



shiratech



iCOMOX Monitor User Manual SDK



Document Revision History

Revision	Date	Author	Status and Description
2.0	29/07/2019	Ori Makover	Installation, overview and quickstart

INDEX

1. Installation Instructions	2
2. Overview	7
2.1 Top Menu Bar	8
2.2 Communication Panel	8
2.3 Status Bar	8
2.4 Live Data Tab	8
2.5 Statistics Tab	9
2.6 Configuration Tab	9
3. Quick Start	11
3.1 USB Cable Connection	11
3.2 SmartMesh Connection	13

1. Installation Instructions

1. Download and install Anaconda3 distribution <https://www.anaconda.com/distribution/>

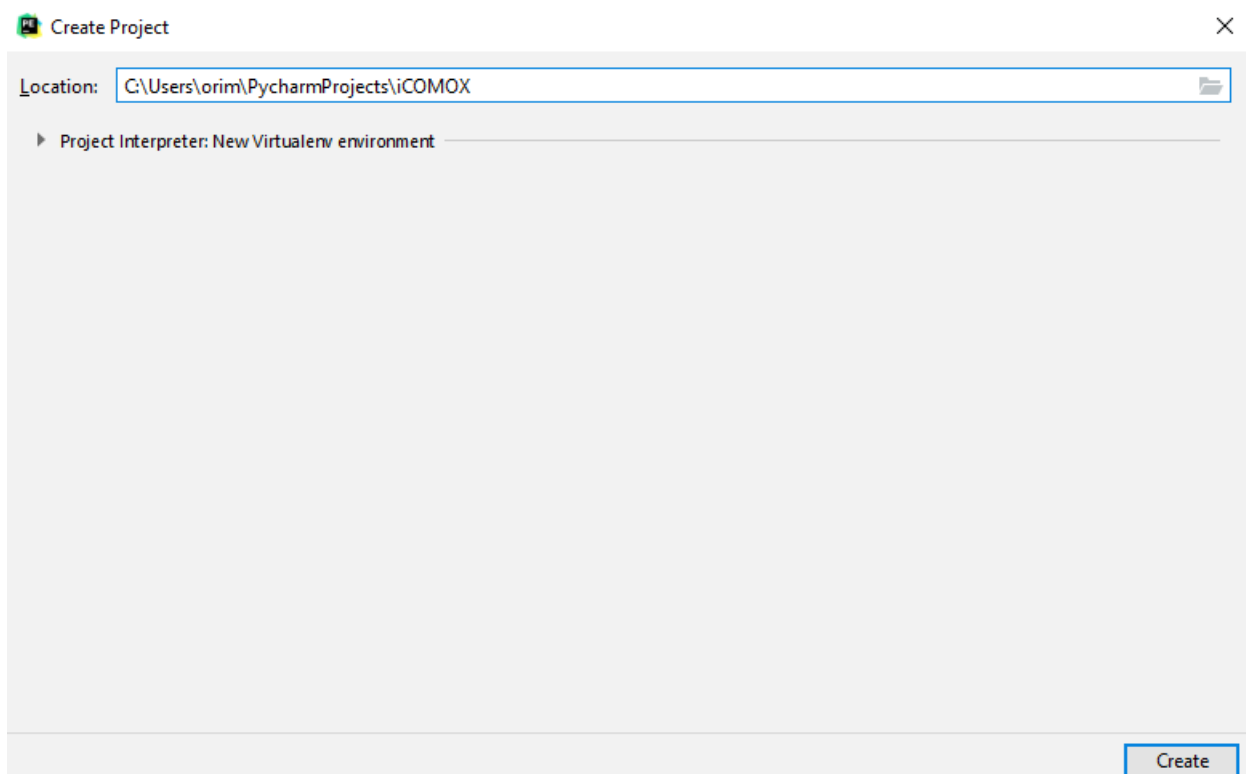
Note: Anaconda version can be newer than the python version.

2. Download and install PyCharm IDE <https://www.jetbrains.com/pycharm/>

3. Launch “Anaconda Prompt” in administrator mode and type:

- `conda create -n iCOMOX python=3.6 anaconda=5.2.0`
- `conda activate iCOMOX`
- `conda install pyserial`
- `python -m pip install --upgrade pip`
- `pip install tk_tools`

4. Launch PyCharm. On the top menu click on “File – New Project...”.



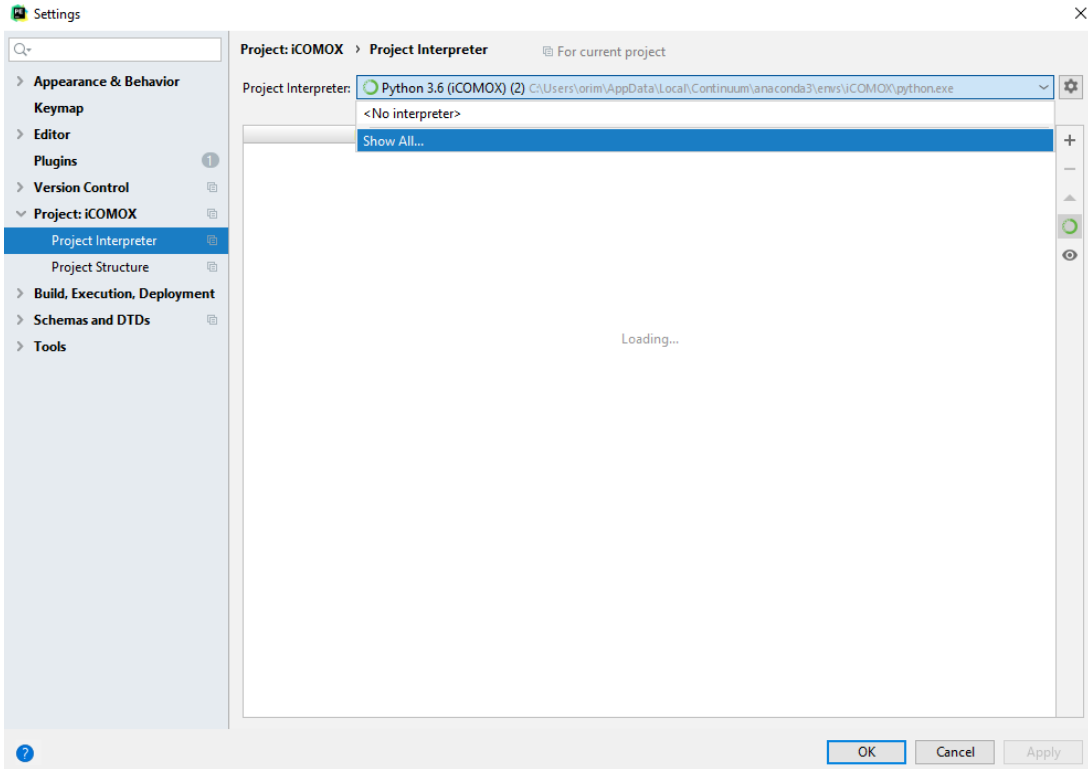
5. Download “iCOMOX_Monitor_v2.0.zip” from <http://www.shiratech-solutions.com/products/icomox/>.

