CPJROBOT

T1

TOF LiDAR

Introduction and datasheet

T1 is a single-line lidar product based on the pulsed time-of-flight (ToF) method for distance measurement. Its internal structure adopts a rotating mirror design to achieve a scanning range of 270° . It can be widely used in various occasions that require distance scanning and measurement, such as mapping, positioning and navigation of mobile robot platforms, safety protection of factory operations, obstacle avoidance and navigation of AGV, self-driving environment perception and other scenarios.

Parameters

Principle of Ranging	TOF (time-of-flight)
Laser Wavelength	905 nm
Maximum Detection Range	≥20m (70% reflectance) ≥10m (10% reflectance) [1]
Horizontal Field Angle	270°
Data Sampling Rate	30 kHz [2]
Scan Frequency	10 Hz/15 Hz/20 Hz/25 Hz/30 Hz
Angular Resolution	0.12° /0.18° /0.23° /0.35° /0.35°
Range Resolution	1 cm
Ranging Accuracy	±2 cm [3]
Communication Interface	Ethernet/ RJ45
Power Supply	12V DC
Power Consumption	<5 W/Peak value <2 W/Typical value [4]
Operating Temperature	-20℃ ~60℃ [5]
Storage Temperature	-25℃ ~ 75℃
Protection Level	IP65
Weight	250 g

1.Typical values for 10% reflectance conditions.

2.Equivalent data sampling rate calculated at 360° horizontal field of view Angle.

3.Typical values in the 10m range for reflectance conditions of 10% to 70%.

4.When LiDAR started, the power consumption is at a peak for a short period of time (<10 s), and then drops to a typical value.

5.It can be started at -25℃, but normal operation requires operating above -20℃.

Working area

Please keep the surface of the infrared cover clean,do not to block the field of view. Figure 1 shows the laser emitting and receiving area of T1 vertically. When mounting, please use the oblique line in Figure 1 to mark the area as the base line, leave at least 5 mm space above and below.

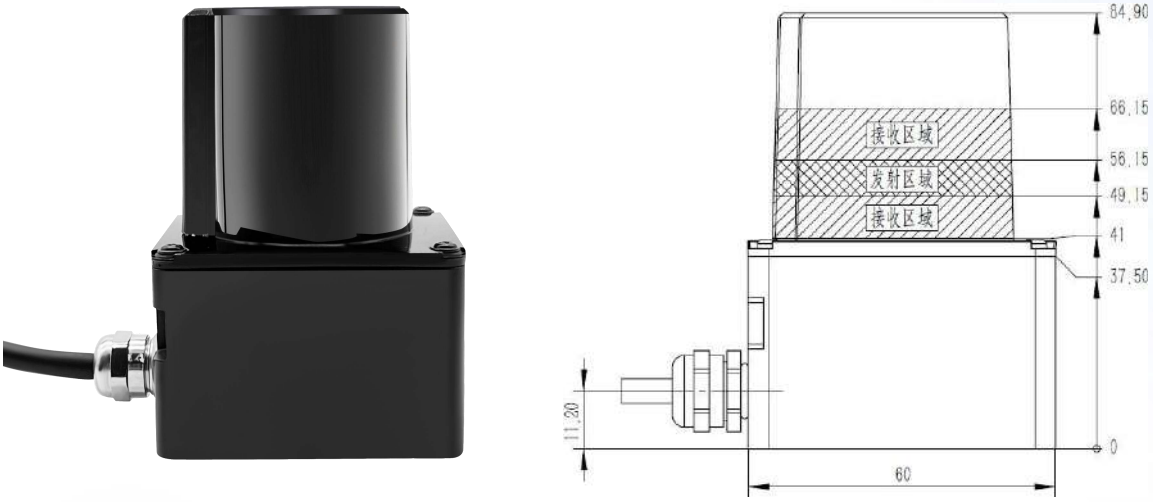


Figure 1. Laser emitting and receiving area

The horizontal working area is 270° , 135° on the left and right each in front.

