

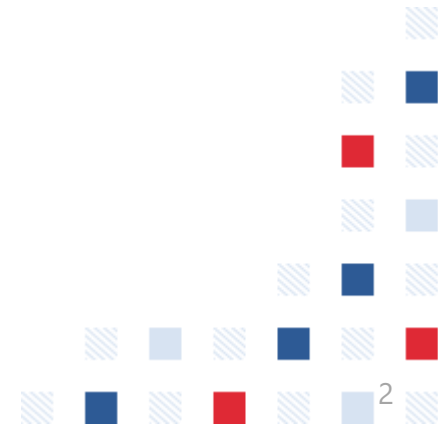
EAP Sensor Wired Evaluation Kit User Manual



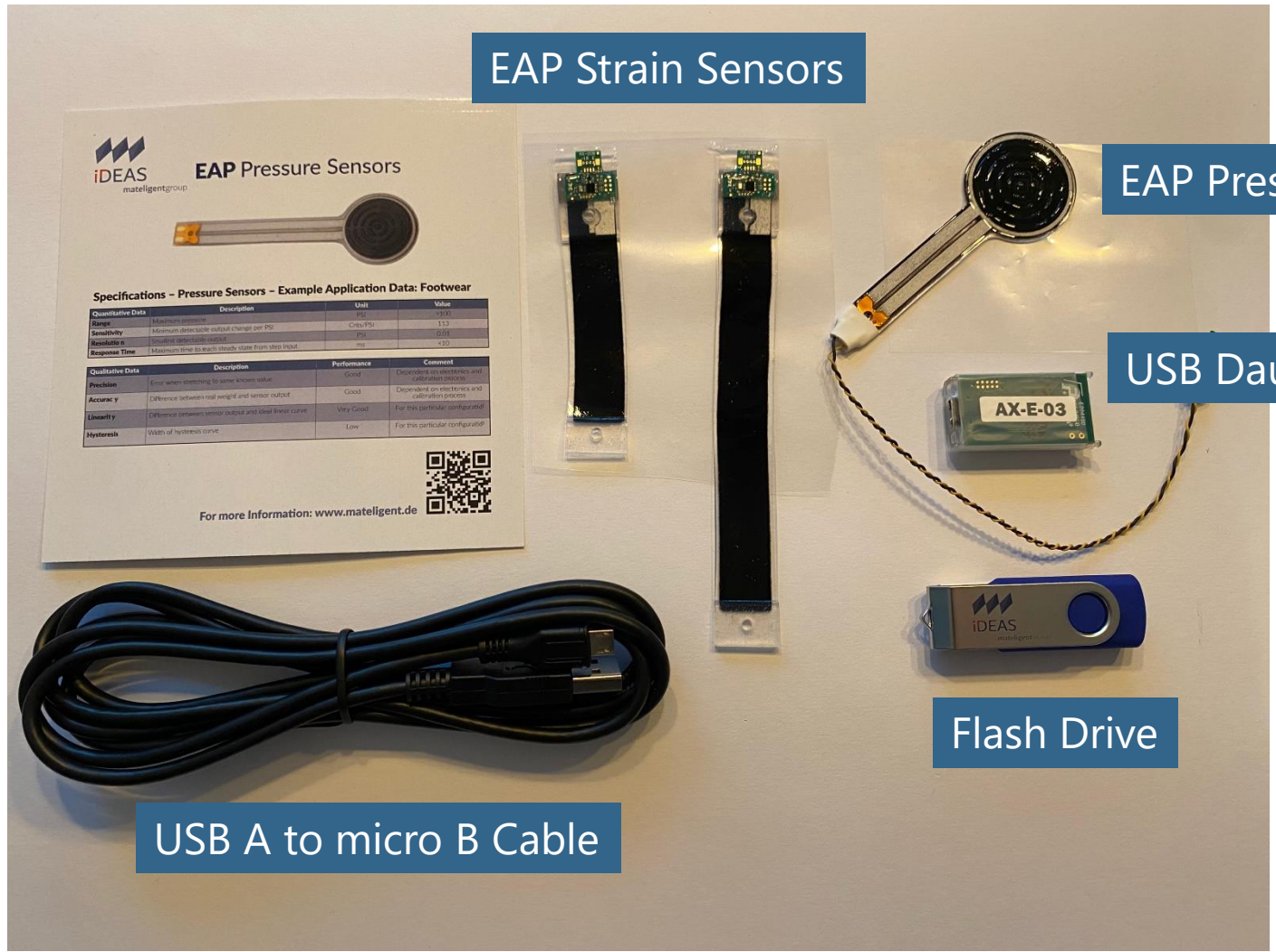
Transforming ideas into success

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Kit Contents



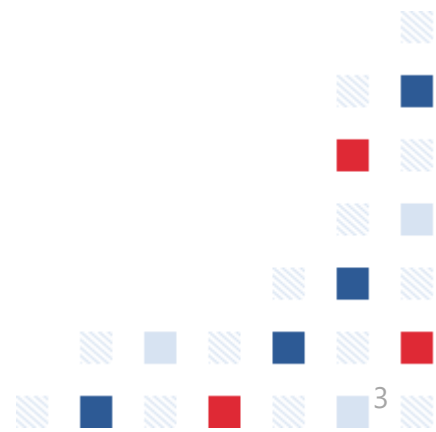
EAP Strain Sensors

EAP Pressure Sensor

USB Daughterboard Adaptor

Flash Drive

USB A to micro B Cable



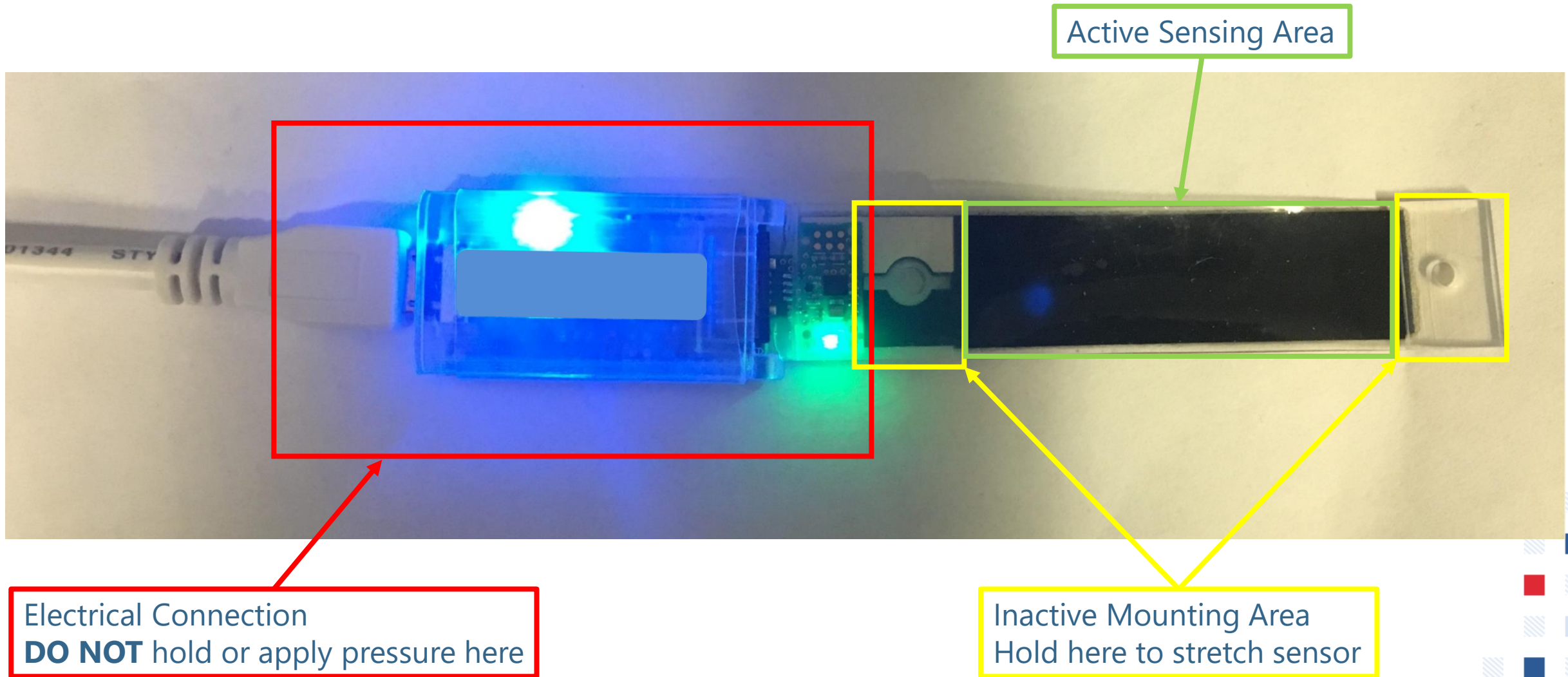
Strain Sensor Connected to USB Daughterboard connected to PC with LED indicator lights on



