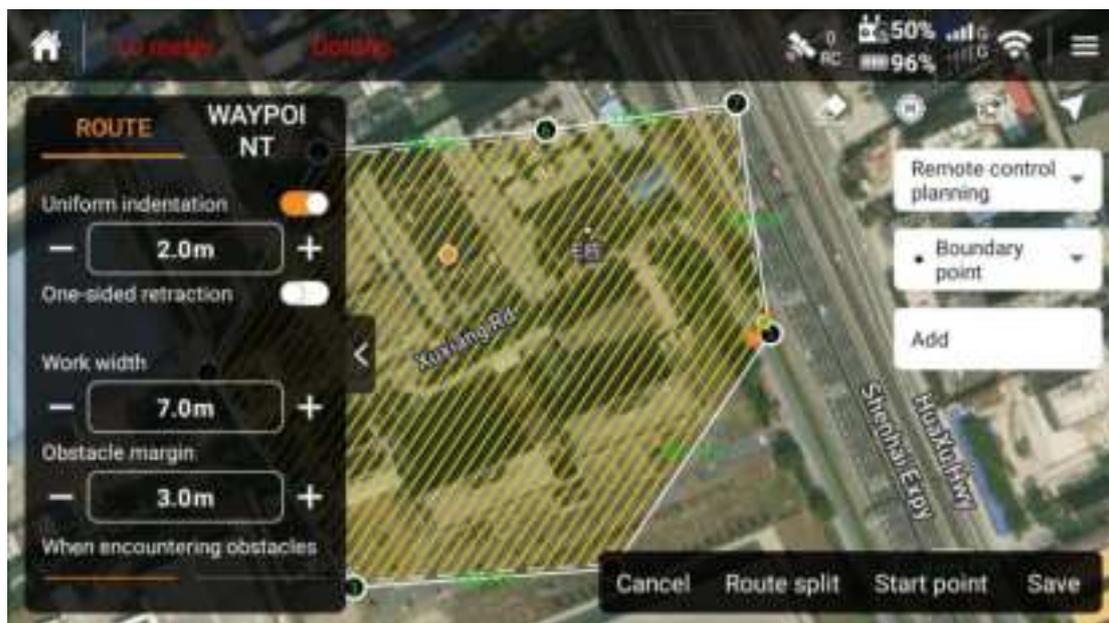


planning method when the flight route encounters obstacles, which can be selected according to actual needs.

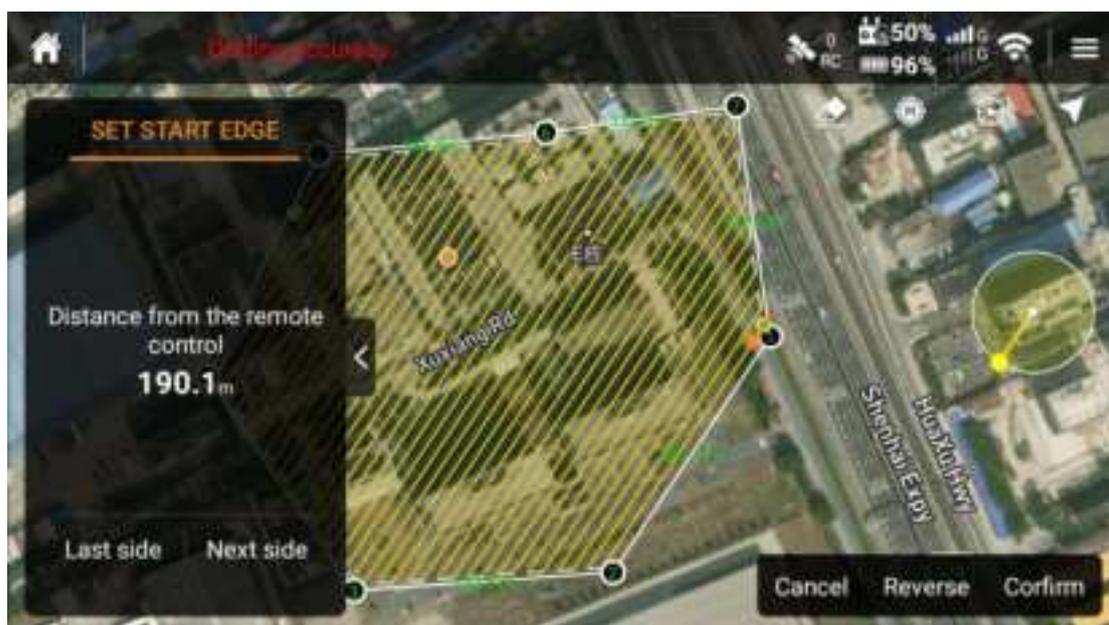


#### Adjustment of route direction

Support adjusting the direction by fine-tuning sliding, when each point is subject to fine-tuning, adjust  $+1^\circ$  or  $-1^\circ$ .

Adjust the route direction quickly: Double-click the sideline of the target plot, and the route will be parallel to the sideline.

Reverse route: Select the sideline of the target plot, and click "Reverse route" to set the starting point to the other side of the sideline (quick adjustment of route direction).

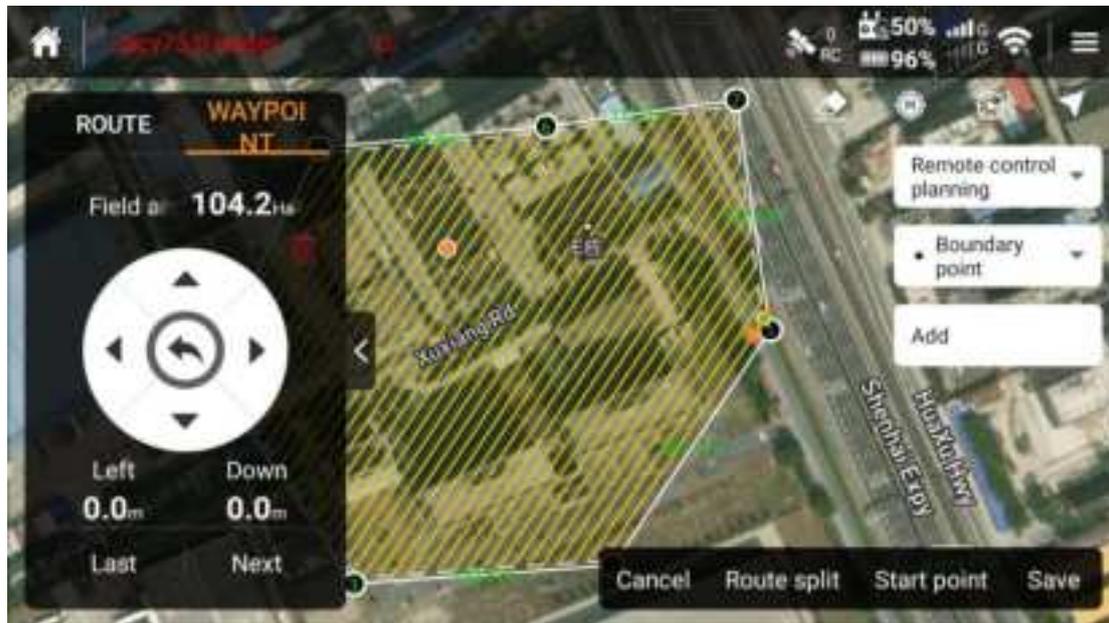


#### Edit Waypoint

Move boundary point: Drag or move the position of the boundary point of the plot by fine-tuning. After moving the boundary point, the route will be intelligently planned again in real time.

Delete the boundary point: Delete unnecessary boundary points, the route will be re-planned intelligently immediately.

Add the boundary point: After adding the boundary point, the route will be re-planned intelligently immediately.



