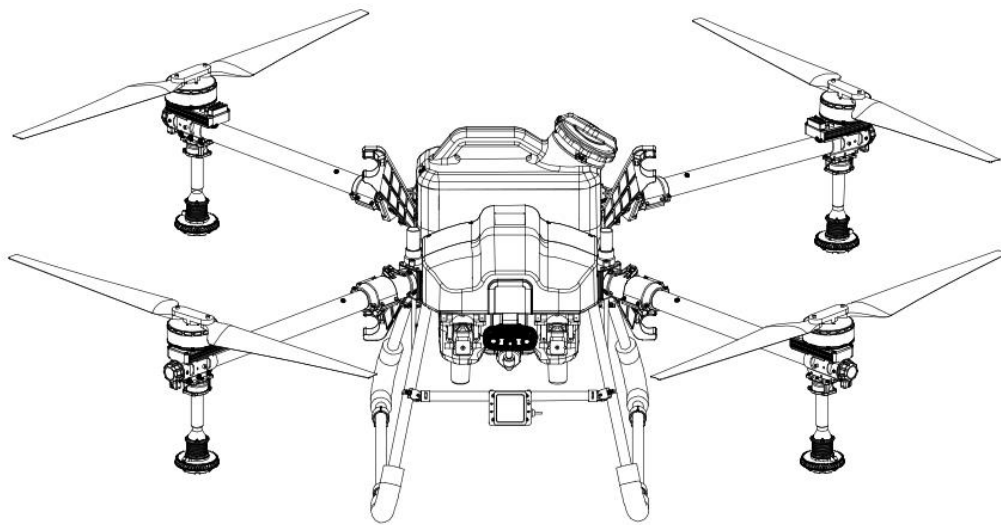# X4-20 2022 Agricultural drone

Manual V4. 2

Make agricultural plant protection simpler, more efficient and safer

2022. 12

To users

Dear user, thank you for choosing to use Dream Eagle products!

In order to ensure that you can use this product safely and smoothly, please read the " X4-202022

Quick Start Guide to quickly assemble, activate, and understand basic operating instructions for the aircraft. Detailed product usage and

For parameters, please read "X4-202022 Manual"

When viewing PDF, click on the table of contents to jump

Table of contents

1.Instructions for product safety use rules

Pesticide Use Regulations

1. Keep away from rivers and nearby water sources when dispensing to avoid pollution.
2. Pesticides are poisonous, please use them with caution and operate according to the pesticide use regulations.
3. After spraying, please pay attention to wash the skin, and clean the aircraft and the medicine box.
4. When working, please pay attention to wear protective equipment to prevent the human body from direct contact with pesticides;
5. Try to avoid the use of granules and wettable powders, otherwise it may affect the service life of the spraying system.
6. Ensure that the liquid medicine will not harm or affect the surrounding people, animals and the environment due to the above factors during the medication process.
7. When dispensing medicine, please use clean water, otherwise it will cause the nozzle to be clogged. If there is clogging during medication, please clean it in time before using it.
8. Factors such as liquid concentration, spraying rate, height from the aircraft to the crop, wind direction, wind speed and other factors should be considered comprehensively to achieve the best effect.

Environmental requirements

1. Do not fly indoors.
2. Fly in areas below 2000 meters above sea level.
3. No one is allowed within the radius of 10m to 20m of the take-off area.
4. There is no electromagnetic interference such as high-voltage lines, communication base stations or transmission towers in the operating area and nearby.
5. Always fly within visual distance and stay away from any obstacles, crowds, livestock, water, etc.
6. In the north and south poles, GPS and magnetic compass will be invalid. At this time, you can use the attitude mode to fly.
7. Fly in an environment with a temperature of 0°C to 40°C and good weather (not heavy rain, wind, or extreme weather).
8. Do not fly in bad weather, such as strong wind (wind speed 5 m/s and above), rain (12-hour rainfall of 25 mm and above), snow, foggy weather, etc.
9. Choose an open place with no tall buildings around it as the flying site. Buildings that use a lot of steel bars will affect the work of the magnetic compass, and will block GPS and RTK signals, resulting in poor or even impossible positioning of the aircraft.

Pre-flight inspection

1. Please calibrate the magnetic compass before flying.
2. Short press the battery switch key to check the remaining battery power.
3. Make sure the sprinkler system is not clogged and is functioning properly.
4. Make sure that the landing gear and the operation box are installed firmly, and all screws are locked.
5. Make sure the motors of the aircraft are clean and undamaged, and there is no sticking when turning manually.
6. Make sure that all parts are in good condition. If any parts are aged or damaged, please replace them before flying.
7. Make sure the propeller is undamaged and installed securely, the propeller arm is fully extended, and the arm fold is fastened.

Safe flight

1. Do not answer or make calls during the flight.
2. Please return as soon as possible when the battery is low.
3. Keep away from rotating propellers and motors during operation.
4. Please choose a suitable route according to the amount of medicine and battery power
5. Do not operate the aircraft under the influence of alcohol or drugs.
6. After landing, first cut off the power of the aircraft and then turn off the remote control to prevent accidents.
7. Do not add additional loads, and ensure that the flight is under a take-off weight of less than 60kg to avoid danger.
8. The use of the X4-20 plant protection drone has certain safety risks and is not suitable for use by persons under the age of 18.
9. During the flight of the aircraft, pay attention to the aircraft status data fed back by the ground station (such as: battery power, number of satellites, etc.).

Maintainance

1.X4-30 storage environment: clean and tidy, ventilated and moisture-proof, avoid high temperature.
2. Please check and replace deformed or damaged propellers in time before each flight.
3. When not working or transporting, be sure to remove or empty the operating medicine box to avoid excessive damage to the tripod.
4. Clean the pipeline of the operating machine in time after operation, regularly overhaul the operating machine, and upgrade the firmware version of the drone in time.

Flight restrictions and local regulations

flight restrictions

According to the regulations of the International Civil Aviation Organization and national air traffic control on airspace control and the management regulations on drones, drones must fly in the specified airspace. For the sake of flight safety, the flight restriction function is enabled by default, including altitude and distance restrictions and no-fly zones, to help users use this product more safely and legally. In position mode (with GPS or RTK), the altitude and distance constraints work together to affect flight. In attitude mode, it is only limited by altitude, and the maximum altitude of the actual flight will not exceed 20m.

Height and distance restrictions

The maximum height is used to limit the flying height of the aircraft, and the maximum radius is used to limit the flying distance of the aircraft. Users can configure the maximum height and maximum radius values in the assistant software. After the configuration is complete, the normal flight range of the aircraft will be limited to the cylindrical airspace as shown in the figure below.
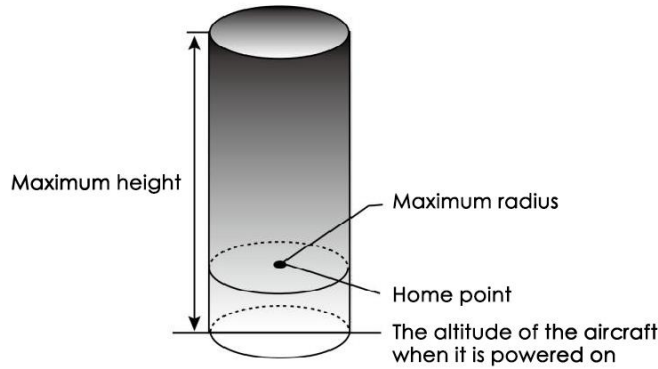
Attitude mode	
	Flight restrictions
Maximum height	The flight altitude cannot exceed the maximum altitude set in the assistant software
Maximum radius	no limit, no prompt

Positioning mode (with GPS)	
	flight restrictions
Maximum height	The flight altitude will not exceed the maximum altitude set in the assistant software
Maximum radius	The distance between the aircraft and the home point will not exceed the maximum radius set in the assistant software

Warning: After the aircraft breaks out of the limit boundary due to inertia, the remote control still has the right to control, but it cannot control the aircraft to continue flying farther. If the aircraft is outside the maximum radius and switches from attitude mode to positioning mode (with GPS), the aircraft will automatically return to within the maximum radius.

Flying in restricted flight areas is strictly prohibited.

Control the flight altitude below 20 meters, and strictly abide by local laws and regulations when flying.

2.Product description

Introduction

The X4-20 plant protection drone is a 20L plant protection drone developed by Dream Eagle Technology in combination with operating experience. This practical free-flying version of the drone is small and foldable for easy transportation, simple and durable in structure, and super compatible.

The X4-20 adopts a pressure nozzle (centrifugal nozzle) and an intelligent spraying system, which reduces the influence of the turbulent flow of the rotor and improves the targeting of the spraying of the liquid medicine. more thorough.

The spraying monitoring system can monitor the spraying work information (such as: flow rate, flow rate, sprayed amount, etc.) in real time, so that the spraying operation is under control.

Manual flight can preset the spraying flow rate, and the linkage design of flight speed and spraying speed makes the spraying more uniform and safer. When flying on the smart route and AB point route, the system will stop spraying after the manual control takes over the drone, effectively avoiding the adverse effects caused by heavy spraying. Reliable structural design improves operating efficiency and brings excellent user experience to users. The fail-safe mechanism effectively guarantees the safety of flight.

X4-20 Agricultural drone shape and size
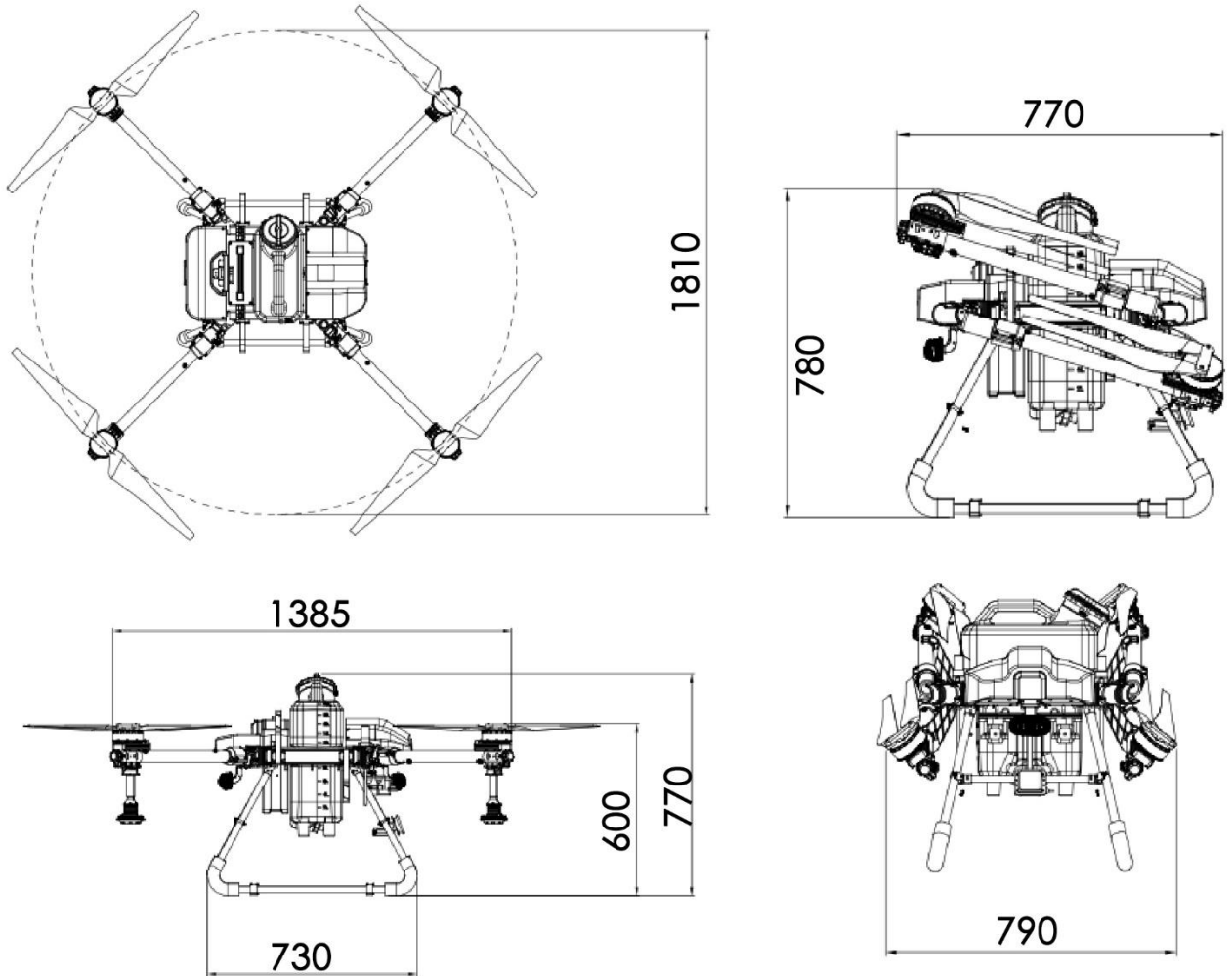
X4-20 Agricultural drone parts name
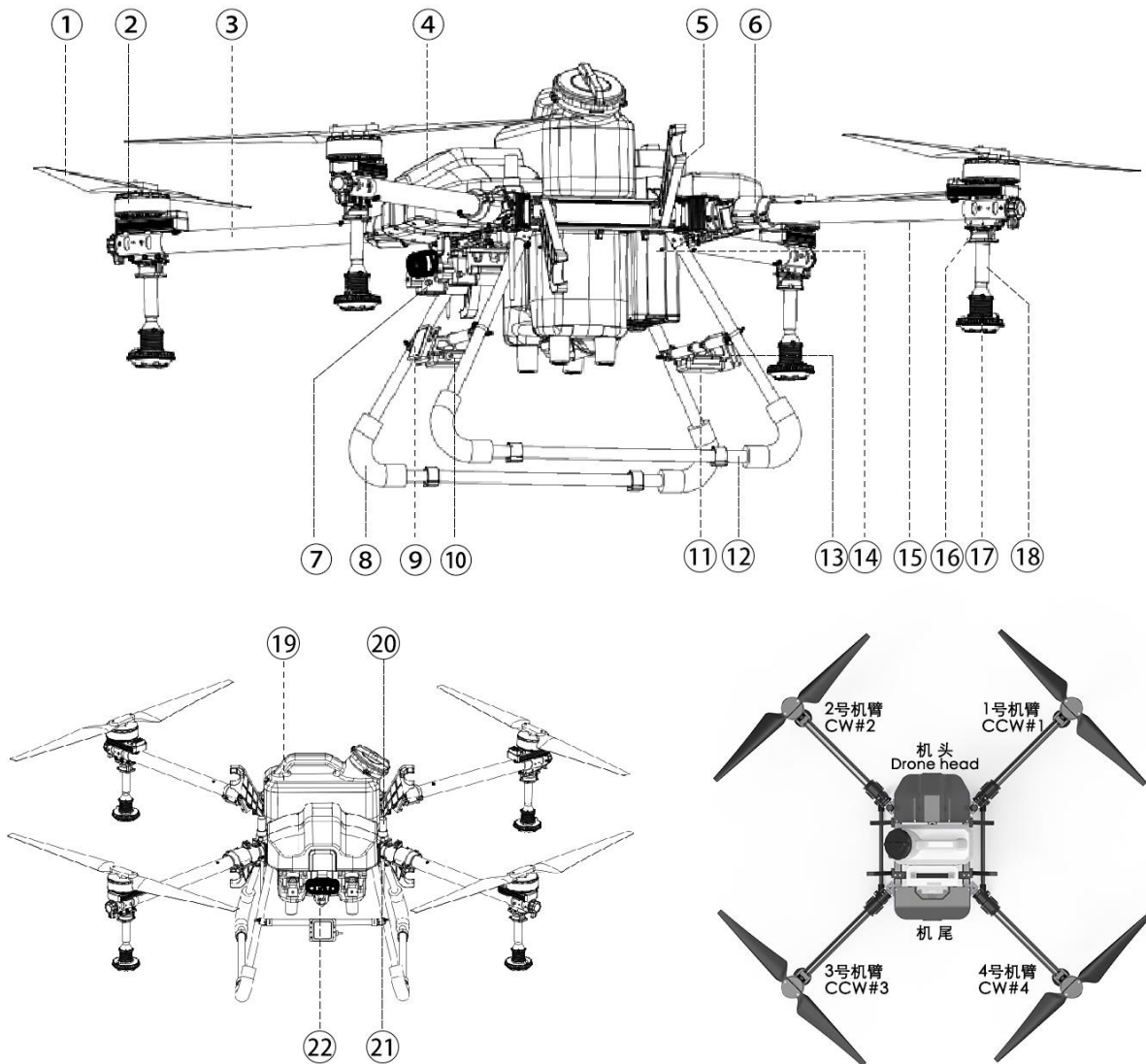
1. propeller   2. motors   3. arms   4. shell   5. power connector   6. folded pieces   7. Dual water pump kit

8. Tripod shock pads   9. Forward obstacle avoidance radar   10. Ground Defense Radar

11. Reserved position for rear ground defense radar   12. tripod   13. Installation of rear obstacle avoidance radar

14. battery compartment   15. Water pipe direction   16. Nozzle installation position

17. pressure/centrifugal nozzle   18. Flexible nozzle connection   19. 30L water tank

20. RTK reserved installation positions   21. remote control antenna   22. FPV

Hint:

• Non-professionals should not disassemble the drone.

• To ensure GPS signal strength, please do not block the mobile GPS module.

• The supplied X4-20 Smart Battery must be used when using the X4-20.

3. Remote Control
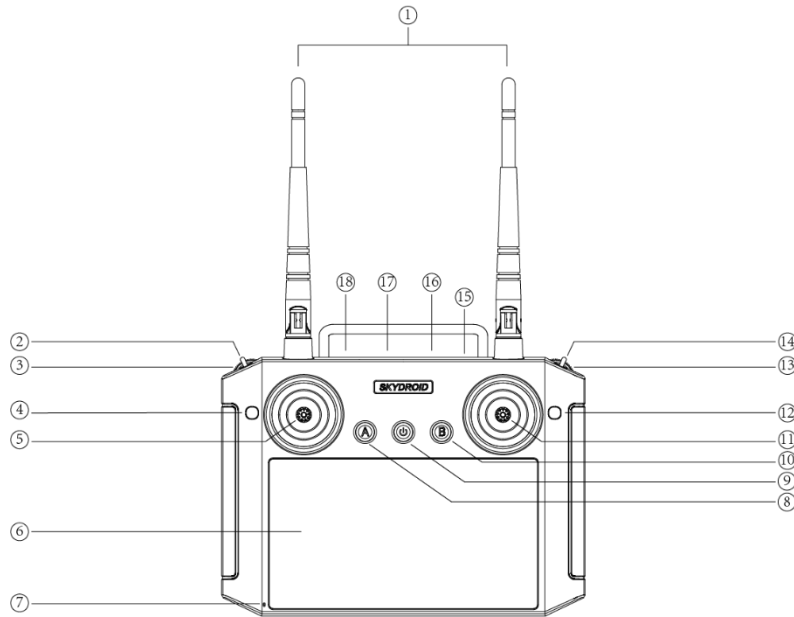
Remote control button definition

Serial number	Annotation	Serial number	Annotation
1	2.4G 3dB Antenna	10	None (configurable)
2	Altitude-Position-Autonomous-Manual Mode-Attitude Mode	11	Joystick X2 (left and right), Y2 (front and rear)
3	track wheel G	12	water pump switch
4	Button C Water pump switch	13	Wheel H
5	Rocker X1 (rotation), Y1 (lift)	14	AB mode
6	5.5 inch screen	15	Trumpet
7	MIC port	16	SIM card slot
8	Return to waypoint	17	charging port
9	Switch	18	PPM output

Instructions on how to operate the remote control

Support three operation modes: American hand, Japanese hand and Chinese hand

⚠ The aircraft defaults to **American hands** when it leaves the factory!

Before use, please confirm whether it is the operator mode familiar to the user, otherwise it may cause a safety accident!

Japanese hand: The left joystick controls the aircraft to move forward, backward, left and right, and the right joystick controls the aircraft to ascend, descend, move left, and move right.
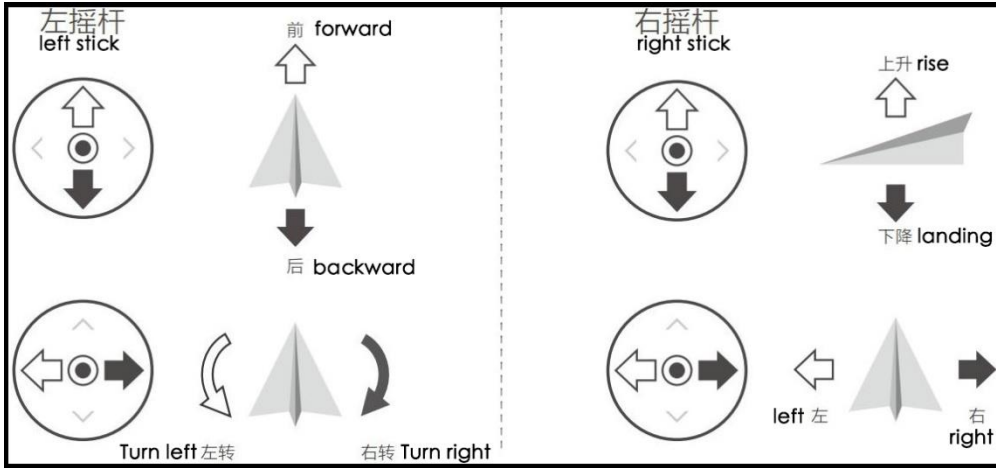
American hand: The left joystick controls the aircraft to ascend, descend, turn left, and turn right, and the right joystick controls the aircraft to move forward, backward, left, and right.
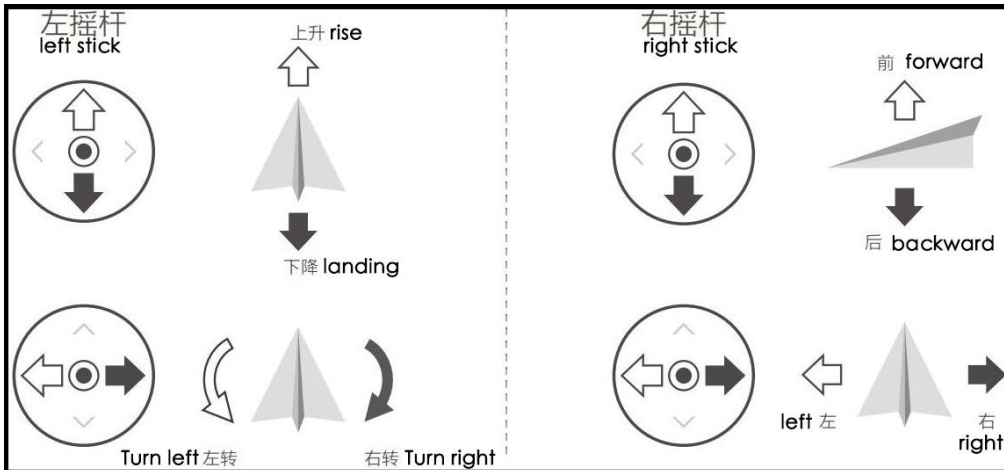
Chinese hand: The left joystick controls the aircraft to move forward, backward, left, and right, and the right joystick controls the aircraft to ascend, descend, turn left, and turn right.
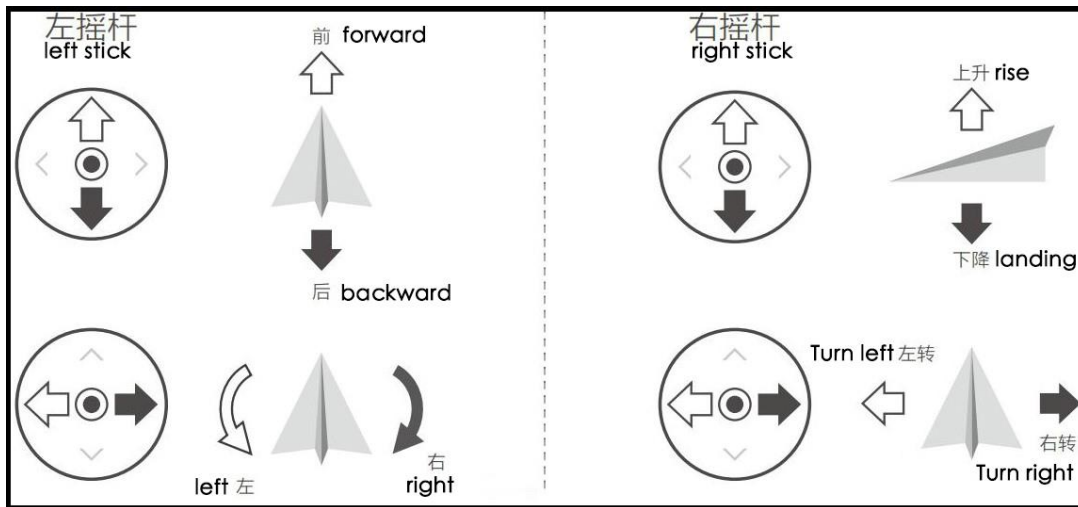
Remote control pairing

When leaving the factory, the aircraft and the remote controller have been linked and can be used after being powered on.

