

# LabMax Meters

## Laser Power and Energy Meters

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

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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  $\mu\text{m}$ , measure from nW to kW, from nJ to J, and from single shot to 10 kHz.

### Beam Positioning

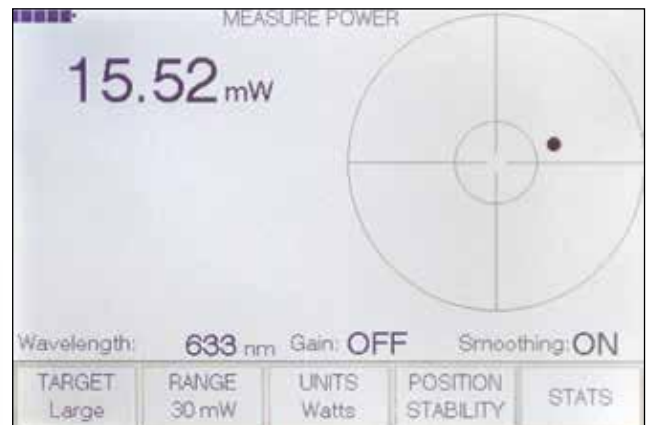
The position of the laser beam on the sensor can be displayed by LabMax when using an LM Model thermopile sensor. This makes it easier to align the laser beam during setup, especially for infrared laser beams. There is also a trending feature to monitor the position of the beam over time, and the position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



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

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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.

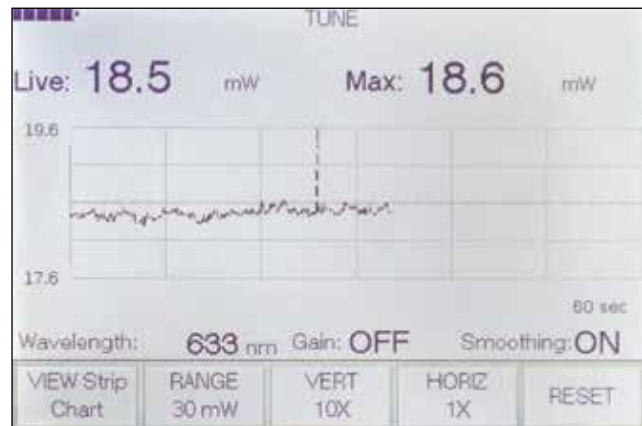
### Measurement Analysis

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.

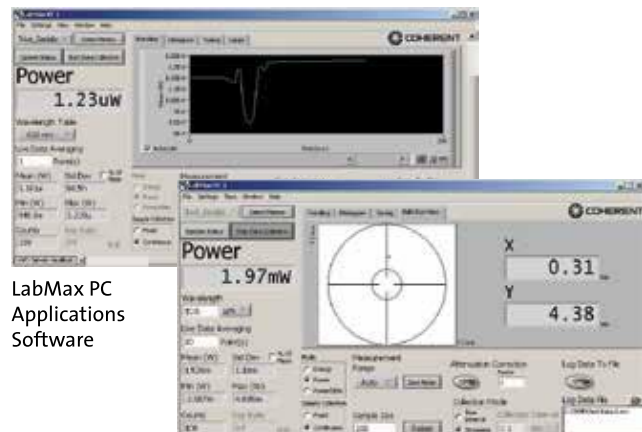
Digital tuning indicators – horizontal bar and trend chart formats with peak indicators.



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

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Device Specifications	Model	LabMax-TOP w/GPIB	LabMax-TOP	LabMax-TO
ISO/IEC 17025:2005    	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 System Analog Output (%)		
		±1.0% ±2LSD Meter accuracy + sensor accuracy ±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 Storage Range		
		5 to 40°C (41 to 104°F) -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 ZERO MEASURE TUNE TREND SETUP HELP BACKLIGHT KNOB		
		Turn meter on and off Reset ambient offset for thermal and optical sensors Main measure mode including statistics View tuning features Display measured values over a period of time and log data to file Setup meter parameters Onboard context sensitive help - available from any screen Toggle backlight on and off 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 (BNC adapter incl.) 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.  
\*\* C24 Quick Ship program: eligible for next business day shipment.

