Radius	next segment with set turn radius before arriving at the next waypoint.

Table 6-9 "Waypoint Mission" Icons and Details

No.	Icon	Meaning	Description
1		Waypoint Settings	Tap this icon to add a waypoint on the map as needed. Every two neighboring waypoints connect to form a flight segment and one or more flight segments form a route.
2		POI Settings	Tap this icon to add a point of interest on the map as needed.
3		Heading Switch	Tap this icon, and the starting point and ending point of the whole route will change direction.
4		Delete	When the aircraft is in waypoint setting status, tapping this icon once will delete the latest waypoint but cannot delete points of interest. When the aircraft is in POI setting status, tapping this icon once will delete the latest point of interest but cannot delete waypoints.
5		Route Centering	Tap this icon and then the route will be displayed in the center of the “Map” interface.
6		Exit	Tap this icon to exit the mission editing.
7		Clear	Tap this icon and then tap the "Confirm" button to clear all waypoints and POIs.
8		Save Route	Tap this icon, and the currently edited waypoint mission will be saved to “Mission”.
9		Edit Route	In mission library, tap this icon to edit the saved route missions.
10		Execute Mission	Tap this button, and the aircraft will enter the "Pre-flight Check" interface. After the check is completed, the aircraft will take off to perform the waypoint mission.
11		Pause Mission	When executing a waypoint mission, tap this icon, and the aircraft will pause the waypoint mission and hover at the current position.
12		Exit Mission	Tap this icon, and the aircraft will abort the current waypoint mission and automatically return.

■ Add Waypoints

Tap the "" icon, find the starting point for the mission on the map and tap it to create the first waypoint, and then repeat the previous operation to create multiple waypoints as required.

- When you are adding waypoints, the waypoint mission settings interface will pop up on the right side of the waypoint mission interface.

Tip

- A route must include at least two waypoints: a starting point ( ) and an ending point ( ).
- To set a waypoint position more precisely, you can enter the waypoint coordinates under "Waypoint Coordinates" on the waypoint settings interface.

■ Route/Waypoint Settings

Tap the "" icon at the upper-right corner of the waypoint settings interface to enter the route settings interface. Tap the waypoint icon on the right side of the waypoint settings interface to enter the corresponding waypoint settings interface.

1. Choose Gimbal and Shooting Camera

On the route setting interface, tap "Gimbal Model" drop-down list to set the type of the gimbal that executes the flight mission; select the camera lens to set the camera that executes the shooting action, which supports selection of multiple camera lens.

2. Set Route Name and Route Altitude Type

On the route settings interface, tap the "Route Name" edit box and enter the name as required to set the name of a route; tap the drop-down list of "Route Altitude Type" to select "ATL" or "MSL" as the altitude type of the entire route.

3. Set Safe Takeoff Altitude

On the route settings interface, tap the "Safe Takeoff Altitude(2-800m)" edit box to set the safe taking off height. After the aircraft is turned on and takes off, the aircraft will climb to this height and execute the flight mission according to the flight altitude set.

4. Set Flight Altitude

- On the route settings interface, tap the "Flight Altitude" edit box to set the flight altitude of the whole route.
- On the waypoint settings interface, the flight altitude is set to "Align Route" by default. After deselecting "Align Route", tap the "Flight Altitude" edit box to set the flight altitude for the whole route.

5. Set Flight Speed

- On the route settings interface, tap the "Speed" edit box to set the flight speed value of the whole route
- On the waypoint settings interface, the flight speed is set to "Align Route" by default. After deselecting "Align Route", tap the "Speed" edit box to set the flight altitude for the whole route.

Tip

- The maximum value for the flight altitude setting will be dynamically adjusted according to the altitude limit set in the "Flight Control Parameter Setting".
- After take-off, the aircraft will gradually adjust its "flight altitude" and "flight speed" to the set values while flying to this waypoint.

6. Set Yaw Angle

- On the route settings interface, tap the drop-down list of "Yaw Angle" to set the yaw angle of the aircraft in the entire route to “Route Following”, “Manual”, or “Custom”.
- On the waypoint settings interface, the yaw angle of the aircraft is set to “Align Route” by default. After deselecting “Align Route”, tap the drop-down list of "Yaw Angle" to set the yaw angle of the aircraft at the current waypoint to “Route Following”, “Manual”, “Custom”, or “Turn to Point of Interest” (the waypoint should be associated with the point of interest).

Note

- Route Following: the nose of the aircraft will follow the direction of the waypoint change.
- Manual: Users use the remote controller to control the nose direction of the aircraft during the flight.
- Custom: the aircraft nose will be adjusted according to the set yaw angle value.
- Turn to Point of Interest: If it is set to “Turn to Point of Interest”, the nose of the aircraft will always face the set POI.

7. Set Gimbal Pitch Angle

On the waypoint settings interface, tap “Gimbal Pitch Angle” edit box to set the initial gimbal pitch angle of the aircraft at the waypoint.

8. Set Finish Action

On the route settings interface, tap the drop-down list of "Finish Action" to set the flight action of the aircraft after completing the waypoint mission.

- If “Auto RTH” is selected, the aircraft will automatically return to the starting point after completing the mission.
- If “Hovering” is selected, the aircraft will hover at the end point after completing the mission.

9. Set Signal Loss Action

On the route settings interface, tap the drop-down list of "Signal Loss Action" to set the flight action of the aircraft after losing connection with the remote controller.

- If "Continue" is selected, the aircraft will continue to execute the mission and perform the "Finish Action" after completing the mission.
- If “Auto RTH” is selected, the aircraft will automatically return to the starting point.

10. Set Coordinated Turns Radius

On the waypoint setting interface, choose any waypoint except the starting point and the ending point, and set the coordinated turn radius. Tap the “Coordinated Turns Radius” edit box to set the coordinated turn radius of the waypoint selected.

11. Add a Waypoint Action

On the waypoint settings interface, tap the "Add Action +" button under “Waypoint Action” to set “Camera Action” and “Aircraft Action” for the current waypoint. You can add a maximum of 10 waypoint actions for one waypoint.

- Camera Action includes “Photo“, ”Directional Photography”, “Start Recording”, “Stop Recording”, “Gimbal pitch angle”, “Gimbal Yaw Angle”, “Zoom”, “Timelapse”, “Distance Lapse”, and “Stop Shooting”.
- Aircraft Action includes “Hovering” and “Aircraft Yaw Angle”.

Note

- If the camera action “Gimbal pitch angle” is added when setting the waypoint action, the aircraft will execute the initial pitch angle first when flying to the Waypoint, and then execute the "Gimbal pitch angle" in the camera action
- Timelapse: Take pictures continuously and periodically based on the set "photo interval" time.
- Distance shooting: Take pictures continuously and periodically based on the set "photo interval".

12. Set Waypoint Coordinates

After adding a waypoint, you can automatically obtain the longitude and latitude parameters of the waypoint. You can also manually enter and modify the longitude and latitude of the waypoint.

- Under “Waypoint Coordinates” on the waypoint settings interface, the waypoint coordinates can be set in three formats: WGS84/DD, WGS84/DMS and WGS84/MGRS. Tap the "Longitude" and "Latitude" edit boxes below and enter the longitude and latitude of the waypoint to complete the modification of the waypoint coordinates.
- When using the WGS84/DD format, you can use the arrow keys located on the right side of the editing field to make fine adjustments to the longitude and latitude.

■ Add Point of Interest

Tap the "⊛" icon, find the specific location on the map where the POI needs to be set and tap it to create the first POI, and then repeat the previous operation to create multiple POIs as required.

- When adding POIs, the POI setting interface will pop up on the right side of the waypoint mission interface.

■ Set POI

1. Set POI Altitude

Set the POI altitude in the “Altitude” box.

Tip

- POI altitude refers to the altitude of the point of interest relative to the take-off point.
- When the point of interest is higher than the waypoint, the gimbal camera cannot look at the point of interest above.

2. Set Link Waypoint

Tap the waypoints to be associated under "Link Waypoint(s)" to associate the current point of interest with the selected waypoints.

Tip
● After a waypoint is associated with a point of interest, the yaw angle of the aircraft at the waypoint will not be set to “Align Route” by default. If the “Yaw Angle” of the aircraft at the waypoint is set to “Turn to Point of Interest”, the nose of the aircraft will always face the associated point of interest.

■ Start Pre-flight Check

After the completion of all settings for a route, relevant flight mission data will be synchronously displayed at the bottom center of the waypoint mission interface, including the route length, estimated time, waypoints, and photos to be taken. Tap the “” icon on the left side to enter the "Pre-flight Check" interface.

