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>Optical Power and Energy Meters >>Thermal Power Sensors (C-Series)

# Thermal Power Sensors (C-Series)

- ► Power Ranges Covering 10 µW to 200 W
- ► Wavelength Ranges Covering 190 nm to 25 µm
- ► Broadband Coatings with High Damage Thresholds

► Special Sensors for Excimer & YAG Lasers







Related Items

Touch Screen Power and **Energy Mete** 







S350C For Excimer



S305C Compact Dimensions



S401C High Sensitivity Down to 10 µW



18 mm x 18 mm Aperture Size for Use with Microscopes

S322C Ø25 mm Aperture Size, Shown with Included SM1 Adapter (Post Holder Not Included)

Overview

Specs Pin Diagrams Console Selection Sensor Selection Feedback

#### **Features**

- Relatively Flat Spectral Response over a Large Wavelength Range (See Plots Below)
- Five Models Feature Over-Temperature Alert Sensor (See Specs Tab for Details)
- Individually Calibrated with NIST- and PTB-Traceable Certificate of Calibration plus Embedded Calibration Curve and Sensor Settings
- C-Series Connector for Quick Sensor Connection to Our Power Meter Consoles

Thorlabs' C-Series Thermal Power Sensors are collectively able to detect power ranges from 10 µW to 200 W and wavelength ranges from 190 nm to 25 µm. Compared to photodiode sensors, thermal sensors generally have wider wavelength and power detection ranges but with a lower power resolution and with longer response times. These sensors are well suited for use in a wide range of applications, particularly those requiring a flat spectral response and detection of low to middle power ranges. They are additionally useful for applications with ultrashort pulses where high peak power would saturate a photodiode

Several of our thermal power sensors are specialized for particular applications. The S322C is designed for high optical powers up to 200 W (250 W for an exposure time of less than 2 minutes). The S305C sensor has a very compact footprint of just 40.7 mm x 40.7 mm x 18 mm (1.6" x 1.6" x 0.71"). It is designed for applications where space and accessibility are at a premium. For applications involving low power, the S401C sensor functions with power levels down to 10 µW, making it ideal for measuring and aligning Quantum Cascade Lasers (QCLs), which have high divergence due to their MIR wavelength output. The S350C, S370C, and S470C are optimized for special laser applications (i.e., Excimer and YAG Lasers), which require high-peak-power damage thresholds. Finally, the S175C Microscope Slide Thermal Sensor is designed to measure the optical power at the sample in a microscope setup and features a 76 mm x 25.2 mm footprint matching those of standard microscope slides.

Thorlabs' thermal sensors are designed to function with our power meter consoles so that the incident power can be determined after a single time constant of the sensor. As a result, our C-series thermal sensors have relatively low response times compared to other thermal sensors. We offer sensors using both thermal surface absorbers and thermal volume absorbers. Thermal volume absorbers have significantly higher responsivities, which allow them to detect very low power levels and short (ns) pulses. However, this improvement usually comes at the expense of response time. The S401C sensor is an exception, as it offers a similar response time to our fastest surface absorber thermal sensors without sacrificing the sensitivity needed for low power measurements.

## Compatibility

All sensors are connected to the power meter console via the C-Series connector, which offers quick sensor exchange. These sensors are compatible with our current power meter console offering but cannot be

The sensors sold here (except the S175C) can be mounted on our <u>Ø1/2" Posts</u> using an 8-32, M4, or M6 tap; a 60 mm or 75 mm tall post is included with all of these sensors except the S305C, S401C, and S470C sensors (see the Specs tab for details). Additionally, many of our thermal sensors are compatible with <u>30 mm cage systems</u>, <u>Ø1" lens tube systems</u>, and our fiber adapters (sold below). Please refer to the Specs tab for more information.

