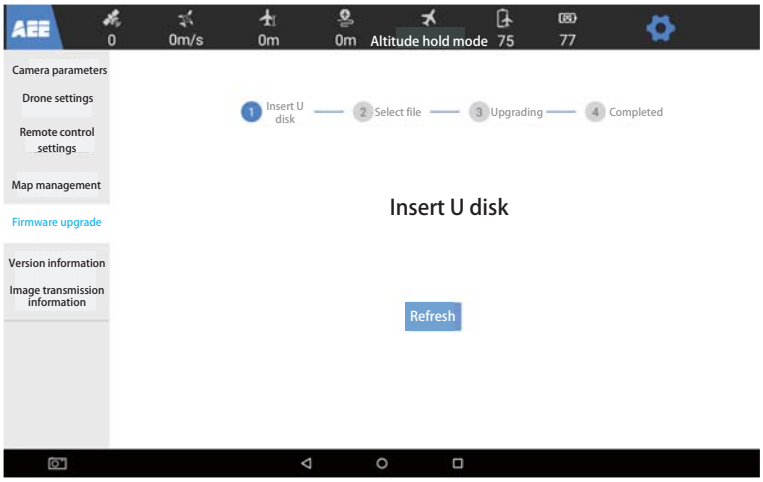
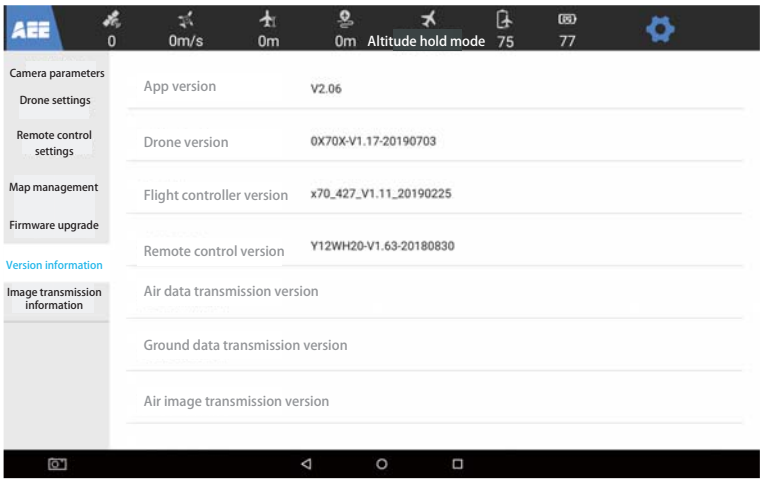
6.3.6 Firmware upgrade

Under the functional option parameters, this function is limited to factory upgrades and users do not need to operate. As shown below:



