COHERENT

Software Installation and Quick Start Guide

FieldMaxII™

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Software Installation and Quick Start Guide

FieldMaxII

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Wilsonville, OR 97070

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If you call outside our office hours, your call will be taken by our answering system and will be returned when the office reopens.

If there are technical difficulties with your product that cannot be resolved by support mechanisms outlined above, e-mail, or telephone Coherent Technical Support with a description of the problem and the corrective steps attempted. When communicating with our Technical Support Department via the web or telephone, the Support Engineer responding to your request will require the model and Laser Head serial number of your laser system.

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Preface

This guide includes:

- A section that explains how to install the FieldMaxII™ software.
- A series of "mini-tutorials" that presents step-by-step instructions on connecting a sensor to your FieldMaxII meter and begin taking measurements within minutes.

For detailed information on FieldMaxII, refer to the User manual that shipped with your system.

Publication Updates

To view information that may have been added or changed since this publication went to print, and to download product user manuals, connect to www.Coherent.com.

Export Control Laws Compliance

It is the policy of Coherent to comply strictly with U.S. export control laws.

Export and re-export of lasers manufactured by Coherent are subject to U.S. Export Administration Regulations, which are administered by the Commerce Department. In addition, shipments of certain components are regulated by the State Department under the International Traffic in Arms Regulations.

The applicable restrictions vary depending on the specific product involved and its destination. In some cases, U.S. law requires that U.S. Government approval be obtained prior to resale, export or

re-export of certain articles. When there is uncertainty about the obligations imposed by U.S. law, clarification must be obtained from Coherent or an appropriate U.S. Government agency.

Products manufactured in the European Union, Singapore, Malaysia, Thailand: These commodities, technology, or software are subject to local export regulations and local laws. Diversion contrary to local law is prohibited. The use, sale, re-export, or re-transfer directly or indirectly in any prohibited activities are strictly prohibited.

Signal Words and Symbols in this Manual

This documentation may contain sections in which particular hazards are defined or special attention is drawn to particular conditions. These sections are indicated with signal words in accordance with ANSI Z-535.6 and safety symbols (pictorial hazard alerts) in accordance with ANSI Z-535.3 and ISO 7010.

Signal Words

Four signal words are used in this documentation: **DANGER**, **WARNING**, **CAUTION** and ***NOTICE***.

The signal words **DANGER**, **WARNING** and **CAUTION** designate the degree or level of hazard when there is the risk of injury:

DANGER!
Indicates a hazardous situation that, if not avoided, will result in death or serious injury. This signal word is to be limited to the most extreme situations.

WARNING!
Indicates a hazardous situation that, if not avoided, could result in death or serious injury.

CAUTION!
Indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.

The signal word "***NOTICE***" is used when there is the risk of property damage:

NOTICE!
Indicates information considered important, but not hazard-related.

Messages relating to hazards that could result in both personal injury and property damage are considered safety messages and not property damage messages.

Symbols

The signal words **DANGER**, **WARNING**, and **CAUTION** are always emphasized with a safety symbol that indicates a special hazard, regardless of the hazard level:

This symbol is intended to alert the operator to the presence of important operating and maintenance instructions.

This symbol is intended to alert the operator to the danger of exposure to hazardous visible and invisible laser radiation.

This symbol is intended to alert the operator to the presence of dangerous voltages within the product enclosure that may be of sufficient magnitude to constitute a risk of electric shock.

This symbol is intended to alert the operator to the danger of Electro-Static Discharge (ESD) susceptibility.

This symbol is intended to alert the operator to the danger of crushing injury.

This symbol is intended to alert the operator to the danger of a lifting hazard.

