QUANTIFI PHOTONICS®

PCA

1001
PHOTOCURRENT AMPLIFIER

PRELIMINARY SPECIFICATION SHEET

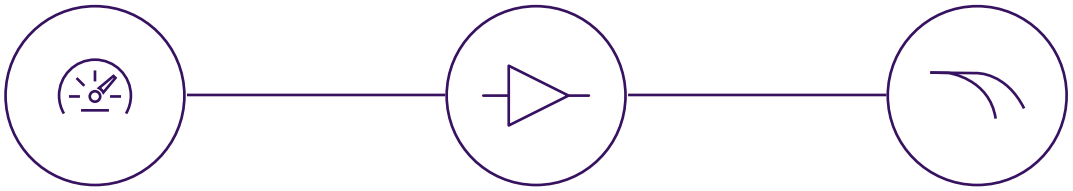
AVAILABLE IN PXI

quantifiphotonics.com

FEATURES

The PCA-1000 Series is a compact and versatile photodiode amplifier, designed to precisely measure photocurrent.

It provides both analog and digital transimpedance amplifiers for photodiode currents ranging from 10 nA to 2 mA and offers fully adjustable bias voltage control and adjustable frequency response for flexibility. Onboard memory offers digital recording of up to 1024 current values. Its single-slot PXIe form factor enables convenient backplane triggering and it is compatible with a wide range of optical and electrical PXI test modules.



Digital & analog photocurrent measurement

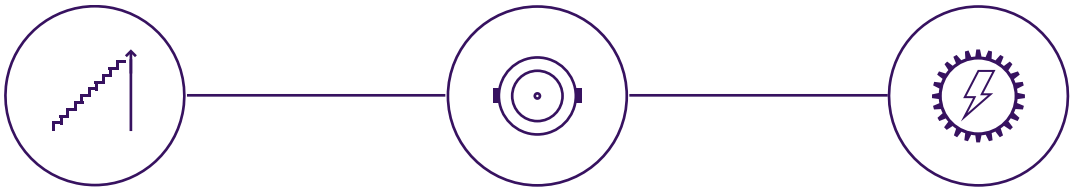
Allows precise control of the PD under test to measure dark current and characterize its responsivity.

Analog logarithmic transimpedance photocurrent amplifier

Amplify your PD current to provide a high gain signal via the SMA connector.

Configurable frequency response

Digital control of the frequency response of the analog output from 1 MHz down to 100 Hz.



Adjustable reverse bias voltage

Optimize the bias voltage in 0.01 V increments from 0 to 10 V to properly bias the PD.

Triax input connector for low current measurement

Make precise low current measurements.

Supports photodiode responsivity calibration

Use the PCA as an optical power meter by converting PD current to equivalent optical Power in mW or dBm.

TARGET APPLICATIONS

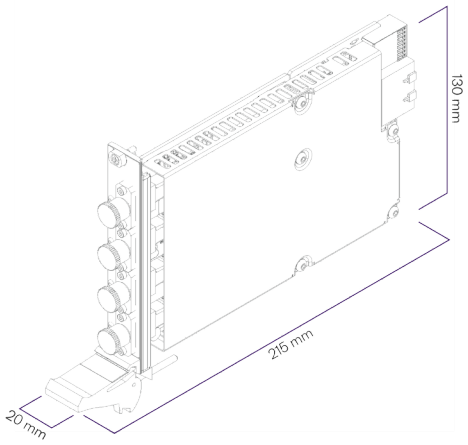
- Responsivity measurements
- Dark current measurements
- Shunt resistance measurements
- I-V characteristics
- Noise measurement - NEP (noise equivalent power)
- PD characterization (with various optical inputs)

WHY CHOOSE PXI?

