TODAMU

WindVision Optic Pro

USER MANUAL





Preparation steps before drone takeoff



Drone Calibration Tutorial



How to control the joystick of a drone



How to install a memory card on a drone



Introduction to Remote Control Button Functions

Disclaimers

This product is an aerial drone, not a transport aircraft. It is recommended that the payload not exceed 100g, and the drone should be used within the visible range to avoid accidents!

⚠ Warning:

1. Customers can only use the charger provided with this product to charge the device.
2. The aircraft uses intelligent lithium batteries, which are plug-in modular lithium batteries.
3. The remote control is equipped with a built-in USB rechargeable lithium battery.
4. Rechargeable batteries can only be charged under adult supervision.
5. Please dispose of discarded batteries correctly according to the requirements of the environmental protection department.
6. Please do not use this product on dangerous roads.
7. Do not overcharge rechargeable batteries, and personnel must not leave while charging.
8. Do not dispose of the battery in fire or high temperature areas, as it may cause the battery to explode.
9. Chargers and batteries are not toys.
10. Regularly check whether the product components are damaged. If any damage is found, stop using them until they are repaired completely before use.
11. This product does not provide warranty for injuries caused by accidents or collisions.
12. Light emitting diode laser radiation, do not direct the beam directly.
13. Please maintain a safe distance from the high-speed rotating propeller to avoid entanglement and dangerous cuts.
14. The motor is a heating component, please do not touch it to avoid burns.
15. Battery safety instructions: Exhausted batteries should be removed from the model.
16. The power terminal should not be short circuited.
17.USB:1-2A



MADE IN CHINA

*Please carefully read the instruction manual before flying and keep it properly for future reference.

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Quick start guide

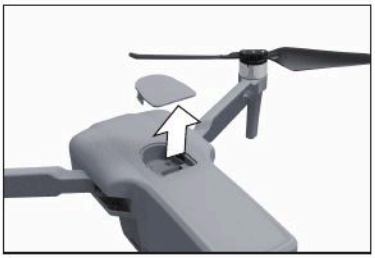
Please have a detailed understanding of the drone before flying

*Please refer to the instruction manual for specific details. Before flying, please ensure that the drone and remote control batteries are fully charged

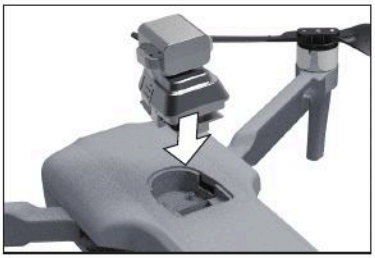
1.Precautions for installation and use of obstacle avoidance equipment:

⚠ Precautions for use:

A.The obstacle avoidance device must be installed first before turning on the drone power, otherwise it will damage the obstacle avoidance device and affect normal use



1.Remove the cover plate of the obstacle avoidance device installation position



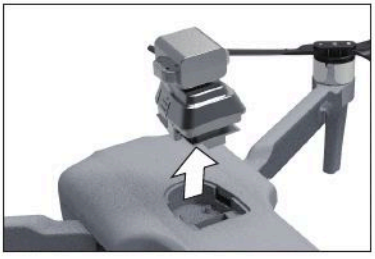
2. Insert the obstacle avoidance device as shown in the figure

B. When turning on this product, do not touch the obstacle avoidance device as it is currently powered on. Unauthorized touch may cause the obstacle avoidance device to malfunction and potentially damage its functionality





C. When dismantling obstacle avoidance equipment, the drone power must be turned off before dismantling, otherwise it will damage the obstacle avoidance equipment and affect normal use



1. Remove the obstacle avoidance equipment as shown in the figure



2. Install obstacle avoidance equipment and cover the installation position

2. Precautions for using a pan tilt camera:

⚠ Usage precautions:

A. Please remove the protective cover from the camera before starting this product.
B. Do not touch the pan tilt camera when starting this product! Due to the automatic calibration status of the gimbal at the moment of startup, touching it without authorization may cause the gimbal to fail to calibrate properly, which is highly likely to damage the gimbal calibration function! Please do not touch the camera while the gimbal is being calibrated and the device is turned on, everyone!





3. Remote control and drone frequency matching

Turn on the drone power first, then turn on the remote control power, and the drone remote control will automatically match the frequency after being powered on.
Attention: The drone is placed on a flat surface directly in front of the remote control. After successful frequency matching, the light on the remote control changes from flashing to continuous brightness, indicating successful frequency matching between the drone and the remote control.

Short press and then long press to turn on the drone power



⚠ Important Notice:
It is necessary to calibrate the geomagnetic field before calibrating the gyroscope, otherwise it will affect normal use.



Short press and then long press to turn on the remote control power

4. Geomagnetic correction

Place the drone on a horizontal surface, press and hold the indicator button (as shown in Figure 1) for 5 seconds, and then the remote control will emit a beep sound to perform geomagnetic calibration. At this time, the airplane lights will flash rapidly. Pick up the drone and press the indicator (as shown in Figure 2) to rotate it clockwise 3-5 times, and the remote control will emit a beep sound. Then the camera will rotate 3-5 times downwards (as shown in Figure 3), and the remote control will emit a beep sound. The drone lights will flash slowly, and the lights will flash slowly, indicating the completion of geomagnetic calibration!

Figure 1



Press and hold this button for 3 seconds

Figure 2

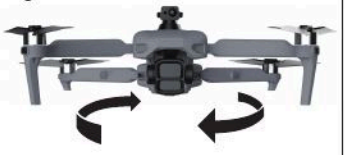
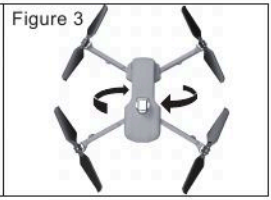


Figure 3



5. Horizontal calibration of drone gyroscope and gimbal

Place the drone stationary on a horizontal surface, press and hold the remote control for 5 seconds to make a beep sound. Press the button as shown in the picture, and the drone light will change from fast flashing to slow flashing. The drone light will flash slowly, indicating successful calibration.



Drone placement on a horizontal plane

Press and hold this button for 3 seconds



6. Flight mode switching

Attention: The product defaults to GPS mode when turned on. Without reaching 10 satellites, the drone can only unlock the motor but cannot take off. To take off, you need to switch to optical flow mode before completing satellite positioning. Press and hold the GPS switch for 5 seconds (switching method as shown in the figure on the right). After successful switching, the remote control will make a beep sound. At this time, the drone will not have any GPS related functions (one click return, low power return, lost control return, etc.)
Pay attention to the flight altitude distance to avoid losing the drone!



Press and hold this button for 5 seconds

Note: After completing GPS positioning, it is not possible to switch to optical flow mode. To switch, the drone and remote control need to be turned off and restarted.

7. Speed switching

Attention: There are three speed switches: steady mode, normal mode, and sport mode. Stable mode, the regular mode drone has obstacle avoidance function, while the sport mode does not have obstacle avoidance function. The obstacle avoidance function of the drone will automatically fail, and the drone will have no obstacle avoidance function at this time. Attention should be paid to the flight altitude and distance, as well as the surrounding flight environment, to avoid damage to the drone due to improper flight.



