

## Kilometer Gigabit Optical Module



### AI Overview

Kilometer-range gigabit optical modules are SFP or SFP+ transceivers designed to transmit Ethernet signals over single-mode fiber for distances typically from 1 km up to 10 km.

**Overview** Kilometer gigabit optical modules are pluggable transceivers that enable high-speed Ethernet connections over fiber optic cables. They are commonly used in enterprise networks, data centers, and metro access networks where copper cabling is insufficient for long distances. These modules support 1 Gbps (Gigabit Ethernet) or higher speeds, and their reach depends on the fiber type and wavelength used.

**Types and Specifications**

**Single-Mode Fiber (SMF) Modules:** Designed for longer distances, typically 1 km to 10 km or more. They operate at wavelengths such as 1310 nm or 1550 nm and use LC duplex connectors. For example, a 10GBASE-LR SFP+ module supports up to 10 km over single-mode fiber at 1310 nm.

**Multimode Fiber (MMF) Modules:** Suitable for shorter distances, usually up to 550 meters for gigabit speeds, operating at 850 nm with OM3 or OM4 fiber.

**Form Factors:** Common form factors include SFP (1 Gbps) and SFP+ (10 Gbps). These modules are hot-pluggable and compatible with a wide range of switches, routers, and network interface cards.

**Digital Diagnostic Monitoring (DDM/DOM):** Many modules include monitoring features for optical power, temperature, and signal integrity, ensuring reliable operation over long distances.

**Deployment Considerations**

**Distance and Fiber Type:** Ensure the module matches the fiber type (single-mode or multimode) and the required link distance. Single-mode fiber is preferred for distances over 1 km.

**Wavelength Selection:** 1310 nm is common for 1–10 km links, while 1550 nm is used for longer distances or DWDM applications.

**Compatibility:** Modules must comply with IEEE standards (e.g., 1000BASE-LX for gigabit, 10GBASE-LR for 10 Gbps) and industry MSAs to ensure interoperability across devices.

**Applications:** Ideal for LAN, MAN, data center interconnects, and metro net...

## Article Content

The Ultimate Guide to ZTE SFP Module Distance and Wavelength

The host device's ability to support Digital Optical Monitoring (DOM) is crucial for real-time network management, allowing administrators to monitor key parameters like optical power and temperature

XGSPON ONU SFP+ 1270nm-TX/1577nm-RX 9.953G-TX/9.953G-RX

OverviewThe XGS-SFP-ONT-MAC-I is a high-performance optical transceiver module designed for 10-Gigabit-capable passive optical network (XGS-PON) deployments. It functions as an integrated

Gigabit single-mode single-core fiber optic module

Gigabit single-mode single-core optical fiber modules usually have the following specifications: multi-mode 550m, single-mode 15km, 40km, 80km, 120km, etc. In addition to the

Arista Optics Modules and Cables

Each module is optimized for different media and reach (ranging from 0.5 meters to 80 kilometers). All interface speeds, from 1G to 400GE have connectivity options that include Direct Attach copper

Ortronics Cisco SFP+ Module

Ortronics Cisco SFP+ Module - For Optical Network, Data Networking - 1 x LC Duplex 10GBase-BX Network - Optical Fiber - Single-mode - 10 Gigabit Ethernet - 10GBase-BX - 10 Gbit/s -

Cisco 10GBASE SFP+ Modules Data Sheet

Product overview The Cisco® 10GBASE SFP+ modules (Figure 1) give you a wide variety of 10 Gigabit Ethernet connectivity options for data center, enterprise wiring closet, and service provider transport

The Ultimate Guide to ZTE SFP Module Distance and Wavelength

10 Gigabit Ethernet (10GBASE) and 40 Gigabit Ethernet Transceivers As bandwidth demands grow, 10 Gigabit Ethernet SFP+ modules become critical for aggregation and server connectivity. For long

Cisco SFP Modules for Gigabit Ethernet Applications

This data sheet describes the benefits, specifications, and ordering information for the Cisco SFP Modules for Gigabit Ethernet Applications.

10G X2 ZR Module Guide: Specs, Compatibility & Sourcing

The phrase "10G X2 ZR" refers to a specialized 10 Gigabit Ethernet optical transceiver module designed for ultra-long-haul connectivity, reaching up to 80 km over single-mode fiber Fibermall Exaoptics.

Juniper SFP

Juniper SFP- price from Juniper price list 2022. Checks Juniper MSRP Price on IT Price

Optical Modules Market Research Report 2034

Optical Modules Market Outlook 2025-2034 The global optical modules market was valued at \$14.8 billion in 2025 and is projected to reach \$39.6 billion by 2034, advancing at a compound annual

What Is 10GBASE-LR? SMF 1310nm 10km SFP+ Explained

10GBASE-LR is a 10-gigabit Ethernet optical standard that operates at 1310 nm over single-mode fiber (SMF), supporting link distances of up to 10 km.

100Gbps QSFP28 LR4 Optical Transceiver Module for Data Centers

10Km 100Gbps QSFP28 LR4 transceiver for high-speed data centers. Compliant with IEEE 802.3ba, supports 10GBASE-LR4 Ethernet with low power consumption.

A Comprehensive Look at the QSFP28-100G-ZR4 Optical Module

The QSFP28-100G-ZR4 fiber-optic module goes beyond being a simple hardware component; it enables a significant extension of network coverage. Its sophisticated, coherent optical

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SFP Optical Transceiver Modules for Long Distance: A Complete

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

Cisco 10GBASE SFP+ Modules Data Sheet

The Cisco 10GBASE-ZR module supports link lengths of up to about 80 kilometers on standard SMF (G.652). This interface is not specified as part of the 10 Gigabit Ethernet standards

A Comprehensive Look at the QSFP28-100G-ZR4 Optical Module

The QSFP28-100G-ZR4 optical transceiver is a high-performance module that delivers reliable data transfer across extended distances, with exceptional signal quality and reliability.

3KM/20KM Gigabit Fiber Optical Media Converter: A ...

It details the function of the 3KM/20KM Gigabit Fiber Optical Media Converter, highlighting its compatibility, transmission speed, and long-distance capabilities. The article provides a guide on

SFP-10G-LR-10 Avanis | europages

About this product 10/5/2.5 Gigabit Fiber LR SFP+ Module, TX: 1310nm, RX: 1310nm, with SM LC 10 km, DDM functionality, temperature range 0~70 °C

Optic Modules Datasheet

datasheet is intended to guide the user through the various options available when choosing an optic module for a given platform depending on the architecture. The following table lists the different

Cisco SFP vs GBIC vs XFP vs SFP+: The Practical

Introduction - Why Optical Transceivers Matter In every modern enterprise network, performance depends heavily on the quality and compatibility

Fiber Modules

All of them are hot-pluggable small-form factor transceiver modules integrated with the high sensitivity PIN receiver and signal conditioner for 1.25/10 Gigabit Ethernet applications.

## Contact Us

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