



# High-Sensitivity Optical Sensors

## Semiconductor Photodiode Sensors Provide a Highly Sensitive, Low Power Sensor with a Fast Response Time

Semiconductor (photodiode) sensors convert incident photons into current, providing a highly sensitive power sensor. These high-sensitivity semiconductor sensors are ideal for CW laser measurements in the nW to low mW level. They typically saturate in the 10 to 50 mW level, depending upon the model. Light shield is removable.

For linear operation up to a maximum of 5 Watts, an optional 1000:1 attenuator is used.

LM-2 and OP-2 Series sensors offer four photodiode detector choices, a silicon model for 400 to 1064 nm (VIS), a UV-enhanced silicon model for 250 to 400 nm (UV) and a germanium model for 800 to 1800 nm in the infrared (IR).

### FEATURES & BENEFITS

- Si, Ge photodiodes
- Spectral range: 250 nm to 1800 nm
- Fiber-optic connector (optional, see datasheet accessories page)
- 1000:1 attenuator for measurement to 5 W (optional, see datasheet accessories page)

### APPLICATIONS

- Scientific
- Manufacturing
- Quality Control
- Tuning and Peaking Lasers



SPECIFICATIONS	OP-2/LM-2 UV	OP-2/LM-2 VIS	OP-2/LM-2 IR
Detector Material	Silicon	Silicon	Germanium
Wavelength Range (µm)	0.25 to 0.4	0.4 to 1.1/0.4 to 1.064 <sup>1</sup>	0.8 to 1.80/0.8 to 1.5 <sup>1</sup>
Power Range	10 nW to 30 mW	10 nW to 30 mW <sup>2</sup>	10 nW to 10 mW
Resolution (nW)	1		
Maximum Power Density (W/cm <sup>2</sup> )	0.3	1.0	0.5
Active Area Diameter (mm)	6	7.9	5
Calibration Uncertainty (%) (k=2)	±4.0	±12.0/±5.0 <sup>3</sup>	±4.5/±9.0
Calibration Wavelength (nm)	200 to 400	440 to 445/450 to 1100	800 to 1700/1700 to 1800
Cooling Method	Air-cooled		
Connector Type	OP DB-25/LM DB-25		
Cable Length (m)	1.8		
Part Number			
OP-2	1098401	1098313 <sup>4</sup>	1098416 <sup>4</sup>
LM-2	1098390	1098298 <sup>4</sup>	1098342

1 OP-2 IR and LM-2 IR have different spectral ranges.

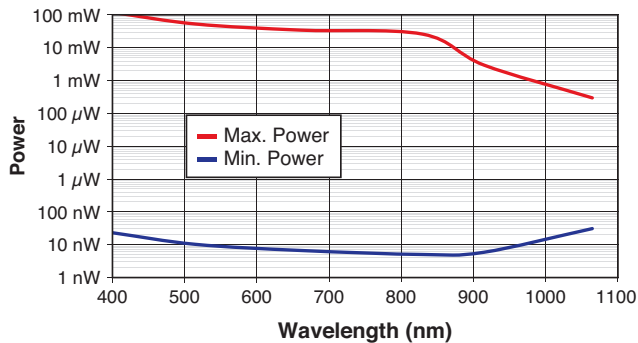
2 Power range is wavelength dependent. See chart below.

3 ±12% uncertainty is for the 440 nm to 445 nm spectral range. ±5% uncertainty is for the 450 nm to 1100 nm spectral range.

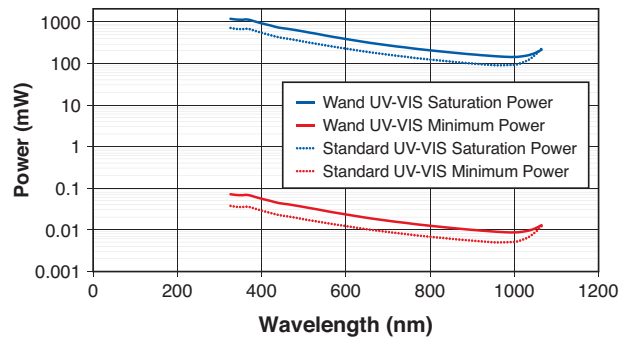
4 C24 Quick Ship program: eligible for next business day shipment.

