

Consumer Unit

Design 10 Flush High Integrity with SPD

For the distribution of power in a residential application, conforming to BS EN 61439-3 including Annex ZB (16kA rating).

Design 10 has been created as an entry level board which meets the requirements of the wiring regulations (BS 7671) and allows the consumer unit to be installed flush at the height stated in the building regulations (Part M), with minimum impact on the area.

Regulation 421.1.201 within domestics (household) applications consumer units and similar assemblies shall comply with BS EN 61439-3 and shall have their enclosure manufactured from a non-combustible material.

Regulation 411.3.3 additional protection by means of a 30mA RCD.

Regulation 314.1&2 segregation of circuits to avoid danger and minimise inconvenience in the event of a fault.

Regulation 522.6.202 protection of wiring concealed in walls or partitions with RCD 30mA.

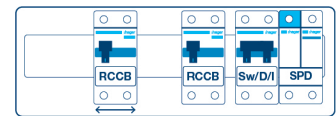
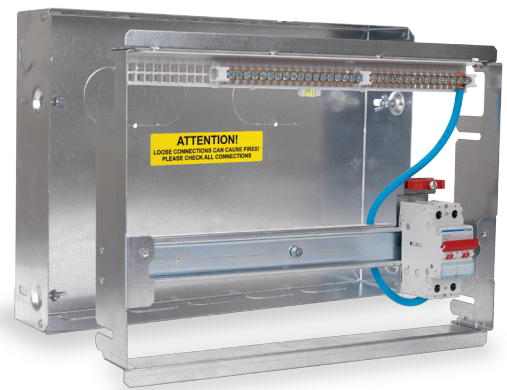
Regulation 531.3.3 Selection of appropriate RCD. Type A RCCBs can detect and respond to both AC and pulsating DC components.

Regulation 536.4.3.2 & 536.4.202 overload protection of switches and RCCBs. For installations where the upstream overcurrent protection is less than or equal to 100 A

Regulation 443.4 Protection against transient over voltages, provided by factory fitted type 2 SPD.

High integrity boards are designed to allow dedicated circuits to have individual 30mA protection to reduce any risk of nuisance tripping, whilst the rest of the installation is separated across two RCCBs.

The flush design removes the harsh appearance of a surface mounted enclosure on the wall.



VMLF908CUSPD

Description	Size	Cat Ref.
8 Way Flush High Integrity 100A Main Switch 2 x 100A 30mA RCCB Type A with Factory Fitted SPD	5	VMLF908CUSPD
10 Way Flush High Integrity 100A Main Switch 2 x 100A 30mA RCCB Type A with Factory Fitted SPD	6	VMLF910CUSPD
14 Way Flush High Integrity 100A Main Switch 2 x 100A 30mA RCCB Type A with Factory Fitted SPD	7	VMLF914CUSPD

Devices

MCB 6A - 63A (Marked Rated Current on Device)	MTN1**
Single Pole, Single Mod RCBO 6kA, 40A - 45A Type A	ADA1**G
Single Pole, Single Mod Reduced Height RCBO 6kA, 6A - 32A Type A	ADA3**G

Features & Benefits

- Cable clamp - Secures supply cables on entry to main incoming device preventing any movement being transmitted through meter tails to device
- Rear Knockouts for ease of cable entry - Cable protector plate (VM02CE) provided
- 2 piece base allows for first fix, second fix option
- Adjustable Depth Base - Base assembly is adjustable from 72mm to 92mm, at 72mm allows for 60mm studwork and 12mm plasterboard
- Full metal DIN rail - Secure and stable attachment of devices
- Quick release clip on MCB/RCBO - Allows removal of MCB/RCBO with busbar still in place
- Optimised cabling space - DIN rail position allows maximum cabling space
- Top mounted terminal rail makes the wiring of the neutral and earth connections neat and simple.
- Torque settings displayed inside front cover so they're easily accessible by the electrician.
- Factory Fitted Type 2 SPD

