S302C Thermal Power Head

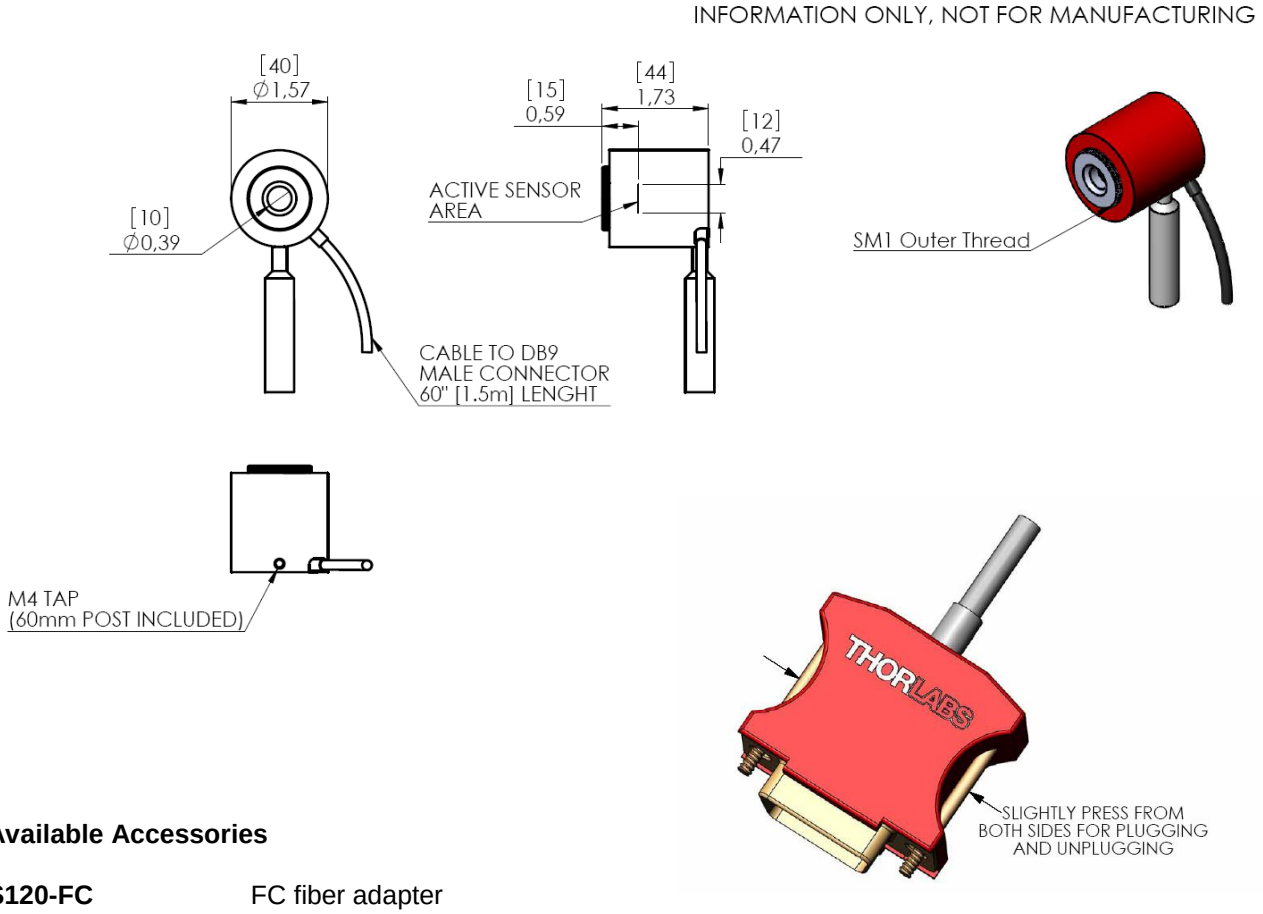
The *S302C* is a thermally isolated thermal power meter head, designed for low power measurements with very low drift and high resolution. It is an ideal choice for light sources with a broadband spectrum like ASE, LED, filament lamps or swept sources, where calibrated photodiodes fail due to their strong wavelength dependency. The sensor works from the UV to the IR with a flat response with a negligible back reflection from the black coating. Another excellence is the average power measurement from pulsed laser sources whereby the peak power may be higher than the maximum rated power as long it doesn't exceed the damage threshold of the maximum power density.
To perform accurate measurements the *S302C* has to be zeroed before starting the measurement. Though the sensor comprises insulation for thermal stabilization it is recommended to prevent the sensor from air flow or other thermal disturbances.
The *S302C* 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.

