FW450L Helicopter

Smart Heli

Quick Start Guide

V1.00

FLY WING

Flight safety notice

Flywing suggests that users enjoy flying in a reasonable safe environment. The knowledge of flight safety is very important for the safety of yourself, the surrounding people and the environment.

1. Fly in open areas away from buildings, trees, High voltage power cable lines, crowd, water surface, and any near by obstacle.
2. Please keep the remote control transmitter in hand, even when using the Auto Flight / Auto Landing and Auto Return Home function, to control the helicopter at any time.
3. Please fly the helicopter within your sight range at all times。
4. To ensure flight safety, please do not fly the helicopter beyond 120 meters above the ground. If there are no flying height restrictions or if the restriction is lower than 120 meters in your area, please follow the regulations

Please visit http://www.flywingrc.com Watch flight safety teaching videos and acquire more comprehensive safety knowledge such as flight restrictions

● PreFlight safety inspection

Please check the helicopter carefully before taking off. Precautions are as follows:

1. Check whether the main blades ,tail blades, helicopter body and landing skids are damaged or distorted, please replace them with the genuine Fly Wing RC parts.
2. Check whether the flight control linkages and fuselage are fixed firmly, and whether the GPS unit is correctly fixed on the helicopter tail boom (horizontally placed, straight line behind the main mast) H1 Unit is fixed firmly on the double sided foam pad either at the front or at the back of the main mast. Pay attention to the direction of the arrow which has to be pointed towards the direction of travel
3. Check whether the power of the helicopter and the transmitter are sufficient. After the transmitter is powered on, turn on the power supply of the helicopter, and check whether the helicopter passes the self inspection test (the rotor head and swashplate move regularly for several seconds)

● Flight environment requirements

1. Do not fly in bad weather, such as strong wind (10m / s), rain, snow and foggy weather, etc.
2. Choose an open place with no tall buildings around the flight pathway. Any large number of buildings using steel bars will affect the effectiveness of compass function , and they will block GPS signal, resulting in poor positioning of helicopter and even unable to receive the signals.
3. Please do not fly in any area with high voltage cable line, radio tele-communication station, mobile phone transmission tower or Wi-Fi, to avoid signal interference of your transmitter and receiver.
4. Please take extra caution when flying above 6000 meters as performance of the battery and the motor power system of the helicopter will be reduced to cold temperature and thinner air density.

●Flight operation requirements

5. Fly within your sight of range （VLOS）
6. Keep away from rotating blades and motor.
7. Activating the stop switch during flight will cause the helicopter to fall. Please use this function only in case of emergency.
8. During the flight, please do not answer or make phone calls, send short messages or use other mobile devices that may interfere with your helicopter operation.
9. Do not operate the helicopter under the influence of alcohol or drugs.
10. Please return home as soon as possible when low power warning appears from the transmitter.
11. In the process of runaway return, when the radio signal becomes normal again, the helicopter landing position can be controlled by the transmitter.
12. After landing, the helicopter electronic power should be stopped first and then the transmitter should be turned off to avoid any loss of transmitter signal.
13. When using the GPS Autopilot flight mode and Return Home functions, you should always be prepared to control the helicopter manually by turning the transmitter 3D mode switch in case of Emergency . Please note that the helicopter is still in the Auto GPS flight mode state at this time. If you need to completely exit the flight mode, please turn the flight stop button on the transmitter.
14. Please keep control of the helicopter all the way. Do not rely on GPS to provide information. In specific flight mode or flight environment, GPS system can not work normally, such as precise landing or active braking

and other functions will not be available. Please make a reasonable judgment on the flight condition by naked eye observation, and set the corresponding flight and return altitude according to the flight environment.

