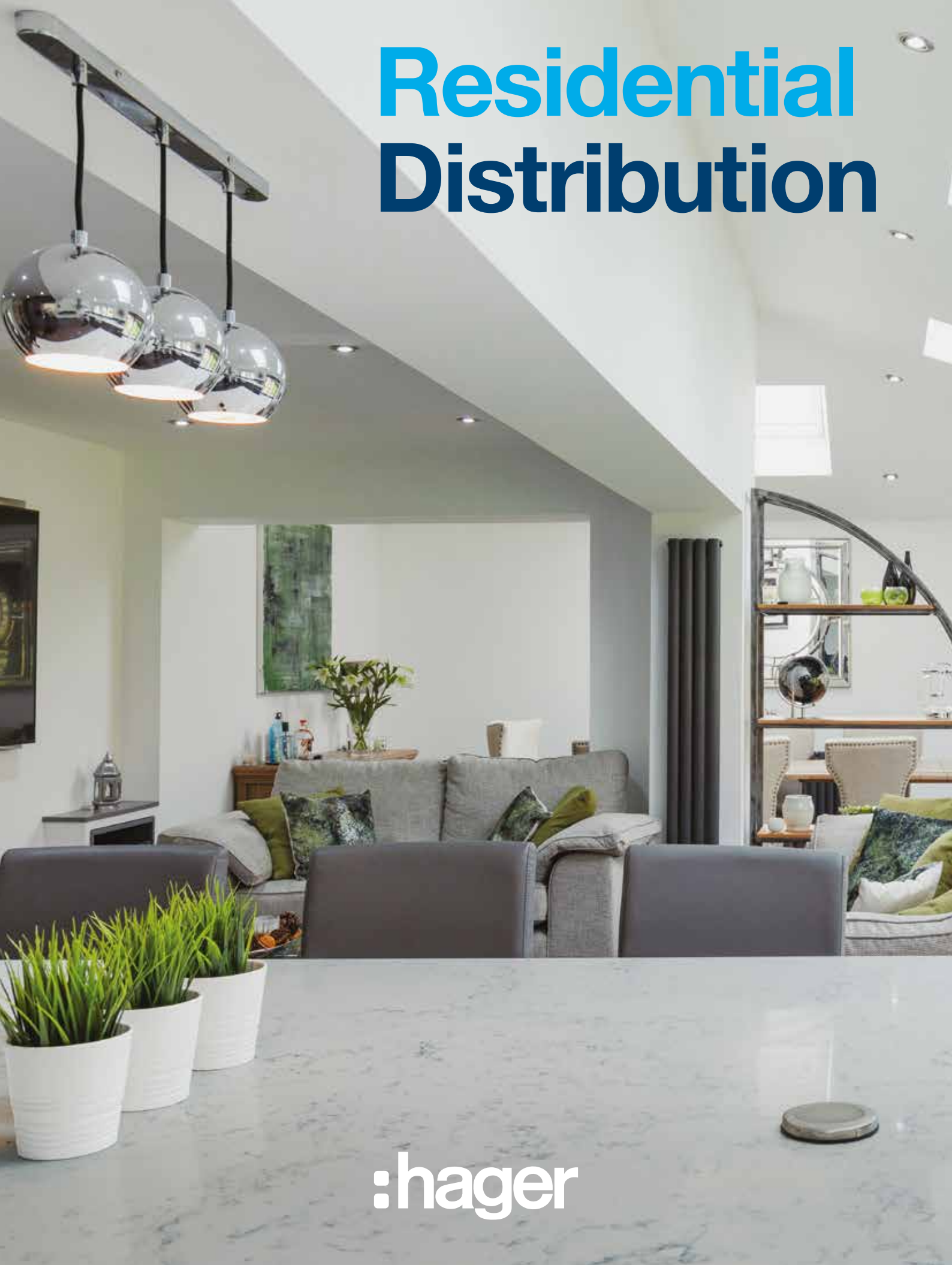# Residential
Distribution

:hager

The 18ᵗʰ Edition Is Here

Changes to the wiring regulations with the release of the 18ᵗʰ Edition of BS 7671:2018 were published in July 2018 and come into effect on 1st January 2019. These regulations have a significant impact on the design of residential electrical installations.

A significant number of these changes concern the consumer unit and incorporated devices.

Overload Protection of RCCBs, Switches (536.4.3.2)

"These devices shall be protected by an overcurrent protective device. To achieve overload protection of RCCB switches the rated current of the over-current protective device shall be selected according to the manufacturers instructions."

(536.4.202)

"...However, 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."

Page 04

RCD Selection (531.3.3)

"Different types of RCD exist, depending on their behaviour in the presence of DC components and frequencies. The appropriate RCD shall be selected"

Page 06

Surge Protection (443.4)

"Section 443.4 protection against transient over-voltages shall be provided where the consequence caused by over-voltages could..."

Page 08

Arc Fault Detection (421.1.7)

"Devices conforming to BS EN 62606 are recommended as a means of providing additional protection against fire caused by arc faults in ac final circuits."

Page 10

For more information on the changes with the 18ᵗʰ Edition, please visit
**hager.co.uk/18thedition**

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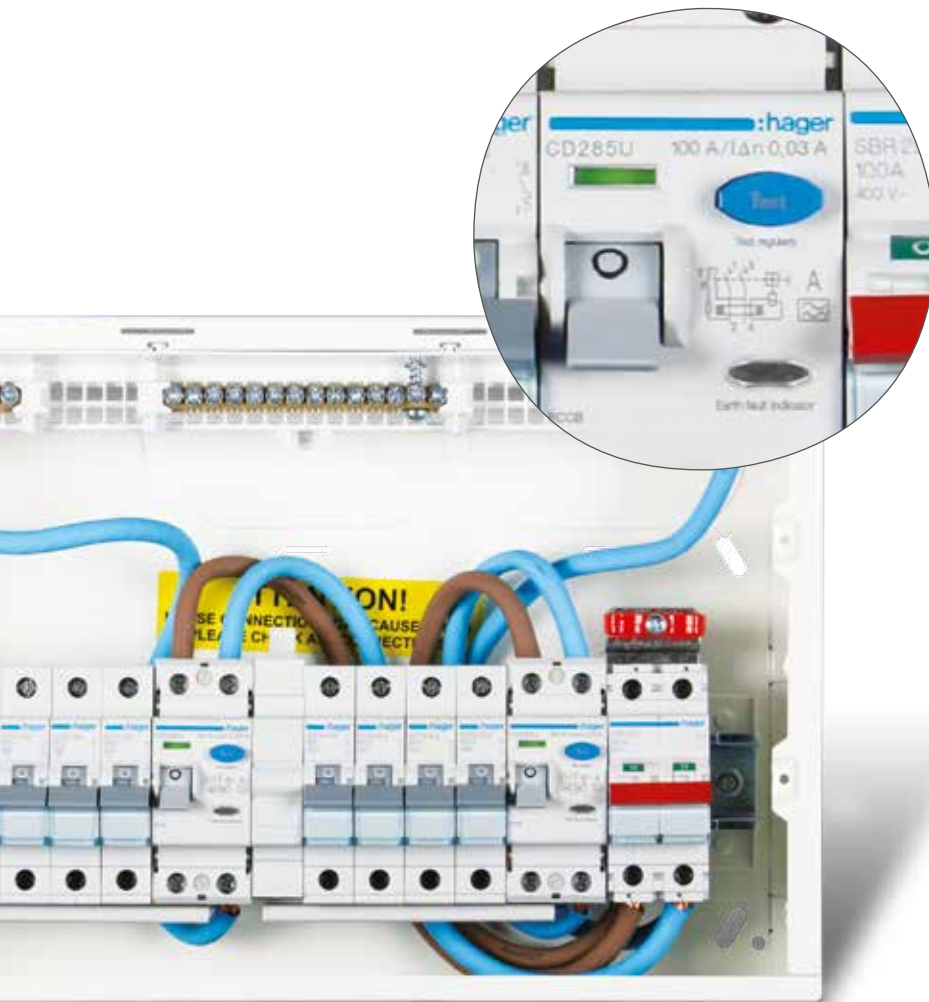
Devices such as switches, RCCBs etc. in distribution boards and consumer units may have historically had their rated current determined after having taken diversity into account but without having considered overload protection of the devices.

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.

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.
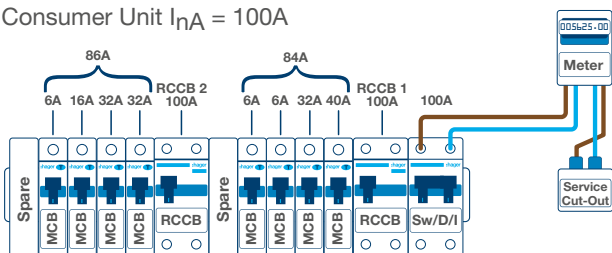
Method 2
Ensure that the rated current of a switch or RCCB (I_{nc}), stated by the assembly manufacturer, is not less than the rating of the upstream OCPD. For a domestic installation this could be a 100A cut-out fuse.

Method 3
Select a consumer unit or distribution assembly 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 ≥ Sum of rated current of downstream MCBs: 84 A ☑
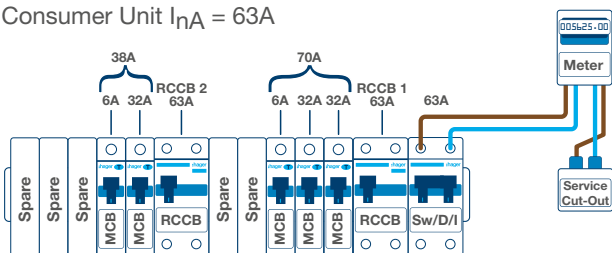RCCB2 ≥ Sum of rated current of downstream MCBs: 86 A ☑

Method 2. Overload protection provided by:
Upstream cut-out fuse
RCCBs ≥ 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 ≥ Sum of rated current of downstream MCBs: 70 A ☒
RCCB2 ≥ Sum of rated current of downstream MCBs: 38 A ☑

Method 2. Overload protection provided by:
Cut-out fuse
RCCBs ≥ 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
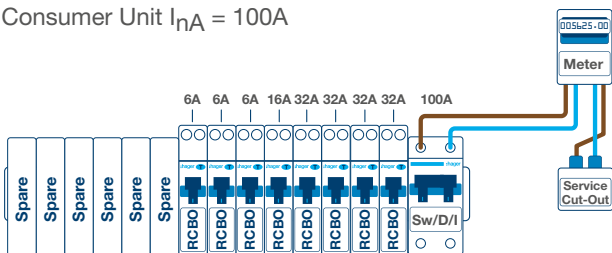
Method 3. Overload protection provided by:
Each RCBO

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

Types of RCD

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:

General purpose use
Type AC

RCD can detect & respond to AC sinusoidal wave only.

