

Outdoor Distribution Box Classification Chart



Overview

Outdoor Electrical Distribution Box Specifications: NEC This specification guide provides system designers, electrical engineers, and procurement IP Rating.

Key Takeaways

Outdoor distribution boxes are classified by enclosure type, NEMA/IP rating, number of ways, internal components, and application-specific standards. Classification by Enclosure and Protection Ratings

Outdoor distribution boxes are primarily classified based on weatherproofing and environmental protection:

- NEMA Ratings:
- NEMA 3 – Weather-resistant, not fully rain-tight
- NEMA 3R – Rain-tight, suitable for wet locations
- NEMA 4 – Rain-tight and dust-tight, suitable for harsher outdoor conditions
- IP Ratings (Ingress Protection):
- IP54 – Protection against dust and splashing water
- IP65 – Dust-tight and protected against water jets
- IP66 – Dust-tight and protected against powerful water jets These ratings ensure compliance with NEC Article 312 and UL 50/50E standards for outdoor installations ().

Classification by Internal Components

Outdoor distribution boxes are also categorized by their internal structure and protective devices:

- Busbars – Copper or aluminum conductors distributing power to branch circuits
- Overcurrent Protection Devices – MCBs, fuses, RCBOs, or RCDs
- Main Disconnect – Required for systems over 100A
- Neutral and Ground Bars – Separate bars per NEC 312.6
- Surge Protection Devices (SPD) – Optional for sensitive installations
- DIN Rail Space – For modular devices and future expansion ()

Classification by Application and Supply System

Boxes are selected based on application type and supply system:

- Applications: Residential, commercial, industrial, solar, temporary power, street lighting
- Supply Systems: Single-phase AC, three-phase AC, DC, TN, TT, IT earthing systems
- Number of Ways: Typically ranges from 1-way to 36-ways depending on load and expansion needs ()

Product-Specific Classification Charts

Several manufacturers provide catalogues with detailed classification charts:

- TOP Series Distribution Boxes: TOP-TS, TOP-TF, TOP-LS, TOP-PS, TOP-PF, TOP-S
- Ways: 1-way to 36-ways
- Dimensions: Length, width, height specified for each type
- Mounting Sizes: Standardized for wall or pole installation ()
- Meter Connection Columns and Street Lighting Distributors: Ordered according to distribution system operator requirements ()

Key Selection Considerations

When using classification charts, consider:

- Rated Current and Short-Circuit Capacity – Must match actual load and fault current
- Internal Layout – Adequate busbar, neutral, and earth bar arrangement
- Enclosure Material – UV resistance, corrosion resistance, impact protection

- Compliance – NEC, IEC, UL, or local standards depending on region ()
- Summary

Outdoor distribution boxes are classified by enclosure type, protection rating, internal components, number of ways, and application-specific standards. Comprehensive charts are available in manufacturer catalogues and product datasheets, such as the TOP series and street lighting distributors, providing dimensions, mounting sizes, and detailed specifications for safe and code-compliant installations ().

Article Content

Vertiv™ NetSure™ External Distribution Box (EDB)

The Vertiv™ NetSure™ External Distribution Box (EDB) holds both DC distribution and fiber distribution in a single convenient

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