Disclaimer:

The remote control model is not a toy. This product is only suitable to adults who have experience in correct model helicopter assembly, setting, commissioning and operation. The helicopter should only be flown in legal remote control flying field. This product is not suitable for children or those who do not have experience in remote control model helicopters. For inexperience or a new beginner, the helicopter must be operated under the direct supervision of someone with considerable skills or expertise. The remote control model product of this specification belongs to the operator who has high operational skills. Improper or unfamiliar use of this product may cause serious harm to yourself and others, or even death. If the product is disassembled , it can cause loss of parts in various situations. If the product is defective due to improper use, it will not be possible for us to replace with the new product or to accept return of the item ,under the warranty conditions. The dealer is unable to correct the abnormal loss of parts and components, because of the end user improper installation and setting methods, modification of the goods (including use of the non-original parts), other equipment that does not meet the specifications, and poor operation. For any damage, accident or injury caused,. Buyers and Operators assume full responsibility at the time of purchase. Those who can not operate any professional remote-controlled model helicopters, they shall not operate this product. At the same time, the operator must operate in the legal remote control model flying site, pay attention to the personal safety of himself and others and strictly abide by and comply with national and local laws and regulations. The whole machine hood is a fragile product. Many glass fiber parts are surface painting products. Due to shrinkage, temperature and transportation process, there may be problem of blasting and cracking on these items. This is the nature of the product itself. We can not be responsible for any serious problem after face-to-face courier signed direct delivery of the product to you, Please be aware of terms and conditions before you buy this sophisticated high tech radio control helicopter!

⚠Warning Through reading of the entire user manual to familiarize with the product functions before operation. If the product is not operated correctly, it may cause serious injury to yourself or others, or cause product damage and property loss. This product is complex, it needs to be familiar with it for a period of time before safe usage, and you need to have some basic knowledge before operation. If there is no strong safety awareness, improper operation may lead to product damage and property loss, and even cause serious injury to oneself or others. This product is not suitable for children. Do not use parts not provided or recommended by our company. You must strictly follow the company's guidelines to install and use thees products. This guidance document contains safety, operation and maintenance instructions. Be sure to read all instructions and warnings in the user's manual carefully before assembling, setting up and using. You have read and understood all the contents of this document before using it.

To avoid possible injury and loss, it is important to observe the following items:

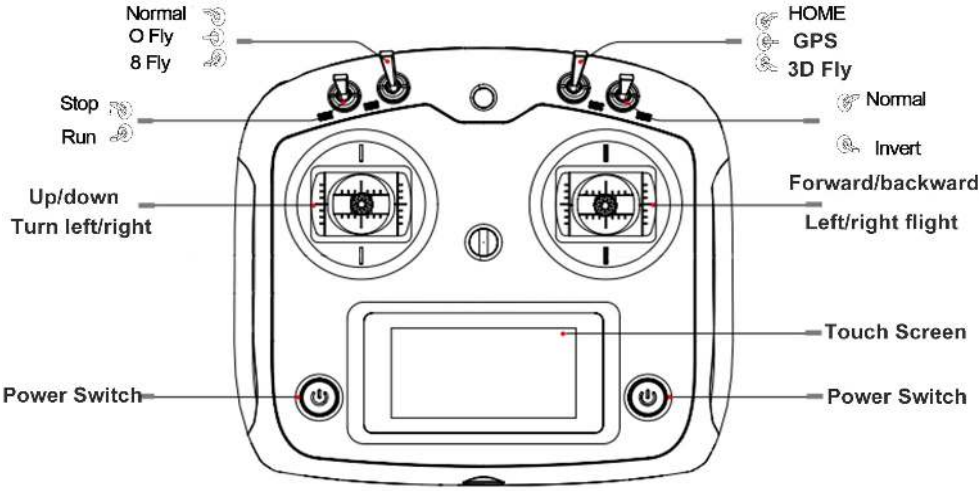
1. Users are not allowed to operate this product in any condition of poor physical or mental state such as drinking, drug taking, drug anesthesia, dizziness and fatigue, nausea, etc.
2. Except in special circumstances (such as the helicopter may hit a crowd), it is forbidden to turn off the engine during the flight
3. After landing, be sure to turn off the helicopter before turning off the remote control transmitter.
4. It is forbidden to use this product to throw or launch any dangerous object to buildings, people or animals.
5. The user shall immediately stop using the helicopter with abnormal flight status in case of accident (such as collision or overturning). The user shall not continue to use the helicopter until it is repaired by the company or its recommended maintenance center.

