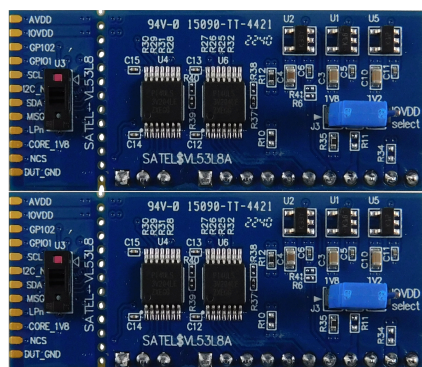


## Breakout board based on the VL53L8 series Time-of-Flight sensors



### Features

- Time-of-Flight expansion board based on the **VL53L8** series for STM32 Nucleo
- Divisible board that can be used as a mini-PCB breakout board, easy to integrate into the customer's device
- Two breakout boards available in the package
- Compatible with **X-NUCLEO-53L8A1**

### Description

The **SATEL-VL53L8** package includes two breakout boards, which can be easily integrated into the customer's devices.

The PCB section that embeds the VL53L8 series Time-of-Flight sensor module is perforated. The developers can then break off the mini-PCB and use it in a 3.3 V supply application via flying wires.

This makes it easier to integrate the **SATEL-VL53L8** breakout boards into the development and evaluation devices, thanks to their small size.

The **VL53L8CX** is an 8x8 multizone, ToF ranging sensor, which enhances performance under ambient light with a reduced power consumption. Based on ST FlightSense technology, the sensor is designed to provide accurate ranging up to 400 cm with a 65° diagonal FoV.

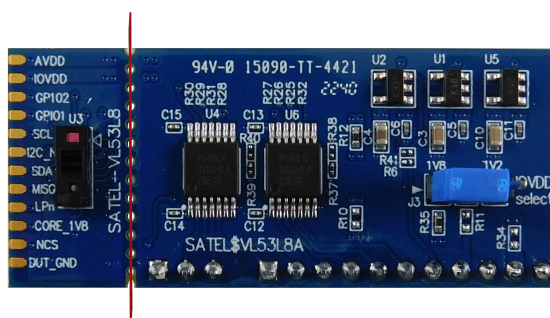
| Product summary                                                            |                                                                                                        |
|----------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
| Breakout board based on the VL53L8 series Time-of-Flight sensors           | <b>SATEL-VL53L8</b>                                                                                    |
| Time-of-Flight expansion board based on the VL53L8 series for STM32 Nucleo | <b>X-NUCLEO-53L8A1</b>                                                                                 |
| Applications                                                               | Personal Electronics - Audio and Video<br>Gaming and Drones<br>Virtual - Augmented Reality<br>Wearable |



## 1 Breakout boards

You can break the breakout boards along the perforations to use the mini-PCB.

**Figure 1. Breakout board**



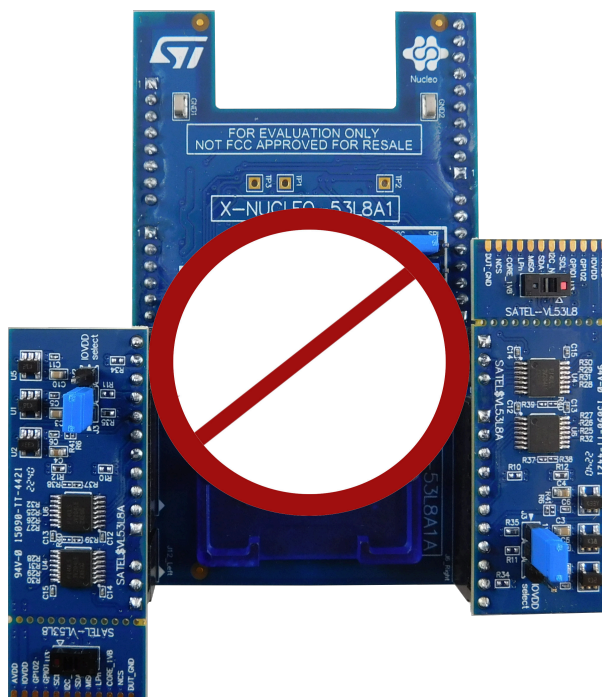
This setup is easier to integrate into a customer's device thanks to its small form factor.

You cannot plug the VL53L8 breakout boards directly onto the X-NUCLEO-53L8A1 expansion board through two six-pin connectors (Figure 2). They can be connected to the X-NUCLEO-53L8A1 by using the mini PCB through flying wires (Figure 3 and Figure 4).

