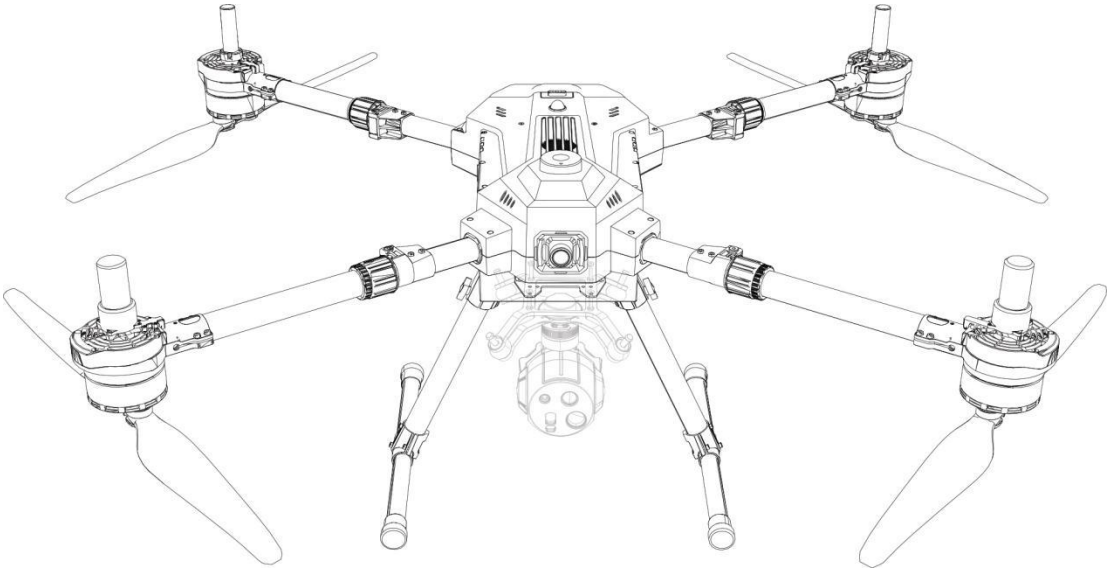
UniDrone E1000 Drone Platform

User Manual

(V2.0)



Reebot Robotics (Shenzhen) Co., Ltd.

https://reebot.com/en

October 2026

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Foreword

Thank you for purchasing a Reebot product.

The UniDrone E1000 (hereinafter referred to as the E1000) is a multirotor drone platform built for industrial-grade complex missions. With a maximum payload capacity of 10 kg and a maximum unloaded endurance of 55 minutes, it achieves a better balance between heavy-load operation capability and deployment flexibility, and can be widely used in industrial scenarios such as inspection, emergency rescue, environmental monitoring, high-altitude cleaning, and logistics transportation.

The E1000 adopts a dual-IMU redundant flight controller and is equipped with 360° horizontal omnidirectional laser obstacle avoidance, a high-definition FPV flight camera, and night-flight lights, further improving flight safety, environmental awareness, and recognizability during nighttime operations. The flight platform supports gimbal cameras compatible with multiple protocols, including MAVLink, S.Bus, UART, and network serial protocols. It can carry up to two payloads simultaneously and provides abundant interface resources to meet the access and function expansion needs of various types of industrial payloads.

Used together with the handheld ground station and the UniGCS Pro ground station software, the E1000 enables integrated operations such as flight control, mission planning, route management, payload control, and video transmission display. The handheld ground station features a 7-inch 1080P high-definition, high-brightness touchscreen with a display brightness of up to 1600 nits, and integrates 2.4 GHz / 5.8 GHz dual-band communication and high-definition video transmission capabilities. Flight and mission information can be viewed clearly even in strong-light environments, bringing industrial users a more intuitive, efficient, and stable operating experience.

For flight safety and to ensure a good product experience, please read this user manual carefully before assembly. This manual can help you resolve most questions that arise during use. You can also visit the product-related pages on Reebot's official website (https://reebot.com/en), call the Reebot official after-sales service center (**+86 400-097-0971**), or send an email to **support@reebot.com** to consult Reebot engineers directly about product knowledge and to report product issues.

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Manual Version Update Record

Version	Release Date	Update Content
1.0	2026.7	Initial release
2.0	2026.10	Updated content layout; added introduction to flight operations; added dual-control mode

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Reading Guide

Real-Name Registration Notice

1. Users who operate aircraft in mainland China must comply with the relevant provisions of national laws and regulations on the real-name registration of civil unmanned aircraft, including but not limited to:
2. "Interim Regulations on the Flight Management of Unmanned Aircraft", Chapter 2, Article 10: Owners of civil unmanned aircraft shall complete real-name registration in accordance with the law. The specific measures shall be formulated by the civil aviation authority under the State Council in conjunction with the relevant departments.
3. "Rules for the Operation Safety Management of Civil Unmanned Aircraft", Article 92.205(a): The owner of a civil unmanned aircraft shall complete real-name registration on the Comprehensive Management Platform for Civil Unmanned Aircraft as required, and may activate and use the civil unmanned aircraft only after obtaining the registration mark.
4. In violation of the "Interim Regulations on the Flight Management of Unmanned Aircraft", where a civil unmanned aircraft conducts flight activities without real-name registration, the public security authority shall order correction and may impose a fine of up to RMB 200; if the circumstances are serious, a fine of not less than RMB 2,000 but not more than RMB 20,000 shall be imposed.
5. Users who operate aircraft in mainland China can download the UOM App from a mobile app store or visit https://uom.caac.gov.cn in a PC browser. After completing account registration and logging in, you can complete real-name registration for your aircraft. You can also follow the steps on the real-name registration guidance page in the aircraft control software to complete real-name registration for your aircraft.
6. Before reselling a civil unmanned aircraft (or any other action involving a change of ownership), the owner shall deactivate and cancel the real-name registration; otherwise, the owner may face civil legal risks such as tort liability and commercial disputes. If illegal activities are involved, the owner shall also cooperate with the investigation in accordance with the law and bear the corresponding legal consequences (including criminal liability).

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Icons and Symbols

When reading this user manual, please pay special attention to content marked with the following symbols.

Symbol	Meaning
Danger	Hazardous operations that are highly likely to cause personal injury
Warning	Warning about operations that may cause personal injury
Caution	Take care not to cause unnecessary property damage through improper operation

Prohibited Actions Mandatory Actions Precautions

Safety

The UniDrone E1000 is designed and manufactured for professional application scenarios, and all necessary commissioning has been completed before delivery. Do not disassemble or modify its structure by yourself.

The UniDrone E1000 has a precision structure, and operators are required to have certain basic skills. Please operate it safely and in a standardized manner in accordance with the corresponding laws and regulations. Reebot assumes no liability for any unnecessary product damage, economic loss to the user or others, or even personal injury caused by any non-standard, unreasonable, or irresponsible operation of this product. Minors must use this product under the on-site supervision and guidance of professionals. Reebot products are designed for commercial scenarios; it is prohibited to use Reebot products for military purposes. Without Reebot's permission, it is prohibited to disassemble or modify this product without authorization.

To jointly maintain flight safety and help you make better use of this product's features, please pay special attention to the following:

- Do not use Reebot products to operate aircraft, vehicles, or models in crowded places (squares, parks, etc.), places with many obstacles (streets, parking lots, etc.), places with strong magnetic fields or signal interference sources (high-voltage power lines, railway lines, radar stations, etc.), or other areas that may cause unnecessary economic losses or even personal injury.
- During operation, never cover the ground unit antennas or otherwise block signal transmission.
- The tip of the ground unit's standard omnidirectional antenna is the part with the weakest signal transmission. During operation, avoid pointing it at your aircraft, vehicle, or model.

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Do not use Reebot products to operate aircraft, vehicles, or models when you are fatigued, drunk, or physically unwell.

Without special operation permission, do not use Reebot products to operate aircraft, vehicles, or models in rainy, nighttime, or strong-wind environments.

Never cut off the ground unit power supply in advance while the engines or motors on your aircraft, vehicle, or model are still running.

To ensure flight safety, check before takeoff whether the propeller blades, motor rotation directions, and the connections of all components are secure, and at the same time ensure an effective connection with the link.

For flight safety, keep the aircraft within your visual line of sight when operating it for takeoff, and ensure that there are no pedestrians, animals, obstacles, etc. around the drone during flight and landing.

During operation, be sure to return from the system parameter settings page to the main page.

Before starting operations, be sure to check the remote controller battery level and the drone power supply voltage.

When finishing operations, power off the drone first, and then power off the remote controller.

Before setting ground unit parameters, be sure to power off the engines and motors to prevent accidental startup.

Before starting operations, be sure to configure the failsafe function on the drone.

Before starting operations, turn on the remote controller first and keep the throttle at the lowest position or within the throttle dead zone, and then supply power to the drone.

When assembling, avoid installing the air unit too close to the GPS module to prevent interference. It is recommended that the distance between the air unit and the GPS module be greater than 20 cm.

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Equipment Storage, Carrying, and Recycling

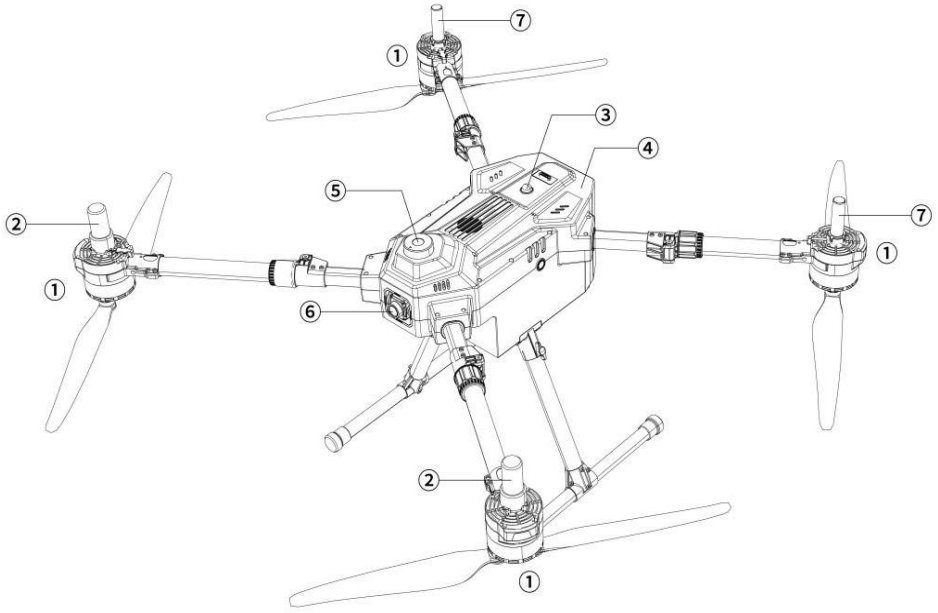
When your Reebot product is idle, when you carry it out for operations, or when the product has reached the end of its service life, please pay special attention to the following:

> **Danger:**
>
> When Reebot products are idle, keep them away from areas that are easily accessible to children.
> Avoid placing Reebot products in environments that are too hot (above 60 °C) or too cold (below -20 °C).
>
> **Caution:**
>
> Avoid placing Reebot products in humid or dusty/sandy environments.
> When carrying or transporting Reebot products, avoid operations that may damage components, such as vibration or impact.

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Chapter 1 Component Names

1.1 Aircraft



① Propulsion System
② RTK Positioning & Heading Antennas
③ Strobe Light
④ Intelligent Flight Battery
⑤ 360° Horizontal LiDAR
⑥ FPV Camera
⑦ 2.4 GHz / 5.8 GHz Dual-Band Integrated Antenna

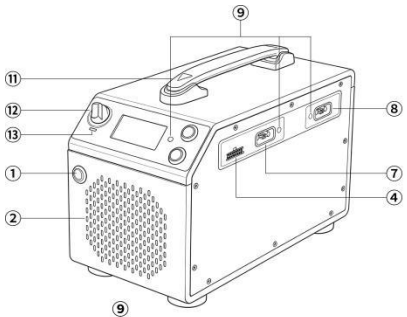
1.2 Remote Controller

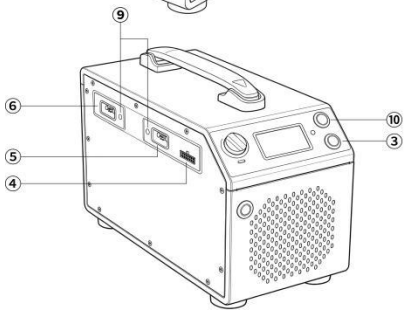
Remote Controller Button Indicators

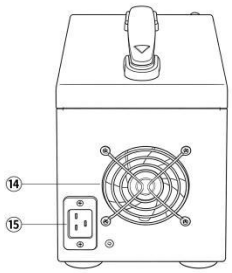


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1.3 Intelligent Charger







① Main power switch
② Air inlet
③ Charge button
④ Balance port
⑤ Charging port 1
⑥ Charging port 2
⑦ Charging port 3
⑧ Charging port 4
⑨ LED indicator
⑩ Maintenance button
⑪ Handle
⑫ Current adjustment knob
⑬ Micro-USB upgrade port
⑭ AC input port
⑮ Cooling fan

*④ and ⑤ are the balance port and charging port of the same battery, respectively;
⑥ is an independent charging channel without a balance port. The other side is identical.

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Chapter 2 Flight Safety

2.1 Flight Environment Requirements

1. Do not fly in severe weather, such as strong wind, snow, thunderstorms, or fog. When flying in the rain, be sure to follow the requirements stated in the IPX4 protection rating description.
2. Make sure the aircraft takes off from an open, unobstructed, and flat ground, away from surrounding buildings, trees, crowds, water surfaces, etc. Please keep the flight within visual line of sight. If beyond-visual-line-of-sight (BVLOS) flight is required, make sure the aircraft is in good condition and the user has the corresponding qualifications, and confirm before flight whether the flight complies with local regulatory requirements for BVLOS flight.
3. Make sure to operate the aircraft in an open area or on high ground. Tall steel-reinforced buildings, mountains, rocks, and woods may block the aircraft's GNSS and video transmission signals.
4. Since other wireless devices may interfere with the remote controller, it is recommended to turn off nearby high-power radio equipment and stay away from strong-interference devices such as base stations when using the remote controller to control the aircraft.
5. Be extremely cautious when flying near electromagnetic interference sources, and continuously observe whether the video feed in the UniGCS App stutters and whether the video transmission signal strength is weak. Electromagnetic interference sources include but are not limited to: high-voltage power lines, high-voltage transmission stations, mobile phone base stations, and television broadcast signal towers.
6. Do not take off from the surface of a moving object (such as a moving car or boat).
7. Avoid sandy or dusty road surfaces during takeoff and landing, otherwise the service life of the motors will be affected.
8. When flying in high-altitude areas, the performance of the aircraft's battery and power system decreases due to environmental factors, and flight performance will be affected. Please fly with caution. Do not fly beyond the altitude specified in the specifications.
9. Do not fly around flocks of birds.

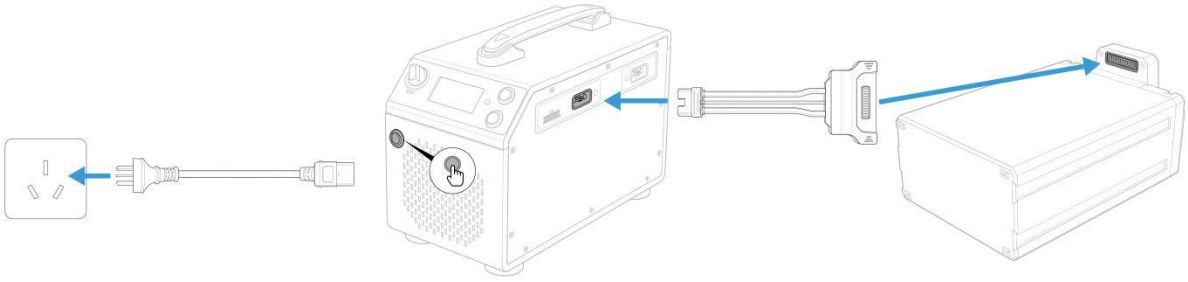
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Chapter 3 First-Time Use

Visit the link or scan the QR code to watch the tutorial video.

https://www.youtube.com/watch?v=UgVKyy0TUmw&list=PLSJY7NNvj7HM&index=3

3.1 Charging



3.2 Preparing the Remote Controller

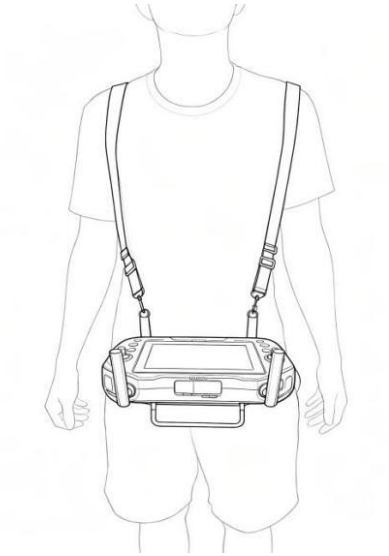
Adjusting the Antennas



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Installing the Strap Bracket





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3.3 Preparing the Aircraft

Installing the Landing Gear

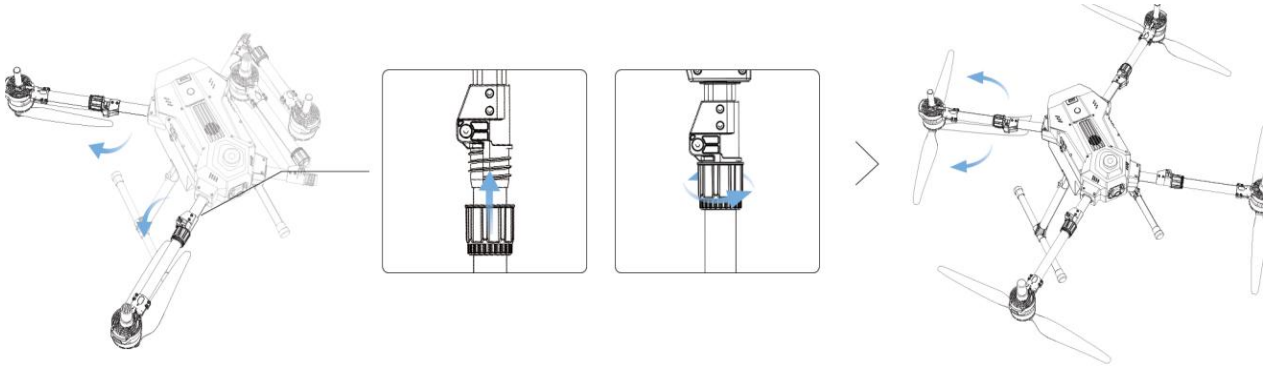
1. Align the landing gear with the landing gear mounts and install them into the airframe.
2. Place the airframe on a level surface, insert the T-shaped thumb screws, and tighten them clockwise.

Note: The landing gear nuts face inward.



Unfolding the Aircraft

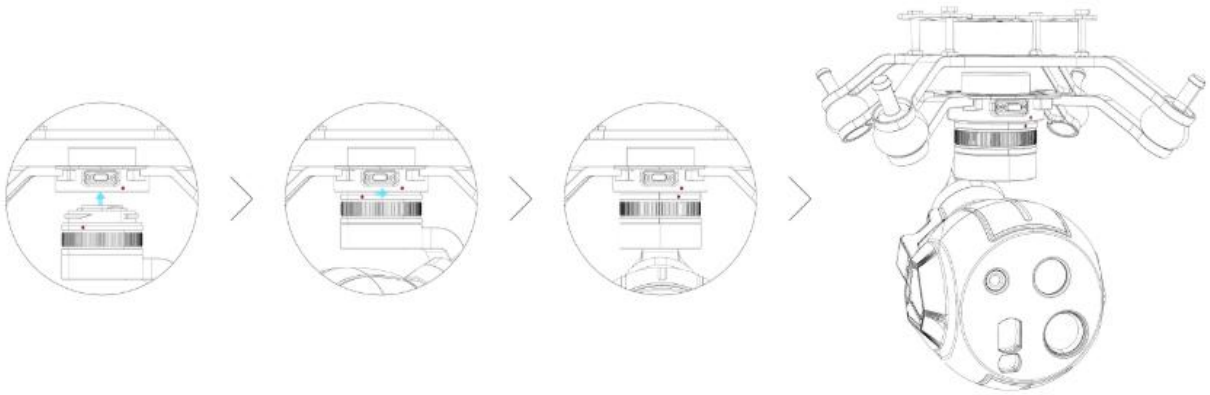
Unfold the four arms of the aircraft and tighten the arm fastening kits. Then unfold the propeller blades straight.



Installing the Gimbal Camera

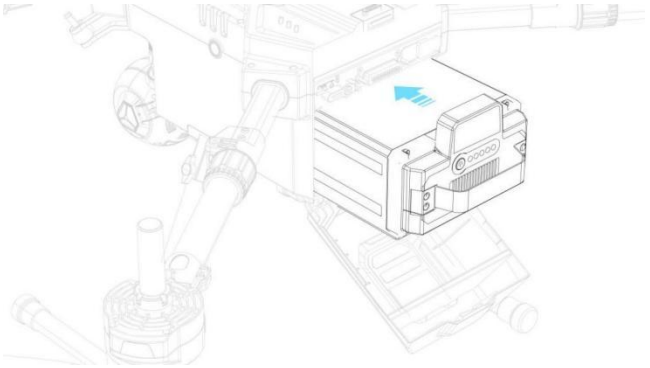
1. Align the white dot on the gimbal camera with the red dot on the interface, and insert it into the mounting position.
2. Rotate the quick-release interface of the gimbal camera to the locked position to secure the gimbal.

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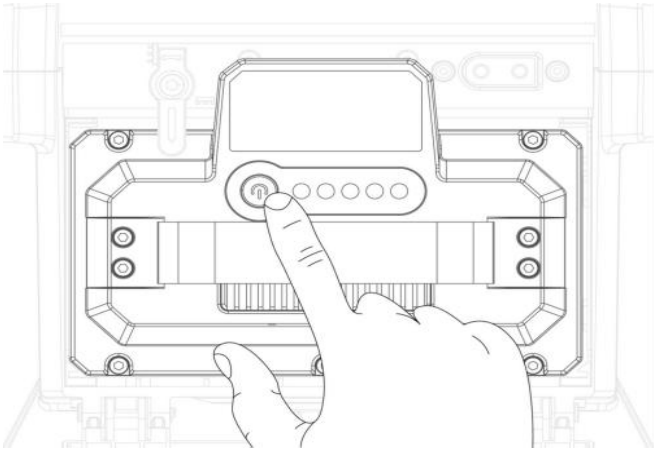


Installing the Intelligent Flight Battery

1. Insert the intelligent flight battery as shown in the figure.



2. Check the battery level: short-press the battery level button once.
3. Power on: short-press the smart power button once, then long-press it within 3 seconds to turn the power on/off.



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3.4 Activation

A brand-new aircraft and remote controller must be activated before use. Turn on the aircraft and the remote controller, and follow the prompts to complete activation.

Visit the link to watch the tutorial video: https://youtu.be/UgVKyy0TUmw?si=HtLPGayAcnpYwbCH

Note: Make sure the remote controller is connected to the Internet during activation.

3.5 Basic Flight

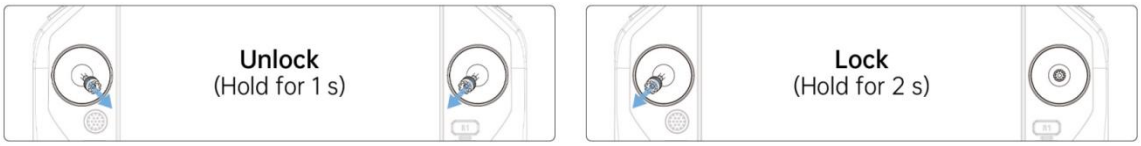
Pre-Flight Checklist

1. The remote controller and the aircraft batteries are fully charged, and the aircraft battery is properly installed and locked in place.
2. Make sure the aircraft propellers are securely installed, free of damage or deformation, that the motors and propellers are clean and free of foreign objects, that the propellers and arms are fully unfolded, and that the arm sleeves and landing gear are all locked.
3. Make sure the lenses of the FPV flight camera and the gimbal camera, as well as the lens of the LiDAR, are free of foreign objects, dirt, or fingerprints, and are not blocked by payloads on the airframe or external accessories.
4. Make sure the remote controller antennas are unfolded.
5. Turn on the remote controller and the aircraft, make sure the flight mode switch is in Loiter mode, and check that the remote controller status indicator is solid green. Make sure the link (pairing) status between the aircraft and the remote controller is normal and that you have control of the aircraft.
6. Check that the aircraft's RTL altitude is higher than the height of the surrounding environment.
7. Place the aircraft outdoors on flat, open ground, make sure there are no obstacles, buildings, trees, etc. around, and the pilot stands 5 m away from the aircraft facing its tail.
8. If multiple aircraft operate at the same time, please divide the airspace to avoid mid-air collisions.

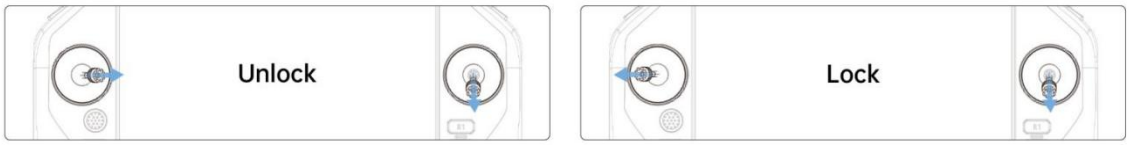
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Starting/Stopping the Motors

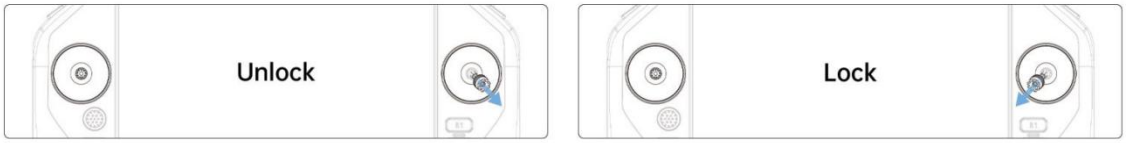
Mode 2 (American hand) (Current Default)



Mode 1 (Japanese hand)



Mode 3 (Chinese hand)

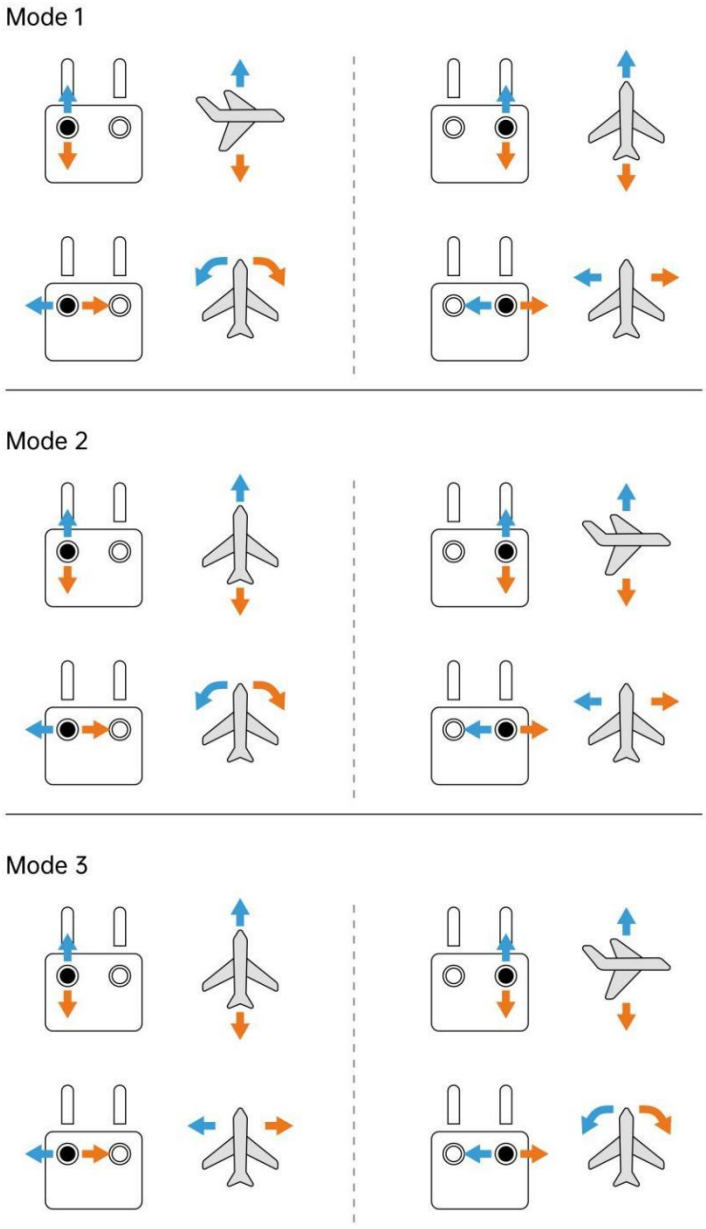


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Controlling the Aircraft

The remote controller sticks can be used to control the aircraft's flight. The stick control modes of the remote controller are divided into Mode 1 (Japanese hand), Mode 2 (American hand), and Mode 3 (Chinese hand), as shown in the figure below.

> **Note: The default control mode of the remote controller at delivery is Mode 2 (American hand); the greater the stick deflection, the faster the aircraft's speed.**



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3.6 Overview of Practical Features

One-Tap Takeoff

Pull the throttle stick to the lowest position, tap the "One-Tap Takeoff" button, and long-press the "Takeoff" icon for 2 seconds.



Caution: Do not operate indoors or in crowds.

One-Tap Landing

Tap the "One-Tap Landing" button and long-press the "Landing" icon for 2 seconds; the drone will perform a vertical landing.

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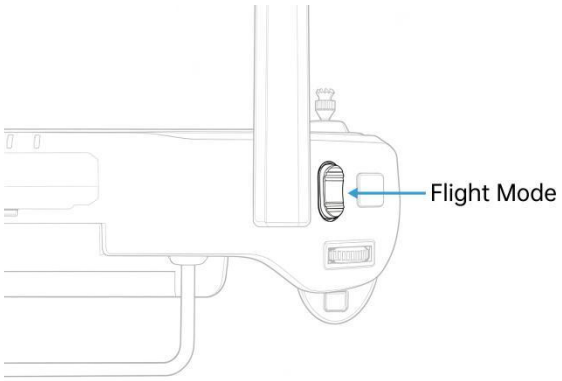


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Chapter 4 Aircraft

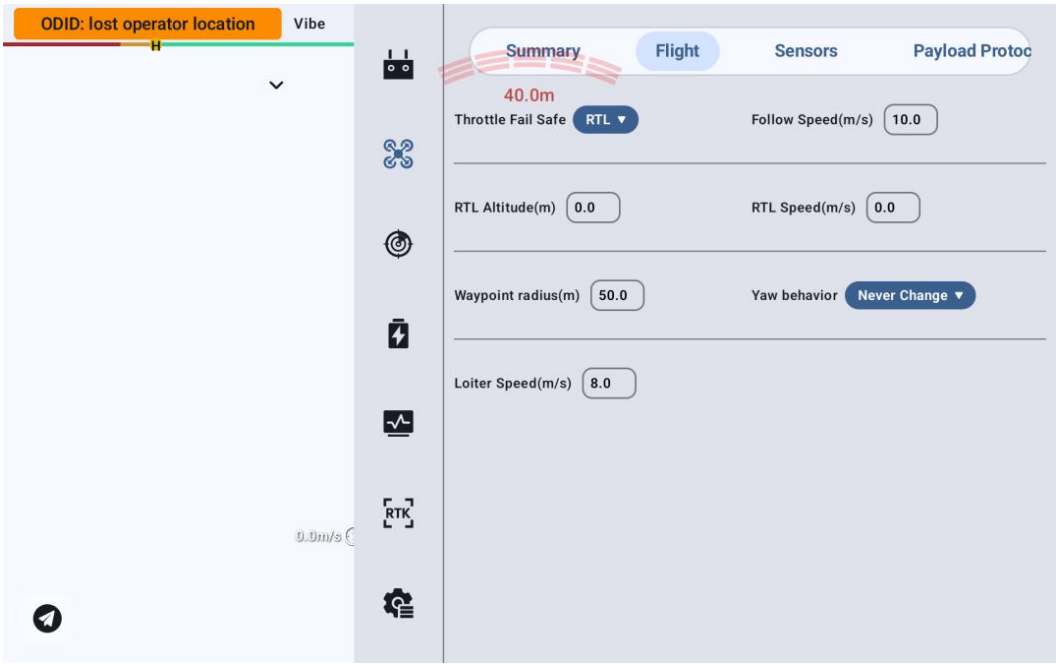
4.1 Flight Modes

The aircraft currently offers only one flight mode; all positions of the remote controller's three-position switch are Loiter mode (Position Hold).



