



## **IFLY-4S multi rotor copter**

### **User Manual**



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IFLY4S Ver1.0

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## Statement

- This product is not a toy!
- It is a sophisticated product for sports and leisure, and a combination of mechanics, electronics, aerodynamics and high-frequency radio technologies. The operator should follow instructions and security rules. Proper Installation and test are compulsory to avoid accidents. Inappropriate operation may cause serious damages. We are not responsible for them.
- Please read this statement carefully and use this product strictly following all these instructions .

This product is an R/C hobby model rather than a toy. Any operation should be compliant to safety instructions, local laws and regulations. We are not liable for any behaviour against them, or any consequence caused by those behaviours.

- This product is only suitable for expert, who is definitely no younger than 12 years old.
- Please use it in the field approved by local government, laws or regulations.
- We are not responsible for any civil or criminal liabilities caused by improper operation or illegal usage.
- If you have questions about usage, operation, maintenance or any other issues, please contact local distributors.

## Preface

Dear Customers:

Thanks for buying Idea-Fly Model airplane, to learn to operate the model faster and safely, please read the Manual carefully, and please keep the Manual for further reference in the near future.

The quad is equipped with high-performance electronic flight controller, foldable fuselage, highly-efficient brushless motors and high-speed, silent motor governor. High-capacity Li-Poly battery supplies quite good payload ability. Additional high-performance camera mount supplies ability of aerial video and photography with camera or DV.

The quad mainly adopt the carbon fiber as material , and mixed with some high-strength engineering plastics, which reduces weight and cost effectively, make your flight fulfill with much more fun

## Abstract



- Cool appearance and foldable design
- Four low-noise high quality brushless motors
- High performance flight control system.
- Net weight: 830 g ( exclude radio receiver and battery )
- Payload : 700g(exclude radio receiver and battery)
- Can choose to connect a single axis camera mount or 2 axis camera mount

## Dimension & parameter

### Size

- size: 65cm X 65cm
- distance between motor: 55cm
- height: 25.4cm

### Propeller

- Material : plastic
- Positive : 10inch \* 2
- Negative : 10inch \* 2

### Camera Mount

- Camera Mount with vibration isolation
- Material: carbon fiber
- Number of axes: single or double axis

### Landing gear

- High flexible plastic landing gear

### Weight & payload

- fuselage Weight: 700g
- Maximum takeoff weight:2000g

### Motor

- Brushless motor: (IF2212)11.1v
- Motor Governor:10A digital governor

### Working environment

- Ambient Humidity: <%80
- Ambient temperature: 0-60 (Celsius degrees )
- Ambient wind speed: < 4m/s

### Power

- Working voltage: 11.1v
- Max working current: 20A
- Warning voltage: 10.8V

**Simulator: Manual mode, balance mode, altitude mode**

# Remote control

Before operating the IFLY-4S , you need to connect and calibrate the remote control ,IFLY-4S support normal PWM remote control like FUTABA/JR.