Normal and smooth gears have obstacle avoidance function
The obstacle avoidance function in the sports mode automatically fails

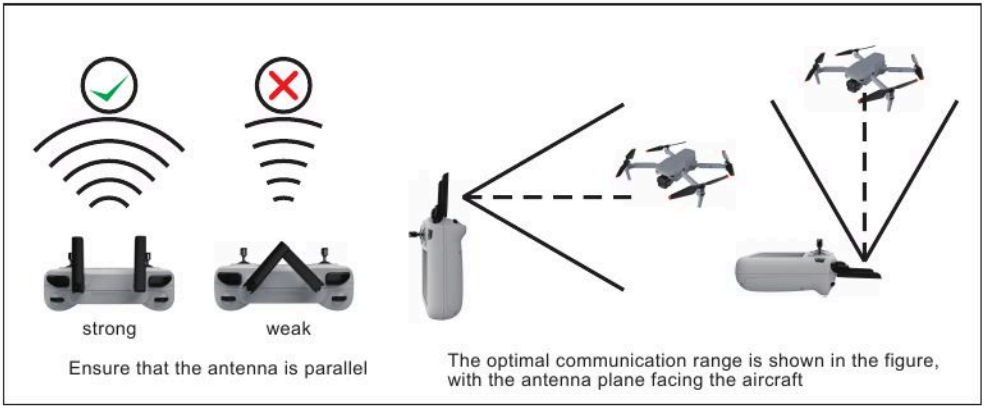
8. Drone unlocking



At this point, the throttle lever and steering lever can be simultaneously pushed towards the lower left and lower right corners (Figure 1), or towards the lower right and lower left corners (Figure 2), to unlock the vehicle. Once the motor is started, it can fly.

9. Remote control antenna instructions

In order to improve the transmission signal between the remote control and the aircraft, with a longer remote control distance and longer flight distance, please use the product according to the following instructions.



Ensure that the antenna is parallel

The optimal communication range is shown in the figure, with the antenna plane facing the aircraft

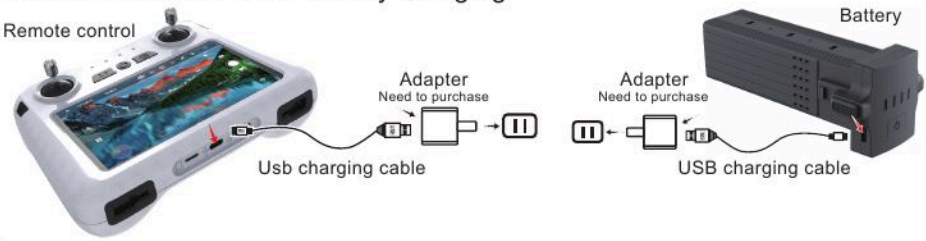
10. Charging of drone and remote control batteries

How to remove drone batteries

Press the battery buckle and remove the battery backwards.
Please keep your fingers and machine clean and dry before operation, otherwise it may slip and the battery cannot be removed.



Remote control and drone battery charging



⚠ reminder:

- Please insert the plug in the correct way.
- Suggest using a 5V 1-2A adapter for charging.
- After using the drone, please turn off the battery power in a timely manner and remove it. Place it in a cool place to avoid the drone from overheating and damage caused by prolonged power on.

11. Indoor mode/GPS mode description

Indoor mode, suitable for open indoor areas. After aligning the drone with the remote control, correcting the geomagnetic field and gyroscope, the remote control display will show "GPS signal weak, flight restriction, fixed altitude mode". At this time, the drone will automatically perform GPS star search and positioning, and the protection program will be automatically activated. It will not be able to take off, and the obstacle avoidance key needs to be long pressed for 5 seconds. The remote control will emit a "beep" sound, indicating that the GPS function is turned off and takeoff can be unlocked.
(The flight altitude is limited to 3 meters. If the drone detects the flight position during takeoff in the no fly zone, it will be forced to land within 100 seconds. Please pay attention to flight safety.)
(Note: Indoor mode does not have a series of GPS functions such as low power return and one click return. Please pay attention to the flight distance and altitude when using it.)



Press and hold the obstacle avoidance key for 5 seconds,
and the remote control will emit a "beep" sound, indicating that the GPS function is turned off

GPS mode is suitable for outdoor open areas without signal interference. After aligning the drone with the remote control, correcting the geomagnetic field and gyroscope, the remote control display will show "GPS signal weak, flight restricted, fixed altitude mode". At this time, the drone will automatically perform GPS satellite search and positioning (when searching for satellites, place the drone in an open area without tall buildings, cars, high-voltage wires, or other obstacles, otherwise it may cause the drone to be unable to complete GPS satellite search and positioning work). When the number of satellites reaches about 10, the positioning is completed, and the remote control emits a "beep" sound. The remote control displays "GPS signal is normal, and the drone can fly in fixed altitude mode". Once the positioning is successful, the takeoff can be unlocked. (Note: In GPS mode, the drone will not be able to take off until the GPS positioning is completed and the protection program is automatically activated.)

Introduction to obstacle avoidance function and working principle details

A. Working conditions of obstacle avoidance device

The product defaults to normal mode when turned on, and the drone has a 360 ° obstacle avoidance function. If switched to sport mode, due to the fast flight speed of the aircraft, the system has not received the command to stop flying, and the drone may have collided with an obstacle, the drone obstacle avoidance function will automatically fail.



Figure 1

Normal and smooth gears have obstacle avoidance function
The obstacle avoidance function in the sports mode automatically fails

B. Working principle of obstacle avoidance device

A pulse signal is emitted from the transmitting port, and when an obstacle is encountered within the scanning range, it is converted back into a pulse signal. The receiving port receives the converted pulse signal and calculates the distance between the drone and the obstacle through a series of calculations before sending a stop and forward command to the drone, thereby achieving the effect of obstacle avoidance!



C. The use and effectiveness of obstacle avoidance function

When the drone is flying, as shown in Figure 3, the effective scanning range of the obstacle avoidance device is 20 meters in front of the drone, and the scanning path is scanned about 90 degrees between the two arms in the direction of flight

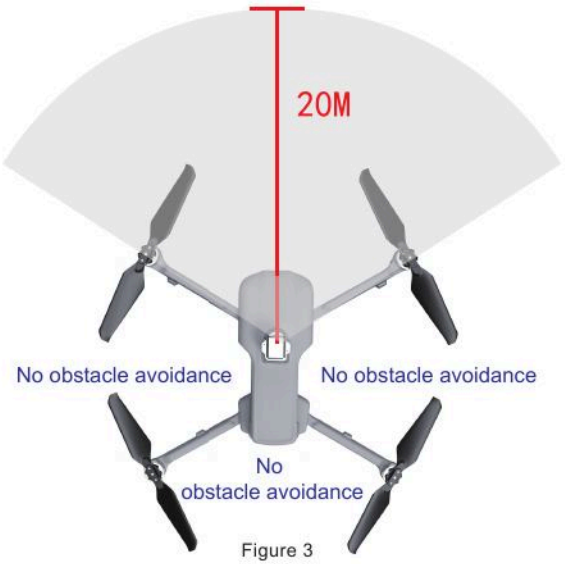


Figure 3

When the drone flies to the left, as shown in Figure 4, the effective scanning range of the obstacle avoidance device is 20 meters in the direction of the drone's left flight, and the scanning path is about 90 degrees between the two left arms. The same applies to the scanning range of the shock absorber when flying backwards or to the right.

