

Single-mode OM3 fiber optic cable



AI Overview

Single-mode fiber (OS1/OS2) is designed for long-distance, high-speed transmission, while OM3 is a multimode fiber optimized for short to medium distances in data centers.

Core Differences

Single-mode fiber (SMF) has a very small core diameter of approximately 9 microns, allowing only one light mode to propagate. This minimizes modal dispersion, enabling long-distance transmission with high bandwidth and low signal loss. OS1 and OS2 are the main single-mode types, with OS2 offering lower attenuation and better performance for outdoor or long-haul applications. OM3 fiber is a multimode fiber with a 50-micron core, designed to support multiple light modes. It has a modal bandwidth of 2000 MHz·km at 850 nm and is suitable for 10G, 40G, and 100G Ethernet over short distances, typically up to 300-400 meters depending on speed. OM3 is commonly used in data center backbones and high-density interconnects with MTP/MPO connectors.

Performance and Applications

Feature	Single-Mode (OS1/OS2)	OM3 Multimode
Core Diameter	9 µm	50 µm
Light Modes	Single	Multiple
Maximum Distance	Up to 40 km for 10 Gbps	100 m for 10 Gbps, 400 m for 40 Gbps
Bandwidth	Very high, limited by transceiver	2000 MHz·km at 850 nm
Typical Use	Long-haul, campus, DCI, telecom	Data center interconnects, short-range high-speed links
Cost	Higher transceiver cost, lower cable cost per km	Lower transceiver cost, higher cable density

Key Considerations

Distance and Speed: Single-mode is ideal for long-distance or future-proof networks, while OM3 is cost-effective for short-range, high-speed connections within data centers.

Upgrade Path: OM3 supports 10G, 40G, and 100G but has a 400G distance limitation of ~30 meters, making single-mode preferable for 400G+ deployments.

Cost and Installation: OM3 is easier to install in high-density environments and has widely available patch cords, whereas single-mode requires precise alignment but supports longer distances without repeaters.

Summary

If your network requires long-distance, high-bandwidth,...

Article Content

The Ultimate Fiber Optic Cable Size Reference Chart

Choosing the Right Fiber Size for Your Application Selecting the correct fiber optic size for your specific application is crucial to ensuring optimal

Fiber Optic Cable Types Explained

Learn all about the differences between single mode and multimode cables, as well as the various fiber wavelengths and standard core sizes used in fiber optics.

OS2 vs OM3 vs OM4 vs OM5 Fiber | 2026 ZION

OS2 vs OM3 vs OM4 vs OM5: ZION 2026 Fiber Selection Guide for FTTH, Data Centers & AI Networks In 2026, choosing between OS2, OM3, OM4

Single Mode vs. Multimode Fiber Optic Cables

There are two main types of fiber optic cables: single mode fiber and multimode fiber. Single mode fiber optic cables feature a narrow core diameter,

Single-Mode vs Multimode Fiber: OS2, OM3, OM4 Explained for

Single-mode (OS2) vs multimode (OM3, OM4, OM5) fiber optic guide. Connector types, cost comparison, and distance ratings for installers. Conversions Tech.

How Much Does Fiber Optic Cable Cost? 2025 Factory

Searching for how much does fiber optic cable costs? Stop guessing. We break down 2025 prices for OS2, OM3, and Armored cables directly from the Wolontek

Complete Guide to Fiber Optic Cables for Data Centers

Everything you need to know about fiber optic cables for data center deployments. Covers OS2, OM3, OM4, OM5 cable types, LC/SC/MPO connectors, and

OM1 vs OM2 vs OM3 vs OM4 vs OM5 Multimode Fiber

In 2003, the OM3 fiber type was standardized and is closely linked to the IEEE 802.3 10GbE Ethernet standard. It has a core diameter of 50 μm and a

All Kinds of Fiber Optic Patch Cords – SC, LC, FC, ST

Learn about SC, LC, FC, and ST fiber optic patch cords, their uses in FTTH, telecom, and data centers, and how to choose the right type.

Fiber Optic Patch Cord, Single Mode & Multimode

Fiber Optic Patch Cord In this category, you will find various duplex and simplex LC/SC/FC/ST/Uniboot LC/MDC fiber optic patchcords, which are used to

Differences between OS1, OS2, & OM1, OM2, OM3,

Fiber optic cables used in structured cabling and telecom networks are commonly divided into two broad groups: multimode fiber and singlemode

How to Choose the Right Fiber Optic Cable for Your Optical

Learn how to choose the right fiber optic cable for SFP, SFP+, SFP28, QSFP+, QSFP28, QSFP-DD, and OSFP optical transceivers. Avoid common fiber compatibility mistakes and improve

Understanding Fiber Optic Cable Types: SM, OM1,

Single-mode fiber is designed for long-distance communication with a small core diameter (typically 8-10 microns) that allows only one mode of light to

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.

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, OM3 fiber, OM4 fiber and newly released

HES 4 Core Steel Armored Fiber Optic Cable OM3 50/125µ MultiMode |

HES 48 Core and HES 96 Core fiber optic cables are sold as 2000m reels. Features: OM3 MultiMode Design: With a 50/125µ core-core diameter, OM3 MultiMode fiber technology provides high

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

5 Best Fiber Optic Cable | Under 10ms Latency Data Lines

How To Choose The Best Fiber Optic Cable Not all fiber cables are interchangeable. The wrong mode or connector type will either fail to link or introduce enough loss to cripple throughput. Focus on three

5 Best Fiber Optic Cable | Tone Loss Down

How To Choose The Best Fiber Optic Cable Fiber optic cabling decisions come down to three locked variables: the transceiver's wavelength, the distance of the

Fiber Optic Cable Types: Single-Mode, Multimode, and

Discover fiber optic cable types, including single-mode (OS1, OS2) and multimode (OM1, OM2, OM3, OM4, OM5), indoor/outdoor variants, and how

Single Mode vs Multimode Fibre: OM3, OM4 and OS2

This guide explains what multimode and single mode fibre are, what OM3, OM4, and OS2 mean in practical terms, and which you should be specifying for

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

OS1, OS2 vs OM1-OM5 Fiber Cables: Differences, Speeds, and

Explore the differences between OS1, OS2 (single-mode) and OM1, OM2, OM3, OM4, OM5 (multimode) fibers. Learn their speeds, distances, and ideal uses for data centers and telecom

Fiber Optic Cables and Extensions

Transmit data over long distances while retaining signal power with fiber optic cables. This innovative material is efficient, safe and ergonomic.

7 Best Fiber Optic LAN Cable | Stop Losing Signal at Distance

After sifting through armored sheathing data, insertion loss specs, and hundreds of verified buyer accounts, this guide narrows down the best fiber optic lan cable for runs that demand reliability,

MPO Fiber Optic Cables

L-com offers MPO (Multi-Fiber Push On) fiber optic cables including 6, 8, 12 and 24 fibers with OM1, OM2, OM3, OM4 or OM5 Connectors. Get same-day shipping!

Best Premade Fiber Optic Cables for Outdoor and Indoor Use

Key considerations when choosing premade fiber optic cables: Fiber type: Single-mode (OS1/OS2) for long distances and high bandwidth; Multimode (OM3/OM4) for shorter, high

Contact Us

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