

# PowerMax-USB UV/VIS Power Sensors

## High-Sensitivity Laser Power Sensor with USB Interface

The PowerMax-USB UV/VIS Quantum sensors incorporate a Silicon photodiode, for measurement of power from 5  $\mu$ W to several hundred milliwatts (see chart for maximum power rating at different wavelengths). These sensors work with CW (continuous wave) as well as pulsed sources greater than 100 pps.

The standard UV/VIS has a removable nose cone that can be used to reduce stray light, and the Wand UV/VIS incorporates a thin profile metal enclosure to fit into tight locations. Fiber optic accessories are available for use with the Wand UV/VIS sensor.

USB sensors plug directly into a PC and can be operated through our PC software application (included) or directly via host commands.

### FEATURES & BENEFITS

- Power measurement from 5  $\mu$ W to >100 mW
- 100 nW resolution
- 8 mm and 10 mm apertures
- Thin 5.5 mm Wand sensor fits into tight spaces between system optics
- Ideal for measuring low power laser diodes
- Direct USB interface

### APPLICATIONS

- Bioinstrumentation
- Scientific
- Quality Control
- Field Service
- Manufacturing



SPECIFICATIONS	PowerMax-USB UV/VIS	PowerMax-USB UV/VIS Wand
Wavelength Range (nm)	325 to 1065	
Power Range <sup>1</sup>	5 $\mu$ W to >100 mW	8.5 $\mu$ W to >140 mW
Noise Equivalent Power (nW)	100	170
Maximum Power Density (W/cm <sup>2</sup> )	20	
Response Time (sec.)		
Speed-up On	-	-
Speed-up Off (0% to 100%)	0.1	0.5
Detector Element	Silicon photodiode	
Optic	ND2	Diffuse Quartz
Detector Diameter (mm)	10	8
Calibration Uncertainty (%) (k=2)	$\pm 1$	
Power Linearity (%)	$\pm 1$	
Spectral Compensation Accuracy (%)		
325 to 900 nm	$\pm 4$	
900 to 1065 nm	$\pm 5$	
Calibration Wavelength (nm)	514	
Cooling Method	Air	
Cable Type	USB	
Cable Length (m)	2.5	
Part Number <sup>2</sup>	1168337*	1299161*

<sup>1</sup> Wavelength dependent, see chart on next page.

<sup>2</sup> Software and post stand included.

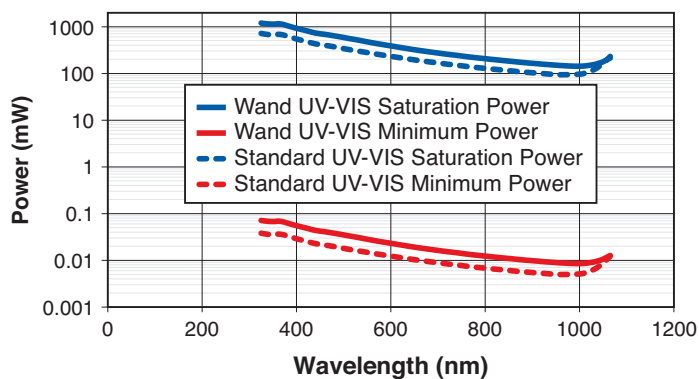
\* C24 Quick Ship program: eligible for next business day shipment.

## TYPICAL PERFORMANCE DATA

We incorporate spectral compensation in the PowerMax-USB UV/VIS sensors to provide accurate measurements across the 325 nm to 1065 nm spectrum. Because the spectral response of the filter and photodiode varies significantly across this wavelength range it is important to check the maximum measurable power at the wavelength of use to make sure the sensor is not being saturated.

