

QUADCOPTER DRONE KIT

Installation Manual



F120

Brushless Motor
Optical Flow Positioning
Video Transmission

Before starting the installation, thoroughly read and understand the provided manual.

1 FRAME

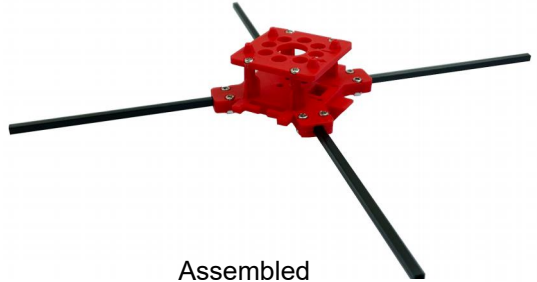


Start Assembling

3.1.1 Assemble the Frame

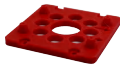


Pocket 1



Assembled

Components List



1x



1x



1x

8x  M2*6

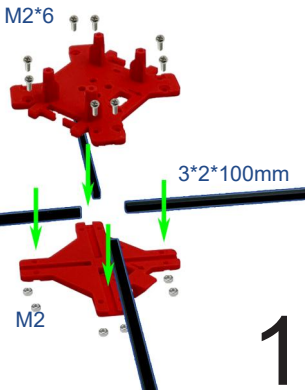
8x  M2

4x  M2*8

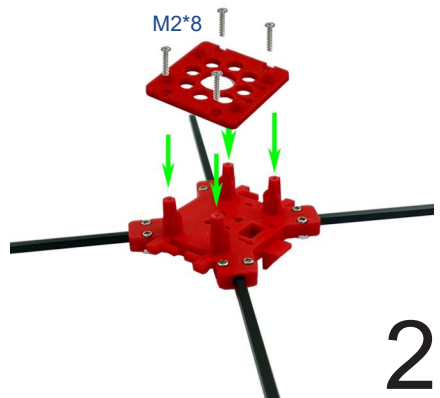
1:1

4x

3*2*100mm



1

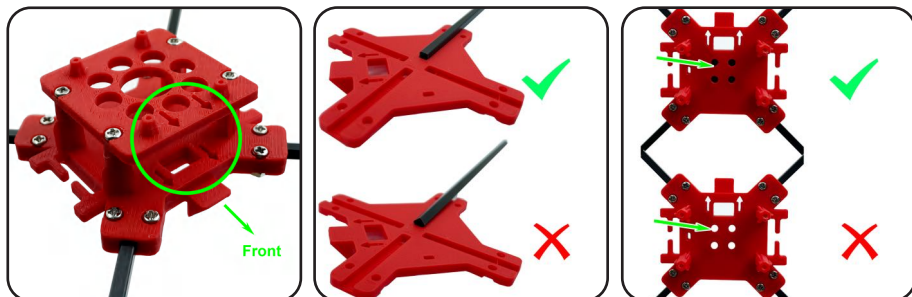


2

1 FRAME



Note



Tip: Initially, do not tighten the screws directly. After confirming that the carbon fiber pole is correctly installed, gradually tighten each screw one by one until the carbon fiber pole cannot be easily pulled out. Over-tightening the screws may cause the frame to deform, which could affect subsequent installations. (If white stripes appear on the frame, stop tightening the screws and loosen them slightly.)

FCC Statement

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.

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 made without explicit approval from the responsible party in compliance may result in the user being unauthorized to operate the device.

FCC RF exposure

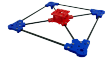
Fixed Height Launch Model: X001-TX

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. The device has been evaluated to meet general RF exposure requirement. The device can be used in portable exposure condition without restriction

quadcopter Model: F120

This device meets the FCC radiation exposure limits for uncontrolled environments. To ensure safe installation and operation, maintain a minimum distance of 20cm between the radiator and your body.

