

HUBSAN FPV X4 PLUS

2.4GHZ RC SERIES 4 CHANNEL

5.8GHz FPV/ FIRST PERSON VIEW



CATALOG

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Electrical and electronic equipment that are supplied with batteries (including internal batteries)

WEEE Directive & Product Disposal

At the end of its serviceable life, this product should not be treated as household or general waste. It should be handed over to the applicable collection point for the recycling of electrical and electronic equipment, or returned to the supplier for disposal.

Internal / Supplied Batteries.

This symbol on the battery indicates that the battery is to be collected separately.

This battery is designed for separate collection at an appropriate collection point.



1 INTRODUCTION

Thank you for buying HUBSAN products. The X4 quadcopter is designed as an easy-to-use, full-featured RC model, capable of hovering and aerobatic flight maneuvers. Please read the manual carefully and follow all the instructions. Be sure to retain the manual for future reference, routine maintenance and tuning.

2 SAFETY NOTES

2.1 Important Notes

This RC quadcopter is not a toy.

Any improper use of this product will result in serious injury. Be aware of your personal safety, safety of others and your surrounding environment.

We recommend beginners learn to fly with more experienced pilots before attempting to fly the X4 for the first time.

2.2 Caution

The X4 quadcopter has parts that move at high speed, which poses a certain degree of danger.

Choose a wide open space without obstacles. Do not operate the X4 near buildings, crowds of people, high voltage cables, or trees to ensure the safety of yourself, others and your model.

Improper operation may cause damage to people and property.

2.3 LiPo Battery Safety Notes

The X4 is powered by a Lithium-Polymer (LiPo) battery.

If you do not plan to fly the X4 for a week or more, store the battery approximately 50% charged to maintain battery performance and battery life.

FCC Information

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 local dealer or an experienced radio/TV technician for help.

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

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.

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

H107D+ SPARE PART CHART



H107D+-A01
Body Shell



H107D+-02
Props



H107D+-03
Motor



H107D+-04
Battery set



H107D+-05
Blue LED



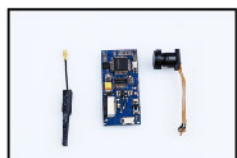
H107D+-6
Red LED



H107D+-07
Receiver PCBA board



H107D+-15
Transmitter



H107D+-08
5.8GHz Transmitter
camera module



H107D+-09
Screw set



H107D+-10
Motor sleeve set



H107D+-11
Rubber feet



H107D+-12
FFC video cable



H107D+-14
X4 charger



H107-A11
U wrench



H107C+-08
LiPo battery charger



H107D+-13
Crash pack



SAFETY ADVISORY NOTICE

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:

- ☑ Charge and store LiPo batteries in a location where a battery fire or explosion (including smoke hazard) will not endanger life or property.
- ☑ Keep LiPo batteries away from children and animals.
- ☑ Never charge the LiPo battery that has ballooned or swelled.
- ☑ Never charge the LiPo battery that has been punctured or damaged.
- ☑ After a crash, inspect the battery pack for signs of damage. Discard in accordance with your country's recycling laws.
- ☑ Never charge the LiPo battery in a moving vehicle.
- ☑ Never overcharge the LiPo battery.
- ☑ Never leave the LiPo battery unattended during recharging.
- ☑ Do not charge LiPo batteries near flammable materials or liquids.
- ☑ Ensure that charging leads are connected correctly. Reverse polarity charging can lead to battery damage or a fire or explosion.
- ☑ Have a suitable fire extinguisher (electrical type) OR a large bucket of dry sand near the charging area. Do not try to extinguish electrical (LiPo) battery fires with water.
- ☑ Reduce risks from fire/explosion by storing and charging LiPo batteries inside a suitable container.
- ☑ Protect your LiPo battery from accidental damage during storage and transportation. (Do not put battery packs in pockets or bags where they can short circuit or can come into contact with sharp or metallic objects.).
- ☑ If your LiPo battery is subjected to a shock (such as a crash), place it in a metal container and observe for signs of swelling or heating for at least 30 minutes.
- ☑ Do not attempt to disassemble or modify or repair the LiPo battery.

2.4 Prevent Moisture

The X4 contains many precision electrical components.

Store the battery and the X4 in a dry area at room temperature. Exposure to water or moisture may cause malfunction resulting in loss of responsiveness, or a crash.

2.5 Proper Operation

For safety, only use the included HUBSAN spare parts for replacement.

2.6 Always Be Aware of the Rotating Blades

When in operation, the rotor blades will be spinning at high speed. The blades are capable of inflicting serious injury or damage to property.

Be careful to keep your body and loose clothing away from the blades. Never take your eyes off the X4 or leave it unattended while it is turned on. Stop operating immediately if the X4 flies out of your view. Once landed, immediately turn off the X4 and transmitter.

2.7 Avoid Flying Alone

Beginners should avoid flying alone when learning flight skills. We recommend flying with an experienced pilot nearby in case you need help.

13. The video is not being saved to the SD card.

Always stop the video recording function then power off the battery, after that you can take out the SD card.

Always power off the quadcopter before inserting or removing the SD card. This allows the memory to be properly saved to the SD card.

14. The transmitter will not power on.

Check the battery connection.

If the transmitter battery power is low, you will need to replace with new AA batteries .

3 SAFETY CHECKS BEFORE FLYING

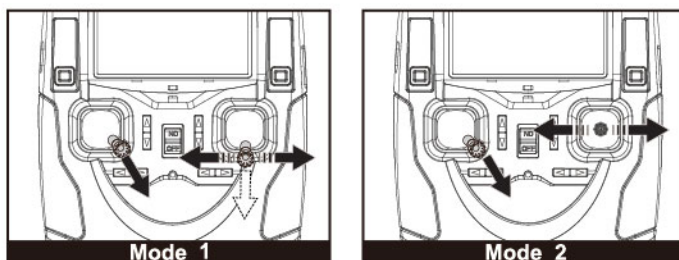
CAREFULLY INSPECT THE X4 BEFORE EVERY FLIGHT

- Before operating, check that the batteries of the transmitter and X4 are charged for the flight.
- Before turning on the transmitter, check that the throttle stick is pulled completely backwards (down position).
- Carefully check rotor blades and rotor holders. Broken parts will pose a risk of injury and hazard.
- Check the battery and power plug are securely fastened. Severe vibration during flight may detach the plug and result in loss of control.
- When turning on the unit, always turn on the transmitter first and then turn on the X4. To power off, always turn off the X4 first and then the transmitter. Improper procedure may cause loss of control of the quadcopter .

