2.4 Wireless Communication Requirements

- Keep the aircraft at least 200 meters away from areas with strong electromagnetic interference, such as radar stations, microwave stations, and mobile communication base stations.
- Keep the aircraft at least 2000 meters away from drone interference equipment. Otherwise, the drone interference equipment and the aircraft cannot work at the same time.
- When flying near sources of electromagnetic interference, exercise caution and continuously observe and assess the stability of image transmission signals and videos of the remote controller. Common sources of electromagnetic interference include but are not limited to high-voltage power lines, high-voltage substations, mobile communication base stations, and television broadcasting signal towers. If the aircraft encounters significant signal interference when flying near these locations, it may not be able to work normally. In this case, please return to the home point for landing as soon as possible.
- Fly in open, unblocked areas or highlands. Tall mountains, rocks, urban buildings, and forests may block the GNSS signal and image transmission signal of the aircraft.
- It is recommended to turn off unnecessary Wi-Fi and Bluetooth devices in the vicinity to avoid interference with the signals of the remote controller.

2.5 Declaration of Maximum Take-off Mass

During flight operations, make sure that the actual take-off mass of the aircraft does not exceed the maximum take-off mass (MTOM) declared for the aircraft. Exceeding this limit can lead to safety accidents. For detailed data, see Appendix A "A.1 Aircraft".
The actual take-off mass of the aircraft consists of the aircraft's mass and the mount mass. Before adding any mount, make sure that the mount mass is within a reasonable range.

Note

- The aircraft's mass comprises the mass of fuselage, gimbal camera, propellers, and smart battery. Different models of gimbal cameras may differ in mass. If you change the gimbal camera with one of different model, re-weigh the aircraft to determine its mass.
- Mounts consist of functional module mounts and physical mounts. When adding mounts to the aircraft, always re-weigh the actual take-off mass of the aircraft.
- The mount mass should satisfy: Maximum Mount Mass⩽MTOM-Aircraft's Mass.

Gravity Center Limitation

When users are mounting payload to the aircraft before flight, the payload should be installed in limited position in order to not affect the obstacle avoidance sensing function and flight stability of the aircraft. In other words, payload should be installed within the gravity center range, and the payload installed should not cover the lens group of visual obstacle avoidance at the bottom of the aircraft and downward millimeter-wave radar. The suggested mounted location is as follows:

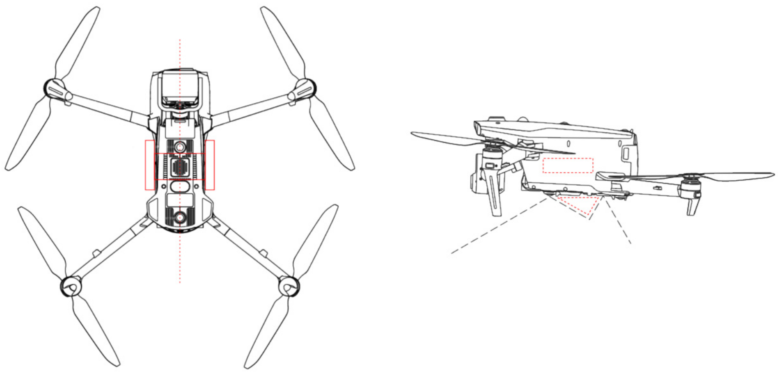


Fig 2-1 Mount gravity center and non-interference zone (circled by red line)

Note

- When installing a function module to the aircraft, please choose a function module that has passed Autel Robotics safety and compatibility test as this kind of product has already passed flight safety test.
- When users are mounting payload, please ensure that the mounting point should be located at the center line of the aircraft and should not be beyond the area bracketed in the left picture in fig 2-1. Meanwhile, the size of the mounted payload, as circled in the right picture in fig 2-2, should not be too big to go beyond the non-interference zone.
- When users are mounting payload at the side of the aircraft, it is recommended that the payload mounted on the one side should weight no more than 100 g as the payload of more than 100 g (and less than 200 g) mounted may affect the braking performance of the aircraft to some degree,

2.6 Obstacle Avoidance System

2.6.1 Introduction to Visual Obstacle Avoidance Sensing System and Millimeter-Wave Radar Sensing System

The aircraft adopts a dual-sensing system design of "Visual Obstacle Avoidance Sensing System + Millimeter-Wave Radar Sensing System". The integration of these two systems provides excellent omnidirectional obstacle avoidance performance and ensures precise positioning and safe flight of the aircraft.

The visual obstacle avoidance sensing system is an image positioning system that uses visual image ranging to sense obstacles and obtain aircraft position information. The visual obstacle avoidance sensing system of the aircraft is located on the front, rear, top, and bottom of the fuselage. The front and rear parts use a "dual pinhole lens" structure, while the top and bottom parts use a "dual fisheye lens" structure, the combination of which enables omnidirectional visual obstacle avoidance.

