Manuals+ — User Manuals Simplified.

YDLIDAR GS2 Lidar Focus Sensor User Manual

Contents

YDLIDAR GS2 Lidar Focus Sensor

Product Information: YDLIDAR GS2 LIDAR DEVELOPMENT KIT

The YDLIDAR GS2 LIDAR DEVELOPMENT KIT is a tool designed for performance evaluation and early development of the GS2. The kit comes with a GS2 LiDAR, USB Type-C Cable, and a USB Adapter Board which connects the GS2 to a PC. With the evaluation software provided, users can observe point cloud data scanned by the GS2 in their environment or develop on the SDK.

Development Kit Components

The components of the GS2 development kit are:

- GS2 LiDAR
- USB Type-C Cable
- USB Adapter Board

The USB Type-C Cable is used with the USB Adapter Board to connect the GS2 and PC. The cable serves as both a power supply cable and a data cable. The USB Adapter Board realizes the function of USB to UART, which is convenient for fast interconnection between the GS2 and PC.

Note that the USB Adapter Board has two USB TYPE C interfaces: USB_DATA and USB_PWR. USB_DATA is a data-powered interface that can be used to meet power and communication requirements in most cases. USB_PWR is an auxiliary power supply interface. In situations where the USB interface of some development platforms has weak current drive capability, auxiliary power supply can be used.

Usage Instructions: Windows

1. Connect the GS2 to the PC using the USB Type-C Cable and USB Adapter Board.
2. Install the required drivers for the GS2.
3. Use the evaluation software provided to observe point cloud data or develop on the SDK.

Usage Instructions: Linux ROS Operation

1. Connect the GS2 to the PC.
2. Compile and install the YDlidar-SDK.

3. Use ROS under Ubuntu to observe point cloud data or develop on the SDK.

Caution

When using the YDLIDAR GS2 LIDAR DEVELOPMENT KIT, users should take note of the following:

- Ambient Temperature: Ensure that the operating temperature is within the specified range.
- Ambient Lighting: Avoid using the GS2 in direct sunlight or strong artificial light.
- Power Supply: Use the appropriate power supply for the USB Adapter Board.

YDLIDAR GS2 LIDAR DEVELOPMENT KIT

The development kit of YDLIDAR GS2 lidar (hereinafter referred to as GS2) is an accessory tool provided for performance evaluation and early development of the GS2. Through the GS2 development kit, and with the evaluation software, users can observe point cloud data scanned by GS2 on your environment or development on the SDK.

Development Kit

The GS2 development kit has the following components

YDLIDAR GS2 DEVELOPMENT KIT

CHART 1 YDLIDAR GS2 LIDAR DEVELOPMENT KIT DESCRIPTION

Item	Qty.	Description
GS2 lidar	1	Standard version of the GS2 lidar.
USB Type-C Cable	1	Use with USB adapter board to connect GS2 and PC. USB cable is both a power supply cable and a data cable
USB Adapter Board	1	Realize the function of USB to UART, which is convenient for the fast interconnection between GS2 and PC.

Note

USB Adapter board has two USB TYPE C interface: USB_DATA, USB_PWR.

USB_DATA: Data powered interface. In most cases, this interface can be used to meet power and communication requirements.

