# TF350 LiDAR Long-Distance Sensor

1   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.
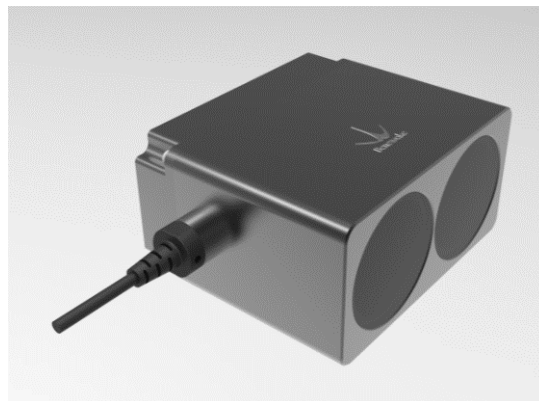
2   Technical specifications

Table 1 Main parameters of TF350

Parameters		Value
Performance	Range[1]	350m@90% reflectivity, 110m@10% reflectivity 300m@90% reflectivity&100Klux, 110m@10%reflectivity&100Klux
	Blind zone[2]	10cm
	Distance resolution	1cm
	Accuracy	±10cm(less than 10m), 1%(more than 10m)
	Repeatability	1σ:<3cm
	Frame rate[3]	1Hz-1000Hz adjustable (default 100Hz)
	Ambient light immunity	100Klux

[1] 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.

[2] In blind zone, TF350 cannot output correct distance value.

[3] The highest frame rate can be customized for 10KHz.

|	Over range output	350m (default value, revisable)
Optical parameters	Light source	LD
	Central Wavelength	905nm
	FoV[4]	0.35°
	Spot size	100m away: 70cm*25cm(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	78mm*67mm*40mm (L*W*H)
	Weight	222g (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℃
	Storage temperature	-40~85℃
	Enclosure rating	IP67

3 Product dimensions
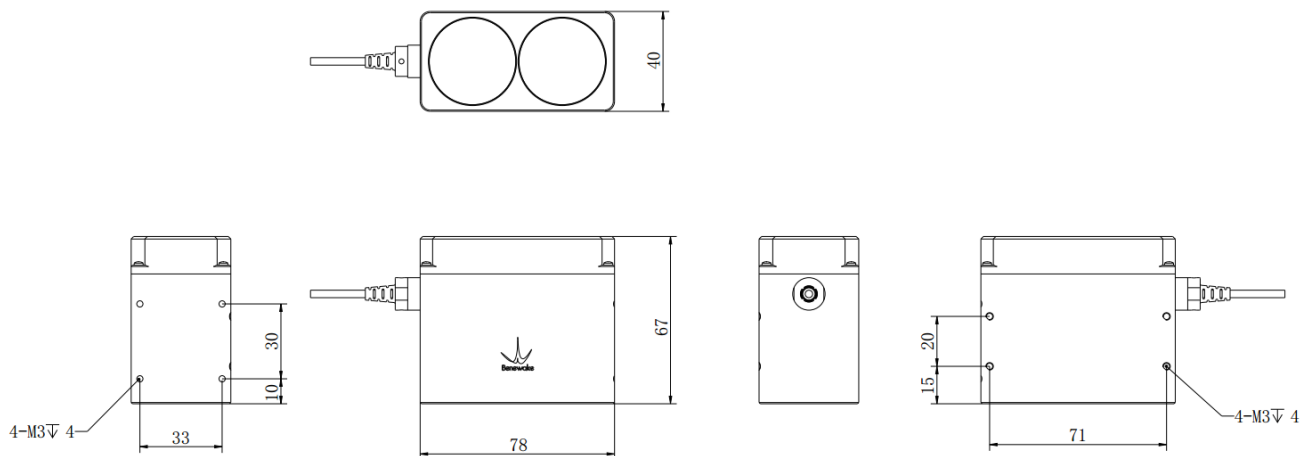
Figure 1 Structural dimension of TF350

[4] 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.

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, receiving frame support standard frame and extended frame

5   Configurable parameters

TF350 released several parameters, like frame rate, baud rate etc., can be set according to specific applications.

Table 4 Configurable parameters example

Configurable parameters	Description	Default 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
Communication protocol	Serial port/Pixhawk/IO	Serial port
Baud rate	a) Serial port baud rate could be customized b) CAN port baud rate could be customized，CAN ID could be changed	/
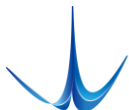
Reset	Factory reset could be done by TF03_setup GUI software	/
Parameter saving	Parameters could be saved when power cut by related command	/

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