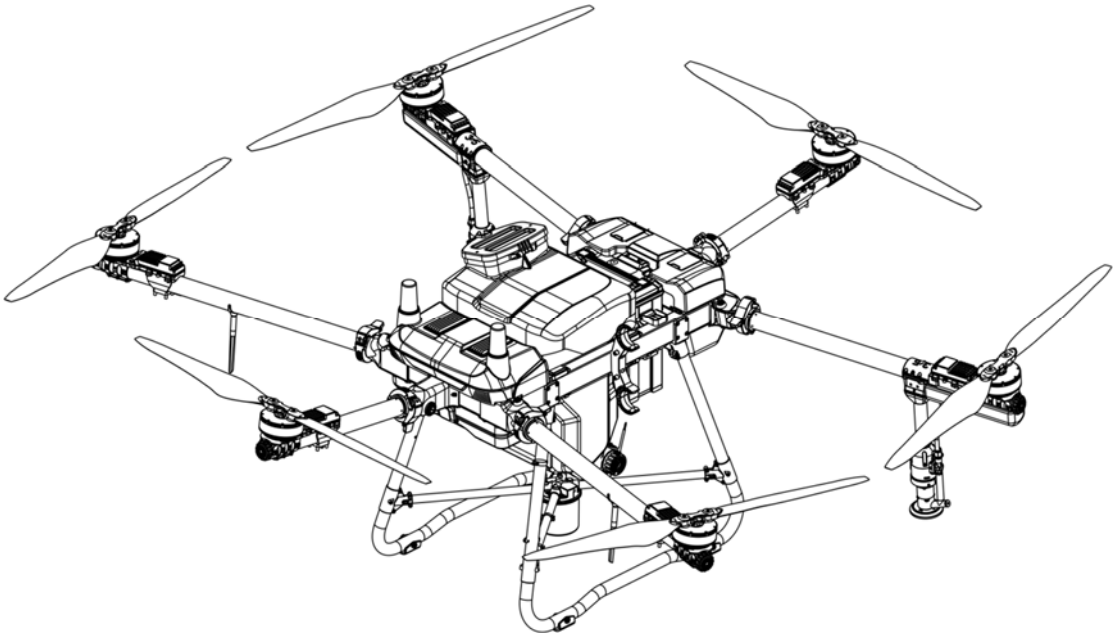
Agricultural UAV

User Manual



December 2023

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catalogue

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Product Overview

Brief Introduction

The third-generation 3WWDZ-U40C HD540 series agricultural unmanned aerial vehicle newly developed by Huida Technology has a spraying box of up to 40L and a broadcasting box of 60L (with a maximum load capacity of 50KG), a six axis stable architecture, and two centrifugal nozzles as standard. The maximum flow rate of 2 centrifugal nozzles can reach 20L/minute, and the maximum flow rate of 4 centrifugal nozzles can reach 28L/minute. The double-layer spray disc design ensures more uniform atomization and adjustable droplet size, comprehensively improving work efficiency and quality.

Equipped can adapt to various working terrains and make flight safer.

The newly upgraded intelligent remote control is equipped with a 6-inch high brightness display screen and a built-in Huida drone app, which further improves the smoothness and stability of operation. Equipped with RTK high-precision positioning module as standard, it can achieve centimeter level route planning. Supports both built-in and external battery power supply, with an overall range of up to 8.5 hours, fully meeting the needs of long-term and high-intensity operations.

Feature highlights

The HD540 agricultural unmanned aerial vehicle adopts a folding frame structure, achieving the best balance between strength and lightweight. It can be quickly folded, making it convenient for single person transfer, handling, and transportation. The airborne high-precision RTK positioning module can achieve centimeter level high-precision positioning flight on flight routes, while supporting dual antenna anti magnetic interference direction finding technology; Front facing FPV high-definition camera, capable of monitoring the forward field of view environment, real-time viewing of flight conditions, and ensuring flight safety.

The leading intelligent route operation mode can calibrate various obstacles inside and outside the plot, achieving intelligent navigation and fully autonomous operation; The addition of accurate prediction function for drug cut-off points has achieved optimal matching of drug dosage and electricity, resulting in larger unit electricity operation area, more automated operation, and higher operation efficiency. Supporting intelligent endurance point function, allowing beginners to achieve high battery utilization.

The aircraft is equipped with automatic obstacle avoidance and ground simulation flight

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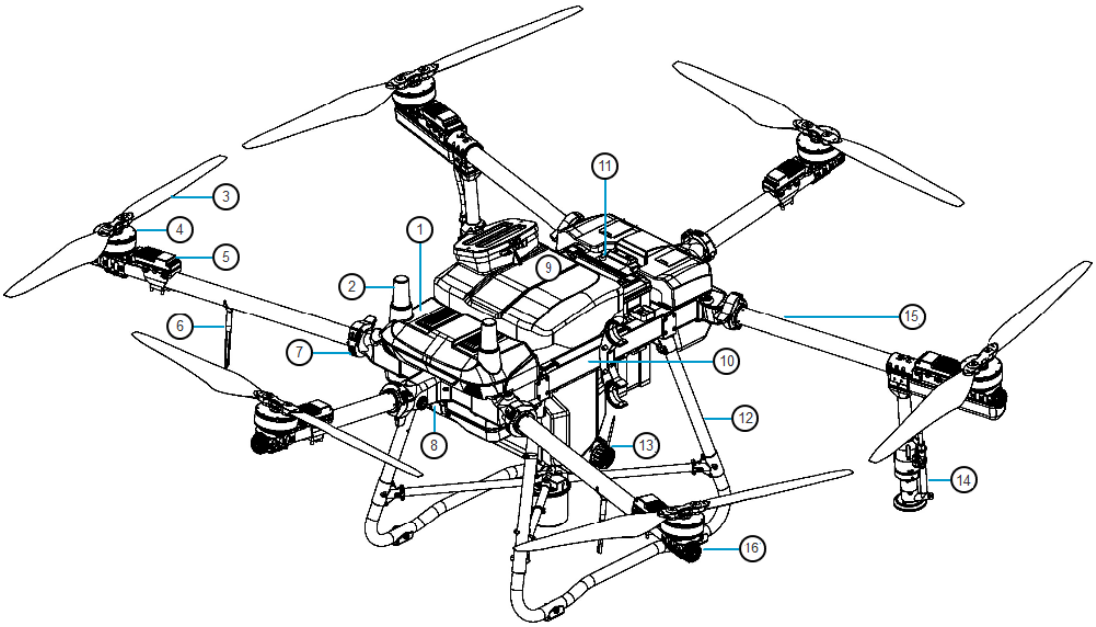
functions, which can identify common fixed and moving obstacles during the operation process, making the operation safer.

Two high-speed and high flow centrifugal nozzles, tested to achieve the optimal spraying amplitude of 9 meters, with a maximum flow rate of 20L/minute. The droplet size can be adjusted as needed, suitable for field and economic crop spraying operations. And it can be extended to 4 centrifugal modes, with a maximum flow rate of 28L/min, meeting the requirements of ultra high flow operations.

The new generation of dial type spreader can sprinkle up to 110KG of fertilizer per minute. With the latest optimization algorithm, the precise and controllable amount of fertilizer per acre ensures higher sowing quality.

HD540S agricultural unmanned aerial vehicle is dust-proof, waterproof, and corrosion-resistant. The core components adopt three-layer protection, and the overall protection level of the aircraft can reach IP65 (referring to the International Electrotechnical Commission IEC 60529 standard). The aircraft body can prevent splashing.

Name of Aircraft Component



① Avionics module
② RTK antenna
③ awe
④ electrical machinery
⑤ Electrical regulation
⑥ 4G antenna
⑦ Arm lock buckle
⑧ Front FPV camera
⑨ medicine chest
⑩ rack

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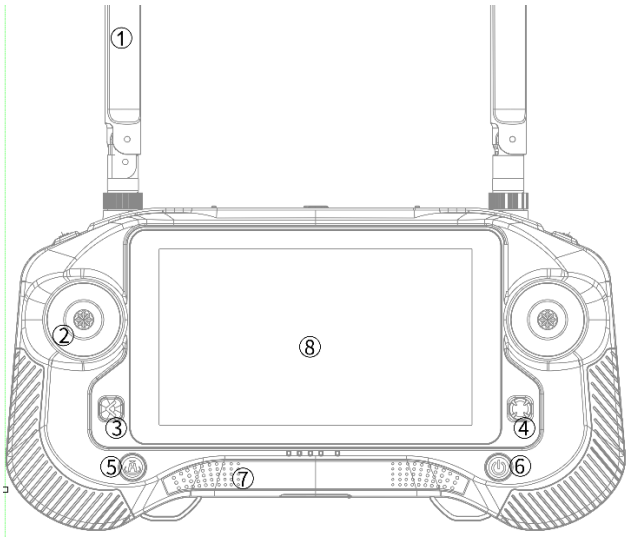
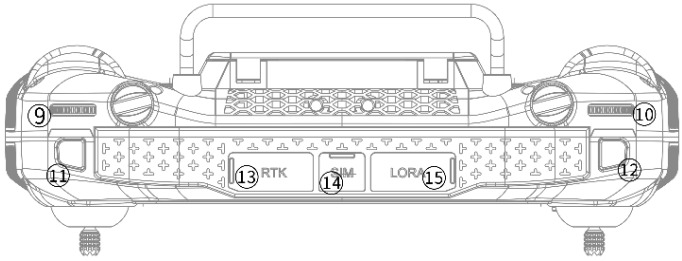
⑪ Smart Battery ⑫ Tripod
⑬ Impeller water pump ⑭ Centrifugal nozzle
⑮ Arm carbon tube ⑯ Navigation light

Name of Remote Control part



① antenna ② Joystickarm ③ Return button
④ Five dimensional buttons ⑤ Return button ⑥ Switch button
⑦ Speaker sound hole ⑧ touch screen



⑨ Reserved wave wheel ⑩ Spray flow adjustment wheel ⑪ Light
⑫ Spray switch ⑬ External RTK interface ⑭ SIM card slot
⑮ LORA interface

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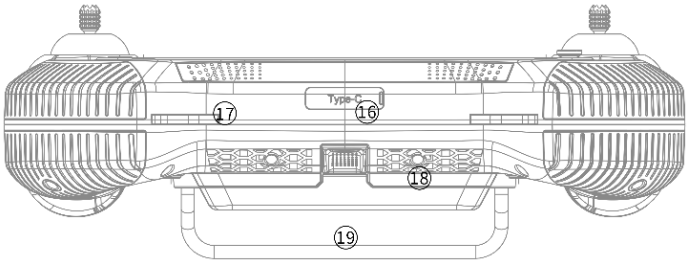
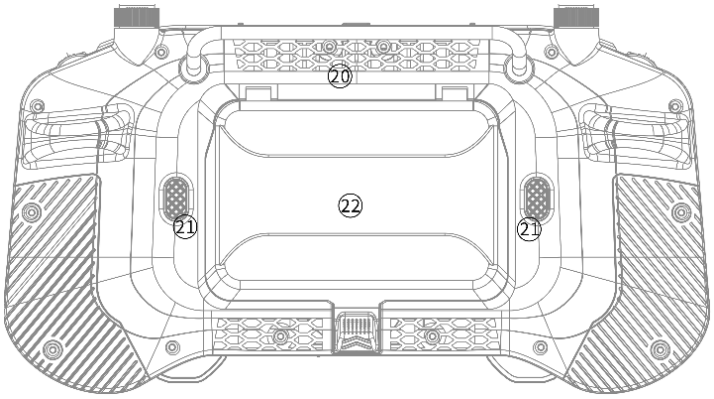


⑯ Type—C ⑰ Hanging rope hole ⑱ Heat dissipation hole
⑲ handle



⑳ Heat dissipation hole ㉑ Custom buttons ㉒ Battery cover

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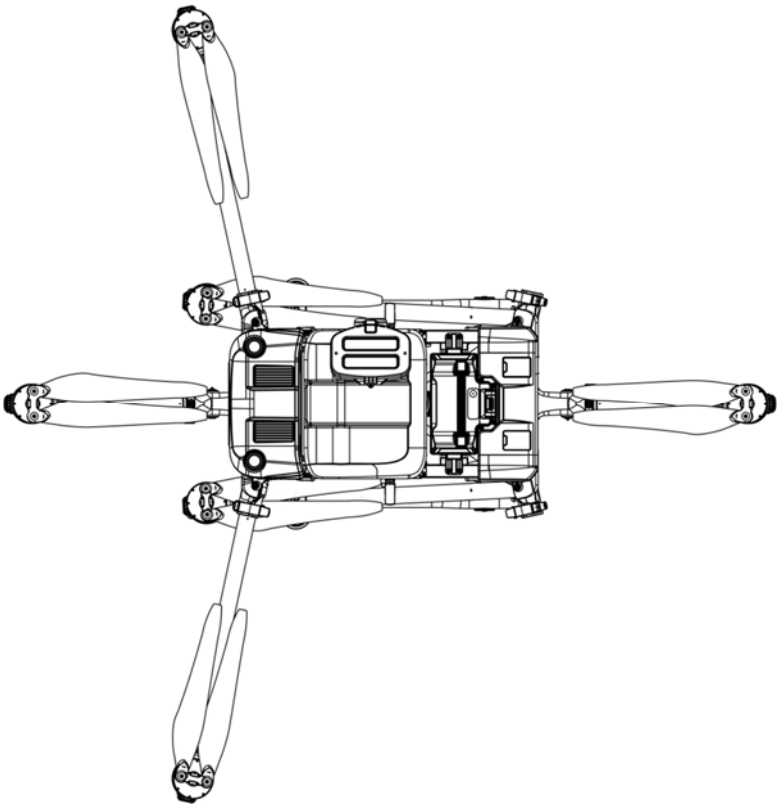
Preparation of Aircraft before Flight



Please note: Before unfolding the boom, please make sure to release the boom buckle and unfold it before unfolding the boom.

For the HD540 unmanned aerial vehicle: when deploying the arms, deploy them in the order of M2 and M6 arms first, then M3 and M5 arms; After fully deploying the boom, ensure that all 6 boom buckles are securely fastened.

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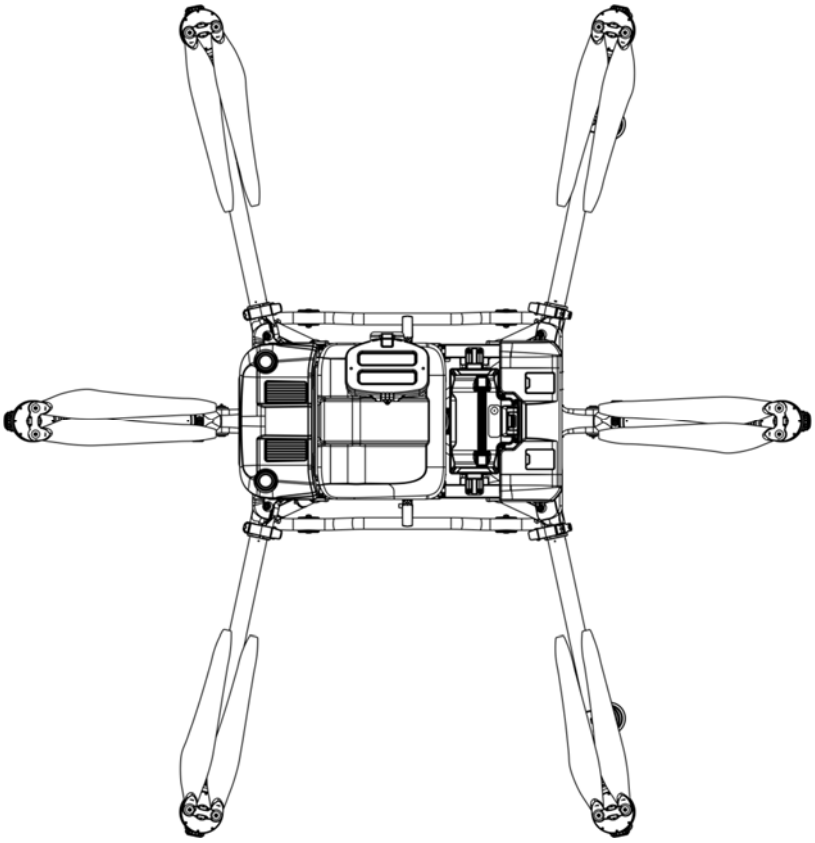
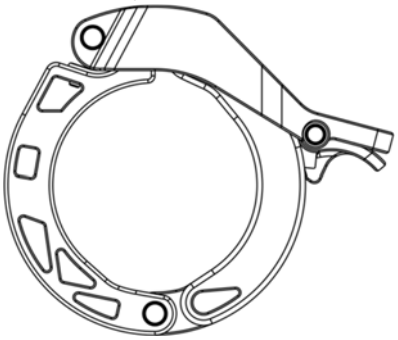


When fastening the arm with the buckle, you can feel a significant resistance and press down firmly to lock the buckle



