

Custom and OEM Products Introduction

Complete Laser Measurement and Control Solutions

Laser system integrators frequently include laser measurement products in their systems to monitor system performance and status, or to provide real-time feedback for laser system control. In these instances custom measurement solutions or modifications to our existing products may be necessary due to size or performance constraints.



Coherent is well positioned to provide custom and modified measurement products. Following are some examples of services and products Coherent offers.

OEM Power and Energy Sensors

We provide an extensive line of OEM thermopile and energy sensors. Usually, a standard or existing modified standard product will fit your application.

- Power Sensors**
- Compact thermopile power sensors
 - Water-cooled and air-cooled options
 - BNC and 4-pin Molex signal output options
 - Thermopile disks for integrating into heat-sinked applications
 - Any standard thermopile with a cable can be integrated with an off-the-shelf interface module

- Energy Sensors**
- BNC-terminated energy sensors
 - Compact designs to fit in tight locations
 - A customer-supplied peak detection module or a Coherent meter or custom signal conditioning board is required

Off-the-Shelf Interface Modules

Several off-the-shelf electronic modules provide signal conditioning, measurement, and communication outputs.

- Power Modules**
- Amplification for very low power applications
 - Noise filtering
 - Analog output
 - PC interfacing
 - Beam position monitoring

- Energy Modules**
- Baseline and peak detection capabilities
 - Noise filtering for greater peak detection accuracy
 - Repetition rates as high as 100 kHz

Custom Measurement Products

Sometimes a completely custom product is required for a particular application. Our research and development teams of electrical, mechanical and software engineers, physicists, chemists and materials scientists can provide measurement systems to meet the most complex challenges. By involving Coherent early in your design phase we can provide the very best solution.

- Custom detectors and sensors
- Interface modules with unique communication protocols
- Extremely low energy and/or high repetition rate energy measurement

Modified Standard Products

Sometimes a slight modification to a standard catalog product is all that is needed to enable a special application.

- Mechanical**
- Longer or shorter cable
 - Different type of connector
 - Slight mechanical change
- Calibration**
- Different calibration wavelength

POWER & ENERGY

Power & Energy Meters

Power Sensors

Energy Sensors

Custom & OEM

BEAM DIAGNOSTICS

CALIBRATION & SERVICE

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Product Name Index

OEM Modules

PM-Digital



Features

- Compact, OEM power meter for embedded applications
- RS-232 PC interface
- LabVIEW instrument driver
- PC applications software
- Compatible with PM Model thermopiles
- Dimensions (H x W x D): 51 x 134 x 92 mm (2.0 x 5.2 x 3.6 in.)

Part Number	Description
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0012-3550	PM-Digital
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SmartSensor Interface Module (SSIM)



Features

- Compact, OEM power meter for embedded applications
- RS-232, USB 1.1 PC interfaces
- PC applications software
- Displays beam position information
- Compatible with LM Model thermopiles
- Dimensions (H x W x D): 38 x 127 x 133 mm (1.4 x 5.0 x 5.2 in.)

Part Number	Description
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1008557	SmartSensor Interface Module (SSIM)
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J100 Energy Sensor



Features

- Large-area 95 mm diameter
- Broad spectral response 0.3 to 12 μm
- Wide dynamic range of 0.4 mJ to 5J
- High average power to 20W

The J100 is a pyroelectric energy sensor with a flat, broad spectral response calibrated at 1064 nm. The 95 mm diameter active area is ideal for divergent sources and pulsed lasers used in applications such as laser range finding. The sensor output is through a BNC connector and the product ships with a 1.5 m BNC cable.

Part Number	Description
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0011-6100	J100 Energy Sensor
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OEM Thermopiles

10 mW to 150W



Models PM10-19A, PM10-19B, PM150-50A

Features

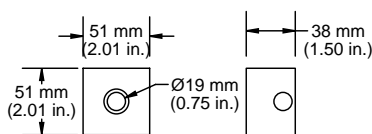
- 10 mW to 150W
- Spectrally flat from 0.19 μm to 11 μm
- Compact designs
- Air-cooled or water-cooled
- Active area diameters from 19 mm to 50 mm

The sensors on the next two pages are small, compact OEM thermopiles designed for use in embedded applications. Power ratings are provided for water-cooled and air-cooled installations (see page 18 for additional air-cooled ratings for various exposure times). For conductively-cooled installations a good approximation is that doubling the surface area of the sensor housing doubles the air-cooled rating.

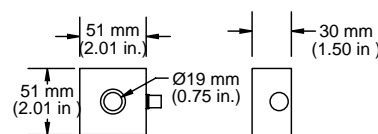
Models that end with “A” are amplified sensors with a 4-pin connector. They must be supplied with ± 15 VDC and draw less than 20 mA. Models that end with “B” are passive sensors with a BNC output. Models with DB25 cables that are compatible with our instruments end with a “C” and can be found on page 30.

