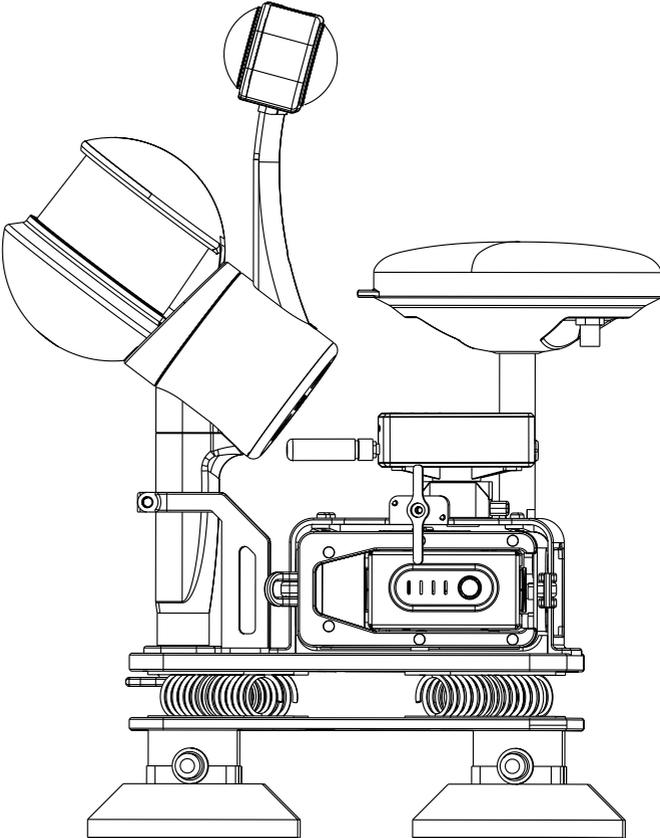


LiGrip H300

Vehicle Kit

Quick Start Guide

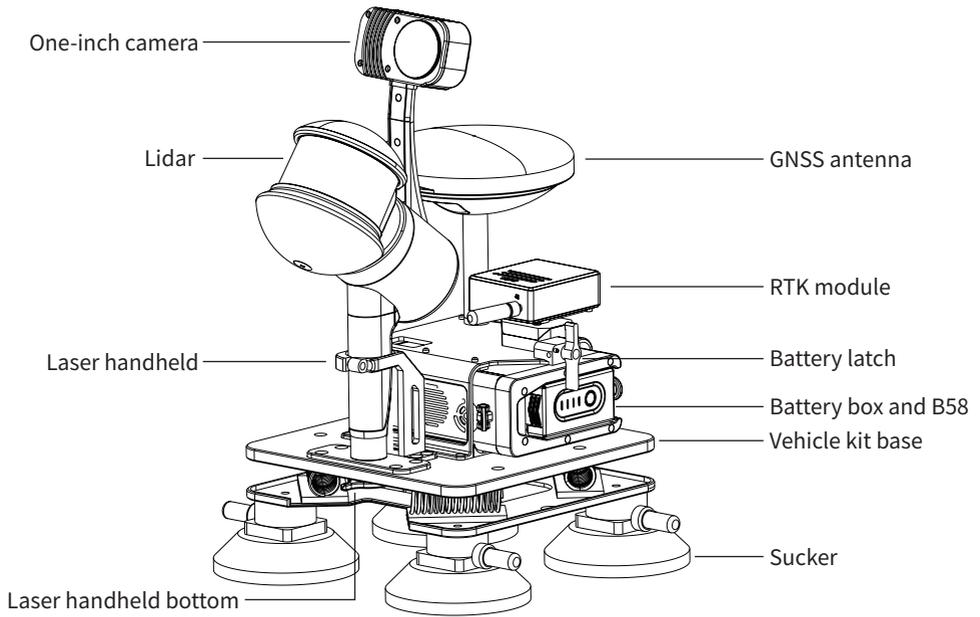


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Vehicle Kit Assembly

Vehicle Kit Composition



Vehicle Kit Assembly

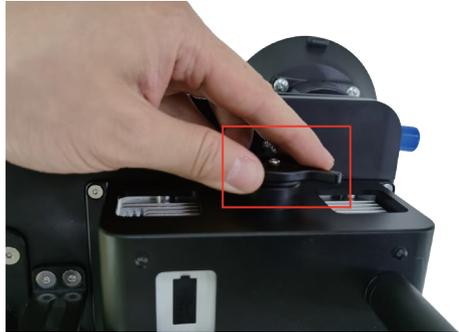


Bolts must be tightened, wiring must be connected steadily. Check all items after assembly.

