



RPLIDAR A3M1 360 Degree Laser Scanner Kit - 25M Range

SKU 110991068



RPLIDAR,laser scanner,LIDAR,360,25m,16000,robot navigation,Environment scanning,SLAM,low power

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The RPLIDAR A3M1 is the next generation low cost 360 degree 2D laser scanner (LIDAR) solution developed by SLAMTEC. It can take up to 16000 samples of laser ranging per second with high rotation speed. And equipped with SLAMTEC patented OPTMAG technology, it breakouts the life limitation of traditional LIDAR system so as to work stably for a long time.

The system can perform 2D 360-degree scan within a 25-meter range. The generated 2D point cloud data can be used in mapping, localization and object/environment modeling.

Compared with RPLIDARs in other series, RPLIDAR A3M1 has a more stable performance when detecting objects in long distance, objects in white or black alternatively and objects under direct sunlight, which is ideal for map building in the outdoor environment within a 25-meter ranging radius. Therefore, it can be widely applied in many consumer-oriented business scenarios. RPLIDAR A3M1 supports to work under two modes alternatively: enhanced mode and outdoor mode. In the enhanced mode, it works with the maximum ranging radius and sampling rate to realize an optimistic mapping performance in the indoor environments. While in the outdoor mode, RPLIDAR A3M1 works with a more reliable resistance to daylight interference, which prevents it from "blind" in outdoor environment.

The typical scanning frequency of RPLIDAR A3M1 is 10Hz(600rpm), and the frequency can be freely adjusted within the 5-20Hz range according to the specific requirements. With the 10Hz scanning frequency, the sampling rate is 16kHz and the angular resolution is 0.225°.

Due to the improvements in SLAMTEC hardware operating performance and related algorithm, RPLIDAR A3M1 works well in all kinds of indoor environment and outdoor environment with direct sunlight. Meanwhile, before leaving the factory, every RPLIDAR A3M1 has passed the strict testing to ensure the laser output power meet the eye-safety standard of IEC-60825 Class 1.

Application Scenarios

- General robot navigation and localization
- Environment scanning and 3D re-modeling
- Service robot or industrial robot working for long hours
- Home service/cleaning robot navigation
- Localization General simultaneous localization and mapping (SLAM)
- Smart toy's localization and obstacle avoidance

Features

Ranging 16000 Times per Second

The sample rate of LIDAR directly decides whether the robot can build map quickly and accurately. RPLIDAR A3 improves the internal optical design and algorithm system to make the sample rate up to 16000 times, which is much better than most competitors.

25 Meters Range Radius

With algorithm optimization, the ranging radius of RPLIDAR A3 has been increased to 25 meters, which means more environment outline information is to be collected

Indoor and Outdoor Availability

RPLIDAR A3 supports to work under two modes alternatively: enhanced mode and outdoor mode. In enhanced mode, RPLIDAR A3 works with the maximum ranging radius and sampling rate to realize an optimistic mapping performance in indoor environments. While in outdoor mode, RPLIDAR A3 works with a more reliable resistance to daylight interference. It keeps its stable performance when detecting white and black objects.

360 Degree Omnidirectional Laser Range Scanning

The ranging core of RPLIDAR A3 runs clockwise to perform a 360 degree omnidirectional laser range scanning for its surrounding environment and then generate an outline map for the environment.

4 Centimeters Ultra-thin

With the carefully designed parts and internal mechanical system, the RPLIDAR A3 keeps its exceptional performance within its 4-cm thick compact size. It is ideal for all kinds of service robots.

Brushless Motor, Low Noise, New Non-contact Drive

Compared with the traditional belt drive mode, RPLIDAR A3 uses the self-designed brushless motor to reduce the mechanical friction in running. Therefore, the RPLIDAR A3 can run smoothly without any noise.

OPTMAG Original Design, 5 Years Ultra-long Life

Most traditional non-solid LIDARs use slip ring to transfer power and data information, however, they only have thousands of ours 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 connection failure caused by the physical wearing out so as to prolong the life to 5 years and even more.

The RPLIDAR A3 system adopts the low power infrared laser

light as its light source, and drives it by using modulated pulse. The laser emits light in a very short time frame which can ensure its safety to human and pets. It has already reached Class 1 Safety Standard.

Dimensions	76mm x76mm x41mm
Weight	G.W 190g
Battery	Exclude
Enhanced Mode	
Application Scenarios	Extreme performance,Ideal for indoor environments with maximum ranging distance and sampling frequency.
Distance Range	White object: 25 meters;Black object: 10 meters
Sample Rate	16 kHz
Scan Rate	Typical value: 15 Hz (adjustable between 5 Hz-20 Hz)
Angular Resolution	0.225°
Communication Interface	TTL UART
Communication Speed	256000 bps
Compatibility	Support former SDK protocols
Outdoor Mode	
Application Scenarios	Extreme reliability. Ideal for both outdoor and indoor environments with reliable resistance to daylight.
Distance Range	White object: 25 meters,Black object: 8 meters
Sample Rate	16 kHz or 10 kHz
Scan Rate	Typical value: 15 Hz (adjustable between 5 Hz-20 Hz)
Angular Resolution	0.225° or 0.36°
Communication Interface	TTL UART
Communication Speed	256000 bps
Compatibility	Support former SDK protocols

Part List

RPLIDAR (PWM motor driver embedded)	1
USB Adapter	1
Micro-USB cable	1
DC Power Cable	1

ECCN/HTS

ECCN	ERA99
HS CODE	9031809090
USHSCODE	9015900190
UPC	841454121640

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