■ Upload a Route and Start a Mission

After completing the pre-flight check, press the “Slide to takeoff” icon at the bottom of the "Pre-flight Check" interface, and the aircraft will automatically take off to execute the mission. The estimated completion time, current photo count, current altitude, current wind speed, and other basic information will be synchronously displayed at the bottom center of the waypoint mission interface. The lower-left small screen displays the current view observed by the gimbal camera. Tap to enlarge it to full screen for viewing.

When the aircraft completes the waypoint mission, the relevant flight mission data of this route will be displayed at the bottom center of the map, including the route length, estimated time, waypoint, the number of photos taken, and the number of flights.

Important
● In A-Mesh Link mode, when an aircraft (not the relay one) in the team is selected, the relay aircraft should take off in advance to ensure stable communication link path in air.

6.9.2 Polygon Mission

In the toolbar (or Shortcuts), tap the "" icon to enter the "Polygon" mission interface.

You can add a square area on the map and perform operations such as dragging, adding side boundaries, and dragging corner points to adjust the position and size of the area. After adjustments, the flight application will automatically generate a continuous series of equidistant flight routes within the polygonal area based on the side overlap and course angle settings. The aircraft will then automatically fly to execute the shooting mission according to these flight routes and relevant settings.

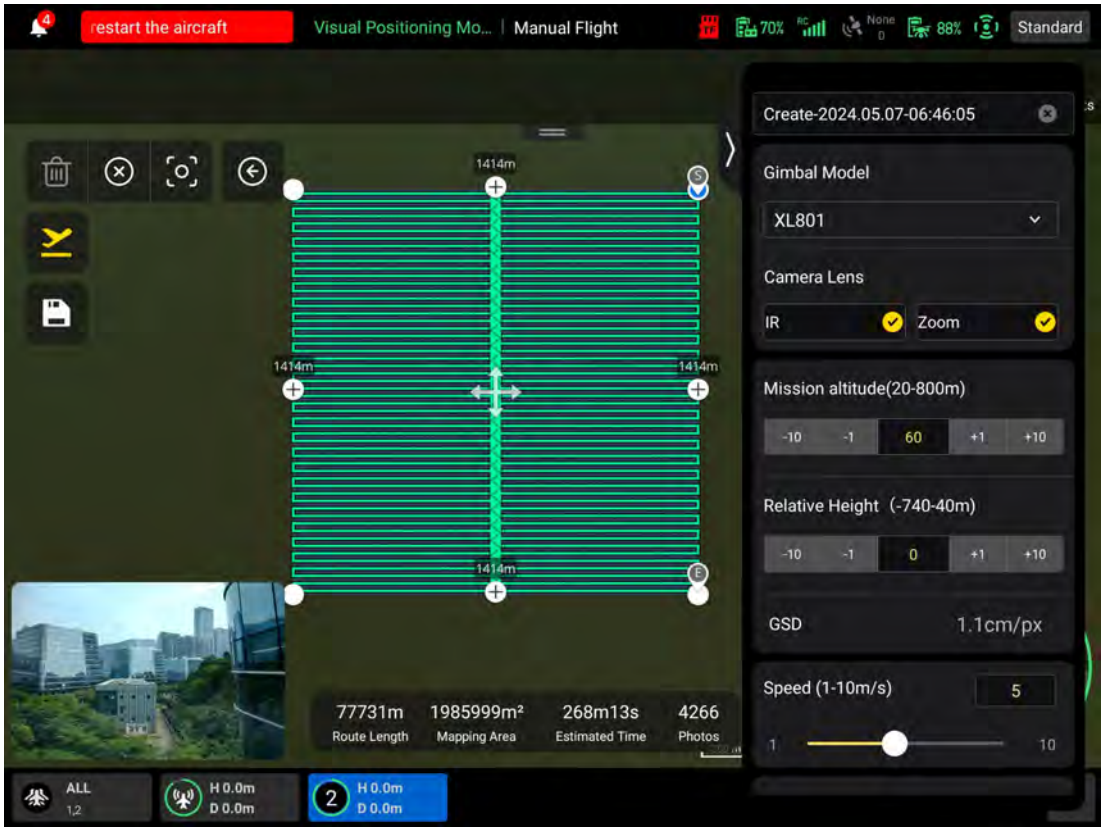

Fig 6-10 Polygon (Before taking off)

Table 6-10 "Polygon Mission" Terms and Details

Term	Definition
Relative Height	Refers to the vertical altitude of the work surface of the shot object relative to the take-off point of the aircraft.
GSD	Ground Sampling Distance.
Finish Action	Refers to the action that the aircraft will perform after completing a polygon mission.
Lost Action	Refers to the actions that the aircraft will perform when the flight application displays a warning saying “Aircraft disconnected.” during flight.
Front Overlap	Refers to the image overlap rate between two consecutive photos taken when capturing images along the flight heading.
Side Overlap	Refers to the image overlap rate between two consecutive photos taken when capturing images along two adjacent flight routes.
Main Course Angle	Refers to the course angle between the main route and the latitude line (horizontal line) when the flight routes are automatically generated.
Gimbal pitch	The observable range of the gimbal camera, that is, the angle from the top to the bottom.

Coordinated Turns	When enabled, the aircraft will switch from one main route to an adjacent main route along the optimal arc-shaped path.

Table 6-11 "Polygon Mission" Icons and Details

No.	Icon	Meaning	Description
1		Delete	Tap this icon to delete polygon point selected.
2		Clear	Tap this button, and then tap the "Confirm" button in the pop-up window to reset the polygon mission.
3		Route Centering	Tap this icon and then the route will be displayed in the center of the "Map" interface.
4		Exit	Tap this icon to exit the mission editing.
5		Save Route	Tap this icon, and the currently edited polygon mission will be saved to "Mission".
6		Edit Route	In mission library, tap this icon to edit the saved polygon mission.
7		Execute Mission	Tap this button, and the aircraft will enter the "Pre-flight Check" interface. After the check is completed, the aircraft will take off to perform the polygon mission.
8		Pause Mission	When executing a polygon mission, tap this icon, and the aircraft will pause the polygon mission and hover at the current position.
9		Exit Mission	Tap this icon, and the aircraft will abort the current polygon mission and automatically return.

■ Add a Polygonal Area

On the map of the polygon mission interface, find the center point of the mission to be executed and tap it to automatically generate a square area. You can tap the "+" icon between two white points to add side lines for the area. You can drag the white points to adjust the positions of the corner points of the polygon, which allows you to modify the area of the polygon. You can also drag the "cross arrow" in the center of the polygonal area to move the polygon.

- When adding a polygonal area, the polygon mission settings interface will pop up on the right side of the polygon mission interface.

Tip

- A polygonal area includes two waypoints, that is, the starting point (Ⓢ) and the end point (Ⓔ).

■ Mission Setting

1. Choose Gimbal and Camera Lens

Tap “Gimbal Model” drop-down list to set the model of the gimbal that executes the polygon mission; select the camera type(s) in the “Camera Lens” list to set the camera lens that execute the shooting actions. You choose one or two camera lens.

2. Set Mission Name

Tap the "Mission Name" edit box and enter the name as required to set the name of a polygon mission.

3. Set Mission Altitude and Relative Height

- Tap the "Mission Altitude (20-800m)" edit box and set the flight altitude of the polygon mission.
- The setting range of "Relative Height" will automatically be dynamically adjusted according to the flight altitude setting. Tap the “Relative Height (-740-40m)” edit box and set the relative altitude of the polygon mission.

Tip

- The maximum value for the flight altitude setting will be dynamically adjusted according to the altitude limit set in the "Flight Control Parameter Setting".
- GSD varies with different flight altitude values.

4. Set Flight Speed

Tap the "Speed" edit box and set the flight speed of the polygon mission.

5. Set Finish Action

Tap the drop-down list of "Finish Action" to set the flight action of the aircraft after completing the polygon mission.

- If “Auto RTH” is selected, the aircraft will automatically return to the starting point after completing the mission.
- If “Hovering” is selected, the aircraft will hover at the end point after completing the mission.

6. Set Signal Loss Action

Tap the drop-down list of "Signal Loss Action" to set the flight action of the aircraft after losing connection with the remote controller.

- If "Continue" is selected, the aircraft will continue to execute the mission and perform the "Finish Action" after completing the mission.
- If “Auto RTH” is selected, the aircraft will automatically return to the starting point.

7. Advanced Settings

Tap “Advanced” to enter the advanced settings interface and set the front overlap, side overlap, main course angle, and gimbal pitch angle for the polygon mission.