SOFTWARE INSTALLATION

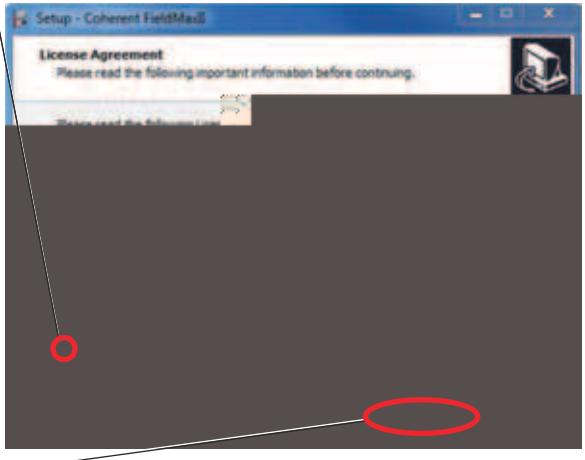
This section explains how to install the FieldMaxII software.

NOTICE!
Do not connect the FieldMaxII to the USB PC port at this time. The software must be installed *before* physically connecting the meter to the computer.

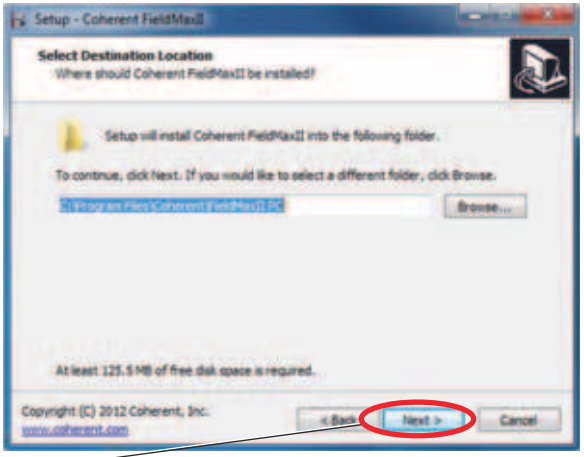
1. Insert the FieldMaxII CD into your CD-ROM drive. If Autorun is enabled on your system, installation will start automatically; otherwise, select **Run** from the Start menu and then type ***D*:\Setup.exe** (substitute the appropriate letter of your CD-ROM drive for ***D***).

2. Click **Next** on the Welcome screen.

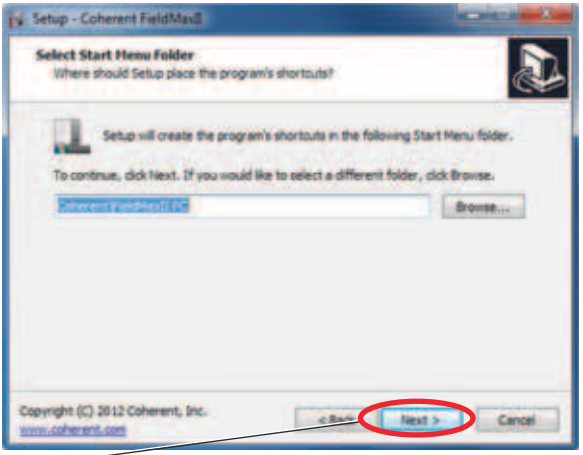
3. Read the License Agreement and then click the **I accept the agreement** radio button.



4. Click **Next** to continue.

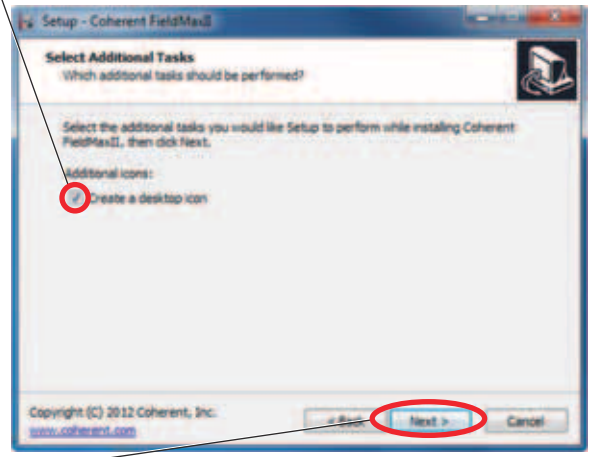


❺ Click **Next** to select the default destination folder.

