HUBSAN®

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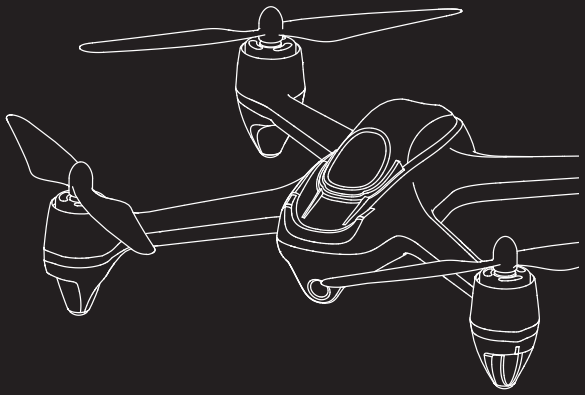


H501S X4 AIR

《H501S User Manual》

Version V 2.0

Disclaimer & Warning

All users must read product operating instructions as well as this liability disclaimer before using any Hubsan product. By using a Hubsan product(s), users are accepting the terms and conditions of Hubsan liability and operational guidelines. This product is not suitable for minors under 14 years of age. While operating a Hubsan product(s), users also accept all liability and responsibility for their own behavior, actions as well as any consequences resulting thereof while using a Hubsan product(s). These products may only be used for purposes that are proper and in accordance with local regulations, terms and any applicable policies/guidelines Hubsan may make available. Users agree to comply with these terms and conditions, along with any and all relevant policies/guidelines set forth by Hubsan.

Instructions

Some product flight functions are restricted in certain areas. Once you use this product, you are deemed to have read carefully the relevant ICAO regulations, local airspace control provisions and the regulations governing UAVs. You assume all liability for any non-compliance with the foregoing, are responsible for the consequences for your actions as well as any indirect and/or direct liability that arises as a result of these limitations.

Flight environment requirements

(1) Select an open environment devoid of high rise buildings and tall obstructions (such as trees and poles). Near buildings and obstacles, flight control signals and GPS signals can be severely weakened; GPS functions such as GPS mode and Return to Home may not function properly.

(2) Do not fly in bad weather conditions (such as in wind, rain or fog).

(3) Fly the drone in ambient temperatures of 0-40 ℃.

(4) When flying, please stay away from obstructions, crowds, high voltage lines, trees, water, etc.

(5) To avoid remote control signal interference, do not fly in complex electromagnetic environments (such as venues with radio stations, power plants and towers).

(6) The aircraft cannot be used in or near the Arctic circle or Antarctica.

(7) Do not fly in no-fly zones.

(8) Do not operate the aircraft near high pressure lines, airports or areas with severe magnetic interference.

Important safety information

Operation: Be extremely careful and responsible when using the quad. Small electronic components can be damaged due to crashes or exposure to moisture/liquid. To avoid any injuries, do not use the quad with broken or damaged components.

Maintenance: Do not try to open or repair the units by yourself. Please contact Hubsan or Hubsan authorized dealers for service. For more information, please visit the official website at www.hubsan.com.

Battery: Do not disassemble, squeeze, impact, burn, drop or trample the battery. Do not short-circuit or put the battery terminal in contact with metal. Do not expose the battery to temperatures above 60 ° C. Charge the aircraft battery prior to flight. Use a Hubsan dedicated charger for charging. Keep the battery out of the reach of children and away from any kind of moisture.

Flight: Please be mindful of personal safety and the safety of others while flying.

- Do not fly in bad weather conditions.
- Do not attempt to catch the aircraft while it is in flight.
- This product is intended for experienced pilots over the age of 14.
- After every flight, completely disarm the aircraft motors and disconnect the aircraft from power. Then, you may power off the remote control.

Read the Disclaimer and Safety Guidelines first before use.

Symbol explanation:

Prohibited operation Important Notice Instruction

Explanation/reference

Hubsan Safety Advisory Notice for Lithium-Polymer (LIPO) Batteries

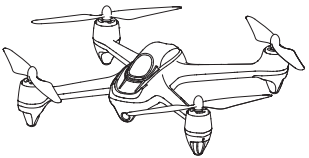
LiPo batteries are different from conventional batteries in that their chemical contents are encased in a relatively lightweight foil packaging. This has the advantage of significantly reducing their weight but it does make them more susceptible to damage if roughly or inappropriately handled. As with all batteries, there is a risk of fire or explosion if safety practices are ignored:

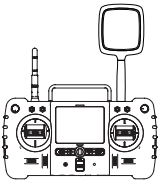
- If you do not plan to fly the quad for a long time, store the battery ~50% charged to maintain battery performance and life.
- Please use Hubsan chargers for battery charging.
- Discharge the battery at 5C current or below. To avoid discharge related battery damage, do not prolong the discharge time.
- Do not charge on carpet to avoid fire.
- Batteries need to be recharged if unused for over 3 months.

1. Do not disassemble or reassemble the battery.
2. Do not short-circuit the battery.
3. Do not use or charge near sources of heat.
4. Do not put the battery in contact with water or any kind of liquid.
5. Do not charge batteries under sunlight or near fire.
6. Do not puncture or subject the battery to force of any kind.
7. Do not throw or manhandle the battery.
8. Never charge a battery that has been damaged, become deformed or swelled.
9. Do not solder on or near the battery.
10. Do not overcharge or over discharge the battery.
11. Do not reverse charge or reverse the battery polarities.
12. Do not connect the battery to a car charger/cigarette lighter or any kind of unconventional power source.
13. This battery is prohibited for non-designated devices.
14. Do not touch any kind of liquid waste or byproduct from batteries. If skin or clothes come in contact with these substances, please flush with water!
15. Do not mix other types of batteries with lithium batteries.
16. Do not exceed the specified charging time.
17. Do not place the battery in a microwave or in areas of high pressure.
18. Do not expose the battery to the sun.
19. Do not use in environments with high static electricity (64V and above).
20. Do not use or charge in temperatures below 0 ℃ and above 45 ℃.
21. If a newly purchased battery is used, leaking, possesses a bad smell or other abnormalities, return immediately to the vendor.
22. Keep away from the reach of children.
23. Use a dedicated battery charger and follow all charging requirements.
24. Minors who use the battery and its dedicated unit must be supervised by an adult at all times.

Different Ways to Fly, 2 Configurations

1. Aircraft + H906A Transmitter





2. Aircraft + H901A Transmitter

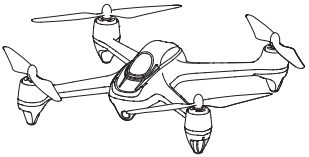
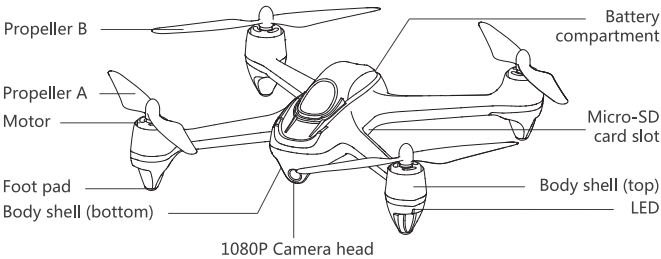


Table of Contents

1 The H501S Aircraft

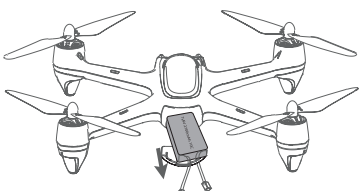
1. Aircraft Component Breakdown

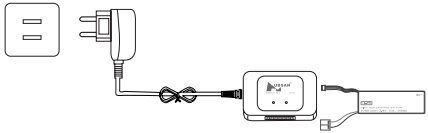


The aircraft supports Galileo, GLONASS, GPS, and supports up to three GNSS working simultaneously.

1.2 The Aircraft Battery

Connect the battery to the balance charger and connect the charger to the AC adapter. The balance charger LEDs are red while charging and turn green when the battery is fully charged. Please disconnect the battery from the charger immediately afterwards. Full charging time is around 180 minutes. Installing the battery: Push the battery into its compartment with its lines facing away from the unit (below figure). Connect the blue adapters, noting the positive and negative polarities. Coil the power line into the compartment and then shut the battery hatch.



