

Table of Contents

Software Overview	1
Product Key	2
Model Selection	
Device Selection	4
Menu	5
File	5
Edit	5
View	5
Format	5
Help	6
Display Mode	7
Display Table	7
How to Use the Display Settings	7
Display Settings	
Display Front Panel	
Keypad Functions	
Software Display	
Sum Channel	
How to Use the Sum Channel	
Other Sum Channel Features	14
Math Channel	15
How to Use the Math Channel	15
Other Math Channel Features	
Math Channel Calculator	
Data Logging Mode	
Data Logging Setup	
How to Setup and Start a Data Logging Test	
Data Logging Settings	19
Data Logging Graph	21
How to Zoom In and Out	21
Other Data Logging Graph Features	22
Graph Options	23
Data Logging Properties	25
Data Logging Registers	26
Data Logging Table	27
Live Graphing Mode	
Live Graph Settings	
How to Setup and Start a Live Graph	
Other Features	29
Live Graph Settings	
Live Graph	
How to Zoom In and Out	

Other Live Graph Features	
Live Graph Properties	
Live Graph Registers	
Live Graph Table	
Calibration Mode	40
Warning	40
Calibration	41
How to Setup and Start a Live Calibration	41
Other Calibration Features	41
Calibration Settings	43
Calibration Direction Table(s)	46
Scale Method	47
How to Use the Scale Method	47
Shunt	49
How to Use the Shunt	49
Culture Information	50
Culture Information	50
How to Use the Culture Information	
Additional Information	51
System Properties	51
Other System Properties Features	51
Sensor Properties	52
Other Sensor Properties Features	
Unit Conversions	53
Unit Codes	54
Transducer Electronic Data Sheets (TEDS)	55
TEDS Template	55
How to Read TEDS Template Information	55
Basic TEDS Options	55
How to Create New TEDS Template Information	55
How to Save TEDS Template Information	
TEDS Data	57
How to Read TEDS Data	57
How to Write TEDS Data	57
About	
About SENSIT [®] Test and Measurement	58
Minimum System Requirements	59
Hardware Requirements	59
Software Requirements	59
Release Information	60
Copyright	60
Disclaimer	60
Contact Information	60

Software Overview

This user guide outlines all 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.

Display Mode Data Loggir Display Table Sum Char	ng Mode Live Graphing I				
Display Table Sum Char		Mode Calibration Mode			
Device	Status	Alias	S/N	Reading 1	Units 1
1	Enabled	Sensor 1	210210	0.000	mV/V
2	Enabled	Sensor 2	220220	0.000	mV/V
3	Enabled	Sensor 3	230230	0.000	mV/V

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.



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.





Device Selection

SENSIT[®] Test and Measurement automatically populates all 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.

🚭 s	ENSIT Test and Measure	ment		
	Device	Status		Serial Number
•	1	Enabled	•	210210 -
	2	Enabled	•	220220 -
	3	Enabled	•	230230 -
	4	Disabled	•	-
	5	Disabled	•	-
	6	Disabled	•	-
	7	Disabled	•	•
	8	Disabled	•	-
	9	Disabled	•	-
	10	Disabled	•	•
	11	Disabled	•	•
	12	Disabled	•	-
	13	Disabled	•	-
	14	Disabled	•	-
	15	Disabled	•	-
	16	Disabled	•	-
Re	ecord: <	1 Of 16 > >>		
				Save Load
				2010

Menu

Isplay Mode Data Logging Mode Live Graphing Mode Calibration Mode Display Table Sum Channel Math Channel Device Status Alias S/N Reading 1 1 Enabled Sensor 1 210210 0.000				Mode Calibration Mode	na Mode i Live Graphina	
1 Enabled Sensor 1 210210 0.000						
	Units 1	Reading 1	S/N	Alias	Status	Device
	mV/V	0.000	210210	Sensor 1	Enabled	1
2 Enabled Sensor 2 220220 0.000	mV/V	0.000	220220	Sensor 2	Enabled	2
3 Enabled Sensor 3 230230 0.000	mV/V	0.000	230230	Sensor 3	Enabled	3

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.

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.

User Guide – allows the user to view a .pdf of the user guide 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.

Display Mode

Display Table

This tab displays all 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.

SENSIT Test and Measu File Edit View Fo	rement ormat Help				
Display Mode Data Loggin	g Mode Live Graphing	Mode Calibration Mode			
Display Table Sum Chan	nel Math Channel				
Device	Status	Alias	S/N	Reading 1	Units 1
▶ 1	Enabled	Sensor 1	210210	0.000	mV/V
2	Enabled	Sensor 2	220220	0.000	mV/V
3	Enabled	Sensor 3	230230	0.000	mV/V

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 <u>Display Settings</u> to change for that device.