1. Inserting B58 into the battery box



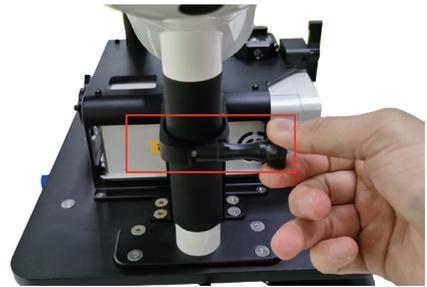
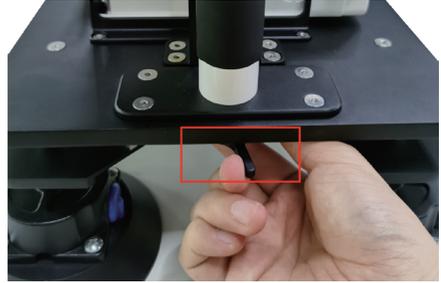
2. Installing battery box into the vehicle kit battery compartment, and securing the screw and battery latch



3. Removing GCP collection base



4. Inserting handheld main unit into the slot and securing the bottom bolt and handheld position bolt



5. Inserting RTK module into the vehicle kit slot (with the wiring port facing outwards)

Place the GNSS bottom plug on the base of the vehicle kit, to slide to the right side for locking. You will hear the clicking, indicating that it is locked successfully. If you need to remove it, you can press on the raised pin and slide to the left.



6. Module installation structure



7. GNSS feeder connection (GNSS port)



8. RTK module connection (RTK port)



Make sure that the terminals are aligned and plugged tightly (red dot aligning red dot).

9. Power cable connection (MAIN port)



10. Wiring



11. Assembly completed



Using the Vehicle 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: The base station should be set up to start the data recording at least 10 minutes earlier than the vehicle data collection. The data recording ends and the base station is off at least 10 minutes later than the end of the vehicle data collection. That is, the base station is still available even if the vehicle data collection ends.

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).

Virtual base station service (applicable in China)

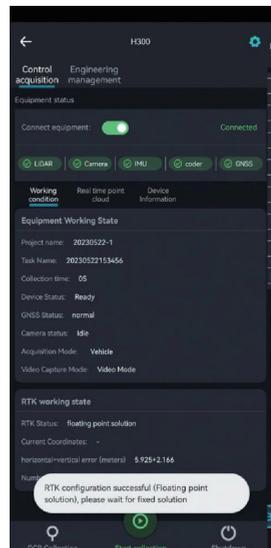
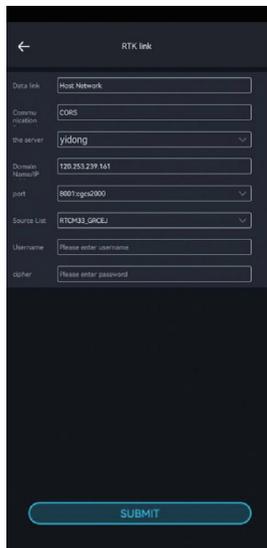
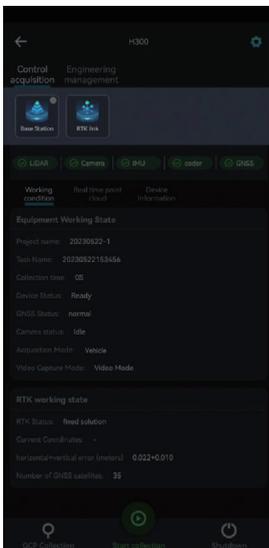
The virtual base station service is a base station service provided by GreenValley for the Chinese region. Set up the virtual base station service (APP erection) before the operation, and stop the data recording after the scanning operation, and then the virtual base station data can be obtained.

