



The ideal OSA for optical device production

AQ6361
Optical Spectrum Analyzer



Precision Making

Bulletin AQ6361-01EN

The rapid adoption of AI is revolutionizing business, education, and communication, reshaping the way we interact and work. This transformation is driving an unprecedented demand for AI-dedicated data centers, which require cutting-edge infrastructure to handle massive data processing at lightning-fast speeds. To support this acceleration, high-performance optical modules and devices are essential, ensuring seamless data transmission and maximizing data center efficiency. At the heart of optical network testing, an optical spectrum analyzer is a critical tool for evaluating optical communication systems and components. The AQ6361 Optical Spectrum Analyzer is designed to meet the demands of modern production environments, offering exceptional measurement speed, space efficiency, and superior optical performance—delivering the precision and reliability that customers need.

Performance – To keep up with ever-evolving technology, we provide world-class optical performance and contribute to solving our customers' challenges.
Reliability – Our superior optical performance and quality have been adopted by customers worldwide.
Technical expertise – For over 40 years, our team of specialists has been listening to our customers' needs and providing solutions to their measurement challenges.

New Standard

Reduction of Production Test Time

Measurement speed up to 20 times faster than conventional models

Space-saving

Two units can be mounted on one rack level

Adaptable to Various optical devices

High optical performance

- Wavelength resolution:
 - 0.05 nm (Standard model)
 - 0.03 nm (High performance model)
- Wavelength range:
 - 1200 to 1700 nm (SW type)
 - 700 to 1700 nm (EW type)
- Wavelength accuracy: ± 0.02 nm
- Level range: +20 to -80 dBm



solutions for Production OSA



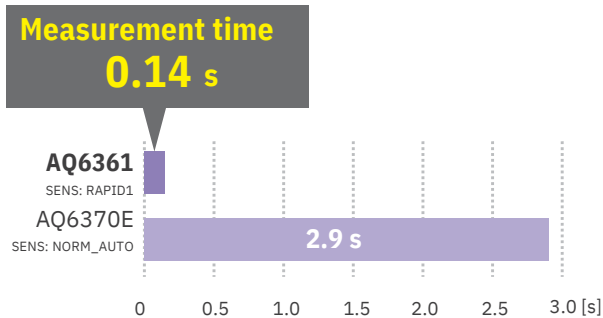
AQ6361
Optical Spectrum Analyzer

New Standards for Production OSA

Reduction of Production Test Time

Acceleration of Measurement Speed

With the inclusion of the sensitivity mode [RAPID] specialized for CW light, measurements can be performed up to 20 times faster compared to our previous models. This will shorten the time required for optical spectrum measurement and improve your production efficiency.



Comparison with Our Conventional Model

Reference values with a span of 100 nm, 25001 sample points, avg. 1 and a noise level of approx. -60 dBm

Optimization of Production Line Operations

Supports Both On-Site Operation and Remote

By connecting an external monitor and mouse, it can be operated directly on-site. Additionally, the web server function allows the AQ6361 connected to the network to be remotely controlled and monitored without the need for software.



Integration with External Devices

Supports input and output of trigger signals. It allows for measurements synchronized with external trigger signals and output of sweep states. Synchronization and automatic control with other devices are possible. Additionally, it supports digital I/O.

Maintaining High Wavelength Accuracy

The AQ6361 is equipped with a wavelength calibration function that automatically corrects wavelength errors caused by changes in the operating environment. While wavelength calibration can be performed using an external light source, it can be done more easily by incorporating the optional built-in wavelength calibration light source.



Cost Reduction in Production Line Design

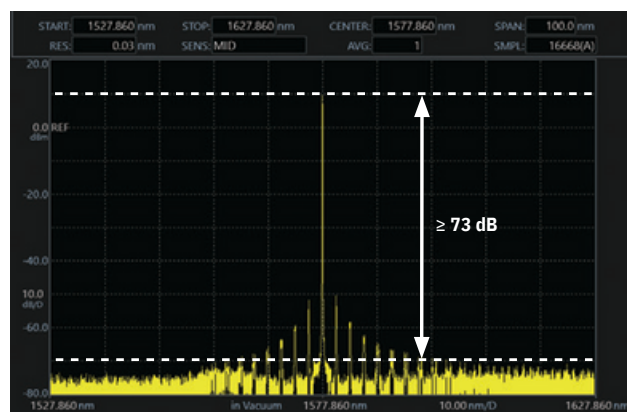
Space Optimization of Production Lines

Reduced to less than half the size of the AQ6370E, it can be mounted in pairs on a standard rack. This contributes to space optimization by reducing the volume used in complex production lines and chip testers.