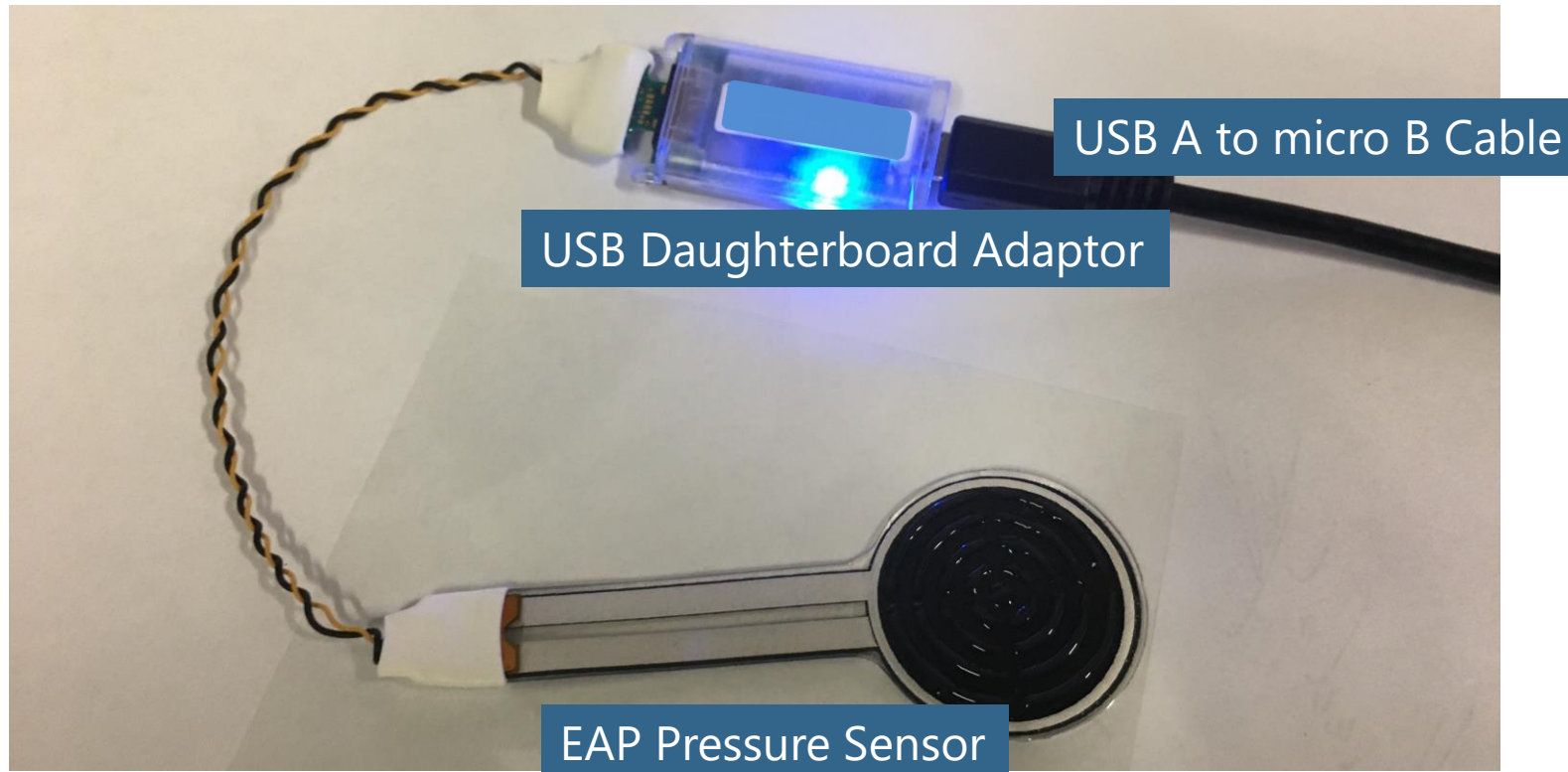
IMPORTANT NOTE:

Always plug the sensor into the USB daughterboard BEFORE plugging the USB cable into the PC. **Never** try to plug a sensor into a powered (blue LED lit) USB daughterboard.

Strain Sensor Proper Use



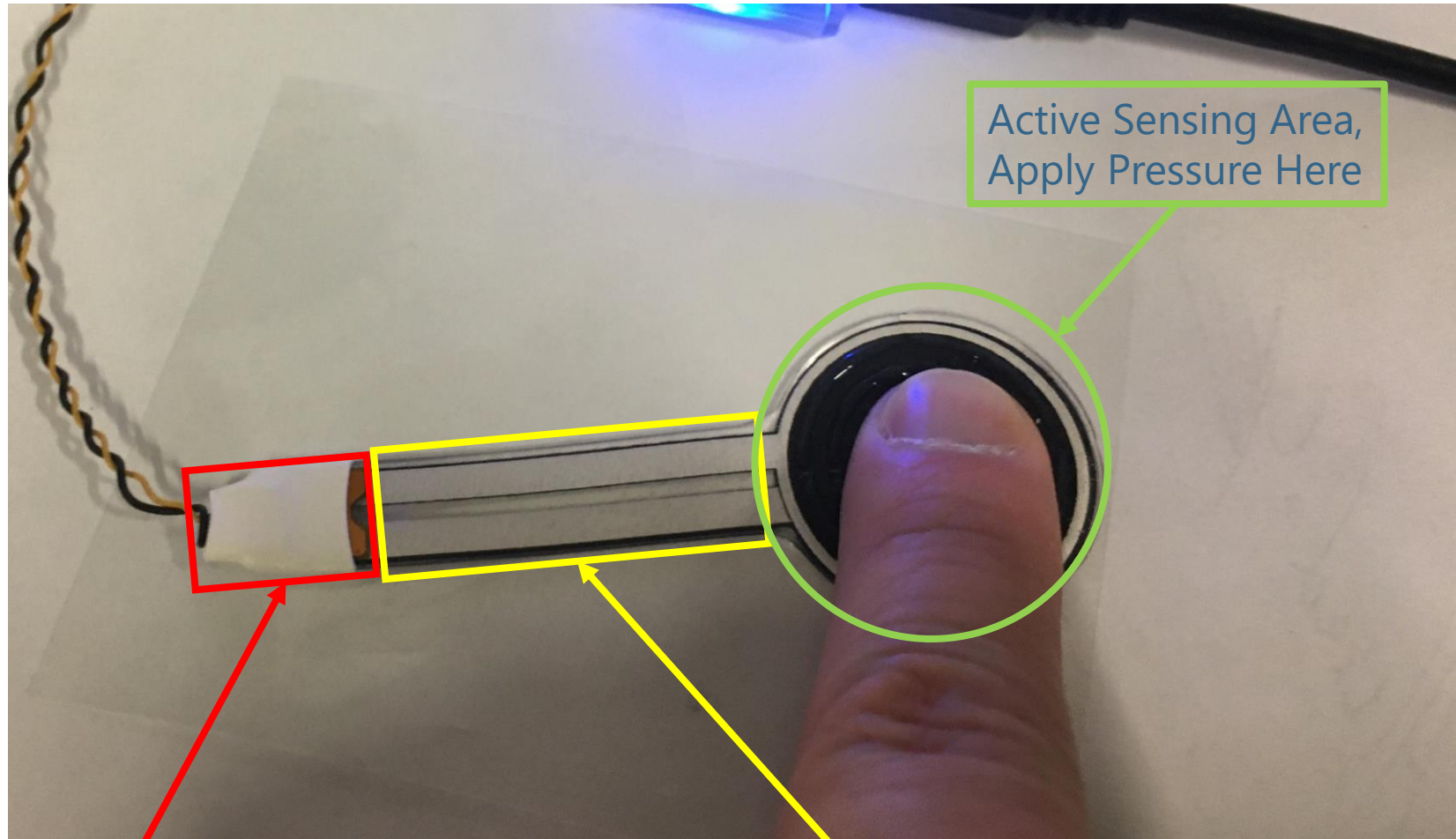
Pressure Sensor Connected to USB Daughterboard connected to PC with LED indicator lights on



