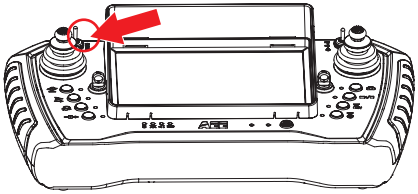
The throttle lever of the remote control is the power lever to control the propeller speed, which can control the rise and fall of the drone. The push of the throttle lever should be gentle to avoid large fluctuations. When the left joystick is centered, the altitude and heading of the aircraft remain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

5.5 Flight mode switch

5.5.1 Pull this switch to control the flight mode of drone. The switch position is as shown below:

Up	High Velocity Mode
Middle	POS HOLD Mode (GPS)
Down	ATTI Mode



Note:

1. AEE recommends that pilots should select the flight mode with caution. POS HOLD Mode (GPS) is recommended for the safest flying.
2. The ATTI Mode can be selected by experienced user, to help where GPS is limited to allow the drone to fly higher inorder to get a better GPS signal. After launch, please switch to POS hold or GPS lock when SAT signal allows. Pay close attention to the drone and control it to avoid an accident, for the drone may drift at different directions during hovering as GPS or RTK module fails to have accurate positioning and the height of drone is fixed only by barometer in this mode. It is recommended to switch the drone to POS HOLD Mode (GPS) (Middle) when satellite signal becomes better.

5.5.2 Flight mode status and prompt

High Velocity Mode:

This mode is the same as the POS HOLD Mode(GPS), the max horizontal flight speed is increased, and the max speed 75.5ft/s.

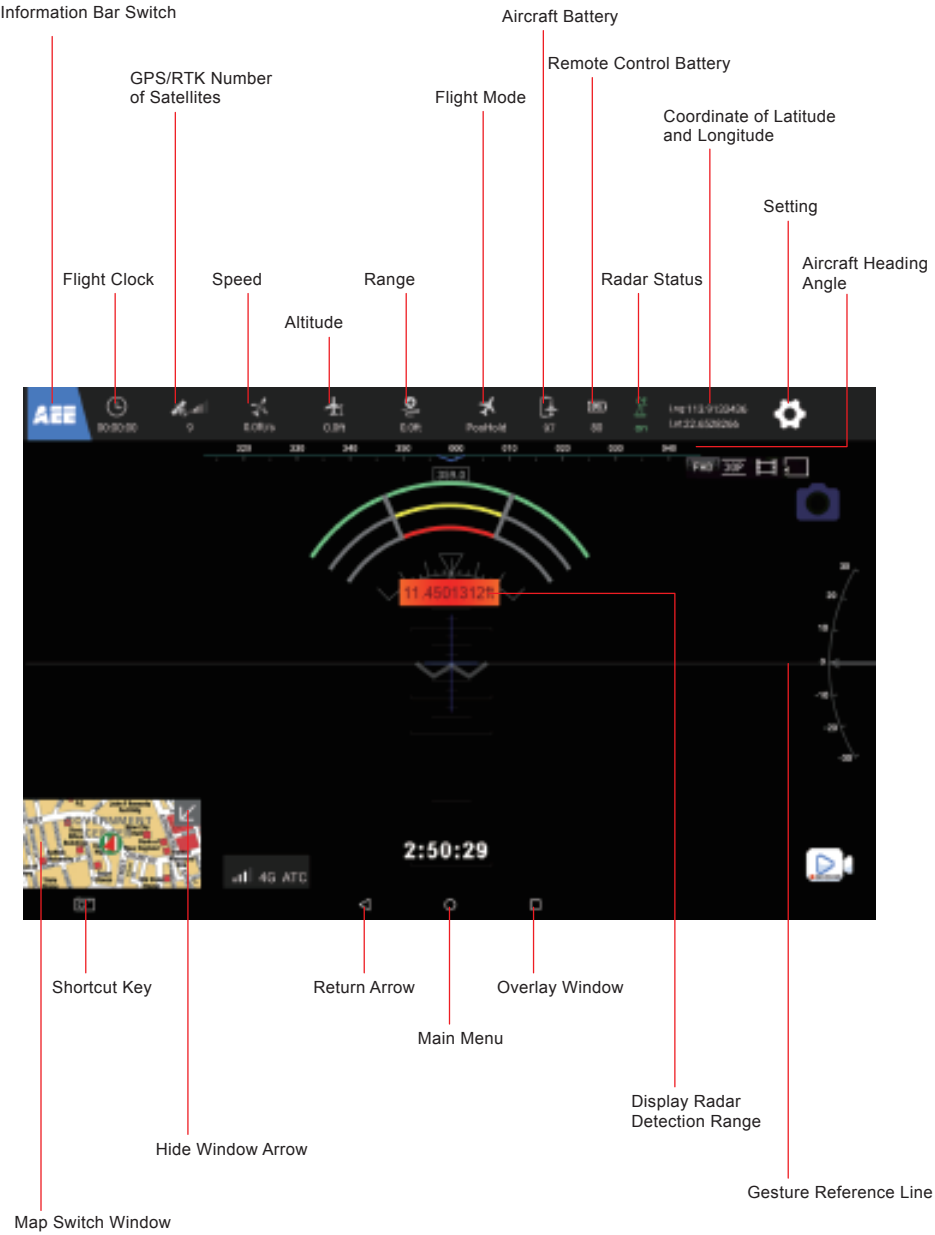
POS HOLD Mode (GPS):

1. GPS satellite searching in progress warning appears when there is SAT are being acquired.
2. SAT signal strength of satellite icon on remote control is <3 Bars, the tail light will become red. When satellite signal strength is ≥3 Bars , the tail light will become green.
3. When all signals are weak (satellite signal is <- Bars, the tail light is red.
4. Max speed 59.1ft/s

ATTI mode:

1. The drone can be unlocked until satellite is received. Meanwhile, the screen of remote control will prompt in every 2s: The drone may drift in ATTI mode, please use with caution!
2. The buzzer of remote control has beep sound. Tail light of drone is in red.

5.6 Illustration and function for main interface of remote control

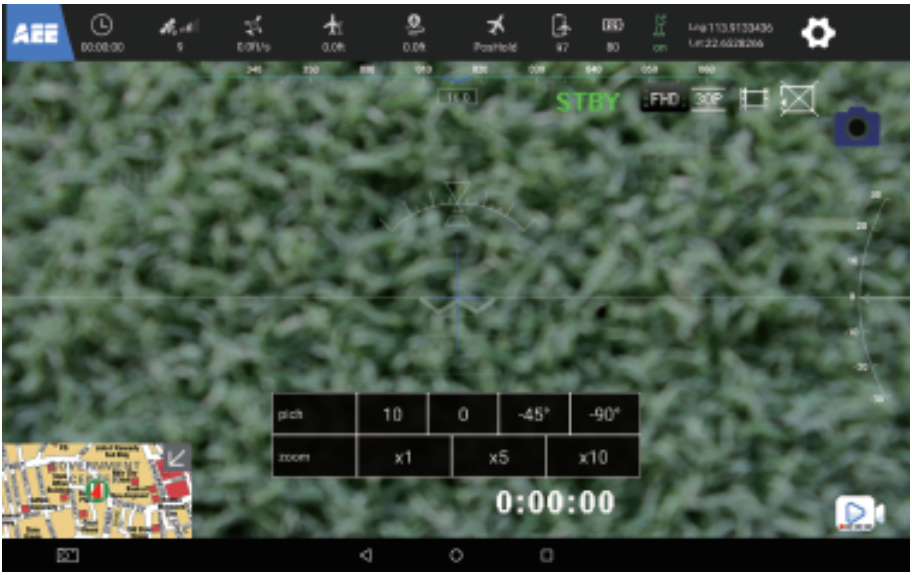


Information bar switch	Open and hide “flight clock” and “coordinate of latitude and longitude”
Flight clock	Start counting when drone takes off and record the flight period
GPS/RTK Number of satellites	Display current quantity of satellite and current flight mode of aircraft; for details, please refer to 5.5.2 Flight mode status and prompt
Speed	Display current flight speed of aircraft
Altitude	Display current flight height of aircraft
Range	Display current flight range of aircraft
Flight mode	Display current flight mode of aircraft
Aircraft battery	Display the remaining battery level of aircraft
Remote control battery	Display the remaining battery level of remote control
Radar status	Display whether current aircraft has enabled radar
Coordinate of latitude and longitude	Display the coordinate of latitude and longitude of current aircraft
Setting	Enter the setting interface; for details, please refer to “5.7 Illustration of setting interface”
Aircraft heading angle	Display current flight direction (angle) of aircraft
Display radar detection range	It will display distance prompt when radar is enabled, or hide the distance prompt when radar is disabled. Color prompt: The color includes green, yellow and green; it will show red alert when obstacle occurs within 10m, show yellow prompt when obstacle occurs within 10-20m, or show green prompt when obstacle occurs within 20-40m; meanwhile, the drone will slow down. This function is designed to decelerate the drone and stop it within 10m when it has forward flying at high speed.
Gesture reference line	Display the current flight gesture and angle of aircraft
Overlay window	View and select other program tasks
Main menu	Return to main menu of ground station
Return key	Press twice to quit the program task
Shortcut key	This function key needs to be set manually. There’s no screenshot key by default.
Hide window arrow	Press it once to switch to map interface; press it again to return to main interface.
Gesture reference line	Press once to hide the map switch window
4G signal strength and air traffic control status	1. When SIM card is not inserted, the 4G icon and signal strength icon is in grey; 2. When SIM card is inserted, 4G icon will be on and it will indicate the corresponding signal strength; 3. When network and air traffic control platform are connected, it will display the air traffic control status; which means, the information of air traffic control status is reported.

