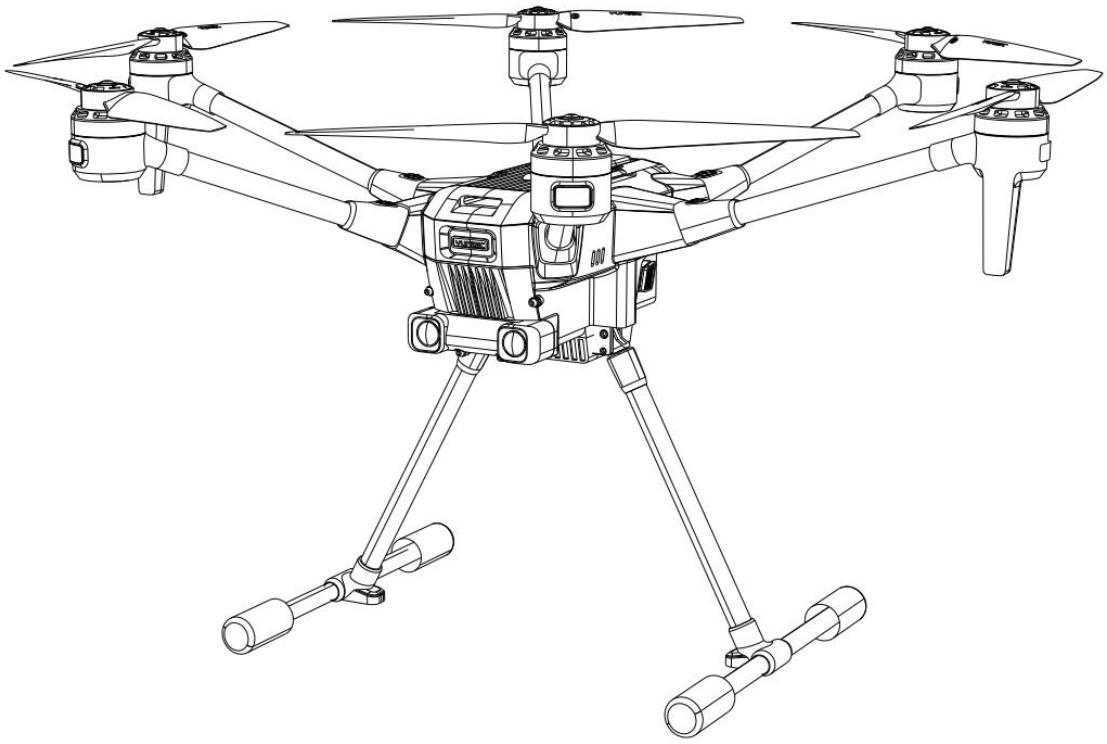

H600
H600-RTK

User Manual V1.0

YUNEEC

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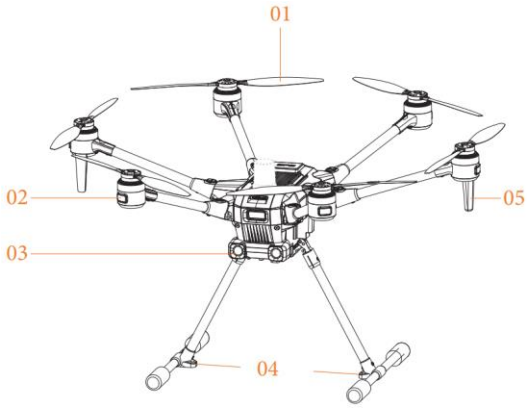
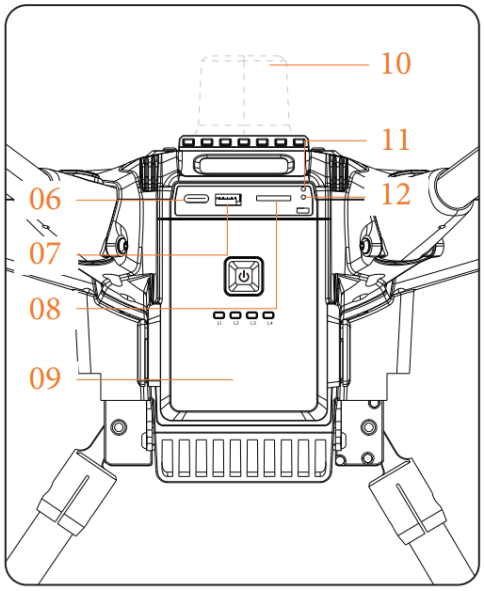
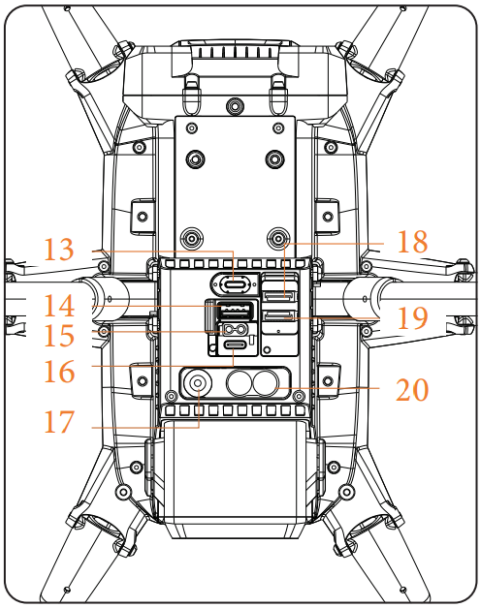
Drone