6. Extract “iCOMOX_Monitor_v2.0.zip” and manually copy the extracted files into the project folder created in Step 4. Make sure you overwrite any files which previously existed in the destination directory.

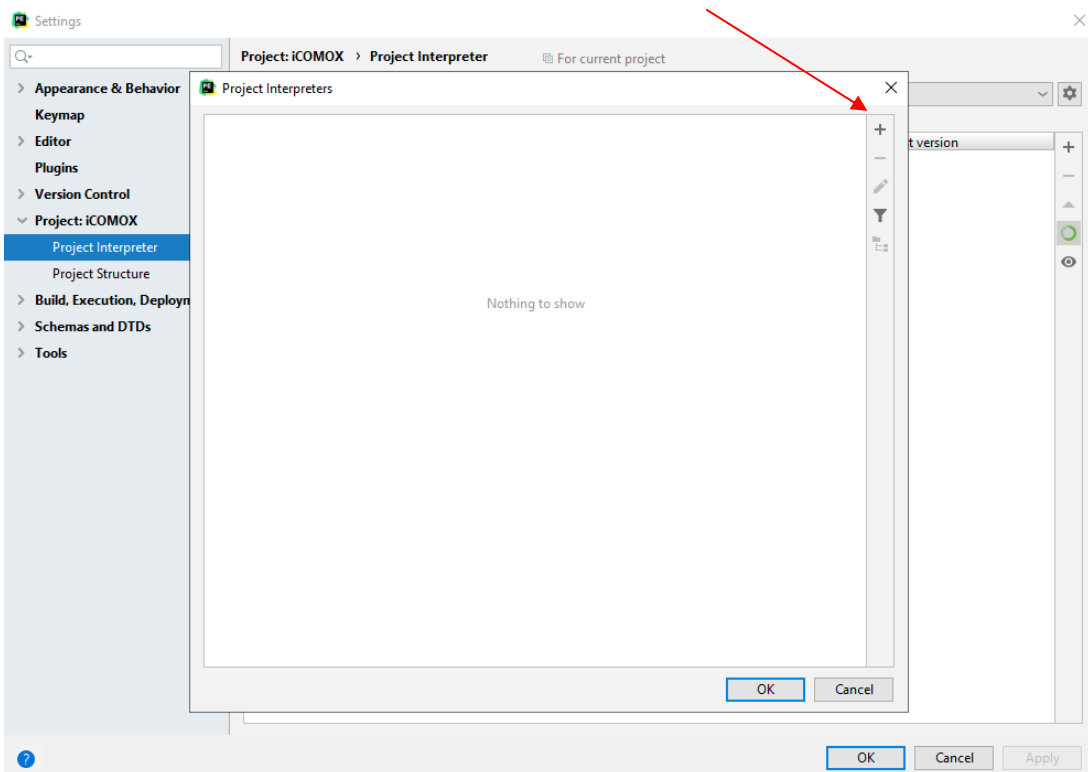
7. Launch PyCharm again.

- a. From the top menu, click on “File - Settings - Project Interpreter”.
 - i. Click on the “Project Interpreter” drop-down menu.

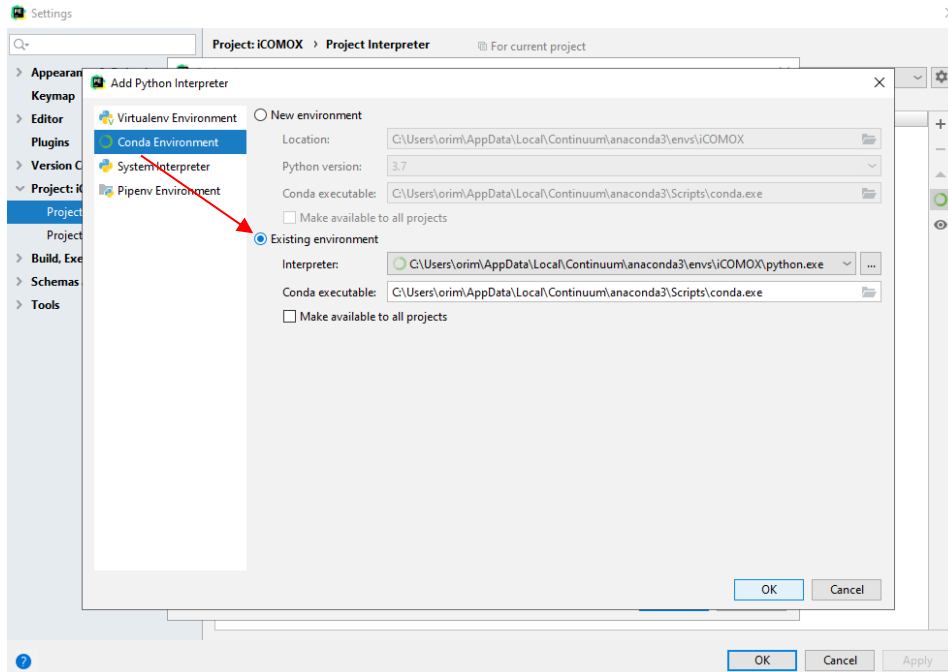
ii. Pick "show all".



