1G Multimode Fiber



Overview

Discover what a 1G multimode SFP is, how 1000BASE-SX works, and when to use short range fiber modules for reliable Gigabit Ethernet connections.

Key Takeaways

1G multimode fiber (MMF) uses 1 Gigabit SFP modules to transmit data over short distances, typically at 850 nm wavelength, optimized for localized network environments.

Overview

A 1G multimode SFP is a Small Form-Factor Pluggable transceiver designed to deliver 1 Gigabit per second (1 GbE) over multimode fiber (MMF) networks. It is hot-swappable and compatible with switches, routers, media converters, and network interface cards, making it ideal for data centers, enterprise networks, and campus environments. The most common standard for these modules is 1000BASE-SX, which operates at an 850 nm wavelength and is optimized for short-range communication.

Fiber Type and Distance

Multimode fiber has a core diameter of 50–100 µm, allowing multiple modes of light to propagate. It is cost-effective and suitable for short-distance interconnections, typically up to 550 meters depending on the fiber type and quality. The achievable distance varies with the fiber grade: OM1 (62.

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5 µm): Legacy fiber, shorter distances, LED light sourceOM2 (50 µm): Moderate distance, LED or VCSELOM3/OM4/OM5 (50 µm, laser-optimized): Higher bandwidth, longer distances up to 550 m for 1G, suitable for modern data centers Key SpecificationsSpeed: 1 Gbps (1000 Mbps)Standard: IEEE 802. 3z 1000BASE-SXWavelength: 850 nmConnector: Typically LC duplexDistance: Up to 550 m on OM3/OM4 fiber; shorter on older OM1/OM2 fiber Applications1G multimode SFPs are commonly used for: Data center rack-to-rack connectionsConnecting switches between floors or wingsShort-range campus network linksLegacy Gigabit Ethernet deployments These modules convert electrical signals from network equipment into optical signals for transmission over fiber and back into electrical signals at the receiving end, ensuring low-latency, high-speed connectivity within localized environments.

Compatibility and Considerations

Interoperability: Adheres to 1000BASE-SX standards, ensuring compatibility across vendors if specifications match Single-mode vs multimode: 1G multimode SFPs are not compatible with single-mode fiber without mode-conditioning patch cables Distance limitations: For longer distances, single-mode SFPs (1000BASE-LX/LH) are recommended In summary, 1G multimode fiber with 1000BASE-SX SFP modules provides a reliable, cost-effective solution for short-range Gigabit Ethernet connections, particularly in data centers and campus networks, while ensuring standardized interoperability and ease of deployment.

Article Content

What Is a 1G Multimode SFP? SX Optics and MMF Design

Discover what a 1G multimode SFP is, how 1000BASE-SX works, and when to use short range fiber modules for reliable Gigabit Ethernet connections.

Cisco SFP Modules for Gigabit Ethernet Applications

The 1000BASE-LX/LH SFP, compatible with the IEEE 802.3z 1000BASE-LX standard, operates on standard single-mode fiber-optic link spans of up to 10 km and up to 550 m on any multimode fibers.

1000BASE SFP (mini-GBIC) Transceivers

FS Gigabit SFP module solutions provide fibre and copper connections up to 160km, includes 1000BASE-SX, 1000BASE-LX/LH, 1000BASE-EX, 1000BASE-ZX,

10G Multi-Mode Optical Module

SFP+ transceiver that supports 10G connections up to 400 m using multi-mode fiber with a duplex LC UPC connector.

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OM1 vs OM2 vs OM3 vs OM4 vs OM5 Multimode Fiber Guide

Compare OM1, OM2, OM3, OM4, and OM5 multimode fiber specs, distances, bandwidth, and applications. Essential guide for data center fiber selection.

Multimode Fiber Cable Types: OM1/OM2/OM3/OM4/OM5 Compared

Compare all five multimode fiber grades — OM1 through OM5 — with full specs, bandwidth, distance limits, and real-world data center use cases. Learn which grade fits your

Single Mode vs. Multimode Fiber Optic Cables

There are two main types of fiber optic cables: single mode and multimode. Although they can do the same job in some instances, the different

Multimode Fiber Optic Patch Cables

In addition to our stocked multimode patch cables, we offer a custom fiber optic patch cable service with many options eligible for same-day shipment. Please contact Tech Support for assistance selecting

Ubiquiti 1G Multi-Mode Optical Module [UACC-OM-MM-1G-D]

The Ubiquiti 1G Multi-Mode Optical Module [UACC-OM-MM-1G-D] is an SFP transceiver that supports 1G connections up to 550 m using multi-mode fiber with a duplex LC UPC connector. Max data rate:

Multimode Fiber Optic Couplers

Newport''s Fiber Optic Coupler family has been developed using fused fiber technology. These multimode fiber optic couplers allow bi-directional coupling and can be used to either split or combine

SH-SFP-1G-SXD 1000BASE-SX SFP module (550 m, MMF)

The SH-SFP-1G-SXD is a 1000BASE-SX SFP optical transceiver module for Contec switching hubs. Features 850nm wavelength, 550m maximum transmission range over multi-mode fiber, -40 to

TAA Compliant Fiber Patch Cable LC-LC MM 50/125

TAA Compliant Fiber Patch Cable, LC-LC, UPC, Multimode 50/125 Micron OM4, Duplex, 1.8mm OFNR Rated and available today at Cables Plus USA.

2.5G Fiber Media Converter | Multi-Gigabit Ethernet to SFP | AOA Tech

2.5G Ethernet Media Converter 2.5G/1G/100M copper to 2.5G/1G SFP Overview The AOM-4100 2.5Gbps Fiber Media Converter is engineered to provide a high-performance, stable solution for fiber

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How Far Can Multimode Fiber Optic Cables Transmit?

Fiber optic technology is the backbone of modern high-speed communication networks, enabling the transmission of data over vast distances

Multimode Fibers – optical glass fiber, large-core fibers, fiber ...

What are Multimode Fibers? Multimode fibers are optical fibers which support multiple transverse guided modes for a given optical frequency and polarization. In most cases, that number of guided modes is

MIKROTIK HS-85DLC05D Multi-Mode 1G/2.5G SFP Transceiver Module

HS-85DLC05D is a reliable, industrial-grade 1G/2.5G SFP module designed for multi-mode fiber links up to 550 m. It uses the widely supported 850 nm wavelength and an LC connector, making it a

Select The Right Fiber Patch Cables For 1G/10G/25G Modules

Deploying optical modules requires the right fiber patch cable. It directly affects network connection stability, performance, and maintenance. This article will explain how to pick the right fiber

Fiber Optic Cables | Fiber Patch Cables | Patch Cords, Duplex Multimode ...

Fiber Patch Cables, Multimode & Singlemode Duplex Fiber Optic Cables, Secure Order Fiber Patch Cords, Preferred Mil. Edu. Gov. Pricing, Same Day Shipping From CA USA, Verified Reviews

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