How much does a low-temperature resistant optical module cost

Overview

Discover 100G QSFP28 module pricing. Learn key cost factors, considerations, and real examples to make informed purchasing decisions for your network.

Key Takeaways

Low-temperature resistant optical modules typically range from $60 for 1G SFPs to over $1,500 for high-speed 800G modules, depending on speed, brand, and customization. Price Ranges by Module Type1G SFP Modules: Standard modules cost around $5–$25 for generic units, while industrial or extended-temperature versions can range $60–$120 or more due to specialized components and testing. 10G SFP+ Modules: Prices typically range from $10 to $300, with higher costs for long-reach, industrial, or OEM-branded modules.

100G QSFP28 Modules: Costs vary widely depending on vendor, technology, and temperature rating. Standard modules may start in the low hundreds, while industrial-grade or extended-temperature modules can be significantly higher. 400G and 800G Modules: High-speed modules, especially those with extended temperature ranges, can cost $600–$1,900 per unit.

For example, 800G OSFP-FR4 modules with complex optics and long reach can reach $1,500–$1,900, while lower-cost 800G LPO modules are $700–$900.

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Factors Affecting Cost

Temperature Rating: Modules designed for low or extreme temperatures require additional testing, specialized materials, and engineering validation, which increases cost.

Brand and OE

M vs Third-Party: Premium brands like Cisco or Juniper charge higher prices due to rigorous quality control, warranties, and support infrastructure. Third-party or compatible modules can offer significant savings but may carry some risk in compatibility or lifespan. Speed and Reach: Higher-speed modules (100G, 400G, 800G) and longer-reach optics require more advanced components, driving up costs.

Volume and Procurement Strategy: Bulk purchases often qualify for discounts, while small orders or urgent procurement can increase per-unit cost. Customization: Special wavelengths, extended temperature ranges, or additional testing can add 15–30% to the base price.

Practical Considerations

Aftermarket vs OEM: Aftermarket modules can reduce upfront costs but require careful evaluation of certifications, warranties, and vendor reliability. Total Cost of Ownership: Consider not only purchase price but also maintenance, power consumption, and replacement costs over the module's lifecycle. In summary, low-temperature resistant optical modules are priced higher than standard modules, with costs influenced by speed, brand, temperature rating, and procurement volume.

For industrial or extended-temperature 10G–100G modules, expect $60–$500, while high-speed 400G–800G modules can exceed $1,500 per unit.

Article Content

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