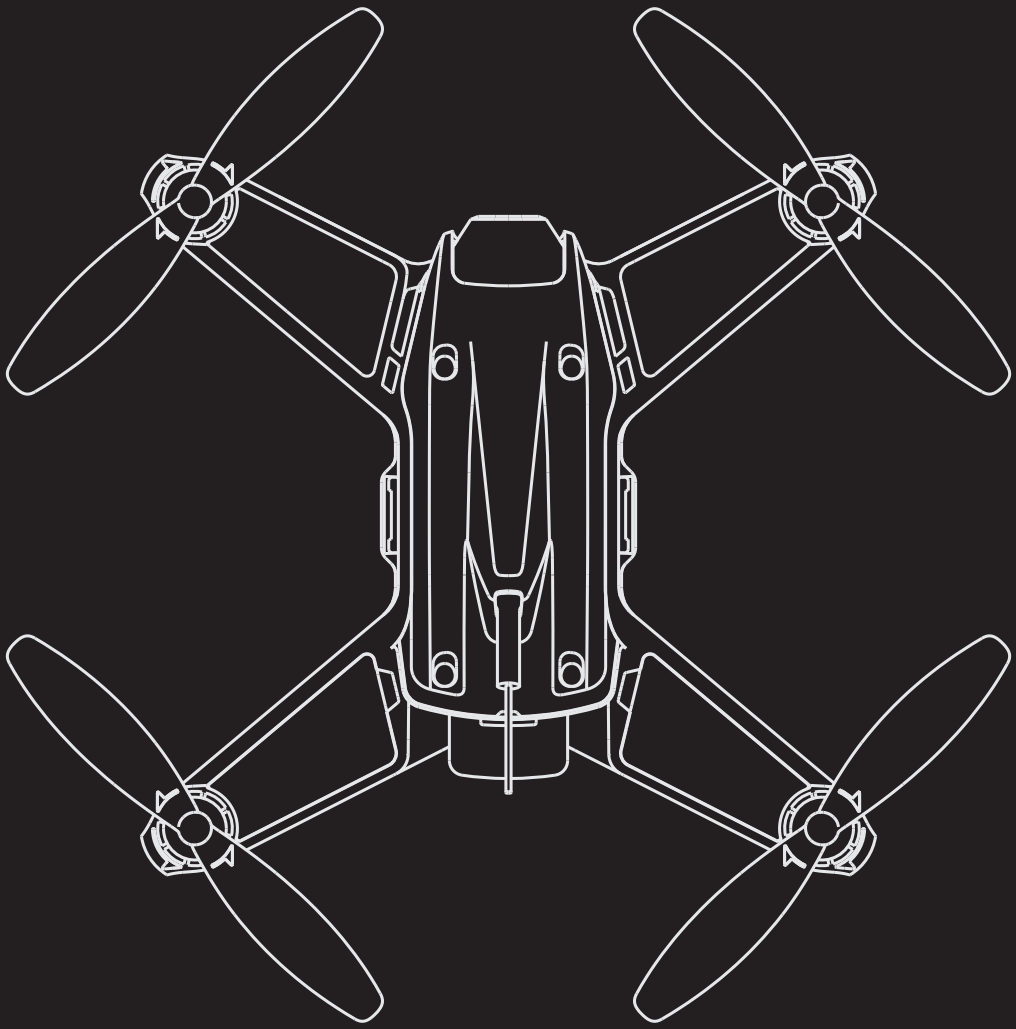
X1

User Manual V1.0



WINGSLAND

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Introduction

Symbol Descriptions

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User Suggestion

Wingsland X1 is an aircraft with lots of entertaining options, but please be attention that the X1 is not a toy. The wingsland X1 contains a flight controller, video system, propulsion system and intelligent flight battery, we highly recommend you to read the wingsland X1 Quick Start Manual and the X1 User Manual carefully before your first flight , to watch the video tutorial to ensure your safety.

Video Tutorial

Users can search the X1 video tutorial on www.wingsland.com

Download Wingsland X1 APP

Download wingsland X1 APP to control the flight.

How to Download:

1. Login www.wingsland.com to download.
2. To download the APP in Apple Store or Google by searching keyword: wingsland X1