### **Edit Obstacles**

Add obstacles: the same as planned obstacles, please refer to planned circular obstacles and non-circular obstacles respectively

Delete the obstacle point: select an obstacle point and click Delete to delete the obstacle point

Delete the circular obstacle: click to select a circular obstacle and click "Delete" to delete the circular obstacle

Move the obstacle point: Click to select an obstacle point, drag or move the obstacle point by fine-tuning to the target position

After editing the obstacles, the route will be intelligently re-planned in real time

### **Add a Reference Point**

Select a relatively fixed symbolic point as the reference point, and the subsequent route correction will be more convenient and accurate

### **Delete a Reference Point**

Click a reference point, click "Delete" to delete the reference point

### **Undo Operation**

If the operation of addition, deletion or movement needs to be revoked, click the "Undo"

button to complete the undo operation

### **route Segmentation**

route segmentation can separate the route that do not need operation temporarily and keep the route that need operation

Note: In case of any error in segmentation operation, you can cancel Save and segment again in the Save Plot dialog box



## **Operation Control**

Spray/spread button

In manual/manual enhanced operation mode, press the change key to open the spraying/spreading system, and press it again to close the spraying/spreading system

Note: Full-autonomous and A-B point operation spraying and spreading are automatically controlled and switched

Setting of Mu

Under Full-autonomous operation and A-B point operation mode, operation parameters (including mu) can be set before starting operation, and operation parameters (including mu) can be adjusted at any time during operation

FPV/Map Switching

In Huida UAV APP operation interface, click the camera and map switch virtual button to switch the full-screen display of the camera screen and map display

### **User-defined Button**

User-defined button, the supported user-defined functions are including

Default: Undefined

Switching between boundary point and obstacle point: Only valid when planning plots  
Add boundary point or obstacle point: Only valid when planning plots  
Turn on/Turn off obstacle avoidance function: After turning off obstacle avoidance function, a box is popped up to confirm  
Map/FPV switching: map full-screen display and FPV front camera full-screen switching.  
Add point A: It is only effective when planning route at points A-B  
Add point B: It is only effective when planning route at points A-B  
M + Left shift: It only works in M + Manual Enhancement Mode  
M + Right shift: It only works in M + Manual Enhancement Mode  
Turn on the headlight: Turn on the headlight of the aircraft  
Turn on the rear light: Turn on the rear light of the aircraft  
H1 Button  
H2 Button

## **Smart One-click Return button**

Intelligent return can be initiated by short pressing the return button on the remote control. During the intelligent return process, any lever can be manually activated to receive control of the drone.

## **Range of Remote Control Signal**

When the antenna and the back of the remote control are at an included angle of 80° or 180°, and the antenna plane is facing the aircraft, the signal quality between the remote control and the aircraft could be in the best state.

## **Remote control prompt sound**

The Huida Drone APP will have built-in voice feedback or operation instructions after some operations, making it easier to get started using the Huida Drone APP.

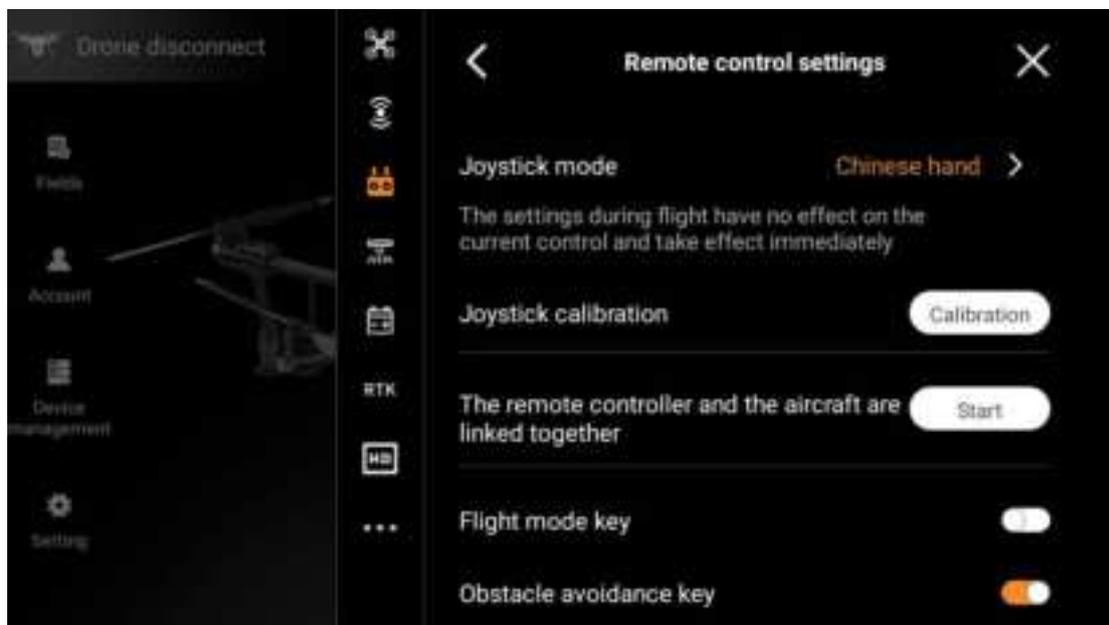
The prompt sound includes normal operation feedback and abnormal alarm prompts, and there are also floating text prompts for alarms in addition to voice prompts.

## **Frequency Matching of Remote Control**

When leaving the factory, the remote control and the aircraft have completed frequency synchronization and can be used after being powered on. But if you replace the remote control, you need to recalibrate the frequency before you can use it.

1. Turn on the remote control, run the Huida Drone App, and then turn on the power of the aircraft.
2. Click on Settings - enter the remote control settings interface, click on frequency matching, lift the nose or tail of the aircraft and hold it for more than 30 degrees. When you

hear a beep sound, check that the frequency matching status indicator light flashes from red to green, which indicates successful frequency matching. If the frequency matching fails, it is necessary to re-enter the frequency matching state for frequency matching.



## Agricultural UAV APP

The Huida Drone App is designed specifically for drone agricultural applications, with a clear and concise interface that users can easily operate with text and voice prompts. During the user's homework process, real-time information about the drone spraying/broadcasting system can be obtained, and the health status of all devices connected to the remote control can be obtained in real time. Users can be informed of any abnormal device status as soon as possible; Real time protection of task data during land parcel and parcel calls ensures that user data is not lost; Multiple language versions will be supported in the future.

## Main Screen



1.Connection status of aircraft and remote controller

Status: aircraft connected, aircraft not connected

Note: When the aircraft is not connected, the operation system, aircraft equipment management and setting functions are not available

2.Satellite connection status and strength

Status: connected, not connected

3.The remaining power of the built-in battery of the remote control

Display the remaining power of the internal battery. When the external battery is connected, display the status of the internal battery being charged

