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ADVANCED SENSOR TECHNOLOGY, INC.

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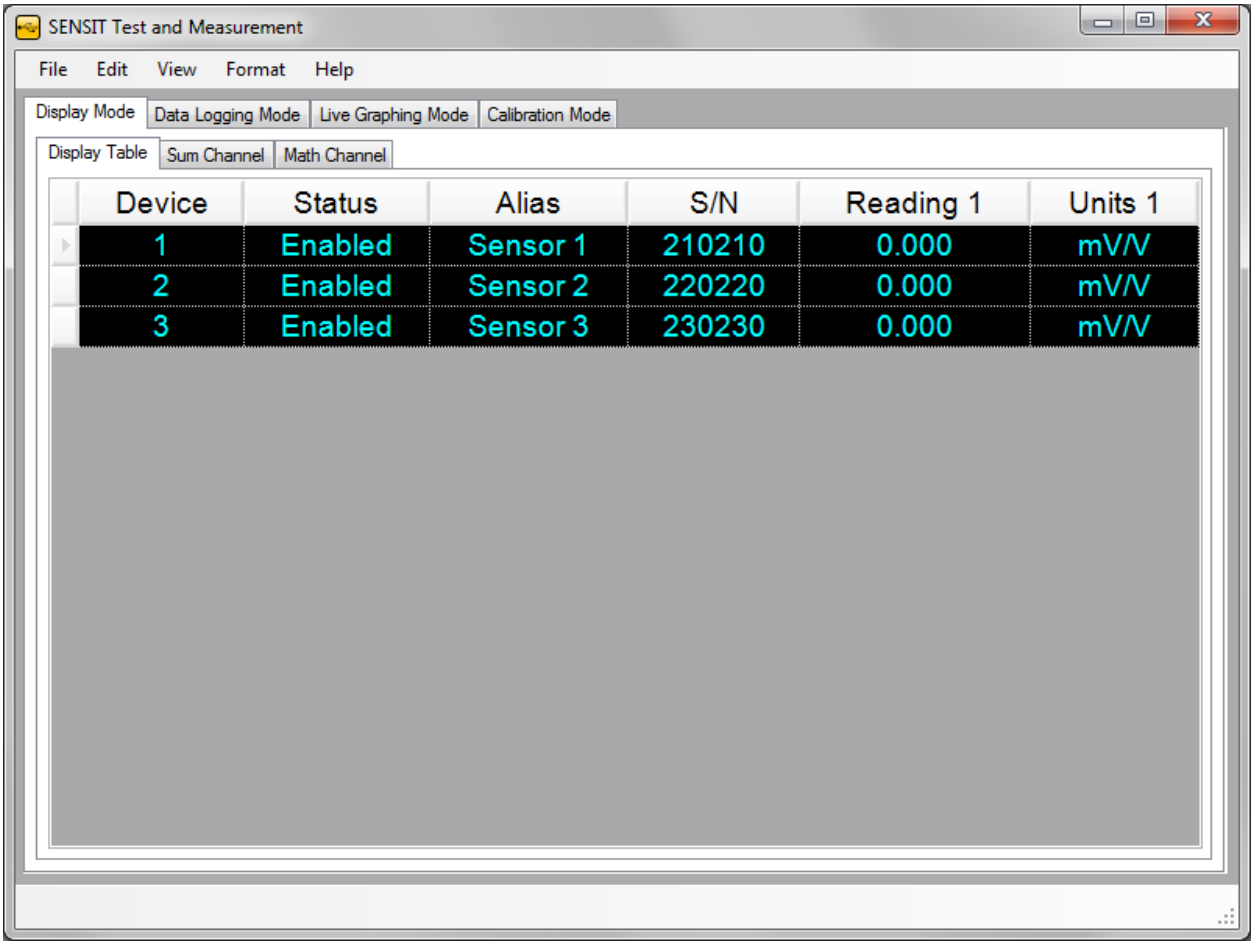
Software Overview

This software manual outlines all of the features available in the SENSIT Test and Measurement software. This software is for computers running Windows based 32-bit or 64-bit (x86 or x64) operating systems.



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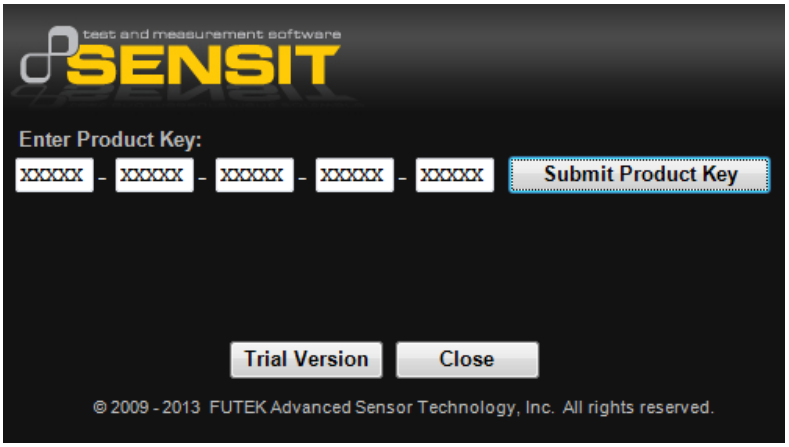
Product Key

SENSIT Test and Measurement requires a product key to be entered to validate the license that has been purchased. If you do not have a product key, then you may use the Trial Version of the software for up to 14 days from the time of installation.

The product key has the following format: XXXXX-XXXXX-XXXXX-XXXXX-XXXXX.



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Model Selection

SENSIT Test and Measurement supports the use of several models. When connecting more than one type of model family, the software will require the user to select which model(s) to communicate with when running the application.

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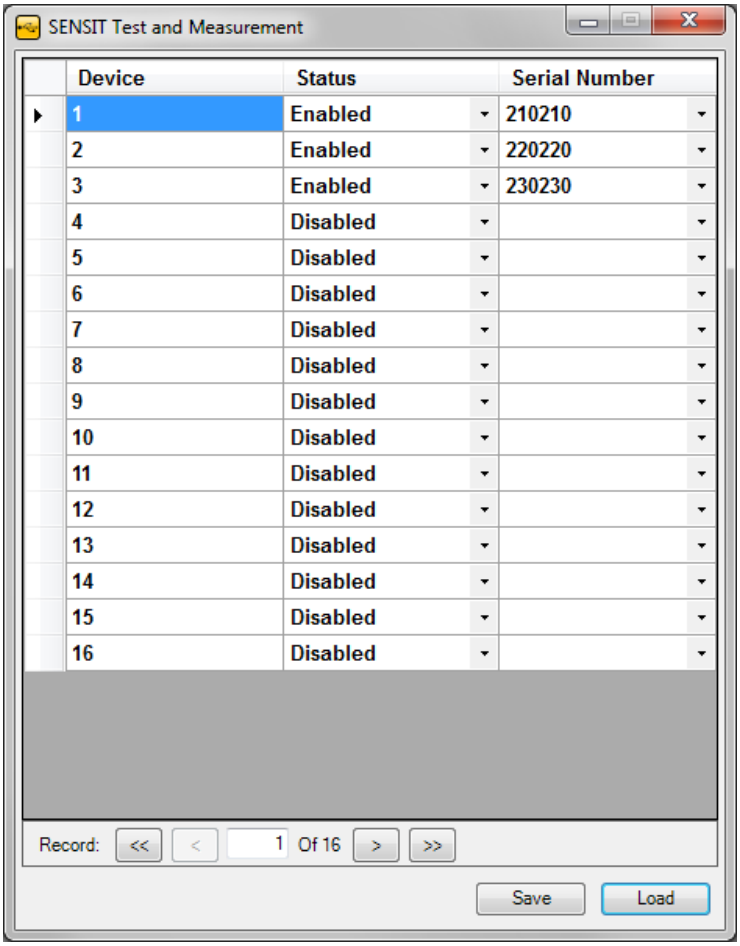
Device Selection

SENSIT Test and Measurement automatically populates all of the available device serial numbers into a drop-down list. Each device is assigned to a unique row in ascending order by serial number. The device selection table can be used to enable or disable each of the devices and to assign a serial number to a specific device number. There is an option to save the settings for each device that has been enabled or disabled, which will be reflected the next time the software is executed.

Please Note:

1. Each serial number must be unique and cannot be assigned to more than one row.
2. Only devices that have been enabled will be used in the software.
3. If a device number has been disabled, then the subsequent devices will be ignored in the software.



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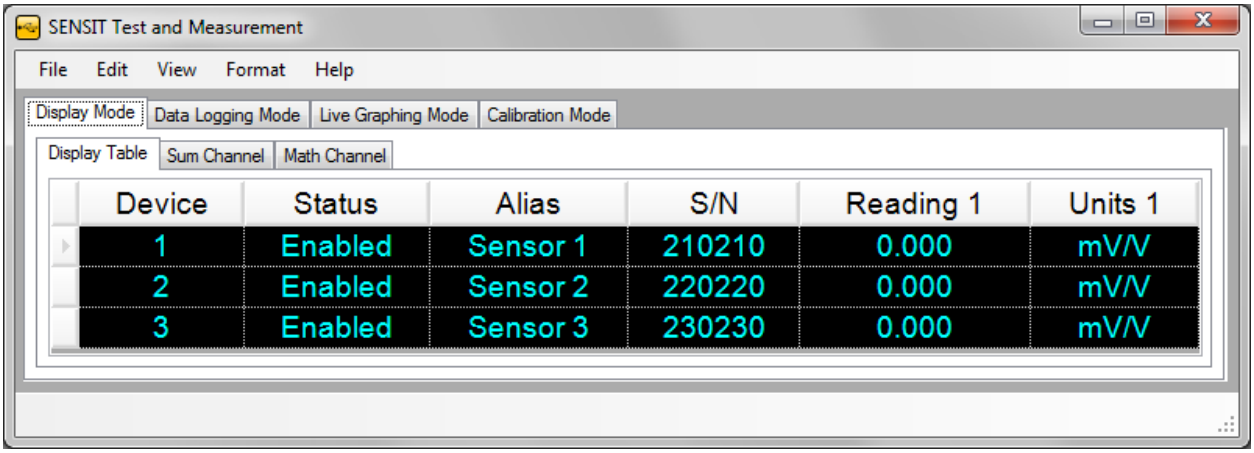
Menu



File

Load Default Settings – loads the default display, data logging, live graphing, color, and font settings of the software.
Load Saved Settings – loads the previously saved changes to the display, data logging, live graphing, color, and font settings.
Save Current Settings – saves the current changes to the display, data logging, live graphing, color, and font settings.
Exit – will close the application.

Edit

Display Table – allows the user to change the heading of the columns on the display table.

View

Display Table – Columns – allows the user to select the columns that will be visible on the display table.
Display Table – Rows – allows the user to select the rows that will be visible on the display table.
Display Front Panel – Orientation – allows the user to change the orientation of the display front panel to horizontal or vertical.
Display Front Panel – Zoom – allows the user to change the size of the display front panel between 100% and 300% of actual size.

Format

Culture Information – allows the user to change the number, date, and time format associated with the software based on regional language settings.
Font – allows the user to change the font of the display table.

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Background Color – allows the user to change the background colors of the display table and display front panel.
Foreground Color – allows the user to change the foreground (text) colors of the display table and display front panel.

Help

Additional Information – allows the user to view the system properties, sensor properties, unit conversions and unit codes.
Transducer Electronic Data Sheets (TEDS) – allows the user to view the TEDS template data.
Software Manual – allows the user to view a .pdf of the software manual that relates to the version of their software.
About SENSIT Test and Measurement – allows the user to view information about the software and the manufacturer.

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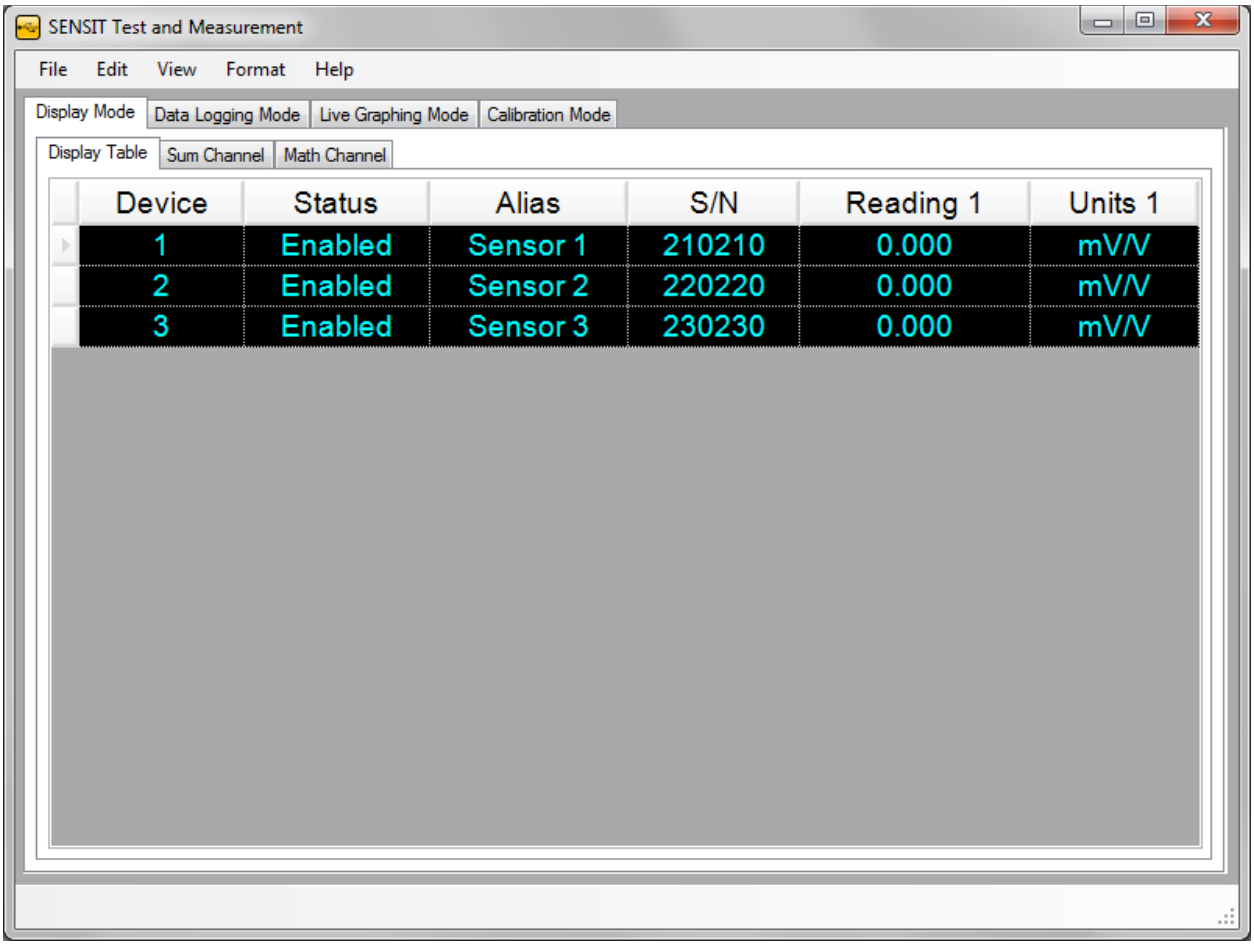
Display Mode

Display Table

This tab displays all of the relevant information that is related to the reading of each device. The settings of each device can be controlled individually using the right click to display the settings menu.



How to Use the Display Settings

1. Click on the device whose settings will be changed, so that the device is highlighted.
2. Right click anywhere on the Display Table and select the desired Display Settings to change for that device.

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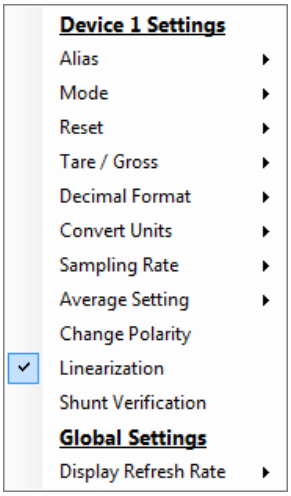
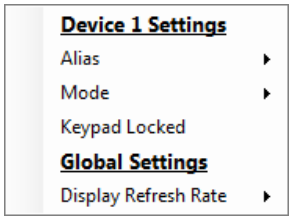
Display Settings





Device Settings

The device settings allow the user to view/modify settings that relate to a specific device. In order to view the settings menu, the user needs to right click on the desired device's row in the display table.

Alias

This device setting allows the user to enter a descriptive field for each unique device serial number.

Sensor Profile

This device setting allows the user to select one of the available sensor profiles that are created during calibration. This feature is only available when using the USB520.

Supply Voltage

This device setting allows the user to select one of the available supply voltages that can be used to externally power amplified sensors. This feature is only available when using the USB520.

Mode

This device setting allows the user to select the display mode. This feature is useful when monitoring clockwise and counter clockwise torque values, tension and compression load values, and pressure values. Each mode can be useful depending on the application or type of test being performed. Examples are listed below the description of each mode.

Tracking Mode – allows continuous readings to be displayed on the screen.
For example: This mode would be useful in monitoring a live test.
Peak Mode – allows a peak (high) reading to be displayed on the screen. The peak reading will only change if a reading greater than the current peak reading is registered.
For example: This mode would be useful in measuring the greatest torque or load value in the positive direction.

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Valley Mode – allows a valley (low) reading to be displayed on the screen. The valley reading will only change if a reading less than the current valley reading is registered.
For example: This mode would be useful in measuring the greatest torque or load value in the negative direction.

Reset

This device setting allows the user to reset the peak or valley readings.

Peak Reset – allows the max peak value shown to be reset back to zero so further peak values can be observed.
Valley Reset – allows the max valley value shown to be reset back to zero so further valley values can be observed.

Tare / Gross

This device setting allows the user to toggle between the tare and gross readings.

Tare – allows any existing preloads or readings to be zeroed out or nullified on the screen.
For example: This function should be used before performing any tests or calibrations in order to receive an accurate reading.
Gross – shows the actual value of the display, including the true zero reading.

Decimal Format

This device setting allows the user to select how many digits after the decimal point to display. More digits after the decimal point can be used for measuring lower loads with relatively large units.

Convert Units

This device setting allows the output units to be converted to a desired unit by selecting from the list available in the pull down menu. A unit can only be converted to another unit of the same type of measurement.
For example: lb to kg, N-m to ft-lb, or psi to bar

Sampling Rate

This device setting allows the user to select the number of samples taken per second. A higher sampling rate would be desired for dynamic applications, whereas a lower sampling rate would be sufficient for static applications. Selecting different values for the sampling rate will affect the number of bits of resolution.

Average Setting

This device setting allows the number of samples taken, before an average is calculated, to be changed. Selecting a higher number of samples will result in a steadier reading.

Disable Average – stops averaging samples and updates the display as the input is read.

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Moving Average – is used to smooth out fluctuations in the sensor's output. For each new sample, the oldest sample is discarded and a new average is calculated.
Mean Average – is used in static applications where the output changes slowly over time. The mean average waits until the number of samples to average has been received before calculating the average.

Change Polarity

This device setting allows the user to reverse the sign that is displayed.

Keypad Locked

This device setting allows the user to lock/unlock the physical keypad on the IHH/IPM.

Linearization

This device setting takes into account the nonlinearity of the sensor and compensates for it. This function is useful for sensors whose nonlinearity does not meet specifications.

Shunt Verification

This device setting is used to verify the calibration of a sensor. When shunted, the value should be close to the initial shunt value on the calibration certificate. If the value is significantly off, then the sensor would need to be recalibrated.

Global Settings

The global settings allow the user to view/modify settings that relate to all devices. In order to view the settings menu, the user needs to right click on the desired device's row in the display table.

Display Refresh Rate

This setting allows the user to select how fast the readings will update on the display table and display front panel.