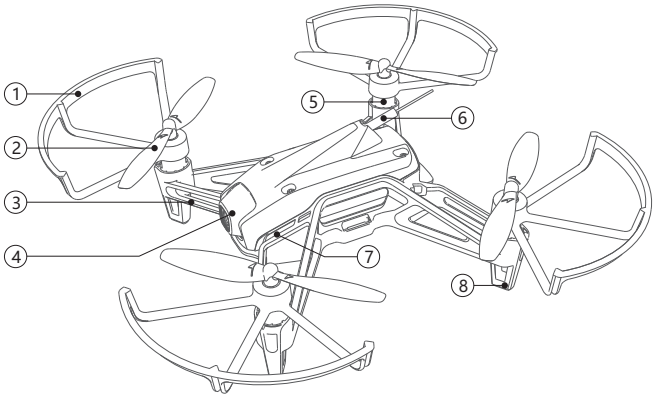
Product Descriptions

Brief Introduction

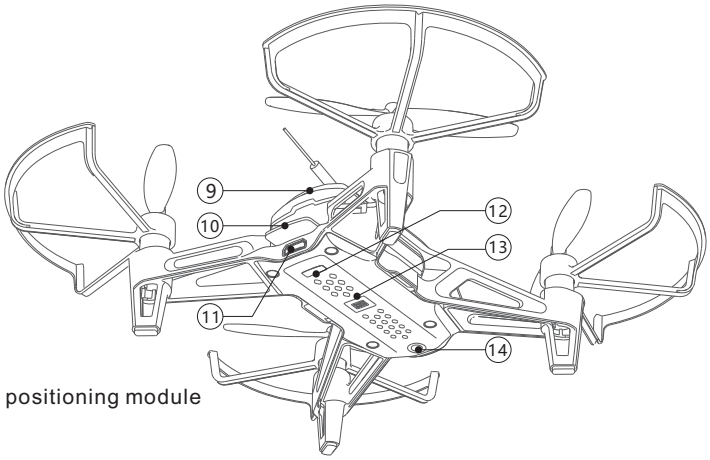
The wingsland X1 is a FPV drone with many entertainment features, you can control the flight by using your mobile devices. Indoor Optical Flow Positioning System can help you to achieve indoor hover and speed racing easily. The X1 is Equipped with adjustable HD camera and HD digital transmission to seize the moment. You can enjoy the FPV flight and capture the memorable second at the same time .

Makes it a typical FPV drone, you can capture the memorable moments and enjoy the speed racing at the same time.

Aircraft Diagram



①Propeller guard
②Propeller
③Arm
④Camera
(Camera Angle is manually adjustable)
⑤Motor
⑥Antenna
⑦Front light
⑧Footpad



⑨Battery
⑩Battery clip
⑪USB port
⑫Back light
⑬Accessory port
⑭Optical flow assisted positioning module

Aircraft

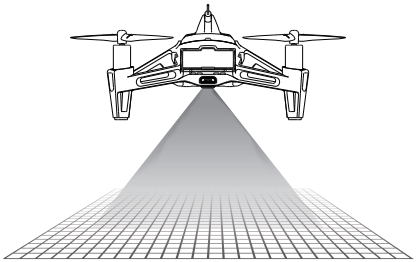
Vision positioning system

Brief Introduction

When the X1 takes off, at a flight height no more than 2.5m, if you stop any operation of direction or height, it will hover at the current position.

Work Theory

When the X1 takes off, at a status of no operation, the optical flow sensor which located on the bottom of the aircraft can identify the ground image so the X1 can hover at current height and postion.



At a flight height no higher than 2.5m, the vision system can't function properly, the X1 won't hover but flow with air.

The vision positioning system can be affected by flying speed, light intensity and object surface texture, it won't hover at the situations below:

- high speed flight at low altitude.
- A strongly reflecting object surface.
- Surfaces of water and single color objects.
- Extremely bright or extremely dark.
- An object surface having a slope of more than 30 degrees.
- Other conditions that may affect ultrasound and optical flow localization.

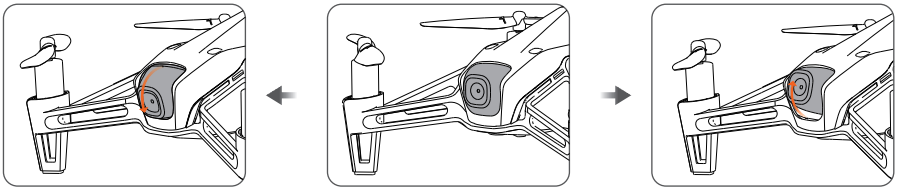
Adjustable Camera Angle

Camera Angle Adjust System

The X1 aircraft cameras are designed with adjustable angle, when the lens and the aircraft body are at the same level, (The relative angle is 0 degrees),you can use your fingers to adjust the camera angle, the adjustable angle is 15 degree.

How to Adjust Camera Angle

At the status that the X1 doesn't take off, use your fingers to poke the camera to adjust its angle.



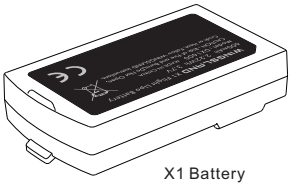
Camera down 15°　　The X1 default camera angle is 0°　　Camera up 15°

- Please adjust the camera angle gentlely.
- Over adjustment may cause the damage of the X1.

Camera

After the X1 aircraft is powered on, the camera will be activated automatically.
Through the image transmission system, the camera can transmit the captured picture to X1-app meanwhile with the highest resolution of 1280x720p.
The photos or videos will be stored in your mobile device's album, athe stored video resolution is 640x368, image resolution is 640x368.

Exclusive Battery



X1 Battery

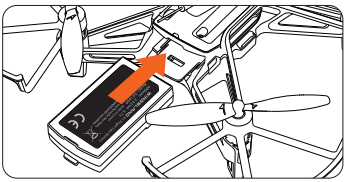
Brief Introduction

The X1 lithium battery has a capacity of 600mAh, voltage 3,7V, the maximum flying time is 7minutes. (the maximum flying time is tested under the Wingsland experimental environment)

Battery Assembling and Disassembling

① Assembling:
When the battery is installed, the battery should be facing up and inserted into the battery compartment to ensure that the tail of the battery is stuck on the battery lock.

