FS0001-000 USB Demo Kit

Description

The FS0001-000 USB Demo Kit enables rapid demonstration of the FS00xx Series Intelligent Ultrasonic Flow Meter Modules using a PC with a standard USB interface.

The FS00xx Series Flow Meter Modules use ultrasonic waves to measure liquid flow rate and report digital flow results using a serial UART interface. They consist of a lead-free composite flow tube and a pair of master-slave connected ultrasonic sensors. They are available in DN10, DN15, DN20, and DN25 pipe sizes

The FS0001-000 USB Demo Kit consists of a FS0001-000 DN15 flow meter module along with a pcb that provides a connection to the sensor cable and an interface to a PC via a standard USB interface. A GUI written in Python is available for download.

The combined hardware and software components create a complete demonstration platform that allows rapid evaluation of the flow measurement capability of the FS0001-000 and is also compatible with all other versions in the FS00xx product series.

Features

- Enables rapid demonstration / evaluation of FS0001-000 flow sensing operation
- Consists of pcb, sensor, and USB cable; individual sensors and pcb's are also available
- Python GUI download available.
- Fully powered from PC USB port

Ordering Information

FS0001-000 Demo Kit (PCB + Flow Meter Tube)

Part Number: P-EVAL-0711-F1

FS00xx-000 Ultrasonic Flow Meter Tubes

Part #	Model #	Size
FS0001-000	DN15-US0024-L561-01	DN15
FS0002-000	DN10-US0013-L561-01	DN10
FS0009-000	DN20-US0024-L561-01	DN20
FS0010-000	DN25-US0024-L561-01	DN25

Audiowell International USB Interface (PCB Only)

Part Number: FGLF0711-00

Demo Kit Hardware Components

FS0001-000 Sensor	USB Interface PCB	USB Cable

(Front Side)

(Back Side)

GitHub Link
Installation and operation instruction, documentation, and videos are available on GitHub at the following link:

www.github.com/RoanokeControls/PkgUltrasonicUSBDemo

Written instructions are given in the rest this specification as follows.

Software Installation
The GUI software is written in the Python language and operates under that platform. Therefore, in order to install the GUI the latest version of Python (v3.8.3 as of this writing) must first be installed.

A video that shows step-by step installation and setup of the software can be downloaded from the following website:

https://slack-files.com/T0ERQ8MUG-F012LNF8PH9-d8fc45d1b9

Written instructions are also given below.

