

# ProbeView™ II

User Manual



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**Revision Record | MANUAL,PROBEVIEW II | Part #H-600097, Rev. F**

<b>Revision</b>	<b>Description</b>	<b>Date</b>
A	Initial Release	January, 2004
B	Rebrand	November, 2008
C	Add HI-4413USB content	October, 2009
D	Added <i>EC Declaration of Conformity</i> for HI-4413P Fiber Optic Modem	February, 2010
E	Updated USB driver installation information	October, 2011
F	Updated Windows information	November, 2023


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## Notes, Cautions, and Warnings

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	<p><b>Note:</b> Denotes helpful information intended to provide tips for better use of the product.</p>
<p><b>CAUTION</b></p>	<p><b>Caution:</b> Denotes a hazard. Failure to follow instructions could result in minor personal injury and/or property damage. Included text gives proper procedures.</p>
<p><b>WARNING</b></p>	<p><b>Warning:</b> Denotes a hazard. Failure to follow instructions could result in SEVERE personal injury and/or property damage. Included text gives proper procedures.</p>



See the ETS-Lindgren *Product Information Bulletin* for safety, regulatory, and other product marking information.

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## 1.0 Introduction

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The **ETS-Lindgren ProbeView™ II software** provides data gathering and viewing options for use with these ETS-Lindgren EMC Field Probes:

- HI-60XX Series Field Probe
- HI-44XX Series Field Probe
- HI-3702 Induced Current Meter
- HI-3638 Low Frequency Meter

ProbeView II provides real-time display, logging, and analysis of probe data. It displays a variety of test information, both numerically and graphically.

### Required Components

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- HI-4413P Fiber Optic Modem



OR

HI-4413USB  
Fiber Optic to  
USB Converter



- Fiber optic cable, part # 491106-*nn*, where *nn*=length in meters (not included)
- ProbeView II CD—See page 11 for the steps to install ProbeView II
- Personal computer with Microsoft® Windows® operating system and one available serial port for HI-4413P or one available USB port for HI-4413USB (not included)
- USB driver for HI-4413USB—See page 11 for the steps to download and install the driver



The field probe communication rate in samples per second is directly affected by the speed of the computer microprocessor.

### **ETS-Lindgren Product Information Bulletin**

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See the ETS-Lindgren *Product Information Bulletin* included with your shipment for the following:

- Warranty information
- Safety, regulatory, and other product marking information
- Steps to receive your shipment
- Steps to return a component for service
- ETS-Lindgren calibration service
- ETS-Lindgren contact information



## 2.0 Maintenance

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### CAUTION

Before performing any maintenance, follow the safety information in the ETS-Lindgren *Product Information Bulletin* included with your shipment.



Maintenance is limited to external components such as cables or connectors.

If you have any questions concerning maintenance, contact ETS-Lindgren Customer Service.

### Maintenance of Fiber Optics

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Fiber optic connectors and cables can be damaged from airborne particles, humidity and moisture, oils from the human body, and debris from the connectors they plug into. Always handle connectors and cables with care, using the following guidelines.



Before performing any maintenance, disconnect the fiber optic cables from the unit and turn off power.

When disconnecting fiber optic cables, apply the included dust caps to the ends to maintain their integrity.

Before connecting fiber optic cables, clean the connector tips and in-line connectors.

Before attaching in-line connectors, clean them with moisture-free compressed air.

Failure to perform these tasks may result in damage to the fiber optic connectors or cables.

## Service Procedures

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For the steps to return a system or system component to ETS-Lindgren for service, see the *Product Information Bulletin* included with your shipment.

## Replacement and Optional Parts

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Part Description	Part Number
HI-4413P Fiber Optic Modem	HI-4413P
HI-4413USB Fiber Optic to USB Converter	HI-4413USB
Fiber Optic Cable, Glass	491106- <i>nn</i> ( <i>nn</i> =length in meters)

## 3.0 Getting Started

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### CAUTION

Before connecting any components, follow the safety information in the ETS-Lindgren *Product Information Bulletin* included with your shipment.

