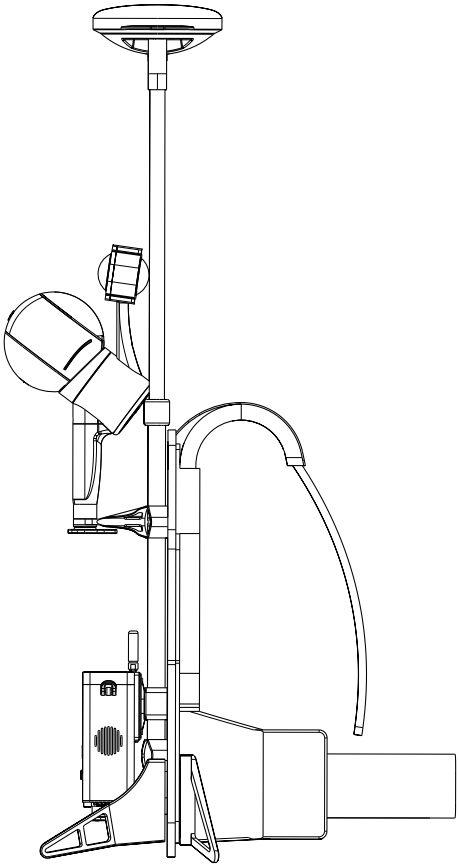
LiGrip H300

Backpack Kit

Quick Start Guide



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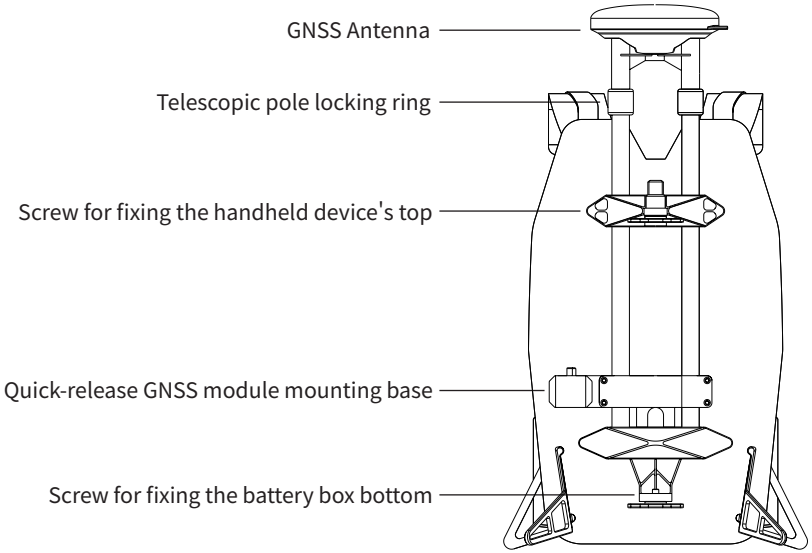
Assembly of the Backpack Kit

Components of the Backpack Kit



Assembly Steps

1. Align the battery box with the bottom screw and tighten

2. Dismantle the marking base

3. Fully extend the telescopic pole and tighten the locking ring

- Ensure the pole is fully extended; otherwise, the measurements will be inaccurate.
- Avoid loosening the locking ring completely to prevent damaging the GNSS feeder line.

5. Fix the GNSS module

Slide the quick-release connector at the bottom of the GNSS to the right side of the backpack kit's base to lock it in place. You will hear a click when it is locked. To remove, press the protruding latch and slide it to the left.

4. Align the handheld device's bottom with the top and insert, then tighten the screw

6. Insert the GNSS feeder line into the GNSS module's GNSS interface

7. Connect the GNSS RTK cables to the host box and GNSS module's RTK interface respectively

8. GNSS module connection status

9. Connect the power cable (MAIN port)

During backpack kit installation, it is best for two people to work together to ensure the safety of the equipment.

The backpack kit assembly is complete.

Backpack kit assembly result

Using the Backpack Kit

Base Station Assembly

For more information about using the base station, please refer to the base station user manual. Contact your supplier for network base station services.

PPK Mode

1. Base Station Setup

Set up the base station on a known point, with the following requirements for the base station location:

① Stable ground foundation, easy for base station setup and operation.

② Open view with surrounding obstacles' elevation angle less than 10° -15° to ensure satellite signal reception.

③ No nearby objects that strongly reflect satellite signals (e.g., large buildings).

