

What are the different lengths of multimode fiber



AI Overview

Multimode fiber lengths vary by type and data rate, typically ranging from 33 meters for OM1 at 10G to 550 meters for OM3/OM4 at 10G Ethernet. Typical Maximum Distances by Fiber Type

Fiber Type	Core Size (μm)	Light Source	10G Ethernet Distance (m)	40G/100G Ethernet Distance (m)
OM1	62.5	LED	33	Not applicable
OM2	50	LED	82	Not applicable
OM3	50	VCSEL	300	100
OM4	50	Enhanced VCSEL	400	150
OM5	50	Wideband VCSEL	Similar to OM4	Similar to OM4

OM1 (62.5 μm core, LED source): Supports 100 Mbps Ethernet up to 2 km, 1 Gbps up to 275 meters, and 10 Gbps up to 33 meters. It is mostly used in legacy networks and older buildings.

OM2 (50 μm core, LED source): Suitable for 1 Gbps Ethernet up to 550 meters and 10 Gbps up to 82 meters, commonly used in early 50 μm systems.

OM3 (50 μm core, laser-optimized, VCSEL source): Supports 10 Gbps Ethernet up to 300 meters, 40/100 Gbps up to 100 meters, widely used in modern data centers.

OM4 (50 μm core, enhanced laser-optimized): Extends 10 Gbps Ethernet up to 400 meters, 40/100 Gbps up to 150 meters, and is the mainstream standard for new enterprise and data center deployments.

OM5 (50 μm core, wideband multimode, SWDM capable): Similar distances to OM4 for single-wavelength applications, but supports multiple wavelengths for 100G/200G/400G short-range links, enhancing scalability in high-speed data centers.

Factors Affecting Multimode Fiber Length

- Core Size:** Larger cores (OM1) allow easier light injection but suffer from modal dispersion, limiting distance. Smaller cores (OM2-OM5) with laser optimization reduce dispersion and extend reach.
- Light Source:** LED sources are used in OM1/OM2, limiting high-speed distances. VCSEL lasers in OM3-OM5 enable longer distances at higher data rates.
- Data Rate:** Higher speeds reduce maximum distance due to increased modal dispersion and bandwidth requirements.
- Application Environment:** Short-range connections within buildings or data centers typically use OM3/OM4/OM5, while legacy campus networks may still rely on OM1/OM2.

Summary For practical network design, OM3 and OM4 are...

Article Content

Fiber Optic Cable Types | Omnitron Systems Guide

Fiber optic technology has transformed the way we transmit data, enabling faster, more reliable connections than traditional copper cables. Understanding fiber

What is SFP Port? Everything You Need to Know

What is an SFP port? The SFP port also refers to a Small Form-factor Pluggable port. It is a compact mechanical slot that accepts an SFP

Fiber Optic Connector Types: A Beginners Guide

The fiber connector types, sometimes referred to as terminations, link fiber optic cables together through terminals, switches, adapters, and patch

Cost of Fiber Optic Cable: Pricing Guide (2026)

Discover the cost of fiber optic cable in this pricing guide. Learn material prices, installation factors, and what impacts total project costs overall.

A Guide to Multimode Fiber Types (OM1-OM5) -

OM1-OM5 multimode fiber standards, detailing their core sizes, jacket colors, transmission capabilities and more.

Fiber Optic Patch Cord

Custom Solutions: Our patch cords are available in different fiber types, lengths, and jacket styles, tailored to your specific requirements. Durability and Reliability: Manufactured to withstand harsh

Pre-Terminated Fiber Cable Assemblies: Complete Buyer's Guide

Pre-terminated fiber cable assemblies save 30-50% on install costs vs field splicing. Learn types, connectors, pricing, and how to order custom fiber optic cable assemblies from BWNFiber.

Choosing the Right Fiber Optic Cable: Singlemode vs

Although single-mode fiber (SM) and multimode fiber (MM) cable types are widely used in various applications, their differences can still be

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

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

Guide To Multimode Fiber (62.5um & 50um, OM1 to OM5)

OM1 fiber can transmit data up to 33 meters at a data rate of 1 Gbps, while OM5 fiber can transmit data up to 550 meters at a data rate of 100 Gbps. This represents a more than 16-fold increase in

OM1 vs OM2 vs OM3 vs OM4 vs OM5 Multimode Fiber

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

Tutorial Passive Fiber Optics, Part 6: Fiber Joints

The different connector types differ in various aspects, e.g. in terms of cost, size, ease of use, insertion loss and return loss, suitable fiber size, allowed number of

Multi-core Fibers

This, however, is less challenging than when using separate fibers because externally induced phase changes in the different cores are normally quite

Single Mode vs Multimode Fiber Explained | TRG

Understand the difference between single mode and multimode fiber, including performance, cost, and use cases, to choose the right fiber for your network.

Everything you need to know about fiber optic termination

Different connectors and splice termination procedures are used for singlemode and multimode connectors, so make sure you know what the fiber will be before you

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

Cisco 10GBASE SFP+ Modules Data Sheet

Cisco FET-10G module The Cisco FET-10G Fabric Extender Transceiver supports link lengths up to 100m on laser-optimized OM3 or OM4

Multimode Fiber Types: OM1 vs OM2 vs OM3 vs OM4

A complete guide to multimode fiber types OM1, OM2, OM3, OM4, and OM5. Compare speed, distance, bandwidth, and applications, and learn how

Fiber Patch Cords: Types and How to Choose the Right

This comprehensive guide breaks down everything you need to know about fiber patch cords: from their core definition and key types to expert

The Ultimate Guide to Fiber Optic Cables – Types, Standards, and ...

Discover how to choose the right fiber optic cables for your network. Learn about fiber types, cable constructions, connectors, and industry standards — plus expert recommendations from

Everything You Need to Know About Multimode Fiber

Explore multimode fiber optic cables for enterprise, campus, and data center networks. Learn about OM1-OM5 types, transmission ranges,

Single Mode vs. Multimode Fiber: Core Differences and Selection Guide

Single mode fiber typically has a core diameter of about 9 μm , which allows only one mode of light to propagate. In contrast, multimode fiber has a larger core, usually 50 μm or 62.5 μm ,

Single Mode vs. Multimode Fiber Optic Cables

Identified by ISO 11801 standard, multimode fiber optic cables can be classified into OM1 fiber, OM2 fiber, OM3 fiber, OM4 fiber and newly released

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