IMPORTANT NOTE:

Always plug the sensor into the USB daughterboard BEFORE plugging the USB cable into the PC. **Never** try to plug a sensor into a powered (blue LED lit) USB daughterboard.

Pressure Sensor Proper Use

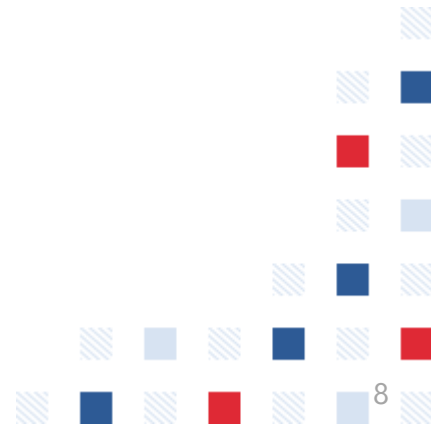


Electrical Connection
DO NOT hold or apply pressure here

Inactive Area
Avoid Pressure here.

Active Sensing Area,
Apply Pressure Here

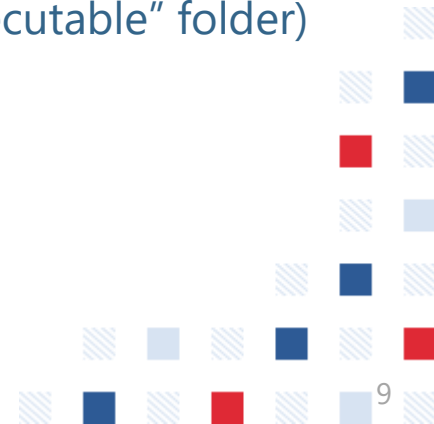
NOTE: In order to install the required software, you will need admin rights to your computer. If you do not have admin rights, speak to your IT department before continuing.



LabVIEW Software install guide

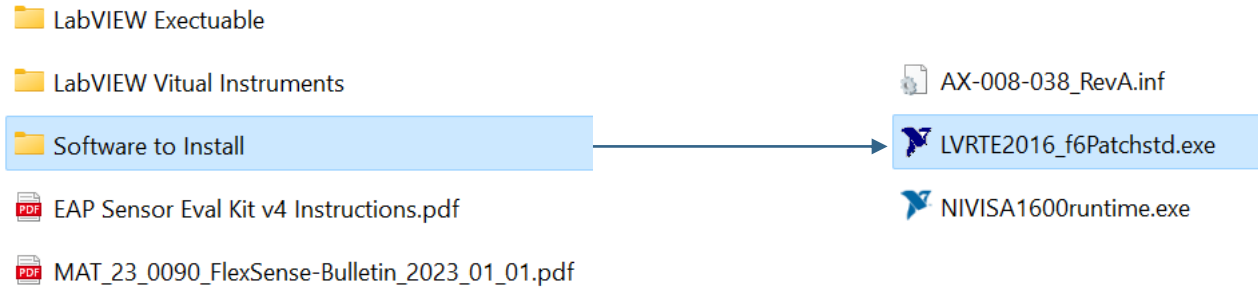
- **If you already have LabVIEW 2016 installed with a valid license:**
 1. Launch the "mateligent_iDEAS_EAP_Eval_Kit_v1p2.vi" (Found in "LabVIEW Virtual Instruments" folder) directly through LabVIEW
- **If you have LabVIEW 2016 Run-Time Engine installed**
 1. Run the "NIVISA1600runtime" if "NI VISA" was NOT installed with the Run-Time engine. (this installs the LabVIEW serial com drivers)
 2. Launch the "mateligent_iDEAS_EAP_Eval_Kit_v1p2.exe" file (Found in "LabVIEW Executable" folder)
- **If you have NO LabVIEW software currently installed (MOST USERS)**
 1. First install the LabVIEW Run-Time Engine: "LVRTE2016_f6Patchstd"
 2. Then run the "NIVISA1600runtime" (this installs the LabVIEW serial com drivers)
 3. Then you can launch the "mateligent_iDEAS_EAP_Eval_Kit_v1p2" file (Found in "LabVIEW Executable" folder)

NOTE: When installing these programs, install with default settings by continuing to press next.
Your computer will need to restart.

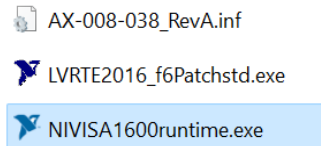


LabVIEW Software install guide

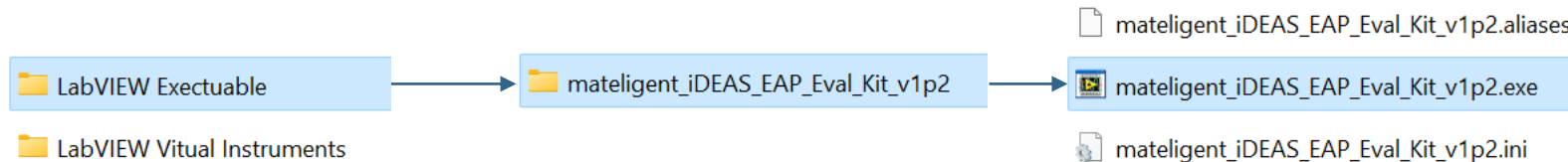
- If you have NO LabVIEW software currently installed (MOST USERS)
 1. First install the LabVIEW Run-Time Engine: "LVRTE2016_f6Patchstd"
 - Go to the USB Disk, in the Folder "Software to install"



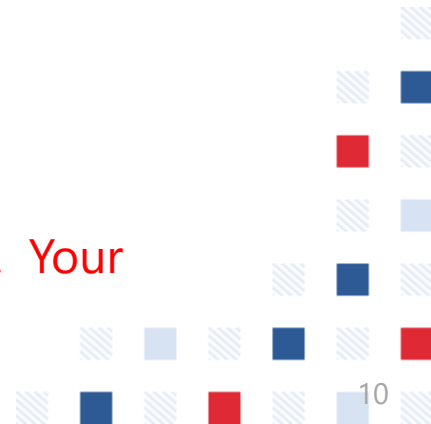
2. Then run the "NIVISA1600runtime" (this installs the LabVIEW serial com drivers)