Display Settings

	Device 1 Settings	
	Alias	►
	Mode	+
	Reset	×
	Tare / Gross	+
	Decimal Format	•
	Convert Units	•
	Sampling Rate	•
	Average Setting	•
	Change Polarity	
~	Linearization	
	Shunt Verification	
	Global Settings	
	Display Refresh Rate	×

Device Settings

The device settings allow the user to view/modify settings that relate to a specific device. 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 counterclockwise 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. **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 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 pulldown menu. A unit can only be converted to another unit of the same type of measurement. For example: Ib 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.

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 considers 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. 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.

Display Front Panel

This tab displays the front panel user interface. The software provides access to all 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 except for 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.

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.

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.

SENSIT Test and Measureme	nt			
File Edit View Format	Help			
Display Mode Data Logging Mod	de Live Graphing Mode	Calibration Mode		
Display Table Sum Channel	Math Channel		 	
Enable Sum Channel	Sum Channel			
Enable Channel	Device 1	Device 9		
Sum Values	Device 2	Device 10		
Tracking Value	Device 3	Device 11		
Peak Value	Device 4	Device 12		
Valley Value	Device 5	Device 13		
Clear Sum Settings	Device 6	Device 14		
Clear Sum Settings	Device 7	Device 15		
Sum Decimal Format	Device 8	Device 16		
0.000 -				
Sum All Devices				
Sum All Devices				
				.::

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.

ile Edit View Fo	ormat Help				
isplay Mode Data Loggin	g Mode Live Graphing I	Mode Calibration Mode			
Display Table Sum Chan	nel Math Channel				
Device	Status	Alias	S/N	Reading 1	Units 1
▶ 1	Enabled	Sensor 1	210210	0.000	mV/V
2	Enabled	Sensor 2	220220	0.000	mV/V
3	Enabled	Sensor 3	230230	1.000	mV/V
Sum	Enabled	N/A	N/A	1.000	mV/V

Other Sum Channel Features

Clear Sum Settings – clears the sum value and resets all 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.



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.

SENSIT Test and Measurement	
File Edit View Format Help	
Display Mode Data Logging Mode Live Graphing Mode Calibration Mode	
Display Table Sum Channel Math Channel	
Enable Math Channel Show Calculator Enable Channel Show Calculator	
Math Values Tracking Value	
Peak Value	
Valley Value	
Clear Math Settings	
Clear Math Settings	
Math Decimal Format	
0.000 -	
Math Channel Units	
СН3*СН3	
	.::

How to Use the Math Channel

Click Enable Channel.

Select the values used in the calculation (Tracking Value, Peak Value, or Valley Value).

Click **Show Calculator** and perform the appropriate calculation to the desired channel.

Close the <u>Math Channel Calculator</u> and click the **Display Table** tab. The Math row will be displayed with the appropriate calculations.

SENSIT Test and Meas	urement				
File Edit View F	ormat Help				
Display Mode Data Loggi	ing Mode Live Graphin	g Mode Calibration Mod	e		
Display Table Sum Cha	nnel Math Channel				
Device	Status	Alias	S/N	Reading 1	Units 1
1	Enabled	Sensor 1	210210	0.000	mV/V
► 2	Enabled	Sensor 2	220220	0.000	mV/V
3	Enabled	Sensor 3	230230	1.200	mV/V
Math	Enabled	N/A	N/A	1.440	CH3*CH3

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.

Math Channel Calculator

This feature allows the user to perform simple mathematical calculations. It performs all 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.

Calculator
Calculator
Infix Notation
CH03 * CH03
Postfix Notation
CH03 CH03 *
Result
1.44015129981796
Display
Backspace CE C
MC 7 8 9 / sqrt
MR 4 5 6 CH
MS 1 2 3 - 1/x
M+ 0 +/ + =
Close

Data Logging Mode

Data Logging Setup

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

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

🖂 SEI	NSIT Test	and M	easurement						
File	Edit	View	Format	Help					
Displ	ay Mode	Data L	ogging Mode	Live Graphing M	ode Calibration	Mode			
Dat	ta Logging	Setup	Data Loggin	g Graph Data Lo	gging Properties	Data Loggin	g Table	 	
	Data Logg		ip						
	1. Setting								
	2. File Pa								
	3. Start T	est							
									.::

How to Setup and Start a Data Logging Test

Click **Settings** to modify the <u>Data Logging Settings</u>.

