QUANTIFI PHOTONICS®
A Teradyne Company



Power

1500 SERIES
ANALOG OPTICAL POWER METER

SPECIFICATION SHEET

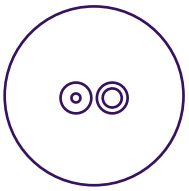
quantifiphotonics.com

The Power 1500 Series optical power meter provides logarithmic analog output as well as a digital optical power meter for applications that require real-time feedback.



Simple, intuitive operation with COHESIONUI™

Control the Power 1500 Series from your PC or mobile device. Plus, large format view mode makes it easy to monitor your instrument even when working away from your desk.



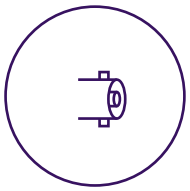
Supports single-mode and multi-mode applications

Accepts either single-mode or multi-mode fiber for a seamless integration into your setup.



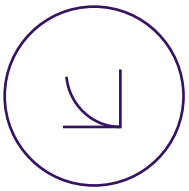
Digital optical power readout

Convenient digital output of optical power makes it great for applications that require real-time feedback.



Analog output for seamless hardware integration

The analog output can be integrated into your hardware set-up for fast power feedback in the order of kHz. The logarithmic output makes it easy to detect low-power signals.

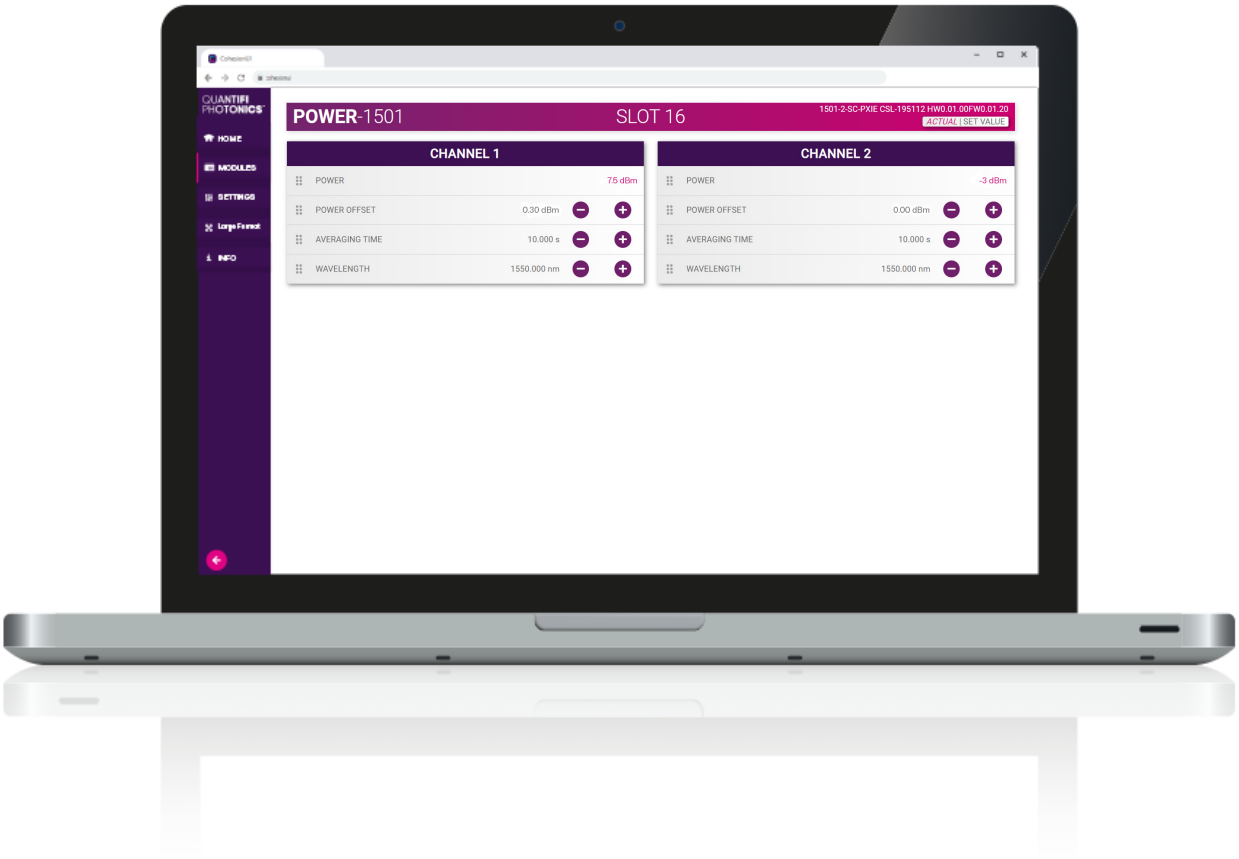


Single logarithmic amplifier

Use of a logarithmic amplifier eliminates the gain jumps exhibited by power meters with multi-stage linear amplifiers. Get consistent and reliable measurement at all power levels.

