

What types of optical modules are there

1310



Overview

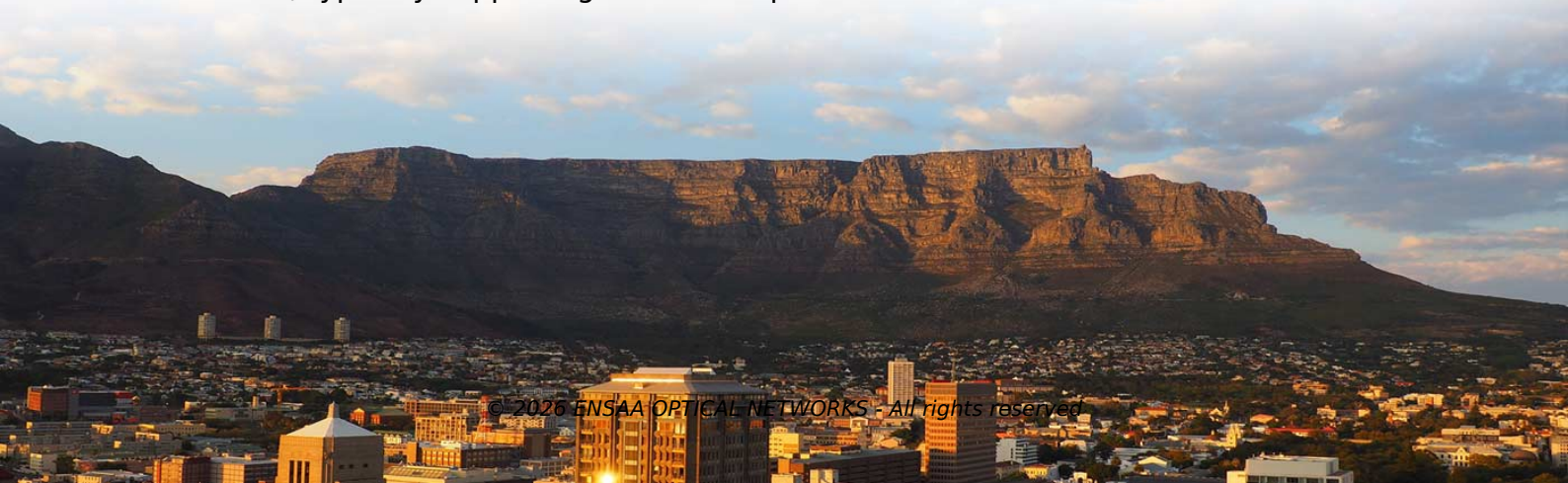
Explore the ultimate guide to optical modules. Learn types, functions, performance metrics & how to choose the right module for your fiber network.

Key Takeaways

1310 nm optical modules are widely available in SFP+, SFP28, and QSFP28 form factors, supporting data rates from 1G to 100G over single-mode fiber for medium-distance links. Overview 1310 nm optical modules operate in the O-band (1260-1360 nm), offering low dispersion, stable performance, and cost efficiency, making them ideal for data centers, enterprise backbones, campus networks, and metro access networks. They are typically used with single-mode fiber (SMF) to achieve longer transmission distances with minimal signal loss and distortion.

Common Types and Data Rates
SFP+ 10G Modules: Support 10 Gbps data rates, often with a reach of up to 10 km over SMF. Example: XG-SFP-LR-SM1310, compliant with IEEE 10GBASE-LR standards.
SFP28 25G Modules: Designed for high-speed campus and data center links, supporting 25 Gbps over medium distances.

QSFP28 100G Modules: Suitable for large-scale data center interconnects, providing 100 Gbps over single-mode fiber.
1G Modules: Available for legacy or lower-speed networks, typically supporting distances up to 10 km.



Key Features

Form Factors: SFP+, SFP28, QSFP28, compatible with switches, routers, and servers from vendors like Cisco, Juniper, Arista, and Huawei. **Transmission Distance:** Medium-range links, generally 10 km for standard modules; industrial-grade modules may support extended distances and wider temperature ranges (-40°C to 85°C),.

Industrial-

Grade Options: Designed for harsh environments with high EMI resistance and robust construction. **Standards Compliance:** IEEE 802.3ae, SFF-8431, SFP+ MSA, RoHS, ensuring interoperability and reliability.