### Calibration

Each sensor head is individually calibrated and is shipped with a NIST- and PTB-Traceable Calibration Certificate. The calibration and identification data is stored in the connector of the sensor and is downloaded automatically to the connected power meter console. For more information on sensor calibration, please see the Calibration tab on our Power Meter and Sensor Tuto

Thorlabs offers specific recalibration services for all our thermal power sensors. To ensure accurate measurements, we recommend recalibrating the sensors annually. Please contact our tech support team for recalibration information and pricing.

# Sensor Upgrade Service

All C-Series Sensors are incompatible with former generation power meter consoles with non-C-Series connectors. We offer a sensor upgrade service if you want to use your existing sensors with a new power meter console with a C-Series connector. Note: upgraded sensors will be incompatible with old power meter consoles with non-C-Series connectors. Please contact our tech support team for details,

Thermal Power Sensors Selection Guide							
Type <u>Standard</u> <u>Slim</u> <u>High Sensitivity</u> <u>Microscope Slide</u> <u>Excimer Lasers</u> <u>YAG Lasers</u>							
Power Range	100 μW <b>-</b> 200 W <sup>a</sup>	10 mW - 5 W	10 μW - 1 W	100 μW <b>-</b> 2 W	10 mW - 40 W	100 μW - 10 W <sup>b</sup>	
Wavelength Range	0.19 <b>-</b> 25 μm <sup>a</sup>	0.19 <b>-</b> 25 µm	25 μm 0.19 - 10.6 μm 0.3 - 10.6 μm 0.19 - 1.1 μm, 10.6 μm (		0.25 - 10.6 μm <sup>b</sup>		
Typical Application	General Measurement	Tight Places	Low Power	Microscope Alignment and Calibration	Very Large Sensor Area for Excimer Lasers	High Peak Power for YAG Lasers	

- a. Combined Range for All Standard Sensors b. Combined Range for All Sensors for YAG Lasers

# Standard Thermal Sensors

For General Broadband Optical Power Measurements

http://www.thorlabs.com/newgrouppage9.cfm?objectgroup id=3333

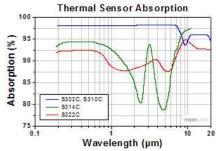
Broadband Coatings with Flat Response over a Large Wavelength Range

Available Aperture Sizes Between Ø9.3 mm and Ø25 mm (See Table Below)

Compatible with the PM200, PM100D, PM100USB, PM100A, and PM320E Consoles

Thorlabs' Standard Thermal Power Sensors are designed for broadband optical power measurements of low ( $100 \mu W$ ) to high ( $200 \mu W$ ) power sources. Each thermal sensor's broadband coating has a flat spectral response over a wide wavelength range, as shown in the plot to the right,

NIST-traceable response curves are stored in the sensor connector. Aperture sizes from Ø9.3 mm to Ø25 mm allow easy alignment and measurement of large-spot-size laser sources. These sensors feature external SM1 (1.035"-40) threading on the front for easy integration into existing cage and lens tube systems in addition to fiber coupling applications.



Click to Enlarge
The S302C and S310C sensors have the same absorption curve as the S305C thermal sensor (sold below).