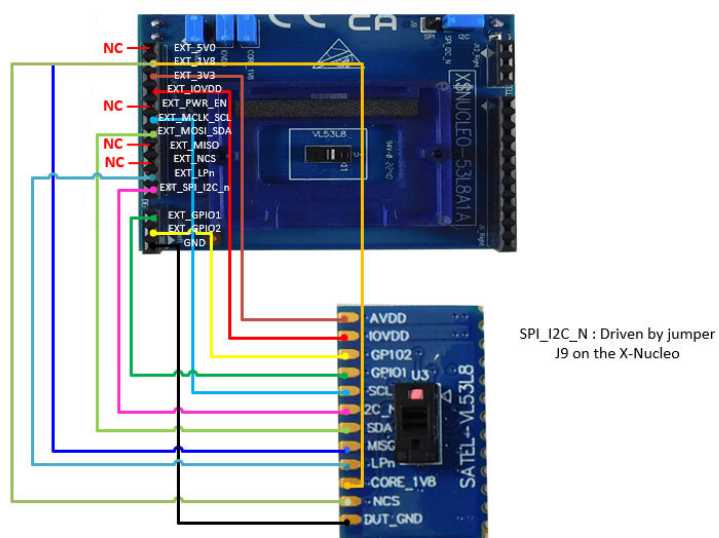
The schematic can be duplicated for the sensor on the right allowing the use of both mini PCB. For more information on connection and how to configure the X-NUCLEO-53L8A1 please refer to UM3120.



**Figure 2.** SATEL-VL53L8 breakout boards can not be connected to the X-NUCLEO-53L8A1 expansion board

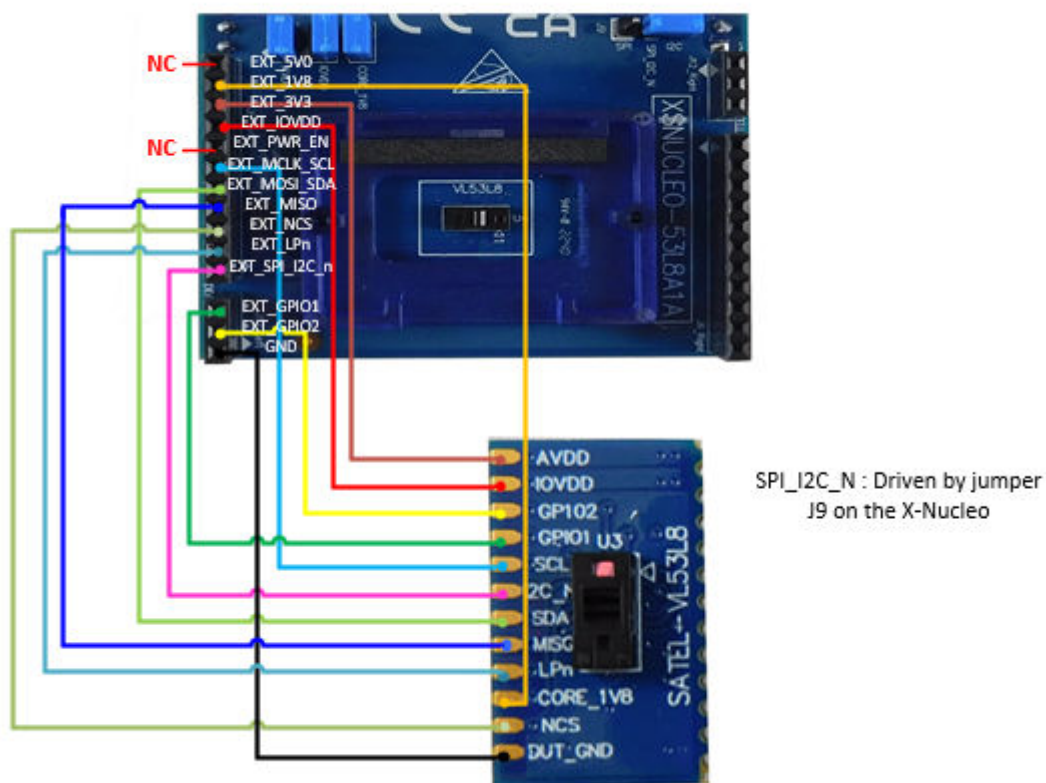


**Figure 3.** SATEL-VL53L8 mini-PCB flying wire connection to the X-NUCLEO-53L8A1 expansion board in I2C mode. X-NUCLEO-53L8A1 J9 jumper with pin 2 and 3 connected





**Figure 4.** SATEL-VL53L8 mini-PCB flying wire connection to the X-NUCLEO-53L8A1 expansion board in SPI mode. X-NUCLEO-53L8A1 J9 jumper with pin 1 and 2 connected





## 2 Ordering information for the VL53L8 series ToF sensor

This board is equipped with a noncommercial VL53L8CA evaluation purpose only Time-of-Flight sensor. Its equivalent orderable products are listed in the following table.

