

LakiBeam 1S - 270 Degree Industrial-grade Single-line 2D ToF LiDAR (15m, 12V, Ethernet UDP, IP65)

SKU:SEN0576 Brand:Other Reward Points: 3090

Categories: Sensors All Products LiDAR
Topic: Robotics

* Model: 0-15m 0-25m 0-40m
Quantity: − 1 +

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INTRODUCTION

This 2D single-line pulsed time-of-flight (ToF) LiDAR can realize the scanning measurement of the environmental profile within 270 degrees of the horizontal plane, with a precision of 2cm in a detection range of 0–15 m. With a compact and small size, the radar module features small size, light weight, high stability, adjustable angular resolution of 0.2°/0.5°, and almost zero blind spots. Designed for short-distance detection, this 2D single-line laser radar is suitable for various applications such as robotics, multimedia interaction, perimeter security, etc.

Core parameters



TOF Range Principle	±2cm Range Accuracy
0-15m Detection Distance	270° Horizontal FOV
18kHz(10Hz) 14.4kHz(20Hz) Data Sample Rate	≥15m(70% reflectivity) ≥10m(10% reflectivity) Protection Distance
0.2°(10Hz) 0.5°(20Hz) Horizontal Resolution & Rotation Frequency	≤2.5W Power Consumption

0-15m detection range, 270° scanning, more reliable than 360° LiDAR

Dimensional Scanning Diagram
Figure: Dimensional Scanning Diagram

Lidar Horizontal Scanning Range and Vertical Beam Emission Height
Figure: Lidar Horizontal Scanning Range and Vertical Beam Emission Height

The high sampling rate of 18,000 times per second ensures high-quality point cloud output.

270 Degree Single-line 2D ToF LiDAR high sampling rate

Resistant to 100KLux strong light, capable of high-frequency and high-precision measurement and mapping both indoors and outdoors

270 Degree Single-line 2D ToF LiDAR Resistant to 100KLux strong light

VCSEL laser emitter, smaller laser spot size

With the VCSEL laser emitter, the laser spot size of the laser radar can be smaller, resulting in less trailing and higher point cloud accuracy compared to EEL laser emitters.

VCSEL laser emitter, smaller laser spot size

Built-in Web Service for easy monitoring and radar setup

The built-in web service provides functions such as dashboard display, radar settings, and firmware updates (OTA), making it easy to monitor and configure the radar system. The device supports two communication modes: Ethernet UDP (default) and masked USB, with a 5.5-2.1 DC power interface. Once connected properly, users can access the built-in web service of the device through a web browser by visiting http://192.168.198.2.

Built-in Web Service for easy monitoring and radar setup

Cost-effective LiDAR, more selections for various applications

It can be applied to scenes such as robots, multimedia interactions, perimeter security, etc., or used as the main laser for indoor robots and the oblique laser for outdoor robots.

270 Degree Single-line 2D TOF LiDAR Applications
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Built-in brushless motor

Low noise/Durable/Long service life

270 Degree Single-line 2D ToF LiDAR Built-in brushless motor

Class 1 Eye Safety Laser Standards

The laser power received in a fixed unit of time is less than 1mW, which complies with CLASS 1 laser safety standards.

LiDAR Class 1 Eye Safety Laser Standards

Selection Guide of 2D ToF LiDAR

How does the Single-line 2D ToF LiDAR work?

Based on the pulsed Time-of-Flight (pToF) methodology, the LiDAR module consists of a laser diode, optical detector, optical system and Time-to-Digital converter. The laser diode emits a beam of by short laser pulses, meanwhile, the Time-to-Digital converter starts, the object's surface produces a diffuse reflection after the beam hits the target object and the returning beam is detected by the optical detector, and then Time-to-Digital converter stops. Then we can calculate the distance from the device to the measurement target based on the time difference obtained. But this only achieves point-to-point ranging, in order to realize point-to-plane 2-dimensional Scanning, the product has a built-in rotating mirror to realize the ranging of different azimuth with rotating mirror by the motor driving. The ranging results obtained by rotation of the mirror are combined in sequence, which are the set of all the ranging results in a plane.

FEATURES

- Compact design, light and small
- Zero blind zone, strong light resistance, cost-effective
- 18,000 times/second sampling, high point cloud quality
- 270° Lidar, more reliable than 360° Lidar

APPLICATIONS

- Automation Fields: Automation fields such as industrial automation, port automation and so on
- Main Laser: Main laser for indoor robots
- Oblique Laser: Outdoor robots
- Mapping and Obstacle Avoidance: It can be used for mapping and AGV obstacle avoidance

SPECIFICATION

- Model: LakiBeam 1S
- Horizontal FOV: 270°
- Horizontal Angle Resolution and corresponding rotation frequency: 0.2° (10Hz) ; 0.5°(20Hz)
- Detection Range: ≥15m@70% reflectivity, ≥10m@10% reflectivity
- Data Sampling Rate: 18kHz(10Hz); 14.4kHz(20Hz)
- Detection Accuracy: ±2cm
- Data Output Format: Ethernet UDP/USB
- Data Transmission Method: UDP/IP (100 Mbps Ethernet)
- Data Output: Distance, angle, echo intensity, time (internal)
- Size: 60×60×80mm/2.36×2.36×3.15"
- Wavelength: 940nm
- Protection Level: IP65
- Operating Voltage: 6-36V (12V/1A power supply recommended)
- Operating Temperature: -25 to 60℃
- Storage Temperature: -40 to 75℃
- Power Consumption: ≤2.5W
- Weight: 160g
- Communication Interface: RJ45/Type-C
- Power Interface Size: 5.5 x 2.1mm
- Recommended Power Supply: 12V/1A power adapter (certified)

DOCUMENTS

- SDK instructions
- ROS2 instructions
- ROS1 instructions
- SDK instructions
- Specification
- User manual
- ROS2
- ROS1
- SDK

SHIPPING LIST

- 270 Degree Single-line 2D ToF LiDAR 1S (0-15m) ×1
- Radar Fixator (Pair) × 1

REVIEW

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FAQ