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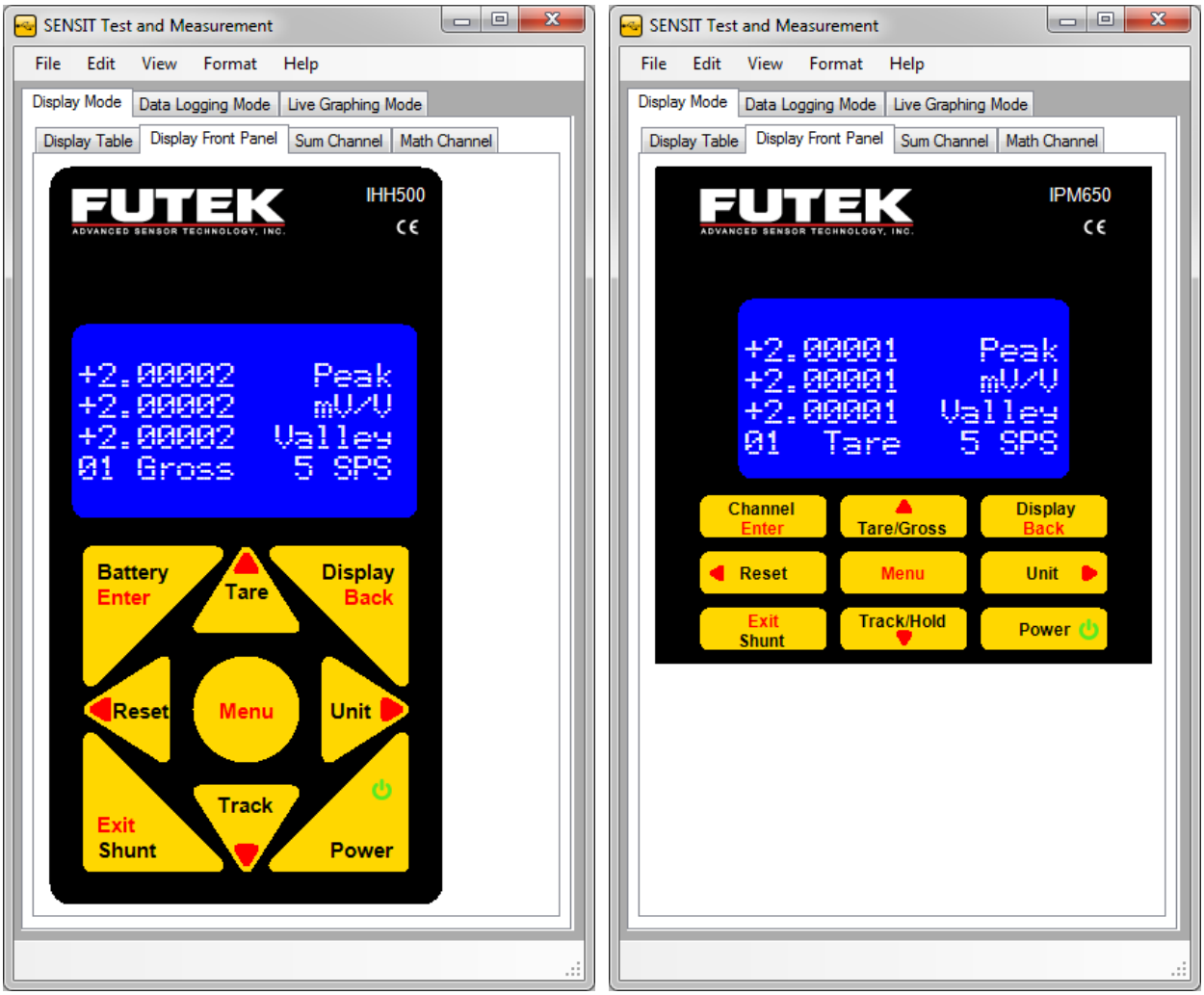
Display Front Panel

This tab displays the front panel user interface. The software provides access to all of the same functions of the keypad on the IHH/IPM hardware and displays the same messages as the LCD. All functions performed by the software are the same as if they were performed using the hardware with the exception of the Power Key. The Power Key can only be used by the hardware.



Keypad Functions

Battery / Enter Key (IHH only)

This key is used to display the battery life when used in normal mode. This Key is used as an enter key when used in menu mode.

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Channel / Enter Key (IPM only)

This key is used to display the channel information when used in normal mode. This Key is used as an enter key when used in menu mode.

Tare / Gross Key

This key is used to tare (zero) the current readings or display the gross value of the current readings when used in normal mode. This Key is used as an up arrow when used in menu mode.

Display / Back Key

This key is used to switch between various states on the LCD display when used in normal mode. This Key is used as a back key when used in menu mode.

Reset Key

This key is used to reset the current readings when used in normal mode. This Key is used as a left arrow when used in menu mode.

Menu Key

This key is used to enter the menu mode.

Unit Key

This key is used to switch between various engineering units when used in normal mode. This Key is used as a right arrow when used in menu mode.

Shunt / Exit Key

This key is used to enable the shunt value when used in normal mode. This Key is used to exit when used in menu mode.

Track / Hold Key

This key is used to track the current readings or hold the current displayed values when used in normal mode. This Key is used as a down arrow when used in menu mode.

Power Key

This key has no function in the software. It can only be used directly on the IHH/IPM hardware keypad.

Software Display

Software Display

This is used to replicate the characters displayed on the IHH/IPM LCD.

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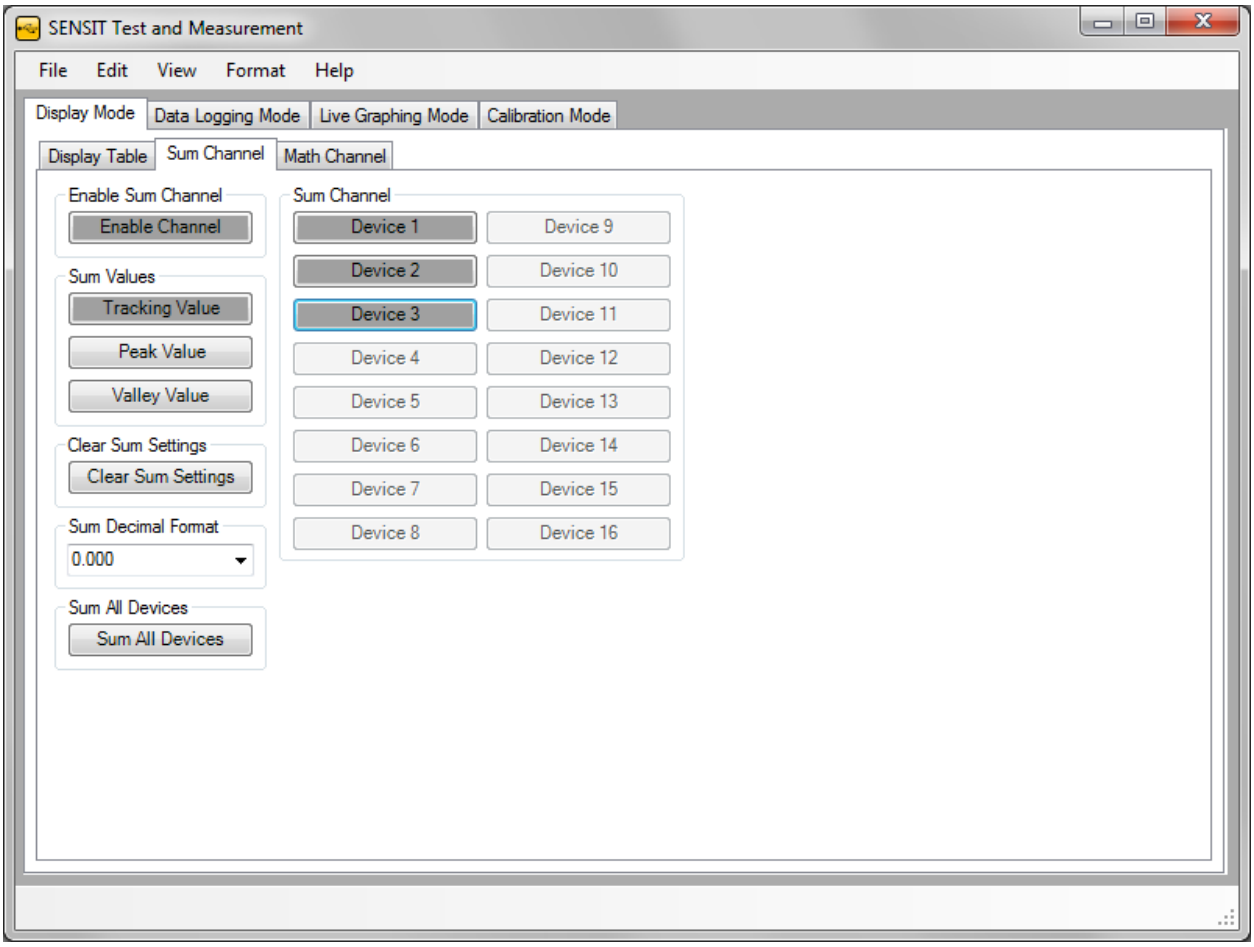
Sum Channel

This feature allows the user to sum the readings from multiple devices into one reading that is shown on the Display Table.
For example: It can be used to find the total weight that a scale using multiple sensors is supporting.



How to Use the Sum Channel

1. Click **Enable Channel**.
2. Select the values that will be summed (Tracking Value, Peak Value, or Valley Value).
3. Select the devices that will be added together.
4. Click on the **Display Table** tab. The Sum row will be displayed with the appropriate reading.

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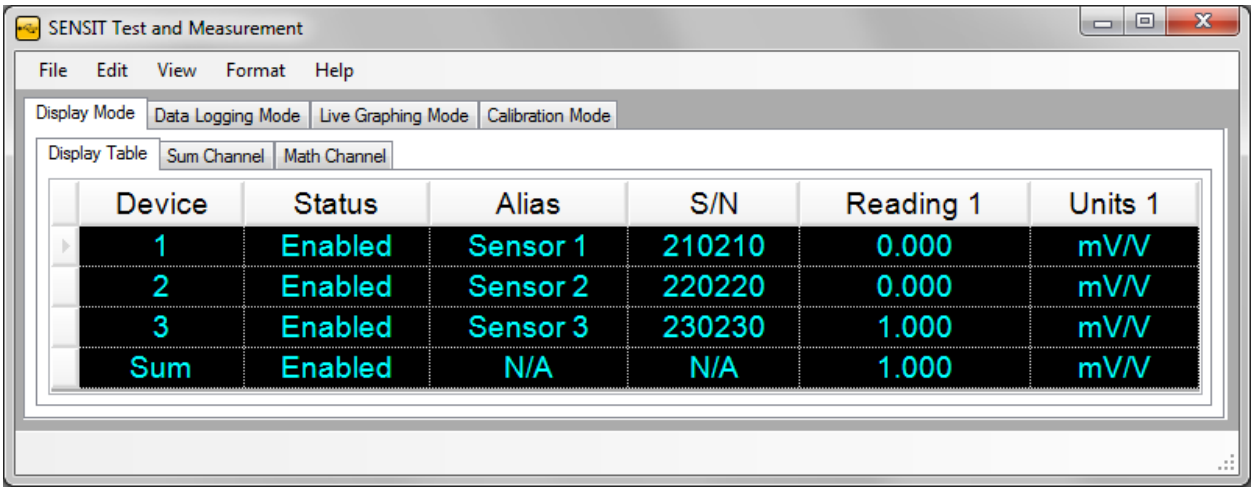

Other Sum Channel Features

Clear Sum Settings – clears the sum value and resets all of the summing functions to default settings.
Sum Decimal Format – changes the number of digits displayed after the decimal point in the reading.
Sum All Devices – enables the addition of all the devices available.

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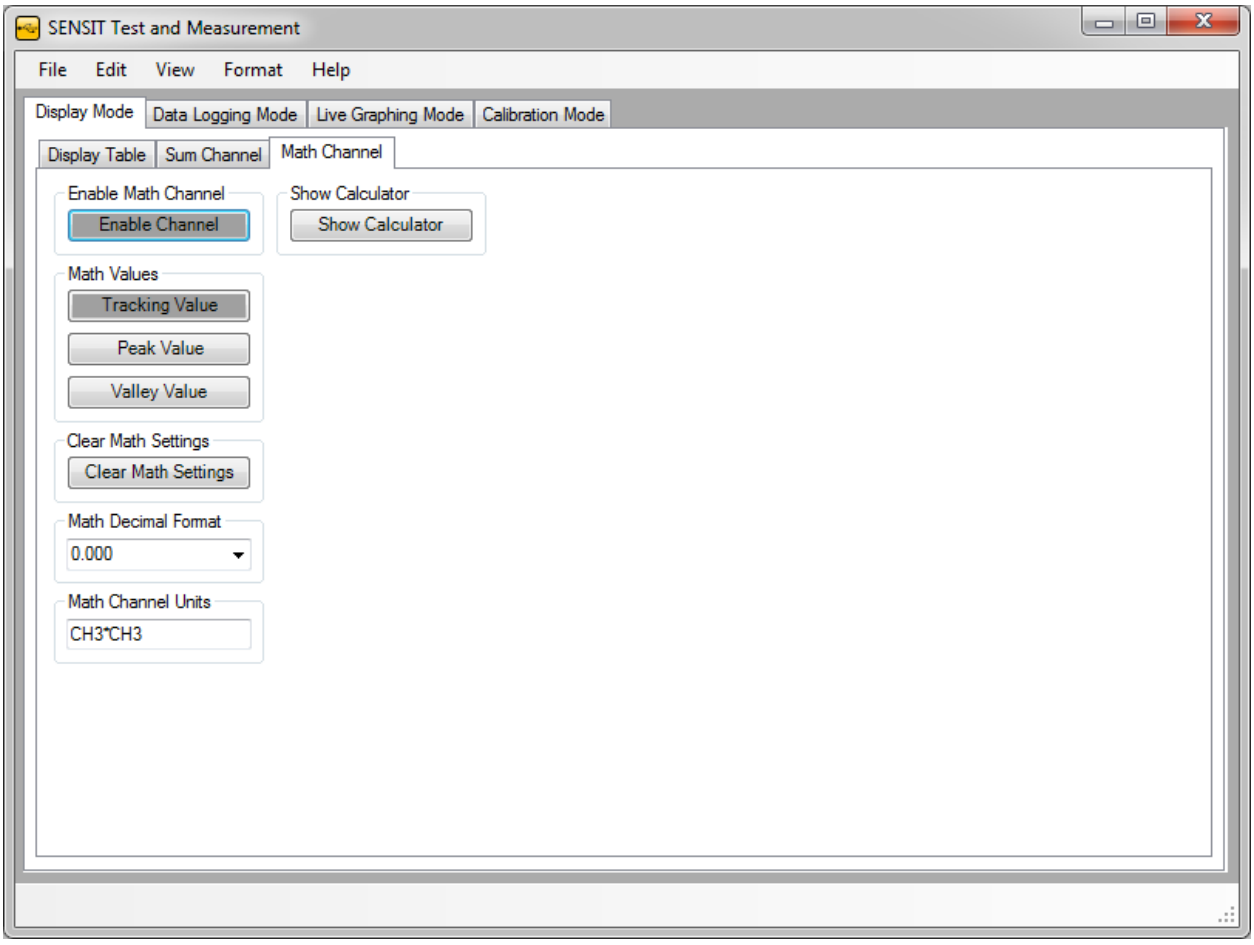
Math Channel

This feature allows the user to perform simple mathematical calculations on the live reading. With the proper scale factor, this feature can be used to convert units of a live reading to a custom unit that is not available on the Display Table.



How to Use the Math Channel

1. Click **Enable Channel**.
2. Select the values used in the calculation (Tracking Value, Peak Value, or Valley Value).
3. Click **Show Calculator**, and perform the appropriate calculation to the desired channel.
4. Close the Math Channel Calculator and click the **Display Table** tab. The Math row will be displayed with the appropriate calculations.

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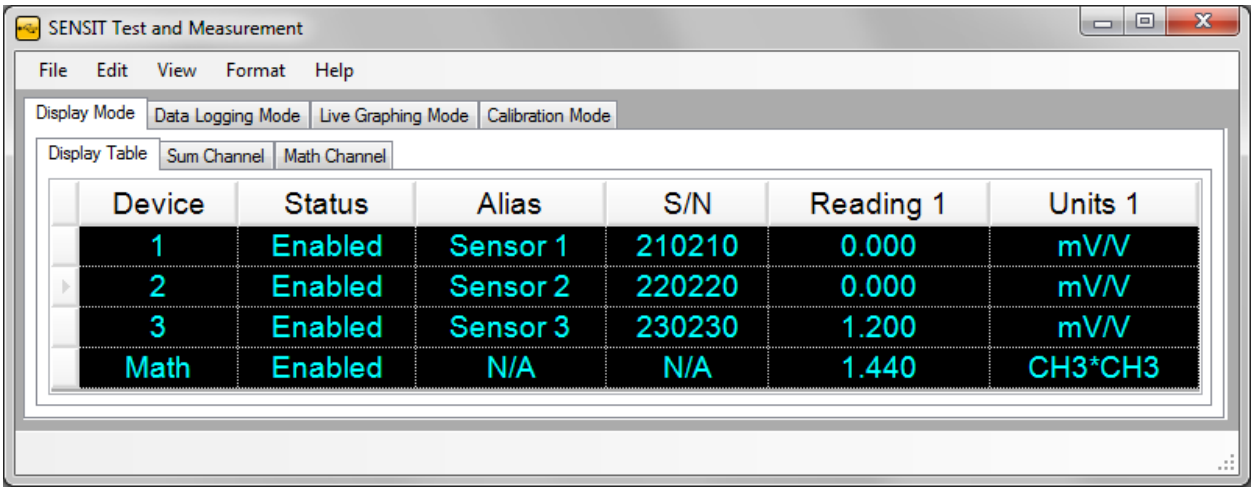

Other Math Channel Features

Clear Math Settings – clears the calculation and resets the math channel functions to default settings.
Math Decimal Format – changes the number of digits displayed after the decimal point in the reading.
Math Channel Units – The units entered here will be shown on the Display Table tab for the Math row.

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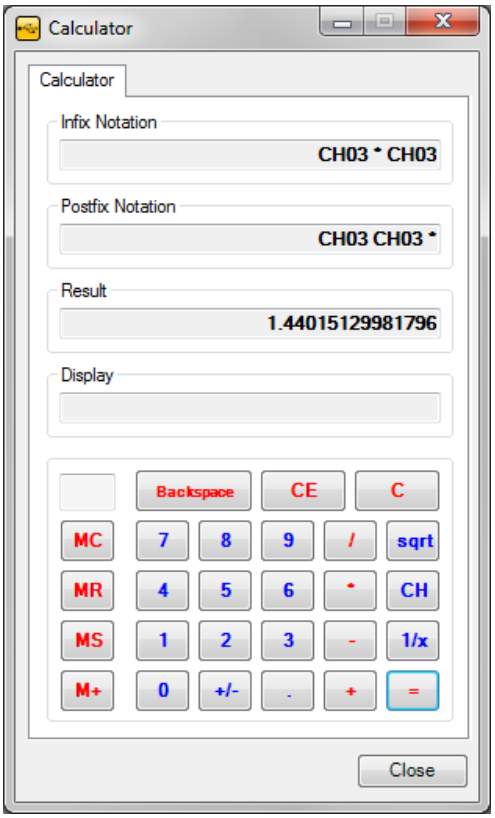
Math Channel Calculator

This feature allows the user to perform simple mathematical calculations. It performs all of the functions found on a standard calculator such as: multiplication (*), division (/), addition (+), and subtraction (-). There are several memory functions including: memory clear (MC), memory recall (MR), memory store (MS) and memory plus (M+). The calculator also includes functions for finding the square root (sqrt) and inverse (1/x) of a number. One feature that is unique to the math channel calculator is the CH key which should be used when applying a calculation to one of the channels. The user should press the CH key followed by the number of the channel.