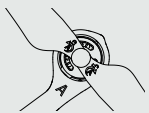


- Make sure the battery is fully charged before each flight.
- Please do not leave unattended while charging.

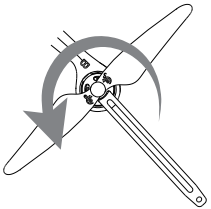
1.3 Propellers

The X4 aircraft uses 7.3-inch propellers. Before installing the propellers for the first time, please check whether the propeller and motor arm read "A" or "B". The two letters should match. When the blade is damaged or needs to be replaced, hold the propeller with a hand or the provided auxiliary wrench, and remove by turning it in the indicated "unlock" direction.

Installing: Attach the propellers to the corresponding motors that are marked A and B, tighten the propellers.

	Propeller A	Propeller B
Illustration		
Install Location		
Symbol explanation	Indicates that the propeller can be tightened on the motor when turning toward this direction. Indicates that the propeller can be loosen on the motor when turning toward this direction.	

Removal: When the blade is damaged or needs to be replaced, hold the propeller with a hand or the provided auxiliary wrench, and remove by turning it in the indicated "unlock" direction.



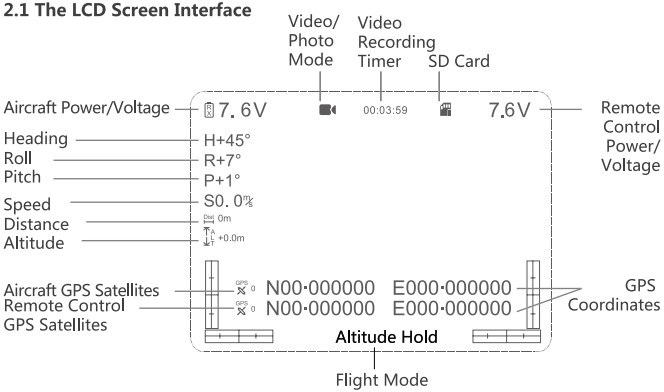
- Make sure that the propellers are installed in the correct positions, otherwise the aircraft will not be able to fly normally.
- Since the propeller blades are thin and somewhat sharp, it is recommended that users wear gloves during installation to prevent accidental scratches.
- Since the propeller blades are thin and somewhat sharp, it is recommended that users wear gloves during installation to prevent accidental scratches.

1.4 Aircraft LED Indications

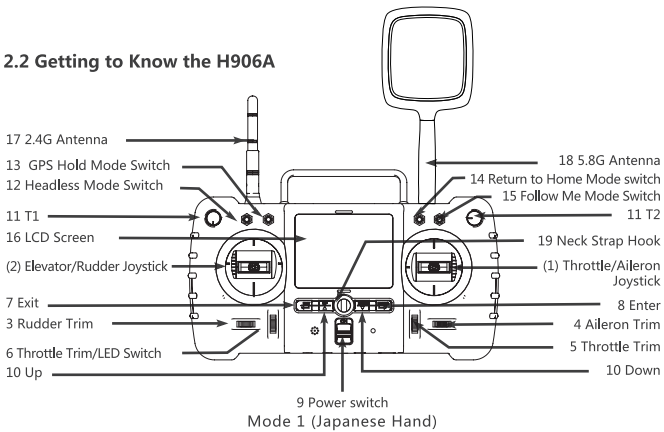
Function	LED Status Indication
Power on and start up	All LED flash yellow simultaneously
Compass Calibration	Horizontal Calibration has 4 LEDs flashing red in the clockwise direction; Vertical Calibration has 4 LEDs flashing green in pairs alternately
Horizontal Calibration	Flashing slowly in yellow
Binding	The front LEDs stay solid and rear LEDs flash alternately
Flight: All LED flash simultaneously, front LEDs are white and rear LED colors are as follows:	
1) Normal Status: Yellow	4) Low Battery: Red
2) GPS Mode: Green	5) Loss of signal: Purple
3) Turn off GPS: Yellow	6) Return to Home: Blue

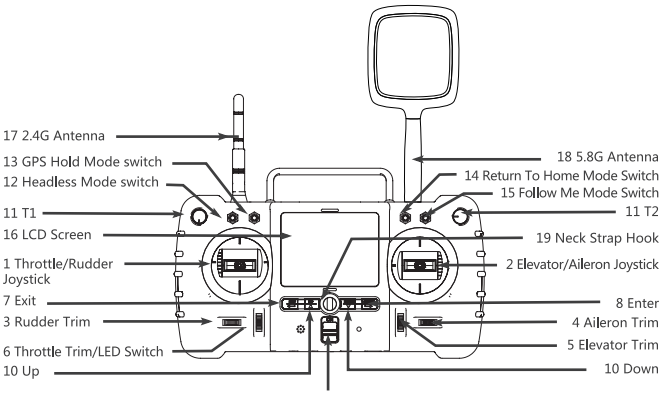
2 The H906A Remote Control/Transmitter

2.1 The LCD Screen Interface



2.2 Getting to Know the H906A





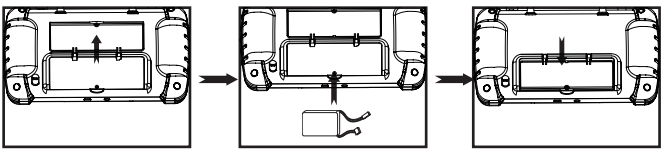
Mode 2 (American Hand)

2.3 H906A Function Breakdown

S/N	Key/Switch	Function
1	Throttle/Rudder stick	Push the stick forward or backward and the quadcopter will fly forwards or backwards (respectively). Push the stick left or right and the quadcopter will fly left or right (respectively).
2	Elevator/Aileron stick	Push the stick forward or backward and the quadcopter will fly forwards or backwards (respectively). Push the stick left or right and the quadcopter will fly left or right (respectively).
(1)	Throttle/Aileron stick	Push the stick forward or backward and the quadcopter will ascend or descend (respectively). Push the stick left or right and the quadcopter will fly left or right (respectively).
(2)	Elevator/Rudder stick	Use the Rudder trim to adjust for counterclockwise and clockwise rotation/yaw drift.
3	Rudder trim	Use the Aileron trim to adjust for left and right horizontal drift.
4	Aileron trim	Use the Aileron trim to adjust for left and right horizontal drift.
5	Throttle trim	Throttle trim is normally centered. If the throttle channel is not centered, use the Throttle trim to adjust.
6	Elevator trim	Use the Elevator trim to adjust for forward and backward drift.

7	Exit	Long press to exit the Main Menu. Short press to take photos/start and end video recordings.
8	Enter	Used to enter the Main Menu when the user holds the throttle to its most downward position and while doing so long presses the Enter key. Short press to start/stop video recordings.
9	Power Switch	Push up/ON to turn on the transmitter. Push down/OFF to turn off.
10	Up/Down	Up: Used to navigate the Main Menu. Also used to set a new center for Orbit mode (short press once). Down: Used to navigate the Main Menu. Also used to enter/exit Orbit mode (long press once to enter or exit). To enter RSSI mode, hold the Down key and then power the transmitter on while doing so.
11	T1, T2	No Function
12	Headless Mode Switch	Flip the switch up to enter Headless Mode. Flip down to exit Headless Mode.
13	GPS Hold Mode Switch	Flip the switch up to activate GPS function. Flip down to disactivate GPS function.
14	Return to Home Mode Switch	Flip the switch up to activate Return to Home Mode. Flip down to exit Return to Home Mode.
15	Follow Me Mode Switch	Flip the switch up to activate the Follow Me function.
16	LCD Screen	Displays the aircraft's current status, telemetry and live video transmission (FPV).
17	2.4 Antenna	Transmits flight control signal and commands.
18	5.8 Antenna	Receives live video signal.
19	Neck Strap Hook	Attach your neck strap to this hood for use.

2.4 Battery Installation



Open the battery compartment hatch.

