

Explore the next sense



**Getting Started Guide
Acconeer XE123/124
Entry+ Module Evaluation Kit**

Jan 2023

Installation guide

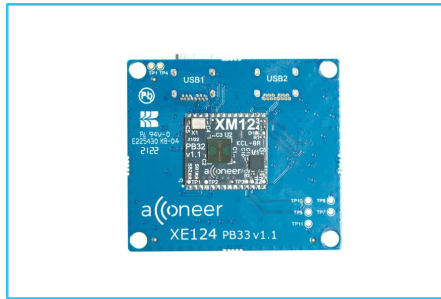
The XE124 is delivered non-flashed. This installation quick guide will show you how to get the Acconeer XE124 Module Server up and running. For a hands-on instruction video, please visit Acconeer channel. [Getting started with Acconeer A111 EVKs – YouTube](#)

In this guide we will refer to XE124 but everything is also applicable for XE123.

Preparing the HW Installation

The Evaluation kit for Our Entry+ Module (XM124) differs from previous EVK in that it comes already soldered onto the breakout board. All you need is the USB-C cable.

XE124 EVK



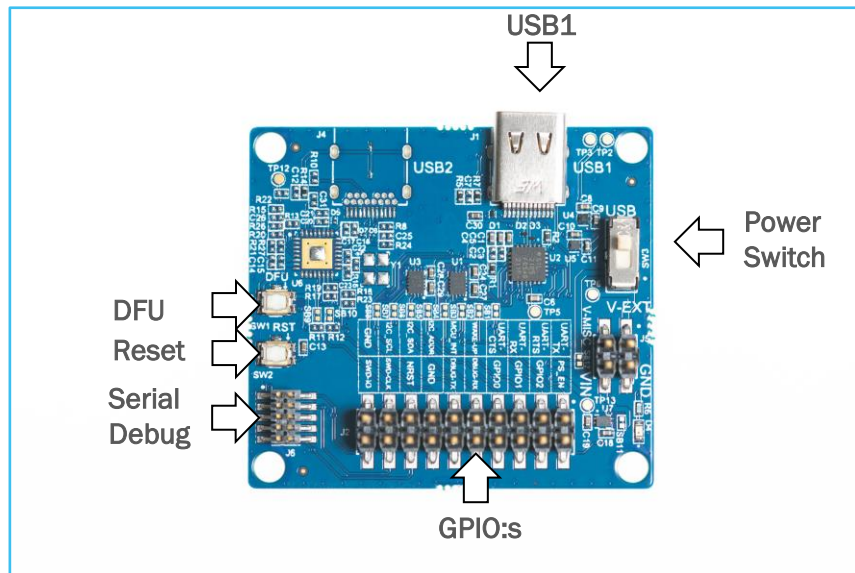
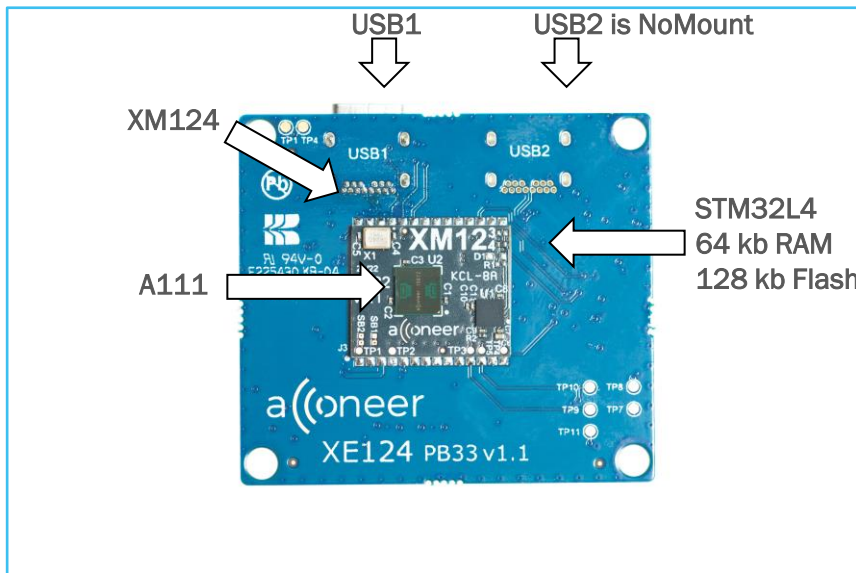
Additionally*:

- USB-C Cable for connection to PC

* Not provided by Acconeer.

