



An Introduction To BS7671 **Amendment 3:2015**

featuring Consumer Units for Domestic
(Household) Premises as per Reg. 421.1.201



DESIGNED FOR **2015**



Significant Change

3rd Amendment 2015

The third amendment to BS7671:2008, Requirements for Electrical Installations, was issued on the 1st January 2015 and comes in to full effect on 1st July 2015. Installations designed after 30th June 2015 are to comply with BS7671:2008 incorporating Amendment 3:2015. The following details some of the significant changes set out in this new Amendment.

Numbering system

In 2008, the 17th Edition introduced the IEC decimal point numbering system. For the third amendment, a new .100 and .200 system has been implemented. The .100 numbers represent a CENELEC harmonized document and a .200 represents a UK-only regulation.

Definitions

The definition of a Competent Person has been removed and replaced with **Skilled Person (Electrically)** and **Instructed Person (Electrically)**. These changes have been reflected throughout the third amendment. A Skilled Person (Electrically) is one who possesses the knowledge and experience to carry out the electrical work to be undertaken and who is able to perceive risks and avoid hazards which electricity can create. Similarly, an instructed person is one who is adequately advised or supervised to enable that person to perceive risks and to avoid hazards which electricity can create.

Protection Against Electric Shock – Chapter 41

Regulation 411.3.3 now calls for RCD protection for all socket outlets up to 20 Amps for use indoors and for mobile equipment up to 32 Amps for use outdoors for all installations. However, there is an exception to omit RCD protection (for socket outlets up to 20 Amps) for a specific labelled socket outlet, or where, other than in a dwelling, a documented risk assessment determines that RCD protection is not necessary.



C_{min} Factor

Regulation 411.4.5 – C_{min} – is the lowest voltage factor to take account of voltage variations that naturally occur in the supply. The factor is 0.95 and changes to the maximum earth fault loop impedance (Z_s) values are given in Tables 41.2, 41.3, 41.4 and 41.6.

Protection Against Thermal Effects – Chapter 42

One of the most significant additions to the third amendment is Regulation 421.1.201. This new regulation now requires: Within domestic (household) premises, switchgear assemblies, including consumer units, are to comply with BS EN 61439-3 and shall have their enclosure manufactured from a non-combustible material or be enclosed in a non-combustible enclosure whilst complying with Regulation 132.12 – accessibility of electrical equipment. Ferrous metal (e.g. Steel) is deemed to be an example of a non-combustible material.

Typical domestic (household) premises include houses, bungalows, apartments and flats, including garages (detached and integral), workshops and annexes within the grounds of the household premise.

The implementation date for this new regulation is the 1st January 2016, but it does not preclude compliance with the regulation prior to that date.

BS7671:2008 incorporating Amendment 3:2015

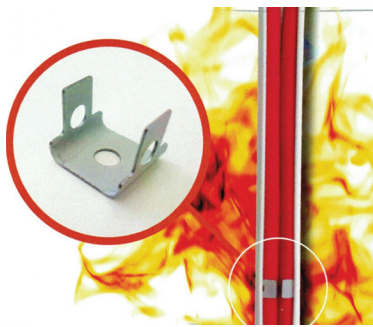
Protection against voltage and electromagnetic disturbances

Section 442, which deals with protection of LV installations against temporary overvoltages due to earth faults in the HV system and due to faults in the LV system, has been modified.
Regulation 442.2.1 has been redrafted.



Common Rules – Chapter 51

This section concerns compliance with standards and requires that all equipment to be suitable for the nominal voltage and also requires that particular information relating to the equipment is noted on the Electrical Installation Certificate.



Selection and erection of wiring systems – Chapter 52

A new regulation to the third amendment, 521.201, gives requirements for the methods of supporting wiring systems within escape routes to prevent their premature collapse in the event of fire. The regulation now precludes the use of non-metallic cable supports within these locations as the sole means of support.

It is now required to protect cables (Reg. 522.6.202) in a wall or partition (at a depth of less than 50mm) by a 30mA RCD for all installations if other methods of protection, including use of cables with an earthed metallic covering or mechanical protection, are not employed. This applies to a cable in a partition where the construction includes metallic parts other than fixings, irrespective of the depth of the cable.