5.6.1 Shortcut function

5.6.1.1 Camera shortcut

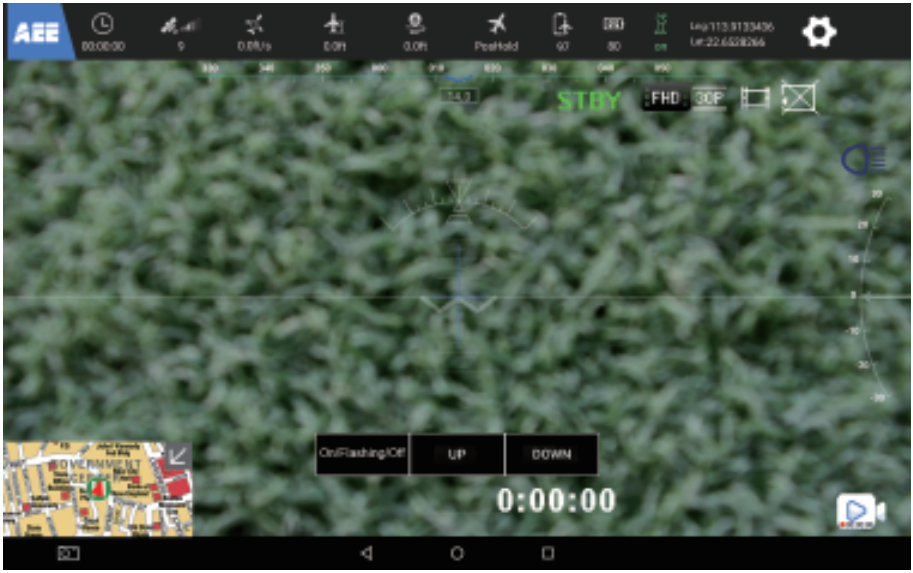
DAT9B：Quickly control the gimbal angle and zoom of the cradle head, as shown in the figure below:



DATF：Shortcut controls for DATF Pitch Angle and Camera controls，as shown in the figure below:

5.6.1.2 Spotlight shortcut

Control the spotlight on/flash/off, control the cradle head pitch, as shown in the figure below:



5.6.1.3 Thunderhorn shortcut

Control the Thunderhorn on/off, as shown in the figure below:

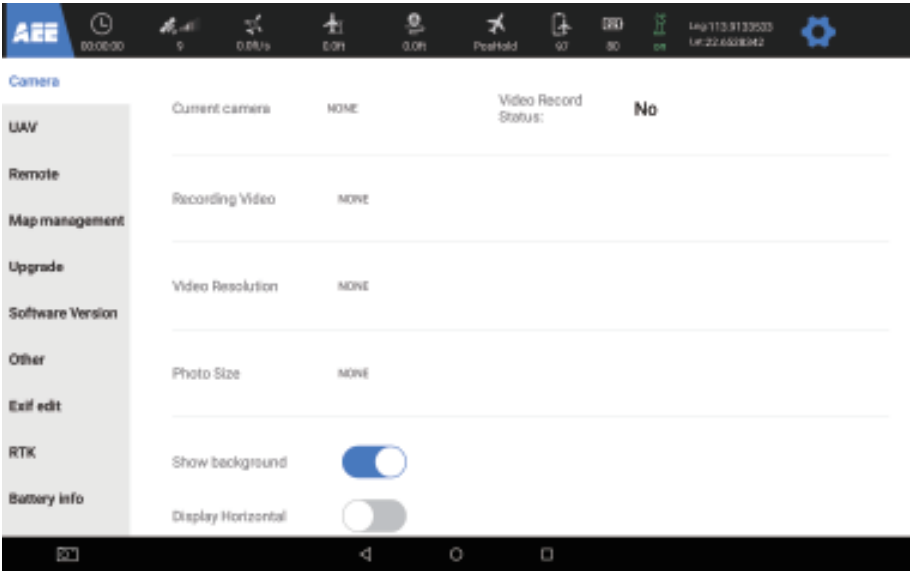
DAR6 SUPER THUNDERHORN shortcut, as shown in the figure below:

5.6.1.4 DATE Mapping camera shortcut

As shown in the figure below:

5.7 Illustration of setting interface
Short press set once to enter the setting interface.

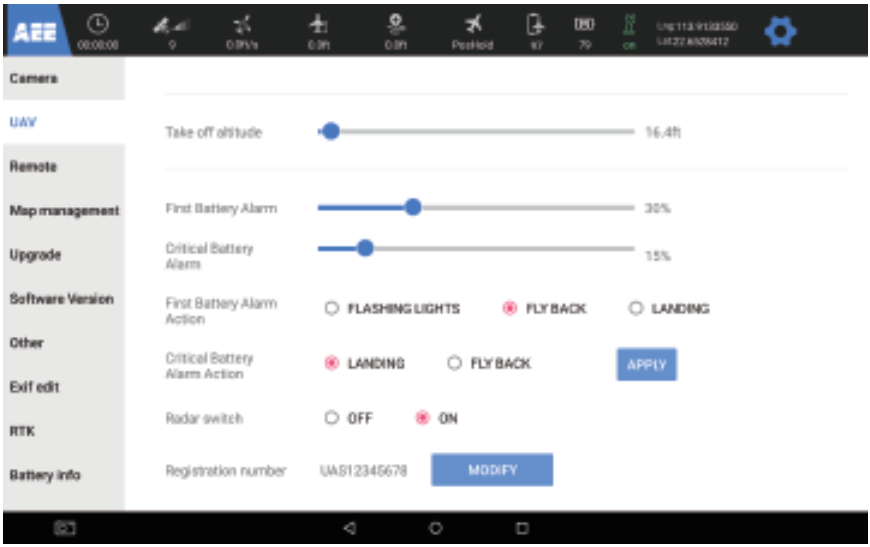
5.7.1 Camera parameters
Under the parameter setting options: 1. Relevant parameters of the camera are self-adaptive and unchangeable. 2. Camera: Check if camera is recording. 3. Background: Turn on/off aircraft heading angle and gesture reference line; this function is on by default. 4. Grid view: Turn on/off photography and recording in the main interface, this function is off by default. As shown in figure below:



5.7.2 Drone settings

Under the functional parameter options, relevant parameters of the drone can be set: 1. One-button take-off altitude: The min. altitude is 16ft, while the max. altitude is 393ft.

2. When first-level and second-level alarm reaches the set value, the remote control will have obvious prompt and buzzing sound. When battery level reaches the set value, the corresponding first-level and second-level alarm action will be triggered. Default action of first-level alarm: return; second-level alarm: Auto Landing (default) . As shown in figure below:



5.7.3 Remote control settings

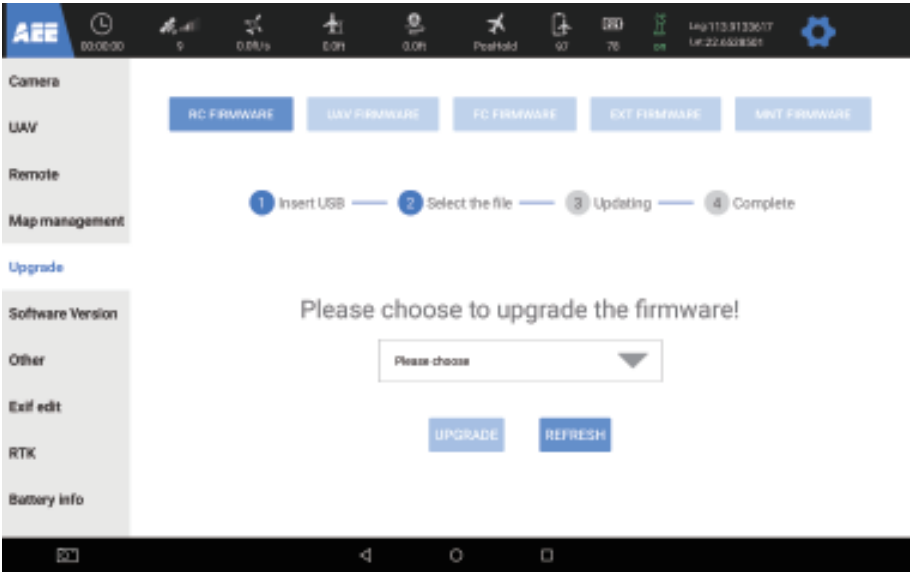
Under the functional parameter options, the parameters of the remote control, such as joystick calibration, joystick sensitivity and viewing the joystick value can be set. As shown in figure below:

5.7.4 Map Setting

Under the functional parameter options, you can download the information such as map through WIFI. As shown below:

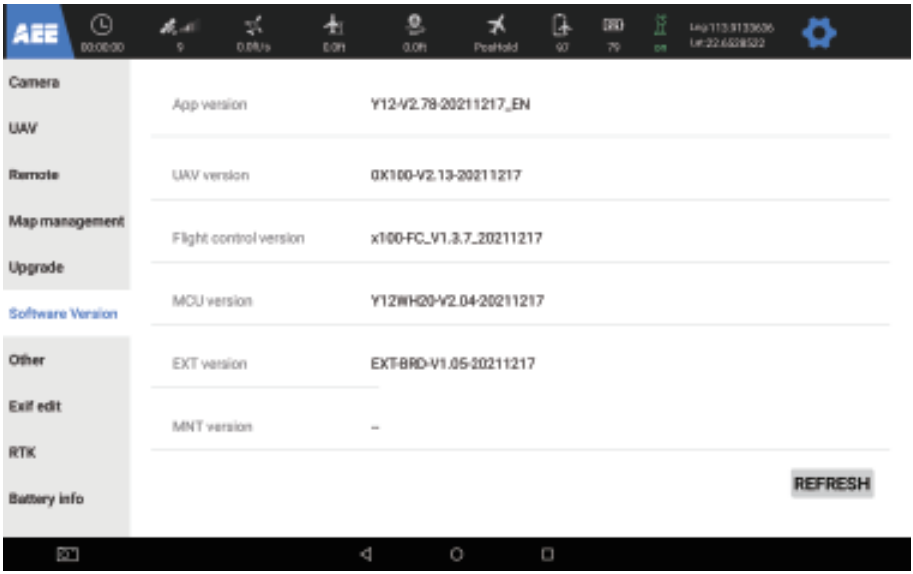
5.7.5 Firmware upgrade

From time to time, please check with AEEUSA Office. From time to time, AEEUSA will make available new APK firmware software for improving the MACH6 user experience. Do not attempt to update your firmware until speaking directly with AEEUSA office at 877-414-7993. As shown below:



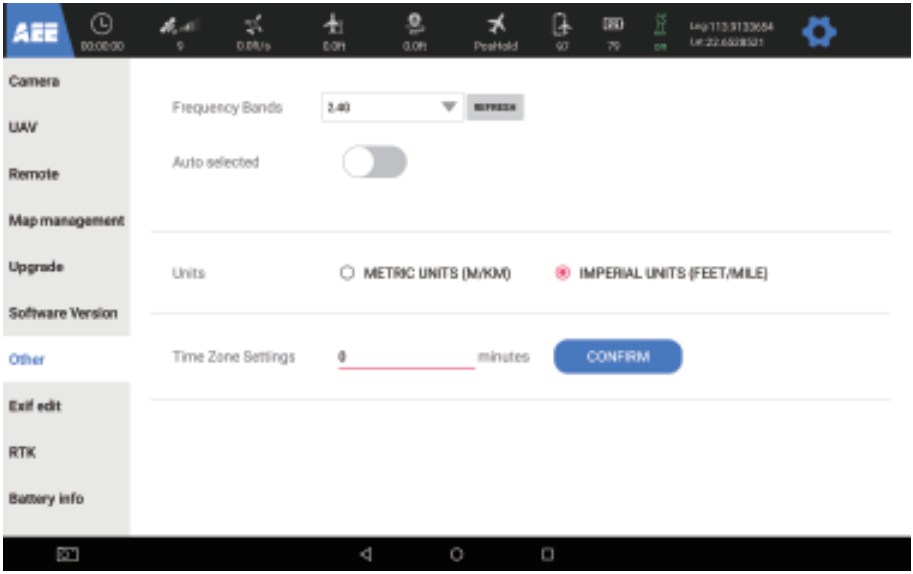
5.7.6 Version information

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



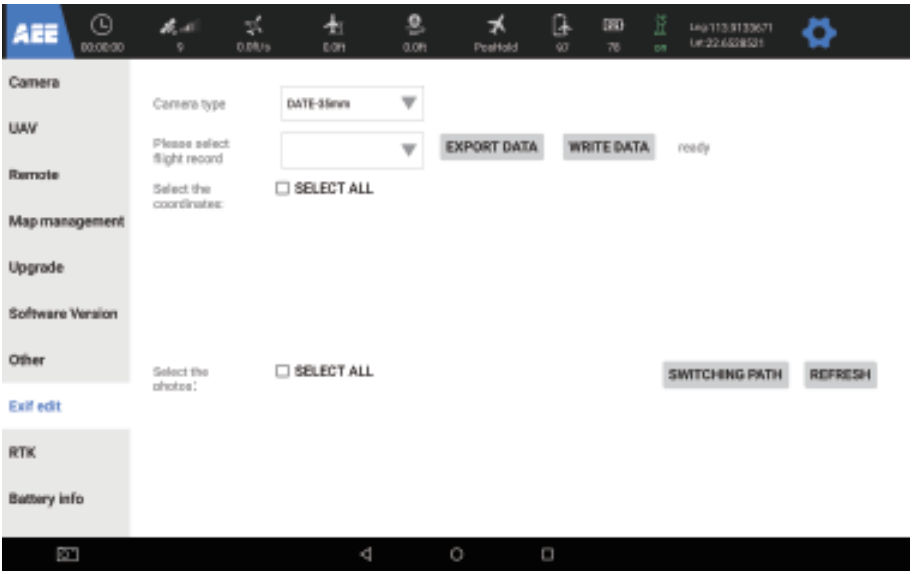
5.7.7 Other information

Under the option of this function parameter, you can modify the frequency band and unit.
As shown below:



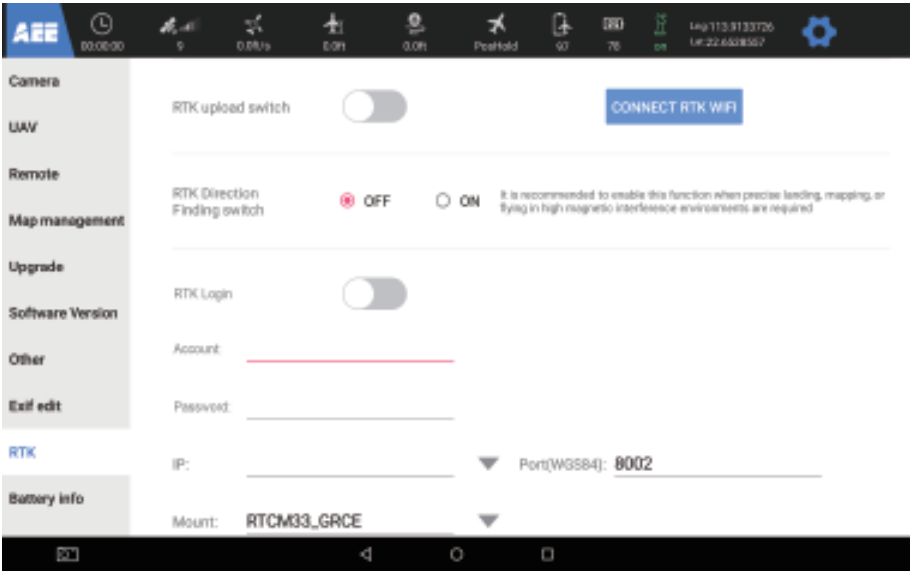
5.7.8 Picture processing

Under the option of this function parameter, you can choose surveying and mapping camera, flight record, etc. (This function applies to surveying and mapping camera only). As shown below:



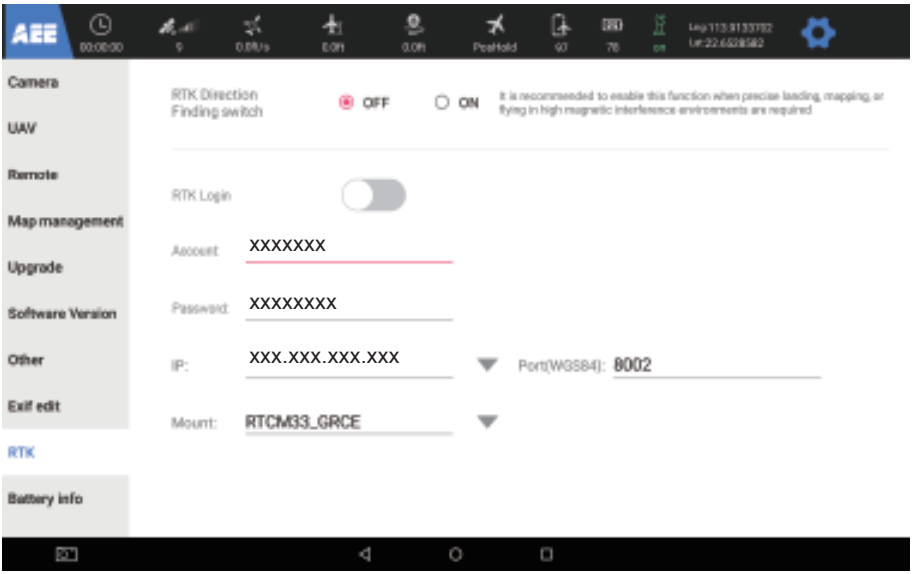
5.7.9 RTK

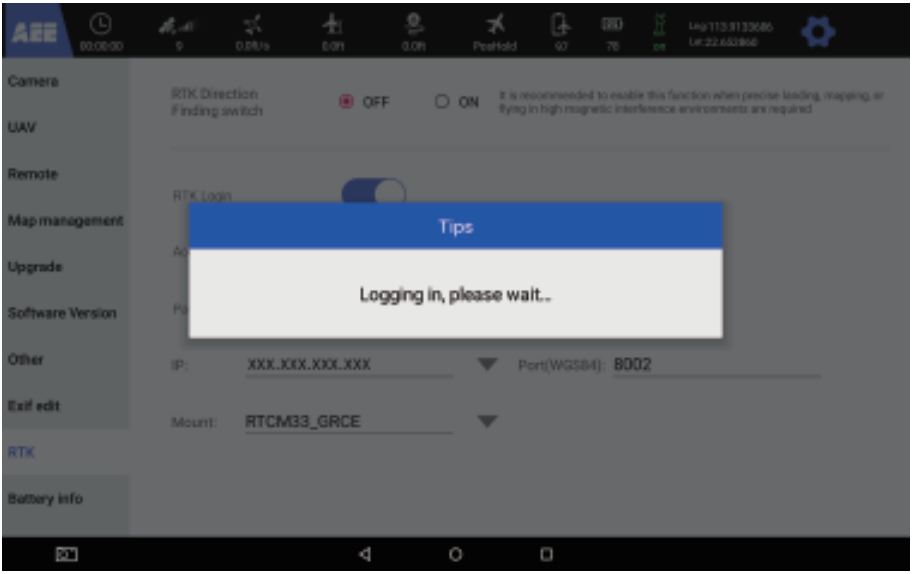
Under the option of this function parameter, you can select RTK on/off, status, etc. As shown below:

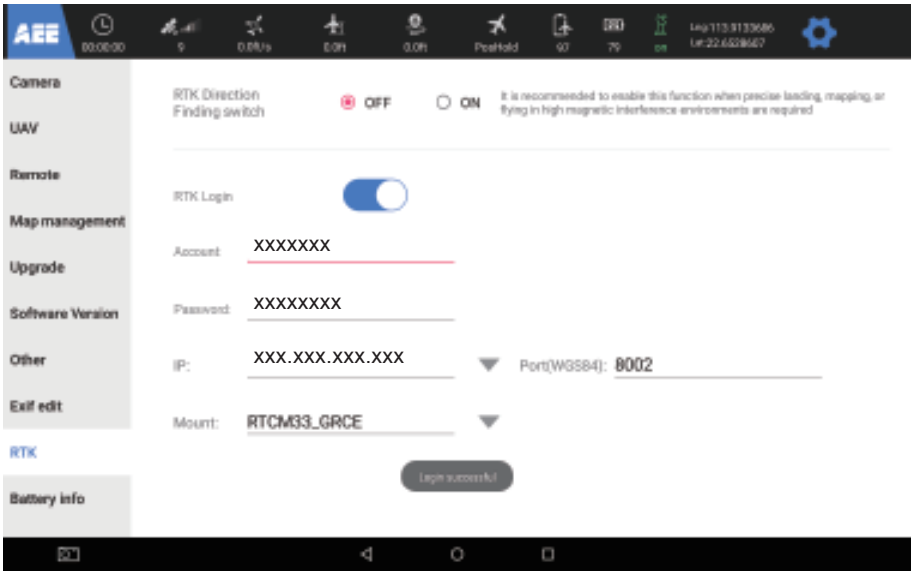


5.7.10 RTK configuration and use of 4G network

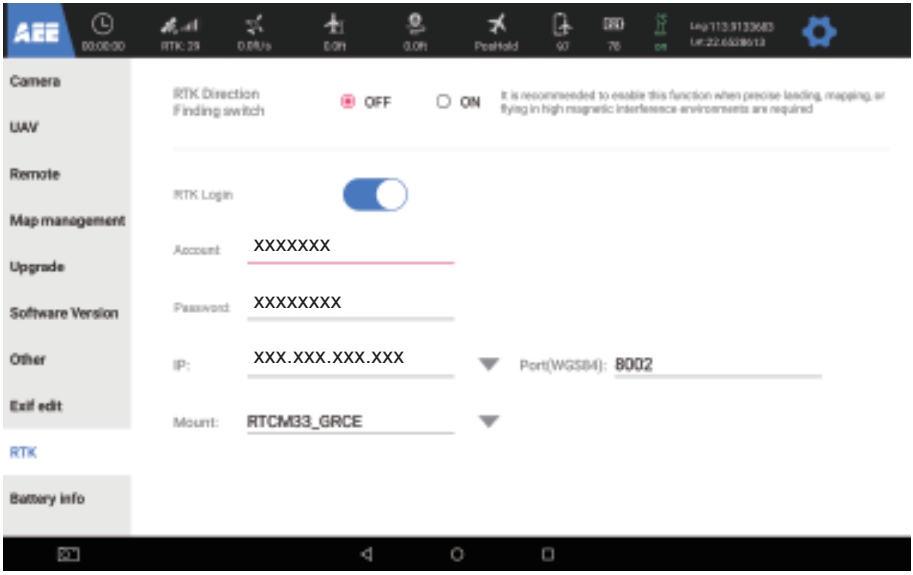
RTK Configuration can be used with RTK GNSS base station and with built in 4G Modem for direct connection via IP Address and separate subscription account to a provider via server access like ENTRIP. (note separate subscription through service provider will be needed). As shown below:







After login succeeds, wait for a few moments and high-accuracy positioning is entered when RTK is displayed on the icon. As shown below:



5.7.11 Battery information

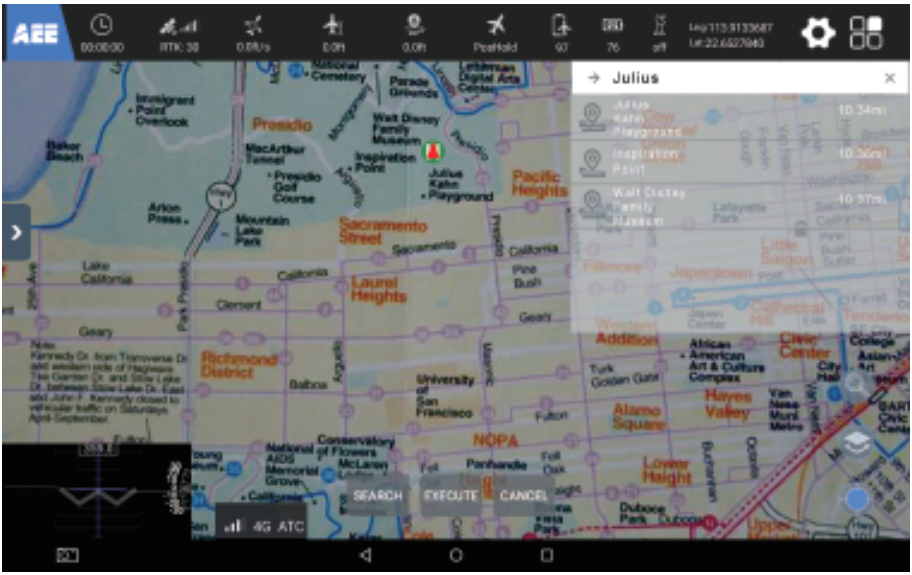
Under the option of this function parameter, you can view the information such as battery information and temperature of electronic temperature controller. As shown below:

5.8 Illustration of Map interface

During flight, the physical location and flight trajectory of the UAV can be checked at any time according to different map types:

5.8.1 Search

Open search to search the area (network should be connected) and select flight. As shown below:



5.8.2 No-fly zone settings

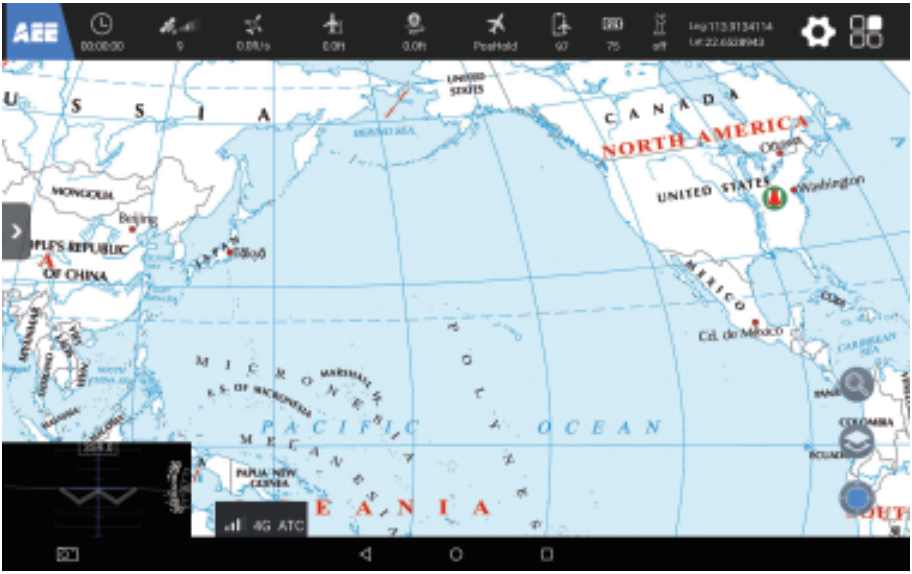
For Future Reference, the Mach 6 includes 4G Modem which will allow connection for future FAA ATC and Remote Identification compliance. Please check with AEEUSA.COM for updates as the FAA makes them available. As shown below:

5.8.3 Map type

Select standard map, including the standard map and satellite. As shown in figure below:

5.8.4 Centering button

Find the drone position quickly. As shown in figure below:



5.8.5 Route list

Establish route, edit route, etc. As shown in figure below:

5.9 Route mission

The first route mission flight should be established and edited. As shown in the figure below:

5.9.1 Edit route

Once the route is established, enter the edit page and confirm the navigation points as required. Long press the flight position to generate the first navigation point, and the remaining navigation points can be set in the same manner of the first navigation point. Once the route is established, the data such as altitude, speed, turning stay time, longitude and latitude can be modified to complete the task, as shown in the figure below:

AEE
Task list
New Airline
NEW
DELETE
EDIT
4G ATC

AEE
New Airline
Waypoint 1
Altitude
100
Speed
Lat:
Lng:
Loiter Time
0
apply
DELETE
SAVE
4G ATC

AEE
New Airline
Waypoint 4
Altitude
100
Speed
Lat:
Lng:
Loiter Time
0
apply
DELETE
SAVE
4G ATC

5.9.2 Modify the way point

When the whole navigation point is generated, if a certain navigation point is found to have a problem, click the suspicious navigation point, click the navigation point to turn red, and then the modification point, click the navigation point to turn red, and then the modification can be made, as shown below:

5.9.3 General settings of navigation points

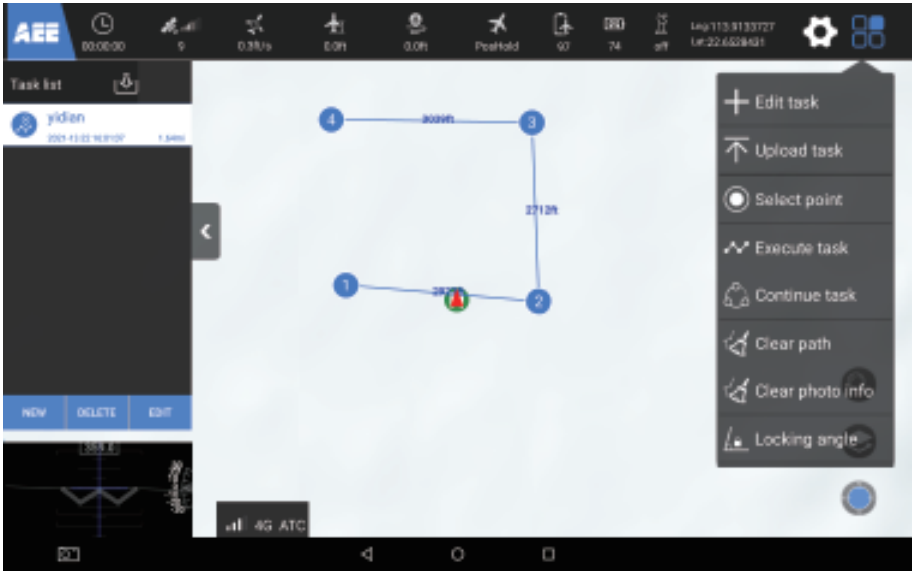
Click a certain navigation point to modify the data. After completion, click General Setting. All navigation points will record the data related to the modified navigation point, such as flight height and flight speed. As shown in the figure below:

Once setting is done, modify the name for further searching.
As shown in the figure below:

Once setting is done, save the route.
As shown in the figure below:

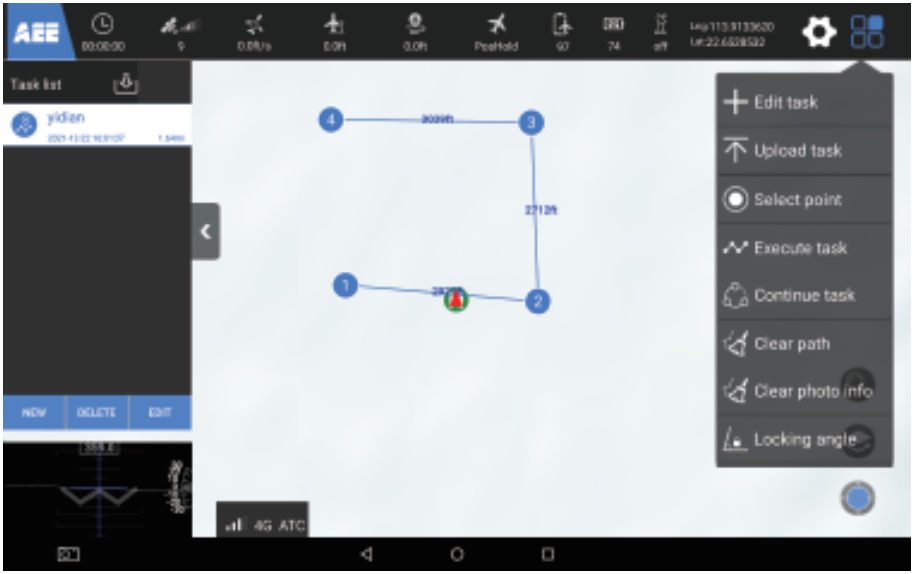
5.9.4 Upload route

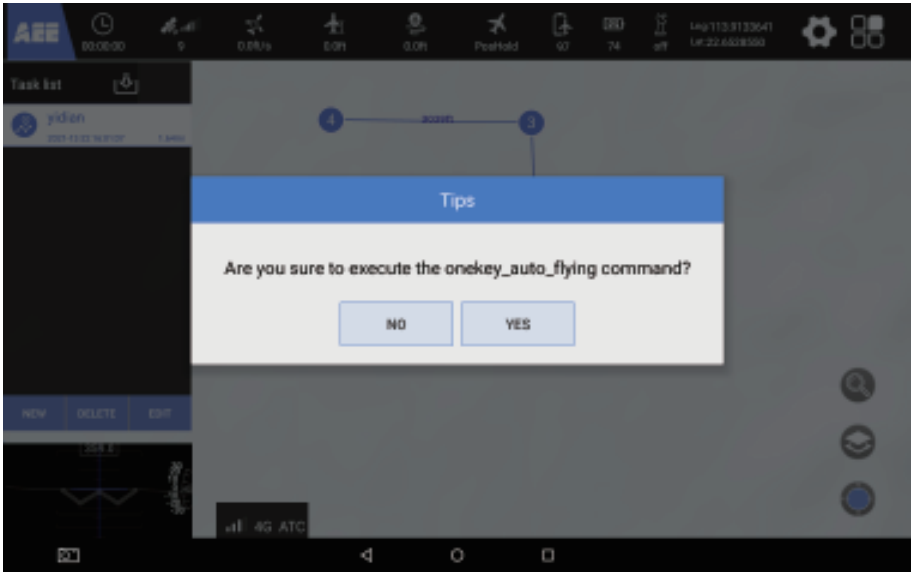
Select the targeted route mission or edited route mission to the UAV system for the flight of the route mission. As shown in the figure below:



5.9.5 Route execution

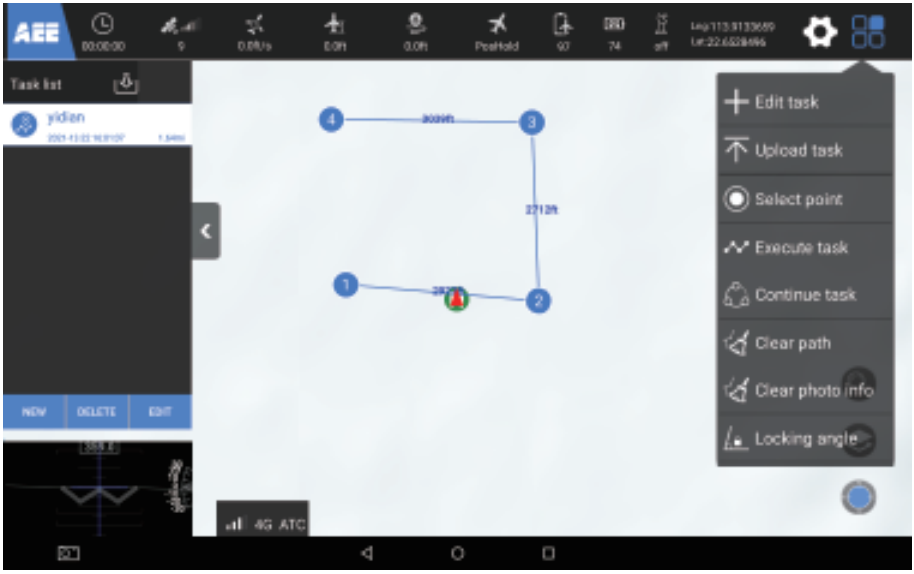
After completing and uploading the route task to the UAV, perform the route function, and the aircraft will fly according to the route planning task edited. (The “Route execution” on route menu or “One-key route” on remote control can be used). As shown in the figure below:





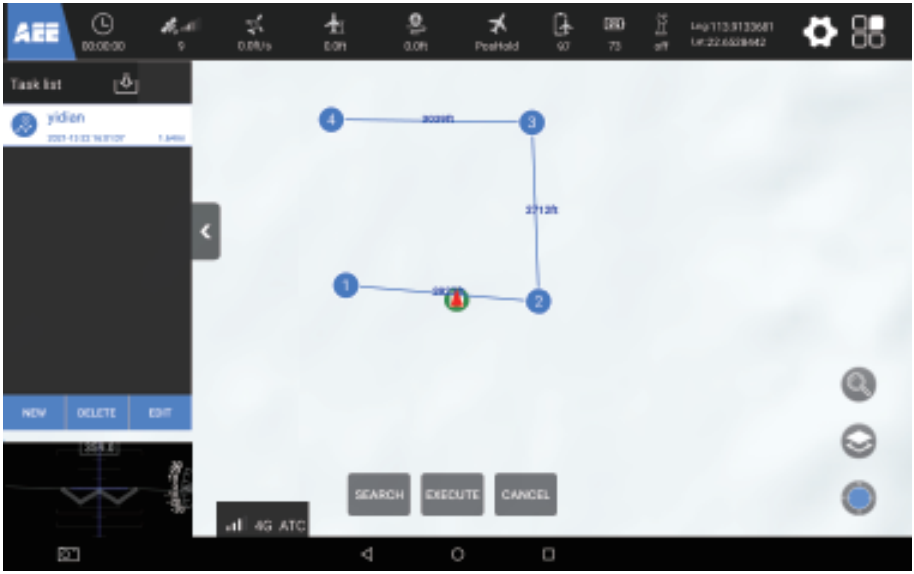
5.9.6 Suspend/continue/resume route

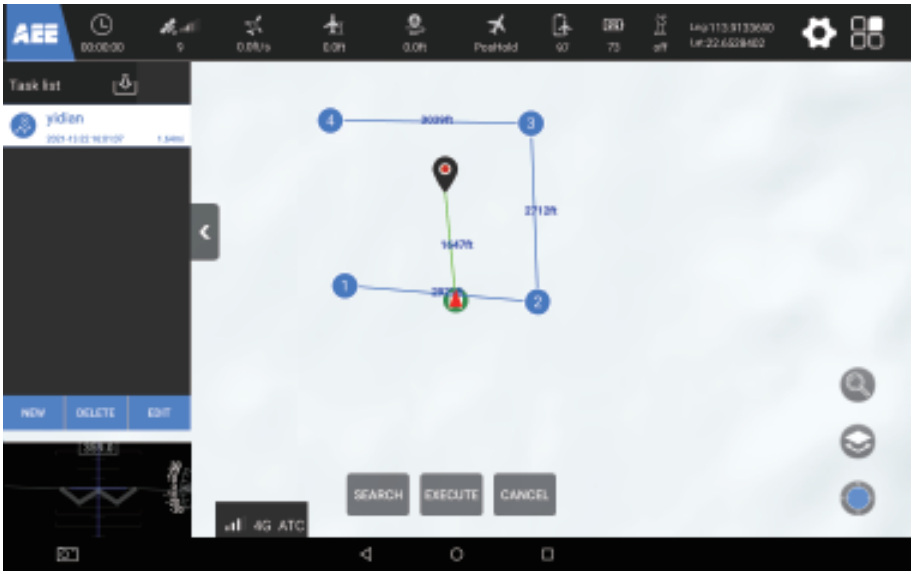
When pause function is used in the flight mission, the aircraft will suspend at current position; use this function again to start flight continuing or resuming. (Use “Pause task” on route menu or “Pause /resume route” on remote control). As shown in figure below:



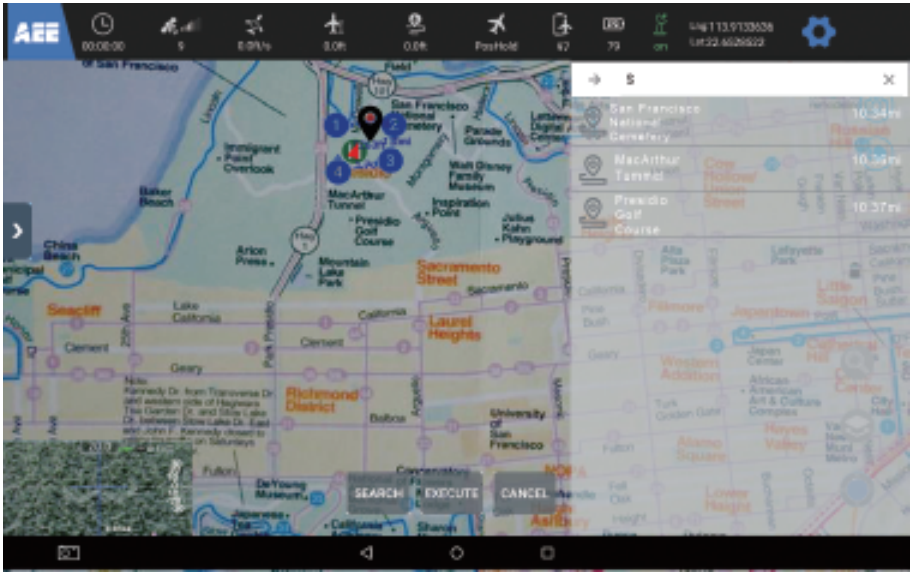
5.9.7 Point selection operation:

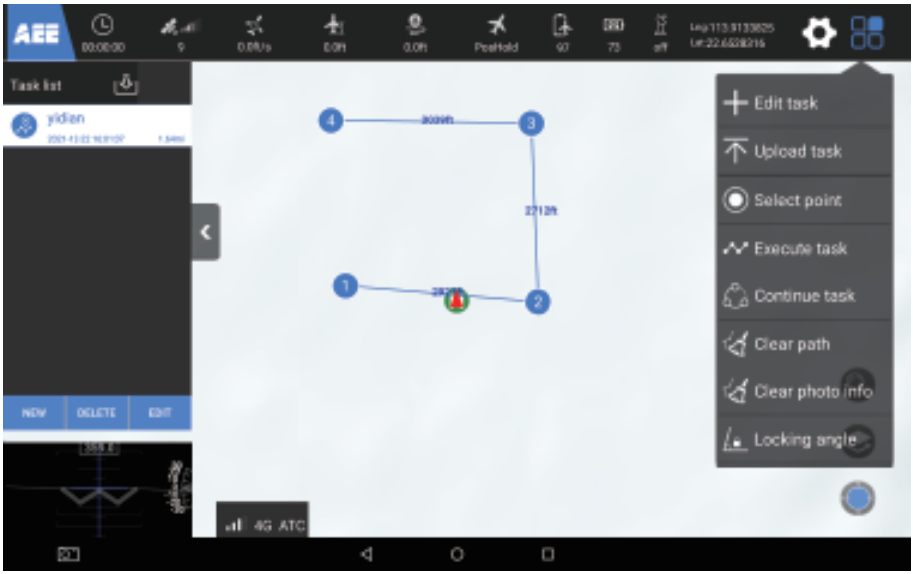
5.9.7.1 During the flight of the aircraft, enter search function, and the aircraft can fly to the designated position by selecting the required navigation point. As shown in figure below:





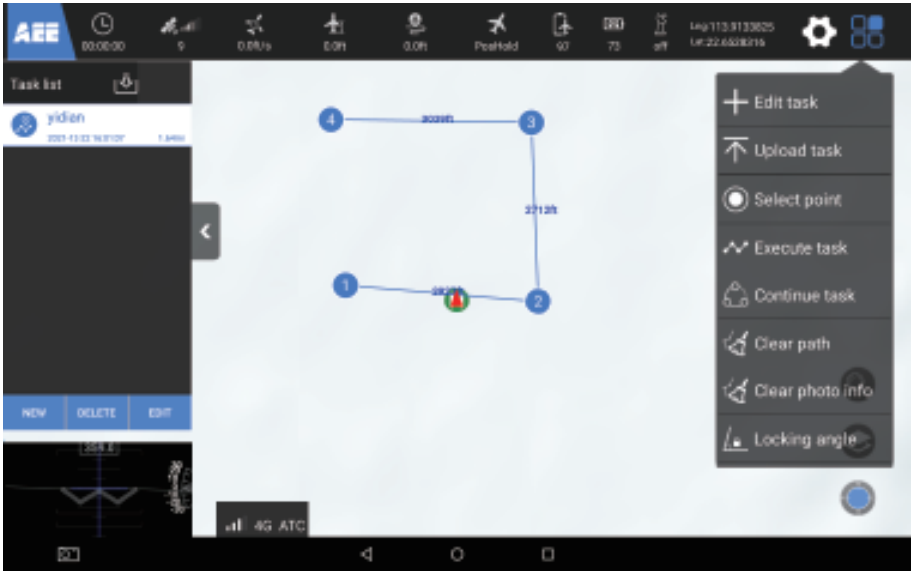
5.9.7.2 In the point selection operation, the search function (network is required) can be carried out to know a certain place name. After input, the coordinates of the position will be obtained, and then click "Execute" again. The aircraft will perform flight. As shown in figure below:





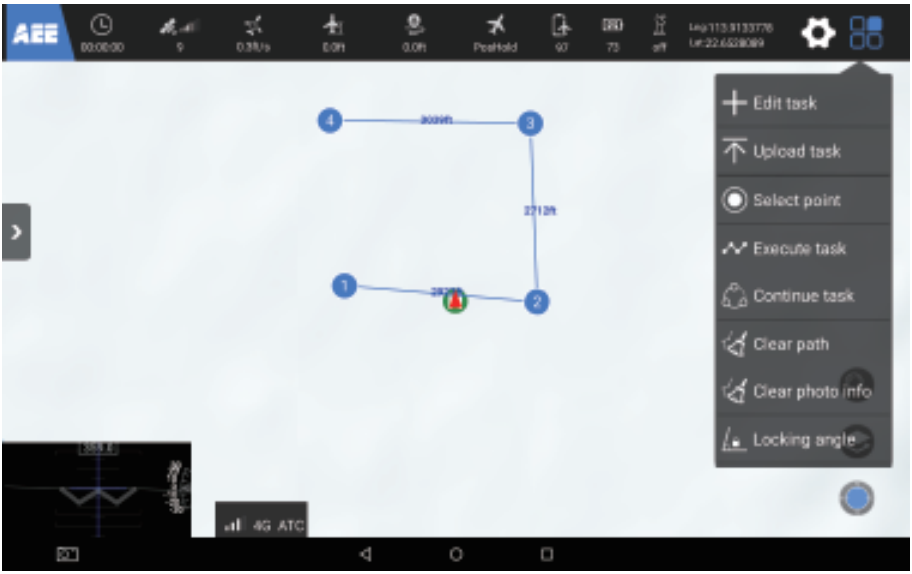
5.9.8 Breakpoint flight

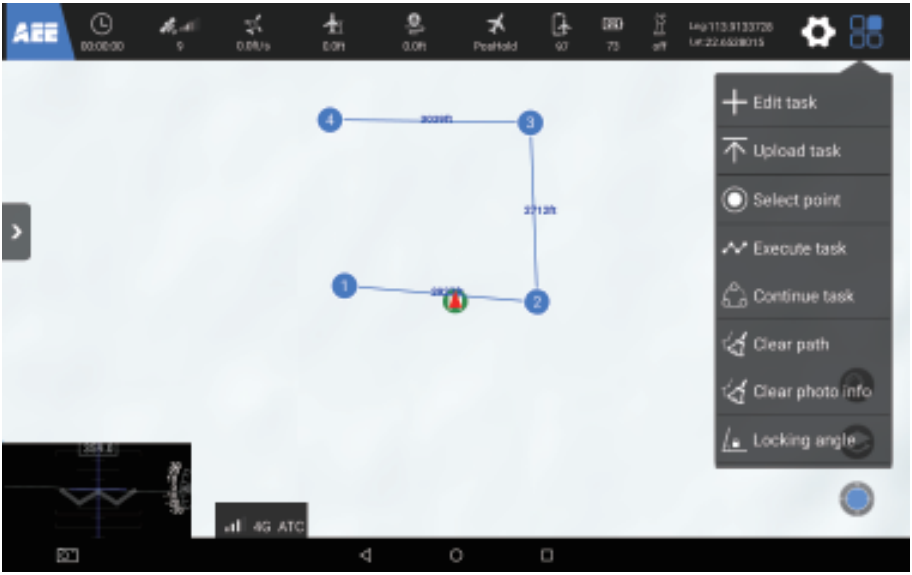
During the mission, in case of an emergency or the battery is dead, after the return flight, if you want to execute the previous route again, you can click the breakpoint continue flight button, and the aircraft will fly from the takeoff position to the return flight of the route for the breakpoint continue flight, as shown in the figure below:



5.9.9 Clear the path

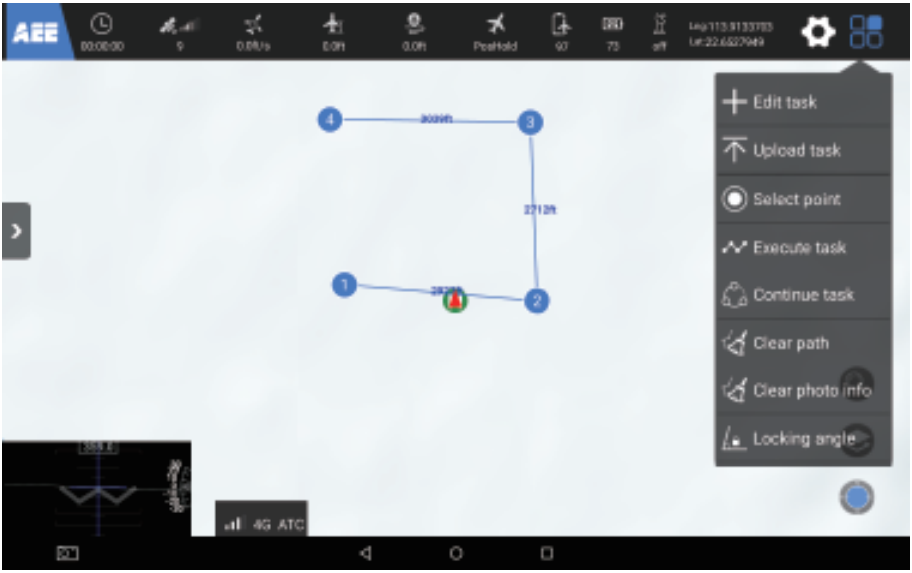
Click the function button to clear the flight track of the aircraft on the map. As shown in figure below:





5.9.10 Clear mark

This function is available when the aircraft is mounted with surveying and mapping camera; the photography mark will occur only during execution of surveying and mapping task. During surveying and mapping task, click “Clear” mark to clear the photography mark on the route. As shown in figure below:



5.9.11 Lock the course

Click the function button, and the aircraft will always maintain a certain flight course and display position during flight, as shown in the figure below:

6. Flight

6.1 Take-off preparation

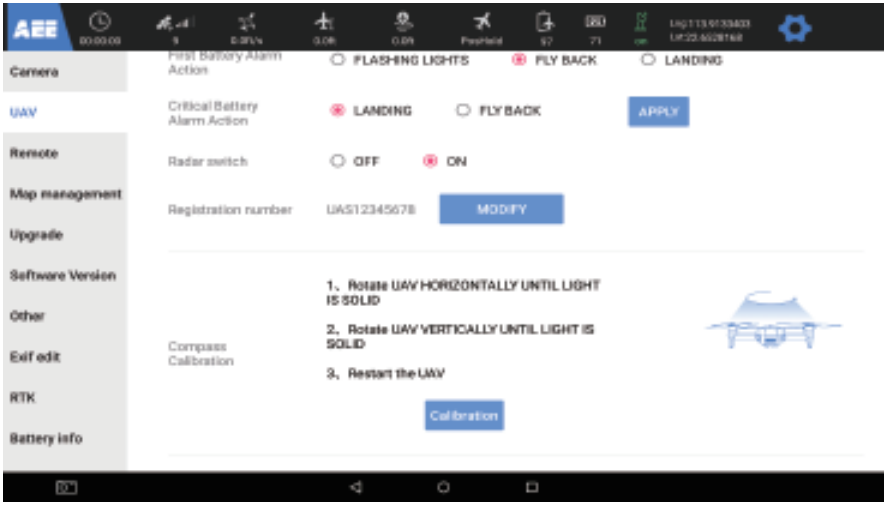
1. Check the battery level of the drone and the remote control, and charge them if the battery is low.
2. Check whether the propeller of the drone is tight and ensure that the blades are in the unfolded state. Make sure that the remote control mode switch is in the middle position and the remote control is displayed as "fixed point mode". Check whether satellite signal is normal.
3. 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.
4. 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.
5. 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.
6. Try to avoid starting two drones at close range simultaneously to prevent accidents.
7. Make sure to install the antenna correctly prior to flight.
8. Before taking off, check whether the arm and fuselage fold is properly fixed, and the battery buckle and propeller are fixed.

