

Article Overview

OM4 multimode fiber can transmit up to 550 meters at 10 Gbps, 150 meters at 40 Gbps, and 100 meters at 100 Gbps.

Overview of OM4 Fiber

OM4 is a laser-optimized multimode fiber (50/125 μm) designed for high-speed data transmission in data centers and enterprise networks. It features a higher effective modal bandwidth (EMB) of 4700 MHz.km, nearly double that of OM3, which reduces modal dispersion and allows longer transmission distances at higher data rates. OM4 is optimized for VCSEL-based transceivers operating at 850 nm, making it ideal for 10G, 40G, and 100G Ethernet applications.

Maximum Transmission Distances

The maximum reach of OM4 fiber depends on the data rate and transceiver type:

- o 10 Gbps (10GBASE-SR): up to 550 meters
 - o 40 Gbps (40GBASE-SR4): up to 150 meters
 - o 100 Gbps (100GBASE-SR4): up to 100 meters
- These distances assume clean, factory-terminated links with minimal splices and standard MPO/MTP connectors. The limiting factor is modal dispersion, not signal attenuation, meaning that higher data rates reduce the maximum distance roughly by half for each doubling of speed.

Comparison with OM3 Fiber

OM3 fiber, with an EMB of 2000 MHz.km, supports shorter distances at the same data rates:

- o 10 Gbps: ~300 meters
 - o 40 Gbps: ~100 meters
 - o 100 Gbps: ~70 meters
- OM4's higher modal bandwidth allows it to extend reach by approximately 40-50% compared to OM3 at equivalent speeds, making it preferable for modern high-speed networks.

Practical Considerations

- o Data center design: OM4 is ideal for large-scale installations where 40G or 100G Ethernet is deployed.
 - o Future-proofing: Its higher bandwidth supports potential upgrades to higher-speed optical networks.
 - o Installation factors: Connector quality, splices, and bends can reduce effective distance; real-world deployments may require accounting for 0.5-1 dB of additional loss per connector or bend.
- In summary, OM4



Fiber optic OM4 transmission distance

fiber provides longer transmission distances than OM3 for high-speed Ethernet, with 550 meters at 10G, 150 meters at 40G, and 100 meters at 100G, making it a robust choice for modern data center and enterprise network deployments .

How do you choose between single mode and multimode fiber? Compare their differences in core size, light source,

OM4 fiber is a high-performance multimode optical fiber designed for fast data transmission in applications like data

Types of Multimode Fiber and Their Distance Limits Multimode fibers are categorized into five types--OM1, OM2, OM3, OM4, and

Multimode fiber optic cables are used to transmit data over shorter distances, typically within a building or a campus.

Compare OM1, OM2, OM3, OM4, and OM5 fiber types. Get the 2025 bandwidth specs, max distance charts for

Complete multimode fiber distance reference. Maximum distances for OM3 and OM4 fiber at 1G, 10G, 25G, 40G, and

While OM4 fiber is optimized for short-distance applications, its performance is excellent for distances commonly found

Single mode fiber optic cable is made up of a small diameter glass or plastic core surrounded by cladding, which is a layer of

This guide covers the actual distance limits for OM3 and OM4 multimode fiber at every

Discover fibre optic distance limits. Compare OM3, OM4, OM5 & OS2 cable lengths by speed and application for data centres,

For prevailing 10 Gigabit transmission speeds, OM3 is generally suitable for distances up to 300 m, and OM4 is suitable for distances

The transmission distance of OM3 and OM4 fiber cables varies when they are applied to Gigabit, 10GbE, 40GbE and

Fiber optic OM4 transmission distance

We will discuss their speed, transmission distance, application scenarios in detail, and conduct technical comparative

Multimode fiber is a staple of fiber-optic cable infrastructure in data centers and campus

For 40 GbE and 100 GbE links, OM3 and OM4 fiber have a subtle difference in transmission distance (OM3 for 100 m,

OM4 fiber extends the capabilities of the 10GBASE-SR standard by pushing the maximum multimode distance to 400m. This extra

Web: <https://bssoda.pl>