- If “Custom” is selected for “Course Angle”, you can adjust the angle between the main route of the polygon mission and the latitude line.

Tip
● The setting range of the front overlap and side overlap is 10%-90%, and the default value is 70%.

8. Turn On/Off Elevation Optimization

➢ If this function is turned on, the aircraft will create a route along the center point of the polygon for re-shooting after completing the shooting of the main route. This helps optimize the overall shooting accuracy of the mission.

9. Turn On/Off Double Grid

➢ If this function is turned on, the aircraft will change its heading by 90° and shoot the polygon mission area again after completing the shooting of the main route. The two routes have a 90° overlap.

10. Turn On/Off Route Extension

Due to the limited gimbal pitch angle and flight altitude, some areas on the outer edges of the polygon mission area might not be captured by the camera. In such cases, you need to turn on route extension to extend the polygon mission area so as to ensure complete coverage of the target area.

11. Turn On/Off Coordinated Turns

After this function is turned on, the aircraft will follow the optimal arc-shaped path for turns when switching from one main route to an adjacent one.

Tip
● In high-altitude missions, if there are no obstacles, it is recommended to set the obstacle avoidance mode to "Turn off".

■ Start Pre-flight Check

After the completion of all settings for a polygon mission, relevant flight mission data will be synchronously displayed at the bottom center of the polygon mission interface, including the route length, mapping area, estimated time, and photos to be taken. Tap the "  " icon on the left side to enter the "Pre-flight Check" interface.

■ Upload a Route and Start a Mission

After completing the pre-flight check, press the "Slide to takeoff" icon at the bottom of the "Pre-flight Check" interface, and the aircraft will automatically take off to execute the mission. The estimated completion time, current photo count, current altitude, current wind speed, and other basic information will be synchronously displayed at the bottom center of the polygon mission interface. The lower-left small screen displays the current view observed by the gimbal camera. Tap to enlarge it to full screen for viewing.

When the aircraft completes the polygon mission, the relevant flight mission data of this route will be displayed at the bottom center of the map, including the route length, mapping area, estimated time, the number of photos taken, and the number of flights.

Important

- In A-Mesh Link mode, when an aircraft (not the relay one) in the team is selected, the relay aircraft should take off in advance to ensure stable communication link path in air.
- In A-Mesh Link mode, when all aircrafts in the team are selected (“ALL” selected”) executes waypoint mission, each aircraft will execute one part of the polygon mission.

6.9.3 Pre-Flight Check

Before the aircraft starts to execute a mission, a pre-flight check is required. On the "Pre-flight Check" interface, you can preview the current status (such as battery level, battery temperature, and SD card memory) and route data of the aircraft and perform some settings such as flight parameters and obstacle avoidance settings.

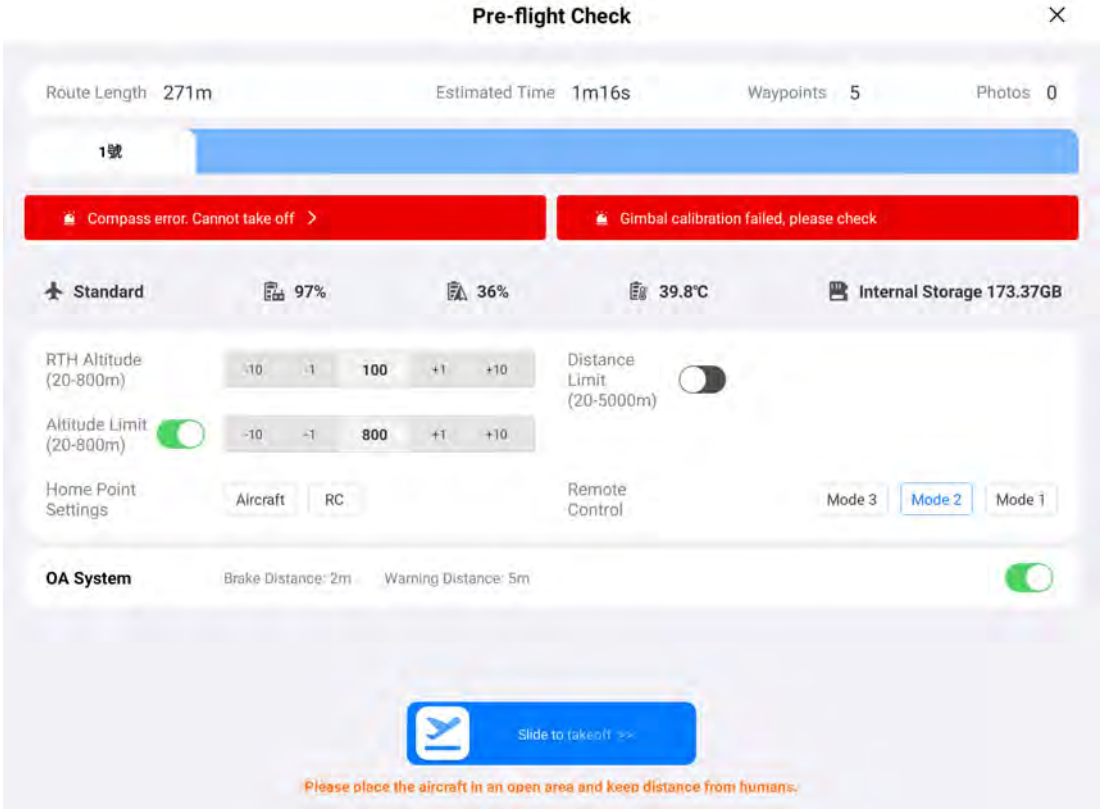

Fig 6-11 Pre-flight Check for a Flight Mission

1. On the ongoing flight mission interface, after selecting the aircraft that executes the mission, tap the "" icon on the left, and the "Pre-flight Check" interface will pop up. Please make sure that there is no fault or abnormal alarm, otherwise, you need to follow the tips to solve it.
2. Confirm aircraft status and route preview data.
3. According to different types of flight missions, set the corresponding flight parameters.
4. Choose stick modes and select to enable or disable obstacle avoidance as required.
5. After completing the above operations, press the “Slide to takeoff” icon at the bottom of the interface.

6.9.4 Resume Mission

When an abnormal situation such as an abnormal exit occurs during a flight mission, tap the " " icon to enter the "Mission" interface. This will trigger the “Resume Mission” function, and a prompt window will pop up.

■ Resume Mission Options

- Tap the "Continue" button. The position where the aircraft stopped will be displayed, and the aircraft will fly to this position to continue the last mission.
- Tap the "Cancel" button. After closing the pop-up window, the mission will no longer be executed from the last point.

6.9.5 Other Functions

Users can enable the following functions by tapping the corresponding function icon in the toolbar or toolbox. Please refer to "6.4 Toolbar" in this chapter for details.

■ Formation

In A-Mesh Link mode, this function is used to control other aircrafts in the team to fly in formation while maintaining the same course as the relay machine does.

- To execute formation flight, you must select at least two aircrafts (including the relay machine) to take off and maintain a flight altitude of at least 30 meters above the ground before enabling this function.
- After executing the formation, the controlled aircraft (not the relay machine) will fly to the relay machine according to the set horizontal interval (at least 10 meters by default), and its gimbal direction and flight heading will also be consistent with the relay machine synchronously.

Important
• When executing formation flight, please always pay attention to the quality of the image transmission signal between the relay machine and the remote controller. When the image transmission signal is poor, decrease the flight radius in a timely manner.

■ Record

The function is used to record the operation process of mission execution, and to facilitate the next repeated execution of the relevant mission process.

- After the record function is enabled, the user needs to successfully execute the task once by controlling the aircraft, including controlling the aircraft to the mission point, and manually controlling the gimbal direction and taking pictures.
- After the mission is completed, end the recording, and a mission will be automatically generated in the mission library. The user can choose to execute the task to repeat the operation.

■ Quick Mission

Quick missions belong to temporary missions. During the flight, when the users enable the quick mission, they can mark a quick mission point on the map interface, and the aircraft will execute "Direction” and fly to the mission point.

■ Modeling Surround

After modeling surround is enabled, the aircraft will automatically circle around the current position, flying clockwise at a certain distance, and shooting at the target directly below the center point, so as to collect images of the mission location from all directions.

Important

- Modeling surround can be used with the stitch function for modeling of the target at the mission location.