To begin, navigate your web browser to https://www.python.org/downloads/ and you should see the following screen:
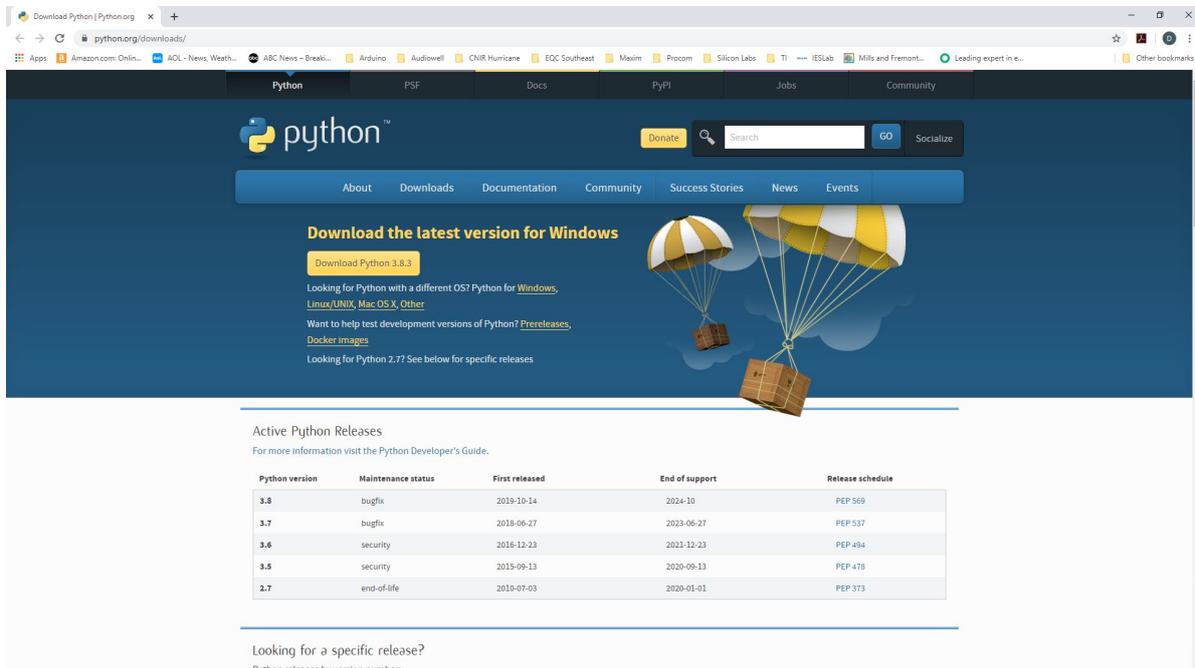
Click on the "Download Python 3.3.3" button and you will see the following window pop up:
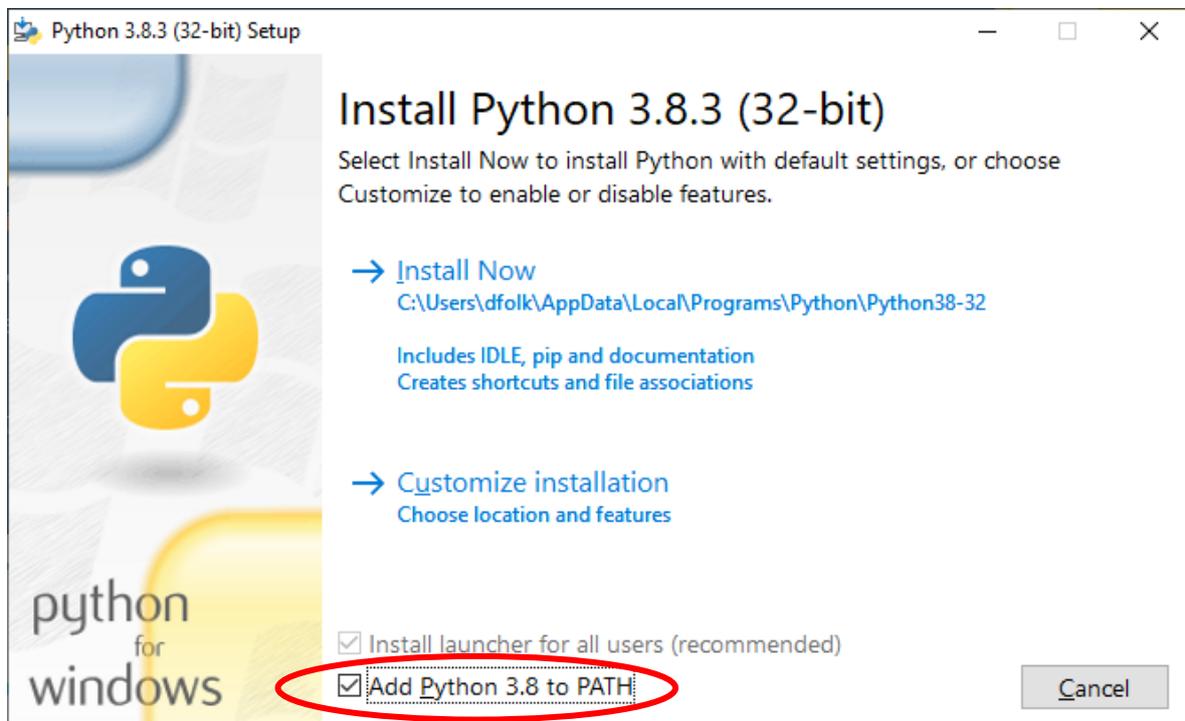
IMPORTANT NOTE!