Technical Specifications

Sensor Model	S302C
Optical Power Range (Continuous)	100 µW – 2 W
Wavelength Range	190 nm – 25 µm
Application	CW and Long Pulses (Diode, ArIo, KrIo, Dye, CO2, He-Cd, (Nd-YAG))
Detector Type	Thermally isolated thermal absorber
Coating	Broadband BBF
Detector Size (active area)	Ø12 mm
Distance Frontface to Detector	15 mm
Power Resolution [1)]	1 µW
Calibration Uncertainty	+/- 3% @ 1064 nm [2)] +/- 5% @ 190 nm – 25 µm [3)]
Linearity	+/- 1%
Max Intermittent Power (2min max)	2.5 W
Max. Average Power Density	200 W/cm²
Max. Pulse Energy Density	0.2 J/cm² (1 µs pulse) 2 J/cm² (1 ms pulse)
Response time with display (0-90%) [1)]	3 s
Cooling	Convection
Sensor Dimensions	Ø40 mm x 41 mm (44 mm with adapter)
Connector Cable Length	1.5 m
Connector	Sub-D 9p male
Mounting and accessories	Adapter with external SM1 thread for S120 series fiber adapters
Post	M4, 60 mm post included
Weight	0.2 kg
Console Compatibility	PM100D, PM100A, PM100USB, PM200, PM400, PM320E

[1)] with PM100D console, acceleration circuit off
[2)] Other calibration wavelengths on request
[3)] Spectral calibration - the response values for wavelength correction outside this calibration range, is interpolated from the general absorption curve of the absorber.

Mechanical Drawing



Available Accessories

S120-FC	FC fiber adapter
S120-SMA	SMA fiber adapter
S120-SC	SC fiber adapter
S120-LC	LC fiber adapter
S120-ST	ST fiber adapter

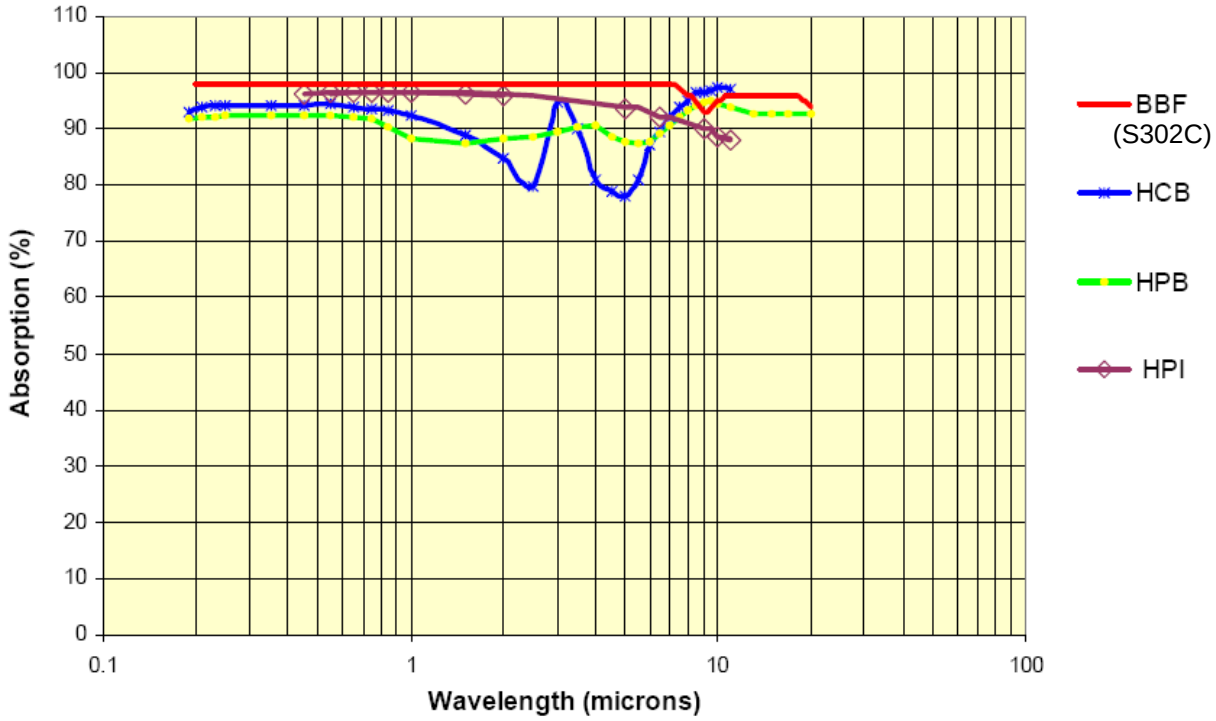
The *S302C* is compatible to the Thorlabs post and post-holder series.

