Industry-Level Hexrotor Drone

User's Manual

V3.0.2

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General

This document provides detailed information about the product, including functional features, structural parameters, installation and disassembling, and flight guidance.

Models

DH-UAV-X1550、OEM-UAV-X1550

Intended Audience

The end user who purchases this product

Reading Guide

Chapter	Chapter name	Main content
1	Introduction	Describes the functional features and application scenarios of the product.
2	Structure	Comprehensively describes the main components of the product. We recommend you read this chapter before using the product so as to understand the product structure and usage of the main components.
3	Flight Preparation	Describes the complete process before the aircraft takes off after unlocking. Before the device is used for the first time, you must install all the components and perform the debugging process in strict accordance with the installation and debugging sequence described in this chapter. If it is not the first time that you used the device, you can determine the installation content according to the last disassembling situation. Make sure that all the components listed in this chapter (excluding the unnecessary steps) have been installed securely. Strictly conform to the operation steps in this chapter. Do not alter their sequence.

Chapter	Chapter name	Main content
4	Flight Operations	Describes the complete process from takeoff to landing of the aircraft. The preparation steps listed in Chapter 3 must be completed. Before starting the flight, you need to confirm that all inspection items given in this chapter, involving the environment and device itself, have met the flight requirements. Strictly conform to the operation steps in this chapter. Do not alter their sequence.
5	Ending Flight	Describes the operation steps after the aircraft lands in detail. Strictly conform to the operation steps in this chapter. Do not alter their sequence.
6	Update	Describes the device upgrade method and precautions.
7	Appendix 1	Describes the definition of aircraft indicators.
8	Appendix 2	Describes the component pairing methods.
9	Appendix 3	Lists some problems that may be encountered during the use of the product and provides corresponding solutions.

Safety Instructions

The following signal words might appear in the manual.

Signal Words	Description
DANGER	Indicates a high potential hazard which, if not avoided, will result in death or serious injury.
Warning	Indicates a medium or low potential hazard which, if not avoided, could result in slight or moderate injury.
Notice	Indicates a potential risk which, if not avoided, could result in property damage, reductions in performance, or unpredictable results.
TIPS	Provides methods to help you solve a problem or save time.
Description	Provides additional information as a supplement to the text.

Documentation

The product documentation includes the following, which can be used as required.

- Quick Start Guide (electronic file)

This document is applicable to the first simple flight of an aircraft. For the second or further flights of an aircraft or other advanced functions, refer to the User's Manual.

You can check the paper materials attached to the package or visit the official Network Security Response Center of the company to obtain security announcements and the latest security suggestions.

- User's Manual (that is, this document)

This document provides detailed information about the product, including functional features, structural parameters, installation and disassembling, and flight guidance.

Revision History

No.	Version	Revision Content	Release Time
1	V.3.0.0	Revised third-generation remote controller, and APP3.0.	14, December,2022
2	V.3.0.1	Revised aircraft, remote controller and APP3.0.	10, January,2023
3	V.3.0.2	Modified and optimized some descriptions.	27, February,2023

The following description is the correct application method of the drone. Read the manual carefully before use to prevent danger and property loss. Strictly conform to the manual during use and keep it properly after reading.

DANGER

- Operate the drone in an environment which meets flight conditions, and keep away from a no-drone zone.
- After unlocking, operators must keep at least 5 m away from the aircraft to prevent personal injury.

Warning

- Transport, use and store the drone and all its components in a suitable environment.
- Strictly conform to operation flows described in the manual when dismantling and installing the drone. Do not dismantle other components privately.

Notice

- Do not touch the lens of PTZ camera directly. Use a non-woven cloth to remove the dust or dirt from the lens surface.
- Strictly conform to the operation steps described in the manual without reversing the sequence.
- Get to know local laws and regulations before using the aircraft. Apply to local authorities for flight permission if necessary.
- For the first flight, we recommend loiter mode (with GPS satellites≥ 12).
- Make sure that the drone antennas have been properly installed before enabling the power of the remote controller and aircraft. Otherwise, it might cause damage to the internal module or shorten the control distance.

Flight Environment

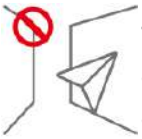
Warning

When flying the drone, make sure to:


Do not enter the no-drone zone.


Keep the view wide open and unobstructed.


Do not fly the drone in rainy, snowy, or thunder weather.



Do not fly the drone in a narrow and small space.

Do not fly the drone right above the crowd.

Keep the drone away from high-voltage power lines.

- Keep away from the no-drone zone.
- Keep the view wide open and unobstructed; make sure that the drone is flying in the field of view.
- Do not fly the aircraft in rainy, snowy or thunder weather.
- Do not fly the drone in a narrow and small space.
- To prevent personal injury, do not fly right above the crowd.
- Keep at least 10 m away from the high-voltage power line.

Power Requirements

Notice

- Use the product with electric wires recommended in this area and within the rated specification.
- For a type I device, connect it to a power socket with earthing.
- Strictly conform to local electrical safety standards.
- Make sure that the power supply is correct before operating the drone.
- The power supply must conform to the requirements of Limited Power Source in IEC 60950-1 standard and be no higher than SELV. Note that the power supply requirements are subject to the device label.
- Prevent the power cord from being trampled or pressed, especially the plug, power socket and the junction extruded from the drone.

Battery Use Requirements

Warning

- Use the dedicated power adapter provided by the company to charge the drone. Otherwise, the battery may be damaged or other unpredictable consequences may be caused.
- Charge the drone at a temperature between 0 °C and 45 °C.
- Distinguish positive and negative poles when charging the drone to prevent short circuit.
- Charge and discharge at least once every month; do not store the drone without electricity.
- Do not place the drone close to fire source or inflammables.
- Do not charge or discharge the drone in unattended conditions.
- Do not use the undesignated battery.
- Do not dismantle and destroy the battery without permission; water is not allowed to enter the drone; man-made damages are not covered by warranty.
- Do not throw the battery into fire or expose it to high-temperature environment.
- Do not dismantle, modify or deform the battery.

- To avoid short circuit between positive and negative contacts (keep the battery away from the objects such as necklaces and hairpins when carrying or storing the battery).
- Replace the damaged battery when a new one in time. To ensure safety, damaged batteries must be disposed of according to local regulations.
- Charge the battery or discharge it to 50%–60% remaining capacity if it won't be used for a long time, and place it in a dry and cool environment.
- If the battery leaks and the liquid enters eyes accidentally, instead of rubbing your eyes; wash your eyes with clean water and see a doctor immediately.

Notice

- It is normal that the battery heats up after running for a period of time because the discharge power is quite big.
- It is normal that the battery heats up when being charged.
- The cycle times of the power battery is 200 or the warranty period is 1 year in normal use.
- When the charger displays “FULL”, the power battery is fully charged. Do not take out the battery before charging is complete.
- When the battery is fully charged, disconnect it from the charger in time to avoid battery abnormalities caused by long-term connection.

Operating Environment

- Do not aim the PTZ at strong light (such as lamplight and sunlight) for focusing.
- Transport, use, and store the drone under the allowed humidity and temperature conditions.
- Prevent any liquid from flowing into the drone.
- Do not block the ventilation opening near the drone.
- Do not press, vibrate or soak the drone during transportation, storage and installation.
- Pack the drone with packaging materials provided by its manufacturer or materials with the same quality before transporting it.

Operation and Maintenance Requirements

Warning

- Do not dismantle the drone by yourself.
- Do not touch the CCD or CMOS sensor directly; use a non-woven cloth to remove dust or dirt from the lens surface.
- Use the soft dry cloth or clean soft cloth dipped with a little mild detergent to clean the drone.
- Do not touch or wipe the lens surface directly.
- Use the accessories provided by the manufacturer, and entrust professionals to install and maintain the drone.
- Avoid laser beam radiation to the surface when using a laser beam device.
- Do not provide two or more power supply modes for the drone.
- Multiple aircraft are allowed to fly in the same area at the same time, And the number of aircraft depends on the current wireless environment.
- Make sure that there are no obstructions above the drone during flight.

Important Statements

- The physical product shall prevail while this User Manual is for reference only.
- The User's Manual, software, and firmware are updated in real time in accordance with the product. The update is subject to change without prior notice.
- Any loss caused by not following the instructions in this manual shall be borne by the user.
- This document may contain technical errors, non-conformities with the operations of the product, or typographic errors. The company reserves all the rights for the final explanation.
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Table of Contents

1. Introduction

1.1 Overview

The Smart Hex-rotor Drone represents an integrated solution of aerial video for public security, transportation, firefighting, agriculture, forest, energy and other industries.

The drone consists of aircraft, airborne device, and remote controller.

- Aircraft: Navigation system, flight control system and power system.
- Airborne device: The PTZ control system and task device.
- Remote controller: The remote controller system, data link, and ground control station software.

1.2 Features

Integrated Design

- The aircraft adopts an integrated and neat design with detachable propellers.
- Equipped with a touchscreen, the remote controller is easy to operate and has a clear indicator.

Folded Packages

- The arms are either repeatedly foldable or detachable.
- Repeatedly foldable antennas suitable for transport and storage.

Quick Dismantling and Installation

- The propellers can be quickly dismantled and installed, easy to open or fold antenna.
- The antennas are easy to fold and unfold.
- With installation screws secured on the shock absorber plate, the PTZ camera can be quickly dismantled and installed.

HD Video

- The shock absorber plate and shock absorber ball work together for PTZ camera stability.
- Optional industrial-grade 30x optical zoom visible light camera produces professional HD videos.
- Optional IR thermal camera shoots clear images with high restoration in special environments such as fire scene or night environment.

- Start snapshot and video recording with a simple press of the buttons on the remote controller.

Accurate Positioning

Accurate real-time positioning with a built-in GPS system.

Wireless Transmission

- The aircraft connects the remote controller and image transmission device through 4 antennas.
- The remote controller transmits radio signals to the aircraft through 2 antennas.

Low Battery Protection

When the battery is lower than the estimated value needed for safe return, the aircraft triggers low battery protection automatically, including alarm, returning and landing.

Intelligent Battery

- Displays remaining battery: Built-in power indicator light.
- Balanced charging protection: The charger balances the battery cell voltage.
- Overcharge protection: Automatically stops charging when the battery is full.
- Sleep protection function: The battery automatically goes to sleep status when there is no operation within 5 minutes.
- Charging temperature protection: The normal battery charging temperature ranges from 0 °C to 45 °C. Once the temperature is too high, the battery automatically stops charging.
- Communication: The remote controller can get information about the current battery level and voltage.

Flight Control

- The hex-rotor power system supports switchable flight modes and easy control.
- Radar obstacle avoidance, auxiliary alt hold, vision positioning, optical RTK (Real Time Kinematic), Motor failure protection, Auto takeoff/ landing and more,

Electronic Fence (E-fence)

- Set an e-fence to prevent the aircraft from leaving the specified flight zone.
- Supports customized e-fence settings.

2. Structure

This chapter introduces the structures and components of the aircraft, airborne device, and remote controller that make up the drone. For detailed operations on the product, see 3 Flight Preparation.

Description

The dimension diagrams, structure diagrams, and interface diagrams in this chapter are for reference only. These diagrams may differ slightly from the actual results due to measurement positions, measurement accuracy, position indications, and other reasons. The actual results shall prevail.

2.1 Aircraft

This section describes the operations after the propeller is installed and the arm is fully unfolded.

2.1.1 Dimensions

Figure 2-1 **Front view (mm)**

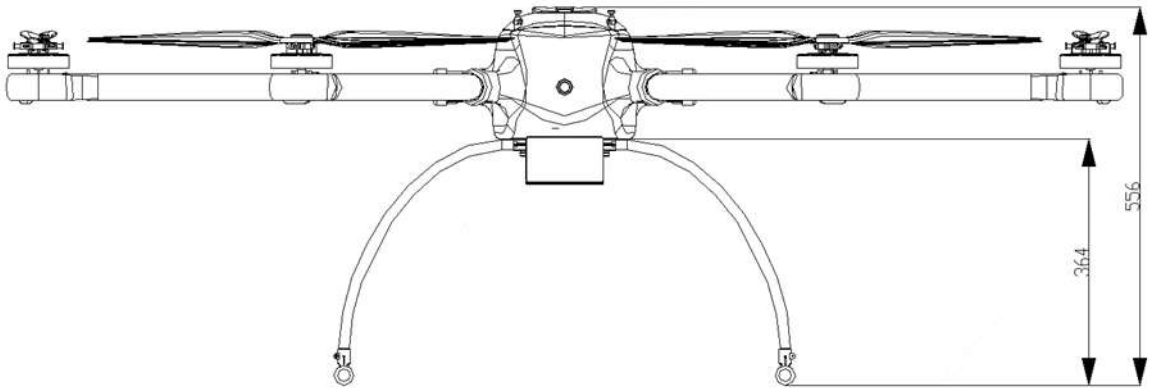
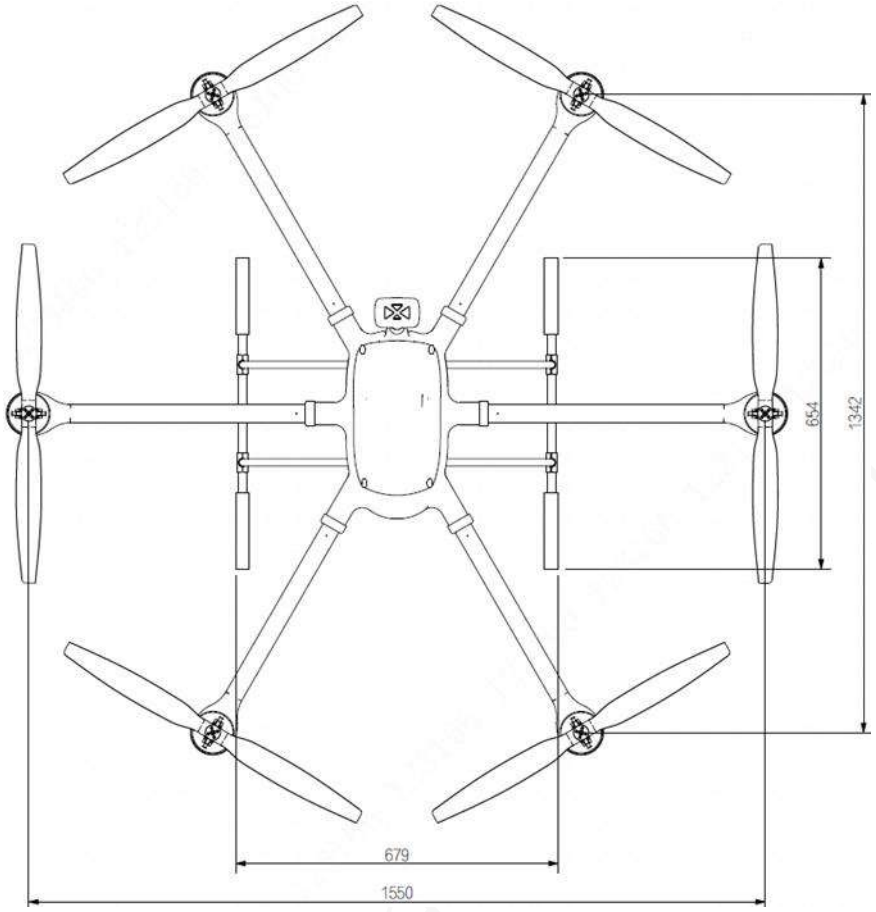


Figure 2-2 **Top view (mm)**



2.1.2 Components

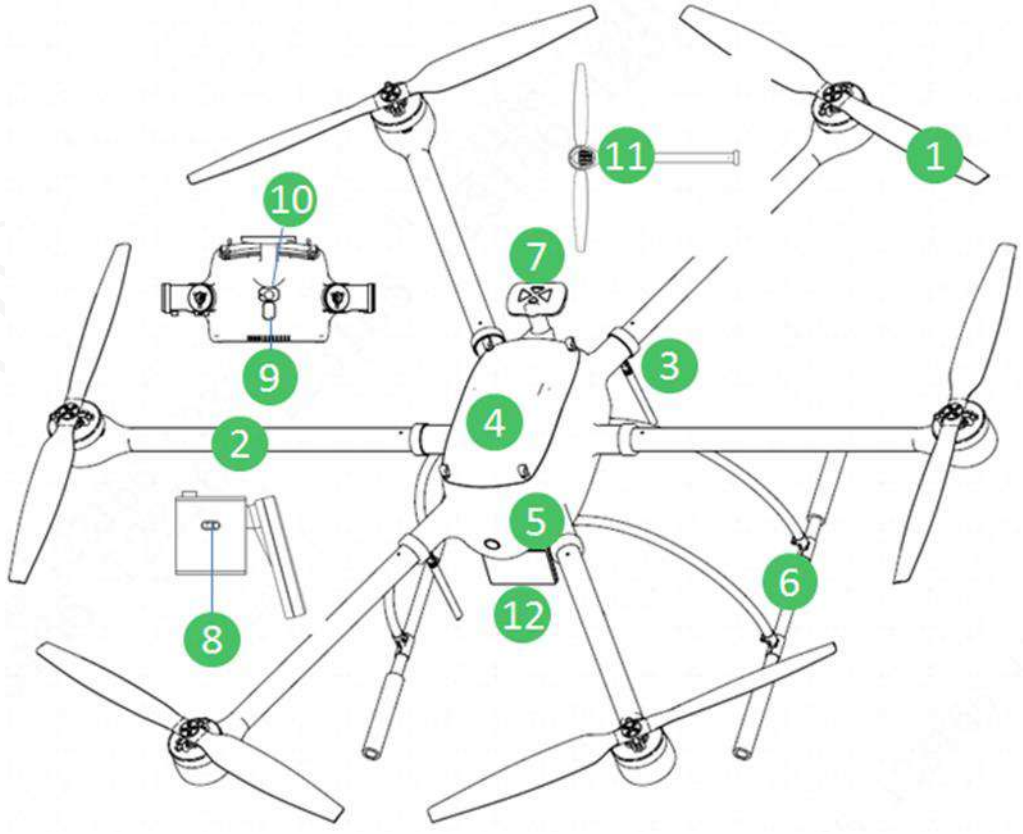


Table 2-1 Components description

No.	Name	Description
1	Propeller	High-speed revolution to turn the motor power to propulsive force. There are 3 pairs of propellers with different structures. Install the propellers according to the actual situation.
2	Arm	Foldable.
3	Antenna	Foldable. ● 2 antennas for signal transmission from the remote controller. ● 2 antennas for wireless image transmission.
4	Battery cover	After opening the cover, disassemble or assemble the batteries.
5	FPV	Videos from the upward vision camera in the head direction
6	Landing gear	Foldable. Used to secure the horizontally unfolded arm.
7	Positioning and navigation module	Built-in GPS and compass.
8	Linking port	Links the remote controller and used for the wired update of aircraft function board.
9	Power button (with built-in indicator)	Press it for 1 second, and then press and hold it for 3 seconds to turn on/off the aircraft.
10	Aircraft status indicators	Two modes: Glowing and flashing, Five colors: Red, yellow, blue, green and purple. The lights indicate system status, flight mode, update status and more. Description For details, see Appendix 1
11	ESC (electronic speed control) indicator	Red and green lights. ● The adjacent two indicator lights glow red. The middle of the red lights corresponds to the head of the aircraft. ● The adjacent four indicator lights glow green. The middle of the green lights corresponds to the tail of the aircraft.
12	Downward vision module	Supports obstacle avoidance, vision positioning, vision landing and more.

2.2 Airborne Device

Description

- This section uses a 2 MP visible light PTZ camera as an example of an airborne device.
- There are many types of airborne devices. For details, see the User's Manuals of the corresponding devices (in electronic form).