4.SIM card connection status and signal strength

5.WIFI connection status and signal strength

6.Setting

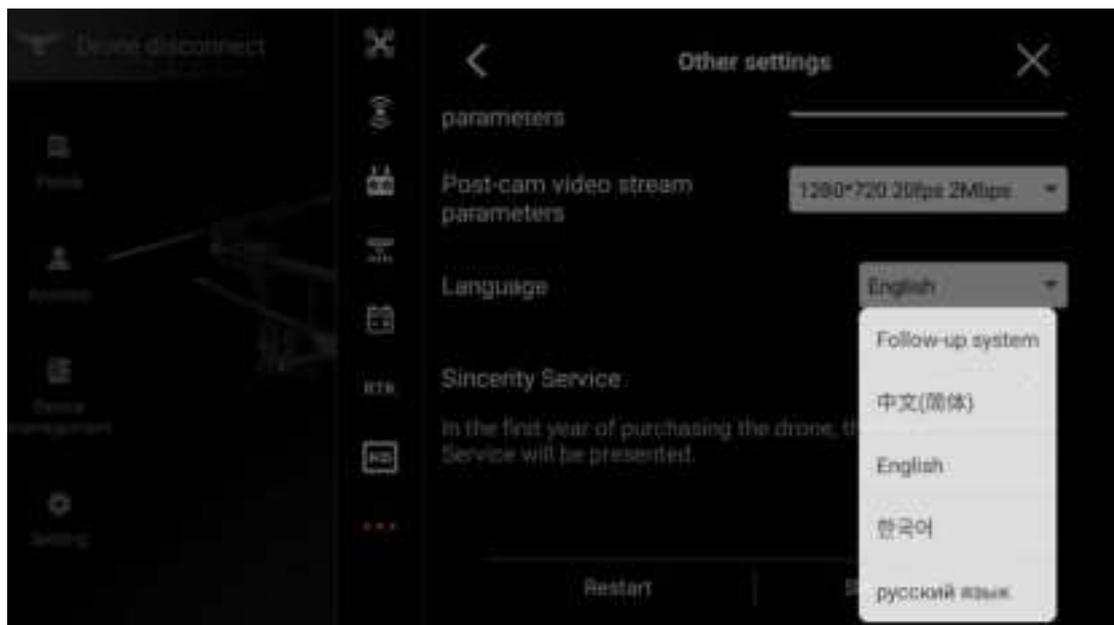
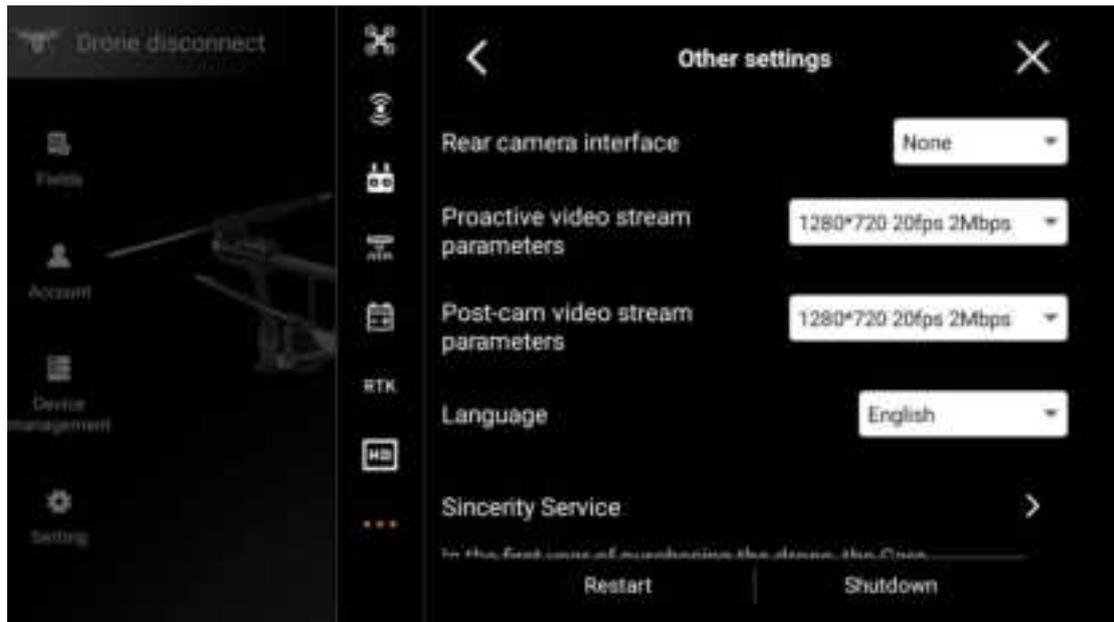
7.Start

8.Planning Fields

9.Fields management, account management, equipment management, Android general settings

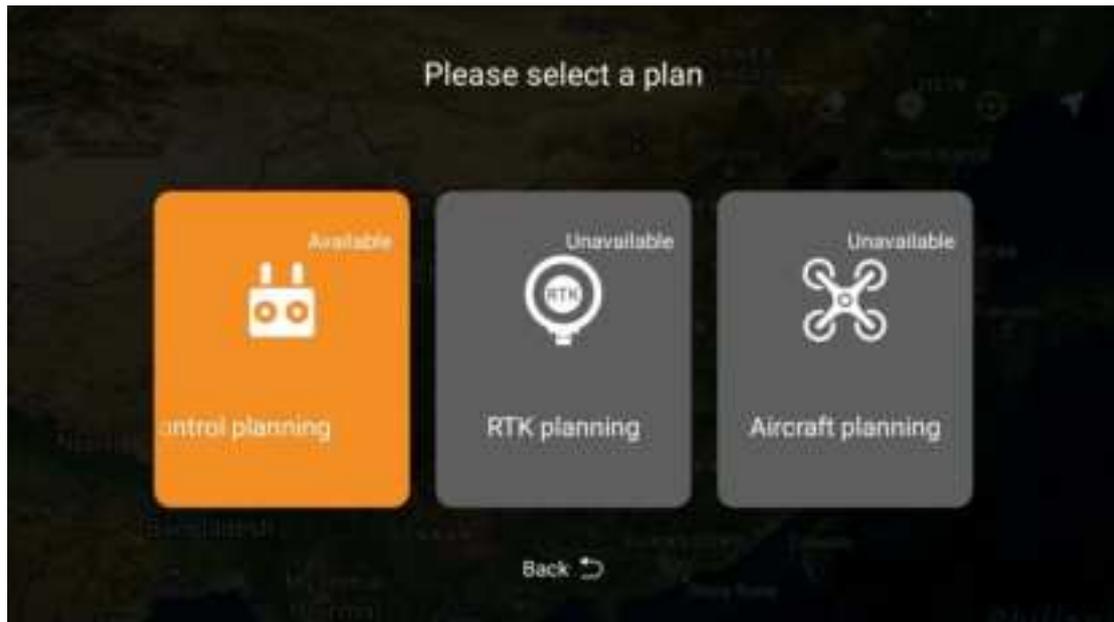
## Language switching

The agricultural UAV APP built into the HD402 remote controller supports multiple languages, and can switch the display of different languages in APP>>Settings>>Other settings

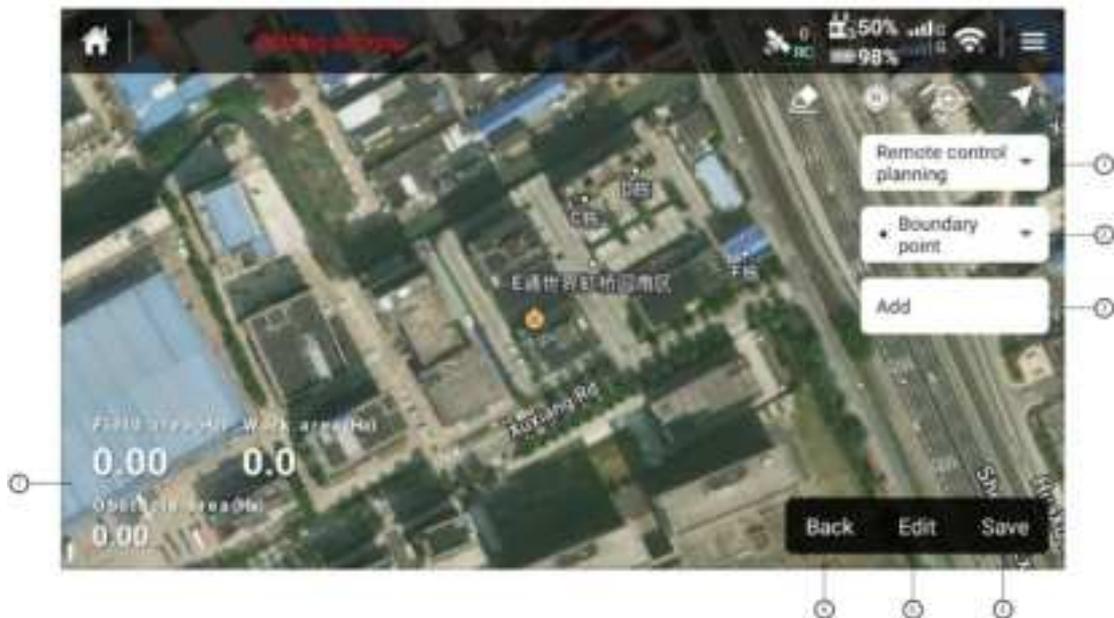


## Planning Fields and Fields management

Click "Planning Plot" on the home page to enter the planning plot method selection interface, and select the planning method as required