Make sure to check the "Add Python 3.8 to PATH" and then click "Install Now". Once setup is complete you should see the following message:
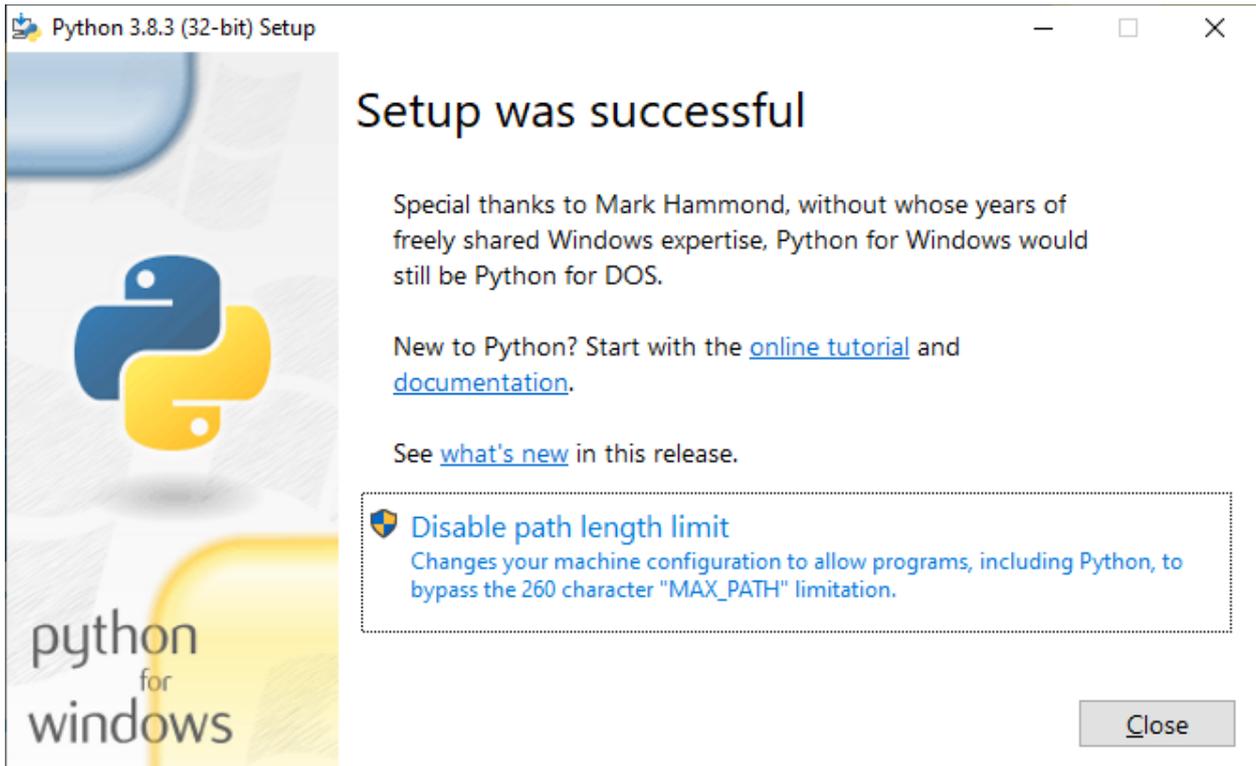
Next, check to see that Python was installed correctly by opening a Command Prompt window and then type in "python –version" and hit Enter. The Python revision should then be reported as shown below:
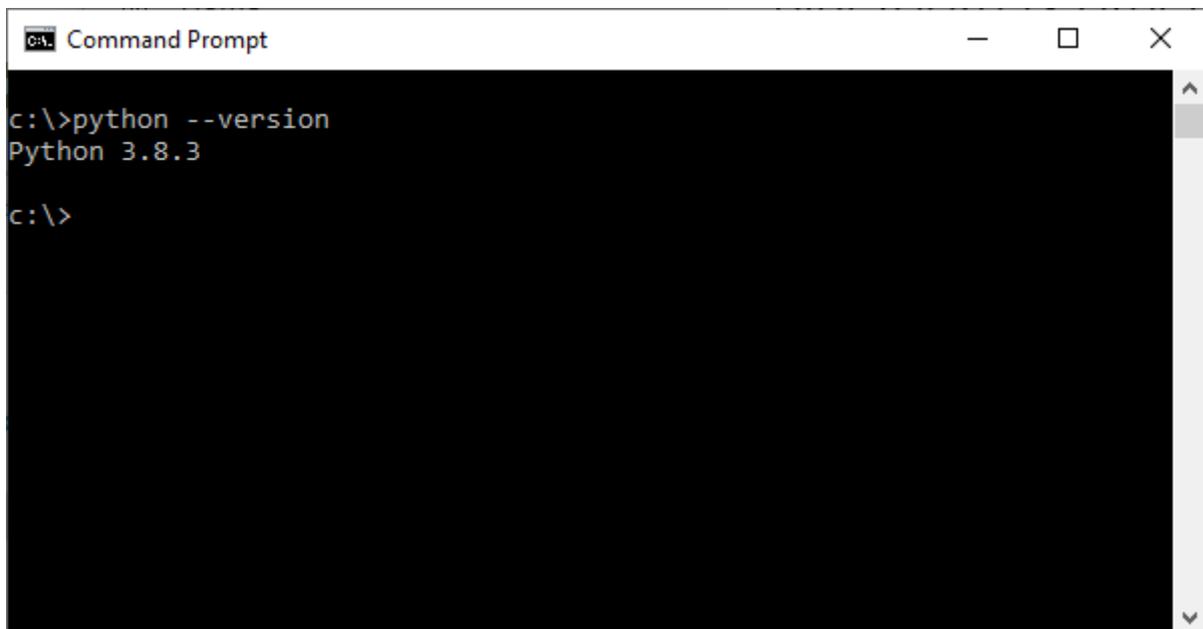