HW Overview

XE124 EVK Front and Back Side



Preparing the SW installation

The following applications will be required to complete an installation. Also, they will be very useful when working with the Radar Sensor Module Server. Please download and install:

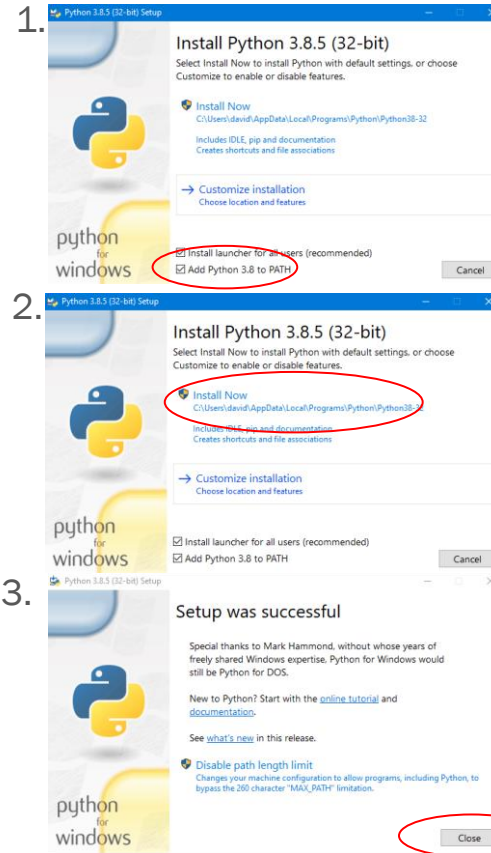
- Acconeer Module SW Image for XM124: Available from <https://developer.acconeer.com/>
- Acconeer Exploration tool: <https://github.com/acconeer/acconeer-python-exploration>

For all users (Windows, Linux):

- Python: Available from <https://python.org/downloads>

Installing python

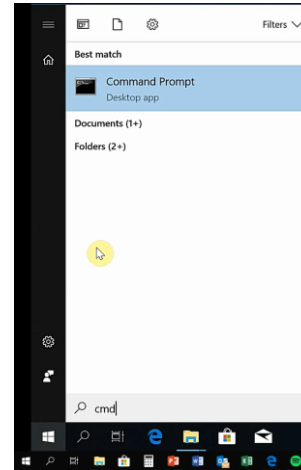
- Start the installer file that you downloaded from python.
- Make sure the Add Python to PATH option is selected. (Pic 1)
- Click Install Now. No need for a customized Installation. (Pic 2)
- Close once the installation is completed. (Pic 3)



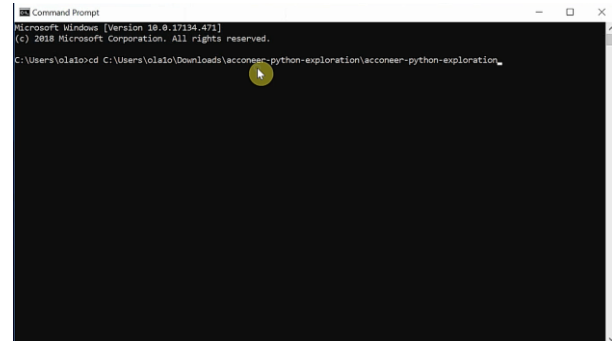
Installing Exploration tool

- Unzip the file downloaded from Acconeer. Acconeer-python-exploration
- Start windows command prompt. (Pic 1)
You can always find it by searching for “cmd”.
- In the command prompt, change the directory to where you unzipped the exploration tool by typing the command `cd` followed by the path to the folder. (Pic 2)

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Installing Exploration tool

- In Command Prompt: Run the command: `python -m pip install -U --user setuptools wheel`
- Then the command: `pip install --user -r requirements.txt` (Pic 1)
- Wait until the installation has finished and run the next command: `python setup.py install --user` (Pic 2)

