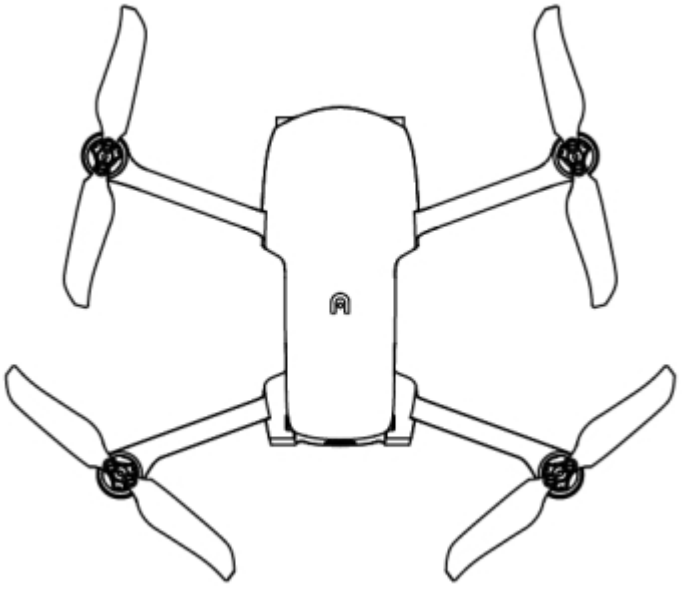
EVO Nano Series

Multi-rotor Drone

User Manual

V3.0.9 2025.01



AUTEL ROBOTICS

EU Declaration of Conformity

The product complies with EU Declaration of conformity. For details, please refer to EVO Nano Series Multi-rotor Drone DoC.

Copyright

Trademark Information

Reading Assistance

- This manual is an electronic PDF document that supports high-resolution printing.
- If you are using a PDF reader such as Adobe Reader or Microsoft Edge to read this manual, press Ctrl+F on Windows or Command+F on Mac to search for keywords.
- View the content structure in the table of contents and click on titles to navigate to the respective pages.

Thank you for purchasing and using the EVO Nano Series Multi-rotor Drone (hereinafter referred to as "aircraft") from Autel Robotics. Relevant user documents for this product are provided in electronic form along with the product, and download links are provided in this manual. Before using this product, please carefully read the operation steps and precautions in this manual, so that you can quickly understand the characteristics and usage methods of this product, so as to ensure safe use of the product.

- The final interpretation right of this document and all related documents of this product belongs to Autel Robotics.
- This document is subject to update without notice.

Legend

The following symbols are used in this manual to draw the user's attention to important safety and operating information. Please be sure to follow the notes or requirements under each symbol, otherwise, it may affect the safety features of the product or cause personal injury.

Symbol	Definition
	Warning: Alerts to a potentially hazardous situation.
	Important: Reminds the user to pay attention to a point.
	Remarks: Supplementary information.
	Tips: Quick tips to get the best possible experience.

Term and Acronym

The following table displays terms and acronyms that may be used in the manual:

Term and Acronym	Defintion
UAS	Unmanned Aircraft System
UAV	Unmanned Aerial Vehicle
C2	Command and Control
DRI	Direct Remote Identification
UGZ	UAS Geographical Zones
IMU	Inertia Measurement Unit

Read Before Your First Flight

To ensure safe use of the EVO Nano Series Multi-rotor Drone, Autel Robotics provides you with the following documents and relevant tutorial videos. Please scan the QR codes in this manual or use the provided links to access them.

1. “Packing List”: A list of everything that should be included in the packing box.
2. “Disclaimer and Safety Operation Guidelines”: Instructions on how to operate the product safely.
3. “Battery Safety Operation Guidelines”: Basic knowledge and safe handling of smart batteries.
4. “Quick Start Guide”: Basic knowledge of operating the product.
5. “User Manual”: A guide for you to master the operation method of the product proficiently.
6. “Maintenance Manual”: Instructions on how to maintain the aircraft and its accessories.

We recommend that you first check the completeness of the items in the packing box according to the “Packing List”, then read the “Disclaimer and Safety Operation Guidelines” carefully, and then watch the tutorial videos and read the "Quick Start Guide" to get a basic understanding of how to use the product.

Before your first flight, please read the "Battery Safety Operation Guidelines" and "User Manual" carefully to get a more detailed understanding of how to use the product.

Getting Tutorial videos, User Documents, and Relevant Software

You can scan the QR codes below or visit the following links to access tutorial videos and user documents or download relevant software for the EVO Nano Series Multi-rotor Drone:

To watch tutorial videos, please visit:
https://www.autelrobotics.com/videos/evo-nano/.

To download resources, please visit:
https://manuals.autelrobotics.com/?dir=/EVO%20Nano%20Series/Aircraft.

Manual Guide

This manual contains 7 main chapters and 3 appendices. You can refer to the corresponding chapters for the desired information.

Chapter	Chapter Overview
Product Overview	This chapter introduces the main functions of the EVO Nano Series Multi-rotor Drone.
Flight Safety	This chapter introduces the flight environment, wireless communication requirements, and important flight safety features of the aircraft.
Aircraft	This chapter introduces the functions and usage of various components of the EVO Nano Series Multi-rotor Drone.
Remote Controller	This chapter introduces the functions of the RC, including how to use the controller to operate the aircraft.
Smart Battery	This chapter introduces how to use, store, and maintain the smart battery of the aircraft.
Autel Sky App	This chapter introduces the interfaces and functions of the Autel Sky Application.
Firmware Updates and Maintenance	This chapter introduces how to perform firmware updates and routine maintenance for the aircraft.
Appendix A	This chapter provides technical specifications for the EVO Nano Series Multi-rotor Drone and its accessories.
Appendix B	EU Declaration of Conformity for EVO Nano Series Multi-rotor Drone.
Appendix C	EU Drone Pilot Information Notices.

Disclaimer

To ensure the safe and successful operation of this product, please read and fully understand all user documents listed above and strictly follow the operating instructions and steps described in this manual. Store the aircraft and its accessories out of the reach of children and pets. If you do not abide by the Safety Operation Guidelines, Autel Robotics shall not be responsible for any product damage or personal and property loss during use, and shall not provide any warranty service. Never modify the product using any incompatible component or in any way that does not conform to the official instructions of Autel Robotics. Please make sure that the operations you perform do not endanger the personal or property safety of yourself or those around you. By starting to use this product, you agree that you have read and accepted all terms related to this product. You undertake to be responsible for your own actions and all consequences arising therefrom. You undertake to use this product only for legitimate purposes and agree to these terms and any relevant policies or guidelines that Autel Robotics may establish.

Important

- When unboxing the product for the first time, carefully check the aircraft and other accessories included in the packing box according to the “Packing List”.
- The content of this manual will be updated from time to time based on the function updates of the product.
- Please be aware that in the absence of flight logs from the Autel Sky, Autel Robotics may not be able to analyze the causes of product damage or accidents and provide after-sales service.

Warning

- Using the EVO Nano Series Multi-rotor Drone of Autel Robotics involves certain safety risks. Do not allow minors to operate the aircraft.
- Users under the age of 16 must use this aircraft under the supervision of a professional adult.

End Use Statement

This product may be subject to export control laws in China, U.S, EU or other countries, which can only be authorized for civil (not military) use in sale, export or domestic transfer. Users need to confirm the product will not be used in the following situations, otherwise he or she will assume all losses caused by usage in such situations and legal responsibility on their own:

1. any military end use;
2. used for nuclear weapons, biological or chemical weapons or missiles that carry those weapons;
3. export or re-export or transfer it to any entity or person sanctioned by China, U.S, EU or any other government with jurisdiction;
4. export, re-export or transfer it to Cuba, Iran, North Korea, Syria, Crimea, Sevastopol and other areas under embargo;
5. any device or equipment that supports monitoring purpose.

Warranty Policy

Autel Robotics guarantees users who purchase products through its official authorized channels that:

Under normal use, the Autel Robotics products you purchase will be free from material and workmanship defects during the warranty period.

If you can provide a valid purchase receipt, the warranty period of this product is calculated from the midnight of the next day after you receive the product.

If you cannot provide a valid purchase receipt, the warranty start date will be postponed by 90 days from the date of manufacture indicated by the product's serial number or as defined by Autel Robotics.

Tips

- For the after-sales policy of the product, please visit:

https://www.autelrobotics.com/service/policy/.

After-Sales Support

If you have any questions or concerns about our products, please contact Autel Robotics customer support:
Hotline: (844) MY AUTEL or (844) 692-88 35

Maintenance Service

If your equipment needs to be inspected or repaired, please contact Autel Robotics through the following methods:
Email after-sale@autelrobotics.com or support@autelrobotics.com.
Call Autel Robotics customer support at (844) MY AUTEL or (844) 692-88 35.
Contact dealers authorized by Autel Robotics.

Important

- All data stored on the product may be erased during the repair process. To avoid data loss, please back up important files in your aircraft before the product is under warranty.

Table of Contents

Chapter 1 Product Overview

1.1 Introduction

The EVO Nano Series Multi-rotor Drone (hereafter referred to as the aircraft) is a lightweight aircraft (Class 0 with Camera in EU), integrated with a Visual Perception System of 6 visual sensors for three directional obstacle avoidance capability. With an excellent power management system, the aircraft can reach a flight time of up to 28 minutes. Also, it utilizes a three-axis stabilized gimbal, allowing you to view observed videos and data in real time through the Autel Sky Application.
The EVO Nano Series Multi-rotor Drone adopts a foldable design and can hold its propellers for easy storage and transportation.
The EVO Nano Series Multi-rotor Drone is equipped with auxiliary light and ultrasonic sensor at the bottom to improve visual positioning performance in weak light conditions, thus enhancing flight safety during landing.
The remote controller (hereafter referred to as RC) adopts the Autel SkyLink Image Transmission solution, has strong anti-interference capabilities, and can achieve stable transmission of HD videos to the display screen of the mobile devices. The RC is equipped with multiple function buttons, enabling quick aircraft control and camera operation.

Tips

- The Visual Perception System has limitations in usage environments and regions. Please read the "Disclaimer and Safety Operation Guidelines" to learn about relevant safety precautions.
- The flight time of the aircraft is measured in a laboratory environment (The aircraft flies at a constant speed of 10 meters per second in a light breeze environment) and is for reference only. The actual flight time may vary depending on factors such as environmental conditions and flight mode.
- Please note that the EVO Nano Series Multi-rotor Drone includes two models: the EVO Nano aircraft and the EVO Nano+ aircraft. They only differ in gimbal cameras. The gimbal camera equipped on EVO Nano can shoot pictures with 48 million pixel, and the gimbal camera equipped on EVO Nano+ can shoot pictures with 50 million pixel.

Remarks

- The RC just provides basic flight control for the aircraft and does not support display images. Users need to prepare a compatible mobile device (such as iOS or Android device) and install the Autel Sky for normal usage. To download the APP, please find in the App Store or Autel Robotics official website.

Warning

- If multiple aircraft are flying in an area at the same time, please keep an appropriate air distance to avoid any accidents.

1.2 Product Acceptance Checklist

The EVO Nano Series are available in four colors and come in standard and premium bundles. The packing list varies accordingly. After unboxing the product, please check whether the actual items match the items described in the following packing list and carefully inspect the appearance of the aircraft and all accessories. If anything missing or damage is found, please contact Autel Robotics After-Sales Support or authorized dealers promptly.

Important

- Upon receiving the product, please inspect and confirm that its outer packaging is intact, with no signs of unpacking. Meanwhile, save the unboxing video for potential logistics damage claims.

1.2.1 Standard bundle

Table 1-1 Packing List

No.	Item	Model/Specification	Quantity	Note
1	EVO Nano Series Multi-rotor Drone	MDA or MDA2	1	Includes 1 battery, propellers, and a gimbal protective cover.
2	RC	EFA	1	
3	USB-C Charge Cable		1	
4	Spare Screws		8	
5	Spare Propeller	CW and CCW	1	1 CW propeller and 1 CCW propeller.
6	RC Cable		3	Micro-USB Connector Lightning Connector USB-C Connector
7	Manuals		1	Includes Packing List, Disclaimer and Safety Operation Guidelines, and EVO Nano Series Quick Start Guide
8	Screwdriver		1	

1.2.2 Premium bundle

Table 1-2 Packing List

No.	Item	Model/Specification	Quantity	Note
1	EVO Nano Series Multi-rotor Drone	MDA or MDA2	1	Includes 1 battery, propellers, and a gimbal protective cover.
2	Spare Smart Battery	MDA_2250_770	2	
3	RC	EFA	1	
4	Adapter		1	
5	Multi Charger		1	
6	USB-C Charge Cable		1	Used with power adapter to charge the Remote Control.
7	Propeller Holder		1	
8	Spare Propeller	CW and CCW	3	3 CW and 3 CCW propellers.
9	RC Cable		3	Micro-USB Connector Lightning Connector USB-C Connector
10	Spare Screws		8	
11	Shoulder Bag		1	
12	Manuals		1	Includes Packing List, Disclaimer and Safety Operation Guidelines, EVO Nano Series Quick Start Guide and Multi-channel Charger Guidelines.
13	Screwdriver		1	

1.3 UAS Introduction

Before first flight, please perform a comprehensive inspection of the UAS to ensure that all components meet the following requirements. A complete UAS consists of two parts: the aircraft and the RC. The relevant requirements and explanations are as follows:

■ Aircraft Components And Payload

Please be noted that a complete aircraft includes the aircraft body, gimbal camera, propellers, and the battery. Any damage or missing of these components may result in a malfunction.

Table 1-3 EVO Nano Series Multi-rotor Drone Component List

Item	Product Info	Manufacturer	Note
EVO Nano aircraft	Max. weight: 249 g Max. Dimension: 260×325×55 mm EAN: 6924991102618 UPC: 889520012355	Autel Robotics	Includes propellers, battery, and a gimbal.
EVO Nano+ aircraft	Max. weight: 249 g Max. Dimension: 260×325×55 mm EAN: 6924991122692 UPC: 889520202695	Autel Robotics	Includes propellers, battery, and a gimbal.
Smart Battery MDA_2250_770	Max. weight: 82.5 g EAN: 6924991102915 UPC: 889520012652 Type: LITHIUMION POLYMER RECHARGEABLE BATTERY Capacity: 2250 mAh Number of batteries needed in the aircraft: 1	Autel Robotics	Included
CW/CCW Propeller	Max. weight: 0.42 g Max. Dimension: 4.9 inches EAN: 6924991102465 UPC: 889520012201 Number of propellers: 2 CW propellers and 2 CCW propellers Model: 5023 Number of blades: 8 Diameter of a propeller: 126 mm Type of the propeller: Folding propeller	Autel Robotics	Included

Tips

- All the above components have passed Autel Robotics safety and compatibility tests, users can purchase and use accordingly.
- In case of adding any payload before flight, please evaluate the mounting weight reasonably. More details, please refer to "2.5 Declaration of Maximum Take-off Mass" in Chapter 2.

■ Remote Controller Components & The App

A complete RC includes the controller body (equipped with functional buttons), joysticks, and an antenna. Any damage or missing of these components may result in a malfunction. The Autel Sky, serving as the flight application software that controls the aircraft, should be maintained to ensure comprehensive control over the UAS.

Table 1-4 RC Components List

Item	Product Info	Manufacturer	Note
RC	Max. weight: 407 g EAN: 6924991102373 UPC: 889520012119	Autel Robotics	Includes 2 command sticks and an antenna.

Table 1-5 Firmware and Software version explanation

No.	Item	Release Version	Note	Release Date
1	iOS Device	iOS 13 or higher	Mobile Device	2023 Q4
2	Android Device	Android 6.0 or higher	Mobile Device	2023 Q4
3	Image Transmission	V1.0.7.4	Firmware	2023 Q4
4	Autel Sky	V1.6.8	Flight Control Software	2023 Q4

Tips

- The above information is for reference only. Both the RC and the aircraft have been upgraded to the latest versions before shipment. Users can use accordingly.
- When the RC (with mobile device) and the aircraft are frequency-paired and the mobile device is connected to the internet, Autel Sky will automatically check for firmware updates. More instructions, please refer to "7.1 Aircraft and Remote Controller Firmware Updates" in Chapter 7.
- When there's any prompt for updates, please follow the instructions to update accordingly to address any issues and to enjoy the new features. Users also have the option to temporarily pause updates; however, this won't affect the existing functions.

Chapter 2 Flight Safety

After the first unboxing, please scan the QR code to obtain the latest version of the manual. Please read and understand the entire manual carefully to ensure the safe and correct use of the aircraft.
Before engaging in actual outdoor flights, it is essential to undergo relevant basic flight training (such as watching instructional videos, receiving guidance from professionals, etc.) to familiarize oneself with the functions and characteristics of the aircraft and RC.
Prior to flight, please familiarize yourself with all local laws and regulations concerning civilian unmanned aerial vehicles. Choose an appropriate flight environment, set a reasonable flight altitude, and conduct legal flights in accordance with relevant flight requirements and restrictions. Using the aircraft in unsuitable flight environments may pose legal risks.
Before flight, be sure to read the "Disclaimer and Safety Operation Guidelines" to understand relevant safety precautions.

2.1 Legal Use Guidelines

Upon the initial unboxing, please adhere to the legal requirements of the country or region where you are currently located and complete the real-name registration of the aircraft.

2.1.1 China's Mainland

- According to the requirements of the Civil Aviation Administration of China's "Management Regulations for the Real-Name Registration of Civil Unmanned Aerial Vehicles," owners of civilian drones must register their real names on the "Comprehensive Management Platform for Civil Unmanned Aerial Vehicles" (https://uom.caac.gov.cn) after purchase and affix the QR code registration mark on the aircraft. Failure to register with real names and affix the registration mark may result in penalties imposed by regulatory authorities.
- The EVO Nano Series Multi-rotor Drone is a light unmanned aircraft, and the operation of this product by individuals under the age of 16 is prohibited by Autel Robotics. Users under the age of 16 must use this aircraft under the supervision of a professional adult.
- It is recommended to read the "Interim Regulations on the Management of Unmanned Aerial Vehicle Flights" for more detailed regulatory requirements before conducting flights.

Important

- According to the "Civil Unmanned Aerial Vehicle System Safety Requirements" in China's Mainland, after users register, they should enter their real-name registration number in the Autel Sky and activate the DRI system (Direct Remote Identification) and the Civil Aviation Administration's flight dynamic data reporting function. For more details, please refer to "2.13 Direct Remote Identification" in this chapter and "6.4 Settings Interface" in Chapter 6.

2.1.2 The U.S.

- Before using a drone, please complete the real-name registration on the FAA website (https://faadronezone-access.faa.gov/#/) (registrants must be 13 years old or above). Failure to do so may result in regulatory and criminal penalties.
- The Federal Aviation Administration (FAA) in the United States may impose civil fines of up to $27,500. Criminal penalties may include fines of up to $250,000 and/or a maximum of three years in prison.

2.1.3 Canada

- Drone pilots must be 14 or older and always carry a valid drone pilot certificate while operating their drone. A valid drone pilot certificate is a printed or electronic document issued by Transport Canada. No other form of certification will be accepted. For details about how to get a drone pilot certificate in Canada, refer to the following link: https://tc.canada.ca/en/aviation/drone-safety/drone-pilot-licensing/getting-drone-pilot-certificate
- Before flight, please register your drone through the following portal: https://tc.canada.ca/en/aviation/drone-safety/drone-management-portal
- EVO Nano Series Multi-rotor Drone belongs to the muti-rotor aircraft type. You can only fly them in following operating environments:
  1. In controlled airspace. For details about the controlled airspace, please refer to relevant Canadian law: https://tc.canada.ca/en/aviation/drone-safety/learn-rules-you-fly-your-drone/choosing-right-drone
  2. Near people. For details about flying a drone near people, please refer to relevant law: https://tc.canada.ca/en/aviation/drone-safety/learn-rules-you-fly-your-drone/choosing-right-drone
- Violation of relevant laws and regulations may incur penalty of up to 3000 dollars (for person) or 15000 dollars (for company) or jail time.

⚠ Warning
• Please do not fly over people, which may cause physical damage to people around.

2.1.4 The EU

- Drone operators/owners must register with the National Aviation Authority (NAA) in the EU country where they reside (https://www.easa.europa.eu/drones/NAA).
- This product is not a toy, and individuals under the age of 16 are prohibited from operating it.
- In the EU region, The EVO Nano Series Multi-rotor Drone bears a C0 class identification label, and thus you must comply with subcategory A1 operational restrictions while using it, which are as follows:
  1. No flight expected over uninvolved people (if it happens, overflight should be minimized).
  2. No flight over assemblies of people.

3. Maintain flight altitude below 120m above ground level.

- The EVO Nano Series Multi-rotor Drone can also fly in subcategory A3.
- Remote pilot should obtain a 'Proof of completion for online training' for A1/A3 'open' subcategory by:
  1. Completing the online training.
  2. Passing the online theoretical exam.
- Before using this product, click the following link to learn the detailed information on safety operation limitations about EASA Class 0 with camera: (https://www.easa.europa.eu/document-library/general-publications/drones-information-notices)

Important

- According to EU regulations, the EVO Nano Series Multi-rotor Drone is equipped with sensors (gimbal camera) capable of detecting personal data. Users are required to undergo legal registration when using the product.
- After registration, users should input the operator registration number in the Autel Sky and activate the DRI system. For more details, please refer to "2.13 Direct Remote Identification" in this chapter.

2.1.5 Other Countries and Regions

Before flying, please consult local legal professionals or aviation authorities to obtain information on laws, regulations, and policies regarding civilian unmanned aerial vehicles. Follow the relevant guidelines to undergo legal registration.

2.2 Flight Operation Regulations

Before flying, it is crucial to understand and adhere to the following flight operation regulations. Violating these regulations may lead to severe consequences or even legal consequences.