Now the UltrasonicUSB Demo software needs to be installed by typing in "pip install UltrasonicDemo" at the command prompt. You should then see the following response shown below.
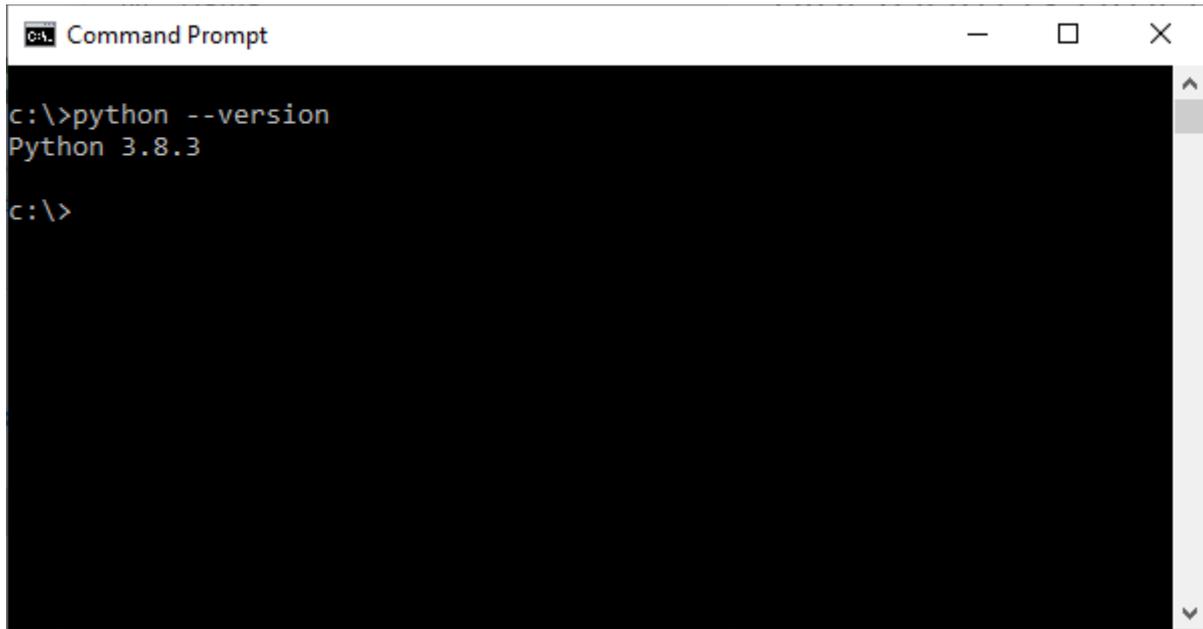
At this point Python and the Ultrasonic USB demo software should be completely installed. For first time launch and for every launch thereafter, please follow the steps in the Demo Kit Operation section below.