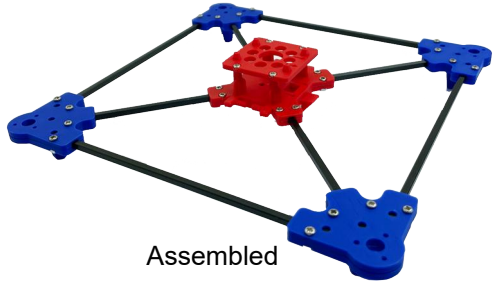
2 MOTOR BRACKET



3.2.1 Assemble the Motor Bracket



Pocket 2

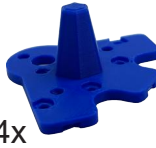


Assembled

Components List



4x

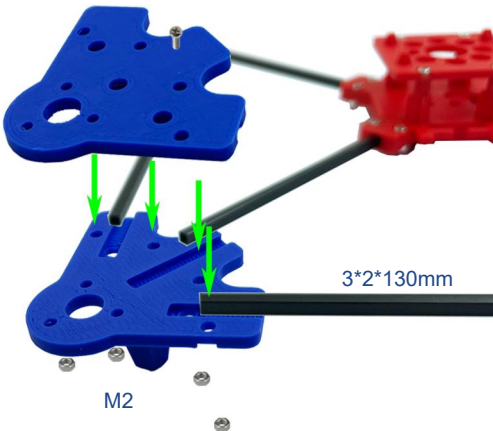


4x

16x  M2*6

16x  M2

M2*6



3*2*130mm

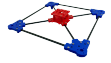
4x

3*2*130mm

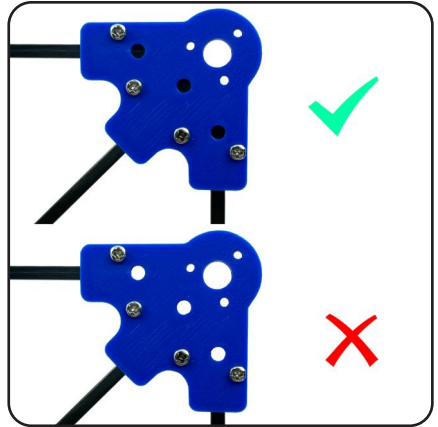
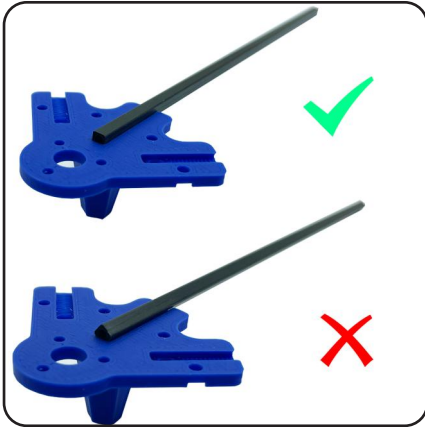
1:1

2

MOTOR BRACKET



Note



Tip: You can start by securing each motor mount with a screw and nut, as adjustments may be needed for the carbon fiber rod and motor mount's position. Then install the remaining three screws and tighten them one at a time.



