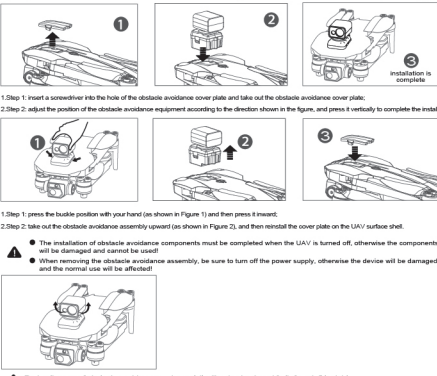


### quick start guide

(please know the flight precautions and operation instructions in detail before flying. Refer to the instructions for details.)

#### 1.1 precautions for installation and disassembly of obstacle avoidance components



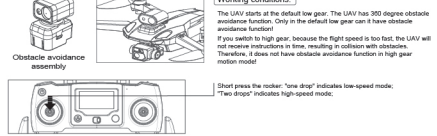
- Step 1: Insert a screwdriver into the hole of the obstacle avoidance cover plate and take out the obstacle avoidance cover plate;
  - Step 2: Adjust the position of the obstacle avoidance equipment according to the direction shown in the figure, and press it vertically to complete the installation;
- Step 1: Press the buckle position with your hand (as shown in Figure 1) and then press it inward;
  - Step 2: Take out the obstacle avoidance assembly upward (as shown in Figure 2), and then reinstall the cover plate on the UAV's surface shell.

- The installation of obstacle avoidance components must be completed when the UAV is turned off, otherwise the components will be damaged and cannot be used!
- When removing the obstacle avoidance assembly, be sure to turn off the power supply, otherwise the device will be damaged and the normal use will be affected!

During the use of obstacle avoidance equipment, it will swing back and forth from left to right. It is forbidden to manually break the rotating part to avoid damaging the device and causing loss of function!

#### 1.2 function introduction of obstacle avoidance component

Obstacle avoidance technology, as a guarantee to increase the safe flight of UAV, also changes with the development of technology. During flight, the UAV collects the information of the surrounding environment through its sensors, measures the distance and makes corresponding action commands, so as to achieve the function of "obstacle avoidance".



Warning: the obstacle avoidance device is an optical device. Do not direct the center of the obstacle avoidance device for a long time, otherwise it may cause injury to your eye!

# Aircraft operation manual



Please keep this manual for future reference!

#### 1.7 compass calibration

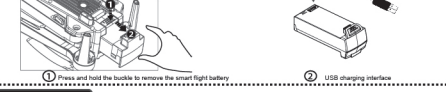
- When the user starts up for use for the first time, the compass needs to be calibrated. If there is no abnormality in later use, there is no need to recalibrate the compass again.
- If there is a crisis or abnormal deviation in flight, please recalibrate the compass.
- Please calibrate the compass in the outdoor open area and keep away from the electromagnetic interference environment.

##### The compass calibration method is as follows:

- Turn the remote control to the direction shown in Figure 1 at the same time, and keep it still until the blue light in front of the aircraft is always on, and the remote control makes a "tip" sound.
- Slowly rotate the aircraft horizontally for several turns until the green indicator at the rear of the aircraft is always on, the blue indicator at the front is off, and the remote control "dings" at the same time.
- Rotate the aircraft once again for several turns until the front and rear indicator lights of the aircraft are on, and the remote control emits a "tip" sound again, indicating that the indicator light calibration is successful. If the calibration is unsuccessful, please repeat the above steps.

Method 2: long press the geomagnetic calibration key (as shown in Figure 2) to calibrate the compass.