USB_PWR: Auxiliary power supply interface. The USB interface of some development platforms has weak current drive capability. At this time, auxiliary power supply can be used.
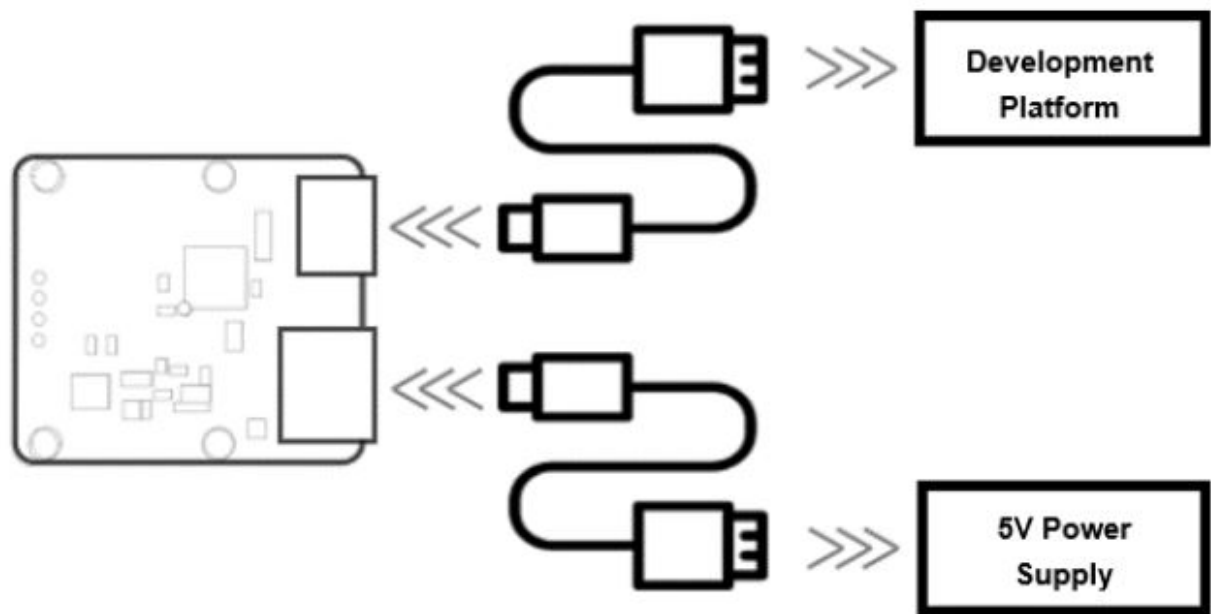
USAGE UNDER WINDOWS

Device Connection

When evaluating and developing GS2 under windows, GS2 and PC needed to be connected. The specific process is as follows:
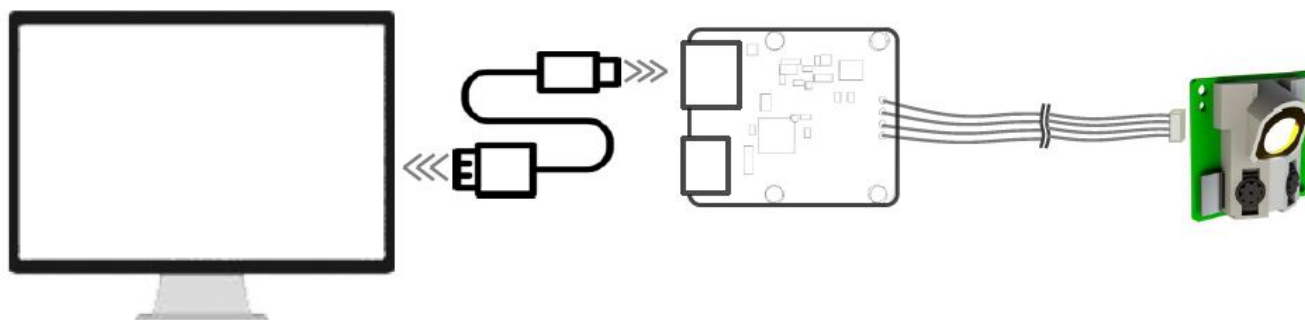
YDLIDAR GS2 DEVICE CONNECTION

Connect the adapter board with GS2 first, then connect the USB cable to the USB port of the adapter board and the PC. Note that the Type-C interface of the USB cable is connected to the USB_DATA of the USB adapter board. The drive current of USB interface of some development platforms or PC is not sufficient. GS2 need to be connected to the auxiliary power supply of +5V, otherwise the lidar will be abnormal.

YDLIDAR GS2 AUXILIARY POWER SUPPLY

Driver Installation

To evaluate and develop the GS2 under Windows, the serial port driver of the USB adapter board. The USB adapter board need to be installed of this kit adopts CP2102 chip to realize serial port (UART) to USB signal conversion. Its driver can be downloaded from our official website or downloaded from the official website of Silicon Labs.

https://www.ydlidar.com/dowfile.html?id=97
http://cn.silabs.com/products/development-tools/software/usb-to-uart-bridge-vcp-drivers

After unzip the driver package, run the CP2102's Windows driver installation file (exe file under CP210x_VCP_Windows). Please select the 32-bit version (x86) or 64-bit version (x64) installation program according to the version of the windows operating system. Copyright 2022 EAI All Rights Reserved

x64	2013/10/25 11:39	文件夹	
x86	2013/10/25 11:39	文件夹	
CP210xVCPInstaller_x64.exe	2013/10/25 11:39	应用程序	1,026 KB
CP210xVCPInstaller_x86.exe	2013/10/25 11:39	应用程序	901 KB
dpinst.xml	2013/10/25 11:39	XML 文档	12 KB
ReleaseNotes.txt	2013/10/25 11:39	文本文档	10 KB
SLAB_License_Agreement_VCP_Windo...	2013/10/25 11:39	文本文档	9 KB
slabvcp.cat	2013/10/25 11:39	安全目录	12 KB
slabvcp.inf	2013/10/25 11:39	安装信息	5 KB

Double-click the exe file and follow the prompts to install it.