Equipment incorporating electronic components
Type A

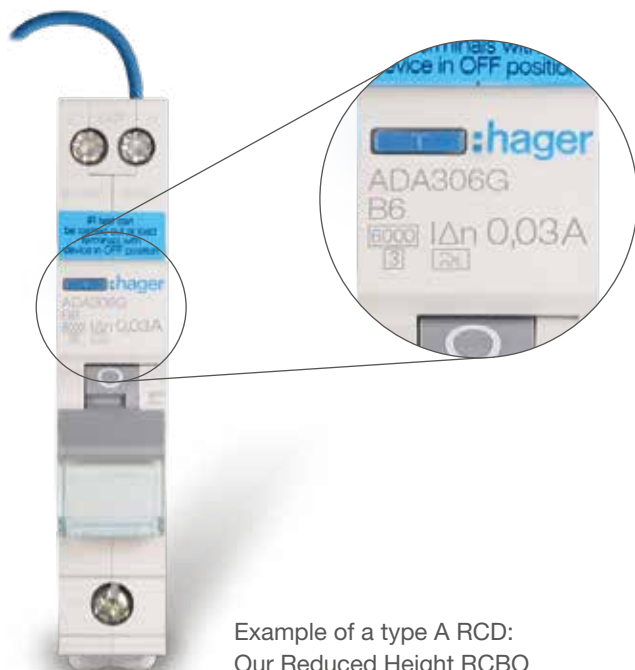RCD can detect & respond as for type AC, PLUS pulsating DC components.

Equipment with frequency controlled speed drives
Type F

RCD can detect & respond as for type A, PLUS high frequency residual current.

Electric vehicle chargers, PV supplies.
Type B

RCD can detect & respond for type F, PLUS smooth DC residual current.

Example of a type A RCD:
Our Reduced Height RCBO

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

Fenv   is an environmental factor selected according to Table 443.1 (Rural/Suburban or Urban)

Lp   is the risk assessment length in km

Ng   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 = fenv/(LpxNg)
CRL = 85/1x0.1
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 µs. 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 µs 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 µs) and current waves (8/20 µs).

Terminology

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

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

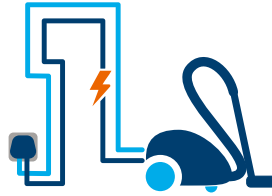U_p - The residual voltage that is measured across the terminal of the SPD when I_n is applied.

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 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. The protective function of the AFDD has already proven its worth internationally, and has been mandated in Germany since February 2016.

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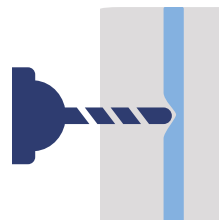
Potential Causes

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.
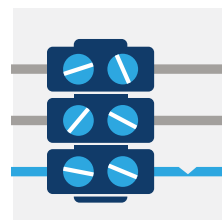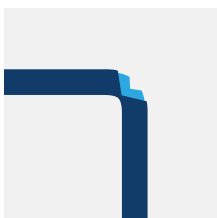

Kink/break in the cable

Cable wear due to frequent use

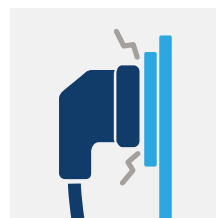Line damage resulting from drilling or construction work
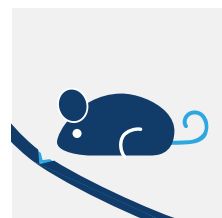

Incorrect wire stripping

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 fault in one leg however, is unlikely to cause an arc at a dangerous level and so will not be detected. This is due to current, in this instance, flowing around the other leg of the ring. A series arc fault will be detected in equipment and in 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.
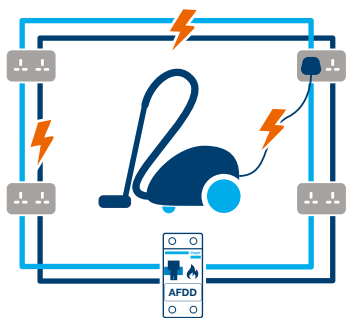
Monitoring via Microprocessor

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 position & type

Fault Between	Short Circuit	Overload	Residual current	Serial Arc	Parallel Arc
L-L	MCB/ RCBO	MCB/ RCBO			
L-N				AFDD	
L-PE			RCD/RCBO		RCD/RCBO/AFDD

Residential Distribution
Overview

Design 50

Design 30

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.

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 a meter tail cable entry plate supplied, which allows for incoming meter tails to be safely secured, eliminating stresses within the switch terminal.

Design 10

Protection Devices

Design 10 is our functional board created 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, and a full metal DIN rail ensure the devices sit square.

Safety is of paramount importance in any installation. That's why we offer a wide range of protection devices, such as RCCBs, MCBs, RCBOs & Surge Protection. Our Reduced Height RCBO (6A - 32A) offers installers more cabling space within the board than with previous RCBOs. Insulation resistance testing can be carried out on devices with the blue label on the front, without disconnecting line or neutral conductors.

We also include an anti-counterfeiting number, which gives installers the peace of mind that they are fitting a genuine Hager product.

Design 50
Flush

Design 50 is the latest addition to our range, focusing on clean aesthetics and a flush fit for seamless integration into any home. Design 50 comes with the installation features you would expect from the rest of our Design range, such as incoming cable clamp and cable protector plate, as well as a series of colour options, finishes and sizes.

01
Colours & Finishes

The Design 50 comes in white as standard, or is available with a bespoke finish in any RAL colour, or a custom design, which can be vinyl wrapped onto the board to provide a truly individual unit. Design 50 is also available in one of five anodised finishes.

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.
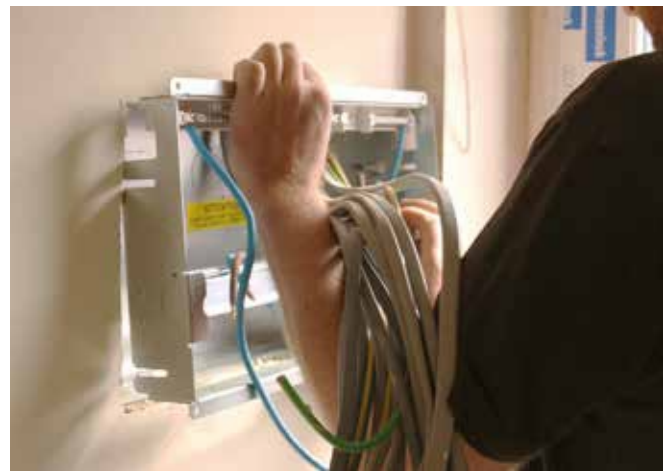
03
Installation Depth

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.

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 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.

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 optional lock is an elegant solution that utilises the form and function of Design 30 to enable temporary locking. This is achieved with the use of the health & safety bracket (**VMHBL**) and padlock (**JK25A**). When the lock is removed, the retained cover can simply be clicked back into place restoring the board to its original state.

05
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.

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.

04

Consumer Units

Protection Devices

100 A I_{nA} Consumer unit enabling conformity with 18th Edition wiring regulations for overload protection of RCCBs and switches, in any single phase residential application regardless of the current rating of the supply authority fuse. Type A RCDs are provided, these devices can detect AC sinusoidal waveforms and pulsating DC components.

VM106

Switch Disconnector Incomer

Characteristics:
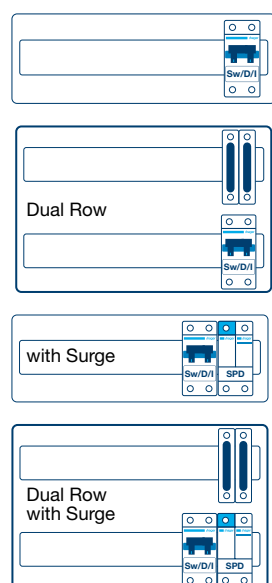- Metal switch disconnector incomer consumer units, single row from 2 to 20 and dual row from 6+6 to 20+20 outgoing ways.
- All consumer units contain rear cable entry. Boards with knockouts have top & bottom knockouts. A meter tail cable entry plate (**VM04CE**) is provided as standard - see page 40 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, 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 RCBO on outgoing circuits.
- Conforms to BS EN 61439-3 Including Annex ZB (16kA rating).
- For accessories see page 34, for dimensions see page 40, refer to board sizes below.

