

What types of 100G optical modules are available

Article Overview

100G optical modules come in multiple types, including QSFP28 SR4, LR4, CWDM4, PSM4, ER4, ZR4, and BiDi, each optimized for different distances, fiber types, and network applications.

Common 100G Module Types

QSFP28 Modules are the most widely used 100G form factor, featuring four 25Gbps lanes aggregated to 100Gbps. Key types include:

- o 100GBASE-SR4: Short-range, parallel multimode module using MPO/MTP connectors, ideal for data center interconnects up to 100 meters over OM4 fiber .
- o 100GBASE-LR4: Long-range, single-mode module using four wavelengths (1270-1330nm) over duplex LC fiber, suitable for distances up to 10 km .
- o 100GBASE-CWDM4: Uses coarse wavelength division multiplexing to transmit four wavelengths over single-mode fiber, supporting distances up to 2 km .
- o 100GBASE-PSM4: Parallel single-mode module for medium-range links, typically up to 500 meters, using four independent single-mode lasers .
- o 100GBASE-ER4: Extended reach module for single-mode fiber, supporting distances up to 40 km .
- o 100GBASE-ZR4: Ultra-long reach module for single-mode fiber, capable of 80 km or more, often used in metro and telecom networks .
- o 100G BiDi (Bidirectional): Transmits and receives on a single strand of single-mode fiber using two wavelengths, reducing fiber count for short- to medium-range links .
- o 100G SWDM4: Short-wavelength division multiplexing module for multimode fiber, supporting distances up to 150 meters on OM5 fiber .

Other Form Factors

- o CFP/CFP2/CFP4 Modules: Larger form factors supporting 100G and OTU4 applications, often used in telecom and high-capacity backbone networks .
- o Dual Rate and Single Lambda QSFP28 Modules: Convert 4x25G NRZ signals to a single 100G PAM4 optical signal, enabling longer reach and compatibility with OTN networks .

Key Considerations

- o Transmission Distance: Ranges from 100 meters (SR4) to 80 km (ZR4).
- o Fiber Type: Multimode (OM3/OM4/OM5) for short-range, single-mode for long-range.
- o Connector Type: MPO/MTP for parallel modules, LC duplex for serial or WDM modules.

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- o Modulation: NRZ for parallel modules, PAM4 for long-reach single-lambda modules, coherent modulation for ultra-long distances .
- o Applications: Data centers, enterprise core networks, metro and telecom networks, and optical transport networks. By understanding these types and their specifications, network engineers can select the appropriate 100G module based on distance, fiber type, power consumption, and cost efficiency.

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

Product Overview The 100G transceiver module portfolio offers a wide variety of high-density and low-power 100G connectivity

Selecting the appropriate 100G module for your network can significantly enhance performance and efficiency. Here's

A complete guide to 100G QSFP28 transceivers covering types, specs, reach, compatibility, and how to choose the right module for

In summary, while 100G optical modules are widely deployed in current networks, 400G modules offer significantly

Explore the ultimate guide to optical modules. Learn types, functions, performance metrics

The QSFP-100G-B20U4-I and QSFP-100G-B20D4-I operate in pairs, with one required at

WHGEARLINK modules are known for their reliability, energy efficiency, and excellent performance in demanding environments.

100G optical module have emerged as essential components in the fast-paced world of data centers and network

Types of 10G/40G/100G Optical Modules Optical modules are the key components that

How should the correct 100G optical transceiver module be selected? This blog will introduce 100G optical transceiver

SFP+ modules are inherently single-lane devices Forward compatibility When 100G SerDes (serializer - deserializer)

What types of 100G optical modules are available

Discover everything about 800G optical modules--standards, packaging, types & applications. Learn how they power

The 100G SFP112 form factor represents an innovation in the field of optical modules, aimed at meeting the demands

? Ready to simplify your 100G optical transceiver selection? ? Contact the LINK-PP experts today! We'll analyze your

Dive into the technological revolution of data centers transitioning from 10G to 25G/100G network architectures to

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