

What fiber optic pigtail should be used with an SFP optical module



Overview

SFP Fiber Optic Connector Types: LC, SC, MPO Explained SFP fiber optic connector types determine physical compatibility and cabling efficiency, not optical.

Key Takeaways

Use a fiber optic pigtail with an LC connector that matches the SFP module's fiber type (single-mode or multimode) and polish type. Connector Compatibility

Most modern SFP modules use LC connectors, while older networks may use SC connectors, and MPO/MTP connectors are typically reserved for high-density backbone applications. Ensure the pigtail's connector matches the SFP module to avoid adapters, insertion loss, or operational issues. For standard SFP modules, an LC-to-LC pigtail is the default choice.

Fiber Type

Select the pigtail based on the SFP module's fiber type:

- Single-mode (OS1/OS2): Ideal for long-distance transmission and most 1G/10G/25G SFP modules.
- Multimode (OM1/OM3/OM4): Suitable for shorter distances, typically within data centers or rack-to-rack connections.

Polish Type

Fiber pigtails come with different polish types, such as UPC (Ultra Physical Contact) or APC (Angled Physical Contact). Match the pigtail's polish to the SFP module's requirements:

- UPC: Standard for most SFP modules.
- APC: Required for modules operating at wavelengths where back reflection must be minimized, such as 1310nm or 1550nm single-mode links .

Installation Considerations

- The pigtail's bare fiber end is designed for fusion or mechanical splicing to the incoming fiber cable, ensuring low-loss connections .
- Typical pigtail lengths range from 1 to 3 meters, providing flexibility for routing and splicing .
- Ensure proper cleaning and inspection of connectors before insertion into the SFP module to maintain signal integrity .

Summary

To connect a fiber optic pigtail to an SFP module:

- Match the connector type (usually LC).
- Select the correct fiber type (single-mode or multimode) according to the SFP module specifications.
- Choose the appropriate polish type (UPC or APC) based on the module's optical requirements.
- Splice the bare fiber end to the network cable using proper techniques to minimize loss and reflection. Following these guidelines ensures reliable optical performance and compatibility with your SFP transceiver .

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However, the choice of fiber optic cable connector plays an important role in the overall performance, size, and

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