



# Large-Area High-Power Water-Cooled Thermopile Sensors to 5 kW

Designed to Measure Large Laser Diode Stacks and Arrays, and other High-Power Divergent Sources

Water-cooling and careful thermal management within these sensors enable them to deliver kW level power handling capacity. They can capably measure industrial diode laser sources and bar arrays at power levels from 100 W up to 5 kW.

The PM1K-100, PM3K-100 and PM5K-100 provide a range of power capabilities in a 100 mm diameter size, and are also useful for diode bars and large cross-section laser beams.

The PM5K-200 features a 200 mm diameter detector, and is specifically intended to measure the power output of large laser diode bar arrays.

## 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
- 100 mm and 200 mm active area diameters
- RoHS compliant



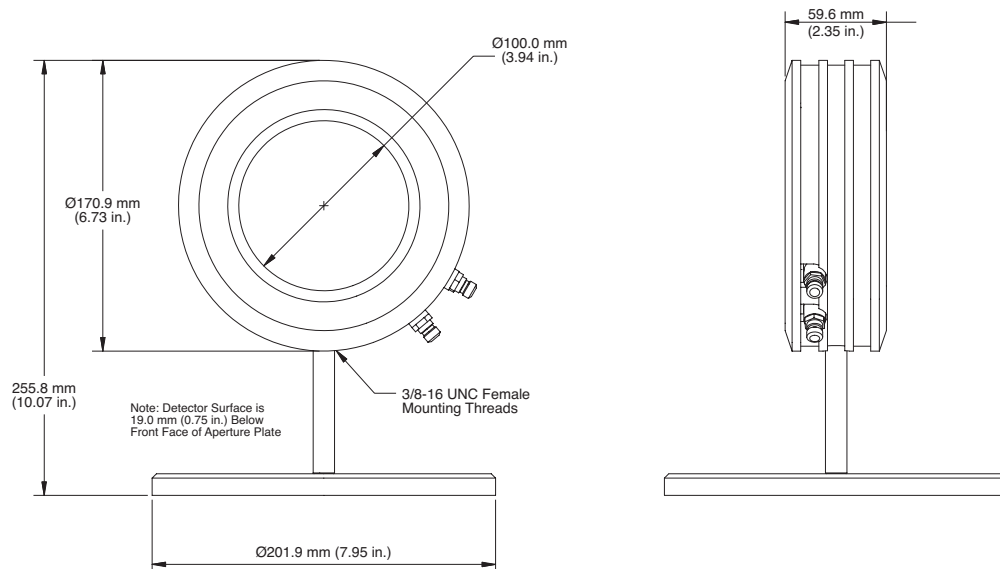
## Large-Area High-Power Water-cooled Thermopile Sensors to 5 kW Datasheet

| SPECIFICATIONS                                     | PM1K-100             | PM3K-100    | PM5K-100    | PM5K-200    |
|----------------------------------------------------|----------------------|-------------|-------------|-------------|
| Wavelength Range (nm)                              | 0.25 to 11           |             |             |             |
| Power Range                                        | 100 to 1000          | 100 to 3000 | 100 to 5000 | 100 to 5000 |
| Resolution ( $\mu$ W)                              | 1                    |             |             |             |
| Max. Intermittent Power (<5 min.) (W)              | 1500                 | 4000        | 7500        | 7500        |
| Maximum Avg. Power Density (kW/cm <sup>2</sup> )   | 1 to 2.5             |             |             |             |
| Maximum Pulse Energy Density (mJ/cm <sup>2</sup> ) | 600 (10 ns, 1064 nm) |             |             |             |
| Response Time (sec.)                               | 45                   |             |             |             |
| Detector Coating <sup>1</sup>                      | Broadband            |             |             |             |
| Detector Diameter (mm)                             | 100                  | 100         | 100         | 200         |
| Calibration Uncertainty (%) (k=2)                  | $\pm 3$              |             |             |             |
| Calibration Wavelength (nm)                        | 1070                 |             |             |             |
| Cooling Method                                     | Water                |             |             |             |
| Cable Type                                         | PM DB-25             |             |             |             |
| Cable Length (m)                                   | 2                    |             |             |             |
| Part Number                                        | 1098490              | 1098506     | 1098461     | 1098505     |

<sup>1</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.

