LC head optical module for both transmitting and receiving

Overview

Explore the ultimate guide to optical modules. Learn types, functions, performance metrics & how to choose the right module for your fiber network.

Key Takeaways

An LC head optical module uses duplex LC connectors to enable simultaneous transmitting (TX) and receiving (RX) of optical signals over fiber, supporting full-duplex communication. OverviewLC head optical modules are small form-factor pluggable (SFP) devices designed for bidirectional optical communication. They integrate two key components: the Transmitter Optical Sub-Assembly (TOSA), which converts electrical signals into optical signals, and the Receiver Optical Sub-Assembly (ROSA), which converts incoming optical signals back into electrical signals.

These modules are widely used in Ethernet, telecom, and data center networks.

Duplex LC Connector

The L

C connector is a compact fiber optic interface that supports duplex operation, meaning one fiber transmits (TX) while the other receives (RX) simultaneously. This design allows full-duplex communication, which is standard for most modern optical links.

L

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C connectors feature a 1. 25 mm ceramic ferrule for precise fiber alignment and are compatible with both single-mode (SMF) and multi-mode fibers (MMF). Example: Dahua GSFP-850-MMFThe Dahua GSFP-850-MMF is a practical example of an LC head optical module for both transmitting and receiving.

Key features include: Multi-mode fiber support for flexible deploymentLC duplex ports for secure TX/RX connections850 nm wavelength for both sending and receiving signalsTransmission distance up to 550 meters, suitable for enterprise and residential networksPlug-and-play operation with wide temperature tolerance (-40°C to +85°C) for industrial environments ApplicationsLC head optical modules are used in: Data centers and enterprise networks for high-speed Ethernet linksTelecom transport networks for reliable fiber communicationSecurity and industrial systems requiring robust, long-distance optical connectionsSummaryAn LC head optical module combines TOSA and ROSA components with duplex LC connectors to provide simultaneous transmitting and receiving over fiber.

Modules like the Dahua GSFP-850-MMF demonstrate practical deployment with multi-mode fiber, high-speed data transfer, and industrial-grade reliability, making them suitable for a wide range of networking applications.

Article Content

The Most Comprehensive Guide Of Optical Modules

Explore the ultimate guide to optical modules. Learn types, functions, performance metrics & how to choose the right module for your fiber network.

LC Multimode Fiber Optic Transmitters, Receivers, Transceivers

Mouser offers inventory, pricing, & datasheets for LC Multimode Fiber Optic Transmitters, Receivers, Transceivers.

LC Fiber Optics: Complete Guide 2026 to Patch Cables,

This guide provides a fully updated and industry-ready overview of LC fiber optics, explaining the origin and design of LC connectors, their key

Single Fiber vs Dual Fiber Transceivers Understanding the Key

A dual fiber optical transceiver uses two separate fibers—one for transmitting and the other for receiving data. This design ensures higher transmission stability and supports single

What Is an SFP Duplex LC Connector in Fiber Networks

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By using two fibers—one dedicated to transmitting optical signals and the other for receiving—duplex LC connectors provide a simple and highly stable architecture for Ethernet and

Optical Module Working Principle | SFP Transceiver Technical Guide ...

Learn the complete working principle of optical modules (SFP transceivers), including TOSA/ROSA components, laser types, temperature compensation, and more. Weunion''s high

Understanding the Duplex LC Fiber Loopback Module:

It consists of a compact module with two LC (Lucent Connector) ports, capable of connecting two optical fibers. The module “loops” the signal

Cisco SFP Modules for Gigabit Ethernet Applications

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

LC-TOSA/ROSA-Based Optical Transmitter (MTx+) and Transceiver

After the production of LOCld, the dual-channel VCSEL driver at 5.12 Gbps per channel, we developed LOCld65, a dual-channel VCSEL driver with pin-to-pin match to LOCld, using the 65-nm CMOS.

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

A guide to LC fiber optics. Learn LC connector geometry, UPC/APC polish types, ULL patch cords, MPO–LC transitions, high-density cassettesa, duplex optics

What Is an Optical Module and Its FAQs (V200)

Describes what an optical module is and FAQs, including the fundamentals, appearance and structure, key performance counters, common types, and naming conventions of optical modules, causes of

Optical module

An optical module is a typically hot-pluggable optical transceiver used in high-bandwidth data communications applications. Optical modules typically have an electrical interface on the side that

Understanding Optical Modules: Working Principles, Structures, and ...

Explore the working principles, structures, and performance metrics of optical modules, essential components of optical fiber communication systems. Learn about key indicators such as

Troubleshooting a Fiber Optic Transceiver: Step-by-Step Guide

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Encountering peculiar issues is inevitable when utilizing a Fiber Optic Transceiver. Effectively troubleshooting optical module concerns becomes essential in such situations. This article

The Essential Guide to Bidi Transceivers: Everything You ...

How Does Bidi Transceivers Differ From Traditional Transceivers? The main difference between BIDI transceivers and traditional transceivers lies in their ability to use one single-mode fiber

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

Dual fiber module has two ports, TX is transmitting port, RX is receiving port. Both transmitting and receiving needs one optical fiber, so it requires two fibers for a single link.

What are the Internal Components of an Optical Module?

The optical module is composed of many devices, including optoelectronic devices, functional circuits, and optical interfaces. Optoelectronics

Optical transceivers – turning data into light

Optical transceivers are an important part of a fiber optics network and is used to convert electrical signals to optical (light) signals and optical signals to electrical

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

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