

## UM0034-002 USB Demo Kit

### Description

The UM0034-002 USB Demo Kit enables rapid demonstration of the UM0034-002 Ultrasonic Height Measurement Sensor.

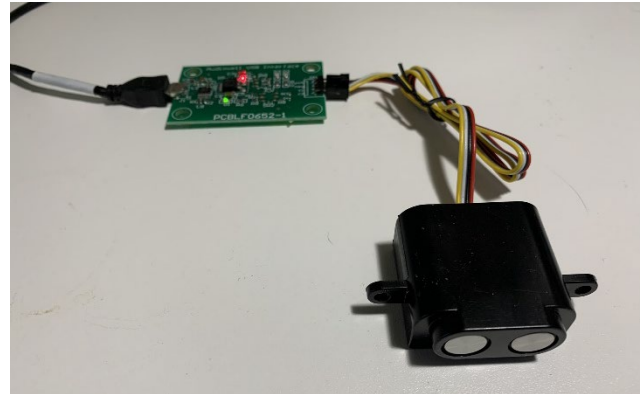
The UM0034-002 ultrasonic height measurement sensor measures the time interval between the emission of ultrasonic pulses and the reception of the echo to determine the distance to nearby objects.

The UM0034-002 USB Demo Kit consists of a UM0034-002 sensor 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 proximity measurement capability of the UM0034-0002.

### Features

- Enables rapid demonstration / evaluation of UM0034-002 proximity sensing operation
- Consists of pcb, sensor, and USB interface cable - individual sensors and pcb's are also available
- Python GUI download available.
- Fully powered from PC USB port



### Ordering Information

UM0034-002 Demo Kit (Sensor+PCB+USB Cable)

Part Number: P-EVAL-0712

UM0034-002 Ultrasonic Height Sensor

Part Number: UM0034-002

Model Number: FA1L03-UM0034-002Z

Audiowell International USB Interface (PCB Only)

Part Number: FGLF0712-00

### Demo Kit Hardware Components

UM0034-002 Sensor



USB Interface PCB



(Front Side)



(Back Side)

USB Interface Cable



### GitHub Link

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

[www.github.com/RoanokeControls/PkgUltrasonicUSBDemo](https://www.github.com/RoanokeControls/PkgUltrasonicUSBDemo)

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

### Software Installation

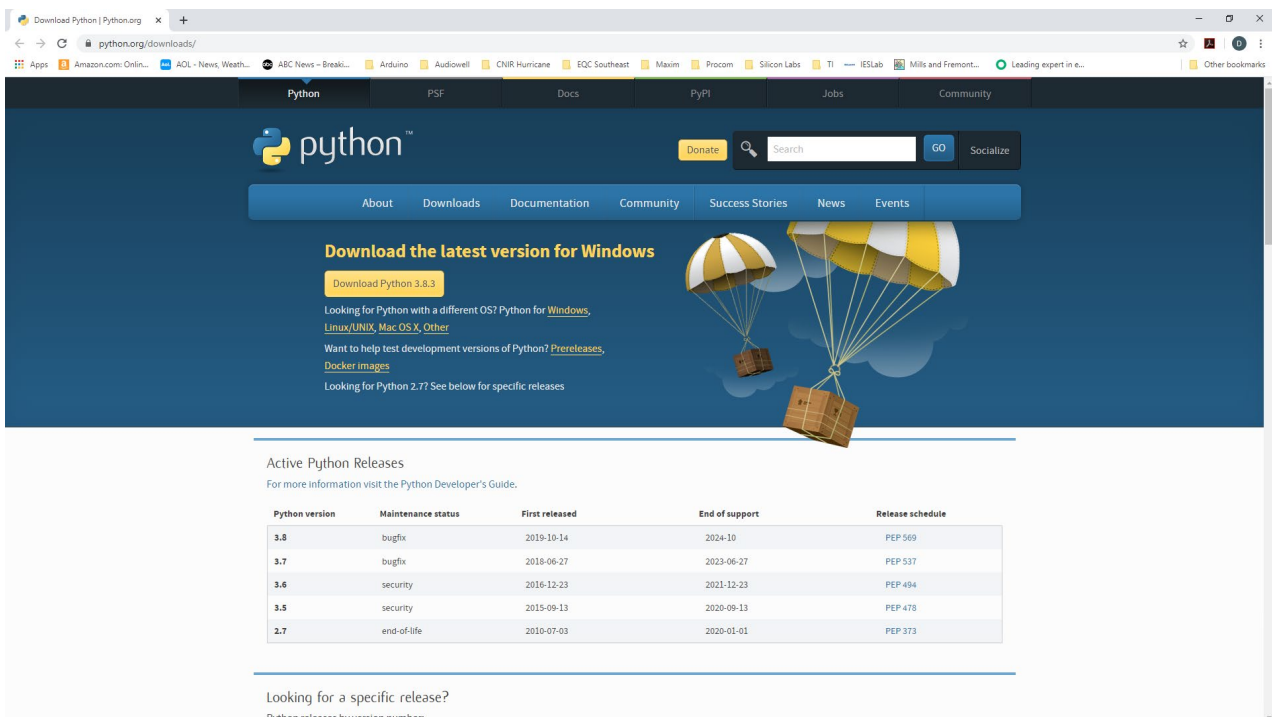
The GUI software is written in the Python language and operates under that platform. Therefore, in order to install the GUI the latest version of Python (v3.8.3 as of this writing) must first be installed.