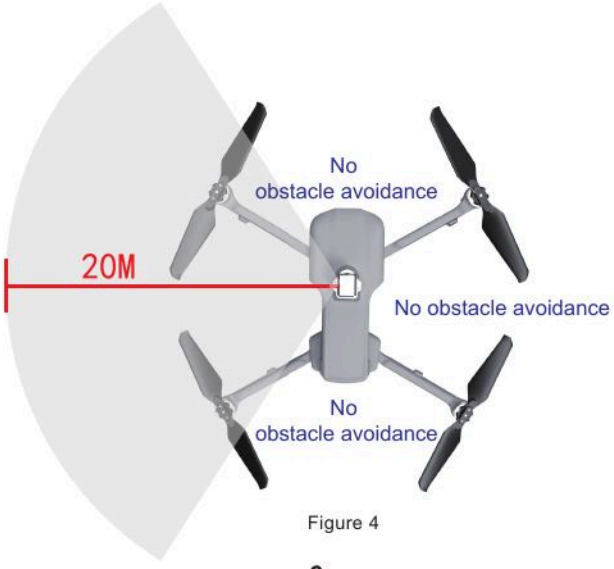


Figure 4

3. The position where the drone stops flying is determined by the flight speed, and when the drone flies at full speed in low gear. After scanning an obstacle at a distance of 20 meters, the drone begins to calculate and issue a stop flight command. The stop flight position of the drone is determined by its flight speed (the faster the flight speed, the closer the distance between the drone and the obstacle; conversely, the slower the flight speed, the farther the distance between the drone and the obstacle)

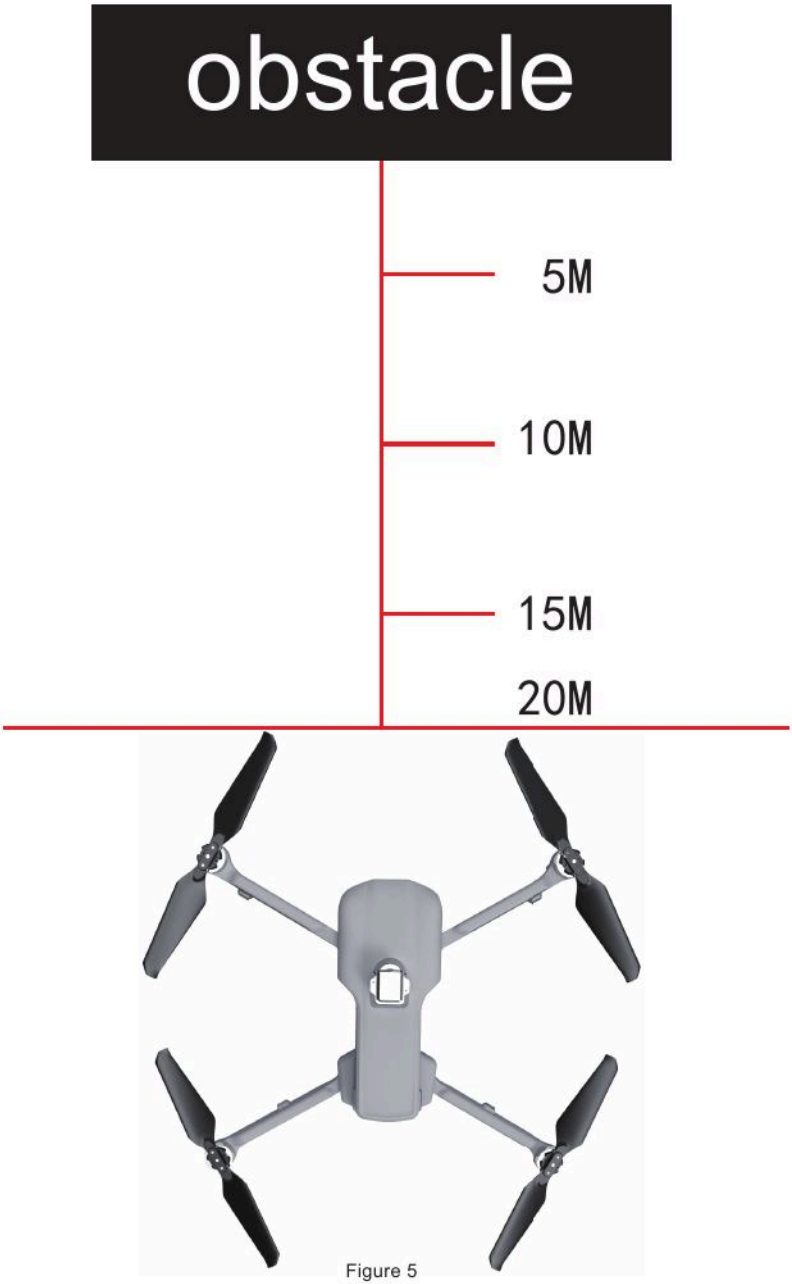


Figure 5

4.When the drone encounters an obstacle and hovers within a 20 meter scanning range in the flight direction, it cannot continue flying in that direction. It can raise and avoid the obstacle before continuing to fly or fly in another direction within 20 meters without obstacles.

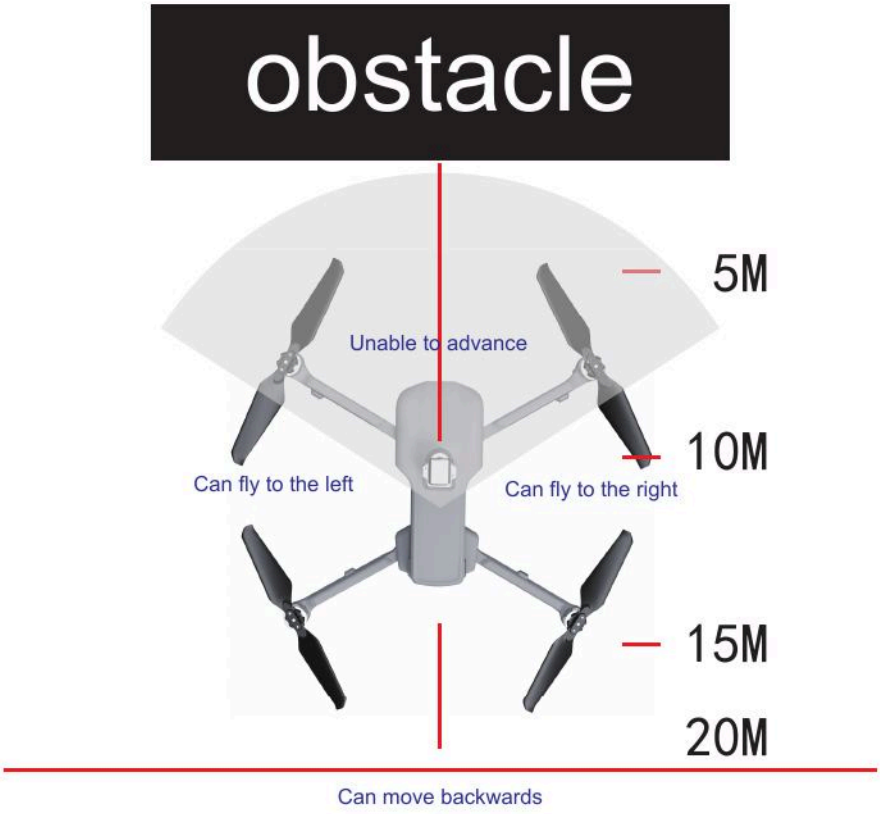


Figure 6

5. When the drone takes off, if there are obstacles within 20 meters of the forward direction, the drone cannot fly in that direction. It can raise and avoid the obstacles before continuing to fly or fly in another direction within 20 meters without obstacles.

