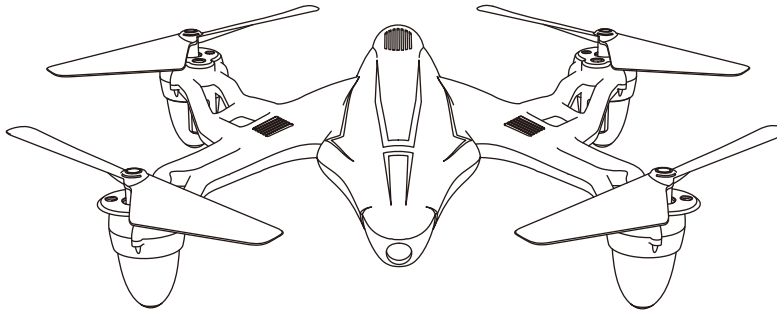
SWIFT

GPS Quadcopter
Operating Instructions



Contents

Disclaimer

Before operating this drone, please read these operating instructions carefully. Your use of this product will be regarded as you have read these operating instructions carefully. This product is not suitable for juveniles less than14. Please properly keep this manual as it's an important document for reference, daily maintenance, adjustment and use of this product in the future.

This is a multi-rotor vehicle with high precision electronic instrument and system which can accurately control the flying attitude, altitude and position. It's an ideal choice for aerial photoing and entertainment, giving excellent flying experience and performance provided that there is adequate power. Though we have optimized and upgraded the safety performance of our flying control system, we insist that propellers should be dismantled during debugging/upgrade, and the drone should be operated in place where there is no crowd, flammable or fragile article.

We are not liable for any property damage or personal injury caused by using this product under following conditions.

1. Damage caused by any user who is drunken, taking drug, narcotics, faint, feebleness, nausea or other physical or mental conditions.
2. Personal injury or property damage caused by subjective intention of the user. Moral damage caused by accident.
3. Damage caused by improper operation of the drone which is assembled or operated without following these operating instructions, or refit. Damage caused by the maloperation or misjudgment.
4. Crash caused by improper operation of the system due to natural wearing out, corrosion, aged wire, or keeping flying when there is any alarm.
5. Damage caused by taking-off of the drone with awareness of the abnormal situation of the vehicle (such as penetration of water, oil, soil, sand and other unknown matters, or the vehicle is not completely assembled, or there is obvious error off any main component, or there is obvious damage or missing of accessories).
6. Damage caused by flying under conditions not ideal for operation such as in area where there is magnetic or radio interference, no-fly zone stipulated by the government, or the operator's eyesight is facing strong sunlight, obstructed, obscure or poor.
7. Operation in harsh weather such as rainy, windy, snowy or haily days.
8. Damage caused by accidents or natural disasters such as collision, overturn, fire, explosion, lightning stroke, storm, hurricane, rainstorm, flood, tsunami, land/ice subsidence, cliff fall, snow slide, hailstorm, debris flow, landslide and earth quake.
9. Infringement damage raised from any data obtained with this drone, including audio or video data,
10. Damage caused by mismatching among battery protective circuit, battery pack, model and recharger.
11. Please do not operate this drone when there is gentle breeze or wind of above grade, otherwise the drone may be influenced in stability, and there may be risk of crash down.
12. Other damage which is not in the scope of our liability.

Safety Attentions

Attentions for the use of recharger:

- It's forbidden to insert any conductor into the heat dissipation hole, otherwise the recharger may be damaged.
- Keep the balanced recharger away from flammables and combustibles when it's working.
- It's forbidden to recharge two or three batteries at the same time.
- Except lithium battery, it's forbidden to recharge other types of battery with this recharger.
- Keep the balanced recharger away from the reach of kids when it's working.
- Keep an eye on the balanced recharger when it's working. If there is any abnormal (power indicator is off, or battery temperature raises sharply), please stop recharging immediately.
- It's forbidden to dismantle the recharger and its accessories.
- Please connect the recharger with the battery correctly. Reversed connection will incur short circuit.
- Please do not recharge the battery when it's still emitting heat.

Attentions for the use of lithium battery

- For long-time storage, the voltage of lithium battery must be 3.8V. It's a must to discharge and recharge the battery at least once every three months.
- It's forbidden to dismantle, or reversely connect the poles, or short-circuit of the battery pack.
- It's forbidden to use or recharge the battery in environment where there is naked flame, heat resource or sunlight.
- It's forbidden to put the battery into the fire or sea.
- It's forbidden to insert any bolt into the battery or use a hammer to blow the battery.
- It's forbidden to throw the battery.
- It's forbidden to use battery which is deformed or broken, leaking, smelly, or of abnormal voltage. And return such battery to the dealer.
- It's forbidden to reversely recharge or discharge.
- It's forbidden to directly touch the leaked electrolyte. If there is any electrolyte getting in touch with your skin or clothes, please use clean water to flush.
- It's forbidden to recharge with time exceeding the stipulated recharging time
- It's forbidden to use the battery in place where there is static electricity (static voltage >64V).
- Please use only the specified recharger.
- Parents must provide proper guidance to juveniles who want to use the battery according to these operating instructions.

