S120C Compact Photodiode Power Head with Silicon Detector

The *S120C* power head is designed for general purpose optical power measurements. The head is optimized for small thickness to fit in tight spaces. The high sensitive photodiode with large active area in combination with an absorptive ND filter enables power measurements up to 50 mW in free-space and fiber-based applications. A removable annular IR viewing target allows conveniently centering the measured beam to the active area of the photo-diode. The target absorbs light from 400 to 640nm and 800 to 1700nm.

The *S120C* housing includes a threaded input in axis with the light input aperture that is compatible with any number of Thorlabs 1" threaded accessories. This allows convenient mounting of external optics, fiber adapters, light filters, and apertures. A 8-32 threaded mounting hole is provided to accommodate posts and post holders (a M4 adapter for metric posts is included).

The *S120C* is compatible with the new Thorlabs PM100D and PM100A consoles. A non-volatile memory in the sensor connector contains sensor information data and the NIST and PTB traceable calibration data.

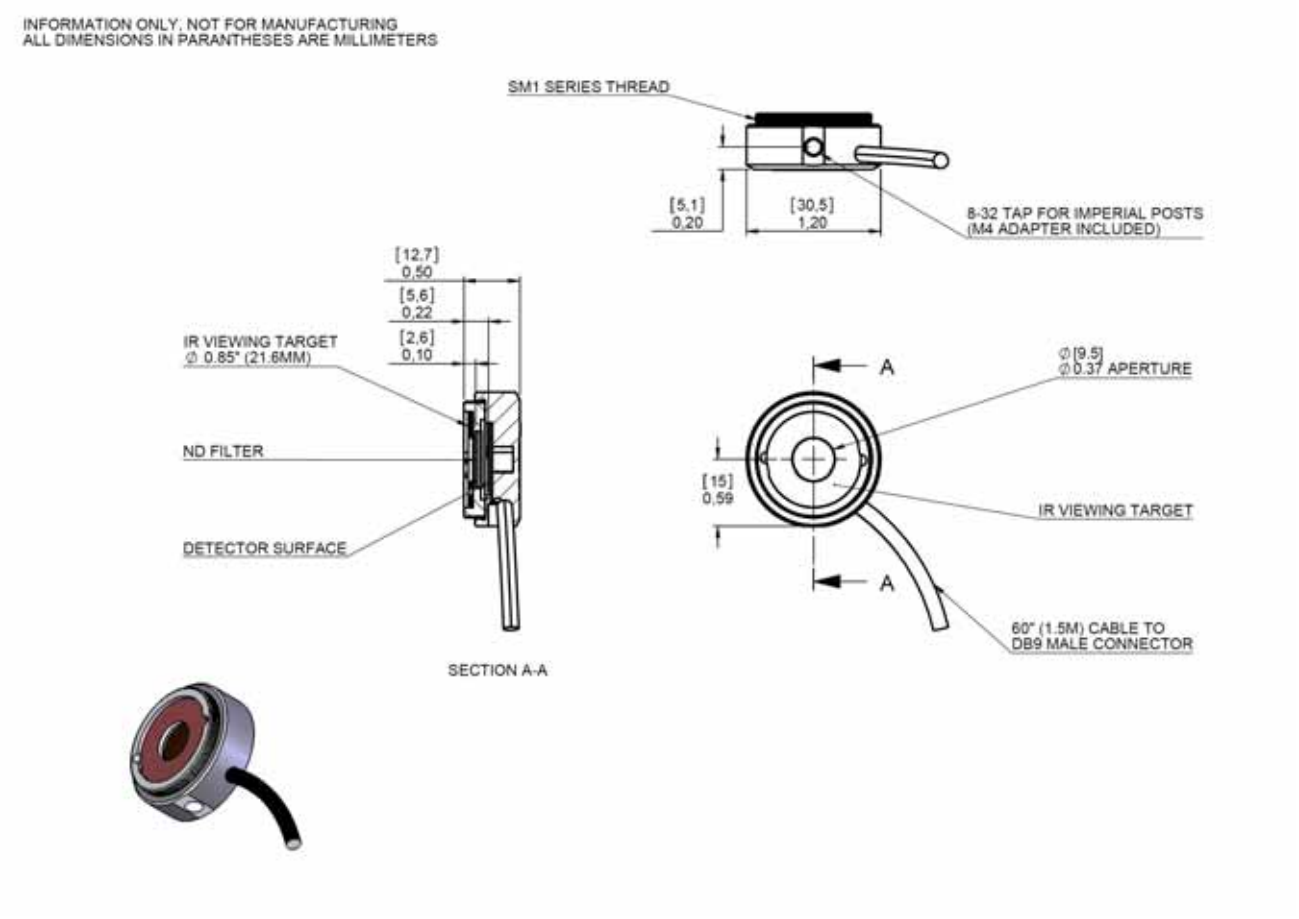
Technical Specifications

Detector Type	Silicon Photodiode
Wavelength Range	400 - 1100 nm
Optical Power Working Range	50 nW – 50 mW
Max Average Power Density	20 W/cm²
Max Pulse Energy	20 µJ
Linearity	± 0.5%
Resolution [1]	1nW
Measurement Uncertainty [2]	±3% 451 – 1000 nm ±5% 400 – 450 nm, 1001 – 1100 nm
Typical Application	Low Power Lasers
Laser Types	Diode, Diode Arrays, He-Ne, Dye, Ion Lasers (Ar^+, Kr^+)
Coating / Diffuser	Absorptive ND (Schott NG3)
Cooling	Convection
Head Temperature Measurement	Themistor 4.7kΩ
Console Compatibility	PM100D, PM100A
Response Time	< 1 µs