2.2.1 Visible Light PTZ Camera Dimensions

Figure 2-3 **Front view (mm)**

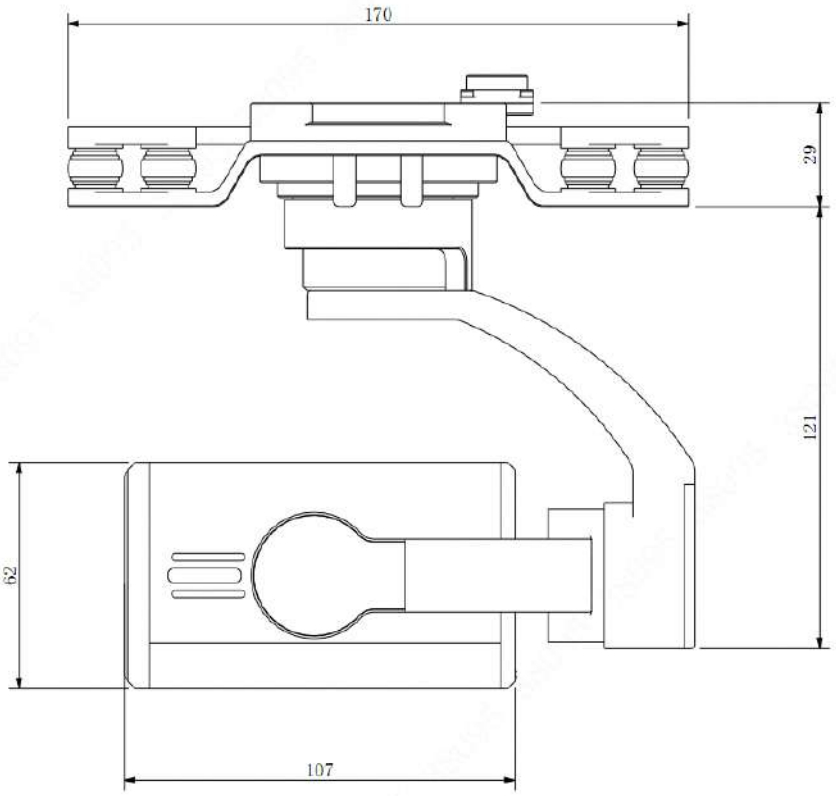
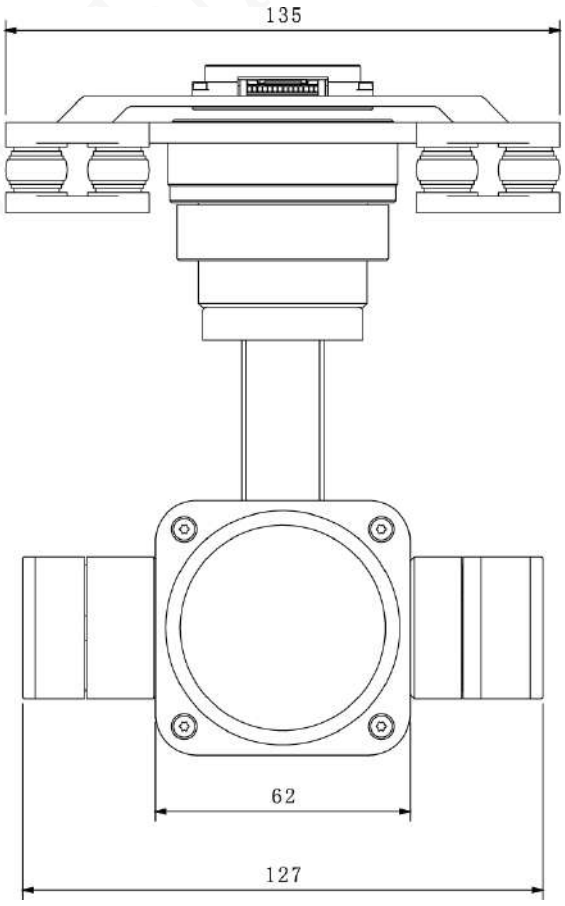


Figure 2-4 **Side view (mm)**



2.2.2 Visible Light PTZ Camera Components

Figure 2-5 **Components**

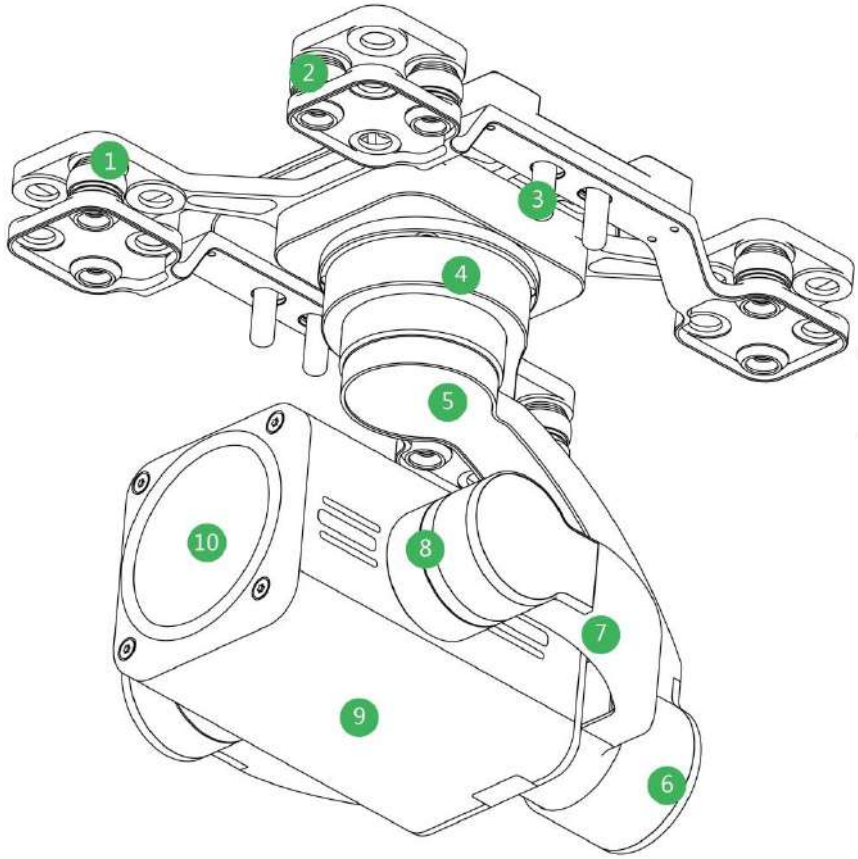


Table 2-2 Components description

No.	Name	Description
1	Shock absorber ball	Reduce vibration of PTZ camera during flight for clearer video image.
2	Shock absorber plate	
3	Quick release structure	Secures the PTZ camera on the aircraft.
4	Yaw motor	Control the horizontal direction of the camera.
5	Yaw rotation arm	
6	Roll motor	Control the horizontal tilt angle of the camera lens.
7	Roll rotation arm	
8	Pitch motor	Controls the vertical tilt angle of the camera.
9	Camera	Take images.
10	Lens	

2.3 Remote Controller

2.3.1 Dimensions

Figure 2-6 **Front view (mm)**

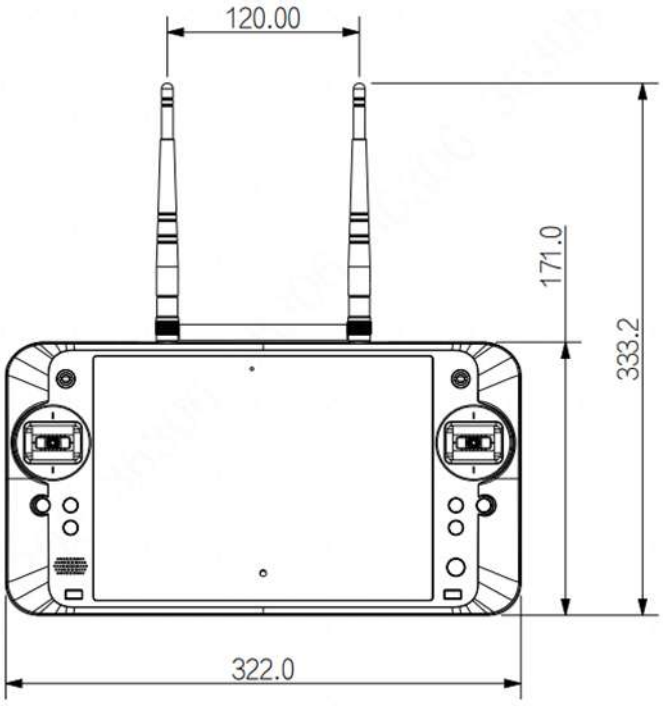
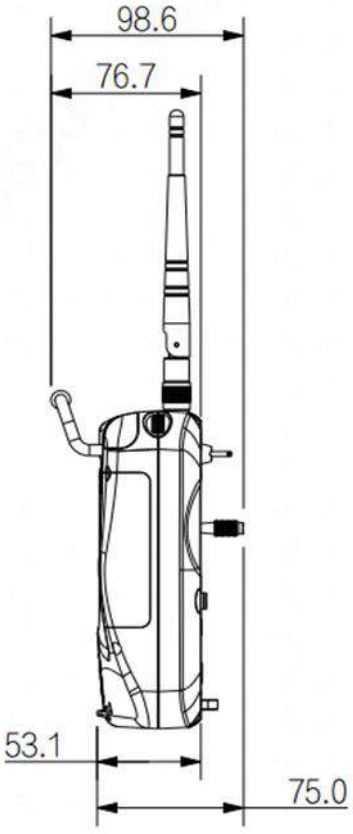


Figure 2-7 **Side view (mm)**



2.3.2 Components

It shows the front panel, side panel, and rear panel of the remote controller.

Figure 2-8 Front panel

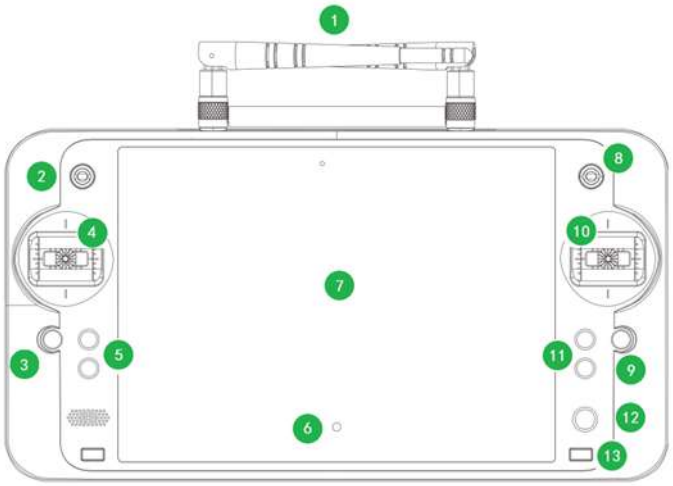


Table 2-3 Front panel components

No.	Name	Description
1	Antenna	Transmits remote controller signals with the aircraft and receives images. 2 antennas are installed on two sides.
2	PTZ mode lever	2-level lever used to select PTZ mode. ● Upper level: Course following mode. The PTZ camera angle changes with the aircraft's flight direction. ● Lower level: Course locking mode. No matter what the aircraft flight angles are, the PTZ camera always faces the same degree to shoot.
3	One-press takeoff/landing button	Control the aircraft to take off or land automatically. The aircraft will loiter at 1.5 m high when the takeoff process is complete.
4	Left control stick	Controls the aircraft flight status.
5	Custom button	Custom buttons.
6	Remote controller status indicator	Displays the charging status of the remote controller. The indicator light is on when the charging port connects to the power supply. ● Solid red: Charging. ● Solid green: Charging complete.
7	Touchscreen	Set parameters and watch live view.
8	Flight mode lever	The 3-level lever to select flight mode. 1) Upper / Middle level: Loiter mode. When both sticks are in the middle, the aircraft hovers at the same position. 2) Lower level: Intelligent fight mode. The aircraft flies automatically according to the pre-defined flight route.
9	One-press RTH button	Press this self-locking button to control the aircraft to return automatically.
10	Right control stick	Controls the aircraft flight status.

No.	Name	Description
11	Customized button	Supports several optional functions.
12	Power button	Press the button for 1 second to turn on the device, and press and hold the button for 8 seconds to turn off the device. Press the button to turn off or wake up the screen.
13	Hanger	Hangs the lanyard.

Figure 2-9 **Side panel**

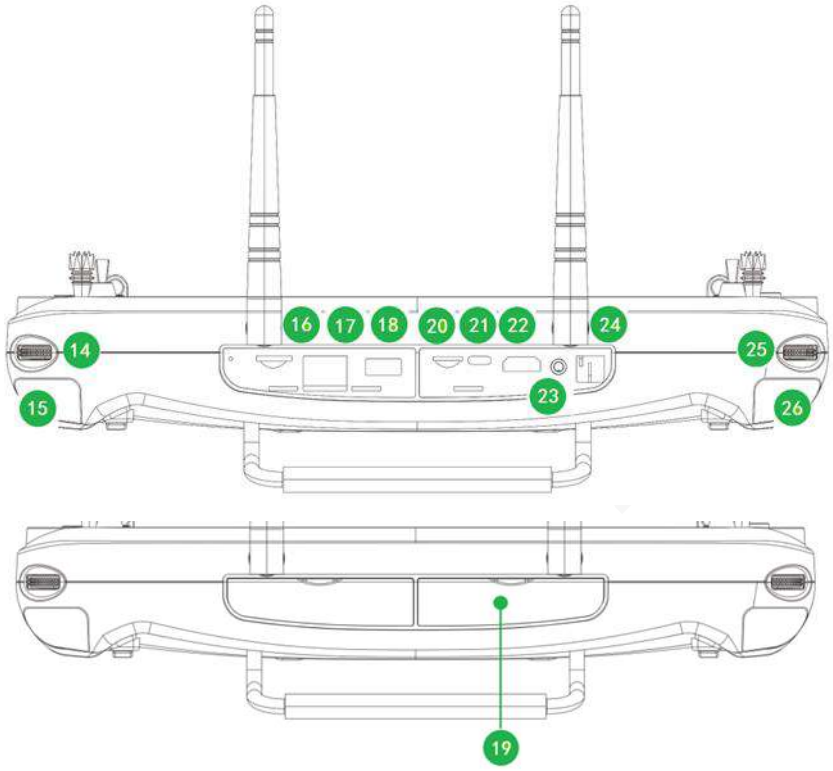


Table 2-4 Descriptions of side panel components

No.	Name	Description
14	PTZ yaw thumbwheel	Controls the horizontal shooting angle of the camera lens.
15	Snapshot button	Press this button to capture images.
16	SIM slot	Supports Mobile, Unicom and Telecom.
17	Ethernet port	Connects Ethernet cable.
18	USB Type-A port	USB Type-A port
19	Protective rubber pad	Water and dust proof.
20	Micro SD slot	● Insert micro card: Insert the card into the slot horizontally with the chip facing away from the screen of the remote controller. ● Remove micro SD card: Press the card inwards, and then the SD card pops up a little bit and can be pulled out.
21	USB Type-C port	USB Type-C port
22	HDMI port	Outputs videos at up to 4K resolution (3840 × 2160 pixels).
23	Audio output port	Connects to earphone, sound box and other devices to play audio.

No.	Name	Description
24	Power input	Inputs 12 VDC power.
25	PTZ pitch thumbwheel	Controls vertical shooting angle of the camera lens.
26	Record button	Press this button to start recording, and press it again to stop.

Figure 2-10 Rear panel

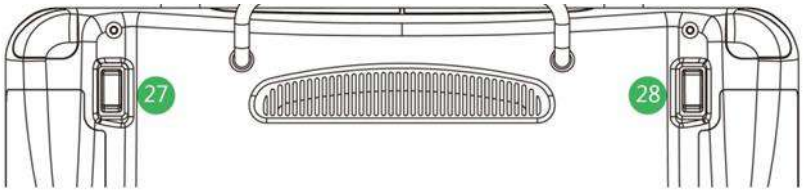


Table 2-5 Descriptions of rear panel components

No.	Name	Description
27	Zoom in button	● Press it to zoom in the camera image. ● Press and hold the button to zoom in until the camera image reaches the maximum magnification.
28	Zoom out button	● Press it to zoom out the camera. ● Press and hold for a long time to zoom out until the camera reaches the minimum magnification.

2.3.3 Operation Interface

Turn on the remote controller to go to the home page.

The home page is divided into the following functional modules.

Figure 2-11 Home page

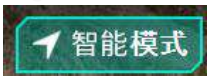
Table 2-6 Home page description

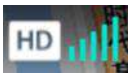
No.	Name	Description
1	Status bar	From left to right: aircraft health status, flight mode, downward vision status, PTZ mode, aircraft 4G/5G signal strength, remote controller signal strength, GPS signal strength, image transmission signal strength, aircraft battery level and setting menu.
2	Large Live view window	The map, PTZ video, and FPV video can be switched to display on the large live view window. For details, see 2.3.3.2 Live View.
3	Dashboard	Displays the current horizontal height, vertical height, horizontal speed, distance from the home point and more. For details, see 2.3.3.3 Dashboard.
4	Preview window	Displays map, FPV and PTZ information, which can be switched to display on the large live view window. For details, see 2.3.3.2 Live View.
5	Shortcut	Control stick input status, payload setting, and waypoint task. Some general functions are placed here. For details, see 2.3.3.4 Shortcut.
6	Map settings	Aircraft recentering settings, map switching and no-drone zone settings. This section only appears when the map is displayed on the large live view window. For details, see 2.3.3.2 Live View.

2.3.3.1 Status Bar

Figure 2-12 Status bar

Table 2-7 Description of general functions and status bar

Icon	Name	Description
	Flight status	View aircraft status information. For details, see 3.8.1 Checklist.
	Flight mode	Displays the current flight status, such as intelligent mode, There are 3 types. ● Type1: remote controller disconnection and aircraft not connected ● Type2: unknown ● Type3: intelligent mode, landing, loiter, angle, alt hold, point of interest（POI）, guided, brake, return and forced landing,
	Vision status	After the vision is enabled, it displays in green for normal vision, red for abnormal vision, and gray for other status.
	PTZ mode	Displays the current PTZ mode (the PTZ camera is locked in one direction or the PTZ camera follows the

Icon	Name	Description
		course). ●  : When the PTZ lever is at the lower level, the PTZ camera is locked in one direction. No matter how the aircraft angle changes, the PTZ camera faces the same direction to shoot. ●  : When the PTZ lever is at the upper level, the direction of the PTZ camera follows the course. The shooting angle changes with the aircraft course.
	Aircraft 4G/5G signal strength	Displays 4G/5G signal strength. There are 3 status: 4G, 5G and No SIM card. There are 5 bars. The more the highlighted bars, the greater the signal strength.
	Remote controller signal strength	Displays the strength of signals between the remote controller and the aircraft. There are 5 bars. The more the highlighted bars, the greater the signal strength.
	GPS satellite count and signal strength	● The number represents the number of GPS satellites. ● The 5 bars on the right side indicate GPS signal strength. The more the solid bars, the greater the signal strength.
	Image transmission signal quality	Tap this icon to pop up the window indicating the image transmission signal quality, which displays the overall signal quality of image transmission antennas.
	Aircraft battery level	Displays the battery level of the aircraft. The value is N/A when the aircraft is not connected, and changes to battery percentage and voltage value when paired.
	Settings	Tap to go to the **Settings** page. For details, see 2.3.3.1.1 Settings.

2.3.3.1.1 Settings

Tap  to go to the **Settings** page, as shown in Table 2-8.

Table 2-8 Settings menu

Level-one Menu	Level-two Menu	Level-three Menu	Description
Autopilot settings	RTH altitude	-	Set the RTH altitude of the aircraft.

Level-one Menu	Level-two Menu	Level-three Menu	Description
	RTH type	-	● Select the RTH type as needed. ● There are descriptions below each RTH type.
	Sensor	Compass calibration	● Displays the current compass status. Tap to calibrate. ● For details, see 3.8.5 Compass Calibration Error (Hex-rotor Drone as an Example).
		Accelerometer calibration	● Displays the current accelerometer status. Tap to calibrate. ● For details, see 3.8.3 Accelerometer Calibration.
	Obstacle avoidance	Downward settings	● Set vision positioning, landmark landing and auxiliary alt hold. ● For details, see 4.4.2.2 Obstacle Avoidance.
	Fence settings	-	● Enable/disable the electronic fence. ● For details, see 4.4.2.3 Fence Settings.
	Aircraft locking	-	● Set the aircraft locking mode. ● Three modes are available: None/course lock/return lock. ● Select **COURSE LOCK:** Lock the current head direction as the forward direction of the aircraft. Select **RETURN LOCK:** Set the head orientation as the opposite direction of the shortest straight-line distance from the aircraft to the Home point. Select **None**: Set the current head orientation as the forward direction.
	No-drone zone enabled	-	Enable no-drone zone for the aircraft.