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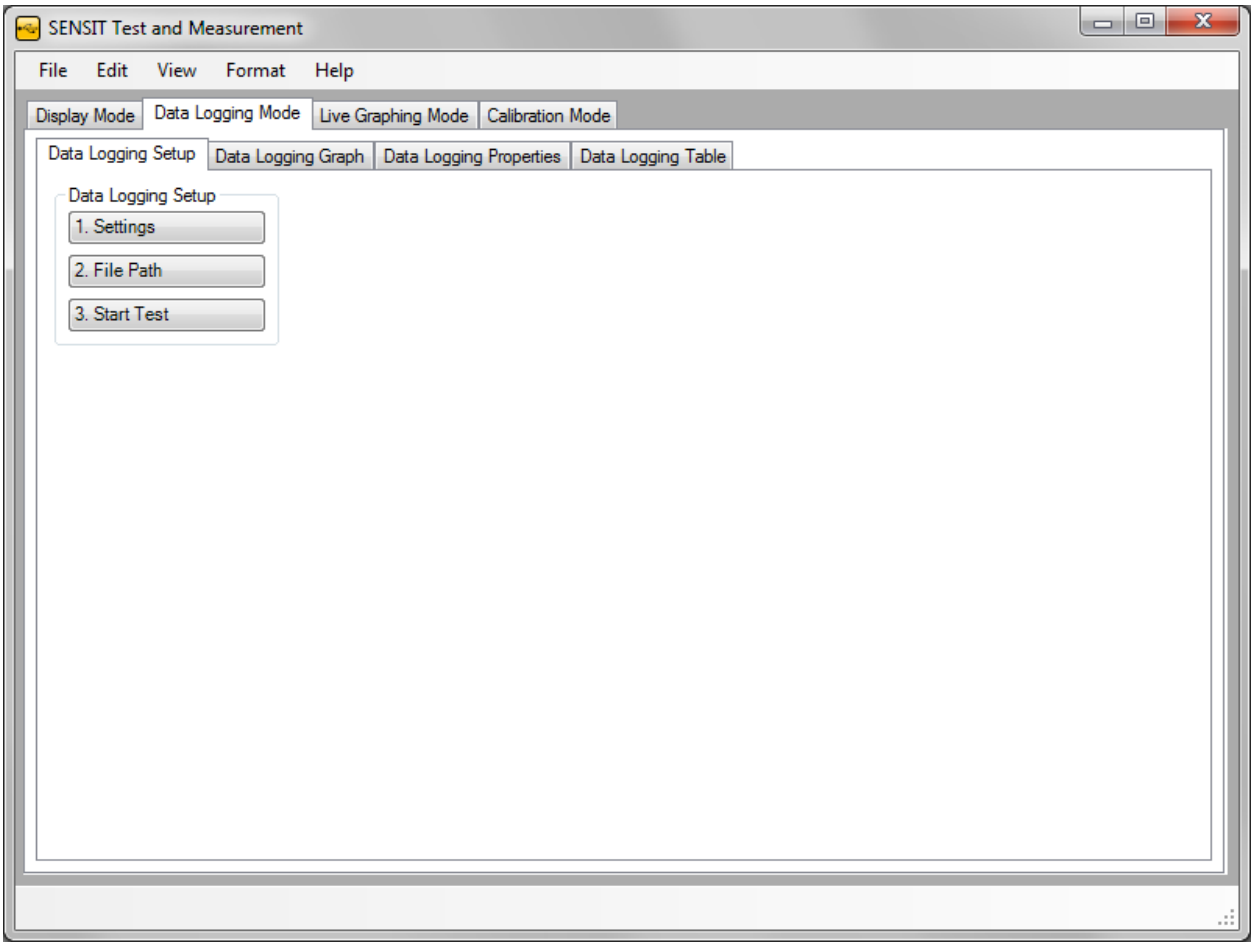
Data Logging Mode

Data Logging Setup

This tab allows the user to set all of the necessary parameters to begin logging data.

Please Note: Some Data Logging features may require Microsoft Excel.



How to Setup and Start a Data Logging Test

1. Click **Settings** to modify the Data Logging Settings.
2. Click **File Path** and specify a filename and path for the data file.
3. Click **Start Test** to begin the test. The test will be complete after the predetermined test duration and the data will be exported to a file. The data file will open and the USB Software will automatically graph the recorded data onto the Data Logging Graph tab.

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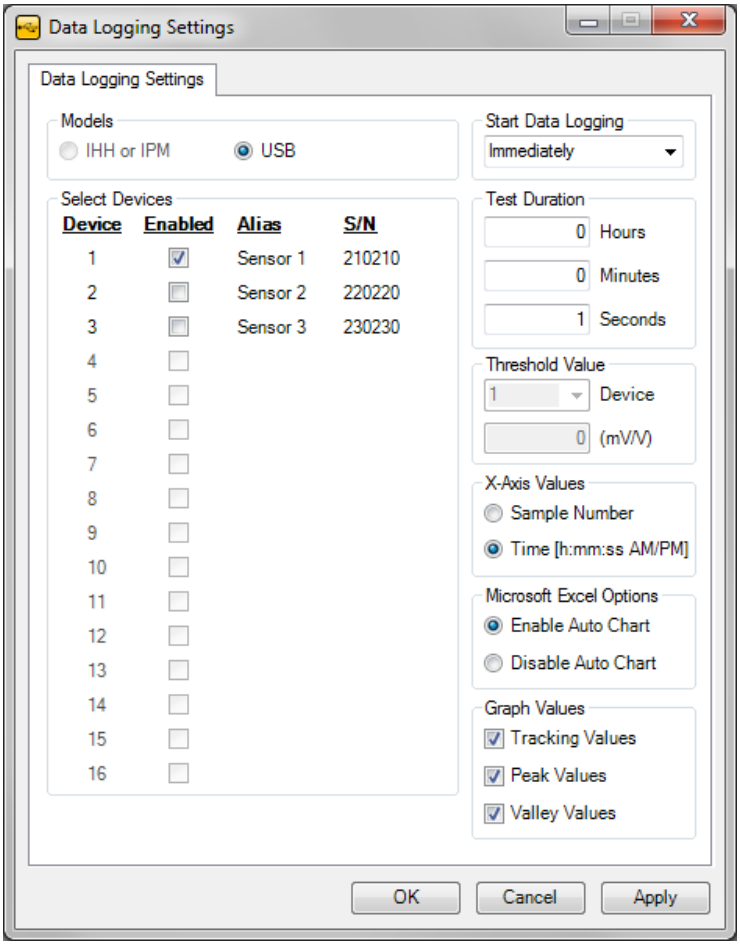
Data Logging Settings



Models

The user must select the model to be used for data logging.

Select Devices

The user must select the device(s) to be used for data logging.

Start Data Logging

There are three options to specify when to start data logging: (1) Immediately, (2) Above Threshold, or (3) Below Threshold.

Test Duration

Once the data logging begins, the test duration specifies the total length of time in hours, minutes and seconds that the data will be collected.

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Threshold Value

The threshold value allows the user to select a device and a specific threshold that the reading must be above or below in order for the data logging to begin. This value will be ignored if start data logging is set to begin immediately.

X-Axis Values

The x-axis of the Data Logging Graph can be configured by Sample Number or Time. The Time will be formatted based on the Culture Information.

Microsoft Excel Options

When exporting data to an Excel file, the user will have the option to enable or disable the automatic charting feature. If it is enabled, then a chart that resembles the one in the software will also be created in the Excel file. If it is disabled, then there will not be any charts in the Excel file. When collecting a large amount of data, it may be preferable to disable the auto chart in order shorten the amount of time that it takes to export the data to Excel.

Graph Values

The user must select the graph values to be used for data logging.

Apply Settings

The settings must be applied prior to starting a new data logging test.

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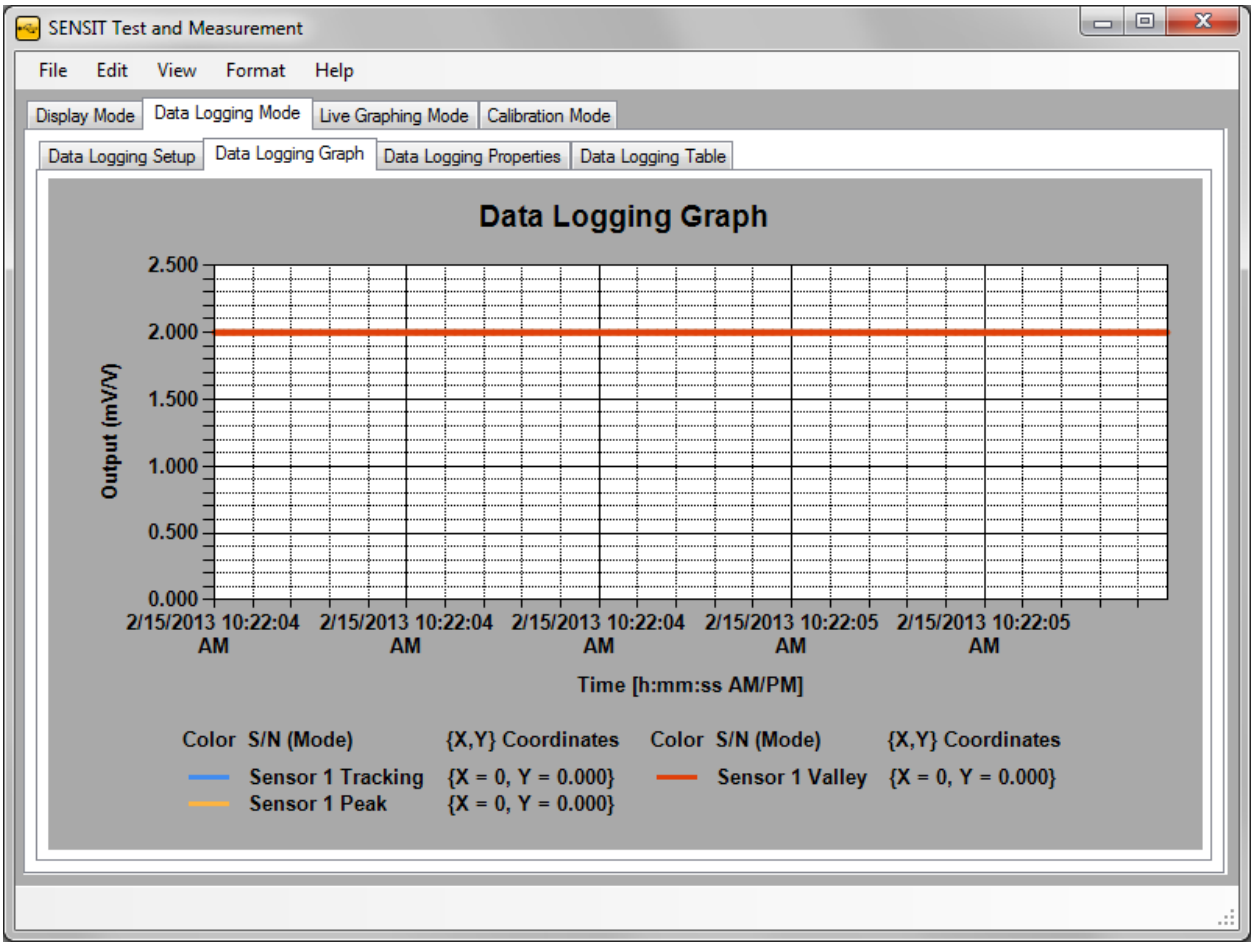
Data Logging Graph

This tab is used to view a graph of the data collected from the data logging test. The tracking, peak, and valley values are shown for each device that is enabled.



How to Zoom In and Out

Zoom In

Click and drag a rectangular box on the graph. The highlighted area will be zoomed into.

Zoom Out

1. Click the button on the y-axis to zoom out from the y-axis.
2. Click the button on the x-axis to zoom out from the x- axis.

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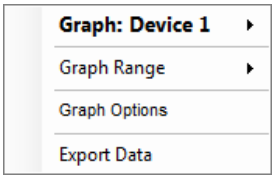
Other Data Logging Graph Features



How to View a Graph from another Device

Right click on the graph and select Graph Device. Select the desired device to graph from the pull down menu.

How to Change the Graph Range

The graph range of the x-axis can be changed by selecting the graph range and specifying a maximum value to graph to.

How to Change the Graph Options

Right click on the graph and select Graph Options.

How to Export Data

Right click on the graph and select Export Data. **Please Note:** The software will automatically export the data to the specified file when the test is complete. This feature allows the user to export the data again to a specified location and file type.

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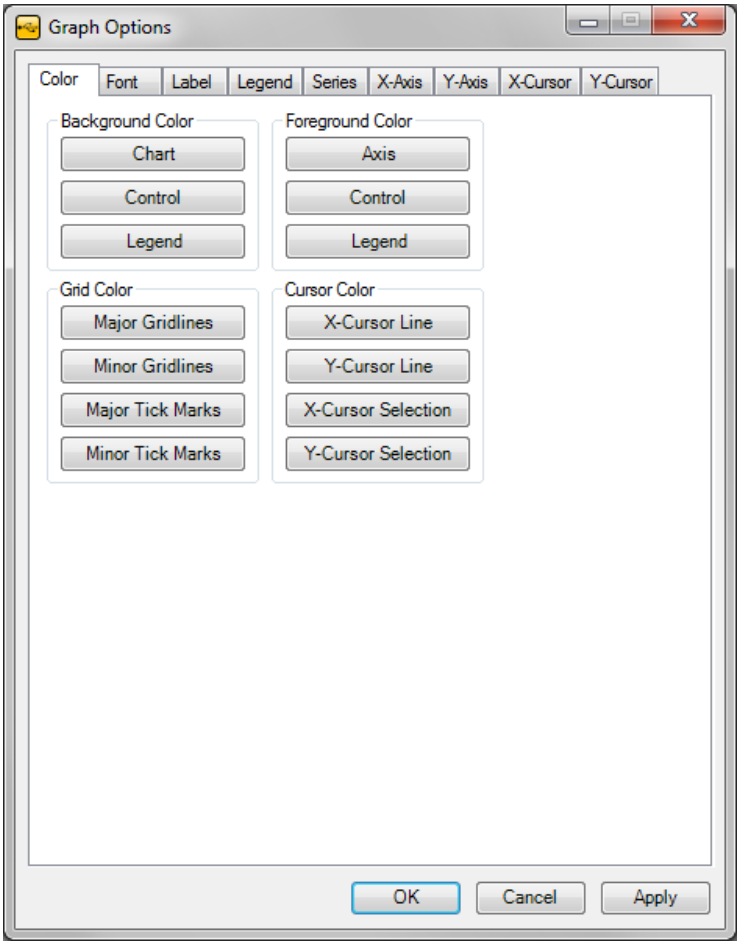
Graph Options

The graph options are used to change the various settings that control how the graph is displayed.



Color

This tab allows the user to change the color of the background, foreground (text), grid, and cursor.

Font

This tab allows the user to change the font settings (font, style, size) for the titles, labels, and legend.

Label

This tab allows the user to change the titles of the graph, x-axis, and y-axis.

Legend

This tab allows the user to change the alignment and docking location of the legend.

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Series

This tab allows the user to change the line border width of the graph that is plotted.

X-Axis

This tab allows the user to change the settings of the x-axes (grid interval, tick mark intervals, and min. and max. value).

Y-Axis

This tab allows the user to change the settings of the y-axes (grid interval, tick mark intervals, and min. and max. value).

X-Cursor

This tab allows the user to change the settings of the x-axis cursor (cursor interval, line width, and selection start and end).

Y-Cursor

This tab allows the user to change the settings of the y-axis cursor (cursor interval, line width, and selection start and end).

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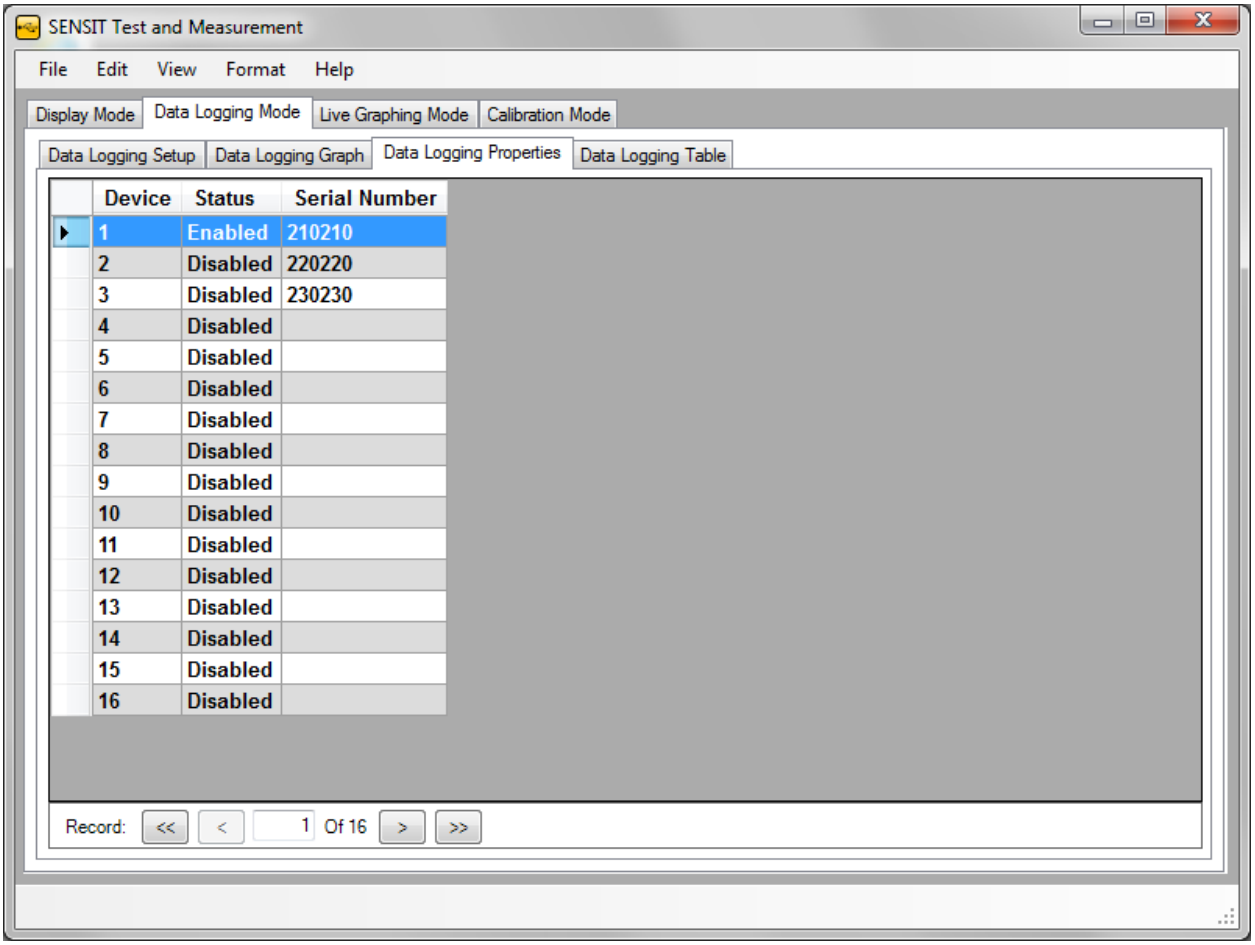
Data Logging Properties

This tab shows the status of each device that is plugged in, whether it is enabled or disabled. It can be used as a reminder to the user as to which devices are enabled or disabled during the data logging test.



