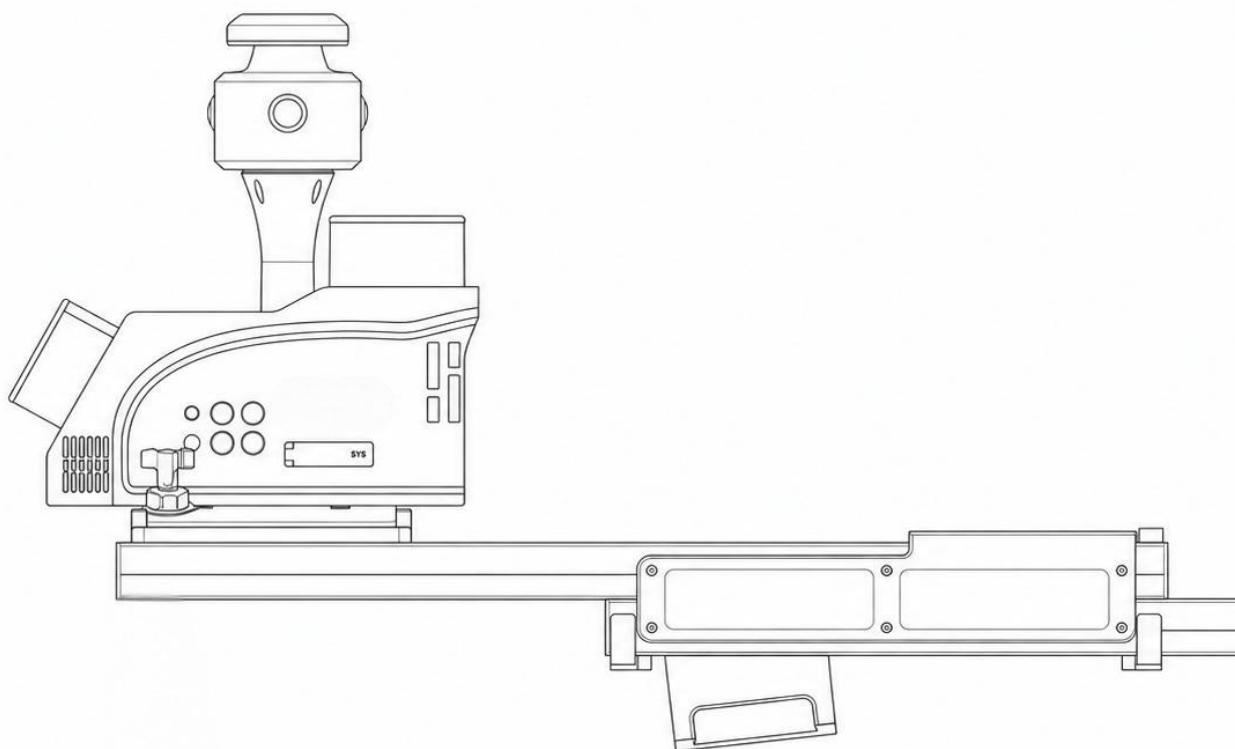


LiMobile M2 Lite

Mobile Laser Scanning System

Quick Start Manual



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Disclamier

Before using this product, please carefully read and follow the quick start manual, user manual, and other relevant product manuals. Using this product shall be deemed as having read and accepted all the terms related to this product.

Safety Tips

Before using the device, please carefully read "Equipment Usage Precautions" and the precautions in the user guide, and strictly adhere to them to avoid potential issues such as device damage or data loss.

Product overview

LiMobile M2 Lite is a lightweight, high-value mobile laser scanning system independently developed by GreenValley International. Weighing only 6kg, the system is designed for rapid deployment and flexible field operations. It integrates a 300 m long-range mapping LiDAR, a horizontally mounted SLAM LiDAR, and a in-house developed 30 MP high-definition panoramic camera, with optional Distance Measurement Instrument (DMI) support available. Through advanced multi-sensor fusion technology, the system maintains high-precision mapping performance even in GNSS-denied environments. Combined with the LiDAR360MLS processing platform, LiMobile M2 Lite delivers a complete end-to-end workflow for professional geospatial data acquisition and production. The system is ideally suited for applications including urban asset inventory, roadway infrastructure management, intelligent transportation, and urban forestry surveys.

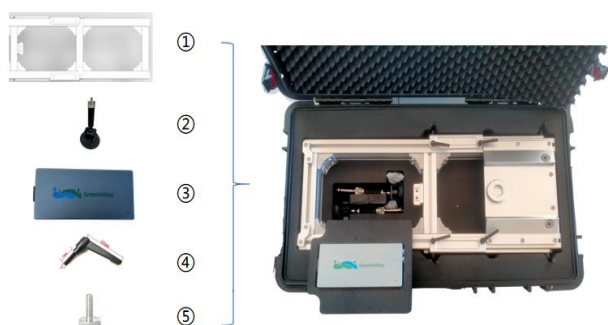
Device List

1 Sensor Unit Case



No.	Items	Quantity
1	Tablet	1
2	Tablet Charger	1
3	Type-C to Ethernet Adapter	1
4	RJ45 Ethernet Cable	1
5	LEMO Ethernet Cable	1
6	External Power Cable	1
7	LiDAR Protector Cover	2
8	CFE Card Reader	1
9	Cleaning Set	1
10	Hook and Loop Fastener	1
11	CFE Card Set (2 Disks)	1
12	Sensor Unit	1
13	Sensor Unit Rain Cover	1
14	Dust Removal Tool Kit	1
15	Three-prong Power Cable	1
16	Tool Kit	1
17	High-Vis Reflective Vest	1
18	International Plug Adapter	1

2 Roof Rack Case



No.	Items	Quantity
1	Roof Rack	1
2	Support Structure Component	2
3	Power Adapter	1
4	L-shaped spare bolt	4
5	304 Stainless Steel Knurled Thumb Screw / Manual Adjustment Bolt	4

3 Battery Accessory Case (Optional)



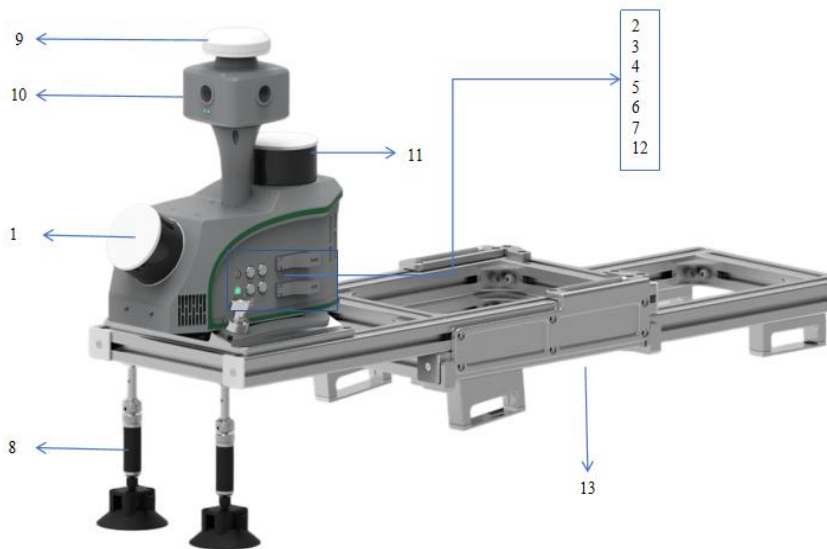
No.	Items	Quantity
1	Wi-Fi Antenna	2
2	Battery Box	1
3	Tool Kit	1
4	Battery Charger	3