The digital chain diagram is as follows, the digital chain is installed on the upper part of the aircraft nose:

Instructions for frequency linking: When the remote control and the aircraft are disconnected; when replacing the remote control or the digital link; when the remote control does not respond to the operation of the aircraft; Then the remote control can control the aircraft. Binding operation: After powering on the aircraft, press and hold the "Binding" button of the digital chain, the green light of D2 will flash quickly, and then turn on the remote control. "beep" sound, at this time the green light of D2 is always on, indicating that the frequency binding is successful

4. Flying Defense Butler APP Manual (latest version)

Flying Defense Butler APP Download

There are three ways to download the mobile APP：

1、 **Mobile APP download address：** **http://update.jiyiuav.com/app/pub/kjj-latest.apk** 。
Please open the URL in a computer browser or mobile browser and download the APP。

Or use a browser to scan the QR code below to download the APP。

2. Use a computer to enter Jiyi official website（ **http://www.jiyiuav.com** **），Download in the download interface, as shown in the figure below:**

Register

Chinese version registration

After opening the mobile app, register first (old users can log in directly), invite code： **8888**
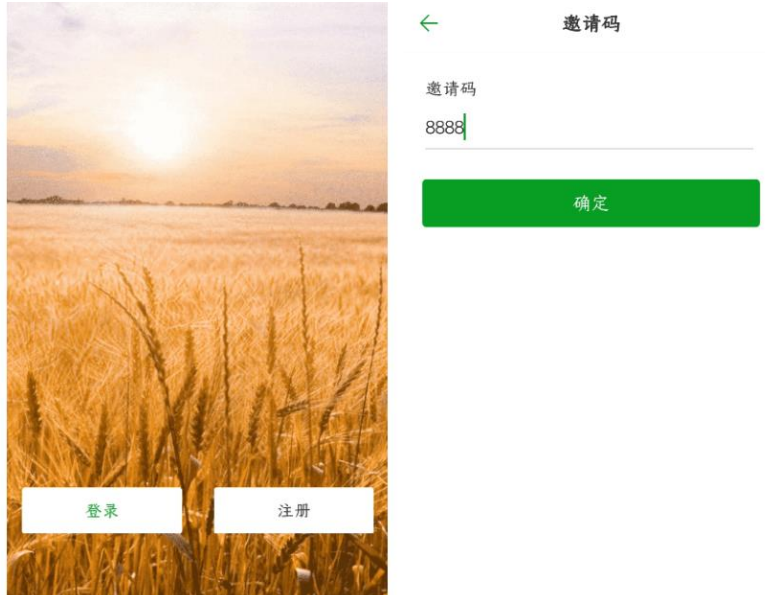
Enter a normal mobile phone number (it is recommended that the mobile phone number I am using), click to get the verification code, and wait for the verification code (6 digits) sent by the flight defense butler platform. After filling in the verification code, enter the password to be set, and check Agree Privacy agreement, click "Register", that is, the registration is successful。

English version registration

Enter a normal mobile phone number or email address (it is recommended that the mobile phone number I am using), click to get the verification code, and wait for the verification code (6 digits) sent by the flight defense butler platform. After filling in the verification code, enter the password to be set, and tick Choose to agree to the privacy agreement, click "Register", that is, the registration is successful。
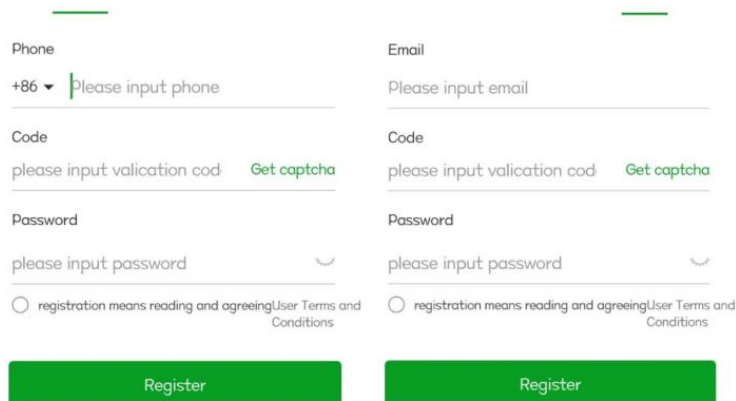
Log in

After opening the APP, click "Login" to enter the login interface, as shown below:

After entering the login interface, enter the mobile phone number and password, and click "Login" to enter the APP main interface

Forgot password

In the process of using the APP, if you forget the login password, follow the steps below to retrieve it：

1、First enter your mobile phone number (must be real), then click "Forgot Password"

2、Enter the mobile phone number, click "Get Verification Code", and the flight defense housekeeper platform will send a text message to your mobile phone, enter the correct verification code, enter the new password, and then re-enter the new password, click "OK", that is, the password is changed success.

Device connection

After opening the mobile APP, click "Please connect the device", and a selection dialog box will pop up. The supported connection methods are: USB connection, Bluetooth, dot device, and Bluetooth dot device。

USB connection: requires a specific remote control for use；

BLuetooth: Both Yunzhuo remote control and Siyi remote control use Bluetooth to connect (such as: M12, T12, VD32, etc.)；

Inker: Use a USB inker, plug the connector directly into the charging port of the mobile phone, and click "Inker"；

Bluetooth dot: when using RTK bluetooth dot, select the corresponding bluetooth name to connect;

Supported remote control devices are: H16 and H12。

When the H16 remote control uses the flight defense steward for data transmission connection, select the H16 option；

When the H12 remote control uses the flight defense steward for data transmission connection, select the H12 option；

Job record

   Open the flight defense steward APP, click "operation record", you can view the flight operation record (as long as the aircraft is unlocked, a piece of operation information will be stored）

Select several flight records, as shown in the figure below, you can view the total area of the operation and the total number of flights (you can choose arbitrarily）

Click on the details of any flight record to view specific flight information. Contains the following content: user name, start time, flight time, spraying area, mu dosage, dosage, flight controller serial number, flight distance, crop type, etc.

   Select a few flight records, click "Batch Export", you can view the exported data in the "Job Records" in the "My" interface, click "Share", and forward them to others through QQ, WeChat, DingTalk and other software ,As shown below：

Device management

1、Sircraft list

In the aircraft list, all the aircraft added by this account will be displayed

The added aircraft can be replaced by the owner

If the aircraft has not been bound to the flight control, you can bind the flight control first
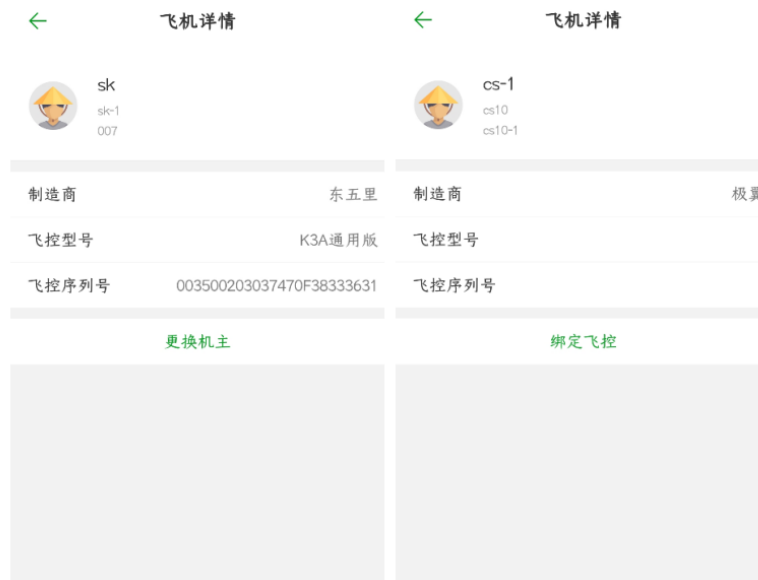
2、add aircraft

Open the app. Click "Device Management" and select "Add Aircraft". Only the manufacturer (manufacturer) account can add an aircraft. As shown below:

Flight control serial number: After connecting to the aircraft with Bluetooth on the mobile phone, the flight control serial number will be automatically read;

Aircraft name: You can give the aircraft any name, such as: Bumblebee, Little Fish, etc.;

Aircraft model: only the manufacturer can fill in. For example, for an aircraft with a load of 20Kg, it can be written as: DreameagleXXXX-20;

Aircraft number: only the manufacturer can fill in. For example, if 100 aircraft are produced, it can be written as DreameagleXXXX-20-0001, DreameagleXXXX-20-0002...etc.;

Manufacturer: Fill in the name of the manufacturer, for example: Shenzhen Dream Eagle Technology Co., Ltd.

Note: The aircraft must be added in the manufacturer's account first, and then the seller and the owner can add it. Ordinary users cannot add aircraft.

3、Unban application

Open the app. Click "Device Management", select "Release Ban Application", and submit materials as required. As shown below：

4、Tool management

工具管理

KML文件导入	>
导入导出	>
日志下载	>
在线飞机	>

KML files can be obtained using surveying and mapping equipment, and then imported into the flight control;

The import and export function is a function for quick setting of aircraft parameters, mainly used by manufacturers in mass production；

KML file import process and import and export function operation process, please check in the featured functions 。

"我的"界面

制造商

实名认证	已认证 >
账户升级	>
用户指南	>
报警信息	>
作业记录	>
充值记录	>
植保队	>
用户反馈	>
设置	>

连接　作业记录　设备管理　我的

Verified

Note: After foreign customers register, the default is real-name authentication; domestic customers need to follow the following process for real-name authentication.

1、After opening the mobile app, on the "My" interface, click "Real Name Authentication" (generally, the accounts just registered are unauthenticated, and real name authentication is required first)

2、Fill in the real name and real ID number; upload a total of 4 photos of the front of the ID card, the back of the ID card, the front of the holding ID card, and the back of the holding ID card

3、When you're done uploading your photos, click "Submit." Jiyi customer service will handle your real-name authentication in time.

Account Upgrade

After the real-name authentication is completed, the account needs to be upgraded (after the account level is upgraded, the aircraft can be bound; the computer background can be logged in to view the operation records; the manufacturer can manage the end customers）

1、How to upgrade to become a manufacturer?

To upgrade the account type, select the manufacturer, enter the name of the manufacturer (company name), submit the relevant certificate (business license), click "Submit", and Jiyi customer service will review it in time；

2、How to upgrade to become a seller?

Upgrade the account type and select the seller, check the account and fill in the manufacturer's mobile phone number (communicate with the manufacturer), submit the relevant certificates (business license or ID card front photo), click "submit", the manufacturer needs to be in the computer background （http://ai.fei-fang.com） Audit in the User Management-Account Audit function.

3、How to upgrade to become an owner?

Upgrade the account type and select the owner, check the account and fill in the mobile phone number of the manufacturer (or seller) (communicate with the manufacturer), submit the relevant certificate (ID card front photo), click "submit", the manufacturer (or seller) needs in the background of the computer (http://ai.fei-fang.com) Audit in the User Management-Account Audit function.

4、What is the use of a special user, can it be upgraded?

A level established for special groups of people. It is not recommended for users to upgrade, this level has no effect on flight operations, and will also affect the use of other functions in the future.

User guide

After clicking "User Guide", you will enter the "Jiyi Knowledge Base", you can view the manuals related to Jiyi products, and you can also view the frequently asked questions we have summarized.
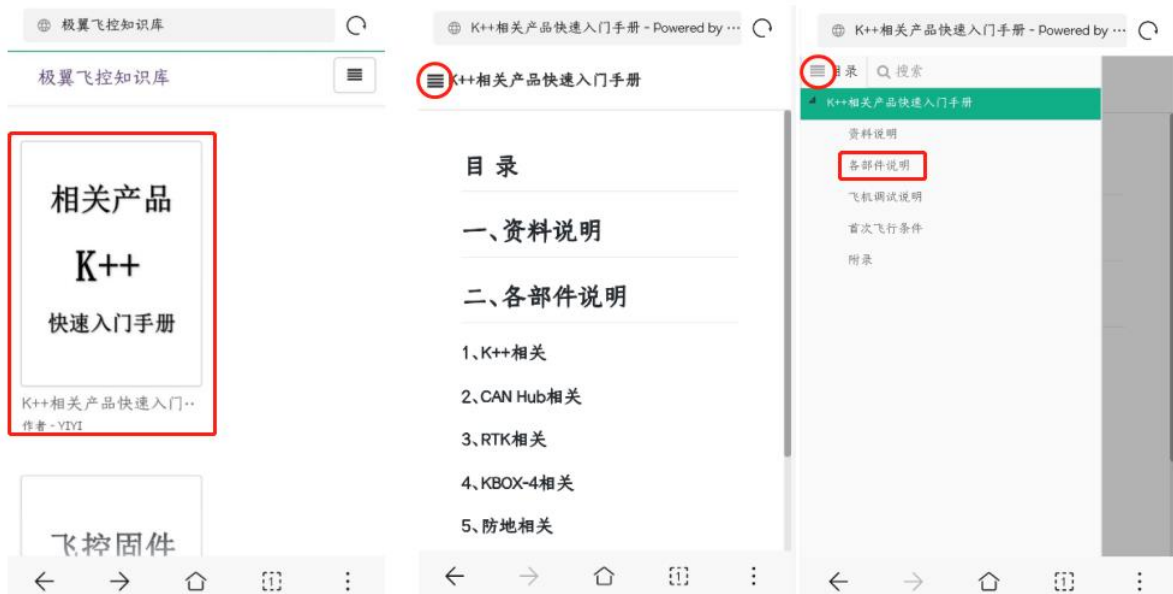
Alarm information

In the alarm list, you can view some alarms prompted during the use of the aircraft, as shown in the figure below, it is an alarm prompt about the calibration of the magnetic compass

Job record

The data after the operation can be downloaded in the operation record, including: user name, start time, flight time, spraying area, dosage, flight control serial number, flight distance and other information.

Note: This job record is batch-exported from the main interface of the APP - "Job Record".

Recharge record

Device recharge record

1. **RTK and KBOX equipment recharge records can be queried**

2. **You can select a time period to query**

Plant Protection Team

Plant protection team function

On the main interface of the APP - "My" interface, click "Plant Protection Team" to create a plant protection team for large-scale team work.

After the plant protection team is created, the captain can add and remove members, and everyone can view the job ranking, personal data and team data.

Note：

1. When the manufacturer/seller/owner creates a plant protection team, the aircraft needs to be added under the name of this account, that is, there are aircrafts in the aircraft list;

2. Set as default: When performing team operations, the team should be set as the default first, and then the data of the plant protection machine operation will be displayed in the plant protection team;

3. Invited users: fill in the invitee's APP account (mobile phone number), and click submit; in the device management interface, the invitee clicks the "message" icon in the upper right corner, and in the "reminder message" interface, check the invited message. Process invitation information.

Customer feedback

In this interface, you can put forward your opinions and suggestions in use, and we will check them in time. Reasonable opinions and suggestions will be updated to Jiyi products in a timely manner.。

设置

1、Change password This meeting can modify the login password of this account. It is recommended that users who have reset their passwords please change their personal account passwords in time.

2、Download offline maps

This meeting can download local maps, mainly to solve the problem that the map cannot be refreshed when flying in offline mode

3、my QR code

To be developed。

4、About Flying Defense Butler

This interface can check the latest version of the APP to see if it needs to be updated.

5、IMEI

The IMEI number belongs to the unique code of each mobile phone.

6、sign out

Click "Logout" to log out of the APP account and re-enter the APP login interface.

6.Introduction to the flight main interface

APP flight main interface introduction

In the APP parameter setting - about interface, "main interface style" can choose "normal mode" or "simple mode", and then restart the APP, you can see the set interface. The normal interface is the interface shown before; the simple mode is the new interface, the new interface is more concise, the flight data font is larger, and the interface layout is more reasonable. The new interface cannot adjust the important parameters of the flight control. The interface is shown in the figure below：

Regular mode (old)
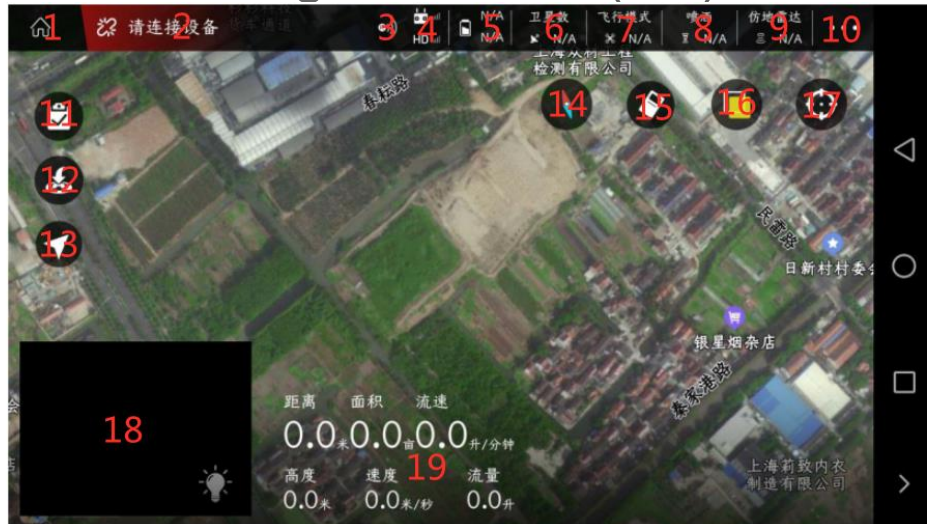
1. **Exit home button**

After clicking, it will exit the flight main interface and enter the APP main interface.2.连接按钮

If the device is not connected, it will display the device to be connected; if the device is connected, it will display the electronic module information. As shown below:

3. **RTK icon**

Red means not connected, green means connected, gray means not installed.

4. **Remote control connection status**

The upper part represents the signal strength of the remote control and the remote control, and the lower part represents the signal strength of the image transmission;绿色代表遥控器已连接、灰色代表未连接。

5. **battery display**

The green S icon represents the smart battery connection, and the white represents the normal battery connection;上代表普通电池电压、下代表智能电池电压。

6. **Number of satellites**

Used to display the number of satellites of the current aircraft (when using RTK, display the number of RTK stars)

7. **Airplane mode**

Display the real-time flight mode status of the flight (attitude, manual, AB point, full autonomy)。

8. spray

to set manual spraying (spray according to the set maximum opening)

Precise spraying (the flight controller automatically sets the opening of the water pump according to the set spray volume per mu)

Linkage spraying mode (the flight control will automatically adjust the opening according to different speeds)

9. **Ground-following radar**

Only in the connection state can click to set the parameters

Down means set height, green means connected, gray means not connected

10. **Adjustment function**

11. **List of tasks or plots**

The planning plot interface displays: my plot, nearby plots；

Executing job interface display: pending job, job in progress.

12. One key return

13. switch job mode

A is attitude, M is manual, AB is AB operation, M+ is M+ mode。
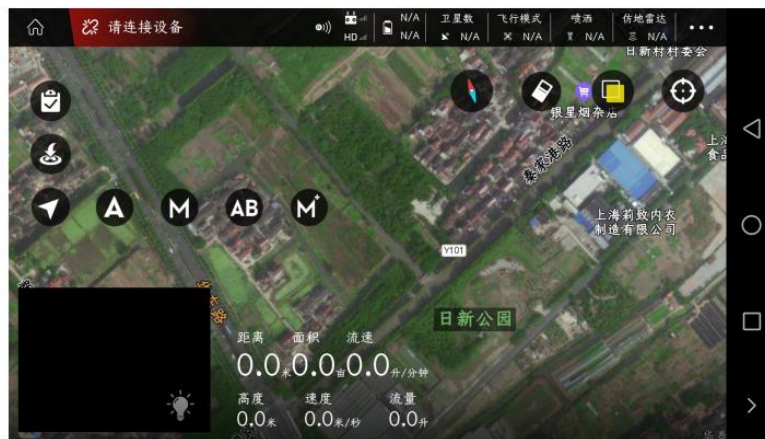
14. Compass

15. Clear switch: can clear the route track on the map

16. Switch between normal map and satellite map

17. View my location and aircraft location (for example: click on the small icon of the aircraft, and the aircraft location will immediately return to the middle of the display)

18. Image transmission display or map display, click to display image transmission or map in full screen. Click the "light bulb" to turn on the LED light on the camera。

19. Display information such as "speed", "drug volume", "height", "distance", "area", "flow rate" (when the radar is connected and turned on, the height of the radar is displayed)
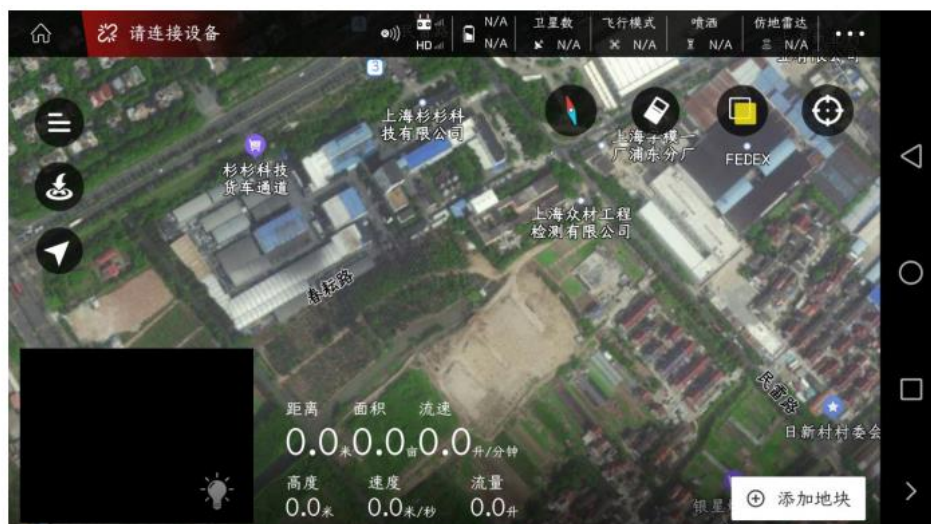
Easy Mode (New)

1. connect button

If the device is not connected, it will display the device to be connected; if the device is connected, it will display the electronic module information. As shown below:

2. Number of satellites

Used to display the number of satellites of the current aircraft (when using RTK, display the number of RTK stars)

3. RTK icon

Red means not connected, green means connected, gray means not installed.

4. Remote control connection status

The upper part represents the signal strength of the remote control and the remote control, and the lower part represents the signal strength of the image transmission；

Green means the remote control is connected, gray means not connected。

5. battery display

The green S icon represents the smart battery connection, and the white represents the normal battery connection；

The upper part represents the normal battery voltage, and the lower part represents the smart battery voltage.

6. Operating acres

7. Ground-following radar

Only in the connection state can click to set the parameters

Down means set height, green means connected, gray means not connected

8. Airplane mode

Display the real-time flight mode status of the flight (attitude, manual, AB point, full autonomy)。

After clicking the icon, you can switch the flight mode: A is attitude, M is manual, AB is AB operation, M+ is M+ mode, B is return。

9. List of tasks or plots

The planning plot interface displays: my plot, nearby plots；

Executing job interface display: pending job, job in progress。

10. Display information such as "speed", "drug volume", "height", "distance", "area", "flow rate" (when the radar is connected and turned on, the height of the radar is displayed)

Click the "flow rate" icon to set the spray mode：

Used to set manual spraying (spraying according to the set maximum opening)

Precise spraying (the flight controller automatically sets the opening of the water pump according to the set spray volume per mu)

Linkage spraying mode (the flight control will automatically adjust the opening according to different speeds)

11. **compass**

12. **Clear switch: can clear the route track on the map**

13. **Switch between normal map and satellite map**

14 . **View my location and aircraft location (for example: click on the small icon of the aircraft, and the aircraft location will immediately return to the middle of the display)**

15. **Adjustment function**

16. **Image transmission display or map display, click to display image transmission or map in full screen. Click the "light bulb" to turn on the LED light on the camera.**

17. **Exit home button**

After clicking, it will exit the flight main interface and enter the APP main interface 。

Fully autonomous operation

The fully autonomous operation is divided into two interfaces: "planning plot interface" and "executing operation interface"。

一、**Planning plot interface: divided into "my plot" and "nearby plots"。**

1、My plots: mainly for stepping on plots, collecting obstacle areas, boundary points, etc.。

2、Nearby plots: mainly used for sharing plots among different users.

二、**Executing job interface: divided into "waiting job" and "working".**

1、Pending operation: The plots allocated from "My plots" will be stored in "Pending operations" first. After adjusting the width, speed, flow, margin and other parameters, they can be uploaded to the flight controller and start to work normally. Perform fully autonomous operations.

2、In operation: For plots that have already started operation (in operation or completed), the operation progress information can be viewed in "In operation". When it is necessary to continue to execute the unfinished plot, find the plot in "Working", re-upload the route, and continue to execute the operation at the previous break point.