### Planning Fields Homepage



1. Display the current plot planning method.  
Drop-down list box to switch planning mode
2. Options for planning objects: boundary points, obstacle points, circular obstacles, reference points, temporary no-fly zones
3. Add a point. After adding, "Done" is displayed, which means that the boundary point planning of the parcel or polygon obstacle is completed
4. Save the currently planned plot as a file and store it on the remote control
5. Edit planned parcels
6. Return to the planning method selection interface
7. The area of the currently planned plot and the area of the currently planned obstacles

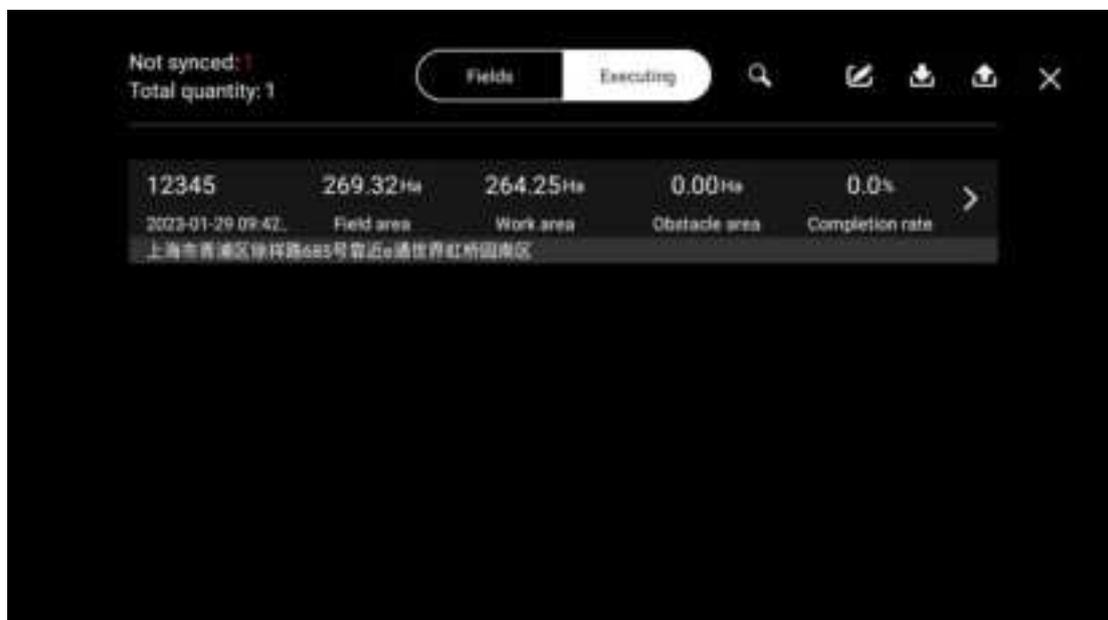
(only the area of obstacles in the plot is displayed)

### Fields management

The local parcel management interface supports parcel calling, uploading, downloading parcels from the cloud, editing parcels, and finding parcels



The cloud parcel management interface supports the functions of downloading and finding parcels from the cloud



## Work

Select work mode



Manual work interface is also the default work interface. This interface can switch other work modes, or call the plot to enter the fully autonomous work mode



1. Return to Homepage

Return to the homepage of Agricultural UAV APP

2. Display the current operation mode, manual by default, click to switch to point A-B, full-autonomous, manually enhance the operation mode, note that full-autonomous mode is switched through calling plot

3. Current operation mode (spraying, seeding)

4. Front and rear obstacle avoidance status

Status: ON, OFF, Not connected, Fault

5. RTK positioning status

Status: Single point, floating point, fixed

6.Qianxun fixed base station status

Status: Normal, abnormal communication, abnormal data

7.Signal strength of remote control and aircraft link

Normal, weak signal, loss of communication

8.Remaining power of aircraft battery

Get the remaining power of aircraft battery in real time, and display it in different colors. Orange indicates that the remaining power of the battery is low, so the return distance should be noted. Red indicates that the remaining power is very low and return is required in time

9.Internal and external battery power of remote control

10.SIM card status and signal strength

11.WIFI connection status and signal strength

12.Settings

Click to enter, and you can set parameters such as aircraft, remote control, spraying system, spreading system, smart battery, RTK, etc.

Aircraft settings: Sailing speed, returning speed, sailing height, returning height, actions after spraying (returning and hovering) can be set.

Action after loss of communication (return, hover, landing), switch to continue operation after loss of communication, action after operation (return, hover), return position selection (return point, remote control position), electronic fence function: height limit, distance limit, flight speed limit, manual enhancement and locking route (free control after turning off, please note the safe flight), front lighting switch and rear lighting switch

Advanced settings: IMU calibration, compass calibration; Attitude mode is allowed to be turned on (turned off by default); Recovery of aircraft unfinished operation records (support for recovery of unfinished flight missions caused by anomalies)

Remote control settings: You can set Joystickmode (US operation mode, Chinese operation mode, Japanese operation mode), calibrate rocker, list of paired aircraft, voice broadcast switch (note: closing of alarm voice is supported), and frequency matching (FPV camera scans QR code for frequency matching)

Spraying setting: You can set spraying system switch, real-time display of spraying system data, display of pump flow data, display of sprayed dosage, display of remaining dosage, discharge pipe air switch, remaining dosage threshold setting, flowmeter calibration, spraying mode switch with speed

Spreading settings: You can set the switch of the spreading system, display the current total weight of the Pesticide box, peeling calibration, weight calibration, set the current remaining material quantity, switch of the spreading mode with speed, and advanced settings (when the load cell is abnormal, input the factory K value to restore the initial setting once)

Smart battery settings: You can view the current voltage, current, temperature and damage times of the battery; set the voltage threshold of returning, hovering and landing  
RTK setting: You can set the positioning function switch of the built-in RTK module of the aircraft, RTK signal source (network RTK, RTK mobile station), check the network RTK status, the expiration time of network RTK service rights and RTK online diagnosis  
Settings of operation equipment type: When the spreading or spraying equipment fails, it may be recognized that there will be problems. At this point, the type of operation system can be set manually

13. Clear the flight path, whether to display the route, display the current return point/remote control position, aircraft position, and switch the display of satellite map/ordinary map

Clear the flight path: The flight path of plant protection UAV outside the plot during route operation or A-B point operation can be cleared by clearing function, but the flight path inside the plot cannot be cleared

Whether to display the route: whether the planned plot displays the flight route

Display the current return point/remote control position: locate the return point/remote control position on the map quickly

Aircraft location: Search for the aircraft location on the map quickly

Satellite map/ordinary map switching: Switch between the two maps as needed

14. Image displayed by the front camera

You can switch to display of full screen. At this point, the map position and the front camera display position are changed. Click it again to switch back

15. Start work

Start manual work, turn on spraying and record flight path, work parameters and other information

16. Display and adjustment of operation parameters

Display real-time operation parameters, in which click the horizontal line under the altitude number to adjust the flight altitude

17. Call the plot

The manual operation interface is entered by default when starting the operation, and the fully autonomous operation interface is entered after calling the plot. At this time, the aircraft can automatically execute the flight mission according to the planned route

18. Switch the work mode

The manual work interface is entered by default when starting work. You can switch to manual enhanced and A-B work mode by switching work mode

## **Spreading System**

### **Spreader Installation**

Please first remove the Pesticide box, two connecting water pipes and connecting lines,

then insert the Spreader box in the direction, then connect the connection line of the spreader, and set the operating system in the agricultural UAV APP - switch from the spray system to the Spreading system.



Note: When replacing the Spreading system, please turn off the aircraft power switch first.