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

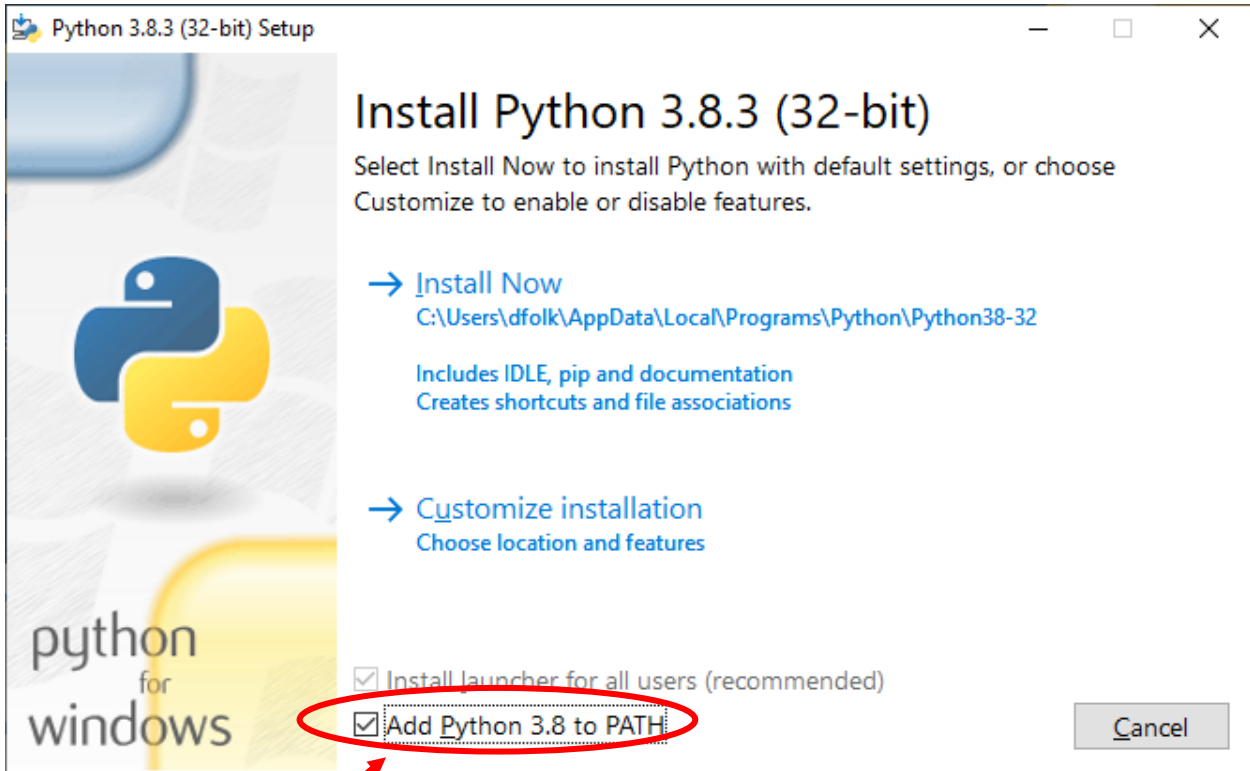
<https://slack-files.com/T0ERQ8MUG-F012LNF8PH9-d8fc45d1b9>

