Mobile SLAM Color 3D Laser Scanner

R8+ GUIDE

Chapter 1 Device Component

1.1 Host Module

A terminal for storing, sending, and receiving information.

1.2 Handheld Module

For collecting image data, point cloud data, etc.
(There are three lidar models: 32-120m, and 32-300m)

*Note:

a) The laser lable is at the back of the Handheld Module;

b) Laser safety levels are classified according to IEC 60825-1: 2014;

c) Caution – Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure;

d) The laser module information is as follows :

Wavelength:	905mm
Laser safety level:	Class1

1.3 Lithium Battery

For device power supply.
(1 set of 2 batteries, 3 hours operation time)

1.4 Hot-plug Board

The hot-plug board can be mounted with 2 batteries. A power low battery can be directly replaced during operation, so that the device will not stop working.

1.5 Charger

For lithium battery charging (2-mount), the charger shows the battery power status in real time.

1.6 Back Frame

For fixing each module on device in wearable mode, including an extension rod with a V-shaped buckle method.

1.7 GNSS Module

For receiving satellite data and base station data (RTK);
(available: GPS/Galileo/GLONASS/QZSS/BDS)

1.8 Dongle

For the software encryption lock.

1.9 USB Key

For data copy.
(Equipped with a 128GB USB Key).

1.10 Mobile Terminal

For controlling the begin and finish of collecting operation by using WiFi through Mobile Terminal. Mobile Terminal offers visual interface for Human-Computer Interaction(HCI).

1.11 Peer Plate

For the control points of handheld mode acquisition, to generate absolute coordinates for point clouds.

1.12 Shoulder Strap

Shoulder strap makes the Host go anywhere with operators for the Handheld Device.

1.13 Cables

For power supply and data transmission of each module.
There are 3 cables:

#1: A connection cable between the Host and the Handheld Module for Handheld Device.

#2: A connection cable between the Host and the Handheld Module for Wearable Device.

#3: A connection cable between the Handheld Module and GNSS Module.

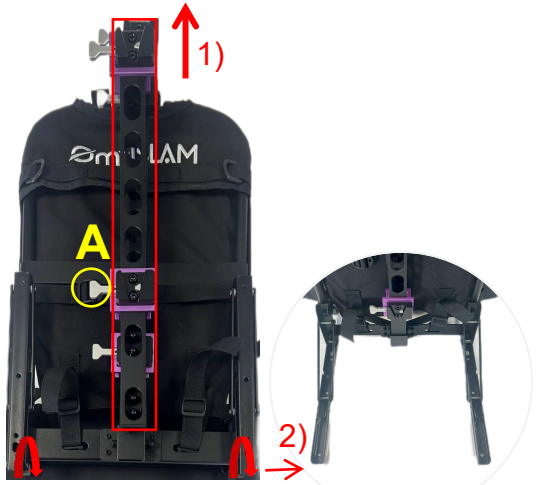
1.14 Safety Box

For transportation or storage of the Host & Accessories.

***Refer to the Assembly Video.**

2.1. Wearable Device Assembly

2.1.1 The Frame of Wearable Device Assembly



1) Take out the extension rod (see the ↑);
   * Pull out the rod with pressing the *buckle A*.

2) Place the tripod down (see the ⋂);

3) Connect the extension rod to the back frame (see the ↑);
   * Assemble the rod with pushing the *buckle B* & *buckle C*.

4) Make sure the *cross-section D* needs to be abreasted, it means the rod is assembled in right place (see the ▬);

2.1.2 Safety Box Opening

1) Push the *buckle E* and pull out *the buckle F* to open the BOX.
(see the ↑ ↻)* Push the buckle E and pull out the buckle F at the same time.

2.1.3 Battery and the Host Connecting

1) Match the *indentation G* with the *indentation H*, push the hot-plug board with batteries down straight to the end (see the ↓).

a.

b.


c.

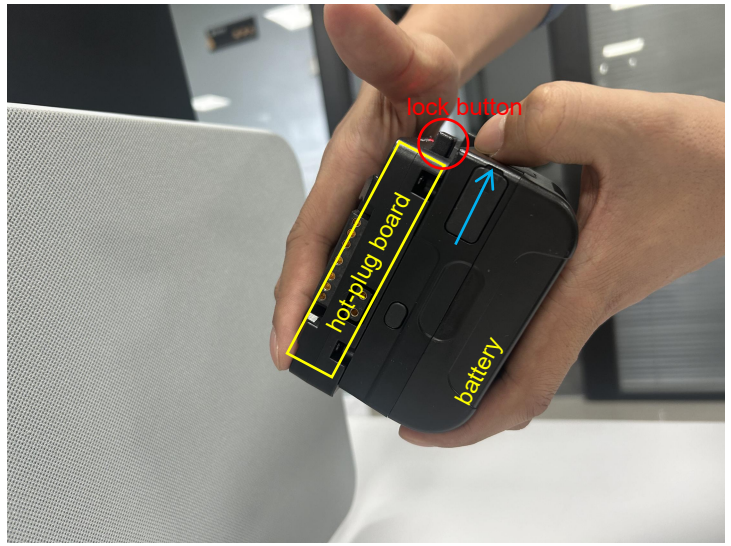
d.

e.

f.

2.1.4 Battery and the Hot-plug Board Connecting

1) Pull out the batteries from the hot-plug board toward the *lock button* side with pressing the lock button (see the ↓).



a.

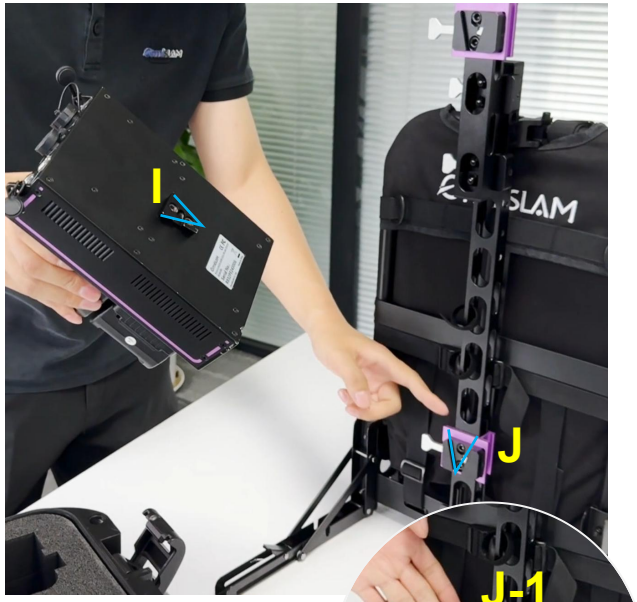
b.

c.

2.1.5 The Host and Back Frame Connecting

1) Match the *indentation I* with the *indentation J*, connect the Host onto the Back Frame with pushing the *button J-1* (see the ↓).

a.



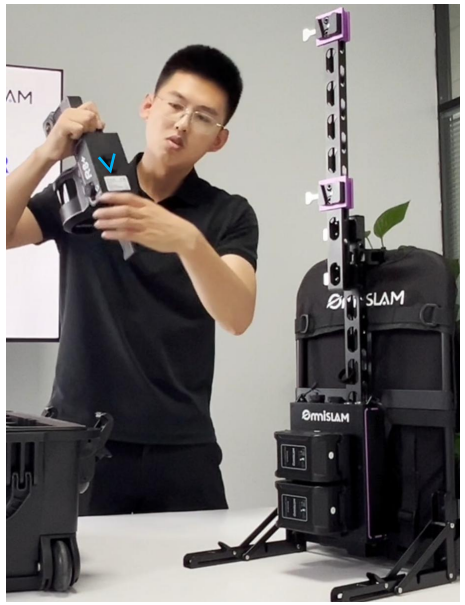
b.

c.

d.

2.1.6 The Handheld Module and Back Frame Connecting

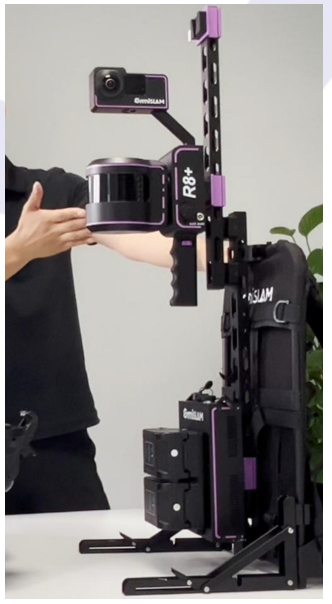
1) Match the *indentation K* with the *indentation L*, connect the Handheld Module onto the Back Frame (see the ↓).



a.

b.

c.



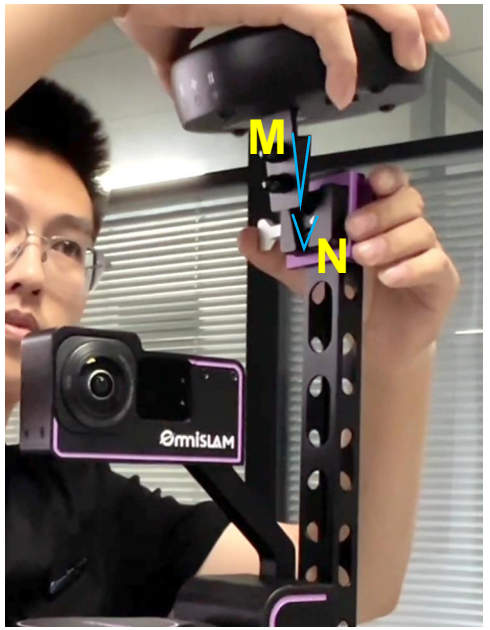
d.

2.1.7 The GNSS Module and Back Frame Connecting

1) Match the *indentation M* with the *indentation N*, connect the Handheld Module onto the Back Frame (see the ↓).

2) Make sure the *cross-section O* needs to be abreasted, it means the rod is assembled in right place (see the ⊢⊣);

a.



b.

c.

d.