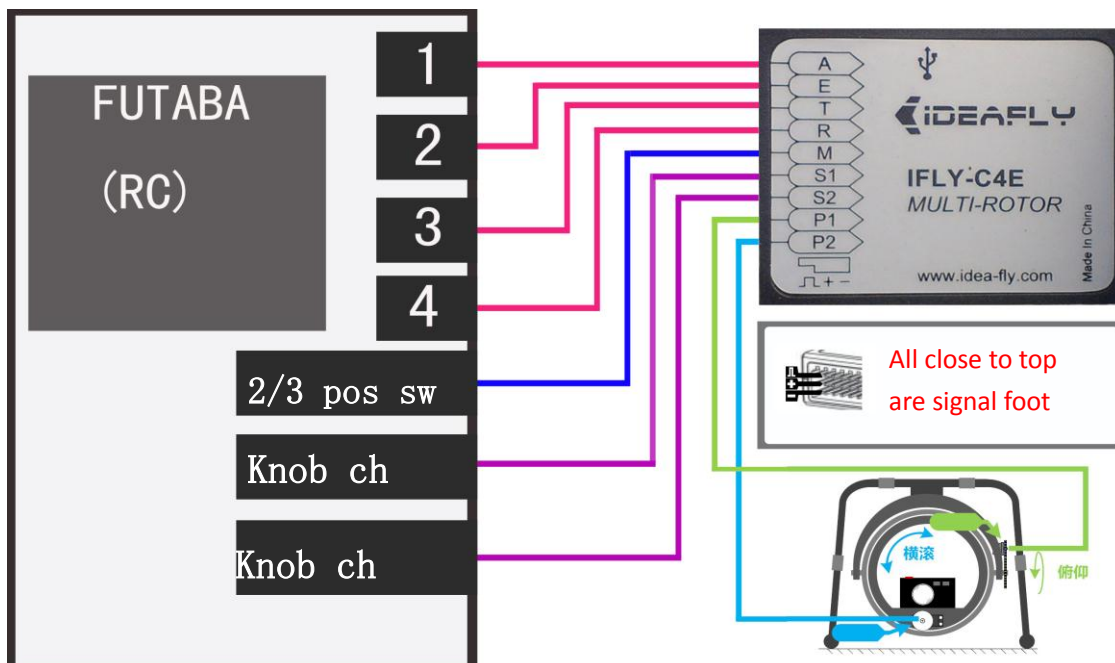
IFLY-4S need the Maximum channel is 7 channel remote control to achieve flying forward/backward, tilting left/right, rotating around z axis, controlling throttle , switching flight modes, tuning camera mount.

To fly it, you need at least 5 channels.

**Note: Remote control can't have any mixed control**

## Connect remote control

FUTABA Receiver



Knob ch: Knob channel

2/3 pos sw : 2/3 position switch



## **Connecting to receiver.**

A: Connecting to AILERON channel of receiver

E: Connecting to ELEVATOR channel of receiver

T: Connecting to THROTTLE channel of receiver

R: Connecting to RUDDER channel of receiver

F: Connecting to a 3-positions channel, this will be used to choose flight modes.

Please refer to ' flight modes ' part.

S1: Connecting to another channel which will be used to change pitch angle of camera mount

S2: Connecting to another channel which will be used to change roll angle of camera mount

P1: Connecting to servomotor which controls pitch angle of camera mount

P2: Connecting to servomotor which controls roll angle of camera mount

## **Calibrate the remote control**

IFLY4s support ordinary PWM transmitters. You should calibrate range of joysticks, otherwise you can not start the flight or may cause accident. Please refer to "Transmitter Calibration" part.

# Camera mount control

Tuning angles of camera mount

IFLY-4s supports 2-axis(pitch and roll) camera mount with vibration isolation and angle tuning function. Dedicated smoothly output control algorithm provide fine vibration isolation quality during photographing.

Tuning pitch angle of camera mount

You need connect corresponding channel of receiver to S1 port of IFLY-4s flight controller, and connect pitch servomotor to P1 port of IFLY-4s.

Tuning roll angle of camera mount

You need connect corresponding channel of receiver to S2 port of IFLY-4s flight controller, and connect pitch servomotor to P2 port of IFLY-4s.

Tuning control parameters of camera mount

IFLY4 supplies complete parameter tuning interface of camera mount control. Please refer to " camera mount control" part.