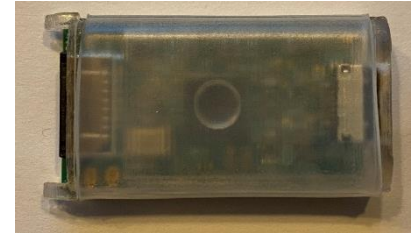
3. Then you can launch the "mateligent_iDEAS_EAP_Eval_Kit_vXpX.exe" file



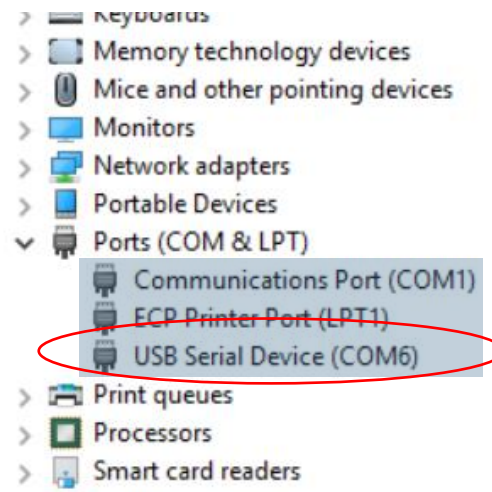
NOTE: When installing these programs, install with default settings by continuing to press next. Your computer will need to restart.



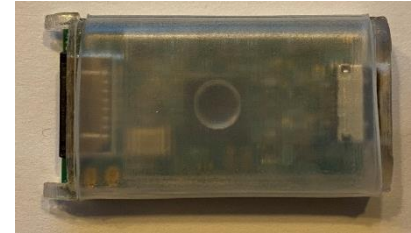
USB Daughterboard install guide



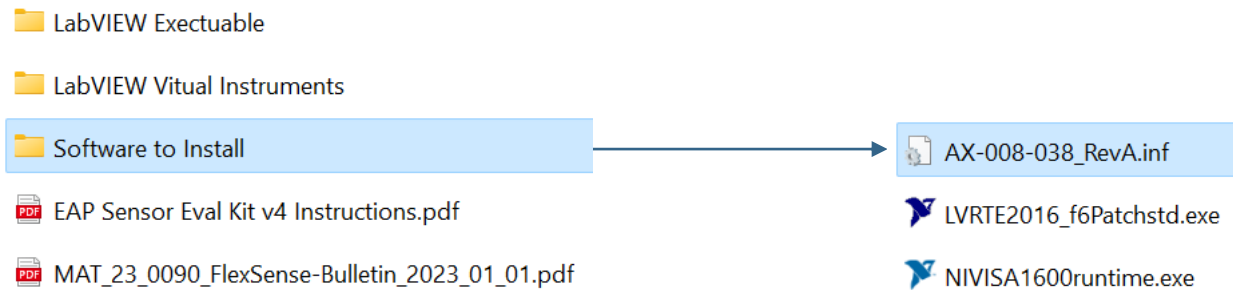
- First, plug the sensor into the USB daughterboard, then plug the daughterboard into the PC using the USB Cable.
- If using Windows 10 or later, it will install automatically and will show up in "Device manager" as a new COM port . **Continue to slide 18.**



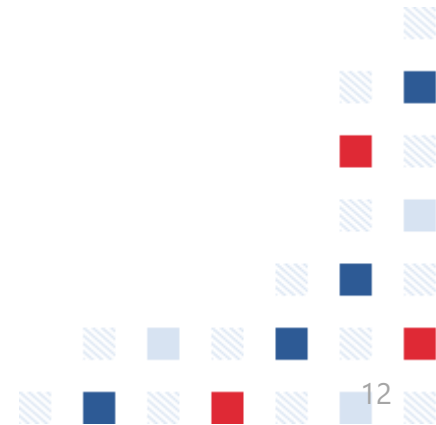
USB Daughterboard install guide



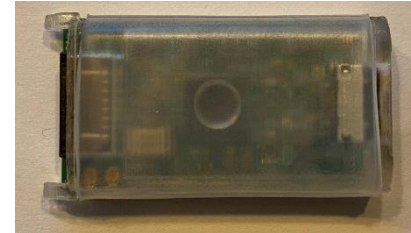
- If using Windows 7, Windows will try to search for a driver with windows update.
(SEE DETAILED WIN7 INSTALL DOCUMENT FOR STEP-BY-STEP INSTRUCTIONS)
- You will need to point to the driver which is in the "software to install" folder on the USB Drive: AX-008-038_RevA



- Once installed, it will also show up in the Device Manager as a COM Port.

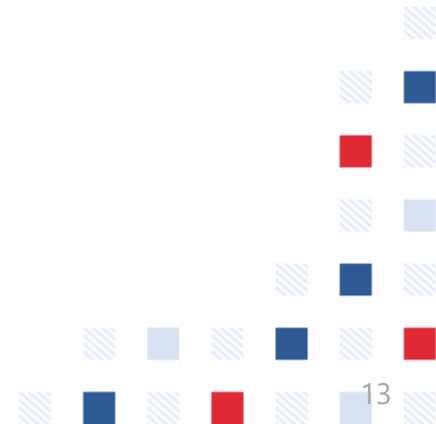
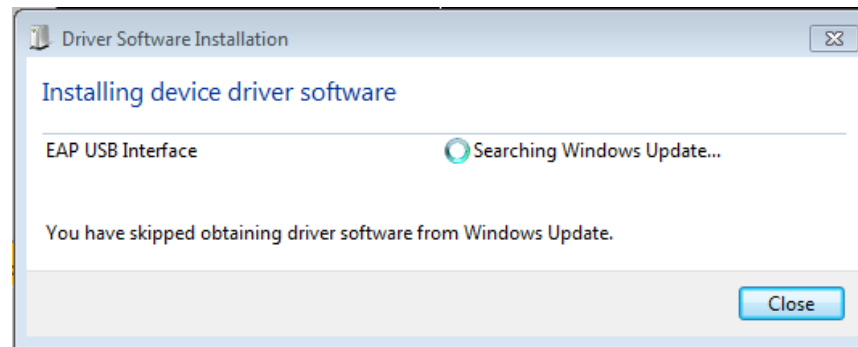


USB Daughterboard install guide



Detailed **WINDOWS 7** install → **Skip this, if you are using Windows 10 or newer**

1. Plug USB Board (with or without sensor attached) into USB port of your computer
2. Windows will try to install automatically and an "installing device driver software" window will appear:
3. Click "STOP SEARCHING WINDOWS UPDATE".

