What is a fiber optic module duplex LC interface



Overview

A duplex LC connector is a fiber optic connector configuration that combines two LC connectors in a single paired interface.

Key Takeaways

A fiber optic module duplex LC interface is a dual-fiber connector used in optical transceivers to enable simultaneous bidirectional data transmission.

Overview

A duplex LC interface combines two LC (Lucent Connector) connectors into a single compact housing, allowing one fiber to transmit signals (TX) and the other to receive signals (RX) simultaneously, which is essential for full-duplex communication in Ethernet and telecom networks.

The L

C connector uses a 1. 25 mm ceramic ferrule, smaller than the SC connector, enabling high-density port layouts in data centers and network equipment.

Design and Components

Ferrules: Two 1. 25 mm zirconia ceramic ferrules align and protect the fiber cores.



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Housing/

Body: A plastic shell secures the ferrules and provides mechanical protection. Latch: Push-pull clip allows easy connection and disconnection, even in crowded panels. Boot: Protects the cable at the exit point and reduces strain.

Duplex Clip: Holds two simplex LC connectors together for a duplex pair.

Duplex L

C connectors are available in single-mode (SMF) and multimode (MMF) versions, with different polish types such as UPC (Ultra Physical Contact) for general use and APC (Angled Physical Contact) for applications sensitive to reflections, like DWDM or CATV.

Applications

Duplex L

C interfaces are widely used in SFP, SFP+, and SFP28 optical transceivers, supporting 1G, 10G, and 25G Ethernet links. They are ideal for high-density network environments, such as data centers, enterprise backbones, and telecom transport networks, where space-saving and reliable bidirectional communication are critical. Proper handling, correct fiber polarity, and understanding TX/RX paths are essential for maintaining stable optical links.

Advantages

Compact size for high-density port layoutsPrecise fiber alignment for low insertion loss and high return lossBidirectional communication in a single connectorCompatibility with both single-mode and multimode fibersEase of installation with push-pull latching and duplex clips In summary, a fiber optic module duplex LC interface is a standard solution for connecting two fibers in a single module, enabling efficient, high-speed, and reliable bidirectional optical communication in modern network infrastructures.

Article Content

What Is an SFP Duplex LC Connector in Fiber Networks

A duplex LC connector is a fiber optic connector configuration that combines two LC connectors in a single paired interface. Each connector terminates one optical fiber, allowing

Duplex LC Connector: Design, Fiber Types, and Best

This article explains what Duplex LC connectors are, how they work, the difference between single-mode and multimode use, how to choose and

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Understanding the Duplex LC Connector: The Go-To Fiber Network

A: A Duplex LC Connector is designed to connect two fiber optic cables using one modular plug. It is widely viewed as the best choice for fiber networks because of its high-density

Understanding the LC Duplex Connector: A

A: An LC Duplex Connector is a small form factor (SFF) fiber optic connector used in high-density situations. It has two fibre connections in a single

LC Duplex Connectors in Modern Fiber Networks: Types, Polarity ...

Expert guide covering LC duplex connector types, polarity reversal methods, cost-control checklists and 25-year procurement strategy for data-center and telecom fiber networks.

What is the difference between lc and duplex lc?

LC is a single connector, while duplex LC consists of two LC connectors housed in a single housing. Both connectors offer reliable and efficient fiber optic

LC Fiber Optics: Guide to LC Connectors, ULL Cables, MPO 2026

LC (Lucent Connector) is the world''s dominant duplex optical interface, used across enterprise networks, telecom infrastructure, and especially data centers.

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

LC is the default and most widely used fiber optic connector for SFP modules due to its small size and broad compatibility. It is designed specifically to support high port density without compromising

Simplex vs Duplex LC Connector Engineering Explained

Simplex LC connectors terminate a single fiber. Duplex LC connectors mechanically pair two simplex LC connectors into a unified assembly, preserving fixed spacing and polarity between

LC Fiber Optic Connectors

LC simplex and duplex connectors are used for equipment cross-connects or interconnects in backbone, horizontal and work area applications for high-speed data transmissions.

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

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

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Fiber Optic Transceiver Guide | PHILISUN

A fiber optic transceiver (also called an optical transceiver) is a compact module that both transmits and receives data signals through optical fibers. It serves a dual purpose — transmitting

Generic Compatible 50GBASE-SR SFP56 850nm 100m Duplex LC

The module features a duplex LC/UPC optical interface and integrates a Semtech chip with a built-in CDR (Clock and Data Recovery) for both transmit and receive channels, operating with a maximum

100G Optical Module: How to Choose Between SR4, DR4, FR4, LR4,

3.100G BiDi SR Asterfusion QSFP28-100G-SR BiDi 850nm 910nm 100m Duplex LC MMF Transmission Distance: Up to 100m Transmission Mode: Multi-mode fiber (MMF) Wavelength:

Fortinet FN-TRAN-SFP56-SR Compatible 50GBASE-SR SFP56 850nm 100m Duplex ...

Engineered for 850nm wavelength transmission, this module facilitates data links up to 100 meters when utilizing OM4 multi-mode fiber (MMF) infrastructure with a duplex LC/UPC interface. Key Features

Fiber-optic Adapters – inline, bulkhead adapter, functions, variants ...

Fiber-optic adapters are used for mating terminated optical fibers – with many versions for inline/bulkhead use, different connector types and environmental conditions.

NADDOD Arista Compatible 200G QSFP-DD 2xLR4 1310nm 10km SMF Optical ...

Arista Compatible 200GBASE-2xLR4 QSFP-DD 8x25G NRZ 1310nm 10km SMF DOM Dual CS Duplex Optical Transceiver Module The QDD-200G-2xLR4 transceiver module is designed for use in 200

Tp-link optical module is the real king! 20km gigabit single ...

For network administrators stuck with fiber distance limitations, geeks toiling until 3 am with self-built nas setups, and it pros constantly wrestling with loose ports due to repeatedly plugging

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