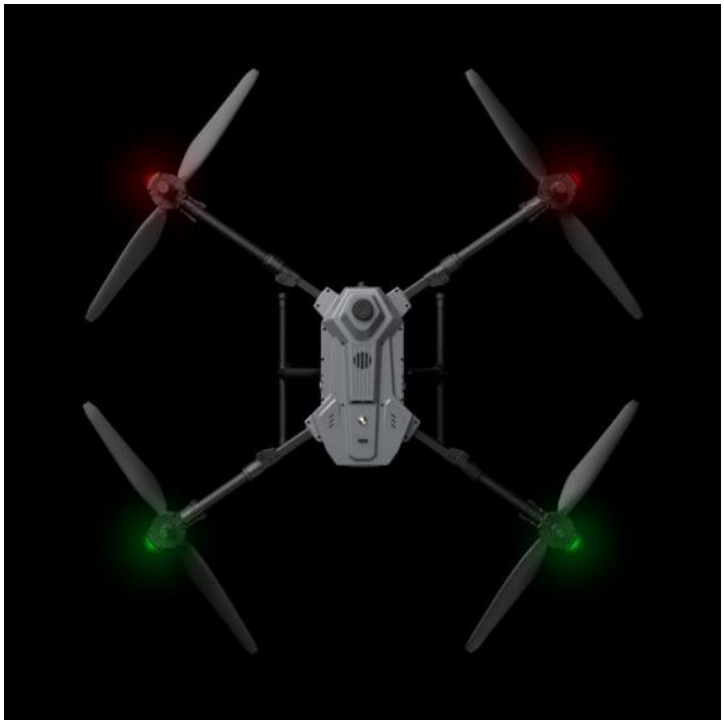
Loiter Mode (Position Hold)

- It enables precise hovering, stable flight, and intelligent flight functions of the aircraft, and is suitable for most flight scenarios. When obstacle avoidance is enabled, the aircraft can also avoid obstacles using the Obstacle Avoidance System.
- The manual flight speed can be modified to adjust the maximum horizontal flight speed in Loiter mode (Position Hold); the maximum setting is 20 m/s.



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4.2 Aircraft Power System Indicators



Heading lights: the red light indicates the nose direction of the E1000, and the green light indicates the tail direction of the E1000. The navigation lights stay solid on.

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The power indicator colors are defined as shown in the following table:

State	Abnormal Information	Buzzer	Indicator	Suggested Action
Self-check	Overvoltage, undervoltage	No beeping	Yellow flashing Overvoltage: one short beep Undervoltage: two short beeps	Check the power supply voltage and reduce it appropriately
	Op-amp abnormality	No beeping	Yellow flashing Two long beeps and three short beeps	Contact technical support
	MOS short circuit	No beeping	Yellow flashing Two long beeps and two short beeps	Contact technical support
	Motor phase loss	No beeping	Yellow flashing Two long beeps and one short beep	Check whether the motor rotation is stuck
	Throttle signal lost	One short beep	Yellow flashing One long beep	Check whether the throttle harness is damaged and whether the connected device outputs the corresponding signal
	Throttle not returning to zero	Rapid short beeps	Yellow flashing One long beep and one short beep	Check the throttle travel of the flight controller and the remote controller
Running	Throttle signal lost	One short beep	Yellow flashing One long beep	The harness is loose or damaged, or the connected device has no signal output
	Throttle stuck	No beeping	Yellow flashing One long beep and four short beeps	Check the motor for foreign objects
	MOS over-temperature	No beeping	Yellow flashing One long beep and two short beeps	Whether the payload is within the recommended range
	Capacitor over-temperature	No beeping	Yellow flashing One long beep and three short beeps	Whether the payload is within the recommended range
	Full throttle (100%)	No beeping	Yellow solid on until the throttle is no longer at full, then returns to the normal light color	The thrust is not within the recommended range; the indicator returns to its normal color once the aircraft is no longer at full throttle
ESC firmware upgrade	No firmware	No beeping	White solid on	Connect the tuning software and upgrade the firmware
	Firmware upgrade failed	No beeping	White solid on	Make sure the power system works properly and the harness is connected correctly, then try flashing the firmware again
	Firmware upgrade in progress	No beeping	White flashing	Firmware upgrade in progress; returns to normal after a successful upgrade

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4.3 Propellers

Equipped with carbon-fiber propeller blades made of lightweight material, featuring high strength and durability, high rigidity without deformation, corrosion resistance, stable performance, high precision, and smooth operation.

Note: The propeller blades are thin and sharp; handle them with care to avoid accidental cuts.

4.4 FPV Flight Camera

The UniDrone E1000 is equipped with a wide-angle FPV camera. The pod/gimbal view and the flight view can be switched freely, making flight safer.

- FPV field of view (FOV): horizontal 113°, vertical 77°, diagonal 122°
- FPV camera pitch angle: 68°
- FPV camera modes: pitch-lock mode / pitch-follow mode

4.5 Gimbal Camera

The UniDrone E1000 supports combinations of UniDrone and SIYI full-series gimbal payloads: UniPod MT11 mini four-sensor AI gimbal, SIYI ZT30 four-sensor gimbal, SIYI ZT6 mini dual-sensor gimbal, SIYI ZR30 optoelectronic gimbal, SIYI ZR10 optoelectronic gimbal, and SIYI A8 mini gimbal camera.

Note: Using multiple payloads requires the corresponding gimbal assembly. For the specific use of payloads such as the gimbal camera, refer to the corresponding product documentation.

4.6 Intelligent Charger

Visit https://youtu.be/sfrPb2jBUac?si=E77qCsysHWL5JJrj for the intelligent charger user instructions, including detailed safety guidelines and product usage instructions.

4.7 Intelligent Flight Battery

The intelligent flight battery uses high-voltage 4.4 V lithium cobalt oxide cells and provides abundant power for the aircraft with an advanced battery management system. Before first use, be sure to fully charge the intelligent flight battery.

1. Intelligent battery storage voltage: 45.6 V to 46.8 V (3.8 V to 3.9 V per cell);
2. Empty voltage (nominal voltage): 46.2 V (3.85 V per cell);
3. General minimum discharge voltage: 40 V;
4. Discharge: standard discharge current 0.5 C;
5. Maximum continuous discharge current 90 A;

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6. Instantaneous peak discharge current 210 A;
7. Charging time: the intelligent battery only supports slow-charge mode. From 0% to 100%, the charging time is about 78 minutes (measured in an experimental environment at 25 °C).

Precautions for Use

> **Note: Before using the battery, read carefully and strictly follow REEBOT's requirements in this manual, the safety summary, the maintenance manual, and the stickers on the battery surface. The user bears the consequences of use not in accordance with the requirements.**

1. After flight, the intelligent flight battery temperature is high; wait until the intelligent flight battery cools down to the allowable charging temperature range before charging.
2. Charging the battery when its temperature is outside the allowable charging temperature range will damage the battery; the battery will not start charging at such temperatures. The optimal charging temperature range is 25 ± 3 °C; charging within this range can extend the battery's service life. If the battery cell temperature rises to 46 °C or above during charging, charging will stop.
3. Precautions in low-temperature environments:
4. The battery cannot be used for flight in environments below -20 °C.
5. In low-temperature environments, it is recommended to preheat the battery to normal temperature before flight; keep the battery warm in advance to shorten the preheating time. In extremely cold conditions, add extra insulation measures.
6. In low-temperature environments, the aircraft's wind resistance will be reduced due to the battery output power limit. Operate with care.
7. Fly with extra caution in low-temperature, high-altitude environments.
8. After taking off when the above conditions are met, if the UniGCS Pro App prompts "Severe low voltage alarm, landing", it is recommended to stop flying immediately and choose a suitable place to land. During the aircraft's automatic landing, you can continue to control the aircraft's heading with the remote controller.
9. If a fully charged battery is left for a period of time, storage self-discharge protection will be activated. The battery may become slightly warm during discharge, which is normal.
10. Recharge the battery about every 3 months to keep it active. Leaving the battery unused for a long time may affect its performance or even cause permanent damage. Batteries that have not been maintained (charged and discharged) for more than 3 months are not covered by the warranty.
11. For safety, keep the battery at a low charge level during transportation. Discharge the battery before transportation by flying it down to a low charge level (e.g., below 30%).
12. Over-discharging will seriously damage the battery; try not to let the discharge voltage fall below 43 V during flight.

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Checking the Battery Level

When the power is off, short-press the battery level check button once to view the current battery level.

The battery level indicators can show the battery level during discharge. The indicators are defined as follows.

The BMS is designed with 4 white LEDs that display the battery level in 8 levels.

Note: ● = solid on; ○ = off; ⊙ = flashing;

Current Capacity	LED1	LED2	LED3	LED4
0%–12%	⊙	○	○	○
13%–24%	●	○	○	○
25%–37%	●	⊙	○	○
38%–49%	●	●	○	○
50%–62%	●	●	⊙	○
63%–74%	●	●	●	○
75%–87%	●	●	●	⊙
88%–100%	●	●	●	●

Battery Storage

1. The battery storage temperature must be within -20 °C to 35 °C;
2. For long-term storage (more than 3 months), the battery must be kept in an environment with a temperature of 23 ± 5 °C and humidity ≤ 75% RH;
3. The storage voltage is 45 V to 46.8 V (3.75 V to 3.9 V per cell); storing the battery fully charged is prohibited.

4.8 Aircraft RTK

The aircraft integrates an RTK module, which enables single-module dual-antenna heading and supports full-constellation, full-frequency high-precision positioning with BeiDou, GPS, GLONASS, Galileo, and QZSS, greatly improving positioning accuracy and reliability. It also delivers excellent anti-interference performance in complex electromagnetic environments, providing high-precision control response for the drone system and enabling precise operations.

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Base Station End Description

Refer to the figure below: fix the RTK base station end and the mushroom-head antenna on a tripod and connect the antenna feeder.



> **Note: The tripod should be prepared by the user. Make sure there are no obstructions or interference sources around the RTK antenna to avoid affecting the convergence time and positioning accuracy.**

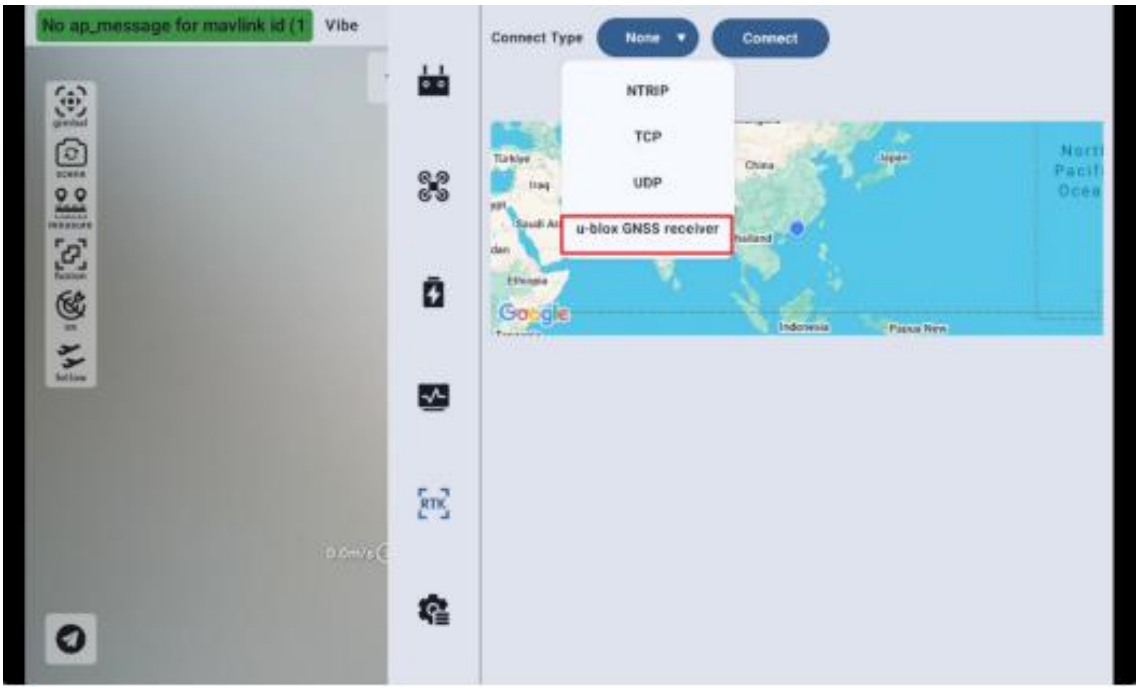
Traditional RTK

1. Hardware connection: use a USB cable to connect the RTK base station end to the USB port on the top of the remote controller.

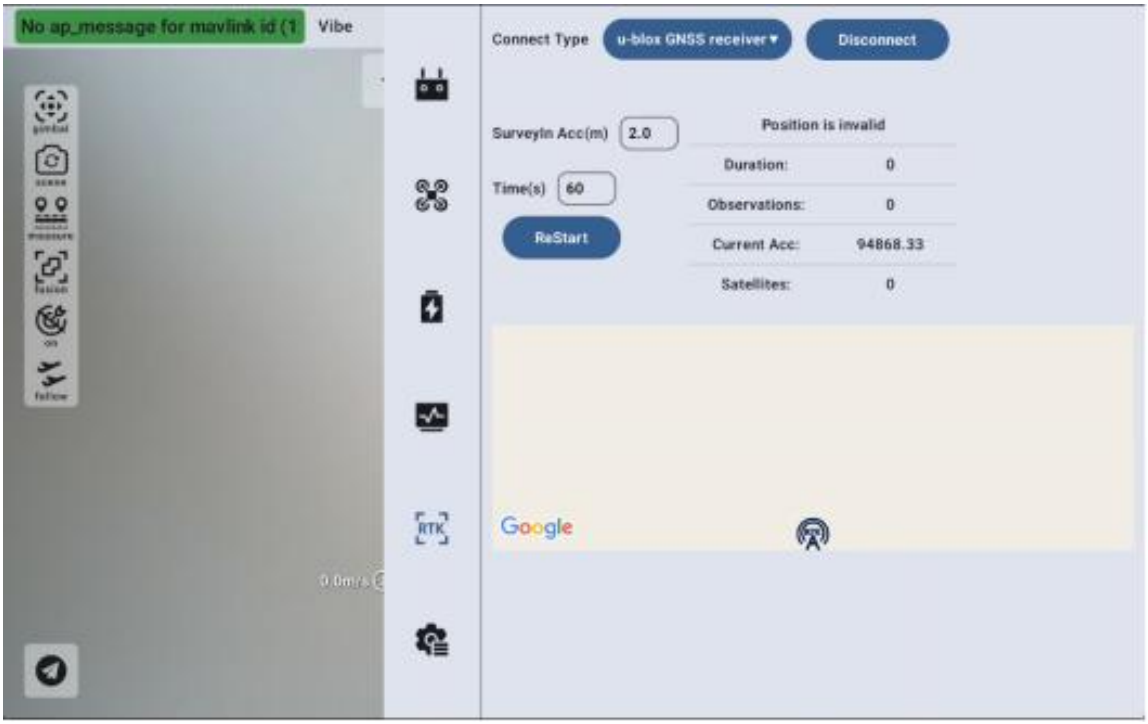


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2. Connection method: click "Connection Method"; the program will automatically recognize and display the "u-blox GNSS receiver" option. Select this option.

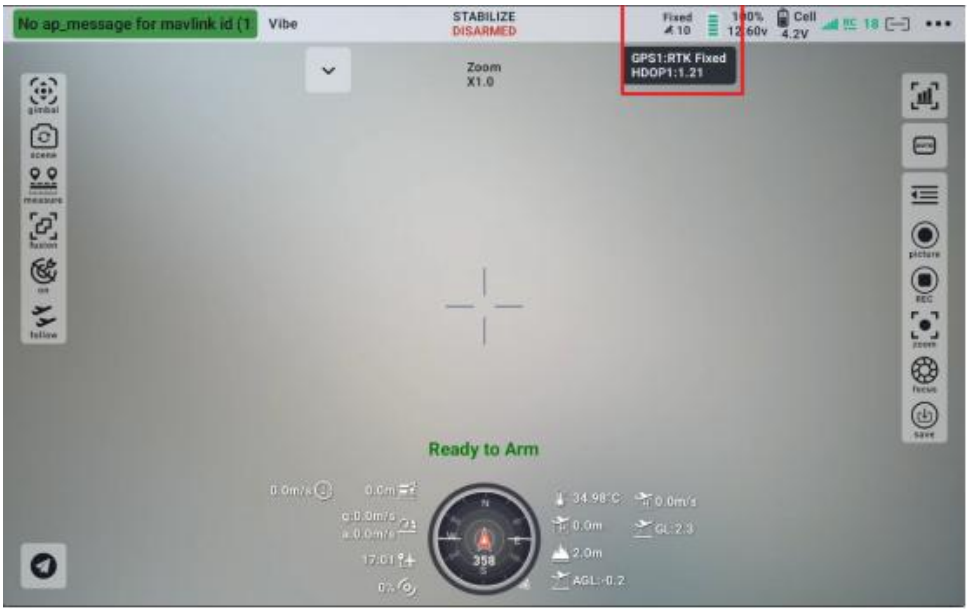


3. Connect: after setting the position accuracy and observation time as needed, click "Connect" to complete the operation.



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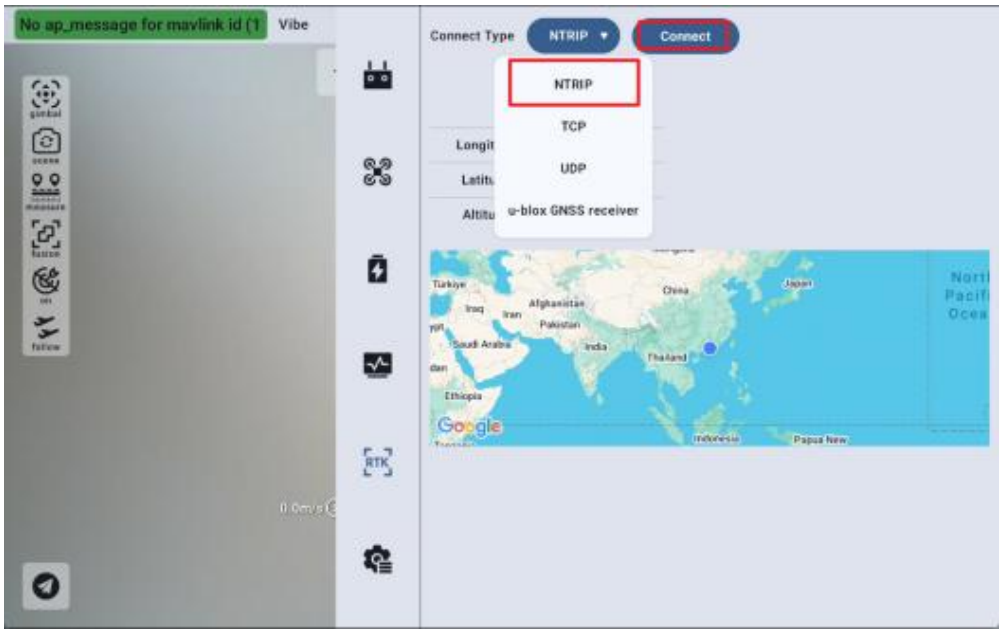
4. Conditions of use: wait until the GPS status in the positioning information of the top status bar shows "RTK FIX"; the function can then be used normally.



Note: After the base station end is positioned successfully, it is strictly forbidden to move the base station!

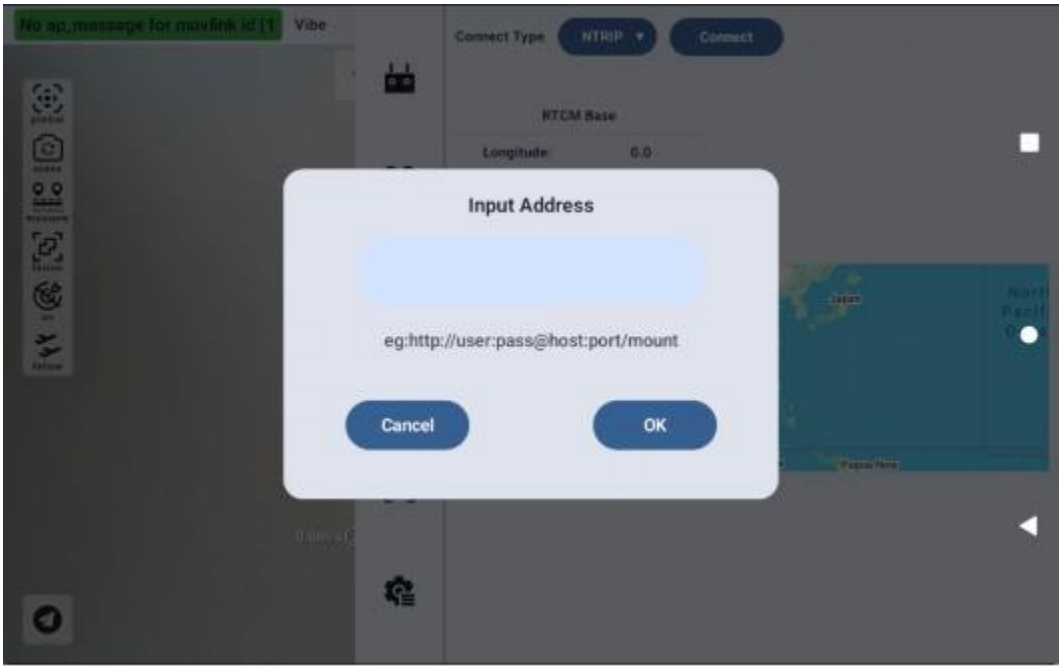
Network RTK

1. Connection preparation: make sure the device is connected to the network, and select "NTRIP" in "Connection Method".



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2. Connect: click "Connect", enter the NTRIP URL link, and click "Confirm".



3. Conditions of use: the function can be used normally when the GPS status in the positioning information of the top status bar shows "RTK FIX".



Note: Positioning accuracy is affected by device performance and the environment. Whether "RTK FIX" can be reached is subject to actual conditions.

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4.9 Automatic Return to Launch

> **Note: Read this chapter carefully to make sure you are familiar with the aircraft's behavior in RTL mode.**

The aircraft has an automatic return-to-launch (RTL) function. RTL is mainly triggered in three ways: actively by the user, by low battery of the aircraft, or by loss of control (loss of remote control signal). If the home point has been successfully recorded and positioning service is good, the aircraft will automatically return to the home point and land when RTL is triggered.

Home point: the current position is automatically recorded as the home point before the motors are unlocked.

Precautions for Use

1. When positioning service is poor, normal RTL may not be possible. If positioning service is poor during failsafe RTL, the aircraft will enter Attitude mode (Stabilize) and land automatically.
2. When there is no satellite positioning, do not fly over water surfaces, near glass buildings, or at altitudes greater than 60 m above the ground; the aircraft will enter Attitude mode (Stabilize).
3. Before takeoff, be sure to enter the safety settings interface of the UniGCS Pro App and set an appropriate RTL altitude (the default RTL altitude is 100 m).
4. No-fly zones will affect automatic RTL and may prevent it from being completed; avoid flying near no-fly zones.
5. Always watch out for small objects (such as branches or wires) or transparent objects (such as glass or water surfaces) along the aircraft's return path, and stop RTL and take manual control of the aircraft in an emergency.
6. If there are obstacles on the return route that the vision system cannot avoid, such as power lines or transmission towers, use the set-altitude return route and make sure the set RTL altitude is higher than the obstacles along the return route.
7. If the return route settings in the UniGCS Pro App are modified during RTL, the aircraft will brake to a stop and then follow the modified return route.
8. If the maximum altitude is adjusted below the current altitude during RTL, the aircraft will descend vertically to the maximum altitude before continuing RTL.
9. Adjusting the RTL altitude is not supported during RTL.
10. If the aircraft's current flight altitude differs greatly from the set RTL altitude, the RTL battery level cannot be accurately estimated because wind speeds vary greatly at different altitudes. Pay

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attention to the RTL battery level and the warning messages in the UniGCS Pro App.

11. When RTL enters the landing phase and the remote controller signal is normal, you can use the pitch and roll sticks of the remote controller (the sticks that control the aircraft's forward, backward, left, and right movement).
12. During the ascent in set-altitude RTL, if the aircraft reaches the flight altitude limit at its current position or at the home point, it will stop ascending and return at the current altitude. Pay attention to flight safety along the return path.
13. If the home point is inside an altitude-restricted zone but the aircraft is outside it, when the aircraft reaches the altitude-restricted zone during RTL, it will descend below the altitude limit, which may be lower than the set RTL altitude. Pay attention to flight safety.

Triggering Methods

User-Initiated RTL

Manual RTL can be initiated by pressing the RTL button on the remote controller. The heading is not controllable during RTL. During RTL, after short-pressing the RTL button on the remote controller once or exiting RTL by switching to another mode, the user can regain control of the aircraft.

RTL Process

1. The aircraft records the home point.
2. The aircraft confirms the home point and automatically adjusts the nose direction.
3. The aircraft automatically flies above the home point and enters the landing protection process, during which the aircraft lands directly or hovers.

Low-Battery RTL

4. During flight, if the aircraft determines that the current battery level is only enough to complete the RTL process, the UniGCS Pro App will prompt you to perform RTL; click Confirm, and the aircraft will execute the RTL action.
5. During flight, if the voltage falls below the low-battery protection voltage (default 44 V), the RTL action will be forcibly triggered.
6. During flight, if the voltage falls below the critical low-battery protection voltage (default 42.9 V), the landing action will be forcibly triggered.

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7. During the forced descent, use the pitch and roll sticks to control the aircraft's horizontal movement and the throttle stick to control the aircraft's descent speed; choose a suitable place to land as soon as possible.

Note: Low-battery RTL occurs only once during the same flight. If the user cancels the low-battery RTL reminder and continues flying, the aircraft may run out of power on its way back and be forced to land, resulting in the loss or crash of the aircraft. If the aircraft continues to fly with low battery, when the configured second-stage protection voltage is triggered, the aircraft will trigger the configured landing behavior. During landing, the user can control the aircraft to move left or right and choose a suitable place to land, and can also cancel the aircraft's continuous descent behavior by switching the flight mode.

Failsafe RTL

During flight, when the remote controller signal is lost, the aircraft will enter failsafe RTL.

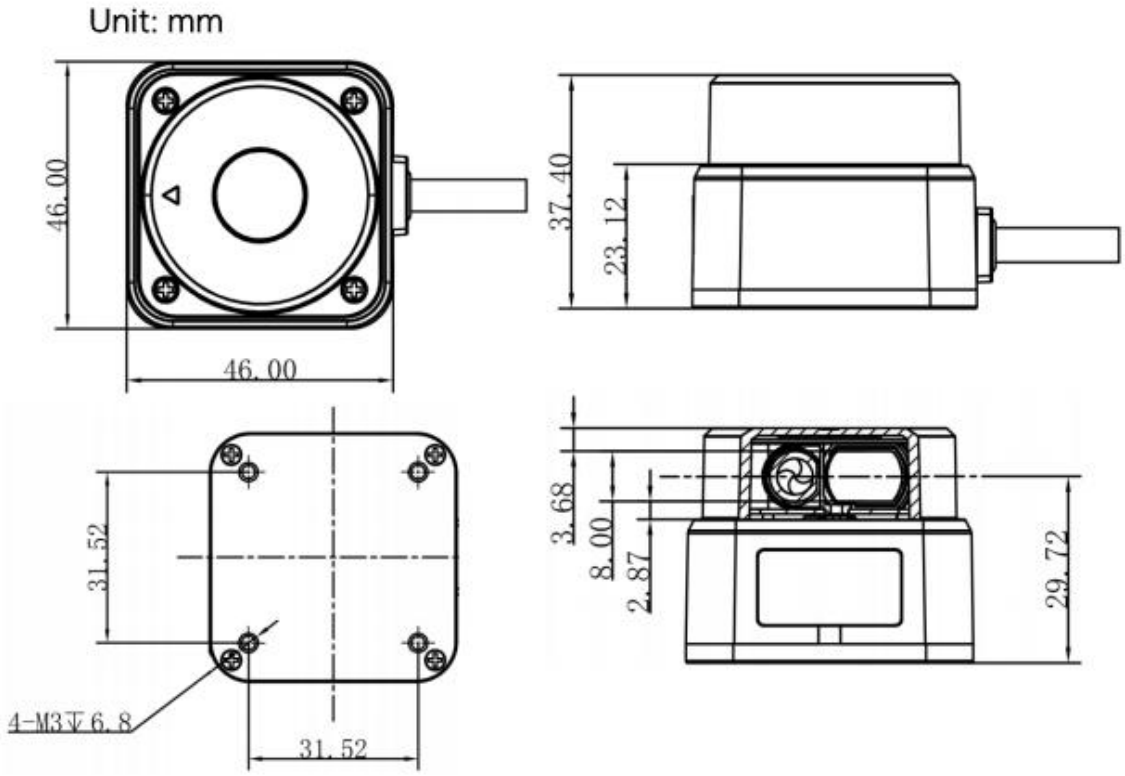
Note: If the failsafe is cleared (i.e., the remote controller transmitter and receiver re-establish communication), the UniDrone E1000 will maintain its failsafe mode. It will not automatically return to the flight mode that was active before the failsafe was triggered. This means, for example, that if the aircraft was in Loiter mode (Position Hold) when the failsafe occurred and the flight mode automatically changed to RTL, the aircraft will remain in RTL even if the transmitter and receiver re-establish communication. If the pilot wants to regain control in Loiter mode (Position Hold), the pilot needs to switch modes on the remote controller transmitter and then switch back to Loiter mode (Position Hold).

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4.10 Obstacle Avoidance System

The UniDrone E1000 is equipped with 360° laser obstacle avoidance, with an effective detection range of 30 m and an effective braking speed of 12 m/s.

> **Note: The obstacle avoidance system cannot recognize mirrors, reflective metal, or transparent glass.**



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Physical parameters of the device:

Item	Specification
Model	LDS-E210-R
Laser wavelength	905nm±15nm
Detection range	0.1-30 m @ 90% reflectivity
	0.1–15 m @ 10% reflectivity
Laser divergence angle	10.3±0.5mrad
Laser horizontal parallelism	0° ±0.3°
Rotation direction	Clockwise/counterclockwise configurable (default: counterclockwise)
Scanning area	360°
Scanning rate	10Hz，15Hz，20Hz
Angular resolution	0.2°, 0.3°, 0.4°
Measurement rate	18,000 measurements/s
Ranging accuracy	±25 mm (ranging accuracy of ±25 mm within 15 m under 10%–90% reflectivity conditions, 90% confidence)
Distance resolution	mm
Spot	17mm×104mm(10m)
Interface type	UART 3.3 V serial port
Power consumption	<2.5W
Output	Raw data (distance, angle, energy)
Ambient light resistance	100kLux
Power supply	5.1±0.2V DC
Operating temperature	-10°C~55°C
Storage temperature	-30°C~70°C
Protection rating	IP65
Dimensions	46 mm × 46 mm × 38 mm (L × W × H)

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4.11 Remote Identification

Wi-Fi Broadcast Remote Identification

Item	Value or Description
Broadcast protocol	WifiBeacon
Trigger conditions for starting and ending remote identification broadcast messages (broadcast operating interval)	Start: the drone is powered on and the self-check is completed; End: the drone is powered off
Broadcast frequency band or channel	Channel 6
Broadcast frequency	10 times per second
Message data update rate	Once per second
Abnormal status indication method	A remote identification module disconnection prompt is shown in the upper left corner of UniGCS
Emergency status of unmanned aircraft and its triggering method	Emergency status: low battery - battery failure; Triggering method: battery level below the set threshold
Abnormal status of unmanned aircraft remote identification and its triggering method	Abnormal status: the remote identification module stops working; Triggering method: the remote identification module is powered off

Network Remote Identification

Item	Value or Description	Remarks
Trigger conditions for starting and ending remote identification	The drone connects to the flight controller and the remote controller is connected to the network	Triggered after the drone takes off, and stops being triggered after the drone lands.
Reporting frequency	Once per second	
Message data update rate	Once per second	
Abnormal status indication method	A remote identification module disconnection prompt is shown in the upper left corner of UniGCS	
Emergency status of unmanned aircraft and its triggering method	Emergency status: low battery - battery failure; Triggering method: voltage below the protection voltage value	
Remote identification status of unmanned aircraft and its triggering method	Abnormal status: remote identification module stops working; Triggering method: disconnect the remote identification module	

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4.12 Aircraft Protection Rating

1. The UniDrone E1000 meets the IP54 protection rating under the GB/T 4208-2017 standard. The protection rating is not permanently effective and may decrease due to wear from long-term use.