Simple, intuitive control with COHESION**UI**™

COHESION**UI** makes it simple to control our PXI or MATRIQ instruments from a PC, tablet or smartphone. Its cutting-edge design offers a sleek modern interface, cross device compatibility, customizable views and remote network access.



TARGET APPLICATIONS

- Perfect for analog control loops that require feedback of the optical power
- Automate mechanical fiber positioning in your production environment
- Quickly characterize modulator transfer functions
- Measure insertion loss versus wavelength of your components using a swept laser.

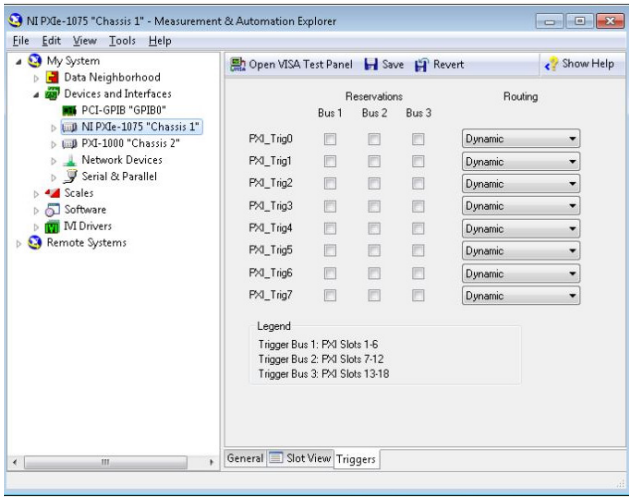
HARDWARE TRIGGERING IN PXI

Integrated hardware triggering

PXI's integrated timing and hardware triggering capabilities allow the user to synchronize a variety of instruments through the trigger bus and system reference clock features of the PXI platform. This offers a number of advantages over more traditional software-initiated measurements.

- True parallel measurements of multiple devices under test allows you to scale your manufacturing and decrease the test time per DUT.
- Extremely low latency allows you to capture fast events or measure your DUTs very quickly.
- Precise timing alignment between optical and electrical modules gives you control of trigger events to occur exactly when required.

Each slot can create a trigger and the trigger event can be transferred through each PXI Trigger line. Configuring the trigger line can be done easily through NI max software interface for the PXIe mainframe.





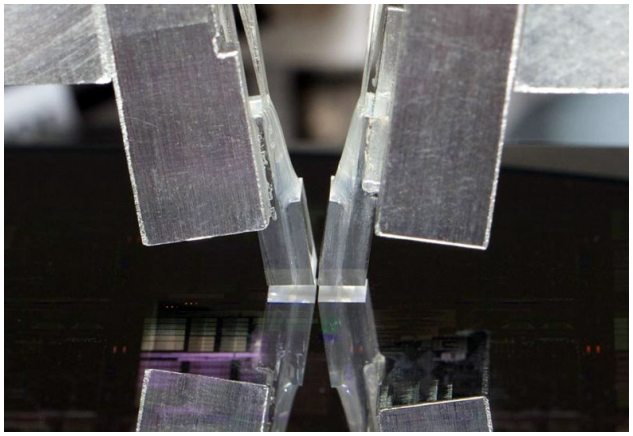
Find ‘first-light’ fast

For silicon photonics manufacturers, the design, assembly and testing of devices is a highly complex and challenging task, requiring sub-micron alignment of components to ensure effective fiber/optical coupling and device performance.

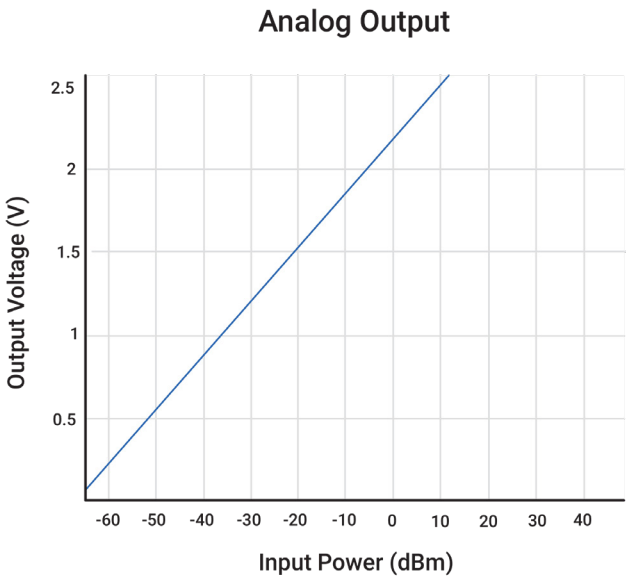
With its analog RF output, the Power 1500 Series optical power meter has been designed to offer 60 dB of optical power range measurement across its output voltage ranging over several volts, with a continuously uninterrupted, logarithmic response.