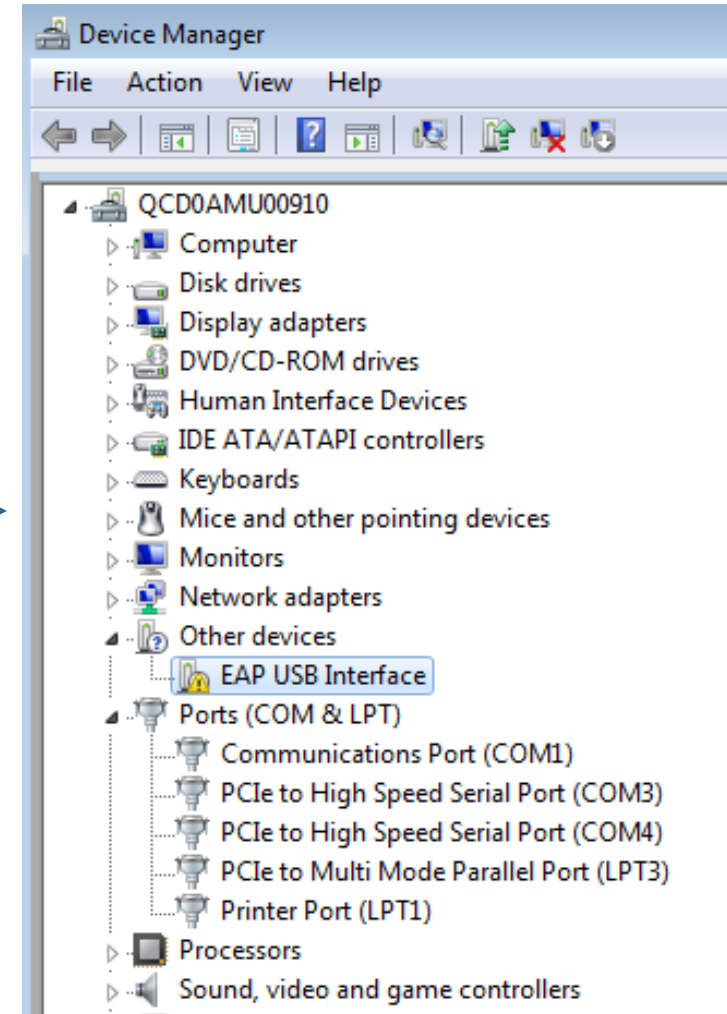
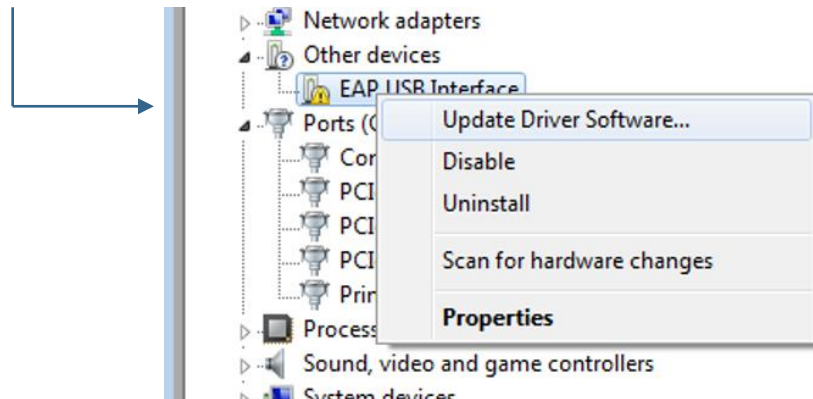


USB Daughterboard install guide



Detailed **WINDOWS 7** install (continued)

4. Go to your "Device Manager"
5. Find under "Other devices" the "EAP USB Interface device" →
6. Right Click and select "Update Driver Software"



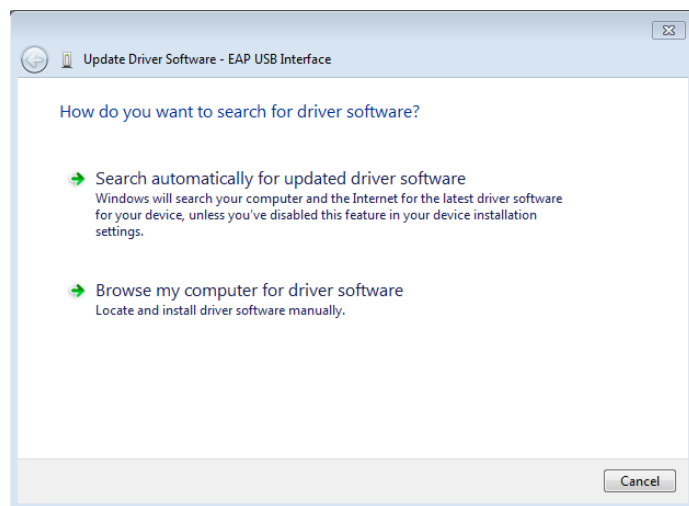
USB Daughterboard install guide



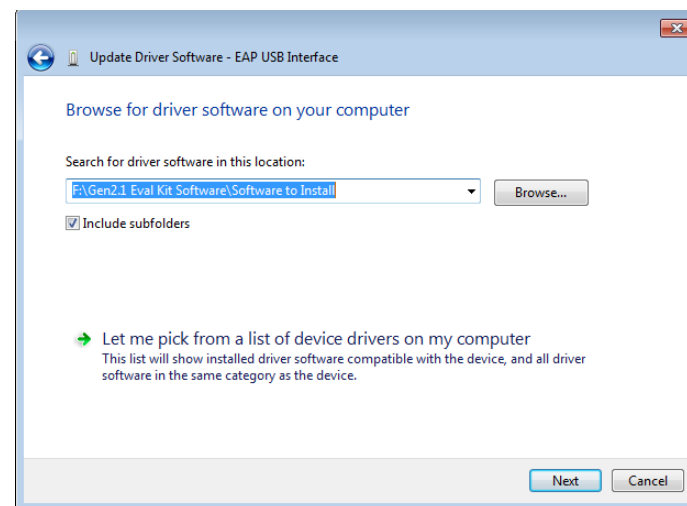
Detailed **WINDOWS 7** install (continued)

7. Select “Browse my computer for driver software”

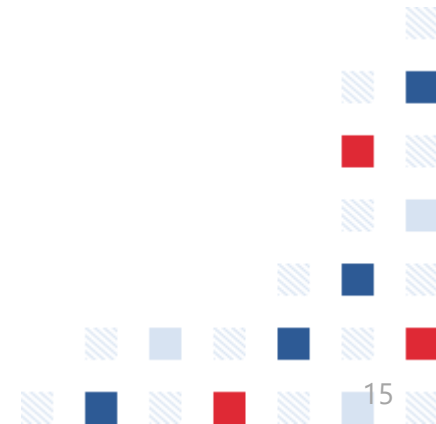
8. Find the folder “Software to install” on the USB jump drive included with the kit, and click “Next”



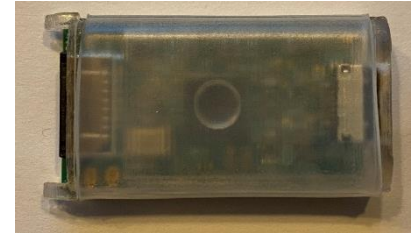
7.



8.

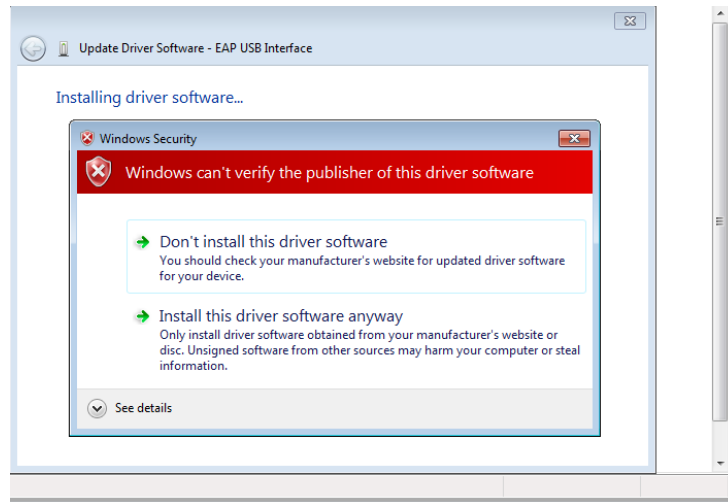


USB Daughterboard install guide

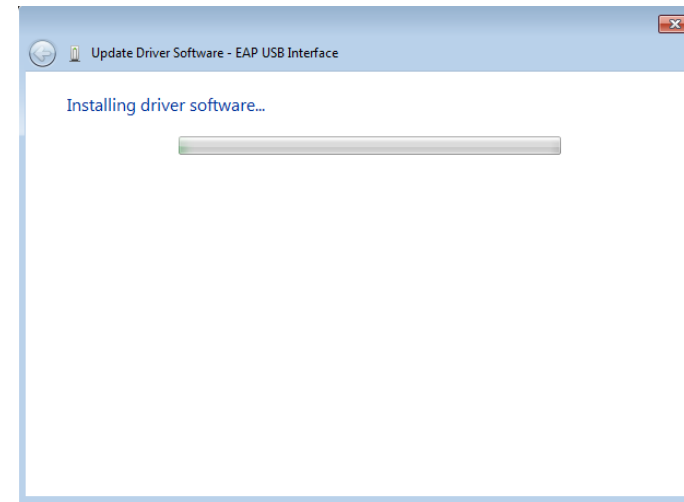


Detailed **WINDOWS 7** install (continued)