4 DMI Case (Optional)



No.	Items	Quantity
1	Socket Gripper	6
2	Vernier Caliper	1
3	Magnetic Fixing Component	1
4	DMI Main Component	1
5	Suction Cup	2
6	Adjustable Wrench	1
7	DMI Storage Bag	1
8	DMI Protection Rope	1
9	Socket Fixing Screw	12
10	Suction Cup Fixing Screw	4

Device Description



1. LiDAR
2. EXT: Extended Debugging Port
3. ODO: DMI Sensor Port
4. GNSS: Backup Antenna Port
5. Device Power Indicator
6. LAN: Ethernet Port
7. POW: Power Cable Port
8. Support Structure Component
9. Antenna
10. Panoramic Camera
11. SLAM LiDAR
12. System Disk Interface
13. Roof Rack

Device Installation

1 Sensor Unit Installation

Step 1: Roof Rack and Luggage Rack Crossbar Installation

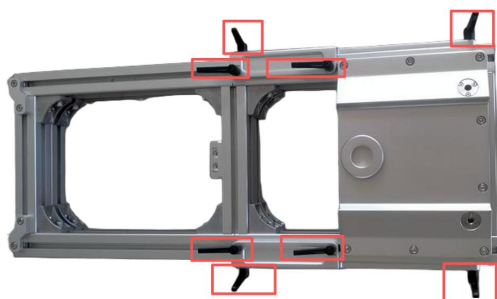
(1) Manually tighten the fixing screws to secure the luggage rack crossbar to the roof rack.



(2) Place both on the roof and use a hex key to tighten the four fixing clamps on the luggage rack crossbar.



(3) Loosen the eight L-bolts by turning them counterclockwise, then pull out the slide-out bracket. Once the bracket is fully extended, tighten the bolts clockwise to secure it in place.



★ Notes:

1. The luggage rack crossbar is not included in the delivery and must be prepared by the user.
2. Position the roof rack as close to the center of the roof rack as possible.
3. Install the device toward the rear of the vehicle to minimize obstruction.
4. The distance between the limit slots of the roof rack can be adjusted according to the user's vehicle model.
5. When disassembling the device, you do not need to remove the luggage rack crossbar, just unscrew the roof rack bracket screws.

Step 2: Support Structure Component Installation

- (1) Align the support structure with the holes under the roof rack and tighten the top fixing knob.
- (2) Rotate the black knob at the bottom to lower the suction cup of the support structure until it touches the vehicle body.
- (3) Rotate the light gray knob in the middle to the top of the black knob to secure it.



(4) As shown in the diagram, turn the switch on the suction cup to the locked position.



Step 3: Sensor Unit Installation

(1) Push the main body of the device in the direction of the arrow until it reaches the stop limit of the quick-release bracket, as shown in the figure below.

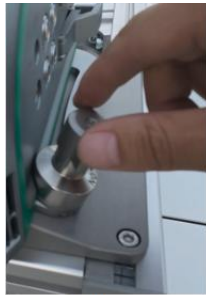


(2) Push the sensor unit in the direction of the arrow until it reaches the limit of the roof rack. Press the buttons on both sides and turn the knob clockwise. Once you feel resistance, back it off a half-turn

(counterclockwise), then continue turning clockwise until you hear a "click," which indicates it is securely locked.

★ Notes:

This step is mandatory. If the half-turn back-off is unclear, please refer to the operation video for a detailed walkthrough of this step.



Initial state



Press all the way down



Rotate the knob clockwise



Turn a half-turn
counterclockwise



Rotate clockwise all the way
Turn clockwise until it stops

★ Notes:

- 1.Shake the luggage rack crossbar, roof rack, and sensor unit firmly to ensure stability.
- 2.The device is calibrated before leaving the factory. Minor scratches may occur during installation and use, which is normal and will not affect performance.

Step 4: Cable Connection

(1) Plug the power cable and network cable into their corresponding ports on the device. Match each cable to its port according to the labels on the cables.



(2) Power on the device after connecting the cables, and check the status of the LED indicators.



★ Notes:

- 1.All LED indicators turning green indicates a normal status. Specifically, the adapter LED will first light up solid green and then change to slow flashing green. The main device unit will maintain a solid green light after powering on. For the panoramic camera, a green light indicates synchronization, while a red light indicates out-of-sync status or a connection error.
- 2.CAUTION: Pay close attention to the orientation of the power and network cables. Since the connectors on the device end and the adapter end are different, the correct insertion direction has been clearly labeled on the cables.

2 Battery Box Installation (Optional)

Step 1: Battery Installation

Insert the batteries into the battery box in the direction shown in the figure.



★ Notes:

1. Ensure the battery is installed in the correct direction as shown in the diagram. Reverse insertion is prohibited.
2. Press down on the battery to check if it is securely installed.
3. To remove the battery, press the top buckle inward and pull it out simultaneously.

Step 2: Wi-Fi Antenna Installation

Hand-tighten the two Wi-Fi antennas on the right side of the battery box and bend them inward to avoid breakage.



Step 3: Cable Connection

(1) Power Cable Connection.



(2) Ethernet Cable Connection.



★ Note: Ensure the correct orientation of cable connectors to avoid damage caused by incorrect insertion.

3 DMI Installation (Optional)

Step 1: Preparation

Use tools to remove the screw caps on the rear right wheel hub of the data collection vehicle.



Step 2: Socket Installation

(1) Push the end of the internal claw of the socket to align with the end of the outer wall of the socket.



(2) Tighten the internal claw of the socket around the hub screw, use a tool to tighten the front screw of the socket until the entire socket assembly fits snugly against the hub screw. Repeat the above steps to complete the installation of all sockets.



★ Note: When the resistance of the screw increases, users can reverse the screw half a turn before continuing to tighten. During the tightening process, keep your hands steady to ensure that the outer wall of the socket and the hub are always in snug contact.

(3) Check if all sockets are installed flush. Use a vernier caliper to measure them. The depth difference between any sockets should not exceed 0.1 mm. If any socket is not flush, use an adjustable wrench to adjust it until it meets the requirement.



★ Note: The vernier caliper must be zeroed before use.

Step 3: Main Component of the DMI Installation

Align the holes of the chuck with the screw holes at the top of the socket. Once aligned, use the socket fixing screws to secure them together.

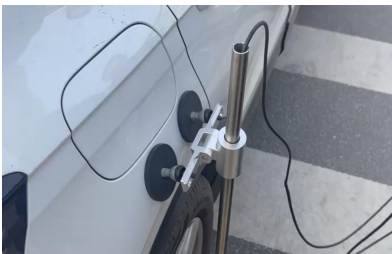


Step 4: Magnetic Fixing Component Installation

(1) Pass the socket of the magnetic fixing component through the DMI cable and conduit in sequence.



