

NEW VISION OF THE WORLD

Shenzhen Simtoo Intelligent Technology Co., Ltd.

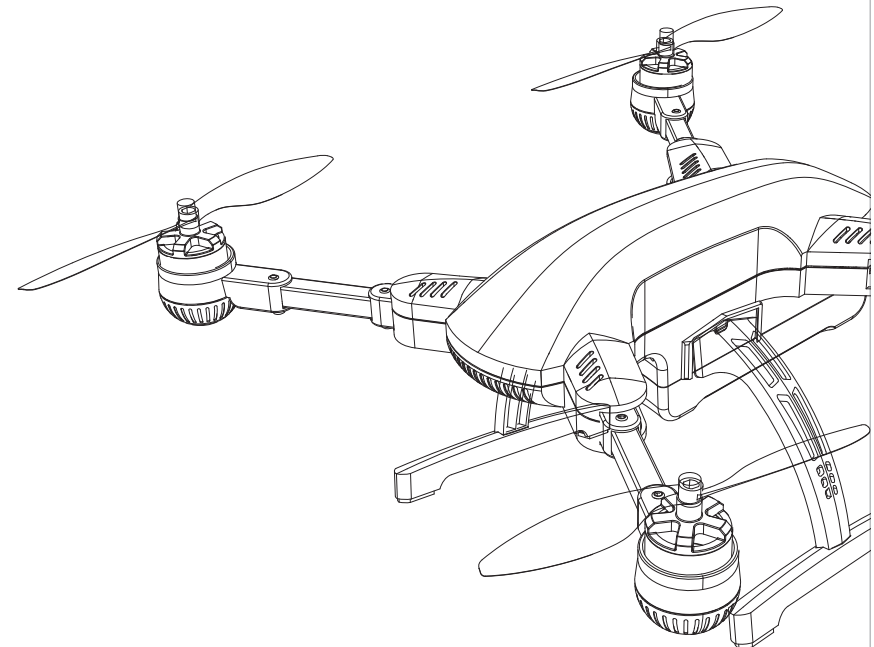
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## DRAGONFLY PRO

— USER MANUAL —



### Safe Flying Tips

1. Fly in an open wide area without large obstacles like buildings, trees or electric wires in 30 meters as they may distort the GPS signals or crash the aircraft. Do not fly close to metal structure with strong magnetic field.



2. Place the aircraft on flat ground before take-off. After powered on, dragonfly will start a self-checking of fly control system and gimbal by itself. Do not touch or move it during the self-checking as it may result in failure in self-checking and incorrectness of level calibration.

3. Dragonfly cannot take off until it gets enough GPS satellites and the Remote / Watch screen shows a "📶". Do not start follow me flight mode until the watch gets 8 GPS follow-me satellites and shows a "📶". If the aircraft cannot find satellites normally, change to another place and try again.

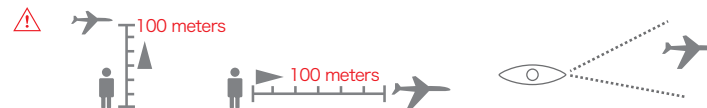
4. Do not fly in strong winds, rains, lightning, snow or fog. Bad weather may weaken the GPS signals or even damage the aircraft. Do not fly in water area as dragonfly is not waterproof.



5. Keep the aircraft 5 meters away from people or animals when it takes off. Do not fly over the crowds.



6. It is recommended to keep the flight height and range within 100 m even the RC distance is 1 km. Do not fly across large obstacles. Always keep dragonfly within the visual line of sight.



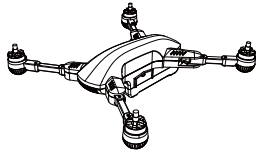
7. If dragonfly suddenly deviates or keeps ascending over 6 meters due to surrounding interference, immediately press the "hover" button and "land" button to force dragonfly to land.

8. Ensure all components are in well condition and fully charged before every fly.

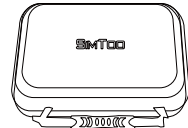


Box Content

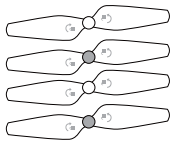
Please go through the checklist of items below after unboxing:



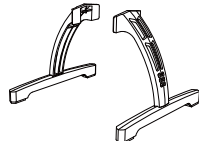
Aircraft x1



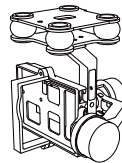
Hardshell Case x 1



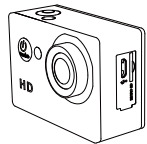
Propeller x 4



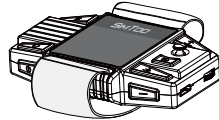
Landing Gear x 2



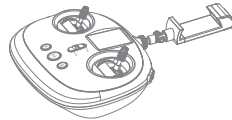
Gimbal x 1



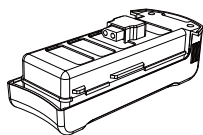
Camera x 1



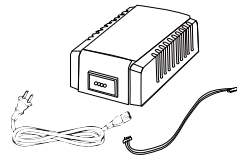
GPS Watch x 1



Remote Controller x 1



Battery x 1



Balance Charger & Cable x 1



USB Cable x 1

Aircraft	
<b>Connecting Feature</b>	
Frequency Range	917-927.78MHz
Modulation Mode	FSK
Line of Sight Range	60m(180ft)
<b>General Specification</b>	
Battery	5500mAh 3S Lion-rechargeable battery
Color	Red/Black/Blue
Weight	1250g



Step1.Charging (Diagram 1)

Turn on the battery, remote controller, watch and camera to check the battery level.

Insert the AC power cord into the charger and plug into a 100-240V AC socket.

Connect the battery with the balance charger with a XH balance plug.

