






RS100i PRODUCT USER MANUAL

CONTENT

{RS100I PRODUCT USER MANUAL}	
READING TIPS	2
CHAPTER 1 INTRODUCTION	
1.1 Product Overview	3
1.2 Functions	4
1.3 Technical Specifications	5
1.4 Working Principle	6
1.5 Component List	7
1.6 Structure Description	8
1.7 Installation And Connection	9
1.8 Device Cable Installation	10
CHAPTER 2 SUPPORTING SOFTWARE DESCRIPTION	
2.1 Multiplicity Platform	11
2.2 Color Status Screen and Mobile Terminal	12
2.3 Post Software	13
CHAPTER 3 SAFETY PRECAUTIONS	
3.1 Safety Instructions	14
3.2 Laser Safety	15
3.3 Safety Instructions For Operating the Device	17
3.4 Battery Power Supply Safety Instructions	17
CHAPTER 4 PRODUCT DESCRIPTION	
4.1 Handheld Scanning	18
4.2 Press Key Description	19
4.3 Operation Process	20
4.4 Data Process	23
4.5 Data Export Method	26
4.6 Common Faults And Solutions	28

TIPS

Symbol description

		
Important notes	Operation and using tips	Vocabulary explanation

Install GoSLAM Studio

- ◆ To use the product, you need to install GoSLAM Studio.
- ◆ GoSLAM Studio requires Windows7 or Windows10.

Install GoSLAM APP

- ◆ For collecting the data, you need to install the official GoSLAM App on your phone.
- ◆ Connected the device with WIFI to observe the collection situation in real time.

Warning

- ◆ To avoid the risk of fire and electric shock and ensure long-term stable operation of the product, please store the product in dry and cool place, avoid exposure to sunlight and high temperature and humidity environment.
- ◆ As the laser head and sensor are sensitive devices, dry the device after the operation in a rainy or humid environment. This avoids electronic components and laser head get mildewed.

Overall Unit

- ◆ To ensure the quality of acquiring point cloud data, keep the laser head clean and use the laser head with special care.
- ◆ Since internal wiring is complicated, do not disassemble scanner system without authorization to avoid failure, short circuit and other problems.
- ◆ Please avoid rough using which including decomposition, transformation, physical impact, hammering, falling or trampling.

INTRODUCTION

Product Overview

The operation of RS100i is very simple to operate and is using the principle of laser SLAM. It relies on its own attitude data and laser point cloud to restore three-dimensional data through algorithm. It does not need GPS and other external auxiliary positioning equipment to present complete and accurate data.

Functions

1. High precision
2. Real-time display of point cloud
3. Indoor and outdoor scanning
4. Large-scale performance
5. Real-time processing



TECHNICAL SPECIFICATIONS

Specifications	
RS Series	RS100i
Laser Class	Class I eye safety
Relative Accuracy	1cm (peak)
Running Status	LED status screen
Scanning Range	120M
FOV	360°X285°
Scanning Speed	320,000 points per second
Storage	500GB(Capacity expansion)
LiDAR	16-LINE
Solution method	Hybrid algorithm
Working temperature	-35°C~60°C
Running time	4 hour(Power supply supports hot swap.)
Weight	1.35KG (Handheld)

External battery	
Type	lithium ion battery
Capacity	98Wh/6.8Ah
Voltage	14.4V
Charging Temperature	0°C ~ 40°C
Using Temperature	-20°C ~ +50°C

WORKING PRINCIPLE

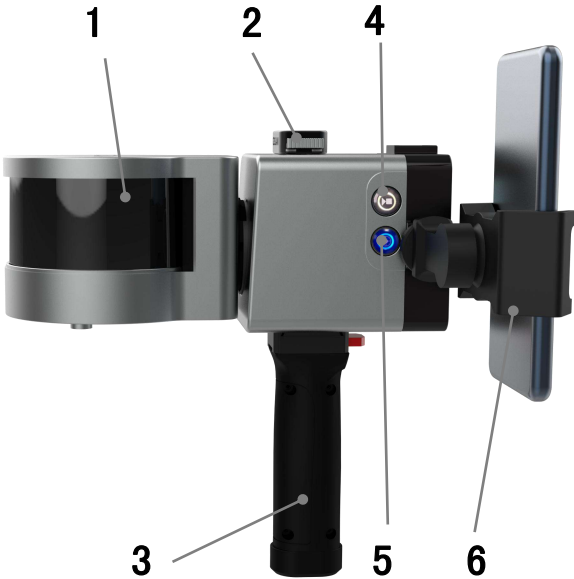
- The RS100i consists of a multi-line LiDAR and an inertial Measurement unit (IMU). It expands the field of view (FOV) by rotating the LiDAR.
- The RS100i integrates data from LiDAR and IMU to generate accurate 3D point clouds without a GNSS receiver by using the SLAM algorithm.