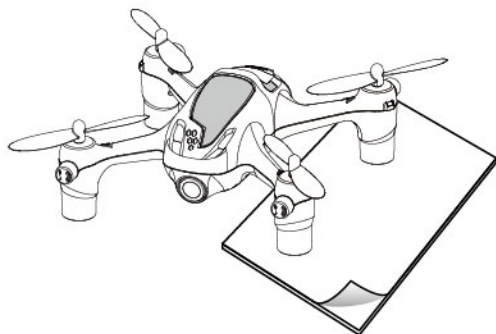
2) Set both the aileron and elevator trim to the middle so that the LCD displays 50.



3) Pull the Throttle stick fully down and move the Rudder stick to the lower right position. Quickly move the Aileron stick to the left and right repeatedly until the two headlights blink, indicating successful calibration. This calibration will reduce excessive drifting when doing level yaw turns.



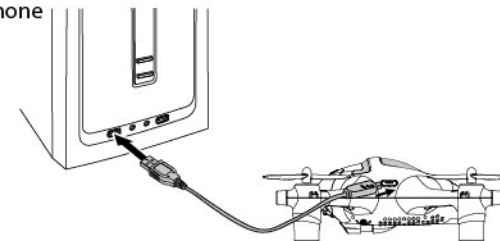
4) If the X4 still drifts to one side, add a few sheets of paper (the number of sheets will vary depending on the amount of drift) to the side of the X4 that drifts. The paper will help counterbalance and create a level offset angle.



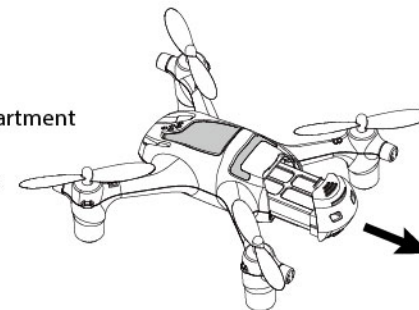
4 CHARGING THE LiPo BATTERY

4.1 3.7V 520mAh LiPo Battery

Method: Connect the X4 USB slot with USB charger, then connect the USB charger to a computer or other USB connector, such as a smartphone charger. The LED lights up while charging and turns off when charging is complete. The voltage of the USB is $+5\pm 0.5V$. The charging time is around 80mins, and the flying time is around 7mins.



1. Take out the battery with the battery compartment when you storage it.
2. Always power off the quadcopter when you charge the battery.



4.2 Safety Advisory Notice

Always partially charge your LiPo battery before storage. LiPo batteries retain the power over a reasonable period. It is not normally necessary to recharge stored LiPo batteries unless stored for periods longer than 3-6 months.

If your LiPo battery has been over-discharged, it will not be possible to recharge it again.



LiPo Battery Disposal & Recycling

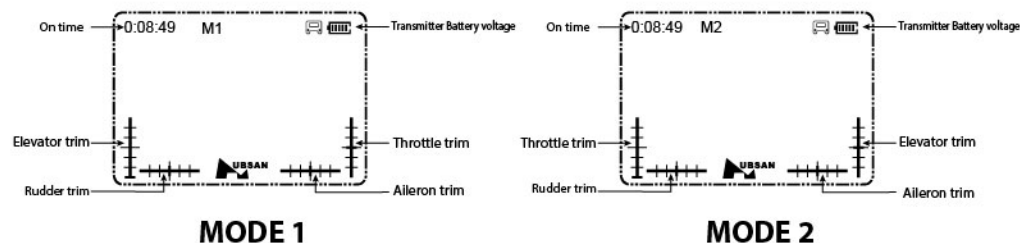


Lithium-Polymer(LiPo) batteries must not be placed in with household trash. Please contact your environmental or waste agency or the supplier of your model for local regulations and the location of your nearest LiPo battery recycling center.