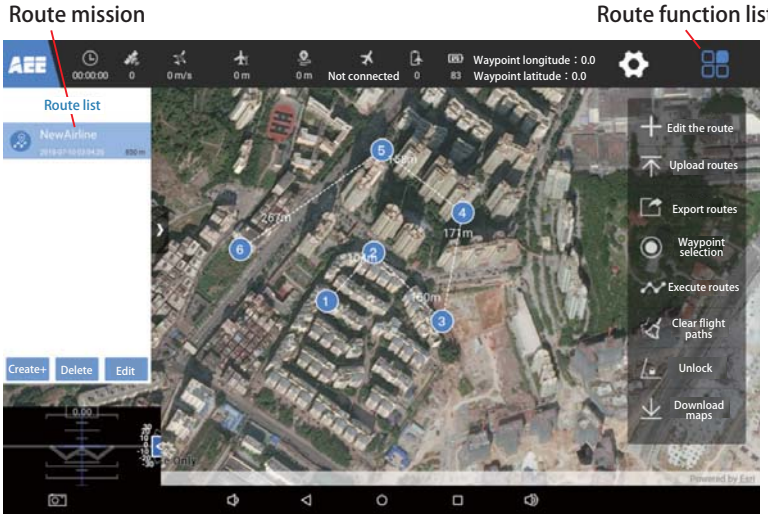
6.3.7 Version information

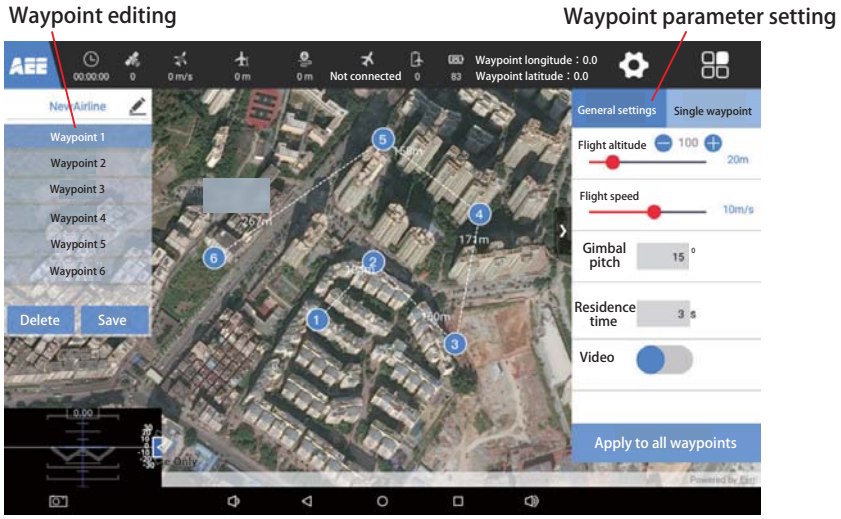
Under the functional parameter options, you can view the software version information related to the aircraft, remote control, etc. As shown below:



6.3.8 Map display and route function

Click the map screen to enter the map planning page, flight mission functions such as related route mission tasks, waypoint parameter editing, route operation and map download can be set, as shown below





7. Calibration of the aircraft

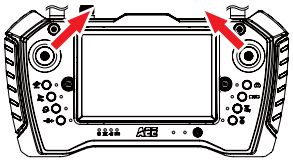
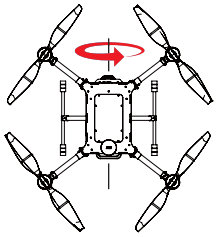
7.1 Calibration of the compass

Please calibrate the compass according to the indication of the aircraft status indicator. Calibration precautions are as follows:

1. Do not calibrate near areas of strong magnetic field or large pieces of metal, such as magnetic mines, parking lots and building areas with underground steel bars.
2. Do not carry any ferromagnetic substances, such as mobile phones, during calibration.
3. After the compass is successfully calibrated, when the aircraft is placed back on the ground, if disturbed by the magnetic field, the processing method will be displayed. Please follow the displayed processing method for corresponding operation.

Calibration steps

Please select an open space to start up the remote control and the aircraft, ensure that the equipment is normal, and calibrate the compass according to the following steps.

Steps	Operation methods	Illustration
Step 1	Turn the left joystick of the remote control to the upper right corner and the right joystick to the upper left corner (this action needs to be held for 3S to 5S), as shown on the right. At this time, the aircraft status indicator flashes slowly in yellow, indicating that the compass calibration procedure has started.	
Step 2	Rotate the aircraft horizontally by 360° to the aircraft status indicator flashing slowly in green, as shown on the right.	
Step 3	Keep the aircraft nose up, rotate the aircraft horizontally by 360° until the rear navigation light is kept on (the red light will be kept on when the take-off condition is not met; the green light will be kept on when the take-off condition is met).	
Step 4	After the calibration, if the aircraft status indicator shows alternate red and yellow flashing, it indicates that the calibration fails. Please recalibrate the compass according to step 1 to step 3.	

Note: After the calibration, if the aircraft status indicator still shows alternate red and yellow flashing, it indicates that there is interference. Please change the calibration site. If there is an uncalibrated compass prompt on the interface before the aircraft takes off, you need to calibrate the compass. After the successful calibration, the prompt will disappear automatically.'

Situations requiring recalibration

(1) The compass data is abnormal, and the aircraft status indicator shows alternate red and yellow flashing.

(2) The flight site is far away from the site where the compass was calibrated last time.