## Power supply

IFLY-4S control system Internal Integration all the Power supply conversion and output function module ,all you need to do is simply connect a 3S 11.1V lithium battery

## Low battery alarm

IFLY-4S internal integration low battery alarm module ,when the battery voltage lower than 10.8 V the buzzer will send out (bebe) noise, the LED light will turn on all the time, you should stop the flight right away to avoid the battery over discharge and crashing

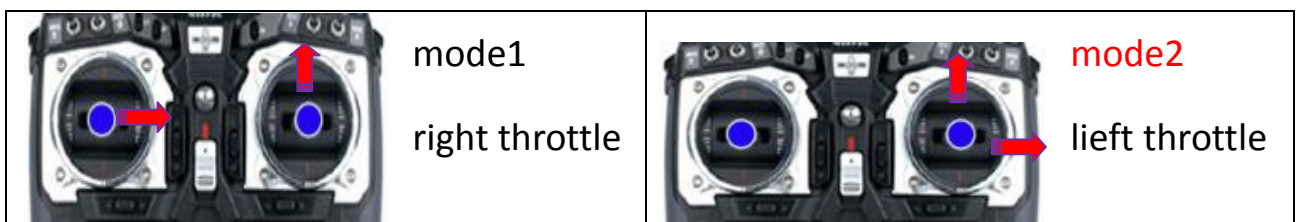
## Sensor reset

**Gyro reset:** before the flight or the middle position of the quad stick have deviation, please make sure the quad is laying level (horizontal) ,carry out the following diagram indicate operation to calibrate the sensor of the quad.

1:Push the throttle stick to the peak (top)

2:Push the Elevator stick to the right-most.

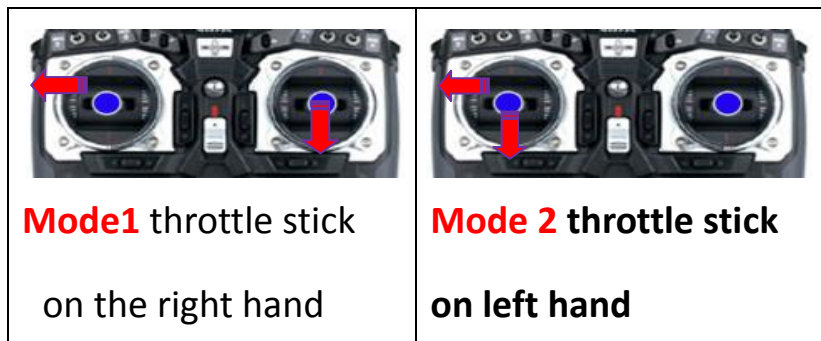
3:after the calibrate finished ,the quad will send out a sound (tick) then can start up and flight normally.



# Starting up

To starting up the quad you need to carry out the following operation .

- 1: Push the throttle to the lowest position.**
- 2: Push the Elevator/Aileron stick to the left-most.**
- 3:** Propellers will start to rotate at a slow speed ,if already carry out these steps but still can't starting up, please check the transmitter direction is reverse or recalibrate the Transmitter



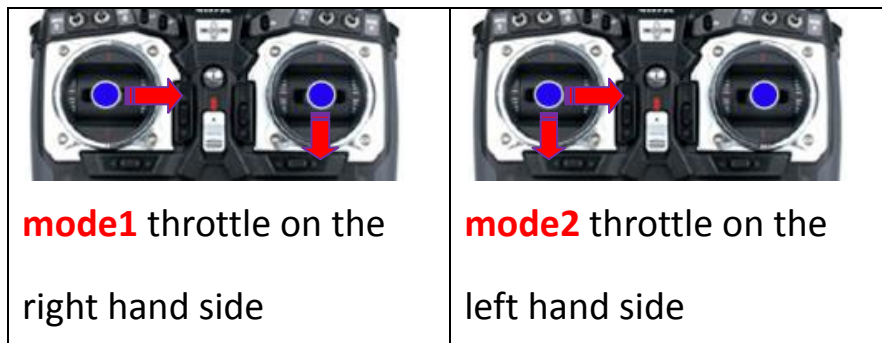
## Note:

When starting up the quad ,make sure the quad are in idle state; or the quad will not work normally.

## Power-off

IFLY-4S offer 2 power-off ways .