WindVision Optic Pro

Operation Instructions



Digital image transmission

360 ° obstacle avoidance

3-axis anti shake Self stabilizing gimbal

GPS return

HD aerial photography

Intelligent Follow

recess

soar up into the sky with one start

wage-price spiral

Important statements and safety guidelines

You are welcome to purchase our products. In order to make it easier and convenient for you to use this UAV, please read this manual carefully before operating, and at the same time, please keep this manual properly as a reference for future adjustment and maintenance.

Disclaimer

*This product is not a toy, but a precision equipment that integrates professional knowledge such as mechanics, electronics, aerodynamics, and high-frequency emission. It needs to be assembled and debugged correctly to avoid accidents. The holder of the product must operate and control it in a safe manner; Improper operation may cause serious personal injury or property damage.
*This product is suitable for people who have experience operating model drones and are not less than 14 years old.
*If you encounter any problems with use, operation, maintenance, etc., please contact your local dealer or relevant personnel of our company. Our company and the seller are not responsible for any loss, damage, or bodily injury caused by improper use or operation.
*The product contains small parts, please keep them out of reach of children to avoid the risk of accidental ingestion or suffocation.

Legal norm

To avoid potential harm and losses from illegal activities, it is essential to comply with the following:
*Drones cannot take off or fly into the area within 10 kilometers on either side of the centerline of the airport runway and 20 kilometers outside the runway end!
*It is prohibited to use aircraft at large event venues, including but not limited to sports venues and concerts.
*Do not fly in areas prohibited by local laws.
*Ensure that the aircraft does not affect the large manned aircraft on the route during flight, and remain vigilant and avoid other aircraft at all times.

Safety precautions

Remote controlled model drones are high-risk commodities, so it is important to stay away from crowds during flight. Improper assembly or damage to the aircraft, poor electronic control, and unfamiliarity with operation can all lead to unpredictable accidents such as drone damage or personal injury. Operators must pay attention to flight safety and understand full responsibility for accidents caused by their own negligence.

● Stay away from obstacles and crowds
Remote controlled drones have uncertain flight speed and status during flight, which poses potential risks. When flying, it is necessary to stay away from crowds, high-rise buildings, high-voltage power lines, etc., and avoid flying in adverse weather conditions such as wind, rain, lightning, etc. The debugging and installation of drones must be strictly operated according to the operating instructions, and attention should be paid to maintaining a distance of 1-2 meters between the drone and the user or other people during flight, to avoid collisions with people's heads, faces, and bodies during drone flight or landing, which may cause injuries.
● Stay away from humid environments
The interior of a drone is composed of many precision electronic components and mechanical parts, so it is necessary to prevent moisture or water vapor from entering the body of the drone to avoid accidents caused by mechanical and electronic component failures. Please use a clean cloth to wipe surface stains during maintenance.
● Avoid operating alone
The remote control of unmanned aerial vehicles poses a certain level of difficulty in the early stages of learning. It is advisable to avoid flying alone and seek guidance from experienced individuals.
● Proper use of this product
Please use our company's original parts for modification or repair to ensure flight safety. Please operate and use within the scope allowed by the product's functionality, and do not use it for any other illegal purposes outside of safety regulations.
● Safe operation
1. Please operate the remote-controlled drone based on your own condition and flying skills. Fatigue, poor mental state, or improper operation will increase the probability of unexpected risks.
2. Do not use it near your ears! Misuse may lead to hearing loss.
3. After using the drone, please turn off the battery power in a timely manner and remove it. Place it in a cool and shady place to avoid the drone from overheating and damage caused by prolonged power on
4. This drone is limited to daytime flight only.
● Stay away from high-speed rotating components
When the drone rotor is rotating at high speed, please keep the pilot, surrounding people, and objects away from the rotating parts to avoid danger and damage.
● Stay away from heat sources
Remote controlled drones are made of materials such as metal, fiber, plastic, and electronic components, so they should be kept as far away from heat sources as possible, protected from sunlight, and avoid deformation or even damage caused by high temperatures.
● Environmental requirements
Discarding this product at will may have an impact on the environment. Please recycle and dispose of it properly in accordance with local laws and regulations.

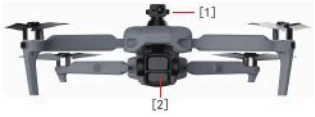
Product Configuration

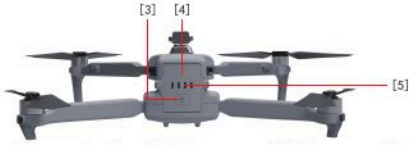
Packing list

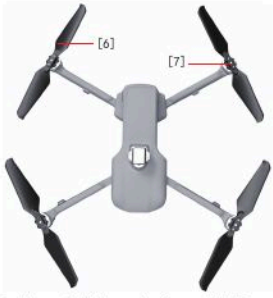
UHD

	Drone	x1
	Obstacle Avoidance Device (optional)	x1
	Remote control	x1
	Body battery	x1
	Usb charging cable	x1
	Screwdriver	x1
	Backup propeller (2)	x2
	Instructions	x1

Name of drone components



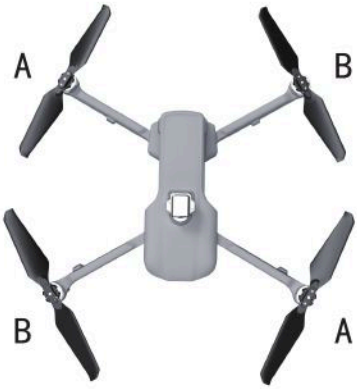




[1] Obstacle avoidance device [2] HD camera [3] Power switch [4] Intelligent lithium battery [5] Power indicator light [6] Fan blade [7] Motor

1. Propeller installation

Please ensure that all propellers are installed in the correct orientation as shown in the following diagram. If installed incorrectly, the aircraft will not be able to fly normally.





Identification table of drone noise measurement results (normalized to 1m away from the drone)

observation	hover	Fly at 1m/s
Ground observation point (vertically below)	80.1dB(A)	86.1dB(A)
Side observation point (equal height plane)	83.2dB(A)	85.6dB(A)
Note: The measurement environment is an indoor cement floor		

2. Lithium batteries for drones





1. Battery switch
2. Battery level indicator light
3. Charging interface

-Short press to turn on the light, long press for 3 seconds to turn on the device.
-Once the battery is in a low battery state and there is only one remaining battery level indicator light, please charge the battery immediately to avoid unnecessary losses.