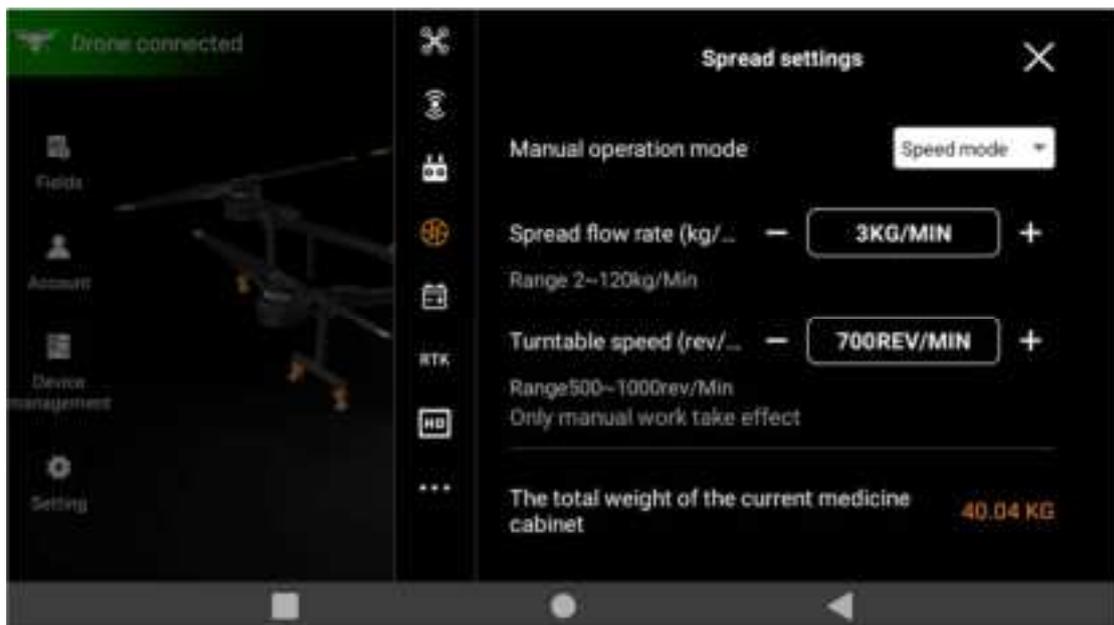
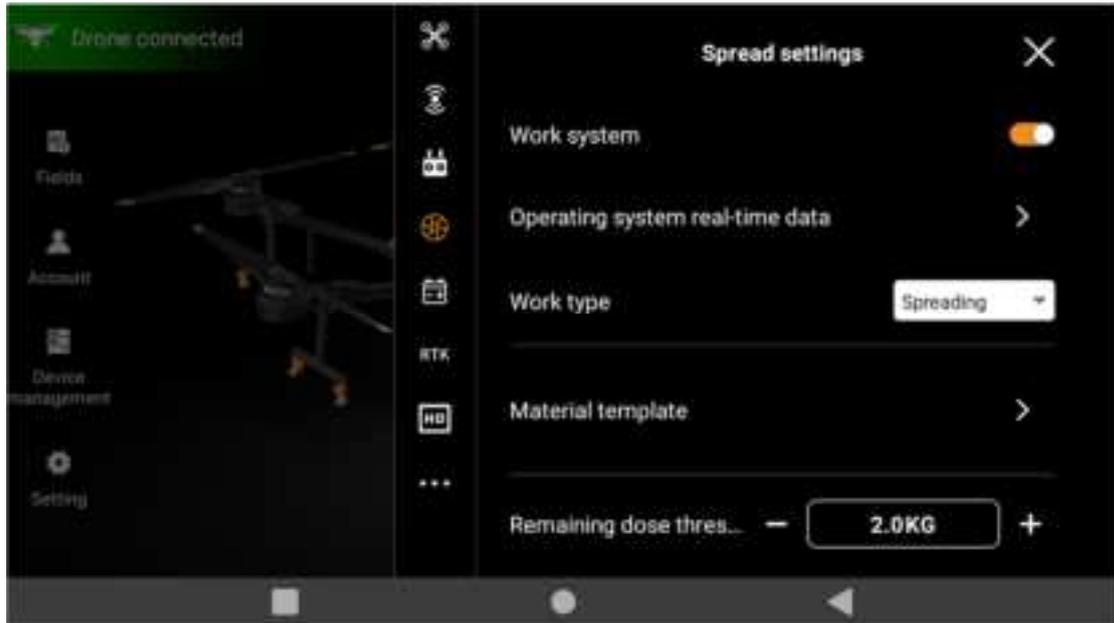
Connect the harness shown in the figure. After connecting, start the remote control first, and then start the aircraft. Check whether the setting of the operation type of the operation system is automatically identified. If the identification is not correct, you can set it manually

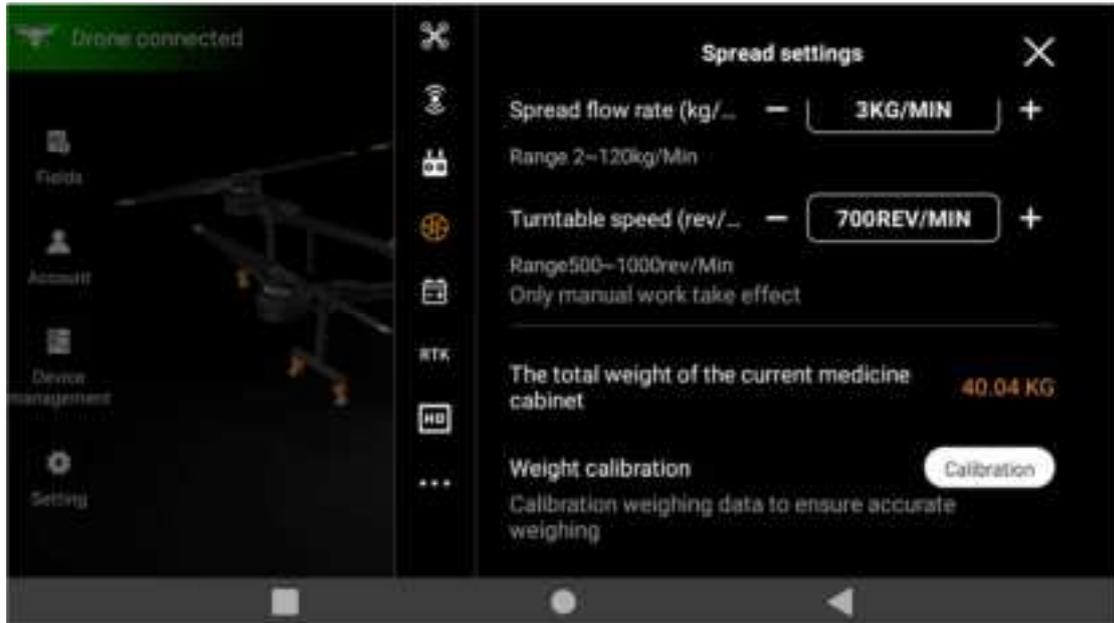
## Spreader Use

For new and unused Spreading Systems or materials that have never been broadcast, in order to broadcast the materials accurately, it is recommended that you create a broadcast material template on the APP side and calibrate the flow of the materials. The calibrated broadcast material template can be reused for subsequent broadcast of similar materials, which can save operation time.

### How to calibrate the Spreading System

On the "Start Operation" homepage, click the setting on the upper right side to enter the setting interface of the Spreading System. You can perform peeling calibration and weight calibration respectively; The remaining material quantity of the Spreader box can be set.





### How to create a broadcast material template

In the seeding operation interface, click "+" to create a new seeding material template after seeding the material template. After the template is created, set the rotation speed of the seeding tray and the size of the bin mouth to perform the flow calibration in place. After the flow calibration is successful, the template can be used directly after seeding similar materials.

Note: It is recommended to create different broadcast material templates for different broadcast materials.