Guidance on the selection of protective, isolation and switching devices – Table 53.4

Functional switch (5) – Circuit breakers and RCDs/RCBOs are primarily circuit protective devices and, as such, they are not intended for frequent load switching. Infrequent switching of circuit breakers on-load is admissible for the purposes of isolation of emergency switching.

Other equipment

Section 557 is a new section for auxiliary circuits. Auxiliary circuits are those intended for the transmission of signals intended for control, detection, supervision or measurement of the functional status of a main circuit.



Luminaires and Lighting Installations - Section 559

The regulations regarding Highway lighting and street lighting furniture have been relocated to section 714 – Outdoor lighting installations. In addition, Extra-low voltage lighting has also been removed and given its own section under 715 – Extra-low voltage lighting installations.

Special Installations or Locations – Part 7

Section 701 – Locations containing a bath or shower

Any circuit either serving the location or passing through zones 1 and/or 2 not serving the location must have additional protection as per Regulation 415.1.1.

Model forms – Appendix 6

The Electrical Installation Certificate has seen a number of minor changes. On the first page, exceptions to where additional protection by means of an RCD (Reg. 411.3.3) for any socket outlet up to 20 Amps where a documented risk assessment has been completed can now be recorded here. A copy of the risk assessment must be attached to the EIC.

In addition, Main Protective Conductors now include separate tick boxes for water, gas and oil installation pipes as well as structural steel and lightning protection and to other.

Minor Electrical Installation Works Certificate – Essential tests

Insulation Resistance – now requires just Live-Live and Live-Earth.

RCD operation – now also requires 5x I_{Δn} trip times.

Electrical Installation Condition Report

New requirement – an inspection should be made within an accessible roof space housing other electrical equipment, for example: invertors & isolators for PV equipment.

A new code, FI, has been added for 'Further Investigation' required without delay.

Measurement of Earth Fault Loop Impedance

The equation for earth fault loop impedance has changed to now take account of the C_{min} voltage factor of 0.95

Please note, this guide is not intended as a substitute for the standards and regulations that should always be used for all types of electrical design and installation work.

The **NEW** M2 XS Metal Clad Range

This new range of Metalclad Consumer Unit from M2 Electrical has been designed in conjunction with contractors and housing authorities specifically to meet the requirements of Regulation 421.1.201 of BS7671:2008 incorporating Amendment 3:2015.

The M2 XS dual screw terminal isolator with a 35mm² terminal capacity offers protection for nearly double the average strip length, improving cable contact within the terminal and its circular terminal design reduces cable strand spread.

