

PowerMax-Pro Sensors

50 mW to 150W

PowerMax-Pro (Patent Pending) represents a dramatic technological advancement in laser power sensing that combines the broad wavelength sensitivity, dynamic range and laser damage resistance of a thermopile with the response speed of a semiconductor photodiode.

Coherent has invented a novel, thin-film technology to create a device which rapidly senses thermal changes due to incident laser energy. Unlike traditional thermopile detectors, in these new PowerMax-Pro sensors, heat flows vertically through a film which is only microns thick, rather than radially to the edge of the device over a distance of several centimeters. The result is a measurement response time below 10 μ s, as compared to over 1 second for traditional thermopiles. Plus, these detectors can operate over a spectral range as broad as 300 nm to 11 μ m, and incorporate a large 30 mm x 30 mm active area.

The high response speed of PowerMax-Pro sensors is particularly advantageous in commercial applications, where it enables CW laser power and pulsed laser energy to be sampled much more frequently, resulting in increased throughput and improved process control. And, their broad spectral response and large active area make these detectors useful with virtually all commercial, scientific, and medical lasers operating in the visible, near infrared and far infrared, including CO₂ lasers at 10.6 μ m.



PowerMax-Pro Features:

- Measures power in tens of microseconds
- High power up to 150W
- Supports lasers from UV to Far-IR wavelengths
- Capable of tracing the individual pulse shape of modulated and long pulse lasers
- Large 30 x 30 mm active area

PowerMax-Pro Applications:

- Laser Processing including Cutting, Drilling, and Welding
- Medical Systems including Long Pulse Aesthetic applications
- Diode LIV Testing - increase resolution and shorten test time
- Scientific and Engineering
- Production and QA Testing