(3) There is a serious drift during flight, or the aerial vehicle fails to fly in a straight line.。

8. Flight control of the aircraft

8.1 Take-off preparation

1. Check the battery level of the drone and the remote control, and charge them if the battery is low.
2. Check whether the propeller of the drone is tight and ensure that the blades are in the unfolded state.
3. Make sure that the remote control mode switch is in the middle position and the remote control is displayed as "fixed point mode".
4. Please check whether the compass data and attitude data are correct before flight. (Compass: when the drone is still, the compass deviation angle of the remote control is within +/-2° and does not change. Attitude: raise one side arm of the drone, and the remote control attitude display can change accordingly.); perform servo check, and calibrate the joystick if any abnormality is found.
5. Place the drone to the take-off point (with the power switched off), and ensure that the take-off point takes the drone as the center of the circle for safety, without obstacles within a radius of 10 meters.
6. Turn on the power switch of the drone. The drone is able to take off when the rear arm navigation light of the drone is kept on in green and the remote control interface shows fixed point mode.
7. Try to avoid starting two drones at close range simultaneously to prevent accidents.
8. Ensure that both the video antenna and the radio antenna are installed correctly before the flight, to avoid affecting the flight and video receiving distance or causing damage to the transmitting module inside the drone and remote controller.

8.2 Start the drone

1. Place the aircraft on an open horizontal surface, connect the power, turn the power switch to ON, and start up the aircraft to the satellite positioning state.(The tail light of the aircraft is red during the satellite positioning, and will be green after the successful satellite positioning);
2. Press the remote control for 1S, then press and hold the power button to turn it on. The remote control will automatically enter the GS software and the interface. Click to enter the device, and after the enterance, the remote control will display the status of the aircraft (such as satellite intensity, speed, altitude, distance, latitude and longitude).
3. Manual take-off. Under the condition of successful satellite positioning of the aircraft (the tail light of the aircraft is green), switch the remote control mode to the fixed point mode (middle position), make the remote control joystick perform the "down splayed" operation. Then the aircraft is unlocked, and the blades start rotating. When it enters into the idle state, release the joystick to the center, make the left joystick slowly push the throttle, then the motor of the aircraft accelerates and the aircraft will slowly rise. As shown below:

Middle position: fixed point mode

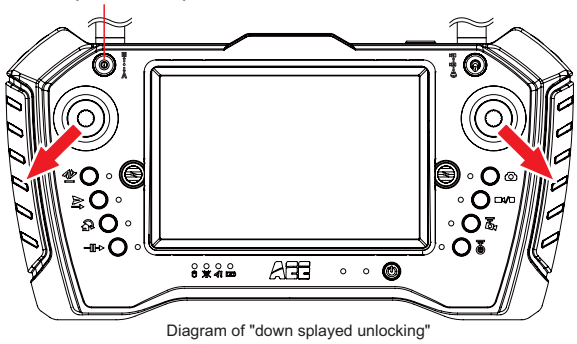
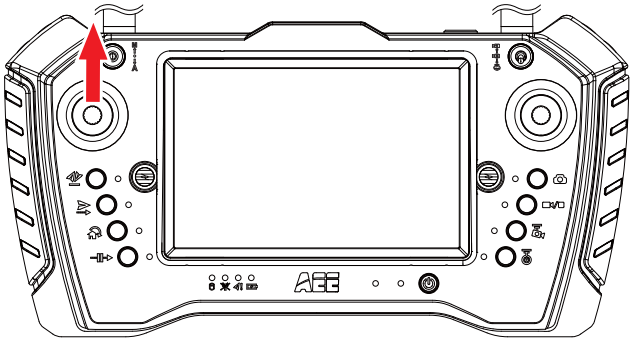
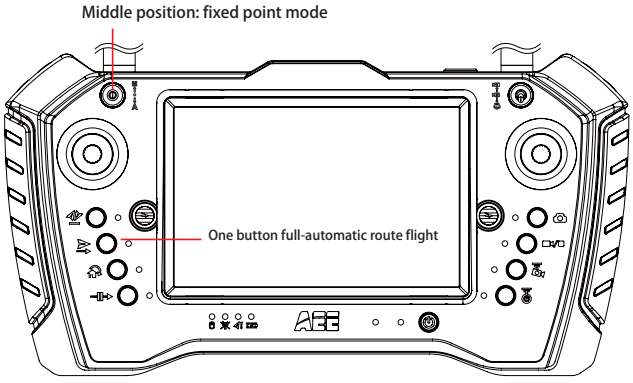


Diagram of "down splayed unlocking"



