QUANTIFI PHOTONICS®
A Teradyne Company

OSA

1000 SERIES
OPTICAL SPECTRUM ANALYZER

SPECIFICATION SHEET

AVAILABLE IN PXI

AVAILABLE IN MATRIQ

quantifiphotonics.com

The Quantifi Photonics OSA provides grating-based spectral test and measurement. It is an excellent fit for the testing of optical sources, amplifiers, transceivers and passive optical components.

The OSA is available in a range of wavelengths for different applications, so you pay only for the capabilities you need.

Simple, intuitive operation

COHESIONUI makes it simple to control the OSA from your PC or mobile device. Its cutting edge design offers a sleek modern interface, cross device compatibility, customizable views and remote network access.

Range of wavelengths

Choose the model that meet your requirements and pay for only the capabilities you need. OSA can also be customized to other customer specified wavelength range.

Single platform testing

Conduct all your DUT characterization on one platform and spend less time switching cables and patchcords between instruments.

Grating-based architecture

Accurate measurement of optical spectrum without artifacts: good dynamic range, high optical throughput, high spectral resolution and high wavelength accuracy.

Fast sweeping speed

Designed with a fast scanning time optimized for production and manufacturing test.

Seamless PXI integration

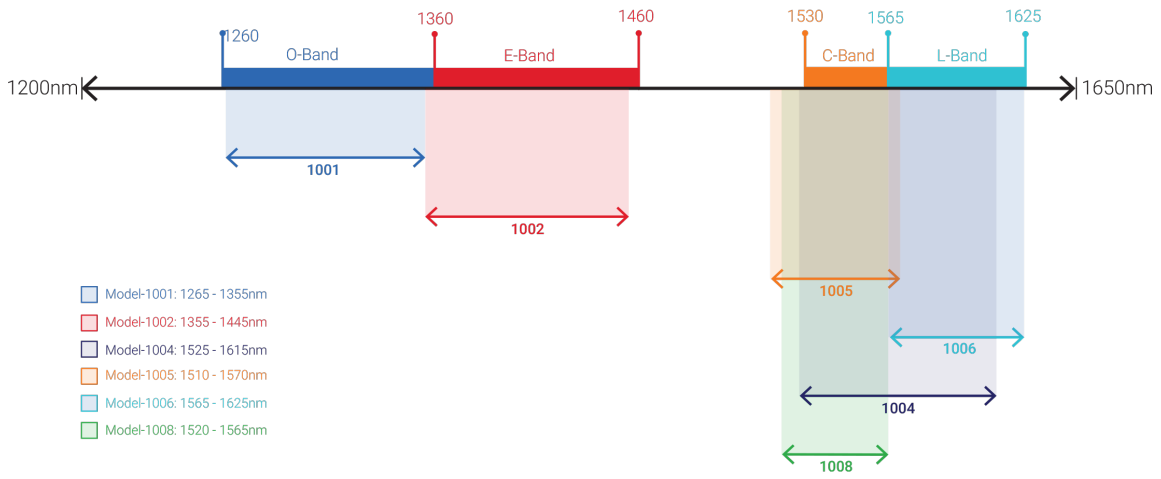
Take advantage of PXI's integrated triggering and synchronization capabilities across electrical and optical instruments.

TARGET APPLICATIONS

- Power and wavelength measurements
- High-resolution spectral analysis on optical components
- WDM Channel monitoring
- Optical Signal to Noise Ratio (OSNR) measurements
- Side-mode Suppression Ratio (SMSR) measurements
- Passive component spectral response characterization
- Data modulation analysis
- Modulator bias adjustments
- General purpose spectral analysis R&D labs
- Gain equalization