#### 1.8 UAV intelligent battery charging



##### Basic flight step

- Place the aircraft on a flat and open ground with the user facing the tail
- Turn on the remote control and aircraft.
- The remote controller and the aircraft are matched, and the aircraft is initialized
- Connect the mobile device and enter the camera interface
- After the aircraft gyrocompass is detected, unlock the aircraft
- Slowly push the throttle lever upward to make the aircraft take off smoothly, and control the attitude of the aircraft by left/right control
- Push the push rod as small as possible during flight to make the aircraft fly smoothly.
- After landing, put the accelerator to the lowest position and hold it for more than 3 seconds until the motor stops.
- After shutdown, turn off the aircraft and remote controller to turn

##### Tips and techniques for aerial photography

- Perform pre flight inspection.
- Select the appropriate shooting angle
- Choose sunny and windless weather for shooting
- Test flight can be conducted before flight to help plan route and view

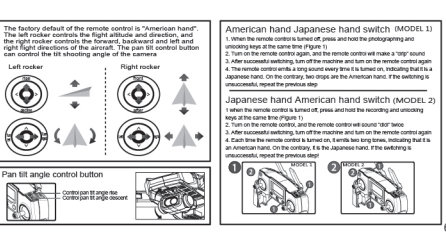
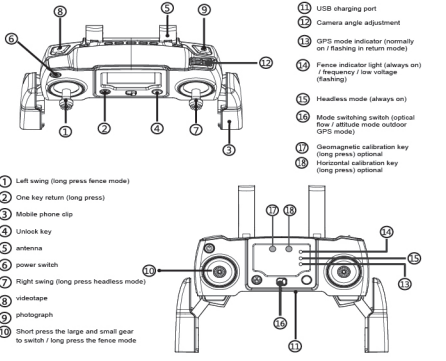
##### Install app and flight tutorial video

To install the app and refer to the operation video, please scan the instructions and download the QR code on the package. For scanning QR code and instructions, please refer to the detailed page of APP operation instructions

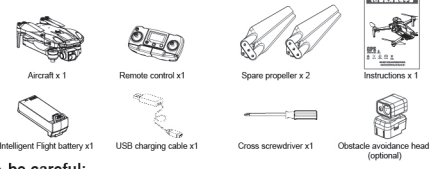
#### Know your remote control

The remote control adopts 2.4GHz FM communication mode to greatly enhance the anti-interference of communication 1 Disturbance capability, so as to improve the control stability and effectively control various attitudes of the aircraft.

The built-in two-way communication protocol of the remote controller can return various attitude data of the aircraft in real time (flight attitude, flight distance, flight speed, number of GPS satellite acquisition, flight mode, etc.), which can be displayed clearly on the mobile phone of the map transmission equipment.



#### Item list (accessories list)



be careful! Please carefully count the accessories and quantity (such as the accessories list). If it is found that it is incomplete, please provide the purchase certificate and contact the sales merchant in time for replenishment and replacement.

#### Aircraft precautions

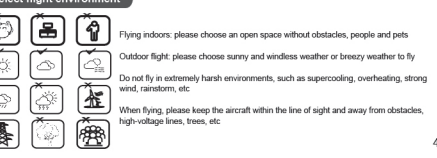
- When the user starts up for use for the first time, the compass must be calibrated before use. In the later stage, it is recommended to calibrate the compass for takeoff in different regions, which will make the aircraft more accurate positioning and more stable flight
- This product is suitable for people who have experience in operating aircraft modes and are not less than 14 years old
- When flying, please keep a fixed distance from the aircraft and away from high-speed rotating parts. Such as propeller, brushless motor, etc.
- Please choose an open and legal flight site and control the flight according to your mental state and flight skills
- Before flying, please carefully read the description of the pre flight environment and fly in the state of the environment
- Before using this product, please check the product and local use laws and regulations, and strictly abide by them. Do not fly in the no fly area restricted by relevant laws or regulations.

#### Disclaimer

Before using this product, please read this statement carefully. Once you start using the product, you will recognize and accept all the contents of this statement

- This product is not suitable for people under the age of 14
- This product must strictly follow the instructions in manual and master the flight control methods, otherwise it will cause certain harm to the operator and nearby people and objects.
- When using this product, please choose an open place and abide by local laws and regulations. During the use of the product, users are responsible for the results of their use of the product. For the latest disclaimer, please refer to the version published on the official website
- If there are semantic differences between different versions, the corresponding language version shall prevail in each country and region.
- Users are not allowed to disassemble and repair this product in their own language, otherwise they will not be responsible for direct or indirect injury and property loss.

