RPLIDAR A1M8 - 360 Degree Laser Scanner Development Kit

SKU:DFR0315

INTRODUCTION

RPLIDAR A1 is a low cost 360 degree 2D laser scanner (LIDAR) solution developed by SLAMTEC. The system can perform 360 degree scan within 12-meter range (6-meter range of A1M8-R4 and the belowing models). The produced 2D point cloud data can be used in mapping, localization and object/environment modeling.

RPLIDAR A1's scanning frequency reached 5.5 hz when sampling 1450 points each round. And it can be configured up to 10 hz maximum. RPLIDAR A1 is basically a laser triangulation measurement system. It can work excellent in all kinds of indoor environment and outdoor environment without direct sunlight exposure.

RPLIDAR A1 is based on laser triangulation ranging principle and uses high-speed vision acquisition and processing hardware developed by Slamtec. The system measures distance data in more than 8000 times per second.

360 Degree Omnidirectional Laser Range Scanning

The core of RPLIDAR A1 runs clockwise to perform a 360-degree omnidirectional laser range scanning for its surrounding environment and then generate an outline map for the environment.

The sample rate of LIDAR directly decides whether the robot can map quickly and accurately.

RPLIDAR improves the internal optical design and algorithm system to make the sample rate up to 8000 times,

Comparison under different conditions

10Hz 8000 Points vs 10Hz 4000 Points vs 5Hz 2000 Points

OPTMAG Original Design

Most traditional non-solid LIDARs use slip ring to transfer power and data information, however, they only have thounds of hours of life due to mechanical wearing out. Slamtec has integrated the wireless power and optical communication technology to self-design the OPTMAG technology, which breakouts the life limitation of traditional LIDAR system. It fixes the electrical connecttion failure caused by the physical wearing out so as to prolong the life-span.

Configurable Scan Rate from 2-10Hz

Users can adjust the scan rate by alternating the motor PWM signal

Ideal for Robot Navigation and Localization

RPLIDAR is the designed sensor for applying SLAM algorithm

With the scan rate set as 5.5Hz and the resolution is 0.2% percent of the actual distance

Plug and Play

Just connecting the RPLIDAR and a computer via a micro USB cable, users can use the RPLIDAR without any coding job

RPLIDAR A1M8 - 360 Degree Laser Scanner Development Kit Review **(Russian)**

APPLICATIONS

The Secret for a Freely Walking Robot

Matched solution for robot autonomous localization and navigation

RPLIDAR A1, as the core sensor, can quickly get the outline infomation of the environment. Integrating the RPLIDAR A1 with SLAMWARE in robot, the robot can build maps autonomously, find path in real time and avoid obstacles automatically.

Multi-point Touch and Man-machine Interaction

Compared with traditional technology, with infrared laser device, the RPLIDAR A1 can realize the multi-point touch on a super-large screen, which has a higher resolution, reacts quickly and resists ambient light.

Robot simultaneous localization and mapping (SLAM)

Environment scanning and 3D rebuilding

Obstacle detecting and avoiding

Multi-point touching and man-mechine interaction

SPECIFICATION

- Model: RPLDIAR-A1M8
- Distance Range: A1M8-R4 and the belowing models 0.15 - 6 m

  A1M8-R5 0.15-12m
- Angular Range: 0-360 degree
- Distance Resolution: ＜0.5mm

  ＜1% of the distance (All distance range)
- Angular Resolution: ≤1 degree
- Sample Duration: 0.125 millisecond
- Sample Frequency: ≥ 8000Hz
- Scan Rate: 5.5Hz
- Weight: 170g