Dual-fiber LC optical module

Overview

When planning a fiber optic network,one key decision is choosing between single-fiber (BiDi) and dual-fiber optical transceivers.

Key Takeaways

Dual-fiber LC optical modules use two separate fibers—one for transmitting and one for receiving data—offering stable, high-bandwidth communication for long-distance networks.Overview

A dual-fiber optical transceiver requires two fibers: one dedicated to transmitting (TX) and the other to receiving (RX) signals. These modules typically use duplex LC connectors, which are standard in single-mode fiber networks, and are designed for high-speed data transmission, often supporting 10Gbps or higher over distances ranging from 10km to 20km on single-mode fiber (SMF) . Unlike single-fiber BiDi modules, dual-fiber modules do not require wavelength pairing and can connect any two compatible modules .

Key Features
• Data Rate: Commonly 1Gbps to 10Gbps, with some modules supporting up to 11.1Gbps .

• Transmission Distance: Typically 10–20km on single-mode fiber .

• Connector Type: Duplex LC interface for dual-fiber modules .

• Compatibility: Works with standard SFP+, XFP, or other pluggable transceivers in Ethernet and telecom networks .

© 2026 ALFA PRO COMMUNICATION SYSTEMS (Pty) Ltd - All rights reserved

• Advantages: High transmission stability, minimal signal interference, and suitability for backbone or long-distance networks .

• Cost Consideration: Generally less expensive per module than single-fiber BiDi modules, but requires two fibers per link .

Applications

Dual-fiber LC modules are ideal for:

• Long-distance backbone networks where fiber resources are sufficient.

• High-bandwidth Ethernet and telecom systems.

• Data centers requiring reliable, high-speed connections.

• Optical fiber communication systems in industrial or enterprise environments .

Comparison with Single-Fiber BiDi ModulesFeatureDual-Fiber LCSingle-Fiber BiDiFiber UsageTwo fibers (TX/RX)One fiber (bidirectional)ConnectorDuplex LCSimplex LCWavelengthSingle wavelength per fiberTwo wavelengths per fiber (WDM)CostLower per module, higher fiber costHigher per module, saves fiberPairingAny two compatible modulesMust be used in matched pairs with complementary wavelengthsStabilityHigh, minimal interferenceSlightly more sensitive to fiber quality and wavelength mismatch

Dual-fiber modules are preferred when fiber availability is not a constraint and network stability and simplicity are priorities, while BiDi modules are chosen to save fiber resources in constrained environments .

Conclusion

A pair of dual-fiber LC optical modules provides a reliable, high-speed solution for long-distance single-mode fiber networks. They are cost-effective, easy to deploy, and compatible with standard network equipment, making them suitable for backbone, data center, and enterprise applications where fiber resources are sufficient .

© 2026 ALFA PRO COMMUNICATION SYSTEMS (Pty) Ltd - All rights reserved

Article Content

What Is an SFP Duplex LC Connector in Fiber Networks

In fiber optic networking, the term Duplex LC describes a connector configuration that combines the LC connector

1.25G SFP Module Transceiver, 1000Base-LX,1310nm

1.25Gbps SFP Optical Transceiver, Dual LC single-mode fiber •

SFP Optical Transceiver Module LC 1.25G-LR Dual fiber Compatible

The 1.25G SFP transceiver module operates at a specific wavelength, typically around 1310nm, which is commonly used in fiber

Duplex LC Connector: Design, Fiber Types, and Best Practices 2025

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

10G 1550nm LC Interface Singlemode Dual-fiber SFP

Upgrade networks with our 10G SFP+ 80km Module. This 1550nm optical transceiver offers effortless,

SFP LC Connector: Everything You Need to Know

The SFP LC connector is a necessary part of fiber optic communication, used in switches,

10Km SFP+ Optical Module

This is a standard SFP+ optical module. It uses two single mode optical fibers and the speed rate can up to 10Gbps, transmission

1.25G SFP Module Transceiver, 1000Base-LX,1310nm SMF,Dual LC Fiber

1.25G SFP MODULE- 1.25Gbps SFP Optical Transceiver, Dual LC single-mode fiber, 1310nm, up to 20km super long

What Is A Single-Fiber BiDi Transceiver?--ETU-LINK

When planning a fiber optic network,one key decision is choosing between single-fiber (BiDi) and dual-fiber optical transceivers. This

H!Fiber 1.25G Single Mode SFP LC Module, 1000Base-LX/LH Fiber

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

© 2026 ALFA PRO COMMUNICATION SYSTEMS (Pty) Ltd - All rights reserved

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

10G SFP Module singe/Dual 10G BASE Fiber Optic

Buy 10G SFP Module singe/Dual 10G BASE Fiber Optic Transceiver SM LC Compatible With Multiple

Understanding the LC Duplex Connector: A

What is an LC Connector? The LC Connector, once known as the Lucent Connector, is a

1.25G SFP Module Transceiver, 1000Base-LX,1310nm SMF,Dual LC Fiber

1.25G SFP MODULE- 1.25Gbps SFP Optical Transceiver, Dual LC single-mode fiber, 1310nm, up to 20km super long distance

TRIPP LITE Dual Duplex Multi-Mode Fiber Optic Coupler LC/LC

Product Description This coupler provides a simple and easy way to link together two fiber optic cables with LC connectors. Can be

Understanding the Duplex LC Fiber Loopback Module: A Key Tool for Fiber ...