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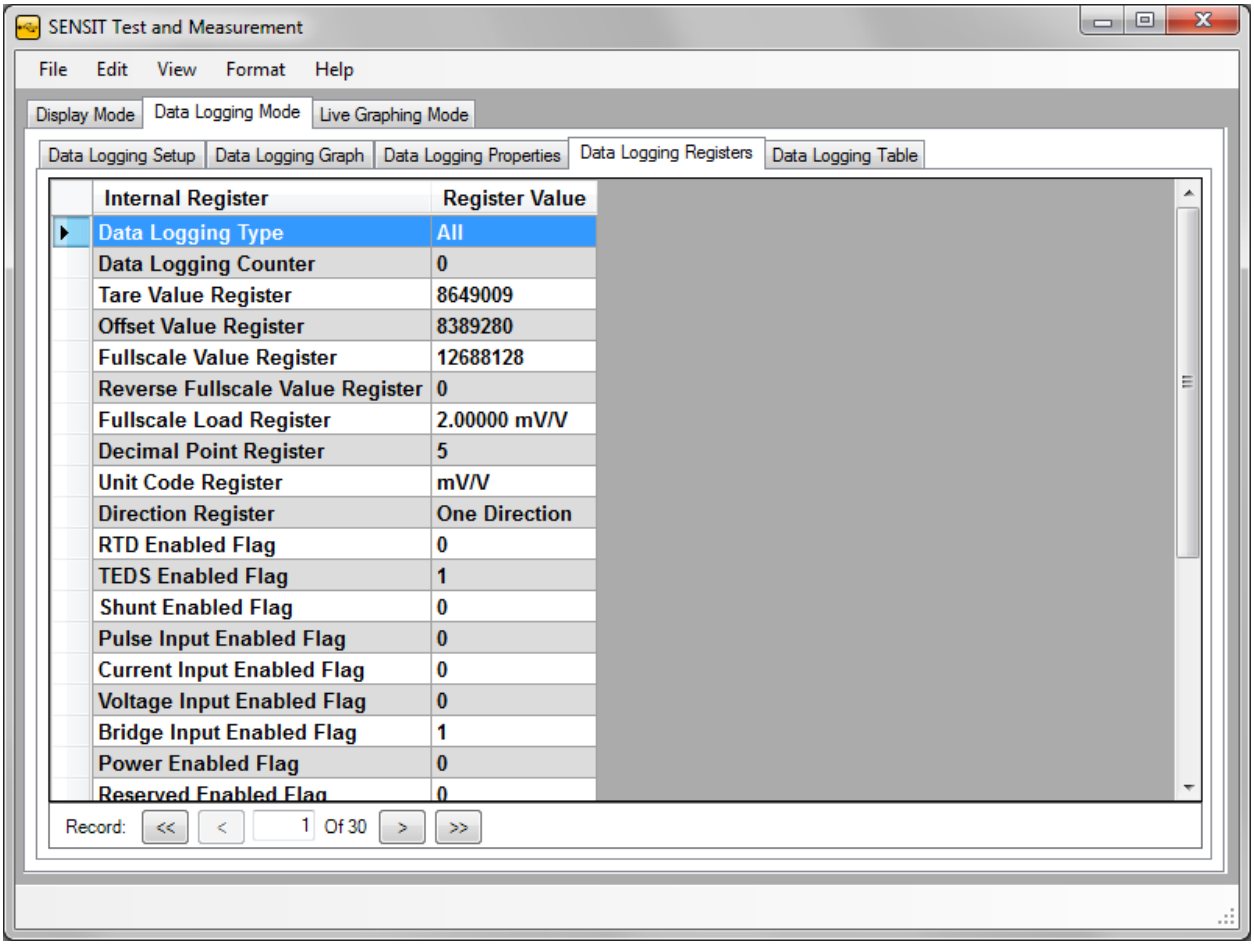
Data Logging Registers

This tab shows the register values associated to the various internal registers. It can be used to review the settings that were set at the time of data logging.

Please Note: This feature is only available for the IHH/IPM models.



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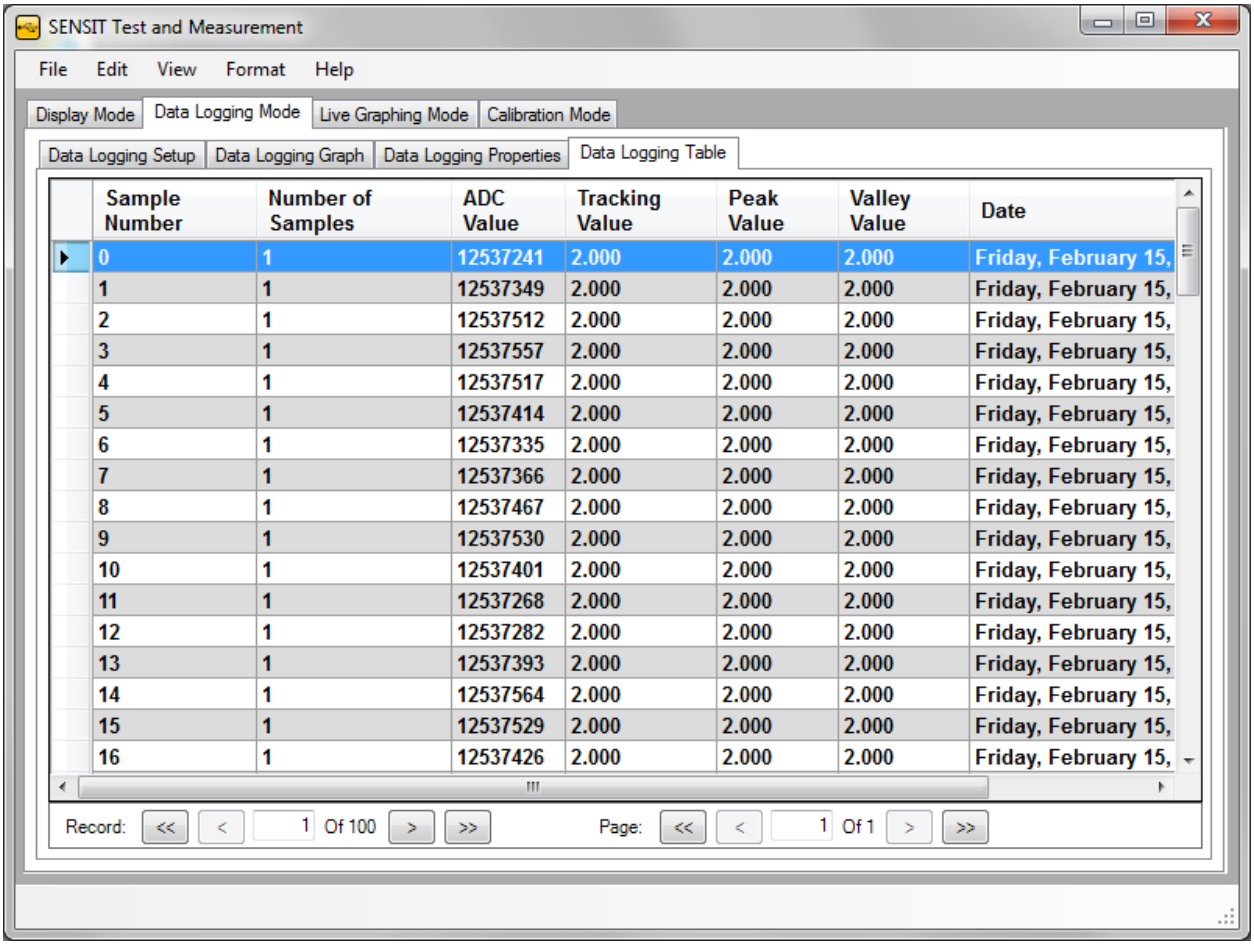
Data Logging Table

This tab shows a table of the samples recorded during the data logging session. It can be used as a reference instead of opening the Excel sheet that has been exported after the data logging session has been completed.



Sample Number	Number of Samples	ADC Value	Tracking Value	Peak Value	Valley Value	Date
0	1	12537241	2.000	2.000	2.000	Friday, February 15,
1	1	12537349	2.000	2.000	2.000	Friday, February 15,
2	1	12537512	2.000	2.000	2.000	Friday, February 15,
3	1	12537557	2.000	2.000	2.000	Friday, February 15,
4	1	12537517	2.000	2.000	2.000	Friday, February 15,
5	1	12537414	2.000	2.000	2.000	Friday, February 15,
6	1	12537335	2.000	2.000	2.000	Friday, February 15,
7	1	12537366	2.000	2.000	2.000	Friday, February 15,
8	1	12537467	2.000	2.000	2.000	Friday, February 15,
9	1	12537530	2.000	2.000	2.000	Friday, February 15,
10	1	12537401	2.000	2.000	2.000	Friday, February 15,
11	1	12537268	2.000	2.000	2.000	Friday, February 15,
12	1	12537282	2.000	2.000	2.000	Friday, February 15,
13	1	12537393	2.000	2.000	2.000	Friday, February 15,
14	1	12537564	2.000	2.000	2.000	Friday, February 15,
15	1	12537529	2.000	2.000	2.000	Friday, February 15,
16	1	12537426	2.000	2.000	2.000	Friday, February 15,

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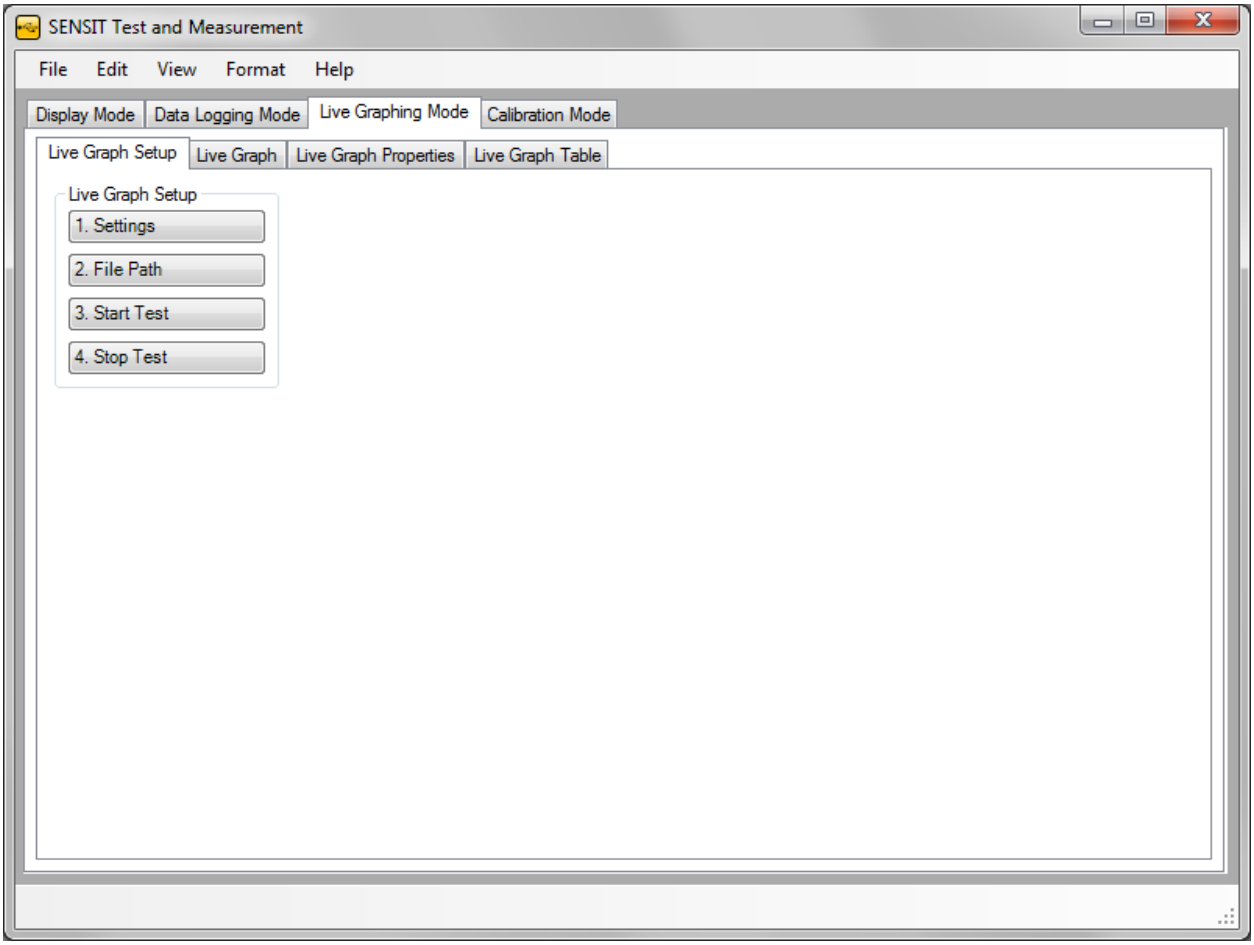
Live Graphing Mode

Live Graph Settings

This tab allows the user to set all of the necessary parameters to begin live graphing. It will also allow the user to log the data that has been graphed.

Please Note: Some Live Graph features may require Microsoft Excel.



How to Setup and Start a Live Graph

1. Click **Settings** to modify the Live Graph Settings.
2. Click **File Path** and specify a filename and path for the data file.
3. Click **Start Test** to begin the test. The tab will automatically switch from Live Graph Settings to Live Graph once the test has begun. It will complete after the predetermined test duration and export the data to a file.

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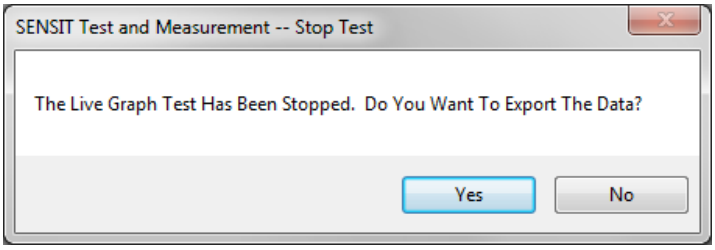
Please Note: The data logged in Live Graphing Mode is slower than the data logged in Data Logging Mode due to the software updating the graph. If higher data logging speeds are required for certain tests, use the Data Logging Mode instead.

Other Features

Stop Test

This will stop the test immediately, and show the recorded samples on the Live Graph Table. The software will then ask if you still want to export the data to a file.



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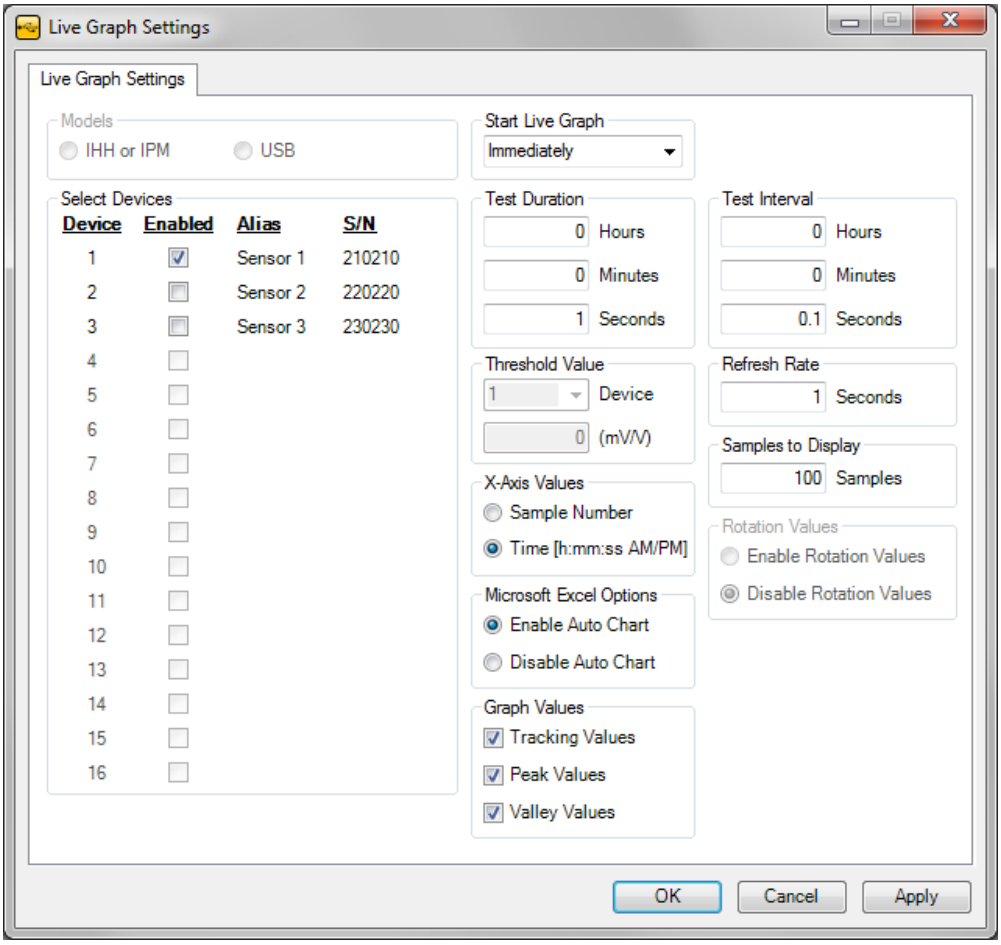
Live Graph Settings



Models

The user must select the model to be used for live graphing.

Devices

The user must select the device(s) to be used for live graphing.

Start Live Graph

There are three options to specify when to start live graphing: (1) Immediately, (2) Above Threshold, or (3) Below Threshold.

Test Duration

Once the data logging begins, the test duration specifies the total length of time in hours, minutes and seconds that the data will be collected.

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Threshold Value

The threshold value allows the user to select a device and a specific threshold that the reading must be above or below in order for the live graph to begin. This value will be ignored if start live graph is set to begin immediately.

X-Axis Values

The x-axis of the Live Graph can be configured by Sample Number or Time. The Time will be formatted based on the Culture Information.

Microsoft Excel Options

When exporting data to an Excel file, the user will have the option to enable or disable the automatic charting feature. If it is enabled, then a chart that resembles the one in the software will also be created in the Excel file. If it is disabled, then there will not be any charts in the Excel file. When collecting a large amount of data, it may be preferable to disable the auto chart in order shorten the amount of time that it takes to export the data to Excel.

Graph Values

The user must select the graph values to be used for live graphing.

Test Interval

The test interval specifies the interval that a request will be made for the latest reading.

Refresh Rate

The refresh rate specifies how often the live graph will be updated or refreshed.

Samples to Display

The number of samples to display scales the x-axis while the live graph is in progress.

Rotation Values

When using a device that has the ability to read an encoder, the user will have the option to enable or disable the rotation values from being displayed in the live graph.

Apply Settings

The settings must be applied prior to starting a new live graph test.

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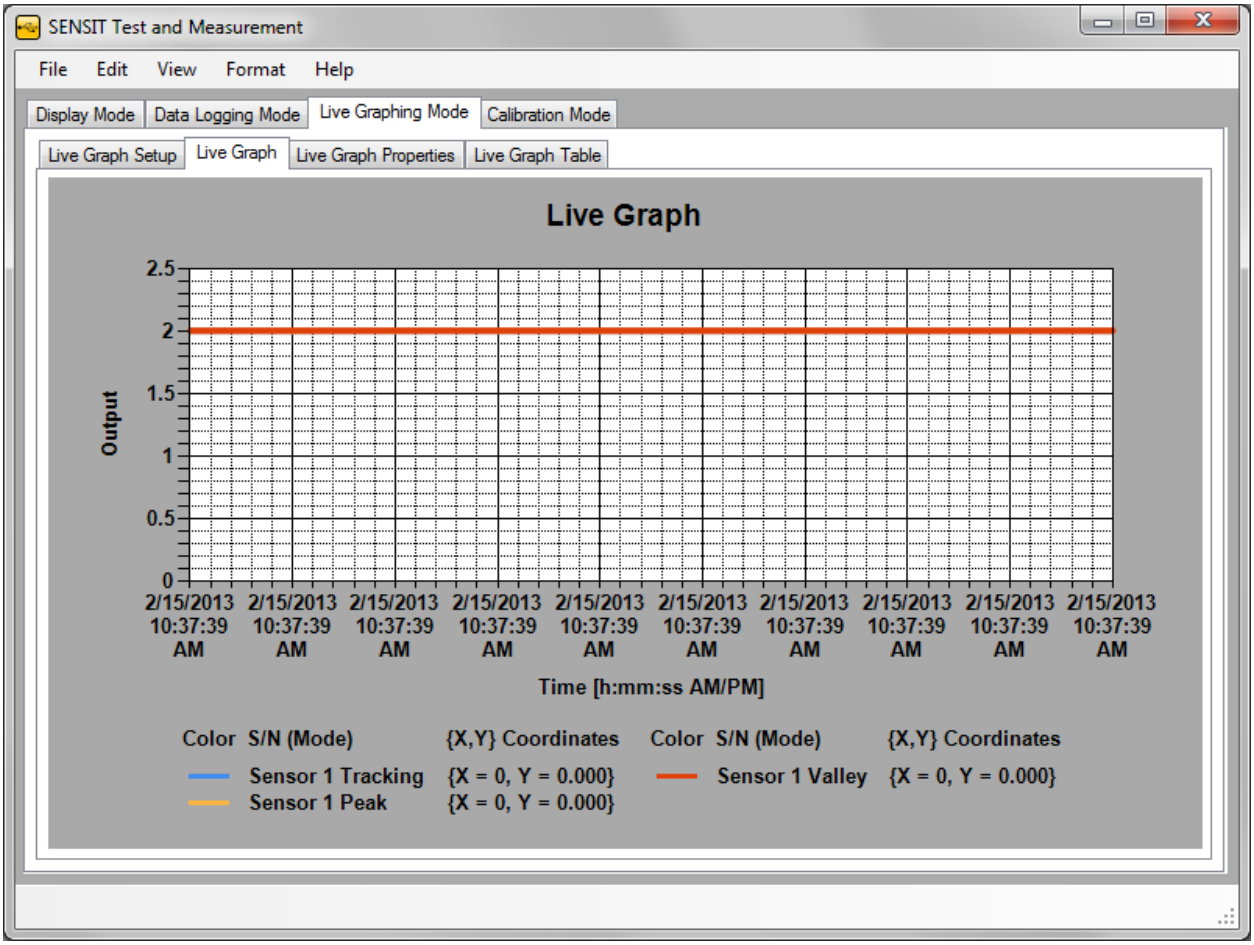
Live Graph

This tab is used to view the live graph as the test is being performed. The tracking, peak, and valley values are shown for each device that is enabled.