- Operating the aircraft while under the influence of alcohol, drugs, medication-induced impairment, dizziness, fatigue, nausea, or any other compromised physical or mental condition is strictly prohibited.
- Avoid flying near manned aircraft and ensure that the aircraft's flight does not impact larger manned aircraft on their flight paths. Remain vigilant, steer clear of other aircraft, and land immediately if necessary.
- Do not fly in areas prohibited by local regulations without obtaining authorized permits. Prohibited areas may include airports, borderlines, major cities and densely populated areas, large event venues, emergency situations (such as forest fires), and sensitive building facilities zones (such as nuclear power plants, power stations, hydroelectric plants, prisons, traffic arteries, government buildings, and military facilities).
- Prohibit the use of the aircraft at large event venues, including but not limited to sports stadiums and concerts.
- Avoid flying in airspace exceeding the regulated altitude.
- Do not use the aircraft to carry any illegal hazardous materials.

- Ensure a clear understanding of the type of flight activity (e.g., recreational, official, or business). Obtain permits from relevant authorities before flying. If necessary, consult with local legal professionals for detailed definitions and explanations of flight activity types.
- When using the aircraft for filming, respect the privacy of others. It is strictly forbidden to use this product for any unauthorized surveillance activities, including but not limited to monitoring of individuals, groups, events, performances, exhibitions, or buildings.
- Please note that recording or photographing others, groups, events, performances, exhibitions, etc., without legal authorization may violate copyright, privacy rights, or other lawful rights of others. Therefore, it is essential to thoroughly understand and comply with local laws and regulations before use.

2.3 Flight Environment Requirements

- Avoid flying in adverse weather conditions such as strong winds, snow, rain, heavy fog, sandstorms, extreme cold, or high temperatures. The maximum wind speed resistance is 7.9 m/s.
- Ensure the aircraft takes off from and lands on open, unobstructed, and flat ground. Keep a safe distance from crowds, surrounding buildings, trees, etc., and control the aircraft within visible range to ensure flight safety.
- Fly at altitudes below 4000m.
- Due to poor lighting conditions, GNSS signal loss, narrow spaces, etc., some functions of the aircraft may be restricted. Always be aware of the surrounding environment and maintain safe control of the aircraft.
- Do not operate this aircraft in weak light environment (such as night time).
- Avoid taking off or landing on moving platforms such as moving vehicles, boats, etc.
- Avoid taking off or landing on sandy surfaces to prevent raised dust affecting the lifespan of the motors.
- The performance of the smart battery is influenced by environmental temperature and air density. Use the aircraft in environments ranging from 0°C to +40°C.
- When using the aircraft in disaster-stricken areas after events such as fires, explosions, lightning, storms, tornadoes, heavy rain, floods, earthquakes, sandstorms, etc., pay special attention to the safety of takeoff and landing points and changes in the surrounding environment. Prioritize personal safety.
- Stay away from steel structures, iron mines, etc., to avoid interference with the aircraft's compass.

2.4 Wireless Communication Requirements

- Stay away from areas with strong electromagnetic interference, such as radar stations, microwave stations, mobile communication base stations, drone interference devices, etc., and maintain a distance of at least 200 meters.
- When flying near sources of electromagnetic interference, exercise caution and continuously observe and assess the stability of image transmission signals and videos of the RC with mobile devices. Common sources of electromagnetic interference include, but are not limited to, high-voltage transmission lines, high-voltage substations, mobile communication base stations, and TV broadcast signal towers. If significant interference occurs in these places

during flight operations, the aircraft may not be able to fly normally, so return and landing should be done promptly.
- Choose open and spacious areas or high grounds for flying. Tall mountains, rocks, urban structures, and forests may obstruct the GNSS signal and the aircraft's video transmission signal.
- It is recommended to turn off unnecessary Wi-Fi and Bluetooth devices in the vicinity to avoid interference with the RC signal.

2.5 Declaration of Maximum Take-off Mass

During flight operations, the actual takeoff weight of the aircraft should not exceed the Maximum Takeoff Weight (MTOW) declared for the aircraft. Exceeding this limit may result in aircraft safety incidents. For detailed data, please refer to Appendix A "A.1 Aircraft".
The actual takeoff weight of the aircraft is composed of the aircraft weight and the payload weight. Before mounting the payload, ensure that the payload weight is within a reasonable range.

Remarks

- The aircraft weight consists of the airframe weight, gimbal camera weight, propeller weight, and smart battery weight. Different models of gimbal cameras may have differences in weight. If the aircraft is equipped with a different model of gimbal camera, reweigh the aircraft to determine the updated weight data.
- The payload weight should adhere to the following rule: Payload Maximum Weight ≤ Maximum Takeoff Weight - Aircraft Weight.

Warning

- To ensure flight safety, it is forbidden to mount any items, other than standard gimbals, on the aircraft.

2.6 Obstacle Avoidance System

2.6.1 Introduction to the visual perception system

The aircraft adopts a visual perception system design to achieve avoidance performance of front, rear, and bottom, ensuring precise positioning and safe flight of the aircraft.
The visual perception system is a vision-based positioning system that perceives obstacles and obtains aircraft position information through visual image ranging. The aircraft's visual perception system is located at the front, rear, and bottom of the fuselage, utilize the "dual pinhole lens" structure, the combination of which enables omnidirectional visual obstacle avoidance.

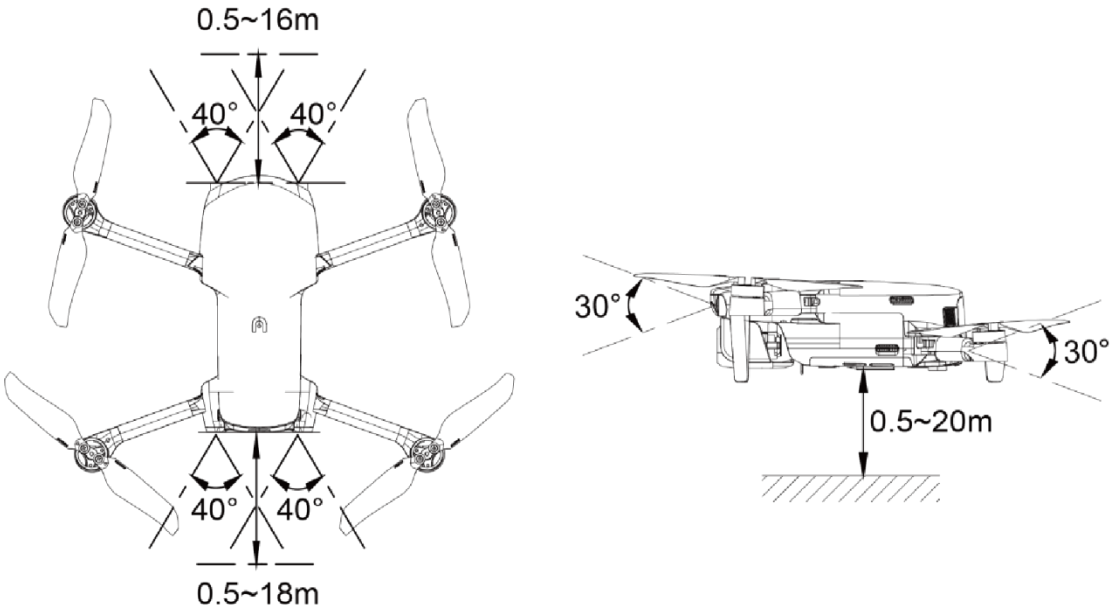


Fig 2-1 Aircraft Visual Perception Range

⚠ Warning

- When using the aircraft for flight, avoid obstructing the lenses of the visual perception system. Doing so may impact the performance of the aircraft's visual obstacle avoidance and could lead to flight accidents.
- There are some blind spots in the diagonal area of the visual obstacle avoidance system. Obstacles in the left, right, and upper directions of the aircraft will not be recognized. When flying manually, please always pay attention to the surrounding environment and app prompts to ensure safety.

Important

- The visual perception systems in the front, rear, and bottom of the aircraft can also use ultrasonic sensors to calculate the aircraft's height and obtain position information through image analysis.
- The performance of visual obstacle avoidance is influenced by environmental light and surface texture of objects. The visual obstacle avoidance system is not 100% reliable. When flying with the visual obstacle avoidance system activated, always pay attention to the live video feed on the Autel Sky.

2.6.2 Visual positioning function

The aircraft supports visual positioning function in the absence of GNSS signals, providing flight positioning capabilities when GNSS signals are poor or lost, ensuring the safe flight of the aircraft. In the presence of GNSS positioning information, the visual localization function provides auxiliary positioning information to enhance the accuracy of the aircraft's positioning.

In situations where there is neither GNSS signal nor adequate conditions for the visual perception system, leading to the simultaneous failure of both GNSS signal and visual localization, the aircraft will initiate ATTI function.

⚠ Warning

- If you lack extensive flight experience, try to avoid flying beyond visual range.
- When relying on visual localization for flight, avoid flying near surfaces such as water or snowy areas with mirror-like reflections. In poor GNSS signal conditions, ensure the aircraft is flying in well-lit environments with clear object surface textures.

Tips

When the aircraft is already in flight and the GNSS signal disappears or weakens, the RC will provide the following warning prompts：

- If the takeoff point is inaccurate: The Autel Sky will display a floating window with the alert "GPS signal weak. There may be some deviation between the landing point and the Home point. Please pay attention while the aircraft is landing." and the RC will simultaneously emit a voice prompt.
- If the aircraft is in ATTI function: The Autel Sky will display a floating window with the alert "ATTI mode, fly with caution." and the RC will simultaneously emit a voice prompt.

2.6.3 Visual obstacle avoidance function

The visual obstacle avoidance function is suitable for well-lit conditions, and the obstacles encountered in the flight path should not be too sparse (such as sparse iron wire mesh, small branches along the outer edges of trees, etc.). Additionally, due to inertia, it is necessary to control the aircraft to brake within an effective distance. The flight control system will limit the attitude angle of the aircraft during acceleration to not exceed 30° , and the maximum flight speed is less than 12 m/s. For more details, please refer to “6.4 Settings Interface” in Chapter 6.

⚠ Warning

- The obstacle avoidance function may become invalid when the aircraft is in the Ludicrous mode.

2.6.4 Precautions for obstacle avoidance system usage

The measurement accuracy of the visual perception system is easily affected by factors such as light intensity and object surface texture. Exercise caution when using the system in the following scenarios:

- Solid-color surfaces (such as pure white, pure black, pure red, pure green) and low-texture scenes.
- Surfaces with strong reflections or reflections.

- Surfaces of moving objects (such as crowds of people, swaying reeds in the wind, bushes, grass, etc.).
- Water surfaces or surfaces of transparent objects.
- Scenes with rapid and intense changes in lighting or scenes directly illuminated by strong light sources.
- Extremely dark surfaces (light intensity less than 15 lux) or extremely bright surfaces.
- Small obstacles (such as wires, power lines, branches, etc.).
- Dirty lenses (such as water droplets, fingerprints, etc.).
- Scenes with low visibility (such as heavy fog, heavy snow, etc.).
- Low-altitude flights below 2 meters with excessive flight speed.

Remarks

- Please be aware that the visual perception system of the aircraft is highly likely to fail in low-light conditions, resulting in the loss of visual obstacle avoidance capability.
- To avoid interference with the ultrasonic positioning system, do not use ultrasonic devices operating at 40kHz, such as ultrasonic rangefinders, fault detectors, cleaners, or welders.

2.7 Auto Return Home

The aircraft is equipped with an automatic return home function. If the GNSS signal is good, when the auto return home conditions are triggered, the aircraft will automatically return to the home point and land to prevent accidents.
The aircraft provides users with three ways to activate the auto return home: manual activation, low battery activation, and behavior activation.

Remarks

- Home Point: The landing point when the aircraft executes an automatic return home. In the Autel Sky, you can set the home point of the aircraft as “Me”, "Aircraft" or "Customize". For more details, please refer to “6.4 Setting Interface” in Chapter 6.
- If the return home point is not set in the Autel Sky, the aircraft will default to the takeoff point as the return home point.
- During the auto return home process, the control functions of the RC for the aircraft will be disabled. At this time, you can pause or exit the auto return home by pressing or long-pressing the pause button "  " on the RC for 2 seconds, or tapping the cancel icon “  ” in the Autel Sky to regain control of the aircraft. For more details, please refer to “4.10.2 Return-to-Home button and pause button" in Chapter 4.

Warning

- If the GNSS signal is poor, the auto return home function cannot be activated, the aircraft will enter ATTI function and continue to be controlled.
- If the obstacle avoidance system is not enabled during auto return home, the aircraft will not be able to automatically avoid obstacles.

- If the landing point for auto return home is not suitable for the aircraft to land (such as uneven ground or presence of a crowd), please exit the auto return home first and then manually control the aircraft to land.

2.7.1 Manual activation of auto return home

During flight, users can manually activate the auto return home by long-pressing the return-to-home button "  " on the RC for 2 seconds or long-pressing and slide the return icon "  " in the Autel Sky.

2.7.2 Low battery activation of auto return home

During flight, to prevent unnecessary risks due to insufficient battery power, the aircraft will intelligently assess whether the current battery level is sufficient based on the aircraft's current position.
If the current battery level is only sufficient for the return home process, the Autel Sky will display a pop-up alert saying "The system calculates that your current charge is only enough to return to the Home Point. 10s after the automatic return (no longer remind this message after cancellation)." to remind the user whether to execute the low battery auto return home. If the user chooses to execute or does not perform any operation within 10s, the aircraft will enter low battery auto return home after 10s. The user can press and hold the pause button "  " on the RC for 2s or tap the cancel icon "" in the Autel Sky to exit the auto-return home and regain control of the aircraft.
If you cancel the execution and continue flying with a low battery level, when the battery level decreases to critically low battery warning threshold, the aircraft will activate a critically low battery landing.

Tips

- Please note that besides the above intelligent low battery auto return, when the aircraft battery level decreases to the low battery warning threshold set in the flight application, the aircraft will also be triggered to return. The aircraft flight control system executes auto return no matter which one of those two scenarios occur.
- When critically low battery landing is triggered, in the process of landing, users can use the remote controller sticks to adjust the landing location of the aircraft. After users stop using the sticks, the aircraft will continue to land.
- The threshold of low battery warning and critically low battery warning can be set in the Autel Sky. For more details, please refer to “6.4 Settings Interface” in Chapter 6.
- When the aircraft's battery level reaches the preset low battery warning threshold, if the horizontal distance from the aircraft to the return point is less than 50 meters (150 feet), the aircraft will not execute the automatic return home process.

⚠ Warning

- When the aircraft triggers low battery auto return home, the auto return home process should not be canceled. Otherwise, the aircraft may not have enough power to return to the home point.
- It is not recommended to let the aircraft enter the severe low battery landing process. To avoid the landing area being unsuitable for the aircraft to land and causing damage to the aircraft.
- When the Autel Sky displays relevant warning prompts, follow the corresponding instructions immediately.

2.7.3 Behavior activation of auto return home

During the flight, if "Signal Lost" is set to "Return to Home", when the RC disconnects from the aircraft for 4s, the Autel Sky will display a warning prompt “Aircraft disconnected” and the aircraft will activate auto-return.

Tips

- In the Autel Sky, "Signal Lost " is set to “Return to Home” by default, it also can be set to “Hover” or “Descend”. For details, please refer to “6.4 Settings Interface” in Chapter 6.
- Within the 4 seconds of the aircraft and the RC disconnecting, the aircraft will continue to decelerate, attempting to reconnect with the RC. If the connection is not successfully restored, the loss of connection auto return home will be activated.
- During the loss of connection auto return home process, if the aircraft re-establishes a connection with the RC, the aircraft will continue to execute the auto return home.

2.7.4 Auto return home mechanism

Table 2-1 Auto Return Home Mechanism

Aircraft Distance Triggering Return Home	Return Home Mechanism
Distance to Home Point ≤ 20 meters	The aircraft returns to the home point at the current altitude.
20 meters ＜ Distance to Home Point ≤ 50 meters	If the current aircraft altitude is below 30 meters, it will climb to 30 meters and return. If the current aircraft altitude is above 30 meters, it returns at the current altitude.
Distance to Home Point > 50 meters	If below the set return home altitude, it will climb to the return home altitude and return. If above the set return home altitude, it returns at the current altitude.

Remarks

- Home Point: The return point set for the aircraft in the auto return home settings.
- Aircraft distance refers to the horizontal distance from the aircraft to the Home Point.

2.7.5 Auto return home obstacle avoidance process

When the obstacle avoidance system is enabled and the lighting conditions allow the visual perception system to function, the aircraft will implement obstacle avoidance during the auto return home process as follows:

- During the flight, when triggering the automatic return due to loss of connection, low battery, or manually activating the automatic return, if obstacles are detected in front of the aircraft, the aircraft will automatically come to a stop, and it will ascend automatically to avoid the obstacles until it can resume normal flight over them.

Important

- During obstacle avoidance, if the aircraft's ascent height reaches the maximum height limit and obstacle avoidance is not achieved, the aircraft will hover in place until triggering severe low battery landing. In this situation, take manual control of the aircraft in advance.
- The aircraft does not support visual obstacle avoidance perception in the left, right, and upward directions. Before flying, please plan a suitable flight altitude and choose a suitable airspace for flight.
- In flight missions, if the obstacle avoidance mode is set to "Disabled", the aircraft will not have obstacle avoidance capabilities.
- In manually flight mode, the aircraft will automatically brake and hover in place when encountering obstacles.

2.7.6 Landing protection function

When the landing protection function is enabled, the aircraft will check whether the ground conditions are suitable for landing before descending. For more details, please refer to “6.4 Settings Interface” in Chapter 6.

During the auto return home process, when the aircraft reaches above the home point, if the landing protection function is enabled, the aircraft will execute the following strategies:

1. If the landing protection function detects that the ground is suitable for landing, the aircraft will descend directly.
2. If the landing protection function detects that the ground is not suitable for landing (such as uneven terrain or water below), the aircraft will hover, prompt in the Autel Sky for user action, and only start descending when triggering severe low battery landing, which cannot be canceled by the user.
3. If the landing protection function cannot detect the ground conditions, the aircraft will descend to 1.2 meters above the ground and directly enter the assisted landing process.

Remarks

- Assisted Landing: During the landing process, when the aircraft reaches a height of 1.2 meters above the ground, it will automatically descend slowly without the need for the user to pull down the throttle stick.
- Before entering assisted landing, users should ensure that the landing point is suitable for the aircraft to land.

2.8 Rebuilding of the C2 Link

To ensure the safety and controllability of flight behavior, the EVO Nano Series Multi-rotor Drone will continuously attempt to reestablish the C2 link with the ground control station (RC) after losing the C2 link. In practice, this process is divided into the following stages:

- Within the first 4 seconds of disconnection, the aircraft will automatically decelerate and attempt to restore the C2 link. If the connection is restored within 4 seconds, control of the aircraft will be returned to the RC.
- If the connection cannot be reestablished within 4 seconds, the aircraft will automatically trigger the loss of connection behavior, and the aircraft will automatically execute relevant flight controls based on the configured loss of connection behavior.
- During the execution of the loss of connection behavior, the aircraft will continue attempting to reestablish the connection. If the C2 link is reestablished with the RC during this process, the RC will still lose control of the aircraft. To regain control, the user must exit the loss of connection behavior by pressing or long-pressing the pause button "  " on the RC for 2 seconds, or tapping the cancel icon "  " in the Autel Sky.

Tips

- During the flight, as long as the aircraft and RC can communicate normally, the C2 link will be maintained continuously.
- If decoding errors persist for a certain duration, leading to communication failure, the C2 link will be disconnected, and the aircraft will enter a reconnecting state.
- The loss of connection behavior for the EVO Nano Series Multi-rotor Drone includes two modes: “Go home”, “Resume”.
- After losing the C2 link, the RC will display "Remote controller and the aircraft disconnected" warning message (in red) in the status notification bar of the Autel Sky with a corresponding verbal warning.

2.9 Flight Restrictions and Unlocking

Important

- Before flying, please strictly adhere to local laws and regulations and carefully plan the airspace for flight.

2.9.1 Geofence system

Autel Robotics has developed a geofence system for its drones to ensure safe and legal flights. This system can dynamically update airspace restriction information worldwide. In different restricted zones, the drone's flight functions will be restricted to varying degrees. The geofence system also supports unlocking restricted zones. If users need to execute a flight mission in a specific restricted zone, they can obtain legal authorization for unlocking. The drone will then lift the relevant flight restrictions within the authorized period.
The geofence system does not necessarily align with local laws and regulations. Before each flight, users must independently inquire about and understand local laws, regulations, and regulatory requirements, taking responsibility for their flight safety.
The EVO Nano Series Multi-rotor Drone is equipped with a built-in geofence system in the flight control system. Before each flight, ensure that the RC can connect to the internet to automatically update airspace restriction information, which will be synchronized to the drone. During flight, relevant airspace restriction information will be displayed in real-time on the Autel Sky to ensure the drone's safe and legal flight.

Tips

- Due to the inherent delay in information retrieval, the airspace restriction information of the geofence system may not completely align with the latest local laws and regulations. All information should be based on local laws and regulations.
- For temporary airspace control, Autel Robotics will promptly obtain the corresponding regulatory notices and upload the relevant airspace restriction information to the geofencing system. Users are required to synchronize and update the flight airspace restriction information when conducting flights in the relevant areas.

2.9.2 Restricted zones

In the geofence system, flight-restricted zones are categorized into four types: No-Fly Zone, Altitude-Limited Zone, Warning Zone, and Unlocked Zone. The Autel Sky provides different prompts based on the zone type.

