

Dual LC interface SFP



Overview

When selecting a particular SFP how do we determine whether it requires an LC or SC fibre cable? e.g.

Key Takeaways

A Dual LC interface SFP is a fiber optic transceiver with two LC connectors enabling full-duplex optical communication over separate transmit (TX) and receive (RX) fibers. Overview

A dual LC SFP (Small Form-Factor Pluggable) module uses two LC (Lucent Connector) interfaces in a compact housing to support simultaneous bidirectional data transmission. One fiber carries the transmit signal (TX) while the other carries the receive signal (RX), making it ideal for full-duplex Ethernet and telecom links. The LC connector features a 1.25 mm ceramic ferrule, ensuring precise fiber alignment and low insertion loss, and is compatible with both single-mode (SMF) and multimode fiber (MMF) systems.

Advantages

- **High Density:** The small LC footprint allows for 48 or more ports in a 1U switch, making it suitable for high-density data center environments.
- **Hot-Swappable:** SFP modules can be replaced without powering down the network device, enabling flexible upgrades and maintenance.
- **Digital Diagnostics:** Many dual LC SFPs support Digital Optical Monitoring (DOM), providing real-time data on optical power, temperature, and connection quality.

- **Versatility:** Compatible with various data rates (1G, 10G, 25G) and wavelengths, supporting enterprise, industrial, and telecom applications .
- Applications

Dual LC SFPs are widely used in:

- **Data Centers:** Connecting switches, routers, and servers with high-speed fiber links.
- **Enterprise Networks:** Backbone and aggregation links requiring reliable full-duplex communication.
- **Industrial Ethernet:** Ruggedized SFPs with LC duplex connectors connect fiber optic patch cables to industrial switches and routers .
- **Telecom Networks:** Standard for 1G, 10G, and 25G Ethernet optics, including long-distance single-mode fiber links .

Key Considerations

- **Correct Polarity:** Ensure TX and RX fibers are properly connected to maintain stable optical links .
 - **Fiber Type:** Match the SFP module with the appropriate fiber type (SMF or MMF) and wavelength.
 - **Distance Limitations:** Depending on the module type, distances can range from a few hundred meters on multimode fiber to tens of kilometers on single-mode fiber .
- In summary, dual LC SFP modules provide a compact, high-density, and reliable solution for full-duplex optical communication, widely adopted across modern networking environments for both enterprise and industrial applications.

Article Content

What Is an SFP Duplex LC Connector in Fiber Networks

Learn what an SFP duplex LC connector is, how it works in optical transceivers, and why it is widely used in fiber

LC vs SC SFP Module Interface: 2025 Buying Guide for Network

Confused about the LC vs SC SFP module choice? We explain the physical differences, density benefits, and why Wolontek

SFP Fiber Optic Connector Types: LC, SC, MPO Explained

Explore common SFP fiber optic connector types, including LC, SC, and MPO/MTP. Learn their differences, use cases, and

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Cisco 1000BASE-SX SFP

Cisco's industry-standard SFP is a hot-swappable input/output device that plugs into a Gigabit Ethernet port/slot, linking the port with

Cisco SFP and SFP+ Transceiver Module Installation Notes

This installation note provides the installation instructions for the Cisco small form-factor pluggable (SFP) and SFP+

Determine whether an SFP needs LC or SC fibre interface

When selecting a particular SFP how do we determine whether it requires an LC or SC fibre cable? e.g. GLC-LH-SMD

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

2 Pack 1.25Gb Singlemode Module with 1m OS2 LC to LC Fiber

1000Base-LX/LH SFP: Gigabit Single Mode SFP Module support 1.25 Gb/s data rates, 1310nm wavelength, SMF; Duplex Dual LC

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