#### Select flight environment



#### 2.0 Pre flight preparation

##### 2.1 installation of app

Please use your mobile device to scan QR code for download when installing app. For scanning QR code and instructions, please refer to the detailed page of APP operation instructions

##### Prepare the aircraft

The aircraft is in the slowest state, and expand the boom in turn according to the figure below

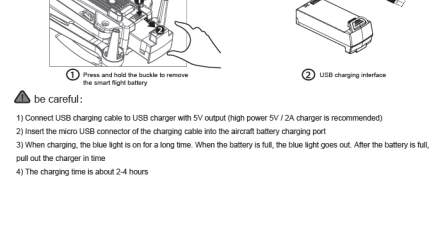


##### 2.3 aircraft installation battery

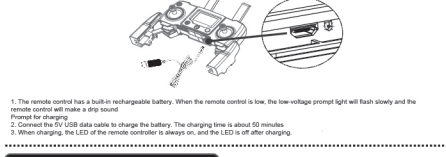
be careful! If the battery is not installed in place, it is likely to lead to the air power failure and falling accident of UAV.

##### 2.4 Smart battery charging

The Intelligent Flight battery needs to be charged to activate the battery for this use.



#### 1.3 remote control charging



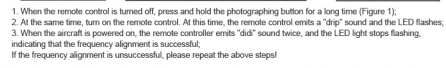
- The remote control has a built-in rechargeable battery. When the remote control is low, the low-voltage prompt light will flash slowly and the remote control will make a drip sound
- Connect the USB data cable to charge the battery. The charging time is about 50 minutes.
- When charging, the LED of the remote controller is always on, and the LED is off after charging.

#### 1.4 expand and place the mobile phone



- In the remote control storage state, the first step is to expand the antenna to ensure that the antenna is vertical, and then install the handle.
- Open the handle, put in the mobile connecting equipment, and adjust the position to ensure the stable placement of the equipment

#### 1.5 remote control frequency matching



- When the remote control is turned off, press and hold the photographing button for a long time (Figure 1).
- At the same time, turn on the remote control. At this time, the remote control emits a "tip" sound and the LED flashes.
- When the aircraft is powered on, the remote controller emits "dip" sound twice, and the LED light stops flashing, indicating that the frequency alignment is successful.

If the frequency alignment is unsuccessful, please repeat the above steps!

#### 1.6 gyro level calibration

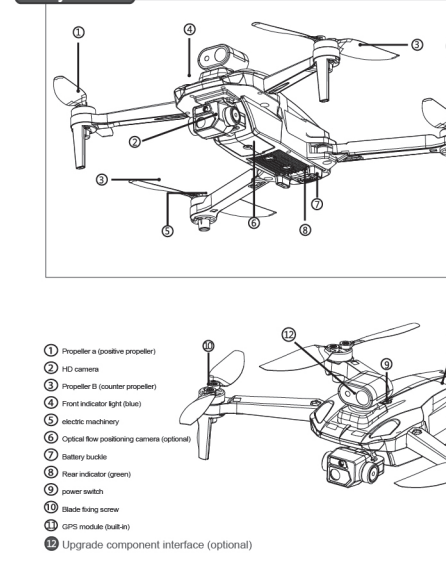
- After the code alignment is successful, place the aircraft on the horizontal ground and push the left and right rocker to the lower right at the same time according to the instructions in the figure below. At this time, the front and rear indicator lights flash rapidly, and the gyrocompass enters the calibration state.
- When the indicator light changes from flash to constant light, the calibration is completed.

When calibrating the gyrocompass, be sure to put the aircraft on a horizontal plane, otherwise it will affect the flight. The gyrocompass has been calibrated before leaving the factory. The user does not need to calibrate it again. The operation can only be carried out when initialization cannot be solved or the aircraft attitude is wrong.

