

XOA-1700-R20 / XOA-1700-R10 Optical Spectrum Analyzers

High-resolution 600-1700 nm spectral analysis for optical communications and photonic devices

Precision Across the Communications Band

The XOA-1700 Series combines grating-based spectral analysis with a 600-1700 nm span and sensitivity to -90 dBm from 1300 to 1620 nm in HIGH3.

XOA-1700-R20 delivers a 0.02 nm minimum selectable resolution and up to 50,001 sample points; XOA-1700-R10 adds a 0.01 nm setting, a 0 nm span setting, and up to 100,001 points.

Integrated analysis supports DFB and FP laser characterization, DWDM and amplifier evaluation, passive-component testing, batch workflows, and a 12.1-inch touch interface.



XGY

XOA-1700-R20 / XOA-1700-R10 Optical Spectrum Analyzers

A Versatile Optical Spectrum Analysis Platform

The XGY XOA-1700 Series is designed for high-resolution, high-dynamic-range optical spectrum measurement from 600 to 1700 nm. It addresses optical communication systems, active and passive photonic devices, component production, and laboratory characterization.

Selectable wavelength resolution, five sensitivity settings, automated peak search, and application-specific analysis tools allow one platform to move from weak-signal inspection to high-power component testing.

Fiber input supports single-mode, graded-index and large-core fibers, while free-space optical input extends the platform to devices and optical paths that are not conveniently fiber-coupled.



Key Capabilities

- **600-1700 nm Coverage**

A single instrument spans visible-edge, near-infrared and optical-communications measurements across a 1100 nm full-range sweep.

- **Fine Spectral Resolution**

XOA-1700-R20 provides resolution settings down to 0.02 nm; XOA-1700-R10 adds a 0.01 nm setting for closely spaced spectral features.

- **Weak-Signal Sensitivity**

Sensitivity reaches -90 dBm from 1300 to 1620 nm in HIGH3, with region-specific limits stated for 600-1300 nm.

- **High Input Tolerance**

Maximum input is +20 dBm per channel across the full wavelength range, with a +25 dBm maximum total safe input.

- **Model-Optimized Acquisition**

XOA-1700-R20 supports up to 50,001 points; XOA-1700-R10 supports up to 100,001 points and adds a 0 nm scan-span setting.

- **Adaptive Peak Search**

An automated peak-search algorithm is designed for accurate, robust and fast detection across complex optical spectra.

- **Integrated Device Analysis**

Dedicated workflows evaluate DFB-LD, FP-LD, LED, LD modules, optical transceivers and multiple optical-system components.

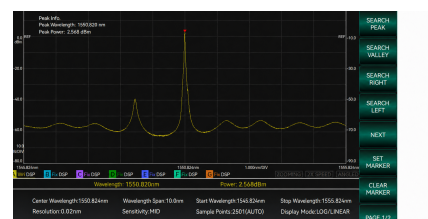
- **Touch-Driven Operation**

A 12.1-inch touch display, 128 GB storage and USB/Ethernet connectivity support interactive and repeatable workflows.

Analysis Workflows

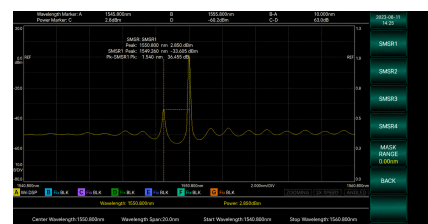
Adaptive Spectral Peak Search

The peak-search workflow automatically locates spectral peaks with an emphasis on accuracy, adaptability, robustness and processing speed. It supports rapid navigation of dense laser and multiplexed spectra.



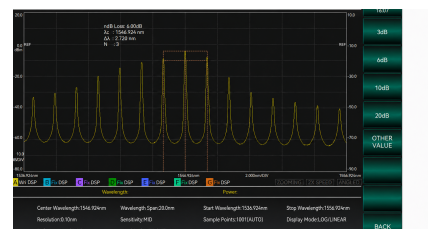
Single-Longitudinal-Mode Laser Analysis

For DFB-LD and other single-longitudinal-mode sources, threshold analysis and side-mode suppression ratio analysis evaluate center wavelength, spectral bandwidth and SMSR.



Multimode Laser Analysis

For FP-LD and other multimode sources, n-dB loss, envelope and RMS methods provide complementary measurements of center wavelength and spectral bandwidth.



One-Touch and Batch Processing

Application workflows support one-touch testing of LED, FP-LD, DFB-LD and LD modules, together with batch processing of the selected measurement items.

Typical Applications

DWDM and WDM Systems

Channel-spectrum inspection, multiplexed optical-system analysis, WDM filter evaluation and WDM fiber-amplifier testing.

Optical Amplifiers

Spectral characterization of optical amplifiers and fiber amplifiers across the communications bands.

Active Optical Devices

LED, FP-LD, DFB-LD, LD module and optical transceiver spectrum measurement.

Passive Optical Components

Measurement of optical fibers, fiber gratings and other passive devices within the supported wavelength range.

Fiber and Dispersion Work

Optical-fiber polarization-mode-dispersion measurement and related fiber-system spectral analysis.

Production and Research

Optical-chip, optoelectronic-system and component characterization with repeatable one-touch and batch workflows.

XOA-1700 Model Comparison

Wavelength values apply only over the stated ranges. Accuracy, linearity and repeatability require the applicable calibration, warm-up and operating conditions.