Level-one Menu	Level-two Menu	Level-three Menu	Description
	Aircraft Authorization	-	Displays the remaining available time of the aircraft.
	Propeller type	Blade type	● Set the blade type of the aircraft: ● Select plain blade dynamic parameters or plateau blade dynamic parameters.
		Pop-up window that reminds the propeller type	Set whether to use a pop-up window that reminds the propeller type after unlocking,
Remote controller settings 	Signal strength	-	Displays the strength of signals between the remote control and the aircraft.
	Joystick mode	-	● There are two modes. ● For details, see 4.1.5 Manual Flight Control.
	Calibrate	-	● Calibrate the remote controller and the thumbwheel. ● For details, see 3.8.2 Calibrating Remote Controller
	Custom buttons	-	● Assign optional functions to the C1, C2, C3, and C4 buttons on the remote controller. ● For details, see 4.4.1 Customizing Functions of Remote Controller Buttons.
	Signal status	-	Check the signal status of the current aircraft environment.
	Mute	-	Enable/disable the mute function for the remote controller.
	Crosshair	-	● Enable/disable the crosshairs. After enabled, they are displayed on the video. ● Set various parameters for the crosshairs, such as type, color and size.
	Start page	-	● Set the image when the App starts. ● Tap **Upload** to upload the picture to the database for selection

Level-one Menu	Level-two Menu	Level-three Menu	Description
	Remote pair	-	● Pair the remote controller with the aircraft. ● For details, see Appendix 2.
Image transmission settings 	-	-	Displays the current real-time frequency band, signal status (remote controller and aircraft), real-time bandwidth, channel mode and signal strength curve.
Camera settings 	Resolution	-	Set the photo resolution.
	OSD settings	-	Set video parameters, such as brightness, contrast and saturation.
	Video overlap settings	-	Set the overlay information on the video such as date, time, and channel title.
	Restore camera	-	Restore the camera parameters to the default.
	Face comparison library settings	-	When the PTZ camera with face comparison function uses this function, you need to import the face photo that meets the requirements for modeling,
	Advanced settings	Video channel selection	Switch video channel.
		Main stream/ sub stream	There are three types of streams available: main stream, sub stream 1, and sub stream 2.
		Main stream settings	Set the resolution, frame rate, and bit rate of the main stream.
		Sub stream settings	Set the resolution, frame rate, and bit rate of the sub stream.
Platform access 	remote controller platform access	GB access	-
		Auto registration	● An access mode. ● For details, see 4.4.4.1 Remote Controller Auto Registration.
Remote controller record 	Record settings	-	● Set whether to enable local recording on the remote controller ● For details, see 4.4.5 Remote Controller Record.
	Play record	-	Remote controller local video play interface

Level-one Menu	Level-two Menu	Level-three Menu	Description
General settings 	Map	-	● Select map type ● Download the offline map package.
	HDMI projection screen	-	After connecting the remote controller to the monitor with an HDMI cable, a screen or video can be selected to project on the monitor.
	Date and time	-	● Set the date, time and time zone of the remote controller system ● Set whether the remote controller time is consistent with the aircraft time and the PTZ time
	Language	-	Set the language of the remote controller system.
	Remote Assist	-	Enable/disable the remote assist.
	Version management		● View the firmware version and update. ● For details, see 6.1 Updating Local Firmware.
	About	-	Displays hardware information such as serial number and system model of the device.

On the **Settings** page, tap  to return to the upper-level menu, or tap  to exit the **Settings** page.

2.3.3.1.2 Aircraft Health status

Tap the flight status icon in the upper left corner to go to the **Checklist** page. Then tap **Aircraft health status** to go to the **Health status management** page, as shown in Figure 2-13.

(1) Displays the current status of the propulsion system, waypoint system, battery system and vision system, including the following states: normal, abnormal, warning, restricted unlock, unknown, etc. Tap on each system to see details.

(2) Tap **Flight Data** to view the flight history.

(3) Tap **Log Management** to view the remote controller log, function board log, and battery log.

(4) Tap **Exception record** to search for exception records under different exception levels in the function module.

(5)Tap **After-sales service** to carry out after-sales services.

Figure 2-13 Health status management

2.3.3.2 Live View

2.3.3.2.1 Live Video

Tap the preview window in the lower left corner of the home page to switch between the live video mode and the live map mode, as shown in Figure 2-14.

Figure 2-14 Live video mode

- In this mode, the map and FPV appear on the preview window in the lower left corner of the home page.
- In this mode, the large live view window displays the video being transferred from the PTZ camera to the remote controller in real time.

2.3.3.2.2 Live Map

Tap the preview window in the lower left of the home page to switch between the live video mode and the live map mode, as shown in Figure 2-15.

Figure 2-15 Live map mode

- In this mode, the video and FPV appear on the preview window in the lower left corner of the home page.
- In this mode, the large live view window displays the aircraft's position on the map.

The functions of the icons in live map mode are described as follows:

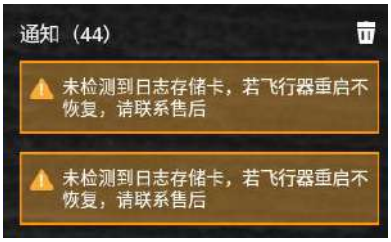
-  Central icon: Switch to and center at the current position of the aircraft quickly.
-  Map direction locking icon: In unlocking status, the map orientation can be changed by holding down the map interface with two fingers; in locking status, map orientation cannot be changed.
-  Map display mode switching icon: Switch to display the map in the form of satellite imagery or 2D images.
-  No-drone zone icon: Enable/disable the no-drone zone function.

2.3.3.2.3 Notification

The notification will appear in the upper right corner of the home page. Tap the  icon to view the notification list.

And tap the  icon to delete all notifications, as shown in Figure 2-16.

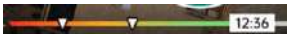
Figure 2-16 Notification



2.3.3.3 Dashboard

Figure 2-17 Dashboard

Table 2-9 Descriptions of status bar

Icon	Name	Description
	Compass	White triangle icon: Indicates the direction of the aircraft head. Peripheral compass icon: Indicates the orientation of the aircraft in the geographical location.
	Horizontal speed	Horizontal forward and backward speed of the aircraft. The value is N/A when the aircraft is not connected.
	Vertical speed	Vertical ascending and descending speed of the aircraft. The value is N/A when the aircraft is not connected.
	Altitude	Altitude relative to the takeoff point. The value is N/A when the aircraft is not connected.
	Distance from Home	The distance between the aircraft and Home. The value is the projection distance on the plane.
	RTH altitude	Perform the one-press RTH function. If the current altitude is lower than the set RTH altitude, the aircraft will ascend to the RTH altitude and return straight to the Home point. If the current altitude is higher than or equal to the set RTH altitude, the aircraft will return directly to the Home point.
	Altitude above sea level	The current altitude above sea level of the aircraft.
	Remaining flight time	Battery life information display: 1) Remaining flight time 2) RTH point time 3) Low battery RTH time

2.3.3.4 Shortcut

The shortcuts are in the lower right corner of the home page, which allows you to view the stick input status, perform payload control, and set waypoint tasks.

Tap the inverted triangle  icon below to hide the shortcuts, as shown in Figure 2-18.

Figure 2-18 Shortcut

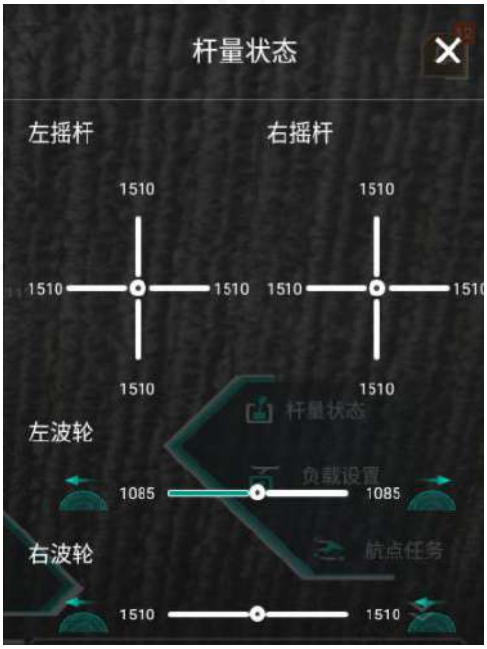
2.3.3.4.1 Stick Input Status

View the parameters of remote controller control sticks and thumbwheels.

Dial the left and right sticks, and left and right thumbwheels, then the values of stick input and thumbwheels are displayed in real time.

Tap **Stick input status**, and the **Stick input status** page is displayed, as shown in Figure 2-19.

Figure 2-19 Stick input status



2.3.3.4.2 Payload

Set PTZ functions such as PTZ position, fine tuning, payload type and function type,

Step 1 Tap **Payload settings** to go to the **Payload settings** page, as shown in Figure 2-20.

Step 2 Select the function type based on the actual requirements. For details, see Table 2-10.

Figure 2-20 **Payload settings**

Table 2-10 Descriptions of PTZ parameters

Parameter	Description
PTZ position	Set the position of the PTZ, Two modes are available: PTZ 90°and Recenter the gimbal. PTZ 90°: Tap to make the camera face down vertically. Recenter the gimbal: Tap to make the camera face forward.
Fine tuning	When the PTZ fine-tuning is enabled, the PTZ fine-tuning dashboard will appear. Tap an icon in a certain direction to fine-tune the position of the PTZ up, down, left and right.
Payload type	The remote controller automatically obtains the PTZ type
Function type	Displays all function types available for the currently recognized type of payload. Select any function type from the drop-down list. The corresponding operation page is displayed below.

Description

Tap the custom button on the remote controller to set PTZ functions. For details, see 4.4.1 Customizing Functions of Remote Controller Buttons.

2.3.3.4.3 Waypoint Task

It displays the route library and allows you to set/import/export/edit flight task, as shown in Figure 2-20.

Step 1 Tap **Waypoint task** to go to the route library,

Step 2 Set flight tasks as needed.

1) Create route: Select **Create Route** > **Waypoint Flight** > **Pin Waypoint** to go to the **Pin waypoint** page. Then you can set and save waypoint flight tasks as needed.
2) Import task: When a route task exists in the SD card of the remote controller, tap **Import task** to import the route task.
3) Export task: Insert the SD card in the remote controller, Tap **Export task**, select

route, and tap **Export**.

4) Tap **Edit** to enter the editing mode. Then you can collect, copy and delete routes.

Figure 2-21 **Route library**

Description

Select **Settings**> **Remote Controller Record** > **Flight trajectory** to view historical flight trajectory.

For details, see 4.2.1.1 Waypoint Flight.

Figure 2-22 **Payload settings**

3. Flight Preparation

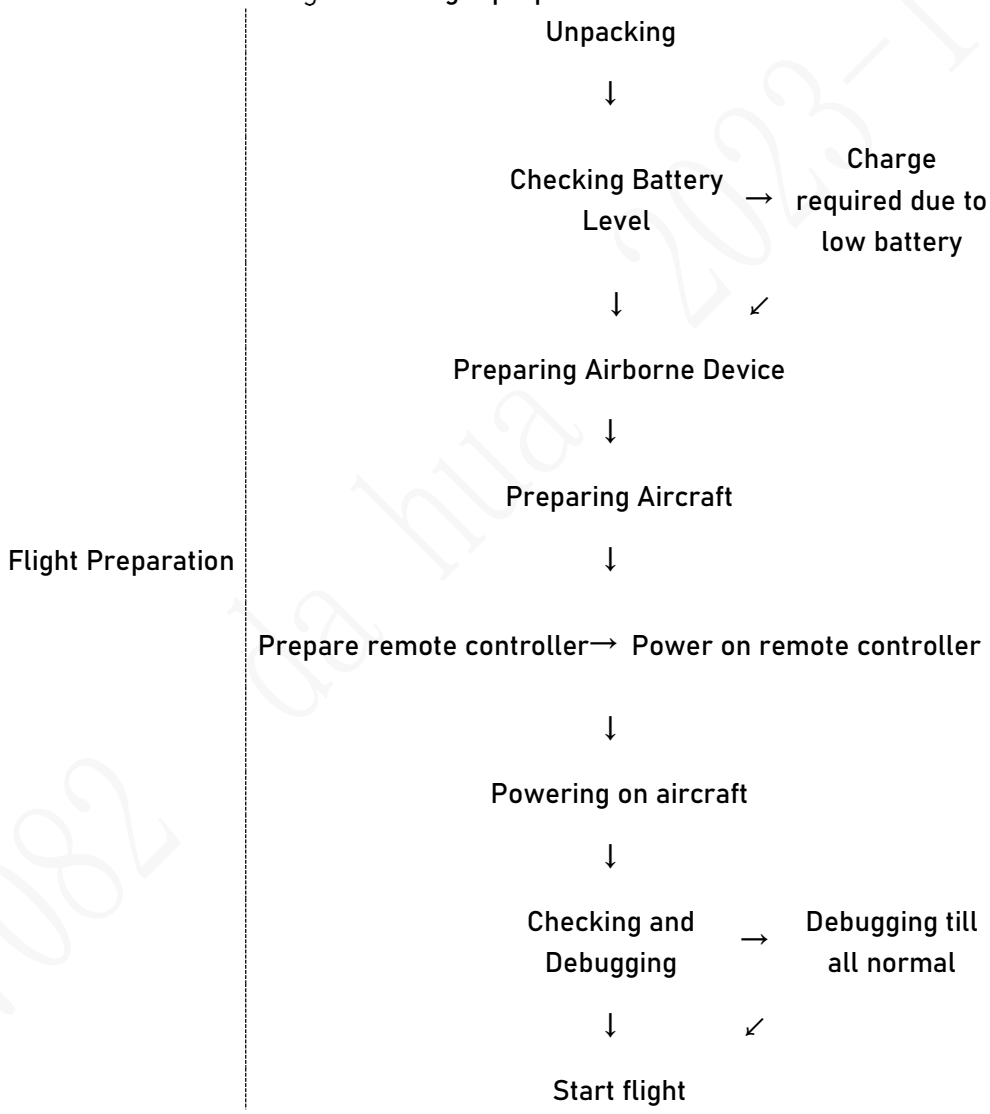
Description

- This chapter describes what you need to do before unlocking the aircraft for take-off.
- If you have already flown the aircraft, select the operation you need to perform according to the actual situation after the first flight is over.

Notice

Strictly conform to the operation steps in this chapter. Do not alter their sequence.

Figure 3-1 Flight preparation flow



3.1 Unpacking

Take out the aircraft, battery, landing gear, propellers, and the remote controller from the packing box.

3.2 Checking Battery Level

Make sure that the battery level of the aircraft and remote controller are high enough before implementing the subsequent steps.

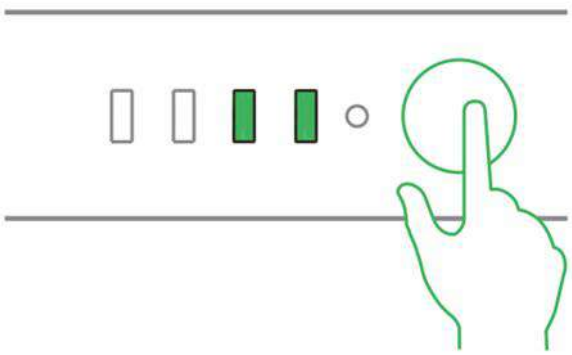
If the battery level is low, charge the battery as described in 3.3 Charging.

3.2.1 Aircraft

3.2.1.1 Checking Aircraft Battery Level

Press the power button on the aircraft to check the indicator status, as shown in Figure 3-2.

Figure 3-2 Check aircraft battery level



There are five indicator lights. The red light turns on when the battery is enabled. The other four green lights indicate the battery level.

- At normal temperature, make sure that the battery level is not lower than 50%.
- When the temperature is lower than 0 °C. Make sure that the aircraft takes off with full power

3.2.1.2 Reading Aircraft Battery Level

There are three statuses for each green indicator light of the aircraft battery: glowing, flashing and off.

The following table describes the battery percentage for each status. ● means glowing, ◎ means flashing and ○ means off. As shown in Table 3-1

Table 3-1 Aircraft Battery Level

No.	Indicator Status	Battery Percentage Range
1	●●●●～●●●◎	100%–87.5%
2	●●●◎～●●●○	87.5%–75%
3	●●●○～●●◎○	75%–62.5%
4	●●◎○～●●○○	62.5%–50%
5	●●○○～●◎○○	50%–37.5%
6	●◎○○～●○○○	37.5%–25%
7	●○○○～◎○○○	25%–12.5%

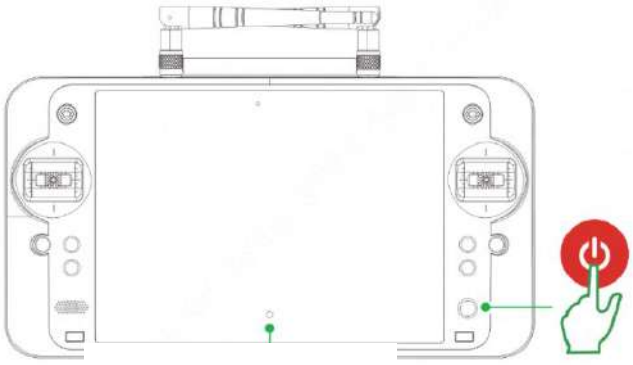
8	◎○○○～○○○○	12.5%-0

3.2.2 Remote Controller

3.2.2.1 Checking Remote Controller Battery Level

Press and hold the power button to turn on the screen.

Figure 3-3 Enable remote controller power



- At normal temperature, make sure that the battery level is not lower than 50%.
- Make sure that the battery level is not lower than 80% when the temperature is lower than 0 °C.

3.2.2.2 Battery Level of Remote Controller

Swipe down on the screen to display the battery level of the remote controller.

3.3 Charging

Description

If the battery level is high enough, skip this section.

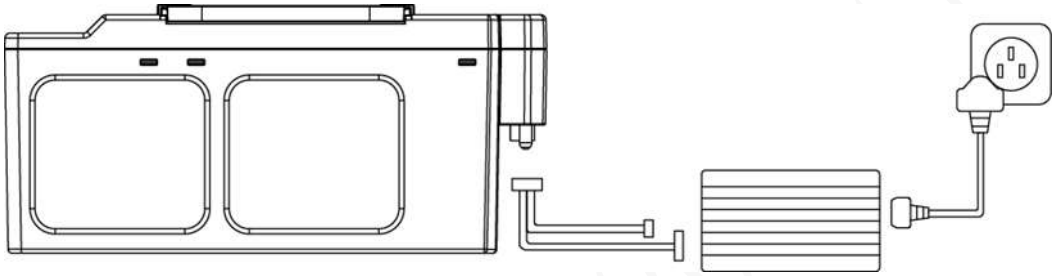
3.3.1 Charging the Aircraft Battery (Charger Subject to the Delivery Product)

Notice

When the charger displays **FULL**, the power battery is fully charged. Do not take out the battery before charging is complete.

The entire charging period (from 0 to fully charged) lasts approximately 2 hours. The actual charging period depends on the battery level and charging current.

Figure 3-4 Charging aircraft battery



Step 1 Remove the battery: Open the battery cover, and then lift the battery vertically out of it.

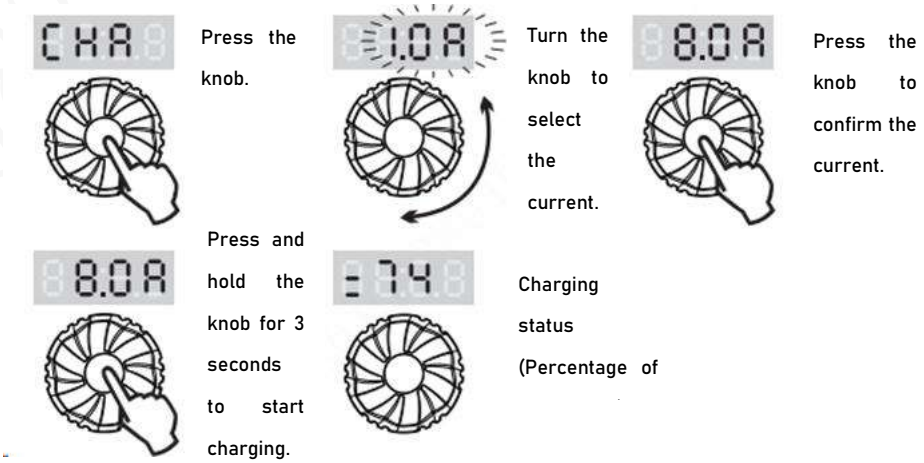
Step 2 Connect AC: Connect the power cord to the power input port of the charger, and then connect the charger to AC power.

Step 3 Connect DC: Connect the AC-to-DC cable to the battery and output port of the charger.

Step 4 Select a charging mode: Turn on the charger switch, dial the knob, and select the working mode as BLC mode.

Step 5 Select the current: Press the knob, and the current value 1.0 A is displayed on the LED digital tube and keeps jumping and blinking. Then turn the knob to adjust the current until the adjustment is complete. Turn the knob clockwise to increase the current, and counterclockwise to decrease it. Press the knob again to confirm. The current increment is 0.1 A and the adjustable range is 1.0 A – 20 A.

Figure 3-5 Change the current



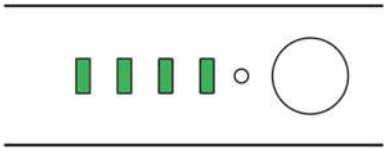
Step 6 Enable the battery: Press the power button on the aircraft and then press and hold it again for 3 seconds to turn on the indicator lights. Check the battery level.

Step 7 Press and hold the knob for 3 seconds to start charging. And the LED digital tube displays the charging status.

Step 8 Press the red stop button if the charge is overcharged.

Step 9 After charging is complete, the charger rings 5 times, and the LED digital tube displays **FULL**: The indictor behavior is as follows when the aircraft battery is fully charged.

Figure 3-6 Indicator behavior for fully charged



Step 10 After charging is complete, disconnect the charger from the power socket, and then press the stop button at the back of the charger to turn off the charger.

