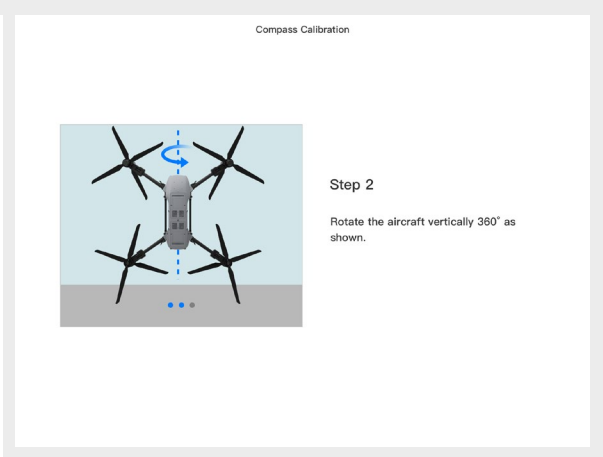


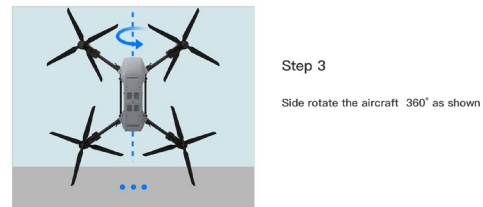
3

Hold the aircraft to keep it in a vertical direction with the nose up.
Rotate the aircraft 360° horizontally until the rear arm light of the aircraft turns green and blinks.



4

Hold the aircraft to keep it with the nose to the left and the side down.
Rotate the aircraft 360° horizontally until the rear arm light of the aircraft turns green and is always on.



Tip

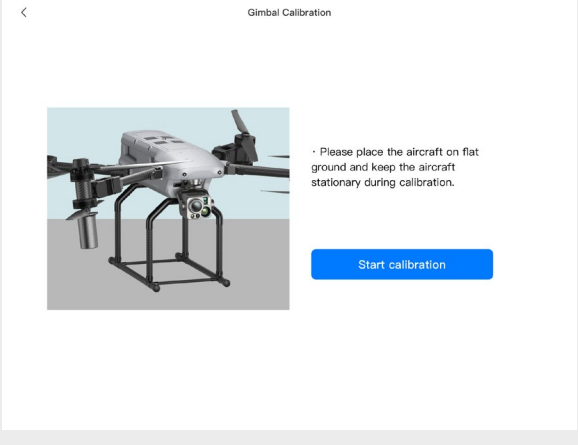
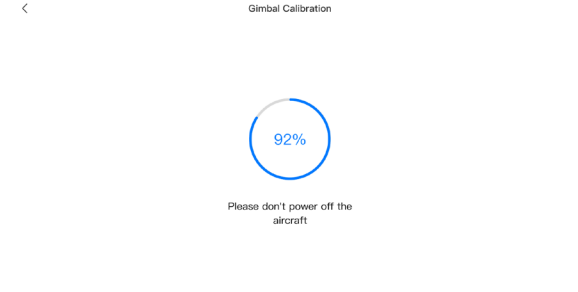
- Please perform the calibration steps according to the tips shown in the compass calibration interface of the Autel Enterprise App.
- If the calibration fails, the rear arm light of the aircraft will turn red and is always on, and the above steps should be repeated at this time.
- If the compass still cannot work properly after the calibration, fly the aircraft to other places and calibrate the compass again.

2.11.2 Gimbal Calibration

The gimbal of the aircraft has been calibrated at the factory, and no user calibration is required under normal conditions.

If the rotation angle of the gimbal is abnormal, please follow the steps below to calibrate it.

Table 2-5 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 Autel Enterprise App, click “  ” > “  ” > “  ” > “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.	

2.12 Emergency Stop Propellers During Flight

During flight, if the 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, you can enable the "Emergency Stop Propellers During Flight" function. At the same time, you need to manipulate the dual command 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, you should first attempt to manipulate the command 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 “[6.5.8 More](#)” 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.

2.13 Mid-flight Sensing

Automatic Dependent Surveillance-Broadcast (ADS-B) is a manned aircraft monitoring technology that allows a manned aircraft to determine its position using satellite navigation systems and broadcast the information regularly, making the aircraft trackable. Other aircraft can receive the information to achieve attitude awareness and autonomous avoidance.

The Autel Titan aircraft is equipped with ADS-B receivers that can receive flight information broadcast by ADS-B transmitters that support the 1090ES and UAT standards within a range of 10 kilometers. By analyzing the received flight information, the position, altitude, course, and speed of the manned aircraft will be obtained, and the obtained information will be compared with the current position, altitude, course, and speed information of the aircraft. The Autel Enterprise App will provide real-time risk warnings, reminding users to plan flight paths rationally and pay attention to avoidance.

! Important

- The aircraft has been pre-configured with the ADS-B receiver hardware at the factory. The mid-flight sensing function will be available in subsequent versions. Please update the aircraft firmware in a timely manner.
- Operation path: Click "⌘" > "⚙️" > "😊" > "Safety" > "Receive ADS-B" in the main interface of the Autel Enterprise App, and follow the on-screen instructions to perform relevant operations. For more information, see ["6.5.8 More"](#) in Chapter 6.

2.14 Direct Remote Identification

The Direct Remote Identification (DRI) 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, timestamp, 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 Autel Titan aircraft supports the DRI system and uses Wi-Fi for broadcasting. To enable the DRI system, configure it in the Autel Enterprise App.

 Tip

- Operation path: On the main interface of the Autel Enterprise App, click “” > “” > “” > “Safety” > “Remote ID”, and follow the on-screen instructions to perform relevant operations. For more information, see “[6.5.8 More](#)” in Chapter 6.

