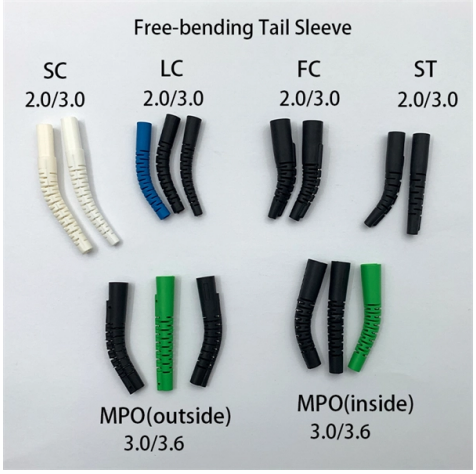
# Single-mode single-core 10 Gigabit optical module




## Overview

FS 10GbE SFP+ module solutions provide a wide variety of 10 Gigabit Ethernet connectivity options for data centers, enterprise wiring closets, Internet Service Providers (ISPs) applications.

## Key Takeaways

10G single-mode SFP+ optical modules include LR, ER, ZR, and BiDi types, designed for long-distance transmission over single-core fiber.

### Overview of Single-

Mode 10G SFP+ ModulesSingle-mode 10G SFP+ modules are optimized for long-distance fiber optic communication using a single-core fiber strand. They are widely used in data centers, enterprise backbones, and metro networks due to their ability to support high-speed 10 Gigabit Ethernet over extended distances. Common Types and Specifications10GBASE-LR (Long Reach): Operates at 1310 nm, supports distances up to 10 km, and uses a distributed feedback (DFB) laser for reliable single-mode transmission.

10GBASE-ER (Extended Reach): Operates at 1550 nm, supports distances up to 40 km, and uses an externally modulated laser (EML) for ultra-long-haul applications. 10GBASE-ZR: Also operates at 1550 nm, designed for very long distances up to 80 km, suitable for metro and long-haul networks. SFP+ BiDi (Bidirectional): Transmits and receives data over a single strand of single-mode fiber using different wavelengths for each direction, effectively reducing fiber usage by 50%.

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Typical deployment distances include 10 km, 20 km, and 40 km.

### Key Features

Form Factor: SFP+ modules are compact, hot-swappable, and compatible with standard SFP+ ports. Interface: Most single-mode modules use LC duplex connectors, while BiDi modules use a single LC simplex connector. Standards Compliance: Modules comply with IEEE 802.

3ae, SFF-8472, and SFF-8431 standards. Applications: Ideal for long-distance interconnects, data center uplinks, campus networks, and service provider transport networks.

### Advantages

Extended Reach: Single-mode modules support distances far beyond multimode fiber, making them suitable for campus and metro networks. Fiber Efficiency: BiDi modules reduce fiber cabling requirements, simplifying network management and lowering costs. Scalability: Compatible with existing 10G infrastructure and can be integrated into phased network upgrades.

In summary, 10G single-mode SFP+ optical modules provide flexible, long-distance connectivity options, with LR, ER, ZR, and BiDi types addressing different reach and deployment needs. They are essential for high-speed, fiber-constrained networks where single-core fiber efficiency and extended transmission distances are critical.

## Article Content

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 Providers (ISPs) applications. Click to get

10G SFP+ ER SMF 1310nm 40km Transceiver Module

Featuring a built-in Semtec/Macom chip and reliable DFB laser from global leaders, the 10G SFP+ ER1310 module delivers low power consumption and stable optical links for high-speed single mode

Cisco 10GBASE SFP+ Modules Data Sheet

Product overview 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

Optical Transceiver SFP+ 10G Single-Mode Module 1310nm 10km LC

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An SFP+ 10G single-mode module is a hot-pluggable optical transceiver that converts electrical signals from a switch or router into optical signals suitable for single-mode fiber transmission.

10G Single-Mode Optical Module

SFP+ transceiver that supports 10G connections up to 10 km using single-mode fiber with a duplex LC UPC connector.

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.

SFP3213-10: 10 Gigabit SFP Module for Switches

The transceiver provides 10 Gbps serial optical data transfer rates on a single duplex fiber core up to 10,000 meters at 1,310 nm wavelength, ideal for

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

Learn what SFP+ BiDi 10G is, how single-fiber 10G transceivers work, key specs, use cases, and how to choose the right BiDi module.

XG-SFP-LR-SM1310 10GBASE-LR SFP+ 1310-nm 10-km DOM

The XG-SFP-LR-SM1310 is aligned to IEEE 10GBASE-LR optical specifications and supports a link length of up to 10 kilometers over a single-mode fiber (SMF) with an LC connector.

10G Single-mode SFP+ Transceiver Module (SMF,

BENCHU GROUP''s SFP+-10G-LR13-10 SFP+ transceiver module is a high-performance optical module designed for 10 gigabit ethernet applications over

SFP Gigabit Single-mode Optical Module LC Simplex 3 Km/20 Km160

SFP Gigabit Single-mode Optical Module LC Simplex 3 Km/20 Km160 km 1.25 Gbps Bidirectional BIDI SFP--BIDI-LC China No reviews yet $236 - 3879 Minimum order quantity: 10 pieces

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Gigabit Ethernet

It is practically identical to 1000BASE-LX, but achieves longer distances up to 10 km over a pair of single-mode fiber due to higher quality optics. Before it was

Single Mode SFP vs Multimode SFP: What the Differences Are

A single-mode SFP is specially used with the 9/125μm single-mode fiber (SMF) but can not be used with multimode fiber cable. It utilizes ultra-low optical attenuation for medium to long

Network Fibre Optics: How Modern Optical Networks Work

PON (Passive Optical Network) architectures use optical splitters to share a single fibre among multiple users, typically 32 or 64 premises per fibre. GPON (2.5 Gbps downstream) became

How Fibre Optics Transmits Data at Lightning Speeds

The two main types of optical fibre—single mode fibre and multimode fiber—serve different purposes based on their core size, distance capability, and cost. Single-Mode Fibre

H!Fiber 10G Single Mode SFP+ LC Module, 10GBase-LR Fiber

10GBase-LR SFP+: 10 Gigabit Ethernet Single Mode SFP+ Module, 10 Gb/s, 1310nm wavelength, Duplex Dual LC, SMF, link single-mode (OS2/OS3) LC/UPC fiber cable up to 10km (6.2

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