COETZER OPTICAL SYSTEMS (Pty) Ltd

Electrical distribution box component codes

Overview

Distribution Box and Selection Guide: Internal Structure, Components. Learn how to choose a distribution box and understand its internal structure, inclu.

Key Takeaways

Distribution box components are typically coded by function, including MCBs, RCCBs, RCBOs, busbars, isolators, surge protective devices, and grounding connections, following standard electrical labeling practices.Common Components and Their Codes
• MCB (Miniature Circuit Breaker)
• Protects circuits from overloads and short circuits.

• Often labeled as Q1, Q2, Q3… in schematics to indicate individual circuit breakers .

• RCCB (Residual Current Circuit Breaker)
• Detects leakage currents to prevent electric shocks.

• Typically coded as F1, F2… or RCCB1, RCCB2 depending on the design .

• RCBO (Residual Current Breaker with Overcurrent Protection)
• Combines MCB and RCCB functions.

• Can be labeled as RC1, RC2… in diagrams .

• Busbars
• Conduct electricity to multiple circuits.

• Usually coded as B1 (phase), N (neutral), PE (protective earth) .

• Isolators / Switches
• Manually disconnect circuits for maintenance.

• Often labeled S1, S2… or ISO1, ISO2 .

• Surge Protective Device (SPD)
• Protects against voltage spikes and lightning.

• Commonly coded as SPD1, SPD2 .

• Indication Lights / Meters
• Show power status or energy consumption.

• Labeled as L1, L2, L3 for phases or M1 for meters .

• Neutral and Grounding Bars
• Provide return paths and safety grounding.

• Neutral bar: N, Ground bar: PE or GND .

Coding Practices
• Sequential numbering is standard for breakers and protective devices.

• Prefixes indicate function: Q = breaker, F = RCCB, RC = RCBO, S = switch, L = indicator, B = busbar.

• IEC and NEC standards guide labeling for safety and clarity in schematics ( ).

• Custom codes may be used in industrial or large-scale installations to match plant documentation.
Summary

Electrical distribution boxes are organized with standardized components, each assigned a functional code for identification in schematics and maintenance. Using consistent codes like Q, F, RC, S, B, N, PE, L ensures clarity, safety, and compliance with international standards, while also facilitating troubleshooting and system expansion .

Article Content

Electrical Codes for Junction Boxes

The volume of electrical boxes shall be sufficient for the number of conductors, devices, and cable clamps contained within the box.

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