Explore the next sense

Getting Started Guide Acconeer A121 EVK

July 2022

V1.0

Installation guide

The A121 EVK is used for evaluation of the A121 Pulsed Coherent Radar Sensor

- The A121 EVK is delivered non-flashed. This installation quick guide will show you how to get the EVK up and running. For a hands-on instruction video, please visit Acconeer channel. https://bit.ly/3olemwt

What's New?

- Compared to previous Sensor EVK there are a few design improvments.
  - We have extended the options for choice of process from only Raspberry Pi to now, also, most Nucleo Boards (64 or 144 pin connector).
  - We have equipped our connector board with an STM32 Cortex M7 MCU.
  - Up to 5 sensors simultaneously.
- For improvements of A121 compared to A111 we recommend the documentation on our developer site such as Datasheets etc: https://developer.acconeer.com

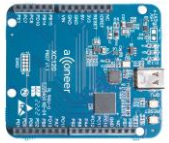
Preparing the HW Installation

To complete a successful installation of A121 EVK the following equipment is needed:

XE121 Evaluation Board

+

XC120 Connector Board

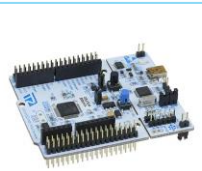


OR

Raspberry Pi

OR

STM32 Nucleo**



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XS121 Sattelite Board***

Package includes a 20cm FFC

Additionally*:

For all configs
- USB C cable

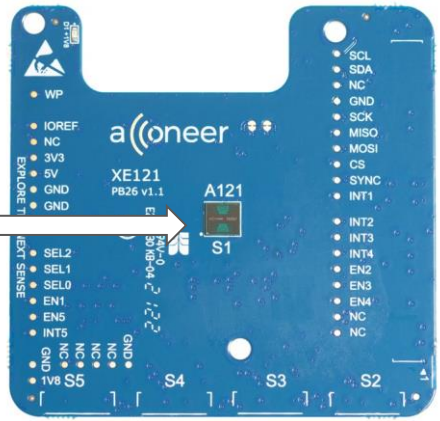
For RbPi
- SD Card (RbPi only)
- SD Card Holder (RbPi only)
- USB Keyboard
- USB Mouse
- Power Supply for Raspberry Pi**
- Monitor with HDMI cable

* Not provided by Acconeer.
** Does not support Acconeer Exploration Tool
*** Optional