Adaptable to Various Optical Modules

Depending on the measurement application, you can select a wavelength resolution from 0.03 nm (high performance model) to 2 nm. Additionally, the AQ6361 provides high dynamic range measurements with excellent stray light suppression performance of 73 dB (high performance model).



Spectrum of ITLA

High Compatibility with Remote Commands

Equipped with an Ethernet port and GP-IB (optional). The standard remote commands comply with SCPI (Standard Commands for Programmable Instruments) according to IEEE-488.2. It is compatible with both our previous AQ6370/AQ6380 series and AQ6317 series, making it easy to transition from existing systems. Control via LabVIEW®, MATLAB®, and Python is also possible.

Compatible with Single-mode and Multi-mode Fibers

Adopts a free-space structure in the optical input, compatible with single-mode and multi-mode fibers, as well as large-core fibers. Both PC connectors and Angled PC connectors can be used. Therefore, the AQ6361 can be used even if the type of optical fiber connected changes.

Program-Free Data Analysis Function

It incorporates analysis functions for evaluating the optical spectral characteristics of various devices and systems. Since programming for analysis is not required, the design time of the production line can be shortened.

Main Analysis Functions

- SMSR
- DFB-LD
- iTLA
- WDM (OSNR)
- EDFA (Gain and NF)
- Spectrum width, etc.

Measurement applications

The AQ6361 is suitable for the evaluation and inspection of various optical components and optical devices.

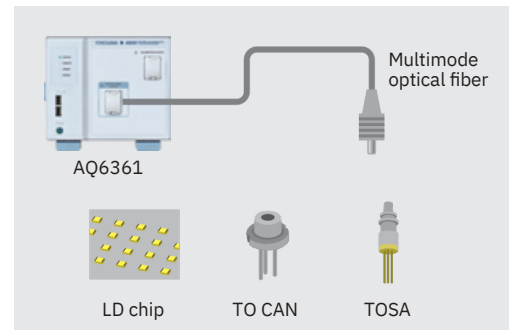
- LD chip
- DFB-LD
- ITLA
- Optical transceiver
- Optical filter
- WSS (Wavelength Selective Switch)
- EDFA (Er Doped Fiber Amplifier)
- WDM system

Spatial Light Measurement for LD Chips

The free-space structure of the AQ6361 can be used with both single-mode and multi-mode fibers. It can efficiently capture laser beams spatially output from wafers, LD chips, and TOSAs using multi-mode fibers with a large core diameter.

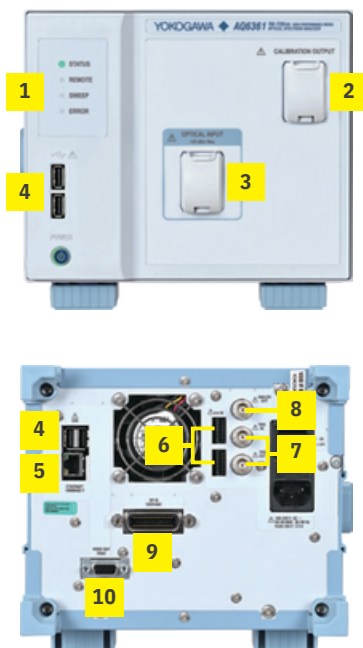
Evaluation of Optical Spectrum for High-Performance Optical Devices

High-performance optical devices, such as ITLAs, require high-performance measurement instruments to evaluate their performance. The AQ6361, with its high wavelength resolution and wavelength accuracy, can be used to evaluate high-performance optical devices.



