

RIVO MULTITRADE OPTICAL SYSTEMS

Fiber optic pigtail fixing



Overview

How to Install Fiber Optic Pigtails (Step-by-Step Guide) Remove the outer coating carefully to expose the fiber. Use alcohol wipes to remove dust and debris.

Key Takeaways

Fiber optic pigtails are typically fixed to existing fiber cables using either fusion splicing or mechanical splicing, ensuring low-loss, reliable connections. Overview of Fiber Optic Pigtails

A fiber optic pigtail is a short length of optical fiber with a factory-terminated connector on one end and a bare fiber on the other. The connector end plugs into equipment or patch panels, while the bare end is permanently joined to the incoming fiber cable in the field. This design allows for precise factory-quality connectors combined with flexible field termination .

Methods for Fixing Pigtails 1. Fusion Splicing

Fusion splicing is the most common and reliable method for fixing fiber optic pigtails. It involves:

- Aligning the bare fiber of the pigtail with the incoming fiber using a fusion splicer.
- Melting the fiber ends together with an electric arc to create a continuous optical path.



- Protecting the splice with a heat-shrink sleeve or splice protector. Fusion splicing provides low insertion loss, minimal back reflection, and long-term stability, making it ideal for high-performance networks, data centers, and FTTH deployments . Required tools include a fusion splicer, fiber cleaver, fiber stripper, and cleaning supplies. Proper preparation, such as cleaning and precise cleaving, is critical to ensure a high-quality splice .

2. Mechanical Splicing

Mechanical splicing is an alternative method where the fibers are aligned and held together using a precision mechanical fixture:

- The bare fiber of the pigtail is inserted into a mechanical splice holder.
- Index-matching gel or adhesive is applied to reduce signal loss.
- The splice is secured in a protective enclosure. Mechanical splicing is faster and requires less specialized equipment than fusion splicing, but it generally has slightly higher insertion loss and is more sensitive to environmental conditions .

3. Using Patch Cord Conversion

In some cases, installers cut a pre-terminated patch cord into two pigtails. This method allows testing the patch cord first, then splitting it to create two pigtails for field splicing. This approach is practical when testing individual pigtails in the field is difficult .

Best Practices

- Choose the correct connector type (LC, SC, ST, FC, etc.) and fiber type (single-mode or multimode) to match the network requirements .
- Keep fibers clean and dust-free; contamination can significantly increase signal loss.
- Use high-quality tools and follow proper cleaving and alignment procedures.
- Protect splices in splice trays or enclosures to prevent mechanical damage. By following these methods and best practices, fiber optic pigtails can be reliably fixed to existing fiber networks, ensuring optimal performance and long-term reliability .

Article Content

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