## Flight intelligent battery charging

HD540 standard charger supports voltage charging in the range of 110V-220V. The thin line of the charger can support up to 2200W input power, and the thick line can support up to 8000W input power charging.

Note: Please connect the charger before charging the battery. When connecting the battery, align the battery connector with the charging cable connector and then plug in the battery, otherwise the battery power interface may be damaged.

## List of hazards and countermeasures

If the HD540 agricultural unmanned aerial vehicle does not comply with the operation requirements or operates blindly in the process of use, there will be hidden dangers. The specific dangerous situations and countermeasures are as follows:

S/N	Dangerous Place	Countermeasures	Remarks
-----	-----------------	-----------------	---------

- |   |                                  |                                                                                                                                                                                                             |
|---|----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Propeller                        | Keep a safe distance when the propeller rotates (over 15m)                                                                                                                                                  |
| 2 | Motors                           | Keep a safe distance (more than 0.5m) when the motor not installed with propeller rotates; Keep a safe distance (more than 15m) when the motor installed with propeller rotates                             |
| 3 | Pesticide container              | The used pesticide container has pesticide residues, so it is not allowed to hold drinking water or the internal water cannot be used for grooming.                                                         |
| 4 | Pesticide used                   | Pesticides should be used according to the instructions for pesticide use or the guidance of technicians in the Plant Protection Department                                                                 |
| 5 | Battery                          | The battery must be operated in strict accordance with the regulations on use. Do not overcharge and overdischarge                                                                                          |
| 6 | Use of charger                   | The charger must be operated in strict accordance with the regulations on use and kept away from inflammable and explosive materials during use, fire sands or fire extinguishers should be prepared beside |
| 7 | During the operation flight,     | Do not fly in downtown areas; Keep away from the crowd and keep a safe distance (more than 15m) when working in the field                                                                                   |
| 8 | In pesticide spraying operation, | The operation area is far away from the bee breeding area, and the distance is at least 60m according to the climate at that time                                                                           |

## Troubleshooting Instructions

Module	Alarm Source	Error Description	Error Resolution
Power electronic speed controller	Motors	When the motor is locked, please stop flying immediately	1. Position the locked-rotor motor according to the prompted motor serial number; 2. Please check whether the blades are wound and whether the motor is stuck with foreign matter; 3. If this problem still exists, please contact the nearest agent
		When the motor is overloaded, please stop flying immediately	1. Position the overloaded-rotor motor according to the prompted motor serial number; 2. Please check whether the blades are wound, deformed and damaged and whether the motor is stuck with foreign matter; 3. If this problem still exists, please contact the

Module	Alarm Source	Error Description	Error Resolution
			nearest agent
	ESC	The motor is at risk of over-temperature	<ol style="list-style-type: none"> <li>1. Locate the motor with over-temperature risk according to the prompted motor serial number;</li> <li>2. Please note whether the ambient temperature is too high before flying after the aircraft cools down;</li> <li>3. If this problem still exists, please contact the nearest agent</li> </ol>
		Abnormal high voltage of electronic speed control	<ol style="list-style-type: none"> <li>1. Locate the electronic speed control with high voltage according to the prompted electronic speed control serial number;</li> <li>2. Please confirm whether the battery voltage is too high;</li> <li>3. If this problem still exists, please contact the nearest Huida agent</li> </ol>
Battery	Battery	Abnormal communication between battery and flight control system	<ol style="list-style-type: none"> <li>1. Please plug and unplug the battery again and ensure that there is no foreign matter in the battery interface;</li> <li>2. Please test to replace the battery to confirm whether the battery is damaged;</li> <li>3. Please check whether the gold finger of the distribution board is deformed or defaced;</li> <li>4. Please check whether the connection between the distributor-distributor module-avionics module is normal when the power is turned off;</li> <li>5. If this problem still exists, please contact the nearest agent</li> </ol>
		Failure of battery certification	<ol style="list-style-type: none"> <li>1. Please confirm whether it is an official battery;</li> <li>2. Please check whether the gold finger of the distribution board is deformed or defaced;</li> <li>3. Please plug and unplug the battery again and ensure that there is no foreign matter in the battery interface;</li> <li>4. Please test to replace the battery to confirm whether the battery is damaged;</li> <li>5. If this problem still exists, please contact the nearest agent</li> </ol>
		Severe low voltage of battery	

Module	Alarm Source	Error Description	Error Resolution
Avionics system	IMU	Navigation system anomaly (IMU), equipment is disconnected	1. Please restart the aircraft; 2. Please calibrate IMU; 3. If this problem still exists, please contact the nearest agent
			1. Please let the aircraft stand for 10s. If the problem still exists, please restart the aircraft; 2. Please calibrate IMU; 3. If this problem still exists, please contact the nearest agent
	Compass	Compass device disconnected	1. The compass is disconnected, please check in the shutdown state to confirm whether the avionics module is installed correctly, and then turn on the aircraft to check if there is any abnormality; 2. If this problem still exists, please contact the nearest agent
	RTK	Compass ground interference	1. Please confirm that there is no interference in the environment and calibrate the compass; 2. Please check in the shutdown state to confirm whether the avionics module is installed correctly, and then turn on the aircraft to check if there is any abnormality; 3. If this problem still exists, please contact the nearest Huida agent
		RTK board card is disconnected	1. Please restart the aircraft after 2min. of power failure; 2. If this problem still exists, please contact the nearest agent
		Exception of RTK dual antenna baseline	1. Please restart the aircraft; 2. If this problem still exists, please contact the nearest agent
	Image transmission module	Image transmission signal loss	
Remote controller	Image transmission module	The signal-to-noise ratio of remote control antenna is too low	1. Please check the signal interference in the "HD" setting interface, and modify the "remote control number" in the "remote control" setting to adjust the channel, and then re-check the frequency; 2. Please confirm whether there are interference sources such as signal towers and WIFI hotspots in the surrounding environment;

Module	Alarm Source	Error Description	Error Resolution
			<p>3 Please ensure that there is no obstruction between the remote control and the aircraft;</p> <p>4. Please check whether the antenna connection of the remote control is normal;</p> <p>5. If this problem still exists, please contact the nearest agent</p>
Remote controller	Image transmission module	The remote control cannot get the signal of the aircraft	<p>1. Please check the signal channel interference in the "HD" setting interface, and modify the "remote control number" in the "remote control" setting to adjust the channel, and then re-check the frequency;</p> <p>2. Please confirm whether there are interference sources such as signal towers and WIFI hotspots in the surrounding environment;</p> <p>3. Please ensure that there is no obstruction between the remote control and the aircraft;</p> <p>4. Please check whether the connection of SDR antenna and remote control antenna is normal;</p> <p>5. If this problem still exists, please contact the nearest agent</p>
		The remote control can't get the lever quantity signal	<p>1. Please calibrate the remote control rocker;</p> <p>2. If this problem still exists, please contact the nearest agent</p>
Spraying system	Electronic speed control of water pump	Water pump is not connected	<p>1. Water pump is not connected, please restart the aircraft;</p> <p>2. Please screw out the connecting wire of the water pump under the condition of shutdown and install it on other water pumps for cross test to confirm whether the water pump is damaged;</p> <p>3. Please check whether the connecting wire between the water pump and the branching touch block is loose, moving and damaged;</p> <p>4. Please confirm that the connection of water pump-branching module-spraying module is normal in the shutdown state;</p> <p>5. If this problem still exists, please contact the nearest agent</p>
		Failure of self-test of water pump	1. The self-test of water pump electronic speed control failed, please restart the aircraft;