AM2X Range

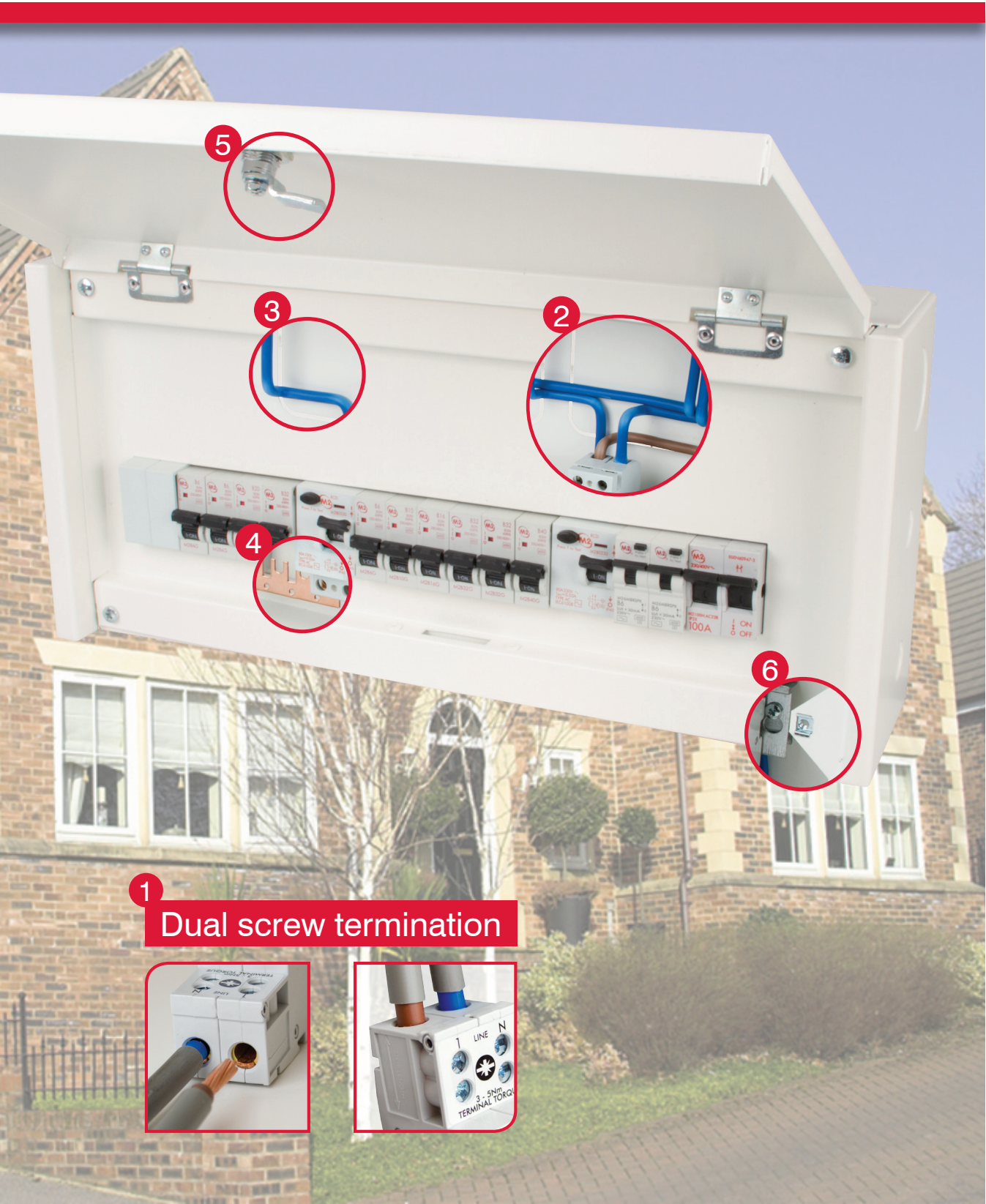
- 1 Dual screw termination.
- 2 Preformed internal cable links
- 3 Large rear knockouts with radius corners.
- 4 Comb bus bar / Half Din Rail for quick fitting of devices.
- 5 Steel cam lock with optional retrofit key lock.
- 6 Captive screws with cage nut fixings.
- 7 Full metal enclosure compliant to BS7671 Amendment 3:2015, Reg. 421.1.201 and BS EN 61439-3 compliant..
- 8 NEW compact 220mm high consumer units.
- 9 Easy access for meter tail connections.
- 10 Bespoke consumer units made to order.



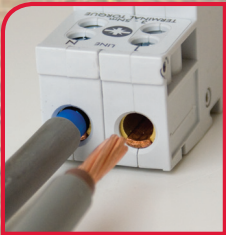
The **NEW** M2 XS Metal Clad Range

With its linear design and matte white (RAL9010) finish, the consumer unit offers the home owner a discreet and contemporary product, whilst providing suitable protection to meet today's need. Regulation 421.1.201 calls for switchgear assemblies,

including consumer units, to be housed in a non-combustible enclosure, incorporating the base, cover, door and any accessories. The M2XS range meets these requirements and offers additional features providing a more versatile product.



1 Dual screw termination



Isolator Incomer Consumer Units

The M2 range of metal consumer units are designed and manufactured to BSEN61439 pt 3 and meets the requirements of BS7671:2008, Amendment 3:2015, regulation 421.1.201 - effects against thermal influences specifically for domestic household dwellings.