### Step 1: Download & Install Driver for HI-4413USB

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The USB driver for the HI-4413USB automatically downloads and installs when the HI-4413USB is plugged into a computer that is connected to the Internet and that is installed with Microsoft® Windows® operating systems:

If your computer is not connected to the Internet, or it is connected but the automatic installation failed or was cancelled, you will need to download the drivers from [www.ets-lindgren.com](http://www.ets-lindgren.com) and manually install them on your computer.

- Go to [www.ets-lindgren.com](http://www.ets-lindgren.com).
- On the **Resources** menu, click **Software Support**.
- In the **Software** column, click **Windows 10 USB Drivers for HI-4413USB and HI-6113** (the name of the zip file may vary slightly). Save the zip file to the desired location on your computer.



For manual installation instructions, reference document 399330, USB Driver Installation Instructions

- Extract the files from the downloaded zip file.
- In the same section on the ETS-Lindgren website where the driver is located, click the link to download the installation instructions. Follow those instructions to install the USB driver on your computer.

### Step 2: Install ProbeView II

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See *Required Components* on page 7 for a list of hardware and software required to install and operate ProbeView II.

- Insert the ProbeView™ II CD into the CD drive on your host computer.

- Click Setup.exe located on the CD.

ProbeView II installs in C:\Program Files\ProbeView II.

### Step 3: Connect Components

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- Connect the fiber optic cable from the fiber optic ports on the probe to the HI-4413P Fiber Optic Modem or HI-4413USB Fiber Optic to USB Converter, matching white to white and yellow to yellow as indicated by the markers on the probe, modem, and cable.
- **HI-4413P:** Plug the HI-4413P into the RS-232 port on the computer (communication port 1, 2, 3, 4, or 5).

**HI-4413USB:** Plug the HI-4413USB into the USB port on the computer (communication port 1, 2, 3, 4, or 5).



The first time you use the HI-4413USB with your host computer, Microsoft Windows will set up the driver you installed in step 1, and then display a message that the device is ready to use.

- Turn on the probe.
- Start ProbeView II. Click **Start, All Programs, Holaday, ProbeView II,** and then click **ProbeView II.**
- The first time ProbeView II is launched an option box displays to allow selection of a communication port. Select the port number where the HI-4413P/HI-4413USB is connected.

To choose a different port after the initial selection, select the **Communications** menu after ProbeView II starts. For more information, see page 25.

- ProbeView II will look for a probe until one is detected, and then perform testing to determine the type of probe that is connected.

If the HI-4413P/HI-4413USB is connected to the selected communication port, the LEDs on the HI-4413P/HI-4413USB will flash. Only one flashing LED indicates the communication port is working correctly but the connected probe is not responding.

## ProbeView II Options Window

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### AVERAGING

ProbeView II can be set to do a moving average of up to 50 samples. A setting of **1** indicates no averaging.

### TEXT UPDATE RATE

Sets the text update rate in the Probe Status box to a readable rate. ProbeView II can acquire more than 70 samples per second with the HI-6005 probe. If every sample were displayed in text format, fast sample rates would become unreadable.

### ANNOTATING LOGGED DATA

ProbeView II will prompt the user for information about the logged data being saved. To configure the prompts:

- Select the **Options** window.
- Click the **Misc** tab.
- Select **Edit Note Prompts**. The **prompt**, **prompt-identifier**, and **last-user-entry** are stored as a single line in the file.

The **prompt** is the text preceding the first comma.

The text preceding the first comma is the **prompt-identifier**, which is written to the saved data file with the user response to the prompt.

The **last-user-entry** is the last response the user gave to the prompt. It is also saved in the prompt file.

## COLORS

ProbeView II colors can be customized to personalize the display. Some color combinations are not recommended. Avoid using light colors as the **Box-Color**; the white text in the **Probe-Status-Area** is not changeable. Avoid using red or yellow as the **Text-Color**, because red and yellow are used to indicate over and under range condition.