6.2 Requirements of flight environment

1. Do not take off the drone in severe weather, such as gale (above Scale 6 wind), rain, snow and fog.
2. Please use the drone in open places without tall buildings; otherwise, the buildings with extensive use of steel bars may affect the compass, block GPS signals, causing poor locating effects and even locating failure.
3. Keep away from the crowds and obstacles during flight.
4. Do not use the drone in places with high-voltage line, communication base station or launching tower, to avoid interference of remote control.
5. Please use the drone at high altitude with caution, for the environmental factor may lead to weakened performance of battery, power system and flight.

6.3 Compass correction

Please select an open place, press "⚙" and enter the setting interface of drone to correct the compass according to the prompts.

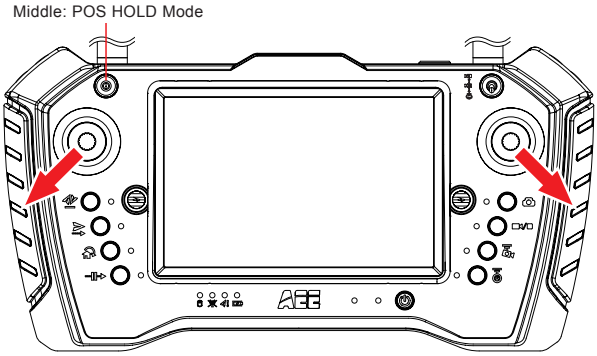


1. When compass correction is entered, the tail yellow light will flicker, which means the drone has entered the correction status.
2. Rotate the drone horizontally for 360° according to the prompt, the tail light is normally on in red or green from yellow flickering (the indicator is red if satellite signal is not received, or green when satellite signal is received), or set the following item according to prompt of remote control.
3. Put the drone nose up or down and rotate the drone for 360° according to the prompt. Set the next item according to prompt of remote control.
4. Once correction is done, restart the drone according to prompt. The correction fails if status indicator flickers in yellow; restart the drone and correct it again.
5. Once correction is done, put the compass of mobile phone at the same direction of drone nose and check if direction angle is consistent.

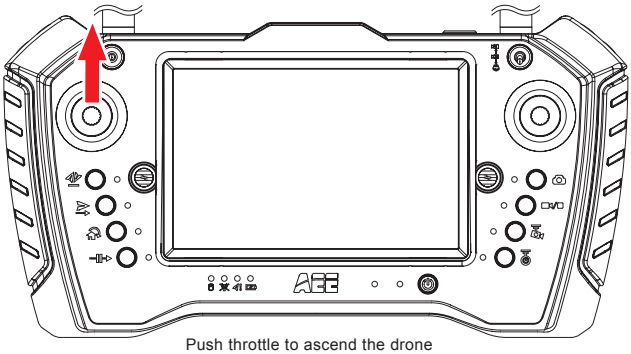
6.4 Manual on/off

6.4.1 Start motor manually

Start the motor manually. 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:



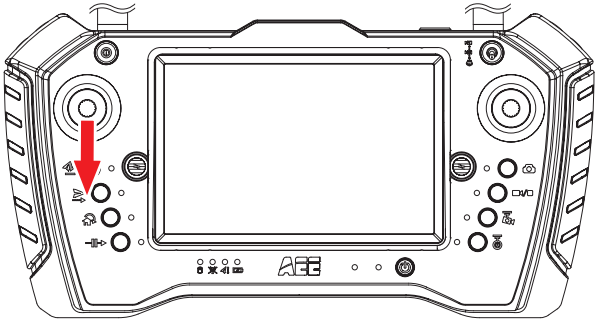
Schematic Diagram of "Down splayed" Operation



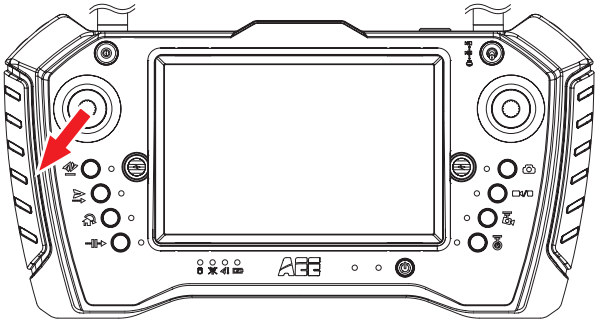
Push throttle to ascend the drone

6.4.2 Turn off motor

Once the drone is landed, straighten the left joystick (throttle joystick), maintain it for 5s or pull the joystick to the lower left for 3s to stop the motor. As shown in figure below:



Pull throttle down slowly and pull it to the lowest position when drone is landed



Pull the joystick down and left simultaneously

6.5 Basic flight

1. Put the drone on flat and open place and the user faces the drone tail.
2. Turn on the remote control and drone.
3. Wait for self-check of drone, enter safety flight status (tail light is normally on in green) and enter POS HOLD Mode. Unlock motor through "down splayed" operation.
4. Pull the throttle joystick up slowly to make the drone take off stably.
5. Pull the throttle joystick down slowly to land the drone stably on the flat ground.
6. Once the drone is landed, pull the throttle joystick at the lowest position for over 3s until the motor is stopped.
7. Once the motor is stopped, turn off the drone and remote control in turns.

6.6 Usage process of GS software route planning task

Start the remote control
↓
Go to the GS map page
↓
Load/download map data (please connect data traffic, such as mobile phone sharing)
↓
Start the aircraft
↓
Aircraft receiving satellite positioning (the end and tail of the aircraft are indicated in green)
↓
Enter map route edit page
↓
Edit routes
↓
Create route tasks
↓
Edit and save the waypoint parameters
↓
Upload routes
↓
Click the remote control flight route button
↓
Paddling of aircraft, Execute routes
↓
Complete route tasks, land and stop the propeller
↓
Shut down the aircraft and remote control

7. 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.

For aircraft: (FCC ID: 2AWQGX10001)
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.

For remote control:
The device has been evaluated to meet general RF exposure requirement. The device can be used in portable exposure condition without restriction.

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.

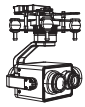
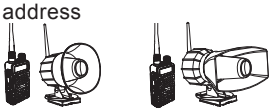
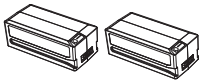
Body-worn Operation
This device was tested for typical body-worn operations. To comply with RF exposure requirements, a minimum separation distance of 0mm must be maintained between the user’s body and the handset, including the antenna. Third-party belt-clips, holsters, and similar accessories used 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.

CE Maintenance
1.Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.
2.The product shall only be connected to a USB interface of version USB3.0.
3.Adapter shall be installed near the equipment and shall be easily accessible.
4.EUT Operating temperature range: 0° C to 50° C .
5.Adapter：
The plug considered as disconnect device of Battery Charger
Battery Charger rating:
Input: AC 100V-240V, 50-60Hz 5A
Output: DC 25.2~26.1V, 8A

6. For aircraft, it complies with RF specifications when the device used at 20cm from your body.
For remote control, it complies with RF specifications when the device used at 0mm from your body.
7. Max power
For aircraft: LTE(23.07dBm),2.4G(XXXdBm),5.8G(XXXdBm)
For remote control: WLAN 2.4G(16.57dBm), WLAN 5.8G(11.70dBm),2.4G(18.82dBm),5.8G(12.87dBm)

Declaration of Conformity
SICHUAN AEE AVIATION TECHNOLOGY CO., LTD. hereby declares that the MACH6 is in compliance with the essential requirements and other relevant provisions of Directive 2014/53/EU.
This product is allowed to be used in some of EU member states. For example the following Member States can be used:

Additional payloads and accessories that can be purchased at AEEUSA.COM

1) DATF Dual Thermal RGB Payload with Night Color Vision	
2) Thunderhorn and Super Thunderhorn megaphone for public address	
3) Spotlight	
4) Ehook	
5) DATG Superzoom RGB Payload 30X 4K	
6) DATE 24MP Mapping payload	
7) Standard Spare Batteries	
8) Mini Spare Batteries for IATA air travel (<99Wh) each	
9) Spare Props	

Note: For details, please check AEEUSA.COM.

Please read this manual carefully before use and keep it properly for reference.
This manual is for reference only and will be updated without prior notice.

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AEE UNMANNED AIRCRAFT SYSTEM

Manufactured in China