GY-530 laser ranging sensor



Produktkode: 403aa
Tilgjengelighet: 1
Weight: 20.00g

Pris: kr. 140,00

Kort beskrivelse
GY-530 VL53L0X World smallest Time-o f-Flight (ToF) laser ranging sensor

Beskrivelse
Description

The GY-530 sensor has the VL53L0X sensor on board, with power management IC on board, the module can accept power arrange from 2.8V to 5V.

The VL53L0X is a new generation Time-of-Flight (ToF) laser-ranging module housed in the smallest package on the market today, providing accurate distance measurement whatever the target reflectances unlike conventional technologies. It can measure absolute distances up to 2m, setting a new benchmark in ranging performance levels, opening the door to various new applications.
The VL53L0X integrates a leading-edge SPAD array (Single Photon Avalanche Diodes) and embeds ST’s second generation FlightSenseTM patented technology.
The VL53L0X’s 940nm VCSEL emitter (Vertical Cavity Surface-Emitting Laser), is totally invisible to the human eye, coupled with internal physical infrared filters, it enables longer ranging distance, higher immunity to ambient light and better robustness to cover-glass optical cross-talk.

Applications

- User detection for Personal Computers/Laptops/Tablets and IoT (Energy saving).
- Robotics (obstacle detection).

- White goods (hand detection in automatic faucets, soap dispensers etc...)
- 1D gesture recognition.
- Laser assisted Auto-Focus. Enhances and speeds-up camera AF system performance, especially in difficult scenes (low light levels, low contrast) or fast moving video mode.

Features

- Fully integrated miniature module
  – 940nm Laser VCSEL
  – VCSEL driver
  – Ranging sensor with advanced embedded micro controller
  – 4.4 x 2.4 x 1.0mm
- Fast, accurate distance ranging
  – Measures absolute range up to 2m
  – Reported range is independent of the target reflectance
  – Operates in high infrared ambient light levels
  – Advanced embedded optical cross-talk compensation to simplify cover glass selection
- Eye safe
  – Class 1 laser device compliant with latest standard IEC 60825-1:2014 - 3rd edition
- Easy integration– Single reflowable component
  – No additional optics
  – Single power supply
  – I2C interface for device control and data transfer
  – Xshutdown (Reset) and interrupt GPIO
  – Programmable I2C address

Datasheet

GY530 Schematic

VL53L0X datasheet.pdf

Arduino Code

Info
Specifications:
Infrared distance measurement module
Model: GY - VL53L0X

Using the chip: VL53L0X
Power supply: 2.8 to 5V
Ranging time: <30ms
Operating mode: Power consumption 20mW
Standby power consumption: 5?A
Distance: Communication: the IIC communication protocol (fully compatible with 3-5 v system)
PCB size: about 13.3x10.5mm/0.51"x0.43"
No Retail Packages

Application:
wall detection, cliff detection, collision detection
sweeping robots
faucet, soap dispenser, Dry cell phone
unmanned aerial vehicles, IoT products.

Note: Due to the difference between different monitors, the picture may not reflect the actual color of the item. Thank you!

Package Include: 1 x GY-530 VL53L0X IIC I2C ToF Time-of-flight Ranging Distance Sensor 2.8-5V

Product Description

. Infrared ranging module

. Model: GY-VL53L0X

. Using the chip: VL53L0X

. Power supply: 2.8-5v

. Communication method: IIC communication protocol (fully compatible with 3-5v system)

. Module size: 10.5mm*13.3mm, mounting hole 3mm

. Ultra-small size for easy installation in tight spaces

. Provide schematics, related data sheets and reference documents

. Provide AR test code

STMicroelectronics has released the second generation of laser ranging smart sensor VL53L0. The new smart sensor is based on the successful FlightSenseTM technology, enabling faster, farther and more accurate ranging functions, greatly improving the mobile phone and tablet. Camera performance opens up new applications for smart robots, user detection, drones, the Internet of Things and wearable devices.