Table 2-2 Flight Restrictions in Restricted Zones

Restricted Zone	Flight Restriction Explanation
No-Fly Zone (Displayed in red on the map)	Separated into Permanent No-Fly Zones and Temporary No-Fly Zones. Permanent No-Fly Zones: Factory-installed in the geofence system, regularly updated. Temporary No-Fly Zones: Added by Autel Robotics in the geofence system backend. Update Method: The RC automatically fetches the no-fly zone update information and pushes it to the aircraft. Flight Restriction: The aircraft cannot take off or fly in the current area. If the user obtains authorization from the relevant authorities in the area, they can contact Autel Robotics to request unlocking.
Altitude-Limited Zone (Displayed in gray on the map)	Autel Robotics only provides a method for altitude limitation, and users must set the altitude limit themselves. Update Method: Users need to manually enable altitude restrictions and set the limit value in the Autel Sky based on the legal requirements of the current country or region. For more details, please refer to "2.10 Altitude and Distance Limits" in this chapter and "6.4 Settings Interface" in Chapter 6.
Warning Zone (Displayed in yellow on the map)	Factory-installed in the geofence system, regularly updated. Factory-installed in the geofence system, regularly updated. Update Method: The RC automatically fetches the warning zone update information and pushes it to the aircraft. Flight Restriction: When flying in a warning zone, the aircraft's flight functions are not restricted (but must comply with local regulations).
Unlocked Zone (Displayed in blue on the map)	Users, with valid approval, can unlock a No-Fly Zone, allowing legal flight in the unlocked area for the specified validity period.

Tips

In the Autel Sky, tapping on each no-fly zone on the map will prompt the geofence information of each no-fly zone:

- No-fly zone: area name, area level (no-fly zone), affiliated area (prefecture-level city), no-fly time (only temporary no-fly zone display).
- Height restriction zone: area name, area level (height restriction zone), height restriction (AGL height restriction from the ground), affiliated area (prefecture-level city).
- Warning zone: area name, area level (warning zone), height restriction (AGL height restriction from the ground), affiliated area (prefecture-level city).

- Unlocked zone: area name, area level (unlocked zone), height restriction (AGL height restriction from the ground), affiliated area (prefecture-level city), validity period.

Remarks

- Before conducting a flight, users must understand the aircraft height restrictions in their area and set them correctly in the Autel Sky.
- Please note that it is not recommended to fly across adjacent areas with different legal height restrictions. The height limit set by the user is only valid for the area where the take-off point is located and cannot guarantee compliance with the relevant regulations of the cross-area. Users should adjust the corresponding height limit in time when flying across areas.

The aircraft has a certain initial speed when flying in the air. To prevent the aircraft from mistakenly entering the no-fly zone (when not lifted) and the warning zone, the geofence system sets a buffer zone with a horizontal distance of 250 m and a vertical distance of 50 m outside the boundaries of the no-fly zone and warning zone.

Table 2-3 Buffer Zone Description

Buffer Zone Type	Buffer Zone Description
Buffer zone of the no-fly zone	When the aircraft not lifted flies towards the no-fly zone from the outside: When the aircraft touches the boundary of the buffer zone, the Autel Sky will display a warning alert "Approaching a Flight Restricted Area" and the aircraft will automatically start to decelerate and eventually brake and hover within the buffer zone.
Buffer zone of the warning zone	When the aircraft flies towards the warning zone from the outside: The aircraft can fly directly into the warning zone, during which the aircraft is not restricted. When the aircraft touches the boundary of the buffer zone, the Autel Sky will display a warning alert "The aircraft is close to the warning zone. " and after entering the warning zone, the Autel Sky will display " The aircraft is in the warning zone, please fly with caution." to remind users to be cautious.

Remarks

- If the aircraft not lifted mistakenly enters the no-fly zone in the absence of GNSS signal, the aircraft will automatically land after regaining the GNSS signal, and during the landing process, the throttle joystick does not work, but users can control the aircraft to move horizontally.
- When the aircraft hovers in place in the buffer zone, users can control the aircraft to exit the buffer zone along the normal direction of the buffer zone boundary.

When conducting a flight in the unlocked zone, if within the airspace and valid time of the lifting authorization, the aircraft can fly normally; once it exceeds the airspace and valid time of the lifting authorization, the aircraft will execute the airspace restriction operation of the current area.

2.9.3 Import UGZ

The aircraft supports the UAS Geographical Zones (UGZ) import function, allowing users to obtain the restricted flight zone data file of their country or region and upload it to the flight control system of the aircraft. When the aircraft approaches the relevant airspace during flight, it will execute corresponding status responses (including alerts, deceleration, etc.) to ensure flight safety.

Tips

- The UGZ import function supports importing JSON-type no-fly zone data files. Users can import no-fly zone data files published by the aviation management department.
- Operation method: Copy the JSON file to the root directory of the RC, enter the Intelligent Photo mode, on the map interface of the Autel Sky, tap "" > "Import Geo-fence" on the right side. Follow the page instructions for relevant operations.

2.9.4 Unlocking no-fly zones

To apply for unlocking a specific airspace within a no-fly zone, prepare the following information in advance according to your flight plan:

1. Identity and contact information of the applicant.
2. Unlock permit: a scanned copy or image of the valid permit for the flight application issued by local authorities (local public security bureau, aviation management department, or any other relevant organization/agency).
3. Unlocked zone: a cylindrical area. It includes the following information:
   - Name of the unlocked zone.
   - Coordinates of the center point of the flight airspace plane (latitude and longitude, with 6 decimal places).
   - Radius of the flight airspace plane (in meters, with 2 decimal places).
   - Flight altitude (in meters, with 2 decimal places).
4. Unlock date: Enter the unlock date according to the valid permit. The date is recommended to be accurate to day/hour/second.
5. Aircraft S/N (Serial number): Multiple serial numbers can be applied at once.
6. Autel account of UAS operator: Multiple accounts can be applied at once.

Log in to the official website of Autel Robotics at www.autelrobotics.com/service/noflight/, enter the relevant information, and complete the waiver application.

After the unlocking application is approved, you will obtain an unlock permit. The permit contains the aircraft serial number, UAS operator account, and unlocked zone (including the validity period).

Tips

- After submitting the lifting application, the approval will be completed within 24 hours, and the lifting will be completed within 48 hours.

2.10 Altitude and Distance Limits

The altitude limit will restrict the maximum flight altitude of the aircraft; the distance limit will restrict the maximum flight radius distance of the aircraft (with the take-off point as the center). Users can set the altitude and distance limits in the Autel Sky to ensure the safe flight of the aircraft. For more details, please refer to "6.4 Settings Interface" in Chapter 6.

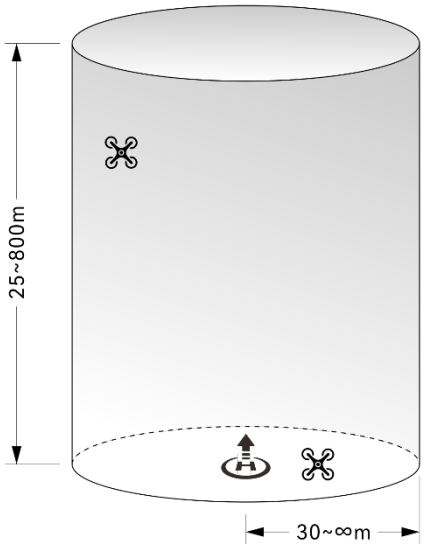


Fig 2-2 Altitude and Distance Limitation Diagram

Tips

- In the Autel Sky, the allowable range for altitude restriction is 25 ~ 800 m, and the allowable range for distance restriction is 30 ~ ∞ m. During actual flight, the set maximum altitude limit should not exceed the altitude restricted by local laws and regulations, such as the maximum flight altitude of aircraft in China's Mainland, the United States, the European Union and other countries and regions should not exceed 120 meters or 400 feet.
- When setting the maximum altitude limit, the rationality of the return altitude should be fully considered, and the return altitude should not exceed the maximum altitude limit.
- The return altitude should be set to be higher than the highest obstacle in the flight area.

2.11 Aircraft Calibration

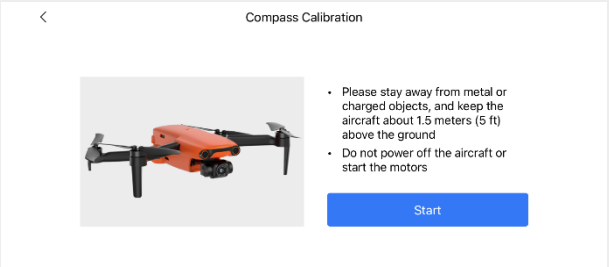
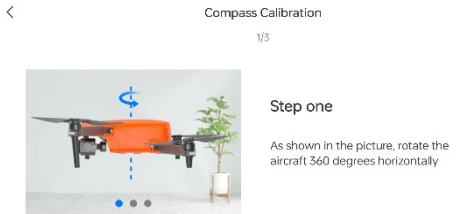
2.11.1 Compass calibration

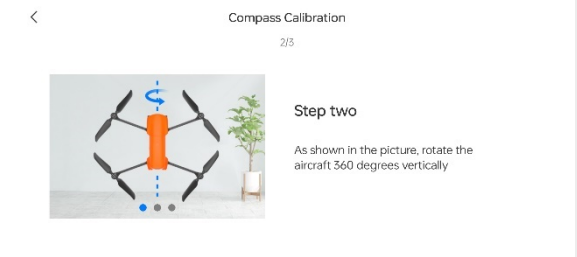
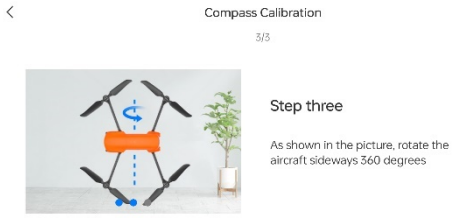
The compass (magnetometer) has been calibrated when the aircraft leaves the factory, and users usually do not need to calibrate it.
If the Autel Sky prompts a compass error message, or the flight direction of the aircraft is inconsistent with the control input direction of the RC, or the flight location deviates too much from the calibration location, please calibrate it according to the following steps.

Important

- The compass is very sensitive to electromagnetic interference, which can cause compass errors and a decrease in flight quality.
- Please choose an open outdoor area for calibration.
- Please stay away from strong magnetic field areas or large pieces of metal during calibration, such as magnetic ore, parking lots, construction areas with underground steel bars, near underground or overhead power transmission lines, etc.
- Please do not carry ferromagnetic materials or metal objects with you during calibration, such as mobile phones, watches, etc.
- During the calibration process, please stay away from charged objects and keep the aircraft 1.5 meters above the ground.
- During the calibration process, please do not turn off the power of the aircraft or start the motor.

Table 2-4 Compass Calibration

Step	Operation	Diagram
1	After turning on the aircraft and RC, tap " ⚙ " > "Safety" > "Compass Calibration" > "Start" on the flight interface of Autel Sky. When the calibration process starts, When the calibration process begins, the rear indicator of the aircraft turns yellow and blinks.	
2	Hold onto the aircraft to keep it in a horizontal position. Rotate horizontally 360° until the next step is displayed.	

3	Hold onto the aircraft to keep it in a vertical position with the nose pointing upward. Rotate horizontally 360° until the next step is displayed.	
4	Hold onto the aircraft, positioning the nose to the left and the side facing downward. Rotate horizontally 360 ° until successful calibration is displayed.	

Tips

- Please follow the calibration steps as instructed on the Compass Calibration page of the Autel Sky.
- If the calibration fails, the rear indicator of the aircraft will turn solid red. In this case, repeat the above steps.
- If the compass still cannot function properly after calibration, move the aircraft to a different location and calibrate again.

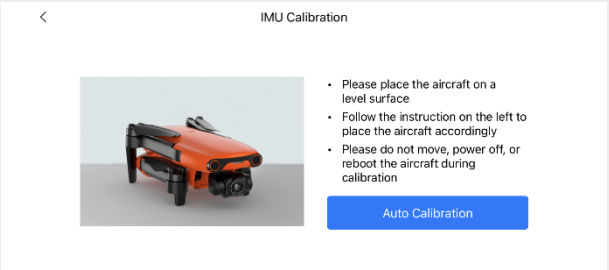
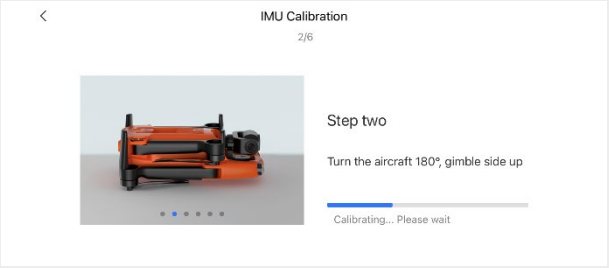
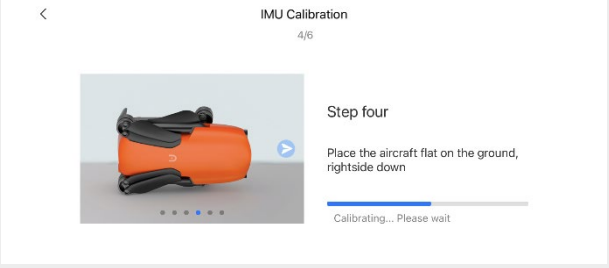
2.11.2 IMU calibration

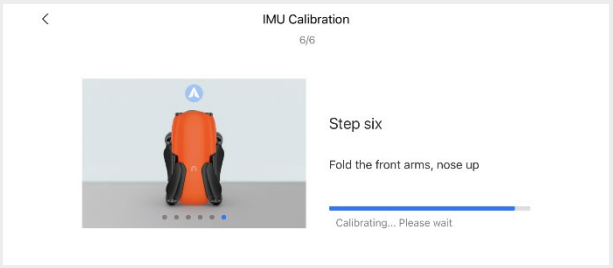
The Inertial Measurement Unit (IMU) is calibrated during the manufacturing of the aircraft and typically does not require user calibration. However, if there are abnormal acceleration and angular velocity readings, follow the steps below for IMU calibration.

Important

- Follow the prompts on the IMU calibration page in the Autel Sky to position the aircraft and ensure it remains in a stationary state.
- Place the aircraft on a flat surface and refrain from moving, turning off, or restarting the aircraft during the calibration process.
- The gimbal will be inactive during the IMU calibration process.

Table 2-5 IMU Calibration

Step	Operation	Diagram
1	After turning on the aircraft and RC, tap " ⚙ " > "Safety" > "IMU Calibration" > "Auto Calibration" on the flight interface of Autel Sky. When the calibration process begins, the rear indicator of the aircraft turns yellow.	
2	Fold the arms of the aircraft and place it horizontally on the ground until the next step is displayed.	
3	Flip the aircraft 180° , placing it with the belly facing up on a flat surface, until the next step is displayed. Please be careful to protect the lens on the back of the aircraft during this process.	
4	Place the left side of the aircraft flat on the ground until the next step is displayed.	
5	Place the right side of the aircraft flat on the ground until the next step is displayed.	

6	Place the nose of the aircraft flat on the ground until the next step is displayed. Be careful not to knock the front visual sensor.	
7	Fold the arms of the aircraft and place it with the nose facing upward on the ground until the App prompts that the calibration is successful. Please be careful to protect the lens on the rear of the aircraft during this process.	

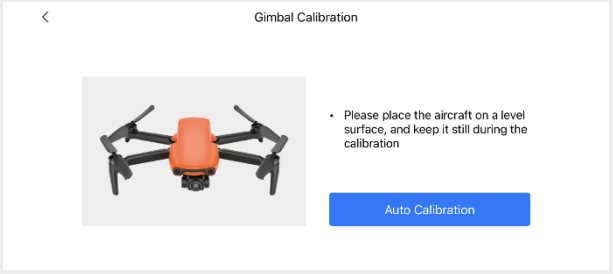
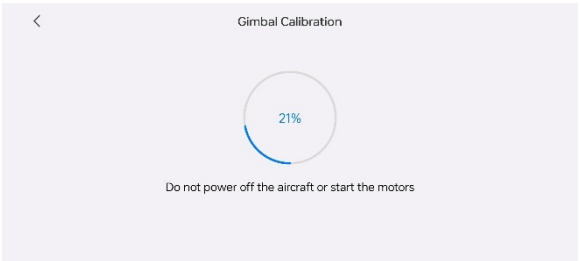
Tips

- If the calibration fails, the rear indicator of the aircraft will turn solid red. In this case, you should repeat the above steps.

2.11.3 Gimbal auto calibration

The gimbal is calibrated during the manufacturing of the aircraft and typically does not require user-initiated auto-calibration. However, if there are abnormal gimbal rotation angles, follow the steps below for automatic calibration.

Table 2-6 Gimbal Calibration

Step	Operation	Giagram
1	Place the aircraft on a flat surface, and after turning on both the aircraft and the RC, keep the aircraft in a stationary state. On the flight interface of the Autel Sky, tap "⚙" > "Control" > "Gimbal Calibration" > "Auto Calibration" in sequence.	
2	Wait, the screen prompts "Calibration successful. Please restart the aircraft" and then the gimbal automatically calibrates successfully.	

2.12 Emergency Stop Propellers During Flight

During flight, if the aircraft's motors experience power damage or failure (such as damaged or missing propeller blades, motor failure) resulting in the inability to control the aircraft normally, the emergency propeller stop function can be activated. Simultaneously, push the dual joysticks on the RC inward or outward to force the propeller blades to stop rotating, allowing the aircraft to free-fall for a forced landing. This helps reduce potential damage to property and injuries to ground personnel caused by aircraft malfunctions.
In the event of a failure, users should attempt to maneuver the joystick to move the aircraft away from crowds or buildings, decrease the aircraft's altitude and horizontal speed, and then execute the emergency propeller stop function. For activating this function, please refer to "6.4 Settings Interface" in Chapter 6.

Important

- If the propellers are stopped when the aircraft has a certain initial velocity, the aircraft will follow a parabolic trajectory during free fall. Do not stop the propellers in this unpredictable scenario.
- After completing the forced landing, please contact Autel Robotics promptly for inspection of the power system.

2.13 Direct Remote Identification

The Direct Remote Identification (DRI) system allows the registration number of the unmanned aircraft system operator (Remote ID) to be uploaded to the system. During flight, the system broadcasts part of non-sensitive data such as the operator's registration number, unique serial number of the unmanned aircraft, timestamp, geographic location of the unmanned aircraft, altitude above ground or takeoff point, route measured clockwise from true north, ground speed of the unmanned aircraft, and the operator's geographic location (if available, otherwise, the geographic location of the takeoff point) in real-time to mobile devices within its broadcast range. This system effectively controls potential risks to public safety posed by unmanned aircraft during flight and provides effective information and data tools for the supervision of unmanned aircraft flights.
The EVO Nano Series Multi-rotor Drone supports the DRI system and uses Wi-Fi (Wi-Fi Beacon, 802.11n) for broadcasting. Enable the DRI system by configuring it in the Autel Sky.

Tips

- Operation path: On the flight interface of the Autel Sky, tap "⚙" >" Safety" >" Country/Region", after selecting the corresponding country or region then tap "⚙" again, then tap" Safety" >" Remote ID" and follow the on-screen instructions for relevant operations. For more details, please refer to "6.4 Settings Interface" in Chapter 6 to swap joystick modes.

2.14 Standard Flight Operation Process

2.14.1 Pre-flight inspection checklist

Before every flight operation, perform a comprehensive pre-flight check by following these steps to ensure safe flight:

- Ensure the RC, mobile devices, and aircraft have sufficient battery power, and the aircraft battery is securely installed with the battery unlock button in the locked position.
- Ensure the aircraft propellers are securely installed without damage or deformation, the motor and propeller surfaces are clean and free of foreign objects, and the propellers and arms are in fully extended positions.
- Ensure there are no foreign objects, dirt, or fingerprints on the lenses of the aircraft's visual cameras, gimbal camera, or supplementary lights, and they are not obstructed by mounts or other accessories on the aircraft.
- Confirm that the gimbal protective cover has been removed, and the gimbal's three-axis movements are normal.
- Ensure the microSD card is inserted into the aircraft, the microSD card slot and USB-C interface are covered with the rubber protective cover to maintain product protection.
- Ensure that the RC antenna is facing the aircraft.
- Place the aircraft in an open and level outdoor area, ensuring there are no obstacles, buildings, trees, etc. Stand at least 5 meters away from the rear of the aircraft.
- Ensure the aircraft powers on and is connected to the RC, and the aircraft motors and gimbal camera are functioning properly.
- Confirm that the aircraft, RC, etc., have been upgraded to the latest versions as prompted.
- Address all warnings and errors displayed on the Autel Sky.
- Enter the Autel Sky settings page to configure flight control parameters, obstacle avoidance systems, joystick modes, and other relevant flight safety parameters. Familiarize yourself with flight operations to ensure parameter settings meet your needs and guarantee flight safety.
- If multiple aircraft are flying simultaneously, maintain an appropriate aerial distance to prevent safety accidents.

2.14.2 Basic flight procedure

This aircraft provides three joystick modes: Mode 2 (USA), Mode 1 (China), and Mode 3 (Japan). Each mode has different control logic for the aircraft. The default mode is Mode 2, and users can switch modes in the Autel Sky based on their control preferences (refer to “6.4 Settings Interface” in Chapter 6 to swap joystick modes). The following are the basic flight operations:

1. Please refer to "2.14.1 Pre-flight inspection checklist" in this chapter for pre-flight preparations.
   - Place the aircraft in an open and level outdoor area, ensuring no obstacles are present. Stand at least 5 meters away from the rear of the aircraft.
   - Long-press the smart battery power button for 3 seconds to power on the aircraft, wait for the rear indicator to turn into slow green flashing (indicating normal status).
   - Long-press the RC power button for 2 seconds to turn on the RC.

2. Please refer to “4.9 Starting/Stopping the Aircraft Motor" in Chapter 4 to use the RC to start the aircraft and take off.
3. Please refer to “4.7 Setting Stick Mode" in Chapter 4 to carefully control the aircraft.
4. Please refer to "4.9 Starting/Stopping the Aircraft Motor" in Chapter 4 to land the aircraft and then turn off the motors.

2.15 List of Safeguard

Before flight, please learn the following safeguard information, which helps you handle abnormal situations in a correct and safe way.

Table 2-7 List of Safeguard

No.	Safety Function	Refer To
1	Auto Return Home	“2.7 Auto Return Home” in this chapter
2	Emergency Stop Propellers During Flight	“2.12 Emergency Stop Propellers During Flight” in this chapter

Chapter 3 Aircraft

3.1 Aircraft Activation

When unboxing the product for the first time, you need to activate the EVO Nano Series Multi-rotor Drone before using it. By default, the aircraft is pre-paired with the RC at the factory. After turning on the aircraft and the RC, you will see an activation prompt in the Autel Sky. Please follow the steps in the Autel Sky to activate the aircraft.