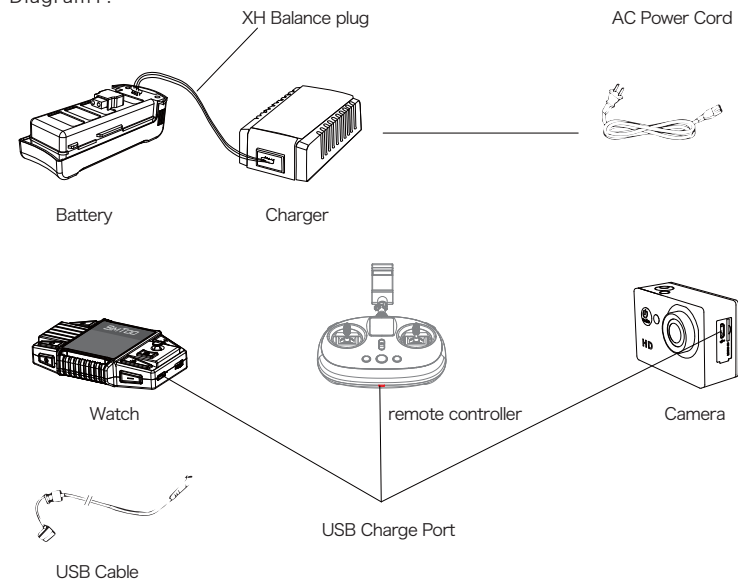
When the battery is charging, the LEDs will light and indicate the battery level.

The LEDs on the charger will also flash one by one and indicate the charging progress.

When all 4 LEDs are lighting, the battery has been fully charged.

The remote controller, watch and camera require the same USB cable to charge.

Diagram1:



Charging Time:

Battery - 2 hours Remote Controller - 6 hours Watch - 1 hour Camera - 2 hours

Notes: Insert the XH balance plug into the correct position of battery. Otherwise, the battery cannot get charged with all 4 LEDs flash continuously. When the remote controller and watch are charging, the screen will display a indicating the charging progress. The camera will start charging with red lights on and get fully charged with red lights off.



### Step 2. Unfold the Aircraft ( Diagram 2)

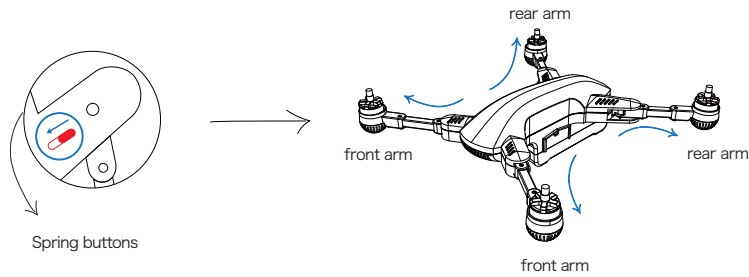
Push down the spring button under the motor arm and slowly twist the arm till the end.

The arm will be locked in place with a click.

Unfold the rear arms before unfold the front arms.

To fold the aircraft, push down the spring button and twist the arms in the reverse order.

Diagram 2:

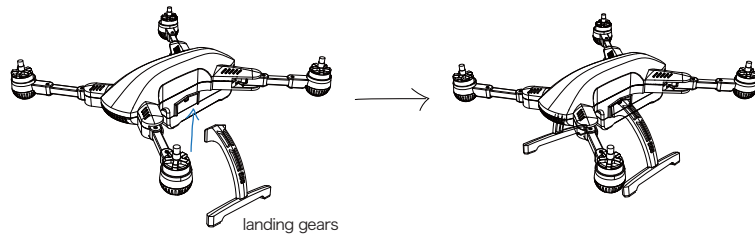


Notes: Do not forget to push the spring button every time you try to fold or unfold the arms. Otherwise, the arm lock may be damaged.

### Step 3. Landing Gears (Diagram 3)

Match the landing gears with the gear mounts and push up into place. To dismount the gears, just pull them down smoothly.

Diagram 3:



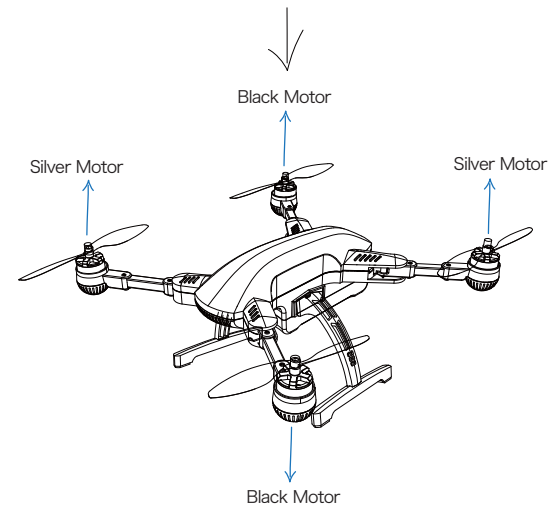
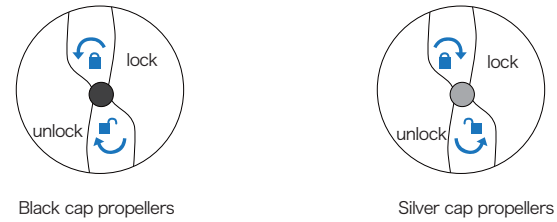
### Step 4. Propellers ( Diagram 4)

Attach the silver cap propellers onto the silver motors and secure them by spinning clockwise.

Attach the black cap propellers onto the black motors and secure them by spinning counter-clockwise. Arrows around the propeller cap indicate the directions of tightening and loosening.

To release the propellers from motors, just spin in the opposite direction.

Diagram 4:

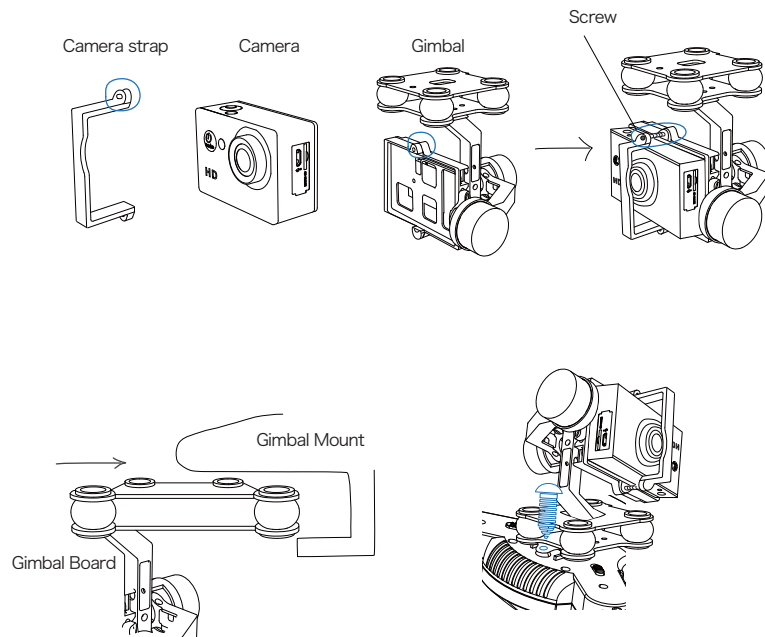


Notes: Make sure the propellers are tightened on the right motors before fly otherwise the aircraft may crash.