Manufactured from steel and finished in a polyester powder coating to RAL9010, the M2 range provides a comprehensive selection of products to meet the customers requirements.



AM2X16MU

| Outgoing Ways | Isolator Rating | RCD 1 Rating | RCD 2 Rating | Cat. No. | H (mm) | W (mm) | D (mm) |
|---------------|-----------------|--------------|--------------|----------|--------|--------|--------|
| 2 | 63A | - | - | AM2X2MU | 232 | 149 | 110 |
| 4 | 100A | - | - | AM2X4MU | 220 | 201 | 110 |
| 6 | 100A | - | - | AM2X6MU | 220 | 273 | 110 |
| 8 | 100A | - | - | AM2X8MU | 220 | 273 | 110 |
| 10 | 100A | - | - | AM2X10MU | 220 | 309 | 110 |
| 11 | 100A | - | - | AM2X11MU | 220 | 335 | 110 |
| 12 | 100A | - | - | AM2X12MU | 220 | 381 | 110 |
| 14 | 100A | - | - | AM2X14MU | 220 | 381 | 110 |
| 16 | 100A | - | - | AM2X16MU | 220 | 417 | 110 |
| 20 | 100A | - | - | AM2X20MU | 220 | 489 | 110 |
| 22 | 100A | - | - | AM2X22M* | 440 | 309 | 110 |
| 26 | 100A | - | - | AM2X26MU | 220 | 597 | 110 |
| 30 | 100A | - | - | AM2X30M* | 440 | 381 | 110 |
| 34 | 100A | - | - | AM2X34M* | 440 | 417 | 110 |

* - Double banked unit.
Outgoing MCBs/RCBOs to be ordered separately.

Split Load Consumer Units

The M2 XS range of split load and dual RCD metal consumer units are designed and manufactured to BSEN61439 pt 3 and meets the requirements of BS7671:2008, Amendment 3:2015, regulation 421.1.201 - effects against thermal influences specifically for

domestic household dwellings. Manufactured from steel and finished in a polyester powder coating to RAL9010, the M2 XS range provides a comprehensive range of products to meet the customers requirements.



AM2XSLV12MU

| Outgoing Ways | Isolator Rating | RCD 1 Rating* | RCD 2 Rating* | Cat. No. | H (mm) | W (mm) | D (mm) |
|---------------|-----------------|---------------|---------------|-------------|--------|--------|--------|
| 6 | 100A | 80A | - | AM2XSLV6MU | 220 | 273 | 110 |
| 12 | 100A | 80A | - | AM2XSLV12MU | 220 | 381 | 110 |

* - 30mA trip rating.
Outgoing MCBs/RCBOs to be ordered separately.



Alternative Enclosure

M2 Electrical also offers a range of side hinged enclosures fitted with a finger turn cam lock as standard. An optional key lock (AKL) is available for applications where additional security is required.

To order these units, please remove the 'U' suffix from the product part codes.

Dual RCD Consumer Units

This selection of Consumer Units offer the facility to spread the load circuits across one or two 30mA RCDs. Standard configurations listed below supplied with DP

Isolator and RCD/s factory fitted , link leads for both Live and Neutral connections also pre-installed.



AM2X33TRMU

| Outgoing Ways | Isolator Rating | RCD 1 Rating* | RCD 2 Rating* | Cat. No. | H (mm) | W (mm) | D (mm) |
|---------------|-----------------|---------------|---------------|--------------|--------|--------|--------|
| 6 | 100A | 80A | 80A | AM2X33TRMU | 220 | 309 | 110 |
| 10 | 100A | 80A | 80A | AM2X55TRMU | 220 | 381 | 110 |
| 12 | 100A | 80A | 80A | AM2X66TRMU | 220 | 417 | 110 |
| 16 | 100A | 80A | 80A | AM2X88TRMU | 220 | 489 | 110 |
| 20 | 100A | 80A | 80A | AM2X1010TRMU | 220 | 597 | 110 |

* - 30mA trip rating.
Outgoing MCBs/RCBOs to be ordered separately.

High Integrity Consumer Units

For applications where 'High Integrity' circuit protection is required, for example smoke detectors, these units allow dedicated RCBO installation.