(2) As shown in the diagram, move the magnetic fixing component to a suitable position and attach it to the vehicle body.



★ Note:

1. To ensure a more secure installation, please clean dust from the vehicle body surface before installation.
2. During installation, ensure the DMI is perpendicular to the ground to prevent damage caused by uneven force.

Step 5: Safety Rope Securing

Fix both ends of the safety rope to the DMI and the vehicle respectively to prevent the sensor from accidentally falling off and causing danger during vehicle movement.



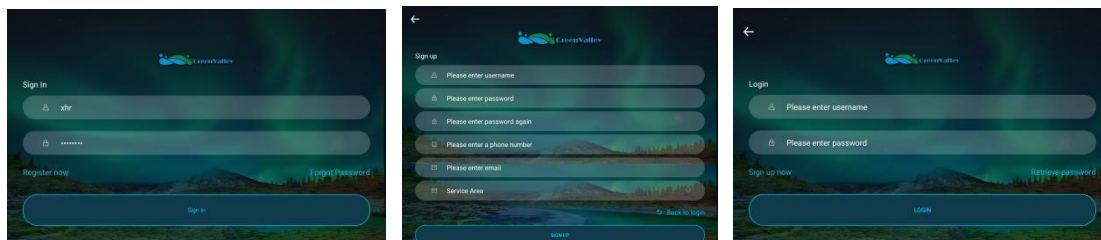
Step 6: Cable Connection

Insert the DMI cable into the ODO port on the side of the sensor unit.



User Sign Up and Login

- (1) Connect the tablet to an available internet network. After opening the APP, the user clicks the Register now button on the login page, and the APP redirects to the sign up page.
- (2) After filling in the required information, click the SIGN UP button, and the APP automatically returns to the login page.
- (3) The user enters the username and password, clicks the LOGIN button, and completes the login process.



Base Station Setup

Before data collection, users need to plan the location of the base station reasonably and setup it. If you are using our company's LiBase equipment, you can find specific operations detailed in the "LiBase User Manual".

Note: The base station establishment time must completely cover the data collection time, with more than 15 minutes before and after.

Device Power-On

Method 1: Powered by an external power station and adapter (e.g., Jackery). Simply press the AC button to power on.



Option 2: Powered by battery box, Turn the PWR rotary switch on the battery box to "BAT-ON." The green LED on the main unit will light up to confirm it is powered on.



★ Note: The device also supports external power supply mode. If using external power, it is recommended to use an outdoor power source (with a power rating of 1000W or higher).

Device Connection

1 Wi-Fi Connection

Search for the Wi-Fi network named LiMobileM2_XXXX on the tablet.
Enter the default Wi-Fi password: greenvallley.

★ Note: "XXXX" refers to the last four digits of the device's serial number (SN).

2 Wired Connection

Use an adapter and a standard RJ45 Ethernet cable to connect the tablet to the LAN port on the battery box.



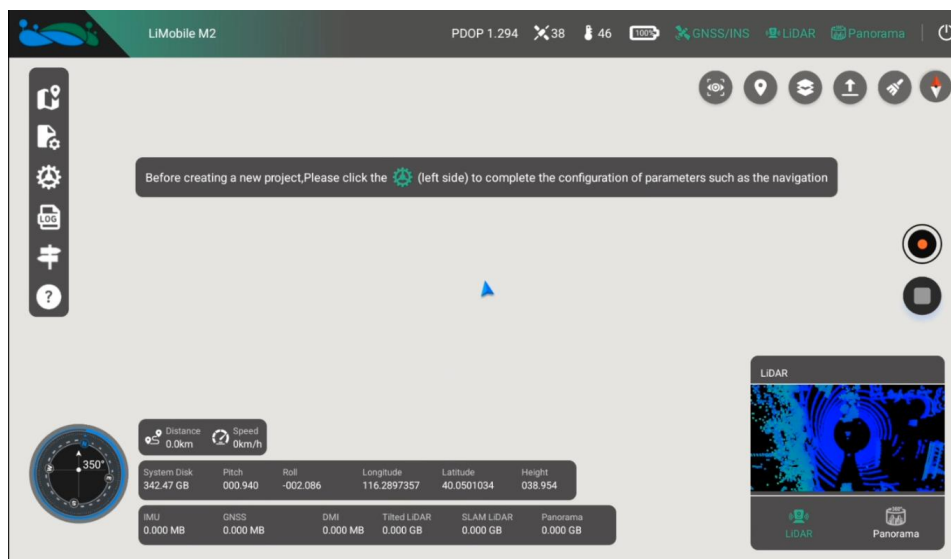
or



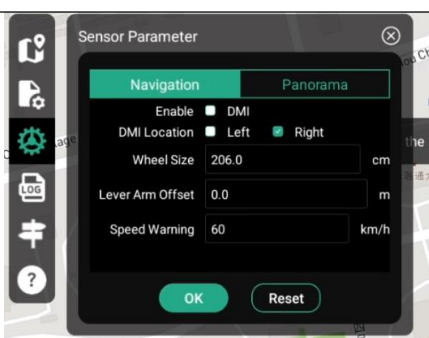
Rapid Data Collection

1 Device Initialization

No user action is required. Data collection can begin once the status indicators for all sensors in the upper right corner turn green.



2 Sensor Parameter Settings

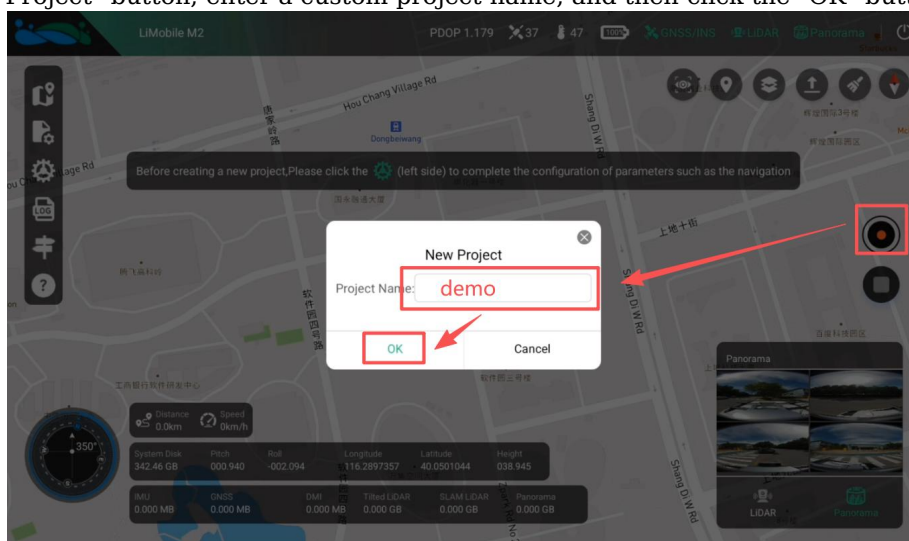
	Navigation DMI Enable Settings: The device will record data only after it is enabled. DMI Location: For determining the DMI's mounting position relative to the vehicle body. Wheel Size: Used to calculate driving distance. Lever Arm Offset: For processing wheel speed sensor data.
	Panorama Panorama Enable Settings: the device will record data only after it is enabled. Trigger Mode: supports By Time trigger modes. Frame Rate: default parameter 200-30000 ms.