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```

Microsoft Windows [Version 10.0.17134.471]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Users\olaio>cd C:\Users\olaio\Downloads\aconeer-python-exploration\aconeer-python-exploration
C:\Users\olaio\Downloads\aconeer-python-exploration\aconeer-python-exploration>pip install --user -r requirements.txt
Requirement already satisfied: setuptools in c:\users\olaio\appdata\local\programs\python\python37-32\lib\site-packages
(from -r requirements.txt (line 1)) (40.6.3)
Collecting numpy (from -r requirements.txt (line 2))
  Using cached https://files.pythonhosted.org/packages/42/5a/ef3de1cd47a5a6baca41215fba0528ee27725960450229190abf8a6dd
2/numpy-1.15.4-cp37-none-win32.whl
Collecting pyserial (from -r requirements.txt (line 3))
  Using cached https://files.pythonhosted.org/packages/0d/e4/2a744d93e3be048c0907414e2a01a7c88bb3915cbe38cc06e209f59c3
0/pyserial-3.4-py2.py3-none-any.whl
Collecting matplotlib (from -r requirements.txt (line 4))
  Using cached https://files.pythonhosted.org/packages/3f/16/4500e22ea8d11f4946bd902695d0113f82a0aac45f352478f157ca6623
d/matplotlib-3.0.2-cp37-cp37m-win32.whl
Collecting pyqtgraph (from -r requirements.txt (line 5))
  Using cached https://files.pythonhosted.org/packages/cd/ad/307e0280df5c19986c4206d138ec3a8954afc722cea991f4ad4a16337d
9/pyqtgraph-0.10.0.tar.gz
Collecting PyQt5 (from -r requirements.txt (line 6))
  Using cached https://files.pythonhosted.org/packages/26/78/c215008e70982944272b6c329a76cc11259e7378a3e23418f0e0b448de9
6/PyQt5-5.11.3-5.11.2-cp35-cp36-cp37-cp38-none-win32.whl
  
```

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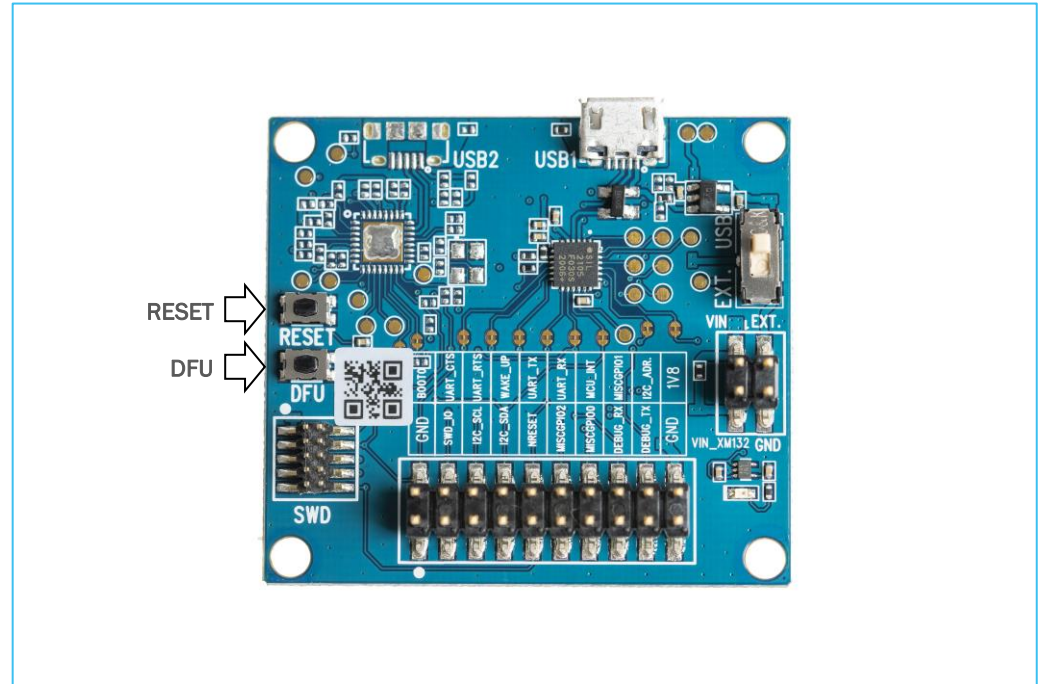
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Collecting pyqtgraph (from -r requirements.txt (line 5))
  Using cached https://files.pythonhosted.org/packages/cd/ad/307e0280df5c19986c4206d138ec3a8954afc722cea991f4ad4a16337d
9/pyqtgraph-0.10.0.tar.gz
Collecting PyQt5 (from -r requirements.txt (line 6))
  Using cached https://files.pythonhosted.org/packages/26/78/c215008e70982944272b6c329a76cc11259e7378a3e23418f0e0b448de9
6/PyQt5-5.11.3-5.11.2-cp35-cp36-cp37-cp38-none-win32.whl
Requirement already satisfied: kimsolver>=1.0.1 in c:\users\olaio\appdata\roaming\python\python37\site-packages (from m