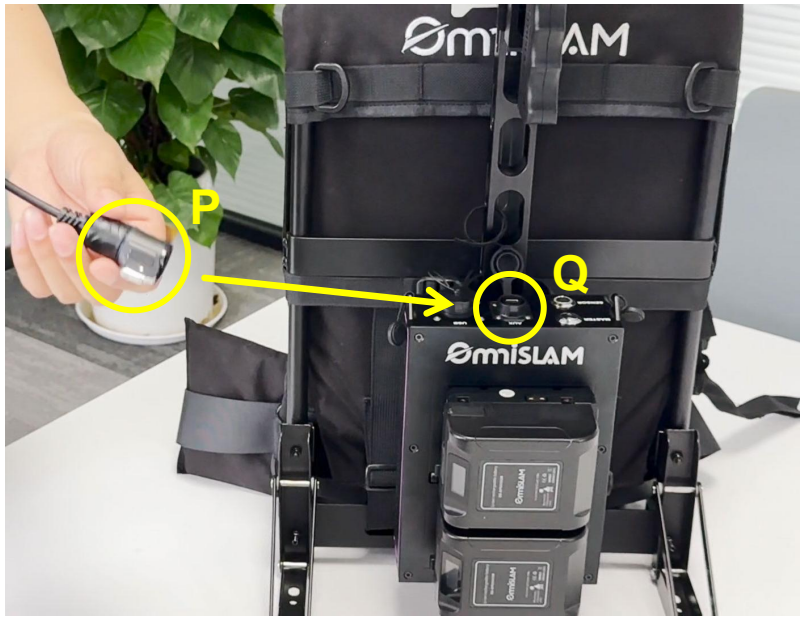
2.1.8 Cables Assembly of Wearable Device

1) Push the *plug P* into the *interface Q (type-C)*, see the (↓). **#2 cable is for the connection between the Host & the Handheld Module**

*Note: The *metal button Q-1* must on the batteries side.

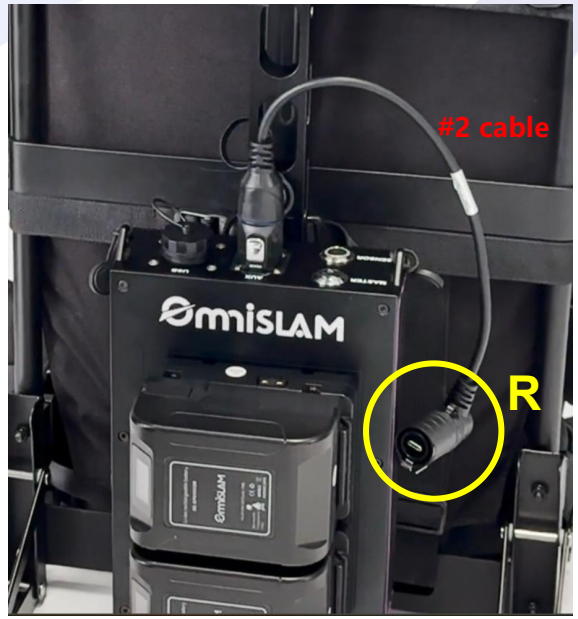
Plug P of #2 cable

* The *I-shape Plug* is for the Host only (*Plug P*).



a.

b.



* The cable No# can be checked from the 1.13 chapter.

c.

2.1.8 Cables Assembly of Wearable Device

2) Push the *plug R* into the *interface S (type-C)*. **#2 cable is for the connection between the Host & the Handheld Module**

*Note: The *metal button R-R* must be upward.

Plug R of #2 cable

* The *L-shape Plug* is for the Handheld Module of Wearable Device (*Plug R*).

a.

* The cable No# can be checked from the 1.13 chapter.

b.

2.1.8 Cables Assembly of Wearable Device

3) Insert the *plug T* into the *interface U*. **#3 cable is for the connection between the Handheld Module & the GNSS Module(antenna disk)**

*Note: The red-dot on the *plug T* must be aligned to the *indentation U-1*, so that the method of inserting is correct .

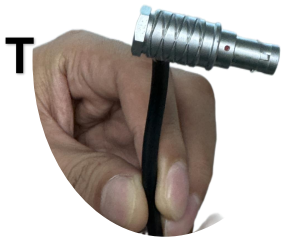
a.

b.

c.

* The cable needs to be upward (see the ↑).

Plug T



* The *L-shape Plug* is for the Handheld Module (*interface U*).

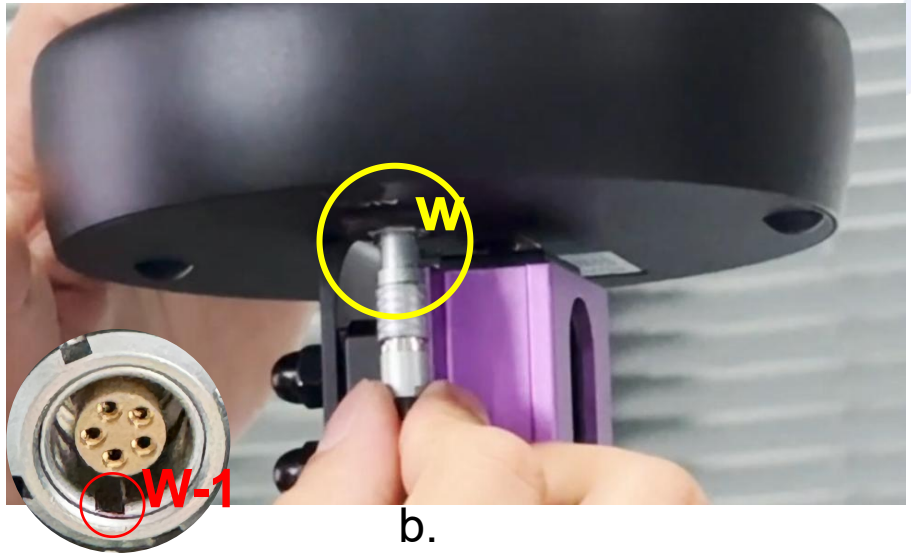
2.1.8 Cables Assembly of Wearable Device

4) Insert the *plug V* into the *interface W*, connect the Handheld Module with the GNSS Module.

#3 cable is for the connection between the Handheld Module & the GNSS Module(antenna disk)

*Note: The red-pod on the *plug V* must be aligned to the *indentation W-1*, so that the method of inserting is correct, otherwise the GNSS Module would be short-circuited.

a.



b.

* The cable No# can be checked from the 1.13 chapter.

c.

Plug V

* The *I-shape Plug* is for the Handheld Module (*interface W*).

2.2 Handheld Device Assembly

2.2.1 Handheld Module Assembly

1) Tighten the *screw X* into the *screw hole Y*, then the Handheld Device can stand.

a.

b.

c.

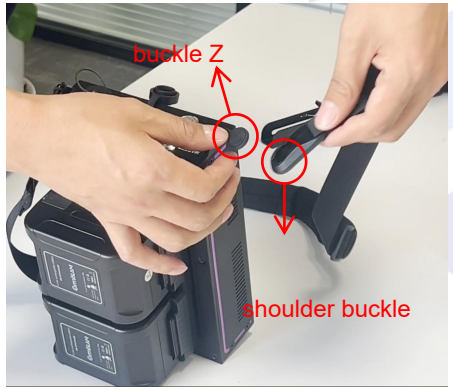
d.

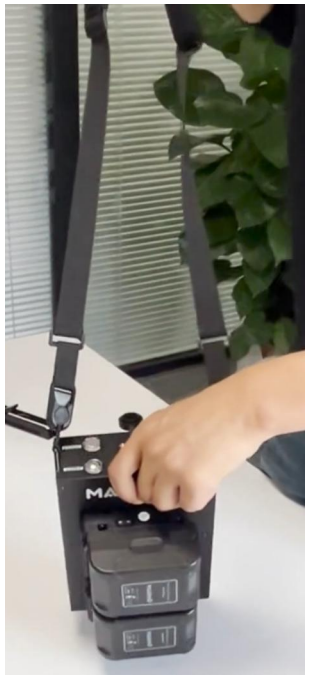
2.2.2 Shoulder Strap Assembly of Handheld Device

1) Loose the *buttonZ* from the Shoulder Strap.

2) Tighten the *button Z* on the *Host fix hole*△.

3) Insert the *button Z* into the *shoulder buckle*, then the Shouler Strap for the Host is correct.





2.2.3 Cables Assembly of Handheld Device

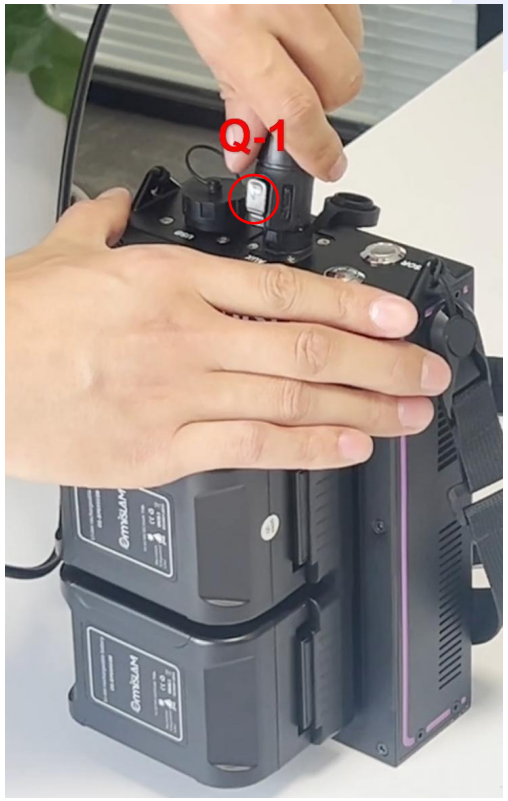
1) Push the *plug P-1* into the *interface Q (type-C)*, see the (↓).
   *Note: The *metal button Q-1* must be on the batteries side.

Plug P-1 of #1 cable

* The *I-shape Plug* is for the Host only (*Plug P-1*).

* The cable No# can be checked from the 1.13 chapter.

a.



b.

c.

2.2.3 Cables Assembly of Handheld Device

2) Push the *plug R-1* into the *interface S (type-C)*. **#1 cable is for the connection between the Handheld Device & the Host.**

*Note: The *metal button R-R* must be upward.

Plug R-1 of #1 cable

* The *L-shape Plug* is for the Handheld Module of Handheld Device (*Plug R-1*).

a.

b.

