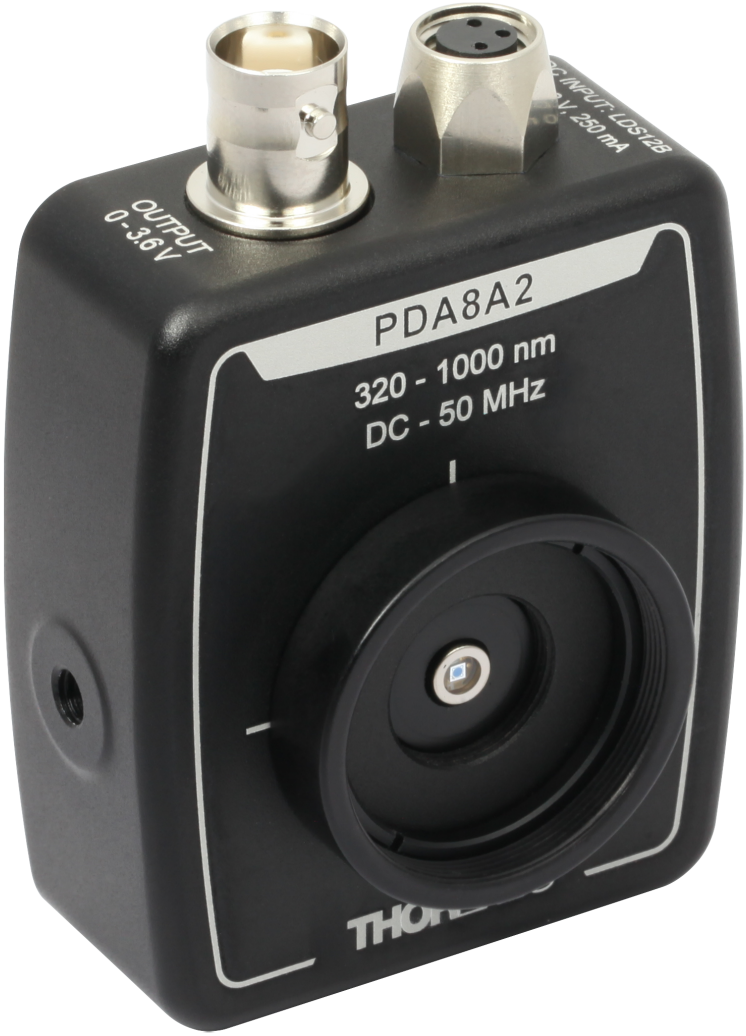
THORLABS

Silicon Amplified Detector

# PDA8A2
# Quick Reference




2022

Version: 1.3
Date: 11-Aug-2022

Item No.: M0009-510-1090

# Contents

**We aim to develop and produce the best solutions for your applications in the field of optical measurement techniques. To help us to live up to your expectations and constantly improve our products, we need your ideas and suggestions. We and our international partners are looking forward to hearing from you.**

***Thorlabs GmbH***

**Warning**

**Sections marked by this symbol explain dangers that might result in personal injury or death. Always read the associated information carefully before performing the indicated procedure.**

**Attention**

**Paragraphs preceded by this symbol explain hazards that could damage the instrument and the connected equipment or may cause loss of data.**

**Note**

**This manual also contains "NOTES" and "HINTS" written in this form.**

**Please read this advice carefully!**

# 1 General Information

The PDA8A2 is a wideband, fixed-gain-amplified silicon detector designed for the detection of light signals from DC to 50 MHz. A buffered output drives up to 1.8 V into 50 Ω input loads. The PDA8A2 is sensitive to light within the wavelength range of 320 nm to 1000 nm. The ultra-low noise design includes an active low-pass filter to prevent aliasing effects and to suppress out of band noise effectively.

The PDA8A2 detector housing can be integrated in optical setups using convenient 8-32 and M4 combi-thread mounting holes that are compatible with both imperial and metric threading.

The housing accommodates Thorlabs' SM05 (0.535"-40) and SM1 (1.025"-40) threaded adapters and accessories. This allows convenient mounting of external optics, light filters, and apertures. The product includes a SM1T1 SM1 Coupler Body which adapts the external thread to an internal thread and holds the SM1RR Retaining Ring and a reusable protective plastic cover cap. For accessories, please visit our website or contact Thorlabs 6.

A ±12 VDC power supply is included with each amplified photodetector. The appropriate input voltage (100 VAC, 120 VAC, 230 VAC) can be selected with a switch on the power supply 2.

**Attention**

Please find all safety information and warnings concerning this product in the chapter Safety 3 in the Appendix.