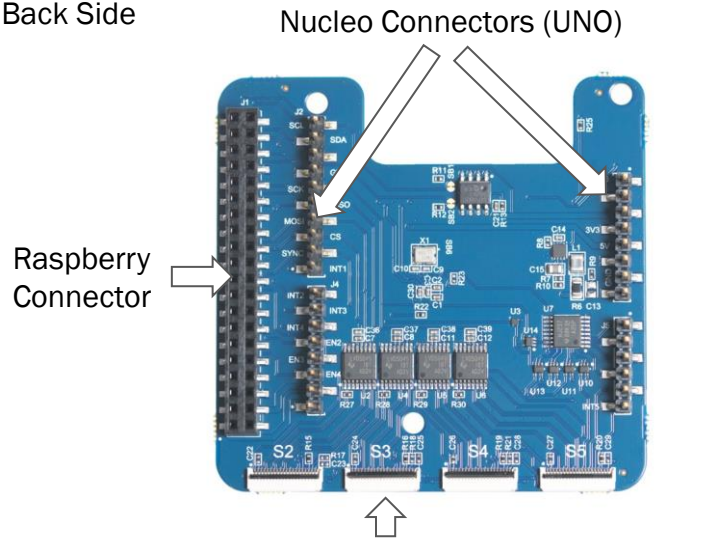
HW Overview XE121

A121 EVK, XE121 Evaluation Board Front and Back Side

Front Side



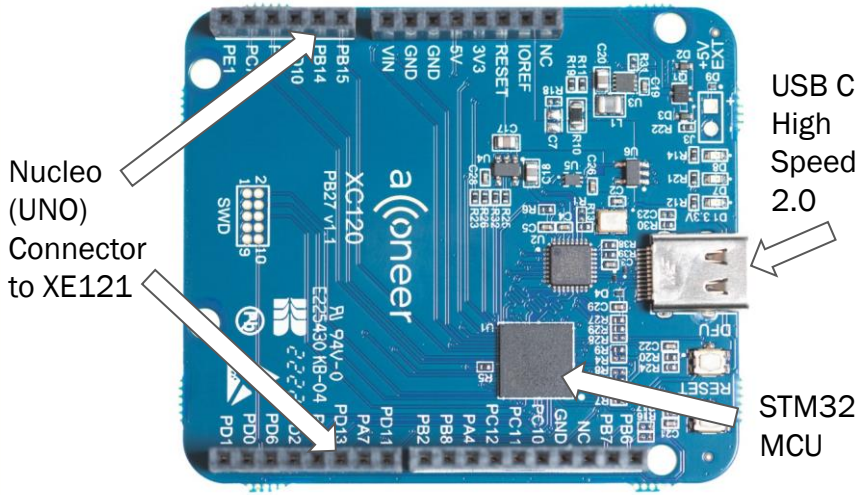
Back Side



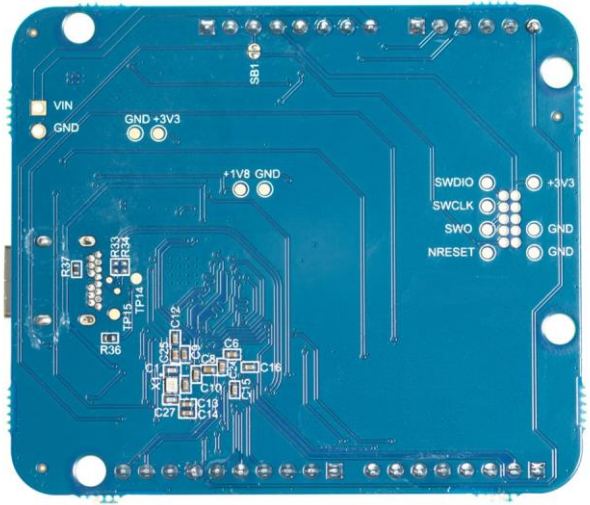
HW Overview XC120

A121 EVK, XC120 Connector Board Front and Back Side, including bootloader for easier flashing.

Front Side



Back Side



Preparing the SW installation

The following applications will be required to complete an installation. Please download:

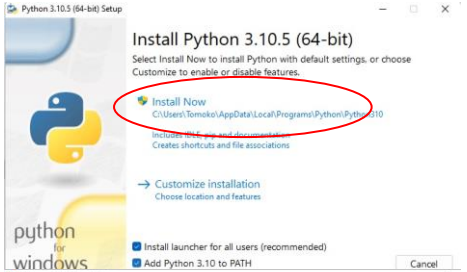
- Acconeer Exploration server (acconeer_xc120_exploration_server_a121): From https://developer.acconeer.com/
  - Save locally.
- Python (latest version): Available from https://python.org/downloads
  - Install on your PC

Installing python

- Start the installer file that you downloaded from python. (Version 3.10.5 as of July 2022)
- 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)

1.

2.



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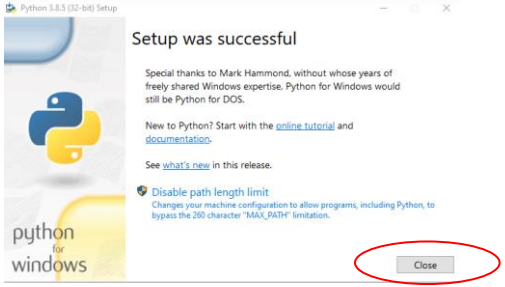


Installing Exploration Tool

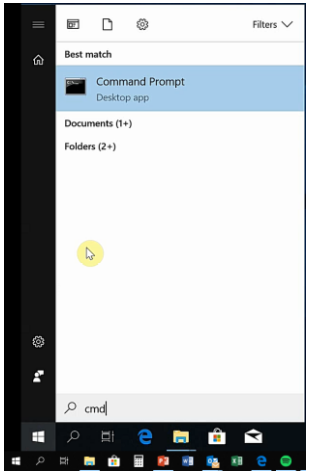
Acconeer Exploration tool is a GUI that lets the user view sensor data in real time.

This guide covers the full installation. For the portable windows version please go here: https://github.com/acconeer/acconeer-python-exploration#quickstart-for-windows

We recommend the full version both for Linux and Windows:

- Connect your EVK to your PC with a USB C cable*
- Start windows command prompt. (Pic 1) You can always find it by searching for “cmd”.
- Create a directory (Pic 2)
- Go to your directory (named exploration in this example)
- and run: *python -m pip install --upgrade acconeer-exptool[app]*

1



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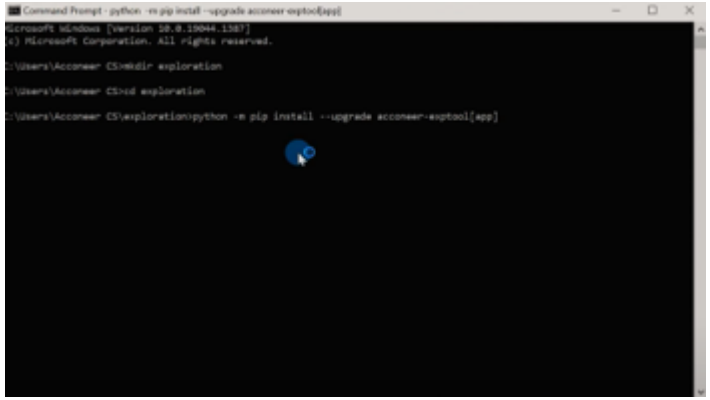