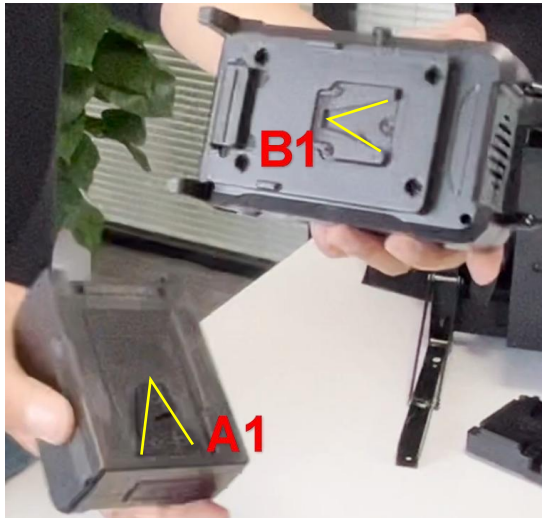
* The cable No# can be checked from the 1.13 chapter.

c.

3.1 Batteries Charging

1) Match the *indentation A1* with the *indentation B1*, push the batteries down straight to the end (see the ↓).

* Note: 1 time charge with 1 battery or 1 time charge with 2 batteries is OK.



a.

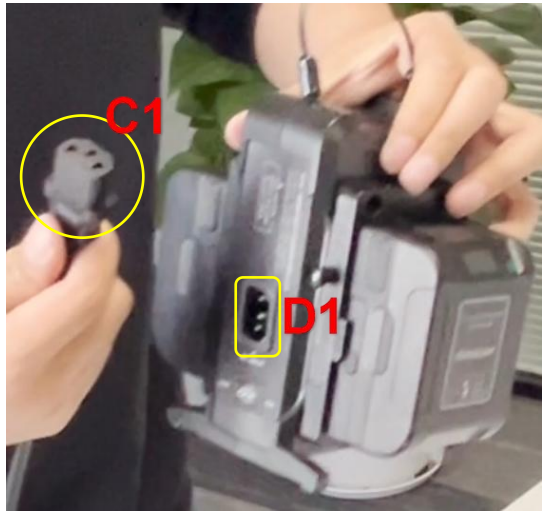
b.

c.

3.1 Batteries Charging

2) Insert the *plug C1* into the *power interface D1*, check if the Charger Screen is on, if it shows like *E1*, it means the batteries are charged correctly.

a.

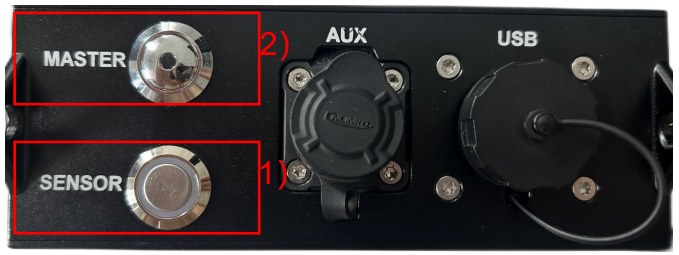


b.

c.

d.

4.1 Power on the Device



a.

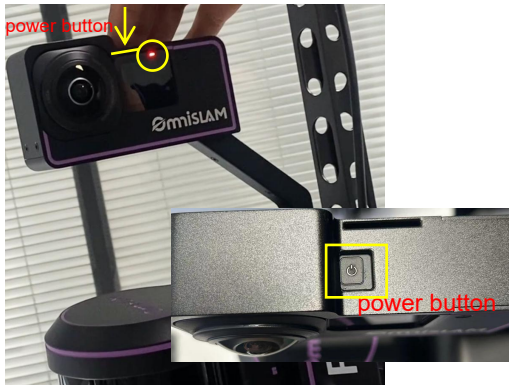
b.

c.

d.

1) Turn the *Sensor* on, it becomes Blue, then wait for 5 seconds.

2) Turn the *Master* on, it becomes Red, then wait for 20 seconds.



a.

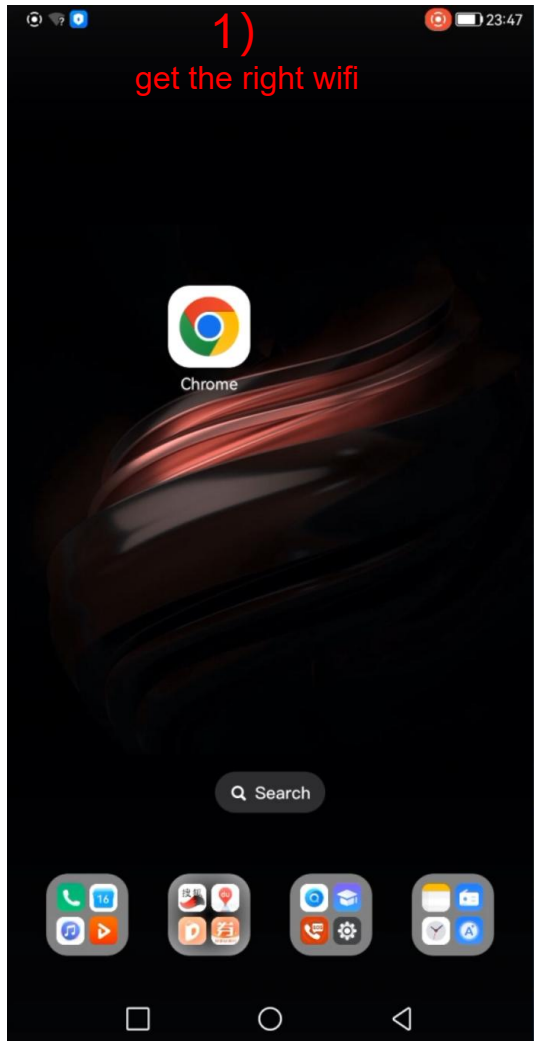
b.

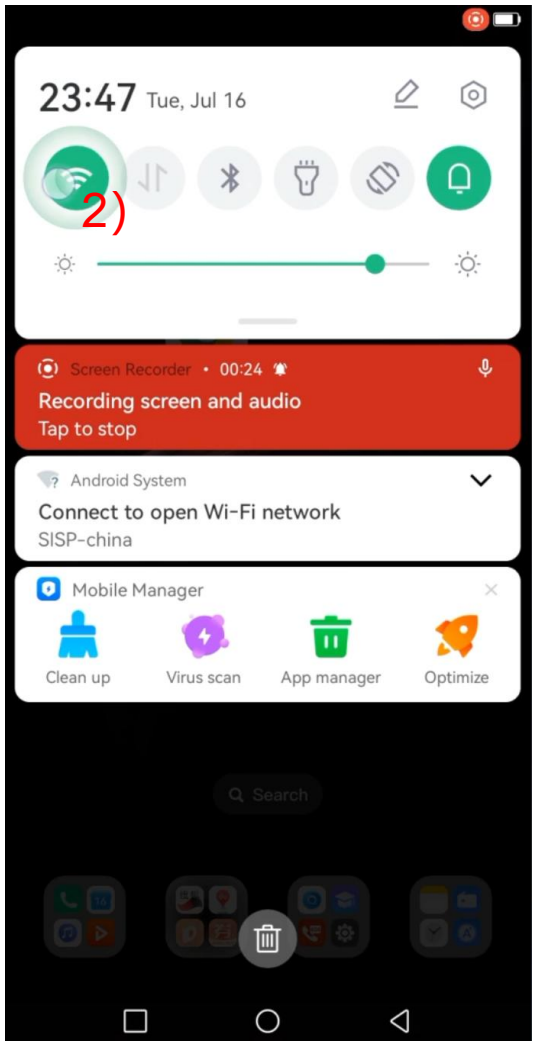
c.

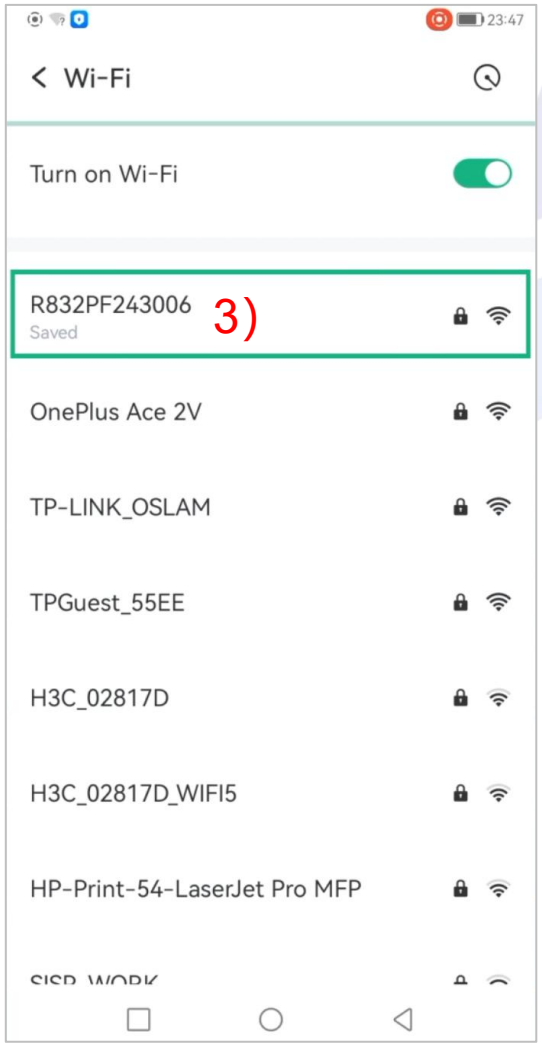
3) Turn the *Camera* on, until the status light turns from *red* to *blue*.

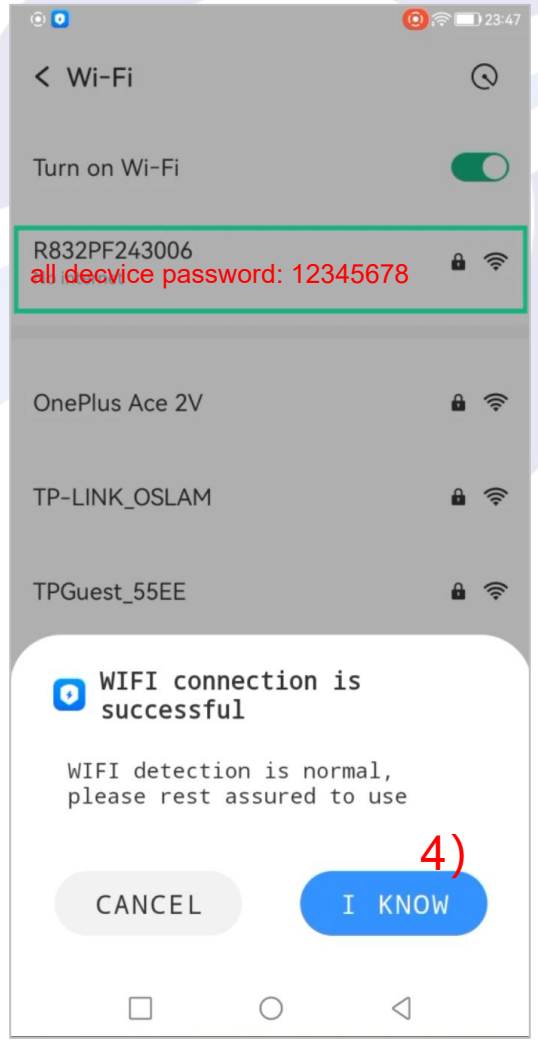
4) Wait for the *Screen* shows the image, it means the camera is working correctly.

