

Fiber Deployment

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FIBER OPTIC DEPLOYMENT & SPLICING STANDARDS

1. Fiber Cable Preparation & Handling

- Sheath Stripping: Use proper stripping tools to remove the outer jacket without nicking the buffer tubes or scoring the internal glass fibers.
- Cleaning Protocol: Clean bare fibers thoroughly using 99% Isopropyl Alcohol (IPA) and lint-free wipes before cleaving. Never touch bare fiber with your fingers after cleaning.
- Precision Cleaving: Ensure the fiber cleaver is clean and maintained. Target a cleave angle of less than 0.5 degrees for optimal fusion results.

2. Fusion Splicing & Enclosure Management

- Splicing Threshold: The maximum allowable splice loss per joint must not exceed 0.05 dB. Re-splice immediately if the machine detects a higher loss.
- Protection Sleeves: Center the heat-shrink protective sleeve over the splice point before activating the fusion splicer's heating oven. Ensure no air bubbles remain inside.
- Tray Routing: Maintain a minimum bending radius inside splice trays to avoid microbending. Secure buffer tubes loosely with mini-tie wraps; do not overtighten.
- Enclosure Sealing: Apply proper rubber seals and tightening torque to dome or inline enclosures to guarantee a 100% waterproof seal against weather elements.

3. Optical Link Testing & Commissioning

- End-to-End OTDR Testing: Conduct bi-directional Optical Time-Domain Reflectometer (OTDR) traces at both 1311nm and 1550nm wavelengths to map the entire link profile.
- Splice & Connector Reflection: Ensure all optical connectors have a reflectance value better than -50 dB to prevent severe backreflection into the transmitter.