COMPONENT LIST



- 1 Handheld Terminal
- 2 Main Cable
- 3 Battery Charging Cable
- 4 CPU & Battery
- 5 Host Adapter
- 6 Target Stand
- 7 Phone Stand
- 8 Shoulder Belts
- 9 USB Drive
- 10 Cable

STRUCTURE DESCRIPTION


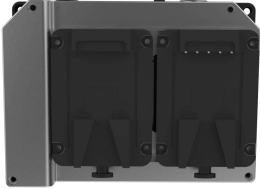






- 1** Rotating Laser Probe **2** Camera Installation **3** Handle **4** Start Button Indicator Light
- 5** Control Point Indicator Light **6** Phone Stand **7** Display Status **8** Data Main Interface



- 1** Host Vent **2** Data Transmission Port **3** Batteries **4** Power On & Off
- 5** GNSS Interface **6** Data Main Interface **7** Battery Mounting Plate **8** Power Adapter Power Interface

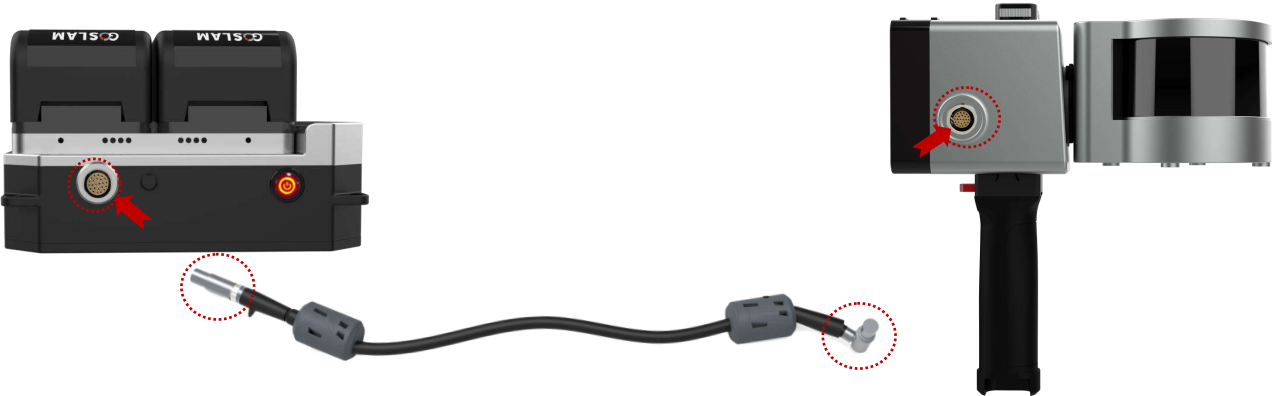
INSTALLATION AND CONNECTION

Installation and Connection		
		
Battery	No batteries on the host	Batteries on
		
Handheld scanner	Target stand	Target stand is ready

INSTALLATION AND CHARGING

1 Main cable installation

Connect the L side of the main cable to the handheld scanner and the straight side to the host.



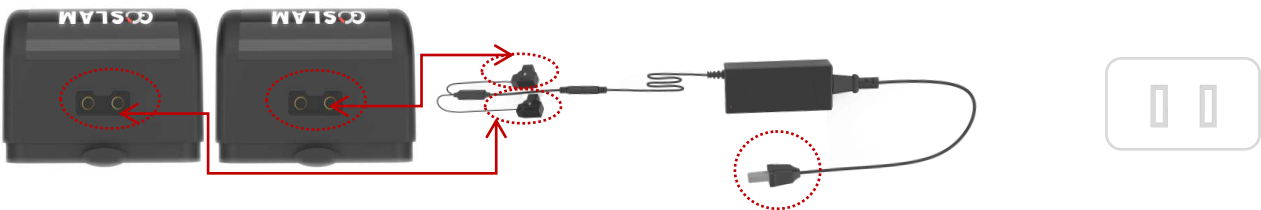
2 Host adaptor installation

Only used for data process, cannot perform scanning work (cannot be connected with the main cable at the same time).