	curve as the S305C thermal sensor (sold below).					
Item #	S302C	S310C	S314C	S322C		
Sensor Image (Click Image to Enlarge)				S Inni		
Aperture Size	Ø9.3 mm (Ø12 mm with Black SM1-Threaded Shield Removed)	Ø20 mm	Ø25 mm			
Wavelength Range	0.19 - 25 μm	0.19 <b>-</b> 25 μm	0.25 - 11 μm	0.25 - 11 μm		
Power Range	100 μW - 2 W	10 mW - 10 W	10 mW - 40 W 100 mW - 200			
Detector Type	Stabilized Thermal Absorber		Thermal Surface Absorber			
Linearity		±1	1%			
Resolution <sup>a</sup>	1 μW	200 μW	1 mW	5 mW		
Measurement Uncertainty <sup>b</sup>	±3% @ 1064 nm ±5% @ 190 - 2940 nm	±3% @ 1064 nm ±5% @ 190 - 1064 nm	±3% @ 1064 nm ±5% @ 250 - 2940 nm	±3% @ 1064 nm ±5% @ 266 - 1064 nm		
Response Time <sup>c</sup>	3 s	<	1 s	1 s		
Cooling		Convection (Passive)		Active Fan Cooling		
Housing Dimensions	Ø40 mm x 50 mm	55 mm x 55 mm x 54 mm	100 mm x 100 mm x 55 mm	100 mm x 100 mm x 87 mm		
Cable Length		1.5	5 m			
Post Mounting	M4, 60 mm Long <u>Ø1/2"</u> <u>Post</u> Included	M6, 75 mm Long <u>Ø1/2" Post</u> Included				
Cage Mounting	N/A	30 mm	Cage Systems via Four 4-40 Tappe	d Holes		
Aperture Thread	Externally SM1 (1.035"-40) Threaded for Ø1" Lens Tubes and Fiber Adapters	SM1-Threaded (1.035"-40) Adapter Plate for <u>Ø1" Lens Tubes</u> and Fiber Adapters				

- a. Measurement taken with the PM100D console with the acceleration circuit switched off. Resolution performance will be similar with our other power meter consoles.
- b. For all of these sensors except the S314C: spectral calibration (the response values for wavelength correction outside of this calibration range) is interpolated from the general absorption curve for the absorber. Other calibration wavelengths are available on request.
- c. Measured with display (0 90%).

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+1	Qty	Docs	Part Number - Universal	Price	<u>Availal</u>	ble / Ships
+1日			S302C Thermal Power Sensor, Stabilized, 0.19 - 25 μm, 2 W	\$711.00	<b>√</b>	Today
+1戸			<b>S310C</b> Thermal Power Sensor, Surface Absorber, 0.19 - 25 μm, 10 W	\$711.00	✓	Today
+1戸			<b>S314C</b> Thermal Power Sensor, Surface Absorber, 0.25 - 11 μm, 40 W	\$881.00	✓	Today
+1日			S322C Thermal Power Sensor, Surface Absorber, 0.25 - 11 μm, 200 W, Fan Cooled	\$1,300.00	<b>√</b>	Today
Ad	d To Cart					

## **Slim Thermal Sensor**

Item #	S305C	
Sensor Image (Click Image to Enlarge)		
Aperture Size	Ø10 mm	
Wavelength Range	0.19 - 25 μm	
Power Range	10 mW - 5 W	
Detector Type	Thermal Surface Absorber	
Linearity	±1%	

Housing Dimensions: 40.7 mm x 40.7 mm x 18 mm (1.6" x 1.6" x 0.71")

For General Broadband Optical Power Measurements

Ø10 mm Aperture Size

Broadband Coating with Flat Response over a Large Wavelength Range

Compatible with the PM200, PM100D, PM100USB, PM100A, and PM320E Consoles

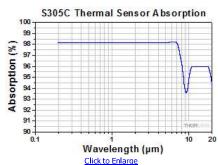
30 mm Cage System and SM1 Lens Tube Compatible

The S305C Slim Thermal Power Sensor is designed for detecting broadband optical powers from 10 mW - 5 W sources. Its slim profile makes it particularly useful in tight spaces. The broadband coating used on this thermal sensor features a flat response over a wide range of wavelengths, as shown in the plot to the right.

NIST-traceable response curves are stored in the sensor connector. The aperture size of  $\emptyset$ 10 mm allows easy alignment and measurement of laser sources with large spot sizes. The Slim Thermal Sensor features external SM1 (1.035"-40) threading on the front for integration into existing  $\emptyset$ 1" lens tube systems in addition to fiber coupling applications, and it also offers 4-40 taps at three corners that are compatible with our 30 mm cage systems. The sensor housing has virtually the same dimensions as a 30 mm cage plate. For use in particularly tight spaces, the front adapter can be removed to reduce the thickness from 18 mm to 15 mm.

