Fiber Optic 86-type junction box splicing method



Overview

This method allows for a tighter connection between the fibers, resulting in minimal insertion loss.

Key Takeaways

Splicing in an 86-type fiber optic junction box is typically performed using fusion splicing, followed by careful protection and organization of fibers within the box.

Preparation

Clean and Prepare Tools: Ensure the fusion splicer (e.g., Fujikura 86S), cleaver, fiber strippers, and cleaning supplies are clean and functioning properly. Cable Preparation: Remove the outer jacket, strength members, and buffer tubes to expose the bare fibers. Use a kevlar cutter to trim any remaining strength fibers.

Fiber Cleaning: Clean the bare fibers with lint-free wipes and isopropyl alcohol to remove dust and oils, which can affect splice quality.

Splicing Procedure

Cleaving: Use a high-precision cleaver to create a flat, perpendicular fiber end. Proper cleaving is critical for low-loss splicing. Fusion Splicing: Place the fibers into the 86S fusion splicer.

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The 86S uses core alignment technology to align fibers accurately, even with core-cladding concentricity errors. The splicer automatically aligns the fibers and applies an electric arc to fuse them together, creating a permanent joint with minimal insertion loss (~0.1 dB) and low back reflection. Protection Sleeve: Slide a heat-shrink protection sleeve over the splice.

The 86S sheath clamp is optimized for 60 mm sleeves, making it easy to center the sleeve over the splice point. Heating: Activate the splicer's built-in heater to shrink the sleeve, securing the splice and providing mechanical protection. Organizing and Securing Fibers in the Junction BoxFiber Routing: Carefully route the spliced fibers along the designated trays or holders inside the 86-type junction box to prevent bending or stress.

Splice Tray Placement: Place the protected splices into the splice tray, ensuring they are secured and not overlapping. Maintain the minimum bend radius to avoid signal loss. Closure Sealing: Close the junction box securely to protect the splices from environmental factors such as moisture, dust, and mechanical stress.

Best Practices

Handle fibers gently to avoid scratches or microbends, which can increase attenuation. Test the splices using a visual fault locator (VFL) or optical time-domain reflectometer (OTDR) to verify low loss and proper alignment. Maintain a clean working environment to prevent contamination, which is a common cause of splice failure.

By following these steps, the 86-type junction box can house multiple splices safely, ensuring long-term reliability and minimal signal degradation in PON or FTTx networks.

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