www.Coherent.com/PowerMax-Pro

Superior Reliability & Performance

PowerMax-Pro Sensors

50 mW to 150W

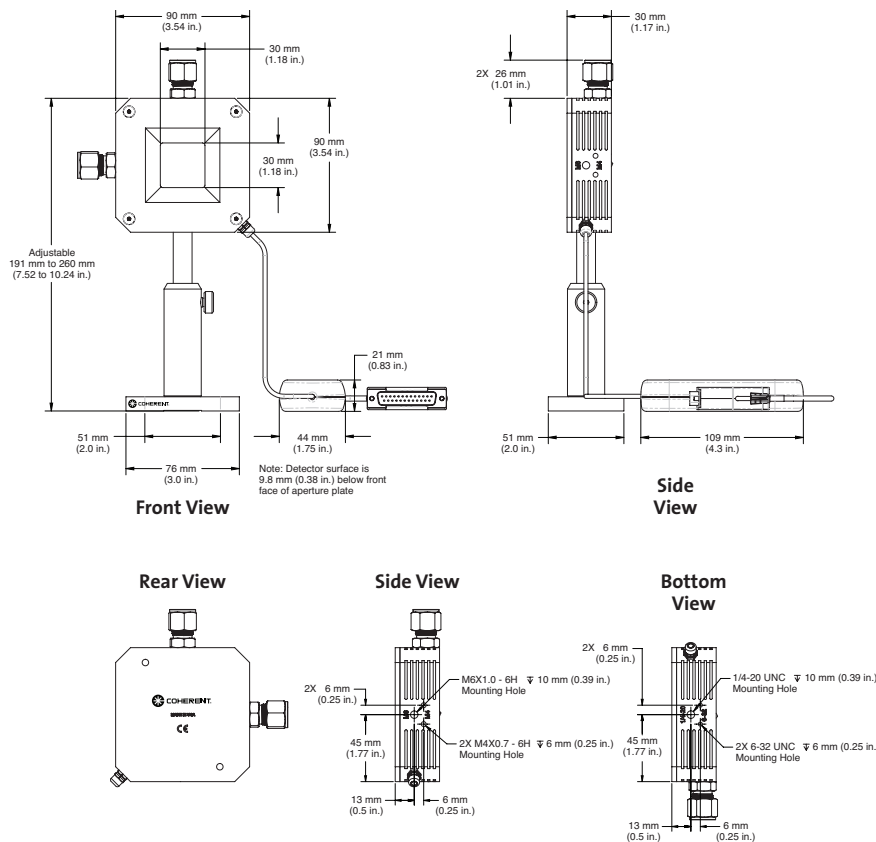
System Specifications

	Pro 150 BB	Pro 150 HD	Pro 150F BB	Pro 150F HD
Wavelength Range	300 nm to 11 μm	355 nm to 1100 nm; 9 μm to 11 μm	300 nm to 11 μm	355 nm to 1100 nm; 9 μm to 11 μm
Power Range				
Water-cooled ¹	50 mW to 150W	50 mW to 150W	50 mW to 150W	50 mW to 150W
Air-cooled	50 mW to 17W	50 mW to 17W	50 mW to 150W	50 mW to 150W
Max. Peak Power (W)			170	
Max. Intermittent Power (W)(<5 min.)	65 (air-cooled)	65 (air-cooled)	150 maximum	150 maximum
Noise Equivalent Power (mW)				
Standard Mode			<1	
High Speed Mode			<4	
Snapshot Mode			<9	
Max. Power Density (kW/cm ²)	3	14	3	14
Max. Energy Density (mJ/cm ²)			700 (10 ns; 355 nm)	
Rise Time (μs)	<30	<10	<30	<10
Detector Coating	Broadband	HD	Broadband	HD
Active Area (mm)			30 x 30	
Calibration Uncertainty (%) (k=2)			± 2.5	
Power Linearity (%)				
200 mW to 150W			± 3	
50 mW to 200 mW			<6	
Spectral Compensation Accuracy (%)	± 2	± 3	± 2	± 3
Spatial Uniformity (%) (center 75% of aperture; 2.5 mm beam)			± 5	
Calibration Wavelength (nm)			810	
Cooling Method	Water/Air (intermittent)	Water/Air (intermittent)	Fan	Fan
Maximum Housing Temperature			60°C (140°F)	
Cable Type			DB25	
Cable Length			2.5m (8.2 ft.)	
Part Number	1268810	1266709	1268809	1266708

¹ Water flow rate for water-cooled sensors must be >0.5 GPM (>2 LPM).

Mechanical Specifications

Pro 150 BB and Pro 150 HD

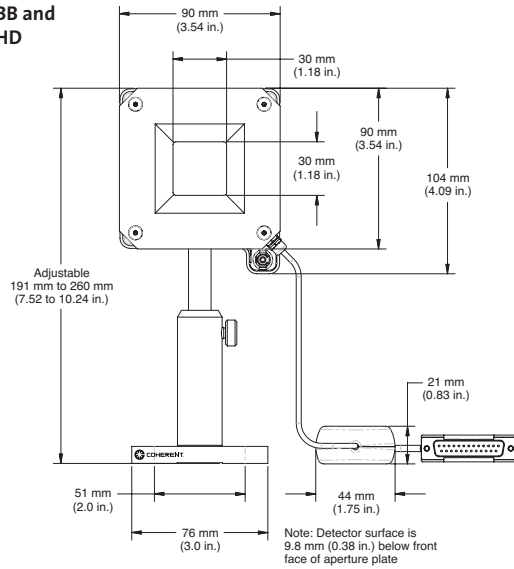


PowerMax-Pro Sensors

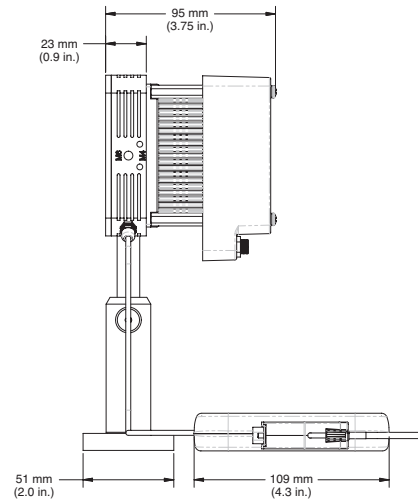
50 mW to 150W

Mechanical Specifications

Pro 150F BB and
Pro 150F HD

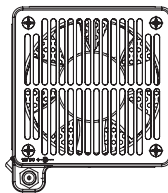


Front View

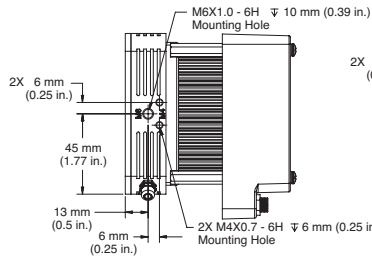


Side View

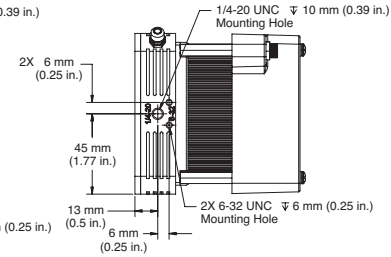
Rear View



Side View



Bottom View



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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-Pro sensors. For full details of this warranty coverage, please refer to the Service section at www.Coherent.com or contact your local Sales or Service Representative.