

CIRCUIT PROTECTION REQUIREMENTS WITHIN ELECTRICAL INSTALLATIONS.

SOCKET CIRCUITS 411.3.3

RCDs are required to provide additional protection. To be recognised as providing additional protection the RCD must be rated at 30mA or less and operate within 40ms when tested at 5x rated residual operating current (415.1).

● RCDs are required for all socket outlets

rated up to 20A. Two exceptions are allowed for;

- 1. Where, for other than an installation in a dwelling, a documented risk assessment determines that the RCD protection is not necessary.
- 2. A socket outlet suitably identified for connection of a particular item of equipment (not general use).

Additional protection must be provided in the event of failure of the provision of basic protection and/or the provision of fault protection or carelessness by users of the installation. **Protection by 30mA RCD will be required for;**

- Upstairs ring circuit
- Downstairs ring circuit
- Kitchen ring circuit
- Cooker control unit c/w socket outlet

CONCEALED CABLES

Cables installed in a wall or partition (1)

A cable concealed in a wall or partition at less than 50mm from the surface shall;

1. Be installed in the prescribed zones **or**
2. Comply with

Where 1. but not 2. applies the cable shall be provided with additional protection by RCD having the characteristics described by 415.1.1

Cables installed in a wall or partition (2)

Irrespective of depth a cable concealed in a wall or partition having a construction which includes metallic parts shall;

1. Be provided with additional protection by RCD having the characteristics described by 415.1.1 **or**
2. Be mechanically protected to avoid damage during construction of the wall or partition and during installation of the cable **or**
3. Comply with

For a cable installed at a depth of less than 50mm the requirements of 1 & 2 shall also apply.

Non RCD protected cable methods

For non RCD protected circuit a cable shall;

1. Incorporate an earthed metallic covering suitable for service as the CPC **or**
2. Be enclosed in earthed conduit **or**
3. Be enclosed in earthed trunking or ducting
4. Be protected against damage from penetration by nails or screws and the like **or**
5. Form part of a SELV or PELV circuit.

In the majority of domestic situations cables installed beneath a plaster surface within partition walls without mechanical protection will require additional protection by **30mA RCD regardless** of their routing.

- Upstairs lighting
- Downstairs lighting
- Immersion heater
- Smoke alarm
- Burglar alarm

Bathrooms

- **Section 7** Special installations or Locations.
- **Section 701** Locations containing a bath or shower.

Regulation 701.411.3.3

Additional protection shall be provided for all low voltage circuits either serving the location or passing through zones 1 or 2 of the location by the use of one or more RCDs having the characteristics described by 415.1.1.

- Supplementary bonding is not required as long as final circuits of this location comply with requirements for automatic disconnection (411.3.2) and all extraneous conductive parts are effectively connected to the protective equipotential bonding (411.3.1.2).

Additional protection must be provided by one or more 30mA RCDs.

- shower circuit
- lighting circuit
- Heating circuit
- Ventilation circuit
- Any circuit passing through

Chapter 31

314.1 Requires that; Every installation shall be divided into circuits, as necessary, to:

- i. Avoid danger and minimise inconvenience in the event of a fault
- ii. Facilitate safe inspection, testing and maintenance
- iii. Take account of danger that may arise from the failure of a single circuit such as a lighting circuit
- iv. Reduce the possibility of unwanted tripping of residual current devices (RCDs) due to excessive protective conductor currents produced by equipment in normal operation.

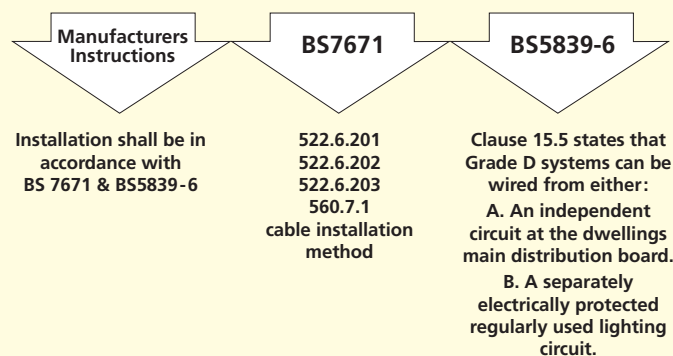
MAINS SUPPLIES FOR SMOKE ALARMS WITHIN DOMESTIC SETTINGS

Clause 7.1 of BS 5839-6 defines a Grade D system as: "A system of one or more mains-powered smoke alarms, each with an integral standby supply (The system may in addition, incorporate one or more mains-powered heat alarms each with an integral standby supply).

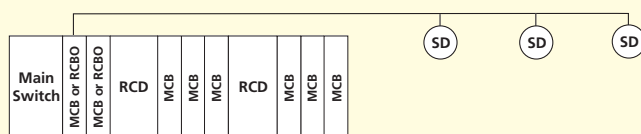
The 17th Edition of the wiring regulations do not cover every item of Electrical Equipment likely to be installed. They do not specifically mention Smoke Alarms. However:

CHAPTER 13 REGULATION 134.1.1 states that electrical equipment shall be installed in accordance with the instructions of the manufacturer of the equipment.

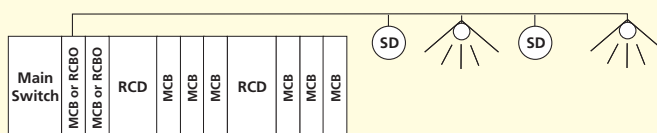
CHAPTER 51 REGULATION 510.3 states that every item of electrical equipment shall be selected and erected so as to allow compliance with the regulations stated in this chapter and the relevant regulations in other parts of BS7671 and shall take account of manufacturers instructions.