CP210x USB to UART Bridge Driver Installer

Welcome to the CP210x USB to UART Bridge Driver Installer

This wizard will help you install the drivers for your CP210x USB to UART Bridge device.

要继续，请单击"下一步"。

< 上一步(B)   下一步(N) >   取消

After the installation is complete, right-click on [My Computer] and select [Properties]. On the open [System] screen, select [Device Manager] from the left menu to access the [Device Manager].
Expand [Port] to see the serial port name corresponding to the identified USB adapter, that is, the driver installation is successful. The following figure shows COM3. (Note that the port must be checked in case of GS2 and PC interconnection).
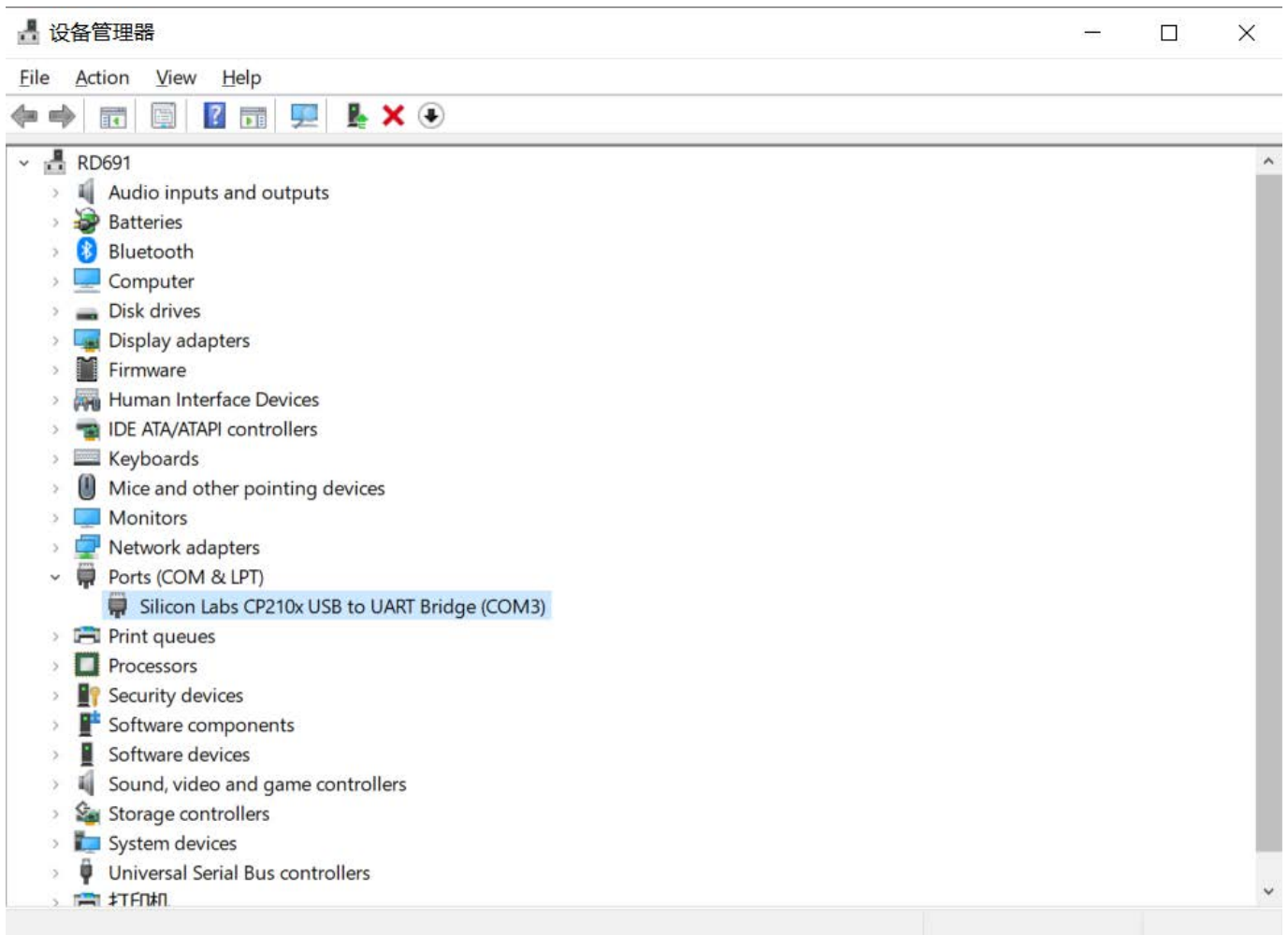
**YDLIDAR GS2 DRIVER INSTALLATION CHECK**