atplotlib->-r requirements.txt (line 4)) (1.0.1)
Requirement already satisfied: pyparsing!=2.0.4,!=2.1.2,!=2.1.6,>=2.0.1 in c:\users\olaio\appdata\roaming\python\python3
7\site-packages (from matplotlib->-r requirements.txt (line 4)) (2.3.0)
Requirement already satisfied: cython>=0.10 in c:\users\olaio\appdata\roaming\python\python37\site-packages (from matpl
otlib->-r requirements.txt (line 4)) (0.19.0)
Requirement already satisfied: python-dateutil>=2.1 in c:\users\olaio\appdata\roaming\python\python37\site-packages (fro
m matplotlib->-r requirements.txt (line 4)) (2.7.5)
Requirement already satisfied: PyQt5_sip<4.20,>=4.19.11 in c:\users\olaio\appdata\roaming\python\python37\site-packages
(from PyQt5->-r requirements.txt (line 6)) (4.19.13)
Requirement already satisfied: six in c:\users\olaio\appdata\roaming\python\python37\site-packages (from cython>=0.10->
matplotlib->-r requirements.txt (line 4)) (1.12.0)
Installing collected packages: numpy, pyserial, matplotlib, pyqtgraph, PyQt5
Running setup.py install for pyqtgraph ... done
The scripts pyupdate5.exe, pyrcc5.exe and pyuic5.exe are installed in 'C:\Users\olaio\AppData\Roaming\Python\Python37
\Scripts' which is not on PATH.
Consider adding this directory to PATH or, if you prefer to suppress this warning, use --no-warn-script-location.
Successfully installed PyQt5-5.11.3 matplotlib-3.0.2 numpy-1.15.4 pyqtgraph-0.10.0 pyserial-3.4

C:\Users\olaio\Downloads\aconeer-python-exploration\aconeer-python-exploration>
C:\Users\olaio\Downloads\aconeer-python-exploration\aconeer-python-exploration>
C:\Users\olaio\Downloads\aconeer-python-exploration\aconeer-python-exploration>python setup.py install --user
  
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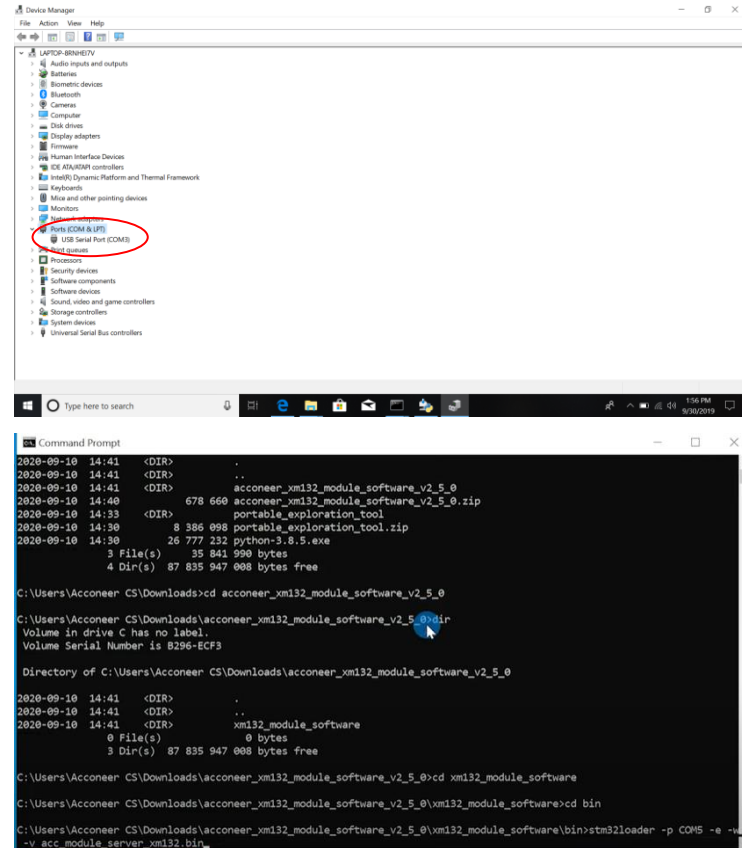

Start Boot Mode (DFU Mode)

1. Press the DFU-button and hold it.
 2. Press the RESET-button and hold it.
 3. Release the RESET-button.
 4. Release the DFU-button
- Now the module is in DFU mode and ready to be flashed.



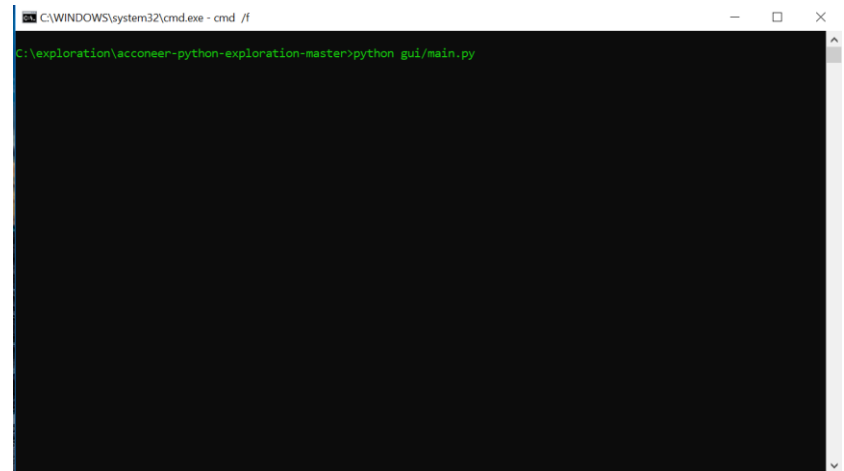
Flashing

1. Start Device Manager in Windows
2. Find the COM-Port that the XE124 is connected to. COM5 in our example.