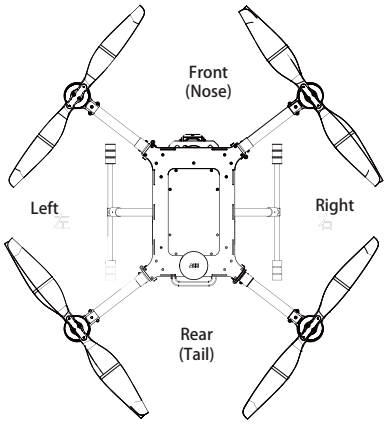
Push the throttle to make the aircraft rise

4. Automatic take-off. Under the condition of successful satellite positioning of the aircraft (the tail light of the aircraft is green), switch the remote control mode to the fixed point mode (middle position), perform the one button take-off function of the remote control, and click "Yes" when the remote control gives the prompt about whether to perform one button take-off, and the aircraft will unlock automatically and take off vertically to 10m (by default). As shown below:

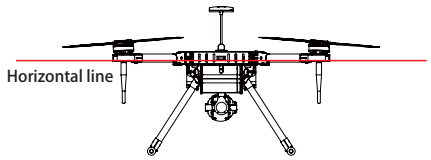
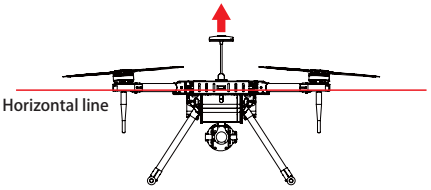
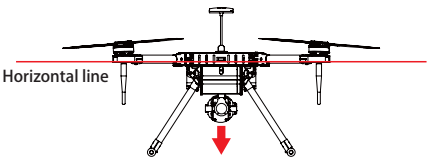


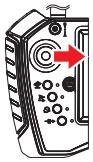
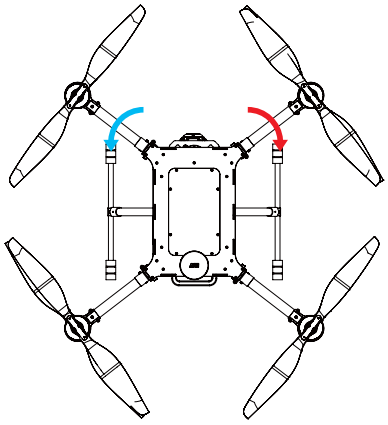
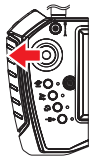
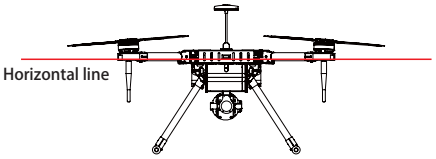
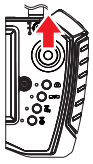
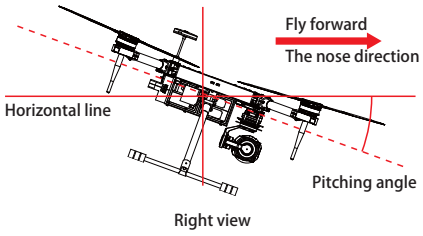
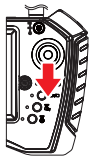
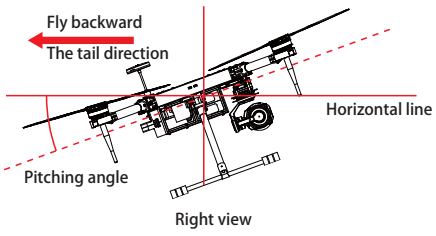
8.3 Direction control

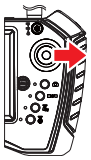
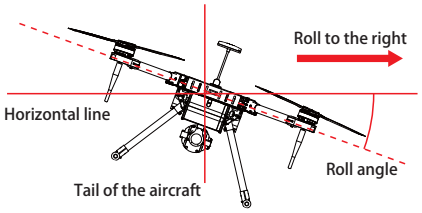
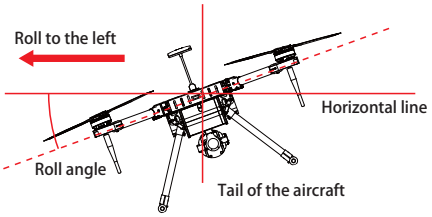
The drone direction is defined as follows:



Details are shown in the following table:

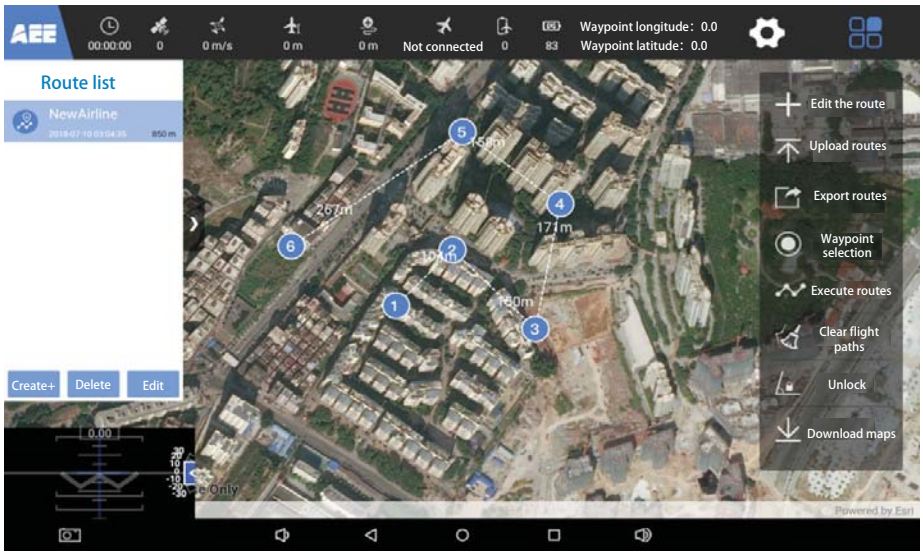
Joystick	Drone attitude	Illustration
 Left joystick centered	Altitude and heading remain unchanged When the left joystick is centered, the altitude and heading of the aircraft remain unchanged	 Horizontal line
 Left joystick forward, right joystick in situ	Upward When the motor speed increases, the propeller speed becomes faster; the bigger the joystick's amplitude is, the faster the climbing speed will be.	 Horizontal line
 Left joystick backward, right joystick in situ	Downward When the motor speed decreases, the propeller speed becomes slower; the bigger the joystick's amplitude is, the faster the landing speed will be.	 Horizontal line

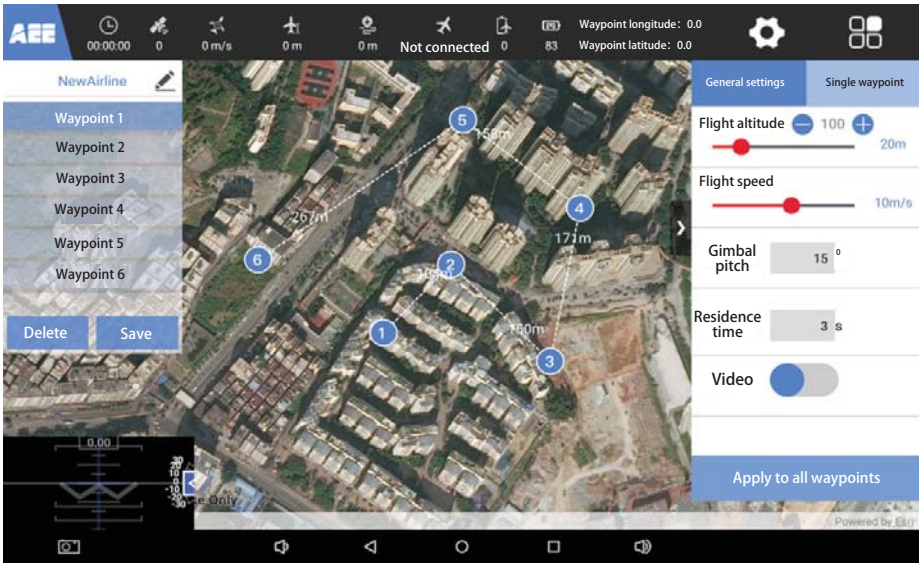
 Left joystick to right, right joystick in situ	Turn the nose right (Clockwise rotation)	
 Left joystick to left, right joystick in situ	Turn the nose left (Anticlockwise rotation)	
 Right joystick centered	Right joystick centered. When the number of GPS satellites is ⩾ 6, the position of the aircraft remains unchanged. When the number of GPS satellites is <6, the aircraft position needs to be manually controlled. The tail light is kept on in green after the satellite positioning	
 Right joystick forward, left joystick in situ	Fly forward The nose is downward, and the drone tilts forward and flies in the direction of the nose. At this point, push the throttle forward a little to adjust the flight altitude to make the drone fly horizontally	
 Right joystick backward, left joystick in situ	Fly backward The tail is downward, and the drone tilts backward and flies in the direction of the tail. At this point, push the throttle forward a little to adjust the flight altitude to make the drone fly horizontally	

