

LR4 Optical Module Multiplexer Type



Overview

While DR4 leverages parallel single-mode (PSM4) for low-latency 500m links, FR4 and LR4 utilize Coarse Wavelength Division Multiplexing (CWDM4) to extend reaches to 2km and 10km over duplex LC fiber. CWDM4 transceivers are designed for data centers and enterprise networks that require moderate to high data rates over moderate distances. The QSFP28 LR4 is a hot-pluggable, four-channel, and full-duplex optical transceiver module designed for long-distance transmission up to 10 km in the 100G Ethernet network with a working bandwidth of 1295nm to 1310nm. It provides an ideal solution for large-scale data centers for high-demand. 100G CWDM4, 100G LR4 and 100G PSM4 are three single-mode QSFP28 standards: What are their common and distinct features?

This post will cover every aspect of their working principle, specifications, technology, optical components, cable solutions, cost, etc. ER4 and ZR4 achieve extended reach by.



Article Content

Jul 14, 2025

Everything You Need to Know About 100GBase-LR4

The MSA standard defines the transceiver modules' mechanical, electrical, and optical specifications to enable vendor interoperability. The

Aug 03, 2025

400G QSFP-DD: Optimizing DR4, FR4, and LR4 for Hyperscale

FR4 and LR4 rely on wavelength multiplexing, which increases DSP equalization workload and adds measurable latency inside the optical module. For most enterprise networks, the difference

Oct 19, 2025

400G QSFP-DD LR4 Optics: Architecture, Specs and Application

400G QSFP-DD LR4 uses coarse wavelength division multiplexing (CWDM4) to transmit multiple optical channels over a single pair of fibers. Each channel operates on a different wavelength within the

Jan 26, 2026

What Is QSFP28 LR4? In-Depth Analysis of Long

QSFP28 LR4 modules enable reliable long-distance 100G fiber optic links up to 10km, combining 4x25G lanes with WDM technology for high

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Understanding the 100G LR4 Transceiver for Modern

This comprehensive guide dives deep into the technology, specifications, applications, and best practices for deploying these essential 100G

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100 Gb LR4 10 km QSFP28 Module

This optical module integrates four data lanes on separate WDM (wave division multiplexed) wavelengths in each direction for 100 Gbps aggregate bandwidth. Each lane operates at 25.78 Gbps

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Overview of QSFP28 LR4 Optical Transceiver

The QSFP28 100G LR4 optical module converts four 25Gbps electrical signals into four LAN WDM optical signals and then multiplexes them

May 09, 2026

40GBASE-SR4 vs. LR4 vs. CSR4 vs. CR4

40GBASE-SR4 and 40GBASE LR4/ CSR4 transceivers are all used for the 40G Ethernet network. However, these QSFP-40G-SR4/LR4/CSR4

Aug 21, 2025

100G QSFP28 Optical Transceivers: A Guide to SR4, LR4, ER4

The LR4 model uses 4-channel LWDM4 (WDM) technology to multiplex four 25Gbps LAN WDM optical signals into one fiber. It operates over single-mode fiber (OS2) with a duplex LC

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What Is QSFP28 LR4? In-Depth Analysis of Long

This article thoroughly reviews the core technologies of LR4, provides clear selection criteria, offers helpful tips for deployment, explores troubleshooting

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Overview of 100G Optical Modules and Modulation

Explores 100G Optical Modules types and modulation techniques, focusing on PAM4 and coherent optics to improve performance and bandwidth.