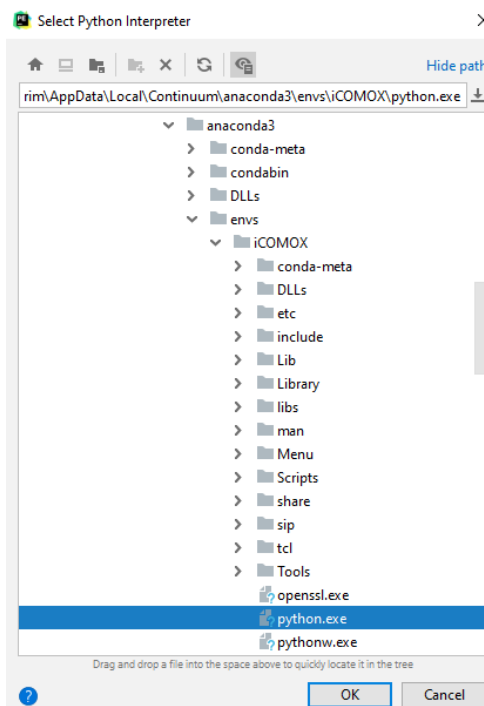
iii. Click on the "+" button.



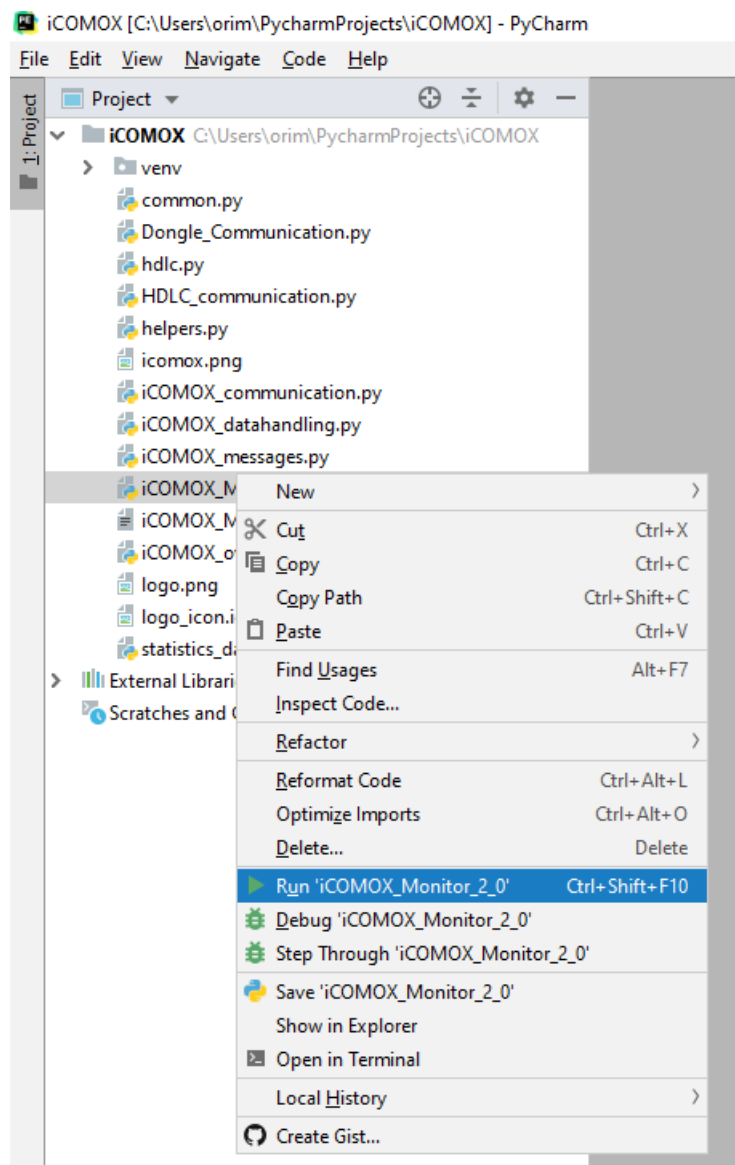
- b. In the new window “Add Python Interpreter”.
 - i. Click on "Conda Environment".
 - ii. Select “Existing Environment”.



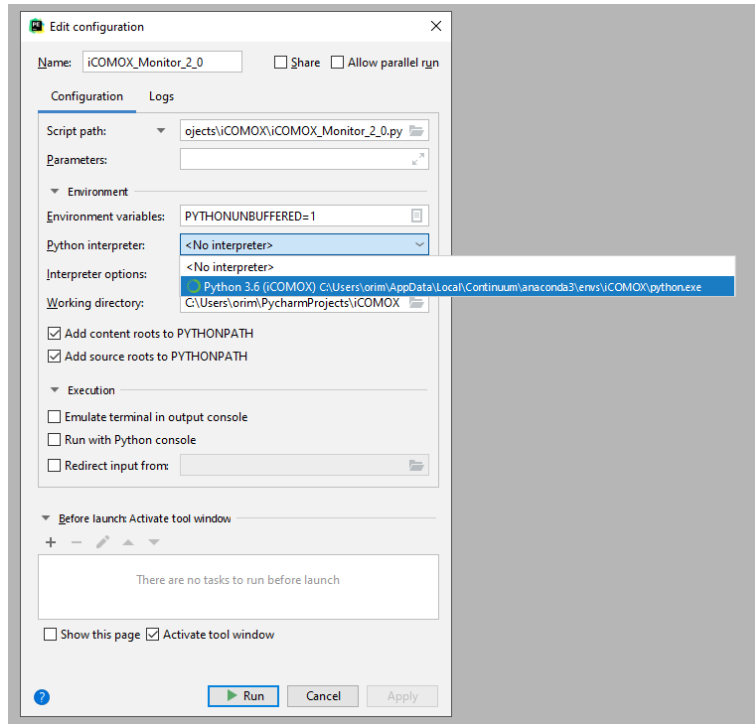
- iii. Click on the “Interpreter” menu, then navigate to your Anaconda3 installation directory.
- iv. Select the “python.exe” file from the following path:
 “... \Anaconda3\envs\iCOMOX\python.exe”