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:

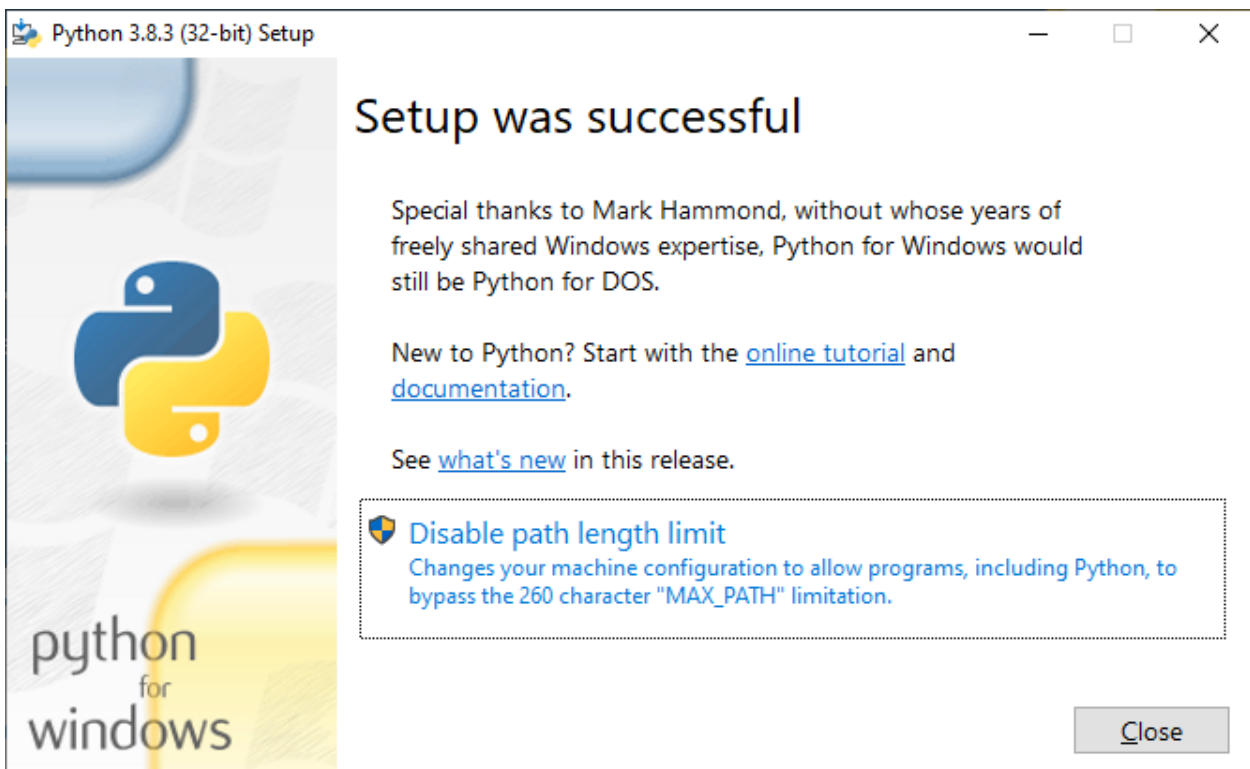


Click on the “Download Python 3.3.3” button and you will see the following window pop up:

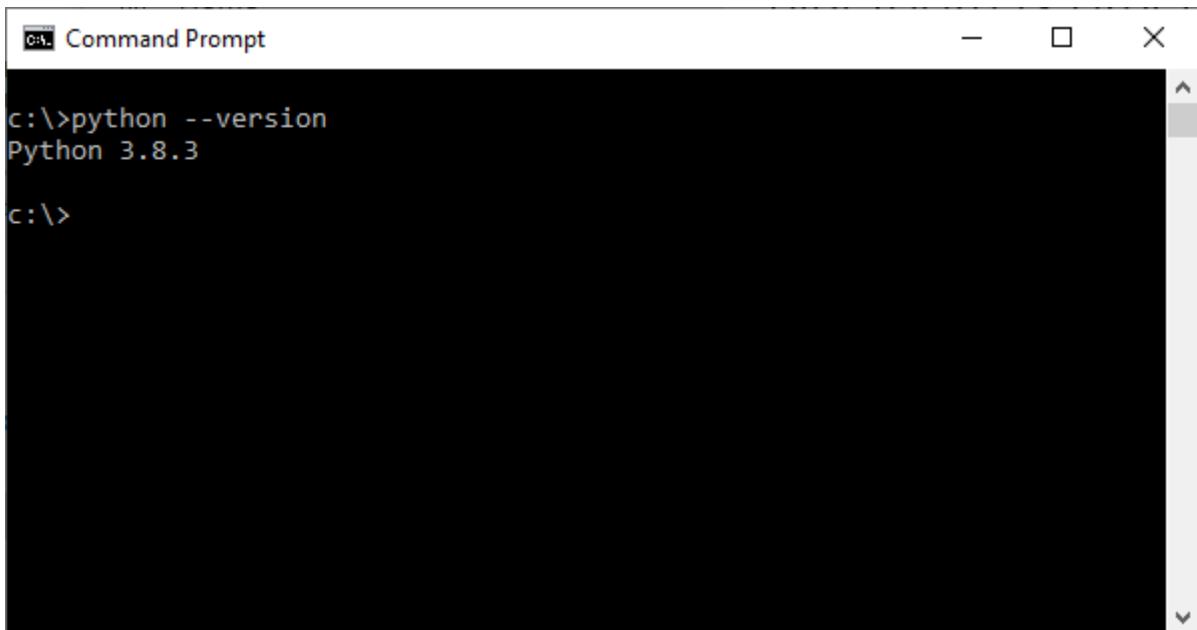


**IMPORTANT NOTE!**

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:

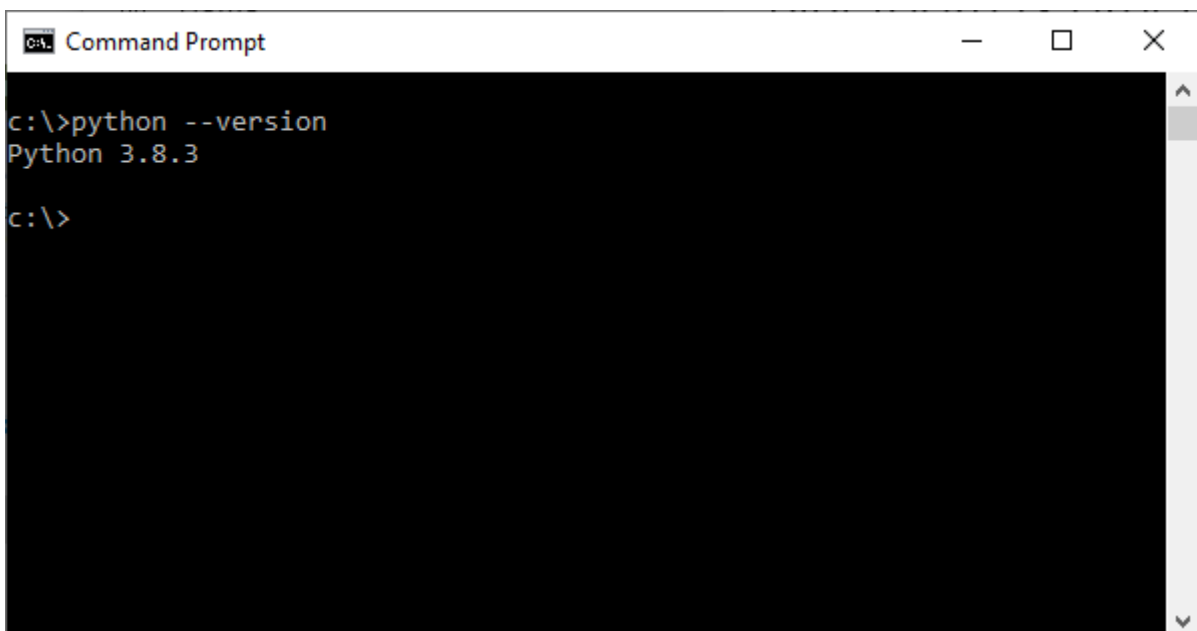


Next, check to see that Python was installed correctly by opening a Command Prompt window and then type in “python --version” and hit Enter. The Python revision should then be reported as shown below:



```
CA. Command Prompt
c:\>python --version
Python 3.8.3
c:\>
```

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.



```
CA. Command Prompt
c:\>python --version
Python 3.8.3
c:\>
```

At this point Python and the UltrasonicUSB 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.

