



I.S.10101 Bitesize Guide

Have you got questions regarding the changes to the wiring regulations?

We've got you covered in this bitesize guide.

:hager



I.S.10101 was issued on 3rd November 2018 and came into effect on 1st February 2021. It is the latest in a series of documents giving the requirements for electrical installations.

Installations designed after 1st February 2021 are to comply with I.S.10101.

The Regulations apply to the design, erection and verification of electrical installations, also additions and alterations to existing installations.

Existing installations that have been installed in accordance with previous editions of the Regulations may not comply with this edition in every respect. This does not necessarily mean that they are unsafe for continued use or require upgrading.

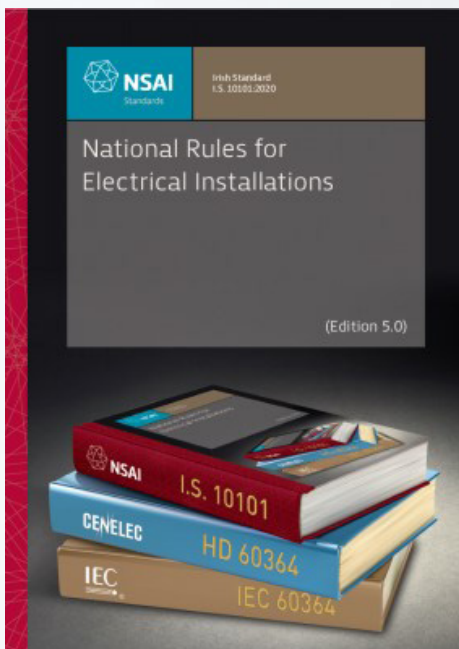


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Distribution Boards in domestic premises

Section 530.6.1 requires that distribution boards should comply with I.S. EN 61439-1, and within domestic premises, to I.S. EN 61439-3.



Distribution board must be mounted at a height not greater than 2.15m from floor to top surface of highest protective device

The materials used in the Hager range of domestic distribution boards fully comply with the IEC 60695-2-11 standard as required in Section 530.6.1.

This section also requires that distribution boards within household premises comply with the I.S. EN 61439-3 standard for electrical assemblies.

All Hager consumer units, including bespoke special assemblies, fully meet this standard and are CE marked.



Section 530.6.2.3 states that a wall-mounted distribution board shall be mounted at a height not greater than 2.15m measured from the floor to the top surface of the highest protective device.

Section 462.5 states that in a household or similar installation the main isolator shall interrupt both live and neutral conductors of a single phase supply.

Distribution Boards in domestic premises

Where a distribution board is intended for use in a household or similar installation, Section 462.5 requires that the isolation switch shall interrupt both live and neutral conductors of a single-phase supply.





Where the enclosure for the main overcurrent device in the ESB Networks meter cabinet is fitted with Earth and Neutral terminals, the requirement for double pole isolation also applies.

Protection Against Transient Overvoltages of Atmospheric Origin or Due to Switching (443.1)

Previously the requirements to provide surge protection devices or not was rather complex, requiring consideration of keraunic activity level at the location of the installation.

This has all been removed and the I.S.10101 now requires protection against transient overvoltage to be provided where the consequence:-

- results in serious injury to, or loss of, human life, or;
- results in interruption of public services/or damage to and cultural heritage, or;
- results in interruption of commercial or industrial activity, or;
- affects a large number of co-located individuals.

For other cases a risk assessment is required to be performed. Should a risk assessment not be performed then protection against transient overvoltage is required.

Single dwelling units however require an assessment as to whether the total value of the installation and equipment therein justifies the inclusion of such protection.

“SPDs are required unless a risk assessment is performed and determines otherwise”



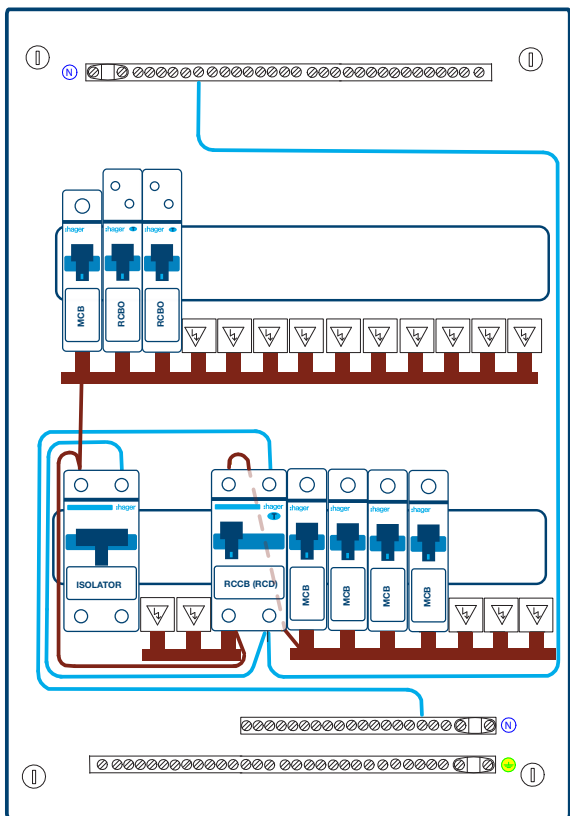
Residual Current Devices on lighting circuits in domestic premises (411.3.4)

