

# TF350 LiDAR Long-Distance Sensor

## 1 Product Overview



TF350 is an industrial single-point ranging LiDAR, made for intelligent transportation, industrial drones, automobiles, industry and other applications.

TF350 belongs to the same series as TF03, but its range is much longer with a measurement frequency of up to 10KHz. Multiple communication interfaces are supported in its IP67 high-intensity casing. In addition, the

TF350 includes compensation algorithms for outdoor glare and other interference, so it works normally under strong light environment. Different built-in operating modes let customers change parameters and configuration to meet their need.

## 2 Technical specifications

Table 1 Main parameters of TF350

| Parameters name     |                         | Parameters value   |
|---------------------|-------------------------|--|
| Product performance | Range <sup>1</sup>      | 350m@90% reflectivity, 150m@10% reflectivity<br>300m@90% reflectivity&100Klux,<br>140m@10%reflectivity&100Klux |
|                     | Non-detection zone      | 10cm   |
|                     | Distance resolution     | 1cm  |
|                     | Accuracy                | 10cm(less than 10m), 1%(more than 10m)   |
|                     | Repeatability           | 1σ:<3cm  |
|                     | Frame rate <sup>2</sup> | 1Hz-1000Hz adjustable (default 100Hz)  |
|                     | Ambient light immunity  | 100Klux  |
|                     | Over range output       | 350m (default value, revisable)  |

<sup>1</sup> Measuring range, accuracy and repeatability are measured in white board (90% reflectivity) and will be somewhat different in the case of different reflectivity or light sensitivity conditions.

<sup>2</sup> The highest frame rate can be customized for 10KHz.



|                       |                              |   |
|-----------------------|------------------------------|---|
| Optical parameters    | light source                 | LD  |
|                       | Wavelength of light source   | 905nm   |
|                       | Detection angle <sup>3</sup> | 0   |
|                       | Spot size                    | 100m away:100cm*40cm(horizontal*vertical)   |
|                       | Laser class                  | CLASS 1 (IEC 60825)   |
| Electrical parameters | Supply voltage               | DC 5V (≥180mA)  |
|                       | Average current              | ≤180mA  |
|                       | Power consumption            | ≤0.9W   |
|                       | Peak current                 | ≤180mA  |
|                       | Communication voltage level  | 3.3V  |
| Others                | Wiring length                | 70cm  |
|                       | Dimension                    | 62.5mm*65mm*38mm (L*W*H)  |
|                       | Weight                       | 173g (with cable)   |
|                       | Enclosure Material           | Aluminum alloy  |
|                       | Installation specification   | 4 pieces of mounting hole at the bottom, 4 pieces of mounting hole at the side, specification is M3*4mm |
|                       | Working temperature          | -25~60°C  |
|                       | Storage temperatuere         | -40~85°C  |
|                       | Enclosure ratingIV           | IP67  |

<sup>3</sup> Detection angle means FOV of light spot, horizontal is different with vertical, the detection angle in the parameters table means the maximum one, which means the horizontal one. Note: Lidar's horizontal axis and light spot's axis are same when logo face up.

### 3 Product dimensions

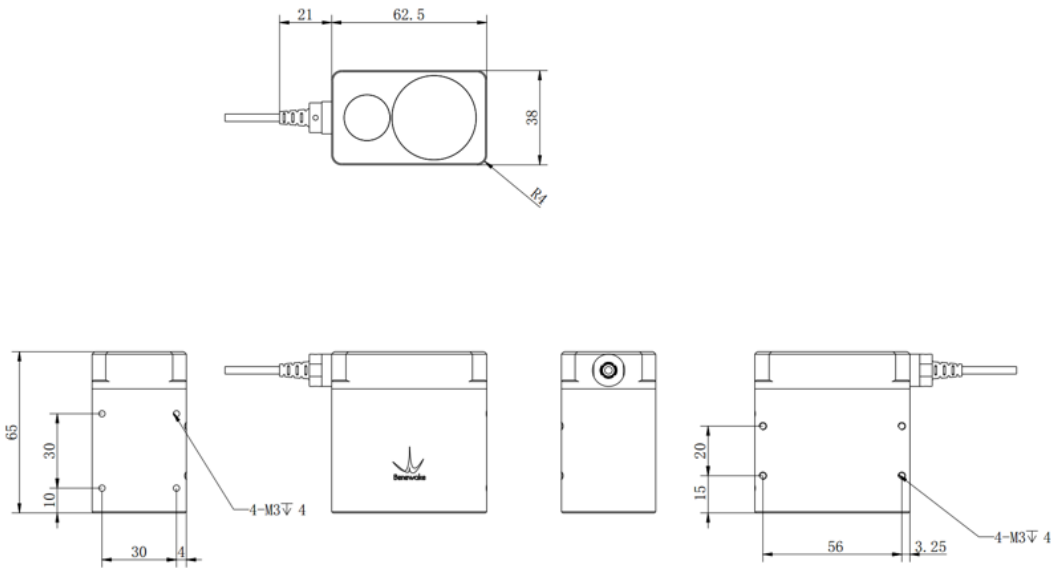


Figure 1 TF350 dimension

### 4 Communication protocol

TF350 standard version supports TTL serial port as default, and CAN communication mode is also available to use if needed. Command are provided for modifying to CAN mode, but only one of the two modes is working, two of them cannot output at the same time.

Table 2 TF350 serial port communication protocol

| Communication Protocol | UART   |
|------------------------|--------|
| Baud rate              | 115200 |
| Data bit               | 8      |
| Stop bit               | 1      |
| Checksum bit           | none   |

Table 3 TF350 CAN communication protocol

| Communication Protocol | CAN    |
|------------------------|--------|
| Baud rate              | 1000K  |
| Receiving ID           | 0x3003 |
| Sending ID             | 0x3    |



|              |  |
|--------------|--|
| Frame format | Default sending frame is standard frame,<br>receiving frame support standard frame and<br>extended frame |
|--------------|--|

## 5 Configurable parameters

Table 4 Configurable parameters example

| Configurable item                  | Description  | Factory configuration |
|------------------------------------|--|-----------------------|
| Custom frame rate                  | Detection frame rate could be configured by related command, range 1~1000Hz  | 100Hz                 |
| Over range output                  | This value will be pushed output when measuring value more than this value   | 350m                  |
| Output format                      | Serial port/Pixhawk/IO   | Serial port           |
| Custom baud rate                   | a) Serial port baud rate could be customized<br>b) CAN port baud rate could be customized, CAN ID could be changed | /                     |
| Factory reset                      | Factory reset could be done by TF03_setup GUI software   | /                     |
| Configuration saved when power cut | Parameters could be saved when power cut by related command  | /                     |

**Note:**More configuration parameters and command could be found in the production manual.