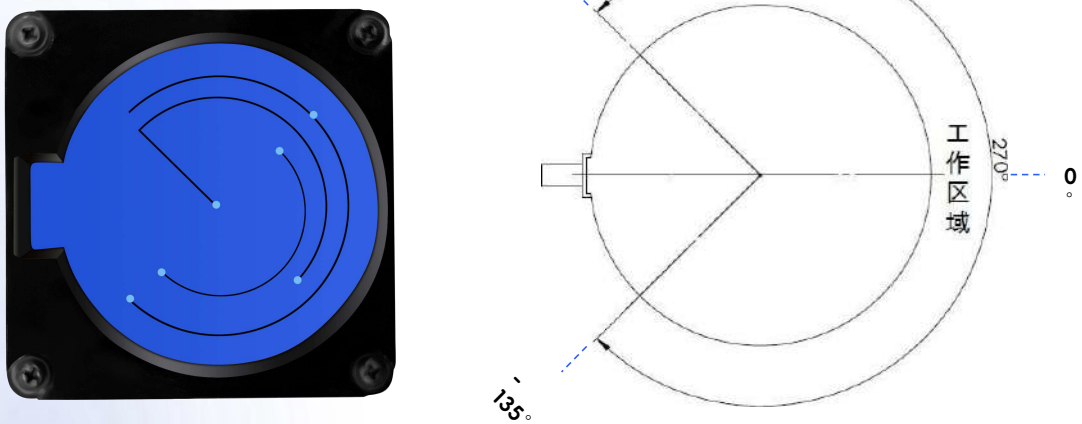
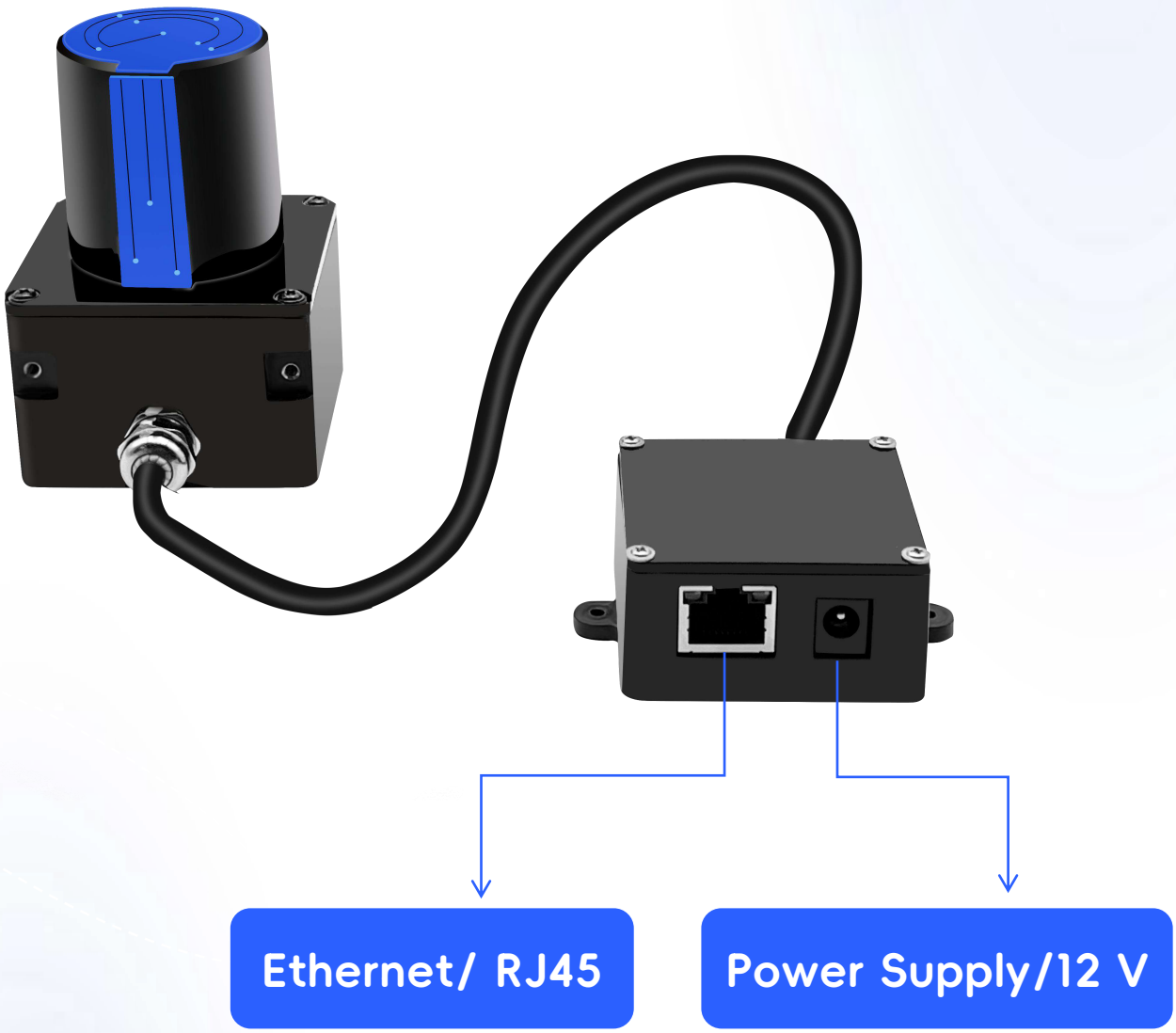
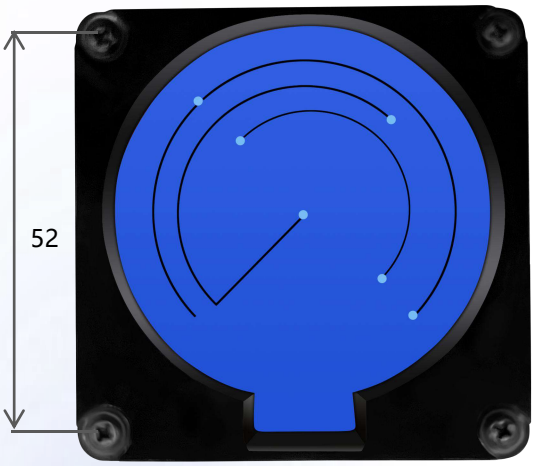


