A121 Raspberry Pi Software

User Guide

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Contents

1 Acconeer SDK Documentation Overview

To better understand what SDK document to use, a summary of the documents are shown in the table below.

Table 1: SDK document overview.

Name	Description	When to use
	RSS API documentation (html)	
rss_api	The complete C API documentation.	- RSS application implementation - Understanding RSS API functions
	User guides (PDF)	
A121 Assembly Test	Describes the Acconeer assembly test functionality.	- Bring-up of HW/SW - Production test implementation
A121 Breathing Reference Application	Describes the functionality of the Breathing Reference Application.	- Working with the Breathing Reference Application
A121 Distance Detector	Describes usage and algorithms of the Distance Detector.	- Working with the Distance Detector
A121 SW Integration	Describes how to implement each integration function needed to use the Acconeer sensor.	- SW implementation of custom HW integration
A121 Presence Detector	Describes usage and algorithms of the Presence Detector.	- Working with the Presence Detector
A121 Smart Presence Reference Application	Describes the functionality of the Smart Presence Reference Application.	- Working with the Smart Presence Reference Application
A121 Sparse IQ Service	Describes usage of the Sparse IQ Service.	- Working with the Sparse IQ Service
A121 Tank Level Reference Application	Describes the functionality of the Tank Level Reference Application.	- Working with the Tank Level Reference Application
A121 Touchless Button Reference Application	Describes the functionality of the Touchless Button Reference Application.	- Working with the Touchless Button Reference Application
A121 Parking Reference Application	Describes the functionality of the Parking Reference Application.	- Working with the Parking Reference Application
A121 STM32CubeIDE	Describes the flow of taking an Acconeer SDK and integrate into STM32CubeIDE.	- Using STM32CubeIDE
A121 Raspberry Pi Software	Describes how to develop for Raspberry Pi.	- Working with Raspberry Pi
A121 Ripple	Describes how to develop for Ripple.	- Working with Ripple on Raspberry Pi
XM125 Software	Describes how to develop for XM125.	- Working with XM125
XM126 Software	Describes how to develop for XM126.	- Working with XM126
I2C Distance Detector	Describes the functionality of the I2C Distance Detector Application.	- Working with the I2C Distance Detector Application
I2C Presence Detector	Describes the functionality of the I2C Presence Detector Application.	- Working with the I2C Presence Detector Application
I2C Breathing Reference Application	Describes the functionality of the I2C Breathing Reference Application.	- Working with the I2C Breathing Reference Application
	A121 Radar Data and Control (PDF)	
A121 Radar Data and Control	Describes different aspects of the Acconeer offer, for example radar principles and how to configure	- To understand the Acconeer sensor - Use case evaluation
	Readme (txt)	
README	Various target specific information and links	- After SDK download

2 Introduction

The Acconeer Software Development Kit (SDK) enables customers to develop their own software that can be executed on the module. This enables full control of all the peripherals and to maximize the performance and power consumption for a specific use case.

The SDK comes with a number of example applications that can be used as a starting point when developing your own application. These applications can be downloaded and executed using the methods described in “Build and Execute Examples” at page 7.

When developing your own application we recommend that you setup a development environment as described in “Development Setup” at page 6.

3 Setup Rasperry Pi 4

3.1 Raspberry Pi OS

Follow the instructions on www.raspberrypi.org/downloads/ to install Raspberry Pi OS. Use of the 32-bit version of the OS is recommended, instructions for how to use the 64-bit version of the OS can be found below.

3.2 Configure the Raspberry Pi

Start a terminal window and type "sudo raspi-config", then:

- In Localisation Options, select the appropriate timezone.
- In Interfacing Options, enable SPI and I2C and the SSH interfaces.

Install libgpio2:

```
sudo apt install libgpiod2
```

3.3 Additional Steps for 64 bit Raspberry Pi OS

```
sudo dpkg --add-architecture armhf
sudo apt update
sudo apt install libc6:armhf libgpiod2:armhf
```

4 Development Setup

The software can be built either on a standalone Linux system or directly on the Raspberry Pi. Both methods should work equally well.

4.1 Setup for development on Raspberry PI

```
sudo apt install gcc make
```

4.2 Setup for development on standalone Linux system

The instructions are verified for Debian-based Linux distributions (such as Ubuntu).

Make sure that the following packages are installed: gcc-arm-linux-gnueabihf, make

```
sudo apt install gcc-arm-linux-gnueabihf make
```

5 Build and Execute Examples

The out/ folder already contains prebuilt versions of the examples. It is also possible to build them using below steps.

5.1 Building the software

To build the example programs, type "make". All files created during build are stored in the out/ directory. "make clean" will delete the out/ directory.

5.2 Executing the software

Start the application using:

```
./out/example_service
```

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