Standard configurations listed below supplied with DP Isolator and RCD/s factory fitted , link leads for both Live and Neutral connections also pre-installed.



AM2X55TR2MU

| Outgoing Ways | Isolator Rating | RCD 1 Rating* | RCD 2 Rating* | Cat. No. | H (mm) | W (mm) | D (mm) |
|---------------|-----------------|---------------|---------------|-------------|--------|--------|--------|
| 6 | 100A | 80A | 80A | AM2X23TR1MU | 220 | 309 | 110 |
| 10 | 100A | 80A | 80A | AM2X44TR2MU | 220 | 381 | 110 |
| 12 | 100A | 80A | 80A | AM2X55TR2MU | 220 | 417 | 110 |
| 14 | 100A | 80A | 80A | AM2X66TR2MU | 220 | 489 | 110 |
| 20 | 100A | 80A | 80A | AM2X88TR4MU | 220 | 597 | 110 |
| 6 | 100A | 80A | 80A | AM2XDSL6U | 220 | 309 | 110 |
| 10 | 100A | 80A | 80A | AM2XDSL10U | 220 | 381 | 110 |
| 12 | 100A | 80A | 80A | AM2XDSL12U | 220 | 417 | 110 |
| 16 | 100A | 80A | 80A | AM2XDSL16U | 220 | 489 | 110 |
| 22 | 100A | 80A | 80A | AM2XDSL22U | 220 | 597 | 110 |

* - 30mA trip rating.
Outgoing MCBs/RCBOs to be ordered separately.

RCD Incomer Consumer Units

The M2 range of RCD incomer metalclad consumer units are available with 63A, 80A and 100A RCD incomer ratings and 30mA earth leakage protection.

For 100mA earth leakage protection, please contact our sales office for further details.



AM2R8012MU

| Outgoing Ways | Isolator Rating | RCD 1 Rating* | RCD 2 Rating* | Cat. No. | H (mm) | W (mm) | D (mm) |
|---------------|-----------------|---------------|---------------|-------------|--------|--------|--------|
| 4 | - | 63A | - | AM2R634MU | 220 | 201 | 110 |
| 6 | - | 63A | - | AM2R636MU | 220 | 273 | 110 |
| 8 | - | 63A | - | AM2R638MU | 220 | 273 | 110 |
| 12 | - | 63A | - | AM2R6312MU | 220 | 381 | 110 |
| 4 | - | 80A | - | AM2R804MU | 220 | 201 | 110 |
| 6 | - | 80A | - | AM2R806MU | 220 | 273 | 110 |
| 8 | - | 80A | - | AM2R808MU | 220 | 273 | 110 |
| 12 | - | 80A | - | AM2R8012MU | 220 | 381 | 110 |
| 4 | - | 100A | - | AM2R1004MU | 220 | 201 | 110 |
| 6 | - | 100A | - | AM2R1006MU | 220 | 273 | 110 |
| 8 | - | 100A | - | AM2R1008MU | 220 | 273 | 110 |
| 12 | - | 100A | - | AM2R10012MU | 220 | 381 | 110 |

* - 30mA trip rating.

Outgoing MCBs/RCBOs to be ordered separately.

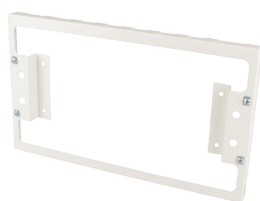


AM2GU

Garage & Shower Units

| Outgoing Ways | Isolator Rating | RCD 1 Rating* | MCB Rating* | Cat. No. | H (mm) | W (mm) | D (mm) |
|---------------|-----------------|---------------|-------------|----------|--------|--------|--------|
| 2 | - | 40A | 6A + 16A | AM2GU | 232 | 150 | 110 |
| 4 | - | 40A | 6A + 16A | AM2GU4 | 220 | 201 | 110 |
| 1 | - | 40A | 40A | AM2SU95 | 232 | 150 | 110 |
| 1 | - | 63A | 50A | AM2SU115 | 232 | 150 | 110 |

Outgoing MCBs/RCBOs to be ordered separately.