Click **File Path** and specify a filename and path for the data file.

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 <u>Data</u> <u>Logging Graph</u> tab.

Data Logging Settings

🚭 Data Logg	ing Setting	s		
Data Logging	g Settings			
- Models -				Start Data Logging
IHH or	IPM	USB		Immediately -
Select De	vices			Test Duration
Device	<u>Enabled</u>	<u>Alias</u>	<u>S/N</u>	0 Hours
1	V	Sensor 1	210210	0 Minutes
2		Sensor 2	220220	
3		Sensor 3	230230	1 Seconds
4				Threshold Value
5				1 v Device
6				0 (mV/V)
7				X-Axis Values
8				Sample Number
9				Time [h:mm:ss AM/PM]
10				Time [n.mm.ss Aw/Fw]
11				Microsoft Excel Options
12				Enable Auto Chart
13				Disable Auto Chart
14				Graph Values
15				Tracking Values
16				Peak Values
				Valley Values
			ОК	Cancel Apply

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.

Threshold Value

The threshold value allows the user to select a device and a specific threshold that the reading must be above or below 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 <u>Data Logging Graph</u> can be configured by Sample Number or Time. The Time will be formatted based on the <u>Culture Information</u>.

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.



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

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



Other Data Logging Graph Features

Graph: Device 1	×
Graph Range	•
Graph Options	
Export Data	

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 <u>Graph Options</u>.

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.

Graph Options

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

🚭 Graph Options	
Color Font Label Leg	end Series X-Axis Y-Axis X-Cursor Y-Cursor
Background Color	Foreground Color
Chart	Axis
Control	Control
Legend	Legend
Grid Color	Cursor Color
Major Gridlines	X-Cursor Line
Minor Gridlines	Y-Cursor Line
Major Tick Marks	X-Cursor Selection
Minor Tick Marks	Y-Cursor Selection
	OK Cancel Apply

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.

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).



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.

🚭 S	SENSIT Test and Measurement						
Fil	e Edit	View Forma	t Help				
Dis	play Mode	Data Logging Mo	de Live Graphing M	Mode Calibration Mode			
D	ata Logging S	Setup Data Log	ging Graph Data Lo	.ogging Properties Data Logging Table			
Г	Devic	e Status	Serial Number	r			
	▶ 1	Enabled					
	2	Disabled	220220				
	3	Disabled	230230				
	4	Disabled					
	5	Disabled					
	6	Disabled					
	7	Disabled					
	8	Disabled					
	9	Disabled					
	10	Disabled					
	11	Disabled					
	12	Disabled					
	13	Disabled					
	14	Disabled					
	15	Disabled					
UI.	16	Disabled					
III L	Record:	«	1 Of 16 >	»			
					.:		



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.

SENSIT	SENSIT Test and Measurement								
File E	Edit View Format Help								
Display N	Display Mode Data Logging Mode Live Graphing Mode								
Data Lo	ogging Setup Data Logging Graph Data L	ogging Properties D	ata Logging Registers	Data Logging Table					
	Internal Register	Register Value							
	Data Logging Type	All							
	Data Logging Counter	0							
	Tare Value Register	8649009							
	Offset Value Register	8389280							
	Fullscale Value Register	12688128							
F	Reverse Fullscale Value Register	0			E				
1	Fullscale Load Register	2.00000 mV/V							
[Decimal Point Register	5							
l	Unit Code Register	mV/V							
1	Direction Register	One Direction							
	RTD Enabled Flag	0							
	TEDS Enabled Flag	1							
	Shunt Enabled Flag	0							
	Pulse Input Enabled Flag	0							
	Current Input Enabled Flag	0							
	Voltage Input Enabled Flag	0							
	Bridge Input Enabled Flag	1 0							
	Power Enabled Flag Reserved Enabled Flag	0			-				
Reco		>>							
]				
					.::				

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.

ata Logging Setup	Data Logging Graph Data	a Logging Properties	Bata Logging T	Table		
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,
			:	:		4



Live Graphing Mode

Live Graph Settings

This tab allows the user to set all 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.

SENSIT Test and Measurement	
File Edit View Format Help	
Display Mode Data Logging Mode Live Graphing Mode Calibration Mode	
Live Graph Setup Live Graph Live Graph Properties Live Graph Table	
Live Graph Setup	
1. Settings	
2. File Path	
3. Start Test	
4. Stop Test	
	.::

How to Setup and Start a Live Graph

- 1. Click **Settings** to modify the <u>Live Graph Settings</u>.
- 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.

