

Integrating Sphere Power Sensor Head with InGaAs Detector

S144C



Description

The S144C Integrating Sphere Power Sensor Head with InGaAs Detector is designed to measure the optical power of an incoming beam independent of the divergence and beam shape. This power meter sensor head has an optical power working range from 1 μ W to 500 mW and a wavelength range of 800 nm to 1700 nm. It is designed for fiber-coupled and free space applications. The S144C is compatible with all current Thorlabs power meter display units. A non-volatile memory in the sensor connector contains sensor information data and the NIST and PTB traceable calibration data.

A SM1 (1.035"-40) thread adapter and FC fiber adapter are included with the S144C; other fiber adapters for SMA, LC, ST and SC connectors can be purchased separately as accessories. 8-32- and M4-threaded tapped holes are provided for mounting to \varnothing 1/2" posts and post holders.

Specifications

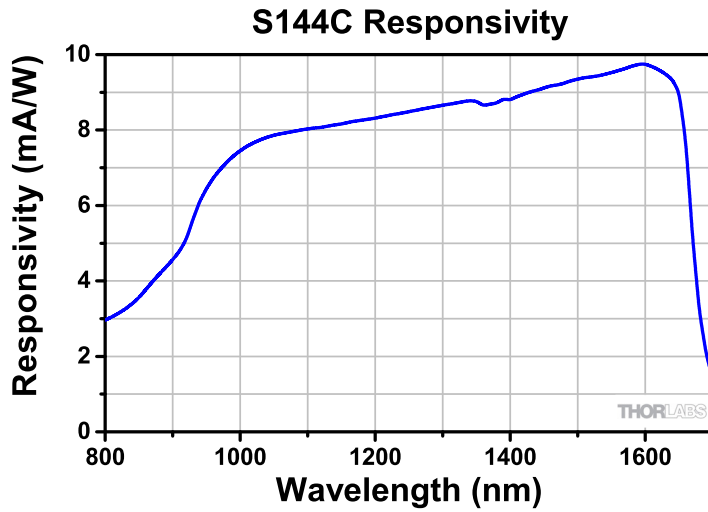
S144C	
Detector Type	InGaAs Photodiode
Wavelength Range	800 - 1700 nm
Optical Power Working Range	1 μ W - 500 mW
Max Average Power Density	1 kW/cm ²
Max Pulse Energy Density	1 J/cm ²
Linearity	\pm 0.5%
Resolution ^a	1 nW
Measurement Uncertainty ^b	\pm 5%
Typical Application	Fiber Lasers / Low and Mid Power Lasers
Laser Types	Diode, Ti-Sapphire, He-Cd, Argon Ion, Krypton Ion, Dye
Coating / Diffuser	Zenith [®] PTFE Integrating Sphere (\varnothing 1")
Cooling	Convection
Head Temperature Measurement	NTC Thermistor 4.7k Ω
Console Compatibility	PM100D, PM100A, PM100USB, PM200, PM320E
Response Time	<1 μ s
Sensor Dimensions	\varnothing 45 x 30.5 mm
Active Detector Area	3.6 mm x 3.6 mm
Input Aperture	\varnothing 5 mm
Cable Length	1.5 m
Connector	Sub-D 9-Pin Male
Weight	0.2 kg
Post Mounting	8-32 & M4 Tapped Holes
Aperture Thread	External SM1-Threaded (1.035"-40) Removable Adapter
Fiber Adapters (Optional)	FC (Included), SC, LC, SMA, ST

a. Measured with PM100D console in a low bandwidth setting.