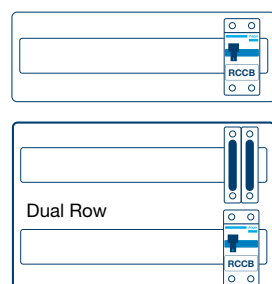| Description	Size	Cat ref.	Cat ref. With Knockouts
6 Way 100A Switch Disconnector Incomer	3	**VM106**	**VM106K**
10 Way 100A Switch Disconnector Incomer	4	**VM110**	**VM110K**
14 Way 100A Switch Disconnector Incomer	5	**VM114**	**VM114K**
20 Way 100A Switch Disconnector Incomer	7	**VM120**	**VM120K**
8 Way 100A Switch Disconnector Incomer with Factory Fitted **Surge Protection**	4	**VM108SPD** ★	**VM108KSPD** ★
12 Way 100A Switch Disconnector Incomer with Factory Fitted **Surge Protection**	5	**VM112SPD** ★	**VM112KSPD** ★
18 Way 100A Switch Disconnector Incomer with Factory Fitted **Surge Protection**	7	**VM118SPD** ★	**VM118KSPD** ★
6+6 Way Dual Row 100A Switch Disconnector Incomer	3 (2)	**VM10606**	**VM10606K**
10+10 Way Dual Row 100A Switch Disconnector Incomer	4 (2)	**VM11010**	**VM11010K**
14+14 Way Dual Row 100A Switch Disconnector Incomer	5 (2)	**VM11414**	**VM11414K**
20+20 Way Dual Row 100A Switch Disconnector Incomer	7 (2)	**VM12020**	**VM12020K**
8 + 10 Way Dual Row 100A Switch Disconnector Incomer with Factory Fitted **Surge Protection**	4(2)	**VM10810SPD** ★	**VM10810KSPD** ★
12 + 14 Way Dual Row 100A Switch Disconnector Incomer with Factory Fitted **Surge Protection**	5(2)	**VM11214SPD** ★	**VM11214KSPD** ★
16 + 20 Way Dual Row 100A Switch Disconnector Incomer with Factory Fitted **Surge Protection**	7(2)	**VM11820SPD** ★	**VM11820KSPD** ★

VM410AH

RCCB Incomer

Characteristics:
- Metal RCCB incomer consumer units, single row from 2 to 14 and dual row contains 6+6 outgoing ways.
- 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 40 for knockout sizes.
- Supplied with Type A RCCBs, a full metal DIN rail, 40A, 63A or 100A 30mA 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 34, for dimensions see page 40, refer to board sizes below.

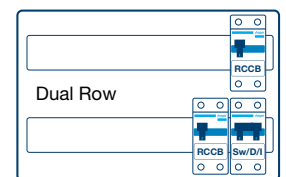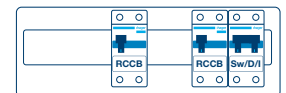| Description	Size	Cat ref.	Cat ref. With Knockouts
2 Way 40A 30mA Type A RCCB Incomer	2	**VM402AH** ★	**VM402AHK** ★
6 Way 63A 30mA Type A RCCB Incomer	3	**VM406AH** ★	**VM406AHK** ★
10 Way 63A 30mA Type A RCCB Incomer	4	**VM410AH** ★	**VM410AHK** ★
6 Way 100A 30mA Type A RCCB Incomer	3	**VM306AH**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

Split Load

Characteristics:
- Metal split load and configurable consumer units, single row from 6 to 16 and dual row from 4+6 to 18+20 outgoing ways.
- 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 40 for knockout sizes.
- Supplied with Type A RCCBs, a full metal DIN rail, 100A switch disconnector 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 34, for dimensions see page 40, refer to board sizes below.

VM955H

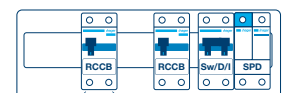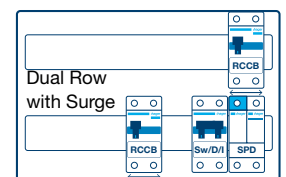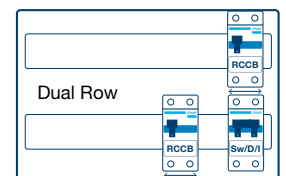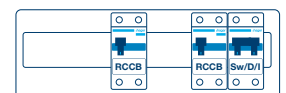| Description	Size	Cat ref.	Cat ref. With Knockouts
10 Way Split Load 5+5 100A Switch 2x 100A 30mA RCCB	5	VM955H ★	VM955HK ★
12 Way Split Load 6+6 100A Switch 2x 100A 30mA RCCB	6	VM966H ★	VM966HK ★
4+6 Way Dual Row 100A Switch 2x 100A 30mA RCCB	3 (2)	VM946H ★	VM946HK ★
8+10 Way Dual Row 100A Switch 2x 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 ★

Dual Row

Configurable

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. Single row from 10 to 16 and dual row from 8+10 to 18+20 outgoing ways.
- 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 40 for knockout sizes.
- Supplied with Type A RCCBs, a full metal DIN rail, 100A switch disconnector 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 34, for dimensions see page 40, refer to board sizes below.

VM916CU

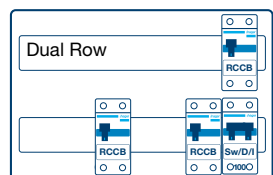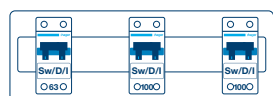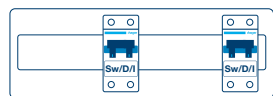| Description	Size	Cat ref.	Cat ref. With Knockouts
10 Way High Integrity 100A Switch 2x 100A 30mA RCCB	5	VM910CU ★	VM910CUK ★
12 Way High Integrity 100A Switch 2x 100A 30mA RCCB	6	VM912CU ★	VM912CUK ★
16 Way High Integrity 100A Switch 2x 100A 30mA RCCB	7	VM916CU ★	VM916CUK ★
8 Way High Integrity 100A 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 ★
15+20 Way Dual Row High Integrity 100A Switch 2x 100A 30mA RCCB with Factory Fitted **Surge Protection**	7(2)	VM91620CUSPD ★	VM916CUKSPD ★
12 Way Configurable, 100A Switch 1x 100A 30mA RCCB (Remaining Ways for RCBOs)	5	VM512C	

Dual Row

Dual Row with Surge

with Surge

100 A I_{nA} Consumer unit enabling conformity with 18th Edition wiring regulations for overload protection of RCCBs and switches, in any single phase residential application regardless of the current rating of the supply authority fuse. Type A RCDs are provided, these devices can detect AC sinusoidal waveforms and pulsating DC components.
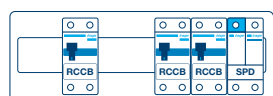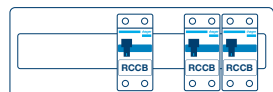
Multi Tariff

VM918C

Characteristics:
- Metal switch disconnector incomer consumer units, single row 12 or 18 and dual row 10+14 outgoing ways.
- 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 40 for knockout sizes.
- Supplied with Type A RCCBs, a full metal DIN rail, multiple switch disconnector incomers and a full complement of earth and neutral terminals along with marking labels, busbar, instructions, rear cable protector plate and meter tail clamp.
- Conforms to BS EN 61439-3 Including Annex ZB (16kA rating).
- For accessories see page 34, for dimensions see page 40, 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 ★**
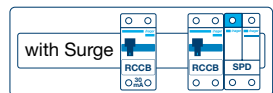
Time Delayed RCCB Incomer

VM912TG

Characteristics:
- Metal RCCB incomer consumer units, single row 12 outgoing ways.
- 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 40 for knockout sizes.
- Supplied with Type A RCCBs, a full metal DIN rail, 100A 100mA time delayed incomer, 63A 30mA 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.
- Recommended for use with TT systems (meter tail clamp secures meter tails to prevent accidental disconnection and contact with metal enclosure).
- Conforms to BS EN 61439-3 Including Annex ZB (16kA rating).
- For accessories see page 34, for dimensions see page 40, refer to board sizes below.

with Surge

Description	Size	Cat ref.	Cat ref. With Knockouts
12 Way 100A 100mA Time Delayed + 2x 100A RCCB	6	**VM966TG ★**	**VM966TGK ★**
12 Way Configurable 100A 100mA Time Delayed RCCB +100A 30mA	5	**VM912TG ★**	**VM912TGK ★**
10 Way 100A 100mA Time Delayed + 2x 100A RCCB with Factory Fitted **Surge Protection**	6	**VM955TGSPD ★**	**VM955TGKSPD ★**
10 Way Configurable 100A 100mA Time Delayed RCCB + 100A 30mA with Factory Fitted **Surge Protection**	5	**VM910TGSPD ★**	**VM910TGKSPD ★**

Garage Board

VM24AH
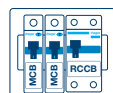
Characteristics:
- Consumer unit comes complete with Type A RCCBs, 40A 30mA RCCB Incomer, 32A MCB and 6A MCB, earth & neutral connections, busbar, cable protector plate, grommet strip, meter tail clamp, marking labels & instructions.
- All consumer units contain rear cable entry. Boards with knockouts have top & bottom knockouts. A meter tail cable entry plate (**VM04CE**) is provided as standard - see page 40 for knockout sizes.
- For dimensions see page 40, 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 ★**

:hager

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 40 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
- Suitable for use with Hager AFDD ARC***
- For accessories see page 34, for dimensions see page 40, refer to board sizes below.

VMA933H

Description	Size	Cat ref.	Cat ref. With Knockouts
100A Switch Disconnector 2x 100A 30mA RCCB 3+3, 2 Pole Busbar, ARC Fault	7	VMA933H ★	VMA933HK ★
5+4 Way, Dual Row, 100A Switch Disconnector 2x 100A 30mA RCCB, 2 Pole Busbar, with Arc Fault Detection	4(2)	VMA954H ★	VMA954HK ★
6+7 Way, Dual Row, 100A Switch Disconnector 2x 100A 30mA RCCB, 2 Pole Busbar, with Arc Fault Detection	5(2)	VMA90607H ★	VMA90607HK ★
9+10 Way, Dual Row, 100A Switch Disconnector 2x 100A 30mA RCCB, 2 Pole Busbar, with Arc Fault Detection	7(2)	VMA90910H ★	VMA90910HK ★
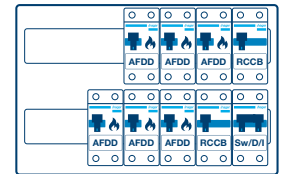
100 A I_{nA} Consumer unit enabling conformity with 18th Edition wiring regulations for overload protection of RCCBs and switches, in any single phase residential application regardless of the current rating of the supply authority fuse. Type A RCDs are provided, these devices can detect AC sinusoidal waveforms and pulsating DC components.