2.15 Standard Flight Operation Process

2.15.1 Pre-Flight Checklist

Before each flight, please follow the steps below to perform a comprehensive pre-flight check to ensure flight safety:

- Make sure that the batteries of the aircraft and remote controller are fully charged, and the two batteries of the aircraft is installed in place, with the battery unlock lever in a lock state.
- Make sure that the propellers of the aircraft are installed properly, tightly without damage or deformation, the motor and propellers are clean and free of foreign objects, and the propellers and arms are fully extended, the arm lock buckle is securely locked.
- Make sure that the microSD card is inserted into the gimbal (if the gimbal camera is mounted), and that the rubber protective cover on the microSD card slot is closed firmly. Otherwise, the protection performance of the gimbal will be affected.
- Make sure the gimbal camera is well mounted on the aircraft and the gimbal unlock button is aligned with the lock symbol on the gimbal connector.
- Make sure that gimbal protective cover has been removed, the vision cameras of the aircraft, the lens of the gimbal, and the lens of the auxiliary light are free from foreign objects, dirt, or fingerprints, and are not blocked by loads or other accessories on the fuselage.
- Make sure that the three-axis movement of the gimbal is in a normal state.
- Make sure that the rubber protective cover on the fuselage is closed firmly. Otherwise, the protection performance of the aircraft will be affected.
- Make sure that the antenna of the remote control is unfolded.
- Place the aircraft in an open and flat area outdoors and make sure that there are no obstacles, buildings, trees, etc. around. You should stand at least 10 meters away from the tail of the aircraft when operating.
- Make sure that after the aircraft is powered on, the aircraft and the remote controller are connected, and the aircraft motors, gimbal, and camera are working normally.
- Make sure that the aircraft, remote controller, etc. have been upgraded to the latest version as prompted.
- Make sure that all warnings and errors displayed on the Autel Enterprise App are handled.
- Enter the Autel Enterprise App setting page to set the flight control parameters, obstacle avoidance system, stick mode, and other related flight safety parameters, and be familiar with the flight operation, so as to ensure that the parameter settings meet your own needs and guarantee flight safety.
- If multiple aircraft are flying at the same time, please keep an appropriate air distance to avoid any accidents.

2.15.2 Basic Flight Process

The aircraft provides three command stick modes: Mode 1, Mode 2, and Mode 3. Each mode controls the aircraft differently. The default mode is Mode 2. You can switch the mode in the Autel Enterprise App according to your control habit (For how to switch the mode, see [“6.5.3 RC Settings”](#) in Chapter 6). The following is the basic operation of aircraft flight:

1. Please refer to [“2.15.1 Pre-Flight Checklist”](#) to complete the preparations before flight.
 - Place the aircraft in an open and flat area outdoors and make sure that there are no obstacles, buildings, trees, etc. around.
 - Press and hold the battery power button for 2 seconds to turn on the power of the aircraft, and wait for the rear arm light to turn green and blinks slowly (indicating that the current status is normal).
 - Long press the power button of the remote controller for 3 seconds to turn on the remote controller.
 - Stand at least 10 meters away from the rear arms of the aircraft.
2. Please refer to [“4.10.3 Starting/Stopping the Aircraft Motor”](#) in Chapter 4 to use the remote controller to start the aircraft and take off.
3. Please refer to [“4.10.1 Stick Modes”](#) and [“4.10.2 Setting Stick Mode”](#) in Chapter 4 to control the aircraft carefully.
4. Please refer to [“4.10.3 Starting/Stopping the Aircraft Motor”](#) in Chapter 4 to land the aircraft, and then turn off the motors.

Chapter 3 Aircraft

3.1 Aircraft Activation

When unboxing the product for the first time, you need to activate the Autel Titan aircraft before using it. By default, the aircraft is pre-paired with the remote controller at the factory. After turning on the aircraft and the remote controller, you will see an activation prompt in the Autel Enterprise App. Please follow the steps in the Autel Enterprise App to activate the aircraft.

! Important

- Make sure that the remote controller 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 remote controller, see [“4.9 Frequency Pairing With the Remote Controller”](#) in Chapter 4.

3.2 Aircraft Components

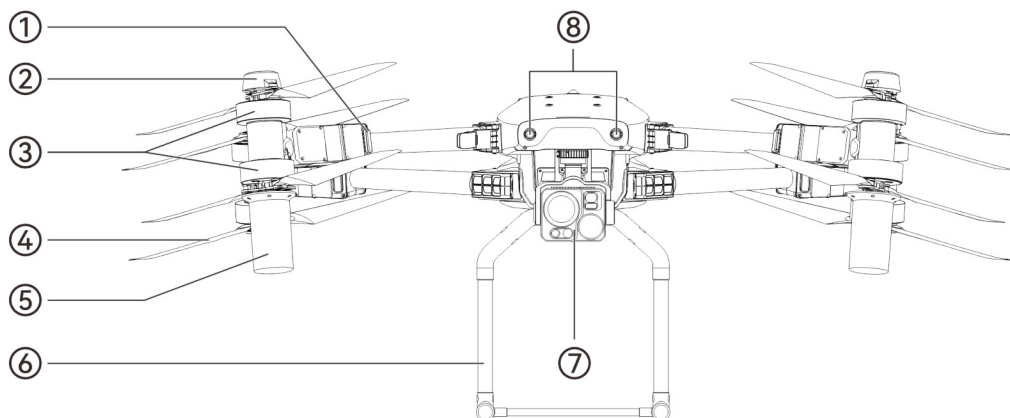


Fig 3-1 Aircraft Front View

Table 3-1 Aircraft Front View Details

No.	Name	Description
1	Front Arm Light	Used to identify the nose direction of the aircraft.
2	RTK Antenna	Used to realize centimeter level accurate positioning.
3	Motor	Used to drive the propeller to rotate.
4	Propeller	Rotates in the air to generate thrust to propel the aircraft forward.