   - Do not fly in rainfall greater than 20 mm/h (light rain / light-to-moderate rain).

   - Before use, make sure the battery surface, battery connector, the surface of the aircraft battery compartment, and the battery compartment connector are dry and free of water before inserting the battery into the airframe.

   - Damage caused by immersion in liquid is not covered by the warranty.

2. The IP54 protection rating is not available in the following conditions:

   - The protective rubber plug of an airframe interface is not fastened in place when the external interface is not in use.

   - The protective rubber plug of an airframe interface is not fastened in place when the external interface is not in use.

   - The network card compartment or an external device (such as a megaphone or searchlight) is not properly installed or the screws are not tightened in place.

   - Other possible damage to the airframe, such as a cracked housing or failed waterproof sealant.

3. After long-term use, the appearance may show discoloration, which does not affect the aircraft's performance or protection capability.

4.13 Expansion Interface

Schematic diagram of TYPE-C female port definitions:



Code	A12	A11	A10	A9	A8	A7	A6	A5	A4	A3	A2	A1
Definition	GND	RX+	RX-	VBUS	TX	/	/	RX	VBUS	TX-	TX+	GND
No.	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12
Definition	GND	/	/	VBUS	S.BUS	/	/	/	VBUS	/	/	GND

1. The UniDrone E1000 expansion port integrates an Ethernet port, a serial port, and S.Bus control signals.

2. The peak overcurrent of the expansion port is ≤ 5 A.

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Chapter 5 Remote Controller

5.1 Charging

The UniRC 7 Pro handheld ground station supports charging with the original standard 30 W PD fast charger whether powered on or off. When charging while powered on, if the internal temperature is too high, the ground station will automatically reduce the charging power until the temperature drops.

Steps for Use

1. Use a Type-C fast-charging cable to connect the ground unit to the original standard 30 W PD fast charger.
2. If the battery level indicators flash in sequence, charging is in progress.
3. When the battery level indicators turn to four solid-on lights, charging is complete.

Caution: Do not charge the remote controller without the battery inserted.

5.2 Default Aircraft Function Buttons

Remote Controller Button Indicators



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5.3 Remote Controller Indicators

Remote Controller Status Indicator

Indicator Status	Meaning
Solid red	No communication between the ground unit and the air unit
Red fast flashing	Linking
Red slow flashing	Firmware mismatch
Red triple flashing	Link initialization failed
Red quadruple flashing	Ground unit joysticks require calibration
Red and green flashing alternately	The Android system shut down unexpectedly
Red, green, and yellow slow flashing alternately	Video transmission starting / video transmission firmware upgrade in progress
… Red, green, and yellow flashing alternately at intervals	Upgrade the air unit firmware
Yellow slow flashing	Ground unit power voltage abnormality
Yellow double flashing	Ground unit Bluetooth not recognized
Yellow, red	Ground unit temperature level-1 alarm
Yellow, red, red	Ground unit temperature level-2 alarm
Yellow, red, red, red	Ground unit temperature level-3 alarm
Yellow triple flash	Video transmission firmware mismatch
Green solid on / flashing	The faster the flashing, the weaker the signal
Green solid on	Valid packets: 100%
Green flashing (1 Hz)	Valid packets: 99%-95%
Green flashing (3 times per 5 seconds)	Valid packets: 75%-50%
Green flashing (3 times per 10 seconds)	Valid packets: 50%-25%
Green flashing (once per 25 seconds)	Valid packets: below 25%
Green, red	Air unit temperature level-1 alarm
Green, red, red	Air unit temperature level-2 alarm
Green, red, red, red	Air unit temperature level-3 alarm

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Battery Level Indicators

The battery level indicators show the remote controller's battery level.

Note: ● = solid on; ○ = off; ⊙ = flashing

Battery Level	LED 1	LED 2	LED 3	LED 4
0-25%	⊙	○	○	○
26%-50%	●	⊙	○	○
51%-75%	●	●	⊙	○
76%-99%	●	●	●	⊙
100%	●	●	●	●

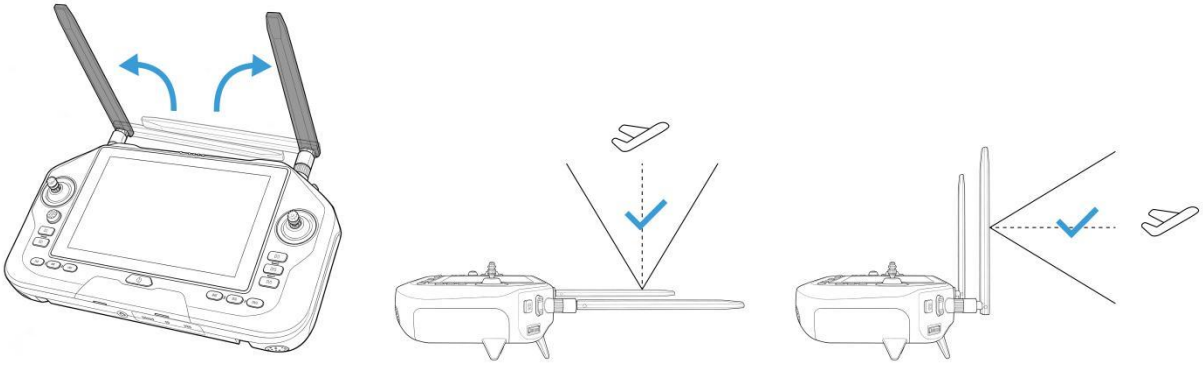
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5.4 Remote Controller Communication Range

Unfold the antennas of the UniRC 7 Pro 2.4G video transmission module:



Unfold the remote controller antennas and adjust them to a suitable position; different antenna positions receive different signal strengths.



According to the relative position of the remote controller and the aircraft, adjust the direction of the remote controller's external antennas and align the antenna planes toward the aircraft so that the signal quality between the remote controller and the aircraft is optimal.

Note:

1. When the antenna is adjusted to its limit stop, do not force it, to avoid damaging the antenna. A damaged remote controller antenna will affect performance and safety; contact REEBOT technical support promptly.
2. During flight, do not use other communication devices on the same 2.4 GHz or 5.8 GHz frequency band (such as enabling mobile phone Wi-Fi), to avoid interfering with the remote controller signal.
3. In actual operation, UniGCS Pro will prompt you when the video transmission signal is poor; adjust the antenna position as prompted to keep the aircraft within the optimal communication range.

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5.5 Outputting Images from the Ground Unit to Other Devices

The UniRC 7 Pro ground unit supports multiple ways to output images to other display devices.

Output via the Ground Unit's HDMI Port

Take outputting images to an HDMI display as an example:

Use a standard HDMI cable to connect the standard HDMI port of the UniRC 7 Pro ground unit to the HDMI port of the display, and the display will show a real-time mirror of the ground unit's screen.

Shared Output via the Ground Unit's Wi-Fi Hotspot

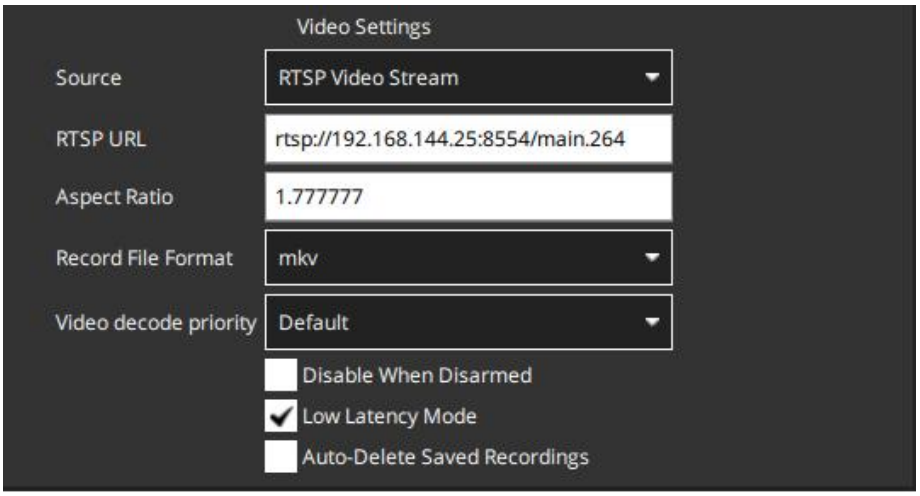
Take sharing images to a Windows laptop and displaying them via QGC as an example:

1. Enter the Android system settings.
2. Go to "Network & Internet – Hotspot & Tethering – WLAN Hotspot" in sequence.



3. Turn on the hotspot and set the hotspot name and connection password.
4. Use a Windows laptop to connect to the hotspot shared by the UniGCS ground unit.
5. Open the QGC ground station software on the laptop. Go to "Application Settings – Video" and switch the video source to "RTSP Video Stream".

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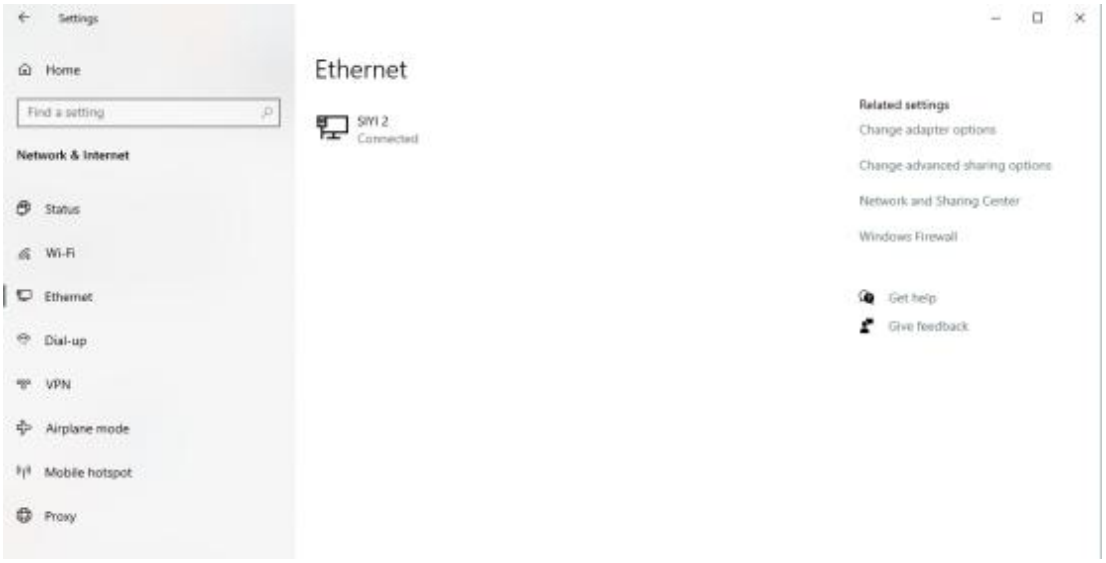


6. Enter the RTSP address of the camera device connected to the air unit in the "RTSP URL" field to display the corresponding camera's image.

Note: If an external device that receives shared images via the ground unit's Wi-Fi hotspot and the software running on the UniRC 7 ground unit display the same video stream, the image may stutter due to bandwidth limitations. In this case, disable one of the video streams, or set one video stream to "SIYI Camera 1/2" and keep the other using the RTSP address.

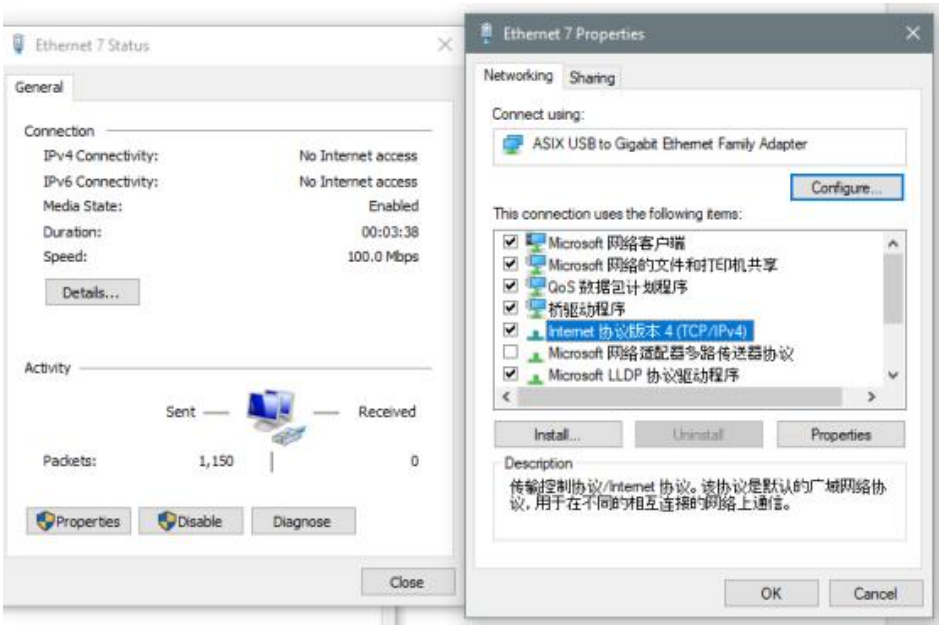
Outputting Images via the Ethernet Port

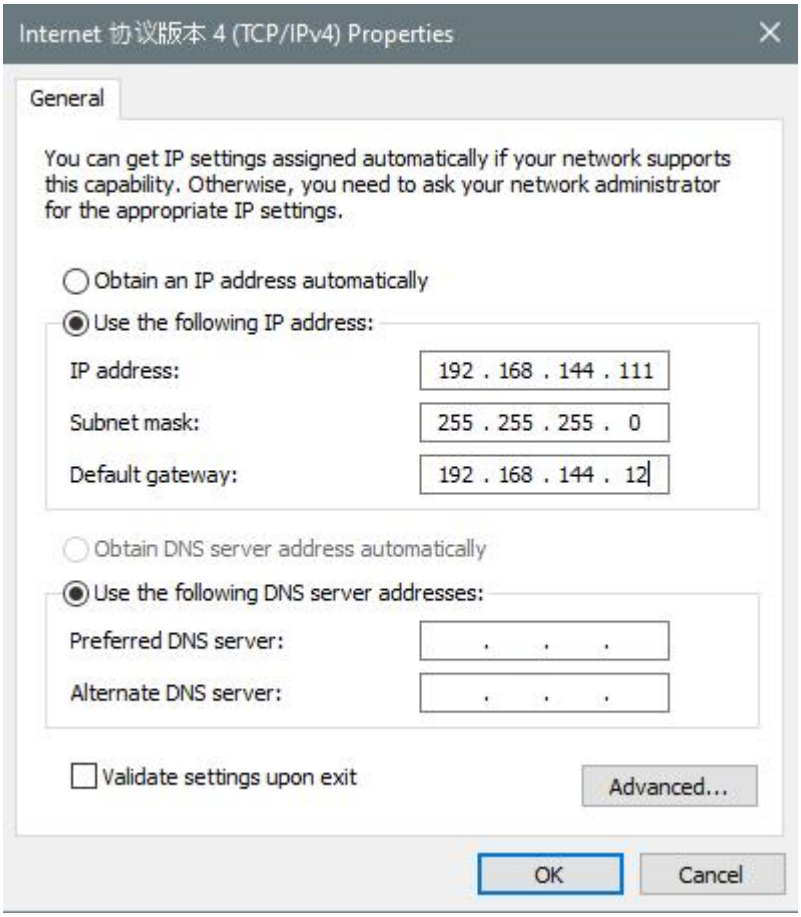
1. Keep the UniRC 7 Pro link in a communicating state, with a camera or gimbal pod connected to the air unit's video input port.
2. Use an RJ45-to-4-pin cable to connect the LAN port on the top of the UniRC 7 Pro ground unit to the PC.
3. Open the Ethernet settings on the PC, click "Change Adapter Options", and find the newly added network.



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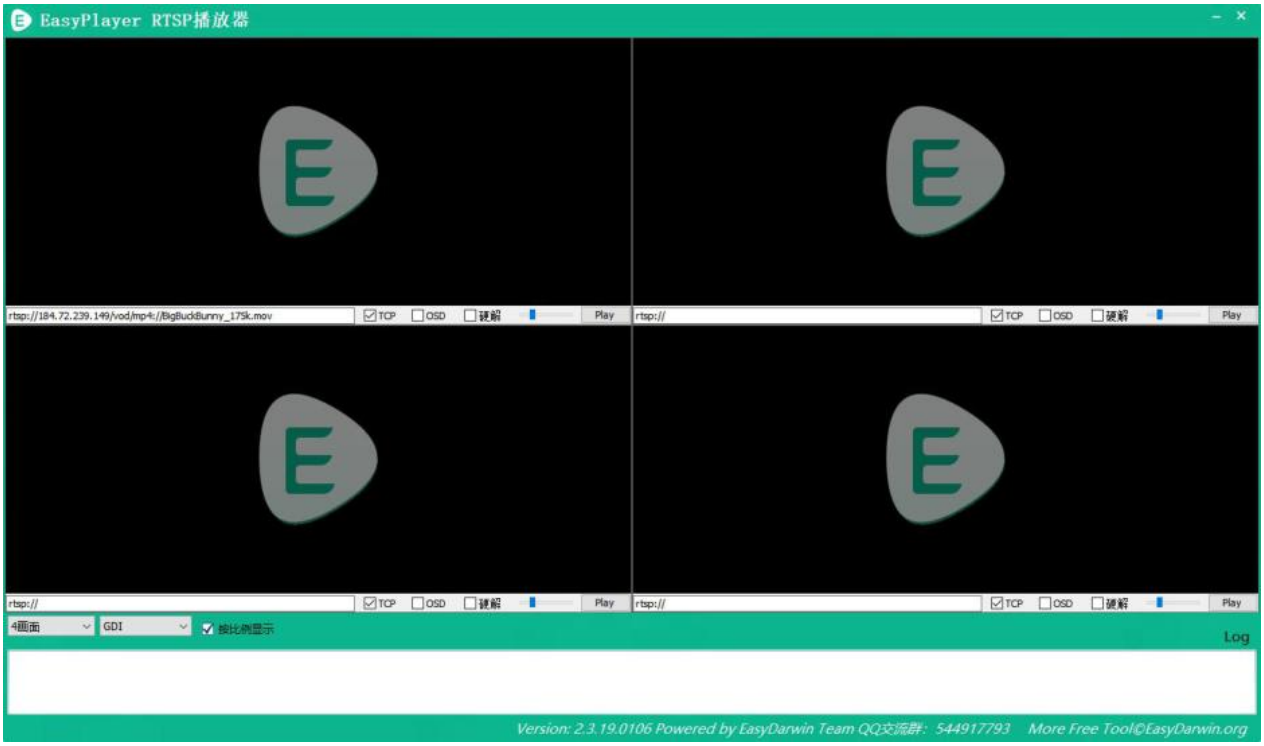
4. Find the newly added network, click "Properties" and then "Internet Protocol Version 4 (TCP/IPv4)" in sequence, and modify the IP address as follows:



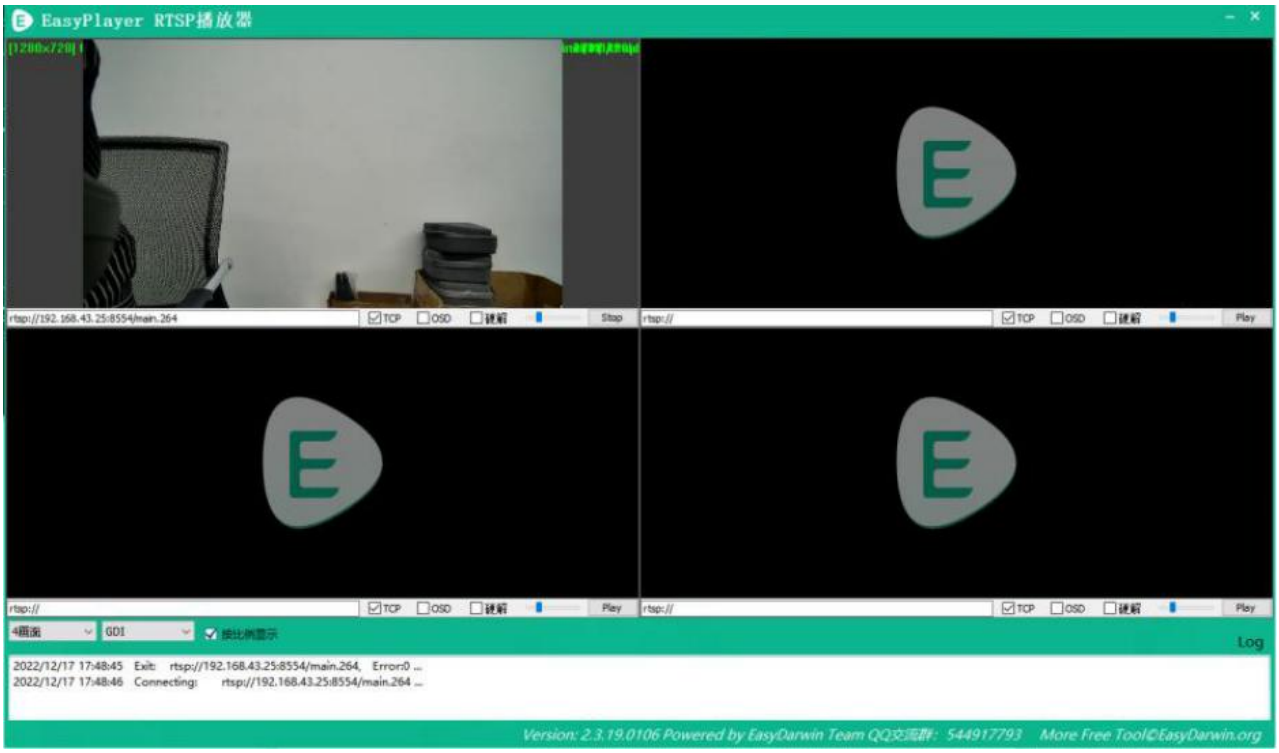


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5. Run the RTSP video output software EasyPlayer.

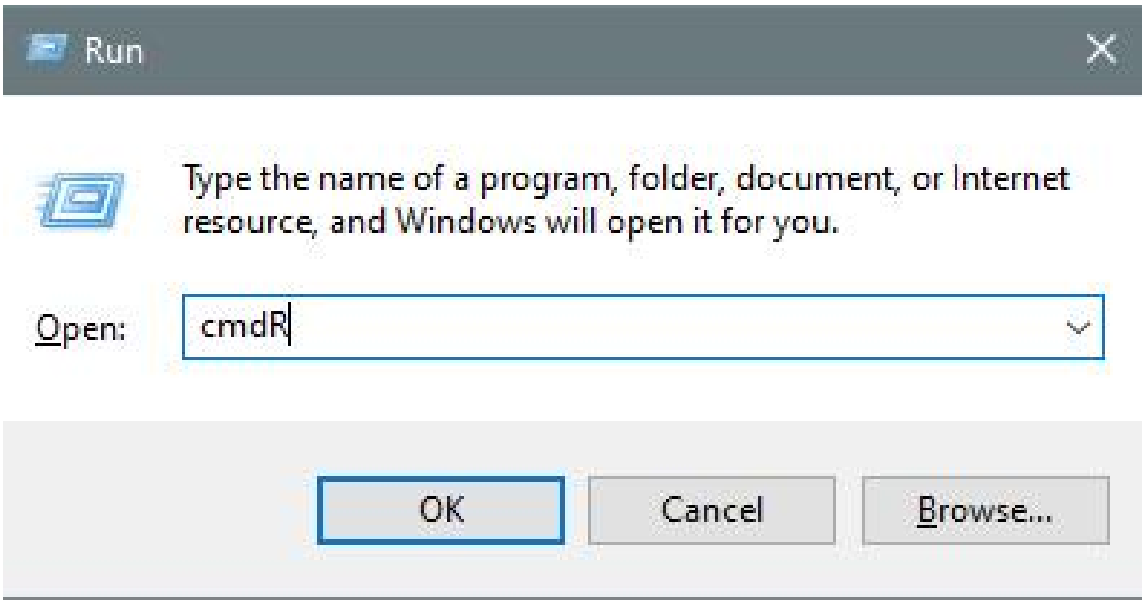


6. Enter the full RTSP address of the camera or gimbal pod in the IP address field of the EasyPlayer player to display the image.

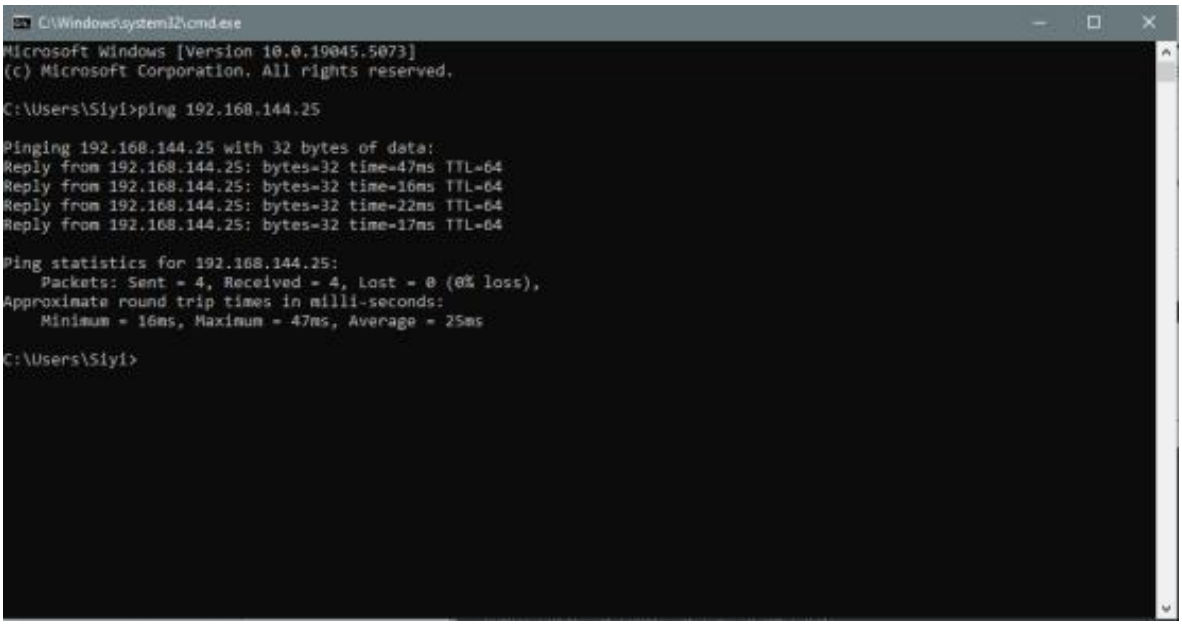


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7. If the image cannot be displayed properly, first open the Ping app on the UniRC 7 Pro ground unit to check whether the network is communicating, then press the "Win+R" key combination on the PC to open the menu shown below.



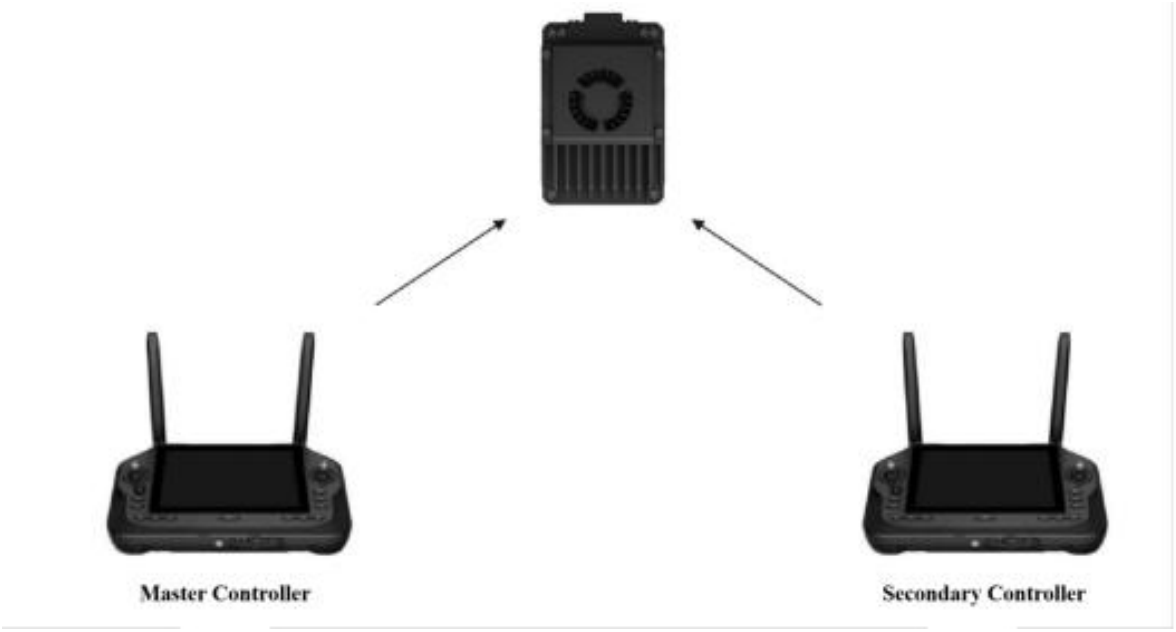
8. Enter "cmd" and press Enter to open the Ping program; enter the camera IP address as shown in the figure below. If there is a reply, the network communication is normal and images can be displayed properly; if there is no reply, the link is disconnected and you need to check the wiring or port condition.