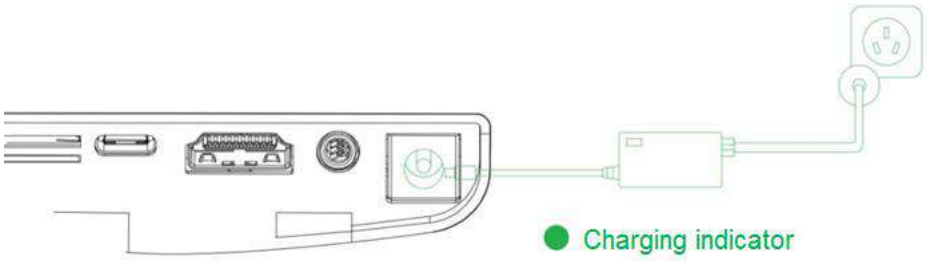
3.3.2 Charging Remote Controller

When the remote controller is turned off, the entire charging period (from 0 to fully charged) lasts approximately 3.5 hours.

Make sure that the remote controller is turned off when charging.

Step 1 Connect DC: connect the remote controller to the power adapter with a power cord.

Figure 3-7 Charging connection



Step 2 Connect AC: connect the power adapter to AC power (100–240 VAC).

Step 3 Check charging status: The charging indicator light glows red during charging. When the charging indicator is solid, it indicates that the charging is complete, as shown in 错误!未找到引用源。.

Step 4 After charging is complete, disconnect the charger from the power socket, and then disconnect other cables.

3.4 Preparing Airborne Device

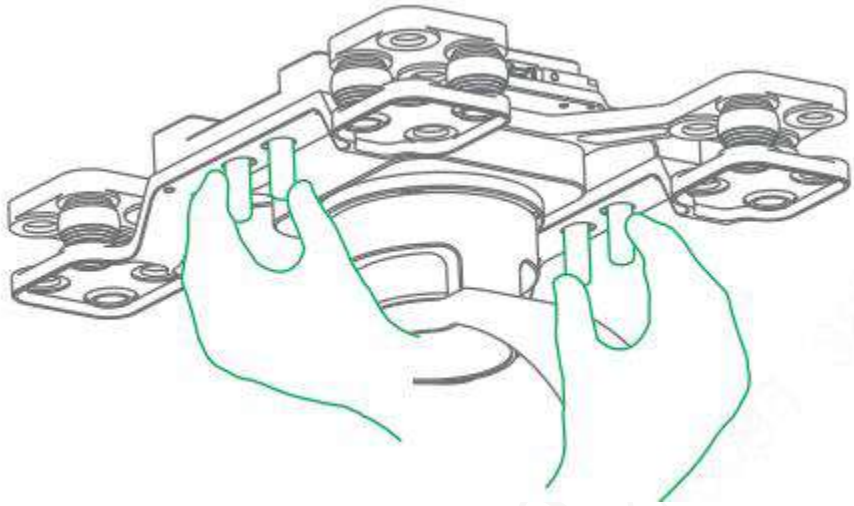
Description

- This section presents optional operations. You can use it as a reference when needed.
- This section uses the PTZ camera as an example of an airborne device. It is for reference only and might differ from the actual product and its operations.
- When replacing the PTZ camera, dismantle the PTZ camera first and then connect the new camera to the aircraft.
- When the aircraft does not need to take the PTZ camera during flight, only the disassembly operations need to be performed.

3.4.1 Dismantling PTZ Camera

Step 1 Hold the two pairs of quick-release bolts at the same time, as shown in Figure 3-8.

Figure 3-8 Quick release structure

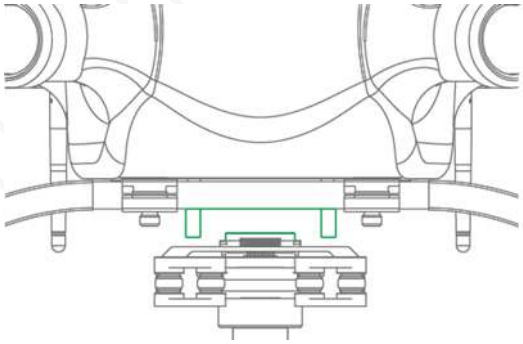


Step 2 Take down the PTZ camera.

3.4.2 Installing PTZ Camera

Step 1 Insert the upper port on the shock absorber plate of the PTZ camera into the corresponding port at the bottom of the aircraft, as shown in Figure 3-9.

Figure 3-9 Data port



Step 2 Align four quick release studs with the holes at the bottom of the aircraft, and then push upwards. The studs will automatically lock into position.

3.5 Preparing Aircraft

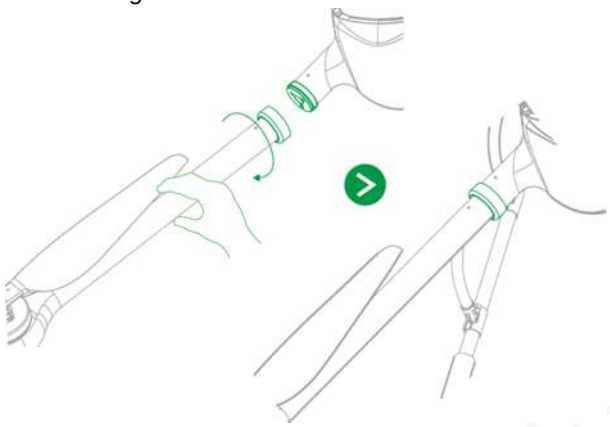
3.5.1 Unfolding Arm

Unfold the arm to the horizontal position. Hold the arm with your left hand, and tighten the spiral casing with your right hand to fasten the arm in a horizontal direction, as shown in Figure 3-10.

Notice

Make sure that the arm is secured in the horizontal position before implementing subsequent steps. Contact customer support if the arm becomes loose.

Figure 3-10 Unfold arm



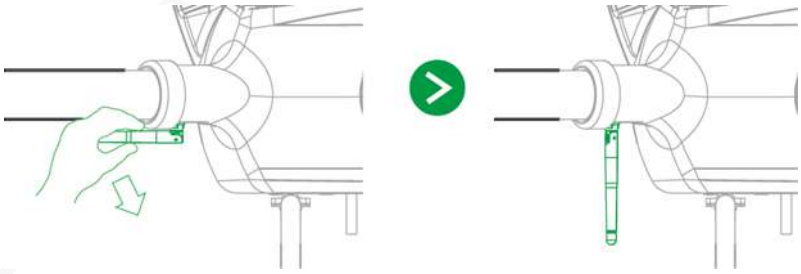
3.5.2 Opening Antenna (Hex-Rotor Drone as an Example)

TIPS

We recommend you move the antenna to the vertical position for optimal communication effects

Move the aircraft antenna to the vertical position and make sure to lock it in position, see Figure 3-11

Figure 3-11 Open aircraft antenna



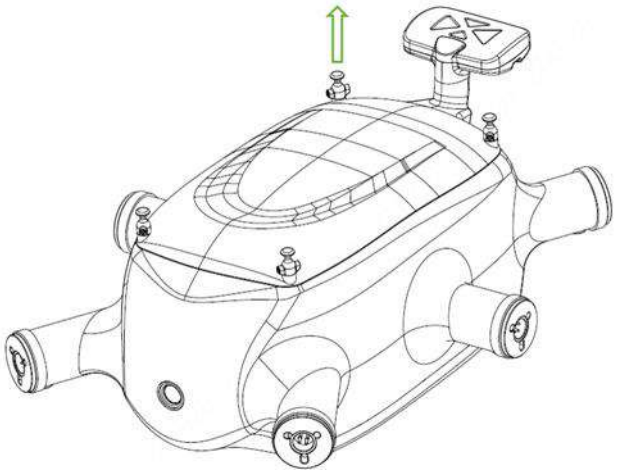
3.5.3 Installing Aircraft Battery

Notice

- Make sure to fasten the battery binding tightly and lock the battery fixing knobs after installing the battery so that you can lift the aircraft safely with the arm handle.
- Otherwise, the power supply may be abnormal during the flight.

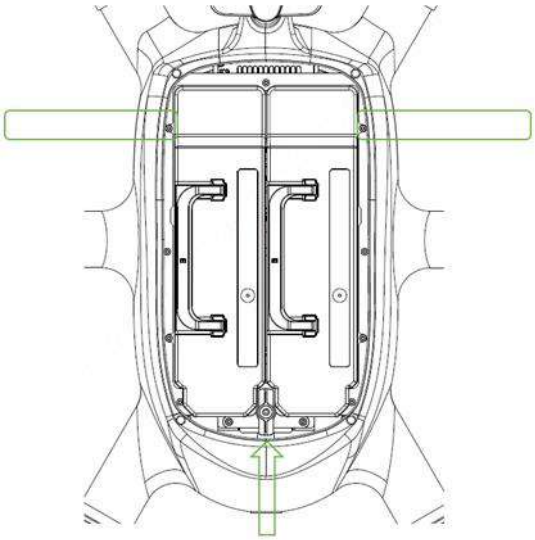
Step 1 Pull up the four fasteners of the cover respectively to open it. As shown by the arrows:

Figure 3-12 **Pull up four fasteners**



Step 2 **Place the battery horizontally in the fuselage. Then fasten the battery binding, and lock the battery fixing knobs.**

Figure 3-13 **Fasten battery binding**



Step 3 **Align the battery cover with the fixed structure of the fuselage, and press the four fasteners.**

3.6 Preparing Remote Controller

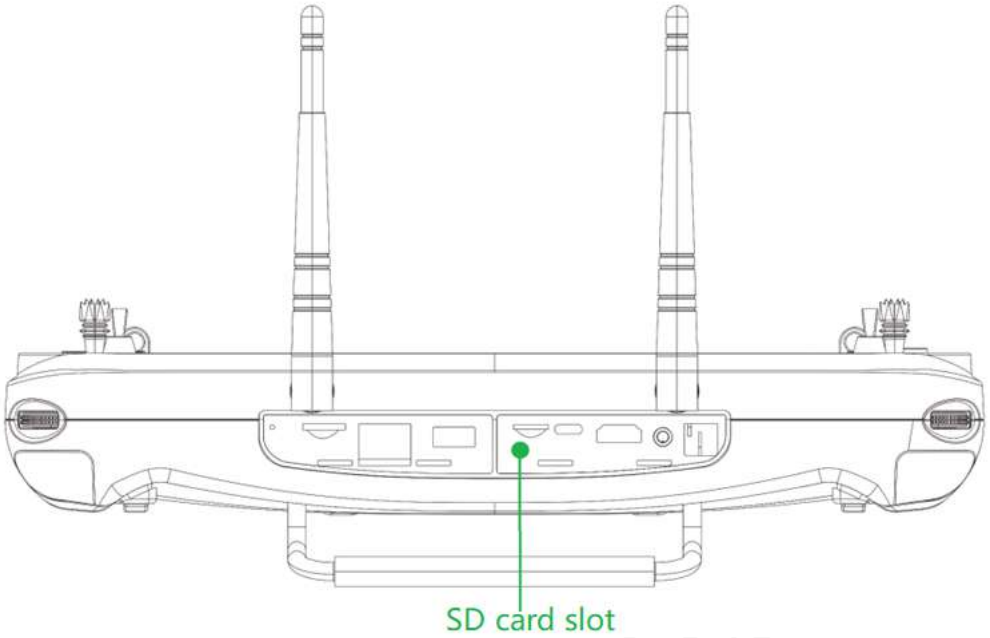
3.6.1 Installing SD Card

You need to select and install a Micro SD card in accordance with the actual situation.

Description

- This section presents optional operations. You can use it as a reference when needed.
- You need to configure the micro SD card on your own.
- The micro SD card supports up to 128 GB.

Figure 3-14 SD card slot

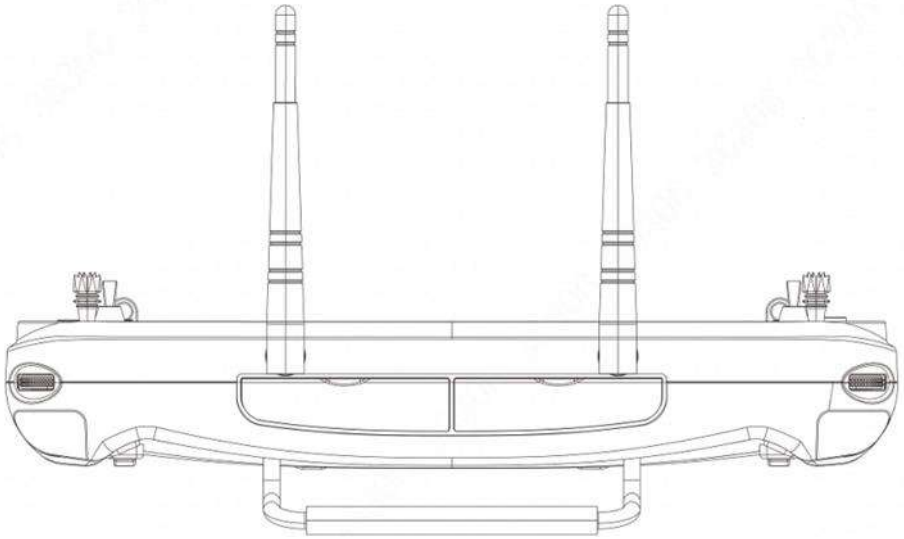


Insert the card into the slot on the side panel of the remote controller horizontally with the chip facing the screen of the remote controller.

3.6.2 Opening Antenna

Move the antenna of the remote controller to a proper position, as shown in Figure 3-15.

Figure 3-15 Open antenna



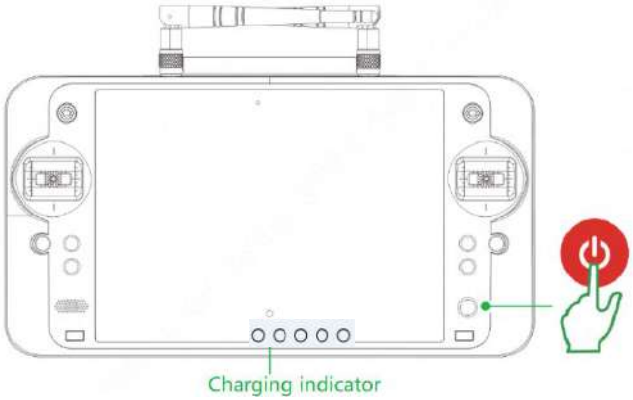
3.6.3 Powering on Remote Controller

Description

Skip this section if you did not turn off the power after checking the battery level.

Power on the remote controller: press and hold the power button until the display screen is turned on, as shown in Figure 3-16.

Figure 3-16 **Power on remote controller**



3.6.4 Confirming Remote Controller Mode

By default, the control mode is USA hand (Mode 2). To switch modes, select **Settings** > **Remote Settings** > **Joystick Mode**, as shown in Figure 3-17.

Figure 3-17 **Joystick mode**

For detailed information about the remote controller modes, see 4.1.5 Manual Flight Control.

3.7 Powering on Aircraft

Notice

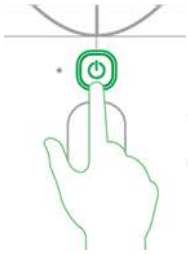
After powering on the aircraft, when the remote controller does not prompt you to perform other operations, you should keep the aircraft stationary in the horizontal position to avoid initialization failure.

Description

The four blue indicator lights are all on when the aircraft battery is fully charged.

Insert the smart battery into the aircraft, press the power button for 1 second and then press and hold the power button for more than 2 seconds to turn on the power supply, as shown in Figure 3-18.

Figure 3-18 Powering on aircraft



3.8 Checking and Debugging

Warning

You can proceed to later sections only if the remote controller prompts no exception and the aircraft indicator light flashes green after you check and debug all the items listed in this section.

TIPS

We recommend you set the live view on the remote controller to live video mode before the aircraft takes off.

Check the operating status. If the remote controller prompts exception, debug each component to ensure normal operation.

This section lists common calibration items, exceptions and solutions.

3.8.1 Checklist

Tap the flight status icon 

in the upper left corner to go to the checklist, as shown in Figure 3-19. For details, see Table 3-2.

Figure 3-19 **Checklist**

Table 3-2 Descriptions of checklist parameters

Parameter	Description
Current status	Represents the current state of the aircraft, and there are three types of states: Type 1: Aircraft not connected, cannot takeoff and extremely low energy alarm. Type 2: Ready for takeoff and in flight. Type3: Low battery alarm
Aircraft health status	Represents the current health status of the aircraft. ● Tap **Aircraft health status**: including 4 system status, they are energy, waypoint, battery and vision, And tap each system to view details ● Tap **Flight data** to view the flight history ● Tap **Log management** to view remote controller logs, function board logs, and battery logs ● Tap **Exception record** to search for exception records under different exception levels in the function module. ● Tap **After-sales service** to carry out after-sale services.
RTH altitude	Displays the current RTH altitude. Tap the input box to modify.
Compass	Displays the current compass status, Tap **Calibration** to go to the compass calibration module. For details, see 3.8.5 Compass Calibration Error (Hex-rotor Drone as an Example)
Accelerometer	Displays the current accelerometer status, Tap **Calibration** to go to the accelerometer calibration module. For details, see 3.8.3 Accelerometer Calibration.

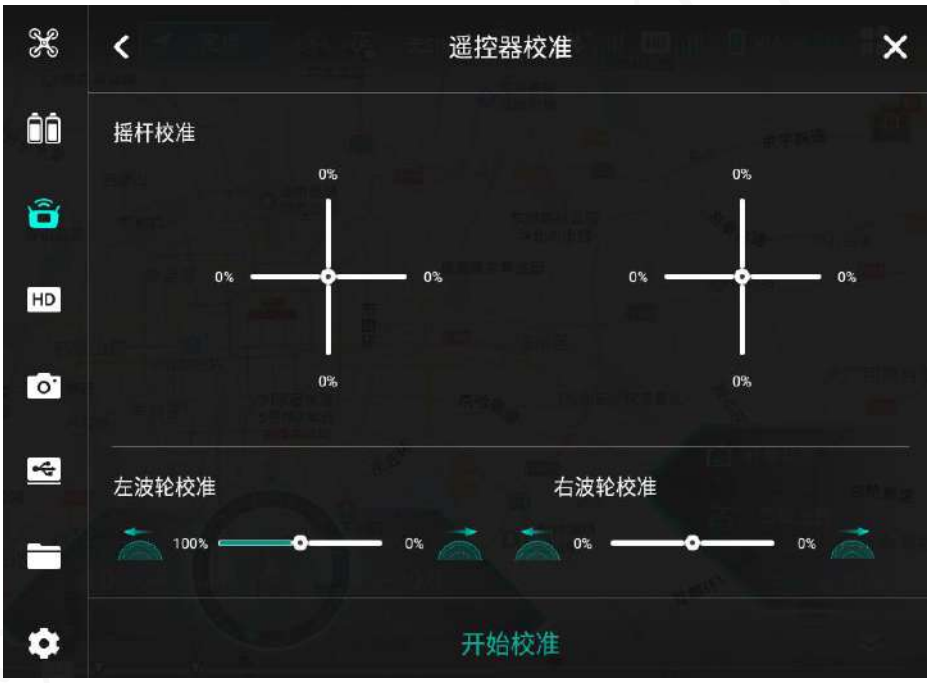
Parameter	Description
GPS signal	Displays the current GPS signal strength.
Aircraft battery	Tap it to go to the aircraft battery module.
Joystick mode	Displays the current joystick mode, which can be tapped to switch.
Remote controller battery level	Displays the current battery level of the remote controller.
Remaining/Total SD card capacity of the camera	When an SD card is inserted on the PTZ of the current aircraft, the remaining and total capacity of the SD card will be displayed.

3.8.2 Calibrating Remote Controller

Step 1 Select **Settings** > **Remote Settings** > **Joystick Calibration**.

The **Joystick Calibration** page is displayed, as shown in Figure 3-20.

Figure 3-20 Calibrating remote controller



Step 2 Move both the left and right sticks back to the middle.

Step 3 Tap **START CALIBRATION**.

Step 4 Repeatedly turn both sticks to their ends to obtain their maximum values in each direction.

Step 5 Repeatedly slide the thumbwheels on both sides to the ends to obtain their maximum values in both directions.

Step 6 After the thumbwheels are slid and joysticks are turned, tap **COMPLETE CALIBRATION**.

Description

- After calibration, by referring to 2.3.3.4.1 Stick Input Status, you can dial the sticks and thumbwheels to check the calibration effect. If the calibration is successful, the value of each stick input will be about 1510. Turn the stick and the value should change within the range from 1085 to 1934.
- After calibration, wait 30 seconds before using the remote controller.

Notice

If it is not turned to the maximum end, the following risks may be caused after calibration: no response to operation, response lag, and even aircraft explosion.

3.8.3 Accelerometer Calibration

Select **Settings** > **Autopilot Settings** > **Sensor** > **Accelerometer Calibration**. The **Accelerometer Calibration** page is displayed, as shown in Figure 3-21.

Figure 3-21 Accelerometer calibration

Put the aircraft on a flat surface, tap **START CALIBRATION**, and follow the prompts to complete the operation.

- If successfully calibrated, the remote controller prompts **Successfully calibrated**.
- If calibration failed, try again. Tap **RETRY** until the calibration is successful.