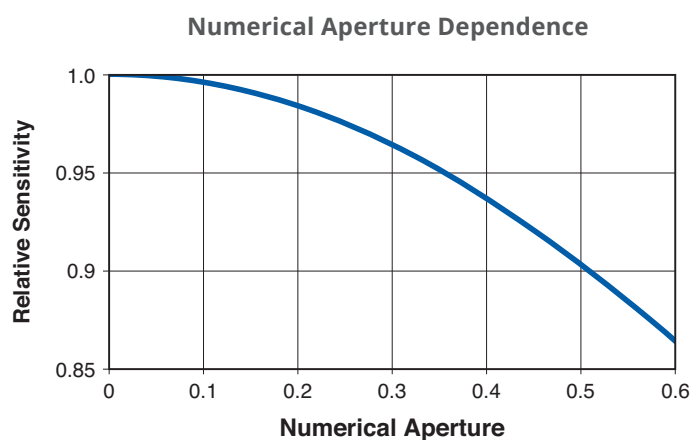
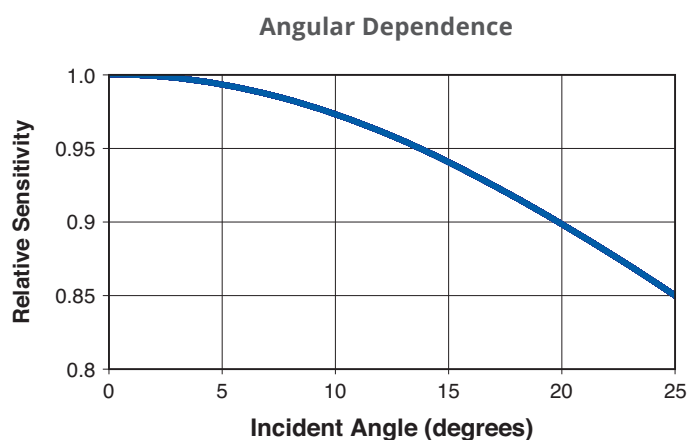
This curve plots the maximum measurable power, which is the saturation level of the photodiode, as well as the minimum recommended power level, by wavelength.

### Saturation and Minimum Power UV/VIS Sensors Over Wavelength



**TYPICAL PERFORMANCE DATA (continued)****Angular Sensitivity**

The following curves plot the sensitivity to incident angle, and numerical aperture in the case of non-collimated beams.

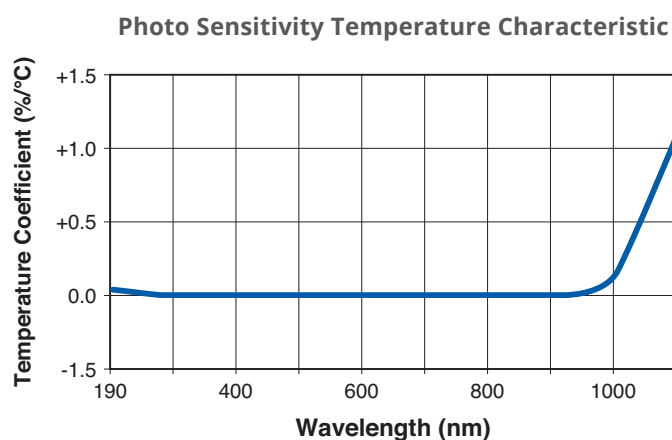
**Measurement Linearity**

Like all silicon photodiodes, the UV/VIS Quantum sensor has temperature sensitivity in the infrared region.

At 1064 nm, for example, it has a 0.5%/°C thermal coefficient. Measurement error of up to 2% are present at 1064 nm after a 10 minute warm-up time due to the electronics inside the sensor, and additional error can be present if the ambient measurement environment differs from the calibration wavelength listed on the calibration certificate.

