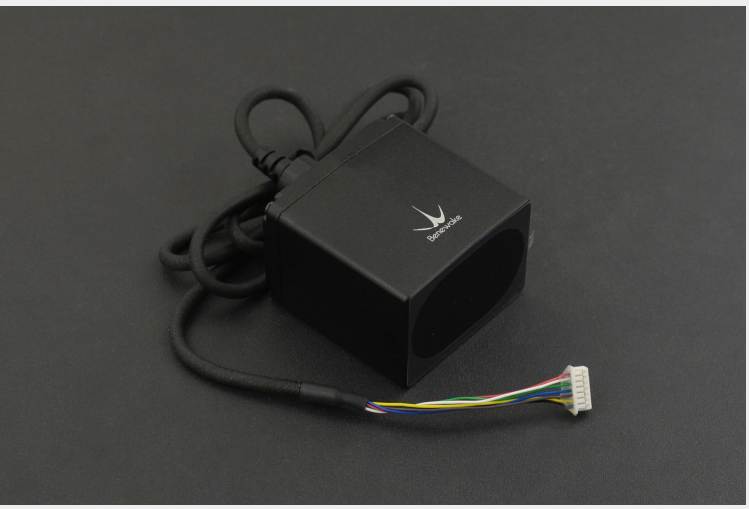
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TF03 (ToF) Laser Range Sensor(180m)

SKU:SEN0329 Brand:Other Reward Points: 2290

* Model: TF Mini | TF Mini Plus | TF02 | TF03(100m) | TF03(180m) | TF-Luna

Quantity: - +

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Frequently Bought Together

TF03 (ToF) Laser Range Sensor(180m) + Raspberry Pi 4 Model + IO Expansion HAT for =

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INTRODUCTION

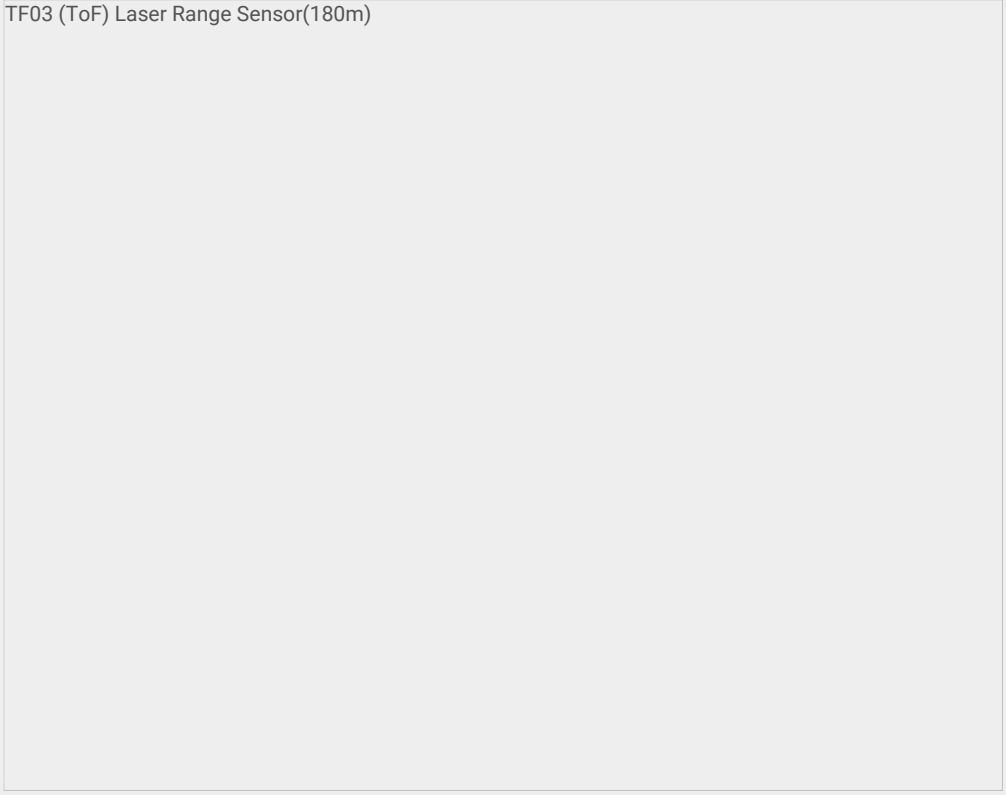
TF03, a long-distance LiDAR in accordance with industrial level, provides detection range up to 180m. As the third generation product of TF series, TF03 inherits the cost-effective and compact-integration advantages from the previous two generations. Meanwhile, TF03 upgrades more than ten key parameters and offers multiple expansion functions to meet the various demands in different application scenarios. With a small size of 44*42.9*31.8mm, it can be covered by just a palm of one hand. The product is applicable to the terrain following of drones, the collision avoidance of cars, intelligent transportation, and industrial safety warning.

TF03 employs the pulsed time-of-flight principle. The unique design of the optical system and the signal processing circuit improved the detecting performance in a compact size. In addition to increasing the range to more than 100 meters, this sensor features 0.1m blind zone, ±10cm accuracy, up to 10KHz frequency, and 100Klux ambient light immunity. TF03 also contains a compensation algorithm targeting outdoor highlight environment, so that it can still keep excellent performance in harsh environment.

