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.

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Types of Single-

Mode 10G ModulesStandard 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.

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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.

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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 ...

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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.

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