★ Notes:

1. After settings are complete, click the "OK" button to make the parameters effective.
2. The "Reset" button will restore all sensor parameters to factory defaults.

3 New Project

Click the "New Project" button, enter a custom project name, and then click the "OK" button.

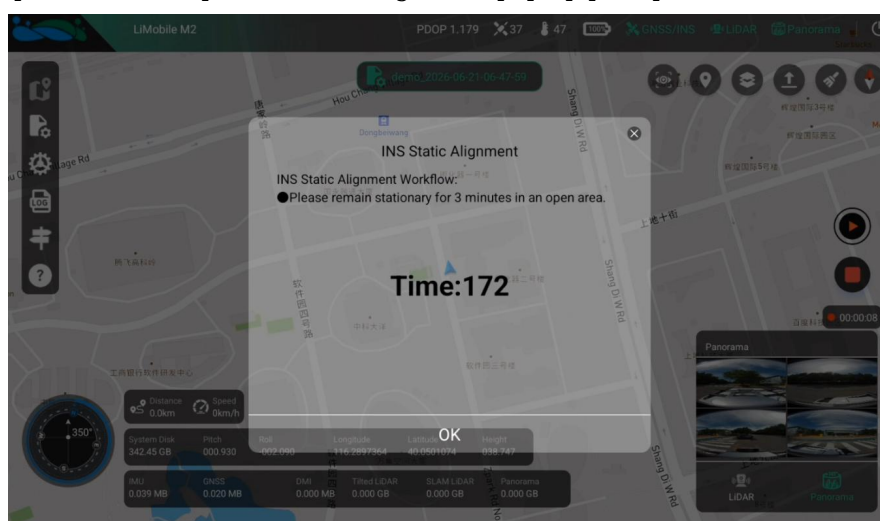


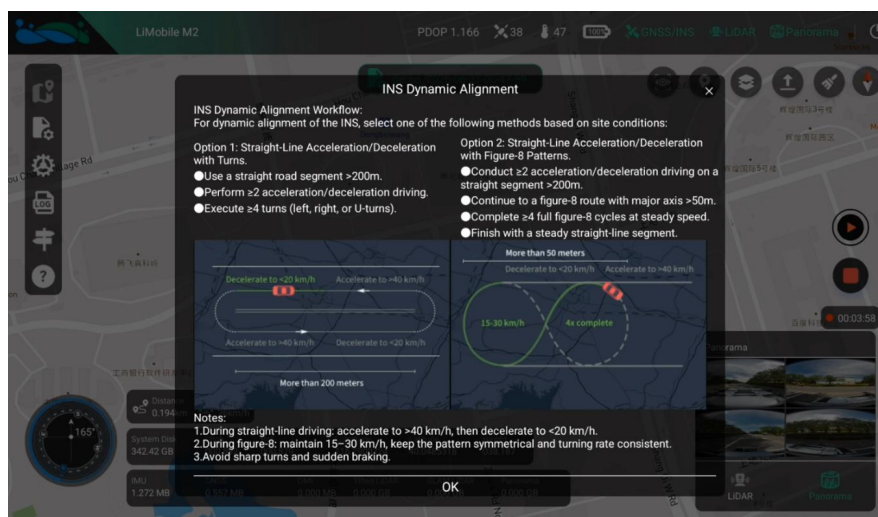
★ Notes:

- 1.The name of the newly created project should not contain special characters.
- 2.The final project name is: User-defined name_UTC time.

4 INS Alignment

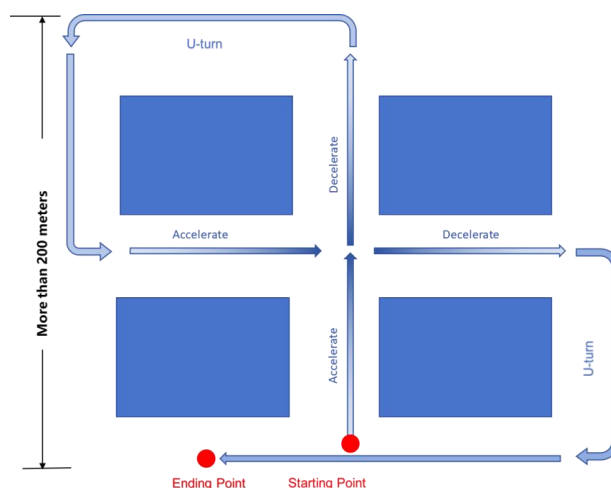
The INS alignment operation is divided into two steps: static alignment and dynamic alignment. Users need to complete the operations in sequence according to the pop-up prompts.





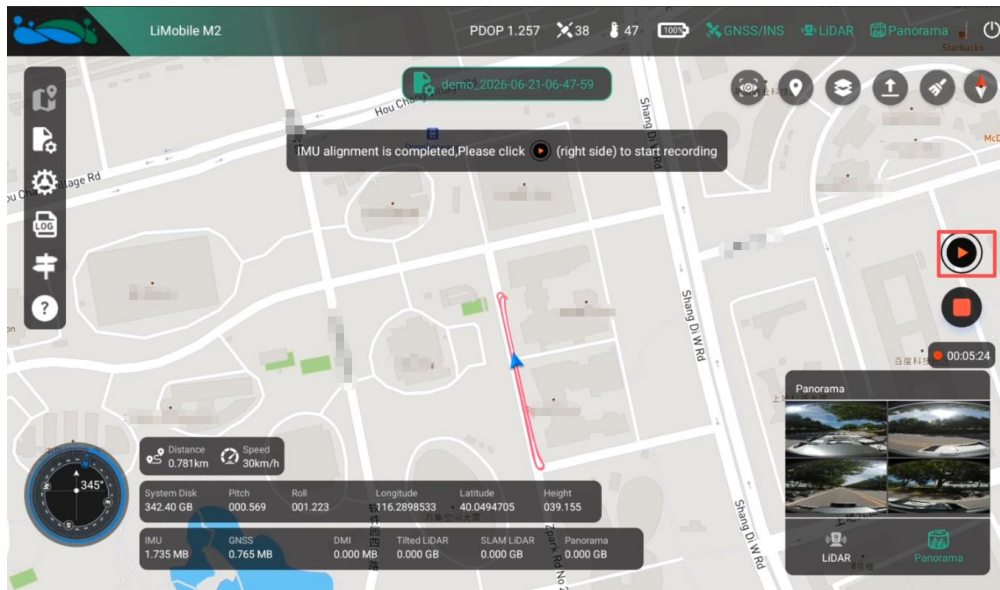
★ Notes:

- 1.If the INS alignment operation is not carried out, there will be a high risk that some data cannot be processed.
- 2.If users are under tight schedules and need to shorten the waiting time for the static alignment step, the manual provides other alignment criteria, that is, when the PDOP value is below 2 and the number of satellites is above 20, and this state remains stable for 30 seconds, dynamic alignment can be carried out.
- 3.If the user's acquisition environment permits, it is recommended to conduct the dynamic alignment operation as shown in the following figure.