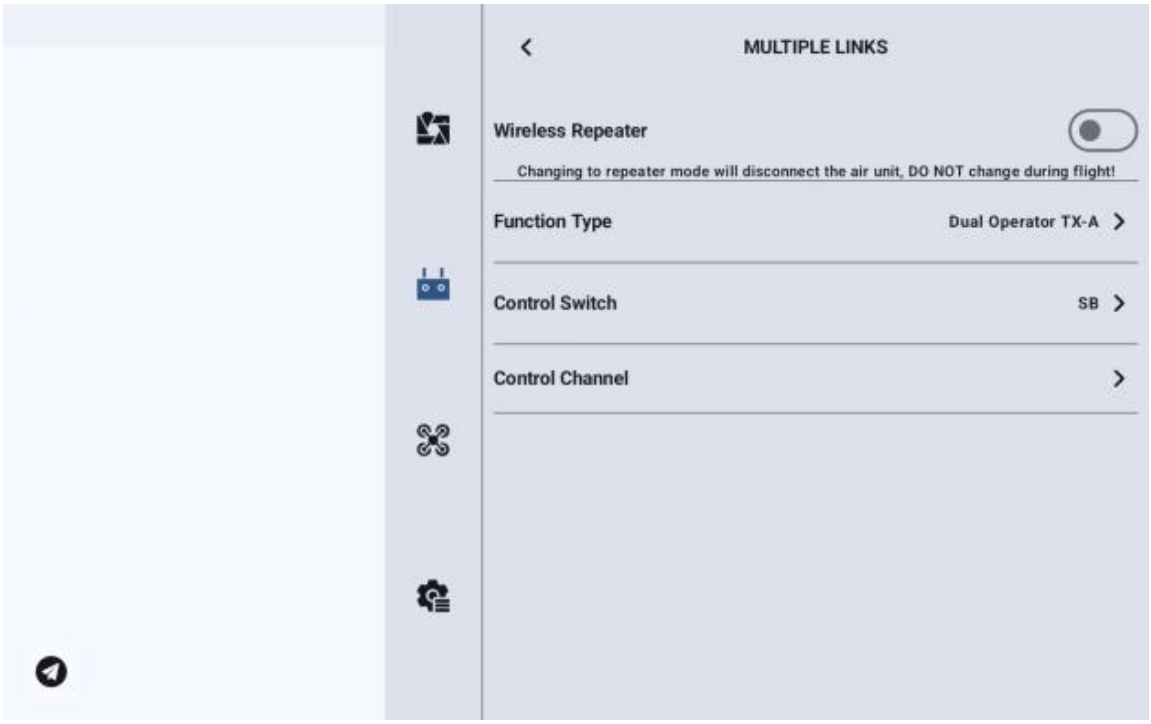
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5.6 Multi-Device Interconnection

One-Drone Dual-Control Mode

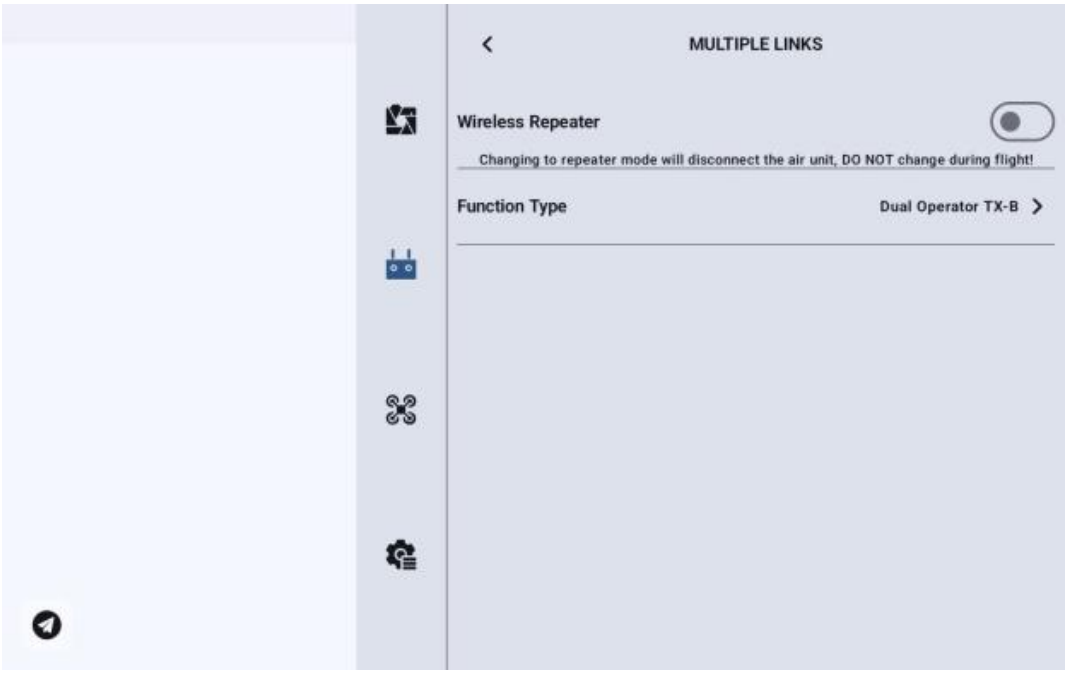


1. First, set the function type of the primary controller's ground unit to "One-Drone Dual-Control – Primary", and link the primary controller's ground unit with the air unit.



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2. Then, set the function type of the secondary controller's ground unit to "One-Drone Dual-Control – Secondary", and link the secondary controller's ground unit with the air unit.

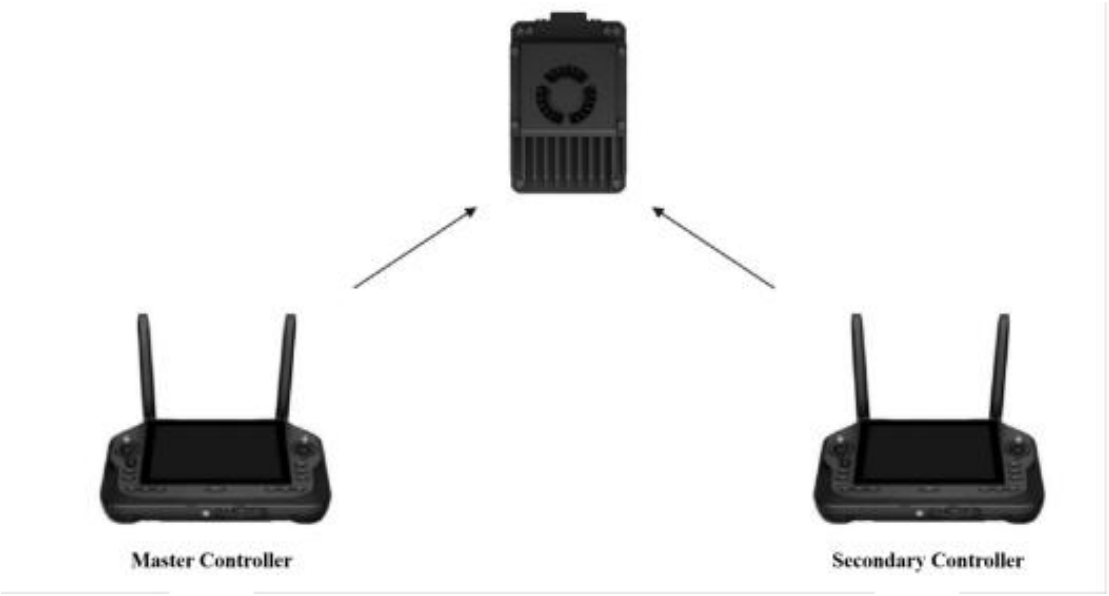


3. After linking is completed, the primary controller can use the primary control switch to hand over the control authority of the control channels that are set as the secondary controller's control channels to the secondary controller (control authority switching is controlled only by the primary control switch).

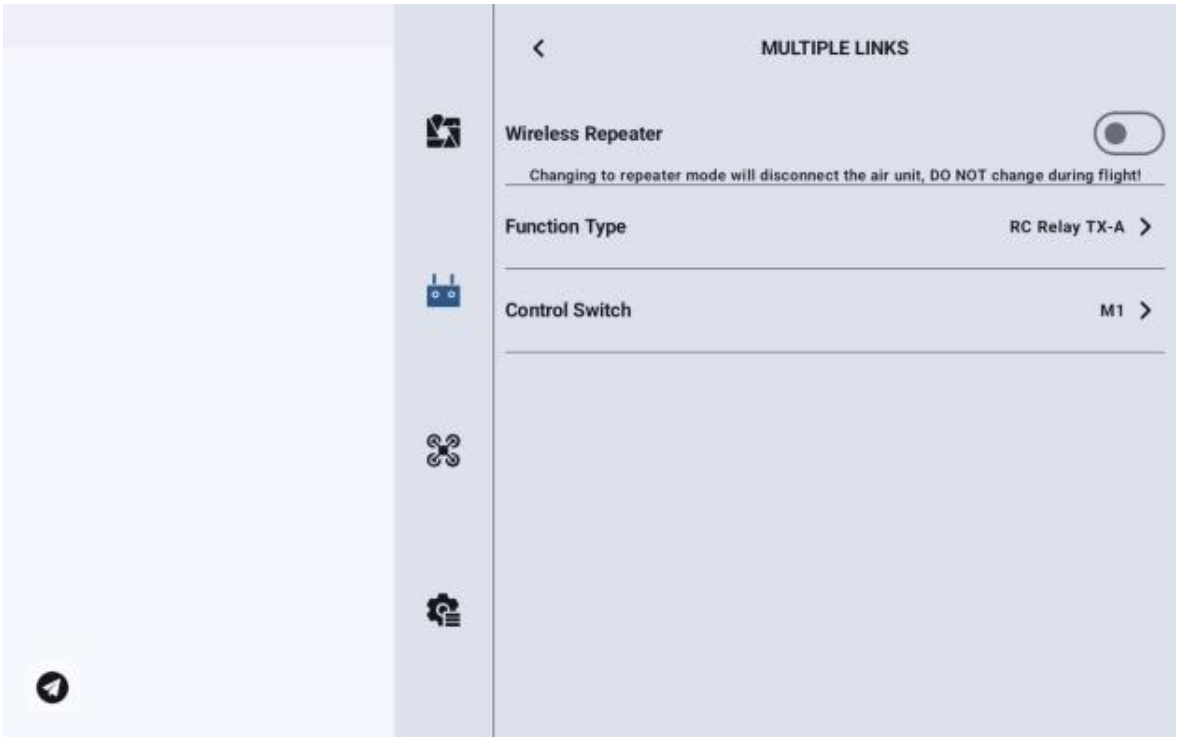


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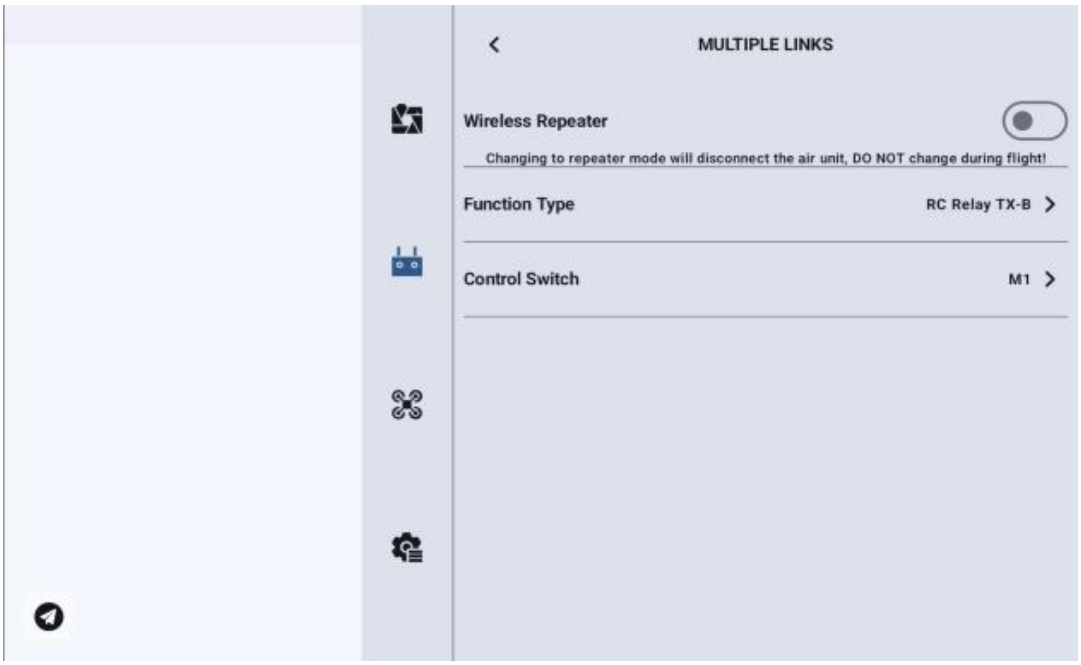
RC Relay



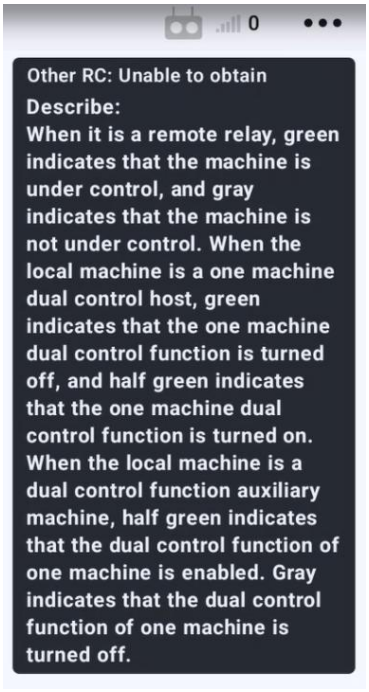
1. First, set the function type of the primary controller's ground unit to "RC Relay – Primary", and link the primary controller's ground unit with the air unit.
2. Then, set the function type of the secondary controller's ground unit to "RC Relay – Secondary", and link the secondary controller's ground unit with the air unit.



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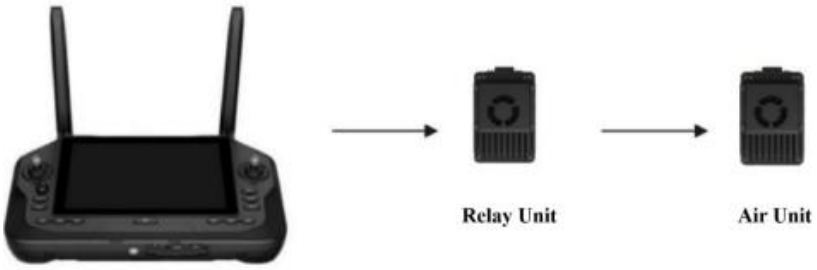
3. After linking is completed, control authority is given to the primary controller first. The primary controller can use the primary control switch to hand over full control authority to the secondary controller. After control authority is switched to the secondary controller, the secondary controller can use the secondary control switch to hand full control authority back to the primary controller. If either the primary or the secondary controller disconnects, control authority is automatically switched to the other party.



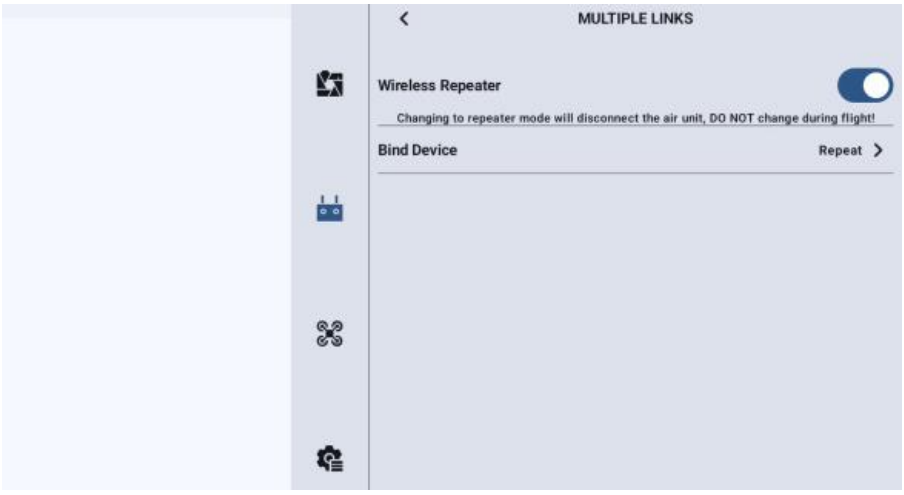
4. The control status information can be viewed by clicking the green remote controller icon in the upper right corner of the UniGCS App main interface.

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Wireless Relay



1. After enabling the wireless relay function, first select the relay unit as the linking target and perform linking (click the remote controller linking button on the ground unit, then press the linking button on the relay unit to link).



2. After linking succeeds, switch the linking target option to the air unit and perform linking (click the remote controller linking button on the ground unit, then press the linking button on the air unit to link).



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Multi-Device Interconnection Precautions

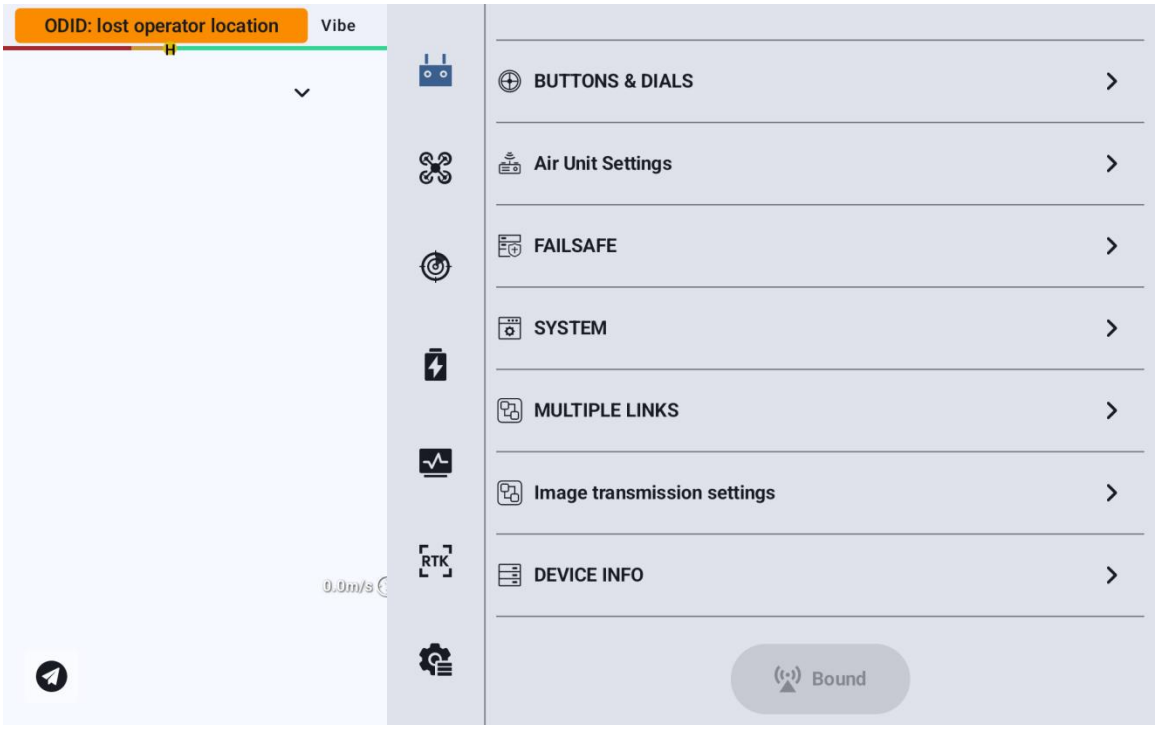
1. After switching the multi-device interconnection mode, linking is forced to be performed again.
2. In RC relay mode and one-drone dual-control mode, the secondary controller is forbidden to set the data link baud rate, PWM, failsafe, 15-channel mode, and video transmission downlink bandwidth.
3. Multi-device interconnection does not allow setting the video transmission mode; the mode is fixed to bitrate enhancement mode.
4. Multi-device interconnection does not support wireless channel setting for now; it is fixed to adaptive wireless channel mode.
5. If the UniGCS App is used for dual-control dual-video output, the primary controller's video transmission downlink bandwidth needs to be set to 20M, and the camera address of the second video output for dual control should be filled in with the RTSP address.
6. In RC relay mode and one-drone dual-control mode, the frequency band configuration must be performed synchronously on the primary and secondary controllers. Wireless relay does not support frequency band setting for now; the frequency band is determined by the frequency band of the ground unit at the time of linking.
7. In RC relay mode and one-drone dual-control mode, the secondary controller's video transmission IP is 192.168.144.13, the primary controller's video transmission IP is 192.168.144.12, and the relay unit's video transmission IP is 192.168.144.75.
8. In RC relay mode and one-drone dual-control mode, if the Android firmware versions of the primary and secondary controllers are lower than (Pro version: V1.0.7; Standard version: V1.0.6) (not including Pro version: V1.0.7 and Standard version: V1.0.6), the IP does not support automatic modification for now and must be configured manually.

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5.7 Linking

Follow the steps below to link the ground unit and the air unit:

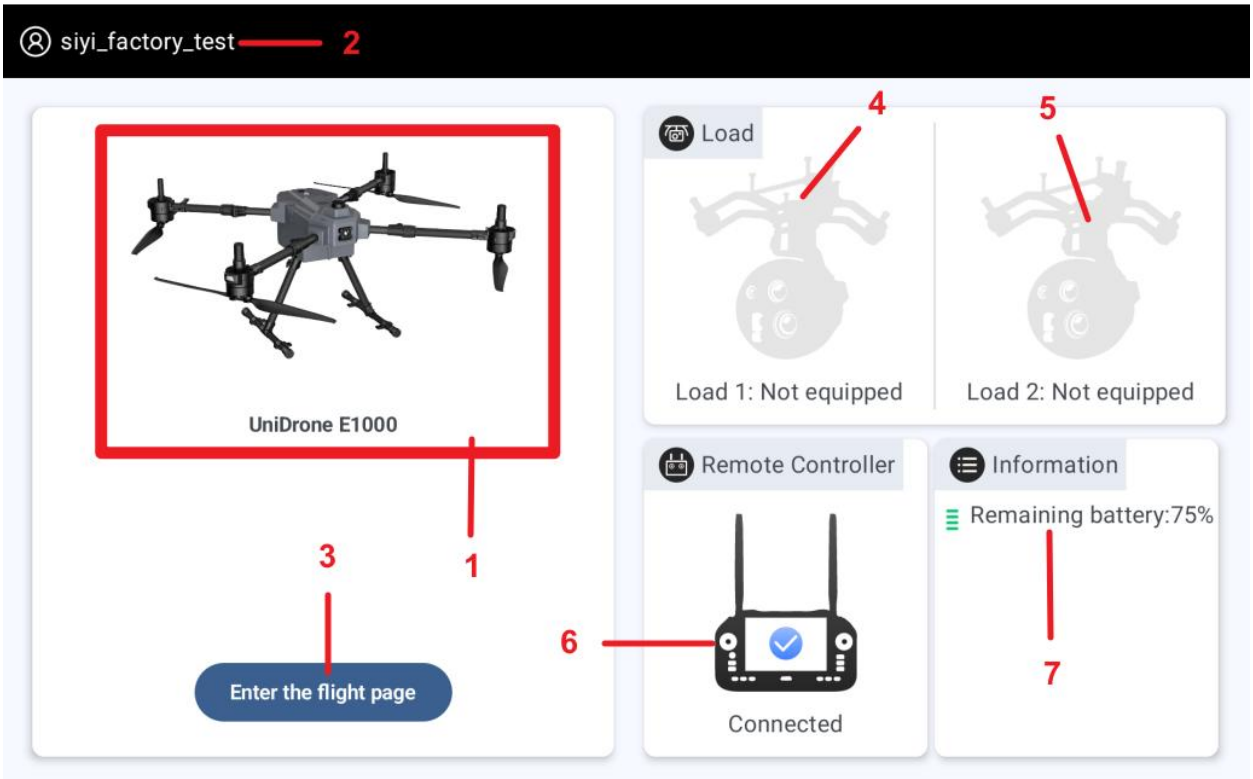
1. Open the remote controller settings menu in "UniGCS Pro" and click "Remote Controller Linking";
2. The ground unit status indicator enters the red fast-flashing state, and the handheld ground station starts beeping;
3. Then press the air unit linking button for 2 seconds; the air unit status indicator also enters the red fast-flashing state;
4. Wait for about 5 to 10 seconds. When the status indicators of both the ground unit and the air unit turn solid green, the linking is successful.



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Chapter 6 UniGCS Pro App

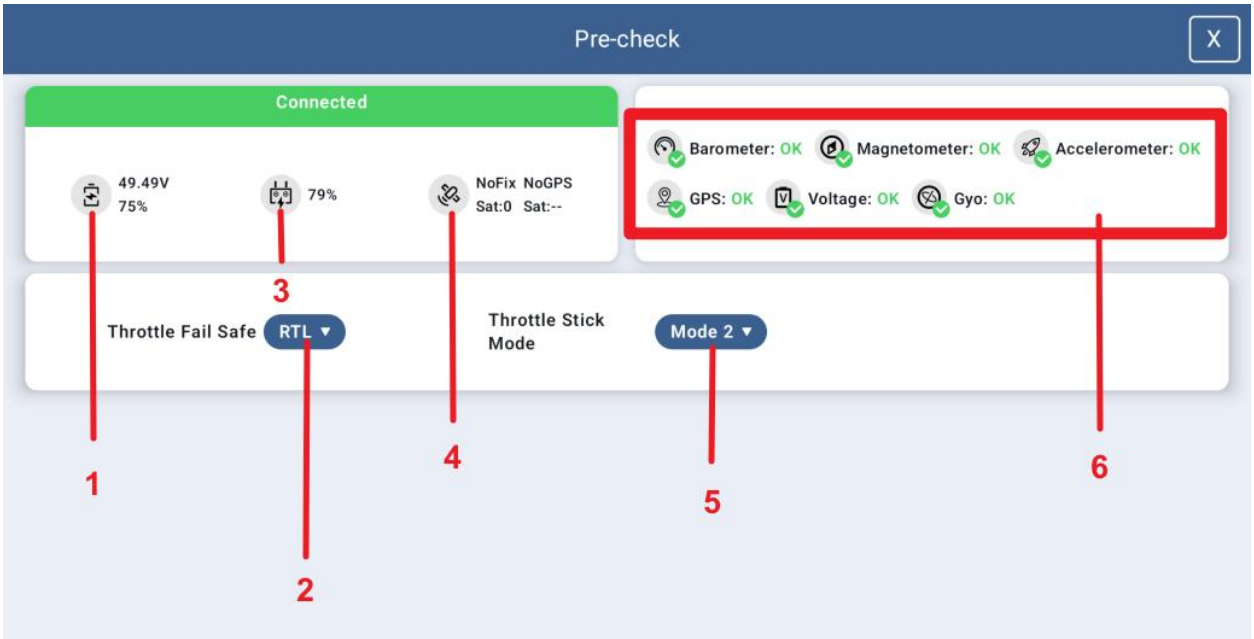
6.1 Home Page



1. Device Status
2. Personal Account
3. Flight Interface Entry
4. Payload 1 Status
5. Payload 2 Status
6. Remote Controller Status
7. Aircraft Battery Level

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6.2 Pre-Flight Check



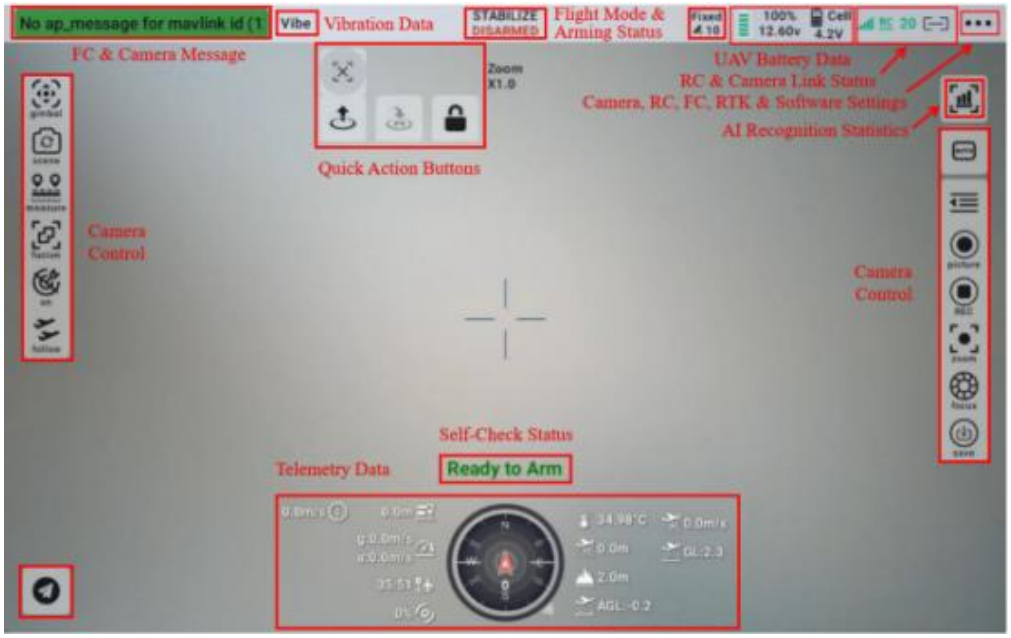
1. Aircraft Voltage and Battery Percentage
2. Aircraft Protection Action When Remote Controller Signal Is Lost
3. Remote Controller Battery Percentage
4. Satellite Signal Status
5. Stick Mode (default: Mode 2 (American hand))
6. Sensor Status

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6.3 Flight Interface



1. Flight Assistance Functions
2. FPV Gimbal Recentering Function
3. Map Interface Switching
4. Payload Page Entry
5. Aircraft Data Information
6. Smart Takeoff/Landing Functions
7. RTK Status Pop-Up
8. Obstacle Avoidance Switch Status

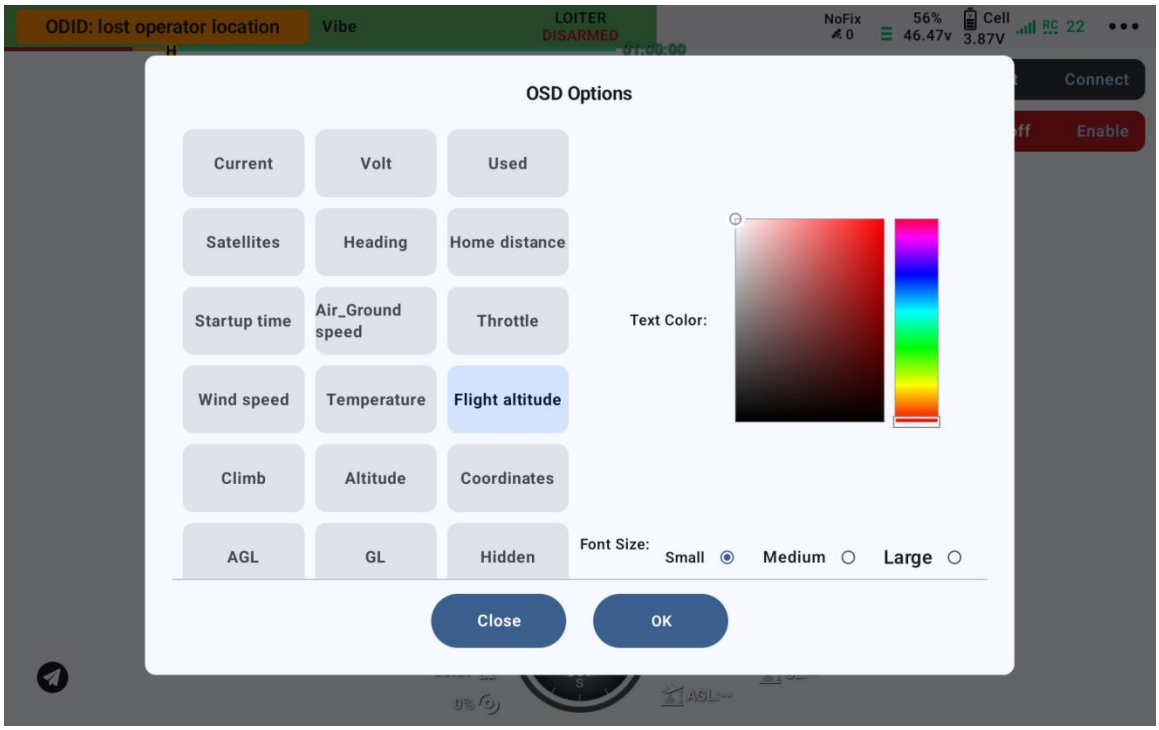


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OSD Options

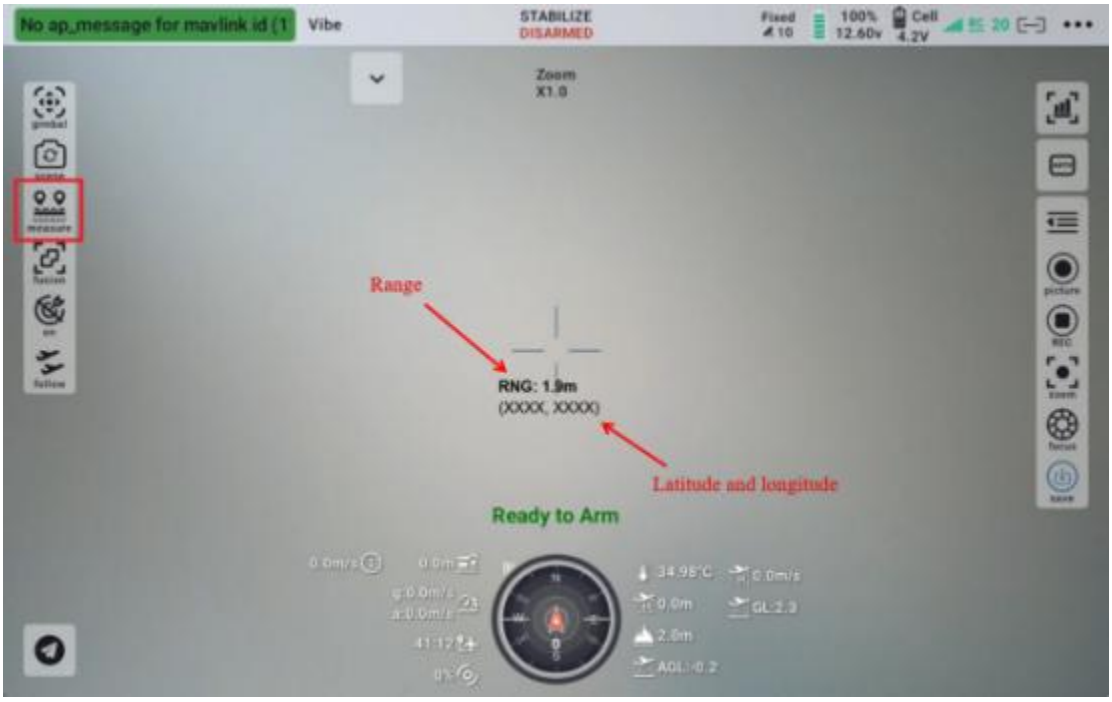
Press and hold to enter the OSD options, where you can customize the content, font color, and size.



