

Types of 10 Gigabit Single-Fiber Bidirectional Optical Modules



AI Overview

A 10G BiDi SFP+ module transmits and receives 10 Gigabit Ethernet over a single fiber using two wavelengths, typically with distances up to 60 km depending on the model. Key Specifications

Transmission and Reception: BiDi modules use bidirectional communication over a single fiber strand, employing two different wavelengths—one for transmitting (Tx) and one for receiving (Rx). For example, a common configuration is Tx at 1270 nm and Rx at 1330 nm, with the opposite module using the reverse pairing to complete the link.

Data Rate: Supports 10 Gbps Ethernet over single-mode fiber.

Distance: Typical modules support distances of 10 km, 20 km, 40 km, and up to 60 km, depending on the specific model and fiber quality.

Laser Type: Uses Distributed Feedback (DFB) lasers, which provide stable wavelength output and high performance over long distances.

Power Levels: Transmit power (Tx): ranges from -1 dBm to 5 dBm depending on the module and distance. Receiver sensitivity (Rx): typically ≤ -14.4 dBm to ≤ -20 dBm, ensuring reliable detection of incoming signals.

Connector Type: Simplex LC UPC connector is standard, allowing single-fiber deployment and reducing cabling complexity compared to duplex SFP+ modules.

Module Pairing: BiDi modules must be deployed in matched pairs with complementary wavelengths (e.g., SFP-10G-BXD1 with SFP-10G-BXU1) to ensure proper bidirectional communication.

Fiber Savings and Deployment Benefits: Reduces fiber usage by up to 50% compared to traditional duplex SFP+ modules. Simplifies cabling and management in fiber-constrained environments. Cost-effective for data centers, metro networks, and enterprise backbones.

Compatibility Considerations: Ensure that the BiDi module is compatible with the fiber type (single-mode) and that the paired module uses the correct complementary wavelength. Mismatched modul...

Article Content

Ubiquiti Compatible XGSPON ONU SFP+ 1270nm-TX/1577nm-RX

The XGS-SFP-ONT-MAC-I is an SFP+ transceiver module engineered for 10-Gigabit capable symmetric passive optical network (XGS-PON) systems. It utilizes bidirectional transmission over a single-mode

XFP transceiver

XFP modules use an LC fiber connector type to achieve higher density. Principal applications include 10 Gigabit Ethernet, 10 Gbit/s Fibre Channel, synchronous

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

This guide provides a clear, product-focused overview of SFP+ BiDi 10G, explaining how the technology works, key specifications, module types, compatibility considerations, and real-world use cases.

Pluggable Optical Modules: Transceivers for the Cisco

Cisco offers a comprehensive range of pluggable optical modules for the Cisco ONS family of multiservice platforms. The wide variety of modules

10G BiDi SFP+ Modules: A Guide to Single-Fiber 10G

Explore how 10G BiDi SFP+ modules enable high-speed, bidirectional data over a single fiber, cutting costs, saving fiber, and simplifying network deployment.

Cisco 25GBASE SFP28 Modules Data Sheet

The Cisco 25GBASE SFP28 (Small Form-Factor Pluggable) portfolio offers customers a wide variety of high-density and low-power 25 Gigabit

Bidirectional SFP Modules/Transceivers

We manufacture a range of bidirectional SFP transceivers for applications supporting data transfer rates of 10/100/1000Mbps, 100Mbps, 1000Mbps, and

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

CBO SFP-10G-BX-D is an SFP+ fiber optic transceiver module for 10 Gigabit Ethernet. Designed for single-mode bidirectional (BX) links, it enables 10G data transmission over a single fiber using

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.

The Ultimate Guide to ZTE SFP Module Distance and Wavelength

For single-fiber bidirectional (BiDi) transmission, the 1000BASE-BX standard is used, utilizing different wavelengths for TX and RX. The SFP-SDB-GE-S10K uses 1490nm Tx/1310nm Rx, and its

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

7 Best Fiber Optic ONT | Don't Buy Until You Read This

How To Choose The Best Fiber Optic ONT The right converter for your network comes down to matching three things: the fiber type you already own or plan to bury, the SFP transceiver

Gigabit Ethernet

Optical fiber transceivers are most often implemented as user-swappable modules in SFP form or GBIC on older devices. IEEE 802.3ab, which defines the widely

Guide to 10G BiDi SFP+ Optical Transceivers

In this guide, we dive into Fibrecross's portfolio of 10G SFP+ Optical Transceivers, explain how BiDi optics work, compare module options, and share best practices

10G Bidi SFP+ Modules Selection Guide

Choose the right 10G Bidi SFP+ Modules by checking compatibility, distance, wavelength pairing, and reliability for optimal network performance.

How to Choose a 10G SFP+ Optical Module

This series includes different types such as SFP+ and XFP modules and supports both single-mode and multi-mode transmission, ensuring flexibility and adaptability in network connections.

SFP Optical Transceiver | SFP Optical Module | Perle

Perle SFP Optical Transceivers are hot-swappable, compact media connectors that provide instant fiber connectivity for your networking gear. They are a cost

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 wiring closet, and service provider transport applications.

CBO E1MG-BXD-BO fiber SFP 1000 Mbit/s LC BX-D | AiO.lv

CBO E1MG-BXD-BO is a fiber optic SFP transceiver supporting 1000 Mbit/s data rate with LC connector and BX-D (bidirectional) operation. Designed for single-fiber links up to 10,000 m, it enables long

XGSPON ONU SFP+ 1270nm-TX/1577nm-RX 9.953G-TX/9.953G-RX

Overview The XGS-SFP-ONT-MAC-I is a high-performance optical transceiver module designed for 10-Gigabit-capable passive optical network (XGS-PON) deployments. It functions as an integrated

Ethernet Technology Overview: IEEE 802.3 Standards

☐☐ Ethernet Technology – Quick Notes from My Study Ethernet, standardized under IEEE 802.3 (1983), is the backbone of modern networking. Here's a crisp overview: ✂
Types of Ethernet 10 ...

Secure & Reliable Fiber Optic Connectivity Solutions

Versiton specializes in designing and manufacturing copper-to-fiber connectivity solutions tailored for data, voice, and video applications across diverse

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,

Contact Us

For more information, pricing, or custom solutions, please contact us:

Website: <https://shangases.co.za>

Email: ekomedsolar@gmail.com

Phone: +86 13816583346

Address: No. 26 Heshun Middle Road, Economic Development Zone, Hai'an City, Jiangsu Province, China

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