Battery installation

Press the battery button inward, then push the battery into the drone battery holder. After installation, the battery buckle will pop outward and check to ensure that the battery is installed in place.





⚠ Kind reminder: If the battery is not installed properly, it is very likely to cause a drone to lose power and fall in the air.
After using the drone, please turn off the battery power in a timely manner and remove it. Place it in a cool place to avoid the drone from overheating and damage caused by prolonged power on.

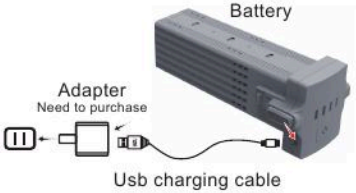
Battery removal

Press the battery buckle and remove the battery backwards.
Please keep your fingers and machine clean and dry before operation, otherwise it may slip and the battery cannot be removed.





Charging drone batteries



⚠ Reminder:



- Please insert the plug in the correct way.
- Suggest using a 5V 1-2A adapter for charging.
- After using the drone, please turn off the battery power in a timely manner and remove it. Place it in a cool place to avoid the drone from overheating and damage caused by prolonged power on.

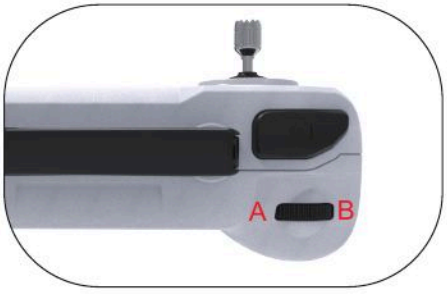
⚠ *When charging a rechargeable battery, do not use it alone for children. It must be done under adult supervision. Keep away from flammable materials during charging, and the guardian should not leave the model airplane outside the monitoring range.
*Please do not short-circuit or squeeze the battery to avoid explosion.
*The power terminal should not be removed from the model, and the terminal should not be short circuited; Do not short-circuit, disassemble or put the battery into fire;
Do not place the battery in high temperature or hot places (such as in a fire or near an electric heating device).
*The model can only use the recommended charger. Regularly check the charger's wires, plugs, casing, and other components for damage. If any damage is found, stop using it until it is repaired.
*Chargers are not toys; The charger can only be used indoors.
*After the flight, the battery needs to be charged and stored. If not in use, it is recommended to charge the battery at least once every 3 months to avoid permanent damage caused by excessive discharge.

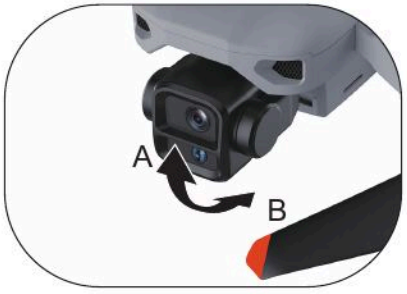
⚠ Reminder: The camera needs to be used in conjunction with a real-time transmission app. Please refer to the app manual for the download process,
The camera function description can be found in the content of the APP.

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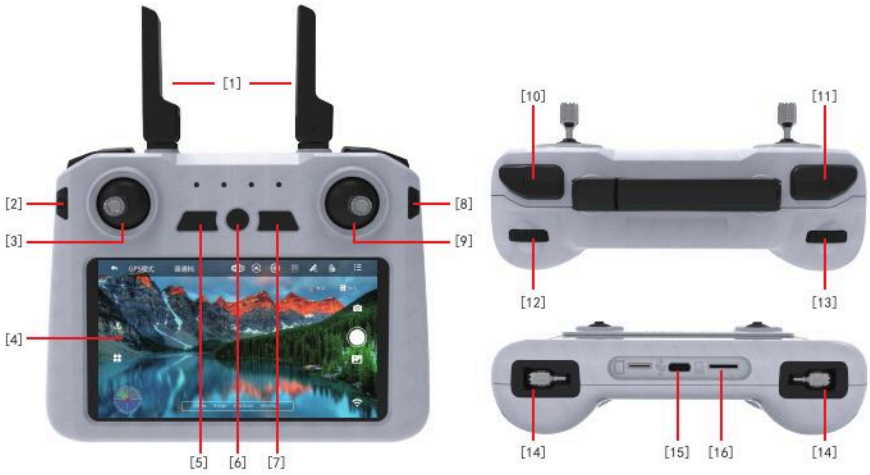
3. Control of pan tilt camera

Experience a better aerial photography process by toggling the pan tilt button on the remote control.
When the left button is pressed, the camera adjusts towards direction A; When the right button is pressed, the camera adjusts towards direction B.





Remote control component names



[1] Antenna
[2] Speed switching mode
[3] Ascend, descend, turn left, turn right
[4] Display screen
[5] One click takeoff/landing
(Hint: One click takeoff and landing within a distance of 20 meters)
[6] Power switch
[7] Obstacle avoidance switch/long press to turn off GPS
[8] Return flight
[9] Fly left and right, move forward and backward
[10] Record button, short press record/long press for 3 seconds to calibrate geomagnetic field
[11] Photo button: Short press to take a photo. When the drone is on the ground, press and hold for 3 seconds to calibrate the gyroscope. When the drone is flying at an altitude exceeding 15 meters and uses the joystick, press and hold this button for 3 seconds to activate cruise control. Press and hold again for 3 seconds to cancel cruise control
[12] Image zoom (cannot record video after zooming, only take photos)
[13] Pan tilt adjustment (<- up/down ->)
[14] Joystick storage compartment
[15] Charging port [16] SD card slot

be careful:
(1) When using remote control screen image transfer, a memory card needs to be inserted into the remote control or drone to save photos/videos.
(2) If there is an emergency situation during low battery return, you can click the "One Click Return" button to turn off the return and perform an emergency landing.

Remote control battery charging



⚠ Reminder:



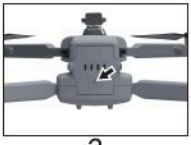
- Please insert the plug in the correct way.
- Suggest using a 5V 1-2A adapter for charging.

Preflight inspect

1. Whether the remote control and drone battery are fully charged.
2. Whether the fan blades are installed correctly.
3. Whether the motor starts normally after startup.

Drone code matching


1


2

Short press first, then long press the remote control switch, and the indicator light will flash.
Short press first, then long press the drone battery switch. The battery indicator light will turn on from left to right, and the drone light will flash. The remote control indicator light will change from flashing to long, indicating successful pairing.

Geomagnetic correction function



Figure 1



Figure 2



Figure 3

After the drone successfully matches the frequency, press and hold the remote control recording button for about 5 seconds (Figure 1). The remote control beeps once, and the drone light flashes rapidly. Pick up the drone and rotate it 3 times clockwise on a horizontal plane 1 meter above the ground (Figure 2). At this point, after the remote control beeps once, raise the drone vertically with the camera facing down (Figure 3), and rotate it 3 times clockwise. The remote control beeps once, and the drone light flashes once every second.

Reminder: Please ensure that the takeoff environment is open and the satellite signal is greater than 7 stars before takeoff.
*Do not calibrate in areas with strong magnetic fields, such as magnetic mines, parking lots, and building areas with underground steel bars.
*During calibration, please do not carry ferromagnetic materials such as keys, mobile phones, etc. with you.
*Do not calibrate near large pieces of metal.