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 <u>Live Graph Table</u>. The software will then ask if you still want to export the data to a file.

SI	ENSIT Test and Measurement Stop Test
	The Live Graph Test Has Been Stopped. Do You Want To Export The Data?
	Yes No

Live Graph Settings

Models —	1014	0.000		Start Live Graph	
) IHH o	r IPM	USB		Immediately -	
Select De				Test Duration	Test Interval
	Enabled	<u>Alias</u>	<u>S/N</u>	0 Hours	0 Hours
1	\checkmark	Sensor 1	210210	0 Minutes	0 Minutes
2		Sensor 2	220220	1 Seconds	0.1 Seconds
3		Sensor 3	230230		
4				Threshold Value	Refresh Rate
5				1 v Device	1 Seconds
6				0 (mV/V)	Samples to Display
7				X-Axis Values	100 Samples
8				Sample Number	
9				Time [h:mm:ss AM/PM]	Rotation Values Enable Rotation Values
10					0
11				Microsoft Excel Options Enable Auto Chart	Disable Rotation Values
12				<u> </u>	
13				Disable Auto Chart	
14				Graph Values	
15				Tracking Values	
16				Peak Values	
				Valley Values	

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.

Threshold Value

The threshold value allows the user to select a device and a specific threshold that the reading must be above or below 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 can 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.

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

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



Other Live Graph Features

Graph: All Devices
Graph Options
Export Data

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.


Chart Area 1: Visible, Chart Area 2: Visible

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



Chart Area 1: Visible, Chart Area 2: Hidden



Chart Area 1: Hidden, Chart Area 2: Visible



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.

🚭 SEN	SIT Test and	Measureme	ent		
File	Edit Vie	w Forma	t Help		٦
Display	/ Mode Dat	a Logging Mo	de Live Graphing Mo	ode Calibration Mode	
Live	Graph Setup	Live Graph	Live Graph Propertie	Ive Graph Table	l
	Device	Status	Serial Number		l
	1	Enabled	210210		l
	2	Disabled	220220		I.
	3	Disabled	230230		l
	4	Disabled			l
	5	Disabled			l
	6	Disabled			l
	7	Disabled			l
	8	Disabled			l
	9	Disabled			l
	10	Disabled			l
	11	Disabled			l
	12	Disabled			l
	13	Disabled			l
	14	Disabled			l
	15	Disabled			l
	16	Disabled			l
	Sum	Disabled			l
	Math	Disabled			l
Re	cord: <<	<	1 Of 18 >	»	Ľ
					الت



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.

SENS:	SENSIT Test and Measurement								
File	File Edit View Format Help								
Display	Display Mode Data Logging Mode Live Graphing Mode								
Live G	Live Graph Setup Live Graph Vive Graph Properties Live Graph Registers Live Graph Table								
	Internal Register	Register Value							
	Live Graph Type	All							
	Live Graph Counter	0							
	Tare Value Register	8649009							
	Offset Value Register	8389280							
	Fullscale Value Register	12688128		=					
	Reverse Fullscale Value Register			-					
	Fullscale Load Register	2.00000 mV/V							
	Decimal Point Register	5							
	Unit Code Register	mV/V							
	Direction Register	0							
	RTD Enabled Flag	0							
	TEDS Enabled Flag	1							
	Shunt Enabled Flag	0							
	Pulse Input Enabled Flag	0							
	Current Input Enabled Flag	0							
	Voltage Input Enabled Flag	0							
	Bridge Input Enabled Flag	1							
	Power Enabled Flag	0		-					
	Reserved Enabled Flag	0							
Rec	cord: << < 1 Of 30 >	>>							
				.:					



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
Þ	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
∢ [< 1 Of 11 >	n	Page: <		1 Of 1 >	•

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 <u>contact us</u>.

Calibration

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

SENSIT Test and Measurement	- 0 X
File Edit View Format Help	
Display Mode Data Logging Mode Live Graphing Mode Calibration Mode	
Scale Method Shunt USB Calibration	
Calibration Direction 1 Direction 2	
1. Settings Channel 1 Channel 2 Channel 3	
2. Generate Test	
3. Save Parameters	
4. Save Calibration	
5. Record Shunt	
Recall Calibration	
Recall Calibration	
Cancel Calibration	
Cancel Calibration	
Record: III O OF 0 D DI	

How to Setup and Start a Live Calibration

- 1. Click **Settings** to modify the <u>Calibration Settings</u>.
- 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.