② Disassembling:
Pull the battery latch down and pull the battery out with your fingers.



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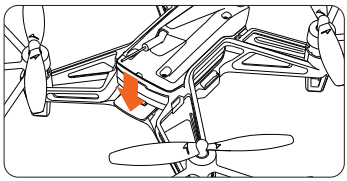

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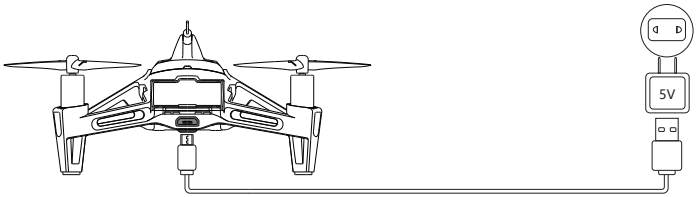
Charging

1. Insert the X1 battery into the battery compartment.
2. Connect one end of the micro USB connector to the aircraft, and the other end to the power adapter. The input voltage is 5V.
3. During the charging , the front indicator light of the X1 will blink slowly, and it will go out when the charging is complete.
4. When the charging current is greater than 1A, the charging time is about 50 minutes. After charging, unplug the micro USB cable and remove the battery.

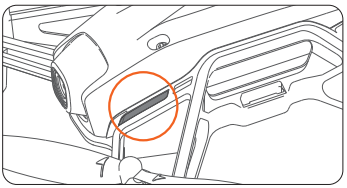


The Aircraft Charging

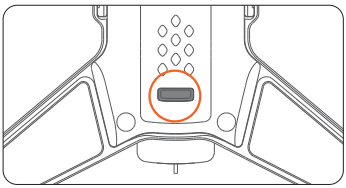
- In low temperature environment, the performance of the battery will be seriously affected and the flight time will be shortened. Please preheat the battery to over 20 degrees centigrade.
- Because some types of adapters have less charging current , the battery charging time will be prolonged.

- Please fully charge the battery before using.
- To ensure optimal performance of the battery, please don't store the full charging batteries for a long time. If you are not going to use the battery in a while, please fully charge the battery and fly with it about 2 minutes for discharging purpose, then store the battery in a cool and dry condition.
- Please see more detail at the “Battery User Tips” in this User Manual.

Status Indicator



Aircraft front light



Aircraft tail light

Brief Introduction

There are 2 indicators on the aircraft, 2 are located on the front and 1 is located at the end of the aircraft, they show the orientation and some functions of the X1, it helps the users to get to know the aircraft status in an easy way.

Definition

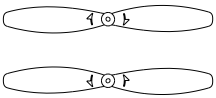
Aircraft tail indicator:

Aircraft Status	Indicator status	diagrammatic table
Aircraft power on, before taking off	Green light Single interval scintillation	
After taking off	Green light double interval scintillation	
Low battery	Red light flashes fast	
The aircraft lands with low battery or fault	The red light will not go out	

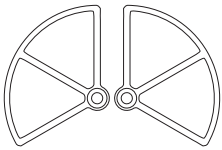
Aircraft front indicator:

Aircraft Status	Indicator status	diagrammatic table
Aircraft powered on	Blue Color Indicator lights flash 4 time	
Mobile device unconnected with aircraft	Indicator lights off	
WiFi connected and opened the APP	Blue Color Indicator lights normally on	
Charging the battery	Blue Color Indicator lights keep flashing	
Charging finished	Indicator lights off	

Propeller & Propeller Guard



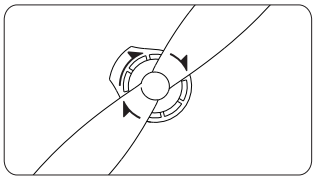
Propeller



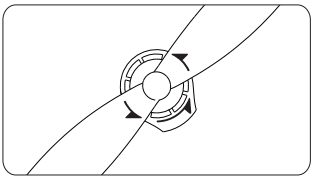
Propeller Guard

Brief Introduction

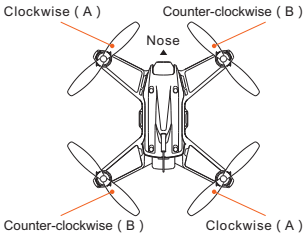
Propeller and propeller guard are easy to disassemble.
Please pay attention to the arrow direction on the propellers while installing them, and make sure the directions are same to those on motor.



Direction for Clockwise Propeller(A) and corresponding motor



Direction for Counter-clockwise Propeller(B) and corresponding motor



ⓘ If the propellers are not installed on corresponding motors, the X1 aircraft cannot fly normally, and will even flip over or rotate on the ground.

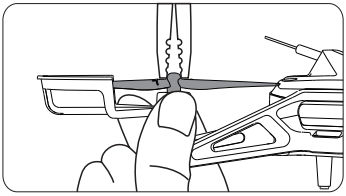
How to Disassemble

① How to disassemble the propeller

Pull the propeller guard down with one hand, while use the tool to clamp the propeller to lift it up.

