout sizes.
- Supplied with a full metal DIN rail, 100A switch disconnect incomer and a full complement of earth and neutral terminals along with marking labels, busbar, instructions, rear cable protector plate and meter tail clamp.
- References ending in **SPD** come with a Type 2 SPD fitted.
- Recommended for use with TT systems when utilising RCBOs on outgoing circuits.
- Conforms to BS EN 61439-3 Including Annex ZB (16kA rating).
- For accessories see page 32, for dimensions see page 36, refer to board sizes below.

Description	Size	Cat ref.	Cat ref. With Knockouts
2 Way 63A Switch Disconnect Incomer	2	VM202	VM202K
6 Way 63A Switch Disconnect Incomer	3	VM206	VM206K
6 Way 100A Switch Disconnect Incomer	3	VM106	VM106K
10 Way 100A Switch Disconnect Incomer	4	VM110	VM110K
14 Way 100A Switch Disconnect Incomer	5	VM114	VM114K
20 Way 100A Switch Disconnect Incomer	7	VM120	VM120K
8 Way 100A Switch Disconnect Incomer with Factory Fitted Surge Protection	4	VM108SPD	VM108KSPD
12 Way 100A Switch Disconnect Incomer with Factory Fitted Surge Protection	5	VM112SPD	VM112KSPD
18 Way 100A Switch Disconnect Incomer with Factory Fitted Surge Protection	7	VM118SPD	VM118KSPD
6+6 Way Dual Row 100A Switch Disconnect Incomer	3 (2)	VM10606	VM10606K
10+10 Way Dual Row 100A Switch Disconnect Incomer	4 (2)	VM11010	VM11010K
14+14 Way Dual Row 100A Switch Disconnect Incomer	5 (2)	VM11414	VM11414K
20+20 Way Dual Row 100A Switch Disconnect Incomer	7 (2)	VM12020	VM12020K
8 + 10 Way Dual Row 100A Switch Disconnect Incomer with Factory Fitted Surge Protection	4(2)	VM10810SPD	VM10810KSPD
12 + 14 Way Dual Row 100A Switch Disconnect Incomer with Factory Fitted Surge Protection	5(2)	VM11214SPD	VM11214KSPD
18 + 20 Way Dual Row 100A Switch Disconnect Incomer with Factory Fitted Surge Protection	7(2)	VM11820SPD	VM11820KSPD



VM410AH



RCCB Incomer

Characteristics:

- All consumer units contain rear cable entry. Boards with knockouts have top & bottom knockouts. A meter tail cable entry plate (**VM04CE**) is provided as standard - see page 36 for knockout sizes.
- Supplied with a full metal DIN rail, 40A, 63A or 100A 30mA Type A RCCB incomer and a full complement of earth and neutral terminals along with marking labels, busbar, instructions, rear cable protector plate and meter tail clamp.
- Conforms to BS EN 61439-3 Including Annex ZB (16kA rating).
- For accessories see page 32, for dimensions see page 36, refer to board sizes below.

Description	Size	Cat ref.	Cat ref. With Knockouts
6 Way 100A 30mA Type A RCCB Incomer	3	VM306AH	VM306AHK
10 Way 100A 30mA Type A RCCB Incomer	4	VM310AH	VM310AHK
14 Way 100A 30mA Type A RCCB Incomer	5	VM314AH	VM314AHK
2 Way 40A 30mA Type A RCCB Incomer	2	VM402AH	VM402AHK
6 Way 63A 30mA Type A RCCB Incomer	3	VM406AH	VM406AHK
10 Way 63A 30mA Type A RCCB Incomer	4	VM410AH	VM410AHK

Split Load

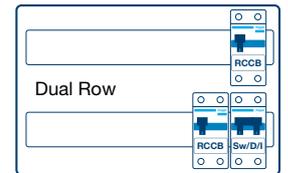
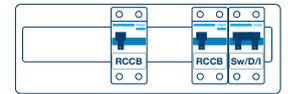
Characteristics:

- All consumer units contain rear cable entry. Boards with knockouts have top & bottom knockouts. A meter tail cable entry plate (**VM04CE**) is provided as standard - see page 36 for knockout sizes.
- Supplied with Type A RCCBs, a full metal DIN rail, 100A switch disconnecter incomer, 2 100A RCCBs and a full complement of earth and neutral terminals along with marking labels, busbar, instructions, rear cable protector plate and meter tail clamp.
- Conforms to BS EN 61439-3 Including Annex ZB (16kA rating).
- For accessories see page 32, for dimensions see page 36, refer to board sizes below.



VM955H

Description	Size	Cat ref.	Cat ref. With Knockouts
10 Way Split Load 5+5 100A Switch 2x 100A 30mA RCCB	5	VM955H	VM955HK
12 Way Split Load 6+6 100A Switch 2x 100A 30mA RCCB	6	VM966H	VM966HK
4+6 Way Dual Row 100A Switch 2x 100A 30mA RCCB	3 (2)	VM946H	VM946HK
8+10 Way Dual Row 100A Switch 2x 100A 30mA RCCB	4 (2)	VM90810H	VM90810HK
12+14 Way Dual Row 100A Switch 2x 100A 30mA RCCB	5 (2)	VM91214H	VM91214HK
18+20 Way Dual Row 100A Switch 2x 100A 30mA RCCB	7 (2)	VM91820H	VM91820HK



Configurable High Integrity

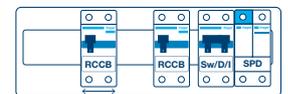
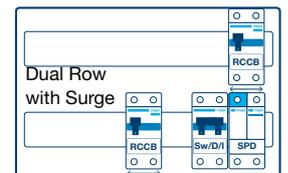
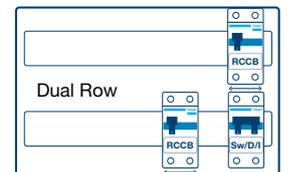
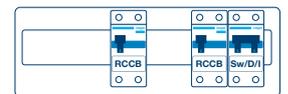
Characteristics:

- Metal split load and configurable consumer units with ability to protect selected circuits with RCBOs/MCBs and the remainder of circuits split across two RCCBs.
- All consumer units contain rear cable entry. Boards with knockouts have top & bottom knockouts. A meter tail cable entry plate (**VM04CE**) is provided as standard - see page 36 for knockout sizes.
- Supplied with Type A RCCBs, a full metal DIN rail, 100A switch disconnecter incomer, 2 100A RCCBs and a full complement of earth and neutral terminals along with marking labels, busbar, instructions, rear cable protector plate and meter tail clamp.
- References ending in **SPD** come with a Type 2 SPD fitted.
- Conforms to BS EN 61439-3 Including Annex ZB (16kA rating).
- For accessories see page 32, for dimensions see page 36, refer to board sizes below.