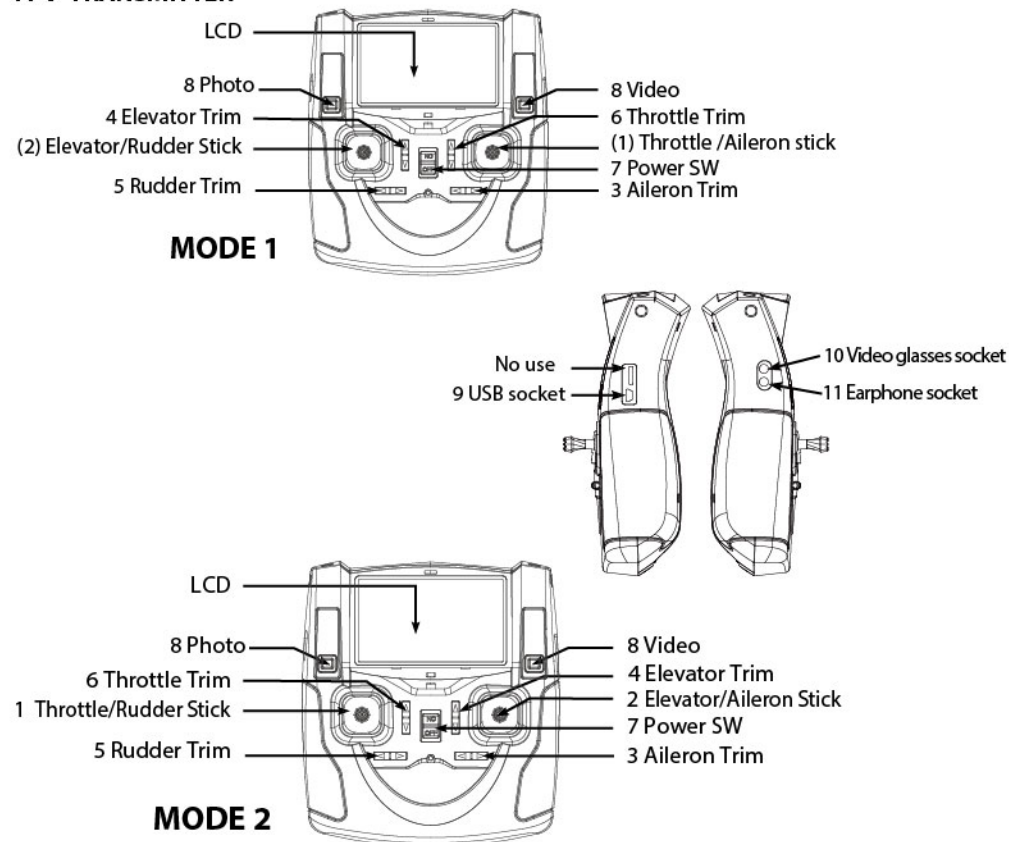
5 TRANSMITTER

5.1 Identification and Functions of the Main Menu

Main Menu



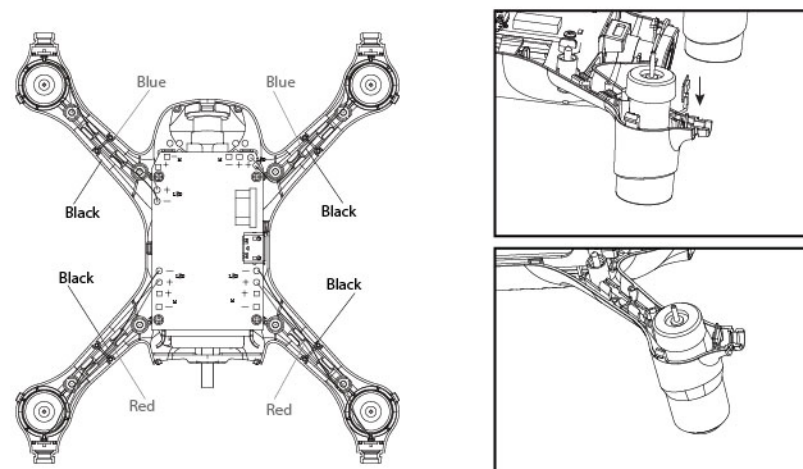
FPV TRANSMITTER



9. Removing and installing LEDs

Removal: Unscrew and remove the upper shell and the motors. Then desolder the thinner LED wires.

Installation: Solder the red/ blue wire onto the anode/positive (+) lead of the LED, and the black wire onto the cathode/negative (-) lead of the LED. Press the LED wires into the leg slots, then press the motor wires into the leg slots. Install the upper shell by screws. You can tell apart the color of the LED lights by the color of the LED wire: red wire is the red LED, blue wire is the blue LED.



10. The motors do not spin freely after a crash.

Press the shaft down from the top of the propeller and motor to remove any objects, or replace the motor.

11. One or more motors stop working.

- 1) Spin the propellers to see if it jammed the motors, make sure the propellers can spin normally.
- (2) Resolder any broken motor connections.
- (3) Replace the motor.

12. The X4 always drifts to one direction.

Calibrate the accelerometer as follows:

- 1) Before calibrating the accelerometer, make sure that the propellers, motors and body are in good condition with the battery fully charged. Ensure that the battery compartment installed correctly. Pair the X4 and transmitter, then put the X4 in Expert Mode.

1. Transmitter and X4 do not pair.

Power on the X4 after the transmitter shows "Bind to Plane". Close the Transmitter to the X4 during binding. Make sure you do not move the transmitter sticks or trim during initial power-on.

2. Transmitter LED suddenly goes out.

Replace the AA batteries in the transmitter.

3. Transmitter display is not showing the setting interface after holding down the Elevator stick for 2 seconds.

The throttle stick needs to be in the fully down position.

4. Gyro is not working well.

(1) Battery voltage is too low.

(2) Pair the X4 with the transmitter again.

(3) Land the X4 with the throttle stick in the fully down position for 3 seconds and then take off again.

5. X4 won't perform flips.

(1) Press and hold down the throttle stick for 1 seconds to enter into flip mode. Do the flip when the transmitter "beeps".

(2) LiPo power is too low. Recharge the X4.

6. Quadcopter is shaking and making noise.

Check that the motors, canopy, body and propellers are all properly positioned.

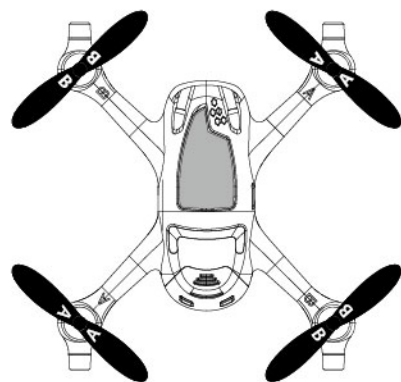
7. Switching between low and high rates on the transmitter is difficult.

Press the Elevator stick briefly to switch between the Expert Mode (transmitter shows "EXPERT MODE") and Normal Mode (transmitter shows "NORMAL MODE").

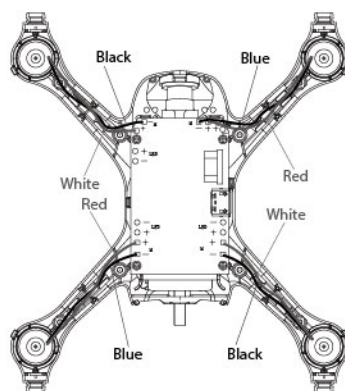
8. Cannot take off.

(1) Make sure the propellers are installed correctly. The propellers are marked with "A" (clockwise) and "B" (counterclockwise). Refer to the Top View picture below for the correct orientation.

(2) Make sure that each motor is installed correctly. There are two different motors with different motor wire colors. Refer to the Bottom View picture below for the correct order.



