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Optical Spectrum Analyzer Q8384

600 to 1750 nm

Optical spectrum analyzer for DWDM applications

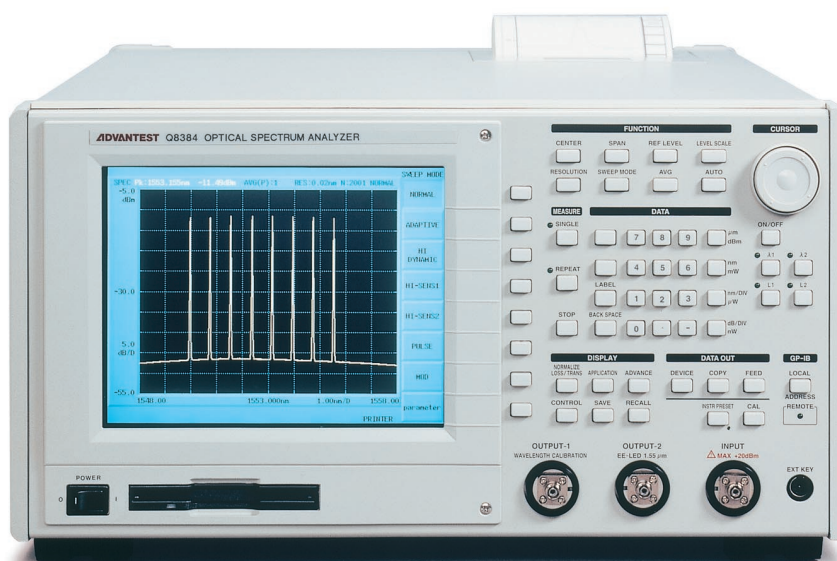


Photo 43439-2

Brief description

Q8384 is a high-grade spectrum analyzer (Advantest) with a new kind of 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 narrow resolution bandwidth, the Q8384 can be used to perform accurate power measurements.

All these features and the broad dynamic range make the Q8384 an ideal measuring instrument in the (D)WDM technology, i. e. 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 0.5 second for a span of 10 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

- 10 pm resolution bandwidth
- Sensitivity -87 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

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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 data can be analyzed as text and bitmap

format, 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.

Option

Optional an internal EE-LED light source for transmission and attenuation measurements in the 1550-nm window is available.

Specifications in brief

Spectral values

Wavelength	600 to 1750 nm
Resolution (half-value width)	10 to 500 pm, 1/2/5 steps
Measurement accuracy	±0.2 nm ±0.02 nm (1530 nm to 1570 nm)
Measurement principle	polarization-compensated double-pass monochromator
Span	1 to 1200 nm, 0 nm

Level

Sensitivity	
1250 nm to 1610 nm	-87 dBm
600 nm to 1750 nm	-55 dBm
Max. input level	+23 dBm
Measurement accuracy	±0.4 dB
Polarization dependence	±0.05 dB
Linearity	±0.05 dB/-10 to -50 dBm
Dynamic range	50 dB at ±100 pm 67 dB at ±400 pm
Scale	0.1 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	0.5 second for 10 nm span
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Memory

Analysis of amplifiers (EDFA)

15 curves, instrument setups, 3 1/2" disk drive
noise figure, spontaneous emission, power, gain; X dB bandwidth, peak wavelength, WDM signal analysis, etc

Interfaces

Optical connector
Remote control
Printer

FC without contact in fiber
IEC625 (IEEE488)
built-in printer (standard) or output via Centronics (bitmap)

General data

Power supply	90 to 250 V, 48/66 Hz, 200 VA
Dimensions (W x H x D); weight	424 mm x 221 mm x 500 mm; 29 kg

Ordering information

Optical Spectrum Analyzer	Q8384
Option	
EE-LED Light Source	Option 25
Extras	
5 rolls of printer paper	A09075



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