## MECHANICAL SPECIFICATIONS

### PM1K-100/PM3K-100/PM5K-100

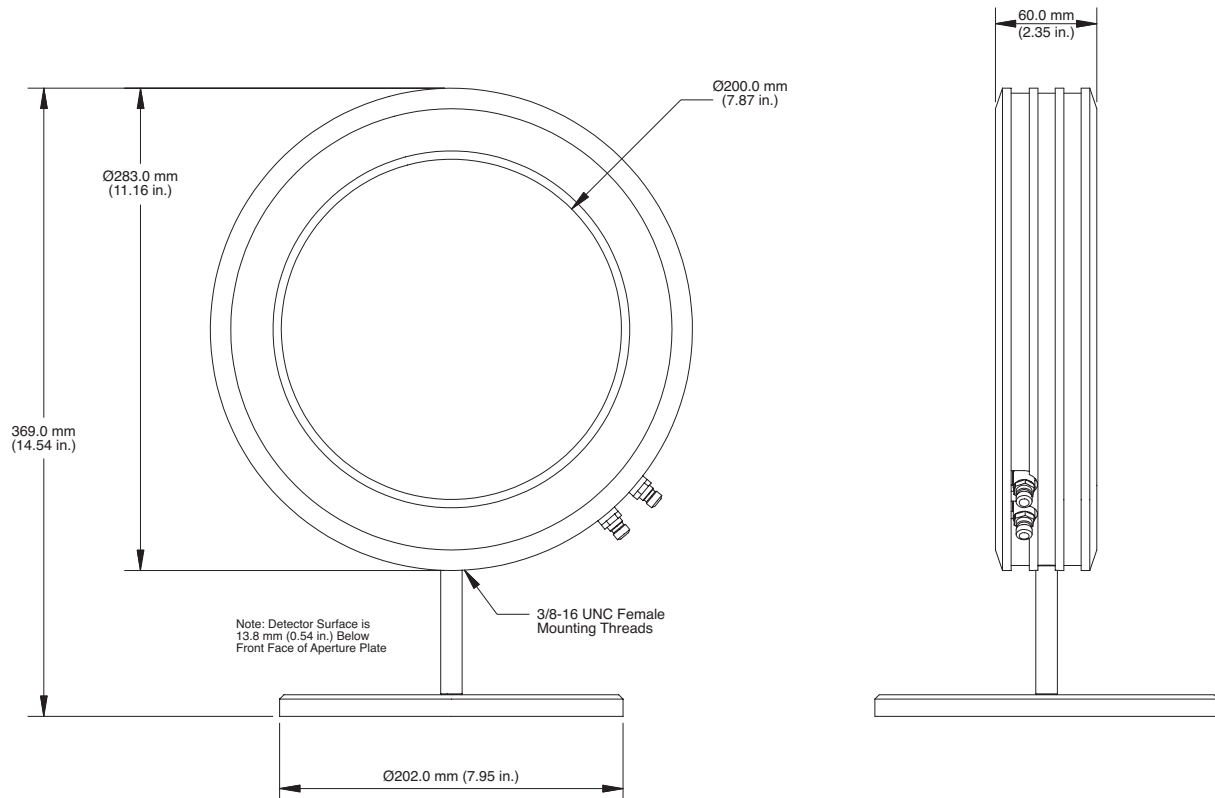




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### MECHANICAL SPECIFICATIONS

#### PM5K-200



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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 Large-Area 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-XXX-20-0M0320 Copyright ©2020 Coherent, Inc.