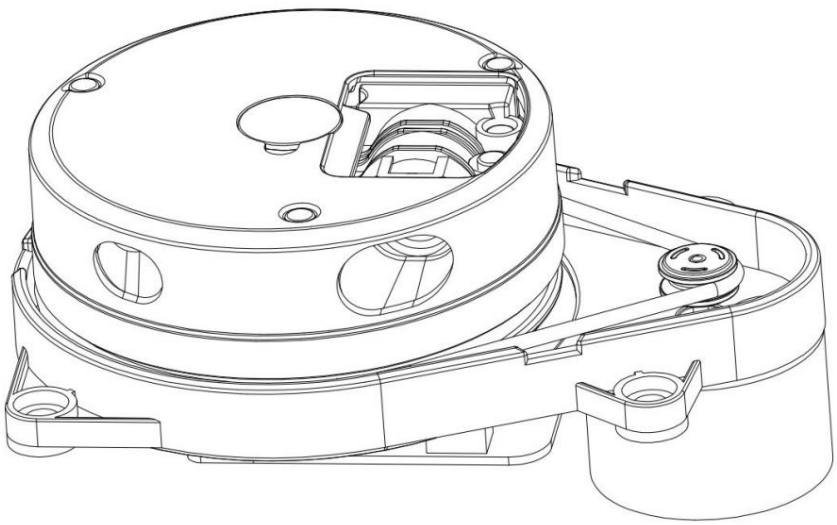
Delta-2A LiDAR User Manual

Low-cost 360° scanning LiDAR

(Applicable to Delta-2A LiDAR)

Version: V1.1



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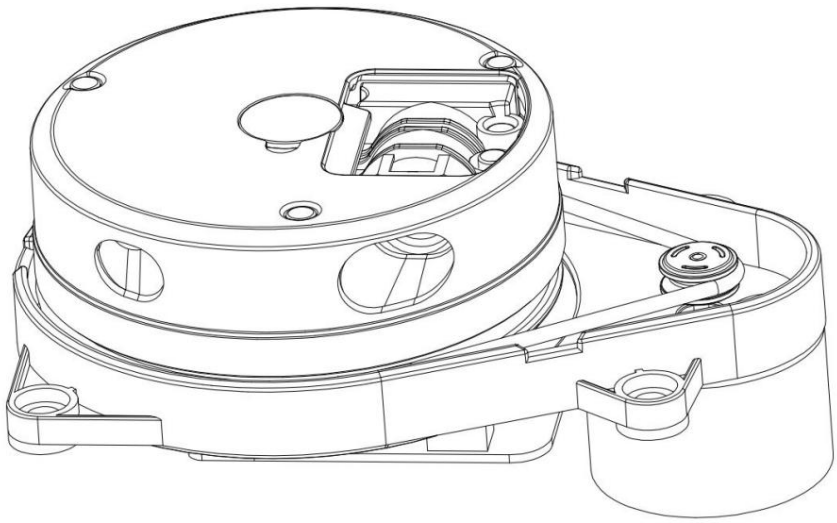
1. Introduction

Delta-2A SDK contains functions that facilitate performance evaluation and early development of Delta-2A series.

Required data sheets, specifications, driver packages (Linux and ROS) and Windows radar mapping software.

This manual is only applicable to Delta-2A LiDAR. By reading this manual, you can quickly learn to use it.

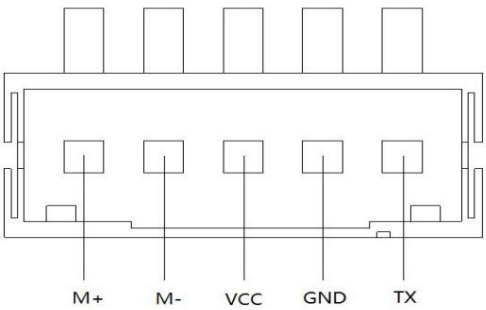
Use lidar.



2. Development Reference and SDK Usage

2.1 Delta-2A Series LiDAR Pin Specifications and Definitions

Delta-2A series LiDAR uses a 5-pin 2.0 Pitch plug, and the pin signal definitions are as follows:



Signal Name	Type	Description	Minimum	Typical	Maximum
M+	Motor power supply	Motor power positive	2.5V	3.3V	5V
M-	Motor power supply	Motor power negative	0V	0V	0V
VCC	Radar power supply	Radar power positive	4.8V	5V	5.5V
GND	Radar power supply	Radar power negative	0V	0V	0V
TX		Data output measurement data serial port output	0V	5V	5.5V

Remark:

1. The typical value of the motor power supply is DC3.3V, which can be adjusted by adjusting the motor voltage or PWM (5V) modulation to adjust the motor speed. The acceptable motor speed range of the radar is 4~10r/s.

2. Delta-2A series radar uses external DC 5V power supply, the typical starting current is 600mA, The typical normal operating current is 500mA.

3. It is recommended to power the Delta-2A series radar via an external DC 5V power supply, as some computers have USB The power quality and driving capability are not good enough, so it is not recommended to use the computer USB port to power the Delta-2A series radar. electricity.