Connect the battery cable

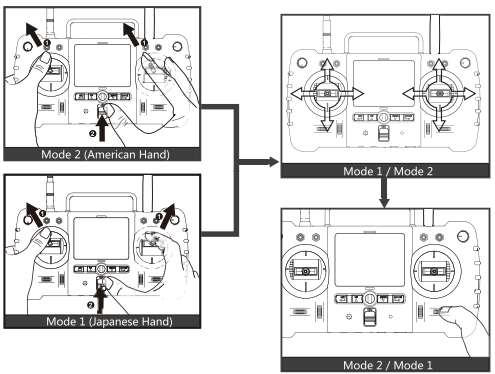
Put the battery in the compartment and organize the cables then close the compartment.

- Do not mix new and old batteries
- Do not cross-use different types of batteries at the same time

2.5 Transmitter Stick Calibration (Mode 1 and Mode 2 throttle settings)

Mode 1: Push the left stick to the upper left corner and the right stick to the upper right corner. Power the transmitter on while holding both sticks in their respective positions; the LCD screen will show "Calibrate Sticks Mode 2". Let go of the sticks, then pull them up, down, towards the center and outwards. Repeat this sequence 3 times, then release both sticks and hold the "Exit" key until the transmitter beeps. This indicates a successful calibration.

Mode 2: Push both sticks to the upper left corners. Power the transmitter on while holding both sticks in their respective positions; the LCD screen will show "Calibrate Sticks Mode 2". Let go of the sticks, then pull them up, down, towards the center and outwards. Repeat this sequence 3 times, then release both sticks and hold the "Exit" key until the transmitter beeps. This indicates a successful calibration.

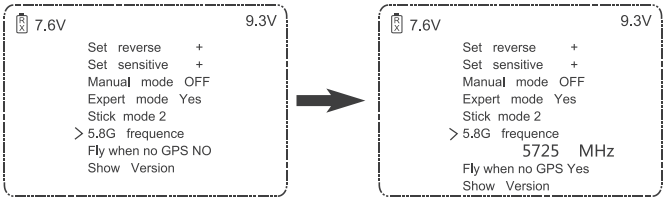


• Use this calibration to switch between Mode 1 and Mode 2

2.6 How to Set or Change the 5.8GHz Video Frequency

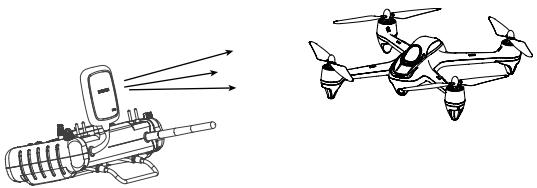
The transmitter will automatically find the best frequency to ensure a good quality live video. If desired or needed, users may manually search the 5.725-5.945GHz frequencies for a better video transmission signal.

While doing so, long press the "Enter" key to enter the Main Menu. Use the Up/Down keys and scroll to the "5.8G frequence" selection. Press "Enter" to enter the frequency menu; use the Up and Down keys to browse the different frequencies. Long press the "Exit" key for 2 seconds to save the new frequency setting and exit.



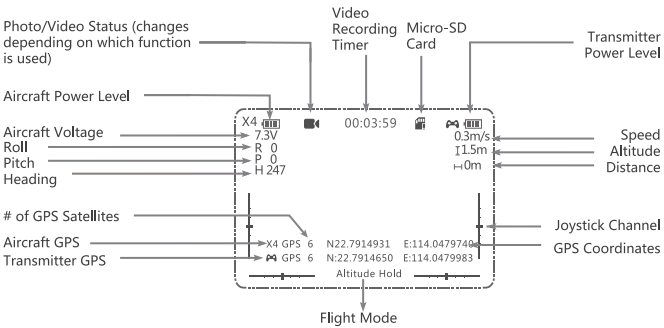
2.7 Orienting the transmitter's Antenna

To keep video transmission clear and avoid interference, make sure the H906A's 5.8Ghz antenna logo faces the aircraft. Also be sure to fly the aircraft approximately within 1000 meters of the transmitter. During flight, the antenna and its signal path must be unobstructed to maximize the video and control range. Bend the antenna so that its logo is as directly pointed towards the aircraft as possible.

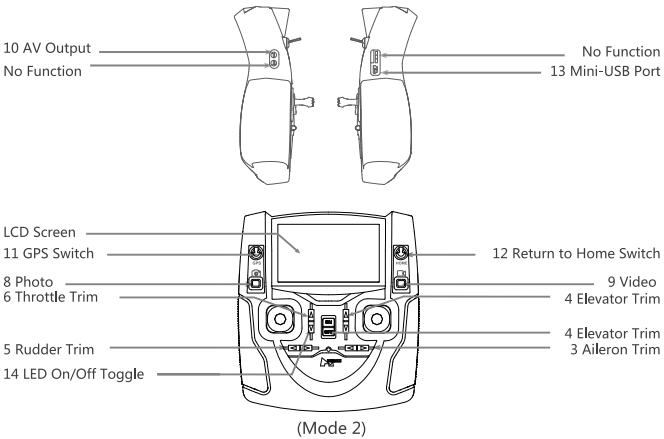


3 The H906A Remote Control/Transmitter

3.1 The LCD Screen Interface



3.2 Getting to Know the H901A

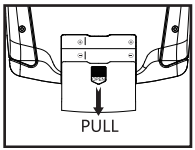


(Mode 2)

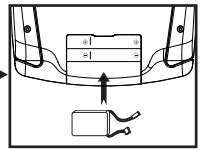
3.3 H901A Function Breakdown

S/N	Key/Switch	Function
(1)	Throttle/Rudder Stick	Use the Aileron trim to adjust for left and right horizontal drift.
(2)	Elevator/Aileron Stick	Push the stick forward or backward and the quadcopter will ascend or descend (respectively). Push the stick left or right and the quadcopter will fly left or right (respectively).
1	Throttle/Aileron Stick	Push the stick forward or backward and the quadcopter will ascend or descend (respectively). Push the stick left or right and the quadcopter will fly left or right (respectively).
2	Elevator/Rudder Stick	Push the stick forward or backward and the quadcopter will fly forwards or backwards (respectively). Push the stick left or right and the quadcopter will rotate counterclockwise or clockwise (respectively).
3	Aileron Trim	Use the Aileron trim to adjust for left and right horizontal drift.
4	Elevator Trim	Use the Elevator trim to adjust for forward and backward drift.
5	Rudder Trim	Use the Rudder trim to adjust for counterclockwise and clockwise rotation/yaw drift.
6	Throttle Trim	Throttle trim is normally centered. If the throttle channel is not centered, use the Throttle trim to adjust.
7	Power Switch	Push up/ON to turn on the transmitter. Push down/OFF to turn off.
8	Photo	(1) Short press to take photos (2) Hold while powering the transmitter on to enter binding mode
9	Video	(1) Short press to start and end video recordings. (2) Long press to use Orbit mode. The aircraft must be at least 3m away. (3) Hold while powering the transmitter on to enter RSSI mode.
10	AV Output	Use to connect video goggles
11	GPS Mode Switch	Flip the switch up to activate GPS function. Flip down to disactivate GPS function.
12	Return to Home Switch	Used to upgrade the firmware with a PC
13	Mini-USB Port	Used to upgrade the firmware with a PC
14	LED Switch	Long press to shift amongst three different LED modes (solid/ flashing/off)

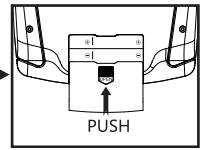
3.4 Battery Installation



Open the compartment hatch by pulling on the cover until it slides off.



Plug the included battery's JST adapter to its port in the compartment (4 AA batteries may also be used)

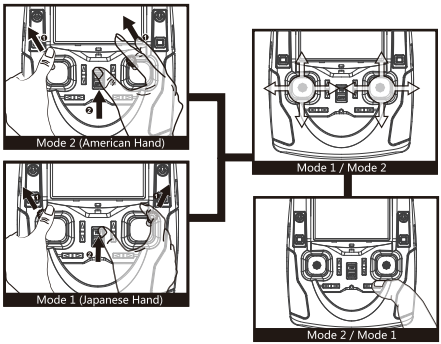


If using a LiPo battery, tuck both battery and its wiring into the compartment before sliding the compartment coverback onto the transmitter.