5	Image Transmission Antenna	Used for wireless communication between RC and aircraft.
6	Mount	Used to support the aircraft to avoid damage to the bottom of the fuselage. Support for add delivery box in the mount (optional)
7	Gimbal Camera	Integrates multiple sensors for stable shooting or measurements during flight.
8	Forward Visual Sensing System	Used to sense the obstacles ahead and avoid the aircraft from colliding with them.

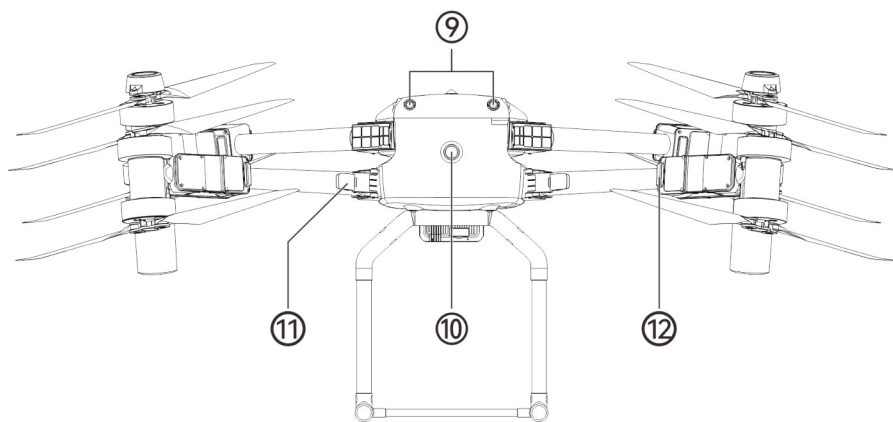
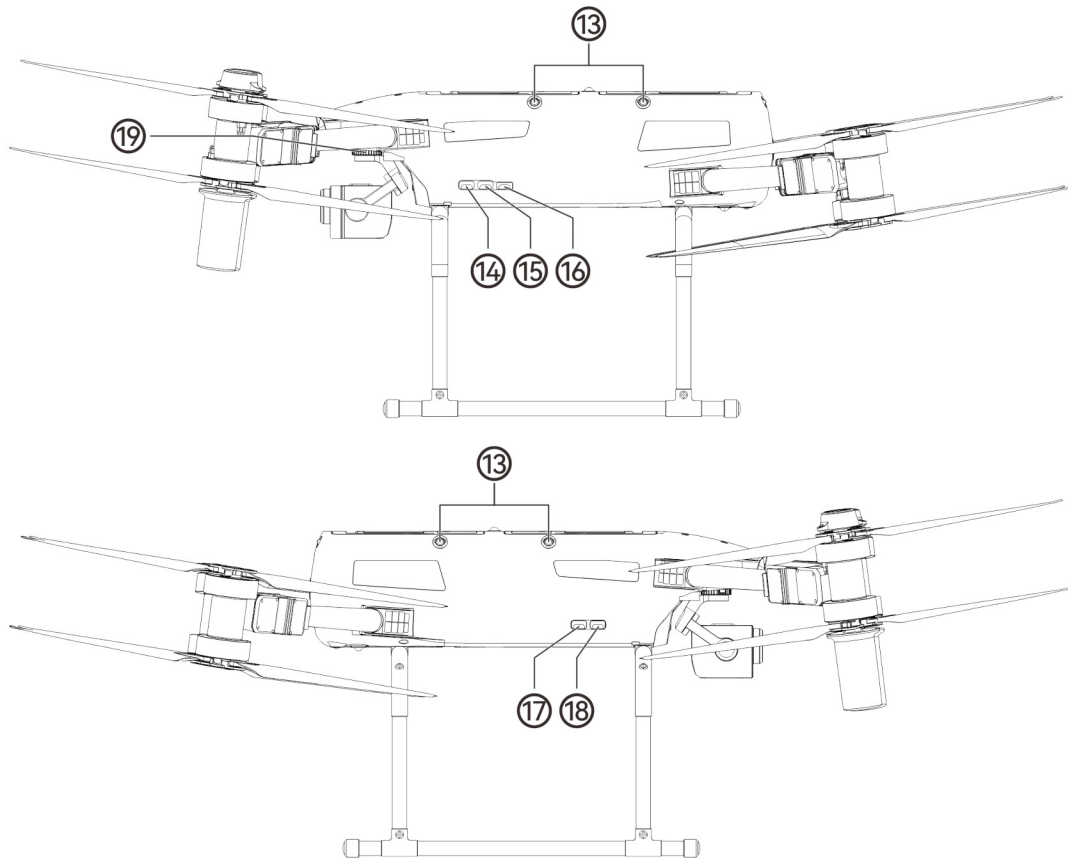


Fig 3-2 Aircraft Rear View

Table 3-2 Aircraft Rear View Details

No.	Name	Description
9	Rear Visual Sensing System	Used to sense the obstacles in the rear and avoid the aircraft from colliding with them.
10	Power Button	Press and hold the power button for 2 seconds to start the aircraft. Quickly press the power button twice to enter pairing mode.
11	Arm Locking Buckle	After the drone arms are fully extended, lock the arm locking buckle to securely lock the arm.
12	Rear Arm Light	Used to display the current flight status of the aircraft.

**Fig 3-3 Aircraft Side View****Table 3-3 Aircraft Side View Details**

No.	Name	Description
13	Side Visual Sensing System	Used to sense the obstacles in the left and right sides and avoid the aircraft from colliding with them.
14	P-Port	PSDK Interface. Additional mounts can be added to the aircraft fuselage through the extension interface, such as speakers, spotlights, and RTK modules. Supports the connection of devices using MIPI protocols. (excludes USB 2.0 Full-Speed devices)
15	Power	Power supply interface, can provide power for external payload.
16	TF/SIM	Pre-set interface, if the purchased drone version is equipped with relevant hardware, users can insert a mobile data card (nano-SIM card) to provide internet access for the drone. The integrated SD card slot here is not available for the moment, please do not use it.
17	DEBUG	Used to connect to a computer for firmware updates or debugging.

