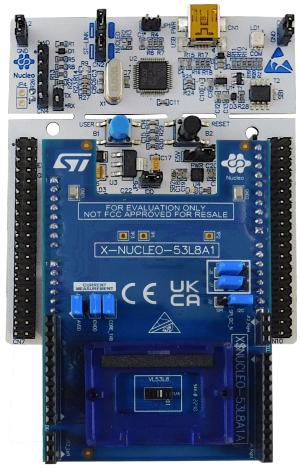
P-NUCLEO-53L8A1

Data brief

STM32 Nucleo pack with X-NUCLEO-53L8A1 expansion board and NUCLEO-F401RE development board



Features

- X-NUCLEO-53L8A1 Time-of-Flight expansion board based on the VL53L8 series for STM32 Nucleo
- NUCLEO-F401RE development board
- 0.25, 0.5, and 1 mm spacers to simulate air gaps
- One cover glass to protect the sensor from the dust
- Equipped with Arduino® UNO R3 connectors
- Full system software supplied, including code examples and graphical user interface
- RoHS, CE, UKCA, and China RoHS compliant

Description

The P-NUCLEO-53L8A1 is a complete evaluation kit that allows you to learn, evaluate, and develop applications using the different commercial products of the VL53L8 series Time-of-Flight sensors.

The VL53L8CX is an 8x8 multizone, ToF ranging sensor, which enhances performance under ambient light with a reduced power consumption.

Based on STMicroelectronics FlightSense technology, the sensor is designed to provide accurate ranging up to 400 cm with a 65° diagonal FoV.

The NUCLEO-F401RE STM32 Nucleo development board provides an affordable and flexible way for users to try out new ideas and build prototypes with any STM32 microcontroller, choosing from the various combinations of performance, power consumption, and features.

Product summary	
STM32 Nucleo pack with X-NUCLEO-53L8A1 expansion board and NUCLEO-F401RE development board	P-NUCLEO-53L8A1
Time-of-Flight sensor software expansion for STM32Cube	X-CUBE-TOF1
STM32 Nucleo-64 development board with STM32F401RE MCU	NUCLEO-F401RE
Time-of-Flight expansion board based on the VL53L8 series for STM32 Nucleo	X-NUCLEO-53L8A1
Applications	Personal Electronics - Audio and Video/Gaming and Drones/Virtual - Augmented Reality/ Wearable

1 X-NUCLEO-53L8A1 expansion board

The X-NUCLEO-53L8A1 expansion board allows you to test the functionalities of the VL53L8 series Time-of-Flight sensors and to program it, to understand how to develop an application using the commercial products of the Time-of-Flight sensor series as reported in Section 3 Ordering information for the VL53L8 series Time-of-Flight sensors. It integrates a 3.3 V voltage regulator to supply the Time-of-Flight sensor on the expansion board and the necessary connectivity for the application.

You have to program the NUCLEO-F401RE to control the X-NUCLEO-53L8A1 expansion board.

The X-NUCLEO-53L8A1 expansion board and the NUCLEO-F401RE are connected through the Arduino compatible connectors CN5, CN6, CN8, and CN9.

The Arduino connectors on the NUCLEO-F401RE board support the Arduino UNO revision 3.

2 Optional VL53L8 breakout board

The SATEL-VL53L8 is designed to connect remotely a VL53L8 series Time-of-Flight sensor to any type of electronic controller.

The mini-PCB breakout boards can be connected to the X-NUCLEO-53L8A1 expansion board through flying wires. Wiring instructions are described in the UM3120.

Breakout boards can be purchased separately using the reference: SATEL-VL53L8.

This order code package includes two breakout boards.

3 Ordering information for the VL53L8 series Time-of-Flight sensors

This board is equipped with a noncommercial VL53L8CA evaluation purposes only Time of Flight sensor. Its equivalent orderable product is listed in the following table. For a detailed description of the sensor, please refer to its datasheet on the product web page. Additional information is available from the user manual and collateral documents of the target ToF sensor.

Table 1. Ordering information

RPN	CPN	Datasheet	Features
VL53L8CX	VL53L8CXV0GC/1	DS14161	Low-power high-performance 8x8 multizone Time-of-Flight sensor

4 Schematic diagrams

The P-NUCLEO-53L8A1 kit consists of an X-NUCLEO-53L8A1 expansion board and a NUCLEO-F401RE development board.

You can find the related schematic diagrams at the following links:

- X-NUCLEO-53L8A1 schematic diagrams
- NUCLEO-F401RE schematic diagrams

Revision history

Table 2. **Document revision history**

Date	Revision	Changes
03-Mar-2023	1	Initial release.