

# PowerMax-Pro Sensors

100 mW to 150W

PowerMax-Pro (Patent #9,012,848) represents a dramatic technological advancement in laser power sensing that combines the broad wavelength sensitivity, dynamic range and laser damage resistance of a thermopile and a million times faster response time.

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  $\mu$ s, as compared to over 1 second for traditional thermopiles. Plus, these detectors can operate over a spectral range as broad as 355 nm to 11  $\mu$ 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.



## PowerMax-Pro Features:

- Measures power in ten 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](http://www.Coherent.com/PowerMax-Pro)

**Superior Reliability & Performance**

# PowerMax-Pro Sensors

100 mW to 150W

## System Specifications

	Pro 150 HD	Pro 150F HD
Wavelength Range	355 nm to 1100 nm; 9 μm to 11 μm	355 nm to 1100 nm; 9 μm to 11 μm
Power Range		
Water-cooled <sup>1</sup>	100 mW to 150W	
Air-cooled	100 mW to 17W	100 mW to 150W
Maximum Peak Power (W)		170
Maximum Intermittent Power (W)(<5 min.)	65 (air-cooled)	150 maximum
Noise Equivalent Power (mW)		
Standard Mode		<1
High Speed Mode		<4
Snapshot Mode		<9
Maximum Power Density (kW/cm <sup>2</sup> )		0.2 (150W)
Maximum Peak Power Density (kW/cm <sup>2</sup> )		14
Maximum Energy Density (mJ/cm <sup>2</sup> )		700 (10 ns; 355 nm)
Rise & Fall Time (μs)		≤10
Detector Coating		HD
Active Area (mm)		30 x 30
Minimum Beam Size (mm)		2.0 (1.0 mm - up to 3% error)
Calibration Uncertainty (%) (k=2)		±2
Power Linearity (%)		
100 mW to 150W		±3
Spectral Compensation Accuracy (%)		±3
Spatial Uniformity (%) (center 75% of aperture; 2.5 mm beam)		±5
Calibration Wavelength (nm)		810
Cooling Method	Water/Air (intermittent)	Fan
Cable Type		DB25
Cable Length		2.5m (8.2 ft.)
Part Number	1266709	1266708

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

## Mechanical Specifications

### Pro 150 HD