Model	XOA-1700-R20	XOA-1700-R10
	Wavelength and Acquisition	
Wavelength range	600-1700 nm	600-1700 nm
Scan span	0.2-1100 nm, including full-range span	0 nm; 0.2-1100 nm, including full-range span
Wavelength accuracy	±0.02 nm at 1520-1620 nm; ±0.04 nm at 1450-1520 nm; ±0.10 nm over full range	±0.01 nm at 1520-1620 nm; ±0.04 nm at 1450-1520 nm; ±0.10 nm over full range
Wavelength linearity	±0.015 nm at 1520-1580 nm	±0.01 nm at 1520-1580 nm
Wavelength repeatability	±0.005 nm over 1 minute	±0.005 nm over 2 minutes
Wavelength resolution settings	0.02, 0.05, 0.1, 0.2, 0.5, 1 and 2 nm	0.01, 0.02, 0.05, 0.1, 0.2, 0.5, 1 and 2 nm
Minimum sampling resolution	0.001 nm	0.001 nm
Sample points	101-50,001; AUTO	101-100,001; AUTO
Sensitivity settings	NORMAL, MID, HIGH1, HIGH2, HIGH3	NORMAL, MID, HIGH1, HIGH2, HIGH3

Wavelength performance applies only over the listed intervals and under the applicable calibration, warm-up and operating conditions.

Sensitivity and Power Performance

Sensitivity limits are specified in HIGH3. Power accuracy is specified at 1310/1550 nm, -20 dBm input and MID sensitivity.

Model	XOA-1700-R20	XOA-1700-R10
	Sensitivity	
1300-1620 nm	-90 dBm	-90 dBm
1000-1300 nm	-85 dBm	-85 dBm
600-1000 nm	-60 dBm	-60 dBm
	Power Handling and Accuracy	
Maximum input power	+20 dBm per channel, full wavelength range	+20 dBm per channel, full wavelength range
Maximum safe input	+25 dBm total input power	+25 dBm total input power
Power accuracy	±0.4 dB at 1310/1550 nm	±0.4 dB at 1310/1550 nm
Power linearity	±0.05 dB from -50 to +10 dBm input	±0.05 dB from -50 to +10 dBm input
Power flatness	±0.1 dB at 1520-1580 nm; ±0.2 dB at 1450-1520 nm and 1580-1620 nm	±0.1 dB at 1520-1580 nm; ±0.2 dB at 1450-1520 nm and 1580-1620 nm
Polarization dependence at 1550 nm	±0.08 dB, resolution ≥0.05 nm	±0.08 dB
Polarization dependence at 1310 nm	±0.08 dB	Not specified

Published sensitivity coverage extends through 1620 nm.

The XOA-1700-R20 polarization-dependence value at 1550 nm applies with wavelength resolution ≥0.05 nm.

Dynamic Range and Optical Input

Dynamic-range values apply at the stated wavelength resolution and distance from the spectral peak; XOA-1700-R20 entries are guaranteed values.

Model	XOA-1700-R20	XOA-1700-R10
	Dynamic Range	
At 0.01 nm resolution	Not applicable	80 dB at ±1.0 nm from peak
At 0.02 nm resolution	52 dB at ±0.2 nm; 32 dB at ±0.1 nm from peak	Not specified
At 0.05 nm resolution	73 dB at ±1.0 nm; 58 dB at ±0.4 nm; 45 dB at ±0.2 nm from peak	Not specified
At 0.1 nm resolution	55 dB at ±0.4 nm; 40 dB at ±0.2 nm from peak	Not specified
Stray-light suppression	76 dB	80 dB
	Optical Input	
Optical return loss	35 dB with APC connector	35 dB with APC connector
Supported fibers	SM 9.5/125 µm; GI 50/125 µm; GI 62.5/125 µm; large-core fiber up to 200 µm	SM 9.5/125 µm; GI 50/125 µm; GI 62.5/125 µm; large-core fiber up to 200 µm
Free-space optical input	Supported	Supported

Not applicable means that the corresponding wavelength-resolution setting is not offered for that model.

Not specified means that no published dynamic-range value is stated for that model and condition; it does not mean zero.

XOA-1700 Platform and General Specifications

The chassis, environmental and option information below applies to the XOA-1700-R20 configuration.

Optical and User Interface	
Optical input connector	FC
Built-in source output	Built-in optical-source output; 1550 $\pm$ 5 nm configurations and replaceable source options are available
Display	12.1-inch touch screen
Storage	128 GB
Interfaces	USB and Ethernet; VGA availability depends on configuration; GPIB and trigger I/O are available as an option
Environment and Physical	
Operating conditions	5-35 °C; humidity $\leq$ 80% RH
Performance-guarantee temperature	18-28 °C
Dimensions (W $\times$ H $\times$ D)	(426 $\pm$ 4) $\times$ (221 $\pm$ 2.5) $\times$ (450 $\pm$ 4) mm
Weight	Approximately 20 kg
AC power	100-240 VAC, 50/60 Hz
Maximum power consumption	$\leq$ 100 W
Warm-up	At least 1 hour; perform internal-source calibration after warm-up
External calibration support	External optical source may be used for wavelength calibration and optical-axis alignment

Configuration and Options

Standard Supply:

Optical spectrum analyzer
Three-core AC power-cord assembly, quantity 1
User manual on optical media, quantity 1
Certificate of conformity, quantity 1

XOA-1700-R20 Optical-Source Options:

Built-in SLED source option: output ≥ 1 mW, center wavelength 1550 nm
Built-in SLED source with C2H2 absorption cell option: output ≥ 1 mW, center wavelength 1550 nm

Interface and Language Options:

GPIO and trigger I/O option: GPIO interface, trigger input, and trigger output
English interface configuration: English-language front and rear panels with an English operating system

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