Unfold the propeller blades separately

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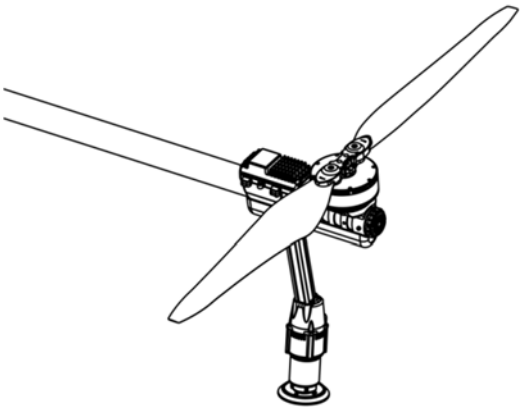
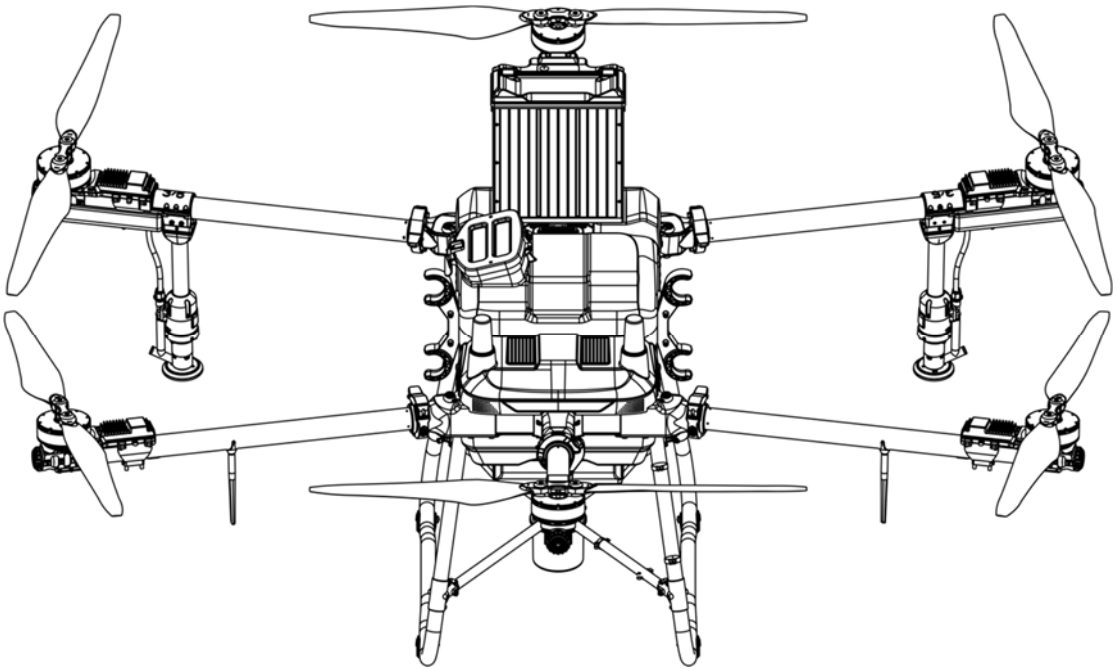


Gently place the battery into the battery compartment and hear the battery snap.
Please note: When inserting the battery into the battery compartment, make sure that the battery power is turned off



Remote Control Preparation

Charging

Use an external battery charging dock and power adapter to charge the external battery.
Use a USB charger and USB-C cable to charge the built-in battery of the remote control.

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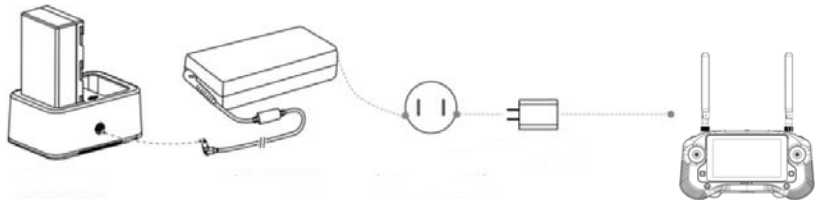


Remote control charging dock ac adapter AC power supply(100-240v) USB charger

Installing external batteries

① Press the battery compartment cover open button on the back of the remote control to open the compartment cover

② Insert the smart battery into the battery compartment and push it up to the top

③ Close the compartment lid

Installing a 4G SIM card

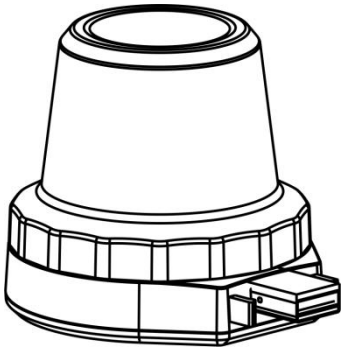
Please pay attention to the installation direction of the SIM card and do not install it upside down

After inserting the SIM card and waiting for 30 seconds, check the 4G card detection status. If the SIM card is inserted, it indicates that the installation is correct. Then, test whether the network is smooth.

Note: If you are unable to use 4G network in your area, please use a small base station HD201 product as the network signal source for RTK service, or turn off aircraft RTK detection and use GPS positioning for flight

Install RTK high-precision positioning module

If the RTK planning method is used for planning the work area, the RTK high-precision positioning module needs to be inserted into the USB interface of the remote control



Check battery level

Returning to the homepage of the Huida Drone APP, you can see the remaining power of

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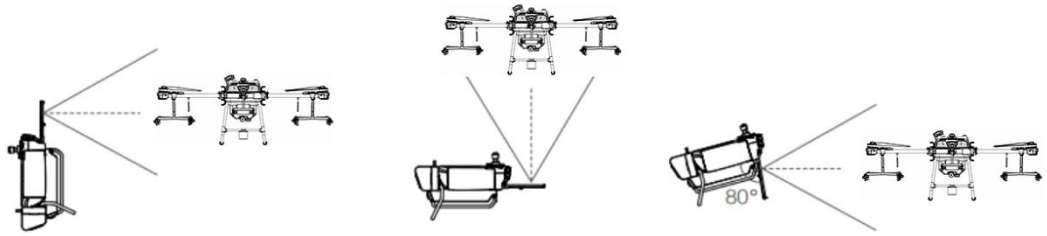
the built-in battery and the remaining power of the external battery. Please make sure that the remote control is fully charged before flying

Adjusting antenna angle

Expand the remote control antenna and adjust the antenna position, as different antenna positions receive different signal strengths. When the antenna and the back of the remote control are at an angle of 80 ° or 180 ° , and the antenna plane is facing the aircraft, the signal quality between the remote control and the aircraft can reach the optimal state.

When controlling an aircraft, it is essential to keep it within the optimal communication range. Timely adjust the orientation or distance between the controller and the aircraft to ensure that the aircraft is always within the optimal communication range.



Attention:
Do not use other communication devices in the same frequency band at the same time to avoid interference with the remote control signal.
If using the RTK high-precision positioning module for RTK planning, it is necessary to remove the module after the planning is completed, otherwise it may affect the communication performance of the remote control.

Set joystick mode

Before flying, please make sure to check the joystick mode. The Huida HD402 remote control supports three joystick modes: American, Chinese, and Japanese. Please choose the joystick mode that you are most familiar with to control the drone.

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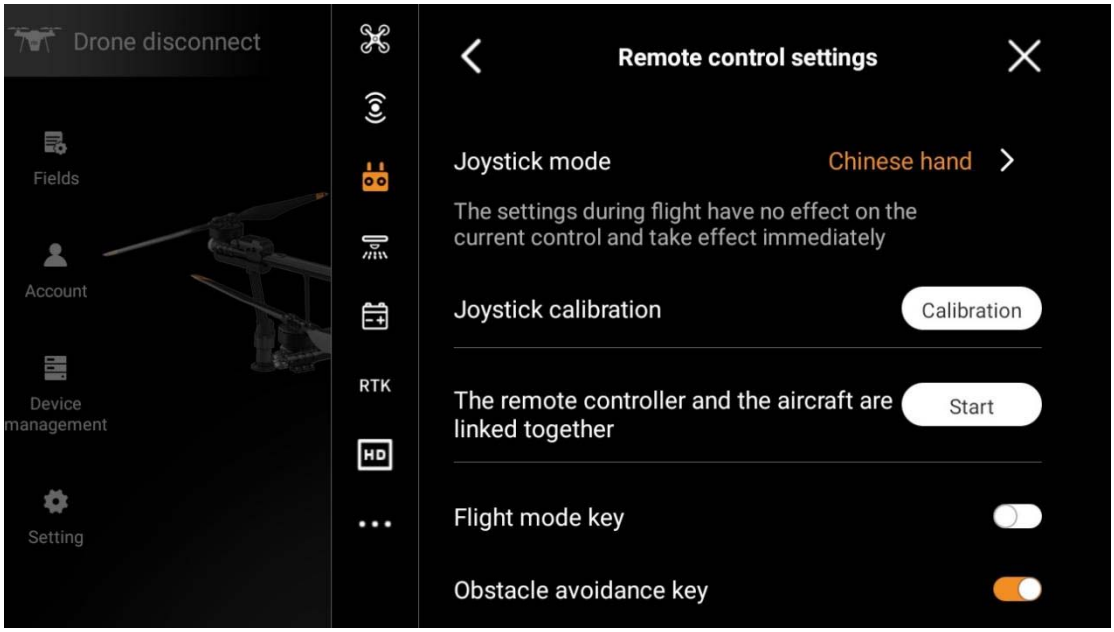

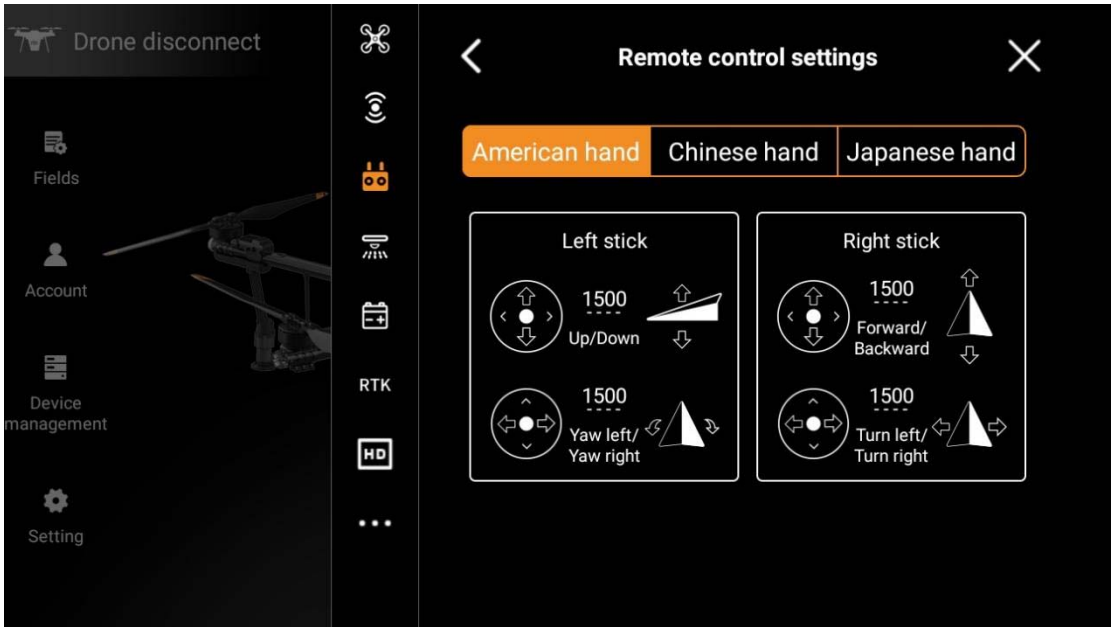

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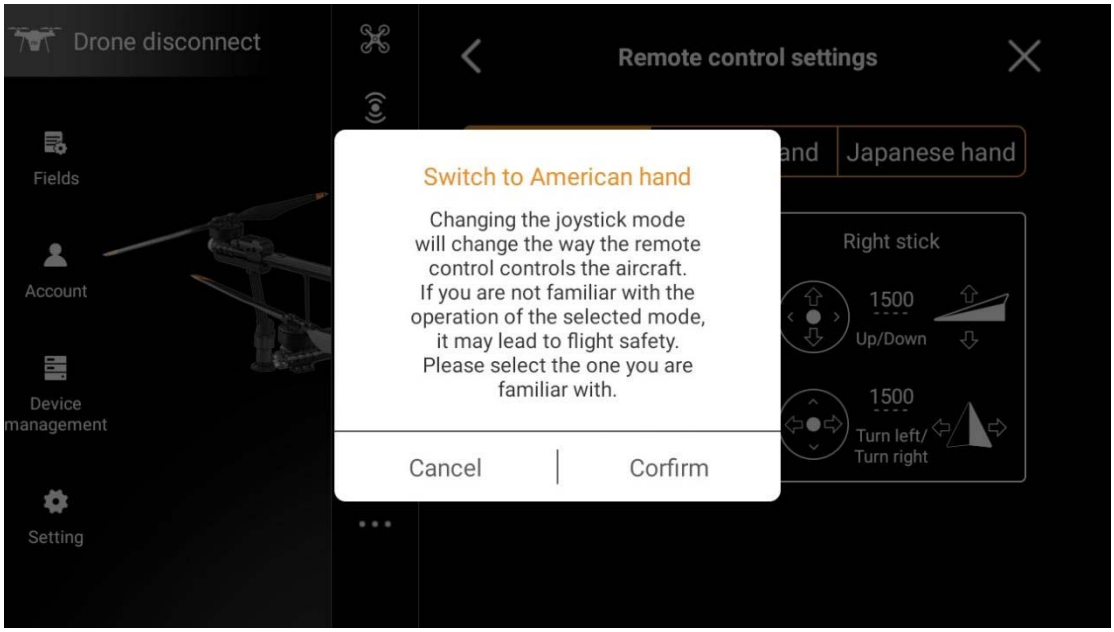
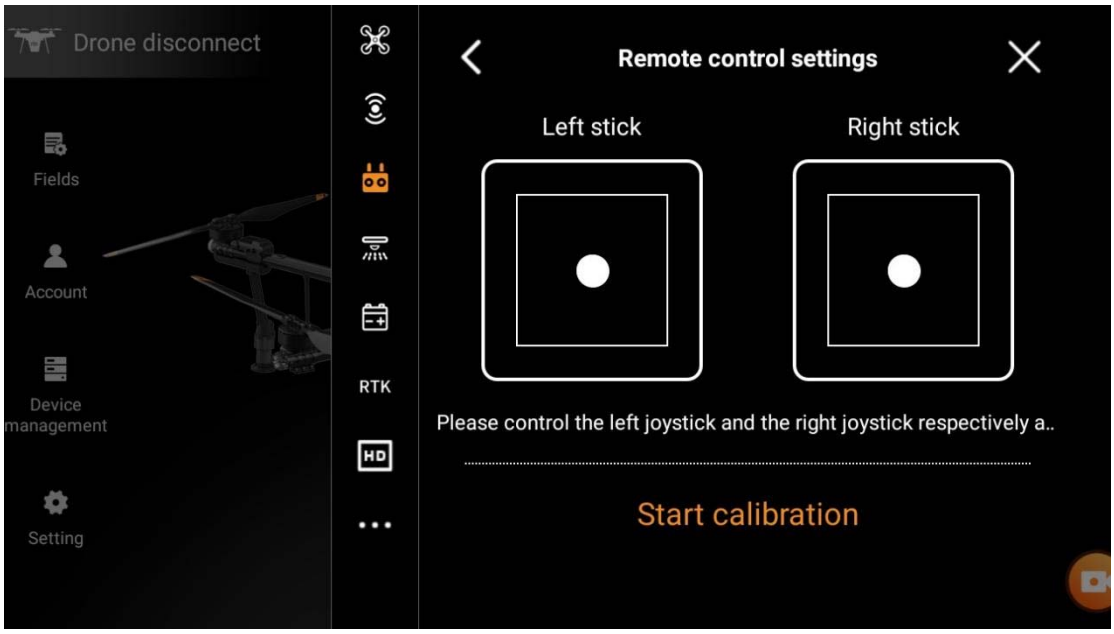


Joystickcalibration

The remote control has been calibrated before leaving the factory. If you find any deviation in the amount of the joystick during use, you can solve it by calibrating the joystick.

Attention: When calibrating the joystick, please make sure that the drone is not powered on.

