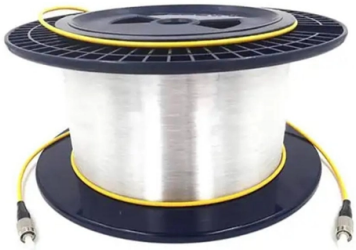
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How many volts should the power supply of a fiber optic switch be



Overview

Don''t worry, the core issue is how much voltage is "lost" after the power runs through the network cable.

Key Takeaways

The standard power supply voltage for a PoE fiber optic switch is 48 volts DC, typically within a range of 44–57 volts depending on the PoE standard.Standard Voltage and PoE Compatibility

Most fiber optic switches that provide Power over Ethernet (PoE) use a 48V DC power supply, which aligns with mainstream PoE standards such as IEEE 802.3af (PoE) and 802.3at (PoE+). The IEEE 802.3af standard specifies an output voltage range of 44–57V, with 48V being the typical value, while 802.3at has a similar range and also commonly outputs 48V DC . Some industrial or specialized switches may support 24V DC input, using internal boost circuitry to maintain a stable 48V output for connected devices .

Safety Considerations

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Operating at 48V DC falls within the Safety Extra Low Voltage (SELV) range, which is considered safe for human contact under normal conditions . PoE switches include built-in safety mechanisms to detect connected devices, classify their power requirements, and deliver the appropriate voltage, preventing damage to non-PoE devices . The National Electrical Code classifies PoE circuits below 60V and 100W as Class 2 circuits, simplifying installation and enhancing safety .

Practical Notes
• Voltage drop over distance: Ethernet cable resistance can cause voltage to drop slightly over long runs (up to 100 meters), so the 48V supply ensures devices still receive sufficient power even at the far end of the cable .

• Device compatibility: Most industrial cameras, access points, and control terminals are designed for 48V PoE, making it the standard choice for reliable operation .

• Alternative configurations: Some low-power or legacy devices may use 12V or 24V PoE, but these are non-standard and typically limited to short distances or specialized applications . In summary, for a standard fiber optic PoE switch, a 48V DC power supply is recommended, ensuring compatibility, safety, and stable operation across connected devices.

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