### Step 5. Gimbal & Camera (Diagram 5)

Unscrew the camera strap from gimbal.  
 Attach the camera into the gimbal frame ( the camera lens is on the right).  
 Fasten the camera strap with the screw.  
 Fit the gimbal board under the airframe.  
 Slide the gimbal board into the mount, match the opening of gimbal board with the mount screw hole and hold in place with screw.

Diagram 5:

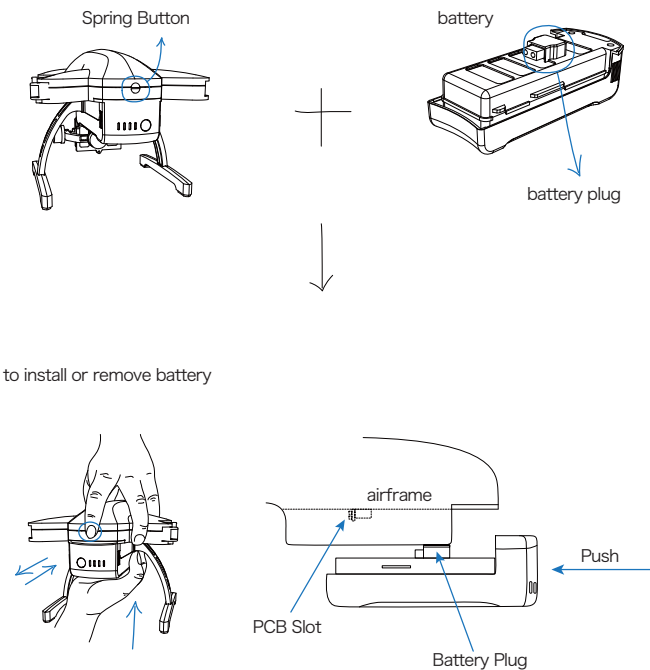


Notes: Do not install or remove gimbal while the aircraft is powered on. Otherwise, the gimbal will be damaged.

### Step 6. Battery ( Diagram 6)

Pull up the spring button at the airframe tail.Align the battery with the airframe, match the battery plug with the PCB slot and slide the battery into the airframe until it is locked with a click.  
 To remove the battery, pull up the spring button first and pull out the battery.

Diagram 6:



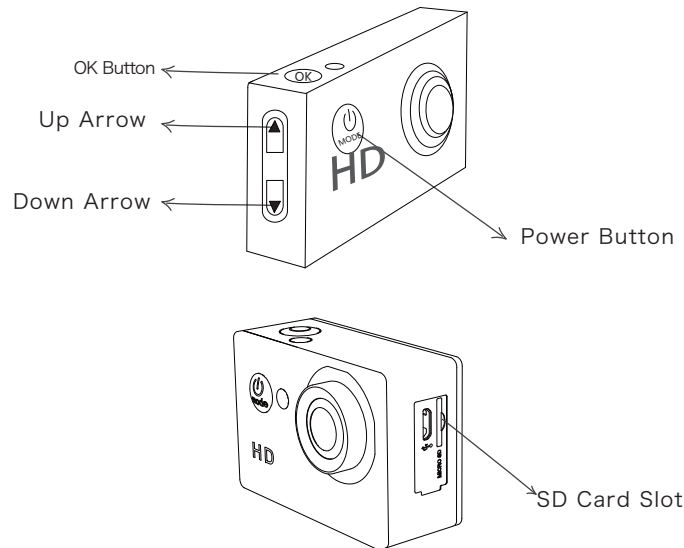
Gesture to install or remove battery

Notes: Do not install or remove battery while it is power on. Otherwise, the battery will be damaged.  
 Do not force the battery into airframe if it gets stuck. Wiggle the battery a few times until the battery plug goes into the PCB slot.

Step 7. Camera Instruction (Diagram 7)

1. Remove the lens cover and film.
2. Insert a Micro SD/TF card into the camera. Micro SD supports max 64GB.
3. Press and hold **"MODE"** to turn on the camera. The camera will automatically turn on the WIFI and display the WI-FI name and initial password.
4. If you want to change camera settings, press ▼ to close the WIFI. Press ▲ to enter setting interface. Then press ▲ or ▼ to select settings options. Press **"OK"** to enter and confirm the settings you' ve changed.
5. Press **"MODE"** once to exit setting interface. Press ▼ to restart the WIFI if needed.
6. Press and hold **"MODE"** to turn off the camera.
7. The photos or videos can be transmitted to computer from the SD card or USB cable.