How to Zoom In and Out

Zoom In

Click and drag a rectangular box on the graph. The highlighted area will be zoomed into.

Zoom Out

1. Click the button on the y-axis to zoom out from the y-axis.
2. Click the button on the x-axis to zoom out from the x- axis.

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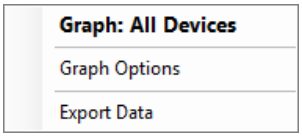
Other Live Graph Features



How to Change the Graph Options

Right click on the graph, and select Graph Options.

How to Hide the Chart Area

If the rotation values are enabled, then the chart will have two chart areas. Chart Area 1 contains the Peak, Tracking, Valley and Power measurements. Chart Area 2 contains the Angle and RPM measurements.

Hide Chart Area

You can choose to hide Chart Area 1 or Chart Area 2. The remaining chart will be resized to fill the contents of the Live Graph tab.

How to Export Data

Right click on the graph and select Export Data. **Please Note:** The software will automatically export the data to the specified file when the test is complete. This feature allows the user to export the data again to a specified location and file type.

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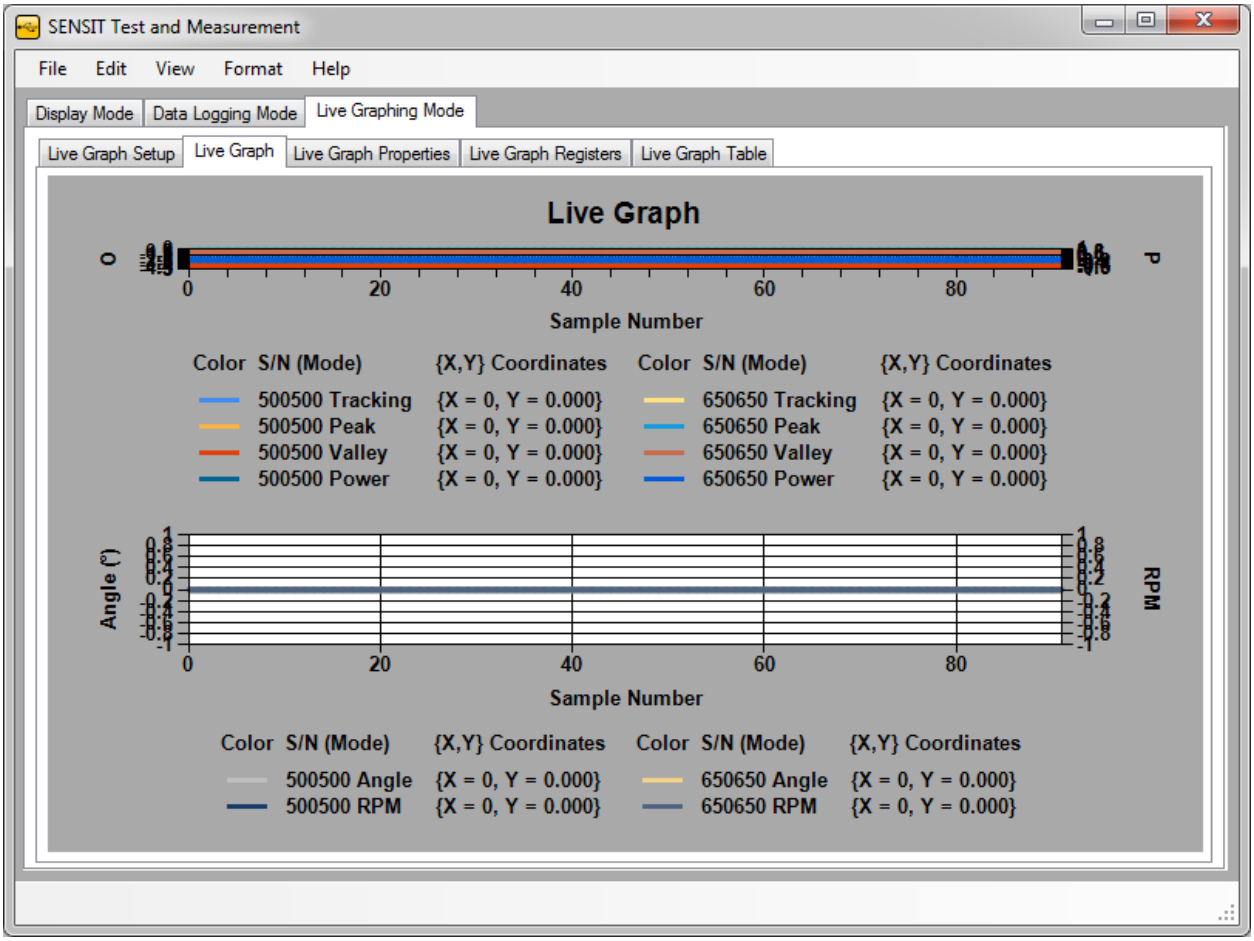

Chart Area 1: Visible, Chart Area 2: Visible

The following two images show Chart Area 1 by itself and Chart Area 2 by itself.

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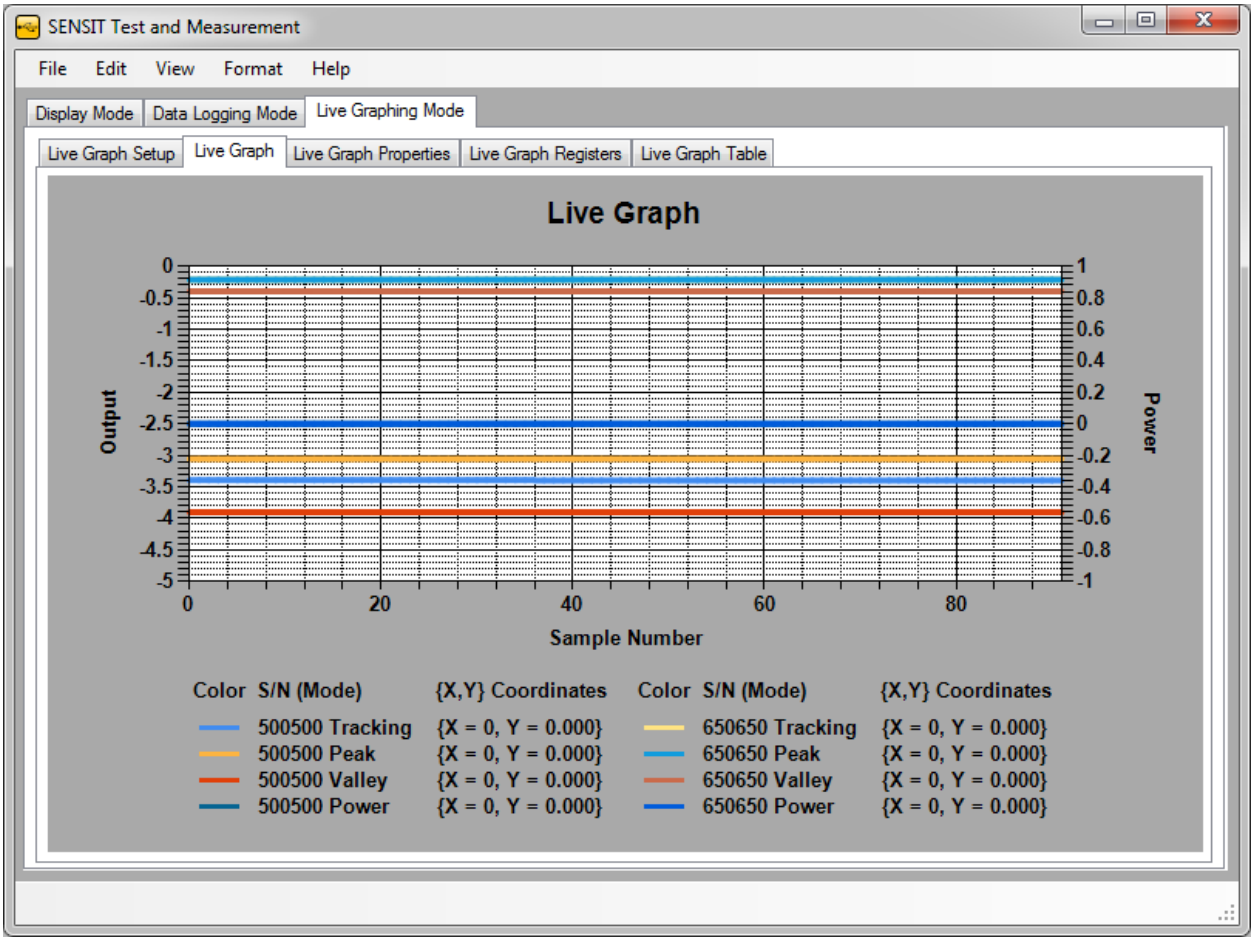

Chart Area 1: Visible, Chart Area 2: Hidden

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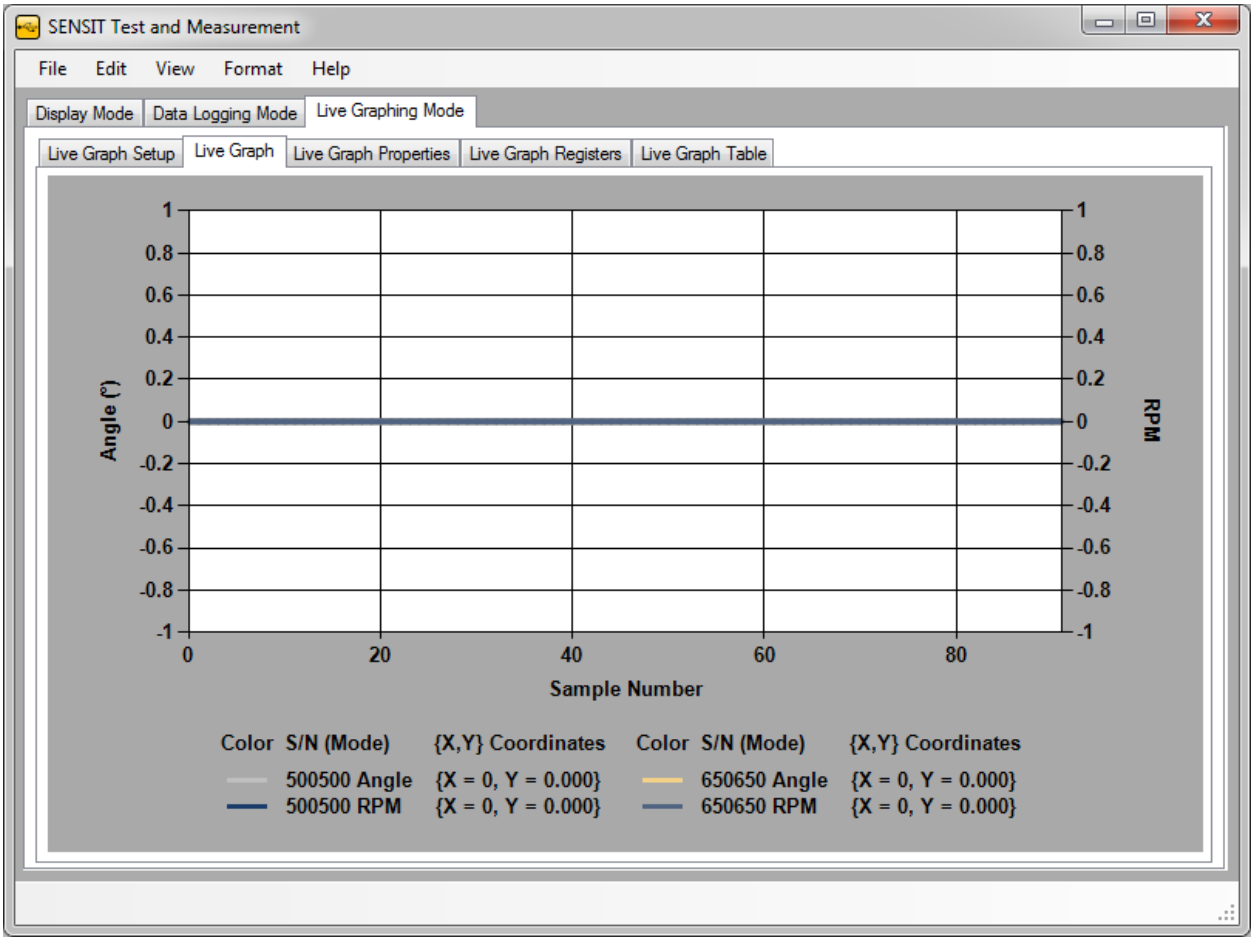

Chart Area 1: Hidden, Chart Area 2: Visible

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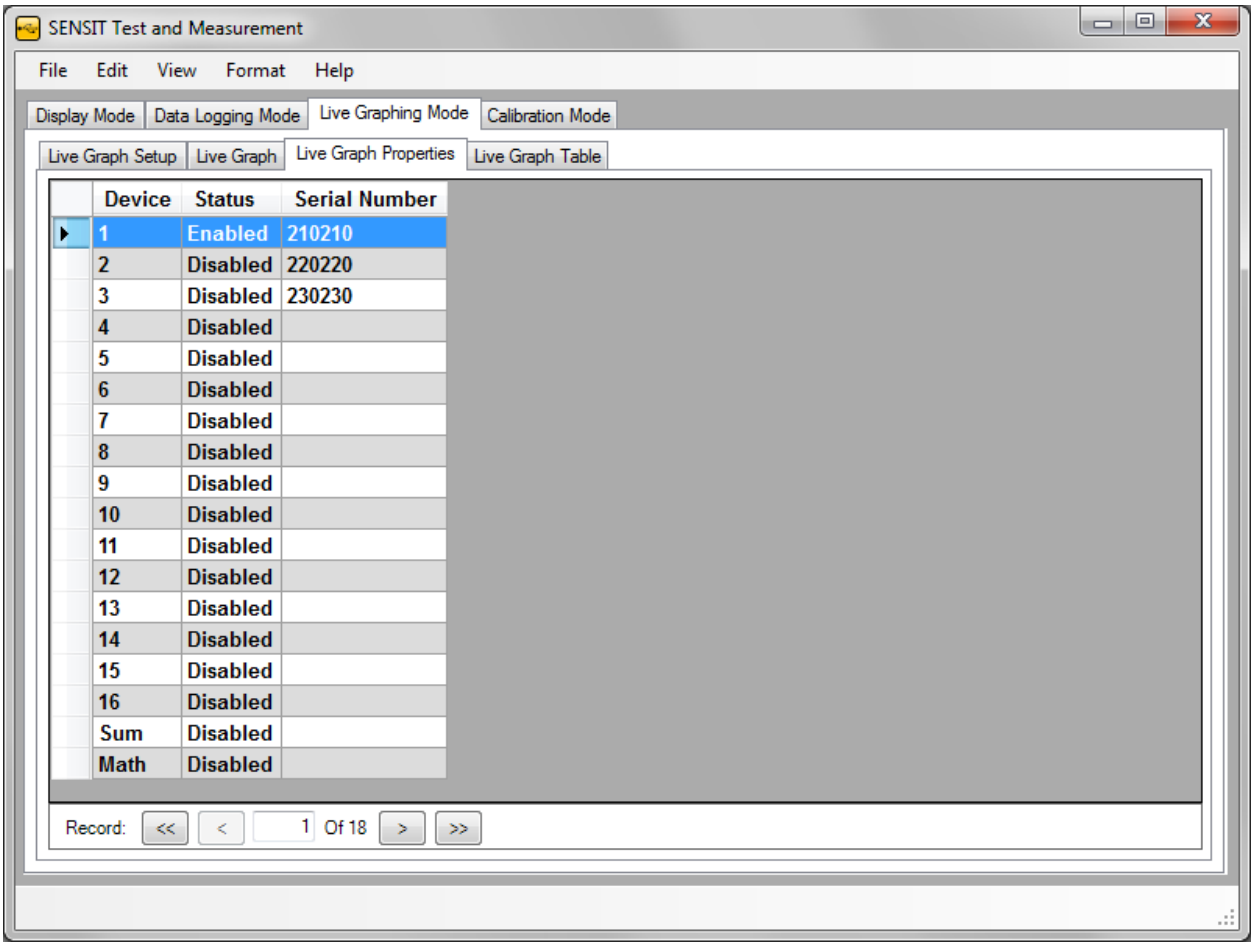
Live Graph Properties

This tab shows the status of each device that is plugged in, whether it is enabled or disabled. It can be used as a reminder to the user as to which devices are enabled or disabled during the live graph test.



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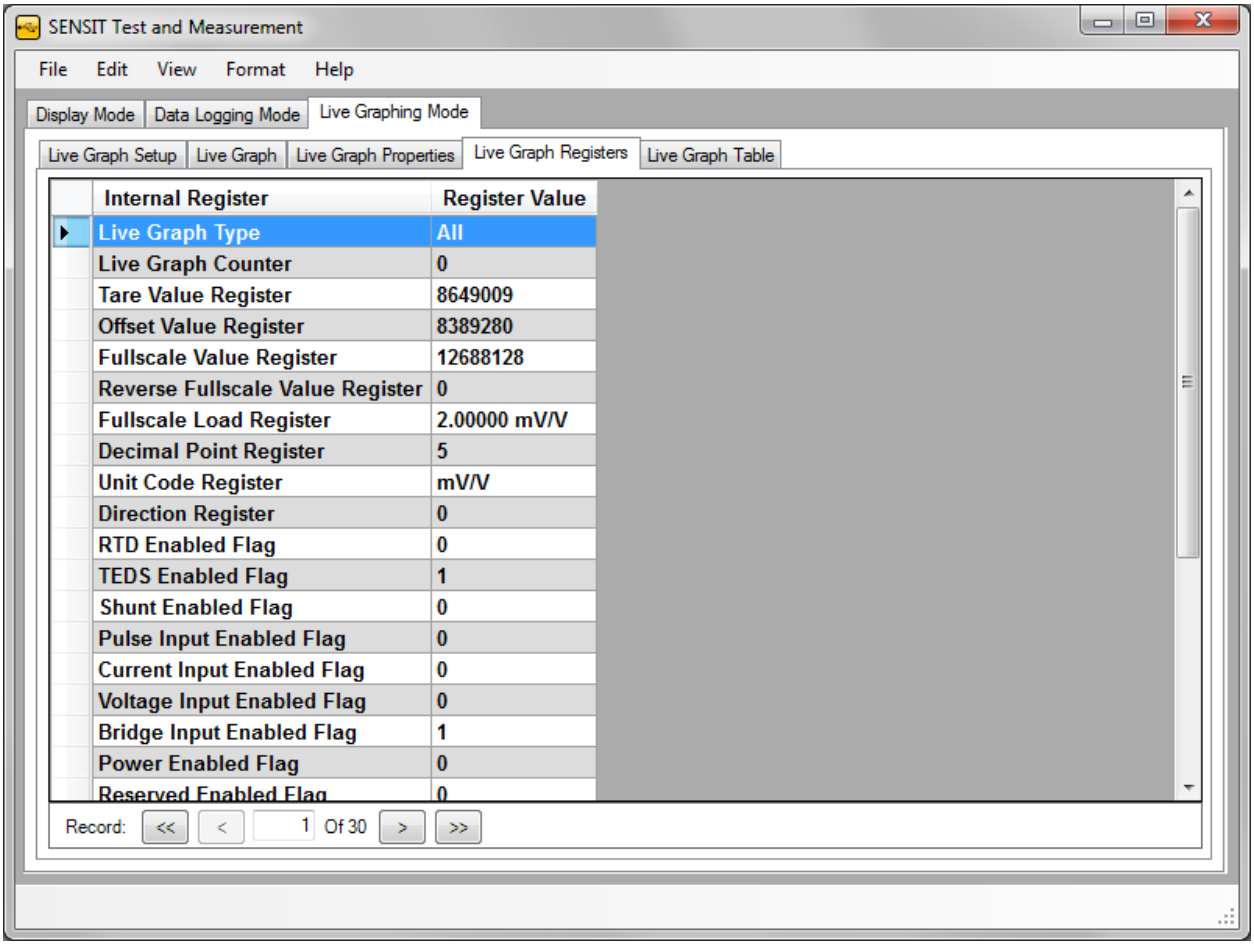
Live Graph Registers

This tab shows the register values associated to the various internal registers. It can be used to review the settings that were set at the time of data logging.