About transmitter

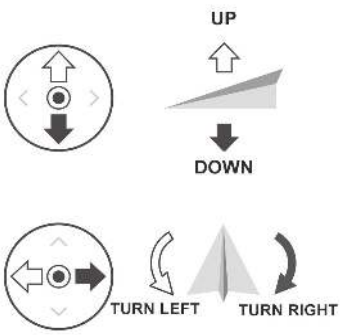
FW450L using FS-i6S transmitter which is 2.4GHz, 1km* control distance。

Please don't touch your transmitter menu it has been factory set, if the setting is changed incorrectly, you will not be able to start the helicopter.

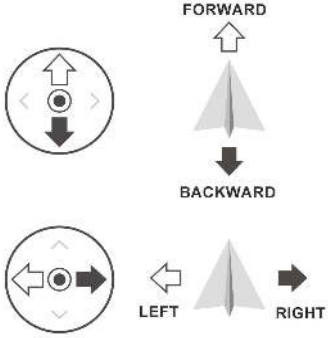
Transmitter overview



Left stick



Right Stick

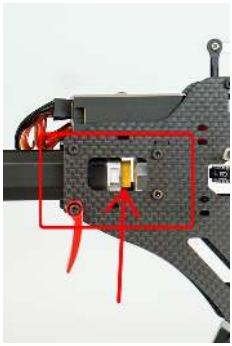
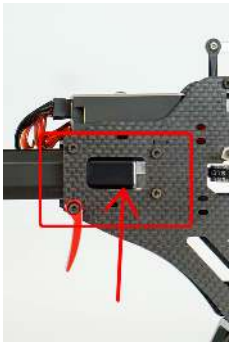
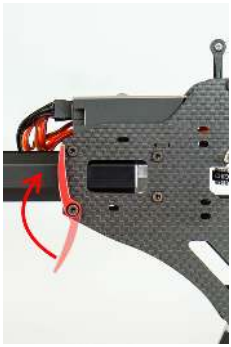


* For the first time, you need to connect a computer to activate this function

* The maximum communication distance is measured in the experimental environment for reference only.

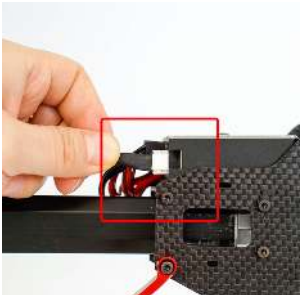
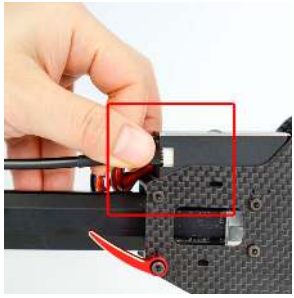
1. Insert tail tube

Take out the tail tube and insert it into the fixing slot at the rear of the fuselage. After confirming that it is inserted in place, rotate the fixed wrench until locked.

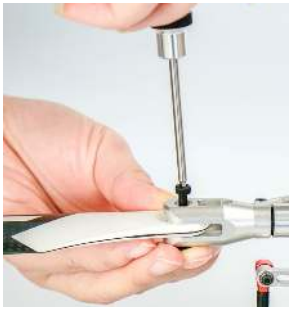
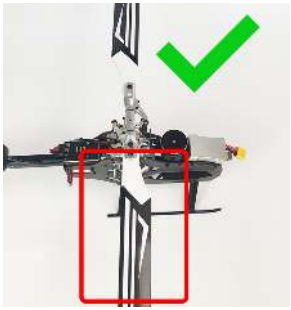
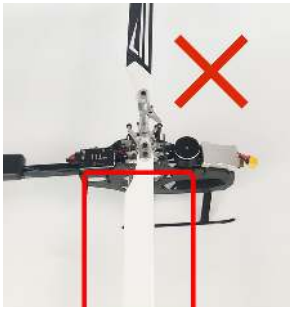
2.Insert GPS

Insert the GPS wire into the flight control GPS interface correctly, confirm that the self-locking bayonet is in place, and confirm that the GPS unit is fixed on the tail pipe.