Diagram 7:



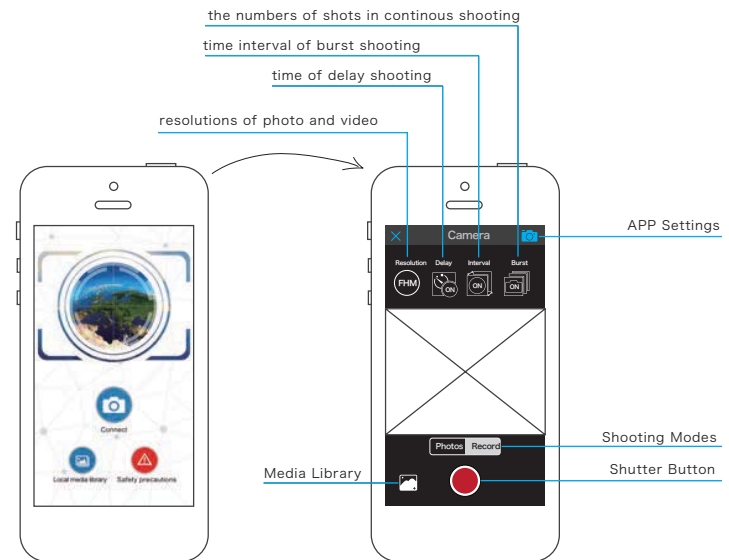
Notes:

1. Do not insert or take out the SD card while the camera is power on. The card won' t go into the slot if inserted in the opposite position.
2. The WI-FI may be weakened when the camera power is low. The WI-FI distance and image fluency may vary on different mobile devices and different surroundings.
3. The camera can only support 4k or 2.7k video with SD card reading rate over 80MB/S.

Step 8. Camera APP (Diagram 8)

1. Search **"Simtoo"** on Apple Store or Google Play and download it to your mobile device. The APP is also available on our website [www.simtoo.com](http://www.simtoo.com) for Android version.
2. Turn on the camera and connect your mobile device to camera wifi. (**Wifi name: Istarcam Initial Code: 1234567890**)
3. Open the APP and tap ⚠ for safety precautions before fly. Tap **"Connect Camera"** to enter the live video interface.
4. Tap **"Photo"** or **"Record"** to switch the shooting mode you want. Tap the shutter button to take photo or video.
4. Tap 📁 to albums and tap **"save"** the download file to your mobile device.
5. Tap ✕ to exit the live video interface. Tap 📁 to check the local files you have downloaded from the camera.

Diagram8: App Instruction

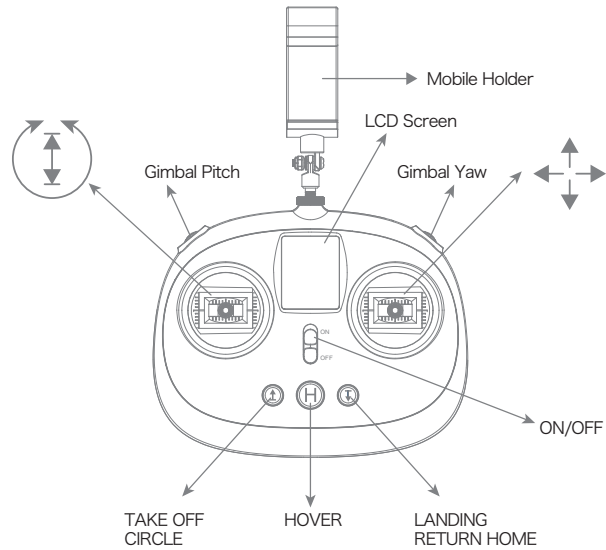


Notes:

1. Simtoo APP requires android 4.2 or later and IOS 7.1 or later.
2. The APP cannot shoot if there is no SD card inside the camera.
3. The image transmission range is around 30 meters. The video may delay on the App if the aircraft gets too far from your mobile device.



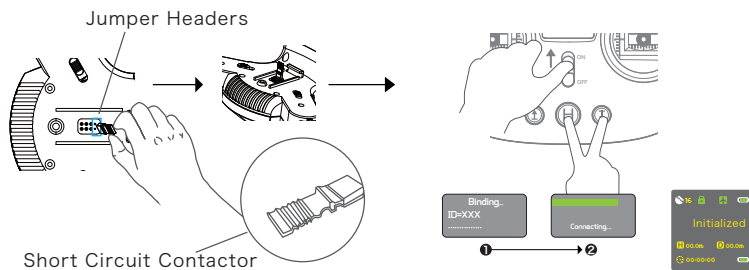
Instruction of Remote Controller



Codes Binding Aircraft to Remote Controller

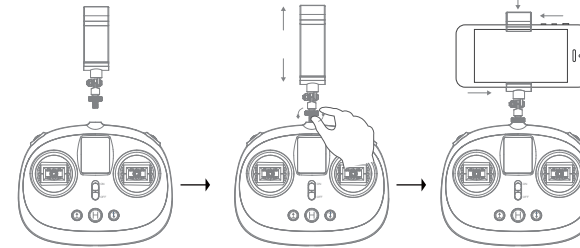
The aircraft is connected to the remote controller by default. It is necessary to bind the codes again just in case that dragonfly is linked with the watch before.

1. Find a short circuit contactor in the plastic bag. Plug the contactor into the jumper header on the gimbal mount to make the aircraft a short circuit.
2. Turn on the aircraft and then remove the contactor.
3. Turn on the remote controller and hold the **H** and **↓** at the same time until the screen says "Binding ID=XXXX".
4. The remote controller will get connected with the aircraft when the screen enters the control interface.



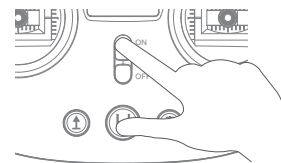
Prepare the remote controller

1. Drive the mobile holder into the remote, fix the nut on the screw bar to make the holder face to you.
2. Adjust the holder to your desired position, stretch the holder clamp and attach your mobile device into the clamp.



Remote Controller	
<b>Connecting Feature</b>	
Frequency Range	917-928MHz
Modulation Mode	FSK
Line of Sight Range	60m(180ft)
<b>General Specification</b>	
Battery	5000mAh Lion-rechargeable battery
Color	Black
Weight	450g

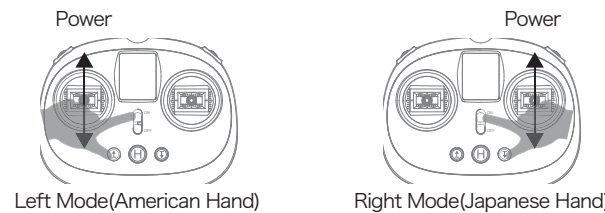
Normal Mode & Advance Mode



The default control mode is beginner mode (NOR MODE) which requires 6 GPS satellites to launch dragonfly. In professional mode (ADV MODE), dragonfly can take off without GPS signals limit and fly at a higher speed and longer range. To switch the control modes, hold H and turn on the remote at the same time. However, it is not recommended to choose professional mode for beginners.

