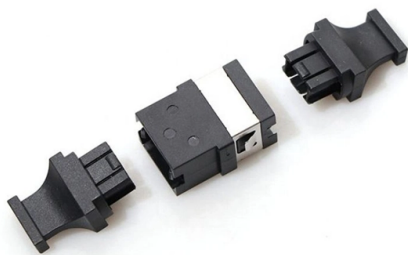


How to modify the wiring of a mobile optical cable



Overview

To connect to other devices or equipment, an optical fiber needs to be terminated. This means either fitting a connector to its end, or connecting it directly to another fiber, known as splicing.

Key Takeaways

Modifying a mobile optical cable involves careful handling, proper connector alignment, and adherence to bend radius and tensile limits to avoid damage and signal loss.

Safety and Handling

Optical fibers are extremely fragile, especially the glass core. Never pull on the connector or twist the cable, as this can break the fibers or cause permanent attenuation issues. Always use a pulling grip designed for fiber optic cables and monitor tension to ensure it does not exceed the maximum tensile load specified for the cable.

Avoid sharp bends, pinching, or squeezing the cable, as exceeding the recommended bend radius can reduce the cable's useful life.

Preparing the Cable

Before modifying or rerouting a mobile optical cable: Inspect the cable for kinks, damage, or contamination. Measure the required length to ensure the cable is not overstretched or looped excessively. Clean connectors using a fiber optic cleaning kit to prevent dust or dirt from causing signal loss.

For duplex cables, ensure the transmit (TX) and receive (RX) fibers are correctly aligned to avoid cross-talk or communication errors.

Modifying Connections

When changing the wiring or connections: Use the appropriate connectors (LC, SC, ST, etc.) compatible with your equipment. Insert transceivers (SFP, SFP+, QSFP) carefully into the fiber ports, ensuring they click into place without forcing them. If joining cables with bulkhead connectors, account for additional attenuation loss and maintain the total attenuation budget.

Routing and Installation

Lay the cable in a figure-8 pattern for runs longer than 40 meters to prevent twisting. Use cable guides to maintain the recommended bend radius and avoid offset pulls. For long runs, consider using proper lubricants compatible with the cable jacket and, if possible, an automated puller with tension control.

Testing After Modification

After modifying the wiring or connections, always test the optical link for signal integrity using an optical power meter or OTDR (Optical Time-Domain Reflectometer) to ensure no excessive loss or damage occurred during handling. By following these precautions and procedures, you can safely modify the wiring of a mobile optical cable while maintaining optimal performance and longevity.

Article Content

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To connect to other devices or equipment, an optical fiber needs to be terminated. This means either fitting a connector to its end, or connecting it directly to another fiber, known as splicing.

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