Evaluation Software Usage

YDLIDAR provides Point Cloud Viewer, a point cloud data visualization software Lidar Viewer for GS2 real-time scanning. Users can intuitively observe the GS2 scanning effect chart. GDL real- time point cloud data and real-time scanning frequency are provided on YDLIDAR. At the same time, save the scanned data offline to an external file for further analysis. Before using the YDLIDAR software, make sure that the GS2 USB adapter board serial port driver is installed successfully, and interconnect the GS2 with the USB port of the PC. Run the evaluation software: LidarViewer.exe, select the corresponding serial port number and model number. Meanwhile, users could choose language on the top right corner.
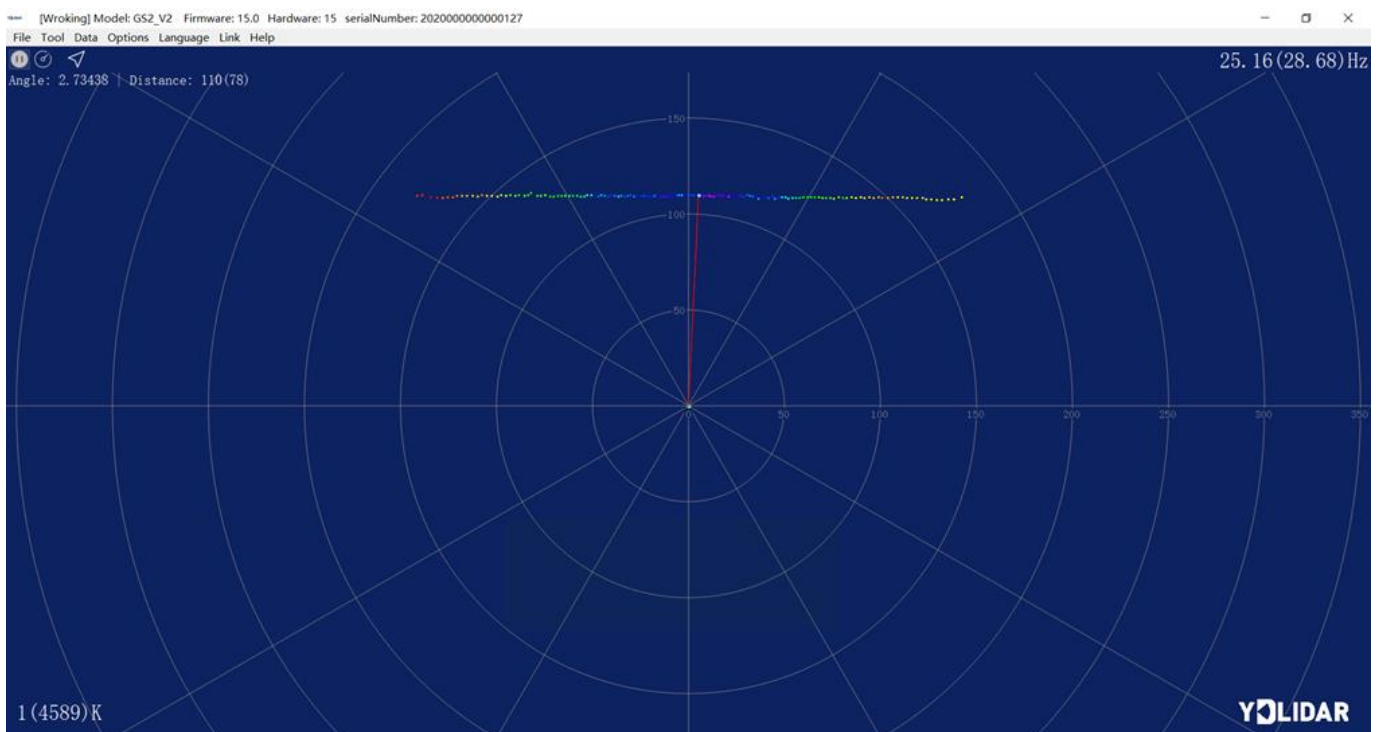