How to calibrate: On the right side of the homepage of the Huida Drone APP, enter the settings interface, find the remote control settings button, and click to enter the remote control settings interface



Click "Calibration" to enter the joystick calibration interface, and click "Start Calibration"

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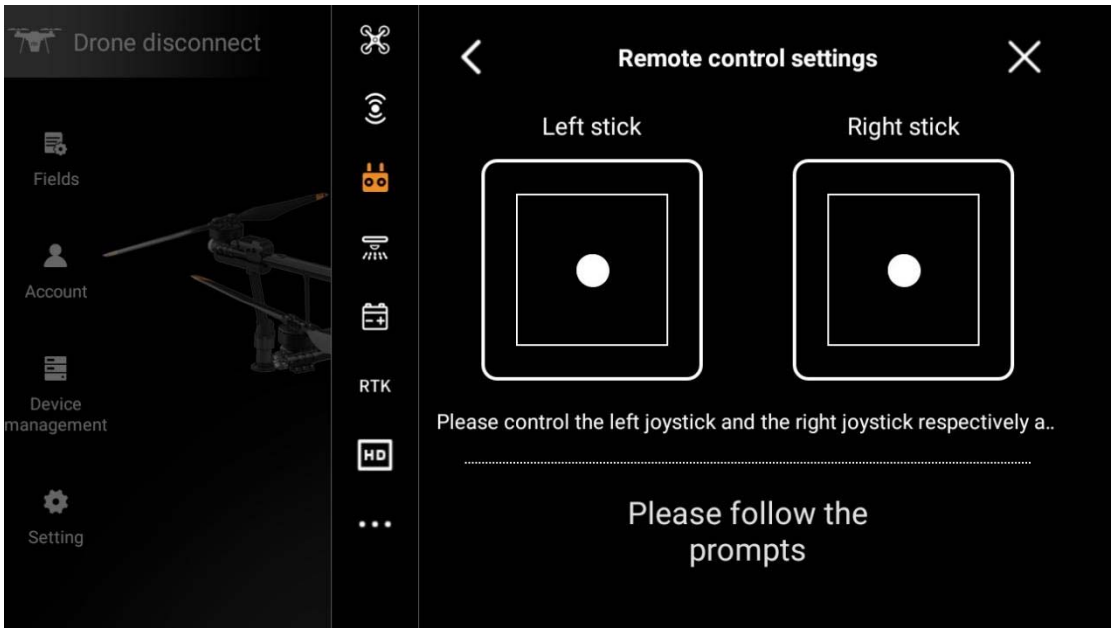
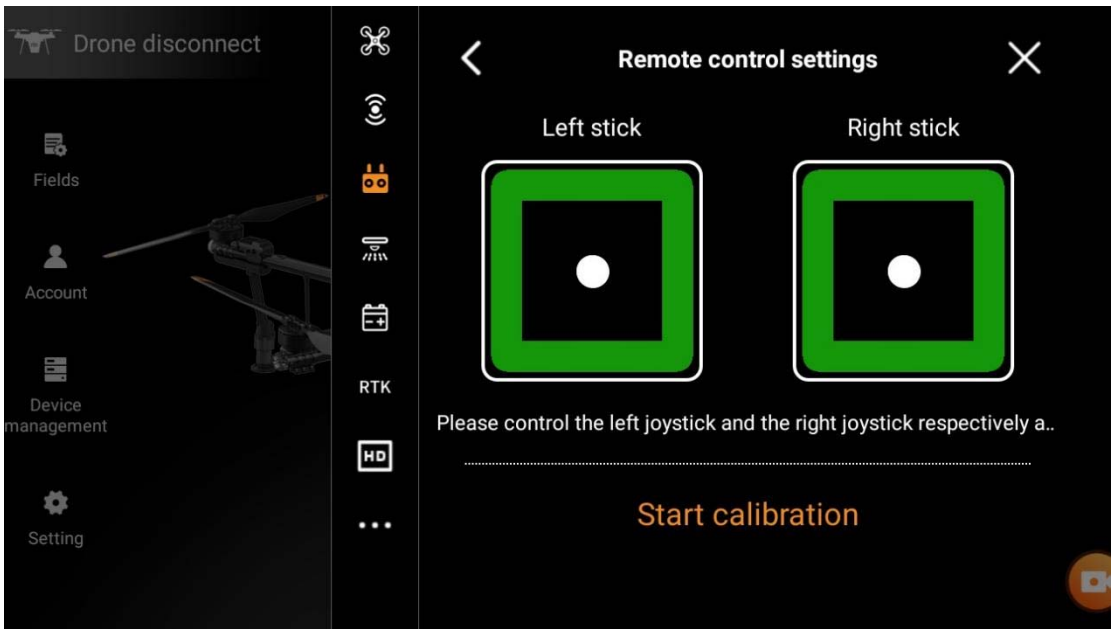
below.
Follow the prompts on the interface to control the left and right joysticks separately.



After filling in the square ring shape, the joystick calibration can be completed.



Activate and Firmware Upgrade

Register a Huida drone user account.
Please download the Huida Agricultural Service APP first and follow the guide to register a Huida drone user account.
After successful registration, follow the prompts to pass real name authentication, and you can enter the registered account password on the remote control to log in to the remote

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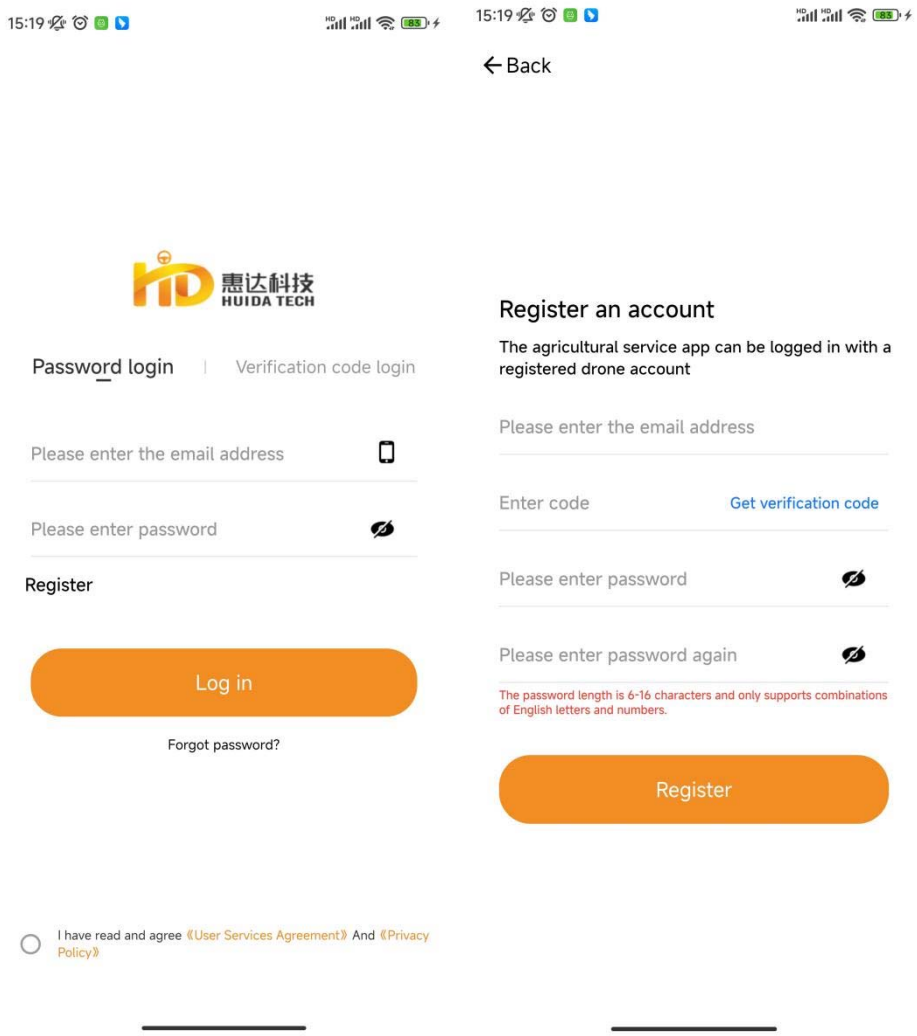
control app; Registered users can also log in to the remote control app by scanning the QR code through the agricultural service app.



activation

After logging into the remote control app, if the aircraft is not activated, an automatic pop-up will remind the user to activate it. Follow the prompts and click to complete the automatic activation. If activation fails, please contact customer service in a timely manner.

Attention: When activating, please check if the account logged into the remote control is your own account. The activated account is considered to be the machine owner account.

Firmware Upgrade

UAV APP supports online upgrade of the latest remote control firmware and aircraft firmware.

Access the Device Management interface on the home page of the agricultural UAV APP. When there is a new firmware, the version number of the latest firmware that can be

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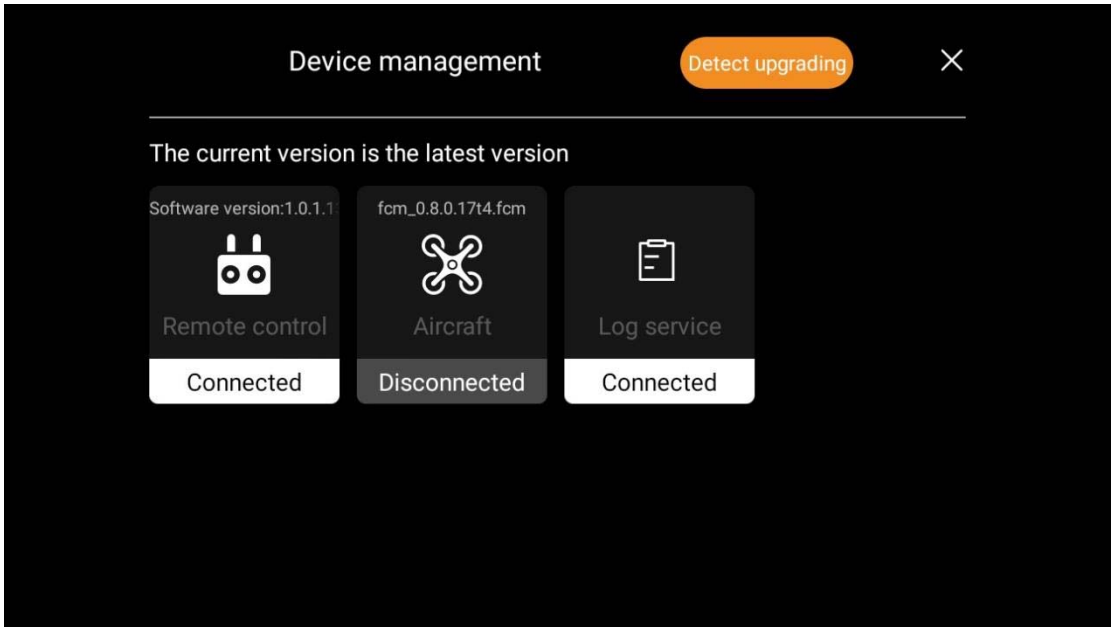
upgraded will be prompted. Click the version number and press the operation to complete the upgrade.
Note:
1 To upgrade firmware, you need to download the latest firmware from the background of Huida UAV. Please keep the network unblocked.
2 Turn off the aircraft power when upgrading the remote control firmware, and keep the blades folded when upgrading the aircraft firmware.



Aircraft

Startup and Shutdown

Turn on: Short press once+long press for 3-5 seconds to turn on the battery power of the aircraft, at which point the aircraft is powered on.
Off: With the aircraft battery power turned on, press and hold briefly for 1 time and for 3-5 seconds to turn off the battery power. At this time, the aircraft loses power.

charging
Please use the standard HE202 all-around charger to charge the smart battery.
When using fuel to charge smart batteries, please connect a high-power thick wire fast charging plug for charging.
If you use other fuel powered generators for charging, please pay attention to the output power.

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Flight Mode

The aircraft flies in P mode by default. If the attitude mode is allowed to be turned on in the App, it can be switched by the flight mode physical key switch of the remote control.
P mode (positioning): RTK high-precision positioning module is used to realize accurate hovering of aircraft. When GNSS signal is better, GNSS can be used for accurate positioning; When RTK function is turned on and differential data transmission is normal, centimeter-level positioning can be obtained. When the GNSS signal is weak or the compass is disturbed, it will passively enter the attitude mode.
A mode (attitude): GNSS module is not used for positioning, only attitude augmentation is provided. The flight speed of aircraft in attitude mode is related to environmental factors such as wind speed.

Attitude Mode Considerations
In attitude mode, the aircraft is easily disturbed by the outside world, resulting in drift in the horizontal direction. Thus, in this mode, the aircraft cannot achieve fixed-point hovering, and the user needs to manually control the remote control to achieve aircraft hovering. In this mode, the control difficulty of the aircraft will greatly increase. If you need to use this mode, you must be familiar with the behavior of the aircraft in this mode and be able to control the aircraft skillfully. When using, do not fly the aircraft out of a long distance, in order to avoid the risk caused by losing the judgment of the attitude of the aircraft because the distance is too long. Flying in the environment with poor GNSS satellite signal and obstructions (such as near tall buildings) and narrow space should be avoided as far as possible, in order to avoid passively entering attitude mode and causing flight accidents.

Work Mode

HD540 agricultural UAV has route operation mode, A-B point operation mode, manual operation mode and enhanced manual operation mode, which can be switched through agricultural unmanned aerial vehicle APP.

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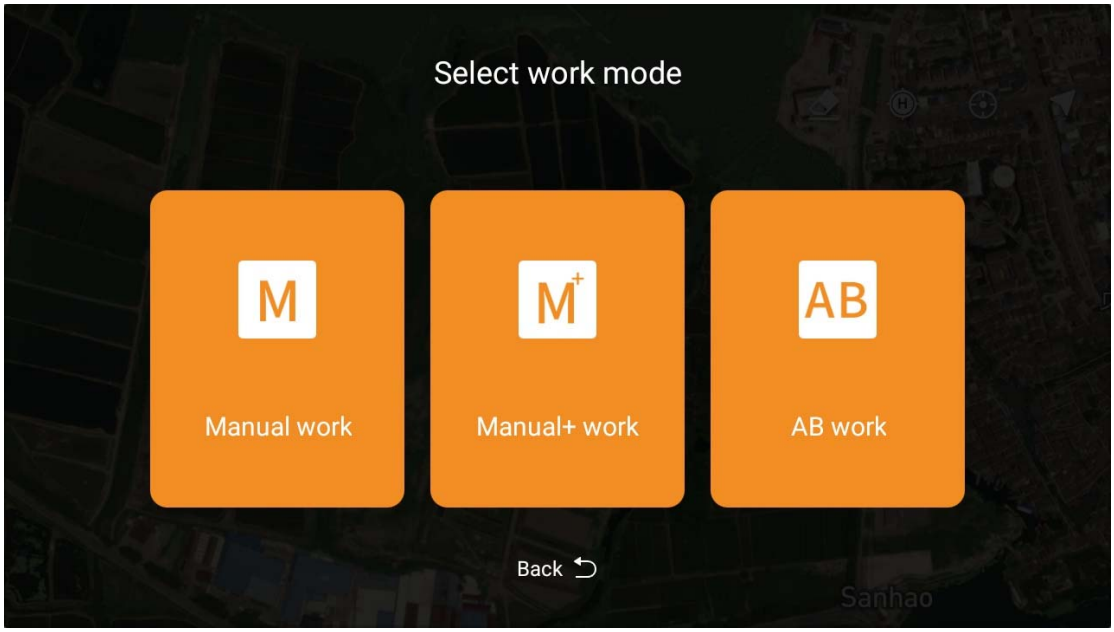

Fully autonomous work mode

Users use the intelligent planning operation system of the Huida Drone APP to measure land parcel boundaries and obstacles. After setting the waypoint, the app will calculate and generate the best route based on this data, achieving intelligent planning of operations. After the planning is completed, call the operation, and the aircraft will enter the autonomous operation mode to automatically execute operations according to the route.

The HD540 agricultural unmanned aerial vehicle has functions such as intelligent departure, intelligent supply reminder, intelligent endurance point, abnormal interruption operation recovery, and can ualtitude determination, obstacle avoidance, and detour.

Users can adjust the spraying/broadcasting amount, flight speed, etc. in real-time on the app interface, which is very suitable for regular and irregular large-scale operations.