Resolution <sup>a</sup>	100 μW		
Measurement Uncertainty <sup>b</sup>	±3% @ 1064 nm; ±5% @ 190 - 2940 nm		
Response Time <sup>c</sup>	<1 s		
Cooling	Convection (Passive)		
Housing Dimensions	40.6 mm x 40.6 mm x 18 mm (1.60" x 1.60" x 0.71")		
Cable Length	1.5 m		
Post Mounting	Universal 8-32 / M4 Tap, Post Not Included		
Cage Mounting	3 x 4-40 Threads for <u>30 mm Cage</u> <u>Compatibility</u>		
Aperture Thread	SM1 (1,035"-40) External Thread for <u>Ø1" Lens Tubes</u> and <u>Fiber Adapters</u>		

- a. Measurement taken with the PM100D console with the acceleration circuit switched off.
- Spectral calibration (the response values for wavelength correction outside of this calibration range) is interpolated from the general absorption curve for the absorber. Other calibration wavelengths are available on request.
- c. Measured with display (0 90%).



The S305C sensor has the same absorption curve as the S302C and S310C thermal sensors featured above.

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## **High-Sensitivity Thermal Sensor**

Item #	S401C			
Sensor Image (Click Image to Enlarge)				
Aperture Size	Ø10 mm			
Wavelength Range	0.19 - 10.6 μm			
Power Range	10 μW - 1 W (3 W <sup>a</sup> )			
Detector Type	Stabilized Thermal Volume Absorber			
Linearity	±0.5%			
Resolution	1 μW			
Measurement Uncertainty <sup>b</sup>	±3% @ 1064 nm; ±5% @ 190 nm - 10.6 μm			
Response Time	<1 s			
Cooling	Convection (Passive)			
Housing Dimensions	33.0 m x 43.0 mm x 18.5 mm (1.30" x 1.69" x 0.73")			
Cable Length	1.5 m			
Post Mounting	Universal 8-32 / M4 Tap, Post Not Included			
Cage Mounting	N/A			
Aperture Thread	SM1 (1.035"-40) External Thread for Ø1" Lens Tubes and Fiber Adapters			

- a. With Intermittent Use (Maximum Exposure Time of 20 Minutes)
- b. Beam Diameter: >1 mm

For Broadband Optical Power Measurements Down to 10 µW Housing Dimensions: 33.0 mm x 43.0 mm x 18.5 mm (1.30" x 1.69" x 0.73")

Ø10 mm Aperture Size

Compatible with the  $\underline{\sf PM200}$ ,  $\underline{\sf PM100D}$ ,  $\underline{\sf PM100USB}$ ,  $\underline{\sf PM100A}$ , and  $\underline{\sf PM320E}$  Consoles

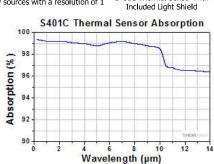
Included Adapter with External SM1 Threading (1.035"-40)

29.4 mm (1.16") Long, Removable Light Shield Included (See Photo to the Right)

The S401C High-Sensitivity Thermal Sensor is designed for detecting broadband optical powers from 10  $\mu W$  to 1 W sources with a resolution of 1  $\mu W$ . The broadband coating used on this

µW. The broadband coating used on this thermal sensor offers high absorption at wavelengths between 0.19 and 10.6 µm (shown in the plot below and to the right), which makes the sensor ideal for use with aligning and measuring Mid-IR Quantum Cascade Lasers (QCLs).

This sensor uses a thermal volume absorber, as these typically have significantly higher responsivities than thermal surface absorbers for detecting very low power levels and short (ns) pulses. However, this improvement usually comes at the expense of response time. The S401C sensor provides the best of both worlds, as it offers a similar response time to our fastest surface absorber thermal sensors (<1 s) without sacrificing the sensitivity needed for low power measurements.