FS0001-000 Flow Measurement Sensor Demo Kit Operation

A video that shows step-by step operation of the FS0001-000 demo kit can be downloaded from the following website:

https://slack-files.com/T0ERQ8MUG-F013ABJFHNU-9fecb553e0

Written instructions are also given below.

To launch the USBDemo GUI software, type "python -m UltrasonicUSBDemo" in a command prompt window as shown in the screen shot below:
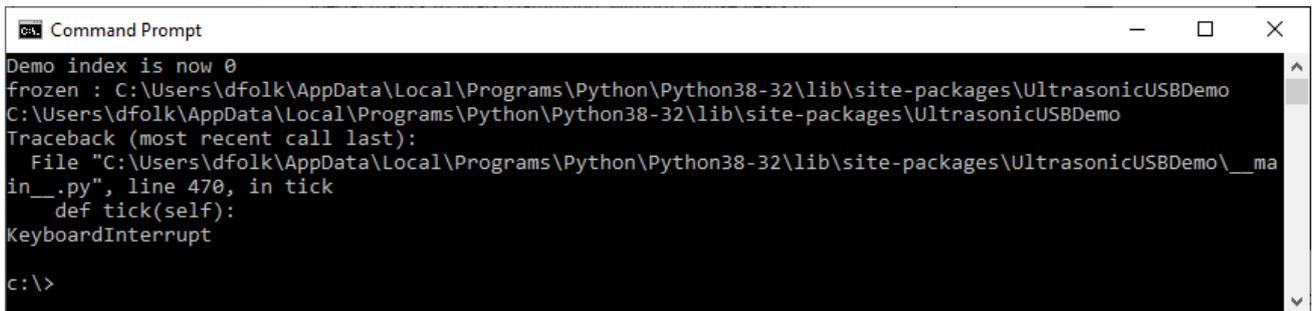
In addition to the above response the following GUI window should appear:
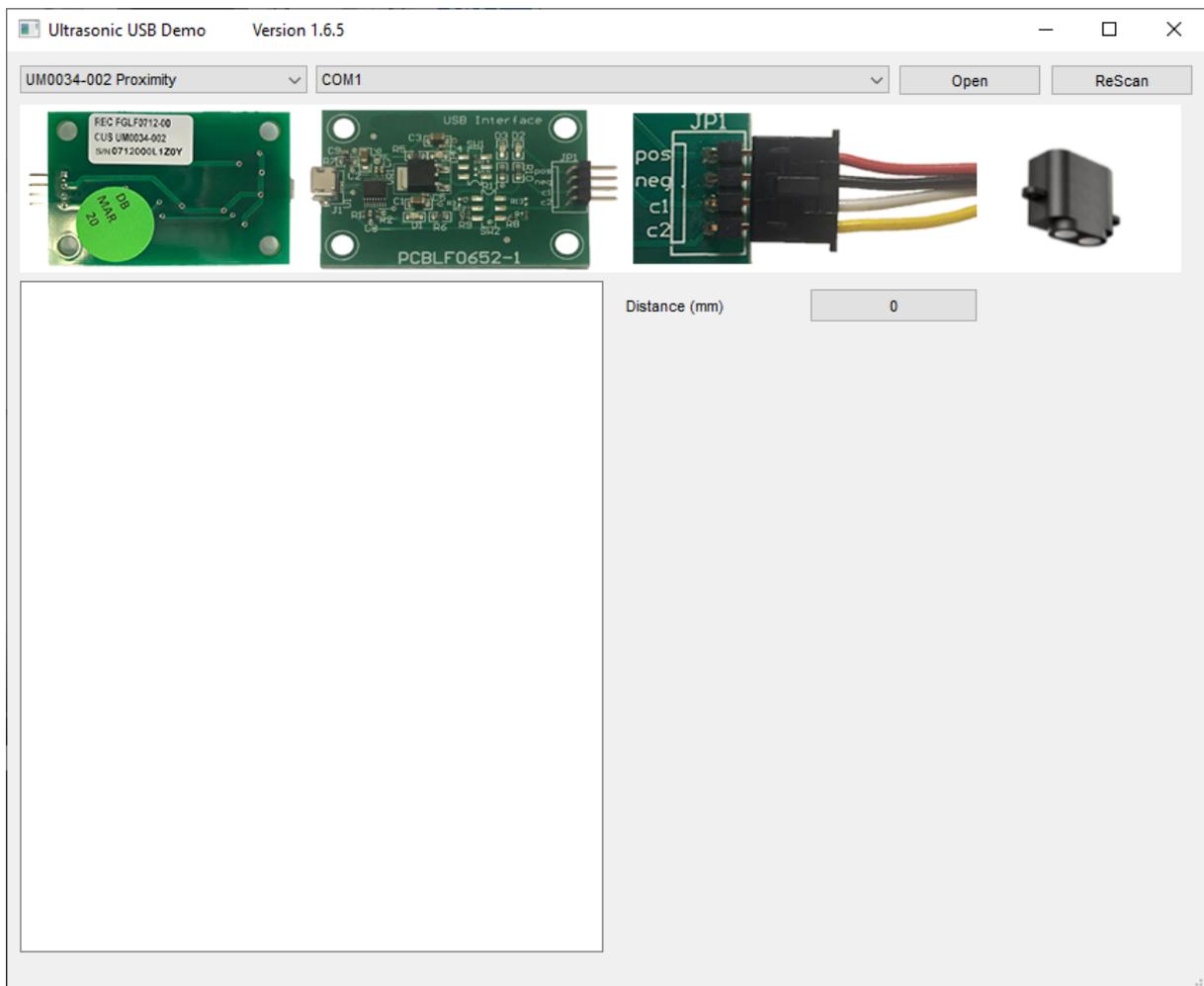
The top row of the GUI contains the controls for the GUI settings.   Please follow the instructions listed below to configure the GUI and connect the hardware.