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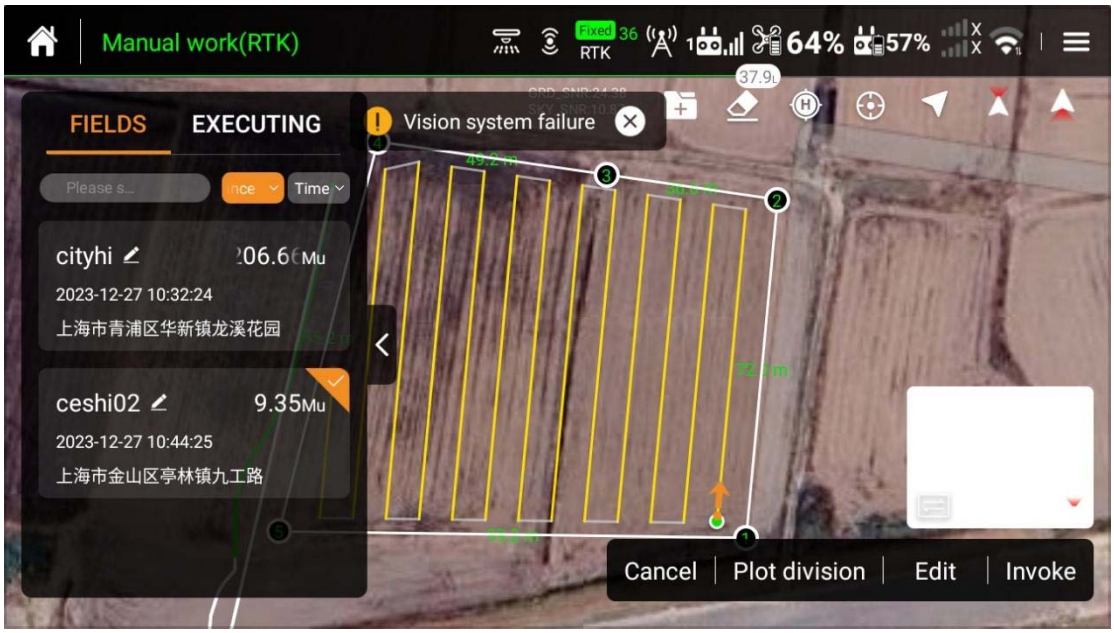
Start the homework, enter the manual homework homepage, and call the target plot



After completing the call, you can enter the fully autonomous operation mode, and then set the operation parameters as needed

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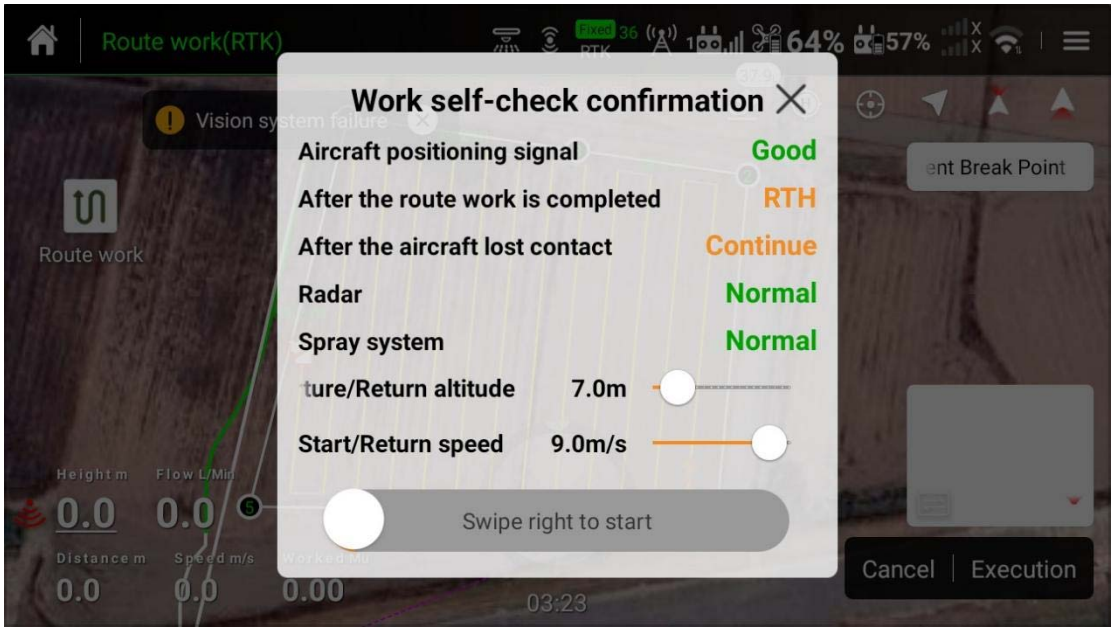

Call, synchronize route information with remote control and drone, and confirm pre operation parameter settings and drone status

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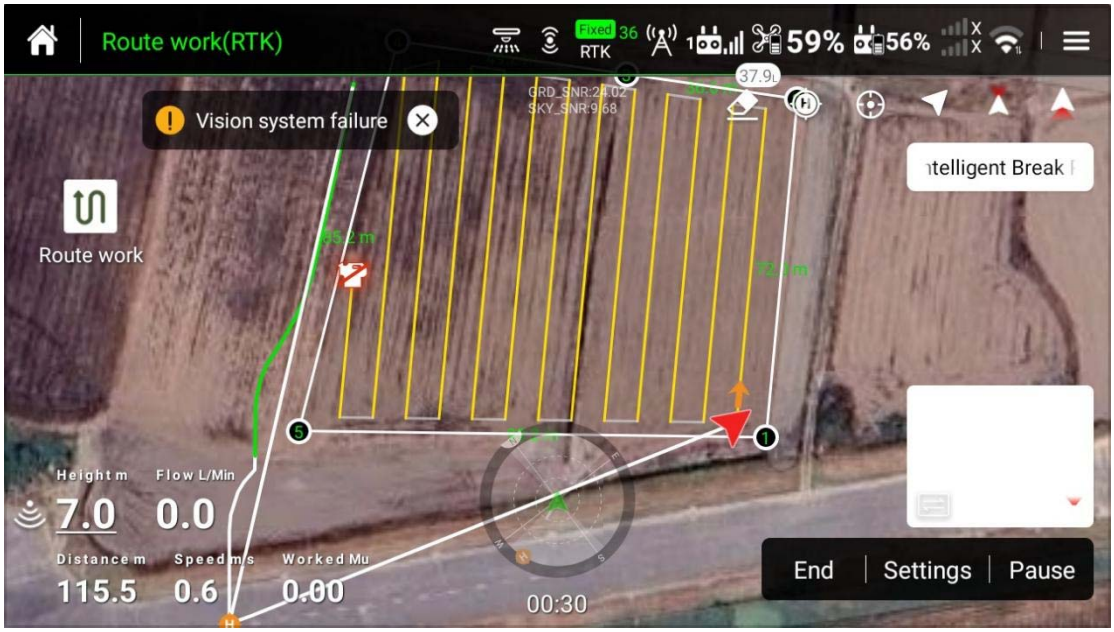

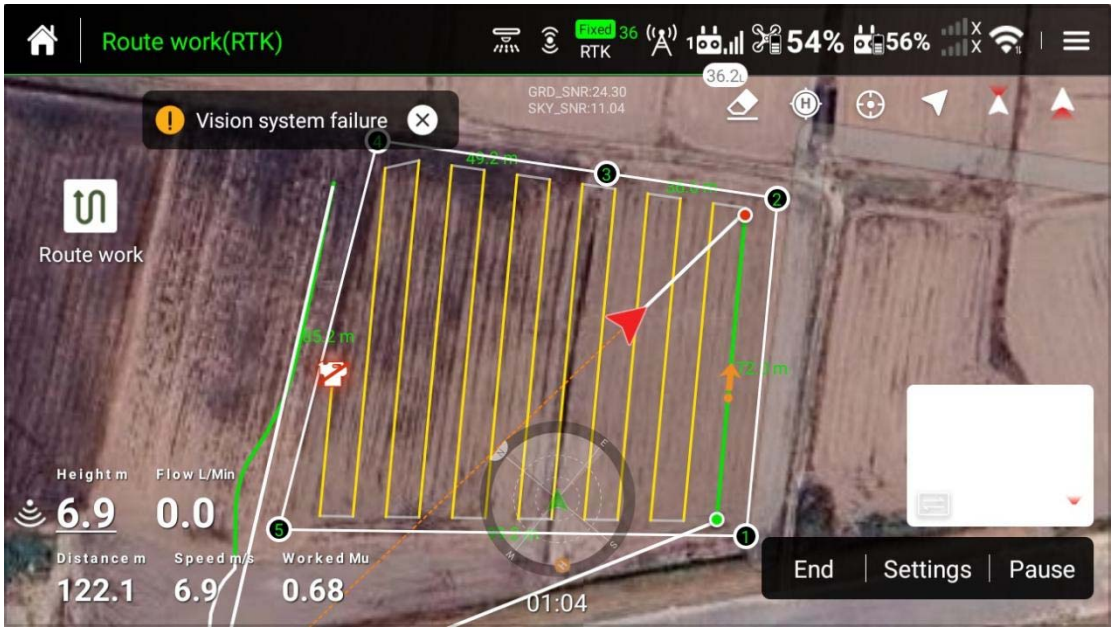

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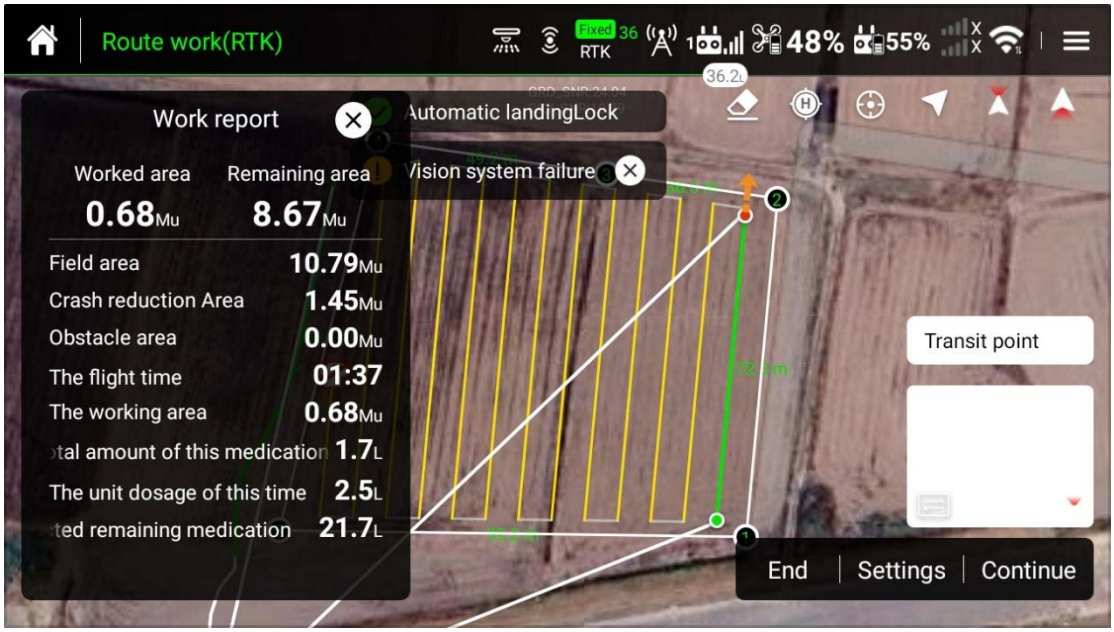

After completing the assignment, you can view the assignment report

A-B point work mode

Users can map A-B points through the intelligent planning operation system of agricultural UAV APP. After setting A-B points, adjust the direction of A and B points and the parallel of the plot boundary, and then set the number of routes to cover the plot. The App will calculate and generate the best route based on the data to realize the intelligent planning of the operation. After the planning is completed, the aircraft will enter the A-B point operation mode and automatically perform the operation according to the only planned route.

The HD540 agricultural unmanned aircraft has the functions of intelligent departure, intelligent supply reminder, abnormal interruption operation recovery, and can altitude determination, obstacle avoidance and automatic obstacle avoidance.

Note: It is impossible to plan obstacles in the plot at point A-B. If there are obstacles in the plot, it is recommended to use the Fully autonomous work mode, plan the plot first, and then call to execute the operation.

Add A-B points

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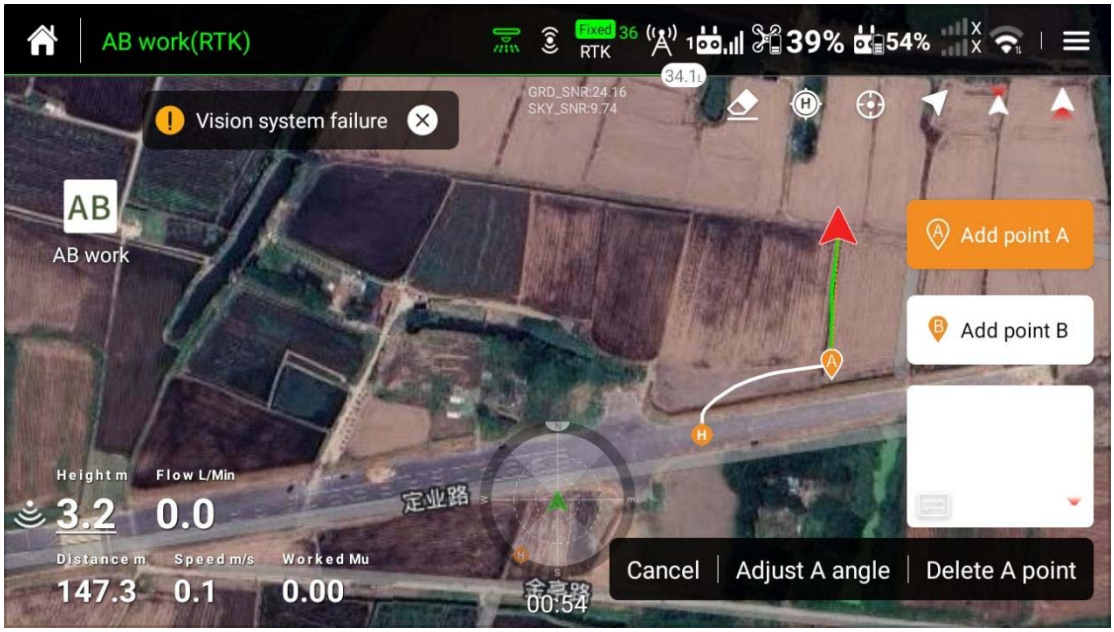

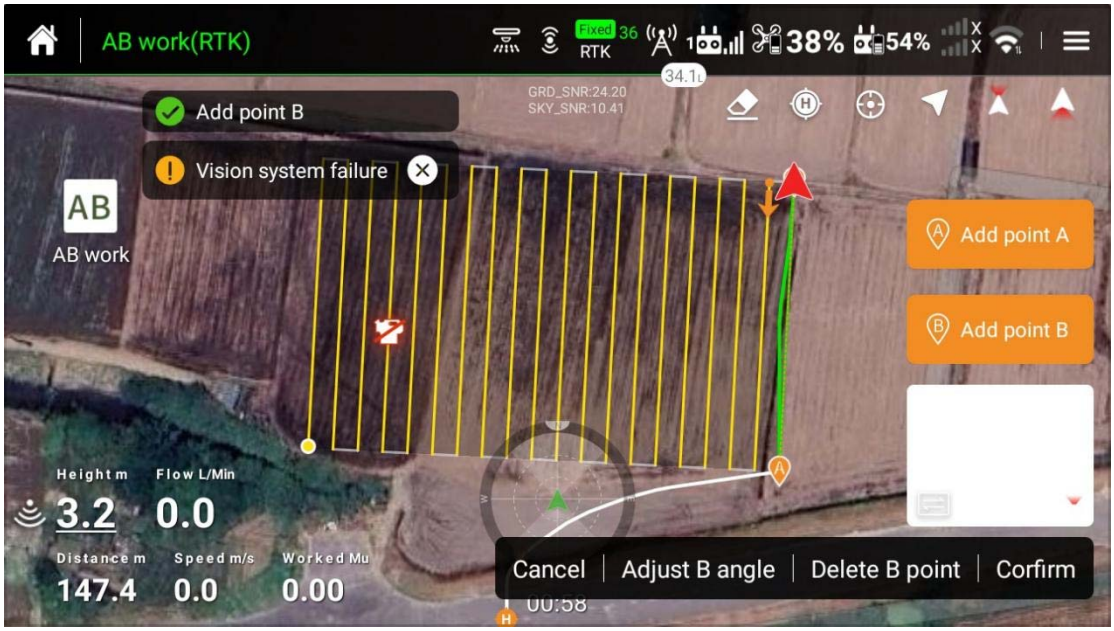

Set the number of routes and operational parameters

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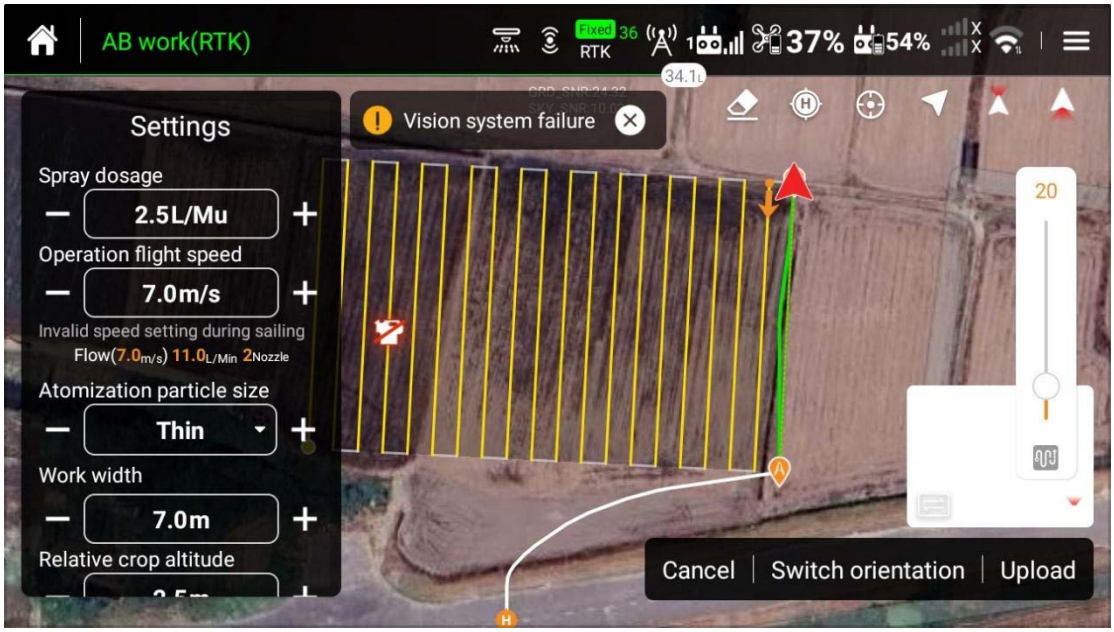
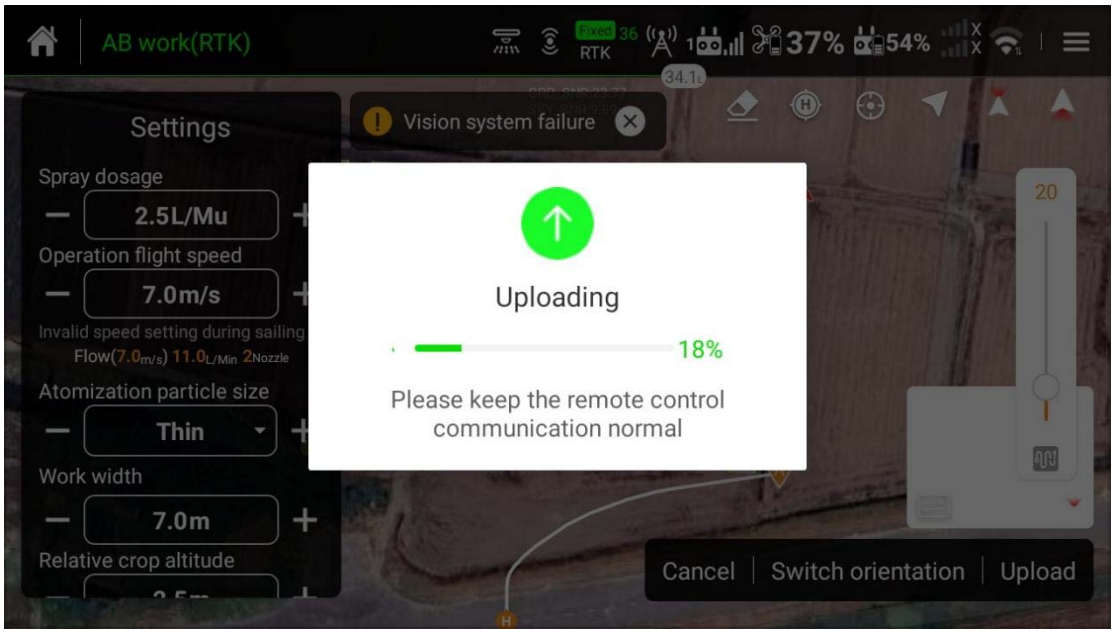