Click to Enlarge S401C Thermal Sensor with

The sensor aperture size of  $\emptyset$ 10 mm allows easy alignment and measurement of laser sources with large spot sizes. The sensor also includes a removable, externally SM1-threaded (1.035"-40) adapter, which is held to the front of the sensor by two Philips-head screws. This adapter allows the sensor to be used with our  $\emptyset$ 1" lens tubes, our fiber adapters (sold below), and the included, internally SM05-threaded (0.535"-40) light shield, as shown in the photo above and to the right. For use in particularly tight spaces, the adapter can be removed to reduce the thickness from 18.5 mm to 15 mm. The connector stores NIST-traceable calibration curves for the sensor.

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+1	Qty	Docs	Part Number - Universal	Price	<u>Availab</u>	ole / Ships
+1日			$\underline{\textbf{S401C}}  \text{High-Sensitivity Thermal Power Sensor, 0.19 - 10.6 } \mu\text{m, 10 } \mu\text{W - 1 W}$	\$711.00	✓	Today
Add	To Cart	1				

# **Microscope Slide Thermal Sensor**

Item #	S175C

Designed to Measure Light on the Objective Plane of a Microscope 76.0 mm x 25.2 mm Footprint Matches Standard Microscope Slides

Wavelength Range: 300 nm - 10.6 µm

Sensitive to Optical Powers from 100  $\mu W$  to 2 W

Information Stored in Connector

- Sensor Data
- NIST- and PTB-Traceable Calibration Data

Compatible with the PM200, PM100D, PM100USB, PM100A, and PM320E Consoles

#### Thermal Power Sensors (C-Series)

Sensor Image (Click Image to Enlarge) **Active Detector Area** 18 mm x 18 mm Wavelength Range 0.3 - 10.6 μm Power Range 100 uW - 2 W Thermal Volume Absorber **Detector Type** Linearity Resolutiona 10 μW +3% @ 1064 nm Measurement ±5% @ 300 nm - 10.6 μm Uncertainty<sup>b</sup> Response Time 76 mm x 25.2 mm x 4.8 mm **Housing Dimensions** (2.99" x 0.99" x 0.19") Cable Length 1.5 m N/A Post Mounting **Cage Mounting** N/A

- a. Measured with PM200 Touch Screen Console
- o. Beam Diameter: >1 mn

Aperture Thread

Add To Cart

The S175C Microscope Slide Thermal Power Sensor Head is designed to measure the power at the sample in microscopy setups. The thermal sensor can detect wavelengths between 300 nm and 10.6  $\mu m$  at optical powers between 100  $\mu W$  and 2 W. The sensor head's 76.0 mm x 25.2 mm footprint matches that of a standard microscope slide and is compatible with most standard upright and inverted microscopes.

The thermal sensor has an 18 mm x 18 mm active area and is contained in a sealed housing behind a glass cover. An immersion medium (water, glycerol, oil) may be placed over the glass cover plate.

As seen in the image to the right, the bottom of the sensor housing features a laser-engraved target to aid in aligning and focusing the beam. In standard microscopes, the target can be used for beam alignment before flipping the sensor head to face the objective for power measurements. In inverted microscopes, turn on the trans-illumination lamp and align the target on the detector housing with the beam; this will center the sensor in front of the objective.

Sensor specifications and the NIST- and PTB-traceable calibration data are stored in non-volatile memory in the sensor connector and can be read out by the latest generation of Thorlabs power meters. The S170C power sensor is compatible with the PM100D, PM100A, PM100USB, PM200, and PM320E power meters. We recommend yearly recalibration to ensure accuracy and performance. Calibration may be ordered using the CAL-

YAG

S175C Thermal Sensor Absorption

100

100

100

1000

Wavelength (nm)

Typical absorption curve for the S175C (glass and absorber). Note that this curve is representative, and the actual absorption across the spectrum will vary from unit to unit.



#### Click to Enlarge

The back of the S175C housing is engraved with the sensor specifications and a target for centering the beam on the sensor.

S200 recalibration service available below. Please contact technical support for more information.

