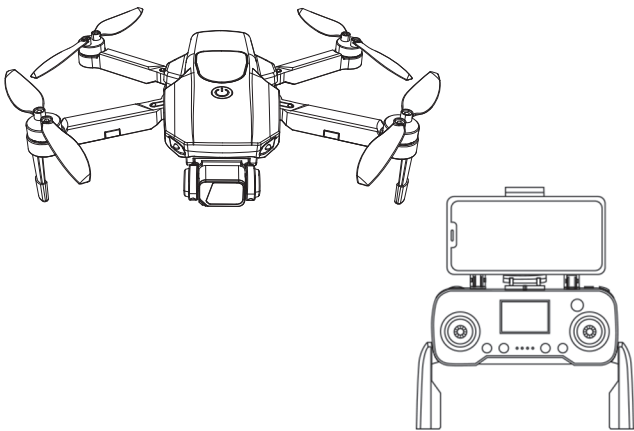RG109MAX

Brushless EPS four-axis aerial photography UAV

Operating instructions

Product Name:Toy aircraft

Safety precautions:
1 in order to ensure the electromagnetic environment requirements of aviation radio station (station), it is prohibited to use various model remote controllers in the area with the center point of airport runway as the center point and the radius of 5000M. During the period when the relevant departments of the state issue radio control orders and regional areas, the use of model remote controllers shall be stopped as required. Please fly in warm, clear, windless weather. Do not fly in severe weather conditions such as overheating, overheating, strong wind, rainstorm, etc. Please choose indoor or outdoor open area, and keep a safe distance from people, pets, empty overhead wires and other obstacles. Make sure that no other uses the same frequency. Do not let the aircraft out of sight.
2 after the aircraft is started, please do not contact the high-speed rotating part of the aircraft and keep a distance from the high-speed rotating propeller to avoid the risk of strangulation. (Including gears, rotors, etc.)
4.During and after the use of the aircraft, the battery and motor will generate high temperature. Please do not touch it to avoid the risk of scalding.
4 do not look directly at the light beam of the LED to avoid affecting the eyes.

Warm Tip: It is suggested that beginners practice flying at low altitude in an open and unmanned place for about 3 days, and then fly to high altitude after being familiar with flying

flight environment

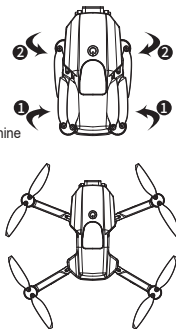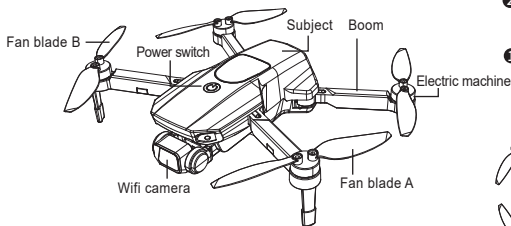indoor: Spacious space away from obstacles, crowds or pets are preferred.

Outdoor: Sunny, windy and sunny weather are preferred.

Please keep the UAV in line of sight and away from obstacles, high-voltage cables, trees and personnel during the flight.

Do not fly in extreme environments, such as heat, cold, strong wind or heavy rain.

Fan blade B

Power switch

Subject   Boom

Electric machine

Wifi camera

Fan blade A

Blade replacement:

1. The fan blade to be replaced must be replaced corresponding to the relative position on the machine. Fan blade A needs to be installed at position A, and fan blade B needs to be installed at position B. If fan blade is replaced incorrectly. it can not be controlled.
2. When flying, the fan blade A rotates clockwise,and the fan blade B rotates counterclockwise.

1. Important note

This product is not a toy, wrong use will cause damage.
Please follow the instructions before using this product. Do not disassemble the product yourself. Otherwise, the man facturer is not responsible for any damage.
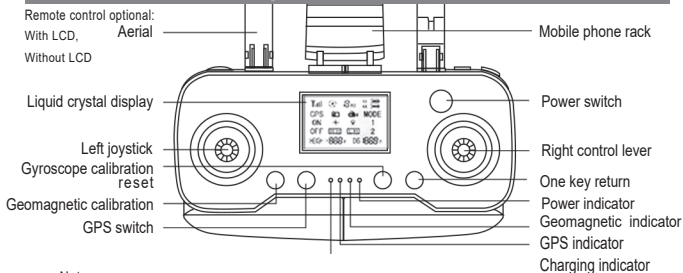
2. Safety instructions

Warning: It is necessary to fly in a safe area or away from others, and do not control the aircraft above a dense crowd. Due to the pilot's operation error or wireless interference in the operation process, accidents and failures are easy to occur, and damage or injury to the crowd is easy to occur.

