

The most expensive high-speed optical module

Article Overview

High-speed optical modules range from tens of dollars for short-reach 100G modules to over \$130,000 for specialized long-haul 400G coherent modules, depending on speed, reach, and technology.

100G Optical Modules

The cost of 100G QSFP28 modules varies widely based on reach and technology. Short-reach SR/short-distance modules can cost \$35-\$250, while vendor-certified CWDM, LR, or FR modules typically range from \$200-\$1,000. High-end DWDM or coherent 100G modules for metro or long-haul applications can exceed \$2,000-\$20,000+. Prices are influenced by OEM vs third-party branding, warranty, and compatibility considerations .

400G Optical Modules

400G QSFP-DD modules also show significant price variation. Short-reach SR8 modules for in-rack connections are priced around \$1,400-\$1,800 from reputable third-party vendors. In contrast, coherent ZR+ modules for long-haul data center interconnects can exceed \$130,000. The final cost depends heavily on module type, transmission distance, and vendor .

800G Optical Modules

800G modules are the latest high-speed solutions, often used in AI and high-performance data centers. Costs are generally higher due to advanced engineering, materials, and testing requirements. For example, standard OSFP modules may cost \$1,300, while low-power optimized (LPO) variants can save \$500 upfront but still represent a substantial initial investment .

Factors Affecting Cost

- o Engineering and R&D: High-speed modules require complex chip design, photonic integration, and digital signal processing, which can account for 20-30% of total cost .
- o Materials: Lasers, modulators, photodetectors, and high-quality wafers are expensive and critical for performance .
- o Production and Testing: Labor, equipment, and reliability testing (temperature cycling, moisture resistance, shock) add to the final price .
- o Business Strategy: OEM pricing, volume discounts, and market positioning can significantly influence module cost .
- o Module Type and Reach: Short-reach modules are cheaper, while long-haul, coherent, or DWDM modules are premium-priced .



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Summary

High-speed optical module costs are highly variable. Entry-level 100G modules start around \$35, 400G short-reach modules around \$1,400, and specialized long-haul 400G or 100G coherent modules can exceed \$20,000-\$130,000. Costs are determined by speed, reach, technology, OEM vs third-party sourcing, and engineering complexity .

SR (Short Reach) modules are the most affordable because they use lower-power optics and multimode fiber. LR (Long Reach)

This article compares typical cost ranges across speeds and transceiver types, explains why prices vary,

Optical modules facilitate high-speed data transfer between remote locations, allowing real

This guide delivers clear, accurate pricing data. It breaks down the current costs for 400G and 800G modules,

Among these, the optical communication module market driven by Scale Out is emerging as the main battleground

Unprecedented Growth in High Speed Datacenter Optics in 2024 High speed datacom module shipments more than

This article explores MPS optical module solutions to meet the design requirements of high-speed optical communication as well as

They are widely used in data centers, telecommunications networks, and industrial communication systems.

Compare EML, VCSEL, and CW laser technologies in optical transceivers. Covers cost, reach, speed, the 2025 EML

Get the highest quality, performance-leading optical transceivers for any network architecture. Find the transceiver model to fit your

100G DWDM PAM4 optical modules are high-performance optical transceivers that utilize PAM4 and operate on

What is Optical Transceiver Modules/SFP? Optical Transceiver Modules/SFP, also called fiber optic

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transceiver or optical

· Fiber Optic SFP+ Modules: These can have much higher prices, especially for those supporting long-range

Optical transceivers have revolutionized data transmission, providing high-speed, long-distance, and secure data transmission

An optical module is a typically hot-pluggable optical transceiver used in high-bandwidth data communications applications. Optical

Why Optical Transceiver Manufacturers Listed Below are for SFP Price Comparison First,

Web: <https://www.in-au.co.za>