■ Stitch

Stitch can be used to build real-time models with photos taken during aircraft flight.
During the flight, the photos taken by the aircraft will be sent to the remote controller through the image transmission link, and then pushed to the computer device with Autel Mapper client for map modeling. After the modeling is completed, the relevant map model will be displayed synchronously on the map interface of the remote controller, ensuring that the latest 2D map model of the photographed location is obtained in real time during the flight.
To use the stitch function, you need to perform the following configurations in advance:

1. Connect the remote controller and the computer device with Autel Mapper Client to a same Wi-Fi; or turn on the WLAN hotspot function of the remote controller, and then connect the computer device with Autel Mapper client to the WLAN hotspot of the remote controller.
2. Enable the stitch function in the flight application, and enter the IP address of the computer device in the pop-up window. After the computer device is added successfully, the connection between the remote controller and the Autel Mapper client is completed.
3. When the connection is completed, the Autel Mapper client will pop up a prompt to create a project. Please follow the prompts to complete the creation.
4. Select "Polygon" or "Modeling Surround" on the remote controller, and when the mission is executed, Autel Mapper will complete 2D modeling based on the returned photos and synchronize it to the remote controller, thereby displaying the updated map model on the map interface.

Important

- To ensure the modeling speed, please ensure that the computer device (we recommend choosing a high-performance mobile computer device with an NVIDIA graphics card of computing capability 6.0 or higher) meets the hardware requirements of Autel Mapper client.
- Please ensure a normal connection between the remote controller and the computer device to avoid abnormal interruption of the stitch feature.

6.9.6 Mission Library

Tap the "" icon in the toolbar or shortcuts to enter the "Mission" interface where you can query, edit, favorite, and delete previously saved flight missions.

1. Tap the "" icon or the "" icon at the interface to query and locate the history mission that you are interested in.

2. Tap a saved flight mission on the “Mission” interface to enter the waypoint mission editing interface. Tap the “” icon to edit the flight mission.
3. Tap the “” icon at the upper right corner of the interface, and select one, or many or all missions to be favorited, and then tap the “” icon to complete the favoriting action. Favorited missions will be displayed on the "Favorites" interface for easy access.
4. Tap the “” icon at the upper right corner of the interface, and select one, or many or all missions to be deleted, then tap the “” icon, and tap “Confirm” button to delete the mission(s) selected.
5. Tap the “” icon at the upper right corner of the interface, and select one, or many or all missions to be exported, then tap the “” icon and tap “Confirm” button to export the mission(s) selected into the storage directory selected.

6.9.7 Personal Center

Tap the “” icon (in the toolbar or Shortcuts) to enter the "Personal Center" interface.
When using the product for the first time, you need to register and log in to Autel Robotics cloud service account.
On the “Personal Center” interface, you can perform the following operations:
1. Query the flight time, flight distance, and the number of flights.
2. Purchase the value-added service for your aircraft (within 48 hours after activation).

Tip

- If you do not register and log in to the cloud service account, you cannot use cloud-related functions.
- You have the right to use a registered account, but the account ownership belongs to Autel Robotics. Please read the "User Agreement" carefully when registering.

Chapter 7 Firmware Updates and Maintenance

In order to ensure the overall reliability and the safety of the UAS system, so as to provide the best flight experience for users, the UAS components need to be upgraded to the latest firmware version and maintained as required on regular basis.
Users can use the flight application to perform firmware updates for the aircraft, the remote controller, the smart battery, the gimbal, the flight application and other parts.

Important
• Online updates require that the remote controller can access the internet.

7.1 UAS Components Updates

1. Power on the remote controller and aircraft. Make sure that the aircraft and remote controller are already matched, both have a battery level of more than 25%, and the network connection of the remote controller is normal.
2. Open the flight application. If there is a version upgrade available, you will receive a pop-up notification on the main interface of the App or you can manually select the upgrade in the settings of the App.
3. Tap "Update All", and the flight application will automatically download upgrade package and conduct version update for the aircraft, the remote controller, the smart battery, the gimbal, and the flight application.
4. After the update is completed, follow the pop-up instructions to restart the remote controller and the aircraft.

Important
• During the update process, do not power off the aircraft and keep it connected to the remote controller. • The update process is expected to take about 15 minutes (depending on the network that the remote controller is connected to). • Do not move the sticks before and after the update to ensure that the propellers of the aircraft remain stationary. • Make sure that the aircraft has a micro SD card inserted and that the aircraft and remote controller have sufficient storage space for the firmware update packages.

7.2 Aircraft Parts Maintenance

To ensure the optimal performance of the aircraft, regular maintenance is required for the aircraft parts. For more information, see “Maintenance Manual”. If you have any questions, please contact Autel Robotics After-Sales Support.

Table 7-1 Aircraft Consumable Parts List

No.	Part	Quantity	Note
1	Propeller CW	2	Each power motor uses 2 CW or CCW propellers.
2	Propeller CCW	2	
3	Powered Motor	4	Replacement only during deep maintenance (every 900 service hours/every 3 years).
4	Front Arm Leg	2	
5	Rear Arm Leg	2	
6	Arm Connector Cover	4	
7	Battery Unlock Button	2	
8	Air Inlet Dust Filter	1	
9	Air Outlet Dust Filter	1	
10	Remote Controller Sticks	2	

Table 7-2 User-replaceable Parts List

No.	Part	Quantity	Part Number	Manufacturer
1	Propeller CW	2	EAN: 6924991133506 UPC: 889520213509	Autel Robotics
2	Propeller CCW	2		
3	Fusion 4T Gimbal*	1	EAN: 6924991122265 UPC: 889520202268	Autel Robotics
4	Fusion 4T XE Gimbal*	1	EAN: 6924991129677 UPC: 889520209670	Autel Robotics
5	Fusion 4N Gimbal*	1	EAN: 6924991124238 UPC: 889520204231	Autel Robotics
6	ABX40 Smart Battery	1	EAN: 6924991124412 UPC: 889520204415	Autel Robotics
7	ABX41 Smart Battery	1	EAN: 6924991132349 UPC: 889520212342	Autel Robotics

Tip

- You can independently contact Autel Robotics to purchase the aforementioned parts and follow the operation instructions for replacement.
- If the part that you want to replace is not listed in the above lists, please contact Autel Robotics. Failures caused by unauthorized disassembly and reassembly will not be covered by the warranty.
- For the service life of each part, see "Maintenance Manual".

7.3 Troubleshooting Guide

Tip

- The following troubleshooting measures are only limited to failures resulting from normal usage.
- For failures resulting from abnormal usage, please contact Autel Robotics for handling.

1. The remote controller cannot power on:
   - Check whether the remote controller has sufficient power. If the battery level is too low, it may result in a power-on failure after shutdown. In this case, fully charge the remote controller and then power it on.
   - Check whether the ambient temperature is suitable, as low temperatures can affect battery output performance, resulting in a power-on failure.
   - If the remote controller was accidentally powered off during an update, it may not power on normally. In this case, contact Autel Robotics.
   - If the remote controller has not been subjected to external impacts, liquid submersion, or other destructive behaviors and does not have any conditions mentioned above, it may have a hardware failure. In such cases, contact Autel Robotics.

2. The aircraft cannot power on:
   - Check whether the smart battery has sufficient power. If the battery level is too low, it may result in a power-on failure after shutdown. In this case, fully charge the smart battery and then power the aircraft on.
   - If the smart battery has sufficient power, check whether the battery makes proper contact with the aircraft's fuselage. Dirt or rust at the battery connector can lead to poor contact and must be cleaned before being re-inserted into the battery for power-on.
   - Check whether there are any missing or damaged metal contacts at the aircraft battery connector and the smart battery connector. If yes, please contact Autel Robotics.
   - Check whether the ambient temperature is suitable, as low temperatures can affect battery output performance, resulting in a power-on failure.
   - If the aircraft or the smart battery is unexpectedly powered off during a firmware update, it may result in a power-on failure. In this case, contact Autel Robotics.
   - When none of the above conditions apply, if the aircraft can power on after the smart battery is replaced, it may be a hardware failure of the smart battery; if the aircraft still cannot power on after the smart battery is replaced, it may be a hardware failure of the aircraft itself. In this case, contact Autel Robotics.

3. The aircraft reports a fault during startup self-check:
   - Check the gimbal. If the gimbal has no response, power off the aircraft, reassemble the gimbal, and then perform a startup self-check again.
   - If the gimbal successfully passes the self-check, but the aircraft still reports a fault, it may be a hardware failure of the aircraft. In this case, contact Autel Robotics.

4. There is no response from the remote controller when matching it with the aircraft:
   - Confirm that the distance between the aircraft and the remote controller is within 1 meter.
   - Check whether there is a metal object, mobile device, signal interference device, or another remote controller nearby.