Execute A-B point assignments



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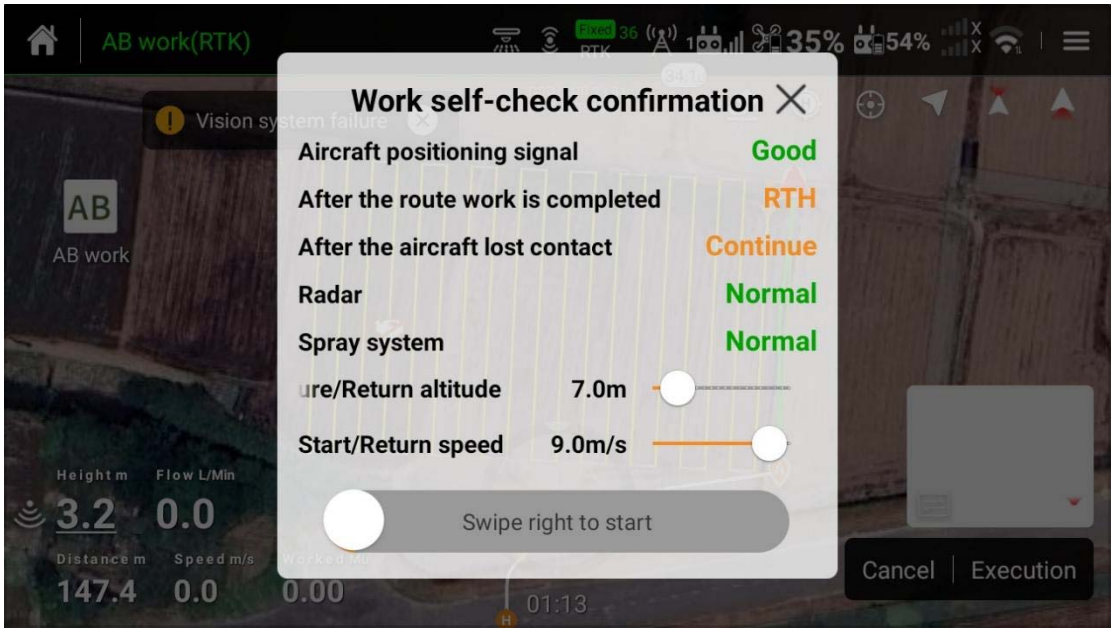

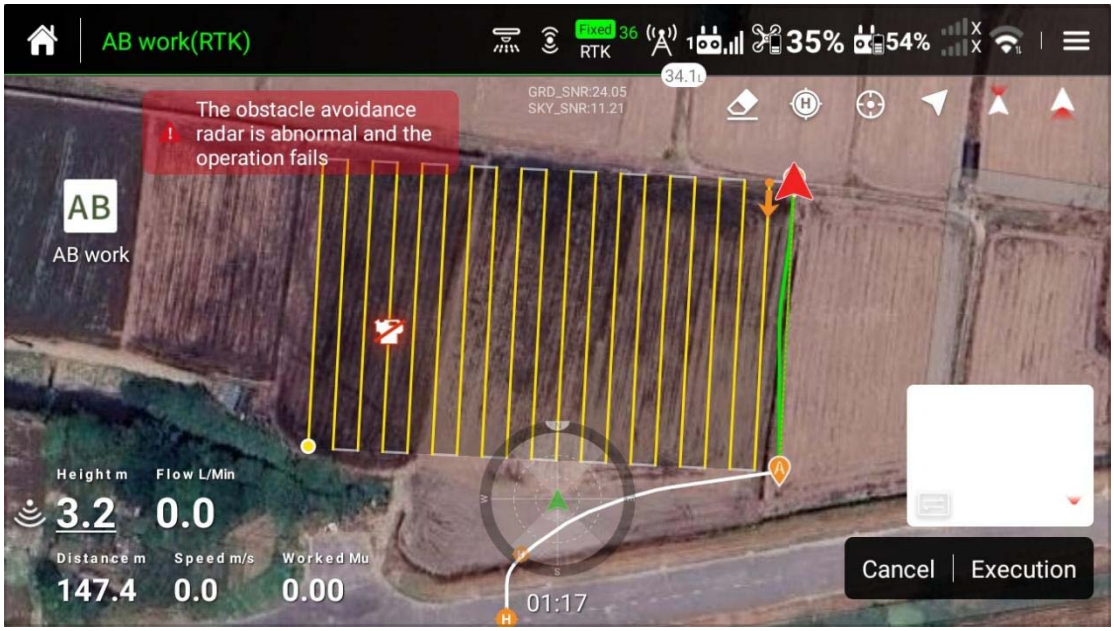

Manual homework mode

For small plots or plots with many obstacles and complex terrain, the manual operation mode can be used. The flight path of the aircraft is completed by manually hitting the lever on the remote controller, and the spraying or broadcasting switch needs to be manually turned on. At this time, the UAV is not recommended to fly outside the range of sight distance, otherwise flight safety risks may occur.

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Note: Manual homework requires a start button to record data such as work area

Enhanced manual work mode

The enhanced manual operation mode can also be used for large and medium-sized parcels that have no obstacles and are relatively regular. Fly the aircraft to the expected route of the target, align the nose with the expected route, set the amount of mu, flight speed, operation line spacing, and relative crop height, and then click "Start", and then hit the rod in the forward direction. When reaching the headland, click "Left Transverse" or "Right Transverse" as required to complete the lateral movement, Then hit the stick back (note: if the HD540 uses four centrifugal nozzles and does not turn around, the UAV is flying ahead of the tail at this time), and repeat the above operation to complete the operation.

Automatic Return

Return point: When RTK positioning is available, the departure point or remote control location is the default return point

Return: The process of an aircraft automatically returning to the return point is called return

One-click Return

Intelligent return can be started by pressing and holding the return button on the remote control. Its return process is the same as that of out-of-control return, but the difference is that the user can control the height of the aircraft to avoid obstacles by pushing joystick. In the process of intelligent return, you can receive the control right of UAV by pushing joystick

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Return without Carrying Pesticides

HD540 Agricultural UAV supports setting UAV action after not carrying pesticides, and you can select hovering or returning. If you select return, the UAV will automatically fly back to the return point after spraying pesticides, and you can receive the control right of the UAV by pushing joystick at will during the return process

Return with Low Power

HD540 Agricultural UAV supports setting the UAV to operate after low power, and you can select hovering or returning. If you select return, pesticides are completely sprayed, the UAV will automatically fly back to the return point, and you can receive the control right of the UAV by pushing joystick at will during the return process

Return when Loss of Communication

HD540 Agricultural UAV supports the action after the loss of communication, and you can select hovering or returning. If you select return, the UAV will automatically fly back to the return point when it detects the loss of communication with the remote control for more than 5s. If the UAV can be reconnected during the return flight, you can receive the control right of the UAV by pushing joystick during the return process

Note: Pay attention to avoid obstacles inside or outside the plot when returning automatically

Select the Return Point

The user can select the departure point position in Agricultural UAV APP, and the remote control position is used as the return point for the UAV to automatically return

Update the return point according to the following steps:

1.Open Agricultural UAV APP, enter the operation interface

2.Click Settings and select “ ” in the return location, the current coordinates of the aircraft will be updated to the return point

3.Click Settings and select “ ” in the return location, the current coordinates of the remote control will be updated to the return point

4.After the return point is set successfully, the aircraft status indicator will display a flashing green light

Automatic Return Distance

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If the UAV is within 10m of the remote control, the UAV will not trigger the automatic return function

Automatic Return Condition

If RTK positioning is available, automatic return will not be triggered when RTK positioning is unavailable

Return and Avoid Obstacles

When the environment meets the operating conditions , the aircraft can return to avoid obstacles. If there are obstacles less than 20m away from the aircraft on the return path, the aircraft will slow down to hover. Subsequently, the aircraft exits the return process, and the user can manually control the aircraft

Low Power and Ultra-low Power Protection

HD540 UAV has the functions of low power alarm, severe low power alarm and low voltage alarm

1.If the App gives an alarm of low power, fly the aircraft to a safe area and land it as soon as possible, and then replace the battery. If the behavior after reaching the low power is set to return, the aircraft will automatically return after the App gives a low power alarm;

If the behavior after reaching low power is set as hovering, the aircraft will hover and wait for the user to operate after the App gives a low power alarm

Note: The specific remaining power percentage of low power can be set by the user in Agricultural UAV APP. It is suggested that the user settings should be relatively conservative to ensure flight safety

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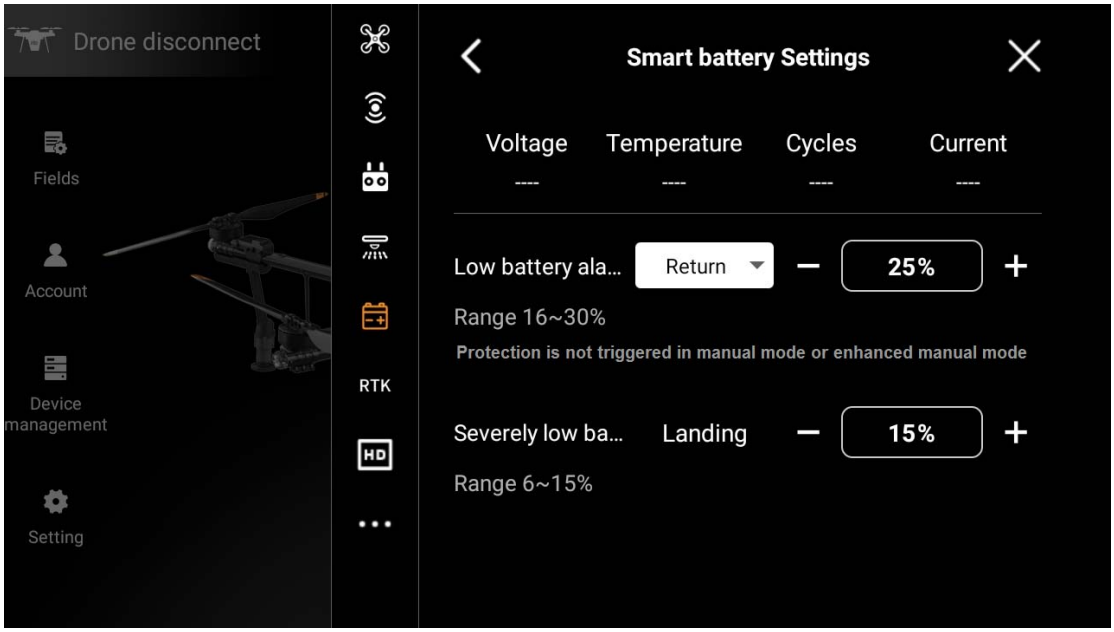

Note: The specific percentage of remaining power of low power can be set in the agricultural UAV APP. It is recommended that users set it relatively conservatively to ensure flight safety

2.If App gives an alarm of severe low power or severe low voltage (the battery voltage is less than 60V), the aircraft will be automatically landing in place, and the user cannot interfere with the landing process

Note: For severe low power, the user can set the remaining power percentage. It is suggested that the user settings should be relatively conservative to ensure flight safety.

Aircraft indicator

Aircraft arms M1 to M6 are equipped with LED lights. LED lights of arms M2 and M6 are nose indicator lights, and red lights are always ON during flight to indicate the nose direction of aircraft. LED lights of arms M3 and M5 are tail indicator lights, and the green light is always ON during flight to indicate the tail direction of the aircraft. LED lights of arms M1 and M4 are aircraft status indicators, which indicate the current status of the aircraft when the aircraft does not take off. See the appendix for specific description; when the aircraft is flying in the air, the indicator light is OFF.

HD540 Lights Meaning Table

Light Meaning	Flight lamp control	Unlock successfully, lock successfully	The green light is always ON for 1s
		Unlock failed	The red light is always ON
		Excessive vibration of IMU/Exception data	Yellow light flashes

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		IMU not calibrated	
		Loss of remote control signal	Yellow light flashes slowly
		No GNSS	Red light flashes slowly
		GNSS With GNSS	Green light flashes slowly
		RTK is not located after RTK function is enabled	Yellow and green lights flash alternately
		Compass data is abnormal, compass is not calibrated	Red and green lights flash alternately
		IMU level is in calibration	Yellow light is always ON
		IMU is calibrated successfully	The green light is always ON for 1s
		IMU calibration failed	The red light is always ON for 1s
		Compass level is in calibration	Green light is always ON
		Vertical calibration of compass	Yellow light is always ON
		Successful calibration of compass	The green light is always ON for 1s
		Compass calibration failed	The red light is always ON for 1s
		Remote control is being paired	Yellow light is always ON
		Successful pairing	The green light is always ON for 1s
		Pairing failed	The red light is always ON for 1s
Others	Flight at night	Lighting system control (manual)	Support manually turning on/off the headlights, rear lights and lower lights

RTK Function

Compared with the compass module, the airborne high-precision RTK module of HD540 UAV not only has higher accuracy, but also provides strong anti-electromagnetic interference capability, ensuring reliable operation flight in the environment of high-voltage lines, metal buildings and other strong magnetic interference. Dual antenna direction finding will be automatically enabled when GNSS signal is good.

HD540 can cooperate with HD201 mobile RTK small base station to provide RTK location service. The specific use method is as follows.

Turn on/off RTK Function

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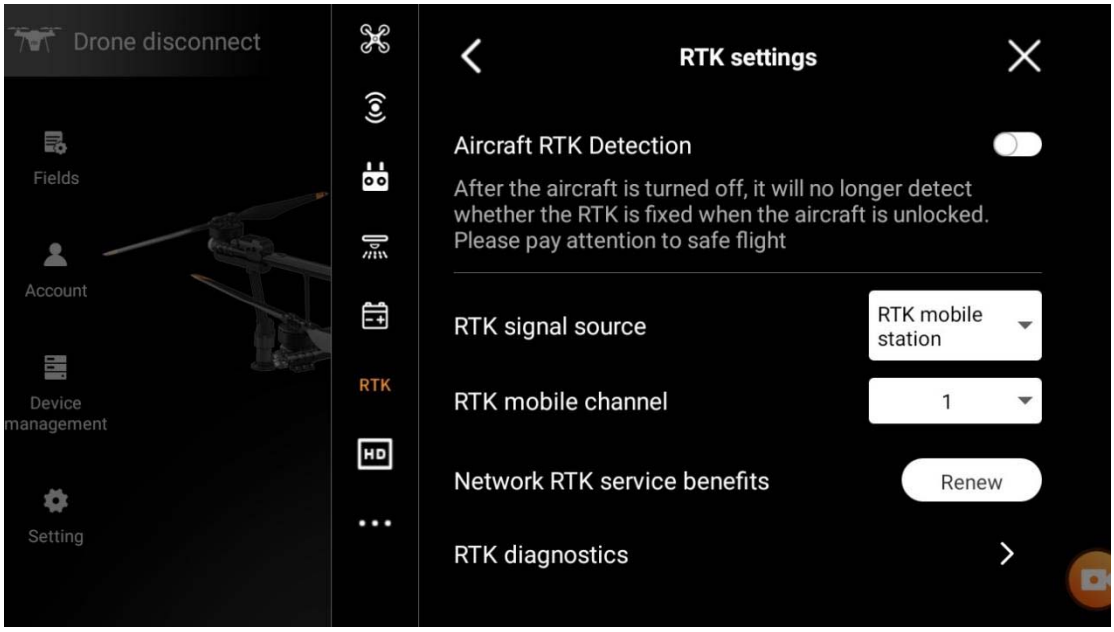
Before using RTK positioning, check to ensure that the aircraft RTK positioning function is turned on and select the correct way to receive RTK signals (RTK mobile station or network RTK service), otherwise RTK positioning will not be used

Note: The aircraft uses RTK, but when RTK positioning is unavailable, the UAV will not be able to take off; The network RTK service cannot be provided in other regions and countries except Chinese Mainland.