The **Bar Graph** colors may be set to match the individual colors set in the **Graph Colors** frame by checking **Match Graph Colors**.

## HUMAN EXPOSURE

Time based averaging is available to measure human exposure to EMF. Data samples are collected at one-second intervals for a specific time period. The samples are averaged over that time period, also known as the **Threshold Limit Value**.

## 4.0 Settings and Pinouts

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### HI-4413P Fiber Optic Modem

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#### RS-232 SETTINGS

Following are the RS-232 settings to communicate with the HI-4413P Fiber Optic Modem and probes:

**Word Length:** 7 bits

**Stop Bits:** 1

**Baud Rate:** 9600

**Parity:** Odd

#### CONNECTOR PINOUTS

HI-4413P Pin Assignment	Description	Computer Pin Assignment	Description
1	N.C.	1	DCD
2	Tx	2	Rx
3	Rx	3	Tx
4	DSR	4	DTR
5	GND	5	GND
6	DTR	6	DSR

## HI-4413USB Fiber Optic to USB Converter

The cable for the HI-4413USB  
Fiber Optic to USB Converter  
uses the standard USB A-type  
male to USB mini-B male.





## 5.0 Operation

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### **CAUTION**

Before connecting any components, follow the safety information in the ETS-Lindgren *Product Information Bulletin* included with your shipment.

### **ProbeView II Data**

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Data is stored to C:\Program Files\ProbeView II, and is saved in a text format for analysis by a variety of software. The data is saved as a comma separated value file type. Microsoft® Office Excel® recognizes this format to allow easy loading of the data. To open the file and view the data, click the **csv** file. When the data in excess of 32 KB samples is saved, the data is saved in multiple files containing 32 KB samples each.

### **SAMPLE LIMIT**

ProbeView™ II has a 512,000 data points limit before the data needs to be saved to a file. The log function will disengage automatically if this limit is reached. No other indication will be given.

### **ZERO PROBE MENU ITEM**

Zero the probe. Verify that the probe is in a zero field environment before selecting this item. See the probe manual for information regarding zeroing a probe. The zeroing function is not available for all probes.

### **AUTO UPDATE INTERVAL**

Sets the time interval at which the probe temperature, laser current and temperature values are updated. These values can be updated immediately by clicking on the **Temp** label.



These values are not updated during data logging.

## SAMPLE RATE

The sample rate is controlled with a list on the toolbar. The actual sample rate that is achieved depends on the features that are enabled and the type of probe. The actual sample rate may also vary depending on the speed of the computer and how busy it is performing other operations. The **Sam/Sec** label indicates the actual sample rate.



Avoid other tasks during data logging, or the sample rate may vary. Irregular time stamp intervals in the recorded data can occur if this is ignored.

When ProbeView II is set to **3 Axis-Data** and auto-ranging is enabled, the sample rate will vary depending on how often the probe needs to change ranges as it switches axes.

## ZOOM-IN / ZOOM-OUT

The **Zoom-Out** button becomes active after data has been recorded or data has been loaded from a file. To view the data after a recording session, click the **Zoom-Out** button. The graph is capable of displaying a maximum of 32,000 data samples. To view data in excess of 32 KB samples, the data needs to be saved to a file. The data will be saved in multiple files of 3 KB samples each. These files can be individually loaded for later viewing.

To use the Zoom-In function, click the **Zoom-In** button, then click the graph and hold down the mouse button. Drag the mouse pointer down and to the right to select the area, and then release the button when the appropriate area is selected. The Zoom-In function only zooms the horizontal axis, not the vertical. Click the **Scatter-Graph-Live** button to return to viewing live probe data.

## HUMAN EXPOSURE (HEALTH AND SAFETY)

To use this feature, select the **View** menu and enable **Moving Average**. The **Moving-Average-Box** will display on the main screen. Enabling **Moving Average** changes the log function to record one sample per second over the selected time period (for example, a six-minute average will average and record 360 data samples). Click the **Log** icon to measure and record the time-based-exposure to EMF. An elapsed timer will display the time of exposure along with the moving average. The **Elapsed Time** label will flash when the selected time interval is reached.