Spatial light measurement for LD chips

Inter face



- 1 LED indicator**
LED indicators to check the status of the sweep and other conditions.
- 2 Light source output**
The output section of the reference light source (optional) used for alignment adjustments and wavelength calibration. The type of connector can be changed using a separately sold connector adapter.
- 3 Optical input**
The measured light is input using an optical fiber cable. The type of input connector can be changed using a separately sold connector adapter.
- 4 USB**
Support a USB data storage device, mouse, and keyboard.
- 5 Ethernet (10/100/1000BASE-T)**
Network interface for remote control, data transfer, and firmware update.
- 6 Digital I/O**
This terminal can handle input and output for measurement start notifications.
- 7 Trigger Input and Output**
Pulse light measurement and other measurements can be performed using an external trigger signal.
- 8 Analog output**
Output an analog voltage according to the optical spectrum intensity for the stability test.
- GP-IB (option)**
- 9**
Network interface for remote control.
- 10 Video Output (VGA)**
Output the instrument screen to an external monitor.

Specifications

Item	Specification (AQ6361)	
Model	Standard model (-10)	High performance model (-20)
Wavelength range*1	SW type: 1200 to 1700 nm EW type: 700 to 1700 nm	
Span*1	SW type: 0.1 nm to 500 nm, 0 nm EW type: 0.1 nm to 1000 nm, 0 nm	
Wavelength accuracy*1, *2, *3	±0.02 nm (1520 to 1580 nm), ±0.04 nm (1580 to 1620 nm) ±0.1 nm (Full range)	±0.02 nm (1450 to 1620 nm) ±0.1 nm (Full range)
Wavelength linearity*1, *2, *3	±0.02 nm (1520 to 1580 nm, 1580 to 1620 nm)	
Wavelength repeatability*1, *2	±0.01 nm (1 minute)	
Wavelength resolution setting*1, *2	0.05, 0.1, 0.2, 0.5, 1 and 2 nm	0.03, 0.05, 0.1, 0.2, 0.5, 1, and 2 nm
Wavelength resolution bandwidth accuracy*1, *2	±5% (1450 to 1620 nm, Resolution setting: 0.1 to 2 nm, At the calibration wavelength during user resolution calibration with an external DFB-LD)	
Min. sampling resolution*1	0.001 nm	
Number of sampling	101 to 200001, AUTO	
Level sensitivity setting*4	TRAD mode	NORM_HOLD, NORM_AUTO, NORMAL, MID, HIGH1, HIGH2
	RAPID mode	RAPID1 to 6
Level sensitivity*2, *5, *6, *8	TRAD mode (Sensitivity: HIGH2)	SW type: -80 dBm (1300 to 1620 nm) EW type: -80 dBm (1300 to 1620 nm), -60 dBm (750 to 850 nm), -65 dBm (850 to 900 nm), -70 dBm (900 to 1300 nm)
	RAPID mode (Sensitivity: RAPID6)	SW type: -73 dBm (1300 to 1620 nm) EW type: -73 dBm (1300 to 1620 nm), -53 dBm (750 to 850 nm), -58 dBm (850 to 900 nm), -63 dBm (900 to 1300 nm)
Maximum input power*2, *5	+20 dBm (per channel, full range)	
Maximum safe input power*2, *5	+25 dBm (total input power)	
Level accuracy*2, *5, *6, *8	±0.5 dB (1310/1550 nm, input level: -20 dBm, sensitivity: NORMAL, MID, HIGH1 to 2, RAPID4 to 6)	
Level flatness*2, *5, *8	±0.2 dB (1520 to 1580 nm, 1580 to 1620 nm)	±0.2 dB (1450 to 1520 nm, 1520 to 1580 nm, 1580 to 1620 nm)
Level linearity*2, *5	±0.1 dB (input level: -50 to +10 dBm, sensitivity: MID, HIGH1 to 2)	
Polarization dependence*2, *5, *8	±0.1 dB (1310/1550 nm)	
Stray-light suppression ratio*2, *7, *9	-	73 dB
	-	50 dB (peak ±0.2 nm), 37 dB (peak ±0.1 nm)
Dynamic range*1, *2, *10	Res.: 0.03 nm	-
	Res.: 0.05 nm	65 dB (peak ±1.0 nm), 61 dB (peak ±0.4 nm), 45 dB (peak ±0.2 nm)
	Res.: 0.1 nm	55 dB (peak ±0.4 nm), 40 dB (peak ±0.2 nm)
Applicable fiber	SM (9.5/125), MM (GI 50/125, GI 62.5/125, Large-core: up to 200 μm)	
Optical connector	Optical input: AQ9447 (<input type="checkbox"/>) Connector adapter (option) required, Calibration output: AQ9441 (<input type="checkbox"/>) Connector adapter (option, L1 spec. only) required, NA conversion adapter: 735385 [option, AQ9447 (FC) use only] <input type="checkbox"/> : Connector type FC or SC	
Built-in Calibration light source	Wavelength reference source (For optical alignment adjustments required, L1 spec. only)	
Sweep time*1, *7, *10	TRAD mode	NORM_AUTO: 0.2 s, NORMAL: 0.5 s, MID: 1 s, HIGH1: 2.5 s, HIGH2: 10 s
	RAPID mode	0.2 s (sensitivity: RAPID1, span: 100 nm, sampling points: 100001 pt, averaging times: 1)
Optical return loss*12	35 dB typ. (with Angled PC connector)	
Warm-up time	Minimum 1 hour (After warm-up, optical alignment adjustments required)	
Electrical interface	Ethernet, GP-IB (C01 spec. only), USB, VGA output, Analog output port, Trigger input port, Trigger output port, Digital I/O port	
Remote control*13	Remote command control: Ethernet (TCP/IP), GP-IB (C01 spec. only), AQ6317 series compatible commands (IEEE488.1 and IEEE488.2) Web server function: Remote monitoring and control	
Data storage	Internal storage: 512 Mbytes, external storage: USB storage media (memory), Format: FAT32 File type: CSV (text), Binary, BMP, PNG, JPEG	
Dimensions	Approx. 213 (W) × 177 (H) × 459 (D) mm (Excluding protector and handle)	
Weight	Approx. 11 kg	
Power requirements	100 to 240 VAC, 50/60 Hz, 100 VA	
Environmental conditions	Performance guarantee temperature: +18 to +28 °C, Operating temperature: +5 to +35 °C, Storage temperature: -10 to +50 °C, Humidity: 20 to 80% RH (no condensation), Location: Indoor use, Altitude: 2000 m	
Safety Standards	EN 61010-1	
	Laser*14	EN 60825-1: 2014+A11: 2021, IEC 60825-1: 2014, GB/T 7247.1-2024 Class1
EMC	Emission	EN 61326-1 Class A Group 1, EN 61000-3-2, EN 61000-3-3, RCM-EN 61326-1 Class A Group 1, Korea Electromagnetic Conformity Standard
	Immunity	EN 61326-1 Table 2
Recommended calibration period	1 year	