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Laser Rangefinding

Used to turn laser rangefinding on or off. Tap the rangefinding switch to enable the rangefinding function; the button changes color, and the crosshair stays aligned with the current ranging target. Aim the center of the camera view at the position to be measured, and the distance from the camera to the measured position will be displayed on the screen. Tap the highlighted button again to turn off the rangefinding function.



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Chapter 7 Flight Operations

7.1 Route Module

Route Module Main Menu



1. Route Viewing and Planning: view the route library and plan routes.
2. Start/Pause Route: after planning and uploading a route, tap this button to start executing the route mission. While the route mission is in progress, tap this button to pause the mission; the aircraft will enter a hover state. Tap again to resume the route mission.
3. Delete Route: clears the route mission on the current page, and also clears the route file in the flight controller. While a waypoint mission is in progress, tap this button and confirm the deletion as prompted; the aircraft will enter a hover state.

> **Note: After clearing, there is no route mission in the aircraft, so the route mission cannot be continued. Only by uploading a new route can the route mission be executed again.**

4. Exit Route: during route mission execution, tap this button to exit the route mission; the aircraft will enter a hover state. Tap the mission start button again to resume the route mission.
5. Download Route: tap this button to download the route mission stored in the aircraft.
6. Locate Aircraft: tap this button to highlight it and center the aircraft on the map. During flight, the map follows the aircraft's movement; when the user manually drags the map, the map-follow

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function is disabled.

7. Locate Remote Controller: tap this button to highlight it and center the remote controller on the map.

> **Caution: This function requires the device to be connected to the Internet.**

8. Map Type: tap this button and select the desired map type to switch; street, satellite, and hybrid maps are supported.

> **Caution: An Internet connection is required to load maps.**

9. No-Fly Zone Display: when the device is connected to the Internet, the software will automatically load no-fly zones when the map interface is opened.

Route Planning Main Menu



1. Clear All Waypoints: tap this button to clear all waypoints planned on the current page.
2. Delete Single Waypoint: tap this button to automatically delete the waypoint selected during planning.
3. Save Route: tap this button to save all waypoints planned on the current page to the route library.
4. Cancel Save: tap this button to cancel saving all waypoints planned on the current page.
5. Reverse Waypoint Order: reverses the order of the waypoints; the latitude and longitude of each waypoint remain unchanged.

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6. Route Shape:

   - Custom: waypoint positions tapped freely by the user.

   - Circle: generates a circular route with a specified number of points (no more than 300). Drag the blue dot on the preview frame or zoom the map in and out to determine the radius of the circular route; the coordinates of each waypoint are determined by the center and the radius. Tap Confirm to automatically generate the route.

   - Rectangle: generates a rectangular route with 4 waypoints. Drag the blue dot on the preview frame or zoom the map in and out to determine the length and width of the rectangular route. Tap Confirm to automatically generate the route.

7. Show/Hide Edit Menu: tap this button to hide the edit menu, making it easier for the user to view and drag waypoints. Tap again to expand it.

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7.2 Route Library

Features include route storage, quick recall, editing and updating, and cross-device synchronization.

Route Library List

Visually displays the routes planned and saved by the user, making it easy to view and modify them again.



1. Edit: after entering the route library list, tap the Edit button on any route to edit that route again.
2. Export: in the route library, tap the Export button on any route to save it as a route usable by the aircraft and store it locally in Waypoints format.
3. Delete: tap the Delete button on any route to delete it from the route library.

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Upload Routes to the Cloud

After successfully logging in to your account, press and hold any route in Local Routes, and selection buttons will automatically pop up on the right side of the route.



Then, simply select the routes to be uploaded to the cloud and tap the "Upload to Cloud" button to complete cloud storage of the routes. This enables cross-device access to routes, greatly improving the convenience of route reuse and making it easy to obtain the required routes on different devices.



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Download Routes to Local

After successfully logging in to your account, you can view, export, and delete cloud routes in Cloud Routes.



Meanwhile, press and hold any route, and selection buttons will automatically pop up on the right side of the route. Then, simply select the routes to be downloaded locally and tap the "Download to Local" button to download the routes from the cloud.



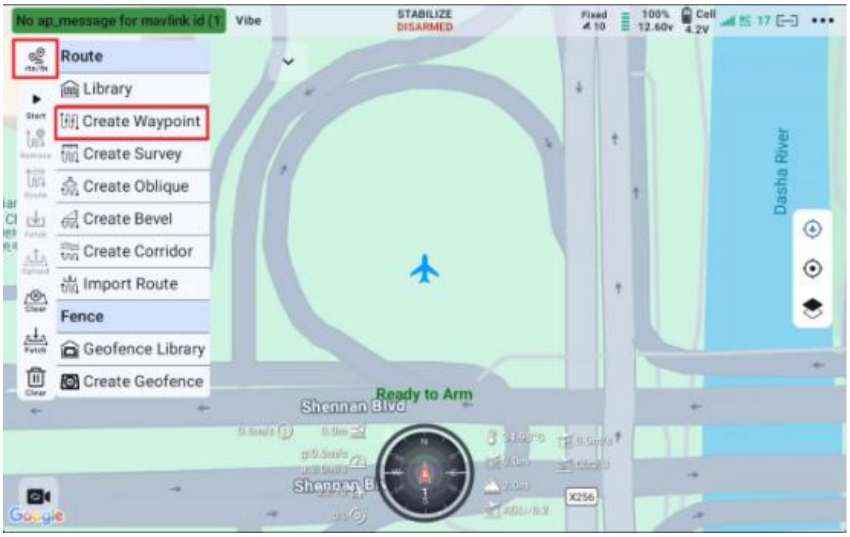
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7.3 Waypoint Routes

A route that flies in a preset waypoint sequence; each waypoint contains parameters such as coordinates and altitude. It is suitable for precisely executing fixed-point missions (such as inspection and fixed-point photography), offers high flexibility, and allows custom paths.

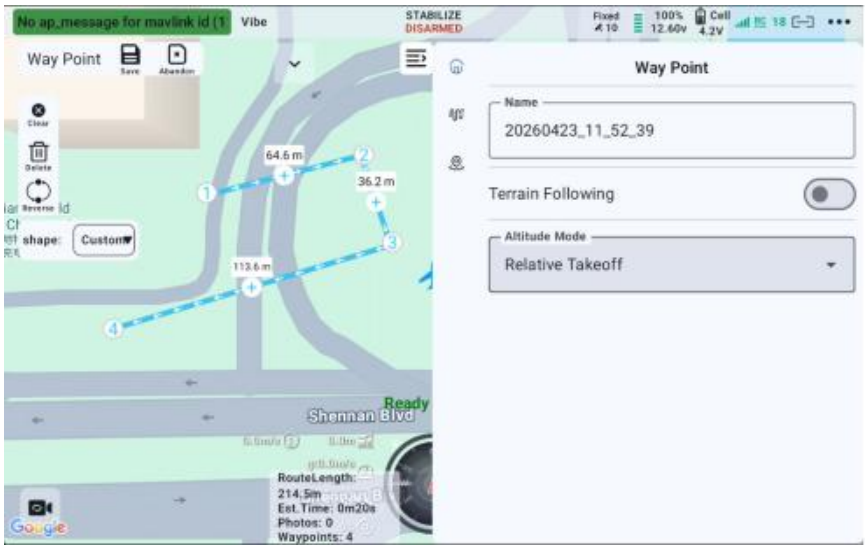
Create Route

Tap the route planning button and select Create Waypoint Route to plan a waypoint route.



Waypoint Flight

In the Waypoint Flight tab, you can name this mission, turn terrain-following flight on or off, and switch the route altitude mode, among other options.



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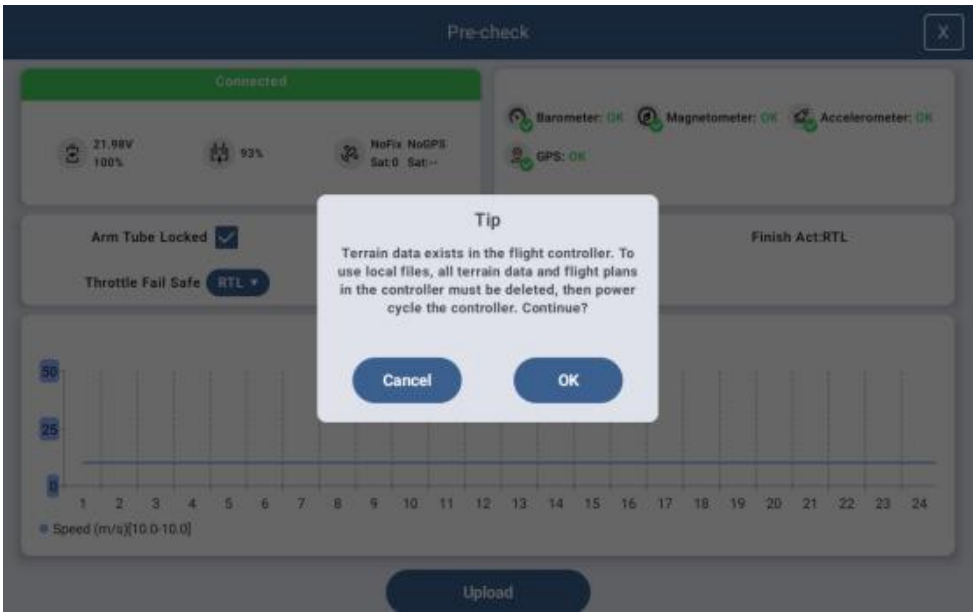
1. Clear: clears all waypoints on the planning interface.
2. Delete: deletes the single waypoint highlighted in blue on the current interface; short-press a waypoint to highlight it.
3. Route Direction: the arrows on the line connecting two routes indicate the route direction.
4. Route Name: enter the desired name in the input box and save the route; the current route can then be viewed in the route library.
5. Terrain-Following Flight: after turning on the terrain-following flight switch, the aircraft will use the downloaded terrain data to automatically adjust its flight altitude according to the set terrain-following altitude.
6. Altitude Mode: switches the altitude mode of all waypoints in the waypoint route.

   Altitude Above Sea Level (WGS84): the altitude of the aircraft relative to mean sea level (MSL).

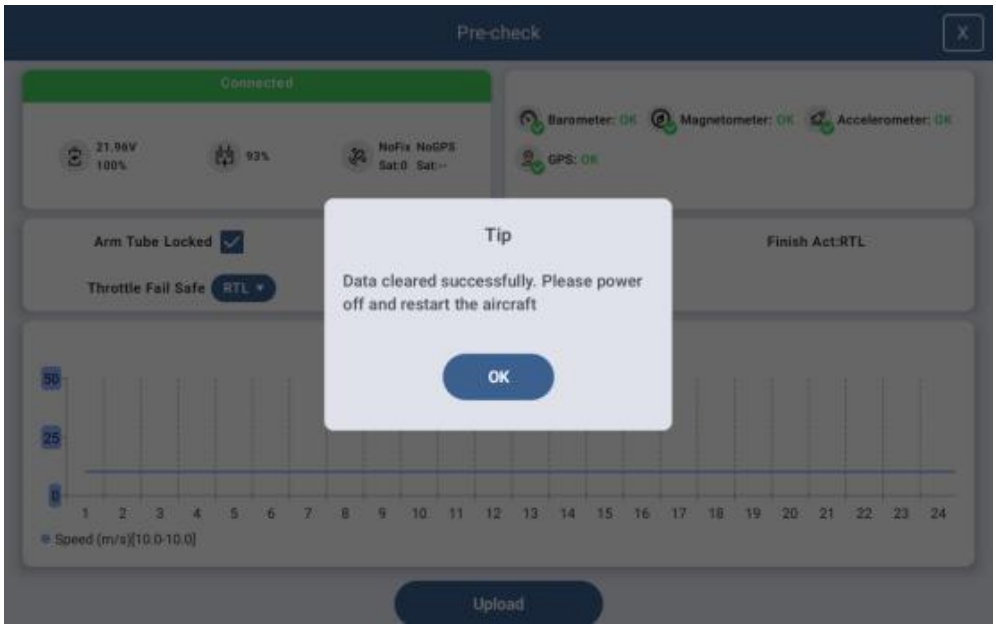
   Relative Altitude: the altitude of the aircraft relative to the takeoff point or the ground reference plane.
7. Optional Local Terrain File: when network terrain data cannot be loaded or does not meet current needs, the user can select one or more local terrain files. Terrain files must be in ".TIF" format.

Note: Online terrain-following altitude data comes from open-source databases and may deviate from the actual terrain. Ensure a safe flight environment.

Note: When uploading a route using the local terrain-following function, if terrain files are detected in the APM/TERRAIN directory of the aircraft memory card (the directory where the flight controller memory card stores terrain files) and there are other routes inside the aircraft, a prompt will pop up. To continue, tap Confirm, and be sure to power off and restart the flight controller without exiting the interface. After reconnecting, continue uploading the route.

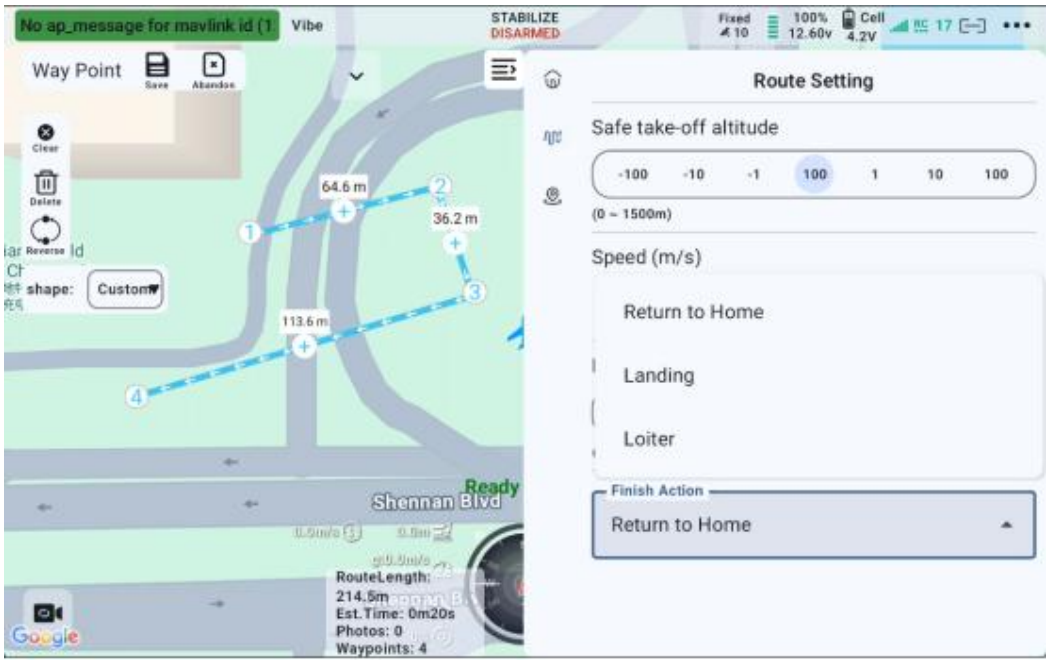


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Route Settings

Enter the Route Settings tab to modify the safe takeoff altitude, route speed/altitude, and mission completion action.



1. Safe Takeoff Altitude: sets the altitude to be reached during takeoff in a route mission; the aircraft proceeds to the first waypoint only after reaching this altitude.
2. Speed: sets the horizontal speed when flying a waypoint route.

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3. Route Altitude: sets the flight altitude for continuing the mission after reaching the safe takeoff altitude during waypoint route execution.
4. Terrain-Following Flight Altitude: when terrain-following flight is enabled, this altitude value determines the relative distance between the aircraft and the terrain during flight.
5. Completion Action: sets the behavior after completing the waypoint route mission.

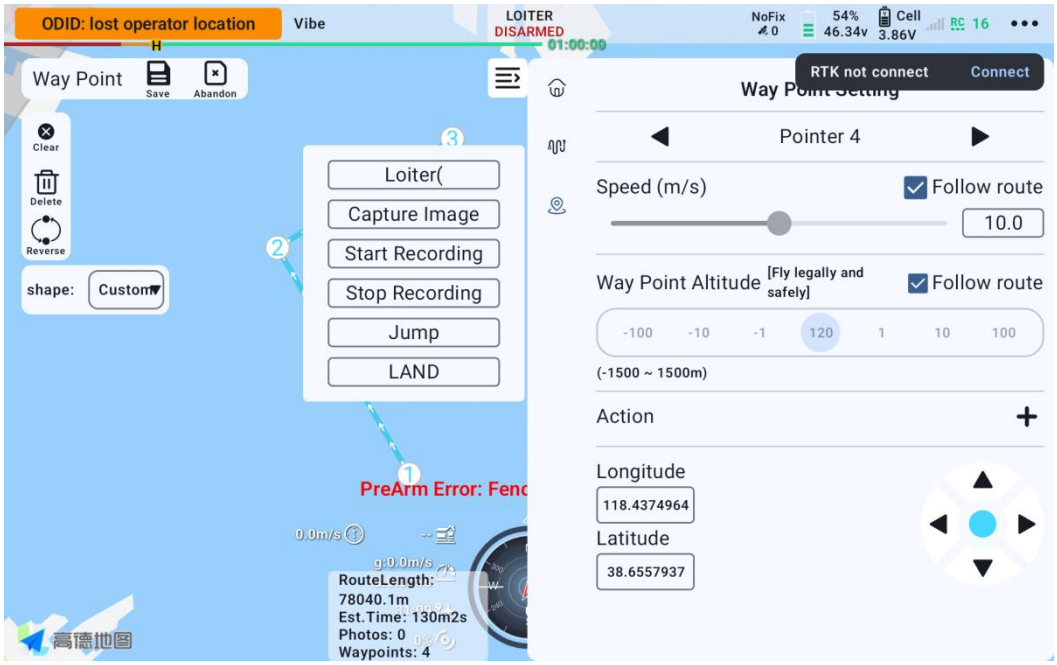
   Return to Launch: return home from the position of the last waypoint of the mission.

   Land: perform an in-place landing at the position of the last waypoint of the mission.

   Hover: hover at the position of the last waypoint of the mission.

Waypoint Settings

Enter the Waypoint Settings tab to adjust the altitude, speed, waypoint actions, and latitude/longitude of a single waypoint.



1. Waypoint Speed: the flight speed after reaching this waypoint.
2. Waypoint Altitude: the flight altitude when reaching this waypoint.
3. Follow Route: Follow Route is checked by default; when checked, the speed/altitude of this waypoint is set to the speed/altitude in "Route Settings".
4. Waypoint Actions: actions executed after reaching this waypoint; multiple actions can be combined.

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- Hover: after reaching this point, hover for the set duration.

- Take Photo: take a photo after reaching this point.

-- Start Recording: start video recording after reaching this point.

- Stop Recording: stop video recording after reaching this point.

- Waypoint Jump: after reaching this point, the aircraft will jump to the set target waypoint. You can set the number of repetitions to make the aircraft repeatedly execute between the jump point and the jump target point; setting the repetition count to "-1" means an infinite loop.

- Land: after reaching this point, the aircraft will land at its current position.

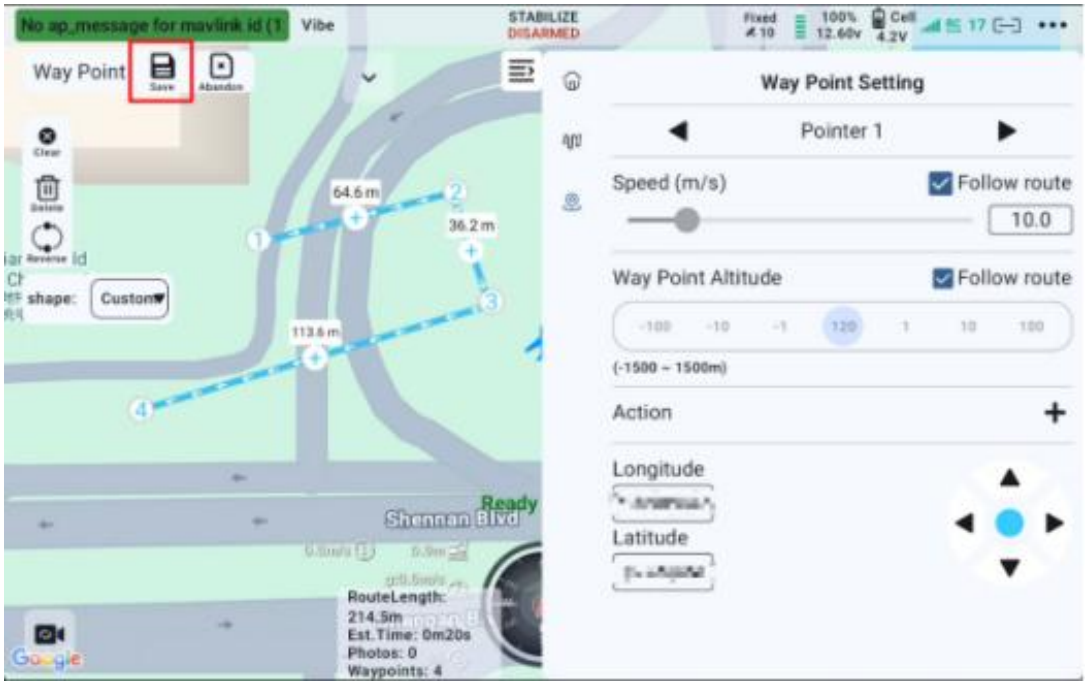
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Mission Execution

Step 1: After planning the route, tap the Save button.



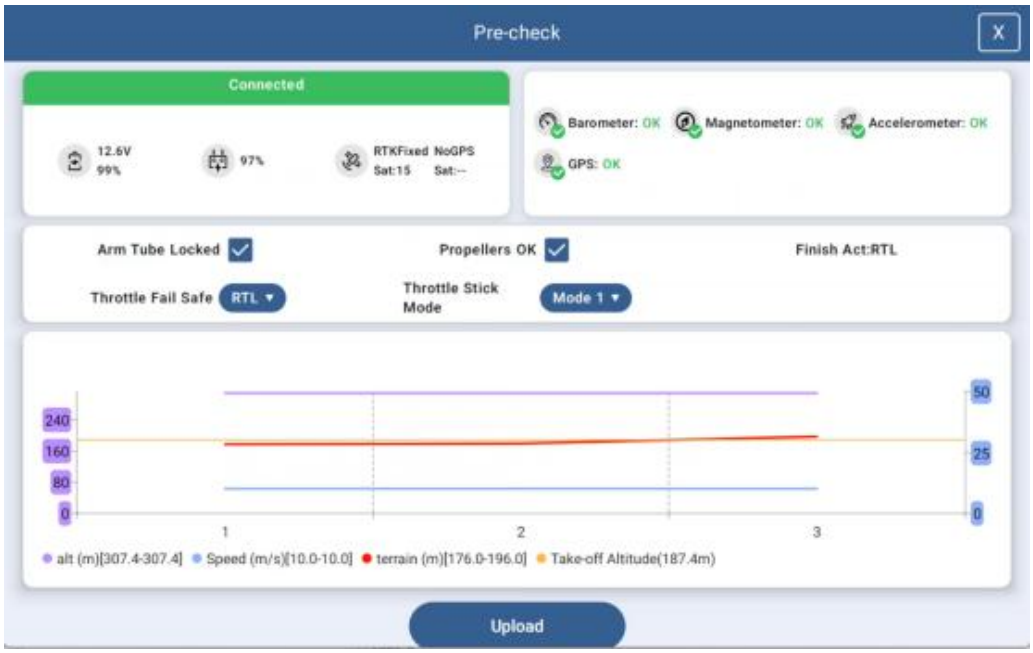
Step 2: Tap the Start button to upload the route.



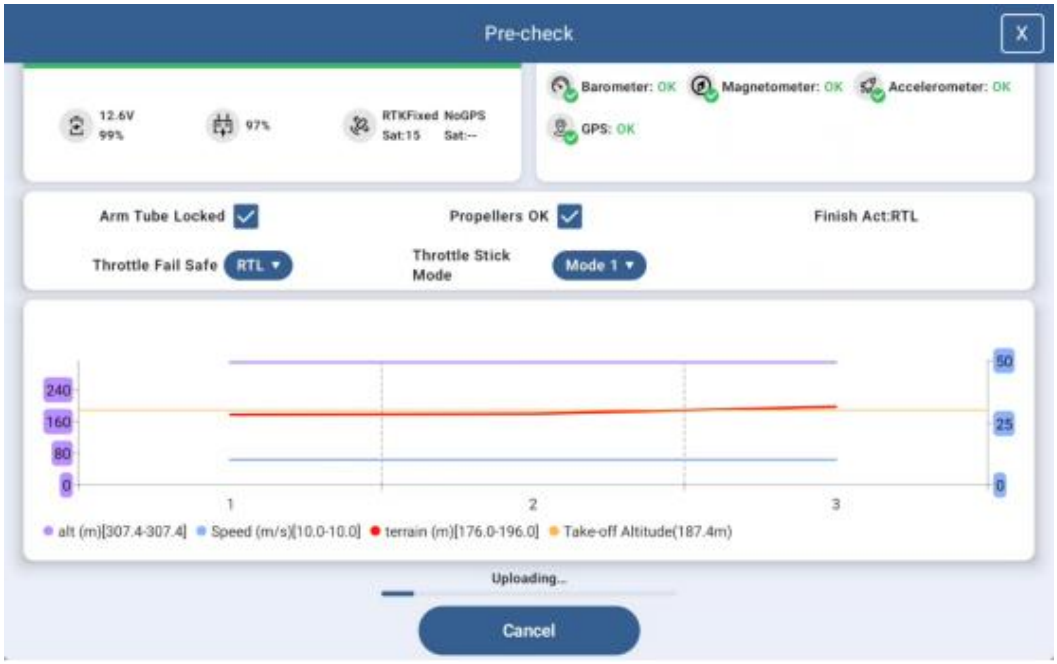
Step 3: After tapping Start, the pre-flight check page appears. The page includes a route information check, where you can preview the route speed, altitude, terrain altitude, takeoff point elevation, and route completion status; aircraft status viewing, including the health status of each sensor, aircraft battery level, positioning

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status, and failsafe settings; and remote controller status viewing, including aircraft connection status and remote controller battery level. For flight check confirmation, confirm that the arms are locked and the propellers are normal, and check the boxes. When finished, tap Upload Route.

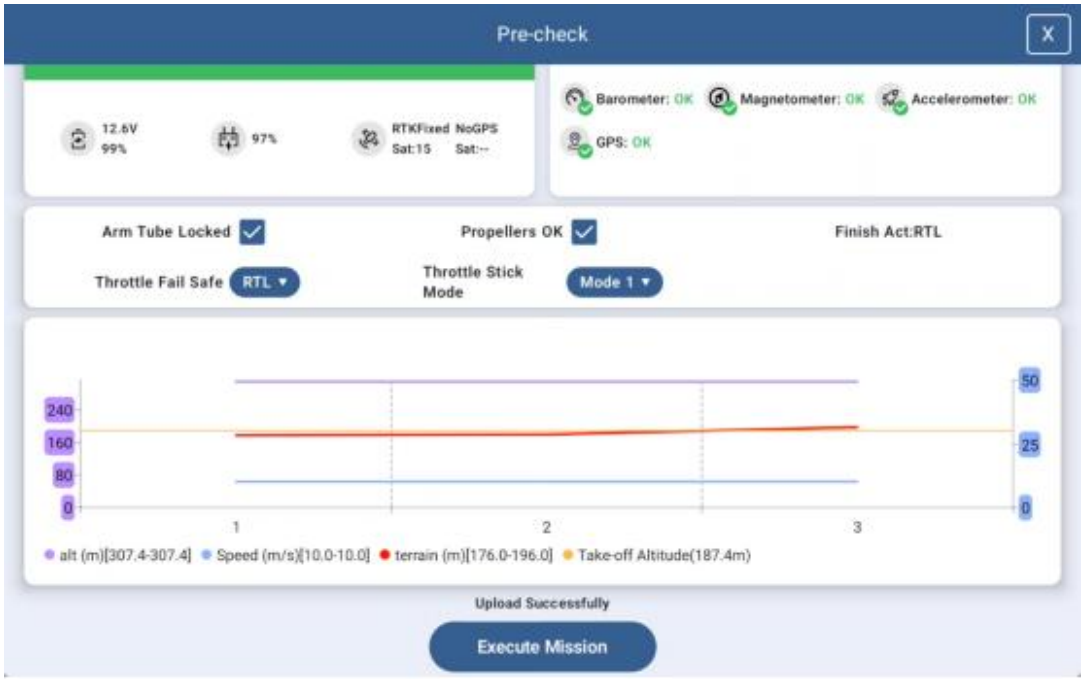


Step 4: Wait for the route upload to complete.



Step 5: Unlock the aircraft and tap Execute Mission to execute the waypoint route mission.

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Jump to Waypoint

Under the current route, tap a waypoint, then tap "Jump to This Waypoint", and the aircraft will fly to that waypoint. This applies to all routes except slope routes.



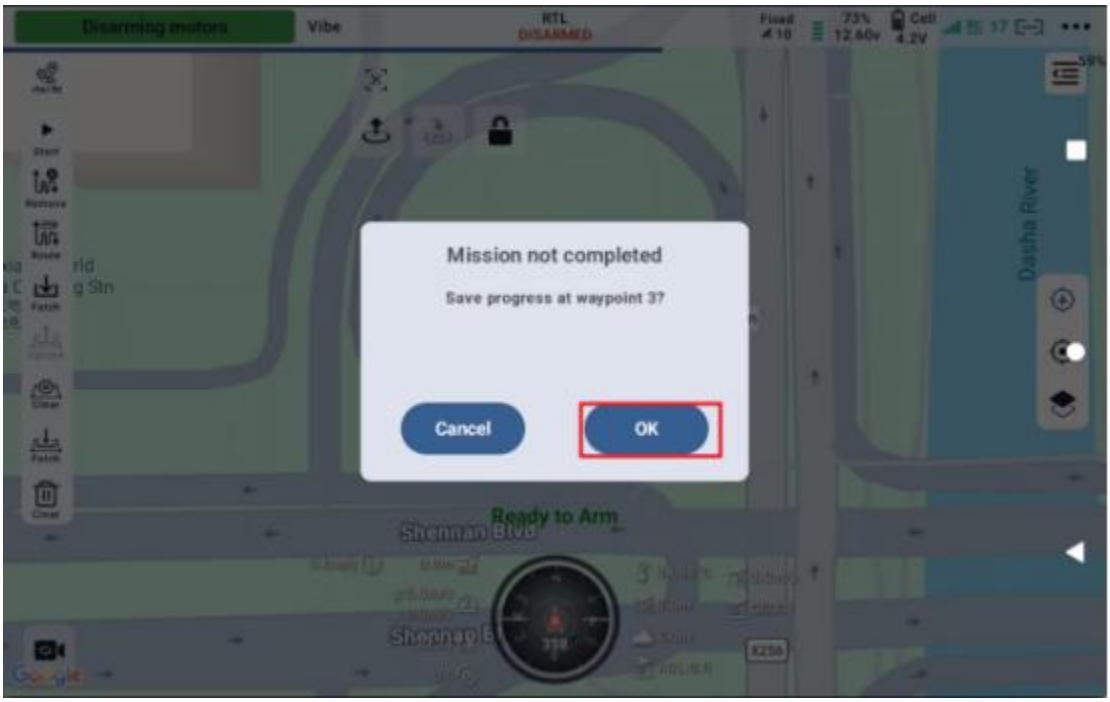
Note: If tapping has no effect, check whether the waypoint jump action is being performed under the current flight mission. You can tap Download Route, then tap a waypoint to perform the waypoint jump action.

