

LabMax Meters

Laser Power and Energy Meters



LabMax-TOP Power and Energy Meter

Features

- Measure power and energy
- Ergonomic design enhances user experience
- Directly compatible with PM Model and LM Model thermopiles
- Display beam position with LM Model thermopiles
- Log data to internal memory, directly onto USB flash drive, or to PC
- USB, RS-232, and GPIB PC interfaces
- Software:
 - LabMax PC applications software
 - LabVIEW instrument driver and ActiveX control
 - XP/Vista (32-bit)/Windows 7 (32-bit and 64-bit) compatible

Models

- LabMax-TOP is compatible with thermopile, optical and pyroelectric (power & energy)
- LabMax-TOP w/GPIB adds IEEE-488 GPIB PC interface (cable included)
- LabMax-TO is compatible with thermopile and optical (power and long-pulse Joules)

LabMax is a versatile meter suitable for anyone who needs to analyze laser output. It analyzes and monitors laser output via onboard data logging. It also supports logging data directly to a USB flash drive, provides enhanced data analysis and statistics, as well as a form factor that allows flexible positioning and viewing angles so it can be used in areas with limited bench space. These meters provide direct compatibility with LM Model and PM Model sensors with no need for adapters.

Sensor Compatibility

LabMax displays beam position for quick and accurate setup, and is directly compatible with most Coherent thermal, pyroelectric and semiconductor sensors. These sensors offer wavelength coverage from 190 nm to 12 μm , measure from nW to kW, from nJ to J, and from single shot to 10 kHz.

Beam Positioning

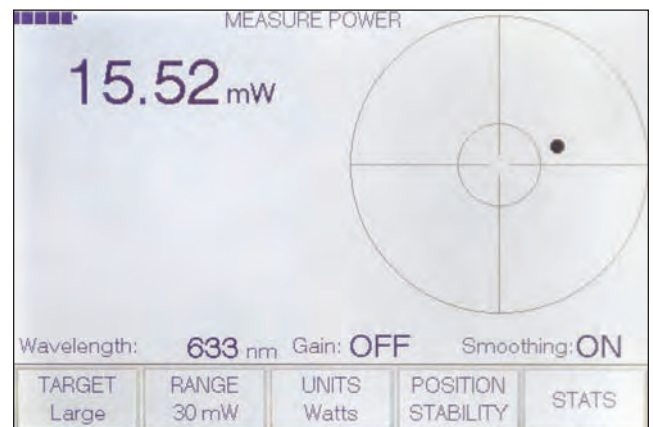
The position of the laser beam on the sensor can be displayed by LabMax when using an LM Model thermopile sensor. This makes it easier to align the laser beam during setup, especially for infrared laser beams. There is also a trending feature to monitor the position of the beam over time, and the position data can be logged to a file. Beam position sensors are on pages 37 to 41.



LM-45 HTD sensor with beam position

Data Logging

Data logging of unlimited size can be performed directly to a USB flash drive, and additionally over 400,000 points can be retained onboard the meter itself in flash memory. The meter has a file management system that allows naming and renaming files, auto increments file names for repetitive logging events, folder creation and renaming, and transferring files and folders from the meter storage to a USB flash drive. Data can also be logged to a file with the LabMax PC applications software.



LabMax beam position display

- POWER & ENERGY
- Power & Energy Meters
- USB/RS Power Sensors
- DB-25 Power Sensors
- USB/RS Energy Sensors
- DB-25 Energy Sensors
- Custom & OEM
- BEAM DIAGNOSTICS
- CALIBRATION & SERVICE
- Laser Cross-Reference Index
- Model Name Index

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Ergonomic Design

LabMax features a large, backlit graphical display with an ergonomic interface with easily accessible buttons for all features and modes. The Measure, Tune, and Trend modes are directly accessible via front panel buttons.



Front panel buttons

Flexible Positioning

The LabMax display and meter can be positioned at many different angles within the limited bench space typically available in a laser lab, while still making the display easy to view.



Additional Inputs/Outputs

In addition to PC interfacing, LabMax also includes an analog output with user-selectable voltages of 0 to 1V, 2V, or 4V. Pyroelectric triggering can be achieved with an external trigger input or an internal trigger that is user-adjustable from 2% to 20% percent of full-scale range.

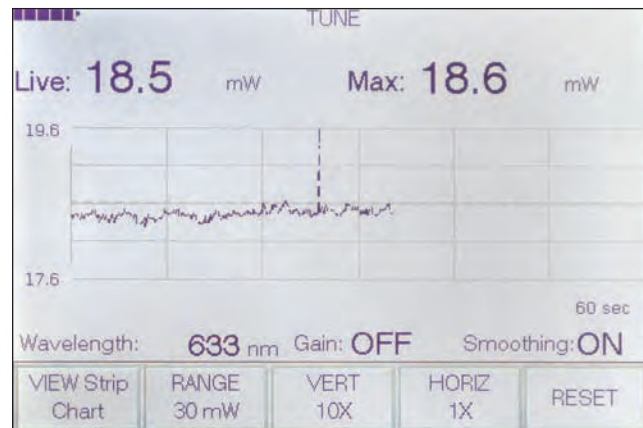
Measurement Analysis

LabMax meters contain several advanced analysis capabilities, including:

Onboard statistics – mean, minimum, maximum, standard deviation, range, three stability parameters, as well as missed pulses. Users can also select which statistical parameters to display, up to six at a time.