3 Batteries charging

The battery charging cable can insert two batteries simultaneously.



MULTIPLE PLATFORMS

Multiple Platforms

GoSLAM RS100i supports multiple data transmission methods including access to mobile solid-state drives and USB drives, as well as connection through WiFi and network cables. The system has an interface that enables collaborative work with third-party systems, bringing more possibilities for expanding application scenarios and methods.

How to use multiple data transmission methods for data export, please go to P26 for more details.



COLOR STATUS SCREEN AND MOBILE

Color status screen



- New color status screen is larger ever-before which supporting more status information display and user guidance which making it easier to use and get started.



Mobile App with real time preview

- APP replaces traditional touch screens, allowing real-time browsing of point cloud data during homework, supporting multiple browsing and interaction methods and supporting more human-computer interaction content.

SUPPORTING POST SOFTWARE

1 GoSLAM Mobile APP

The GoSLAM mobile app allows it to browse the scanned point cloud data in real-time during the homework process, supporting multiple browsing and interaction methods, and more human-computer interaction content.



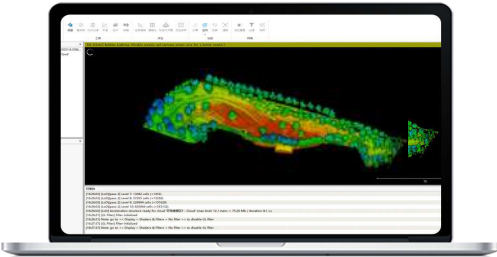
Please use the Android system mobile device to scan the QR code

To download and install the GoSLAM mobile app



2 Studio Software

Studio software is a powerful point cloud post-processing software with rich functions and simple operation. It supports loading and exporting point clouds in various formats, and can achieve a series of functions such as point cloud data deletion, denoising, splicing, face cutting and grid model generation.



Please use the Android system / ios mobile device to scan the QR code

To download and install the GoSLAM studio software



SAFETY INSTRUCTIONS

Safety Instructions

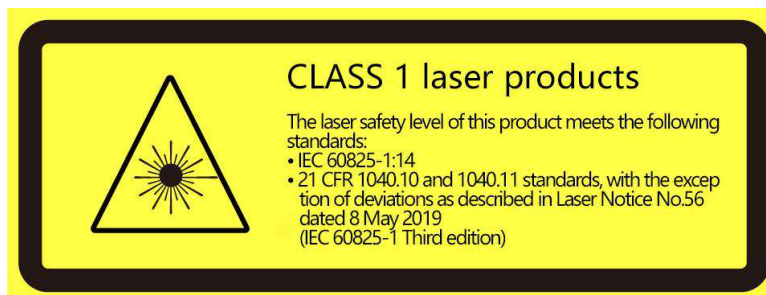
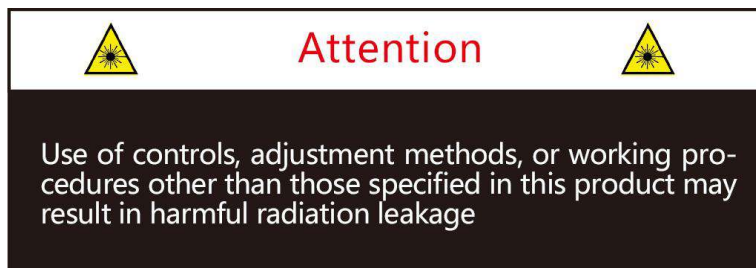
1. In order to avoid the danger of fire and electric shock, and to ensure the long-term stable operation of the product, please store the product in a dry and cool place. Avoid exposure to sunlight, high temperature, and humidity.
2. Since the laser head and sensors are sensitive, dry the devices after being used in a wet environment. It prevents the occurrence of electronic components and laser head mildew.

■ Safety tips

Please read and follow the instructions carefully before using the product and refer to any relevant national and international safety regulations in the meantime.

■ Attention

To reduce the risk of electric shock and avoid violating warranty regulations, do not disassemble or modify the radar without permission. This product does not include user-repairable parts, please consult the maintenance personnel of GoSLAM about the warranty and maintenance matters.