Plan plot interface

add plot

After clicking "Planning Lot" on the main interface of the APP, enter the "Planning Lot" interface, and click "Add Lot" in the lower right corner
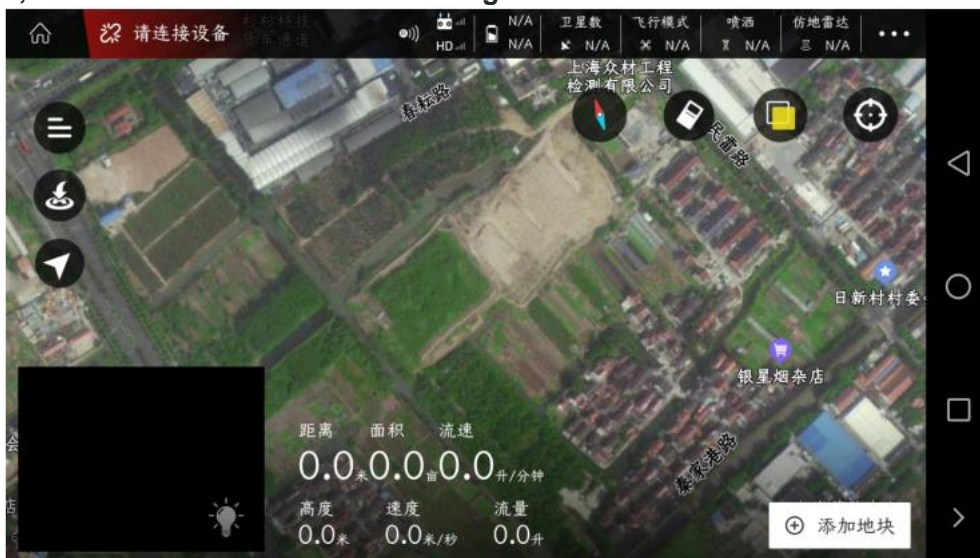
Enter the interface for selecting the planning method, which is divided into：

1、Handheld GPS (RTK) dotting device: Use a GPS dotting device or RTK dotting device to connect with a mobile phone, and then circle the points, and the collected land boundary points have high accuracy；

2、Aircraft GPS: After the APP is connected to the aircraft, use the aircraft to punctuate. It's relatively easy to run around the plot without people；

3、Map selection: Use the map in the aircraft APP to circle and click at will. The accuracy of the collected plot boundary points is very poor；

4、3D route: must use the latest firmware of RTK and flight control, and can collect 3D waypoints for flight operations (suitable for taller crops such as fruit trees). For specific operation methods, please check in the featured functions。

Take the map point selection as an example to explain the function：

After selecting plots and points, a dialog box will pop up, fill in the name of the plot to be planned, click "OK" after completion, and then start point selection；

Move the cursor in the APP to a suitable position, click on the "boundary point" on the right (3 points or more can form a regional plot), and the APP will prompt "adding boundary points successfully"；
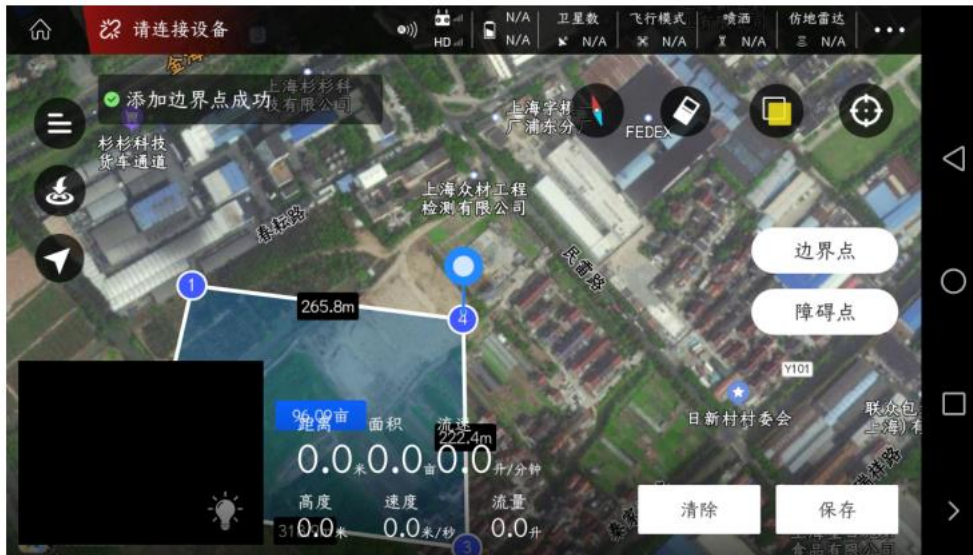
Click "Obstacle Point" on the right to pop up a dialog box where you can choose the type of obstacle to add (polygon or circle)

Move the cursor to a suitable position on the map, take a circular obstacle as an example, click "obstacle point", that is, the circular obstacle area has been successfully collected；
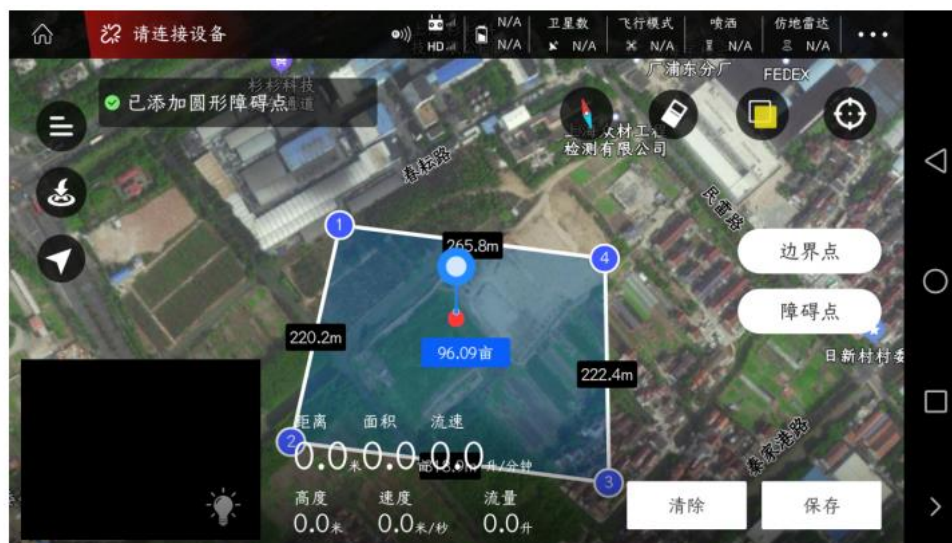
After collecting the operation area (boundary point) and obstacle area (obstacle point), click "Save" in the lower right corner, and the plot will be added successfully.

Assignments

After the plot is added successfully, click the plot data icon (the icon with three horizontal bars in the upper left corner)
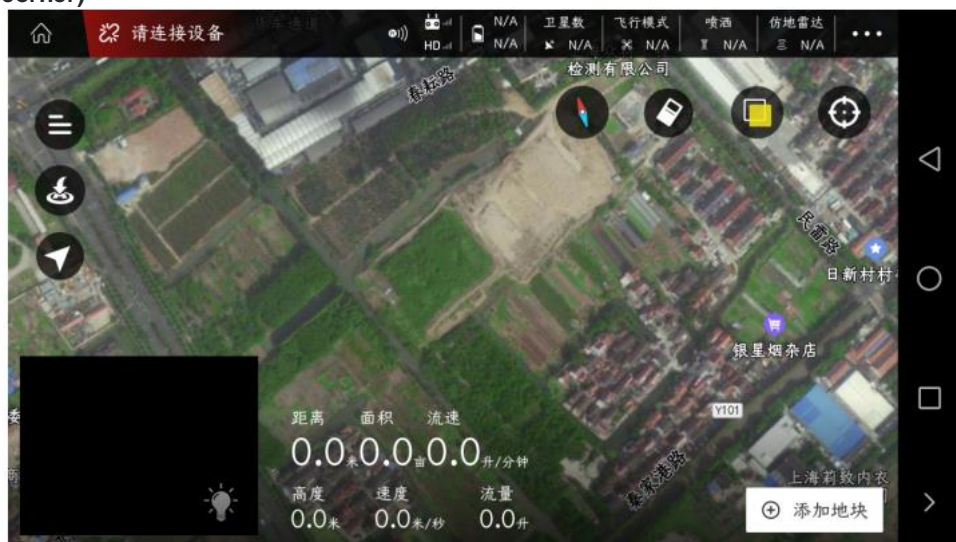
Find the previously added plot in my plot, click the plot information, and the plot area map and setting bar will pop up on the right
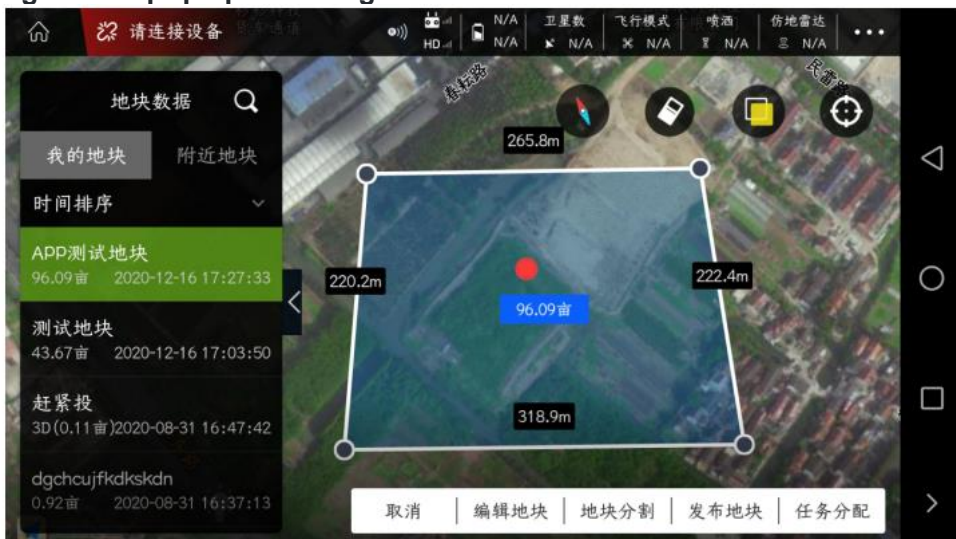
After clicking "task assignment", a dialog box will pop up (for task data settings)

Task name: fill in the information related to the plot (site location, name of person, etc.)

Who assigns the task to: If it is assigned to yourself, you can leave it blank. Assigned to others, need to fill in his account number

Crop type: wheat, cotton, sugar cane, fruit trees, corn, tea, rape and other crops, please choose according to the actual operation

Route type: plot (route assigned by normal operation), edge sweep (operation process of edge sweep function, please check in the featured function), 3D route (three-dimensional route)

After setting the task allocation pop-up box, click "OK", and the APP will prompt "The task has been successfully released, please check it in the task list".

Exit "Planned Route" and enter "Execute Operation".

Execute job interface

Enter the "Job Execution" interface, click the "Notepad" icon in the upper left corner, and view the "Task Data" interface
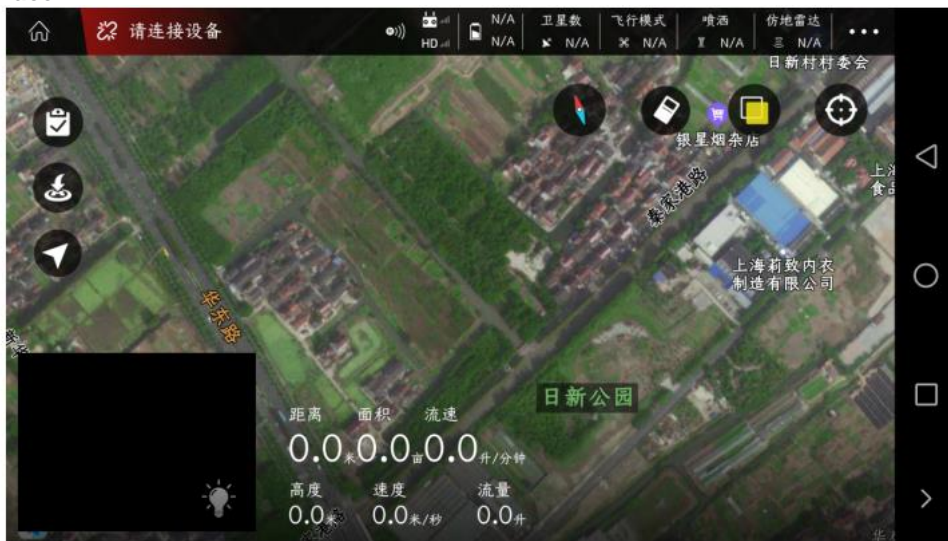
Find the previously allocated plots in the "Pending Work" in the "Task Data" and make a selection
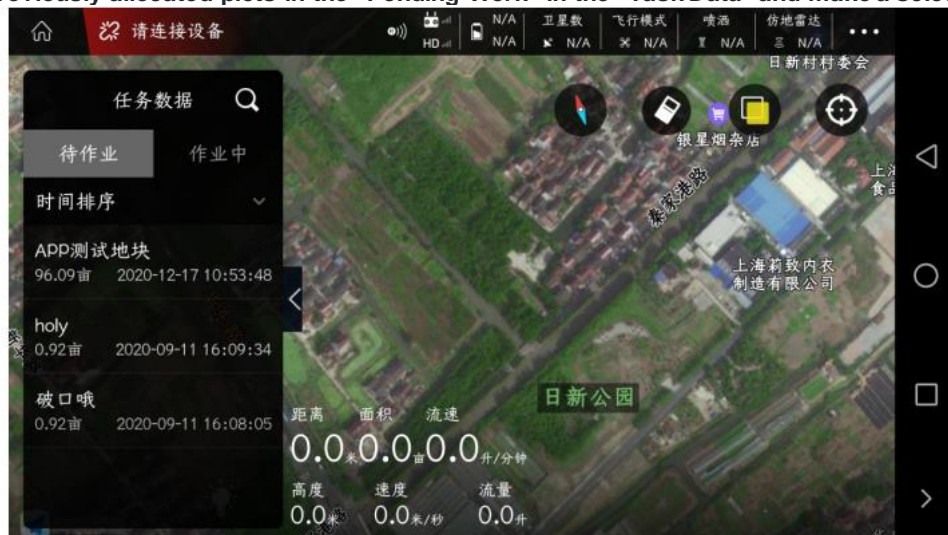
After selecting the field, the operation area, operation track and route setting functions will pop up on the right. The "yellow circle" on the right can adjust the position of the route S point。

Click "Route Adjustment" in the lower right corner to jump out of the route parameter setting function. They are: operation spacing, route retraction, obstacle margin, route type and route fine-tuning
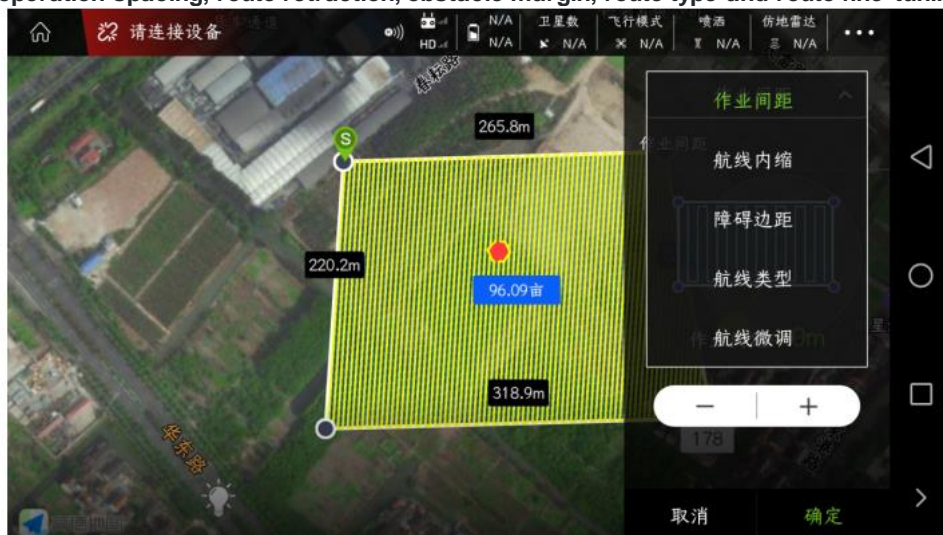
Job Spacing: Adjust the distance between adjacent routes
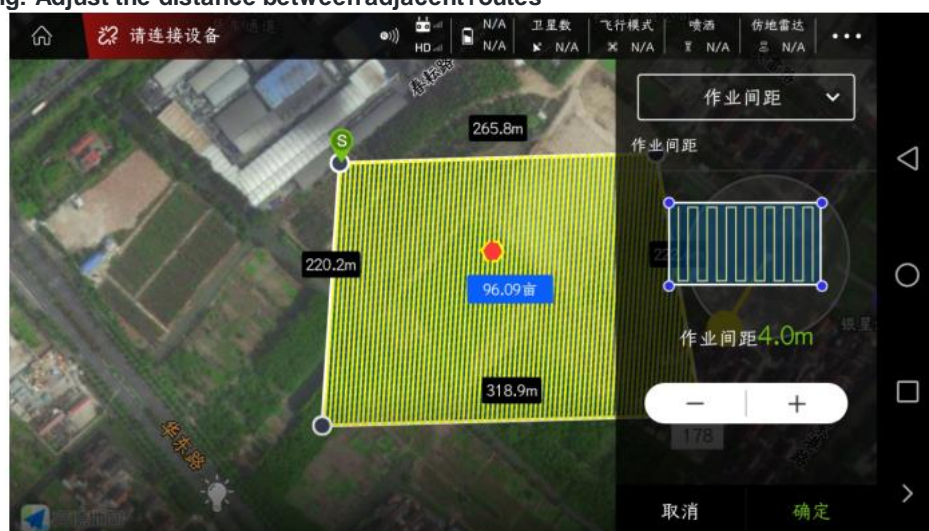
Airline indentation: adjust the distance between the overall airway and the boundary of the operation area, it is recommended to set more than 5 meters; when there are trees, it is recommended to set a larger
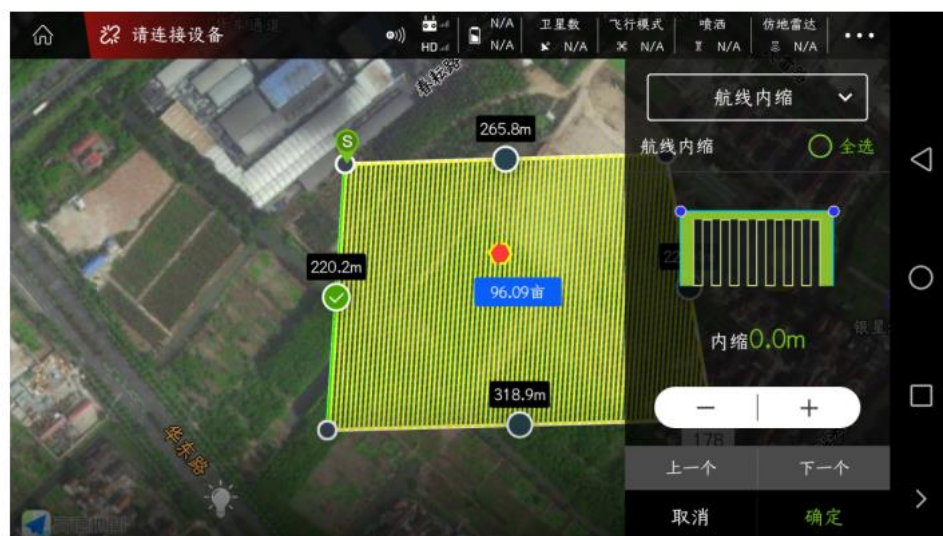
Obstacle Margin: Adjust the distance between the overall route and the boundary of the operation area. It is recommended to set it above 5 meters; when there are trees, it is recommended to set it larger
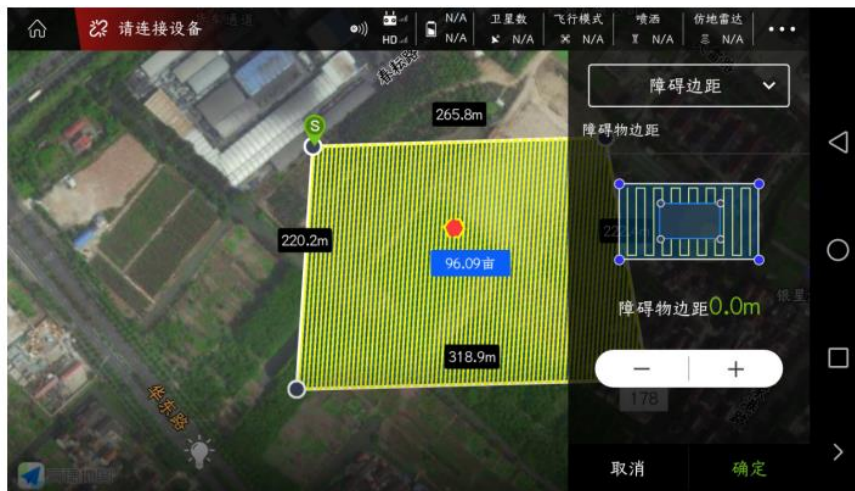
Route type: There are three functions, namely: circumnavigation, return and reverse route

Surrounding: Choose to circumvent, when the route encounters an obstacle, it will fly around the obstacle

Turnback: Select turnback, when the route encounters obstacles, it will directly traverse and return to flight

Route Reverse: Click "Route Reverse" to adjust the position of route S point

Route fine-tuning: You can fine-tune the overall route. Normally this is not done.
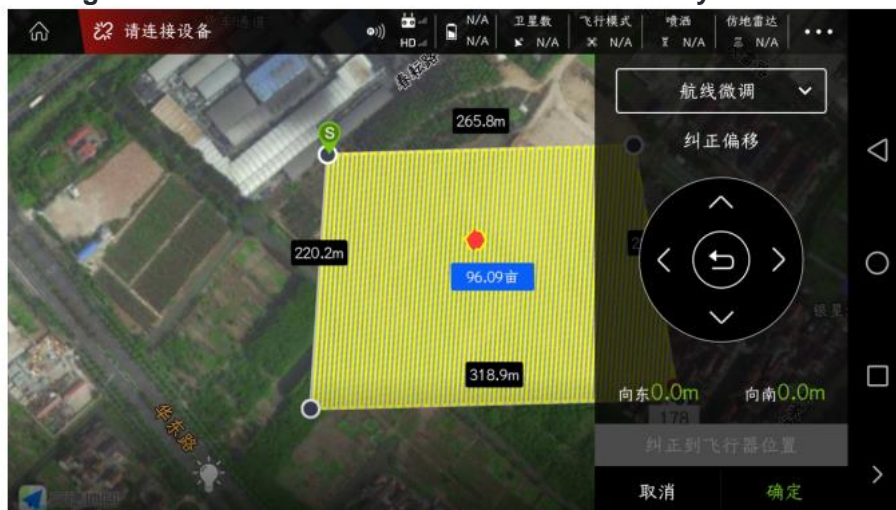
After all the function settings are completed, please click "OK" in the lower right corner
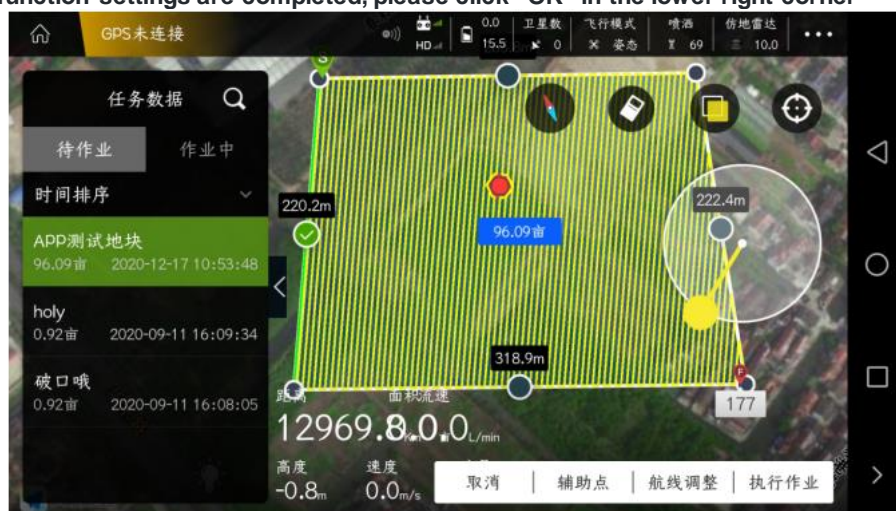
Click "Execute Job" in the lower right corner, a pop-up box will pop up, set the flight parameters, as shown in the figure below, click "OK" after setting

The waypoint is being uploaded, and after 100% enter the interface of "Self-inspection before operation"

Self-check before operation, check the GPS signal, magnetic compass, accelerometer and take-off altitude information, after confirming that everything is normal, slide the "slider" to the right, the aircraft will automatically unlock and take off, and execute the set route.

After completing one sortie of the route uploaded in the "Pending Work", you need to find the route in "Working" (you can see the completion progress of the entire route), click "Execute Route" in the lower right corner, and the aircraft will automatically unlock and take off , continue to execute the previous route.

After the plane lands again, repeat the previous operation step until the entire route flight is completed.

