

RIVO MULTITRADE OPTICAL SYSTEMS

Distribution box outgoing grounding wire



Overview

How to Ground Wires in Metal Boxes In a system with metal boxes, the pigtail method is considered the most secure.

Key Takeaways

The outgoing grounding wire in a distribution box must be securely connected to the PE bar or grounding plate using appropriately sized copper wire to ensure low-resistance, safe grounding.

Key Guidelines for Grounding



Wire Connection: The grounding wire should be connected to the distribution box's PE bar or grounding plate, which is typically marked inside the box. Strip the wire to the required length, insert it into the terminal, and tighten the screw to ensure a firm connection .

Wire Material and Size: Use copper core wire with yellow-green insulation for visibility and safety. The cross-sectional area should meet local standards: in the US, a 10 AWG (5.26 mm²) wire is standard, while in other markets, 6 mm² is commonly used . For connections between mounting plates and components like spindle plates, larger wires (e.g., 16 mm² or 6 AWG) may be required to maintain low resistance .

Grounding Components: All electrical components inside the distribution box that require grounding should be connected to the PE bar using copper wires. Flexible connections, such as braided copper tape, can be used between moving parts like door panels and the box body to maintain continuity .

Resistance Requirements: The total ground resistance between all system parts should be less than 0.1 Ohm to ensure effective fault current dissipation . After installation, measure resistance with a multimeter to verify proper grounding .

Installation Precautions: Ensure all connections are tight, clearly marked, and free from corrosion. Use anti-loosening washers or conductive grease if necessary to maintain low contact resistance over time . Avoid aluminum conductors for buried runs, as they degrade over time .

System Safety: Proper grounding protects personnel from electric shock, stabilizes system voltage, and safeguards equipment from surges, lightning, and transient overvoltages . Regular inspection and maintenance of grounding connections are essential for long-term safety and reliability. By following these practices, the outgoing grounding wire in a distribution box will provide a safe, low-resistance path to earth, ensuring both equipment protection and personnel safety.

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