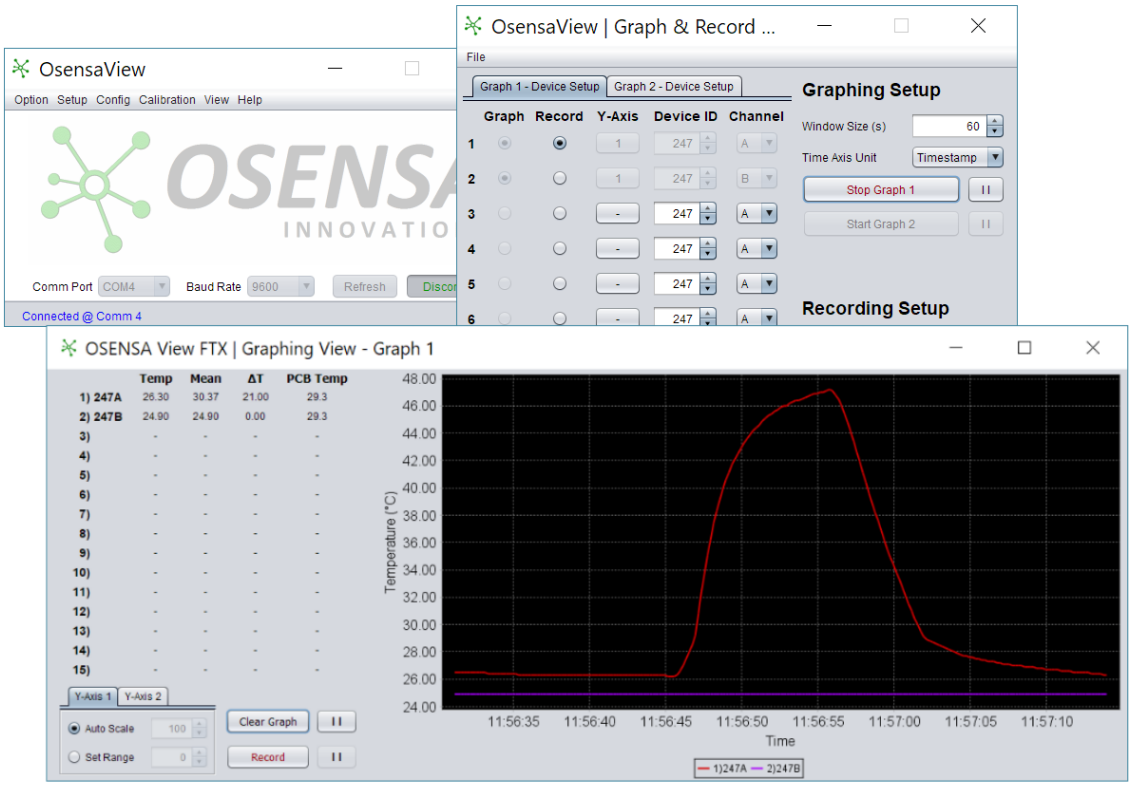
OSENSA
INNOVATIONS



OSENSAVIEW

USER MANUAL

VERSION 3.03

OSENSA INNOVATIONS CORPORATION
www.osensa.com

Proprietary Information

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Specifications Subject to Change

All specifications are subject to change without notice and without incurring any obligation to incorporate changes into future products or products previously sold.

Warranty

OSENSA warrants that this Product shall be free from defects in workmanship and materials for a period of twelve (12) months after delivery. This Product warranty shall not apply to any Product that has been abused, damaged, altered or misused or that is defective as a result of causes external to the Product and not caused by OSENSA. EXCEPT AS SET FORTH ABOVE, OSENSA DISCLAIMS ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. OSENSA shall not be responsible for any expense or loss arising from Product defect or failure. OSENSA's total liability under all circumstances shall not exceed the full purchase price of the Product.

Safety Message

The information contained in this document is not intended to explain all safety concerns associated with installation, operation and maintenance of this product. This product is designed to be installed by knowledgeable personnel who possess relevant technical skills and follow safe work practices.

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Table of Contents

Quick-Start Guide

Install Java Runtime Environment

Download the latest Java Runtime Environment (JRE) at www.java.com/download and pay attention to whether you install the 32-bit (Default, regardless of your OS version) or 64-bit version.

Run Setup File

Run the setup file provided in the installation CD (or requested by e-mail at support@osensa.com) for the version that matches your JRE. Keep pressing the next button until you reach the final page where you will press "Done".

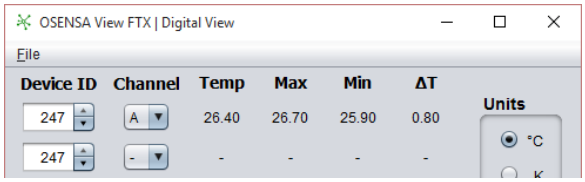
Connect to Your Device

Provide power to your OSENSA hardware and connect it to your Windows computer. Start up the OSENSA software, and on the home screen select the COM port and baud rate for the device and click connect. The defaults are included in the following table. Check that you have connected successfully by selecting ***Config > Device Info (Ctrl+I)***, enter your Modbus device ID and press the ***Read*** button. If you have the serial port, baud rate and ID correct you should see a "Read successful" message.

Factory Defaults	Value
USB Interface	115200 Baud
RS-485 Interface	9600 Baud
Modbus ID	247

Display Temperature

From the home window, select ***View > Digital View (Ctrl+D)***. On one of the rows, select the Modbus device ID from the scroll box. Next, select the Channel letter from the drop down menu. Finally, click the ***Start*** button at the bottom of the window to acquire data. You can change the interval at any time, which controls sampling time in milliseconds between subsequent reads of all the configured channels.



Graph & Record Temperature

From the main window, select ***View > Graph & Record View (Ctrl+G)***. You configure channels the same way as in ***Digital View*** from the previous step, but have the added radio buttons for selecting if you wish to graph or record this channel. Once you have set up the channels you want to record or graph, you can begin recording by clicking the ***Record*** button or initiate the graph with the ***Start Graph x*** button (Graph x referring to Graph 1 or Graph 2 as you have the option to set up multiple graph windows at once).

Chapter 1: Introduction

OsensaView Basic, Live and Pro are Microsoft Windows based software packages developed for interfacing to OSENSA's family of FTX-series fiber optic temperature transmitters and signal conditioners. This software requires a Windows computer installed with the latest Java Runtime Environment, which is available as a free download from http://www.java.com/download.

Customer Support

Please direct all technical inquiries and support related questions to support@osensa.com. For immediate assistance, you may call our main office number at 604-754-5943.

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Chapter 2: Software Installation

Install the Java Runtime Environment

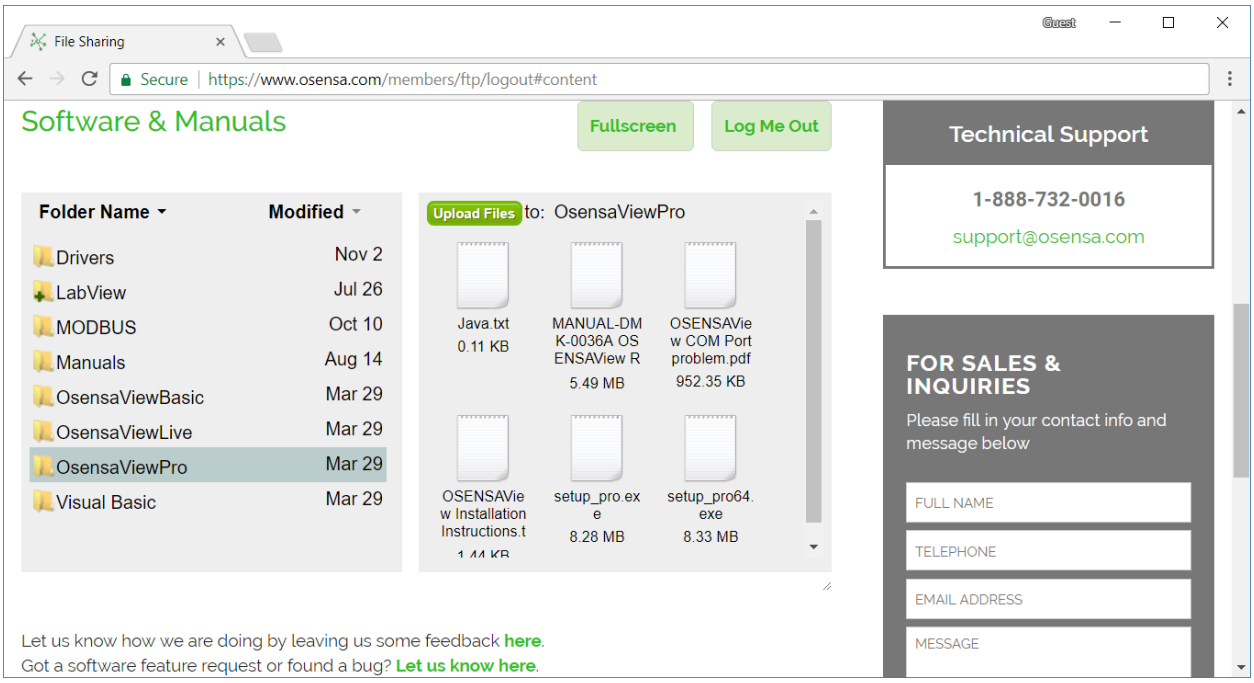
OsensaView Basic, Pro and Live runs on Java, so if you do not already have Java installed on your computer, you must install it first. Java can be downloaded for free from www.java.com/download and clicking on the Free Java Download button. By default, Java will install a 32-bit version even if you have a 64-bit operating system. You must manually select the 64-bit version if desired from the link on the page which refers to other available Java downloads. When installing Java, you may be asked to remove older versions. This is recommended for security reasons. OsensaView requires Java SE version 8.0 or later.