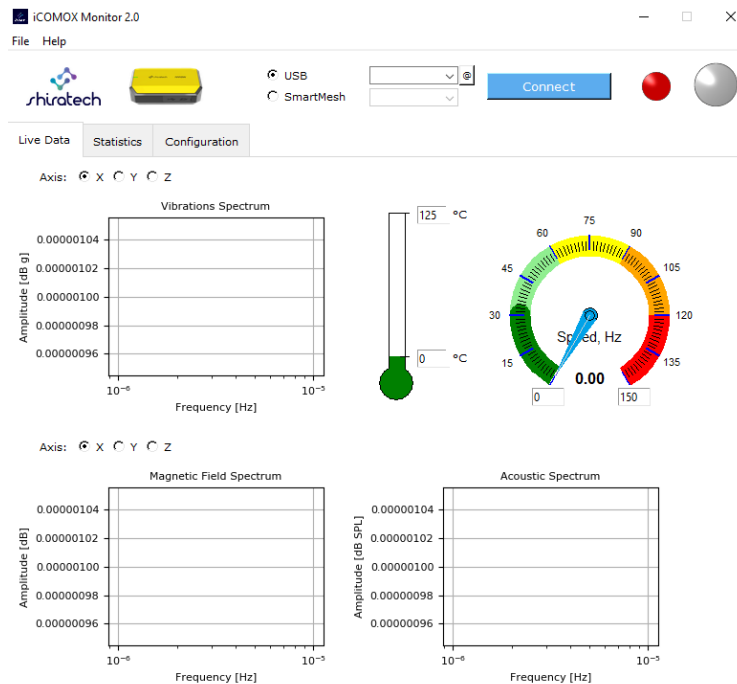
- v. Click on the “Conda executable” menu, then navigate to your Anaconda3 installation directory and select the file “conda.exe” file from the following path:
“...\Anaconda3\Scripts\conda.exe”.
 - vi. Click OK.
8. Open “iCOMOX_Monitor_v2.py”, then right click on the editor tab with the file title and select “Run iCOMOX_Monitor_v2.py”.



- In case the “Edit Configuration” menu launches, pick the Python interpreter from the drop-down menu, then click “Run”.



- In a few moments, iCOMOX Monitor window should launch.



2. Overview

Communication Panel

Top Menu Bar

Live Data Tab

Statistics Tab

Configuration Tab

Status Bar

Received packet 19 from MAC address 00:17:0D:00:00:5A:73

Figure 1 Main GUI.

Main GUI window is shown in Figure 1. It consists of the following functional panels:

2.1 Top Menu Bar

Contains “File – Exit” and “Help – About”.

2.2 Communication Panel

The Communication panel contains the following features:

1. Wireless or wired communication selection (SMIP/USB).
2. Drop down menu for the COM port selection of the iCOMOX USB Manager or SmartMesh (SMIP) mote selection.
3. Connect/Disconnect button to enable/disable communication.
4. LED status indicator.



Figure 2 Communication Panel

2.3 Status Bar

Indicates status information. Displays the following information:

- Incoming data packets number and status.
- SmartMesh devices connection status.

2.4 Live Data Tab

Provides a live display of the collected data:

1. Axis selection.
2. Vibrations Spectrum.
3. Magnetic Field Spectrum.
4. Tachometer. Displays the motor speed, calculated by sensing the variations in the motor’s magnetic field.
5. Acoustic Spectrum.

2.5 Statistics Tab

Statistics tab is shown in Figure . It displays live statistical information extracted from the acquired sensor data. Each axis' information is presented separately.

