Classification of 10 Gigabit Multimode Fiber Optic Patch Cords



Overview

This relates to the fundamental differences in fiber physics, sensing principles, and the distinctions between communication and sensing metrics.

Key Takeaways

10 Gigabit multimode fiber optic patch cords are classified primarily by fiber type (OM1–OM5), core size, bandwidth, transmission distance, and connector type (LC, SC, MPO), with OM3 and higher being optimized for 10G Ethernet applications.

Fiber Type Classification10

G multimode fiber patch cords are categorized according to the ISO 11801 standard into OM1, OM2, OM3, OM4, and OM5: OM1 (62. 5/125 µm): Supports 10GbE up to 33 meters; uses LED light sources; typically orange jacket; suitable for legacy networks and short-distance patching. OM2 (50/125 µm): Supports 10GbE up to 82 meters; LED light source; orange jacket; used in traditional LANs.

OM3 (50/125 µm, laser-optimized): Supports 10GbE up to 300 meters; aqua jacket; optimized for VCSEL lasers; mainstream choice for data centers. OM4 (50/125 µm, ultra-laser-optimized): Supports 10GbE up to 550 meters; backward compatible with OM3; suitable for high-performance computing and cloud data centers. OM5 (50/125 µm, wideband multimode): Supports shortwave division multiplexing (SWDM) for higher data rates; future-ready for 400GbE; compatible with OM4.

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Connector Type Classification

Patch cords are also classified by connector type, which determines compatibility with network modules: LC (Lucent Connector): Small form factor; widely used in data centers for dual-channel 10G modules.

S

C (Subscriber Connector): Larger form factor; less common in modern high-density setups. MPO/MTP (Multi-fiber Push-On): Multi-core connectors (12, 24, or more fibers) for parallel transmission; used in QSFP modules and high-density cabling.

Performance-

Based Classification

Patch cords can also be classified based on bandwidth and transmission distance: OM1/OM2: Lower bandwidth (200–500 MHz·km); short-distance 10G links. OM3: 2000 MHz·km; supports 10GbE up to 300 meters. OM4: 4700 MHz·km; supports 10GbE up to 550 meters and 40/100GbE short-distance links.

OM5: Wideband 850–953 nm; supports SWDM for future high-speed networks.

Material and End-

Face Considerations

Core Material: High-purity silica doped with germanium for low signal loss and high bandwidth. Sheath Types: PVC for indoor use; LSZH for fire-resistant environments.

End-

Face Geometry: PC (Physical Contact) for general use; UPC (Ultra Physical Contact) for high-definition video or low-loss applications; APC (Angled Physical Contact) for high return-loss requirements.

Summary

The classification of 10G multimode fiber patch cords involves fiber type (OM1–OM5), connector type (LC, SC, MPO), bandwidth, transmission distance, and material/end-face specifications. For modern 10G networks, OM3 and OM4 laser-optimized fibers with LC or MPO connectors are the most common, while OM5 is recommended for future-proofing and SWDM applications. Proper selection ensures optimal network performance, scalability, and cost-efficiency.

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Article Content

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Patch Cords include simplex, duple x and Multi-fibers assemblies. TMTGlobal Patch cables are manufactured and tested in compliance with TIA 604 (FOCIS), IEC 61754 and YD/T industry

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Fiber Optic Patch Cord Supplier Types and Capabilities Custom Manufacturing Suppliers act as the backbone of tailored connectivity solutions, crafting fiber optic patch cords like a master tailor

10Gtek Fiber Patch Cable

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10 Gigabit Ethernet

10 Gigabit Ethernet (10GE, 10GbE, or 10 GigE) is a group of computer networking technologies for transmitting Ethernet frames at a rate of 10 gigabits per second.

Fiber Optic Cable Types: A Complete Guide

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The plethora of fiber optic cable types can seem overwhelming, but choosing the right cable for the job is important. Read on to learn what fiber optic

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