Notice

Pay attention to the horizontal and vertical accuracy. Improper flying posture might cause flight exceptions, and the aircraft might even crash.

3.8.4 Initialization Failure

Exception Prompt

The remote controller prompts **Initialization Failure**.

Possible Reason

After powered on, the aircraft is moved before taking off.

Solution

Cut off power and then power on the aircraft again. Keep the aircraft stationary in the horizontal position during initialization.

Contact customer support if initialization fails after several attempts.

3.8.5 Compass Calibration Error (Hex-rotor Drone as an Example)

Exception Prompt

- The aircraft indicator flashes as●●●.
- The remote controller prompts **Geomagnetic Exception**.

Possible Reason

- The geographical location of the aircraft is too far away from the place where the aircraft was last used, causing big changes in the geomagnetic field.
- There is another intensive magnetic field or a sudden geomagnetic change in the environment.

Solution

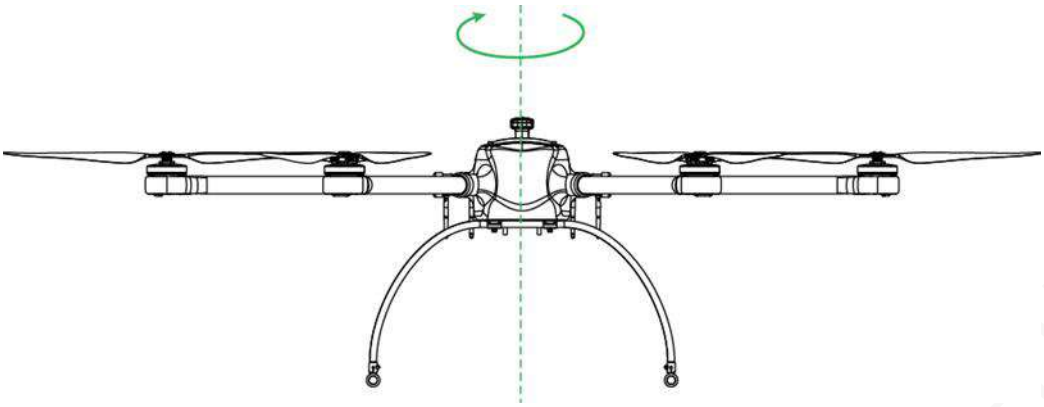
Step 1 Select **Settings** > **Autopilot Settings** > **Sensor** > **Compass Calibration** on the remote controller. The **Compass Calibration** page is displayed, as shown in Figure 3-22.

Figure 3-22 Compass calibration

Step 2 Tap **START CALIBRATION**.

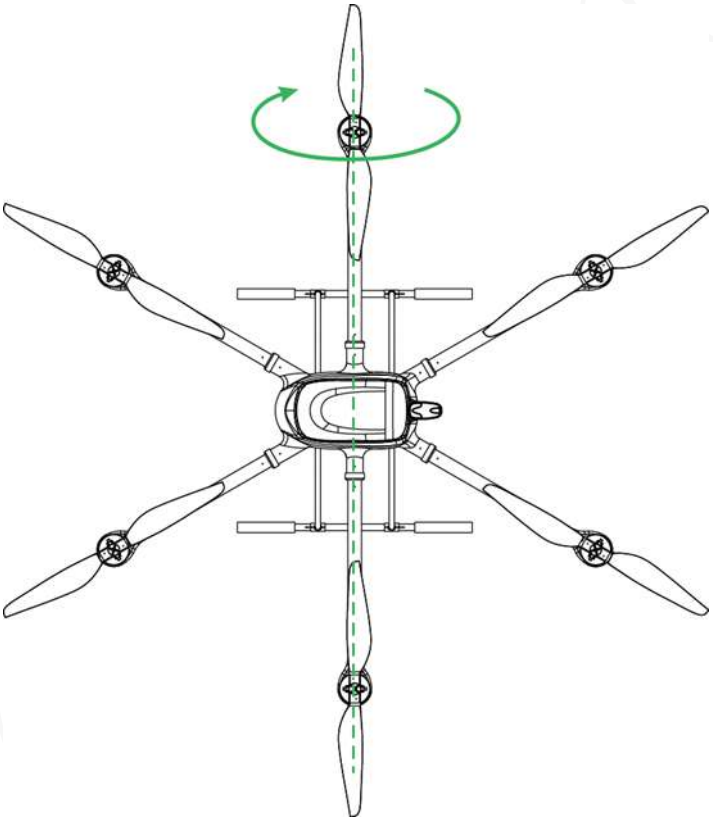
Step 3 Keep the aircraft horizontal and 1.5m above the ground, and make it continuously rotate 360° horizontally, as shown in Figure 3-23

Figure 3-23 **Rotate the aircraft horizontally**



Step 4 **Keep the aircraft vertical and make it continuously rotate 360° vertically, as shown in Figure 3-24.**

Figure 3-24 **Rotate the aircraft vertically**



- If successfully calibrated, the remote controller will prompt that **Successfully calibrated compass**.
- If calibration failed, the remote controller will prompt that **Failed to calibrate compass**. Try to repeat Step 2, Step 3 and Step 4.

3.8.6 GPS Satellites Insufficiency

Exception Prompt

- The GPS satellite count displayed on the remote control is less than 6.

- GPS signal strength:  in the status bar at the top of the remote control displays only one or zero solid bars.

Possible Reason

- The flying environment has a lot of objects blocking flight and does not have enough wide open space to work in.
- There are other interferences in the surrounding area.

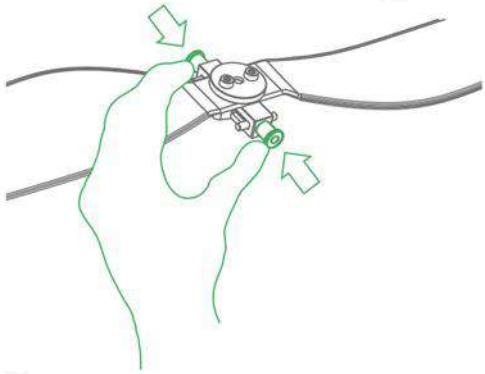
Solution

Move the aircraft to a wider area and wait 30 seconds.

3.9 Installing Propellers

Step 1 Press the spring buckles on both sides of the propeller center, as shown in Figure 3-25.

Figure 3-25 Press spring buckle



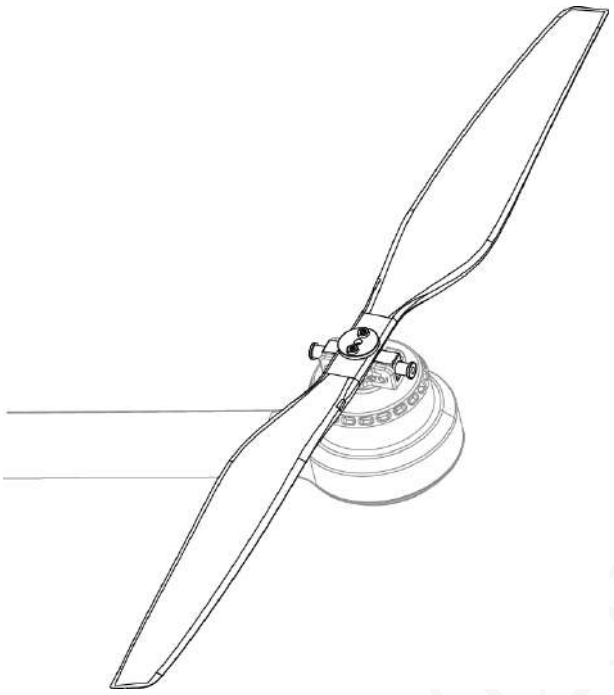
Step 2 Buckle the latch on the motor, see Figure 3-26

Description

The CW blade mark corresponds to the CW motor while the CCW blade mark corresponds to the CCW motor.

The CW and CCW propellers have different structures. If you failed to buckle, retry on the adjacent motor.

Figure 3-26 **Buckle motor latch**



Description

This chapter elaborates on the aircraft operation flow from takeoff to landing.

DANGER

To avoid personal injury, stay away from rotating propellers or motor.

Warning

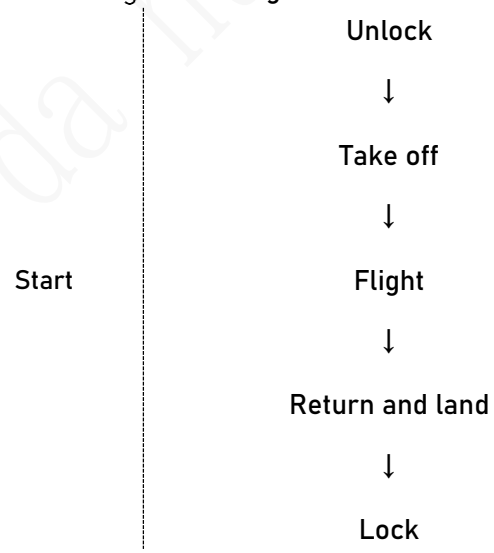
For your personal and property safety, make sure to check the following items carefully before starting the flight.

- All the necessary steps listed in chapter 3 have been completed.
- All the components have been correctly and stably installed.
- Each component is in good condition. Do not fly the aircraft if any component is aged or damaged.
- Flight environment meets the requirements listed in Important Safeguards and Warnings

Notice

Do not block the ventilation opening next to the heat dissipation hole when the motor is operating.

Figure 4-1 Flight flow



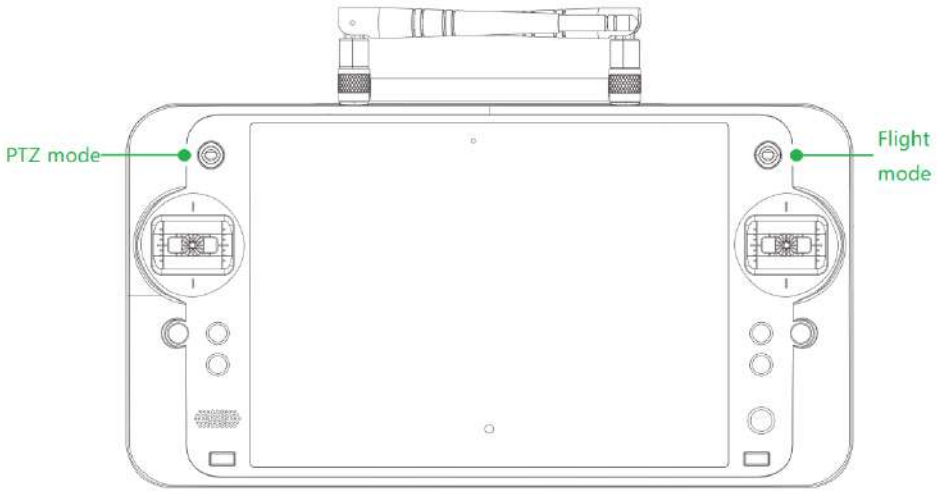
The chapter introduces manual and intelligent flight modes separately.

The two modes are switchable. For example, you can use the one-press takeoff and landing button in the manual flight mode.

4.1 Flight Mode

During flight, you can drive the lever to control the flight mode, as shown in Figure 4-2.

Figure 4-2 Flight mode lever

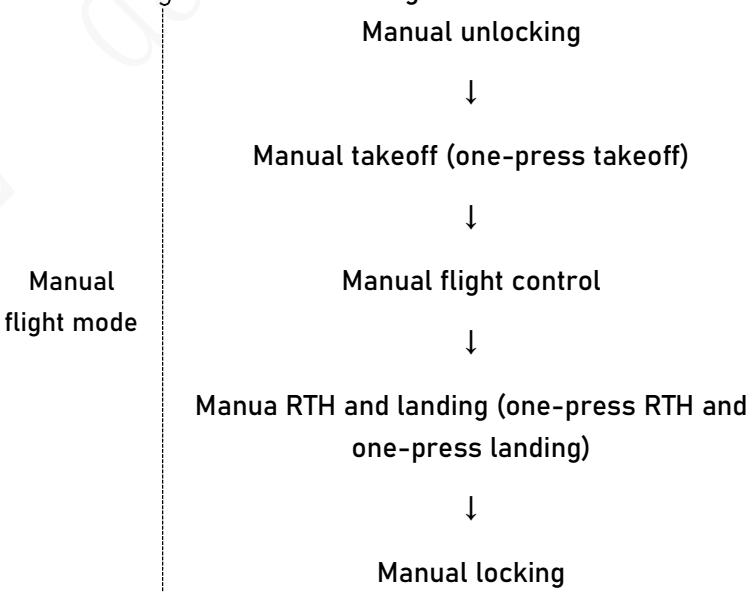


Three-level lever:

- Upper level: Alt hold mode for manual flight.
- Middle level: When both sticks are located in the middle, the aircraft hovers at the current position.
- Lower level: Intelligent fight mode. After the flight route is uploaded, the aircraft flies automatically according to it.

4.1.2 Manual Flight Flow

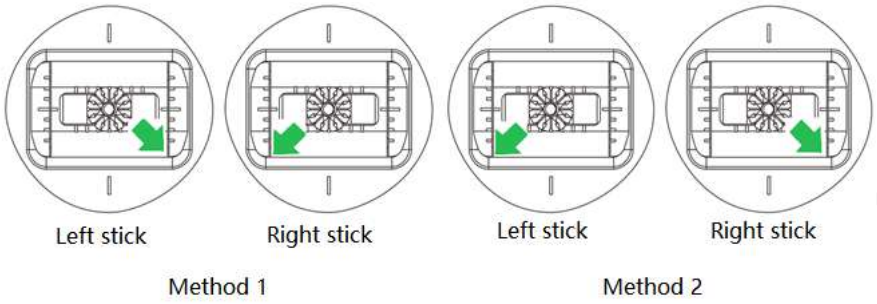
Figure 4-3 Manual Flight Flow



4.1.3 Unlocking Flight Control

Move the left stick to the lower left and move the right stick to the lower right at the same time (or move the left stick to the lower right and move the right stick to the lower left at the same time), and keep the status for 2 seconds. The propellers are unlocked and start rotating. Move the sticks back to the center position, as shown in Figure 4-4.

Figure 4-4 Unlock propellers



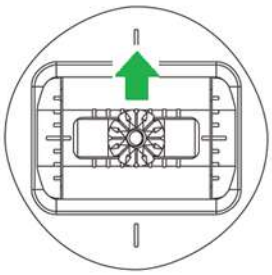
Notice

- If there is an obvious difference in the rotating speed of the propellers, repeat the unlocking step until the propellers stop rotating. Turn off the aircraft and contact our company.
- The aircraft will be automatically locked if it stays on the ground and fails to take off within 10 seconds after being unlocked.

4.1.4 Manual Takeoff

Slightly push the throttle stick higher than the neutral position, as shown in Figure 4-5.

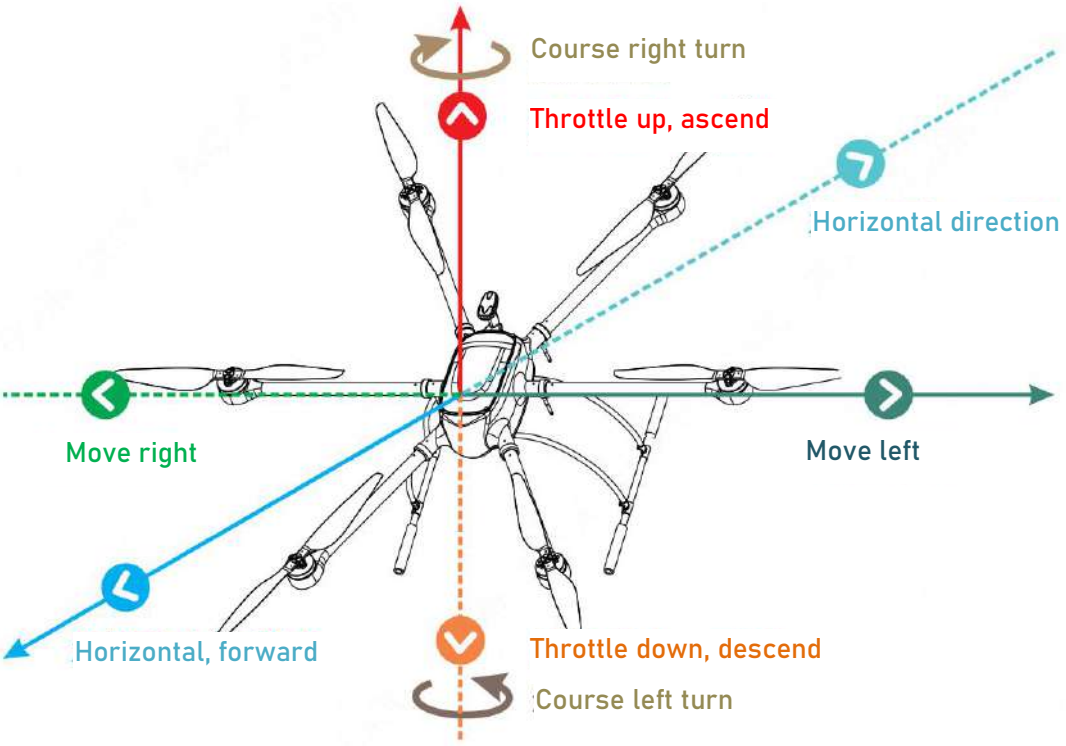
Figure 4-5 Throttle up



4.1.5 Manual Flight Control

Set remote controller mode and control the flight direction of the aircraft.

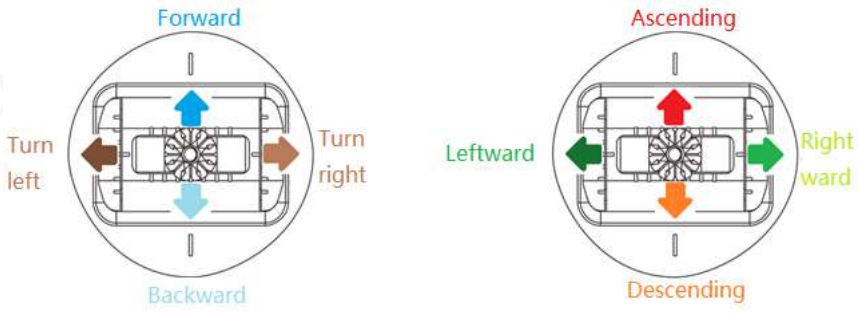
Figure 4-6 **Remote controller (X1550)**



The default control mode is Mode 2 (USA hand): If you want to switch to Mode 1 (Japan hand), select **Settings**> **Remote Settings** > **Joystick Mode**.

- Mode 1:
  - ◇ Move the left stick up and down (pitch stick) to control horizontally forward and backward movement of the aircraft.
  - ◇ Move the left stick left and right (yaw stick) to control the aircraft horizontally turn left and right.
  - ◇ Move the right stick up and down (throttle stick) to control ascending and descending of the aircraft.
  - ◇ Move the right stick left and right (roll stick) to control horizontally leftward and rightward movement of the aircraft.

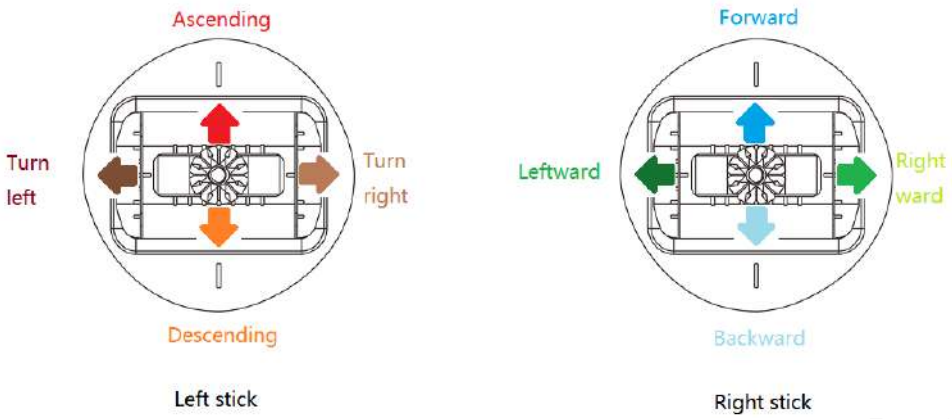
Figure 4-7 **Mode 1**



- Mode 2
  - ◇ Move the left stick up and down (throttle stick) to control ascending and descending of the aircraft.
  - ◇ Move the left stick left and right (yaw stick) to control the aircraft horizontally turn left and right.
  - ◇ Move the right stick up and down (pitch stick) to control the horizontal forward and backward movement of the aircraft.

◇ Move the right stick left and right (roll stick) to control horizontally leftward and rightward movement of the aircraft.

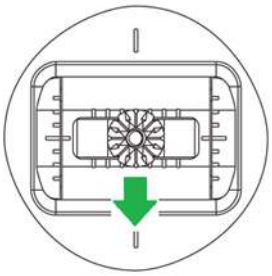
Figure 4-8 **Mode 2**



4.1.6 Manual RTH and Landing

- Manual RTH: Control the aircraft to hover over a proper landing point.
- Manual landing: Decrease the throttle to make the aircraft slowly land. After the landing gear of the aircraft touches the ground, quickly pull the throttle stick to the bottommost, and keep the position until the propellers stop, and then release the throttle.

