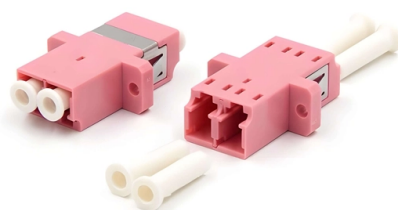


How to connect dual-fiber optical modules



Overview

Media converters with dual SFP ports adapt two different types of fiber optic cabling, such as single mode and multimode.

Key Takeaways

Dual-fiber optical modules use two fibers—one for transmitting (TX) and one for receiving (RX)—and must be connected with TX→RX cross-connections using duplex patch cords. Understanding Dual-Fiber Modules

Dual-fiber transceivers have two ports: one for transmitting (TX) and one for receiving (RX). Unlike single-fiber BiDi modules, dual-fiber modules require two separate fibers for a single link, but they are simpler to deploy because any two dual-fiber modules can be connected without worrying about wavelength pairing. Common wavelengths include 850 nm for multimode and 1310/1550 nm for single-mode fibers.

Pairing Dual-Fiber Modules

- Identify TX and RX ports: Each module is labeled with TX and RX on the front panel.
- Use a duplex patch cord: Connect the TX port of one module to the RX port of the other, and vice versa (TX→RX, RX→TX). This ensures proper bidirectional communication.
- Check fiber type and connectors: Ensure both ends use the same fiber type (single-mode or multimode) and compatible connectors (LC, SC, etc.).

- Maintain cleanliness: Keep optical interfaces clean and avoid bending fibers too tightly to prevent signal loss .

Installation Steps

- Insert the dual-fiber transceiver into the SFP or SFP+ port of your device.
- Remove the dust cap from the transceiver and the fiber connector. Keep the dust cap for future use.
- Connect the duplex fiber patch cord following the TX→RX cross-connection.
- Verify link status on the network device to ensure proper communication .

Practical Tips

- Distance and type: Single-mode dual-fiber modules can cover tens of kilometers, while multimode typically covers hundreds of meters to ~2 km depending on optics .
- Consistency: Both ends should match in speed and fiber type. Mismatched modules may cause communication failure .
- Avoid mixing brands: While some modules are interoperable, using the same vendor reduces compatibility issues . By following these steps, dual-fiber optical modules can be reliably paired and used for high-speed, long-distance fiber-optic communication.

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