5. In multi-aircraft matching, the aircraft cannot trigger matching operation:
   - If Single Link can be conducted, the firmware version of the smart battery is too early, which needs to be upgraded to V0.4.29.1 or later.
   - If Single Link cannot be conducted, please contact Autel Robotics.
   - Early Version Smart Battery Firmware Upgrade Method: Insert the battery into the aircraft and turn it on, after connecting the RC through Single Link, reboot the aircraft and the RC and upgrade them by following instructions in the interface.

6. After the aircraft powers on, the motors do not start:
   - Check whether the remote controller is matched with the aircraft in frequency.
   - Check whether the command sticks of the remote controller are functioning correctly and whether the remote controller has been correctly calibrated.
   - Check whether the aircraft's battery has sufficient power.
   - Check whether the aircraft's compass has been correctly calibrated.
   - If none of the above conditions apply, it may be a hardware failure of the aircraft itself. In this case, contact Autel Robotics.

7. After the motors start, the aircraft does not take off:
   - Check whether the aircraft is in a No-Fly Zone.
   - Check whether the aircraft is placed on a flat surface.
   - Check whether there are obstacles near the aircraft and whether the obstacle avoidance system of the aircraft is enabled.

8. The aircraft has shortened flight time:
   - During flight, factors such as low ambient temperatures, flying against the wind, air turbulence, and carrying a mount all may lead to a shortened operating time of the aircraft.
   - Make sure that the smart battery has fewer than 200 cycles. During the normal use of the smart battery, the battery capacity naturally decreases over time.

9. The remote controller has unstable image transmission (e.g., image lag, image loss, or frequent disconnection):
   - Check whether the remote controller's antennas are securely connected and whether they are adjusted to an appropriate direction.
   - Check whether there is any strong magnetic field or signal interference source near the aircraft and remote controller.

- Confirm that the distance between the aircraft and the remote controller falls within the effective communication range and promptly reduce the flight radius if needed.

10. The gimbal camera automatically turns off during recording:
    - Do not immediately remove the microSD card from the aircraft. Instead, restart the camera and wait for the video file to be stored as much as possible.
    - Check whether the memory of the microSD card is full; if it is, replace it with a new microSD card or transfer the media files.
    - Check whether the gimbal camera is securely connected to the aircraft. If the gimbal camera is not securely locked during installation, it may become loose due to flight vibrations, leading to poor contact and thus malfunctions.

11. When the aircraft is flying beyond the visual line of sight, image transmission fails:
    - Enable auto-return to let the aircraft return to the home point.

12. What precautions should I follow when using the omnidirectional visual obstacle avoidance sensing system?
    - Before flying, make sure that the visual obstacle avoidance camera lens is clean and not blocked (“Omnidirectional” means that the system can sense objects in six directions, including front, rear, left, right, up, and down).
    - When flying, pay attention to the surrounding environment and safety prompt messages of the flight application.
    - Obstacles can be detected by checking the texture of their surfaces. The detection function cannot work properly for objects with no texture, repeated texture, a surface of pure color, moving objects, or tiny objects. It also cannot work properly in a strong light or weak light environment.

13. The accurate landing/landing protection function cannot work properly:
    - The accurate landing function can be implemented by the visual obstacle avoidance sensing lens group on the rear of the aircraft. The camera detects the ground texture when the aircraft takes off or lands.
    - However, if the ground does not have any texture or the visual sensing lens on the rear of the aircraft is damaged, this function cannot work properly.

14. The omnidirectional visual obstacle avoidance sensing system cannot work properly:
    - Restart the aircraft and check whether the system can work properly this time.
    - Check whether the ambient light illuminance is suitable for the operation of the visual obstacle avoidance sensing system.

15. When recording video during flight, the image tilts:
    - Place the aircraft horizontally and keep it stationary. Use the "Gimbal Calibration" function in the flight application to calibrate the gimbal.
    - If the problem persists, adjust the gimbal according to the instructions described in the “Gimbal Adjustment” section.
16. The camera lens of the aircraft is dirty:
    - Gently wipe the lens with a lens cleaning cloth. It is recommended to use the lens cleaning cloth provided in the rugged case.

17. The aircraft or remote 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.

18. Restore the factory setting of the remote controller:
    - Tap the "Maxitools" app on the main interface of the remote controller to perform a factory reset. Please back up important data before performing this operation.

19. Forcefully restart the remote controller after lag:
    - Press and hold the power button on the top of the remote controller for more than 6 seconds to forcefully power off the remote controller.
    - Restarting the remote controller during flight will trigger the lost action of the aircraft.

Appendix A Product Specifications

A.1 Aircraft

Aircraft	
EVO Max 4T Weight	1645 g (ABX40 smart battery, Fusion 4T Gimbal, and propellers included)
EVO Max 4N Weight	1665 g (ABX40 smart battery, Fusion 4N Gimbal, and propellers included)
EVO Max 4T XE Weight	1635 g (ABX40 smart battery, Fusion 4T XE Gimbal, and propellers included)
EVO Max Series Multi-rotor Drone Maximum Take-Off Mass (MTOM)	1999 g 1890 g (for C2 Certification in EU)
Fuselage Dimensions	563×657×147 mm (unfolded, incl. propellers) 318×400×147 mm (unfolded, excl. propellers) 257×145×131 mm (folded, excl. propellers)
Diagonal Wheelbase	Diagonal: 467 mm
Propeller Model	1136 (EOD), 1158 (Replacing 1136)
Propeller Size	11 inch
Propeller Screw Pitch	1136: 3.6 inch; 1158: 5.8 inch
Propeller Material	1136: Nylon + Glass Fiber; 1158: Nylon + Carbon Fiber
Propeller Weight	1136: 10.8 g; 1158: 10.3 g
Maximum Propeller Rotational Speed	1136: 8000 RPM; 1158: 7500 RPM
Maximum Ascent Speed	Slow: 3 m/s Smooth: 5 m/s Standard: 6 m/s Ludicrous: 8 m/s
Maximum Descent Speed	Slow: 3 m/s Smooth: 5 m/s Standard: 6 m/s Ludicrous: 6 m/s

Maximum Horizontal Flight Speed (Windless Near Sea Level)	Slow: 3 m/s Smooth: 10 m/s Standard: 15 m/s (forward & backward), 10 m/s (sidewards) Ludicrous: 23 m/s (forward), 18 m/s (backward), 20 m/s (sidewards)
Maximum Service Ceiling Above Sea Level	4000 meters (use ABX40 smart battery); 3000 meters (use ABX41 smart battery).
Maximum Flight Altitude	Chinese Mainland or EU Laws: No more than 120 meters US Law: No more than 400 feet Note: The altitude can be set from 0 to 800 meters in the flight application Autel Enterprise. To set altitude higher than required by law, authority approval is required.
Maximum Flight Time	42 minutes (Test data from lab with windless environment in the speed of 10 m/s during horizonal flight and only for reference)
Maximum Range	25 km
Maximum Hovering Time	38 minutes (Test data from lab with windless environment during hovering and only for reference)
Maximum Wind Resistance	12 m/s
Maximum Tilt Angle	Slow: 10° Smooth: 30° Standard: 30° Ludicrous: 36°
Maximum Angular Velocity	Pitch axis: 300°/s Heading axis: 120°/s
Operating Temperature	-20°C to 50°C
Hot-swappable Batteries	Supported
IP Rating	IP43* (Custom service)
Internal Storage	128GB internal storage, with 64GB of available space* (Remaining available space will vary with different firmware versions)
Strobe	Integrated
GNSS	GPS+Galileo+BDS+GLONASS

Hovering Accuracy	Vertically ±0.1 m (when visual positioning works normally) ±0.5 m (when GNSS works normally) Horizontally ±0.3 m (when visual positioning works normally) ±0.5 m (when high-precision positioning system works normally)
Wi-Fi Protocol	802.11a/b/g/n/ac/ax
Wi-Fi Operating Frequency	2.4G：2.400–2.476GHz*，2.400–2.4835GHz 5.2G：5.15-5.25GHz**，5.17-5.25GHz*** 5.8G：5.725-5.829GHz*，5.725-5.850GHz *Only applies to SRRC regions ** Only applies to FCC, CE (Germany excluded) and UKCA regions *** Only applies to Germany Note: Some frequencies are only applicable in some regions or only used in door. For details, please refer to local laws and regulations.
Wi-Fi Effective Isotropic Radiated Power (EIRP)	2.4G: ≤30dBm (FCC/ISED); ≤20dBm (CE/SRRC/UKCA) 5.2G: ≤30dBm (FCC); ≤23dBm (CE/UKCA) 5.8G: ≤30dBm (FCC/ISED/SRRC); ≤14dBm (CE/UKCA)
Image Transmission	
Operating Frequency	900M: 902-928MHz* 2.4G: 2.400–2.476GHz**, 2.400–2.4835GHz 5.2G: 5.15-5.25GHz***, 5.17-5.25GHz**** 5.8G: 5.725-5.829GHz**, 5.725-5.850GHz * Only applicable to FCC and ISED regions. ** Only applicable to SRRC regions. *** Only applicable to FCC, CE (Germany excluded) and UKCA regions **** Only applies to Germany Note: Some frequencies are only applicable in some regions or only used in door. For details, please refer to local laws and regulations.
Maximum Transmission Distance (Without Interference and Blocking)	FCC: 15km CE: 8km

