UM0017-000 USB Demo Kit

Description

The UM0017-000 USB Demo Kit enables rapid demonstration of the UM0017-000 Liquid Level Sensor.

The UM0017-000 Liquid Leve Sensor is mounted on the outside of a compatible container and reports the liquid level by measuring the time interval between the emission of ultrasonic pulses and the reception of echo back from the surface of the liquid.

The UM0017-000 USB Demo Kit consists of a UM0017-000 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 liquid level capability of the UM0017-000.

Features

- Enables rapid demonstration / evaluation of UM0017-000 proximity sensing operation
- Consists of sensor, pcb, and USB interface cable - individual sensors and pcb's are also available
- Python GUI download available.
- Fully powered from PC USB port

Ordering Information

UM0017-000 Demo Kit (Sensor+PCB+USB Cable)

Part Number: P-EVAL-0710

UM0017-000 Ultrasonic Liquid Level Sensor

Part Number: UM0017-000
Model Number: FA02T01-UM0017Z

Audiowell International USB Interface (PCB Only)

Part Number: FGLF0710-00

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

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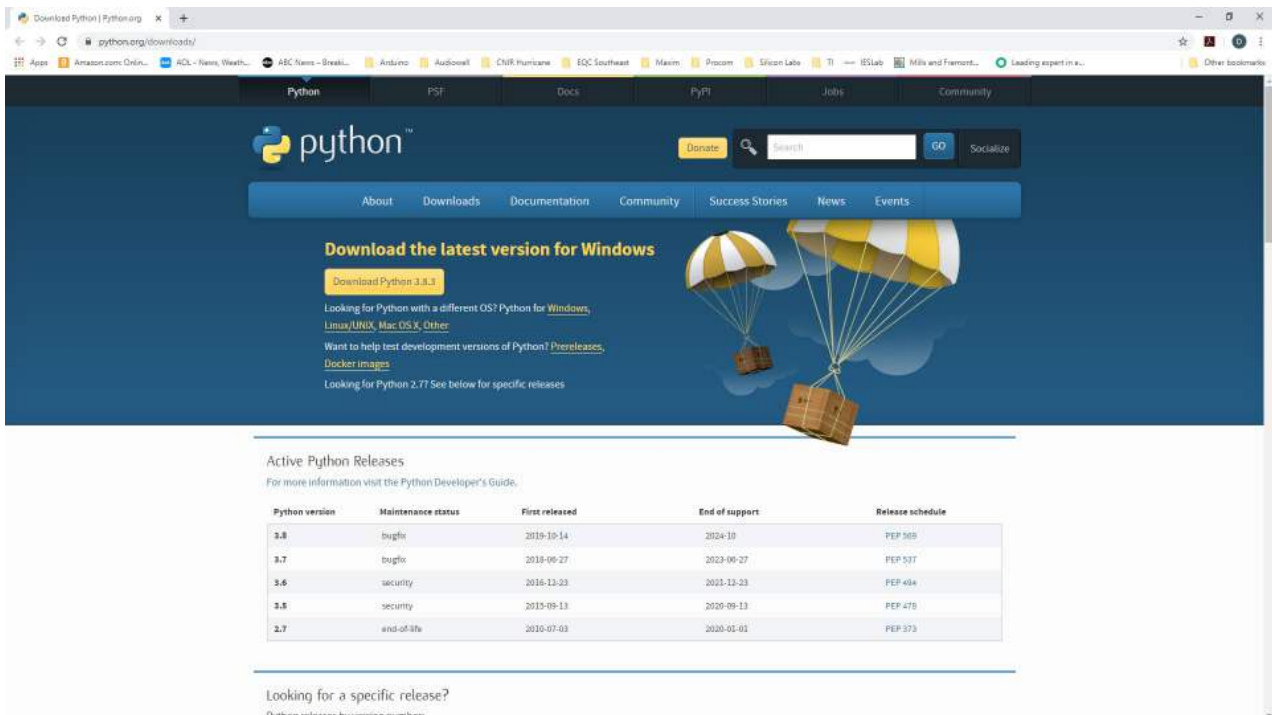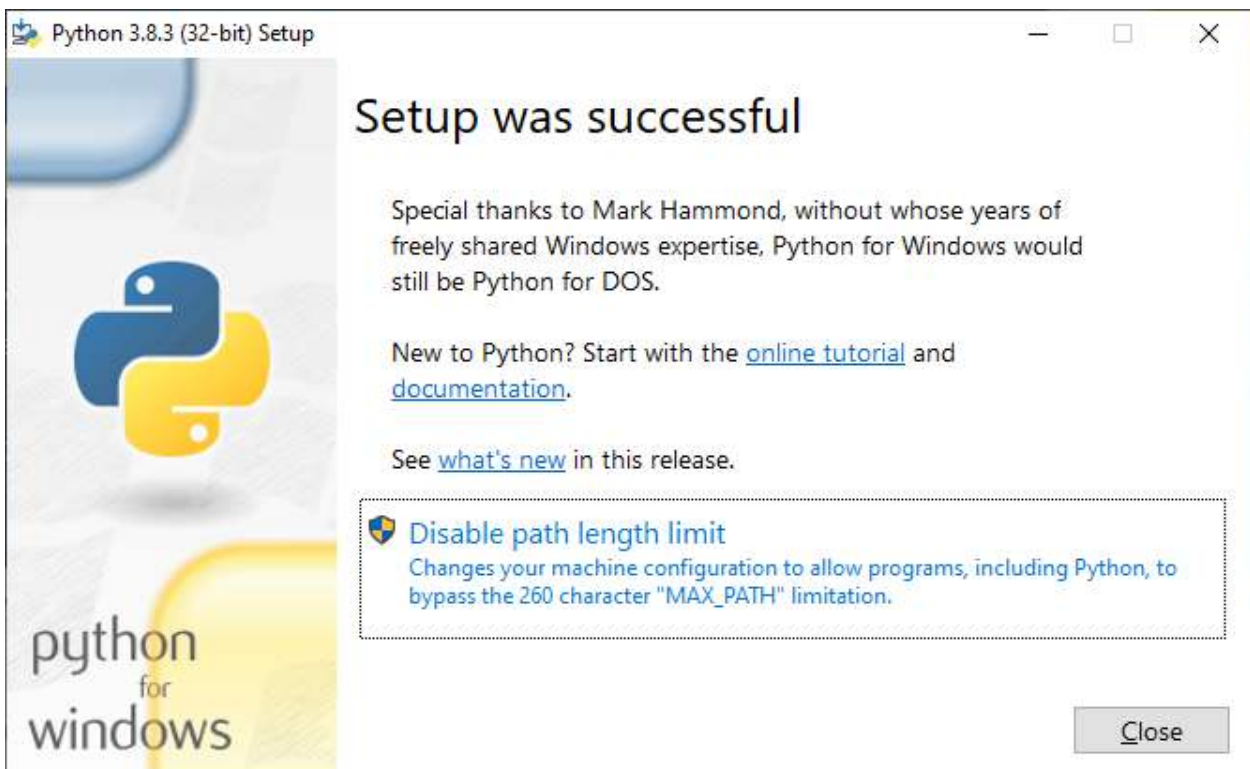
Click on the "Download Python 3.3.3" button and you will see the following window pop up:
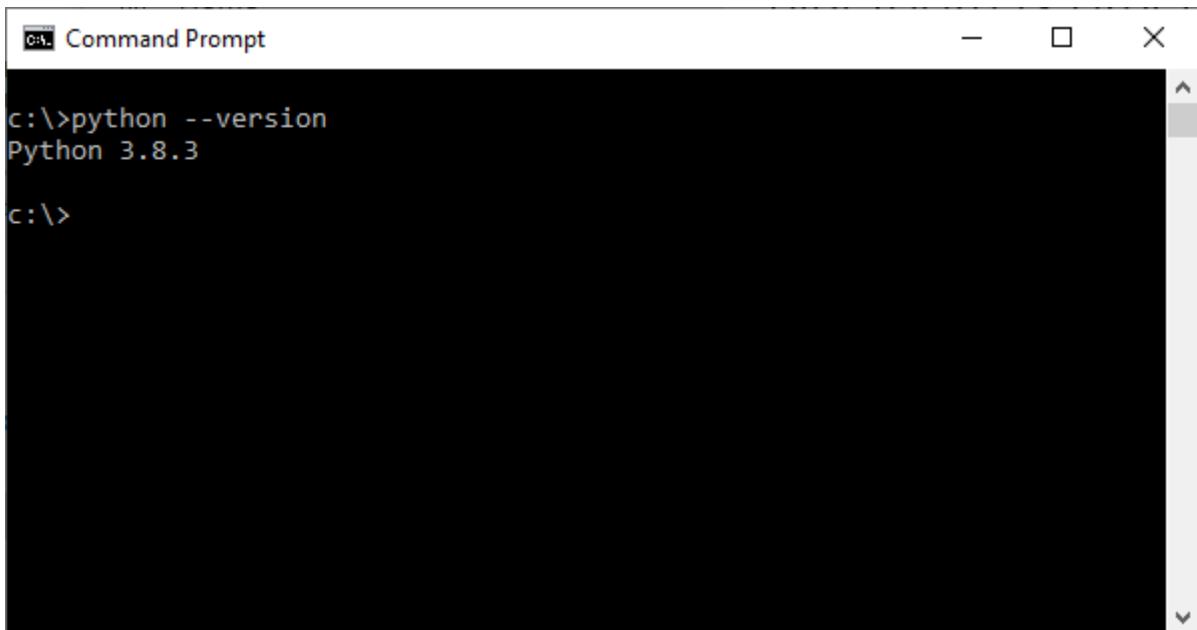