VM916CU

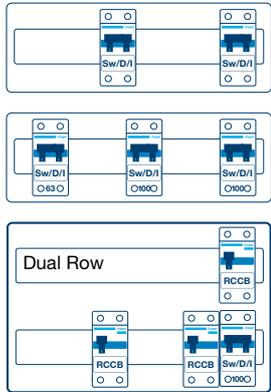
Description	Size	Cat ref.	Cat ref. With Knockouts
10 Way High Integrity 100A Switch 2x 100A 30mA RCCB	5	VM910CU	VM910CUK
12 Way High Integrity 100A Switch 2x 100A 30mA RCCB	6	VM912CU	VM912CUK
16 Way High Integrity 100A Switch 2x 100A 30mA RCCB	7	VM916CU	VM916CUK
8 Way High Integrity 100A Switch 2x 100A 30mA RCCB with Factory Fitted Surge Protection	5	VM908CUSPD	VM908CUKSPD
10 Way High Integrity 100A Switch 2x 100A 30mA RCCB with Factory Fitted Surge Protection	6	VM910CUSPD	VM910CUKSPD
14 Way High Integrity 100A Switch 2x 100A 30mA RCCB with Factory Fitted Surge Protection	7	VM914CUSPD	VM914CUKSPD
8+10 Way Dual Row High Integrity 100A Switch 2x 100A	4(2)	VM90810CU	VM90810CUK
12+14 Way Dual Row High Integrity 100A Switch 2x 100A	5(2)	VM91214CU	VM91214CUK
18+20 Way Dual Row High Integrity 100A Switch 2x 100A	7(2)	VM91820CU	VM91820CUK
6+10 Way Dual Row High Integrity 100A Switch 2x 100A 30mA RCCB with Factory Fitted Surge Protection	4(2)	VM90610CUSPD	VM90610CUKSPD
10+14 Way Dual Row High Integrity 100A Switch 2x 100A 30mA RCCB with Factory Fitted Surge Protection	5(2)	VM91014CUSPD	VM91014CUKSPD
16+20 Way Dual Row High Integrity 100A Switch 2x 100A 30mA RCCB with Factory Fitted Surge Protection	7(2)	VM91620CUSPD	VM91620CUKSPD
12 Way Configurable, 100A Switch 1x 100A 30mA RCCB (Remaining Ways for RCBOs)	5	VM512AC	VM512ACK
18 Way Configurable, 100A Switch 1x 100A 30mA RCCB (Remaining Ways for RCBOs)	7	VM518AC	VM518ACK



with Surge



VM918C



Multi Tariff

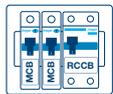
Characteristics:

- All consumer units contain rear cable entry. Boards with knockouts have top & bottom knockouts. A meter tail cable entry plate (**VM04CE**) is provided as standard - see page 36 for knockout sizes.
- Supplied with Type A RCCBs, a full metal DIN rail, multiple switch disconnecter incomers and a full complement of earth and neutral terminals along with marking labels, busbar, instructions, rear cable protector plate and meter tail clamp.
- Conforms to BS EN 61439-3 Including Annex ZB (16kA rating).
- For accessories see page 32, for dimensions see page 36, refer to board sizes below.

Description	Size	Cat ref.	Cat ref. With Knockouts
12 Way Multi Tariff 6+5+1 2x 100A 1x 63A	6	VM9651	VM9651K
18 Way Twin Tariff Configurable 2x 100A Switch	7	VM918C	VM918CK
10 Way Dual Row Split Load 5+5 100A Switch 2x 100A RCCB 1x 100A RCCB Incomer 14 Ways	5 (2)	VM955914H	VM955914HK



VM24AH



Garage Board

Characteristics:

- Consumer unit comes complete with Type A RCCBs, 40A 30mA RCCB Incomer, 32A MCB and 6A MCB, earth & neutral connections, busbar, cable protector plate, grommet strip, meter tail clamp, marking labels & instructions.
- All consumer units contain rear cable entry. Boards with knockouts have top & bottom knockouts. A meter tail cable entry plate (**VM04CE**) is provided as standard - see page 36 for knockout sizes.
- For dimensions see page 36, refer to board sizes below.

Description	Size	Cat ref.	Cat ref. With Knockouts
2 Way 40A 30mA Type A RCCB with 1x 32A & 1x 6A MCB	2	VM24AH	VM24AHK

Arc Fault Detection

Characteristics:

- Metal split load board with 100A incomer and 2 x 100A RCCBs.
- Supplied with Type A RCCBs
- Supplied with double pole busbar system.
- All consumer units contain rear cable entry. Boards with knockouts have top & bottom knockouts. A meter tail cable entry plate (**VM04CE**) is provided as standard - see page 36 for knockout sizes.
- Supplied with Type A RCCBs, a full metal DIN rail, switch disconnector incomer and a full complement of earth and neutral terminals along with marking labels, busbar, instructions, rear cable protector plate and meter tail clamp.
- Conforms to BS EN 61439-3 including Annexe ZB
- Suitable for use with Hager AFDD ARC***
- For accessories see page 32, for dimensions see page 36, refer to board sizes below.