YDLIDAR GS2 EVALUATION SOFTWARE

If the connection is correct, users will see the following screen
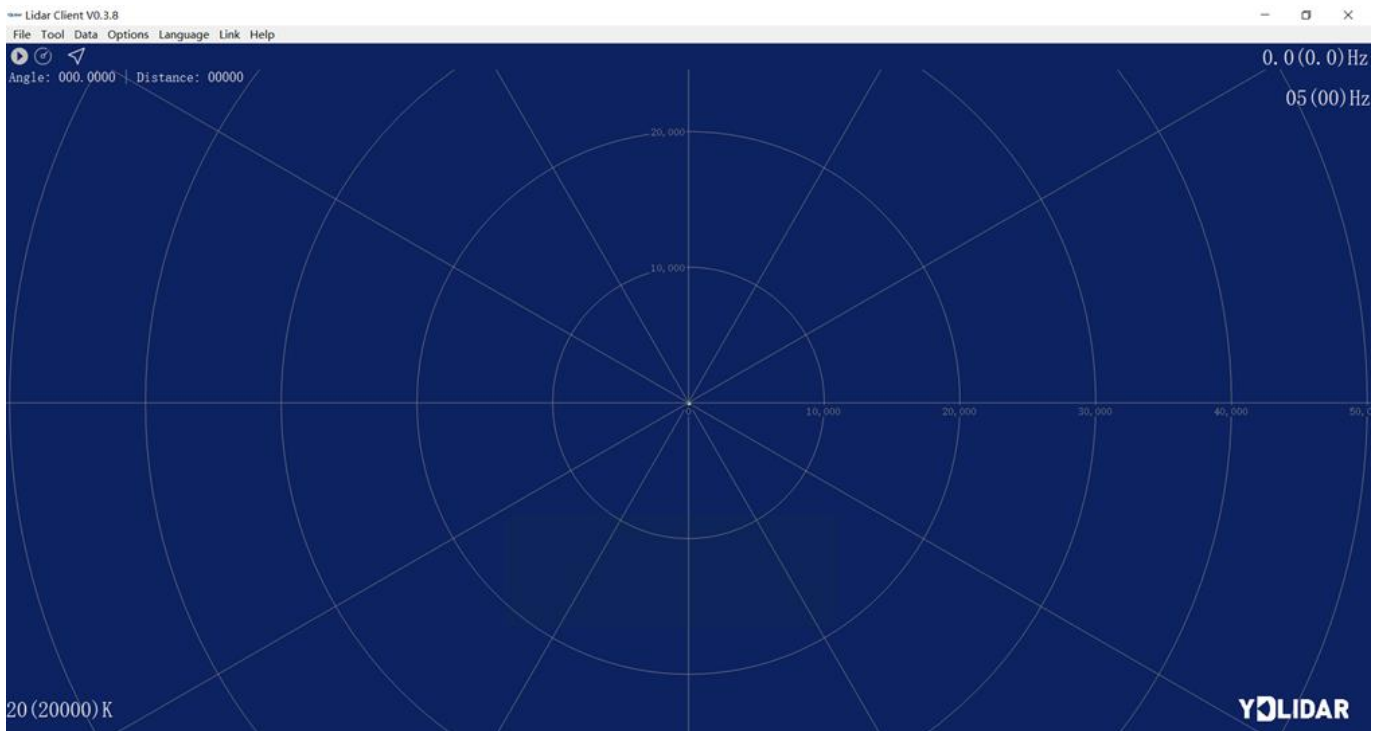
POINTCLOUD VIEWER INTERFACE

Start Scanning

Click displays the angle & distance information of the red line position (unit: mm). Click to stop it. as shown below:

Data Storage
During lidar scanning, click [File] in the main menu, select [Export to Excel], and save point cloud data according to the prompts. Then the system will save the point cloud information scanned in a circle in Excel format.
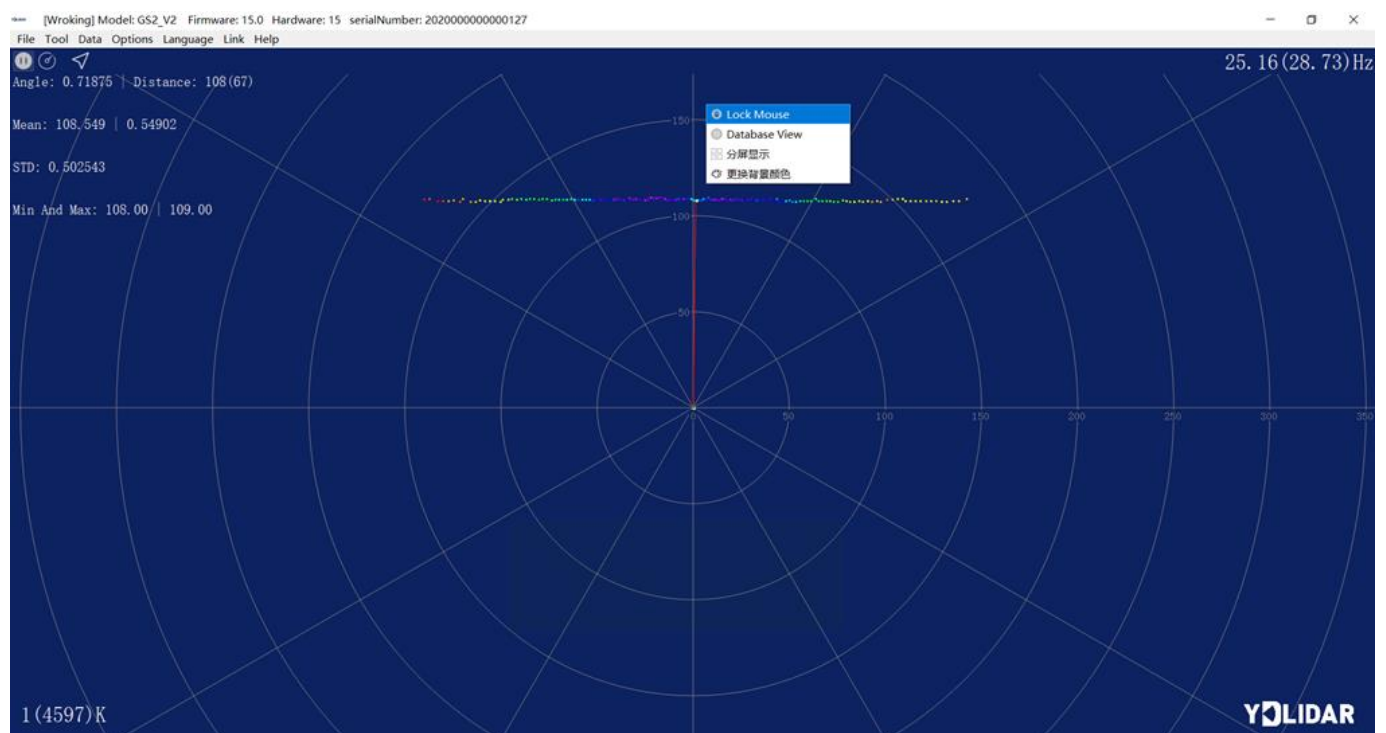
Display Mean and Standard Deviation

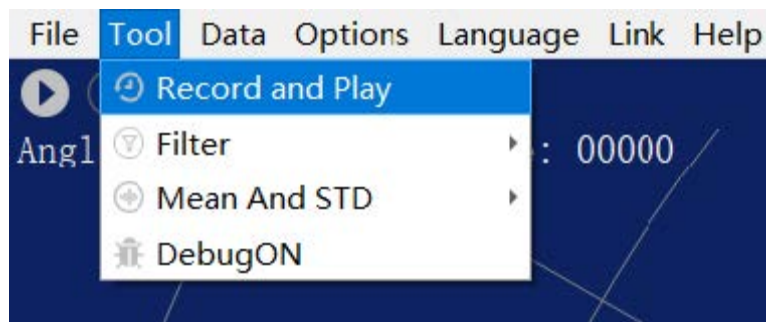Click [Tools] in the main menu, then select [Mean And STD] – [View].

