

Article Overview

Distribution boxes are classified by voltage, application, and function, and are organized into primary, secondary, and tertiary levels to manage power safely from the main supply to end users.

Classification by Voltage and Function

Low-Voltage Distribution Boxes (LVDBs) operate typically at 400V/690V and are used in residential, commercial, and industrial buildings. They house circuit breakers, fuses, and protective devices to control and distribute power safely indoors or outdoors . Medium-Voltage Distribution Boxes, often called Ring Main Units (RMUs), operate at 10kV-12kV and are used in cable-based power distribution networks for cities, utilities, and industrial parks. They are usually sealed, maintenance-free, and resistant to dust, moisture, and corrosion, allowing power to be fed from two directions . By Function, distribution boxes can be further categorized as:

- o Single-Phase DB Boxes: Suitable for residential or small commercial loads .
- o Three-Phase DB Boxes: Used in industrial or large commercial facilities requiring higher power capacity .
- o Lighting Distribution Boxes: Dedicated to lighting circuits .
- o Power Distribution Boxes: Support sockets, equipment, and heavy machinery .
- o Control Distribution Boxes: Integrate relays, contactors, and timers for automation .

Classification by Installation

- o Surface Mounted: Installed directly on walls, ideal for retrofits and industrial environments .
- o Flush Mounted: Embedded into walls for a clean appearance, common in residential and commercial buildings .
- o Pole Mounted: Designed for outdoor use, such as street lighting and utility applications .

Levels of Distribution Boxes

Distribution boxes are also organized hierarchically into three levels to manage power from the transformer to end users :

- o Primary Distribution Box (First Level): Receives low-voltage output (0.4kV) from the transformer. It generally contains isolation switches, circuit breakers, and leakage protectors. This level does not directly supply electrical equipment.
- o Secondary Distribution Box (Second Level): Distributes power to buildings or large equipment. It typically contains large three-phase circuit breakers and manages higher loads.
- o Tertiary Distribution Box (Third Level): Supplies mains electricity (220V single-phase) to individual units

Classification and Level of Distribution Boxes

or households. It usually contains single-phase circuit breakers and ensures safe delivery to end users. This hierarchical system ensures safety, load management, and efficient power distribution from the main supply to individual circuits, forming a complete three-level protection system suitable for residential, commercial, and construction applications .

Key Components

All distribution boxes generally include:

- o Circuit Breakers or Fuses: Protect circuits from overloads and short circuits .
- o Busbars: Copper or aluminum bars for power distribution.
- o Enclosures: Metal or plastic housings providing protection from physical damage and environmental factors .
- o Control Devices: Relays, contactors, and timers in control distribution boxes . Understanding these classifications and levels helps in selecting the right distribution box for specific applications, ensuring safety, compliance, and long-term reliability.

Distribution switchboards, including the Main LV Switchboard (MLVS), are critical to the dependability of an electrical

Distribution boxes are classified according to their structural characteristics and uses: (1) Fixed panel switchgear, often called

Learn how to choose a distribution box and understand its internal structure, including MCBs, busbars, neutral bars,

The DDC Summaries, the top three levels of the Dewey Decimal Classification system, have been translated into Afrikaans, Arabic,

In cities and large towns, standardized LV distribution cables form a network through link boxes. Some links are

Learn how electrical distribution boxes work, their key components, common types, and how to choose the right enclosure for safe

Discover comprehensive information about distribution box types, their advanced safety features, intelligent monitoring capabilities,

Classification and Level of Distribution Boxes

What to Look for When Choosing a Distribution Box If you're going to buy a distribution box, there are several things

Comparison Between NEMA Enclosure Type Numbers and IEC Enclosure Classification Designations IEC Publication 60529

Compare types and uses of distribution boxes in the distribution box industry, covering residential, commercial, and industrial

Distribution boxes, also known as electrical distribution boards or panels, are pivotal components in electrical systems, ensuring the

Discover 10 types of distribution boards, from Main Distribution Boards to Fuse Boxes. Learn

What are Distribution Boxes and Their Importance? What are Distribution Boxes and Their

Learn what an electrical distribution box is in simple terms. Complete guide to panel types,

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

Read this comprehensive buyer's guide on distribution boards, explaining what they are, their uses, types, how to

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