Top View



Bottom View

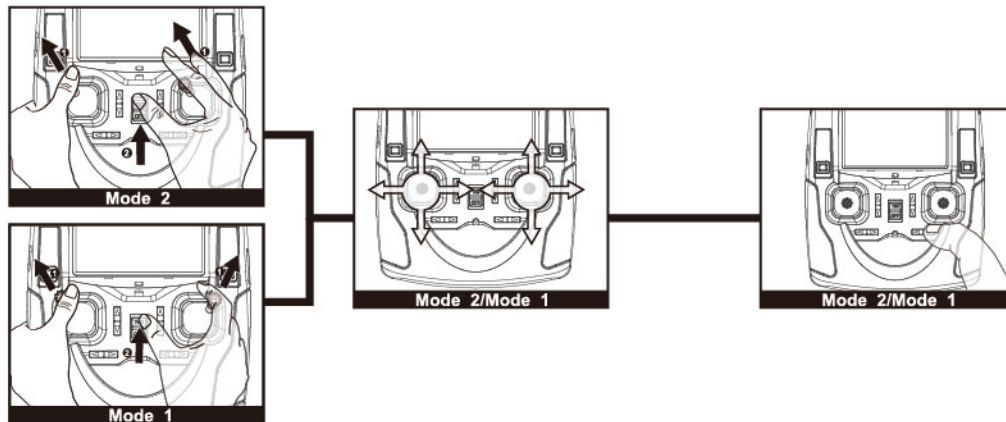
Input Key Function

S/N	Mode/ Control	Function
(1)	MODE 1 Throttle/ Aileron Stick	Move the stick forward or backward to increase or decrease speed . Move the stick left or right to make the quadcopter roll left or right to initiate a banked turn.
(2)	MODE 1 Elevator/ Rudder Stick	Move the stick forward or backward to make the quadcopter nose point up or down. Move the stick left or right to make the quadcopter yaw left or right.
1	MODE 2 Throttle/ Rudder Stick	Move the stick forward or backward to make the quadcopter ascend or descend. Move the stick left or right to rotate the quadcopter's fuselage left or right.
2	MODE 2 Elevator/ Aileron Stick	Move the stick forward or backward to make the quadcopter move forward or backward. Move the stick left or right to make the quadcopter drift sideways left or right.
3	Aileron Trim	Aileron trim adjusts for left and right drift.
4	Elevator Trim	Elevator trim adjusts for forward and backward drift.
5	Rudder Trim	Rudder trim adjusts for drift of left and right rotation or yaw.
6	Throttle Trim	Throttle trim normally left at neutral. The lower trim turns LEDs on and off.
7	Power Switch	Push to ON to turn on the transmitter. Push to OFF to turn off.
8	Photo/ Video	Press photo button to shoot a photo; Press video button to start recording videos, press again to stop the recording.
9	USB socket	Only for engineer to upgrade the software, please do not use it to connect computer
10	Video glasses socket	Connect Hubsan video glasses, which not included and need purchase
11	Earphone socket	Connect earphone after we upgrade the transmitter, now there is no voice transmission

5.2 Transmitter Stick Calibration

Mode 2: Push both sticks to the upper left position and hold. Then power on the transmitter. Rotate both sticks twice. Hold down any trim until the LED on the transmitter blinks red, indicating a successful calibration.

Mode 1: Push the left stick to the upper left position and right stick to the upper right position and hold, then power on the transmitter. Rotate both sticks twice. Hold down any trim until the LED on the transmitter blinks red, indicating a successful calibration.



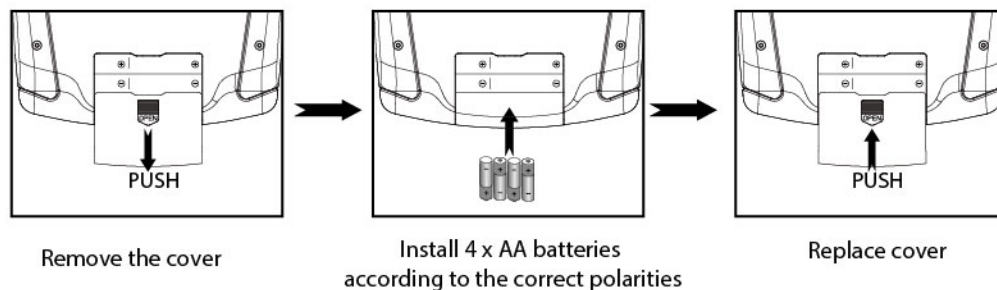
You can change the mode as you like by following the above method.

5.3 Transmitter Battery Installation

Notice: Do not mix old and new batteries.

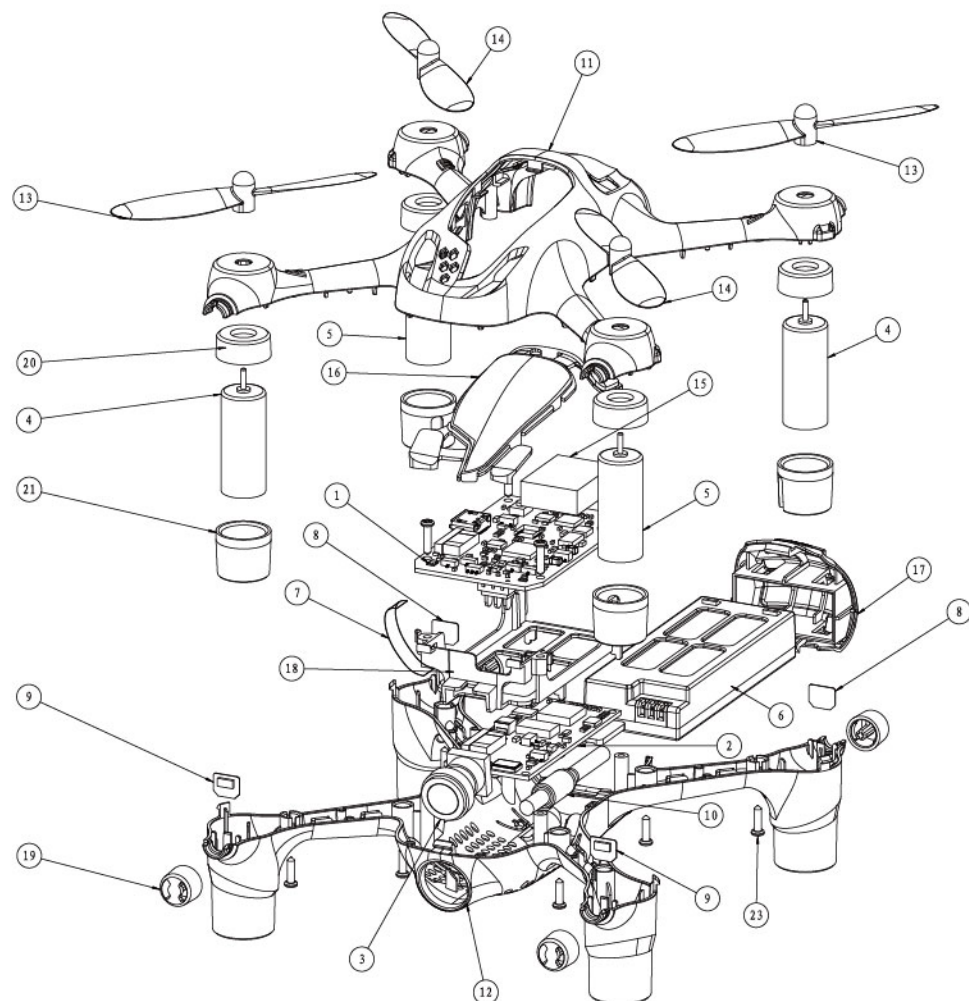
Do not mix different types of batteries.

Do not charge non-rechargeable batteries.