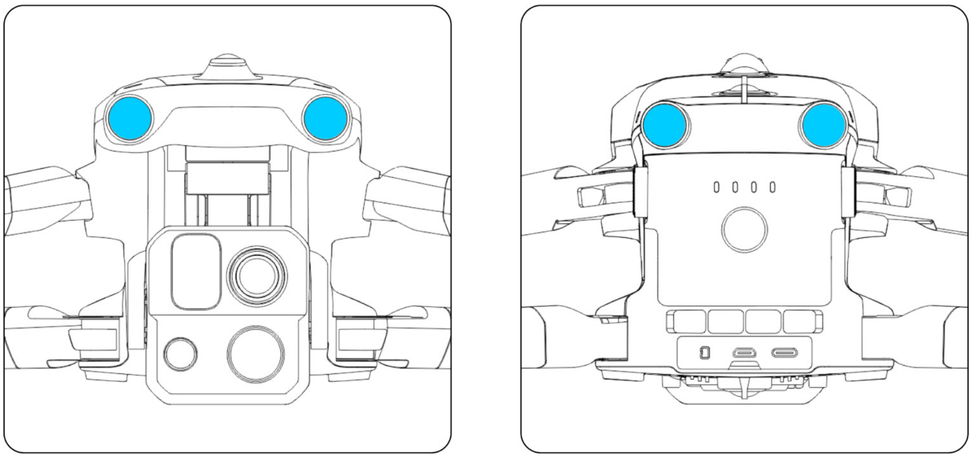


Fig 2-2 Front and rear visual obstacle avoidance lens modules of the aircraft

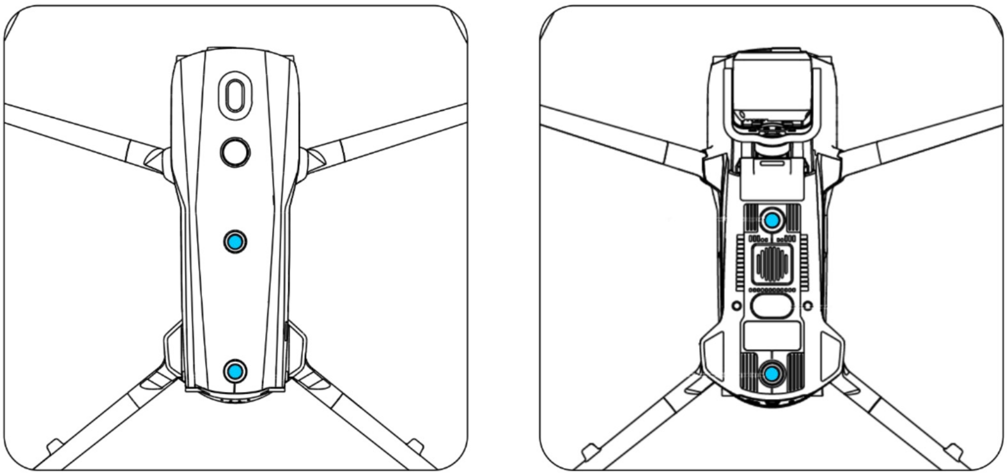


Fig 2-3 Top and bottom visual obstacle avoidance lens modules of the aircraft

⚠ **Warning**
● Do not block the lenses of the visual obstacle avoidance lens during flight, as it will affect the visual obstacle avoidance performance of the aircraft, potentially leading to flight accidents.

The millimeter-wave radar sensing system senses the distances and positions of obstacles by emitting electromagnetic waves. According to the regulations of different countries and regions, the millimeter-wave radar sensing system of the aircraft can either integrate four 60 GHz millimeter-wave radars inside the fuselage in four directions (front, rear, top, and bottom) or integrate a 24 GHz millimeter-wave radar under the fuselage for sensing.

Note
● For detailed frequency bands and Effective Isotropic Radiated Power (EIRP) data of the millimeter-wave radar, see Appendix A "A.1 Aircraft". ● For the four millimeter-wave radars used in the aircraft, the front, rear, and top

millimeter-wave radars use the 60 GHz frequency band, while the frequency band used for the bottom millimeter-wave radar depends on local regulations.

- Please be noted that the frequency band of the millimeter-wave radar is a hardware parameter, which cannot be adjusted through software. Autel Robotics ensures that the millimeter-wave radar frequency band of the EVO Max series drones complies with local legal regulations.

2.6.2 Observation Range

■ Observation Range of Visual Obstacle Avoidance Sensing System

By using fisheye lenses, the visual obstacle avoidance sensing system achieves a 180° field of view (FOV) in both left and right directions, allowing for 720° all-around observation.

Important

- The visual obstacle avoidance performance of the aircraft’s visual obstacle avoidance sensing system is not 100% reliable, as the system may be affected by ambient lighting and object surface texture. When the visual obstacle avoidance system is enabled during flight, always pay attention to the image transmission screen and alarm information in the flight application.

■ Observation Range of Millimeter-wave Radar Sensing System

Note

- Please be aware that millimeter-wave radars of different frequency bands may have varying observation performance. For detailed data, please refer to “A1 Aircraft”.

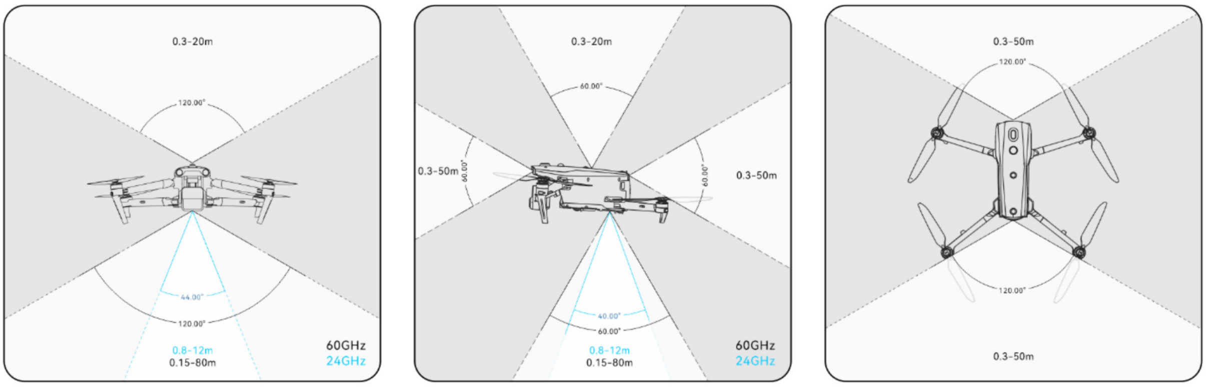


Fig 2-4 Observation Range of Millimeter-Wave Radars

Warning

- The obstacle avoidance distance of the millimeter-wave radar sensing system varies with

the obstacle's ability to reflect electromagnetic waves and its surface size.
- The gray area represents the blind spot of a millimeter-wave radar, where the radar cannot detect obstacles.

■ Observation Range of Radar and Visual Obstacle Avoidance Sensing Systems

With the integration of radar and visual obstacle avoidance sensing systems, the aircraft achieves 720° omnidirectional obstacle avoidance and supports nighttime obstacle avoidance.

