

# What is a Residual Current Device (RCD)?

**A Residual Current Device (RCD) is a safety device designed to protect against electric shock and reduce the risk of electrical fires. It monitors the flow of current in a circuit and automatically disconnects the power supply if it detects an imbalance, which could indicate a fault such as a live wire touching a conductive surface or a person coming into contact with a live component.**

RCDs are widely used in UK house building, residential retrofits, home renovations, and extensions to ensure electrical safety. They are particularly critical in environments where water and electricity are in close proximity, such as kitchens, bathrooms, and outdoor areas.

## **Synonyms:**

- Earth Leakage Circuit Breaker (ELCB)
- Ground Fault Circuit Interrupter (GFCI) [Note: GFCI is more commonly used in North America.]

## **Explanation:**

RCDs are a fundamental part of electrical safety in modern homes. They are designed to trip (disconnect the circuit) within milliseconds if they detect a fault, significantly reducing the risk of injury or death from electric shock. In the UK, the use of RCDs is mandated by the **Building Regulations, Part P (Electrical Safety - Dwellings)** and further detailed in the **Approved Document P**.

## **Practical Examples:**

1. **Kitchen Renovation:** When installing new electrical outlets near a sink, an RCD is required to protect against potential water contact with live wires.
2. **Outdoor Lighting:** RCDs are essential for garden lighting or power outlets to prevent electric shock hazards in damp or wet conditions.
3. **Retrofitting Older Homes:** Adding RCD protection to existing circuits during a retrofit ensures compliance with current safety standards.

## **Related Terms:**

1. **Circuit Breaker:** A device that protects an electrical circuit from damage caused by overload or short circuit.
2. **Earth Bonding:** A safety measure that connects metal parts of an electrical installation to the earth to prevent electric shock.
3. **Part P Regulations:** UK Building Regulations that govern electrical safety in dwellings.
4. **Approved Document P:** Provides guidance on meeting the requirements of Part P.
5. **Arc Fault Detection Device (AFDD):** A device that detects and interrupts arc faults, reducing the risk of electrical fires.
6. **Consumer Unit:** The central distribution point for electrical circuits in a home, often incorporating RCDs.
7. **Electrical Installation Condition Report (EICR):** A report assessing the safety of an electrical installation, often recommending RCD upgrades.