Prohibition: Especially for indoor and outdoor fight, please keep away from obstacles This product is suitable for both indoor and outdoor flight (wind strength not more than 4). Please choose a place that is free from obstacles, crowds and pets, passers-by, such as, heating scurce, heat source, electric wires or electronic power source will not collide with the drone ,landing, entanglement, or cause fire, electrocution and damage to life and property.
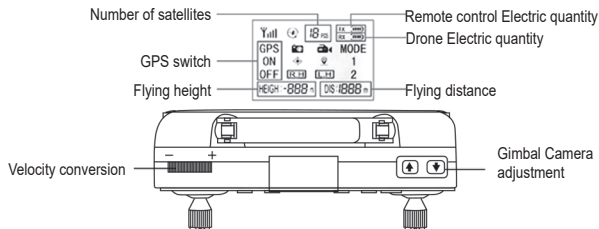
Warning: As this product is mainly suitable for people over 14 years old, it may be difficult to learn at first, we recommend you to ask an experienced pilot for guidance.

Remote control optional:
With LCD,
Without LCD

Aerial

Mobile phone rack

Liquid crystal display

Power switch

Left joystick

Right control lever

Gyroscope calibration reset

Geomagnetic calibration

GPS switch

One key return

Power indicator

Geomagnetic indicator
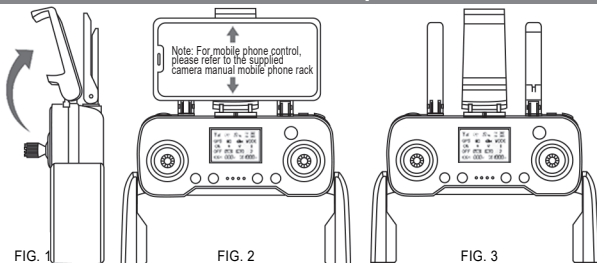
GPS indicator

Charging indicator

Note:

Note: Please follow the geomagnetic calibration steps for geomagnetic calibration and gyroscope calibration steps in outdoor operation before taking off. Otherwise, it will cause the missing flight. (It is GPS mode after power on by default. We do not need to press GPS button. The flight back light is constant ON without any flicker after searching 12 GPS signals and correct calibration. It can de-block and take off.) The remote controller displays that GPS ON is startup status while GPS OFF is shutdown status. (Note: It has return mode when default mode 1 is GPS mode. Mode 2 is optical flow mode with no low voltage return, one key return and a series of GPS function. Please pay attention to the flight distance and height when using it.)
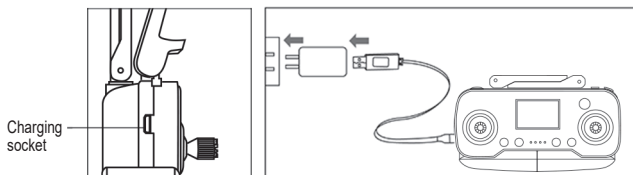
Number of satellites

Remote control Electric quantity

Drone Electric quantity

GPS switch

Flying height

Flying distance

Velocity conversion

Gimbal Camera adjustment

Note: For mobile phone control, please refer to the supplied camera manual mobile phone rack

FIG. 1

FIG. 2

FIG. 3

Lift the mobile phone rack in the middle of the remote controller upward (FIG.1), and stretch upward to place the mobile phone (FIG. 2).
Remote control handle: Pull the bottom handle of the remote control down from the middle position and rotate it into place(FIG. 3).
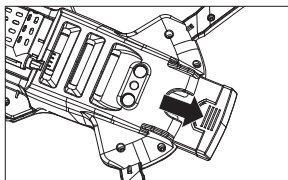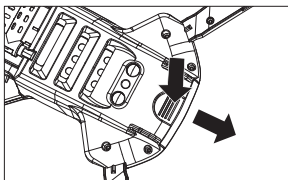
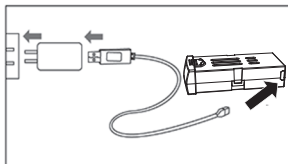## Instructions for charging controller:

Charging socket

Insert the charging plug of the charging wire into the charging socket of the remote controller, and then connect the USB charger plug to the computer or mobile phone charger for charging. When charging, the charging indicator lights up, and the indicator lights out after full charging. (Charging time is about 60 minutes)

Note: If the charge indicator does not change during charging, this indicates that the battery is fully charged and does not need to be recharged

Instructions for charging drone lithium battery:

Take out the UAV battery:Press on as shown in Figure 1,pull back and remove the battery upward.