5.1 WiFi Connection Guide







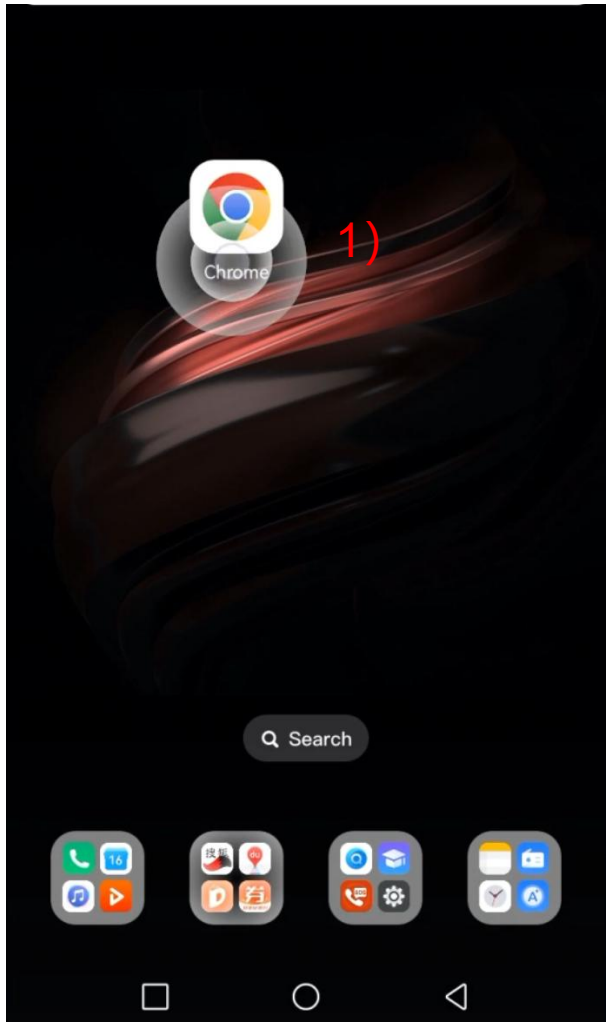


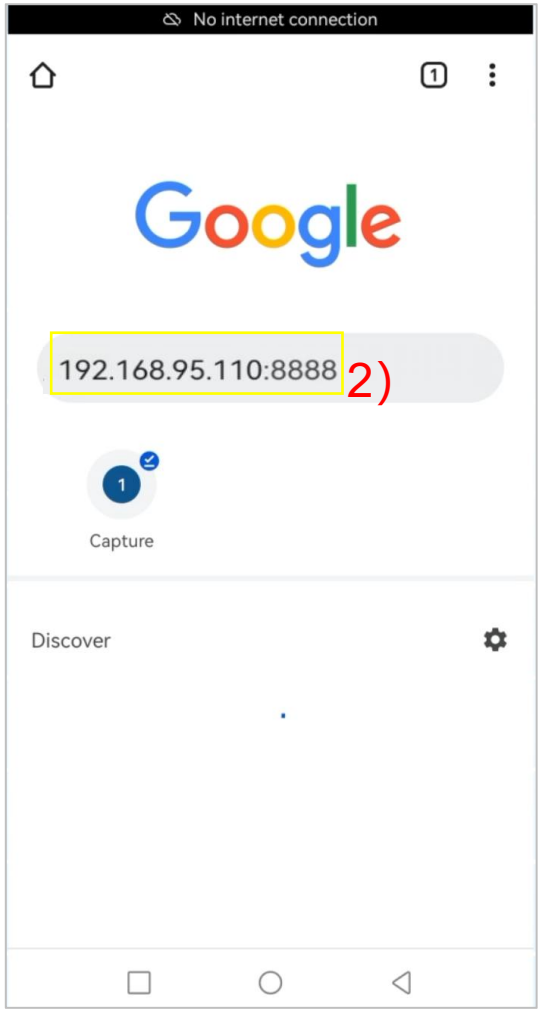
1) Before connecting the Capture and the Device, the Customer needs to get the right WiFi;
2) Turn on【WiFi】;
3) Choose the WiFi which is named by the *Device Serial No.*(the S/N is at the back of the Host or the Handheld Device);

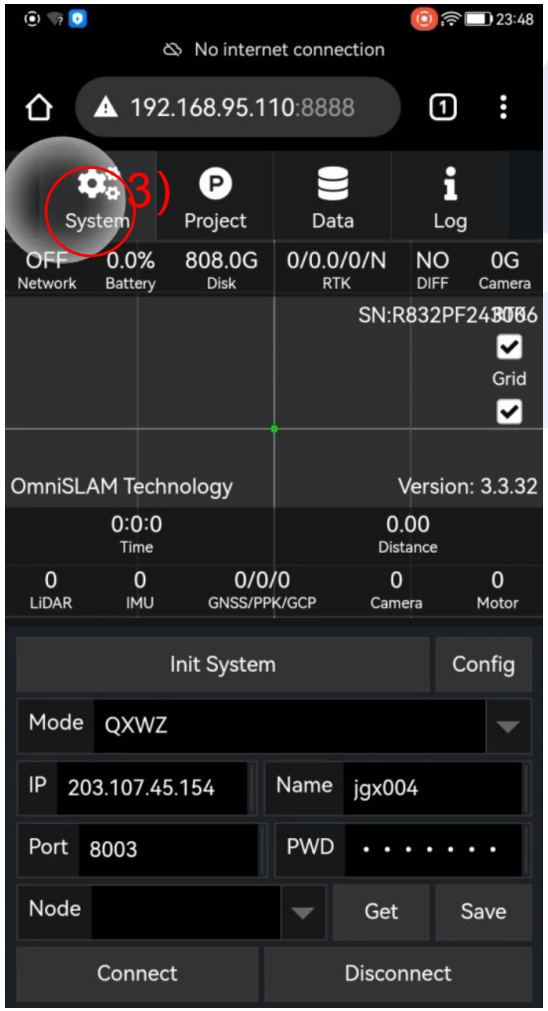
*all decvice password: 12345678

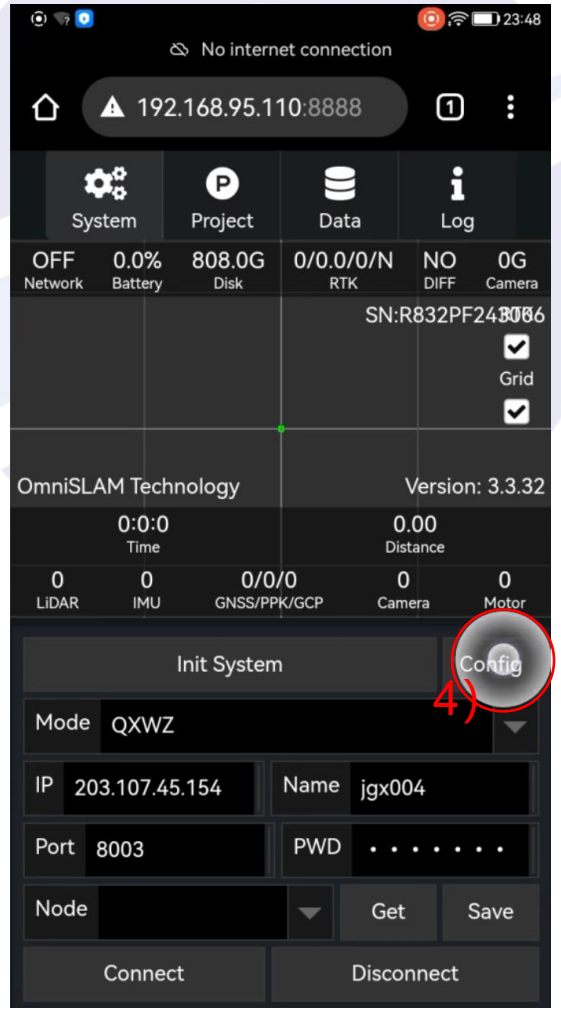
4) If the WiFi connection is successful, then go to the next;