## BATTERY AND TEMPERATURE

ProbeView II does not automatically check the battery and temperature status while logging data. If data is logged over a long period the battery and temperature status will not reflect the current condition of the probe. The HI-6005 can take more than 500 mS to return temperature and battery information; during this time field data would not be logged.

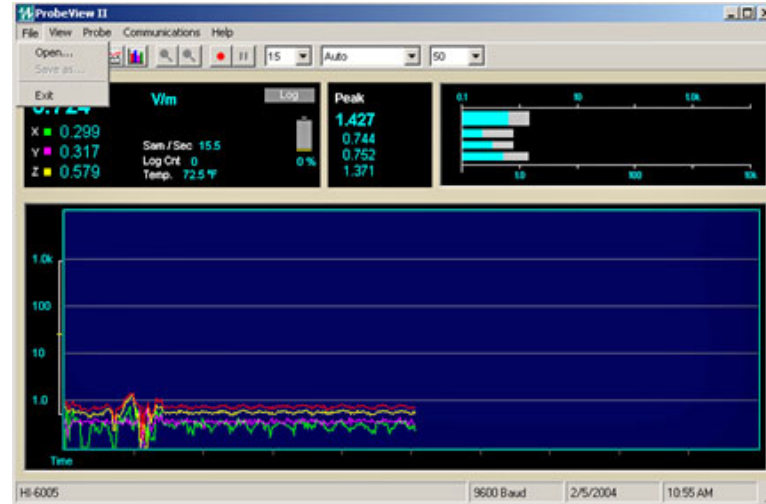
### ProbeView II Main Screen

The ProbeView II main screen displays the probe field strength or power density readings. The data is displayed as numeric values and graphs. The screen is divided into Probe Status, Moving Average, Peak Values, Bar Graphs, and Scatter Graph. Each section can be toggled on or off, except for Probe Status and Peak Values.



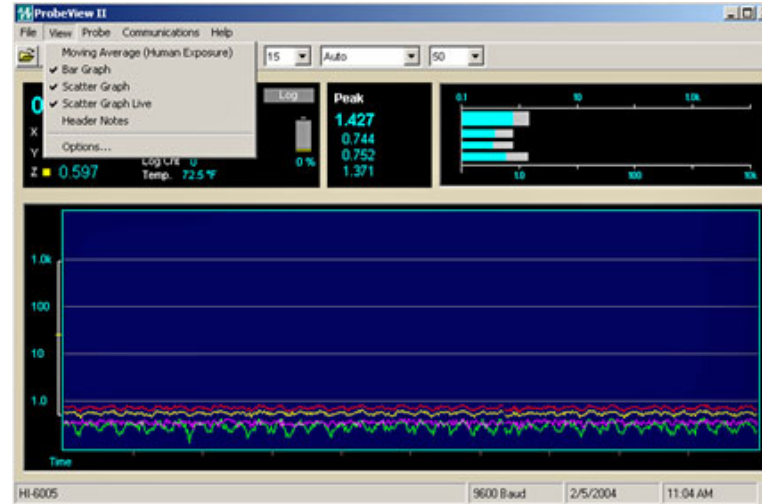
The main screen contains five menus: File, View, Probe, Communications, and Help. The following screens assume a probe is active and collecting data.

## FILE MENU



File Menu	Description
<b>Open</b>	Selects and opens a file previously logged and saved by ProbeView II.
<b>Save As</b>	Saves logged data as a text format to a <b>csv</b> file. This file may be opened in several data analysis programs, including Excel.
<b>Exit</b>	Exits ProbeView II.