The complete set of specifications are presented on the Specs tab above. Thorlabs also offers a Microscope Slide Sensor Head with a <a href="mailto:photodiode sensor">photodiode sensor</a> for low-power, high-resolution measurements; the full presentation may be found <a href="mailto:here">here</a>.

Based on your currency / country selection, your order will ship from Newton, New Jersey

+1 Qty Docs Part Number - Universal Price Available / Ships

1 S175C Customer Inspired! Microscope Slide Thermal Power Sensor, 300 nm - 10.6 μm, 2 W \$1,090.00 ✓ Today

## **Thermal Sensors for Excimer and YAG Lasers**

For Optical Power Measurements of Excimer (S350C) and YAG (S370C and S470C) Lasers

N/A

Ideal for Applications with High Peak Powers

 $\label{thm:high-Peak-Power Pulses with Low Average Power Pulses with Low Average Power P$ 

Compatible with the PM200, PM100D, PM100USB, PM100A, and PM320E Consoles

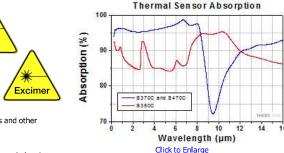
The S350C, S370C, and S470C Thermal Sensors are designed for high-peak-power pulsed laser sources. All of these units are post-mountable for free-space applications and feature NIST-traceable data stored in the sensor connector.

### S350C

The S350C sensor features a Ø40 mm aperture and a 40 W max power (CW). It is designed for Excimer lasers and other applications that require measuring high-power, large-spot-size lasers.

### S370C and S470C

The S370C and S470C are designed for YAG lasers. Both incorporate a Schott glass absorber on top of the thermal absorber; this glass layer allows them to detect pulses with high peak powers. The S370C features a large Ø25 mm aperture ideal for large-spot-size beams, and is compatible with average powers from 10 mW to 10 W (CW).



These absorption curves are shown over a broader wavelength range than the sensors' operating ranges. See the table below for the operating wavelength range of each sensor.

In comparison, the S470C has a smaller aperture of Ø15 mm and a lower max average power of 5 W. However, the S470C's smaller absorber decreases the response time to <2 s, and it has a thermal detector that can measure average powers down to 100 µW. With a housing size of only 45 mm x 45 mm x 18 mm, this thermal sensor head is also the most compact of our specialized thermal sensor heads for use with high-power lasers.

Item #	S350C	\$370C	S470C	
Sensor Image (Click the Image to Enlarge)				
Aperture Size	Ø40 mm	Ø25 mm	Ø15 mm	
Wavelength Range	0.19 - 1.1 μm, 10.6 μm	0.4 - 5.2 μm	0.25 - 10.6 μm	
Power Range	10 mW - 40 W (CW)	10 mW - 10 W (CW)	100 μW - 5 W (Pulsed and CW)	
Max Power Density	2 kW/cm² (Avg.)	35 W/cm² (Avg.); 1	100 GW/cm² (Peak)	
Detector Type	Thermal Surface Absorber	Thermal Volu	ume Absorber	
Linearity	±	±1% ±0.5%		
Resolution <sup>a</sup>	1 mW	250 μW	10 μW	
Measurement Uncertainty <sup>b</sup>	±3% @ 351 nm; ±5% @ 190 - 1100 nm	±3% @ 1064 nm; ±5% @ 400 - 1064 nm	±3% @ 1064 nm; ±5% @ 250 nm - 10.6 μm	

Response Time <sup>c</sup>	1 s 3 s <2 s			
Cooling		Convection (Passive)		
Housing Dimensions         100 mm x 100 mm x 55 mm         75 mm x 75 mm x 51.5 mm         45 mm x 45 mm				
Cable Length	1.5 m			
Post Mounting	<u>Ø1/2" Posts</u> via M6 Tap (75 mm Long Post Included)	<u>Ø1/2" Posts</u> via M6 Tap (75 mm Long Post Included)	<u>Ø1/2" Posts</u> via Universal 8-32 & M4 Tap (Post Not Included)	
Cage Mounting	N/A	30 mm Cage Systems via Four 4-40 Taps	N/A	
Aperture Thread	N/A	External SM1-Threaded (1.035"-40) Adapter Plate for Mounting Ø1" Lens Tubes and Fiber Adapters	External SM1 (1.035'-40) for Mounting Ø1" Lens Tubes and Fiber Adapters	