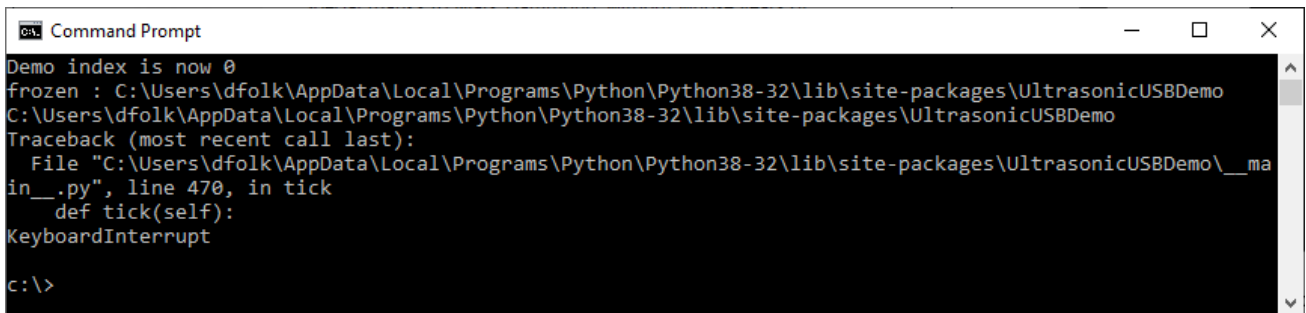
**UM0034-002 Distance Measurement Sensor Demo Kit Operation**

A video that shows step-by step operation of the UM0034-002 demo kit can be downloaded from the following website:

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

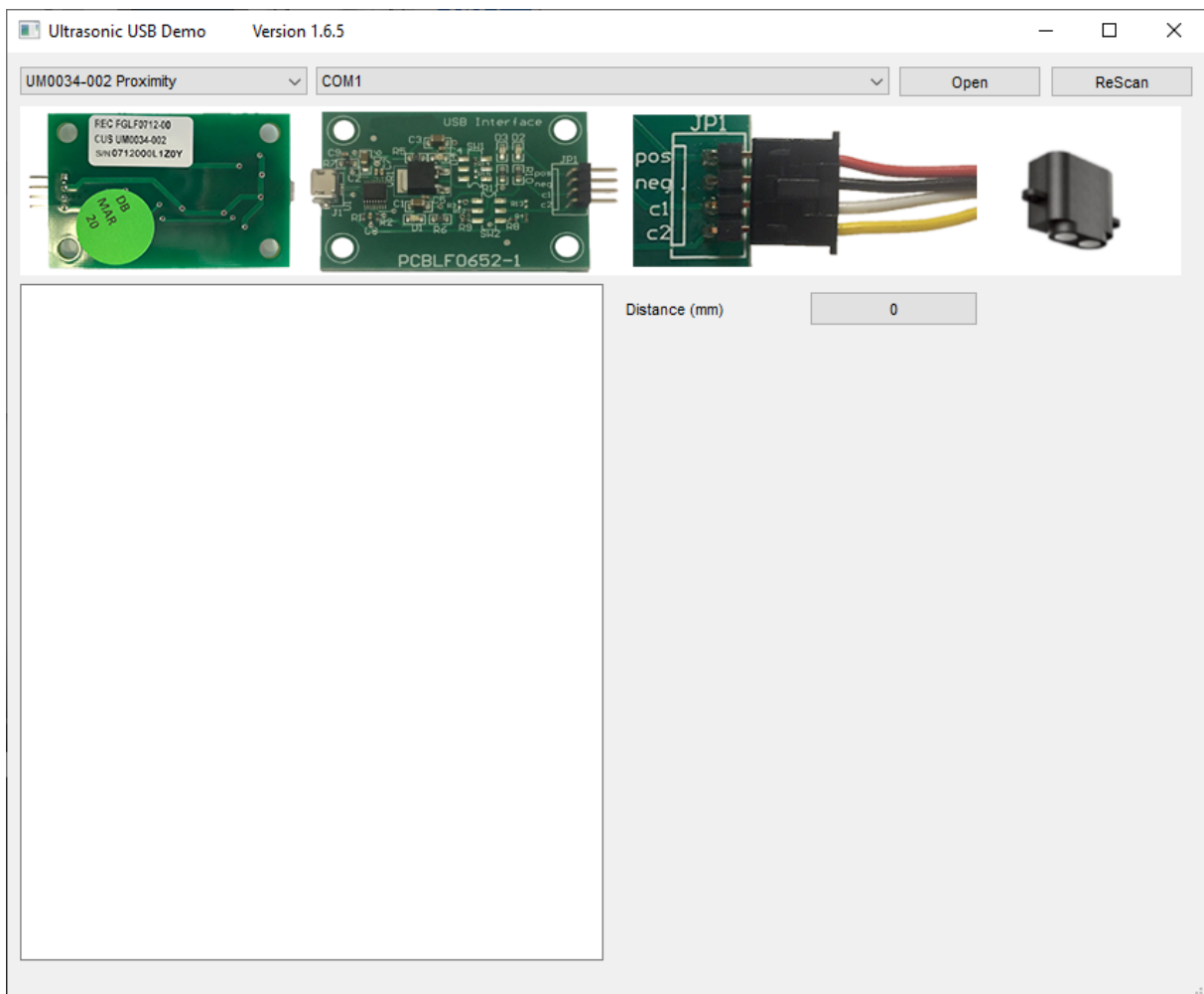
Written instructions are also given below.

