PowerMax-Pro kW Sensors

1 W to 3 kW

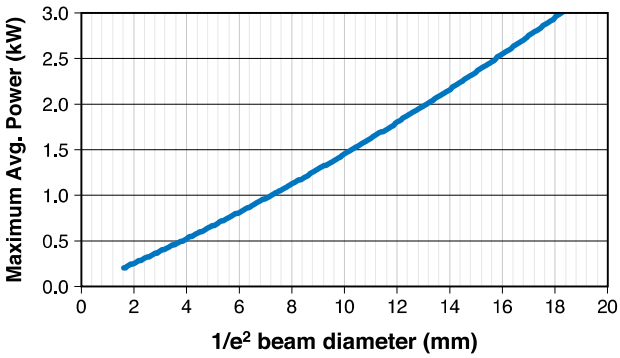
PowerMax-Pro kw Sensor

This chart indicates the maximum average power the sensor can handle based upon beam diameter.

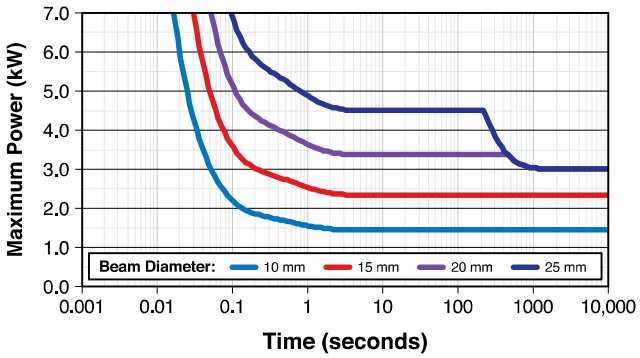
This chart can be used to determine intermittent power handling capability at powers above 3 kW.

The plot shows the length of time the sensor can be exposed to particular powers with several beam diameters.

Maximum Average Power by Beam Diameter



Laser Power by Beam Size and Exposure Time



[1] We do not recommend any long term usage above 3 kW average power because the housing can become too hot and the heat sink absorber can easily damage. At 3 kW the top front portion of the enclosure will reach 83°C in approximately 1000 seconds (at 2 kW average power the enclosure will reach 61°C at 1000 seconds and at 1 kW the enclosure reaches 51°C at 1000 seconds).

[2] The sensor can be used above 3 kW intermittently for up to 200 to 400 seconds with increasingly larger beams.

[3] With a 20 mm diameter beam, this sensor can be used safely with modulated sources with peak powers up to 5 kW and pulse lengths up to 100 milliseconds.

[4] If care is taken to increase the beam size to 25 mm, the sensor could be used with modulated peak power up to 7 kW for 100 milliseconds.

[5] These curves are for Gaussian beam profiles. Flatter beams can handle higher powers (~5%) for longer lengths of time, and beams with hot spots or "super Gaussian" beams the curves must be de-rated by up to 30%. Contacting Coherent LMC applications engineering for more detailed information.

PowerMax-Pro HP Sensors

1W to 15 kW

Device Specifications

ISO/IEC 17025:2005

AC-1630

Model	PowerMax-Pro HP
Wavelength Range	700 nm to 1070 nm; 10.6 µm
Average Power Range[1]	1W to 350W (22W max air-cooled, cont.) (75W max air-cooled, 5 min.)
Maximum Pulsed Peak Power (W)	15000 (<10 msec burst) 1500 (continuous)
Noise Equivalent Power (mW)	
Standard Mode (10 Hz)	<25
High Speed Mode (20 kHz)	<100
Snapshot Mode (625 kHz)	<300 (low 5 kW range) <1.5W (high 40 kW range)
Maximum Power Density (kW/cm²)	1.2 (150W)
Maximum Peak Power Density (kW/cm²)	50 (1 ms; 1064 nm)
Maximum Energy Density (J/cm²)	30 (3 ms; 755 nm)
Rise Time (µs)	≤10
Fall Time (µs)	≤10
Detector Coating	HD
Diffuser	ZnSe
Active Area (mm)	25 dia.
Minimum Beam Size (mm)	Set by damage threshold
Maximum Beam Size[2] (mm)	18
Calibration Uncertainty (%)(k=2) at 810 nm	±2
Spectral Compensation Accuracy (%)	±5
Power Linearity[3] (%)	±2 (1W-10 kW) 3-10 (10-15 kW)
Spatial Uniformity (%) (center 64% of aperture; 2.5 mm beam)	±5
Calibration Wavelength (nm)	801
Cooling Method	Water/Air (intermittent)
Cable Type	DB25
Cable Length	2.5 m (8.2 ft.)
Part Number	1286588**

[1] Beam size dependent. See steady-state and intermittent power charts.
[2] See spatial uniformity and beam diameter charts for larger beams.
[3] Beam size and pulse length dependent. See peak power and pulse length charts.
** C24 Quick Ship program: eligible for next business day shipment.

PowerMax-Pro HP