In the fast-paced world of fiber optic communications, ensuring the reliability of networks is critical. One essential tool

SFP Optical Transceiver | SFP Optical Module | Perle

Perle SFP Optical Transceivers are hot-swappable, compact media connectors that provide instant fiber connectivity for your

SFP LC Connector: Everything You Need to Know

The SFP LC connector is a necessary part of fiber optic communication, used in switches,

10Km SFP+ Optical Module

This is a standard SFP+ optical module. It uses two single mode optical fibers and the speed rate can up to 10Gbps, transmission

1.25G SFP Module Transceiver, 1000Base-LX,1310nm SMF,Dual LC Fiber

1.25G SFP MODULE- 1.25Gbps SFP Optical Transceiver, Dual LC single-mode fiber, 1310nm, up to 20km super long

What Is A Single-Fiber BiDi Transceiver?--ETU-LINK

© 2026 ALFA PRO COMMUNICATION SYSTEMS (Pty) Ltd - All rights reserved

When planning a fiber optic network,one key decision is choosing between single-fiber (BiDi) and dual-fiber optical transceivers. This

H!Fiber 1.25G Single Mode SFP LC Module, 1000Base-LX/LH Fiber

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

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

LC 1G SFP Transceiver Module

The LC 1G SFP Transceiver delivers reliable 1.25Gbps optical data transmission. Compatible with Singlemode and Multimode fibers,

10Pack 10GBase-LR SFP+ Transceiver, 10G Dual LC Single Mode Module ...

10Pack 10GBase-LR SFP+ Modules - 10Gb/s, single-mode, 1310nm, Duplex LC fiber, up to 10KM transmission

Understanding LC vs Duplex LC Connectors for Fiber Optic

Discover the key differences between LC and Duplex LC connectors for fiber optic communications, including OS2

LC vs SC SFP Module: Key Differences & 2025 Buying Guide

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

10G SFP Module singe/Dual 10G BASE Fiber Optic Transceiver SM LC ...

Buy 10G SFP Module singe/Dual 10G BASE Fiber Optic Transceiver SM LC Compatible With Multiple Switches online today! please

Understanding the LC Duplex Connector: A Comprehensive Guide to Fiber ...

What is an LC Connector? The LC Connector, once known as the Lucent Connector, is a single-fiber optical

1.25G SFP Module Transceiver, 1000Base-LX,1310nm SMF,Dual LC Fiber

1.25G SFP MODULE- 1.25Gbps SFP Optical Transceiver, Dual LC single-mode fiber, 1310nm, up to 20km super long distance

TRIPP LITE Dual Duplex Multi-Mode Fiber Optic Coupler LC/LC

© 2026 ALFA PRO COMMUNICATION SYSTEMS (Pty) Ltd - All rights reserved

Product Description This coupler provides a simple and easy way to link together two fiber optic cables with LC connectors. Can be

What Is an SFP Duplex LC Connector in Fiber Networks

In fiber optic networking, the term Duplex LC describes a connector configuration that combines the LC connector

1.25G SFP Module Transceiver, 1000Base-LX,1310nm

1.25Gbps SFP Optical Transceiver, Dual LC single-mode fiber •

SFP Optical Transceiver Module LC 1.25G-LR Dual fiber Compatible

The 1.25G SFP transceiver module operates at a specific wavelength, typically around 1310nm, which is commonly used in fiber

Duplex LC Connector: Design, Fiber Types, and Best Practices 2025

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

10G 1550nm LC Interface Singlemode Dual-fiber SFP

Upgrade networks with our 10G SFP+ 80km Module. This 1550nm optical transceiver offers effortless,

10Pack 1.25G 850nm Multimode SFP LC Transceiver

Fiber Type:1.25Gb/s Dual LC OM3 Fiber Module 10 Pack; Wavelength: 850 nm Multimode;

10Gtek 40GBASE-IR4 40GBase-LR4 Lite QSFP+ LC Single-Mode

About this item 40GBase-LR4 Lite, 40GBase-IR4 QSFP+ to Dual LC Optical 40G Ethernet transceiver module, 4 CWDM lanes,

What Is an SFP Duplex LC Connector in Fiber Networks

In fiber optic networking, the term Duplex LC describes a connector configuration that combines the LC connector

1.25G SFP Module Transceiver, 1000Base-LX,1310nm

1.25Gbps SFP Optical Transceiver, Dual LC single-mode fiber •

SFP Optical Transceiver Module LC 1.25G-LR Dual fiber Compatible

The 1.25G SFP transceiver module operates at a specific wavelength, typically around 1310nm, which is commonly used in fiber

© 2026 ALFA PRO COMMUNICATION SYSTEMS (Pty) Ltd - All rights reserved

Duplex LC Connector: Design, Fiber Types, and Best Practices 2025

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

Related Video Reference

This video was associated with the source search result. Verify technical details against current product documentation and project requirements.

Contact Us

Continue your research online:

Website: https://alfa-pro.co.za
Technical inquiry: https://alfa-pro.co.za/contact.html

This document is for preliminary research. Verify specifications against current standards, product documentation and project requirements.

© 2026 ALFA PRO COMMUNICATION SYSTEMS (Pty) Ltd - All rights reserved