All fiber optic patch cord types

Overview

There are different types of fiber patch cords on the market and do you know how to choose the correct fiber patch cord for your network?

Key Takeaways

Fiber optic patch cords are classified by fiber mode, connector type, polish type, and cable configuration, each suited for specific network applications. Fiber ModesSingle-Mode (SM): Features a small core (~9 µm) allowing only one light path, ideal for long-distance transmission, low attenuation, and high-speed telecom or backbone networks. Common standards include OS1, OS2, and bend-insensitive G.

657A1/A2 fibers for tight spaces and FTTH applications. Multimode (MM): Larger core (50–62. 5 µm) supports multiple light paths, suitable for short-distance, high-bandwidth applications like data centers and LANs.

Variants include OM1 (orange), OM2 (orange), OM3 (aqua), OM4 (aqua/magenta), and OM5 (lime green) for laser-optimized transmission. Connector TypesLC: Small form factor, duplex, widely used in modern data centers and QSFP transceivers.

S

C: Larger, push-pull connector, common in FTTH and legacy systems.

F

C: Screw-on, suitable for high-vibration environments.

S

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T: Bayonet mount, older design still used in labs or industrial LANs. MPO/MTP: Multi-fiber connectors (8/12/24/32/48 fibers), essential for high-density parallel optics like 40G/100G/400G networks. Other types: MU, MT-RJ, E2000, DIN, MDC/CS for specialized or next-generation high-speed applications.

Cable Configurations

Simplex: Single fiber, one-way transmission. Duplex: Two fibers, two-way transmission (Tx/Rx), standard for Ethernet and PON links. Armored: Provides mechanical protection for industrial or outdoor environments.

Uniboot/High-Density: Saves space in dense patch panels. Ferrule Polish TypesPC (Physical Contact): Slightly spherical end-face, return loss ~40 dB.

UP

C (Ultra Physical Contact): Refined polish, return loss ~55 dB, common in digital networks.

AP

C (Angled Physical Contact): 8° angled end-face, return loss ~65 dB, minimizes back-reflection, essential for CATV and high-speed systems. Jacket MaterialsPVC: Standard indoor use.

LSZ

H (Low Smoke Zero Halogen): Emits minimal smoke/toxic gas, suitable for high-safety areas.

OFN

R (Riser): For vertical shafts between floors.

OFN

P (Plenum): Fire-resistant, safe for air ducts.

Outdoor/

Waterproof: For FTTA, industrial, or outdoor cabinets.

Applications

Fiber patch cords connect optical devices such as transceivers, patch panels, switches, ODFs, and ONTs. They are widely used in: Data centers and server roomsFTTH distribution networksTelecom backbones and enterprise LANsIndustrial and outdoor environments requiring armored or waterproof cables. Choosing the right patch cord involves matching fiber mode, connector type, polish type, cable configuration, and jacket material to the network requirements and installation environment.

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Hybrid patch cords (e.g., LC–SC) are used when connecting devices with different port types, ensuring compatibility and optimal performance.

Article Content

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Understanding Fiber Patch Cord Types

In this comprehensive guide, we will explore different fiber patch cord types, their features, applications, and how to choose the right one for your project.

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Fiber Optic Cable

A glass tube as thin as the human hair is the core of fiber optic cables, it can transfer data using light signals at a very high bandwidth. Fiber optic cables differ according to the type of fiber, buffer tube,

The FOA Reference For Fiber Optics

Measuring Reflectance or Return Loss Reflectance Reflectance (which has also been called "back reflection" or optical return loss) of a connection is the amount

Optical fiber connector

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An optical fiber connector is a device used to link optical fibers, facilitating the efficient transmission of light signals. An optical fiber connector enables quicker connection and disconnection than splicing.

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Fiber Optic Cable Types Explained: Choosing the Right Fiber Cable

In high-speed network environments—such as data centers, enterprise LANs, and telecom backbones—fiber optic cables are critical in delivering reliable, high-bandwidth connectivity.

Fiber Patch Cord Types: How to Choose the Correct One?

Are you perplexed about various fiber optic patch cables due to different characteristics. Let''s talk about all things about fiber optic patch cables.

Fiber Optic Patch Cord Types Explained: SC, LC, MPO & How to

Discover all major fiber optic patch cord types—including SC, LC, ST, MPO/MTP—and learn how to choose between single-mode and multimode cables. This 2025 updated guide covers

Types of fiber optic patch cords

LC fiber optic patch cords, with their compact connectors with a diameter of 1.25mm, have become the first choice for high-density wiring in computer rooms and data centers. With the

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