Rear View



Bottom View



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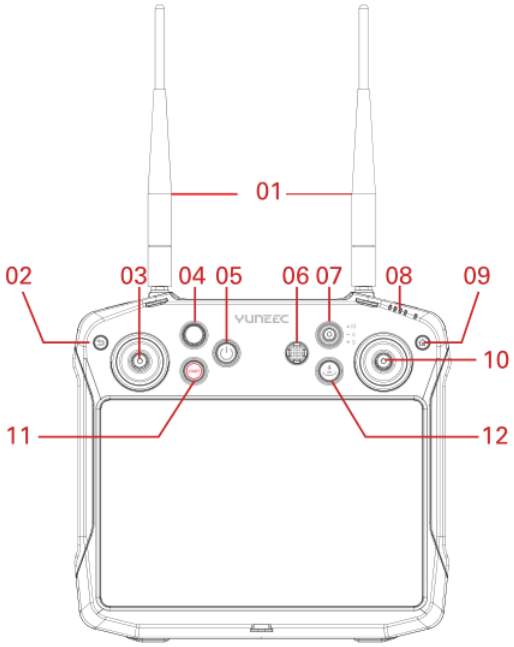

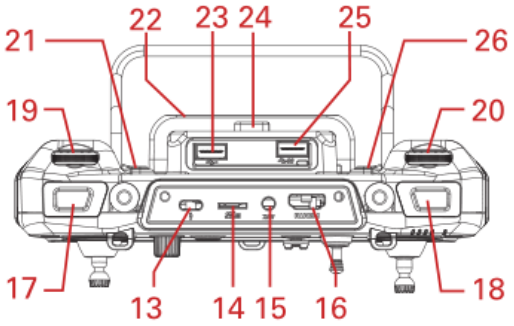

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03 Left Control Stick
04 Zoom Knob
05 Power Button
06 5D Button
07 Flight Mode Switch
08 Battery Level LEDs
09 Home Page Button
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11 Motor Start/Stop Button
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22 Battery
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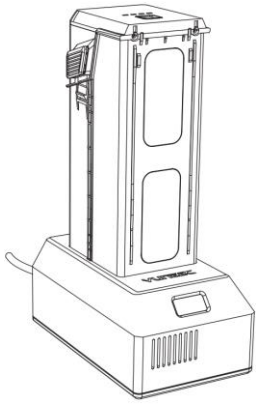
26 Landing Gear Button

Charging the Batteries

Charging the Drone Battery

Insert the plug of the YC-200 charger into a 90-264V AC outlet and the charger will be powered on automatically.



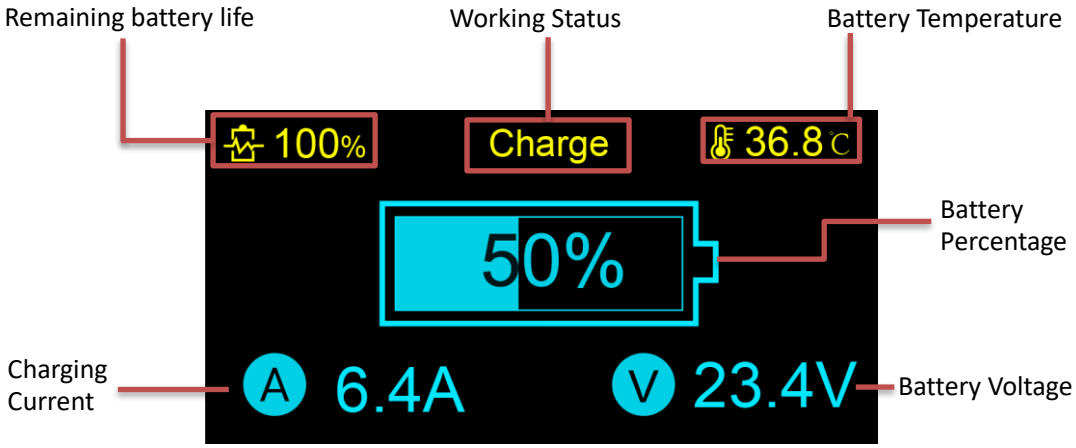
Plug the drone battery into the charger port as illustrated.

The batteries will charge automatically.

Battery Maintenance Guide

The battery should be charged and discharged at least once every 3 months. Fully charged then discharged to the drone forced landing voltage, and then recharged to 50% capacity.

Charger Screen Overview



Notice: When the remaining battery life is below 75% or reached 300 cycles the drone will reject to take off. Please scrap this battery according to the instructions below:

1. Stop charging immediately.
2. Seal the battery connector with insulating tape.
3. Send batteries to professional recycling agencies for recycling.

Intelligent battery functions

1. **Overcharging Protection:** Overcharging will seriously damage the battery. When the battery is full, it will automatically stop charging. Overcharge protection voltage 4.45+/-0.025V for single cell, 3 seconds after overcharge detected the charging process will be stopped.
2. **Charging overcurrent protection:** After 3 seconds of charging with a current higher than 9.8A, the battery will stop charging and communicate with the charger to stop and issue an alarm.
3. **Temperature protection:**
   3.1 Low temperature charging protection: If the battery inserted in the charger detects a temperature lower than 0℃, the self-heating will be started until the temperature is higher than 15℃.

3.2 High temperature charging protection: If the battery detects temperature higher than 60℃, the charging process will be stopped.

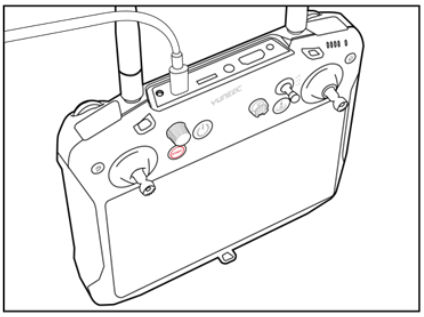
3.3 Low temperature discharging protection: If the battery inserted in the drone detects a temperature lower than 0℃, the self-heating will be started until the temperature is higher than 15℃.

3.4 High temperature discharging protection: If a battery is detected to reach 60℃ the operator will get a overheat warning popped on the transmitter screen per 5 seconds. If the battery reached 100℃ the power will be cut off until the temperature cooled down to 95℃.

