

# LabMax-Pro SSIM

## Laser Power and Energy Meter

The LabMax-Pro represents the next generation of Coherent's groundbreaking LabMax line. This power meter combines the power and versatility of the LabMax, with two new higher speed sampling modes when used with PowerMax-Pro technology (Patent Pending). High speed mode increases the continuous sampling rate to 20 kHz, enabling analysis of laser pulse trains common in medical and micro welding applications. Snapshot mode provides burst sampling at a rate of 625 kHz, enabling users to view the rise time and pulse shape, while integrating the energy of modulated lasers which are common in various commercial cutting and drilling applications.

High speed sampling mode can improve processes in numerous applications. For example, it has also been used to speed up diode testing with faster LIV curve sampling combined with higher sampling resolution.

In the traditional 10 Hz sampling mode, PowerMax-Pro sensors provide an instant power reading, much like a photodiode but at very high powers. Legacy thermopiles and optical sensors are also compatible with the 10 Hz sampling mode, just like in past meters.

The product includes a new Windows-based PC application that enables a wide range of analysis functions including statistics and histogram, trending, tuning, data logging, as well as a new ability to zoom in on detailed pulse shapes and pulse bursts with cursors and energy integration using PowerMax-Pro technology. The software interface allows for flexible sizing of informational panes within the application, in which contents are auto-sized dynamically as the panes are adjusted, allowing the user to size the information of greatest importance.

Data is analyzed on the PC through USB or RS-232 interfaces through the Windows PC application, or directly through host commands.

In addition to PC interfacing, LabMax-Pro SSIM also includes an analog output with user-selectable voltages of 0 to 1V, 2V, or 4V. Triggering can be achieved with an external trigger input or an internal trigger that is user adjustable.

The meter is configured as a module for direct PC control and is compatible with PM model thermopiles and PowerMax-Pro sensors.



**Superior Reliability & Performance**

### LabMax-Pro SSIM Features:

- **Laser power and energy meter**
- **Compatible with PowerMax-Pro and PM Model thermopiles, LM model position-sensing thermopiles, LM-2 & OP-2 optical sensors, and EnergyMax DB-25 pyroelectric energy sensors**
- **High speed sampling for laser pulse analysis and energy integration**
- **Operation up to 10 kHz every pulse with pyroelectric sensors**
- **USB and RS-232 interfaces**
- **Windows PC application**
- **Direct host commands support OEM integration**
- **Windows 7 and 8 compatible (32 and 64-bit)**

### LabMax-Pro SSIM Applications:

- **Production/QA**
- **Engineering & Scientific**
- **Commercial OEM Integration**

[www.Coherent.com/LabMax-Pro-SSIM](http://www.Coherent.com/LabMax-Pro-SSIM)

# LabMax-Pro SSIM

## Laser Power and Energy Meter

### Device Specifications

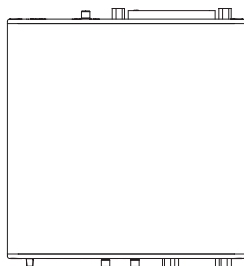
LabMax-Pro SSIM	
Measurement Resolution (%) (full-scale)	
at 10 Hz speed	0.1
at 20 KHz high speed	0.2
Sensor Compatibility	PM Model Thermopile; PowerMax-Pro; LM Model Thermopile, OP-2 & LM-2 Optical, DB-25 EnergyMax pyroelectric
Measurement Range	Sensor dependent (reference sensor specifications)
Accuracy (%)	
Digital Meter	±1
System	Meter + sensor
Analog Output	±1
Calibration Uncertainty (%) (k=2)	±1
Power Sampling Rate	
Pyroelectric (Hz)	10,000
LM-2/OP-2 Optical (Hz)	10
Thermopile (Hz)	10
PowerMax-Pro - Low Speed (Hz)	10
PowerMax-Pro - High Speed (Hz)	20,000
PowerMax-Pro - Snapshot Mode (Hz)	625,000
Analog Output (VDC)	0 to 1, 2, or 4.096 (selectable)
Analog Output Resolution (mV)	1
Analog Output Update Rate (kHz)	19
Measurement Analysis	Trending, tuning, histogram, data logging, statistics (min., max., mean, range, std. dev., dose, stability), pulse shape and pulse energy (with PowerMax-Pro in High Speed and Snapshot mode), long pulse Joules with thermopiles, beam position with LM Model thermopiles
Computer Interface	USB and RS-232
Pulse Triggering	Internal and External
Temperature	
Operating Range	5 to 40°C (41 to 104°F)
Storage Range	-20 to 70°C (-68 to 158°F)
Instrument Power (external supply)	90 to 260 VAC, 50/60 Hz
Compliance	CE, RoHS, WEEE
Dimensions	105 x 105 x 32 mm (4.1 x 4.1 x 1.3 in.)
Weight	0.3 kg (0.6 lbs.)
Front Panel	Power switch USB hi-speed port (mini B connector) Trigger output (SMB connector) Analog output (SMB connector) RS-232 port (DB-9F connector)
Rear Panel	DB-25 sensor port External trigger input (SMB connector, 3 to 5 Vin, 2 to 10 mA, 50 ohm AC, 300 ohm DC impedance) Power jack (12VDC - center positive)
Part Number <sup>1</sup>	1268881

<sup>1</sup> Meter supplied with AC power adapter, power cord, USB cable, BNC-to-SMB trigger cable, software and driver CD, and certificate of calibration.

