

Pressure Sensor Viewer Software

Version 1.0.0.0

IDEX Health and Science

Executive Summary

This software is used to assist customers with working with IDEX pressure sensors. It provides a tool to understand how the sensors communicate, collect data, and react to changes in inputs.

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Getting Started

Software Requirements

Windows 10 or 11 is required for this software to run. MacOS and Linux distributions are not supported.

Software Installation

Install the software using the included executable.

The user may be prompted to install .Net runtime executables from Microsoft. This step would be required prior to running the software.

Hardware Requirements

This software requires an IDEX USB-to-I2C device to communicate with the sensor. This device allows the computer to communicate with the sensor through the USB port to the sensor's I2C interface. The USB-to-I2C device is used to supply power to the sensor, allowing setup to be simplified.

To allow good visibility of the plot and a full view of the window, it is recommended to have a monitor with 1080p or higher resolution.

Preparing a USB-to-I2C Device

To use a USB-to-I2C device in this software, it is required that the latency be set to 1 millisecond. All devices planned to be used in this software and connected to the PC will require this setting. This software can set this setting only when it is run as administrator. Running this software as the default user will not change the latency automatically.

Alternatively, this can be set using the Windows Device Manager.

1. Open Device Manager and open the "Ports (COM & LPT)" section
2. Right click the desired COM port and click Properties
 - a. A screen like this will appear.

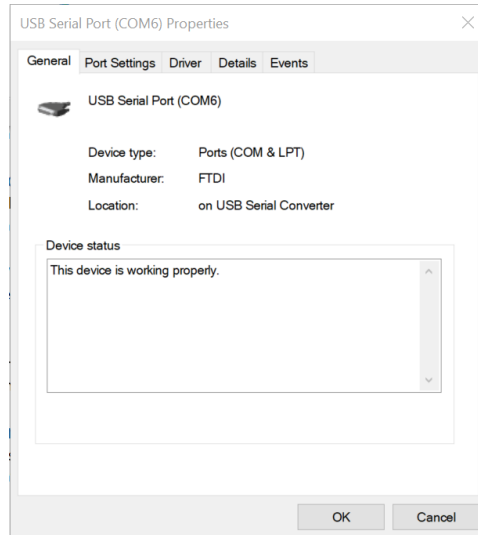


Figure 1, Device Manager COM properties

3. Click on the Port Settings tab then press “Advanced...” button
4. Ensure the latency is set to 1ms, as shown in Figure 2