Effective Isotropic Radiated Power (EIRP)	900M: ≤30dBm (FCC/ISED) 2.4G: ≤30dBm (FCC/ISED); ≤20dBm (CE/SRRC/UKCA) 5.2G: ≤30dBm (FCC); ≤23 dBm (CE/UKCA) 5.8G: ≤30dBm(FCC/ISED/SRRC); ≤14dBm(CE/UKCA)
Visual Obstacle Avoidance Sensing System	
Sensing Range	Forward: 0.5 - 31 m Backward: 0.5 - 25 m Sidewards: 0.5 - 26 m Upward: 0.2 - 26 m Downward: 0.3 - 23 m
FOV	Forward & Backward: 60°(H), 80°(V) Upward: 180° (sidewards), 120° (forward & backward) Downward: 180° (sidewards), 120° (forward & backward)
Operating Environment	Forward, backward, sidewards, and upward: The surface has rich textures, under a sufficient lighting environment (>15 lux, normal indoor fluorescent lighting environment). Downwards: The surface is a diffuse material with a reflectivity >20% (walls, trees, humans, etc.), under a sufficient lighting environment (>15 lux, normal indoor fluorescent lighting environment).
Millimeter-Wave Radar Sensing System	
Operating Frequency	60G: 60 - 64 GHz 24G: 24.0 - 24.25 GHz
Effective Isotropic Radiated Power (EIRP)	60G: ≤20dBm (CE/UKCA/FCC) 24G: ≤20mW (SRRC)
Sensing Range	60G millimeter-wave radar: Upward: 0.3 - 20 m Downward: 0.15 - 80 m Forward & Backward: 0.3 - 50 m 24G millimeter-wave radar:

	Downward: 0.8 - 12 m
FOV	Horizontal (6dB): ±60°/±22° (60 GHz/24 GHz) Vertical (6dB): ±30°/±20° (60 GHz/24 GHz)
Operating Environment	60 GHz millimeter-wave radar sensing system: Supports all-weather obstacle avoidance for glass, water, wires, buildings, and trees in 4 directions. Its obstacle avoidance distance varies with the obstacle's ability to reflect electromagnetic waves and its surface size. 24 GHz millimeter-wave radar sensing system: Supports downward sensing, and its sensing range varies by the ground material. For example, the sensing range of cement ground is 12 meters, and the sensing range of grass with a thickness of more than 3 cm is less than 6 meters.
Aircraft Version Limitations*	To comply with (national) regional regulations, certain aircraft versions use a 24 GHz millimeter-wave radar in the downward direction and use 60 GHz radars in the forward, backward, and upward directions. In the 24 GHz aircraft version, the 60GHz radars in the forward, backward, and upward directions are disabled in the flight software at the factory, and only the 24GHz radar in the downward direction is enabled to assist in landing. The 24 GHz aircraft version only supports visual obstacle avoidance under good lighting conditions and does not support millimeter-wave radar obstacle avoidance at night.
Radar and visual obstacle avoidance sensing systems	
Sensing Range	Forward & Backward: 0.3 - 50 m Sidewards: 0.5 - 26 m Upward: 0.2 - 26 m Downward: 0.15 - 80 m (60GHz millimeter-wave radar)
FOV	Forward & Backward: 120°(H), 80°(V) Upward: 180° (sidewards), 120° (forward & backward) Downward: 180° (sidewards), 120° (forward & backward)
Operating Environment	Forward, backward, upward, and downward: Supports all-weather obstacle avoidance for various conditions, including water, forests, buildings and high voltage lines. At least one of the two conditions should be met: sufficient lighting or the obstacle has a strong reflection ability to electromagnetic waves. Sidewards: The surface has rich textures, under a sufficient lighting environment (>15 lux, normal indoor fluorescent lighting

	environment).

A.2 Gimbal

A.2.1 Fusion 4T

Zoom Camera	
Image Sensor	1/2" CMOS. Effective pixels: 48M
Lens	Focal length: 11.8 - 43.3 mm 35 mm equivalent focal length: 64 - 234 mm Aperture: F2.8 - F4.8 Focusing distance: 2 m ~ ∞
ISO Range	Auto: ISO100 – ISO6400 Manual: ISO100 - ISO6400
Shutter Speed	Shooting: 1/8s ~ 1/10000s Recording: 1/30s ~ 1/10000s
Digital Zoom	2.7 - 10x continuous optical zoom, 20x hybrid zoom and 160x digital zoom; linked zoom
Photo Size	JPG: 4000×3000, 8192×6144 DNG: 4000×3000
Video Resolution	4000×3000 P30
Video Format	MP4
Video Encoding	H.264/H.265
Supported File Systems	exFAT/FAT32
Wide Angle Camera	
Image Sensor	1/1.28" CMOS. Effective pixels: 50M
Lens	DFOV: 85° Focal length: 7 mm Equivalent focal length: 23 mm Aperture: F1.9 AF motor: PDAF + CDAF Focusing distance: 0.5 m ~ ∞
ISO Range	Auto/Manual: ISO100 - ISO6400

	Night Mode: ISO100 – ISO32000 (auto)
Shutter Speed	Shooting: 8s ~ 1/10000s Recording: 1/30s ~1/10000s
Photo Size	JPG: 4000×3000, 8192×6144 DNG: 4096×3072
Video Resolution	4000×3000 P30 Night Mode: 2400×1800 P30
Video Format	MP4
Video Encoding	H.264/H.265
Supported File Systems	exFAT/FAT32
Infrared Thermal Imaging Camera	
Image Sensor	Uncooled VOx Microbolometer
Lens	FOV: 42° Focal length: 13 mm Aperture: F1.2 Focusing distance: 6 m ~ ∞
Sensitivity	≤50mK@F1.0, 25°C
Pixel Pitch	12um
Wavelength	8 - 14um
Radiometric Measurement Method	Center temperature measurement/Pot temperature measurement/Area temperature measurement
Radiometric Temperature Range	-20°C to 150°C (high gain mode); 0 to 550°C (low gain mode)
Radiometric Measurement Accuracy	±3°C or reading ±3% (using the larger value) @ ambient temperature ranges from -20°C to 60°C
Accurate Temperature Measurement Distance	1 ~ 25 m
Digital Zoom	1-16x digital zoom, and linked zoom supported
Temperature Alert	In area temperature measurement, high and low temperature alarm thresholds, reporting coordinates and temperature values are supported
Palette	White Hot/Black Hot/Ironbow/Rainbow/Rainbow

	HC/Lava/Arctic/Searing/Gradation/Heat Detection
Photo Size	640×512
Photo Format	JPG (the images contain temperature information and are parsed by dedicated SDK and PC tools)
Video Resolution	640×512@25FPS
Video Format	MP4
Laser Rangefinder	
Wavelength	905 nm
Measurement Accuracy	± (1 m + D×0.15%) where D is the distance to a vertical reflecting plane
Measuring Range	5 - 1200 m
Gimbal	
Mechanical Range	Pitch: -135° to 45° Roll: -45° to 45° Yaw: -45° to 45°
Controllable Range	Pitch: -90° to 30°
Stability System	3-axis mechanical gimbal (pitch, roll, yaw)
Max Control Speed (Pitch)	100°/s
Angular Vibration Range	<0.005°

A.2.2 Fusion 4N

Night Vision Camera	
Image Sensor	2.3M effective pixels
Lens	DFOV: 52°±2° Effective Focal length: 11.2 mm Aperture: F1.4 AF Motor: FF Manual focusing distance: 10 m ~ ∞
Zoom	1 ~ 8x digital zoom. Linked zoom is supported.

