

How to use an LR4 optical module



Overview

This guide breaks down NS-branded QSFP28 modules—SR4, LR4, and DR—with practical advice on reach, fiber types, connectors, power, DOM, interoperability, and lifecycle management. As one of the most popular transceiver types in 100G Ethernet applications, the QSFP 100G LR4 offers a powerful combination of long reach, compact form factor, and compatibility with single-mode fiber networks. To better understand why it has become an industry standard, let's break down its. 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. 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. 400G QSFP-DD DR4, FR4, and LR4 are three optical transceiver architectures defined for 400-gigabit Ethernet, each optimized for different fiber infrastructures and reach requirements. DR4 uses parallel single-mode optics over MPO fiber, while FR4 and LR4 rely on CWDM wavelength multiplexing over. The electrical interface uses CAUI-4, which stands for 100 Gigabit Attachment Unit Interface 4-lane. This defines how the switch ASIC talks to the module.

Article Content

100G Optical Module: How to Choose Between SR4,

Today, we've delivered a clear and comprehensive breakdown of the transmission standards for 100G optical modules. Our goal is to empower

400G Optical Transceiver: Cisco 400G Optics, Pricing & Applications

The 400G optical transceiver has been established as the mainstream solution for next-generation core interconnects. Whether Cisco 400G transceivers or widely adopted modules such as

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.

Types of Area Network and How Optical Modules Support Them

MANs and WANs rely on long-range single-mode transceivers. SANs use specialized Fibre Channel optical modules. AI clusters increasingly depend on 400G and 800G optical interconnects.

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

Global Leader in Materials, Networking, and Lasers

Build equipment that maximizes throughput and yield using cutting-edge optics, lasers, and composite materials.

QSFP28 Transceiver: Complete 100G Connectivity Guide (2026)

QSFP28 transceiver guide covering module types, pricing, compatibility, and deployment. Learn how to choose, deploy, and troubleshoot 100G QSFP28 optics.

Fiberstore QSFP-LR4-40G, 40GbE QSFP+ Optical Transceiver Module

Genuine Fiberstore QSFP-LR4-40G QSFP+ Optical Transceiver Module in used condition. Designed for high-speed 40Gb Ethernet networking over long-distance single-mode fiber connections.

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

100 Gb LR4 10 km QSFP28 Module

The LR4 QSPF28 module provides a 100 Gb optical Ethernet connection using LC duplex optical connectors over SMF (single-mode fiber). This optical module integrates four data lanes on separate

QSFP 100G LR4: 1310nm Single Mode Fiber Module Explained

Choosing the right QSFP 100G LR4 module requires evaluating its technical compatibility, verifying equipment support, and reviewing key optical and performance parameters.

100GBASE QSFP-100G Modules Data Sheet

The Cisco QSFP100 LR4 Module supports link lengths of up to 10km over a standard pair of G.652 single-mode fiber with duplex LC

100G LR4 vs. Single Lambda 100G LR, What's the Difference?

This article will delve into the key differences between these two types of 100G optical modules (100G LR1 and 100G LR4) to help you make a more informed decision when choosing the

Certified Performance 400G LR4 TOSA 4 Channels 53G CWDM EML

This Certified Performance 400G LR4 TOSA meets industry standards for 400G QSFP-DD optical transceiver modules. It integrates 4 channels of 53G CWDM EML lasers with precise wavelength

QSFP-DD Transceiver Guide 2026: Complete 400G/800G Deployment

Master QSFP-DD transceiver deployment for 400G/800G networks. Compare module types (SR8/DR4/FR4/LR4), cable options, pricing, and implementation best practices.

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.

Custom 100GBASE-LR4 QSFP28 Module | Dual-Rate OTU4

Secure robust 100G MAN connectivity. Our 100GBASE-LR4 QSFP28 module features LAN-WDM precision and Dual-Rate EEPROM for seamless Ethernet and 112G OTU4 integration.

800G Optical Modules Explained: Standards, Types

Discover everything about 800G optical modules—standards, packaging, types & applications. Learn how they power AI, HPC & next-gen

400G, 800G, and Terabit Pluggable Optics:

Breakout transceivers generally use MPO connectors which have multiple fibers for both the Tx and Rx. The port controls how the module will be configured either for breakout or non breakout operation.

Dell networking transceivers and cables

The hermetically sealed LR4 can be used for liquid immersion use cases. 100GbE QSFP28 ports support both optical and passive copper breakout cables. Each of the four 25 GbE lanes can be

Cisco 40G QSFP+ Transceiver Modules - Network Warehouse

The Cisco 40G QSFP+ transceiver modules portfolio offers customers a wide variety of high-density and low-power 40 Gigabit Ethernet connectivity options.

OFC 2025: POET demos light source, 1.6T optical engines, for AI apps

Among the suppliers offering modules based on POET's optical engines, LuxshareTech will be demonstrating 400G and 800G DR and FR modules at OFC (Booth #4905) and Adtran will

NSComm100G Optical Transceiver Modules: A Practical Guide

This guide breaks down QSFP28 modules - SR4, LR4, and DR, with advice on reach, fiber types, connectors, power, DOM, interoperability, and lifecycle management.

Cisco CPAK-100G-LR4 Transceiver module, 10km SMF Ref | USED

Vendor: CISCO SKU: CPAK-100G-LR4 Barcode: Availability: Many in stock Product type: NETWORKING-TRANSCEIVER HKD 709.00 Ask an expert Quantity Decrease quantity Increase

Optical Transceiver: SFP vs SFP+ vs QSFP28 vs QSFP-DD

This article provides a comprehensive comparison of mainstream optical transceivers, including SFP, SFP+, QSFP+, QSFP28, and QSFP-DD. It explains their technical differences,

direcXource Generic Compatible CFP-100G-LR4 100GBASE-LR4

direcXource's CFP-100G-LR4 optical transceiver is a parallel 112Gbps C Form-factor Pluggable CFP module for use in 100GBASE Ethernet. CFP LR4 provides 100Gb/s throughput up to 10km over

Overview of QSFP28 LR4 Optical Transceiver

In our previous post, we provided an in-depth analysis of the 100G LR4 transceiver. Now, we will introduce the QSFP28 100G LR4 optical

QT News and Blog

Can QSFP28 100G LR4 and 100G CWDM4 Transceivers Operate on the Same Link?
This article explains whether 100G QSFP28 LR4 and 100G QSFP28 CWDM4 transceivers can operate on

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