VMA933H

Description	Size	Cat ref.	Cat ref. With Knockouts
4+5 Way, Dual Row, 100A Switch Disconnector 2x 100A 30mA RCCB, 2 Pole Busbar, for Arc Fault Detection Devices	4(2)	VMA90405H ★	VMA90405HK ★
6+7 Way, Dual Row, 100A Switch Disconnector 2x 100A 30mA RCCB, 2 Pole Busbar, for Arc Fault Detection Devices	5(2)	VMA90607H ★	VMA90607HK ★
9+10 Way, Dual Row, 100A Switch Disconnector 2x 100A 30mA RCCB, 2 Pole Busbar, for Arc Fault Detection Devices	7(2)	VMA90910H ★	VMA90910HK ★
5 + 7 Way, Dual Row, 100A Switch Disconnector 2x 100A 30mA RCCB, 2 Pole Busbar + Surge Protection Devices, for Arc Fault Detection Devices	5(2)	VMA90507HSPD ★	VMA90507HKSPD ★
8 + 10 Way, Dual Row, 100A Switch Disconnector 2x 100A 30mA RCCB, 2 Pole Busbar + Surge Protection Devices, for Arc Fault Detection Devices	7(2)	VMA90810HSPD ★	VMA90810HKSPD ★



Arc Fault Detection Devices

Characteristics:

- Protection device which combines an MCB with an Arc Fault Detection Device.
- Complies with BS EN 62606
- Current rating 6A - 40A 6kA
- Available in B & C curve
- Connection capacity - Rigid=25mm², Flexible = 16mm²



ARC906U

Description	Width (1 Mod =17.5mm)	Cat ref. B Curve	Cat ref. C Curve
6A	2 Mod	ARC906U	ARC956U
10A	2 Mod	ARC910U	ARC960U
16A	2 Mod	ARC916U	ARC966U
20A	2 Mod	ARC920U	ARC970U
25A	2 Mod	ARC925U	ARC975U
32A	2 Mod	ARC932U	ARC982U
40A	2 Mod	ARC940U	ARC990U

Tailored Solutions

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For more information on this service, see page 18.

Interested in Tailored Solutions?

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Online form: **go.hager.com/tailored**





VMLF110



Switch Disconnecter Incomer

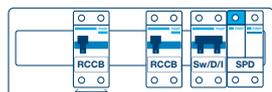
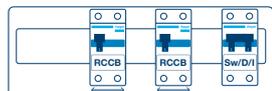
Characteristics:

- All consumer units contain rear cable entry, along with top & bottom knockouts.
- Supplied with a full metal DIN rail, 100A switch disconnecter incomer and a full complement of earth and neutral terminals along with marking labels, busbar, instructions, rear cable protector plate and meter tail clamp.
- Recommended for use with TT systems when utilising RCBO on outgoing circuits.
- Conforms to BS EN 61439-3 including Annex ZB (16kA rating).
- Adjustable depth in wall 72mm-92mm.
- For dimensions see page 37.

Description	Size	Cat ref.
10 Way Flush 100A Switch Disconnecter Incomer	4	VMLF110
14 Way Flush 100A Switch Disconnecter Incomer	5	VMLF114
20 Way Flush 100A Switch Disconnecter Incomer	7	VMLF120
12 Way Flush 100A Switch Disconnecter Incomer with Factory Fitted Surge Protection	5	VMLF112SPD
18 Way Flush 100A Switch Disconnecter Incomer with Factory Fitted Surge Protection	7	VMLF118SPD



VMLF910CU



with Surge

Configurable High Integrity

Characteristics:

- Metal split load and configurable consumer units with ability to protect selected circuits with RCBOs and the remainder of circuits split across two RCCBs.
- All consumer units contain rear cable entry, along with top & bottom knockouts.
- Supplied with a full metal DIN rail, 100A switch disconnecter incomer and 2 Type A RCCBs and a full complement of earth and neutral terminals along with marking labels, busbar, instructions, rear cable protector plate and meter tail clamp.
- References ending in **SPD** come with a Type 2 SPD fitted.
- Conforms to BS EN 61439-3 Including Annex ZB (16kA rating).
- Adjustable depth in wall 72mm-92mm.
- For dimensions see page 37.

Description	Max Unprotected Ways	Size	Cat ref.
10 Way Flush High Integrity 100A Switch 2x 100A 30mA Type A RCCB	3	5	VMLF910CU
12 Way Flush High Integrity 100A Switch 2x 100A 30mA Type A RCCB	3	6	VMLF912CU
16 Way Flush High Integrity 100A Switch 2x 100A 30mA Type A RCCB	6	7	VMLF916CU
8 Way High Integrity 100A Switch 2x 100A 30mA RCCB Type A with Factory Fitted Surge Protection		5	VMLF908CUSPD
10 Way High Integrity 100A Switch 2x 100A 30mA RCCB Type A with Factory Fitted Surge Protection		6	VMLF910CUSPD
14 Way High Integrity 100A Switch 2x 100A 30mA RCCB Type A with Factory Fitted Surge Protection		7	VMLF914CUSPD

Switch Disconnecter Incomer

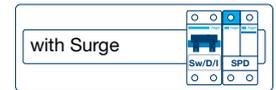
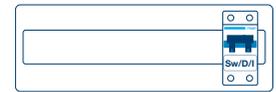
Characteristics:

- All consumer units contain rear cable entry, along with top & bottom knockouts.
- Supplied with a full metal DIN rail, 100A switch disconnecter incomer and a full complement of earth and neutral terminals along with marking labels, busbar, instructions, rear cable protector plate and meter tail clamp.
- Recommended for use with TT systems when utilising RCBO on outgoing circuits.
- References ending in **SPD** come with a Type 2 SPD fitted.
- Conforms to BS EN 61439-3 including Annex ZB (16kA rating).
- Adjustable depth in wall 72mm-92mm.
- For dimensions see page 36.