3.3.1 Assemble the Video Transmission



Pocket 3



Assembled

Components List



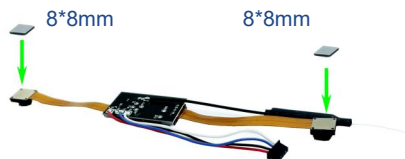
1x

2x 8*8mm

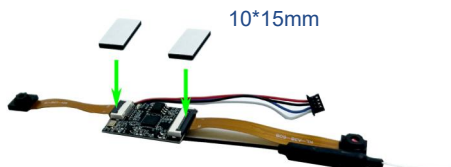
2x 10*15mm

1x

2x



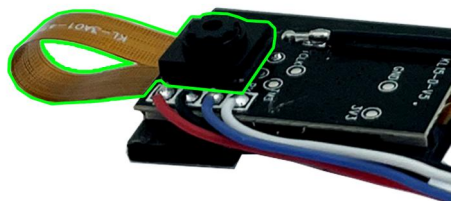
1



2

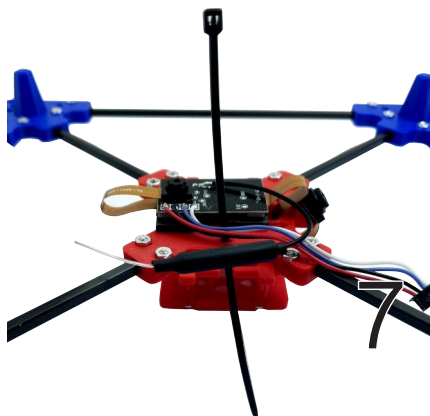
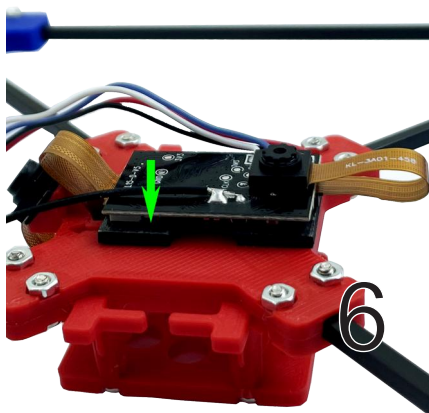
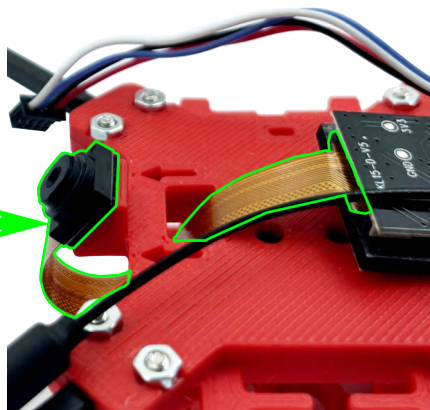


3

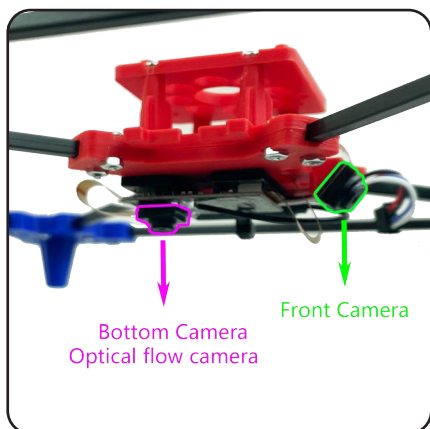


3

Wi-Fi VIDEO TRANSMISSION



Note



TIP:The module must be installed in the correct orientation and remain flush with the mounting surface. The cameras should be positioned according to the diagram specifications, as improper alignment may compromise the performance of the optical-flow flight controller.

Smaller openings are designed to ensure the structural strength of the device body.

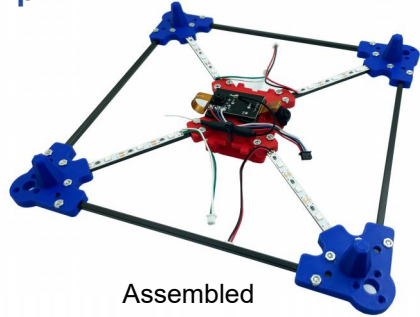
4 LED LIGHT STRIP



3.4.1 Install the LED Light Strip



Pocket 4



Assembled

Components List

2x



Green Light

2x



Red Light

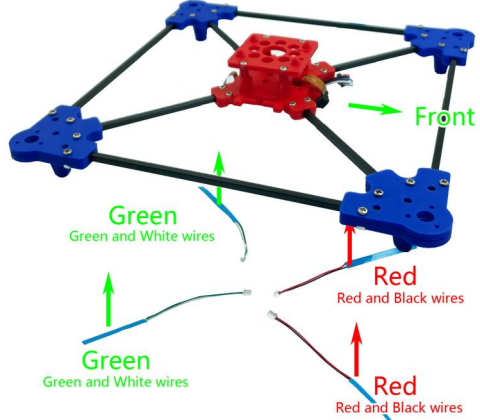
During the flight, the direction of the nose of the aircraft can be quickly identified by the direction of the lights.

Red light indicates the front.
Green light indicates the rear.



Remove the back protective film.

Then, stick it directly onto the bottom of the carbon fiber pole, aligning the tops of both for installation.