Laser protection class

The laser Protection class of this product meets the following standards:

IEC 60825-1:2014

21 CFR 1040.10 and 1040.11 standards, in any case, other than the deviation matters (IEC 60825-1 third edition) as described in Laser Notice No.56 issued on 8th May 2019, do not look directly at the laser in transit via amplifying device, such as a microscope or any kind of magnifiers.

Safety warning

In any case, if you suspect that the Product is faulty or damaged, please stop using the product immediately to prevent injuries to the user or further damage to the product. Please contact GoSLAM or its authorized agencies to deal with the damaged product.

Operation

This product is made of metal, glass and plastic, and contains sensitive electronic components. Improper operations such as falling, burning, puncturing, or squeezing may cause product damaged. Once the product drops, please stop using it immediately and contact GoSLAM for technical support.

The appearance

The product contains high-speed rotating components. Do not operate the scanner without fastening it. Do not use products with damaged appearance to avoid injury.

To avoid performance degradation, do not touch the light cover with your hands. If the hood is stained, clean it as described in the "Equipment Storage" section of the manual.

Protection class

Although the product is designed to meet Class 1 eye safety standards, do not look directly at the laser in transit via amplifying devices, such as a microscope or any kind of magnifiers. Besides, to maximize self-protection, users should still avoid looking directly at the product in running.

Maintenance

Do not open or repair the product yourself without official guidance. Dismantling the product may result in product damage, waterproof failure, or personal injury.

The power supply

Please use the connecting cable and power adapter provided by GoSLAM. Otherwise, if cables or adapters that do not meet the power supply requirements or have been damaged, or if power is supplied in a humid environment, fire, electric shock, personal injury, product damage or other property losses may occur.

Vibration

The product shall not be damaged due to strong vibration. If you need the mechanical shock and vibration performance parameters of the product, please contact GoSLAM for technical support.

Radio frequency interference

Although the product is designed, tested and manufactured under the relevant regulations on RF energy radiation, radiation from the product may still cause other electronic equipment to malfunction.

Interference of medical equipment

Some components and radio devices contained in the product emit electromagnetic fields which may interfere with medical devices, such as cochlear implants, pacemakers, and defibrillators. Please consult your physician and medical device manufacturer for specific information about your medical device, such as keeping a safe distance from the product. If you suspect the product is interfering with your medical device, stop using it immediately.

Deflagrability and other air environments

Do not use the product in any area where there is a potentially explosive atmosphere, such as the air containing high concentrations of flammable chemicals, vapors, or particulates (such as particles, dust, or metal powder). Do not expose the product to high concentrations of industrial chemicals, including liquefied gases such as helium to avoid damaging or weakening the product's functionality. Please follow all tips and instructions.

Light interference

Certain precision optics may be interfered with by laser light emitted by the product. Please be careful when using it.

Safety instructions for equipment operation

1. For the high quality of the point cloud, please keep the laser lens clean and use it with special care.
2. Avoid blocking or interrupting the lidar as it rotates.
3. Keep the connection cable stable and do not repeatedly plug or remove the connector.
4. Use the device at normal ambient temperatures and avoid exposing it to extreme temperatures. Otherwise, it may shorten battery life or cause unpredictable risks.
5. When carrying the console with a shoulder strap, keep it away from your body as it is surface heat dispersion.
6. The internal circuit connection is complex, do not disassemble and install the scanner system without authorization to avoid failure, short circuits, and other problems.
7. Please avoid rough use which includes decomposition, transformation, physical impact, hammering, falling, or trampling.
8. Keep a safe distance from the children.

Safety instructions for battery power supply

1. Do not immerse the battery in water. Store batteries in a cool and dry environment when they are not in use.
2. Isolate the heat source for battery storage.
3. Do not connect the positive and negative terminals of the battery with metal objects to avoid a short circuit.
4. Do not bump, drop, or step on the battery.
5. Do not weld batteries or Pierce them with sharp objects.
6. Connect the hand-held terminal to the standard cable (aviation plug) to supply power.






Handheld scanning



Be sure to use the shoulder belt to carry the device and hold the scanner before the device is started.

The connection of hardware

- The top of the handle is equipped with a quick-release lock by pressing the latch, and the hand-held handle can be removed and connected to other devices.
- A hand-held handle is installed through the quick detachable connector at the bottom of the device.
- The mobile phone holder is installed through the slide rail on the flank of the device. The end of the holder is provided with an anti-slip knob. Please tighten the anti-slip knob after installation.
- The target stand is installed and connected to the slot at the bottom of the handle, please install screws to fix it.