# FieldMaxII Meters

## Laser Power and Energy Meters



FieldMaxII-TOP Power and Energy Meter



FieldMaxII-TO Power Meter

### Features

- Measure energy of pulsed lasers up to 300 pps
- Large, backlight LCD display
- Compatible with thermopile, optical, and pyroelectric sensors
- Simulated analog-like movement for laser tuning
- USB interface with FieldMaxII PC applications software, LabVIEW instrument driver and ActiveX control
- XP/Vista (32-bit)/Windows 7 (32-bit and 64-bit) compatible
- Area function for density measurements ( $J/cm^2$  or  $W/cm^2$ )

### Models

- **FieldMaxII-TOP is compatible with thermopile, optical and pyroelectric sensors (power & energy)**
- **FieldMaxII-TO is compatible with thermopile and optical (power only)**
- **FieldMaxII-P is compatible with pyroelectric (energy only)**

FieldMaxII is an affordable, versatile, easy-to-use digital power and energy meter platform designed for a variety of applications ranging from field service to production test applications.

FieldMaxII features a large, easy-to-read backlit LCD and an intuitive user interface offering button-driven control for simple operation. The meter supports onboard analysis of mean, min., max., and standard deviation statistics. It can measure power from nW to kW, and pulse energy from nJ to J at up to 300 pps. In addition, long-pulse Joules energy measurements can be made on the FieldMaxII-TOP model when using thermopiles.

The meter includes a USB PC interface as well as an analog output. The FieldMaxII PC applications software supports trend charting, tuning, statistics, and logging data to a file. A LabVIEW instrument driver with ActiveX control is provided to support custom software developments.

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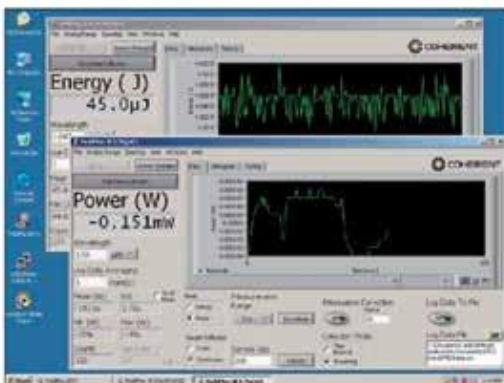
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## FieldMaxII PC Application



### Features

- USB PC Interface
- FieldMaxII PC is completely open-source so that you can use it to help develop your own customized applications
- Multiple meters can be run on a single PC – useful for final test and burn-in applications
- Meters can be operated remotely via host interface and included drivers
- Software features:
  - Measure, Tune, Trend displays
  - Statistics
- LabVIEW instrument driver and ActiveX DLL server included