4. **Over discharging Protection:** Over discharging will seriously damage the battery. The over discharge protection will be enabled when the voltage is lower than 1.5V for single cell and the power will be cut off.
5. **Short circuit Protection:** If a discharge current more than 180A is detected, the power will be cut off after 500 μs.
6. **Auto self-discharge when long term storage:** If the voltage of a single cell is higher than 3.9V and the battery is stored for a long time (more than 7 days), the battery will automatically discharge at 50mA, until the single cell voltage reaches 3.9V in order to extend battery life. If self-discharge continues for several days, there may be slight temperature rising during the period, which is normal.
7. **Auto balance:** During the charging process the cells in the battery will be balanced automatically.

Charging the T-One Battery via USB

The T-One battery can be charged using the Type C USB cable. Insert the connector into the Type C USB Charging Port, as shown below.



To check the charge status when the transmitter is shut down, please short press the power button on the T-One transmitter. The battery icon will be shown on the screen. Or the remaining power can be roughly estimated by the LED indicator on the transmitter.

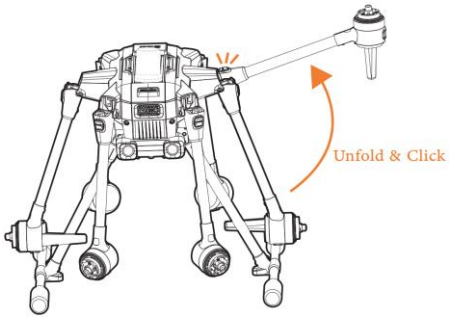
Notice: The batteries are consumable materials and have to be replaced after they shown weakness.

Warning: The damage voltage of the battery is 3.0V for each cell (18.0V total) please do not over discharge lower than this voltage.

Notice: Plug out the batteries from the charger after the charging process is completed in order to prevent over discharging situation.

Assembly

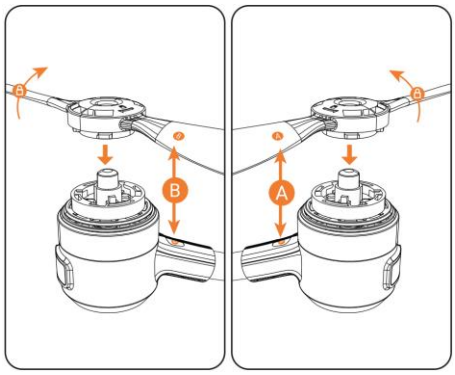
Assembling the Motor Arms



Unfold the motor arms and secure them until hearing a 'click'.

Notice: When folding the arms, the operator needs press the Press Button on the Motor Arm to release the hook first.

Assembling the Propellers

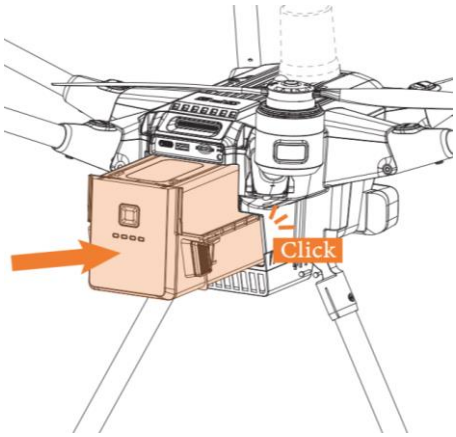


Mount propeller 'A' on motor 'A' and propeller 'B' on motor 'B'.

Press and rotate propellers in the direction the [ ] points to until the propellers locked.

Cross-check to be sure propellers are properly locked in place.

Installing the Flight Batteries



Push the battery into the battery compartment until hearing a ‘click’.

To remove the battery please press and hold the release button from both sides, then pull the battery backward.

Tips:

Short click the power button on the battery to roughly estimate the power level.

Payload Introduction

Various payload types can be attached to the drone for different purposes. The following chapter will introduce some typical payloads of choice.

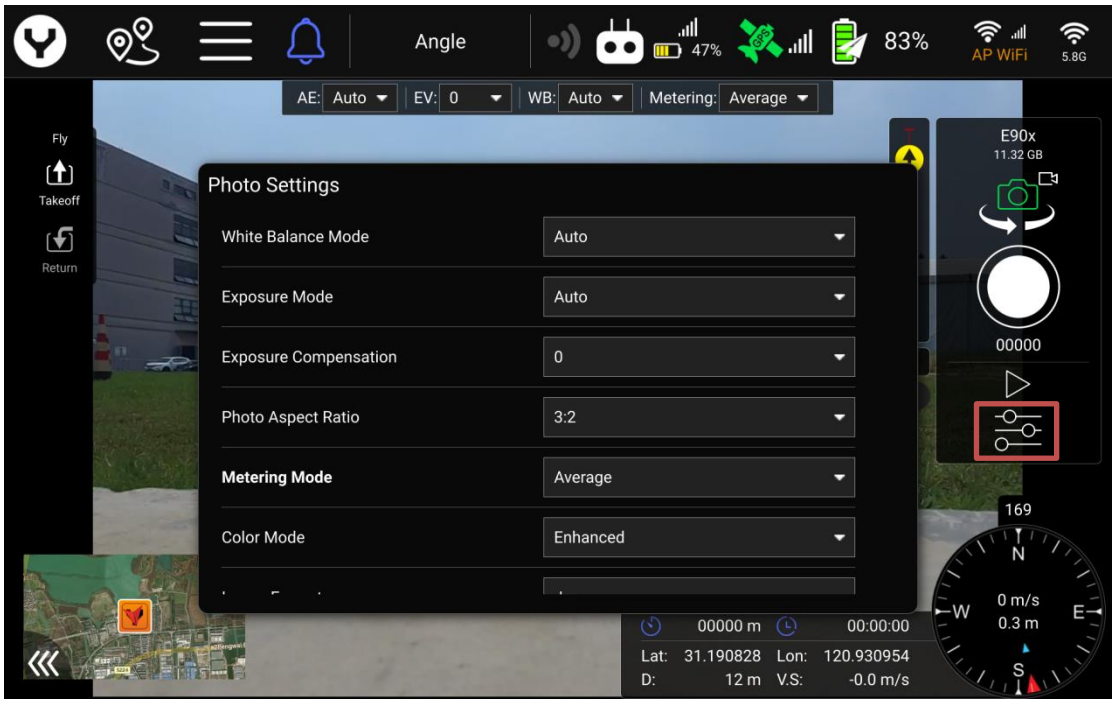
Normal Camera

E90x/E90 Pro

Yuneec's E90x/E90 Pro camera is a one-inch CMOS sensor to capture high-quality images with 4k 10 bit in-camera color processing. Images may be captured in JPEG or DNG format, or simultaneous capture of both formats. Video may be recorded in UHD, 2K, or HD resolutions at a variety of frame rates.