Drone gyroscope and gimbal horizontal calibration



Place the drone stationary on a horizontal surface, press and hold for 5 seconds, and the remote control will make a beep sound. Press the button as shown in the picture, and the calibration will be successful.

Remote control dual-mode

The default GPS mode is when the device is turned on. When enabling GPS mode, it should be used outdoors in an open area without signal interference from high-rise buildings or high-voltage power lines.
ATTI MODE indoor mode requires GPS function to be turned off before takeoff.
(GPS mode cannot be turned off after GPS positioning is completed)

Aircraft light status display

1: Power on status: The green light on the front arm flashes rapidly, while the yellow light on the rear arm changes from green to red.
2: Not matching the code status: The green light on the front arm is constantly on, and the yellow light on the rear arm is flashing.
3: Need to calibrate the magnetic state: the green light on the front arm and the red light flashing slowly and quickly.
4: Correct code status: The front arm light is constantly on, and the rear arm green light is flashing.
5: Unlock takeoff status: The green light on the front arm is constantly on and flashing, while the green light on the rear arm flashes alternately in red and green.
6: Detecting gyroscope status: The green light on the front arm and the yellow light on the rear arm flash rapidly.
7: Low battery state: The green light on the front arm flashes slowly, while the red and green lights on the rear arm flash slowly.

Battery light status display:
1: Short press and long press the power button to turn on or off the device. Short press the power button to check the battery level. From left to right, the first light on the left indicates the lowest battery level. If all four lights remain on, it means the device is fully charged. If one light is less, it will have less battery level. When charging, the light on the left will start to light up. The light will light up at the highest battery level until all four lights remain on, indicating full charge.
2: Short press the battery button and all four lights will flash at the same time, indicating that the battery is dead and needs to be charged quickly

Remote control light status display:
1: Short press and long press the remote control switch button to turn on or off the device. Short press the switch button to check the battery level. From left to right, the first light on the left indicates the lowest battery level. If all four lights are on continuously, it means the device is fully charged. If one light is off, it means the device has less battery level. When charging, the left light will start to light up, and the device will light up at the highest battery level until all four lights are on continuously, indicating full charge.
2: Four lights flashing simultaneously indicate that the remote control is not aligned with the code.

Mode switching



1. [Indoor Mode] Suitable for indoor open areas, after aligning the drone and remote control, correcting the geomagnetic field and gyroscope, the remote control display will show "GPS signal weak, flight restriction, fixed altitude mode". At this time, the drone will automatically perform GPS star search and positioning, and the protection program will be automatically enabled. It will not be able to take off, and the obstacle avoidance key needs to be long pressed for 5 seconds. The remote control will emit a "beep" sound, indicating that the GPS function is turned off, and then the takeoff can be unlocked. (Note: Indoor mode does not have a series of GPS functions such as low power return and one click return. Please pay attention to the flight distance and altitude when using it.) (The flight altitude is limited to 3 meters. If the drone detects the flight position during takeoff in the no fly zone, it will be forced to land within 100 seconds. Please pay attention to flight safety.)

2. [GPS Mode] Suitable for outdoor open areas without signal interference. After aligning the drone with the remote control, correcting the geomagnetic field and gyroscope, the remote control display will show "GPS signal weak, flight restricted, fixed altitude mode". At this time, the drone will automatically perform GPS satellite search and positioning (when searching for satellites, place the drone in an open area without tall buildings, cars, high-voltage wires or other obstacles, otherwise it may cause the drone to be unable to complete GPS satellite search and positioning work). When the number of satellites reaches about 10 and the positioning is completed, the remote control will emit a "beep" sound, and the remote control display screen will show "GPS signal normal, can fly, fixed altitude mode" indicating successful positioning, and then unlock and take off.
(Note: In GPS mode, the drone will not be able to take off until the GPS positioning is completed and the protection program is automatically activated.)

Speed switching

Attention: There are three speed switches: steady mode, normal mode, and sport mode. Stable mode, the regular mode drone has obstacle avoidance function, while the sport mode does not have obstacle avoidance function. The obstacle avoidance function of the drone will automatically fail, and the drone will have no obstacle avoidance function at this time. Attention should be paid to the flight altitude and distance, as well as the surrounding flight environment, to avoid damage to the drone due to improper flight.



Normal and smooth gears have obstacle avoidance function
The obstacle avoidance function in the sports mode automatically fails

Drone unlocking



Figure 1



Figure 2

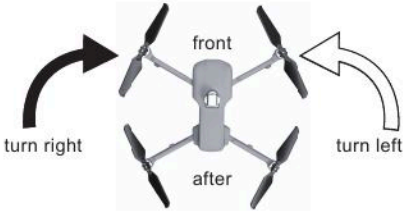
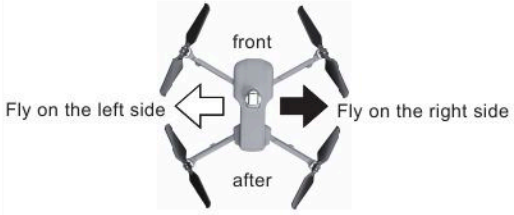
At this point, the throttle lever and steering lever can be simultaneously pushed towards the lower left and lower right corners (Figure 1), or towards the lower right and lower left corners (Figure 2), to unlock the vehicle. Once the motor is started, it can fly.

Basic Flight

Basic flight steps

1. The remote control is paired with the drone, and the drone completes initialization.
2. Geomagnetic calibration. (No need to calibrate at the same location every time)
After the gyroscope of the drone is detected, unlock the drone.
4. Push the throttle lever upwards to take off the drone, and use the left/right joystick to control the drone's attitude.
5. Turn off the drone power first, and then turn off the remote control power switch.

Flight control method

remote control	drone
	
	
	
	

One click takeoff/landing



*After unlocking, press the one key takeoff button briefly, and the drone will automatically take off and hover at an altitude of about 1.5 meters.
*During the flight of the drone, press the one key takeoff button briefly, and the drone will automatically land on the ground.

(In GPS mode, the takeoff distance must be within 20 meters for one click descent, and there are no restrictions on indoor mode)

Return function

Drones have a return function. If the return point is successfully recorded before takeoff, if there is a loss of communication signal between the remote control and the drone or when the return button is pressed, the drone will automatically return to the return point and land to prevent accidents.
There are three different ways for drones to return, namely:
1. One click return
2. Cut off signal and return
3. Low battery return.

⚠ Precautions for returning:
*During the automatic return process, the drone is unable to avoid obstacles.
*When the GPS signal is poor or the GPS is not working, it is impossible to return.
*ATTI MODE indoor mode does not have this function

Return point: During takeoff or flight, if the GPS receives 10 or more stars for the first time, it will be recorded as the current location of the drone as the return point.

One click return



When the GPS signal is good (with more than 10 satellites), the drone can start returning by pressing the one key return button on the remote control. The return process is the same as the uncontrolled return, except that when the drone returns and lands, the user can use the joystick to control the drone to avoid obstacles. Pressing the return button again can exit the return and the user can regain control.

Turn off signal and return

The GPS signal is good (with more than 10 GPS satellites), the compass is working properly, and the drone successfully records the return point. If both the remote control signal and APP signal are disconnected for more than 6 seconds, the flight control system will take over the drone's control and control the drone to fly back to a place with a signal and stop.