Device Specifications	Model	PM10-19A	PM10-19B	PM150-19A	PM150-19B	PM150-50A
Wavelength Range (μm)				0.19 to 11		
Resolution (mW)		1	1	30	30	30
Min. Water flow (gpm)		0.02	0.02	0.2	0.2	0.2
Max. Avg. Power (water-cooled) (W)		10		150		
Max. Avg. Power (air-cooled, 5 min.) (W)		5		20		80
Responsivity (typ.)		1 V/W	1 mV/W	40 mV/W	0.4 mV/W	40 mV/W
Max. Power Density		26 kW/cm ²				
Max. Energy Density		0.6 J/cm ² , 1064 nm, 10 ns				
Response Time (sec.)		1	2	1	2	1
Detector Coating		Broadband				
Active Area Diameter (mm)		19				
Dimensions (mm)		51 x 51 x 38 (2.0 x 2.0 x 1.4 in.)	51 x 51 x 30 (2.0 x 2.0 x 1.1 in.)	51 x 51 x 38 (2.0 x 2.0 x 1.4 in.)	51 x 51 x 30 (2.0 x 2.0 x 1.1 in.)	89 x 89 x 38 (3.5 x 3.5 x 1.4 in.)
Calibration Uncertainty (%)		± 1				
Calibration Wavelength (nm)		514				
Cooling Method		Water-cooled				
Connector Type		4-pin Molex 22-12-2044	BNC- terminated	4-pin Molex 22-12-2044	BNC- terminated	4-pin Molex 22-12-2044
Cable Length (m)		-				
Part Number (RoHS)		1098334	1098343	1098418	1098321	1098510

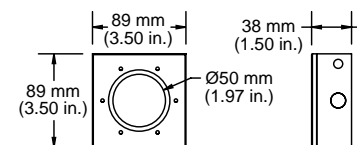
PM10-19A/PM150-19A



PM10-19B/PM150-19B



PM150-50A



- POWER & ENERGY
- Power & Energy Meters
- Power Sensors
- Energy Sensors
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OEM Thermopiles

300 mW to 1 kW



Model PM150-50B, PM150-50XB, PM1K-36B, BeamFinder

Features

- 300 mW to 1 kW
- Spectrally flat from 0.19 μm to 11 μm
- Compact designs
- Air-cooled or water-cooled
- Active area diameters from 19 mm to 50 mm

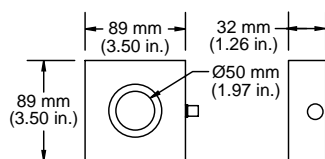


BeamFinder: Use with LabMax, Ultima, or LaserPAD (see pages 10-16)

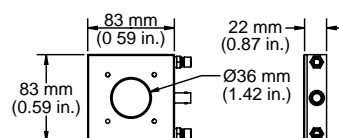
Device Specifications	Model	PM150-50B	PM150-50XB	PM1K-36B	BeamFinder ¹
Wavelength Range (μm)		0.19 to 11	0.15 to 1	0.19 to 11	0.3 to 10.6
Resolution (mW)		30	30	1000	1000
Min. Water flow (gpm)		0.2	0.2	1.0	1.0
Max. Avg. Power (water-cooled) (W)		150		1000	
Max. Avg. Power (air-cooled, 5 min.) (W)		80		40	–
Responsivity (typ.)		0.4 mV/W		0.1 mV/W	–
Max. Power Density		26 kW/cm ²			2.5 kW/cm ²
Max. Energy Density		0.6 J/cm ² , 1064 nm, 10 ns			0.5 J/cm ² , 1064 nm, 10 ns
Response Time (sec.)		5			10
Detector Coating		Broadband	UV	Broadband	H
Active Area Diameter (mm)		50		36	35
Dimensions (mm)		89 x 89 x 32 (3.5 x 3.5 x 1.2 in.)		83 x 83 x 22 (3.2 x 3.2 x 0.8 in.)	84 x 84 x 25.4 (3.3 x 3.3 x 1.0 in.)
Calibration Uncertainty (%)		±1		±5	
Calibration Wavelength (nm)		514		1064	10,600
Cooling Method		Water-cooled			
Connector Type		BNC-terminated			LM DB-25
Cable Length (m)		–	–	–	6
Part Number (RoHS)		1098415	1098441	1098333	1098427

¹ BeamFinder incorporates a quadrant thermopile disk that enables the position of the beam to be sensed.

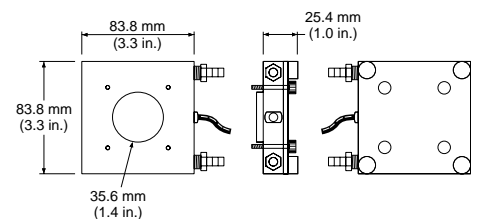
PM150-50B/PM150-50XB



PM1K-36B



BeamFinder



* Requires 15 VDC power input

Custom and OEM Products

Complete Laser Measurement and Control Solutions

Additional electrical connection, water fitting, and mounting details for several of our OEM thermopiles can be found below.