YDLIDAR GS2 DISPLAY MEAN AND STANDARD DEVIATION

Choose one according to needs, move the mouse to the test position, right-click the pop-up menu, and select [Lock Mouse Tracking].

Play and Record
Click [Tools] in the main menu, then select [Record and Play].

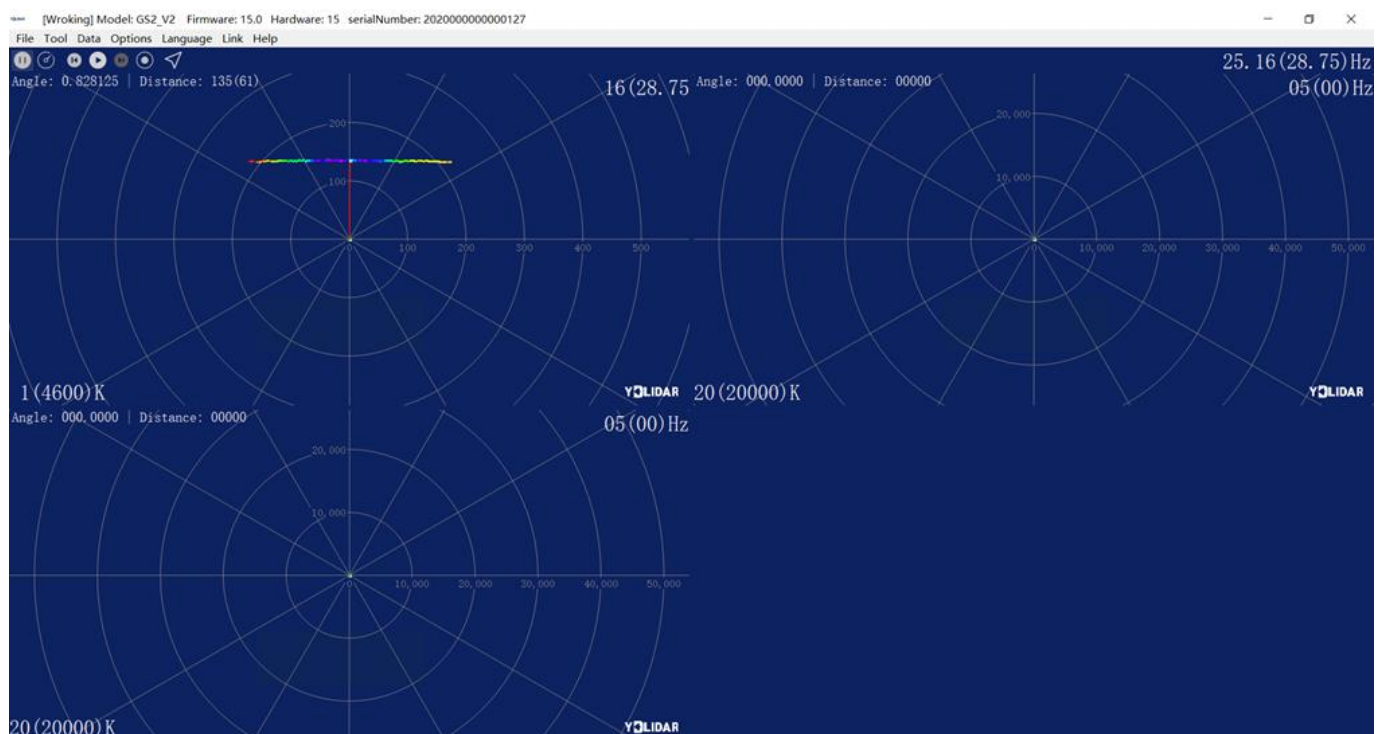**RECORD AND PLAY**

The main window is displayed as follows:

To record lidar data, click to start recording, and click to stop recording.
In non-scanning mode, click to start play.
The play process is as follows:

Debug
Click [Tools] in the main menu, and then select [DebugON] to output the raw lidar data to the "viewer_log.txt" and "viewer_log_err.txt" files.

Split Screen

Right-click the pop-up menu and select [Split Screen Display] to display up to 3 GS2 cascaded point cloud data.

LINUX ROS OPERATION

There are many Linux versions this article only uses Ubuntu 18.04, Melodic version ROS as an example.

Device Connection

Under Linux, the GS2 and PC interconnect processes are consistent with those under Windows. See Device Connection under Window.