Other functions

1. **Edit plot**

2. **Land division**

3. **Nearby plots and the function of publishing plots**

4. **Set no-fly zone and delete no-fly zone**

5. **Route segmentation**

6. **Auxiliary point**

Edit plot

After adding a plot, if you feel that some point settings need to be adjusted, you need to find the plot in the "My Plot" list, and click the "Edit Plot" function below to fine-tune some points
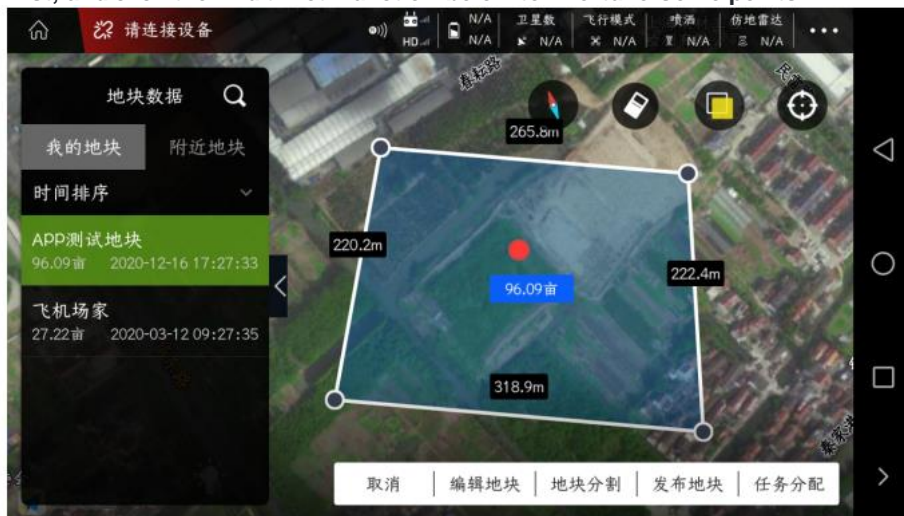
Take "map selection" as an example

You can continue to add/delete "boundary points" and obstacle points

As shown in the figure below, select point "3" to delete point "3" and fine-tune up, down, left, and right
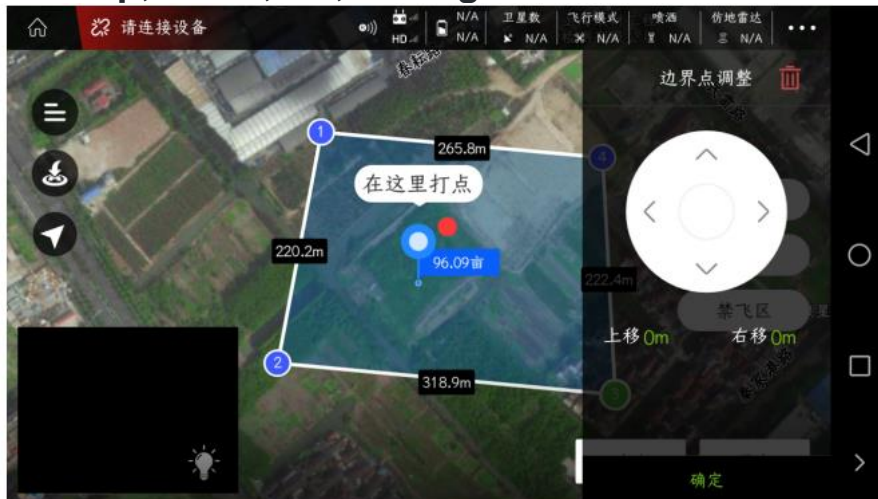
As shown in the figure below, select the center of the circular obstacle point to fine-tune the radius and center position of the circular obstacle point

After fine-tuning the "Boundary Points" and "Obstacle Points", please click "Save" at the bottom right, and you can choose to overwrite the original plot or save a new plot.

After the saving is completed, tasks can be assigned to the new plot and fully autonomous operations can be performed.

Parcel division

After adding the plot, if you feel that some point settings need to be adjusted, you need to find the plot in the "My Plot" list and click the "Plot Split" function below   Tips: The plot division cutting line needs to pass through the plot and produce at most 2 intersection points with the plot.
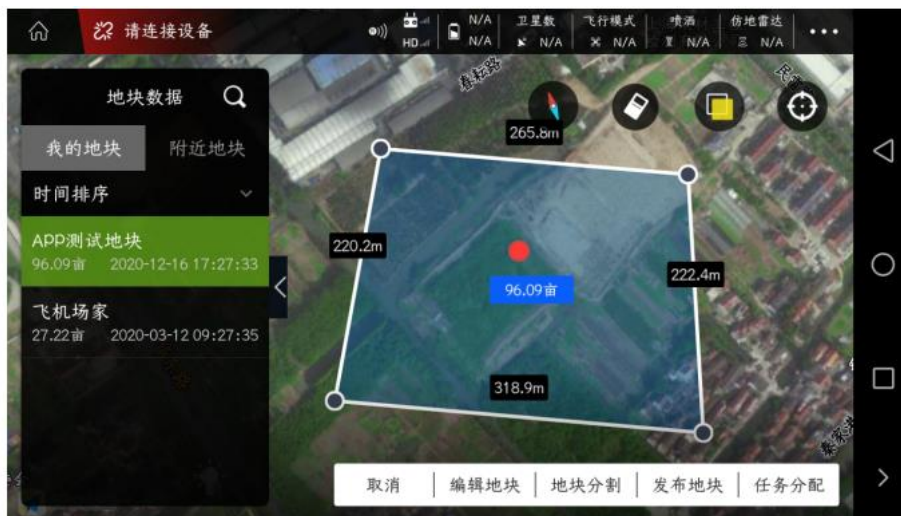
Move the cursor to a suitable position for dotting (two points must be collected), the thin white line is the cutting line, as shown in the figure below：

Click "Cutting" on the right, the APP will prompt "Successfully cutting the plot", click "OK" in the lower right corner, as shown in the figure below：

Click "Task Assignment" in the lower right corner to complete the task assignment operation

In the "Executing Jobs" interface - "Pending Jobs", view the assigned job information, as shown in the figure below：

Nearby plots and release plot function

This operation describes how to share the same plot among different accounts, so that everyone can add this plot for homework

In "My Plots", first find the plots that need to be shared, and click the "Publish Plots" function in the lower right corner
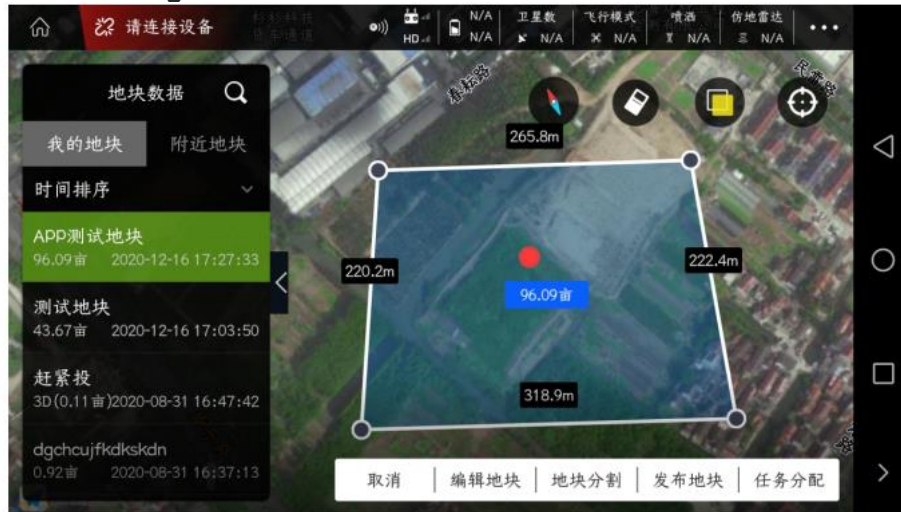
Enter the sharing password, try to be simple and easy to remember, and then click "OK", the APP will prompt "The plot is shared successfully"

Users who need the information of this plot, log in to their mobile APP (another APP account), find this plot in "Nearby Plots", and click "Save Nearby Plots" in the lower right corner

Enter the matching password (ask for it from the person who shared the plot), click "OK", and the APP will prompt "The password has been matched successfully, and the plot has been added to your plot list"
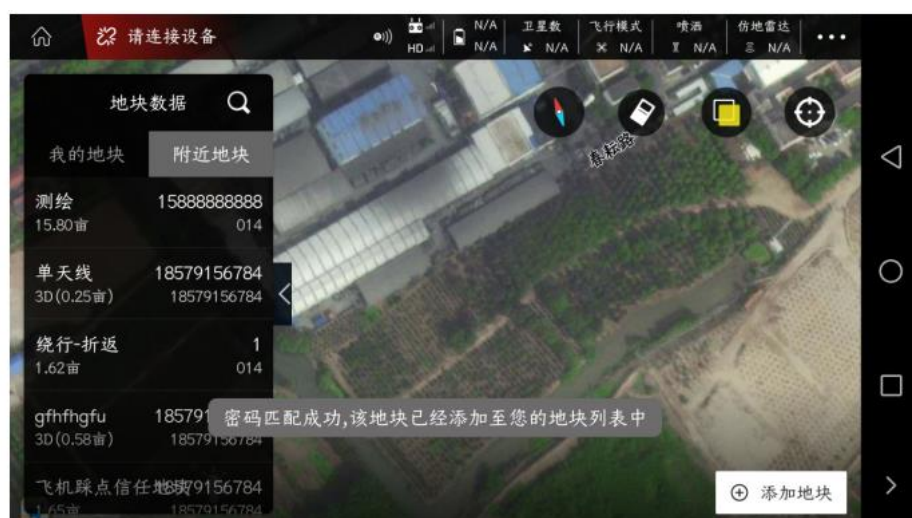
Then you can see the added plots in the "My Plots" list
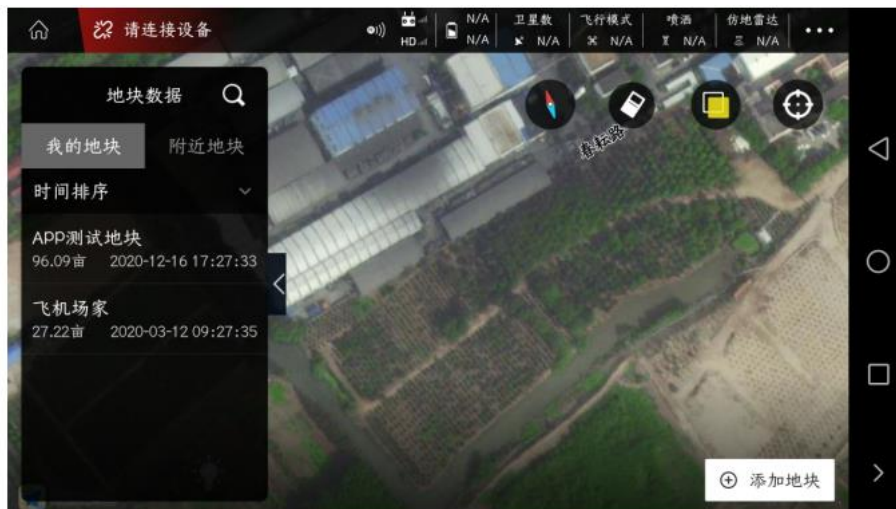
Setting No-Fly Zones and Deleting No-Fly Zones

1、Add a temporary no-fly zone

Find a suitable plot in the "My Plots" list, and click the "Edit Plot" function below

Take "map selection" as an example

Click "No-fly Zone" on the right, and a pop-up box will pop up, "Please confirm whether to set the current plot area as a temporary no-fly zone". After entering the no-fly zone,

hovering or landing will be triggered)

2、Remove temporary no-fly zone

Select a plot arbitrarily, select "Plot Edit"
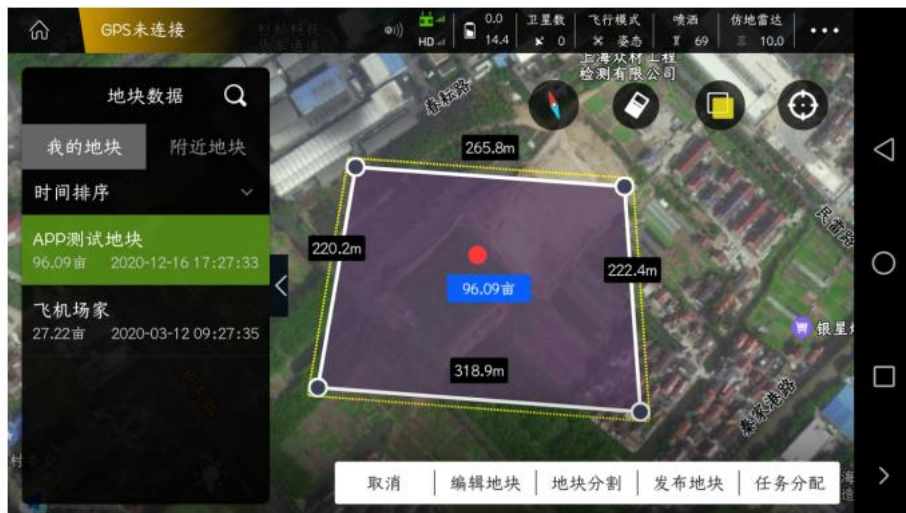
Click "Delete No-fly Zone" on the right, and a pop-up box will pop up, "Please confirm whether to delete the current temporary no-fly zone" After clicking Confirm, the APP will prompt that the temporary no-fly zone has been deleted successfully

Route split

Due to special reasons, if you want to fly a certain area or a certain section of the entire route, you need to divide the route

In the "Working" interface, select the plot, click "Route Split" at the bottom right to enter the operation of splitting the route

Select "Start waypoint" and "End waypoint", after confirming the waypoint, click the "scissors" icon in the lower right corner to split

After the route is divided, click "Execute Operation" in the lower right corner, the aircraft will automatically unlock and take off, and execute the flight of the route
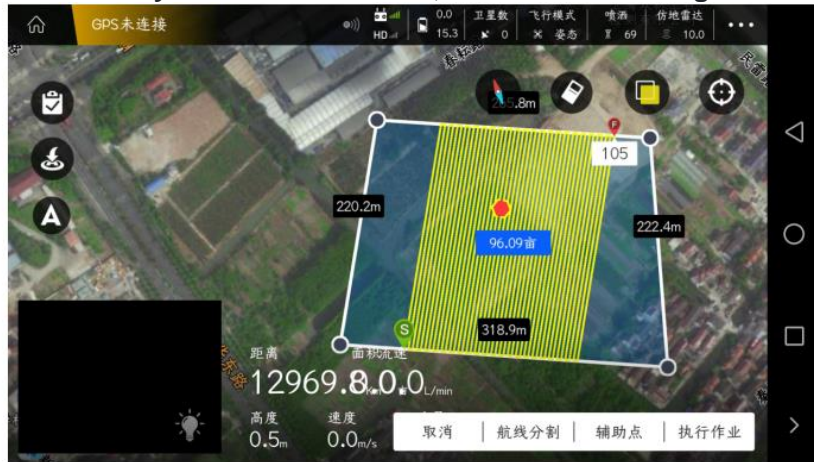
Auxiliary point

After the plane runs out of explosives and lands, it takes off again. In the process of flying to the explosive point, there may be dangers or collisions with things (such as: trees, houses, utility poles, etc.), so "auxiliary points" should be added to make the flight safer .

In the "Working" interface, select the plot, click "Auxiliary Point" at the bottom right, and enter the operation of adding "Auxiliary Point"

After clicking "Auxiliary Point", a pop-up box pops up, "Do you want to set the auxiliary point for breaking the drug? The aircraft will return to the breaking point along the yellow dotted line. Please make sure that the yellow dotted line will not pass through obstacles after setting", click "OK"

Move the cursor to a suitable position, click on the "Drug Discontinuation Assistance" on the right, and an icon of "H1" will appear on the map. "OK" below

Click "Execute Operation" at the bottom right, the aircraft will automatically unlock and take off, first fly to "H1", and then fly to the breakpoint to start the operation.

AB homework

AB point operation process

After the plane takes off, click the "A" icon on the left side of the main flight interface of the APP, and after expanding, select the "AB" icon

After the plane flies to a suitable position, click the "A" icon on the upper left, and the APP will prompt "A point saved successfully"

Spraying mode: manual spraying, linkage spraying and mu spraying can be selected

Pump opening: In manual spraying mode, the opening of the water pump can be controlled

Line spacing: the working spacing when AB points work

Flight speed: the flight speed during the operation of point AB

Terrain following: When the ground-following radar is installed, the switch of the ground-following radar can be controlled

Ground-following altitude: When the ground-following radar is turned on, set the flight altitude during the operation of point AB

After setting the parameters, click OK, and the APP will prompt "send successfully".

Click "Adjust Angle of Point A", you can adjust the flight boundary point of point AB by rotating the direction of the aircraft nose (only for AB-T mode)

After the plane flies to a suitable position, click the "B" icon in the upper left corner, and the APP will prompt "B point saved successfully"

Click "Adjust B point angle", you can adjust the flight boundary point of point AB by rotating the direction of the aircraft nose (only for AB-T mode)

Click "Direction" to adjust whether the flight will move left or right;

Click "Execute Job", slide the icon to the right, and the AB point job will be automatically executed；

Click "Pause" in the lower right corner, and the APP will prompt "Successful recording of drug break point" and "Successful suspension", and the aircraft will be in a hovering state; click "Continue" in the lower right corner, the aircraft will automatically fly to the

position of the drug break point, and then automatically execute AB dot homework

Adjustment function

The parameter adjustment function is divided into: "Remote Calibration" interface, "Parameter Setting" interface, "Extended Module" interface, "Advanced Settings" interface, and "About" interface.

参数设置

传感器　　电池设置　　喷洒设置　　飞行参数

加速度计校准　　　　　　　　　　　　　　　N/A

将飞机水平放置,点击开始校准,3-5秒后完成校准。

加速度计校准

磁罗盘校准　　　　　　　　　　　　　　　　N/A
点击校准开始磁罗盘校准。

磁罗盘校准

扩展模块

智能电池　　　　　　　　　　　　　　　　　>

仿地模块　　　　　　　　　　　　　　　　　>

J-RTK　　　　　　　　　　　　　　　　　　>

避障模块　　　　　　　　　　　　　　　　　>

K-BOX　　　　　　　　　　　　　　　　　　>

打点器　　　　　　　　　　　　　　　　　　>

高级设置

基础设置　　感度　　其他　　喷洒设置　　仿地雷达

安装位置　　　　　　　　　　　　　　　　　>

电机/出厂　　　　　　　　　　　　　　　　　>

飞行通道　　　　　　　　　　　　　　　　　>

RTK天线　　　　　　　　　　　　　　　　　>

飞机机型　　　　　　　　　　　　　　　　　>

飞行参数　　　　　　　　　　　　　　　　　>

机动性能　　　　　　　　　　　　　　　　　>

Remote control calibration interface

The remote control calibration interface is divided into: remote control calibration, channel setting, joystick mode, fail-safe protection, and fail-safe continue operation.

1. **Remote control calibration**

It is necessary to calibrate the remote control after installing a new aircraft, replacing the receiver and replacing the remote control. After clicking "Start Calibration", follow the prompts.

2、channel settings

You can set the function of each joystick on the remote control, remember to click "Save" at the bottom after the setting is completed.

3、joystick mode

Set the remote control operation gestures, which are divided into: Japanese hand, American hand, anti-Japanese hand and anti-American hand.

4、fail safe

Failsafe means that the signal from the remote control and the receiver on the aircraft end is disconnected, and the aircraft is about to trigger behaviors, which are divided into: return, landing, hovering, hovering and landing.

5、Continue to work out of control

After setting the failsafe to continue operation switch, when the signal from the remote control and the receiver is disconnected, the normal operation will still be performed without triggering failsafe protection.

Parameter setting interface

The parameter setting interface includes: sensors, battery settings, spraying settings, and flight parameters.

1、Sensor

Accelerometer calibration and magnetic compass calibration are mandatory for newly installed aircraft.

Accelerometer Calibration: Click the "Accelerometer Calibration" button, and the calibration will be completed after 3-5 seconds. If the body is placed at a large inclination angle during calibration, or if it is shaken, it needs to be re-calibrated.

Magnetic compass calibration: When the flight controller is not unlocked, quickly flip the flight mode switch of channel 5 back and forth (or click "Magnetic compass calibration" on the APP) to enter the magnetic compass calibration on both sides. The yellow light is always on, and the level calibration is in progress. At this time, place the aircraft horizontally, rotate the axis clockwise until the green LED light is on, and enter the vertical calibration. At this time, the machine head is facing down, and the direction of gravity is the axis rotation until the LED flashes red, green and yellow alternately, and the calibration is completed.

2、Battery settings

Low-voltage protection: When the low-voltage protection is triggered during the flight, the protection actions will be executed, including: shutdown, return, hover and hover landing; generally it will be set to hover.

Take 12S battery as an example. Level 1 alarm voltage: 44.3V, level 2 alarm voltage: 43.6V.

If the actual voltage of the battery does not match the voltage displayed on the APP, enter the actual voltage value at the measured voltage, click save, and the voltage calibration is performed.

3 spray settings

Drug cut-off protection behavior: When the aircraft is in flight, after the drug cut-off protection is triggered, the protection behavior will be executed, including: shutdown, return, hover and hover landing; generally it will be set to hover

Set the type of flow meter: depending on the actual equipment installation, use 1 flow meter, that is, choose a single flow meter; use 2 flow meters, that is, choose a double flow meter.

Liquid level gauge type: When using a flow meter, select None; when using a liquid level meter, select Switch Liquid Level Gauge;

Double water pump mode: when using two water pumps, turn on the "dual water pump mode" switch, and then there will be a situation of spraying before and after spraying during flight spraying; when turning off the "dual water pump mode" switch, there will be The case where two pumps spray together;

Operation mode Water pump automatic control: After turning on the switch, the water pump will automatically turn on during flight operation;

Flow meter calibration: After clicking "Flow Meter Calibration", follow the APP prompts to operate.

4、flight parameters

Maximum flight speed: The maximum speed of the aircraft during manual flight. When installing the obstacle avoidance radar, it is recommended that the maximum speed be limited to 6m/s;

Maximum tilt angle: The maximum tilt of the aircraft during manual flight. When installing the obstacle avoidance radar, it is recommended that the maximum speed be limited to 15 degrees;

Return altitude: After the aircraft triggers the return protection, the flight altitude of the aircraft when it returns home;

AB operation mode-line spacing: the distance between adjacent routes during AB operation; AB

Operation mode-route speed: the flight speed of the aircraft during AB operation;

Airline operation-airline speed: the flight speed of the aircraft when performing fully autonomous operations;

Operation completion behavior: After completing the fully autonomous operation, the protection

behavior triggered by the aircraft is generally set to hover;

U-Turn On: When the switch is turned on, the aircraft will perform a U-turn when turning; when it is turned off, the aircraft will perform a right-angle turn when turning;

Heading mode: Manually control the heading, automatically align the course, and point to the next target.

Manually control the heading: During the AB operation or fully autonomous operation, it is necessary to control the direction of the nose of the aircraft through the remote control;

Automatic route alignment: During AB operation or fully autonomous operation, the flight controller will automatically align the flight route, and the nose will not rotate;

Pointing to the next target: During AB operations or fully autonomous operations, the nose is always pointing to the next target point, even when turning.

When returning to the flight, the nose direction is unchanged: the nose is facing the home point, and the tail is facing the home point.

Unchanged: when the aircraft returns, the direction of the nose of the aircraft is facing the direction of the previous flight;

Head towards home point: when the aircraft is returning home, the nose of the aircraft is facing the direction of home point;

Tail towards home point: when the aircraft is returning home, the tail of the aircraft is facing the direction of home point;

Extension module interface

The expansion module interface includes: smart battery, ground imitation module, J-RTK, obstacle avoidance module, K-BOX, RBI.

1、Smart battery

You can view the information and usage of the smart battery

1. Ground imitation module

It can support the front, middle and rear three imitation grounds, and can be used directly by plugging it into the CANHUb;

Low sensitivity: suitable for high-stalk crops (such as sorghum, corn, etc.), the imitation ground is gentle, and the descending speed is limited. It can prevent the falling and twitching caused by the high pole falling down and the unevenness of the high pole.

Medium Sensitivity: Suitable for most scenes and non-high stem crops (such as rice, wheat, soybean, etc.). Moderate ground imitation speed and moderate response.

High sensitivity: It is suitable for demonstration effects and some non-operational entertainment occasions. It is sensitive to ground imitation, with fast rise and fall.