1. The first step is to set the GUI for operation with FS00xx flow meter tube and its associated USB interface board. This is done from by selecting FS000x-000 Smart Flow Meter from the drop-down box located on the upper left-hand corner of the screen as shown below:
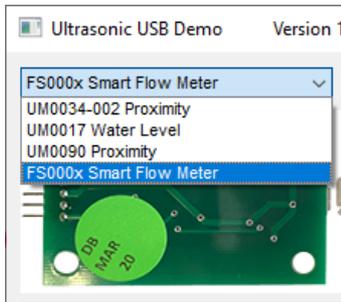
The graphic banner immediately below the control toolbar will then switch to display the FS0001 hardware, illustrating what it looks like and how it should be connected. Refer to the notes shown with the arrows and listed below to select the correct hardware and connect it properly:
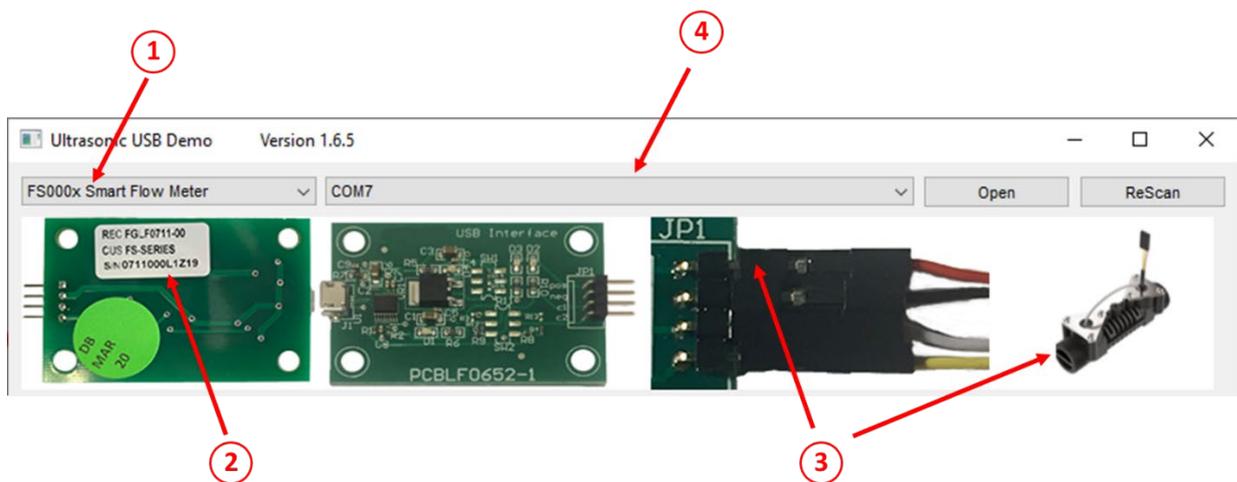