OsensaView distributions come with both 32bit and 64bit installers. You must select the appropriate installer which matches the version of Java running on your computer. Choose the appropriate installation file from the following table.

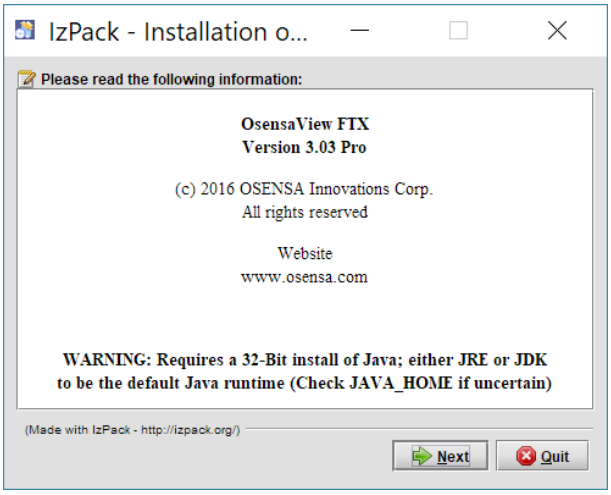
Product Description	Java Environment	Installation File
OsensaView Basic (Free Edition)	32 Bit	setup_basic.exe
OsensaView Pro	32 Bit	setup_pro.exe
OsensaView Live	32 Bit	setup_live.exe
OsensaView Basic (Free Edition)	64 Bit	setup_basic64.exe
OsensaView Pro	64 Bit	setup_pro64.exe
OsensaView Live	64 Bit	setup_live64.exe

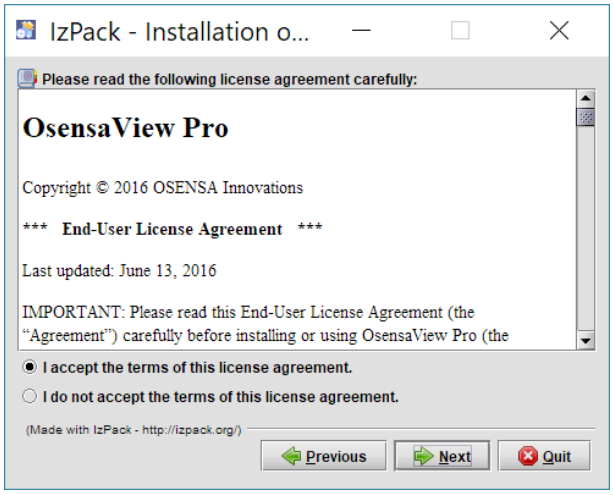
Run Setup File

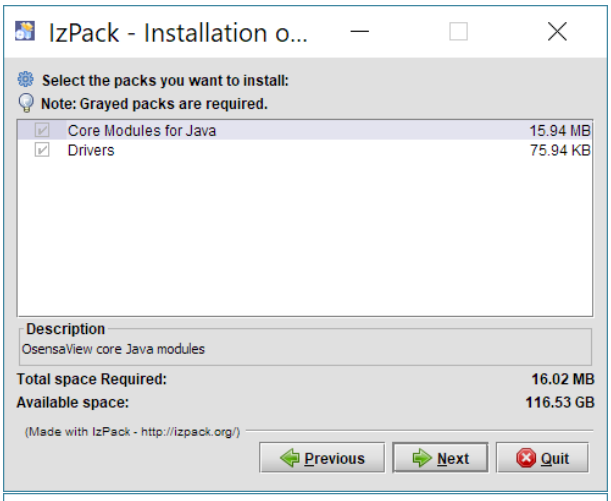
The latest OSENSA software is accessible for all clients from www.osensa.com/members. Login credentials should be provided with your purchase. Otherwise, you can request access to the installation executables by sending an email to support@osensa.com. Once you have logged into our servers, you can download the setup .exe file for your desired software from the corresponding folder.

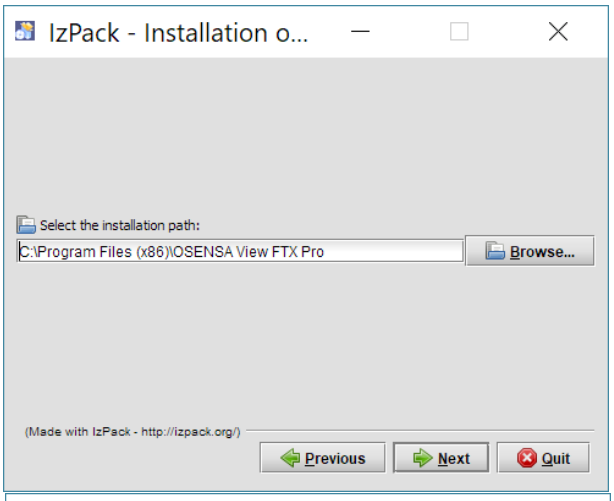


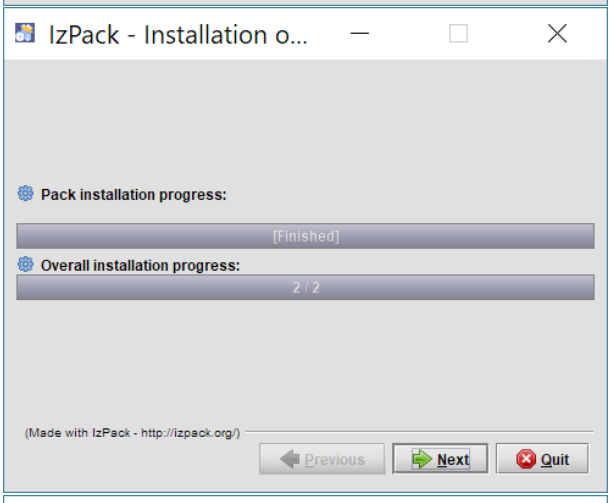
After the file finishes downloading, double-click the setup .exe file in order to start the installer. The screenshots below show the various windows in the installation process.

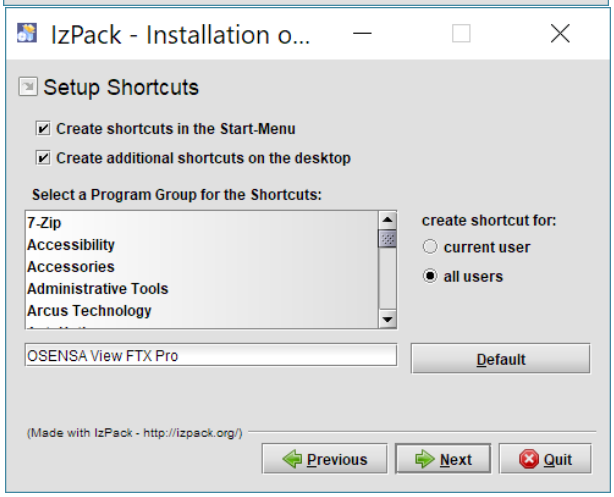


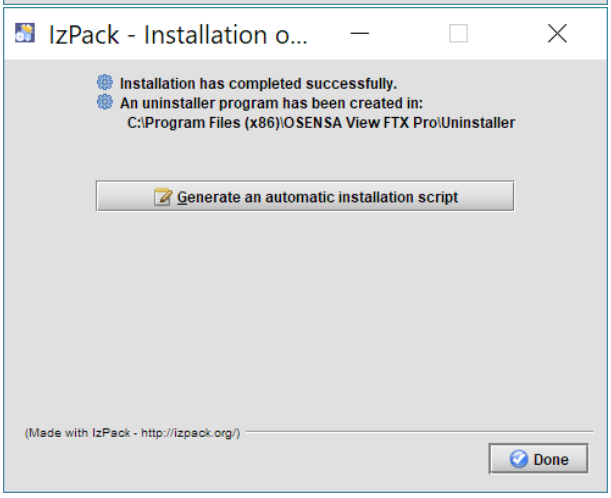



IzPack - Installation o...
Select the packs you want to install:
Note: Grayed packs are required.
Core Modules for Java 15.94 MB
Drivers 75.94 KB
Description
OsensaView core Java modules
Total space Required: 16.02 MB
Available space: 116.53 GB
(Made with IzPack - http://izpack.org/)
Previous
Next
Quit


IzPack - Installation o...
Select the installation path:
C:\Program Files (x86)\OSENSA View FTX Pro
Browse...
(Made with IzPack - http://izpack.org/)
Previous
Next
Quit


IzPack - Installation o...
Pack installation progress:
[Finished]
Overall installation progress:
2 / 2
(Made with IzPack - http://izpack.org/)
Previous
Next
Quit


