

LC Optical Module Single Mode



Overview

Learn how to choose the right SFP LC Single Mode transceiver for distance, compatibility, fiber type, and stable network performance.

Key Takeaways

Single-mode LC interface optical modules are compact, high-performance transceivers that use LC connectors to transmit optical signals over single-mode fiber for long-distance, high-bandwidth networking.

Single-mode LC optical modules are designed for single-mode fiber (SMF), which has a narrow core ($\sim 9 \mu\text{m}$) allowing light to propagate in a single mode. This minimizes modal dispersion and enables long-distance transmission with low signal loss, making them ideal for data centers, enterprise networks, and telecom applications. The LC connector features a 1.25 mm ferrule and a push-and-click mechanism, providing high port density, easy installation, and stable connections.

Connector and Compatibility

- **LC Duplex Connector:** Standard for most SFP and SFP+ modules, ensuring compatibility with single-mode patch cords.
- **SFP/SFP+ Form Factor:** Hot-pluggable modules that fit into standard SFP slots on switches, routers, or media converters. The connector type determines the physical interface, while the SFP type defines data transmission characteristics.

- High-Density Deployment: LC connectors allow compact, high-density port arrangements, which is critical in modern network racks and data centers .

Performance Specifications

- Data Rates: Modules support speeds from 1.25 Gbps (SFP) up to 10 Gbps (SFP+) .
- Wavelength: Commonly 1310 nm for long-reach applications, balancing low attenuation and minimal chromatic dispersion .
- Transmission Distance: Depending on the module, distances range from 10 km to 70 km over single-mode fiber .
- Standards Compliance: Modules conform to IEEE standards such as 10GBASE-LR for SFP+ and 1000BASE-LX/LH for SFP, ensuring interoperability across vendors .
- Digital Optical Monitoring (DOM/DDM): Many modules provide real-time monitoring of optical power, temperature, and voltage for proactive network management .

Applications

- Data Centers: High-speed interconnects between switches and servers.
- Enterprise Networks: Long-distance links across campuses or buildings.
- Telecommunications: Reliable backbone connections with minimal signal degradation.
- Industrial and Educational Networks: Campus-wide fiber deployments requiring gigabit or 10G connectivity .

Key Advantages

- Low Insertion Loss: Optimized LC design reduces signal loss over long distances .
 - High Reliability: Stable connections under demanding conditions.
 - Ease of Use: Snap-in LC connectors simplify installation and maintenance .
 - Scalability: Compatible with existing SFP/SFP+ infrastructure, allowing network upgrades without replacing chassis .
- In summary, single-mode LC interface optical modules provide a compact, reliable, and high-performance solution for long-distance fiber optic networking, supporting both gigabit and 10G Ethernet applications while maintaining compatibility with standard LC patch cords and SFP/SFP+ slots .

Article Content

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Understanding Single Mode LC Connector: A Comprehensive Guide

This guide will explain their functions, discuss the role of single-mode LC connectors in modern fiber optic systems, and

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

Explore the features, applications, and selection guide for optical transceiver SFP+ 10G single-mode 1310nm 10km

SFP Single Mode LC Module (20km)

TRENDnet's single mode fiber SFP, model TEG-MGBS20, features a duplex LC fiber interface, supporting high-speed data rates for

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Discover high-performance single mode SFP modules for your network. Compatible with major brands like Cisco, Ubiquiti, and more.

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SFP LC Connector: Everything You Need to Know

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SFP LC Single Mode: How to Choose the Right Module

These optical modules combine compact SFP form factors with LC fiber interfaces and single mode transmission technology, making

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Comparing Single-Mode vs Multimode SFP

Explore the differences between single-mode and multimode SFP transceivers. Find the

Fiber Optics Part 2: Single-Mode Fiber vs. Multi-Mode

The two main types are single-mode and multi-mode fiber. Duplex LC single-mode fiber

SFP Single Mode LC Module (80km)

TRENDnet's SFP Single Mode LC Modules are compatible with standard SFP slots found on network

Single-mode vs Multimode SFP, What's the Difference?

In the optical communication industry, single-mode SFP and multi-mode SFP are the two

1 Gigabit Singlemode SFP Fiber Optic Transceivers

Our 1 Gigabit Singlemode SFP Transceivers offer high-performance, reliable connectivity for singlemode

Optical fiber connector

Optical fiber connectors are categorized into single-mode and multimode types based on their distinct

1000Base-LX SFP Module Singlemode LC (OP-SFP-LXD)

Legrand OP-SFP-LXD Transceiver is a high performance, cost effective module with a duplex LC optics

Multi-mode and single-mode of optical modules

The single-mode and multi-mode in the optical module actually only refer to the type of optical fiber. LC/PC refers to

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SFP+ Single Mode LC Module (10km)

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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,

1000 Mbps (1 Gbps) | Single Mode Fiber | LC | 20 km (12.4 mi ...

Cisco GLC-LH-SMD Compatible SFP Module - 1000BASE-LH - 1GbE Single Mode Fiber SMF Optic Transceiver - 1GE Gigabit

Singlemode LC Fiber Loopback Module

Single Mode LC Fiber Loopback Module (9/125 OS2, UPC) The LC fiber Loopback is also known as an LC

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Cisco SFP Modules for Gigabit Ethernet Applications Data Sheet

This data sheet describes the benefits, specifications, and ordering information for the Cisco SFP Modules for Gigabit

10G Single-Mode Optical Module

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

LC Fiber Optic Loopback, Singlemode DX 9/125

Fibertronics, Inc.'s MTP® loopbacks come in Standard or Elite plug performance. They can be customized

Singlemode LC Fiber Loopback Module

The OPTCORE™ single mode LC fiber loopback effectively tests the transmitter capability and receiver

Single Mode SFP Transceiver: Complete Guide Explained

What Is a Single Mode SFP Transceiver? A single mode SFP transceiver is an optical module that uses laser-based transmission

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