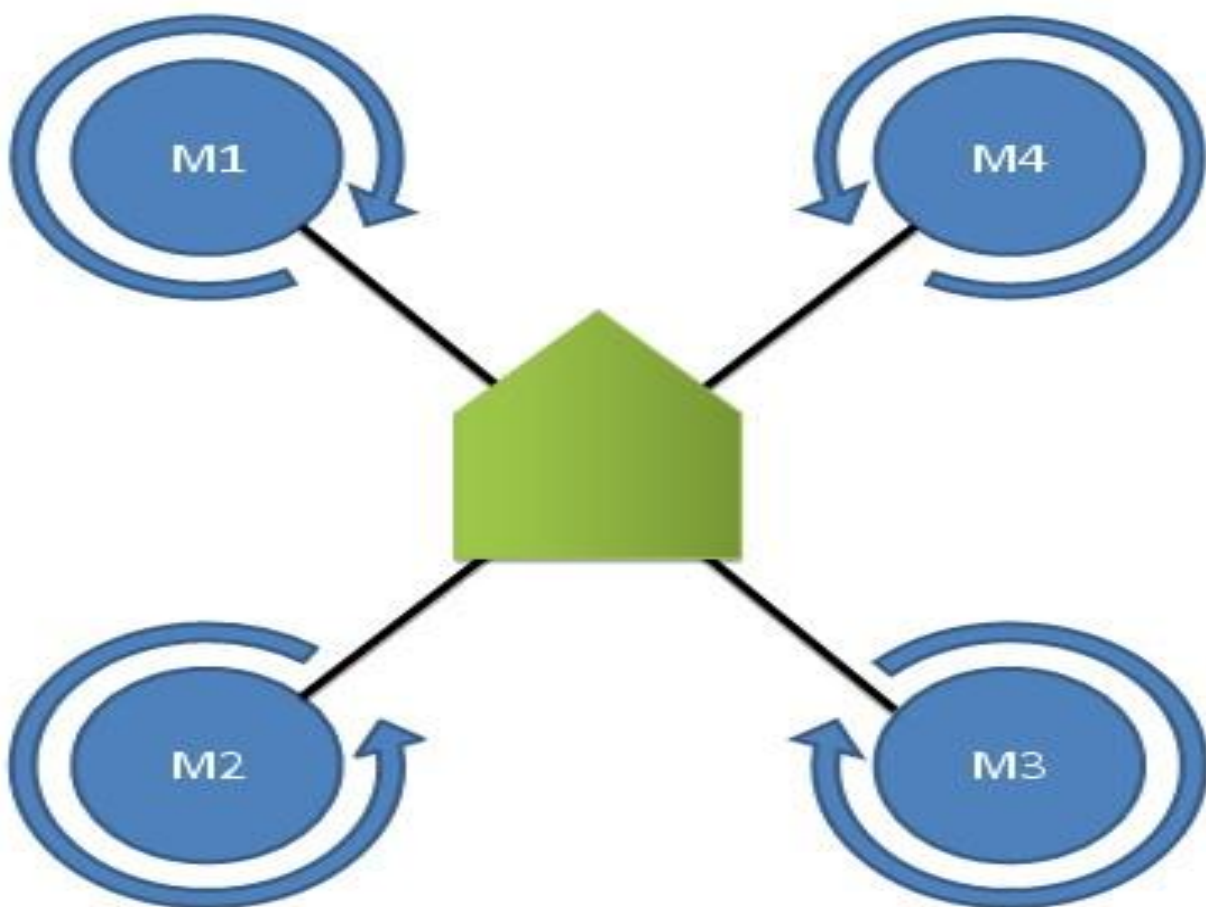
1. lowest the throttle stick and wait for 5 seconds ,the IFLY-4S will auto shutdown the input .
2. carry out the following operation the quad will power-off immediately
  - 1: lowest the throttle stick.
  - 2: push the Elevator to the right-most



## Propeller install and rotate direction

IFLY4S adopt efficient 10 inch Positive and negative propeller, you need to install them strictly follow our instruction ,please install like following diagram ,or the quad won' t work, even may cause dangerous .

