Thermal Power Sensor Head, 200 W, Ø25 mm



S322C

Description

The S322C Thermal Power Sensor Head is designed for power measurements up to 250 W with low drift and good resolution. It is an ideal choice for light sources with a broadband spectrum like ASE, LED, filament lamps, or swept sources, where calibrated photodiodes fail due to their strong wavelength dependency. The sensor works from the UV to the Mid-IR with a flat response and low back reflection from the high damage threshold broadband coating. For average power measurements of pulsed laser sources, the peak power may be higher than the maximum rated CW power as long as it doesn't exceed the damage threshold of the maximum power density.

To perform accurate measurements, the S322C must be zeroed before starting a measurement. For power levels above 50 W the fan must be connected to the 12 VDC power supply to ensure a stable measurement. The head has a built-in thermistor to control overheating of the sensor. The S322C is compatible with all available Thorlabs power meter consoles. A non-volatile memory in the sensor connector contains sensor information data and the NIST- and PTB-traceable calibration data.

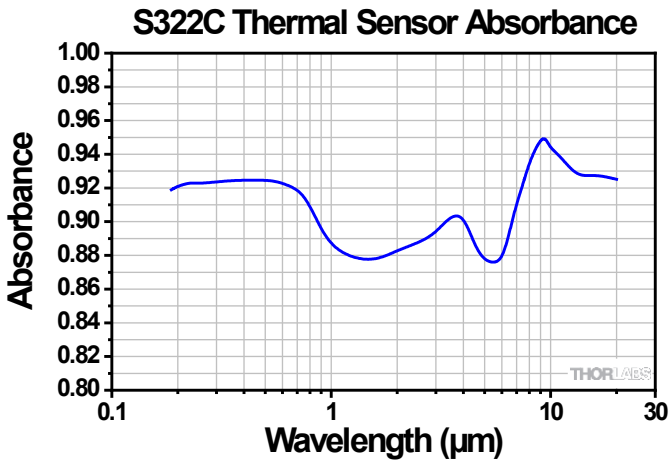
Specifications

S322C	
Detector Type	Thermal Surface Absorber
Wavelength Range	250 nm – 11 µm
Optical Power Range	100 mW – 200 W (Continuous) 250 W (2 Minutes Maximum Exposure Time)
Max Average Power Density	4 kW/cm^2 (CO_2)
Max Pulse Energy Density	0.5 J/cm^2 (1 ns Pulse) 10 J/cm^2 (1 ms Pulse)
Resolution[a]	5 mW
Linearity	±1%
Measurement Uncertainty[b]	±3% @ 1064 nm ±5% @ 266 nm – 1064 nm
Response Time[c]	1 s
Input Aperture	Ø25 mm
Active Detector Area	Ø25 mm
Typical Applications (Laser Types)	CW and Long Pulses (Diode, Arlo, Krlo, Dye, CO_2, He-Cd, Nd:YAG)
Coating	High-Power Broadband
Cooling	Forced Air with Fan 12 VDC Power Supply Included
Head Temperature Measurement	2 kΩ NTC Thermistor
Console Compatibility	PM400, PM100D, PM100A, and PM5020
Interface Compatibility	PM101, PM101A, PM101R, PM101U, PM102, PM102A, PM102U, and PM100USB

a. Measured using the PM100D console with the acceleration circuit switched off. Performance will be similar with Thorlabs' other power meter consoles.
b. Other calibration wavelengths available upon request. The response values for wavelengths outside of this calibration range are interpolated from the general absorption curve of the absorber.
c. Typical Natural Response Time (0 – 90%)