Left Mode & Right Mode

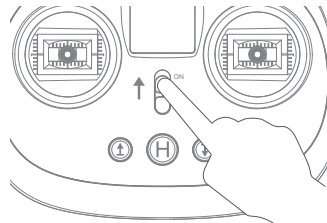
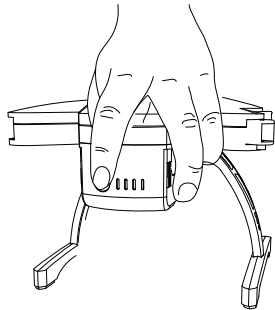
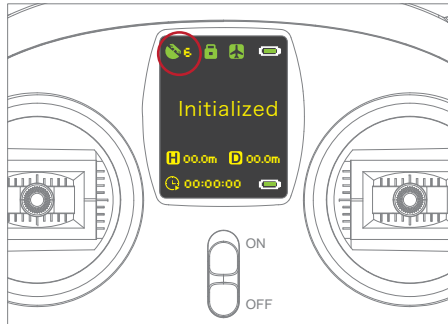
The left stick is set to control the power of motors by default. The power control can be switched to the right stick by holding **↓** and turning on the remote. To switch back to the left, turn on the remote and hold **↑**.





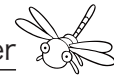
## Prepare the aircraft

1. Place dragonfly on a flat platform and turn on the battery by pressing & hold the power button on the tail. Dragonfly will immediately start system self-checking when the front red LEDs light once and rear blue LEDs quickly flash.
2. When the blue LEDs slowly flash and the aircraft gives out a beep sound, it indicates that the fly control system is functioning all right.
3. When the gimbal is level and the aircraft gives out a second beep sound, it indicates that the gimbal is functioning all right.
4. Turn on the remote controller by pushing up the power switch. In a few seconds the remote controller will get connected to the aircraft when the screen enters the control interface.
5. Wait until the aircraft gets at least 6 GPS satellites and the screen display a 📶 icon before take-off. If the satellite signals are not stable, try it at another place.



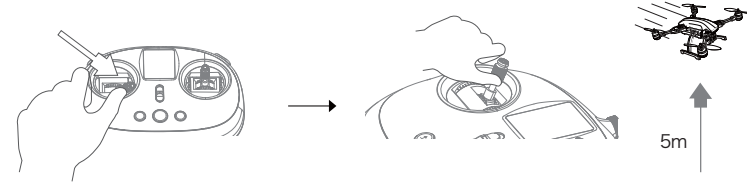
### Notes:

1. Do not touch or move dragonfly while it is doing self-checking.
2. If dragonfly stands by for 10 minutes with power on, it will emit an alarm sound. To stop that sound, just turn off the battery.



## Take Off

1. Activate the motors by pushing the left stick to the lower right corner and hold it for 3 seconds.
2. While the motors are spinning, pull the stick up slowly to take off dragonfly. Tapping ↑ will also make dragonfly ascend to 5 meters high and hover in place autonomously.



Notes: If dragonfly doesn't take off within 6 seconds after the motors are activated, the motors will shut down and be locked.

## Position Control



1. To make dragonfly ascend, push the left stick up.



2. To make dragonfly descend, pull the left stick down.



3. To make dragonfly rotate left, push the left stick to the left.



4. To make dragonfly rotate right, push the left stick to the right.



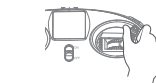
5. To make dragonfly move forward, push the right stick up.



6. To make dragonfly move backward, pull the right stick down.



7. To make dragonfly move leftward, push the right stick to the left.

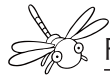


8. To make dragonfly move rightward, push the right stick to the right.

When the stick is back at the center, dragonfly will hover at its current spot.

- Notes:
1. The red LEDs indicate the front of the aircraft. Always be aware of the orientation during fly. Pressing and hold the **H** can turn off the front red LED lights.
  2. Slightly push the stick to avoid sudden or unexpected changes of position.



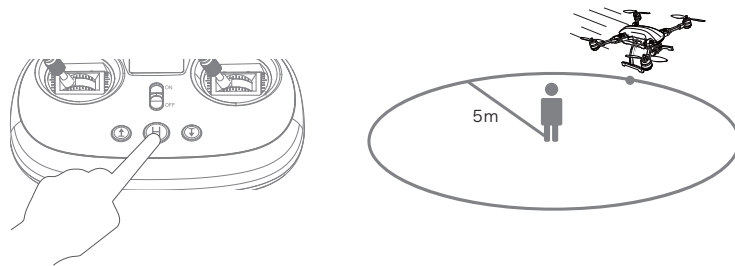


Orbit Fly

Pressing and hold **↑** will keep dragonfly moving in a 5m radius orbit around a center at its front. The aircraft head will point to the center at all times.

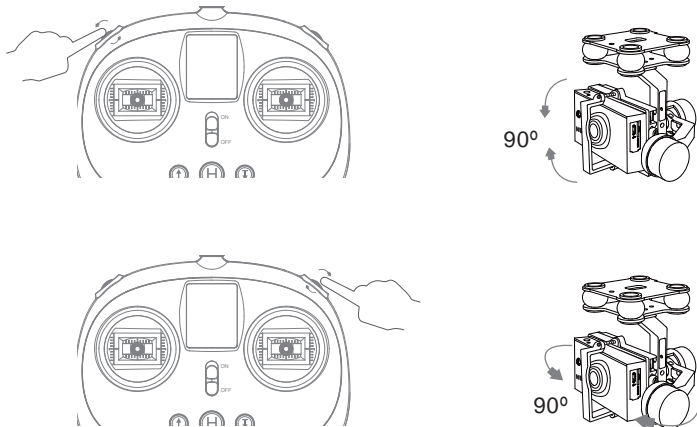
During orbit fly, pulling the right stick left or right can make the orbit larger or smaller.

Pressing **H** once can stop the orbit-fly mode.



Gimbal control

The left dial is used to control the pitch of the gimbal within 90 degree. The right dial is used to control the yaw of the gimbal within 90 degree.