VML106

Switch Disconnector Incomer

Characteristics:
- Metal switch disconnector incomer consumer units, single row from 2 to 20 and dual row from 6+6 to 20+20 outgoing ways.
- All Design 10 consumer units contain top, bottom & rear knockouts and a meter tail cable entry plate (**VM04CE**) as standard- see page 40 for knockout sizes.
- Supplied with Type A RCCBs, 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 outgoing circuits.
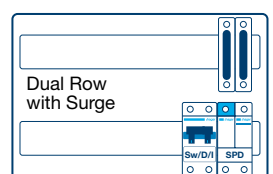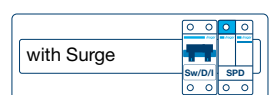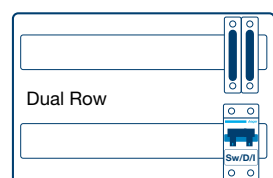- We also recommend the use of cable clamp (**VA10MT**) for use on TT systems, available as an accessory.
- Conforms to BS EN 61439-3 Including Annex ZB (16kA rating).
- For accessories see page 34, for dimensions see page 40, refer to board sizes below.

Description	Size	Cat ref.
6 Way 100A Switch Disconnector Incomer	3	**VML106**
10 Way 100A Switch Disconnector Incomer	4	**VML110**
14 Way 100A Switch Disconnector Incomer	5	**VML114**
20 Way 100A Switch Disconnector Incomer	7	**VML120**
8 Way 100A Switch Disconnector Incomer with Factory Fitted **Surge Protection**	4	**VML108SPD** ★
12 Way 100A Switch Disconnector Incomer with Factory Fitted **Surge Protection**	5	**VML112SPD** ★
18 Way 100A Switch Disconnector Incomer with Factory Fitted **Surge Protection**	7	**VML118SPD** ★
6 + 6 Way Dual Row 100A Switch Disconnector Incomer	3 (2)	**VML10606**
10 + 10 Way Dual Row 100A Switch Disconnector Incomer	4 (2)	**VML11010**
14 + 14 Way Dual Row 100A Switch Disconnector Incomer	5 (2)	**VML11414**
20 + 20 Way Dual Row 100A Switch Disconnector Incomer	7 (2)	**VML12020**
8 + 10 Way Dual Row 100A Switch Disconnector Incomer with Factory Fitted **Surge Protection**	4(2)	**VML10810SPD** ★
12 + 14 Way Dual Row 100A Switch Disconnector Incomer with Factory Fitted **Surge Protection**	5(2)	**VML11214SPD** ★
16 + 20 Way Dual Row 100A Switch Disconnector Incomer with Factory Fitted **Surge Protection**	7(2)	**VML11820SPD** ★

VML410AH

RCCB Incomer

Characteristics:
- Metal RCCB incomer consumer units, single row from 2 to 14 and dual row 6+6 outgoing ways.
- All Design 10 consumer units contain top, bottom & rear knockouts and a meter tail cable entry plate (**VM04CE**) as standard- see page 40 for knockout sizes.
- Supplied with Type A RCCBs, a full metal DIN rail, 40A, 63A or 100A 30mA 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 34, for dimensions see page 40, refer to board sizes below.
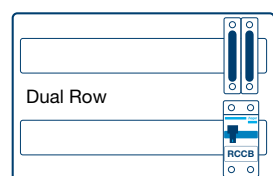
Description	Size	Cat ref.
2 Way 40A 30mA Type A RCCB Incomer	2	**VML402AH** ★
6 Way 63A 30mA Type A RCCB Incomer	3	**VML406AH** ★
10 Way 63A 30mA Type A RCCB Incomer	4	**VML410AH** ★
6 Way 100A 30mA Type A RCCB Incomer	3	**VML306AH** ★
10 Way 100A 30mA Type A RCCB Incomer	4	**VML310AH** ★
14 Way 100A 30mA Type A RCCB Incomer	5	**VML314AH** ★

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

Split Load

Characteristics:
- Metal split load and configurable consumer units, single row from 6 to 16 and dual row from 4+6 to 18+20 outgoing ways.
- All Design 10 consumer units contain top, bottom & rear knockouts and a meter tail cable entry plate (**VM04CE**) as standard- see page 40 for knockout sizes.
- Supplied with Type A RCCBs, a full metal DIN rail, 100A switch disconnector incomer and 2 RCCBs 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 34, for dimensions see page 40.

VM966H

Description	Size	Cat ref.
10 Way 5+5 100A Switch 2x 100A 30mA RCCB	5	**VML955H** ★
12 Way 6+6 100A Switch 2x 100A 30mA RCCB	6	**VML966H** ★
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** ★
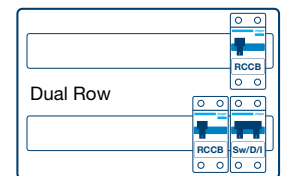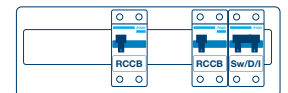
Dual Row

Configurable

Characteristics:
- Metal split load and configurable consumer units with the ability to protect selected circuits with RCBOs and the remainder of circuits split across two RCCBs. Single row from 10 to 16 and dual row from 8+10 to 18+20 outgoing ways.
- All Design 10 consumer units contain top, bottom & rear knockouts and a meter tail cable entry plate (**VM04CE**) as standard- see page 40 for knockout sizes.
- Supplied with Type A RCCBs, a full metal DIN rail, 100A switch disconnector incomer, 2 RCCBs 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 34, for dimensions see page 40.

VML912C

Description	Size	Cat ref.
12 Way 100A Switch 100A, 30mA Type A	5	**VML512AC** ★
10 Way 100A Switch 2x 100A 30mA RCCB	5	**VML910C** ★
12 Way 100A Switch 2x 100A 30mA RCCB	6	**VML912C** ★
16 Way 100A Switch 2x 100A 30mA RCCB	7	**VML916C** ★
10 Way High Integrity 100A Switch 2x 100A 30mA RCCB	5	**VML910CU** ★
12 Way High Integrity 100A Switch 2x 100A 30mA RCCB	6	**VML912CU** ★
16 Way High Integrity 100A Switch 2x 100A 30mA RCCB	7	**VML916CU** ★
8 Way High Integrity 100A Switch 2x 100A 30mA RCCB with Factory Fitted **Surge Protection**	5	**VML908CUSPD** ★
10 Way High Integrity 100A Switch 2x 100A 30mA with Factory Fitted **Surge Protection**	6	**VML910CUSPD** ★
14 Way High Integrity 100A Switch 2x 100A 30mA RCCB with Factory Fitted **Surge Protection**	7	**VML914CUSPD** ★
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	**VML512C**
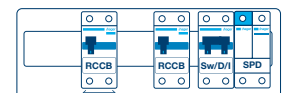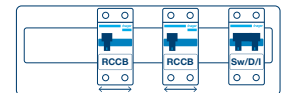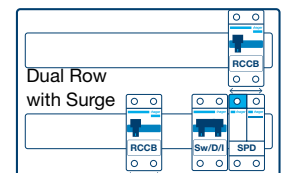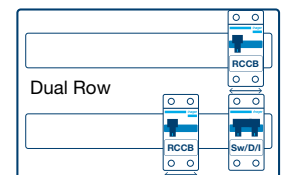
with Surge

Dual Row

Dual Row with Surge

100 A I_{nA} Consumer unit enabling conformity with 18th Edition wiring regulations for overload protection of RCCBs and switches, in any single phase residential application regardless of the current rating of the supply authority fuse. Type A RCDs are provided, these devices can detect AC sinusoidal waveforms and pulsating DC components.

VML918C
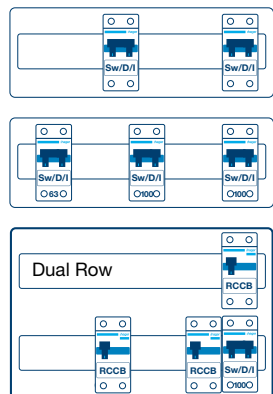
Multi Tariff

Characteristics:
- Metal switch disconnector incomer consumer units, single row 12 or 18 and dual row 10+14 outgoing ways.
- All Design 10 consumer units contain top, bottom & rear knockouts and a meter tail cable entry plate (**VM04CE**) as standard- see page 40 for knockout sizes.
- Supplied with Type A RCCBs, a full metal DIN rail, multiple switch disconnector incomers and a full complement of earth and neutral terminals along with marking labels, busbar and instructions.
- Conforms to BS EN 61439-3 Including Annex ZB (16kA rating).
- For accessories see page 34, for dimensions see page 40.

Description	Size	Cat ref.
18 Way Twin Tariff Configurable 2x 100A Switch	7	**VML918C**
12 Way Multi Tariff 6+5+1 2x100A 1x 63A Switch	6	**VML9651**
10 Way Split Load 5+5 100A Switch 2x 100A Type A RCCB 1x 100A Type A RCCB Incomer 14 Ways Dual Row	4 (2)	**VML955914H** ★

VML912TG
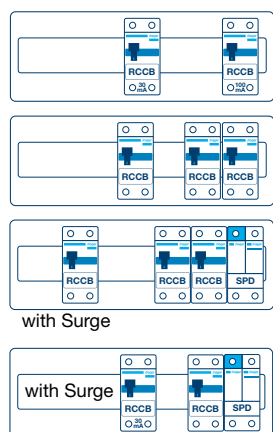
Time Delayed RCCB Incomer

Characteristics:
- Metal RCCB incomer consumer units, single row 12 outgoing ways.
- All Design 10 consumer units contain top, bottom & rear knockouts and a meter tail cable entry plate (**VM04CE**) as standard- see page 40 for knockout sizes.
- Supplied with Type A RCCBs, a full metal DIN rail 100A 100mA time delayed incomer and 100A 30mA RCCB incomers 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 34, for dimensions see page 40, 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 TD + 2 x 100A RCCB with Factory Fitted **Surge Protection**	6	**VML955TGSPD** ★
10 Way Configurable 100A 100mA TD RCCB +100A 30mA with Factory Fitted **Surge Protection**	5	**VML910TGSPD** ★

with Surge

with Surge
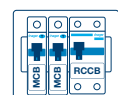
Garage Boards

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 40 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 40.

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

VML24AH

:hager

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 40 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 AFDD ARC***
- For accessories see page 34, for dimensions see page 40, refer to board sizes below.