Dec 28, 2025

Five Types of 100G QSFP28 Transceivers | FiberMall

100G Ethernet has been well underway with the rapid development of IoT, 5G, and cloud computing. As one of the primary networking solutions for

Nov 10, 2025

SR4 vs LR4 vs ER4 vs ZR4: Which 100G QSFP28

Confused between SR4, LR4, ER4, and ZR4? We break down 100G QSFP28 modules by performance, cost, and compatibility. Stop guessing —

Sep 12, 2025

CWDM4 vs LR4 vs PSM4: Optical Transceiver Comparison

Compare CWDM4, LR4, and PSM4 optical transceivers. Learn differences in distance, wavelengths, and applications to choose the right 100G

May 03, 2026

What You Need to Know About the QT-QSFP+-LR4

If you're working with 40G networking gear and looking to stretch your optical links a bit further without overcomplicating your setup, the QT-QSFP+-LR4

Sep 11, 2025

QSFP28 100GBASE LR4 vs CWDM4 vs PSM4 Single-Mode DCI

FR4 and LR4 rely on wavelength multiplexing, which increases DSP equalization workload and adds measurable latency inside the optical module. For most enterprise networks, the difference

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What's so great about LR compared to LR4 optics?

So that's the sequence of events in a nutshell. As for what's so great about 100G LR from the network operator perspective: Like all Single-Lambda

Oct 24, 2025

100G QSFP28 Transceivers Guide: SR4, SWDM4, PSM4, CWDM4

Complete guide to 100G QSFP28 transceiver types, specifications, and applications. Compare SR4, SWDM4, PSM4, CWDM4, LAN WDM for your network needs.

Dec 06, 2025

QSFP28 Module Types: SR4, LR4, CWDM4 & Single-Lambda

Compare all QSFP28 module types: SR4, LR4, CWDM4, PSM4, ER4, ZR4, and single-lambda DR1/FR1/LR1. See real pricing, link budgets, and a selection framework.

Oct 27, 2025

40G QSFP+ SR4 VS 40G QSFP+ LR4 Optical Module

In the deployment of 40G networks, the 40G QSFP+ optical module is one of the most widely used, defined by IEEE 802.3ba, and supports different

Aug 15, 2025

100GbE QSFP28 LR4 Optical Transceiver

Mellanox® 100Gb/s optical transceiver is designed for use in 100 Gigabit Ethernet links on up to 10km of single mode fiber. It is also qualified for use in Mellanox InfiniBand EDR end-to-end systems. The

Feb 19, 2026

QSFP28 100GBASE LR4 vs CWDM4 vs PSM4 Single

Under the wave of optical communication revolution driven by 5G, 100G optical modules are becoming the core engine of data center interconnect

Mar 09, 2026

100G LR4 Modules: Unleashing the Power of Long

The 100G LR4 (Long Range 4) module is a type of optical transceiver designed for high-speed data transmission over long distances. It operates at a

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QSFP+ 40G transceivers

This category includes all types of QSFP transceivers for 40G data connections, including SR4 multi-mode, eSR4 multi-mode, IR4 single-mode and LR4 single

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Selecting the Right QSFP28 Module

With so many different QSFP28 optical transceiver modules available for 100G connections, it can sometimes be overwhelming to decide on which

Sep 30, 2025

40G QSFP+ SR4 vs LR4: Key Differences in Optical Modules

Compare 40G QSFP+ SR4 and 40G QSFP+ LR4 optical modules to make an informed purchasing decision. Learn key differences and choose the right module for your networking needs.

Nov 05, 2025

QSFP28 Module Types: Selection Guide for 100G Networks

QSFP28 LR4 uses LAN-WDM technology to multiplex four 25G lanes onto a single pair of LC duplex fibers. It operates with wavelengths between 1295–1310 nm and supports up to 10 km

Oct 16, 2025

100G Optical Module: How to Choose Between SR4,

Continuing our discussion on 100G optical modules, let's explore the essential 100G transmission standards—SR4, DR1, DR4, BiDi SR, LR4,

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400G ZR, DR4, FR4, LR4, SR8 QSFP-DD Optical

What are the Common 400G Transceiver Types in the Market? 400G DR4 QSFP-DD
Transceiver 400G DR4 is an optical transceiver module designed

Contact Us

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