Safety Attentions for Flying

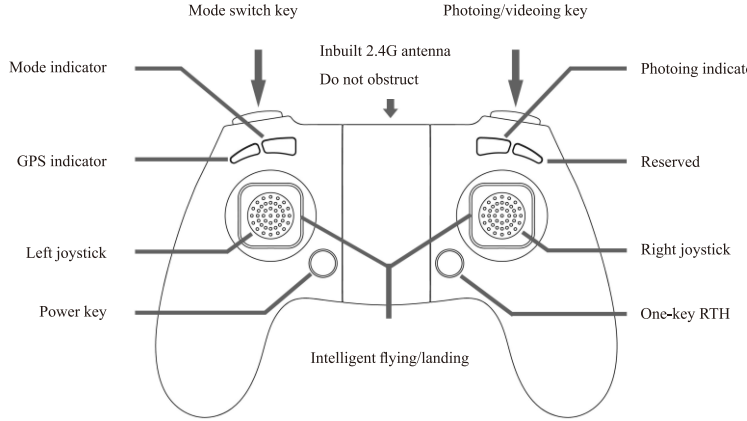
- It's a must to carefully read these operating instructions before flying. Improper use of this product may cause severe damage or injury.
- It's a must to make sure that GPS signal is available at the drone and the controller.
- We suggest you to have the first trial flying under the guidance of experienced person or organization.
- High-speed rotating component inside the drone has potential hazards. Please keep away from the rotating propeller. The user shall be liable for any injury or damage caused by any improper operation.
- Please do not fly the drone in public place, or place with utility poles, motor vehicles or a crowd, such as in airport. Please keep in mind that you are responsible for your own and others' safety.
- It's a must to make sure that the controller and the drone have adequate power and all plugs are connected tightly.
- Please do not get close to the flying drone, or let the drone out of your field of view, thus to assure property and personal safety.
- It's a must to check the body and propeller of the drone carefully before flying, and replace the component in time if there is any damage.
- Before taking off, please turn on the power of the controller first, and then power on the drone. After using the drone, please power off the drone first, and then turn off the controller. (Improper operation may cause out-of-control and damage.)

Drone Parameters

Flying Functions	Automatic altitude keeping / GPS positioning / One-key taking off / One-key landing / Circling tracing /Intelligent tracing
Safe Functions	(Low voltage alarm / Landing / Return) / Return upon out-of-control
Hovering Precision	Vertical: ±0.5M Horizontal:±1M
Maximum Inclination Angle	45°
Maximum Climb and Falling Speed	±2m/s
Maximum Flying Speed	6m/s
Working Temperature	-10°C - 55°C
Battery supported	Controller: AAA*4 UAV: 7.4V 850MAH Li-polymer Battery
Wind Resistance	<8m/s, 30km/h
Communication distance of the Controller/Receiver	(2.4G 300m) / (5.8G 300m)
Camera	(200W 720P) / (500W 1080P)
Positioning System	Dual modes GPS/GLONASS
Motor	Coreless
Flying Time	About 15 minutes
Wheelbase	240MM
weight	160G

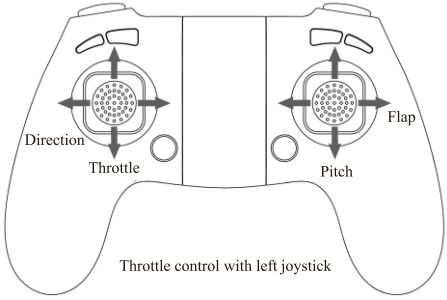
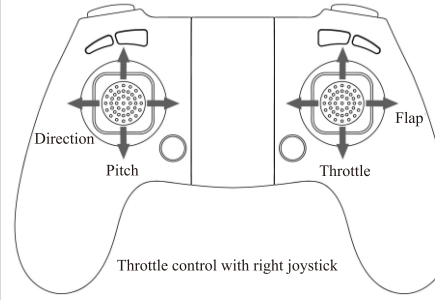
Controller Introduction