④ At least 200m away from high-power radio transmitters (e.g., TV stations, radio stations, microwave stations) and 50m away from high-voltage power lines and microwave radio signal transmission channels.

The base station must be accurately leveled and centered; otherwise, the data quality will be unreliable.

2. Antenna Height Measurement

Antenna height = the height from the center point of the base station setup on the ground to the measurement mark (e.g., the mark shown in the red box in the following figure).

Measure the antenna height from two directions using a steel tape measure. If the error is less than 3mm, calculate the antenna height using the average value.

3. Static Recording

Start static recording 10-15 minutes before LiDAR data collection and stop recording about 10 minutes after the data collection is finished.

Note: Set up the base station and start recording data at least 10 minutes before handheld data collection. Stop recording data and turn off the base station at least 10 minutes after handheld data collection is finished. Ensure that the base station data covers the entire handheld data collection time.

4. Data Transfer

Copy the base station data files and, if necessary, convert the static format of different GNSS receiver manufacturers into the universal Rinex format (O file, P file).

RTK Mode

The GNSS module supports PPK post-processing mode and RTK real-time processing mode. To use the real-time processing mode, you need to have a CORS account to access the CORS network and receive real-time differential data. If you do not have a valid CORS account, the GNSS module's RTK function will be unavailable, and the GNSS module will only support RTK functionality in CORS mode.

If you have a valid CORS account, follow these steps to set it up:

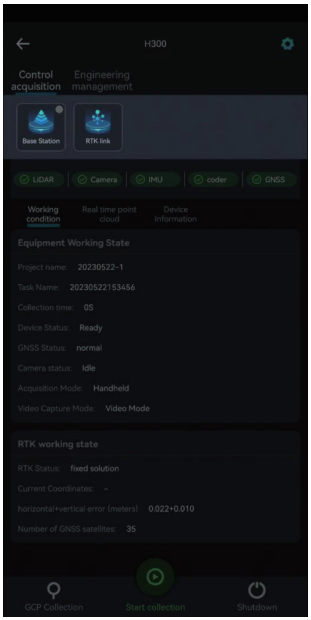
① Move to an area with good satellite reception and ensure all devices are properly connected and powered on. The battery powers on the device, and the camera requires pressing a separate power button.

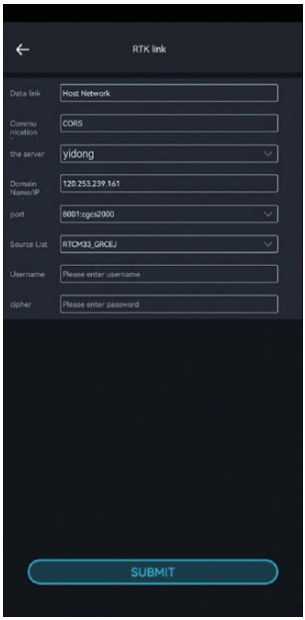
② Connect the APP to the corresponding device SN and ensure all sensors are functioning correctly (√).

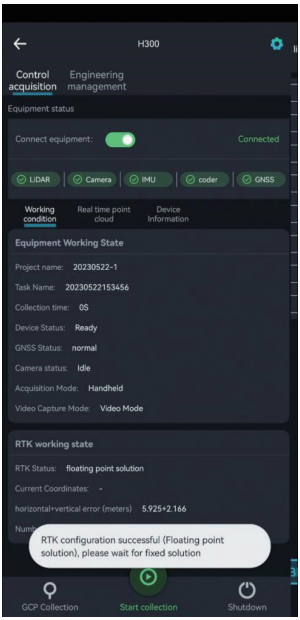
③ Click the settings button in the top right corner of the APP to enter the RTK link settings.

④ Enter your service information (domain IP, port, username, password, etc.).

⑤ Click submit to start the login process. After successful login, you will see the following prompts.







RTK Working Status Bar: Displays the real-time status information of the RTK module. The current RTK status is divided into Fixed solution, Float solution, and Single solution, as explained below.