VSR114

Description	Size	Cat ref.
10 Way 100A Switch Disconnecter Incomer	4	VSR110
14 Way 100A Switch Disconnecter Incomer	5	VSR114
20 Way 100A Switch Disconnecter Incomer	7	VSR120
12 Way 100A Switch Disconnecter Incomer with Factory Fitted Surge Protection	5	VSR112SPD
18 way 100A Switch Disconnecter Incomer with Factory Fitted Surge Protection	7	VSR118SPD



Configurable High Integrity

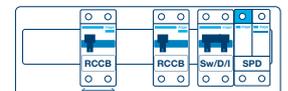
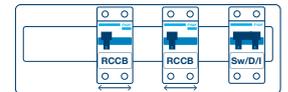
Characteristics:

- Metal split load and configurable consumer units with the ability to protect selected circuits with RCBOs/MCBs and the remainder of circuits split across two RCCBs.
- All consumer units contain rear cable entry, along with top & bottom knockouts.
- Supplied with a full metal DIN rail, 100A switch disconnecter incomer and 2 Type A RCCBs and a full complement of earth and neutral terminals along with marking labels, busbar, instructions, rear cable protector plate and meter tail clamp.
- References ending in **SPD** come with a Type 2 SPD fitted.
- Conforms to BS EN 61439-3 Including Annex ZB (16kA rating).
- Adjustable depth in wall 72mm-92mm.
- For dimensions see page 36.

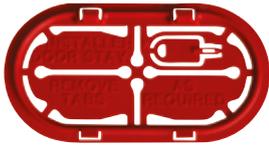


VSR910C

Description	Max Unprotected Ways	Size	Cat ref.
10 Way High Integrity Split Load 100A Switch 2x 100A 30mA RCCB	3	5	VSR910CU
12 Way High Integrity Split Load 100A Switch 2x 100A 30mA RCCB	3	6	VSR912CU
16 Way High Integrity Split Load 100A Switch 2x 100A 30mA RCCB	6	7	VSR916CU
8 Way High Integrity 100A Switch 2x 100A 30mA RCCB with Factory Fitted Surge Protection	3	5	VSR908CUSPD
10 Way High Integrity 100A Switch 2x 100A 30mA RCCB with Factory Fitted Surge Protection	3	6	VSR910CUSPD
14 Way High Integrity 100A Switch 2x 100A 30mA RCCB with Factory Fitted Surge Protection	6	7	VSR914CUSPD



with Surge



VM02CE

Cable Protector Plate

Characteristics:

- Provides protection against sharp edges for cables entering a consumer unit.
- **VM01CE:** Simply insert protector plate and bend over tabs inside board.
- **VM02CE:** Designed to fit into the aperture left by the removal of a rear knockout on the Design 10, Design 30 & Design 50 Consumer Unit. (Included as standard with Design 30 & 50 consumer units). Break away sections as required and simply push into place.
- **VM03/04:** Simply clip into place to allow cable entry or blanking of removed knockouts.



VM03CB

VM03CE



VM04CB

VM04CE

Description	Quantity	Cat ref.
Cable Protector Plate (Metal)	1	VM01CE
Cable Protector Plate (Insulated)	5	VM02CE
Top Wall Cable Protector Plate (30mm x 40mm)	10	VM03CE
Top Wall Cable Protector Plate (30mm x 40mm) Closed	10	VM03CB
Meter Tail Entry Cable Protector Plate (25mm x 30mm)	10	VM04CE
Meter Tail Entry Cable Protector Plate (25mm x 30mm) Closed	10	VM04CB



VA10MT

Cable Clamp

Characteristics:

- Secures supply cables on entry to main incoming device, eliminating any movement of the cables being transmitted to the terminals.
- Simply insert supply cables through clamp into incoming device & secure with fixing provided.
- (Included as standard with Design 30 & 50 consumer units)

Description	Cat ref.
Cable Clamp for Meter Tails	VA10MT



VMLOCK

Locks

Characteristics:

- **VMLOCK** allows door to be lockable. Simply remove the centre of the lock surround and the knockout behind, and fit lock.
- Provides the ability to lock the consumer unit during the installation process.
- Can only be used with Design 30 consumer units.

Description	Cat ref.
Design 30 Door Locking Kit	VMLOCK
Health & Safety Padlock Bracket	VMHBL
Padlock	JK25A
Design 50 Safety Lock (Pack of 6, Supplied without Padlock)	VSRHBL
Padlock (Accessory for Design 50 Safety Lock, Sold Individually)	JK25A
Design 50 Door Locking Device	VSRLOCK



VMGROM

Grommets & Grommet Strip

Characteristics:

- Grommet for protecting against sharp edges on knockouts.

Description	Quantity	Cat ref.
Grommet strip 5 metres	1 Strip	VM05GS
38mm open grommet for use with VMLF* back boxes	10	VMGROM



VM01SP

Stand-off Plate

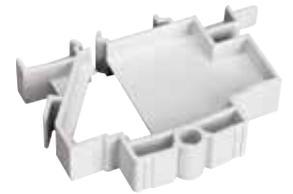
Characteristics:

- The rear stand off plate provides 12mm of clearance at the rear of the consumer unit to allow surface mounted cables to enter the board from the rear avoiding any potential IP issues with the top of the board. Supplied with two cable protector plates as standard.