Functions of the Keys



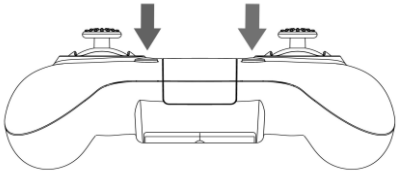
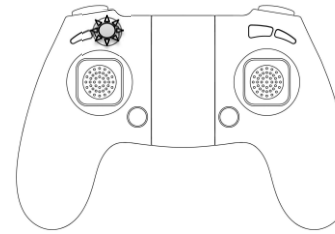
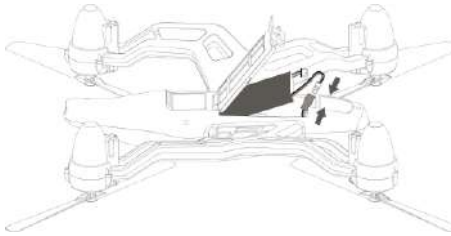
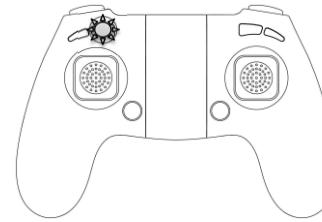
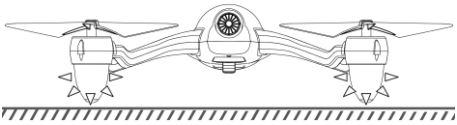
Mode Switch Key	Press this key to switch the flying mode of the drone (altitude mode / GPS mode / circling mode).
Mode Indicator	Green height mode / Yellow GPS mode / Red circling mode
GPS Signal Indication	The indicator flashes if there is no GPS signal for the controller, or lights on if there is GPS signal.
Power key	Hold down this key to power on, and hold down again to power off
Photoing/Videoing Key	Press to take a picture / hold down for 1 second to videoing / hold down again to stop videoing.
Photoing Indicator	Flashing when photoing / On when videoing / On when stopped videoing
One-key RTH	Hold down RTH key to initiate return to home / Hold down again to cancel RTH. During returning, the RTH LED indicator will be on, and it will be off when canceled RTH. The drone will automatically return to the origin point where the motor is unlocked.
Intelligent tracing	Press RTH key to initiate tracing, and press again to cancel tracing. When tracing function is activated, the RTH indicator will be flashing. When the tracing is deactivated, the RTH indicator will be off.
Intelligent Taking-off/Landing	Hold down left and right joystick for 1 second to take off or land the drone. To cancel taking-off/landing command: push the throttle to cancel taking-off/landing command, and then the drone will stand by at where it's being.
Controller Low Voltage Alarm	The buzzer alarms with "Beep" every 3 seconds.
Drone Low Voltage Alarm	The buzzer alarms with "Beep, Beep" every 3 seconds.

Instructions for setting of left and right joysticks

 Throttle control with left joystick	 Throttle control with right joystick
To set left joystick for throttle control: hold down left joystick and then power on for 5 seconds till the buzzer giving "beep beep". Then the setting is completed.	**To set right joystick for throttle control: hold down right joystick and then power on for 5 seconds till the buzzer giving "beep beep". Then the setting is completed.**

- **Please operate with caution for the setting of left and right joysticks.**

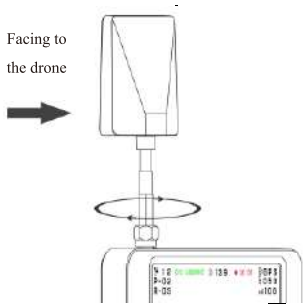
Controller Pairing

	
1. Hold down power key and RTL key at the same time.	2. Wait until the mode indicator flashes.
	
3. Insert drone battery.	4. Wait until the mode indicator lights on. Then pairing is successful.
	
5. After pairing successfully, the drone enters standby mode.	

- **The distance for pairing should be within 1m. If pairing is failed, please try again.**
- **Do not pairing several drones at the same time.**

Instructions for 5.8G Display

Instructions for Basic Use

<table>
<tr>
<td> 
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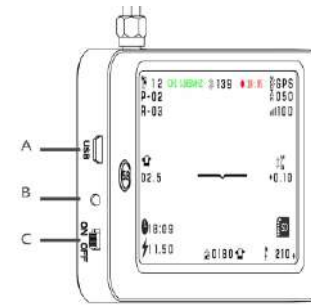
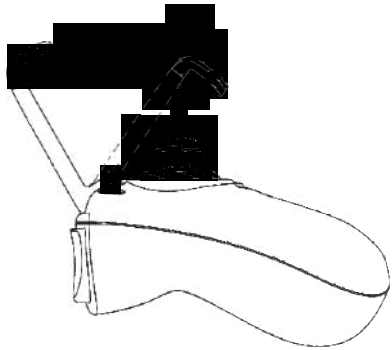
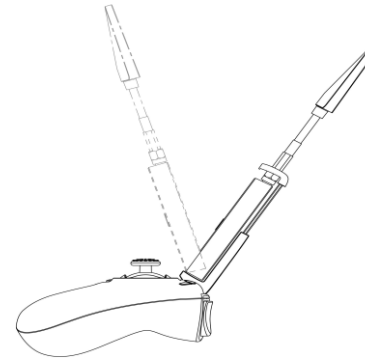
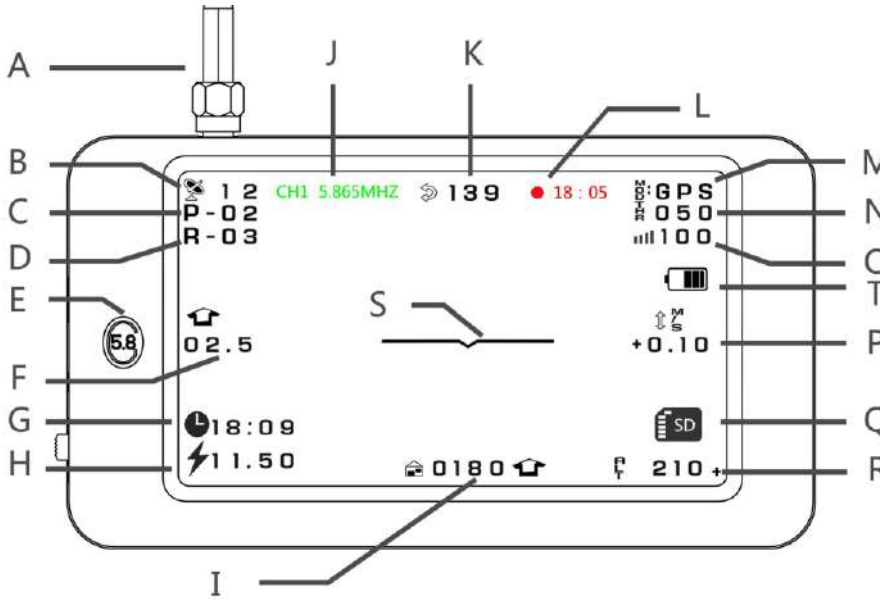
<td> 
</td>
</tr>
<tr>
<td>When installing panel antenna, please make the panel face the drone, thus to obtain best signal, and then tight the screw.</td>
<td>A: USB recharging port
B: Recharging indicator (red indicator when recharging, and green indicator when fully recharged)
C: Power switch</td>
</tr>
<tr>
<td>  </td>
<td>  </td>
</tr>
<tr>
<td>Open the display clamp on the controller</td>
<td>Install the display on the clamp</td>
</tr>
</table>