Note

- If the aircraft uses a 60 GHz bottom millimeter-wave radar, it supports nighttime obstacle avoidance by millimeter-wave radars.
- If the aircraft uses a 24 GHz bottom millimeter-wave radar, the front, rear, and top millimeter-wave radars are disabled by default. The aircraft does not support nighttime obstacle avoidance and only supports visual obstacle avoidance in good lighting conditions. Additionally, it uses the bottom millimeter-wave radar only for assisted landing.

2.6.3 Visual Positioning Function

The aircraft supports the visual positioning function. When the visual positioning is enabled, the aircraft will keep hovering when GNSS signal is poor, so as to ensure flight safety.

Warning

- If you do not have extensive flight experience, do not fly the aircraft beyond your sight distance.
- When the aircraft is in visual positioning mode, please make sure that the aircraft flies in a well-lit environment and over object surfaces with clear texture and does not fly in mirror reflection areas such as water or snow.

Tip

- When GNSS signal is strong, the aircraft will enter GNSS mode in which the visual positioning function is only used for assisting positioning and improving the aircraft’s positioning accuracy.
- When there is no GNSS signal and visual positioning fails at the same time, the aircraft will enter the attitude mode automatically.
- In the event of GNSS signal loss or weakening during flight, the remote controller will display the following warning prompts:
  1. If the takeoff point is inaccurate: The flight application will display a warning "GNSS signal is weak. The landing point may deviate." with a corresponding verbal warning.
  2. If GNSS signal is weak: The flight application will show a warning " GNSS signal is

weak. Move the aircraft to an open area." with a corresponding verbal warning.

3. If GNSS is being spoofed: The flight application will display a warning "GNSS Spoofing" with a corresponding verbal warning.
4. If the aircraft is in attitude mode, the flight application will show a warning " No GNSS and visual positioning, please fly with caution " with a corresponding verbal warning.
5. If the aircraft is in visual positioning mode, the flight application will show a warning " GNSS has been disabled and visual positioning signal is moderate. Fly with caution. " with a corresponding verbal warning.

2.6.4 Visual Obstacle Avoidance Function

The aircraft supports visual obstacle avoidance function. When there is sufficient light, the aircraft will detect obstacles within the flight range and brake or bypass within the set safety distance.

Note

- After the obstacle avoidance behavior is set, the obstacle avoidance function of the aircraft still may fail if there are obstacles that are too spare in the flight route, such as sparse fine wire meshes or small branches at the outer edges of trees. To ensure flight safety, please choose an open and spacious airspace for flight.
- Due to inertial, to ensure the aircraft brakes or bypasses within the set safety distance, the flight control system will limit the flight power performance of the aircraft and its attitude angle will be no more than 30° and its maximum flight speed will be less than 15 meter per second.

Warning

- The obstacle avoidance function of the aircraft cannot be enabled when Ludicrous mode is set for the aircraft.

2.6.5 Precautions for Using Obstacle Avoidance Systems

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

- Flying over pure-colored surfaces (e.g., pure white, pure black, pure red, and pure green) and low-texture surfaces.
- Flying over surfaces with strong reflections.
- Flying over moving objects (e.g., crowds, swaying reeds, bushes, and grasses).
- Flying over water surfaces or transparent object surfaces.
- Flying in environments with rapid and intense changes in lighting or direct exposure to strong light sources.

- Flying over extremely dim (with light intensity of less than 15 lux) or extremely bright object surfaces.
- Flying over small obstacles (e.g., iron wires, electric wires, and tree branches).
- Lenses contamination (e.g., water droplets and fingerprints).
- Flying in low-visibility conditions (e.g., heavy fog, heavy snow, and sandstorm).
- Flying at an altitude below 2 meters with a very fast flight speed.

The millimeter-wave radar sensing system operates as an auxiliary enhancement system for visual obstacle avoidance and can work continuously throughout the day.

Note

- Please be noted that when flying in low-light conditions (such as at night), there is a strong possibility that the aircraft's visual obstacle avoidance sensing system may fail, leading to loss of visual obstacle avoidance function of the aircraft.
- If you need to fly in low-light conditions (such as at night), please confirm that the downward millimeter-wave radar of the aircraft is 60 GHz version. Additionally, please operate cautiously in nighttime flights, as in the nighttime obstacle avoidance is not 100% functional. It is recommended to fly in open areas.

2.7 Auto-Return

The aircraft is equipped with an auto-return function. When the GNSS signal is good, once the auto-return condition is triggered, the aircraft automatically returns to the home point and lands to avoid possible accidents.

The aircraft provides three methods of activating the auto-return function: manual auto-return activation, low battery auto-return activation, and behavior-based auto-return activation.

Note

- Home point: the landing point of the aircraft during an auto-return flight. In the flight application, you can set the home point of the aircraft as "Aircraft" or "RC". For more information, see “6.5 “Settings” Interface” in Chapter 6.
- If no home point is set in the flight application, the take-off point is used as the home point.
- During an auto-return, the control function of the remote controller for the aircraft is disabled. In this case, users can quickly press the pause button "" on the remote controller or press and hold it for 2 seconds to pause or exit the auto-return function, or pull the pitch stick down to exit the auto-return. After exiting the auto-return, the RC will regain control of the aircraft. For more information, see “4.11.2 Take-off/Return-to-Home Button and Pause Button” in Chapter 4.

Warning

- When the aircraft is in visual positioning mode or attitude mode, the auto-return function cannot be activated.

- If the obstacle avoidance behavior is set as “Turn off”, during an auto-return flight, the aircraft will not be able to automatically avoid obstacles.
- If the home point of an auto-return flight is not suitable for the aircraft to land (such as uneven grounds and crowds), please exit the auto-return function first, and then manually assume control to land the aircraft.

2.7.1 Manual Auto-Return Activation

During the flight, users can press and hold the return-to-home button “” on the remote controller for 2 seconds until the RC emits a “beep” to manually activate the auto-return function.