VMLA933H

Description	Size	Cat ref.
3 + 3 Way, 100A Switch Disconnector 2x100A 30mA RCCB, 2 Pole Busbar, ARC Fault	7	**VMLA933H** ★
5 + 4 Way Dual Row, 100A Switch Disconnector 2x 100A 30mA RCCB, 2 Pole Busbar, with Arc Fault Detection	4(2)	**VMLA954H** ★
6 + 7 Way Dual Row, 100A Switch Disconnector 2x 100A 30mA RCCB, 2 Pole Busbar, with Arc Fault Detection	5(2)	**VMLA90607H** ★
9 + 10 Way Dual Row, 100A Switch Disconnector 2x 100A 30mA RCCB, 2 Pole Busbar, with Arc Fault Detection	7(2)	**VMLA90910H** ★

100 A I_{nA} Consumer unit enabling conformity with 18th Edition wiring regulations for overload protection of RCCBs and switches, in any single phase residential application regardless of the current rating of the supply authority fuse. Type A RCDs are provided, these devices can detect AC sinusoidal waveforms and pulsating DC components.

VSR114

with Surge

Switch Disconnector Incomer

Characteristics:
- Metal switch disconnector incomer consumer units, single row from 10 to 20 outgoing ways.
- All consumer units contain rear cable entry, along with top & bottom knockouts.
- Supplied with a full metal DIN rail, 100A switch disconnector incomer and a full complement of earth and neutral terminals along with marking labels, busbar, instructions, rear cable protector plate and meter tail clamp.
- Recommended for use with TT systems when utilising RCBO on outgoing circuits.
- References ending in **SPD** come with a Type 2 SPD fitted.
- Conforms to BS EN 61439-3 including Annex ZB (16kA rating).
- Adjustable depth in wall 72mm-92mm.
- For dimensions see page 40.

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

VSR910C

with Surge

Configurable

Characteristics:
- Metal split load and configurable consumer units with the ability to protect selected circuits with RCBOs and the remainder of circuits split across two RCCBs. Single row from 10 to 16 outgoing ways.
- All consumer units contain rear cable entry, along with top & bottom knockouts.
- Supplied with a full metal DIN rail, 100A switch disconnector incomer and 2 Type A RCCBs and a full complement of earth and neutral terminals along with marking labels, busbar, instructions, rear cable protector plate and meter tail clamp.
- References ending in **SPD** come with a Type 2 SPD fitted.
- Conforms to BS EN 61439-3 Including Annex ZB (16kA rating).
- Adjustable depth in wall 72mm-92mm.
- For dimensions see page 40.

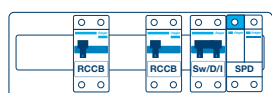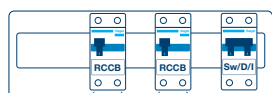| Description	Max Unprotected Ways	Size	Cat ref.
10 Way High Integrity Split Load 100A Switch 2x 100A 30mA RCCB	3	5	**VSR910CU** ★
12 Way High Integrity Split Load 100A Switch 2x 100A 30mA RCCB	3	6	**VSR912CU** ★
16 Way High Integrity Split Load 100A Switch 2x 100A 30mA RCCB	6	7	**VSR916CU** ★
8 Way 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** ★

Switch Disconnector Incomer

Characteristics:
- Metal switch disconnector incomer consumer units, single row from 10 to 20 outgoing ways.
- All consumer units contain rear cable entry, along with top & bottom knockouts.
- Supplied with a full metal DIN rail, 100A switch disconnector incomer and a full complement of earth and neutral terminals along with marking labels, busbar, instructions, rear cable protector plate and meter tail clamp.
- Recommended for use with TT systems when utilising RCBO on outgoing circuits.
- Conforms to BS EN 61439-3 including Annex ZB (16kA rating).
- Adjustable depth in wall 72mm-92mm.
- For dimensions see page 41.

VMLF110

Description	Size	Cat ref.
10 Way Flush 100A Switch Disconnector Incomer	4	**VMLF110**
14 Way Flush 100A Switch Disconnector Incomer	5	**VMLF114**
20 Way Flush 100A Switch Disconnector Incomer	7	**VMLF120**

Split Load

Characteristics:
- Metal split load and configurable consumer units, single row from 10 to 16 outgoing ways.
- All consumer units contain rear cable entry, along with top & bottom knockouts.
- Supplied with a full metal DIN rail, 100A switch disconnector incomer and 2 Type A RCCBs and a full complement of earth and neutral terminals along with marking labels, busbar, instructions, rear cable protector plate and meter tail clamp.
- Conforms to BS EN 61439-3 including Annex ZB (16kA rating).
- Adjustable depth in wall 72mm-92mm.
- For dimensions see page 41.

VMLF910C

Description	Size	Cat ref.
10 Way Flush 100A Switch 2x 100A 30mA Type A RCCB	5	**VMLF910C ★**
12 Way Flush 100A Switch 2x 100A 30mA Type A RCCB	6	**VMLF912C ★**
16 Way Flush 100A Switch 2x 100A 30mA Type A RCCB	7	**VMLF916C ★**

Configurable

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. Single row from 10 to 16 outgoing ways.
- All consumer units contain rear cable entry, along with top & bottom knockouts.
- Supplied with a full metal DIN rail, 100A switch disconnector incomer and 2 Type A RCCBs and a full complement of earth and neutral terminals along with marking labels, busbar, instructions, rear cable protector plate and meter tail clamp.
- References ending in **SPD** come with a Type 2 SPD fitted.
- Conforms to BS EN 61439-3 Including Annex ZB (16kA rating).
- Adjustable depth in wall 72mm-92mm.
- For dimensions see page 41.

VMLF910CU

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 ★**

with Surge

63 A I_{nA} consumer unit enabling conformity with the 18th Edition wiring regulations for overload protection of RCCBs and switches only when the current rating of the upstream overcurrent protective device is known to be 60/63 A. Type A RCDs are provided, these devices can detect AC sinusoidal waveforms and pulsating DC components.

Split Load

VM655H

Characteristics:
- Metal split load and configurable consumer units, single row from 6 to 16 and dual row from 4+6 to 18+20 outgoing ways.
- All consumer units contain rear cable entry. Boards with knockouts have top & bottom knockouts. A meter tail cable entry plate (**VM04CE**) is **provid**ed as standard - see page 40 for knockout sizes.
- Supplied with a full metal DIN rail, 100A switch disconnector incomer, 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.
- Conforms to BS EN 61439-3 Including Annex ZB (16kA rating).
- For accessories see page 34, for dimensions see page 40, refer to board sizes below.

Dual Row

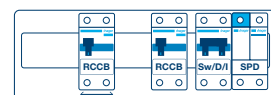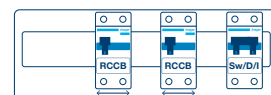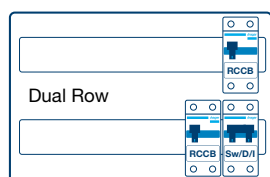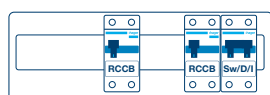| Description	Size	Cat ref.	Cat ref. With Knockouts
6 Way 3+3 63A Switch 2x 63A 30mA Type A RCCB	4	VM633H ★	VM633HK ★
10 Way 5+5 63A Switch 2x 63A 30mA Type A RCCB	5	VM655H ★	VM655HK ★
12 Way 6+6 63A Switch 2x 63A 30mA Type A RCCB	6	VM666H ★	VM666HK ★
4+6 Way Dual Row 63A Switch 2x 63A 30mA RCCB	3(2)	VM646H ★	VM646HK ★
8+10 Way Dual Row 63A Switch 2x 63A 30mA RCCB	4(2)	VM60810H ★	VM60810HK ★
12+14 Way Dual Row 63A Switch 2x 63A 30mA RCCB	5(2)	VM61214H ★	VM61214HK ★
18+20 Way Dual Row 63A Switch 2x 63A 30mA RCCB	7(2)	VM61820H ★	VM61820HK ★

Configurable

VM616CU

Characteristics:
- Metal split load and configurable consumer units with ability to protect selected circuits with RCBOs and the remainder of circuits split accross two RCCBs. Single row from 10 to 16 and dual row from 8+10 to 18+20 outgoing ways.
- All consumer units contain rear cable entry. Boards with knockouts have top & bottom knockouts. A meter tail cable entry plate (**VM04CE**) is **provid**ed as standard - see page 40 for knockout sizes.
- Supplied with a full metal DIN rail, 100A switch disconnector incomer, 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).
- For accessories see page 34, for dimensions see page 40, refer to board sizes below.

Dual Row

Dual Row with Surge

with Surge

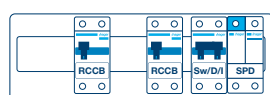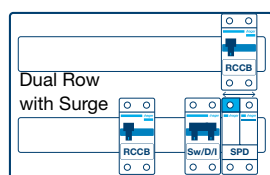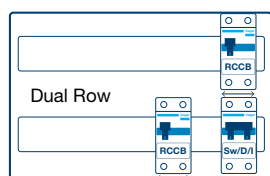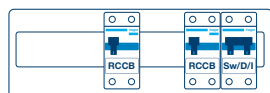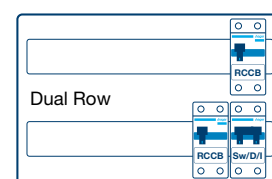| Description	Size	Cat ref.	Cat ref. With Knockouts
10 Way High Integrity 63A Switch 2x 63A 30mA Type A RCCB	5	VM610CU ★	VM610CUK ★
12 Way High Integrity 63A Switch 2x 63A 30mA Type A RCCB	6	VM612CU ★	VM612CUK ★
16 Way High Integrity 63A Switch 2x 63A 30mA Type A RCCB	7	VM616CU ★	VM616CUK ★
8 Way High Integrity 63A Switch 2x 63A 30mA RCCB with Factory Fitted **Surge Protection**	5	VM608CUSPD ★	VM608CUKSPD ★
10 Way High Integrity 63A Switch 2x 63A 30mA RCCB with Factory Fitted **Surge Protection**	6	VM610CUSPD ★	VM610CUKSPD ★
14 Way High Integrity 63A Switch 2x 63A 30mA RCCB with Factory Fitted **Surge Protection**	7	VM614CUSPD ★	VM614CUKSPD ★
8+10 Way Dual Row High Integrity 63A Switch 2x 63A 30mA RCCB	4 (2)	VM60810CU ★	VM60810CUK ★
12+14 Way Dual Row High Integrity 63A Switch 2x 63A 30mA RCCB	5 (2)	VM61214CU ★	VM61214CUK ★
18+20 Way Dual Row High Integrity 63A Switch 2x 63A 30mA RCCB	7 (2)	VM61820CU ★	VM61820CUK ★
6+10 Way Dual Row High Integrity 63A Switch 2x 63A 30mA RCCB with Factory Fitted **Surge Protection**	4(2)	VM60610CUSPD ★	VM60610CUKSPD ★
12+14 Way Dual Row High Integrity 63A Switch 2x 63A 30mA RCCB with Factory Fitted **Surge Protection**	5(2)	VM61014CUSPD ★	VM61014CUKSPD ★
16+20 Way Dual Row High Integrity 63A Switch 2x 63A 30mA RCCB with Factory Fitted **Surge Protection**	7(2)	VM61620CUSPD ★	VM61620CUKSPD ★

Split Load

Characteristics:
- Metal split load and configurable consumer units, single row from 6 to 16 and dual row from 4+6 to 18+20 outgoing ways.
- All Design 10 consumer units contain top, bottom & rear knockouts and a meter tail cable entry plate (**VM04CE**) as standard- see page 40 for knockout sizes.
- Supplied with a full metal DIN rail, 100A switch disconnector incomer and 2 Type A RCCBs and a full complement of earth and neutral terminals along with marking labels, busbar and instructions.
- Conforms to BS EN 61439-3 Including Annex ZB (16kA rating).
- For accessories see page 34, for dimensions see page 40.