Module	Alarm Source	Error Description	Error Resolution
		electronic speed control	<ol style="list-style-type: none"> <li>2. Please screw out the connecting wire of the water pump under the condition of shutdown and install it on other water pumps for cross test to confirm whether the water pump is damaged;</li> <li>3. Please check whether the connecting wire between the water pump and the branch module is loose and damaged;</li> <li>4. Please confirm that the connection of water pump-branching module-spraying module is normal in the shutdown state;</li> <li>5. If this problem still exists, please contact the nearest agent</li> </ol>
Spreading system	Spreader	Abnormal temperature of control panel	<ol style="list-style-type: none"> <li>1. Please ensure that the ambient temperature and the spreader work normally;</li> <li>2. Please restart the aircraft;</li> <li>3. Please restart the aircraft after 5min. of power failure;</li> <li>4. If this problem still exists, please contact the nearest agent</li> </ol>
Spreading system	Spreader	The current of material detection motor is too high	<ol style="list-style-type: none"> <li>1. Please confirm whether the material detection motor is blocked and stuck, and whether there is any foreign matter in the material;</li> <li>2. Please reduce the opening size of the working cabin door to reduce the flight speed;</li> <li>3. Please cut off the power and clean the warehouse door before restarting the aircraft;</li> <li>4. If this problem still exists, please contact the nearest agent</li> </ol>
		The projecting disc motor cannot be started	<ol style="list-style-type: none"> <li>1. Please check whether there is blockage or jamming of projecting disc in the shutdown state;</li> <li>2. Please confirm whether there is any foreign matter in the materials in the shutdown state;</li> <li>3. Please restart the aircraft;</li> <li>4. If this problem still exists, please contact the nearest agent</li> </ol>

## Technical parameters - HD540S

Model and Name	HD540 Agricultural UAV
Structural layout	Six-axis layout
Maximum wheelbase	2160mm (six axes)
Overall dimensions(LxWxH)	2152x2085x877mm(Armunfolded, Pesticidecontainer) 1138x682x877mm(Armfolded, Pesticidecontainer)
Pesticide container capacity	40L
Seed container capacity	60L
Container installation mode	Plug-in
No-load mass (including battery)	49KG
Power battery	30000mAh
Battery weight	13.3KG
Batter installation mode	Quick plugging and unplugging battery
Type of spraying nozzle	Centrifugal nozzle
Rated operating pressure of machine	0.15Mpa
Number of main rotors	6
Number of spraying nozzle	2/4
Type of liquid pump	Diaphragm pump
Flow of liquid pump	20L/min
Operation spraying width	Optimal 9m (operating height 3m±0.5m flight speed: 6m/s), maximum 12m
Output power of charger	220V Single-phase input: 8000W (Direct connection 380V) 2200W (Direct connection with mains)

Battery charging time	Lithium battery 30%-95% about 11min
FPV camera	Front camera

#### Flight parameters

Hovering accuracy	RTK: Horizontal $\pm 10\text{cm}$ , vertical $\pm 10\text{cm}$
Spraying full-load hovering	7.5min
Spreading full-load hovering	6.2min
No-load hovering time	18.5min
Fixed height range	1-30m
Obstacle avoidance perception range	1-30m
Motor rated power	2000w*6pcs
Remote control signal distance	$\leq 2000\text{m}$
Flight height limit	$\leq 30\text{m}$
Flight speed limit	$\leq 10\text{m/s}$

## Safety instructions

### pesticide use

1. Pesticides are toxic, please operate safely according to pesticide usage regulations.
2. When dispensing, please pay attention to splashing the medicine to prevent pesticide residues on the body from causing harm to the human body.
3. When dispensing, please use clean water. After completing the dispensing, it is necessary to filter before adding it to the operation box to avoid impurities blocking the filter screen. If there is any blockage during medication, please clean it promptly before use.
4. When using medication, it is essential to ensure that personnel are in an upwind position to avoid pesticide falling and causing harm to the human body.
5. When using medication, please wear protective equipment to prevent direct contact with pesticides by the human body; After applying the medication, please pay attention to cleaning the skin, aircraft, and remote control.
6. The effectiveness of pesticides is closely related to the concentration of the liquid, spraying flow rate, height of the aircraft from the crop, wind direction, wind speed, temperature, humidity, etc. When using pesticides, the above factors should be comprehensively considered to achieve the best effect.
7. Please ensure that the medication does not cause harm or impact on animals, plants, and the natural environment within the spraying or spraying range.

Polluting rivers and drinking water sources during medication is a serious illegal act.

9. Treatment of remaining liquid medicine: Reasonable planning and arrangement should be made to reduce the amount of remaining liquid medicine to the minimum level. It is recommended to spray the remaining liquid medicine and cleaning solution on the crops. If there is too much remaining liquid medicine, it is not recommended to spray the crops excessively.

10. It is prohibited to use strong acids, strong bases, high-temperature liquids, and pesticides that are explicitly prohibited by the state.

## **flight environment**

1. Fly in open areas away from crowds.
2. Do not fly above an altitude of 4 kilometers.
3. Flight should be conducted in an environment between 0 °C and 45 °C, with good weather conditions (not heavy rain, strong winds, or extreme weather).
4. Fly within legal areas. Before flying, please consult the local flight management department to comply with local laws and regulations.
5. It is strictly prohibited to fly indoors.

## **Pre flight inspection**

1. Ensure that the aircraft and remote control have sufficient power.
2. Ensure that all components are intact. If any components are aging or damaged, please replace them before flying.
3. Ensure that the landing gear and work box are securely installed.
4. Ensure that the propeller is undamaged, free of foreign objects, and securely installed, with the blades and arms fully extended and the arm buckles securely fastened.
5. Ensure that the aircraft motor is clean and undamaged.
6. Ensure that the spraying system is not clogged and can function properly.
7. Ensure that all devices are working properly without any abnormal alarms.
8. When the app prompts to calibrate the compass, please calibrate it before flying.

## **Precautions for operation**

1. Do not approach the propeller and motor during operation.
2. It is necessary to fly without exceeding the maximum takeoff weight specified to avoid danger.
3. The maximum weight of the medication loaded by the user should not exceed the recommended value, otherwise it may affect flight safety.
4. Fly within visual range.
5. Performing a lever breaking action or stopping the motor in other ways during flight will cause the aircraft to fall. Please only use this feature in emergency situations.

6. During the flight, please do not answer or make phone calls, and do not operate the aircraft under the influence of alcohol or drugs.
7. Please return as soon as possible when there is a low battery warning.
8. If the remote control signal is normal, the flight speed and altitude can be controlled through the remote control. The aircraft will avoid obstacles on its own during automatic return.
9. After landing, turn off the aircraft first and then turn off the remote control to avoid losing the remote control signal and causing the aircraft to automatically start the return mode.
10. Please maintain control of the aircraft throughout the entire process and do not rely on the information provided by the Huida Drone App. Please ensure good visibility, rely on visual observation, make reasonable judgments about flight conditions, avoid obstacles in a timely manner, and set corresponding flight and return altitudes according to the flight environment.

## **Protection level description**

Drones can be dust-proof, waterproof, and corrosion-resistant under normal use. Under controlled laboratory conditions, the entire machine (excluding intelligent flight batteries) has a protection level of IP65 (referring to the International Electrotechnical Commission IEC 60529 standard), and the body can prevent splashing.

The protective ability is not permanently effective and may decrease due to aging and wear caused by long-term use. Damage caused by immersion in liquid is not covered by the warranty.

Possible situations where protective capabilities may fail:

1. Collision occurs and the sealing area deforms;
2. The sealing part of the shell is cracked or damaged;
3. The interface protection cover or waterproof plug is not installed properly or is loose.

## **maintenance**

1. Please check and replace any deformed or damaged propellers before each flight, and install them securely
2. When not in working condition or during transportation, be sure to remove or empty the work box to avoid excessive damage to the landing gear
3. Aircraft are suitable for storage in environments ranging from -20 °C to 40 °C. (There is no liquid in the homework box, flow meter, liquid pump, and hose)
4. Clean the aircraft in a timely manner after homework and regularly maintain the aircraft. Please refer to the "Product Maintenance" section of the HD540 Three Guarantees Manual for details

## Cleaning and maintenance

fold

At the end of the assignment, when folding the machine arm, fold it in the order of M3 and M5 arms first, then M2 and M6 arms, and ensure that the arm is tightly clamped into the storage fixture on the side of the aircraft, otherwise it may be damaged. When folding the M1 and M4 arms, be careful to handle them gently to prevent collision damage.

clean up

After completing the homework every day, wait for the aircraft to return to normal temperature before cleaning the entire machine and remote control. It is prohibited to clean the aircraft immediately after the completion of the operation.