Additional protection by an RCD with a rated residual operating current not exceeding 30 mA shall be provided for a.c. final circuits supplying luminaires in domestic premises.

Precautions should be taken to ensure that a fault of one circuit does not leave the installation hazardous.

Clause 55A.4.1 of I.S.10101 recommends an overcurrent protective device rating of 6A for 1.5mm copper cable and 10A for 2.5mm cable, when used in lighting circuits. It is recommended to meet these requirements by using a consumer unit with a “dual RCBO” arrangement. A separate 6A RCBO is used for upstairs and downstairs lighting circuits.

It is also recommended not to mix lighting and socket circuits on the same RCD.



Selection of Types of RCD (531.3.3)

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



Type AC - General purpose use, RCD can detect & respond to AC sinusoidal wave only. RCD types AC are not recommended in new electrical installations.



Type A – Equipment incorporating electronic components
RCD can detect & respond as for type AC, PLUS pulsating DC components.



Type F – Equipment with frequency controlled speed drives
RCD can detect & respond as for type A, PLUS high frequency residual current.



Type B –Electric vehicle chargers, PV supplies.



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

“The appropriate RCD should be selected for the application”



Example of a type A RCD:
Our Reduced Height RCBO

RCD	Types of Load
Type AC	Resistive, capacitive, inductive loads Immersion heater, oven / hob with resistive heating elements, electric shower, tungsten / halogen lighting
Type A	Single phase with electronic components Single phase inverters, class 1 IT & multimedia equipment, power supplies for class 2 equipment, appliances such as washing machines, lighting controls, induction hobs & EV charging
Type F	Frequency controlled equipment Appliances containing synchronous motors, some class 1 power tools, some air conditioning controllers using variable frequency speed drives
Type B	Three phase electronic equipment Inverters for speed control, ups, EV charging where DC fault current is > 6mA, PV

Protection against fire caused by electrical equipment (421.7)

I.S.10101 introduces us to a new kind of protection device – An Arc Fault Detection Device (AFDD). This device is specifically to detect and disconnect dangerous electrical arcs in both the fixed wiring and the connected equipment which could be the source of a fire.

An electrical arc could be a series arc (damage to or improperly terminated conductors) or parallel arc (damage to insulation) in nature. Should the arc reach certain parameters, the device will disconnect, extinguishing the arc and preventing a fire.

Arc fault detection devices conforming to IEC 62606 are recommended by I.S.10101 as a means of providing additional protection against fire caused by arc faults in AC final circuits.

“AFDDs are recommended to provide additional protection against fire”



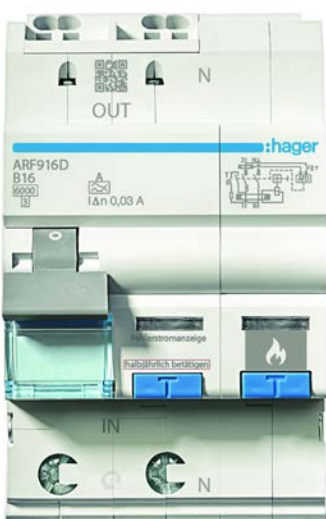
Parallel Arc Fault



Series Arc Fault

If used, an AFDD shall be placed at the origin of the circuit to be protected and I.S.10101 gives examples of where such devices can be used:

- Premises with sleeping accommodation.
- Locations with a risk of fire due to the nature of processed or stored materials, i.e. BE2 locations (e.g. barns, wood-working shops, stores of combustible materials).
- Locations with combustible construction materials, i.e. CA2 locations (e.g. wooden buildings).
- Fire propagating structures, i.e. CB2 locations.
- Locations with endangering of irreplaceable goods.





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