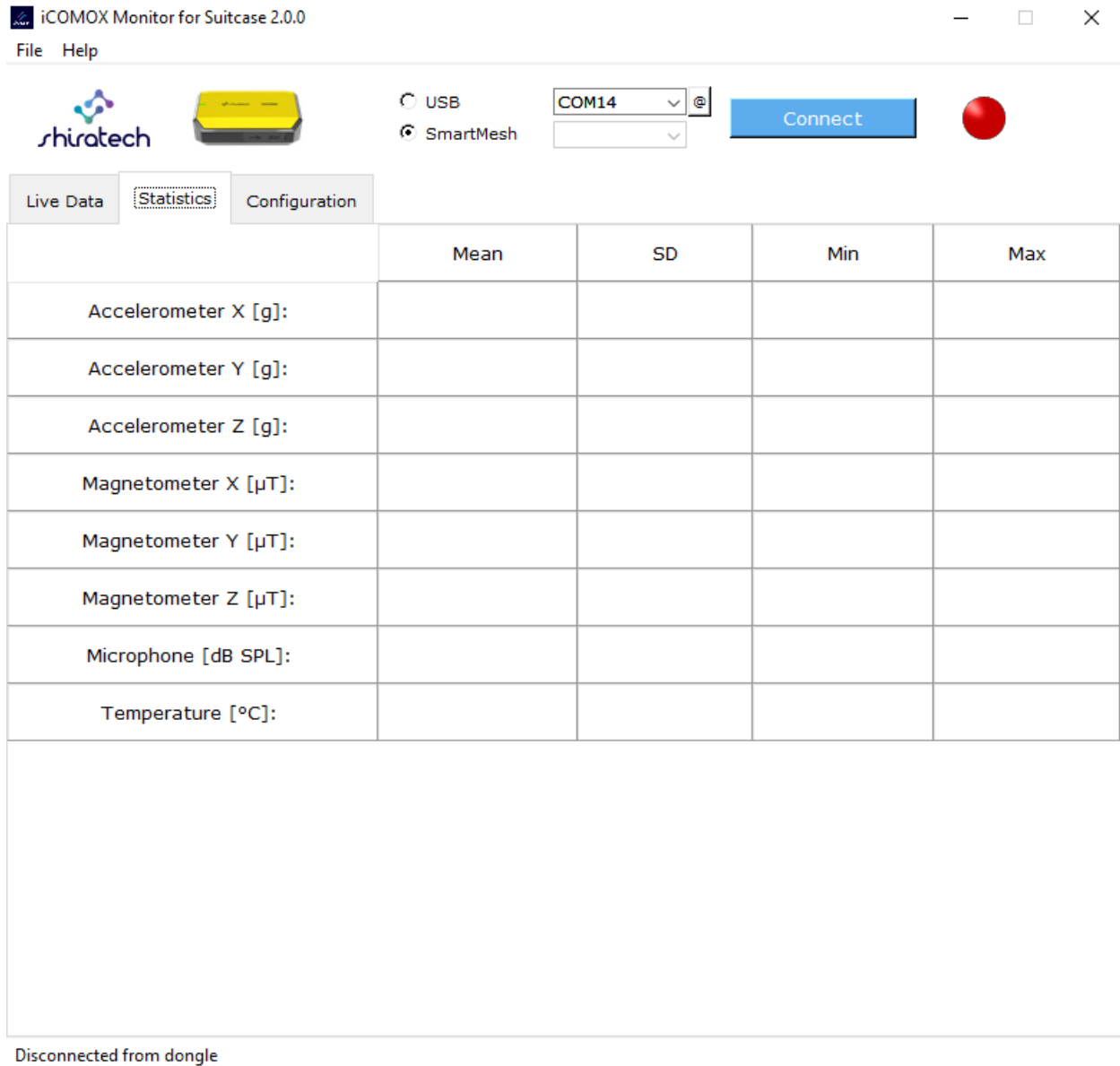


Figure 3 Statistics Tab.

2.6 Configuration Tab

Configuration tab is shown in Figure 3. It contains three main functional areas:

- Data Acquisition
sensor selection for data acquisition and display in the main GUI window.

- Save to File
 - This option allows the user to save currently acquired live sensor data into a log “xlsx” file. Once the user has selected “Save to File” option, the directory for file storage must be specified by clicking on “Browse” button. Afterwards the desired sensor data to be saved into the log file must be selected. Once this has been done the user can press the “Start” button at any time while the iCOMOX is connected to start the data recording. When the user presses the “Stop” button the GUI stops recording the data and saves the log file in the specified directory.

- Transmission Mode

Operation mode selection:

- Stream:

In the ‘Stream;’ mode, the data are transmitted and displayed continuously, allowing very quick response time to any change in the motor’s statistics.

- On Schedule:

In the ‘On Schedule’ Mode the data are transmitted only every selected amount of hours and minutes specified by the user. This mode can be used in order to lengthen battery life, on the expense of the response time.

