



**Environmental Measurement**

# **TSP01 Quick Reference**



**2022**

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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!

# 1 General Information


The TSP01 is a device of the size of a USB thumb drive that can be plugged to any USB port for reading up to three different temperature values and relative humidity.

The combined humidity and temperature sensor is embedded into the USB stick size part. A second NTC temperature sensor [TSP-TH](#) with a 1.5m cable is included and can be connected to the housing. A third optional temperature sensor (not included) can be plugged to the USB housing. External temperature sensors can be an additional Thorlabs [TSP-TH](#) or any other NTC type sensor.

The Thorlabs [TSP01 application software](#) as well as the software Optical Power Monitor ([OPM](#)) support the TSP01 sensor. Both allow to enter individual NTC parameters, such as R0 (reference resistance), T0 (reference temperature) and the B coefficient. With both software packages, the TSP01 can be run and data can be displayed in a separate GUI. Alternatively, the TSP01 can be run from the Thorlabs' [Beam Profiler Software](#).

To write a separate, custom made application or use a third party GUI, please see the chapter Write-Your-Own-Application in the full TSP01 manual to be downloaded from the product [webpage](#).

## Attention

Please find all safety information and warnings concerning this product in the chapter [Safety](#)  in the Appendix.

## 1.1 Ordering Codes and Accessories

TSP01	Temperature and Humidity USB Sensor Probe with external temperature sensor
<a href="#">TSP-TH</a>	External temperature probe for TSP01

## 2 Getting Started

### 2.1 Parts List

Inspect the shipping container for damage.

If the shipping container seems to be damaged, keep it until you have inspected the contents for completeness and tested the TSP01 mechanically and electrically.

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

1. TSP01: Temperature and Humidity USB Sensor Probe
2. TSP-TH: External Temperature Probe for TSP01
3. USB Extension Cable, 1.8 m
4. Quick Reference

### 2.2 Requirements

The TSP01 is controlled and data read out is monitored through software on a connected PC.

Users have the choice to either use the:

Thorlabs [TSP01 Application](#) software

Thorlabs [Optical Power Monitor](#) (OPM) software

Thorlabs [Beam Profiler](#) software

Users are also free to write a separate application or use a third party GUI. For this, please see the chapter Write-Your-Own-Application in the full TSP01 manual to be downloaded from the product [webpage](#).

The following are the requirements for the PC to be used for remote operation of the TSP01.

#### 2.2.1 Hardware Requirements

CPU	1 GHz or higher
RAM	512 MB or more
Graphic Card	at least 32 MB memory
Graphic Resolution	min. 1024 x 768
Hard Disc	min. 100 MB of available disk space (32 bit) min. 100 MB of available disk space (64 bit)
Interface	free USB 2.0 port, USB cable according the USB 2.0 specification

#### 2.2.2 Software Requirements

The TSP01 software is compatible with the following operating systems:

- Windows® XP (32-bit) SP3
- Windows® Vista (32-bit, 64-bit)
- Windows® 7 (32-bit, 64-bit)
- Windows® 8.1 (32-bit, 64-bit)
- Windows® 10 (32-bit, 64-bit)

#### Note

As of 12/2018, Thorlabs introduces the TSP01 revision B. These revised TSP01 devices are labeled "RevB" on the bottom and use an instrument driver that no longer requires NI-VISA™. For operation of the previous version of the TSP01 without the RevB label, NI-VISA™ (version 5.1 or higher) is required for the driver.

The NI-VISA™ engine can be installed from the following sources:

- The software CD shipped with previous-revision TSP01 sensors (not labeled RevB). The installer includes NI-VISA™.
- The National Instruments' website [www.ni.com](http://www.ni.com)

## 2.3 Software Installation

Please download the TSP01 Application from the software tab on the TSP01 [website](#).

### **Attention**

Do not connect the TSP01 to the PC during software installation! Please make sure that the installation is carried out completely, including the reboot requests.

- Save the ZIP file to your computer and unpack the archive.
- Double click the setup.exe to install Shield Wizard.
- Read and accept the End-user License Agreement.
- Note the Readme Information during the installation process:

"V 2.0: - Temperature sensor TSP01 RevB supported (includes a new library TLTSPB)  
- NIVISA Runtime removed from installer. "

NI-VISA™ has been removed from the installer since it is not required for TSP01 sensors labeled "RevB". TSP01 sensors without the RevB label will require the installation of NI-VISA™ software.

### 3 Operating Instructions

After installation of the software connect the TSP01 to a free USB 2.0 port.

#### Note

The TSP01 should always be positioned away from heat and humidity sources that are not of interest for the measurement to prevent background. For this, the 1.8 m USB cable is supplied to position the TSP01 away from the PC/HUB.

The operating system recognizes a USB device and automatically installs the device drivers.

Start the GUI from the desktop icon.



For detailed information on how to use the TSP01 Application software, please see the chapter Detailed GUI Description in the full manual or the online help of the TSP01 Application software.

Alternatively, the TSP01 can be operated with the Optical Power Monitor software or the Beam Profiler software. For instructions on use with the OPM software or beam profiler software, please see the respective manuals on the Thorlabs website.



## 4 Maintenance and Service

Protect the TSP01 from adverse weather conditions. The TSP01 is not water resistant.

The unit does not need a regular maintenance by the user. There are no serviceable parts in the TSP01.

If you suspect a problem with your TSP01, please read the section [Safety](#)<sup>8</sup> and contact [Thorlabs](#)<sup>11</sup> tech support and an engineer will be happy to assist you.

### **Attention**

**To avoid damage to the instrument, do not expose it to spray, liquids or solvents!**

### 4.1 Version Information

Information on the software version can be retrieved via the menu **Help -> About**:

Please keep this information ready when contacting [Thorlabs](#)<sup>11</sup>.

### **Note**

For Information on the TSP01 device version number, please see the bottom of the device for the serial number.

## 5 Appendix

### 5.1 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 TSP01 must not be operated in explosion endangered environments!

Do not obstruct the air ventilation slots in the housing! Do not remove covers or open the cabinet. 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 plastic foam sleeves. 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 be used without written consent from Thorlabs.

#### Attention

The following statement applies to the products covered in this manual, unless otherwise specified herein. The statement for other products will appear in the respective accompanying documentation.

#### Note

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules and meets all requirements of the Canadian Interference-Causing Equipment Standard ICES-003 for digital apparatus. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/T.V. technician for help.

Users that change or modify the product described in this manual in a way not expressly approved by Thorlabs (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. 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.

This product has been tested and found to comply with the limits according to IEC 61326-1 for using connection cables shorter than 3 meters (9.8 feet).

## 5.2 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):*

2014/30/EU                      Electromagnetic Compatibility (EMC) Directive

2011/65/EU                      Restriction of Use of Certain Hazardous Substances (RoHS)

*hereby declare that:*

**Model:** *TSP01*

**Equipment:** *USB Temperature and Humidity Logger*

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

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

*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:** 21 November 2019

**Name:** Bruno Gross

**Position:** General Manager

EDC - TSP01 -2019-11-21



## 5.3 Warranty

Thorlabs warrants material and production of the TSP01 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.

## 5.4 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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## 5.5 Thorlabs Worldwide Contacts

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



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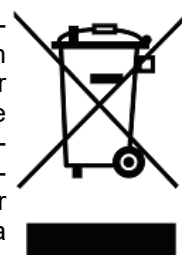
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### China

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 disassembled 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.





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