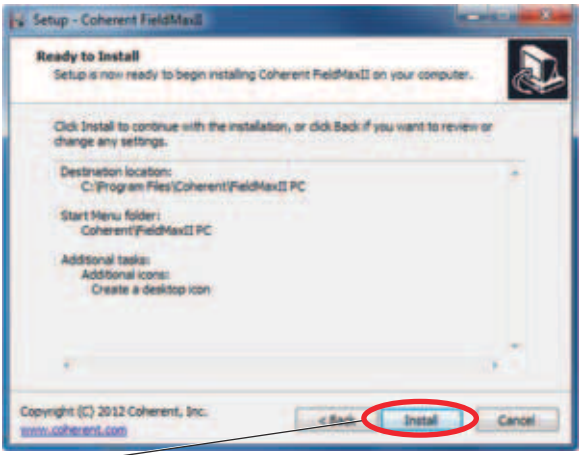


❻ Click **Next** to select the default folder for storing the FieldMaxII shortcut.

7 Click the **Create a desktop icon** checkbox.

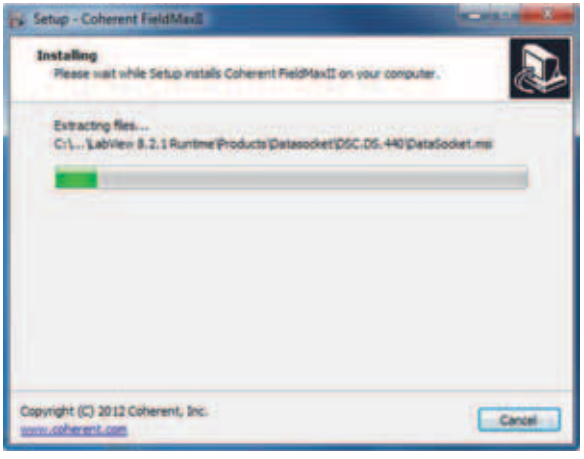


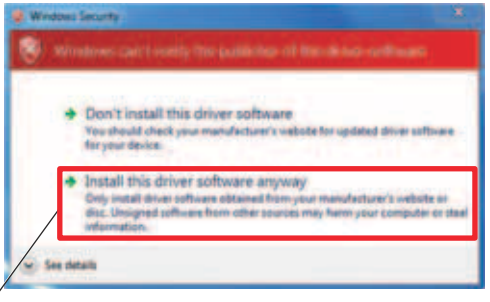
8 Click **Next** to continue.



9 Click **Install** to begin the installation.

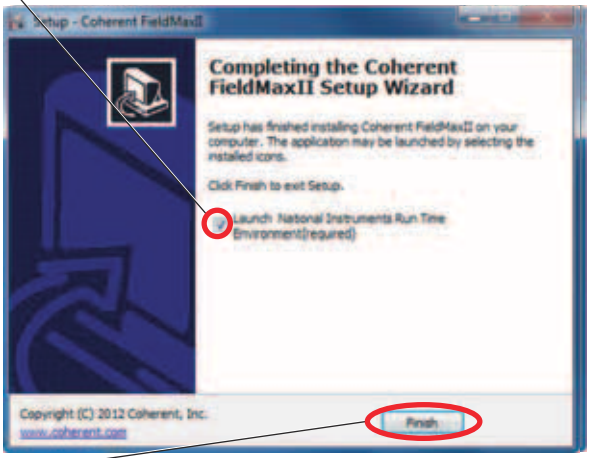
A screen will appear that shows the progress of the installation:





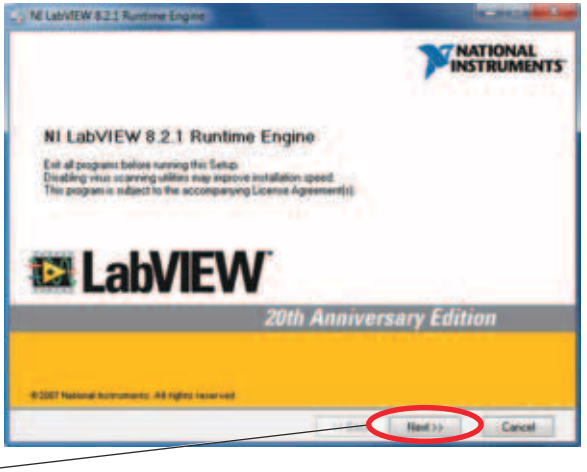
⑩ Click the **Install this driver software anyway** selection to continue the installation.