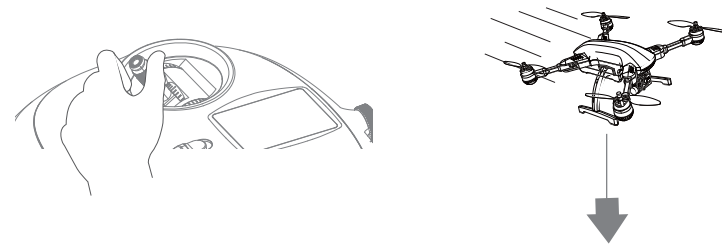


Land

1. Pulling down the left stick will make dragonfly land. Do not push down too hard or the aircraft may crash on the ground. After landing, push the left stick to the lowest point and hold it for 5 seconds to shut down the motors.

2. Pressing **↓** once will make dragonfly autonomously land at its current spot. When dragonfly gets close to the ground, it will jump a few times to find flat base. The motors will stop rotating in 5 seconds after landing on the ground.

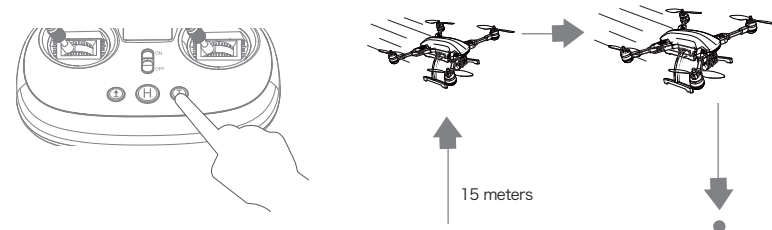
In process of landing, it is still available to control position if the landing area is not flat or safe.



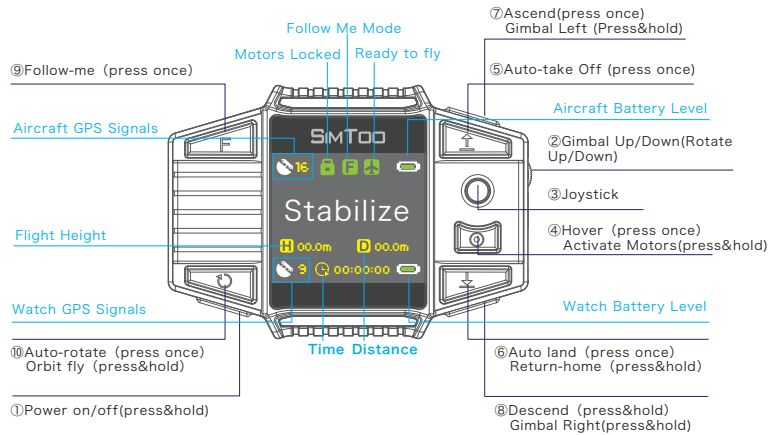
Return Home

Pressing and hold **↓** will make dragonfly autonomously ascend to 15 meters, slowly fly back to the take-off point and land. If there is obstacle in the way of return-home, it is still available to get control of dragonfly with the controller.

Return-home only works when the aircraft is 5 meters away from the take-off point.



Instruction of RC Watch

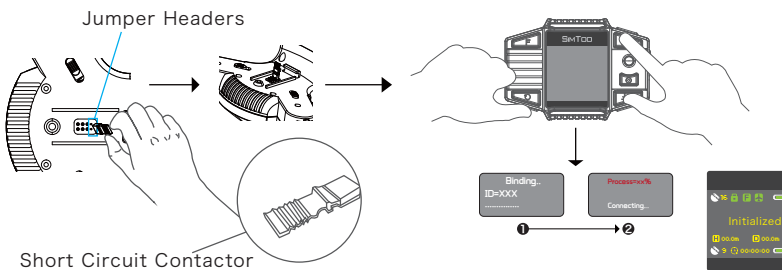


Notes: Do not press two buttons at the same time which may interfere with each other. Press the hover button first before switching one flight mode to another.

Codes Binding: Dragonfly to watch

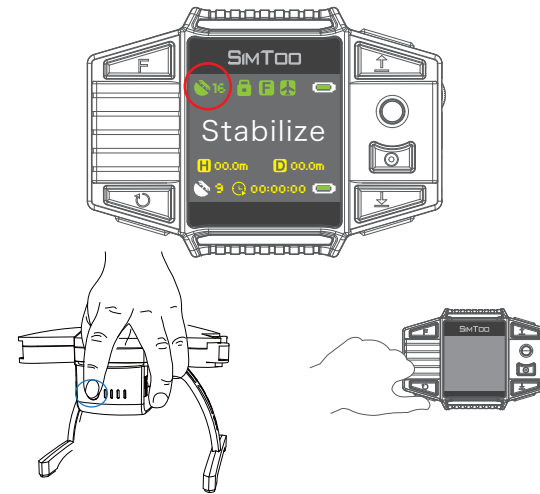
The aircraft is linked with remote controller by default. It is necessary to bind the codes if the dragonfly is going to be controlled with watch.

1. Find a short circuit contactor in the plastic bag. Plug the contactor into the jumper header on the gimbal mount to make the aircraft a short circuit.
2. Turn on the aircraft and then remove the contactor.
3. Turn on the watch and hold the and at the same time until the watch says "Binding ID=XXXX".
4. The watch will get connected with the aircraft when the screen enters the control interface.





Preparations Pre-fly

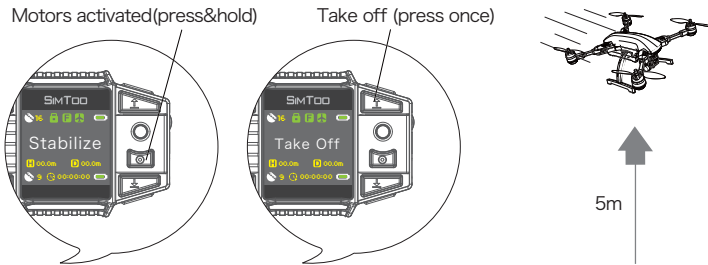
1. Place Dragonfly on a flat platform and turn on the battery by pressing & hold the power button on the tail. Dragonfly will immediately start system self-checking when the front red LEDs light once and rear blue LEDs quickly flash.
2. When the blue LEDs slowly flash and the aircraft gives out a beep sound, it indicates that the fly control system is functioning all right.
3. When the gimbal is level and the aircraft gives out a second beep sound, it indicates that the gimbal is functioning all right.
4. Turn on the watch by pressing and hold the power button. In a few seconds the watch will get connected to the aircraft when the screen enters the control interface.
5. Wait until the aircraft gets at least 10 GPS satellites and the screen display a icon before take-off. If the satellite signals are not stable, try it at another place.