IMPORTANT NOTE!

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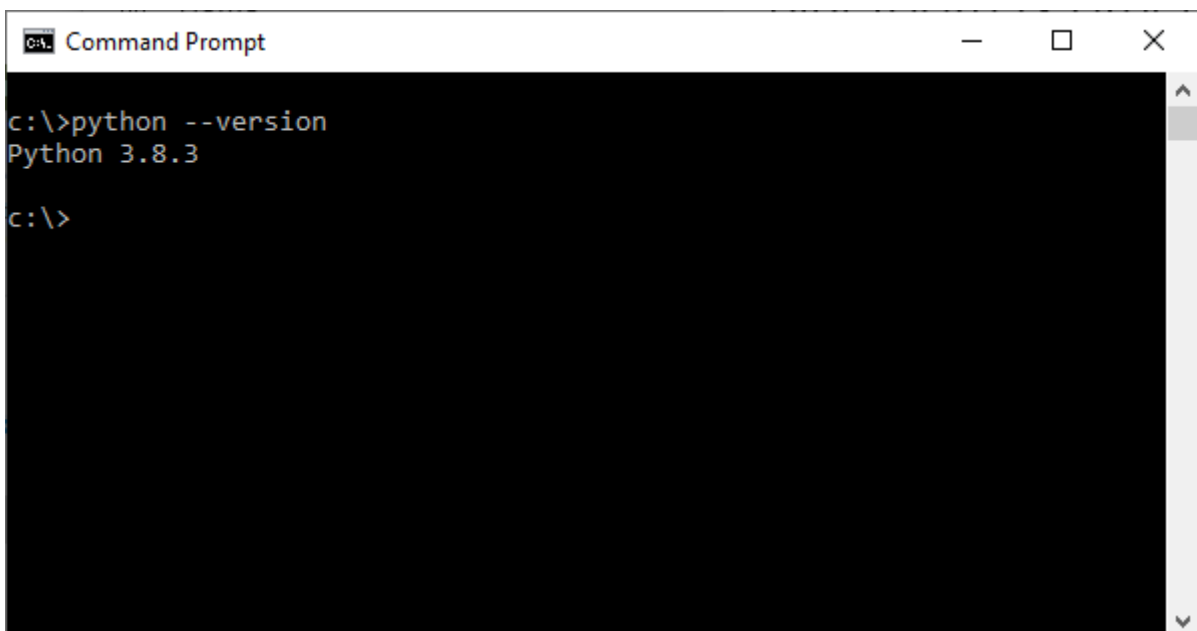
Next, check to see that Python was installed correctly by opening a Command Prompt window and then type in "python –version" and hit Enter. The Python revision should then be reported as shown below:

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 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.
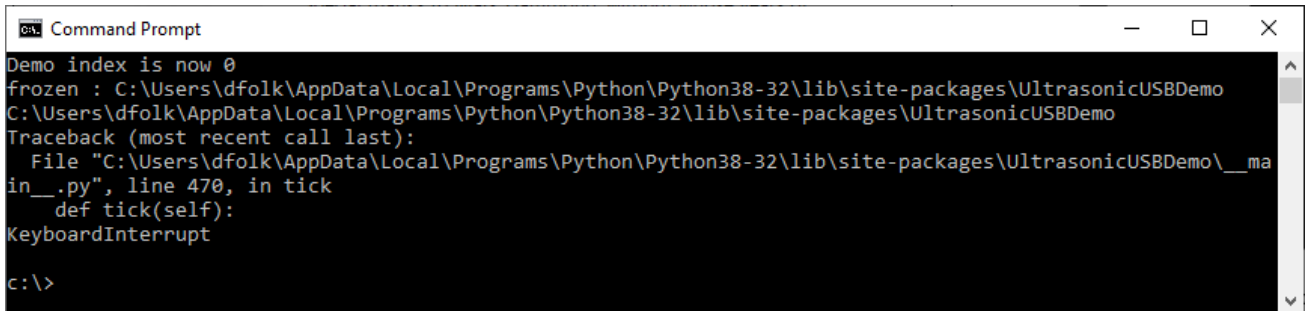
UM0017-000 Distance Measurement Sensor Demo Kit Operation

A video that shows step-by step operation of the UM0017-000 demo kit can be downloaded from the following website:

https://slack-files.com/T0ERQ8MUG-F012K55F39T-46b94e0ced
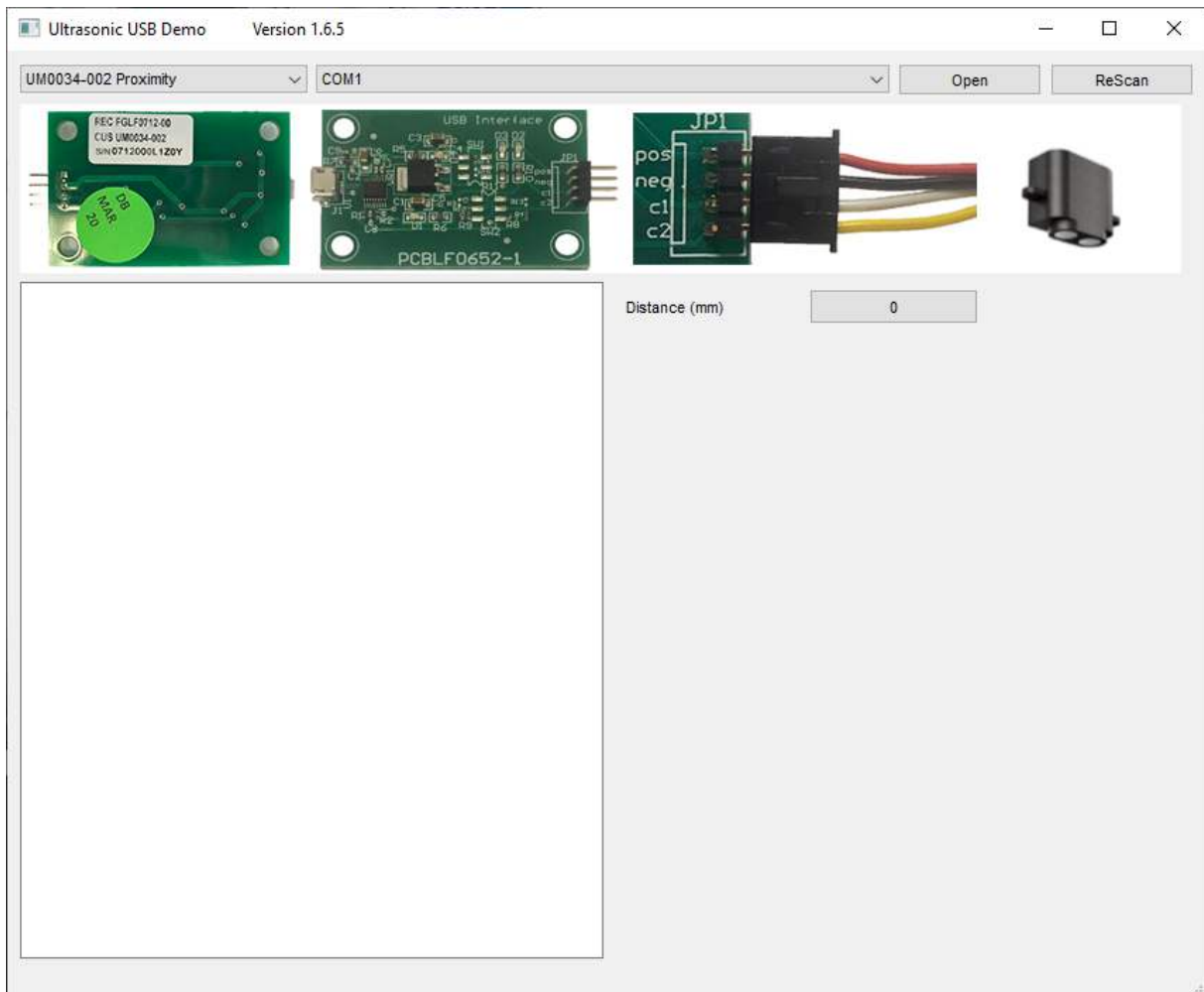
Written instructions are also given below.

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 US0017 Ultrasonic Liquip Level Sensor and its associated USB interface board. This is done from by selecting "UM017 Water Level" from the drop-down box located on the upper left-hand corner of the screen as shown below:
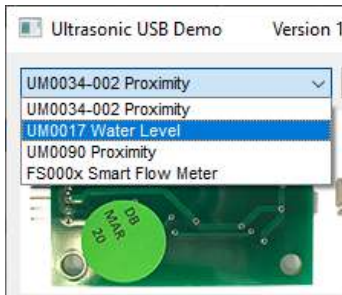