3.5 Transmitter Stick Calibration (Mode 1 And Mode 2 Throttle Settings)

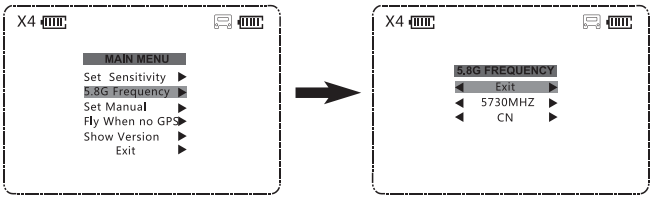
Mode 2: Push both sticks to the upper left corners. Power the transmitter on while holding both sticks in their respective positions; the LCD screen will show "Calibrate Sticks Mode 2". Let go of the sticks, then pull them up, down, towards the center and outwards. Repeat this sequence 3 times, then release both sticks and hold any trim until the transmitter beeps. This indicates a successful calibration.

Mode 1: Push the left stick to the upper left corner and the right stick to the upper right corner. Power the transmitter on while holding both sticks in their respective positions; the LCD screen will show "Calibrate Sticks Mode 2". Let go of the sticks, then pull them up, down, towards the center and outwards. Repeat this sequence 3 times, then release both sticks and hold any trim until the transmitter beeps. This indicates a successful calibration.



3.6 5.8ghz Frequency Selection Settings

The transmitter will automatically find the best frequency to ensure a good quality live video. If desired or needed, users may adjust the 5.8GHz frequency for better video transmission. To adjust the 5.8GHz frequency, first pull and hold the throttle stick downwards to the very bottom of its socket. While doing so, press down on the non-throttle joystick (you should feel and hear a click) to enter the Main Menu. Use the non-throttle stick to scroll to the "5.8G frequence" selection. Push the non-throttle stick right to enter the frequency menu; use the Up and Down keys to browse the different frequencies. Long press the "Exit" key to save the new frequency setting and exit.



4 Flight

It is recommended that users implement some kind of flight training (i.e using a simulator for flight practice, seeking professional guidance, etc.) before flying the H501A. Please select an appropriate flight environment for flight.

4.1 Flight Environment Requirements

(1) Select an open environment devoid of high rise buildings and tall obstructions (such as trees and poles). Near buildings and obstacles, flight control signals and GPS signals can be severely weakened; GPS functions such as GPS mode and Return to Home may not function properly.
(2) Do not fly in bad weather conditions (such as in wind, rain or fog).
(3) Fly the drone in ambient temperatures of 0-40 °C.
(4) When flying, please stay away from obstructions, crowds, high voltage lines, trees, water, etc.
(5) To avoid remote control signals interference, do not fly in complex electromagnetic environments (such as venues with radio stations, power plants and towers).
(6) The H501A cannot be used in or near the Arctic circle or Antarctica.
(7) Do not fly in no fly zones.
(8) Do not operate the aircraft near high pressure lines, airports or areas with severe magnetic interference.

4.2 Pre-Flight Checklist

1) Make sure the aircraft battery and mobile device are charged and have adequate power
2) Confirm that propellers and screws are properly installed
3) If you are taking pictures, insert the Micro-SD card required for taking pictures and videos
4) Ensure the camera lens is clean
5) Verify that the motors arm and spin smoothly

4.3 Flying With The H906A Transmitter

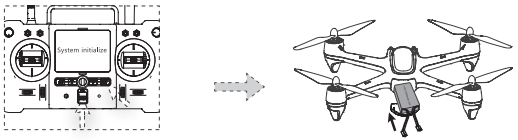
Binding the quad to the transmitter

1) Hold the "Enter" key and power on the transmitter until" System Initialize" appears on the LCD screen.

2) Release the Enter key when the screen changes to display "Bind to Plane".

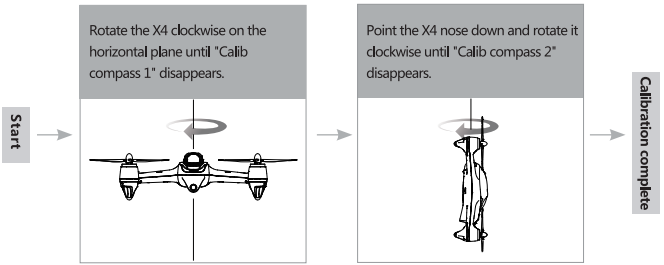
3) Power on the quad and place it very close to the transmitter. After a few seconds, the transmitter should then beep, indicating that binding has been successful.

4) If this does not happen and the aircraft's LEDs begin to rotate clockwise, the binding is unsuccessful. Please power off the quad and repeat the above steps.



⚠ • There will be no need to perform subsequent bindings after the first re-bind or binding process. Only if the aircraft or transmitter are updated will the pilot need to once again perform a bind.

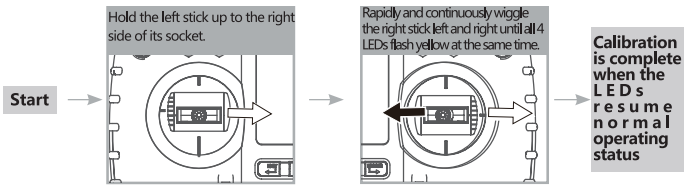
Compass Calibration



Horizontal Calibration (Gyro Calibration)

Horizontal calibration is required when the quadcopter drifts on the horizontal plane during flight. When this happens, land the aircraft and disarm its motors. Follow the below process.

Place the aircraft on a completely flat surface and then follow the below calibration procedure. Then, hold the left stick to the right side of its socket. Rapidly wiggle the right stick left and right continuously until all 4 LEDs slowly flash yellow. Calibration is complete when all 4 LED indicators stop flashing. It is recommended that users wait for 15-20 seconds after the calibration is completed before flying again.



● When using the horizontal calibration, please ensure that the aircraft is on a completely flat surface. Do not move the aircraft or calibrate on an uneven/tilted surface, or there will be errors.

Rotational Calibration

If the aircraft drifts while rotating in flight, perform a rotation calibration by following the below procedure.

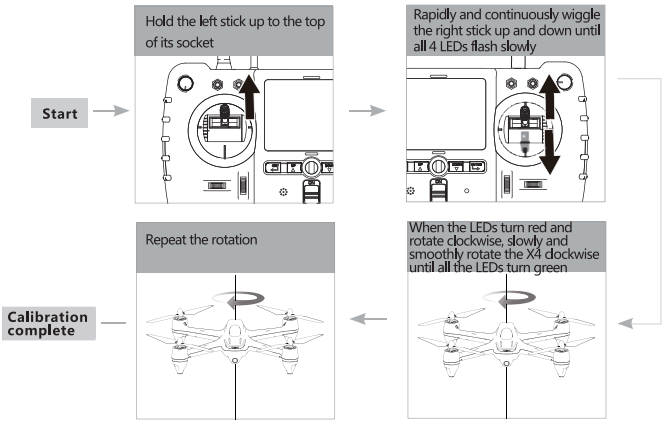
1) Hold the left stick up to the top of its socket. Rapidly and continuously wiggle the right stick up and down until all 4 LEDs flash slowly. Make sure that the quad is on a completely flat and smooth surface; place a small piece of paper under each foot.

2) When all the 4 LED indicators flash in a clockwise pattern, slowly and smoothly rotate the X4 clockwise until all the LEDs turn solid. Keep the copter's feet on the surface and on the pieces of paper.

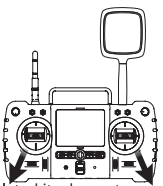
3) The 4 LED indictors will again flash clockwise; repeat step 2.

If the quad requests a

third rotation, restart the quad and start from step 1. Take care not to lift or jolt the quad while calibrating it. Calibration is complete when the 4 LED indicators stop flashing.



Arming And Disarming Motors



Arming/starting motors

Simultaneously pull the transmitter joysticks diagonally down-out to arm the motors (as shown in the below figure).