Important

- Make sure that the RC is connected to the Internet before starting the activation process. Otherwise, activation may fail.
- If activation fails, please contact Autel Robotics After-Sales Support for assistance.
- For how to pair the aircraft with the RC, please refer to "4.8 Frequency Pairing With the Remote Controller" in Chapter 4.

3.2 Aircraft Components

The EVO Nano Series Multi-rotor Drone includes two models: the EVO Nano Aircraft and the EVO Nano+ Aircraft. Apart from differences in the gimbal camera, the other features of the two models are consistent.

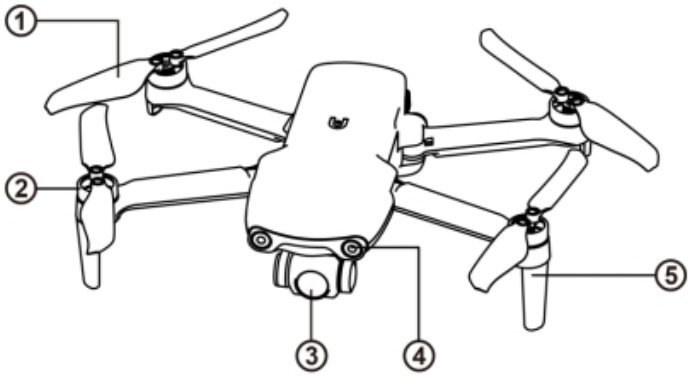


Fig 3-1 Aircraft Overhead View

Table 3-1 Aircraft Overhead View Details

No.	Name	Description
1	Propeller	Rotates in the air to generate thrust to propel the aircraft forward.
2	Motor	Used to drive the propeller to rotate.

3	Gimbal Camera	Integrates multiple sensors for stable shooting or measurements during flight.
4	Forward Visual Perception System	Used to sense the obstacles ahead and avoid the aircraft from colliding with them.
5	Landing Gear (built-in antenna)	Used to support the aircraft to avoid damage to the bottom of the fuselage. Built-in antenna to communicate with RC

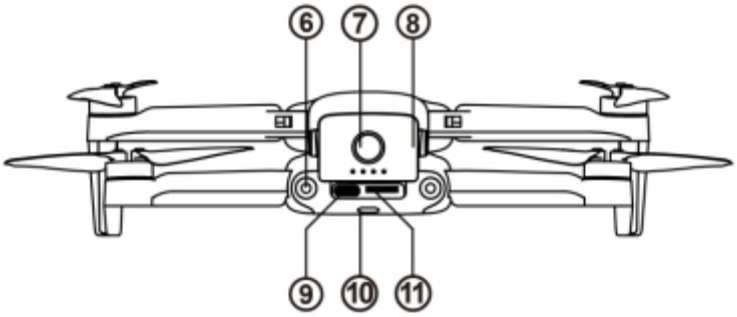


Fig 3-2 Aircraft Rear View

Table 3-2 Aircraft Rear View Details

No.	Name	Description
6	Rear Visual Perception System	Used to sense the obstacles in the rear and avoid the aircraft from colliding with them.
7	Power button	Press and hold the power button for 3s to start the aircraft.
8	Battery	Battery of the aircraft. For details about the battery, please refer to "Chapter 5 Smart Battery" and "Appendix A Product Specifications".
9	USB-C Interface	Used to connect to a computer for firmware updating, debugging and data transferring.
10	Rear LED Indicator	Indicates the status of the flight. For details, please refer to "3.4 Aircraft Indicator".
11	microSD Card Slot	For inserting a microSD card.

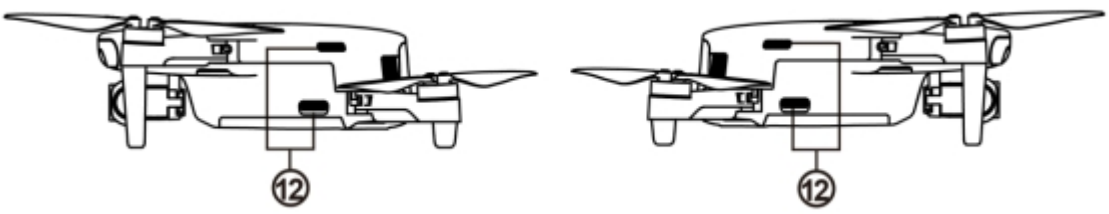


Fig 3-3 Aircraft Side View

Table 3-3 Aircraft Side View Details

No.	Name	Description
12	Air Outlet	Used to vent the heat produced in flight.

⚠ Warning

- The USB-C interface of the aircraft is not available for charging. Please do not connect a charger to it. For aircraft charging, refer to "5.3.4 Charging the smart battery" in Chapter 5.

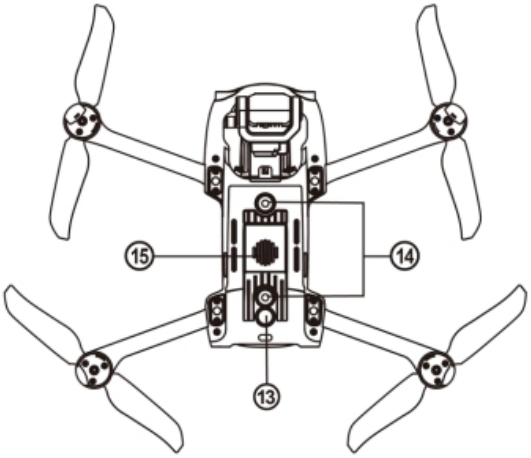


Fig 3-4 Aircraft Down View

Table 3-4 Aircraft Down View Details

No.	Name	Description
13	Ultrasonic Sensor	Used to sense obstacles beneath the aircraft, avoiding collisions with them.
14	Downward Visual Perception System	Used to sense obstacles below, and to the left and right of the aircraft and avoid collisions.
15	Air Inlet	Used for heat dissipation.

⚠ Warning

- The interfaces on both sides of the aircraft body are equipped with rubber protective covers, designed to protect the microSD card slot and USB-C interface. Please ensure that the rubber protective covers are securely closed during the flight process.
- Do not disassemble components that were installed at the factory (except for components explicitly allowed in this manual), otherwise, the product will lose its warranty eligibility.

3.3 Propeller

Propellers are consumable parts that require regular maintenance and replacement to ensure the safe flight of the aircraft. The EVO Nano Series Multi-rotor Drone uses a quick-release propeller design, making it easy for you to replace them.

3.3.1 Replacing propellers

The propellers are installed in the aircraft by default at the factory, and reinstallation is not required. If the propellers are damaged (e.g., broken or damaged blades), please replace them with new ones before a flight.

- **Keep body parts away from fan blades.**

Tips

- Aircraft propellers are consumable parts. If needed, please purchase them from Autel Robotics.
- The propeller model is marked on the blade. You can check the model of a propeller at the edge of the blade near the propeller center shaft.
- Propellers cannot be installed on the wrong propeller mounts. Please carefully distinguish between propellers and mounts.
- Autel Robotics provides one spare of propellers for each aircraft (with models CW and CCW, respectively). Please refer to the “Packing List” and packaging for details.

■ Detaching the Propellers

1. Press and hold the smart battery power button for 3 seconds to power off the aircraft.
2. First hold the motor on the arm below the propeller to prevent it from rotating, press down on the propeller center shaft firmly, and then turn it in the unlocking direction to detach the propeller.

■ Installing the Propellers

When installing the propellers, strictly follow the following instructions:

1. Make sure that the aircraft is powered off before installing the propellers.
2. The aircraft needs to be installed with two models of propellers, that is, CW and CCW, with two of each model. The CCW propellers have a white circle mark at the center shaft, while the CW propellers do not have this mark at the center shaft.
3. There are two types of propeller mounts on the front and rear arms of the aircraft. The mounts with a white circle mark at the center shaft are for CCW propellers, while the mounts without this mark are for CW propellers.
4. Place a propeller on the corresponding propeller mount. Make sure that the buckle at the center shaft of the propeller aligns with the slot on the mount. Hold the motor on the arm below the propeller to prevent it from rotating, press down on the propeller center shaft firmly, and then turn it in the locking direction marked on the center shaft to secure the propeller in place.

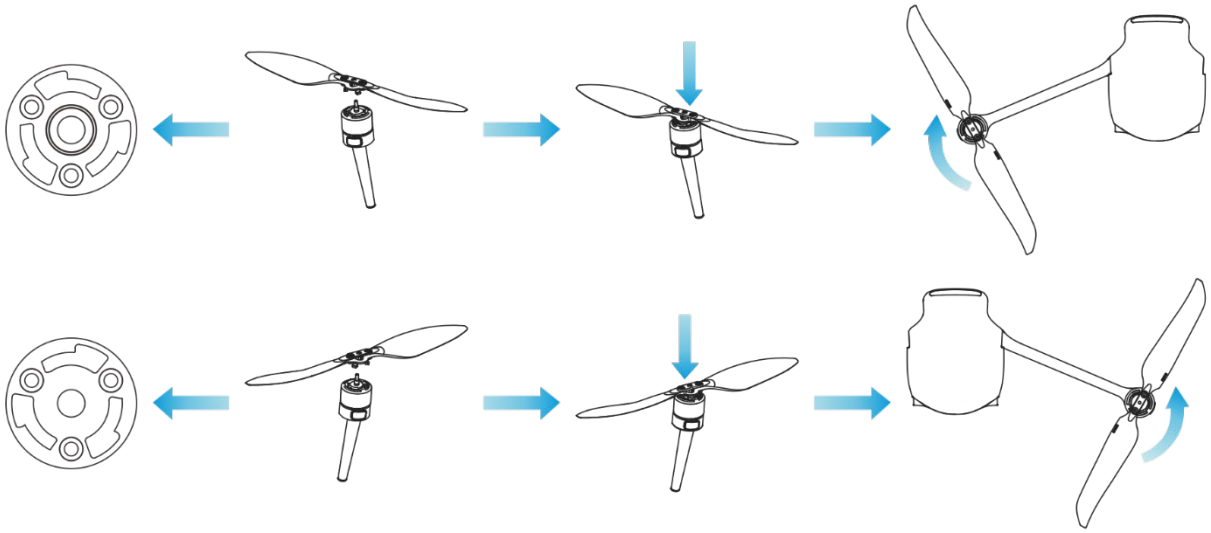


Fig 3-5 Install the Propellers

Table 3-5 Propeller Installation Details

Propeller Model	CCW (White circle on the center shaft)	CW (No white circle on the center shaft)
Installation Area	Mounts with a white circle mark	Mounts without white circle mark
Lock/Unlock	Lock orientation: Turn the propeller this way: to tighten it. Unlock orientation: Turn the propeller this way: to remove it.	

⚠ Warning

- The propellers can rotate at a maximum speed of 14000 RPM. Please operate with caution.
- Before each flight, make sure that all propellers are in good condition. If there are aged, damaged, or deformed propellers, please replace them before the flight.
- Before each flight, make sure that all propellers are mounted correctly and securely.
- Please use the propellers provided by Autel Robotics. Do not mix propellers of different models.
- Before replacing propellers, make sure that the aircraft is powered off.
- Propeller edges are sharp. When replacing propellers, it is recommended to wear protective gloves.
- Stay away from rotating propellers or motors to avoid injuries.
- Before testing the aircraft on the ground, make sure that the propellers are removed.

3.3.2 Storing propellers

After using the aircraft, fold the arms as shown below and store the propellers in the rugged case.

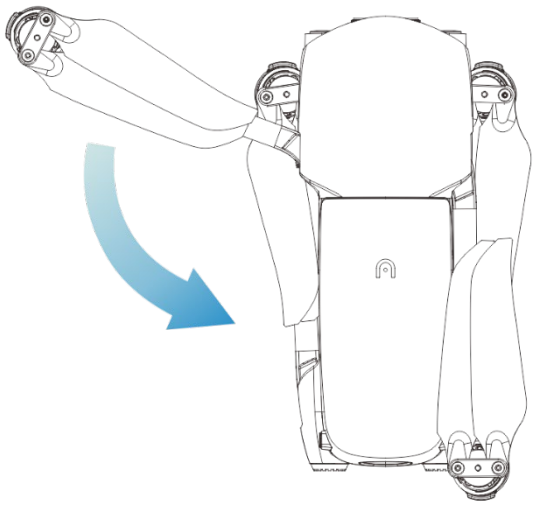


Fig 3-6 Store the Propellers

Important
• Before folding the arms, you should turn off the power of the aircraft. Store the propeller and fold the rear arms first, then fold the front arms.

3.4 Aircraft Indicator

The aircraft each has an LED indicator at the rear, which will display the current status of the aircraft. The details is shown in the table below.

Table 3-6 Rear indicator Status Details

Indicator status (R: red G: green Y: yellow)	Definition
Normal	
G- Flash Slowly (2 seconds/1 time)	The aircraft is in GPS Mode
Y-Flash Slowly (1 second/1 time)	The aircraft enables ATTI function.
Frequency Matching	
Y–Fast Flashing	Matching between RC and the aircraft
G–On (5 seconds)	Matching Successful
R–On (5 seconds)	Matching Failed
Compass Calibration	
Y–Always on	Start Calibration

Y–Always on	Calibration Failed
G–Always on	Calibration Successful
Warning	
Y-Slow Flash (every 1 second)	Low battery warning
R- Slow Flash (every 1 second)	Critically low battery warning
Update	
G-Fast Flash	Being update
G-Always On	Update Successful
Y-Slow Flash (every 1 second)	Update Failed

3.5 Camera

3.5.1 Camera differences

- The gimbal camera of the EVO Nano Aircraft is equipped with a 1/2-inch CMOS image sensor, capable of capturing stable 4K high-definition videos and 48 million pixels photos.
- The gimbal camera of the EVO Nano+ Aircraft is equipped with a 1/1.28-inch CMOS image sensor, capable of capturing stable 4K high-definition videos and 50 million pixels photos.

3.5.2 Camera operations

■ RC Control

- Shooting /Video Recording Button: After setting of the camera mode, press this button to take photos or record videos.
- RC Customizable Button: After setting the Fn button to "Photo/video switch", you can switch the camera's mode by single-clicking or double-clicking this button.
- RC Customizable Button: After setting the Fn button to "AE Lock/Unlock", you can control the camera's auto exposure by single-clicking or double-clicking this button.

Tips

- For the control operations of the RC, please refer to "4.1.1 Remote controller components" in Chapter 4.

■ Autel Sky Control

For the control operations and the functions related to the camera in the Autel Sky, please refer to "6.6 Camera Interface" in Chapter 6.

3.6 Gimbal

The EVO Nano aircraft is equipped with a three-axis stabilized gimbal with a high-precision motor structure, which can ensure stable camera shooting when the aircraft is flying.

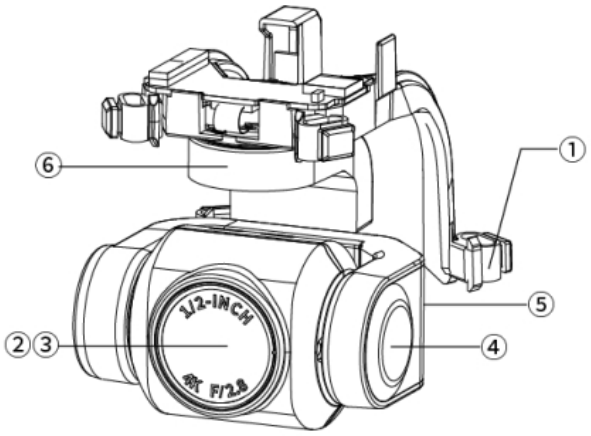


Fig 3-7 Gimbal Structure of EVO Nano Aircraft

Table 3-7 Gimbal Structure Details of EVO Nano Aircraft

No.	Name	Description
1	Dampener Mount	Used to support dampeners and gimbal cameras, etc.
2	Camera	Used to capture pictures or videos.
3	UV Lens	Used to filter ultraviolet rays, protect the lens.
4	Pitch Axis Motor	Used to control the moving range of the gimbal to rotate up or down (mechanical range: -125°~+35°, controllable movement range: -90°~+15°).
5	Roll Axis Motor	Used to control the moving range of the gimbal to roll left or right (mechanical range: -34°~+33°).
6	Yaw Axis Motor	Used to control the moving range of the gimbal to rotate left or right with its own axis (mechanical range: -25°~+15°).

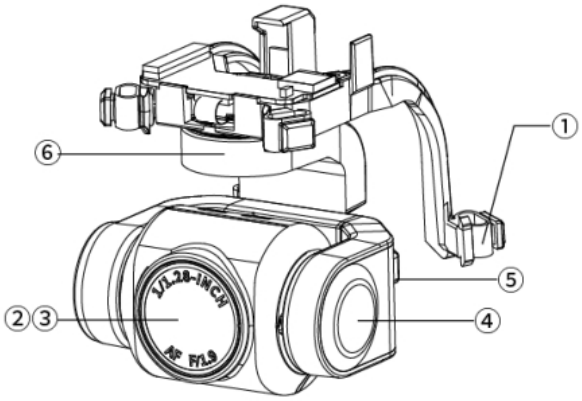


Fig 3-8 Gimbal Structure of EVO Nano+ Aircraft

Table 3-8 Gimbal Structure Details of EVO Nano+ Aircraft

No.	Name	Description
1	Dampener Mount	Used to support dampeners and gimbal cameras, etc.
2	Camera	Used to capture pictures or videos.
3	UV Lens	Used to filter ultraviolet rays, protect the lens.
4	Pitch Axis Motor	Used to control the moving range of the gimbal to rotate up or down (mechanical range: -125°~+35°, controllable movement range: --90°~+15°).
5	Yaw Axis Motor	Used to control the moving range of the gimbal to rotate left or right with its own axis (mechanical range: -34°~+33°).
6	Roll Axis Motor	Used to control the moving range of the gimbal to roll left or right (mechanical range: -25°~+15°).

3.6.1 Gimbal mechanical rotation range

The mechanical rotation ranges of the pitch, yaw, and roll axes of the gimbal are shown below.

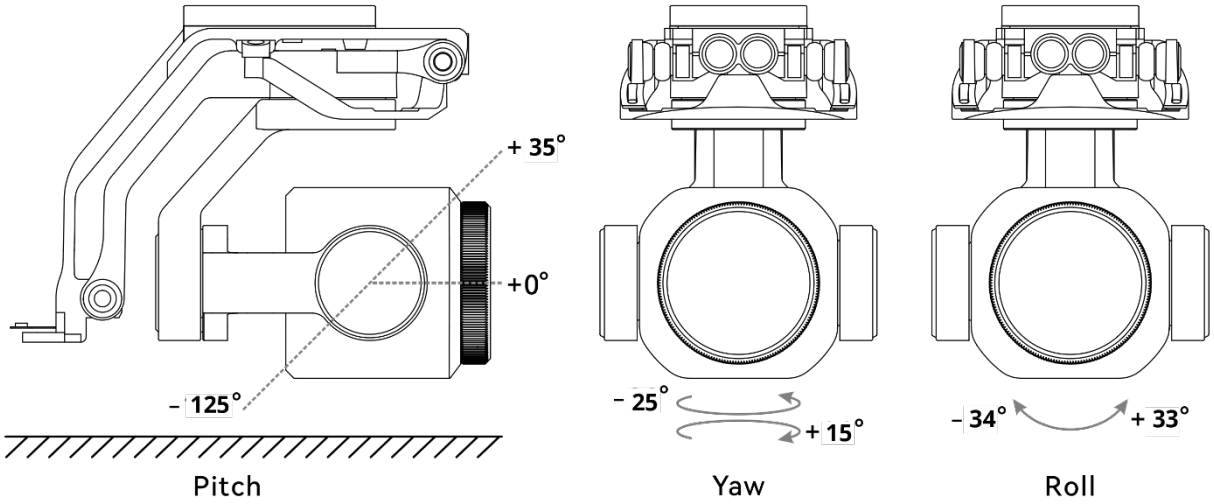


Fig 3-9 Mechanical Rotation Range of the Gimbal of the EVO Nano Series Multi-rotor Drone

Remarks
● Users can control the pitch rotation range of the gimbal: -90° to 15°.

3.6.2 Gimbal mode

The gimbal has two operating modes: Stabilized Mode and FPV Mode.

■ **Stabilized Mode**

The roll axis of the gimbal remains horizontal, while the pitch axis stays at the angle set by the user. This mode is used to capture stable horizontal photos and videos.

■ **FPV Mode**

The roll axis of the gimbal aligns with the aircraft's roll direction, while the pitch axis stays at the angle specified by the user. This mode is used for the first-person view.

Remarks
● For the switching operation of the gimbal mode, please refer to “4.1.1 Remote controller components” and “4.10.1 Customizable button Fn” in Chapter 4.

3.6.3 Gimbal operations

■ RC Control

- Dial Wheel: Used to adjust the gimbal pitch. Turn left to rotate the gimbal down and turn right to rotate the gimbal up.
- RC Customizable Button: After setting the Fn button to "Pitch Set to 0/90 Degrees", you can switch the gimbal pitch angle by single-clicking or double-clicking the Fn Button.

Tips

- For the control operations of the RC, please refer to "4.1.1 Remote controller components" and "4.10.1 Customizable button Fn" in Chapter 4.

■ Autel Sky control

For the gimbal control operations in the Autel Sky, refer to "6.6 Camera Interface" in Chapter 6.

Warning

- When the aircraft is not in use, especially when the aircraft is being transferred or stored, be sure to use the protective cover of the gimbal to fix the gimbal, so as to avoid damage to the gimbal camera due to accidental rotation or bumping.
- Please remove the protective cover of the gimbal before turning on the aircraft, otherwise, it may cause damage to the gimbal motor and circuit.
- When turning on the power switch of the aircraft, the gimbal will automatically rotate to perform self-check and calibration, please make sure there is no object near the gimbal to hinder its movement.
- Do not disassemble the gimbal at will. Otherwise, warranty eligibility will be lost.