Sensor Dimensions	Ø30.5 mm x 12.7 mm
Active Detector Area	9.7 mm x 9.7 mm
Input Aperture	Ø9.5 mm
Cable Length	1.5 m
Connector	Sub-D 9p male
Weight	0.07 kg
Post	#8-32 thread, M4 Adapter included
Aperture Thread	SM1, outer thread
Fiber Adapters (optional)	FC, SC, LC, SMA, ST

[1] Measured with PM100D console in bandwidth low setting.
[2] Including uniformity failure

Please note that the S120C power meter head is not compatible with older Thorlabs power meter consoles (PM100, PM30, PM300, PM300E, S100).

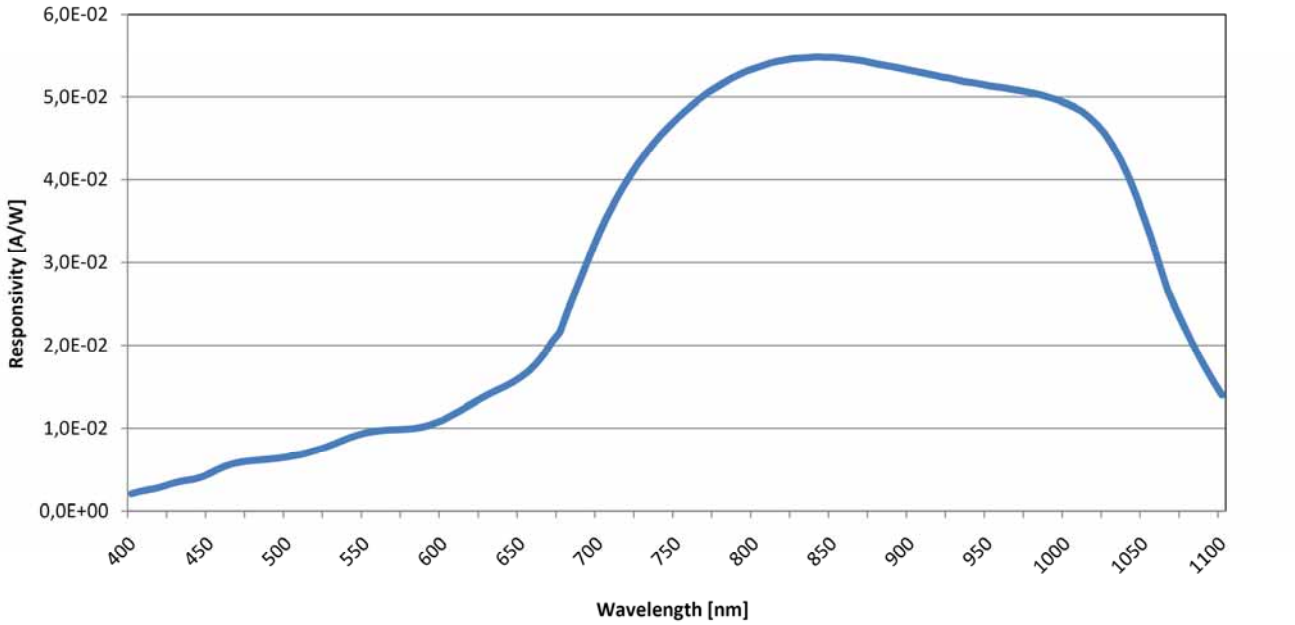
Mechanical Drawing



Sensor Connector

Pin 3: Photodiode Anode
Pin 4: Photodiode Cathode

Typical Spectral Response Graph



Available Accessories

S120-FC	FC fiber adapter	
S120-SMA	SMA fiber adapter	
S120-SC	SC fiber adapter	
S120-LC	LC fiber adpter	
S120-ST	ST fiber adapter	
AS4M8E	M4 to 8-32 Adapter	(included)
SM1CP1	Dust cap	(included)

The *S120C* is also compatible to the Thorlabs imperial and metric post and post-holder series and Thorlabs SM1 mechanics.

Cleaning and Maintenance

There are no serviceable parts in the *S120C* head. The housing may be cleaned by wiping with a soft damp cloth. When cleaning the aperture filter, treat it as any other fine optic. Gently blow off any debris using compressed air and wipe gently with an optic tissue wetted with propanol. If you suspect a problem with your *S120C* 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 *S120C*, Thorlabs recommends a yearly recalibration, starting one year after purchase.

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.).

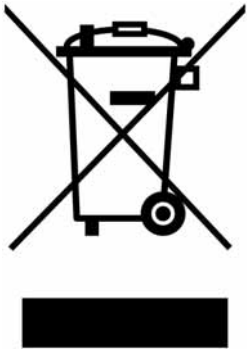
If you wish to return a Thorlabs unit for waste recovery, please contact Thorlabs or your nearest dealer for further information.

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