

Single-mode dual-fiber optical module with fiber optic cable



Article Overview

Single-mode dual-fiber optical modules use single-mode fiber optic cables with a narrow 9 μm core, typically OS1 or OS2, for separate transmit and receive fibers.

Core Characteristics

Single-mode dual-fiber modules operate with two separate fibers: one for transmitting (TX) and one for receiving (RX) signals. The fiber used is single-mode, featuring a small core diameter of approximately 9 micrometers (μm), which allows light to travel in a single path, minimizing modal dispersion and signal loss over long distances. This makes them ideal for high-speed, long-distance communication links.

Cable Types

- OS1 Fiber: Designed for indoor use, with a maximum attenuation of 0.4 dB/km at 1310 nm and 0.3 dB/km at 1550 nm, supporting distances up to 10 km at 10 Gbps.
- OS2 Fiber: Optimized for outdoor or long-haul applications, with lower attenuation (0.3 dB/km at 1310–1550 nm) and capable of transmitting data up to 40 km at 10 Gbps. Both OS1 and OS2 fibers are compatible with single-mode dual-fiber modules, depending on the required transmission distance and environmental conditions.

Wavelength and Connector Considerations

Article Content

Single-mode optical fiber

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

The Key Differences Between 1-core, 2-core, Single Mode, and Multi-mode ...

o In optical modules, "core" refers to the light-transmitting channel in the fiber. A 1-core module uses a single fiber

Choosing the Right SFP: Single Fiber vs Dual Fiber

Limited Compatibility Not all network devices support single fiber SFPs. Compatibility checks are essential before

Difference Between Single vs Dual Fiber Optical Transceivers

Single Fiber: Typically shorter reach compared to dual fiber, ranging from 2km to 120km, depending on the specific module. Dual

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

The Difference Between Single/Dual Fiber and

Understanding the distinction between single vs. dual fiber and single-mode vs. multi-mode

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

For many campus and metro use cases, a single-mode BiDi pair is extremely attractive

Cisco SFP Modules for Gigabit Ethernet Applications

This data sheet describes the benefits, specifications, and ordering information for the

Understanding Fiber Optic Cable: Single Mode vs. Multimode

What's the difference between single mode and multimode fiber? More importantly, which cable should I use in my

Fiber Optic Cable Types – Multimode and Single Mode

Application Fiber Optic connectors and cables are present in nearly every communications project that we might sell into, be it a DAS

Single Mode vs Multimode Fiber, What is The Difference?

Learn the key differences between single mode vs multimode fiber cables and choose the right one for your fiber optic

Single Fiber vs Dual Fiber Transceivers Understanding the Key

In fiber optic communication systems, optical transceivers play a critical role in ensuring seamless data transmission.

Understanding Single-mode and Multi-mode Optical Modules and Optical ...

Conclusion: In conclusion, single-mode and multi-mode optical modules and fibers serve distinct purposes in sfp optical module

Fiber Modules

SFP modules support very low EMI and excellent ESD protection. Featuring low power consumption, these fiber modules are ideal

Single Mode vs Multimode Fiber, What is The

In this in-depth single mode vs. Multimode Fiber comparison, I will compare those two fiber

fiber optic cable multimode versus singlemode duplex vs simplex

Workstations, fiber switches and servers, fiber modems, and similar hardware require duplex cable. Duplex fiber is available in

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,

The Key Differences Between 1-core, 2-core, Single

Ever wonder how data zooms across cities and continents at lightning speed? The secret

The Key Differences Between 1-core, 2-core, Single

Single Mode fibers have a smaller core, allowing light to travel in a single, straight path,

Understanding Single Mode Fiber Optic Cable: A

A single-mode fiber optic cable is an optical fiber designed to propagate light signals over

Singlemode vs Multimode Fiber Optic Cable

We breakdown the differences between single mode and multimode fiber optic cable, covering aspects like physical

Single Fiber vs Dual Fiber Transceivers Understanding

Among these devices, single-fiber modules (BiDi) and dual-fiber modules (standard duplex)

Complete Guide to Choosing the Right 100M Optical Transceiver

Selecting the wrong module can lead to network failures, unnecessary costs, and hours of troubleshooting. This guide

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

What is an SFP? SFP (Small Form-factor Pluggable) is a compact, hot-pluggable network interface module used to connect network

Difference Between Single and Dual Fiber Optical Transceivers

Know the key differences between Single and dual-fiber optical transceivers for efficient network deployment and

Fiber Optic Cable Types: Single Mode vs. Multi-Mode Fiber Cable

Core Diameter Single mode fiber: one that has a small light-carrying core that is about 9 micrometers (μm) in

Single Mode vs Multimode Fiber Cable

Multi-Mode Optical Fiber Cable : Multimode fiber cables are the type of fiber cables that transmit data via their core of

Contact Us

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