

Classification of General Distribution Boxes



Overview

Complete Classification Guide for Electrical Distribution Boxes
Several distribution boxes are designed for specific use in Understanding Distribution Boxes.

Key Takeaways

Distribution boxes can be classified based on installation environment, material, mounting method, and application type, each serving specific electrical distribution needs.

Classification by Installation Environment

- Indoor Distribution Boxes: Designed for protected environments such as homes, offices, and utility rooms. They are shielded from rain, dust, and harsh weather, making them suitable for residential and light commercial applications .
- Outdoor Distribution Boxes: Built for exposed environments where they may face rain, dust, sunlight, or temperature variations. These boxes require higher mechanical strength and appropriate IP protection ratings to ensure durability and safety .

Classification by Material

- Metal Distribution Boxes: Typically made from steel or aluminum, these boxes offer high mechanical strength, impact resistance, and long-term durability. They are commonly used in industrial and commercial applications where safety and robustness are critical .



- **Plastic Distribution Boxes:** Made from materials like PVC or polycarbonate, these boxes are lightweight, corrosion-resistant, and easier to handle. They are suitable for residential or light commercial applications and environments where rust resistance is important .

Classification by Mounting Method

- **Wall-Mounted Distribution Boxes:** Common in residential, commercial, and light industrial installations. They save floor space and provide easy access for maintenance .
- **Floor-Standing Distribution Boxes:** Used in larger electrical systems requiring more internal space, higher load capacity, or more circuits. These are typical in industrial and infrastructure projects .

Classification by Application

- **Residential Distribution Boxes:** Often called consumer units in the UK or load centers in North America, these boxes distribute power to household circuits and include protective devices like MCBs, RCDs, or RCBOs .
- **Commercial and Industrial Distribution Boxes:** Designed for higher loads and more complex circuits, often incorporating multiple busbars, main switches, and advanced protective devices. They may also include control features for machinery or equipment .
- **Specialized Control Boxes:** These include switches, controllers, and monitoring tools in addition to basic distribution functions, used for controlling specific electrical systems or equipment .

Additional Considerations

Distribution boxes are also classified by supply system (single-phase, three-phase, AC, DC), number of outgoing circuits, and protective-device strategy (MCB, RCCB, RCBO, fuses, SPDs, AFDDs). The choice depends on load requirements, fault current capacity, and compliance with standards such as IEC 61439, IEC 60898, UL/NEC, or BS 7671 . This classification ensures that the right distribution box is selected for safety, efficiency, and long-term reliability in any electrical installation.

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Overview of basic knowledge of distribution box and

The distribution box is divided into power distribution box and lighting distribution box, which is the last

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A distribution board controls and protects multiple circuits, while a distribution box usually houses local wiring or

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