Figure 2. FOV (Top View)

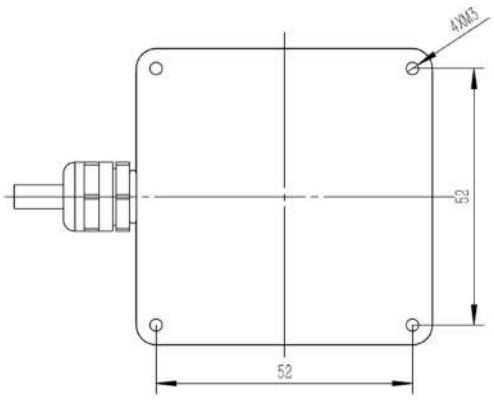
Electrical connection

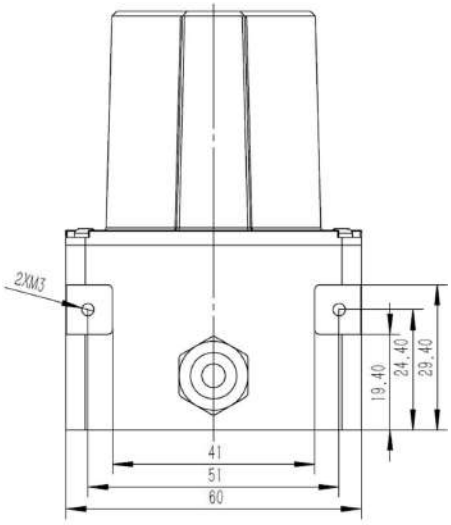


Dimension

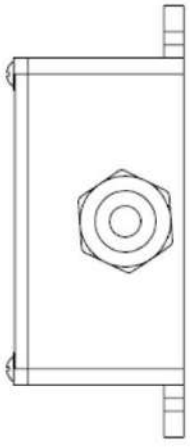


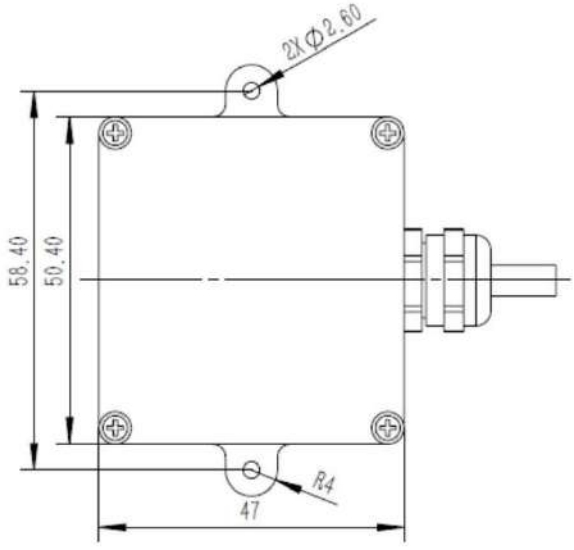
Mounting holes

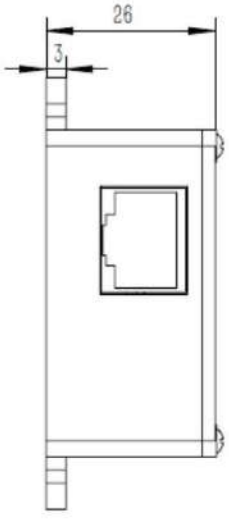


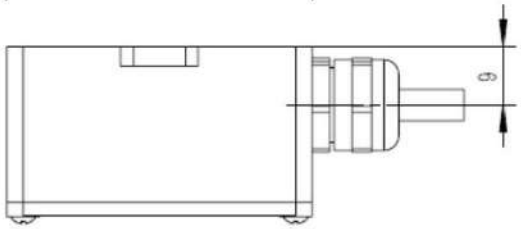


Wiring box









Applications

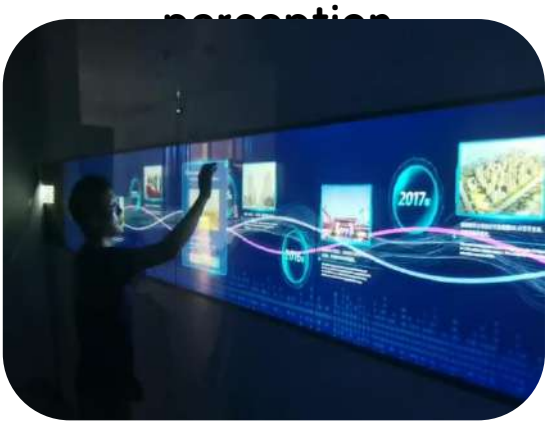
safety protection
in factory

Autonomous positioning and
navigation of service robot

Obstacle avoidance and
navigation of AGV

Self-Driving
environment

Mapping and obstacle
avoidance of drone



Multi-touch interaction
with large screen

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