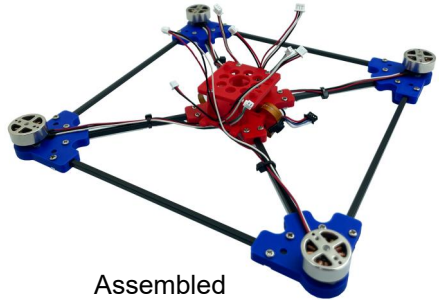
5 BRUSHLESS MOTOR



3.5.1 Install Brushless Motor

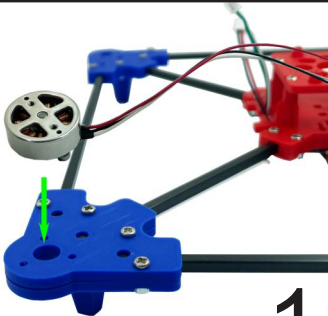


Pocket 5



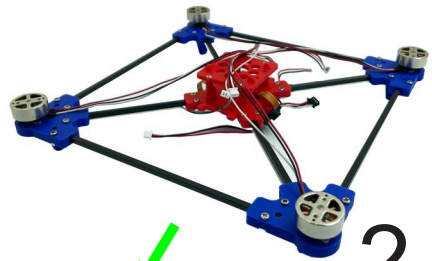
Assembled

Components List	
	
4x	
	
4x	
	
	12x M1.6*6mm
	1:1



   M1.6*6mm

1



2

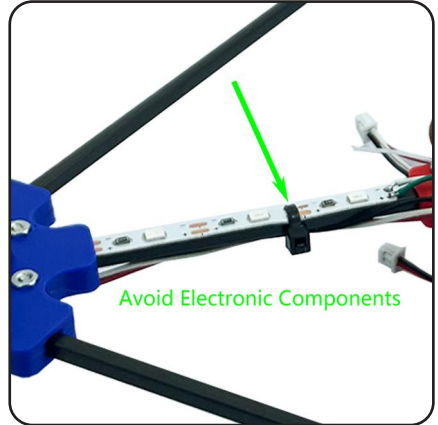
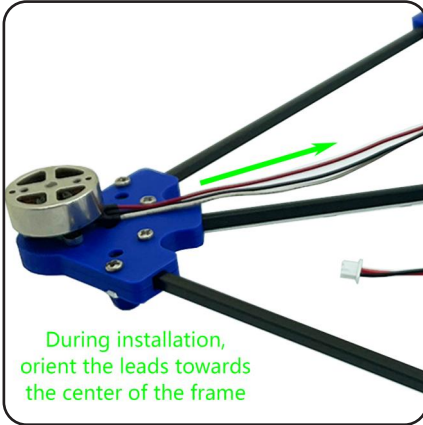


