

# 150 nm to 4.8 μm Amplified Photodetectors (Page 1 of 2)

Power Supply Included



**PDA36A**  
Post and Base Sold Separately

The PDA series of amplified photodetectors utilizes a thin profile to allow access to light paths where there is minimal space. All connections and controls are located perpendicular to the light path. In addition, the PDA series includes a low-noise transimpedance or voltage amplifier capable of driving 50 Ω loads. The housing features both external SM1 threads and internal SM05 threads, each of which are each compatible with a large array of our threaded accessories, allowing convenient mounting of external optics, fibers, and apertures. Each housing provides two #8-32 tapped mounting holes (M4 x 0.7 for -EC versions) An internally SM1-threaded adapter ring is also included. A switchable power supply is included with each unit (120 VAC, 230 VAC).

Thorlabs' line of switchable gain detectors provide gain adjustment over a 70 dB range to take full advantage of the photodiode response range. Gains are adjustable from 1.5 kV/A to 4.7 MV/A in eight 10 dB steps. Our selection of wideband detectors increase the bandwidth range from DC to 150 MHz, while still maintaining low noise.

## All Detectors Come Complete with Power Supply

### PDA Series General Specifications

ITEM# <sup>a</sup>	SENSOR	BANDWIDTH <sup>b</sup>	WAVELENGTH RANGE	ACTIVE AREA	GAIN
PDA25K	GaP	7.5 MHz	150-550 nm	6.25 mm <sup>2</sup> (2.5 x 2.5 mm)	1.5 x 10 <sup>3</sup> to 4.75 x 10 <sup>6</sup> V/A <sup>c</sup>
PDA10A	Si	150 MHz	200-1100 nm	0.8 mm <sup>2</sup> (Ø1 mm)	1 x 10 <sup>4</sup> V/A
PDA8A	Si	50 MHz	320-1000 nm	0.5 mm <sup>2</sup> (Ø0.8 mm)	1 x 10 <sup>6</sup> V/A
PDA36A	Si	17 MHz	350-1100 nm	13 mm <sup>2</sup> (3.6 x 3.6 mm)	1.5 x 10 <sup>3</sup> to 4.75 x 10 <sup>6</sup> V/A <sup>c</sup>
PDA100A	Si	1.5 MHz	400-1100 nm	75.4 mm <sup>2</sup> (Ø9.8 mm)	1.5 x 10 <sup>3</sup> to 4.75 x 10 <sup>6</sup> V/A <sup>c</sup>
PDA10CF	InGaAs	150 MHz	700-1800 nm	0.2 mm <sup>2</sup> (0.5 mm)	1 x 10 <sup>4</sup> V/A
PDA10CS	InGaAs	17 MHz	700-1800 nm	0.8 mm <sup>2</sup> (Ø1 mm)	1.5 x 10 <sup>3</sup> to 4.75 x 10 <sup>6</sup> V/A <sup>c</sup>
PDA50B	Ge	400 kHz	800-1800 nm	19.6 mm <sup>2</sup> (Ø5 mm)	1.5 x 10 <sup>3</sup> to 4.75 x 10 <sup>6</sup> V/A <sup>c</sup>
PDA10D	InGaAs	15 MHz	1200-2600 nm	0.8 mm <sup>2</sup> (Ø1 mm)	1 x 10 <sup>4</sup> V/A
PDA30G	PbS	0.2 kHz to 1 kHz <sup>d</sup>	1000-2900 nm	9 mm <sup>2</sup> (3.0 x 3.0 mm)	100X
PDA20H	PbSe	0.2 kHz to 10 kHz <sup>d</sup>	1500-4800 nm	4 mm <sup>2</sup> (2.0 x 2.0 mm)	100X