3、J-RTK

Connection status: display RTK connection status;

Course fixed: display RTK course status, dual-antenna RTK will appear fixed, single-antenna RTK will not;

Differential delay: RTK differential data generally jumps between 1-3, which means that the RTK signal is in good condition;

Expiration time: RTK fee expiration time, usually automatically extended for one year after activation;

Activation status: The mobile phone turns on the network and connects to the aircraft. It will display whether the RTK is activated or not.;

RTK SN: After connecting to the aircraft, you can check the SN number of the RTK. If the RTK fee has expired, you can click "Recharge" here and follow the steps (communicate with the salesperson before recharging)

Recharge: After clicking "Recharge", you can recharge the device (when the usage time has expired)

RTK failure protection: After RTK failure, the protection behavior triggered, the protection behavior includes: continue, land, hover and return; generally set to continue；

RTK trust degree: high, medium, low; generally set to medium when RTK is installed；

High: RTK positioning and fixed heading, can be unlocked to take off；

Middle: RTK positioning and RTK heading is consistent with the magnetic compass heading, you can unlock and take off；

Low: GPS positioning can be unlocked；

RTK link: When using the cell phone network for signal transmission, there will be data jumps here (constantly increasing)；

3 Obstacle avoidance module

It can support front and rear obstacle avoidance radar modules or use multi-point obstacle avoidance radar. When you want to use the detour function, it is recommended to use the multi-point obstacle avoidance radar;

Enhanced obstacle avoidance: After turning on the switch, it will increase the probability of triggering obstacle avoidance behavior;

Operation mode automatically turns on obstacle avoidance: After turning on the switch, when performing AB point operations or fully autonomous operations, the obstacle avoidance radar will automatically turn on；

Obstacle avoidance behavior: detour and hover；

Hover: The aircraft will trigger the hover behavior after detecting obstacles during the flight；

Obstacle circumvention: After the aircraft detects an obstacle during flight, the aircraft will perform the behavior of avoiding the obstacle;

Obstacle avoidance safety distance: After the aircraft detects an obstacle, the distance between the aircraft's final hovering position and the obstacle (generally set 8-10 meters);

Auxiliary forward distance: After the aircraft traverses, the actual forward distance = banner + auxiliary forward distance = 2 * obstacle avoidance safety distance + obstacle diameter；

5、K-BOX

There are three KBOX products: K-BOX, K-BOX3, K-BOX4. After clicking Read, select the adapted device type, and click Save. After the aircraft is powered on again, you can view the KBOX data information；

6、Inker

After connecting the RTK inking device with Bluetooth, you can view the RTK data information on this interface；first check whether the RTK is activated, if not, click the "Activate" button on the back of the motor；

Dot accuracy: high precision and low precision. Generally use high precision to step on the point, if high precision cannot step on the point, you can choose low precision to step on the point；

RTK working mode: network version, radio version and base station。

Online version: RTK inkers are all online versions by default. The online version of RTK is generally used in China;

Radio version: generally used with the base station, when using the dot abroad, when the base station is assumed, the dot needs to select the radio version, and then you can step on the dot;

Base station: In addition to the traditional base station, the Almighty version can also be used as a base station, set it here；

RTK link: When using the cell phone network for signal transmission, there will be data jumps here (constantly increasing)：

Advanced Settings Interface

Advanced settings include: basic settings, sensitivity, others, spray settings, ground imitation radar

Basic Settings

1. **Installation location**

Check the actual installation direction of the aircraft, and set the correct installation direction of GPS and IMU;

2、**Motor/factory ,Motor idle speed is generally set to slow；**

3、flight channel

A three-stage switch is required, which are set to: attitude, manual operation and AB operation (or M+)；

4、RTK antenna RTK antenna installation angle (for the specific angle calculation method, please refer to the relevant manual);

Please set the installation position of the RTK main antenna as shown in the figure;

5、Aircraft model, set according to the actual model, please pay attention to save;

6、Flight parameters

Keep the default parameters 。

7、Mobility

Performance mode: generally select the anti-seismic mode (depending on the performance of the aircraft);

Factory Mode: After opening, the altitude limit will be increased to 500m, and the speed will be increased to 15m/s.

Track correction: open by default;

Course protection function: It is recommended to open it. When the GPS direction is inconsistent with the actual direction, it can protect the aircraft from bombing;

Turning head rate: used to adjust the speed of the aircraft's autonomous turning head during operations, generally the default setting; waypoint hit radius: the radius range of the flight control to determine the arrival of the waypoint, generally the default setting；

Performance orientation: generally set in the middle position ;

Sensitivity

Sensitivity

1、Basic Sensitivity

横滚/俯仰修正	用于调整适配飞机的姿态控制，是回中和打杆操控的修正力度。如果飞机姿态出现软弱无力的情况，则应调大；如果动作僵硬出现浮夸抖动，则应调小。
横滚/俯仰阻尼	用于调整适配飞机的姿态控制，用于抵抗外界扰动。如果飞机姿态高频抖动的情况，则应调小；如果动作僵硬而且小动作多，则应调大。
偏航	用于调整适配飞机的偏航控制，如果出现飞机锁头锁不住的情况，感度应调大。
垂直	用于调整适配飞机的高度控制，如果出现飞机高度来回抽动，感度应调小。

2、Control sensitivity

控制感度	横滚/俯仰	调节飞手操控俯仰和横滚的控制手感，数值越大控制响应越快，受到飞机动力物理模型限制。如果用户的飞机机动性较差，在进行快速机动时，出现刹车动作浮夸，姿态超调严重的情况，则需要把俯仰横滚的控制感度调低。
	偏航	调节飞手操控偏航的控制手感，数值越大控制响应越快，受到飞机动力物理模型限制。如果飞机在打航向后回中，出现影响姿态的情况，需要把偏航控制感度调低。
	垂直	调节飞手操控高度的控制手感，数值越大控制相应越快，受到飞机动力物理模型限制。用遥控器控制飞机急升急降，如果在控制高度的过程中引起姿态很大变化，则需要把垂直基础感度调低。
	航线	调节飞机自主飞行时的加减速快慢，数值越大飞机加减速越快，数值越小飞机动作越平缓。这个参数非常影响作业效率，在客户飞机机动性能允许的情况下，建议越大越好。
	刹车	调节飞机自主刹车时的快慢，数值越大刹车越快，数值越小刹车越慢，动作也越平缓。
	起飞	调节飞机起飞响应，数值越大起飞越快越干脆，数值越小起飞越平滑。
	机动	调节飞手操控飞机的加减速快慢，数值越大飞机加减速越快，数值越小飞机动作越平缓，一般情况下不建议调节。
	协调性	用于适配控制响应和飞机机动动作的协调程度，动力响应越快数值越大。

3、 Sensitivity, unspecified parameter, select default。
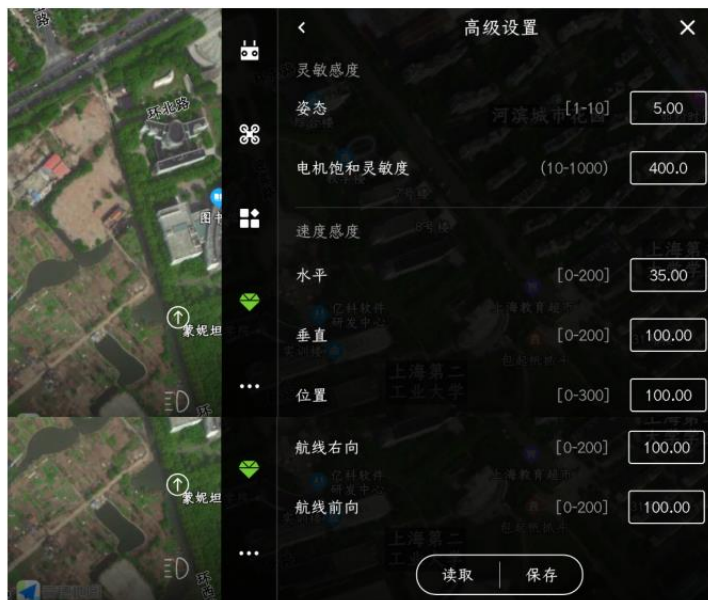
速度感度	水平	飞机水平速度控制增益，一般情况下不推荐调节。如果航线过程中飞机出现点头现象，调小后点头现象会减轻，但如果数值过低会影响航线精度和定点效果。
	垂直	飞机垂直速度控制增益，一般情况下不推荐调节。如果把垂直基础感度调得很低仍然出现高度抽动的情况，可以考虑把垂直速度感度调低来改善。
灵敏感度	姿态	调节飞控对遥控器输入指令的响应快慢，数值越大飞控对遥控器输入的跟踪越灵敏。如果俯仰横滚控制感度调小后飞机的动作仍然比较僵硬，则调小后可以把手感变得更"肉"。

Other

other

1、 **Fence function**

After turning on the fence switch, the aircraft will fly within the set three-dimensional range

2、 **Restricted Behavior: When the plane flies to the boundary of the fence, the trigger behaviors can be selected to land, return and limit (the plane just cannot fly out of this range, and does not affect other operations)；**

3、 **No-fly zone trigger behavior: When the aircraft flies to the border of the no-fly zone, the trigger behavior can be selected to land, hover and return；**

4、 **Remote fence open: After opening, you can set a no-fly zone for the aircraft through the computer background。**

Ground-following radar

Ground imitation radar, fill in the data as required。

Spray settings

spray settings

名称	功能说明	例子	设置时危险点
流速计系数	流速计校准系数，校准后会发生改变；同一批流速计可写入同一校准值免校准	同一批次每个飞机生产可以写入相同校准系数，避免每次都要人工校准	一般设置为默认，不合理的系数会导致流量计算误差
最低PWM	飞控水泵输出口的最低PWM输出脉宽	水泵电调最低行程是1100，则调成1100	无危险
最高PWM	飞控水泵输出口的最高PWM输出脉宽	水泵电调最高行程是1900，则调成1900	无危险
起喷PWM	用于判定喷洒开启的水泵输出值	设置成1300，则水泵输出大于1300时飞控认为水泵开启	无危险
水泵最小流速	精准喷洒模式下，控制允许的最小流速	需要根据流速计提供的线性流速范围来确定数值，不合理的设置会导致亩喷量控制不精准	无危险
水泵最大流速	精准喷洒模式下，控制允许的最大流速	需要根据流速计提供的线性流速范围来确定数值，不合理的设置会导致亩喷量控制不精准	无危险
水泵控制增益	流速闭环控制增益，需要查看日志流速控制情况进行调整，一般情况下不需要调整。如果出现亩喷量控制差异较大，由研发人员查看日志后提供调整建议。	出现问题后，日志发给研发，根据研发建议调整	一般设置为默认值，无危险

About the interface

About interface includes: flight control, accumulated flight time, map type, remote control type, main interface style, coordinate correction, unlock key, image transmission/unit setting, voice prompt, detection function 1 and detection function 2.

1、flight control

After entering the flight control interface, you can check the firmware version number, aircraft serial number, IOT version number and lease period control status of the flight control.

2、Cumulative flight time: the total time after the flight controller is powered on

3、Map type: Gaode Map, Google China and Google Map. It takes effect after restarting the APP

4、Remote controller type: T12, SIYI, H16, AK28HD, AK28HD-MINI, etc. This setting will affect the image display of different remote controllers

5、Main interface style: normal mode and simple mode. As shown below:
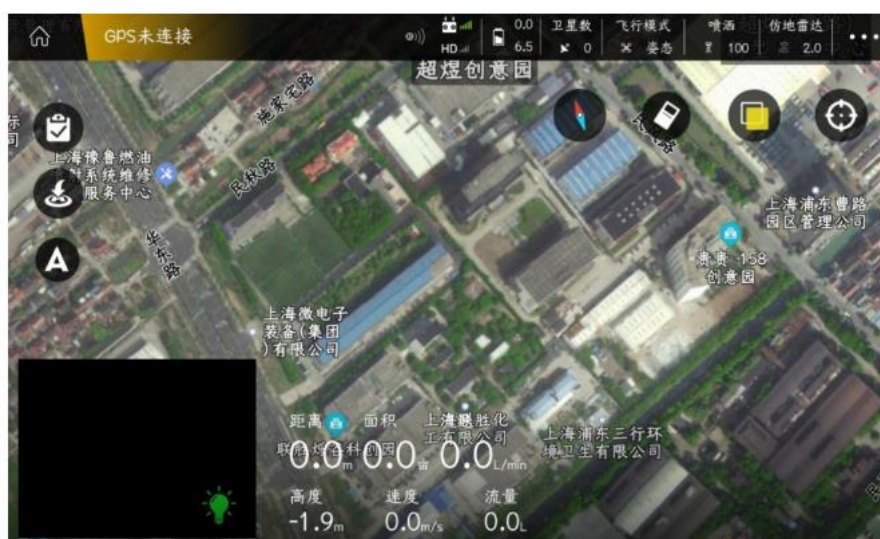
6、 Correction of coordinates: generally in foreign countries or Taiwan, when the positioning deviation is large, it needs to be turned on;

7. Unlocking secret key: After turning on the "switch", you can manually set the unlocking password of the remote control. If you do not enter the correct password, you will not be able to unlock it successfully;

8. Image transmission/unit setting

Real-time voice: After it is turned on, it will continuously broadcast flight speed, altitude, voltage and other data during the flight；

9、 Voice prompts

10、Detection function 1

Real-time data switch: After it is turned on, when the plane is flying, the online plane can be viewed on the computer background;

No-fly zone alarm switch: After it is turned on, when the plane flies close to the no-fly zone, the APP will issue a "beep" alarm sound;

Mobile phone power display: After opening, the voltage of the APP flight main interface will display the voltage of the mobile phone;

The remote control is not connected switch: After it is turned on, when the aircraft is disconnected from the remote control, the APP will send out an alarm;

Data display: After opening, it can display the remaining amount of medicine in the medicine box;

Beidou detection: mainly used for Beidou detection;

11、Detection function 2: mainly used for agricultural machinery detection in Jiangxi Province；

Special function

M+ mode

3D route

online plane

log download

Edge sweep function

kml file import instructions

Import and export instructions

RTK activation and recharge process

KBOX recharge process

Reference point

Reference Point Requirements：

The reference point should be selected in an open and flat place. The reference point is the actual take-off point of the aircraft, and it is also the basis for the aircraft to correct the deviation. Therefore, try not to have wires, trees and other obstacles around. When correcting each time, the actual position of the aircraft should coincide with the position of the selected reference point, and then click "Correct to aircraft position", and an overall translation of the plot will occur;

How to calibrate the reference point:

First enter the app, and then click on the planning plot, as shown in Figure 1：

Then click the planning plot in the lower right corner, as shown in Figure 2 :

Next, the method of planning plots will pop up, as shown in Figure 3 :

Next, you can add reference points to any one of handheld GPS, aircraft GPS and 3D route.

Here we take the handheld GPS as an example. After selecting the handheld GPS, you will need to input the plot name, as shown in Figure 4 ：

Enter the name of the plot, and after positioning the hand-held inking device, walk to a suitable open place, and add a reference point here (the reference point should be as close as possible to the plane, preferably the take-off point of the plane), as shown in Figure 5: (Figure 5) The five-star mark is the reference point)

If you need to adjust the reference point, click the three horizontal lines in the upper left corner to find the corresponding plot, as shown in Figure 6 and Figure 7:

Select to edit the plot, then click the point to be modified, and perform corresponding operations, as shown in Figure 8 and Figure 9：

Finally, save and exit. After the task is assigned, enter the execution job, click the three horizontal lines in the upper left corner, as shown in Figure 10:

Then select the route adjustment in the lower right corner, and select route fine-tuning in the pop-up page as shown in Figure 11:

After performing these operations, it will be as shown in Figure 12：
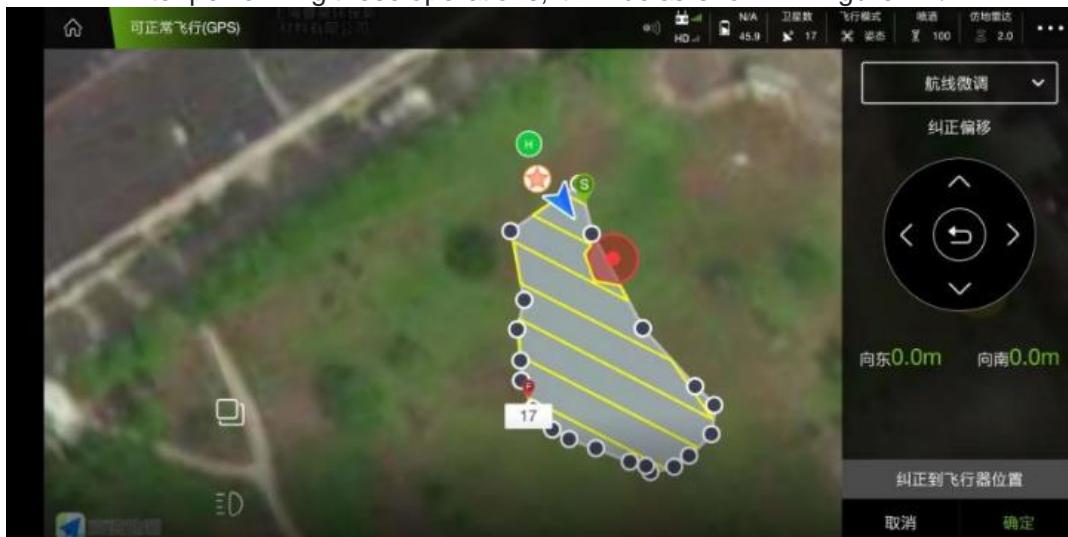
Click below to correct the aircraft position, as shown in Figures 13 and 14:
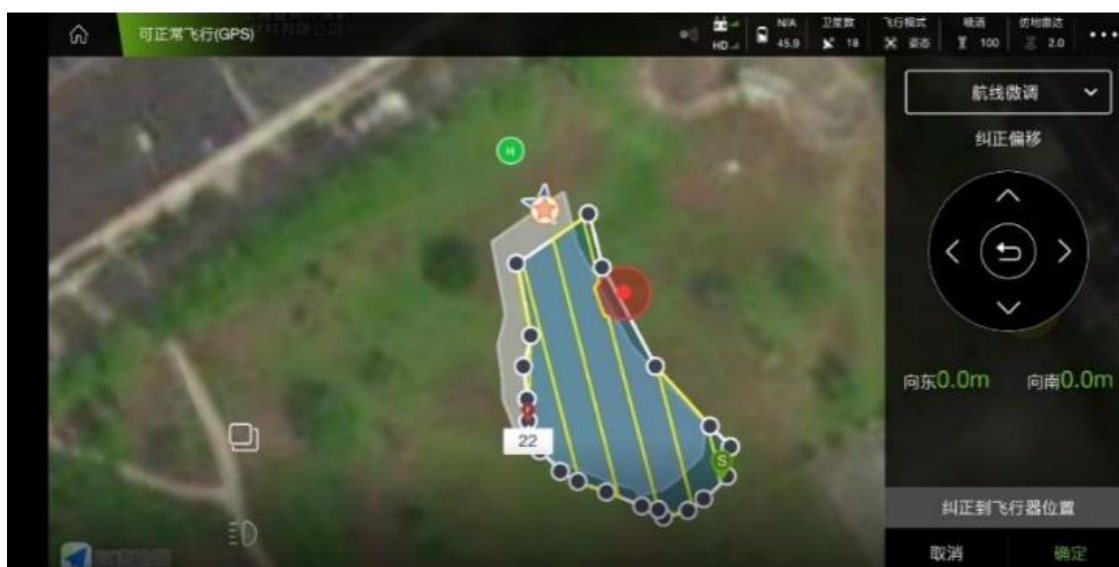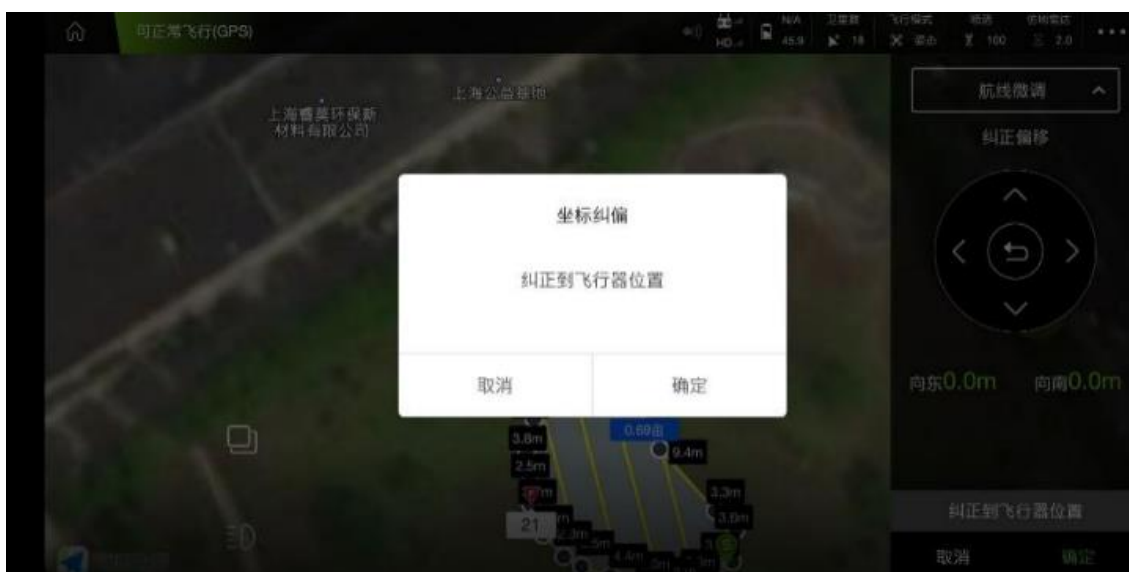
You will see that the plot has been offset, click OK, and then execute the job, as shown in Figure 15 and 16

After uploading the waypoint, the image is shown in Figure 17：

Swipe to the right, and the plane takes off to perform operations.

M+ mode

M+ mode operation process

Spraying mode: manual spraying, linkage spraying or mu spraying can be selected;

Pump opening: In manual spraying mode, the opening of the water pump can be controlled

Line spacing: the working spacing when AB points work

Flight speed: the flight speed during the operation of point AB

Terrain following: When the ground-following radar is installed, the switch of the ground-following radar can be controlled

Ground-following height: When the ground-following radar is turned on, set the flight height during the operation of point AB

M+ head lock mode: it is enabled by default. During the flight in M+ mode, the direction of the nose of the aircraft cannot be rotated; when the switch is turned off, the direction of the nose of the aircraft can be rotated;

After adjusting the parameters, click "OK"

After the aircraft flies forward or backward for an appropriate distance, click "Move Left" or "Move Right" in the lower right corner, and the aircraft will automatically move left or

right by 1 distance between lines;

Repeat the previous step to complete the operation of small irregular plots

3D route

3D route operation process (RTK installed)

After the APP is connected to the aircraft, enter the "planning plot" interface and select "3D route"

Enter the plot name and route spacing, and click "OK" in the lower right corner

After the plant protection machine takes off, use a suitable height to step on the spot, as shown in the figure below, and click "Save" in the lower right corner after completion

In "My Plot", select the saved plot, click "Task Assignment" in the lower right corner, click "OK", and the task is assigned successfully.

