OPTICAL BACKSCATTER REFLECTOMETER

20 BEST IN TEST 06
TEST & MEASUREMENT WORLD AWARD WINNER

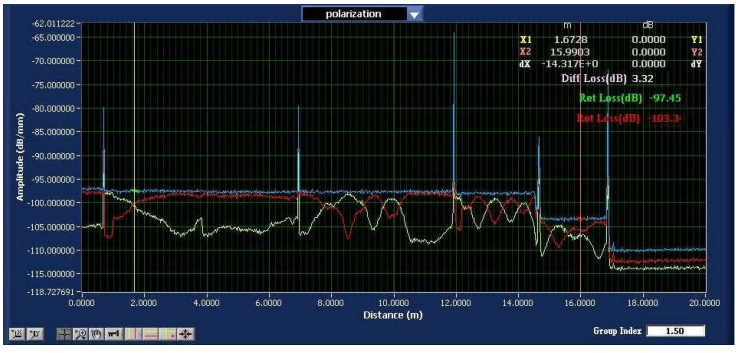
The industry's first ultra-high resolution OTDR with backscatter-level sensitivity designed for component- and module-level reflectometry. The OBR uses swept-wavelength coherent interferometry to measure minute reflections (< 0.0003 parts per billion) in an optical system as a function of length with spatial resolution less than 50 microns. This provides the user with unprecedented optical-module inspection and diagnostic capabilities. The OBR can be used to locate and troubleshoot splices, connectors, fiber bends and breaks, fiber segments and components embedded in a short run fiber assembly. With integrated temperature and strain sensing, the OBR gives you the ultimate in fiber diagnostics.

MEASUREMENT PERFORMANCE HIGHLIGHTS

- -125 dB sensitivity
- 70 dB dynamic range
- 500 meter length range with no dead-zone
- Micrometer resolution up to 70 meters
- < 0.05 dB insertion loss resolution

APPLICATIONS

Applications include: **design verification** and analysis that can discriminate between individual devices, connectors, fibers, splices and components; **component qualification** for inspection and rapid testing of individual optical components; **troubleshooting** of optical systems during development and production; and **failure analysis** of devices and subassemblies.





The Luna OBR is the industry's most sensitive and highest resolution frequency-domain reflectometer. The OBR offers unprecedented diagnostic capabilities to designers and manufacturers of fiber-optic components and assemblies.

KEY FEATURES AND PRODUCT HIGHLIGHTS

Single connection IL and RL

Locate loss events - Monitor backscatter levels to isolate losses due to bends, crimps, bad splices, etc.

Advanced time-domain windowing features

Polarization tracking

Multi-wavelength options: 1310 nm or 1550 nm regions

Dynamic gain control

Integrated distributed sensing of temperate and strain in fiber and components

2005 FROST & SULLIVAN Optical Product of the Year Award

Industry analyst Frost & Sullivan has selected the OBR as the Optical Product of the Year. This award recognizes Luna's successful product development strategies and the degree the OBR has met customer stated needs and requirements.

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OPTICAL BACKSCATTER REFLECTOMETER

Parameter	Specification				Units
Maximum device length:	10	30	70	500	meters
Spatial resolution (two-point)[1]:	10	20	40	1000	microns
Dead zone[1]:	10	20	40	1000	microns
Wavelength range[2]:	1290 -1370 or 1525 -1605				nm
Wavelength:					
Resolution	0.02				pm
Accuracy[3]	± 1.5				pm
Integrated return loss characteristics:					
Dynamic range[4]	70				dB
Total range	+5 to -125				dB
Sensitivity	-125				dB
Resolution	± 0.05				dB
Accuracy	± 0.10				dB
Integrated insertion loss characteristics:					
Dynamic range[5]	8				dB
Resolution	± 0.05				dB
Accuracy	± 0.10				dB
Group delay:					
Accuracy	± 1.0				ps
Distributed Sensing[6]:					
Spatial Resolution	2.0				cm
Temperature Resolution	± 0.1				C
Temperature Accuracy[7]	± 0.2				C
Strain Accuracy[7]	± 1				µstrain
Measurement Timing[8]	< 10				s

Specifications are for single-mode operation.
For multimode operation, specifications are nominal.

1- *Over entire length range.*
2- *Ranges are nominal.*
3- *Accuracy maintained by an internal NIST-traceable HCN gas cell.*
4- *For the 500 m option, return loss dynamic range is 60 dB.*
5- *The insertion loss dynamic range is the amount of loss that can be suffered before the scatter level of standard SMF (~-95 dB/mm) is lower than the noise floor (~-115dB/mm).*
6- *Distributed sensing uses Rayleigh spectral shift method and is relative to reference scan.*
7- *Temperature and strain accuracies are calculated from spectral shift of Rayleigh scatter using 1 GHz ≈0.8 C ≈4 µstrain [see A. Othonos and K. Kalli, Fiber Bragg Gratings (Actech House, Boston, 1999)].*
8- *Combined scan and analysis time in high-resolution mode.*

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