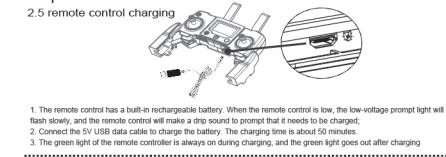
#### 1.0 Product overview

- New modular design concept, easy to install, maintain, update and upgrade, etc.
- Equipped with 5G WiFi digital image transmission system, it brings you different visual effects
- Built in the latest generation of light control system to provide stable and reliable flight performance
- Built in GPS positioning and navigation system makes flight more accurate and safer
- Integrated design, plug-in installation, simple and convenient

#### Know your aircraft

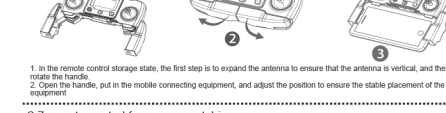


#### Prepare the remote control



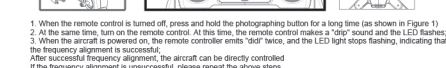
- The remote control has a built-in rechargeable battery. When the remote control is low, the low-voltage prompt light will flash slowly, and the remote control will make a drip sound to prompt that it needs to be charged.
- Connect the USB data cable to charge the battery. The charging time is about 50 minutes.
- The green light of the remote controller is always on during charging, and the green light goes out after charging

#### 2.6 expand the remote control and place the mobile phone



- In the remote control storage state, the first step is to expand the antenna to ensure that the antenna is vertical, and then install the handle.
- Open the handle, put in the mobile connecting equipment, and adjust the position to ensure the stable placement of the equipment

#### 2.7 remote control frequency matching



- When the remote control is turned off, press and hold the photographing button for a long time (as shown in Figure 1).
- At the same time, turn on the remote control. At this time, the remote control makes a "tip" sound and the LED flashes.
- When the aircraft is powered on, the remote controller emits "dip" twice, and the LED light stops flashing, indicating that the frequency alignment is successful.

If the frequency alignment is unsuccessful, please repeat the above steps

#### 2.8 gyro calibration

- After successful code alignment, place the aircraft on the horizontal ground and push the left and right rocker rods to the lower right at the same time according to the instructions in the figure below. At this time, the front and rear indicator lights flash rapidly, and the gyrocompass enters the calibration state. When the indicator light changes from flash to constant light, the calibration is completed.

When calibrating the gyrocompass, be sure to place the aircraft on a horizontal plane, otherwise it will affect the flight. The gyrocompass has been calibrated before leaving the factory. The user does not need to calibrate it again. The operation can only be carried out when initialization cannot be solved or the aircraft attitude is wrong.

### 3.0 Start first flight

#### 3.1 Compass calibration

- When the user starts up for use for the first time, the compass needs to be calibrated. If there is no abnormality in later use, the compass does not need to be calibrated again.
- There is a circle of abnormal deviation in flight, please recalibrate the compass.
- Please calibrate the compass in an outdoor open area and stay away from electromagnetic field 1 Distance.

#### The compass calibration method is as follows

- Turn the remote control to the direction shown in Figure 1 at the same time, and keep it still until the blue light in front of the aircraft is always on, and the remote control makes a "ding" sound.
- Slowly rotate the aircraft horizontally by several turns until the green indicator at the back of the aircraft is always on, the blue indicator at the front is off, and the remote control beeps.
- Rotate the aircraft more up and down several turns until the front and rear indicators of the aircraft are on, and the remote control emits a "ding" sound again, indicating that the indicator calibration is successful. If the calibration is unsuccessful, please repeat the above steps.



#### 3.2 description of flight mode status

- Visual positioning mode: Turn the remote control mode switch to the left visual positioning mode, and the blue and green lights at the front and rear of the aircraft are always on.
- Outdoor GPS mode: Turn the remote control mode switch to the outdoor GPS visual positioning mode on the right, and the blue and green lights in the front and rear of the aircraft flash, indicating that no satellites have been searched or the number of search satellites is not enough. The number of GPS satellites reaches more than 8, and the front blue light is always on, indicating that the GPS satellite search and positioning is successful.
- Headless mode: The aircraft moves forward and backward from the takeoff position to the arrow direction of the aircraft, and the vertical direction of the arrow is left and right.
- Automatic return mode: During flight, press the automatic return key to switch to the automatic return mode. The green light flashes slowly, indicating that the aircraft is in the return mode. The return mode indicator flashes quickly, indicating that the aircraft has low power, and the operator needs to fly carefully within the line of sight.