2.7.2 Low Battery Auto-Return Activation

During the flight, to prevent unnecessary risks caused by insufficient power of the smart battery, the aircraft will automatically check, based on the aircraft's current position, whether the current battery level is sufficient for returning to home point.
If the current battery level is only enough to complete the return journey, the flight application will prompt a warning “The remaining battery is only enough for Return to Home. The aircraft will Return to Home in 10s.” to prompt users to decide to execute low battery auto-return. If you choose to execute it or don't take any action within 10 seconds, the aircraft will initiate low battery auto-return after 10 seconds.
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.

Tip

- 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 push and pull the remote controller sticks to adjust the landing location of the aircraft. After users stop using the sticks, the aircraft will continue to land.

Warning

- When the low battery auto-return is triggered in the aircraft, it is recommended that the auto-return process should not be canceled. Otherwise, the aircraft may be unable to return to the home point due to insufficient power.
- It is recommended that the aircraft should not enter the critically low battery landing process. Once the critically low battery landing process is initiated, if the landing point does not meet safe landing standards, the aircraft may have no sufficient battery to land

in safe place, which may lead to aircraft damage.
- When the flight application displays a warning alert, it should be processed according to the corresponding references immediately.

2.7.3 Behavior-Based Auto-Return Activation

During a flight mission, if "Finish Action" is set to "Auto RTH", the aircraft will activate auto-return after completing the mission; if "Signal Loss Action" is set to " Auto RTH ", when the remote controller disconnects from the aircraft for 4 seconds, the aircraft will activate auto-return. For more information, see “6.9 Flight Missions” in Chapter 6.
During the flight, if "Signal Loss Action " is set to " Auto RTH ", when the remote controller disconnects from the aircraft for 4 seconds, the flight application will display a warning saying “Aircraft disconnected.” and the aircraft will activate auto-return. For more information, see “6.5 “Settings” Interface” in Chapter 6.

Tip

- In the flight application, the signal lost action is set to “Return to Home” by default.
- Within 4 seconds since the remote controller disconnects from the aircraft, the aircraft will continuously decelerate and attempt to reconnect the remote controller. If the reconnection is not successful within 4 seconds, the aircraft will activate the lost action auto-return.
- During the lost action auto-return process, even if the aircraft resumes connection with the remote controller, the aircraft will continue to execute auto-return.

2.7.4 Auto-Return Mechanism

Table 2-1 Auto-Return Mechanism

Aircraft distance when the return mechanism is triggered	Return-to-Home Mechanism
Distance from the home point ≤ 10 meters	The aircraft returns to the home point at the current altitude.
10 meters＜Distance from the home point ≤ 25 meters	If the current flight altitude is lower than 20 meters, the aircraft ascends to the altitude of 20 meters and returns to the home point. If the current flight altitude is higher than 20 meters, the aircraft returns to the home point at the current altitude.
25 meters < Distance from the home point ≤ 50 meters	If the current flight altitude is lower than 30 meters, the aircraft ascends to the altitude of 30 meters and returns to the home point. If the current flight altitude is higher than 30 meters,

	the aircraft returns to the home point at the current altitude.
Distance from the home point > 50 meters	If the flight altitude is lower than the set RTH altitude, the aircraft ascends to the RTH altitude. If the flight altitude is higher than the set RTH altitude, the aircraft returns to the home point at the current altitude.

Note

- Aircraft distance refers to the horizontal distance from the current aircraft to the home point.

2.7.5 Auto-Return Obstacle Avoidance Process

When the obstacle avoidance system is enabled (the obstacle avoidance behavior is not set as "Turn off") and the light/altitude conditions meet working requirement of the visual obstacle avoidance sensing system, the aircraft will achieve obstacle avoidance during the return process. The specific situation is as follows:

- During flight missions, the obstacle avoidance behavior is set as "Emergency stop" or "Bypass". In the case of a lost action auto-return, low battery auto-return, or auto-return after mission completion, when an obstacle is detected in front of the aircraft, the aircraft will automatically brake within the set safety distance and autonomously choose a random direction from the left, right, or upward directions to bypass the obstacle.

Important

- During the obstacle avoidance process, if the aircraft's ascent altitude reaches the maximum altitude limit and obstacle avoidance is not yet achieved, the aircraft will hover in place until a critically low battery landing is triggered. In this case, please manually take control of the aircraft in advance.

2.8 Landing Protection Function

When the landing protection function is enabled, the aircraft will assess whether the ground conditions are suitable for landing before landing. For more information, see "6.5 "Settings" Interface" in Chapter 6.

During the auto-return process, when the aircraft reaches above the home point and 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 land directly.
2. If the landing protection function detects that the ground is not suitable for landing (e.g., uneven ground or water below), the aircraft will keep hovering, send a prompt in the flight

application, and wait for the user to take action. In this case, the aircraft will start descending only when a critically low battery landing is triggered, and the user cannot cancel this process.

3. If the landing protection function cannot detect ground conditions, the aircraft will descend to an altitude of 1.2 meter above the ground and enter the assisted landing process.

Note

- Assisted landing: During the landing process, when the aircraft reaches an altitude of 1.2 meters above the ground, it will automatically descend slowly and the user does not need to pull the throttle stick.
- Before the aircraft enters the assisted landing process, make sure that the landing point is suitable for the aircraft to land.

2.9 Rebuilding the C2 Link

To ensure the safety and controllability of flight behaviors, the aircraft will stay in reconnection status and constantly attempt to reestablish a connection with the ground control station (remote controller) after losing the C2 link. In practice, this process is divided into the following stages:

- Within the first 4 seconds after the link is disconnected, the aircraft will automatically decelerate and attempt to restore the C2 link. If the connection is restored within 4 seconds, the remote controller regains control of the aircraft.
- If the link is not restored within 4 seconds, the aircraft will automatically trigger the lost action. At this point, the aircraft will automatically execute relevant flight control actions according to the set lost action.
- During the execution of a lost action, the aircraft will continue its attempts to restore the C2 link. When the aircraft successfully restores the C2 link with the remote controller, the remote controller still cannot control the flight of the aircraft. To make the remote controller regain control of the aircraft, you must press and hold the pause button "" on the remote controller for 2 seconds or pull the pitch stick to exit the lost action.

