

Integrating Sphere Power Head with Silicon Detector



S142C

Description

The S142C Integrating Sphere Power Sensor Head with Silicon Detector allows measurement of optical power independent from the divergence angle and shape of the incoming beam. The optical power meter head will detect light from 1 μ W up to 5 W. The S142C optical power meter head is designed for fiber-coupled applications and free space.

A SM1 (1.035"-40) thread adapter and FC fiber adapter are included with the S142C; 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. The S142C is compatible with all new Thorlabs display units. Non-volatile memory in the sensor connector contains sensor information data, as well as NIST and PTB traceable calibration data.

Specifications

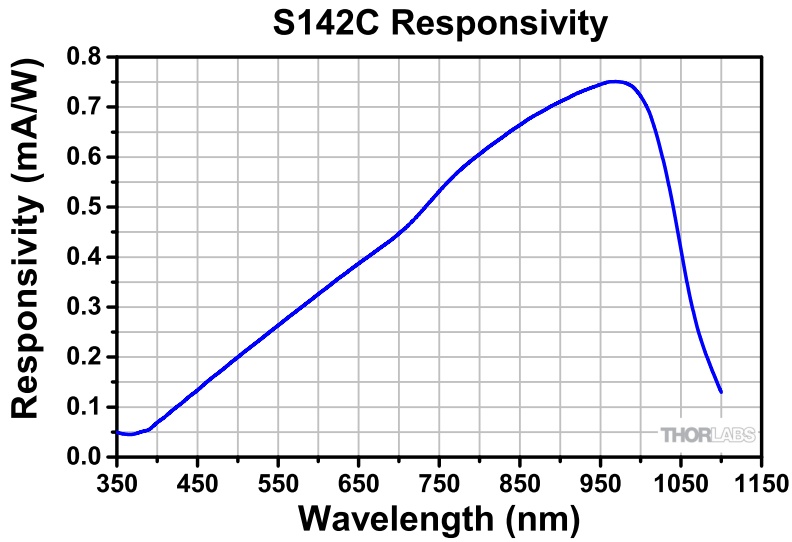
S142C	
Detector Type	Silicon Photodiode
Wavelength Range	350 - 1100 nm
Optical Power Working Range	1 μ W - 5 W
Max Average Power Density	2 kW/cm ²
Max Pulse Energy Density	7 J/cm ²
Linearity	\pm 0.5%
Resolution ^a	1 nW
Measurement Uncertainty ^b	\pm 3% 440 - 980 nm \pm 5% 350 - 439 nm, \pm 7% 981 - 1100 nm
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 2")
Cooling	Convection
Head Temperature Measurement	NTC Thermistor 4.7 k Ω
Console Compatibility	PM100D, PM100A, PM100USB, PM200, PM320E
Response Time	<1 μ s
Sensor Dimensions	70 x 74 x 70 mm
Active Detector Area	3.6 mm x 3.6 mm
Input Aperture	\varnothing 12 mm
Cable Length	1.5 m
Connector	Sub-D 9-Pin Male
Weight	0.6 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.

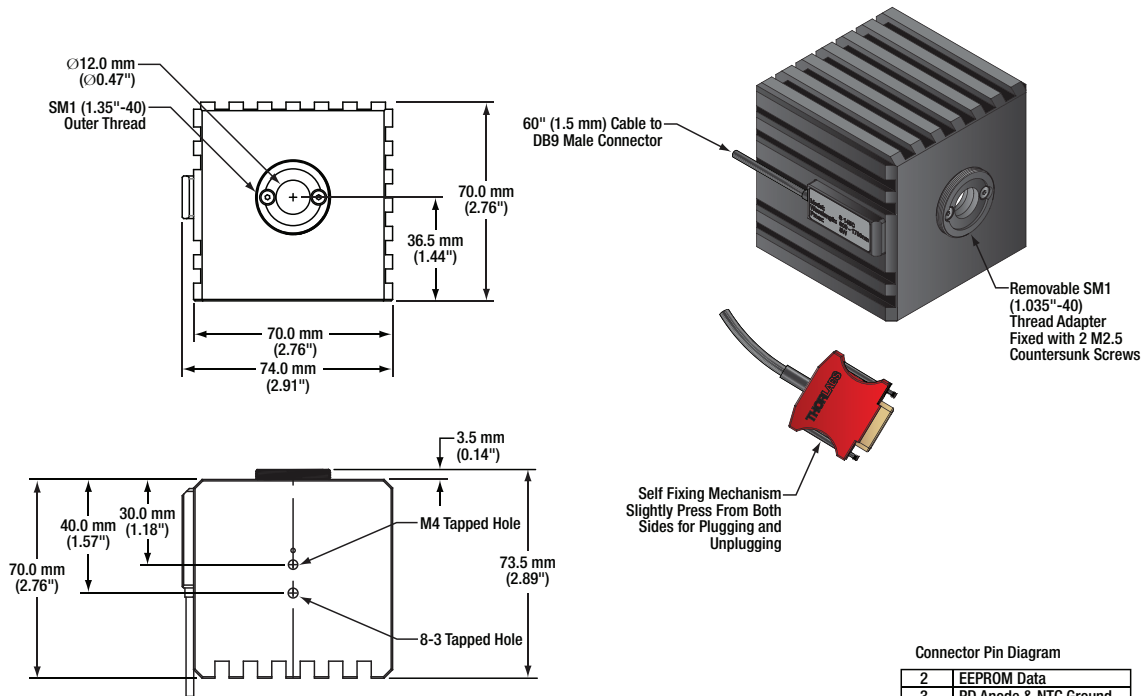
b. Beam diameter > 1 mm

Please note that the S142C 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)

The S142C is also compatible with Thorlabs' imperial and metric post and post-holder series and with the optional Thorlabs SM1 mechanics thread adapter.

Cleaning and Maintenance

There are no serviceable parts in the S142C 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 S142C, 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 S142C, 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.

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.