Description	Cat ref.
Rear stand off plates VM & VML VM01SP	VM01SP

Other Accessories

Description	Cat ref.
1 Module Busbar Blank	JK01B
Neutral Link	VAN00
Dual Tariff Link Kit	VAK0D
Split Load Link Kit	VAK0S
Triple Tariff Link Kit	VAK0T
8 Module Busbar	VAB08
12 Module Busbar	VAB12
16 Module Busbar	VAB16
21 Module Busbar	VAB21
Spare Terminal Bar Support Clips (Quantity - 5)	VAT00
Terminal Bar 2 Way with Two Support Clips	VAT02
Terminal Bar 3 Way with Two Support Clips	VAT03
Terminal Bar 4 Way with Two Support Clips	VAT04
Terminal Bar 5 Way with Two Support Clips	VAT05
Terminal Bar 6 Way with Two Support Clips	VAT06
Terminal Bar 7 Way with Two Support Clips	VAT07
Terminal Bar 8 Way with Two Support Clips	VAT08
Terminal Bar 9 Way with Two Support Clips	VAT09
Terminal Bar 10 Way with Two Support Clips	VAT10
Terminal Bar 11 Way with Two Support Clips	VAT11
Terminal Bar 12 Way with Two Support Clips	VAT12
Terminal Bar 13 Way with Two Support Clips	VAT13
Terminal Bar 14 Way with Two Support Clips	VAT14
Terminal Bar 15 Way with Two Support Clips	VAT15
Terminal Bar 16 Way with Two Support Clips	VAT16
Terminal Bar 17 Way with Two Support Clips	VAT17
Terminal Bar 18 Way with Two Support Clips	VAT18
Terminal Bar 19 Way with Two Support Clips	VAT19
Terminal Bar 20 Way with Two Support Clips	VAT20
Terminal Bar 21 Way with Two Support Clips	VAT21
Terminal Bar 22 Way with Two Support Clips	VAT22
Terminal Bar 23 Way with Two Support Clips	VAT23
Terminal Bar 24 Way with Two Support Clips	VAT24
Label Pack	VAP00



JK01B



VAB08



VAN00

Locking Kit

Characteristics:

- Allows MCBs, RCCBs and RCBOs to be locked in the off position.
- Will accept two padlocks with hasps of 4.75mm diameter max (supplied without padlock).

Description	Cat ref.
Padlockable Locking Kit for MCB, RCCB & RCBO (Padlock not Included)	MZN175
Padlock with 2 keys 3/4"	JK25A



MZN175



MTN106

MCBs - Single Pole, B Curve, 6kA

Characteristics:

- Protection and control of circuits against overloads and short circuits for use in domestic installations.
- Complies with BS EN 60898.
- Voltage rating: 230V
- Current rating: 6 - 63A
- Connection capacity: Rigid = 25mm², Flexible = 16mm²
- Calibration temperature: 30°C

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



CDC225U

2 Pole RCCBs

Characteristics

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

Technical Data

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

Features

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

- All RCCBs have trip free mechanisms and can be padlocked either on or off with the use of a **MZN175**.

Operating Voltage

- 2P 127- 230V a.c.



CDF525U

Sensitivity type A	2 Pole Type A Cat ref.	2 Pole Type F Cat ref.	2 Pole Type B Cat ref.
RCCBs Sensitivity 30mA			
RCCB 25A 30mA	CDA225U	CDF525U ★	CDB525E ★
RCCB 40A 30mA	CDA240U	CDF540U ★	CDB540E ★
RCCB 63A 30mA	CDA263U	CDF563U ★	-
RCCB 80A 30mA	CD283U	-	-
RCCB 100A 30mA	CD285U	-	-
RCCBs Sensitivity 100mA			
RCCB 25A 100mA	CEA225U	-	-
RCCB 40A 100mA	CEA240U	-	-
RCCB 63A 100mA	CEA263U	-	-
RCCB 80A 100mA	CEA580U ★	-	-
RCCB 100A 100mA	CEA584U ★	-	-
RCCBs Sensitivity 300mA			
RCCB 25A 300mA	CFA225U	-	-
RCCB 40A 300mA	CFA240U	-	-
RCCB 63A 300mA	CFA263U	-	-
RCCB 100A 300mA	CF285U	-	-
RCCBs Time Delayed			
RCCB 100A 100mA	CNA584U ★	-	-
RCCB 100A 300mA	CPA584U ★	-	-



CDB525E

RCBOs - Single Pole, B Curve, 6kA, 30mA, Type A

Characteristics

- Protection devices which combine the overcurrent functions of an MCB with the earth fault functions of an RCCB.
- Complies with BS EN 61009-1, BS IEC 1009-2-2
- Sensitivity: 30mA

- Connection capacity: Rigid = 16mm², Flexible = 10mm²
- Flying neutral lead: 300mm
- Single pole & solid neutral
- Type A (Pulsating DC Sensitive)
- Operational Voltage: 127-230V AC

Description	Width (1 Mod = 17.5mm)	Height	Cat ref.
6A	1 Mod	Reduced	ADA306G
10A	1 Mod	Reduced	ADA310G
16A	1 Mod	Reduced	ADA316G
20A	1 Mod	Reduced	ADA320G
25A	1 Mod	Reduced	ADA325G
32A	1 Mod	Reduced	ADA332G
40A	1 Mod	Full	ADA140G
45A	1 Mod	Full	ADA145G



ADA332G

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

Characteristics

- The device switches both the line and neutral conductors. All ratings have 30mA earth fault protection. The units feature indicators which show whether tripping is due to an overcurrent or earth fault.
- Conforms to EN 61009-1.

- Operating Voltage: 230V A.C. +10%/-15% 50Hz.
- Mechanical life: 20,000 operations.
- Connection Capacity: Rigid conductor 25mm², Flexible conductor 16mm²
- Neutral connection flying lead - 700mm.