Applications: Campus networks, data center interconnects, metropolitan area networks, and enterprise backbones. **Considerations When Choosing a Module**

Compatibility: Ensure the module matches your existing network equipment.

Data Rate and Reach: Select based on required speed and distance.

Environmental Requirements: For outdoor or industrial deployments, choose modules with extended temperature and EMI tolerance. **Optical Performance:** Check insertion loss, receiver sensitivity, and optical power margin for reliable operation. 1310 nm optical modules provide a flexible and reliable solution for medium-distance fiber optic communication, supporting a wide range of network speeds and applications while maintaining stable performance and cost efficiency.

Article Content

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.

Understanding 1310nm Fiber: A Comprehensive Guide

Explore the complexities of 1310nm fiber wavelengths in this comprehensive guide. Learn about fiber optics, optical transmission, and more.

SFP Wavelength Guide: 850nm vs. 1310nm vs. 1550nm

1310nm SFP singlemode modules provide a practical and reliable solution for 10-20 km transmission in campus and metro environments, offering low dispersion, manageable attenuation,

Single-Mode vs Multimode Fiber and 1300nm/1310nm SFP

Learn the differences between single-mode (SMF) and multimode fiber (MMF), understand 1300nm vs 1310nm SFP transceivers, and discover practical deployment scenarios for enterprise and data

Optical Module Guide: Demystifying Optical Modules and Their Uses

There are various types of optical modules, including SFP (Small Form-factor Pluggable), SFP+, QSFP (Quad Small Form-factor Pluggable), and CFP (C Form-factor Pluggable). Each type

Fiber Optic Wavelengths Explained: 850 vs 1310 vs 1550 nm

In practice, network designers often prefer 1310 nm for moderate distances and 1550 nm (or even C-band around 1530–1565 nm) for long-haul or wavelength-division multiplexed (WDM)

What Do 850nm, 1310nm and 1550nm Actually Mean in Optical

Learn what 850nm, 1310nm, and 1550nm mean in optical transceivers. Discover the differences between SX, LX, and ZX optics, transmission distances, fiber types, and how to choose

What Is an Optical Module and Its FAQs (V300)

To support transmission of optical signals in different optical bands, optical modules with different center wavelengths, such as 850 nm, 1310 nm, and 1550 nm, are provided.

Things You Need to Know About Optical Modules and Wavelengths

For example, the 850 nm wavelength is for short-range transmission, 1310 nm for short/medium-range transmission, and 1550 nm for long/ultra-long-range transmission. Depending

Optical Modules for Huawei S Series Switches

A switch must use optical or copper modules that have been certified for use on Huawei switches. Non-certified optical or copper modules cannot ensure transmission reliability and may affect service

EML vs VCSEL vs CW Laser: Optical Transceiver Guide (2025)

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

Method and system for selectable parallel optical fiber and wavelength ...

Methods and systems for selectable parallel optical fiber and WDM operation may include an optoelectronic transceiver integrated in a silicon photonics die. The optoelectronic

Pluggable Optical Modules: Transceivers for the Cisco ONS Family

Cisco offers a comprehensive range of pluggable optical modules for the Cisco ONS family of multiservice platforms. The wide variety of modules gives you flexible and cost-effective

Co-Packaged Optics (CPO) 2026: Complete Technical Guide

CPO switches are shipping in 2026. Learn how co-packaged optics work, which platforms are live, power savings vs pluggable, and what optics you still need.

Overview of 400G Optical Modules

The primary role of 400G optical modules is to increase data throughput, maximizing bandwidth and port density in data centers. Future trends for 400G optical modules include broad

Everything You Need to Know About 1310nm Optical Modules

1310nm optical module offers reliable, cost-effective data transmission for metro, campus, and enterprise networks. Compare performance, reach, and use cases.

Understanding 1310nm Fiber: A Comprehensive Guide

What makes 1310nm fiber unique among other fiber types? The 1310 nm fiber is unique because of its low dispersion and attenuation properties. At

Technical Characteristics Of 10G Optical Modules With 1310nm And

There are three wavelength windows for 10G optical module communication applications, namely the 850nm window, 1310nm window, and 1550nm window. The 850nm wavelength is applied

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This document is for preliminary research. Verify specifications against current standards, product documentation and project requirements.