Disarming/stopping motors

Pull the throttle joystick all the way down until the copter has completed its descent on the ground. Simultaneously pull the transmitter joysticks diagonally down-out to disarm the motors (as shown in the below figure).

Do not disarm during flight. The motors will stop in midair, causing the aircraft to fall and other such hazards.

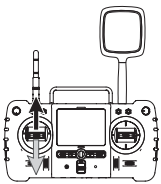
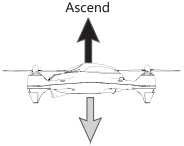
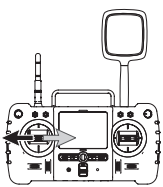
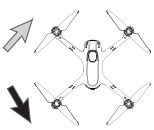
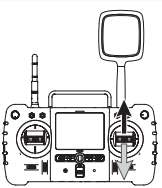
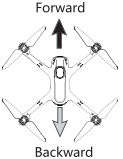
Be sure to operate the virtual joysticks slowly and firmly. When disarming, wait until the motors come to a complete stop before releasing the joysticks.

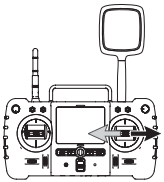
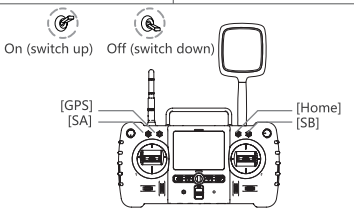
Basic Flight Operation

The remote control is by default set to Mode 2 in factory; this manual will introduce flight operations in Mode 2.

Transmitter joysticks are self-centering and spring loaded: the joysticks will automatically center themselves

Joystick sensitivity: dependent how much and how forcefully each joystick is pulled or pushed away from center point

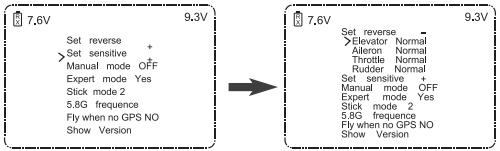
Remote Control (Mode 2)	Aircraft	Transmitter Controls
		The throttle is used to control the ascent and descent of the aircraft. Push the throttle up and the aircraft ascends. Pull the throttle back and the aircraft descends. When the joystick is centered (unmoving), the aircraft will hold its altitude in the air. The throttle must be pushed upwards beyond center point for the aircraft to completely takeoff from the ground. The harder the throttle is pushed, the faster the aircraft will ascend. Please push the throttle slowly for a gradual lift and to prevent the aircraft from ascending erratically.
		The rudder is used to control the aircraft's rotations. Push the joystick to the left and the aircraft rotates counterclockwise. Push the joystick to the right and the aircraft rotates clockwise. When the joystick is centered (unmoving), the angular velocity of the aircraft is "0" and the aircraft will not turn. How hard the rudder is pushed will determine the angular velocity of the aircraft's rotation. The harder the rudder is pushed, the faster the aircraft rotates.
		The elevator controls the aircraft's forward and backward movement. Push the joystick forward and the aircraft will tilt and fly forward. Pull the joystick back and the aircraft will tilt and fly backwards. When the joystick is centered (unmoving), the aircraft will hold its altitude in the air. How hard the elevator is pushed will determine the degree of the aircraft's tilt and therefore the velocity of its forward and backward movement. The harder the elevator is pushed, the greater the aircraft's tilt angle and flight speed either forwards or backwards.

Remote Control (Mode 2)	Aircraft	Transmitter Controls
		The aileron controls the aircraft's left and right movement. Push the joystick to the left and the aircraft will tilt and fly leftwards. Pull the joystick to the right and the aircraft will tilt and fly rightwards. When the joystick is centered (unmoving), the aircraft will hold its altitude in the air. How hard the aileron is pushed will determine the degree of the aircraft's tilt and therefore the velocity of its left and right movement. The harder the aileron is pushed, the greater the aircraft's tilt angle and flight speed either leftwards or rightwards.
		GPS switch for GPS Hold mode When the switch is up, GPS Hold mode is on. When the switch is down, GPS Hold mode is off.
		Return to Home switch for Return to Home mode When the switch is up, RTH mode is on.When the switch is down, RTH mode is off.

Advanced Performance Setup

1) Reverse channel setup

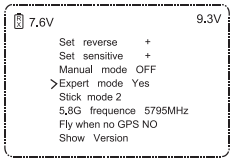
If you would like to reverse any of the stick functions, please follow the instructions below. Be aware that this will reverse the control commands. Pull the throttle stick down to the lowest position and long press the 'Enter' key to open the 'Main Menu' interface. Use the Up/Down keys to select 'Set reverse' and use the 'Enter' key to switch between modes. Long press 'Exit' key to save and exit.



② Sensitivity Setup

If you would like to adjust the sensitivity of any stick functions, then follow the instructions below.

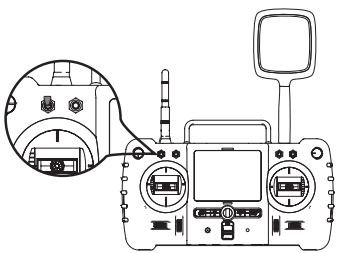
Pull the throttle stick down to the lowest position and long press the 'Enter' key to open the 'Main Menu' interface. Use the Up/Down keys to select 'Set sensitive' and use the 'Enter' key to switch between 'Expert mode' and 'Normal Mode'. Long press 'Exit' key to save and exit.



③ Headless Mode

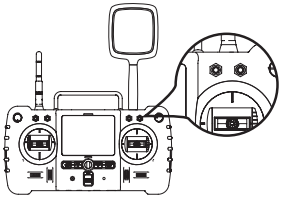
When Headless Mode is activated, the aircraft will use whichever direction its head is facing as the default forward position in Headless Mode. For example, if the aircraft's head is facing north when you enter Headless Mode, you can turn any side of the aircraft due north and still fly forward.

Flip the A switch up to enter Headless Mode; flip the A switch down to exit Headless Mode. The Head telemetry symbol is red when the aircraft is in Headless Mode and green when the aircraft is not.



④ Follow Me Mode

Flip the B switch up to enter Follow Me mode; flip the B switch down to exit Follow Me mode. When the switch is up, the screen will say "Follow Mode" in green. The aircraft will turn and face the transmitter. If the aircraft is not directly facing you, simply use the rudder to turn the aircraft head so that it is facing you.



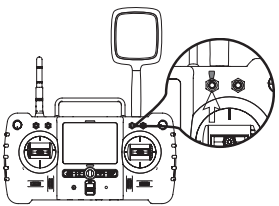
⚠ ● The transmitter has a built-in GPS module. Follow Me mode functions only when both the aircraft and the transmitter have 6 or more GPS satellites.

⑤ Return To Home Mode

⚠ ● Return to Home mode will only work when the aircraft has 6 or more satellites. Never activate Return to Home when the GPS switch is down.

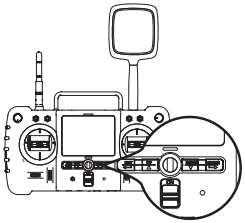
Entering Return to Home mode

Make sure GPS mode is on (the GPS is up). Then, flip the RTH switch up to activate Return to Home mode. The flight control system will command the aircraft to return to its designated "home" point. Users can either allow the flight system to land the aircraft automatically, or exit Return to Home and land the aircraft manually.



⑥ Orbit Mode

Long press the down button and the aircraft will begin to orbit around the transmitter's reported GPS location. The aircraft must be at least 5 meters away from the transmitter for this function to activate.



⚠ • This function needs 6 or more GPS satellites to activate.

4.4 Flying With The H901A Transmitter

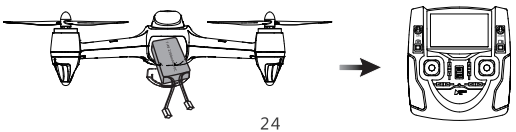
The remote control is by default set to Mode 2 in factory; this manual will introduce flight operations in Mode 2.

Binding the aircraft and transmitter

Use this process if the aircraft and transmitter are not pairing automatically when powered on, or to reset the 2.4GHz flight control and 5.8GHz video transmission connections. The binding process is usually completed in the factory. If you replace either the remote or the aircraft, the two will need to be re-bound to each other.

