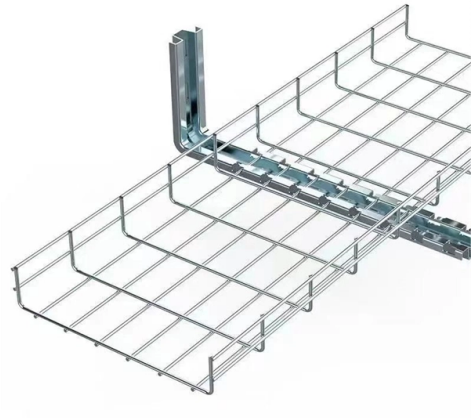
Gigabit optical module single-mode fiber



Overview

Gigabit single-mode single-core fiber optic module Therefore, the 155M optical module is also called FE (100M) optical module, and the 1.25G optical module.

Key Takeaways

Gigabit single-mode fiber modules enable high-speed data transmission over long distances, typically using 1310nm or 1550nm wavelengths with LC connectors.

Overview

Gigabit optical modules, commonly in SFP (Small Form-Factor Pluggable) or mini-GBIC form factors, are used to connect switches, routers, and other network devices over fiber-optic links. Single-mode fiber (SMF) modules are designed for long-distance transmission, ranging from 10 km to over 70 km, depending on the module type and wavelength.

Key Specifications

Wavelengths: 1310nm: Standard for single-mode fiber, suitable for distances up to 40 km, with moderate loss and low dispersion. 1550nm: Used for long-distance links above 40 km, capable of reaching up to 120 km without repeaters, though dispersion is higher. Data Rate: Most Gigabit SMF modules operate at 1.

25 Gbps, compatible with 1000BASE-LX/LH standards for Gigabit Ethernet. Transmission Distance: 10 km: Typical for standard 1000BASE-LX SFP modules (e.g., HMS GSFIBER-SFP-10K) using 1310nm wavelength. 40 km: 1000BASE-EX modules for extended reach.

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70 km: 1000BASE-ZX modules for ultra-long-distance links. Connector Type: Most single-mode SFP modules use LC connectors, while older GBIC modules may use SC connectors. Optical Power and Sensitivity: Modules specify transmit power and receiver sensitivity to ensure reliable link performance.

Inline optical attenuators may be required for short distances to prevent receiver overload. Laser Type: Single-mode modules use laser diodes to generate coherent light, which allows long-distance transmission with minimal signal loss. Practical ConsiderationsHot-Swappable: SFP modules can be inserted or removed without powering down the device, simplifying maintenance.

Digital Optical Monitoring (DOM): Some modules support DOM to monitor optical power, temperature, and voltage for network reliability. Compatibility: Ensure the module is compatible with your network equipment; many SFP modules are MSA-compliant and can work across different vendors. Mode Conditioning: When connecting single-mode modules to legacy multimode fiber, a mode conditioning patch cable may be required to reduce differential mode delay.

Summary

Gigabit single-mode fiber modules are ideal for long-distance, high-speed Ethernet connections, offering flexibility in wavelength, distance, and form factor. Choosing the right module depends on the required link distance, fiber type, and network equipment compatibility, with 1310nm modules for medium distances and 1550nm modules for extended links.

L

C connectors and SFP form factors are standard for modern deployments, providing both reliability and ease of maintenance.

Article Content

Gigabit single-mode single-core fiber optic module

Therefore, the 155M optical module is also called FE (100M) optical module, and the 1.25G optical module is also called GE (gigabit) optical module. This is the most widely used module

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.

SFP Transceiver

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Utilizing LC connectors and operating at a 1310nm wavelength, it enables high-speed data transmission over single-mode fiber for distances up to 10 kilometers. This module provides a reliable long-reach

Tech In Devices AddOn ADVA SFP+ Module

AddOn ADVA SFP+ Module - For Optical Network, Data Networking - 1 x LC 10GBase-DWDM Network - Optical Fiber - Single-mode - 10 Gigabit Ethernet - 10GBase-DWDM - Hot-swappable - TAA

Small Form-factor Pluggable

Small Form-factor Pluggable Small Form-factor Pluggable connected to a pair of fiber-optic cables Small Form-factor Pluggable (SFP) is a compact, hot-pluggable network interface module format used for

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

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