Use in combination with Huida Tech HD201 Mobile Station

1.Complete the frequency matching between aircraft and base station and the erection of base station with reference to the description documents of relevant equipment.

2.Turn on the base station and wait for searching the satellite. The RTK status icon at the top of the App job interface is displayed as indicating that the aircraft has acquired and used the RTK data of the base station.

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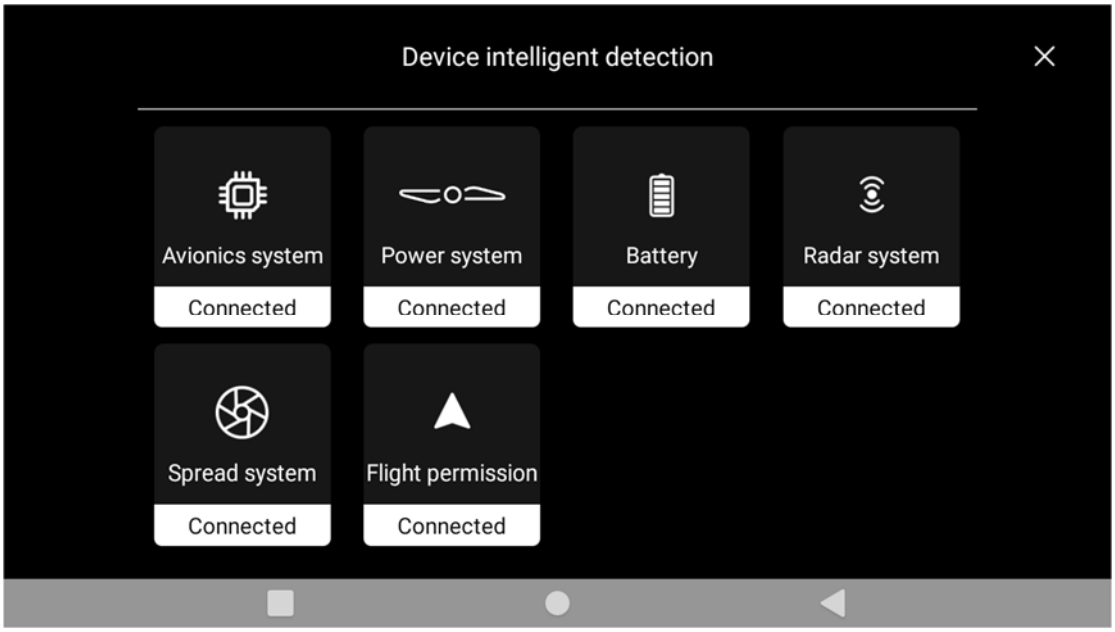
Intelligent detection of equipment

Click on the homepage of UAV APP “Drone Connected”, Enter the Device Intelligent Detection interface

In the Device Intelligent Detection interface, you can view the working status of the UAV core equipment. If there is any abnormality, you can upload a log to analyze the reason.



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Data protection and abnormal interruption job data recovery

In the fully autonomous operation mode or A-B point operation mode, the user can suspend the operation halfway, disconnect the power supply of the aircraft, and replace the battery or add pesticides. The operation progress, the coordinates of points A and B in the history record and the breakpoint of the operation recovery function record will be saved. After the user reconnects the aircraft power supply, the user can continue the operation at the breakpoint of the current operation task. If the aircraft operation process is manually controlled during the operation process, the user can select the return point to continue the operation after completion.
In the course of route operation, if the App crashes, the remote controller is disconnected from the aircraft and other abnormal conditions are encountered, the flight control will automatically record the breakpoint. After reconnecting to the aircraft, the App will automatically recover the breakpoint information.

Flight

Flight Environment
1. Do not spray in windy environment, and flight is not allowed when the wind level is below grade 5.
2. Do not fly in bad weather, such as foggy weather with low visibility, windy weather (wind speed is 8m/s and above), rain and snow, etc.
3. Select an open place without tall buildings around as the flight site. Tall buildings will block GNSS signals, which may lead to RTK positioning failure of aircraft, and have great flight safety risks.
4.Always fly within sight range and stay away from any obstacles, people, water surface

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and animals.
5. No electromagnetic interference such as high-voltage lines, communication base stations or transmission towers in and around the operation area.
6. Do not fly above 4km above the sea level.
7. Ensure that GNSS signal is good and RTK antenna is not blocked during flight.
8. Do not operate the UAV indoors.

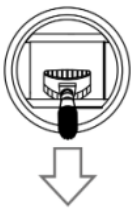
Manual takeoff
Execute one of the following joystick pushing actions to start the motor, and then push the throttle lever up to take off.

Throttle lever
(Left Joystickfor US operation mode)

Note: unlocking the motor for takeoff can only take effect in the operation interface or aircraft planning plot interface, and other interfaces cannot unlock the motor

Manual Landing
Pull the throttle lever down until the aircraft lands on the ground. After the aircraft landing, the motor can be stopped in the following two modes:

After the aircraft landing, pull the throttle lever to the lowest position and hold 5s before the motor stops.



• The propeller rotating at high speed is dangerous, so you should keep a safe distance from the aircraft and keep the aircraft away from people, animals or other obstacles.
• Be sure to keep the remote control in hand before the aircraft motor stops and ensure that the aircraft is completely under control.
• Do not stop the motor during flight, otherwise the aircraft will fall. Unless there are special circumstances (such as the aircraft may crash into people), it is necessary to stop the motor urgently to minimize the injury.
• After landing, please turn off the aircraft first, and then turn off the remote control.

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Electronic Fence
The electronic fence is turned on by default, which will limit the flying height and maximum flying distance of UAV.
The flying height and the farthest flight distance (centered on the remote control) of the UAV can be safely restricted in the APP setting of Huida UAV.

No-fly Zone
According to the regulations of ICAO and air traffic control in various countries on airspace control and the regulations on UAV management, UAV must fly in the prescribed airspace. For flight safety reasons, the flight restriction function is turned on by default, including no-fly zone restriction and electronic fence restriction, to help users use HD540 more safely and legally.
No-fly zones include the no-fly zone of the Global Air Traffic Control Bureau and the no-fly zone defined by users. For UAV, UAV should not fly in the no-fly zones. In the absence of positioning, after the UAV flying into the no-fly zone, the aircraft will automatically land with positioning, and after landing, it cannot take off in the no-fly zone.

Common settings for drones

IMU and magnetometer calibration
The IMU and magnetometer have already been calibrated before leaving the factory. After being transported over a distance of 500KM, it is recommended to calibrate the magnetometer

Motor bias angle inspection
After the vibration of the drone increases or the power sleeve is replaced, this item needs to be checked

Automatic fine tuning of line spacing
When the row spacing cannot cover the entire plot evenly, this function can be turned on, and the row spacing will be automatically adjusted according to the width of the plot to cover the entire plot evenly.

Intelligent endurance point
Suitable for use on fast and long routes on the earth, it can trigger intelligent endurance points in scenarios where the distance from the cut-off point to the departure point is not suitable for full load air flight, which can improve battery utilization and reduce operating costs.

Return accuracy inspection
If there are many obstacles near the HOME point and the landing environment is complex, you can turn on this switch. When the RTK single point is reached, the drone will hover over the HOME point after returning, and the landing will be manually taken over to

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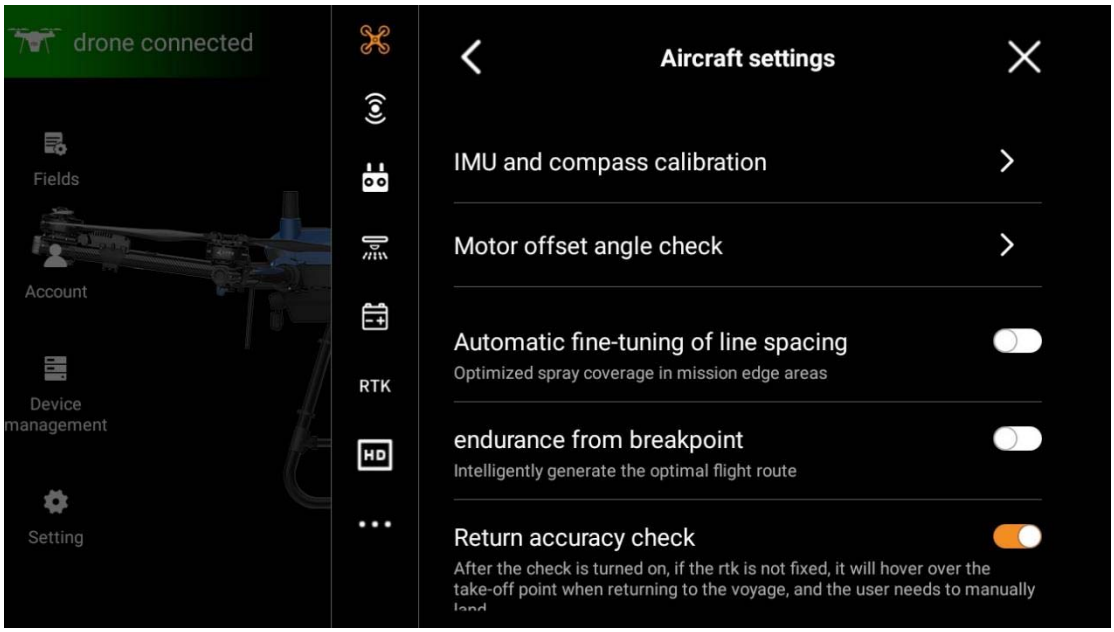
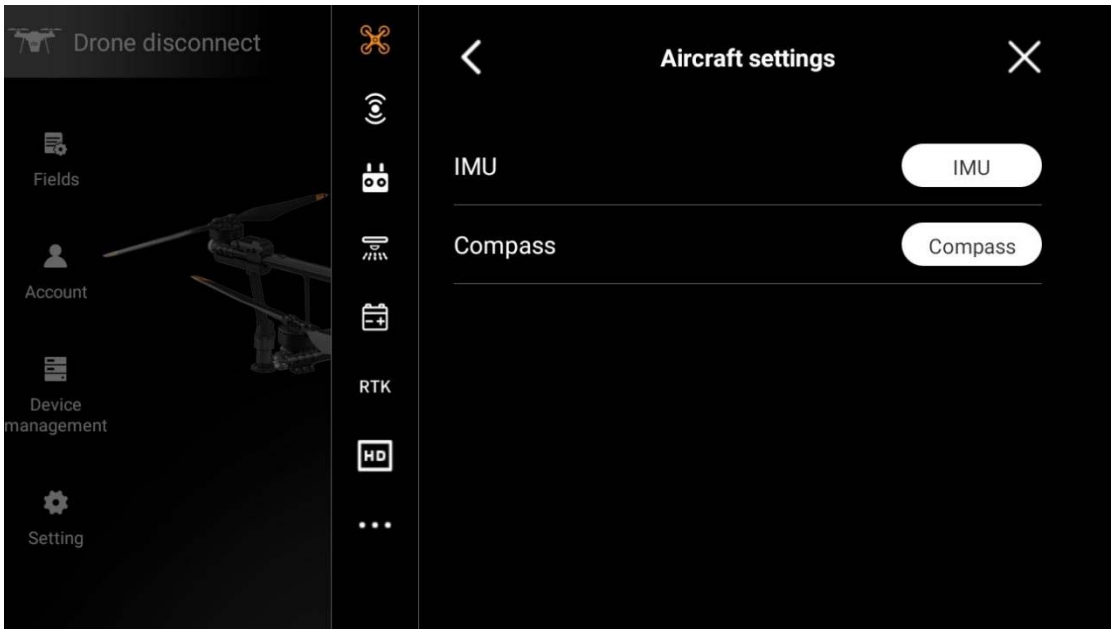
prevent a large error from landing in a non safe position.





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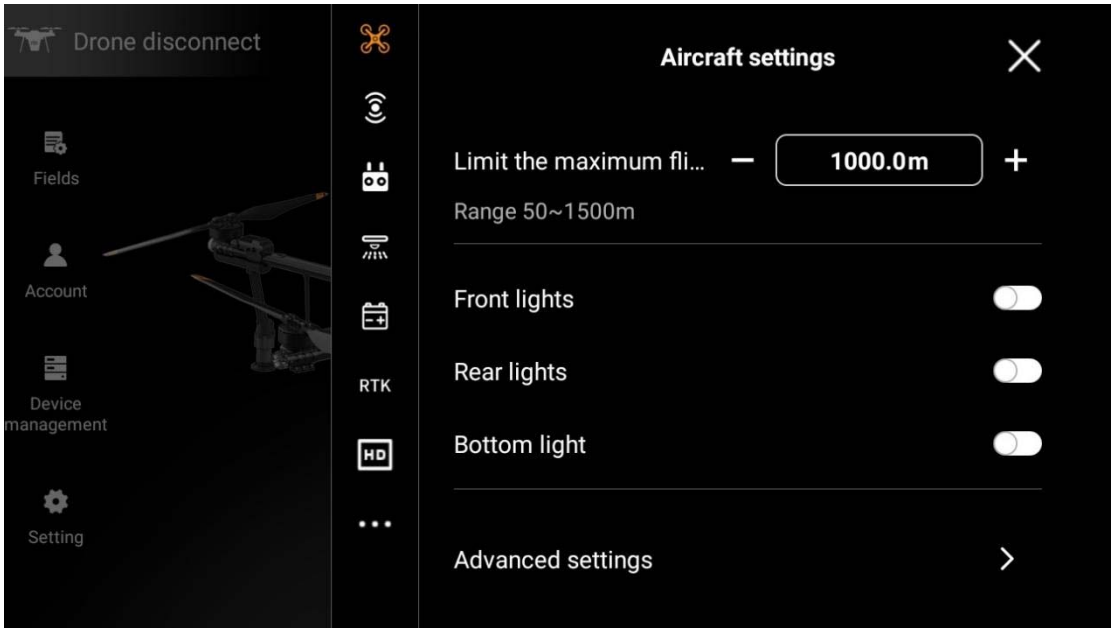

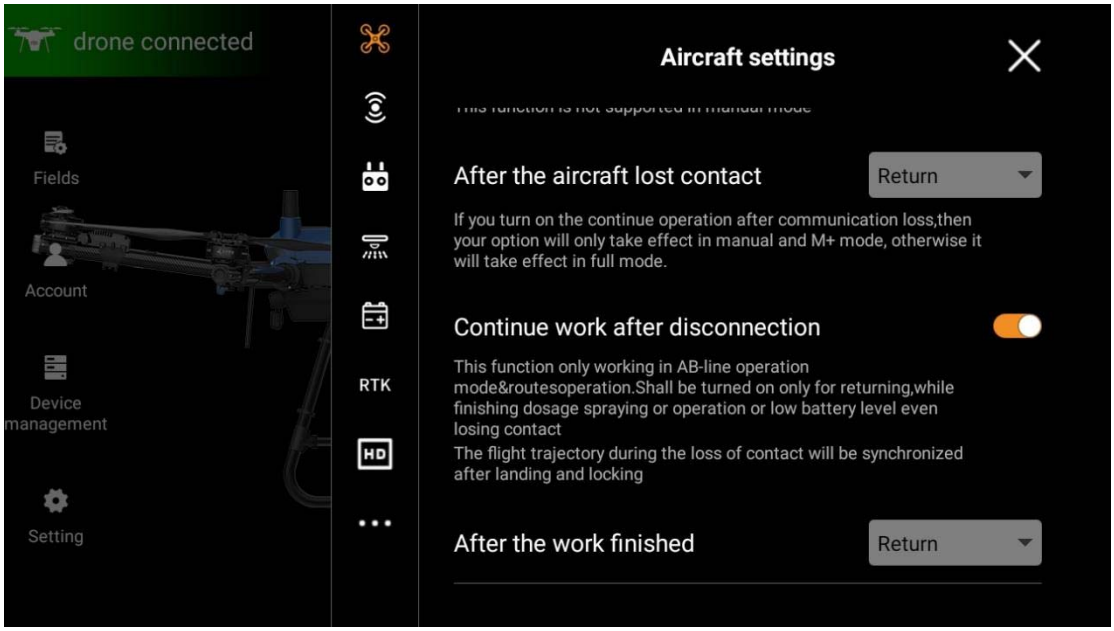

Remote Controller

Overview of Remote Control

The HD402 remote control, which comes standard with the HD540 agricultural unmanned aerial vehicle, is a new generation of unmanned aerial vehicle remote control independently developed by Huida Technology. This remote control adopts advanced image and data communication technology, with a maximum communication distance of 2 km; Equipped with a 6-inch high-definition touch screen and built-in Android system, it can

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directly run the Huida Drone App for route planning, land editing and management, configuration of route and manual operations, and real-time viewing of aircraft status; Support online firmware upgrades for drones and remote controls, and support Bluetooth connection to external devices; Support multiple quick and convenient auxiliary functions (quick screenshots, recording, etc.)