No	PART NAME	QTY	No	PART NAME	QTY
1	PCBA-Receiver board	1	13	Black blade A	2
2	5.8GHz TX camera module	1	14	Black blade B	2
3	720P camera module	1	15	Barometer sponge	1
4	820 motors (clockwise)	2	16	Transparent canopy	1
5	820 motors (counterclockwise)	2	17	Battery compartment cover	1
6	LiPo battery (3.7V 520mAh)	1	18	Battery compartment	1
7	FFC video cable	1	19	Transparent LED hood	4
8	Red LED light cable	2	20	Motor upper rubber set	4
9	Blue LED light cable	2	21	Motor lower rubber set	4
10	5.8GHz antenna	1	22	Screw	4
11	Upper shell	1	23	Screw	8
12	Lower shell	1			

Exploded View



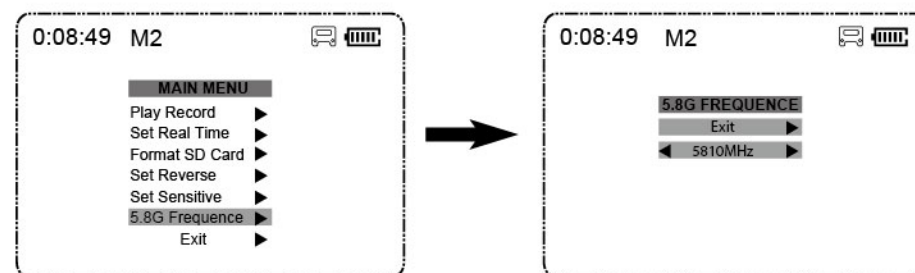
Notice:

1. The video will stop when the transmitter battery is low.
2. When the SD card is full, it can't record anymore and the screen will display "SD Full".
3. It is best to use a 4G+, and class 4+ SD card. Format in the transmitter before use.
4. When the power on the transmitter is low, the red LED will blink quickly and the LCD screen will turn black. The transmitter and X4 will not bind if the batteries are low. Please replace with new batteries.
5. If the batteries in the transmitter are running low whilst flying the X4, you will still have control. Please land the X4 and then replace batteries in the transmitter.

5.4 Frequency selectable 5.8Ghz

Your transmitter will automatically find the best frequency to ensure the quality live video transmission. in case there is any interference in your location, you can change the setting from the range 5.725 to 5.875 Ghz to get longer range and better video transmission.

Pull the throttle stick to the lowest position. Press and hold the Elevator stick for 1 second to enter setting status, move the stick up/down to choose 5.8G FREQUENCY, push the ELEVATOR stick to the right and move the stick up/down to select the frequency set, set what frequency you need by pushing the stick left/right, exit this setting as the displayed arrows show. Or hold down the ELEVATOR stick for 2 seconds to exit.



Play Record
Set Real Time
Format SD Card

These three functions will not work on this quadcopter as they are for other quadcopter.

6 CAMERA RECORDING

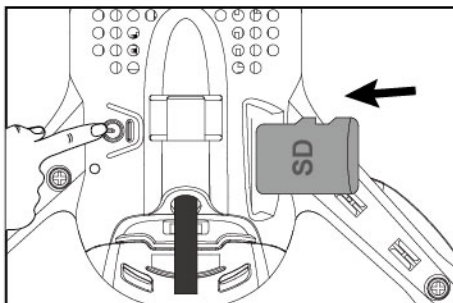
Note: Always power off the quadcopter before inserting or removing the SD card. Always stop the video recording function and power off the battery firstly, and then you can take out the SD card.

6.1 Use X4 power button to record videos:

6.1.1 Press the button on the side of the quadcopter (near the SD card slot) to start recording. A red light inside the SD card slot will blink and the two red LEDs on the X4 will blink alternately when recording started.

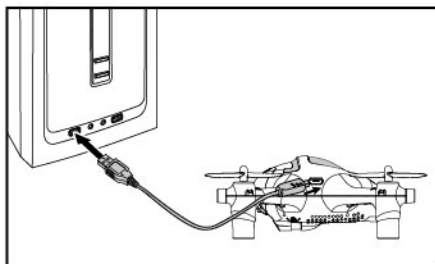
6.1.2 Press the button again to stop recording. The red lights will stop blinking and the video will be saved.

***Press the power button for 2 seconds will power off the X4.**



Note: Carefully and properly orient the SD card for insertion in the X4 (See the picture above). Avoid removing the SD card and re-inserting again too quickly otherwise the recording module will not work properly

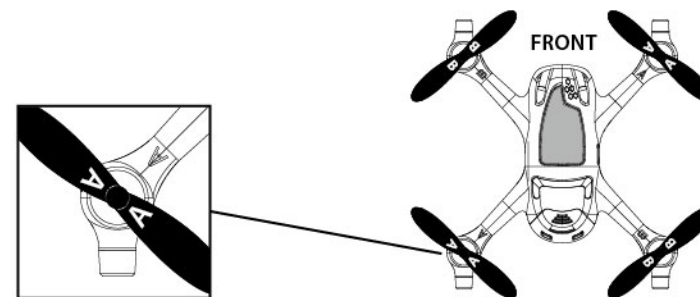
WARNING: First format the SD card in computer by connect the quadcopter with the USB cable or use SD card reader.



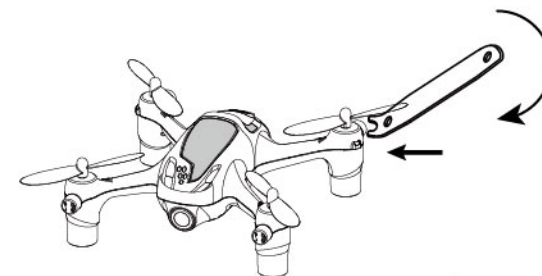
Note: When the X4 battery is low, performing flip is not possible.

9 REPLACING PROPELLERS

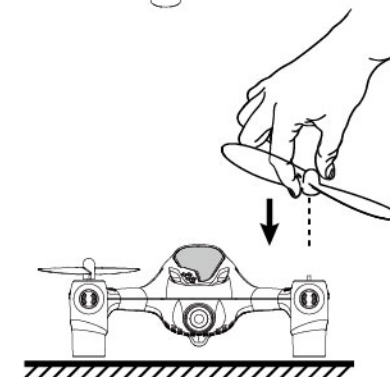
The X4's propellers are not identical. Each propeller is labeled with an A or B. When installing replacement propellers, be sure to install as shown below. The X4 will not fly but will flip and crash if the propellers are not installed correctly.



