



# High Power Water-Cooled Thermopile Sensors to 5 kW

## Measure Industrial CO<sub>2</sub> and Nd:YAG Lasers at Power Levels up to 5 kW with USB and RS-232 Direct Interfaces

Water-cooling and careful thermal management within these sensors enable them to deliver kW level power handling capacity. They can capably measure industrial CO<sub>2</sub> and Nd:YAG lasers at power levels from 100 W up to 5 kW.

USB and RS-232 sensor models plug directly into a PC or industrial controller. Communication with these models can be performed directly via host commands between host and sensor or through our PC software application (included).

### FEATURES & BENEFITS

- Maximum power from 1 kW to 5 kW
- Minimum power down to 100 W
- Water-cooled
- 0.15  $\mu\text{m}$  to 11  $\mu\text{m}$  spectral range
- 50 mm aperture
- Direct USB and RS-232 interfaces
- RoHS compliant



## High Power Water-Cooled Thermopile Sensors to 5 kW - USB/RS-232 Datasheet

SPECIFICATIONS	PM1K	PM3K	PM5K		
Wavelength Range ( $\mu\text{m}$ )	0.25 to 10.6				
Power Range (W)	50 to 1000	50 to 3000	100 to 5000		
Max. Intermittent Power <sup>1</sup> (<5 min.) (W)	3000	5000	10,000		
Noise Equivalent Power (mW)	20				
Maximum Power Density <sup>2</sup> (kW/cm <sup>2</sup> )	1 to 2.5				
Maximum Energy Density (mJ/cm <sup>2</sup> )	600				
Response Time (sec.) (0% to 95%)					
Speed-up On				4	
Speed-up Off				6	
Detector Coating	Broadband				
Detector Element	Thermopile				
Detector Diameter (mm)	50				
Calibration Uncertainty (%) (k=2)	$\pm 5$				
Power Linearity (%)	$\pm 1$				
Spectral Compensation Accuracy (%)	$\pm 1.5$				
Calibration Wavelength (nm)	1070				
Cooling Method	Water				
Cable Type	USB and RS				
Cable Length (m)	2.5 (USB)/0.3 (RS)				
Part Number <sup>3</sup>	1232163 (USB)	1276824 (USB) 1191293 (RS)	1215999 (USB)		

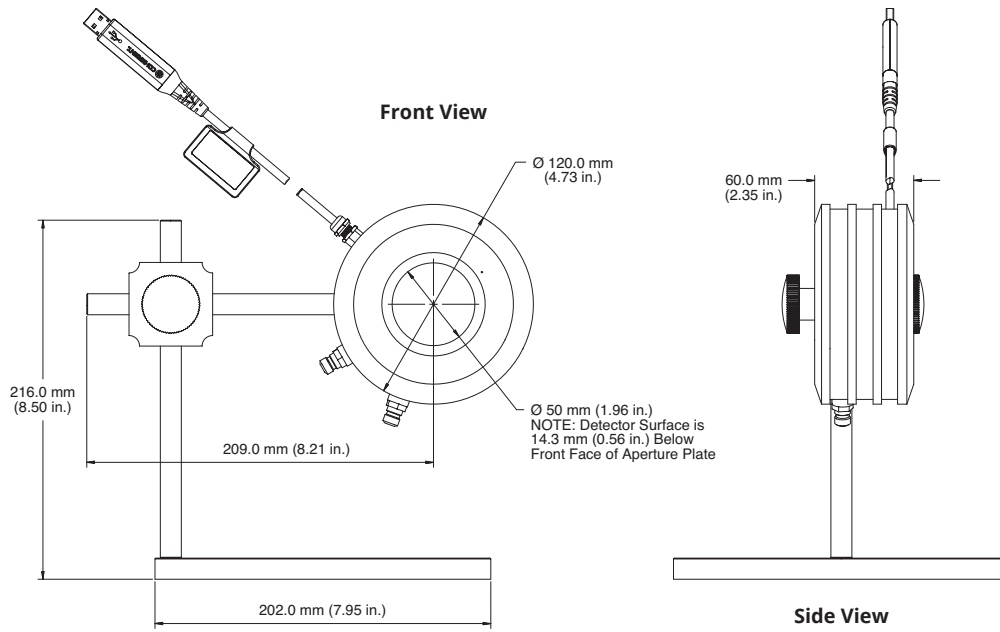
<sup>1</sup> Intermittent power levels may be sustainable for longer than 5 minutes when used with lasers with large diameter, non-Gaussian beam profiles. Monitor closely for coating damage if used longer than five minutes at higher powers.

<sup>2</sup> The damage resistance of the coating is dependent upon the beam size and profile, the average power level, and the water flow rate. Contact Coherent or your local representative for details related to your application.