5

BRUSHLESS MOTOR

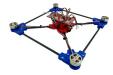


Note



6

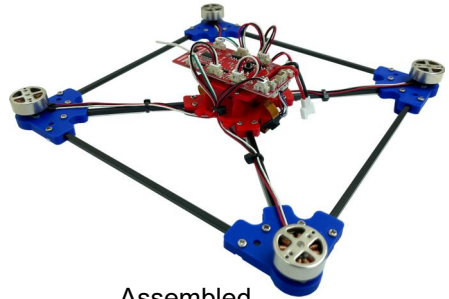
FLIGHT CONTROL MODULE



3.6.1 Installing the Flight Control Module



Pocket 6



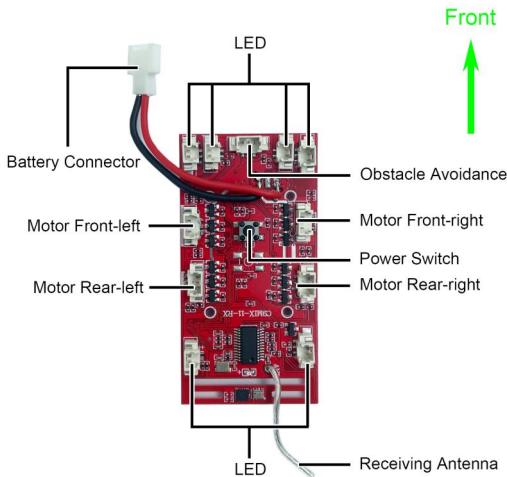
Assembled

Components List



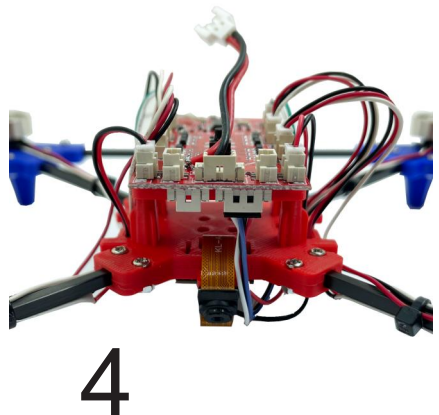
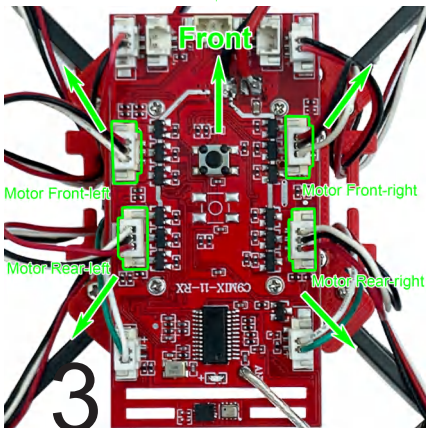
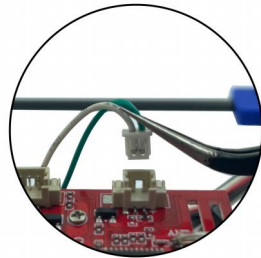
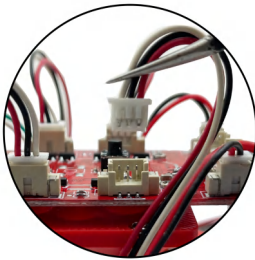
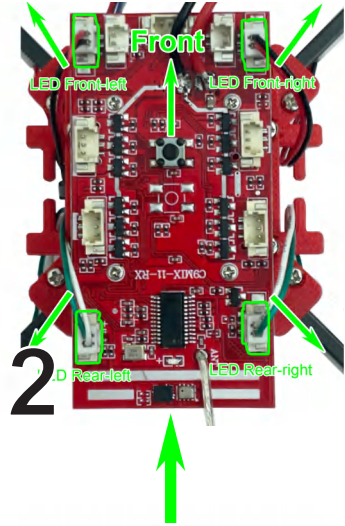
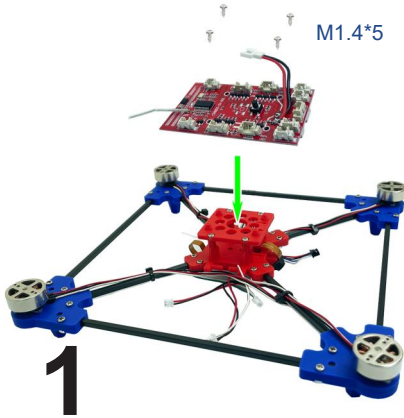
4x M1.4*5

1:1



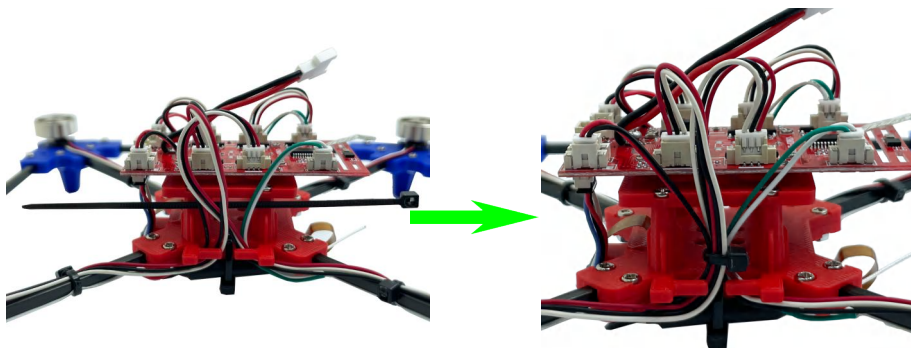
6

FLIGHT CONTROL MODULE



6

FLIGHT CONTROL MODULE



TIP: Be sure to remove any debris adhered to the circuit board, as residual debris can cause a short circuit and damage the flight control board.

7 PROPELLER



3.7.1 Install the Propeller

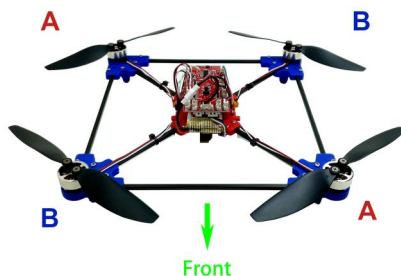


Pocket 7



Assembled

Components List	
4x 	 8x 1:1
4x 	



Install the propeller with the side marked with text facing upward.

Be sure to install the propeller according to the installation position shown in the diagram. Incorrect installation will directly result in the inability to fly.
The screws need to be tightened to ensure that each blade can move freely with ease.