Propellers rotating direction and ESC position , following diagram for reference



- **First step:** install the propellers into motor shaft



- **Second step:** install the propeller fixing part, insert the turnscrew into propeller fixing part hole.



- 
- **Third step:** fixed the motor and propeller with your hand ,and then tightening the propeller fixing part.



- *Note: you need to check carefully if the propellers have any looseness after several flight ,or before the flight to avoid the crashing*

## Flight mode control

IFLY-4S support Manual , balance, altitude locked three flight mode ,the LED light will help you to recognize the current flight mode , the factory setting only support balance and altitude mode , you need to adjust in the software tool if you need to use Manual mode .

### Flight mode indicate

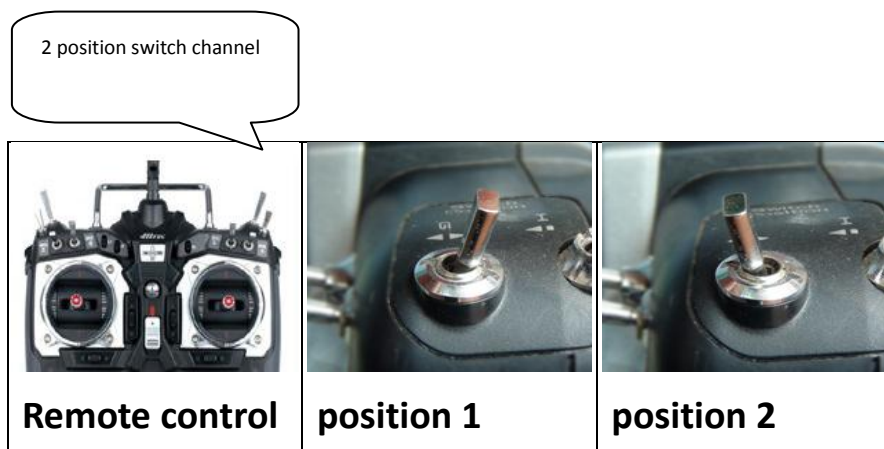
**1: Manual mode: LED will flash only one each flash**

**2: Balance mode: LED will flash twice each flash**

**3: Altitude mode: LED will flash 3 times each flash**

To control the flight mode , you need to use a 2 position switch or 3 position switch on the Remote control as control input , and connect it to the flight controller M channel.

Like the following picture:





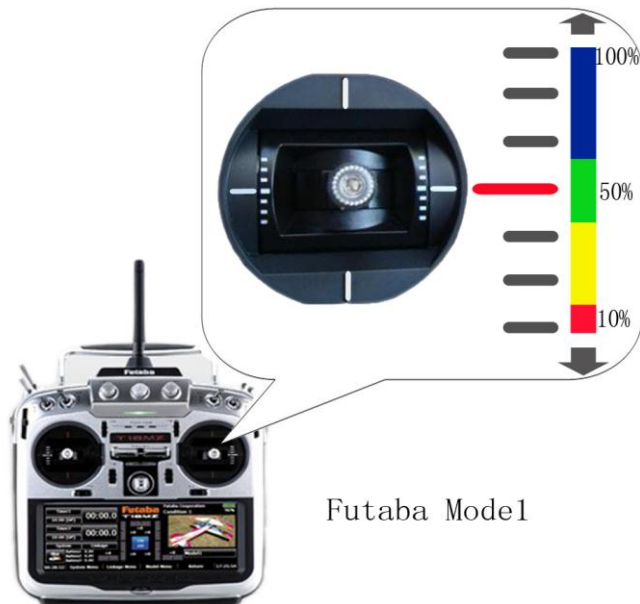
## **Manual mode**

IFLY-4S can just auto stability , but can't keep the balance and altitude ,you need to keep operating the stick to make the IFLY-4S keep balance and altitude.

## **Balance mode**

IFLY-4s will auto level itself, and you can change tilt angles of the flight by joysticks. If you release joysticks, it will auto level itself. However, you should adjust the throttle joystick to maintain its height.

