Silicon Power Head for Tight Spaces



S116C

Description

The S116C is a power head with a small cross section of the detector end to fit between the rods of the 16 mm cage system and onto the opening of the SM05L series slotted lens tubes. The head is spectrally calibrated over the entire wavelength operating range and detects optical power from nanowatts up to 50 mW.

The S116C has two mounting threads for horizontal and vertical mounting. The mounting threads are compatible with both metric and imperial systems (M4 and 8-32).

For sensor readout, the S116C is compatible with the Thorlabs power meters listed below. A non-volatile memory in the sensor connector contains sensor information and the NIST and PTB traceable calibration data.

The S116C can be equipped with an optional SM05A29 thread adapter to fit the fiber adapters of the PM20 series.

Specifications

Item#	S116C
Optical Power Working Range	20 nW – 50 mW
Wavelength Range	400 - 1100 nm
Resolution [1)]	1 nW
Coating / Diffuser	Absorptive ND (NG9)
Detector Size (Active Area)	7 mm x 7 mm
Measurement Uncertainty [2)]	±3% (440 - 980 nm) ±5% (400 - 439 nm) ±7% (981 - 1100 nm)
Linearity	± 0.5%
Max. Average Power Density	20 W/cm²
Max. Pulse Energy	20 µJ
Response Time	< 1 µs
Head Temperature Measurement	NTC Thermistor 4.7 kΩ
Cooling	Convection
Detector Type	Silicon Photodiode
Sensor Dimensions	70.0 mm x 11.0 mm x 8.9 mm 2.76" x 0.43" x 0.35"
Input Aperture	Ø6 mm
Connector	DE 9 Male
Weight	0.07 kg
Typical Application	Power Measurements for Low Power Fiber Lasers
Laser Types	Diode, Diode Arrays, He-Ne, Dye, Ion Lasers (Ar+, Kr+)

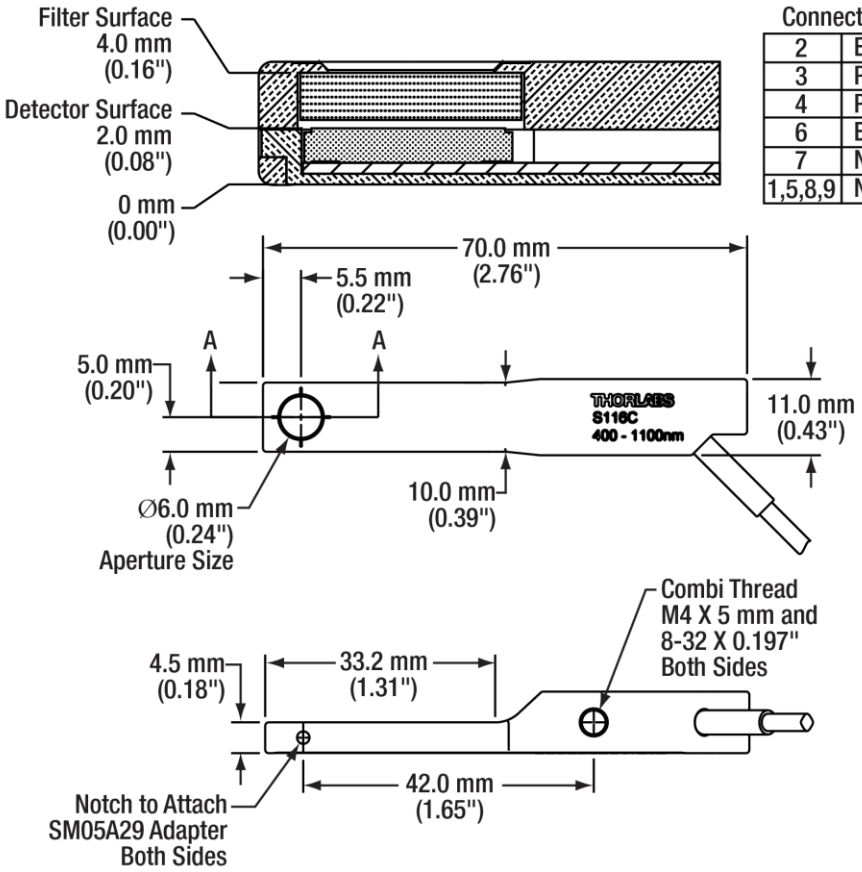
1) Measured with PM100D console in bandwidth setting: low.

2) Beam diameter > 1mm

Available Accessories

SM05A29 SM05 thread adapter

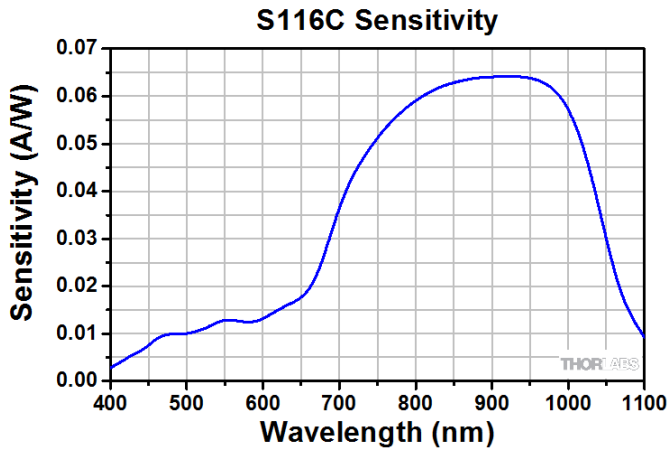
Drawings



Connector Pin Diagram

2	EEPROM Data
3	PD Anode & NTC Ground
4	PD Kathode
6	EEPROM Ground
7	NTC
1,5,8,9	N.C.

Typical Performance Plots



Cleaning and Maintenance

There are no serviceable parts in the S116C head. The housing may be cleaned by wiping with a soft damp cloth.

The sensor on the silicon power head cannot be cleaned. Gently blow off any debris using compressed air. If any scratches of other signs of damage remain on the sensor area, contact Thorlabs service department for repair or replacement. If you suspect a problem with your S116C 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, the calibration should be very stable over long periods of time (well over a year). However, the detector should be calibrated once a year to ensure accuracy.

Precautions and Warranty Information

These products are covered under a two year warranty. In order to ensure the proper functioning of a sensor care must be given to maintain the highest standards of compliance to the maximum optical specifications when handling such devices. The photodiodes are particularly sensitive to any value that exceeds the absolute maximum ratings of the product. Any applied optical power in excess of the maximum specification will cause damage and possible complete failure to the product.

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

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.