8 REMOTE CONTROL



3.8.1 Assemble the Remote Control



Pocket 8

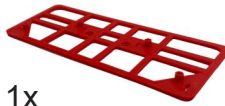


Assembled

Components List



1x



1x



1x

1x



3x



4x

M2*8



4x

M2



2x

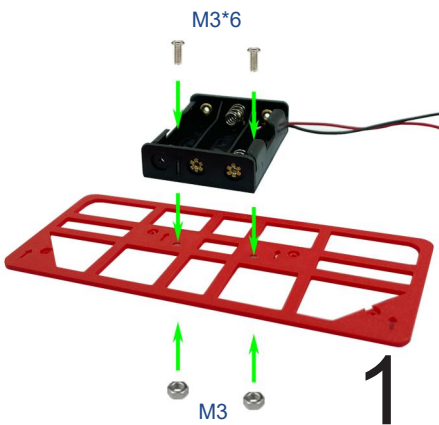
M3*6



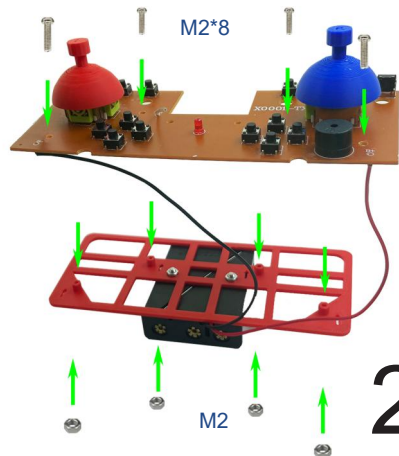
2x

M3

1:1



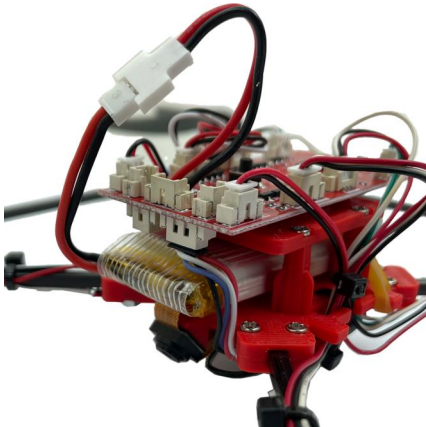
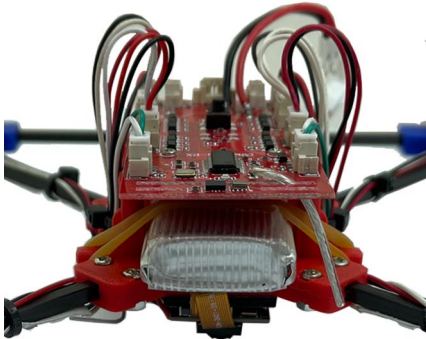
1



2



Inserting the Battery



The battery must be centered and securely fixed in the designated compartment. Failure to properly align the battery may disrupt the drone's weight balance, resulting in unstable flight performance or potential operational hazards.

When installing the battery, avoid the wires at the front end.

Operating Instructions



Precautions Before Flight

1. The drone should be flown within sight and always under control.
2. Use it in an open area, away from crowds.
3. Comply with local laws and regulations, and do not fly in restricted areas such as near airports or around military bases.
4. Pay attention to the power-on and power-off sequence of the drone.

Power-on sequence: Turn on the drone first, then turn on the remote control and pair them.

Power-off sequence: First turn off the drone, then turn off the remote control. When both the drone and remote control are powered on, avoid accidental remote control operations as sudden activation of the drone may cause personal injury.

Pre-flight inspection

A significant portion of accidents during flight operations are caused by inadequate pre-flight inspections of the aircraft. Any small issue with the aircraft can potentially lead to failure during flight.

Before flying, familiarize yourself with the functions of each button on the remote control. (Image with remote control functions labeled)

Mechanical inspection

- Check if the propellers are in good condition.
- whether the surface is stained or cracked.
- whether they are securely installed.
- whether the clockwise and counterclockwise propellers are installed correctly.
- manually rotate the propellers to check for any interference.
- Check if the frame is sturdy and if the screws are loose.
- Check if the battery is secured and if it is positioned in the center of the fuselage.

Electronic inspection

- Check if all connectors are tightly connected.
- Check if there are any foreign objects on the flight control board.
- Check if the flight control board is installed level.
- Check if the battery is damaged, swollen, or leaking.
- measure the voltage to ensure it is sufficient (full voltage is 4.2V, low voltage is 3.6V and requires charging).