## Altitude mode



Under this mode the IFLY-4S will auto-stability, balance and altitude locked

1. When stick position in **green area** the quad will be locked in the current altitude.
2. When stick position in **blue area** the quad will rise at a same speed.
3. When stick position in **yellow area** the quad will decline at a same speed.
4. When the stick position in **red area** the quad will decline at a same speed until landing and auto-power off .

### Note:

When you need to start up Under altitude mode , only when throttle stick push into **green area** then the motor will start to rotate speed up until the quad take off from the land; under this mode ,when the throttle position in the **yellow** or **red** area, the quad will start to decline ,after the quad landing , the speed of the motor rotate will slow down .

## Firmware













You can update IFLY-4s with latest firmware to achieve best performance. Please refer to "Firmware" Part.





## Working status checking

- After propellers are correctly installed, power on flight and check joystick movement.
- level flight on the ground, and put transmitter besides it.
- power on the flight, hold the flight by the left hand 《 Do not touch propellers》 pull throttle stick up to 20%.
- roll aileron, elevate, rudder joystick slightly to check whether the flight performs correctly
- if the flight does not performs correctly, please check rotating direction of propellers / motors, wire connection between receiver and flight controller
- hold the landing gear of the flight, lift it up, Do please not touch any motor or propeller during this procedure push throttle up to 20% of its range  
title the flight in aileron/elevate/rudder direction to see whether the flight can level all by themselves
- If the flight can not get level themselves, please check connecting wire of flight controller, or rotating direction of motors and propellers
- After all these checked, we are ready to fly

# Operation

Mode 1 《throttle on right-hand-side》 just for your reference

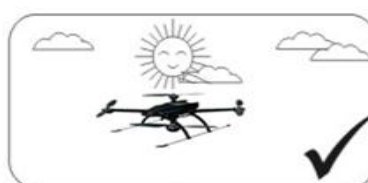
UP			Boost up the right stick
Decline			Push down the right stick
The quad turn to left direction			Push the left stick to left
The quad turn to right direction			Push the left stick to right
The quad Downward forward			Boost up the left stick
The quad Head up back			Push down the left stick

Fuselage left-leaning			Push the right stick to left
Fuselage Right-leaning			Push the right stick to right

## Warning and Caution

### Far away from human or building

Rotating propeller is dangerous to human; make sure fly it far away from crowds. Improper installation, broken components or abnormally working controller, even slight mistake of operation may cause serious accident. Pilot should keep it safe, and be ware of safety responsibility.



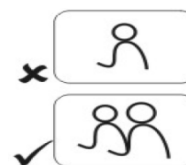
Flying field should be large enough, we recommend no less than 100m\*100 m, far away from crowds, high building, high-voltage towers, woods or any other things, which may cause accidents or damages.

### Do not fly it alone

Novices should be guided and supervised by experts.

Do not fly it all by yourself alone.

Practice on simulator software may be helpful,



### **Far away of running components**

Do be away from any operating components, especially rotating propellers.



### **Avoid moist environment**

The flight is equipped with sophisticated electronic device; do not fly it in moist environment. Do not operate it in rain, snow, lightening storm, fog, hail or gust more than level 3. Present electronic device from water.



### **Far away from heat or radiation**

Fuselage is composed of engineering plastic; please keep it far away from heat source or radiation.

## Maintenance

IFLY-4s quad-copter is composed of sophisticated components.

Do please make sure everyone works well to achieve best performance.

Improper maintenance may cause accidents or damages.

We strongly recommend that maintain this suite regularly.

If motors do not work well, serious vibration may emerge. Please check propellers work well or fixed firmly, replace them if necessary

Make sure all wires are connected firmly, especially those connecting ESC and motor, in case of accidents during flight

To protect the flight, do not expose the flight in moist atmosphere or strong sunshine or static electricity higher than 64V

Check screws, which fix fuselage, motors, and propellers regularly. We recommend to use middle-strength screw glue





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