3D continuous route: when the route is flying, the aircraft will always spray

3D fixed-point route: when the route is flying, the aircraft will rotate and spray on the waypoint

Find the assigned route in "Executing Operations" - "Pending Operations". After selecting the route, click "Execute Operations" in the lower right corner. After confirming the operation parameters, click "OK" and operate according to the process to execute the 3D route normally. Task

Surface area: the true area of the 3D terrain job (slope area)

Projected area: the two-dimensional area projected by the three-dimensional terrain operation (it is very different from the actual operation area)

Pump opening: the actual spraying opening of the pump during operation

Circle: When turned on, the aircraft will perform autorotation spraying

Number of laps: After turning on the lap switch, you can set the number of laps

**Flight speed: flight speed during route operation**

Online plane

Online aircraft operation process (with KBOX4 installed)

In the APP main interface - "Device Management" - "Tool Management" - "Online Aircraft", find the plant protection machine that needs to be connected, click "Connect", after connecting, you can enter the flight main interface to check the flight status of the plant protection machine , you can also directly set flight parameters (remote sensitivity adjustment), view flight operations, and directly upload fully autonomous routes (operate with caution)；

Note:

1. The aircraft must be bound under the account of the manufacturer and the owner;

2. Only the owner of the aircraft can directly connect, or the owner can directly connect to the aircraft through the sharing function, the manufacturer or others ;
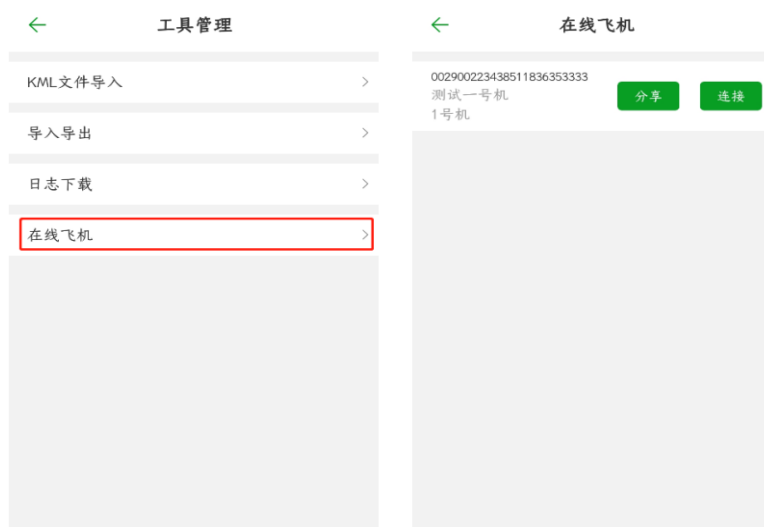

Sharing: After the plant protection machine is bound to the owner, only the owner can connect to the online aircraft;

the owner can share the plant protection machine with others, and others can connect to the plant protection machine.

log download

Log download (for use with KBOX-4)

In the APP main interface - "Device Management" - "Tool Management" - "Online Aircraft", first connect the aircraft, and then enter the log download interface to download the log. After the download is completed, you can share it with others th rough QQ, WeChat and other software .
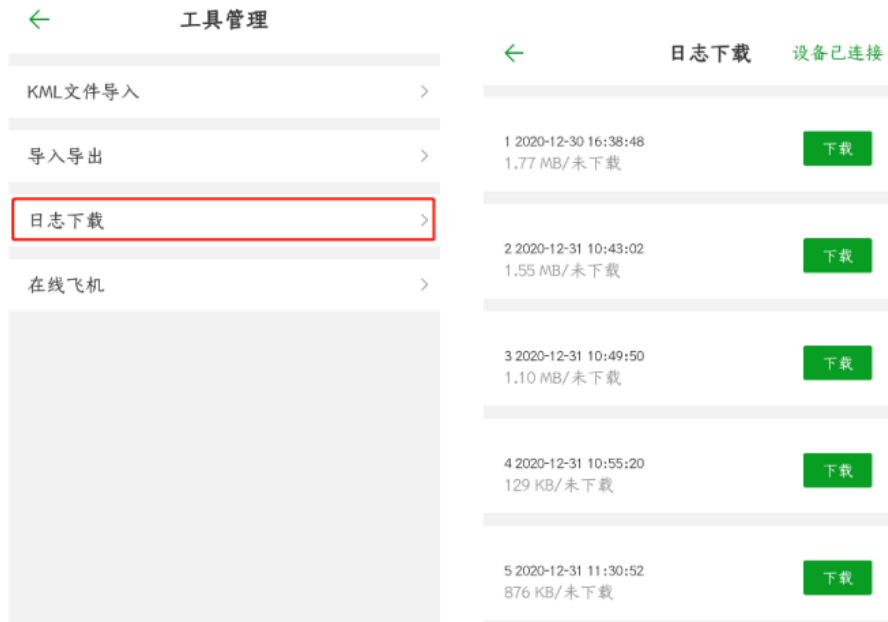
Edge sweep function

Operation process of edge sweep function

In "My Plot", select a suitable polygonal plot, click "Task Assignment" in the lower right corner, select "Sweep Edge" for "Route Type", and then click "OK";

In the "Pending Work", find the allocated land and click "Route Adjustment" in the lower right corner

In the upper right corner, select the drop-down menu at the "Job Spacing" and select "Route Indentation"
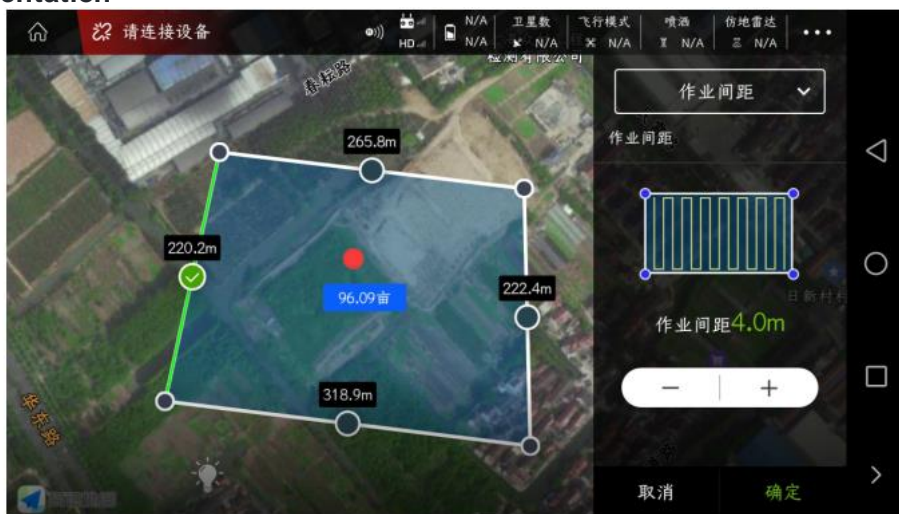
Click the "+" icon on the right, and when it increases to 1 working distance, the route will automatically shrink in a circle. After the adjustment is completed, click "OK" in the lower right corner
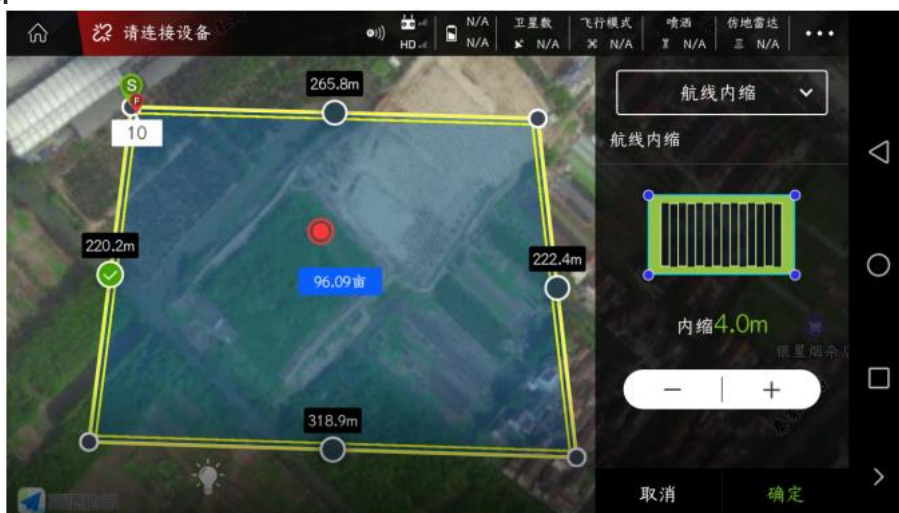
Click "Execute Job" in the lower right corner, operate according to the process, and then the edge sweeping operation can be performed.

KML file import instructions

1. Put the prepared KML file in the "phone internal storage-kitJson" folder.

Note: 1), only one KML file can be placed in the kitJson folder.

2）、The plots made in the KML file must be polygonal plots, not some points.

3）、A KML file can contain multiple plots (more than 2).

内部存储 > kitJson

app_parameters
12 分钟前 - 0 B

文件放置位置

Catomona（张园客户）_66.kml
昨天 - 53.87 KB

KML文件

搜索　更多
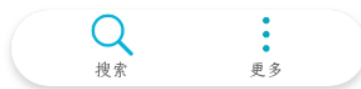
2、Open the "Flying Defense Butler APP", select "Device Management" - "Tool Management"

设备管理

飞机列表 >

添加飞机 >

解禁申请 >

续费充值 >

工具管理 >

连接　作业记录　设备管理　我的

3、Select "KML file import", the APP will prompt "KML file imported successfully"

参数文件在SD卡的kitJson目录下,导入导
出参入支持的飞控固件版本为K++不小于
190617

导出

导入

分享

KML文件导入

Catomona(张园客户)_66.kml上传成功,还
剩0个KML文件

导出

导入

分享

KML文件导入

4、Open the "Planning Land" interface, and in "My Land", you can view the land plots imported from the KML file

5、Follow the normal "task assignment" process to operate normally.

Import and export function

Import and export function operation process

The import and export function is mainly to solve the problem that the plant protection machine manufacturers frequently manually input the flight control parameters of the plant protection machine in mass production.

First, enter the appropriate parameters in a flight controller, and then connect the APP data transmission to the flight controller, click "Export" in "Device Management" - "Tool Management" - "Import and Export"；

Note: The exported parameters will be stored in the mobile phone, and the storage location is: mobile phone file management-SD card-kitJson folder. Only one export parameter will exist, the most recent export parameter will overwrite the previous parameter file.

Then the APP connects to other plant protection machines that have not adjusted the flight control parameters, click "Import", and the parameter data previously saved in the mobile phone will be imported into the flight control；

Share: After exporting the parameters successfully, click "Share" to forward the parameter data in the flight controller to others through QQ, WeChat and other software.

RTK activation and recharge process

Airborne RTK

When using the airborne RTK for the first time, first turn on the mobile phone flow switch (or use WIFI), supply power to the aircraft, connect the mobile phone to the remote control Bluetooth, open the parameter setting interface, enter the "extension module" - "J-RTK", click " Activate" to locate normally.

Note: When RTK is not activated, the differential delay display is 0, and the heading is also displayed as unfixed. It is recommended to activate in time. After activation, please check whether the "expiration time" is postponed for one year.

RTK inker

To use the RTK dot for the first time, first turn on the mobile phone flow switch (or use WIFI), supply power to the aircraft, connect the mobile phone to the remote control Bluetooth, open the parameter setting interface, enter the "extended module" - "DOT", click "Activate" in the RTK activation column, normal positioning.

Note: When RTK is not activated, the difference display is 0. It is recommended to activate in time. After activation, please check whether the "expiration time" is postponed for one year.

RTK payment

**RTK products can be used for free for 1 year, after 1 year you need to pay to use them normally.**

1、Turn on the remote control, power on the aircraft normally, and the K-BOX module on the aircraft is normally powered on and working

2. Use the mobile APP to connect to the aircraft via Bluetooth. As shown in the picture:

1) Open the mobile APP

2) Find the Bluetooth name corresponding to the aircraft to connect

3), click to execute the job
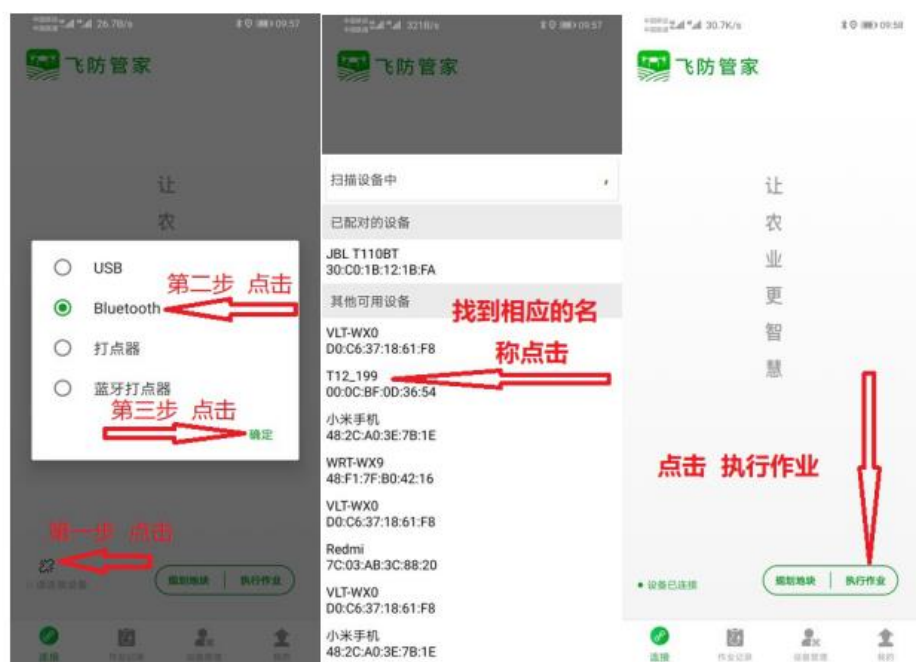
注：请找到自用的飞行器的名称，图中名称为参考

3、Find the J-RTK interface in the extension module in the APP. As shown in the picture:
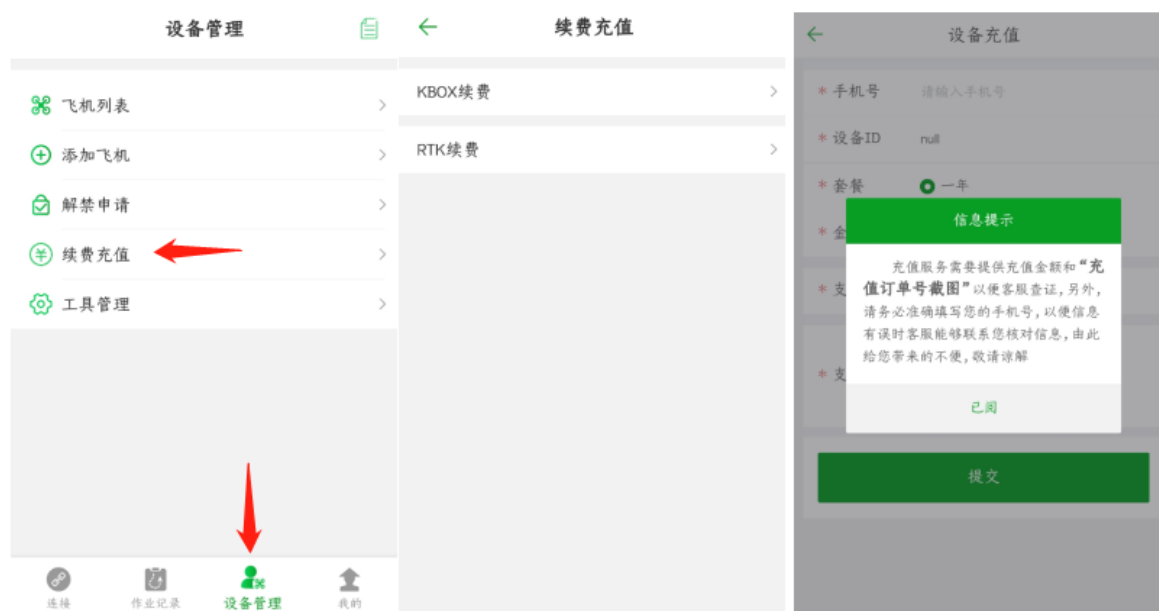
1) Click on the upper right corner of the APP main interface

2) Click the icon as shown in the figure to enter the expansion module J-RTK interface

4. Click to copy the "RTK SN" number, and then operate as shown below:

1. Click "Device Management" - "Renewal and Recharge" - "RTK Renewal";

2. Read the instructions carefully and operate as required.

5. Payment operation process

1. Fill in your personal mobile phone number to prevent abnormalities in recharging, and Jiyi customer service can contact you;

2. The device ID is the RTK SN number copied before, which will be filled in by default (please check carefully for errors);

3. The package defaults to one year;

4. Select "Alipay" as the payment method, a QR code payment box will pop up, please make the payment as required, and take a screenshot of the payment result;

5. Click the "+" sign on the payment screenshot, add the payment screenshot just now, and finally click "Submit".

6. After submitting the information, please wait patiently for the review. The normal arrival time is 2-5 days. Please pay attention to whether the expiration time of the RTK interface is superimposed normally (extended by 1 year)
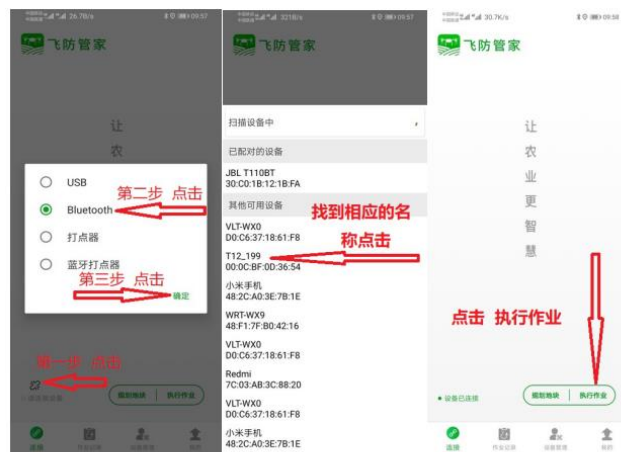
KBOX recharge process

1. Turn on the remote control, power on the aircraft normally, and the K-BOX module on the aircraft is normally powered on and working

2. Use the mobile APP to connect to the aircraft via Bluetooth, as shown in the figure

1) Open the mobile APP

2) Find the corresponding name of the aircraft

3), click to execute the job

注：请找到自用的飞行器的名称，图中名称为参考

3. Find the extension module K-BOX interface in the APP, as shown in the figure

1) Click on the upper right corner of the APP main interface

2) Click the icon as shown in the figure to enter the expansion module K-BOX interface
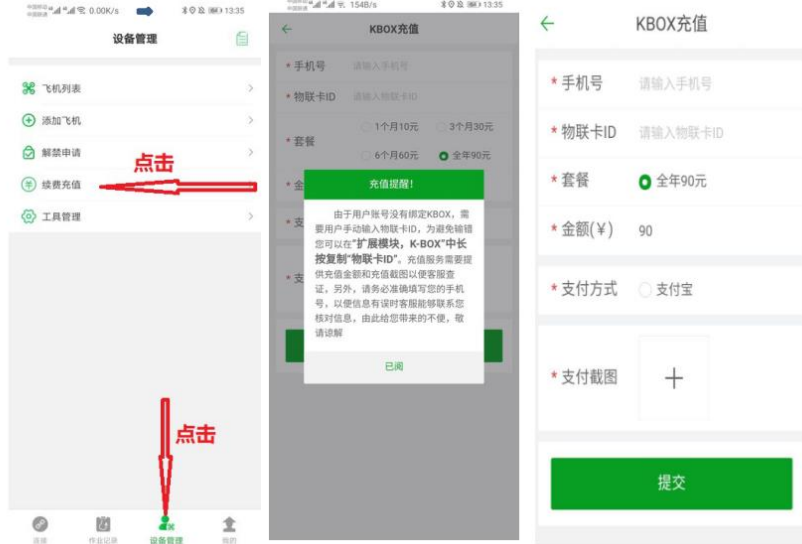

物联卡 ID 是 K-BOX 的身份标识，每一个 K-BOX 具有对应的一个 ID

4. For K-BOX renewal and recharge, first record the IoT card ID on the K-BOX display interface

1) Click Device Management Renewal Recharge

2) Read the recharge reminder

3) Fill in the form as required and confirm that it is correct and click Submit

Note:

1. The recharge interface information is for reference

2. The recharge IoT card ID should be consistent with the one displayed on the K-BOX interface, please ensure that the information is correct and click submit5、

After submitting the information, please wait patiently for the review. The normal arrival time is 7-10 days. Please pay attention to whether the expiration time on the K-BOX interface is superimposed normally

Replenish

Recharge

RTK and KBOX can be used for free for 1 year after purchase, and you need to pay for normal use after 1 year；

Please arrange the recharge time reasonably. The normal arrival time is 2-5 days. Please pay attention to whether the expiration time on the interface is superimposed normally (extended by 1 year)；

Please check the renewal and recharge process in the special function。

8.Function Introduction

⚠️ Tip: The job location in the job report can only be obtained after the mobile phone is connected to the Internet !

Obstacle avoidance

Equipped with front and rear radars, it can identify obstacles in the front and rear directions of the aircraft, and perform head-turning actions when circumventing obstacles, that is, when the aircraft circumnavigates obstacles, the nose follows the flight direction and will hover and turn at each inflection point to judge whether it has circumnavigated or not. Open obstacles.

On the APP execution interface, click the status bar to enter the device information - click the obstacle avoidance system - enter the obstacle avoidance system interface to view the connection status of the obstacle avoidance radar, the specific orientation and distance of the detected obstacles.
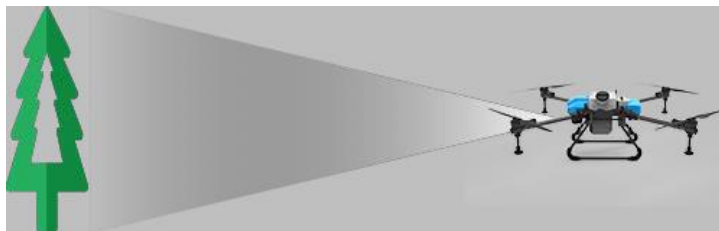
Identify obstacles

When the obstacle avoidance function is turned on during manual operations, AB operations, and route operations, obstacles can be identified and hovered.

Identifying obstacles is divided into the following two scenarios:

When the distance between the aircraft and the obstacle is far, the aircraft will start to slow down when the distance from the obstacle is 15m after recognizing the obstacle, and stop when the distance from the obstacle is 5m.

When the distance between the aircraft and the obstacle is less than 15m, the aircraft will immediately take the action of braking and decelerating. The braking angle is related to the speed of the aircraft.

During the process of the aircraft identifying obstacles - decelerating - hovering, the user can operate the aircraft to stay away from the obstacle, but cannot operate the aircraft to approach the obstacle。

Avoid obstacles

When the aircraft recognizes obstacles during AB point operations and route operations, the aircraft can automatically avoid obstacles.

Install the front and rear obstacle avoidance radars and the obstacle avoidance actions of the front, rear, left and right radars as shown in the figure below：


障碍物   obstacle

前后雷达绕障   Front and rear radar avoid obstacles
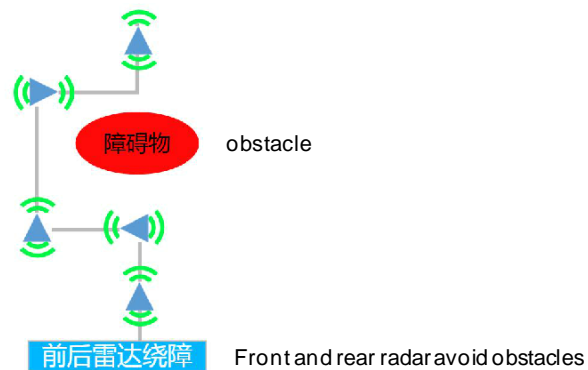
⚠ hint：

The obstacle avoidance radar can sense the distance from 2 to 15 meters.

Obstacle avoidance radar vertical angle of view: plus or minus 7.5°, single radar horizontal angle of view 112°.

Normal use conditions of the obstacle avoidance radar: the minimum flight altitude is higher than 1.5 meters, the flight speed is less than 6m/s, and the ground slope is less than 10°. It is recommended that users turn on the ground imitation function when using the obstacle avoidance radar to prevent the aircraft from being too low and the obstacle avoidance radar to recognize the ground as an obstacle, which will help improve the accuracy of obstacle avoidance。

Terrain function
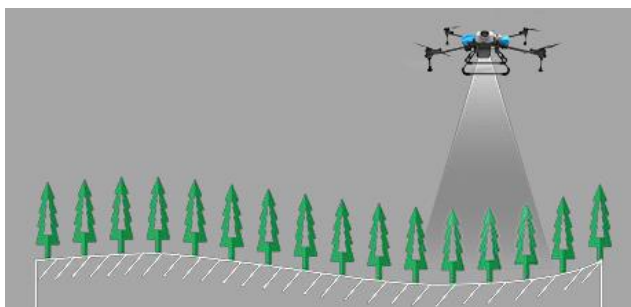
With the help of the ground imitation radar, the aircraft can always maintain a certain height with the crops according to the set height. That is, the aircraft adjusts its flight altitude according to the fluctuations of the terrain.

You can check whether the imitation ground is turned on in the operation execution interface。

2.5M Indicates that the imitation function is turned off，
"2.5" indicates the height of the aircraft from the crops below, and the height of the aircraft does not change with the imitation data。

Indicates that the imitation function is turned on，

"3.0" indicates the height of the aircraft from the crops below, and the height of the aircraft changes with the imitation data

> ⚠ hint：
>
> a. Ground-following radar operating conditions: slope ≤ 25°.
>
> b. Ground-following radar height detection range: 0.1-50 meters, normal use height ≥ 1.5 meters.
>
> c. The surface of the radar should be cleaned in time during operation to avoid the danger caused by the adhesion of liquid medicine or other sundries to cause the radar to fail!
>
> d. In actual use, there is a certain delay in the effect of the aircraft's ground imitation. The greater the slope, the higher the flying altitude should be to avoid danger!
>
> e. When the radar is turned off, the user can compare the radar data and the altitude data. If there is a large deviation between the two, the altitude status of the aircraft should be confirmed in time to avoid danger!

Failsafe function

When the remote control is disconnected from the aircraft due to unexpected situations such as insufficient power or damage, the remote control will continue to beep.
aircraft tail light 🟨 🟨 🟨 🟨 The yellow light flashes, and the aircraft will return, hover or land according to the pre-set status.

> ⚠ hint：
>
> a. The factory default setting is to hover the aircraft after loss of control.
> b. The user can enter the APP setting interface to modify the aircraft behavior after losing control according to the actual situation.
> c. If the aircraft returns after losing control, please ensure that there are no people and obstacles at the return point in advance to avoid danger.
> d. If the aircraft hovers after losing control, you can try to reconnect to the aircraft by approaching the aircraft with the remote control, restarting the remote control, etc.
> e. If you continue to hover after losing control, it will enter the extremely low battery protection mode and land after a certain period of time. Please clear the landing point to ensure safety.

Drug break protection function

During AB operations and airline operations, when there is no liquid medicine in the aircraft medicine box, the break point will be marked on the map in the APP interface 🔴, this
airplane tail lights 🟩 🟩 🟥 Green, green and red flashing, the aircraft will cut out the automatic operation and turn off the spraying, and return, hover or land according to the preset settings.

> ⚠ hint：
>
> a. The factory default setting is to hover after the drug is cut off.
>
> b. The user can enter the APP setting interface according to the actual situation to modify the aircraft behavior after the drug is cut off.
>
> c. If the plane returns after running out of medicine, please ensure that there are no people and obstacles at the return point in advance to avoid danger.
>
> d. If the aircraft is hovering after the drug is cut off, you can switch the mode on the remote control and press the left and right sticks to gain control of the aircraft.
>
> e. The aircraft cuts out of automatic operation after 1.5 s of the flow meter cut-off signal, so the breakpoint for the aircraft to continue to operate will be delayed by a certain distance。

Low battery protection function

low battery alarm

aircraft tail light 🟨 🟨 The yellow light double flashes to give an alarm, the mobile phone vibrates, and the APP status bar shows a yellow prompt. At this time, the plane should be operated to land as soon as possible.