Startup and Shutdown

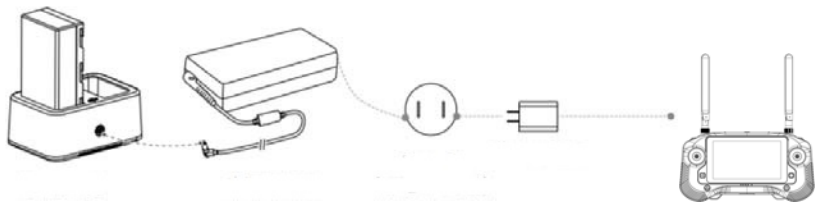
Press 1 shortly + hold 3-5s to turn on the power switch of the remote control. At this point, the remote control starts power-on, wait for 30s, and the remote control starts to enter the homepage of Huida UAV APP

When the remote control is turned on, press 1 shortly + hold 3-5s. The remote control will pop up a box to prompt whether the remote control needs to be turned off or restarted. The shutdown or restart operation can be completed by selecting as required

Charge

Built-in Batteries
USB charger and TYPE-C cable are used to charge the built-in battery of remote control

External Battery
External battery charging stand and power adapter are used to charge the external smart battery



Remote control charging dock ac adapter AC power supply(100-240v) USB charger

Key Operation of Remote Control

Distribution Diagram of Physical Keys of Remote Control

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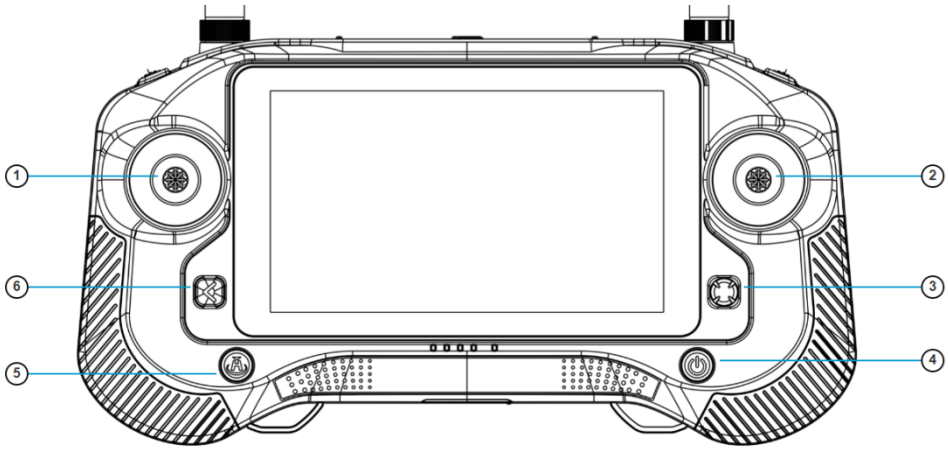
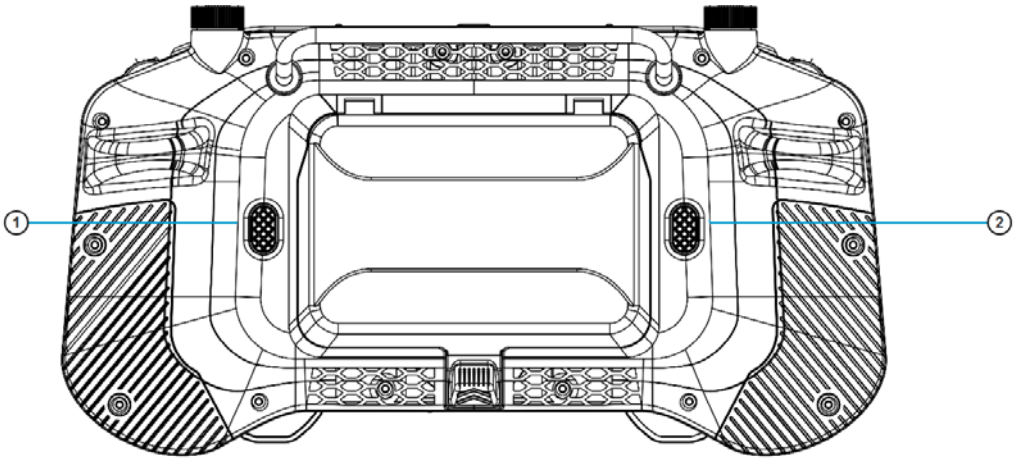
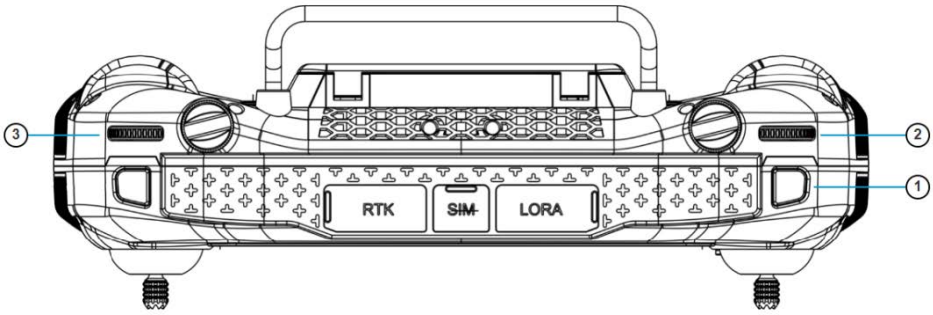


①Left Joystickarm ②Right Joystickarm
③Five dimensional buttons ④Switch button
⑤Return flight button ⑥Return button



①Custom buttons1 ②Custom buttons2



①Operating system switch button ②Operating System Flow Adjustment Wave Wheel
③Pan tilt camera adjustment wheel

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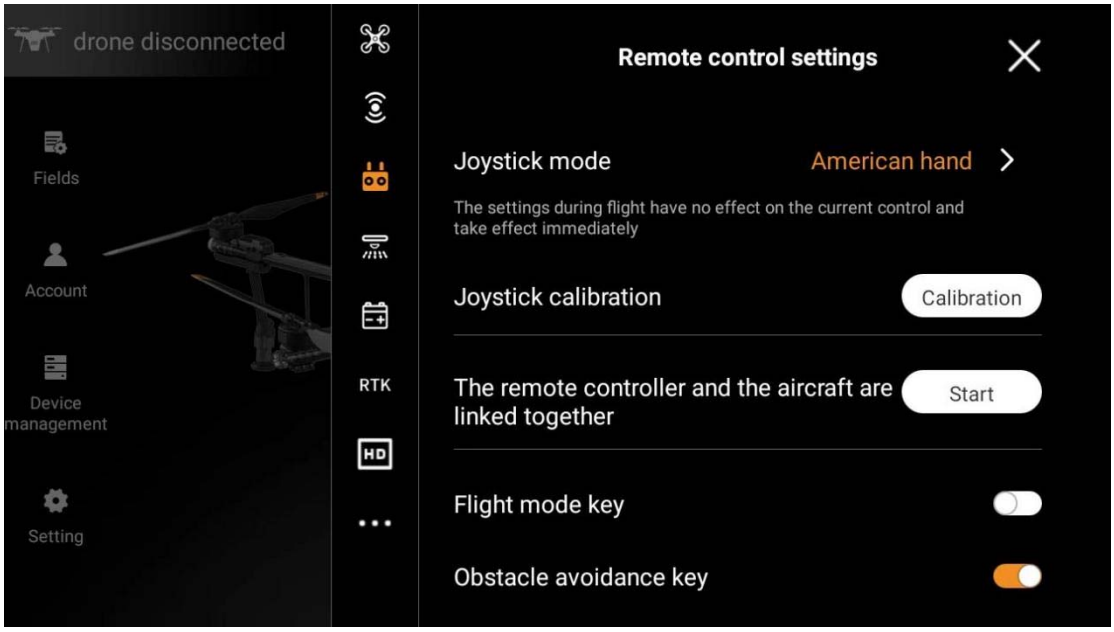
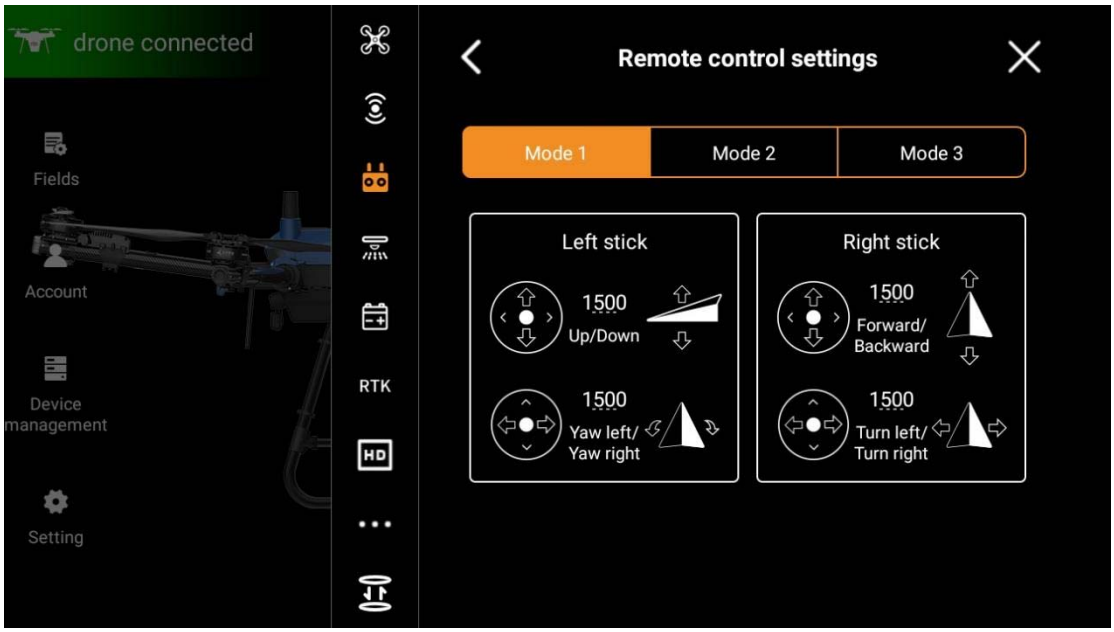
Joystick control

To control the joystick, you need to first set the joystick mode according to your own control habits

Note: Do not unlock takeoff without permission when unsure of joystick mode



JoystickControl Diagram under Mode1



JoystickControl Diagram under Mode2

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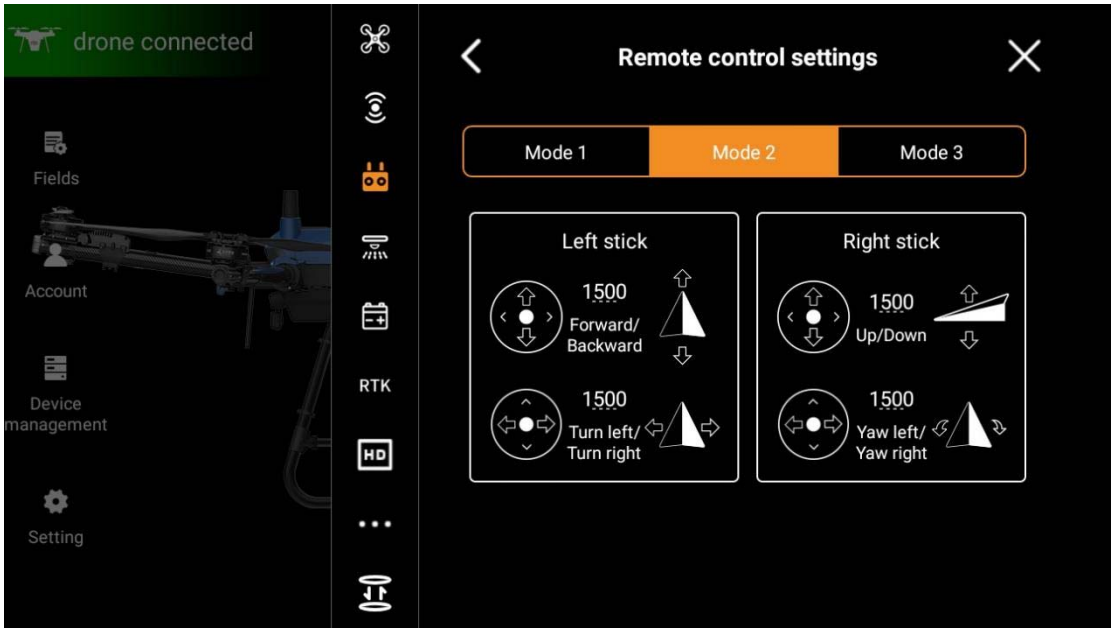
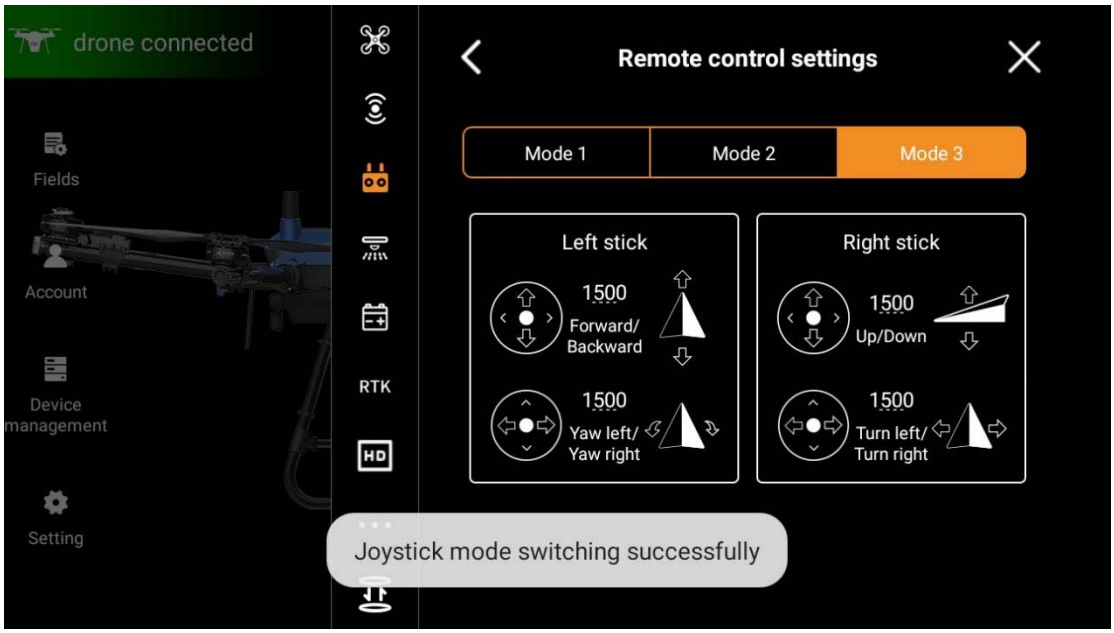


JoystickControl Diagram under Mode3



JoystickCalibration

The Joystickof HD540 remote control has been calibrated from the factory, but it is necessary to calibrate the Joystickbefore unlocking for the first time to prevent the problem of inaccurate Joystickcaused by transportation bumps. In daily use, this function can also be used to calibrate the remote control Joystickif the Joysticknot returning to the neutral position while pushing joystick and the offset is large.

