Gigabit single-mode optical modules are optical transceivers



Overview

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

Key Takeaways

Yes, gigabit single-mode optical modules are optical transceivers that convert electrical signals into optical signals for long-distance fiber communication.

Overview

Gigabit single-mode optical modules are Small Form-factor Pluggable (SFP) transceivers designed to support 1Gbps Ethernet transmission over single-mode fiber (SMF) networks. They are hot-pluggable, allowing network devices like switches, routers, and media converters to adapt to different fiber links without replacing the hardware. These modules perform real-time signal conversion, transmitting data as optical signals over fiber while receiving optical signals and converting them back to electrical signals for the host device.

Key Characteristics

Wavelengths: Common single-mode SFP modules operate at 1310nm for medium distances (up to 40 km) and 1550nm for long distances (up to 120 km) due to lower transmission loss. Transmission Distance: Single-mode modules are optimized for long-range communication, typically ranging from 15 km to 120 km, depending on the wavelength and module class. Interface: Most gigabit single-mode SFP modules use LC connectors, while older GBIC modules use SC connectors.

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Data Rate: Standard gigabit SFP modules support 1. 25 Gbps, compatible with Gigabit Ethernet standards.

Applications

These modules are widely used in enterprise networks, data centers, and telecom infrastructure where long-distance fiber links are required. They are suitable for access-layer switching, backbone connections, and legacy infrastructure upgrades.

Single-mode SF

Ps are preferred over multimode for long-distance links because they experience lower signal loss and can maintain signal integrity over tens of kilometers.

Summary

In essence, gigabit single-mode optical modules are optical transceivers that enable high-speed, long-distance fiber communication by converting electrical signals to optical signals and vice versa. Their modular, hot-pluggable design, combined with support for single-mode fiber, makes them essential components in modern networking environments.

Article Content

Cisco SFP Modules for Gigabit Ethernet Applications Data Sheet

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

1G SFP Transceivers | Mini-GBIC SFP Modules

FS gigabit ethernet transceiver solutions provide fibre or copper options including 1000BASE-SX, 1000BASE-LX/LH, 1000BASE-T etc., from 100m to 160km, for

Gigabit SFP Module: A Complete Guide to 1G SFP Transceivers

Learn what a gigabit SFP module is, how it works, main types, key specifications, and common use cases to choose the right 1G SFP for your network.

Gigabit single-mode single-core fiber optic module

Optical signals are transmitted directly without repeater amplification. Gigabit single-mode single-core optical fiber modules usually have the following specifications: multi-mode 550m, single

SFP modules – transceivers for 1/2/4G fibre channel

SFP transceivers are valued for their flexibility, low power consumption and ability to support both single-mode and multimode fiber, making them ideal for short-range

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Cisco Transceiver Modules

Cisco Transceiver Modules - Learn product details such as features and benefits, as well as hardware and software specifications.

Single Mode

Teroline SFP module for Gigabit Ethernet applications over single mode optical fiber. The module can be used with any network device that accepts standard MSA transceivers - e.g. D-Link, Zyxel, Mikrotik

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

Introduction to the QSFP28-100G-ZR4 Module Network operators use QSFP28-100G-ZR4 optical transceiver s to deliver 100GbE connectivity across extended Single-mode fiber links with

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Perle SFP Optical Transceivers are designed for use with Perle SFP Media Converters, Industrial Ethernet Switches, IOLAN SCG Console Servers and third party equipment that supports SFP

Transceivers

The Hirschmann line has a variety of transmitter and receiver options available, allowing users to choose the correct transceiver for each link in order to provide the required optical reach over fiber when

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Berns gigabit sfp transceiver ⚡ Lc photoelectric conversion ...

Have you ever experienced: the network cable in the computer room suddenly breaks in the middle of pulling, and the fiber optic interface does not match and you stare blankly; temporary

Cisco 40GBASE QSFP Modules Data Sheet

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The Cisco® 40GBASE QSFP (Quad Small Form-Factor Pluggable) portfolio offers customers a wide variety of high-density and low-power 40 Gigabit Ethernet connectivity options for

The Ultimate Guide to SFP Modules (2026): Types, Speeds

Confused by SFP vs SFP+? Read the definitive 2026 guide on SFP modules. We explain Single Mode vs Multimode, DDM diagnostics, and how to choose the right transceiver for Cisco, Juniper, and more.

What is QSFP & QSFP+ Transceiver: An Ultimate

Single Mode QSFP: The SMF type typically features an LC connector and a WDM laser, suitable for 9/125 single-mode fiber cabling, offering a

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

Cisco Compatible SFP Transceiver Fiber Optic Equipment 1.25G Gigabit ...

Cisco Compatible SFP Transceiver Fiber Optic Equipment 1.25G Gigabit BiDi Single Fiber 20KM SC Port Optical Module for Switch

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

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