11 Verify the **Launch National Instruments Run Time Environment** checkbox has been selected.

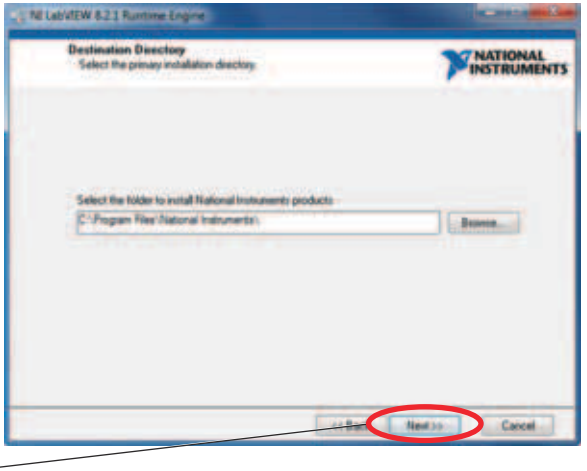


12 Click **Finish** to continue.

A progress screen will appear:



⓭ Click **Next** to continue.

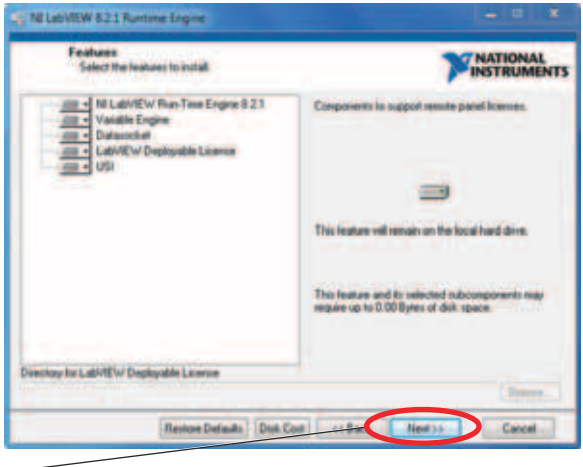


⓮ Click **Next** to accept the default primary installation folder and continue the installation.

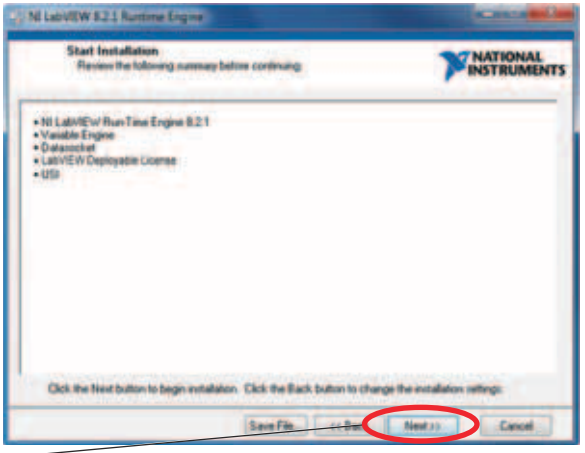
NOTICE!

The next screen that appears during the installation may look different than the example shown below, depending on which (if any) LabVIEW components (features) have been previously installed on your computer.