<sup>a</sup> Same specs apply to the -EC versions

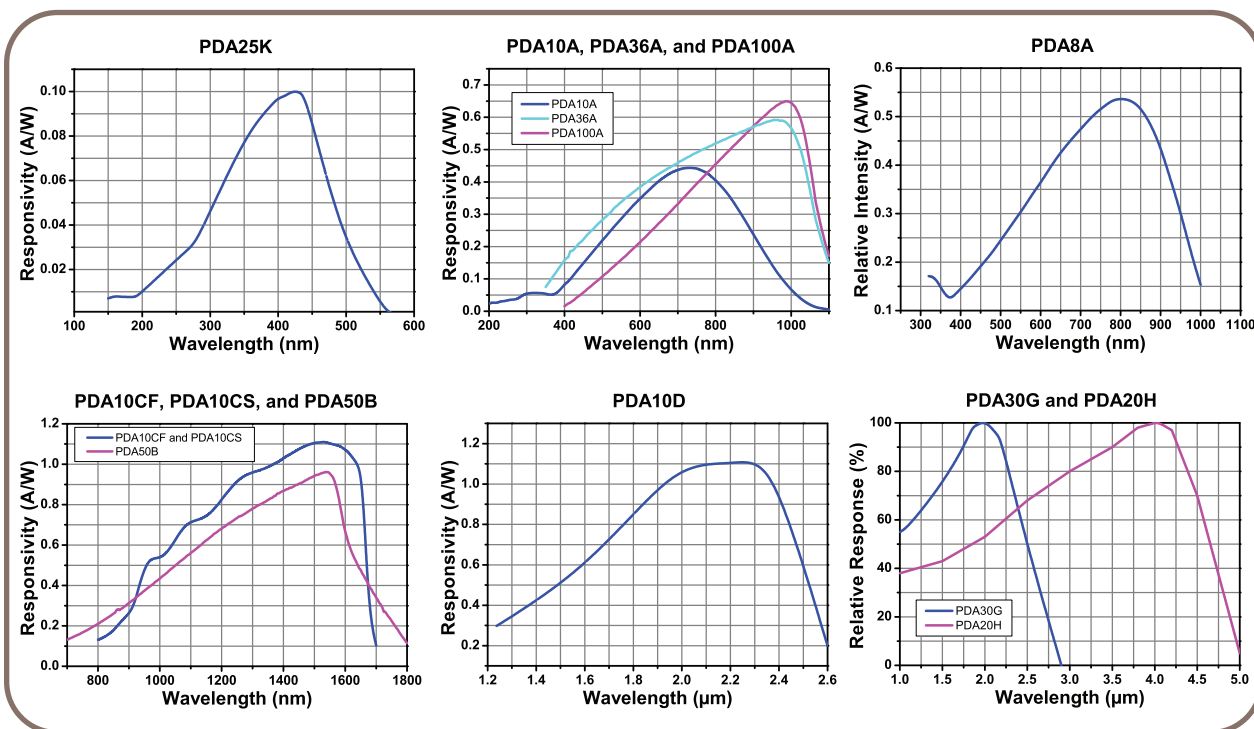
<sup>b</sup> Applies to lowest gain setting on switchable gain versions

<sup>c</sup> Switchable gain, 8 steps, 70 dB total adjustment

<sup>d</sup> AC-coupled output only



**SM1FC**  
SM1-Threaded Fiber Adapters



150 nm to 4.8  $\mu\text{m}$  Amplified Photodetectors (Page 2 of 2)**NEW**  
versions

ITEM#	METRIC ITEM#	\$	£	€	RMB	DESCRIPTION
PDA25K	PDA25K-EC	\$ 369.00	£ 255.80	€ 327,70	¥ 3,115.90	150-550 nm Switchable Gain, GaP Detector
PDA10A	PDA10A-EC	\$ 278.00	£ 192.80	€ 246,90	¥ 2,347.50	200-1100 nm Fixed Gain, Si Detector
PDA8A	PDA8A/M	\$ 600.00	£ 416.00	€ 532,70	¥ 5,066.50	320-1000 nm Fixed Gain, Si Detector
PDA36A	PDA36A-EC	\$ 299.00	£ 207.30	€ 265,50	¥ 2,524.80	350-1100 nm Switchable Gain, Si Detector
PDA100A	PDA100A-EC	\$ 305.00	£ 211.50	€ 270,80	¥ 2,575.50	400-1100 nm Switchable Gain, Si Detector
PDA10CF	PDA10CF-EC	\$ 369.00	£ 255.80	€ 327,70	¥ 3,115.90	700-1800 nm Fixed Gain, InGaAs Detector
PDA10CS	PDA10CS-EC	\$ 369.00	£ 255.80	€ 327,70	¥ 3,115.90	700-1800 nm Switchable Gain, InGaAs Detector
PDA50B	PDA50B-EC	\$ 469.00	£ 325.20	€ 416,40	¥ 3,960.30	800-1800 nm Switchable Gain, Ge Detector
PDA10D	PDA10D-EC	\$ 460.00	£ 318.90	€ 408,40	¥ 3,884.30	1.2-2.6 $\mu\text{m}$ Fixed Gain, InGaAs Detector
PDA30G	PDA30G-EC	\$ 364.00	£ 252.40	€ 323,20	¥ 3,073.70	1.0-2.9 $\mu\text{m}$ Fixed Gain, PbS Detector
PDA20H	PDA20H-EC	\$ 398.00	£ 276.00	€ 353,40	¥ 3,360.80	1.5-4.8 $\mu\text{m}$ Fixed Gain, PbSe Detector
PDA-C-72	—	\$ 17.30	£ 12.00	€ 15,40	¥ 146.10	72" PDA Power Supply Cable, 3-Pin to Unterminated End
SM1FC	—	\$ 26.00	£ 18.10	€ 23,10	¥ 219.60	Externally SM1-Threaded FC/PC Fiber Adapter