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.

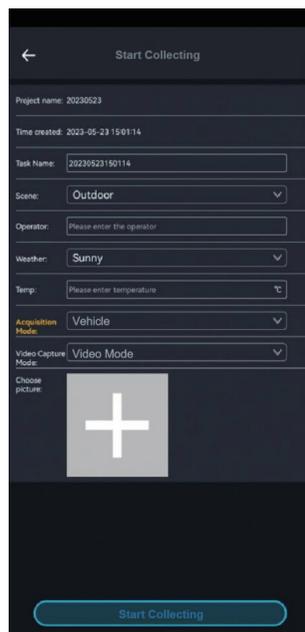
	RTK Status	Indications
①	Fixed solution	Indicates high real-time RTK module positioning accuracy; the device meets real-time RTK data collection requirements.
②	Float solution	Indicates poor satellite signal reception; nearby obstructions may be present. Wait for the device to fix or move it to an open, 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

Creating a New Project

Power up the main unit and turn on the camera. Start the GreenValley App and connect the handheld device. Tap the "Start collecting" key in the GreenValley App.

The "New Project" page displays. The GreenValley APP supports the creation of multiple sub-tasks under one project. Set the project name, collection location, notes, and coordinate system. The coordinate system can be selected according to the actual geographic location. Tap OK. The new project settings are completed.





- Note: Please use the GreenValley APP to connect to the main unit's WiFi to control the H300 to collect vehicle data. When you create a project on the APP, select the **Vehicle** acquisition mode.
- Note: The video collection mode supports video recording mode and time-lapse photography mode. Users can select according to the project areas. It is recommended that the collection time for video recording mode does **not exceed 30 min**, and the collection time for time-lapse photography mode does **not exceed 60 min**.

Initialization

When initializing the vehicle kit, it is recommended to choose the area with apparent features. It is recommended to choose the area where more than 20 satellites can be searched. The kit can be placed in the front of the vehicle (or other flat position). Keep the device strictly immobile during initialization.



After creating a new project, fill in the basic project information on the Start collecting page and tap Submit.

Wait for the APP device status to change to "Collecting". The APP prompts "device is collecting" via voice. The initialization is completed.

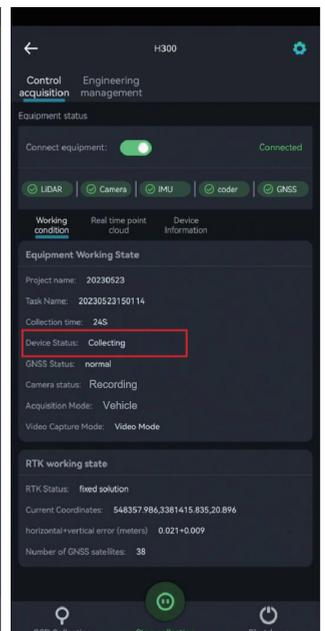
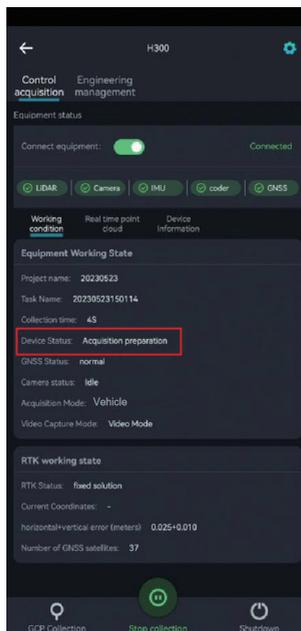
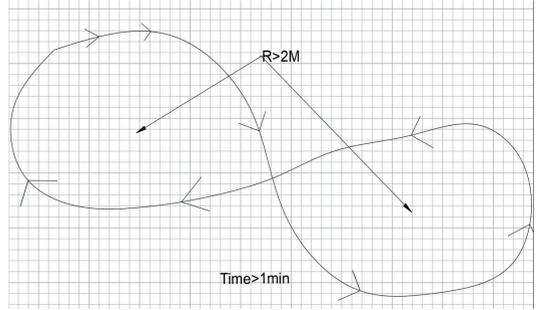