## 1.1 Ordering Codes and Accessories

**PDA8A2:** Silicon Amplified Photodetector, 320 - 1000 nm, Bandwidth Range DC-50 MHz, Active Area Ø0.8 mm (0.5 mm²), Combi-Thread Mounting Holes Compatible with 8-32 and M4 Threads

### Included Accessories

- LDS12B Power Supply (±12V, 0.2A), 100 VAC, 120 VAC or 230 VAC Line Voltage
- Plastic Cover Cap (Item # SM1EC2B) on an included SM1T1-SM1 Coupler with a SM1RR-SM1 Retaining Ring.

### Optional Accessories

- PDA-C-72 DC power supply cable to PDA8A2: This cable has a connector on one end and open wires at the other. The pin-out of the PDA8A2 DC power jack is shown in the appendix of the full manual.

Please visit our homepage http://www.thorlabs.com for various accessories like fiber adapters, posts and post holders, data sheets and further information.

# 2 Getting Started

## 2.1 Parts List

Please inspect the shipping container for damage. Please do not cut through the cardboard. You might need the box for storage or for returns.

If the shipping container seems to be damaged, keep it until you have inspected the contents and you have inspected the PDA8A2 mechanically and electrically.

Verify that you have received the following items within the package:

1. PDA8A2 Amplified Photodetector
2. Plastic Cover Cap (Item # SM1EC2B) on SM1T1-SM1 Coupler with an SM1RR-SM1 Retaining Ring
3. LDS12B Power Supply (±12V, 0.2A), 100 VAC, 120 VAC or 230 VAC Line Voltage
4. Quick Reference

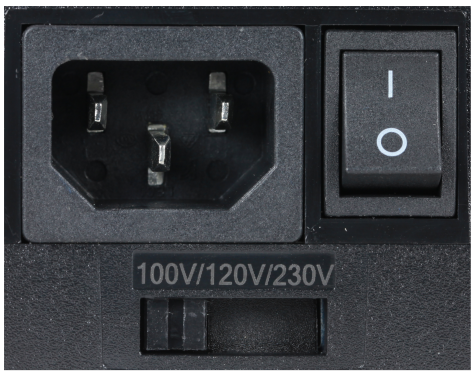
## 2.2 Preparation

**Note**

Prior to operation, please check if the selected line voltage range on the power supply matches your local mains voltage. Please find mounting and operation information in the full manual to be downloaded from the product website.

**Please follow these steps for preparation:**

- Carefully unpack the unit and accessories. If any damage is evident, do not use the unit and contact Thorlabs 6.
- Mount the unit on your optical table or application.
- Remove the plastic cover cap that protects the optical input.
- Mount optional external optics, filters, or apertures.
- Adjust the power supply to accommodate your local mains voltage (100 VAC, 120 VAC, or 230 VAC).




- Connect the power supply 3-pin plug into the mating receptacle on the PDA8A2.
- Plug the power supply into a outlet.
- Switch on the power supply.
- Attach a 50 Ω coaxial cable (i.e. RG-58U) to the output of the PDA8A2. When running cable lengths longer than 12” we recommend terminating the opposite end of the coax with a 50 Ω resistor (Thorlabs p/n T4119) for maximum performance.
- Connect the remaining end to a measurement device.

# 3 Appendix

## 3.1 Safety

**Attention**

The safety of any system incorporating the equipment is the responsibility of the assembler of the system.

All statements regarding safety of operation and technical data in this instruction manual will only apply when the unit is operated correctly as it was designed for.

The PDA8A2 must not be operated in explosion endangered environments.

Do not remove covers. There are no user-serviceable parts inside.

This precision device is only serviceable if returned and properly packed into the complete original packaging including the cardboard insert that holds the enclosed devices. If necessary, ask for replacement packaging. Refer servicing to qualified personnel.

Changes to this device cannot be made nor may components not supplied by Thorlabs GmbH be used without written consent from Thorlabs GmbH.

**Attention**

Prior to applying power to the PDA8A2, make sure that the protective conductor of the 3 conductor mains power cord is correctly connected to the protective earth ground contact of the socket outlet! Improper grounding can cause electric shock resulting in damage to your health or even death!

Ensure that the line voltage setting of the power supply agrees with your local supply and that the corresponding fuses are inserted. If not, please change the line voltage setting (see section Preparation 2).

To avoid risk of fire, only the appropriate fuses for the corresponding line voltage must be used.

All modules must only be operated with duly shielded connection cables.

Users that change or modify the product described in this manual in a way not expressly approved by Thorlabs GmbH (party responsible for compliance) could void the user's authority to operate the equipment.

