

Namibian Single-Fiber Bidirectional SFP



AI Overview

Single-Fiber Bidirectional (BiDi) SFP transceivers enable full-duplex communication over a single optical fiber, reducing fiber usage by up to 50% while supporting high-speed data transmission.

Overview A BiDi SFP is a compact optical transceiver that allows simultaneous sending and receiving of data over a single fiber strand using Wavelength Division Multiplexing (WDM). Unlike standard SFP modules that require two fibers—one for transmitting (TX) and one for receiving (RX)—BiDi modules transmit and receive on different wavelengths, typically 1310 nm for TX and 1490–1550 nm for RX, depending on the application. This makes them ideal for environments where fiber availability is limited or costly.

Key Advantages

- Fiber Efficiency:** Reduces fiber usage by 50%, which is particularly beneficial in regions with limited fiber infrastructure, such as Namibia.
- Cost Savings:** Fewer fibers mean lower material, installation, and maintenance costs.
- Simplified Network Design:** Reduces cabling complexity and potential failure points, enabling faster deployment and easier network upgrades.
- High Performance:** Supports data rates up to 4G and distances up to 160 km, depending on the module and fiber type.

Technical Details

Operation: Uses WDM to separate transmit and receive wavelengths within a single fiber. An internal filter or multiplexer/demultiplexer ensures optical isolation to prevent crosstalk.

Compatibility: BiDi SFPs are compliant with the SFP Multi-Source Agreement (MSA), making them compatible with most switches, routers, and media converters that support SFP ports.

Wavelength Pairs: Common pairs include 1310/1490 nm for short to medium distances (10–40 km) and 1490/1550 nm for long-haul applications (80–160 km).

Applications in Namibia In Namibia, where fiber infrastructure may be sparse or expensive to deploy, single-fiber BiDi SFPs are particularly useful for:

- Campus networks connecting multiple buildings with limited fiber availability.
- Metro ring networks where fiber leasing or installation costs are high.

Article Content

The Complete Guide to BiDi Transceiver

What Is BiDi Transceiver? BiDi transceivers have become synonymous with reliable and high-performance networking, which can achieve

SFP28 A 25 Gbps small form-factor hot-pluggable optical module ...

BiDi is a single-fiber bidirectional optical module that uses two different wavelengths (e.g., 1270nm/1330nm) on the same fiber to achieve bidirectional transmission to save fiber resources,

What Is a Single Fiber SFP? A Complete Guide for Beginners

A single fiber SFP, also known as a BiDi SFP, is designed precisely for this purpose—enabling bidirectional data transmission over a single strand of optical fiber.

SFP Transceivers | 1G, CWDM, DWDM, BiDi | EDGE

Single-fiber bidirectional Gigabit SFP modules with SC connector interface for legacy equipment compatibility. Offered in matched wavelength pairs covering

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+ Transceiver CBO SFP-10G-BX-U 10G | AiO.lv

CBO SFP-10G-BX-U is an SFP+ transceiver module supporting 10 Gbps transmission at 1310 nm wavelength. Designed for single-mode, bidirectional fiber links, it enables compact 10G connectivity

Bidirectional SFP Selection Guide for Single-Fiber Links

Single-fiber communication has become increasingly common in environments such as campus networks, metropolitan access networks, and building-to-building connections. In these scenarios,

Unlocking the Power of BiDi SFP Modules:

Summary: This Fiber Optics Magazine online article explains what BiDi SFP modules are and how they can transform single-fiber networks. The

What Is a Single Fiber SFP? A Complete Guide for Beginners

Learn what a single fiber SFP is, how it works, key differences from dual fiber SFPs, common applications, and how to choose the right BiDi SFP.

Alternatives and similar models for SFP+ 10G Transceiver CBO SFP

Summary description: CBO SFP-10G-BX-D is an SFP+ 10G fiber optic transceiver designed for single-channel 10 Gigabit Ethernet links. It provides a compact hot-pluggable interface for fiber connections

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

What is the Difference Between SFP and BiDi SFP?