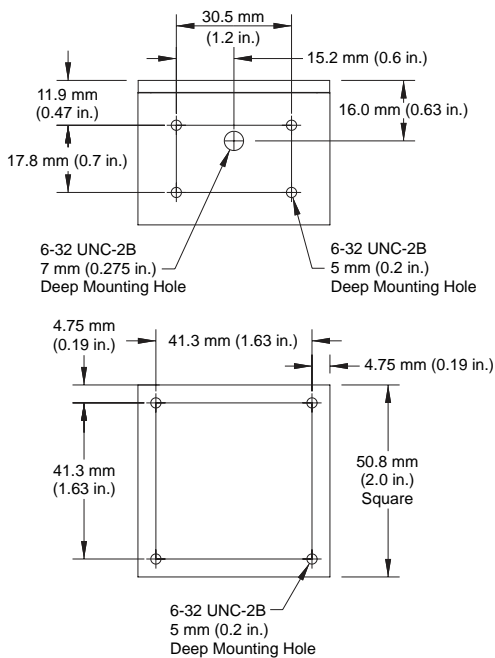
PM10-19A, PM150-19A, PM150-50A

Style: Active amplified output
 Input/Output connector: 4-pin, Molex part no. 22-12-2044
 pin 1: -10 to -20V power input
 pin 2: Ground
 pin 3: +10 to +20V power input
 pin 4: Output signal
 Current draw: Approx. 8 mA at -15 V, Approx. 18 mA at +15 V
 Output impedance: 100 Ohm
 Water connections: 1/8 NPT

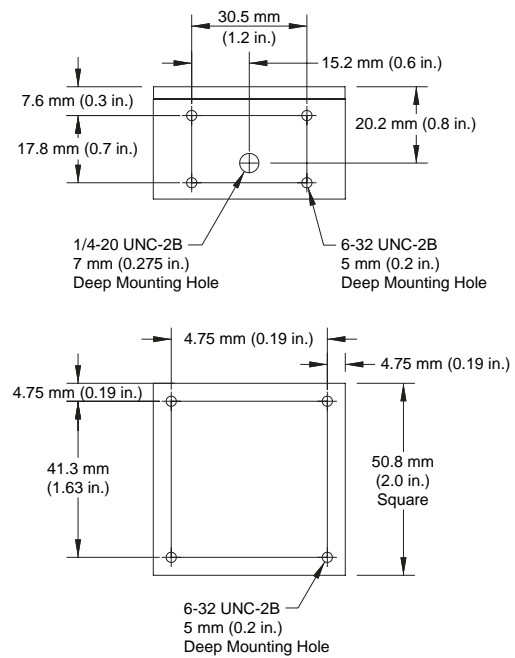
PM10-19B, PM150-19B, PM150-50B, PM150-50XB, PM1K-36B

Style: Passive output
 Output connector: BNC
 Output impedance: 2500 Ohm
 Water connections: 1/8 NPT

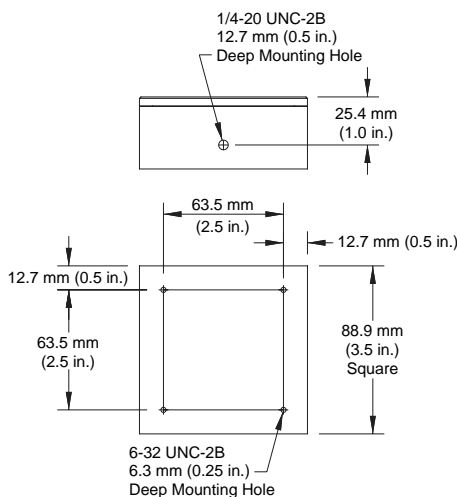
PM10-19A/ PM150-19A



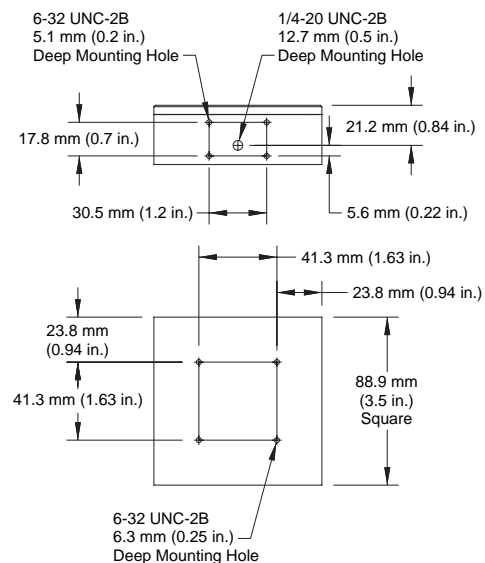
PM10-19B/ PM150-19B



PM150-50A



PM150-50B/ PM150-50XB



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