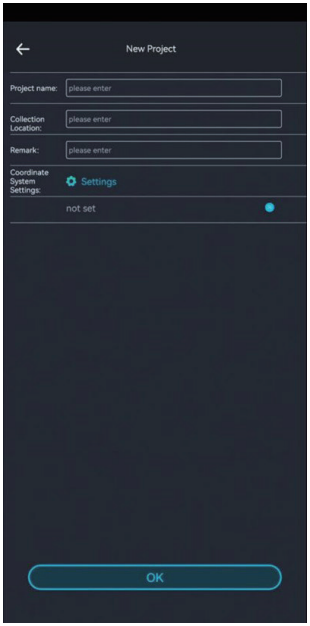
	RTK Status	Indications
①	Fixed solution	Indicates high real-time RTK module positioning accuracy; the device meets real-time RTK data collection requirements.
②	Float solution	Indicates poor satellite signal reception; nearby obstructions may be present. Wait for the device to fix or move it to an open, unobstructed area with better satellite signal reception.
③	Single solution	Indicates that the real-time RTK module cannot receive satellite signals or that the signals are weak. It is recommended to set up the real-time RTK module in an open, unobstructed area.

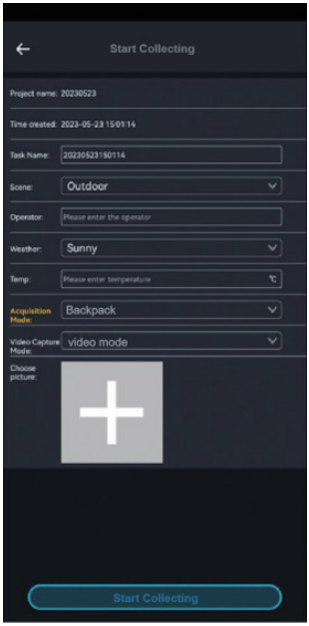
Data Collection

Create a New Project

Turn on the main power, open the camera, and launch the digital terrain APP. Connect the handheld device and click the "Start Collection" button to enter the "New Project" page.

The digital terrain APP supports creating multiple subtasks within a single project. Set the project name, collection location, notes, and coordinate system. Choose a suitable coordinate system based on the actual geographic location. Click confirm to complete the new project setup.





- Please use the GreenValley APP to connect to the host’s WiFi to control the H300 to collect backpack data; please select the Backpack data collection mode for new projects in the APP!
- The camera supports video mode and time-lapse photography mode, please choose the camera capture mode flexibly according to the size of the project area! Video recording mode recommends collection time ⩽ 30min; time-lapse photography mode recommends collection time ⩽ 60min!

Initialization

Place the backpack kit in an area with distinct features and ensure that more than 20 satellites can be detected. Keep the device stationary.

After creating the new project and submitting the basic project information, wait for the APP device status to change to "Collecting" and the voice prompt "Device is collecting" to indicate that initialization is complete.

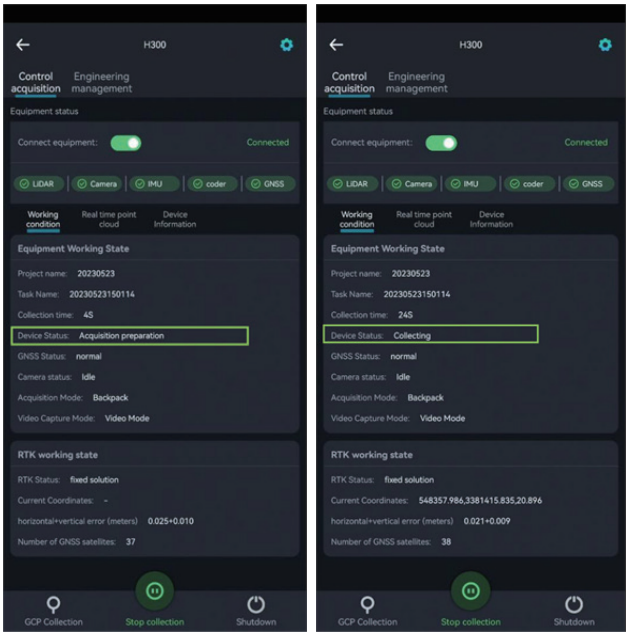
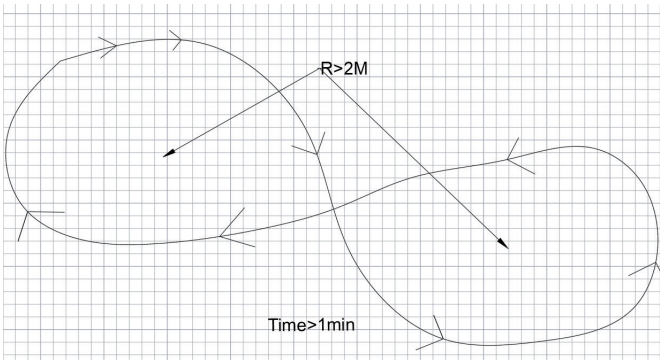


Figure of 8

When there are more than 20 satellites available, slowly pick up the backpack device and perform a figure-8 walk. This should take about 1 minute with a radius no larger than 2 meters.