6.1 Capture Use Guide









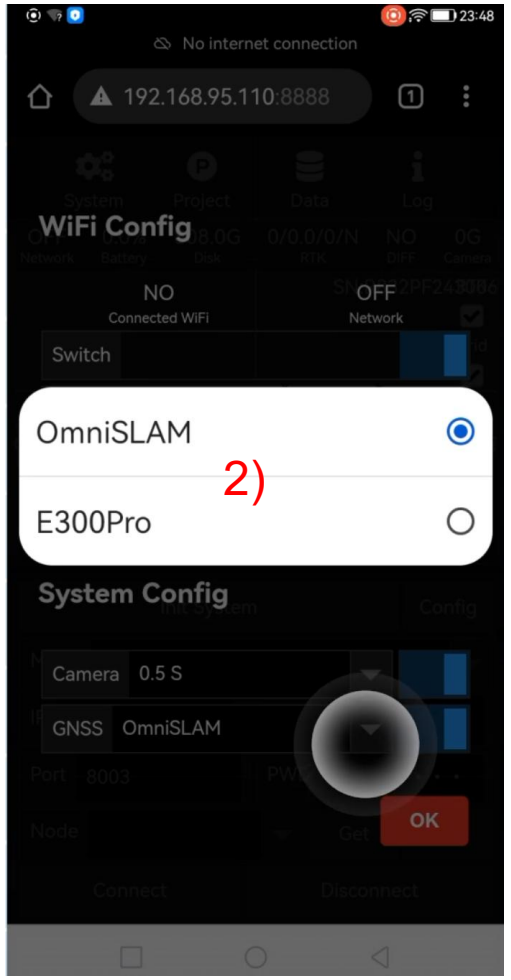
1) Choose a【Browser】

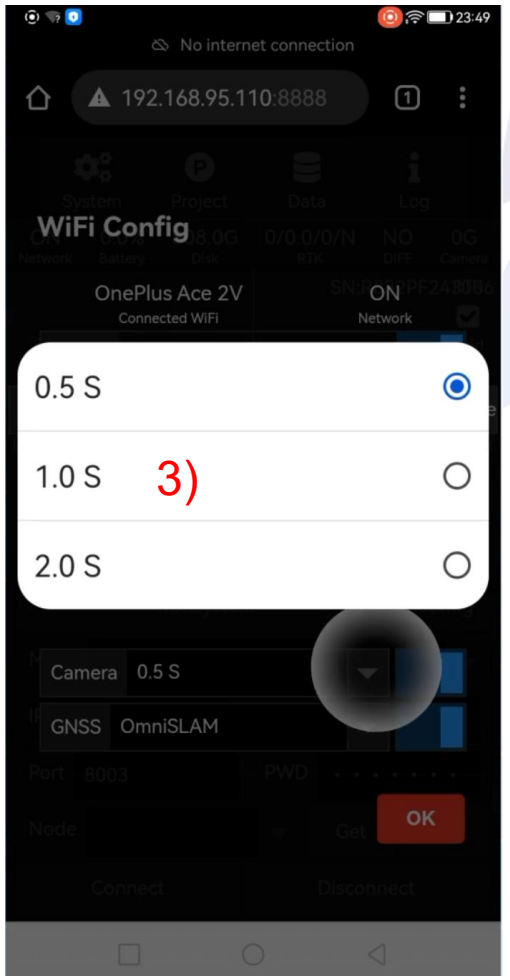
2) Get in【Capture】of which the IP is 【192.168.95.110:8888】;

3) Get in【System】;

4) Choose【Config】;

6.1 Capture Use Guide





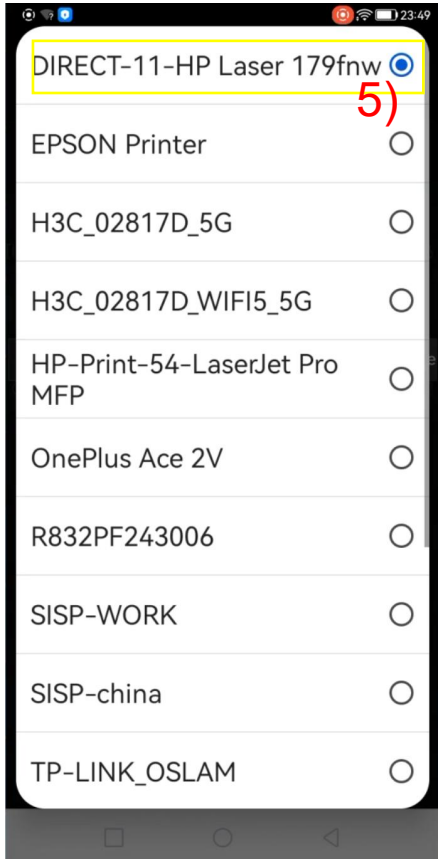
1) For the System Config part, the Camera and GNSS can be adjusted;

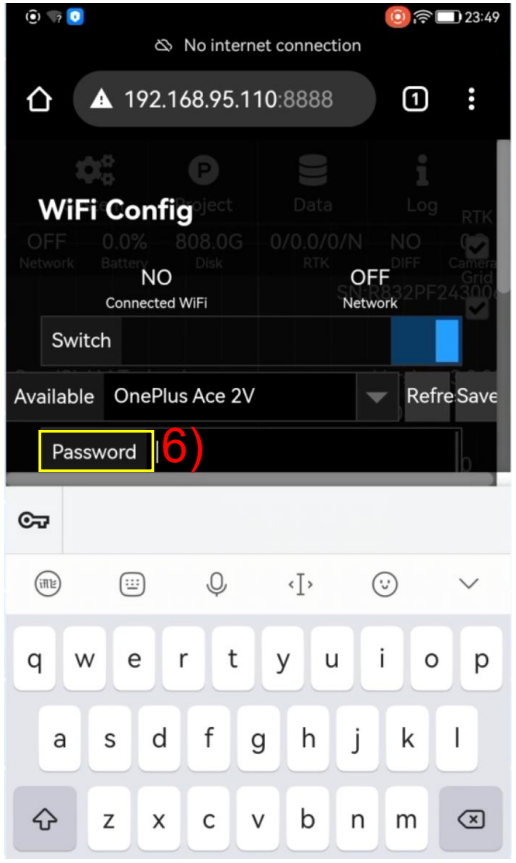
2) For the GNSS, you could choose【OmniSLAM】【E300Pro】;

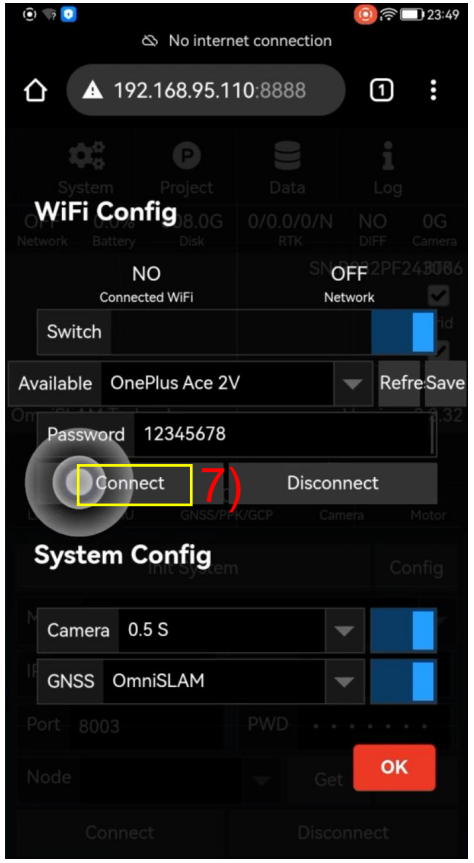
3) For the Camera, you could choose【0.5s】【1.0s】【2.0s】;

4) Get in【Available】to choose a usable WiFi;

6.1 Capture Use Guide







5) Choose a usable WiFi;

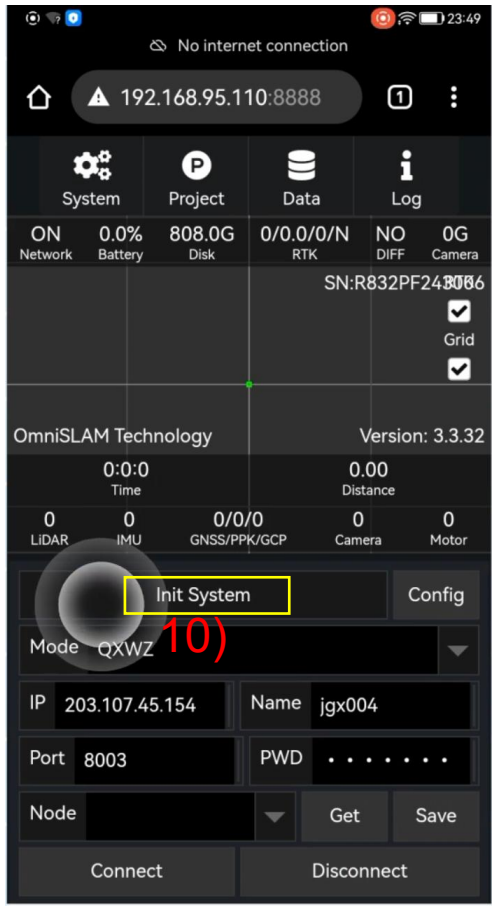
6) Fill the WiFi【Password】;

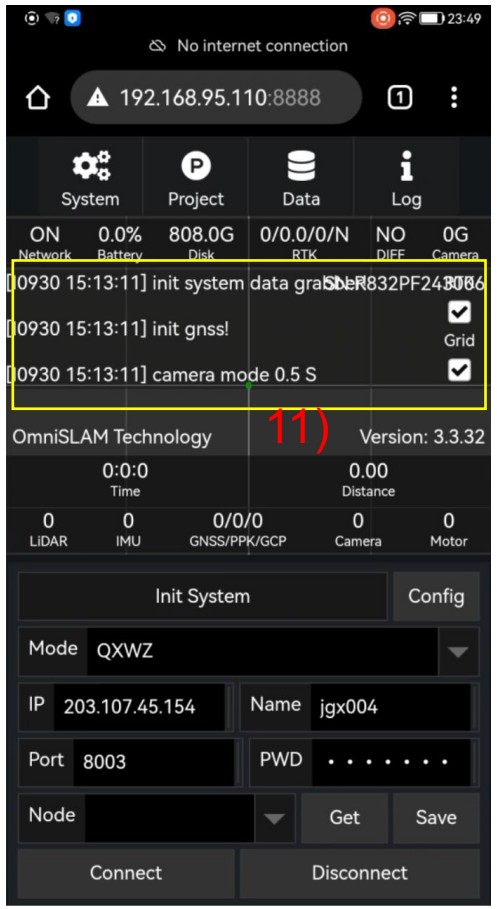
7)【Connect】the WiFi;

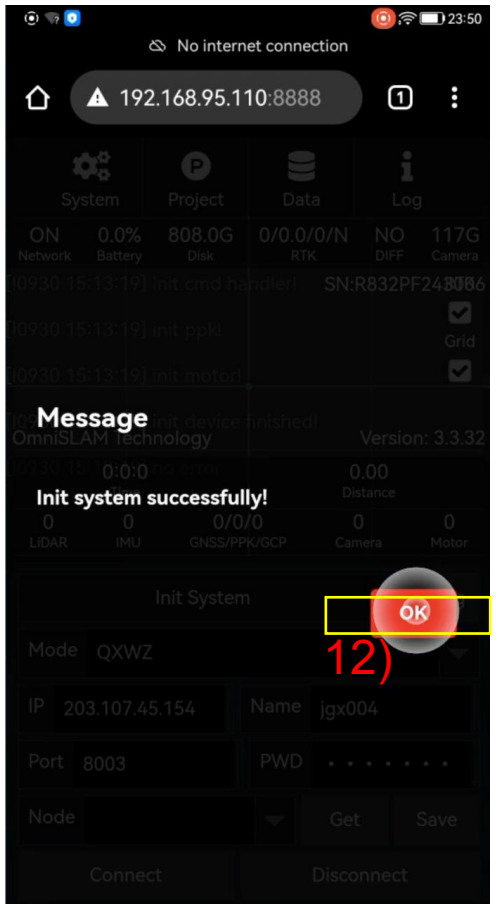
8) If the WiFi connected successfully, it shows【Connected WiFi】;