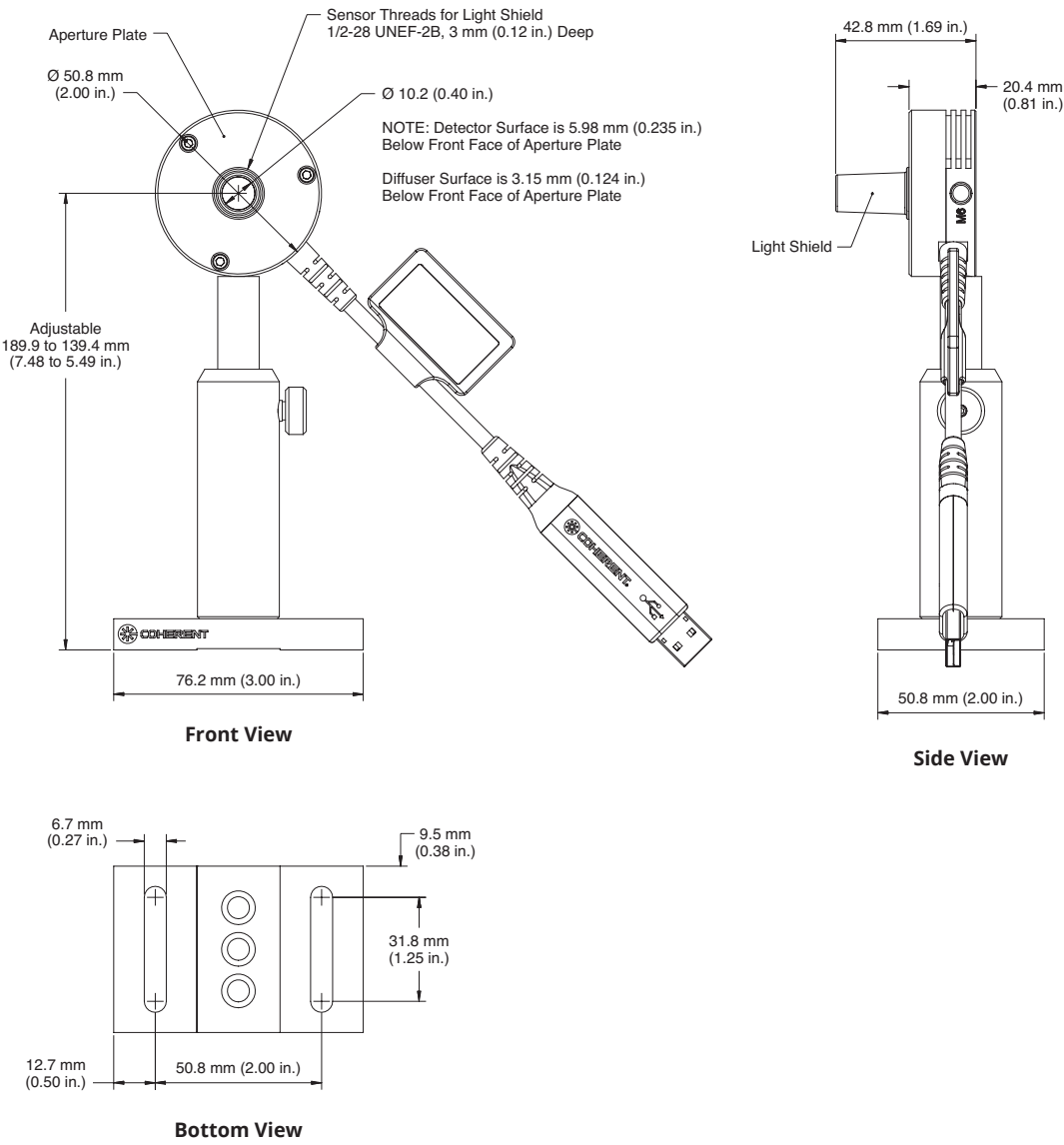
In practice, wavelengths shorter than 1000 nm have insignificant effects due to temperature.

The following chart references the thermal coefficient at the wavelength of use.