IzPack - Installation o...
Setup Shortcuts
Create shortcuts in the Start-Menu
Create additional shortcuts on the desktop
Select a Program Group for the Shortcuts:
7-Zip
Accessibility
Accessories
Administrative Tools
Arcus Technology
create shortcut for:
current user
all users
OSENSA View FTX Pro
Default
(Made with IzPack - http://izpack.org/)
Previous
Next
Quit

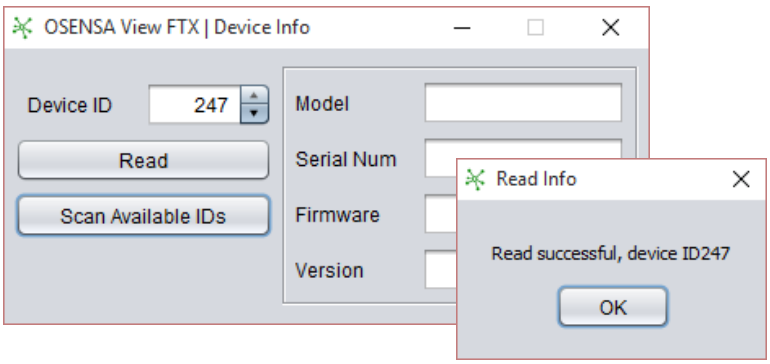

IzPack - Installation o...
Installation has completed successfully.
An uninstaller program has been created in:
C:\Program Files (x86)\OSENSA View FTX Pro\Uninstaller
Generate an automatic installation script
(Made with IzPack - http://izpack.org/)
Done

Chapter 3: Getting Started

Setup Communication

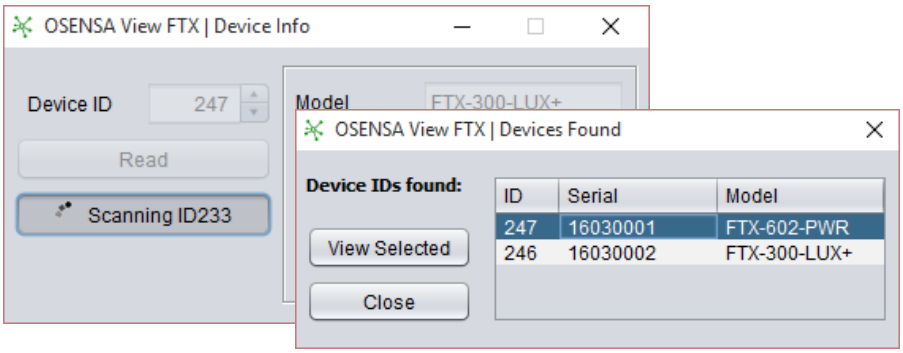
Double-click the OsensaView desktop icon to launch the application. The main program window will soon appear as shown below. On older computers, it can take up to 30 seconds or more while the Java runtime environment initializes. Once the splash screen disappears, the following window should be displayed.

From the main window, choose the serial port and baud rate for your device and press the ***Connect*** button. If your device isn't showing up, ensure the FTX signal conditioner is powered up and the USB cable is connected correctly and then hit the ***Refresh*** button. To ensure you've connected to the device, select ***Config > Device Info (Ctrl+I)***, enter your Modbus device ID and press the ***Read*** button. If you have the serial port, baud rate and ID correct you should see a “Read successful” message.



If you are uncertain what your Modbus device ID is, press the ***Scan Available IDs*** button to allow the program to automatically detect which device IDs are being used. The text on the button will change to indicate which ID value is currently being scanned; the scan operation will finish once it reaches ID 0. Alternatively, you may choose to stop the scan at any point by pressing the button again. If a device was

found, a popup like the one below should appear. You can click on a result row and press the ***View Selected*** button to display the Device Information for your selected device ID.



If the scan operation does not find any devices at the current baud rate, this may be due to the one of the following reasons:

Cause	Suggested Solutions
Device is not properly connected to your computer	• Ensure the proper serial port is connected • Disconnect and try reconnecting to a different USB port • Reinstall USB drivers
Incorrect baud rate setting selected	• Reconnect to serial port using a different baud rate (see the factory defaults in table below)
More than one device is connected with the same ID	• Connect one device at a time and retry scan operation

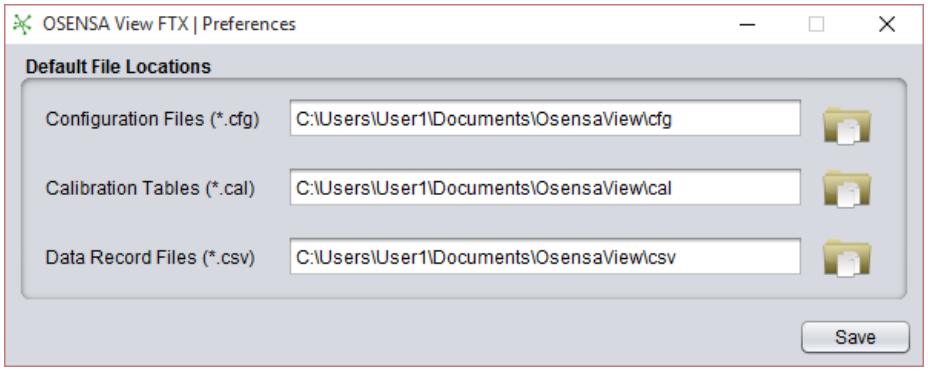
If the read is unsuccessful, you will need to double check you are communicating at the correct baud rate, and that the correct Modbus device ID is selected. The table below shows the factory defaults. Use these values as a starting point. You may need to disconnect and reconnect at a different baud rate if you don't remember how you previously configured your device. If you are still having issues communicating with your device, you can refer to the Troubleshooting section for more tips.

Factory Defaults	Value
USB Interface	115200 Baud
RS485 Interface	9600 Baud
Modbus ID	247

Setup Default File Locations

Now that you have successfully communicated with your device, it is a good idea to become familiar with the default file locations. By default, OsensaView will make an "OsensaView" folder in the "My Documents" folder with folders for Configuration files, Data Record Files and Calibration Tables. Additionally, it will make an "FTX.cfg" file within the same "OsensaView" folder which controls the start-up settings of OsensaView.

You can enter a new path for the default file locations if desired by selecting ***Setup > Preferences*** and clicking on the  icon.

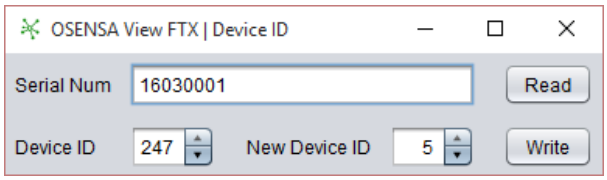


After all settings are made, click the ***Save*** button. If you do not want to keep your changes, simply close the window. To ensure your changes are applied, close your instance of OsensaView and restart the program.

Chapter 4: Device Setup

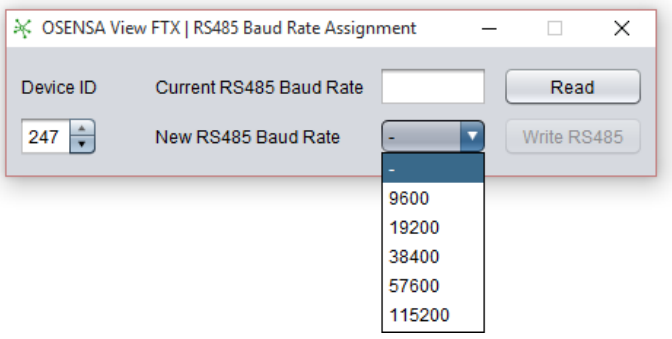
Configure the Modbus Device ID

To configure a transmitter to use a different Modbus device ID, select ***Config > Device ID (Ctrl+E)*** from the main window. In the ***Device ID*** field, enter the current Modbus device ID. You can ensure you have selected the correct transmitter by clicking the ***Read*** button to verifying the displayed device serial number. Enter a new Modbus device ID and click the ***Write*** button to update the transmitter EEPROM with the new device ID. Note that an administrator password is required to perform a write. The default administrator password is "0" (number zero). You will need to use this new device ID from now on to communicate with this transmitter.



Configure the RS-485 Baud Rate

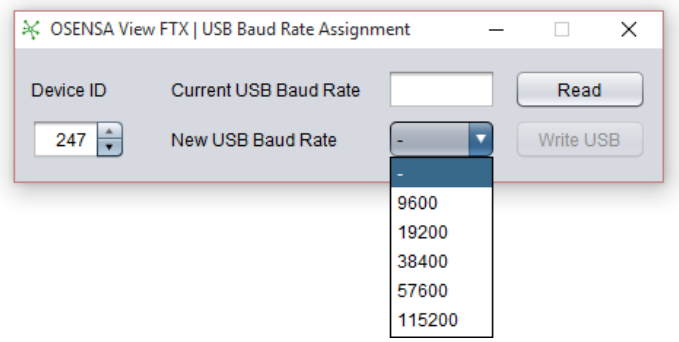
From the main window, select ***Config > RS485 Baud Rate (Ctrl+B)***. In the ***Device ID*** field, enter the current Modbus device ID. You can check the current RS-485 baud rate settings by clicking the ***Read*** button to display the current baud rate. Enter a new baud rate and click the ***Write*** button to update the transmitter EEPROM with the new baud rate. You will be given the option to reconnect to the serial port with the new baud rate. You will need to select this baud rate from now on to communicate with the transmitter over RS-485. Note that an administrator password is required to perform a write. The default administrator password is "0" (number zero).