*1: Horizontal scale: Wavelength display mode.

*2: With 9.5/125 μm single mode fiber (PC polished), without NA conversion adapter, after 1 hour of warm-up

*3: After wavelength calibration with built-in reference light source or a single longitudinal mode laser (peak level: ≥ -20 dBm, Wavelength: 1520 nm to 1560 nm and absolute wavelength accuracy ±0.003 nm)

*4: TRAD mode: applicable for CW light and pulsed light measurement, RAPID mode: applicable for CW light measurement

*5: Vertical scale: Absolute power display mode, resolution setting: ≥ 0.05 nm, resolution correction: OFF.

*6: With 9.5/125 μm single mode fiber (SSMA type in JIS C 6835, PC polished, mode field diameter: 9.5 μm, NA: 0.104 to 0.107)

*7: Pulse light measurement mode: OFF, resolution correction: OFF.

*8: 23 ±3°C at 0.05 nm resolution setting

*9: With He-Ne laser (1523 nm) input, 0.1 nm resolution, 1520 nm to 1620 nm, except for peak wavelength ±2 nm

*10: 1523 nm, high dynamic mode: SWITCH, resolution correction: OFF

*11: Span: ≤ 100 nm, number of sampling: 1001, average number: 1.

*12: With Yokogawa's master single-mode fiber with angled-PC connector, without NA conversion adapter, 15 dB typ. with PC connector.