The 4.4 x 2.4 x 1mm form factor makes the VL53L0 the world's smallest ToF (Time-of-Flight) module, and the first integrated 940nm VCSEL source, SPAD photon detector and advanced microcontroller (management of the entire Ranging function) Ranging smart sensor. The market's first module to use 940 nm to emit light, combined with advanced infrared filters, VL53L0 has the best ambient light immunity in the industry, minimizing the impact of ambient light. In end-product applications, embedded microcontrollers and digital algorithms minimize host processing load and system power consumption.

Eric Aussedat, General Manager of STMicroelectronics Imaging Products, said: "Sinotech's technological advancement in ToF sensors is bringing a better user experience to tens of thousands of consumers, completely subverting their camera photography with smartphones and tablets. In the way, STMicroelectronics introduced the first fully integrated ToF ranging smart sensor in 2014, which was successfully applied to laser-assisted autofocus by many of the world's leading OEMs. Today, with the new generation VL53L0 STMicroelectronics is setting new benchmarks for ranging product performance, opening up new opportunities for developers to develop new applications in the intelligent robotics and IoT markets."

The VL53L0 is capable of performing all measurement operations in one frame, typically less than 30ms and less than 2 meters. This ranging performance allows the camera system to focus instantly in the camera and continuous shooting modes, even in low-light or low-contrast scenes, while for low-light or low-contrast scenes without a ToF-based camera system It is a huge challenge. Thanks to its excellent range accuracy, the VL53L0 also enhances smartphone application performance, including dual camera depth maps. ST's VL53L0 module is easy to use (6 active pins), provides an I2C interface, and is fully equipped with API drivers and technical documentation to make system integration fast and easy. The module package supports a reflow process, is RoHS compliant, and is fully compatible with a variety of glass covers and designs.

To further strengthen its leadership in the time-of-flight range sensor (ToF) market, ST introduced the second generation of FlightSenseTM technology for the new VL53L0X laser range sensor.

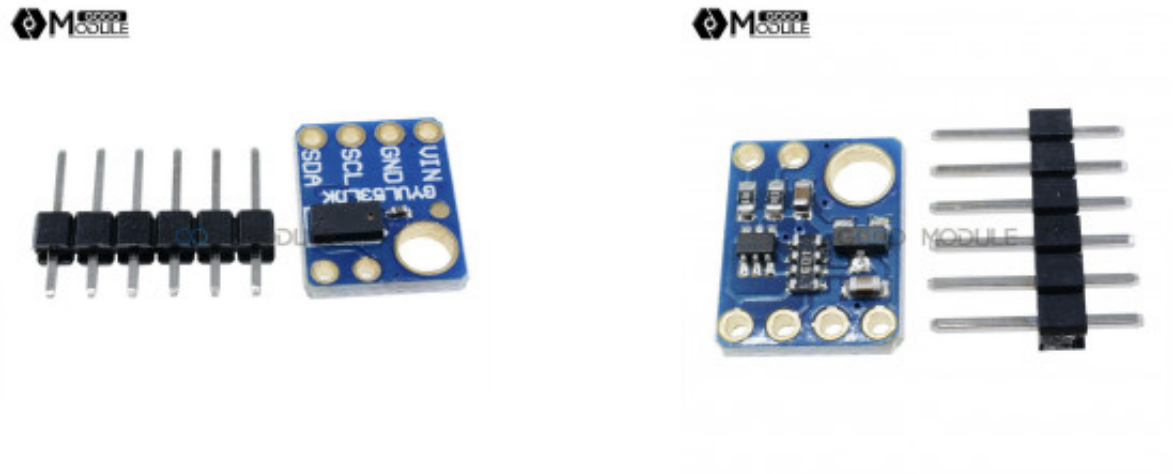
The VL53L0X extends the ToF range length to two meters with an accuracy of ±3 hundred. The measurement speed is faster than the previous generation, the ranging time is less than 30ms; the higher energy efficiency, the power consumption is only 20mW in normal working mode, and the standby power consumption is only 5?A. The package size is 2.4mm x 4.4mm x 1mm, which is small in the market.