CONFIGURATIONS

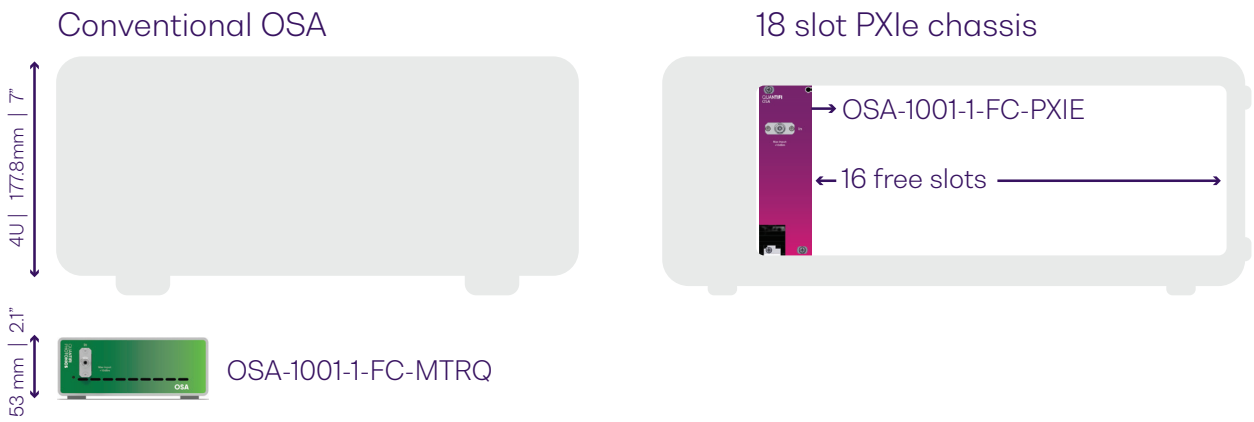
Choose the model that suits your application and only pay for the capabilities you require.



SMALL SIZE

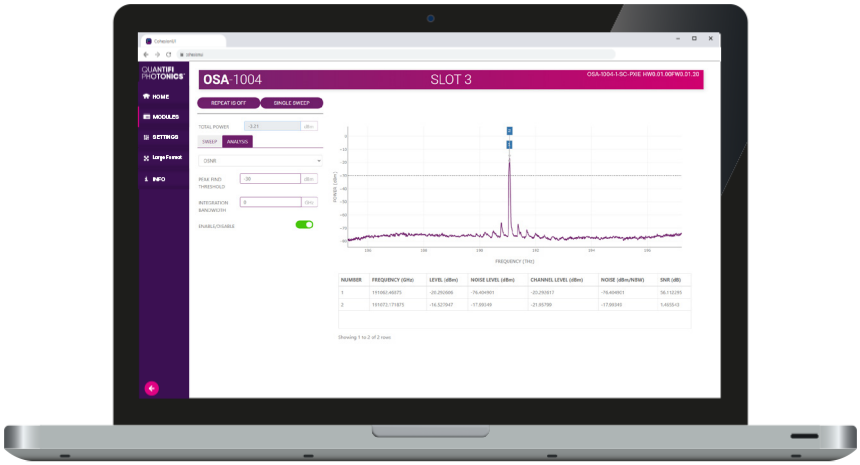
Space-saving form factor

Replace bulky individual optical test instruments with one small PXIe module and drastically reduce the footprint of your test setup.



OSA measurement functions in COHESION**UI**™

The OSA comes with a built-in web-based user interface and features a range of measurements including spectral width, OSNR, multi-SMSR and multi-peak.



Spectral width

Automatic detection of the spectral peak's centre wavelength and measurement of spectral width.

OSNR

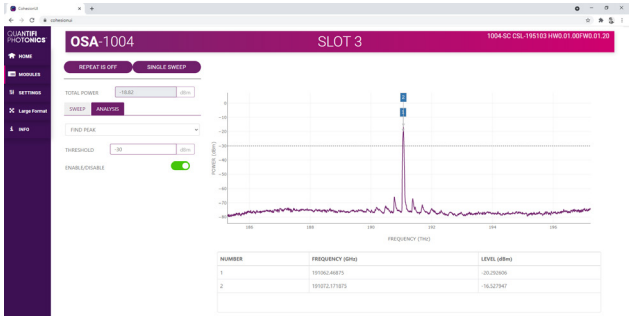
Optical signal-to-noise ratio measurement on a multi-peak spectrum.