Critical low battery alarm

Aircraft tail light ▢▢▢▢▢ The yellow light flashes quickly to give an alarm, the phone vibrates, and the APP status bar shows a red prompt. If you are doing manual work at this time, you should land the plane immediately! If you are operating in AB or route at this time, the aircraft will hover, return, and continue to operate (off) according to the preset settings.

Very low battery alarm

Aircraft tail light ▢▢▢▢▢ The red light flashes quickly to give an alarm, the phone vibrates, and the APP status bar shows a red prompt, the plane will be forced to land autonomously on the spot to avoid battery over-discharge.

⚠ hint：

a. The factory default setting is critical low battery alarm and aircraft hovering.

b. The user can enter the APP setting interface according to the actual situation to modify the aircraft behavior after the serious low battery alarm.

c. If the plane returns after running out of medicine, please ensure that there are no people and obstacles at the return point in advance to avoid danger.

d. When the extremely low battery alarm occurs, the aircraft will be forced to land. During the landing process, the throttle cannot be controlled, and the aircraft can be controlled to move forward, backward, turn left, and turn right, and adjust the landing position of the aircraft to avoid danger.

Power failure protection UPS function

The motherboard of the aircraft has a built-in capacitor. When the battery is unplugged from the aircraft, the capacitor on the motherboard will continue to supply power to the flight control system and positioning system for about 60 seconds to ensure that the flight control system continues to work. Star wait time, improve work efficiency.

UPS power supply status: After unplugging the aircraft battery, the aircraft tail lights ▢ ▢ ▢ ▢ Red single flash, APP status bar is red and display UPS供电 UPS power supply.

⚠ hint：

a. The aircraft cannot be unlocked and the spraying cannot be turned on when the UPS is powered on.

b. If the battery is not plugged in within 60 seconds, the UPS will also stop working and the aircraft will be completely cut off.

c. After performing magnetic compass calibration, accelerometer calibration and other operations that require restarting the aircraft, you need to wait for more than 60 seconds, and then plug in the battery after the UPS stops working and the aircraft is completely powered off, otherwise the restart will fail!

Automatic return function

Return execution conditions: every time the user unlocks, the aircraft will record the location of the take-off point as the return point ⊽ ，When the aircraft returns automatically, it will return to the home point and land.

Return process: enter the return flight —— the aircraft rises to the set return altitude —— the aircraft flies to the return point at a maximum speed of 8m/s —— reaches the return point —— adjusts the position of the aircraft —— descends the altitude —— lands and locks.
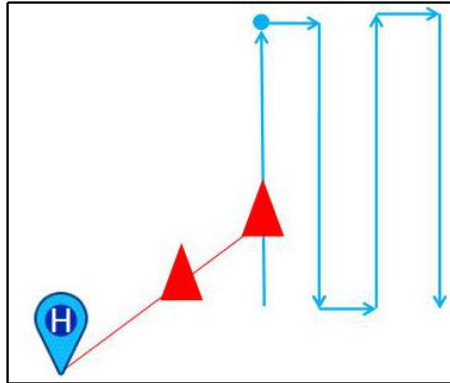
The user can artificially trigger the return flight in the following ways：

A.   A. You can perform a one-button return task by clicking the return button on the remote control 。

B. Available by clicking Return button, slide to perform one-key return task.

The following methods will trigger automatic return to home (set the following behaviors in advance to return to home in the more settings interface of the APP)

    a. Loss of control and autonomous return

    b. Severely low battery autonomous return

    c. Return to the voyage autonomously after spraying the liquid medicine

    d. Return autonomously after the route operation is completed

---

⚠ hint：

 a. Before returning, please confirm whether the return point is safe.

 b. During the return and landing process, the throttle is not controllable, but the heading is controllable.

c. If the aircraft is equipped with obstacle avoidance radar and turned on, the obstacle avoidance radar will be activated during the return process.

d. Before returning, please confirm the return point, return route and altitude, and confirm whether there are obstacles to avoid danger.

e. When the aircraft is flying to the home point, click the APP interrupt return button or operate the remote control to move forward, backward, left, and right to exit the automatic return mode. In case of emergency, you can operate the remote control to exit the automatic return, and then avoid obstacles.

f. When the aircraft arrives at the home point and lands, first descend quickly to a certain distance from the ground and then descend slowly.

g. When the aircraft arrives at the home point and lands, you can operate the remote control to control the aircraft to move forward, backward, left, and right to adjust the landing position, and the automatic landing will not be interrupted.

Motor check function

Check the motor rotation: Enter the APP to execute the operation interface, click the more settings button in the upper right corner, enter the aircraft settings, enter the motor inspection, and check the motors in sequence according to the APP prompts to ensure that the motor rotation sequence and rotation direction are correct.
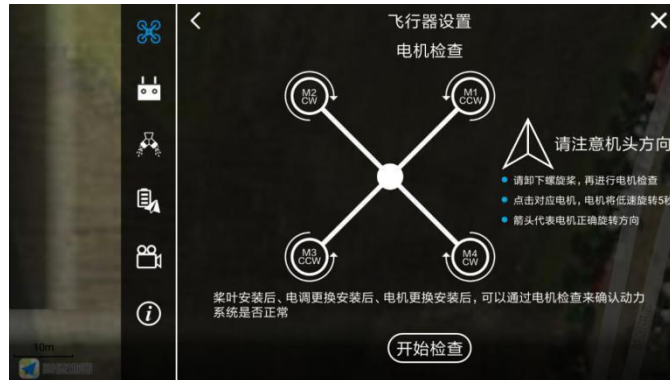
Please pay attention to the direction of the nose, please remove the propeller, and then check the motor, click the corresponding motor, the motor will rotate at a low speed for 5 seconds, and the arrow represents the correct direction of rotation of the motor

⚠ It is reminded that motor inspection must be carried out in the following situations, otherwise it will cause flight safety risks：
A. After assembling the aircraft, be sure to check the motor to ensure that the power plug is correct!
B. After replacing the propeller, motor, arm and other equipment that will affect the steering of the motor, please be sure to check the motor！

Magnetic compass calibration

Enter the APP execution interface, click the more settings button in the upper right corner, enter the aircraft settings, enter the sensor interface, click "Magnetic Compass Calibration", and follow the APP pop-up window to perform magnetic compass calibration.

Please stay away from metal and strong electric objects, click "Start Calibration" to enter the magnetic compass calibration

⚠ hint：
Be sure to calibrate the magnetic compass in the following situations to ensure that the flight direction is correct, otherwise it will cause flight safety accidents:
 a. After assembling the aircraft, be sure to calibrate the magnetic compass.
b. After replacing the GPS, when the distance from the last take-off point exceeds 100 kilometers, be sure to calibrate the magnetic compass!
c. When the APP prompts "Magnetic Compass Abnormal", when the aircraft's course is deflected, the magnetic compass needs to be calibrated.
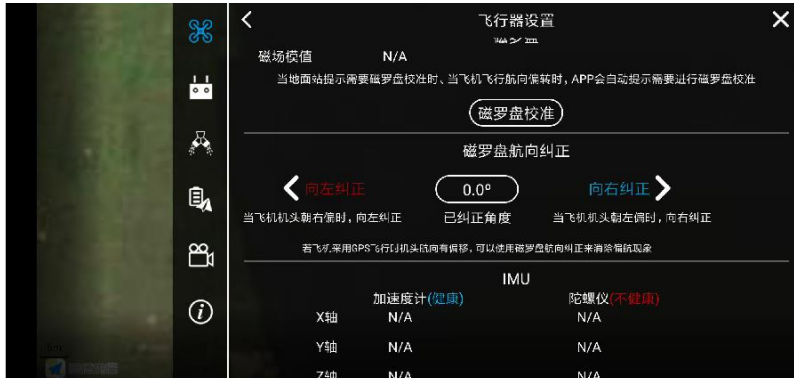
Magnetic compass heading correction function

When the aircraft is flying with GPS, if there is a deflection of the nose, the magnetic compass heading correction function can be used,

Enter the expected correction angle to correct the nose direction.

If the nose of the plane deviates to the left, you should click "Correct to the right". After correcting the direction of the nose, you can take off to verify whether the heading is normal.

If the nose of the plane deviates to the right, you should click "Correct to the left". After correcting the direction of the nose, you can take off to verify whether the heading is normal.

⚠ hint：

A. When RTK is turned off or RTK is abnormal, the aircraft will use the magnetic compass in the GPS to determine the heading.

B. Correction angle limit: left correction ≤ 30°, left correction ≤ 30°。

Accelerometer Calibration

Enter the APP execution interface, click the more settings button in the upper right corner, enter the aircraft settings, enter the sensor interface, click "accelerometer calibration", and perform accelerometer calibration according to the APP pop-up window prompts.

⚠ hint：

Accelerometer calibration must be performed in the following situations, otherwise flight safety accidents will occur:

a. When the aircraft's positioning status is normal and the positioning mode is used to hover, the automatic sliding position appears.

b. When the APP prompts "accelerometer abnormal", please perform accelerometer calibration before flying.

c. The accelerometer has been calibrated before leaving the factory. After the user receives the aircraft, there is no need to calibrate if there is no abnormality of the accelerometer。

Pipe exhaust function

There will be air in the pipeline after the liquid medicine is sprayed, please exhaust it before take-off operation, avoid taking off and then landing for exhausting, so as to improve the working efficiency.

Before the plane takes off, you can directly click the spray button on the remote control or open the spray in the APP to enter the pipeline exhaust to spray the exhaust.

Flow Meter Calibration

After the nozzle or pump is replaced, the flow rate is inaccurate, the amount of operating mu is inaccurate, and the concentration of the chemical solution changes, please calibrate the flowmeter to improve the accuracy of spraying control.

Flowmeter calibration is divided into spraying ground calibration and spraying flight calibration: ground calibration is simpler and faster, but the calibration accuracy is lower; flight calibration is more complicated, but the accuracy is high.

Flow Meter Ground Calibration

Spraying the ground calibration process: Exhaust the pipeline —— place the aircraft on a level ground —— add more than 5 liters of liquid medicine —— input the amount of medicine added —— click "Start Calibration" —— finish spraying —— confirm whether there is liquid medicine Residue —— No Residue —— Calibration Successful.

Flow Meter Flight Calibration

Spray flight calibration process: Spray exhaust —— add more than 5 liters of chemical solution —— enter the dosage —— click "Start Calibration" —— select plots —— edit route —— set operation parameters —— route operation —— spray Completed and landed —— confirm whether there is any liquid residue —— no residue —— calibration is successful.

> ⚠ hint：
>
> A. Calibration of the flowmeter requires adding liquid to ensure accurate calibration.
>
> B. Before calibrating the flowmeter, make sure that the nozzle model set by APP is consistent with the nozzle model actually installed.
>
> C. If there is still liquid medicine residue, please check whether there is any fault in the pipeline before performing calibration.

Pump calibration

Replace the water pump or pipeline, the health value of the water pump is too low, the flow rate difference between each spraying channel is large, the flow rate is inaccurate, and the mu dosage is inaccurate. It is necessary to calibrate the water pump to improve the consistency and spraying accuracy of each water pump.

Water pump calibration process: add a certain amount of liquid medicine - exhaust the pipeline - add more than 5 liters of clear water - check the health value - automatically turn on the spraying and check in sequence - the test is completed and the health value is compounded (higher than 80) - calibration Parameters - Calibration Successful.

⚠ hint：

a. Water pump calibration needs to add water to ensure accurate calibration.

b. The health value represents the normal index of the water pump, nozzle, filter screen, pipeline, etc. corresponding to the spraying.

c. Pipeline leaks, water pump wear and tear, nozzle clogging, etc. will cause the health value to be too low.

d. If the health value is less than 60, the problem should be found and repaired before operation, otherwise the operation effect will be affected.

e. If the health value is less than 80, the parameter calibration cannot be performed after the health value detection, that is, the water pump calibration cannot be performed.

Aircraft digital link network renewal operation (only supports mainland China)

4G network-related functions are only supported in mainland China, click on the APP to execute the operation interface 4G The icon can enter the aircraft digital link network interface, check the network status, the remaining time of the card and renew. Please recharge and renew before it expires, otherwise it will affect the normal use of related functions.

Network packages are normally available for one year of job use. After the network expires, you can scan the QR code to renew in the APP.

Renewal operation: connect the APP to the aircraft - enter more settings - enter the aircraft settings - enter the digital link network - click the network renewal - use WeChat to scan the QR code - select the package renewal.

⚠ hint：4G network-related functions are only supported in mainland China, and the following functions need to use a

4G network to achieve：

A. Real-time monitoring of the aircraft background (outside mainland China, the operation records can be uploaded through the mobile phone after the operation)

B. Online upgrade of aircraft module firmware (outside mainland China, you can use a data cable to connect to the aircraft for upgrade)

C. Real-time synchronization of flight data and flight records in the background and other network-related functions

9.Upgrade

Dream Eagle performs irregular software updates for aircraft, remote controls, APP and other products, and users can use new product functions after upgrading.

Network online upgrade (only for use in mainland China)

Dream Eagle will upgrade the aircraft software from time to time, and release updated firmware in the background.

When the user is using the aircraft, after the mobile phone is connected to the Internet and the APP is connected to the aircraft, the APP will prompt to upgrade.

The APP, main controller, motherboard, and RTK can be upgraded online through the Dream Eagle APP.

Click to upgrade or click the aircraft information system on the main interface to enter the version upgrade interface：


Click on the little question mark � You can view historical version information

Network Upgrade Operation Process

Connect the APP to the aircraft - enter the aircraft information system - click the upgrade button - view the upgrade details - click download and install - download the firmware - install the firmware - the firmware installation is complete - the aircraft automatically restarts - the upgrade is successful
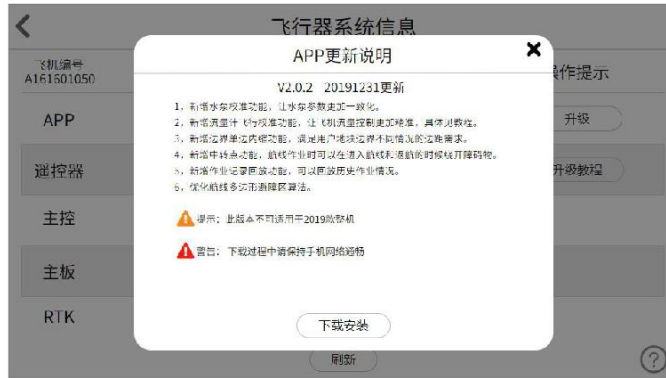
> ⚠️ hint：
>
> A. Do not operate the aircraft during the upgrade process.
>
> B. Please make sure the 4G network signal of the aircraft is good when upgrading.
>
> C. If the upgrade fails for more than 20 minutes, please restart the aircraft and try again. If the upgrade fails again, please contact the after-sales service。

Local upgrade (applicable to non-network, non-mainland China regions)

If there is no network and the online upgrade of the aircraft cannot be performed in non-mainland China regions, the upgrade can be done in the following ways:

Scan the QR code of the QR code in the download center of the Quick User Guide to enter the download center to download or log in to the smart official website

http://www.jiyiuav.com/download.html

——Service and Support - enter the download page - download software and firmware.

10. Dream Eagle Intelligent Webpage Management Platform

Log in to the management background http://ac.jiyiuav.com/ to view real-time aircraft information, battery statistics, operating data, flight trajectory and other information.

Register and log in

At present, there are two ways to register by mobile phone number and email.
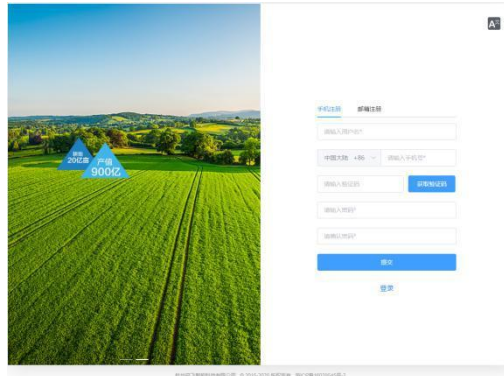
After the registration is successful, when you log in for the first time, you need to fill in the relevant information according to the prompts on the webpage. After completing the filling, you can use the platform normally after passing the review.

Complete information

The first step needs to fill in the basic information, the second step needs to fill in the real name information, the third step needs to fill in the pilot information, and the fourth step is to bind the plant protection aircraft (this step can be skipped, and you can bind your own aircraft later). After completing these four steps, wait for the administrator to review the account. If the review is successful, the platform can be used normally. A text message will be sent to notify you whether the review is successful or not.

55

Plant protection machine management

Through the Dreameagle agricultural management platform, the owner of the plant protection aircraft can view the parameters of all the plant protection aircraft under his name in real time, lock the plant protection aircraft, bind the plant protection aircraft, check the relevant operation records of the specified aircraft (jump to the flight statistics page), etc.

Common problems of plant protection machine management

How can I see the plant protection machine under my name on the plant protection machine management page? Answer: Through the function of binding the plant protection machine on the plant protection machine management page, fill in the plant protection machine ID given by the manufacturer when you purchased the plant protection machine, and the unique activation code corresponding to each plant protection machine (usually a combination of 4 random numbers and letters, please properly Save the activation code), bind the plant protection machine to your own name to view and manage the plant protection machine you own.

For whom can the plant protection machine purchased by the user perform plant protection operations? Answer: After the plant protection machine purchased by the user is activated, only the personal fixed account can be used for plant protection work, and other people have no right to use the work. If you want to give other users permission to use the plant protection machine, you can click the permission pilot button and enter the operator's account (mobile phone number or email address), and you can grant the plant protection machine operation authority to other pilots.

Real-time supervision

Through the Dreameagle agricultural management platform, plant protection machine managers can monitor the dynamic information of plant protection machines and pilots in real time.
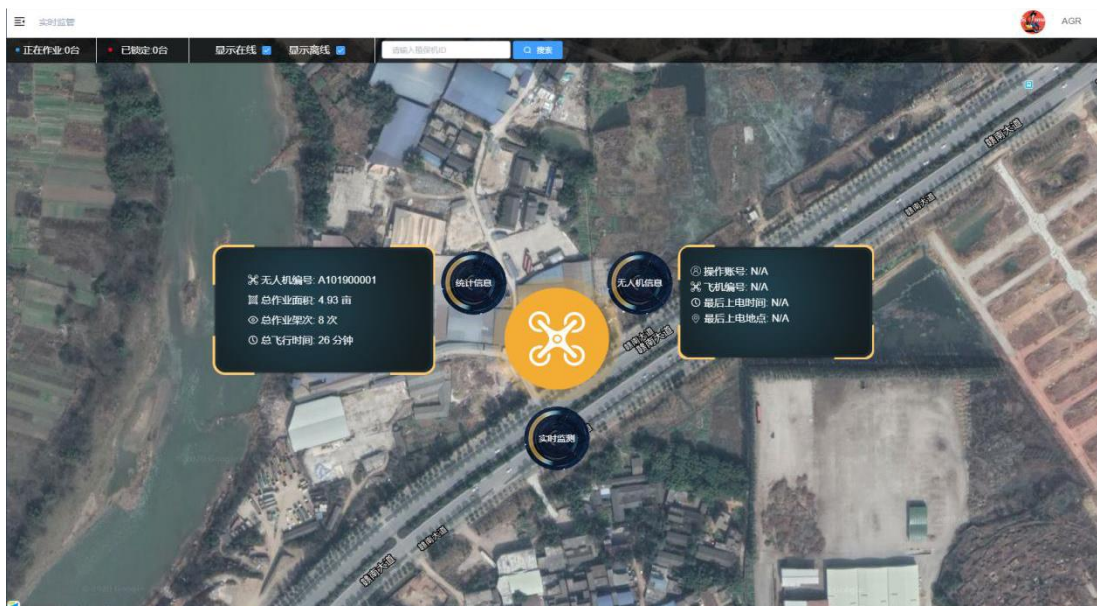
Real-time Supervision FAQ

Which plant protection machine data can be seen on the real-time supervision page?

Answer: The management platform can see all the real-time parameters of the normal communication with the background, offline and online plant protection machine operations. The offline plant protection machine will display the job information left by the last job.

Why are the colors of the plant protection machines different on the real-time monitoring page?

Answer: The online plant protection machine and the offline plant protection machine have different colors, the online plant protection machine is yellow, and the offline plant protection machine is light gray.

What is the use of the lock button in real-time monitoring?

Answer: Click the lock button to remotely lock the plant protection machine until the plant protection machine lands and stops the propellers, and the lock will take effect. After that, the plant protection machine will not be able to unlock the operation. If you need to unlock, you can click the unlock button again, or find the locked in the plant protection machine management. For the plant protection machine, click Manage, remove the lock check, and confirm。

How to check the operating parameters of my plant protection machine

Answer: Click on the plant protection machine and the parameter window will pop up, and you can check the operation parameters and operation track of the plant protection machine in real time。

Flight statistics

All the operation data of the plant protection machine that communicates normally with the dream eagle cloud background can be viewed in the background. Due to network and chip problems, the plant protection machine operating abroad cannot directly communicate with the Qifei cloud background, so the operation data cannot be viewed . Overseas users can independently upload operation data to the Dream Eagle cloud platform through the Dream Eagle Smart APP, and after the upload is completed, they can view the statistics of operation sorties online.
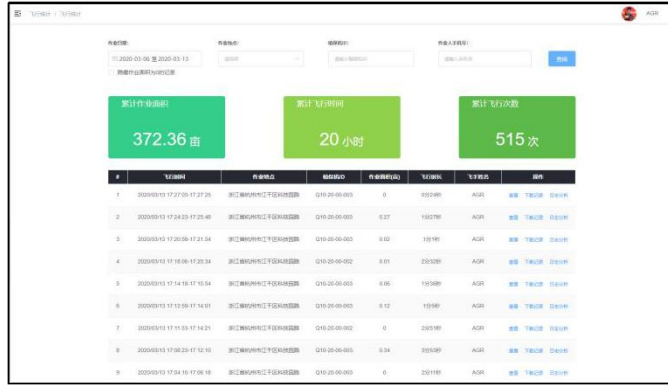
Users can view the operation track of a single sortie through the operation column of each sortie operation record, and download the simplified operation log data excel. Logs can also be analyzed online (requires relevant expertise).

New flight statistics

The new Flight Statistics page mainly contains the same information as Flight Statistics. The main function of this page is to select multiple data display tracks on the map.
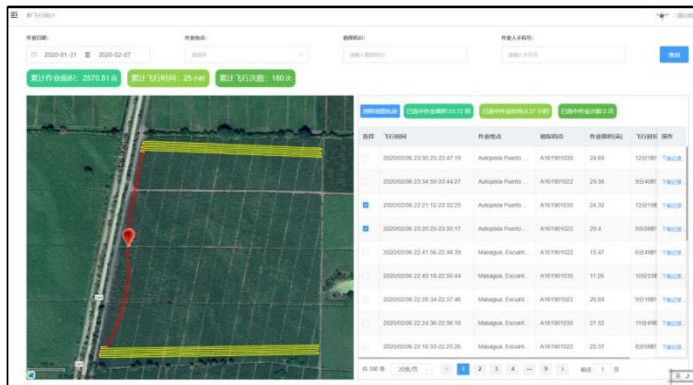
Land management

Land parcel management mainly includes land parcel information managed by users through Qifei Agriculture APP, and land parcel information uploaded to Qifei Agricultural Management Cloud Platform.

Plant Protection Team Management

Through the Qifei agricultural management platform, users can manage their own operation teams, such as adding and deleting team members, and editing and sorting out related information.

Plant protection team management FAQ

Who can add team members in 【Plant Protection Team Management】?

Answer: In the actual operation process, only the owner of the plant protection team can edit, add and delete members of his team. In other words, you can manage the plant protection team you created, but not the plant protection team you joined (you can also add yourself to the plant protection team you created, and you also have the authority to operate the plant protection team).

Personal information

After logging in to the platform, your nickname will be displayed in the upper right corner of the platform. Click on the nickname or avatar to view personal information and log out. Click the personal information button to enter the personal information page. In the basic information page of this page, you can modify your nickname, Email address and address, after modification, you need to click Update Basic Information to submit. On the Pilot Information page, you can view information about your pilot certificate. Click the Change Password button on the account information page to modify the login password of your account, click on the profile picture to change your favorite picture as your profile picture, adjust and crop the picture yourself, or preview it in advance. Click the exit button to exit the platform and return to the login page.

11. Interface language switching internationalization (multilingual)

Find Settings→System→Language and Input Method→Language→(select the language you need) on the homepage

12. Precautions for battery use

1. Please use the special charger for plant protection to charge, and keep away from high temperature environment.

2. Please recharge the battery in time after use to avoid over-discharging and damage to the battery due to long-term storage.

3. It is forbidden to store the battery due to leakage. When not in use for a long time, please keep the single-cell voltage between 3.8-3.9V. It is recommended to perform maintenance every three months.