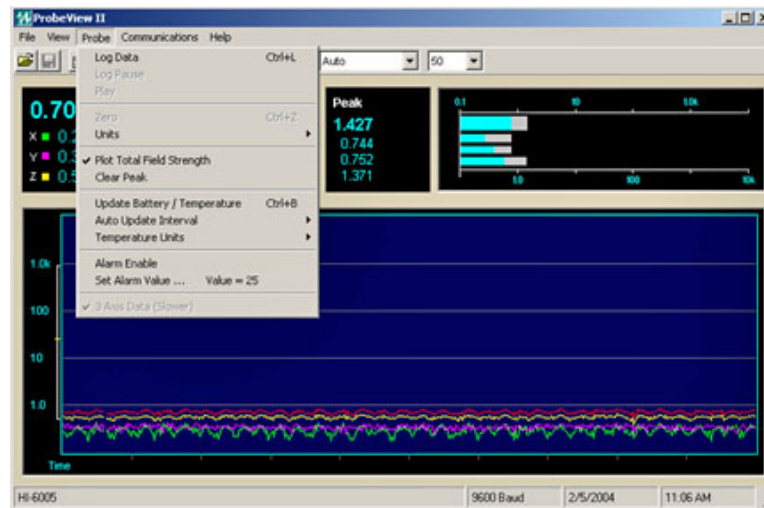
## VIEW MENU



View Menu	Description
Moving Average (Human Exposure)	Monitors the human exposure to EMF. Readings are sampled at one per second, and divided by the number of samples in the selected moving average period. When the moving average is started or reset, all the samples begin at zero. For every second during the first period of the selected moving average period, one of the zeros is replaced with a reading. At the end of the first period of the selected moving average period, the oldest reading is replaced with a new reading. This continues until the moving average is reset, which begins a new moving average.
Bar Graph	Displays the field intensity or power density for each axis and the combined field intensity of the X, Y, and Z axes.
Scatter Graph	Displays the data in graph form. Live probe data will not be plotted unless <b>Scatter Graph Live</b> is enabled.

View Menu	Description
Scatter Graph Live	After probe data is logged it may be viewed in the graph. Live probe samples are not plotted while viewing previously logged data. This function toggles back to view live probe data. Data is not saved unless logging is turned on.
Header Notes	Displays information about previously logged data that was saved and then reloaded into ProbeView II. The <b>Header Notes</b> are saved with the data when it is exported to a <b>csv</b> file.
Options	Sets screen colors, averaging, and so on.

## PROBE MENU



Probe Menu	Description
Log Data	Activates the program to record data from the probe. Data not saved during a previous logging session will be lost. Use <b>Log Pause</b> to append existing data.

Probe Menu	Description
Log Pause	Pauses probe data logging.
Zero	Zeros the probe.  This feature cannot be accessed while data logging is active, and is not available for probes that do not have a zero function.



Make sure the probe is in a zero field environment before zeroing a probe. See the probe manual for more information.

Units	Sets the units of measure in which data will be viewed and collected. The available units are probe-dependent.
Plot Total Field Strength	Disables plotting of the total field strength. Only the orthogonal values are plotted.
Clear Peak	Clears the peak values. The peak values are automatically cleared at the start of a new log session. The user is not allowed to clear the peak values manually during logging.
Update Battery / Temperature	Commands ProbeView II to immediately update battery and temperature information.



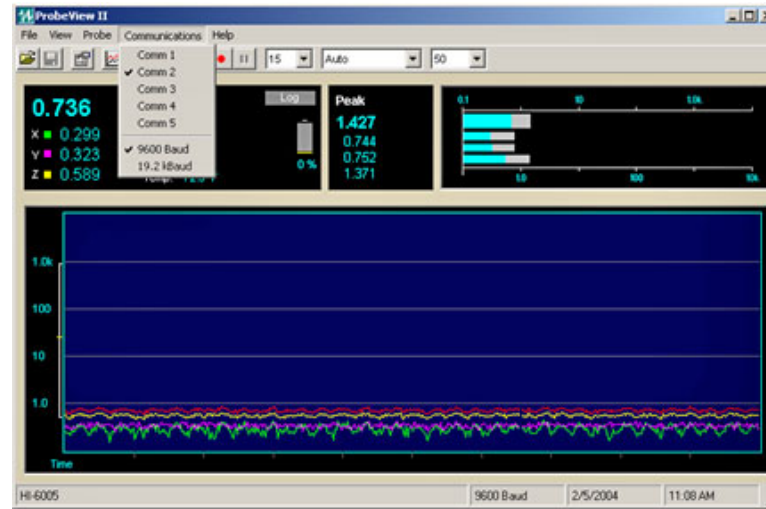
Battery status and temperature are not updated during data logging.