Watch	
<b>Connecting Feature</b>	
Frequency Range	917-928MHz
Modulation Mode	FSK
Line of Sight Range	60m(180ft)
<b>General Specification</b>	
Battery	200mAh Lion-rechargeable battery
Color	Black
Weight	45g



One Key to Take off 


Before take-off, press and hold  to check if the four motors are rotating properly.  
 When the motors are still rotating, pressing  will make dragonfly ascend to 5 meters high and hover in place autonomously.





Notes: The motors will stop rotating and stay locked if the aircraft doesn't take off within 6 seconds after activated.

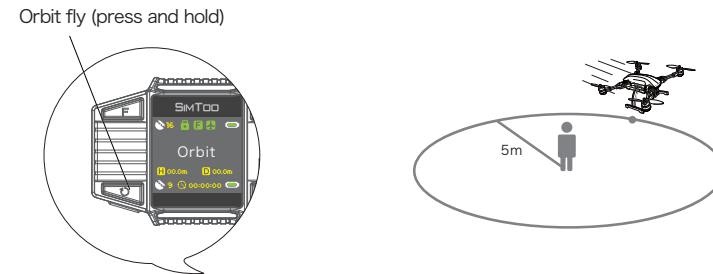
Basic Fly Control 


- ▲ 1. Pushing the joystick up will make dragonfly fly forward. Pushing the joystick down will make dragonfly fly backward.
- ↔ 2. Pushing the stick to the left will make dragonfly fly leftward. Pushing the stick to the right will make dragonfly fly rightward.
- ↑ 3. Pressing  once will keep dragonfly ascending autonomously until 30 meters high.
- ↓ 4. Pressing  once will keep dragonfly descending autonomously until 5 meters high.
- ⬇ 5. Pressing the joystick can turn off the red LEDs.



When the stick is released, dragonfly will autonomously hover in place. Pressing  can make dragonfly hover at the desired height during ascend and descend.

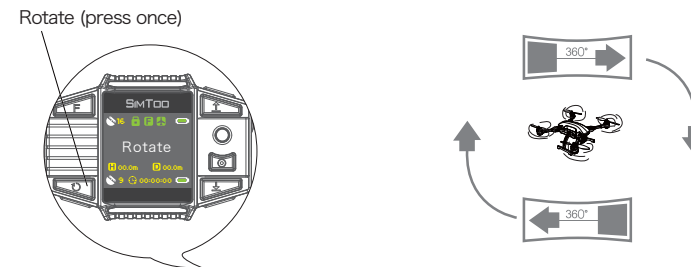
Orbit Fly ( Point of Interest ) 

Pressing and hold  will keep dragonfly moving in a 5m radius orbit around a center at its front. The aircraft's head will point to the center at all times.  
 During orbit fly, pulling the joystick left or right can make the orbit larger or smaller.  
 Pressing  can stop the orbit fly mode.




Rotating (Pan Shot) 

Pressing  once will keep dragonfly rotating clockwise in place autonomously.  
 Press  will stop the rotating. Rotating mode is not only used for pan-shot but also to turn the orientation of the aircraft.



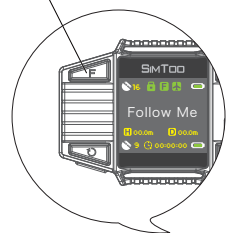
Follow Me 

After the watch gets 8 follow-me GPS satellites and show an "F", press  once and start to move. Dragonfly will autonomously follow behind the watch when they are 5 meters away from one another. The aircraft's head will point to the watch at all times.

When the watch stops moving, the aircraft will hover near the watch.



Pressing  can stop the follow-me mode.

Follow-me (press once)

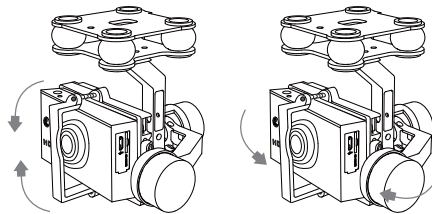
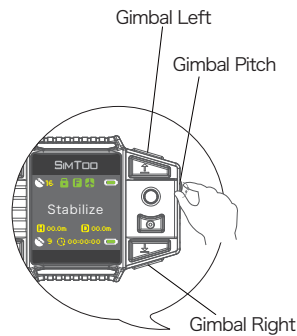


Notes: keep an eye on the following path and ensure there are no obstacles in the way. Do not move too fast when dragonfly is following you in case that the aircraft may lose connection with the watch.


Gimbal Control

Pressing and hold  can turn the gimbal to the left. Pressing and hold  can turn the gimbal to the right.

Turning the dial up can tilt up the gimbal. Turning the dial down can tilt down the gimbal.



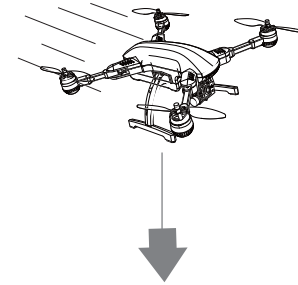
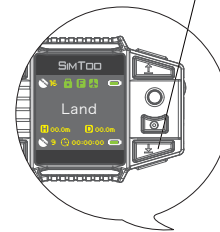
Land 

Pressing  once will make dragonfly slowly land at its current spot. When dragonfly gets close to the ground, it will jump a few times to find flat base.


The motors will stop rotating in 5 seconds after landing on the ground.

In process of landing, it is still available to make it hover and change its position if the landing area is not flat or safe.