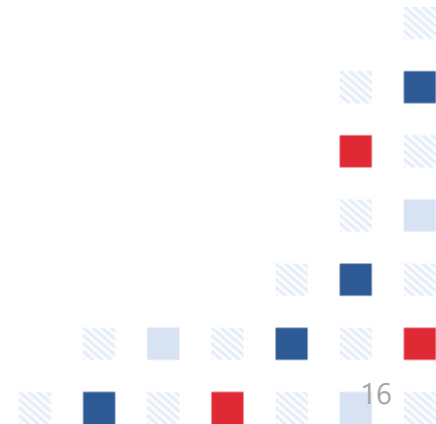
9. Accept the security warning, select "Install this driver software anyway"
10. Windows will start installing driver software



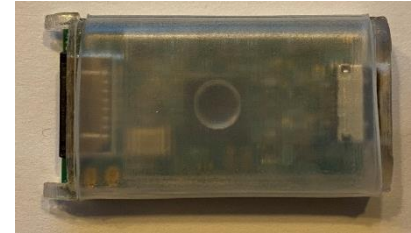
9.



10.

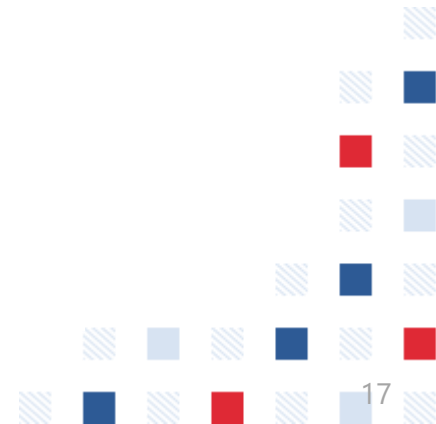
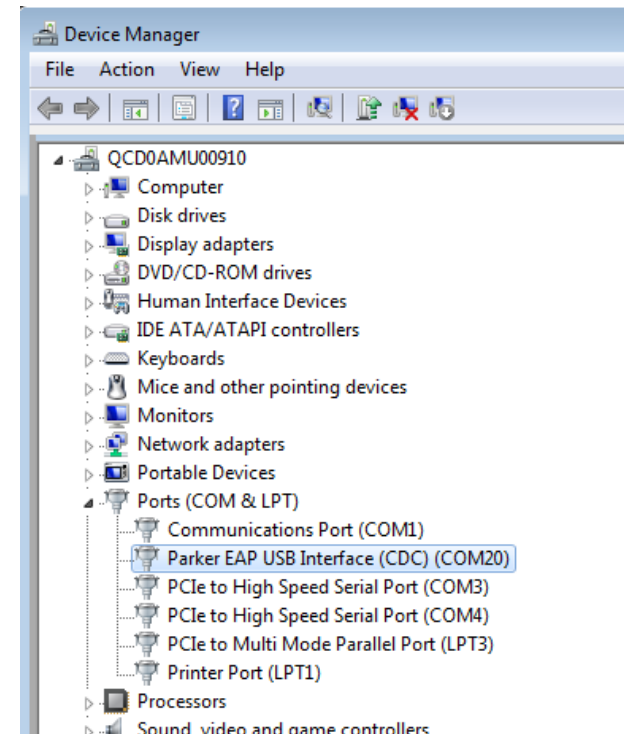
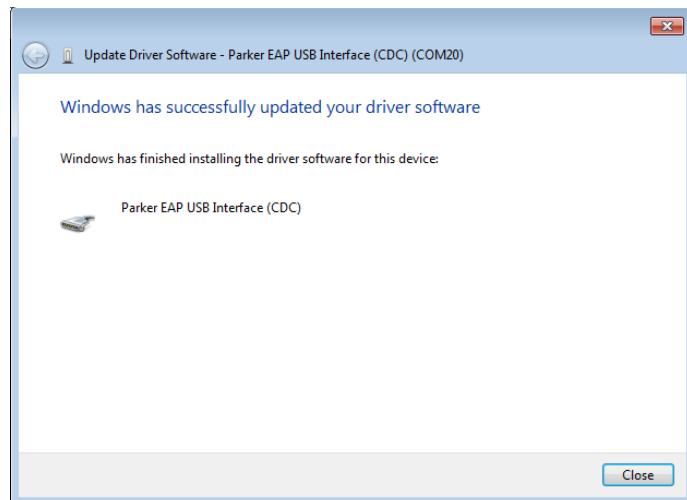