Thorlabs GmbH is not responsible for any radio television interference caused by modifications of this equipment or the substitution or attachment of connecting cables and equipment other than those specified by Thorlabs GmbH. The correction of interference caused by such unauthorized modification, substitution or attachment will be the responsibility of the user.

The use of shielded I/O cables is required when connecting this equipment to any and all optional peripheral or host devices. Failure to do so may violate FCC and ICES rules.

**Attention**

Mobile telephones, cellular phones or other radio transmitters are not to be used within the range of three meters of this unit since the electromagnetic field intensity may then exceed the maximum allowed disturbance values according to IEC 61326-1.

## 3.2 Certifications and Compliances

# EU Declaration of Conformity

*in accordance with EN ISO 17050-1:2010*

*We:* Thorlabs GmbH

*Of:* Münchner Weg 1, 85232 Bergkirchen, Deutschland

*in accordance with the following Directive(s):*

| | |
|---|---|
| 2014/35/EU | Low Voltage Directive (LVD) |
| 2014/30/EU | Electromagnetic Compatibility (EMC) Directive |
| 2011/65/EU | Restriction of Use of Certain Hazardous Substances (RoHS) |

*hereby declare that:*

*Model:* ***PDAVJ5/8/10, PDA20C2, PDA8A2, PDF10A2, PDF10C2***

*Equipment:* ***Variable-/ Fixed Gain Amplified Detector***

*is/are in conformity with the applicable requirements of the following documents:*

| | | |
|---|---|---|
| EN 61010-1 | Safety Requirements for Electrical Equipment for Measurement, Control and Laboratory Use. | 2010 + A1:2019 + AC:2019. |
| EN 61326-1 | Electrical Equipment for Measurement, Control and Laboratory Use - EMC Requirements | 2013 |

*and which, issued under the sole responsibility of Thorlabs, is/are in conformity with Directive 2011/65/EU of the European Parliament and of the Council of 8th June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment, for the reason stated below:*

does not contain substances in excess of the maximum concentration values tolerated by weight in homogenous materials as listed in Annex II of the Directive

*I hereby declare that the equipment named has been designed to comply with the relevant sections of the above referenced specifications, and complies with all applicable Essential Requirements of the Directives.*

*Signed:* *On:* 20 November 2019

*Name:* Bruno Gross

*Position:* General Manager

*EDC - PDAVJ5/8/10, PDA20C2, PDA...*

CE

## 3.3 Manufacturer Address

**Manufacturer Address Europe**
Thorlabs GmbH
Münchner Weg 1
D-85232 Bergkirchen
Germany
Tel: +49-8131-5956-0
Fax: +49-8131-5956-99
www.thorlabs.de
Email: europe@thorlabs.com

**EU-Importer Address**
Thorlabs GmbH
Münchner Weg 1
D-85232 Bergkirchen
Germany
Tel: +49-8131-5956-0
Fax: +49-8131-5956-99
www.thorlabs.de
Email: europe@thorlabs.com

## 3.4 Return of Devices

This precision device is only serviceable if returned and properly packed into the complete original packaging including the complete shipment plus the cardboard insert that holds the enclosed devices. If necessary, ask for replacement packaging. Refer servicing to qualified personnel.

## 3.5 Warranty

Thorlabs warrants material and production of the PDA8A2 for a period of 24 months starting with the date of shipment in accordance with and subject to the terms and conditions set forth in Thorlabs' General Terms and Conditions of Sale which can be found at:

General Terms and Conditions:

https://www.thorlabs.com/Images/PDF/LG-PO-001_Thorlabs_terms_and_%20agreements.pdf

and

https://www.thorlabs.com/images/PDF/Terms%20and%20Conditions%20of%20Sales_Thorlabs-GmbH_English.pdf

