



# High-Sensitivity Thermopile Sensors to 2 W

## Amplified and Thermally Stabilized Thermopiles Sensors with a wide, flat Spectral Range for Low Power Laser Measurement

The PS10 and PS19 sensors are thermally stabilized, amplified thermopile sensors with a broad spectral response, high sensitivity, and a large active area. These sensors are ideal for measuring small laser diodes and HeNe lasers and small ion lasers. Unlike semiconductor detectors, these sensors have a flat broadband output and will not saturate above  $1 \text{ mW/cm}^2$ .

### FEATURES & BENEFITS

- Thermally stabilized designs
- Power measurement from  $100 \mu\text{W}$  to  $1 \text{ W}$
- $10 \mu\text{W}$  resolution
- $10 \text{ mm}$  and  $19 \text{ mm}$  apertures
- FC and SMA fiber adapters (optional for PS10, see accessories section of datasheet)
- RoHS compliant



## High-Sensitivity Thermopile Sensors to 2 W Datasheet

SPECIFICATIONS	PS10 <sup>2</sup>	PS10Q	PS19	PS19Q
Wavelength Range (nm)	0.19 <sup>3</sup> to 11	0.3 to 2	0.19 <sup>3</sup> to 11	0.3 to 2
Power Range	100 $\mu$ W to 1 W			
Resolution ( $\mu$ W)	10			
Max. Intermittent Power (<5 min.) (W)	3			
Maximum Thermal Drift <sup>1</sup> ( $\mu$ W)	$\pm 40$	$\pm 20$	$\pm 400$	$\pm 20$
Maximum Avg. Power Density ( $\text{kW}/\text{cm}^2$ )	0.5			
Maximum Pulse Energy Density ( $\text{mJ}/\text{cm}^2$ )	50 (10 ns, 1064 nm)			
Response Time (sec.)	2			
Detector Coating	Black			
Quartz Filter Window	No	Yes	No	Yes
Active Area Diameter (mm)	10	10	19	19
Calibration Uncertainty (%) (k=2)	$\pm 1$			
Calibration Wavelength (nm)	514			
Cooling Method	Air			
Cable Type	PM DB-25			
Cable Length (m)	2			
Part Number	1098350	1098400	1098413**	1098341**

<sup>1</sup> Power stability over 30 minutes in typical lab environment.

<sup>2</sup> Light tube supplied with PS10 and PM3 models only.

<sup>3</sup> 190 nm to 300 nm operation restricted to <100 mW average power and <250  $\text{W}/\text{cm}^2$  power density.

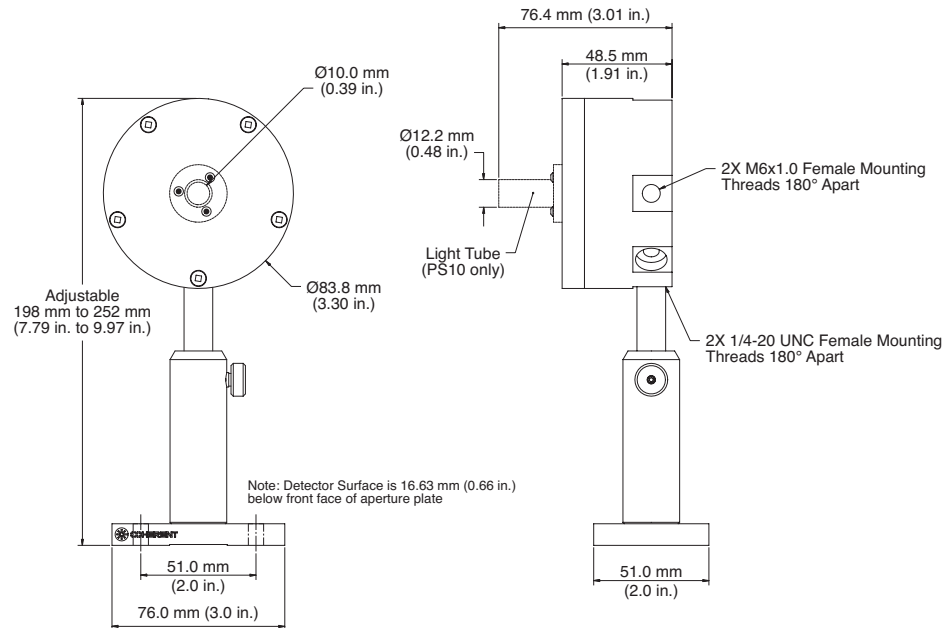
\*\* C24 Quick Ship program: eligible for next business day shipment.