Configure the USB Baud Rate

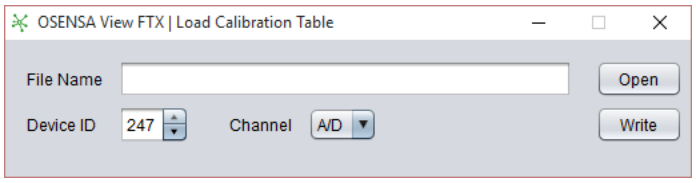
From the main window, select ***Config > USB Baud Rate (Ctrl+U)***. In the ***Device ID*** field, enter the current Modbus device ID. You can check the current USB baud rate settings by clicking the ***Read*** button to display the current baud rate. Enter a new baud rate and click the ***Write*** button to update the

transmitter EEPROM with the new baud rate. You will be given the option to reconnect to the serial port with the new baud rate. You will need to select this baud rate from now on to communicate with the transmitter over USB (only applicable for transmitters with USB input). Note that an administrator password is required to perform a write. The default administrator password is “0” (number zero).

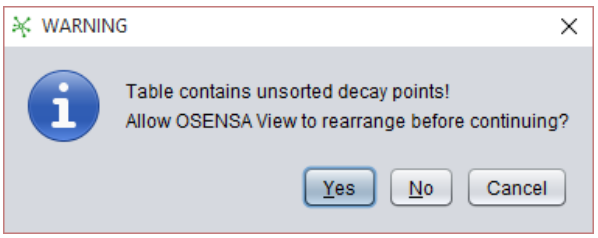


Load Calibration Table

From the main window, select ***Config > Load Table (Ctrl+R)***. Click on the *Open* button to specify the calibration table file that you want to use. Select the Modbus device ID from the scroll box and the appropriate channel letter. Click the ***Write*** button to upload the table information to the EEPROM. An administrator password is required to perform a write. The default administrator password is “0” (number zero).

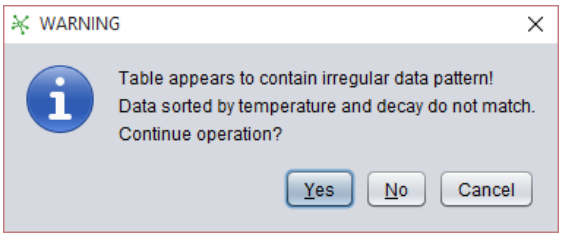


In the event that your table is not properly listed in descending order by temperature, a popup similar to the one below will appear. By pressing the ***Yes*** button, OsensaView will automatically sort your table into the correct order before saving or writing the table to your device. You can choose to continue without sorting by pressing the ***No*** button, but it is highly discouraged as mixing up the order in the table could lead to erratic behaviour.



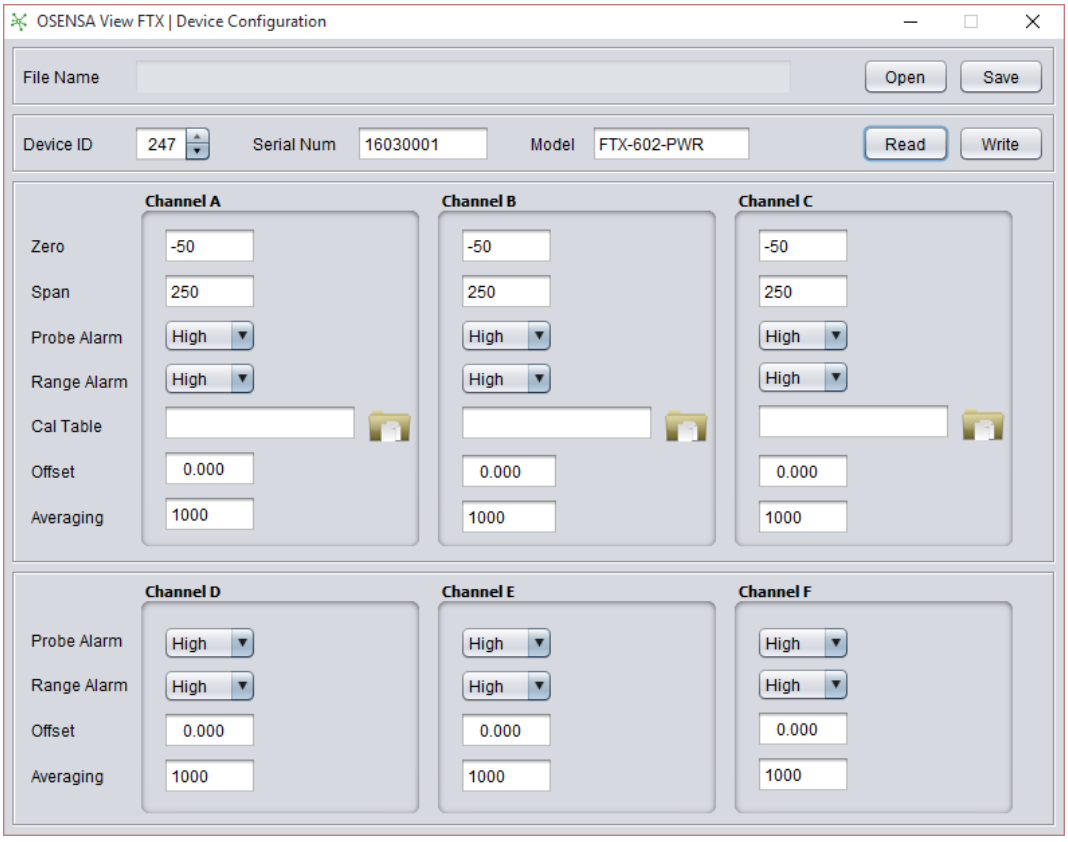
If your table contains irregular data patterns, a popup like the one below will appear. Irregular data patterns occur when there contains one or more data points that does not follow the expected pattern of descending temperature to ascending decay time. It is recommended that you do not continue your

previous operation (whether saving a calibration table or writing one to your device) as writing a calibration table with an irregular data pattern could lead to erratic behaviour.



Configure the Zero, Span, Alarms and Offsets

From the main window, select ***Config > Device Config (Ctrl+C)***. The Device Config window will appear as shown below. Enter the appropriate Modbus device ID and click the ***Read*** button. The window will display the transmitter's current settings. Configure the settings as desired and click the ***Write*** button to update the EEPROM. An administrator password is required. The default password is "0" (number zero). You may also save the settings by clicking the Save button, or load settings from a configuration file by clicking the Open button.



The table below explains the functionality of each parameter in further detail:

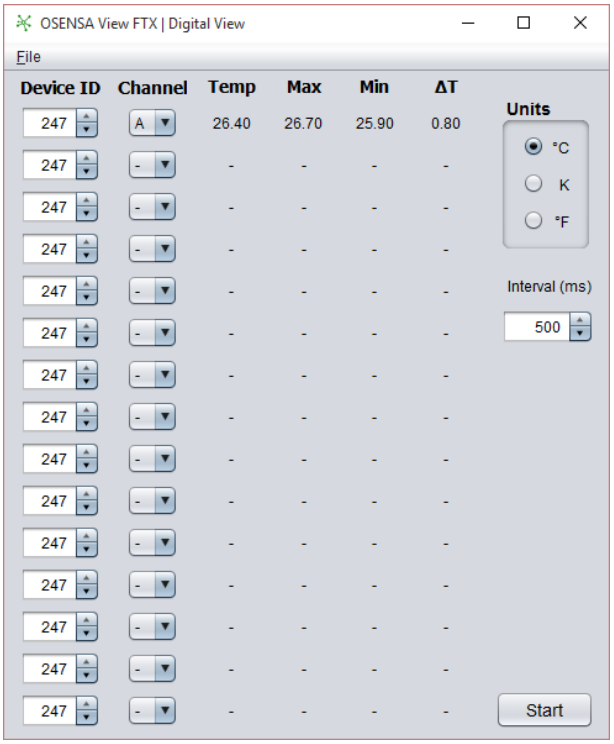
Setting	Typical Values	Description
Zero	-70 to 200°C	This is the lowest temperature that can be output on the 4-20mA current loop. This temperature will read 4.0mA.
Span	10 to 500°C	This determines the temperature range that can be output on the 4-20mA current loop. For example, if the zero value was set to -20 and the span value set at 200, the 4-20mA measurement range would be from -20°C and +180°C.
Probe Alarm	Off, Low, High	If there is a probe fault (critically low signal level, no probe detected, or failed LED), an analog output alarm can be configured to output: • Off = 4mA. • Low = 3.5mA • High = 22.5mA
Range Alarm	Off, Low, High	If there is a temperature range fault (measuring a temperature outside the pre-set zero and span range), an analog output alarm can be configured to output: • Off = 4mA (if below range) or 20mA (if range is exceeded) • Low = 3.5mA • High = 22.5mA
Cal Table	Probe Specific Table	Each style of probe requires a calibration table that guarantees a particular interchangeable accuracy. In addition, any probe may be individually calibrated to obtain even higher accuracy. Each temperature Channel A, B, or C may have its own unique calibration table loaded into EEPROM.
Offset	-1.00 to +1.00°C	Use this value to make minor adjustments to the temperature reading of a particular probe. For instance, if there is slight discrepancy between probe readings for Channels A, B, and C, this value can be used to correct those differences, without having to create a unique calibration table.
Averaging	0 to 10,000ms	Use this value to apply a first-order averaging filter to the measured temperature readings over a period of time. This parameter is useful for filtering noisy measurements and obtaining higher precision. A value like 1000 milliseconds provides reasonable precision and good response. A value of 0 will result in no averaging filter.

