

Dual-fiber optical modules using only a single port



Article Overview

Dual-fiber optical modules typically require two fibers, but single-fiber BiDi modules achieve bidirectional communication over a single port using wavelength-division multiplexing (WDM).

Understanding Single-Fiber (BiDi) Modules

Single-fiber modules, also called BiDi transceivers, use one optical fiber for both transmitting and receiving signals by employing WDM technology. Each module transmits on one wavelength (e.g., 1310nm) and receives on a complementary wavelength (e.g., 1550nm). To function, BiDi modules must be paired with a corresponding module at the other end that has complementary wavelengths (e.g., TX1310/RX1550 paired with TX1550/RX1310). This setup allows bidirectional communication over a single fiber, saving fiber resources and reducing cabling costs, which is particularly useful in environments with limited fiber availability.

Dual-Fiber Modules

In contrast, dual-fiber optical modules have two ports: one for transmitting (TX) and one for receiving (RX). Each fiber carries signals in a single direction, so a standard link requires two fibers. Dual-fiber modules are easier to deploy because they do not require wavelength pairing and any two compatible modules can be connected directly. They are generally less expensive per unit than BiDi modules but consume more fiber

Article Content

Understanding Fiber SFP, Single Fiber SFP, and Dual Fiber SFP

These modules are designed to support fiber optic connections, allowing switches, routers, and other networking devices to

Dual strand to single strand passive fiber converter for 1310nm ...

ROBOfiber provides a passive 100G dual-port to single-port converter for bidirectional transmission of commonly used 100G LR4/

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

Q: Can I plug an SFP+ (10G) module into a standard SFP (1G) port? A: Generally, no. SFP+ modules typically cannot negotiate

What is the difference between single mode single fiber and dual fiber ...

Choosing between Single Mode Single Fiber and Dual Fiber depends on the specific requirements of a communication system,

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

This approach not only conserves valuable fiber infrastructure but also lowers deployment costs and simplifies network expansion. In

Difference Between Single vs Dual Fiber Optical Transceivers

Other Considerations: Power Consumption: Single fiber modules might have slightly higher power consumption due to WDM. Future

What is the difference between single fiber and dual fiber optical ...

In this issue, ETU-LINK will introduce what is a single fiber optical module and a dual fiber optical module, and what are

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

It uses WDM technology to realize the bidirectional transmission of optical signals on one optical fiber. BiDi module only has 1 port,

Single vs Dual Fiber Media Converters (2025): A/B Pairing and WDM

But one topic causes constant confusion: single-fiber vs dual-fiber designs. Should you use a single strand (BiDi) or two strands? Do

Single-mode optical fiber

In fiber-optic communication, a single-mode optical fiber, also known as fundamental- or mono-mode, is an optical fiber designed

The difference between single and dual fiber optical transceiver

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

Differences Between Dual Fiber SFP and Simplex SFP Modules

One is transmitting port, and the other one is receiving port. Both transmitting and receiving need one optical fiber to connect.

Multi-mode optical fiber

Multi-mode optical fiber is a type of optical fiber mostly used for communication over short distances, such as within a building or on a

Single-fiber Transceiver & Dual-fiber Transceiver

Single-fiber optical modules use only one optical fiber for bidirectional transmission, which has space advantages. The dual-fiber

Differences Between Dual Fiber SFP and Simplex SFP Modules

Both transmitting and receiving need one optical fiber to connect. 850nm, 1310nm, 1550nm are the common wavelengths of 1G dual

Contact Us

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

Website: <https://www.gmarkconstruction.co.za>

Email: sales@gmarkconstruction.co.za

Phone: +31-6-15-38-72-94

Address: Herengracht 456, 1017 BS Amsterdam, Netherlands

This document is for informational purposes only. Specifications subject to change without notice.