# FieldMaxII Meters

## Laser Power and Energy Meters

Device Specifications	Model	FieldMaxII-TOP	FieldMaxII-TO	FieldMaxII-P
	Function	Power and energy	Power	Energy
	Measurement Resolution	0.1% of full-scale		
	Measurement Range	Sensor dependent - reference sensor specifications		
	Accuracy	Meter accuracy + sensor accuracy		
	System			
	Analog Output (%)	±1.0		
	Calibration Uncertainty (%) (k=2)	±1.0		
	Power Sampling Rate (Hz)	10	10	–
	Maximum Pulse Rep. Rate (Hz)	300	–	300
	Display	58 x 73 mm, fixed-segment LCD with backlight		
	Digital Tuning Indicator	100 msec time constant		
	Statistics	Mean, max., min., standard deviation		
	PC Interface	USB 1.1		
	Analog Output	0 to 1, 2, or 5 VDC (selectable)		
	Internal Trigger	2 to 20% of full-scale, selectable	–	2% to 20% of full-scale, selectable
	Temperature			
	Operating Range	5 to 40°C (41 to 104°F)		
	Storage Range	-20 to 70°C (-68 to 158°F)		
	Instrument Power	100 to 240 VAC, 50/60 Hz		
	Instrument Batteries	Rechargeable NiMH battery pack		
	Compliance	CE, RoHS, WEEE, ISO 17025		
	Dimensions (H x W x D)	200 x 100 x 40 mm, (7.87 x 3.94 x 1.57 in.)		
	Weight	1.0 kg (2.2 lbs.)		
	Front Panel			
	PWR	Toggle power switch and backlight		
	HZ	Display rep. rate	–	Display rep. rate
	J/W	Select Joules or Watts mode	–	–
	ZERO	Reset ambient offset for thermal and optical sensors		Zero stats
	AUTO	Engage auto-ranging with power sensors		–
	STAT	Display statistics: mean, max., min., standard deviation		
	AVG	Engage display averaging		
	λ	Enter wavelength and engage wavelength compensation		
	ATTEN	Enter attenuation factor and engage attenuation		
	AREA	J/cm <sup>2</sup> (fluence) W/cm <sup>2</sup> (power density)	W/cm <sup>2</sup> (power density)	J/cm <sup>2</sup> (fluence)
	HOLD	–	Holds displayed values on screen	–
	TRIG	Select trigger level with energy sensors	–	Select trigger level with energy sensors
	SETUP / LOCAL	Set and enter button/Takes local control of meter back from PC		
	ARROW KEYS	Manually control range; Select Stats parameter; Select and change numerical values		
	Left Side Panels	Power jack USB PC interface port Analog output		
	Right Side Panels	DB-25 sensor port		
	Part Number*	1098580**	1098579**	1098581

ISO/IEC 17025:2005



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\* Meter supplied with NiMH rechargeable battery pack, power cord, AC adapter, USB cable (1.8m), RCA-to-BNC analog output adapter, installation CD with FieldMaxII PC and drivers, soft carrying case, and certificate of calibration.

\*\* C24 Quick Ship program: eligible for next business day shipment.



# FieldMate

## Laser Power Meter



FieldMate Power Meter

### Features

- Analog needle for tuning
- Large digital LCD display
- Compatible with thermopile and optical sensors
- Wavelength compensation
- Analog output
- Compact and portable
- AC and battery power
- Auto ranging

FieldMate combines a digital display and analog meter with sophisticated digital processing to enable rapid, sensitive laser adjustment. This meter also offers an economical way of measuring laser power when advanced data analysis is not necessary.

Device Specifications	Model	FieldMate
	Power Resolution	0.1% of full-scale for all ranges in the 10s scale 0.3% of full-scale for all ranges in the 3s scale
	Measurement Range	Sensor dependent (reference sensor specifications)
	Accuracy	
	System	Meter accuracy + sensor accuracy
	Analog Meter (%)	±3.0
	Analog Output (%)	±1.0
	Calibration Uncertainty (%) (k=2)	±1.0
	Power Sampling Rate	20 Hz (thermopile and optical)
	Display	26 x 89 mm, custom fixed-segment LCD
	Analog Needle	
	Scale	0 to 10 (100 divisions), 0 to 3 (60 divisions)
	Response	80 ms time constant
	Analog Output	
	Voltage	0 to 2 VDC
	Update Rate	20 times/sec.
	Temperature	
	Operating Range	5 to 40°C (41 to 104°F)
	Storage Range	-20 to 70°C (-68 to 158°F)
	Instrument Power	100 to 240 VAC, 50/60 Hz
	Instrument Batteries	Two 9V alkaline batteries
	Compliance	CE, RoHS, WEEE, ISO 17025
	Dimensions (H x W x D)	193 x 117 x 46 mm, (7.6 x 4.6 x 1.8 in.)
	Weight	0.8 kg (1.8 lbs.)
	Front Panel	
	PWR	Toggle power
	ZERO	Ambient offset
	AUTO	Engage auto-ranging
	λ	Enter wavelength compensation
	ARROW KEYS	Manually control range; select and change numerical values
	Left Side Panel	
	Power jack	
	Analog output	
	DB-25 sensor port	
	Part Number*	1098297**

\* Meter supplied with two alkaline 9V batteries, power cord, AC power adapter, RCA-to-BNC analog output adapter, and certificate of calibration.

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