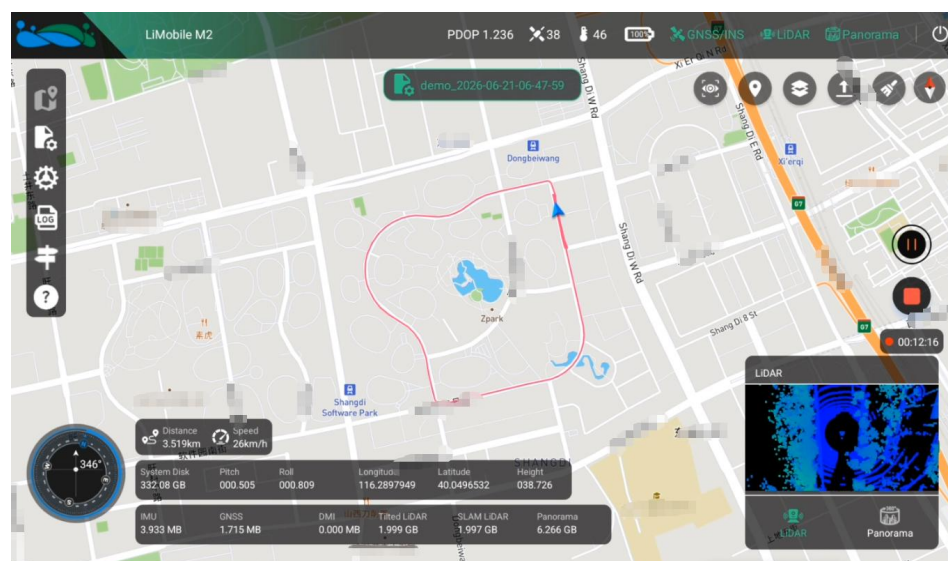
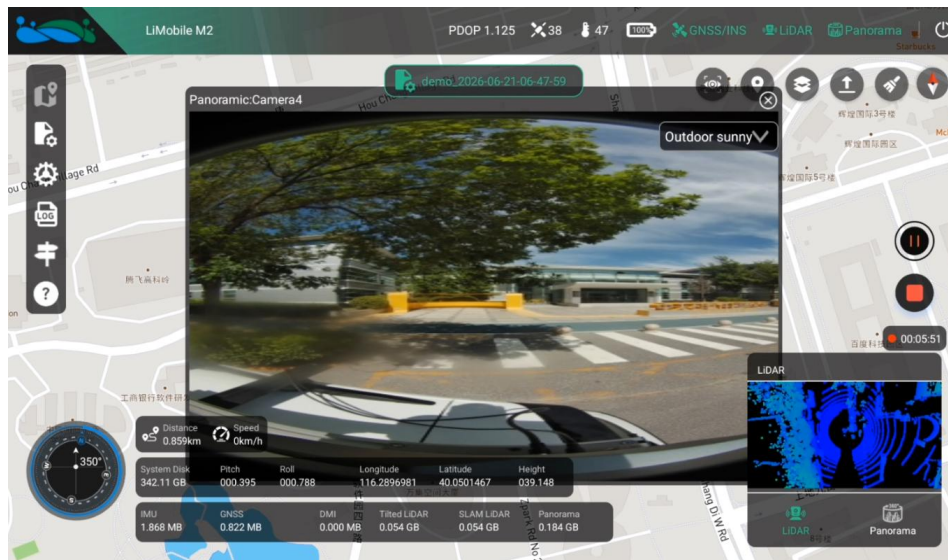


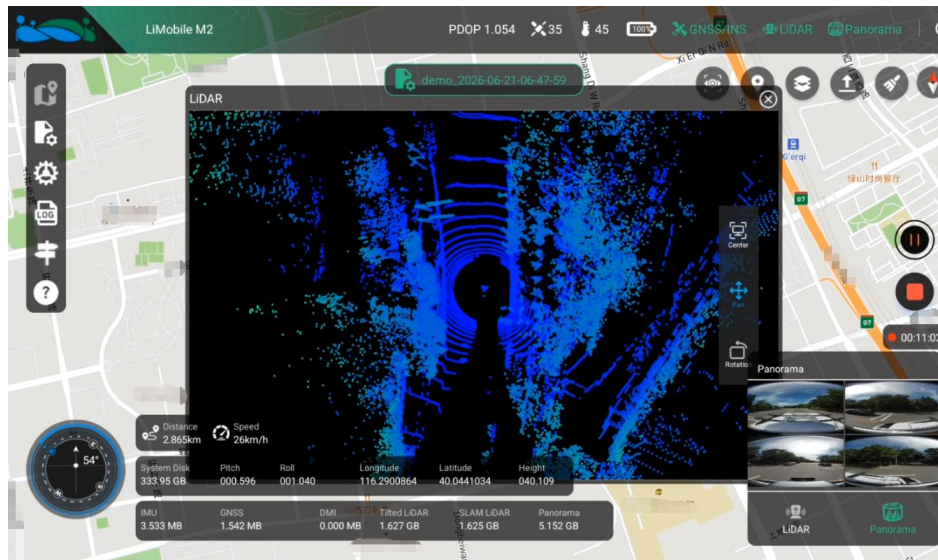
5 Start Data Recording

Click the "Start Recording" button.



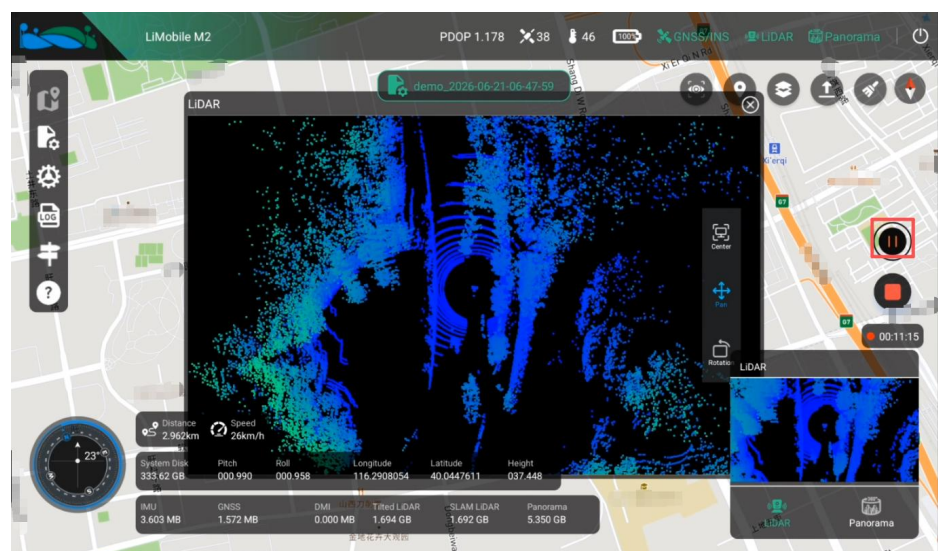
Users can view the driving route of the equipment in real time on the map, and can also view the collected single-frame point cloud data and image data in real time.