Auto Update Interval	Updates the battery and temperature status at selected intervals: <b>5 minutes</b> , <b>30 minutes</b> , and <b>60 minutes</b> . These values can be updated immediately by clicking the <b>Temp</b> label.
Temperature Units	Fahrenheit or Celsius.
Alarm Enable	Enables an audio alarm to indicate a preset field level has been exceeded.

Probe Menu	Description
<b>Set Alarm Value</b>	Sets the value that will trigger the audio alarm.
<b>3 Axis Data</b> (slower)	Enables ProbeView II to acquire independent axis data from the HI-44XX Series probes that have 3-axis capability.
<b>Range</b>	Allows manual selection of the probe range (when available). The default is <b>Auto Range</b> . This menu option may not be available when <b>3 Axis Data</b> is enabled. Range changes must be made in the Probe Status Box when <b>3 Axis Data</b> is enabled.



## COMMUNICATIONS MENU



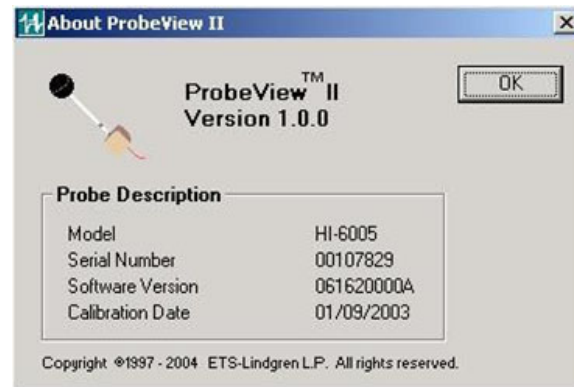
Communications Menu	Description
Comm. 1	Select communication port 1.
Comm. 2	Select communication port 2.
Comm. 3	Select communication port 3.
Comm. 4	Select communication port 4.
Comm. 5	Select communication port 5.



Once selected, the port number is written to ProbeviewII.cfg, and the communication port number is set as the default.

Communications Menu	Description
<b>9600 Baud</b>	The HI-6005 probe is the only probe that operates at 19200. ProbeView II will automatically switch to 9600 if a compatible 9600 baud rate probe is detected, even if 19200 is selected.
<b>19200 Baud</b>	The HI-44XX Series probes operate at 9600

#### HELP MENU: ABOUT



**Help About:** Provides information about the software revision and probe in use.

## Probe Interaction Screen



Probe Status Box	Description
<b>Field</b>	Combined value of the X, Y, and Z axes. This value is the square root of the sum of the squares when working with linear units.
<b>X</b> (left side of screen)	Value from X-axis reading.
<b>Y</b> (left side of screen)	Value from Y-axis reading.
<b>Z</b> (left side of screen)	Value from Z-axis reading.
<b>Units</b>	Units of field strength or power density available for the attached probe. Click to change the units.



- The units cannot be changed while logging.
- The units for the HI-2200 RF Survey Meter cannot be set with ProbeView II.

<b>Sam/Sec</b>	Samples per second.
<b>Log Cnt</b>	Total number of data points that have been logged or recorded.
<b>Log</b>	A red icon indicates that data is being recorded.
<b>Temp</b>	Current temperature returned from probe.

