

# AQA5500P/AQB5500P

## Wavelength Swept Light Source

The AQA5500P/AQB5500P Wavelength Swept Light Source outputs single-longitudinal-mode laser light that wavelength is swept phase-continuously without mode hopping. Since the output light with narrow line width has high coherence, it is suitable for optical interferometry-based dimensional metrology for precise and wide distance range measurement.

### Features

- 1550 nm band swept laser
- Single-longitudinal-mode oscillation without mode hopping
- Coherence length of more than 100 m
- Wavelength sweep width setting via USB from PC
- Wavelength trigger position setting via USB from PC

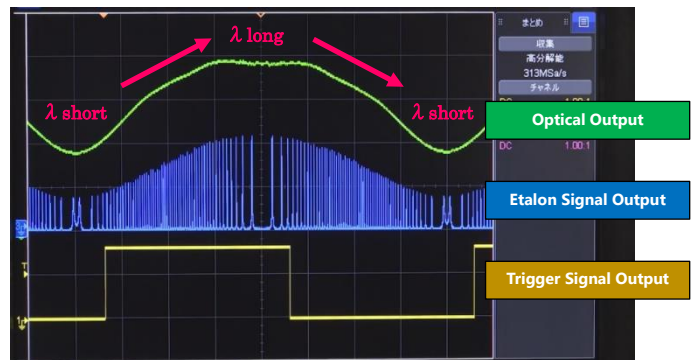


### Applications

- Precision and wide range dimensional metrology using optical interferometry
- OCT for internal structure measurement \*OCT: Optical Coherence Tomography
- Temperature, torsion, deformation, and vibration measurement using optical fiber sensing
- Inspecting optical-device wavelength characteristics

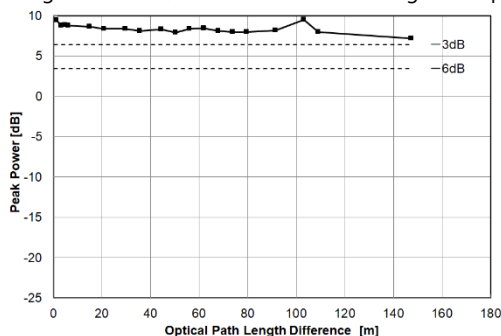
### Wavelength Swept Optical Output

The output wavelength of this light source changes sinusoidally over time. The optical output changes periodically according to the wavelength sweep as indicated by green waveform. The wavelength changes from the short-wavelength end  $\lambda_{short}$  to the long-wavelength end  $\lambda_{long}$  in the half period and then returns to  $\lambda_{short}$  in the remaining half period as shown by the red arrows. Blue and yellow waveforms are the etalon signal and the trigger-signal that output on the front panel. They can be used for wavelength calibration or as a reference signal when connecting external equipment.

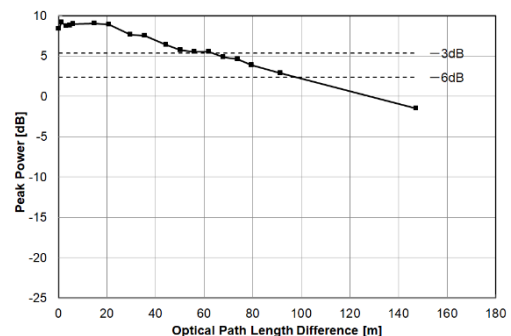


### Output Light Coherence Length

The following graphs show the FFT spectrum peak power versus the optical path length difference at interferometry measurement to demonstrate the coherence length of the AQB5500P at each? wavelength sweep width of 25 nm and 50 nm.



(a) Wavelength Sweep Width 25 nm



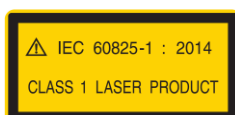
(b) Wavelength Sweep Width 50 nm

## Optical/Electrical Specifications

Item	AQA5500P	AQB5500P	Remarks
Optical Connector	FC / APC		Internal optical fiber: Single Mode Fiber (SMF)
Oscillation Mode	Single longitudinal and mode-hop-free		Monitoring range: approximately 70% of wavelength sweep range centered on the sweep center wavelength.
Optical Output Wavelength Change Method	Sinusoidal		–
Center Wavelength	1550 ± 5 nm		AQA5500P: at 110 nm sweep AQB5500P: at 70 nm sweep
Wavelength Sweep Range	30 to 110 nm	15 to 70 nm	Wavelength sweep setting resolution: 1 pm
Sweep Frequency	1250 ± 50 Hz	150 ± 20 Hz	Not adjustable
Average Optical Output	≥ 10 mW		CW Output: Class 1 <sup>1)</sup>
Trigger Signal Output	LVTTL		Interface: SMA Trigger signal output setting resolution: 1 pm
Etalon Signal Output	Analog signal		Interface: SMA
Power Supply	+12 Vdc ± 0.5 V		Maximum consumption current: 3.2 A max.
Control Interface	USB 2.0 (type mini-B)		–
Dimensions	137.4 (W) × 131.4 (H) × 219.4 (D) mm		Excluding protrusions
Mass	< 2.0 kg		–
Operating Conditions	Temperature: 0°C to 50°C, Relative Humidity: ≤ 85%		No condensation
Storage Environment	Temperature: –20°C to +60°C, Relative Humidity: ≤ 95%		No condensation or icing

\*About 30-minutes warmup

1) This product complies with the IEC 60825-1:2014, 21 CFR1040.10, and 1040.11 laser safety regulations; the following safety labels are affixed to the product.



## AQA5500P/AQB5500P Ordering Information

Model	Name
AQA5500P	<b>Main Unit</b> Wavelength Swept Light Source
–	<b>Standard Accessories</b> Power cable 1 pc CD-ROM 1 disk Contents - Operation manual, Control software, USB driver Operation manual 1 copy

Model	Name
AQB5500P	<b>Main Unit</b> Wavelength Swept Light Source
–	<b>Standard Accessories</b> Power cable 1 pc CD-ROM 1 disk Contents - Operation manual, Control software, USB driver Operation manual 1 copy



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