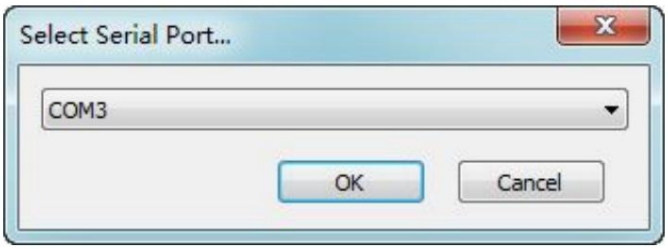
2.2 Device Connection

Use the cable provided in the kit to connect the Delta-2A LiDAR to the USB port of a computer or device. Insert the USB-UART TTL module into the USB port of the PC. Before inserting the USB-UART TTL module, Confirm whether the USB to UART TTL module driver is installed on the PC. If not, please install the USB to UART TTL module driver. UART TTL driver to prevent the host computer from failing to search the device serial port.

2.3 Use of radar mapping software

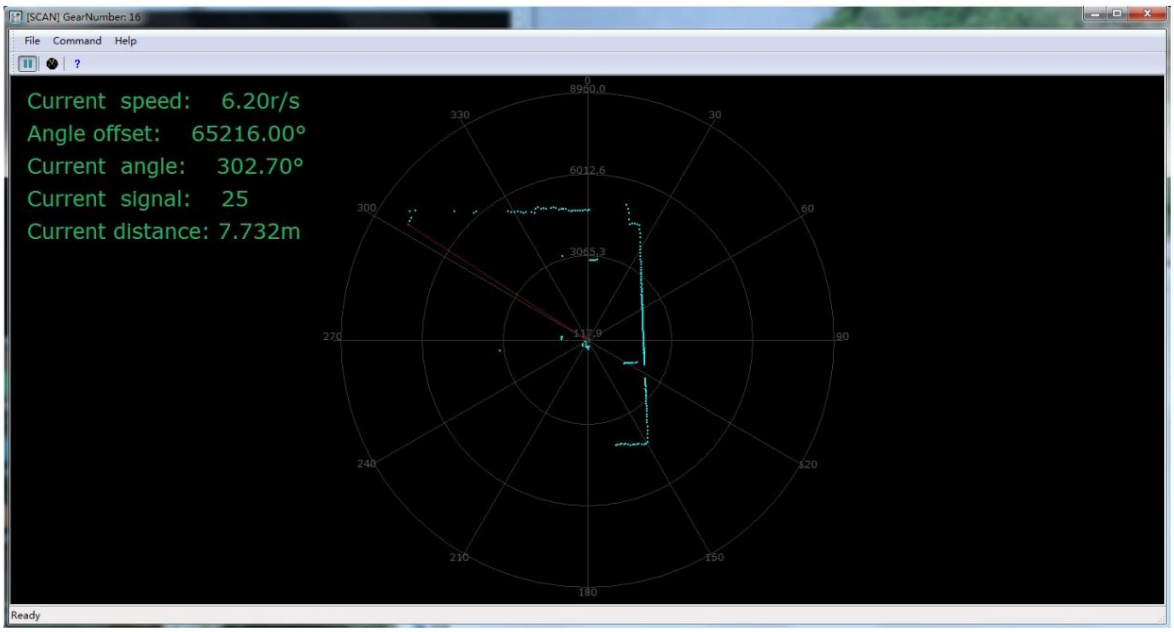
2.3.1 Double-click "Delta-2A.exe" to run (for Windows 10 system, please run with administrator privileges)

, select the correct serial port in the serial port selection box, and click the "OK" button, as shown below:



2.3.2 Click "Command"->"Scan" in the menu or click


icon to start receiving radar data and building a map, as shown below:



2.3.3 You can move the mouse to the point you want to measure, measure the distance and angle information of the current point, and

Displayed in the upper left corner of the graphic display area.

2.3.4 If you want to stop receiving data, click "Command"->"Stop" or click the

icon in the toolbar  to stop.

2.4 Development using SDK

Sugawa Robotics provides a supporting SDK for the development of the Delta-2A series radars:

1. SDK based on Linux platform: Delta-2A_linux.tar.

2. SDK based on ROS platform: Delta-2A_ros.tar.

Users can develop directly based on the SDK package we provide, or they can use the SDK source code we provide

Quickly port to other operating systems or embedded systems. For details, please refer to the relevant instructions in the SDK.

Documentation.

3. Operational suggestions

3.1 Preheating and optimal working time

Since the ranging core will generate heat during operation, it is recommended to operate in the Delta-2A series LiDAR (electric

The distance measurement accuracy will reach the best level at this time.

3.2 Ambient temperature

When the difference between the ambient temperature and the normal temperature is too large, it will affect the accuracy of the ranging system and may cause damage to the laser radar.

Please avoid high temperature (> 40 degrees Celsius) and low temperature (< -10 degrees Celsius) conditions.

use.

3.3 Ambient Lighting

The ideal working environment for Delta-2A series radar is indoors, with ambient lighting (including no lighting)

It will not affect the operation of Delta-2A series radar. Please avoid using strong light sources (such as high-power lasers)

Directly illuminate the Delta-2A's optical vision system.

If you need to use it outdoors, please avoid direct contact between the Delta-2A series laser radar's optical vision system and the

In the face of sunlight, this may cause permanent damage to the photosensitive chip of the optical system, making the measurement

Distance failure.

The Delta-2A series radars will have a shorter range in outdoor conditions with strong sunlight reflection.

3.4 After-sales maintenance

Delta-2A series radars are precision optical instruments. If you have any questions, please contact our after-sales service immediately.

Do not disassemble or repair the product by yourself.

IV. Revision History

Date	Version Description	
2021-7-19	V1.1	TX drive voltage changed from 3.3V to 5V