Figure of 8

The vehicle kit needs to move in the figure-8 trajectory prior to the data collection. When the number of satellites is greater than 20, users can slowly pick up the vehicle kit and walk in the figure-8 trajectory. The movement in the figure-8 trajectory is performed in an open area. It takes approximately 1 minute and the radius is not less than 2 m.



Note: Use your hands to pick up the vehicle kit slowly and walk in a figure-8 trajectory!

Vehicle Kit Installation

After the movement in the figure-8 trajectory ends, place the kit in the front of the vehicle (or the top), and press the four suckers to attach to the engine cover.



- Note: When installing the vehicle kit, please make sure the installation area is clean, free of sand and dust with a flat surface. There should be no obvious bumps. Make sure to manually press the sucker to ensure that the four suckers of the vehicle kit are firmly attached to the vehicle. You can manually check whether the kit is firmly attached.
- Note: It is recommended that at least two people work together to install the vehicle kit and cross-check whether the suckers are firmly attached after the installation!

Data Collection

After the vehicle kit is installed, drive the vehicle and start data collection according to the route planned in advance.



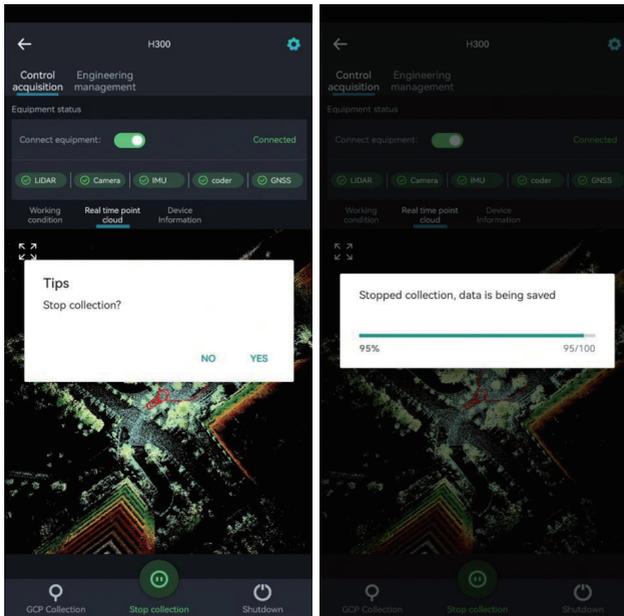
Note The driving speed should **not exceed 40 km/h!** Violent driving is prohibited!

Moving in Figure-8 Trajectory and Stopping Collection

After the data collection is finished, park the cars in an open and safe area with obvious features with less traffic. Remove the sucker of the vehicle kit and slowly pick up the kit and walk in the figure-8 trajectory for about 1 minute with a radius of not less than 2 meters.

When the movement in the figure-8 trajectory ends, place the vehicle kit on a flat area (or vehicle), and tap Stop collection in the GreenValley APP and follow the voice prompts to stop collecting data. After the laser stops rotating, the camera will automatically stop recording.

When the progress bar for saving data disappears, the APP announces "Data saved" in voice. You can collect data for the next project.