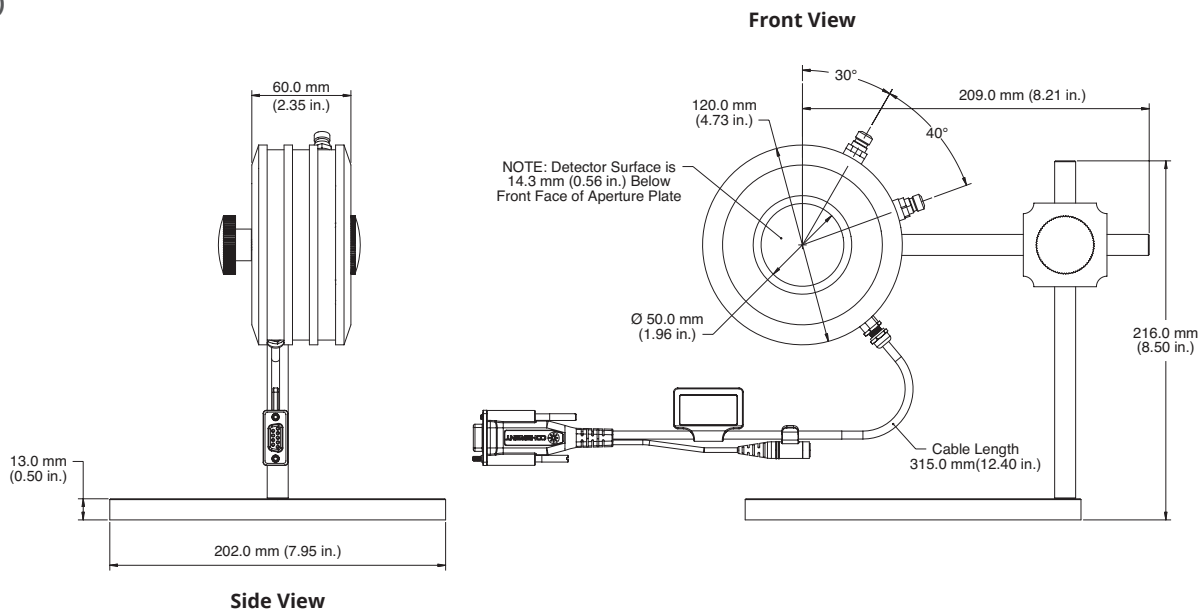
<sup>3</sup> Software, water fittings and post stand included with kW sensors.

**MECHANICAL SPECIFICATIONS**

**PM1K (USB)**

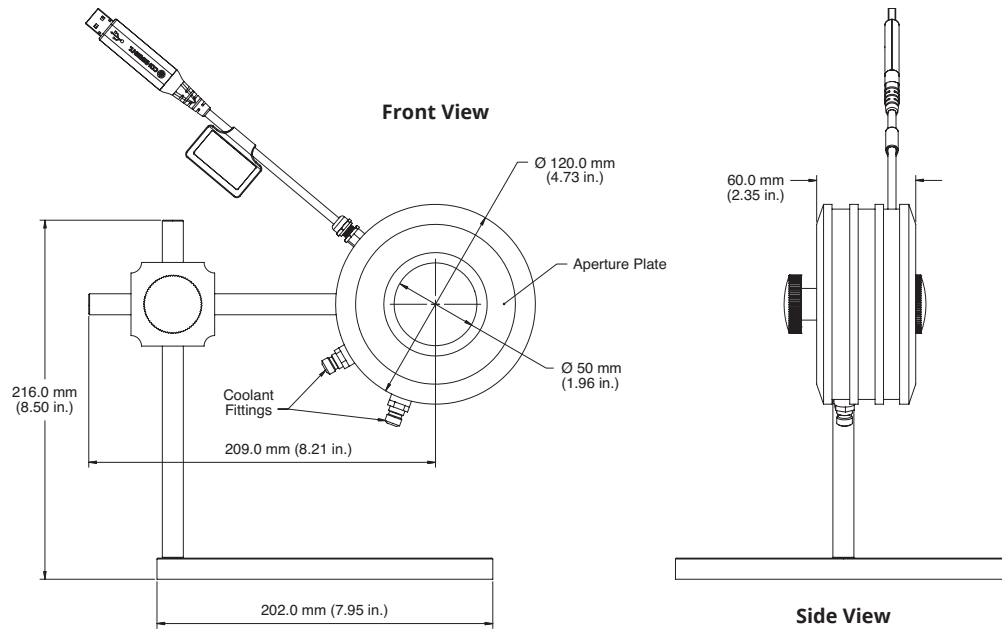


**PM3K (RS)**



## MECHANICAL SPECIFICATIONS

### PM5K (USB)



Coherent, Inc.,  
5100 Patrick Henry Drive Santa Clara, CA 95054  
p. (800) 527-3786 | (408) 764-4983  
f. (408) 764-4646

[tech.sales@coherent.com](mailto:tech.sales@coherent.com) [www.coherent.com](http://www.coherent.com)

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 Power Water-Cooled 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-049-19-0M1119 Copyright ©2019 Coherent, Inc.