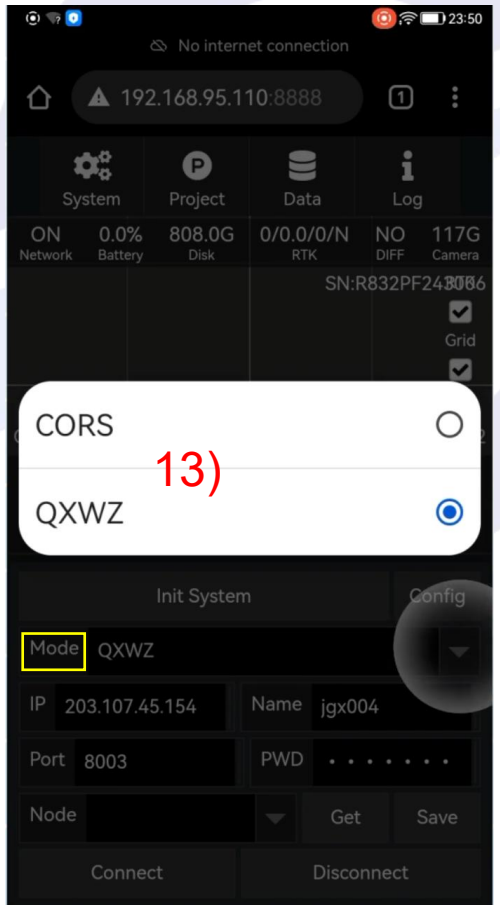
9) Choose【OK】for the next;

6.1 Capture Use Guide









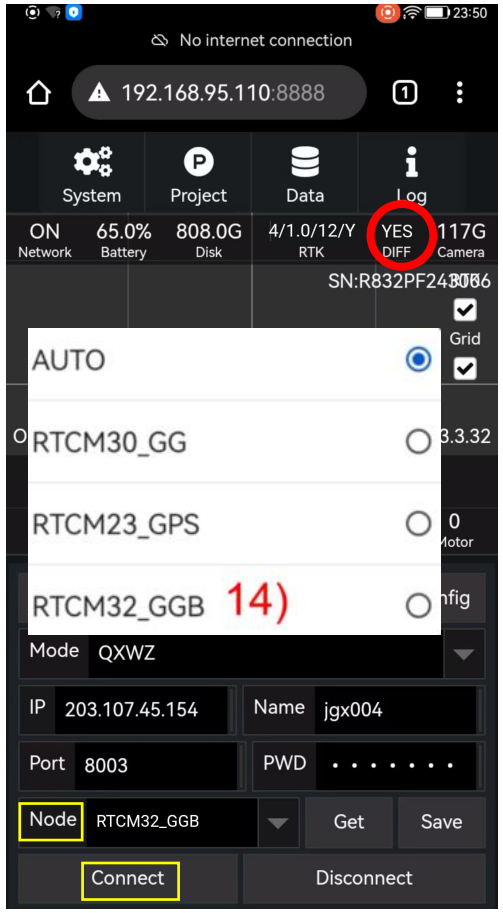
10) Choose【Init System】;

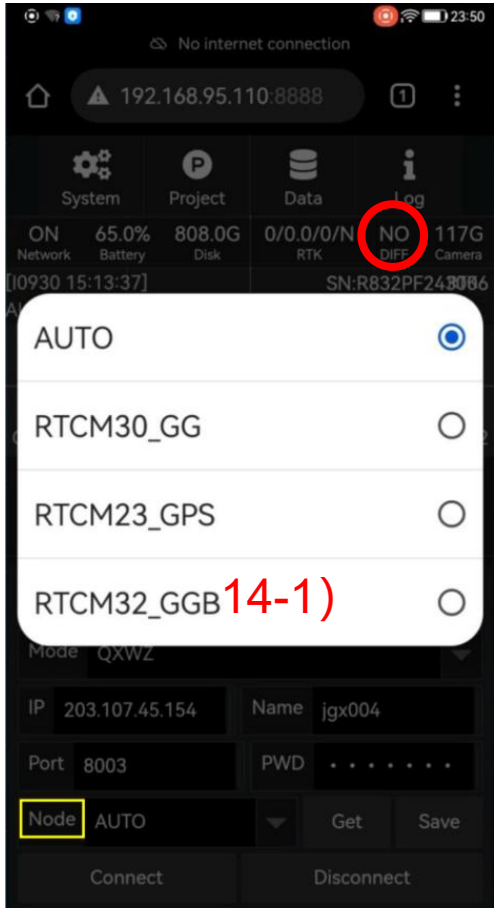
11) Wait for the data processing and initializing;

12) If【Init System】successfully, choose【OK】for the next;

13) Choose【Mode】, select【CORS】;

6.1 Capture Use Guide

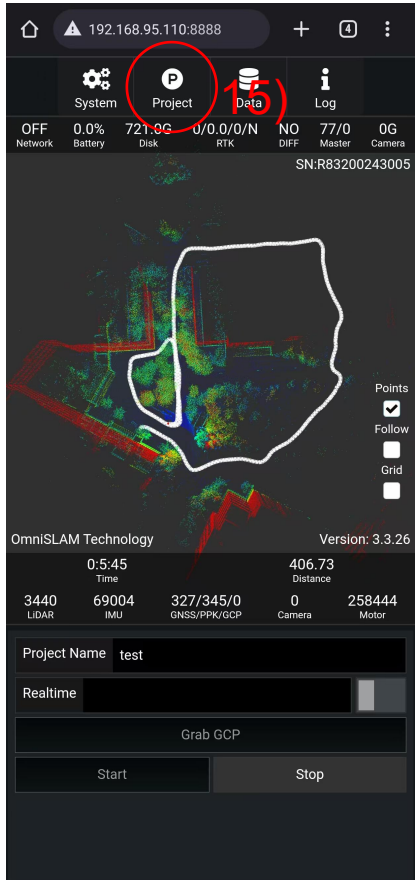


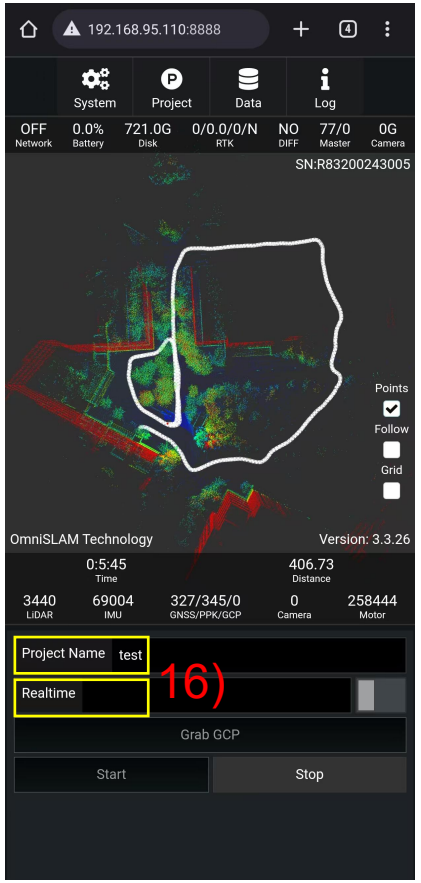


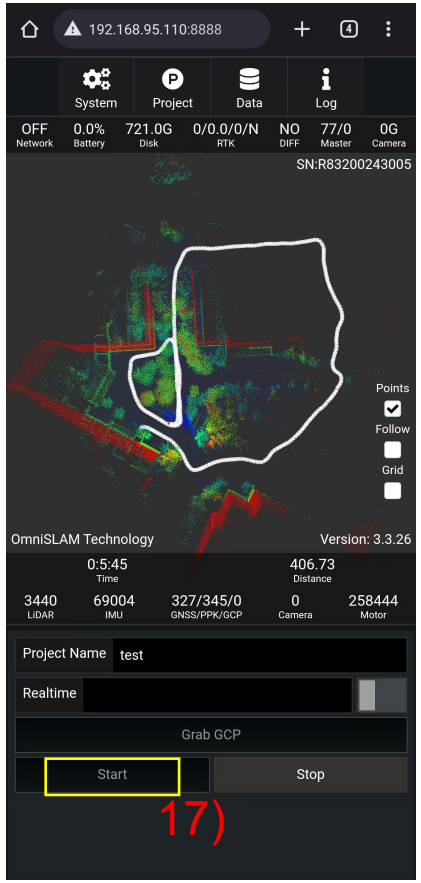
14) Choose【Node】, use the correct one, then【Connect】, the DIFF will become【Yes】for the outside using environment;

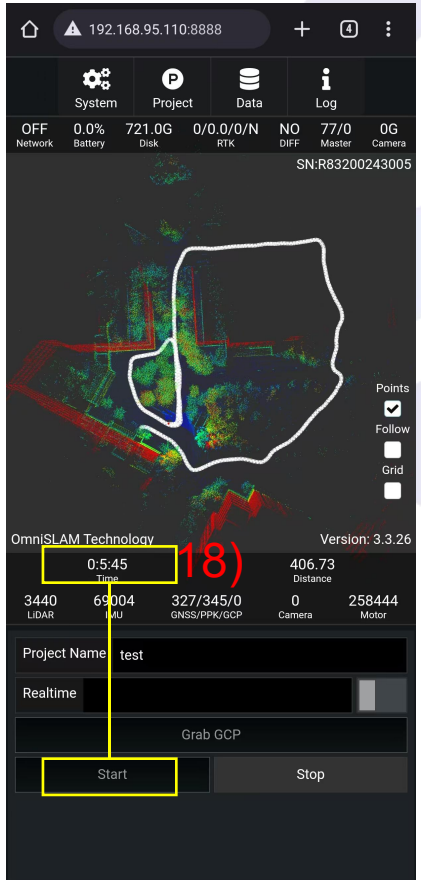
14-1) Choose【Node】, use the correct one; *If the using environment is indoor, then do not 【Connect】for the next;