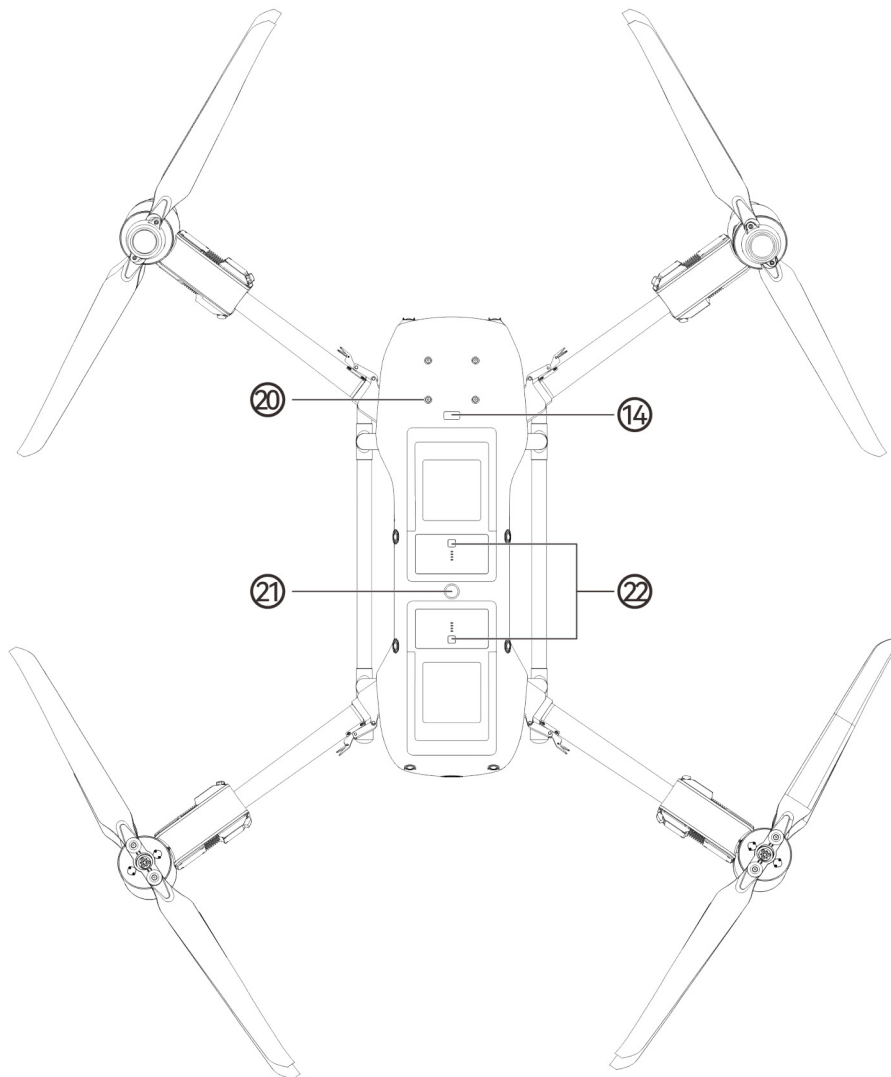
18	O-Port	OSDK interface. The OSDK interface supports the integration of additional high-bandwidth computing unit devices. This interface also allows the connection of PSDK devices using USB.
19	Gimbal Interface	Used to connect to the gimbal camera.

 Note

- Please be aware that the current version of the aircraft lacks built-in hardware for the TF/SIM interface, and therefore, it does not have internet access capabilities. Please refrain from inserting a SIM card for usage. For more detailed information, please inquire with Autel Robotics at the time of purchasing the aircraft.

 Warning

- The interfaces of the aircraft cannot be used for charging. For how to charge the aircraft, see [“5.3.4 Charging the Smart Battery”](#) in Chapter 5.
- There are rubber protective covers on the interfaces on both sides of the fuselage. Please make sure that the rubber protective covers are securely closed during flight.

**Fig 3-4 Aircraft Top-Down View****Table 3-4 Aircraft Top-Down View Details**

No.	Name	Description
20	Top Expansion Mounting Holes	Located on top side of the fuselage, 4 screw holes to secure additional external devices.
21	Strobe	Emits high-intensity strobe lights to indicate the position of the aircraft at night to avoid air traffic accidents.
22	Smart Battery	Used to provide energy for aircraft operation.

