LFD-250B

NETWORK TESTING–OPTICAL

Combining live fiber detection and dark fiber pinpointing in one cost-efficient test tool

- Induces minimal loss: ≤1 dB
- Fail-safe detection and results
- Detects if a fiber is active or not prior to maintenance
- Locates a particular dark fiber using tone recognition (270 Hz, 1 kHz, 2 kHz)
- Identifies traffic direction on a live fiber
- Displays the power transmitted through the fiber
- Three times faster test time

Breaking Free of the Limitations of Traditional Live Fiber Detectors

Traditional live fiber detectors (LFDs) use thumb-activated fiber bending at a fixed angle to enable the detector to read the power leaking from the jacket (see Figure 1). Since the bending is fixed and optimized for one wavelength and one fiber type, the bending often causes:

- Excessive loss
- Unreliable fiber detection (fiber activity is not detected)
- Unreliable tone/traffic detection
- Permanent damage to the fiber

In addition to being unreliable, the fact that they can cause excessive loss is the main reason why traditional LFDs are considered dangerous and are not used on high-data-rate routes and in long-haul-network applications.

EXFO's LFD-250B Live Fiber Detector introduces step-motor-activated bending and makes fixed-angle bending–and the drawbacks stated above–a thing of the past.

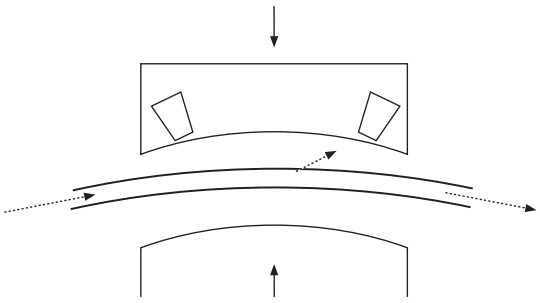

Figure 1. In traditional LFDs, a mechanical pull or push bends the fiber to a predetermined angle and forces light onto the detector.

EXFO's LFD-250B: Step-Motor-Activated Bending, for Guaranteed Low Loss

For all fiber types and all wavelengths, insertion loss is monitored as a function of the bending angle as the motor (and not human power) moves. Although the angles differ, the behavior remains the same. The adjacent graph shows that fixed-angle bending generates excessive loss in some cases, and leads to flawed identification in others.

The LFD-250B brings a unique approach: the power loss is monitored as the motor (and not human power) changes the angle. Therefore, the angle is automatically optimized for each fiber type and each singlemode wavelength. This results in clear-cut advantages:

- Maximum loss of 1 dB guaranteed for any singlemode telecom fiber (most jacket types) and any wavelength
- No damage to the fiber: bending is always minimal and the fiber is released when no power is detected*
- Virtually 100 % reliability on traffic detection, direction identification and tone detection
- Accurate in-line, non-disruptive power measurements
- Safe to be used in long-haul applications and on high-payload fibers–contrary to traditional LFDs

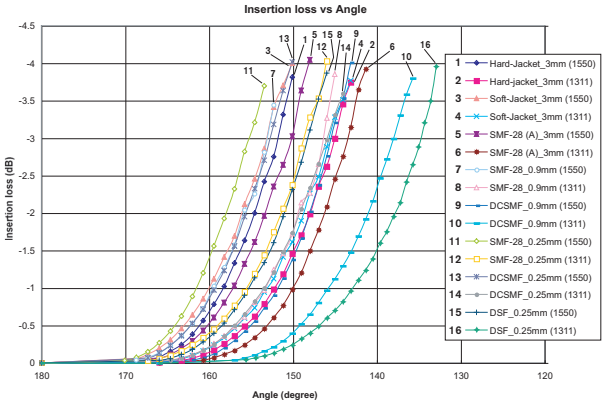

Figure 2. By monitoring the loss, the LFD-250B can stop bending the fiber when sufficient light is ejected and thus control the loss.

Ambiant Light Offset

EXFO's LFD-250B performs an ambient light offset prior to fiber bending, which makes it less sensitive to ambient light. A push-down cap can also be placed on the head-end to block intense ambient light.

** Not optimized for use with 250 µm fibers.*

Protected by PCT published patent appl. WO/2006/092051 and associated national entries in the USA and other countries.

In-Line Power Measurement

As stated, the LFD-250B controls the insertion loss within the fiber (IL) in dB. But the absolute value of the measured signal is in dBm, so knowing the loss in dB and the power level of this light exiting, power can be measured with a better accuracy than traditional fixed loss LFDs. Of course, coupling efficiency is a factor (3 mm jackets absorb more than 1.6 mm and 900 µm jackets). However, since loss is monitored as a basis for motor positioning, the unit knows what size of jacket is being tested (either 900 µm, 1.6 mm or 3 mm), so the LFD-250B automatically uses the proper coupling efficiency parameter and computes the power within any fiber, at any wavelength, with 1 dB repeatability.

Applications Are Numerous

- FTTH deployment, where there is no protection fiber, making non-intrusiveness a key
- Live network maintenance and troubleshooting
- Link budget evaluation without having to disconnect

EXFO's LFD-250B provides fail-safe traffic detection and induces guaranteed low loss for all fibers and at all wavelengths.

SPECIFICATIONS [a]

Fiber type	3 mm, 1.6 mm, 900 µm [b]
Insertion loss (dB) [c]	
Maximum guaranteed	1
1550 nm	0.5
1310 nm	0.3
Power range (dBm)	25 to –35
Power measurement repeatability [b] (dB)	±1
Test time (s)	<6

GENERAL SPECIFICATIONS

Size (H x W x D)	245 mm x 45 mm x 55 mm	(9 5/8 in x 1 3/4 in x 2 1/4 in)
Weight (without batteries)	0.35 kg	(0.8 lb)
Temperature [d]		
operating	0 °C to 50 °C	(32 °F to 122 °F)
storage	–40 °C to 70 °C	(–40 °F to 158 °F)
Relative humidity	0 % to 93 % non-condensing	

Notes

a. All specifications are typical and valid from 18 °C to 28 °C and at 1550 nm unless otherwise specified.

b. Typical fibers, clean and undamaged. Coating/jacket color and mechanical properties may alter the specifications. For G.652 fiber type. Specifications may vary with other fiber types.

c. For specified fiber types, with power in fiber greater than –25 dBm.

d. At temperatures below 15 °C, jacket hardening may prevent adequate bending. Hand-warming the fiber may be required to soften it.

ORDERING INFORMATION

LFD-250B

Model
LFD-250B

Example: LFD-250B

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EXFO is certified ISO 9001 and attests to the quality of these products. This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. EXFO has made every effort to ensure that the information contained in this specification sheet is accurate. However, we accept no responsibility for any errors or omissions, and we reserve the right to modify design, characteristics and products at any time without obligation. Units of measurement in this document conform to SI standards and practices. In addition, all of EXFO's manufactured products are compliant with the European Union's WEEE directive. For more information, please visit **www.EXFO.com/recycle**. **Contact EXFO for prices and availability or to obtain the phone number of your local EXFO distributor.**

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