ASM16U

Consumer Unit Spacer Mounts

| No. of Modules | Cat. No. | H (mm) | Cat. No. Side hinged door | H (mm) | W (mm) | D (mm) |
|----------------|----------|--------|------------------------------|--------|--------|--------|
| 6 | ASM6U | 220 | ASM6 | 256 | 201 | 20 |
| 10 | ASM10U | 220 | ASM10 | 256 | 273 | 20 |
| 12 | ASM12U | 220 | ASM12 | 256 | 309 | 20 |
| 16 | ASM16U | 220 | ASM16 | 256 | 381 | 20 |
| 18 | ASM18U | 220 | ASM18 | 256 | 417 | 20 |
| 22 | ASM22U | 220 | ASM22 | 256 | 489 | 20 |
| 28 | ASM28U | 220 | ASM28 | 256 | 597 | 20 |



MTGP40B

Meter Tail Gland Pack

| Description | Cat. No. | Dia (mm) |
|--|----------|----------|
| Meter tail gland pack (2x16mm / 1x 10mm) M32 - brass | MTGP32B | 32 |
| Meter tail gland pack (2x25mm / 1x 16mm) M40 - brass | MTGP40B | 40 |
| Meter tail gland pack (2x16mm / 1x 10mm) M32 - plastic | MTGP32P | 32 |
| Meter tail gland pack (2x25mm / 1x 16mm) M40 - plastic | MTGP40P | 40 |

Accessories & Devices

To compliment the M2 range of Metalclad consumer units, a selection of spacer mounts are available for use where retrofitting to surface mount cables are necessary.

In addition, Meter Tail glands are available for providing Class II insulation protection for incoming supply cables.



M2B6

| MCBs | | |
|--------------------|------------------------|------------------------|
| Current Rating (A) | 6kA SP Type B Cat. No. | 6kA SP Type C Cat. No. |
| 6 | M2B6 | M2C6 |
| 10 | M2B10 | M2C10 |
| 16 | M2B16 | - |
| 20 | M2B20 | - |
| 32 | M2B32 | - |
| 40 | M2B40 | - |
| 50 | M2B50 | - |
| 63 | M2B63 | - |



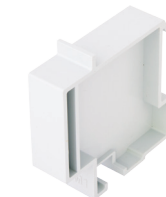
M263230

| RCDs | | | |
|--------------------|--------------|-----------------------|-----------------------|
| Current Rating (A) | No. of Poles | Max. Cable Size (mm²) | 30mA TYPE AC Cat. No. |
| 32 | 2 | 50 | M232230 |
| 40 | 2 | 50 | M240230 |
| 63 | 2 | 50 | M263230 |
| 80 | 2 | 50 | M280230 |
| 100 | 2 | 50 | M2100230 |



M26MBRSPK

| RCBOs | | | | |
|--------------------|-----------------|-----------------|-------------------------|-------------------------|
| Current Rating (A) | Type B Cat. No. | Type C Cat. No. | Compact Type B Cat. No. | Compact Type C Cat. No. |
| 6 | M26MBRSP | M26MCRSP | M26MBRSPK | M26MCRSPK |
| 10 | M210MBRSP | M210MCRSP | M210MBRSPK | M210MCRSPK |
| 16 | M216MBRSP | M216MCRSP | M216MBRSPK | M216MCRSPK |
| 20 | M220MBRSP | M220MCRSP | M220MBRSPK | M220MCRSPK |
| 32 | M232MBRSP | M232MCRSP | M232MBRSPK | M232MCRSPK |
| 40 | M240MBRSP | M240MCRSP | M240MBRSPK | M240MCRSPK |
| 45 | M245MBRSP | - | - | - |



BM1

| Blank Modules | |
|-----------------|----------|
| Description | Cat. No. |
| Blanking Plate | B1 |
| Blanking Module | BM1 |




AKL

| Safety Accessories | |
|---|----------|
| Description | Cat. No. |
| Key Operated Lock Assembly | AKL |
| Intumescent putty pad (210mm x 148mm x 3mm) | IP21X15 |

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