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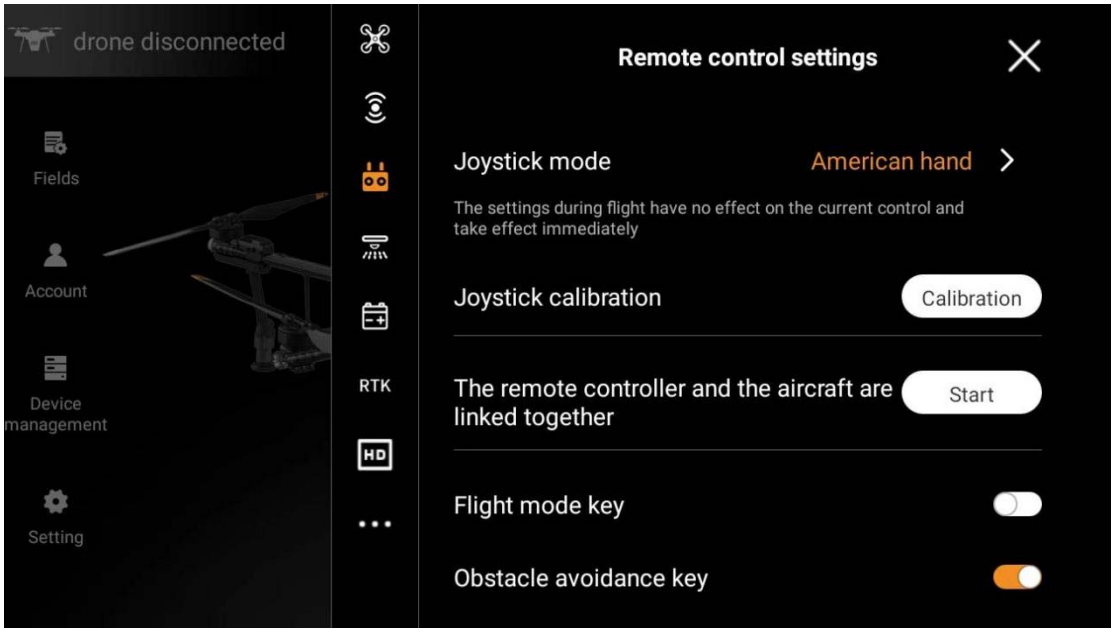

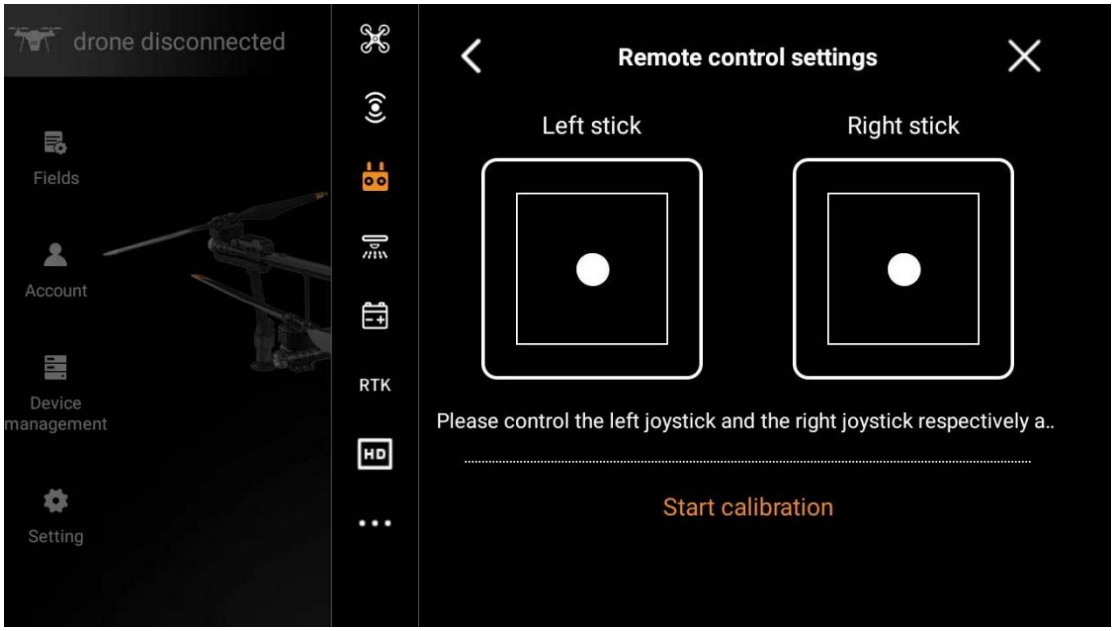

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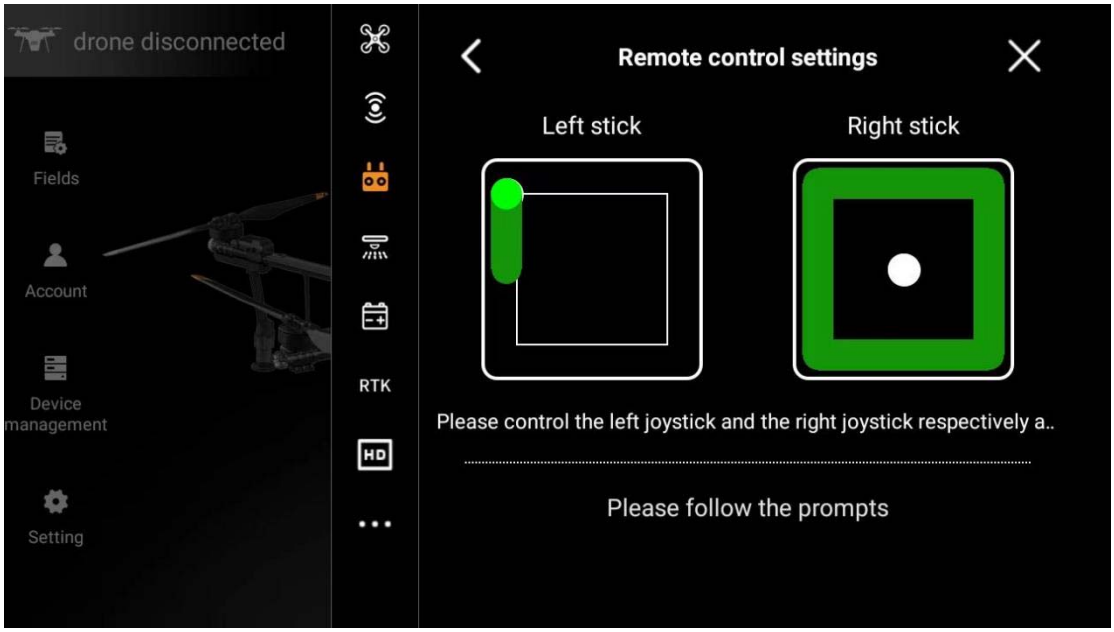
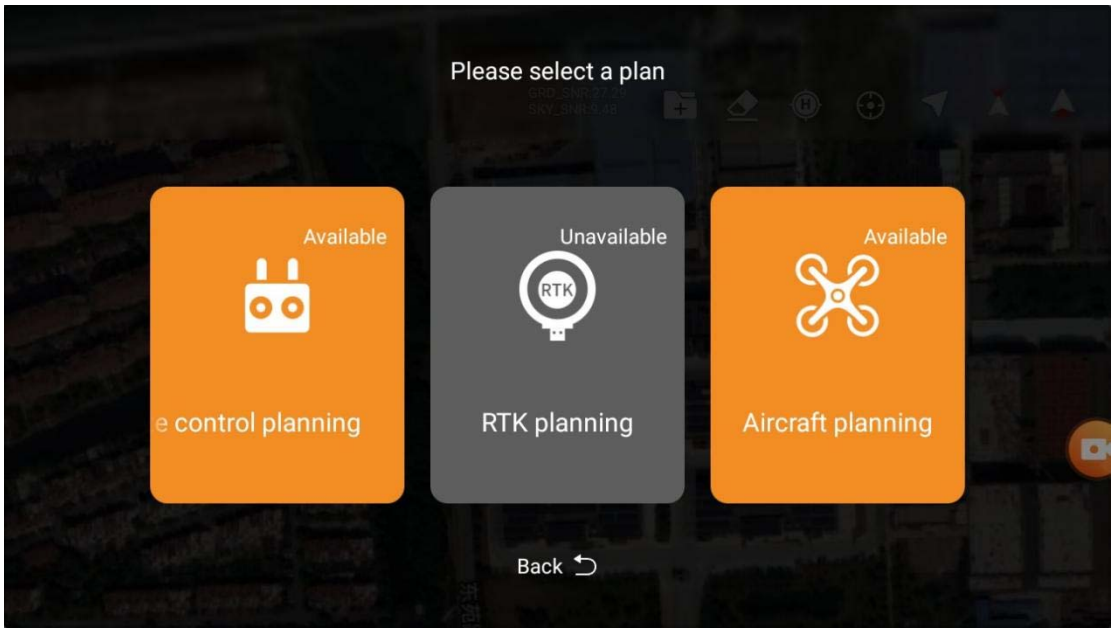


Planning plot

The Huida Drone APP provides four ways to plan land parcels: RTK planning, aircraft planning, remote control planning, and map planning.



RTK Planning

For RTK planning, the RTK high-precision positioning module installed in remote control is used for the measurement. For your safety, please ensure that the aircraft power is turned off when using RTK planning.

1. Ensure that the RTK high-precision positioning module is installed in the remote control

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2. Turn on the remote control and slide down from the top of the screen to ensure that the "USB" switch is ON
3. Enter the main interface of App, click "Planning Plot", and select "RTK Planning"
4. Enter > RTK settings, select RTK signal source (Users outside Chinese Mainland only support RTK mobile stations as RTK network sources), and complete the corresponding settings. Wait to ensure that the RTK positioning status bar above the interface is green, indicating that RTK positioning has been used
5. Walk along the boundary of the area with the remote control held, click the "Add" icon at the inflection point of the plot, and add the boundary point of the plot by default, and add the boundary point to all the inflection points of the plot in turn to complete the mapping of the plot boundary
6. Add obstacle points: For non-circular obstacles, the planning method is the same as the planning plot. Walk along the boundary of obstacles with the remote control held, select the type of planning point as "obstacle point" at the inflection point of obstacles, click the "Add" icon to complete the addition of obstacle points, and add obstacle points to all obstacle inflection points in turn to complete obstacle mapping.

Note: When adding obstacles, for the sake of subsequent flight safety, it is recommended that the boundary planning of obstacles should keep at least 3m away from obstacles. Surely, you can also enter the plot editing and unified adjustment after planning obstacles.

7. Add circular obstacles: Walk toward to the side of the circular obstacle with holding the remote control, select the type of planning point as "Circular Obstacle", and then click the point on the edge of the circle of the circular obstacle to drag and adjust the radius of the circular obstacle.
8. Intelligent flight course planning: After the plot is added, the flight course will be automatically generated, and after the obstacles are added, the flight course will automatically adjust the optimal flight course according to the obstacles.
9. Add reference points: If necessary, one or more reference points can be added outside the planned plot, which is convenient for flight course correction based on RTK positioning of aircraft when the plot is called.

Start RTK planning

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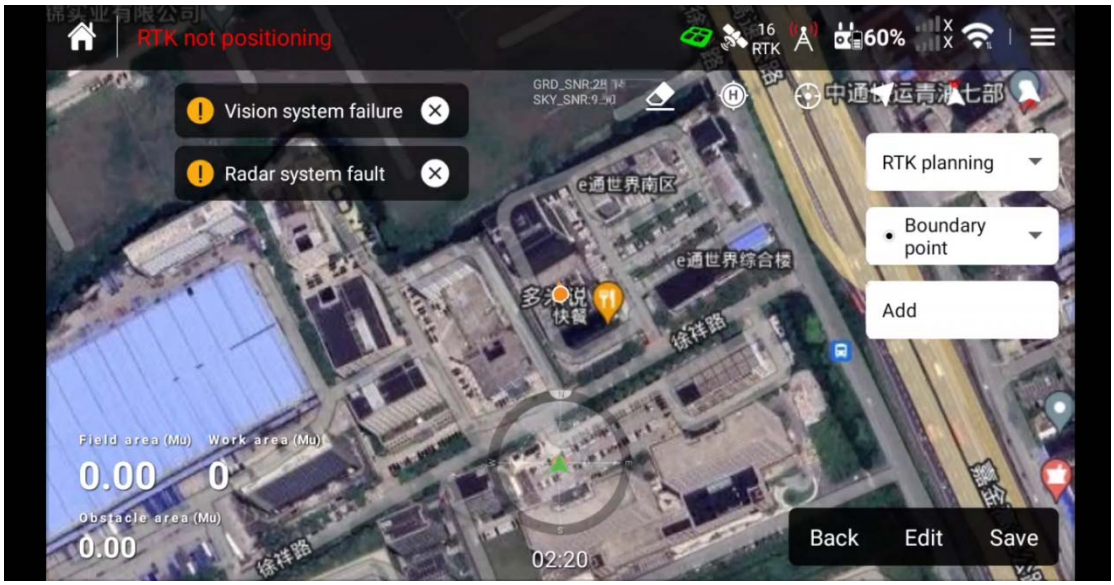
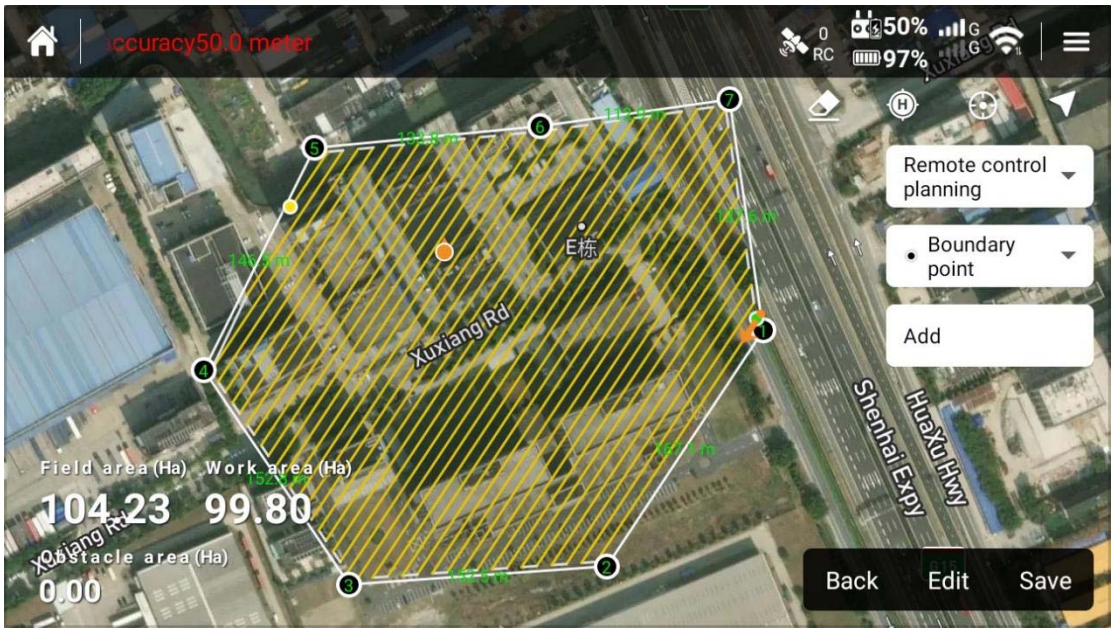


Remote Control Planning

The user need to walk along the edge of farmland or obstacles with remote control held for measurement. For your safety, please ensure that the aircraft power is turned off when using remote control planning.

1. Power on the remote control, enter the main interface of App, click "Planning Plot", and select "Remote Control Planning"

2. Ensure that the positioning accuracy is within 2m, and refer to RTK planning for other operation steps (the same operation)



Flight Planning

The user could control the aircraft to the required position, and then add waypoints through the remote control or App buttons to measure the edges and obstacles of

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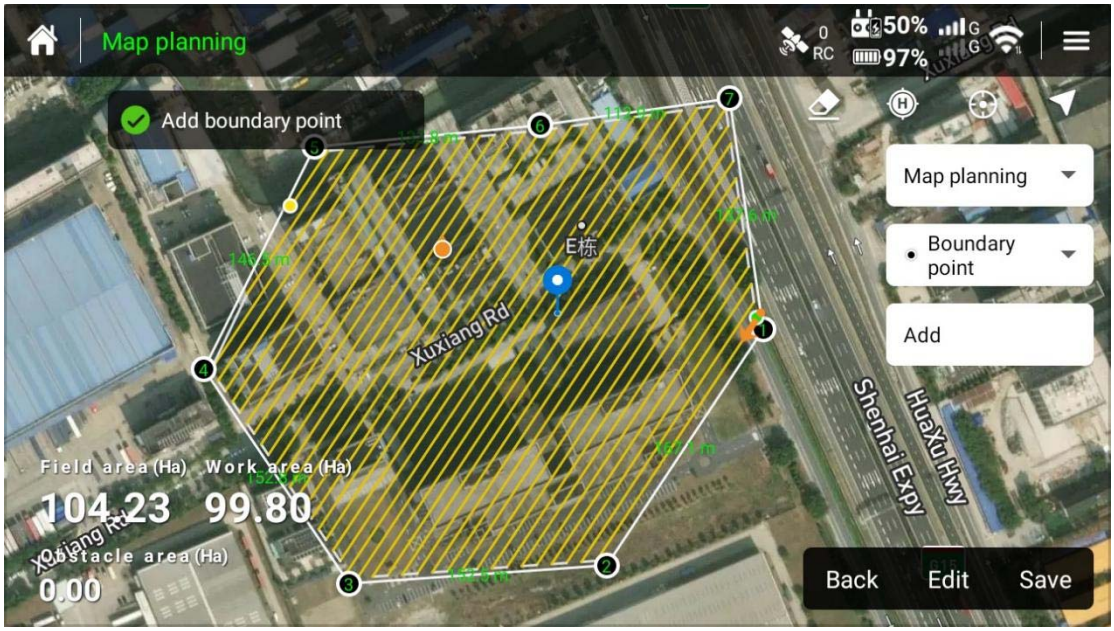
farmland.
Power on the remote control, enter the main interface of App, and then connect the power of aircraft
Click "Planning Plot", select "Flight Planning"
Unlock the UAV and it takes off to hover in a safe area
Other operation steps are similar to those of RTK planning, you only need to control the aircraft instead of walking with the remote control
Note: After the plot is planned, please save it before the modification. After saving, you can upload a plot to the cloud for backup, in order to prevent it from being unable to recover after error in modification.
Map planning
You can switch from other planning methods to map planning. After switching to map planning, you can manipulate the touch screen to move the location icon to plot the planned plot.
Note: The map planning suggests that the satellite positioning accuracy be re-planned within 2 meters, otherwise the route may deviate from the plot due to excessive deviation



Edit plot

Edit the Flight Course

Adjust the indentation: The default adjustment is unified indentation, with a minimum of 0m and a maximum of 6m, and 1.5m by default. You can click the target sideline of the selected plot, and then edit the unilateral indentation value.
Operation row spacing: 7m by default, 2m by minimum and 11m by maximum
Obstacle margin: 3m by default, 1.8m by minimum and 10m by maximum

When encountering obstacles: bypass by default and turn back optionally; this is the route

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