Probe Status Box	Description
<b>XYZ</b> (upper right corner)	Used to disable individual axes when <b>3 Axis Data</b> is disabled. Click the appropriate letter to enable or disable each axis.  This feature is not available for all probes.
<b>Range</b>	<ul style="list-style-type: none"> <li>• Displays current range. Click to set.</li> <li>• For more information, see <i>Manually Setting Range</i> on page 30.</li> </ul>
<b>Battery Percentage</b>	The approximate percentage of charge or life in battery. The battery icon also indicates this value.  <u><b>Probe Battery Status</b></u> <ul style="list-style-type: none"> <li>• <b>Normal:</b> Probe battery is in operating range.</li> <li>• <b>Warning–Yellow:</b> Probe battery is low and needs recharging.</li> <li>• <b>Fail–Red:</b> Probe battery has failed.</li> </ul>
<b>Probe Information</b>	The probe type is displayed in the status bar. Additional information may be available by selecting <b>Help About</b> .

## Communication Status

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Communication Status	Description
No Probe	<ul style="list-style-type: none"><li>• Status of the attached probe.</li><li>• No Probe indicates the probe is not connected properly, is not on, or has a low battery.</li></ul>

## FIELD INTENSITY

The total field strength or power density is shown at the top in large numbers. In a non-squared unit, this reading is the square root of the sum of the squares of the X, Y, and Z axes. The orthogonal components for the X, Y, and Z axes are displayed in smaller numbers. Each time a reading is received from the probe this value is updated.

## UNITS

The units of field strength or power density available for the attached probe. Click **Units** to scroll through the available units.



The units cannot be changed while logging.

## TEMPERATURE

The temperature returned from the Field Probe. Units may be switched between Fahrenheit and Celsius using the menu. Click **Temp** to update the temperature.

## BATTERY PERCENTAGE

The approximate percentage of charge or life in battery. The battery icon also indicates this value.

## PROBE INFORMATION

The probe type is displayed in the lower left status bar. Additional information may be available by selecting the **Help** menu.

## PEAK

Shows the maximum field value since the last time the value was cleared. To clear this value, click **Peak** or the Bar Graph.

## BAR GRAPH

Displays the data for the probe that is currently in use.

Bar Graph Display	Definition
Field	The combined X, Y, and Z values.
X-Data	Value displayed by X-Value.
Y-Data	Value displayed by Y-Value.
Z-Data	Value displayed by Z-Value.

## Manually Setting Range

ProbeView II has several options for changing probe range. The simplest method is to select **Auto Range**, but there may be times when more control is required. Following is a description of the range changing options.

- When **3 Axis Data** is enabled, the range can be only be changed from manual to auto or auto to manual by clicking the label **Manual** or **Auto** in the Probe Status box.
- The range control menu is only available when **3 Axis Data** is disabled or an electrically-summed probe is connected.

- The HI-60XX Series probes and HI-2200 do not require any range control.
- When **3 Axis Data** is disabled or when using a summed probe (HI-4450 or HI-4455), press the **F1-F4** function keys to change to ranges 1 through 4, respectively. For some probe models, the **F5** key can be pressed (HI-3702 and HI-3638).
- In the Probe Status box there is a 3x4 matrix which indicates the range of each axis when in **Auto Range** with **3 Axis Data** enabled. If ProbeView II is switched to manual ranging this matrix should be used to set the range of each axis individually. Click the appropriate range for each axis. A yellow range number indicates **Under Range**. A red range number indicates **Over Range**.
  - **Over Range**—Indicates the probe reading is over the upper limits of the selected range. For example, if the probe is set to **Range 1** with approximately 10 V/m as the upper setting, any reading greater than 10 V/m will cause an **Over Range** condition.
  - **Under Range**—Indicates the probe is reading less than approximately 10% of the full scale of the current range. For example, if the probe is set to **Range 1** with approximately 10 V/m as the upper setting, any reading less than 1 V/m will cause an **Under Range** condition.
- ProbeView II may continuously toggle the over range and under range messages when in manual ranging with **3 Axis Data** enabled. This indicates that at least one axis is over range and one axis is under range.
- A **Range Next** command can be sent to the probe by clicking **Range** in the Probe Status box. This feature is not available when **3 Axis Data** is enabled.