Compare SFP vs BiDi SFP: key differences, fiber requirements, compatibility, and best use cases to help you choose the right SFP module for

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

When planning a fiber optic network, one key decision is choosing between single-fiber (BiDi) and dual-fiber optical transceivers. This guide from ETU-Link explains

Things You Should Know About BiDi SFP Modules

Thanks to BiDi SFP, which allows a bi-directional communication on a single fiber by using wavelength division multiplexing (WDM), the connection

Cisco 10GBASE SFP+ Modules Data Sheet

Cisco SFP-10G-BX40D-I and SFP-10G-BX40U-I (for 40Km single-fiber bidirectional applications) The Cisco SFP-10G-BX40D-I and SFP-10G-BX40U-I

What is the Difference Between SFP and BiDi SFP?

BiDi (Bidirectional) SFP modules solve a critical challenge: fiber scarcity. They achieve full-duplex communication using just one single fiber

Comprehensive Guide to FS 10G BiDi SFP Modules

FS 10G BiDi SFP+ modules are a powerful tool for network engineers seeking to boost bandwidth without doubling fiber investment. With their compact form factor, reduced power draw,

SFP Optical Transceivers: How Pluggable Optics Are Reshaping

This technology effectively doubles the capacity of existing fiber plant, making it invaluable for ISPs expanding their subscriber base without the cost of re-cabling. Weunion 's BiDi SFP portfolio

Small Form-factor Pluggable

Based on LX but engineered to work with a multi-mode fiber using a standard multi-mode patch cable rather than a mode-conditioning cable commonly used to

BiDirectional Single mode fiber SFP

I have been trying to track down a pair of SFP's to run bi-directionally over a single strand of single mode fiber. I found this model MFEBX1 that will TX at 1310nm and RX at 1550nm, but I

The Essential Guide to BiDi Transceivers: Everything

BiDi transceiver, a compact optical transceiver with WDM (wavelength division multiplexing) technology and SFP multi-source protocol

Cisco 1G SFP Transceiver Modules - Network Warehouse

The Cisco Small Form-Factor Pluggable 1G (Gigabit) SFP transceiver module is an industry-standard component used to connect switches and routers to the network.

Comprehensive Guide to FS 10G BiDi SFP Modules

Enter the 10G BiDi (bidirectional) SFP+ module —an elegant solution that enables full-duplex communication over a single fiber strand using wavelength division multiplexing (WDM). FS

What are BiDirectional SFP Modules and How Do They

What is a BiDirectional SFP Module? Bidirectional (BiDi) transmission involves using a single fiber core rather than the two used in traditional SFP modules. BiDi SFP

Bidirectional or BiDi Transceivers Explained

Bidirectional (BiDi) transceivers are SFP transceivers that are able to send and receive data on the same fiber. Without BiDi, data can only travel in one direction on a single fiber, meaning each

12G-SDI over Fiber Transceiver, Bi-Directional 12G-SDI

Support SMPTE 2082 / 2081 / 424M / 292M / 259M compliant Automatic detection of 12G, 6G, 3G, 1.5G, 270M SDI data rates Support Video Pathological Patterns for 12G/6G/3G/HD/SD-SDI Support SDI

Bidirectional SFP Modules/Transceivers

Versitron offers single-mode and multimode Bidirectional SFP Modules suitable for point-to-point networking, metro access ring, PON, and FDDI. Get IEEE

2025 SFP vs. BiDi SFP: Key Differences and

Two commonly used transceivers are the Small Form-Factor Pluggable (SFP) and Bidirectional SFP (BiDi SFP). Though both serve similar

BiDi SFP: The Complete Guide to Bidirectional SFP Transceivers and ...

BiDi SFP (Bidirectional Small Form-Factor Pluggable) transceivers have emerged as a powerful solution, enabling full-duplex communication over a single optical fiber. By using

The Comprehensive Guide to SFP vs. BiDi SFP in

BiDi SFP: Maximizing Efficiency and Capacity Bidirectional SFP technology stands out as a game-changer, offering the ability to transmit data in

Contact Us

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