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

PCA 1000 TECHNICAL SPECIFICATIONS



PCA-1001-PXIE

PCA 1000 TECHNICAL SPECIFICATIONS

General Specifications	PXIe
Bus connection	PXIe
Number of channels	2
Slot count	1
Dimensions (HxWxD)	130 x 20 x 215 mm | 5.1 x 0.8 x 8.5 inches
Weight	~ 1 kg | ~ 2.2 lbs
Operating temperature range	5 °C to 45 °C | 41 °F to 113 °F
Storage temperature range	-40 °C to 70 °C | -40 °F to 158 °F

Power Specifications	PXI
AC input voltage range	Please refer to the latest PXI Express Hardware Specifications published by the PXI Systems Alliance.
AC input current	
AC frequency range	
DC output voltage	
DC output current max	
Dimensions (LxWxH)	

Photocurrent Input	1001
Electrical input connector	Triax
Current range	10 nA to 2 mA
Damage level	15 mA
Max capacitance of diode	10 nF
Reverse bias range	0 to 10 V
Reverse bias resolution	0.01 V

Analog Output	1001
Electrical connector	SMA
Output impedance	50 ohms
Max output	< 2.5 V (2 V @ 1 mA typical)
Conversion gain	333 mV/decade (typical) (10 M Ohm system) 166 mV/decade (typical) (50 Ohm system)
Linearity[1,2]	± 2.5 %
3 dB bandwidth Settings	**Variable:** 100 Hz, 25 kHz, 125 kHz, 'Full BW'
3 dB frequency Response	**100 Hz:** >100 nA: 100 Hz, >10 nA: 60 Hz **25 kHz:** >10 uA: 25 kHz, >1 uA: 6 kHz, >100 nA: 600 Hz, >10 nA: 60 Hz **125 kHz:** >100 uA: 125 kHz, >10 uA: 60 kHz, >1 uA: 6 kHz, >100 nA: 600 Hz, >10 nA: 60 Hz **Full BW:** 1 mA: 3 MHz, >300 uA: 1.8 MHz, >100 uA: 600 kHz, >10 uA: 60 kHz, >1 uA: 6 kHz, >100 nA: 600 Hz, >10 nA: 60 Hz

Digital Current Meter	1001
Linearity[1,2]	± 2.5 % 100 uA to 100 nA
Total uncertainty[1,2]	± 2.5% 10 nA to 2 mA
Averaging time	100 us to 10 s
Resolution	1 nA
3 dB frequency response	5 kHz
Averaging time/ sample time	100 us to 10 s
Data logging capability	1 to 1024 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. +100 uA to 100 nA, 23 °C

ORDERING INFORMATION

PCA - **1001** - **PXIE**

ACCESSORIES

PCA - **XXXX**

Options
9001 = Triaxial Cable Assembly

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.

Your choice: add a **3 or 5 year extended warranty** when you buy.

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.

Tunable Laser Sources

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 Sources

Highly customizable laser platform. Select required wavelength, power and fiber type for a customized solution.

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.

Erbium-Doped Fibre Amplifier (EDFA)

High power Erbium-Doped Fiber Amplifier for signal power amplification in C and L bands with various control modes, including automatic gain control.

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. Models support SMF, MMF and PMF connector types.

Polarization Controller & Scrambler

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

Optical Power Meters

Fast terminating or inline monitoring of optical signal power from -60 to +10 dBm across 750 – 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. Available in a range of configurations; choose from 1 or 2 channels, AC or DC coupling and various conversion gain and operating wavelength ranges.

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.

Bit Error Rate Tester (BERT)

4 or 8-channel Pulse Pattern Generator and Error Detector at rates up to 29 Gbps for the design, characterization and production of optical transceivers and opto-electrical components.

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.

Optical Switch

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

Passive Component Integration

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

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

Test. Measure. Solve.™

Quantifi Photonics is transforming the world of photonics test and measurement. Our portfolio of optical and electrical test instruments is rapidly expanding to meet the needs of engineers and scientists around the globe. From enabling ground-breaking experiments to driving highly efficient production testing, you'll find us working with customers to solve complex problems with experience and innovation.

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

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