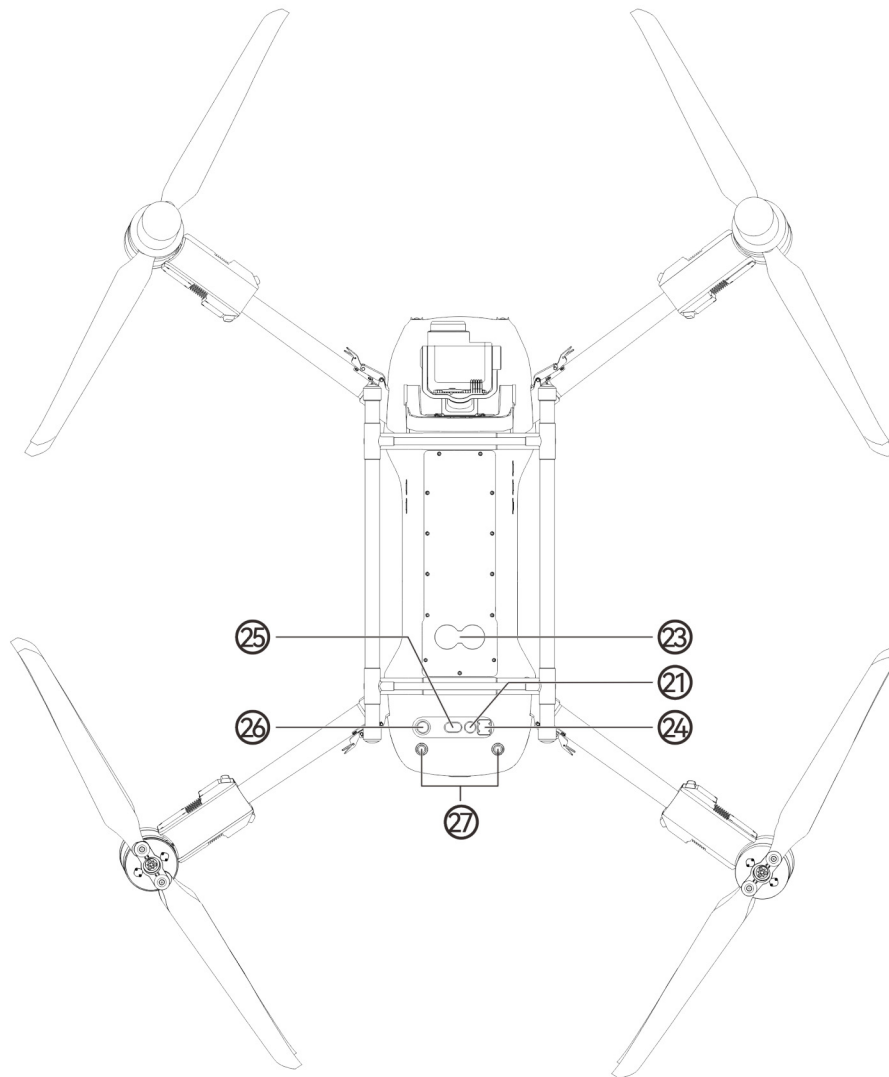


Fig 3-5 Aircraft Bottom-Up View

Table 3-5 Aircraft Bottom-Up View Details

No.	Name	Description
23	Air Inlet	Used for heat dissipation of the aircraft. Please pay attention to whether there are foreign objects blocking the air inlet when using it.
25	Fisheye Extension Interface	Invalid for the moment, please do not connect to any devices.
25	Auxiliary Light	An LED auxiliary light. It is used to enhance the ambient brightness of the landing area during the landing process, improve downward visual sensing performance, and ensure the safe landing of the aircraft.
26	Bottom Night Vision Camera	Integrated with night vision camera for nighttime shooting.

27	Downward Visual Sensing System	Used to sense obstacles below, and to the left and right of the aircraft and avoid collisions.
----	--------------------------------	--

Note

- Please be noted that not all drone version is not supported for Bottom Night Vision Camera. Any query, please contact Autel Robotics for detail information when purchasing the drone.

Warning

- Do not disassemble the components that have been installed at the factory (except for the components explicitly permitted in the description in this manual), otherwise, the product warranty will be void.
- Please prevent the 6 millimeter-wave radars inside the fuselage from being blocked by foreign objects. The six millimeter-wave radars are located in the middle of the forward visual sensing system, below the power button, the side of the top shell (near Aux light), the bottom of the side visual sensing system, and near the fisheye lens at the bottom shell of the fuselage, respectively.

3.3 Preparation Of Aircraft

3.3.1 Installation Of The Mount

The aircraft must be installed with the mount for normal flight. Take out the mount from the packaging box and assemble it. Take the aircraft out from the rugged case and place it on a level surface. The installation process for the mount is as follows:

1. As shown in the diagram below, place the aircraft on a level surface, release the strap, and slightly extend the front and rear arms of the aircraft to facilitate mount installation.
2. Use the H3.0 hex screwdriver from the maintenance kit and the 8 screws (M4×22) provided to secure the mount to the bottom of the aircraft at the fixed positions as shown in the diagram.
3. After the mount is installed, flip the aircraft and place it on a level surface with the back of the aircraft facing up.

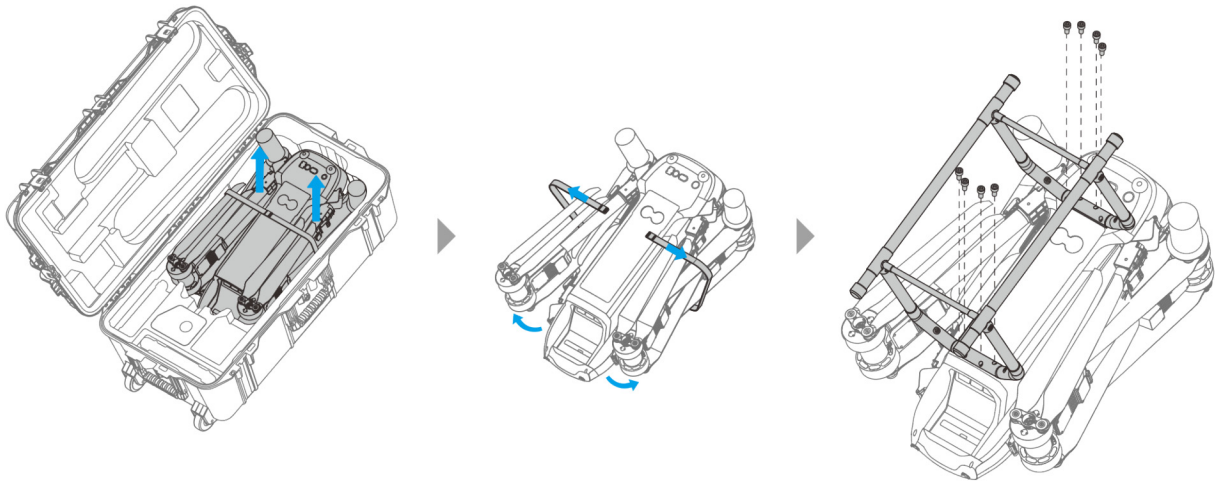


Fig 3-6 Installment Of The Mount

3.3.2 Fold/Unfold The Arms

Before using the aircraft, place it on a level ground. Unfold the front and rear arms. After the arms are fully unfolded, you will hear a "click" sound, indicating that the arm locking button has securely locked the arms, and the arms cannot be folded at this point.

