

Why Do I Need a Fiber Launch Lead on the OTDR?

All About Fiber

Fiber launch leads are designed to be used in conjunction with an OTDR to measure complete link loss of a fiber. They are also known as pulse suppressor cables, launch cords, launch cables, receive cables or fiber rings.

OTDRs are always used with a launch lead, there are two major reasons for its use:

Reason 1:

The launch lead allows the OTDR trace to settle down after the test pulse is sent into the fiber so you can analyze the beginning of the cable you are testing. The large event you see right in front of the instrument on the OTDR trace is caused by crosstalk within the instrument and reflectance from the connector on the face of the OTDR. The long recovery time from this overload pulse means the OTDR cannot make any useful measurements near the instrument itself. The launch lead allows time for the OTDR to settle down from this initial overload. If possible, singlemode OTDRs should have APC connectors on the front panel to reduce reflectance. Also a short connection cable attached to the OTDR before the launch cable that never gets removed from the OTDR prevents excess wear on the panel connector.

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Reason 2:

The launch lead provides a reference connector for the first connector on the cable under test to determine its loss. A receive cable may be used on the far end to allow measurements of the connector on the end of the cable under test also.

What should we consider when buying launch lead ?

1. Fiber Types & Manufacturers

There are many different optical fibers used in communications networks, so determining the specific type is very important. Do you need single mode or multimode fiber? Are you seeking to simulate a field network that requires an exact fiber match, or will an industry-standard equivalent suffice? Also, keep in mind that both pricing and availability of fiber does vary by type and manufacturer, so you will need to consider this as well during the project planning phase.

2. Fiber Lengths and Configurations

Once you have selected the appropriate type(s) of fiber, the next step is to determine the lengths needed for your test setup. Depending upon your solution partner, which we will cover later in this article, there are potentially a number of configuration options available to you.

3. Solution Partner / Vendor Selection

Since the leading fiber manufacturers focus on mass production of standard lengths and do not provide enclosures, selecting a proven solution partner that specializes in selling fiber as part of a quality testing platform is important. While it may seem like installing a spool of fiber in an enclosure is simple, working with bare fiber is not easy. It requires well-designed hardware, skilled professionals, specialized equipment, and very hands-on processes to ensure a great finished product. All these factors impact greatly on the quality of fiber launch lead and of course affect the reliability of the OTDR testing.

What length of launch leads should I use in testing singlemode and multimode fiber?

Use of Launch/Receive Cables Launch and receive cables, consisting of spools of fiber with specific distances, should be connected to both ends of the fiber link under test in order to qualify the front end and the far end connectors using an OTDR.

The length of the launch and receive cables depends on the link being tested, but it's generally between 300 m and 500 m for multimode testing and between 1000 m and 2000 m for single-mode testing.

For very long haul, 4000 m of cable may be used. The fiber length highly depends on the OTDR attenuation dead zone, which is function of the pulsewidth. The larger the pulsewidth, the longer the launch cable and receive cables. Launch/receive cables must be of the same type as the fiber under test.