Pixel Pitch	12um
ISO Range	Auto/Manual: ISO100 – ISO440000 Night Mode: ISO100 - ISO440000 (Auto)
Shutter Speed	Shooting: 8s ~ 1/10000s Recording: 1/30s ~ 1/10000s
Photo Size	1920×1200
Photo Format	JPG
Video Resolution	1920×1200 P30
Video Format	MP4
Video Encoding	H.264/H.265
Supported File Systems	exFAT/FAT32
Wide Angle Camera	
Image Sensor	1/1.28" CMOS. Effective pixels: 50M
Lens	DFOV: 85° Focal length: 7 mm Equivalent focal length: 23 mm Aperture: F1.9 AF motor: PDAF + CDAF Manual focusing distance: 0.5 m ~ ∞
ISO Range	Auto/Manual: ISO100 - ISO6400 Night Mode: ISO100 – ISO320000 (auto)
Shutter Speed	Shooting: 8s ~ 1/10000s Recording: 1/30s ~ 1/10000s
Photo Size	4000×3000, 8192×6144
Photo Format	JPG
Video Resolution	4000×3000 P30
Video Format	MP4
Video Encoding	H.264/H.265
Supported File Systems	exFAT/FAT32
Infrared Thermal Imaging Camera	

Image Sensor	Uncooled VOx Microbolometer
Lens	FOV: 61° Focal length: 9.1 mm Aperture: F1.0 Focusing distance: 2.2 m ~ ∞
Sensitivity	≤50mK@F1.0, 25°C
Pixel Pitch	12um
Wavelength	8-14um
Radiometric Measurement Method	Center temperature measurement/Pot temperature measurement/Area temperature measurement
Radiometric Temperature Range	-20°C to 150°C (high gain mode); 0 to 550°C (low gain mode)
Radiometric Measurement Accuracy	±2°C or reading ±2% (using the larger value) @ ambient temperature ranges from -20°C to 60°C
Accurate Temperature Measurement Distance	1 ~ 25 m
Digital Zoom	1-16x digital zoom and link zoom is supported
Temperature Alert	In area temperature measurement, high and low temperature alarm thresholds, reporting coordinates and temperature values are supported
Palette	White Hot/Black Hot/Ironbow/ Rainbow 1/Rainbow 2/Ironbow/Lava/Arctic/Medical/Tint
Photo Size	640×512
Photo Format	JPG (the images contain temperature information and are parsed by dedicated SDK and PC tools)
Video Resolution	640×512 P30
Video Format	MP4
Laser Rangefinder	
Wavelength	905 nm
Measurement Accuracy	± (1 m + D×0.15%) where D is the distance to a vertical reflecting plane
Measuring Range	5 - 1200 m

Gimbal	
Mechanical Range	Pitch: -135° to 45° Roll: -50° to 50° Yaw: -45° to 45°
Controllable Range	Pitch: -90° to 30°
Stability System	3-axis mechanical gimbal (pitch, roll, yaw)
Max Control Speed (Pitch)	100°/s
Angular Vibration Range	<0.005°

A.2.3 Fusion 4T XE

Zoom Camera	
Image Sensor	1/2" CMOS. Effective pixels: 48M
Lens	DFOV: 40°-10.3° Focal length: 11.8 - 43.3 mm 35 mm equivalent focal length: 64 - 234 mm Aperture: F2.8 - F4.8 AF Motor: PDAF+CDAF Focusing distance: 2 m ~ ∞
ISO Range	Auto: ISO100 – ISO6400 Manual: ISO100 - ISO6400
Shutter Speed	Shooting: 8s ~ 1/10000s Recording: 1/30s ~ 1/10000s
Digital Zoom	2.7 - 10x continuous optical zoom, 20x hybrid zoom and 160x digital zoom; linked zoom
Photo Size	JPG: 4000×3000, 8000×6000 DNG: 4000×3000
Video Resolution	4000×3000 P30
Video Format	MP4
Video Encoding	H.264/H.265
Supported File Systems	exFAT/FAT32
Wide Angle Camera	

Image Sensor	1/2" CMOS. Effective pixels: 48M
Lens	DFOV: 83.4° Focal length: 4.49 mm Equivalent focal length: 24 mm Aperture: F2.8 AF motor: FF Focusing distance: 1.5 m ~ ∞
ISO Range	Auto/Manual: ISO100 - ISO6400 Night Mode: ISO100 – ISO32000 (auto)
Shutter Speed	Shooting: 8s ~ 1/10000s Recording: 1/30s ~ 1/10000s
Photo Size	JPG: 4000×3000, 8192×6144 DNG: 4096×3072
Video Resolution	4000×3000 P30 Nighttime: 2400×1800 P30
Video Format	MP4
Video Encoding	H.264/H.265
Supported File Systems	exFAT/FAT32
Infrared Thermal Imaging Camera	
Image Sensor	Uncooled VOx Microbolometer
Lens	FOV: 61° Focal length: 9.1 mm Aperture: F1.0 Focusing distance: 2.2 m ~ ∞
Sensitivity	≤50mK@F1.0, 25°C
Pixel Pitch	12um
Wavelength	8 - 14um
Radiometric Measurement Method	Center temperature measurement/Pot temperature measurement/Area temperature measurement
Radiometric Temperature Range	-20°C to 150°C (high gain mode); 0 to 550°C (low gain mode)
Radiometric Measurement Accuracy	±2°C or reading ±2% (using the larger value) @ ambient temperature ranges from -20°C to 60°C

Accurate Temperature Measurement Distance	5 m
Digital Zoom	1-16x digital zoom, and link zoom supported
Temperature Alert	In area temperature measurement, high and low temperature alarm thresholds, reporting coordinates and temperature values are supported
Palette	White Hot/Black Hot/Ironbow/Rainbow 1/Rainbow 2/Lava/Arctic/Ironbow/Medical/Tint
Photo Size	640×512
Photo Format	JPG (the images contain temperature information and are parsed by dedicated SDK and PC tools)
Video Resolution	640×512 P30
Video Format	MP4
Laser Rangefinder	
Wavelength	905 nm
Measurement Accuracy	± (1 m + D×0.15%) where D is the distance to a vertical reflecting plane
Measuring Range	5 - 1200 m
Gimbal	
Mechanical Range	Pitch: -135° to 45° Roll: -45° to 45° Yaw: -45° to 45°
Controllable Range	Pitch: -90° to 30°
Stability System	3-axis mechanical gimbal (pitch, roll, yaw)
Max Control Speed (Pitch)	100°/s
Angular Vibration Range	<0.005°

A.3 Remote Controller

Autel Smart Controller V3

Material	PC+ABS
Dimensions	269×189×87 mm (antennas folded, sticks and bracket included) 269×189×173 mm (antennas vertical to screen, sticks and bracket included) 269×302×87 mm (antennas unfolded, sticks and bracket included)
Weight	1194 g (protective case excluded) 1365 g (protective case included)
Operating Temperature	-20°C to 40°C
Storage Temperature	+15°C ~ +25°C (within a year) 0°C ~ +30°C (within three months) -20°C ~ +45°C (within a month)
Protection Rating	IP43
Internal Storage	128GB
microSD Extension	Not supported
Operating System	Based on Android 11
Application Installation	Supports the installation of third-party Android apps
Video Performance	4K@24FPS H.264/H.265 video smooth play
HDMI	Outputs up to 1080P@60FPS video
USB-C	Charging: supports PD 60W fast charging and QC 18W fast charging. Data: USB3.1 Gen2
USB-A	Charging: 5V/2A Data: USB2.0
GNSS	GPS+Galileo+BDS+GLONASS
Wi-Fi Protocol	802.11a/b/g/n/ac
Wi-Fi Operating Frequency	2.4G: 2.400–2.476GHz*, 2.400–2.4835GHz 5.8G: 5.725-5.829GHz*, 5.725-5.850GHz *Only applies to SRRC region Note: Some frequencies are only applicable in some regions or only used in door. For details, please refer to local laws and regulations.
Wi-Fi Effective Isotropic	2.4G:

Radiated Power (EIRP)	≤30dBm (FCC/ISED); ≤20dBm (CE/SRRC/UKCA) 5.8G: ≤30dBm (FCC/ISED/SRRC); ≤14dBm (CE/UKCA)
Bluetooth	Bluetooth 5.0
Bluetooth Operating Frequency	2.400 - 2.4835 GHz Note: In some regions, frequency range is specified. For details, please refer to local laws and regulations
Bluetooth Effective Isotropic Radiated Power (EIRP)	≤20dBm
Image Transmission	
Antenna	Dual antennas, 1T2R, detachable design
Operating Frequency	900M: 902-928MHz* 2.4G: 2.400–2.476GHz**, 2.400–2.4835GHz 5.8G: 5.725-5.829GHz**, 5.725-5.850GHz * Only applicable to FCC and ISED regions. ** Only applicable to SRRC region. Note: Some frequencies are only applicable in some regions or only used in door. For details, please refer to local laws and regulations.
Effective Isotropic Radiated Power (EIRP)	900M: ≤30dBm（FCC/ISED） 2.4G: ≤30dBm（FCC/ISED); ≤20dBm (CE/SRRC/UKCA) 5.8G: ≤30dBm（FCC/ISED/SRRC); ≤14dBm (CE/UKCA)
Maximum Transmission Distance (Without Interference and Blocking)	FCC: 15 km CE/SRRC: 8 km
Display	
Type	TFT LCD
Dimensions	7.9 inches
Maximum Brightness	2000 nits
Resolution	2048×1536
Refresh Rate	60Hz

Touch Control	Supports 10-point touch
Battery	
Battery Type	Li-Po 3S
Rated Capacity	5800 mAh
Voltage	11.55V
Battery Energy	67 Wh
Charging Time	About 120 minutes
Battery Endurance	2.5 hours (Max brightness) 4.0 hours (50% brightness)
Battery Replacement	Not supported

A.4 Smart Battery

ABX40 Smart Battery（Original model: MDX_8070_1488）	
Battery Dimension	158.4×74.3×50.7 mm
Operating Temperature	-20°C to 50°C
Battery Type	Li-Po 4S
Rated Capacity	8070mAh
Battery Energy	120Wh
Voltage	14.88V
Charging Voltage Limit	17.0V
Rated Charging Power	120W
Maximum Charging Power	247W
Weight	520 g
Battery Charge Temperature	+5°C ~ +45°C* (When the battery temperature is below +5°C, the battery stops charging and activates self-heating. When the battery temperature is above +45°C, the battery stops charging.)

ABX41 Smart Battery	
Battery Dimension	158.4×74.3×50.7 mm
Operating Temperature	-20°C to 50°C
Battery Type	Li-Po 4S
Rated Capacity	9248mAh
Battery Energy	136.5Wh
Voltage	14.76V
Charging Voltage Limit	17.0V
Rated Charging Power	157W
Maximum Charging Power	282W
Weight	533 g
Battery Charge Temperature	+5°C ~ +45°C* (When the battery temperature is below +5°C, the battery stops charging and activates self-heating. When the battery temperature is above +45°C, the battery stops charging.)
Battery Storage	
Ideal Storage Environment	+22°C ~ +28°C
Storage Temperature and Humidity	-20℃~+35℃, 65±20%RH
Battery Charger MDX120W	
Power Input	100-240V~ 50/60Hz, 3.0A
Output Port	Battery charging interface/USB-C
Battery Charging Interface	17V⎓7.06A
USB-C Charging Interface	5.0V⎓3.0A, 9.0V⎓3.0A, 12.0V⎓2.5A
Total Power Output	120.0W Max

Appendix B Declaration of Conformity

Product: EVO Max 4T, EVO Max 4N, EVO Max 4T XE
Model Number: MDX
Class: C2
Sound power level: 87dB(A)
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 62368-1:2020+A11:2020
EMC	ETSI EN 301 489-1 V2.2.3 (2019-11) ETSI EN 301 489-3 V2.3.2 (2023-01) ETSI EN 301 489-17 V3.2.4 (2020-09) ETSI EN 301 489-19 V2.2.1 (2022-09) EN 55032:2015+A11:2020+A1:2020 EN 55035:2017+A11:2020 EN IEC 61000-3-2:2019+A1:2021 EN 61000-3-3:2013+A1:2019+A2:2021
Radio	ETSI EN 300 328 V2.2.2 (2019-07) ETSI EN 301 893 V2.1.1 (2017-05) ETSI EN 300 440 V2.2.1 (2018-07) ETSI EN 303 413 V1.2.1 (2021-04) ETSI EN 303 213-5-1 V1.1.1 (2020-03) ETSI EN 305 550-1 V1.2.1 (2014-10) ETSI EN 305 550-2 V1.2.1 (2014-10)
Health	EN IEC 62311:2020 EN 50665:2017
RoHS	2011/65/EU
UAS Delegated Regulation	prEN 4709-001: 2023 prEN 4709-002: 2023 Edition P 1

	prEN 4709-003: 2023 Edition P 1 prEN 4709-004: 2023 Edition P 1
Machinery Directive	EN ISO 12100

The notified body, *Bay Area Compliance Labs Corp*, notified body number: 1313, performed the EU-type examination in according with EMC Directive 2014/30/EU and Annex III, Module B of Council Directive 2014/53/EU, and issued the EU-type examination certificate: AOCSZ1221107-51889E-02 & B2302226.

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-0008.

Signed for and on behalf of: *Autel Robotics Co., Ltd.*
Place: Shenzhen, China Date: 2024-09-12
Name: Cheng Zhuanpeng Position: Legal Representative

Signature: 

Annex I

Product Mix. Description	Model	SW version	Description	Serial Number
EVO Max 4T	MDX	V1.8.2.237	Quad copter equipped with a 4T Gimbal	1748FEV3HMA923XXXXXX
EVO Max 4N	MDX	V1.8.2.237	Quad copter equipped with a 4N Gimbal	1748FEV3HMA923XXXXXX
EVO Max 4T XE	MDX	V1.8.2.237	Quad copter equipped with a 4T XE Gimbal	1748FEV3HMA923XXXXXX
Battery	MDX_8070_1488	/	Drone Battery	1748CBE46232515XX
Battery	ABX40	/	Drone Battery	1748CBE46232515XX
Battery	ABX41	/	Drone Battery	1748CBE46232515XX
Remote Controller	EF9-3	V1.8.2.237	Drone Remote Controller	TH79232XXXXXX
Adapter	MDX120W	/	Drone Adapter	/

*Note: Updated software will be released by manufacturer to fix bugs and improve the performance after the product placed on the market. All updated versions released by the manufacturer have been verified to be complied 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

FCC Caution:
Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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

FCC Radiation Exposure Statement:
This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator& your body.

ISEDC Warning
This device complies with Innovation, Science, and Economic Development Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions:
(1)this device may not cause interference, and
(2)this device must accept any interference, including interference that may cause undesired operation of the device.
Le présent appareil est conforme aux CNR d' Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :
(1)l'appareil nedoit pas produire de brouillage, et
(2)l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si lebrouillage est susceptible d'en compromettre le fonctionnement.

The device is compliance with RF exposure guidelines, users can obtain Canadian information on RF exposure and compliance.The minimum distance from body to use the device is 20cm.
Le présent appareil est conforme Après examen de ce matériel aux conformité ou aux limites d’intensité de champ RF, les utilisateurs peuvent sur l’exposition aux radiofréquences et la conformité and compliance d’acquérir les informations correspondantes. La distance minimale du corps à utiliser le dispositif est de 20cm.

For Remote
The device is compliance with RF exposure guidelines, users can obtain Canadian information on RF exposure and compliance.

Le présent appareil est conforme Après examen de ce matériel aux conformité ou aux limites d’intensité de champ RF, les utilisateurs peuvent sur l’exposition aux radiofréquences et la conformité and compliance d’acquérir les informations correspondantes.

The devices are only to be used when the aircraft is on the ground.
Devices used in-flight are subject to the following restrictions

i. they shall be used within closed, exclusive on-board, communication networks within the aircraft
ii. they shall not be used in wireless avionics intra-communication (WAIC) applications where external structural sensors or external cameras are mounted on the outside of the aircraft structure
iii. they shall not be used on aircraft equipped with a body/fuselage that provides little or no RF attenuation except when installed on unmanned air vehicles (UAVs) and complying with J.2(d)

les dispositifs doivent être utilisés seulement lorsque l'aéronef se trouve au sol.

Les dispositifs utilisés en vol sont assujettis aux restrictions suivantes :

1. ils doivent seulement être utilisés sur des réseaux de communications de bord fermés et exclusifs au sein de l'aéronef;
2. ils ne doivent pas servir pour des applications de type communications internes aéroélectroniques (WAIC) si des capteurs structurels ou des caméras sont montés à l'extérieur de la structure de l'aéronef;
3. ils ne doivent pas être utilisés à bord d'aéronefs équipés d'un fuselage offrant peu ou pas d'atténuation des signaux RF, sauf lorsqu'ils sont installés sur des aéronefs sans pilote (ASP) et qu'ils sont conformes au paragraphe J.2(d);