Low power return

The low voltage indicator light of the drone will flash slowly, and the drone will automatically return to the vicinity of the takeoff point 20 meters away. After low power, the drone will return to the vicinity of the takeoff point, and its altitude and distance will be limited to within 20 meters

The impact of temperature and environment on the use of lithium batteries in drones:

1. Temperature has a certain impact on lithium batteries: the optimal operating temperature for batteries is 20-30 ° C. Low temperature environments can reduce the activity of lithium ions, weaken the battery's discharge capacity, and shorten the usage time.
2. The impact of flight environment on endurance: When drones encounter strong winds or fly against the wind during flight, due to the high resistance, they consume power quickly and shorten the battery endurance.
So when flying outdoors, pay attention to the weather and the surrounding environment. If the temperature is low and the wind is strong, or if flying against the wind, be careful not to fly too far. Return early when the battery is fully charged to avoid being unable to complete the return midway due to insufficient power.

Take photos/videos

Press the " " button on the remote control to take a photo;
Press the " " button on the remote control to start recording, and then press the " " button to stop recording.

The remote control or aircraft must have one end plugged into a memory card, otherwise it cannot save photos/videos.



Working principle and usage precautions of GPS function

After successful frequency matching between the drone and the remote control, the GPS module carried by the drone will be connected to the satellite. When the satellite accuracy reaches the positioning standard, the remote control will display GPS MODE, indicating completion of GPS positioning, and the drone will remember the takeoff point.
When taking off in GPS mode, there are generally two situations when encountering a signal interruption:
1. Drone and remote control signal interruption: When the drone and remote control signal are interrupted for more than 6 seconds due to excessive distance or signal interference, and the drone GPS signal is normal, the drone will activate the signal interruption and return to the takeoff point.
2. Unmanned aerial vehicle GPS signal interruption: When encountering large obstructions, signal interference, or other situations, it may directly cause the unmanned aerial vehicle to be unable to receive satellite signals. The GPS signal of the unmanned aerial vehicle is interrupted, the unmanned aerial vehicle cannot locate, and cannot return to the takeoff point through signal interruption or one click return.

Safety guidelines

To avoid unexpected situations during drone flight, the following safety guidelines should be followed:



Take off after obtaining a good GPS signal



Avoid signal towers, power lines, and other places with high signal interference



Maintain control of the aircraft with both hands throughout the entire process



For safety reasons, do not fly over people, animals, or moving vehicles in open spaces and within visual range



Check that the accessories and the appearance of the device are intact, ensuring that the device has sufficient power



Stay alert and do not fly under the influence of alcohol



Fly at a safe altitude and avoid canyons



Comply with local laws and check relevant laws before flying



Fly at a safe altitude and avoid buildings with large differences in height and altitude, such as high-rise buildings

turn back

1、 When the drone activates the return program, different altitude return methods are used:
1. Drone altitude less than 20 meters: The drone will first rise vertically to a height of 20 meters above the ground, then return to the vicinity of the takeoff point, and finally land vertically to the ground.
2. Drone altitude greater than 20 meters: The drone will return to the vicinity of the takeoff point at its current altitude and then land vertically to the ground.
2、 Differences in landing procedures for different return flights:
1. One click return, low power return: If the drone returns to the vicinity of the takeoff point, the user can control the drone through the joystick to avoid obstacles.
2. Signal interruption return: Due to the signal interruption between the drone and the remote control, the remote control cannot control the drone. The drone returns to the vicinity of the takeoff point at an altitude of 20 meters or more and lands vertically on the ground.

In summary, users need to pay attention to the following points when using drones to return:
1. When using GPS MODE mode, the drone should be in an open and unobstructed outdoor area. Otherwise, once the return program is triggered, the drone will rise vertically and collide with obstacles.
2. The takeoff point of the drone should be far away from complex places such as crowds, water surfaces, tall buildings, signal towers, trees, etc. It should take off in relatively open areas to prevent direct landing on obstacles or water surfaces when triggering a signal interruption and returning.
3. Before using a drone, it is important to familiarize oneself with the surrounding environment, including the route environment. The drone should not fly too low, and after using the return program, it should return to the takeoff point in a straight line. It is important to avoid hitting obstacles during the return process, which may cause damage and prevent the drone from returning. The obstacle avoidance function may fail due to the activation of high-speed gear in the return flight program.

Problem solving methods

No.	Problem	Solution
1	Indoor mode drone motor can rotate, drone cannot take off, light flashes slowly	The GPS function is not turned off. The drone activates the protection program. Press and hold the GPS switch for 5 seconds to turn off the GPS function
2	After turning off the GPS function in indoor mode, the drone motor can rotate and the drone cannot take off. The light flashes quickly and slowly	Re calibrate the geomagnetic field after restarting
3	After taking off in indoor mode, the drone keeps flashing and cannot hover, drifting back and forth	The ground is too smooth and the environment is too dark, which can cause the optical flow lens to be unstable. Please fly in a place with good lighting and no reflection on the ground.
4	After taking off in GPS mode, the drone keeps flashing and cannot hover, drifting back and forth. The remote control switches between fixed altitude mode and fixed point mode continuously	GPS positioning is not good and there is too much interference. Please take it to an open, unobstructed, and high-voltage power line free place
5	The GPS mode drone motor can rotate, but the aircraft cannot take off, and the lights flash rapidly and slowly	Re calibrate the geomagnetic field after restarting
6	The drone is shaking violently	The fan blades are deformed or damaged, and need to be replaced accordingly
7	When there is a tilt in the image during aerial photography	Simply land the drone on a flat surface and re calibrate the gimbal level

Introduction to the issue of no fly zones

When GPS is turned off, the drone can only fly at an altitude of 3 meters. If the drone is detected flying in a no fly zone, it will be forced to land on the ground. Please pay attention to flight safety. The fixed altitude mode does not have a one click return or low power return function. Please pay attention to flight safety
In the fixed-point mode of the drone, after GPS positioning, unlocking and taking off will be prohibited if the drone is detected within the no fly zone. You can check the map and move your drone outside the no fly zone to take off.
After the remote control GPS locates the location information, there is no map available. You can connect to WIFI to download and update the map. After positioning, the number of satellites on the remote control will pop up, as shown in the figure below.