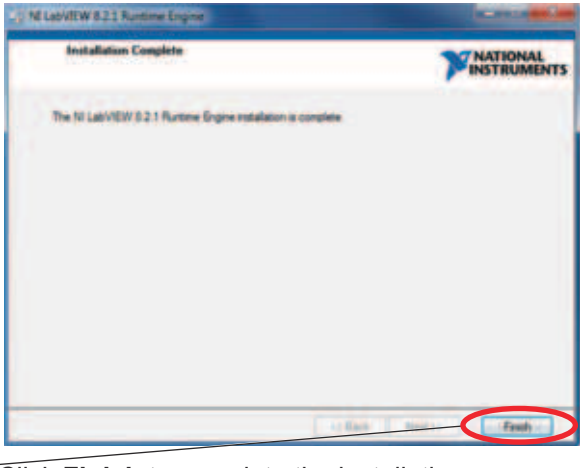
Do *NOT* change any of the settings that appear on your screen!



⓯ Click **Next** to continue with the installation.



⓰ Click **Next** to continue the installation.



⓱ Click **Finish** to complete the installation.

⓲ Connect the FieldMaxII to the USB port on your computer.

QUICK START: FIELDMAXII-TOP

This section presents a series of "mini-tutorials" that explains how to connect a sensor to your FieldMaxII-TOP meter and begin taking measurements. For in-depth information about the FieldMaxII-TOP meter, refer to the *FieldMaxII-TOP User Manual* (1086235).

Tutorials include:

- Tuning a laser with a thermopile or optical sensor (p. 11)
- Measuring energy and average power with a pyroelectric sensor (p. 12)
- Measuring power with a thermopile or optical sensor (p. 13)
- Measuring single-pulse energy with a thermopile sensor (p. 14)

Carefully review the following safety information to avoid personal injury and to prevent damage to this meter or any sensor connected to it.

WARNING!
Follow all laser safety procedures. The laser must be blocked or switched OFF before beginning the procedures described in this section.

NOTICE!
Power to the FieldMaxII-TOP meter must be OFF before beginning the procedures described in this section.

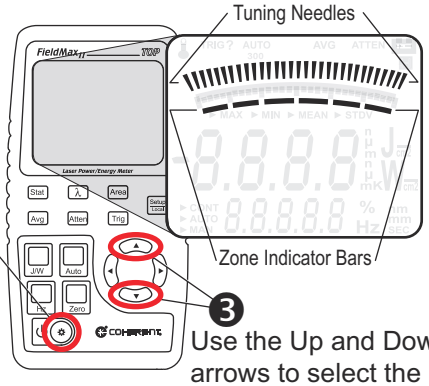
NOTICE!
Do not exceed the power/energy density limits of the sensor.

Tuning a Laser with a Thermopile of Optical Sensor

❶ Connect a thermopile or optical sensor to the FieldMaxII-TOP 25-pin connector.

Apply power to the meter.

❷



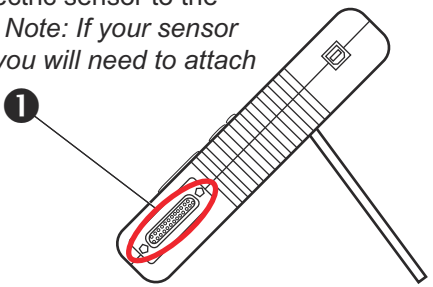
❸ Use the Up and Down arrows to select the appropriate measurement range (meter is automatically placed in Manual Ranging).

Tuning is shown on the display using tuning needles and zone indicator bars. The tuning needles (at the top of the display) are now zoomed in to enhance laser tuning. For detailed information about Tuning mode, refer to the *FieldMaxII-TOP User Manual* (1086235).

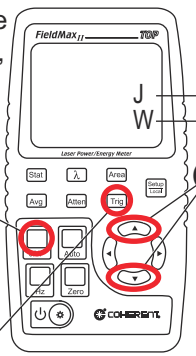
Measuring Energy and Average Power with a Pyroelectric Sensor

The following illustration outlines how to set up a pyroelectric sensor to take an energy or average power measurement.

Connect a pyroelectric sensor to the 25-pin connector. *Note: If your sensor has a BNC plug, you will need to attach a 25-pin adapter.*



Select Joules mode to measure energy, or Watts mode to measure average power.