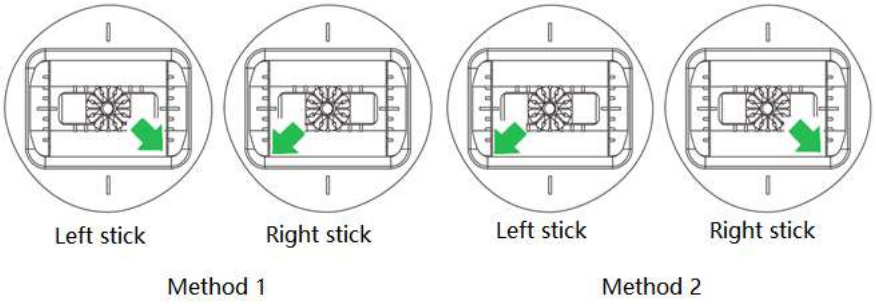
Figure 4-9 **Throttle down**



4.1.7 Manual Locking

Move the left stick to the lower left and move the right stick to the lower right at the same time (or move the left stick to the lower right and move the right stick to the lower left at the same time).

Figure 4-10 **Manual locking (1)**



4.2 Intelligent Mode

4.2.1 Intelligent Flight Mode

Waypoint flight: Configure waypoint flight task as needed. Move the flight mode stick in the upper right corner of the remote controller to intelligent mode after the aircraft takes off, select the proper flight task and tap **Start Task**.

Description

- When the flight mode stick on the remote controller is moved to any mode, you can configure waypoints and save the flight task.
- The aircraft is allowed to implement flight tasks only when the flight mode stick is moved to the intelligent mode (Mode F).
- The aircraft cannot perform waypoint flight tasks on the ground.

In intelligent flight mode, tap **Waypoint Task** in the lower right corner on the home page of the remote controller. The **Waypoint Task** page is displayed, as shown in Figure 4-11.

Figure 4-11 Waypoint task

4.2.1.1 Waypoint Flight

The **Waypoint Flight** page is displayed as shown in Figure 4-12, which is divided into the following modules.

Figure 4-12 **Set route**

Table 4-1 Descriptions of route settings

No.	Name	Description
1	Route delete/switch bar	Switch 切换: The order of the route starting point and end point can be switched. Clear 清空: Delete all waypoints. Delete 删除: Delete the selected waypoints.
2	Menu bar	Return : Returns to Route library. Save : Saves the route. Start : Goes to the **Flight preparation** page.
3	Pin waypoints page	Tap a position on the map to pin a waypoint. In the editing status, tap to select one waypoint for editing.
4	Route important information display	Displays the current route length, estimated flight time, number of waypoints, and number of waypoint photos.
5	Set waypoints page	General settings: Edit the route name, select the aircraft, and select the mode and model of PTZ. Route: Set parameters for the entire route. Waypoint: Set parameters for each waypoint independently. For details, see Figure 4-13 and Table 4-2.

Figure 4-13 Set waypoint parameters

Table 4-2 Descriptions of waypoint

Parameter	Description
Speed	● Set the flight speed of the aircraft at the waypoint. ● Uncheck **Follow route** to edit the flight speed at the waypoint.
Relative flight altitude	● Set the flight altitude of the aircraft at the waypoint. (relative to the home point) ● Uncheck **Follow route** to edit the flight altitude at the waypoint.
Aircraft yaw Angle	● Set the angle between the aircraft head orientation and the planned course when flying to the waypoint. ● This is limited by the yaw angle of the aircraft in the course. ● Set route as **Follow course**, and the yaw angle cannot be set separately for each waypoint. Set route as **Follow waypoint**, and the yaw angle can be set separately for each waypoint.
Waypoint type	● Set waypoint type as **Straight flight** or **Waypoint turn**. For details, see below. ● Uncheck **Follow route** to switch the types.
PTZ action	● Uncheck **Follow route** to select PTZ action separately for each waypoint. ● Tap the + icon to add the PTZ action, or select no PTZ action
Aircraft action	● Available: hover ● The hover time can be set in the range of 1-30s.
Latitude Longitude	● The system automatically acquires the latitude and longitude of the waypoint when you add the waypoint. ● If you manually set latitude and longitude, the waypoint will move to the corresponding position after setting.

Use procedures:

Step 1 Click **Flight task** at the lower right corner. Tap **Create route**, select **Waypoint flight** and tap **Pin waypoint**.

Step 2 Tap a position on the map to pin a waypoint. Several waypoints together form a route.

Step 3 Tap a waypoint and the corresponding icon becomes yellow and the **Waypoint setting**

window pops up on the right side,

Step 4 Set the waypoint parameters. For details, see Table 4-2.

Description

Speed and relative flight altitude are two very important parameters, Make sure that they are set correctly.

Step 5 Tap **Save** to make the configuration take effect,

Step 6 Tap **Start** to go to the **Flight preparation** page, where you can check the parameters before uploading the flight task.

Step 7 Tap **Upload** to upload the fight task successfully. Set **Intelligent mode** for the remote controller to start the waypoint flight task.

4.2.2 Intelligent Locking Mode

Select **Settings** > **Autopilot Settings** > **Aircraft Locking** to select the locking mode in the drop-down list.

Figure 4-14 Locking mode

Description

Select **COURSE LOCK:** Lock the current head direction as the forward direction of the aircraft.
Select **RETURN LOCK:** Set the head orientation as the opposite direction of the shortest straight-line distance from the aircraft to the Home point.

Select **None**: Set the current head orientation as the forward direction.

4.2.3 Intelligent Operation

4.2.3.1 Auto Takeoff

In the loitering mode, first unlock the aircraft, and then press the one-press takeoff and landing button on the front panel of the remote controller. The aircraft will take off automatically and begin flight according to the predefined route.

Figure 4-15 **One-press takeoff**

4.2.3.2 Auto RTH

Description

This section focuses on the two modes: one-press RTH and one-press landing.

Press the one-press RTH button on the front of the remote controller:

- If the current altitude is lower than the set RTH altitude, the aircraft will ascend to the RTH altitude and return straight to the Home point.
- If the current altitude is higher than or equal to the set RTH altitude, the aircraft will return directly to the Home point.

Figure 4-16 **One-press RTH button**

Notice

According to the actual environment, you need to set the RTH height and check whether there are buildings exceeding the return height during the straight return process.

4.2.3.3 One-press Landing

Under the current status, the aircraft will land vertically.

Press the one-press takeoff and landing button on the remote controller and the aircraft will land vertically from the current position.

Figure 4-17 One-press landing

Description

If you press the one-press landing button, the aircraft lands from the current position immediately without returning to the Home point.

4.3 Intelligent Protection Mechanism

4.3.1 Low Battery

The remote controller gives three levels of notifications on aircraft low battery.

- Level-one low battery notification: The remote controller prompts **Low Voltage Alarm**, along with alarm sound.
- Level-two low battery notification: The remote controller prompts **Serious low voltage home**, along with alarm sound. If the current altitude is lower than the set RTH altitude, the aircraft will ascend to the RTH altitude and return straight to the Home point. If the current altitude is higher than or equal to the set RTH altitude, the aircraft will return directly to the Home point. (You can press the cancel button on the app or switch the mode on the remote controller to suspend the process).
- Level-three low battery notification: The remote controller prompts **Serious low voltage landing**, along with alarm sound. Meanwhile, the aircraft triggers landing mode to land slowly in the current place.

Description

If the aircraft continues to fly after being suspended from low voltage RTH, especially in harsh environment, level-three low battery alarm will be triggered.

4.3.2 Out of Control

- The aircraft might run into the following uncontrollable situations:
  - ◇ The aircraft or remote controller antenna is damaged and fails to receive and send signals.
  - ◇ Intensive magnetic field in ambient environment interferes with the signals between the aircraft and the remote controller.
- Solution:

Out-of-control auto RTH:
If the current altitude is lower than the set RTH altitude, the aircraft will ascend to the RTH altitude and return straight to the Home point.
If the current altitude is higher than or equal to the set RTH altitude, the aircraft will return directly to the Home point.

4.4 Setting Remote Controller

4.4.1 Customizing Functions of Remote Controller Buttons

Assign optional functions to the buttons C1, C2, C3, and C4 on the remote controller. You can select Light, Switch horn, and PTZ center/90°.

Select **Settings** > **Remote Settings** > **Remote Button User-defined**, and the **Remote button user-defined** page will be displayed.

Figure 4-18 **Custom function buttons**

You can customize the C1, C2, C3, C4 buttons on the remote controller to make
flight operations more convenient.

Figure 4-19 **Custom button page**

4.4.2 Autopilot Settings

4.4.2.1 RTH Altitude

Select **Settings** > **Autopilot Settings** > **RTH Altitude**, and enter the RTH height value within the required range in the input box, as shown in Figure 4-20.

Figure 4-20 **Set RTH altitude**

Description

The return height value depends on the flight environment and must exceed the height of the obstacles around the flight to avoid impact problems. Make sure to check this before taking off!

4.4.2.2 Obstacle Avoidance

In the **Obstacle Avoidance** page, you can enable vision positioning, enable landmark landing and enable auxiliary alt hold, as shown in Figure 4-21.

- Vision positioning: The vision positioning system helps the aircraft hover stably in the

place where the GPS signal is not good.

The following environments are not recommended:

(1) Low light environment, such as night,

(2) The texture of the target scene in the downward vision is not clear, such as foggy weather, and flying over the water.

(3) There are foreign bodies in the downward vision.

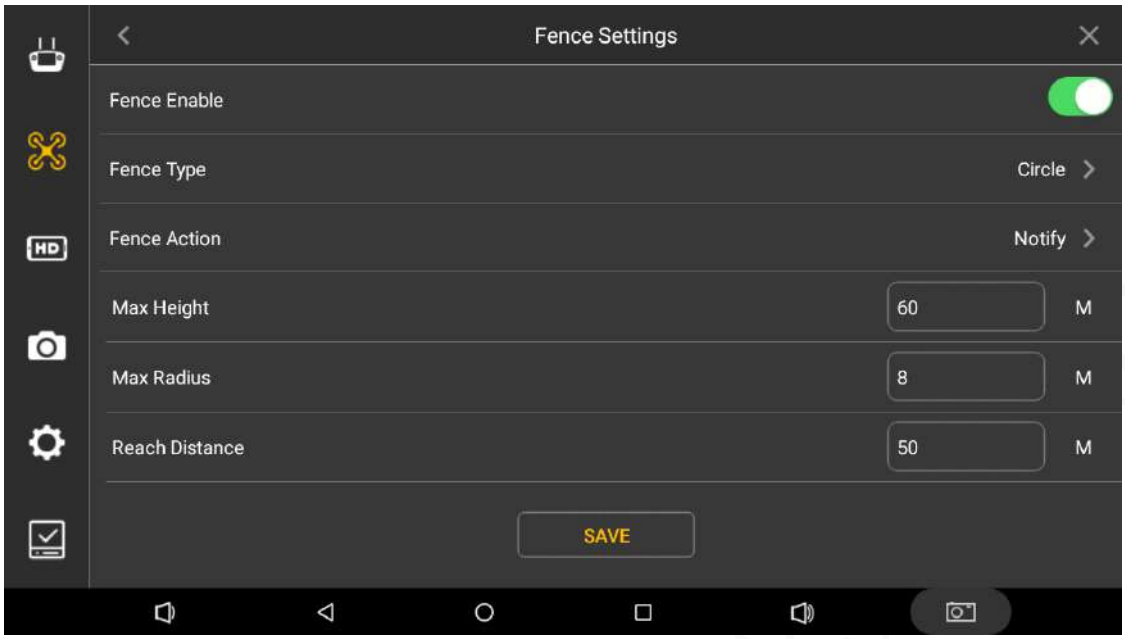
- Landmark landing: After vertical takeoff, the aircraft will execute the RTH landing, and automatically collect the feature information data. If the collected feature points meet the landmark feature pre-value, the aircraft will automatically and continuously adjust its attitude until it accurately lands to the Home point.

Figure 4-21 **Obstacle avoidance**

4.4.2.3 Fence Settings

Select **Settings** > **Autopilot Settings** > **Fence Settings**, and enable the fence. Then the **Fence setting** page will be displayed, as shown in Figure 4-22.

Figure 4-22 **Fence settings**



4.4.2.3.1 Fence Type

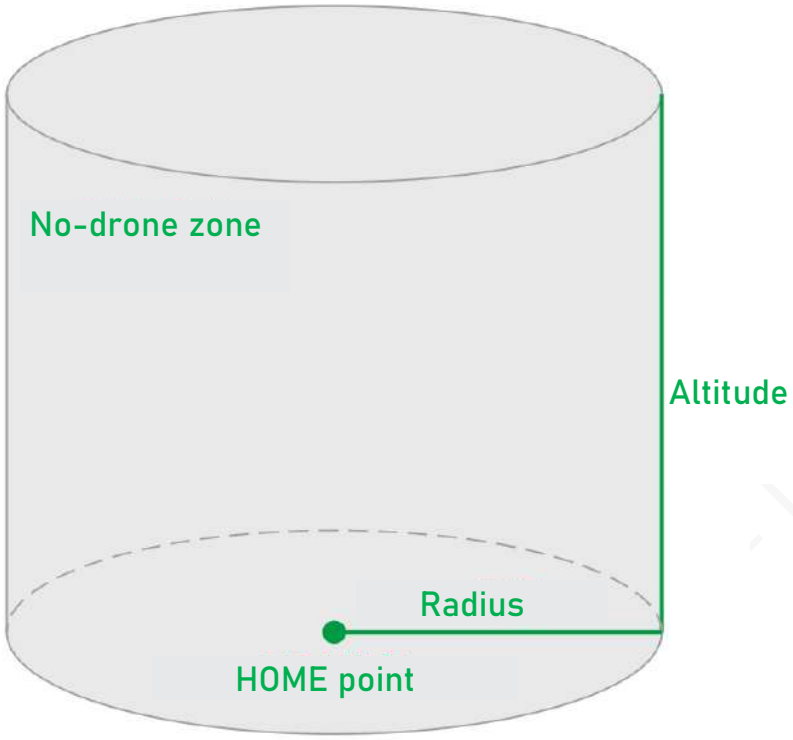
Draw an area of electronic fence and define the fence type

Select **Settings** > **Autopilot Settings** > **Fence Settings** > **Fence Type**, as shown in Figure 4-23.

Figure 4-23 **Fence type**

- ALT: Limit the maximum flight altitude of the aircraft without any limit on the horizontal direction.
- Circle: Restrict the aircraft to the circle centered at the Home point with a defined radius. There is no limit on the altitude.
- Alt and Circle: Restrict the aircraft vertically within the maximum altitude and horizontally within the circle centered at the Home point with a defined radius.

Figure 4-24 **Alt and circle fence**



4.4.2.3.2 Fence Action

Select **Settings** > **Autopilot Settings** > **Fence Settings** > **Fence Action**, as shown in Figure 4-25.

Figure 4-25 **Fence action**

- Notify: When e-fence is triggered, the aircraft hovers in the air. The remote controller gives an e-fence prompt along with a buzzing alarm.
- RTH: When e-fence is triggered, the remote controller gives an e-fence prompt along with a buzzing alarm. The aircraft returns to the Home point automatically.

4.4.2.3.3 Other Settings

Select **Settings** > **Autopilot Settings** > **Fence Settings**.

- Set Max altitude.
- Set Max radius,
- Set triggering distance.

For example: When the Fence Type is set as Alt and Circle, the Max Radius is set as A meters, the Max altitude is set as B meters, and the Reach Distance is set as C meters, the aircraft will implement the action of RTH, landing or hovering when the aircraft is (A-C) meters away from the Home point horizontally or the flight altitude exceeds (B-C) meters.

4.4.2.4 Enabling no-drone Area

There are 2 methods to enable/disable no-drone zone.

Method 1: Tap the **No-drone Zone** icon  on the map,

Method 2: Select **Settings** > **Autopilot Settings** to go to the **Autopilot settings** page. On the right of **Enable No-drone Zone**, enable/disable the function, enabled by default.

As shown in Figure 4-26, the no-drone zone function is disabled.

Figure 4-26 Enable/disable the no-drone zone

4.4.2.5 Aircraft Authorization

Step 1 Make sure that the aircraft is connected, and insert the SD card into the remote controller.

Step 2 Select **Settings** > **Autopilot Settings** > **Aircraft Authorization** to go to the **Aircraft authorization** page. Tap **Extend license period**, and tap **Next**.

Step 3 Tap **Get device info**. Then the device information file is generated and stored in the DeviceInfo directory of the SD card, as shown in Figure 4-27.

Step 4 Go to Dahua official website or contact customer service to apply for authorization documents, and copy them into the SD card.

Step 5 Click **Upload** to upload the license file, as shown in Figure 4-28.

Figure 4-27 **Get device info**

Figure 4-28 **Extend license period**

4.4.3 Camera Settings

4.4.3.1 Image Resolution

Select **Settings** > **Camera Settings** > **Resolution** to set the resolution of the current image captured by the PTZ camera.

4.4.3.2 OSD Settings

Set the brightness, contrast, saturation, sharpness and gamma value of the live video of the PTZ camera.

Step 1 Select **Settings** > **Camera Settings** > **OSD Settings**. Then the **OSD settings** page is displayed, as shown in Figure 4-29.

Figure 4-29 **OSD settings**

Step 2 Set the parameter items on the right side of the page.

- Brightness: Adjust the value when the video looks too dark or too bright.
- Contrast: Adjust the value when the contrast is not obvious despite proper overall brightness.
- Saturation: Adjust the color intensity degree without affecting the overall video brightness.
- Sharpness: Adjust the video resolution and sharpness degree of the video edge.
- Gamma: Optimize brightness and contrast, and refine the distinction between the darker and lighter areas in the image.

Step 3 Drag the scroll thumb or tap to adjust the value. The adjustment takes effect immediately.

4.4.3.3 Video Overlap Settings

On the page, you can set the channel title, date and time.

Step 1 Select **Settings** > **Camera Settings** > **Video Overlay Settings**. The **Video overlay settings** page is displayed, as shown in Figure 4-30.

Step 2 After enabling the **Date and Time** function, the current date and time will be displayed on the video. You can drag the white circle to move the display position of the date and time. After disabling the function, the date and time will not be displayed on the video.

Step 3 After enabling the **Channel title,** the channel title will be displayed on the video. You can drag the white circle to move the display position of the channel title. After disabling the function, the channel title will not be displayed on the video.

Figure 4-30 **Video overlap settings**

4.4.3.4 Restoring Camera

On the page, you can restore the camera module to default parameters.

Step 1 Select **Settings** > **Camera Settings** > **Restore Camera** to tap the camera module that you want to restore. Then the **Restore camera** page will be displayed as shown in Figure 4-31.

Step 2 On the bottom of the page, tap **Restore**.

Figure 4-31 Restore camera module

4.4.3.5 Face Comparison Database Settings

Import face comparison database.

Step 1 Save a face image that meets the requirements to the Face folder in the root directory of the SD card.

Step 2 Select **Settings** > **Camera Settings** > **Face Comparison Database Settings**. The **Face Comparison database settings** page is displayed, as shown in Figure 4-32.

Step 3 Tap **Import** to import the database.

Description

1) Precondition: The loading camera should be 4KAI.
2) The face images to be imported are saved under the Face folder in the root directory of the SD card.
3) The format of the image name is name#gender#birthday#T1#M ID card. If the image name is not in this format, the name can be recognized but there is no corresponding information data.
4) The image size is less than 150 KB and the suffix is jpg or JPG.
5) The recognized face images are saved to the /sdcard/DHUAV/FaceAlarm folder.

Figure 4-32 Face comparison database settings

4.4.3.6 Advanced Settings

On the page, you can set video stream format, video frame rate, video resolution and so on.

Step 1 Select **Settings** > **Camera Settings** > **Advanced Settings**.

Step 2 Select Main Stream.

Step 3 Go to the **Main stream setting** page.

Step 4 In the drop-down list, select **Stream Format**.

Step 5 Tap the white circle and select the Resolution/Frame rate/Stream, as shown in Figure 4-33.

Figure 4-33 Main stream settings.

4.4.4 Platform Access

4.4.4.1 Remote Controller Auto Registration

Step 1 Connect the remote controller to the network, and keep it and the platform in the same network segment.

Step 2 Select **Settings** > **Platform Access** > **Remote Controller Platform Access**.

Step 3 Select **Auto Registration** and enable it.

Step 4 Enter the IP address of the platform for **IP Address**, **Port** is mandatory, and enter the platform registration ID for Subdevice ID. And click **Save**.

Step 5 Go to the **Device management** page on the platform to add a device. Select **Auto Registration** for Add Method, and set **Registration ID** to the same value as Subdevice ID entered in the remote controller.