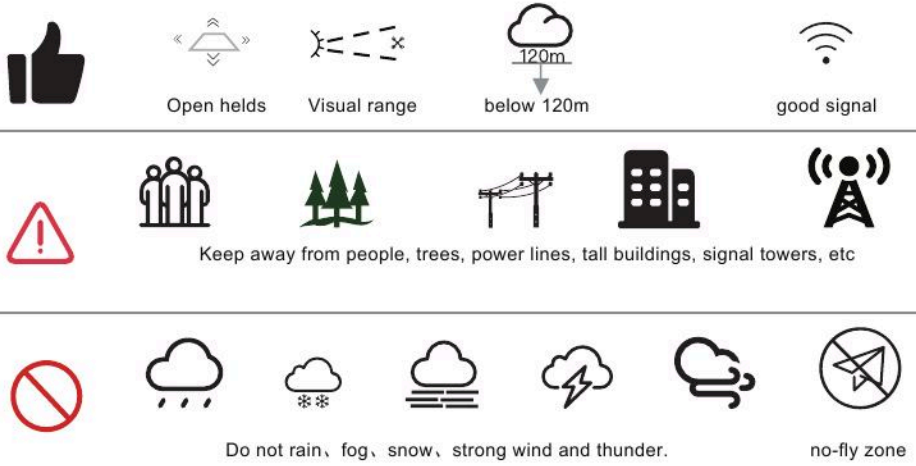
Wireless WIFI connection: Connect to the 2.4G hotspot on your phone to download maps according to the WiFi settings on the screen control. The remote control will prompt you to download the map only after you point it
Mobile hotspot connection:
Android phone: Settings -->Mobile Network -->Personal Hotspot -->Open
(If you cannot find the hotspot, please check more sharing settings in your personal hotspot, set the AP frequency band to 2.4GHz)
Apple phone: Settings -->Cellular Data -->Open -->Personal Hotspot -->Open
(If you cannot find the hotspot, please check the maximum compatibility enabled in your personal hotspot)



Disclaimer and Warning

1. The drone is not suitable for minors under 14 years old!
2.Choose open, no obstacles around the site as the flight site.
3. Do not use in bad weather, such as snow, rain and fog, wind.
4. When flying, please stay away from obstacles, people, high-voltage lines,trees and water.
5. Do not fly in places with complicated electromagnetic environment to avoid interference of remote control/image transmission.
6. Do not fly in the no-fly zone restricted by relevant laws or regulations.
7. Before starting the flight, check whether the aircraft is in good condition and ensure that the rotors are deployed, the blades are intact and there is no loosening, and the power is suffcient.
8. Do not touch the rotating propeller.

Flight environment

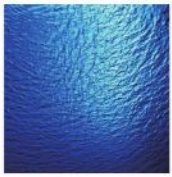


Optical flow



The best optical flow positioning effect is between 0.5~10m

Water,smooth ground,durk scene,black and white stripes affect the positioning effect

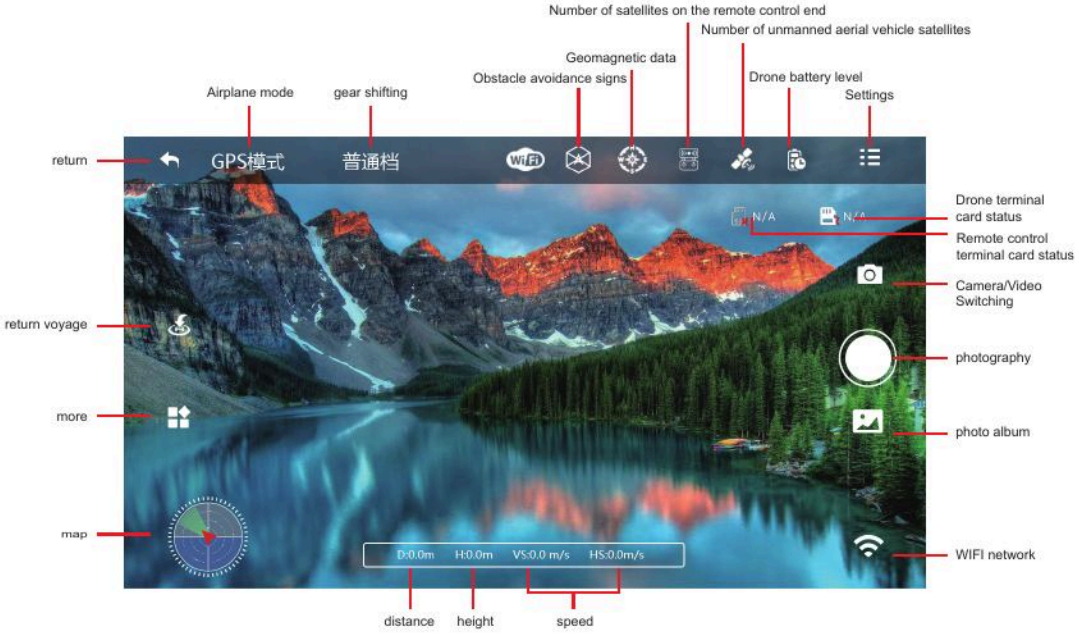

Water


Durk


Smooth


black/white stripes

Basic interface of remote contro screen



Precautions for using the memory card storage function

Save shooting effects	Only insert the drone into the memory card	Only insert the remote control into the memory card
take pictures	high definition	Low Definition
picture recording	high definition	Low Definition

Save shooting effects	Simultaneously inserting the drone and remote control into the memory card	
take pictures	high definition	Low Definition
picture recording	high definition	Do not save

1. Only insert the memory card into the drone end. To view the captured photos/videos, you need to remove the card from the drone end and insert it into the remote control for viewing.
2. It is recommended to use high-quality high-speed cards for memory cards, as low-quality low-speed cards may not be able to save!

More function



Flying around

1.click start to enter surround mode
2.Change the surrounding radius of the remote control joystick front and back.
3.The remote control stick left and right to change the surround direction and speed.

Spiral

1. Click enter spiral mode
2. Click the start button to start spiral flight

3.To stop,press or move the joystick of the remote control

Soar

1. Click enter soar mode
2. Click the start button to start soar flight

3. To stop,press or move the joystick of the remote control

Go away

1. Click enter away mode
2. Click the start button to start away flight

3. To stop,press or move the joystick of the remote control

Usage and Introduction of Mobile APP Functions

Scan the QR code below to download and install the XL SCANNER app

Drone retrieval function, download flight logs, and download photos/videos stored on the remote control memory card on the phone. Please ensure that the remote control and phone are on the same LAN. (Click on the remote control WIFI connection button to connect to the phone hotspot)

1. Drone retrieval function
When the drone loses control and flies away, the "Find Plane" function can be used to attempt to retrieve it
(1) Click the settings button in the upper right corner of the remote control screen ->Quick Scan ->Find airplane ->"Find airplane QR code" appears on the remote control screen

(2) Click on the XL SCANNER( ) mobile app ->Quick Scan ->Scan the remote control screen with your phone to find the airplane QR code ->Click on the "Navigation" icon on the mobile app to search for it
Attention: The position recorded by the remote control of the aircraft function is the last position information of the aircraft before losing control! And the record will be cleared after the remote control restarts, so when the drone loses control and flies away, it is recommended to immediately use the Find Plane function and save the location information on your phone for easy searching!

2. Download flight logs (the remote control must be plugged into a memory card, otherwise the flight logs cannot be stored)
(1) Remote control screen click log (as shown in Figure A)

(2) Connect the remote control to the hotspot sent by the phone → Open XL SCANNER( ) → Click on the log (as shown in Figure B), which can be scanned on the mobile app
The QR code on the remote control end. Attention: Please do not leave this interface during the download process (as shown in Figure A), otherwise the download will be interrupted!

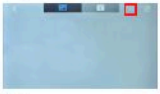


Figure A



Figure B

3. Download photos/videos stored on the remote control memory card on your phone

Click on album  on the remote control screen ->click on  in the upper right corner to open XL SCANNER. Scan the QR code to directly download the album content.

Attention: Please do not leave this interface during the download process, otherwise the download will be interrupted!