Flying Data Explanation



A: Receiving Antenna	B: Number of GPS satellites	C: Pitch angle	D: Roll angle
E: Searching for 5.8G channel	F: Flying speed (m/s)	G: Flying Time	H: Battery voltage
I: Distance from the taking-off point (m)	J: frequency of 5.8G channel	S: Horizontal line	R: Flying height (m)
N: Throttle percentage	O: Controller signal percentage	P: Climb speed (m/s)	T: display quantity of electricity
K: Compass (0 refers to North, 90 refers to East, 180 refers to South, 270 refers to West) unit: degree	L: (Red indicator flashes when photoing) (Red indicator lights on when videoing) (Display of videoing time)	M: Flying mode (ALT: altitude; GPS: positioning; RTH: One-key return to home; FS: Failed safe)	Q: no icon if there is no SD card; green icon if there is SD card; red icon if the SD card is full.

Explanation of OSD Parameter Tuning

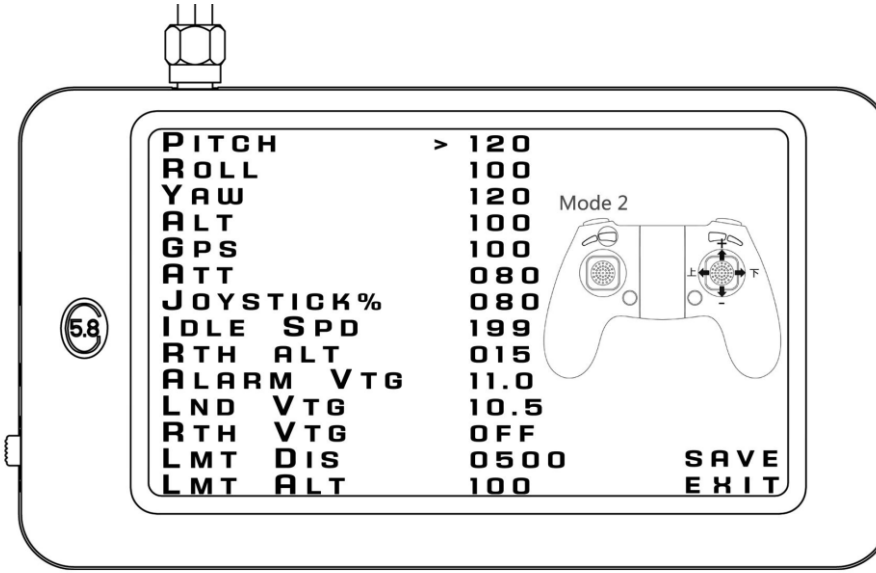
Steps to enter OSD parameter tuning:

1. Turn on the controller and connect the drone with battery, and then just wait for the completion of initiation of flying control.

