

RIVO MULTITRADE OPTICAL SYSTEMS

10 Gigabit optical interface with gigabit optical module



Overview

Cisco 10 Gigabit Modules New optical transceivers enable cost-effective 10 Gigabit Ethernet LANs. Discover Cisco 10 Gigabit 10 Gigabit Optical Transceivers.

Key Takeaways

10 Gigabit Optical Modules (SFP+) enable high-speed 10GbE connectivity over fiber, while Gigabit interfaces provide 1GbE connections over copper or fiber. 10 Gigabit Optical Modules (SFP+)

SFP+ modules are small form-factor pluggable transceivers designed for 10 Gigabit Ethernet (10GbE) networks. They support both short-range (SR) and long-range (LR) fiber connections:

- 10GBASE-SR: Uses 850 nm lasers over multimode fiber (MMF), supporting distances up to 300 m on OM3 and 400 m on OM4 fiber .
- 10GBASE-LR: Uses 1310 nm lasers over single-mode fiber (SMF), supporting distances up to 10 km .



- **10GBASE-LRM:** Designed for legacy multimode fibers (OM1/OM2), supporting up to 220 m with mode-conditioning patch cords . SFP+ modules are hot-swappable, allowing installation or replacement without powering down the switch . They also support digital optical monitoring for diagnostics and interoperability with other 10GbE interfaces like XENPAK, X2, and XFP . Typical connectors include duplex LC UPC for fiber connections .

Gigabit Interfaces

Gigabit Ethernet (1GbE) interfaces operate at 1 Gbps and can use either copper (RJ-45) or fiber connections:

- **Copper (10/100/1000BASE-T):** Uses CAT5e/CAT6/CAT6A cables, supporting distances up to 100 meters.
 - **Fiber (1000BASE-SX/LX):** Uses multimode or single-mode fiber for longer distances, typically up to 550 m for SX and 10 km for LX. Gigabit interfaces are widely used for desktop connections, access switches, and uplinks where 10GbE is not required.
- | Key Differences | Feature | 10GbE SFP+ | 1GbE Interface | Speed | 10 Gbps | 1 Gbps | Media |
|--|----------------------------|---|---|---------------------|-------------------------------------|-------------|------------------------|
| Fiber (MMF/SMF), some 10GBASE-T copper | Copper (CAT5e/6/6A), Fiber | Distance | 26 m–10 km | depending on module | 100 m (copper), up to 10 km (fiber) | Form Factor | SFP+ small form factor |
| RJ-45 or SFP | Use Case | Data centers, high-speed uplinks, aggregation | End-user access, standard LAN connections | Deployment | Considerations | | |
- **Cost:** 10GbE modules and compatible switches are more expensive than 1GbE equipment.
 - **Power:** SFP+ modules consume more power than standard Gigabit ports.
 - **Interoperability:** Ensure modules are compatible with switch/vendor specifications; Cisco-certified modules provide guaranteed performance .
 - **Cabling:** Use appropriate fiber type (OM3/OM4 for SR, SMF for LR) and consider distance requirements. In summary, 10 Gigabit optical modules provide high-speed, low-latency connectivity for data-intensive applications, while Gigabit interfaces remain suitable for standard network access and lower-speed links. Choosing between them depends on bandwidth requirements, distance, and cost considerations.

Article Content

Cisco 10GBASE SFP+ Modules Data Sheet

The Cisco ® 10GBASE SFP+ modules (Figure 1) give you a wide variety of 10 Gigabit Ethernet connectivity options for

10G SFP+ Optical Transceiver Modules | AscentOptics

10G SFP+ Product Descriptions AscentOptics" 10G SFP+ modules offer customers a wide variety of 10 Gigabit Ethernet connectivity

Everything You Need to Know About a 10G Fiber Optic Network Card

A: A 10-gigabit network card, commonly referred to as a 10G fiber optic network card, is a type of network interface

SFP+ Optical Transceiver Modules (10G-SR/LR)

Code: SF-10GSFPPLCL-000 Genuine Amphenol 10GBASE-SR SFP+ Optical Transceiver Modules provide a high-density, high

Cisco 10GBASE-LR XENPAK Module

Cisco 10GBASE-LR XENPAK Module Cisco offers a range of Xenpack modular optics for 10 Gigabit Ethernet deployments. These

Cisco Transceiver Modules

Cisco Transceiver Modules - Learn product details such as features and benefits, as well as hardware and software specifications.

10 Gigabit Ethernet

A Foundry Networks router with 10 Gigabit Ethernet optical interfaces (XFP transceiver). The yellow cables are single-mode duplex

Cisco 10 Gigabit Modules

Table 2 shows the main optical characteristics for the Cisco optical XFP modules. A multirate module, the XFP module

10-Gigabit (10G) Ethernet Network Cables & Modules

Buy 10-Gigabit (10G) Ethernet Network Cables & Modules for your AI/datacenter network build-outs factory-direct from Amphenol,

Are 10G Optical Modules Compatible with Gigabit Optical Ports?

When it comes to compatibility between optical networking equipment and optical modules, it is critical to ensure a

10GE SFP+ Optical Modules

Single-fiber bidirectional (BIDI) optical modules must be used in pairs. For example, SFP-10G-BXU1 must be used with SFP-10G-BXD1.

10 Gbit/s SFP+ Optical Modules

10 Gbit/s SFP+ optical modules apply to 10 GE optical ports. The wavelength can be 850 nm, 1310 nm, or 1550 nm, and the

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