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Resume from Breakpoint

After a flight mission is interrupted, the aircraft can resume the remaining route from the waypoint preceding the interruption point, without restarting from the beginning. This applies to all routes except slope routes.

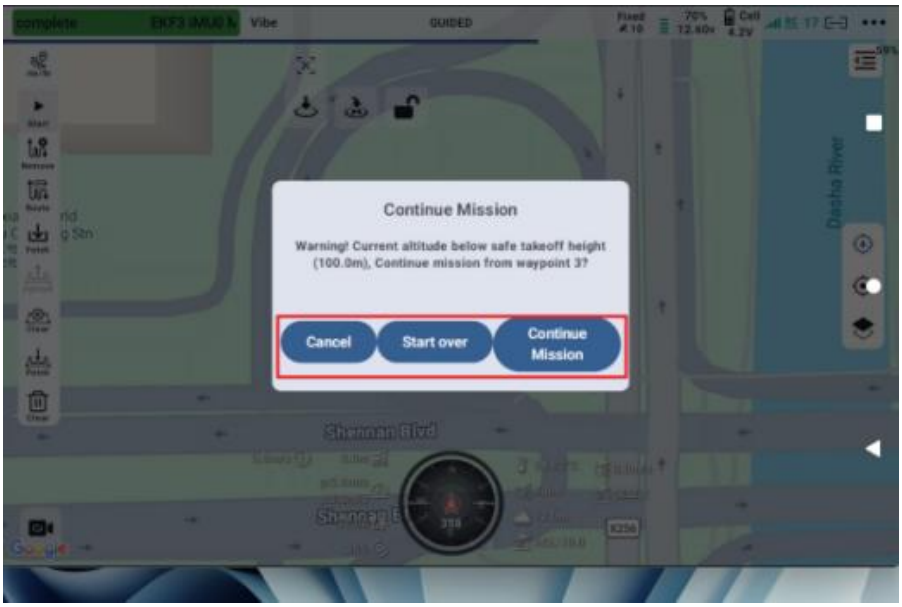
Procedure: after the aircraft mission is interrupted, wait for the aircraft to return to launch, land, and lock. A route mission incomplete prompt will pop up on the main interface; tap Confirm.



When the aircraft is ready again, the operator manually unlocks the aircraft, climbs it above the safe altitude, and taps the "Start Mission" button. The system will pop up a "Continue Mission" dialog with the following options:

1. Cancel: selecting this option terminates the current automatic mission, and the aircraft stops executing the preset route.
2. Restart from the Beginning: after tapping, the aircraft restarts the complete automatic mission process from the first waypoint of the route.
3. Continue Mission: once this option is triggered, the aircraft continues executing the remaining route from the waypoint preceding the last interruption point, ensuring mission continuity.

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Note: To ensure Resume from Breakpoint works properly, keep the program open and running during flight, and use the One-Tap Return-to-Launch button at the top to return when the mission is interrupted; before proceeding to the breakpoint, manually fly the aircraft above the safe altitude.

Route Progress Display

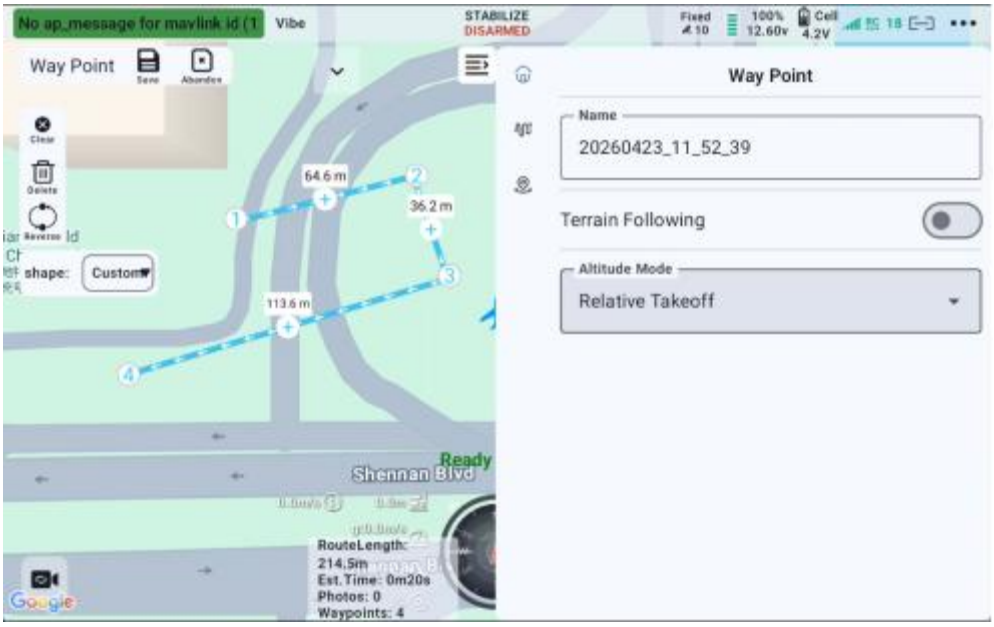
During a mission, a dynamic progress bar is displayed below the title bar, indicating the percentage of the route completed; the length of the progress bar grows in sync as the mission progresses.



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Route Information Estimation

Can estimate the route length, number of waypoints, flight time, number of photos, and survey area for the current route flight.



During route planning, the system can estimate and display the key parameters of the current route in real time, providing an accurate reference for mission preparation and execution:

1. Route Length: visually presents the total distance of the entire route, helping the operator determine whether battery endurance is sufficient and avoid mission interruption due to low battery.
2. Number of Waypoints: clearly indicates the total number of waypoints included in the route, making it easy to grasp the mission's segment points and complexity.
3. Flight Time: based on the route length and the preset flight speed, estimates the total duration required to complete the entire route (takeoff and landing phases not included for now), helping plan the work schedule and staffing.
4. Number of Photos: based on the camera capture interval, overlap requirements, and route coverage, automatically calculates the expected total number of photos, providing a capacity reference for subsequent data storage and processing.
5. Survey Area: presents the actual survey area covered by the route, precisely matching mission requirements with the result scope.

With real-time updates of the estimated information, you can fully grasp resource consumption, time cost, and operation scale before starting the mission, thereby optimizing the planning strategy and improving mission controllability and efficiency.

> **Note: Actual operations may deviate from the estimated results. In actual operations, it is recommended to add a 10%-20% margin on top of the estimates to handle unexpected situations.**

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Flight Controller Camera Status Information



1. Field of view: indicates the current orientation of the camera relative to the nose.
2. Capture Points: displays the shutter trigger positions in the route.
3. Clear Markers: clears the generated capture point markers.

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7.4 Mapping Route

A route in which the aircraft's camera points vertically toward the ground. The images can be used directly to produce orthomosaic maps that accurately reflect the planar positions and shapes of ground features, making it suitable for large-scale map surveying, land planning, and similar scenarios.

Route Planning

Click the Route Planning button and select Create Mapping Route to plan a mapping route.



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Mapping Route Settings

In the Mapping Route tab, you can name the mission and configure the camera selection, route altitude, speed, safe takeoff altitude, altitude mode, completion action, and more.



1. Save: save the currently planned route
2. Discard: cancel saving the currently planned route
3. Clear: clear all waypoints in the planning interface
4. Delete: delete the single waypoint highlighted in blue in the current interface; tap a waypoint to highlight it
5. Shape:
   - Custom: an area freely clicked by the user
   - Circle: generate a circular area with a specified number of points (no more than 300). Drag the blue dot on the preview frame or zoom the map in/out to set the radius of the circular area; click Confirm to automatically generate the circular area.
   - Rectangle: generate a rectangular area with 4 waypoints. Drag the blue dot on the preview frame or zoom the map in/out to set the length and width of the rectangular area; click Confirm to automatically generate the rectangular area.
6. Route name: enter the desired name in the input box and save the route; the route can then be viewed in the route library.
7. Camera selection: select different cameras for mapping route operations, including the wide-

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angle/thermal infrared lenses of the ZT30 camera, the wide-angle/thermal infrared lenses of the ZT6 camera, and the A8 mini camera. Manually adding third-party cameras is also supported; parameters are provided by the third-party manufacturer.

8. GSD: GSD refers to the actual ground distance corresponding to a single pixel in an image. After a camera is selected, the GSD data is displayed.
9. Terrain-following flight: after the terrain-following flight switch is turned on, the aircraft uses the downloaded terrain data to automatically adjust its flight altitude according to the configured terrain-following altitude.

Optional local terrain file: when network terrain data cannot be loaded or does not meet current needs, the user can select one or more local terrain files. Terrain files must be in ".TIF" format.

Terrain-following altitude: when terrain-following flight is enabled, set this altitude value to determine the relative distance between the aircraft and the terrain during flight.

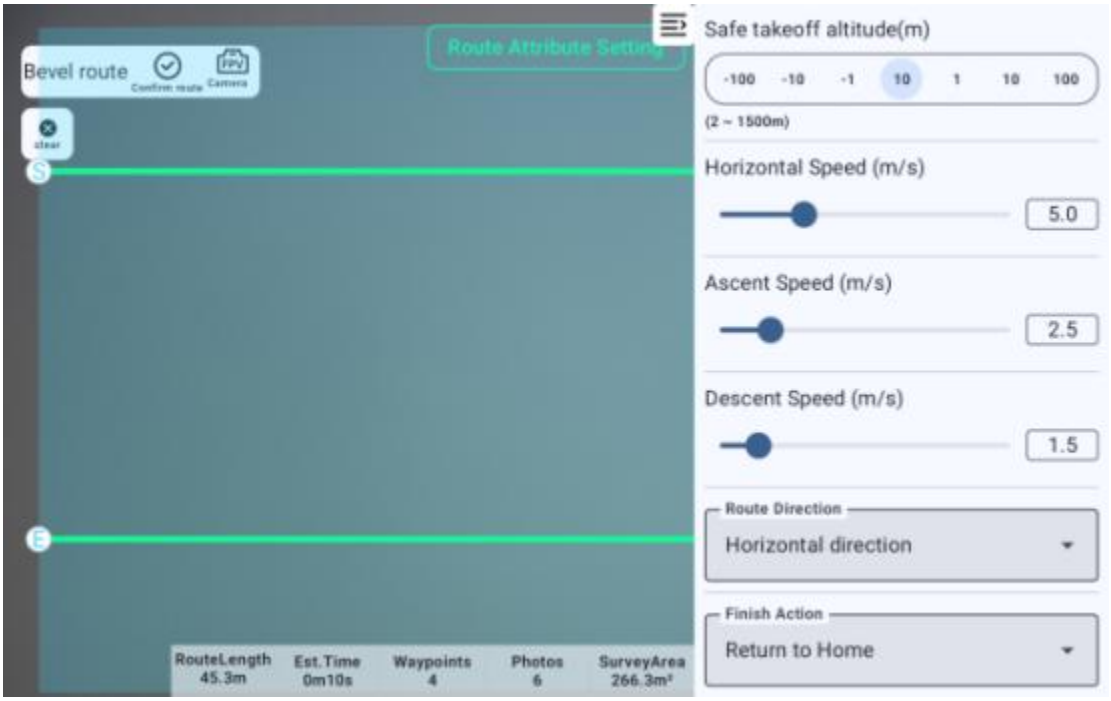
Note: Online terrain-following altitude data comes from open-source databases and may deviate from the actual terrain. Ensure the flight environment is safe.

10. Altitude mode: switch the altitude mode of all waypoints in the mapping route.

    - Altitude above sea level (WGS84): the height of the aircraft relative to mean sea level (MSL, Mean Sea Level).

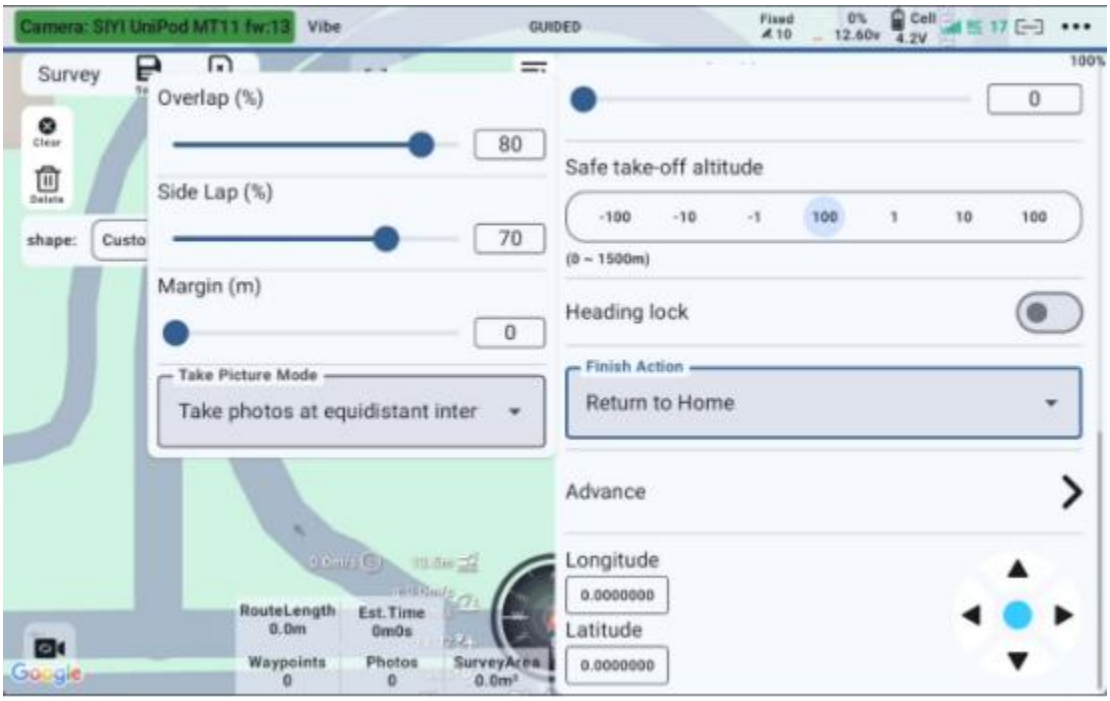
    - Altitude relative to takeoff point: the height of the aircraft relative to the takeoff point or ground reference plane.

11. Route speed: set the horizontal speed when flying the mapping route.



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12. Route altitude: set the flight altitude at which the aircraft continues the mission after reaching the safe takeoff altitude when executing the mapping route.
13. Photographed surface altitude relative to takeoff point: the vertical difference between the height of the photographed object and the altitude of the aircraft's takeoff point. Adjusting this parameter appropriately can optimize modeling results; if the height of the photographed object is unknown, keep the default distance.
14. Main route angle: adjusting the main route angle can match the environment and mission requirements, balancing efficiency and safety while ensuring data quality.
15. Safe takeoff altitude: set the altitude to be reached after takeoff in a route mission; the aircraft proceeds to the next point only after reaching this altitude.



16. Heading lock: locking the aircraft nose heading reduces variables (attitude, angle, lighting) to ensure the uniformity and stability of mapping data.

Note: The heading lock function must be used together with the waypoint turn function, which effectively avoids frequent heading changes when switching lines on short legs.

17. Completion action: set the behavior after completing the mapping route mission.
    - Return to launch: return to the home point from the position of the last waypoint of the mission.
    - Land: land in place at the position of the last waypoint of the mission.
    - Hover: hover at the position of the last waypoint of the mission.
18. Advanced settings: set forward overlap, side overlap, margin, and capture mode.

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- Forward overlap: the percentage of the overlapping area between two adjacent images on the same route relative to the length of a single image.

- Side overlap: the percentage of the overlapping area between images of two adjacent routes relative to the width of a single image.

- Margin: in a mapping mission, the margin (also called the buffer zone or extended area) refers to the additional flight and data collection area planned outside the target survey area.

- Capture mode: equal-distance-interval capture: ensures data uniformity through a "spatial reference", suitable for high-precision, complex-scene mapping. Equal-time-interval capture: relies on a "time reference" and is only suitable for simple scenarios with stable speed.

Note: In actual operations, high-precision mapping almost always uses the equal-distance-interval mode to avoid the impact of speed fluctuations on data quality.

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7.5 Oblique Photography Route

A route captured from different angles (vertical + oblique) that comprehensively captures details such as building facades; mainly used for high-precision 3D modeling to reconstruct the three-dimensional form of objects.

Route Planning

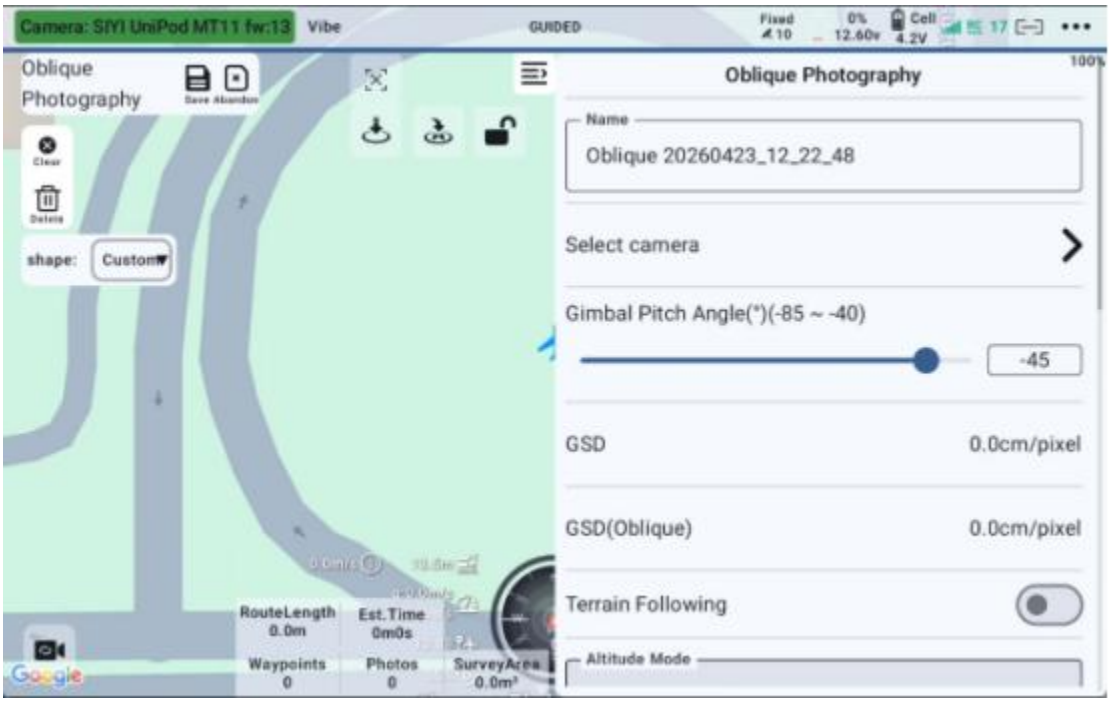
Click the Route Planning button and select Create Oblique Photography Route to plan an oblique photography route.



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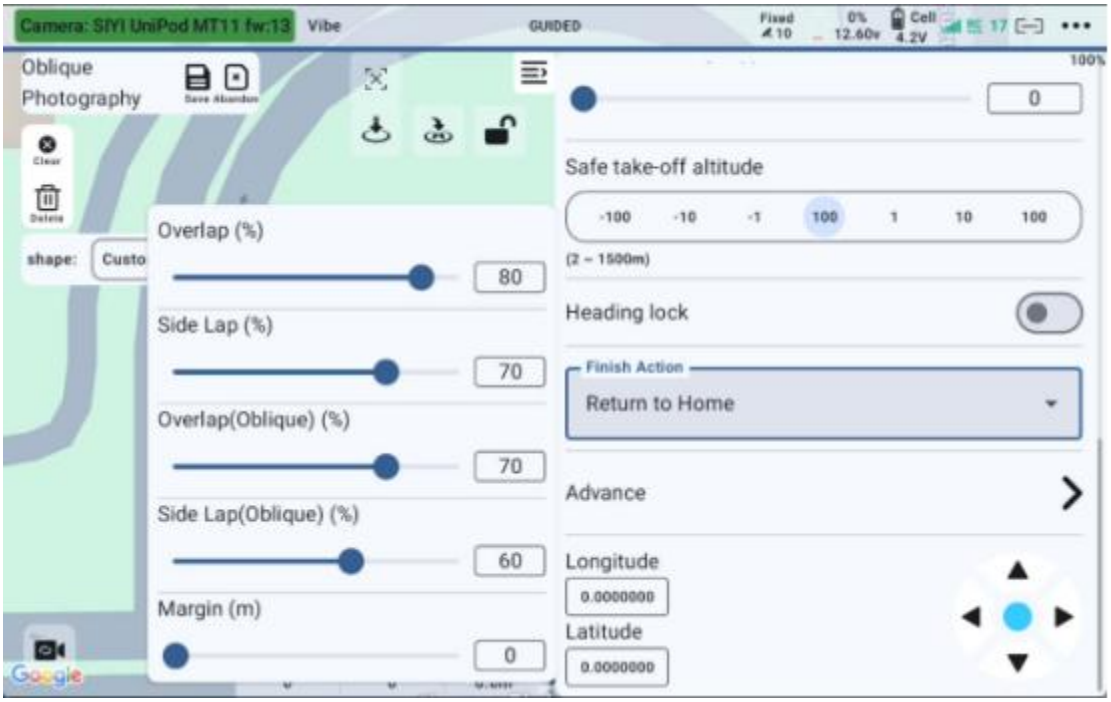
Oblique Photography Route Settings

In the Oblique Photography Route tab, you can name the mission and configure camera selection, resolution viewing, route altitude, speed, safe takeoff altitude, altitude mode, completion action, advanced settings, and more.



1. Camera selection: select different cameras for oblique photography route operations, including the wide-angle/thermal infrared lenses of the ZT30 camera, the wide-angle/thermal infrared lenses of the ZT6 camera, and the A8 mini camera.
2. Gimbal pitch angle: adjust this option to control the pitch angle of the camera lens in non-nadir areas.
3. GSD: GSD refers to the actual ground distance corresponding to a single pixel in an image. After a camera is selected, the GSD data is displayed.
4. GSD (oblique): GSD (oblique) refers to the actual ground distance corresponding to a single pixel in an image within the oblique capture area. After a camera is selected, the GSD data is displayed.
5. Route speed (oblique): set the horizontal speed when flying within the oblique area of the oblique photography route.
6. Route altitude: set the flight altitude at which the aircraft continues the mission after reaching the safe takeoff altitude when executing the oblique photography route.

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7. Advanced settings: set forward overlap, side overlap, and margin.

   - Forward overlap: the percentage of the overlapping area between two adjacent images on the same route within the nadir area relative to the length of a single image.

   - Side overlap: the percentage of the overlapping area between images of two adjacent routes within the nadir area relative to the width of a single image.

   - Forward overlap (oblique): the percentage of the overlapping area between two adjacent images on the same route within the oblique area relative to the length of a single image.

   - Side overlap (oblique): the percentage of the overlapping area between images of two adjacent routes within the oblique area relative to the width of a single image.

   - Margin: in an oblique photography mission, the margin (also called the buffer zone or extended area) refers to the additional flight and data collection area planned outside the target survey area.

Note: In actual operations, high-precision mapping almost always uses the equal-distance-interval mode to avoid the impact of speed fluctuations on data quality.

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7.6 Corridor Route

Parallel routes distributed in strips, suitable for mapping long, narrow areas (such as roads and rivers). Multiple corridors are stitched together to cover the survey area; the corridor spacing must be controlled to ensure side overlap.

Route Planning

Click the Route Planning button and select Create Corridor Route to plan a corridor route.



Corridor Route Settings

In the Corridor Route tab, you can name the mission and configure camera selection, resolution viewing, route altitude, speed, safe takeoff altitude, altitude mode, completion action, advanced settings, and more.

1. Save: save the currently planned route
2. Cancel: cancel saving the currently planned route
3. Clear: clear all waypoints in the planning interface
4. Delete: delete the single waypoint highlighted in blue in the current interface; tap a waypoint to highlight it

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5. Camera selection: select different cameras for corridor route operations, including the wide-angle/thermal infrared lenses of the ZT30 camera, the wide-angle/thermal infrared lenses of the ZT6 camera, and the A8 mini camera.
6. Single route: when this mode is enabled, the aircraft only flies the centerline route and does not fly expanded routes on either side of the centerline.

Note: When single-route mode is enabled, the system limits the minimum flight altitude during operations based on the selected camera parameters and the preset overlap requirements.

7. GSD: GSD refers to the actual ground distance corresponding to a single pixel in an image. After a camera is selected, the GSD data is displayed.
8. Terrain-following flight: after the terrain-following flight switch is turned on, the aircraft uses the downloaded terrain data to automatically adjust its flight altitude according to the configured terrain-following altitude.

Note: Online terrain-following altitude data comes from open-source databases and may deviate from the actual terrain. Ensure the flight environment is safe.

Optional local terrain file: when network terrain data cannot be loaded or does not meet current needs, the user can select one or more local terrain files. Terrain files must be in ".TIF" format.

9. Terrain-following altitude: when terrain-following flight is enabled, set this altitude value to determine the relative distance between the aircraft and the terrain during flight.
10. Adjust expansion distance simultaneously: synchronously set the expansion width on both sides of

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the route centerline to achieve precise coverage of the strip-shaped survey area. When this option is turned off, the expansion widths of the left and right sides can be set separately.

11. Include centerline: when the centerline switch is turned on, the corridor path generated by the system includes the preset centerline in the flight route; that is, the aircraft not only flies the expanded areas on both sides of the centerline but also flies directly along the centerline itself.
12. Cutting distance: after the cutting distance is set, the entire corridor can be automatically divided into the lengths of several sub-survey areas. While ensuring aircraft safety, set the cutting distance, upload the area to be surveyed, make full use of battery power, and improve operational efficiency.
13. Heading lock: locking the aircraft nose heading reduces variables (attitude, angle, lighting) to ensure the uniformity and stability of mapping data.
14. Altitude mode: switch the altitude mode of all waypoints in the corridor route.

    - Altitude above sea level (WGS84): the height of the aircraft relative to mean sea level (MSL, Mean Sea Level).

    - Altitude relative to takeoff point: the height of the aircraft relative to the takeoff point or ground reference plane.

15. Route speed: set the horizontal speed when flying the corridor route.
16. Route altitude: set the flight altitude at which the aircraft continues the mission after reaching the safe takeoff altitude when executing the corridor route.
17. Distance of the photographed surface relative to the takeoff point: the vertical difference between the height of the photographed object and the altitude of the aircraft's takeoff point. Adjusting this parameter appropriately can optimize modeling results; if the height of the photographed object is unknown, keep the default distance.
18. Route distance relative to the photographed surface: the vertical distance between the aircraft's flight route and the surface of the photographed object.

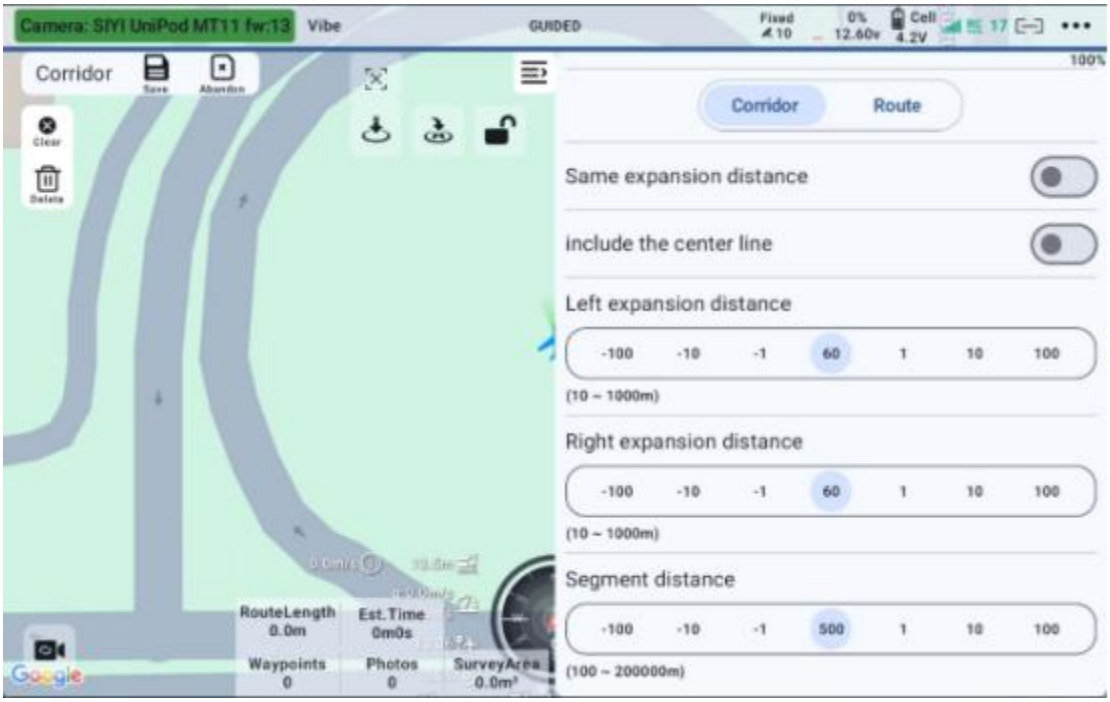
19. Safe takeoff altitude: set the altitude to be reached after takeoff in a route mission; the aircraft proceeds to the next point only after reaching this altitude.
20. Completion action: set the behavior after completing the corridor route mission.

    - Return to launch: return to the home point from the position of the last waypoint of the mission.

    - Land: land in place at the position of the last waypoint of the mission.

    - Hover: hover at the position of the last waypoint of the mission.

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21. Capture mode:

- Equal-distance-interval capture: ensures data uniformity through a "spatial reference", suitable for high-precision, complex-scene mapping.

- Equal-time-interval capture: relies on a "time reference" and is only suitable for simple scenarios with stable speed.

Note: In actual operations, high-precision mapping almost always uses the equal-distance-interval mode to avoid the impact of speed fluctuations on data quality.

22. Advanced settings: set forward overlap and side overlap.

- Forward overlap: the percentage of the overlapping area between two adjacent images on the same route relative to the length of a single image.

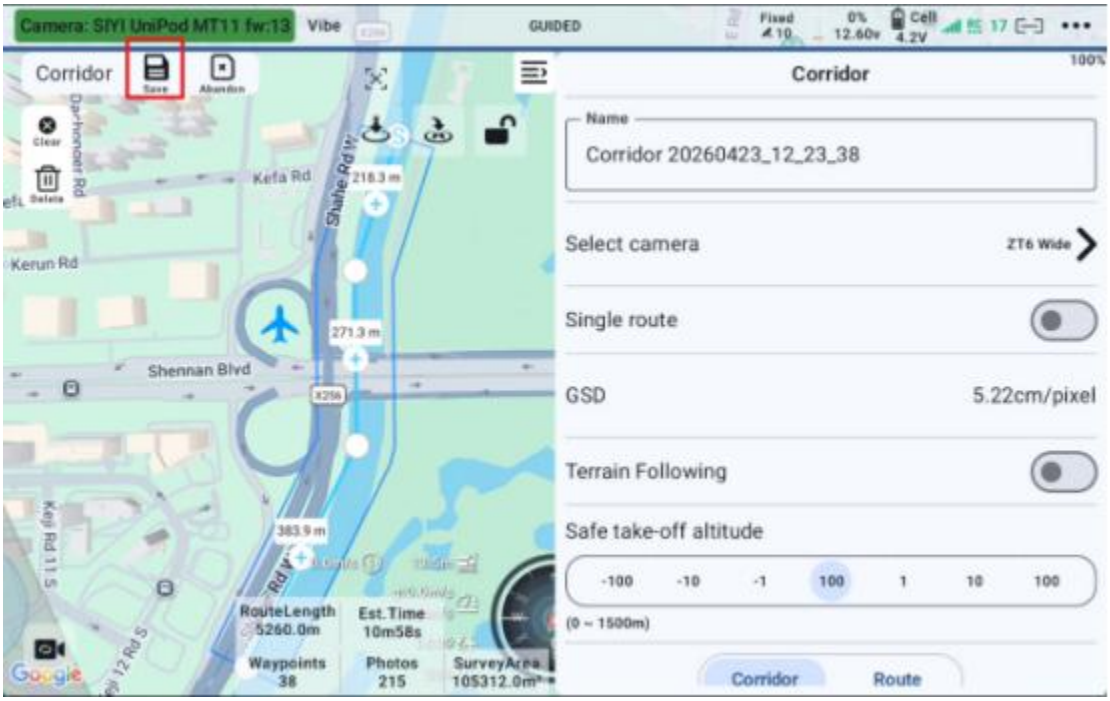
- Side overlap: the percentage of the overlapping area between images of two adjacent routes relative to the width of a single image.