2. Push the throttle joystick to the maximum position when the motor is in locking status.

3. Press and release Mode Switch Key fast, until OSD window is shown as following.

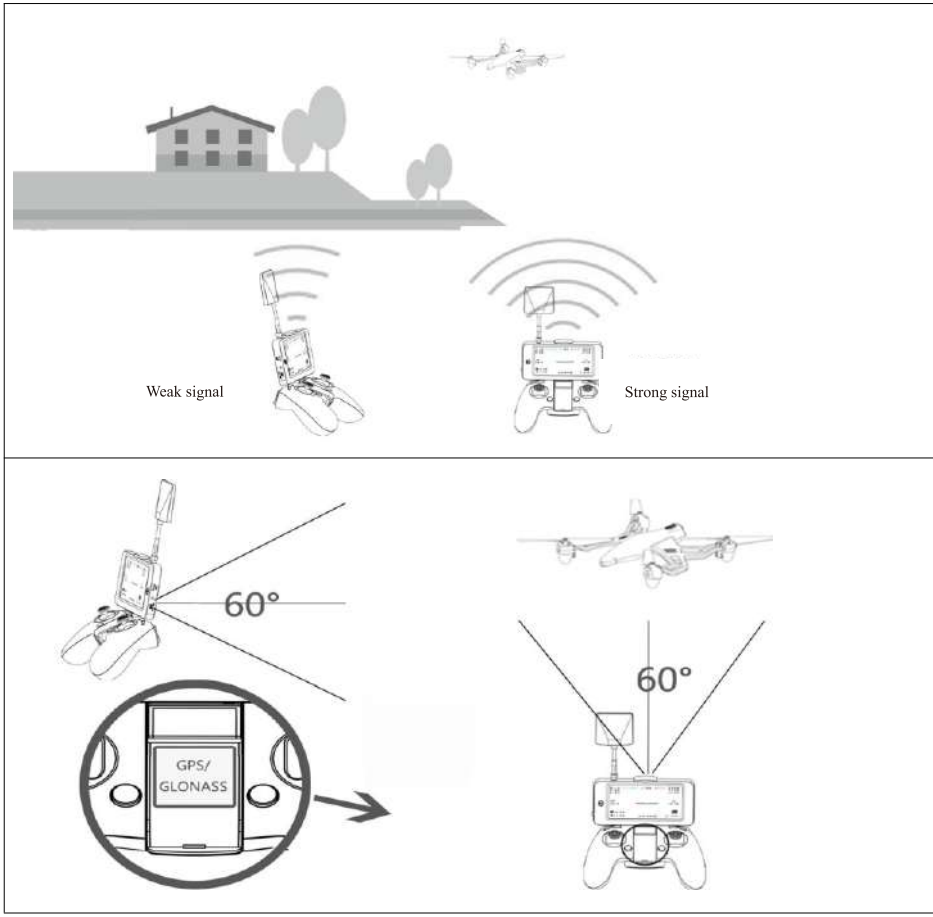
4. Use roll joystick to select the item to be adjusted, and pitch joystick to alter the parameter as shown as the figure.



PITCH: Sensitivity for pitch attitude	ROLL: Sensitivity for roll attitude	YAW: Sensitivity for yaw attitude	ALT: Vertical control quantity
GPS: Horizontal control intensiveness	ATT: Attitude control intensiveness	JOYSTICK%:Control percentage of joystick	IDLE SPD: Idle speed
RTH ALT: Minimum altitude for RTH	ALARM VTG: Alarm voltage	LND VTG: Landing voltage	RTH VTG: RTH voltage
LMT DIS: limit distance / meter	LMT ALT: limit altitude / meter	SAVE: To save the settings	EXIT: To exit setting window

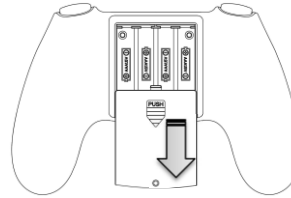
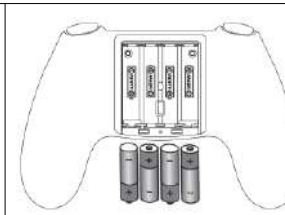
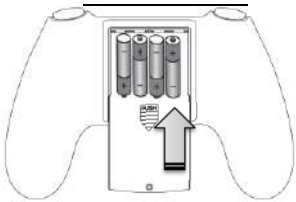
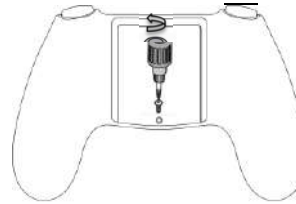
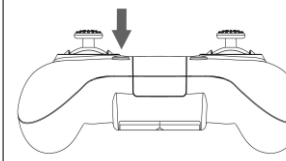
Optimal communication distance for the controller and display

- **Please search for GPS signal in open space and do not obstruct the GPS receiving antenna, thus to ensure well GPS signal.**
- **The optimal angle for the controller to receive and transmit signal is 60°. Please do not obstruct the receiving and transmitting antenna.**
- **The communication frequency band of our controller and display is only compatible to our products.**

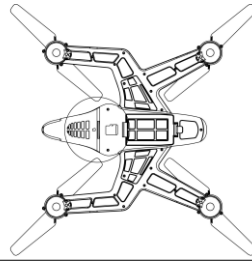
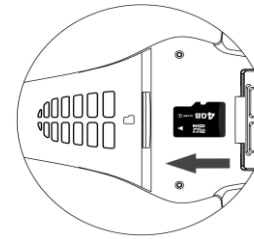


Flying Preparation

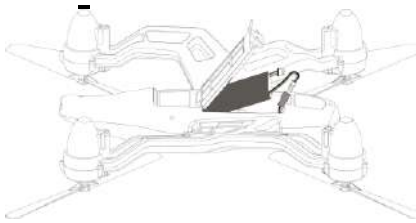
Install battery of the controller

 1. Unscrewing	 2. Push along with the direction of the arrow	 3. Please install correctly 4 AAA batteries
 4. Close the cover along with the direction of the battery	 5. Re-screwing	 6. Hold down power key to power on

Installation of SD card

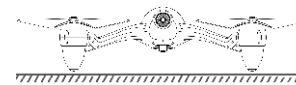
	
1. Find card slot.	2. Insert the SD card along with the arrow direction.

Recharging of the drone battery

	
1. Take the battery from the drone.	2. Connect the USB charger with an adapter, then connect the other side of the USB charger with the battery.