Receiver Board/LED Strip Status

- After power-on and placed horizontally, slow blinking: Waiting for pairing.
- After power-on and placed horizontally, steady-on: Pairing successful; ready to fly.
- After power-on and placed horizontally, pressing the gyro calibration button causes rapid blinking (calibration in progress). Returns to steady-on after successful calibration.
- During flight, steady-on: Sufficient battery. 360° FLIPS enabled.
- During flight, blinking: Low battery; land and replace. 360° FLIPS disabled.
- Rapid blinking + auto-descent: Critically low battery; replace immediately. Flight disabled

Camera Module LED Status

- Slow blinking: Waiting for connection.
- Steady on: Connection established.

Operating Instructions



Power-on pre-flight procedures

Step 1

Insert the battery terminals into the power terminals on the flight control board, and briefly press the power button on the flight control board. The LED will start blinking slowly.

Step 2

Set the unmanned aerial vehicle on the open, obstacle-free and horizontal ground.

Step 3

Briefly press the power button on the remote control. The LED on the remote control will remain lit, and the remote control and flight control board will begin automatic frequency matching. Once frequency matching is successful, the LED on the drone will remain constantly lit, indicating that the drone is ready.

Step 4

Briefly press the gyroscope calibration button on the remote control. The drone will start gyroscope calibration. The LED will start flashing rapidly. When the LED becomes constantly lit, the calibration is complete. (If the drone is tilted more than 30°, the LED will flash rapidly. Simply place the drone on a flat surface to restore the LED to a constantly lit state. This is a protective setting of the drone.)

Step 5

Gently push the left red throttle stick up once, and the propellers will start spinning. (This is the pre-flight state. Observe if the drone is stable.)

Push the left red throttle stick again to accelerate the propeller spin, and the drone will lift off the ground.

For the initial flight, hover the drone first to familiarize yourself with the basic flight rhythm of the drone and the functions of the buttons on the remote control. Try flying in different directions such as up, down, forward, backward, left, and right to get familiar with the control of the drone.

360° Flip

The LED on the drone remains lit when it is ready for operation, and it cannot be operated when the LED is blinking slowly.

1. Briefly press the 360° Flip button on the top right corner of the remote control, and the buzzer on the remote control will sound.
2. Flick the blue joystick on the right side once to the right. The drone will automatically perform a roll to the right.

P.S. Performing rolling maneuvers consumes a significant amount of battery power. By flicking the joystick in different directions in Step 2, the drone can roll forwards, backwards, left, or right.

This function should only be used in open spaces.

If the hovering effect is compromised after a roll, you can make fine adjustments or restart the drone.

Operating Instructions



Download and Install Mobile App

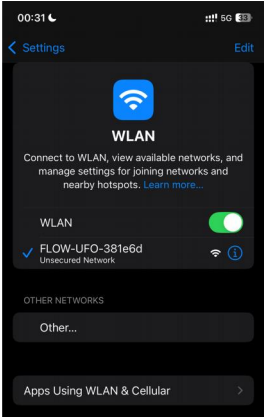
1. Search for 'KY UFO' in the App Store or Google Play to download and install the app.
2. Scan the QR code below to download and install the app.



Connection settings

1. switch on the power switch of the device.
2. open the settings of your cell phone:
 - Activate the WLAN.
 - Search for "Flow-xxxxx" in the network list and select the network.
 - Wait until the connection is successfully established.
3. open the app and tap the "Start" icon to open the real-time interface. open the real-time interface.

WiFi list

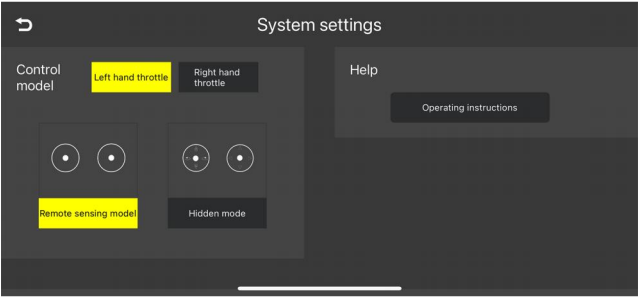
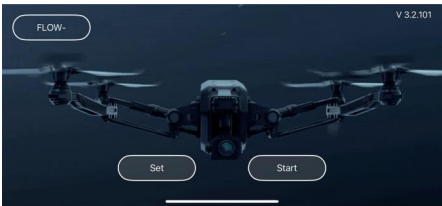


app



KY UFO

Main interface



Operating Instructions



Various functions are shown in the figure below



When switching to vertical screen, it is not possible to perform-flight control on the device.