② How to disassemble the propeller guard

Hold the motor with one hand, twist and pull off the propeller guard.



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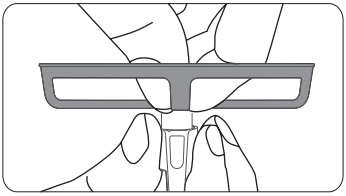

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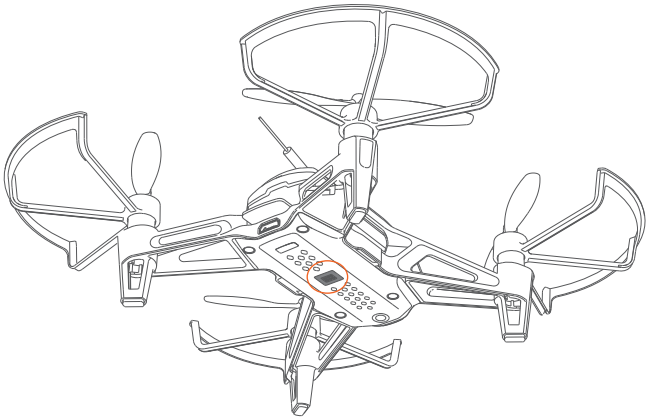
Extension Port



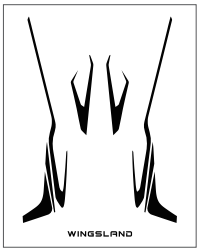
The extension port is located at the bottom of X1, it is used to connect with the optional entertaining accessories provided by wingsland.

DIY Stickers

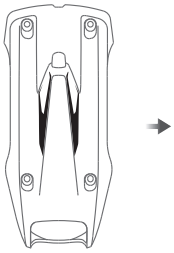
Stickers Usage:

① Paste the middle stickers on the middle of the aircraft upper shell.

② Then paste the side stickers on two sides of the aircraft upper shell.



Stickers



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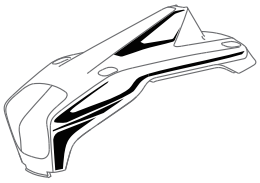

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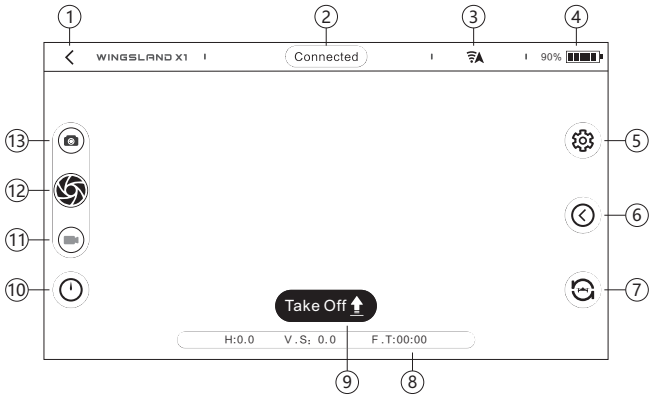
Wingsland X1 APP

After the mobile device connected with the X1 WiFi, you could control the X1 on wingsland X1 APP.

Control Interface Introduction :



① Exit
② Connection Status
③ WiFi Signal
④ Battery Level
⑤ General Settings
⑥ IOC Setting
⑦ Flipping
⑧ Flight Data
⑨ Auto Takeoff/Landing Button
⑩ (3s) Time-lapse photography
⑪ Video
⑫ Shutter
⑬ Photo

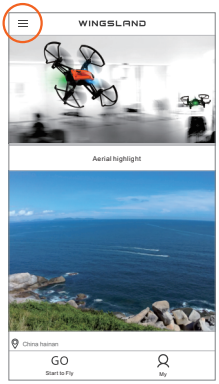
Detailed APP Interface Introduction :

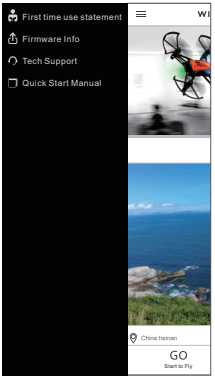
1. Find the X1 APP icon on your device, click and enter into the main interface.

X1 APP icon

Main Interface

2. The menu at the top left corner contains the “First time use statement”, firmware information, technical support and “Quick Start Manual”.

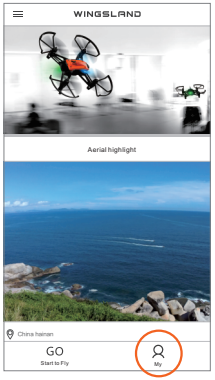


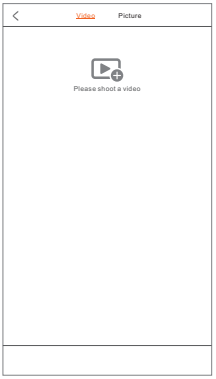


Main Interface

Menu

3. Select “My”on the bottom and you can view the photos or videos you took.

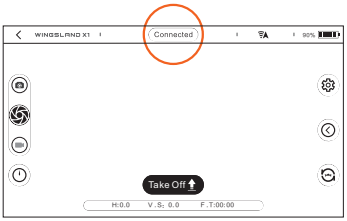




Main Interface

View video and photo

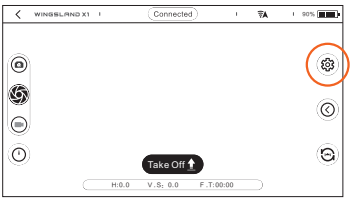
4. Select “Start to Fly”and get into control interface. Real-time image would be shown on screen if device is successfully connected.