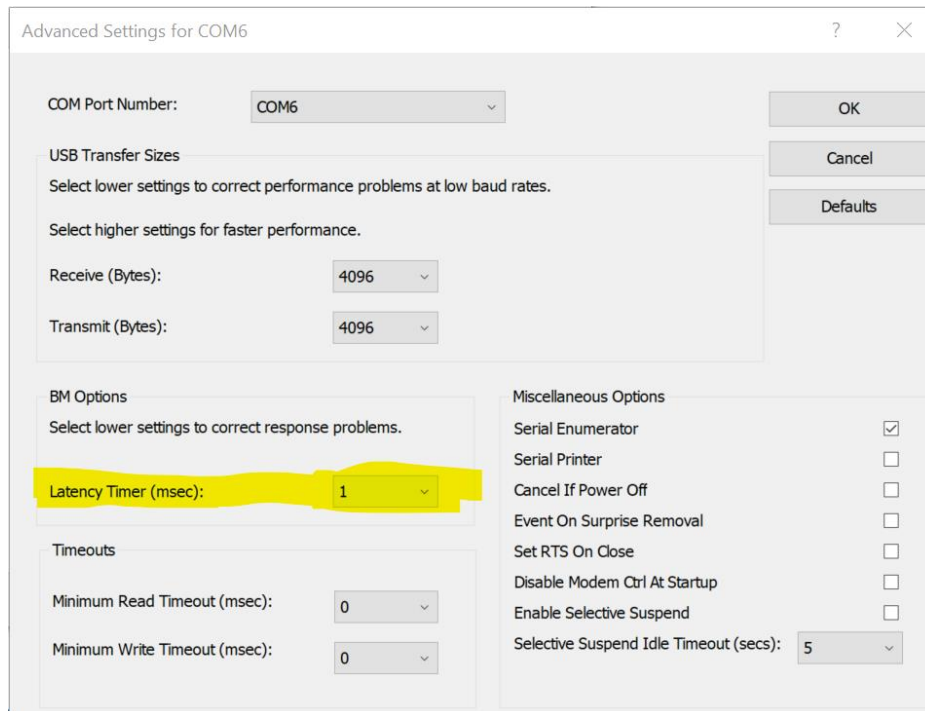


Figure 2, Advanced Settings with correct latency

Starting the Software

The software can be started from the Windows 11 Start Menu under the letter 'I'.

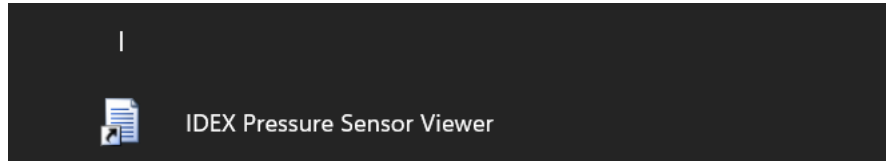


Figure 3, Start Menu program reference

Alternatively, the software can be started by going to the location in which it was installed and opening "IDEX Pressure Sensor Viewer.exe".

