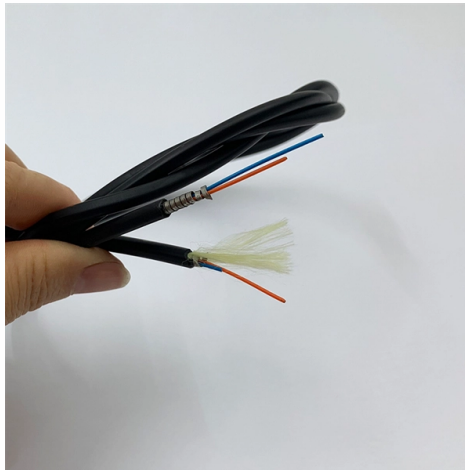


Optical modules that can be used by the switch



AI Overview

The optical module you should use depends on your switch's supported transceiver types, port speed, fiber type, wavelength, and distance requirements. Key Considerations

- Switch Compatibility** Ensure the optical module is supported by your switch vendor. Many switches, such as Cisco or Huawei, require either original or tested compatible optics to avoid link failures or alarms like “unsupported transceiver” (Huawei CloudEngine and Cisco Catalyst series are examples).
- Module Type and Speed**
 - SFP (1G):** Common for gigabit Ethernet, compact, hot-swappable, suitable for high-density ports.
 - SFP+ (10G):** Supports 10 Gbps uplinks; ensure the port supports SFP+ speed.
 - QSFP/QSFP+ (40G) and QSFP28 (100G):** Used for high-speed uplinks in data centers.
 - XFP/XENPAK:** Older 10G modules, less common in modern deployments.
- Fiber Type and Distance**
 - Multi-Mode Fiber (MMF):** Short-range connections ($\leq 300\text{--}400\text{ m}$), use SR modules.
 - Single-Mode Fiber (SMF):** Long-distance links ($\geq 10\text{ km}$), use LR, ER, or ZR modules.
- Wavelength Matching** Both ends of the fiber link must use the same wavelength (e.g., 850 nm, 1310 nm, 1550 nm) to ensure proper signal transmission. Mismatched wavelengths can cause data loss.
- Port and Duplex Mode** Ensure the module matches the port type (SFP vs SFP+) and duplex mode (full vs half duplex) to avoid connectivity issues.
- Vendor and Testing** Third-party modules can work if tested for interoperability. Choose suppliers with rigorous testing systems for optical power, spectral performance, DDM, and connectivity to ensure reliable operation.
- Practical Steps**
 - Check your switch's Supported Transceiver List.
 - Determine the required speed (1G, 10G, 40G, 100G).
 - Identify the fiber type and distance for your link.
 - Match the wavelength and duplex mode.
 - Purchase from a reliable vendor with tested compatibility.

By following these guidelines, you can sel...

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Single-mode optical modules are used with single-mode fibers. Single-mode fibers support a wide band and large transmission capacity, and are used for long-distance transmission. Multimode optical

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Optical module

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Cisco SFP and SFP+ Transceiver Module Installation Notes

Use only Cisco SFP transceiver modules on your Cisco device. Each SFP transceiver module supports the Cisco Quality Identification (ID) feature which allows a Cisco switch or router to

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