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



ADA990U

Arc Fault Detection Devices

Characteristics:

- Protection device which combines an MCB with an Arc Fault Detection Device.
- Complies with BS EN 62606

- Current rating 6A - 40A 6kA
- Available in B & C curve
- Connection capacity - Rigid=25mm², Flexible = 16mm²

Description	Width (1 Mod =17.5mm)	Cat ref. B Curve	Cat ref. C Curve
6A	2 Mod	ARC906U	ARC956U
10A	2 Mod	ARC910U	ARC960U
16A	2 Mod	ARC916U	ARC966U
20A	2 Mod	ARC920U	ARC970U
25A	2 Mod	ARC925U	ARC975U
32A	2 Mod	ARC932U	ARC982U
40A	2 Mod	ARC940U	ARC990U



ARC906U

Consumer Unit Type 2 Surge Protection Kit

- Consists of: 6mm² neutral, line & earth cables, 1x double pole surge protection device with lifetime indicator.
- For more surge protection devices and for technical information please see pages 39 to 41

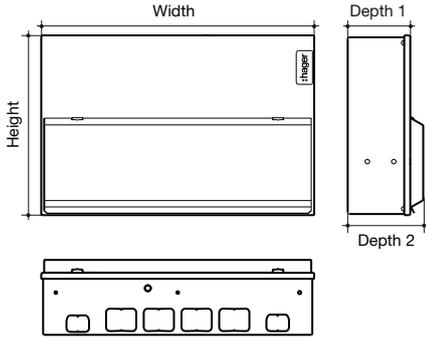
Poles	I _n kA L-N	I _n kA N-PE	U _p kV	Width (mm)	Cat ref.
2	5	15	≤ 1.2	35	VM02SPD



VM02SPD

Replacement Cartridges

Description	Cat ref.
Line replacement for VM02SPD	SPD015D
Neutral replacement for VM02SPD	SPD040N

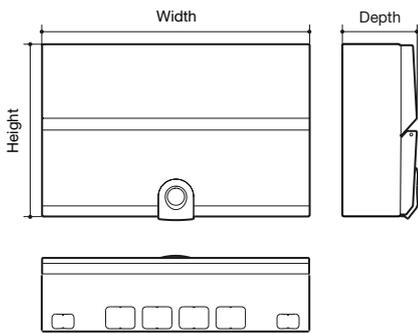


Design 10 Dimensions (mm)

	Enclosure Size					
	2	3	4	5	6	7
Height	246	246	246	246	246	246
Width	155	227	299	370	406	478
Depth 1	83	83	83	83	83	83
Depth 2	100	100	100	100	100	100

Boards with Square Knockouts		Number of Knockouts					
<input type="checkbox"/>	Top Face 30 x 25 (mm)	2	2	2	2	2	2
<input type="checkbox"/>	Top Face 40 x 30 (mm)	0	2	4	4	6	6
<input type="checkbox"/>	Back 100 x 50 (mm)	1	1	1	3	3	3
<input type="checkbox"/>	Bottom Face 30 x 25 (mm)	2	3	4	4	5	5

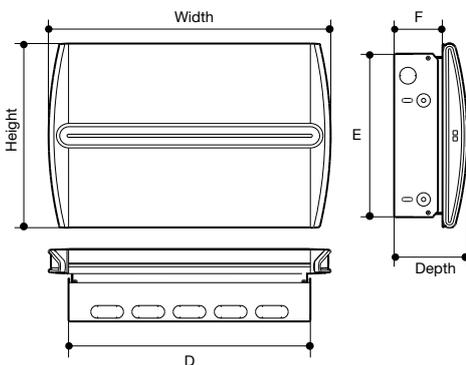
Boards with Round Knockouts		Number of Knockouts					
<input type="checkbox"/>	Top/Bottom Face 20mm	x	x	x	5	6	8
<input type="checkbox"/>	Top/Bottom Face 25mm	x	x	x	2	2	2
<input type="checkbox"/>	Top/Bottom Face 32mm	x	x	x	2	2	2
<input type="checkbox"/>	Back 100 x 50mm	x	x	x	3	3	3



Design 30 Dimensions (mm)

	Enclosure Size					
	2	3	4	5	6	7
Height	240	240	240	240	240	240
Width	149	221	293	364	400	472
Depth	102.5	102.5	102.5	102.5	102.5	102.5

		Number of Knockouts					
<input type="checkbox"/>	Top Face 30 x 25 (mm)	2	2	2	2	2	2
<input type="checkbox"/>	Top Face 40 x 30 (mm)	0	2	4	4	6	6
<input type="checkbox"/>	Back 100 x 50 (mm)	1	1	1	3	3	3
<input type="checkbox"/>	Bottom Face 30 x 25 (mm)	2	3	4	4	5	5



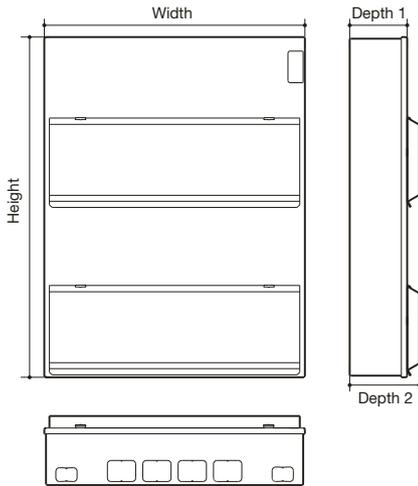
Design 50 Dimensions (mm)

	Enclosure Size			
	4	5	6	7
Height	284	284	284	284
Width	359	431	467	539
Depth	105	105	105	105
D	298	370	406	478
E	252	252	252	252
F	72	72	72	72

		Number of Knockouts			
<input type="checkbox"/>	Top Face 50 x 20 (mm)	4	5	6	7
<input type="checkbox"/>	Bottom Face 50 x 20 (mm)	4	5	6	7
<input type="checkbox"/>	Back 100 x 50 (mm)	2	2	2	3
<input type="checkbox"/>	Left Face 20.8 (mm)	1	1	1	1

Adjustable Depth Base

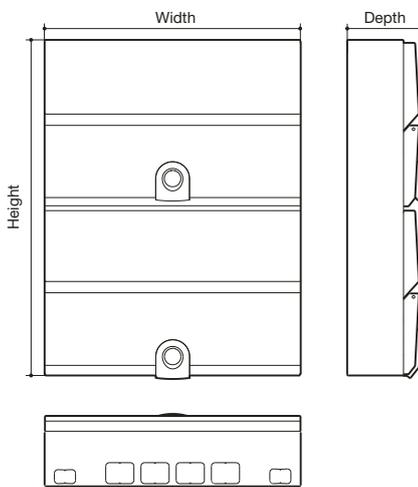
The base assembly is adjustable from 72mm to 92mm. At 72mm this allows for a 60mm studwork and 12mm of plasterboard.



