



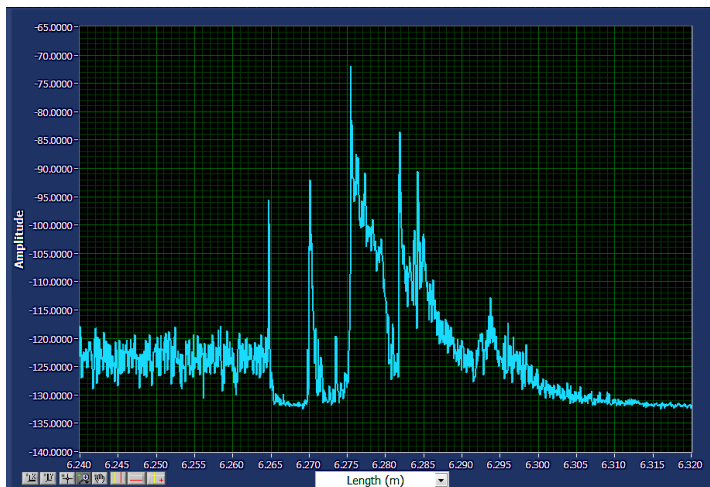
OBR 5T-50

Optical Backscatter Reflectometer™



The OBR 5T-50 is a fast, simple-to-use and low-cost precision reflectometer that measures the Insertion Loss (IL) and Return Loss (RL) distribution of passive optical components and modules including PLCs, optical cables, connectors, switches, couplers and more.

This instrument utilizes swept-wavelength interferometry to measure backscattered light as a function of distance with -125 dB sensitivity and 20 micron sampling resolution. The OBR 5T-50 reduces cost and complexity while increasing test throughput by measuring RL, IL and length with a single instrument.



Return Loss vs. length measurement of a MEMS-based optical switch. The first two reflections are 5.0 mm apart. This measurement was recorded with 20 micron sampling resolution.

KEY FEATURES

Industry-leading combination of measurement speed, range, accuracy and resolution

- 12 Hz acquisition rate
- 8.5 meter measurement range
- 0.0034% time-of-flight delay accuracy
- 20 micron sampling resolution

Streamlined user interface and Software Development Kit (SDK) included

- Optimize throughput with customized interface

Automatically locates reflective events and yields RL, IL and event location

APPLICATIONS

- Fault location – automated RL, IL and length measurements
- Skew measurement with subpicosecond resolution
- Precision optical cables and connectors
- PLC and waveguide devices
- Couplers, switches and beam splitters
- Real-time optical alignment

Industry-leading combination of measurement speed, range, accuracy, and resolution

KEY FEATURES

Parameter	Specification		Units
	Fast Mode	10 Averages	
Length Characteristics			
Maximum device length	Standard	8.5	m
	Extended range	16	m
Sampling resolution (two-point) ¹		20	µm
Time-of-flight delay accuracy ²		± 0.0034	%
Dead Zone			
Dead zone		20	µm
Wavelength			
Wavelength range		40	nm
Wavelength accuracy ²		1.5	pm
Center wavelength		1546.69	nm
Integrated Return Loss Characteristics			
Dynamic range ³	60	65	dB
Total range ⁴	-14 to -120	-14 to -125	dB
Sensitivity ⁴	-120	-125	dB
Resolution ⁵	± 1.0	± 1.0	dB
Accuracy ⁵	± 1.0		dB
Insertion Loss Characteristics			
Dynamic range ⁶	10	15	dB
Resolution ⁷	±0.5		dB
Accuracy ⁷	±0.5		dB
Measurement Timing			
Measurement timing	12		Hz
Maximum Optical Power			
Maximum optical power	8		mW
Physical			
Optical connector type	FC/APC		-
Operating power (max)	50		W
Weight (controller not included)	17.3 (7.85)		lb (kg)
Case size	14 x 12.5 x 6.75 (36 x 32 x 17)		in (cm)

ORDERING

Product #	Description	Includes
OBR 5T-50	Optical Backscatter Reflectometer	OBR 5T-50 mainframe for C band, OBR 5T-50 software, Software Development Kit (SDK), instrument controller (workstation-class laptop) and accessory kit.
OPT06025	Extended Range	Option to scan devices up to 16 m
OPT06004	Desktop Analysis Software	Software providing all analysis and data visualization of the OBR 5T-50, using only saved OBR

NOTES

- Distance between two sample points along the length axis in SMF-28.
- Accuracy is guaranteed via internal NIST-traceable HCN gas cell.
- Range between strongest reflection greater than -30 dB and noise floor.
- Noise floor return loss at half of maximum length.
- Measured with 1 cm integration width.
- Two way loss before backscatter reaches noise floor and IL measurements are no longer possible.
- Measured with 10 cm integration width.



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