Optical Measuring Instruments and Optical Device Test Systems

Q8344A

Optical Spectrum Analyzer Capable of Coherence Measurement

Q8344A

- Coherence Measurement
- High-Speed Measurement with 1.5 Seconds/Sweep
- Wide Wavelength Range from 0.35 to 1.75 µm
- Wavelength Measurement Accuracy of 0.1 nm

Q8344A Optical Spectrum Analyzer

Q8344A is an optical spectrum analyzer with a wide wavelength range from 0.35 to 1.75 µm. The usage of a Fourier spectrum system using a Michelson interferometer makes it possible to analyze coherence that cannot be obtained by the dispersing spectrum systems using monochromators. It exhibits its capabilities for evaluation of laser diodes for CDs and video disks.

The built-in He-Ne laser used as the reference wavelength realizes a wavelength accuracy of ±0.1 nm (1.3 µm), ensuring a long-term measurement stability even without wavelength calibration.

The Q8344A provides a maximum wavelength resolution of 0.05 nm (at 0.85 µm), accommodating measurements of laser diodes with narrow mode intervals. The measurement speed is approx. 1.5 seconds (at 0.4 to 1.05 µm and 0.8 to 1.75 µm) regardless of the analysis span, allowing it to be used as a system component.

With the versatile display, analysis and processing functions, the Q8344A can be used for characteristic measurement applications for diverse components ranging from photoemitting elements such as laser diodes and LEDs to optical components such as optical fibers and filters.

- Coherence Measurement

Since the Q8344A uses a Michelson interferometer, it can be used for coherence measurement. This ability allows easy evaluation of performance of the noise suppression caused by the returned light of laser diodes for video disks. The analysis range is approximately ±10 nm, allowing measurement of coherence length of SLDs (super luminescence diodes) used for optical fiber gyroes.

- High-Speed Measurement with 1.5 Seconds/Sweep Well-Suited for Production Use

The Q8344A employs a Fourier spectrum system and therefore can make measurement in 1.5 seconds regardless of the measurement span and sensitivity (provided that the starting wavelength is 0.4 µm or longer and the measurement does not cover both the short and long wavelengths). Therefore, the analyzer is useful for measurements on laser diodes and LEDs at the production lines. Also for evaluation of the transmission and loss characteristics of optical fibers and filters.

When used as a system component, the analyzer requires only 1.5 seconds to perform triggering, measurement and data output; dramatically improving the system throughput.

- Wavelength Measurement Accuracy of ±0.1 nm

With the built-in He-Ne laser as the reference light source, measurements can be made with a high wavelength accuracy of ±0.1 nm (at 1.3 µm wavelength). This makes it possible for accurate wavelength measurement without wavelength calibration.

- Maximum Wavelength Range of 0.05 nm

The Q8344A provides a maximum resolution of 0.05 nm at short wavelength (0.85 µm), making it possible to measure CD and visible light laser diodes by fully resolving the oscillation mode one by one.

- Large-Caliber Fiber Input (Option)

A 200 µm large-caliber input can be used as an option. When analyzing a device whose wavelength is larger than the standard fiber caliber (GI 50 µm), this option is needed. For laser diode analysis, the standard 50 µm specifications are recommended and for LED analysis, this optional specification is recommended.
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Options

Option 01
Built-in printer (Option 01)
Prints a hard copy of all the data displayed on the CRT
Printing system: Thermal printing line dot system
Printing speed: 8 seconds or less
Specified recording paper: A09075 (5 rolls)
Paper width: 114 mm

Option 10
200 µm fiber input (Specified at the time of ordering)
Used for fiber with a core diameter of up to 200 µm, NA 0.4, e.g., for LED measurements.

Accessories (Optional)
OPCL-5G-100/FC Fiber collimator (GI 50/125 µm, 1 m FC connector)
OPCL-20H-100/FC Fiber collimator (SI 200/125 µm, 1 m FC connector)
OCS-F2SFW-2 Optical fiber cable (GI 50/125 µm, 2 m FC connector)
OCS-F2SPS-2 Optical fiber cable (SM 10/125 µm, 2 m PC connector)

Standard Accessories

Product name
Power cable
Printer paper

Model
A07462
A09075

Remarks
1
S rolls (included in option 01)

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Specifications

<table>
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<tr>
<th>Specifications</th>
<th>Value</th>
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<tr>
<td>Measurement range</td>
<td>0.35 to 1.75 µm</td>
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<tr>
<td>Wavelength</td>
<td>Approx. 0.05 nm (at 0.45 µm)</td>
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<tr>
<td></td>
<td>Approx. 0.1 nm (at 1.31 µm)</td>
</tr>
<tr>
<td>Accuracy</td>
<td>± 0.1 nm (The wavelength indicated is the value in vacuum.)</td>
</tr>
<tr>
<td>Span</td>
<td>0.1 to 140 nm/UV</td>
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<tr>
<td>Measurement range (input sensitivity)</td>
<td>-10 to +10 dBm (0.1 to 1.6 µm)</td>
</tr>
<tr>
<td></td>
<td>-40 to +10 dBm (0.4 to 1.7 µm)</td>
</tr>
<tr>
<td></td>
<td>-45 to +10 dBm (0.25 to 1.75 µm)</td>
</tr>
<tr>
<td>Accuracy</td>
<td>± 0.25 dB or less (at a wavelength of 0.05 µm or 1.31 µm)</td>
</tr>
<tr>
<td>Linearity</td>
<td>± 0.1 dB/50 nm or less</td>
</tr>
<tr>
<td></td>
<td>± 0.05 dB/5 dB or less</td>
</tr>
<tr>
<td>Scale</td>
<td>0.2, 0.5, 1, 2, 5, 10, 20 dB/50 nm and LINEAR</td>
</tr>
<tr>
<td>Measurement time</td>
<td>1.5 seconds or less (SINGLE mode, AVG: 1, Trigger to data output)</td>
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<tr>
<td>Memory function</td>
<td>32 pages (measured data)</td>
</tr>
<tr>
<td></td>
<td>10 pages (measurement conditions)</td>
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<tr>
<td>Display</td>
<td>Clear display, split screen (top and bottom), 3-dimensional display, and cursor function</td>
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<tr>
<td>Calculation analysis</td>
<td>Coherence analysis (λ = 10.4 mm)</td>
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<td></td>
<td>Normalization (Cohasing)</td>
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<td>Averaging</td>
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<tr>
<td>Input connector</td>
<td>FC type, Internal fiber, Standard GI: 50 µm, Option 10: SI 200 µm</td>
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<tr>
<td>Data output</td>
<td>GPIB equipped as standard</td>
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<td></td>
<td>Direct plotter output (Option D1)</td>
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<td></td>
<td>Built-in printer (Option 01)</td>
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</table>

* Resolution is the wavelength difference between the Nth data and the (N+1)th data point
* With input at 0 dBm or less
* The start wavelength is 0.4 µm or less and measurement does not cover the short and long wavelengths.
* For the other connectors (SMA (2.5), ST, and DIN), contact ADVANTEST.
* 5 Compatible plotters connectable: R9833 and TR9832 (ADVANTEST), 7475A, 7440A and 7470A (Hewlett Packard)

Dimensions: Approx. 424 (W) × 221 (H) × 500 (D) mm
Mass: 27 kg maximum (including the printer option)