

Fiber Power Head with Silicon Detector



Description

The S151C power head is designed for fiber based applications in the VIS and NIR wavelength range without having a disturbing cable between sensor head and power meter console. The head is spectrally calibrated over the whole wavelength operating range and detects light from nano watts up to 20mW.

The S151C comes with FC and SMA fiber adapters. Other fiber adapters like SMA, ST, LC and SC are available as accessory and can be easily changed without tools. The sensor housing is equipped with a sub-d connector with self fixing mechanism.

The S151C is compatible with all new Thorlabs display units. A non-volatile memory in the sensor connector contains sensor information data and the NIST and PTB traceable calibration data.

Available Accessories

| | |
|----------|------------------------------|
| PM20-SC | SC fiber adapter |
| PM20-LC | LC fiber adapter |
| PM20-ST | ST fiber adapter |
| PM20-FC | FC fiber adapter (included) |
| PM20-SMA | SMA fiber adapter (included) |

Cleaning and Maintenance

There are no serviceable parts in the S151C 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 S151C 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 S151C, Thorlabs recommends a yearly recalibration, starting one year after purchase.

Specifications

| | |
|--|--|
| Detector Type | Silicon Photodiode |
| Wavelength Range | 400 - 1100 nm |
| Optical Power Working Range | 1 nW - 20 mW (-60 dBm ... +13 dBm) |
| Max Average Power Density | 10 W/cm ² |
| Max Pulse Energy | 20 μJ |
| Linearity | ± 0.5% |
| Resolution ¹⁾ | 100 pW (-70 dBm) |
| Measurement Uncertainty ²⁾ | ±3% 440 - 980 nm ±5% 400 - 439 nm, ±7% 981 - 1100 nm |
| Typical Application | Low Power Fiber Lasers |
| Laser Types | Fiber coupled Diode, He-Cd, Arlo, Krlo, Dye, Ti-Sapphire |
| Coating /Diffuser | Absorptive ND (Schott NG3) |
| Cooling | Convection |
| Head Temperature Measurement ³⁾ | NTC Thermistor 3 kΩ |
| Console Compatibility | PM100D, PM100A, PM100USB, PM200, PM320E |
| Response Time | < 1 μs |
| Sensor Dimensions | 36.2 x 31 x 14.5 mm (w/o fiber adapter) |
| Active Detector Area | 3.6 mm x 3.6 mm |
| Input Aperture | Ø5 mm |
| Connector | Sub-D 9p male |
| Weight | 0.03 kg |
| Aperture Thread | SM05, outer thread |
| Fiber Adapters (optional) | SC, LC, ST (FC, SMA included) |

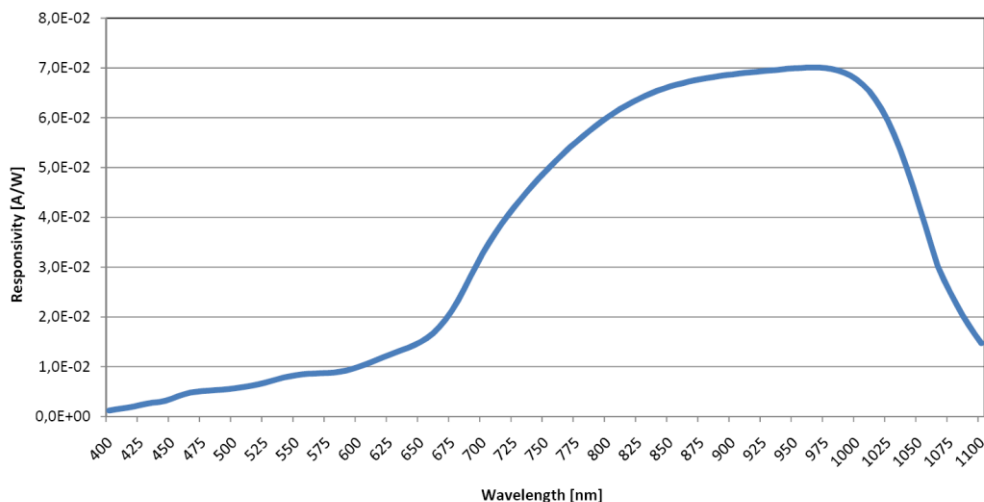
¹⁾ Measured with PM100D console in bandwidth low setting.