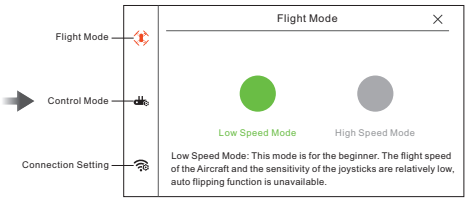
Main Interface

Control Interface

5. Select “Setting” icon on the right, there are “Flight Modes, ”Control Modes”and “Connecting Setting”.
6. Under the“Flight Modes”you can choose “Low Speed Mode”or “High Speed Mode”base on your preference. For the beginners we recommend you choose “Low Speed Mode”for a better control.



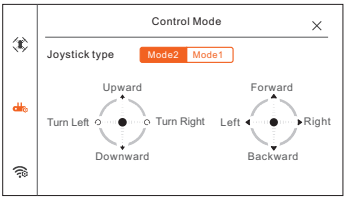
Control Interface



Flight Modes – Low Speed Mode, High Speed Mode

ⓘ The auto flipping is not available under the low speed mode.

7. Under the “Control Mode“ section, you can select your preferred control mode. We recommend users select “Mode 2” if you have never flown aircraft.

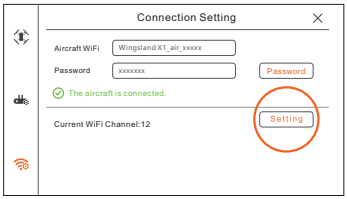


Control Setting

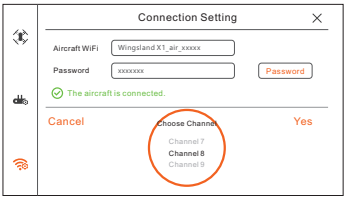
8. Under the “Connection Setting”, you can reset the WiFi password.

Connection Setting – Reset password

9. Under the “Connection Setting”, you can also change the WiFi frequency channel. If the you fly the aircraft in a strong signal interference area, or more than one X1 in the same area, we recommend changing the frequency channel, so that mobile devices and X1 can smoothly communicate.



Set the channel

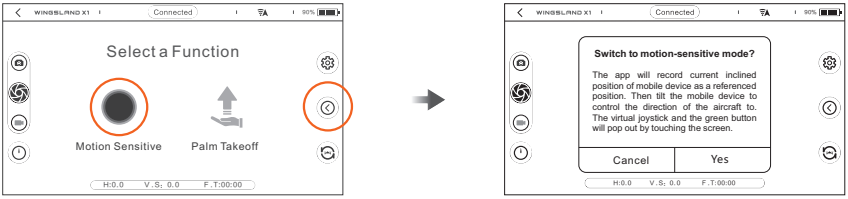


Choose Channel

Function Menu

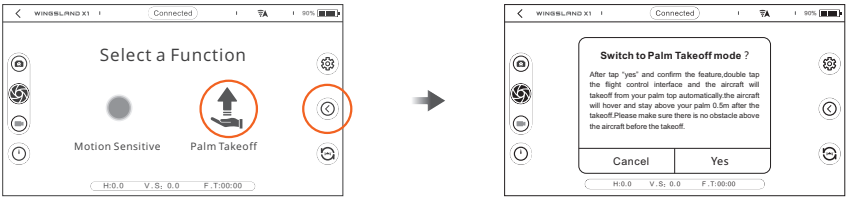
Motion Sensitive:

Tap “Function Menu” icon, select “Motion Sensitive” mode, read the notification and select “Yes” to start using “Motion Sensitive”.



Palm Takeoff:

Tap “Function Menu” icon, select “Palm Takeoff” mode, read the notification and select“ Yes” to start using “Palm Takeoff”.

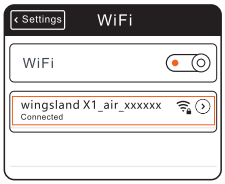


Using Mobile Device to control aircraft

Flight Preparation

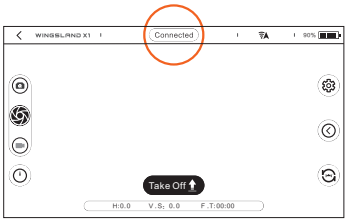
Please follow the steps below to control the X1 aircraft by mobile devices:

1. Please make sure X1 aircraft is fully charged.
2. Insert the battery to X1 battery compartment and make sure battery is firmly installed. Then the X1 aircraft is turned on.
3. Search the WiFi broadcasted by X1 aircraft on your mobile device. The default WiFi name should be : wingsland X1_air_xxxxxx , and the password should be “wingsland”.