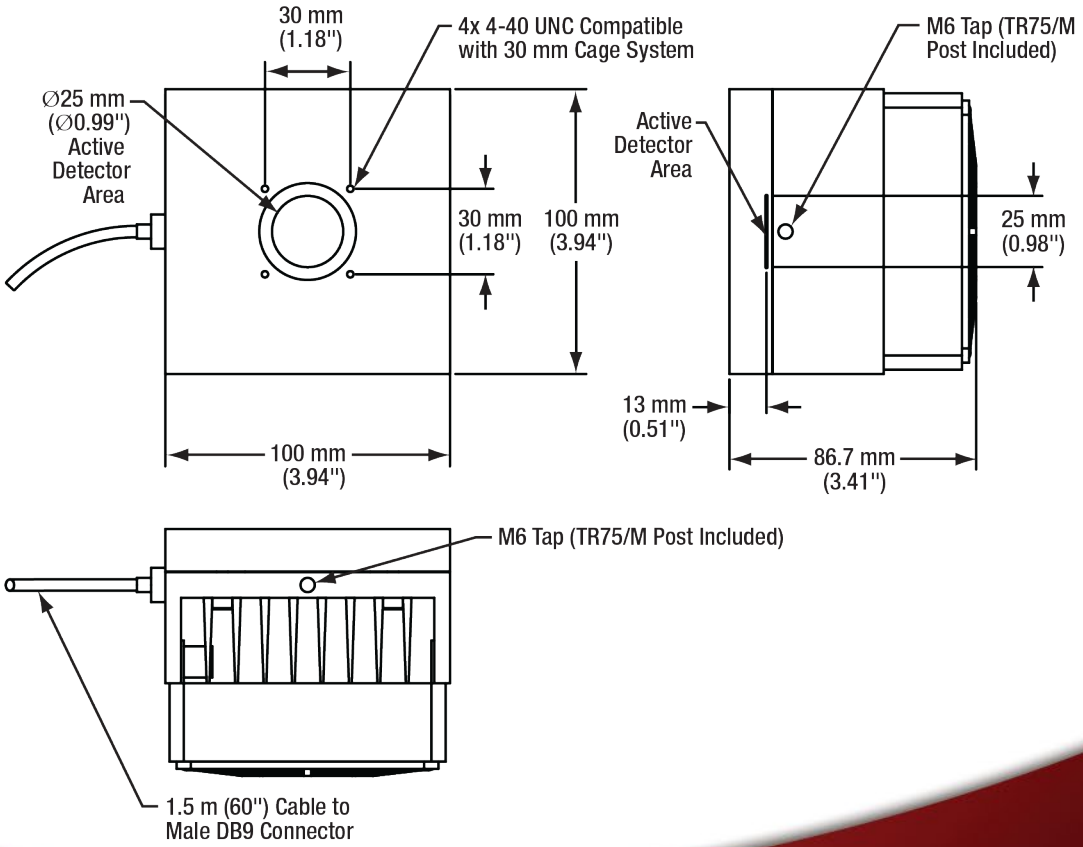
Specifications (Continued)

S322C	
Housing Dimensions	100 mm x 100 mm x 86.7 mm (3.94" x 3.94" x 3.41")
Cable Length	1.5 m
Connector	D-Sub 9-Pin Male
Weight	0.75 kg
Post Mounting	M6 Threaded Taps, Includes Ø1/2" Post, 75 mm Long
30 mm Cage Mounting	Four 4-40 Tapped Holes
Accessories	Includes Externally SM1-Threaded Adapter



Typical Absorbance of the S322C's Broadband Coating

Mechanical Drawing



Available Accessories

The S322C is compatible with Thorlabs' imperial and metric post and post-holder series. For attaching fiber adapters or other optics, four 4-40 threads that are compatible with the Thorlabs 30 mm cage system are arranged around the detector area.

SM1A19 Replacement 30 mm cage to outer SM1-threaded adapter plate to accommodate S120-xx series fiber adapters

PMPS12 Replacement 12 VDC/1 A power supply

Cleaning and Maintenance

There are no serviceable parts in the S322C thermal head. The housing may be cleaned by wiping with a soft damp cloth. The detector on the thermal head cannot be cleaned, do not touch or wipe the absorber surface or use any solvents to clean it! Gently blow off any debris using compressed air. If any scratches or other signs of damage remain on the sensor area, please contact Thorlabs' service department for repair or replacement. If you suspect a problem with S322C, please call Thorlabs and an engineer will be happy to assist you.

As long as the sensor has not been exposed to excessive optical power (please pay attention to the maximum ratings in the technical specifications), the calibration should be very stable over long periods of time (well over a year). To maintain the accuracy and performance of the S322C, Thorlabs recommends a yearly recalibration, starting one year after purchase.

Precautions and Warranty Information

These products are ESD (electro-static discharge) sensitive and as a result are not covered under warranty. Any applied voltage in excess of the maximum specification will cause damage and possible complete failure of the product. The user must use handling procedures that prevent any electrostatic discharges or other voltage surges when handling these devices.

The user must avoid any misuse that could cause damage to the detector. Misuse includes, but is not limited to, laser exposure outside Thorlabs' published specifications, high voltage exposure outside Thorlabs' specifications, physical damage due to improper handling, and exposure to harsh environments. Harsh environments include, but are not limited to, excessive temperature, vibration, humidity, chemicals or surface contaminants, exposure to flame, aggressive solvents, and connection to improper electrical voltage.

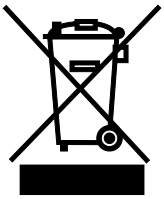
Thorlabs, Inc. Life Support and Military Use Application Policy is stated below:

THORALBS' PRODUCTS ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS OR IN ANY MILITARY APPLICATION WITHOUT THE EXPRESS WRITTEN APPROVAL OF THE PRESIDENT OF THORLABS, INC. As used herein:

1. *Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, and whose failure to perform, when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury to the user.*

2. *A critical component is any component in a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system or to affect its safety or effectiveness.*

3. *The Thorlabs products described in this document are not intended nor warranted for usage in Military Applications.*



Manufactured By:
Thorlabs GmbH, D-85221 Dachau, Hans-Boeckler-Str. 6