Trend charting – trend chart with statistical display and the ability to log data to a file.

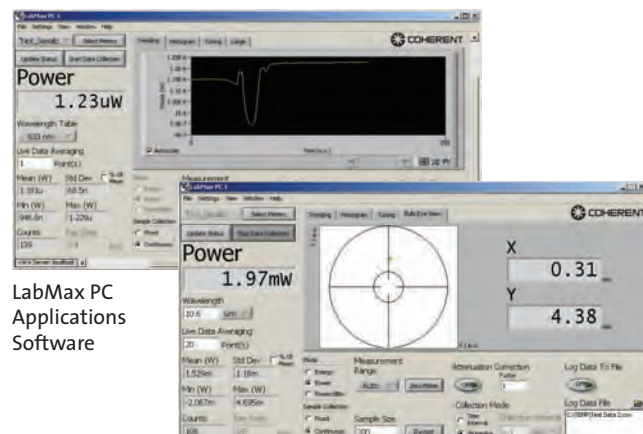
Digital tuning indicators – horizontal bar and trend chart formats with peak indicators.



LabMax Tune Chart

PC Interfacing and Applications Software

Data can also be analyzed directly on a PC through USB, RS-232, or GPIB connections, or by logging data to a USB flash drive attached directly to the meter. Installable applications software and LabVIEW drivers are provided to support PC interfacing.



LabMax PC Applications Software

POWER & ENERGY

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Device Specifications	Model	LabMax-TOP w/GPIB	LabMax-TOP	LabMax-TO
	Measurement Resolution	0.1 % of full-scale		
	Displayable Resolution	3 or 4 digits pyroelectric; 3, 4, or 5 digits thermopile and optical (user-selectable)		3, 4, or 5 digits (user-selectable)
	Measurement Range	Sensor dependent (reference sensor specifications)		
	Accuracy	Digital Meter $\pm 1.0\% \pm 2\text{LSD}$ System Meter accuracy + sensor accuracy Analog Output (%) ± 1.0		
	Calibration Uncertainty (%) (k=2)	± 1.0		
	Power Sampling Rate (Hz)	10		
	Maximum Repetition Rate (Hz)	10,000 sampling (1000 Hz every pulse)		
	Minimum Positional Resolution (mm)	0.1		
	Display	112 x 78 mm backlight graphic LCD, 480 x 320 pixels. Adjustable contrast and viewing angle		
	Measurement Analysis	Min., max., mean, range, std. dev., dose, stability; trending, tuning, beam position		
	Computer Interface	GPIB, USB and RS-232	USB and RS-232	
	Pulse Triggering	Internal and external (selectable)		–
	Analog Output (VDC)	0 to 1, 2, or 4 VDC (selectable)		
	Analog Output Update Rate	Up to 1000 Hz for pyroelectric; 10 Hz for thermopile and optical		10 Hz
	Temperature	Operating Range 5 to 40°C (41 to 104°F) Storage Range -20 to 70°C (-68 to 158°F)		
	Instrument Power	90 to 260 VAC, 50/60 Hz		
	Instrument Batteries	4400 mAh Rechargeable Li-ion Pack		
	Compliance	CE, RoHS, WEEE, ISO 17025		
	Dimensions (H x W x D)	152 x 229 x 53 mm (6.0 x 9.0 x 2.1 in.)		
	Weight	1.25 kg (2.8 lbs.)		
	Front Panel	PWR Turn meter on and off ZERO Reset ambient offset for thermal and optical sensors MEASURE Main measure mode including statistics TUNE View tuning features TREND Display measured values over a period of time and log data to file SETUP Setup meter parameters HELP Onboard context sensitive help - available from any screen BACKLIGHT Toggle backlight on and off KNOB Turn knob to change settings; press the knob to save settings		
	Left Side Panel	USB flash drive port USB PC interface port RS-232 PC interface port DB-25 sensor port Power jack		
	Rear Panel	Analog output External trigger input GPIB PC interface port		
	Part Number*	1104620	1104622	1104619

* Meter supplied with 4400 mAh Li-ion battery, AC power adapter, power cord, 1.8-meter USB cable, RS-232 adapter, USB flash drive, RCA-to-BNC adapters, software and driver CD, soft carrying case, and certificate of calibration. LabMax-TOP w/GPIB also includes a GPIB cable.