1) Hold the Photo key and power on the transmitter until"System Initialize" appears on the LCD screen.

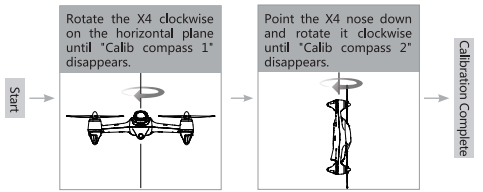
（2）Release the Photo key when the screen changes to display"Bind to Plane". Power on the quad and place it very close to the transmitter. After a few seconds, the transmitter should then beep, indicating that binding has been successful.



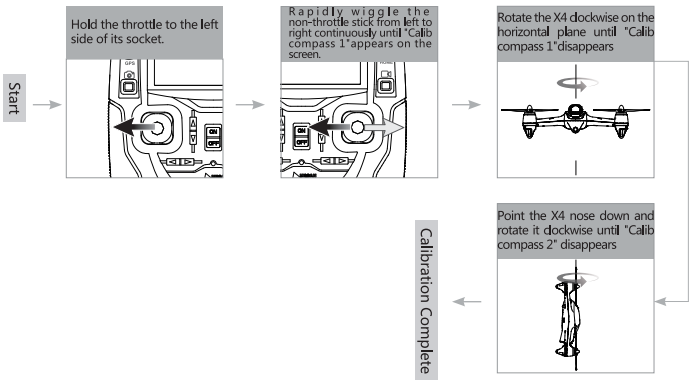
（3）If this does not happen and the aircraft's LEDs begin to rotate clockwise, the binding is unsuccessful. Please power off the aircraft and repeat the above steps.

Compass Calibration

After the aircraft is powered on (and after a successful rebinding), the remote control/transmitter will ask you to calibrate the aircraft compass. The remote control screen will first read "Calib compass 1", slowly rotate the aircraft on the horizontal plane. The LEDs should be red, flashing clockwise. The remote control screen will then transition to "Calib compass 2", point the head of the aircraft downwards and rotate the aircraft in place (it should be vertical, pointing perpendicular to the ground). The LEDs should be flashing in vertical pairs, alternately. When the "Calib compass 2" disappears from the screen and the LEDs begin to flash simultaneously, calibration is complete.

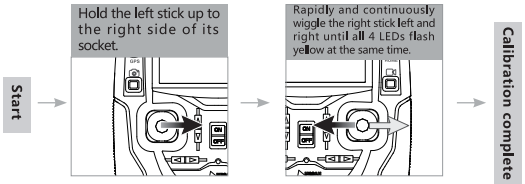


If GPS Hold or any of the GPS functions (ie Return to Home, Headless mode, Follow Me mode, etc) are unstable, manually calibrate the compass by following the below procedure.



Horizontal Calibration (Gyro Calibration)

Horizontal calibration is required when the quadcopter drifts on the horizontal plane during flight. When this happens, land the aircraft and disarm its motors. Follow the below process.



Take Off and Landing

Takeoff

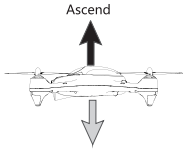
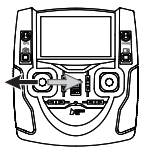
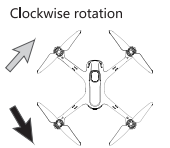
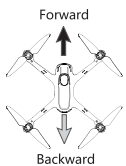
Simultaneously pull the transmitter joysticks diagonally down-out to arm the motors (as shown in the left figure). Smoothly and slowly pull the left joystick (throttle) upwards to take off.

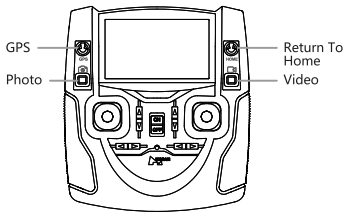
Landing

Slowly and gently pull the throttle joystick down until the copter has completed its descent on the ground. Simultaneously pull the transmitter joysticks diagonally down-out to disarm the motors (as shown in the left figure). After all motors have come to a complete stop, release the joysticks.

- High speed propellers are very dangerous. Please keep the aircraft away from people, animate and inanimate objects.
- Keep the aircraft under control at all times while the motors are still running.
- Do not disarm during flight. The motors will stop in midair, causing the aircraft to fall and other such hazards. Only disarm during flight in the case of emergencies.

Basic Flight Operation

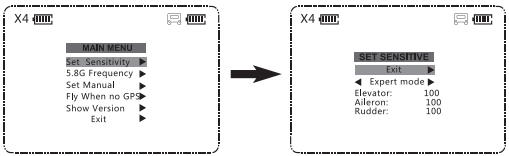
Remote Control (Mode 2)	Aircraft	Transmitter controls
		The throttle is used to control the ascent and descent of the aircraft. Push the throttle up and the aircraft ascends. Pull the throttle back and the aircraft descends. When the joystick is centered (unmoving), the aircraft will hold its altitude in the air. The throttle must be pushed upwards beyond center point for the aircraft to completely takeoff from the ground. The harder the throttle is pushed, the faster the aircraft will ascend. Please push the throttle slowly for a gradual lift and to prevent the aircraft from ascending erratically.
		The rudder is used to control the aircraft's rotations. Push the joystick to the left and the aircraft rotates counterclockwise. Push the joystick to the right and the aircraft rotates clockwise. When the joystick is centered (unmoving), the angular velocity of the aircraft is "0" and the aircraft will not turn. How hard the rudder is pushed will determine the angular velocity of the aircraft's rotation. The harder the rudder is pushed, the faster the aircraft rotates.
		The elevator controls the aircraft's forward and backward movement. Push the joystick forward and the aircraft will tilt and fly forward. Pull the joystick back and the aircraft will tilt and fly backwards. When the joystick is centered (unmoving), the aircraft will hold its altitude in the air. How hard the elevator is pushed will determine the degree of the aircraft's tilt and therefore the velocity of its forward and backward movement. The harder the elevator is pushed, the greater the aircraft's tilt angle and flight speed either forwards or backwards.

Remote Control (Mode 2)	Aircraft	Transmitter controls
	 Left Right	The aileron controls the aircraft's left and right movement. Push the joystick to the left and the aircraft will tilt and fly leftwards. Pull the joystick to the right and the aircraft will tilt and fly rightwards. When the joystick is centered (unmoving), the aircraft will hold its altitude in the air. How hard the aileron is pushed will determine the degree of the aircraft's tilt and therefore the velocity of its left and right movement. The harder the aileron is pushed, the greater the aircraft's tilt angle and flight speed either leftwards or rightwards.
 On (switch up) Off (switch down)  GPS Photo Return To Home Video GPS and Return to Home are only available outdoors.		GPS switch for GPS Hold mode When the switch is up, GPS Hold mode is on. When the switch is down, GPS Hold mode is off. Return to Home switch for Return to Home mode When the switch is up, RTH mode is on. When the switch is down, RTH mode is off.

Advanced Performance Setup

(1) Reverse channel setup

If you would like to reverse any of the stick functions, please follow the instructions below. Be aware that this will reverse the control commands. Pull the throttle stick down to the lowest position and long press the'Enter'key to open the'Main Menu'interface. Use the Up/Down keys to select'Set reverse'and use the'Enter'key to switch between modes. Long press'Exit'key to save and exit.

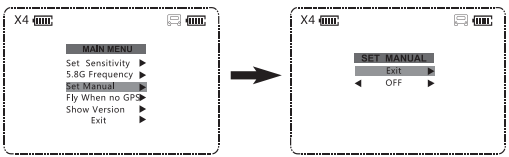


Transmitters are by default set to Expert Mode out of factory

(2) Manual Mode Setting

This remote control is capable of flying the H501A in Manual Mode when appropriately configured. Please shut off GPS and follow the below steps to enter Manual Mode.