Remove Propellers: Hold the propeller, insert the U wrench under the propeller, pull up and the propeller will easily come off the motor shaft.

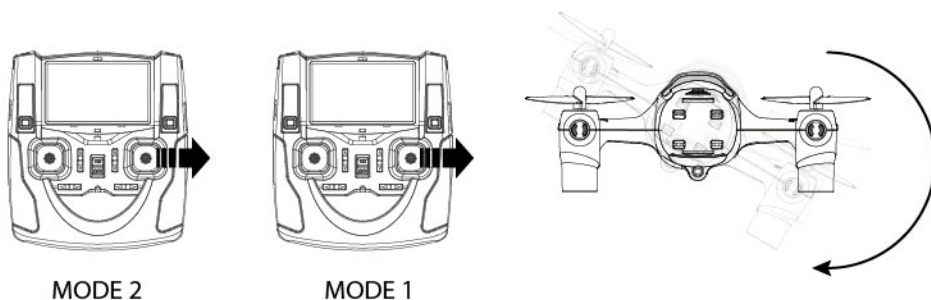


Install Propellers: Pinch the propeller hub, align the hole to the motor shaft and press it straight down firmly but gently.



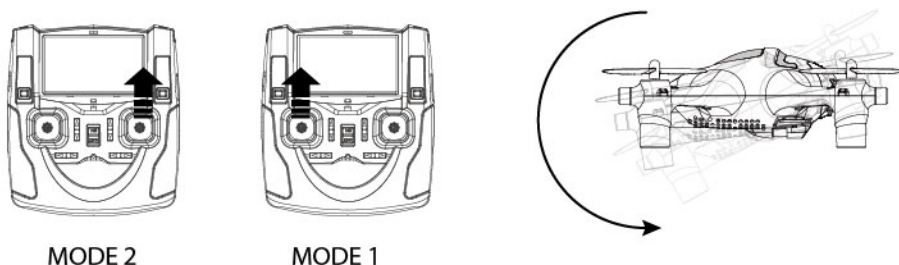
8.4.2 Right Flip

Push the Aileron stick to the right. Release the stick to the center after the flip.



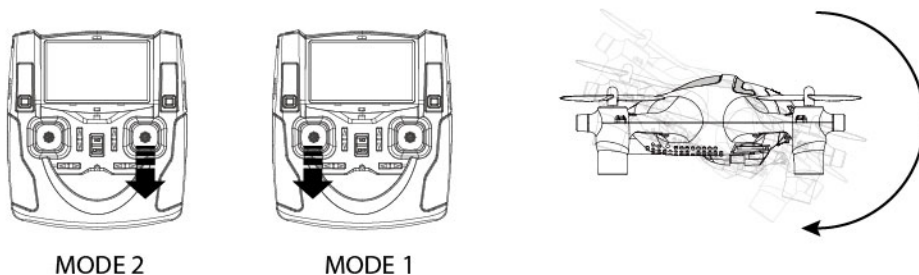
8.4.3 Forward Flip

Pull the Elevator stick forward. Release the stick to the center after the flip.



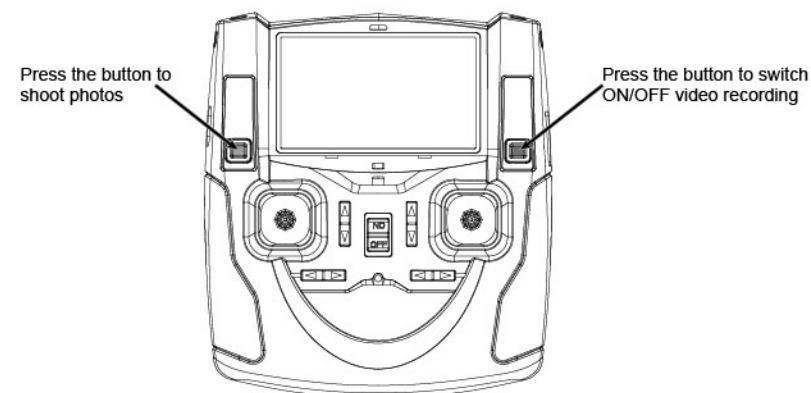
8.4.4 Backward Flip

Push the Elevator stick backward. Release the stick to the center after the flip.

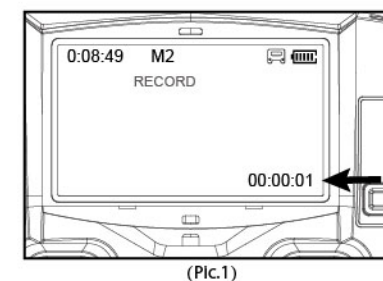


6.2 Use transmitter button to record videos/ take photos:

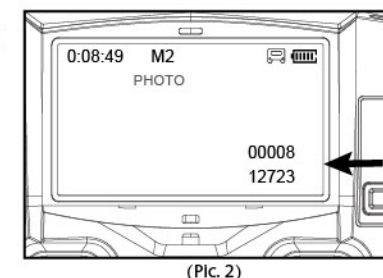
You can also start the recording/ take photos by using the button on the transmitter, see below.



6.2.1 Press the video button. The red recording time is displayed in the bottom of the screen when recording is started (see pic. 1) and the red LEDs on the X4 will blink alternately. Press the video button again. The white time indicates the left recording space.



6.2.2 Press photo button. The blue numbers are displayed in the bottom of the screen (see pic. 2) and the red LEDs will blink one time. The first line means photo quantity that shoot. The second line indicates the left space for photos.



*Power off both the transmitter and the X4 before inserting or removing the SD card.

*If you don't want to save the video, just power off the quad copter before you press the button again.

6.3 Play the record

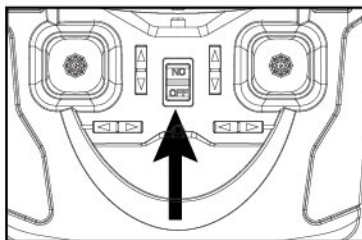
You can play the videos or review the photos by connect the quadcopter to computer with the USB cable or use SD card reader.

7 FLY THE X4

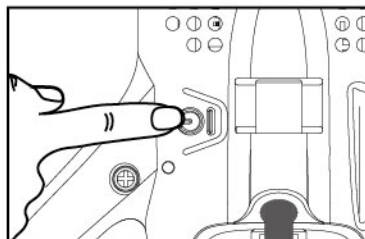
7.1 Power-On Safety Mode

Your X4's flight controller is designed with a Power-On safety feature that ensures that the X4's motor will not start unless it detects a suitable control signal when the LiPo battery is connected.