Tip

- During the flight, as long as the aircraft and the remote controller can communicate normally, the C2 link will remain active.
- If there are decoding errors that persist for a certain duration, leading to communication failure, the C2 link will be disconnected, and the aircraft will enter the reconnection status.
- The lost actions of the aircraft include RTH, hovering, and land.
- After the aircraft loses connection with C2 link, the flight application will display an alert "Aircraft disconnected." with a corresponding verbal alert.

2.10 Flight Restrictions and Unlocking Restricted Zones

Important

- Before flying, always carefully plan out the airspace in which you intend to fly in accordance with local laws and regulations. Do not operate the aircraft in the restricted airspace without permission.

2.10.1 Geofencing System

Autel Robotics has developed a geofencing system for its aircrafts to ensure safe and legal flights. This system can provide real-time updates on airspace restriction information worldwide. In different restricted zones, the flight functions of the aircraft are subject to varying degrees of restrictions. The geofencing system also supports the function of unlocking restricted zones. If you need to perform a flight mission in a specific restricted zone, you can contact Autel Robotics to lift the aircraft within valid authorization period after obtaining legal authorization for unlocking the restricted zone.

The geofencing system does not completely align with local laws and regulations. Before each flight, you should consult and understand local laws, regulations, and regulatory requirements to ensure flight safety.

The flight control system of the aircraft is pre-configured with the geofencing system. Before each flight, make sure that the remote controller can connect to the Internet to automatically update airspace restriction information and synchronously upload it to the aircraft. During the flight, relevant airspace restriction information will be synchronously displayed in the flight application to ensure the safe and legal flight of the aircraft.

Tip

- Due to information lag, the airspace restriction information provided by the geofencing system may not always be completely consistent with the latest local laws and regulations. All information is subject to local laws and regulations.
- For temporary airspace restrictions, Autel Robotics can obtain the relevant regulatory announcements in a timely manner and synchronously upload the relevant airspace restriction information to the geofencing system. When you take flight actions in relevant zones, be sure to synchronize and update flight airspace restriction information.

Warning

- Please note that when GNSS signal is lost (the aircraft is in visual positioning mode or attitude mode), the geofencing system may not function, and relevant flight restriction functions will not take effect normally.

2.10.2 Restricted Zones

The geofencing system divides airspace restrictions into four categories: no-fly zones, restricted altitude zones, warning zones, and unlocked zones. The flight application will provide different prompts based on the specific zone.

Table 2-2 Flight Restrictions of Restricted Zones

Restricted Zones	Flight Restriction Description
No-Fly Zones (appear in red on the map)	No-fly zones are divided into permanent no-fly zones and temporary no-fly zones. ● Permanent no-fly zones: The zones are pre-configured in the geofencing system at the factory and are regularly updated. ● Temporary no-fly zones: The zones are added by Autel Robotics in the geofencing system backend. Update method: After the remote controller is connected to the Internet, it will automatically retrieve update information related to no-fly zones and push it to the aircraft. Flight restrictions: Aircraft cannot take off or fly in no-fly zones. If you obtain authorization from relevant authorities to fly in a no-fly zone, contact Autel Robotics to request for unlocking the aircraft.
Restricted Altitude Zones (appear in grey on the map)	Autel Robotics only provides access to set altitude restrictions, allowing users to set the altitude limit accordingly. Update process: Users enable height restrictions and set the altitude limit within the flight application, based on the local legal regulations of the country and region. For detailed information, see "2.11 Altitude and Distance Limits" in Chapter 2 and "6.5 “Settings” Interface" in Chapter 6. Flight restrictions: When an aircraft is flying in a restricted altitude zone, the actual flight altitude of the aircraft will not exceed the set altitude limit.
Warning Zones (appear in yellow on the map)	Warning zones are pre-configured in the geofencing system at the factory and are regularly updated. Update method: After the remote controller is connected to the Internet, it will automatically retrieve update information related to warning zones and push it to the aircraft. Flight restrictions: In a warning zone, an aircraft can fly unrestrictedly (relevant flights must comply with local regulations).
Unlocked Zones (appear in blue on the map)	If you unlock a no-fly zone with a valid permit, you can legally fly the aircraft within the validity period in the unlocked zone.

Tip

In the flight application, if you tap on a restricted zone on the map, the following geofencing information will be displayed for this zone:

- No-fly Zone: zone name, zone level (no-fly zone), region (prefecture-level city), and no-fly time (visible only for temporary no-fly zones).
- Restricted altitude zone: zone name, zone level (restricted altitude zone), altitude limit (AGL), and region (prefecture-level city).
- Warning zone: zone name, zone level (warning zone), altitude limit (AGL), and region (prefecture-level city).
- Unlocked zone: zone name, zone level (unlocked zone), altitude limit (AGL), region (prefecture-level city), and validity period.

Note

- Before any flight, users must fully understand the local regulations regarding altitude restrictions for unmanned aerial vehicles (UAVs) and set them in the flight application.
- It is important to note that it is not suggested to fly cross regions with different legal altitude restrictions. The altitude limit setting is only effective for the takeoff area, the limit may not comply with regulations in neighboring regions. Users should adjust the corresponding altitude limits when flying across different regions.

An aircraft in flight has a specific initial velocity. To prevent the aircraft from accidentally entering no-fly zones (before unlocking) and warning zones, a buffer zone with a horizontal distance of 200-meter and a vertical distance of 50-meter is set beyond the boundaries of these zones in the geofencing system.

Table 2-3 Buffer Zone Details

Buffer Zone Type	Buffer Zone Details
Buffer zones of no-fly zones	When an aircraft flies from the outside toward a no-fly zone: When the aircraft approaches the buffer zone boundary, the flight application will display a warning alert "The aircraft is close to the no-fly zone." and the aircraft will automatically start to decelerate and eventually brake and hover within the buffer zone.
Buffer zones of warning zones	When an aircraft flies from the outside toward a warning zone: The aircraft can directly fly into the warning zone without limitation. When the aircraft approaches the warning zone boundary, the flight application will display a warning alert "The aircraft is close to the warning zone." and after entering the warning zone, the App will display "Aircraft enters warning zone" to remind users to be cautious.