Please Note: This feature is only available for the IHH/IPM models.



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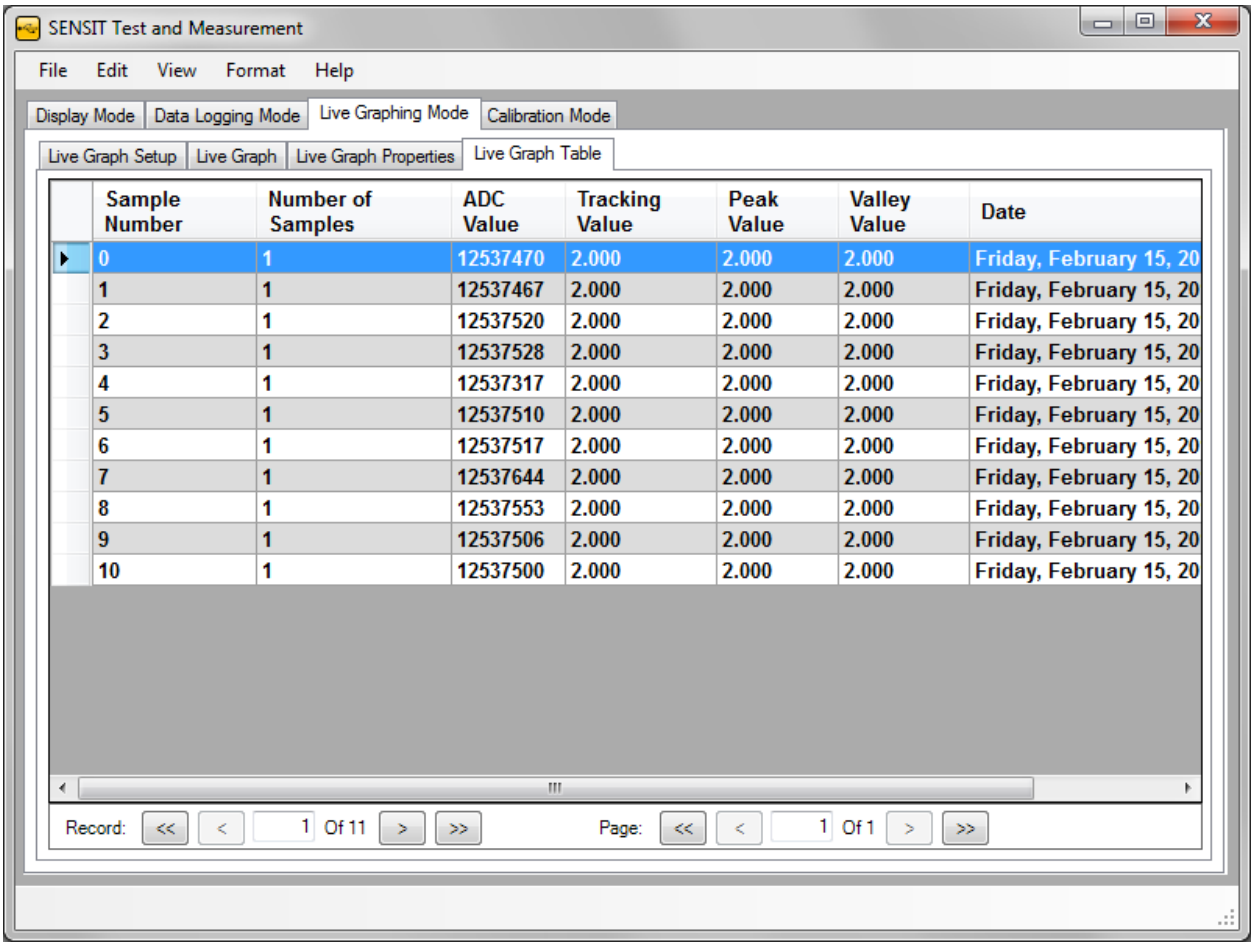
Live Graph Table

This tab shows a table of the data points recorded during the live graphing session. It can be used as a reference instead of opening the Excel sheet that has been exported after the live graphing session has been completed.



Sample Number	Number of Samples	ADC Value	Tracking Value	Peak Value	Valley Value	Date
0	1	12537470	2.000	2.000	2.000	Friday, February 15, 20
1	1	12537467	2.000	2.000	2.000	Friday, February 15, 20
2	1	12537520	2.000	2.000	2.000	Friday, February 15, 20
3	1	12537528	2.000	2.000	2.000	Friday, February 15, 20
4	1	12537317	2.000	2.000	2.000	Friday, February 15, 20
5	1	12537510	2.000	2.000	2.000	Friday, February 15, 20
6	1	12537517	2.000	2.000	2.000	Friday, February 15, 20
7	1	12537644	2.000	2.000	2.000	Friday, February 15, 20
8	1	12537553	2.000	2.000	2.000	Friday, February 15, 20
9	1	12537506	2.000	2.000	2.000	Friday, February 15, 20
10	1	12537500	2.000	2.000	2.000	Friday, February 15, 20

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Calibration Mode

Warning

 The use of the calibration mode can affect the factory calibration of the device. This feature provides a wide range of capabilities most of which can directly write to the memory (EEPROM) of the device. Once the memory is overwritten, it will be lost forever. Please read this section carefully. If you are unsure how to use the calibration mode or if you are unsure of its effects on memory, please feel free to contact us.

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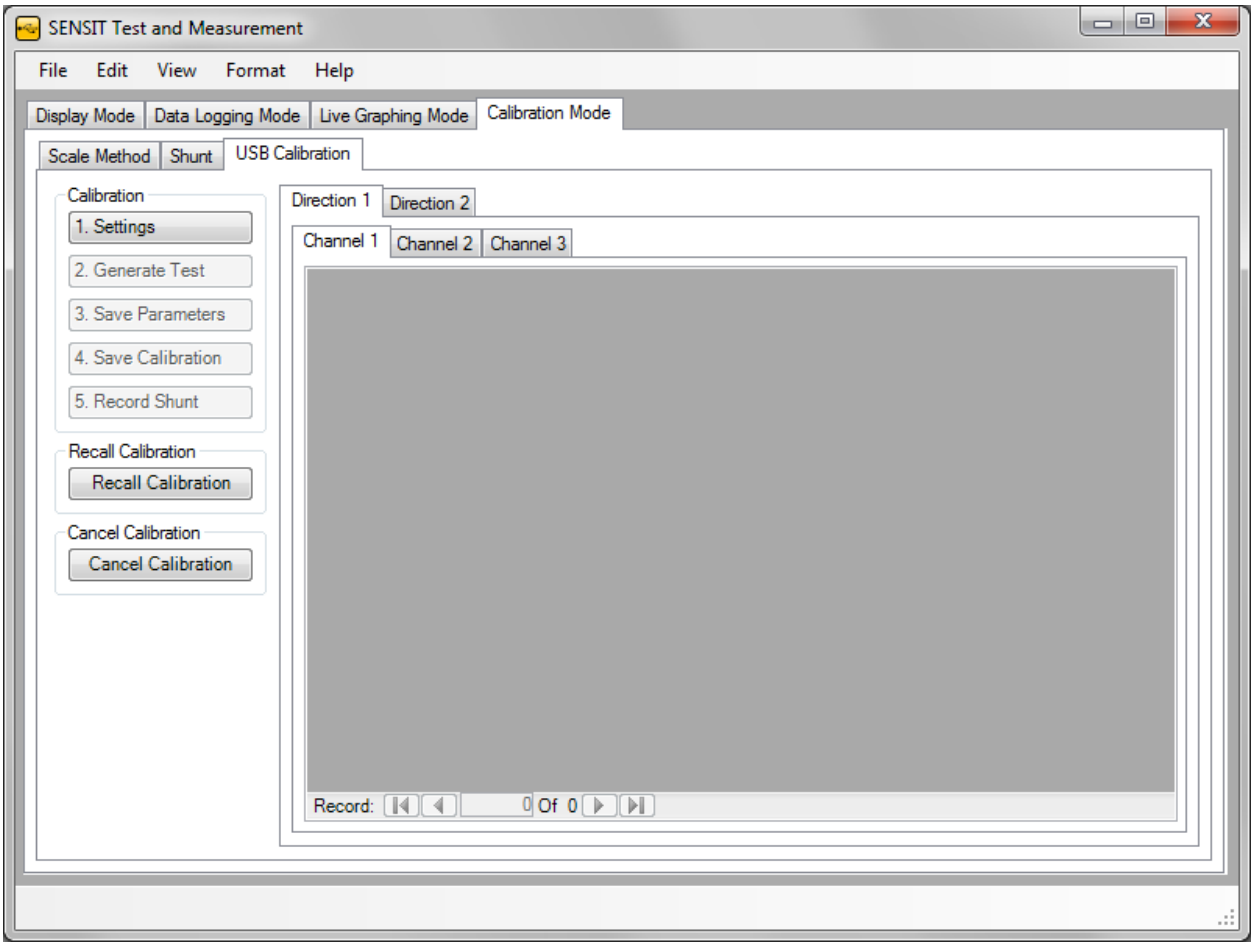
Calibration

This tab allows the user to set all of the necessary parameters to perform a live Calibration.



How to Setup and Start a Live Calibration

1. Click **Settings** to modify the Calibration Settings.
2. Click **Generate Test** to create the Calibration Direction Table(s).
3. Click **Save Parameters** to save the settings to the memory (EEPROM) of the device.
4. Click **Save Calibration** to save the loading points to the memory (EEPROM) of the device.
5. Click **Record Shunt** to save a calibration shunt value to the memory (EEPROM) of the device.

Other Calibration Features

Recall Calibration

This feature allows the user to retrieve the existing calibration settings and values.

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Cancel Calibration

This feature can be used to stop the calibration that is in progress, please refer to the Warning because some values may have already been written to memory.

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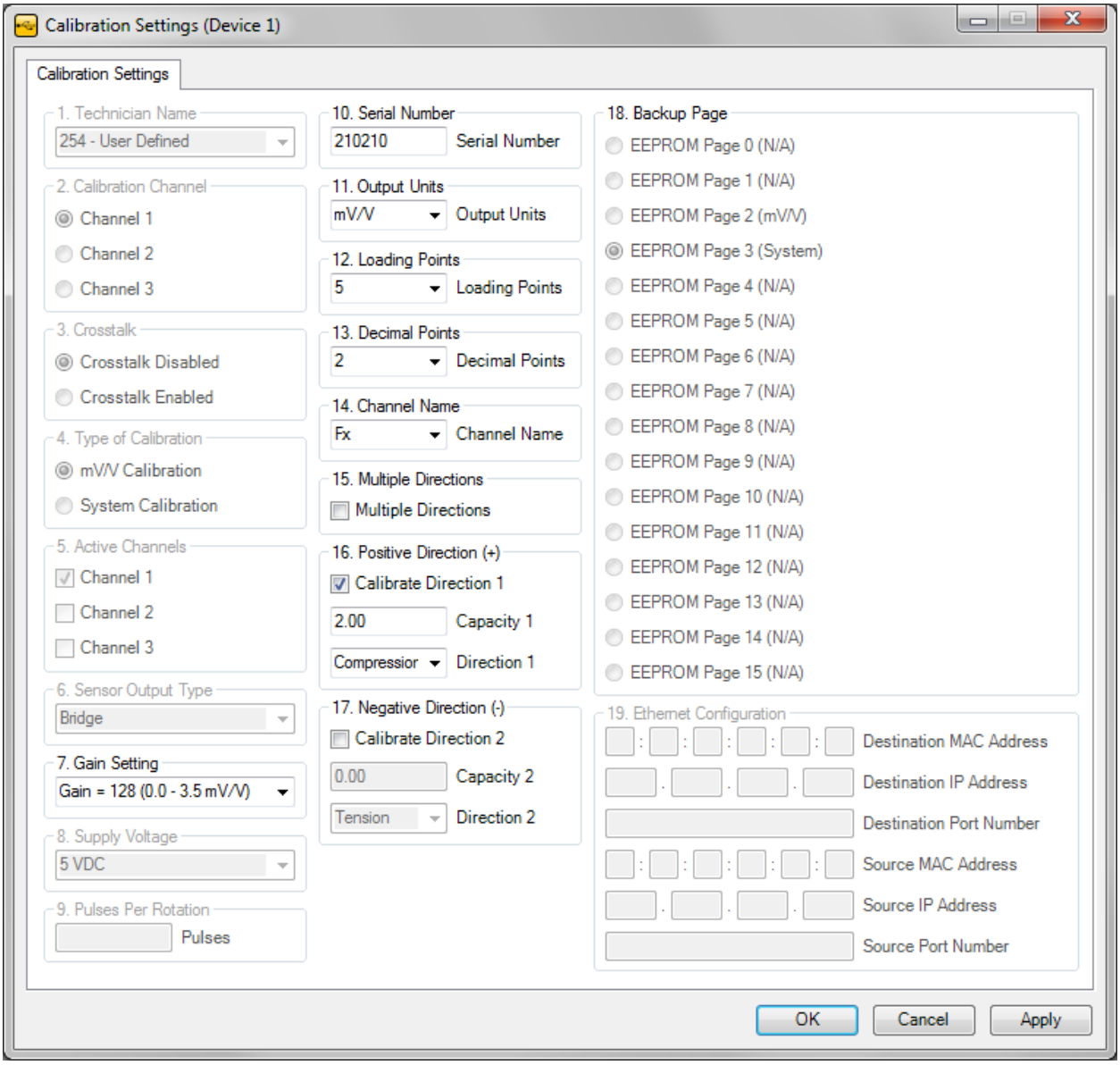
Calibration Settings



1. Technician Name

The technician name is for use by FUTEK personnel only. This field will automatically be set to User Defined.

2. Calibration Channel

The user must select the channel that is going to be calibrated. This feature is only available when using the USB240.

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3. Crosstalk

The user must enable or disable the use of crosstalk when calibrating the device. This feature is only available when using the USB240.

4. Type of Calibration

The user must select if the type of calibration is mV/V or a System Calibration. This feature is only available when using the USB240.

5. Active Channels

The user must select which channels are active during the calibration. This feature is only available when using the USB240.

6. Sensor Output Type

The user must select the sensor's output type. This feature is only available when using the USB520.

7. Gain Setting

The user must select the gain setting based on the sensor's sensitivity.

8. Supply Voltage

The user must select the supply voltage to use when connecting an amplified sensor. This feature is only available when using the USB520.

9. Pulses Per Rotation

When using a device that has the ability to read an encoder, the user must enter the number of pulses per rotation.

10. Serial Number

The user must enter the device's serial number.

11. Output Units

The user must select the desired output units.

12. Loading Points

The user must select the number of loading points.

13. Decimal Points

The user must select the number of digits to display after the decimal point.

14. Channel Name

The user must select the channel name.

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15. Multiple Directions

If the device is going to be calibrated in two directions, then the multiple directions checkbox should be checked.

Please Note: When performing multiple direction calibrations, the user should always complete calibration direction 1 and then calibration direction 2.

16. Positive Direction (+)

The user must enter the capacity and select the direction associated with the device. Direction 1 should always be used as the positive direction.

17. Negative Direction (-)

The user must enter the capacity and select the direction associated with the device. Direction 2 should always be used as the negative direction.

18. Backup Page

The backup page is the destination where a complete backup of the calibration will be stored in memory. This field will automatically be set unless there are multiple system calibration pages.

19. Ethernet Configuration

The user must enter the source and destination information related to Ethernet. This feature is not currently available with any FUTEK products.

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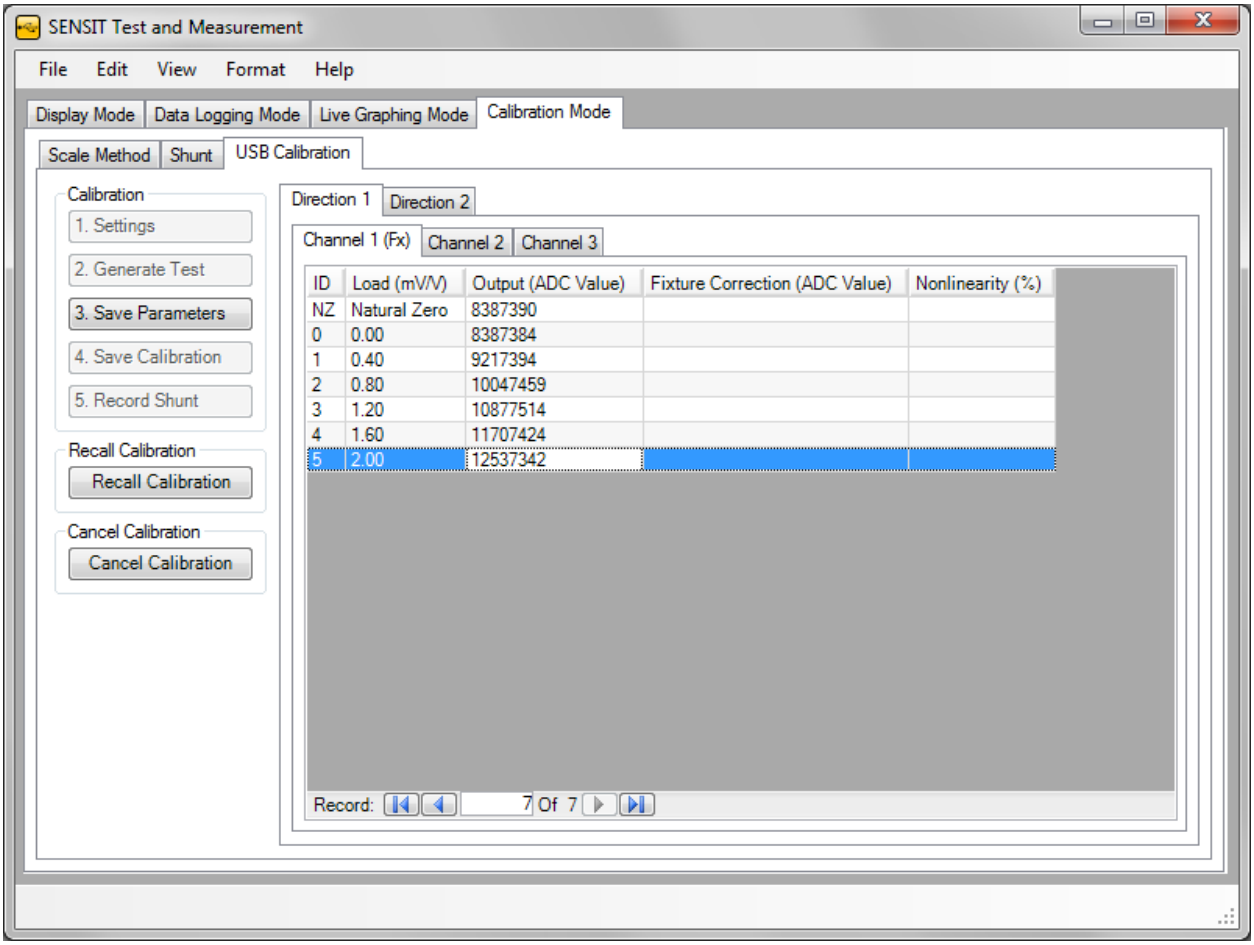
Calibration Direction Table(s)



Calibration Direction 1

Calibration Direction 1 should always be used as the positive direction. After generating the test, the user must capture the readings for each of the loading points.

Natural Zero

Natural Zero (NZ) refers to the output of the sensor when there is no fixture attached or applied. The difference between the values recorded for the Natural Zero and the zero loading point will be subtracted from each subsequent loading point when saving the calibration data. This will allow the software to display zero when there is no fixture attached or applied. When a fixture is attached or applied, the software has a tare/gross option to zero the reading.

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Loading Points

To capture the ADC Value from the device, simply apply the appropriate load and when ready press the **Enter** key on your keyboard. Once you have captured all of the loading points, the **Save Parameters** button will become available. Please refer to How to Setup and Start a Live Calibration to continue.