USB Daughterboard install guide

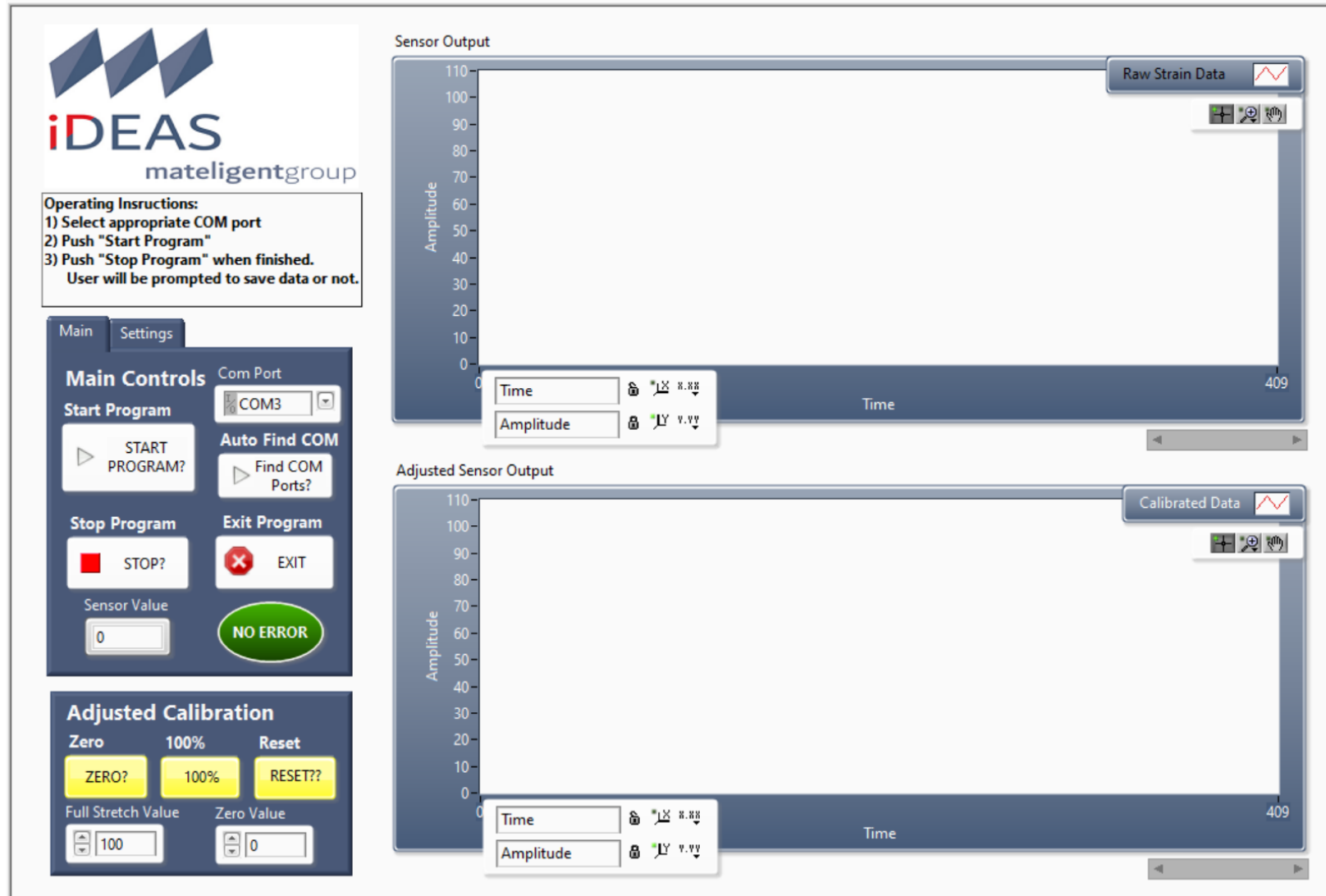


Detailed **WINDOWS 7** install (continued)

Once install is successful, you should see the "Parker EAP USB Interface" show up as a COM Port in "device manager"



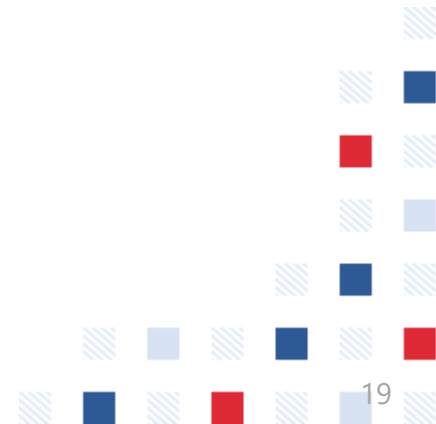
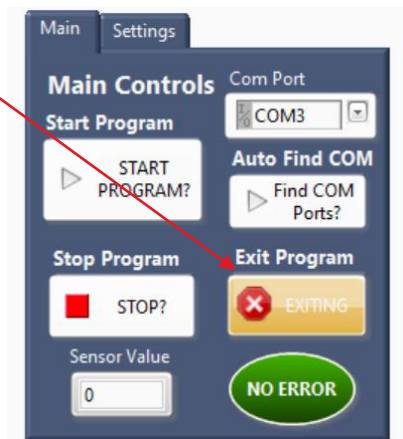
LabVIEW Software GUI



- This RUN arrow will initiate the program (or VI for Virtual Instrument in LabVIEW terminology)



- NOTE: This will start automatically when you launch the program. If you EXIT the program using the EXIT button, this arrow will restart the program.

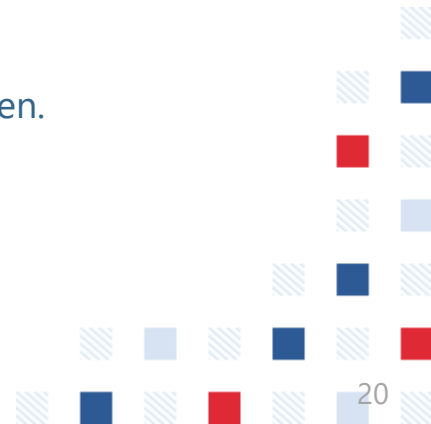


LabVIEW Software: Starting Data Stream

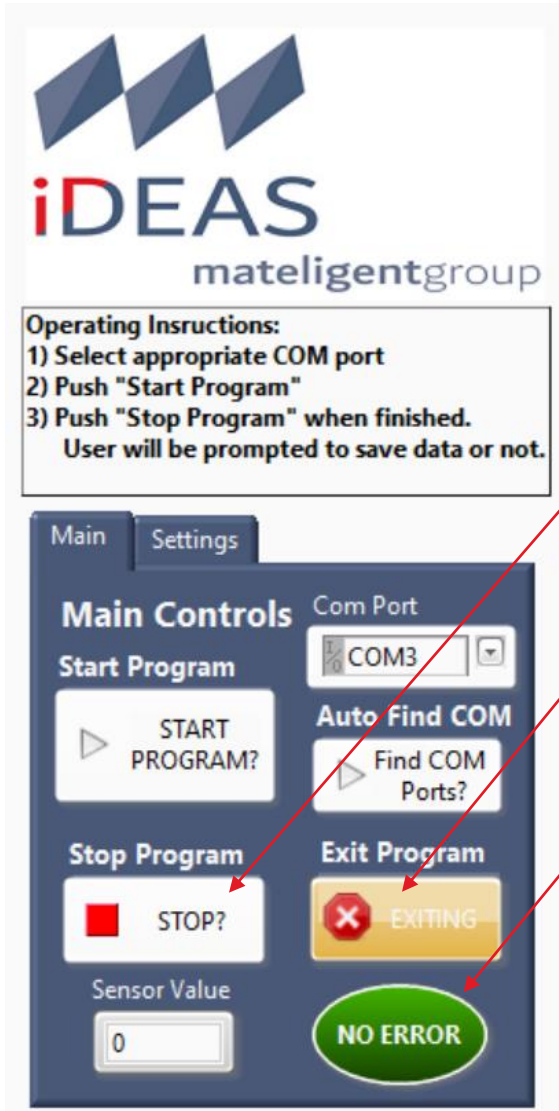


1. On the MAIN controls tab
2. Choose proper Com Port
→ You can also press the "Auto Find COM" to have the program search for EAP sensors attached to your PC
3. Press the "Start Program" button to start the program
4. Once the program has started, the "Start Program" button will turn Green.

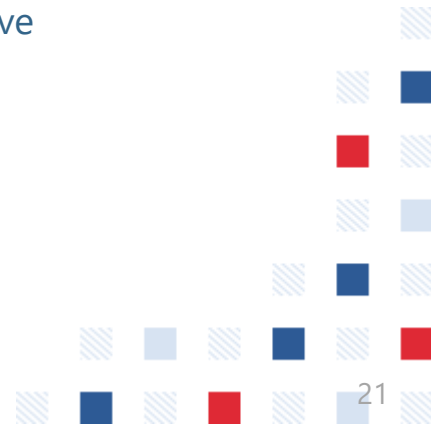
NOTE: If you choose the wrong COM PORT or the device is not connected, you will be notified by the program, and will have to try again.



LabVIEW Software: Stopping Data Stream

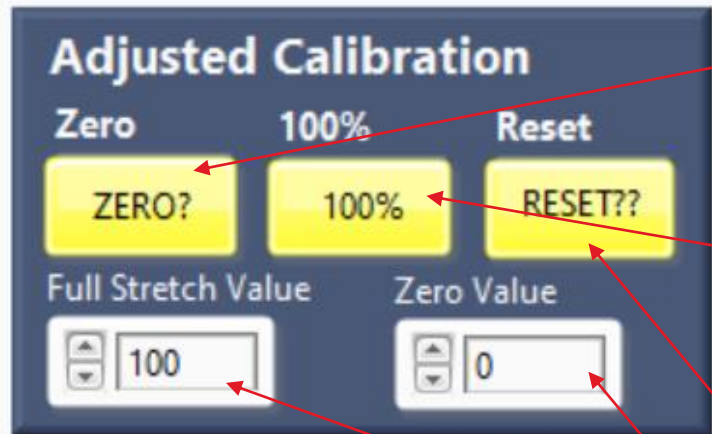


1. You can STOP the program using the STOP button. The program will not exit, and you can restart the program using the START button.
2. If you push the EXIT Button, the program will end and you will have to re-launch the .exe file or push the RUN arrow at the top left of the window.
3. If the sensor has an error, it will be indicated here
4. After pushing the STOP or EXIT button, the user will be prompted to save the data or not.