PRESS KEY INTRODUCTION

Handheld scanner press key introduction		
	Start key	
	Control point key	

Host CPU press key introduction		
	Power on & off key	


OPERATION PROCESS

1、 Device cable installation

- Both ends of the connecting cables (aviation plug) are respectively connected to the data logger and the handheld scanner.

💡 The aviation socket is equipped with anti-reverse socket, please install it according to the red dot marked on the air socket.

2、 Connect the supply battery & power on

- The supply battery is equipped with an anti-reverse bayonet to power the device by connecting it to the card slot.
- Short press 4 seconds the power-on button which on the host machine. 


3、 The device automatically to connect

- Power on 

- Control point 

💡 The power on-off light is located on the flank of the handheld device.

- When the device starts and the main display screen will on the system page and waits for connection.

- Then the device shows:  The device is ready for connecting.

4、 Device auto initialization in progress

- When the device starts, the main display shows the system page and automatically initializes.

- The device shows:  The device is being initialized.

5、 The equipment is ready automatically


- The equipment will be readied immediately after automatic initialization.

- The device shows:  and the device be ready.

6、 Manual startup


○ The device completes the above processes automatically and it's ready to use. Hold the device horizontally before scanning. Long press the start button to start scanning.




○ Short press the start button when the device shows:  then it's ready to scan by releasing the button.

7、 The device starts calibration then ready to scan

○ After the equipment is started, it's automatically ready for calibration.

○ The device shows:  and the device starts to calibrate. Please hold the device stable. Then the point cloud data will be showed on the mobile APP means that it starts to scan.

○ The device shows:  The device starts scanning.

💡 Start scanning after waiting for 5 seconds for the device to rotate.


○ Device status screen shows:  means continuous display the workflow time.


8、 Control point

○ During the scanning process, place the front cross of the control point marking board at the bottom of the device on the control point. The position of the control point is not limited to the ground, and can be arranged on the top surface. For non ground points, the bottom marking board can also be placed close to the control point.

○ When finished placement, click on the control point record button





○ The device shows:  Start recording control points, when the device

shows Pt1 completed , means the control point is successfully recorded.

○ When the laser probe starts to rotate again, remove the device and continue scanning. Please pick up the device slowly and steadily.



To use control points for data coordinate conversion, a minimum of 3 control points must be set.


9、 Finished scanning

- After the device scan is completed, click the device start button . When you see the device status screen shows  indicates completion of the scan.



💡 If the scan is initiated using physical buttons, please also use the physical buttons at the end to finish the scan. If the scan is initiated using the APP, use the APP to finish the scan.

10、 Save

- After the scan is complete, the system automatically enters the storage stat.
- The device screen shows :  shows means the data is saving.
- The device screen shows:  means the data saved successfully.

💡 The device will be ready for the next operation after the storage procedure is completed.  which means can proceed next scan.

11、 Turn off

- After the operation is saved, press 3 seconds the off button  to power off.
- The device screen shows:  means the device is shutting down.

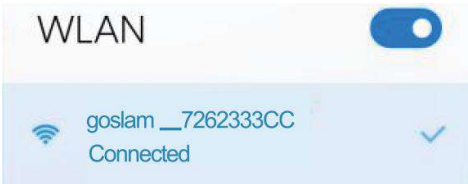
12、 Remove the power supply

- Remove the batteries after scanning and disconnect the cable.

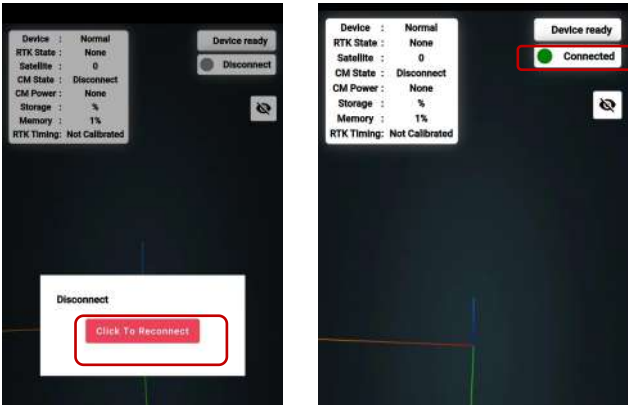
DATA PROCESS

1.Connection


- ▷ After the host starts, the mobile phone connects to the WIFI.

