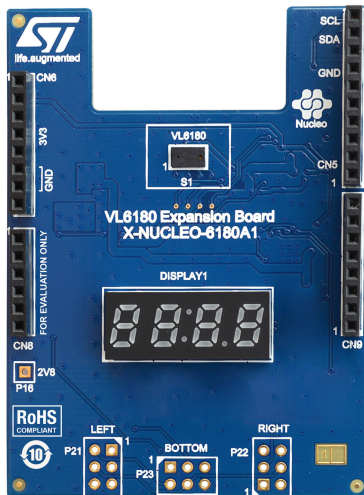


Proximity Time-of-Flight sensor expansion board based on VL6180 for STM32 Nucleo



Features

- VL6180 Time-of-Flight (ToF) proximity sensor
- Ranging measurement up to 62 cm
- 4-digit display, displaying the distance of a target from the proximity sensor
- Excellent ranging accuracy, independent of the reflectance of the target
- In order to easily integrate multiple VL6180 devices into customer devices, up to 3 external breakout VL6180 boards can be connected to the expansion board
- Breakout boards can be ordered using the reference VL6180-SATEL
- Compatible with STM32 Nucleo board family
- Equipped with Arduino™ UNO R3 connector
- RoHS compliant.
- Full system software supplied, downloadable from www.st.com/vl6180 in the folder "Tools & Software"

Description

The X-NUCLEO-6180A1 expansion board features the VL6180 proximity sensor, based on ST's FlightSense, Time-of-Flight technology. It is an evaluation board that provides an introduction to the proximity ranging capabilities of the VL6180 module.

The VL6180 is based on patented FlightSense technology. This is a ground-breaking technology allowing absolute distance to be measured independent of target reflectance. Instead of estimating the distance by measuring the amount of light reflected back from the object (which is significantly influenced by color and surface), the VL6180 precisely measures the time the light takes to travel to the nearest object and reflect back to the sensor (Time-of-Flight).

It is compatible with the STM32 Nucleo board family, and with the Arduino UNO R3 connector layout.

Several ST expansion boards can be superposed through the Arduino connectors, which allows for the development of VL6180 applications with Bluetooth or WiFi interface (for example).

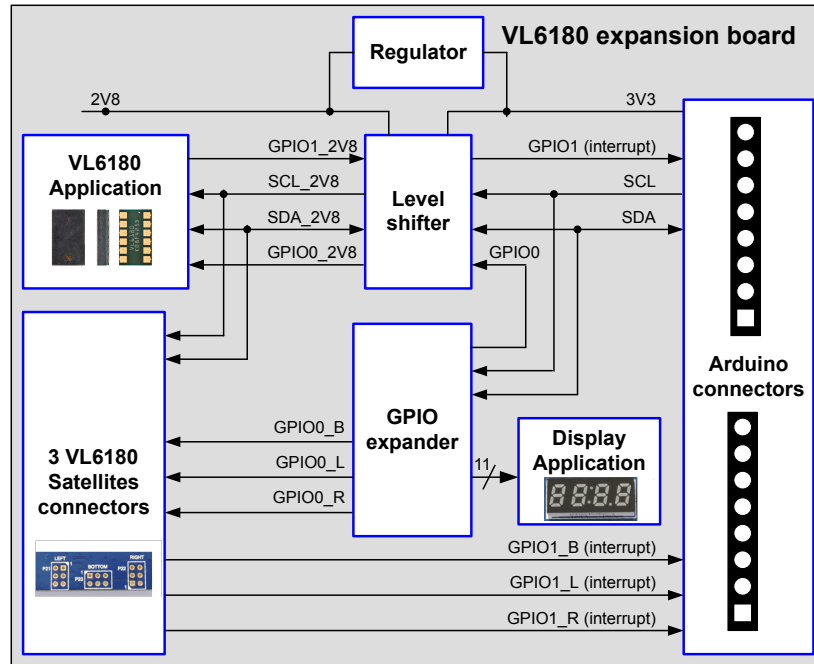
Product summary

| | |
|------------------------|--|
| X-NUCLEO-6180A1 | VL6180 expansion board for STM32 Nucleo board family |
|------------------------|--|

1 Block diagram

The figure below describes the X-NUCLEO-6180A1 expansion board features.

Figure 1. X-NUCLEO-6180A1 expansion board block diagram



2 Laser safety considerations

The X-NUCLEO-6180A1 contains a laser emitter and corresponding drive circuitry. The laser output is designed to remain within Class 1 laser safety limits under all reasonably foreseeable conditions including single faults in compliance with IEC 60825-1:2007.

The laser output remains within Class 1 limits as long as STMicroelectronics' recommended device settings are used and the operating conditions specified are respected.

The laser output power must not be increased by any means and no optics should be used with the intention of focusing the laser beam.

Figure 2. Class 1 laser product label



Compliance

Complies with 21 CFR 1040.10 and 1040.11 except for deviations relating to Laser Notice No.50, dated June 24, 2007.

Revision history

Table 1. Document revision history

| Date | Version | Changes |
|-------------|---------|-----------------|
| 27-Nov-2019 | 1 | Initial release |