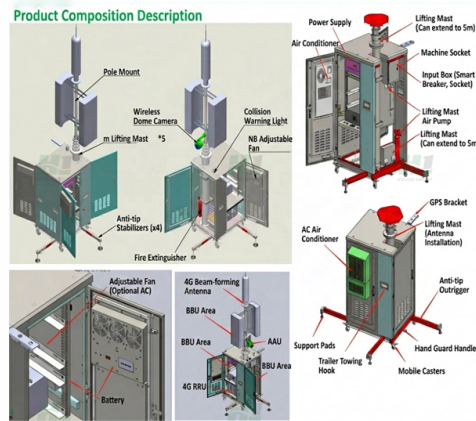


Multimode fiber exceeding 500 meters



Article Overview

OM4 multimode fiber can support distances slightly above 500 meters at 10 Gigabit Ethernet, but longer runs generally require single-mode fiber due to modal dispersion limitations.

Multimode Fiber Distance Limitations

Multimode fiber (MMF) is designed with a larger core (50–62.5 μm) that allows multiple light modes to propagate simultaneously. This design makes MMF ideal for short- to medium-distance, high-bandwidth applications, but it also introduces modal dispersion, where different light paths arrive at the receiver at slightly different times, limiting the maximum transmission distance. The effective distance depends on the fiber type, data rate, and quality of installation.

Fiber Types and Maximum Distances

- OM1 (62.5 μm core): Supports 1 Gbps up to 275 meters and 10 Gbps only 33 meters.
- OM2 (50 μm core): Typically supports 1 Gbps up to 550 meters, but higher speeds are limited to shorter distances.
- OM3 (50 μm , laser-optimized): Supports 10 Gbps up to 300 meters and 40 Gbps up to 100 meters.
- OM4 (50 μm , laser-optimized): Can support 10 Gbps up to 550 meters, making it the only standard multimode fiber type capable of exceeding 500 meters at this data rate. For 40 Gbps, OM4 supports up to 150 meters.

Article Content

What Is the Maximum Distance for A Fiber Optic Cable?

Typical Maximum Distance: For 1 Gbps: Multimode fiber can typically support distances of up to 2 kilometers (1.2 miles). For 10

Data Center 40G and 100G Multimode Fiber Connectivity

Multimode fiber remains a leading optical media in the data center for short-reach distances up to 150 meters. Forty and 100G

Fact Sheet Multimode Fiber

Which fiber cable to use? Which value to measure? Which length to get? This fact sheet provides practical answers without devoting

Multimode Optical Fiber Selection & Specification

This Applications Engineering Note (AE Note) discusses the criteria for properly selecting the optimal multimode fiber (MMF) for

56G VCSEL Transmission at 980 nm across 500 m Multimode Fiber

Abstract: Transmission of 56-Gbps signals across a 500-meter 980 nm optimized multimode fiber with 14.2 GHz·km bandwidth using

Multi-mode optical fiber

Fibers that meet this designation provide sufficient bandwidth to support 10 Gigabit Ethernet up to 300 meters. Optical fiber

F-MLD-500 Fiber Spool

The F-MLD-500 Multimode Fiber Spool contains 500 meters of F-MLD multi-mode fiber. The F-MLD Graded-index multi-mode fiber

Multimode Fiber Distance Limits in Data Centers

This article will delve into the distance limitations of multimode fiber, the characteristics of different fiber types, and solutions to

Multimode Fiber Distance Limits in Data Centers

OM2 fiber has a core diameter of 50 micrometers and a bandwidth of 500 MHz·km, suitable for medium-speed and distance

Contact Us

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