3. Install blade

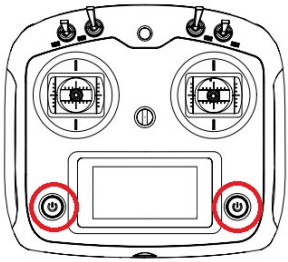
Install the blade as shown in the figure until there is slight resistance when the blade folds.

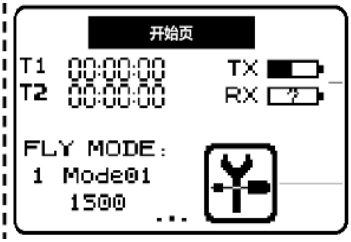




Operate 450L Helicopter

1. Starting transmitter

Hold the two power buttons at the same time for two seconds to turn on the transmitter. If the transmitter shows any warning， please flip the motor run switch to top position("motor off action")then turn the mode switch to GPS position.

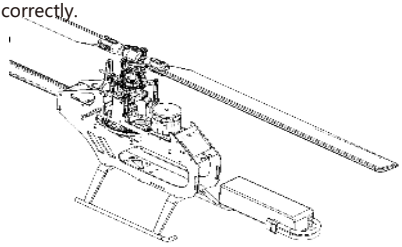




TX-transmitter power
RX-Receiver connection prompt
， NO Helicopter power - Setting （No touch）

2. Helicopter Power

Please insert the battery into the abdomen of the helicopter . Be sure that the battery strap is securely fastened. Connect the yellow plug of the battery to the Helicopter. Keep the helicopter stationary. After the initializing movement of the swash plate and the rotor head is completed, install the canopy correctly.

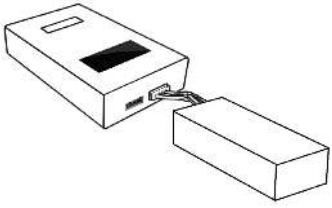


The yellow plug of the battery is connected to the side plug of the helicopter

3. Charging

Connect the charger to an AC power source (100~240 V, 50/60 Hz; use a power adapter if necessary).

- Please use the official charger we provide you to charge. Take out the flight battery before charging.
- Make sure the battery temperature is normal and connect the battery white jstx balance lead to the charger. (yellow main power plug is not inserted)
- When the charger is connected, the charger screen will display the voltage and when full, the symbol FLL will be displayed.
- Do not plug in 3s-4s at the same time. Only one battery can be charged at a time. If the charger shows the symbol of "e.11" , the battery feed is damaged (a single cell is less than 3.4V).



4. Ready to fly

Please place the helicopter in a flat open outdoor area with user facing the tail.

- GPS mode unlock / take off (take mode2 as an example)

1、Turn the transmitter motor run switch to stop position, dial mode switch to GPS , and the H1 light is flashing yellow.

2、Move the helicopter to the outdoor open environment without trees and buildings, and power on to wait for the GPS satellite signal search.

3、After waiting for a few minutes, the light changes from flashing yellow to solid green . The helicopter was positioned successfully.

4、Unlock as shown in the figure and hold for about 5 seconds until the H1 flight control unit flashes green light.

5、While the green light is flashing, turn the stop switch to run position , and the helicopter motor will start the light is solid green, repeat the unlock procedure again.

6、When the helicopter rotor head speed is stable, push the throttle stick upwards to take off and raise the helicopter above ground , then release the throttle stick and you can hover appropriately.

- Do not stop the motor during flight, otherwise the helicopter will crash. Unless there are special circumstances (e.g. the helicopter may collide with a crowd), it is necessary to stop the motor urgently to minimize the injury.
- The helicopter will not be able to take off in case of serious low power alarm.
- After starting the helicopter motor, the blade will rotate at high speed, which is dangerous. The operator shall keep a certain distance from the helicopter and keep the helicopter away from the crowd, buildings, trees or other obstructions to avoid collision.

  After landing, please turn off the helicopter power first and then the transmitter.

- Unlock / take off in 3D mode (take mode 2 as an example)

1、Dial the motor run switch to stop position, dial the mode switch to 3D position,

2、Move the helicopter to the outdoor open environment without trees and buildings. Power on, and the H1 flight control light is solid blue.

