10 Gigabit Single-Mode Dual-Core Fiber Optic



Overview

optical transceiver sfp+ 10g single mode module 1310nm 10km lcThe 1310nm LC Interface 10G Singlemode Dual-fiber Optical Module is the workhorse of the mode.

Key Takeaways

For a 10GbE single-mode dual-core fiber link, use one fiber for transmitting (TX) and the other for receiving (RX), cross-connected between devices, typically via SFP+ modules or media converters.

Connection Overview

A dual-core single-mode fiber uses two separate strands: one for TX and one for RX. Each end of the link must have the fibers cross-connected: TX on Device A → RX on Device BRX on Device A → TX on Device B This ensures proper signal flow and full-duplex 10GbE communication. The fiber ends are usually labeled TX and RX, and a duplex LC patch cord is commonly used for the connection.

Hardware ConsiderationsSFP+ Modules: Use 10GBASE-LR SFP+ modules for single-mode fiber. These support distances up to 10 km on standard SMF (G. 652) and plug directly into 10GbE switch ports or media converters.

Media Converters: If connecting copper Ethernet to fiber, a 10GbE media converter with dual SFP+ slots can be used. One slot handles the TX fiber, the other the RX fiber. Duplex vs BiDiDuplex (dual-core): Each fiber carries a single direction.

This is the standard method for 10GbE single-mode links and is simpler to implement.

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Bi

Di (single-core): Uses wavelength division multiplexing (WDM) to transmit and receive on a single fiber. Requires matched A/B transceivers with opposite wavelengths (e.g., 1310 nm TX / 1550 nm RX on one end, reversed on the other),.

Bi

Di is less common for standard dual-core setups but useful when fiber availability is limited.

Installation Tips

Check module compatibility: Ensure both ends use compatible SFP+ modules (e.g., 10GBASE-LR for SMF). Use proper patch cords: Duplex LC cables are standard for dual-core single-mode fiber. Cross-connect TX/RX: Never connect TX to TX or RX to RX; the link will fail.

Distance considerations: Single-mode fiber supports long distances (up to 10 km with 10GBASE-LR), so ensure the selected module matches the required span. Test the link: Use optical power meters or switch diagnostics to verify connectivity and signal quality. By following these steps, a 10GbE single-mode dual-core fiber link can be reliably established for data center, enterprise, or long-distance networking applications.

Article Content

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.

Cisco 10GBASE SFP+ Modules Data Sheet

It supports link lengths of up to about 80 kilometers on standard Single-Mode Fiber (SMF, G.652). This interface is not specified as part of the 10

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

10-Gigabit Single-Mode Optical Module Dual-Fiber

10-Gigabit Single-Mode Optical Module Dual-Fiber SFP+10g1310nm10km40 80km Osx001002, Find Details and Price about Core Gigabit 10km Optical Transmission from 10-Gigabit Single-Mode

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10 Gigabit Ethernet

Multiple vendors introduced single-strand, bi-directional 10 Gbit/s optics capable of a single-mode fiber connection functionally equivalent to 10GBASE-LR or -ER, but

10G SFP+ Dual Fiber 1310nm 20km Single Mode Transceiver -

10G SFP+ Dual Fiber 1310nm 20km Module is a high-performance, cost-effective optical transceiver designed for 10-Gigabit Ethernet applications. Operating at a 1310nm wavelength, this SFP+ module

10Km SFP+ Optical Module

This product need to use in pair and match up with fiber converter and optical Ethernet switch with SFP slot, it can be used in Ethernet, telecom and optical

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.

H!Fiber 10G Single Mode SFP+ LC Module, 10GBase

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How Far Can Multimode Fiber Optic Cables Transmit?

Fiber optic technology is the backbone of modern high-speed communication networks, enabling the transmission of data over vast distances

Cisco 10GBASE SFP+ Modules Data Sheet

The Cisco® 10GBASE SFP+ modules (Figure 1) give you a wide variety of 10 Gigabit Ethernet connectivity options for data center, enterprise

Fibwell ST Fiber Optic Adapter Coupler Flange

Fibwell ST fiber optic adapters feature a low 0.2dB attenuation value to ensure signal integrity in radio, television network, and data testing environments.

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100 Gigabit Ethernet

100 Gigabit Ethernet 40 Gigabit Ethernet (40GbE) and 100 Gigabit Ethernet (100GbE) are groups of computer networking technologies for transmitting Ethernet frames at rates of 40 and 100 gigabits

What Is Fiber Optics? Definition from SearchNetworking

Learn how fiber optics works and why fiber is a common alternative to copper cabling. Also explore the advantages and disadvantages of optical fiber.

7 Best Fiber Optic LAN Cable | Stop Losing Signal at Distance

After sifting through armored sheathing data, insertion loss specs, and hundreds of verified buyer accounts, this guide narrows down the best fiber optic lan cable for runs that demand reliability,

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