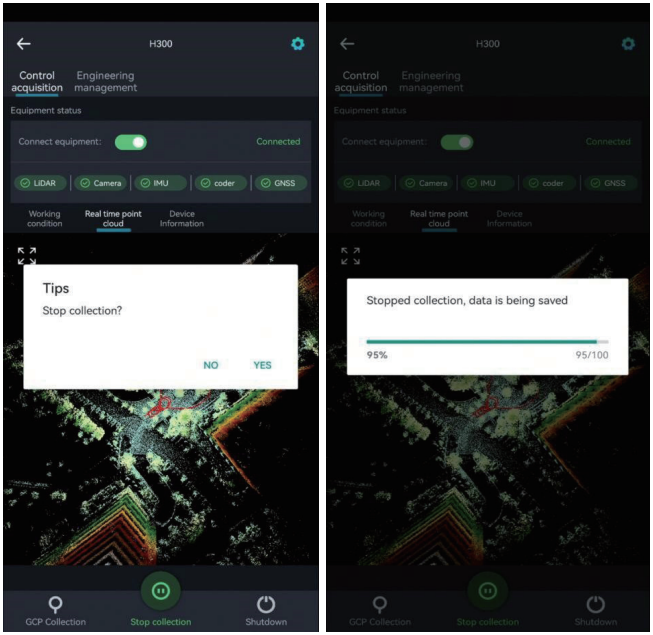
Data Collection

After completing the figure of 8, follow the planned path to collect data.

Stop Collection

Perform another figure of 8 in an open area for about 1 minute with a radius no larger than 2 meters.

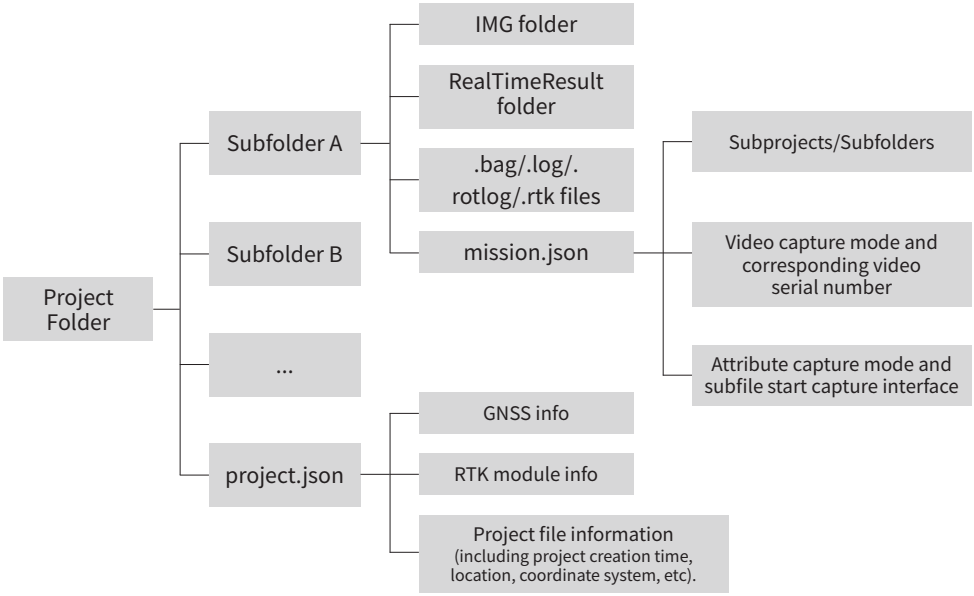
After finishing the figure of 8, click the "Stop Collection" button on the APP and follow the on-screen and voice prompts to stop data collection. When the laser stops rotating and the camera stops recording, the data collection is complete. When the save data progress bar disappears and the APP voice prompt announces "Data saved," you can proceed with collecting data for the next project.