Chapter 5: Reading Temperature

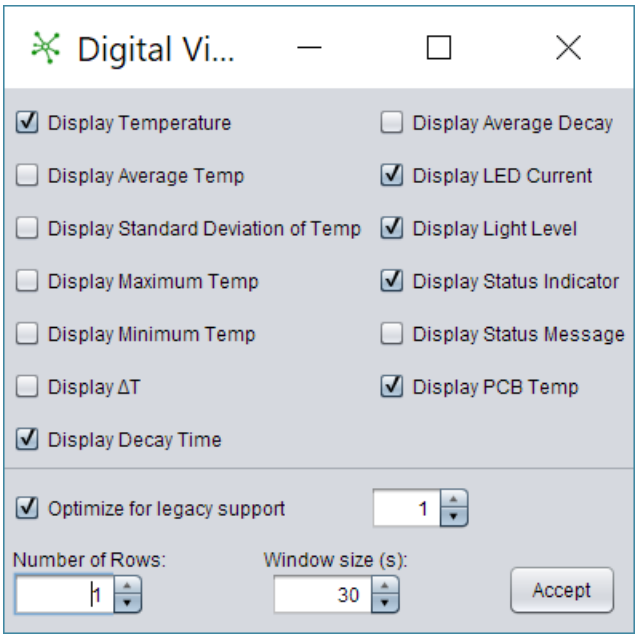
Display the Temperature

From the main window, select ***View > Digital View (Ctrl+D)***. The ***Digital View*** window in OsensaView offers a text-based interface to monitor the channel temperature (and a variety of other parameters) of your transmitter(s). To start reading temperature from your device:

1. Select the Modbus device ID from the scroll box (the factory default is 247)
2. Select the channel you wish to monitor from the drop-down menu
3. Click the ***Start*** button at the bottom of the window to start data acquisition

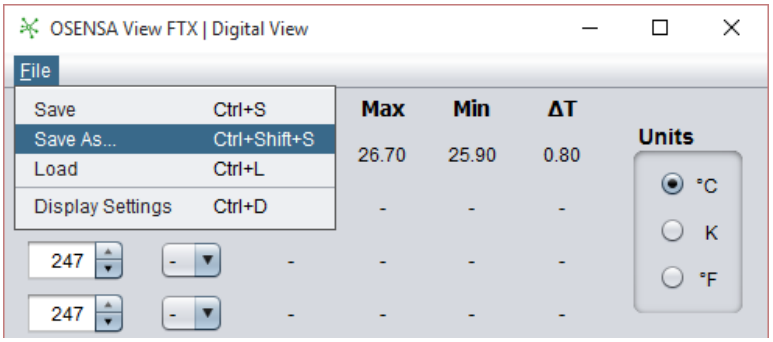


You can monitor multiple channels from one or more transmitters simply by setting up additional rows with your desired Modbus device IDs and channels. You may also change the display units at any time by selecting the appropriate radio button for Celsius, Kelvin, or Fahrenheit. Additionally, you can adjust the time in milliseconds between reads of all the configured channels by changing the ***Interval (ms)*** value. Note that setting up invalid device channels (i.e. reading from device IDs/channels that are not connected) will slow down the minimum achievable sampling interval.



You can control which parameters (Temperature, LED current, ΔT, etc.) are shown in Digital View from the ***Display Settings*** window. This can be opened either by right-clicking in the window and selecting ***Display Settings*** or by selecting ***File > Display Settings (Ctrl+D)***. Within this window, you can adjust:

- Display parameter: control which parameters are displayed (note that Average Temp, Standard Deviation, Average Decay, Maximum Temp, Minimum Temp and ΔT is only available for **OsensaView FTX Pro**)
- Window size: time span over which statistics are calculated over (e.g. Average, Standard Deviation, Maximum, Minimum, etc.)
- Number of rows: maximum number of device channels that can be monitored (minimum: 1, maximum: 24)
- Optimize for legacy support: option for legacy OSENSA transmitters to ignore intermittent “No Communication” errors



If you regularly read from the same device channels, you can instruct Digital View to automatically load with your most commonly used settings by selecting ***File > Save (Ctrl+S)***. This will save all the current

window settings to the default "FTX.cfg" file which is referenced on application start-up. This includes all the configurations within the ***Display Settings*** window (e.g. which columns are enabled, the sample window size, etc.) and all the device ID and channel settings. If you want to save your current setup but do not wish for it to be loaded on start-up, you can save to a separate .cfg file by selecting ***File > Save As… (Ctrl+Shift+S)*** and entering a new configuration filename. Previously saved configuration settings can be loaded by pressing ***File > Load (Ctrl+L)*** and selecting your desired .cfg file.

4-20mA Measurement

For transmitters that feature 4-20mA outputs, you can also use these analog outputs to read the current channel temperature. The minimum and maximum measurable temperatures of a channel are determined by the ***Zero*** and ***Span*** settings for that channel. The minimum temperature is specified by the ***Zero*** value and the maximum temperature is determined by the value of ***(Zero + Span)***. Additionally, the channels can be setup to detect for probe and temperature range faults by modifying the ***Probe Alarm*** and ***Range Alarm*** settings. For more information regarding how to set these values, refer to the Configure the Zero, Span, Alarms and Offsets section.

The effect of the measured temperature on the analog output is characterized by the equation below:

$$Analog\ Out = 4.0mA + 16.0mA \times \left(\frac{Temperature - Zero}{Span}\right)$$

Conversely, the measured temperature can be determined from the analog output by the following equation:

$$Temperature = Zero + Span \times \left(\frac{Analog\ Out - 4.0mA}{16.0mA}\right)$$

Probe Calibration

Although each transmitter from OSENSA has been tested and calibrated to be within the promised system accuracy, you may notice slight variations in the measured temperature between channels and systems due to slight variations in the probes. As such, you can achieve the highest level of accuracy by applying an offset value to each channel of your transmitter. The offset value will be specific to each individual probe so remember to adjust the channel offsets to match the offset of the connected probe. In order to determine the correct probe offset, you can submit a request to support@osensa.com with the serial numbers of the probes that you wish to calibrate. For high precision probes, the probe offset can also be found on the label located by the ST-connector end of the probe.

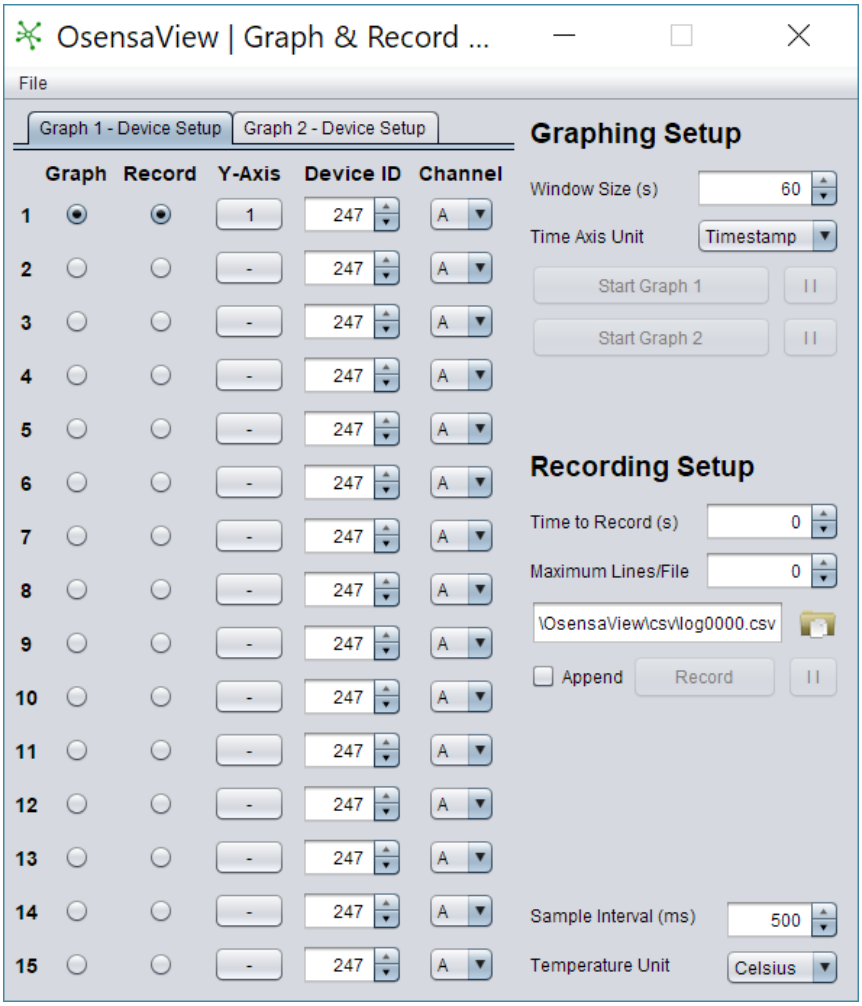
For more information regarding how to apply probe offsets, refer to the Configure the Zero, Span, Alarms and Offsets section.

