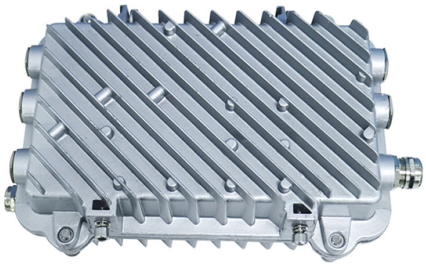
Main Distribution Box Sub-distribution Box Model



Overview

Understand distribution boxes (DB boxes) in 5 minutes. Learn about types, components, functions, and uses. Find the perfect DB box for your needs.

Key Takeaways

The Main Distribution Box (MDB) serves as the central hub for electrical power distribution, while Sub-distribution Boxes (SDBs) branch out to supply power to specific areas or equipment.

Overview

A Main Distribution Box (MDB) is the primary enclosure in an electrical system that receives power from the main supply and distributes it to various circuits or sub-distribution boards. It is typically used in residential, commercial, or industrial buildings to manage and control the overall power supply.

The MD

B houses key components such as bus bars, MCCBs (Molded Case Circuit Breakers), fuses, and support equipment to ensure safe and efficient power distribution. It also protects the system from overloads and short circuits. A Sub-distribution Box (SDB) is a secondary distribution unit that receives power from the MDB and redistributes it to specific locations, such as garages, parking areas, construction zones, or individual floors.

SD

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Bs simplify control and monitoring of electrical circuits in localized areas and often include branch circuit protection switches to manage multiple downstream circuits.

Hierarchical Structure

In complex setups, such as construction sites or large industrial facilities, a tiered distribution model is used: Level 1: MDB acts as the central hub, receiving power from the main supply. Level 2: Multiple SDBs are connected to the MDB, forming a tree-like network. Level 3: Branch circuits from SDBs supply power to end equipment or temporary facilities.

This structure ensures that distribution boxes are located close to the point of use (typically within 30 meters of concentrated electrical equipment), improving safety and reducing voltage drops.

Components and Features

Both MD

Bs and SDBs typically include: Circuit breakers and fuses for overload and short-circuit protection. Bus bars for efficient power distribution. Indication lights to show mains power status.

Optional smart features like energy monitoring units and communication modules for real-time data and remote control.

SD

Bs may also be dedicated to specific equipment, such as tower cranes or construction elevators, or shared among temporary facilities like sheds. Load Capacity and Design ConsiderationsMDBs are designed to handle the total building load and control overloading.

SD

Bs typically have a load capacity ranging from 50–150 kW, with the main switch rating determined by the number of connected lower-level boxes and the power consumption of the equipment. Materials used for enclosures include engineering thermoplastics (PC, ASA) or epoxy/powder-coated stainless steel for durability and safety.

Applications

Residential: MDB distributes power to floors or apartments, SDBs manage individual units or specific areas. Industrial: MDB controls overall plant power, SDBs supply machinery, lighting, or temporary workstations. Construction Sites: MDB serves as the main hub, SDBs provide localized power to cranes, elevators, and temporary facilities.

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This hierarchical and modular approach ensures efficient, safe, and flexible power distribution across various applications.

Article Content

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The power distribution from the power input point to the end electrical equipment needs to go through three levels of Powbinet. This architecture uses the main distribution box as the primary hub, with

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i) Main Distribution Box: This box is used in homes, industrial buildings, and commercial buildings. It receives electricity from the main power

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Electrical Distribution Boxes -ZHENGKAI

Distribution boxes (DB), also known as distribution boards, are essential for safely distributing electrical power in residential, commercial, and

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