- a. Measurement taken with the PM100D console with the acceleration circuit switched, except for the S470C, which was measured with the PM200 console. Resolution performance will be similar with our other power meter consoles.
- b. Spectral calibration (the response values for wavelength correction outside of this calibration range) is interpolated from the general absorption curve for the absorber. Other calibration wavelengths are available on request.
- c. Measured with display (0 90%).

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+1	Qty	Docs	Part Number - Universal	Price	Availat	ole / Ships
+1戸			$\underline{\textbf{S350C}}$ Thermal Power Sensor, Surface Absorber, 0.19 - 1.1 $\mu$ m and 10.6 $\mu$ m, 40 W	\$1,050.00	√	Today
+1戸			<b>S370C</b> Thermal Power Sensor, Volume Absorber, 0.4 - 5.2 μm, 10 W	\$1,090.00	✓	Today
+1日			$\underline{\textbf{S470C}}  \text{High-Sensitivity Thermal Power Sensor, Volume Absorber, 0.25 - 10.6 } \mu\text{m, 0.1 mW - 5 W}$	\$1,110.00	√	Today
Add	l To Cart	]				

## **Internally SM1-Threaded Fiber Adapters**

These internally SM1-threaded (1.035"-40) adapters mate connectorized fiber to any of our externally SM1-threaded components, including our photodiode power sensors, our thermal power sensors, and our photodetectors.

Please contact  $\underline{\text{Tech Support}}$  if you are unsure if the adapter is mechanically compatible.

Item #	S120-FC	S120-SMA	S120-ST	S120-SC	S120-LC
Click Image to Enlarge	(5)				
Fiber Connector Type <sup>a</sup>	FC/PC <sup>b</sup>	SMA	ST	SC	LC
Thread			Internal SM1 (1.035"-40)		

- a. Other Connector Types Available upon Request
- b. In certain angle-independent applications, this adapter may also be used with FC/APC connectors.

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+	1 Qty	Docs	Part Number - Universal		Price	Available / Ships	
+1)	R		S120-FC	FC/PC Fiber Adapter Cap with Internal SM1 (1.035"-40) Thread	\$38.00	✓	Today
+1	R	=	S120-SMA	SMA Fiber Adapter Cap with Internal SM1 (1.035"-40) Thread	\$38.00	✓	Today
+1)	R		S120-ST	ST/PC Fiber Adapter Cap with Internal SM1 (1.035"-40) Thread	\$38.00	✓	Today
+1)	R	=	S120-SC	SC/PC Fiber Adapter Cap with Internal SM1 (1.035"-40) Thread	\$48.00	✓	Today
+1)	R		S120-LC	LC/PC Fiber Adapter Cap with Internal SM1 (1.035"-40) Thread	\$48.00	✓	Today
Add To Cart							

# **Recalibration Service for Thermal Power Sensors**

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Thorlabs offers Calibration Services for our thermal optical power sensors. To ensure accurate measurements, we recommend recalibrating the sensors annually. When returning a sensor for calibration, please also be sure to include the console used with it, as they will be calibrated together.

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# **Additional Optical Power and Energy Meters**

Photodiode Power Sensors

Digital Handheld Power & Energy Meter Console

Compact USB Power Meters

Power Meter Tutorial

Thermal Power Sensors

Analog Handheld Power Meter Console

Wireless Power Meter with Sensor

Pyroelectric Energy Sensors Power and Energy Meter, USB Interface Power Meter Bundles

Touch Screen Power and Energy Meter Console Dual-Channel Benchtop Power/Energy Meter Field Power Meter for Te

Console

Field Power Meter for Terminated Fibers

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