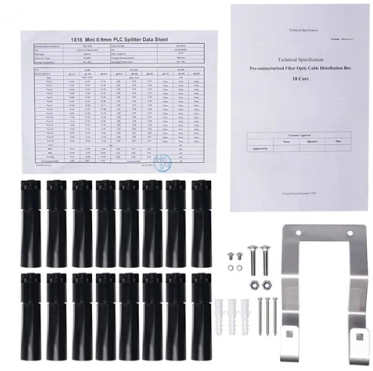
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Network cable enters the shielded cabinet



Overview

Everything You Need to Know About Installing Shielded Learn how to install shielded Ethernet cable right—planning, Cat6A parts, Shielded Cable for Ethernet.

Key Takeaways

Properly routing a shielded network cable into a cabinet requires using shielded cable glands and grounding the cable shield to the cabinet to prevent EMI and maintain signal integrity.Shielded Cable Basics

Shielded cables include a conductive layer around the conductors, such as braided copper or aluminum foil, which protects against electromagnetic interference (EMI) and radio-frequency interference (RFI) while preventing the cable from radiating noise itself . In industrial or high-electronic-density environments, shielded cables are essential to maintain reliable network communication .

Using Shielded Cable Glands

When a cable enters a shielded cabinet, a shielded cable gland should be used. This gland acts as both a seal and a strain relief, ensuring the cable is firmly held and that EMI/RFI cannot enter or exit through the entry point . Materials like brass are commonly used for their conductivity and durability, and the gland should match the cable diameter for optimal performance.

Grounding the Cable Shield

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The cable shield must be connected to the cabinet ground as soon as it enters the enclosure. This is typically done using a shield clamp system, which ensures a low-resistance electrical connection between the cable shield and the cabinet's protective earth (PE), . Avoid using pigtails or twisting the shield, as this can create an antenna effect and reduce shielding effectiveness. Depending on the interference environment, either a direct grounding or a star-shaped PE connection may be used to minimize ground loops .

Installation Considerations
• Apply the braided shield as close to the cable entry as possible to maximize EMI protection .

• Ensure the shield is continuous from one end of the system to the other, with grounding only at designated points to prevent unwanted currents .

• Use shielded connectors compatible with the cable to maintain the integrity of the shield throughout the network link .

• Consider the type of shield (foil, braid, or combination) based on the level of EMI in the environment .
Summary

To maintain network reliability and EMC compliance, route shielded cables through shielded glands, secure the shield with a clamp to the cabinet ground, and avoid improper terminations. This approach prevents EMI from affecting the network, reduces the risk of ground loops, and ensures the shielded cable performs as intended in industrial or sensitive electronic environments .

Article Content

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