VML633H

Description	Size	Cat ref.
6 Way 3+3 63A Sw 2*63A 30mA Type A RCCB	4	**VML633H** ★
10 Way 5+5 63A Sw 2*63A 30mA Type A RCCB	5	**VML655H** ★
12 Way 6+6 63A Sw 2*63A 30mA Type A RCCB	6	**VML666H** ★
4+6 Way Dual Row 63A Sw 2*63A 30mA RCCB	3(2)	**VML646H** ★
8+10 Way Dual Row 63A Sw 2*63A 30mA RCCB	4(2)	**VML60810H** ★
12+14 Way Dual Row 63A Sw 2*63A 30mA RCCB	5(2)	**VML61214H** ★
18+20 Way Dual Row 63A Sw 2*63A 30mA RCCB	7(2)	**VML61820H** ★

Dual Row

Configurable

Characteristics:
- Metal split load and configurable consumer units with the ability to protect selected circuits with RCBOs and the remainder of circuits split across two RCCBs. Single row from 10 to 16 and dual row from 8+10 to 18+20 outgoing ways.
- All Design 10 consumer units contain top, bottom & rear knockouts and a meter tail cable entry plate (**VM04CE**) as standard- see page 40 for knockout sizes.
- Supplied with a full metal DIN rail, 100A switch disconnector incomer, 2 Type A RCCBs 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 34, for dimensions see page 40.

VML616C

Description	Size	Cat ref.
10 Way High Integrity 63A Switch 2x 63A 30mA Type A RCCB	5	**VML610C** ★
10 Way High Integrity Configurable 63A Switch 2x 63A 30mA Type A RCCB	5	**VML610CU** ★
12 Way High Integrity 63A Switch 2x 63A 30mA Type A RCCB	6	**VML612C** ★
12 Way High Integrity Configurable 63A Switch 2x 63A 30mA Type A RCCB	6	**VML612CU** ★
16 Way High Integrity 63A Switch 2x 63A 30mA Type A RCCB	7	**VML616C** ★
16 Way High Integrity Configurable 63A Switch 2x 63A 30mA Type A RCCB	7	**VML616CU** ★
8 Way High Integrity 63A Switch 2x 63A 30mA RCCB with Factory Fitted **Surge Protection**	5	**VML608CUSPD** ★
10 Way High Integrity 63A Switch 2x 63A 30mA RCCB with Factory Fitted **Surge Protection**	6	**VML610CUSPD** ★
14 Way High Integrity 63A Switch 2x 63A 30mA RCCB with Factory Fitted **Surge Protection**	7	**VML614CUSPD** ★
8+10 Way Dual Row High Integrity 63A Switch 2x 63A 30mA RCCB	4(2)	**VML60810CU** ★
12+14 Way Dual Row High Integrity 63A Switch 2x 63A 30mA RCCB	5(2)	**VML61214CU** ★
18+20 Way Dual Row High Integrity 63A Switch 2x 63A 30mA RCCB	7(2)	**VML61820CU** ★
6+10 Way Dual Row High Integrity 63A Switch 2x 63A 30mA RCCB with Factory Fitted **Surge Protection**	4(2)	**VML60610CUSPD** ★
10+14 Way Dual Row High Integrity 63A Switch 2x 63A Type A RCCB with Factory Fitted **Surge Protection**	5(2)	**VML61014CUSPD** ★
15+20 Way Dual Row High Integrity 63A Switch 2x 63A 30mA RCCB with Factory Fitted **Surge Protection**	7(2)	**VML61620CUSPD** ★
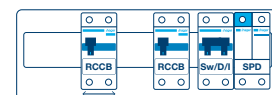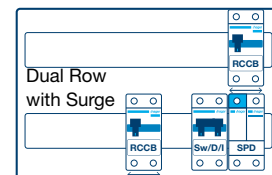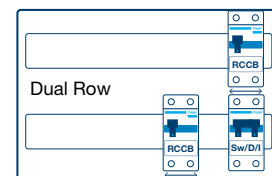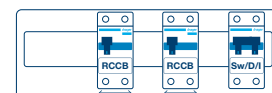
Dual Row
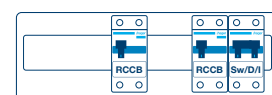
Dual Row with Surge

with Surge

63 A I_{nA} consumer unit enabling conformity with the 18th Edition wiring regulations for overload protection of RCCBs and switches only when the current rating of the upstream overcurrent protective device is known to be 60/63 A. Type A RCDs are provided, these devices can detect AC sinusoidal waveforms and pulsating DC components.

VSR610C

with Surge

Configurable

Characteristics:
- Metal split load and configurable consumer units with the ability to protect selected circuits with RCBOs and the remainder of circuits split across two RCCBs. Single row from 10 to 16 outgoing ways.
- All consumer units contain rear cable entry, along with top & bottom knockouts.
- Supplied with a full metal DIN rail, 100A switch disconnector incomer and 2 Type A RCCBs and a full complement of earth and neutral terminals along with marking labels, busbar, instructions, rear cable protector plate and meter tail clamp.
- References ending in **SPD** come with a Type 2 SPD fitted.
- Conforms to BS EN 61439-3 Including Annex ZB (16kA rating).
- Adjustable depth in wall 72mm-92mm.
- For accessories see page 34, for dimensions see page 41.

| Description	Size	Cat ref.
10 Way High Integrity 63A Switch 2x 63A 30mA RCCB	5	**VSR610CU** ★
12 Way High Integrity 63A Switch 2x 63A 30mA RCCB	6	**VSR612CU** ★
16 Way High Integrity 63A Switch 2x 63A 30mA RCCB	7	**VSR616CU** ★
8 Way High Integrity 63A Switch 2x 63A 30mA RCCB with Factory Fitted **Surge Protection**	5	**VSR608CUSPD** ★
10 Way High Integrity 63A Switch 2x 63A 30mA RCCB with Factory Fitted **Surge Protection**	6	**VSR610CUSPD** ★
14 Way High Integrity 63A Switch 2x 63A 30mA RCCB with Factory Fitted **Surge Protection**	7	**VSR614CUSPD** ★

VMLF610CU

with Surge

Configurable

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. Single row from 10 to 16 outgoing ways.
- All consumer units contain rear cable entry, along with top & bottom knockouts.
- Supplied with a full metal DIN rail, 100A switch disconnector incomer and 2 Type A RCCBs and a full complement of earth and neutral terminals along with marking labels, busbar, instructions, rear cable protector plate and meter tail clamp.
- References ending in **SPD** come with a Type 2 SPD fitted.
- Conforms to BS EN 61439-3 Including Annex ZB (16kA rating).
- Adjustable depth in wall 72mm-92mm.
- For accessories see page 34, for dimensions see page 41.

Description	Size	Cat ref.
10 Way High Integrity 63A Switch 2x 63A 30mA RCCB	5	**VMLF610CU** ★
12 Way High Integrity 63A Switch 2x 63A 30mA RCCB	6	**VMLF612CU** ★
16 Way High Integrity 63A Switch 2x 63A 30mA RCCB	7	**VMLF616CU** ★
8 Way High Integrity 63A Switch 2x 63A 30mA RCCB with Factory Fitted **Surge Protection**	5	**VML608CUSPD** ★
10 Way High Integrity 63A Switch 2x 63A 30mA RCCB with Factory Fitted **Surge Protection**	6	**VMLF610CUSPD** ★
14 Way High Integrity 63A Switch 2x 63A 30mA RCCB with Factory Fitted **Surge Protection**	7	**VMLF614CUSPD** ★

Design 10 100A (I$_{nA}$)

Characteristics:
- These boards come with round knockouts, for knockout sizes see page 40
- Metal split load and configurable consumer units, single row from 10 to 16 outgoing ways.
- Supplied with Type A RCCBs, a full metal DIN rail, 100A switch disconnector incomer and 2 Type A RCCBs and a full complement of earth and neutral terminals along with marking labels, busbar 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 34, for dimensions see page 40.