For a detailed description of each 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. Orderable products**

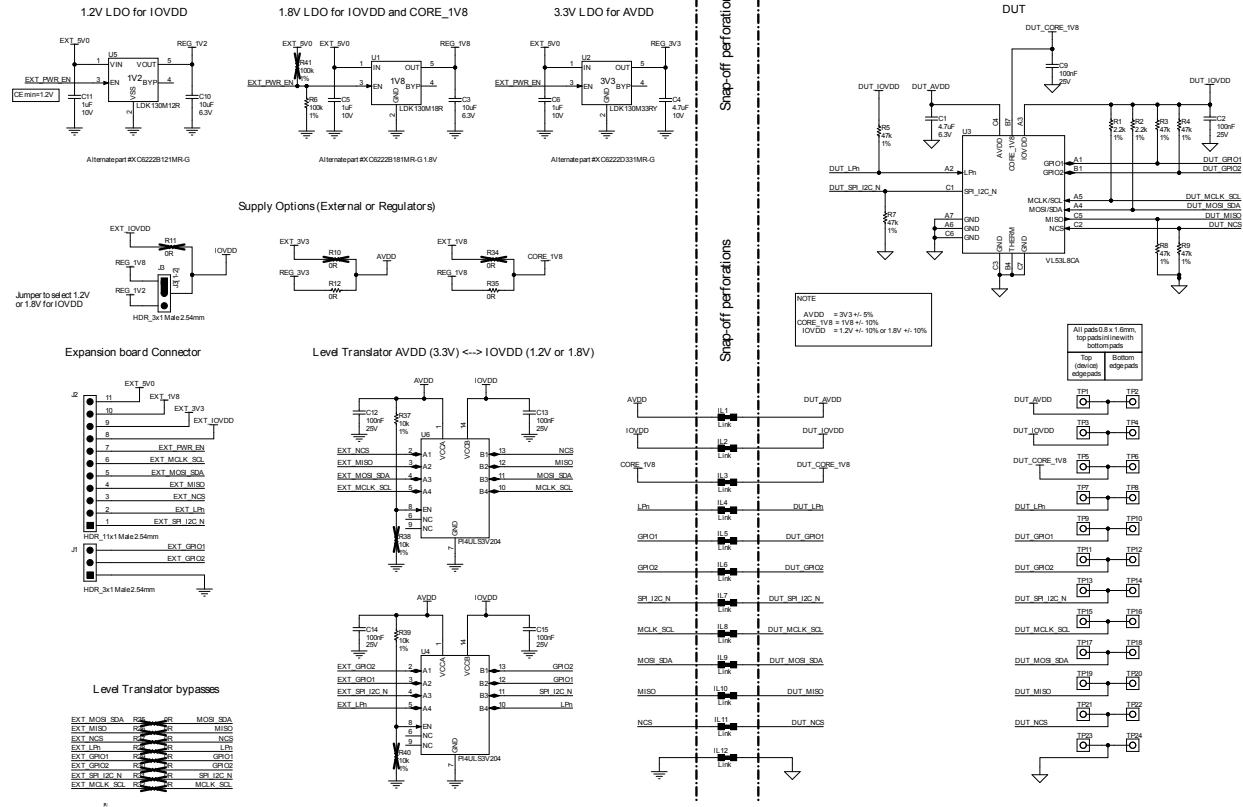
| RPN      | CPN            | Datasheet | Features                                                       |
|----------|----------------|-----------|----------------------------------------------------------------|
| VL53L8CX | VL53L8CXV0GC/1 | DS14161   | Low-power high-performance 8x8 multizone Time-of-Flight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



## 3

## Schematic diagram

Figure 5. SATEL-VL53L8 circuit schematic





## 4 Board versions

**Table 2. SATEL-VL53L8 versions**

| Finished good                 | Schematic diagrams                | Bill of materials                |
|-------------------------------|-----------------------------------|----------------------------------|
| SATEL\$VL53L8A <sup>(1)</sup> | SATEL\$VL53L8A schematic diagrams | SATEL\$VL53L8A bill of materials |

1. This code identifies the SATEL-VL53L8 expansion board first version.



## Revision history

Table 3. Document revision history

| Date        | Revision | Changes          |
|-------------|----------|------------------|
| 09-Mar-2023 | 1        | Initial release. |



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