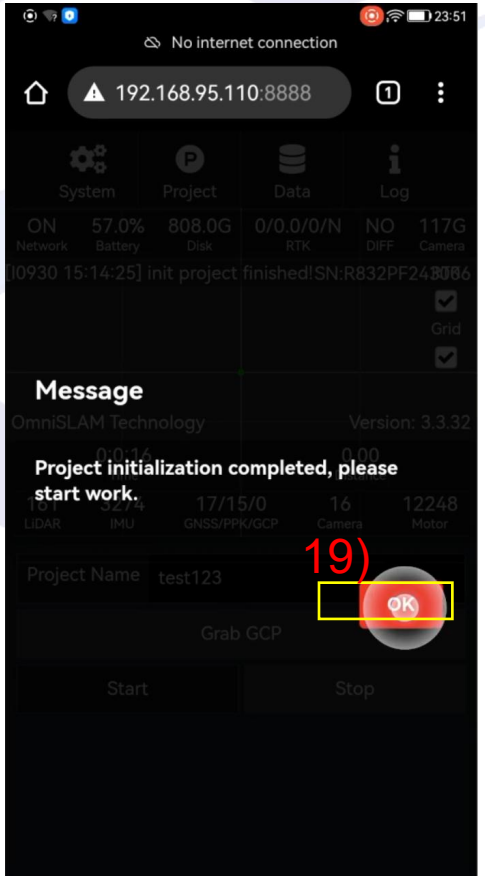
6.1 Capture Use Guide











15) Get in【Project】;

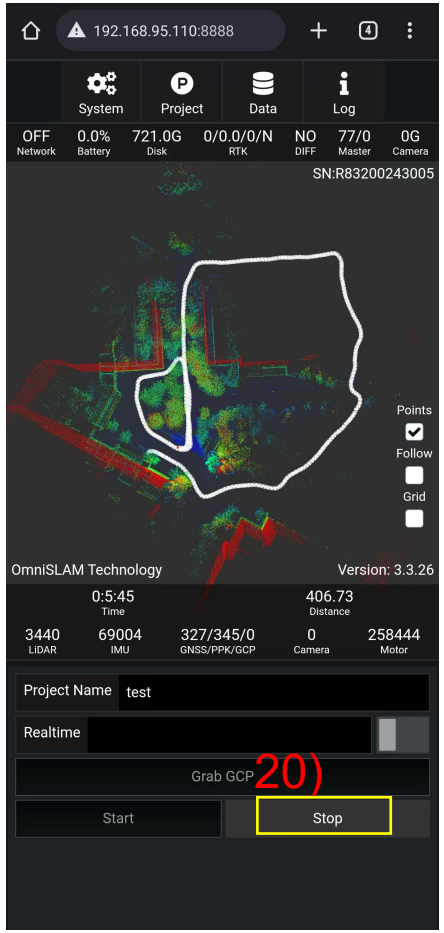
16) Build the【Project Name】; Turn on the【Realtime】

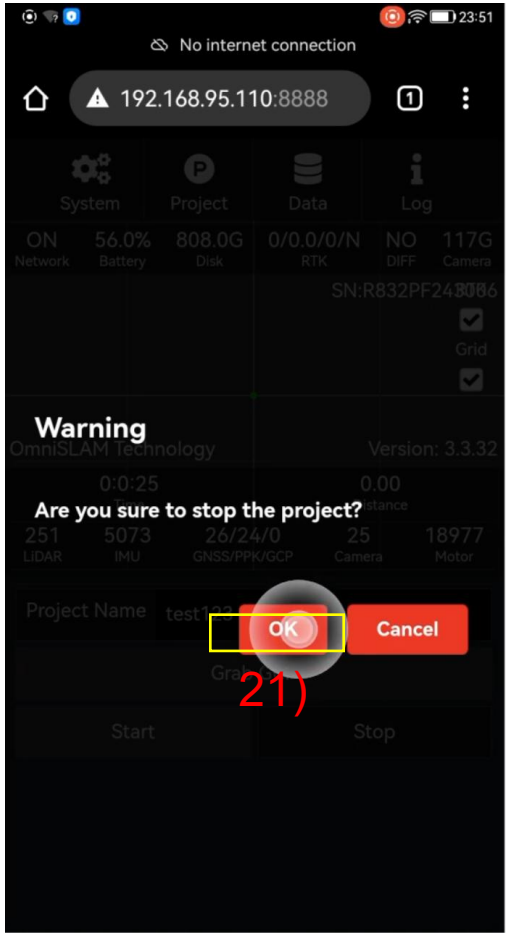
17) Get to【Start】;

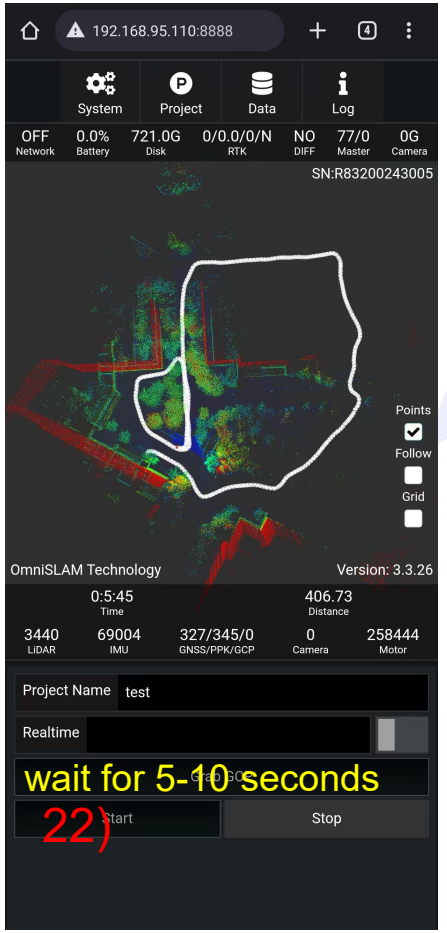
18) Wait around 14-15 seconds, until the LiDAR start to rotate;

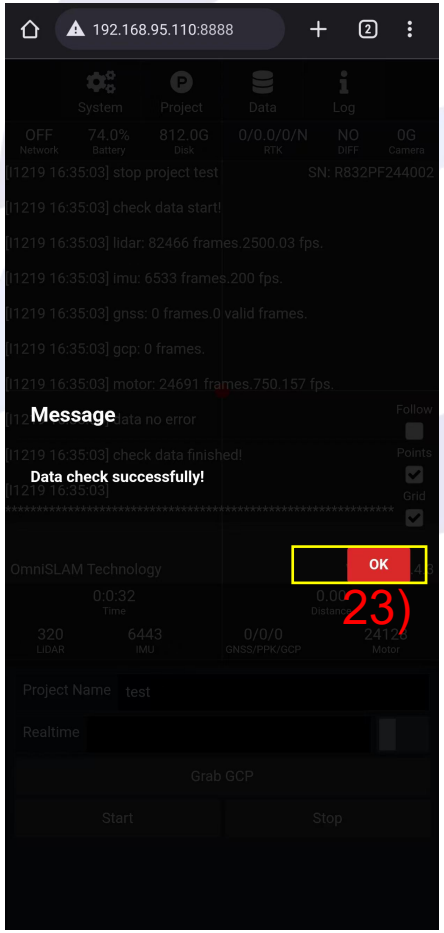
19) When the Project initialization completed, choose【OK】for the next, it means the customer is available to wear the device to work;

6.1 Capture Use Guide









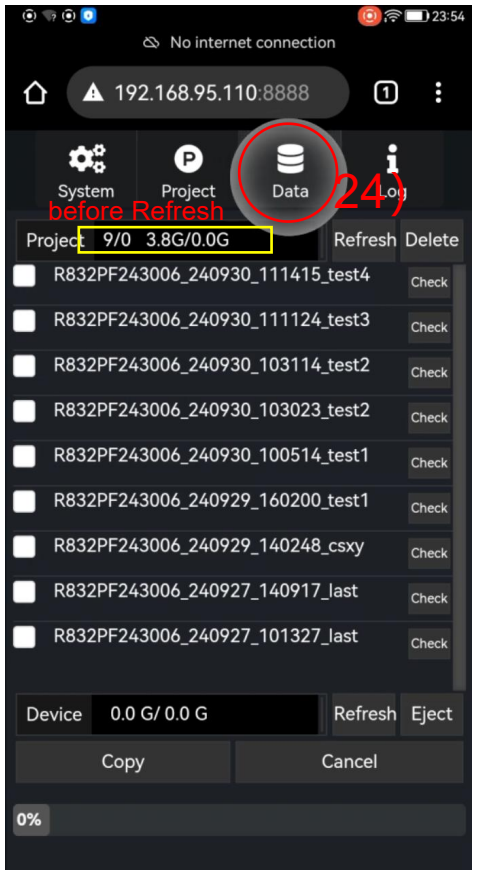
20) When the project scan is done, choose【Stop】;

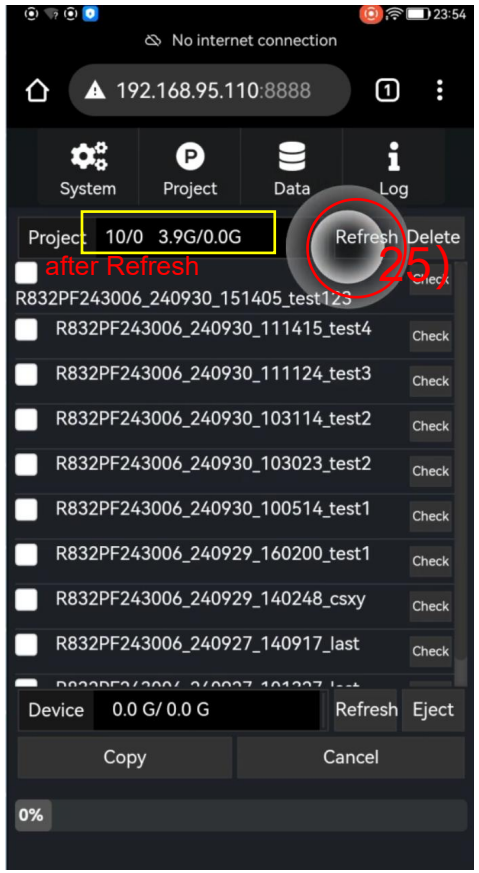
21) Choose【OK】for the next;