2. Make sure that the correct interface pcb version which supports the FS00xx series is being used. Please note that the same pcb is configured slightly differently for each of the ultrasonic sensors that the GUI supports. For the FS00xx, the white label on the back of the pcb should include the field "FS-SERIES" in the second line as shown as shown below:

3. Plug the sensor FS0001-000 sensor onto the header connector "JP1" on the pcb. The connector is NOT keyed, so it is imperative to make sure that the red wire on the cable is aligned with the pcb connector labeled "POS" followed by the black, white, and yellow wires as shown below in order to avoid damage to the sensor and/or pcb:
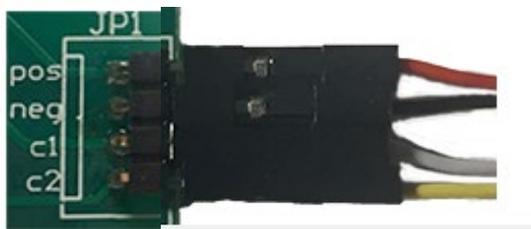

4. Before connecting the pcb to the PC, check the port connection(s) shown in the 2nd drop down box from the left:
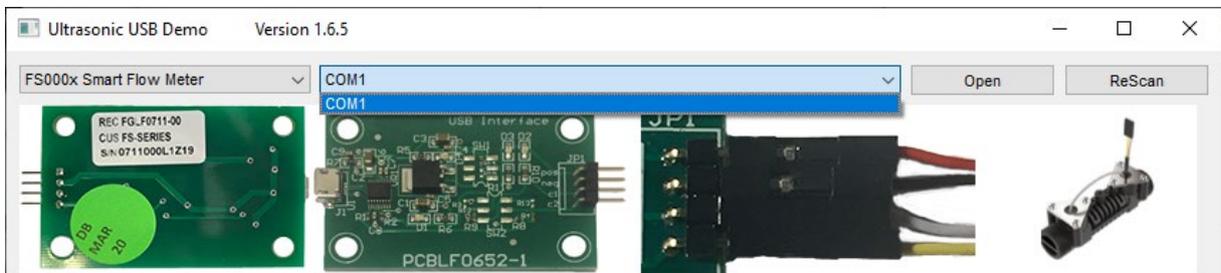
In the case shown above the only port connection shown is COM1.

Now you can connect the pcb with sensor connected to a PC using a standard USB cable and click the "ReScan" button. Once this is done look at the port connection drop down box again to see what port was assigned to the demo kit hardware:

In the case above the hardware was assigned to COM7. Select the new port that was added to Establish communication between the GUI and the pcb.