Chapter 6: OsensaView Pro Features

Graph and Record Data

The following additional features are available in OsensaView FTX Pro software.

From the main window, select ***View > Graph & Record View (Ctrl+G)***. The main setup window will appear as shown below.



Recording Data

To start recording from your device:

1. Select the Modbus device ID from the scroll box (the factory default is 247)
2. Select the channel you wish to monitor from the drop-down menu
3. Select the ***Record*** radio button is selected
4. Repeat on a new row for as many channels as you want to record

5. Press the ***Record*** button to start data acquisition

There are many different ways you can setup and configure your data recording, including:

- ***Time to Record (s)***: from the main setup window, you can specify the duration of time (in seconds) that you wish to record data for. Set this value to 0 to record data continuously until it is manually stopped by the user.
- ***Maximum Lines/File***: from the main setup window, you can specify the maximum number of lines per data log file. If the maximum number of lines is reached and the recording is still active, a new data logging file will be automatically created to save all subsequent data. Note that if appending to an existing file, the existing number of lines in the file will be considered when determining the number of new lines to add to the file. Set this value to 0 if you wish to set no maximum lines per file.
- ***Append***: from the main setup window, you can enable this to append new data results into the current log file without overwriting any previous data.
- ***Recording Parameters***: from the Graph Record Settings window, under the Recording tab, you can select which parameters you wish to be logged.
- ***Record Error Tag***: from the Graph Record Settings window, under the Recording tab, you can adjust the tag which is used when logging errors or invalid data. By default, the "-" tag is used. However, if you intend to use the plot the logged data directly using Excel, you may want to consider using the Excel compatible tag "#N/A" due to issues with Excel handling the "-" parameter when plotting.

By default, log files are in the Data Record Files directory specified in the ***Preferences*** menu. OsensaView uses a filename format of "logxxxx.csv" and will automatically update to find the next available log file number upon completion of recording or when the maximum lines per file has been reached. However, you can choose to change the save path of your log file by clicking on the  icon. You can also open the folder of the current log file by double clicking on the log file name text field.

The ***Sample Interval*** spinner can be adjusted to control the time in milliseconds between reads of all the configured channels. The ***Temperature Unit*** combo box can be adjusted to determine the desired units to log data in. Both parameters can be changed at any time (even during recording) but keep in mind that this will also affect any graphing that you may be doing simultaneously.

Once you are ready to record, select the ***Record*** button (It is greyed out until you have configured something to record). Once it is started, you can select the ***Pause*** button (**| |**) to pause the recording (If you have set a Time to Record, the time while paused will not be counted). You can use this same button to ***Resume*** (►) the recording. At any time, you can then hit the ***Stop*** button to finish recording and close the file you were writing to.

Graphing Data

To start graphing data from your device:

1. Select the Modbus device ID from the scroll box (the factory default is 247)

2. Select the channel you wish to monitor from the drop-down menu
3. Select the ***Graph*** radio button is selected
4. Select the ***Y-Axis*** that you wish data to be graphed in
5. Repeat on a new row for as many channels as you want to graph
6. Press the ***Start Graph 1*** button to begin graphing

The various configuration options for graphing include:

- ***Y-Axis***: from the main setup window, you can indicate whether to plot data from a specific channel to Y-axis 1 or to Y-axis 2 or to both. Y-Axis 1 will be labeled on the left side of the graph while Y-Axis 2 will be labeled on the right side.
- ***Window Size (s)***: from the main setup window, you can specify the maximum amount of time that the graph will show. Once the graphing time has exceeded the window size, the graph will only retain and display data from the most recent specified window time. This setting can be changed at any time.
- ***Time Axis Unit***: from the main setup window, you can control the units used in the X-axis label. By default, it is set to display the timestamp at which the channel read occurred. However, it can be changed to display the amount of time elapsed since graphing began in seconds, minutes or hours. This setting can be changed at any time.

You also have the option to setup two graphs for simultaneous data plotting. Each graph can be configured by pressing the "Device Setup" tab for the corresponding graph from the main setup window.

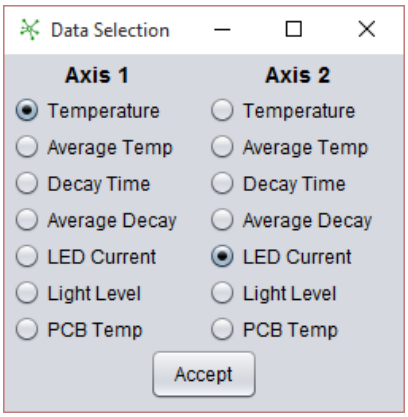
The ***Sample Interval*** spinner can be adjusted to control the time in milliseconds between reads of all the configured channels. The ***Temperature Unit*** combo box can be adjusted to determine the desired units the plotted data will display in. Both parameters can be changed at any time (even during graphing) but keep in mind that this will also affect any recording graphing that you may be doing simultaneously.

Once you are ready to graph, select the ***Start Graph x*** button (It is greyed out until you have configured something to graph) to open a graphing window as shown below. Once it is started, you can select the ***Pause*** button (**| |**) to pause the graphing. You can use this same button to ***Resume*** (►) the recording. At any time you can then hit the ***Stop Graph x*** button to finish graphing.

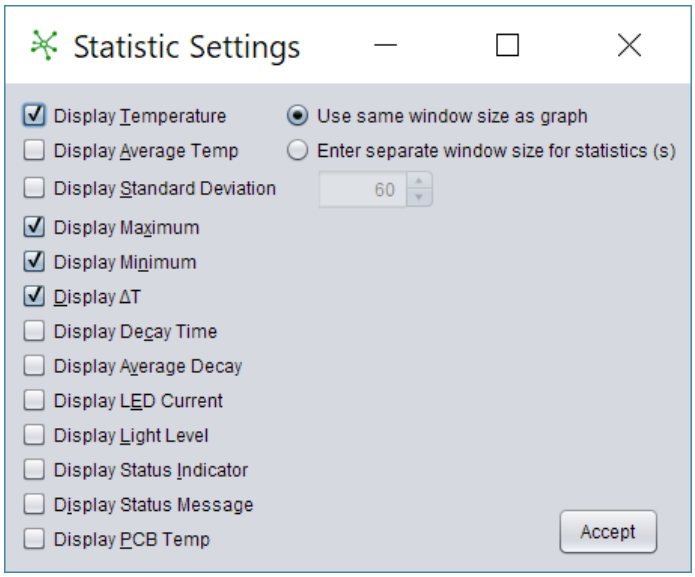
Additional Graphing Controls

Once you have begun graphing, there are a number of different settings you can configure from the graphing window:

- ***Y-Axis Scale***: configure the given Y-Axis to either ***Auto Scale*** to fit the graphed data or to manually specify a ***Set Range*** to plot between.
- ***Data Selection***: adjust the data that is being graphed for each axis by right-clicking on the graph and selecting ***Data Selection***. In the dialog that appears, select the desired measurement parameter to plot.



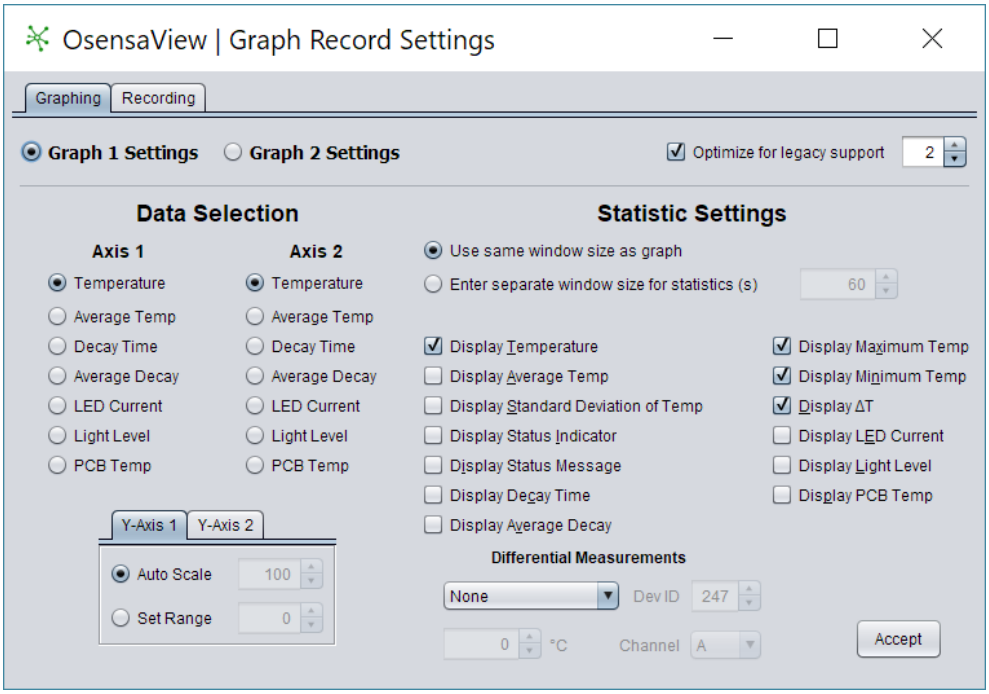
- ***Statistic Settings***: the graphing window also displays measurement data in a text-based interface to the left-side of the graph. Similar to ***Digital View***, you can configure which parameters are displayed from the ***Statistics Settings*** window. This is accessed by right-clicking on the graph and selecting ***Statistics Settings***.