Land (press once)

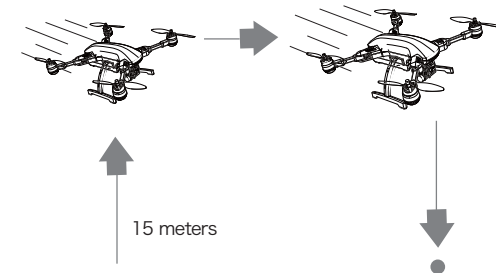
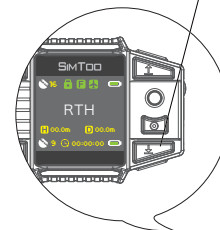


Return Home 

Pressing and hold  will make dragonfly autonomously ascend to 15 meters, slowly fly back to the take-off point and land. If there is obstacle in the way of return-home, make it hover and come back in other paths.

Return-home only works when the aircraft is 5 meters away from the take-off point.

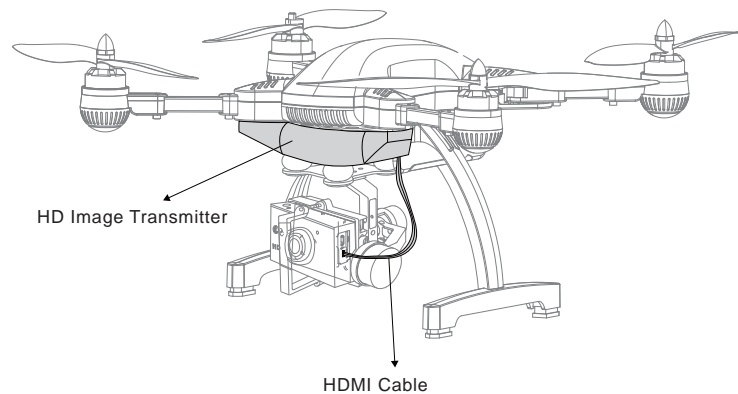
Return Home (press and hold)



### HD Video Transmitter ( optional part )

An HD Video transmitter extends the transmission range up to 1km working together with the remote controller. It is an optional accessory which can be added onto the gimbal board.

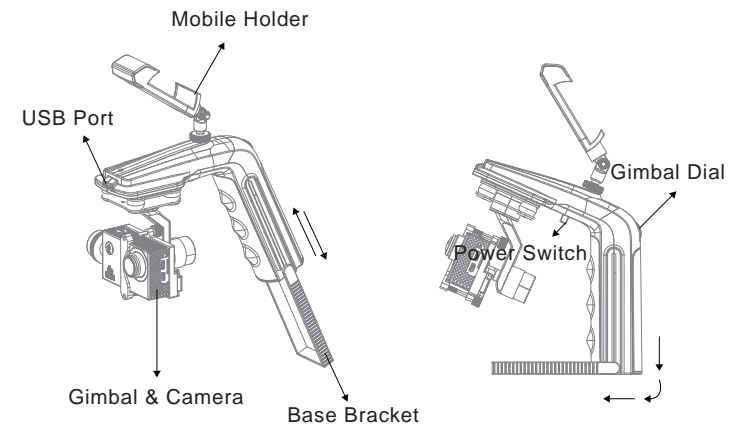
1. Fix a larger gimbal board with an inside HD transmitter on the gimbal mount by driving in a longer screw.
2. Connect the camera to the transmitter with a HDMI cable.
3. Turn on the camera, the aircraft and the remote controller.
4. After powered on, the transmitter will connect to a receiver inside the remote controller by itself through 5.8G.
5. Connect your mobile device to the image receiver of remote controller through WIFI. ( Wifi name: FS\_5G\_XXXXX, no passcode required )
6. Turn on the APP and tap "Connect Camera" to enter the HD live video interface.



Notes: With HD transmitter, the media is stored on your mobile device.  
The Simtoo APP in Android version can work with HD transmitter directly. For iPhone users, please download another APP "Simtool" to receive video stream from the HD transmitter.

### Handheld Gimbal (Optional accessory)

1. The handheld gimbal is an extra accessory used to take shots on the ground with the gimbal and camera from the aircraft.
2. Mount the gimbal board under the handle and fasten with a screw.
3. Drive the mobile holder into the handheld gimbal and attach your phone. (The holder is originally a part of the remote controller).
4. Turn on the camera and connect to your mobile APP through WIFI.
5. Turn on the handheld gimbal by pushing the switch button under the handle. The LED on the top will turn green.
6. Pull out the base bracket, place the handheld gimbal on a flat platform and let it run the self-checking for a few seconds.
7. After the checking is completed, the gimbal will be stabilized with a beep sound.
8. Spin the dial on the back of the handle to tilt the camera up and down.
9. Take photo or video by tapping on the mobile APP.



Charge time - 4 hours

Battery Time - 2 hours

Notes: Do not hold the handheld gimbal while it is doing self-checking.

### Failsafe

- 1.If the watch or remote controller is powered off, dragonfly will autonomously return home.
- 2.When the battery is low, the aircraft will emit an audible alarm with the red LEDs flashing and autonomously land at its current spot.
- 3.The control distance of watch is 50 meters and remote controller is 1 km. If the aircraft flies out of the range and loses connection, it will autonomously hover and return home.

### Warranty

We guarantee dragonfly drone to be free of manufacturing and assembly defects for 12 months from the time of purchase. During that period, we will repair or replace products free of charge.However, this warranty does not apply to any damage or subsequent damage due to users' misuse, modification or as a result of failure to operate according to instructions in this manual.

### Disclaimer

Note the dragonfly drone is not a toy for children under the age of 18.

Do not fly the drone near No-fly zone according to your local regulations.

Please read through the user manual and make sure your master full fly skills of dragonfly drone. Simtoo will not take any responsibilities of damage, injury or financial loss by users' misoperation.



**For updates of the product and user manual, please log on our official webiste [www.simtoo.com](http://www.simtoo.com)**

**If any questions about the product after purchase, you could send email to [service@simtoo.com](mailto:service@simtoo.com)  
Our staff will be at your service 7x24.**



### FCC Statement

1. 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.
2. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

### NOTE

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.