What is a Circuit Breaker?

A circuit breaker is an automatic electrical switch designed to interrupt the flow of current in a circuit when it detects an overload or short circuit. Its primary function is to prevent damage to electrical wiring and appliances, as well as reduce the risk of fire. Circuit breakers are a critical component of modern electrical systems in residential and commercial buildings.

In the UK, circuit breakers are mandated under **Part P of the Building Regulations**, which governs electrical safety in dwellings. They are typically installed in consumer units (formerly known as fuse boxes) and are categorised by their trip characteristics, such as Type B, Type C, and Type D, which determine their sensitivity to overcurrents. For example, Type B breakers are commonly used in domestic settings for general lighting and socket circuits, while Type C or D breakers are used for circuits with higher inrush currents, such as those powering motors.

Practical Example:
In a UK home renovation project, upgrading the consumer unit to include modern circuit breakers is often required to comply with the latest **BS 7671:2018+A2:2022 (IET Wiring Regulations)**. For instance, if a homeowner installs a new kitchen with high-power appliances like induction hobs or ovens, a Type B circuit breaker might be replaced with a Type C to handle the increased load safely.

Synonyms:

- Electrical breaker
- Safety switch

Related Terms:

1. **Consumer Unit:** The central distribution point for electrical circuits in a building, housing circuit breakers and other protective devices.
2. **Residual Current Device (RCD):** A safety device that disconnects a circuit when it detects an imbalance in current, protecting against electric shock.
3. **Overcurrent:** A condition where the current exceeds the rated capacity of a circuit, potentially causing damage or fire.
4. **Short Circuit:** An abnormal connection between two points in a circuit, causing excessive current flow.
5. **BS 7671:** The UK standard for electrical installations, commonly referred to as the IET Wiring Regulations.
6. **Part P of the Building Regulations:** The section of UK Building Regulations that ensures electrical installations are safe.
7. **Arc Fault Detection Device (AFDD):** A device that detects dangerous arcing in circuits and disconnects the power to prevent fires.