Using the Software

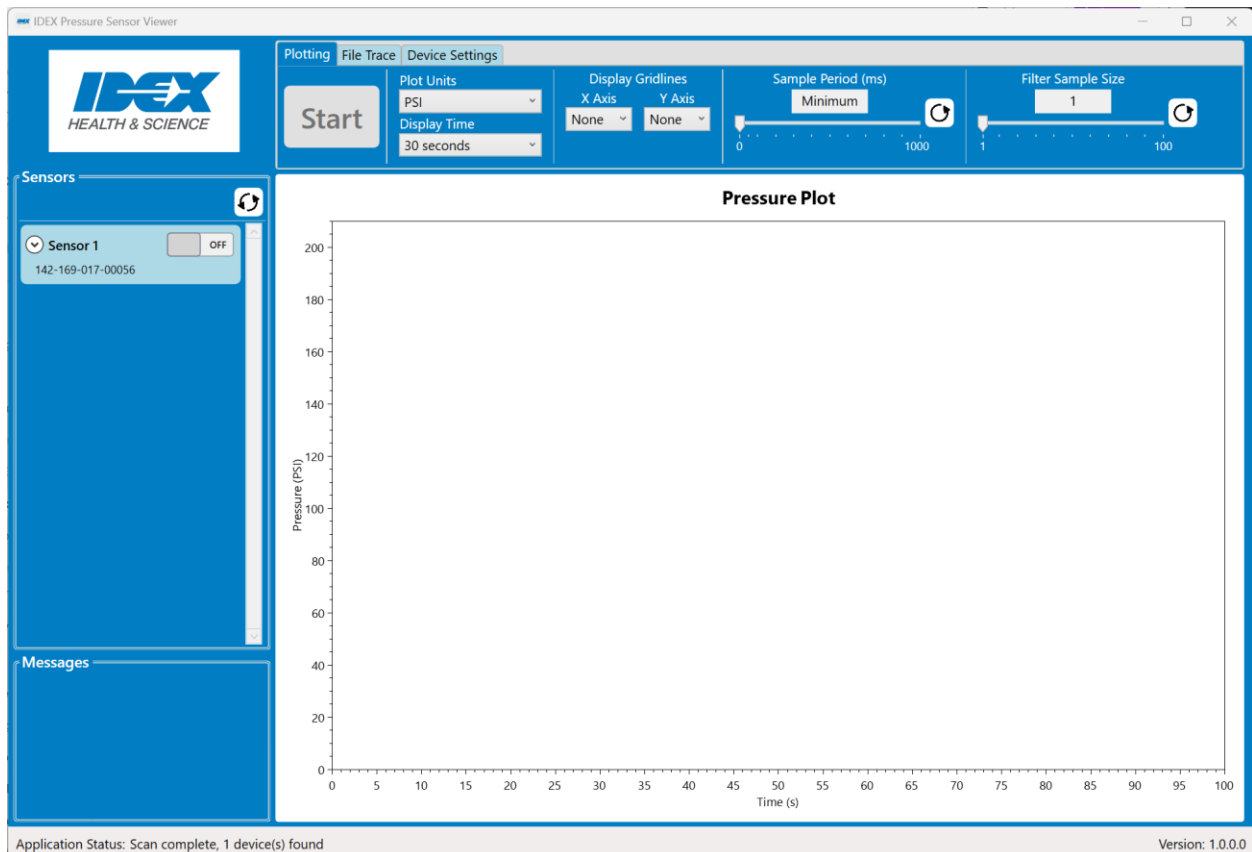



Figure 4, Software UI

Using the Sensors

On startup, the system will be scanned to determine what sensors are connected to the system. If the sensors connected to the system are changed while the software is running, press the “Refresh”  button and the sensor scan will be run again. If hardware is found, there will be a box for each sensor that is connected to the system in the Sensors panel on the left.

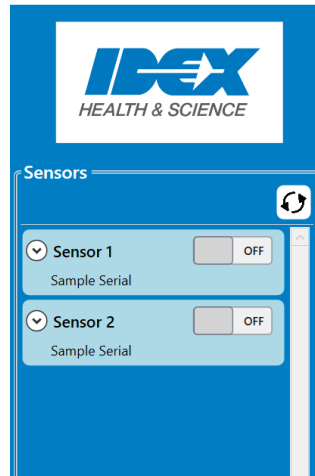


Figure 5, Sensor control display

By default, all sensors will be deactivated, and only basic information will be shown. When a sensor is activated, its trace color will be visible under the slider.

If the arrow button is pressed, more sensor details will be displayed for that sensor. The arrow can be pressed at any time to hide/show sensor details.

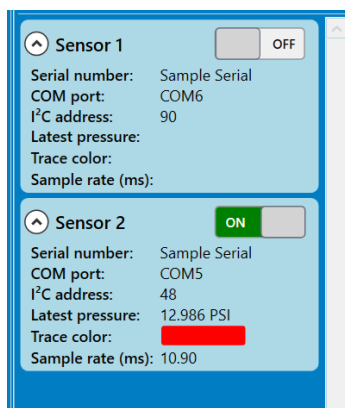


Figure 6, Sensor details view

Collecting Data

Sensor Selection

To collect data on a specific sensor, left click the slider to activate data collection for that sensor. The slider can be clicked again to deactivate the sensor. Sensors can be activated/deactivated as desired, even during data collection. When the sensor is inactive, no data will be collected for that sensor, and the plot will remove its trace. If all sensors are deactivated while data collection is running, data collection will stop and need to be started after a sensor is activated.

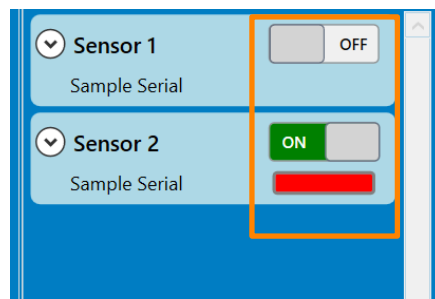


Figure 7, Show activate/deactivate sensor button

Data Collection Controls

As long as at least one sensor is checked as active, data can start being collected. Data collection can be controlled using the Plotting tab. When the “Start” button is pressed, data will start being collected for all active sensors. While data collection is running, the “Refresh” button will be disabled. Pressing the “Stop” button will stop data collection and enable the “Refresh” button. Pressing the “Start” button after data collection has stopped, will start a new data collection run and reset the time axis.

