

Approximate price of an optical module



Overview

QSFP-DD price guide with 400G/800G module costs, OEM vs third-party comparison, volume discounts, and 3-year TCO analysis for data center buyers.

Key Takeaways

Optical module prices vary widely, from around \$10 for basic 10G SFP modules to over \$130,000 for high-end 800G coherent modules, depending on speed, distance, and vendor. Price Ranges by Module Type 10G SFP Modules: Typically range from \$10 to \$300, depending on transmission distance, brand, and optical technology.

Short-range S

R modules are at the lower end, while long-range LR modules cost more due to single-mode optics and stricter tolerances. 400G QSFP-DD Modules: Entry-level SR8 modules for in-rack connections cost \$1,400–\$1,800 from reputable third-party vendors. DR4 and FR4 modules are moderately priced, while LR4 and ZR modules from OEMs can exceed \$10,000.

800G Modules: High-speed 800G modules, especially coherent ZR+ types for long-haul data center interconnects, can cost over \$130,000 from OEMs. Third-party options for shorter distances are significantly cheaper but still expensive due to advanced DSP chips and high-speed electronics.

Factors Affecting Optical Module Prices

Electronic Components: DSP chips, driver ICs, and TIAs are major cost contributors, especially in 400G and 800G modules.

DS

P chips alone can account for 25% or more of total module cost. Raw Materials: Lasers, silicon wafers, and photonic components are expensive and sourced from specialized suppliers.

R&

D and Design Complexity: High-speed modules require advanced design, simulation, and engineering talent, which can account for 20–30% of total cost. Transmission Distance and Technology: Longer distances and coherent optics increase cost due to stricter tolerances and higher performance requirements. Vendor Type: OEM modules are generally more expensive than third-party alternatives due to branding, support, and proprietary technology.

Market Dynamics: Supply chain disruptions, demand surges, and adoption of new standards (e.g., 400G, 800G) can temporarily increase prices.

Summary

Optical module pricing is highly variable and depends on speed, distance, technology, and vendor. For budgeting purposes: 10G modules: \$10–\$300 400G modules: \$1,400–\$10,000+ 800G modules: \$10,000–\$130,000+ Understanding these ranges and cost drivers helps in selecting the right module for your network while optimizing procurement costs.

Article Content

QSFP-DD Price Guide 2026: 400G/800G Costs & TCO Analysis

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Cost of optical module electronic chips | Weyland

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Optical Module: A Comprehensive Analysis from Source

Due to differences in demand, there can be significant price variations when acquiring chips among optical module companies. Some larger companies

Optical Module Package Market 2025

However, price sensitivity in developing markets often delays the adoption of premium optical solutions, and trade restrictions occasionally impact regional dynamics. South America In South America, the

The Most Comprehensive Guide Of Optical Modules

Explore the ultimate guide to optical modules. Learn types, functions, performance metrics & how to choose the right module for your fiber network.

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