Technical Characteristics

Standards	BS EN 61439-3
Classification	Consumer Unit
Rated & Operational Voltage (U_n/U_e)	230V a.c 50 Hz
Rated Insulation Voltage (U_i)	320V a.c. 50Hz
Rated Frequency (fn)	50 Hz
Rated impulse withstand voltage (U_{imp})	4kV
Rated Current of the Assembly (I_{na})	100A
Rated Current of an Outgoing Circuit I_{nC}	MCB 6A-63A (Marked Rated Current on Device) RCBO ADA 1**G - 40A - 45A (Marked Rated Current on Device) RCBO ADA3**G - 6A - 32A (Marked Rated Current on Device)
Rated Conditional Short Circuit of the Assembly (I_{CC})	Annex ZB: 16kA rms at 250V, power factor 0.6 with equipment and arrangements specified in Hager's technical documentation/catalogue
Protection against electric shock	Consumer Unit shall be installed in an electrical system conforming to IEC 60364 / BS 7671
Rated Diversity Factor (RDF) / Values of assumed loading	10 way and above - 0.5
Note: RDF only applies to continuously and simultaneously loaded circuits. In principle, this means adjacent circuit breakers having a load on time exceeding 30 minutes or where a load not exceeding 30 minutes has an 'off' time less than the 'on' time will need to have the rated diversity factor applied as indicated.	
Pollution Degree	2
Types of System Earthing for which the assembly is designed	TNC-S and TN-S when installed in an electrical system conforming to BS 7671
Intended locations	Indoor use only
Stationary assembly	
Degree of protection	IP2XC with door open / closed and full compliment of devices / blanks fitted. Note: Where cables are installed through the top wall of the enclosure, gaps of IP4X to be maintained.
Intended use	Intended for use in domestic (residential) or similar premises
Electromagnetic compatibility (EMC) classification	EMC environment B
External design	Wall mounted, surface type, enclosed assembly.
Mechanical impact protection	IK05
Type of construction	Fixed parts
Incoming Line/Neutral terminal	50mm ²
Incoming Earth Terminal	16mm ²





Warranty - Hager undertakes to replace or repair at its discretion products should they become inoperable within the time periods as stated - 2 Years.

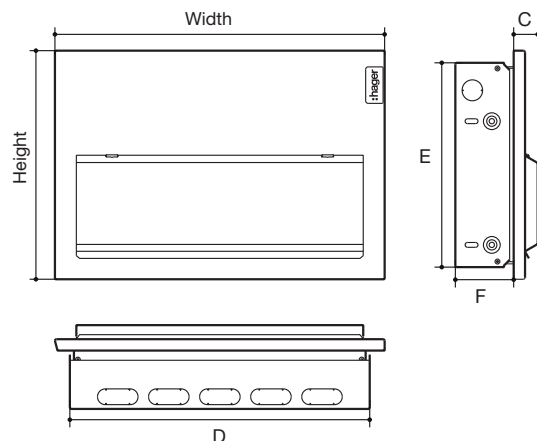
Accessories

38mm Open Grommet	Allows protection of cables entering top or bottom of the enclosure	VMGROM
Grommet strip	For protecting cables against damage when entering the board	VM05GS

Flush Design 10 Dimensions (mm)

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

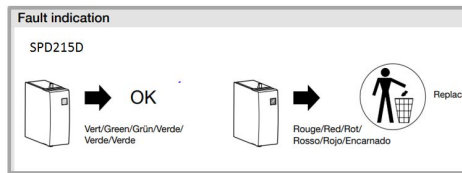
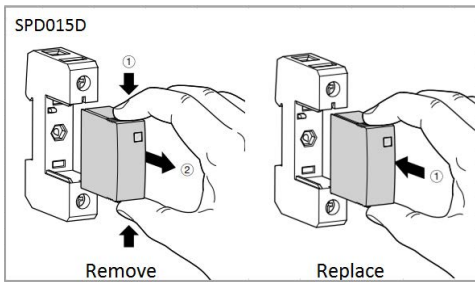
	Number of Knockouts		
 Top Face 50 x 20 (mm)	5	6	7
 Bottom Face 50 x 20 (mm)	5	6	7
 Back 100 x 50 (mm)	2	2	3
 Left Face 20.8 (mm)	1	1	1



Surge protection devices

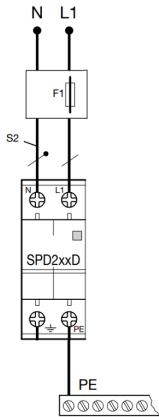
Consumer units with SPD in the part reference come with a Type 2 (T2) surge protection device. All connections to and from the surge protection device are made at the factory. The phase is protected by a Metal Oxide Varistor (MOV) and the neutral by a spark gap device. The Metal Oxide Varistor will degrade each time it deals with high voltage or electromagnetic disturbances, when it is end of life the flag will turn red and the cartridge will require to be changed. At this point the cartridge will fail open circuit and the device will no longer provide surge protection. Simply remove the cartridge and replace with a new cartridge (SPD015D). The rest of the installation will remain unaffected.

To remove a cartridge when the flag is red



Position of SPD in installation

TT/ TN-S/ TNC-S



Overcurrent protection (F1) is provided by the upstream over current protection device (OCPD) which for a consumer unit is generally the service cut-out fuse.

SPD Characteristics

	I_n (8/20 μ s)	I_{max} (8/20 μ s)	U_p	U_c	F1 max \Rightarrow	I_{pe}	I_{scrr}	
SPD215D	5 kA	15 kA	≤ 1 kV	275 V (50/60 Hz)	125 A gG	$< 5 \mu$ A	10 kA _{rms}	SPD015D