The control signals for flight via a mobile phone are transmitted through WiFi, which utilizes a different channel from that of the remote controller. Naturally, they cannot operate simultaneously.

If the connection is abnormal, just restart the drone and try again.

This kit is primarily designed for demonstrating the fundamental principles of drone operation. For users requiring higher photography quality and flight performance, targeted upgrades can be implemented after gaining sufficient knowledge about its operation and components.



Q: The aircraft drifts (forward/backward/left/right) during hover.

A: Follow these steps to diagnose and resolve the issue:

1. Check Optical Flow Functionality

- Place your hand 10-20 cm below the camera (located under the optical flow module) to block its view.
- Slowly move your hand horizontally. Observe if the drone follows your hand's direction or drifts unexpectedly.

2. No Position Change

- If the drone does not respond, the optical flow camera may be malfunctioning.
- Land the drone immediately.
- Power it off, wait 10 seconds, then restart.

3. Position Change Detected

- If the drone responds, the optical flow camera is functional.
- Adjust Trim Settings:
- Briefly press the trim button (on the remote) opposite to the drift direction.
- Pause for 3 seconds after each press to observe attitude correction.

Q: The aircraft cannot perform flips.

A: When performing a flip, the instantaneous current of the motors is relatively high, consuming a significant amount of electrical energy. In the flight control board, there is a low-voltage limit set specifically for the flip action. When the battery voltage drops below this limit, the flip cannot be executed. This is to prevent the aircraft from losing control during the flip due to insufficient power. Therefore, to perform multiple flips, it is necessary to replace the battery with a fully charged one that has a higher voltage.

Q: The aircraft vibrates abnormally during flight or becomes uncontrollable upon takeoff.

A: At this point, it is necessary to check if the aircraft body is securely installed and if any of the propellers are stuck. These issues can cause the aircraft to vibrate, which directly affects the accuracy of the gyroscope, leading to abnormal flight or loss of control of the aircraft.

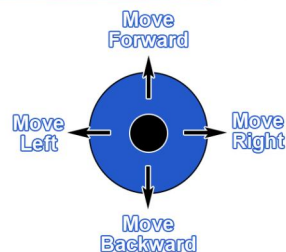
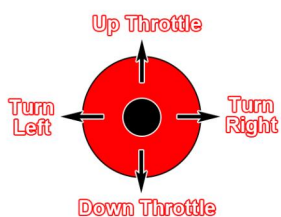
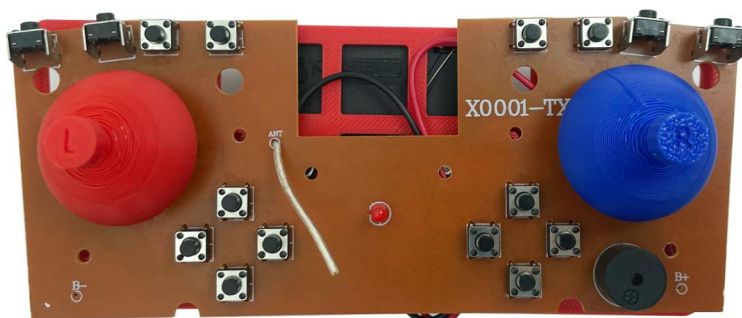
Q: The propellers are spinning, but the aircraft cannot take off or ascend.

A: It is necessary to check the rotation direction of each propeller and whether the CW (clockwise) and CCW (counterclockwise) propellers are installed correctly. The basic principle of aircraft flight is that the rotation of the propellers creates a pressure difference between the upper and lower surfaces, allowing it to take off and ascend. If the rotation direction of the propellers or the installation of the CW and CCW propellers are incorrect, it will cause abnormal pressure differences, resulting in the aircraft being unable to achieve normal flight.

Q: The remote control cannot be turned on.

A: Check if the battery is installed with the correct polarity and if the spring contacts at both ends of each battery are making proper electrical contact.

Speed Setting Headless Mode Take Photo Record Video LED Switch Power Switch LED Blink Steady On 360° Flip



Automatic Takeoff Trim Forward
 Emergency Stop Calibration Trim Left Trim Right
 Automatic Landing Trim Backward

Long Press "Emergency Stop" to CUT OFF FLIGHT POWER!
 DO NOT ATTEMPT AT HIGH ALTITUDES to avoid drone loss, crash,
 and potential PERSONAL INJURY & PROPERTY DAMAGE.

