



## IS/IEC 60947-3: 2020 - Low-Voltage Switchgear and Controlgear

### Part 3 Switches, Disconnectors, Switch-Disconnectors and Fuse-Combination Units

A **switching device** is a device designed to make or break the current in one or more electric circuits. A **disconnector** is a mechanical switching device which, in the open position, complies with the requirements specified for the isolating function. A **switch-disconnector** is a switch which, in the open position, satisfies the isolating requirements specified for a disconnector. A **fuse-combination unit** is a combination of a mechanical switching device and one or more fuses in a composite unit, assembled by the manufacturer or in accordance with his instructions.

Key consumer expectations for these devices include **reliability, durability, and safety**. They must endure repeated switching cycles without failure and provide protection against electrical shock, arc flash, and fire hazards. These devices must also function properly under both normal and fault conditions, such as **high inrush currents or short circuits**. Current and voltage ratings must match system requirements to prevent overheating or malfunction. Additionally, ease of use is important, with devices designed for simple operation, clear markings, and easy installation and maintenance.

**Indian Standard IS/IEC 60947-3** specifies the requirements for **low-voltage switches, disconnectors, switch-disconnectors, and fuse-combination units** used in electrical systems. These devices are crucial for controlling, isolating, and protecting electrical circuits in low-voltage installations (up to 1,000 V AC or 1,500 V DC). The standard ensures that these components function **safely, reliably, and efficiently**.

**IS/IEC 60947-3** addresses consumer needs by providing detailed performance and safety requirements. It includes **endurance tests** to verify that devices can withstand numerous switching operations. The standard also outlines strict insulation and isolation protocols to prevent electrical shocks and ensure safe operation during maintenance or fault conditions. For **fuse-combination units**, coordination between the **fuse and switch-disconnector** is crucial for effective **overload protection**. The standard specifies the required current and voltage ratings to ensure safe operation under **short-circuit conditions** and provides provisions for arc quenching and **temperature rise** management to minimize fire risks.

Furthermore, the standard ensures that devices are resistant to extreme environmental conditions, such as **high humidity, dust, and temperature variations**. It includes rigorous testing and quality control procedures to check **dielectric properties, mechanical durability, and strength of actuator mechanism**, ensuring that devices meet performance and safety standards for long-term reliability.