3.7 Flight Control System

EVO Nano Series Multi-rotor Drone achieves stable and convenient flight control through its built-in intelligent flight control system. The system supports a number of advanced functions, including auto-return, failsafe, and visual positioning system.

Table 3-9 Flight Control System

Module	Description
IMU	A three-axis gyroscope and a three-axis accelerometer measure acceleration and angular velocity.
Compass	Measures the geomagnetic field and provides reference information on the aircraft heading.
GNSS receiver	Receives global satellite navigation signals to measure longitude, latitude, and altitude.
Barometer	Measures atmospheric pressure and is used to determine the altitude of the aircraft.
Visual Perception System	Provides the aircraft with front, rear, and down obstacle awareness around the fuselage.
Ultrasonic sensor	Measures the distance between the aircraft and the ground.

3.7.1 Flight status

Depending on the availability of GNSS signals and flight conditions, the aircraft can automatically switch between three flight modes.

Table 3-10 Flight Status

Mode	Description
GNSS Mode	GNSS mode is activated when the aircraft detects an appropriate GNSS signal. In GNSS mode, if the obstacle avoidance system is turned on, the system will provide auxiliary information to more accurately locate and avoid obstacles, provide stable and smooth flight control, and support auto-return, failsafe, and other safety functions.
Visual Positioning Mode	When the GNSS signal detected is not strong enough to activate GNSS mode, and it meets certain environmental and altitude requirements (ensure that the surrounding environment is well-lit, the ground texture is clear, and the altitude of the aircraft must be within the observation range of the Visual Perception System), the visual positioning mode will be activated.

⚠ Warning

- ATTI function: When there is no GNSS signal and the environment and altitude cannot meet the requirements of the Visual Perception System, that is, when there is no GNSS signal and visual positioning failure at the same time, the ATTI function will be activated automatically. In this way, the aircraft will drift in horizonal directions and intelligent functions and return-to-home functions will be unavailable.
- If you have not fully mastered the flight control of the aircraft and the aircraft is in ATTI function, please do not take off rashly.

3.7.2 Flight modes

The aircraft has varying flight performance in different flight modes. You can set the flight mode of the aircraft in the Autel Sky. For more information, please refer to "6.3 Status Bar" and "6.4 Settings Interface" in Chapter 6.

Table 3-11 Flight Modes

Flight Modes	Description
Novice mode	Forward, backward, left, and right: 2.4 m/s; Ascend: 2.5 m/s; Descend: 2.5 m/s.
Smooth	Forward, backward, left, and right: 5.0 m/s; Ascend: 3.0 m/s; Descend: 2.0 m/s.
Standard	Forward, backward, left, and right: 10 m/s; Ascend: 5.0 m/s; Descend: 3.0 m/s.

Ludicrous	Forward, backward, left, and right: 16 m/s; Ascend: 5.0 m/s; Descend: 3.0 m/s.

⚠ Warning

- If you have not fully mastered the flight control of the aircraft, it is not recommended for you to switch to Ludicrous mode.
- When flying close to the ground, it is recommended to switch to Novice mode for safety.
- When switching to Ludicrous mode, the obstacle avoidance function of the aircraft will become unavailable, and the aircraft will not automatically avoid surrounding obstacles during flight. Please pay attention to the surrounding environment when using it, and manually control the aircraft to avoid obstacles.
- When switching to Ludicrous mode, its flight speed is greatly improved compared with Standard mode, so the braking distance in this mode will be correspondingly extended. You should maintain a braking distance of at least 50 meters when operating the aircraft in this mode to ensure personal and flight safety.

3.7.3 Intelligent flight function

■ Accurate Landing

The accurate landing function uses the downward binocular Visual Perception System of the aircraft to record the information at its take-off point. When the aircraft is returning to the home point or landing, vision algorithms are used to calculate the distance between the aircraft and the take-off point in real time so as to make sure that the aircraft successfully lands at the take-off point.

■ Landing Protection

The landing protection function uses the downward Visual Perception System of the aircraft to create a depth image, and then calculates the flatness and angle of the depth image to detect whether the surface is flat enough for a safe landing.

■ Intelligent tracking

Intelligent tracking utilizes deep learning algorithms to detect pedestrians in real-time. Real-time tracking algorithms are employed to automatically track selected objects while avoiding obstacles during movement.

Tips

- The aircraft will record the takeoff point as the default home point. Precision landing will only take effect when the home point is not refreshed during flight.
- When enabling the precision landing function, ensure that the takeoff environment has not changed.
- When intelligent tracking is activated, the maximum flight speed of the aircraft is limited to 5 meters per second, the maximum distance between the aircraft and the tracked target is 40 meters.

3.8 Installing the microSD Card

The aircraft is equipped with a microSD card slot for storage expansion. Before turning on the aircraft, please insert a microSD card into the slot as shown in the following picture. The EVO Nano Aircraft supports a maximum capacity of 256GB microSD card. If users need to shoot high-definition videos, it is recommended that users use a Class 10 or UHS-3 Micro SD card.

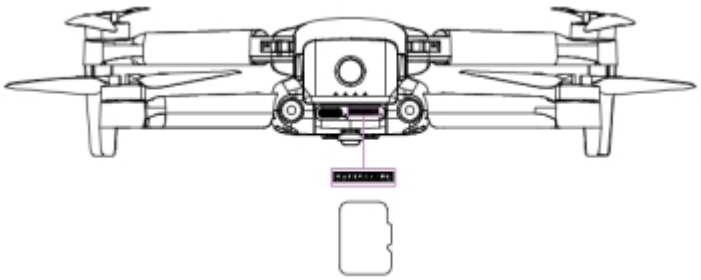


Fig 3-10 install a microSD Card

Tips

- Before shooting, check the camera parameters settings and ensure those parameters are correct.
- Only after turning on the aircraft can users download pictures or videos saved in the micro SD card through Autel Sky Application.
- It is recommended that you prioritize using an external microSD card for storing the image data collected during flight to avoid running out of internal storage space, which will affect the flight safety of the aircraft.
- If you plan to shoot high-definition videos, we recommend using a Class 10, UHS-3, or higher microSD card.

Warning

- Do not install or remove microSD card when the aircraft is turned on. In recording, installing or removing microSD card or removing the smart battery may lead to damage on the SD card and loss of storage data.
- Please turn off the aircraft in a proper manner after shooting or recording. Otherwise, the parameters of the camera will not be saved and the video being recorded will be damaged. Autel Robotics will not be held responsible for loss due to the fact that the videos and photos cannot be accessed in this way.
- To ensure the stability of the gimbal camera system, please limit the duration of a single recording to within 30 minutes.

3.9 Noise

When the EVO Nano Series Multi-rotor Drone hovers, it generates noise with an intensity of 69dB (at a distance of 0.5 meters from the aircraft). Users should familiarize themselves with

local noise pollution prevention and control regulations and set a reasonable flight altitude or safety distance to ensure no interference with other individuals, groups, or organizations.

■ A-weighted sound pressure level

Measurement results for the EVO Nano Series Multi-rotor Drone, in accordance with the requirements of GB 42590-2023 in China's Mainland, are provided below:

Table 3-12 Noise Measurements Results (Normalized to 1 m from the Aircraft)

Observation Points	Hover	Fly (1 m/s)
Ground Measure Point (Below)	65.3dB	70.3dB
Side Measure Point (Horizontal Plane)	66.2dB	65.5dB
Note: The measurement environment is an outdoor cement ground.		

Tips

- Before conducting a flight, please make sure to verify the noise restrictions in the flight area in advance to avoid violations of local regulations regarding aircraft noise.

3.10 Autel SkyLink Image Transmission Function

The EVO Nano Series Multi-rotor Drone is equipped with Autel SkyLink transmission technology, equipped with triple-frequency dual-transmit dual-receive capability, so that the communication distance between the aircraft and the RC can reach up to 10km.

- The system supports adaptive frequency hopping transmission across multiple frequency bands, selecting the optimal channel based on electromagnetic interference conditions and providing robust anti-interference capabilities.
- Real-time transmission quality reaches 2.7K, with a high transmission bitrate of 90Mbps and low-latency transmission characteristics.

Remarks

- The transmission data is based on the RC and comes from test data, and the test environment and conditions are different, and the data may be different.
- When the transmission distance is less than 1km, it can achieve 2.7K@30FPS video transmission quality; when the transmission distance is greater than 1km, it can achieve 1080P@30FPS video transmission quality.
- The transmission range is provided for reference only, and during actual use, it is important to monitor the quality of the video transmission signal continuously. In the case of poor video transmission signals, it is recommended to promptly reduce the flight radius. For more information, please refer to "6.3 Status Bar" in Chapter 6.

■ Information of Communication Frequency Bands for Aircraft

The communication frequency bands of the EVO Nano Series Multi-rotor Drone comply with regulatory requirements worldwide. Please feel assured in using it. The relevant certified frequency bands are listed in the table below.

During actual use, after powering on and pairing the aircraft with the RC, the Autel Sky on the mobile device (connect to the RC) will automatically determine the location of different countries and regions based on the GNSS information received by the aircraft. It will then automatically select the frequency band that complies with local regulations for wireless communication.

Tips

- After pairing the aircraft with the RC, the wireless communication frequency band between them will be automatically controlled by the Autel Sky based on the geographical information of the aircraft to ensure compliance with local regulations.
- Before flying, ensure that the aircraft, after powering on, can receive a good GNSS signal so that the Autel Sky can select the correct communication frequency band.
- In scenarios where the aircraft flies in visual positioning mode (such as in the absence of GNSS signals), the wireless communication frequency band between the aircraft and the RC will be the one used in the previous flight by default. In such cases, it is recommended that users power on and position the aircraft in an area with a good GNSS signal before proceeding to the actual operational area for the flight.

Table 3-13 Global Certified Frequency Bands Used (Image Transmission)

Operating Frequency	Details	Countries & Regions
2.4G	2400 – 2476MHz	■ Chinese Mainland (SRRC)
2.4G	2400 – 2483.5MHz	■ USA (FCC) ■ Canada (ISED) ■ EU (CE) ■ UK (UKCA) ■ Australia (RCM)
5.2G	5150 – 5250MHz	■ USA (FCC)
5.8G	5725-5829MHz	■ Chinese Mainland (SRRC)
5.8G	5725 - 5850MHz	■ USA (FCC) ■ Canada (ISED) ■ EU (CE) ■ UK (UKCA) ■ Australia (RCM)

Remarks

- Some countries and regions have strict restrictions on the use of radio communication frequency bands. It is crucial to use them legally, and any modification of communication modules is strictly prohibited.
- If flying in any countries not listed in the above table, please consult the local communication management authorities to ensure that the aircraft communication frequency bands comply with local regulatory requirements.
- UAS will automatically match the legal frequency band based on GNSS positioning, so users can use it with confidence.

Table 3-14 Global Certified Frequency Bands Used (Wi-Fi)

Operating Frequency	Details	Countries & Regions
5.2G	5150 – 5250 MHz	■ USA (FCC)
5.8G	5725 – 5829 MHz	■ Chinese Mainland (SRRC)
5.8G	5725 – 5850 MHz	■ USA (FCC) ■ Canada (ISED) ■ EU (CE) ■ UK (UKCA) ■ Australia (RCM)

Remarks

- The EVO Nano Series Multi-rotor Drone supports Wi-Fi fast transfer, and photos and videos on the aircraft can be downloaded to mobile devices at a transfer speed of up to 20MB/s through the Autel Sky.
- During flight, the Wi-Fi fast transfer function of the aircraft will not be enabled, and this function will only be supported after the aircraft lands.
- UAS will automatically match the legal frequency band based on GNSS positioning, so users can use it with confidence. Under different frequency bands, the Wi-Fi fast transfer rate will be different.

■ RC Devices

The aircraft supports frequency pairing with the RC, enabling remote communication control of the aircraft.

Table 3-15 Supported List of Aircraft Ground Control Equipment

Control Device Information	RC
Part Number (EAN)	6924991102373
Part Number (UPC)	889520012119

Manufacturer	Autel Robotics
Control Software	Autel Sky (install on iOS or Android Devices)
Software Version Requirement	V1.4.73.5 or higher
Supplementary Information	Standard configuration

Tips

- The RC is included as a standard item in the aircraft package, and Autel Robotics also provides retail packaging for customers to choose independently.
- Ensure that the control software version meets the above requirements when remotely controlling the aircraft with the mentioned devices.

Chapter 4 Remote Controller

4.1 Introduction

The RC adopts the Autel SkyLink image transmission technology of Autel Robotics, has strong anti-interference capability and supports the double-emission and double-receiving of 2.4GHz, 5.8GHz and 5.2GHz. With it, you can control and set aircraft and camera within at most 10km distance and it can display a high-definition picture in mobile device in a real-time manner by Autel Sky.
The built-in battery of RC is 3930mAh that can work for about 3h.

Remarks

- The maximum communication distance of the RC is measured under unblocked and interference-free conditions and is for references only.
- It supports adaptive frequency hopping transmission, selects the optimal channel according to the electromagnetic interference situation, and has strong anti-interference ability.
- The data link between the aircraft and the RC adopts the AES-128 encryption method to ensure end-to-end data communication security.

4.1.1 Remote controller components

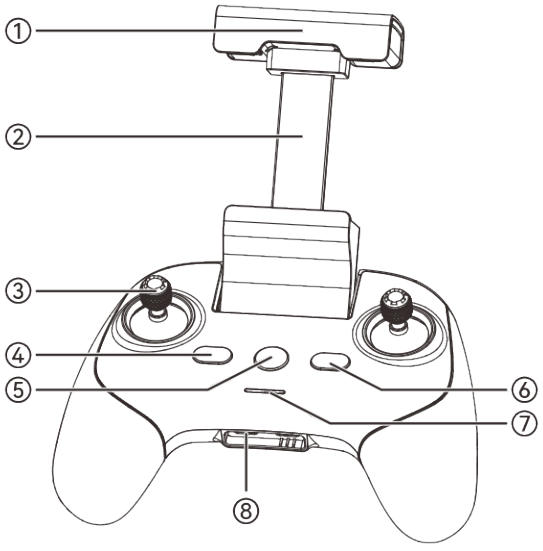


Fig 4-1 RC Front View

Table 4-1 RC Front View Details

No.	Name	Description
1	Antenna	Transmits the control signals of the RC and receives the image transmission information of the aircraft.
2	Mobile Device Holder	Used to mount a mobile device installed with Autel Sky.
3	Command Stick	Left command stick and right command stick control the direction and motion of aircraft. The default stick mode is Mode 2. You can set the stick mode in the Autel Sky. For more information, please refer to "6.4 Settings Interface" in Chapter 6.
4	Return-to-Home Button	When the aircraft is flying, press and hold the button for 2 seconds, and the aircraft will automatically begin the return-to-home process.
5	Power Button	Long press the button for 2s to turn on/off the RC.
6	Pause Button	When the aircraft is in autonomous flight mode, short press this button to control the aircraft to suspend autonomous flight and hover in place or resume autonomous flight; press and hold this button for 2 seconds to exit the autonomous flight.
7	Battery Level Indicator	Displays the remaining battery level of the RC.
8	Charging Interface	Used for RC charging.

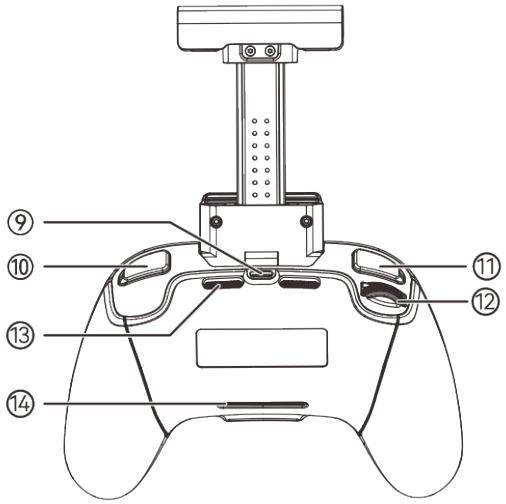


Fig 4-2 RC Back View

Table 4-2 RC Back View Details

No.	Name	Description
9	Mobile Device Interface	Used to connect the mobile device.
10	Shooting/Video Recording Button	After setting of the camera mode, press the button to take photos or record videos.
11	RC Customizable Button (Fn)	Use the Autel Sky to customize the button function. For more information, please refer to "6.4 Settings Interface" in Chapter 6.
12	Dial Wheel	Turn the dial wheel to adjust the gimbal pitch.
13	Air Inlet	Used for heat dissipation of the RC. Please pay attention to whether there are foreign objects blocking the air inlet when using it.
14	Air Outlet	For heat dissipation of the RC. When using it, please pay attention to whether there are foreign objects blocking the air outlet.

4.1.2 Communication frequency bands

The image transmission frequency bands of RC comply with regulatory requirements worldwide. Please refer to the table below for the relevant certified frequency bands.

Tips

- After the aircraft is paired with the RC, the frequency bands between them will be automatically controlled by the Autel Sky based on the geographical information of the aircraft. This is to ensure compliance with local regulations regarding frequency bands.
- Before flight, please ensure that the aircraft receives a strong GNSS signal after powering on. This allows the Autel Sky to receive the proper communication frequency band.
- When users adopt visual positioning mode (such as in scenarios without GNSS signals), the wireless communication frequency band between the aircraft and the RC will be, by default, the band used in the previous flight. In this case, it is advisable to power on the aircraft in an area with a strong GNSS signal, then start flight in the actual operational area.

Table 4-3 Global Frequency Bands Used (Image Transmission)

Operating Frequency	Details	Countries & Regions
2.4G	2400 – 2476MHz	■ Chinese Mainland (SRRC)
2.4G	2400 – 2483.5MHz	■ USA (FCC) ■ Canada (ISED)

		■ EU (CE) ■ UK (UKCA) ■ Australia (RCM)
5.2G	5150 - 5250MHz	■ USA (FCC)
5.8G	5725-5829MHz	■ Chinese Mainland (SRRC)
5.8G	5725 - 5850MHz	■ USA (FCC) ■ Canada (ISED) ■ EU (CE) ■ UK (UKCA) ■ Australia (RCM)

4.2 Charging the Remote Controller

Connect the output end of the official RC charger to the USB Type-C interface of the RC by using a USB-A to USB-C cable and connect the plug of the charger to an AC power supply (100-240 V~ 50/60 Hz).

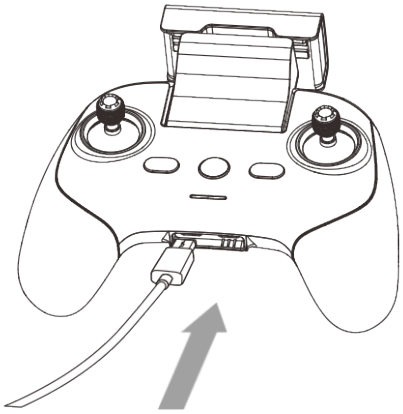


Fig 4-3 Use the Charger to Charge the RC

⚠ Warning

- Please use the official charger provided by Autel Robotics to charge the RC. Using third-party chargers may damage the battery of the RC.
- After charging is complete, please disconnect the RC from the charging device promptly.

Remarks

- It is recommended to fully charge the RC battery before the aircraft takes off.
- Generally, it takes about 120 minutes to fully charge the aircraft battery, but the charging time is related to the remaining battery level.

Tips

- If the remote controller is not used for a long time, please charge it every 3 months to prevent long-term low power from affecting battery life or damaging the battery.

4.3 Preparing the Remote Controller

The RC's antenna and mobile device holder feature an integrated telescopic design, allowing for convenient storage and portability. Before usage, extend the mobile device holder on the RC.

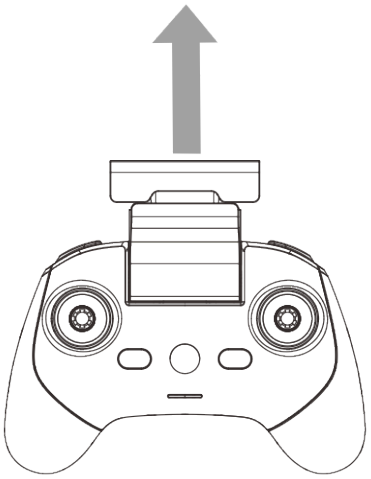


Fig 4-4 Prepare the RC

4.4 Turning the Remote Controller On/Off

■ Turning the Remote Controller On

Press and hold the power button on the RC for 2 seconds until the controller emits a "beep" sound to turn it on.

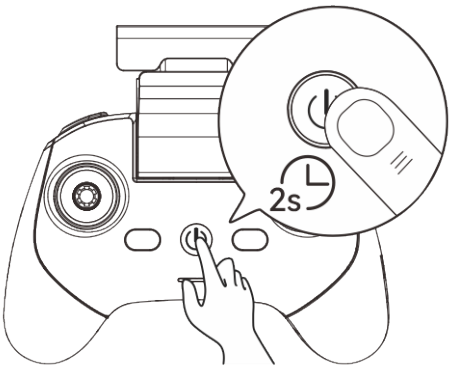


Fig 4-5 Turn the RC On

■ Turning the Remote Controller Off

When the RC is on, press and hold the power button on the RC until the controller emits a "beep" to turn off the RC.

Tips
● Be sure to turn off the aircraft before turning off the RC.

4.5 Connecting to Mobile Device

When the RC is on, extend the mobile device holder and mount the device (pre-installed Autel Sky App) in the holder.
Use the RC cable (USB-C to USB-C or USB-C to Lightning) to connect the mobile device interface and the RC interface.

Tips
● Be sure to mount the mobile device firmly on the holder to avoid any looseness.

4.6 Adjusting the Antenna Position of the Remote Controller

During flight, please extend the antenna of the RC and adjust it to face the aircraft. The strength of the signal received by the antenna varies depending on its position.