Data Transfer

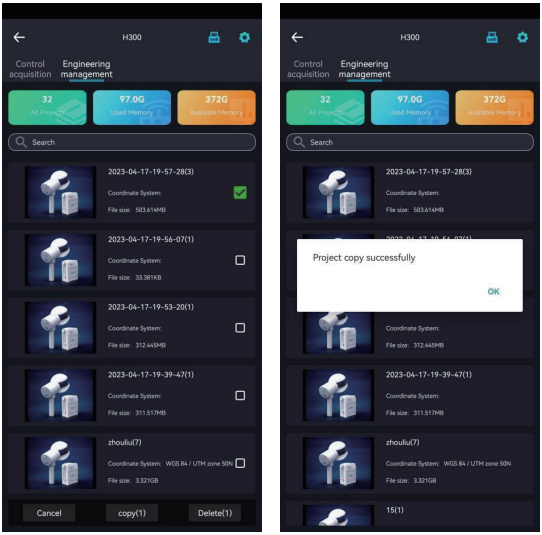
Project document details

The project folder contains multiple collected subfolders, as well as the project.json file. The subfolders include the IMG folder, RealTimeResult folder, .bag /.log/.rotlog/.rtk and other files, and mission.json files (recording project information of sub-files).



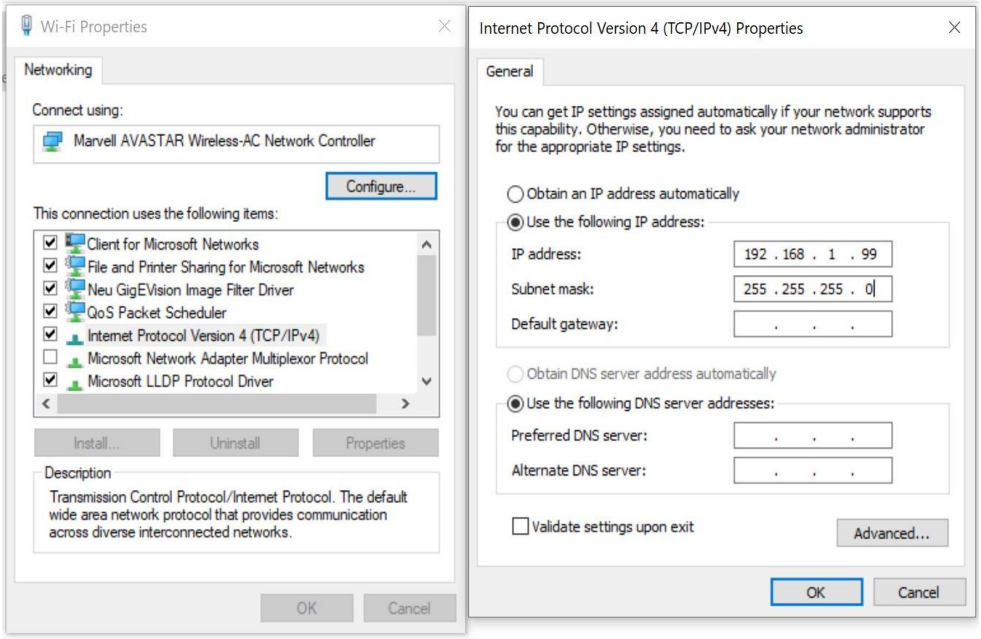
Copy based on APP

Insert the U disk into the USB port of the device, and use the APP to copy the corresponding project (the project includes bag, log, rtk and other files).



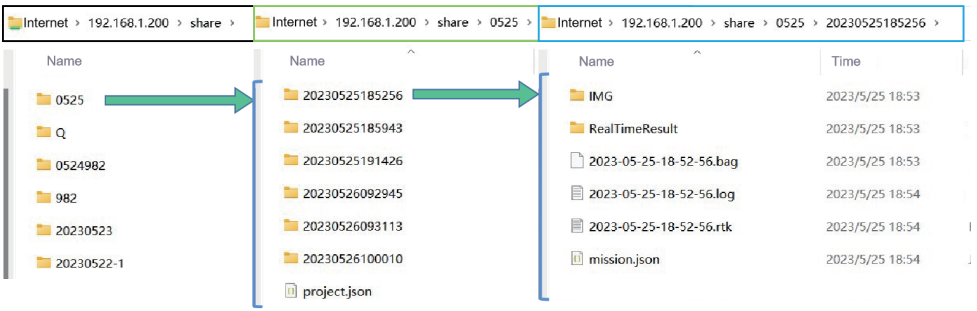
Cable based

Insert the B58 battery into the battery box to power on, connect the LEMO port of the data transmission cable to the LAN port on the front of the battery box, and connect the network port to the computer.



