LAMBDASCOPE

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D-OTDR-**MM-850** / SM-1310/1550

Multimode / Single Mode Optical Fiber Length Meter Data Sheet

KEY FEATURES:

- Capable of measuring multimode fiber length to 1000m, or single mode fiber to 35km;
- 850nm VCSEL diode laser, or 1310nm F-P and 1550nm uncooled DFB diode lasers;
- Detect only the most significant event (fiber breakage, disconnection or bad connector, etc.);
- Minimum spatial resolution of 2.5cm in fiber length with elimination of attenuation dead zone;
- Displays both fiber length and return optical power values;
- Default fiber type is OM4 for the multimode version, SMF28e for the single mode version while user defined fiber types are possible;
- Open source platform, plug-n-play integration to existing testing systems;
- Handheld version available soon.

INTRODUCTION

As enterprise network and datacenter architectures evolve, the resilience of the cabling infrastructure becomes highly dependent upon maintenance tools to ensure fiber reliability. The Lambdascope Digital Optical Fiber Length Meter is designed to meet challenges of quickly and efficiently managing and trouble-shooting cable systems for the ever increasingly complex yet short distance networks. Based on

our patent-pending digital optical time domain reflectometry (D-OTDR) technology, our Digital Optical Fiber Length Meter greatly simplifies the testing tasks by only intelligently identifying and detecting the most significant reflection event. It can measure the fiber length of OM4 MM fiber up to 1000m with 2.5cm resolution and no attenuation dead zone – the key performance features that a far more expensive OTDR cannot rival. The panel display is simple and straightforward with fiber length and optical return power levels. To accurately covert the time of flight information to corresponding fiber length, the user can use the LabView GUI interface and select the appropriate fiber types or input the effective index for their own fibers. The default setting for MM-850 is Corning OM4 ClearCurve VSDN Multimode fiber. Its effective index is 1.496. For single mode fiber SM-1315, the default fiber setting is SMF-28e+ with its index equal to 1.4674 at 1310nm and 1.4679 at 1550nm.

APPLICATIONS

- Data center fiber maintenance and trouble shooting
- Optical fiber and cable production
- Training and education
- OTDR calibration

DESCRIPTION

Driven by server virtualization and multi-gigabit links between servers, networks and storage, the datacenter architecture employs more patch cords and dense topology connectors, rendering carrier-class OTDRs with long dead-zones ineffective. MM-850/SM-1315 fiber length meter not only makes fiber deployment in datacenters simple, but also provides the highest level of accuracy for quick problem identification since it has virtually no dead zone.

The MM-850/SM-1315 differentiates its design from the traditional OTDR by analyzing the edge of an optical pulse. Our patent pending signal analyzing algorithm allows the only most significant event (fiber breakage, disconnection, bad connector, etc.) to be detectable and measureable while ignoring other benign back reflection signal trails. This technological advancement makes MM-850/Sm-1315 a unique instrument that can measure closely spaced significant fiber reflection, which is very useful in today's connector-rich datacenter and storage area network environments.

GENERAL CHARACTERISTICS

Dimensions (D x W x H)	224 mm x 157 mm x 80 mm*
Warm-up Time	10 min.
Communication Interfaces	USB or I2C
Power Consumption	<5W
Operating Temperature	0 to 45 °C
Storage Temperature	-40 to 80 °C

Note:

*The size can be made smaller to fit into an existing system.

KEY SPECIFICATIONS

Model Type	MM-850	SM-1310	SM-1550
Default Fiber Type	OM4 compatible MM fibers[1]	SMF-28e+	SMF-28e+
Wavelength	850 nm +/- 10 nm	1310 +/- 50 nm	1550 +/- 15 nm
Fiber length Resolution	2.5 cm @ 850 nm	3 cm @ 1310 nm	3 cm @ 1550 nm
Attenuation dead zone	None	None	None
Distance measurement range	0 - 1000 m	0 – 30 km	0 – 35 km
Measurement Accuracy	+/- 5 cm	+/- 6 cm	+/- 6 cm
Measuring Time	<2s	<15s	<15s
Optical Power Budget	>8dB[2]	25dB	25dB
Displayable power range	0 to -26 dBm	0 to -35dBm	0 to -40 dBm

Note:

1. Other fiber types may require calibration for accurate distance display.
2. When used in reflection mode, the component loss budget should be doubled (2X).

CONNECTOR CLEANING

We provide a master jumper cable for your convenience. It is highly recommended that customer use the dedicated master jumper cable between the instrument and testing cables to minimize the possibility of contamination to the connector in the front panel.

With some effort, it is possible to clean to the FC/UPC connector located on the front panel. One can use a Philips screw driver to unscrew the top two holding screws for both front and back panels. Then you can lift the top cover and expose the instrument. The FC/UPC is easily accessible from the top. You can remove it from the front panel and clean it. You should reverse the operation to put the connector back to the panel and close the top. Tightly screw both panels to restore the instrument to its original working condition.

ORDERING INFORMATION

The part numbering designation for LAMBDASCOPE products is as follows.

MM-850-FC/UPC (for FC/UPC connector, other connector types are available upon request)

SM-1310-SC/APC (for single mode 1310nm operation, SC/APC connector)

SM-1550-LC/UPC (for single mode 1550nm operation, LC/UPC connector)

WARRANTY

All products have standard 1 year warranty with one-year calibration service.