This analog signal is matched with an industry leading, fast 1MHz response which provides three-dimensional, electro-mechanical positioning systems with superior reaction time when moving from faint optical signals down to the final sub-micron positioning for today’s silicon photonics applications.

The superior, uninterrupted, logarithmic response enables high volume test systems to find the “first light” much quicker during the fiber alignment process. This makes it easier to align, test and assemble photonic components from wafer-level through to assembly and final packaging, and results in superior throughput for automated silicon photonics and general optronic assembly and test systems.



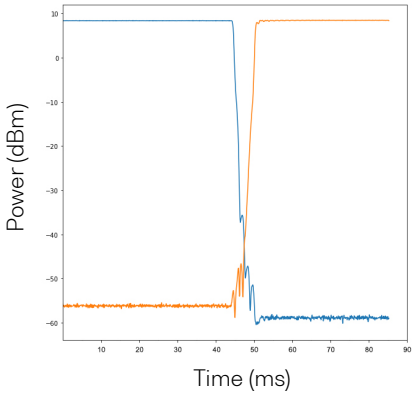
Fiber optic probe positioned over silicon photonic wafer.
(Image courtesy of ficonTEC Service GmbH)



POWER LOGGING

The graphic to the right is a Power vs Time graph demonstrating the data logging feature of the Power 1500 Series. This measurement shows the power transition between two output ports of an optical switch after a switching event.

Measurements in the order of milliseconds can be logged by triggering the power measurement synchronously with other optical modules or devices. A delay has been added to the optical switch to allow capture of the before and after states.



CHOOSE YOUR FORM FACTOR

PXIE - MODULAR

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.

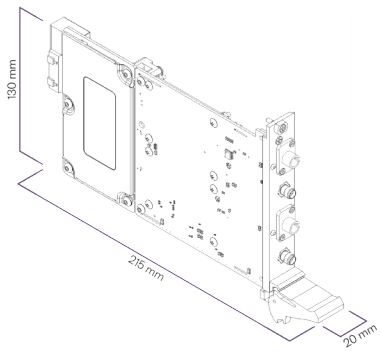
- Same performance and control as our PXIe modules
- Plug and play with USB or Ethernet connectivity
- Control via the web-based GUI, COHESIONUI or SCPI commands
- Compact and portable design saves benchtop space



PXI – MODULAR



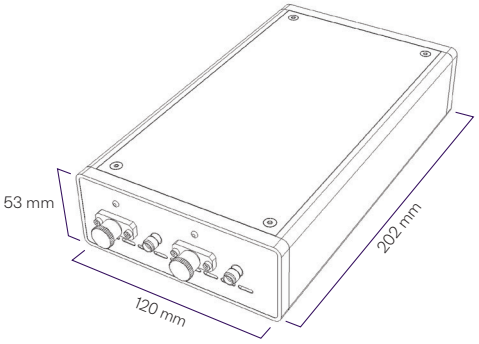
POWER-1501-2-FC-PXIE

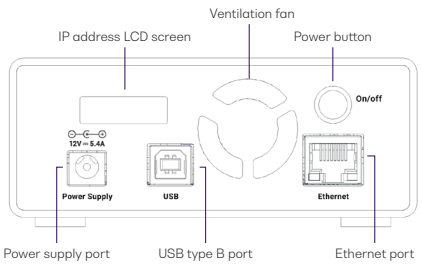


MATRIQ – COMPACT & PORTABLE



POWER-1501-2-FC-MTRQ





General Specifications	PXIE	MATRIQ
Bus Connector	PXIe	USB and Ethernet
Optical connector type	FC/PC	FC/PC
Slot count	1	-
Number of channels	1, 2	1, 2
Dimensions H x W x D	130 x 20 x 215 mm | 5.1 x 0.8 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 45 °C | 41 °F to 113 °F
Storage temperature range	-40 °C to 70 °C | -40 °F to 158 °F	-40 °C to 70 °C | -40 °F to 158 °F

