

Cable trays with external cable routing



Article Overview

Proper cable routing on external cable trays ensures safety, mechanical protection, and compliance with electrical standards while maintaining efficient heat dissipation.

Key Considerations for External Cable Tray Routing

1. Tray Selection and Material External cable trays must withstand environmental conditions such as rain, UV exposure, wind, and temperature variations. Common materials include galvanized steel, stainless steel, and aluminum, chosen for corrosion resistance and mechanical strength . Wire mesh trays are often used for light cables, while solid or ventilated trays are preferred for heavier or sensitive instrumentation cables . 2. Cable Support and Spacing Cables should be supported at regular intervals to prevent sagging and maintain the minimum bend radius. Typical rung spacing is 150–230 mm (6–9 inches) for standard trays . For external trays, additional support may be required at bends, T-pieces, or vertical transitions to handle mechanical stress and wind loads . 3. Cable Fill and Ampacity Derating Overfilling trays can reduce heat dissipation, requiring ampacity derating. The maximum number of cables depends on their cross-sectional area and the tray's internal dimensions. Derating factors are applied to ensure cables do not exceed their temperature ratings . Proper calculation of cable cross-sectional area and fill percentage is essential for safe operation. 4. Environmental Protection External trays should include covers or cable protection rings to shield cables from UV, rain, dust, and debris. Solid covers or ventilated covers can be used depending on heat dissipation requirements . In areas with high mechanical risk, additional barriers or trough systems may be installed for extra protection . 5. Routing Practices

- Segregation: Separate power, control, and communication cables to reduce electromagnetic interference.

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