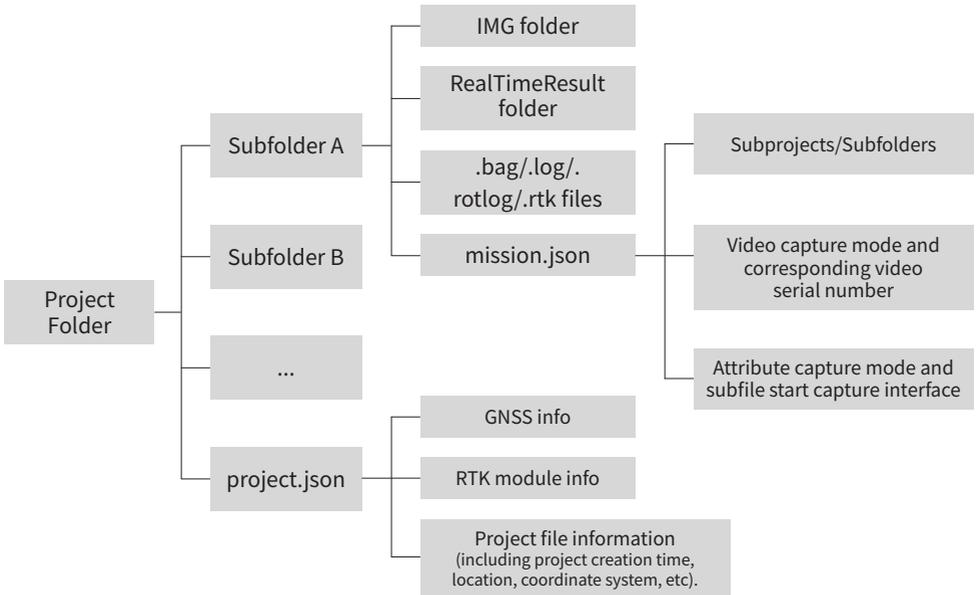
Note: Generally speaking, the collection area for the vehicle data is large, and the APP may disconnect from the device.

- ① It is **recommended** to use the APP to reconnect the device. Tap Stop collection. Wait for the device to stop collection.
- ② **Manually** stop data collection. Long-press the green wave button until it flickers quickly. The H300 indicator flashes fast. Wait until the indicator is always on. Then, the laser stops data acquisition. The camera will automatically stop recording!

Data Transfer

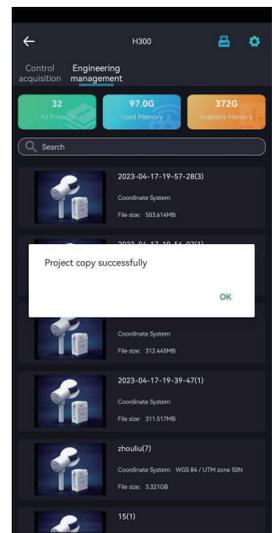
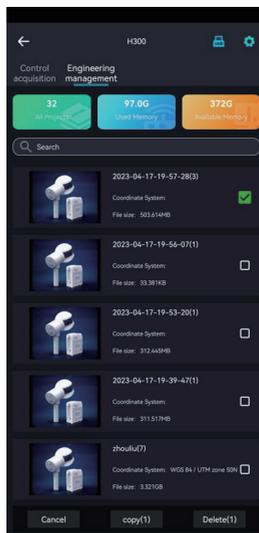
Project document details

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).