Multi-SMSR

Side-mode suppression ratio measurement with user configurable detection methods.

Multi-peak

Centre wavelength and power measurement of multiple peaks in a spectrum.



CHOOSE YOUR FORM FACTOR

Our expanding range of PXIe optical test solutions are used by customers in mixed-signal test and measurement systems, reducing complexity, lowering the cost of test and accelerating time to market.

- Multi vendor, open standard with over 2500 PXI modules available
- Advanced timing and synchronization capabilities across instruments
- Low latency, high performance processing and fast data throughput
- Design and build scalable, high channel count systems
- Small footprint and lower power consumption

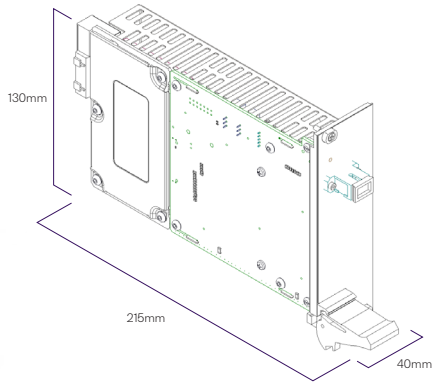
MATRIQ – COMPACT & PORTABLE

The MATRIQ series provides the same high-performance test capabilities of our PXIe modules in an compact benchtop design. MATRIQ instruments are simple to setup and easy to operate, making them the perfect choice for your optical lab or test bench.

- Same performance and control as our PXIe modules
- Plug and play with USB or Ethernet connectivity
- Control via the web-based GUI, COHESIONUI or SCPI commands
- Compact and portable design saves benchtop space

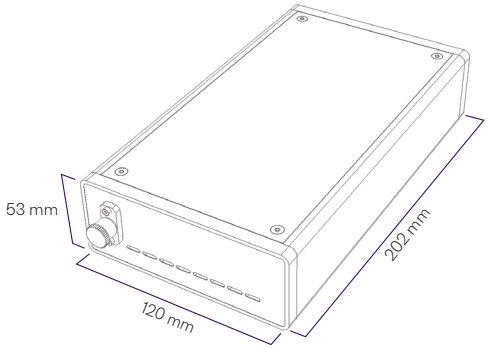
PXI – MODULAR

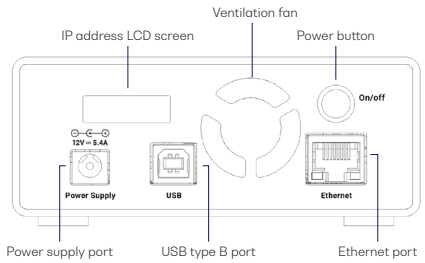
OSA-1001-1-FC-PXIE



MATRIQ – COMPACT & PORTABLE

OSA-1001-FC-MTRQ





OSA TECHNICAL SPECIFICATIONS

General Specifications	PXI	MATRIQ
Bus connection	PXIe	USB and Ethernet
Fiber type	SMF28	SMF28
Optical connector type	FC/APC, FC/PC, SC/PC, SC/APC	FC/PC, FC/APC, SC/PC, SC/APC
Number of channels	1	1
Slot count	2	-
Dimensions (H x W x D)	130 x 40 x 215 mm | 5.1 x 1.6 x 8.5 inches	53 x 120 x 202 mm | 2.1 x 4.7 x 8.0 inches
Weight	1 kg | ~2.2 lbs	~ 1.1 kg | ~ 2.4 lbs
Operating temperature range	5 °C to 45 °C | 41 °F to 113 °F	5 °C to 40 °C | 41 °F to 104 °F
Storage temperature range	-40 °C to 70 °C | -40 °F to 158 °F	-40 °C to 70 °C | -40 °F to 158 °F