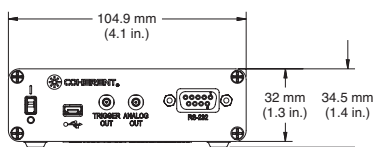
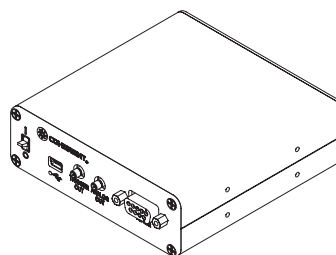
# LabMax-Pro SSIM

## Laser Power and Energy Meter

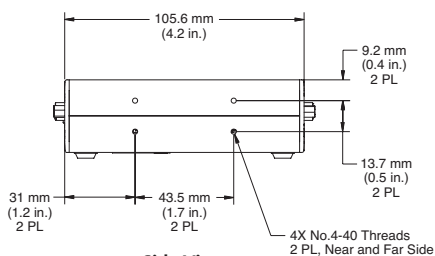
### Mechanical Specifications



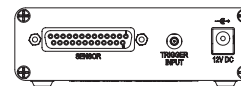
Top View



Front View



Side View



Rear View



**COHERENT®**

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Coherent follows a policy of continuous product improvement. Specifications are subject to change without notice.

Coherent's scientific and industrial lasers are certified to comply with the Federal Regulations (21 CFR Subchapter J) as administered by the Center for Devices and Radiological Health on all systems ordered for shipment after August 2, 1976.

Coherent offers a limited warranty for all LabMax-Pro SSIM laser power and energy meters. For full details of this warranty coverage, please refer to the Service section at [www.Coherent.com](http://www.Coherent.com) or contact your local Sales or Service Representative.

# 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

ISO/IEC 17025:2005



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, certificate of calibration, and soft carrying case.

\*\* 1 Day Ship program: eligible for next business day shipment.

# 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

\* 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.

\*\* 1 Day Ship program: eligible for next business day shipment.

# LabMax Touch

## Laser Power and Energy Meters

The Coherent LabMax Touch is a full featured laser power and energy measurement instrument that makes extensive data acquisition and analysis capabilities easy to access through an intuitive, touchscreen interface. For example, measurement data and analytics—including live display, statistics, trending, tuning, histogram, and beam position information—are all reached with just a gesture or two on the display.

LabMax Touch provides full compatibility with the entire, comprehensive catalog of Coherent laser power and energy sensors. This includes thermopile, pyroelectric, and semiconductor sensors, plus our unique PowerMax Pro sensors for rapid power measurement of high-power beams.

The standard LabMax Touch samples up to 25 kHz with pyroelectric energy sensors and 10 Hz with power sensors. The LabMax Touch Pro model increases sample rate to 1 MHz with PowerMax-Pro sensors and adds advanced analytics like integrated energy and laser pulse width.

### Features and Benefits

- Compatible with thermopile, optical, pyroelectric, and transverse thermoelectric sensors
- High-speed sampling up to 1 MHz with transverse thermoelectric and 25 kHz with pyroelectric sensors
- 7" touchscreen LCD
- USB, RS-232, and Ethernet PC interfaces
- Dual USB ports (for flash drive or mouse)
- HDMI output (for external monitor)
- External trigger input
- Trigger, Analog, and TTL outputs
- Compatible with Coherent Meter Connection PC software
- Windows 10 compatible
- ISO 17025 accredited

### Applications

- R&D and Laboratory
- Scientific
- Manufacturing
- Quality Assurance
- Field Service