3. In the command prompt directory where you placed XE124 Entry Module Server run the following command: `stm32loader -p COM5 -e -w -v acc_module_server_xm124.bin`
4. Make sure COM5 above is replaced with your COM port.
5. Now the XE124 is flashed and ready to use. Make sure to restat the module by pressing the RESET button.



Run the exploration tool

- Run the following command in the command prompt: `python gui/main.py`
- Choose Serial as Interface in the dropdown.
- Click Connect
- Choose a service or a detector and click Start. (We used Envelope as an example)
- The result should be a graph showing the envelope data output from the sensor. Shown in next page.



A screenshot of a Windows command prompt window. The title bar reads "C:\WINDOWS\system32\cmd.exe - cmd /f". The command prompt shows the current directory as "C:\exploration\acconeer-python-exploration-master" and the command "python gui/main.py" has been entered and executed. The output area is currently blank.

Exploration Tool GUI, Envelope graph

The screenshot displays the Acconeer Exploration GUI. On the left, there are two graphs: 'Envelope' and 'Envelope history'. The 'Envelope' graph plots Amplitude (0 to 800) against Distance (mm) (200 to 800). It shows a blue line for 'Sensor 1' and a grey line for 'Background'. A peak is identified at 436.8mm with an SNR of 1.5dB. The 'Envelope history' graph is a heatmap showing Distance (mm) on the y-axis (200.0 to 800.0) and Time (s) on the x-axis (0.0 to 3.333). A blue line tracks the sensor's position over time. On the right, a control panel includes sections for 'Connection' (Interface: Serial, COM3, Scan ports, Disconnect), 'Scan controls' (Envelope: Start, Stop, Save Scan, Replay buffered/loaded), 'Sweep buffer' (100), 'Background settings' (Scan Background, Load Background), and 'Sensor settings' (Defaults: Sensor: 1, Start (m): 0.20, Stop (m): 0.80, Sweep frequency: 30, Gain: 0.50). Three white arrows point to the 'Disconnect' button, the 'Start' button, and the 'Stop' button, with labels 'Connect/Disconnect', 'Start', and 'Select Service/Detector' respectively. The status bar at the bottom shows 'Connected via UART (COM3)', 'Sweeps: 114 (skipped 7)', 'Lib v2.8.1', and checkboxes for 'Verbose logging' and 'OpenGL'.

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