THORLABS

Optical Power and Energy Meter

PM400
Quick Start



2025

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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!

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1 General Information

The PM400 Handheld Optical Power and Energy Meter is designed to measure the optical power of laser light or other monochromatic or near monochromatic light sources and the energy of pulsed light sources. Further the PM400 allows to process and display positional information from S44xC Thermal Position Sensors.

Measurements can be controlled either on the device screen or through remote control software. The remote control software Optical Parameter Monitor (OPM), including drivers and applications for LabVIEW™ and C, makes it easy to integrate the instrument in test and measurement systems. The software package can be downloaded from https://www.thorlabs.com/software_pages/ViewSoftwarePage.cfm?Code=OPM.

The space-saving, battery powered design is compatible with all Thorlabs “C-Series” Photodiode, Thermal Power, and Thermal Position, Pyroelectric sensors, and custom Photodiode, Thermal, and Pyroelectric detectors. Combined with a fast USB device interface, these features open a wide range of applications in Manufacturing, Quality Control, Quality Assurance, and R&D for stationary and field use.

Please refer to the user manual for detailed functional description. It can be downloaded from https://www.thorlabs.com/_sd.cfm?fileName=MTN007145-D02.pdf&partNumber=PM400.

Scanning the QR code, your smartphone or tablet will open the website and instantly start the download of the PDF file in the background.

Attention

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

1.1 Ordering Codes and Accessories

Ordering Code	Description
PM400	Handheld Power / Energy Meter Console

Included Accessories

- BNC-to-3.5-mm adapter for Analog output
- USB cable A to Mini-B

Optional Accessories

- PM400-PMA post-mount adapter – fix to back with two M3 screws
- PM400-AUX adapter card with GPIO ports and a sensor for ambient temperature and relative humidity measurement.
- TSP-TH external NTC (thermistor temperature sensor)

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

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1.2 Requirements

The software Optical Parameter Monitor (OPM) for remote operation of the PM400 requires PC hardware and software environment as specified on the software website.

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2 Getting Started

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, inspect the contents for completeness and test the PM400 mechanically and electrically. Keep the container for storage or in order to return the product in case of future problems.

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

2.1 Parts List

1. PM400 Optical Power Meter Console
2. BNC-to-3.5-mm-Audio Adapter for Analog output
3. USB cable A to Mini-B
4. Quick Reference
5. Certificate of Calibration

2.2 PM400 Basic Setup

- For first use, connect the PM400 to a suitable charging device and charge the battery for 4 hours.
- Connect an optical sensor of the Thorlabs C-Series (red DSUB connector) to the DSUB jack (4) on the top of the device.
- Switch on the PM400.
- The PM400 starts in the last view that was used before shutdown.

To use remote operation through the Thorlabs OPM software,

- Download and install the Optical Parameter Monitor software on the device that will be used to control the power meter interface (PC, laptop or tablet).

  Note

  Install the software prior to connecting the power meter interface to the PC.
- Connect the PM400 to a PC or other power source via the USB port

Note

For detailed instructions on controlling of the PM400 through the OPM software, please download the OPM manual.

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3 Appendix

3.1 Safety

Attention

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 power meter PM400 must not be operated in explosion endangered environments!

All modules, sensors and externally connected devices must only be operated with properly shielded connection cables.

Only with written consent from Thorlabs may changes to single components be carried out or components not supplied by Thorlabs be used.

Do not remove covers!

This precision device is only serviceable if properly packed into the complete original packaging including the plastic foam sleeves. If necessary, ask for a replacement package.

Note

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

3.2 Manufacturer Address

Manufacturer Address Europe
Thorlabs GmbH
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3.3 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):

2014/30/EU	Electromagnetic Compatibility (EMC) Directive
2011/65/EU	Restriction of Use of Certain Hazardous Substances (RoHS)

hereby declare that:

Model: ***PM400***

Equipment: ***Optical Power and Energy Meter***

is in conformity with the applicable requirements of the following documents:

EN 61326-1	Electrical Equipment for Measurement, Control and Laboratory Use - EMC Requirements	2013
EN 61010-1	Safety Requirement for Electrical Equipment for Measurement, Control and Laboratory Use	2010

and which, issued under the sole responsibility of Thorlabs, is 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:* 19 November 2019

Name: Bruno Gross

Position: General Manager

EDC - PM400 -2019-11-19

CE

3.4 Warranty

Thorlabs warrants material and production of the PM400 for a period of 24 months starting with the date of shipment. During this warranty period Thorlabs will see to defaults by repair or by exchange if these are entitled to warranty.

For warranty repairs or service the unit must be sent back to Thorlabs. The customer will carry the shipping costs to Thorlabs, in case of warranty repairs Thorlabs will carry the shipping costs back to the customer.

If no warranty repair is applicable the customer also has to carry the costs for back shipment.

In case of shipment from outside EU duties, taxes etc. which should arise have to be carried by the customer.

Thorlabs warrants the hard- and/or software determined by Thorlabs for this unit to operate fault-free provided that they are handled according to our requirements. However, Thorlabs does not warrant a fault free and uninterrupted operation of the unit, of the software or firmware for special applications nor this instruction manual to be error free. Thorlabs is not liable for consequential damages.

Restriction of Warranty

The warranty mentioned before does not cover errors and defects being the result of improper treatment, software or interface not supplied by us, modification, misuse or operation outside the defined ambient stated by us or unauthorized maintenance.

Further claims will not be consented to and will not be acknowledged. Thorlabs does explicitly not warrant the usability or the economical use for certain cases of application.

Thorlabs reserves the right to change this instruction manual or the technical data of the described unit at any time.

3.5 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 hardware and/or software. We furthermore do not guarantee that this product will function without errors, even if the stated specifications are adhered to.

Under no circumstances can we guarantee that a particular objective can be achieved with the purchase of this product.

Insofar as permitted under statutory regulations, we assume no liability for direct damage, indirect damage or damages suffered by third parties resulting from the purchase of this product. In no event shall any liability exceed the purchase price of the product.

Please note that the content of this document is neither part of any previous or existing agreement, promise, representation or legal relationship, nor an alteration or amendment thereof. All obligations of Thorlabs result from the respective contract of sale, which also includes the complete and exclusively applicable warranty regulations. These contractual warranty regulations are neither extended nor limited by the information contained in this document. Should you require further information on this product, or encounter specific problems that are not discussed in sufficient detail in the document, please contact your local Thorlabs dealer or system installer.

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3.6 Thorlabs 'End of Life' Policy



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.

3.7 Thorlabs Worldwide Contacts

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



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