4.Run the wingsland X1 APP, tap “Start to Fly” and get into the control interface. The real-time image would be shown if the mobile device is successfully connected.

Main Interface



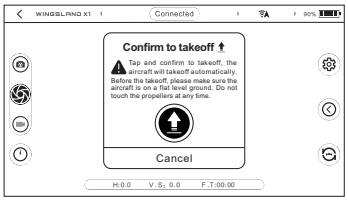
Control Interface

Takeoff

We recommend users only fly aircraft when lighting condition is adequate and on textured surface.

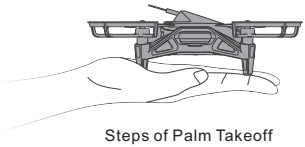
Auto Takeoff

Tap “Take off” on main interface, after reading the warning notification, tap on the takeoff icon, then the aircraft will take off and stay hovering on a certain height.

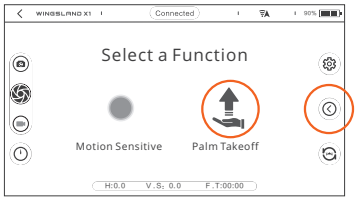


Palm Takeoff

- After the aircraft is connected to the mobile device, put X1 on your palm and stretch your arm.
- Tap “Function Menu” icon and select “Palm Takeoff”, double tap the screen after confirm the notification, then the aircraft should automatically take off.
- After takeoff, X1 will stay hovering over the palm by about 0.5 meter.



Steps of Palm Takeoff

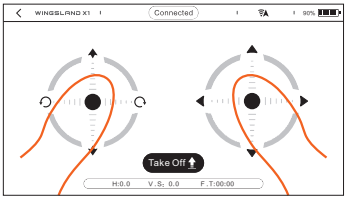


Select Palm Takeoff

Please ensure there is no obstacle in aircraft hovering height.

Virtual Joystick Control

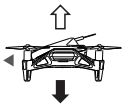
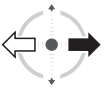
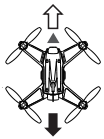
Users should be able to control X1 by virtual joystick after takeoff. Take the center line of the screen as the dividing line, the left virtual joystick will pop up when user press left side of the screen. Same, the right virtual joystick will pop up when user press right side of the screen.



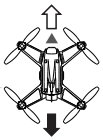
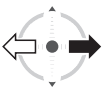
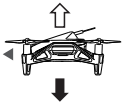
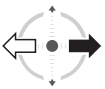
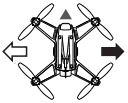
Virtual joystick

- After takeoff, users can control the altitude and direction of aircraft by virtual joysticks.
- Below is the introduction to control virtual joystick. We recommend users select “Mode 2”by default if you have never flown aircraft.

Mode 2:

Virtual Joystick	Aircraft (▲front)	Control
Left joystick 		Left thumb slide up,Aircraft will fly upwards,Left thumb slide down,Aircraft will fly downwards.
Left joystick 		Left thumb slide left,Aircraft will rotate to the left,Left thumb slide right,Aircraft will rotate to the right.
Right joystick 		Right thumb slide up,Aircraft will fly forwards.Right thumb slide down,Aircraft will fly backwards.
Right joystick 		Right thumb slide left,Aircraft will fly leftwards.Right thumb slide right,Aircraft will fly rightwards.

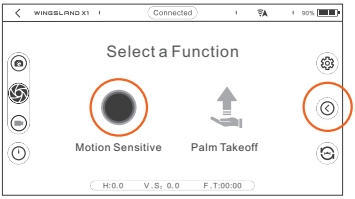
Mode 1:

Virtual Joystick	Aircraft (▲front)	Control
Left joystick 		Right thumb slide up,Aircraft will fly forwards.Right thumb slide down,Aircraft will fly backwards.
Left joystick 		Left thumb slide left,Aircraft will rotate to the left,Left thumb slide right,Aircraft will rotate to the right.
Right joystick 		Left thumb slide up,Aircraft will fly upwards,Left thumb slide down,Aircraft will fly downwards.
Right joystick 		Right thumb slide left,Aircraft will fly leftwards.Right thumb slide right,Aircraft will fly rightwards.

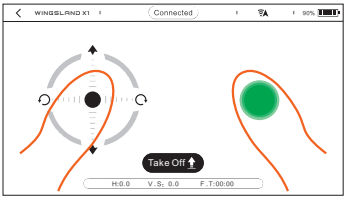
Motion Sensitives Mode

Motion sensitive mode is based on the gravity sensor built in the mobile device, to control the motions of the craft by tilting the mobile device.

Switch to Motion Sensitive Mode:



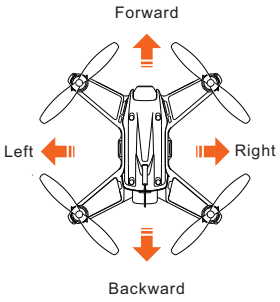
Tap"IOC Setting"icon ,Select Motion Sensitive and confirm.