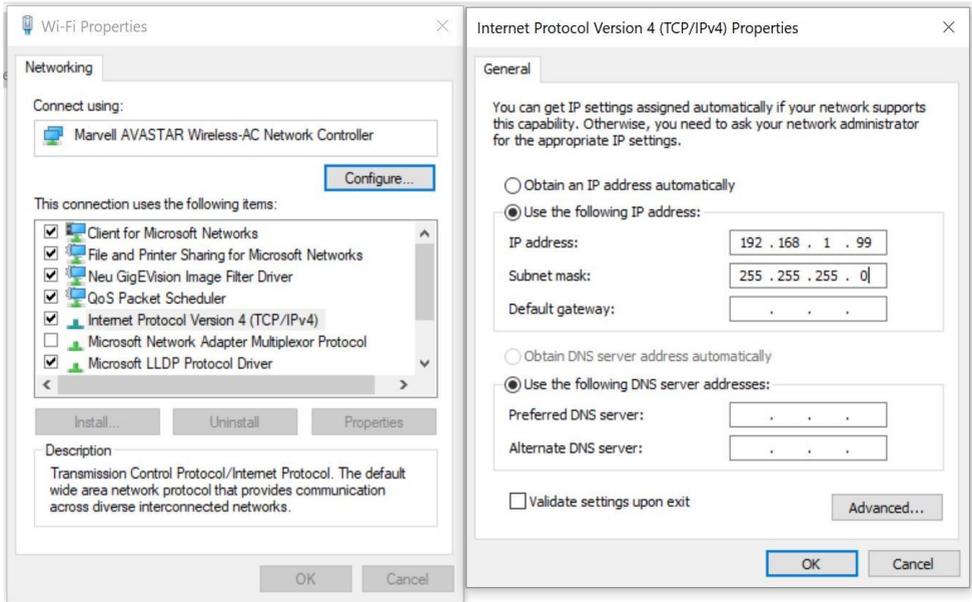
Copy based on APP

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).



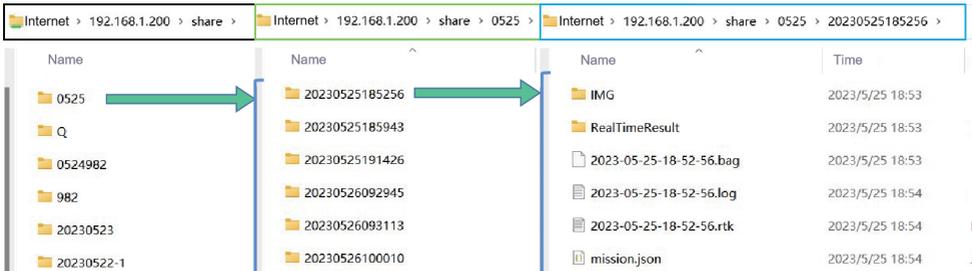
Cable based

Insert the B58 battery and power the device up. Connect the Lemo port end of the data transmission cable to the LAN port, and the network port end 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 to access the internal storage space of the device. Open the "Share" folder and copy the corresponding project/subproject files to the computer. The data export is completed.



If username and password are required, enter the following information:

Username: share

Password: 111111

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.

U (F:) > DCIM > Camera01

Name	Time	Type	Size
VID_20230502_175612_00_001.mp4	2023/5/2 17:57	MP4 file	679,480 KB
VID_20230502_175612_10_001.mp4	2023/5/2 17:57	MP4 file	675,840 KB
VID_20230502_175822_00_002.mp4	2023/5/2 18:04	MP4 file	2,712,590...
VID_20230502_175822_10_002.mp4	2023/5/2 18:04	MP4 file	2,703,360...
VID_20230502_180912_00_003.mp4	2023/5/2 18:24	MP4 file	6,943,308...
VID_20230502_180912_10_003.mp4	2023/5/2 18:24	MP4 file	6,922,240...

```
mission.json
{
  "mission_name": "20230524110254",
  "project_name": "0524982",
  "mission_properties": {
    "collect_temp": "15",
    "collect_weather": "sunshine",
    "video_url": [
      "/VID_20230502_180912_00_003.mp4",
      "/VID_20230502_180912_10_003.mp4"
    ],
    "collect_environment": "outdoor",
    "collect_person": "null",
    "camera_mode": "video"
  }
}
```



Note: The mission.json file in the subproject folder records the corresponding video file names of the project!

See the figure below. Only the two video files starting with VID can be copied.

PPK base station data transmission

Download the reference station data (PPK mode).

COMNAV_DISK (H:) > 1-record1 > 2022165

LB1U020051651119.22C	2022/6/14 11:20	22C	16 KB
LB1U020051651119.22G	2022/6/14 11:37	22G	36 KB
LB1U020051651119.22L	2022/6/14 11:37	22L	64 KB
LB1U020051651119.22N	2022/6/14 11:20	22N	13 KB
LB1U020051651119.22O	2022/6/14 11:37	22O	6,442 KB

LiFuser-BP software data processing

The steps of data solution in vehicle kit are the same as those in the backpack kit, please refer to **the LiGrip H300 User Manual**. You can import base station data externally in RTK or PPK mode. In both modes, the absolute coordinates can be obtained.



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

E-mail: info@greenvalleyintl.com

Address: 729 Heinz Avenue, Space 9, Berkeley, California 94710, U.S.A

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