

RIVO MULTITRADE OPTICAL SYSTEMS

Fiber optic patch cord connector splicing method



Overview

Learn how to assemble the STAR Plug & Play Splice Connector and create your own fiber optic patch cord with ease!

Key Takeaways

Fiber optic patch cord splicing joins two fiber ends—typically using fusion or mechanical splicing—to create a low-loss, permanent or semi-permanent connection. What is Patch Cord Splicing?

Splicing a fiber optic patch cord involves joining the bare fiber end of a patch cord or pigtail to another fiber to extend a network, repair a damaged cable, or connect different fiber types. Unlike patch cords, which have connectors on both ends, pigtails or patch cords with one bare end are designed for splicing to ensure a reliable, low-loss connection in the field .

Splicing Methods1. Fusion Splicing

- Process: Uses an electric arc to fuse two fiber ends together, creating a continuous glass path for light transmission .
- Advantages: Lowest insertion loss (~ 0.1 dB), minimal back reflection, strongest and most reliable joint.
- Applications: Preferred for single-mode fibers, long-haul outside plant (OSP) installations, and permanent connections.

- Equipment: Requires a fusion splicer, fiber cleaver, stripper, cleaning supplies, and heat shrink sleeves for protection .

- Safety Note: Should be performed in controlled environments (e.g., above-ground truck setups) due to equipment size and safety concerns .

2. Mechanical Splicing

- Process: Aligns two fiber ends inside a sleeve with index-matching gel, without fusing them .

- Advantages: Quick, requires less equipment, can be temporary or semi-permanent.

- Typical Loss: Around 0.3 dB, slightly higher than fusion splicing.

- Applications: Temporary repairs, multimode LANs, or situations where fusion splicing is impractical.

Tools and Best Practices

- Fiber Stripper: Removes outer jacket and buffer layers.

- Kevlar Cutter: Cuts strength members cleanly.

- High-Precision Cleaver: Ensures a flat, perpendicular fiber end for splicing.

- Cleaning Supplies: Lint-free wipes and isopropyl alcohol to remove contaminants.

- Protective Gear: Safety glasses to prevent eye injury from fiber shards.

- Testing Tools: Visual fault locator (VFL) or optical time-domain reflectometer (OTDR) to verify splice quality .

Practical Considerations

- Splicing is more common in outside plant (OSP) applications than in-premises cabling, where cables are often pulled in one piece .

- Fusion splicing is standard for single-mode fibers, while mechanical splicing is often used for multimode fibers or temporary fixes .

- Mass fusion splicers can splice multiple fibers (e.g., 12-fiber ribbons) simultaneously, improving efficiency for large installations .

- Proper cleaving and cleaning are critical; even automated fusion splicers require precise preparation to avoid high loss or back reflection .

Workflow Example

- Strip the patch cord or pigtail to expose the bare fiber.

- Clean and cleave the fiber ends.

- Align fibers in the fusion splicer or mechanical splice sleeve.

- Perform the splice and protect it with a heat shrink sleeve.

- Test the splice using a VFL or OTDR to ensure minimal loss. By following these methods and best practices, fiber optic patch cord splicing ensures reliable, low-loss connections that maintain network performance and longevity .

Article Content

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Fusion splicing is the preferred method for splicing long distance singlemode cable plants, as it's low loss and reflectance maximizes

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Of course, one might also take some jumper cable and cut it into two pigtails. Some fiber pigtails have only some polymer buffer, but

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Again, for those telcos that have invested in fiber splicing machinery, it may be cheaper to use this rather than buy factory-terminated

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