

# What type of optical module is used for distances of several hundred meters



## Overview

Multi-mode optical modules are used for short-distance transmission, generally no more than 2km, usually in the range of several hundred meters to several kilometers, and are often used for transmissions within 300 - 500m. LINK-PP Multimode optical modules work best within 300 to. Continuing our discussion on 100G optical modules, let's explore the essential 100G transmission standards—SR4, DR1, DR4, BiDi SR, LR4, CWDM4, SWDM4, ER, and ZR. These standards often cause confusion when selecting the right module for your needs. These modules are typically plugged into network equipment such as switches, routers, and servers. There are various types of optical modules, including SFP (Small Form-factor). The 100G QSFP28 CWDM4 optical module is a high-performance, cost-effective solution for short-to-medium distance interconnects in modern data centers, enterprise campus networks, 5G midhaul, and cloud backbone networks.



## Article Content

Jul 04, 2025

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

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

Explore the 400G optical transceiver technology, pricing, Cisco optics, and application scenarios. Learn about QSFP-DD, DR4, and more for next-gen network solutions.

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Understanding the 100G QSFP28 CWDM4 Optical Transceiver

The 100G QSFP28 CWDM4 module is well-suited for data center interconnect (DCI) applications, including connections within a Spine-Leaf architecture and inter-data hall links within

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Fiber-optic communication

Optical fiber is used by many telecommunications companies to transmit telephone signals, internet communication, and cable television signals.

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100G Optical Module: How to Choose Between SR4, DR4, FR4, LR4,

For short distances (<100m), prioritize multimode modules (SR4/SR-BiDi/SWDM4). For medium to long distances (500m-10km), opt for single-mode modules (DR1/DR4/LR4).

Feb 26, 2026

Multi-mode optical fiber

Multi-mode optical fiber is a type of optical fiber mostly used for communication over short distances, such as within a building or on a campus. Multi-mode links can

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100G QSFP28 Optical Module Selection Guide: Medium to Long

This article tells you how to choose 100G QSFP28 modules for medium and long transmission distances, as well as the advantages of QSFP28 modules and why you should choose it.

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### Comprehensive Guide to Optical Transceiver

Introduction Optical modules are critical components in fiber optic communications, enabling the conversion between electrical and optical signals.

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### Understanding Optical Modules: Working Principles,

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

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### Understanding SR/LR Optical Designations and Distances

SR modules are typically limited to a few hundred meters, ideal for short connections within a rack or between nearby switches. Their shorter range results from the higher attenuation and dispersion of

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### SFP Optical Transceiver Modules for Long Distance: A

Discover everything you need to know about SFP optical transceiver modules for long-distance fiber transmission. Compare LX, EX, ZX models and

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### Fiber Optic Cable Range: Comprehensive Guide

So, how far is your fiber optic cable range compared to copper? The maximum distance of copper is around 328 feet (100 meters), which is a far

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### What Are the Key Parameters of Optical Modules

Understand the key parameters of optical modules, including transmission rate, distance, wavelength, and fiber compatibility, for better network

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### Key Differences Between Single-Mode and Multimode

Multi-mode optical modules are used for short-distance transmission, generally no more than 2km, usually in the range of several hundred meters to

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### Optical module

Tunable lasers are sometimes used to allow a module to support various forms of network-based optical switching such as needed in certain cases by an optical mesh networks or a Reconfigurable optical

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### 100G QSFP ZR4 S Optical Module Overview

These modules complete the Cisco 100G QSFP28 portfolio, which includes 100 meters, 500 meters, 2 kilometers, 10 kilometers, 25 kilometers, 40 kilometers, and now 80 kilometers, giving

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### Long Distance Optical Module Characteristics and Application

Long-distance optical modules refer to optical modules with a transmission distance of more than 30km, which can meet network data transmission requirement In the actual use of long-distance optical

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### Optical Module Guide: Demystifying Optical Modules

Each module type supports different fiber types (single-mode or multi-mode) and distances. For instance, single-mode fiber modules are used for long

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### 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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### Fiber Optic Cable Distance: A Comprehensive Guide

Fiber optic cables are the backbone of modern communications, enabling high-speed data transfer over vast distances. Unlike traditional copper

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## The Technological Evolution and Application Trends of

Transmission distances generally range from a few hundred meters up to 120 kilometers, determined by fiber type and laser wavelength. In practical

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## Introduction to Common 100G Optical Module Types,

By understanding the different types of 100G optical modules available, their advantages, and application scenarios, organizations can make informed

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## 100G Optical Module Selection Guide: Advantages and Types of

Explore the QSFP28 100G optical module, a vital component for high-speed network connections. Discover its unique features, advantages, and various types to meet diverse

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## 100G QSFP28 Optical Module Selection Guide: Medium to Long

Choose 100G LR4 or 100G ER4. 100G LR4 supports 10KM transmission distance, while 100G ER4 supports up to 40KM transmission distance. Both modules use single-mode optical fiber

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## 100G Optical Module Introduction: Understanding Its

Module Types (QSFP28 vs. CFP2): There are different form factors for 100G optical modules, with QSFP28 and CFP2 being the most common.

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## Comprehensive Knowledge Of Long-distance Optical

To reduce the failure of long-distance optical modules caused by improper use, the following precautions should be taken during use: □1□Before

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## 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.

## Contact Us

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