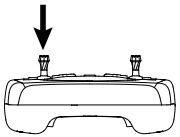
Pull and hold the throttle to its lowest position; simultaneously press on and hold the non-throttle throttle joystick to enter the Main Menu. Scroll to "Set Manual" with the non-throttle joystick and push the joystick right to confirm to enter. Set the setting to "ON" to enable Manual Mode. Exit the Menu afterwards.



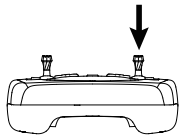
Manual Mode is by default set to "OFF".

(3) Headless Mode

When Headless mode is activated, the aircraft will use whichever direction its head is facing as the default forward position in Headless mode. For example, if the aircraft's head is facing north when you enter Headless mode, you can turn any side of the aircraft due north and still fly forward.



Mode 2

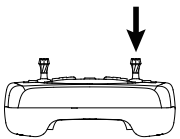


Mode 1

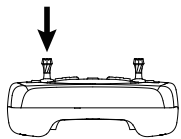
Press the throttle joystick down (you should feel a click and hear the transmitter beep) to enter Headless Mode. The words "HEADLESS ON" will appear on the screen. Press the throttle joystick down (you should feel a click and hear the transmitter beep) to exit Headless Mode. The words "HEADLESS OFF" will appear on the screen. The Head telemetry symbol is red when the aircraft is in Headless mode and green when the aircraft is not.

(4) Follow Me Mode

The transmitter has a built-in GPS module. Follow Me mode functions only when both the aircraft and the transmitter have 6 or more GPS satellites.



Mode 2

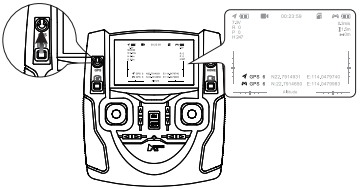


Mode 1

Press the non-throttle joystick down (you should feel a click and hear the transmitter beep) to enter Follow Me mode. The words "FOLLOW ON" will appear on the screen.
Press the non-throttle joystick down (you should feel a click and hear the transmitter beep) to exit Follow Me mode. The words "FOLLOW OFF" will appear on the screen.
When the switch is up, the screen will say "Follow Mode" in green. The aircraft will turn and face the transmitter. If the aircraft is not directly facing you, simply use the rudder to turn the aircraft head so that it is facing you.

⚠ **Follow Me Mode functions only when both the aircraft and the transmitter have 6 or more GPS satellites.**

(5) Flying In GPS Mode/Return to Home

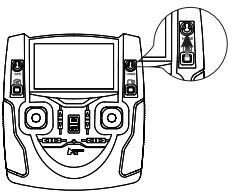


1) In GPS Mode, the aircraft must accumulate 6 or more satellites before its motors will arm. Flip the GPS switch up to turn the GPS on. Flip the GPS switch down to turn the GPS off.
2) Return to Home: the aircraft must accumulate 6 or more satellites in order for the function to be active.
3) Be sure to receive GPS satellite signal in an open and unobstructed environment. The process lasts for around 3 minutes. GPS signal strength is related to the flight environment.

(6) Return To Home Mode

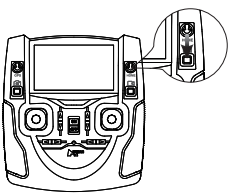
Entering Return to Home Mode

Make sure GPS mode is on (the GPS is up). Then, flip the RTH switch up to activate Return to Home mode. The flight control system will command the aircraft to return to its designated "home" point. Users can either allow the flight system to land the aircraft automatically, or exit Return to Home and land the aircraft manually.



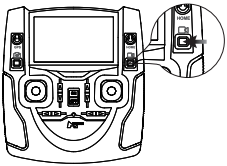
Exiting Return To Home Mode

Flip the RTH switch down to exit Return to Home mode. Continue to fly or the aircraft manually.



(7) Orbit Mode (Circle Fly)

Long press the Video button and the aircraft will begin to orbit around the transmitter's reported GPS location. The aircraft must be at least 5 meters away from the transmitter for the function to activate.



8 Failsafe

8.1 Low Power Failsafe

When the aircraft battery is low, there is likely insufficient power to support the return of the aircraft. Please land the aircraft immediately, otherwise the aircraft will fall and cause damage to the aircraft and surrounding objects. To prevent this, the aircraft flight control will use flight information to determine whether to perform a Return to Home or to land immediately.

8.2 Loss of Flight Control Failsafe

When the flight control connection between the aircraft and transmitter is lost, the aircraft will automatically land or return to where the remote control/transmitter was last located and land there. This can drastically reduce the possibility of the aircraft crashing or being lost.

Return Home point: The aircraft records the return point only after it has gained 6 or more satellites in GPS Hold mode.

Conditions that may trigger a failsafe

- Transmitter is powered off.
- The flight distance exceeds the remote control's signal transmission range.
- There is an obstacle between the remote control and aircraft.
- The flight control or transmitter signal is interrupted by strong external electronic interference.

- To ensure the successful return of the aircraft if it loses flight control connection, users must confirm that the aircraft has enough GPS satellites to fly safely in GPS mode. Users must also be certain that the flight environment is clear enough for an emergency return and landing.
- If the aircraft's GPS satellites drop below 6 for more than 20 seconds while the X4 is returning to Home Point, the aircraft will automatically descend.
- The X4 cannot avoid obstacles automatically while in Failsafe mode. Users may set the Return to Home height to avoid running the aircraft into obstructions.

H501S Frequently Asked Questions

1. Aircraft and remote control are not pairing

① Turn off both the aircraft and remote control;

② Rebind the aircraft to the remote control.

2. Cannot arm motors

① Make sure that you have completed compass calibration;

② Check whether the Return to Home button is on. Please turn off Return to Home if it is on.

③ Check whether the stick channels are centered. Please calibrate the sticks if the sticks are not centered.

④If you are flying indoors, make sure the aircraft is not flying under GPS mode.

3. Weak or nonexistent GPS signal/few or no GPS satellites

① Make sure that the aircraft is not indoors or between buildings. Please take the aircraft outdoors to receive GPS satellites/signal.

② Check whether there is a strong wireless interference nearby, such as high voltage wires or communication signal tower).

4. The aircraft does not hold altitude

① Check whether the transmitter telemetry of the aircraft are within normal range;

② Check whether the stick channels are centered. Please calibrate the sticks if the sticks are not centered.

③ Check whether the GPS function is activated and whether there are at least 6 GPS satellites.

5. Follow Me mode does not work

① Check that the aircraft is in GPS mode (Follow Me will not work without it).

② Check if both the aircraft and the transmitter have at least 6 GPS satellites.

③ Make sure the stick channels are centered.

6. Aircraft or video feed is shaking

① Check if the propellers are deformed or broken. Please replace them if they are damaged.

② Check that all aircraft body screws are firmly in place.

7. Cannot take videos or pictures

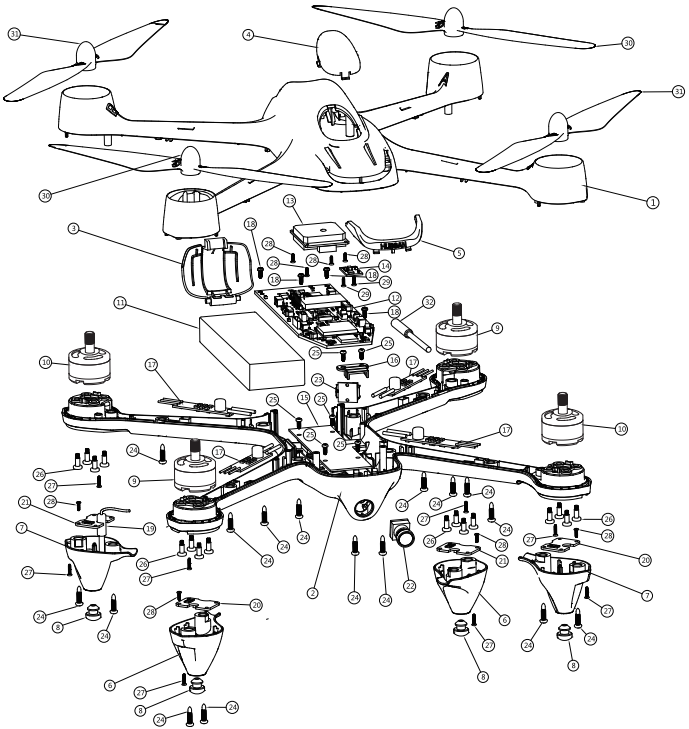
① Check to see that the SD card is installed in the aircraft prior to power on.