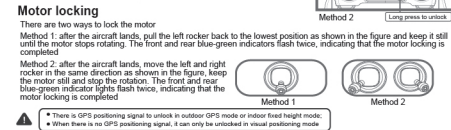
| Mode status                        | Flight signal indicator (blue) | Flight status backlight (green) |
|------------------------------------|--------------------------------|---------------------------------|
| Visual positioning mode            | Constant                       | Chang Lang                      |
| Outdoor GPS mode (positioning)     | Chang Lang                     | Flash                           |
| Outdoor GPS mode (not positioning) | Flash                          | Flash                           |
| Headless mode                      | Flash 3 times                  | Flash 3 times                   |
| Automatic return mode              | Chang Lang                     | Flash                           |
| Primary low voltage                | Slow flash                     | Slow flash                      |
| Secondary low voltage              | Flash                          | Flash                           |
| Remote control not connected       | Alternating slow flash         | Alternating slow flash          |
| Insufficient flight conditions     | Alternating slow flash         | Alternating slow flash          |

#### 3.3 motor unlocking / locking

##### Motor unlocking

Method 1: After successful code alignment, turn the switch to the visual positioning mode or outdoor GPS mode. As shown in the right figure, pull the left and right rocker and keep it still until the indicator light flashes twice. After unlocking, the motor will rotate at a low speed.

Method 2: Long press the one key unlock button to unlock.



- There is a GPS positioning signal to unlock in outdoor GPS mode or indoor fixed height mode.
- When there is no GPS positioning signal, it can only be unlocked in visual positioning mode.

#### 3.4 basic flight steps

- Place the aircraft on a flat and open ground with the user facing the tail.
- Turn on the remote control and aircraft.
- The remote controller and the aircraft are matched, and the aircraft is initialized.
- Run the app, connect the mobile device and enter the camera interface.
- After the aircraft gyroscope is detected, unlock the aircraft.
- Slowly push the accelerator upward to make the aircraft take off smoothly, and control the aircraft attitude by left/right control.
- Push the throttle lever to lower the aircraft.
- After landing, pull the accelerator to the lowest position and hold it for more than 3 seconds until the motor stops.
- After shutdown, turn off the power supply of aircraft and remote controller in turn.

#### Tips and techniques for aerial photography

- Perform pre-flight inspection.
- Select an appropriate PTZ shooting angle.
- Choose sunny and windless weather for shooting. Route and viewfinder.
- Test flight can be conducted before flight to help plan route and view.
- Push the aircraft as small as possible during the flight to make the aircraft fly smoothly.

#### 3.5 one click unlocking (remote control operation)

Please unlock the motor in GPS mode before takeoff! Make sure the signal is searched (the front blue LED is always on). The green light in the back flashes, indicating that the satellite search is completed and the GPS outdoor flight conditions are met.



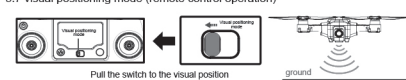
In the outdoor GPS mode, please press (long press for 1 second) the "one key unlock" button. After unlocking, the motor rotates at a low speed and gently pushes the left throttle, and the aircraft takes off slowly.

#### 3.6 one touch landing (remote control operation)



Note: 1) Ensure that the GPS positioning signal is received (the front blue indicator is always on). 2) In the case of landing, you can control the operation before and after flight, left and right, and push the throttle upward to eliminate this mode. When landing, ensure that the ground is flat and free of pedestrians and sundries. 3) The one touch landing function is only effective when the aircraft is operated within 10 meters from the takeoff point.

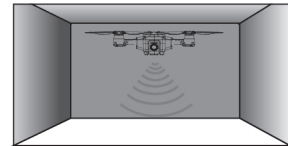
#### 3.7 visual positioning mode (remote control operation)



Make sure the aircraft is level before takeoff, and the front and rear indicators of the aircraft are always on.

