Fiber Optic Port Module Single Fiber



Overview

This data sheet describes the benefits, specifications, and ordering information for the Cisco SFP Modules for Gigabit Ethernet Applications.

Key Takeaways

A single fiber optic port module, also known as a BiDi SFP, enables bidirectional data transmission over a single optical fiber using different wavelengths.

Overview

A single fiber optic port module is a type of Small Form-factor Pluggable (SFP) transceiver designed to transmit and receive data over one strand of single-mode fiber instead of the traditional two fibers—one for transmitting (TX) and one for receiving (RX) data. This module is commonly referred to as a BiDi (bidirectional) SFP because it allows full-duplex communication on a single fiber by using wavelength division multiplexing (WDM) technology.

How It Works

The module operates by assigning different wavelengths to each direction of data flow. For example, one module may transmit at 1310 nm and receive at 1550 nm, while the corresponding module at the other end uses the opposite configuration (TX1550/RX1310). This allows simultaneous sending and receiving of optical signals on the same fiber strand.

The module typically has one port, and the wavelength filtering inside the module separates the incoming and outgoing signals.

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Advantages

Fiber Conservation: Reduces fiber usage by half compared to dual-fiber modules, which is especially valuable in environments with limited fiber infrastructure. Cost Efficiency: Although the module itself may be slightly more expensive, it lowers overall deployment costs by reducing the need for additional fiber cabling. Simplified Network Expansion: Easier to upgrade or expand networks without laying new fiber, making it ideal for metropolitan area networks (MANs), telecom access networks, and enterprise campus links.

Applications

Single fiber optic port modules are widely used in scenarios where fiber resources are limited or expensive, or where network designers want to maximize the efficiency of existing fiber infrastructure. They are compatible with standard SFP ports on switches, routers, and other networking devices, allowing flexible deployment without replacing hardware.

Summary

In essence, a single fiber optic port module is a compact, hot-swappable transceiver that enables bidirectional communication over a single fiber using WDM. It provides a practical, cost-effective solution for conserving fiber, simplifying network design, and maintaining high-speed, reliable optical links.

Article Content

Cisco SFP Modules for Gigabit Ethernet Applications

This data sheet describes the benefits, specifications, and ordering information for the Cisco SFP Modules for Gigabit Ethernet Applications.

Small Form-factor Pluggable

OverviewQSFPSFP typesApplicationsStandardizationMechanical dimensionsDigital diagnostics monitoring

Quad Small Form-factor Pluggable (QSFP) transceivers are available with a variety of transmitter and receiver types, allowing users to select the appropriate transceiver for each link to provide the required optical reach over multi-mode or single-mode fiber. 4 Gbit/s The original QSFP document specified four channels carrying Gigabit Ethernet, 4GFC (FiberChannel), or DDR InfiniBand. 40 Gbit/s (QSFP+) QSFP+ is a

What Is A Single-Fiber BiDi Transceiver?--ETU-LINK

Single fiber module also called BiDi transceiver or WDM module. It uses WDM technology to realize the bidirectional transmission of optical signals on one optical fiber.

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The Ultimate Guide to SFP Modules (2026): Types,

Confused by SFP vs SFP+? Read the definitive 2026 guide on SFP modules. We explain Single Mode vs Multimode, DDM diagnostics, and how to choose the

SFP Module Buying Guide: How to Choose the Right

SFP modules (Small Form-factor Pluggable) are the standard interface for connecting fiber optic or copper cables to network switches, routers,

Amazon : Single Mode Sfp

Discover high-performance single mode SFP modules for your network. Compatible with major brands like Cisco, Ubiquiti, and more.

Selecting the Right SFP Module for Single-Mode and Multimode Fiber

Learn how to select the right SFP module for single-mode and multimode fiber by understanding wavelength, distance, compatibility, and industrial network requirements.

Understanding BIDI SFP Optical Transceiver Modules

Different optical signals are transmitted and received within a single fiber; therefore, BIDI optical modules must be used in pairs. Visually, a BIDI

Fiber Modules

SFP modules support very low EMI and excellent ESD protection. Featuring low power consumption, these fiber modules are ideal for enterprise LAN networks and other optical links.

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Cisco Compatible SFP Transceiver Fiber Optic Equipment 1.25G

Cisco Compatible SFP Transceiver Fiber Optic Equipment 1.25G Gigabit BiDi Single Fiber 20KM SC Port Optical Module for Switch

Berns gigabit sfp transceiver ⚡ Lc photoelectric conversion artifact ...

Last month, i helped the school''s it center upgrade their surveillance network, and i almost cried from suffocation in the electrical well.——the three old switches all have rj45 ports, while

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For network administrators stuck with fiber distance limitations, geeks toiling until 3 am with self-built nas setups, and it pros constantly wrestling with loose ports due to repeatedly plugging

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

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