Dual Row Design 10 Dimensions (mm)

	Enclosure Size				
	3 (2)	4 (2)	5 (2)	6 (2)	7 (2)
Height	486	486	486	486	486
Width	227	299	370	406	478
Depth 1	83	83	83	83	83
Depth 2	100	100	100	100	100

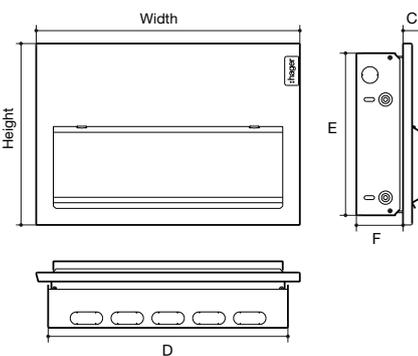
	Number of Knockouts				
	3 (2)	4 (2)	5 (2)	6 (2)	7 (2)
<input type="checkbox"/> Top Face 30 x 25 (mm)	2	2	2	2	2
<input type="checkbox"/> Top Face 40 x 30 (mm)	2	4	4	6	6
<input type="checkbox"/> Back 100 x 50 (mm)	2	2	6	6	6
<input type="checkbox"/> Bottom Face 30 x 25 (mm)	3	4	4	5	5



Dual Row Design 30 Dimensions (mm)

	Enclosure Size				
	3 (2)	4 (2)	5 (2)	6 (2)	7 (2)
Height	480	480	480	480	480
Width	221	293	364	400	472
Depth	102.5	102.5	102.5	102.5	102.5

	Number of Knockouts				
	3 (2)	4 (2)	5 (2)	6 (2)	7 (2)
<input type="checkbox"/> Top Face 30 x 25 (mm)	2	2	2	2	2
<input type="checkbox"/> Top Face 40 x 30 (mm)	2	4	4	6	6
<input type="checkbox"/> Back 100 x 50 (mm)	2	2	6	6	6
<input type="checkbox"/> Bottom Face 30 x 25 (mm)	3	4	4	5	5



Flush Design 10 Dimensions (mm)

	Enclosure Size			
	4	5	6	7
Height	282	282	282	282
Width	335	407	443	515
C	32	32	32	32
D	298	370	406	478
E	252	252	252	252
F	72	72	72	72

	Number of Knockouts			
	4	5	6	7
<input type="checkbox"/> Top Face 50 x 20 (mm)	4	5	6	7
<input type="checkbox"/> Bottom Face 50 x 20 (mm)	4	5	6	7
<input type="checkbox"/> Back 100 x 50 (mm)	2	2	2	3
<input type="checkbox"/> Left Face 20.8 (mm)	1	1	1	1

Consumer Unit
Maximum Unprotected Ways

	Enclosure Size					
	5	6	7	4(2)	5(2)	7(2)
Max Unprotected Ways	3	3	6	3	7	11

Torque Settings

	 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							
Switch Disconnectors / Surge	2	6.5	3.6	3.6	3.6	3.6	15
Circuit protection							
MCB	2	6.5	2.8	2.8	2.8	2.8	13
RCBO	2	5.5	2.1	2.1	2.1	2.1	13
RCCB	2	5.5	2.8	2.8	2.8	2.8	13
AFDD	2	2	2.1	2.1	2.1	2.1	13

MTN Electrical Characteristics.

Poles	Rated Operational Voltage U _e (V)	Nominal Current	Breaking Capacity (I _{cn}) to BS EN 60898	Breaking Capacity (I _{cs}) to BS EN 60898	Rated Insulation Voltage U _i (V)	Rated Impulse Voltage U _{imp} (kV)	Electrical Endurance	Connection of Auxiliaries
Single Pole	230	6 - 63A	6kA	6kA	500V	4kV	10,000 cycles	No

Power Loss

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

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

MCB Rated current (A)	6	10	16	20	25	32	40	50	63
Watts loss per pole	1.3	1.8	2.4	2.7	3.0	4.4	4.8	5.2	7.4

Connection

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

Temperature Derating

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

I _n (A)	-25°C	-20°C	-15°C	-10°C	-5°C	0°C	5°C	10°C	15°C	20°C	25°C	30°C	35°C	40°C	45°C	50°C	55°C	60°C
6	8.64	8.4	8.16	7.92	7.68	7.44	7.2	6.96	6.72	6.48	6.24	6	5.76	5.52	5.28	5.04	4.8	4.56
10	14.4	14	13.6	13.2	12.8	12.4	12	11.6	11.2	10.8	10.4	10	9.6	9.2	8.8	8.4	8	7.6
16	23	22.4	21.8	21.1	20.5	19.8	19.2	18.6	17.9	17.3	16.6	16	15.4	14.7	14.1	13.4	12.8	12.2
20	28.8	28	27.2	26.4	25.6	24.8	24	23.2	22.4	21.6	20.8	20	19.2	18.4	17.6	16.8	16	15.2
25	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19
32	46.1	44.8	43.5	42.2	41	39.7	38.4	37.1	35.8	34.6	33.3	32	30.7	29.4	28.2	26.9	25.6	24.3
40	57.6	56	54.4	52.8	51.2	49.6	48	46.4	44.8	43.2	41.6	40	38.4	36.8	35.2	33.6	32	30.4
50	-	-	-	-	-	62	60	58	56	54	52	50	48	46	44	42	40	38
63	-	-	-	-	-	-	-	-	-	-	-	63	60.5	58	55.4	52.9	50.4	47.9

Characteristics

SPD's protect electrical and electronic equipment against transients, originating from lightning, switching of transformers, lighting and motors. These transient voltages can cause premature ageing of equipment, downtime, or complete destruction of electronic components and materials. SPDs are strongly recommended on installations that are exposed to transient voltages, to protect sensitive and expensive electrical equipment such as TV, video, Hi-Fi, PC, alarm etc.