To launch the USBDemo GUI software, type “python -m UltrasonicUSBDemo” in a command prompt window as shown in the screen shot below:

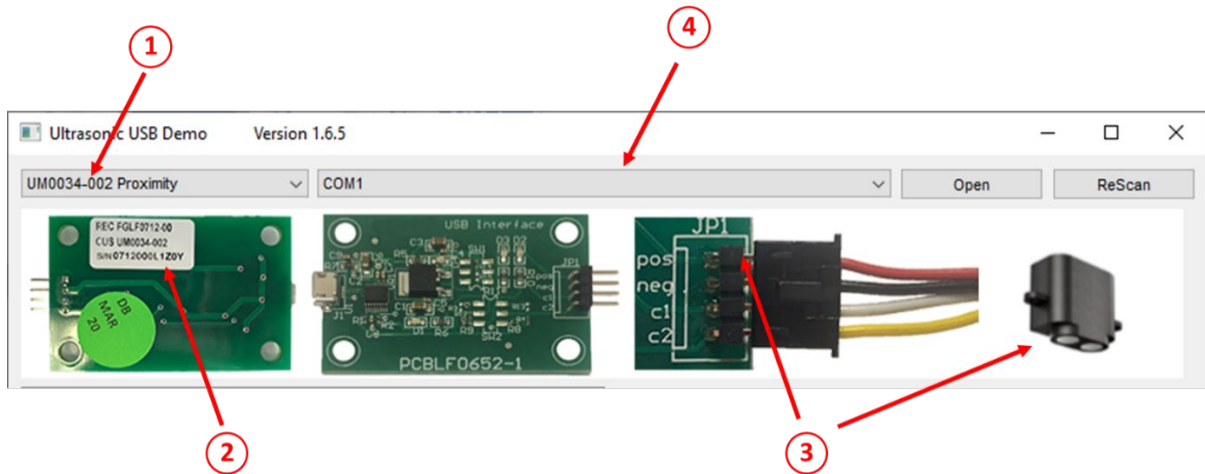


```
Command Prompt
Demo index is now 0
frozen : C:\Users\dfolk\AppData\Local\Programs\Python\Python38-32\lib\site-packages\UltrasonicUSBDemo
C:\Users\dfolk\AppData\Local\Programs\Python\Python38-32\lib\site-packages\UltrasonicUSBDemo
Traceback (most recent call last):
  File "C:\Users\dfolk\AppData\Local\Programs\Python\Python38-32\lib\site-packages\UltrasonicUSBDemo\__main__.py", line 470, in tick
    def tick(self):
KeyboardInterrupt
c:\>
```

