

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. |

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