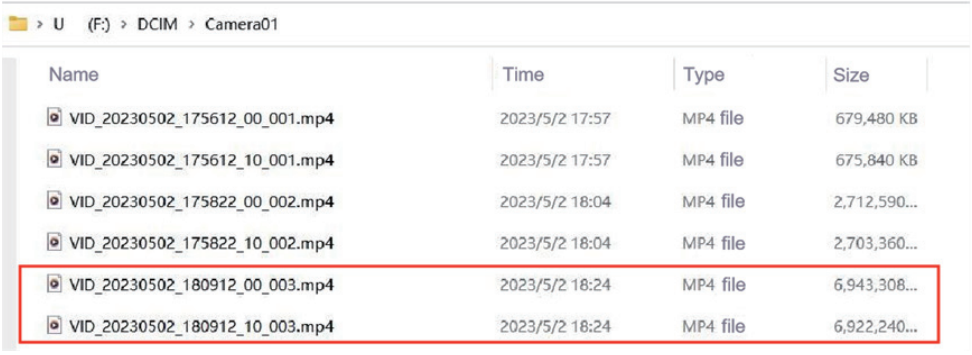
IP address: 192.168.1.99 Subnet mask: 255.255.255.0

Enter the URL "\\192.168.1.200" on the computer network to enter the internal storage space of the device, open the "share" folder, copy the corresponding project/subproject file to the computer, and complete the data export.

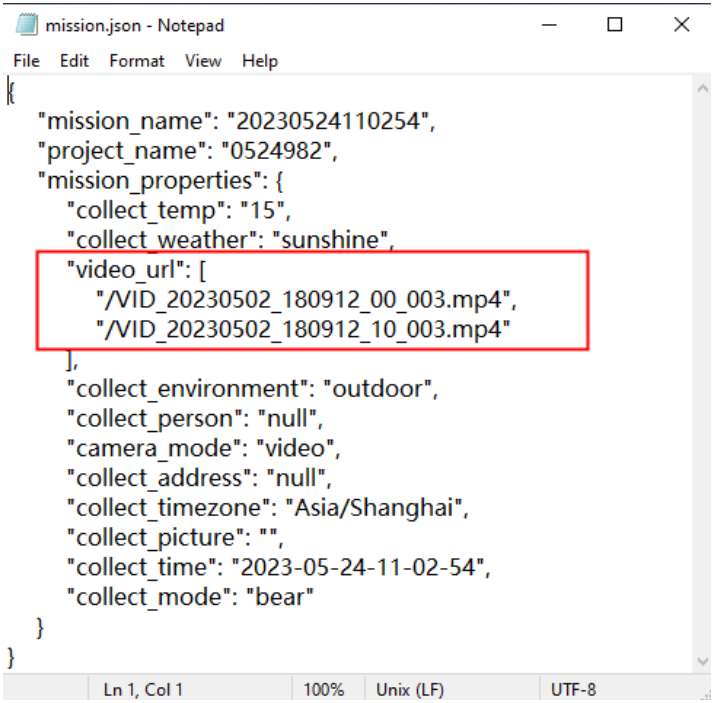


Camera file transfer

Use the USB-TypeC data cable, connect one end to the USB port of the computer, and one end to the TypcC port of the camera, and copy the corresponding video files.



Note: The mission.json file in the sub-project folder records the video file name corresponding to the project!
As shown below, just copy the two video files starting with VID.



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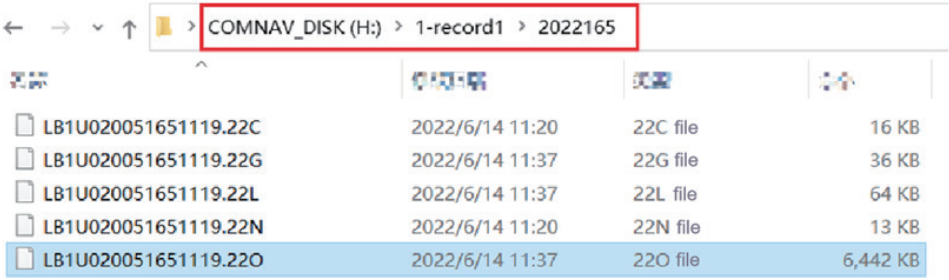
PPK base station data transmission

Download base station data (PPK mode).



LiFuser-BP software data processing

For the data calculation, please refer to **the LiGrip H300 User Manual**. You can choose to import RTK data or PPK base station according to your needs, both of which can get absolute coordinates.

If you have any questions or suggestions about the manual, please contact us through the following methods:

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