Description	Size	Cat ref.
10 Way 5+5 100A Switch 2x 100A 30mA with Round Knockouts	5	**VML955RK** ★
12 Way 6+6 100A Switch 2x 100A 30mA with Round Knockouts	6	**VML966RK** ★
16 Way High Integrity 100A Switch 2x 100A 30mA with Round Knockouts	7	**VML916CURK** ★
8 Way High Integrity 100A Switch 2x 100A 30mA RCCB with Factory Fitted **Surge Protection** & Round Knockouts	5	**VML908CUSPDRK** ★
10 Way High Integrity 100A Switch 2x 100A 30mA with Factory Fitted **Surge Protection** & Round Knockouts	6	**VML910CUSPDRK** ★
14 Way High Integrity 100A Switch 2x 100A 30mA RCCB with Factory Fitted **Surge Protection** & Round Knockouts	7	**VML914CUSPDRK** ★

VML966RK
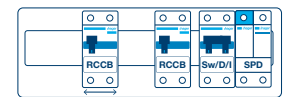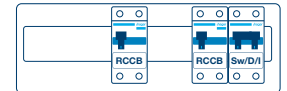
with Surge

Design 10 63A (I$_{nA}$)

Characteristics:
- These boards come with round knockouts, for knockout sizes see page 40
- Metal split load and configurable consumer units, single row from 10 to 16 outgoing ways.
- Supplied with Type A RCCBs, a full metal DIN rail, 100A switch disconnector incomer and 2 Type A RCCBs and a full complement of earth and neutral terminals along with marking labels, busbar 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 34, for dimensions see page 40.

Description	Size	Cat ref.
10 Way 5+5 63A Switch 2x 63A 30mA Type A with Round Knockouts	5	**VML655RK** ★
12 Way 6+6 63A Switch 2x 63A 30mA Type A with Round Knockouts	6	**VML666RK** ★
16 Way High Integrity 63A Switch 2x 63A 30mA Type A with Round Knockouts	7	**VML616CURK** ★
10 Way High Integrity 63A Switch 2x 63A 30mA RCCB with Factory Fitted **Surge Protection** & Round Knockouts	6	**VML610CUSPDRK** ★
8 Way High Integrity 63A Switch 2x 63A 30mA RCCB with Factory Fitted **Surge Protection** & Round Knockouts	5	**VML608CUSPDRK** ★
14 Way High Integrity 63A Switch 2x 63A 30mA RCCB with Factory Fitted **Surge Protection** & Round Knockouts	7	**VML614CUSPDRK** ★

VML666RK

with Surge

VM02CE

VM03CB   VM03CE

VM04CB   VM04CE
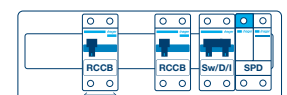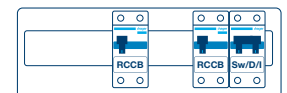
Cable Protector Plate

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

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

VM10MT

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**

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**

:hager

Design 50 Accessories

Description	Cat ref.
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**

VSRHBL

VSRLOCK

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

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**

ADA332G

Reduced Height RCBO - Single Pole, B Curve, 6kA, 30mA, Type A

Characteristics
- Protection devices which combine the overcurrent functions of an MCB with the earth fault functions of an RCCB.
- Complies with BS EN 61009-1, BS IEC 1009-2-2
- Single module width
- Sensitivity: 30mA
- Current rating: 6 - 32A
- 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	Cat ref.
6A	**ADA306G**
10A	**ADA310G**
16A	**ADA316G**
20A	**ADA320G**
25A	**ADA325G**
32A	**ADA332G**

Full Height RCBO - Single Pole, B Curve, 6kA, 30mA, Type A

Description	Cat ref.
40A	**ADA140G ★**
45A	**ADA145G ★**

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**

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

Reserve Indicator Light

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

Normal	Reserve	End of Life

OK
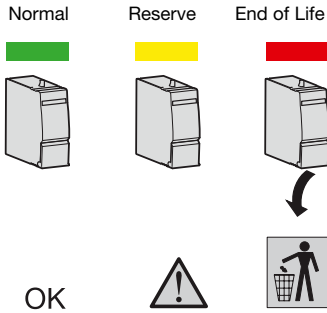
Surge Protection

Characteristics
- SPD's protect electrical and electronic equipment against transients, originating from lightning, switching of transformers, lighting and motors. These transient voltages can cause premature ageing of equipment, downtime, or complete destruction of electronic components and materials. SPDs are strongly recommended on installations that are exposed to transient voltages, to protect sensitive and expensive electrical equipment such as TV, video, Hi-Fi, PC, alarm etc.
- The range of SPDs is separated into 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 (Up $\leq$ 1000V).
  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 65kA.
- For technical details see page 44.

Surge Protection Devices

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)

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
5	15	-	-	≤ 1.2	17.5	**SPN115D**	**SPN115R**
5	15	-	-	≤ 1.2	35	**SPD215D ★**	**SPN215R**
15	40	-	-	≤ 1.2	35	**SPN240D**	**SPN240R**

Type 3 (Fine Protection) (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
3	3	-	-	≤ 1.5	17.5	**SPN203N**	-

PV Applications (DC side) (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			≤ 4	52.5	**SPV325**	-

SPN240R

Replacement Cartridges

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

SPN040D

Consumer Unit Kit Type 2 SPD with SPN215D (with lifetime indicator)

- Consists of: 6mm² neutral, live & earth cables, 1x Double Pole SPD's.

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**
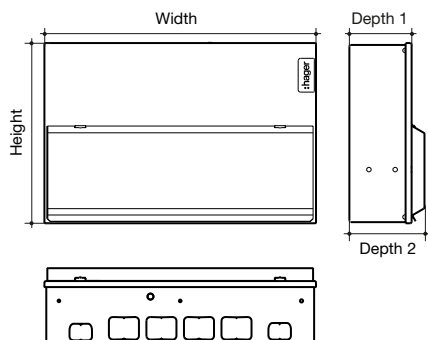
Design 10 Dimensions (mm)

	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					
Top Face 30 x 25 (mm)	2	2	2	2	2	2
Top Face 40 x 30 (mm)	0	2	4	4	6	6
Back 100 x 50 (mm)	1	1	1	3	3	3
Bottom Face 30 x 25 (mm)	2	3	4	4	5	5

Boards with Round Knockouts	Number of Knockouts					
Top/Bottom Face 20mm	x	x	x	5	6	8
Top/Bottom Face 25mm	x	x	x	2	2	2
Top/Bottom Face 32mm	x	x	x	2	2	2
Back 100 x 50mm	x	x	x	3	3	3
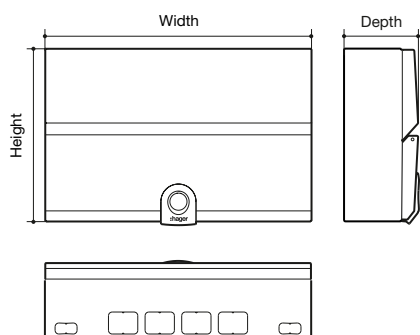
Design 30 Dimensions (mm)

	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					
Top Face 30 x 25 (mm)	2	2	2	2	2	2
Top Face 40 x 30 (mm)	0	2	4	4	6	6
Back 100 x 50 (mm)	1	1	1	3	3	3
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			
Top Face 50 x 20 (mm)	4	5	6	7
Bottom Face 50 x 20 (mm)	4	5	6	7
Back 100 x 50 (mm)	2	2	2	3
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.

Data is subject to errors and technical modifications.
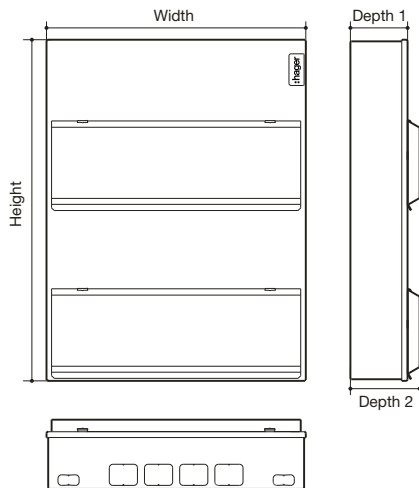
Dual Row Design 10 Dimensions (mm)

	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				
Top Face 30 x 25 (mm)	2	2	2	2	2
Top Face 40 x 30 (mm)	2	4	4	6	6
Back 100 x 50 (mm)	2	2	6	6	6
Bottom Face 30 x 25 (mm)	3	4	4	5	5
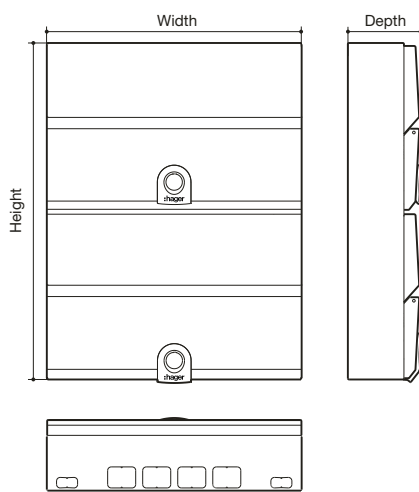
Dual Row Design 30 Dimensions (mm)

	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				
Top Face 30 x 25 (mm)	2	2	2	2	2
Top Face 40 x 30 (mm)	2	4	4	6	6
Back 100 x 50 (mm)	2	2	6	6	6
Bottom Face 30 x 25 (mm)	3	4	4	5	5
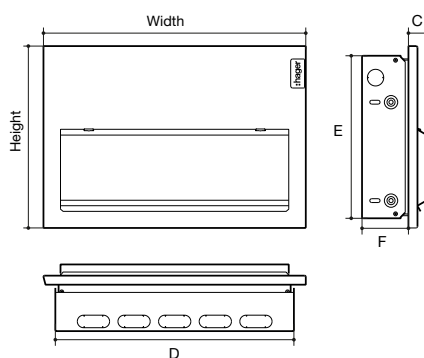
Flush Design 10 Dimensions (mm)

	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			
Top Face 50 x 20 (mm)	4	5	6	7
Bottom Face 50 x 20 (mm)	4	5	6	7
Back 100 x 50 (mm)	2	2	2	3
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 >1.5mm² Tightening torque (N.m)		Cables ≤1.5mm² 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 UI (V)	Rated Impulse Voltage Uimp (kV)	Electrical Endurace	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)	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

Connection

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

Temperature Derating

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

I_n (A)	-25ºC	-20ºC	-15ºC	-10ºC	-5ºC	0ºC	5ºC	10ºC	15ºC	20ºC	25ºC	30ºC	35ºC	40ºC	45ºC	50ºC	55ºC	60ºC
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