Unlike traditional infrared proximity sensors, the VL53L0X outputs a distance measurement accurate to the millimeter. The color of the target object and the reflected light do not affect the ranging result. The fast-responding FlightSenseTM technology is renowned for being used by laser-assisted autofocus for the big-brand smartphone camera to distinguish between horizontal or vertical movement of the target object. The sensor internally calculates the ranging and outputs data through the I2C bus interface, thus minimizing the need for the system's main controller.

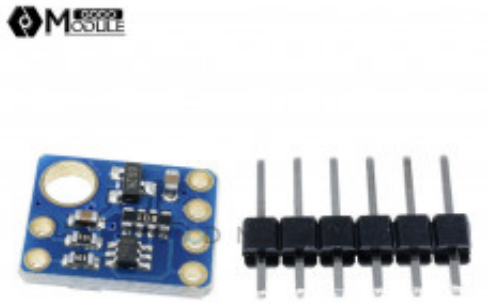
The internal laser emits 940 nm wavelength non-visible light, which does not harm the eyes, and eliminates the problem of distracting people's attention by emitting red light with other infrared proximity detection sensors, and enhances the anti-jamming performance to external light sources. The sensor's digital architecture and automatic compensation feature make it highly performant in high ambient light scenes.

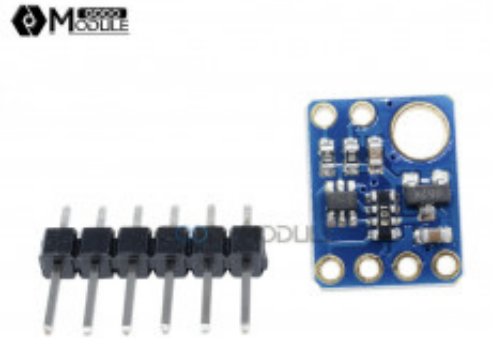
The sensing capability of the VL53L0X can support a variety of functions, including gesture sensing or proximity detection of various innovative user interfaces; wall detection, cliff detection, collision detection of home appliances such as sweeping robots; bathroom products such as faucets, soap dispensers, Hand dryers and rinsers; other target applications include laptop user presence detection or power switch monitors, drones, and Internet of Things (IoT) products.

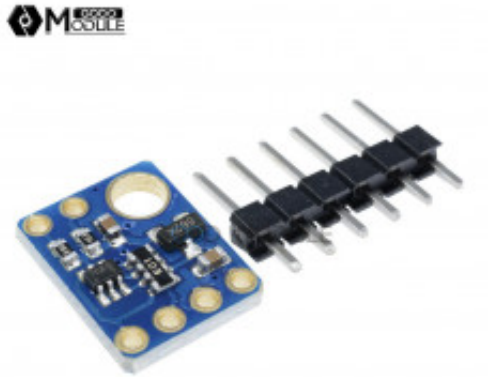
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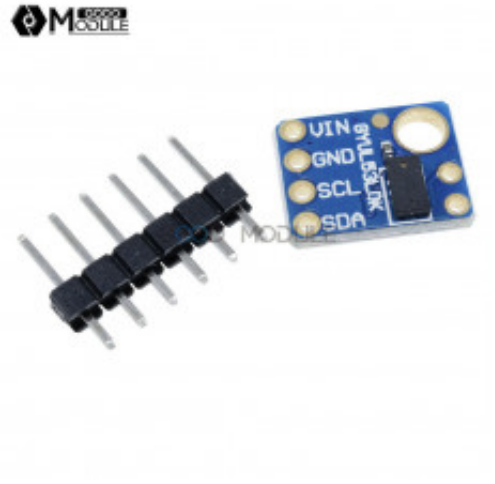



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