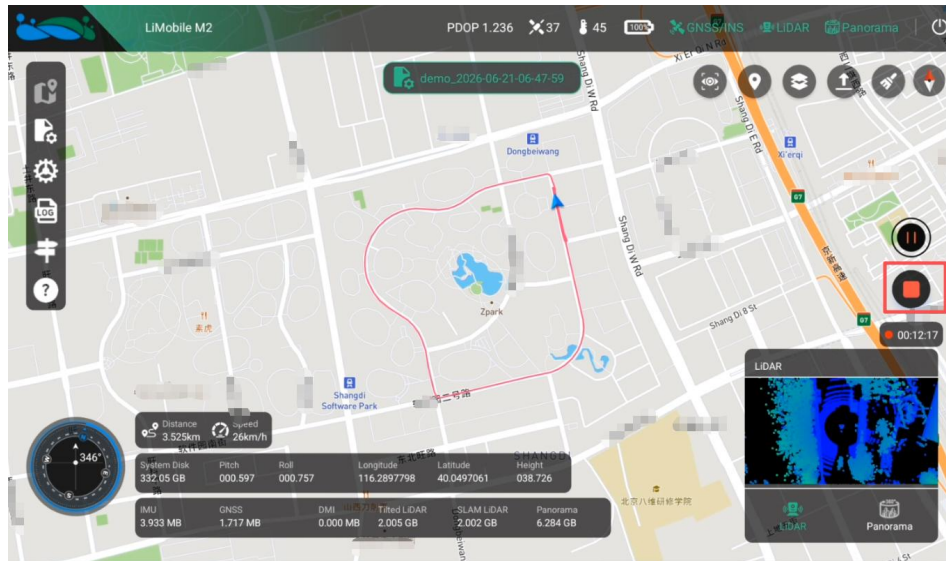
★ Notes:

1. When users encounter situations such as the need to transfer the work area or traffic jams during data collection, they can click the "Pause Recording" button to pause data recording.
2. After the pause of data recording ends, users can click the "Start Recording" button again to obtain data.



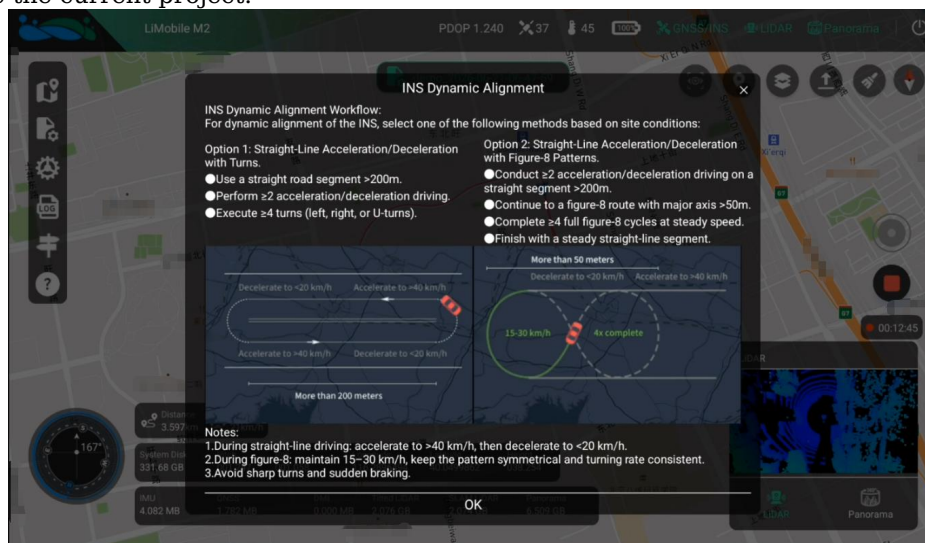
6 Stop Data Recording

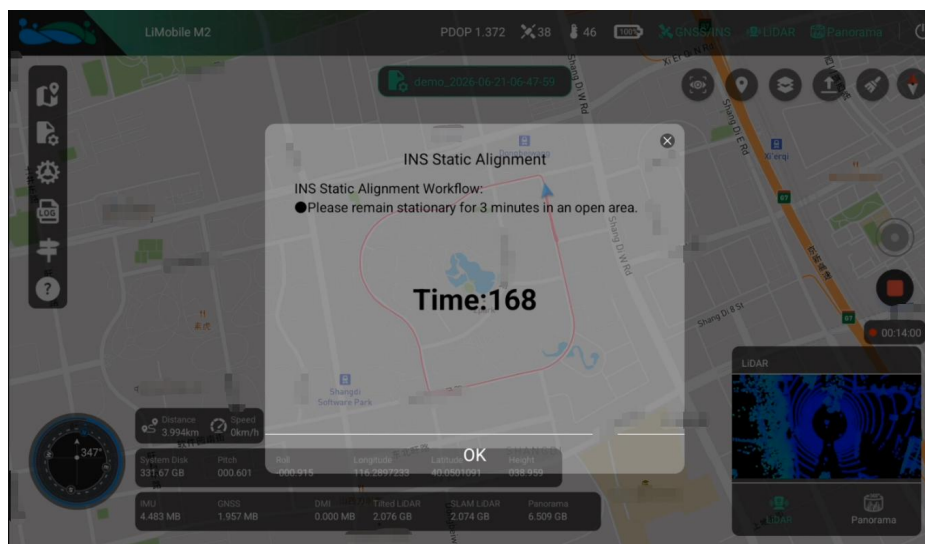
After the collection is completed, click the "Stop Recording" button.



7 INS Alignment and Close Project

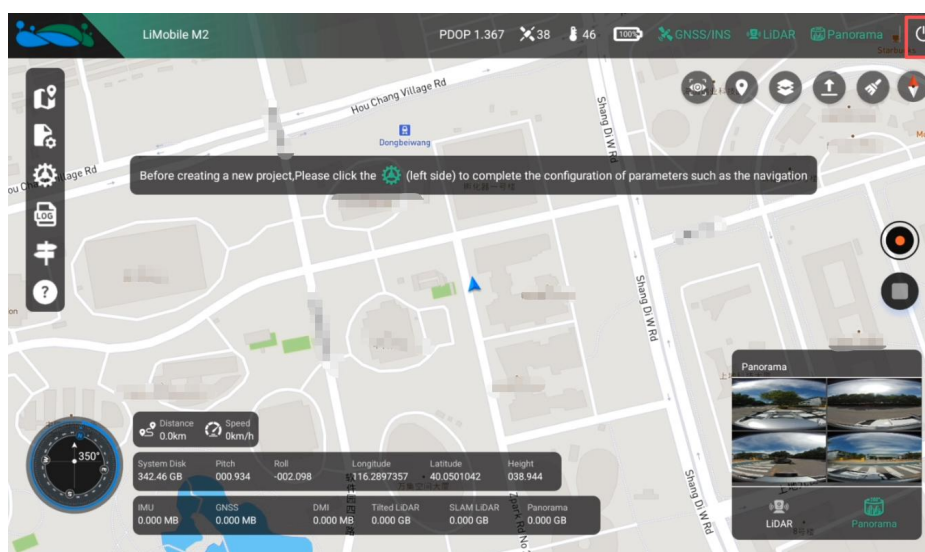
The INS alignment operation is divided into two steps: dynamic alignment and static alignment. Users need to complete the operations in sequence according to the pop-up prompts. After completion, click the "OK" button to close the current project.