- **Recharging Indication: When in recharging process, the red indicator will light on; when the recharging is completed, the green indicator will light on.**

Install battery of the drone

	
3. Correctly connect the drone with the battery.	4. Prepare for taking-off. Before first flying, it's a must to calibrate the compass.

- **Important note: it's forbidden to reversely connect the battery with the drone, otherwise the drone may be damaged.**
- **It's a must to calibrate the compass before first flying.**

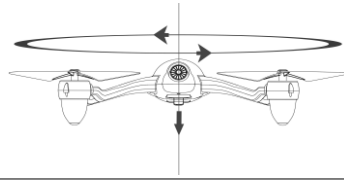
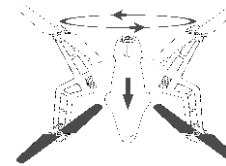
Attentions for Compass Calibration

As electronic compass is easy to be interfered by electromagnet and geographic location, and the system calculates the heading direction of the drone by detection of earth magnetic field which may vary according to the environment, it's a must to calibrate the compass for the first use or when the compass is interfered by external environment. Besides, it's forbidden to fly under super strong electromagnetic environment, otherwise severe consequences such as crash may incur.

- **It's a must to re-calibrate the compass for the first use, or after replacement of rack or its installation location.**
- **It's a must to re-calibrate the compass when the drone circling during hovering in GPS mode.**
- **Please do not use GPS mode or RTH function in magnetic mines, indoor or strong magnetic environment with underground rebar.**
- **GPS mode and RTH function are not available in South/North pole.**

Calibrate Compass

1. Open the controller, and assemble drone battery into the drone
2. Put the drone on the ground, and do not operate until the completion of its initiation
3. Repeatedly press and release fast Mode Switch key until the green LED on the drone flashes fast.
4. Rotate the drone horizontally in constant speed until the green LED flashes slowly.
5. Rotate the drone with its head downward along with a single direction in constant speed, until the LED stops flashing.

	
Rotate horizontally in constant speed	Rotate with head downward in constant speed

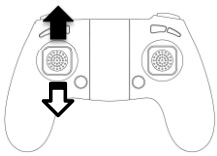
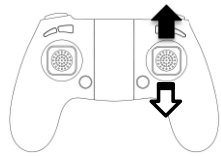
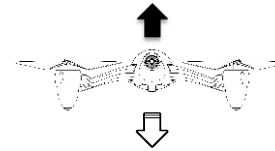
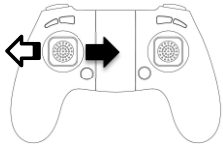
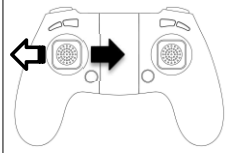
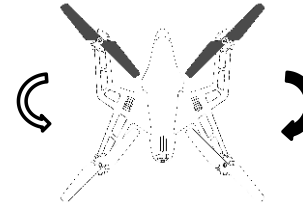
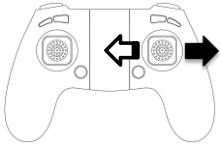
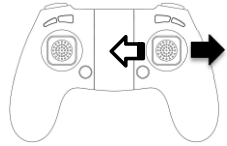
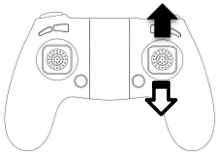
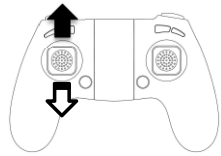
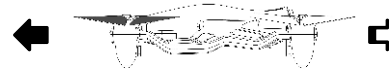
LED status

When in horizontal calibration(the indicator flashes slowly)	
When in vertical calibration(the indicator lights On)	

Attentions for calibration: During compass calibration, if the drone is not in horizontal or vertical status, the red LED will light on.

Flying Control

- **Please operate the drone with caution when there is wind whose speed is higher than 5m/s, otherwise the drone may be influenced in stability, and there may be risk of crash down.**
- **Please make sure that GPS signal is available before taking-off.**

Throttle control by left hand	Throttle control by right hand	Flying Attitude
		 Climbing and falling of the drone
		 Rolling leftward/rightward of the drone
		 Flying leftward/rightward of the drone
		 Flying forward/backward of the drone

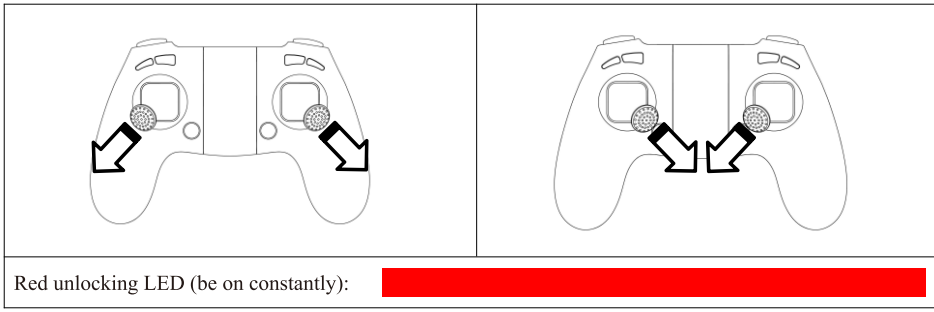
Start and Stop of the Motor

Motor starts

The motor won't be started by pushing the throttle bar. It's a must to execute any of the following operations to start the motor.