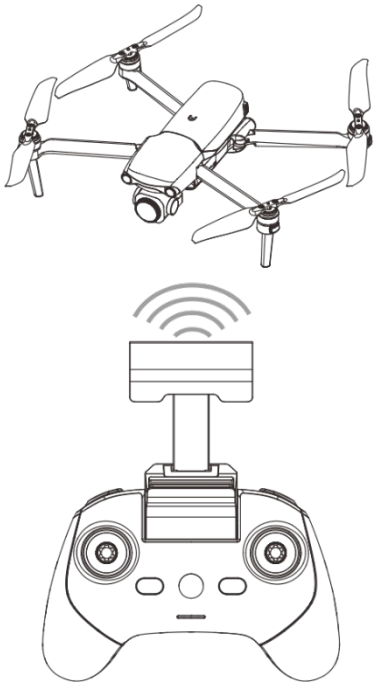


Fig 4-6 Extend the Antenna

Important

- When you operate the aircraft, make sure that the aircraft is in the place for the best communications.
- Do not use other communication devices of the same frequency band at the same time to prevent interference with the signals of the RC.
- During flight, if there is a poor image transmission signal between the aircraft and the RC, please adjust the flight radius to ensure that the aircraft is in the optimal data transmission range.

4.7 Setting Stick Mode

When using the RC to operate the aircraft, you need to know the current stick mode of the RC and fly with caution. Three stick modes are available, that is, Mode 1, Mode 2 (default), and Mode 3.

Tips

- After the RC is connected to a mobile device with the Autel Sky installed, the stick mode can be set in the Autel Sky. For more information, please refer to "6.4 Settings Interface" in Chapter 6.

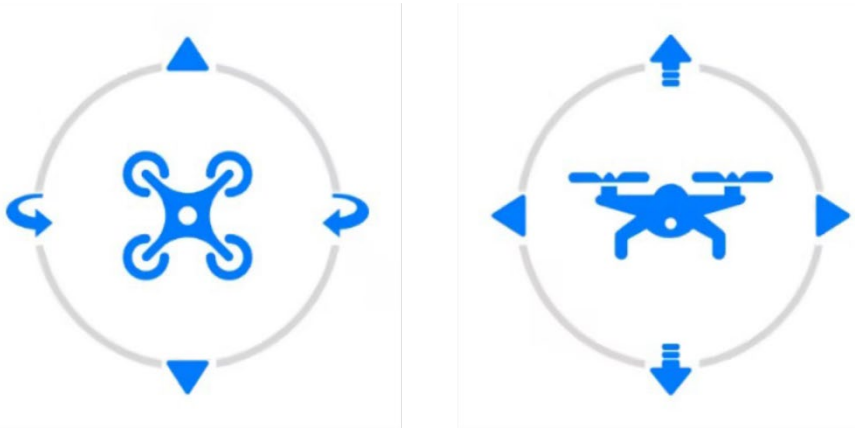


Fig 4-7 Mode 1

Table 4-4 Icon Details

Icon	Details	Icon	Details
▲	Move forward	↑	Ascent
▼	Move backward	↓	Descent
↶	Heading of the aircraft (Turn left)	◀	Left movement

 Heading of the aircraft (Turn right)

 Right movement

■ Stick Mode Types

Table 4-5 Stick Modes Details

Mode	Stick	Move Up/Down	Move Left/Right
Mode 1	Left Command Stick	Controls the forward and backward movement of the aircraft	Controls the heading of the aircraft
	Right Command Stick	Controls the ascent and descent of the aircraft	Controls the left or right movement of the aircraft
Mode 2	Left Command Stick	Controls the ascent and descent of the aircraft	Controls the heading of the aircraft
	Right Command Stick	Controls the forward and backward movement of the aircraft	Controls the left or right movement of the aircraft
Mode 3	Left Command Stick	Controls the forward and backward movement of the aircraft	Controls the left or right movement of the aircraft
	Right Command Stick	Controls the ascent and descent of the aircraft	Controls the heading of the aircraft

Important

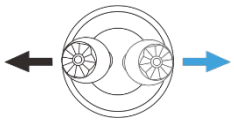
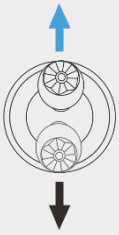
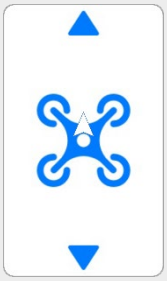
- When setting the modes, please follow above instructions about the icons.
- Before flight, please set the mode first or confirm the current stick mode.

Warning

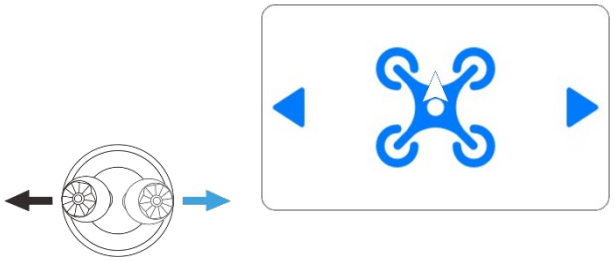
- Do not hand over the RC to people who have not learned how to use the Remote Control.
- If you are operating the aircraft for the first time, please gently move the command sticks until you are familiar with the operation.
- The flight speed of the aircraft is proportional to the degree of the command stick movement. When there are people or obstacles near the aircraft, please do not move the stick excessively.

■ Stick Mode Introduction

Table 4-6 Default Stick Mode (Mode 2)

Mode 2	Aircraft Flight Status	Control Method
Left Command Stick Move Up or Down 		The up-and-down direction of the left stick is the throttle stick, which is used to control the vertical lift of the aircraft. Push the stick up, and the aircraft will rise vertically; pull the stick down, and the aircraft will descend vertically. When the stick is returned to the center, the altitude of the aircraft remains unchanged. When the aircraft takes off, please push the stick up to above the center, and the aircraft can lift off the ground.
Left Command Stick Move Left or Right 		The left-and-right direction of the left stick is the yaw stick, which is used to control the heading of the aircraft. Push the stick to the left, and the aircraft will rotate counterclockwise; push the stick to the right, and the aircraft will rotate clockwise. When the stick is returned to the center, the rotational angular velocity of the aircraft is zero, and the aircraft does not rotate at this time. The larger the degree of the stick movement, the greater the rotational angular velocity of the aircraft.
Right Command Stick Move Up or Down 		The up-and-down direction of the right stick is the pitch stick, which is used to control the flight of the aircraft in the forward and backward directions. Push the stick up, and the aircraft will tilt forward and fly towards the front of the nose; pull the stick down, and the aircraft will tilt backward and fly towards the tail of the aircraft. When the stick is returned to the center, the aircraft remains horizontal in the forward and backward directions. The larger the degree of the stick movement, the faster the flight speed of the aircraft, and the larger the tilt angle of the aircraft.

Right Command Stick Move Left or Right	The left-and-right direction of the right stick is the roll stick, which is used to control the flight of the aircraft in the left and right directions. Push the stick to the left, and the aircraft will tilt to the left and fly to the left of the nose; pull the stick to the right, and the aircraft will tilt to the right and fly to the right of the nose. When the stick is returned to the center, the aircraft remains horizontal in the left and - right directions. The larger the degree of the stick movement, the faster the flight speed of the aircraft, and the larger the tilt angle of the aircraft.



Remarks

- When controlling the aircraft for landing, pull the throttle stick down to its lowest position. In this case, the aircraft will descend to an altitude of 1.2 meter above the ground, and then it will perform an assisted landing and automatically descend slowly.

4.8 Frequency Pairing With the Remote Controller

Only after the RC and the aircraft are paired can you operate the aircraft using the RC.

Remarks

- The aircraft has already been paired with the RC at the factory in advance. No pairing is required after the aircraft is powered on.
- If the aircraft and the RC become unpaired due to other reasons, please follow the above steps to pair the aircraft with the RC again.
- If a new RC is connected with the aircraft, the original RC will not connect automatically with the aircraft again.

4.8.1 Using the Autel Sky application

1. Turn on the aircraft and the RC, double-click the aircraft battery power button. The LED on the rear arm of the aircraft will flash green quickly to show it is ready to pair.
2. Connect your RC with the mobile device, enter Autel Sky, click “Connect New Aircraft” in “Profile”, and follow the pairing instruction.
3. After successful pairing, the green LED on the rear arm of the aircraft will be on for 5 seconds and then flash slowly. The application will switch to the image transmission interface.

Important

- When pairing, please keep the RC and the aircraft close together, at most 2 meters apart.
- If the mobile device is disconnected from the RC in the case of pairing, please reconnect them within 60s.

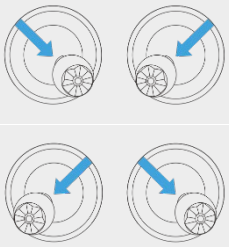
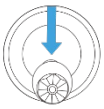
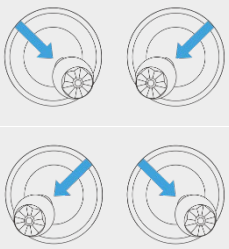
4.8.2 Using combination buttons (for forced frequency pairing)

Forced frequency pairing process is as follows:

1. Turn on the aircraft, double-click the aircraft battery power button. The LED on the rear arm of the aircraft will flash green quickly to show it is ready to pair.
2. Press and hold the power button "⏻" and the return-to-home button "⌂" on the RC at the same time for 3 seconds to turn on the RC. The RC indicator will flash quickly to show it is ready to pair.
3. After successful pairing, the green LED at the tail of aircraft will be on for 5 seconds and then flash slowly, and Autel Sky will enter into camera interface.

4.9 Starting/Stopping the Aircraft Motor

Table 4-7 Start/Stop the Aircraft Motor

Process	Stick Operation	Description
Start the aircraft motor when the aircraft is powered on		Power on the aircraft, and the aircraft will automatically perform a self-check. Then simultaneously move the left and right sticks inward or outward for 2 seconds, as shown in the figure, to start the aircraft motor.
Stop the aircraft motor when the aircraft is landing		When the aircraft is in landing state, pull the throttle stick down to its lowest position, as shown in the figure, and wait for the aircraft to land until the motor stops.
		When the aircraft is in landing state, simultaneously move the left and right sticks inward or outward, as shown in the figure, until the motor stops.

Tips

- The throttle stick is used for controller ascend and descend of the aircraft, and its location varies in different stick modes.

Warning

- When the aircraft is taking off or landing, keep it away from people, vehicles, and other moving objects.
- The aircraft will initiate a forced landing in case of sensor anomalies or critically low battery levels.

4.10 Remote Controller Keys

4.10.1 Customizable button Fn

You can customize the functions of the Fn custom button according to your preferences. For detailed setting instructions, please refer to "6.4 Settings Interface" in Chapter 6.

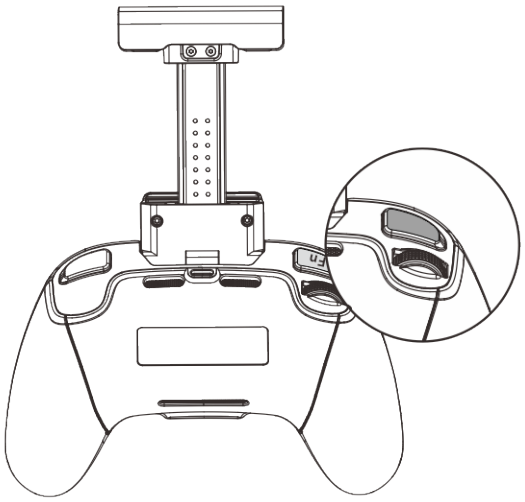


Fig 4-8 Customizable Button Fn

Table 4-8 Customizable Button Fn Settings

No.	Function	Description
1	Undefined	Fn Button is not activated.
2	Pitch Set to 0/90 Degrees	Switch the gimbal angle. ➢ 0 Degrees: The heading angle of the gimbal returns from the current position to be consistent with the heading of the aircraft nose, and the gimbal pitch angle returns to a 0° direction from the current angle.

		➢ 90 Degrees: The heading angle of the gimbal returns from the current position to be consistent with the heading of the aircraft nose, and the gimbal pitch angle rotates to a 90° direction from the current angle.
3	Photo/video switch	Press to switch to Shooting/Video Recording. ➢ After setting of the camera mode to Photo-taking, press the button to take photos. ➢ After setting of the camera mode to Video Recording, press the button to record videos, and press the button again to stop recording.
4	Speed Mode	Switch the flight mode of the aircraft. In different modes, the aircraft and gimbal performance is different.
5	Map/Camera View	Switch the map/image transmission view.
6	AE Lock/Unlock	Gimbal camera exposure lock or unlock.

⚠ Warning

- When the speed mode of the aircraft is switched to “Ludicrous”, the visual obstacle avoidance system may not be working.

4.10.2 Return-to-Home button and pause button

⚠ Warning

- The auto-return function will only be enabled when the GNSS signal is good.
- If the obstacle avoidance system is disabled during a return flight, the aircraft will not be able to automatically avoid obstacles.
- Before using the auto-return function, you need to set the home point in advance in the Autel Sky. For more information, please refer to “6.4 Settings Interface” in Chapter 6. If the home point is not set, the aircraft will take the take-off point as the home point by default.

To manually activate the auto-return function, press and hold the return-to-home button “” on the RC for 2 seconds until the RC emits a "beep" sound. Upon receiving the command, the aircraft will automatically return and land at the preset home point.
When the aircraft is in the auto-return state, the control function of the RC will be disabled. You can short press the pause button “” until the RC emits a "beep" sound to pause the auto-return, or long press the pause button “” for 2 seconds until the RC emits a "beep" sound to exit the auto-return. After pausing or exiting the auto-return, you can reactivate the RC for controlling the aircraft.

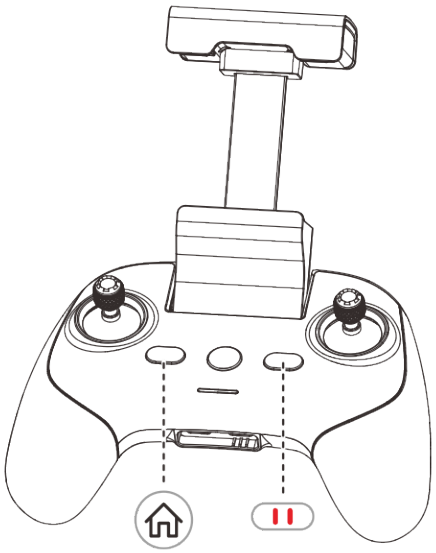


Fig 4-9 Return-to-Home Button and Pause Button

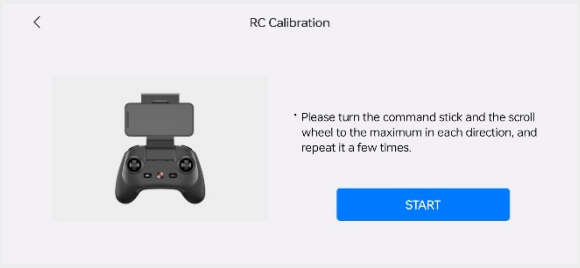
Tips
● When the aircraft pauses an auto-return, it will hover in place. To resume the auto-return, press the pause button “ ” again until the RC emits a "beep" sound.

Warning
● If the auto-return home point is not suitable for the aircraft to land (such as uneven ground and crowds), please exit the auto-return before the aircraft reaches the home point, and then manually resume control to land.

4.11 Calibrating the Remote Controller

If the RC is abnormal, it is recommended to calibrate it via Autel Sky, as shown below.

Table 4-9 Calibrating the RC

Step	Operation	Diagram
1	Make sure the aircraft is powered off. Turn on the RC, and connect the mobile device. Open Autel Sky, enter setting interface, then select "Control", and then click "RC Calibration".	

2 According to the calibration guide page of the RC, move the dial wheel and the left and right sticks according to the directions shown in the figure and hold for 1 second. At this time, the calibration direction icon will be changed to blue, indicating that the orientation calibration was successful.

Chapter 5 Smart Battery

5.1 Battery Introduction

The EVO Nano Series Multi-rotor Drone comes standard with the MDA_2250_770 smart battery (hereafter referred to as smart battery) as the power battery. This battery is a rechargeable lithium-ion polymer (LiPo) battery and features high energy density and capacity. The smart battery can be charged with an MaxAd_3SA battery charger.

Remarks

- The battery charger is included as part of the aircraft kit. You do not need to purchase it separately.

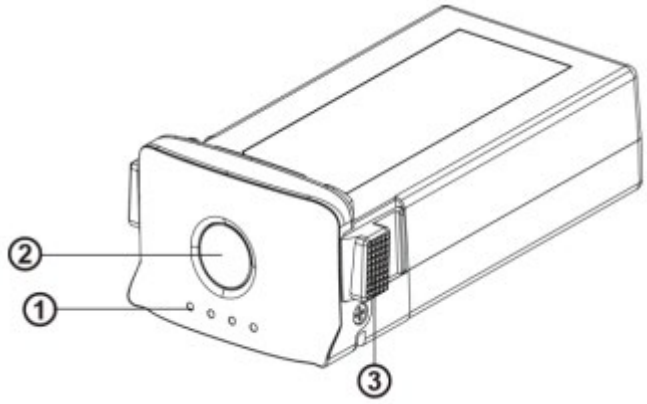


Fig 5-1 Battery Appearance

Table 5-1 Battery Appearance Details

No.	Name	Description
1	Unlock Button	To remove the battery from the aircraft. Press and hold the unlock buttons on both sides and pull out the battery.
2	Battery Level Indicator	Used to display the current battery level of the smart battery in normal situations.
3	Power Button	Long press the power button for 3s to turn on or turn off the battery.

5.2 Smart Battery Functions

The smart battery has the following functions:

■ Battery Level Display

The smart battery has a built-in battery level indicator, which shows the current battery level of the smart battery.

■ Communication

The aircraft can obtain real-time battery information, such as voltage, current, battery level, and battery temperature, through the communication interface on the smart battery.

■ Power Saving Mode

The smart battery will automatically shut down after 30 minutes of inactivity to reduce power consumption.

■ Dust and water resistance

After correctly installing the smart battery to the aircraft, the battery complies with IP43 protection level.

■ Ultra-low Power Mode

When the smart battery power is below 8%, the battery will enter the ultra-low power mode to reduce self-consumption. When entering ultra-low power mode, it needs to be activated by a charger before it can continue to use normally.

■ Self-discharge Protection

If the smart battery is stored in a high-temperature environment or not used for 6 days with a high battery level, the self-discharge protection will be activated. The smart battery will automatically discharge to a safe battery level and the discharge process takes 2-3 days.

Tips
● Although the battery has no indication of a self-discharge cycle, you may notice that the battery is slightly warm, which is normal.

■ Sleep Mode Protection

If the smart battery has a low battery level, it will automatically enter sleep mode to prevent over-discharge. In this mode, the smart battery does not respond when the power button is pressed. To wake up the battery, you can connect it to a battery charger.

■ Charge Temperature Protection

The smart battery will stop charging when its temperature is lower than 5°C or higher than 45°C during charging, as charging the battery under such temperatures will damage the battery.

■ Overcurrent Protection

The smart battery will stop charging when the charging current is too large, as charging the battery with a high current can severely damage the battery.

■ Overcharge Protection

Charging will stop automatically when the smart battery is fully charged, as overcharging can severely damage the battery.

■ Balance Protection

The voltage of each battery cell in the smart battery is automatically kept balanced to protect the battery and maximize the performance of the battery.

■ Short Circuit Protection

Once a short circuit is detected, the power supply of the smart battery will be cut off to protect the battery.

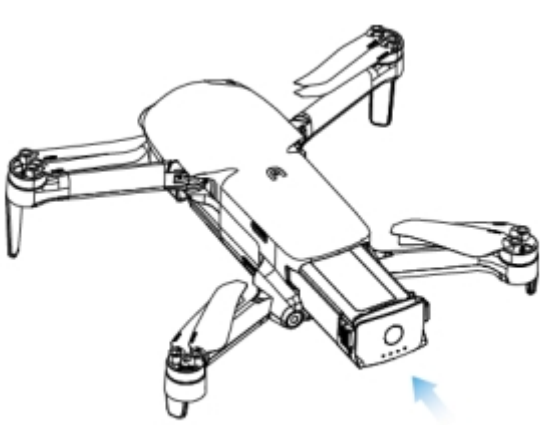
⚠ Warning
● Before using the smart battery, please carefully read and strictly follow the requirements in this Manual, “Battery Safety Operation Guidelines”, and “Disclaimer”, and those on the battery's surface sticker. The user shall undertake all consequences if he/she fails to follow the usage requirements.

5.3 Smart Battery Usage

- Please use a smart battery within the appropriate temperature range (-10℃ ~ +40℃). Using it in too high or low temperatures will affect the battery’s safety and lifespan and may cause spontaneous battery combustion or permanent damage to the battery.
- Do not use the aircraft in a strong electrostatic (such as thunderstorms) or electromagnetic environment. Otherwise, some functions of the smart battery may fail (e.g., abnormal battery output and power failure), resulting in serious aircraft malfunctions.
- Do not use a smart battery that has ever been dropped from the aircraft or subjected to external impacts.
- Do not use a water-soaked smart battery or immerse a smart battery in water or other liquids. Water contact inside the battery may cause corrosion, resulting in spontaneous battery combustion and even an explosion.
- Do not use a smart battery that emits smoke, is bulged, leaks liquids, or has a damaged appearance.
- The liquid inside the smart battery is corrosive. If it leaks, please keep away from it. If it accidentally contacts your skin or eyes, rinse immediately with clean water for at least 15 minutes and seek medical attention.
- Do not disassemble, puncture, strike, crush, or burn a smart battery in any way. Otherwise, it may lead to battery combustion or even explosion.
- Do not short-circuit the positive and negative terminals of a smart battery.
- If the battery connector of a smart battery is dirty, use a dry cloth to clean it. Otherwise, it may cause poor contact, leading to energy loss or charging failure.
- Before replacing the smart battery of the aircraft, make sure that the battery connector, battery compartment interface, battery surface, and battery compartment surface are dry and free of water, and then insert the battery into the aircraft.
- When the smart battery is in a low temperature range below 10°C, the battery can be inserted into the aircraft to preheat it. When the battery is fully preheated before taking off, it is best to preheat it to above 20°C.
- In low-temperature environments, due to the limitation of smart battery output power, the aircraft's wind resistance will be reduced and its flight performance will be weakened. Please proceed with caution.
- When using the battery in a low-temperature environment (0℃ ~ +5℃), be sure to ensure that the smart battery is fully charged. The battery's discharge capacity will be reduced when operating in low temperature environments. Please turn on the aircraft first to heat the battery.

