Thermal Power Sensor Head, 40 W, Ø40 mm



S350C

Description

The S350C is a power meter head designed for power measurements on industrial excimer lasers up to 60 W with low drift and high resolution. The sensor has a large active area with a 40 mm diameter and a high damage threshold Excimer coating.

To perform accurate measurements, the S350C needs to be zeroed before starting a measurement. Furthermore, limiting air flow or other thermal disturbances near the sensor is recommended. The head has a built-in thermistor to control overheating of the sensor.

The S350C is compatible with the Thorlabs power meter consoles and power meter interfaces listed below. A non-volatile memory in the sensor connector contains sensor information data and the NIST and PTB traceable calibration data.

Specifications

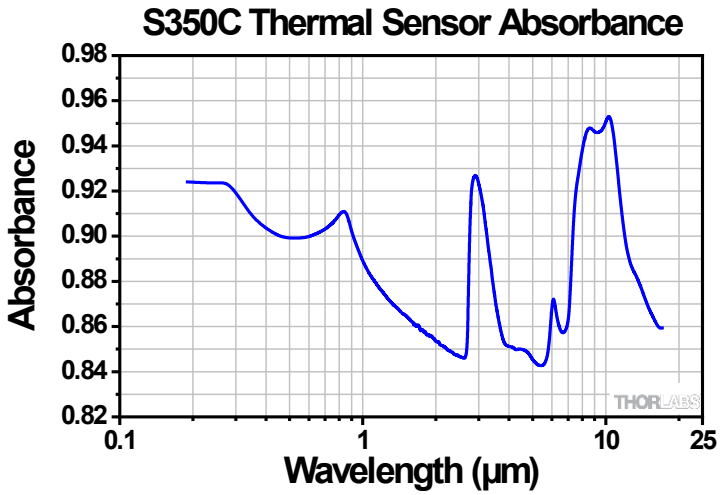
S350C	
Detector Type	Thermal Surface Absorber
Wavelength Range	190 nm to 1100 nm & 10.6 µm (for CO_2 Laser)
Optical Power Working Range	10 mW – 40 W (Continuous) 60 W (2 Minutes Maximum Exposure Time)
Max Average Power Density	2 kW/cm² (Avg.)
Max Pulse Energy Density	0.7 J/cm² (1 ns pulse) 10 J/cm² (1 ms pulse)
Linearity	± 1%
Resolution[a]	1 mW
Measurement Uncertainty[b]	±3% @ 1064 nm ±5% @ 190 nm to 1100 nm & 10.6 µm
Response Time[c]	1 s
Suggested Application	High Power Excimer Lasers
Absorber	Excimer Coating
Cooling	Convection
Temperature Sensor (in Sensor Head)	NTC Thermistor 2 kΩ
Compatible Consoles	PM100D, PM100A, PM400, PM5020
Compatible Interfaces	PM100USB, PM101x, PM102x
Housing Dimensions	100 mm x 100 mm x 54.2 mm (3.94" x 3.94" x 2.13")
Sensor Input Aperture	Ø40 mm
Active Detector Area	Ø40 mm
Distance to Detector[d]	13 mm
Aperture Thread	Unthreaded

a. Maximum with PM100D Console in Low Bandwidth Setting
b. Beam Diameter > 1 mm
c. 9 s from 90% to 100%
d. Distance is measured from the detector to the front face of the housing.

Specifications (Continued)

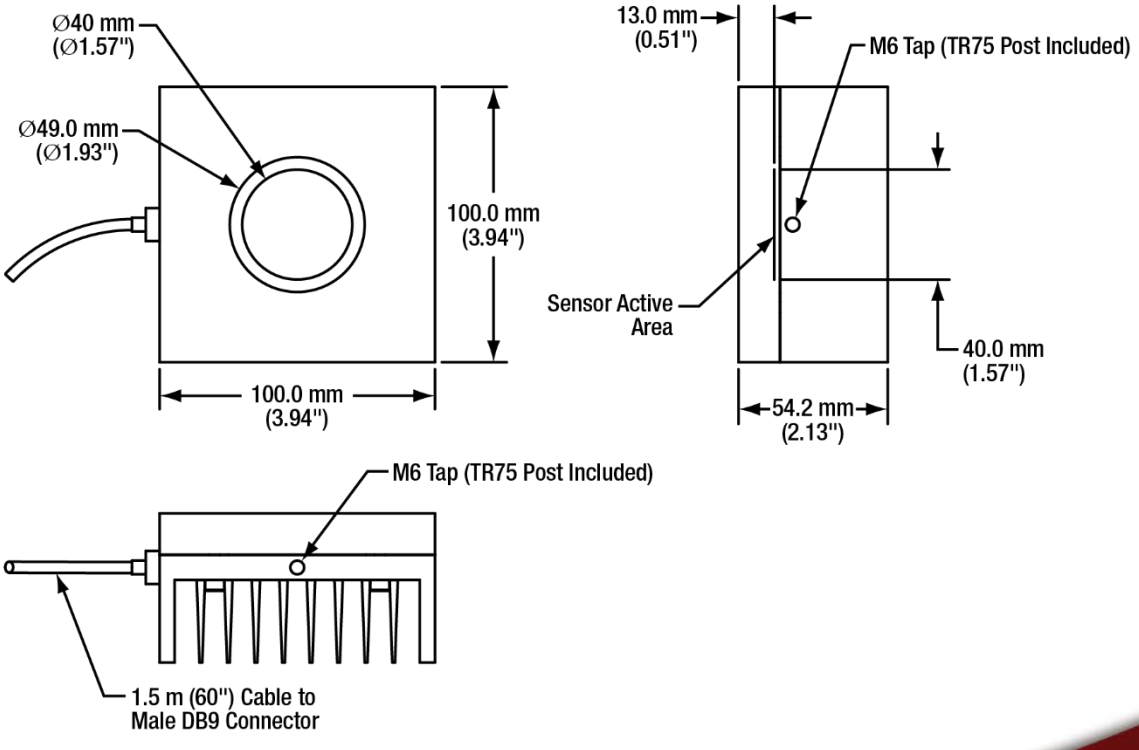
S350C	
Cable Length	1.5 m
Connector	DE-9 Male
Weight	1.00 kg
Post	M6, 75 mm Long Ø1/2" Post Included
S120 Series Fiber Adapters	S120 Series Fiber Adapters

Typical Performance Plot



Typical Absorbance of the S350C's High Damage Threshold Excimer Coating

Mechanical Drawing



Cleaning & Maintenance

There are no serviceable parts in the S350C thermal head. The housing may be cleaned by wiping with a soft damp cloth. The detectors on the thermal heads cannot be cleaned. Gently blow off any debris using compressed air. If any scratches or other signs of damage remain on the sensor area, contact Thorlabs service department for repair or replacement. If you suspect a problem with your S350C please call Thorlabs and an engineer will be happy to assist you.

If 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 S350C, Thorlabs recommends a yearly recalibration, starting one year after purchase.

Precautions & Warranty Information

These products are ESD (electrostatic discharge) sensitive and as a result are not covered under warranty. To ensure the proper functioning of a photodiode, care must be taken 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 more than the maximum specification will cause damage and possible complete failure to the product. The user must use handling procedures that prevent any electrostatic discharges or other voltage surges when handling or using these devices.

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:

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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.