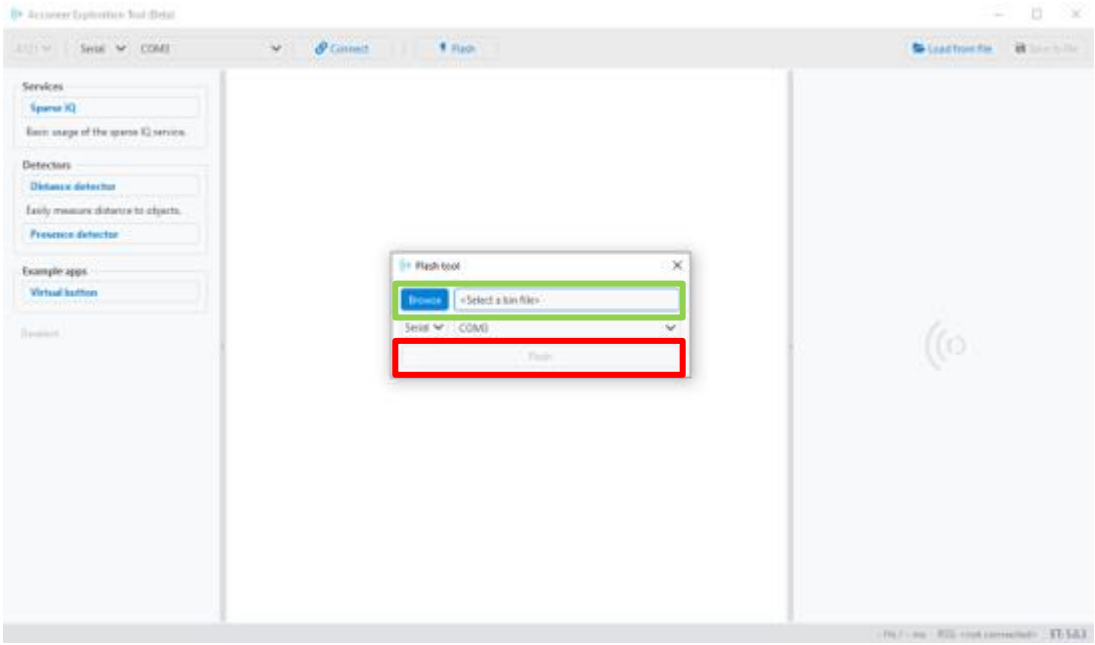
* Make sure it is a USB cable intended for data transfer, NOT charging.

Flash XC120 with Exploration Server

1. Start the Exploration tool by entering: *python -m acconeer.exptool.app* in the Command Prompt. A window (Acconeer ExpTool Launcher) with two buttons will appear.
2. Click left button: A121
3. A new window will pop up and since you already connected the EVK to the PC it should be pre-selected (green square). If not, make sure your USB cable is properly connected.
4. Click the flash button (red square)

Flash XC120 with Exploration Server

5. A popup appears. Browse to the location where you stored the acconeer_xc120_exploration_server_a121 file that you previously downloaded (page 7)
6. Select it and click Flash (red square).



Windows disclaimer

- Depending on which drivers you have installed in Windows you might experience some stability issues when using Windows. We recommend WinUSB drivers. More information and how to install drivers can be found here: https://docs.acconeer.com/en/latest/exploration_tool/evk_setup/xc120_xe121.html#windows-usb-drivers

Run the exploration tool

1. Run the following command in the command prompt: *python -m acconeer.exptool.app* and select A121 in the menu.
2. Click “Connect”.
3. Select the Service, Detector or Reference Application you would like to explore in the menu to the left. In the example Sparse IQ is selected.
4. Configure the measurement to suit your purposes and click “Start measurement”. See picture on next page.