3、Unlock as shown in the figure and hold for about 5 seconds until the flight control light is flashing blue.

4、During the blue light is flashing, Dial motor switch stick to run position,and the helicopter motor will run. Push throttle stick upwards to take off.

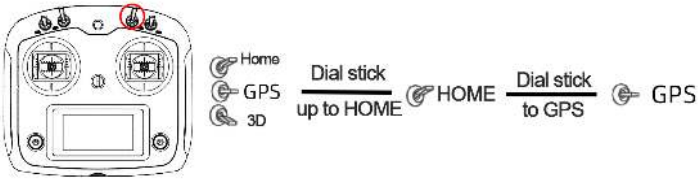
About the use of fully manual 3D mode.
When the helicopter is flying in the air, switch from GPS mode switch to 3D mode, the helicopter will fall down quickly. If you are a novice, it is very dangerous to operate this function, and the helicopter will crash. Experienced pilots can quickly and manually increase pitch control after switching to 3D mode.

5. Home Mode

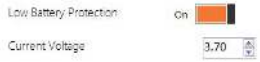
If you need to use the home mode (one key to return, low power return), please make sure that the GPS satellite signal is good before take-off, and there are no buildings or trees around the take-off point that hinder the return.

- **Smart return:**
  Dial the switch to HOME,the helicopter return automatically. Then dial to GPS mode to terminate the return flight.
  - Low power return: when the power system judges that the current power is low, it will auto return and land. Please ensure that the current distance of the helicopter conforms to the range of the helicopter's remaining power.
  - When returning with low power, the helicopter will auto rise up to 15 meters, and then return, which isn't controlled by the operator. If there are obstacles (trees or buildings)on the way back, the auto flight needs to be terminated

- **Ways to stop low power**
  - If you want to stop the low power return, please flick the switch to HOME, and then flick the switch to GPS. You can manually control the helicopter after landing and manually turn off the motor. During this period, the helicopter will not return with low power until the helicopter is powered off.



- Users can increase or decrease the return voltage according to the flight demand, or turn off the low power return function.



It is recommended to set the return voltage between 3.65 V and 3.75 V, which will affect the actual flight duration and return distance

- When the transmitter signal is normal, the transmitter can be used to control the landing position during the return landing.

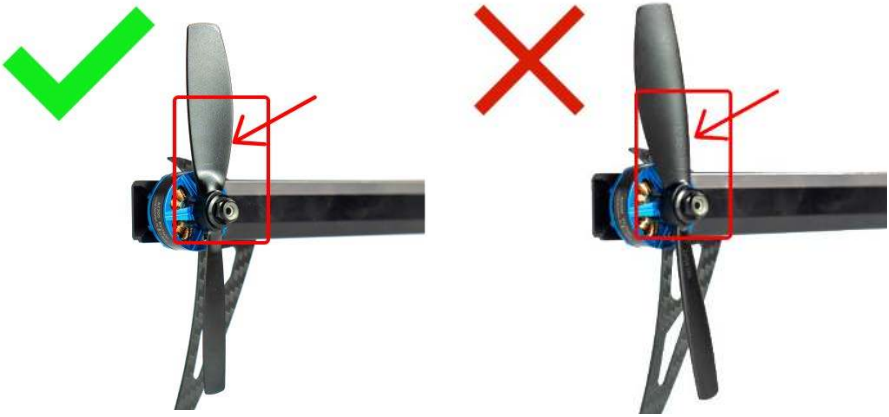
Appendix

Helicopter Status Indicator Description

Green solid	GPS status is good, can take off
Green flash	GPS status has been locked, start switch can start motor
Yellow flash	helicopter is getting positioning
Red flash slowly	Compass calibration required
Red flash quickly	Receiver has no signal
Blue solid	3D status is good, can take off
Blue flash	3D status has been locked, start switch can start motor
Purple solid	Return mode or automatic flight mode
Green,yellow flash	Low battery power in GPS mode
Blue, yellow flash	Low battery power in 3D mode