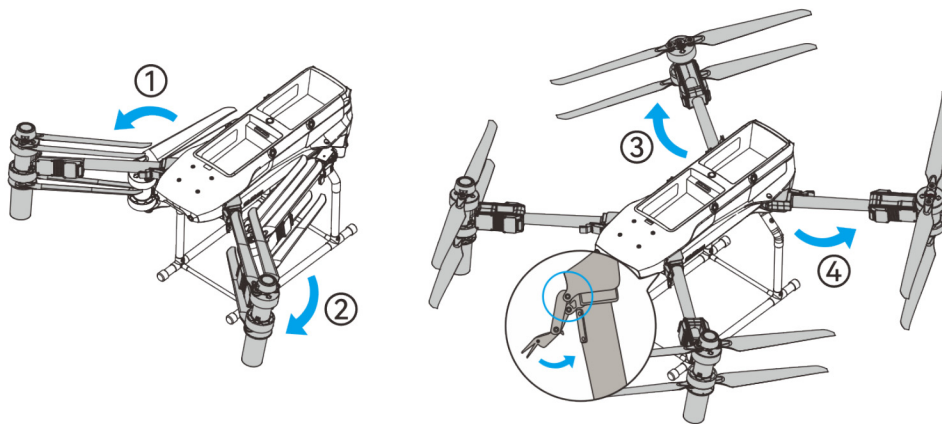


Fig 3-7 Unfold The Arms

Tip

- If the arms are not fully unfolded, the motors will not be powered, and you will see corresponding warnings in the remote controller.

Please follow below instructions to fold the arms and the propellers to store in the hard case:

1. Turn off the aircraft and remove the smart battery. Unlock the arm locking buckle in the direction away from the arm. Fold the rear arms and front arms one by one.
2. Flip the aircraft upside down and place it on the level ground. Using the maintenance kit to disassemble the mount. Then fold the arms, secure the propellers against the body, use straps to hold the arms with fuselage, then place it in the rugged case. For specific details, see "[3.3.1 Installation of the Mount](#)" in this chapter.

 Tip

- After disassemble the mount, please store the screws and tools properly.

 Warning

- When folding the arms, make sure to unlock the locking buckle on the arms to release the arm. Forcibly folding the arms may break the arms.
- When folding the arms, fold the rear arms first, and then the front arms to avoid interference. When unfolding the arms, reverse the sequence of operations.

3.3.3 Replacing Propellers

Propellers are wearable parts that require regular maintenance and replacement to ensure the safe flight of the aircraft. 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.

 Tip

- Aircraft propellers are wearable parts. If needed, please purchase them from Autel Robotics.
- The difference of propeller is marked on the blade. You can check the model marking on the blade near the propeller center shaft.
- Autel Robotics provides four spare propellers for each aircraft. Please refer to the “Packing List” and packaging for details.

The propellers of the Autel Titan aircraft are divided into CCW and CW. Before installing the propellers, make sure that the silk marking on the propeller matches the one on the motor.

 Tip

- The end of every arm are with two motors, which is divided into two layers.
- On the shaft of the propeller, there's corresponding marks: UP CW; DOWN CCW; UP CCW; DOWN CW.

 Warning

- Please use the propellers provided by Autel Robotics. Do not mix propellers of different models.
- Propeller edges are sharp. When replacing propellers, it is recommended to wear protective gloves.

- Before replacing the propellers, be sure to turn off the power of the aircraft, remove the gimbal camera and battery, and unfold the front and rear arms of the aircraft to ensure that the arms are in a locked state (a "click" sound is heard when the arm locking buckle is securely locked).
- When replacing the propellers, please refer to the picture below and distinguish the propellers on different arm motors to avoid mis-installation, which may lead to flight accidents.