### DEVICE SPECIFICATIONS<sup>1</sup>

	LabMax Touch	LabMax Touch Pro
Sensor Compatibility <sup>3</sup>	Thermopile, Optical, Pyroelectric, and Transverse Thermoelectric	
Measurement Range	1 $\mu$ W to 30 kW, with 100 nW resolution in lowest range using corresponding thermopiles 100 pW to 5 W with 10 pW resolution in lowest range using corresponding optical sensors 10 nJ to 100 J with 1 nJ resolution in the lowest range using corresponding pyroelectric detectors 1 mW to 3 kW, with 100 $\mu$ W resolution in lowest range using corresponding transverse thermoelectric sensors	
Display Resolution	3 to 5 digits (user selectable)	
Meter Accuracy (%)	$\pm 1$	
System Accuracy	Meter accuracy + sensor accuracy	
Calibration Uncertainty (%) (k = 2)	$\pm 1$	
Channel Sampling Rate (Hz)		
Thermopile	10	
Optical	10	
Pyroelectric	25,000	
PowerMax Pro (Hz)	10	10 to 1,000,000
Analog Output (VDC)	0.02 to 1, 2, or 4 (selectable)	
Analog Output Resolution (mV)	0.1	
Analog Output Accuracy (%)	$\pm 0.04$ (25% to full scale) $\pm 0.26$ (5% to 25% of full scale) $\pm 1$ (min to 5% of full scale)	
Analog Output Update Rate (Hz)	500	
Measurement Analysis	Trending, tuning, histogram, data logging, statistics (min., max., mean, range, std. dev., dose, stability)	LabMax Touch features + Pulse analysis, Pulse shape, and high speed analytics with PowerMax-Pro Sensors
Display	1024 x 600 pixel color TFT LCD, 7" diagonal, capacitive touch-screen, LED backlight	
Computer Interface	Ethernet, USB and RS-232	
Pulse Triggering	Internal and External	
Battery Operating Temp. Range	0 to 40°C [32 to 104°F (0 to 95% RH, non-condensing)]	
Power Adapter Operating Temp. Range	0 to 50°C [32 to 122°F (0 to 95% RH, non-condensing)]	
Storage Temperature Range	-20 to 60°C [-4 to 140°F (0 to 95% RH, non-condensing)]	
Instrument Power (external supply)	90 to 260 VAC, 50/60 Hz	
Compliance	CE, RoHS, WEEE, ISO 17025	
Dimensions	23.8 x 16.2 x 5.1 cm (9.37 x 6.38 x 2.01 in.)	
Weight	1190 g (2.62 lbs)	
Top Panel and Front Panel	2x Type A USB ports	
Top Panel	Illuminated power switch Miniature USB PC Interface port Ethernet RJ-45 port RS-232 port (2.5 mm stereo AUX socket) HDMI output Power supply input (12 VDC)	
Right Panel	Multi Output (Analog, Trigger, and 5V TTL) (3.5 mm AUX Socket) Trigger Input (3.5 mm AUX Socket) DB-25 sensor port	
Part Number	PN 2256258	PN 2256259

<sup>1</sup> Meter supplied with AC power adapter, power cord, USB cable, 2.5mm stereo AUX to DB9 RS-232 cable, 3.5mm AUX to BNC Trigger-in cable, Multi-Output cable (analog out, trigger out, flag out), and certificate of calibration.

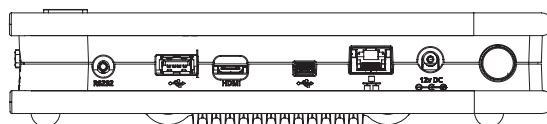
<sup>2</sup> Coherent Meter Connection PC Software and User Manuals are available for download from Coherent website.

<sup>3</sup> Cat5 Ethernet cable and HDMI cable are customer supplied.

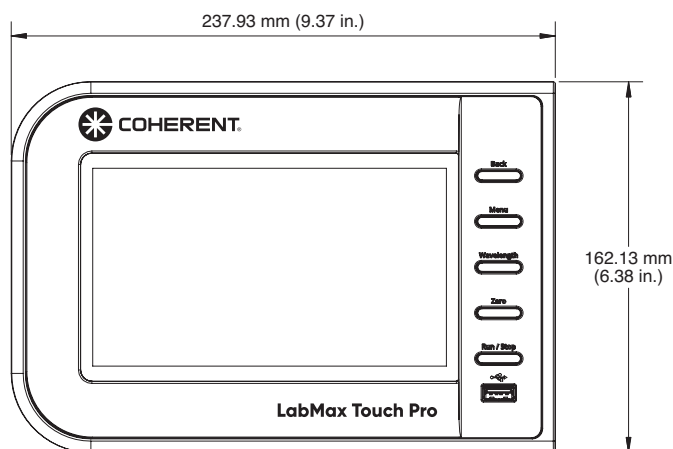
## MECHANICAL SPECIFICATIONS

### LabMax Touch

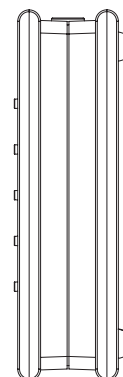
Top View



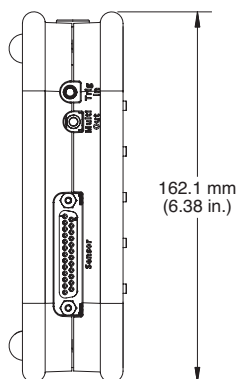
Front View



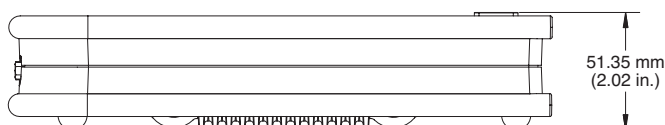
Right Side View



Left Side View



Bottom View



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