

Connecting copper busbars to the server room rack



Overview

Copper busbars designed for grounding and bonding in data centers, telecom rooms, and network racks.

Key Takeaways

Copper busbars should be installed using pre-fabricated, code-compliant busbar systems with proper isolation and secure lugs to ensure reliable grounding and bonding in server racks. Selecting the Right Busbar

Choose busbars made from hard-drawn electrolytic tough pitch 110 alloy copper, typically 3/16" thick, with pre-punched holes for lugs and ground jumpers. Busbars can be primary bonding busbars (PBB) for central grounding or secondary bonding busbars (SBB) for ICT systems, depending on your rack layout. Ensure the busbar is insulated from the rack frame to control current paths and prevent galvanic corrosion.

Mounting and Hardware

- Use stainless steel hardware to attach lugs and jumpers securely.
- Align busbar holes with the rack's EIA-310-E Universal hole pattern for consistent mounting.
- Vertical busbars should include tinned copper strips to provide direct bonding contact for rack-mounted equipment.

- Avoid field bending or drilling, as this can introduce dimensional drift, uneven hole spacing, and increased resistance .

Grounding and Bonding

- Connect each piece of equipment to the busbar using equipment bonding jumpers or pre-installed lugs .
- Ensure the busbar is sized to handle potential fault currents; undersized bars can vaporize during high-current events, while oversized bars add unnecessary weight .
- Maintain NEC 250 compliance and follow ANSI/BICSI N3-20 and ANSI/TIA-607 standards for grounding and bonding .

Installation Best Practices

- Use bolt-in, roll-formed busbars to reduce human error and ensure consistent electrical performance .
- Isolate busbars from steel or aluminum frames to prevent galvanic corrosion, especially in humid or thermally dynamic environments .
- Consider monitoring solutions for high-current racks, such as sensors on busbars to track temperature and prevent service disruptions .
- Ensure all connections are tight and free of oxidation; periodic inspection is recommended for high-density racks .

Summary

For safe and reliable server rack installations, use pre-fabricated, insulated copper busbars with proper mounting hardware, align with rack hole patterns, and connect all equipment using bonding jumpers. Avoid on-site fabrication to maintain code compliance, electrical reliability, and long-term performance .

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When equipment is mounted to the rack, the rack-mount brackets touch the busbar. Alternately, the Equipment Bonding Jumper Kit

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