LR4 Optical Module Structure



Overview

Simply put, 100GBASE-LR4 combines four channels of 25G SFP28 modules into a single device to achieve 100G data rates. What about 100G LR?

You might have guessed it—the absence of a number before “LR” suggests a. 100G QSFP28 CWDM4 (Coarse Wavelength Division Multiplexing 4-lane) optical module complies with IEEE 802. It supports a transmission distance of 2km over single-mode fiber. How does CWDM4 work?

Through the electrical interface, the electrical signals enter the PCB of the module. SR (Short Range): Up to 300 meters, using multimode fiber for. A 400G QSFP-DD LR4 transceiver is a high-speed optical module designed to transmit 400Gbps Ethernet signals over single-mode fiber (SMF) for distances of up to 10km. It provides an ideal solution for large-scale data centers for high-demand. Is the LR4 a groundbreaking fourth-generation technology in telecommunications, offering a significant breakthrough, yet somehow more affordable than the seemingly older LR module?

In this concise article, we'll clarify these differences, explain their implications, and guide you on how to use them. 100GBASE-LR4 (commonly known as LR4) is a mature optical transceiver standard introduced in 2010 as part of IEEE 802.

© 2026 DOLPHIN FIBER SYSTEMS - All rights reserved

Article Content

100G CWDM4 vs LR4 vs PSM4, What Are the Differences?

100G QSFP28 CWDM4, 100G QSFP28 LR4, and 100G QSFP28 PSM4 optical modules are three major high-speed interconnection options for 100G Ethernet medium-and-long distance

400G Optical Modules Explained: SR4 Vs. DR4 Vs. FR4 Vs. LR4

Key differences between SR4, DR4, FR4, and LR4 400G optical modules. Expert advice from Asterfusion engineers to optimize your data center network.

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

A 400G QSFP-DD LR4 module converts high-speed electrical signals from a switch ASIC into multiplexed optical signals that travel through single-mode fiber. The electrical and optical lane

100G LR vs LR4: Key Differences & Applications Guide

Compare 100G LR vs LR4 optical modules. Learn about NRZ vs PAM4 modulation, channel differences, and which module fits your network

LR4 vs LR1 Transceivers – MapYourTech

Structured modules from fiber basics to 400G coherent. In-depth coverage of DWDM, OTN, coherent optics, network design, and more — written

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

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

400G QSFP-DD DR4, FR4, or LR4? Expert analysis on choosing the right architecture. Improve signal integrity, power efficiency, and cabling topology today.

100Gb/s QSFP28 LR4 Transceiver QSFP28-100G-LR4

The product is designed with form factor, optical/electrical connection and digital diagnostic interface according to the QSFP28 Multi-Source Agreement (MSA) and compliant to IEEE 802.3bm.

CWDM4 vs LR4 vs PSM4: Optical Transceiver

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

© 2026 DOLPHIN FIBER SYSTEMS - All rights reserved

Top Optical Modules for POTN Deployment: SFP, QSFP, and OSFP

Modern optical transport networks are the nervous system of digital infrastructure. As data demand continues to multiply, choosing the right optical module becomes a crucial decision in

Understanding Optical Modules: Working Principles,

Explore the working principles, structures, and performance metrics of optical modules, essential components of optical fiber communication

Development trend of optical

Development trend of optical interconnect technology in intelligent computing centers Summary 6 High rate :Intelligent computing centers are driving the acceleration and innovation of optical module chips

SFP vs SFP+ vs SFP28 vs QSFP+ vs QSFP28: 2026

SFP vs SFP+ vs SFP28 vs QSFP+ vs QSFP28: 2026 Optical Transceiver Selection Guide A practical, engineer-friendly guide to choosing the

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.

Understanding OSFP Modules: Your Guide to High

Discover how OSFP modules provide high-speed optical connectivity for data center applications. Learn about the different form factors, data rates,

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

QSFP-DD Price Guide 2026: 400G/800G Costs & TCO Analysis

QSFP-DD price guide with 400G/800G module costs, OEM vs third-party comparison, volume discounts, and 3-year TCO analysis for data center buyers.

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

Related Video Reference

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

© 2026 DOLPHIN FIBER SYSTEMS - All rights reserved

Contact Us

Continue your research online:

Website: https://dolphinspreschool.co.za
Technical inquiry: https://dolphinspreschool.co.za/project-desk.html
African project coordination: Waterfall City, Midrand, Gauteng, South Africa

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

© 2026 DOLPHIN FIBER SYSTEMS - All rights reserved