7.1.1 Power on the transmitter and the red LED will blink. Do not move any other stick or trim before the transmitter and X4 finish pairing, or the X4 will drift. The transmitter LED will turn green after pairing is successfully completed.



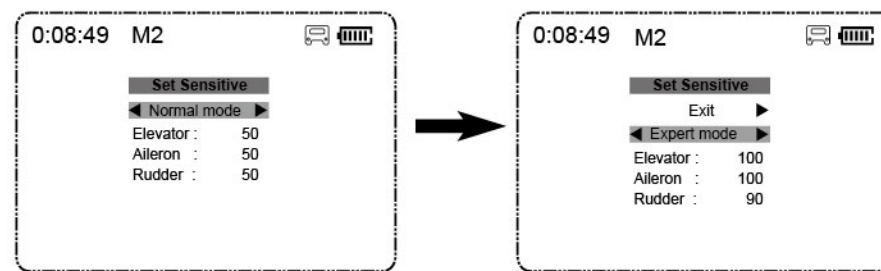
7.1.2 Press the power button under the quadcopter. Make sure the battery compartment pushed into the bottom. Put the X4 on a level surface before flight, or the X4 will drift.



8.3 EXPERT MODE

In expert mode, the sensitivity can be adjusted even further (up to 100) to give the user even more ability to manoeuvre the aircraft. Follow instructions below to switch this on/off.

Pull the throttle stick to the lowest position. Press and hold the Elevator stick for 1 second to enter setting status, move the stick up/down to choose **SET SENSITIVE**, push the ELEVATOR stick to the right, choose NORMAL MODE, push the ELEVATOR stick to the right to enter into the expert mode, press the elevator/ aileron/ rudder trim to set the sensitivity. Push the ELEVATOR stick to the right to exit this set. Hold down the ELEVATOR stick for 2 seconds to exit.

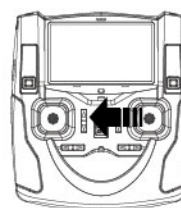


8.4 Aerial Flip

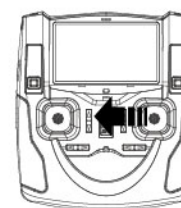
Press and hold down the Throttle stick for 1 second to enter Flip Mode, indicated by "beeps". The beeps will last for 2 seconds. In this 2 seconds, push the accordance sticks to perform the flips.

8.4.1 Left Flip

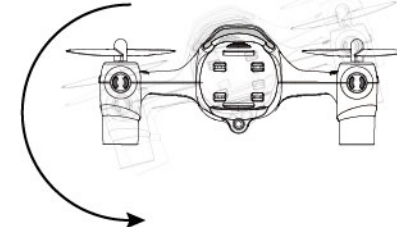
Push the Aileron stick to the left. Release the stick to the center position after the flip.



MODE 2



MODE 1

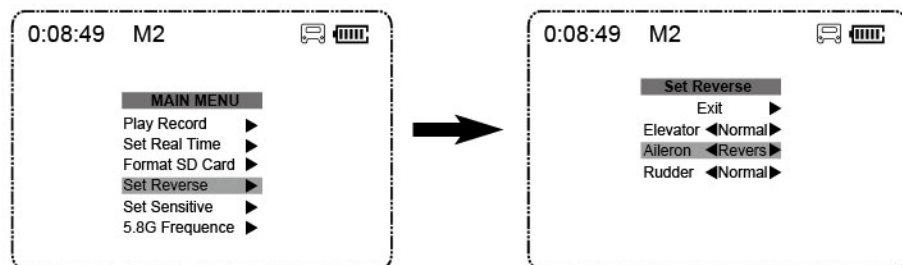


8 ADVANCED PERFORMANCE SETUP

8.1 Reversing channel setup

If you would like to reverse any of the stick functions due to personal preference then follow the instructions below. Be aware that this will change the controls back to front.

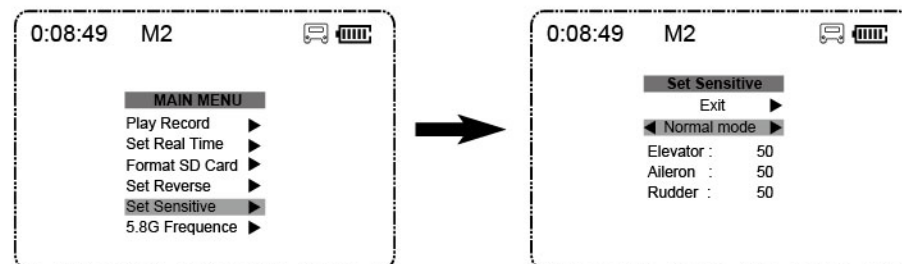
Pull the throttle stick to the lowest position. Press and hold the Elevator stick for 1 second to enter setting status, move the stick up/down to choose **SET REVERSE**, push the ELEVATOR stick to the right, move it up/down to choose and push right to confirm or exit. Hold down the ELEVATOR stick for 2 seconds to exit.



8.2 SENSITIVITY SET UP

If you would like to change the sensitivity of any of the stick functions then follow instructions below. A higher sensitivity value will enable larger/faster movement of the aircraft, while a lower sensitivity value will enable smaller/slower movement.

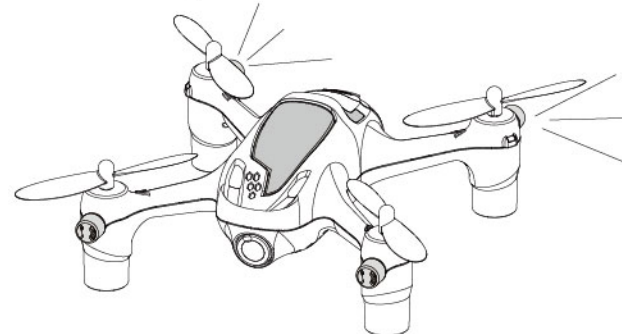
Pull the throttle stick to the lowest position. Press and hold the Elevator stick for 1 second to enter setting status, move the stick up/down to choose **SET SENSITIVE**, push the ELEVATOR stick to the right, press the elevator/ aileron/ rudder trim to set the sensitivity. Push the elevator stick to the right to exit. Hold down the ELEVATOR stick for 2 seconds to exit the setup menu.



7.1.3 LED Indicators

After a "beep", the red LED on the transmitter turns green and the red LED lights on the X4 turn steadily, indicating successful pairing.