## 3.6 Copyright and Exclusion of Reliability

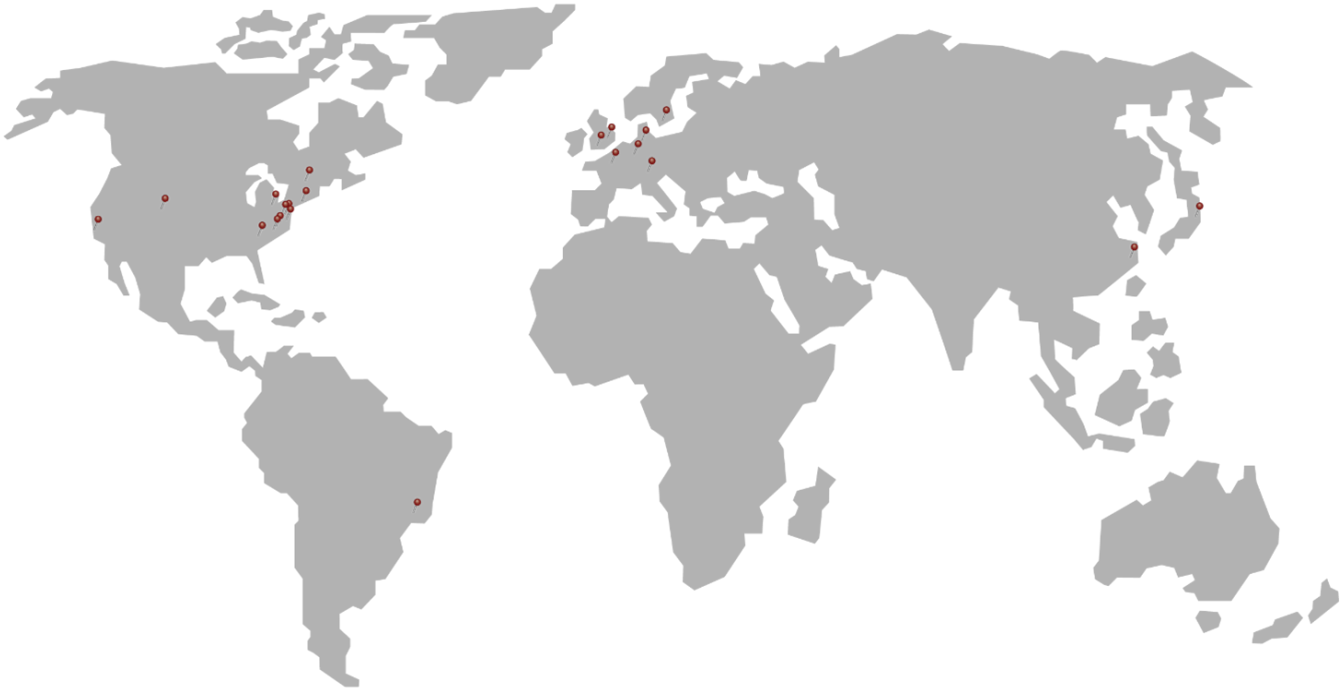
Thorlabs has taken every possible care in preparing this document. We however assume no liability for the content, completeness or quality of the information contained therein. The content of this document is regularly updated and adapted to reflect the current status of the product.



Please refer to the general terms and conditions linked under Warranty 5.

## 3.7 Thorlabs Worldwide Contacts and WEEE policy

For technical support or sales inquiries, please visit us at
https://www.thorlabs.com/locations.cfm for our most up-to-date contact information.



**USA, Canada, and South America**
Thorlabs, Inc.
sales@thorlabs.com
techsupport@thorlabs.com

**UK and Ireland**
Thorlabs Ltd.
sales.uk@thorlabs.com
techsupport.uk@thorlabs.com

**Europe**
Thorlabs GmbH
europe@thorlabs.com

**Scandinavia**
Thorlabs Sweden AB
scandinavia@thorlabs.com

**France**
Thorlabs SAS
sales.fr@thorlabs.com

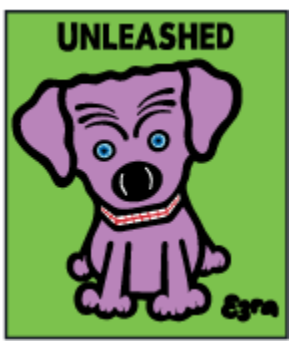
**Brazil**
Thorlabs Vendas de Fotônicos Ltda.
brasil@thorlabs.com

**Japan**
Thorlabs Japan, Inc.
sales@thorlabs.jp

**China**
Thorlabs China
chinasales@thorlabs.com

### Thorlabs 'End of Life' Policy (WEEE)

Thorlabs verifies our compliance with the WEEE (Waste Electrical and Electronic Equipment) directive of the European Community and the corresponding national laws. Accordingly, all end users in the EC may return “end of life” Annex I category electrical and electronic equipment sold after August 13, 2005 to Thorlabs, without incurring disposal charges. Eligible units are marked with the crossed out “wheelie bin” logo (see right), were sold to and are currently owned by a company or institute within the EC, and are not dissembled or contaminated. Contact Thorlabs for more information. Waste treatment is your own responsibility. “End of life” units must be returned to Thorlabs or handed to a company specializing in waste recovery. Do not dispose of the unit in a litter bin or at a public waste disposal site. It is the users responsibility to delete all private data stored on the device prior to disposal.




THORLABS

www.thorlabs.com