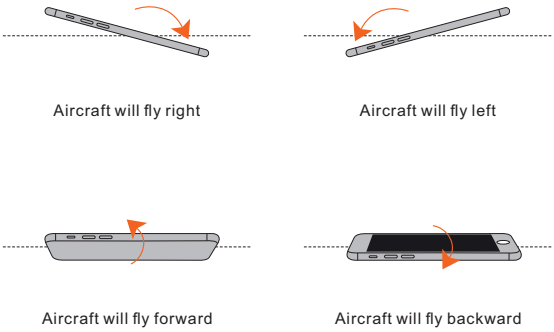
Motion-sensitive Mode Interface

How to control:

Under the Motion Sensitive Mode, tap the screen, a virtual joystick will be displayed in the left of the APP screen, which controls the throttle and rotation of the aircraft. Tap and hold the red round on the right of the APP screen, then tilt the mobile device to control the motions of the aircraft when the round turns green. Tilt the mobile device up/down, the aircraft will fly forward/backward, tilt the mobile device left/right, the aircraft will fly toward left /right.



Nose Direction of Aircraft



Aircraft will fly right

Aircraft will fly left

Aircraft will fly forward

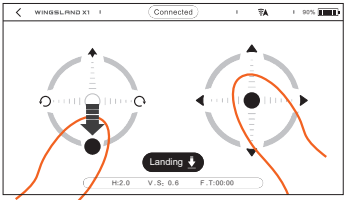
Aircraft will fly backward

Under Motion Sensitive mode, left virtual joystick functions are the same as Mode 2.

Landing

Manual Landing:

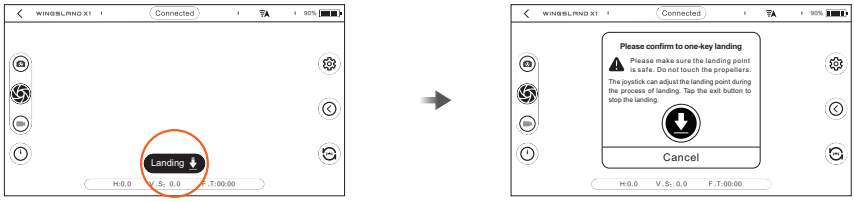
After the flight, left thumb slide to bottom (Mode 2) and X1 aircraft will be landing on current location.



Manual landing

Auto Landing:

Tap on the “Landing” icon, after reading the warning notification and confirm landing, the X1 aircraft will be landing on current location.



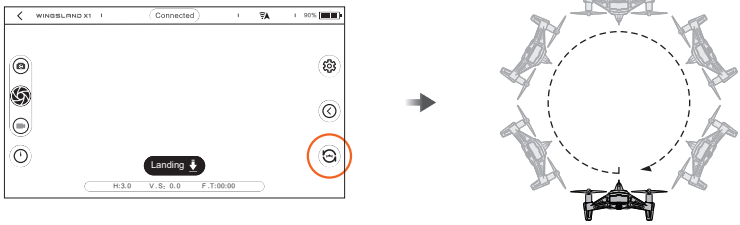
Auto Landing

Auto Flipping

By the Auto Flipping function, X1 aircraft can perform a 360° auto flipping in the air. After flipping, X1 will stay hovering at current location.

Operation:

After X1 takes off and stays hovering, tap the Flip icon on the lower right side of control interface, then X1 will automatically flip 360° in the air.



- Please ensure enough space for the Aerial Flip, at least 1m from X1 to the top, bottom, left and right.
- The Auto Flipping function can not be active when battery power is lower than 60%.
- Don’t use the auto flipping function while flying with propeller guards. Otherwise the drone may lose control while auto flipping. Please take off the propeller guards before flipping.

Disclaimer

This product has a certain risk, may cause harm to the operator, nearby people and their property. Please read this document carefully before you use this product. Once you use, we will recognize that you have understood and accepted all rules and contents of our statement. “Shenzhen Wingsland Technology Co., Ltd.“ will not undertake liabilities to any direct or indirect personal injury and property loss if users do not use this product according to below safety guidelines and user manual.

Product Safety Notice

1. The product is not for children under 14.
2. Only use wingsland approved accessories. wingsland takes no responsibility if any injury or damage happened caused by a third party accessories.
3. Please choose a wild open area to fly your aircraft. Do not touch the rotating propellers.
4. Rotating propellers may cause serious injury, keep away from crowds.
5. Be careful when flying the aircraft. Avoid hitting people, and keeping certain distance away from children and animals.
6. Do not fly the aircraft into fireplace or other place may has a extremely high temperature.
7. Do not fly the aircraft into water or landing on a water surface
8. Do not fly the aircraft through a window from indoor to outdoor.
9. Stop using the products if an abnormal performance happened. Contact wingsland after-service center or an authorized wingsland dealer.

