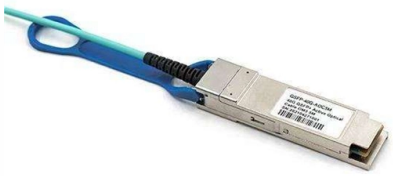
Installation Method of Optical Splitter Box



Overview

In optical communication networks, optical splitters play a crucial role in efficiently dividing and distributing signals.

Key Takeaways

Installing a box-type optical splitter involves careful preparation, secure placement in a fiber distribution box, proper splicing or connectorization, and thorough testing to ensure reliable network performance. Step 1: Identify Requirements and Prepare ToolsDetermine the type of optical splitter needed based on your network specifications, including the number of output ports, split ratio, and whether it is pre-terminated or bare fiber. Gather necessary tools such as fiber optic cables, connectors, a fiber optic cleaning kit, fiber strippers, a fusion splicer or mechanical splice kit, and a fiber distribution box or terminal box.

Step 2: Prepare the Fiber CablesMeasure and cut the fiber optic cables to the required lengths. Carefully strip the protective jacket to expose the inner fibers, ensuring clean and precise cuts. Clean the fiber ends using a fiber optic cleaning tool to remove dust or debris, which is critical to prevent signal loss.

Step 3: Install the Splitter in the BoxPlace the optical splitter inside the fiber distribution or terminal box. For pre-terminated splitters, secure the main stainless steel tube in the designated slot or protective clamp. For bare splitters, prepare for splicing by positioning the splitter in a fiber splice closure or splitter box.

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Ensure the splitter is protected from bending or vibration, maintaining the minimum bend radius. Step 4: Connect or Splice FibersPre-terminated splitters: Use fiber optic adapters to connect the input and output fibers to the splitter ports. Coil any excess fiber neatly inside the box to avoid stress on the fibers.

Bare fiber splitters: Perform fusion splicing or mechanical splicing according to the manufacturer's instructions. Handle fibers carefully to avoid breakage and maintain proper winding. Step 5: Manage Fiber RoutingRoute the fibers inside the box to prevent sharp bends and ensure organized connections.

Use protective trays or guides if available. Verify that all connectors are clean and properly seated to reduce insertion loss. Step 6: Test the InstallationAfter installation, test the optical link using an optical power meter or OTDR.

Check that the input optical power minus the output power does not exceed the nominal splitter loss (e.g., 1: 8 PLC splitter standard loss ≈ 10. 7 dB). Verify uniformity between output ports and inspect for any reflection peaks or excessive attenuation.

Step 7: Final Checks and MaintenanceEnsure the box is securely closed and protected from environmental factors. Periodically inspect the splitter and fiber connections, performing optical power tests and OTDR checks to maintain network reliability. By following these steps, a box-type optical splitter can be installed efficiently, ensuring stable performance, minimal signal loss, and long-term reliability in fiber optic networks.

Article Content

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