Multimode fiber optic module specifications and models



Overview

Multimode Fiber Types: OM1 vs OM2 vs OM3 vs OM4 Identified by ISO 11801 standard, multimode fiber optic cables can be classified into OM1 fiber, OM2 fiber.

Key Takeaways

Multimode fiber optic modules are designed to support high-speed data transmission over short to medium distances using OM1, OM2, OM3, OM4, or OM5 fibers, with common models including SFP, SFP+, and QSFP modules.

Multimode Fiber Types and Compatibility

Multimode fibers (MMF) are classified into OM1, OM2, OM3, OM4, and OM5, each with distinct core sizes, bandwidths, and maximum link distances: OM1: 62. 5 µm core, LED source, supports 10 GbE up to 33 meters, typically orange jacket. OM2: 50 µm core, LED source, supports 10 GbE up to 82 meters, orange jacket.

OM3: 50 µm core, laser-optimized for VCSELs, supports 10 GbE up to 300 meters, 40/100 GbE up to 100 meters, aqua jacket. OM4: 50 µm core, enhanced laser-optimized, supports 10 GbE up to 550 meters, 40/100 GbE up to 150 meters, aqua jacket. OM5: 50 µm core, wideband multimode fiber supporting multiple wavelengths for shortwave WDM, suitable for high-speed data centers, lime green jacket.



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Common Multimode Fiber Optic Modules

Multimode modules are typically available in SFP, SFP+, and QSFP form factors, designed for different data rates and distances: SFP (Small Form-factor Pluggable): Supports 1–10 GbE over multimode fiber, commonly used for short-range connections in enterprise networks. SFP+: Supports 10–25 GbE, optimized for OM3/OM4 fibers, with link distances up to 300–400 meters for 10 GbE and shorter for higher speeds.

QSF

P (Quad Small Form-factor Pluggable): Supports 40–100 GbE, often using parallel multimode fiber (MPO connectors). For example, Cisco QSFP-100G modules support 100GBase-SR4 over OM3 up to 70 meters and OM4 up to 100 meters, and 100GBase-SL4 for shorter links (20–30 meters),.

Key Considerations for Module Selection

Fiber Type: Ensure the module matches the multimode fiber type (OM3/OM4/OM5) for optimal performance. Data Rate: Choose modules that support the required Ethernet speed (10G, 40G, 100G). Link Distance: Verify the module's maximum supported distance over the selected fiber type.

Connector Type: Modules may use LC or MPO connectors depending on single or parallel fiber applications. Laser Source: VCSELs are commonly used for OM3/OM4/OM5 fibers, while LEDs are used for OM1/OM2.

Summary

For modern enterprise and data center networks, OM3, OM4, and OM5 fibers paired with SFP+, QSFP, or QSFP28 modules are the most common choices, providing high-speed, cost-effective, and reliable multimode optical links. Older infrastructures may still use OM1 or OM2 fibers with LED-based SFP modules for lower-speed applications. Proper selection ensures compatibility, optimal link performance, and future-proofing for network upgrades.

Article Content

Multimode Fiber Types: OM1 vs OM2 vs OM3 vs OM4 vs OM5

How Many Types of Multimode Fiber? Identified by ISO 11801 standard, multimode fiber optic cables can be classified into OM1 fiber, OM2 fiber, OM3 fiber, OM4 fiber and newly released

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.

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OM2 Opti OM3 OM4 Multimode TR2 042214

Panduit OM2 and laser-optimized OM3, OM4 and Signature CoreTM multimode fibers exceed domestic and international standards for optical fiber, including TIA-492AAAB, TIA-492AAAC, TIA-492AAAD

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 be used for data rates up to 800 Gbit/s.

Multimode Fiber Optic Cable Types: OM1 vs OM2 vs OM3 vs OM4 vs

Multimode fiber optic cable types OM1, OM2, OM3, OM4 and OM5 compared for core size, bandwidth, speed, distance & applications in modern networks.

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.

Understanding the Differences Between OM4 and OM5

Multimode fiber is a staple of fiber-optic cable infrastructure in data centers and campus networks. The ISO/IEC 11801 standard defines five classes

Fiber Optic Cable Types Explained

Our comprehensive guide to types of fiber optic cables. Learn all about the differences between single mode and multimode cables, as well as the various fiber wavelengths and standard core sizes used

Selecting the Right SFP Module for Single-Mode and Multimode Fiber

The most important factor in SFP selection is matching the module to the correct fiber type. Single-mode and multimode fibers operate under different conditions and require compatible

Optic Modules Datasheet

Features and Benefits The following table lists the different pluggable optic modules and supported platforms, along with the technical specifications for each.

Fiber Optic Cable Types – Multimode and Single Mode

Fiber Optic Cable Types – Multimode and Single Mode Application Fiber Optic connectors and cables are present in nearly every communications

OM1 OM2 OM3 OM4 OM5 Multimode Fibers Explained

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Understand the differences between OM1, OM2, OM3, OM4, and OM5 multimode fibers, including bandwidth, distance, and applications for modern networks.

Multimode vs Single Mode Fiber Optic Cables: A Complete Guide to

Learn the differences between multimode (OM1-OM5) and single mode (OS1-OS2) fiber optic cables—speed, distance, applications, and how to choose the right one for data centers and

Fiber Optic Cable Types – Multimode and Single Mode

Multimode fibers are identified by the OM (optical mode) designation and their specifications are outlined by the ISO/IEC 11801 standard. Multimode cable disperses the light into multiple paths as it travels

2025 How to Identify Single-Mode vs. Multimode SFP Modules for

SFP modules are transceivers used to connect network devices to various fiber optic or copper cables. The two primary types are Single-Mode (SMF) and Multimode (MMF), each designed

Multimode Fiber Types: OM1 vs OM2 vs OM3 vs OM4 vs OM5

Types of Multimode Fiber There are several types of multimode fibers classified by the ISO 11801 standard, including OM1, OM2, OM3, OM4, and the recently released OM5 fiber. Each

Comparing Single-Mode vs Multimode SFP

Explore the differences between single-mode and multimode SFP transceivers. Find the right LC module for fast fiber connectivity and optimal

SFP Modules: Types, Selection Guide & Applications

Learn about SFP modules—types (single-mode, multimode), how to choose, and uses. Compare SFP vs SFP+ for networks, data centers, and industrial setups.

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