The graphic banner immediately below the control toolbar will then switch to display the UM0017-000 hardware, illustrating what it looks like and how it should be connected. Refer to the notes shown with the arrows and listed below to select the correct hardware and connect it properly:
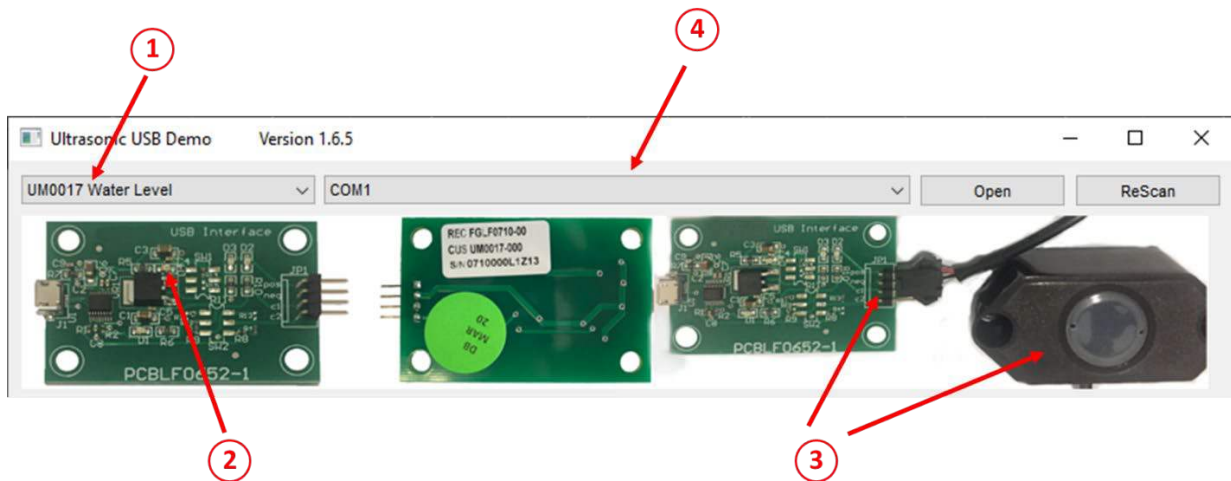

2. Make sure that the correct version of the USB interface pcb which supports the UM0017-000 is being used. Please note that the same pcb is configured slightly differently for each of the ultrasonic sensors that the GUI supports. For the UM0017-000, the white label on the back of the pcb should include the field "UM0017-000" in the second line as shown as shown below:

3. Plug the sensor UM0017-000 sensor's 3-wire connector 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". The black wire will then be connected to the "NEG" terminal and the white wire will then be connected to the C1 terminal. The C2 terminal is left open when using the UM0017-000.
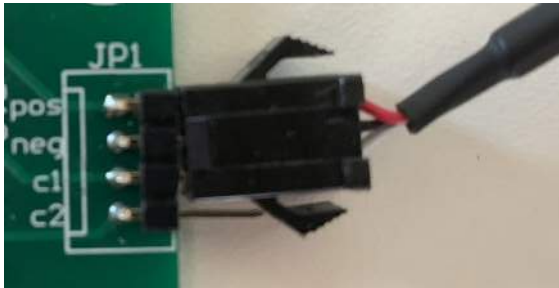
4. Before connecting the pcb to the PC with the USB cable, check the port connection(s) shown in the 2nd drop down box from the left:
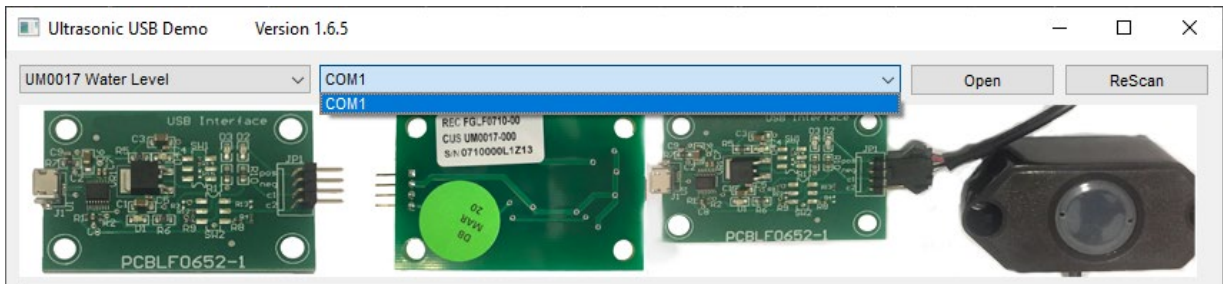

In the case shown above the only port connection shown is COM1.