1

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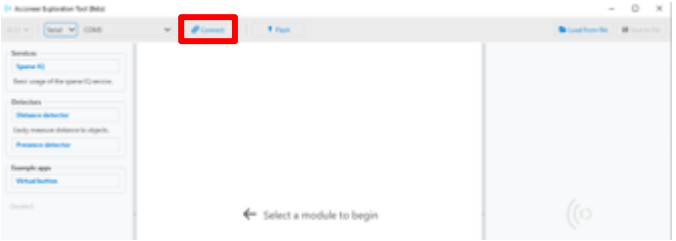

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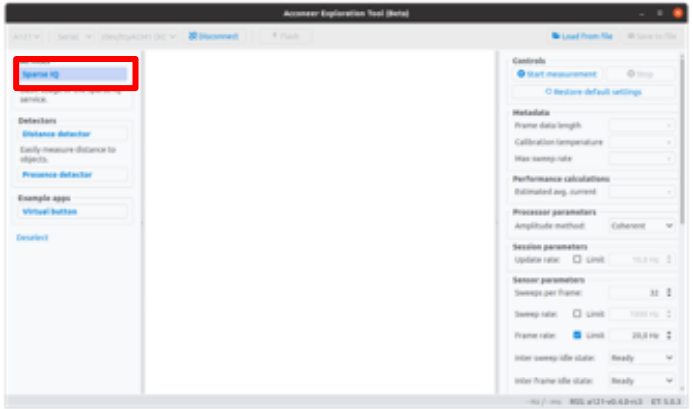

Run the Exploration Tool

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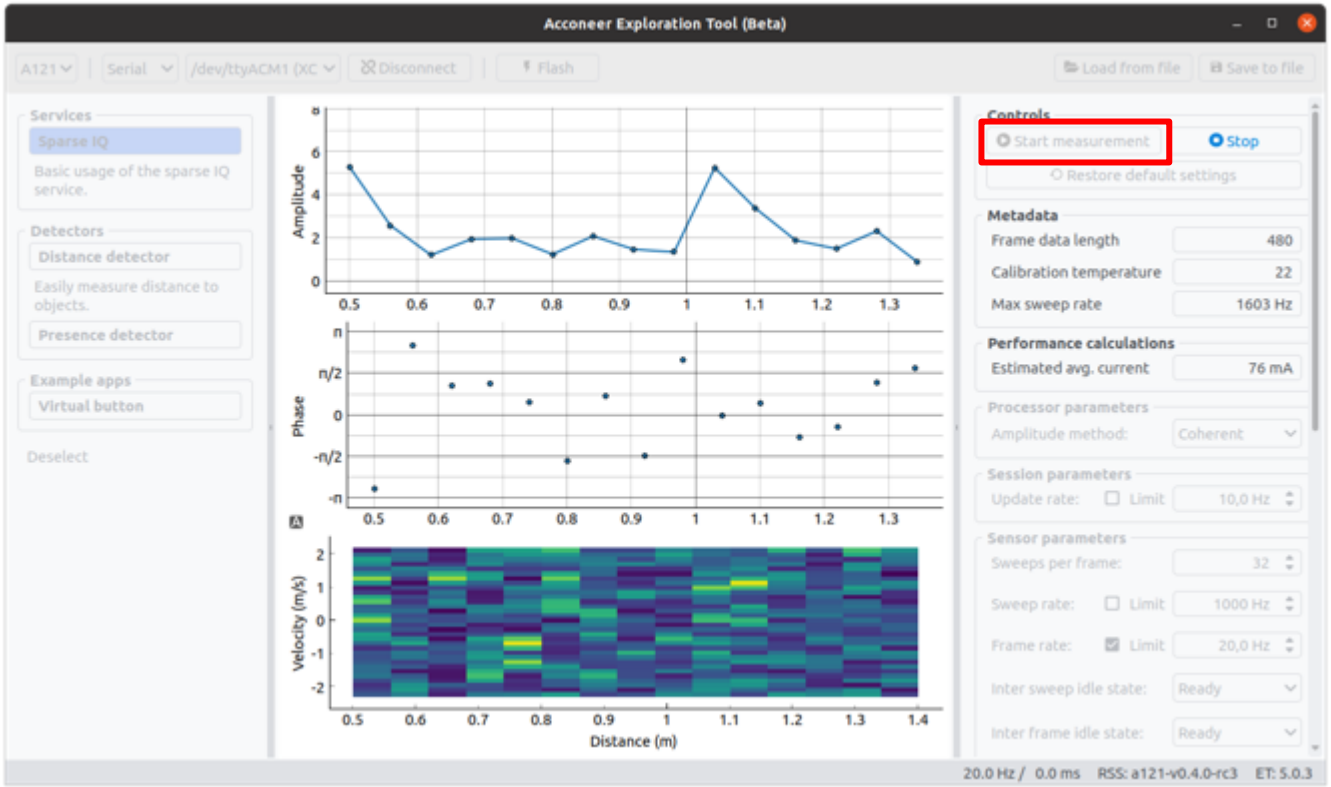

Metadata and Estimated Power Consumption

Configurable Parameters. For more information on how to configure the sensor: [Handbook — Acconeer docs]