SPA201 Technical Characteristics

		SPA201
Tested to		EN 61643-11 2002-12
SPD type / class		Type 1 + Type 2 / Class I
Energy-coordinated protection effect on terminal equipment		Type 1 + Type 2
Energy-coordinated protection effect on terminalequipment ≤ 5 m		Type 1 + Type 2 + Type 3
Type of connection		Parallel connection
Type of power supply system		TT / TN system
Type of protection		common and differential modes
Nominal voltage	U_N	230V/400V ac
Rated voltage	U_C	255V ac
Voltage protection level	U_p	≤ 1.5kV
TOV Voltage	U_T	440V / 5s 1200V / 200ms
Rated load current	I(L)	n/a
	I(L-L)	n/a
Follow current interrupting rating	I_{fi}	25kA rms 100A rms
Nominal discharge current (8/20)	I_n	12.5kA 25kA
Impulse current (10/350)	I_{imp}	12.5kA 25kA
Max. rating of overcurrent protection	fuse	160A gL / gG
	MCCB	n/a
Short-circuit withstand capability with max. overcurrent protection	fuse	25kA rms
	MCB	n/a
Response time	t_A	≤ 100ns
Operating temperature range		- 40°C ….+ 80°C
Indication of SPD disconnector		Green/Red flag on L and N
Cross sectional area	min	1,5mm² solid / flexible
	max	35mm² stranded / 25mm² flexible
Tightening torque for terminals		4 Nm
Mounting on		35mm DIN rail in accordance with EN 60715
Enclosure material		grey thermoplastic, UL 94V-0
Degree of protection		IP20
Modular width		2
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 operationg voltage U_C	Line / Neutal	≤ 255V
	Neutral/ PE	≤ 275V
Voltage protection level	U_p	≤ 1kV
Nominal discharge current (8/20 μs) [(DC+/DC-) --> PE]	I_n	5kA
Max. discharge current (8/20 μs) [(DC+/DC-) --> PE]	I_{max}	15kA
Short-circuit withstand capability with max. overcurrent protection		10kA - 32A
Operating temperature range		- 40°C ….+ 80°C
Indication of SPD disconnector		Green - Yellow - Red
Cross sectional area	min	1,5mm² solid / flexible
	max	35mm² multi-stranded / 25mm² flexible
Tightening torque for terminals		4.0 Nm
Mounting on		35mm DIN rail in accordance with EN 60715
Enclosure material		grey thermoplastic, UL 94V-0
Degree of protection		IP20
Modular width (DIN 43880)		2
Auiliary contact. Voltage/ nominal current (only applicable on the R suffix products)		230V/ 0.5A 12Vdc 10mA

SPV325 Technical Characteristics
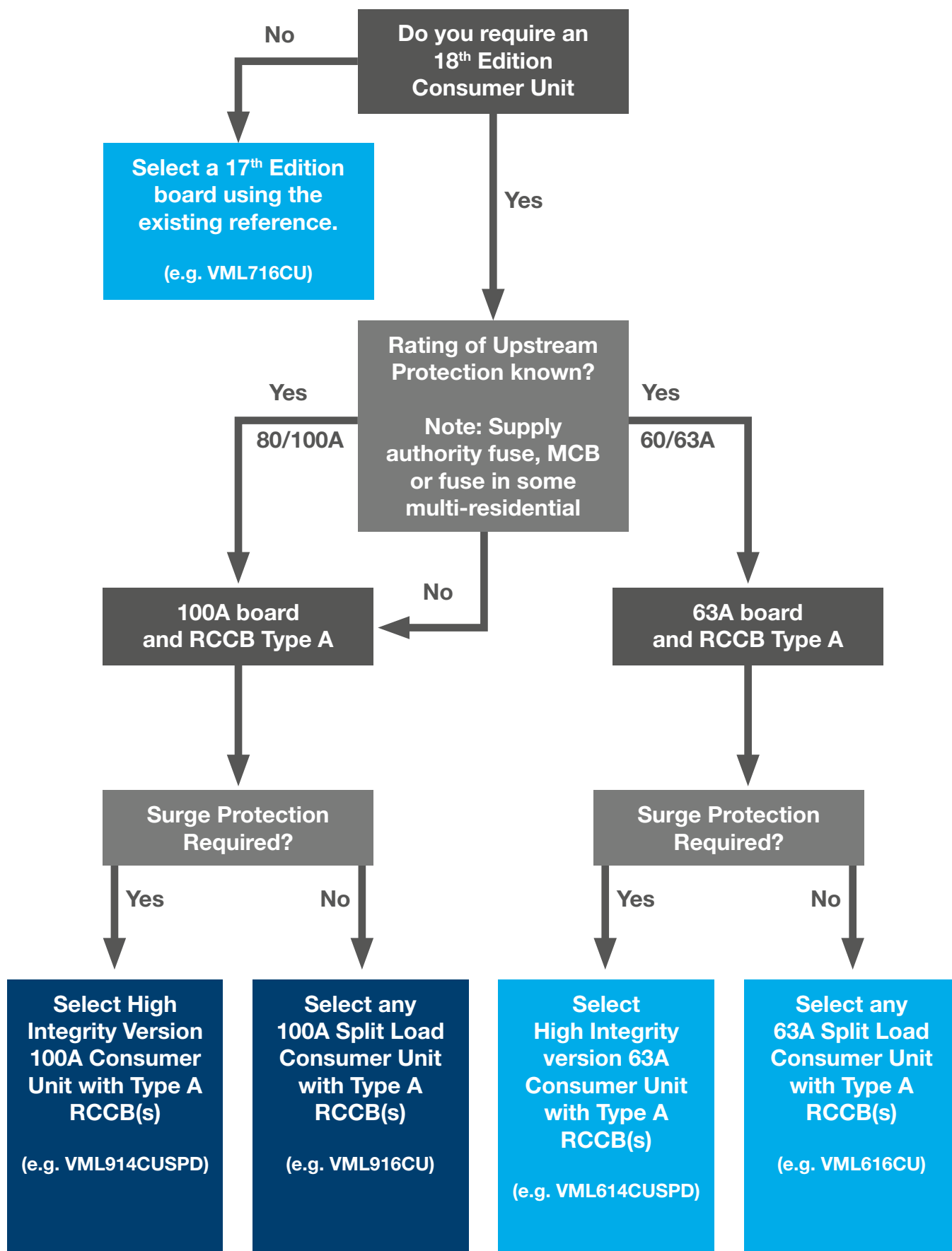
		SPV325
Tested to		EN 61643-11 (VDE0675-6-11) 2002-12
SPD type		Type 2 according to EN 61643-11
SPD class		Class II according to IEC 61643-1
Type of connection		Parallel connection
Maximum continuous operationg voltage	Uc_{PV}	≤ 1000V
Voltage protection level	U_p	≤ 4kV
Voltage protection level for 5kA	U_p	≤ 3,5kV
Total discharge current (8/20 µs)	I_{total}	40kA
Nominal discharge current (8/20 µs) [(DC+/DC-) --> PE]	I_n	12.5kA
Max. discharge current (8/20 µs) [(DC+/DC-) --> PE]	I_{max}	25kA
Short-circuit withstand capability with max. overcurrent protection	I_{scwPV}	50 A / 1000 V DC
Response time	t_A	≤ 25ns
Operating temperature range		- 40°C ….+ 80°C
Indication of SPD disconnector		green - red
Cross sectional area	min	1.5mm² solid / flexible
	max	35mm² multi-stranded / 25mm² flexible
Tightening torque for terminals		4.0 Nm
Mounting on		35mm DIN rail in accordance with EN 60715
Enclosure material		Grey thermoplastic, UL 94V-0
Degree of protection		IP20
Installation width		3 modules, DIN 43880
Weight		316g

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

Do you require an 18th Edition Consumer Unit

No →

Select a 17th Edition board using the existing reference.

(e.g. VML716CU)

Yes ↓

Rating of Upstream Protection known?

Note: Supply authority fuse, MCB or fuse in some multi-residential

Yes — 80/100A

Yes — 60/63A

No →

100A board and RCCB Type A

63A board and RCCB Type A

Surge Protection Required?

Yes / No

Surge Protection Required?

Yes / No

Select High Integrity Version 100A Consumer Unit with Type A RCCB(s)

(e.g. VML914CUSPD)

Select any 100A Split Load Consumer Unit with Type A RCCB(s)

(e.g. VML916CU)

Select High Integrity version 63A Consumer Unit with Type A RCCB(s)

(e.g. VML614CUSPD)

Select any 63A Split Load Consumer Unit with Type A RCCB(s)

(e.g. VML616CU)

Q. What is different about Hager 100A I_{nA}, 100A I_{nc} (VML955H) Consumer unit in relation to the 17th Edition consumer unit (VML755H)?

A. The 100A I_{nA}, 100A I_{nc} Hager consumer unit has been designed to allow the board to meet the requirements of the 18th edition for both overload protection of RCCBs and to meet the requirements for RCD selection where there is expected to be electronic loads connected to the circuit(s) which could induce a pulsating DC component onto the sinusoidal waveform.

Q. Where can I install the 100A board?

A. In any single phase residential application.

Q. Where can fit a 63A I_{nA} board?

A. Only on installations where the upstream protection device (MCB or Fuse) is known to be 60/63 A or below and the building owner is in control of this device.

Q. How do I know if I need Surge Protection?

A. If using the risk assessment method $CRL = f_{env}/(L_p \times N_g)$ where;

f_{env} -   Environmental factor. Is the installation in an urban or rural/suburban environment?
          (Factor of 850 for urban or 85 for rural/suburban)
L_p -   Length of cable supplying installation (if unknown a factor of 1(km) should be used)
N_g -   Flash density of location.

Note if location is rural/suburban and the length of cable supplying the installation is unknown (hence factor of 1 is used) regardless of the location of the installation the risk assessment will result in surge protection being required even if lowest flash density factor 0.1 is used.
If CRL is less than 1000, surge protection is required.

e.g.
Rural/suburban locations
CRL = 85 /(1 x 0.1)
CRL = 850 Surge Protection required

For Urban locations where the length of cable is unknown, with a flash density of above 0.8 surge protection is required.

e.g
Urban location with flash density (N_g) of 0.8
CRL = 850/ (1 x 0.8)
CRL = 1062.5 Surge protection not required

Urban location with flash density (N_g) of 1.0
CRL=850/(1x1)
CRL = 850 Surge Protection required.

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