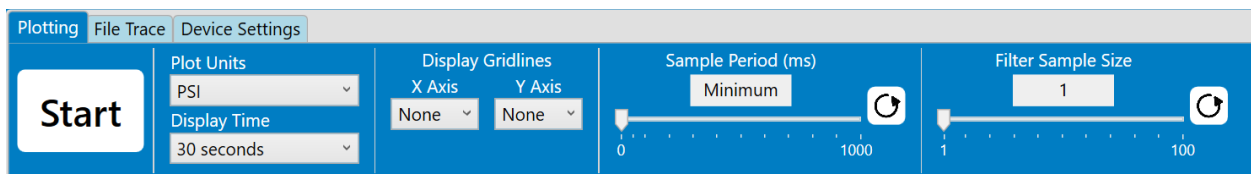


Figure 8, Data collection controls

Plotting Controls

User Input	Action
Double middle mouse click	Reset plot area and axes ranges
Scroll wheel up on plot area	Zoom in on plot
Scroll wheel down on plot area	Zoom out on plot
Scroll wheel up on Y-axis	Zoom in Y-axis range
Scroll wheel down on Y-axis	Zoom out Y-axis range
Left click on trace	View trace data for point
Hold right click on plot area and drag mouse	Pan plot area
Hold right click on Y-axis and drag mouse	Pan Y-axis range
Hold middle mouse click and drag mouse	Zoom in on area of plot

Setting Plot Units

The pressure units used for the plot can be set by using the “Plot Units” dropdown. By default, PSI units are used but this can be changed at any time while using the software. Changing the plot pressure units does not change the pressure units used in the trace file.

Setting Display Time


The amount of data being displayed on the plot can be set by using the “Display Time” dropdown. By default, the plot will display 30 seconds of data and remove anything older than 30 seconds. The user can change this at any time while using the software to allow more data to be viewed in the plot.

Displaying Plot Gridlines

For each plot axis, the gridlines can be set by using the corresponding “Display Gridlines” dropdown. The gridlines can be changed at any time while using the software.

Setting Sample Period

The sample period can be set by using the slider as seen in Figure 9. The sample period can be changed while data collection is running. The next data collected after the setting is updated will reflect the change.

Pressing the  button will reset the setting back to the default value.

Note: Adding sensors could potentially slow the sample period.

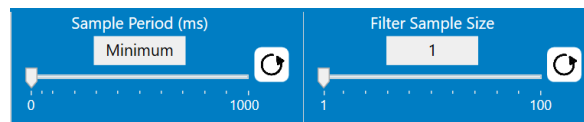



Figure 9, Sample period and filter count settings

Setting Filter Sample Size

The filter sample size is the number of samples that are grouped and averaged during data processing to output a single sample data point.. The filter sample size can be changed while data collection is running. The default value is one (1) sample which equates to having no filtering and the data displayed will reflect the raw data collected from the sensor. Increasing the filtering count will remove noise but slow the response of changes in pressure.

Pressing the  button will reset the setting back to the default value.

Saving Collected Data to a File

Collected data can be streamed to a CSV file as it is collected. Saving data to a file must be enabled before data collection starts. Saving to a file can be controlled using the “File Trace” tab.




Figure 10, Trace file controls

Checking the “Save To File” checkbox will enable saving the data to a CSV file. Unchecking the checkbox will turn off file saving. If the “Save To File” checkbox is checked and “Generate File Name” radio button is selected, the software will generate the file name based on the current date and time. If the “Set File Name” radio button is

selected, the user will be prompted to set a specific file name when the “Start” button is pressed.

Standard Windows file saving logic is applicable here. If an existing file is selected, the user will be prompted to overwrite the file.