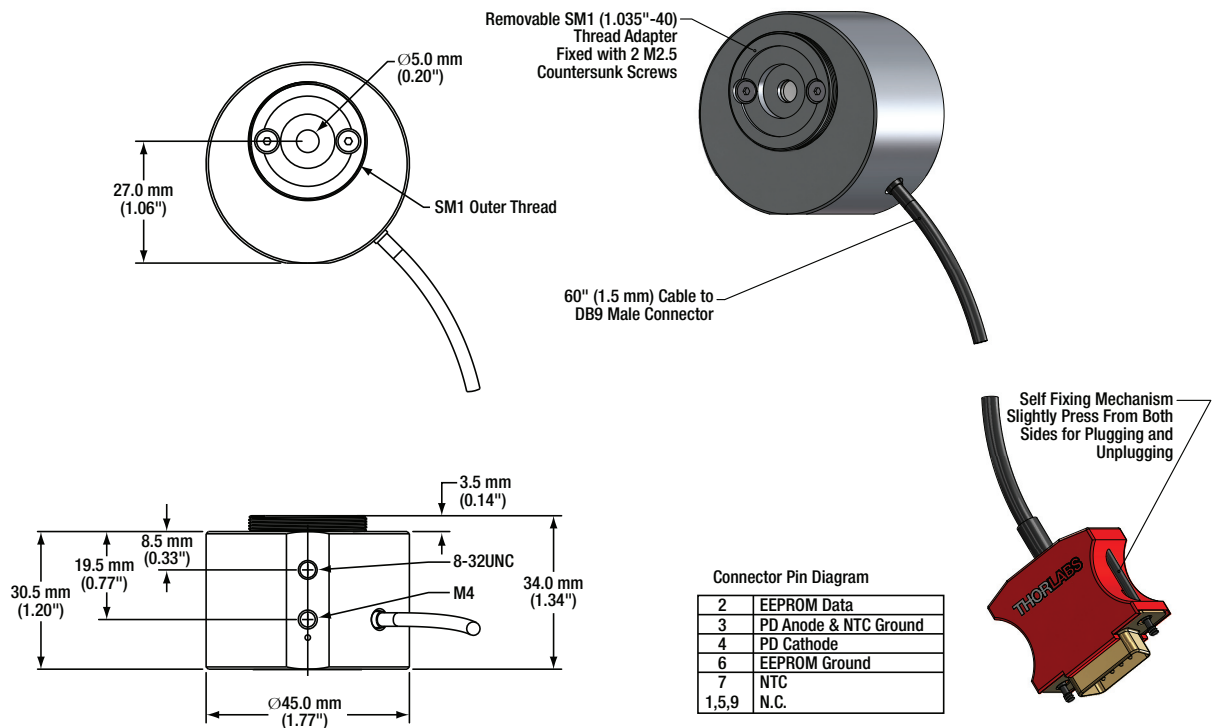
b. Beam diameter > 1 mm

Please note that the S144C power meter head is not compatible with the older Thorlabs power meter consoles (PM100, PM30, PM300, PM300E, S100).

Typical Response Graph



Drawings



Available Accessories

S120-SMA	SMA fiber adapter
S120-SC	SC fiber adapter
S120-LC	LC fiber adapter
S120-ST	ST fiber adapter
S120-FC	FC fiber adapter (included)
SM1A20	SM1 thread adapter (included)

The S144C is also compatible to the Thorlabs imperial and metric post and post-holder series and with the optional thread adapter to Thorlabs SM1 mechanics.

Cleaning and Maintenance

There are no serviceable parts in the S144C head. The housing may be cleaned by wiping with a soft damp cloth. The integrating sphere inner surface cannot be cleaned, do not touch this surface. Gently blow off any debris using compressed air. If you suspect there is a problem with your S144C, please contact 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 keep the accuracy and performance of the S144C, 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. In order to ensure the proper functioning of a photodiode care must be given to maintain the highest standards of compliance to the maximum electrical specifications when handling such devices. The photodiodes are particularly sensitive to any value that exceeds the absolute maximum ratings of the product. Any applied voltage in excess of the maximum specification will cause damage and possible complete failure to the product. The user must use handling procedures that prevent any electro static discharges or other voltage surges when handling or using these devices.

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THORLABS' 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.

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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.