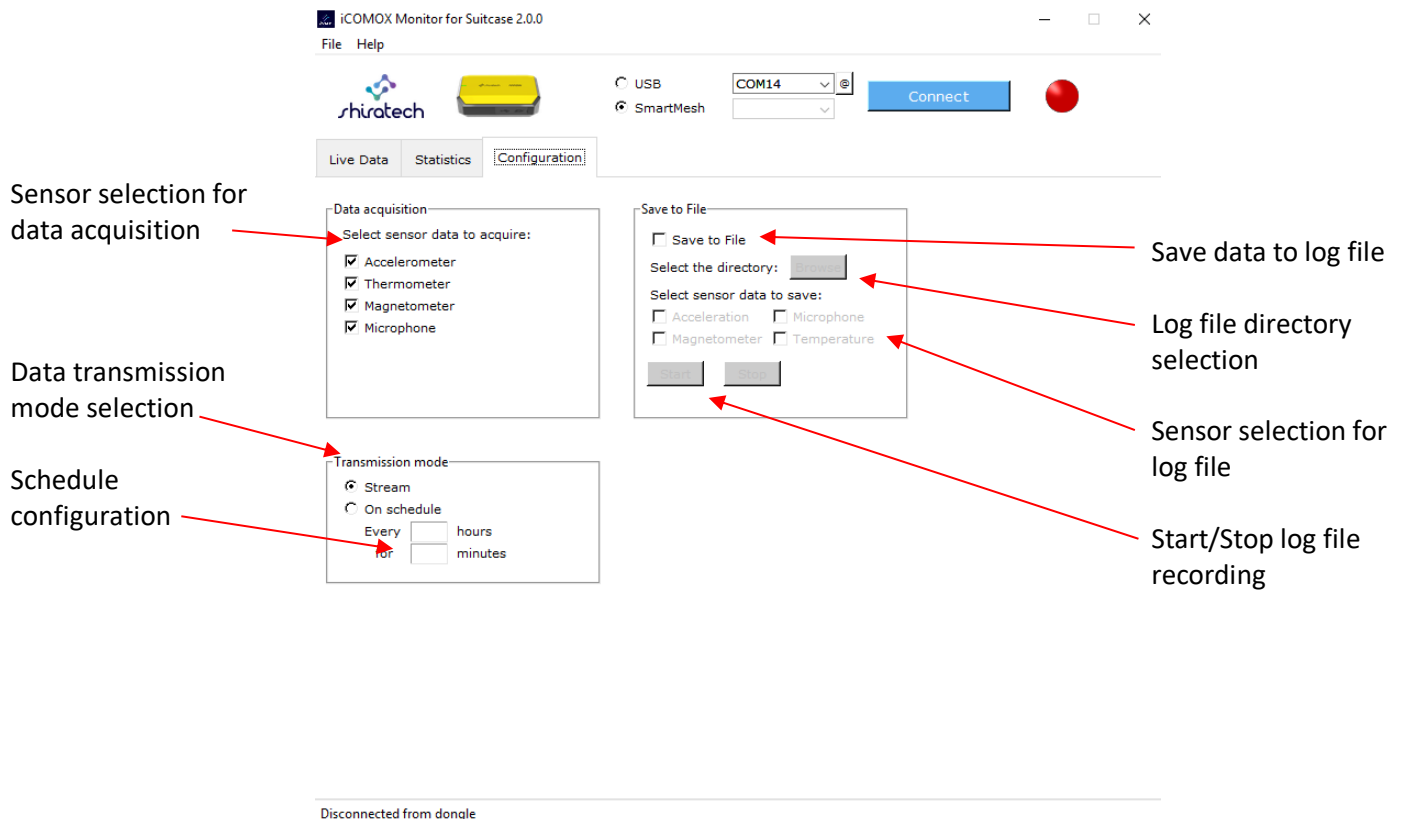


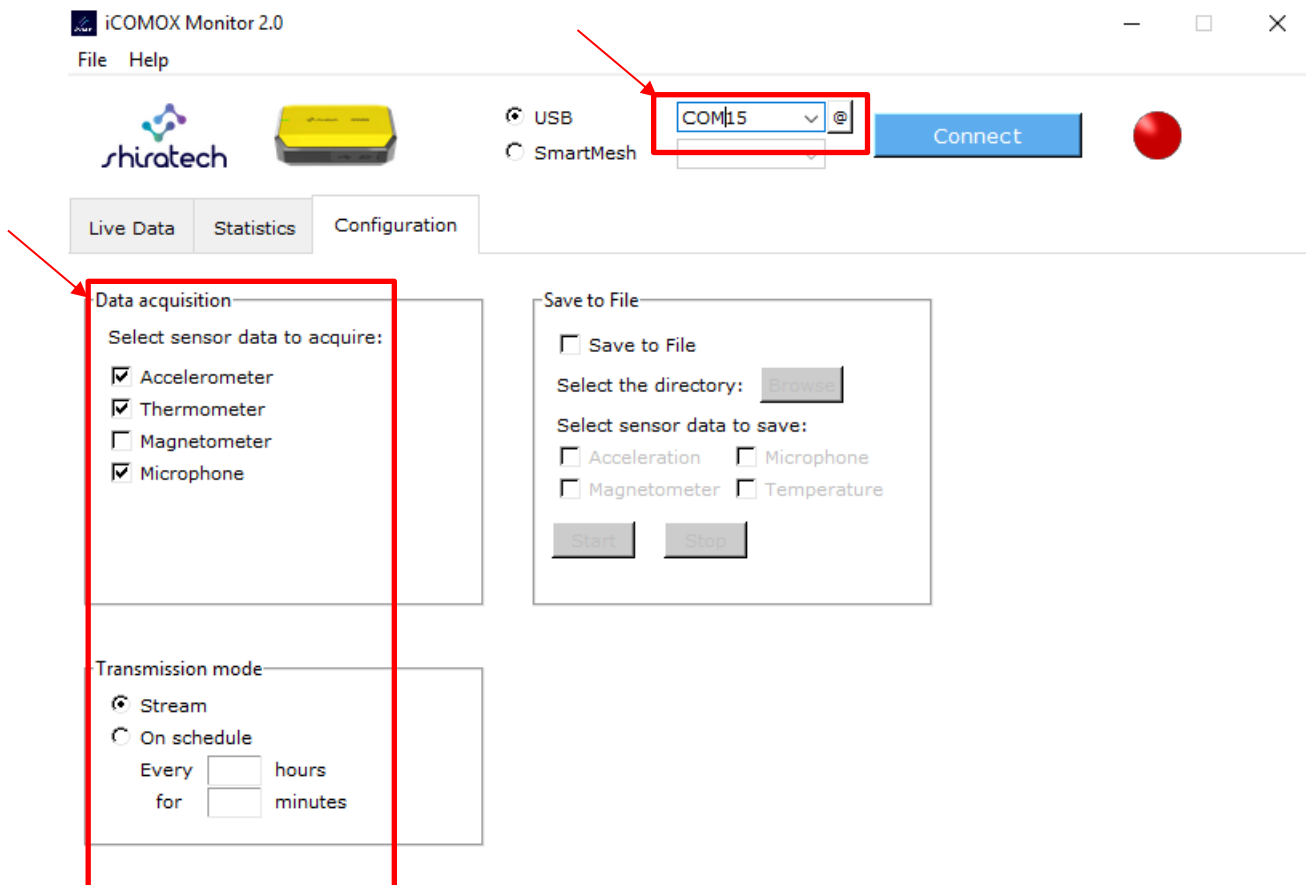
Figure 4 Configuration Tab.

3. Quick Start

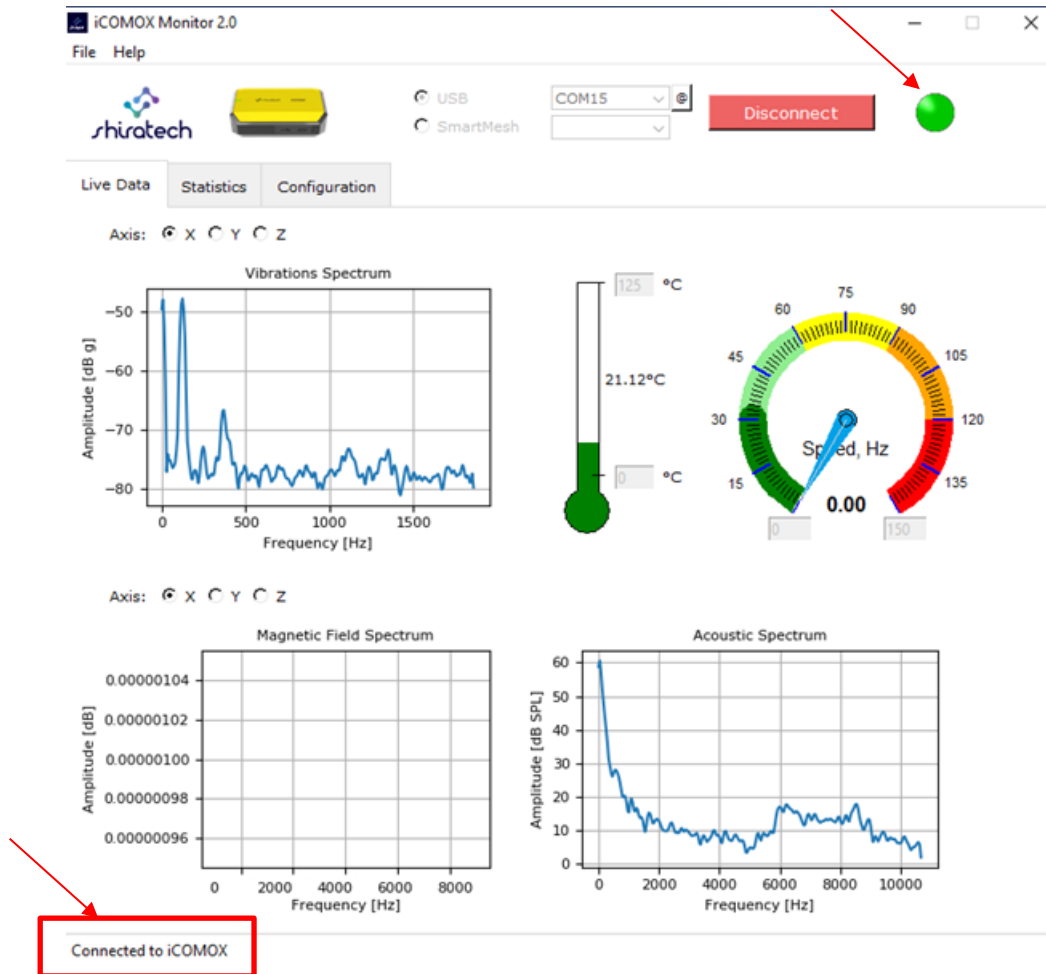
Communication with the iCOMOX is enabled via both serial USB cable connection and through SmartMesh connection.

