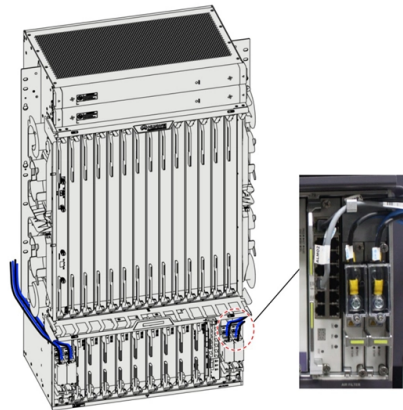


Wiring Method for Industrial Fiber Optic Sensors



Overview

Installation Guide for Fiber Optic Photoelectric Sensors in Industrial. Learn how to install fiber optic photoelectric sensors in industrial environments.

Key Takeaways

Industrial fiber optic sensors are wired by connecting the fiber amplifier unit to the sensor fiber, then linking the amplifier output to the control system, following AC/DC load and Light-ON/Dark-ON configurations. Basic Wiring Principles

Industrial fiber optic sensors consist of a Fiber Amplifier Unit and a Fiber Unit. The Fiber Unit transmits or receives light, while the Amplifier processes the signal and provides an electrical output to a controller or PLC. Wiring involves:

- **Power Supply Connection:** Connect the amplifier unit to the appropriate voltage source (commonly 12-24V DC or 220V AC depending on the model) ensuring correct polarity for DC units.
- **Signal Output:** The amplifier output can be configured as Light-ON (output active when light is detected) or Dark-ON (output active when light is blocked). This output is wired to the input of a PLC, relay, or other control device.

- **Fiber Connection:** Insert the fiber optic cable into the amplifier or sensor module. For plastic fibers, cut the end perpendicular to the core and insert it fully into the connector without stripping the jacket .

Wiring for AC/DC Loads

- **DC Load Wiring:** Connect the positive and negative terminals of the amplifier output to the DC load. Ensure the load does not exceed the sensor's rated current.
- **AC Load Wiring:** Use a relay or solid-state switch if the sensor output is DC, or connect directly if the sensor is rated for AC output. Follow the manufacturer's wiring diagram to prevent overcurrent or short circuits .

Installation Tips

- **Minimize Losses:** Avoid sharp bends, microbends, or misalignment in the fiber to reduce signal loss .
- **Environmental Protection:** Fiber sensors are resistant to vibration, shock, and electrical noise, but ensure proper mounting to prevent mechanical stress on the fiber .
- **Testing:** After wiring, test the sensor by checking Light-ON/Dark-ON operation and verifying signal transmission through the fiber .

Summary

Proper wiring of industrial fiber optic sensors involves connecting the fiber to the amplifier, supplying the correct power voltage, and wiring the output to the control system according to Light-ON or Dark-ON logic. Following manufacturer guidelines and minimizing fiber stress ensures reliable operation in industrial environments .

Article Content

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The interactive behaviors between the sensor and the cable are discussed regarding the impacts on the measurement performance

Fiber Sensors

This principle is the sensing method used by Diffuse-reflective Sensors. Polarization of Light can be represented as a wave that

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Assuming the sensor exits the winding along the winding leads, the sensors can all run along the top of the windings to one wall of

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