²⁾ Beam diameter > 1mm

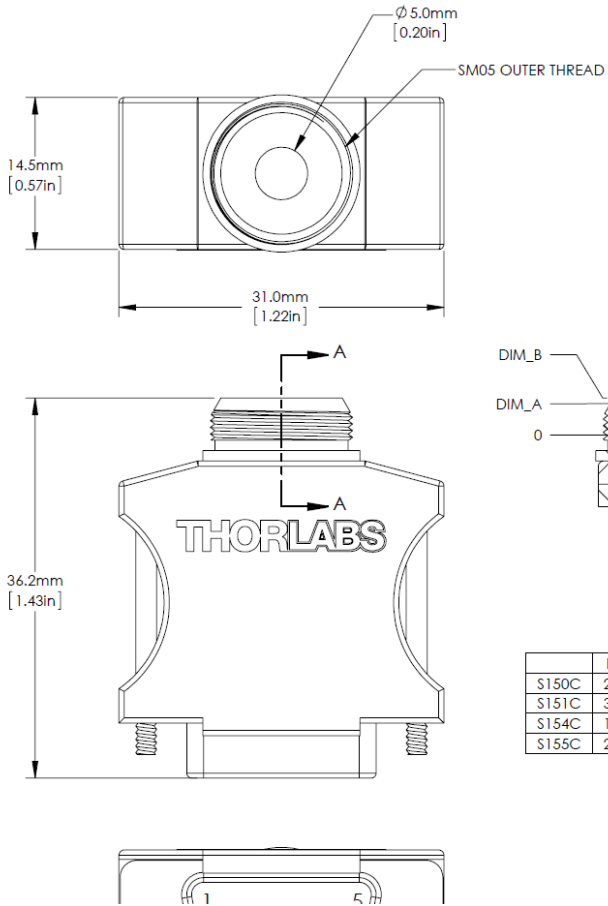
³⁾ This specification is valid for S151C devices from serial number 1203xxx. For older versions, please contact technical support.

Please note that the S151C power meter head is not compatible with the older Thorlabs power meter consoles (PM100, PM30, PM300, PM300E, S100).

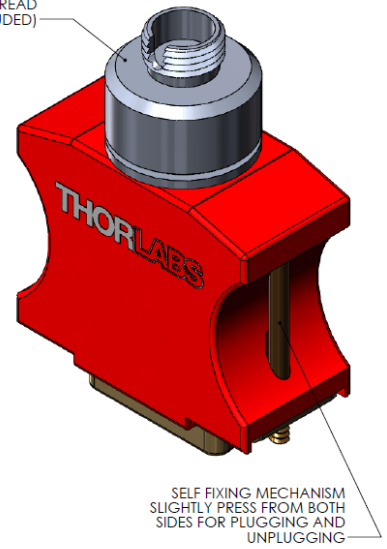
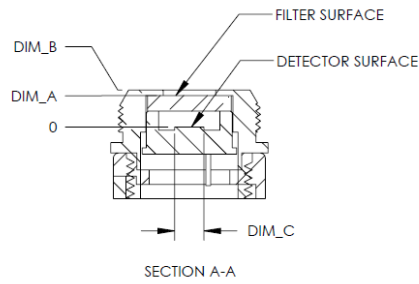
Typical Response Graph



Drawings



INTERCHANGEABLE FIBER ADAPTER WITH SM05 THREAD (FC INCLUDED)



| | DIM_A | DIM_B | DIM_C |
|-------|--------|--------|--------|
| S150C | 2.0 mm | 2.5 mm | 3.6 mm |
| S151C | 3.4 mm | 2.9 mm | 3.6 mm |
| S154C | 1.0 mm | 1.5 mm | 2.0 mm |
| S155C | 2.7 mm | 3.2 mm | 2.0 mm |

CONNECTOR PIN DIAGRAM

| | |
|---------|-----------------------|
| 2 | EEPROM DATA |
| 3 | PD ANODE & NTC GROUND |
| 4 | PD KATHODE |
| 6 | EEPROM GROUND |
| 7 | NTC |
| 1,4,5,9 | N.C. |

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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- 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.*