  The ***Window Size*** value determines the time over which statistics like average temperature are calculated.

- ***Differential Measurement***: temperature can be configured to measure relative to a fixed temperature point or to another device channel. This can be configured by right clicking on the graph and selecting ***Differential Measurement***.

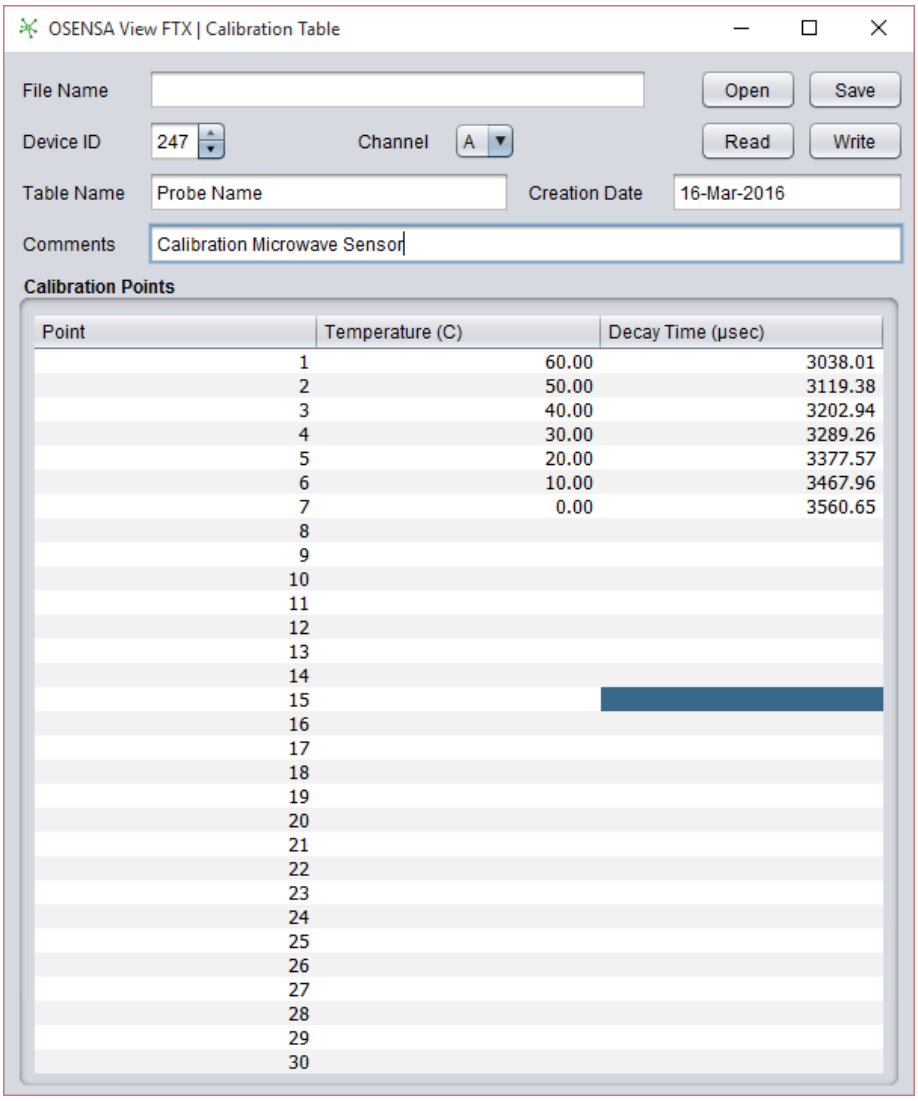
All of the settings mentioned above can also be setup from the ***Graph Record Settings*** window by selecting ***File > Graph Record Settings (Ctrl+G)***. This allows you to prepare the settings before starting. Any changes you make on here will immediately update any open graphs, and vice versa.



You do not need to setup the graph settings from scratch every time you run OsensaView. There is the option to save your setup by selecting ***File > Save (Ctrl+S)***. This includes all of the options in the ***Graph Record Settings*** window as well as the Device Setup tabs. By default, your settings will be saved to the "FTX.cfg" file which is referenced on startup. If you wish to save your current setup but do not wish for it to be loaded on start-up, you can save your settings to a separate .cfg file by selecting ***File > Save As... (Ctrl+Shift+S)*** and entering a new configuration file name. Previously saved configuration settings can be loaded by pressing ***File > Load (Ctrl+L)*** and selecting your desired .cfg file.

Edit Calibration Tables

From the main window, select ***Calibration > Table Editor (Ctrl+T)***. A window will appear as shown below. Select the Modbus device ID from the scroll box and the appropriate channel letter. Click the ***Read*** button to read the calibration table from the device. Edit the ***Table Name***, ***Creation Date***, and ***Comments*** fields as desired. Next, double click on the temperature field box to edit or add a new temperature calibration point. With the calibrator stabilized at the desired set point, enter the ***Decay Time*** as seen in the ***Digital View***. After all the calibration points and decay times are entered, upload the table information to the EEPROM by clicking the ***Write*** button. An administrator password is required. The default password is "0" (number zero). Clicking the ***Open*** or ***Save*** buttons enables loading or saving the calibration table to a file. Each channel must be updated independently, and set-point temperatures should be entered in order of descending temperature as shown. Mixing up the order in the table could lead to erratic behaviour.



Point	Temperature (C)	Decay Time (µsec)
1	60.00	3038.01
2	50.00	3119.38
3	40.00	3202.94
4	30.00	3289.26
5	20.00	3377.57
6	10.00	3467.96
7	0.00	3560.65
8		
9		
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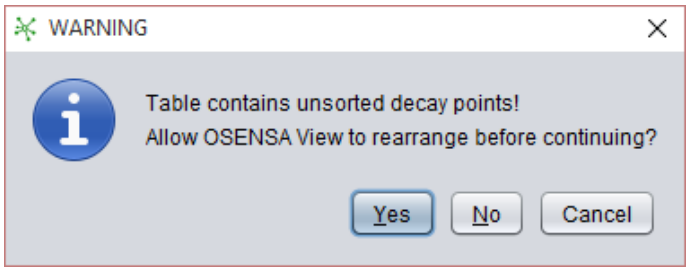
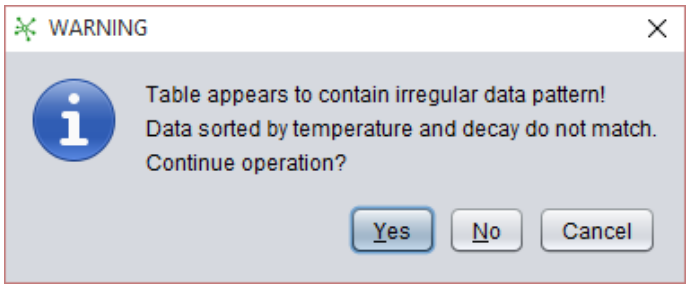
In the event that your table is not properly listed in descending order by temperature, a popup similar to the one below will appear. By pressing the ***Yes*** button, OsensaView will automatically sort your table into the correct order before saving or writing the table to your device. You can choose to continue without sorting by pressing the ***No*** button, but it is highly discouraged as mixing up the order in the table could lead to erratic behaviour.

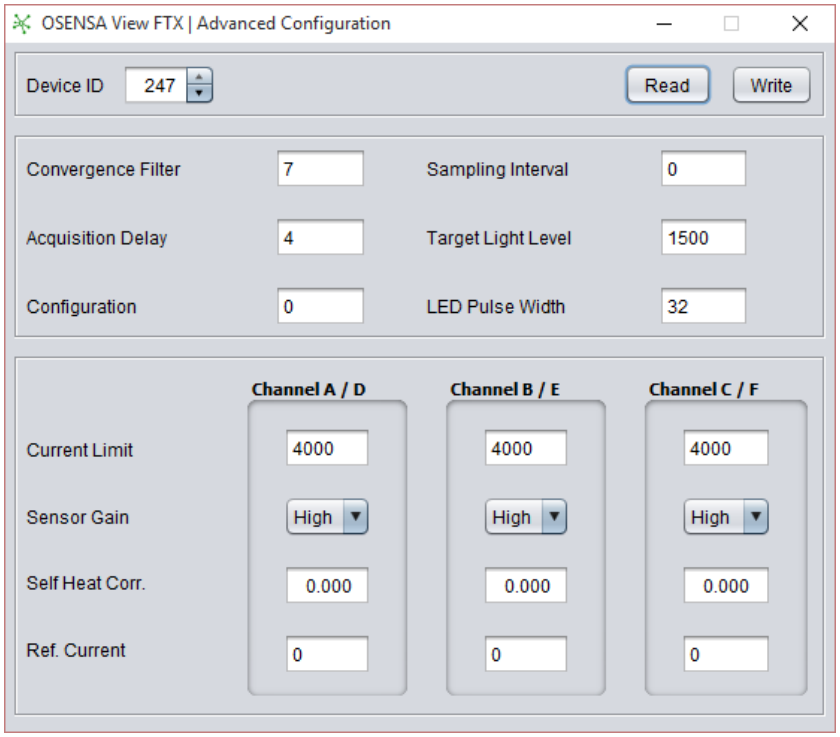


If your table contains irregular data patterns, a popup similar to the one below will appear. Irregular data patterns occur when there contains one or more data points that does not follow the expected pattern of descending temperature to ascending decay time. It is recommended that you do not continue your previous operation (whether saving a calibration table or writing one to your device) and fix the deviant data point(s) first. Writing a calibration table with an irregular data pattern could lead to erratic behaviour.



