Are there 10 Gigabit single-mode optical modules available



Overview

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

Key Takeaways

Yes, 10 Gigabit single-mode optical modules are available, supporting distances up to 10 km and including both standard duplex and BiDi (single-fiber) options.

Standard Single-

Mode SFP+ Modules10GBASE-LR SFP+ modules are designed for single-mode fiber (SMF) and can support link distances up to 10 km using duplex LC connectors. These modules are compatible with major brands like Cisco, HP, and Brocade, and operate at high speeds up to 10. 31 Gbps while maintaining low power consumption.

They are suitable for both LAN and MAN networks, providing reliable long-distance connectivity over single-mode fiber.

Bi

Di (Bidirectional) Single-Mode Modules10G BiDi SFP+ modules allow full-duplex communication over a single fiber strand using Wavelength Division Multiplexing (WDM). This technology uses two different wavelengths to separate transmit and receive signals, effectively halving fiber usage while maintaining 10G speeds.

Bi

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Di modules typically support distances up to 10 km, integrate DFB lasers and PIN photodiodes, and are hot-swappable and standards-compliant with SFP+ MSA, CPRI, and eCPRI protocols. They are ideal for fiber-constrained environments or high-density deployments.

Key Features

Speed: Up to 10–11. 3 GbpsDistance: Up to 10 km on single-mode fiberConnector Type: Duplex LC for standard modules, simplex LC for BiDi modulesPower Consumption: Typically ≤1 WCompatibility: Works with a wide range of switches and NICs from major vendorsDeployment Benefits: BiDi modules reduce fiber usage, simplify cabling, and lower installation costs SummaryWhether you need traditional duplex 10G single-mode modules for standard long-distance links or BiDi modules for single-fiber full-duplex applications, there are multiple options available that support 10G speeds over single-mode fiber up to 10 km. These modules are widely used in enterprise, data center, and telecom networks to optimize fiber infrastructure and maintain high-speed connectivity.

Article Content

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

Cisco 10GBASE SFP+ Modules Data Sheet

The Cisco SFP-10G-LR10-I supports a link length of 10 kilometers on standard Single-Mode Fiber (SMF, G.652). The SFP-10G-LR10-I is for industrial

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.

Guide to 10G BiDi SFP+ Optical Transceivers

Our 10G BiDi SFP+ Optical Transceivers Modules deliver full 10 Gb/s over a single strand of single-mode fiber, halving fiber count and simplifying cable management.

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.

10G SFP+ Optical Transceivers | Transceiver Module

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FS 10GbE SFP+ module solutions provide a wide variety of 10 Gigabit Ethernet connectivity options for data centers, enterprise wiring closets, Internet Service Providers (ISPs) applications. Click to get

SFP+ Single Mode LC Module (10km)

Each single mode 10G SFP+ transceiver is equipped with a duplex LC fiber connection interface, and supports high-speed data rates up to 10.31Gbps. All TRENDnet 10G SFP+ fiber modules support

Intellinet 10 Gigabit Fiber SFP + (LC) Single-Mode

The Intellinet 10 Gigabit Fiber SFP Optical Transceiver Module (model 507479) is fully hot-pluggable, and that allows you to install the module

SFP+ BiDi 10G Guide: Single Fiber 10G Optical Transceivers

SFP+ BiDi 10G is a 10-gigabit optical transceiver technology designed to transmit and receive data over a single strand of single-mode fiber, making it an efficient solution for modern fiber-constrained

10GB SFP Module Guide: Types, Specs, and How to Choose

Learn everything about 10GB SFP modules, including types, specifications, compatibility, and how to choose the right 10G SFP+ transceiver for your network.

SFP+ Optical Transceiver Modules (10G-SR/LR)

Amphenol SFP Optical Modules • SFP+ Optical Modules from Cables on Demand are Now Available in both Short Range (SR) Multimode and Long Range (LR)

10G Single-Mode/10KM Fiber SFP+ Module

The 2A-142G 10G Single-Mode/10KM Fiber SFP+ Module is designed for use in 10GbE Ethernet environment that allows you to connect a single-mode Gigabit Ethernet network cable to a network

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

10GBase-LR SFP+: 10 Gigabit Ethernet Single Mode SFP+ Module, 10 Gb/s, 1310nm wavelength, Duplex Dual LC, SMF, link single-mode (OS2/OS3) LC/UPC fiber cable up to 10km (6.2

Introduction of 10G SFP+ Optical Modules

10G SFP+ Optical Module is a type of SFP+ transceiver that supports 10 Gigabit per second (10Gbps) data rates and is an enhanced version of the standard SFP (Small Form-factor

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

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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

The Complete Guide to the Best Choice of 10G SFP+ Optical Modules

The Complete Guide to the Best Choice of 10G SFP+ Optical Modules 10G SFP+ Function Introduction 10G SFP+ (Small Form-Factor Pluggable Plus) optical modules are essential components in modern

10 Gigabit Fiber SFP+ Optical Transceiver Module

10 Gigabit Connectivity Intellinet Network Solutions 10GBase-LR Fiber SFP+ Optical Transceiver Module, model 507479, is the right choice when it comes to connecting two buildings at 10 GbE

Single-mode Fiber

SingleMode Fiber There are four different types of single-mode fiber in popular use today (as of the writing of this paper, May 2002). They are summarized in Table 3. The ITU-T Series G.652

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