Price of optical module plugged into switch



Overview

When upgrading a core switch or expanding a high-density data center fabric, the cumulative cost of optical transceivers can quickly eclipse the capital expenditure (CapEx) of the routing hardware itself.

Key Takeaways

Optical module prices vary widely, typically ranging from $5 for basic 1G SFPs to several hundred dollars for high-speed 100G+ modules, depending on type, vendor, and reach.

Typical Price Ranges1

G SF

P Modules: Generic or third-party modules often cost $5–$25, while OEM-branded modules from Cisco, Juniper, or HPE can range $60–$120+ for industrial or extended temperature versions. 10G SFP+ Modules: Compatible 10G SR modules usually sell for tens of dollars, whereas OEM long-reach (LR, ER) modules can cost $100–$300+. 25G, 40G, 100G, and 400G Modules: Prices increase significantly with speed and distance.

For example, 100GBASE-SR4 or LR4 modules can range from $400 to $1,500+, depending on vendor and specifications.

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Next-

Generation 400G and 800G Modules: Emerging high-speed modules for data centers and hyperscale networks are more expensive due to advanced modulation, co-packaged optics, and silicon photonics integration, often exceeding $2,000–$5,000 per module.

Factors Affecting Price

Vendor and Brand: OEM-branded modules (Cisco, Juniper, Arista) are priced higher due to warranty, compatibility, and support, while third-party or compatible modules are cheaper but may have limited support. Form Factor: SFP, SFP+, QSFP, QSFP+, CFP, CFP2, and CFP4 modules differ in cost, with larger, higher-speed form factors generally more expensive. Distance and Wavelength: Short-reach (SR) modules are cheaper than long-reach (LR, ER) or DWDM modules, which require more precise lasers and optics.

Market Trends: Supply chain volatility, rising demand for 5G, AI/ML workloads, and hyperscale data center expansion influence pricing, especially for high-speed modules.

Practical Guidance

For enterprise short-reach links, compatible 1G–10G modules are cost-effective. For data center uplinks or long-haul connections, investing in OEM 25G–400G modules ensures reliability and interoperability. Always verify switch compatibility and consider total cost of ownership, including power consumption, lifecycle, and warranty.

In summary, optical module prices are highly variable, ranging from a few dollars for basic SFPs to several thousand dollars for advanced 400G–800G modules, with vendor, speed, reach, and technology being the primary cost drivers.

Article Content

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When using switches, we may encounter many confusions, such as what types of optical modules are needed for different models of Huawei switches, and how to resolve issues encountered

View the Optical Module Status on a Switch through the Command

Once the transceiver and fiber optic cable are plugged in properly in the switch optical module, you should be able to view the current information for the optical connection, which helps you manage

How To Choose Optical Modules For Servers

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Some customers are confused about this—they want to buy optical modules for servers, so why ask about network adapters? Below we will explain the reason. Those who are familiar with

SFP vs SFP+ vs SFP28 vs QSFP+ vs QSFP28 Compatibility Guide

The optical transceiver module is a small, hot-swappable network component that plays a crucial role in high-speed data communication. It facilitates converting electrical and optical signals,

How to Install and Remove Optical Modules Safely

Small Form-factor Pluggable modules (SFP module) are the workhorses of modern network connectivity, enabling flexible fiber optic or copper links between switches, routers, firewalls,

SFP LC Connector: Everything You Need to Know

A: SFP LC Connectors are fiber optic transceiver modules that are plugged into network devices such as switches and media converters. They are

Everything You Need to Know About Optical Modules

Optical modules are electronic devices used in communication systems to transmit optical signals. These modules convert electrical signals into optical

What Is an Optical Module

On an optical network, a sender needs to convert electrical signals into optical signals before sending them to a receiver, and the receiver needs to convert received optical signals into electrical signals.

How do you plug in fiber SFP□

To plug in a fiber SFP (Small Form-factor Pluggable) module, follow these steps: 1. Locate the SFP port on the device, such as a network switch, router, or media converter. 2. Remove the

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