

RCD Selection

Hager provides comprehensive solution across our full range of RCD including RCCBs, RCBOs and RCD add on blocks.



The Different Types of RCD

Residual current devices (RCDs) prevent you from receiving fatal electric shocks. RCD protection is life-saving and protects against fires. If you touch a bare wire or other live components of a consumer unit, it will keep the end user from being harmed. If an installer cuts through a cable, residual current devices will switch off the power flowing to the earth.

RCDs exist in various different forms and react differently depending on the presence of DC components or different frequencies.

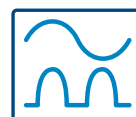
The following RCDs are available with the respective symbols and the designer or installer is required to select the appropriate device for the specific application:



Type AC

General purpose use

RCD can detect & respond to AC sinusoidal wave only.



Type A

Equipment incorporating electronic components

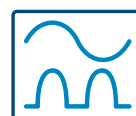
RCD can detect & respond the same as Type AC + pulsating DC components.



Type F

Equipment with frequency controlled speed drives

RCDs can detect & respond the same as Type A + high frequency residual current.



Type B

Electric vehicle chargers, PV supplies

RCD can detect & respond the same as Type F + smooth DC residual current.



RCDs & Their Loads

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 inverters
- 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
- Photovoltaic (PV)
- 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.