

RIVO MULTITRADE OPTICAL SYSTEMS

How to use a light source power meter to test



Overview

This is your "QuickStart" guide to testing optical power in fiber optic communications systems with a fiber optic power meter.

Key Takeaways

A Light Source Power Meter Test measures optical power and fiber loss by injecting a known light signal into a fiber and detecting the received power at the other end.

A Light Source Power Meter (LSPM) Test is essential for evaluating fiber optic links, ensuring they meet performance specifications, and identifying potential issues such as breaks, bends, or faulty connectors. The test uses two main instruments:

- **Light Source:** Emits a stable optical signal at a specific wavelength (commonly 850 nm, 1300 nm, 1310 nm, or 1550 nm) into the fiber under test.
- **Optical Power Meter:** Measures the optical power received at the far end of the fiber, displaying results in decibels (dB) for relative loss or decibel-milliwatts (dBm) for absolute power.

Purpose

The test determines insertion loss, which is the amount of light lost as it travels through the fiber. Accurate measurement ensures the fiber link meets industry standards such as TIA-568-3.D and ISO/IEC 14763-3. It is used for:

- Installation verification
- Maintenance and troubleshooting
- Network upgrades
- Certification of fiber links

Procedure

- Calibration: Set the power meter to the correct wavelength and calibrate it using a reference fiber or known power level .
- Connect the Light Source: Attach the light source to one end of the fiber and select the appropriate wavelength for testing .
- Measure Received Power: Connect the power meter to the opposite end of the fiber. Record the optical power reading.
- Calculate Loss: Determine the fiber loss by comparing the transmitted power from the light source to the received power at the meter. Loss is typically expressed in dB.
- Repeat for Multiple Wavelengths: For multimode or singlemode fibers, test at all relevant wavelengths to ensure compliance with specifications .
- Document Results: Record measurements, including fiber length, wavelength, and loss values, for certification or troubleshooting purposes.

Best Practices

- Use stable, calibrated light sources to ensure accurate readings .
- Perform bidirectional testing when possible to account for connector and splice variations .
- Ensure clean connectors to avoid measurement errors.
- For complex networks, consider using an Optical Loss Test Set (OLTS), which integrates light source and power meter functions and may include duplex testing, length measurement, and pass/fail evaluation .

Field Applications

Portable LSPM kits are widely used in FTTH, enterprise, carrier, and Ethernet networks. They are designed for durability, ease of use, and rapid testing in the field, allowing both novice and experienced technicians to perform accurate measurements efficiently . By following these procedures and best practices, a Light Source Power Meter Test ensures reliable fiber optic network performance and compliance with industry standards.

Article Content

How to Use an Optical Power Meter for Fiber Testing

Learn how to use an optical power meter to test fiber links, read power levels, measure loss, and work safely around

How to use Light source and Power meter

Connect the power meter to the receiving end of the test cable. Turn on the source and select the wavelength you

FOA Fiber U Quickstart Guide: Fiber Optic Testing

This is your "QuickStart" guide to testing fiber optic cable plants, patchcords and communications equipment with a fiber optic light

How to Measure Fiber Loss with Optical Power Meter and Light Source

In fiber optic measurement applications, in addition to using optical power meters and light sources, you also need to use

FOA Fiber U Quickstart Guide: Fiber Optic Testing

This is your "QuickStart" guide to testing optical power in fiber optic communications systems with a fiber optic power meter. We'll

Step-by-Step Guide to Using an Optical Power Meter

An optical power meter is a key tool that measures light strength in the fiber, helping identify signal losses or

How to use optical light source and power meter?

Finally, optical light sources and fiber optic power meter are crucial equipment for fiber optics applications.

Power meters and light sources-

Power meters and light sources-- necessary testing tools To test the end-to-end performance of an optical-fiber system, an installer

Fiber Optical Cable Testing: Visible Light Source | Power-Meter-and ...

Power-Meter-and-Light-Source Testing is a crucial test method for the proper functioning of Optical Fiber Cable. With

What is the Purpose of a Power Meter & Light Source?

A Power Meter & Light Source is a low cost way to certify optical fiber. These two pieces of test equipment are used to

How to Measure Fiber Loss with Optical Power Meter and Light Source

Each optical power meter has a certain working wavelength range, and generally between 800nm and 1700nm. If we

Introduction about Fiber Optic Power Meter and Light Source

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How to use MPO Optical Power Meter and MPO Optical Light Source ...

Connect the MPO Optical Light Source directly to the MPO Optical Power Meter using a short reference MPO patch

How to Use an Optical Power Meter(OPM): A Beginner's Guide

An optical power meter is a professional testing device used to measure the power of optical signals accurately. It is

OTDR, Light Source & Power Meter : Which One Suitable For

Source&Meter - Measurements are made with a two stage process. First the source power is measured, then light is

Light-source testing solutions | EXFO

Tier-1 certification kit with power meter and light source, compatible with multiple duplex and multi-fiber connectors up to 24 fibers.

AFL | One-Jumper Method Optical Loss Testing: Light Source & Power ...

This step-by-step demo shows how to perform basic optical loss testing using just a light source and power meter,

FPM/FLS 101 Fiber Optic Test Meter Setup Guide

This guide provides instructions for an experienced technician to begin using the Extron Fiber Optic Power Meter (FPM 101) and

Related Video Reference

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