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Mission Execution

Step 1: After planning the route, click the Save button.

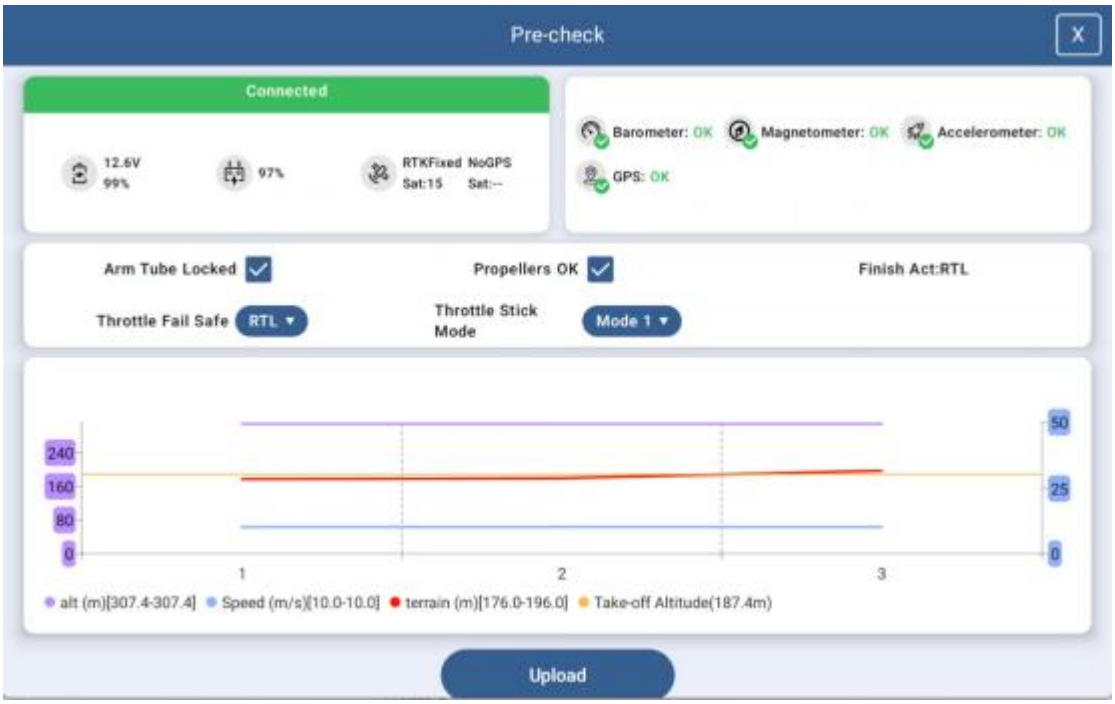


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Step 2: Click the Start button, select the area to fly, click Confirm, and upload the route.

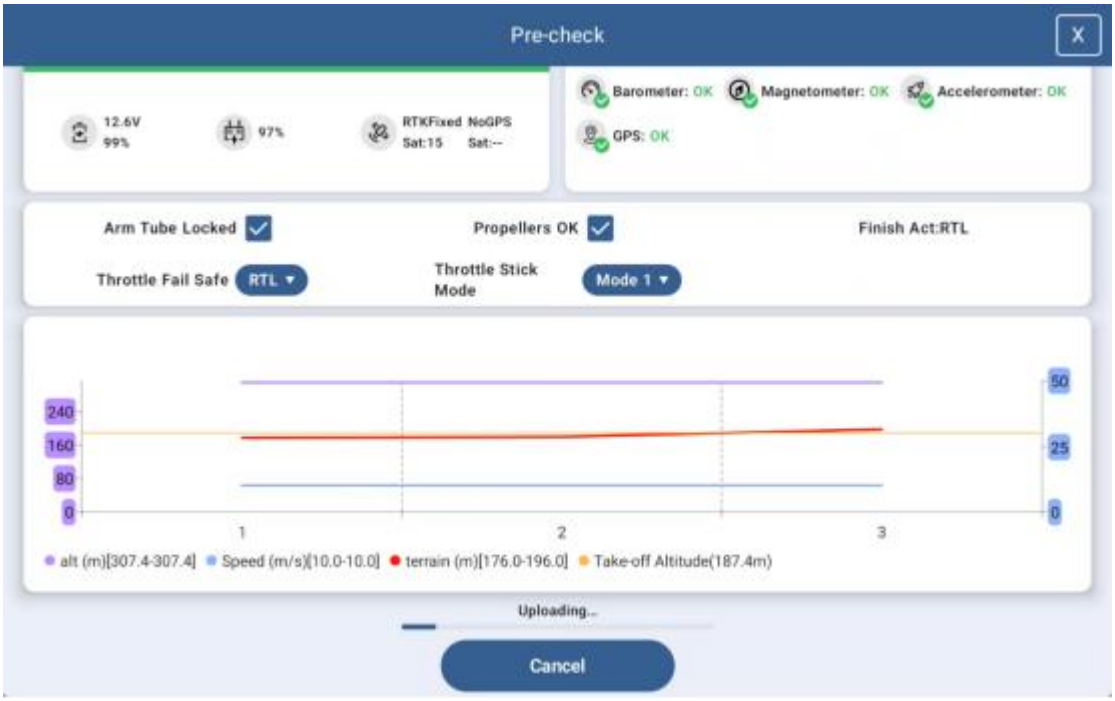


Step 3: After clicking Start, the pre-flight check page opens. The page includes a route information check, where you can preview route speed, altitude, terrain altitude, takeoff point elevation, and route completion status; aircraft status viewing, including the health status of each sensor, aircraft battery level, positioning status, and failsafe settings; and remote controller status viewing, including aircraft connection status and remote controller battery level. Confirm the flight check: verify that the arms are locked and the propellers are normal and check the boxes, then click Upload Route.

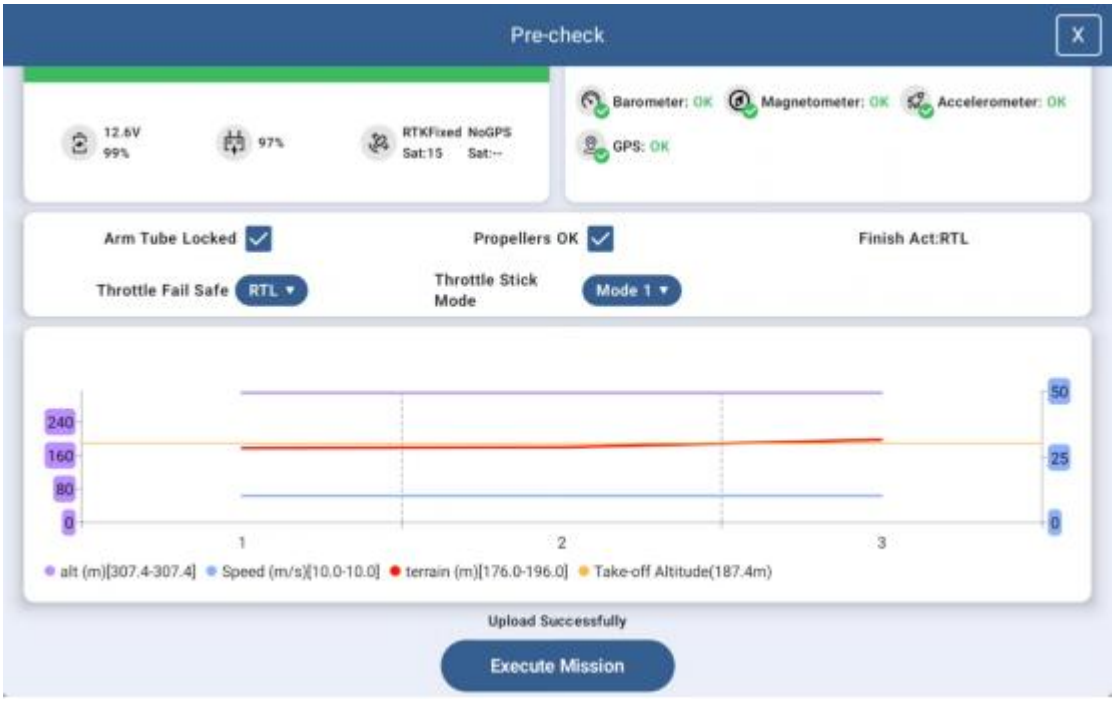


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Step 4: Wait for the route upload to complete.



Step 5: Unlock the aircraft and click Execute Mission to execute the corridor route mission.



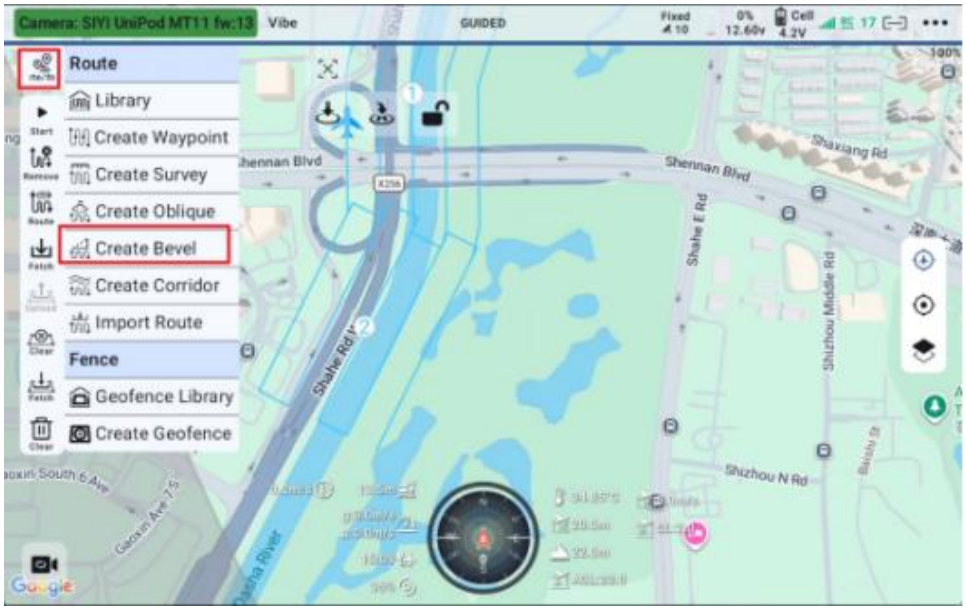
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7.7 Slope Route

A route designed for object surfaces (such as side walls and slopes). The flight path maintains an appropriate distance from the slope to ensure clear imaging of slope details. Commonly used for slope monitoring and facade mapping. The current version only supports facade routes (V2.0.3).

Route Planning

Step 1: Click the Route Planning button and select the "Create Slope Route" option to start the slope route planning process.



Step 2: When a blank mini window pops up in the lower-left corner of the interface, you can start route planning.



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Note: The slope route planning function works properly only when the system successfully obtains the camera's live feed and the aircraft nose heading is set to "Keep Original Heading".

1. Unlock the aircraft following the standard procedure, manually fly the aircraft to the preset altitude, and click the capture button. The mini window in the lower-right corner of the interface then updates to the frame captured at that moment. You can then land the aircraft and focus on subsequent route planning.
2. The distance data from the aircraft to the photographed object must be obtained first before you can further plan the survey area and complete the parameter settings.



Note: If a SIYI-series camera with laser ranging is mounted, the system automatically obtains this distance data; if a camera without this function is used, you must manually confirm and adjust the distance between the aircraft and the photographed object.

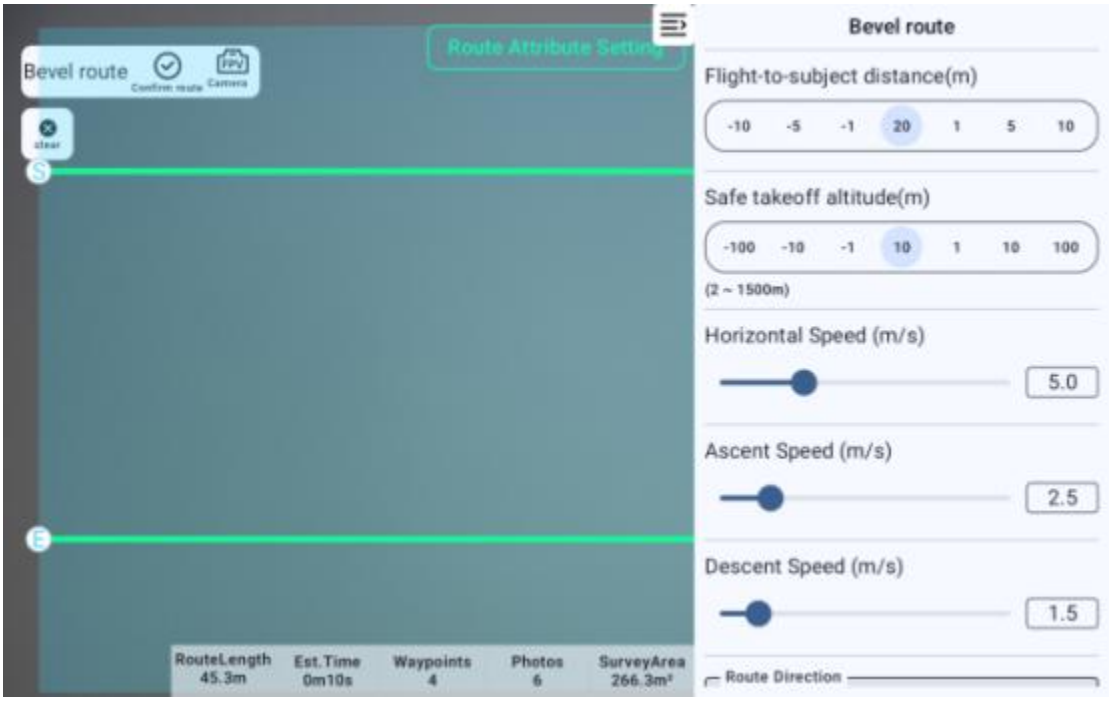
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Slope Route Settings

In the Slope Route tab, you can configure the speeds, safe takeoff altitude, route direction, completion action, and more for this mission.



1. Aircraft-to-photographed-object distance: the straight-line distance between the aircraft and the photographed slope object when the aircraft captures the base image required for route planning.



2. Distance of the photographed surface relative to the actual object: the distance between the

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photographed surface imaged by the camera and the actual photographed object.

3. Route distance relative to the photographed surface: the vertical distance between the plane of the aircraft's flight route and the photographed slope during slope photography missions.
4. Safe takeoff altitude: set the altitude to be reached after takeoff in a route mission; the aircraft proceeds to the next point only after reaching this altitude.
5. Horizontal, ascent, and descent speeds: set the horizontal, ascent, and descent speeds when flying the slope route.
6. Route direction:

- Horizontal direction: the horizontal direction of the route is parallel to the extension direction of the slope, suitable for large, strip-shaped slopes with high efficiency.

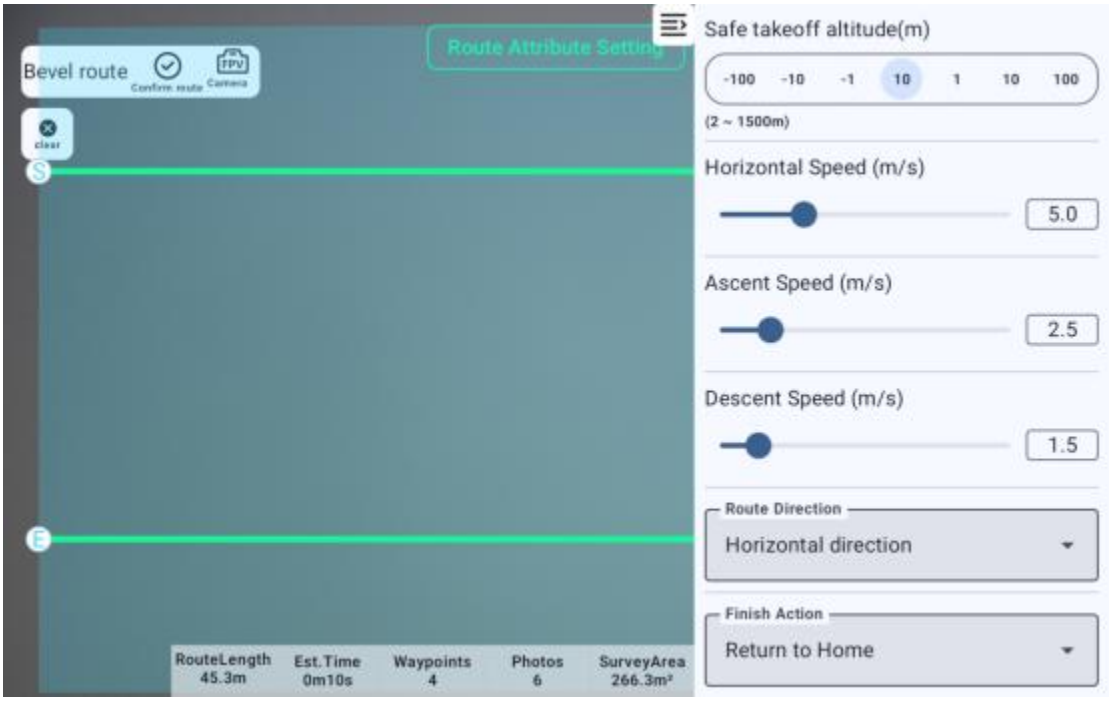
- Vertical direction: perpendicular to the extension direction of the slope, suitable for narrow slopes and complex gradients, with good detail capture.

- In practice, the two are often combined to form a cross route, ensuring complete coverage and data accuracy.

7. Completion action: set the behavior after completing the slope route mission.

- Return to launch: return to the home point from the position of the last waypoint of the mission.

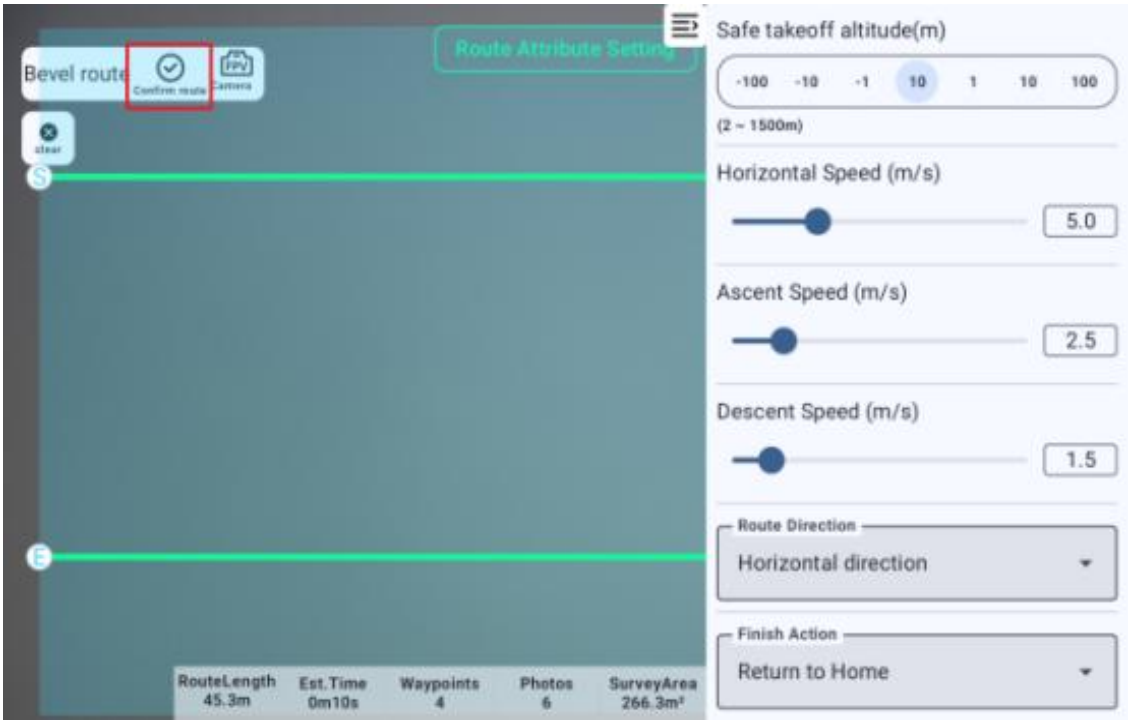
- Land: land in place at the position of the last waypoint of the mission.



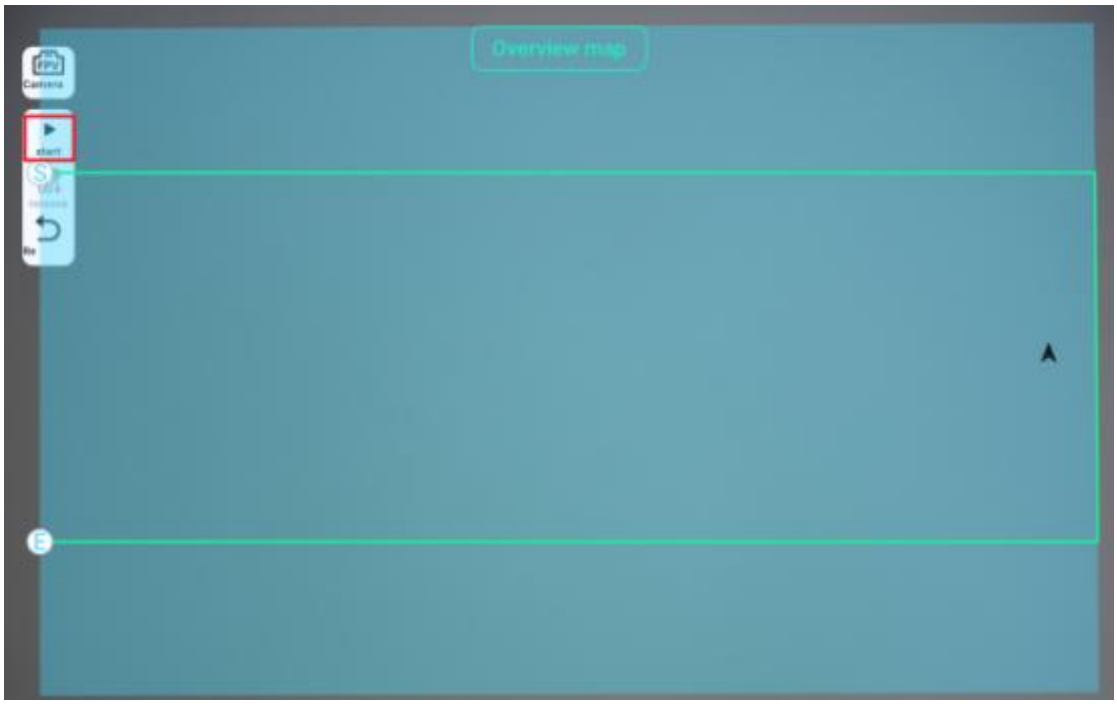
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Mission Execution

Step 1: After planning the route, click the Confirm Survey Area button.



Step 2: Click the Start button to upload the route.



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Step 3: Confirm the flight checklist, then click Upload Route after confirmation.



Step 4: Wait for the route upload to complete, then click Execute Mission to execute the slope route mission.



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1. Camera view: click the camera view button in the upper-left corner to view the camera's live feed in real time, allowing the operator to directly grasp the current shooting angle and scene details and adjust the shooting strategy in time.

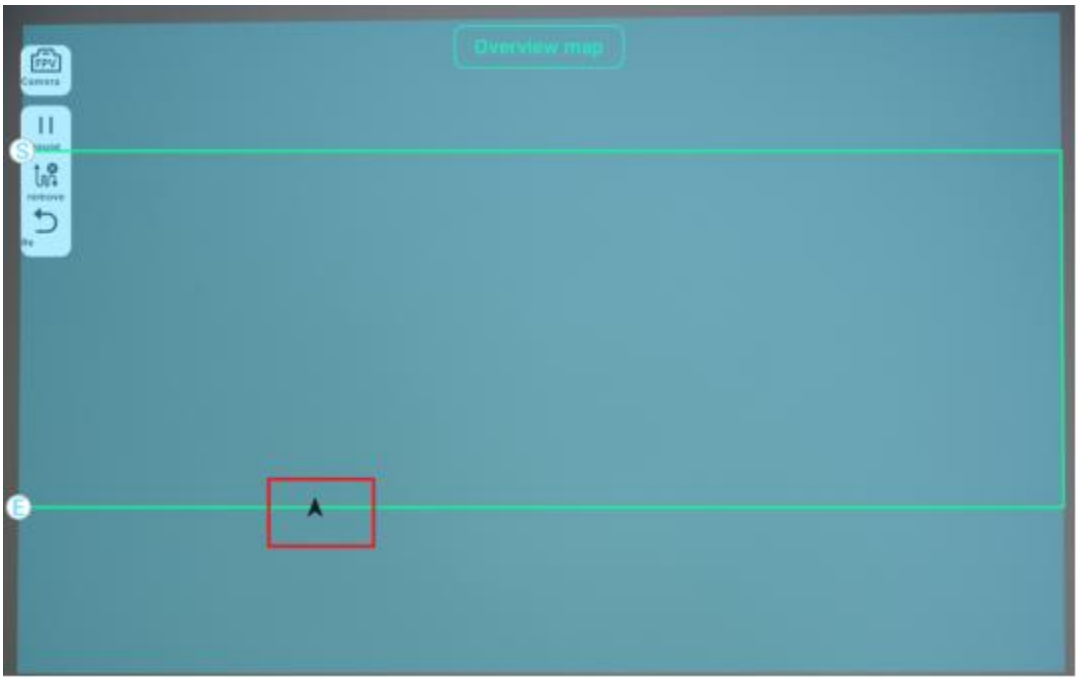


2. Replan: after clicking this button, you can readjust the survey area on the route planning base image and flexibly modify route parameters (such as flight altitude, speed, and overlap) to easily adapt to changing mission requirements.



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3. Aircraft route position viewing: in both overview full-screen mode and mini-screen mode, you can clearly observe the aircraft's relative position on the route, helping you track mission execution progress in real time and accurately assess the remaining workload.



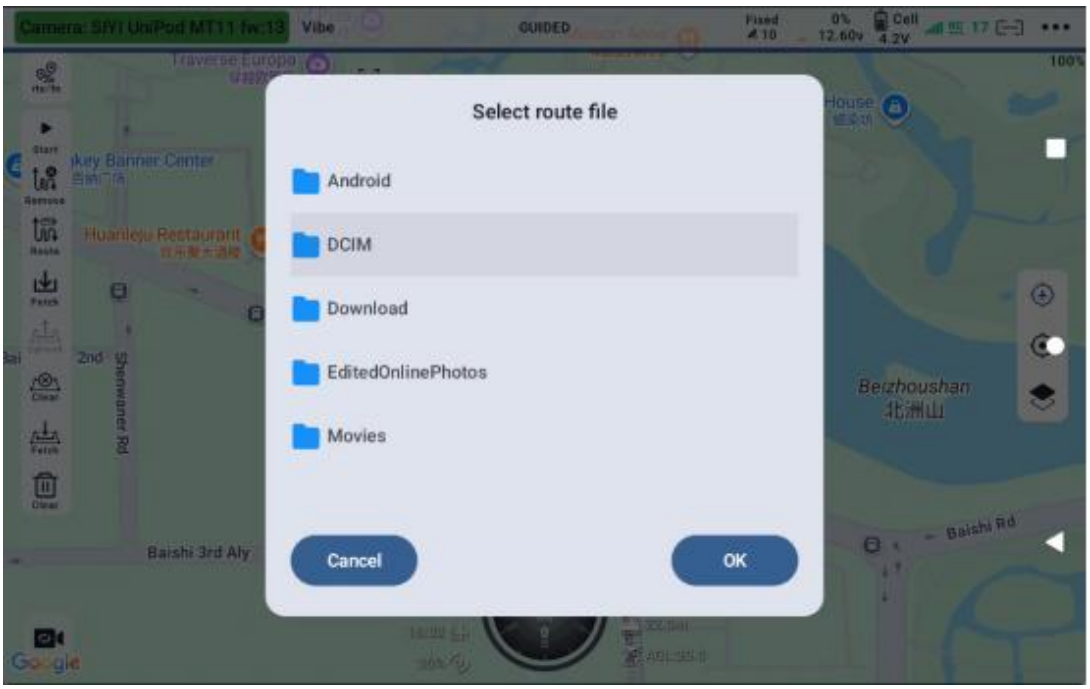
4. Exit slope route mode: click the button on the mini window to exit slope route mode.

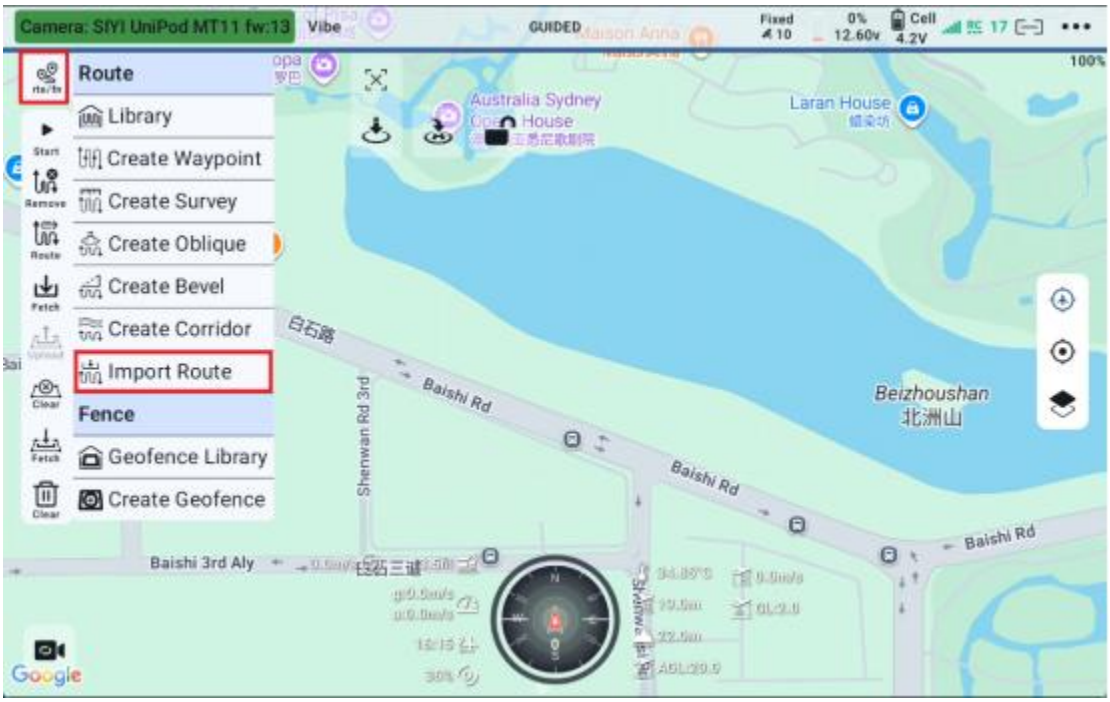


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7.8 Import Route

Click the Import Route button and select a local route in Waypoints format or a file in KML format to import the route.