MECHANICAL SPECIFICATIONS

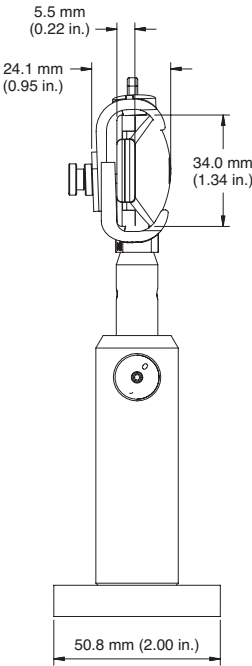
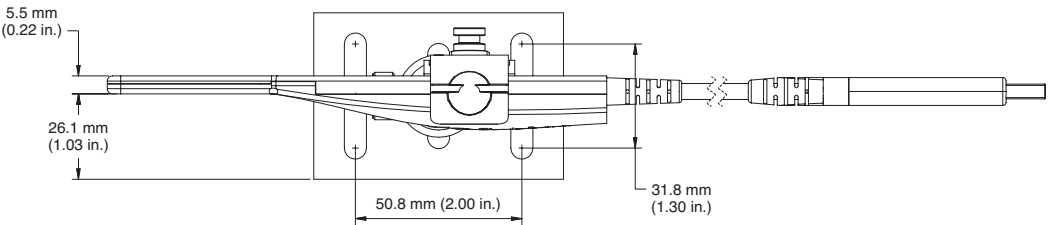
PowerMax-USB UV/VIS Power Sensor



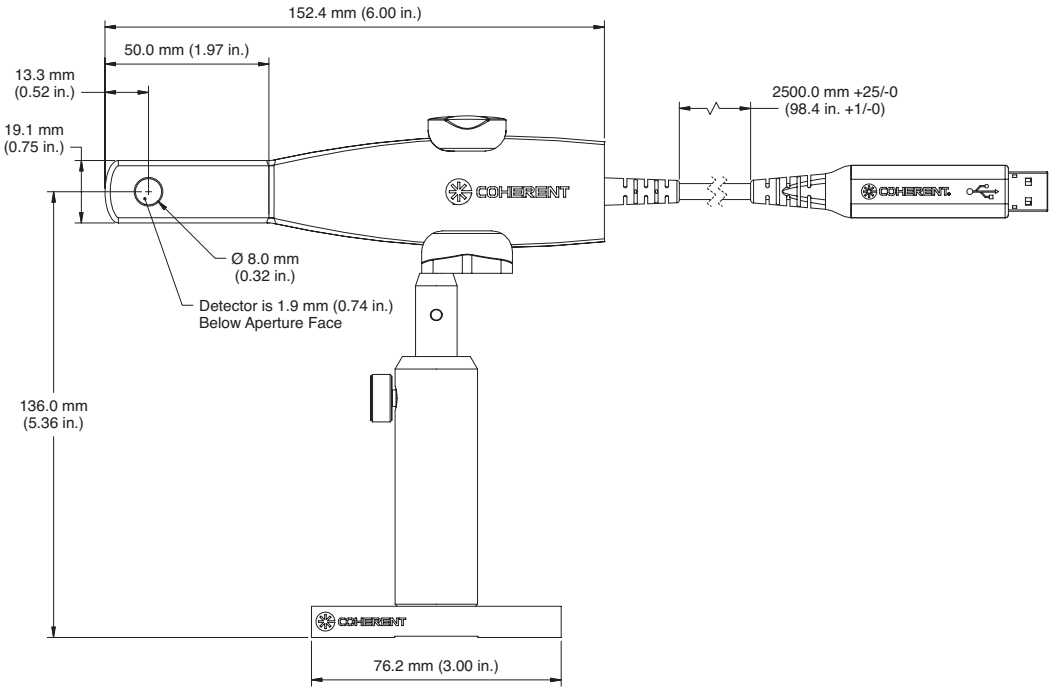
MECHANICAL SPECIFICATIONS

PowerMax-USB UV/VIS Wand

Top View



Side View



Front View



## POWER SENSOR ACCESSORIES

### Fiber-Optic Connector Adapters

Part Number: 1098589 (SMA-Type Connector)  
1211488 Collimating Adapter  
1211489 FC Fiber Adapter  
1220619 FC-APC Fiber Adapter  
1220621 SMA Fiber Adapter  
1220622 7 mm Aperture



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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 PowerMax-USB UV/VIS 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-20-0M0920 Copyright ©2020 Coherent, Inc.