## Mid-IR Amplified Photodetector with Temperature Control

## Features

- Mid-IR Operation (1200-2570 nm)
- Built-in TEC Controller
- Variable Gain Transimpedance Amplifier
- Variable Low-Pass Filter (500 Hz to 1 MHz)
- Internal SM1 Thread



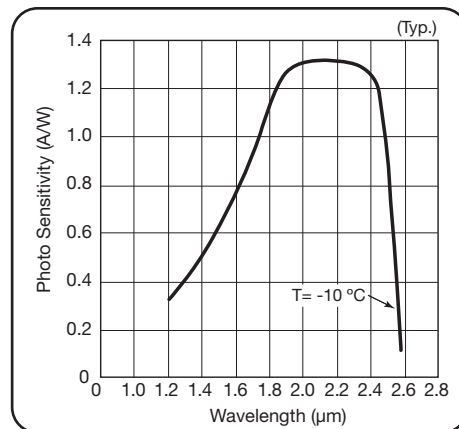
PDA10DT



The PDA10DT uses an extended-range InGaAs detector, making it suitable for detection of light in the 1200-2570 nm spectral range. This detector includes a built-in TEC element and thermistor, which stabilizes the temperature at 10 °C and significantly reduces the detector's dark current and the noise associated with ambient temperature changes. These features allow larger gains and lower DC offsets.

The PDA10DT has an eight-position gain switch, allowing the user to set the gain from 1.51 kV/A to 4.7 MV/A (70 dB); an additional eight-position switch adjusts circuit bandwidth from 500 Hz to 1 MHz for improved noise performance. To further increase performance, the photodetector uses a bias voltage for the first two gain steps and an unbiased (photovoltaic) mode for the remaining six positions. This combination allows high-speed operation in the lower gain setting and high-precision measurements in the higher gain settings.

The PDA10T housing features internal SM1 threading, is post-mountable via an #8-32 thread (M4 x 0.7 on -EC versions), and has 50  $\Omega$  drive capability using a BNC output.



## Specifications

- **Detector Material:** Extended Range InGaAs
- **Active Diameter:** 1 mm
- **Wavelength Range:** 1200 to 2570 nm
- **Peak Responsivity:** 1.1 A/W
- **Number of Gain Steps:** 8
- **Gain Range:** 70 dB or 1.51 kV/A to 4.7 MV/A
- **Low Pass Filter Bandwidth Range:** 500 Hz to 1 MHz
- **Output Voltage:** 0 - 5 V at 50  $\Omega$ , 0 - 10 V at Hi-Z
- **Output Impedance:** 50  $\Omega$
- **Output Current:** 100 mA
- **Output Offset:** 20 mV typ., 45 mV max. @ 10 dB Gain
- **Detector Temperature:** -10 °C
- **TEC Current:** 0.6 A Typical (1 A Max)
- **Thermistor:** 10 k $\Omega$

ITEM#	METRIC ITEM#	\$	£	€	RMB	DESCRIPTION
PDA10DT	PDA10DT-EC	\$ 1,895.00	£ 1,313.50	€ 1,682,50	¥ 16,002.00	Amplified Photodetector with Temperature Controller