Low Battery Alarm: The two red LEDs will blink at the same time and the X4 will descend and land down automatically to 5meters or lower from the takeoff point when the X4 battery is low.



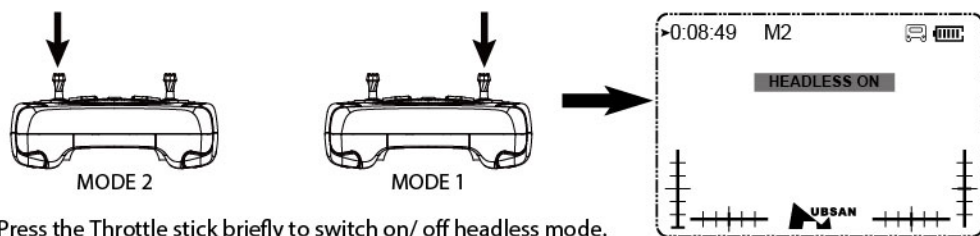
First Pilot View(FPV) Instructions:

For those just starting FPV with the Hubsan H107D please start **S-L-O-W-L-Y** and use the following guidance:

1. Learn how to fly the X4 and maintain control both indoors and outdoors at an altitude no higher than 10 feet before you advance to FPV flight and higher altitudes. A large part of being successful in FPV is training your fingers and brain to know how the model will respond with your inputs so you can predetermine your stick movements. It is very different to look at an LCD or goggles and determine hover, altitude and speed. You will need to visually correlate and remember how the model reacts with stick movements and also the differences of those movements when in no wind and windy conditions.
2. When flying indoors or outdoors allow for plenty of free space with no couches, tables, trees buildings or other objects that you might fly into. A large area with soft grass is a perfect outdoor area to learn to fly. An asphalt parking lot is a terrible place to learn to fly. It is recommended that you use a safety spotter for your FPV flights!
3. First learn to master hovering, then master flying a square or rectangular pattern by recognizing features that are picked out before you begin your FPV flight.

7.2 Headless Mode

Headless mode means the X4 will default any direction as its head in front of the transmitter. The blue lights on the X4 will blink and "HEADLESS ON" shows on the LCD screen when the X4 is in headless mode.



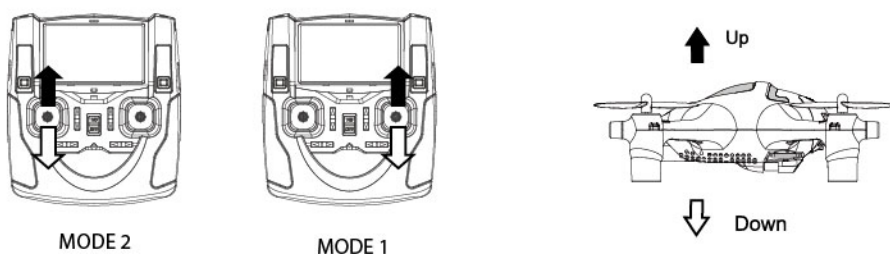
Press the Throttle stick briefly to switch on/ off headless mode.

Press the Throttle stick to enter headless Mode, indicated by two "beeps".

Press the Throttle stick again to exit headless Mode, indicated by one "beep".

7.3 Transmitter Sticks And X4 Control Responses

CAUTION: To avoid loss of control, always move the transmitter sticks slowly. Be aware that control inputs will reduce available lift. Wait a few seconds for the X4 to recover the height.



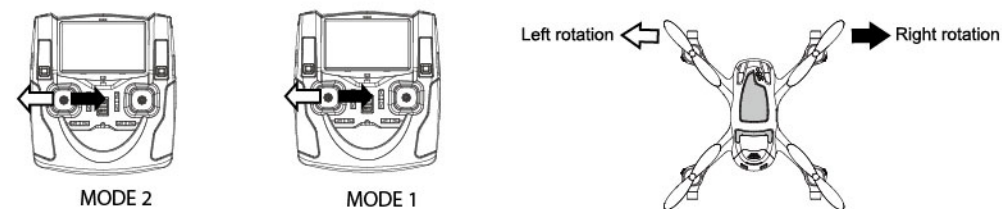
Throttle increases/decreases the flying height of your quadcopter.

This quadcopter can hold the altitude in the air.

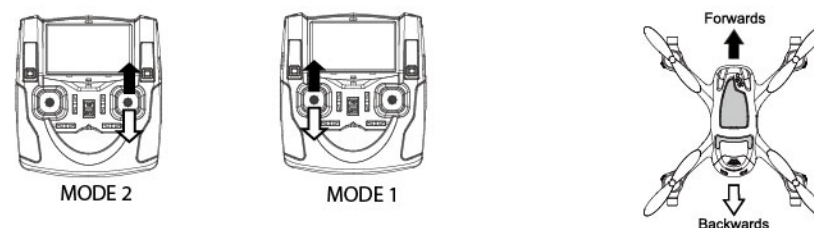
Method: Push the throttle stick up and the quadcopter will rise;

Release the stick to the central position, the quadcopter will hover automatically and hold its altitude;

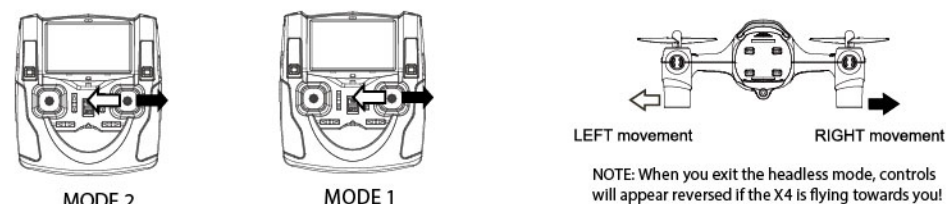
Pull the stick down and the quadcopter will fall.



Rudder rotates your quadcopter's fuselage left or right.



Elevator moves your quadcopter forward and backward.



NOTE: When you exit the headless mode, controls will appear reversed if the X4 is flying towards you!

Aileron moves your quadcopter left and right.

7.4 Start/stop the motors

When you need to stop the motors quickly you can use both stickers to stop the motors.

Stop the motors

Method: Pull the two sticks again as in the picture. Release them after the motors stop.

Start the motors

Method: Pull the two sticks as the picture shows. Release them after the motors start.

Note: You can also use the throttle stick to start/ stop the motors. The X4 will ascend or descend slowly.



Always stop the motors before power off the transmitter. If you power off the transmitter first, the motors will keep on for 3-4 minutes and the X4 will land down slowly.