When the gimbal was connected successfully the gimbal type will be shown correctly on the screen.

Tap the Camera Setting Button to set more photographic parameters.



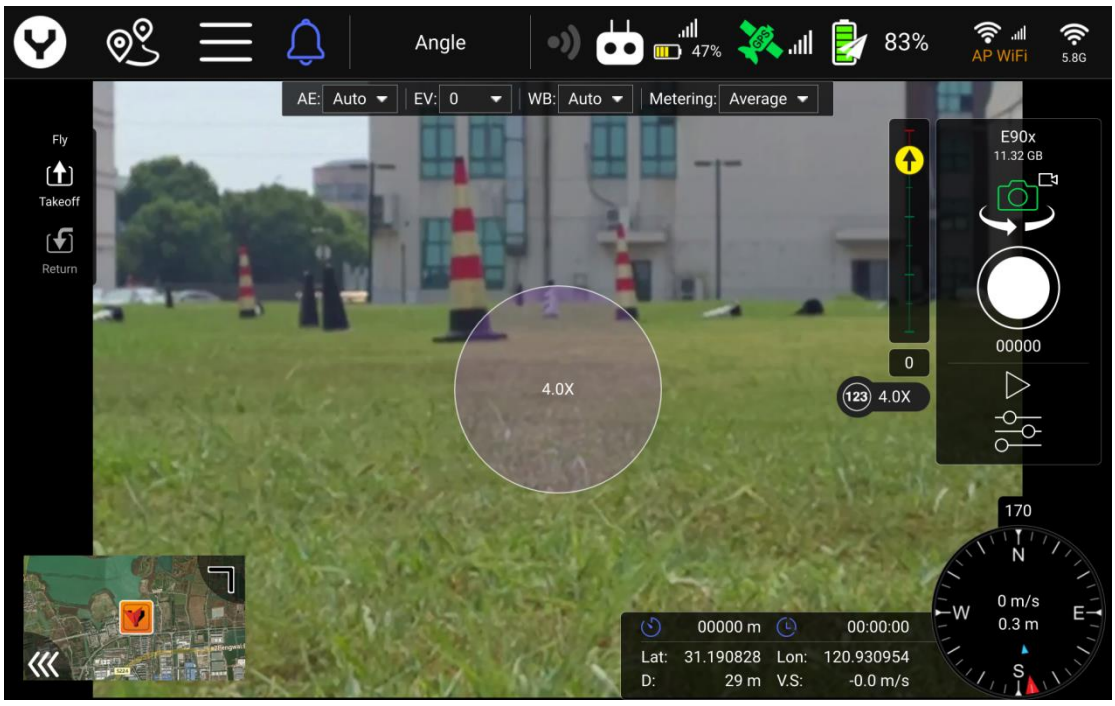
Notice: For a more detailed introduction please refer to the corresponding gimbal user manual.

Digital Zoom Function for E90x/E90 Pro

Yuneec camera E90x is capable of digital zoom. A digital zoom is an ideal tool for many types of inspection, or getting a closer view of objects further than the camera is able to originally see. Digital zoom and optical zoom differ, as optical zoom uses the placement of lenses to generate a closer image whereas digital zoom enlarges pixels.

When using digital zoom, some loss of fine detail is normal and expected.

Pinch the screen to zoom, just as with any other mobile device. Depending on distance, there may be a small amount of latency in seeing the image zoom.



Thermal Imaging Camera

ETx Lite/E20Tvx/E20 Pro

These series are an innovative combination of 3-axis gimbals and thermal imaging cameras. While the thermal imaging camera selectively measures the temperature in the image, enabling it to display relative temperature differences, the low-light RGB camera in the ETx Lite has a 20 times higher sensitivity than the human eye. It can still take excellent shots even in low light conditions. Both images are streamed live on the remote control at the same time; and can be viewed separately as a picture-in-picture or as an overlay.

When the gimbal is connected successfully, its type will be shown correctly on the screen; also tap the Camera Setting Button to set more photographic parameters both for thermal imaging and visible light camera.

Notice: Please refer to the corresponding gimbal user manual for a more detailed introduction.

Variable-Focus Camera

E30Zx

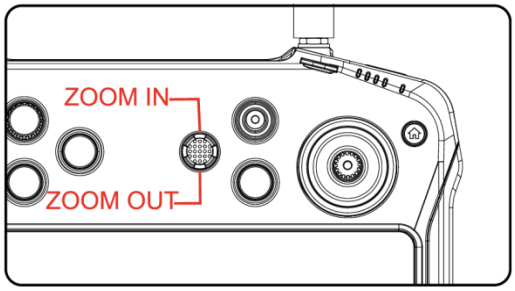
The E30Zx is a powerful 30x zoom drone camera and makes it easy to zoom in on distant objects to gain increased details. The compact camera housing contains a 1/2.8" CMOS sensor, which provides high-quality and stabilized recordings even in low light conditions. In addition to the 30x optical zoom, the camera offers a 6x digital zoom for flexible application options such as inspection, search and rescue operations, monitoring, people search, and much more.

As same as the E90x gimbal, when the gimbal is connected successfully, the gimbal type will be shown correctly on the screen; also tap the Camera Setting Button to set more photographic parameters.