#### Visual positioning usage scene

The visual positioning function is applicable to the environment with an altitude of less than 10m, no GPS signal or poor GPS signal, especially for indoor flight.



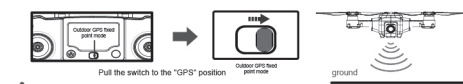
The measurement accuracy of the vision system is easily affected by the illumination intensity and the surface texture of the object. In the case of vision failure, the visual positioning mode will automatically switch to the altitude mode. Therefore, the following scenarios should be used with caution.

- When flying at low altitude (below 0.5m), the visual system may not be able to locate.
- Solid color surface (such as pure black, pure white, pure red and pure green)
- Surface with strong reflection or reflection
- Water surface or transparent object surface
- The surface of moving objects (e.g. shrubs or grass blown by strong wind above the flow of people)
- Scene with drastic and rapid changes in lighting
- Object surface that is particularly dark (illumination less than 10lux) or particularly bright (illumination greater than 10000lux)
- Surfaces with particularly sparse texture
- The surface of objects with high texture repeatability (such as small lattice bricks with the same color).
- The speed of the aircraft should not be too fast. For example, the flight speed should not exceed 5m/s when it's 1m above the ground, and not exceed 14m/s when it's 2m above the ground.

#### Be careful:

- Ensure that the camera lens of the vision system is clear and free of stains.
- Use the height of visual positioning function is within 10m.
- Since the visual function system relies on the surface image to obtain the displacement information, please ensure that the surrounding light source is sufficient and the ground texture is rich.
- The vision system can not locate in the water surface, dark environment and the environment without clear texture on the ground.

#### 3.8 outdoor GPS mode (remote control operation)



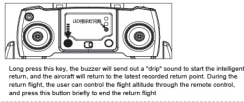
#### Be careful:

- Ensure that the GPS positioning signal is received (more than 8 satellites).
- In the outdoor GPS mode, it has fixed point, fixed height and braking functions, and the flight speed is relatively stable.
- If there is no GPS positioning signal, switch to indoor fixed altitude flight mode.
- Do not fly in outdoor GPS mode near narrow lanes and tall buildings.

#### 3.9 automatic return mode matters needing attention

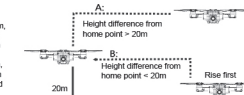
##### Return mode

- Ensure that GPS positioning signals are received (more than 8 satellites).
- Before starting the automatic return mode, please confirm that the flight altitude of the aircraft is higher than the obstacles on the return line.
- There are no pedestrians and sundries near the take-off point, and the aircraft will automatically return to the take-off point.



##### Intelligent low voltage return

- When the altitude of the aircraft is higher than 20m, the low-voltage return of the aircraft will maintain the existing altitude, automatically return above the home point, and then land.
- When the altitude of the aircraft is lower than 20m, the low-voltage return of the aircraft will climb to 20m high, automatically return to the top of the home point, and then land.



##### matters needing attention:

- Ensure that the GPS positioning signal is received (more than 8 satellites).
- Please do not touch other switches and keys after entering the intelligent voltage return.
- When the aircraft is low voltage alarm, it should return to the Kwal to manually or start the automatic return mode as soon as possible.

##### Introduction to intelligent low voltage return

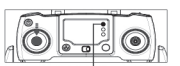
- The flight distance and required return power are calculated in real time to realize intelligent automatic return judgment when the aircraft power is low, so as to effectively ensure flight safety.
- When the battery voltage is lower than 7.05V, the front and rear indicator lights of the aircraft will flash at the same time, and the remote controller will send out a low voltage alarm prompt.

#### 3.11 fence mode

When starting up, the fence function is enabled by default. Press and hold the key on the left side of the remote control for more than 2 seconds to turn off the fence function. Press and hold it again for 2 seconds to turn on the fence function. Fence function: the flight height is limited to 30 meters and the flight distance is limited to 200 meters. (the buzzer emits a long beep sound every time you switch.)