The PS10 model includes a light tube mounted to the front of the housing, which minimizes the effects of background radiation and narrows the field of view. Alternatively, the light tube can be removed and replaced by a fiber adapter accessory.

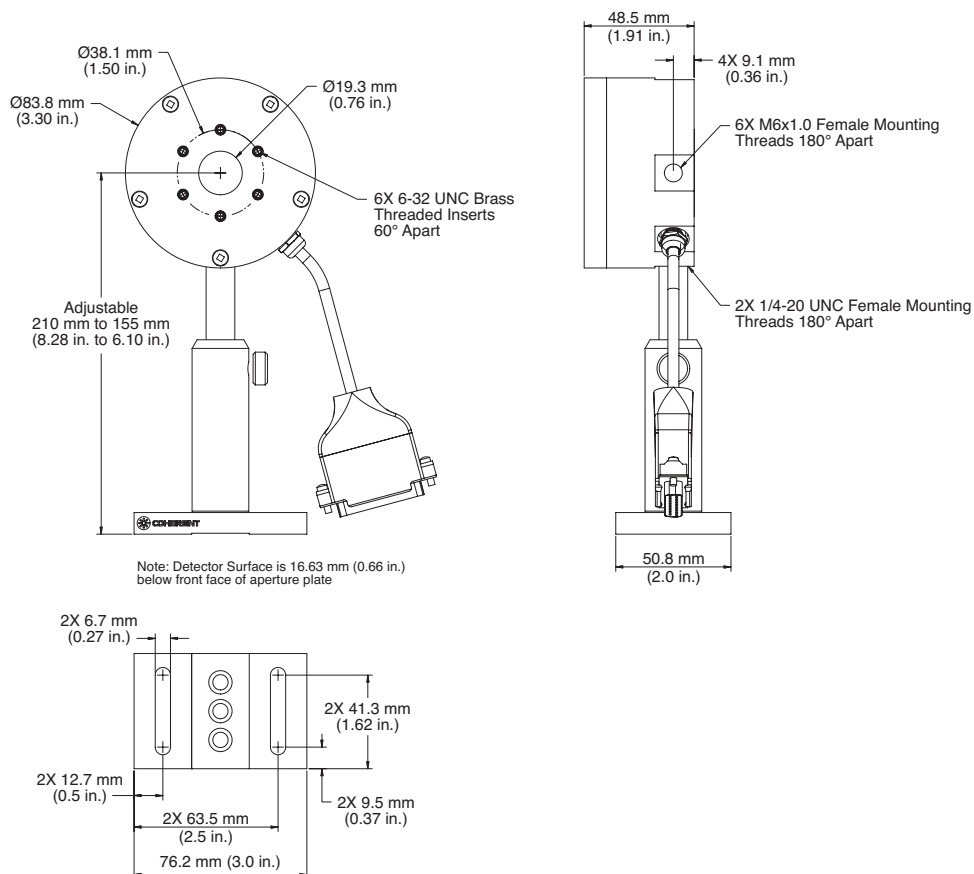
Where optimum stability is required, the PS10Q or PS19Q include a wedged quartz window, for applications from 0.3 to 2.0  $\mu\text{m}$ . The quartz window more effectively eliminates thermal background radiation and the effects of air currents.