6. Maintenance - replace the tail blade

If the tail rotor is damaged or has obvious crack, please replace it in time. When replacing, the side with words on the tail rotor faces the motor, and the side without words faces outward. Pay attention to the installation direction

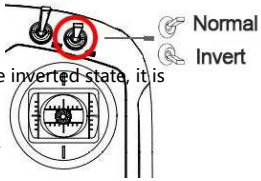


7. One-key acrobatic

- One key to Normal/Invert flight

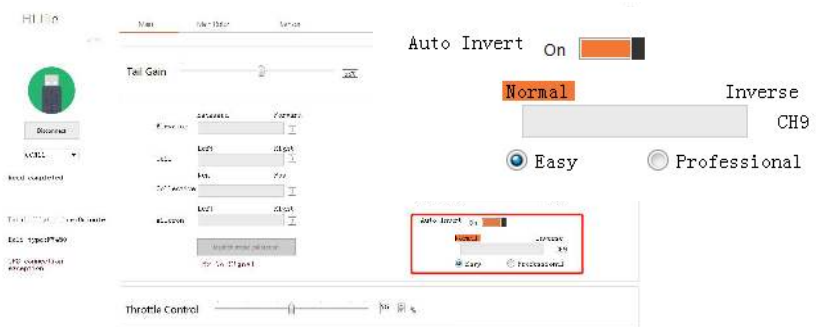
Flywing has designed one key switch Normal /Invert mode for users. In inverted mode, GPS can still fly at fixed point and fixed altitude, providing users with a good acrobatic training platform. In 3D mode flight, this function is invalid, this function only works in GPS self stabilization mode.

- When using this function, the helicopter will switch Normal/ Invert according to the position of the switch on the upper right corner of the transmitter. While the helicopter is in normal flight, it will switch to inverted flight, and the helicopter will auto roll over to inverted flight and hover at fixed point by GPS.
- The return function and automatic route (Figure of 8 or circle) is not available in inverted mode, please do not switch.
- Please pay attention to the battery power. This function can be switched only when it is more than 10 meters above the ground.
- After one key to invert, you can control the flight action and altitude of the helicopter
  if you want to switch Normal flight mode, you need to climb to more than 10 m above the ground again, so that the switch is effective. In the inverted state, it is recommended to use 4S battery and set the constant speed throttle at more than 75%.



- There are two modes : simple inverted mode and expert inverted mode.
- simple inverted mode:
  This mode is suitable for novice , and can quickly experience the fun of reverse flight. It needs to be set in the parameter adjustment software. When the reverse flight switch is turned on, the helicopter will automatically roll to inverted flight and hover at fixed point by GPS. At this time, the user's operation mode is the same as that of forward flight. (if the throttle stick is pushed upward, the helicopter will climb upward. If the elevator stick is pushed forward, the helicopter will move towards the nose).

- Expert inverted mode.
  This mode is suitable for 3D stunt training operation, and can be used for basic hovering operation of 3D stunt assisted by GPS. It needs to be set in the parameter adjustment software. When the reverse flight switch is turned on, the helicopter will automatically roll to inverted flight and hover at fixed point by GPS. At this time, the operation mode of the helicopter is the same as that of 3D stunt. (push the throttle stick upward, the helicopter will descend, and if the elevator stick move forward, and the helicopter will move towards the tail.)



⚠
- This function is a test function. Due to the different performance and power of each helicopter, the rolling effect will be slightly different. By default in the software ,If the height of the helicopter is less than 10 meters above the ground, this function cannot be turned on.
- If the user opens this function below 10 meters above the ground, the user shall bear the adverse effects and consequences caused by the use of this function, such as helicopter failure.

8. Compass calibration

Compass is easy to be disturbed by strong electric field, strong magnetic field and strong electromagnetic field, which will lead to abnormal compass and even cause flight accidents. Regular calibration can make the compass works at its best.

- Calibration precautions

1. Do not calibrate in the area of strong magnetic field and electric field or near large metal, such as magnetic ore, parking lot, building area with underground reinforcement, etc.
2. Do not carry ferromagnetic materials, such as keys, watches, speakers, etc. when calibrating.
3. If the compass is calibrated indoors, remember to recalibrate when changing to outdoor flight to prevent compass abnormality during flight due to magnetic field difference between the two places.
4. Please move the helicopter to another location when there may be steel materials affecting the compass.