TF03 (ToF) Laser Range Sensor(180m)

Detection angle schematic

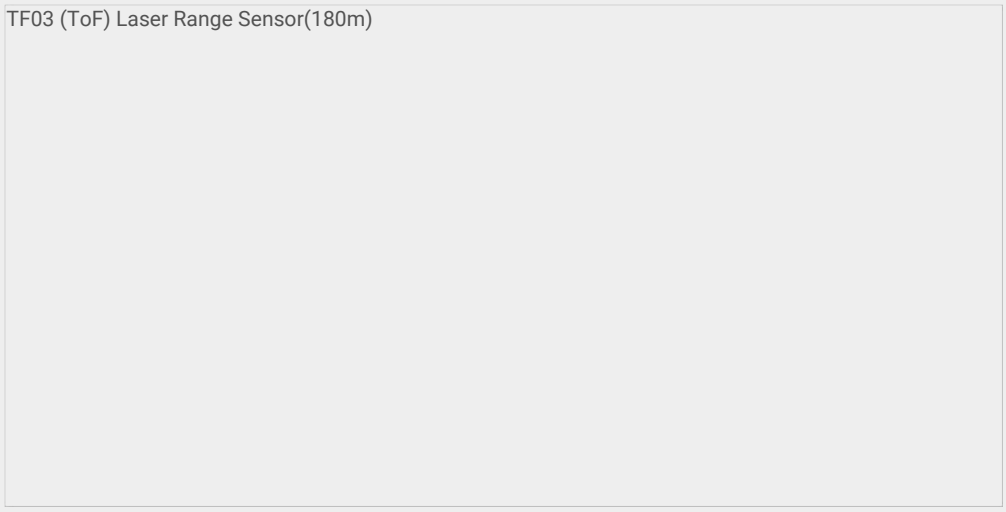
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Spot simulated diagrams and sizes at different distances

Note: In it, the red is the strongest, the green is weak, and the dark blue is the background, and the spot size is the length and width of the green in the figure.

The shell of TF03 is made of aluminum alloy and infrared band-pass glass to improve the overall strength. With IP67 enclosure rate, the sensor can be applied in various extreme environments. It supports multiple interfaces for different applications, such as UART, CAN, IO. Besides that, multiple parameters of TF03 can be configured by customers, including the measuring frequency, baud rate, trigger mode, over-range assignment, and so on. TF03 is also equipped with BootLoader function, enabling users to upgrade product firmware locally. Power the sensor with 5V. The average power consumption is 0.55W. It is compatible with controllers like Arduino, Raspberry Pi. With Arduino and Raspberry Pi libraries developed by DFRobot, users can conveniently integrate functions into the system to develop their applications.



Dimension Diagram

Note

1. This product can only be maintained by qualified professionals and only the original spare parts can be used to ensure its performance and safety.

2. The product itself has no polarity and over-voltage protection. Please complete wiring and supply power correctly according to the contents of the Manual.

3. The working temperature of the product is -20℃~60℃, do not use it beyond this range so as to avoid risks.

4. The storage temperature of the product is -40°C~85°C; please do not store it beyond this temperature range, so as to avoid risks.

5. Do not open its enclosure for assembly or maintenance beyond this Manual; otherwise, it will affect the product performance.

6. When the product transmitter and receiver lens are covered by dirt, there will be a risk of failures. Please keep the lens clean.

7. The product will have a risk of failure when immersed completely in water. Do not use it underwater.

8. When detecting objects with high reflectivity, such as mirrors and smooth tiles, the product may have a risk of failures.

SPECIFICATION

Product Performance

- Range: 0.1m-180m@90% reflectivity

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0.1m-70m@10% reflectivity 0.1m-50m@90% reflectivity &100Klux, 0.1m-50m@10% reflectivity &100Klux

- Accuracy: ±10cm (less than 10m), 1%(more than 10m)
- Distance Resolution: 1cm
- Frame Rate: 1Hz-1000Hz Adjustable (Default 100Hz)
- Ambient Light Immunity: 100klux
- Repeatability: 1σ：<3cm
- Operating Temperature: -25℃~60℃
- Enclosure Rate: IP67

Optical Parameters

- Light Source: LD
- Wavelength of Light Source: 905nm
- FOV Angle: 0.5°
- Laser Class: CLASS1 (EN60825)

Electrical Parameters

- Supply Voltage: 5V~24V
- Average Current: ≤150mA@5V，≤80mA@12V，≤50mA@24V
- Power Consumption: ≤0.9W
- Peak Current: ≤180mA
- Communication Voltage Level: LVTTL（3.3V）
- Communication Interfaces: UART/CAN/IO

Others

- Dimension: 44*43*32mm/1.73*1.69*1.26”
- Enclosure Material: Aluminum alloy
- Storage Temperature: -40℃~85℃
- Weight: 89g±3g
- Wiring Length: 70cm/27.56”

DOCUMENTS

- Product Wiki

SHIPPING LIST

- TF03 (ToF) Laser Range Sensor(180m) x1

TUTORIAL

Laser Radar Selection Guide (Part 2)

Laser Radar Selection Guide (Part 2)

Laser Radar

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REVIEW

FAQ

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