Pressing the  button allows the user to change the trace file directory which stores all future trace files in this session.

Setting File Units

The pressure units used for the file can be set by using the “File Units” dropdown. By default, PSI units are used but this can be changed while data collection is not running. The file units must be set to the desired units prior to running the data collection. Changing the file pressure units does not change the pressure units used on the plot.

Changing a Sensor's I²C Address

The I²C address for sensors can be changed one at a time when data collection is not running. To change the address, open the Device Settings tab. When a sensor is selected, its current address will be displayed. Enter the desired new I²C address into the field. After all entries are selected or entered, the “Set I²C Address” button will become enabled if entries are valid. Otherwise, a red border will surround the new address to indicate an invalid value. Hovering over the control will display the error message. If there are no errors, press the “Set I²C Address” button and the address will be changed. The sensor list will be refreshed if successful.

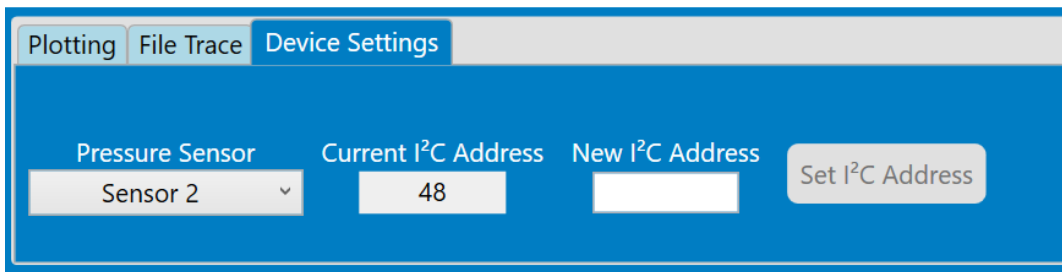


Figure 11, Change sensor address controls

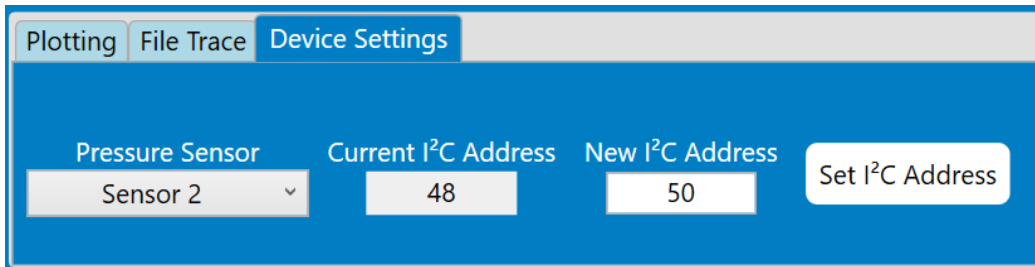


Figure 12, Set I²C Address enabled

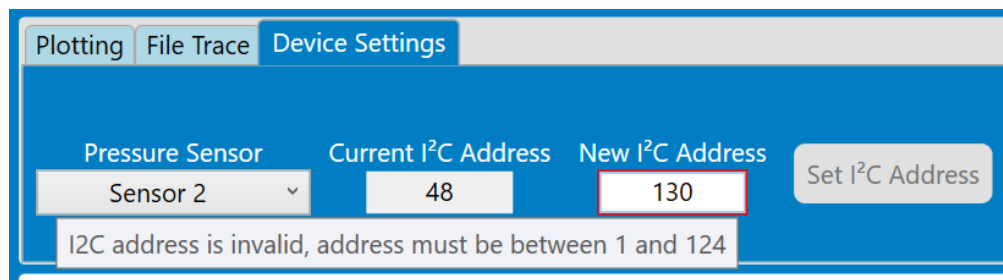


Figure 13, Error message displayed

Change Log

Version	Author	Date
1.0.0.0	D. Ivie	Dec 1, 2025