Zoom Function for E30Zx

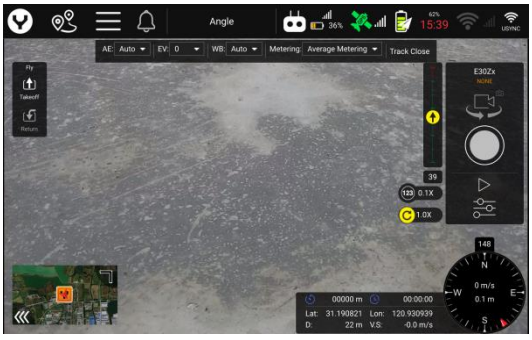
Zoom in

Push the 5D Button ahead to increase the optical zoom. When increasing to 30X optical zoom, if push the 5D Button again, the camera begins to increase digital zoom. The digital zoom can increase to 6X at the most.



Zoom out

Pull the 5D Button backwards to decrease the optical zoom. When decreasing to 1X digital zoom, if pull the 5D Button again, the camera begins to decrease the optical zoom.



One Key to 1x Image

Tap the [] on the screen so you can return the camera to 1X zoom.

Notice: For a more detailed introduction please refer to the corresponding gimbal user manual.

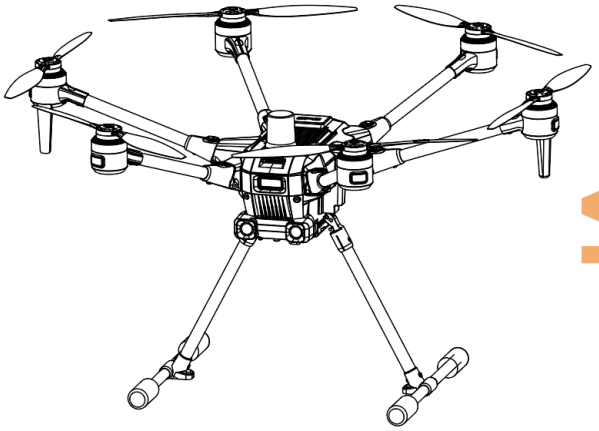
Yuneec Certificate Authority Payloads
Yuneec has several different certificate authority 3rd part payloads devices for use on the drone. Get more information on www.yuneec.com.

Payload Combination List

Payload Type	Function
E90x/E90 Pro	Gimbal Control, Photo Capture, Video Record, Digital Zoom
Thermal Imaging Gimbal Cameras	Gimbal Control, Photo Capture, Video Record, Digital Zoom
E30Zx	Gimbal Control, Photo Capture, Video Record, Digital & Optical Zoom

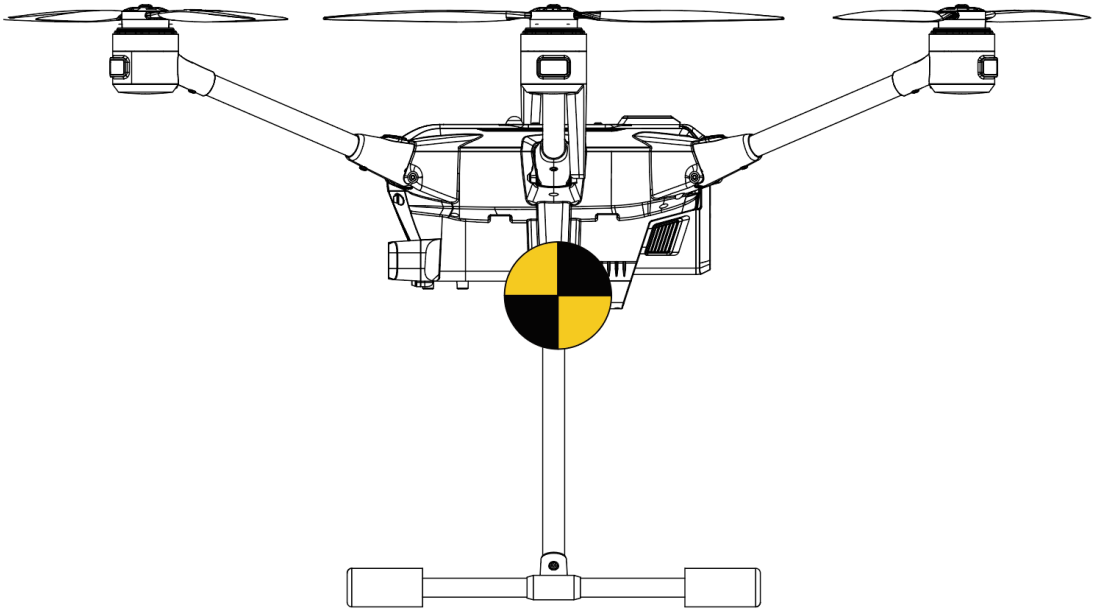
Notice: There will be no further notice in this manual if the payload is updated. Please visit the official website www.yuneec.com to check the latest payload information.

Payload Attaching Warnings
The Max Take off mass of the drone is 3700g please do not attach other payload not mentioned above to ensure the total weight is less than 3700g before takeoff!



≤ 3700g

Please only attach the payload via the X-Connector under the gimbal damping bracket to ensure that the center of gravity is as close to the center of the drone as possible before takeoff.



Warning: The width of the payload must not exceed the space available when the left and right landing gear are extended. Also, the height of the payload must not lead it rubs against the ground when the landing gear is extended.

Warning: Some payloads have photo and video functions, please pay attention to protecting the privacy of others when using.

SD Card Selection

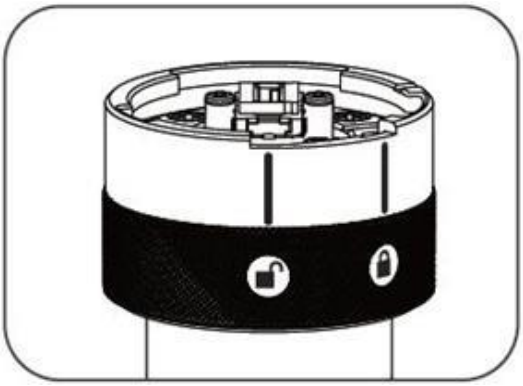
Yuneec recommends using a SDXC Class 10 UHS-3 micro-SD card for recording 4k video. Using the UHS-3 card allows the camera buffer to record to the micro-SD card faster resulting in fewer buffers overrun.