3.1 USB Cable Connection

1. Connect the iCOMOX to your Windows PC using the USB-C cable.
2. To verify that the iCOMOX is connected, verify that the blue LED on the iCOMOX is on.
3. Launch the Device Manager, and check which COM port represents the iCOMOX.
4. Launch iCOMOX Monitor (in case installation is needed, see the Installation Instructions).
5. In the Communication panel, select the USB communication mode, then open the COM port drop-down menu.
6. From the drop-down menu, Select the suitable COM port.
7. In the Configuration tab, select the sensor data to be acquired and the data transmission mode.



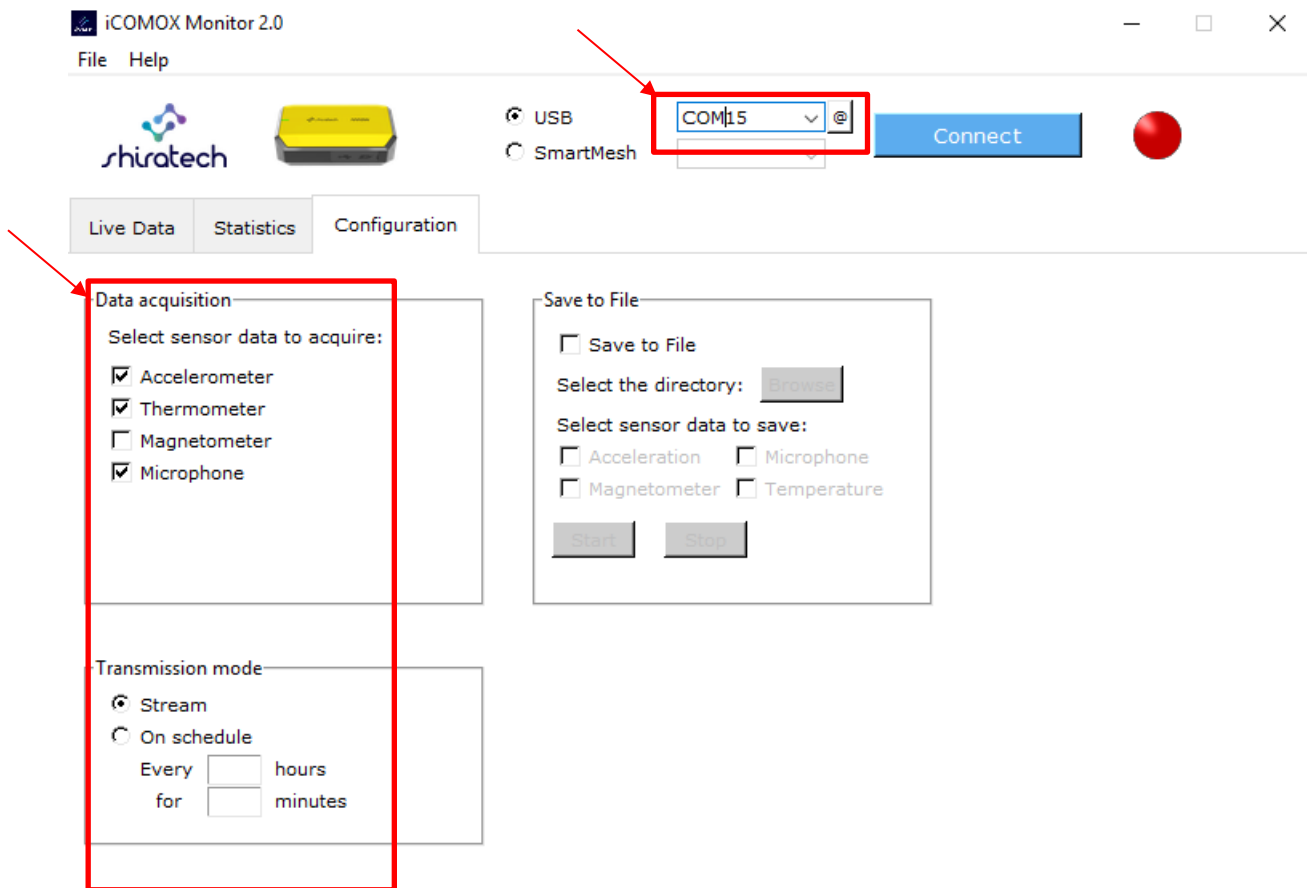
8. Click Connect.
9. In any case that the COM port drop-down menu is empty, close the iCOMOX Monitor window, turn the iCOMOX off and then on again, and repeat from Step 2.
10. To signal that the connection has been established successfully, the LED color in the GUI Communication panel should change to green and the Status bar should display “Connected to iCOMOX”.