Device Shutdown

After completing all data collection tasks, click the power button in the upper right corner to shut down the device.



★ Notes:

1. Please wait patiently for 30 seconds (the time required for the equipment system to be completely shut down). Do not perform any operations until the interface shows that the equipment connection is disconnected, and then turn off the equipment power.
2. Please cut off the power in advance before plugging or unplugging the disk.

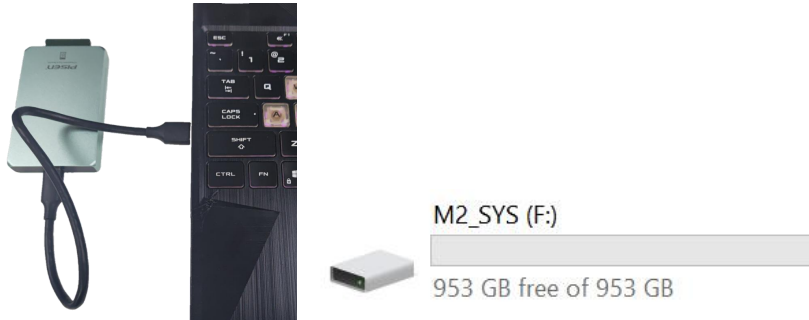
Data Copy and Quality Inspection

1 Hardware Preparation

Before copying data and performing quality checks, users must remove the hard drive and connect the hardware as follows. The computer will recognize the **M2_SYS** disk.

(1) Insert the disk into the card reader.

(2) Connect the data cable at the **DATA** port of the card reader to the computer, ensuring a stable connection (preferably to a blue USB 3.0 port).

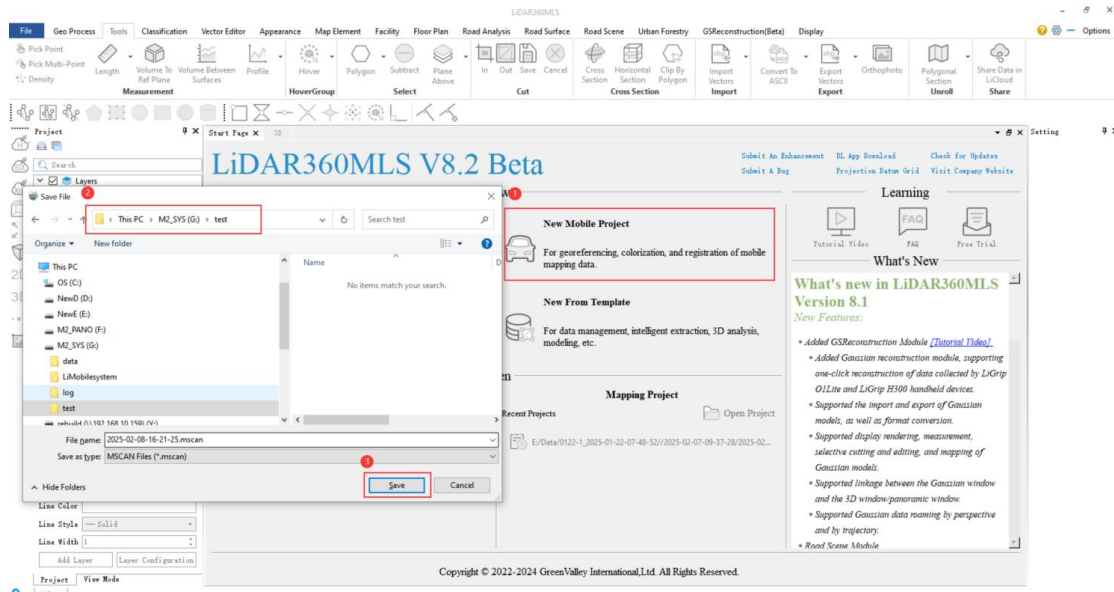


★ Notes:

1. Pay attention to the insertion direction when inserting the disks.
2. Do not rename the project folder before completing data copying and merging, as this may cause errors in data merging.
3. After data copying, ensure the disks are safely ejected from the computer before removal to avoid damage to the disks or data.
4. To ensure stable data transfer, the card reader must be connected to a power source for stable power supply.
5. Avoid directly processing raw data on the storage disks, as this may risk disk damage.
6. It is recommended to create two copies of the data: one for processing and one for archiving.
7. The charger plug is not included in the delivery and must be prepared by the user.
8. After each data copy, check the remaining disk space and clear data as needed. Regularly format the disks by following the steps in the "LiMobile M2 Lite User Manual".

2 New Mobile Project

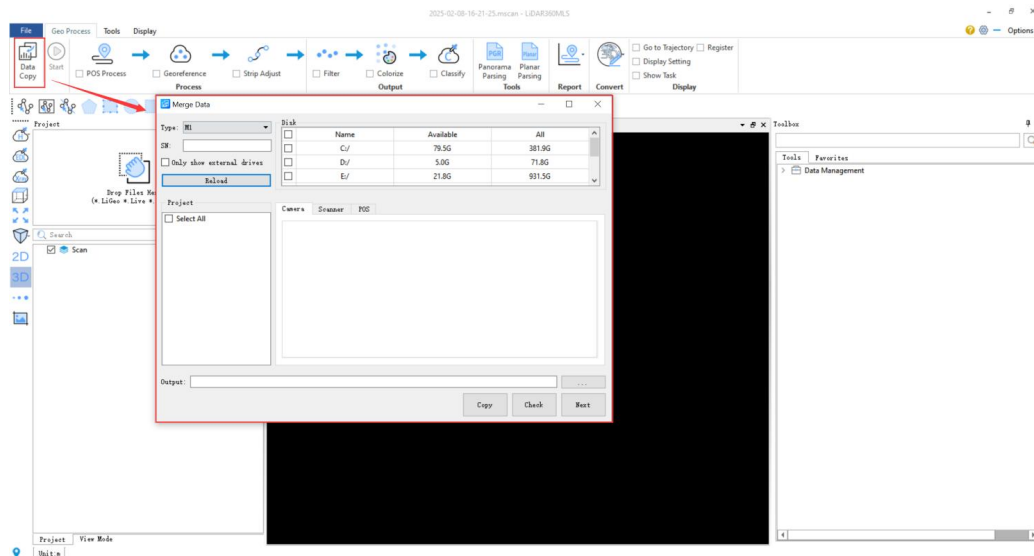
The Data Copy tool is integrated into the LiDAR360 MLS software. Before using this function, it is necessary to create a new mobile project. Click the "New Mobile Project" button on the startup page. Users can select a custom storage path and then click "Save" button.