The **Auto registration** page is displayed as shown in Figure 4-34.

Figure 4-34 **Auto registration configuration**

4.4.5 Remote Controller Record

4.4.5.1 Remote Controller Local Record

When the aircraft is installed with a PTZ, the remote controller local record function can be used.

Step 1 Insert the SD card into the remote controller.

Step 2 Select **Settings** > **Remote Controller Record** > **Record Settings**.

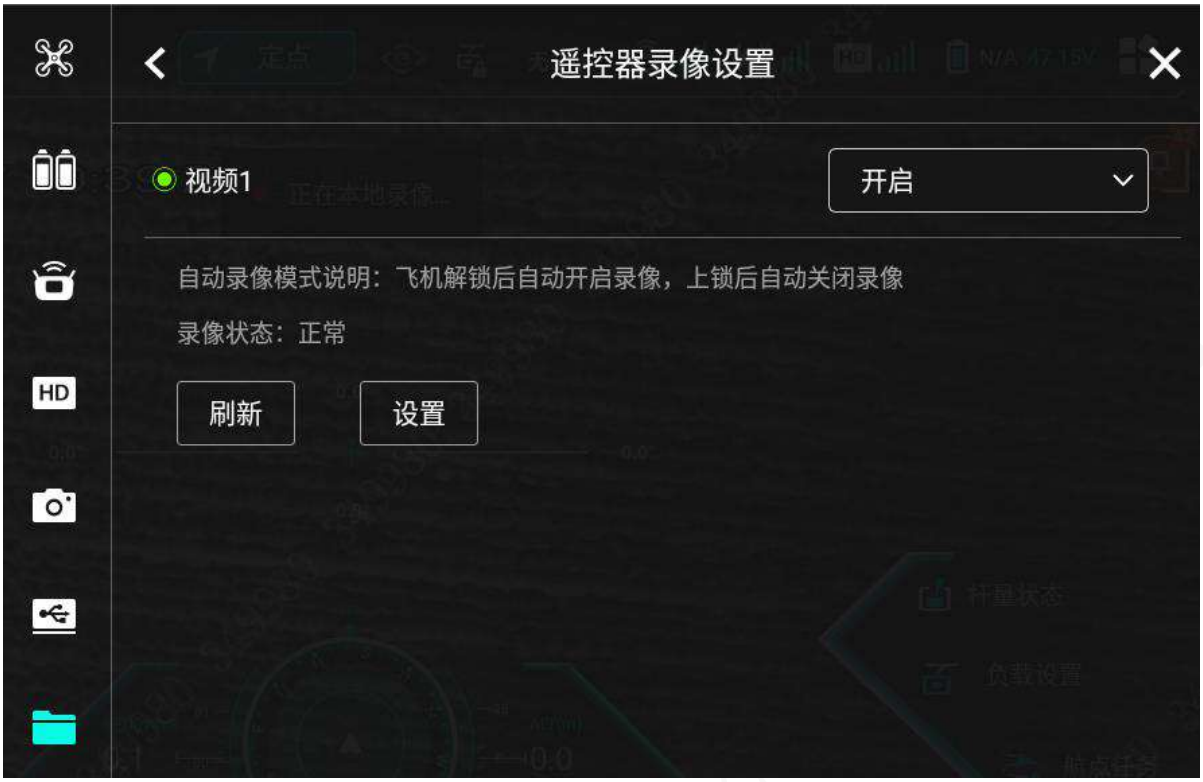
Step 3 Tap the drop-down list on the right of the video channel.

Step 4 Enable local record: Select **Enable** and tap the **Set** button, as shown in Figure 4-35.

Step 5 Disable local record: Select **Disable** and tap the **Set** button.

Step 6 View local record: Select **Settings** > **Remote Controller Record** > **Play Record**. Tap the video file to play.

Figure 4-35 **Remote controller record settings**



Description

Auto record mode: The aircraft automatically starts to record after unlocking, and automatically ends the record after locking.

Refresh button: Refresh the current record mode (Enable/Disable/Auto).

After local record is enabled, a green icon will be displayed on the left side of the channel, and the home page of the video PTZ will display **Recording locally...**.

4.4.6 General Settings

Update firmware, adjust brightness, set date and time, configure the network, language, micro SD card and more.

4.4.6.1 Date and Time

Set the date, time and time zone displayed on the remote controller, and GPS time synchronization.

Step 1 Select **Settings** > **General settings** > **Other Settings** > **Date and Time**.

The **Date and Time** page is displayed, as shown in Figure 4-36.

Figure 4-36 **Date and time**

Step 2 **Set the parameters as required. For details, see Table 4-3.**

Table 4-3 Descriptions of date and time parameters

Parameter	Description
Date	Tap this parameter to set the specific date of the remote controller.
Time	Tap this parameter to set the specific time of the remote controller.
Time Zone	Tap this parameter to set the time zone of the remote controller.
GPS Time Sync	After enabled, the time of the remote controller, aircraft, and PTZ camera will be kept consistent.

4.4.6.2 Language

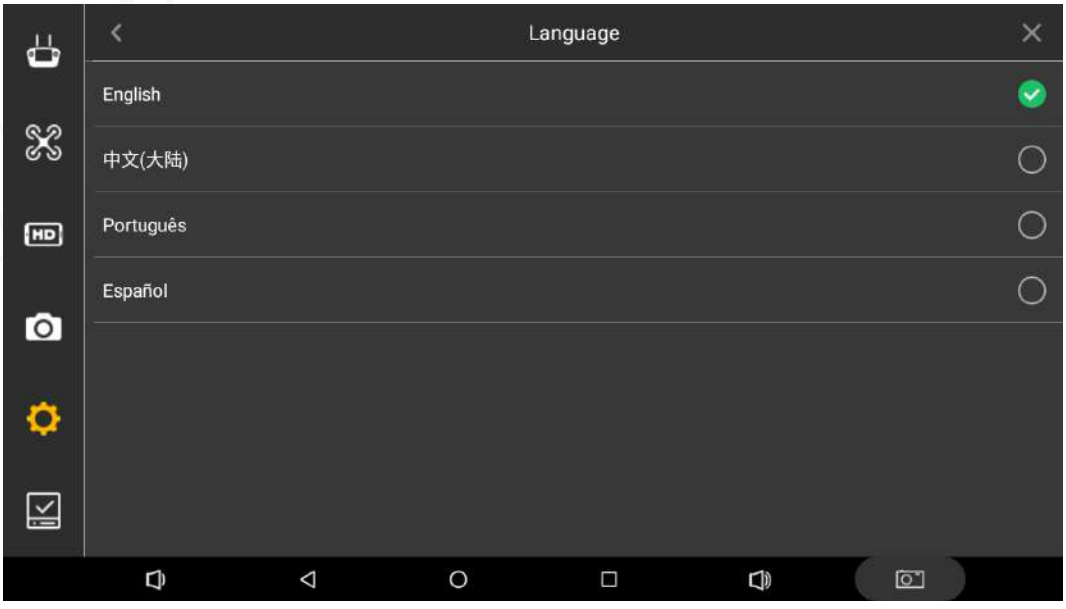
Set the language for the remote controller system.

Step 1 Select **Settings** > **General Settings** > **Other Settings** > **Language**.

The **Language** page is displayed, as shown in Figure 4-37.

Step 2 Select the language as needed.

Figure 4-37 **Language**

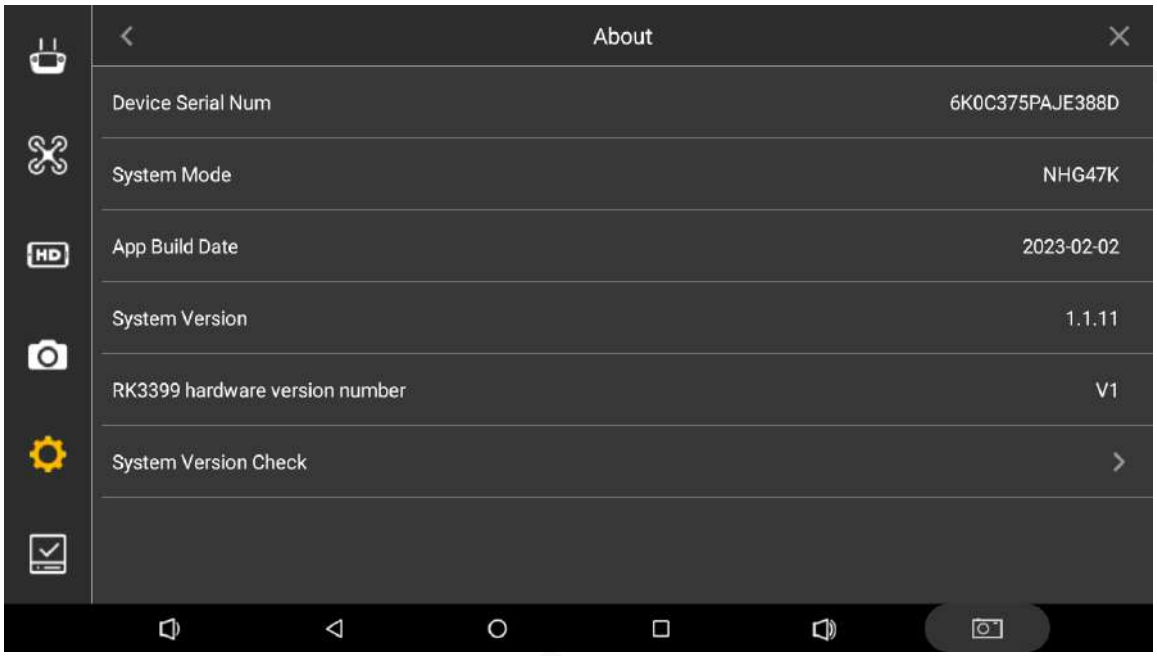


4.4.6.3 About

On the page, you can view device information such as serial number, system model and more.

Select **Settings** > **General Settings** > **About**. The **About** page is displayed, as shown in Figure 4-38.

Figure 4-38 **About**



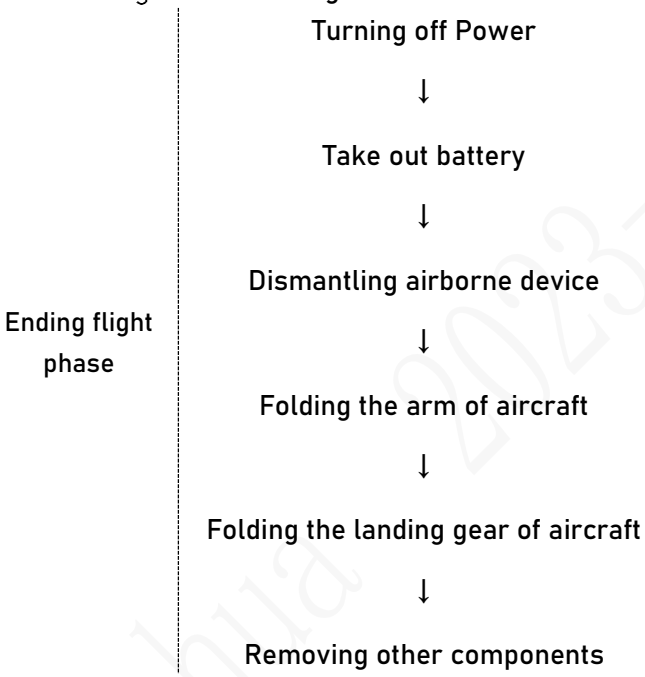
5. Ending Flight

Description

This chapter introduces the operations after aircraft landing.

To ensure normal use for the next time, operate according to the following flow. Some of the operations are optional. Select according to the actual situation.

Figure 5-1 End flight flow



5.1 Turning off Power

Notice

Power off the aircraft first, and then the remote controller.

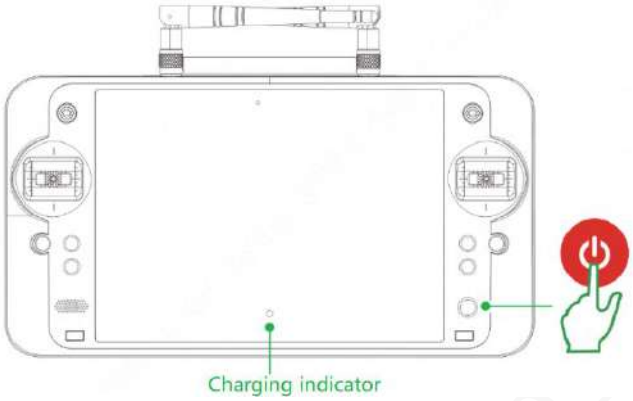
Step 1 Press the power button, and then press and hold the button for over 2 seconds to turn off the power supply of the aircraft. If the built-in indicator is turned off, it indicates that the aircraft is powered off.

Figure 5-2 Power off aircraft

Step 2 1) Method 1: Press and hold the power button of the remote controller and select **Software shutdown**. When the power indicator on the front panel of the remote control is off, it indicates that the power is off.

2) Method 2: Press and hold the power button of the remote controller for more than 8 seconds, the remote controller is forced to shut down. When the power indicator on the front panel of the remote controller is off, it indicates that the power is off.

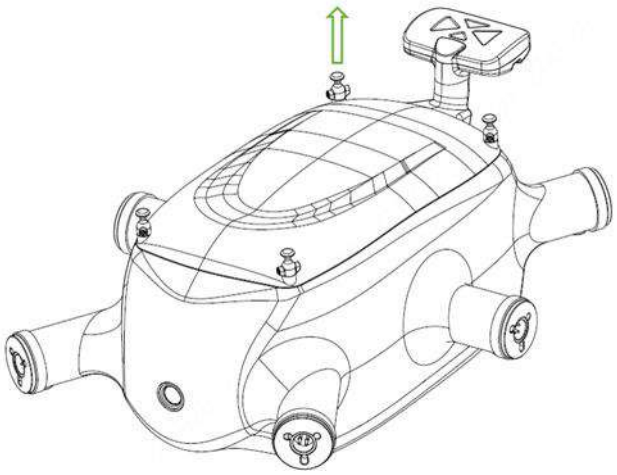
Figure 5-3 Power off remote controller



5.2 Removing Aircraft Battery

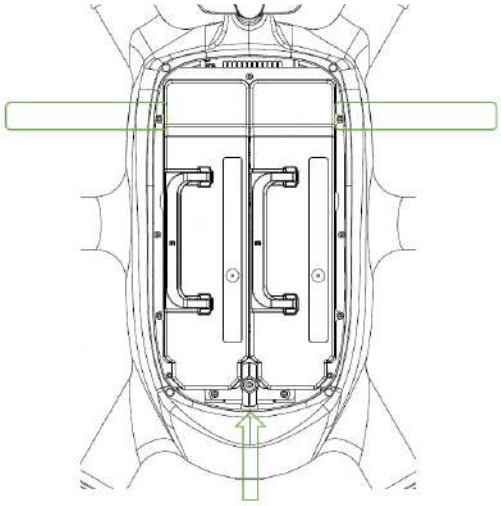
Step 1 Pull up the four fasteners of the cover respectively to open it.

Figure 5-4 Open battery cover



Step 2 Unbind the fixing binding, and turn the battery fixing knobs to the vertical direction to remove the battery.

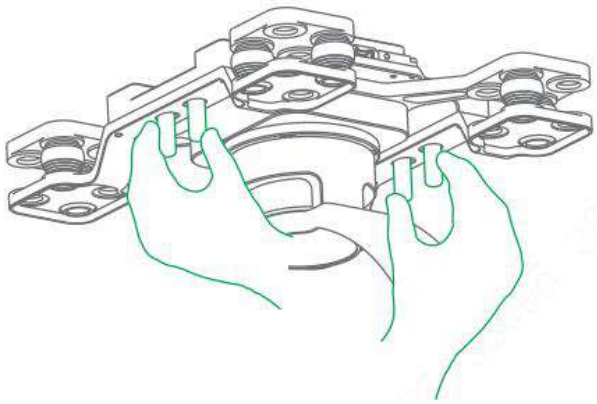
Figure 5-5 **Remove battery**



5.3 Dismantling Airborne Device

Step 1 **Hold the two pairs of quick-release studs at the same time, as shown in Figure 5-6.**

Figure 5-6 **Remove PTZ camera**

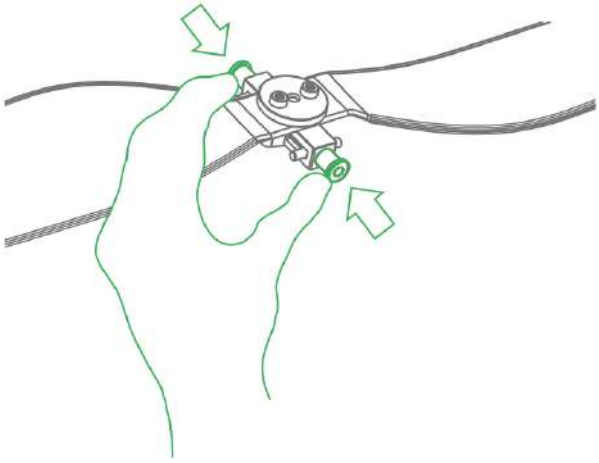


Step 2 **Take down the PTZ camera.**

5.4 Folding Aircraft

Step 1 **Press the spring buckle on both sides of the propeller center, and then remove the propeller, see Figure 5-7.**

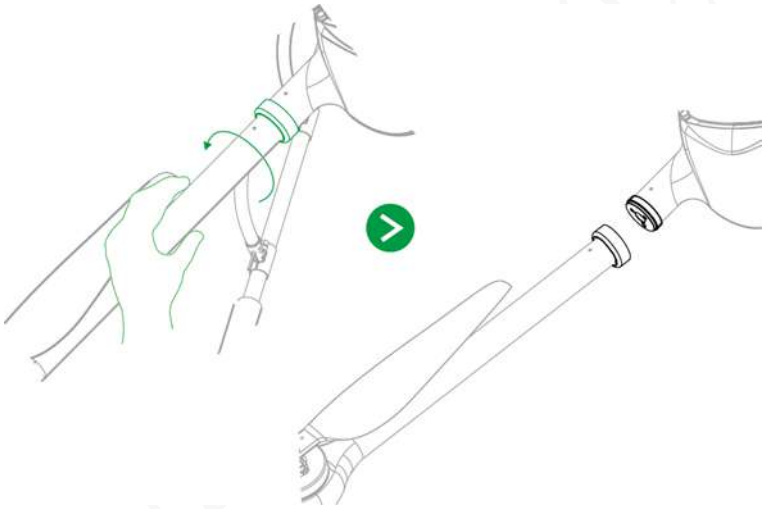
Figure 5-7 **Remove propeller**



Step 2 **Fold the antenna, bend the antenna until it is against the arm,**

Step 3 **Hold the arm of the aircraft with one hand, and then loosen the screw sleeve with the other hand, Then the arm is gently removed, as shown in Figure 5-8.**

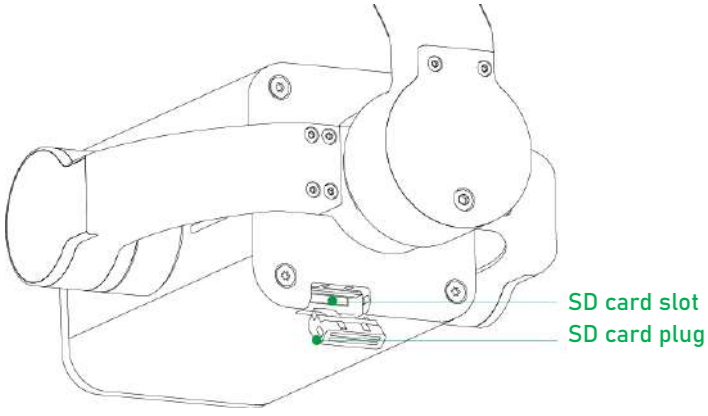
Figure 5-8 **Fold arm**



Step 4 **Remove the battery cover of the aircraft and remove the power battery.**

5.5 Copying Videos in Camera SD Card

Figure 5-9 **Remove SD card**



Step 1 Open the SD card plug.

Step 2 Slightly press the SD card and it will pop out. Pull out the SD card.

Step 3 Insert the SD card into a card reader, and connect the card reader to the PC. Copy and save the videos in the SD card to the PC via the card reader.

5.6 Removing Other Components

- Remove the SIM card: Open the silicone cover on the side panel of the remote controller, pull out the SIM card, and close the silicone cover.
- Fold remote controller antenna: Fold the antenna and make it close to the front panel of the remote controller.

6.1 Updating Local Firmware

Description

Make sure that the aircraft and remote controller are turned on and paired when updating firmware.

Warning

Do not update the firmware during the flight.

Update the firmware such as APP, autopilot, function board, RC and PTZ camera.

6.1.1 APP Update

Step 1 Place the APP upgrade package in the root directory of the SD card, and insert the SD card into the SD card slot of the remote controller.

Step 2 Select **Settings** > **General Settings** > **Version Management** > **Local Firmware Update**. In the right of **APP Update**, it displays the current APP version number and build date, as shown in Figure 6-1.