The range of SPDs is separated into 3 types of protection:

1. Main protection - Type 1 SPDs with higher discharge current (I_{max} 10/350), to evacuate as much of the transient over-voltages associated with lightning strikes

2. Main protection - Type 2 - With a discharge current (I_{max} 8/20), to evacuate as much of the transient over-voltage to earth as possible protection level ($U_p \leq 1200V$).

3. Main protection - Type 3 - To cut-down the transient surge as low as possible to protect very sensitive equipment.

Technical Data

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

Installation and Connection

- The main protection SPDs are installed directly after the main incoming switch or RCCB
- Connected in parallel to the equipment to be protected.
- Protection is assured in both common and differential modes.

Replacement Cartridges

- Allow simple replacement without the need to cut-off the power supply.
- Cartridges are available for all discharge currents, (40kA and 15kA) with and without condition indication.
- A keying system exists to prevent a line cartridge being interchanged by mistake with a neutral one and visa versa neutral cartridges have a discharge current of 40kA.

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

I_n kA L-N	I_n kA N-PE	I_{imp} L-N	I_{imp} N-PE	U_p kV	Width (mm)	Cat ref.	Cat ref. with remote contact
-	-	12.5	25	≤ 1.5	35	SPA201	-

Type 2 (with lifetime indicator)

5	15	-	-	≤ 1.0	35	SPD215D	SPN215R
15	40	-	-	≤ 1.2	35	SPN240D	SPN240R

Type 3 (Fine Protection) (with lifetime indicator)

3	3	-	-	≤ 1.25	17.5	SPN203N	-
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PV Applications (DC side) (with lifetime indicator)

12.5	25			≤ 4	52.5	SPV325	-
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SPN240R

Replacement Cartridges

Description	Cat ref.
Line replacement for SPD215D	SPD015D
Line replacement for SPN215R	SPN015R
Line replacement for SPN240D	SPN040D
Line replacement for SPN240R	SPN040R
Neutral replacement for SPD215D, SPN215R, SPN240D, SPN240R	SPD040N
Neutral replacement for SPN203N	SPN023N



SPN040D

SPA201 Technical Characteristics

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

SPN215D/R Technical Characteristics

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

SPV325 Technical Characteristics

		SPV325
Tested to		EN 61643-11 (VDE0675-6-11) 2002-12
SPD type		Type 2 according to EN 61643-11
SPD class		Class II according to IEC 61643-1
Type of connection		Parallel connection
Maximum continuous operating voltage	U_{cPV}	$\leq 1000V$
Voltage protection level	U_p	$\leq 4kV$
Voltage protection level for 5kA	U_p	$\leq 4kV$
Total discharge current (8/20 μs)	I_{total}	40kA
Nominal discharge current (8/20 μs) [(DC+/DC-) --> PE]	I_n	12.5kA
Max. discharge current (8/20 μs) [(DC+/DC-) --> PE]	I_{max}	25kA
Short-circuit withstand capability with max. overcurrent protection	I_{scwPV}	50 A / 1000 V DC
Response time	t_A	$\leq 25ns$
Operating temperature range		- 40°C+ 80°C
Indication of SPD disconnecter		green - red
Cross sectional area	min	1.5mm ² solid / flexible
	max	35mm ² multi-stranded / 25mm ² flexible
Tightening torque for terminals		4.0 Nm
Mounting on		35mm DIN rail in accordance with EN 60715
Enclosure material		Grey thermoplastic, UL 94V-0
Degree of protection		IP20
Installation width		3 modules, DIN 43880
Weight		316g

SPN203N Technical Characteristics

		SPN203N
Tested to		EN 61643-11 (VDE0675-6-11) 2007-08
SPD type / class		T3 / III
Ports		one port
Type of connection		Series / parallel
Type of power supply system		TT / TN system
Nominal voltage	U_n	230V AC
Rated voltage	U_c	255V AC
Voltage protection level (L - N)	U_p	$\leq 1.25kV$
Voltage protection level (L/N - PE)	U_p	$\leq 1.5kV$
TOV - Characteristic (L - N)	U_T	335V / 5s
TOV - Characteristic (L/N - PE) (I)	U_T	400V / 5s
TOV - Characteristic (L/N - PE) (II)	U_T	1200V / 200 ms
Rated load current	I	25A
Nominal discharge current (8/20)	I_n	3kA
Maximal discharge current (8/20)	I_{max}	5kA
Combination wave (1,2/50 - 8/20) (L - N)	U_{oc}	6 kV
Combination wave (1,2/50 - 8/20) (L/N - PE)	U_{oc}	10 kV
Residual current	IPE	$\leq 5\mu A$
Replacement cartridge		NO
Maximal rating of overcurrent protection	fuse	25A gL / gG
	MCB	25A B curve
Short-circuit withstand capability with max. overcurrent protection	fuse	6kA eff ac
	MCB	1kA eff ac
Response time	t_A	$\leq 25ns$
Operating temperature range		- 25°C+ 40°C
Indication of SPD disconnecter		Green red
Cross sectional area	min	1.5mm ² solid / flexible
	max	10mm ² stranded / 6mm ² flexible
Tightening torque for terminals		1.2 Nm
Mounting on		35mm DIN rail in accordance with EN 60715
Enclosure material		Grey thermoplastic, UL 94V-2
Degree of protection		IP20
Installation width		1 modules, DIN 43880



Hager Ltd.
Hortonwood 50
Telford
Shropshire
TF1 7FT

Customer Contact Centre: 01952 675612
Technical Helpline: 01952 675689

[hager.com/uk](https://www.hager.com/uk)
sales@hager.co.uk
technical@hager.co.uk