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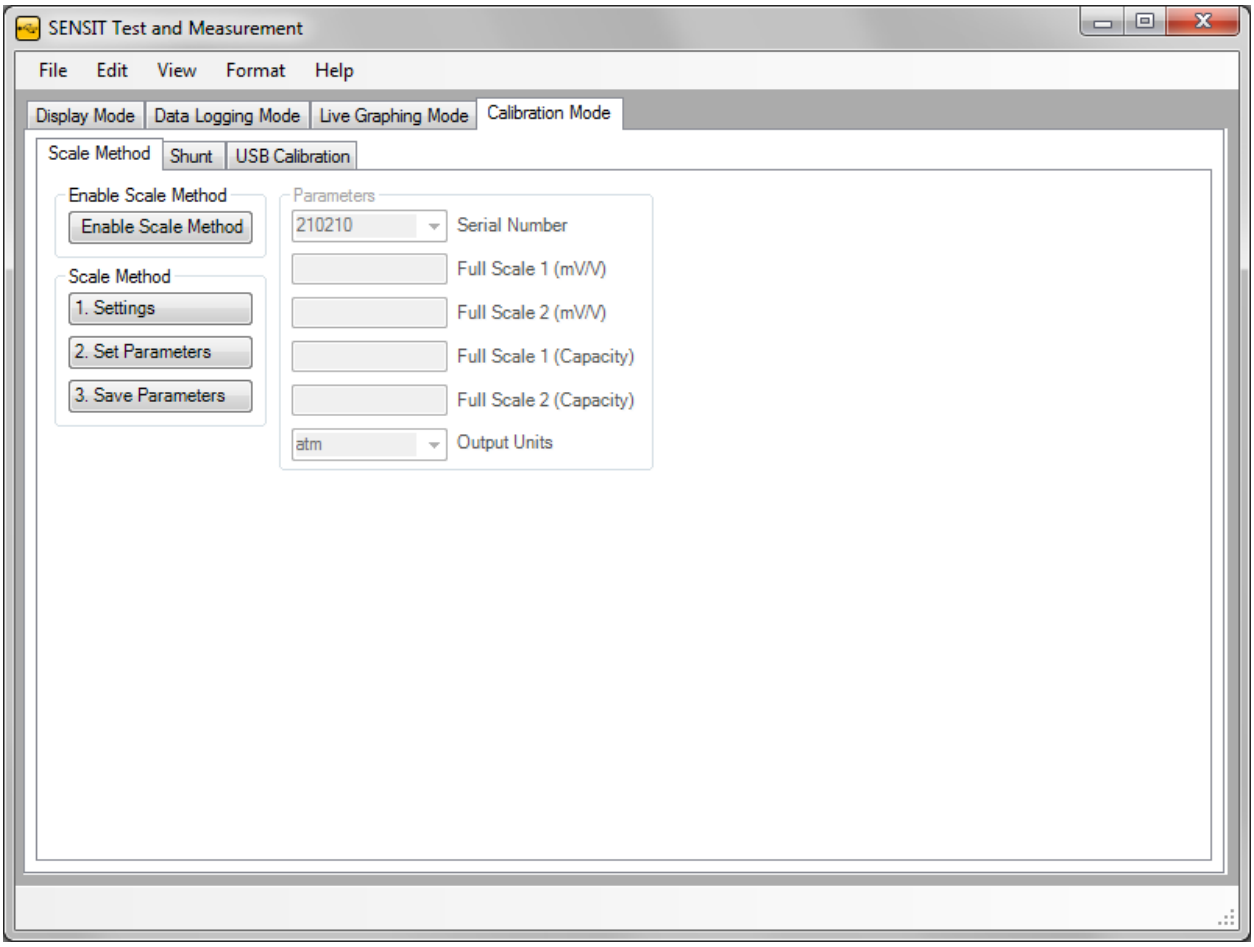
Scale Method

This tab allows the user to set all of the necessary parameters related to the Scaled Method of Calibration.



How to Use the Scale Method

1. Click **Enable Scale Method**.
2. Click **Settings** to enter the Scale Method Parameters.
3. Set the Full Scale (mV/V)*, Full Scale (Capacity), and Output Units.
    a. **Serial Number –** The serial number to apply the scaling to.
    b. **Full Scale 1 (mV/V)* –** The positive full scale value expressed in mV/V.
    c. **Full Scale 2 (mV/V)* –** The negative full scale value expressed in mV/V.
    d. **Full Scale 1 (Capacity) –** The positive full scale value in engineering units.
    e. **Full Scale 2 (Capacity) –** The negative full scale value in engineering units.
    f. **Output Units –** The engineering units that will be applied when scaling.
4. Click **Set Parameters** to lock the settings.
5. Click **Save Parameters** to save the scale method settings for future use.

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* The units should be expressed in the same base units that the original calibration was performed in. If the calibration was performed using mV/V, then the Full Scale 1 and Full Scale 2 should be expressed in mV/V.

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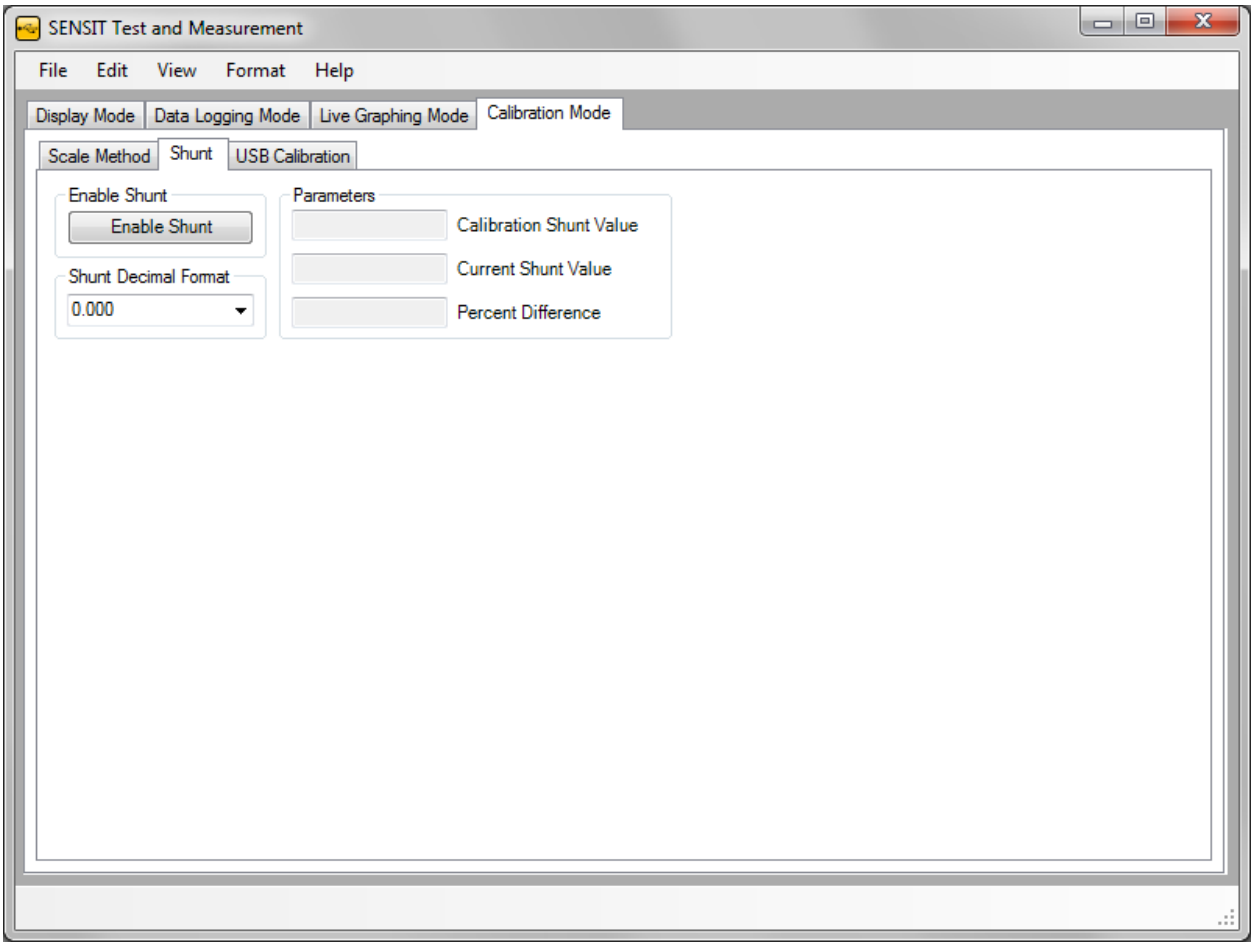
Shunt

This tab allows the user to compare the calibrated shunt value with the current shunt value. It can be used as a means of verification.



How to Use the Shunt

1. Click **Enable Shunt**. If the shunt value was recorded during calibration, then the current value will be compared to it and the percentage difference will be calculated.

Please Note: All loads applied to the sensor including any fixtures should be removed.

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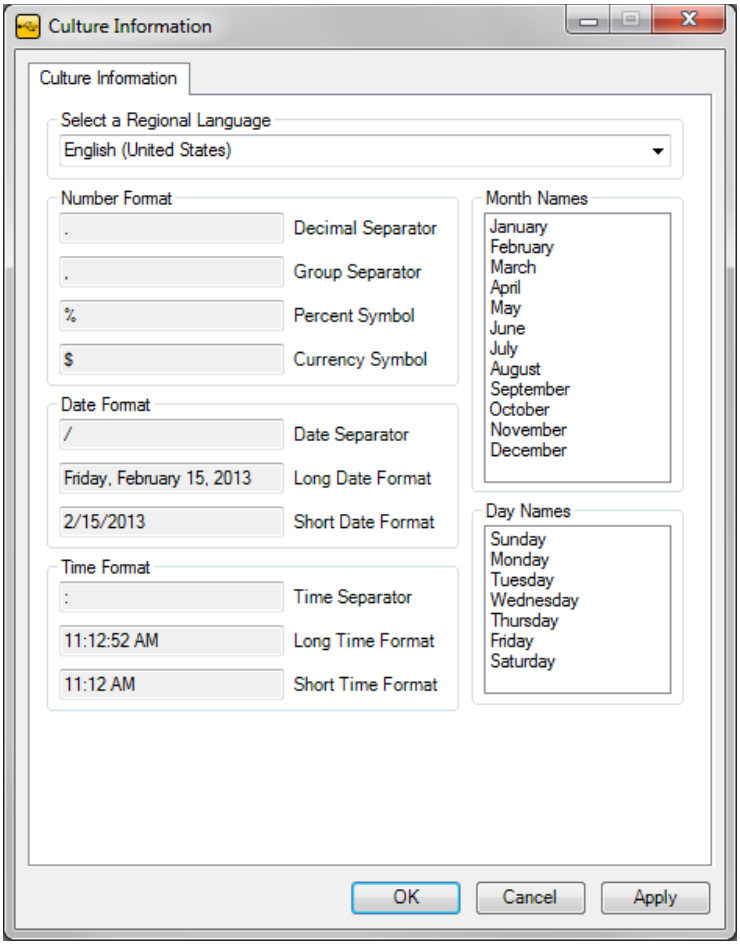
Culture Information

Culture Information

The culture information displays the Number, Date, and Time Format based on the selected regional language. Once the settings have been applied, the formatting will be used throughout the software.



How to Use the Culture Information

1. Select the Regional Language from the drop-down list.
2. Click **Apply Settings**.

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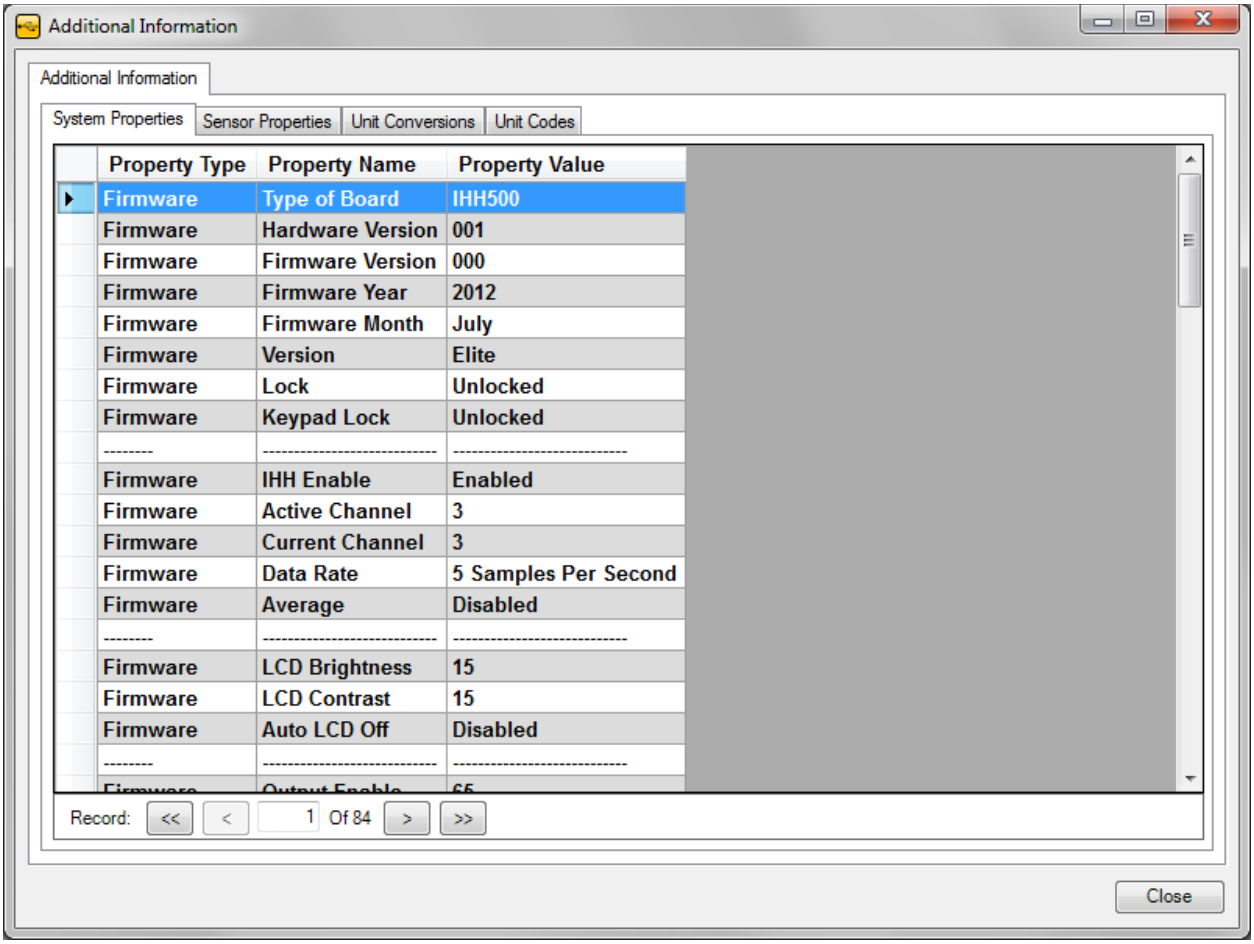
Additional Information

System Properties

This tab allows the user to view the current System Properties for each device. The table displays information related to the Firmware settings.



Other System Properties Features

How to Change the System Properties Device

Right click on the system properties table, and select a device and profile from the drop down list. The system properties table and the sensor properties table will be updated with the information for the device and profile that are selected.

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Please Note: System Properties and Select Profile are only available for the IHH/IPM models.

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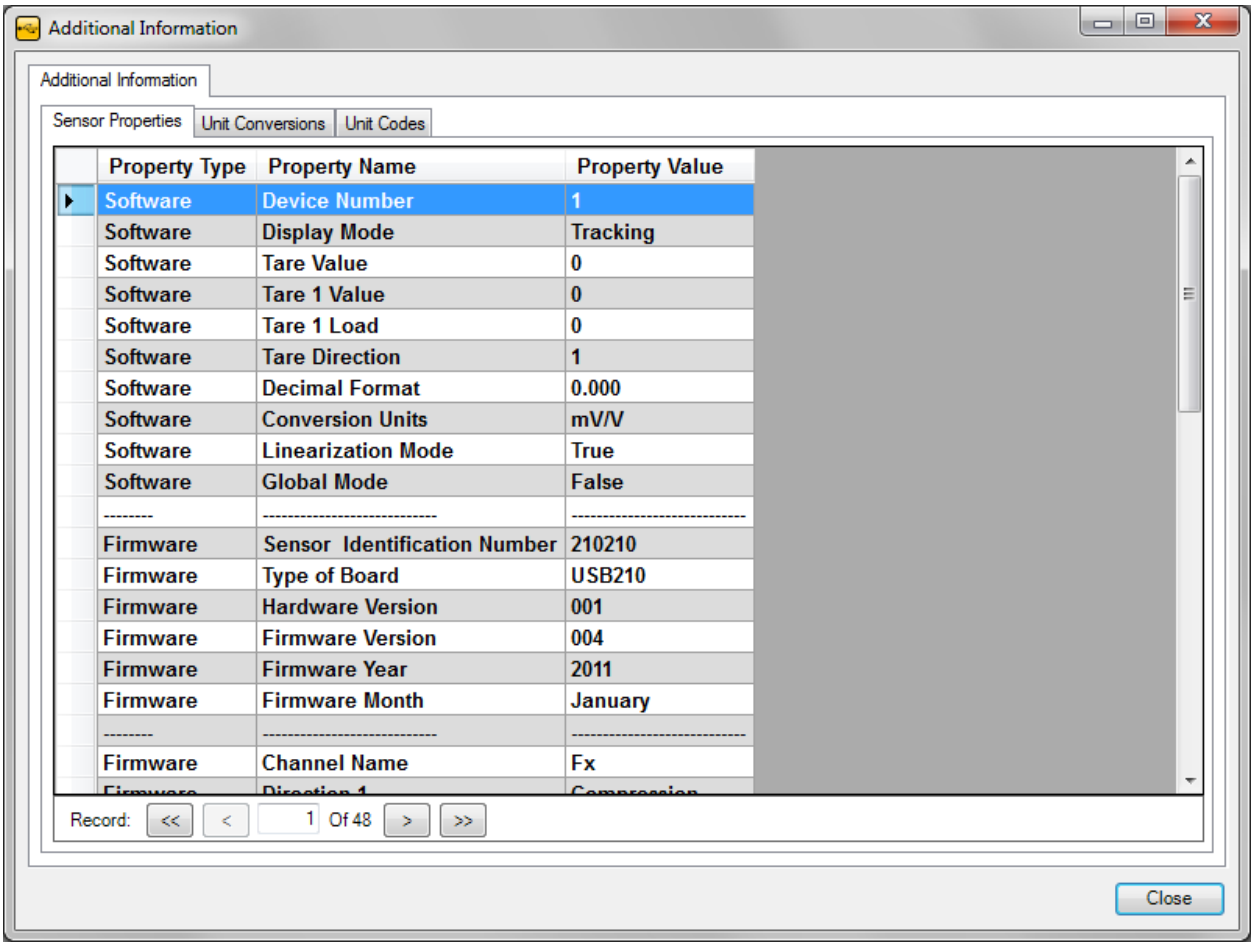
Sensor Properties

This tab allows the user to view the current Sensor Properties for each device. The table displays information related to the Software and Firmware settings.



Other Sensor Properties Features

How to Change the Sensor Properties Device

Right click on the sensor properties table, and select a device and profile from the drop down list. The system properties table and the sensor properties table will be updated with the information for the device and profile that are selected.

Please Note: System Properties and Select Profile are only available for the IHH/IPM models.

