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YAG/Harmonics and IR Sensors

Very high damage threshold, large area, laser energy sensors optimized for Nd:YAG, Erbium, Ruby and Holmium lasers.

Coherent YAG/Harmonics and IR EnergyMax sensors are specifically designed for use with very high energy/peak power lasers operating at low repetition rates, such as those based on Nd:YAG, Erbium, Ruby and Ho:YAG. The YAG/Harmonics sensor can operate with laser beams up to 35 mm in diameter, and can work at 1064 nm, 532 nm, 355 nm and 266 nm without the need to change diffusers or any other accessories. The J-50MB-IR sensor is similar to the J-50MB-YAG sensor, except that its diffuser is optimized for long pulse lasers that operate between the range of 500 nm and 2940 nm. It is ideal for long pulse Erbium lasers. The J-25MB-IR sensor has a 25 mm diameter, and can operate throughout the 694 nm to 2.1 µm wavelength range without any reconfiguration.

Contact Us About This Product

ITEMS MARKED AS C24 ARE GUARANTEED TO SHIP WITHIN 24 HOURS!

Benefits

- J-50MB-YAG operates at Nd:YAG fundamental and harmonics, or throughout the IR using a single diffuser and provides very high energy or peak power handling capability used in medical procedures.
- J-50MB-IR operates from 500 to 2940 nm and provides high damage threshold for long pulse lasers often
- Enable pulse energy measurements from 1 mJ to 10J (contact factory for part number for >3J applications)
- Spectral compensation characteristics built into each unit
- Onboard sensors provide automatic temperature compensation

The YAG/Harmonics and IR EnergyMax Series comprises three different models that work either throughout the visible and near-IR, or throughout the near-IR and mid-IR, without the need to change diffusers. Both these detectors mate Coherent's unique MaxBlack coating with a novel diffuser to produce superior damage resistance characteristics. This enables operation with lasers that produce very high energy per pulse or very high peak fluences.

The J-50MB-YAG sensor is rated to withstand the following energy densities:

Wavelength	Maximum Energy Density
266 nm	1 J/cm^2
355 nm	0.8 J/cm^2
532 nm	2.8 J/cm^2
1064 nm	14 J/cm^2

The J-50MB-IR is specifically designed for high damage threshold when used with pulsed lasers used in medical procedures such as Erbium and Holmium lasers. It has a damage threshold in excess of 100 J/cm at 2940 nm with a 100 µs pulse width.

YAG/Harmonics and IR Series products are also "smart" sensors, and incorporate onboard electronics to automatically correct for ambient temperature, as well as built-in wavelength compensation factors. These sensors are compatible with Coherent LabMax-TOP, 3sigma, FieldMaxII-TOP, FieldMaxII-P, EPM1000 and EPM2000 meters.

Both sensors accept an optional heatsink, which can be easily attached by the user to extend the maximum energy or average power range. Specifically, these heat sinks allow the J-25MB-IR sensor to be used up to 15 W average power, and the J-50MB-YAG sensor to be used up to 45 W average power.

The following table outlines the average power handling capability of the sensors when used with optional user installable heat sinks.

Sensor Model	Aperture (mm)	Wavelength (nm)	No Heat sink (W)	Small Heat sink (W)	Medium Heat sink (W)	Large Heat sink (W)
J-50MB-YAG	50	1064	20	NA	NA	48
J-25MB-IR	25	1064	20	41	62	NA

Part Numbers

Part	Name	Description
1110577	J-25MB-IR	1.5mJ-3J, 25mm energy sensor with MaxBlack coating and IR diffuser (RoHS)
1155722	J-50MB-IR	1mJ-3J, energy sensor with MaxBlack coating and diffuser for 500-2940nm (RoHS)
1110744	J-50MB-YAG	1.5mJ-3J, 50mm energy sensor with MaxBlack coating and diffuser for 1064, 532, 355 and 266nm (RoHS)

Specifications

Name	J-25MB-IR	J-50MB-YAG	J-50MB-IR
Energy Range	1.5 mJ - 3 J	1.5 mJ - 3 J	1 mJ-3J
Noise Equivalent Energy	<50 µJ	<50 µJ	<100 µJ
Wavelength Range (µm)	0.532-2.1	0.266-2.1	.5-2.94
Active Area Diameter (mm)	25	50	50
Maximum Beam Diameter (mm)	12.5	35	30
Maximum Average Power (W)	20	20	15
Maximum Pulse Width (µs)	860	340	1000
Maximum Rep. Rate (pps)	20	50	30
Maximum Energy Density (mJ/cm^2)	5000 (@1064nm, 10ns)	14000 (@1064nm, 10ns)	>10000 (@2940nm, 100µs)
Detector Coating	MaxBlack	MaxBlack	MaxBlack
Diffuser	IR	YAG	IR
Calibration Wavelength (nm)	1064	1064	1064 & 2940
Calibration Uncertainty (%)	+/- 2%	+/- 2%	+/- 2% (1064nm); +/- 3% (2940nm)
Energy Linearity (%)	+/- 3%	+/- 3%	+/- 3.5%
Cable Length (m)	2.5	2.5	2.5
Cable Type	J DB-25	J DB-25	J DB-25
Part Number	1110577	1110744	1155722

Drawing Packages	
Click the links below to download a complete drawing package for these products.	
J-25 Family with Diffuser	J-50 Family with Diffuser

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