 Right joystick to right, left joystick in situ	Fly to the right The drone tilts to the right and flies to the right.	
 Right joystick to left, left joystick in situ	Fly to the left The drone tilts to the left and flies to the left.	

The throttle lever of the remote control is the power lever to control the propeller speed, which can control the rise and fall of the drone. The push of the throttle lever should be gentle to avoid large fluctuations. When the left joystick is centered, the altitude and heading of the aircraft remain unchanged. The right joystick of the remote control is the direction lever, pushing left means flying to the left, pushing right means flying to the right, pushing forward means flying forward, and pushing backward means flying backward.

8.4 Flight mission editing





Edit routes: enter the route editing mode to display the route list: long press on the map, the waypoint 1 appears, then appears the waypoint 2...to complete the editing. To modify the waypoint, long press the waypoint to move it;
Upload routes: upload the edited routes to the unmanned aircraft system for flight missions; Waypoint selection: during the flight, the aircraft can fly to the designated position by selecting the desired waypoint;
Execute routes: after editing and uploading the route task to the drone, execute the route function, and then the aircraft will fly according to the edited route planning task;
Clear flight paths: click the function button to clear the flight path of the aircraft on the map; Lock the heading: click the function button to maintain a certain flight course and display position during the flight of the aircraft; Download maps: in the case of networking, flight map data can be downloaded through this function for mission flight; Route list: display all currently saved route tasks;
Create: add a new route editing task; Delete (route) : delete a designated route task; Edit: edit the waypoint parameters of the selected route; Waypoint: a new waypoint (flight target point) can be established by short pressing the map position of the display screen; Delete (waypoint) : delete a designated waypoint planning task information; Save: save all relevant parameters and settings of waypoints;
General settings: set relevant uniform parameters for all waypoints, such as flight altitude, flight speed, gimbal pitching, residence time and other relevant parameters of all waypoints;
Single waypoint: set the parameters of single waypoints to meet the different requirements of different waypoint tasks.

8.4.1 Usage process of GS software route planning task

Start the aircraft and remote control

↓

Aircraft receiving satellite positioning

↓

Go to the GS map page

↓

Load/download map data

↓

+Edit routes

↓

Create route tasks

↓

Edit and save the waypoint parameters

↓

Upload routes

↓

Start the aircraft

↓

Execute routes

↓

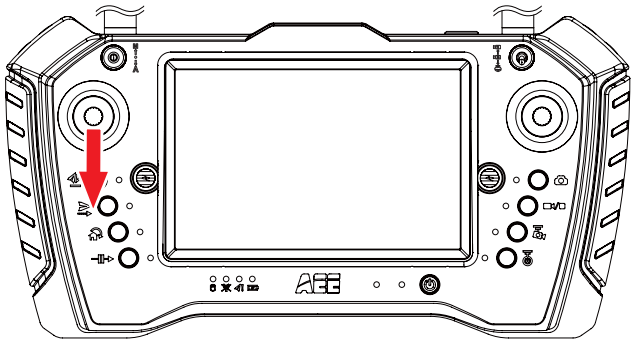
Complete route tasks, land and stop the propelle

↓

Shut down the aircraft and remote control

8.5 Return

1. One button return. When the aircraft is flying in the air, operate the one button return button on the remote control, the screen will prompt "whether to return", and then click "Yes", the aircraft will fly to a certain altitude, then return to the top of the take-off point, and finally land to the ground slowly and stop the propeller.
2. Manual return. Control the drone above the safe position by the remote control, and slowly pull down the throttle to the drone landing on the ground, then pull the throttle to the lowest position for 3S to 5S, the aircraft will automatically enter the lock mode and stop the propeller. As shown below:



The throttle is pulled down slowly to the lowest position when the aircraft lands on the ground

8.6 Shut down the drone

1. Shut down the drone

Turn the power switch of the drone landing on the ground and stopping the propeller to the OFF position, then disconnect the power cord between the host and the battery, push the battery compartment lock button to remove the battery.

