

**LPM 230 Series
Photodiode Laser Energy Monitors from Litron**



LPM230



State of the Art Energy Monitoring Devices for Laser Users.



The Litron LTM 530 In-line Energy Monitor Series

FEATURES

- **Pulse energies from 10µJ to 30J**
- **Very compact size**
- **400nm- 650nm (typically depending on the choice of the detection photodiode)**
- **Accurately temperature stabilised photodiode**
- **Pulse repetition rates of up to 1000Hz**
- **Exceptional linearity**
- **Repeatability errors of less than 0.2%**
- **High damage threshold - greater than 3J/cm2 Q-switched**
- **Rugged design with integrated 4 digit energy display**
- **Traceable calibrations available at 1535nm, 1064nm, 694nm and 532nm**
- **Comprehensive software suite with datalogging capability for use with Microsoft® Windows®**
- **RS232 interface**

The LPM230 series of energy monitors are extremely compact, portable, photodiode based instruments. They have been designed to facilitate the easy, accurate measurement of pulsed laser output energy, and to allow detailed performance monitoring of laser systems. Their small size makes them ideal for laser test and service engineers.

The detection electronics gives exceptional linearity over the entire dynamic range of the device, and gives rise to repeatability errors of less than 0.2%.

The type of detection diode that is chosen allows for different

spectral ranges to be covered accurately. The maximum measurable pulse length is user selectable up to 50ms via the included software suite. The optional oscilloscope output allows the temporal profile of the laser pulse to be observed. It can be configured either as a 50Ω output or as an integrated output with a time constant of 500µs.

The head contains a 4 digit LED display, allowing the unit to be used as a 'stand-alone' device. The inclusion of a serial interface is standard on all models and allows full data logging and statistical analysis of the laser output with the software package included. Fully



automatic re-calibration can be performed in conjunction with our

in-line transfer standard meter. Our proprietary, patent pending, optical configuration gives a high uniformity in the reading over the whole of the 30mm input aperture, as well as giving the device a low angular sensitivity, minimising the effects of small misalignments. We are happy to discuss your custom requirements should one of our standard range detailed overleaf not be suitable for your application.



LPM 230 Series Photodiode Laser Energy Monitors

SPECIFICATIONS

Model	Photodiode Type	Wavelength Range (nm)	Energy Range ^{1,7}	Oscilloscope Output	Maximum Pulse Input Frequency	Maximum Input Pulse Length	Calibration Available at (nm)
LPM230-1 LPM230-2 LPM230-3 LPM230-4	Silicon	400-1100	0.01-60 mJ 0.1-600 mJ 1-3000 mJ 10 mJ - 30 J	See Note 2	See Note 3	See Note 3	1064, 532, 694
LPM231-1 LPM231-2 LPM231-3 LPM231-4	InGaAs	900-1650	0.01-60 mJ 0.1-600 mJ 1-3000 mJ 10 mJ - 30 J	See Note 2	See Note 3	See Note 3	1535, 1064

ALL MODELS

Input Aperture Diameter	30mm
Damage Threshold	>50J/cm ² (normal mode pulses) 3J/cm ² (Q-switched pulses)
Absolute accuracy at calibrated wavelength ⁴	±3% or 1 digit whichever is greater
Error in repeatability ⁶	Better than ±0.2%
Positional accuracy across input aperture ⁵	±5% from centre to edge
Display type	4 digit green LED
Dimensions (mm)	125 L x 76 W x 65 H
Weight (g)	880
Outputs	RS232, optional 50Ω or integrated oscilloscope output
Power requirements	6V DC, 1A (Adaptor supplied)

NOTES

- The maximum average power loading in free air is 10W. Custom energy ranges are available.
- An oscilloscope output is available on all models. For an output that is integrated with a time constant of about 500µs append -A to the model number and for a 500 output capable of resolving 500ps pulses append -B to the model code.
- The maximum pulse width is user settable up to 50ms. The device works by integrating the incident energy over the set period. The maximum input frequency is therefore a function of the maximum pulse width. For a 50ms maximum pulse width, the maximum repetition rate is 18Hz and for a 500µs pulse width the maximum repetition rate is 1kHz.
- Input beam incident upon centre of aperture and normal to surface. Energy >10% of full scale reading.
- 4mm diameter input beam across the central 28mm of the input aperture. Larger input beams may give rise to a less uniform response.
- For integration time <2ms and energies >10% of full scale reading.
- Full scale energy may vary for different wavelengths with a given device due to the spectral response of the detector and optics.



Our policy is to improve the design and specification of our products. The details given in this document are not to be regarded as binding.

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