

Single-mode 10G optical module self-operated



Overview

10G Single-Mode Optical Module SFP+ transceiver that supports 10G connections up to 10 km using single-mode fiber with a duplex LC UPC connector. 10G CWDM.

Key Takeaways

Single-mode 10G SFP+ optical modules provide high-speed Ethernet connectivity over distances up to 10 km using single-mode fiber, typically with LC connectors and hot-pluggable design.

Key Features

Transmission Distance: Most single-mode 10G SFP+ modules support distances up to 10 km over single-mode fiber (SMF) using a nominal wavelength of 1310 nm for standard modules. Some extended-range modules, like Huawei 10G-ER, can reach 20–40 km depending on specifications and pairing. **Connector Type:** Modules commonly use Duplex LC or simplex LC UPC connectors for fiber connections.

Hot-

Pluggable: These modules are hot-swappable, allowing installation or replacement without powering down the network switch. **Power Consumption:** Typical 10G single-mode SFP+ modules consume less than 1 W, making them energy-efficient for high-density deployments. **Compatibility:** Modules are compatible with a wide range of switches and routers from vendors like Cisco, HP, Brocade, and Ubiquiti.

Types of Single-

Mode 10G Modules
Standard Duplex Modules (LR): Support 10 km over single-mode fiber, suitable for LAN and MAN networks. Operate at 1310 nm wavelength.

Bidirectional (BIDI) Modules: Use a single fiber for both transmit and receive, requiring paired modules with complementary wavelengths (e.g., 1270 nm and 1330 nm) to achieve full duplex communication.

Extended Range Modules (ER): Designed for longer distances, up to 40 km, but may require careful matching of wavelength and receiver sensitivity.

Practical Considerations

Fiber Type: Ensure the use of single-mode fiber (OS1/OS2) for optimal performance. Multimode fiber is not compatible with single-mode modules.
Distance Planning: Verify the module's maximum supported distance against your network layout to avoid signal degradation.

Vendor Compatibility: While many modules are multi-vendor compatible, some switches may require vendor-certified SFP+ modules for full functionality.

Cost-

Effectiveness: Standard 10 km single-mode modules provide a balance of performance and cost, while BIDI or ER modules are more specialized and may be more expensive.

Recommended Use Cases

Data Centers: High-speed uplinks between switches or racks.
Enterprise Networks: Long-distance connections between buildings or campuses.

IS

Ps: Fiber backbone links requiring reliable 10G connectivity. Single-mode 10G SFP+ modules are a reliable, high-performance solution for extending Ethernet networks over long distances, offering flexibility with duplex or bidirectional configurations and hot-swappable convenience for network maintenance and upgrades.

Article Content

10G CWDM Single-Mode Optical Module

SFP+ transceiver for CWDM that supports 10G connections up to 20 km using single-mode fiber with a duplex LC UPC connector.

optical transceiver sfp+ 10g single mode module 1310nm 10km lc

The 1310nm LC Interface 10G Singlemode Dual-fiber Optical Module is the workhorse of the modern network. It combines speed, distance, and reliability into a compact package.

Optical Transceiver SFP+ 10G Single-Mode Module 1310nm 10km LC

An SFP+ 10G single-mode module is a hot-pluggable optical transceiver that converts electrical signals from a switch or router into optical signals suitable for single-mode fiber transmission.

Single Mode 10G SFP+ Module: Price, Types & Buying Guide

Explore single mode 10G SFP+ modules, including LR, ER, and ZR types. Compare prices, distances, and compatibility to choose the right module.

10GE SFP+ Optical Modules

Single-fiber bidirectional (BiDi) optical modules must be used in pairs. For example, SFP-10G-BXU1 must be used with SFP-10G-BXD1.

10G SFP+ Optical Transceivers | Transceiver Module

FS 10GbE SFP+ module solutions provide a wide variety of 10 Gigabit Ethernet connectivity options for data centers, enterprise wiring closets, Internet Service

Comprehensive Guide to FS 10G BiDi SFP Modules

10G BiDi SFP+ modules utilize a unique optical mechanism that enables full-duplex data transmission over a single strand of single-mode fiber (SMF). This is achieved using two different

SFP+ Transceiver 10G Single LC Module

10Gtek's 10GSFP-BD-10-U/D (pair) is a pair of 10Gbps SFP+ BiDi transceivers supporting up to 10 km over single LC SMF fiber, following IEEE 802.3ae and

10G SFP+ LR, 1310nm, 10km, DDM, LC/UPC Duplex,

With this Mini-Gbic you can carry out installations up to 10km away using Single Mode optical fiber (SMF) using two fibers through fused cables or optical cords.

Arista Optics Modules and Cables

Overview Arista's Optical Modules and Cable portfolio offer a wide variety of high-density and low-power 800G (dual 400G), 400G, 200G, 100G, 50G, 40G, 25G, 10G, 1G, and 100M Ethernet connectivity

Active Optical Module Market Research Report 2034

Active Optical Module market valued at \$10.7 billion in 2025, projected to reach \$35.6 billion by 2034 at 14.2% CAGR, driven by data center expansion and 5G deployment.

A Comprehensive Guide to Choosing the Right FS 10G Optical Modules

FS 10G Optical Module Varieties FS (Fiberstore) is a company that provides various fiber optic components, including 10 Gigabit (10G) optical modules, which are essential for high-bandwidth

Ubiquiti 10 Gbps Single-Mode Bidirectional Optical Module (1-pair)

Single-mode, simplex, fiber transceiver module. The 10 Gbps Bidirectional Single-mode Optical Module is a simplex transceiver that delivers up to 10 Gbps speed over distances up to 10 kilometers.

XG-SFP-LR-SM1310 10GBASE-LR SFP+ 1310-nm 10-km DOM

The XG-SFP-LR-SM1310 is aligned to IEEE 10GBASE-LR optical specifications and supports a link length of up to 10 kilometers over a single-mode fiber (SMF) with an LC connector. It adopts the

10G Bidirectional Single-Mode Optical Module

SFP+ transceiver that supports 10G connections up to 10 km using single-mode fiber with a simplex LC UPC connector.

UniFi 10G Single-Mode Optical Module

SFP+ transceiver that supports 10G connections up to 10 km using single-mode fiber with a duplex LC UPC connector.

10G Optical Module Guide: Compare LRM, SR, LR, ER, ZR for the

10G Optical Module Guide: Compare LRM, SR, LR, ER, ZR for the Right Choice As 10G Ethernet continues to be widely deployed in data centers, enterprise networks, and telecom

Ubiquiti 10Gbps Single-Mode SFP+ Optical Module 2-Pack for Fiber ...

The 10 Gbps Single-Mode Optical Module, model UACC-OM-SM-10G-D-2, manufactured by Ubiquiti, is an advanced optical transceiver designed for high-speed data transmission over single-mode fiber

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