The drone will set the point where it unlocks the motor as the point of RTL.

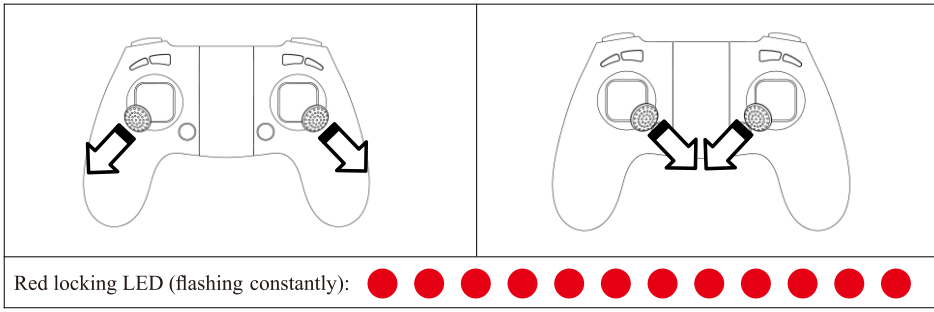
Please make sure that GPS signal is available before unlocking .



Motor stops

Stop immediately:

- **By any of following operation, the motor stops immediately. (Please operate with caution)**



Intelligent stop:

- **Within 3 seconds since the motor is started by joystick, if the throttle bar is not pushed, or the throttle bar moves within 10% of travel, the motor will stop automatically.**

LED Status Explanation of the drone

➢ **Initiation / horizontal calibration of the drone**

Red and green indicators flash alternatively:	

➢ **Power ON/OFF of the drone**

Before powered on (red indicator flashes fast):	
After powered on (red indicator lights on):	

➢ **Before pairing between the drone and the controller**

Red indicator flashes slowly:	

➢ **GPS signal status of the drone**

No GPS signal is available (green indicator flashes fast):	
GPS signal is available (green indicator lights on):	

➢ **Status Indication of Compass Calibration**

When in horizontal calibration(the indicator flashes slowly)	
When in vertical calibration(the indicator lights on)	

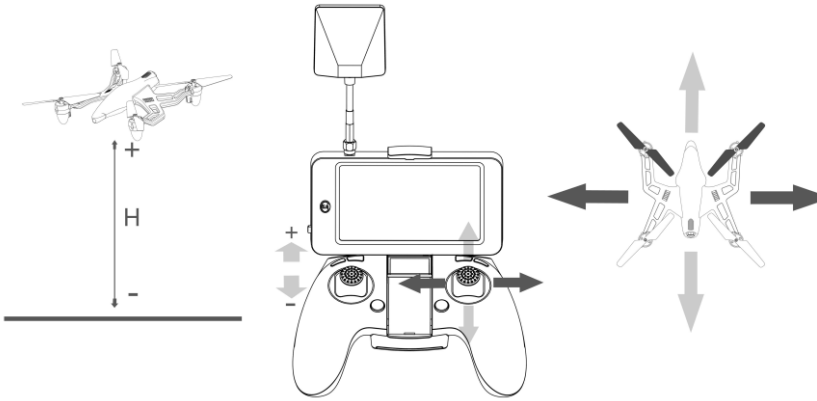
➢ **drone Low Voltage Alarm**

Alarm when the voltage is low (Return can be an option in such situation):	

Circling Tracing

Attentions: It's a must to make sure that well GPS signal is available for both the controller and the drone when using this function.

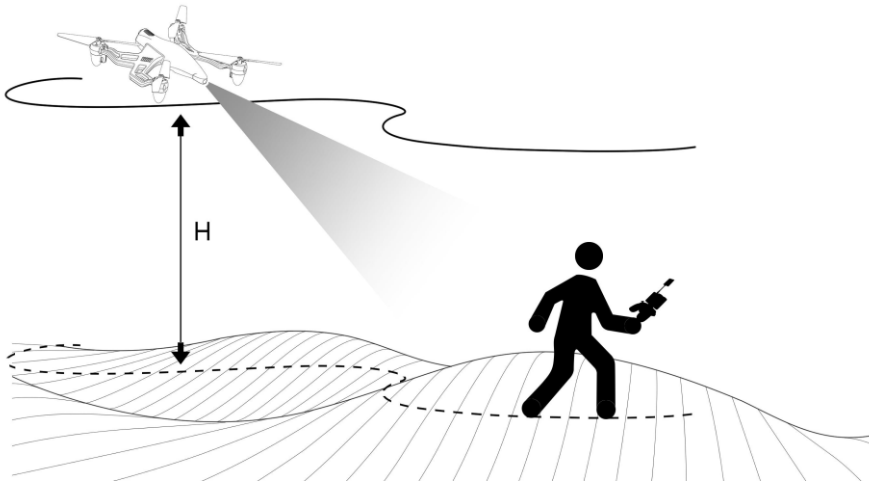
1. The drone will switch to circling tracing mode when flying above the target, and aim at the target with its camera, and automatically circling around the target.