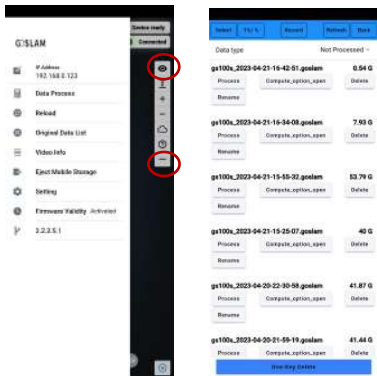


- ▷ Login the GoSLAM and click re-connection.
- ▷ After successful connection, the upper right corner of the application displays connected.



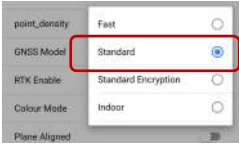
2.The data process

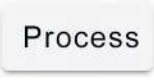
- ▷ Click the hidden logo  on the right side of the application to select menu options ...
- ▷ Click the button of data calculation to the next step.

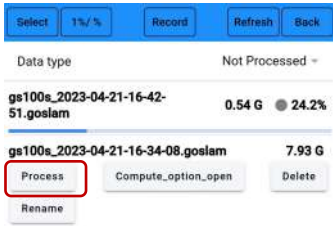


3.Process

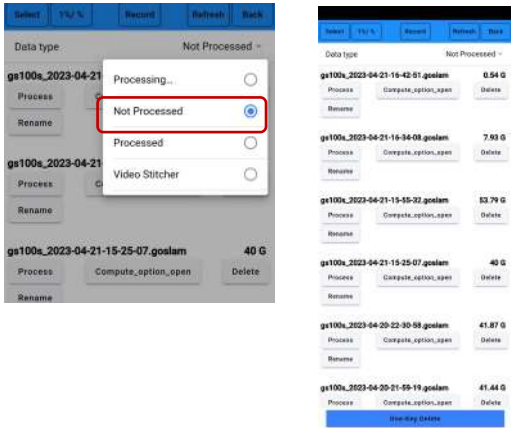
▷ Select standard mode



▷ Click Process  , and await it be saved automatically till 100% .



▷ Click "Not Processed" and click Processed to view the solved data.



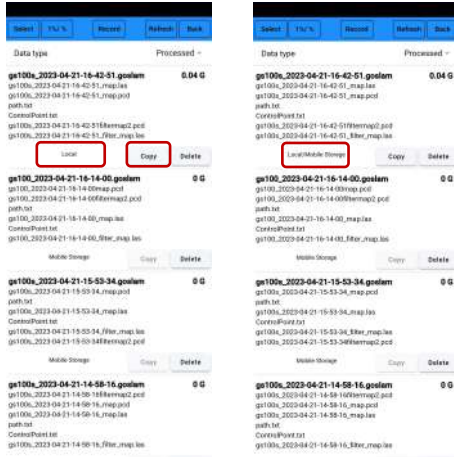
4.Export data

▷ Insert the USB drive into the USB port on the side of the host.

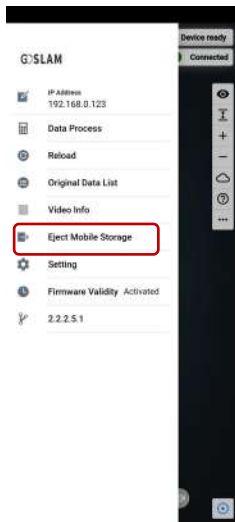


▷ Click the copy button of the corresponding data in the processed

list in the data process menu, after the copy is completed, the data storage status will change from local storage to local storage/mobile storage.



▷ Return to the main menu, click Remove Mobile Storage, and once successful, you can remove the USB drive and connect it to the PC for reading.