Power Specifications	PXI	MATRIQ
AC input voltage range	Please refer to the latest PXI Express Hardware Specifications published by the PXI Systems Alliance.	90 to 264 VAC
AC input current		1.3 A (115 VAC), 0.9 A (230 VAC)
AC frequency range		47 to 63 Hz
DC output voltage		12 V
DC output current max		5.41 A
Dimensions (LxWxH)		4.58 x 2.06 x 1.23" (116.3 x 52.4 x 31.3 mm)

Model Number	1001	1002	1001	1002
Wavelength range	1265 to 1355 nm	1355 to 1445 nm	1265 to 1355 nm	1355 to 1445 nm
OSA type	Grating	Grating	Grating	Grating
Resolution bandwidth [FWHM]	0.20 nm	0.21 nm	0.20 nm	0.21 nm
Wavelength linearity	15 pm	15 pm	15 pm	15 pm
Wavelength repeatability [1]	± 20 pm	± 20 pm	± 20 pm	± 20 pm
Wavelength accuracy [1]	± 25 pm (Typical) ± 70 pm (Max)	± 25 pm (Typical) ± 70 pm (Max)	± 25 pm (Typical) ± 70 pm (Max)	± 25 pm (Typical) ± 70 pm (Max)
Optical rejection @ 0.3 nm from peak	> 25 dB	> 21 dB	> 25 dB	> 21 dB
Damage input power	+ 30 dBm	+ 30 dBm	+ 30 dBm	+ 30 dBm
Max power	+ 10 dBm	+ 10 dBm	+ 10 dBm	+ 10 dBm
Absolute power accuracy [1,2]	± 0.6 dB	± 0.6 dB	± 0.6 dB	± 0.6 dB
Relative power accuracy [1,2]	± 0.5 dB	± 0.5 dB	± 0.5 dB	± 0.5 dB
Power repeatability [2]	± 0.1 dB	± 0.1 dB	± 0.1 dB	± 0.1 dB
Polarization dependence	< 0.3 dB	< 0.3 dB	< 0.3 dB	< 0.3 dB
Dynamic range	60 dB	60 dB	60 dB	60 dB
Return loss	> 30 dB	> 30 dB	> 30 dB	> 30 dB
Sweep time (90 nm, 2001 pts, full sweep)	< 280 ms	< 280 ms	< 280 ms	< 280 ms
Sweep time (4 nm, 101pts)	< 180 ms	< 180 ms	< 180 ms	< 180 ms

OSA TECHNICAL SPECIFICATIONS

Model Number	1004	1005	1004	1005
Wavelength range	1525 to 1615 nm	1510 to 1570 nm	1525 to 1615 nm	1510 to 1570 nm
OSA type	Grating	Grating	Grating	Grating
Resolution bandwidth [FWHM]	0.24 nm	0.17 nm	0.24 nm	0.17 nm
Wavelength linearity	15 pm	15 pm	15 pm	15 pm
Wavelength repeatability [1]	± 20 pm	± 20 pm	± 20 pm	± 20 pm
Wavelength accuracy [1]	± 25 pm (Typical) ± 70 pm (Max)	± 25 pm (Typical) ± 70 pm (Max)	± 25 pm (Typical) ± 70 pm (Max)	± 25 pm (Typical) ± 70 pm (Max)
Optical rejection @ 0.3 nm from peak	>16.5 dB	>37 dB	>16.5 dB	>37 dB
Damage input power	+ 30 dBm	+ 30 dBm	+ 30 dBm	+ 30 dBm
Max power	+ 10 dBm	+ 10 dBm	+ 10 dBm	+ 10 dBm
Absolute power accuracy [1,2]	± 0.6 dB	± 0.6 dB	± 0.6 dB	± 0.6 dB
Relative power accuracy [1,2]	± 0.5 dB	± 0.5 dB	± 0.5 dB	± 0.5 dB
Power repeatability [2]	± 0.1 dB	± 0.1 dB	± 0.1 dB	± 0.1 dB
Polarization dependence	< 0.3 dB	< 0.3 dB	< 0.3 dB	< 0.3 dB
Dynamic range	60 dB	60 dB	60 dB	60 dB
Return loss	> 30 dB	> 30 dB	> 30 dB	> 30 dB
Sweep time (90 nm, 2001 pts, full sweep)	< 280 ms	< 280 ms	< 280 ms	< 280 ms
Sweep time (4 nm, 101pts)	< 180 ms	< 180 ms	< 180 ms	< 180 ms