Battery charging steps:

Plug the USB Android head into the battery and plug the USB charger Connect the computer or mobile phone charger to charge. When charging, the Android headlight on the battery lights up, and when fully charged, the red light goes out.
(Charging time is about 180 minutes)

Note: If the battery is plugged into the charger and the Android headlight on the battery is not on, no recharging is required

Pre-flight environmental requirements:

Please choose an open indoor or outdoor environment without rain and snow and wind force less than Level 4 to fly. Please stay away from people, trees, electric wires, tall buildings, airports and signal transmission towers when flying.

1.Drones to frequency

Put the drone on the horizontal ground, turn on the power supply, and then turn on the power supply of the remote control. At this time, the light on the aircraft flashes rapidly, the light on the remote control flashes, and the remote control and the drone automatically conduct frequency synchronization. At this time, the rapid flashing of the front and rear indicator lights of the drone turns into the long flashing of the front lights and the slow flashing of the rear lights, indicating that the frequency synchronization is successful.

(after the second frequency alignment after calibration at the same position, the front light will be on for long time and the rear light will flash slowly to directly enter the star search state).

2.Gyroscope calibration operation

Please put the UAV at the horizontal position and make sure that the blades are at the same horizontal height. The remote controller will give a "Di" sound, the UVA light flickers quickly, the front light restores to be constant ON and the rear light flickers slowly after we press the gyroscope calibration button on the remote controller (Figure 1). It shows that calibration success when the remote controller gives a Di sound.
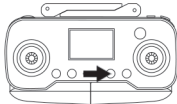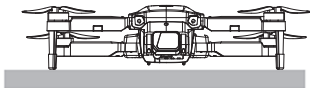

FIG.1

3.Geomagnetic calibration operation

Geomagnetism is easy to be interfered by other electronic equipment, which will cause the data abnormality and affect flying. Please follow the geomagnetic calibration steps below for geomagnetic calibration before using each time.

The remote gives a Di sound and UAV light flickers quickly after we press geomagnetic calibration button (Figure 2) on the remote controller. Please hold the UAV on the hand and slowly rotate it for 3-5 circles clockwise in the horizontal position according to Figure 3 until the remote controller gives a Di sound. At this time, we can slowly rotate the nosing clockwise for 3-5 circles in vertical position (Figure 4) until the remote controller gives a Di sound. The UAV front light will be constant ON and the rear light will flicker slowly. It shows the geomagnetic calibration success.
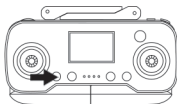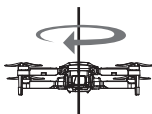

FIG. 2   FIG. 3   FIG. 4

4.Search for GPS signals:

The UAV will start search GPS signal automatically after calibration success for about 1-3 minutes. It shows that the star search is connected to GPS successfully after the remote controller gives a Di sound. At this time, the rocking bar will first hit in the splayfoot direction and deblock the motor. The rear left operation rod will be pushed upwards(Figure 5). The UAV will take off.

FIG. 5

Special note:
1. Please take the drone to an open area for calibration.
2. Please move the UAV to the open environment for use if it fails to search GPS signal or enough GPS signal for a long time after calibration(The UAV is the center point. It cannot search enough GPS signal if the surrounding environment is sheltered mostly.) Please pay attention to the rear light of the UAV whether the star search is successful. It means star search success when the rear light is constant ON.
3. The longitude and latitude of each region are different,and new customers must calibrate onoe.For example, the difference between Guangdong and Beijing is 28 degrees.Therefore, non-calibration shows that forward and backward flight is not a straight line flight. Calibration is for the accuracy of the barometer's height measurement.

-5-

Manipulation method

		When the left lever (accelerator) is pushed upwards, the speed of the main wind blade increases and the aircraft goes up. When the left lever (accelerator) is pushed downward, the speed of the main wind blade slows down and the aircraft descends.
		When the left lever (rudder) is pushed to the left, the aircraft head turns to the left, when pushed to the right, and the head turns to the right.
		When the right lever (rudder) is pushed up, the aircraft goes forward. When the right lever (rudder) is pushed down, the aircraft goes backward.
		When the right lever (rudder) is pushed to the right, the aircraft flies to the right. When the right lever (rudder) is pushed to the left, the aircraft flies to the left.

Warning: When the Drone is 30 cm away from the ground, the Drone will become unstable due to the influence of its own blade eddy current, which is called "ground effect reaction". When the height of the Drone is lower, the effect of ground effect reaction is the largest.

