

18TH
EDITION

HOW

does an ... RCD WORK ?

An RCD protects by constantly monitoring the current flowing in the Line/ Phase and Neutral wires supplying a circuit or an individual item of equipment. Under normal circumstances, the current flowing in the two wires is equal. When an earth leakage occurs due to a fault in the circuit or an accident with the equipment, an imbalance occurs, and this is detected by the RCD, which automatically cuts off the power before injury or damage can result

Testing your RCD Safety Switches

To ensure that the RCD Safety Switches fitted to your home perform correctly, they must be tested at the RCD by pressing the 'T' button on the front of the device (the button will only test the RCD if an electricity supply is connected). The latest standards of BS7671 18th Edition state that the device be tested every six-monthly test notice; where required (514.12.2)

If using a portable RCD, a push button test should be performed before each use by the operator.



RCD Safety Switches are extremely sensitive, disconnecting in under 20 milliseconds of detecting a leakage current.

This stops the flow of electricity through someone's body to earth. Importantly, this response time is much faster than the critical section of the cardiac cycle and therefore significantly reduces the risk of death or serious injury.

RCDs also protect against fire caused by faults in appliances, tools and wiring. If these faults go undetected they could cause a fire or personal injury.

Unwanted tripping of RCD DEVICES

With the release of the new BS7671 18th Edition Regulations a clearer understanding of what to consider with unwanted tripping has been added in the regulations.

531.3.2 of this clause in the notes states that RCDs may operate at any value of residual current in excess of 50% of the rated residual current, we currently target to achieve 21 to 28 mA, this is to ensure that the safety of life is met, however we do have some which will fall a little below this.

We advise the following to ensure that you get the most from the device when designing and changing consumer units, to ensure that you do not have the dreaded call out issue of nuisance tripping.

1

Separate as many accumulative protective conductor currents and earth leakage currents downstream of the RCD, Equipment like computers, refrigerators and any equipment which has a motor can cause a good amount of these currents.

2

Try and design the circuit to make sure no more than 30% of the rated residual operating current is on the one circuit.

3

Select the appropriate RCD according to the nature of the circuit or the load demands.

4

Reduce the amount of transient effects from the circuit, as this can cause tripping of the RCD to occur by harging of bypass capacitors or by other electromagnetic disturbances. LED, fluorescent and sodium lighting can have these components in the device.