Attaching / Detaching the Gimbals

Attaching

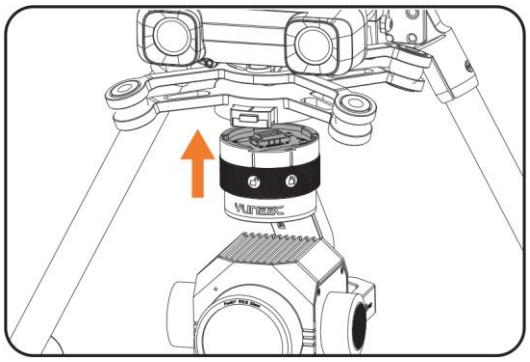
Step 1

Find the Unlocked Mark etched on the Gimbal Yaw Motor and align the Mark Line with the front of the damping plate.



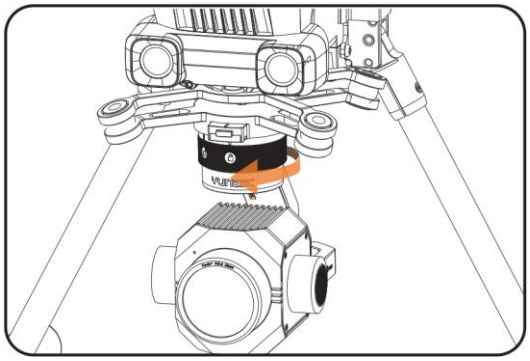
Step 2

Insert the Gimbal Yaw Motor into the damping plate and rotate it counterclockwise until the Mark Line of the Locked Mark aligns with the front of the damping plate to secure the gimbal.



Step 3

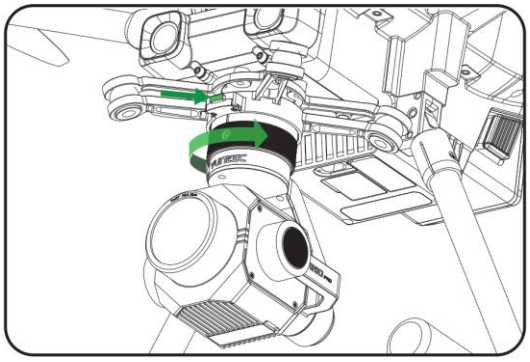
Remove the lens protector.



Detaching

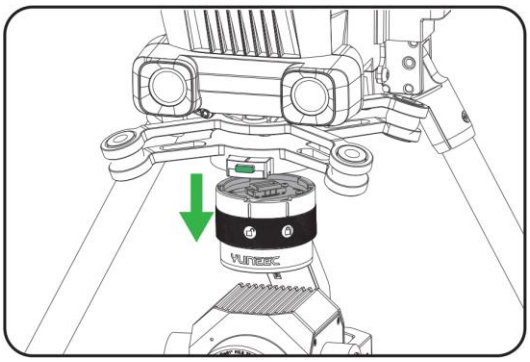
Step 1

Hold the Gimbal Release Button and rotate the Gimbal Yaw Motor clockwise until the Mark Line of the Unlocked Mark aligns with the front of the damping plate.



Step 2

Pull the gimbal out from the damping plate.



Notice: The X-connector series gimbal needn't bind separately. If the re-binding is needed, please refer to the corresponding section in the Re-Bind chapter.

Danger: Do not plug in the Payload while the device is power on. This might cause damage in the electrical components in the connector.

Per-Flight Preparation

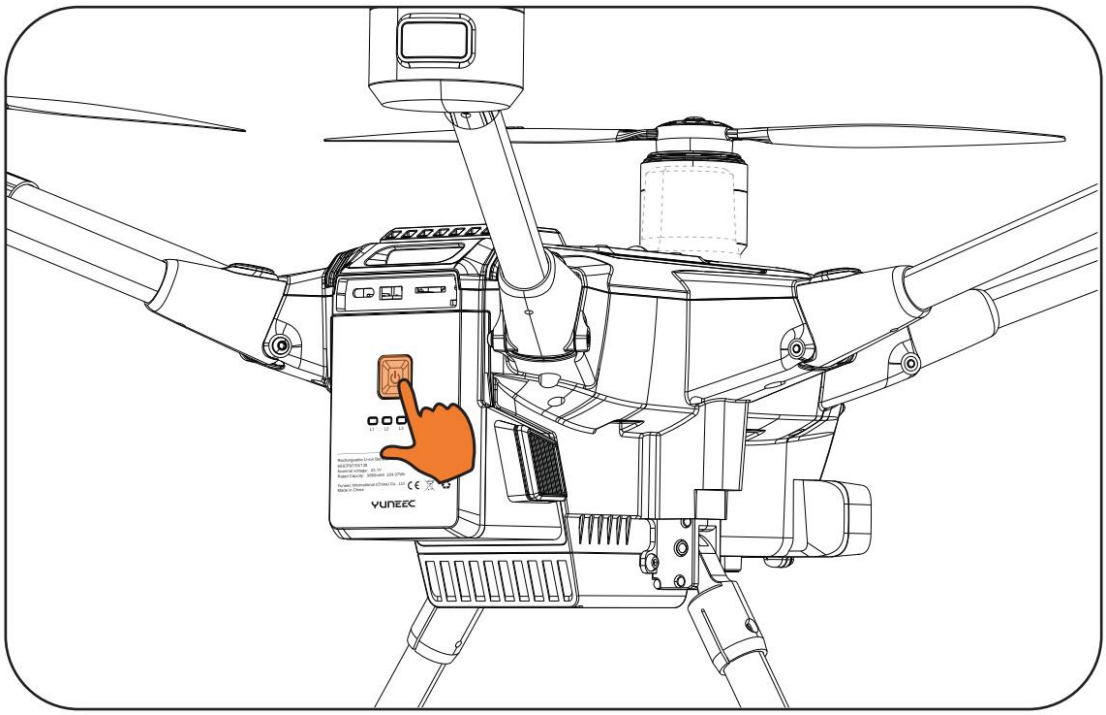
Warning: Please read this user manual carefully before taking off to familiarize with the performance of the drone, and follow the instructions of the flight manual when flying. Otherwise, it may cause the risk of losing control, hitting a building, being lost, etc.