Cancel Calibration

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

Calibration Settings

Calibration Settings		
- 1. Technician Name	10. Serial Number	18. Backup Page
254 - User Defined 👻	210210 Serial Number	EEPROM Page 0 (N/A)
2. Calibration Channel	11. Output Units	EEPROM Page 1 (N/A)
Ohannel 1	mV/V	EEPROM Page 2 (mV/V)
Channel 2	12. Loading Points	EEPROM Page 3 (System)
Channel 3	5 Loading Points	EEPROM Page 4 (N/A)
- 3. Crosstalk	13. Decimal Points	EEPROM Page 5 (N/A)
Orosstalk Disabled	2	EEPROM Page 6 (N/A)
Crosstalk Enabled	14. Channel Name	EEPROM Page 7 (N/A)
4. Type of Calibration	Fx	EEPROM Page 8 (N/A)
mV/V Calibration	15. Multiple Directions	EEPROM Page 9 (N/A)
System Calibration	Multiple Directions	EEPROM Page 10 (N/A)
5. Active Channels	☐ 16. Positive Direction (+)	EEPROM Page 11 (N/A)
Channel 1	Calibrate Direction 1	EEPROM Page 12 (N/A)
Channel 2	2.00 Capacity 1	EEPROM Page 13 (N/A)
Channel 3	Compressior Direction 1	EEPROM Page 14 (N/A)
6. Sensor Output Type		EEPROM Page 15 (N/A)
Bridge 👻		19. Ethemet Configuration
7. Gain Setting	Calibrate Direction 2	: : : Destination MAC Address
Gain = 128 (0.0 - 3.5 mV/V) -	0.00 Capacity 2	Destination IP Address
-8. Supply Voltage	Tension	Destination Port Number
5 VDC -]	: : : : : : : : : Source MAC Address
9. Pulses Per Rotation		Source IP Address
Pulses		Source Port Number
		OK Cancel Apply

1. Technician Name

The technician's 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.

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 can 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.

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.

Calibration Direction Table(s)

SENSIT Test and Measureme	ent				
ile Edit View Forma	t Help				
isplay Mode Data Logging Mo	de Live Graphing Mode	e Calibration Mode			
	Calibration				
Calibration	Direction 1 Direction	2			
1. Settings	Channel 1 (Fx) Char	nnel 2 Channel 3			
2. Generate Test				1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
	ID Load (mV/V)	Output (ADC Value)	Fixture Correction (ADC Value)	Nonlinearity (%)	
3. Save Parameters	NZ Natural Zero 0 0.00	8387390 8387384			
4. Save Calibration	1 0.40	9217394			
	2 0.80	10047459			
5. Record Shunt	3 1.20	10877514			
Recall Calibration	4 1.60	11707424			
	5 2.00	12537342]		
Recall Calibration					
Cancel Calibration					
Cancel Calibration					
Cancer Calibration					
	Record:	7 Of 7 🕨 🚺	•		

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.

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 the loading points, the **Save Parameters** button will become available. Please refer to <u>How to Setup and Start a Live Calibration</u> to continue.

Scale Method

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

SENSIT Test and Measurement	
File Edit View Format Help	
Display Mode Data Logging Mode Live Graphing Mode Calibration Mode	
Scale Method Shunt USB Calibration	
Enable Scale Method Parameters	
Enable Scale Method 210210 Serial Number	
Scale Method Full Scale 1 (mV/V)	
1. Settings Full Scale 2 (mV/V)	
2. Set Parameters Full Scale 1 (Capacity)	
3. Save Parameters Full Scale 2 (Capacity)	
atm v Output Units	
	.::

How to Use the Scale Method

Click Enable Scale Method.

Click **Settings** to enter the Scale Method Parameters.

- 1. 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.
- 2. Click Set Parameters to lock the settings.
- 3. Click Save Parameters to save the scale method settings for future use.

* 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.

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.

SENSIT Test and Measurement		
File Edit View Format Help		
Display Mode Data Logging Mode Live Graphing	g Mode Calibration Mode	
Scale Method Shunt USB Calibration		
Enable Shunt Parameters		
Enable Shunt	Calibration Shunt Value	
Shunt Decimal Format	Current Shunt Value	
0.000 👻	Percent Difference	

How to Use the Shunt

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.

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.

English (United States)		Month Names
	Decimal Separator	January February
•	Group Separator Percent Symbol	March April May
\$	Currency Symbol	June July August
Date Format	Date Separator	September October November December
Friday, February 15, 2013	Long Date Format	December
2/15/2013	Short Date Format	Day Names Sunday
Time Format	Time Separator	Monday Tuesday Wednesday
11:12:52 AM	Long Time Format	Thursday Friday Saturday
11:12 AM	Short Time Format	

How to Use the Culture Information

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



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.