1. Fill the work box with clean water or soapy water, and spray completely. Repeat this process three times.
2. Remove the filter screen, nozzle filter screen, and nozzle from the homework box and clean them to ensure they are not clogged. Then soak them in clean water for 12 hours.
3. It is recommended to wipe and rinse the body, then clean the body with a soft brush or damp cloth, and then dry the water stains with a dry cloth.
4. If there is sand, dust, or liquid adhering to the surface of the motor, blade, or heat sink, it is recommended to clean the surface with a damp cloth and then wipe off the water stains with a dry cloth.
5. Use a clean damp cloth (wring out water) to wipe the surface of the remote control and the display screen.

Battery maintenance

If not used for a long time, charging the battery to around 60% and storing it is the best way to store the battery.

Storage and Transportation

To avoid possible injury and loss, it is essential to comply with the following

1. As wires and small parts may pose a danger to children, it is essential to keep children away from the components of the aircraft.
2. Before transportation, be sure to remove the battery from the aircraft.
3. If long-term storage or long-distance transportation is required, the work box needs to be removed or emptied from the aircraft, and the aircraft should be stored in a cool and dry place.
4. If not used for a long time, please store the battery at around 60% of its capacity.

Maintenance

To avoid possible injury and loss, it is essential to comply with the following

1. After completing the homework every day, wait for the aircraft to return to normal temperature before cleaning the entire machine. It is prohibited to clean the aircraft immediately after the completion of the operation.
  - a. Fill the work box with clean water or soapy water and spray it out completely. Repeat this process three times.

- b. After removing the filter screen, nozzle filter screen, and nozzle from the homework box, clean them to ensure they are not clogged, and then soak them in clean water for 12 hours.
  - c. Ensure the integrity of the body structure and allow for direct washing of the entire machine. It is recommended to use a spray gun to wash the body, then use a soft brush or wet cloth to clean the body, and then use a dry cloth to wipe the water stains.
  - d. If there is sand, dust, or liquid adhering to the surface of the motor, blade, or heat sink, it is recommended to clean the surface with a damp cloth and then wipe off the water stains with a dry cloth.
  - e. Store the aircraft in a dry place.
2. After completing homework every day, use a clean damp cloth (wring out water) to wipe the surface of the remote control and display screen.
  3. Every 20 hours of flight or 100 takeoffs and landings.
    - a. Check the propeller for cracks and replace it with a new one if there are any cracks.
    - b. Check if the propeller is loose, and if it is loose, replace it with a new propeller and gasket.
    - c. Check for aging of plastic and rubber components.
    - d. Check the atomization situation of the nozzle. If there is poor atomization, thoroughly clean the nozzle or replace it with a new one
    - e. Replace the nozzle filter and the work box filter.
  4. After completing homework every day, if you still need to use it on a daily basis or in the near future, please slowly charge and maintain the battery at night.
  5. Do not repair the aircraft without authorization. If there is any damage, please contact an authorized agent of Huida Technology

pay attention to

1. Keep the FPV camera clean. Firstly, clean the surface of the camera of sand, dust, and other debris.
2. Check if all components of the aircraft have been strongly impacted. If you have any questions, please contact customer service or authorized agents of Huida Technology.
3. When the flight speed is less than 5 meters per second and the spraying amplitude is less than 8 meters, the minimum dosage of the product per mu is 2.5 liters per mu; When the flight speed is greater than 5 meters per second and the spray amplitude is greater than 8 meters, the minimum dosage of the product per mu is 1 liter per mu, otherwise it will affect the product's endurance time

Height limit, speed limit, distance limit, and laws and regulations

The maximum flying altitude of the aircraft is  $\leq 30$  meters, the maximum speed is  $\leq 10$ m/s, Please fly within the specified limit range Please consult the local air traffic control department to obtain the latest flight restriction policies. When flying, it is necessary to comply with local laws and regulations.

## Disclaimers

Before using this product, please carefully read this user manual. Once you activate this product, it is deemed that you have understood, understood, recognized, and accepted all the terms and contents of this user manual.

Agricultural drones are relatively large drones, and there are certain risks during use. Huida Technology will not sell drones to minors. If minors operate drones, Huida Technology will not be responsible for any consequences, and the insurance gifted or purchased in the first year is also not covered by the insurance policy.

Users are not allowed to operate drones under the influence of alcohol, drug use, drug anesthesia, dizziness, fatigue, nausea, or other physical or mental conditions. Huida Technology will not be responsible for the consequences of any of these behaviors.

During the use of toxic pesticides, please carefully read the instructions for pesticide use and take personal protective measures according to the instructions. Huida Technology is not responsible for any damage or impact caused to people, animals or plants due to improper personal use.

This product belongs to the multi rotor plant protection drone, and its scope of application is limited to agriculture, forestry, animal husbandry, and fishing. It is not recommended to use it for other purposes. If any accidents occur during non agriculture, forestry, animal husbandry, and fishing processes, Huida Technology will not be responsible.

In order to better implement product functions and improve user experience, you understand and accept that this product will automatically upload and save relevant flight records and data to the Huida Technology Data Center by default during use, and cooperate with Huida Technology to legally collect, store, and use all relevant data you have during the use of this product. If, due to your own reasons, flight records and data cannot be uploaded and saved, resulting in Huida Technology's inability to store and analyze flight records and data, which affects your flight safety, product or service quality, Huida Technology will not be held responsible.

To the maximum extent permitted by law, Huida Technology shall not be liable for any losses arising from your failure to operate this product in accordance with the user manual, and shall not be liable for any indirect, consequential, punitive, incidental, special or punitive damages, including losses suffered as a result of your purchase, use or inability to use this product.

Any product may experience unexpected events during use due to improper operation, surrounding environment, network communication, and other single or comprehensive factors. You understand that the aforementioned unexpected events are reasonable and acceptable situations during product use, and Huida Technology shall not be liable for such unexpected events.

To the maximum extent permitted by law, under no circumstances shall Huida Technology be liable to you for any damages, losses, or lawsuits resulting from such damages, losses, or lawsuits, exceeding the amount paid by you to Huida Technology or its authorized distributors for the purchase of the product.

In any case, the buyer or user shall comply with the relevant laws, regulations or policies

of the country and region where the product is used, and Huida Technology shall not be liable for any liability arising from the buyer or user's violation of relevant laws, regulations or policies.

The laws, regulations, and policies of certain countries may prohibit exemption clauses, so your relevant rights may vary in different countries. But this does not mean that the content of this statement must

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## HD402 FCC Statement

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) This device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

## RF Exposure Statement:

This device meets the government's requirements for exposure to radio waves. This device is designed and manufactured not to exceed the emission limits for exposure to radio frequency (RF) energy set by the Federal Communications Commission of the U.S. Government.

The exposure standard for wireless devices employs a unit of measurement known as the Specific Absorption Rate, or SAR. The SAR limit set by the FCC is 1.6 W/kg. \*Tests for SAR are conducted using standard operating positions accepted by the FCC with the device transmitting at its highest certified power level in all tested frequency bands. Although the SAR is determined at the highest certified power level, the actual SAR level of the device while operating can be well below the maximum value. This is because the device is designed to operate at multiple power levels so as to use only the power required to reach the network. In general, the closer you are to a wireless base station antenna, the

lower the power output.

For body worn operation, this device has been tested and meets the FCC RF exposure guidelines

The FCC has granted an Equipment Authorization for this device with all reported SAR levels evaluated as in compliance with the FCC RF exposure guidelines. SAR information on this device is on file with the FCC and can be found under the Display Grant section of <http://www.fcc.gov/oet/fccid> after searching on FCC ID: 2BBNT-HD402