DATA EXPORT METHODS

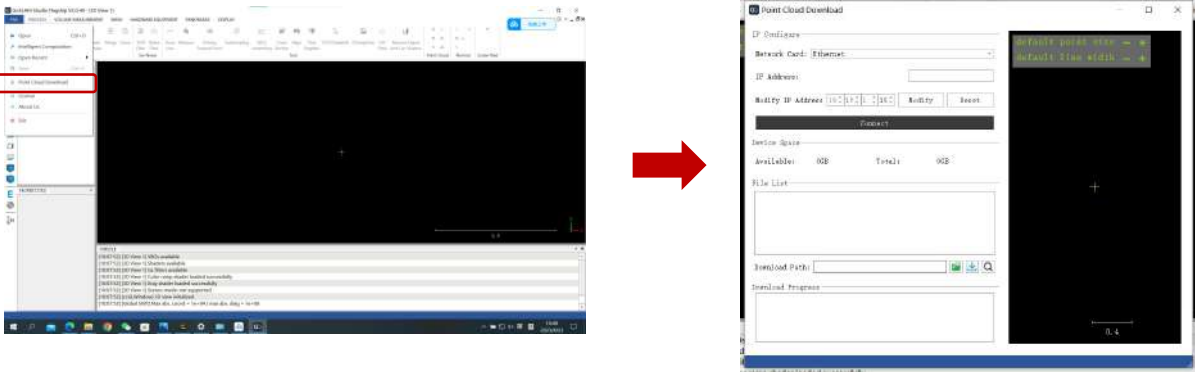
Data export methods can be divided into two types, including mobile solid-state drives, USB drives and network cable connections. Solid-state drives and USB drives are used for exporting and downloading data. Please refer to P24 for details.

Network Cable

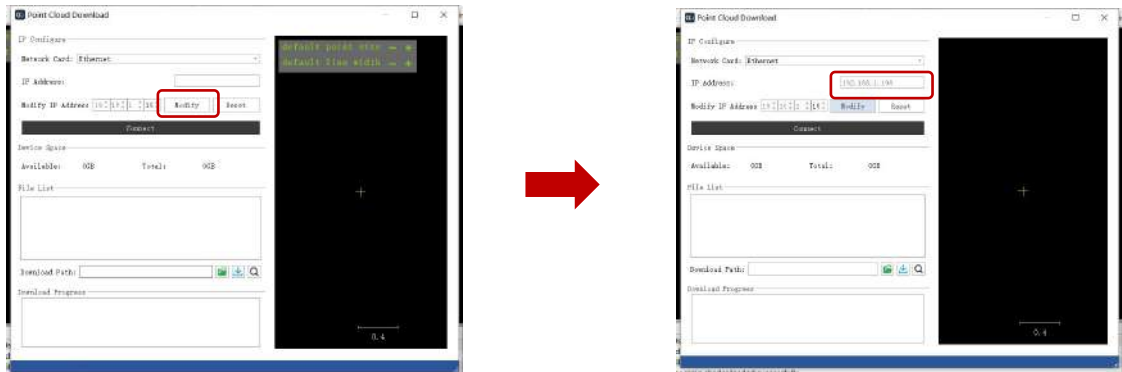
Download data via the internet cable requires the GoSLAM Studio software to download and process the data.

GoSLAM Studio Software

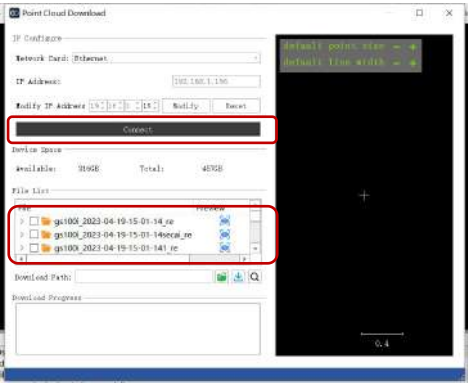
- 1 After connected the computer and host by the network cable to the GoSLAM Studio software, then click 'File' and select 'Point Cloud Download'.




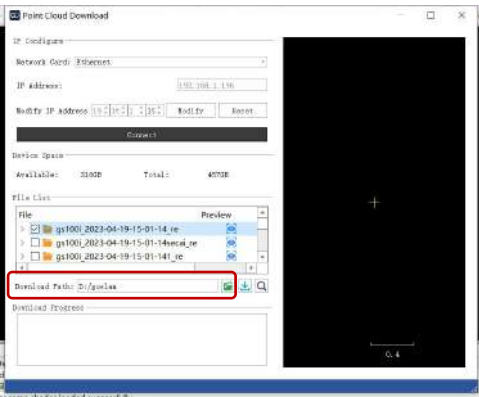
- 2 Go to the point cloud download page and click 'Modify' which The IP address will automatically show '192.168.1.196'. Please do not make any modification.