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 COM8. 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 UM0017-000 sensor can be initiated by clicking the "Open" button:
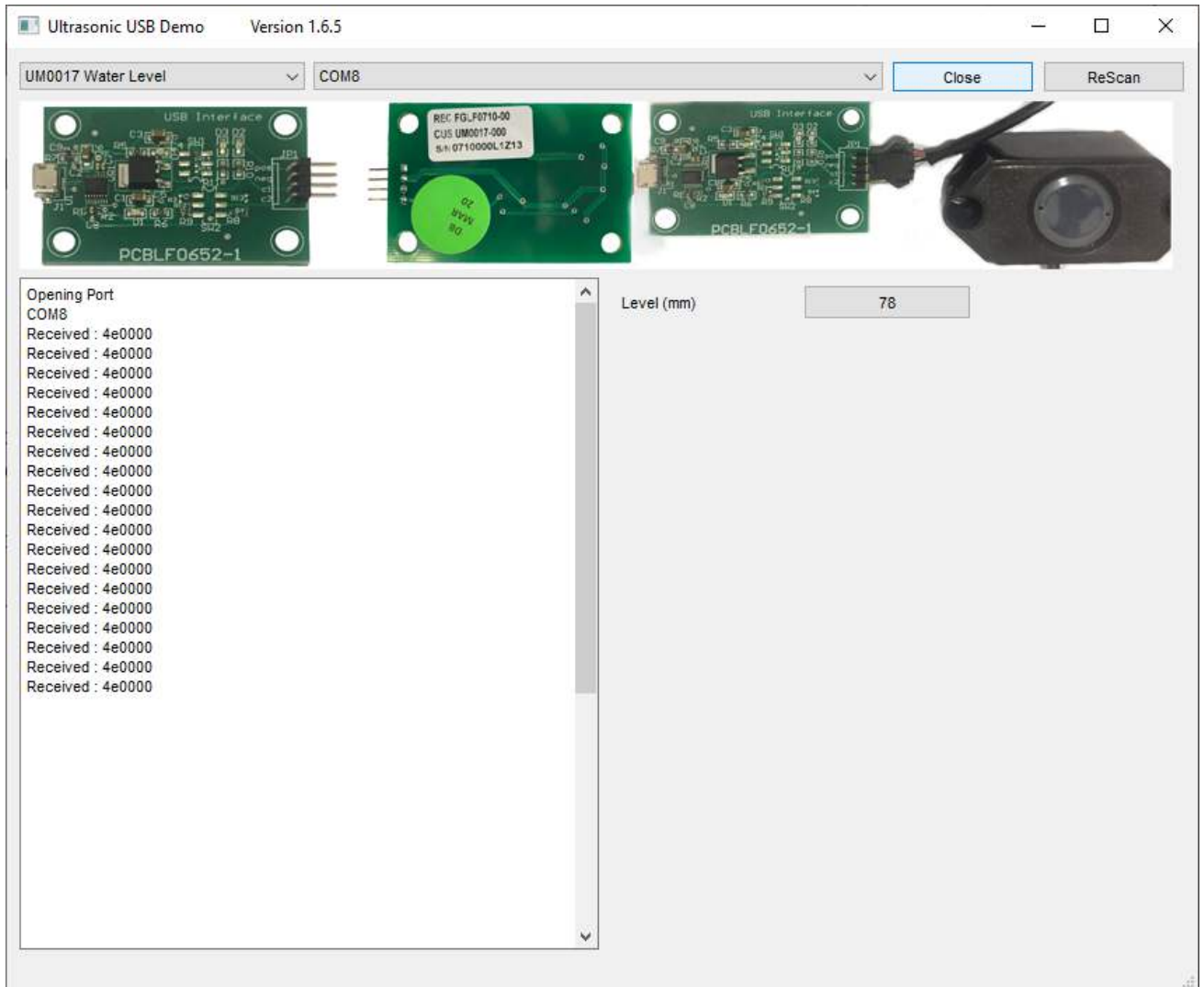
On the left side of the window the actual ASCII data received from the UM0017-000 is displayed while on the right side the received data is converted and displayed as liquid level from the bottom of the container in millimeters (mm).

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	6-23-2020	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

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