Note

- When there is no GNSS signal, if an aircraft accidentally enters a no-fly zone while the aircraft is still locked from the zone, the aircraft will automatically land upon regaining the GNSS signal. During the landing process, the throttle stick will not work, but the user can control the horizontal movement of the aircraft.
- When an aircraft is hovering in the buffer zone of a no-fly zone, the user can control the aircraft to exit the buffer zone along the normal direction of the boundary.

For flights in an unlocked zone, if an aircraft is in the authorized airspace within validity period specified in the permit, the aircraft can fly normally in the zone. Once the aircraft flies beyond the authorized airspace or reaches the validity period, the aircraft will comply with the airspace restrictions of the current area.

2.10.3 UGZ Import

The aircraft supports for importing the UGZ (UAS Geographical Zones) file, users can get the no-fly zone data files of their own country or region, and upload the data to the aircraft's flight control system. When the aircraft approaches relevant airspace during flight, it will execute corresponding responses to ensure flight safety (including warnings and slowdown and other actions).

Tip

- The UGZ import supports JSON format. Users can import no-fly zone data files published by local aviation authorities.
- Operation path: Copy the JSON file into the root path of the remote controller. On the map interface of the flight application, tap "" > "Import Geo-fence" on the right side. Follow the on-screen instructions to complete the operations.

2.10.4 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:

- Identity and contact information of the applicant.
- 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).
- Unlocked zone: a cylindrical area. It includes the following information:
  1. Name of the unlocked zone.
  2. Coordinates of the center point of the flight airspace plane (latitude and longitude, with 6 decimal places).
  3. Radius of the flight airspace plane (in meters, with 2 decimal places).
  4. Flight altitude (in meters, with 2 decimal places).

- Unlock date: Enter the unlock date according to the valid permit. The date is recommended to be accurate to day/hour/second.
- Aircraft S/N (Serial number): Multiple serial numbers can be applied at once.
- 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).

Tip

- After the waiver application is submitted, it will be approved within 24 hours, and unlocking will be completed within 48 hours. Please make a reasonable flight plan in advance.

2.11 Altitude and Distance Limits

The altitude limit is the maximum flight altitude of the aircraft, while the distance limit is the maximum radius (distance from the take-off point) that the aircraft can fly.
You can set altitude and distance limits in the flight application to ensure the safe flight of the aircraft. For more information, see "6.5 "Settings" Interface" in Chapter 6.

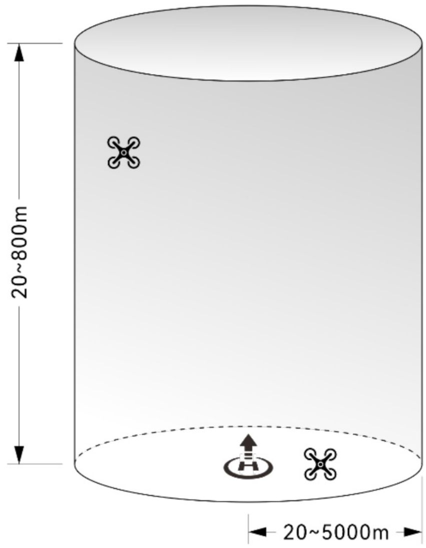


Fig 2-5 Diagram of altitude and distance limits

Tip

- In the flight application, the altitude limit should be set between 20 meters and 800 meters, and the distance limit should be set between 20 meters and 5000 meters. During actual flights, the maximum altitude limit should be set no greater than the maximum altitude specified by local laws and regulations. For example, in Chinese mainland, and the European Union, the maximum flight altitude of civil aircraft is no more

than 120 meters, and in US, it is no more than 400 feet.
- When setting the maximum altitude limit, consider whether the RTH altitude set is reasonable or not, which should not exceed the maximum altitude limit.
- The RTH altitude should be set higher than the altitude of the tallest obstacle in the flight area.

2.12 Aircraft Calibration

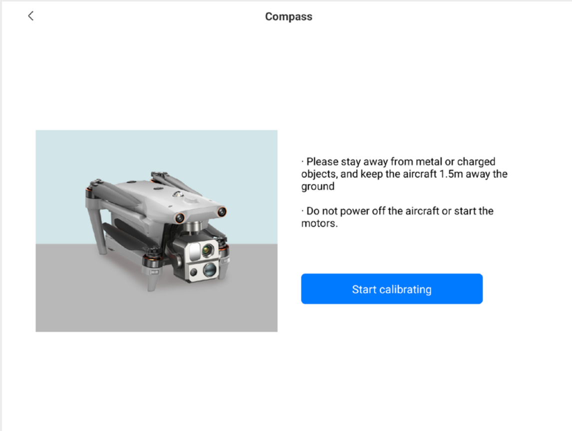
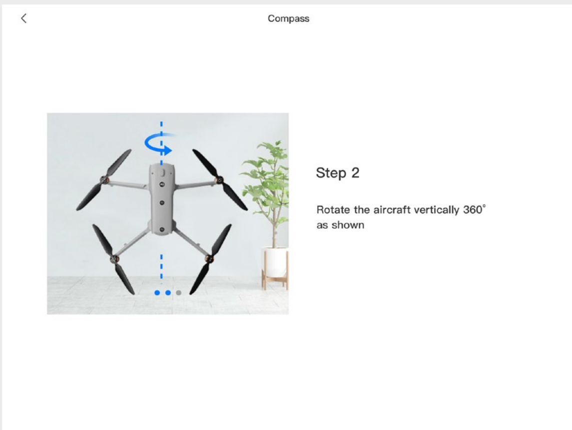
2.12.1 Compass Calibration

The compass (magnetometer) has been calibrated at the factory. In this case users do not have to calibrate it.
If the flight application prompts “Please calibrate compass”, please follow the steps below to calibrate it.