Press either the Up or Down arrow to manually select the range. *Note: Auto Range is not available for this type of sensor.*

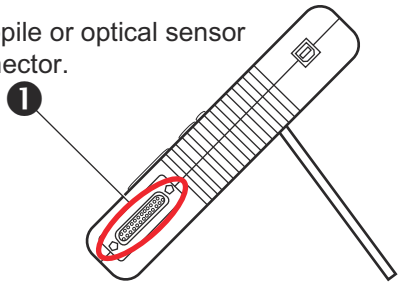
Adjust the trigger threshold from 2 to 20% of range. Make sure the trigger threshold is set *below* the energy you plan to measure.

5 Take the measurement and observe the result on the display.

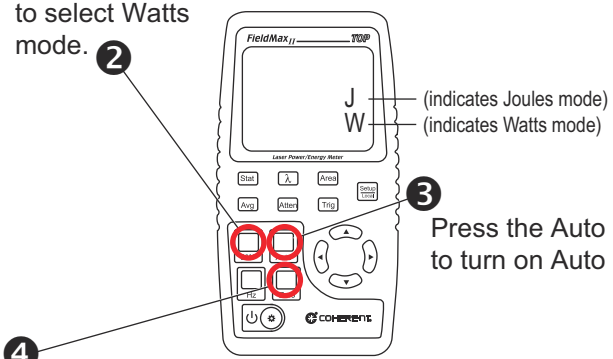
Measuring Power with a Thermopile or Optical Sensor

The following illustration describes how to take a power measurement using a thermopile or optical sensor.

Connect a thermopile or optical sensor to the 25-pin connector.



If Joules mode is currently selected, press the J/W button to select Watts mode.

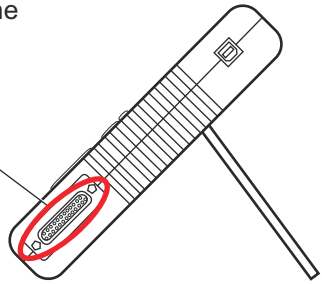


5 Unblock the beam, take the measurement, and observe the result on the display. *Note: Thermopile sensors must reach steady-state to obtain an accurate measurement*.

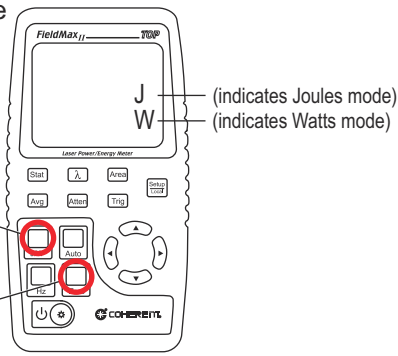
Measuring Single-Pulse Energy with a Thermopile Sensor

The following illustration explains how to take a single long-pulse (1 ms to 10 sec.) energy measurement using a thermopile sensor.

Connect a thermopile sensor to the 25-pin connector. ❶



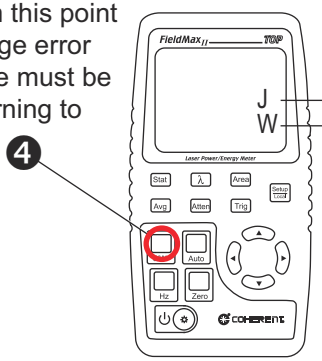
Press the J/W button to select Watts mode and then find the appropriate watts range by taking a couple of sample measurements. The appropriate range is the lowest range available that does not give an overrange error during the test measurement. ❷



❸

After the sensor has settled to a minimum reading, block the beam and then press the Zero button to set the baseline for the measurement.

Press the J/W button to select Joules mode. The Range (Up and Down arrows), Zero button, and Auto button should not be used from this point on. If an overrange error occurs, the range must be adjusted by returning to the Watts mode. ❹



When FieldMaxII-TOP is prepared for the first measurement, the TRIG? annunciator displays at the top of the display.

❺

Expose the sensor to one laser pulse, take the measurement, and observe the result on the display. The TRIG annunciator displays during the measurement, showing that the meter is currently calculating the measurement. The Zero button should not be pressed between measurements.