2. Shut down the remote control

Double-click the power button of the remote control, and "Shutdown remote control" and "Restart remote control" will appear in the display screen of the remote control. Select "Shutdown remote control", and then the remote control will enter the shutdown state.

9. Troubleshooting

Please read the"operation manual" first before the test flight. Make troubleshooting according to the following methods if the drone fails to take off normally. Please contact us in the first time if you can't solve the problem after following the methods below. Do not operate blindly to avoid causing unnecessary losses!

Faults	Troubleshooting
Difficulty in uploading and downloading waypoints to aircraft	Ensure that the aircraft and the remote control are properly equipped with antennas, and that the distance is not too far;
The airborne camera cannot be self-stabilized after the aircraft is powered on	Restart the aircraft
After the aircraft flies far away, the remote control image appears stuck or mosaic	The complicated electromagnetic environment will affect the receiving effect of the antenna of the remote control. Putting the remote control upright and making the antenna vertical upward can achieve the best transmission effect of the antenna of the remote control.

10. Protection mechanism

1. When flying in the manual mode, the drone will enter the protection mode and automatically return to the take-off point and land if beyond the operating range.
2. When flying in the manual/automatic mode, the drone will enter the protection mode and automatically return to the take-off point and land if the remote control is shut down.
3. In the state of second-level low power, the drone will enter the protection mode, and the aircraft will descend to the ground vertically and slowly at the current position. At this time, the attitude and altitude of the aircraft can still be controlled by remote control. But two points need to be noted:

   – When landing in the state of second-level low-power, the aircraft should be controlled gently as the battery level is too low.

   - When landing in the state of second-level low-power, the middle position of the throttle lever of the remote control will move downward. At this time, if you want to keep the altitude of the aircraft unchanged or continue to climb, you need to push the throttle lever upward.

11. 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.
Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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

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

Specific Absorption Rate (SAR) information:

This Hand-held ground controller meets the government's requirements for exposure to radio waves. The guidelines are based on standards that were developed by independent scientific organizations through periodic and thorough evaluation of scientific studies. The standards include a substantial safety margin designed to assure the safety of all persons regardless of age or health.

FCC RF Exposure Information and Statement

The SAR limit of USA (FCC) is 1.6 W/kg averaged over one gram of tissue. Device types: Hand-held ground controller (FCC ID: 2AGZGY12001) has also been tested against this SAR limit. The highest SAR value reported under this standard during product certification for use at the body is 0.337W/kg. the simultaneous transmission SAR value is 0.337W/kg on the head This device was tested for typical body-worn operations with the back of the handset kept 0mm from the body. To maintain compliance with FCC RF exposure requirements, use accessories that maintain a 0mm separation distance between the user's body and the back of the handset. The use of belt clips, holsters and similar accessories should not contain metallic components in its assembly. The use of accessories that do not satisfy these requirements may not comply with FCC RF exposure requirements, and should be avoided.

Body-worn Operation

This device was tested for typical body-worn operations. To comply with RF exposure requirements, a minimum separation distance of 0mmmust be maintained between the user' s body and the handset, including the antenna. Third-party belt-clips, holsters, and similar accessories used by this device should not contain any metallic components. Body-worn accessories that do not meet these requirements may not comply with RF exposure requirements and should be avoided. Use only the supplied or an approved antenna.

FCC ID: 2AGZGX70001

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

Please read this manual carefully before use and keep it properly for reference.

MADE IN CHINA

Made in Shenzhen

AEE UNMANNED AIRCRAFT SYSTEM

无人机系统

深圳一电航空技术有限公司
SHENZHEN AEE AVIATION TECHNOLOGY CO.,LTD

Address: AEE Hi-tech Park, Shenzhen, China (Songbai Road, Shiyan Street, Baoan District)

Tel: 0755-2951 8999 Fax: 0755-27358999