Important

- The compass is very easy to be affected by electromagnetic interference. Electromagnetic interference may lead to compass errors and degradation in flight quality.
- Please choose an open outdoor area for calibration.
- During calibration, please stay away from areas with a strong magnetic field or large metal objects, such as magnetic ore mines, parking lots, construction areas with underground reinforcing steel bars, underground areas, or locations near overhead power transmission lines.
- During calibration, do not carry ferromagnetic materials or metal objects on your person, such as mobile phones and watches.
- During the calibration process, please stay away from charged objects and ensure the aircraft fly 1.5 meters above the ground.
- During the calibration process, please do not turn off the power of the aircraft or start the motors.

Table 2-4 Compass Calibration

Step	Operation	Diagram
1	After turning on the aircraft and the remote controller, tap "" > "" > "" > "Compass Calibration" > "Start Calibration" in the main interface of the flight application. Follow the instructions on the interface for calibration.	
2	Hold the aircraft to keep it in a horizontal direction. Rotate the aircraft 360° horizontally until the interface prompts next step.	
3	Hold the aircraft to keep it in a vertical direction with the nose up. Rotate the aircraft 360° horizontally until the interface prompts next step.	

4	Hold the aircraft to keep it with the nose to the left and the side down. Rotate the aircraft 360° horizontally until the interface prompts successful calibration.	

Tip

- Please perform the calibration steps according to the tips shown in the compass calibration interface of the flight application.
- If the calibration fails, the rear arm lights of the aircraft will turn solid red, and the above steps should be repeated at this time.
- If the compass still cannot work properly after the calibration, fly the aircraft to other places and calibrate the compass again.

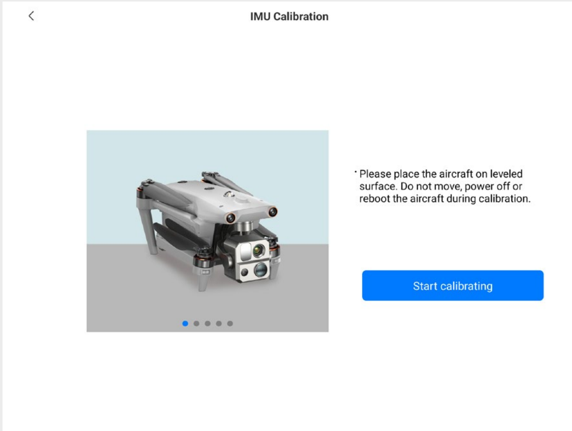
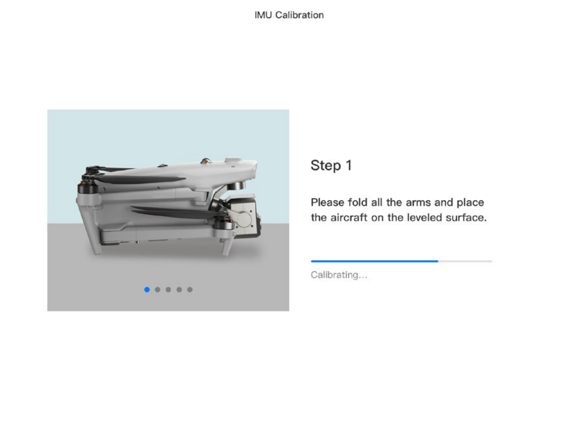
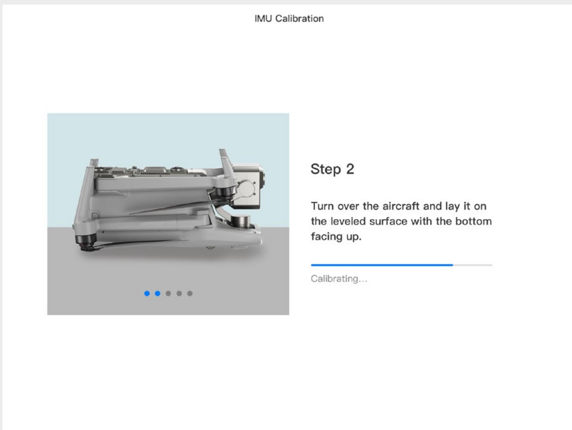
2.12.2 IMU Calibration

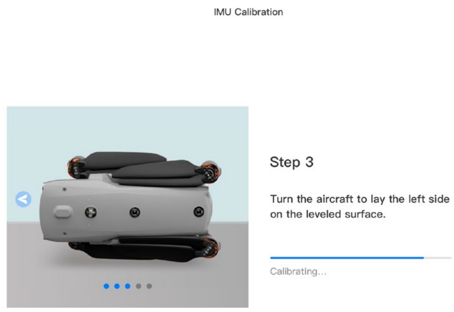
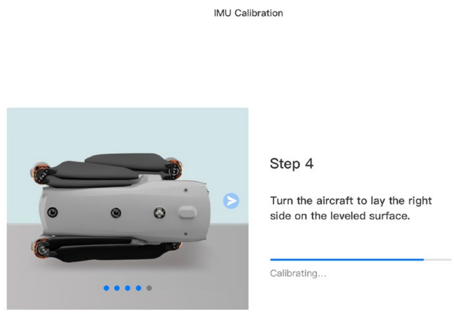
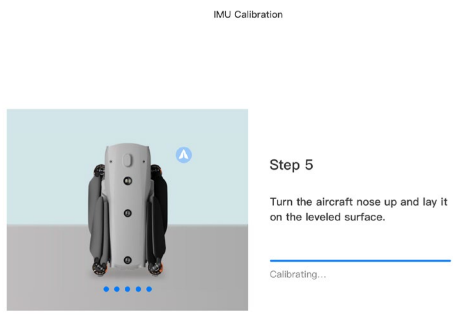
The IMU (Inertial Measurement Unit) of the aircraft has been calibrated at the factory, and no user calibration is required under normal conditions.
If the floating window in the flight application displays an alert message such as " Cannot take off due to IMU error. Calibrate IMU first. " or "Please calibrate IMU", please follow the steps below to calibrate it.