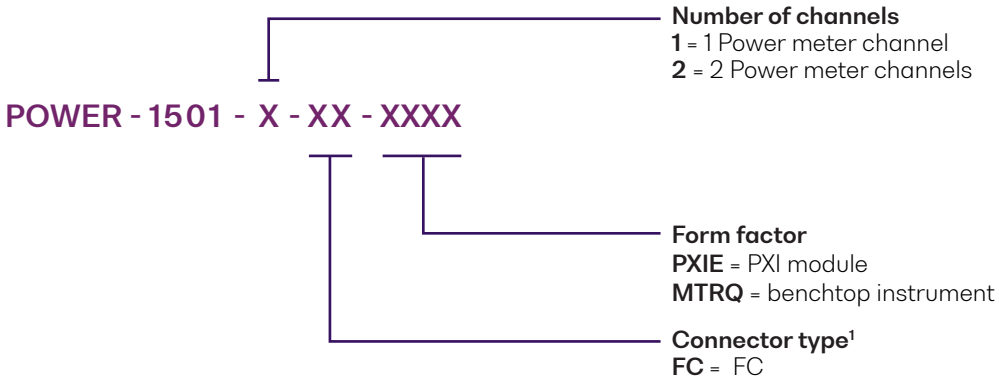
Power Specifications	PXI	MATRIQ
AC input voltage range	Please refer to the latest PXI Express Hardware Specifications published by the PXI Systems Alliance.	100 to 240 VAC
AC input current		1.3 A (115 VAC), 0.9 A (230 VAC)
AC frequency range		47 to 63 Hz
DC output voltage		12 V
DC output current max		5.41 A
Dimensions (LxWxH)		4.58 x 2.06 x 1.23" (116.3 x 52.4 x 31.3 mm)

Model Number	1501
Sensor	InGaAs wide area detector
Wavelength	750 to 1700 nm
Power	-60 to +10 dBm
Damage level	+12 dBm
Polarization dependent responsivity [2,3]	<0.2 dB
Return loss [5]	>45 dB
Analog Output	
Electrical connector	SMA
Output impedance	50 ohms
Max output	< 2.5 V (2 V @ +10 dBm Typical)
Conversion gain	33.33 mV/dB (Typical) (10M Ohm input), 16.66 mV/dB (Typical) (50 Ohm input)
Linearity [2]	± 0.25 dB
3 dB frequency response at 1550 nm	> -20 dBm: 1 MHz; >-30 dBm: 350 kHz; >-40 dBm: 25 kHz

Digital Power Meter	1501
Calibration wavelengths	850 nm, 1310 nm, 1490 nm, 1550 nm, 1611 nm
Linearity [2,4]	± 0.1 dB: -40 dBm to 0 dBm, ± 0.20 dB: -50 dBm to -40 dBm
Total uncertainty [2,3,4]	± 0.22 dB (Typical) | ± 0.35 dB (Max)
Averaging time	100 µs to 10 s
Resolution	0.01 dB
3 dB frequency response	5 kHz
Data logging capability	1 to 1024 points per channel
Sample rate for trace	0.01 Hz to 12 KHz
PXIe trigger capability	Yes

Notes
1. Specifications are valid at 23 °C ± 3 °C.
2. +10 dBm to -40 dBm, 23 °C.
3. Excluding connectors.
4. At calibration wavelengths.
5. Wavelength 1550 nm ± 30 nm, standard single-mode fiber, angled connector 8°, T=23 °C ± 5 °C.

ORDERING INFORMATION



Notes

1. Because it is a free-space launch into a large area detector that captures all the light, the FC connector is compatible with FC/APC type inputs and the SC is compatible with SC/APC inputs.

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.

Versatile test modules for a wide range of requirements and applications.

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



DFB laser sources available in a 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 up to 24 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 configurations and models support SMF, MMF and PMF.

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) with high-quality precision timebase and low jitter mode, available in 1 or 2 channels in a compact benchtop instrument.

Clock Recovery Instrument (CDR)



Clock recovery instrument for the QCA Series. Low jitter design and precise phase-locking provide a reliable, scalable solution for high-speed communication testing.

Coherent Transmitter



Generate high-quality coherent optical signals for transmitter development, testing and advanced modulation research.

Coherent Receiver



High-performance coherent optical receiver for accurate measurement and characterization of coherent modulation formats.

VISIQ Analysis Software

VISIQ

Coherent signal analysis software for intuitive DSP configuration, signal analysis and optimization.

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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