There is a wire-type multimode fiber



Overview

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

Key Takeaways

A wire-type multimode fiber is an optical fiber with a larger core that allows multiple light modes to propagate simultaneously, ideal for short-distance, high-speed data transmission.

Overview

Multimode fiber (MMF) is a type of optical fiber designed for communication over short distances, such as within buildings, campuses, or data centers. Unlike single-mode fiber, which carries only one light mode, multimode fiber has a larger core diameter—typically 50 or 62. 5 micrometers—allowing multiple light paths to travel simultaneously.

This enables higher data throughput over short distances but limits the maximum transmission range due to modal dispersion.

Types of Multimode Fiber

Multimode fibers are classified according to the ISO/IEC 11801 standard into OM1, OM2, OM3, OM4, and OM5, each with different core sizes, bandwidths, and applications: OM1: 62. 5 μm core, supports up to 1 Gbps over 275 meters at 850 nm; typically uses LED light sources and has an orange jacket. OM2: 50 μm core, supports 1 Gbps up to 550 meters; also LED-based with an orange jacket.

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OM3: 50 µm core, optimized for laser sources, supports 10 Gbps up to 300 meters at 850 nm. OM4: 50 µm core, higher bandwidth than OM3, supports 100 Gbps up to 150 meters; commonly used in high-performance data centers. OM5: 50 µm core, designed for short-wavelength division multiplexing (SWDM), supports multiple wavelengths at high speeds, with a lime green jacket; backward compatible with OM4.

Applications

Multimode fiber is widely used in: Data centers and enterprise LANs for high-speed connections over short distances. Backbone cabling within buildings or campuses. Specialized equipment such as fiber optic spectroscopy, laser welding, and industrial monitoring.

It is preferred for these applications because the equipment is less expensive than single-mode fiber systems, and it provides high reliability and immunity to electromagnetic interference.

Key Considerations

When selecting a multimode fiber: Distance and bandwidth requirements: OM1/OM2 are suitable for shorter distances, while OM3–OM5 support higher speeds over moderate distances. Light source compatibility: LEDs for OM1/OM2, lasers for OM3–OM5. Network environment: Data centers and high-performance networks benefit from OM4/OM5 for future-proofing.

In summary, a wire-type multimode fiber is a versatile optical cable optimized for short-range, high-speed data transmission, with multiple types available to match specific network performance needs.

Article Content

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,

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

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

Everything You Need to Know About Multimode Fiber

Q: What types of multimode fiber are available? Multimode fibers are categorized into OM1, OM2, OM3, OM4, and OM5, each with varying bandwidth

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Everything You Need to Know About Multimode Fiber

There are four types of multimode fiber optic cables: OM1, OM2, OM3 and OM4. Each of these is intended for different uses and has various

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

Fiber Optic Cable Types | Omnitron Systems Guide

Multimode fibers have a larger core size, allowing multiple fiber strands to carry light simultaneously. While effective for short-distance applications, multimode fibers

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

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

Fiber Optic Cable Types Explained

Multimode fiber optic cable, on the other hand, has a larger diameter core, typically 50 or 62.5 microns in diameter. This larger core allows multiple modes of light to pass through, resulting in a wider beam of

Multi-mode optical fiber

Multi-mode optical fiber is a type of optical fiber mostly used for communication over short distances, such as within a building or on a campus. Multi-mode links can be used for data rates up to 800 Gbit/s.

Single Mode vs. Multimode Fiber Optic Cables

Multimode fiber optic cables are engineered with a larger core diameter—typically 50 or 62.5 microns—compared to single mode fibers, and they are terminated with various fiber optic

Fiber Optic Cable Color Codes

Color codes make it easy to identify these patchcords which all have SC connectors: aqua cable and connector indicate 50/125 laser optimized fiber on the cable to

What is a Fiber Optic Pigtail, and What Is It Used For?

If you''ve heard terms like pigtail plug connector, pigtail tool, or pigtailing wires, this is what they''re talking about. It is all about making clean, strong fiber connections easy. Continue reading the

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Fiber Optic Cable Types – Multimode and Single Mode

Application Fiber Optic connectors and cables are present in nearly every communications project that we might sell into, be it a DAS installation or a Base Station with wireless backhaul, you can be

Fiber Optic Cable Types Explained

Our comprehensive guide to types of fiber optic cables. Learn all about the differences between single mode and multimode cables, as well as the various fiber wavelengths and standard core sizes used

The Fiber Optic Association

Other groups may have fiber optic standards also: ANSI is the governing bodies for standards in the US, NIST provides primary standards, IEEE has standards for networks like Ethernet, IWCS has

Fiber-optic communication

Modern fiber-optic communication systems generally include optical transmitters that convert electrical signals into optical signals, optical fiber cables to carry the signal, optical amplifiers, and optical

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The FOA Reference For Fiber Optics

The fiber optic contractor should be able to work with the customer in each installation project through six stages: design, installation, testing,

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