Operation description of remote control function:
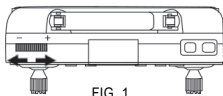
1. speed gear adjustment

FIG. 1

The take-off speed gear of the UAV defaults to slow gear. When the UAV flies in the air, the speed gear can be adjusted through the knob (Figure 2). Rotate the speed knob to the right.The remote controller "drops" twice indicates that it enters the second gear. When the remote controller is rotated, the remote controller "drops" three times indicates that it enters the third gear high-speed mode. Otherwise, the left turn indicates that it enters the second gear and the first gear low-speed.
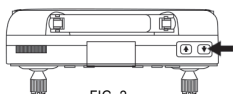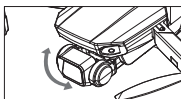
2. Camera angle adjustment

FIG. 2

The angle of the camera can be adjusted through the camera adjustment knob (Figure 3) during UAV flight. Knob right turn camera angle decreases, knob left turn camera angle increases

3.One key return/signal break return/low voltage return

One key return: We can press the one key return key (Figure 5) to start the UAV return in case of good GPS signal (over 10 satellites). UVA will return to the take-off position in straight line and land after startup. The remote controller will give a Di Di sound when UAV returns until UAV lands or cancels flying for return. Its return process is consistent with break signal return out of control. But the difference is that player can avoid the obstacles through the rocking bar when the UAV returns and lands and the player can re-acquire the control right after press the return key for return.

Break signal return: The flight control system will take over the control right of the UAV and control the UAV for flight and stop at a place with signal when GPS signal is good (over 10 GPS satellites), remote signal and APP signal are cut off for over 6 seconds after UAV successfully records return points(star is connected to GPS before taking off) before taking off.

Low voltage return: The indicator will flicker slowly in low voltage. At the same time, the remote controller gives a prompt that the UAV automatically returns to 20m around the take-off point (The UAV height and distance will be restricted to within 20m if it returns to the take-off point in low voltage.)

Note: UAV will return to the take-off place in straight line but cannot avoid the obstacles (UAV will rise to 20 m in height and then return if the flight height is too low) in automatic return process. The UAV will be forced to return in low voltage return status but cannot return when GPS signal is poor or GPS fails to work.
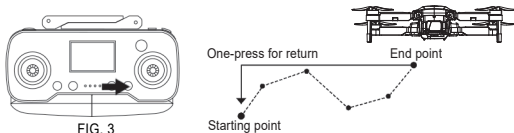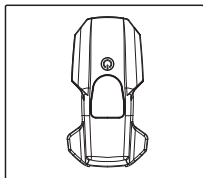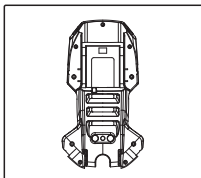

One-press for return   End point

FIG. 3

Starting point

Resolution guide for common problems

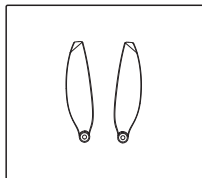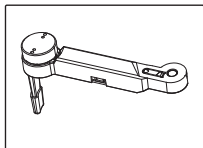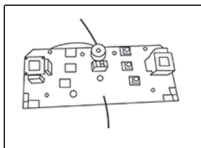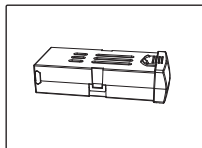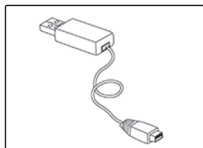| Problems	Causes	Resolutions
Drone indicator is flashing while not respond when operating	1. Unsuccessful Drone GPS souxing 2. Low power of Drone	1. Move the Drone to an empty place to perform souxing again 2. Charging the battery
Drone blades turn but can't fly	1. Low battery 2. Blade deformation	1. Charging the battery 2. Replacement of blade
The drone was badly shaken	Blade deformation	Replacement of blade
Can't keep the drone steady after fine-tuning to the bottom	1. Blade deformation 2. Poor motor	1. Replacement of blade 2. Replacement of motor
After impact, uncontrolled flying of Drone when start again	Triaxial acceleration sensor overbalances due to impact	Gyroscope calibration Make the Drone standstill for 5-10 seconds

Upper cover
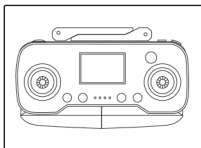
Lower lid

paddle A/B

Motor A/B

Circuit board

Battery

USB charging cable

Remote control

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.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
•Reorient or relocate the receiving antenna.
•Increase the separation between the equipment and receiver.
•Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
•Consult the dealer or an experienced radio/TV technician for help.
Caution: Any changes or modifications to this device not explicitly approved by manufacturer could void your authority to operate this equipment.

RF Exposure Information
The device has been evaluated to meet general RF exposure requirement. The device can be used in portable exposure condition without restriction.