🚭 Additi	ional Information				x	ſ
Addition	al Information					
System	n Properties Sensor	Properties Unit Convers	ions Unit Codes			
		Property Name	Property Value		~	
	Firmware	Type of Board	IHH500			
	Firmware	Hardware Version	001		_	
	Firmware	Firmware Version	000		-	
	Firmware	Firmware Year	2012			1
	Firmware	Firmware Month	July			
	Firmware	Version	Elite			1
	Firmware	Lock	Unlocked			1
	Firmware	Keypad Lock	Unlocked			1
						1
	Firmware	IHH Enable	Enabled			1
	Firmware	Active Channel	3			1
	Firmware	Current Channel	3			1
	Firmware	Data Rate	5 Samples Per Second			1
	Firmware	Average	Disabled			1
						1
	Firmware	LCD Brightness	15			1
	Firmware	LCD Contrast	15			1
	Firmware	Auto LCD Off	Disabled			1
					-	1
	Cirmurara		65		-11	l
Rec	cord: <	1 Of 84 >	»			
				Clos	e	
						L

Other System Properties Features

۲

Select Device

Select Device
Select Profile

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.

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



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.

,	tional Information			
	nal Information			
Sens	or Properties Unit Co	nversions Unit Codes		
	Property Type	Property Name	Property Value	
	Software	Device Number	1	
	Software	Display Mode	Tracking	
	Software	Tare Value	0	
	Software	Tare 1 Value	0	
	Software	Tare 1 Load	0	
	Software	Tare Direction	1	
	Software	Decimal Format	0.000	
	Software	Conversion Units	mV/V	
	Software	Linearization Mode	True	
	Software	Global Mode	False	
	Firmware	Sensor Identification Number	210210	
	Firmware	Type of Board	USB210	
	Firmware	Hardware Version	001	
	Firmware	Firmware Version	004	
	Firmware	Firmware Year	2011	
	Firmware	Firmware Month	January	
	Firmware	Channel Name	Fx	
	Firmword	Direction 1	Compromion	
Re	ecord: << <	1 Of 48 > >>		
				Clos

Other Sensor Properties Features

Select Device

Select Device	۲
Select Profile	۲

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.



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

-	Unit Type Conversion Convert From From Unit Conv		Convort To	Convert To To Unit Scale Factor C		Offset	Offect A		
•	Current	0				μA		0	
•	Current	1	microampere	μA μA	microampere milliampere	μA mA	0.001	0	
	Current	2	microampere	µА µА	•	A	1E-06	0	
	Current	3	microampere milliampere	mA	ampere	μA	1000	0	
	Current	4	•	mA	microampere	mA mA	1000	0	
	Current	4 5	milliampere	mA mA	milliampere		0.001	0	
		6	milliampere		ampere	A	1000000	0	
	Current	o 7	ampere	A	microampere	μA	100000	0	
	Current	8	ampere	A	milliampere	mA A	1000	0	
	Current	-	ampere		ampere			-	
	Displacement		millimeter	mm	millimeter	mm	1	0	
	Displacement		millimeter	mm	centimeter	cm	0.1	0	
	Displacement		millimeter	mm	decimeter	dm	0.01	0	
	Displacement		millimeter	mm	meter	m	0.001	0	
	Displacement		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		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	
	Displacement	10	continuetor	0.00	continuetor	000	4	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.