- Calibration procedure

Please select an open space and calibrate the compass according to the steps below. For more information on compass calibration, please visit https://www.flywingrc.com/video/ Watch relevant teaching videos. Methods: calibration was carried out with parameter adjustment software

1.Open https://www.flywingrc.com/software/ Download a software.

2. Connect flight control and computer with USB type-C data cable

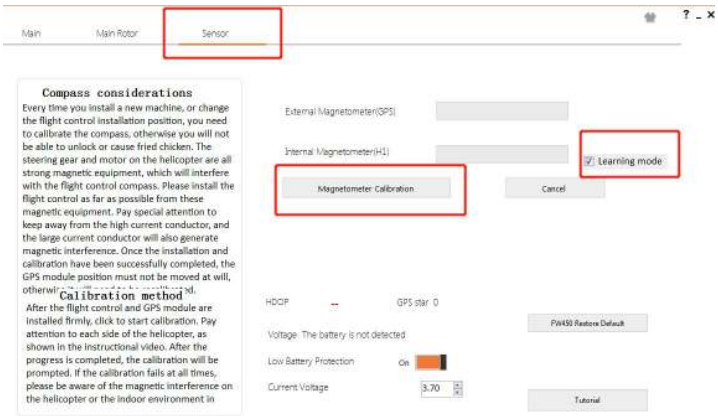
3. Select the corresponding COM port (generally not COM1) and click Connect.

4.Enter the sensor calibration option of parameter adjustment software, check the learning mode, and click Start calibration.

5. The rotor rotates 360 ° in upright position of the helicopter and 360 ° in the inverted upside down position.

6. Head up vertical rotation 360 degrees, head down vertical rotation 360 degrees.

7. If the progress bar does not end, repeat the above operation until the end of the calibration progress bar indicates that the calibration is successful.



Situations requiring recalibration

1. Compass data abnormal, helicopter status light red flashing。
2. The flight site is far away from the last compass calibration site
3. The structure of helicopter is changed。
4. The drift is serious during flight, or it can't fly in a straight line.

※This guide is subject to update without prior notice.

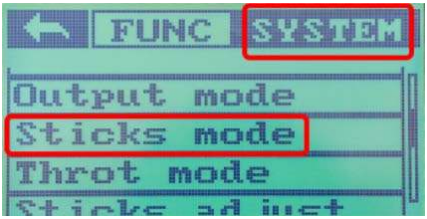
9. Model 1/Model 2 change

How to change M1 to M2

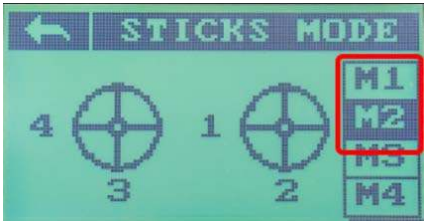
1、When the helicopter is powered off, press and hold the screen lock icon for about 3 seconds to unlock the screen

2、Short press the wrench icon to enter the menu

3、Enter the SYSTEM menu and click sticks mode



4、Select the corresponding mode on the right side of the screen and press the arrow in the upper left corner to return



10. Q&A

Q: Does the servo arm move in GPS mode?

A: In GPS mode, the servo arm does not move, and it will move only after unlocking. During adjusting, you can switch to 3D mode to view the servo arm movement

Q: After the helicopter motor run is unlocked, the motor rotates autonomously, and the rotor rpm speed is not controlled by the throttle stick?

A: The transmitter controls the flight of the helicopter by adjusting the pitch

Q: I pick up helicopter, do not install blades, unlock and start the helicopter, servo arm irregular movement?
H1 recognizes that blades are not on. Servo will not move correctly.

11. Get more information

Welcome to join the Facebook H1 flight control technology exchange group. If you have any doubts, you can find more teaching contents in this discussion group. Welcome to follow the official YouTube channel for more teaching videos. Welcome to contact us on the official website

Facebook

Youtobe

FLY WING

www.FlywingRC.com