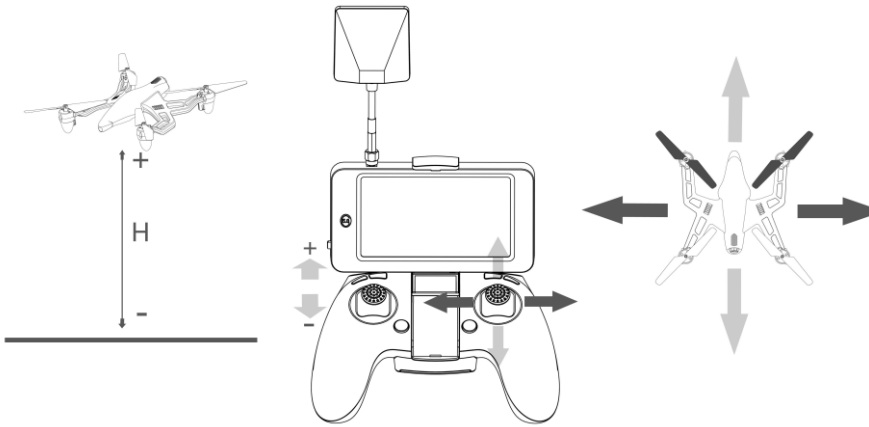
2. In circling tracing mode, the altitude, circling radius and flying speed can be adjusted by control channels for throttle, pitch and flap.

Intelligent tracing

Attentions: **It's a must to make sure that well GPS signal is available for both the controller and the drone when using this function.**



■ After switched to intelligent following mode, the flying direction will be automatically locked to the controller.

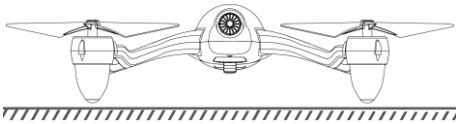
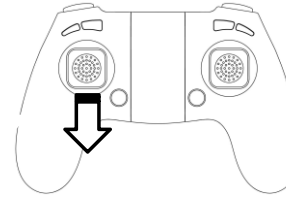
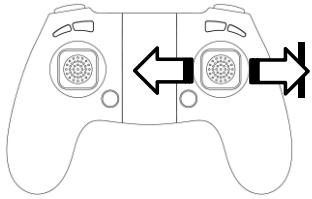
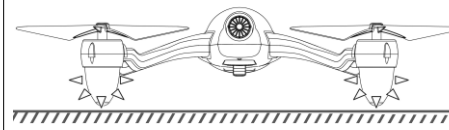


■ In intelligent tracing mode, the tracing position can be adjusted by control channels for throttle, pitch and flap.

Horizontal Gyro

If the drone is shifting and hard to control during flying, please calibrate again the gyro.

Steps of calibration are as follows:

	
1. Put the drone connected with the battery on a level place, and wait for the completion of its initiation.	2. Push the throttle at the most lowest position (0). (Throttle control by left joystick)
	
3. Pull and push the flap joystick leftward and rightward to the utmost. (Throttle control by left joystick)	4. The setting will be completed when the red and green LEDs on the drone flash alternatively for few seconds and then turn off.

Common Questions

- Controller indicator is off.

  A: Please check whether the battery of the controller supplies voltage or wrongly installed.

- Drone indicator is off.

  A: Please check whether the battery of the drone supplies voltage or connected in position.

- Shaking or shifting during GPS flying of the drone.

  A: Please re-calibrate the compass.

- Can't take a video.

  A: Please check whether the SD card is assembled in place or the SD card is full.

- Indicator on the drone flashes, but the drone can't take off.

  A: Please check whether the battery has adequate power.

- The drone doesn't respond to the controller.

  A: Please check whether the controller has been paired with the drone.

- The drone is shifting and hard to control.

A: 1. Re-electrify the drone and keep the drone in stationary status till the completion of automatic calibration during initiation.

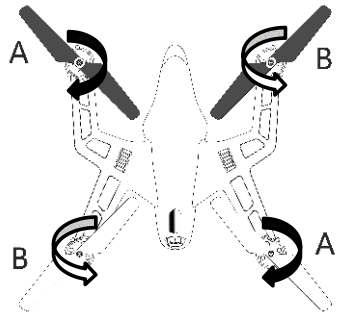
2. Put electrified drone on level ground, and carry out horizontal calibration according to the steps described in setting of horizontal calibration.

- Severe shaking and big noise of the drone.

A: Please check whether there is uneven surface of the body and the propeller, whether there is damage on the propeller and motor, and whether the screws on the body are fastened.

- Propellers of the drone are rotating, but the drone can't take off.

A: Please check whether the propeller A and propeller B are installed correctly. (Refer to following figure)



Accessories

Drone body assembly	**Propeller assembly**	**Motor assembly**
Flying control board	**Lithium battery**	**USB recharger**
Controller	**Camera**	**Screws pack**
Reducer assembly	**5.8G Display Screen**	

Flying controller, parameter tuning program and operating instructions are needed for the use of this product. If there is any conflict between the equipment and firmware (and firmware instructions), please subject to the firmware.
These operating instructions may be updated without further notice.

SWIFT