5.3.1 Installing/Removing the smart battery

Table 5-2 Install the Smart Battery

Step	Operation	Diagram
1	Turn off the smart battery before installing the battery.	
2	Slowly insert the smart battery into the battery compartment on the aircraft fuselage, and you will hear a clicking sound when the battery is in place.	

⚠ Warning

- If the smart battery is not installed properly, it may cause the battery to fall off during the flight, damage the aircraft, or even cause personal injury.
- Before installing the smart battery on the aircraft, make sure that the battery is turned off.

Table 5-3 Remove the Smart Battery

Step	Operation	Diagram
1	Turn off the smart battery before removing the battery.	
2	Press and hold the unlock buttons on both sides of the smart battery and slowly pull out the battery.	

Important

- The unlock button of the smart batteries are consumable parts. Please do not press them hard to avoid any possible damage to the internal structure of the battery.

5.3.2 Turning on/off the smart battery

■ Turning on the smart battery

When the smart battery is turned off, press and hold the power button for 3 seconds to turn on the battery.

■ Turning off the smart battery

When the smart battery is turned on, press and hold the power button for 3 seconds to turn off the battery.

Fig 5-2 Turn On or Off the Smart Battery

Important

- If the smart battery is not installed in the aircraft, it is not recommended to turn on/off the battery, and attention should be paid to insulation protection at the battery connector.
- Before removing the smart battery from the aircraft, turn off the battery. The LED1 and LED4 battery level indicators on the smart battery will blink 5 times to indicate that the aircraft is shutting down. Remove the smart battery from the aircraft after all battery level indicators are off.

5.3.3 Checking the battery level

When the smart battery is off, short press the battery power button for 1 second to check the current battery level through the battery level indicator status.

Fig 5-3 Checking Battery Level

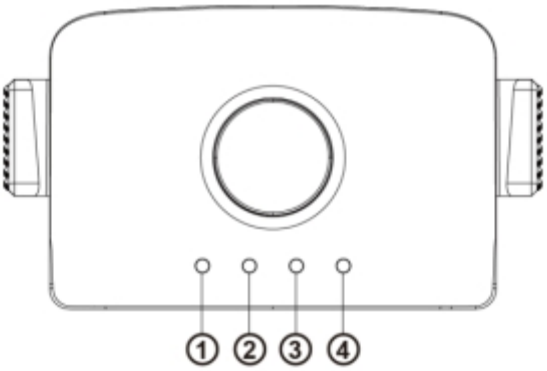


Fig 5-4 Distribution of Battery Level Indicator

Table 5-4 Battery Level Indicator Status (While Not Charging)

LED 1	LED 2	LED 3	LED 4	Battery Level
■	■	■	■	88%~100%
■	■	■	▯	76%~87%
■	■	■	□	63%~75%
■	■	▯	□	51%~62%
■	■	□	□	38%~50%
■	▯	□	□	26%~37%
■	□	□	□	13%~25%
▯	□	□	□	0%~12%
■: Green light always on ▯: Green light flash □: off				

Tips

- After the aircraft is connected to the RC, you can check the current smart battery level of the aircraft in the top status bar of the Autel Sky. For more information, please refer to "6.3 Status Bar" and "6.4 Settings Interface" in Chapter 6.

5.3.4 Charging the smart battery

Connect the adapter to a power supply (100-240V), and connect the charge cable with the adapter and the multi charger. After the power is connected, the LED indicator will turn on and green light or blue light will be on. Then insert the smart battery in the multi charger to start charging. In charging, the battery indicator will flash. When the battery is charged fully, the indicator will be off. Do not cover the multi charger in charging.

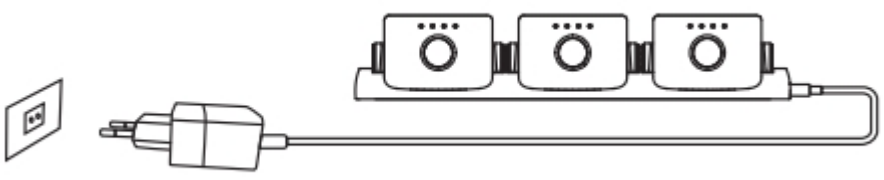


Fig 5-5 Use the Multi Charger to Charge the Smart Battery

⚠ Warning

- Do not charge a battery that emits smoke, is bulged, leaks liquids, or has a damaged appearance.
- Do not use damaged charging devices to charge the smart battery.
- Modifying the official smart battery or charging device provided by Autel Robotics is prohibited.
- Only use the battery and charging device provided by Autel Robotics. Autel Robotics is not responsible for any consequences, such as battery accidents and flight failure, caused by the use of third-party batteries or charging devices.
- Keep the smart battery away from flammable and explosive items during charging.
- After the smart battery is fully charged, disconnect the connection between the charger and the smart battery and power supply promptly.
- After flight, it is recommended to wait until the smart battery naturally cools down to an appropriate temperature before charging the battery. If the temperature of the smart battery is higher than 45°C, when the battery is connected to the charging device, the battery temperature protection function will be activated, and the battery cannot be charged until its temperature drops below 40°C.

Remarks

- It is recommended to fully charge the smart battery of the aircraft before the aircraft takes off. When the battery is fully charged, the battery level Indicator will turn off.
- Generally, it takes about 90 minutes to fully charge the smart battery of the aircraft, but the charging time is related to the remaining battery level.

Table 5-5 Other Battery Indicator Warning Instructions

LED1	LED2	LED3	LED4	Warning Description
○	◎	○	○	The temperature is too high or too low for charging.
○	○	◎	○	The charging current is too high, which causes a short circuit.
○	○	○	◎	A circuit overcurrent, a circuit overload, or a short circuit occurs during battery discharge.

◎: Indicator light blinking ○: Off

5.4 Storing and Transporting the Smart Battery

When storing the smart battery, keep the battery away from water or heat sources and store it in a dry, well-ventilated environment at room temperature.

Ideal storage conditions: The battery level is at around 60%, the ambient temperature is between 22°C to 28°C, and the ambient humidity is 65%±20% RH.
The energy of the MDA_2250_770 smart battery is 17.32 Wh (capacity is 2250 mAh). Please refer to local lithium battery transportation policies for battery shipping or carrying.

⚠ Warning

- Before storing or transporting the smart battery, please turn off the battery.
- Store the smart battery out of the reach of children and pets.
- Store the smart battery away from direct sunlight, water, or reactive chemicals.
- Do not expose the smart battery to open flame, explosives, or other hazards.
- Do not store the smart battery in extreme temperatures. Otherwise, the lifespan of the battery may be shortened and the battery may even become damaged or ineffective. If the battery is not used for more than 1 day, it should be stored below 30°C (at room temperature).
- Do not place the smart battery in a microwave or pressure cooker.
- Do not place the smart battery directly on conductive surfaces (such as metal shells or panels).
- Do not place heavy objects on the smart battery. When subject to an external force, the battery may be damaged or even catch fire or explode.
- Do not store or transport the smart battery with sharp objects, watches, metal necklaces, earrings, or other metal items.
- Do not transport batteries that have a damaged appearance or a battery level of more than 30%.
- If the smart battery is left idle for a long time, please charge it every three months to avoid a shortened battery lifespan resulting from long-term low battery levels.

5.5 Maintaining and Handling the Smart Battery

5.5.1 Maintaining the smart battery

In order to maintain the activity of the smart battery of the aircraft, it is recommended to perform battery maintenance if any of the following conditions are met:

- It is recommended to perform battery maintenance for the smart battery every 50 times of battery cycle.
- The idle time of the smart battery reaches 3 months.
- Occasionally, there are situations that affect the lifespan of the smart battery. In this case, you can try maintenance and repair.
- The Autel Sky reminds you when the smart battery needs maintenance.

The following battery maintenance check items are available for the smart battery:

1. Perform a standard charge and discharge operation on the smart battery.
2. Insert the smart battery into the aircraft and turn on the power. Check the battery information through the Autel Sky, whether the voltage difference between the battery cells is less than 0.1 V, and whether the battery firmware is up to date.
3. Check whether the smart battery is bulged, leaked, or damaged.
4. Check the battery connector for dirt, damage, or rust.

5.5.2 Standard charging and discharging process

Use the maintenance charging mode of the original charger, and proceed as follows:

1. Use the battery charger included in the standard aircraft kit to charge the smart battery to 100% and let the battery sit for 1 hour.
2. Insert the smart battery into the aircraft to fly, control the aircraft to land when the remaining battery level is less than 20%, and then take out the battery.
3. Let the smart battery sit for 8 hours.
4. After the above operations are completed, a standard battery charging and discharging operation is completed.

5.5.3 Smart battery replacement standards

- There are obvious bulges, leakage, and damage on the smart battery surface.
- Damage to or irreparable rust on the metal contacts at the power supply interface of the smart battery.
- After the number of cycles of the smart battery reaches 200, it is recommended to replace the battery with a new one.
- After 2 consecutive standard charge and discharge operations, if the abnormal battery still cannot be repaired, it is recommended to replace it with a new one.

5.5.4 Recycling the smart battery

If the smart battery is discarded due to damage, leakage, or other issues that compromise the integrity of the battery shell, it is recommended to completely immerse the battery in an insulated bucket filled with 5% salt water for more than 48 hours until the battery is completely discharged.

If the smart battery is normally retired, confirm that it is completely discharged, and then properly recycle it according to local lithium battery waste disposal policies to avoid environmental pollution.

Important
• When the smart battery catches fire, please use solid fire extinguishers such as sand or dry powder extinguishers.

Chapter 6 Autel Sky App

6.1 Software Introduction

The Autel Sky is a flight control software developed by Autel Robotics for aerial photography. The software integrates variety of professional functions, to make it easy to get started quickly, improve efficiency, and easily carry out aerial photography operations with the aircraft.

Remarks
• Please be aware that some UI interfaces of Autel Sky may be different due to version updates. This part is based on version 1.4.79 of Autel Sky.

6.2 Main Interface

After pairing the RC with the aircraft, open the Autel Sky on the mobile device, and you will automatically enter the main interface.

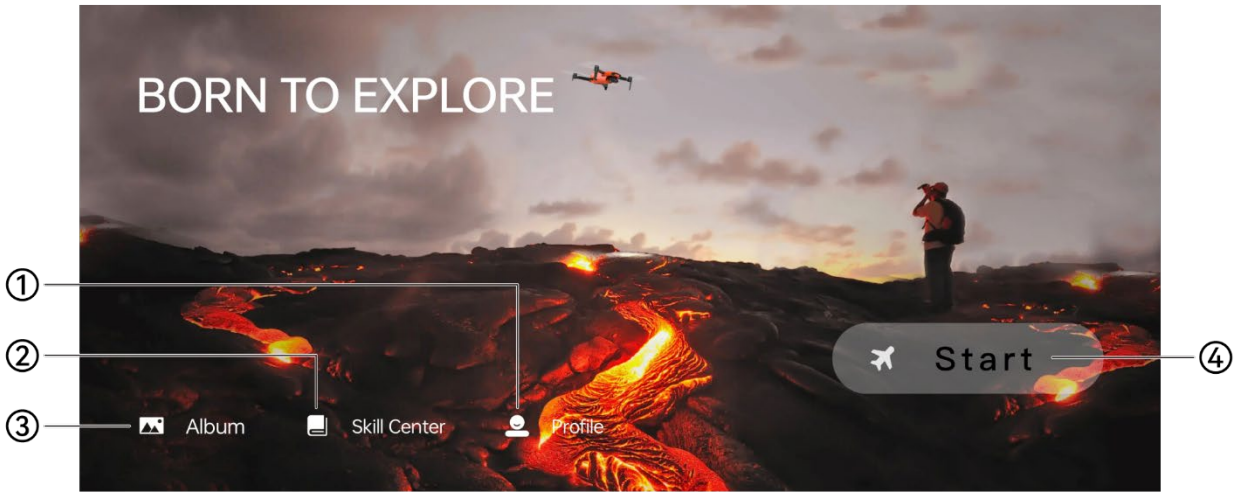


Fig 6-1 Main Interface of the Autel Sky App

Table 6-1 Details of the Main Interface of the Autel Sky App

No.	Name	Description
1	Profile	Register or log in to your Autel account to access relevant cloud services provided by Autel Robotics. On this feature page, you can also manage devices, connect to the aircraft frequency, set the App display language, and get after-sales service support.
2	Skill Center	Offering online tutorial videos, highlighting features, sharing aerial photography tutorials, providing online user manuals, and technical support services.

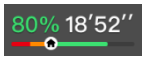
3	Album	This feature page provides management of aerial photos and videos, as well as creative theme templates for users to facilitate post-production.
4	Start	Tap to enter the aircraft camera page (flight page), where you can view the aircraft's flight attitude and aerial images in real time, and access the aircraft settings.

6.3 Status Bar

Fig 6-2 Status Bar of the Autel Sky App

Table 6-2 Details of the Status Bar of the Autel Sky App

No	Icon	Icon description	description
1		Main Interface	Tap this icon to enter the main interface of the Autel Sky.
2	Standard	Flight Modes	Displays the current flight modes
3	Safe to fly	Flight Status	Displays the current status of the aircraft.
4		No SD Card	Indicates that there is no microSD card installed in the aircraft currently.
5		RC power	Displays the power level of the current RC.
6	RC	RC signal status	1. Displays the current communication signal status between the RC and the aircraft. 2. Tap the icon to display the specific signal status: When the signal is 3-5 cells, the RC signal is strong. When the signal is 1-2 cells, the RC signal is weak. 3. When not connected to the vehicle, the RC signal is displayed in gray color.
7		GNSS Signal status	1. Displays the GNSS location signal status of the current vehicle. 2. Tap the icon to display the specific signal state and the number of star searches. 3. When the vehicle cannot obtain GNSS signal, GNSS signal is displayed in gray color.

8		Aircraft power	Shows the current vehicle power situation and the estimated flight time.
9		Obstacle Avoidance system	Displays the active status of the aircraft obstacle avoidance system. ➢ Green indicates that the obstacle avoidance system is enabled. ➢ Red color indicates that the obstacle avoidance system is turned off.
10		Setting	Tap this icon to enter the "Settings" interface.

6.4 Settings Interface

In the aircraft camera interface (flight interface), tap the "  " icon at the upper right corner to enter the "Settings" interface.
In the "Settings" interface, users can view and configure flight control, visual obstacle avoidance, remote control, image transmission, aircraft battery, gimbal camera, and general parameters.

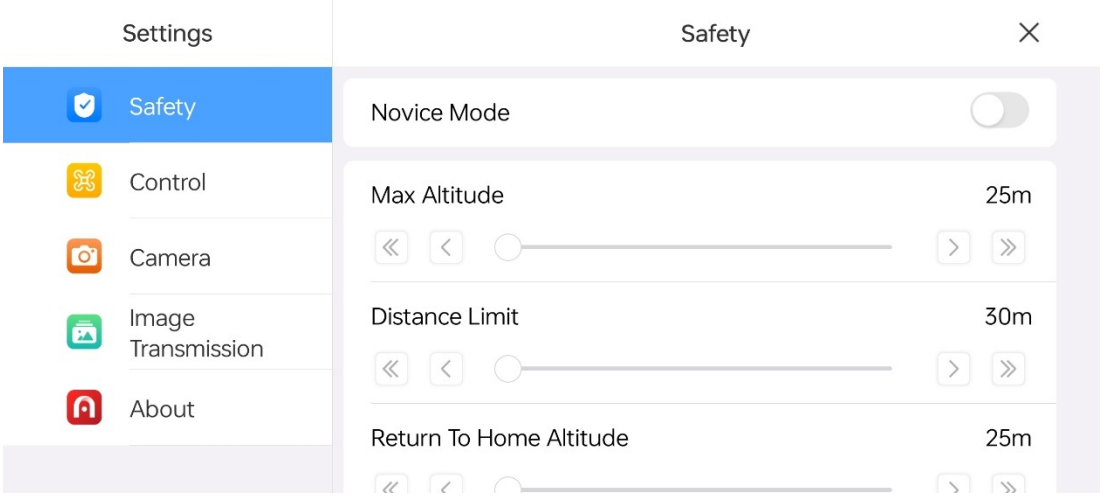


Fig 6-3 Settings Interface

Table 6-3 Details of the Settings Interface of the Autel Sky App

No.	Module	Setting Item
1	Safety	● Enable or disable novice mode. ● Set the maximum flight altitude for the aircraft, with a range of 25-800m. ● Set the maximum flying distance limit for the aircraft, with a range of 30-∞m. ● Set the return height of the aircraft, with a range of 25-120m. ● Set the home point of the aircraft to "Me ", "Aircraft" or "Customize". ● Set the behavior of the aircraft when disconnected to

		"Return to Home", "Hover" or "Descend". ● Perform compass calibration and IMU calibration for the aircraft. ● View aircraft battery information (battery temperature, battery health, discharge count), and set low battery warning threshold, severe low battery warning threshold, and enable or disable battery protection. ● Execute aircraft retrieval (map navigation and activate flashing lights and sound). ● Enable Remote ID registration and broadcasting after selecting the country/region. ● Advanced settings: ➢ Enable or disable the visual obstacle avoidance system. ➢ Enable or disable the obstacle detection radar display. ➢ Enable or disable the takeoff function in attitude mode. ➢ Enable or disable voiceovers. ➢ Enable or disable obstacle avoidance notification sound. ➢ Enable or disable the Emergency Stop Propellers During Flight function.
2	Control	● Set the unit to "Metric (km/h)," "Metric (m/s)," or "Imperial (mph)." ● Set the RC command stick mode. ● Set the flight mode. ● Set the RC sensitivity (EXP). ● Set custom functions for RC buttons. ● Perform RC calibration. ● Set the gimbal mode to "Stabilize" or "FPV." ● Enable or disable the gimbal pitch adjustment function. ● Perform gimbal manual adjustment and gimbal calibration. ● Set the gimbal angle to "Return to center" or "Downward."
3	Camera	● Set the storage location for aerial images to "SD card" or "Internal Memory." ● Perform formatting for "SD card" and "Internal Memory." ● Enable or disable audio recording during video shooting. ● Enable or disable video buffering during video shooting. ● Set the grid guidelines on the camera page. ● Set the photo format: ➢ Photo: Can be set to "JPG", "RAW" or "JPG+RAW". ➢ Hyperlapse: Can be set to "JPG", "RAW" or "Video". ➢ Pano: Can be set to "JPG" or "RAW". ➢ Portrait/Track: Default is "JPG". ➢ Video format: Can be set to "MOV" or "MP4". ➢ Video encoding: Can be set to "H.264" or "H.265". ➢ Download size: Can be set to "HD" or "Original". ● Set the defogging effect to "Low", "Medium", "High" or turn off this function.

		● Set the anti-flicker frequency to "50Hz", "60Hz" or turn off this function. ● Enable or disable overexposure warning. ● Enable or disable the histogram. ● Enable or disable the time stamp function. ● Perform camera settings reset.
4	Image Transmission	● Set the image transmission clarity to "Smooth", "HD" or "2.7K". ● Set the image transmission frame rate to "30fps" or "60fps". ● You can enable or disable the image transmission pillarbox blurring. ● You can enable or disable the Wi-Fi fast download transmission function.
5	About	● Aircraft model. ● Firmware version information of the aircraft. ● Autel Sky version. ● SN of the battery, aircraft, RC, and gimbal.

Important

- Before flying, please familiarize yourself with the local laws and regulations and enable relevant functions of the aircraft, such as aircraft arm lights and Remote ID broadcast. It may be illegal to turn off the corresponding functions in some countries.

6.5 Map Interface

Users can observe the actual location of the aircraft and perform related operations on the map Interface. On the map Interface, users can tap on the camera preview window at the bottom left to switch to the camera Interface.

Tips

- After the function interface is switched, the selected interface will be displayed in full screen on the mobile device, while the other page will be shown in a small window at the bottom left of the screen.

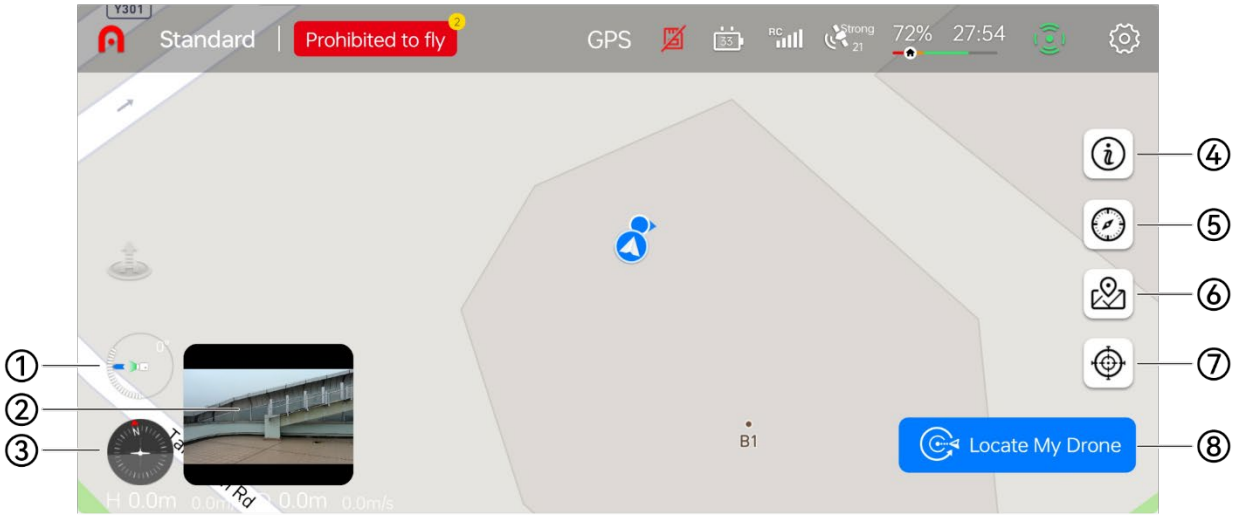


Fig 6-4 Map Interface

Table 6-4 Details of the Map Interface

No.	Name	Description
1	Gimbal Angle Display	Real-time display of the current gimbal pitch angle of the aircraft.
2	Heading display	Tapping this icon allows you to swap positions with the camera preview window and switch the style of displaying device orientation information. It supports real-time display of the aircraft's flight altitude, distance, and speed.
3	"Camera" preview window	Unselected function pages will be displayed in a "small window," and clicking on the small window can switch to full-screen display.
4	No-fly zone prompt	You can set the display of no-fly zones, altitude limit zones, warning zones, and authorized zones on the map.
5	Map orientation lock/unlock	When the map is locked, rotating the RC will not change the direction of the map display with the remote control's orientation; when the map is unlocked, rotating the RC will change the direction of the map display with the remote control's orientation.
6	Map management	You can adjust the map display effects and show flight routes and import geographical fences.
7	Location	You can locate the RC, home point, and the position of the aircraft on the map.
8	Locate My Drone	Used to find the aircraft lost in abnormal flying

6.6 Camera Interface

Users can freely switch between shooting and video functions on the camera interface to realize panorama, hyperlapse, shooting, portrait, quick shot, tracking and other camera functions.