Model Number	1006	1008	1006	1008
Wavelength range	1565 to 1625 nm	1520 to 1565 nm	1565 to 1625 nm	1520 to 1565 nm
OSA type	Grating	Grating	Grating	Grating
Resolution bandwidth [FWHM]	0.17 nm	0.12 nm	0.17 nm	0.12 nm
Wavelength linearity	15 pm	15 pm	15 pm	15 pm
Wavelength repeatability [1]	± 20 pm	± 20 pm	± 20 pm	± 20 pm
Wavelength accuracy [1]	± 25 pm (Typical) ± 70 pm (Max)	± 25 pm (Typical) ± 70 pm (Max)	± 25 pm (Typical) ± 70 pm (Max)	± 25 pm (Typical) ± 70 pm (Max)
Optical rejection @ 0.3 nm from peak	>37 dB	>37 dB	>37 dB	>37 dB
Damage input power	+ 30 dBm	+ 30 dBm	+ 30 dBm	+ 30 dBm
Max power	+ 10 dBm	+ 10 dBm	+ 10 dBm	+ 10 dBm
Absolute power accuracy [1,2]	± 0.6 dB	± 0.6 dB	± 0.6 dB	± 0.6 dB
Relative power accuracy [1,2]	± 0.5 dB	± 0.5 dB	± 0.5 dB	± 0.5 dB
Power repeatability [2]	± 0.1 dB	± 0.1 dB	± 0.1 dB	± 0.1 dB
Polarization dependence	< 0.3 dB	< 0.3 dB	< 0.3 dB	< 0.3 dB
Dynamic range	60 dB	60 dB	60 dB	60 dB
Return loss	> 30 dB	> 30 dB	> 30 dB	> 30 dB
Sweep time (90 nm, 2001 pts, full sweep)	< 280 ms	< 280 ms	< 280 ms	< 280 ms
Sweep time (4 nm, 101pts)	< 180 ms	< 180 ms	< 180 ms	< 180 ms

Notes

1. Input power range -40dBm to -10dBm.
2. With unpolarized source.

ORDERING INFORMATION

OSA - XXXX - X - XX- PXIE
OSA - XXXX - X - XX - MTRQ

Model number
1001 = 1265 - 1355 nm
1002 = 1355 - 1445 nm
1004 = 1525 - 1615 nm
1005 = 1510 - 1570 nm
1006 = 1565 - 1625 nm
1008 = 1520 - 1565 nm

Connector type
FC = FC/PC
FA = FC/APC
SC = SC/PC
SA = SC/APC

Number of channels
1 = 1 channel

WARRANTY INFORMATION

This product comes with a standard 1 year warranty.

EXTENDED WARRANTIES AND CALIBRATION PLANS

With an **extended warranty and calibration plan** you'll spend more time focused on your priorities and less time worrying about maintenance.

Add a **3 or 5 year extended warranty** when you purchase your Quantifi Photonics instruments.

Guarantee performance

Ensure your equipment is operating at the best it can be for reliable and accurate results.

Lower cost of ownership

Lock in savings and maximise your testing budget with a lower base cost of ownership.

Peace of mind

Spend less time worrying about maintenance and more on generating results.

CALIBRATION PLANS FOR ADDITIONAL DISCOUNTS

Order a **calibration plan** when purchasing your Quantifi Photonics instruments and get additional discounts.

10% Discount On calibrations ordered at the time of purchase.

25% Discount Add on an extended warranty and receive a 25% discount on calibrations.

