

Optical Spectrum Analyzer Q8383

550 to 1750 nm

Optical spectrum analyzer with low polarization dependence for optical amplifiers



Brief description

Q8383 is a high-grade spectrum analyzer (Advantest) with double-pass monochromator and extremely low polarization dependence. Thanks to a special method used, a value of ± 0.05 dB can be guaranteed, the typical value is as low as 0.02 dB.

Together with the high accuracy of the resolution bandwidth, the Q8383 can be used to perform accurate power measurements.

All these features make the Q8383 an ideal measuring instrument for erbium-doped fiber amplifiers (EDFA). A special measurement function allows determination of noise figure, gain and spontaneous emission by simple comparison of the signal at the amplifier input with the signal at the amplifier output. All these features are of course also of great advantage for the measurement of laser diodes, LEDs and other light sources. A curve fitting function directly shows the electroluminescence characteristic by fitting a Gaussian distribution into the emission spectrum. This is a valuable aid in the

measurement of erbium-doped fiber amplifiers (EDFA) and LDs. Special functions for pulsed light allow measurements of fiber rings and Soliton transmission systems. Internal or external triggering is possible.

The measurement time is 0.8 second for a span of 200 nm and varies as a function of the span. The highest sensitivity is attained for wideband sources with a resolution of 5 nm, while narrowband sources (laser) can reliably be analyzed down to the noise level even with narrow resolution bandwidths. A normalization function in conjunction with a white light source enables direct measurement of the transmission and loss characteristics of optical filters and fibers.

Main features

- Sensitivity -92 dBm
- Polarization dependence ± 0.05 dB
- Accuracy of resolution bandwidth $\pm 2\%$
- Power measurement
- Pulse light measurement

Operation

In addition to the amplifier analysis, the versatile display modes such as

- overlay display,
- comparison with memory contents,
- display of two separate diagrams (split screen),
- power meter function,
- use of several markers,
- normalization and direct readout of transmission loss as well as
- automatic bandwidth analysis (eg half-value width measurement to RMS and envelope method),
- curve fitting

and many other features facilitate operation of the analyzer and simplify analysis via IEC/IEEE bus.

The standard built-in disk drive is used as a storage medium. The stored binary data can be analyzed with an appropriate program under MS-Windows, copied into documents and printed. The high-speed built-in thermal printer provides a hardcopy of the measurement results with all setting parameters within 8 seconds.

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Specifications in brief

Spectral values

Wavelength	550 to 1750 nm
Resolution (half-value width)	0.1 to 5 nm, 1/2/5 steps
Measurement accuracy	±0.2 nm
Measurement principle	polarization-compensated double-pass monochromator
Span	1 to 1200 nm, 0 nm

Level

Sensitivity	
1200 to 1650 nm	-92 dBm
550 to 1750 nm	-55 dBm
Max. input level	+20 dBm
Measurement accuracy	±0.4 dB
Polarization dependence	±0.05 dB
Linearity	±0.05 dB/-10 to -50 dBm
Dynamic range	55 dB at ±0.5 nm 65 dB at ±1 nm
Scale	0.2 to 10 dB/division, 1/2/5 steps, linear
Pulse light	in pulse mode or with external trigger, pulse >10 ns; Max Hold mode

Processing

Measurement time	0.8 second for 200 nm span
Memory	32 curves, 10 instrument setups, 3 ½" disk drive
Analysis of amplifiers (EDFA)	noise figure, spontaneous emission, power, gain; X dB bandwidth, peak wavelength, etc

Interfaces

Optical connector	FC without contact in fiber
Remote control	IEC625 (IEEE488)
Printer	built-in printer (standard) or output to plotter via IEC/IEEE bus

General data

Power supply	90 to 250 V, 48/66 Hz, 180 VA
Dimensions (W x H x D); weight	424 mm x 221 mm x 450 mm; 29 kg

Ordering information

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Extras

5 rolls of printer paper	A09075
19" Rack Adapter with handles	A02712
19" Rack Adapter without handles	A02722