Power ON/OFF

Notice: Please make sure all firmware is the latest version. Firmware can be updated via the OTA update function, and the operator manual can be downloaded from the website: www.yuneec.com. The quick start guide does not replace the operator manual.

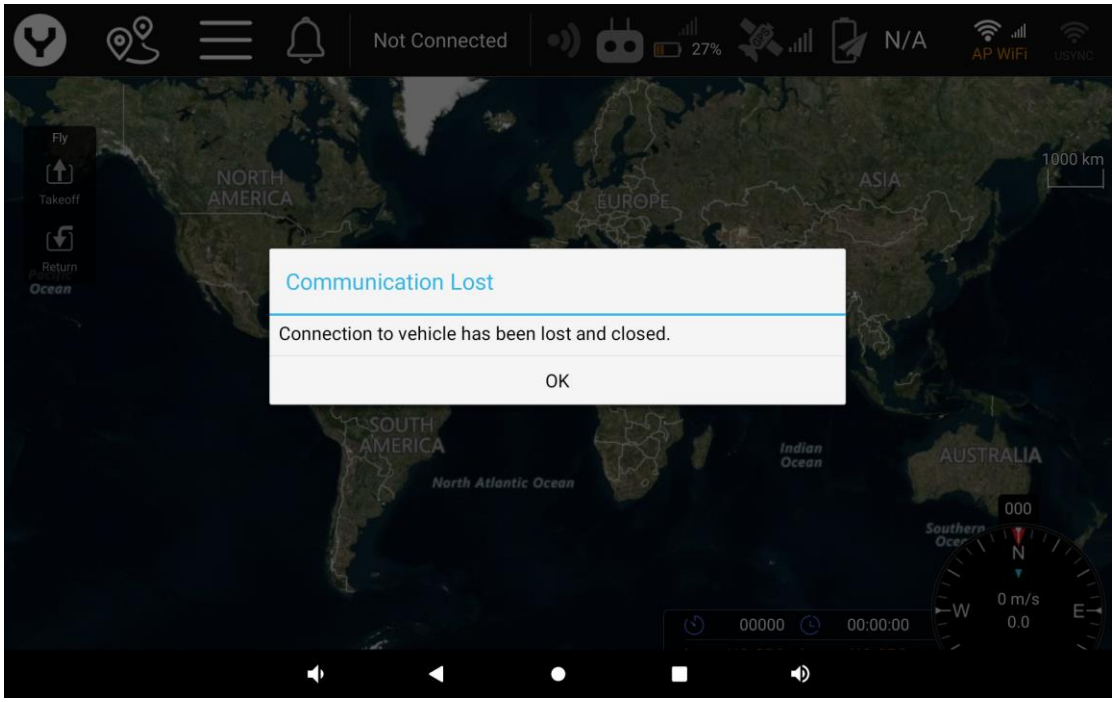
Press and hold the Power Button on the T-One to power on/off.

Press and hold the Power button on Drone Flight Battery to power on/off the drone.



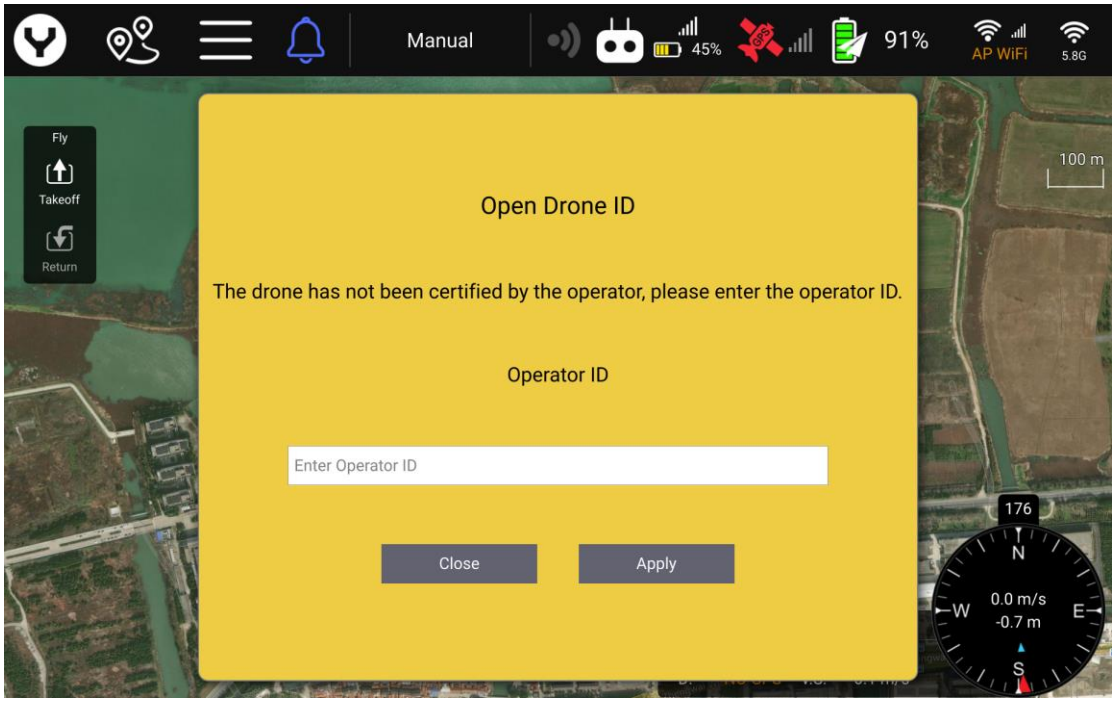
Notice: Always Power on the T-One before powering on the UAS.