##### matters needing attention

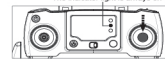
- In novice practice flying, it is not recommended to cancel the fence function.
- Do not fly in the no fly area restricted by relevant laws and other regulations.



#### 3.12 headless mode

The indicator light is always on.

Long press this key on the remote control, and the UAV will start headless mode. At the same time, the headless indicator of the remote control is always on. Press and hold again to cancel the headless mode, and the headless indicator of the remote control goes out.



### 4.0 End flight

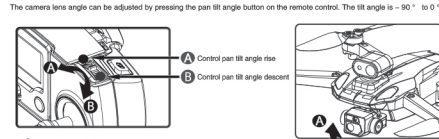
- Manual landing, one button landing or automatic return mode landing to complete motor locking
- press and hold the aircraft power switch for more than 2 seconds, and then turn off the power switch of the remote control after the indicator light goes out, that is, the power is turned off.
- Remove the aircraft battery from the aircraft.

#### Pan tilt camera

##### Camera overview

When the aircraft is flying at high speed, it can adjust the lens angle of the camera to shoot more expansive local elimination, so as to combine one city technology and better aerial photography experience.

The camera lens angle can be adjusted by pressing the pan tilt angle button on the remote control. The tilt angle is 90° to 0°.



#### Be careful:

- It is forbidden to manually break the camera angle to avoid camera structure failure!
- When installing the camera, pay attention that the plug cable cannot be inserted reversely, otherwise it will damage the internal components and cause faults!
- Do not insert or pull out the SD card during aircraft shooting, otherwise the obtained data file may be damaged or lost.

#### Precautions for battery use

- There are certain risks in using lithium batteries, which may cause heavy losses to people and property. Please use them with caution and bear all relevant responsibilities.
- If the battery leaks, avoid contact with skin and eyes. In case of contact with skin, wash immediately with soap and clean water. In case of contact with eyes, rinse immediately with plenty of cold water and seek medical attention immediately.
- If the charger emits suspicious odor, noise or smoke, unplug the power immediately.

#### charge

- Please use a standard 5V output USB charger for charging. It is strictly prohibited to use old, damaged or other output specifications.
- Do not charge batteries that are swollen, leaking, or damaged.
- Do not overcharge the battery. When the battery is fully charged, please unplug the charger.
- Do not charge near inflammables (carpet, wood floor, solid wood furniture, etc.) or conductive object surfaces. Please keep the battery in sight when charging.
- Do not charge the battery when it is still hot after using the product. The battery charging temperature should be between 0° C and 40° C.

#### recovery

The device consists of electronic components and batteries. For electronic and electrical waste, please carry out special treatment according to local waste treatment requirements.

#### Common problems and Solutions

| Serial number | problem  | resolvent   |
|---------------|--|---|
| 1             | After the aircraft is powered on, the indicator light flashes continuously and rapidly | The aircraft is in gyroscope detection state. Please put the aircraft on a stationary plane or on the ground. |
| 2             | After the aircraft takes off, it cannot hover and tilt to one side                     | Place the aircraft on a flat or level ground and recalibrate the gyroscope.                                   |
| 3             | The aircraft vibrated badly  | The fan blade is deformed and needs to be replaced  |
| 4             | The aircraft vibrated badly, and the tail light flashes quickly                        | Aircraft battery voltage is too low, please fully charge the battery  |

#### Product part name

##### Basic components

|                              |                             |                                 |                             |
|------------------------------|-----------------------------|---------------------------------|-----------------------------|
|                              |                             |                                 |                             |
| Face cover F22-001           | Bottom shell F22-002        | Flight control board F22-003    | Front boom left (a) F22-004 |
|                              |                             |                                 |                             |
| Front boom right (b) F22-005 | Rear boom right (a) F22-006 | Rear boom left (b) F22-007      | Blade a-b F22-008           |
|                              |                             |                                 |                             |
| Brushless motor F22-009      | Camera assembly F22-010     | Charging line F22-011           | Battery F22-012             |
|                              |                             |                                 |                             |
| Electric regulation F22-013  | GPS module F22-014          | Obstacle avoidance head F22-015 | Screw F22-016               |