

Are 100Mbps and 1Gbps optical modules compatible



Overview

Our modules are rigorously tested to ensure full compatibility with major switch brands and flawless performance.

Key Takeaways

100Mbps and 1Gbps optical modules are distinguished by their Ethernet standards, data rates, labeling, and typical fiber applications. Key Differences

1. Data Rate and Standards

- 100Mbps modules follow Fast Ethernet standards (100Base-FX, FE) and are designed for 100 megabits per second transmission, suitable for industrial Ethernet and legacy networks .
- 1Gbps modules follow Gigabit Ethernet standards (1000Base-LX, 1000Base-SX, GE) and support 1 gigabit per second, providing higher throughput for enterprise networks and data centers .

- 100Mbps modules are often labeled as 155M, 100Base, or FE .

- 1Gbps modules are labeled as 1G, 1.25G, 1000Base, or GE .

- Color coding may indicate wavelength or fiber type, e.g., black for 850 nm multimode, blue for 1310 nm single-mode, and yellow for 1550 nm single-mode .

3. Fiber Type and Wavelength

- 100Mbps modules typically use multimode or single-mode fiber depending on distance requirements.
 - 1Gbps modules include 1000BASE-SX for short-range multimode fiber and 1000BASE-LX for long-range single-mode fiber, with LX modules suitable for distances up to 10 km or more . 4. Encapsulation and Form Factor
 - Both 100Mbps and 1Gbps modules commonly use the SFP (Small Form-factor Pluggable) package .
 - Higher-speed modules (10Gbps and above) use SFP+, SFP28, QSFP, or QSFP28, but for 100Mbps and 1Gbps, SFP remains standard . 5. Application Scenarios
 - 100Mbps modules are often used in industrial control systems, serial communication, and legacy Ethernet networks, where high throughput is unnecessary .
 - 1Gbps modules are used in enterprise networks, data centers, and high-speed backbone connections, supporting modern Gigabit Ethernet switches and routers . 6. Transceiver Components
 - Both types contain a laser diode transmitter and a photodiode receiver, but 1Gbps modules require higher-speed electronics to handle the increased data rate .
- Summary

In essence, 100Mbps optical modules are optimized for lower-speed, industrial, or legacy Ethernet applications, while 1Gbps optical modules are designed for high-speed Gigabit Ethernet, supporting longer distances and higher throughput. They are differentiated by standards, labeling, fiber type, wavelength, and application, even though both often share the SFP form factor.

Article Content

1Mbps Optical Transceiver Differences Compared with 100Mbps

Although both 1Mbps optical transceivers and 100Mbps optical transceivers belong to low-speed optical communication

Cisco Optics-to-Device Compatibility Matrix

Comprehensive compatibility information for Cisco optical transceivers and network devices Disclaimer: Cisco makes the data in this

100BASE FX SFP: Complete Guide to 100Mbps Fiber Transceivers

Upgrading to 1Gbps may require replacing both modules and switching hardware. In legacy industrial systems, upgrading to Gigabit

Complete Guide to Choosing the Right 100M Optical Transceiver

Our modules are rigorously tested to ensure full compatibility with major switch brands and flawless performance. Here

SFP 1G LX Transceiver Guide: Specs, Distance & Compatibility

SFP 1G LX provides reliable 1Gbps transmission up to 10km over single-mode fiber, offering a stable, low-power, and widely

Basic SFP Optical fiber questions

I am newbie to this optical fiber networking communication. Below are clarifications, #Whether 100 base Fx

SFP Compatibility Guide and How to Use a Compatible SFP Module?

Below are some guidelines to ensure the correct use of a compatible SFP module: Inspect your transceiver module and device port:

Complete Guide to Choosing the Right 100M Optical Transceiver

In the vast ecosystem of network infrastructure, the humble 100M optical transceiver (or 100M SFP module) remains a

Everything You Need to Know About Fortinet SFP Transceiver Modules

Discover everything about Fortinet SFP transceiver modules, including the FN-TRAN-SFP+SR 10GBASE-SR optical

100G QSFP28 vs SFP112: High-Speed Optical Modules Comparison

Compare 100G QSFP28 and SFP112 optical modules on speed, form factor, port density, compatibility, and power efficiency.

Media Converter

The SFP Mode converters with 2 x Standard Open SFP Slots is a type of optical fiber digital signal used in Single/multi-mode optical

ethernet

The question is how to choose a correct module. Datasheets for SFP modules show that data-wise laser diode and

Cisco Transceiver Modules

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

100M SFP vs 1G SFP vs 2.5G SFP

100M SFP optical modules follow the IEEE standard and are compatible with equipment from many different

Gigabit SFP Module: A Complete Guide to 1G SFP

A gigabit SFP module (1G SFP module) is a Small Form-factor Pluggable (SFP) transceiver designed to

1000BASE-T to 1000BASE-SX (SC) 10 km single-mode Media Converter

The D-Link DMC Media Converters support a large variety of optical fiber types including multi-mode, single-mode or single-strand

OM1 OM2 OM3 OM4 OM5 Multimode Fibers Explained

Multimode optical fiber plays a crucial role in modern networking. Among its types, OM1 to OM5 fibers differ

Small-Form Factor Pluggable (SFP) and Stacking Accessories

This article provides technical data on Fiber Transceivers and stacking accessories compatible with Meraki devices.

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