# TF350, Long-range single-point LiDAR

Product Datasheet V1.3

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TF350 is an industrial-grade longe-range single-point LiDAR. It's designed for intelligent transportation, industrial drones, automobiles, industry and other applications. As a member of TF03 series, TF350's measuring frequency can also reach 10KHz. And, multiple communication interfaces are supported in its IP67 high-intensity casing. With integrated compensating algorithm for outdoor glare and other interference, TF350 can work under rain, fog and snow conditions[1]. Multiple built-in operating modes let customers to change its parameters and configuration to meet different applications.

## Main product features

- High frame rate
- IP67 protection
- Long range
- Various interface

## Main application scenarios

- Vehicle collision avoidance and safety warning
- Traffic flow statistics
- Camera trigger
- UAV assisted takeoff and landing

## SPECIFICATIONS

| Parameters | | Standard version | RS485/RS232 version |
|---|---|---|---|
| **Product performance** | Range (Indoor, no ambient light) | 0.2~350m@90% reflectivity<br>0.2-110m@10% reflectivity | |
| | Range (Outdoor @ 100Klux) | 0.2-300m@90% reflectivity<br>0.2-100m@10% reflectivity | |
| | Accuracy[2] | ±10cm (within 10m), 1% (10m and further) | |
| | Distance resolution | 1cm | |
| | Frame rate[3] | 1Hz~1000Hz adjustable (default 100Hz) | |
| | Repeatability | 1σ: <3cm | |
| | Ambient light immunity | 100Klux | |

[1] Rain, snow and fog conditions generally refer to moderate rain, snow and below. Moderate rainfall < 25mm/24h or < 7.9mm/h.

[2] The detection range is measured at temperature of 25℃. Accuracy and repeatability are measured with white board (90% reflectivity).

[3] The highest frame rate can be customized to 10KHz, please contact us for detailed information.

| | | | |
|---|---|---|---|
| | Enclosure rating | IP67 | |
| **Optical parameters** | Light source | LD | |
| | Central wavelength | 905nm | |
| | Photobiological safety | Class1（EN60825） | |
| | FOV[4] | 0.35° | |
| **Electrical parameters** | Supply voltage | 5V~24V | |
| | Average current | ≤150mA @ 5V，≤80mA @ 12V，≤50mA @ 24V | |
| | Power consumption | ≤1W | |
| | Communication interface level | LVTTL（3.3V） | RS485/RS232 |
| | Communication interface | UART/CAN | RS485/RS232 |
| **Others** | Dimension | 78mm*67mm*40mm (L*W*H) | |
| | Enclosure material | Aluminum alloy | |
| | Operation temperature | -25~60℃ | |
| | Storage temperature | -40~85℃ | |
| | Weight | 222g±3g | 225g±3g |
| | Cable length | 70cm | |

## ■ DIMENSIONS

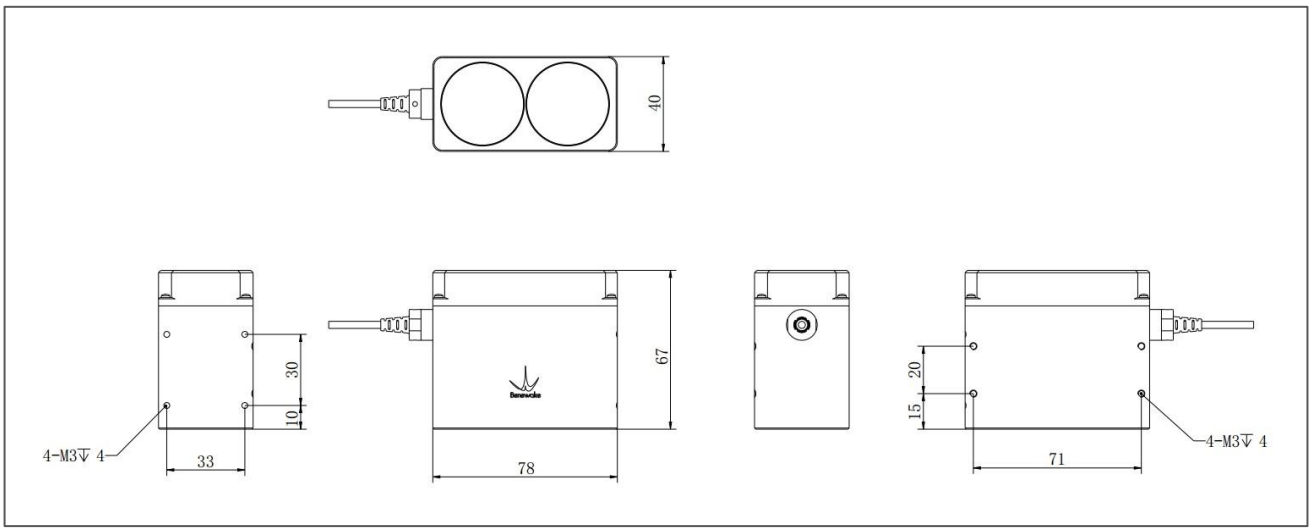


Figure 1 TF350 dimensions (Left 1: top view; Left 2: upward view; Left 3: front view) Unit: mm

[4] FOV, field of view, consists of vertical angle and horizontal angle.