Edit Advanced Configuration Values

From the main window, select ***Setup > Advanced Configuration (Ctrl+A)***. A window will appear as shown below. Select the Modbus device ID from the scroll box. Clicking the ***Read*** button will automatically detect the enabled channels and read the EEPROM values currently stored in the device. Configure the settings as desired and click the ***Write*** button to update the EEPROM. An administrator password is required. The default password is “0” (number zero).



The information below indicates what each setting does. Not all settings are applicable for all devices.

Setting	Typical Values	Description
Convergence Filter	7 to 10	This is the number of samples used in a first order filter for converging to the decay time. A lower value will mean faster response but could lead to measurement instability.
Acquisition Delay	1 to 16	This is the time delay after the LED is pulsed and before system begins to acquire temperature data. A longer delay will require higher LED current.
Configuration	0 to 64	This value sets various software flags that turn on or off different algorithm features or operating modes. Consult the factory for special configuration options.
LED Pulse Width	12 to 32	This is the length of time the LED is pulsed for. A lower value will increase LED current. A higher value will reduce LED current.
Sampling Interval	0	This feature is no longer supported.
Target Light Level	1500 to 3000	This is the target light level. A lower value will reduce LED current but also increase standard deviation. A higher value may end up prevent convergence.
Current Limit	2000 to 4000	This value sets the maximum LED current in DAC counts.
Sensor Gain	Low or High	This value sets either low or high signal gain mode. For systems with this feature enabled, High gain mode will lower the LED current by approximately 6dB.
Self Heat Correction	-1.000 to +1.000	This is value is the temperature correction offset that is applied for each 3dB change in LED current from the reference current. Set this value by over-bending the probe cable to the point that the reference LED current doubles and note the change in temperature reading. Enter the difference here. A value of 0 disables this feature. This feature is only enabled in legacy FTX-300-GEN series products.
Reference Current	0 to 4000 Default 0	This is the LED current level for the probe as calibrated. This feature is only enabled in legacy FTX-300-GEN series products.

Chapter 7: OSENSA Live

The OSENSA Live software is a simplified version of OsensaView. It is essentially a standalone version of the ***Graph & Record View***. The same steps from above can be taken to install and open OSENSA Live. Once this is done, choose the serial port and baud rate for your device and press the ***Connect*** button. If your device isn't showing up, ensure everything is powered and connected correctly and then hit the ***Refresh*** button. The Record and Graph Data section from above includes all of the information needed to understand how to use OSENSA Live.

Chapter 8: Troubleshooting

1. OsensaView Freezes on Startup

If OsensaView hangs at the splash screen, this is usually because there is a library needed within the Java runtime environment (JRE) that is missing. This is normally added during installation, however if the wrong version (32/64 bit) was selected or if Java was updated, then the library may not be properly added. Verify whether the JRE installed is 32 or 64-bit and then reinstall the matching OSENSA program.

If you have both 32 and 64-bit installations of the JRE, the program will prioritize the 64-bit version so you must make sure to install the 64-bit OSENSA software.

2. No Available COM Port for Communication

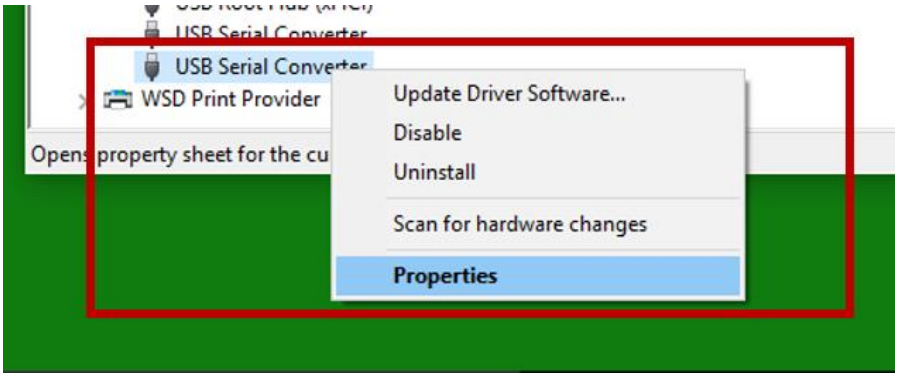
2.1. Reinstall Drivers

The OSENSA transmitter communicates via serial through a USB cable and so the FTDI driver is necessary for the computer to communicate with the device. This driver is normally installed automatically upon connecting a cable, however with some computers this does not happen, and so the driver will need to be installed manually from the website: http://www.ftdichip.com/Drivers/VCP.htm.

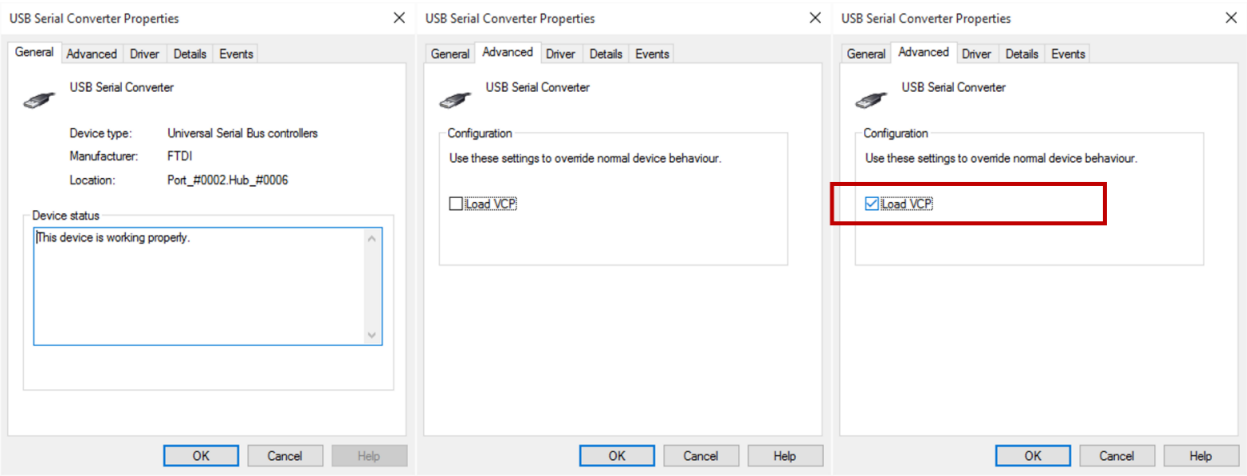
2.2. Enable Virtual COM Port

If you are still having trouble detecting a COM port for your device, you can attempt the following:

1. Connect your OSENSA transmitter to the computer
2. Open Device Manager
    - Tip: For Windows 10 and Windows 8, you can press the **WIN+X** keys and select “Device Manager”
3. Open the “Universal Serial Bus controllers” drop-down menu
4. Right-click on the “USB Serial Converter” device and choose “Properties”
    - Tip: remove all extraneous USB connections to make it easier to identify your device



5. Click on the “Advanced” tab
6. Select the checkbox labelled “Load VCP” (VCP: Virtual COM Port)
7. Click “OK”



8. Disconnect your OSENSA transmitter from your computer
9. Power cycle your device by turning the power OFF and ON
10. Reconnect your device to your computer
11. Within the “Device Manager” window, look under the “Ports (COM & LPT)” menu
12. You should see a new COM port has been created for your device

3. Unable to Communicate With Device

3.1. Check Modbus ID and Device Baud Rate

One of the most common cause of communication issues is due to the use of the incorrect modbus ID and/or communication baud rate. The baud rate used depends on the method of communication – refer to the table below to see what the default values are. If the baud rates have been changed but you do not remember how it was previously configured, you may have to test by disconnecting and reconnecting at different baud rates.

Factory Defaults	Value
USB Interface	115200 Baud
RS485 Interface	9600 Baud
Modbus ID	247

The default Modbus device ID for each device is 247. If you are unsure what the correct Modbus device ID is, you can use the ***Device Info*** window to scan for all available device IDs. Note: **if you have multiple devices connected, ensure each device uses a unique device ID**. If unique device IDs are not used, there will be communication conflicts. You can change the modbus device ID by connecting your transmitters one at a time and following the steps outlined here.

3.2. Ensure Proper Installation of USB Drivers

If you've tried the steps above and you are still experiencing communication errors, you may want to go through the steps in the Reinstall Drivers and Enable Virtual COM Port sections to ensure that the drivers are installed properly on your computer. If the "Load VCP" checkbox is already selected, you can also try:

1. Uncheck "Load VCP"
2. Press "OK"
3. Disconnect your OSENSA transmitter from your computer
4. Power cycle your device
5. Reconnect your device to your computer
6. Follow steps in Enable Virtual COM Port section

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