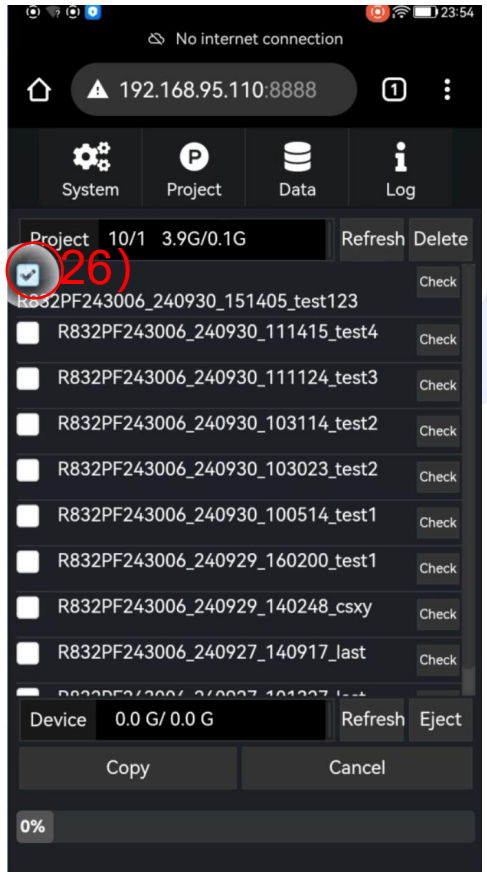
22) Wait for 5-10 seconds to let the system process and check the operation data;

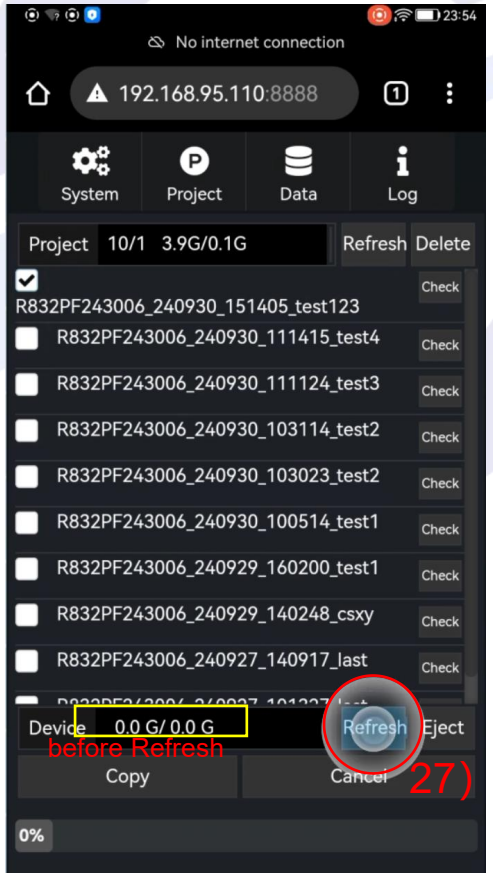
23) If there is【Data check successfully】coming out, it means the scanning is stopped successfully without mistake, so Choose【OK】for CLOSE.

6.1 Capture Use Guide









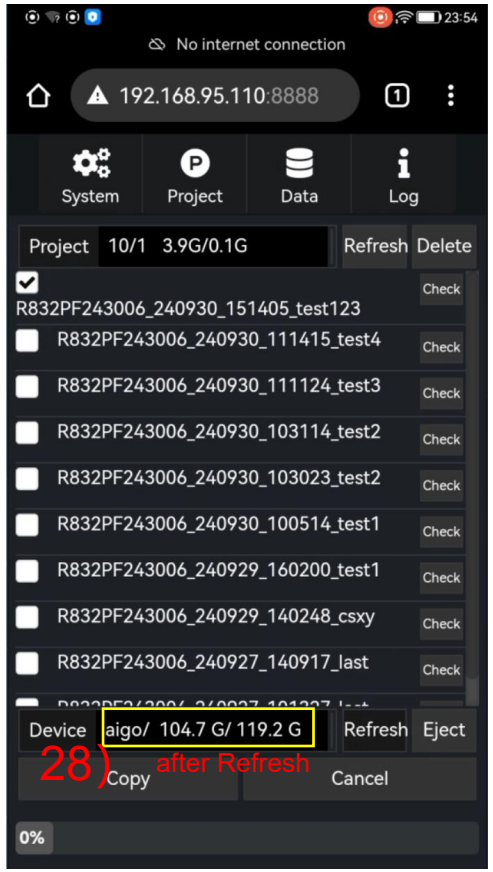
24) Get in【Data】;

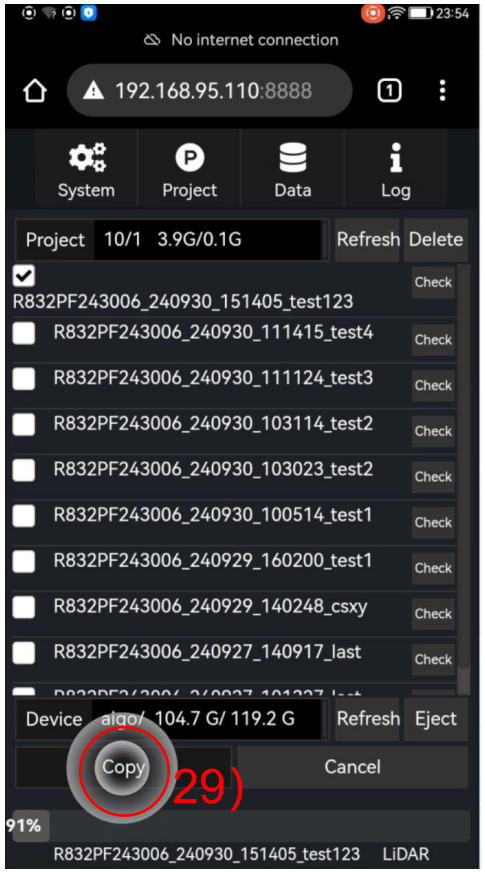
25) Choose【Refresh】for Project; * if you do the Refresh, 9 projects become 10 projects;

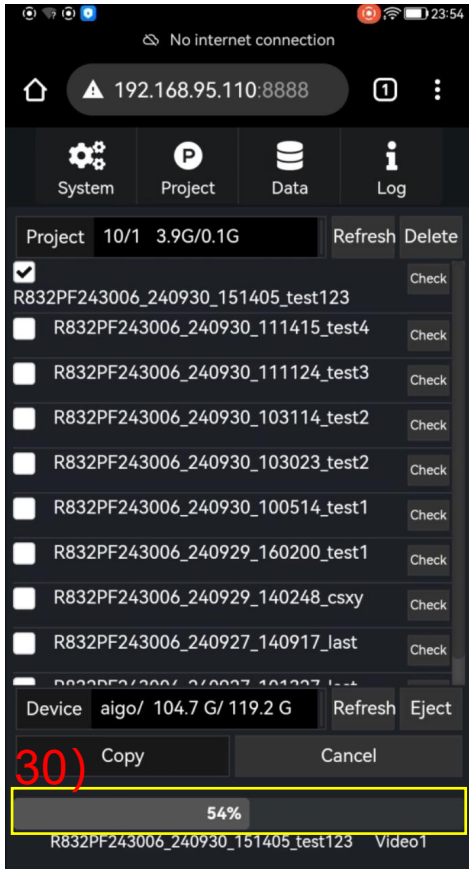
26) Wait for the data which is new, Choose the new data (normally on the top);

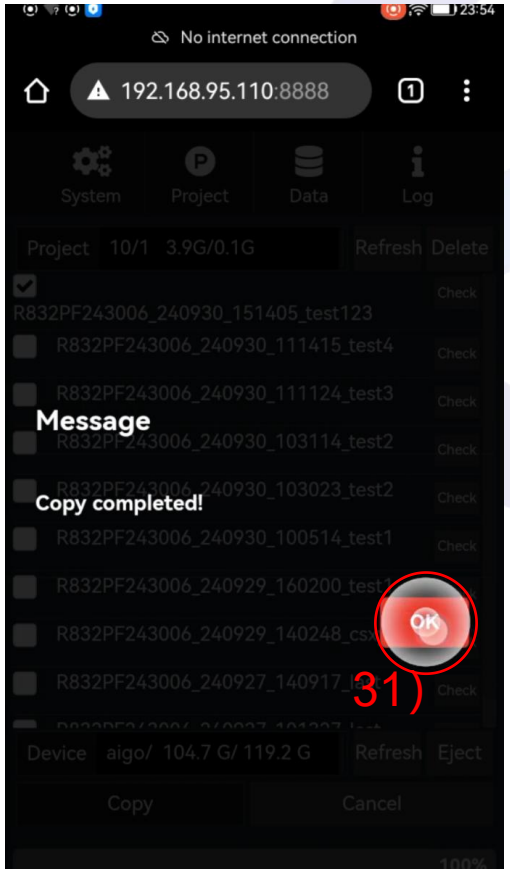
27) Then, please insert an USB Key on the Device now, Choose【Refresh】for Device;

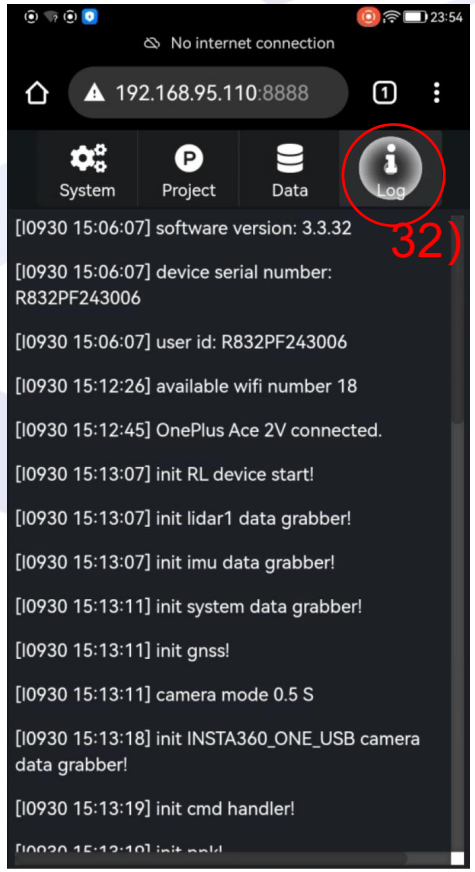
6.1 Capture Use Guide











28) 104.7G means【how much the rest space is】;119.2G means【how much the total space is】;

29) Choose【Copy】;

30) Until the【Progress Bar】 finishes loading;

31) When the Copy is done, choose【OK】for the next;

32) Get in【Log】, it is available to check the problems, operation detail, incorrect data, and other informations of all project data.

CARVING THE REAL WORLD ACCURATELY