Comparison of OM5 and OM3 fiber optic cables



Overview

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

Key Takeaways

OM3 and OM5 fiber optic cables differ primarily in bandwidth, transmission capabilities, and applications, with OM5 designed for higher performance and efficiency in modern data centers.

Key Differences

Bandwidth and Speed: OM3: Supports a modal bandwidth of up to 2000 MHz·km at 850 nm, making it suitable for 10G Ethernet applications over distances up to 300 meters. It can also support 40G and 100G applications over shorter distances (up to 150 meters) using parallel optics. OM5: Offers a significantly higher modal bandwidth of 4700 MHz·km at 850 nm and 2470 MHz·km at 940 nm.

This allows OM5 to support 100G and 400G applications, particularly with short wavelength division multiplexing (SWDM), enabling efficient data transmission over longer distances with fewer fibers. Core Size: Both OM3 and OM5 utilize a 50 µm core diameter, which is standard for multimode fibers. However, OM5 is optimized for better performance with multiple wavelengths, enhancing its efficiency in high-density environments.



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Applications: OM3: Commonly used in data centers and enterprise networks for 10G Ethernet connections. It is a reliable choice for short to medium-range applications but may not meet the demands of future high-speed networks as effectively as OM5. OM5: Specifically designed for high-bandwidth applications, OM5 is ideal for modern data centers that require support for multiple wavelengths and high-speed data transmission.

It is particularly beneficial for applications using SWDM technology, which allows for greater data rates with fewer fibers. Compatibility: OM5 is backward compatible with OM3 and OM4 systems, making it a suitable choice for incremental upgrades in existing infrastructures without requiring a complete overhaul. Cost: While OM5 may have a higher initial cost compared to OM3, its ability to support higher speeds and longer distances can lead to cost savings in the long run, especially in high-demand environments.

Conclusion

In summary, OM5 fiber optic cable represents a significant advancement over OM3, particularly in terms of bandwidth, speed, and application versatility. For organizations looking to future-proof their networks and support high-speed data transmission, investing in OM5 may be the best option. However, for existing installations that primarily use 10G Ethernet, OM3 remains a viable and cost-effective choice.

Article Content

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

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

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

OM2, OM3, OM4 vs. OM5 | How to Choose the Right

The difference between multimode fiber optic cables is important when choosing the right cabling for your network. Therefore, we take a detailed

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

Identified by ISO 11801 standard, multimode fiber optic cables can be classified into OM1 fiber, OM2 fiber, OM3 fiber, OM4 fiber and newly released OM5 fiber. The next part will compare

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OM5 Fiber vs OM4 and OM3: Key Differences Explained

OM5 fiber guide. Learn differences between OM3, OM4, and OM5 fibers for networking and data center applications.

A Technical Comparison of OM1, OM2, OM3, OM4, and OM5 Fibers

Understanding the differences between OM1, OM2, OM3, OM4, and OM5 is critical for network engineers, procurement managers, and system designers planning for both current bandwidth needs

OS1 vs OS2, OM3 vs OM4 vs OM5 – Fiber Optic Cable Differences

This article explains the core differences between OS1 and OS2 singlemode fibers, as well as OM3, OM4, and OM5 multimode fibers—to help OEM clients, installers, and data center

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

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Compare OM3 vs OM4 vs OM5 multimode fiber for office, warehouse, and data center networks. Learn speeds, distances, pros, cons, and which fiber to choose in 2026.

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

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

OM1-OM5 vs Singlemode Fiber: Best for 2025 Data

Compare OM1-OM5 and singlemode fiber for 2025 data centers and AI networks. Expert guide to choosing the right fiber type for high-speed

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

Guide To Multimode Fiber (62.5um & 50um, OM1 to OM5) What is multimode fiber optic glass? Multimode fiber optic cable (or glass) is a common specification of

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 Cables

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Everything You Need to Know About Multimode Fiber Cable

Explore multimode fiber optic cables for enterprise, campus, and data center networks. Learn about OM1–OM5 types, transmission ranges, installation tips, and cost-effective high-speed

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 construction methods make each of them better

Fiber Optic Color Code: The Ultimate TIA-598-C Guide

Master the TIA-598-C fiber optic color code standard. Read our complete guide and use our free interactive calculator to easily identify 1-144 core cables.

Complete Guide to Fiber Optic Cables for Data Centers

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