Important

- Please place the aircraft according to the tips shown in the IMU calibration interface of the flight application, and keep the aircraft in a static state.
- Please place the aircraft on a flat ground, and do not move, shut down, or restart the aircraft during the calibration process.
- During IMU calibration, the gimbal will not work.

Table 2-5 IMU Calibration

Step	Operation	Diagram
1	After turning on the aircraft and the remote controller, tap "" > "" > "" > "IMU Calibration" > "Start Calibration" in the main interface of the flight application. Follow the instructions on the interface for calibration.	
2	Fold up the arms and place the aircraft flat on the ground until the interface prompts next step.	
3	Turn the aircraft over 180° and lay the aircraft facing up until the interface prompts next step. Please pay attention to protecting the upward visual obstacle avoidance camera and strobe.	

4	Put the left side of the aircraft flat on the ground until the interface prompts next step.	
5	Put the right side of the aircraft flat on the ground until the interface prompts next step.	
6	Fold the arms, turn the aircraft nose up, and lay it on the leveled surface until the interface prompts calibration success. Be careful not to bump the rear camera lens.	

Tip

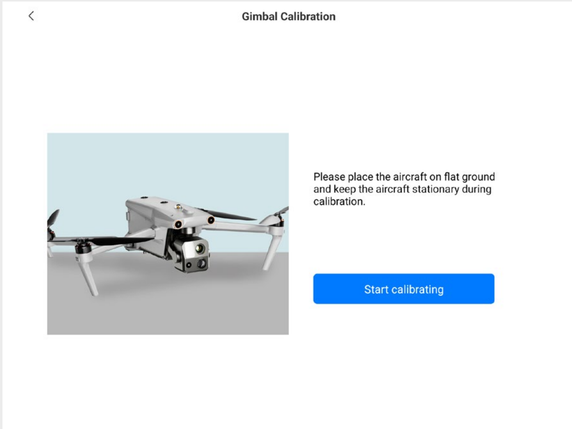
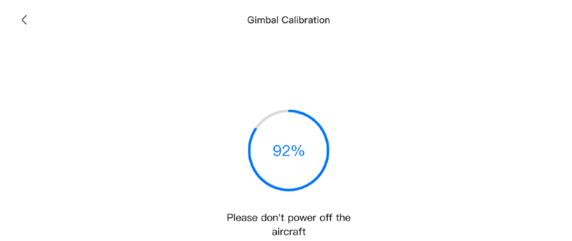
- If the calibration fails, the rear arm lights of the aircraft will turn solid red, and the above steps should be repeated at this time.

2.12.3 Gimbal Calibration

The gimbal of the aircraft has been calibrated at the factory, and users do not have to do auto calibration on the gimbal usually.

If the flight application prompts an alert ”Please calibrate the gimbal motor”, please follow the steps below to calibrate it.

Table 2-6 Gimbal Calibration

Step	Operation	Diagram
1	Place the aircraft on a flat ground. After turning on the aircraft and the remote controller, keep the aircraft in a static state. In the main interface of the flight application, tap “” > “” > “” > “Gimbal Calibration” > “Start Calibration”.	
2	Wait for the calibration progress bar to reach 100%. When “Calibration Successful” is displayed on the screen, the gimbal is successfully calibrated.	

2.13 Emergency Stop Propellers During Flight

During flight, if the power motors of the aircraft experience power damage or failure (e.g., damaged or missing propellers and motor failure) that makes the aircraft out of control, users can enable the "Emergency Stop Propellers During Flight" function. At the same time, users need to manipulate the left and right sticks on the remote controller inward or outward to forcibly stop propeller rotation and allow the aircraft to descend freely for an emergency landing. This can reduce the potential damage to property and harm to ground personnel caused by aircraft malfunctions.

In the event of an aircraft malfunction, users should at first attempt to manipulate the sticks to move the aircraft away from crowds or buildings and lower the altitude and horizontal speed of the aircraft before enabling the emergency propeller stop function. For how to enable this function, see “6.5 “Settings” Interface” in Chapter 6.

Important

- If you stop the propellers when the aircraft has an initial velocity, the aircraft will fall along a parabolic trajectory. If the trajectory is unpredictable, do not stop the propellers.
- After completing an emergency landing, contact Autel Robotics promptly for a power system inspection and maintenance.

2.14 Remote Identification

The Remote Identification system allows for uploading the registration number (Remote ID) of a UAS operator to the system. During flight, it can actively broadcast some non-sensitive data to mobile devices within its broadcast range in real time via an open, documented transmission protocol. The non-sensitive data includes the registration number of the operator, the unique serial number and timestamp of the aircraft, the aircraft’s geographical location, altitude above ground level or take-off point, route measured clockwise from true north, and ground speed of the unmanned aircraft, and the geographical location of the operator (if available, otherwise the geographical location of the take-off point). This system not only effectively controls potential risks to public safety posed by unmanned aircraft during flight but also provides effective information and data tools for unmanned aircraft flight regulation.
The aircraft supports the remote identification function and uses Wi-Fi (Wi-Fi Beacon, 802.11n) for broadcasting. Users can enter the corresponding Remote ID in the flight application.

Tip

- At present, in some countries and regions, it is mandatory to enable the remote identification function. When users are operating aircrafts in relevant airspace, please follow local laws and regulations.
- Operation Path (in places except Chinese Mainland): On the main interface of the flight application, tap “” > “” > “” > “Safety” > “Remote ID,” and follow the on-screen instructions to perform relevant operations. For more information, see “6.5 “Settings” Interface” in Chapter 6.
- In Chinese Mainland, the aircrafts registered legally will enable Remote ID broadcast by default after completing power-on self-check.
- When the aircraft is in automatic check process after being turned on or in flight, if the remote identification function is detected as being abnormal, the flight application will prompt an alert “Remote ID anomaly, please comply with air traffic regulations during flight”, the RC will emit sound alert at the same time.