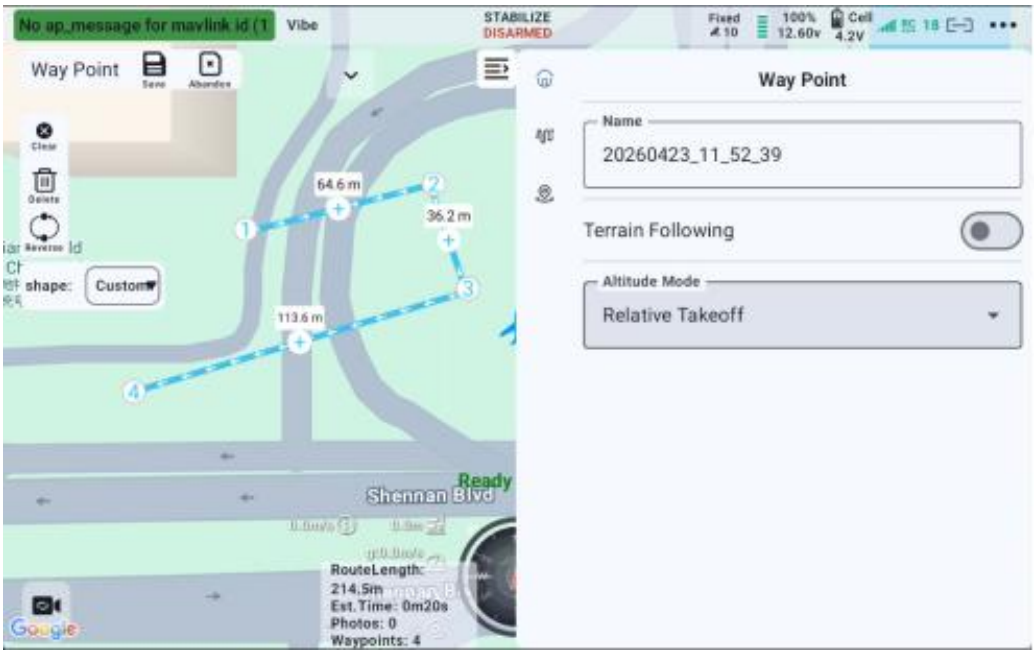




Waypoints format import: when a Waypoints format file is imported, it is forcibly converted into a waypoint route.

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Note: After importing and before clicking Save, carefully check and configure the route parameters.



KML format import: after selecting a KML file, a prompt box pops up; select the appropriate route type to import according to actual operational conditions.



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7.9 Tap-to-Fly

During flight, long-press any position on the map to pop up the "Fly Here" window. Enter the specified altitude in this window and click Confirm; the drone will fly from its current point to the target point.





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Chapter 8 Appendix

8.1 UniDrone E1000 Technical Specifications

Aircraft	
Empty weight (excluding battery)	6.2 kg
Unloaded weight (including intelligent battery)	10 kg
Unfolded dimensions (excluding propellers)	L857 x W750 x H435 mm
Folded dimensions (excluding propellers)	L520 x W445 x H435 mm
Wheelbase	1025 mm
Arm folding method	Horizontal folding
Max payload	Recommended max payload: 6 kg Max payload limit: 10 kg (max horizontal flight speed ≤ 12 m/s)
Max ascent speed	4 m/s
Max descent speed	2 m/s
Max horizontal flight speed	20 m/s (≤ 12 m/s with 10 kg payload)
Max flight altitude (above sea level)	5000 m
IP protection rating	IP54
Max wind resistance speed	11.5 m/s
Operating temperature	-20 °C to 50 °C
Operating voltage	12S *max voltage 52.8 V
Strobe light frequency	1.5 HZ
FPV field of view (FOV)	Horizontal: 113°, vertical: 77°, diagonal: 122°
FPV pitch rotation angle	68°
FPV resolution	1080P
FPV mode	Pitch-lock mode / pitch-follow mode
Payload interface	Type-C x2
Mounting positions	Front, bottom, and top of the airframe
Pouch battery power port	Amass AS150U female socket and male plug
Battery compartment dimensions	L205 x W144 x H78 mm
Dual battery modes	Supports intelligent batteries or 12S pouch batteries
Obstacle avoidance type	360° horizontal omnidirectional LiDAR obstacle avoidance
Radar detection range	0.1-40 m @ 90% reflectivity 0.1-15 m @ 10% reflectivity
LiDAR ambient light resistance	100 kLux
Laser horizontal parallelism	0°±0.3°

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Laser wavelength	905nm±15nm
RTK positioning accuracy	Single-point positioning: Horizontal: 1.5 m / Vertical: 2.5 m DGPS (assisted positioning): Horizontal: 0.4 m + 1 PPM / Vertical: 0.8 m + 1 PPM RTK: Horizontal: 0.8 cm + 1 PPM Vertical: 1.5 cm + 1 PPM
RTK heading	Heading accuracy: 0.2°
Endurance performance	
Unloaded endurance	55 min
Endurance with the UniPod MT11 pod	49 min
Endurance with the recommended max payload (6 kg)	25 min
Endurance at the max takeoff weight of 20 kg	18 min
Remote Controller	
Max effective signal range (no interference, no obstructions)	35 km
Max effective signal range (with interference)	Suburban area, flight altitude 120 m, low obstruction, medium interference: communication range 10-15 km Over the sea, flight altitude 120 m, no obstruction, low interference: communication range 30-35 km
Display	7-inch touchscreen LCD, 1080P, 1600 nits
Weight	1.46 kg
GNSS	GPS/GLONASS/BeiDou/Galileo/QZSS
Built-in battery capacity	13400 mAh
Operating time	Approx. 8 hours
IP protection rating	IP54
Wi-Fi protocol	Wi-Fi 5
Bluetooth	BT 5.0
Operating frequency	2.400 GHz - 2.476 GHz 5.725 GHz - 5.829 GHz
Storage	4 GB + 64 GB
Antennas	2 foldable detachable antennas, 2 built-in antennas
Physical channels	16 buttons, 2 large joysticks, 1 small joystick, 2 dials, 2 three-position switches
Charging time	Approx. 4.5 h
Charging method	PD 30W
Others	One-drone dual-control, RC relay, communication relay

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Power System	
Propeller size	24 in
ESC control mode	FOC control
Intelligent Battery	
Capacity	19AH
Single-cell voltage	4.4V
Nominal voltage	46.2V
Full-charge voltage	52.8V
Discharge current	Standard: 9500 mA (0.5 C) Max discharge current: 90 A Peak current: 210 A (16.3 C) ≤ 1 s
Charging current	15A
Weight	3.906 kg
Charging ambient temperature	0 °C to 45 °C
Discharge ambient temperature	-10 °C to 60 °C
Discharge rate	Peak current: 210 A
Charging cable	Connects the AS150U to the charger
Cycle count	≥500
Intelligent battery charger	
Empty case weight (with packaging)	7.6 kg
Supported batteries	B19 intelligent battery & pouch battery (6-14S)
Operating ambient temperature	0 °C to 40 °C
Input	100V-240V(AC)
Output	AC: 180-240 V, max power 3000 W AC: 100-180 V, max power 1500 W
Number of charging channels	4
Charging time	The intelligent battery only supports slow-charge mode. From 0% to 100%, the charging time is about 78 minutes. The charging time was measured in an experimental environment at 25 °C.

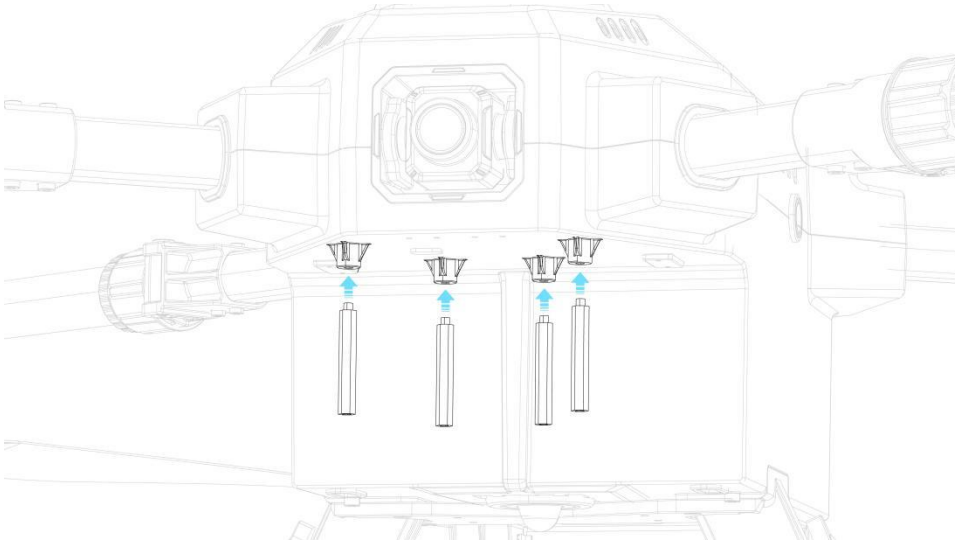
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8.2 Using the Belly-Mounted Dual-Gimbal Assembly

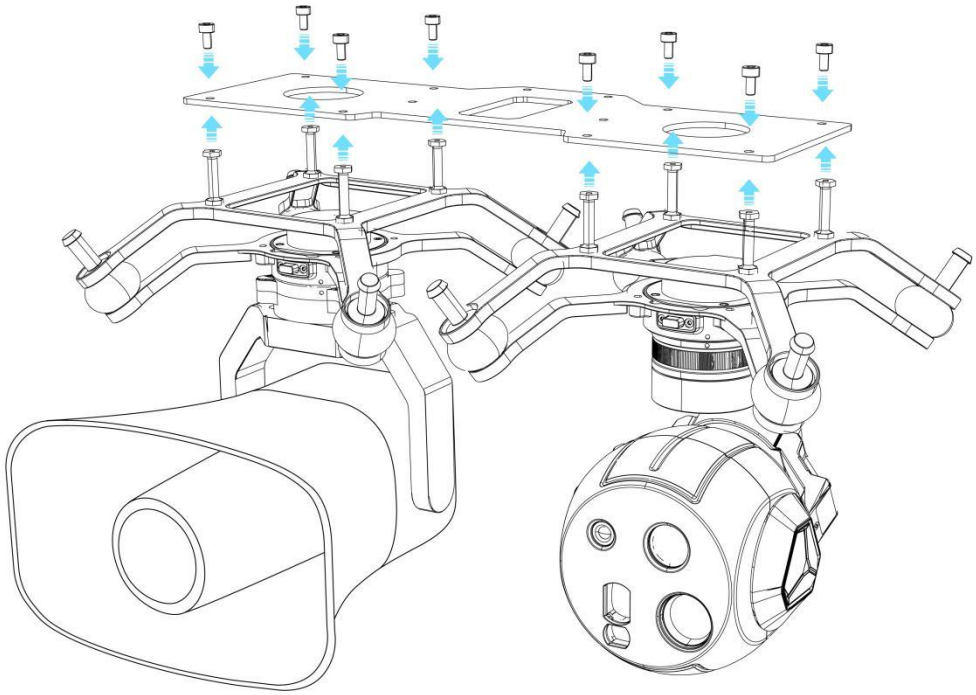
The belly-mounted dual-gimbal assembly is used to install gimbal cameras on the bottom of the UniDrone E1000 aircraft.

Installation Steps

Tighten the screws clockwise

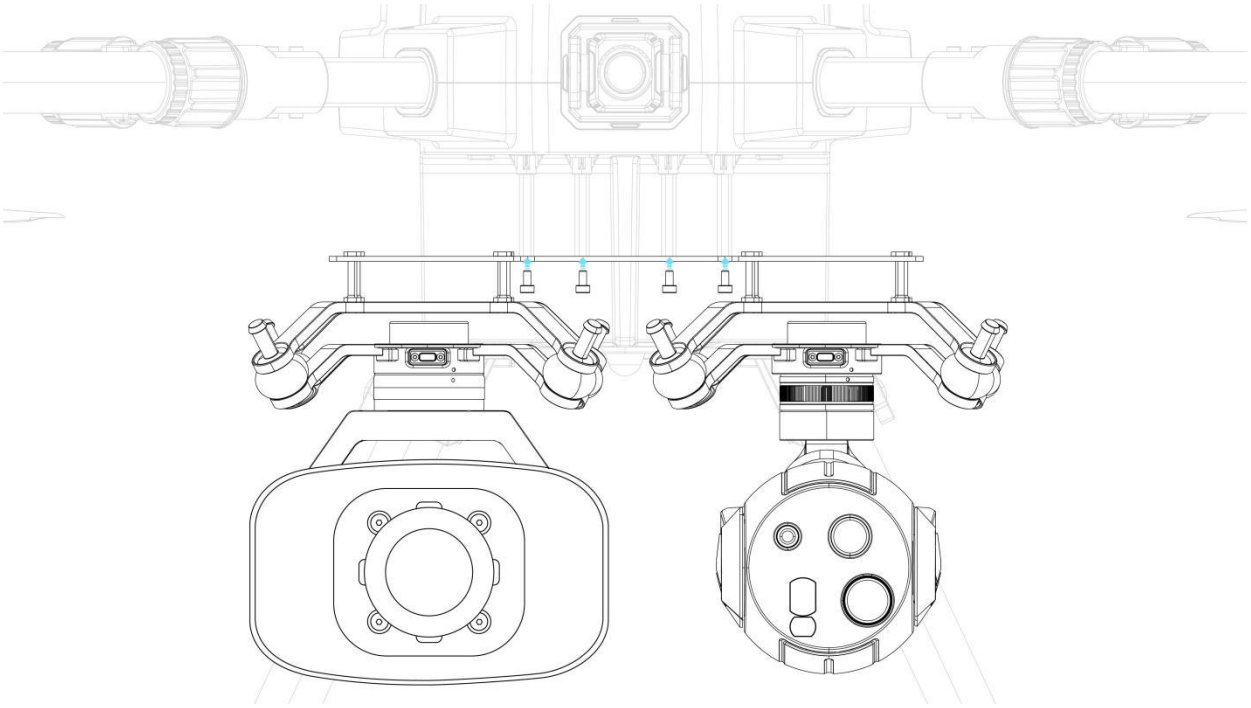


Secure the optical pod to the expansion board

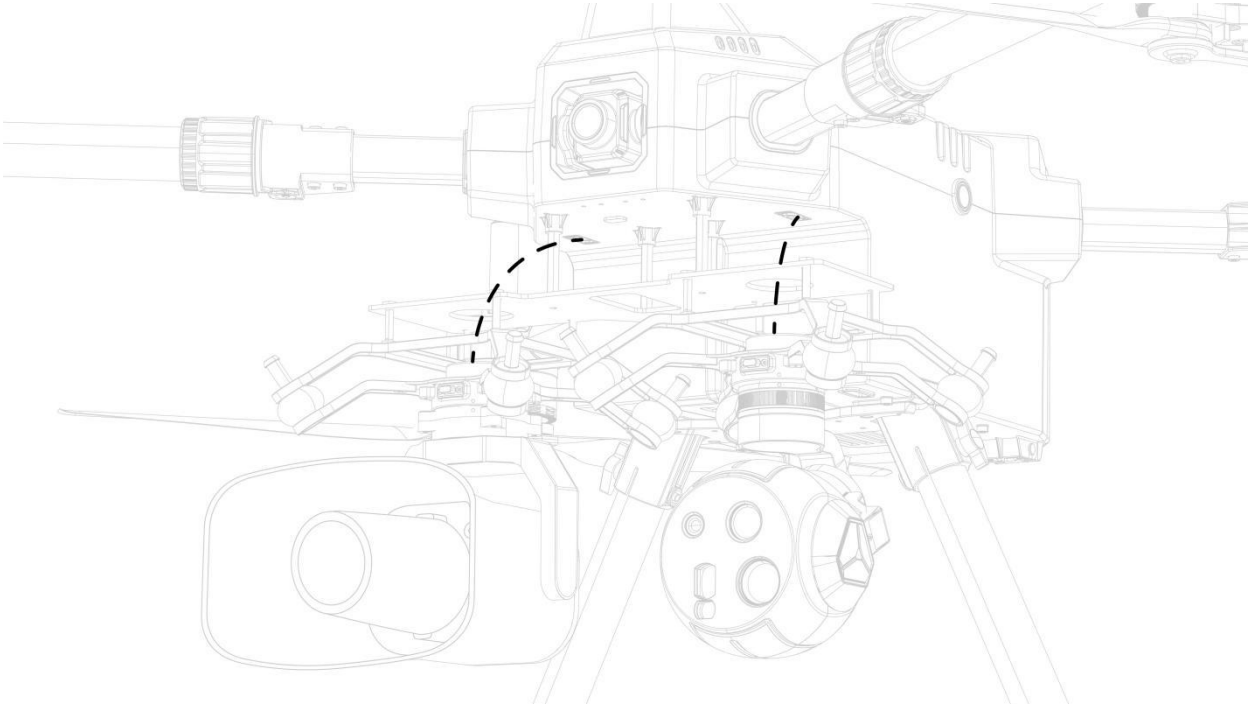


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Secure the expansion board to the standoffs

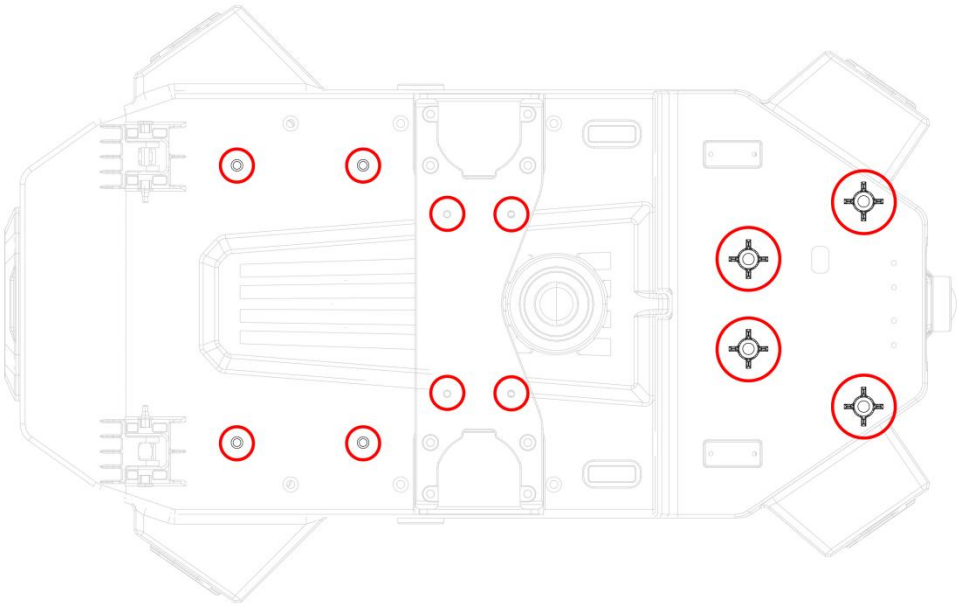


Thread the cables through the rubber plug into the airframe



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8.3 Expansion Screw Hole Description



Note: M3-size screws are used throughout.

8.4 UniDrone E1000 Noise Test Results

Observation point	Equivalent measurement (dBA)
Ground observation point (directly below)	91.23 dB(A)
Side observation point (same-altitude plane)	87.80 dB(A)
Ground observation point while flying at 1 m/s (directly below)	90.90 dB(A)
Side observation point while flying at 1 m/s (same-altitude plane)	87.42 dB(A)

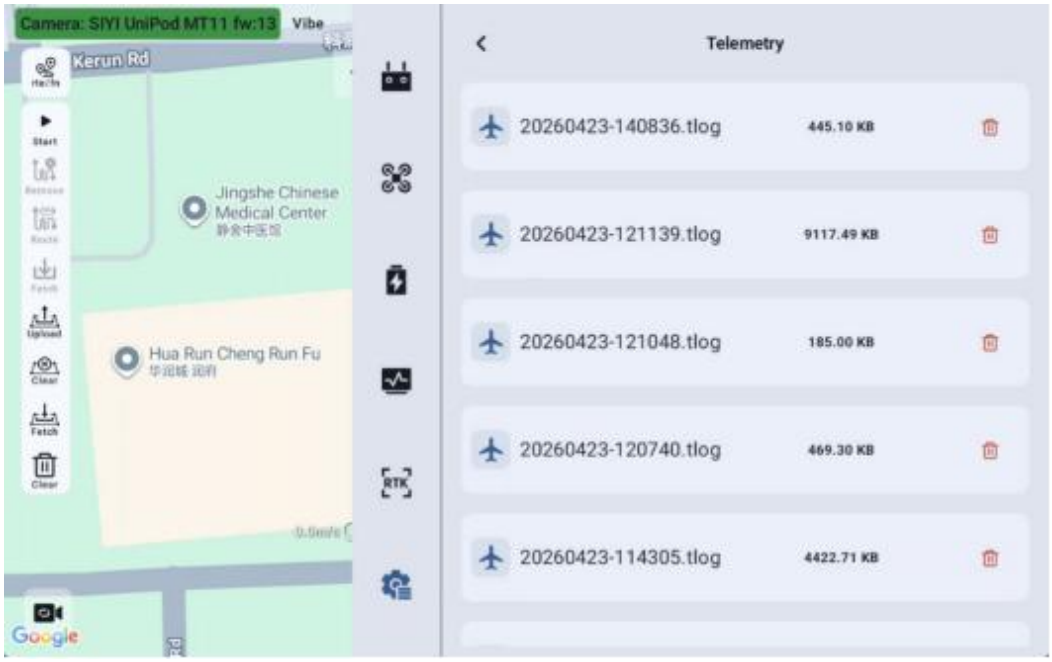
Note: The noise test environment is an outdoor concrete surface.

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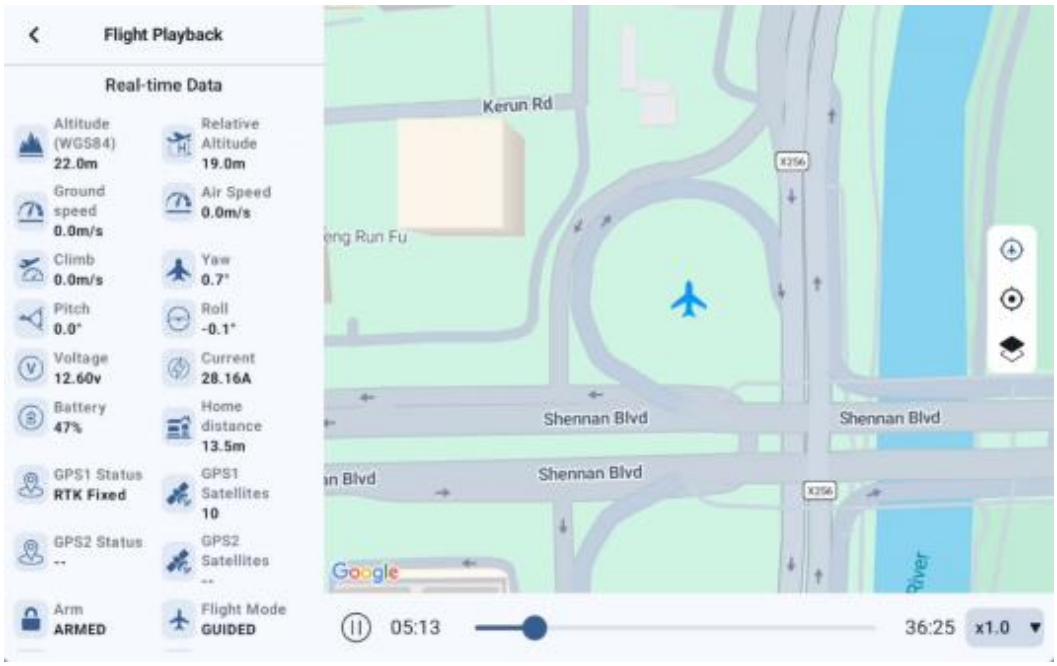
8.5 UniDrone E1000 Flight Data

Telemetry Log

The software automatically starts recording telemetry data when it is opened. The saved telemetry data can be used for flight status tracing, troubleshooting, and performance analysis.



Click any telemetry log file to view it. The data on the left shows the aircraft's real-time data; the right side contains buttons for locating the aircraft, locating the remote controller, and switching map types; the lower-right corner has a playback-speed button. Drag the progress bar to view data at different points in time.

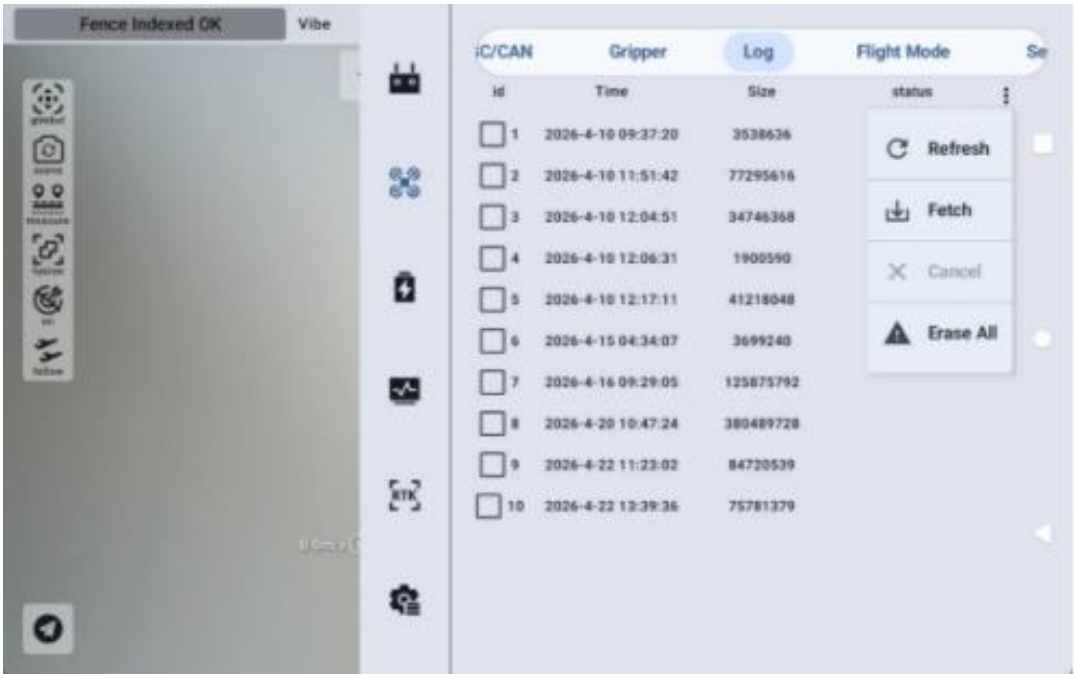


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Aircraft Log

Log Download

Mainly used for managing flight controller logs: viewing, downloading, and maintenance.



Log list:

id: log number

Time: the specific date and time the log was generated

Size: the storage size of the log file

Status: the download status of the current log

Operation menu (right side):

Refresh: update the log list and sync the latest log data from the flight controller

Download: download the selected log file to the local device

Cancel: terminate the log download currently in progress

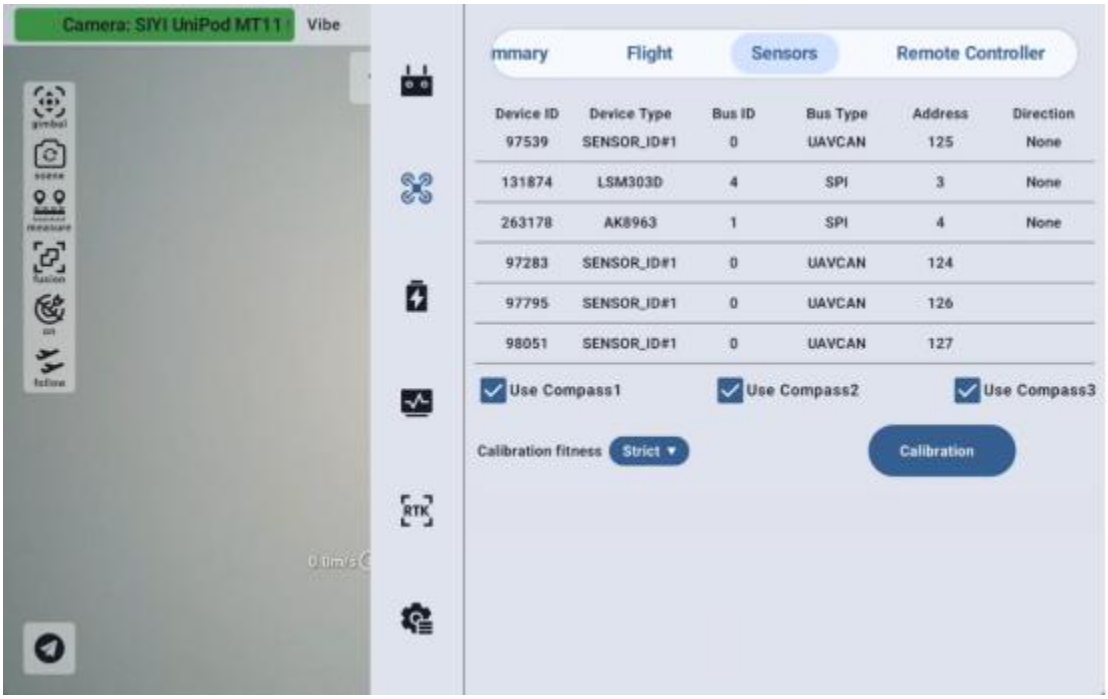
Delete all: clear all log files stored on the flight controller

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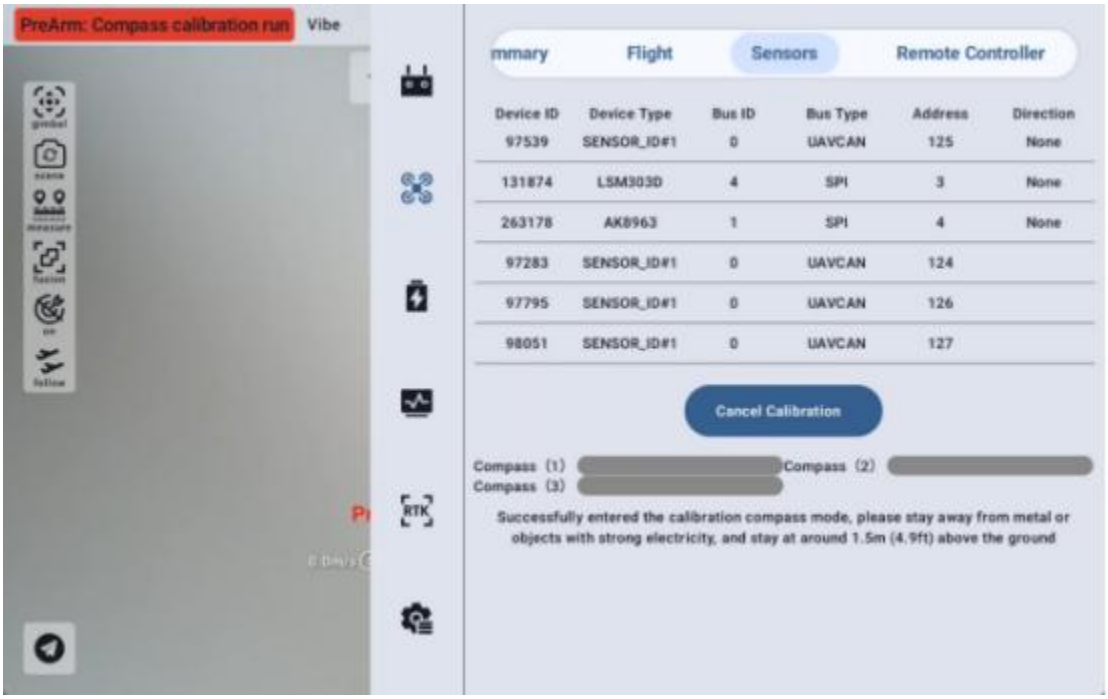
8.6 Calibration

Compass Calibration

Includes the compass enable switch, various information, and the calibration function.



Start Calibration



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Note: Do not calibrate in areas with strong magnetic fields or near large pieces of metal, such as magnetic mines, parking lots, or building areas with underground steel reinforcement. Do not carry ferromagnetic objects, such as mobile phones, during calibration.

1. Open the compass calibration interface in the order shown.
2. Select the calibration difficulty.
3. Click Calibrate.
4. Lift the drone and rotate it in different directions so that each side (front, back, left, right, top, and bottom) points down toward the earth for a few seconds, until the compass progress bar finishes loading.
5. Restart the aircraft.

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