Over time and with regular use, all optical parts and connectors require re-calibration and maintenance to guarantee accurate and reliable performance. We recommend Quantifi Photonics optical instruments are re-calibrated every 12 months. With an instrument calibration performed by Quantifi Photonics technicians you receive:

- Comprehensive calibration to factory specifications
- End-to-end inspection to ensure all instrument functions are working and connectors are clean
- Firmware, software and documentation updates
- Certificate of calibration which includes detailed test results

How to do I **secure my extended warranty or calibration plan**?

Contact your Quantifi Photonics sales representative or email **sales@quantifiphotonics.com**

Extended warranties and calibration plans must be ordered at the time of purchase and are available only for Quantifi Photonics' products. The 25% calibration discount only applies to calibrations while the product is covered by the extended warranty period.

Our portfolio of optical & electro-optical test modules is rapidly expanding to meet a wide range of customer requirements and applications.

For more details visit **quantifiphotonics.com/products**

Tunable Laser Source

Versatile telecom laser sources with full tunability across C or L bands. Narrow 100 kHz linewidth, up to 16.5 dBm of power, optional whisper mode to disable frequency dither.

Fixed Wavelength Laser Source

Highly-customizable DFB or FP laser sources available in a wide range of wavelengths and powers up to 24 dBm. Supports SMF, MMF and PMF.

Swept, Tunable Continuous Wave Laser

Swept, tunable continuous wave (CW) laser source with 0.01 dB power stability and 400 nm/s high-speed scan rate for R&D and production testing.

Superluminescent Diode Broadband Light Source

Super-luminescent LED light source with high output power, large bandwidth and low spectral ripple and various wavelengths.

ELSFP-Compliant External Laser Source

Uses ELSFP-compliant pluggable modules to provide 8 channels of CW optical power at 1310 nm from 20 to 25 dBm.

Variable Optical Attenuator (VOA)

Fast attenuation speed with low insertion loss and built-in power monitoring. Operates in fixed attenuation or constant output power modes. Support SMF, MMF and PMF.

Polarization Controller & Scrambler

High-speed automated polarization control with broad wavelength coverage from 1260 to 1650 nm, low insertion loss and back reflection. Full remote control via intuitive GUI, LabVIEW or SCPI.

Optical Power Meter

Fast terminating or inline monitoring of optical signal power from -60 to +10 dBm across 750 to 1700 nm wavelengths. Model with logarithmic analog output for applications such as silicon photonics fiber alignment.

Optical Spectrum Analyzer (OSA)

Cost-effective, spectral measurement in a compact module with built-in analysis for: SMSR, OSNR & spectral width. Targeted wavelengths for specific applications in O band, C band & L band.

Optical-to-Electrical Converter

High bandwidth, broadband O-to-E converter. Choose from 1 or 2 channels, AC or DC coupling and various conversion gain and operating wavelength ranges.

Optical Switch

Proven reliability and fast switching time. Wide variety of switch onfigurations: 1x4, 1x16, 16x16 and more. Models support SMF, MMF and PMF.

Photocurrent Amplifier

Versatile photodiode amplifier to measure photocurrent in photonic integrated circuit (PIC) applications. Digital and analog measurement.

Photonic Doppler Velocimeter (PDV)

Purpose-built module for Photonic Doppler Velocimetry (PDV). A circulator, two VOAs and a passive coupler all built into one compact module.

Passive Component Integration

Integrate passive optical components of your choice such as WDM couplers, splitters, band-pass filters, PM beamsplitters and circulators. SMF, MMF and PMF.

Digital Sampling Oscilloscope (DSO)

Digital equivalent-time sampling oscilloscope (DSO)

Clock Recovery Instrument (CDR)

Clock recovery instrument for the QCA Series. Low jitter

Test.
Measure.
Solve.™

Quantifi Photonics provides test solutions to help customers unlock scalable and cost-effective high-volume manufacturing of photonic integrated circuits (PICs), co-packaged optics and pluggable optics. The company's portfolio includes a wide range of photonic test instruments, and digital sampling oscilloscopes, available as benchtop or the industry-standard PXI format to support cost-effective, high-throughput design verification testing and high-volume manufacturing.

To find out more, get in touch with us today.

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