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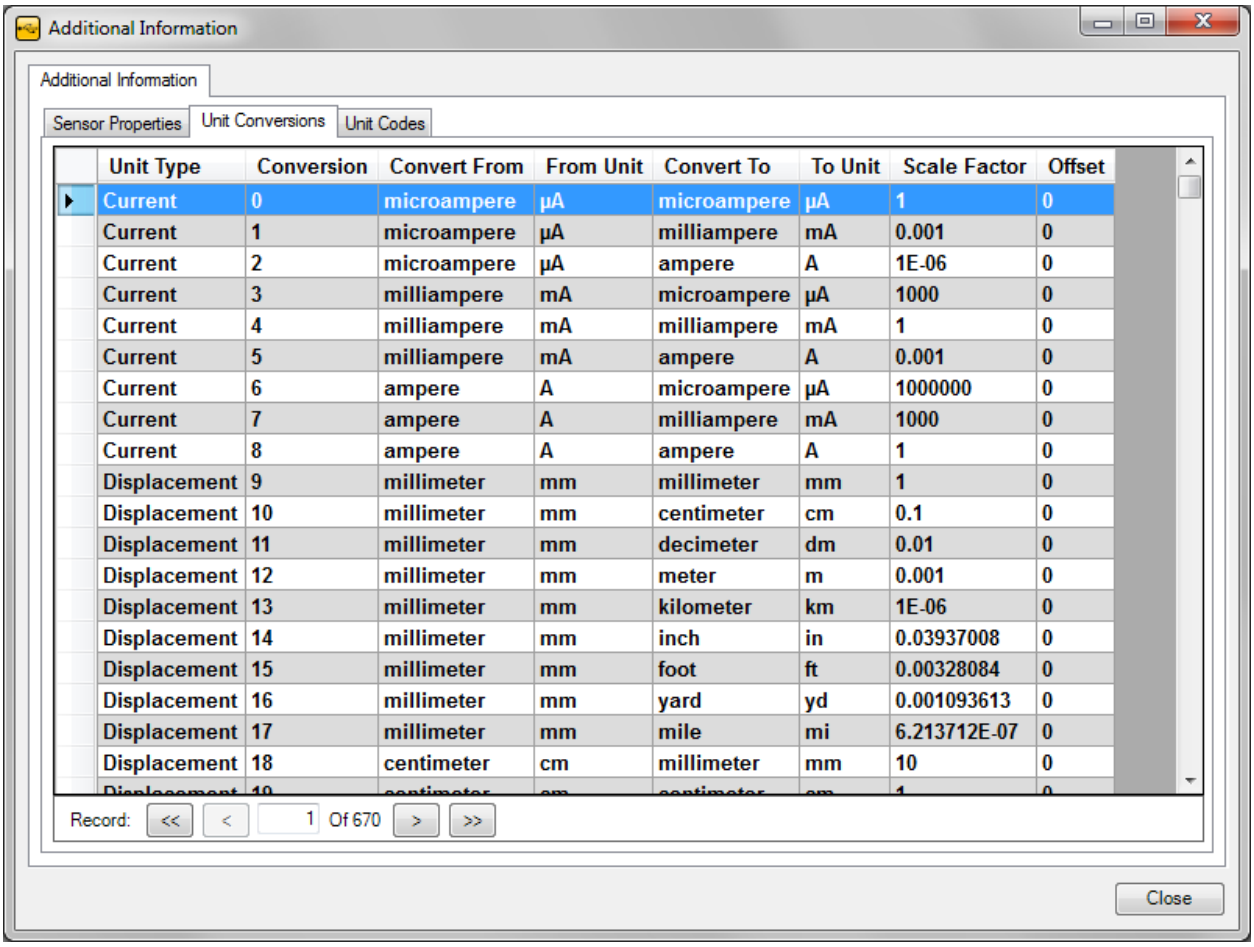
Unit Conversions

This tab allows the user to view all of the available unit conversions.



Unit Type	Conversion	Convert From	From Unit	Convert To	To Unit	Scale Factor	Offset
Current	0	microampere	µA	microampere	µA	1	0
Current	1	microampere	µA	milliampere	mA	0.001	0
Current	2	microampere	µA	ampere	A	1E-06	0
Current	3	milliampere	mA	microampere	µA	1000	0
Current	4	milliampere	mA	milliampere	mA	1	0
Current	5	milliampere	mA	ampere	A	0.001	0
Current	6	ampere	A	microampere	µA	1000000	0
Current	7	ampere	A	milliampere	mA	1000	0
Current	8	ampere	A	ampere	A	1	0
Displacement	9	millimeter	mm	millimeter	mm	1	0
Displacement	10	millimeter	mm	centimeter	cm	0.1	0
Displacement	11	millimeter	mm	decimeter	dm	0.01	0
Displacement	12	millimeter	mm	meter	m	0.001	0
Displacement	13	millimeter	mm	kilometer	km	1E-06	0
Displacement	14	millimeter	mm	inch	in	0.03937008	0
Displacement	15	millimeter	mm	foot	ft	0.00328084	0
Displacement	16	millimeter	mm	yard	yd	0.001093613	0
Displacement	17	millimeter	mm	mile	mi	6.213712E-07	0
Displacement	18	centimeter	cm	millimeter	mm	10	0

There are several unit types including: Current, Displacement, Force, Pressure, Temperature, Torque and Voltage. The table includes the unit to convert from and the unit to convert to as well as the scale factor and offset values.

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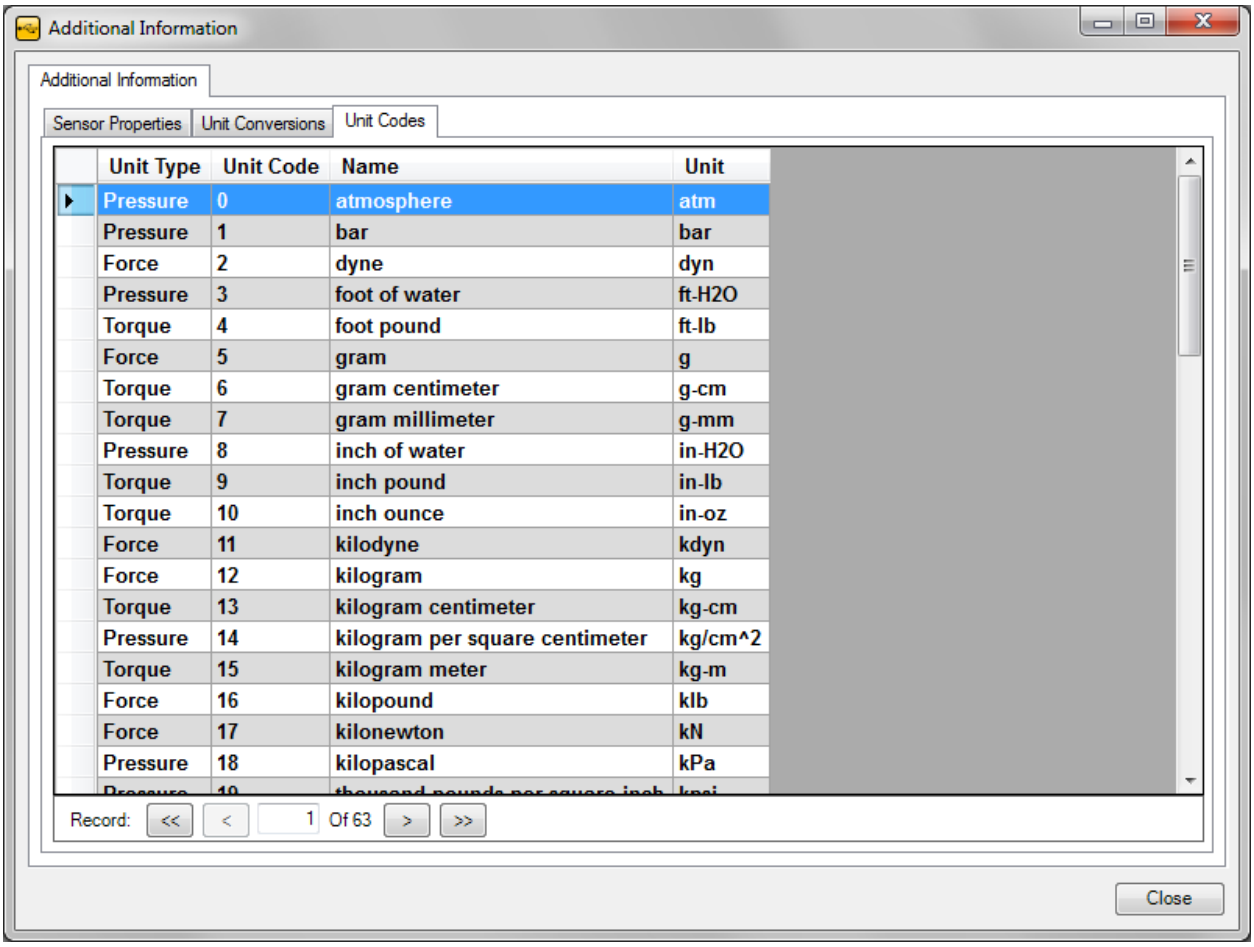
Unit Codes

This tab allows the user to view all of the available unit codes.



There are several unit types including: Current, Displacement, Force, Pressure, Temperature, Torque and Voltage. The table includes the unit code, name, and abbreviation.

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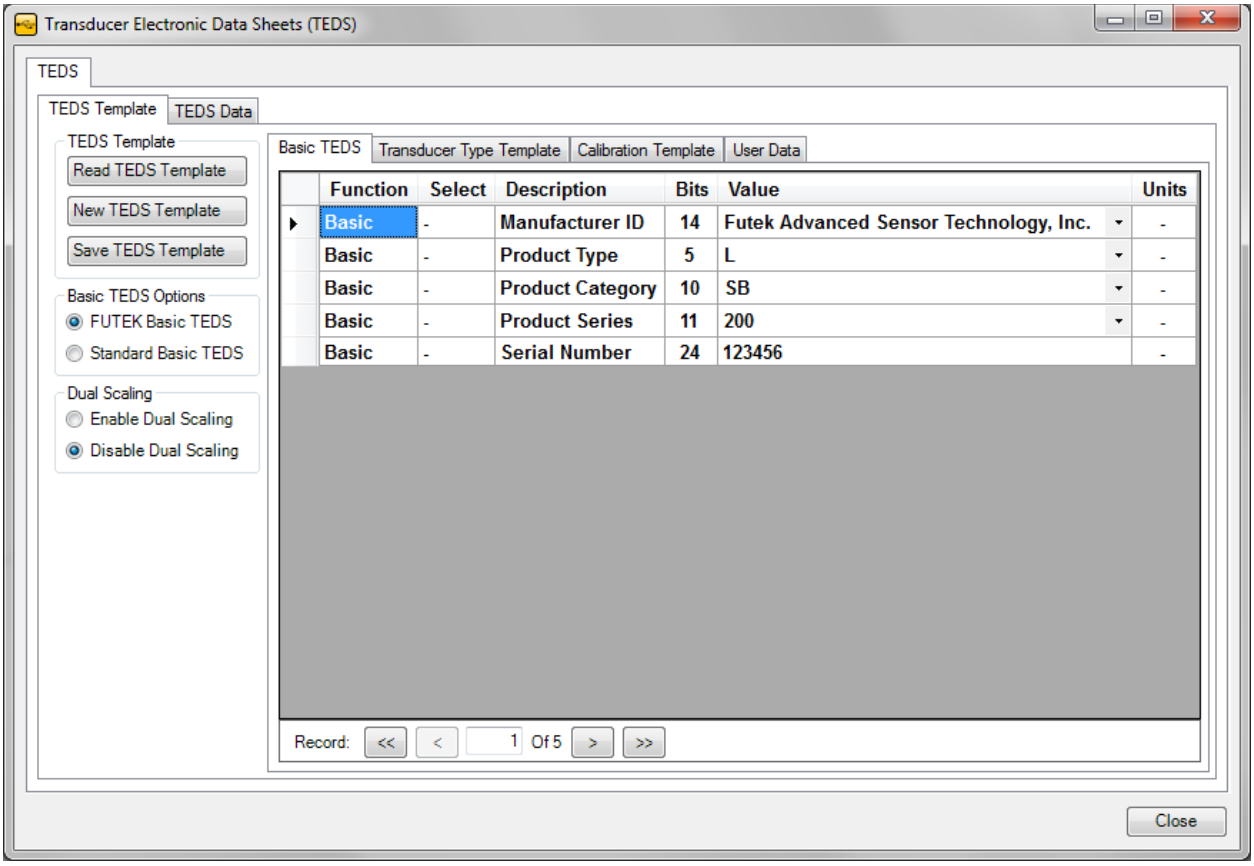
Transducer Electronic Data Sheets (TEDS)

TEDS Template

This tab allows the user to read and write to a TEDS Chip. The table displays information related to the Basic TEDS Information and the TEDS Template Information.



How to Read TEDS Template Information

Click **Read TEDS Template**.

Basic TEDS Options

Specify if you would like to use the FUTEK Basic TEDS or Standard Basic TEDS.

How to Create New TEDS Template Information

Click **New TEDS Template** and specify the Template ID number in the input box below.

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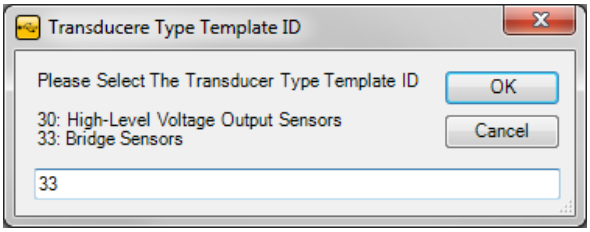

A new template with default values will be created.

How to Save TEDS Template Information

After you have filled in all of the required Basic TEDS Information and TEDS Template Information, click **Save TEDS Template**.

Please Note: When writing to the TEDS Chip, the data will be overwritten. Please be cautious as there is no way to retrieve the information once it has been overwritten.

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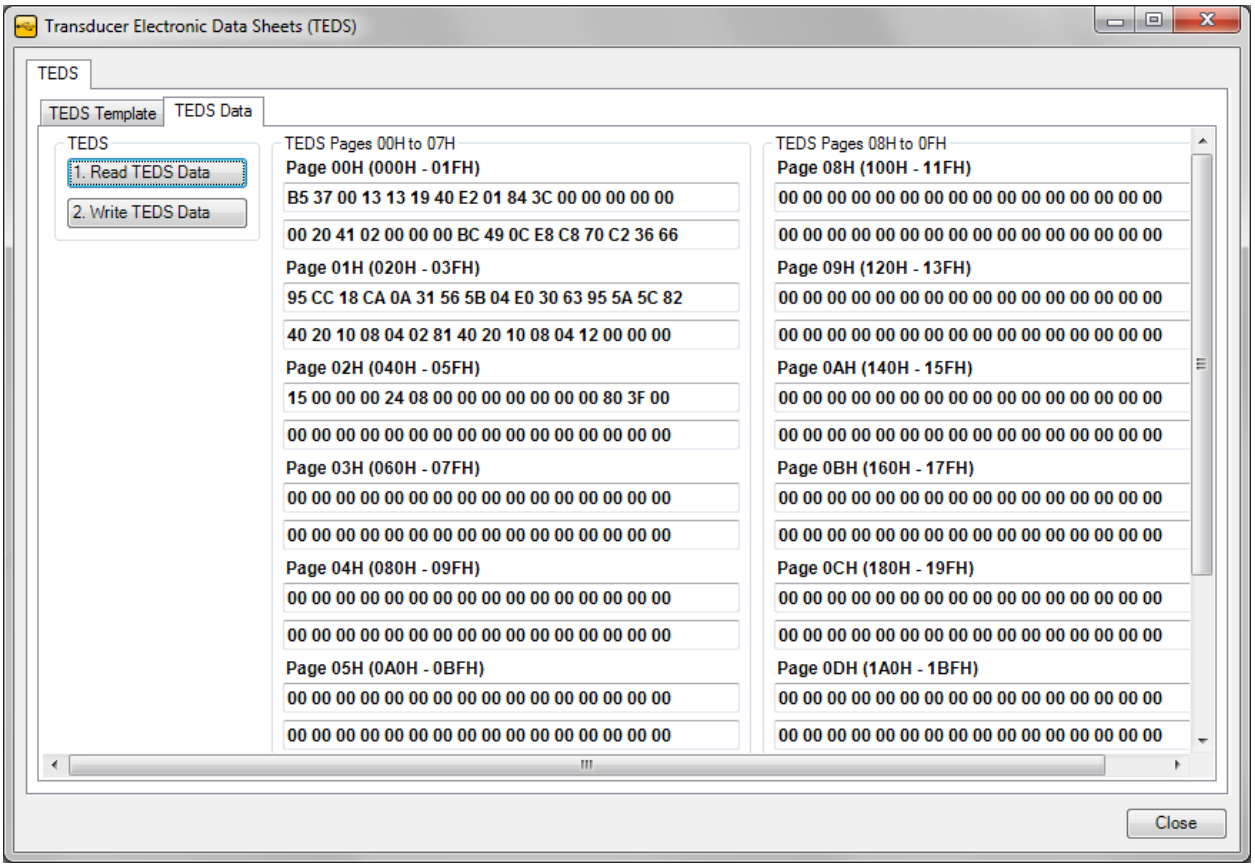
TEDS Data

This tab allows the user to read and write to a TEDS Chip. The information is displayed in hexadecimal format and is separated into 32 byte pages.



How to Read TEDS Data

Click **Read TEDS Data**.

How to Write TEDS Data

Click **Write TEDS Data**.

Please Note: When writing to the TEDS Chip, the data will be overwritten. Please be cautious as there is no way to retrieve the information once it has been overwritten.

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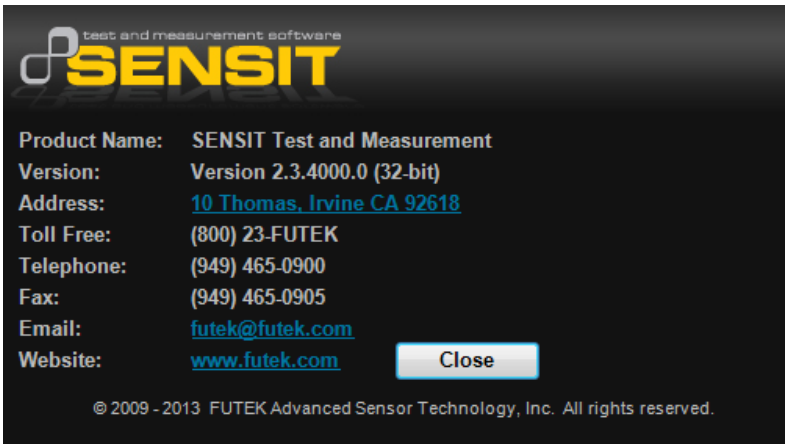
About

About SENSIT Test and Measurement

This form allows the user to view all of the information about the software and the manufacturer.



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Minimum System Requirements

Hardware Requirements

Hardware Requirements						
		1 Device	1 Device	4 Devices	8 Devices	16 Devices
Hardware		**Minimum**	**Recommended**			
Computer Processor	x86	800 MHz	2.0 GHz	2.0 GHz	2.0 GHz	2.0 GHz
	x64	800 MHz	2.5 GHz	2.5 GHz	2.5 GHz	2.5 GHz
System Memory	x86	512 MB	2.0 GB	4.0 GB	4.0 GB	4.0 GB
	x64	1.0 GB	4.0 GB	6.0 GB	8.0 GB	12.0 GB
Hard Disk Drive		20.0 GB	40.0 GB	40.0 GB	40.0 GB	40.0 GB
Available Disk Space		10.0 GB	10.0 GB	10.0 GB	10.0 GB	10.0 GB
Disk Drive	CD	CD-ROM	CD-ROM	CD-ROM	CD-ROM	CD-ROM
	DVD	DVD-ROM	DVD-ROM	DVD-ROM	DVD-ROM	DVD-ROM
Screen Resolution	Standard	SVGA	HD 1080	HD 1080	HD 1080	HD 1080
	W x H	800 x 600	1920 x 1080	1920 x 1080	1920 x 1080	1920 x 1080
USB Port		USB 2.0	USB 2.0	USB 2.0	USB 2.0	USB 2.0

Software Requirements

Software Requirements		
Software	**Minimum**	**Recommended**
Operating System	Microsoft Windows XP	Microsoft Windows XP
	Microsoft Windows Vista	Microsoft Windows Vista
	Microsoft Windows 7	Microsoft Windows 7
Microsoft Office Excel	2003	2003 or later
Microsoft .Net Framework	4	4.0 or later
FTDI Driver	CDM 2.08.02	CDM 2.08.02 or later

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Release Information

FUTEK USB Software Version 2.0.0.0 User's Manual – Released January 2011
SENSIT USB Software Version 2.0.4000.0 Software Manual – Released July 2011
SENSIT Test and Measurement Version 2.1.4000.0 Software Manual – Released November 2011
SENSIT Test and Measurement Version 2.2.4000.0 Software Manual – Released April 2012
SENSIT Test and Measurement Version 2.3.4000.0 Software Manual – Released February 2013

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