LabVIEW Software: Software Calibration

1. You can apply new calibration values in the software. (NOTE: This does not overwrite the hardware based calibration from the factory).
→ This software calibration is useful if you want to create your own "zero position" and your own "fully stretched position).

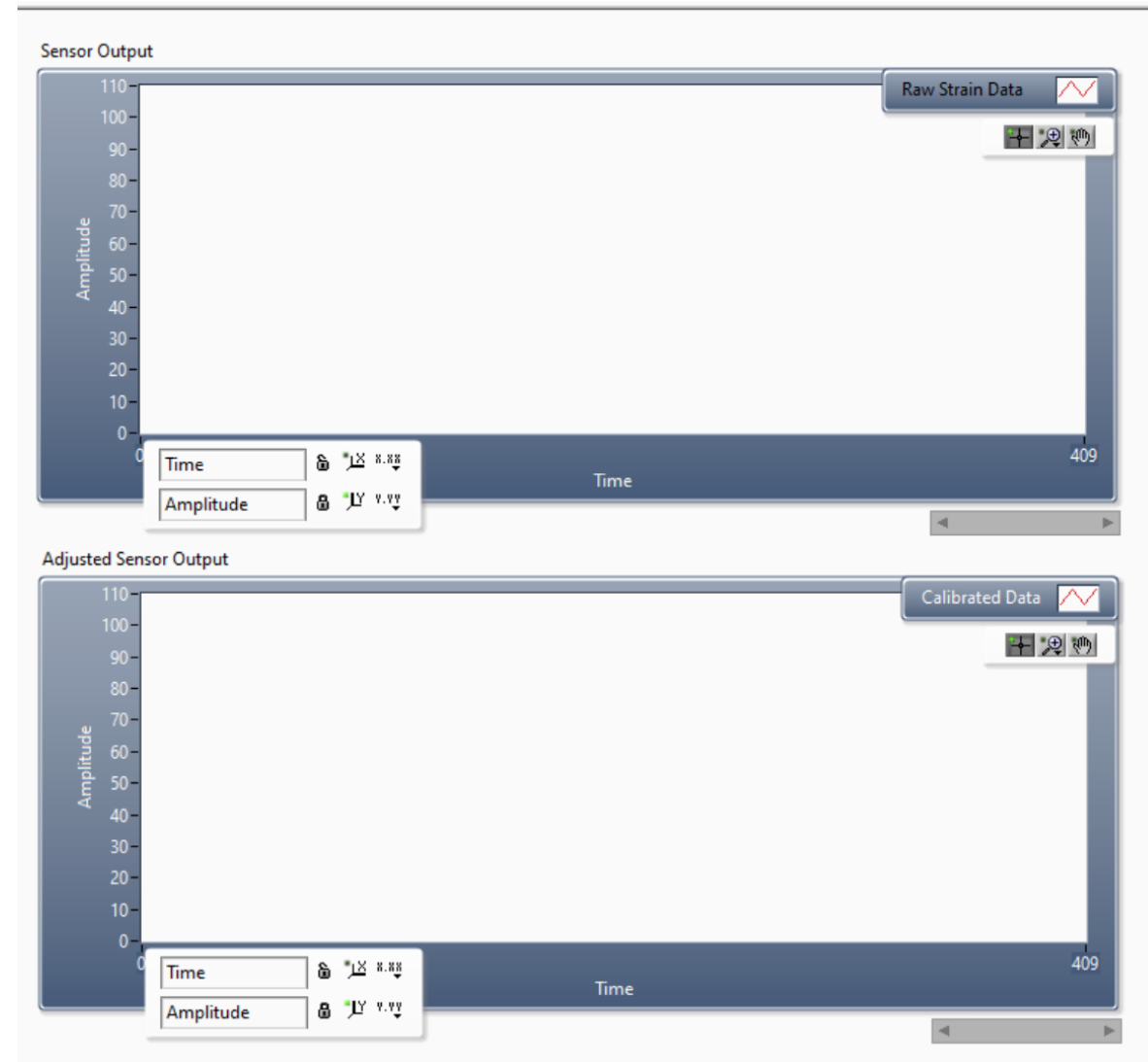


2. Hitting the "ZERO" button will make the current sensor position/stretch the new "zero" position. This will be reflected in the "Adjusted Sensor" readout (and subsequent data collection).
3. Hitting the "100%" button will make the current sensor position/stretch the new "100%" position. This will be reflected in the "Adjusted Sensor" readout (and subsequent data collection).
4. Pressing the "Reset" button will reset the zero and full stretch values.
5. You can manually enter new values here as well.

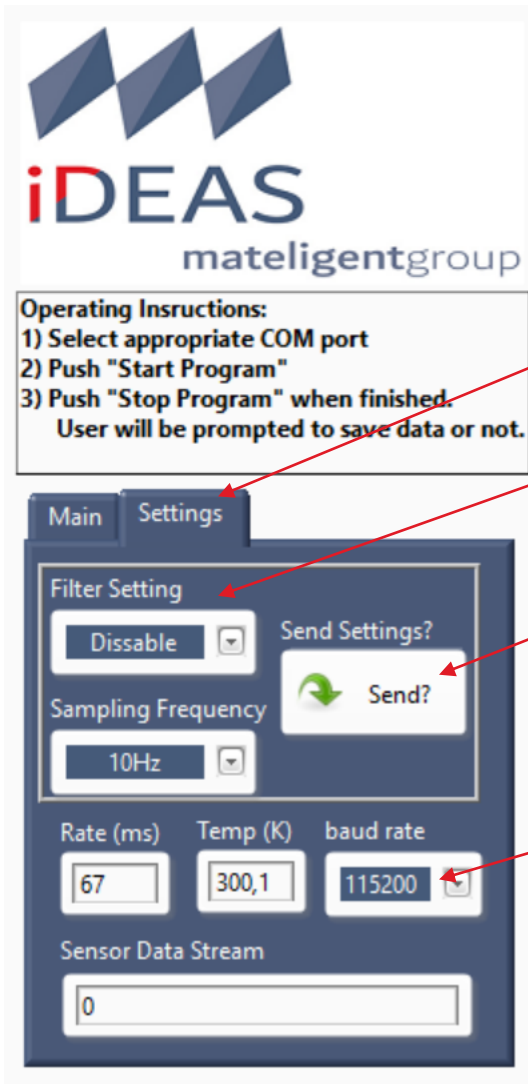
LabVIEW Software: Display Screen

The top display will graph the sensor data directly read from the serial line.
Minimum value is 0.00%

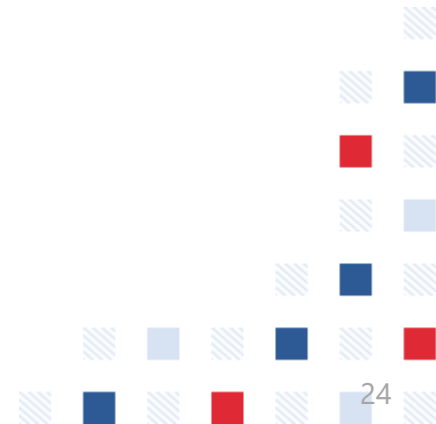
The bottom display will graph the data that is re-calibrated using the software calibration. If no software calibration is set, the top and bottom displays will be the same.



LabVIEW Software: Starting Data Stream



1. On the Settings controls tab
2. You can select various filter settings and sampling frequency
3. Once you have made your selection, press the "Send Settings" button to save those settings to the sensor PCB
4. The Baud rate is defaulted to 115200, which works with the AX-E-02 daughterboard. This should NOT need to be changed.



CONTACT



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