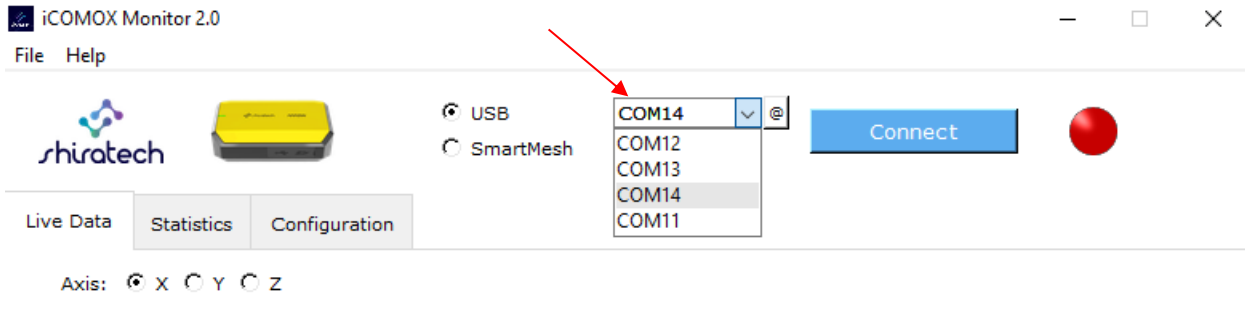
11. Live data will be displayed, in accordance with the sensors selected in Step 3.

3.2 SmartMesh Connection

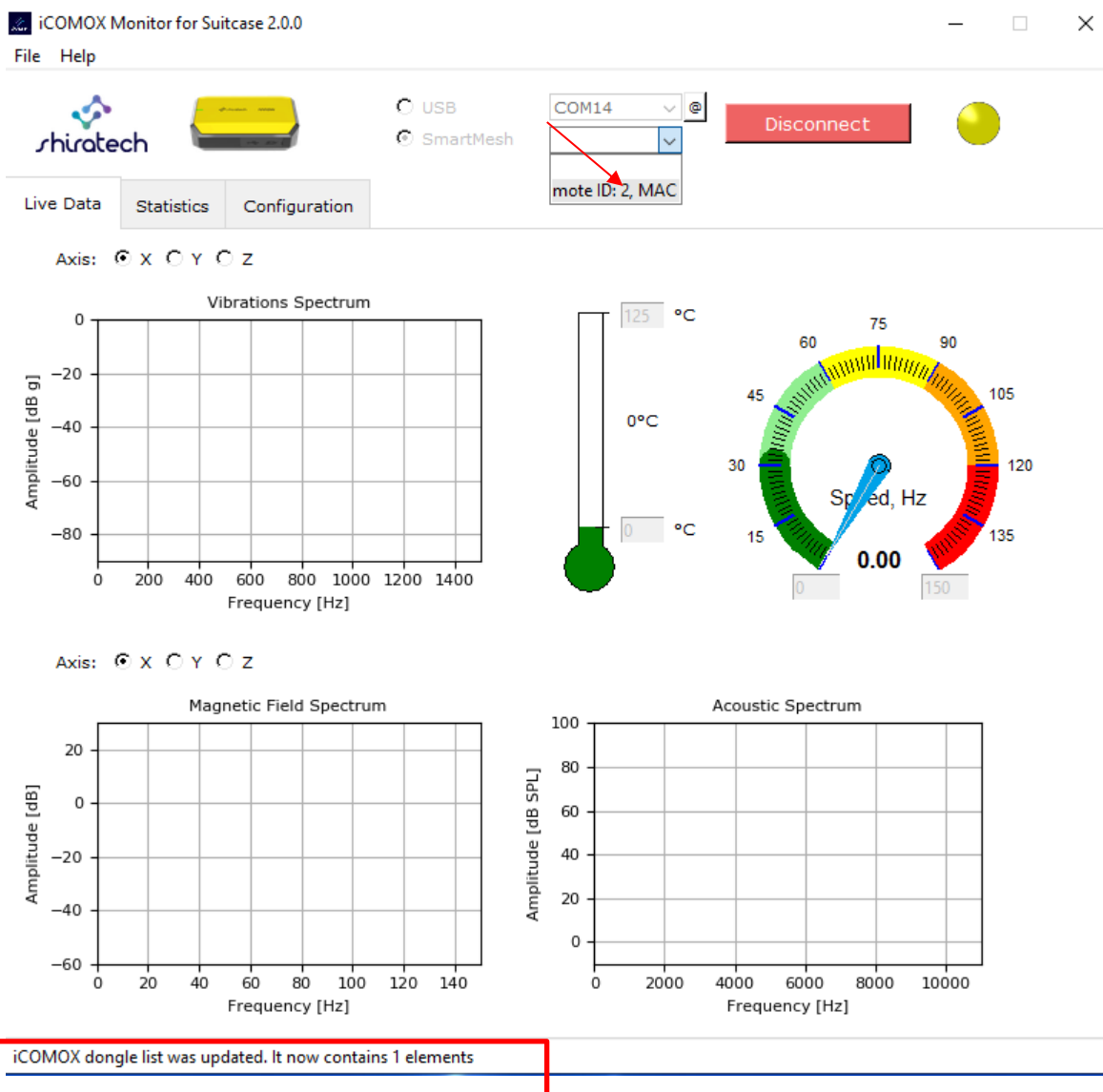
1. Connect the iCOMOX dongle (SMIP) to your Windows PC.
2. Verify that the iCOMOX is on (the blue LED on the iCOMOX must be on).
3. Launch the iCOMOX Monitor (in case installation is needed, see the Installation Instructions).
4. In the Configuration panel of the GUI select the sensor data to be acquired and the data transmission mode.



- In the Communication panel, select the USB communication mode. In the drop-down menu, four different COM ports should appear. Select the highest numbered COM port.



- Switch to SmartMesh, and click on the drop-down menu, then click Connect. The LED icon should turn yellow, to indicate that connection has been established between the iCOMOX and the dongle.
- The status bar should inform that the dongle list was updated. Once it contains 1 element, click on the drop-down menu next to the SmartMesh button.



8. Once a dongle was selected, data should start flowing to the Monitor. When a message from the iCOMOX will be received by the dongle, the LED will turn green.
9. The panels previously selected in the Configuration tab should now display the received data, and the Status bar should inform of the received data packets.



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