Unit Codes

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

Unit Type Unit Code Name Unit	ens	or Properties U	Init Conversions	Unit Codes				
Pressure1barbarForce2dynedynPressure3foot of waterft-H2OTorque4foot poundft-lbForce5gramgTorque6gram centimeterg-cmTorque7gram millimeterg-mmPressure8inch of waterin-H2OTorque9inch of waterin-lbTorque10inch ouncein-ozForce11kilogramkgTorque13kilogram centimeterkg-cmPressure14kilogram meterkg-mForce16kilopoundklbForce17kilonewtonkNPressure18kilopascalkPa		Unit Type	Unit Code	Name	Unit			
Force2dynedynPressure3foot of waterft-H2OTorque4foot poundft-lbForce5gramgTorque6gram centimeterg-cmTorque7gram millimeterg-mmPressure8inch of waterin-H2OTorque9inch ouncein-ozForce11kilodynekdynForce12kilogramkgTorque13kilogram centimeterkg-cmPressure14kilogram meterkg-mForce16kilopoundklbForce17kilomewtonkNPressure18kilopascalkPa	١.	Pressure	0	atmosphere	atm			
Pressure3foot of waterft-H2OTorque4foot poundft-lbForce5gramgTorque6gram centimeterg-cmTorque7gram millimeterg-mmPressure8inch of waterin-H2OTorque9inch of waterin-lbTorque10inch ouncein-ozForce11kilodynekdynForce12kilogram centimeterkgTorque13kilogram per square centimeterkg/cm^2Torque15kilogram meterkg-mForce16kilopoundklbForce17kilonewtonkNPressure18kilopascalkPa		Pressure	1	bar	bar			
Torque4foot poundft-lbForce5gramgTorque6gram centimeterg-cmTorque7gram millimeterg-mmPressure8inch of waterin-H2OTorque9inch poundin-lbTorque10inch ouncein-ozForce11kilodynekdynForce12kilogram centimeterkgTorque13kilogram per square centimeterkg/cm^2Torque15kilogram meterkg-mForce16kilopoundklbForce17kilonewtonkNPressure18kilopascalkPa		Force	2	dyne	dyn			
Force5gramgTorque6gram centimeterg-cmTorque7gram millimeterg-mmPressure8inch of waterin-H2OTorque9inch poundin-IbTorque10inch ouncein-ozForce11kilodynekdynForce12kilogramkgTorque13kilogram centimeterkg-cmPressure14kilogram meterkg-mForce15kilogram meterkg-mForce16kilopoundklbForce17kilonewtonkNPressure18kilopascalkPa		Pressure	3	foot of water	foot of water ft-H2O			
Torque6gram centimeterg-cmTorque7gram millimeterg-mmPressure8inch of waterin-H2OTorque9inch poundin-IbTorque10inch ouncein-ozForce11kilodynekdynForce12kilogramkgTorque13kilogram centimeterkg-cmPressure14kilogram meterkg-mForce16kilopoundklbForce17kilonewtonkNPressure18kilopascalkPa		Torque	4	foot pound	ft-lb			
Torque7gram millimeterg-mmPressure8inch of waterin-H2OTorque9inch poundin-IbTorque10inch ouncein-ozForce11kilodynekdynForce12kilogramkgTorque13kilogram centimeterkg-mPressure14kilogram meterkg-mForce16kilopoundklbForce17kilopascalkNPressure18kilopascalkPa		Force	5	gram	g	-		
Pressure8inch of waterin-H2OTorque9inch poundin-IbTorque10inch ouncein-ozForce11kilodynekdynForce12kilogramkgTorque13kilogram centimeterkg-cmPressure14kilogram meterkg-mForce16kilopoundklbForce17kilonewtonkNPressure18kilopascalkPa		Torque	6	gram centimeter	g-cm			
Torque9inch poundin-lbTorque10inch ouncein-ozForce11kilodynekdynForce12kilogramkgTorque13kilogram centimeterkg-cmPressure14kilogram per square centimeterkg-mForce16kilopoundklbForce17kilopascalkN		Torque	7	gram millimeter	g-mm			
Torque10inch ouncein-ozForce11kilodynekdynForce12kilogramkgTorque13kilogram centimeterkg-cmPressure14kilogram per square centimeterkg/cm^2Torque15kilogram meterkg-mForce16kilopoundklbForce17kilopascalkN		Pressure	8	inch of water	in-H2O			
Force11kilodynekdynForce12kilogramkgTorque13kilogram centimeterkg-cmPressure14kilogram per square centimeterkg/cm^2Torque15kilogram meterkg-mForce16kilopoundklbForce17kilopascalkPa		Torque	9	inch pound	in-lb			
Force12kilogramkgTorque13kilogram centimeterkg-cmPressure14kilogram per square centimeterkg/cm^2Torque15kilogram meterkg-mForce16kilopoundklbForce17kilonewtonkNPressure18kilopascalkPa		Torque	10	inch ounce	in-oz			
Torque13kilogram centimeterkg-cmPressure14kilogram per square centimeterkg/cm^2Torque15kilogram meterkg-mForce16kilopoundklbForce17kilonewtonkNPressure18kilopascalkPa		Force	11	kilodyne	kdyn			
Pressure14kilogram per square centimeterkg/cm^2Torque15kilogram meterkg-mForce16kilopoundklbForce17kilonewtonkNPressure18kilopascalkPa		Force	12	kilogram	kg			
Torque15kilogram meterkg-mForce16kilopoundklbForce17kilonewtonkNPressure18kilopascalkPa		Torque	13	kilogram centimeter	kg-cm			
Force16kilopoundklbForce17kilonewtonkNPressure18kilopascalkPa		Pressure	14	kilogram per square centimeter	kg/cm^2			
Force17kilonewtonkNPressure18kilopascalkPa		Torque	15	kilogram meter	kg-m			
Pressure 18 kilopascal kPa		Force	16	kilopound	klb			
		Force	17	kilonewton	kN			
Dressure 10 thousand pounds per square inch knoi		Pressure	18	kilopascal	kPa			
Record: << 1 Of 63 >>>								

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



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.