## MECHANICAL SPECIFICATIONS

### PS10/PS10Q



### PS19/PS19Q



SPECIFICATIONS	PM3 <sup>2</sup>	PM3Q
Wavelength Range (nm)	0.19 <sup>3</sup> to 11	0.3 to 2
Power Range	500 $\mu$ W to 2 W	
Resolution ( $\mu$ W)	50	
Max. Intermittent Power (<5 min.) (W)	3	
Maximum Thermal Drift <sup>1</sup>	$\pm 1$ mW	$\pm 500$ $\mu$ W
Maximum Avg. Power Density (kW/cm <sup>2</sup> )	0.5	
Maximum Pulse Energy Density (mJ/cm <sup>2</sup> )	50 (10 ns, 1064 nm)	
Response Time (sec.)	2	
Detector Coating	Black	
Quartz Filter Window	No	Yes
Active Area Diameter (mm)	19	10
Calibration Uncertainty (%) (k=2)	$\pm 1$	
Calibration Wavelength (nm)	514	
Cooling Method	Air	
Cable Type	PM DB-25	
Cable Length (m)	2	
Part Number	1098336	1098419

<sup>1</sup> Power stability over 30 minutes in typical lab environment.

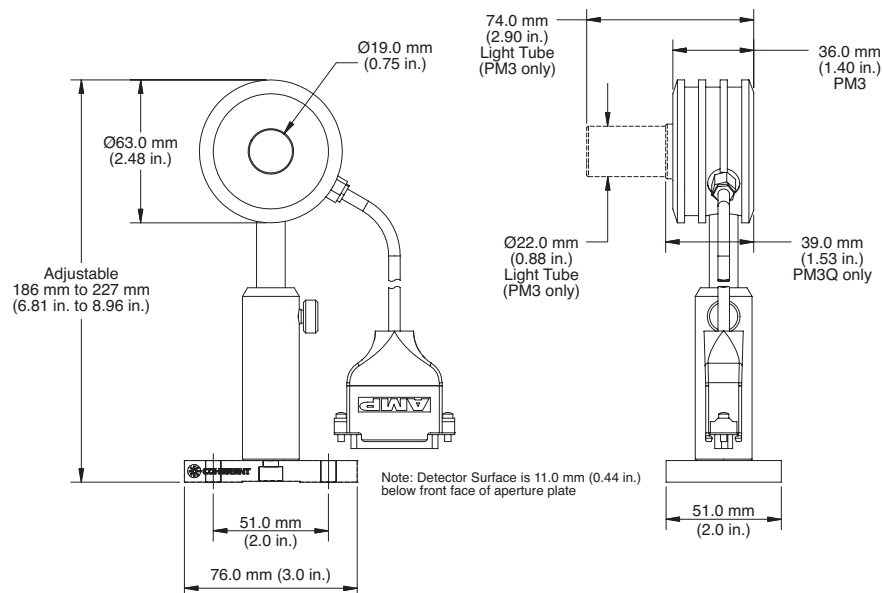
<sup>2</sup> Light tube supplied with PS10 and PM3 models only.

<sup>3</sup> 190 nm to 300 nm operation restricted to <100 mW average power and <250 W/cm<sup>2</sup> power density.

The PM3 sensors are amplified low-power thermopiles, but they do not contain the temperature-stabilization features of the PS series. The PM3 comes with a 10 mm inner diameter light tube to eliminate stray light; however, this can be removed to make use of the entire 19 mm diameter absorbing surface. The PM3Q replaces the light tube with a wedged quartz window to block spurious ambient thermal emissions from reaching the detector.

## MECHANICAL SPECIFICATIONS

### PM3/PM3Q





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### POWER SENSOR ACCESSORIES

#### Fiber-Optic Connector Adapters

**Part Number: 0012-3860 (PS-SMA-Type Connector)**  
**0012-3863 (PS-FC-Type Connector)**

The following fiber adapters can be mounted onto the front of the PS10 sensor in place of the removable light tube.



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Coherent follows a policy of continuous product improvement. Specifications are subject to change without notice. Coherent's scientific and industrial lasers are certified to comply with the Federal Regulations (21 CFR Subchapter J) as administered by the Center for Devices and Radiological Health on all systems ordered for shipment after August 2, 1976.

Coherent offers a limited warranty for all High-Sensitivity Thermopile Sensors. For full details of this warranty coverage, please refer to the Service section at [www.coherent.com](http://www.coherent.com) or contact your local Sales or Service Representative. MC-011-20-0M-0420 Copyright ©2020 Coherent, Inc.