Cleaning and Maintenance

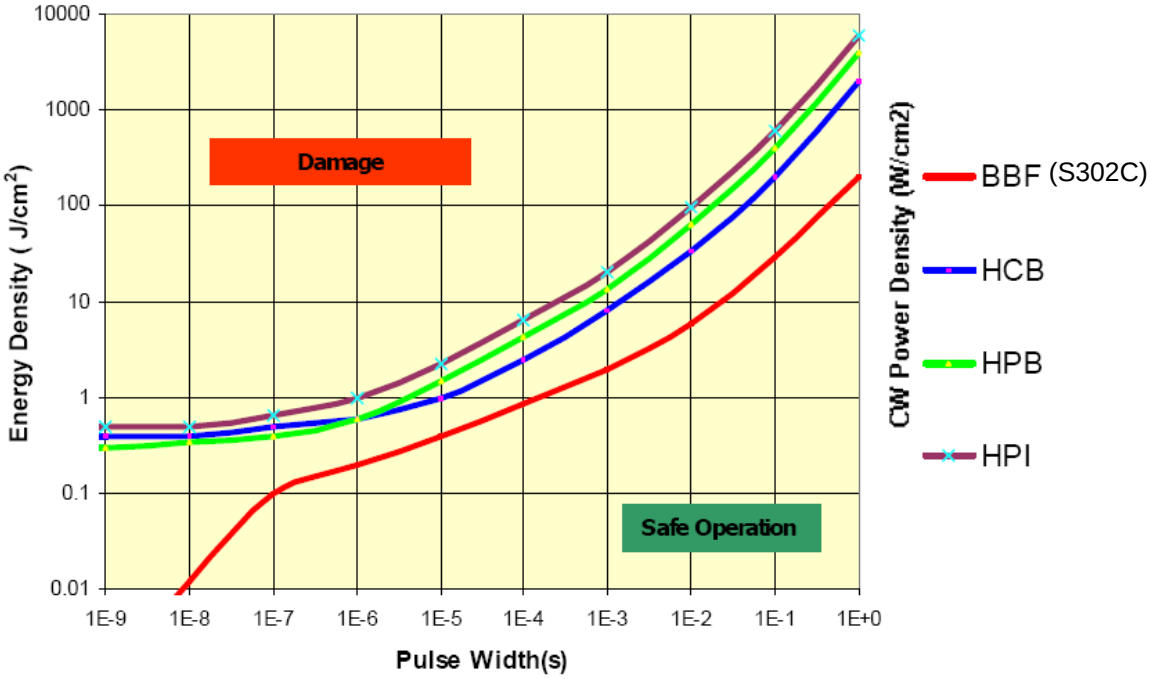
There are no serviceable parts in the *S302C* thermal head. The housing may be cleaned by wiping with a soft damp cloth. The detectors on the thermal heads cannot be cleaned. Gently blow off any debris using compressed air. If any scratches or other signs of damage remain on the sensor area, contact Thorlabs service department for repair or replacement. If you suspect a problem with your *S302C* 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 keep the accuracy and performance of the *S302C*, Thorlabs recommends a yearly recalibration, starting one year after purchase.

General Absorption Curves



Pulse Energy Ratings and Damage Thresholds



WEEE

As required by the WEEE (Waste Electrical and Electronic Equipment Directive) of the European Community and the corresponding national laws, Thorlabs offers all end users in the EC the possibility to return “end of life” units without incurring disposal charges.

This offer is valid for Thorlabs electrical and electronic equipment

- sold after August 13th 2005
- marked correspondingly with the crossed out “wheelie bin” logo (see fig. 1)
- sold to a company or institute within the EC
- currently owned by a company or institute within the EC
- still complete, not disassembled and not contaminated

As the WEEE directive applies to self contained operational electrical and electronic products, this “end of life” take back service does not refer to other Thorlabs products, such as

- pure OEM products, that means assemblies to be built into a unit by the user (e. g. OEM laser driver cards)
- components
- mechanics and optics
- left over parts of units disassembled by the user (PCB’s, housings etc.).

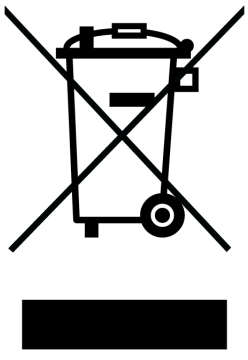
If you wish to return a Thorlabs unit for waste recovery, please contact Thorlabs or your nearest dealer for further information.

Waste treatment on your own responsibility

If you do not return an “end of life” unit to Thorlabs, you must hand it to a company specialized in waste recovery. Do not dispose of the unit in a litter bin or at a public waste disposal site.

Ecological background

It is well known that WEEE pollutes the environment by releasing toxic products during decomposition. The aim of the European RoHS directive is to reduce the content of toxic substances in electronic products in the future.
The intent of the WEEE directive is to enforce the recycling of WEEE. A controlled recycling of end of live products will thereby avoid negative impacts on the environment.



Crossed out “wheelie bin” symbol