3 Data Copy and Quality Inspection

Step 1

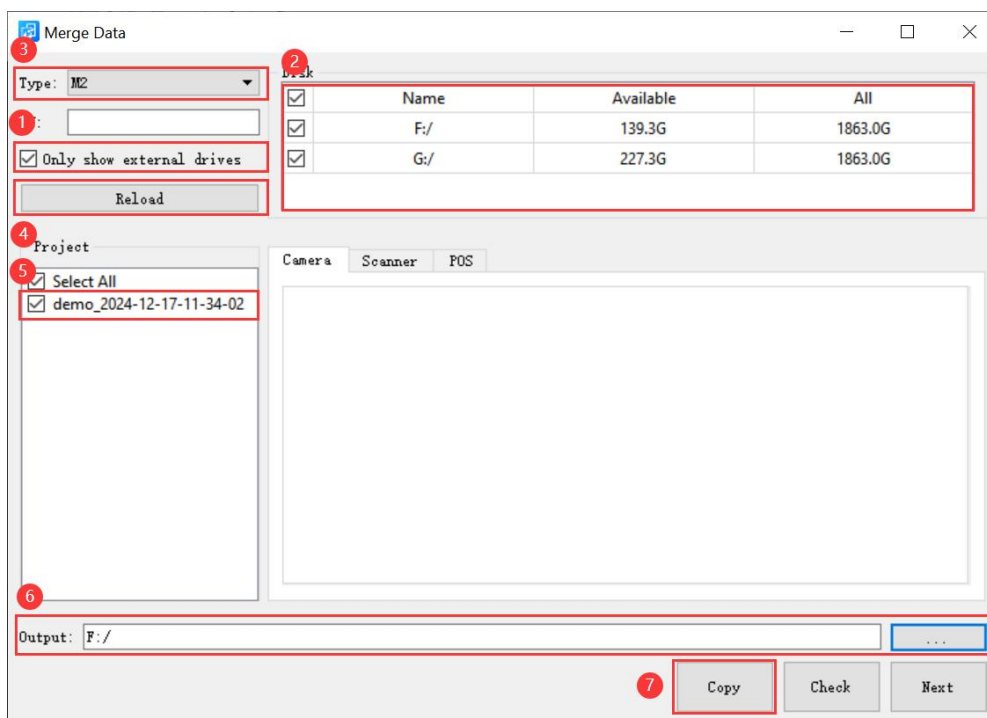
Click the "Data Copy" button in the upper left corner of the software interface, and the "Merge Data" dialog box will pop up automatically.



Step 2

- (1) Click the option of "Only show external drives".
- (2) Check the drive letter corresponding to the device disk.
- (3) Select the device type.
- (4) Click the "Reload" button.
- (5) Check the data that needs to be copied.
- (6) Select the output storage path.

(7) Click the "Copy" button.



Step 3

After the copy is completed, the software will generate an Raw Data Quality Report and save it under the corresponding project path, and the browser will also automatically pop up the report. If the data status is abnormal, please re-collect the data in time.

demo_2025-01-24-03-46-25 >

Name	Date modified	Type	Size
Base	1/24/2025 11:46 AM	File folder	
CameraRaw	1/24/2025 11:46 AM	File folder	
LaserRaw	1/24/2025 11:46 AM	File folder	
Log	1/24/2025 11:55 AM	File folder	
Para	1/24/2025 11:46 AM	File folder	
Rover	1/24/2025 11:48 AM	File folder	
2025-01-24-03-46-25.html	2/8/2025 5:00 PM	Chrome HTML Docu...	3 KB
2025-01-24-03-46-25.live	1/24/2025 11:48 AM	LIVE File	6 KB

Raw Data Quality Report



2025.02.08

1. Project Summary:

Project Name	Collect Time (s)
demo_2025-01-24-02-14-19	503.748

2. Camera Statistics:

Camera	Number of Images	Number of Trigger	Status
Planar_F1	220	220	pass
Planar_F2	220	220	pass
Planar_B1	0	0	fail
Planar_B2	0	0	fail
Panorama	319	319	pass

3. Scanner Statistics:

Scanner	Lidar File	Start Time(UTC)	Stop Time(UTC)	Status
Scanner2	G:/data/demo_2025-01-24-02-14-19/LaserRaw/Hesai_2/Hesai_2_2025-01-24-02-21-08-0.pcap	2025-01-24 02:21:08	2025-01-24 02:22:22	pass

4. IMU Statistics:

IMU File	Status
G:/data/demo_2025-01-24-02-14-19/Rover/imu_merge.log	pass

Raw Data Quality Report



2025.02.11

1. Project Summary:

Project Name	Collect Time (s)
demo_2025-01-24-03-46-25	120.089

2. Camera Statistics:

Camera	Number of Images	Number of Triggers	Deviation
Planar_F1	217	218	1
Planar_F2	217	218	1
Planar_B1	0	0	Unreadable
Planar_B2	0	0	Unreadable
Panorama	318	318	0

3. Scanner Statistics:

Scanner	LIDAR File	Start Time (UTC)	Stop Time (UTC)	Status
Scanner1	F:/test/demo/demo_2025-01-24-03-46-25/LaserRaw/Hesai_1/Hesai_1_2025-01-24-03-46-51-0.pcap	2025-01-24 03:46:51	2025-01-24 03:48:04	pass
Scanner2	F:/test/demo/demo_2025-01-24-03-46-25/LaserRaw/Hesai_2/Hesai_2_2025-01-24-03-46-51-0.pcap	2025-01-24 03:46:51	2025-01-24 03:48:04	pass

4. IMU Statistics:

IMU File	Status
F:/test/demo/demo_2025-01-24-03-46-25/Rover/imu_merge.log	pass

★ Note: The Data Copy function also supports completing data quality inspection without copying the data. The quality inspection report will be saved in the project path of the corresponding project on the M2_SYS disk.

 Merge Data

Type: M2

SN: M2YFYJA001

☒ Only show external drives

Reload

Project

☐ Select All
☒ demo_2025-01-24-03-46-2
☐ demo_2025-01-24-02-14-1
☐ 123456_2025-01-23-03-01-
☐ ttt_2025-01-23-02-47-51
☐ 123_2025-01-23-02-46-47
☐ 123_2025-01-23-02-38-39
☐ qq_2025-01-23-02-36-25
☐ 01221_2025-01-22-07-48-5
☐ 147_2025-01-22-06-56-54
☐ ccc_2025-01-22-06-53-07
☐ 222_2025-01-22-06-45-20
☐ 111_2025-01-22-06-41-20
☐ 123_2025-01-22-06-34-14

Disk

☒	Name	Available	All
☒	F:/	47.4G	953.9G
☒	G:/	674.2G	953.9G

Camera Scanner POS

Pano Planar

Name	Size	Type	Date
 2025-01-24-03-46-26_ladybugImage_GPS_20Meter-000000.pgr	795.8 MB	pgr File	1/24

Output:

Copy

Check

Next