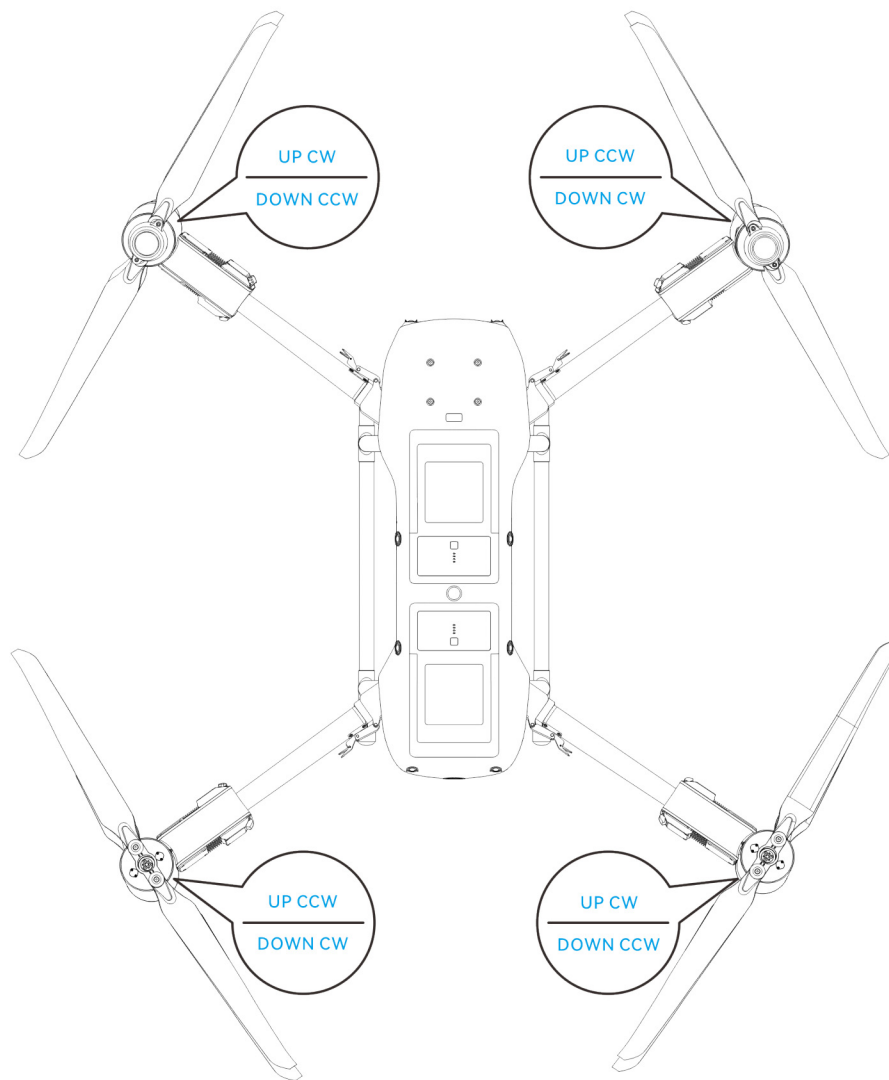


Fig 3-8 Aircraft Propeller Layout

■ Replacing The Propellers At The Upper Layer

1. Before replacement, confirm that the propellers have the same model markings as the motors. And the aircraft (with Mount) is placed at a level ground.
2. Use the screwdriver to unscrew the 2 fixing screws on the propeller shaft.
3. Remove and replace the entire propeller module, ensuring that the screw holes of the propeller clamp matches the screw holes on the motor, and please follow the sequence to install the propeller washers.
4. Screw down to tighten the propeller shaft with new screws (M4x12).

5. After replacement, check again that the propellers matches the corresponding motors.

Note

- Before replacing the propeller at the upper layer, please use the hex screwdriver to unscrew the fixing screws on the RTK antenna case to remove the RTK antenna case. Then, slightly rotate the propeller shaft, make the screws on the shaft more visible. After replacing the propellers, be sure to reinstall the RTK antenna case and fasten the screws.
- The sequence of the propeller washers is as follows (from the motor): 1.2mm white PTFE washer, propeller, 0.8mm black PTFE washer, 0.1mm copper washer × 2, 2.0mm black silicone washer.

■ Replacing The Propellers At The Bottom Layer

1. Flip the aircraft and place it on a level surface. Please protect the rear lens from any scratches or damage.
2. Before replacement, confirm that the propellers have the same model markings as the motors.
3. Use the screwdriver to unscrew the 2 fixing screws.
4. Remove and replace the entire propeller module, make sure to follow the sequence to install the propeller washers.
5. Screw down to tighten the propeller shaft.
6. After replacement, check again that the propellers matches the corresponding motors.

Note

- Before replacing the propeller at the upper layer, please use the hex screwdriver to unscrew the fixing screws on the Image transmission antenna case to remove the Image transmission antenna case. Then, slightly rotate the propeller shaft, make the screws on the shaft more visible. After replacing the propellers, be sure to reinstall the Image transmission antenna case and fasten the screws.
- The sequence of the propeller washers is as follows (from the motor): 1.2mm white PTFE washer, propeller, 0.8mm black PTFE washer, 0.1mm copper washer × 2, 2.0mm black silicone washer.

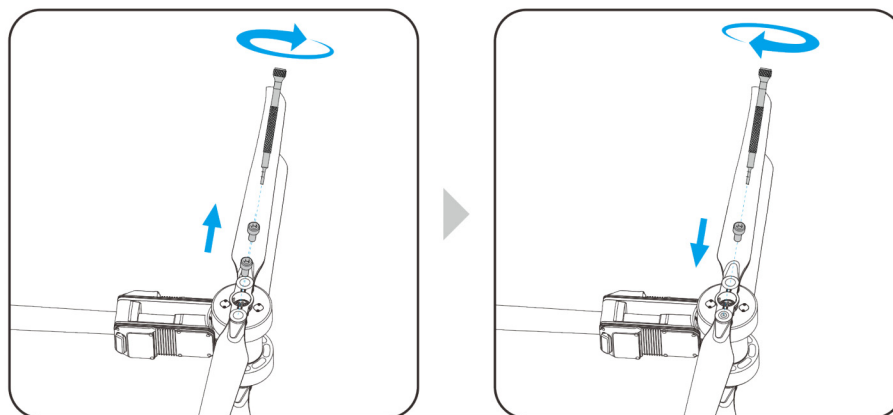


Fig 3-9 Install the Propellers

Warning

- The propellers can rotate at a maximum speed of 4000 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.
- Stay away from rotating propellers or motors to avoid injuries.
- Before testing the aircraft on the ground, make sure that the propellers are removed.

3.4 Arm Light

There are two LED indicators at the end of each arm of the aircraft. After the aircraft takes off, the front arm lights will blink periodically, which can help you identify the direction of the aircraft's nose; the rear arm lights will display the current flight status of the aircraft.

