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Modules for optical power measurement

The PDA8000 series single or dual channel photo-current measurement modules enable high precision measurement of photo-currents with 16 bit resolution. You may select among seven measurement ranges; on the most sensitive 10nA full scale setting, the resolution is 0.1pA. On the largest full scale range of 10mA the resolution is 0.1µA .

If your photodiode is calibrated, the photo current module can be used as a precise optical power meter with high resolution and a large dynamic range.



The PDA8000 is designed as a plug-in module for the PRO8000 chassis detailed on page 364. The module is recognized by the chassis when powered. All of the control functions of the photo-current amplifier can be used in manual or remote modes.

Introduction – PDA8000 Photo-Current Measurement Module

The PDA8000 photo-current measurement module is an ideal companion for our other PRO8000 series plug-in modules. It provides precise photo-current measurements from a few pA to 10mA. A 16-bit A/D converter is used to ensure a measurement resolution of ±0.025% of the full scale reading. These features, combined with the built-in low noise photodiode bias makes this instrument an ideal photodiode current amplifier.

Polarimeter PMD/PDL
Laser/TEC Controllers
Laser Mounts
WDM Sources & Switches
Optical Sources & Switches
Detectors & Power Meters
Laser Lab Instruments
TXP Systems Measurement & Control

PDA8000 Series Features

- Seven (7) current measurement ranges from 10nA to 10mA, with 16 bit resolution.
- Resolution 0.1pA on the 10nA scale.
- Accuracy ±0.025% of full scale reading.
- Single & dual channel modules.

PDA8000 Measurement Range

Measurement Range	Resolution	Accuracy
10mA	0.1µA	± 0.025% f.s.
1mA	10nA	± 0.025% f.s.
100µA	1nA	± 0.025% f.s.
10µA	0.1nA	± 0.025% f.s.
1µA	10pA	± 0.025% f.s.
100nA	1pA	± 0.25% f.s.
10nA	0.1pA	± 0.8% f.s

Calibrated Optical Power Measurements

Using the PDA8000 a photodiode can be calibrated to read out directly in optical power. Through the input screen of the PRO8000 a "photodiode responsivity" value can be entered. This allows the direct entry of standard calibration data provided by photodiode manufacturers when a calibrated diode is purchased.

Computer Control IEEE-488.2

As with all of our PRO8000 compatible modules, all of the PDA8000 module commands can be accessed via the IEEE-488 interface. This includes access to the calibration factor, the photodiode bias voltage, all of the measurement control parameters, and the measurement results.

Precision Optical measurements

The variable photodiode bias allows for operating in either a photovoltaic or photoconductive mode. The bias also reduces the junction capacitance of the diode thus improving the linearity of the detector when making measurements over many decades. Additionally there is a front panel trim-pot that is used to null out the photodiode dark current that are found in semiconductor optical sensors.

PDA8000 Series Photo Current Modules

Photodiode current range	10nA to 10mA
Photodiode polarity	freely selectable
Setting range of bias voltage (can be switched off)	0.1V to 10V
Setting range of sensitivity for power display	freely programmable
Input resistance	virtual ground
Temperature coefficient	≤ 50ppm / °C
General data	
Module width	1 slot
Photodiode connector	PDA8000-1 1xBNC
Photodiode connectors	PDA8000-2 2xBNC

The technical data are valid at 23 ± 5°C and 45 ±15% relative humidity

ITEM	$	£	E	¥	DESCRIPTION
PDA8000-1	$862.50	£525.00	E 750,00	¥120,000	Photo Current Measurement Module, 1 Channel
PDA8000-2	$977.50	£959.00	E 850,00	¥136,000	Photo Current Measurement Module, 2 Channels

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