

# Optical Spectrum Analyzer Q8347

350 to 1750 nm

Top-class, high-resolution  
optical analyzer

## Brief description

Optical Spectrum Analyzer Q8347 (Advantest) uses a Michelson interferometer. The larger mechanical configuration of the interferometer allows max. resolutions of 1 pm or 1 GHz in the frequency mode. This resolution as well as a measurement accuracy of  $\pm 0.001$  nm for interferometers of this size cannot be attained with monochromators. At 1550 nm the resolution is still as high as 0.007 nm, thus allowing accurate measurement of high-grade optical wavelength division multiplexers (WDM). This resolution enables chirps from modulated LDs as well as from Soliton transmission to be analyzed. The highest resolution of 0.001 nm is attained at a wavelength of about 500 nm and is particularly useful for the analysis of blue laser diodes. The indicated wavelength is always the value in a vacuum.

In addition to the wavelength display mode, frequency display can also be selected, with deviations being read out in GHz. The use of the Fourier spectroscopy enables true measurement of the coherence length. Q8347 allows a value of up to 165 nm to be analyzed. The evaluation itself is made automatically at a keystroke. In the spectral range a curve fitting func-



tion can be used. It directly shows the electroluminescence characteristic by fitting a Gaussian distribution into the emission spectrum – a valuable aid in the measurement of erbium-doped fiber amplifiers (EDFA), LDs and Soliton transmission systems.

## Main features

- Max. resolution 0.001 nm (at 500 nm)
- Measurement accuracy 0.01 nm
- Coherence measurement

## Operation

Alternatively to spectrum display, the instantaneous optical power can be directly read like on a power meter. The display shows the power versus time in graphical form. Versatile display modes such as

- overlay display,
  - comparison with memory contents, display of two separate diagrams (split screen),
  - 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 3 1/2" disk drive is used as a storage medium. The stored binary data can be further processed under MS-Windows. The high-speed built-in thermal printer provides a hard-copy of the measurement results with all setting parameters within 8 seconds.

## Specifications in brief

### Spectral values

Wavelength	350 to 1750 nm
Resolution (spacing between two testpoints)	0.001 nm at 500 nm 0.01 nm at 1550 nm
Measurement accuracy	±0.01 nm, the wavelength in a vacuum is indicated
Measurement principle	Michelson interferometer with HeNe reference laser
Span	0.1 to 1400 nm

### Level

Sensitivity	
700 to 1600 nm	-65 dBm
450 to 1700 nm	-52 dBm
350 to 1750 nm	-42 dBm
Max. input level	+10 dBm
Measurement accuracy	±2 dB
Polarization dependence	±0.8 dB
Linearity	±0.5 dB/10 dB ±1.0 dB/25 dB
Scale	0.2 to 10 dB/division, 1/2/5 steps, linear

### Processing

Measurement time	1 to 3.5 seconds per measurement depending on setting
Memory	16 curves, 10 instrument setups, 3 ½" disk drive

### Analysis

coherence to 165 mm, X dB bandwidth, peak wavelength, curve fitting, etc

### Interfaces

Optical connector	FC/PC with internal 50/125 µm graded-index fiber, connector adaptable
Remote control	IEC625 (IEEE488)
Printer	built-in printer (standard) or output to plotter via IEC/IEEE bus

### General data

Power supply	220 to 240 V, 48/66 Hz, 260 VA
Dimensions (W x H x D)	424 mm x 335 mm <sup>1)</sup> x 500 mm
Weight	<sup>1)</sup> total height of both parts 36 kg in total

## Ordering information

### Optical Spectrum Analyzer

Q8347

### Extras

5 rolls of printer paper	A09075
Adaptation of optical input to DIN	Q8347-DIN
19" Rack Adapter (please order both numbers)	A02728 and A02732