

## RPLidar A1M8 - 360° LiDAR Laser Range Scanner (12m)

The **RPLidar A1M8** is a high-performance **360-degree laser range scanner** designed to deliver accurate, real-time mapping and object detection for robotics, drones, and autonomous systems. Built by **Slamtec**, this compact and reliable LiDAR sensor provides a **12-meter measurement range**, making it an ideal choice for **indoor mapping, navigation, and obstacle avoidance** applications. Whether you're developing a robot vacuum, an autonomous navigation system, or a 3D mapping project, the RPLidar A1M8 provides the precision and performance you need.



### Comprehensive 360° Scanning

With **360-degree omni-directional scanning**, the RPLidar A1M8 can capture distance data in all directions simultaneously. This enables your robot or system to perceive its surroundings in a full circle without blind spots. The sensor continuously rotates at **5,000 RPM**, ensuring smooth, consistent scanning and high-quality mapping results. This capability makes it perfect for **SLAM (Simultaneous Localization and Mapping)**, environment modeling, and navigation applications.

### Extended 12-Meter Detection Range

Despite its compact size, the RPLidar A1M8 offers an impressive **12-meter detection range** with reliable accuracy. This extended range allows for precise obstacle detection and distance measurement, making it suitable for both **indoor and outdoor environments**. From robotics labs to warehouse navigation and drone-based scanning, the A1M8 performs efficiently in a wide range of applications.

### **High-Speed Sampling for Real-Time Mapping**

The RPLidar A1M8 operates with a **sampling rate of up to 8000 samples per second (8 kHz)**, providing fast and detailed real-time data feedback. This high-speed performance ensures your system can react quickly to environmental changes, allowing for **smooth pathfinding and obstacle avoidance**. Whether used in a research project or an industrial robot, this LiDAR sensor guarantees consistent and accurate data.

### **Lightweight and Easy to Integrate**

Weighing just a few grams, the RPLidar A1M8 is **lightweight and compact**, which makes it easy to integrate into a wide variety of platforms, including mobile robots, drones, and IoT systems. The sensor's modular design allows quick installation and maintenance, while the **plug-and-play USB interface** ensures fast connectivity with your development setup.



### **Seamless Compatibility and SDK Support**

The RPLidar A1M8 comes with extensive **SDK (Software Development Kit)** and **ROS (Robot Operating System)** support. It is fully compatible with **Raspberry Pi, Arduino, and PC-based systems**, allowing developers to integrate the LiDAR into their projects with ease. The provided SDK includes ready-to-use APIs and example code, reducing the complexity of software development and enabling rapid prototyping.

### **Built for Stability and Precision**

With a **high-precision motor running at 5,000 RPM**, the RPLidar A1M8 ensures stable and uniform scanning performance. The advanced optical system minimizes signal noise and enhances accuracy, providing clear distance readings even in challenging conditions. The result is **consistent and reliable performance**, ideal for both academic and commercial robotic applications.

### **Applications**

The RPLidar A1M8 is a versatile sensor that fits a wide range of uses:

- Autonomous mobile robots (AMR) and AGVs

- Drone navigation and 3D mapping
- Robot vacuum and cleaning robots
- SLAM-based research and education projects
- Industrial automation and obstacle avoidance systems
- IoT sensor networks and smart environment detection

Whether you're a **robotics enthusiast, educator, or professional developer**, the RPLidar A1M8 provides a dependable, ready-to-use solution for advanced perception and mapping tasks.

### Key Features

-  **360° Full-Range Scanning** – Omni-directional detection for complete environmental awareness
-  **12m Measurement Range** – Reliable for both indoor and outdoor projects
-  **8000 Hz Sampling Rate** – Real-time, high-speed data collection
-  **5,000 RPM Motor** – Smooth and stable scanning motion
-  **Lightweight & Compact** – Easy integration into various devices
-  **Supports ROS & SDK** – Compatible with Raspberry Pi, Arduino, and PCs
-  **Plug-and-Play Setup** – Quick connection via USB or serial interface

### Package Includes

- 1 × **RPLidar A1M8 360° LiDAR Scanner**
- 1 × **USB Adapter and Cable**
- 1 × **Communication Cable**
- 1 × **User Guide / Documentation**