QUICK START: FIELDMAXII-TO

This section includes two "mini-tutorials" that explain how to connect a sensor to your FieldMaxII-TO meter and begin taking measurements. For in-depth information about the FieldMaxII-TO meter, refer to the *FieldMaxII-TO User Manual* (1086239).

Tutorials include:

- Tuning a laser with a thermopile or optical sensor (page 17)
- Measuring power with a thermopile or optical sensor (page 18)

Carefully review the following safety information to avoid personal injury and to prevent damage to this meter or any sensor connected to it.

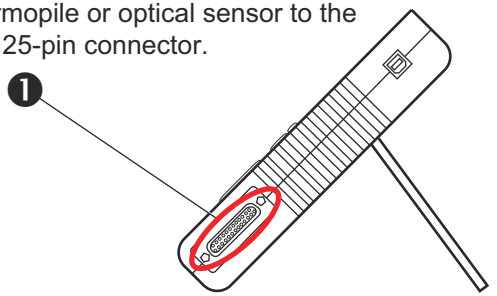
WARNING!
Follow all laser safety procedures. The laser must be blocked or switched OFF before beginning the procedures described in this section.

NOTICE!
Power to the FieldMaxII-TO meter must be OFF before beginning the procedures described in this section.

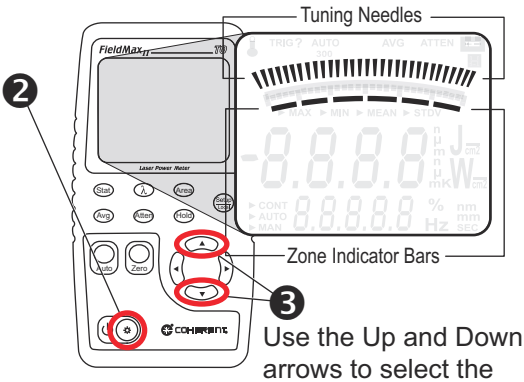
NOTICE!
Do not exceed the power density limits of the sensor.

Tuning a Laser with a Thermopile of Optical Sensor

Connect a thermopile or optical sensor to the FieldMaxII-TO 25-pin connector.



Apply power to the meter.



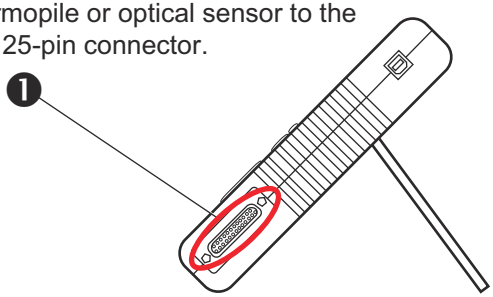
Use the Up and Down arrows to select the appropriate measurement range (meter is automatically placed in Manual Ranging).

Tuning is shown on the display using tuning needles and zone indicator bars. The tuning needles (at the top of the display) are now zoomed in to enhance laser tuning. For detailed information about Tuning mode, refer to the *FieldMaxII-TO User Manual (1086239)*.

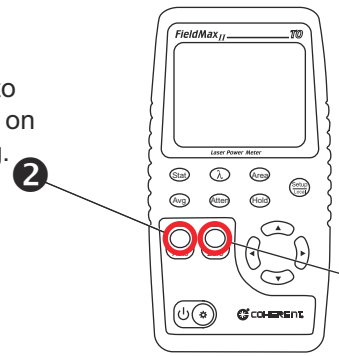
Measuring Power with a Thermopile or Optical Sensor

The following illustration describes how to take a power measurement using a thermopile or optical sensor.

Connect a thermopile or optical sensor to the FieldMaxII-TO 25-pin connector.



Press the Auto button to turn on Auto Ranging.



Block the beam and then press the Zero button to set the baseline for your new measurement.

4

Unblock the beam, take the measurement, and observe the result on the display.

QUICK START: FIELDMAXII-P

This section includes two "mini-tutorials" that explain how to connect a sensor to your FieldMaxII-P meter and begin taking measurements. For in-depth information about the FieldMaxII-P meter, refer to the *FieldMaxII-P User Manual* (1086242).