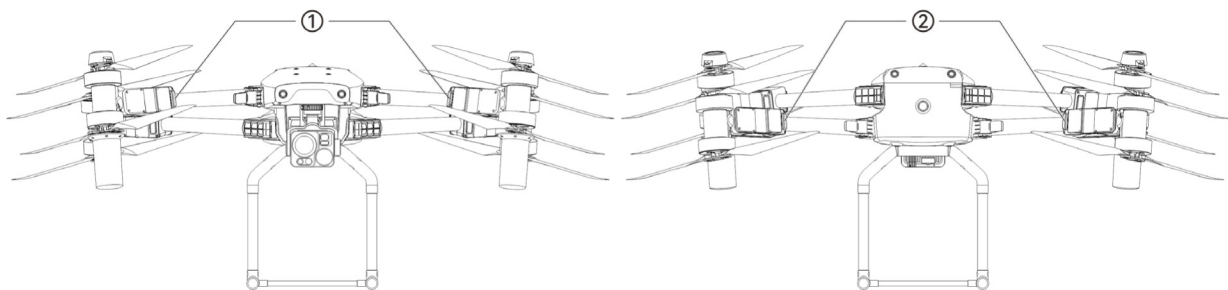


Fig 3-10 Arm Light

Table 3-6 Arm Light Details

Mode	Front Arm Light	Rear Arm Light
GNSS Mode Visual Positioning Mode	During flight, the front arm lights will blink green periodically following a pattern of (0.25s on/0.25s off/0.25s on/1.25s off) to help identify the nose direction.	During flight, the rear arm lights will blink alternately in a cycle of (green light on for 1s / red light on for 1s) to help identify the tail direction.
ATTI Mode	During flight, the front arm lights will blink green periodically following a pattern of (0.25s on/0.25s off/0.25s on/1.25s off) to help identify the nose direction.	During flight, the rear arm lights will blink alternately in a cycle of (green light on for 1s / red light on for 0.25s / light off for 0.5s / red light on for 0.25s) to help identify the tail direction.

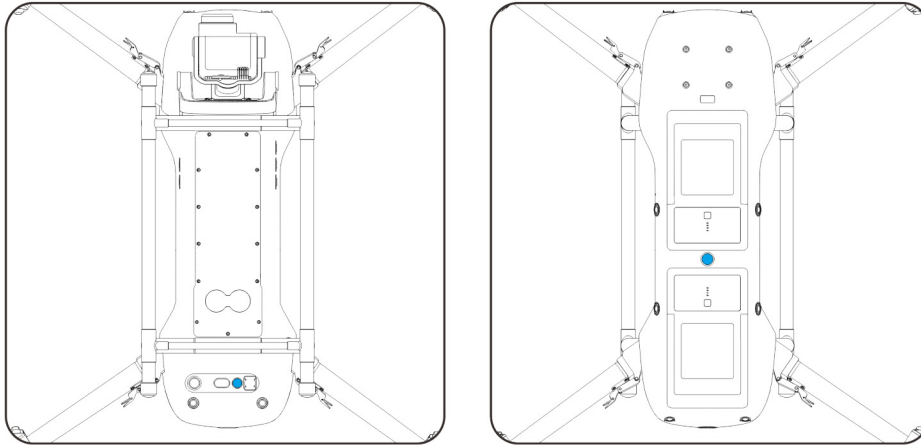
Table 3-7 Rear Arm Light Status Details

Indicator status (R: red G: green Y: yellow)	Definition
Normal	
R– Ultra-fast Blinking /Fast Blinking →Y– Fast Blinking	System Self-Test
G– Slow Blinking	Aircraft is in GNSS Mode / Visual Positioning Mode
Y– Slow Blinking	Aircraft is in ATTI mode
Calibration	
Y– Slow Blinking	Magnetometer Calibration Data Collection
G– Slow Blinking	Magnetometer Calibration Goes to the Next Step
G– Always On	Magnetometer Calibration Successful
R– Always On	Magnetometer Calibration Failed
Warning	
Y– Fast Blinking	Remote Controller Not Connected to Aircraft
R– Slow Blinking	Low battery warning/ Illegal Battery
R– Fast Blinking	Critical low battery warning
R– Always On	IMU Abnormal
RY-Alternate Slow Blinking	Magnetometer Abnormal

- Slow Blinking: blinks once every 2s (0.5s on/1.5s off).
- Fast Blinking: blinks twice per second.
- Ultra-fast blinking: blinks 5 times per second.

3.5 Strobe

The aircraft is equipped with a strobe at the top and bottom of the fuselage to help identify the aircraft when flying at night. You can manually turn the strobe on or off in the Autel Enterprise App.

**Fig 3-11 Strobe****💡 Tip**

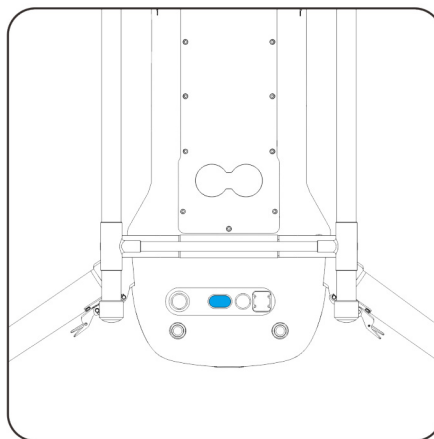
- For how to turn the strobe on or off, see [“6.4 Shortcut Toolbar”](#) and [“6.5.8 More”](#) in Chapter 6.

⚠ Warning

- Do not look directly at the strobe while they are on to avoid vision damage caused by strong light.

3.6 Auxiliary Bottom Light

The aircraft is equipped with auxiliary bottom lights (LED auxiliary lights) at the bottom of the fuselage. The lights are used to assist the downward visual sensing system when the aircraft is landing in weak light environments, so as to ensure better visual positioning performance and enhance the landing safety of the aircraft. You can manually turn the bottom LED auxiliary lights on or off in the Autel Enterprise App.

**Fig 3-12 Auxiliary Light**