

Fiber Optic Patch Cord Type Identification



Overview

Fiber Optic Patch Cord Types: The Complete Field Guide For 2026TL;DR: This guide breaks down every optical patch cord type by connector, fiber mode, polish.

Key Takeaways

Fiber optic patch cords are identified by their fiber type, connector type, polish type, simplex/duplex configuration, and jacket material, which together determine compatibility and performance.

Key Identification Factors

1. Fiber Type

- Single-mode (SMF): Yellow jacket, small core ($\sim 9 \mu\text{m}$), suitable for long-distance communication with minimal signal loss .
- Multimode (MMF): Larger core ($50\text{--}62.5 \mu\text{m}$), suitable for short-distance applications like LANs and data centers. Jacket colors indicate type: OM1/OM2 (orange), OM3 (aqua), OM4 (violet), OM5 (lime green), .

- #### 2. Connector Type
- LC: Small form factor, high-density, common in data centers .
 - SC: Larger, robust, widely used in telecom and FTTH .
 - ST: Bayonet-style, rugged, often used in industrial or military applications .
 - FC: Screw-on type, used in high-vibration environments .

- MPO/MTP: Multi-fiber connectors for high-speed backbone or data center applications .
 - Hybrid connectors: Combine different types on each end (e.g., LC-SC) for device compatibility .
- ### 3. Ferrule Polish Type
- PC (Physical Contact): Standard polish, moderate return loss .
 - UPC (Ultra Physical Contact): Flat end-face, low back-reflection, common in digital networks .
 - APC (Angled Physical Contact): 8° angled end-face, minimizes back-reflection, preferred for high-speed or CATV systems .
- ### 4. Simplex vs. Duplex
- Identification tip: UPC connectors are usually blue, APC connectors are green .
 - Simplex: Single fiber, one-way communication .
 - Duplex: Two fibers, two-way communication (Tx/Rx), standard for Ethernet and PON links .
- ### 5. Jacket Material and Environmental Suitability
- PVC: Standard indoor use .
 - LSZH (Low Smoke Zero Halogen): Safer for enclosed spaces, produces minimal smoke in fire .
 - OFNR/OFNP: Plenum-rated, fire-resistant for air-handling spaces .
 - Armored or outdoor jackets: Provide mechanical protection and weather resistance for industrial or outdoor deployments .
- ### Practical Identification Tips
- Visual inspection: Check jacket color for fiber type and connector color for polish type.
 - Connector shape: Compare with standard LC, SC, ST, FC, or MPO forms.
 - Labeling: Many patch cords are labeled with fiber type, length, and connector type.
 - Testing: Use an optical power meter or OTDR to verify fiber mode and signal integrity if uncertain. By combining these factors—fiber type, connector type, polish, simplex/duplex, and jacket material—you can accurately identify and select the correct fiber optic patch cord for your network application .

Article Content

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