Transducer Electronic Data Sheets (reds)						• X	
TEDS								
TEDS Template TEDS Data								
Read TEDS Template	Function S	Select	Description	Bits	Value		Units	
	Basic -		Manufacturer ID	14	Futek Advanced Sensor Technology, Inc.	•	-	
Save TEDS Template	Basic -		Product Type	5	L	•	-	
Basic TEDS Options	Basic -		Product Category	10	SB	•	-	
FUTEK Basic TEDS	Basic -		Product Series	11	200	•	-	
Standard Basic TEDS	Basic -	1	Serial Number	24	123456		-	
 Enable Dual Scaling Disable Dual Scaling 	cord: <<	<	1 Of5 > >>					
L							Close	

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.



A new template with default values will be created.

How to Save TEDS Template Information

After you have filled in all 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.



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.

🚭 Transducer Electronic Data Sl	heets (TEDS)		x
TEDS			
TEDS Template TEDS Data			
TEDS Template TEDS Data TEDS 1. Read TEDS Data 2. Write TEDS Data	TEDS Pages 00H to 07H Page 00H (000H - 01FH) B5 37 00 13 13 19 40 E2 01 84 3C 00 00 00 00 00 00 20 41 02 00 00 00 BC 49 0C E8 C8 70 C2 36 66 Page 01H (020H - 03FH) 95 CC 18 CA 0A 31 56 5B 04 E0 30 63 95 5A 5C 82 40 20 10 08 04 02 81 40 20 10 08 04 12 00 00 00 Page 02H (040H - 05FH) 15 00 00 02 40 80 00 00 00 00 00 00 00 80 3F 00 00 00 00 00 00 00 00 00 00 00 00 00 00	TEDS Pages 08H to 0FH Page 08H (100H - 11FH) 00 00 00 00 00 00 00 00 00 00 00 00 00	
	00 00 00 00 00 00 00 00 00 00 00 00 00	00 00 00 00 00 00 00 00 00 00 00 00 00	-
	III	P	
		Clos	se

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.

About

About SENSIT[®] Test and Measurement

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



Minimum System Requirements

Hardware Requirements

Hardware Requirements							
Hardware		Minimum	Recommended				
Processor x86		1.0 GHz	2.0 GHz or higher				
Processor x64		1.0 GHz	2.0 GHz or higher				
Memory (RAM) x86		1.0 GB	4.0 GB				
Memory (RAM)	x64	2.0 GB	16.0 GB or higher				
Storage		128.0 GB	256.0 GB or higher				
Available Storage		16.0 GB	20.0 GB or higher				
Graphics Card		DirectX 9 or later with WDDM 1.0 driver	DirectX 12 or later with WDDM 2.0 driver				
Screen Resolution Standard		SVGA	HD 1080				
Screen Resolution	WxH	800 x 600	1920 x 1080 or higher				
USB Port		USB 2.0	USB 2.0 or higher				

Software Requirements

Software Requirements					
Software	Minimum	Recommended			
Operating System	Microsoft Windows 11	Microsoft Windows 11			
Operating System	Microsoft Windows 10	Microsoft Windows 10			
Microsoft Office	2016	2016 or later			
Microsoft .Net Framework	4.8	4.8 or later			
FTDI D2XX Driver	2.12.36.4	2.12.36.4 or later			

Release Information

SENSIT[®] 2.13 User Guide – Released November 2024

Copyright

© 2024 FUTEK Advanced Sensor Technology, Inc. All rights reserved.

Disclaimer

Neither the whole nor any part of the information contained in, or the product described in this manual, may be adapted, or reproduced in any material or electronic form without the prior written consent of the copyright holder.

This product and its documentation are supplied on an as-is basis and no warranty as to their suitability for any particular purpose is either made or implied.

This document provides preliminary information that may be subject to change without notice.

Contact Information

FUTEK Advanced Sensor Technology, Inc.

Headquarters 10 Thomas Irvine, CA 92618

Business hours: 7 am – 5 pm Pacific

Phone: (949) 465-0900 Email: <u>futek@futek.com</u> Website: <u>www.futek.com</u>