Figure 6-1 APP Update.

- If the prompt **Is the latest version** is displayed, it means the current APP version is the latest and no update is required.
- If the prompt **UPDATE NOW** is displayed, you can tap it for the update.

Step 3 Tap **UPDATE NOW** to automatically update and display the update progress.
If the upgrade is successful, the version number is the same as that of the update software.

Description

The above method can only be used when the APP is updated to a higher version.

If you need to update the APP to a lower version (or same version), you need to uninstall the APP and reinstall it.

6.1.2 Remote Controller System Update

Step 1 Place the remote controller upgrade package in the root directory of the SD card, and insert the SD card into the SD card slot of the remote controller.

Step 2 Select **Settings** > **General Settings** > **Version Management** > **Local Firmware Update**.

In the right of **Remote Controller System**, it displays the current remote controller system version number, as shown in Figure 6-2.

Figure 6-2 Remote controller system update

Step 3 Tap **Check Update** to check whether there is an upgrade package available at the specified location. If there is an upgrade package, a pop-up window will be displayed. Tap **Confirm Update** to start updating the system.

If the upgrade is successful, the version number is the same as that of the update software.

Description

The remote controller system cannot be updated when its power is low. Make sure that the power is above 20% to upgrade the remote control system successfully.

6.1.3 Other Firmware Update

Autopilot, function board, RC on the aircraft end, RC on the remote controller end, inputhub, remote controller image transmission, PTZ control program and more can be set here.

Step 1 Place the upgrade package in the root directory of the SD card. Make sure that there is only one bin package under the SD card root directory. Insert the SD card into the SD card slot of the remote controller.

Step 2 Select **Settings** > **General Settings** > **Version Management** > **Local Firmware Update**.

Step 3 When the upgrade package is detected, the upgrade status changes to upgradable, as shown in Figure 6-3.

Figure 6-3 Other firmware update

6.1.4 PTZ Camera Update

6.1.4.1 Camera Local Update

Step 1 Place the camera upgrade package in the SD card root directory, and insert the SD card into the SD card slot of the remote controller.

Step 2 Connect the aircraft and the remote controller through the Type-C cable.

Step 3 Select **Settings** > **General Settings** > **Version Management** > **Local Firmware Update**. Tap **Select file** to select the file to be updated, and tap **Update** to update the camera system, as shown in Figure 6-4.

Figure 6-4 Camera local update

6.1.4.2 Camera Web Update

Step 1 Place the camera upgrade package in the SD card or the internal storage of the remote controller.

Step 2 Access http://192.168.1.108 in the browser, and enter the username and password to log in.

Step 3 Select **Settings** > **System Management** > **System Update**.

Step 4 Tap **Import** to import the camera upgrade package from the storage system.

Step 5 Tap **Update** to finish updating.

The **Camera system update** page is as shown in Figure 6-5.

Figure 6-5 Camera Web update

6.2 Downloading Map

6.2.1 Downloading Remote Controller Offline-Map

Step 1 Connect the remote controller to the network by inserting a 4G SIM card, or connecting Wi-Fi or network cable.

Step 2 Select **Settings** > **General Settings** > **Other Settings** > **Map Settings**. Tap **DOWNLOAD** in the Offline map list. And the **Offline map download** page is displayed, as shown in Figure 6-6.

Step 3 Select the city you need and then tap **DOWNLOAD**

Step 4 The map takes effect immediately after download.

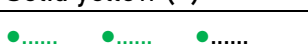
Figure 6-6 Downloading offline map

Appendix 1 Aircraft Indicator Behaviors

The aircraft status indicators below the aircraft power switch are on when the aircraft is turned on. For indicator behaviors, see Appendix Table 1-1

Make sure that you have understood the indicator behaviors before flight so that you can quickly understand the aircraft status or identify problems during flight. The actual operation methods are specifically introduced in other chapters.

Appendix Table 1-1 Indicator behaviors

Stage	Indicator color and status	Implication		Operation
Start		Self-checking and preheating.		Wait.
	Solid red (●)	System self-check reports exception.		-
Compass calibration	Solid blue (●)	Horizontal calibration of compass.		Wait.
	Solid purple (●)	Vertical calibration of compass.		Wait.
		Calibration failure of compass.		Manually calibrate compass.
Pairing	Solid yellow (●)	Pairing success.		-
Flight		Ready to take off.		-
	Flash green (●) once	Loiter mode with satellite number ≥6.		-
	Flash green (●) twice	Loiter mode with satellite number <6.		-
	Flash purple (●) once	Intelligent mode and satellite number≥6.		-
	Flash purple (●) twice	Intelligent mode and satellite number <6.		-
	Flash blue (●) once	Alt hold mode.		-
		-	Disconnected from remote controller for more than 3 seconds.	-
			Level-one low battery warning.	-
			Level-two low battery warning.	-
		-	Disconnected from remote controller for more than 3	-

Stage	Indicator color and status	Implication		Operation
			seconds.	
			Level-one low battery warning.	-
			Level-two low battery warning.	-
			Disconnected from remote controller for more than 3 seconds.	-
			Level-one low battery warning.	-
			Level-two low battery warning.	-
		Returning	Lost image transmission signals.	-
			Disconnected from remote controller for more than 3 seconds.	-
			Level-one low battery warning.	-
			Level-two low battery warning.	-
			Disconnected from remote controller for more than 3 seconds.	-
			Level-one low battery warning.	-
			Level-two low battery warning.	-
Failure	Flash red (●) for three times	Sensor failure or forced landing.		-

Notice

The frequency of aircraft and remote control have been paired before factory delivery.

Problem

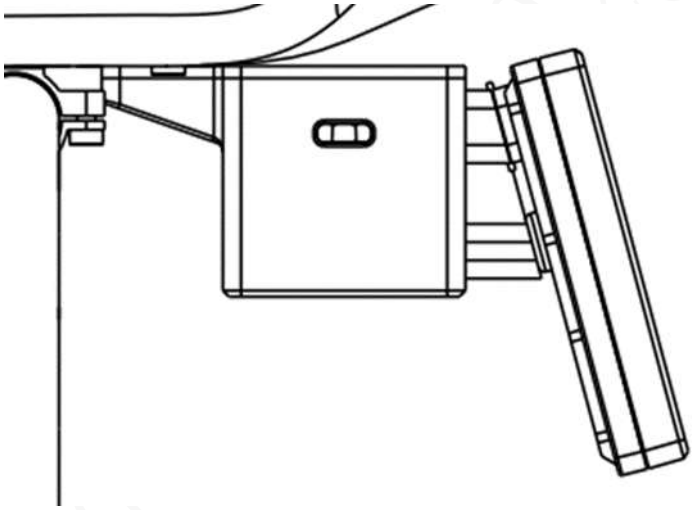
When the remote controller prompts that pairing failed, you need to pair again.

Troubleshooting:

Wired pairing:

Step 1 Open the silicone cove at the USB port of the aircraft.

Appendix Table 2-1 Open the rubber plug

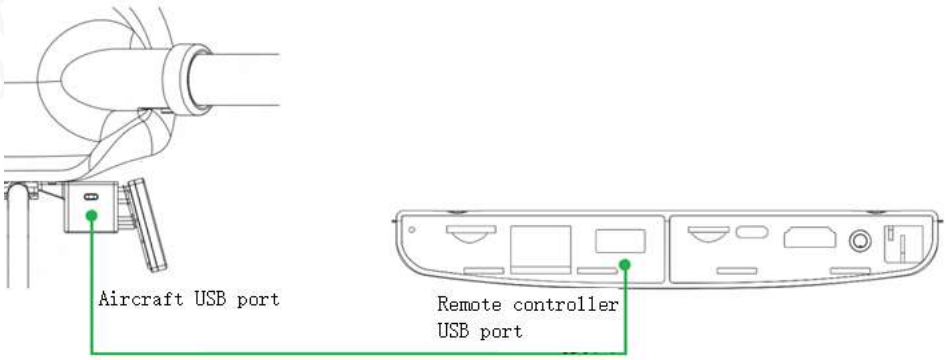


Step 2 Insert one end of the corresponding pairing line into the Type-C port of the aircraft.

Step 3 Insert the other end of the corresponding pairing line into the USB port of the aircraft.

Connect aircraft and remote controller, see Appendix Figure 2-2

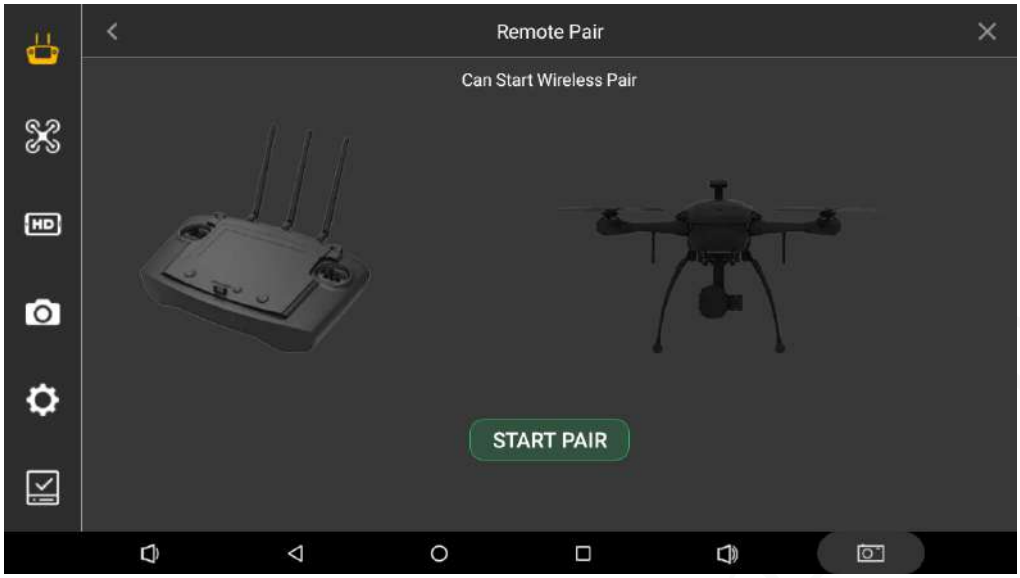
Appendix Figure 2-2 Connect aircraft and remote controller



Step 4 Select **Settings** > **Remote Setting** > **Remote Pair** on the remote controller.

The **Remote Pair** page is displayed, as shown in Appendix Figure 2-3.

Appendix Figure 2-3 Remote Pair



Step 5 Tap **Start Pair** and the system will automatically implement pairing.

Step 6 The remote controller will prompt **Successful** to indicate that the pairing has succeeded.

Step 7 If pairing failed, Repeat steps 1–4.

Appendix 3.1 FAQ About Aircrafts and Solutions

FAQ: Images are subject to water ripple and shaking when the aircraft meets gale.

Solution: Prevent PTZ from facing the gale directly.

Appendix 3.2 FAQ About Remote Controllers and Solutions

FAQ: The touchscreen of the remote controller responds slowly or has other exceptions.

Solution: Press the power button of the remote controller to restart the remote controller. If the problem remains, contact the manufacturer.

Appendix 3.3 FAQ About Airborne Devices and Solutions

FAQ: Loss of recorded videos (including failure to copy data from SD card).

Solution: Check the aircraft version. If the version is too low, contact the manufacturer for an update.

Appendix 3.4 FAQ About Chargers and Solutions

FAQ: The screen of the charger encounters problems including blurry screen, poor touch responsiveness, screen prompt of battery being connected reversely, and too high voltage.

Solution: Check the connection between the AC power cable and the charger (because the charger power is high, we recommend that one power strip be used for two chargers only.) You can also restart the charger, or verify that the connection between the charger and battery is normal. If the problem remains, contact the manufacturer.

After-sales Service Policy

Dear Valued Customer:

Hello!

Thank you for purchasing our drone products!

To protect your legitimate interests and eliminate your worries, please purchase our products through formal channels. Our company promises to provide standard warranty services for you and provides the following services as needed:

I. Three-guarantee Services

1) Repair

Within the warranty period, the company provides free repair or replacement of components that have been damaged due to product quality issues. Warranty period aside, regardless of whether components have been damaged due to human factors or natural causes, the company will only charge for the cost of materials and labor for replacing or repairing the components.

2) Exchange

Customers have the right to exchange a product or have it repaired within 45 days of the date of purchase (inclusive of the date on the original receipt, and the same for below), In the environment specified in the User's Manual, if the company's products have the problem that is non-artificial and does not meet the User's Manual, and the relevant national quality testing standards of the hardware performance failure, the user has the right to choose to replace or ask for repairing. The company exchanges the product for another of the same model and specifications or exchanges the faulty components free of charge. If the same product model or components are no longer in production, then they will be exchanged for products or components whose functions are not less than that of the original.

Special reminders:

- In accordance with the actual purchase and sale contract, the products on sale at a discount cannot be exchanged.
- Ex-display devices that are sold at a discount are not covered by the company's exchange and related policies.

3) Refund

Customers have the right to return or exchange a product of the company or have it repaired within 7 days of the date of delivery (inclusive of the date of purchase) if the product experiences a malfunction that does not meet the related quality testing standards of the "Product manual" and national standards.

Special reminders:

- In accordance with the actual purchase and sale contract, the products on sale at a discount cannot be refunded.
- Ex-display devices that are sold at a discount are not covered by the company's exchange and related policies.

4) The company will not provide its three-guarantee services under any of the following circumstances:

- The Three Service Warranty period has expired;
- Unpacking the product without permission from the technical support team of the company or authorized supplier during product delivery;
- Malfunction or damage cause by improper use, maintenance or storage of the product;
- Unable to use the product normally due to installation of pirated, non-standard, self-made or publically unavailable third-party software.

- Malfunction or damage due to being dropped, crushed, exposed to high temperature, corrosion, introduction of foreign bodies, poor electrical circuits or other abnormal factors.
- Malfunction or damage due to natural disasters, conflict or other force majeure factors;
- Product malfunction caused by dismantling, maintenance or installation by unauthorized or uncertified personnel;
- Products that do not have labels bearing a factory name, factory address, date of manufacture, product serial number, product certification, product warranty card or product serial number, or whose such labels are unclear or damaged rendering them unreadable.
- The product type or serial number on the purchase receipt does not match the actual physical product;

II. Standard Service Guarantee

1) Warranty period

Starting from the date of purchase (from the date on the purchase receipt), this product will be entitled to free maintenance within the limits of the warranty period in accordance with the provisions of the signed sales and purchase contract. Upon expiry of the warranty period, the company will offer paid maintenance services in accordance with the Paid Service Standards.

The product mainly includes the following parts: host, consumable parts, and accessories. For the specific warranty periods, see the List of Product Standard Warranty Periods.

Explanation of Main Points:

1) For warranty policies of random promotional products and independent sales or non-standard products, please refer to the corresponding warranty certificates of the promotional products and independent sales or non-standard products;
2) Warranty periods for special product items will be set out in the purchase contract;
3) The non-electronic components (such as the fuselage casing and propellers) in the packing box and flight platform components are not covered by the warranty. Consumable accessories such as batteries are not included in the scope of warranty service. Paid services are provided for such components, and the actual cost depends on the actual damage;
4) For the components of the flight platform, including flight control, navigation, motor, battery, PTZ, and air-ground communication components, after-sales services are provided in accordance with the causes of damage judged by the manufacturer;
5) If the damage is due to non-operational reasons, the manufacturer shall repair or exchange the product. If the damage is due to improper operations, paid after-sales services will be provided, and the actual cost depends on the actual damage;
6) Ex-display devices that are sold at a discount are not covered by the company's exchange and relevant policies. The warranty period on the purchase and sales contract shall prevail.

2) Services

(1) Customer service inquiries

If you have any questions about using the product, please feel free to call the customer service hotline: 0571-87235785, or directly contact local technical support.

(2) Repair process

When you discover a product of the company is faulty, please first contact the vendor, local technical support, or the customer service hotline by telephone or e-mail to describe the problem details and get a preliminary assessment of the fault. If it is diagnosed to be a hardware problem, please fill in the Send for Repair Feedback Card (see the appendix), put it with the faulty product, and send the product to the specified address for repair. We determine based on the warranty card information and the actual problem whether the repairs are free of charge

or should be paid. If a fee is required, we will notify you of the determined price and will proceed with the repairs with your consent.

3) Special reminders:

You need to make the following preparations before sending your device for repair:

- Follow the specified service application procedure.
- Back up all the programs and data included in the product or ensure their security. The company will not bear any responsibility for any result due to data loss during use or maintenance.
- Provide necessary support and cooperation, including providing system key or passphrase, fault description, or necessary sites.
- Remove all the confidential and personal information that is protected under the law from the product. If you cannot remove such information from the product, you shall notify the service provider when applying for the warrant service.
- Do not attach any objects such as peripheral hardware or cables when sending the product for repair. If you have special requirements, please contact the company in advance and provide the relevant list when sending the product for repair to avoid unnecessary loss.

III. Precautions and Special Reminders

Precautions

- The hotline number in this document may be subject to change due to changes in the telecommunication network or other factors. Please check the company's official website for the latest service inquiry telephone number.
- The overseas after-sales policy is based on local laws and regulations.
- The company does not provide free three-guarantee services for some products with non-embedded operating systems damaged due to being infected with viruses during use.
- The above warranty commitments made by the company are only applicable to the components and accessories of standard product configurations on delivery. When you purchase the product, if the seller installs components or accessories not of the company, they will be covered by the seller's own warranty, for which the seller must make an additional commitment and the company will not be held liable. Please ask the seller for written proof to ensure that the seller honors their additional commitment to you.
- In the course of your daily use, or each time before receiving service, please be sure to back up important information so as not to lose it. The company shall not be liable for any loss caused by data loss during use or maintenance.
- Within the free warranty period, the company assumes ownership of the entire original replaced devices or faulty components that they recover from you.
- Before shipment, please pack the product carefully and pay attention to preventing vibration. You should carefully choose the delivery method and shipment company and purchase shipping insurance. The company does not bear responsibility for any damage caused in the process of shipment arranged by yourself.

IV. Service Supervision

To continuously improve customer service management and develop new customer service models, the company welcomes every customer to monitor our services and make recommendations for improvement. The contact information for service supervision is as follows:

Contact department: Market Service Department

Service telephone: 0571-87235785

Service email: dh_uav@dahuatech.com

Website: https://www.dahuatech.com

Address: No.1399, Bin'Xing Road, Binjiang District, Hangzhou

The List of Product Standard Warranty Periods is as follows.

Product category	Product Type	Detailed description	Standard warranty period
Aircraft	Four-rotor drone	Four-axis aircraft	12 months
	Six-rotor drone	Six-axis aircraft	12 months
	VTOL fixed-wing	Fixed-wing aircraft	12 months
	Countermeasure series	Counter drone system	12 months
Control system	Remote Controller	Visual control device	12 months
	Ground station (Drone control platform)	Online control platform, multi-device image control, and drone route planning.	12 months
Payload	Visible light PTZ	HD camera, three-axis self-stabilization PTZ	12 months
	Infrared thermal imaging PTZ	Smart thermal technology, three-axis stability-augmentation PTZ	12 months
	Dual-lens PTZ	Visible light PTZ + thermal PTZ	12 months
	Talk PTZ	Remote real-time call device	12 months
	Functional load series	Throwing, lighting, fire-extinguishing balls, and multiple tubes	12 months
Extended accessories	Flat plate antenna (image transmission), bracket	Gain antenna, bracket	12 months

*Special instructions:

① The warranty terms for promotional products, ex-display devices sold at a discount, or non-standard products shall be subject to the actual purchase and sale contract.

② The warranty terms for special products shall be subject to the actual purchase and sale contract.

③ The warranty periods of the agent devices and memory cards shall be subject to the warranty periods promised by the original manufacturer or shall be subject to the actual purchase and sales contract.

④ Packaging is not covered under the warranty;

⑤ For the products not listed above, the warranty periods shall be subject to the actual purchase and sales contracts or written commitments.

Send for Repair Feedback Card

*Customer unit		Device model		Purchase date	
*Contact		*Contact Information			
*Address:					
*Defective device		*Fault description			
*Device List					
Notes					

Note:

1. The items marked with * are required. 2. Please fill in your receiving address in the Address text box. 3. This product is a package product. Please be sure to fill in the list of devices you send back to avoid unnecessary losses. 4. Maintenance may cause the data loss of the devices. Please be sure to back up important data in advance.

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*Customer unit		Device model		Purchase date	
*Contact		*Contact Information			
*Address:					
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FCC Warning

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

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

NOTE 1: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this

equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.

-Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

-Consult the dealer or an experienced radio/TV technician for help.

NOTE 2: Any changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

RF Exposure Statement

To maintain compliance with FCC'S RF Exposure guidelines, This equipment should be installed and operated with minimum distance of 20cm between the radiator and your body. This device and its antenna(s) must not be co-located or operation in conjunction with any other antenna or transmitter.

ENABLING A SAFER SOCIETY AND SMARTER LIVING

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