4. Please store the battery in a dry and ventilated environment, and keep away from open flames or flammable and explosive items.

5. It is forbidden to use batteries that are damaged, leaked, or severely deformed.

6. It is forbidden to squeeze, collide and short-circuit the battery, so as not to cause unnecessary losses.

7. It is strictly forbidden to throw the battery into water or fire.

8. It is strictly forbidden to disassemble the battery.

Battery Warranty Terms

1. The battery warranty conditions:

Smart batteries are warranted for 12 months or 300 cycles, whichever comes first.

2. One of the following circumstances is not covered by the warranty terms:

(1) The battery has been overcharged or over-discharged; overcharging or over-discharging will cause irreversible damage to the battery.

(2) The battery is stored at high temperature and fully charged. The battery has been dropped, the case has been damaged and other physical damage.

(3) The battery is disassembled and repaired by the user.

Warnings and Safety Tips for Chargers

1. These warnings and safety tips are very important, please strictly follow the instructions in the manual to ensure safety. Improper operation may cause damage to the charger, charger and battery, and even cause a fire in serious cases.

2. Do not use the charger unattended. If there is any abnormal function, please stop charging immediately and find out the reason according to the instruction manual.

3. Keep the charger away from dust, humidity, rain, high temperature, direct sunlight and strong vibration. Do not bump the charger.

4. The charger supports an AC input voltage of AC200-240V. If you use a generator for power outdoors, please ensure that the generator can provide stable voltage and power. Voltage fluctuations can damage the charger, use a voltage regulator if necessary.

5. Please place the charger on a heat-resistant, non-flammable and insulating surface. Do not place on car seats, carpets, etc. Please keep flammable and explosive items away from the operating area of the charger.

6. Make sure you have fully understood the charging/discharging battery specifications, and the settings in the charger are consistent with the battery. If the program is set incorrectly, both the charger and the battery may be damaged. Overcharging may cause fire or even explosion.

Please do not charge/storage the following types of batteries

1. Non-rechargeable batteries (may explode).
2. Battery packs composed of different models (including different manufacturers).
3. Batteries with special requirements for charging technology.
4. Damaged or defective batteries.
5. Batteries with built-in combination circuit or protection circuit.
6. Batteries installed in other devices or connected to other components.
7. Rechargeable batteries that are not approved by the manufacturer and are suitable for the current carrying capacity of this charger.

Before proceeding to charge, be sure to check the following 3 points

1. Have the appropriate program settings been selected?

2. Is an appropriate charging current set?

3. Are all wiring connections secure? Ensure that the line connection will not have any bad contact.

Charging Precautions

1. During the charging process, there is a specific amount of electricity charged into the battery. The amount of charged electricity can be calculated by multiplying the charging current by the charging time. Due to different battery types and performances, the allowable charging current is also different, and this information is generally provided by the battery supplier. If the supplier does not clearly state that the battery can be charged at a high rate, please use the normal rate.

2. Connection of battery and charger terminals: the red wire is the positive pole, and the black wire is the negative pole. Due to the difference in the internal resistance of wires and connectors, the charger cannot detect the internal resistance of the battery pack. The basic requirement for the charger to work properly is that the charger terminal has a sufficiently large conductor cross-section and high-quality gold-plated connectors at both ends.

3. Refer to the charging method introduced in the user manual of the relevant battery manufacturer, and operate according to the charging current and charging time recommended by them. Lithium batteries, in particular, must be charged in strict accordance with the manufacturer's instructions.

4. Attention must be paid to the wiring of the lithium battery.

5. Do not disassemble the battery pack at will.

6. It must be emphasized that lithium battery packs can be connected in series or in parallel. When connecting in parallel, the formula for calculating the battery capacity is obtained by multiplying the capacity of a single battery by the number of batteries when the total voltage remains constant. If the voltage is unbalanced, it may cause fire or explosion, so we generally recommend charging lithium batteries in series.

7. The charger is suitable for people aged 14 and above, and people with behavioral and mental disabilities and inexperienced people need to use it under supervision or guidance. Children should not play with the charger. Children should not clean and maintain the charger without supervision.

8. If the power cord is damaged, please return it to the manufacturer, supplier or technician for replacement to avoid danger.

Charger Disclaimer

This charger is designed to only be used with the battery types listed in this manual. If the user uses the charger for purposes other than those listed in the manual, the company will not bear any responsibility. We cannot be sure that you have read the instruction manual carefully before using it, and we cannot control how you use and store this product. For the above reasons, we disclaim any liability for any damage/loss caused by or related to improper use or operation. Within the scope of the law, due to direct or indirect losses caused by our company's products, our company's compensation will be based on the invoice amount on the purchase of the product.

Charger warranty and after-sales service

Our company provides a one-year warranty from the day you purchase the product. Within one year, our company will repair the product for you free of charge. Our company will not provide free maintenance services for any damage caused by improper use or self-modification by customers. If there is a problem with your product and it is within the scope of the warranty, please contact our company as soon as possible, and we will assist you in dealing with related maintenance matters.
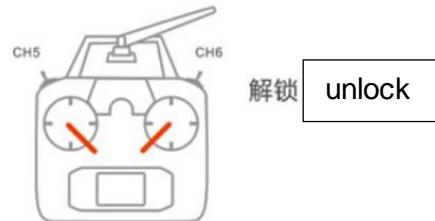
13.Remote control function introduction

1. Unlock and lock

1). unlock

Unlock it as shown in the figure. After unlocking, the motor enters the idle state 。

2). lock

a. lock now

In any flight mode, after the motor starts, the stick operation shown in the figure will stop the motor immediately。

Note: In the event of an emergency during the flight of the aircraft, please perform the stick operation shown in the figure to prevent accidents 。

b. auto lock

All flight modes have an automatic landing recognition function, which will automatically control the stop, and the throttle will be pulled to the minimum when the aircraft is flying, which will not cause the motor to stop.

2. Accelerometer Calibration

The remote control supports single-sided calibration of the accelerometer with the remote control. The calibration method is as follows：

1). Place the aircraft horizontally

2). Turn the return channel to the highest position, press the lever ↘↗ (American hand), ↗↘ (Japanese hand) to enter the calibration after the red, green and yellow flash alternately, the calibration is completed after 1-2 seconds, and the LED light flashes normally。

3 Magnetic compass calibration

KX flight control supports the remote control to calibrate the magnetic compass with sticks. The method of sticking is as follows。

When the flight controller is not unlocked, flip the flight mode switch of channel 5 back and forth quickly to enter the magnetic compass calibration on both sides. The yellow light is always on, and the level calibration is in progress. At this time, place the aircraft horizontally, rotate the axis clockwise until the green LED light is on, and enter the vertical calibration. At this time, the machine head is facing down, and the direction of gravity is the axis rotation until the LED flashes red, green and yellow alternately, that is, the calibration is completed.

4. Motor test

The motor test function includes motor sequence test and motion direction test, which is mainly used to detect whether the motor installation serial number and rotation direction are correct, so as to avoid accidents caused by installation errors.

1). Motor sequence test

Note: Under normal circumstances, the motor sequence detection can be triggered by performing one stick action. If the pole position is not accurate, you need to repeat step 2 for four stick actions to trigger。

When unlocked, press the lever on the left side of the remote controller ↙, and the right side of the remote control to make a counterclockwise circle movement ↗↖↙↘(American hand), you can trigger the motor sequence test, and the motors will idle in sequence from No. 1 to No. 8. .

   The way of hitting the stick in the Japanese hand motor test: 1. Left stick↙, right stick↘ and keep it; , keep the right stick at the bottom, and repeat the four stick actions in step 2 to trigger the motor sequence detection。

2). Motor Direction Test

After unlocking, the propellers of the aircraft run evenly at low idle speed. Through the 4 channels of the remote control, it can be judged whether the front, rear, left, and right directions are reversed. The propeller on the right side of the aircraft stops, and the propeller on the right side of the aircraft rotates.

5. Remote control failsafe

First of all, you need to correctly set the remote control out-of-control protection under the basics of the assistant software->remote control interface. When the GPS satellite signal is good, if the receiver signal is lost, no matter which flight mode the aircraft is in, the flight controller will execute the failsafe behavior. If the remote control signal is restored and you want to control the aircraft again, you need to switch the flight mode channel back and forth to obtain control.

14. Start and stop the aircraft

1，**Start the aircraft - unlock and take off: Execute the movement of the left and right joysticks, the aircraft will be unlocked, and the propeller will rotate at idle speed. Push the throttle stick up and the plane will take off.**
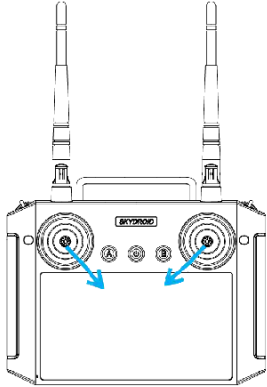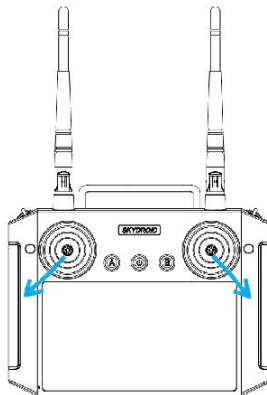

Inner eight lever unlocking (applicable to all operator modes)
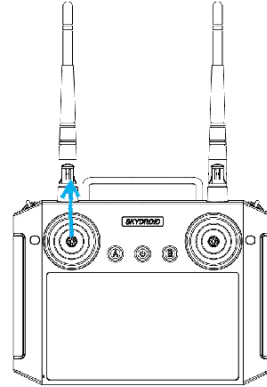
Push the throttle up to take off (American hand as an example)

3，Operation and flight: Press the stick according to the corresponding operator mode to operate the aircraft forward, backward, left, right, turn left, turn right, rise, and descend. For specific corresponding operation methods, please refer to the schematic diagram of the APP operation mode.

4，Stop the aircraft - land and lock: pull the throttle stick down until the aircraft touches the ground. After the plane lands on the ground, you can perform the action of the left and right joysticks or pull the throttle stick to the lowest position, and the plane will be locked, that is, the propeller will stop.

Locking of the outer eight lever (applicable to all operator modes)
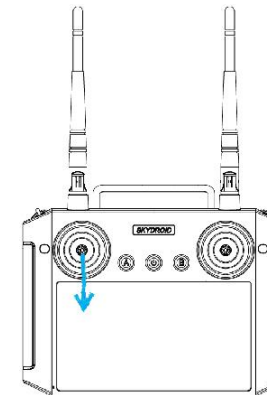
Pull down the throttle to lock (USA hand as an example)

A. When the plane is flying frequently in the air, please do not perform the external eight-stroke stick action, otherwise the plane will stop turning the propeller in the air,

crash occurred！

B. In the event of a breakdown or operational error, the aircraft may fly towards crowds, vehicles, animals, buildings, etc. and cause collisions,
Please carry out the outer eight lever action in time to stop the aircraft to minimize accidents and losses！

15. Safe Parking Steps

1. You can manually land, slowly pull down the throttle stick, so that the aircraft slowly lands on a stable ground.
2. After the aircraft lands, pull down the joystick to the lowest position and hold it for 3 seconds until the motors stop.
3. After the motors stop, first cut off the power of the aircraft, and then turn off the power of the remote controller.
4. Fold the propeller and store the aircraft in a dry and ventilated warehouse for the next use.

16. Equipment layout in transport state

The aircraft is placed as shown in the figure below when it is shipped: remove the arm, and pack the nozzle for transportation.

17.Post-job cleaning, maintenance and maintenance

1. After the work is completed, remove the nozzle filter and put the nozzle in clean water to wipe and clean it. After cleaning, put it back into the aircraft.
2. Fill the medicine box with soapy water or washing powder water, turn on and spray until the outflowing water is free of medicine.
3. Wipe off the residual medicine on the casing of the aircraft, remote control, battery and other components.
4. Check the structure of the aircraft body, check the tightness of the screws, and replace the severely damaged pipes.
5. If it will not be used for a long time, store the aircraft in a clean, clean, ventilated, moisture-proof place and avoid high temperature.

18.Common Troubleshooting Instructions

Flight attitude instability

1. Check whether the screws at the arm and the upper carbon plate are tightened (focus on checking the clamping parts of the arm).
2. Use a spirit level to check the level of the motor, whether to re-adjust the level. Standard: <0.5 degrees.
3. Serious misalignment needs to replace the arm
4. Check the condition of the motor, whether there is any foreign object falling into it, and there is a feeling of jamming. It is found that the motor is faulty and needs to be replaced.
5. Check the surface of the propeller for nicks. (As long as there is a chip or crack, the paddle needs to be replaced)

Water tank leaking

1. Check whether the sealing ring and check valve are installed on the top cover of the water tank.
2. Check whether the outlet O-ring and the sealing ring of the valve mouth are installed.
3. Check whether the sealing ring of the bottom cover of the water tank is installed and whether the opening of the bottom cover of the water tank is smooth.
4. Check whether the water tank is damaged and whether the sealing rings are damaged. (replace if damaged)

Abnormal spraying

1. Check whether there is any water leakage in the pipeline. Check whether the PU pipe or hose is broken. If so, replace the corresponding water pipe. If not, check whether the joints are not tightened. Check whether the PU tube of the pneumatic connector is inserted to the end, if not, manually tighten and insert the PU tube to the end.
2. Make sure that the water pump can not start normally when the electric energy is turned on (the ESC beeps quickly, and stops after the last beep, indicating that the initialization is complete).

Job Troubleshooting

What to do when the following faults occur during operation:
1. No water can be sprayed before operation: Loosen the pressure relief valve of any nozzle, turn on the water pump switch until the liquid medicine sprays out, and then tighten the pressure relief valve.
2. The nozzle is clogged during operation: turn off the water pump and land, unscrew the nozzle and clean it with clean water before reinstalling it on the aircraft.
3. Unable to unlock and the ground station shows that the accelerometer is not calibrated: connect the APP to calibrate the accelerometer.

Common Treatments for Battery Faults

1. The voltage difference between the battery cells is greater than 0.03V, please use the charger maintenance function to charge the battery.
2. The battery is over-discharged. Please use the slow charging mode to charge the battery. If the battery cannot be replenished, please return to the factory for repair.

19.Pesticide Safety Handling Instructions

1. Check whether the dispensing tools are complete (measuring cups, buckets, buckets of mother liquor, mixing rods, rubber gloves, goggles, gas masks, etc.).

2. Strictly follow the order of dispensing: foliar fertilizer—wettable powder (not recommended for plant protection drones)—water dispersant—suspension agent—microemulsion—water emulsion—aqueous agent—EC.

3. Dispensing in strict accordance with the second dilution method: a. Following the "dispensing sequence", first dilute each drug into mother liquor separately: b. After summarizing the mother liquor of each drug, add water for second dilution to the required drug total liquid

4. Check the drug information (such as: dosage per mu, three certificates, etc.) before dispensing, and dispense in strict accordance with the drug instructions (dispensing formula:

The total amount of original medicine = the amount of original medicine per mu X the number of mu; the total spraying amount = the amount of spraying per mu X the number of mu).

Note: The dispensing personnel stand at the upper air outlet, wear rubber gloves and gas masks (take protective measures).

5. It is forbidden to mix pesticides. Plant growth regulators and herbicides use special dispensing tools and medicine boxes.

6. After the medicine is prepared, the principle of "ready to use immediately" should be followed. If left for a long time, the medicine is easy to precipitate and affect the effect of the medicine.

7. When handling pesticides, the safety instructions provided by the pesticide manufacturer should be followed.

20.List of hazards and hazards and countermeasures

List of Hazards and Hazards

The hazards of pesticides	1、Harm to the environment (pollution of the environment)
	2、Harm to the human body
Danger	1、Pesticides enter the human body in large quantities through the mouth, inhalation or contact, causing acute poisoning.
	2、In the process of spraying pesticides, they enter the human body through the respiratory tract and skin penetration.
	3、Long-term exposure to pesticide residues will cause pesticides to accumulate in the body, posing a threat to human health.
	4、Some pesticides are corrosive, so try to avoid direct contact with the skin.
	5、Propellers have sharp edges and should be handled with care, even when stationary, to prevent cuts.
	6、The propeller rotating at high speed has a strong cutting force, you need to stay away when flying to avoid accidental injury.

Responses

1. Accurate application of pesticides to reduce the risk of phytotoxicity.

2. Control pesticide packaging waste and reduce environmental pollution.

3. Adjust the application structure, method and dosage of pesticides to avoid abuse and unscientific use of pesticides.

4. Corresponding protective tools such as gas masks and chemical protective clothing should be equipped when spraying pesticides, and personal cleaning and hygiene should be done in time after spraying pesticides.

5. The spraying time should not exceed 6 hours a day. Try to avoid spraying in the high temperature state at noon, avoid eating by mistake or contact with pesticides for a long time.

6. In case of pesticide poisoning, the poisoned patient should be removed from the contaminated site as soon as possible and transferred to a cool and ventilated place. For patients with oral poisoning, if they are conscious, they can induce vomiting immediately, and patients who are unconscious should not induce vomiting. Poisoned patients should be sent to the nearest hospital as soon as possible.

7. When the surface of the propeller is found to be damaged or chipped, the propeller should be replaced immediately and the flight operation should not be continued.

8. Protective tools should be equipped when performing operations. Before take-off, try to ensure that the ground is flat, free from strong winds and electromagnetic interference, and keep a safe distance between people and the aircraft to prevent accidental injury.

9. Do not touch the drone with your hands during the flight. When you are cut by the propeller, you should treat the wound in time. If it is serious, you should immediately send it to the nearest hospital for treatment.

21. Disclaimer

1. Please be sure to read this document carefully before using the product. This statement has an important impact on the safe use of this product and your legal rights. Once you use this product, you are deemed to have understood, recognized and accepted all the terms and contents of this statement.

2. The user promises to be responsible for his actions and all consequences arising therefrom. The user promises to use this product only for legitimate purposes, and agrees to these terms and any relevant policies or guidelines that the company may formulate.

3. The user understands and agrees that the flight data generated when using this product will be uploaded and saved to Qifei Smart's server.

4. Dream Eagle Smart is not liable for any direct or indirect personal injury and property loss caused by using this product not in accordance with the operating guidelines. Users should understand and implement including but not limited to this operation guide.

5. This product is provided to adults who have experience in flying drones or are accompanied by relevant technical personnel; it is not suitable for use by persons under the age of 18 or other persons who do not have full capacity for civil conduct. Please avoid the above-mentioned persons from contacting this product

6. Please abide by local laws and regulations and fly to legal remote control flying sites and airspace to ensure safe and correct operation. The company does not assume any loss and safety responsibility caused by illegal operation and improper use control, direct or indirect The company does not assume any responsibility for any violation of the law.

7. Any defective or damaged product caused by improper use will not be able to replace new parts within the warranty period. This product is a product with high operating technology and consumption. Users should perform regular maintenance and maintenance to ensure safety. When there is a hidden danger, the operation must be stopped.

8. The judgment of any form of crash liability is based on the flight log as the only criterion.

9. The final interpretation right of this disclaimer belongs to "Dream Eagle". "Dream Eagle" has the right to update, revise or terminate the terms of this disclaimer through the official website, APP, etc. without prior notice.

10. According to the requirements of the Civil Aviation Administration of China's "Regulations on the Administration of Real-Name Registration of Civilian UAV-piloted Aircraft", the purchase and use of unmanned
The man-machine needs to register in the UAV real-name registration system https://uas.caac.gov.cn/login and stick it on the fuselage.
Paste the two-dimensional code registration mark, fail to implement real-name registration and paste the registration mark, the supervision department will give penalties in accordance with relevant regulations.

22.Disclaimer

When using this product, Dream Eagle shall not be liable for compensation or legal responsibility for direct or indirect personal injury or property loss due to the following reasons:
1. The operator did not comply with local laws and regulations.
2. The operator has not obtained the training certificate of our company.
3. Operator error or subjective judgment error.
4. Other damages that are not within the scope of Dream Eagle's responsibility.
5. Compensation for any mental damage caused by the accident.
6. Natural wear, corrosion, line aging, etc. cause poor operation of the product itself.
7. Fly in strong interference areas such as radio towers, high-voltage lines, and substations.
8. Did not read the user manual carefully, and did not follow the instructions in all installation and operation.
9. Improper maintenance, unauthorized disassembly, repair, modification or replacement of the original accessories of the X4-30 plant protection drone.
10. Improper storage, such as being subjected to strong impact, extrusion, or placed in an inappropriate environment (such as fire).
11. Fly in unsuitable areas other than farmland such as no-fly zones, public safety places, above crowds or dangerous areas.
12. An accident is caused by the operator operating the aircraft under conditions of poor physical or mental condition such as drinking, taking drugs, anesthesia, dizziness, fatigue, or nausea.
13. There are obvious signs or hints indicating that the product is abnormal, and the operator did not check it before the flight or did not pay attention during the flight, resulting in the abnormality not being discovered, or the abnormality was discovered but continued to be used.

23. Aircraft Status Indicator Descriptions and Technical Specifications

Aircraft tail light: The color and flashing status of the aircraft tail light represent the status of the aircraft. To facilitate efficient operations and quickly find problems, please read and keep in mind!

LED Three-color light indicating status

Flight mode indication	light status display	Priority
Attitude (stabilization, height fixation)	Single green light flash	Low
GPS mode (angle, speed)	Green light double flash	Low
Functional modes (circling, cruising, farming, etc.)	Green light flashes three times	Low
Smart direction on	Four flashing green lights	Low
Automatic mode (ground station control, return to home)	green light flashing	middle

GPS indicates	light status display	Priority
GPS not connected/GPS not receiving satellite	Three flashes of red light	Low
Poor GPS signal	Red light double flash	Low
General GPS signal	Single flashing red light	Low
Good GPS signal	Red light does not flash	Low
RTK positioning	Yellow light flashing	

Low pressure alarm indication	light status display	Priority
Level 1 alarm	Three flashes of yellow light	Low
Secondary alarm	Flashing yellow light	high

Magnetic calibration on both sides	light status display	Priority
Horizontal calibration	Solid yellow light	middle
vertical calibration	green light	middle
Calibration failed	Steady red light	middle
Calibration successful	Alternately flashing red, green and yellow	middle

Spherical calibration display	light status display	Priority
in progress calibrating	Alternately flashing red, green and yellow	middle
Calibration successful	lights back to normal	middle

Accelerometer Calibration Indication	light status display	Priority
in progress calibrating	Alternately flashing red, green and yellow	middle
Calibration successful	green light	middle

Abnormal status indication	light status display	Priority
The remote control is out of control	flashing red light	high
Magnetic Compass Disturbance/Anomaly	Alternately flashing yellow and green	high
GPS missing/abnormal	Alternately flashing red and green	high
Excessive/abnormal vibration of the TMU	Red and yellow flashing alternately	high

Other state representation	light status display	Priority
Power-on initialization	Alternately flashing red, green and yellow	high
Unlock means	Alternately flashing red, green and yellow	high
Unlock failed	Steady red light	high

X4-20 Tchnical specifications
Product number：X4-20

Frame

Maximum wheelbase：1810mm

Dimensions：1385*1385*770mm

Folded size：770*790*780mm

Power system

Motor

Motor model：X9plus

KV value：100KV

Maximum pulling force: 26.5kg/axis (53.6V, sea level)

Total powertrain：1774g

ESC

Maximum allowable peak current (10 seconds)：120A

Maximum allowable voltage：60.9V

Foldable propeller: diameter x pitch   36190 160--260μm

Flight parameters

Overall weight (without battery)：23KG

Standard takeoff weight：55kg

Effective take-off weight：56kg

Hovering accuracy: horizontal ±50cm, vertical ±50cm

RTK/GNSS use frequency band：B1/B2, GPS L1/L2，

GLONASS L1/L2，QZSS L1/L2，SBAS L1

Power battery model：X4-20-19000mAh/28000mAh smart battery

Hover time：18min（takeoff weight 55kg）

Maximum Pitch Angle：20°

Maximum operating flight speed：9m/s

maximum flying speed：11m/s

maximum wind speed：8m/s

Maximum take-off altitude：2000m

Recommended working environment temperature: 0°C to 40°C

Sprinkler system

Homework box

Volume：20L

Nozzle

Quantity: 8 pressure/4 sets of centrifugal nozzles (optional)

Maximum System Workflow:

MZY8004：3.2L/min，MZY8006：4.0L/min

MZY8008：5.6L/min，VPY11001：3.8L/min

VPY110015：4.8L/min，VPY11002：5.8L/min

Atomized particle size：

        MZY8004:120--240μm，MZY8006：

MZY8008：190--310μm，VPY11001:130--250μm

VPY110015:170--270μm，VPY11002:200--320μm

Spray pattern ： 4—8 M
(8 pressure nozzles/4 centrifugal nozzles, 1.5-3 meters away from crops)

Flow meter
Flow measurement range ： 0.3—10L/min

flow measurement error：≤±2％

FPV camera

Resolution：720P

Viewing Angle (FOV): Horizontal 120°, Vertical 90°

Dreameagle X4-20

Agricultural drone

Scan the code to visit the official website
http://www.skyhawkrc.com/

Scan the code to buy Dream Eagle related products

Shenzhen Dream Eagle Technology Co., Ltd.

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These guidelines are subject to update without prior notice.