Flight Battery Safety Guidelines

Battery Use:

1. DO NOT allow the batteries to contact any liquid. DO NOT use the battery in rain or moist environment. If the battery pins or inside get in touch with water, it may lead to corrosion or even explosion.
2. Do not put the battery into fire or store in a high temperature environment. Using the battery in environments above 50℃ may cause fire or explosion.
3. Do not use non-Wingsland batteries, wingsland takes no responsibility for any damage or accidents caused by non-Wingsland batteries.
4. Do not use or charge swollen, leaky or damaged batteries. If above situation occurs,please contact Wingsland for after sales service.
5. Storing or using the battery in temperature under 0℃ will heavily cut down the battery lifetime.
6. Do not drop, strike, impale the battery. Do not use a swollen, leaky or damaged battery.
7. Avoid the short-circuit in the battery, and store the battery with no conductor around.
8. Do not put heavy objects on the battery.
9. Clean the battery with a dry cloth if there is any dirt on the battery.
10. If found the battery leakage, do not contact with skins and eyes. If you do contact,immediately rinse with plenty of water and seek medical help.
11. If the drone falls into water during flight, please take the battery out immediately and place it in safe place. Stay away from the battery until it is dry. Please don’t use the battery again and dispose it according to below section ‘Disposal’.
12. Put out any battery fire using sand or a dry powder fire extinguisher.
13. Store the battery in a dry environment with an appropriate room temperature.
14. The battery performance will be affected after long time storage at a low battery level.

Charging

1. Follow the stipulations of Charging methods in our company's <<Users Manual>>.
2. Please place aircraft or charger on cement floor , keep away from Flammable, combustible materials. Please pay attention on battery while charging to prevent accidents.
3. The perfect charging temperature is 15℃ and 40℃. Do not charge the battery after flight immediately. Charging in the heat of a battery may shorten battery life , even catch fire.
4. Disconnect the power and remove the battery when the charging is finished.

Storage and Transport:

1. Keep batteries out of the reach of children.
2. DO NOT leave the battery near heat sources, the ideal storage temperature is 22℃-28℃.
3. Storage of batteries should be kept dry, keep the battery away from the damp environment.
4. Do not transport or store the battery together with metal objects such as metal necklaces,watches etc.
5. Do not transport damaged batteries.
6. Please follow the relevant regulations of the local airline before bring the battery to the flight.

Disposal:

Dispose of the battery in specific recycling boxes only after a complete discharge. Batteries are dangerous chemical goods. DO NOT place the battery in regular trash containers. Strictly follow your local regulations regarding the disposal and recycling of batteries.

Limitation of Liability

Wingsland accepts no liability for damage(s), injuries or any legal responsibilities incurred directly or indirectly from the use of this product in the following conditions, and this limitation of liability applies to wingsland suppliers, dealers and service providers:

1. Any more you paid in amount for this product than the actual purchase price.
2. Any costs and expenses with access to alternative goods, services or rights.
3. Costs, expenses increased, loss caused by the data loss, data corruption or data interruption.
4. Any loss caused by the violation of the provisions of local laws and regulations or the civil aviation administration laws.
5. Any loss caused by the usage of product without abiding by the User Manual.
6. Any loss caused by the age, physical and mental condition of the Operator who is not in the proper condition.
7. Damage(s), injuries or any legal responsibilities cause by using a third party alteration products or fake Wingsland products.
8. Any loss caused by improper use in a strong magnetic field or in a bad environmental condition (such as in the temperature higher than 40 degrees or below 0 degrees Celsius, and in a wind speeds exceeding 5m/s,etc.).
9. Any loss caused by Force Majeure.

Firmware Upgrade

When new firmware is launched, wingsland will publish the new firmware on the our official website. Please subscribe to our official website: www.wingsland.com

Please go to wingsland official website www.wingsland.com for user registration, when a new firmware update, we will inform you by e-mail.

Appendix

Specifications:

Aircraft

● Model	Four-axis
● Diagonal wheelbase	120 mm
● Total weight	70g (with battery)
● Maximum ascending speed	1 m / s
● Maximum descent speed	0.6 m / s
● Maximum pitch angle	30°
● Optical hover accuracy level	+/- 0.5 meters
● Maximum flight time	7 minutes
● Maximum flight distance	100 meters
● Altitude	0 to 4000 meters
● Best working environment	5°C ~ 40°C

Camera

● Adjustable lens range	0° ~ ±15 °
● Photo resolution	640x368
● Video resolution	640x368

Biography

● Image transmission type	Digital
● Image transmission range	50 meter
● Image transmission mode	WiFi
● Image transmission resolution	640x368

Battery

● Battery capacity	600 mAh
● Battery voltage	3.7 V
● Battery type	Lipo 1S
● Charging time	About 50 minutes
● Charging voltage / current	5 V / 1 A
● Best charging temperature	15 ° C to 40 ° C

APP

● Version requirements	Android 5.0 or higher IOS 9.0 or more

After-sales service information:

Tech Support: +1 866-944-8840 support@wingsland.com Website : www. wingsland.com

FCC Statement
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.

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.
-Reorient or relocate the receiving antenna.
-Reorient or relocate the receiving antenna.
-Consult the dealer or an experienced radio/TV technician for help important announcement

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

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

WINGSLAND
www.wingsland.com

★ Information in this User Manual could be amended without notice. Please download the latest version from the technical support page on our website: www.wingsland.com.

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