COETZER OPTICAL SYSTEMS (Pty) Ltd

Dimensions and Specifications of Secondary Distribution Boxes on Construction Sites

Overview

028028_Rev23_4-26-23 This document provides specifications, ordering information, illustrations, and application instructions for the various sizes of non.

Key Takeaways

Secondary distribution boxes (SDBs) are modular enclosures designed to safely distribute power from main distribution points to branch circuits, with dimensions, materials, and installation requirements varying by application and load.General Description

Secondary distribution boxes receive power from the main distribution box and distribute it to branch circuits on construction sites. They can be fitted with terminal blocks for custom wiring and are typically finished in powder-coated steel or polymer concrete for durability and environmental protection . Outdoor units must meet NEC Article 312 requirements and NEMA/IP ratings to ensure weatherproofing and safety .

Materials and Construction
• Enclosure Materials: Steel plates are standard; insulating plates are acceptable. Wooden materials are not recommended .

• Outdoor Enclosures: Must be weatherproof, rain-tight, and comply with UL 50/50E standards. Covers are often polymer concrete with slip-resistant surfaces .

• Concrete Enclosures: Required in areas with full vehicular traffic, meeting ASTM C-857 standards .

Dimensions

• Non-concrete enclosures: Typically smaller than 36” x 60” for residential or small commercial applications .

• Concrete enclosures: Used for larger conductors or high-traffic areas; depth of 26” is required for conductors larger than 4/0 .

• Installation Height: Fixed boxes should be installed 1.3–1.5 m above ground; mobile boxes 0.6–1.5 m .

• Leveling: Enclosures must be installed level, with maximum grade adjustments of 1/8” per foot for large enclosures and 2” per foot for smaller units .

Electrical and Safety Specifications

• Load Capacity: Must accommodate the ultimate conductor size and number for the service panel .

• Branch Circuits: Each electrical equipment should have a dedicated switch box with its own residual current device (RCD) following the "one equipment, one switch, one RCD" rule .

• Spacing: Distance between distribution and switch boxes should not exceed 30 m; horizontal distance to fixed equipment should not exceed 3 m .

• Outdoor Protection: Rain-tight enclosures are required in wet locations; NEMA 3R or 4 ratings are recommended .

Installation Considerations

• Conduit Entry: Use 90° sweeps at the bottom of the box; limit the number of conduits per enclosure (e.g., max three for streetlight applications), .

• Access and Inspection: Ensure personnel and vehicular access at all times; coordinate with inspectors before backfilling or connecting power .

• Environmental Compliance: Outdoor boxes must withstand temperature extremes, moisture, and potential corrosion, especially in coastal or industrial environments .

Summary

Secondary distribution boxes on construction sites are modular, durable enclosures designed for safe power distribution. Their dimensions, materials, and installation heights depend on the type of enclosure (concrete vs. non-concrete, indoor vs. outdoor), load requirements, and site conditions. Compliance with NEC, NEMA, ASTM, and local building codes is essential for safety, durability, and operational reliability .

Article Content

Secondary Distribution Box

The Secondary Distribution Box (SDB) receives power from Main Power Distribution box via an extender cable and provides a

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