Compile and Install YDlidar-SDK

SDK compilation

In the SDK directory, run the following command to compile the project:

```
$ cd build

$ cmake ..

$ make
```

Run the SDK samples

```
$ ./ydlidar.test
```

It can be seen the following SDK Scanning information:

```
0. ydlidar2.2
Please select the lidar port:0
Baudrate:
0. 115200
1. 128000
2. 153600
3. 230400
4. 512000
5. 921600
Please select the lidar baudrate:5
YDLidar SDK initializing
YDLidar SDK has been initialized
[YDLIDAR]:SDK Version: 2.0.4
LiDAR successfully connected
LiDAR init success!
[YDLIDAR INFO] Current Sampling Rate : 5K
[YDLIDAR INFO] Now YDLIDAR is scanning ......
sample num 323
sync:83,index:0,moduleNum:1
send frameNum: 0,moduleNum: 1
Scan received[1643080791185268000]: 160 ranges is [33.783784]Hz
0.000000 0.000000 0.000000 0.000000 0.000000 0.000000 0.000000 0.000000 0.000000 113.
000000 113.000000 113.000000 113.000000 113.000000 113.000000 113.000000 1
13.000000 113.000000 114.000000 114.000000 114.000000 114.000000 113.000000 114.00000
0 114.000000 114.000000 115.000000 115.000000 116.000000 116.000000 117.000000 117.00
0000 118.000000 118.000000 119.000000 119.000000 120.000000 121.000000 121.000000 122
.000000 123.000000 124.000000 125.000000 124.000000 125.000000 126.000000 127.000000
128.000000 129.000000 130.000000 131.000000 133.000000 134.000000 135.000000 136.0000
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00000 148.000000 150.000000 152.000000 154.000000 155.000000 157.000000 159.000000 16
1.000000 163.000000 164.000000 166.000000 168.000000 170.000000 173.000000 175.000000
 177.000000 190.000000 188.000000 185.000000 183.000000 181.000000 178.000000 176.000
000 174.000000 172.000000 169.000000 167.000000 165.000000 163.000000 161.000000 161.
000000 158.000000 156.000000 154.000000 153.000000 151.000000 149.000000 148.000000 1
45.000000 144.000000 142.000000 141.000000 140.000000 138.000000 137.000000 136.00000
0 135.000000 133.000000 132.000000 130.000000 129.000000 129.000000 128.000000 127.00
0000 126.000000 125.000000 124.000000 124.000000 123.000000 122.000000 121.000000 121
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117.000000 116.000000 116.000000 116.000000 116.000000 115.000000 115.000000 115.0000
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.000000 0.000000 0.000000
```

The use of ROS under Ubuntu

The Ros driver package is under development.

CAUTION

Ambient Temperature

When the working environment temperature of GS2 is over high or over low, it will affect the accuracy of the distance measuring system. It may also damage the structure of the scanning system and reduce the service life of the GS2 lidar. Avoid using in high temperature (>50 degrees Celsius) and low temperature (<0 degrees Celsius) conditions.

Ambient Lighting

The ideal working environment of GS2 is indoor, and the indoor environment light (including no light) will not affect the work of GS2. However, please avoid using strong light sources (such as high-power lasers) to directly illuminate the GS2 vision system. If the users need to use it outdoors, please avoid the GS2's vision system directly facing the sun, which may cause permanent damage to the vision system's photosensitive chip, which will invalidate the range finding. The GS2 standard version will cause interference in the distance measurement under the conditions of strong sunlight reflection outdoors, please pay attention to it.

Power Supply

During the development process, since the drive current of the USB interface of each platform or the USB interface of the computer may be too low to drive the GS2, the external power supply of the +5V to the GS2 needs to be provided through the USB_PWR interface of the USB interface board. It is not recommended for use mobile phone power bank because the voltage ripple of power bank is too large.

REVISE

Date	Version	Content
2022-01-19	1.0	Revision

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Documents / Resources

	YDLIDAR GS2 Lidar Focus Sensor [pdf] User Manual GS2 Lidar Focus Sensor, GS2, Lidar Focus Sensor, Focus Sensor, Sensor
GS2 Lidar User Manual	**YDLIDAR GS2 Lidar** [pdf] User Manual GS2 Lidar, GS2, Lidar

References

- {{term_sku:1}} USB　UART　VCP　-　
- ydlidar.com/dowfile.html?id=97