## TYPICAL PERFORMANCE

Measurable Power vs. Wavelength  
OP-2 VIS and LM-2 VIS

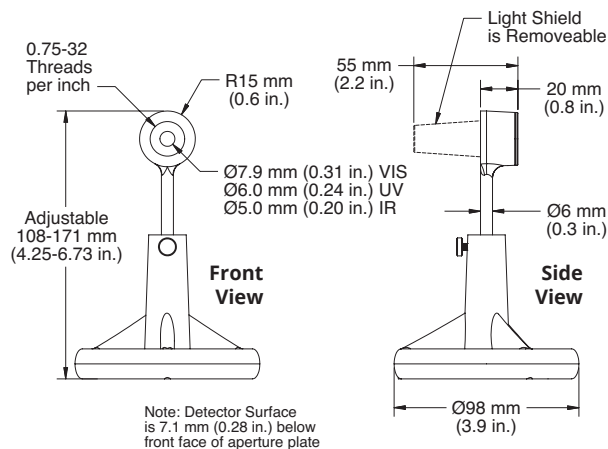


Saturation and Minimum Power  
UV/VIS Sensors Over Wavelength



## MECHANICAL SPECIFICATIONS

OP-2 UV/OP-2 VIS/  
OP-2 IR LM-2 UV/  
LM-2 VIS/LM-2 IR



**POWER SENSOR ACCESSORIES**

**Thermal SmartSensor Adapter**

**Part Number: 1056827<sup>1</sup>**

The Thermal SmartSensor Adapter converts LM-model position-sensing thermopiles and LM-2 optical sensors for use with FieldMaxII and FieldMate meters.

Designed for use with multiple sensors, this adapter can read the sensor EEPROM contents and program itself when powered up via the metconnection.

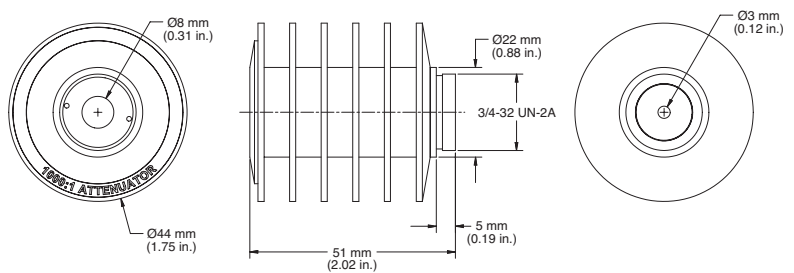
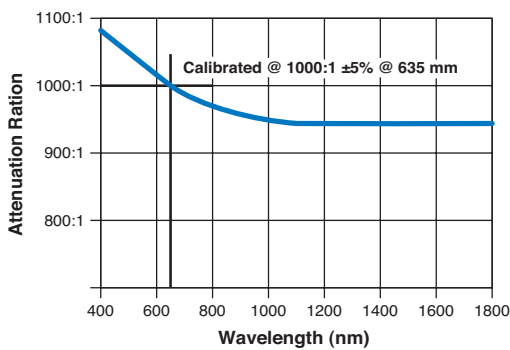
Note: Beam position information is not available when using these meters.



**1000:1 Attenuator**

**Part Number: 1098318<sup>1</sup>**

This attenuator is used with OP-2 VIS, LM-2 VIS, OP-2 IR and LM-2 IR sensors to allow operation up to 5 W in the visible and 3W in the infrared regions. The attenuator threads into the sensor in place of the light shield to provide from 1100:1 to 950:1 attenuation. Each attenuator is calibrated for 1000:1 ±5% at 635 nm and is supplied with a calibration certificate. The useful spectral range is 400 to 1800 nm. The clear input aperture is 0.312" (7.9 mm) in diameter.



**POWER SENSOR ACCESSORIES (continued)****Fiber-Optic Connector Adapters**

Part Number: 1098589 (SMA-Type Connector)  
1098339<sup>1</sup> (FC/PC-Type Connector)

The following fiber-optic adapters can be mounted directly onto the 3/4-32 threads on the front of LM-2, OP-2, LM-3, LM-10, and LM-150FS sensors.

**Post and Stand**

Part Number: 1257607 (2-inch Height Post/Stand Assembly with 2-inch Delrin Post)  
1097917 (4-inch Height Post/Stand Assembly with 4-inch Delrin Post (included with most Power Sensors, as pictured))  
1257605 (2-inch Delrin Post)  
0010-1220 (4-inch Delrin Post)



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Coherent offers a limited warranty for all High-Sensitivity Optical 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-050-19-0M1119 Copyright ©2019 Coherent, Inc.