Tutorials include:

- Tuning a laser with a pyroelectric sensor (page 20)
- Measuring energy with a pyroelectric sensor (page 21)

Carefully review the following safety information to avoid personal injury and to prevent damage to this meter or any sensor connected to it.

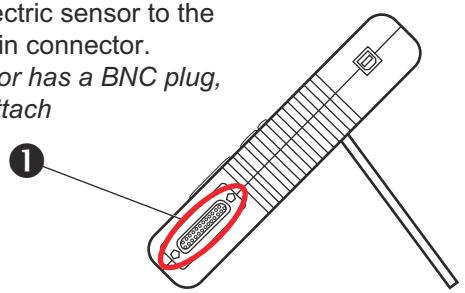
WARNING!
Follow all laser safety procedures. The laser must be blocked or switched OFF before beginning the procedures described in this section.

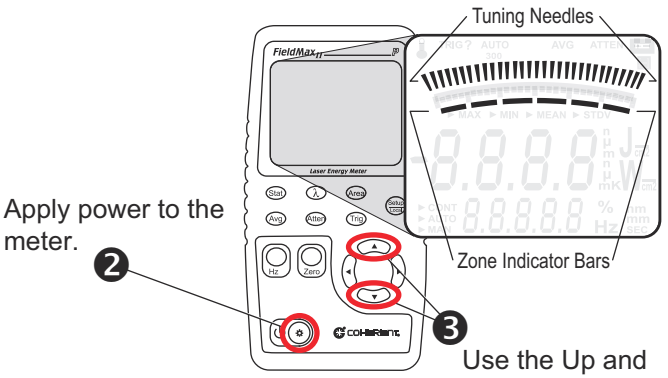
NOTICE!
Power to the FieldMaxII-P meter must be OFF before beginning the procedures described in this section.

NOTICE!
Do not exceed the power density limits of the sensor.

Tuning a Laser with a Pyroelectric Sensor

Connect a pyroelectric sensor to the FieldMaxII-P 25-pin connector.
Note: If your sensor has a BNC plug, you will need to attach a 25-pin adapter.



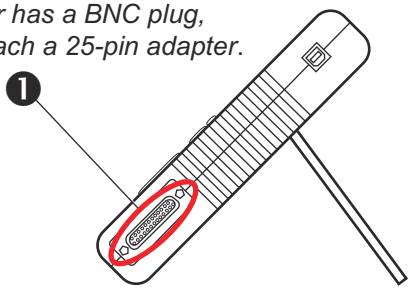


Tuning is shown on the display using tuning needles and zone indicator bars. The tuning needles (at the top of the display) are now zoomed in to enhance laser tuning. For detailed information about Tuning mode, refer to the *FieldMaxII-P User Manual* (1086242).

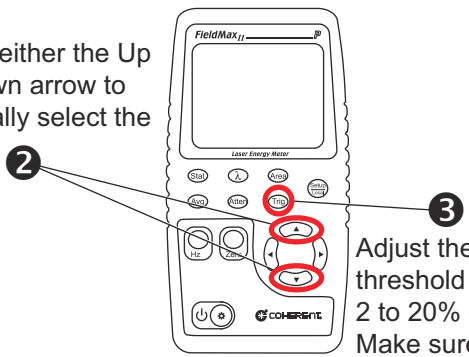
Measuring Energy with a Pyroelectric Sensor

The following illustration outlines how to set up a pyroelectric sensor to take an energy measurement.

Connect a pyroelectric sensor to the FieldMaxII-P 25-pin connector.
Note: If your sensor has a BNC plug, you will need to attach a 25-pin adapter.



Press either the Up or Down arrow to manually select the range.



Adjust the trigger threshold from 2 to 20% of range. Make sure the trigger threshold is set *below* the energy you plan to measure.

4

Take the measurement and observe the result on the display.

FieldMaxII™ Software Installation and Quick Start Guide

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