A.



B.



Elements of Electrical Protection will include short circuit, overcurrent and may also include additional protection by a residual current device (30mA) for certain installation methods covered by BS7671 (522.6.201) & (522.6.202)

IF ADDITIONAL PROTECTION IS REQUIRED BY BS7671 THE NEED FOR SEPARATE ELECTRICAL PROTECTION CANNOT BE MET BY DUAL RCD CONSUMER UNIT ARRANGEMENTS WHERE SINGLE RESIDUAL CURRENT DEVICES PROTECT GROUPS OF CIRCUITS.

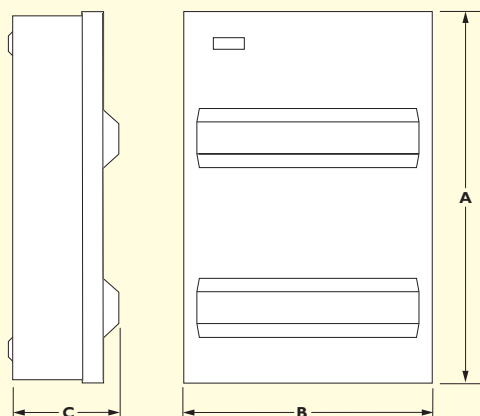
NB - The IET onsite guide also recommends that where metal consumer units are installed into TT systems protection from faults arising from the possibility of mains tails becoming loose and making contact with the metal enclosure by incorporating into the installation a 100mA time delayed (S type) RCCB.

Furthermore in all cases the mains tails should be protected at the point of entry into the metal enclosure by use of a mains tails gland to protect against the possibility of mechanical damage and or disturbance that could lead to tails becoming loose and making contact with the metal enclosure.

British Standards and IEE regulations are subject to change and amendment. This guide to Crabtree consumer units is not a substitute for the regulations which should always be used for all types of electrical installation design, and installation work.

DIMENSIONS

TWO BANK UNITS



STARBREAKER SIZE 24 ENCLOSURE (524/2A)

DIMENSIONS A =506mm B =295mm C =121mm

517/26383B 520/283B

STARBREAKER SIZE 30 ENCLOSURE (530/2A)

DIMENSIONS A =506mm B =345mm C =121mm

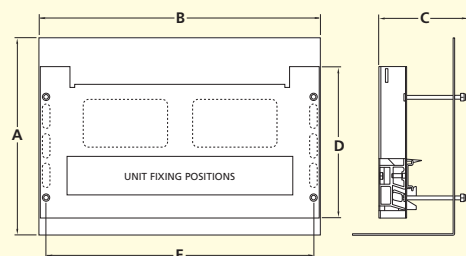
523/26383B 526/283B

STARBREAKER SIZE 40 ENCLOSURE (540/2A)

DIMENSIONS A =506mm B =440mm C =121mm

533/26383B 536/283B

SPINE BACKPLATE ASSEMBLIES (White PVC Cover)



STARBREAKER 15 MODULE SPINE BACKPLATE UNIT (10W & 13W)

DIMENSIONS A =235mm B =335mm C =106mm D =180mm E =319.5mm

H910/2463WB H910/2563WB H913/2WB
H910/2483WB H910/2583WB
H910/2663WB

STARBREAKER 20 MODULE SPINE BACKPLATE UNIT (18W)

DIMENSIONS A =235mm B =448mm C =106mm D =180mm E =435mm

H918/2WB

STARBREAKER 15 MODULE DRCD (8W)

DIMENSIONS A =205mm B =333mm C =106mm D =140mm E =320mm

908/2834634B

STARBREAKER INCOMING DEVICES AND ENCLOSURES ENCLOSURES

MODULAR WIDTH	ALL METAL
4	504/0A
6	506/0A
9	509/0A
12	512/0A
15	515/0A
20	520/0A
24	524/0A
30	530/0A
40	540/0A

FLUSH MOUNTING KIT

MODULAR WIDTH	ALL METAL
6	506/FLA
9	509/FLA
12	512/FLA
15	515/FLA
20	520/FLA
24	524/FLA
30	530/FLA
40	540/FLA

REPLACEMENT COVERS FOR 5 SERIES ENCLOSURES

MODULAR WIDTH	ALL METAL
6	506/LID
9	509/LID
12	512/LID
15	515/LID
20	520/LID

DOUBLE POLE MAIN SWITCH DISCONNECTORS

RATING	MODULAR WIDTH	LIST No
40A	2	40/M12*
63A	2	63/M12*
100A	2	100/MI2*
100A	2	100/2MT**

* Used within main switch only and split-load applications

** Used within high integrity and dual RCD applications

RESIDUAL CURRENT CIRCUIT BREAKERS

RATING	MODULAR WIDTH	LIST No
40A 30mA	2	340/030
63A 30mA	2	363/030
80A 30mA	2	380/030
100A 30mA	2	310/030
63A 30mA	3	363/S030*
80A 30mA	3	380/S030*

* Dedicated as a split-load RCCB (3 modules)

AM 3 UPGRADE / REPLACEMENT COVERS FOR 8 SERIES ENCLOSURES

MODULAR WIDTH	LIST No
6	806/LID255G
9	809/LID255G
12	812/LID255G
15	815/LID255G
20	820/LID255G