## COMMUNICATION INTERFACE

| Parameters | UART/RS485/RS232 |
|---|---|
| **Baud rate** | 115200 |
| **Data bit** | 8 |
| **Stop bit** | 1 |
| **Checksum bit** | N/A |

| Parameters | CAN |
|---|---|
| **Baud rate** | 1000kbps |
| **Data bit** | 0x3003 |
| **Stop bit** | 0x3 |
| **Frame format** | Standard frame[5] |

## CONFIGURABLE PARAMETERS

Table 1 Configurable parameters example

| Configurable parameters | Description | Default setting |
|---|---|---|
| **Frame rate** | Output frame rate could be configured by related command, range 1~1000Hz[6] | 100Hz |
| **Communication interfaces** | UART/CAN can be switched with command | UART |
| | RS485/RS232 can be switched with command | RS485 |
| **Baud rate** | a) Serial port baud rate could be customized<br>b) CAN port baud rate could be customized, CAN ID could be modified | / |
| **Restore default** | TF03-180 can be restored to the factory settings | / |
| **Save configuration** | After defining the configuration parameters, you can send the corresponding command to choose to save the configuration permanently | / |

*Note: for more configurable parameters and instructions, please refer to the user manual.*

[5] Please check User manual for detailed information.

[6] The highest frame rate can be customized to 10KHz, please contact us for detailed information.

## WIRING

The connector of TF350 is Molex 1.25 W/B SD-51021-0700.

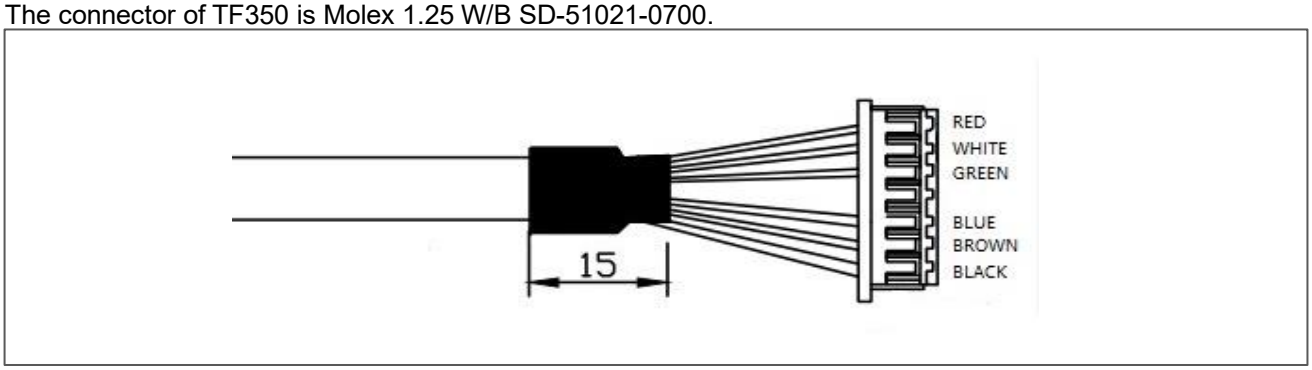


Figure 2 Wiring of TF350

Below is TF350's pin definition and function description.

| No. | Color | Standard version | | RS485 version | |
|---|---|---|---|---|---|
| | | PIN definition | Function | PIN definition | Function |
| 1 | Red | VCC | Power supply | VCC | Power supply |
| 2 | White | CAN_L | CAN_L | RS485-B/RS232-RX | RS485-B/RS232 receive |
| 3 | Green | CAN_H | CAN_H | RS485-A/RS232-TX | RS485-A/RS232 transport |
| 4 | / | / | / | / | / |
| 5 | Blue | UART_RX | UART receive | UART_RX | UART receive(debug)[7] |
| 6 | Brown | UART_TX | UART transport | UART_TX | UART transport(debug) |
| 7 | Black | GND | Ground | GND | Ground |

## CERTIFICATIONS

EN60825

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[7] The UART interface of TF350 RS485 version is debugging interface. It cannot be used to read detection data.