

Rated capacity of primary distribution box



Overview

Distribution Box and Selection Guide: Internal Structure, Components. What IP rating should an outdoor distribution box have?

The correct IP rating depen.

Key Takeaways

Primary distribution boxes typically have rated currents ranging from 100A to 630A, with rated breaking capacities up to 20kA depending on the model and application.

Rated Current

The rated current of a primary distribution box indicates the maximum continuous current it can safely carry without overheating or causing damage. For example, Eaton's XBoard series offers rated currents up to 630A, suitable for medium and low-voltage applications in commercial and industrial settings. Residential or small commercial DB boxes usually have lower rated currents, often between 100A and 250A, depending on the number of circuits and load requirements.

Rated Breaking Capacity

The rated breaking capacity (also called short-circuit rating) defines the maximum fault current the distribution box can interrupt safely without damage. Eaton's XBoard panels, for instance, have a rated breaking capacity of 20kA, ensuring protection against high short-circuit currents in industrial or large commercial installations. This rating is critical for safety and compliance with electrical standards.

Factors Affecting Capacity

Number of phases: Single-phase DB boxes have lower rated currents compared to three-phase boxes used in industrial setups. Type of protective devices: The use of Miniature Circuit Breakers (MCBs), Residual Current Breakers (RCBs), or Molded Case Circuit Breakers (MCCBs) influences the overall capacity. Installation environment: Indoor vs. outdoor, IP protection rating, and ambient temperature can affect the safe operating current.

Load type: Lighting, motors, or heavy machinery require different current ratings and breaker capacities.

Summary

When selecting a primary distribution box, it is essential to consider both the rated current and breaking capacity to match the expected load and ensure safety. Typical ranges are 100A-630A for rated current and up to 20kA for breaking capacity, with higher ratings used in industrial or large commercial applications. Proper sizing ensures reliable power distribution, protection against overloads, and compliance with electrical standards.

Article Content

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What IP rating should an outdoor distribution box have? The correct IP rating depends on exposure to rain, dust, water jets, sunlight, and installation position.

How to calculate the capacity of a primary distribution box

Pro Insight: A well-planned distribution box feels like a silent partner—you only notice it when something's wrong. Related Post: How to Determine the Right Size Capacity of a Subpanel?

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The primary function of a distribution box is to route electricity from the main supply to different circuits throughout a building. This ensures that all electrical appliances and systems

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Power Distribution Boxes Explained Simply

Discover the essentials of a Power Distribution Box—how it works, key types, benefits, and tips to ensure safe, efficient electrical power management.

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This document is for preliminary research. Verify specifications against current standards, product documentation and project requirements.