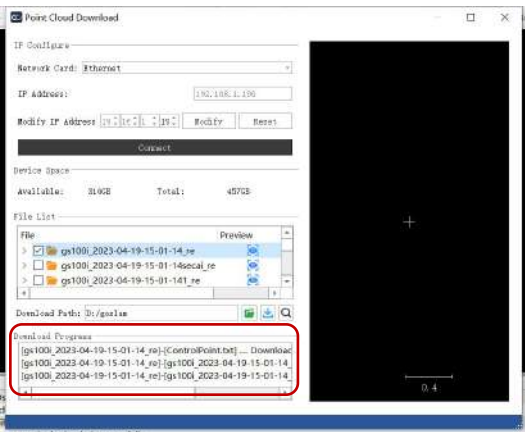
3 Click 'Connect' , then a file will come up in below to indicate that the data loading is complete.



4 Click the below file logo  which inside the download path. You can choose your own folder after clicked the download path. Please see the pics below for more details.



5 Click the below download logo  which is inside the download path to download. The download progress in below will indicate that the download is complete, Successfully downloaded, you can view the solution data in the download path file package.



Storage

1. Wipe the device clean and put it into a packing case.
2. Keep the device away from impact, collision, or disassembly.
3. Do not disassemble the device by yourself. If a fault occurs, contact your local distributor.
4. Do not plug or remove the main cable when the device is connected to the battery.
5. Gently shake the LiDAR components to check whether there is abnormal noise within a period time. If you hear any noises, check the screws on the LiDAR assembly. All equipment screws are setting anti loose. Please contact your local dealer if any screws are loose.

COMMON FAULTS AND SOLUTIONS

Problems	Solutions
The host cannot be powered on.	Check that the battery is properly installed. Make sure the battery is fully charged. Ensure that the main cable of the handheld is properly connected to the host.
The phone don't detect the Wi-Fi signal of the device.	Check whether the host is power on.
Mobile APP cannot display real-time point cloud.	Check that the phone is connected to the device's Wi-Fi. Please refresh the APP to try again.
The handheld lens cannot rotate normally or the rotation speed is abnormal.	Check whether the hand-held rotation area is blocked.
Initialization failed	Power off the host and remove the battery, reconnect the battery, and reboot the device to check the device status.
After the flash drive is inserted into the host, no data is copied to the flash drive.	Check if the flash drive locking module is unlocked.
The device is shut down during operation	Check the battery level. Ensure that the battery is installed properly.

AFTER-SALES SERVICE PROCESS

1 Maintenance service process

(1) Submit the application

Please call customer service or add customer service wechat, fill in your product information and personal information, then submit to customer service.

(2) Sending out products

After the repair application is submitted successfully, we will notify you to send back the product. You can send the product to the particular after-sales service center. After sending the product, please contact the relevant customer service personnel and send the tracking number to customer service.

(3) After-sales maintenance

GoSLAM after-sales service center will conduct a comprehensive test after received your products. If it is determined that the product is not within the free warranty, please confirm the quotation provided and pay the repair fee. Maintenance will be arranged after payment is completed. If the product is judged to have performance failure during the warranty period, it will be repaired for free. You can obtain the maintenance progress and cost information through the customer service staff.

(4) Return the product

When the repair is completed, the after-sales service center will post the repaired products to you. When you receive the repaired product, please contact the relevant customer service personnel and confirm the receipt of the goods, that is the repair is completed.

2 Maintenance cost/Logistics cost

	Maintenance costs	Logistics cost
In-warranty maintenance service	<ul style="list-style-type: none"> ○ Free maintenance ○ There is no charge 	<ul style="list-style-type: none"> ○ Maintenance within warranty is confirmed after testing ○ The round-trip freight shall be afford by our company
Out-of-warranty maintenance services	<ul style="list-style-type: none"> ○ Paid maintenance ○ The after-sales service center will send you a quotation . 	<ul style="list-style-type: none"> ○The round-trip freight is afford by yourself.

3 Attentions

- ▽ Before applying for after-sales service, you are advised to contact the online customer service through the wechat that we may solve your problem online.
- ▽ For your privacy, back up all your personal data and take out your flash drive before applying for after-sales service. If your personal data is lost during the maintenance process, GoSLAM will not be responsible for any damages and losses.
- ▽ Please provide a valid proof of purchase, receipt and tracking number.
- ▽ Do not send products by freight collect.



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