5. From the GUI repetitive flow measurements with the FS Series device can be initiated by clicking the "Open" button:
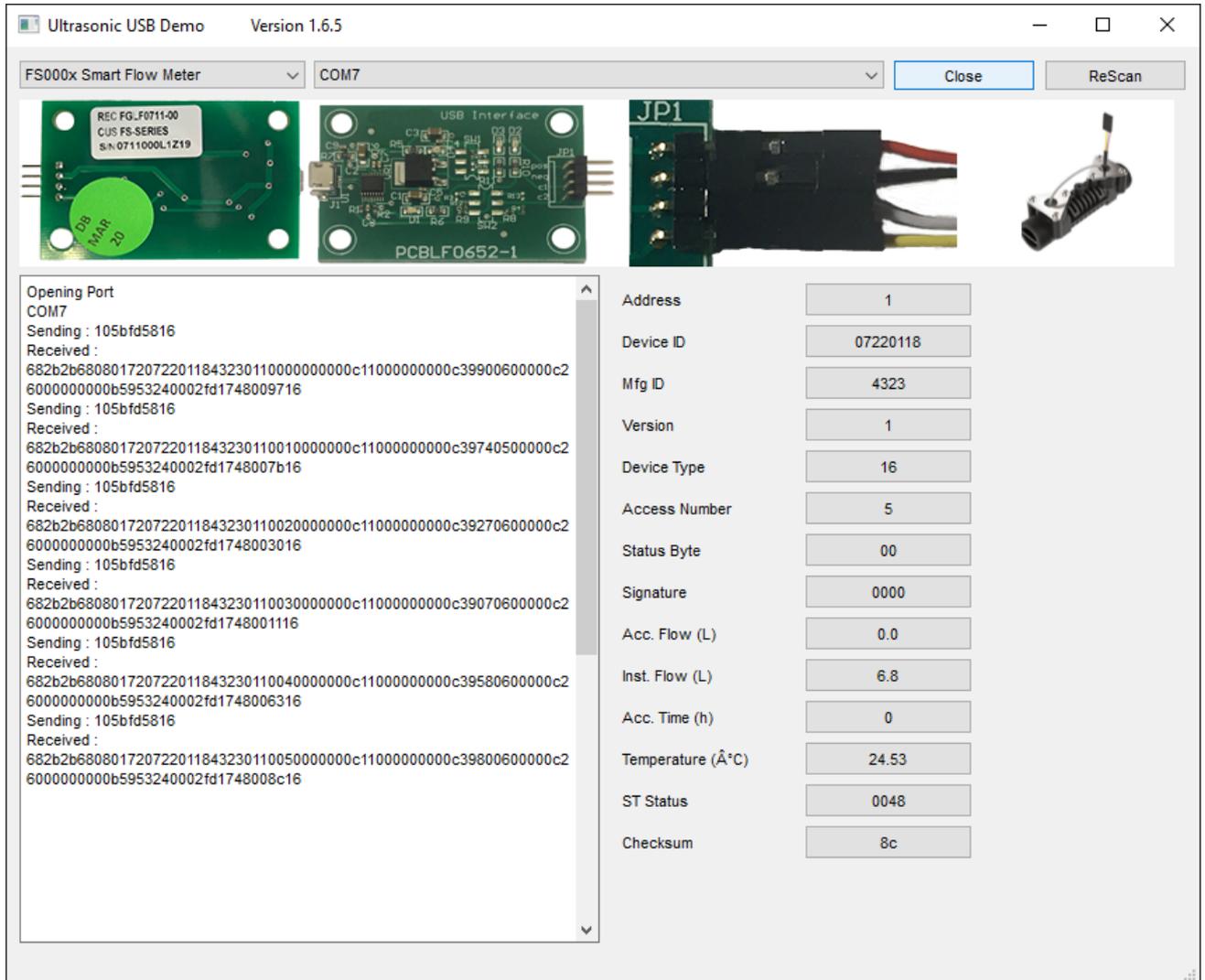
On the left side of the window the actual ASCII data received from the FS Series Flow Meter Module is displayed while on the right side the received data is parsed into the appropriate fields.

To stop the measurements, simply click the "Close" button. Measurements can be resumed by clicking "Open" once again.

Revision History

Revision Number	Revision Date	Description	Pages Changed
A1	6-17-2020	First Release Version	

Contacts

For pricing, delivery, and detailed ordering information please contact:

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Tentative Release

This specification is based on design objectives and is strictly Preliminary and subject to change. Test data may exist, but this specification is subject to change based on the results of additional testing and evaluation. Application specific specifications will be produced for approval prior to production product being released.

> ⚠ **WARNING**
>
> This product can expose you to chemicals including Lead, Chromium (hexavalent compounds) and Phthalates (DEHP) which are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information, go to www.P65Warnings.ca.gov