② Make sure the SD card is Class 10 or higher, contains 16GB or 32GB of storage and is formatted to FAT32.

8. How to retrieve the aircraft when it is accidentally lost

After the aircraft is lost, save the last known GPS coordinates and go to the coordinates then start searching.

AIRCRAFT EXPLODED VIEW



No.	Part Name	Qty.
01	Body Shell (Top)	1
02	Body Shell (Bottom)	1
03	Battery Cover	1
04	Canopy	1
05	Eye Lampshade	1
06	Motor LED Lampshade A	2
07	Motor LED Lampshade B	2
08	Rubber Foot	4
09	Motor A	2
10	Motor B	2
11	LiPo Battery	1
12	Motherboard	1
13	GPS	1
14	Compass	1
15	Camera Module	1
16	Camera Head Bracket	1

No.	Part Name	Qty.
17	ESC	4
18	Screw	4
19	5.8G Antenna	1
20	Blue LED	2
21	Red LED	2
22	Camera Head	1
23	USB	1
24	Screw	16
25	Screw	6
26	Motor Screw	16
27	Screw	8
28	Screw	8
29	Screw	2
30	Propeller A	2
31	Propeller B	2
32	2.4G Antenna	1

Parts & Accessories

H501A-01
Body Shell (Top)

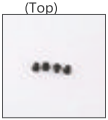
H501S-01
Body Shell (Bottom)

H501C-01
Body Shell (Top)

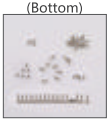
H501S-17
Lampshade

H501S-03
Canopy

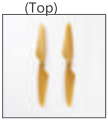
H501S-18
Motor LED Lampshade A/B



H109-04
Rubber Feet



H501S-04
Screw Set



H501S-05
Propeller A (Gold)

H501S-05B
Propeller A (Black)

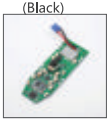
H501S-06
Propeller B (Gold)

H501S-06B
Propeller B (Black)

H501S-07
Brushless Motor A

H501S-08
Brushless Motor B

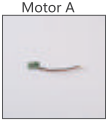
H501S-19
ESC



H501A-02
PCB motherboard

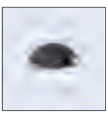
H501S-S-01
Camera Module

H501S-12
GPS module



H501S-13
Geomagnetic Compass

H501S-14
Li-Po Battery



H501C-02
Battery Cover (Black)

H501S-02
Battery Cover (White)

H301S-12
Balance Charger

H501S-16
Propeller Wrench

H501S-25
H901A Transmitter Battery

H501S-26
USB Cable

H301S-11
Charging Adapter

H501S-15
H901A Transmitter

H501A-10
USB Port

H501S-20
LED PCBA

Parts & Accessories

H501S-27
H906A
Transmitter

Disclaimer & Warning

Hubsan accepts no liability for damages, injuries or any legal responsibilities incurred directly or indirectly from the use of Hubsan products under the following conditions:

1. Damages, injuries or any legal responsibilities incurred when users are drunk, under the influence of drugs or anesthesia, dizzy, fatigued, nauseous and/or affected by other conditions both physical and mental that could impair sound judgment and/or personal ability.

2. Subjective misjudgment and/or intentional mis-operation of products.

3. Any and all mental damage, trauma, impairment, illness, compensation caused/solicited by accidents involving Hubsan products.

4. Product operation in no-fly zones (i.e. natural reserves).

5. Malfunctions or problems caused by modification, refit, replacement or use with non-Hubsan accessories/parts, failure to follow the guidance of the manual in assembly or operation.

6. Damages, injuries or any legal responsibilities caused by mechanical failures due to natural wear and tear (aircraft flight time clocking in 100 hours or above), corrosion, aging hardware, etc.

7. Continued flight after low voltage protection alarms are triggered.

8. Knowingly flying aircraft under abnormal conditions (such as when water, oil, soil, sand or other unknown material are inside the X4, the aircraft and/or transmitter are incompletely assembled, the main components have obvious faults, obvious defect or missing accessories, etc).

9. Flying in the following situations and/or environments: areas with magnetic interference (such as high voltage lines, power stations, broadcasting towers and mobile base stations), radio interference, government regulated no-fly zones, if the pilot loses sight of the X4, suffers from poor eyesight or is otherwise unsuited for operating Hubsan products.

10. Aircraft use in or exposure to bad weather, such as a rain, wind, snow, hail, lighting, tornadoes and hurricanes.

11. Products are involved in/exposed to collisions, fire, explosions, floods, tsunamis, manmade and/or natural structure collapses, ice, avalanches, debris, landslides, earthquakes, etc.

12. The acquisition, through use of Hubsan products (specifically but not limited to aircraft), of any data, audio, video that results in infringement of law and/or rights.

13. Misuse and/or alteration of batteries, product/aircraft circuits, hardware protections (including protection circuits), RC model and battery chargers.

14. Any malfunction of equipment or accessory, including memory cards, that results in the failure of an image or video to be recorded or to be recorded in a way that is machine readable.

15. Users who engage in reckless, unsafe flying (with or without sufficient training).

16. Noncompliance with precautions, instructions, information and operation guidelines/methods given through official Hubsan website announcements, product quick start guides, user manuals, etc.

17. Other losses, damages, or injuries that are not within the boundaries of Hubsan responsibility.

Advisory

1. This product complies with FCC RF radiation exposure limits set

forth for an uncontrolled environment. This product also complies with Part 15 of the FCC rules.

Operation is subject to the following two conditions:

(1) This device may not cause harmful interference.

(2) This device must accept any interference received, including interference that may cause undesired operation.

NOTE: The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications or changes to the X4. Such modifications or changes could void the user's authority to operate the product.

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.

If not installed and used in accordance with the instructions, it 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 with one or more of the following measures:

·√ Reorient or relocate the receiving antenna.

·√ Increase the distance between the aircraft and transmitter.

·√ Consult the product dealer or an experienced radio/TV technician for help.

2. Make sure that antennas are at least 20 cm away from people. The internal remote control USB interface and aircraft USB interface can only be connected using USB 2.0 and above. Do not connect to a USB power connector. Please use correct batteries, as the use of other types puts the device at risk of exploding. Follow guidelines for handling used batteries correctly. Hubsan gaurantees that this product meets basic 19991/EC requirements, as well as some other relevant directives.

Please note that this product is intended for personal use and should never be used in a manner that infringes upon or contravenes international or domestic law and regulations.

You shall not use Hubsan products to:

1) Defame, abuse, harass, stalk, threaten or otherwise violate the legal rights (such as right of privacy and publicity) of others.

2) Photograph people on private property without their consent or photograph in areas where photography is prohibited without prior authorization.

3) Use Hubsan products for illegal or inappropriate purposes (such as for espionage, military operation, unauthorized investigation and unauthorized detection).

social habits.

4) Violate or disregard applicable laws, administrative rules and social customs.

Please note:

1) Filming or recording shows, exhibitions or other commercial buildings for private purposes may in some cases result in the infringement of intellectual property rights.

2) In some regions and countries, small aerial photography aircraft are prohibited from engaging in commercial activities.

If you encounter any problems that you can not resolve during the installation process, please contact an official distributor or Hubsan Technical Support.

Please read the operating instructions carefully before use!

- Never leave units unattended when charging
- Unplug the charging cable immediately after charging
- Propellers may cause injury
- This product is not a toy and is not suitable for children under 14 years of age

WWW.HUBSAN.COM

Product name: X4 Air Basic Edition
Product Standard Number:Q/HBS 001-2017
Vendor: Shenzhen Hubsan Technology Co., Ltd
Address: 13th Floor, Block C, Shenzhen Software IndustrialBase, Xuefu Road, Nanshan District, Shenzhen, Guangdong Province, China
Email: service@hubsan.com