*13: Some AQ6317 series commands may not be compatible due to changes in specifications or functions.

*14: With built-in calibration light source

* "Typical" or "typ." in this document means "Typical value", which is for reference, not guaranteed specification.



Model and Suffix Code

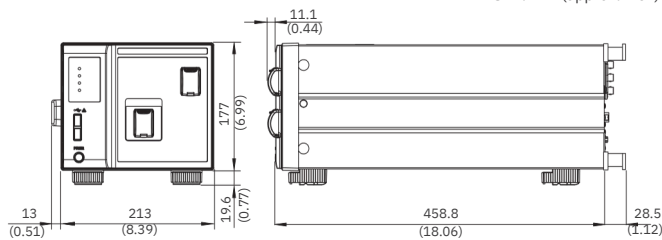
Model	Suffix Code	Description
AQ6361		AQ6361 Optical Spectrum Analyzer
Specification	-10	Standard model
	-20	High-performance model
Wavelength range	-SW	Standard wavelength
	-EW	Extended wavelength
Built-in light source	-L0	Without light source
	-L1	Wavelength reference source
GP-IB	-N01	No GP-IB interface included (Not for retrofitting)
	-C01	Equipped with GP-IB interface
Power supply code	-D	UL/CSA standard and PSE compliant, 125 V
	-F	VDE/Korean standard, 250 V
	-R	Australian standard, 250 V
	-H	Chinese standard, 250 V
	-Q	British standard, 250 V
	-N	Brazilian standard, 250 V
	-T	Taiwanese standard, 125 V
	-B	Indian standard, 250 V
Factory Options	/FC	AQ9447 (FC) connector adapter For optical input
	/SC	AQ9447 (SC) connector adapter
	/RFC	AQ9441 (FC) connector adapter For calibration output
	/RSC	AQ9441 (SC) connector adapter
	/NAC	735385 NA conversion adapter (FC)

Accessories (optical)

Model	Suffix Code	Description
735371		AQ6370 Viewer (Support model: AQ6370 series, AQ6380, AQ6360 and AQ6361)
AQ9447	-FC	FC type
	-SC	SC type
AQ9441	-FC	FC type
	-SC	SC type
735385		NA Conversion Adapter
	-001	FC connector, for GI 50/GI 62.5
751533	-E3	Rack mount kit (EIA, Single-housing)
	-J3	Rack mount kit (JIS, Single-housing)
751534	-E3	Rack mount kit (EIA, Dual-housing)
	-J3	Rack mount kit (JIS, Dual-housing)

External Dimension

Unit: mm (approx. inch)



Unless otherwise specified, tolerances are $\pm 3\%$ (however, tolerances are ± 0.3 mm when below 10 mm).

Optical connector adapters

For optical input port
AQ9447 connector adapter
/SC, /FC



For calibration light output port
AQ9441 connector adapter
/RSC, /RFC



NA Conversion Adapter (optional)

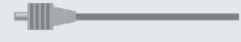
NA conversion adapters can be connected to GI50 or GI62.5 optical fibers with relatively large NA to improve the stability of light level measurements.



AQ6361



NA Conversion adapter



Optical fiber cable for device under test

[Note]

- The stability of measurement results depends on the operating environment.
- When using NA conversion adapters, the stability of the measurement results improves as the wavelength resolution setting of the optical spectrum analyzer increases.
- When using GI62.5 and GI50 multi-mode fibers connected to NA conversion adapters, it is recommended to set the wavelength resolution of the optical spectrum analyzer to 0.2 nm or higher.

NOTICE

- Before operating the product, read the user's manual thoroughly for proper and safe operation.

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Yokogawa's approach to preserving the global environment

- Yokogawa's electrical products are developed and produced in facilities that have received ISO14001 approval.
- In order to protect the global environment, Yokogawa's electrical products are designed in accordance with Yokogawa's Environmentally Friendly Product Design Guidelines and Product Design Assessment Criteria.

This is a Class A instrument based on Emission standards EN61326-1 and EN55011, and is designed for an industrial environment. Operation of this equipment in a residential area may cause radio interference, in which case users will be responsible for any interference which they cause.