XOA-2400 / XOA-2500 Optical Spectrum Analyzers

1200-2400 nm or 1000-2500 nm coverage with a 50 pm minimum setting

At a Glance

Choose XOA-2400 for 1200-2400 nm coverage or XOA-2500 for 1000-2500 nm coverage. In the standard configuration, both models provide a 0.05 nm minimum selectable resolution.

Specified sensitivity reaches -65 dBm from 1800 to 2200 nm at HIGH3, while dynamic range reaches 50 dB at 1523 nm under the stated offset, resolution, and sensitivity conditions.

A 12.1-inch touch display, free-space optical input, fiber compatibility, and analysis functions support measurements of sources, transceivers, DWDM systems, amplifiers, fibers, and gratings.

XOA-2400 / XOA-2500 Optical Spectrum Analyzers

Broadband Analysis for SWIR and Telecom Applications

The XOA-2400 / XOA-2500 Series uses diffraction-grating spectroscopy to combine broad wavelength coverage with high-speed optical spectrum measurement. The two models extend from telecom wavelengths into the short-wave infrared while preserving a common analysis platform.

XOA-2400 covers 1200-2400 nm. XOA-2500 extends both edges to cover 1000-2500 nm. This distinction is fundamental when selecting a model for broadband emitters, optical communication systems, passive components, sensing, or medical measurement.

Key Capabilities

- **Model-Specific Coverage**
  XOA-2400 measures from 1200 to 2400 nm; XOA-2500 measures from 1000 to 2500 nm.
- **50 pm Minimum Setting**
  The standard configuration provides 0.05, 0.1, 0.2, 0.5, 1, and 2 nm wavelength-resolution settings.
- **Fine Sampling**
  A 0.002 nm minimum sampling interval and 101-50,001 points with AUTO support detailed spectral capture.
- **Qualified Low-Level Detection**
  Sensitivity reaches -65 dBm from 1800 to 2200 nm at HIGH3; specified sensitivity coverage is limited to 1300-2400 nm.
- **Conditioned Dynamic Range**
  Dynamic range reaches 50 dB at 1523 nm, measured at ±0.8 nm peak offset with 0.05 nm resolution and HIGH1-HIGH3 sensitivity.
- **Touch-Driven Analysis**
  A 12.1-inch touch display and integrated multi-application spectrum-analysis functions support efficient measurement workflows.

Application Areas

Optical Sources and Modules

Characterize LED, FP-LD, DFB-LD, optical transceiver, and other active optical-device spectra.

Passive Optical Components

Measure optical fiber, fiber gratings, and other passive optical components across the applicable model range.

Telecom Optical Systems

Evaluate DWDM systems, optical amplifiers, and related communication-band optical paths.

SWIR, Sensing, and Medical Work

Extend spectrum analysis into short-wave infrared, environmental sensing, and medical measurement applications.

Model Selection and Acquisition

Model	XOA-2400	XOA-2500
	Wavelength Coverage	
Spectral Range	1200-2400 nm	1000-2500 nm
Scan Span	0.5-1200 nm (full-range span); 0 nm	0.5-1500 nm (full-range span); 0 nm
	Resolution and Sampling	
Standard-Configuration Resolution Settings	0.05, 0.1, 0.2, 0.5, 1, 2 nm	0.05, 0.1, 0.2, 0.5, 1, 2 nm
Minimum Sampling Interval	0.002 nm	0.002 nm
Sampling Points	101-50,001; AUTO	101-50,001; AUTO

The maximum scan span corresponds to each model's full wavelength range; each model also lists a 0 nm span setting.

Selection Guidance

Select XOA-2400 when the required measurement window is fully contained within 1200-2400 nm. Select XOA-2500 when coverage must extend down to 1000 nm, up to 2500 nm, or across both extended edges.

For low-level measurements, verify that the wavelength falls within the specified 1300-2400 nm sensitivity coverage. Use the stated conditions when comparing accuracy, dynamic range, power accuracy, or power linearity.

Wavelength and Sensitivity Performance

Model	XOA-2400	XOA-2500
Wavelength Performance		
Wavelength Accuracy, 1520-1580 nm	±0.05 nm	±0.05 nm
Wavelength Accuracy, 1580-1620 nm	±0.10 nm	±0.10 nm
Wavelength Accuracy, Full Range	±0.50 nm	±0.50 nm
Wavelength Linearity, 1520-1580 nm	±0.01 nm	±0.01 nm
Wavelength Repeatability	±0.015 nm over 1 min	±0.015 nm over 1 min
Sensitivity at HIGH3		
1300-1500 nm	-50 dBm	-50 dBm
1500-1800 nm and 2200-2400 nm	-52 dBm	-52 dBm
1800-2200 nm	-65 dBm	-65 dBm
Dynamic Range at 1523 nm, 0.05 nm Resolution, HIGH1-HIGH3		
At ±0.4 nm Peak Offset	40 dB	40 dB
At ±0.8 nm Peak Offset	50 dB	50 dB

Accuracy figures apply only to the listed wavelength intervals; the ±0.50 nm value applies across each model's full spectral range.

Specified sensitivity coverage is 1300-2400 nm. For XOA-2400, 1200-1300 nm is outside the stated sensitivity coverage. For XOA-2500, 1000-1300 nm and 2400-2500 nm are outside the stated sensitivity coverage.

Dynamic-range values apply only at 1523 nm with 0.05 nm resolution and HIGH1-HIGH3 sensitivity.

Power, Input, and Optical Interface

Model	XOA-2400	XOA-2500
Power Measurement		
Sensitivity Settings	NORMAL, MID, HIGH1, HIGH2, HIGH3	NORMAL, MID, HIGH1, HIGH2, HIGH3
Maximum Input Power	+20 dBm per channel, full range	+20 dBm per channel, full range
Maximum Safe Input	+25 dBm total input power	+25 dBm total input power
Power Accuracy	±1.0 dB at 1550 nm and -20 dBm input; MID or HIGH1-HIGH3	±1.0 dB at 1550 nm and -20 dBm input; MID or HIGH1-HIGH3
Power Linearity	±0.05 dB from -30 to +10 dBm input; HIGH1-HIGH3	±0.05 dB from -30 to +10 dBm input; HIGH1-HIGH3
Polarization Dependence	±0.2 dB at 1550 nm	±0.2 dB at 1550 nm
Optical Input and Fiber Compatibility		
Optical Input	Free-space optical input	Free-space optical input
Compatible Fibers	SM 9.5/125 µm; MM GI 50/125 µm; GI 62.5/125 µm; large-core fiber up to 200 µm	SM 9.5/125 µm; MM GI 50/125 µm; GI 62.5/125 µm; large-core fiber up to 200 µm
External-Source Calibration and Alignment	Supported when the gas-absorption-cell calibration-source option is not fitted	Supported when the gas-absorption-cell calibration-source option is not fitted

Maximum input power is specified per channel; the maximum safe-input figure is the total input power limit.

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Specifications subject to change without notice. Per AS/NZS standards.