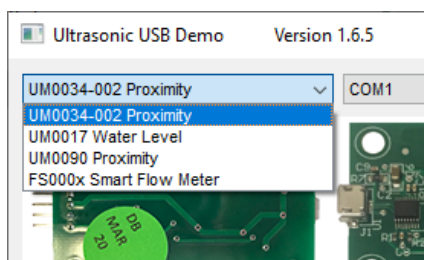
In addition to the above response the following GUI window should appear:



The top row of the GUI contains the controls for the GUI settings. The graphic banner immediately below displays what the hardware 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:



1. The first step is to set the GUI for operation with the UM0034-002 and its associated USB interface board. This is done from by selecting UM0034-002 Proximity from the drop-down box located on the upper left-hand corner of the screen



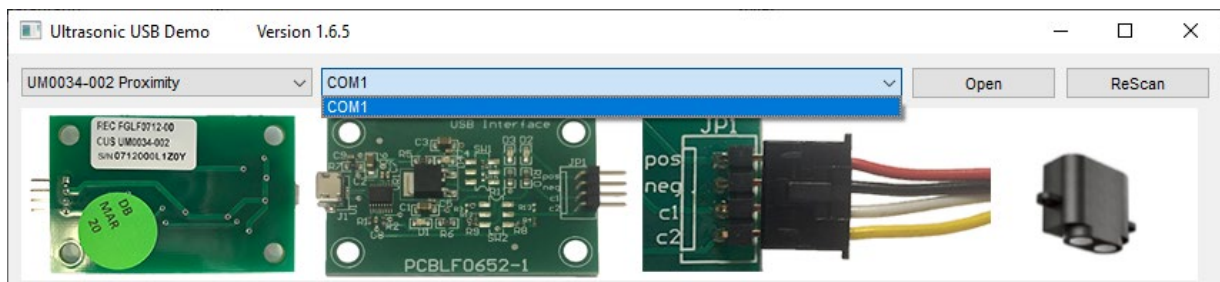
2. Make sure that the correct version of the USB Interface pcb which supports the UM0034-002 is being used. Please note that the same pcb is configured slightly differently for each of the ultrasonic sensors that the GUI supports. For the UM0034-000, the white label on the back of the pcb should include the field "CUS UM0034-002" in the second line as shown as shown below:



- Plug the sensor UM0034-004 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” as shown below in order to avoid damage to the sensor and/or pcb. The black wire will then be connected to “NEG”, the white wire to “C1”, and the yellow wire to “C2” as follows:

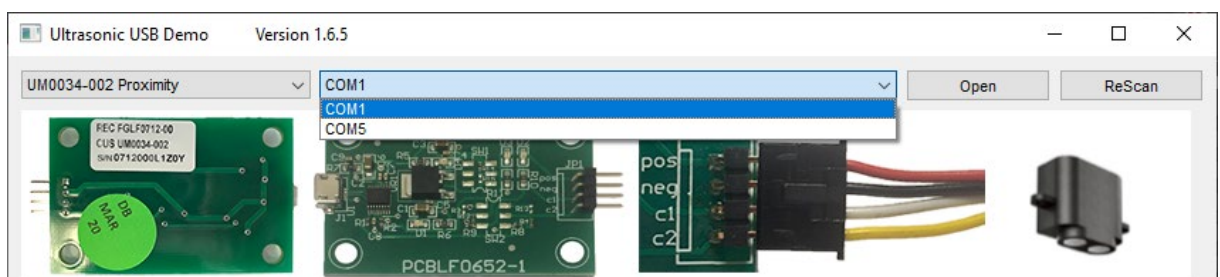


- Before connecting the pcb to the PC, check the port connection(s) shown in the 2<sup>nd</sup> drop down box from the left:



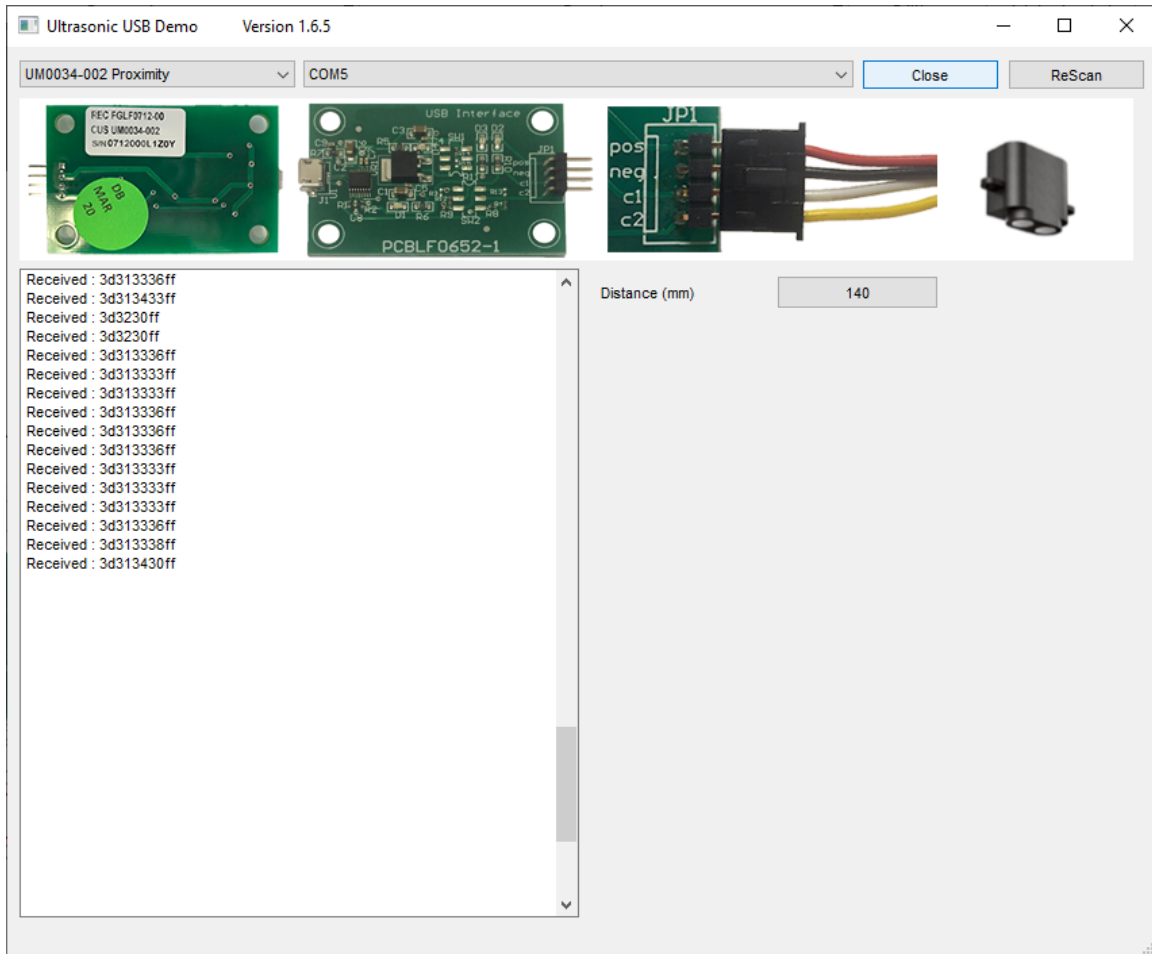
In the case shown above the only port connection shown is COM1.

Now, 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 COM5. Select the new port that was added to establish communication between the GUI and the pcb.

5. From the GUI repetitive distance measurements with the UM0034-002 can be initiated by clicking the “Open” button:



On the left side of the window the actual hex data received from the US0034—002 is displayed while on the right side the converted sensed distance in mm is displayed.

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	6-16-2020	First Release Version	

### Contacts

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

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12060 County Line Rd.  
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Madison, AL 35756  
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Email: [sales@audiowell-international.com](mailto:sales@audiowell-international.com)

### 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](http://www.P65Warnings.ca.gov)