Fig 6-5 Camera Interface

Table 6-5 Details of the Camera Interface

No.	Name	Description
1	Quick takeoff	Tap the icon, long press and slide within the pop-up to launch the aircraft.
2	Camera settings	After selecting different camera shooting scenes, tap the icon to view relevant properties and adjust camera settings.
3	Switch between photo/video	Tap the icon to switch the working mode of the camera lens (photo/video).
4	Shooting/video button	After switching to the corresponding lens mode, tap the icon to take photos or record videos.
5	Album	Tap the icon to view materials in the aircraft album and local album, and perform related operations.
6	Camera shooting scene	Swipe up and down to switch shooting scenes for the gimbal camera.
7	Scene property settings	After switching the shooting scene for the gimbal camera, tap the icon to perform related function settings.
8	Camera properties	Tap to display detailed properties of the lens on the right sidebar.

Tips

- When selecting the recording working mode, tap the recording button to start recording; tap the recording button again to end recording.

Chapter 7 Firmware Updates and Maintenance

In order to optimize aircraft performance, Autel Robotics will update relevant firmware when necessary. Users can upgrade the firmware of the aircraft, the RC, and the smart battery online through the Autel Sky.

Important

- Online upgrade requires ensuring that the RC (with mobile devices) can normally access the Internet.

7.1 Aircraft and Remote Controller Firmware Updates

Before performing a firmware update, please make sure:
1. The aircraft motors are not rotating.
2. The batteries power of both the aircraft and the RC are not less than 30%.
3. The SD card has enough space to store firmware files.

When the system detects a new firmware version, the Autel Sky will automatically pop up a prompt box after connecting to the aircraft to remind you to download and install it. Please follow the prompts to download and upgrade.

Important

- If the device is turned off during the upgrade process or the network is interrupted during the firmware package download process, the upgrade will fail.
- The update takes approximately 15 minutes. During the update process, do not turn off the aircraft or RC, start the motors, or remove the SD card from the aircraft. During the upgrade process, the aircraft may experience the following conditions: the gimbal becomes weak, the arm light flashes abnormally, or the aircraft restarts on its own. All of the above are normal phenomena.
- After the firmware is upgraded, flight control parameters such as the aircraft's return altitude and distance limit will be reset. Please reset them after the upgrade is completed.
- After upgrading, the RC may disconnect from the aircraft. If you need to pair them again, please refer to "4.8 Frequency Pairing With the Remote Controller" in Chapter 4.

7.2 Aircraft Parts Maintenance

To ensure that the aircraft maintains optimal performance, all parts of the aircraft need to be maintained regularly. For details, please refer to the Maintenance Manual. If you have any questions, please contact Autel Robotics.

Table 7-1 Aircraft Consumable Parts list

No.	Part	Quantity	Note
1	Propeller CW	2	Each power motor is equipped with 2 propeller CW or propeller CCW.
2	Propeller CCW	2	
3	Power motor	4	
4	Front arm tripod	2	
5	Rear arm tripod	2	
6	Gimbal shock absorbing ball	4	
7	Smart battery unlock button	2	
8	Air outlet dust screen	1	

Table 7-2 User-Replaceable Parts List

NO.	Part	Quantity	Part Number	Manufacturer information
1	Propeller CW	2	EAN: 6924991102465 UPC: 889520012201	Autel Robotics
2	Propeller CCW	2		
3	Smart battery	1	EAN: 6924991102915 UPC: 889520012652	Autel Robotics

Tips

- Users can contact Autel Robotics to purchase the above parts and replace them by themselves according to the operating instructions.
- If you need to replace parts that are not in the list, please contact Autel Robotics. Damage caused by unauthorized disassembly and assembly will not be covered by the warranty.
- Please refer to the "Maintenance Manual" for the service life cycle of each component.

7.3 Troubleshooting Guide

Tips

- The following troubleshooting measures are limited to failure factors caused by use under normal limited conditions.

- For faults caused by abnormal use, please contact Autel Robotics directly for processing.

1. If the aircraft displays a fault during self-check (the tail LED indicator will turn solid red):
- For hardware problems, please contact Autel Robotics customer support.

2. If the motor fails to start, please check the following issues:
- Whether the RC and aircraft are paired.
- Is the RC calibrated correctly?
- Whether the aircraft battery is fully charged.
- Is the compass calibrated correctly?
- Whether GNSS is available (when novice mode is activated).

3. If the aircraft cannot take off after the motor starts, please check the following issues:
- Whether the aircraft is in a no-fly zone.
- Whether the aircraft is on a flat surface.

4. Reduced flight time:
- The most common reasons for shortened flight time are the effects of low ambient temperature, wind strength, etc.

5. If the aircraft does not respond to the RC during the pairing process:
- Make sure there are no metal objects, mobile devices, or other RCs nearby.

6. If the video link fails or is frequently disconnected:
- Make sure there are no magnets or sources of signal interference around the aircraft and RC.

7. The camera automatically turns off during recording:
- Do not remove the Micro SD card from the camera. Restart the camera and wait until the video files are restored as completely as possible.

8. The video link is disconnected when the aircraft is not within sight:
- Start the automatic return command to return the aircraft to the home point.

9. What do you need to pay attention to when using the three-directional binocular visual perception system?
- Before flying, make sure that 6 visual sensors are clean and free of any obstructions (three-directions include forward, backward, and downward)
- There are blind spots in the upward, leftward, and rightward areas of the aircraft. Please pay attention to the surrounding environment and safety prompts in the App.
- Obstacle detection is achieved by detecting the surface texture of obstacles. The detection function will not work properly when encountering no texture, repeated texture, solid color surfaces, moving objects, and tiny objects.

10. If the precision landing function does not work properly:
- The precise landing function is achieved through the binocular camera below to detect the texture of the ground when the aircraft takes off.

- If the ground has no texture, or the camera underneath is damaged, this feature will not work properly.

11. If the binocular visual perception system does not work properly:
- Restart the aircraft and check again to see if it works properly.

12. If the video is tilted during flight:
- Place the aircraft horizontally and keep it stationary.
- Calibrate the gimbal according to the "Gimbal Calibration" function in the App.
- If the problem persists, adjust the gimbal according to the instructions in the "Gimbal Manual Adjustment" function.

13. If the lens of the binocular camera is dirty:
- Please use a glasses cloth to gently wipe the lens. It is recommended to use the glasses cloth provided in the box.

14. How to reset the controller to factory default settings:
- By tapping the “Reset” icon on the profile interface of the Autel Sky, you can reset the App to factory default settings.

15. When the aircraft or the controller experiences unexpected shutdown during firmware updates, restart the device:
- If it can power on normally, make sure that the device is sufficiently charged before proceeding with the update;
- If the device cannot power on, contact Autel Robotics.

16. For the purpose of device safety, please do not use unknown USB device or other external devices.

Appendix A Product Specifications

A.1 Aircraft

Aircraft	
Weight of EVO Nano Series Multi-rotor Drone (With propellers, battery)	249 g
Maximum takeoff weight	249 g
Dimensions	Unfolded: 325 x 260 x 62 mm Folded: 142 x 94 x 62 mm
Max. rotation speed	14000 rpm
Wheelbase	231 mm
Maximum ascent speed	Smooth:3 m/s Standard: 5 m/s Ludicrous: 5 m/s
Maximum descent speed	Smooth:2 m/s Standard: 3 m/s Ludicrous: 3 m/s
Maximum horizontal flight speed (no wind near sea level)	Novice mode:2.4 m/s Smooth:5 m/s Standard: 10 m/s Ludicrous: 16 m/s
Maximum Service Ceiling Above Sea Level	4000 meters
Maximum flight altitude	800 meters (Altitude limit in the App)
Maximum flight time (no wind)	28 minutes
Maximum hover time (no wind)	26 minutes
Maximum Wind Speed Resistance	7.9 m/s
Maximum tilt angle	Smooth: 30° Standard: 30°

	Ludicrous: 33°
Maximum rotation angular speed	Smooth: 60°/s Standard: 120°/s Ludicrous: 200°/s
Working temperature	0~40℃
Battery hot replacement	not support
Internal storage	None
Wi-Fi Operating Frequency	**5.2G:** 5.15 - 5.25 GHz** **5.8G:** 5.725 - 5.829 GHz*, 5.725 - 5.850GHz*** *Only applies to SRRC region **Only applies to FCC region ***Only applies to FCC, ISED, CE, UKCA and RCM regions Note: Some frequencies are only available in some regions and some frequencies are only allowed for indoor use. Check local laws and regulations for details.
Wi-Fi Effective transmitter power (EIRP)	**5.2G：** ≤24dBm (FCC) **5.8G：** ≤30dBm(FCC/ISED/RCM); ≤14dBm(CE/UKCA/SRRC)
Wi-Fi transfer	20MB/s
GNSS	GPS/Galileo/GLONASS
Hover accuracy	Vertically: ±0.1 meters (when visual positioning is working normally) ±0.5 meters (when GNSS is working normally) Horizontally: ±0. 3 meters (when visual positioning is working normally) ± 1.5 meters (when GNSS is working normally)
Image Transmission	
Operating Frequency	**2.4G:** 2.400 – 2.476 GHz*; 2.400 – 2.4835 GHz** **5.2G**:

	5.15 - 5.25 GHz*** **5.8G:** 5.725 - 5.829 GHz*, 5.725 - 5.850GHz** *Only applies to SRRC regions **Only applies to FCC, ISED, CE, UKCA and RCM regions ***Only applies to FCC regions Note: Some frequencies are only available in some regions and some frequencies are only allowed for indoor use. Check local laws and regulations for details.
Maximum signal effective distance (No interference, no obstruction)	FCC: 10 kilometers CE: 5 kilometers
Effective transmitter power (EIRP)	**2.4G:** ≤30dBm (FCC/ISED/RCM); ≤20dBm（CE/UKCA）; ≤10dBm（SRRC） **5.2G:** ≤24dBm (FCC） **5.8G:** ≤30dBm（FCC/ISED/RCM); ≤14dBm（CE/UKCA）; ≤14dBm（SRRC）
Visual Perception System	
Sensing range	Forward: 0.5~16 meters Effective obstacle avoidance speed: ＜12m/s Backward: 0.5~18 meters Effective obstacle avoidance speed: ＜12m/s Downward: 0.5~20 meters visual hover range: 0.5~40m
FOV	Forward: 70° horizontally, 88° vertically Backward: 40° horizontally, 30° vertically Downward: 40° horizontally, 30° vertically
Effective use of the environment	Front, rear: The surface has rich texture and sufficient lighting conditions (>15 lux, normal indoor fluorescent lighting environment) Below: The ground is richly textured and the lighting conditions are sufficient (>15 lux, normal indoor fluorescent lighting environment) The surface is made

	of diffuse reflective material and the reflectivity is >20% (such as walls, trees, people, etc.)

A.2 Gimbal Camera

A.2.1 Camera - Nano

Zoom camera	
Image sensor	1/2” CMOS, 48 million pixels
Lens	Field of view: 84° 35 mm format equivalent focal length: 24 mm Aperture: f/2.8 Focus distance: 1 meter ~ ∞ Focus: Fixed Focus
ISO range	Video: ISO100 ~ ISO3200 Photo: ISO100 ~ ISO3200
Shutter speed	Photo mode: 1/8000 ~ 8 seconds Others: 1/8000 ~ 1/frame rate seconds
Portrait blur	Real-time image transmission portrait blur and photo portrait blur
Defog mode	Support
Zoom	1 - 16x digital zoom
Maximum photo size	48MP: 8000x6000 (4:3) 12MP: 4000x3000 (4:3) 4K: 3840×2160 (16:9)
Photo format	JPG(8-bit) / DNG (10-bit) / JPG+DNG
Photo shooting mode	Single shooting (default)/Brust shooting/AEB continuous shooting/time lapse/HDR shooting/Hyperlapse
Video resolution	3840x2160 p30/25/24

	2720x1528 p30/25/24 1920x1080 p60/50/48/30/25/24 HDR: 3840x2160 p30/25/24 2720x1528 p30/25/24 1920x1080 p60/50/48/30/25/24
Video format	MP4 / MOV (8-Bit)
Video coding format	H.265/H.264
Video maximum bit rate	100Mbps
Timelapse	Original image: 3840×2160, JPG/DNG Video: 4K P25
Panorama	Horizontal/Vertical/Wide-angle/Spherical Original image: 4000×3000, JPG/DNG
Support file system	FAT32/exFAT
Gimbal	
Mechanical scope	Pitch: -125°~45° Roll: -34°~33° Yaw: -25°~25°
Controllable rotation range	Pitch: -90°~15°
Stable system	Three-axis stabilization
Maximum control speed (pitch)	30°/s
Angualr vibration range	±0.003°

A.2.2 Camera - Nano+

Zoom camera	
Image sensor	1/1.28 inch CMOS, 50 million pixels
Lens	Field of view: 85° 35 mm format equivalent focal length: 23 mm Aperture: f/1.9 Focus distance: 0.5 meter ~ ∞ Focus: CDAF/MF

ISO range	Video: ISO100 ~ ISO6400 Photo: ISO100 ~ ISO6400
Shutter speed	Photo mode: 1/8000 ~ 8 seconds Others: 1/8000 ~ 1/ frame rate seconds
Portrait blur	Real-time image transmission portrait blur and photo portrait blur
Defog mode	Support
Zoom	1 - 16x digital zoom
Maximum photo size	50MP: 8192x6144 (4:3) 12.5MP: 4096x3072 (4:3) 4K: 3840×2160 (16:9)
Photo format	JPG(8-bit) / DNG (10-bit) / JPG+DNG
Photo shooting mode	Single shooting (default)/Brust shooting/AEB continuous shooting/time lapse/HDR shooting
Video resolution	3840x2160 p30/25/24 2720x1528 p30/25/24 1920x1080 p60/50/48/30/25/24 HDR: 3840x2160 p30/25/24 2720x1528 p30/25/24 1920x1080 p60/50/48/30/25/24
Video format	MP4 / MOV (8-Bit)
Video coding format	H.265/H.264
Video maximum bit rate	100Mbps
Timelapse	Original image: 3840×2160, JPG/DNG Video: 4K P25
Panorama	Horizontal/Vertical/Wide-angle/Spherical Original image: 4096*3072, JPG/DNG
Support file system	FAT32/exFAT
Gimbal	

Mechanical scope	Pitch: -125°~45° Roll: -34°~33° Yaw: -25°~25°
Controllable rotation range	Pitch: -90°~15°
Stable system	Three-axis stabilization
Maximum control speed (pitch)	30°/s
Angualr vibration range	±0.003°

A.3 Remote Controller

RC	
Material	PC+ABS
Operating Temperature	0℃ to 40℃
Battery capacity	3930mAh
Battery Life	~ 2.5h (when connected to a mobile phone) ~ 3.5h (when not connected to mobile phone)
Interface type	USB-C
Smartphone/Tablet holder size	Length ∞, Width 83mm, Height 13mm
Operating frequency	**2.4G:** 2.400 – 2.476 GHz*, 2.400 – 2.4835 GHz** **5.2G:** 5.15 - 5.25 GHz*** **5.8G:** 5.725 - 5.829 GHz*, 5.725 - 5.850GHz** *Only applies to SRRC region **Only applies to FCC, ISED, CE, UKCA and RCM regions ***Only applies to FCC region Note: Some frequencies are only available in some regions and some frequencies are only allowed for indoor use. Check local laws and regulations for details.
Effective Isotropic Radiated Power (EIRP)	**2.4G:** ≤30dBm (FCC)；≤20dBm（CE/SRRC/ISED/UKCA/RCM）

	5.2G: ≤30dBm (FCC) **5.8G:** ≤30dBm (FCC/SRRC/ISED/RCM); ≤14dBm (CE/UKCA)
Maximum Transmission Distance (Without Interference and Blocking)	FCC: 12 km CE/SRRC: 6 km
Realtime transmission quality	Transmission distance<1km: 2.7K 30fps Transmission distance>1km
Transmission bitrate	90Mbps
Transmission delay	≤ 200 ms

A.4 Smart battery

Smart Battery MDA_2250_770	
Operating Temperature	0~+45℃
Battery Type	LiPo 2S
Rated Capacity	2250 mAh
Battery energy	17.32 Wh
Voltage	7.7 V
Charging Voltage Limit	8.8V
Rated Charging Power	63.75W
Maximum charging power	30W
Weight	82.5g
Battery charging temperature	+5-+45℃ (When the battery temperature is below 5℃, the battery stops charging. When the battery temperature is above +45℃, the battery stops charging.)
Battery Storage	

Ideal storage environment	+ 22℃ ~ +28℃
Storage temperature and humidity	- 10℃ ~ +30℃, 65 ± 20%RH
Battery Single Charger	
power input	100-240V ~ 50/60 Hz
Output port	Battery charging interface/USB-A
Battery charging interface	12.75V⎓5A
USB charging port	5V⎓3A, 9V⎓2A, 12V⎓1.5A
Rated power	30W Max

Appendix B Declaration of Conformity

Product:	EVO Nano, EVO Nano+
Model Number:	MDA, MDA2
Class:	C0 with camera
Batch:	XXXXXXXX (8-digit number)
Manufacturer's Name:	*Autel Robotics Co., Ltd.*
Manufacturer's Address:	*601,701,801,901, Block B1, Nanshan iPark, No. 1001 Xueyuan Avenue, Nanshan District, Shenzhen, Guangdong, China*

We, *Autel Robotics Co., Ltd.*, declare under our sole responsibility that the above referenced product is in conformity with the applicable requirements of the following directives:

RED Directive:	2014/53/EU
RoHS Recast Directive:	2011/65/EU
UAS Delegated Regulation:	2019/945/EU 2020/1058/EU
Machinery Directive:	Annex I 2006/42/CE

Conformity with these directives has been assessed for this product by demonstrating compliance to the following harmonized standards and/or regulations:

Safety	EN IEC 62368-1:2014+A11:2017
EMC	ETSI EN 301 489-1 V2.2.3 (2019-11) ETSI EN 301 489-3 V2.3.1 (2019-03) ETSI EN 301 489-17 V3.2.4 (2020-09) ETSI EN 301 489-19 V2.2.1 (2019-04) EN 55032:2015+A11:2020 EN 55035:2017+A11:2020 EN IEC 61000-3-2:2014 EN 61000-3-3:2013
Radio	ETSI EN 300 328 V2.2.2 (2019-07) ETSI EN 300 440 V2.2.1 (2018-07) ETSI EN 303 413 V1.2.1 (2021-04)
Health	EN 50665:2017
RoHS	2011/65/EU

UAS Delegated Regulation	prEN 4709-001: 2023 prEN 4709-002: 2023 prEN 4709-003: 2023 prEN 4709-004: 2023
Machinery Directive	EN ISO 12100

The notified body, *CTI-CEM*, notified body number: 2845, performed the EU-type examination in according with Annex III, Module B of Council Directive 2014/53/EU, and issued the EU-type examination certificate: C-353-10-1120-21-01.

The notified body, *LGAI Technological Center S.A./Applus*, notified body number: 0370, performed the EU-type examination in according with Annex Part 8, Module B of Regulation (EU) 2019/945, and issued the EU-type examination certificate: 0370-UAS-0018.

Signed for and on behalf of: *Autel Robotics Co., Ltd.*
Place: Shenzhen, China Date: 2024-07-12
Name: Cheng Zhuanpeng Position: Legal Representative
Signature: Cheng Zhuanpeng

Annex I

Product Mix. Description	Model	SW version	Description	Serial Number
EVO Nano	MDA	V1.9.7	Quadcopter equipped with an 1/2 inch CMOS, 48 million pixels	1748XXXXXXXXXXXXXXXX /1748XXXXXXXXXXXX
EVO Nano+	MDA2	V1.9.7	Quadcopter equipped with 1/1.28 inch CMOS, 50 million pixels	1748XXXXXXXXXXXXXXXX /1748XXXXXXXXXXXX
Remote Controller	EFA	V2.0.0.11	Drone Remote Controller for Nano & Nano+	RENXXXXXXXXX
Battery	MAD_2250_770	/	Drone Battery	/
Adapter	XY-PD030E07	/	Drone Adapter	/

*Note: Updated software will be released by the manufacturer to fix bugs and improve performance after the product is placed on the market. All updated versions released by the manufacturer have been verified to comply with the applicable regulations. All RF parameters (e.g., RF power, frequency) are not accessible to end users and cannot be changed by any third parties. Conformity of the product with EU requirements is ensured by evaluating the GNSS signals. The radio parameters are automatically set according to the detected region; the user does not have the capability to change these settings.

CE

Appendix C Drone Pilot Information Notices

When flying this aircraft product in the territory of EU Member States, please comply with the following EASA regulations.

You can visit the EASA official website to get other language versions: https://www.easa.europa.eu/en/document-library/general-publications/drones-information-notices.