About 9 seconds after the drone powered off with the shutdown sound, the “Communication Lost” will pop up on the screen. Please do not power off the transmitter before saw this message.

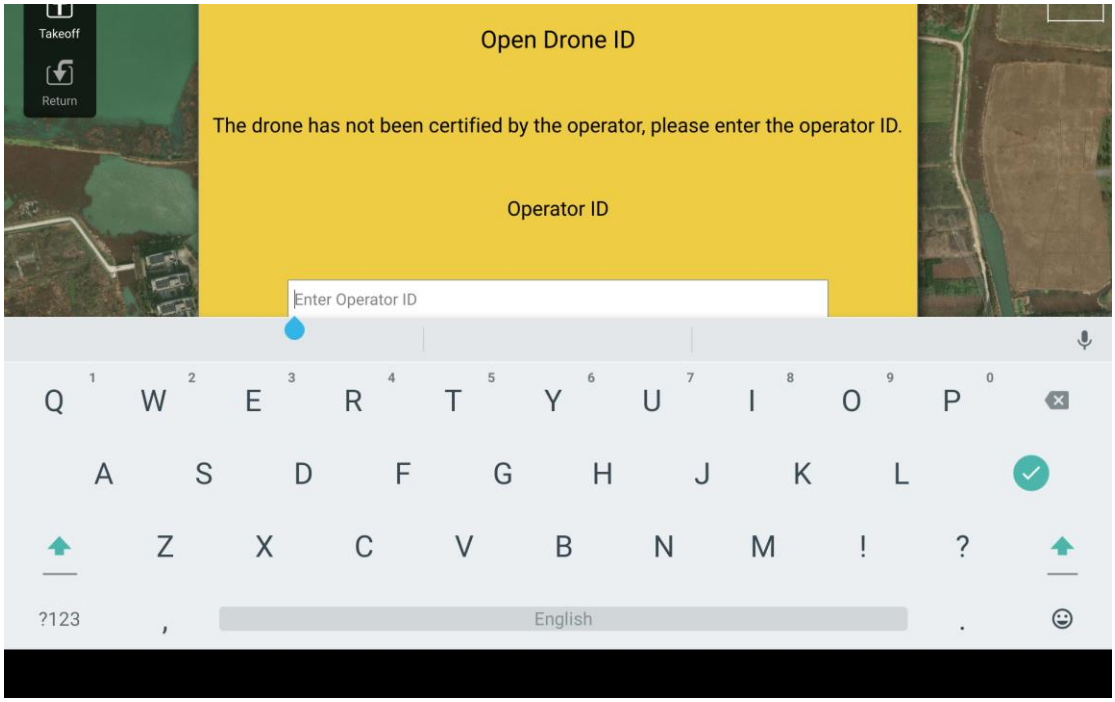


Enter the Operator ID

The operator ID enter window is the first dialog box after powered on.



Tap the enter box then enter the ID via the popped up soft keyboard on the screen.



Then tap the “Apply” Button to finish.

Notice: If take off directly without entering the Operator ID, the user may face legal risks.

Calibrating the Compass

In the following situations recalibrating the compass is suggested for flight safety:

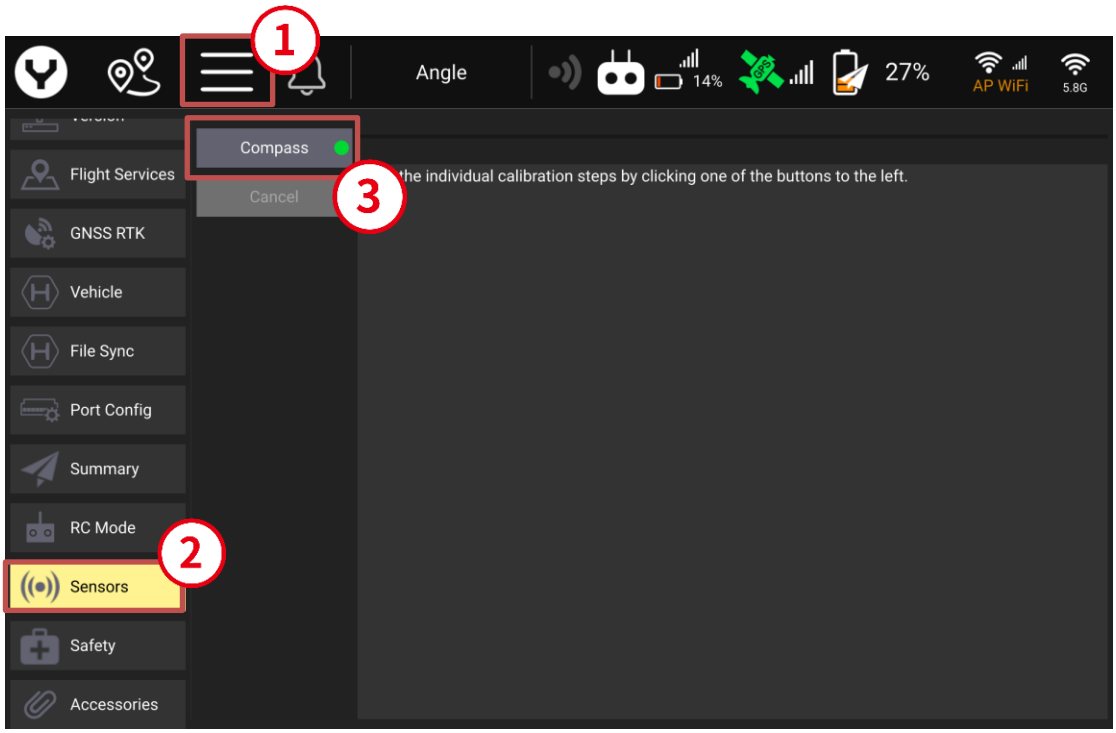
1. Before the first flight when you take the drone out of the box;
2. When feeling the drone is drifting after a long-distance flight;
3. There are metal materials beside the drone during storage and transport.

Calibrate Steps

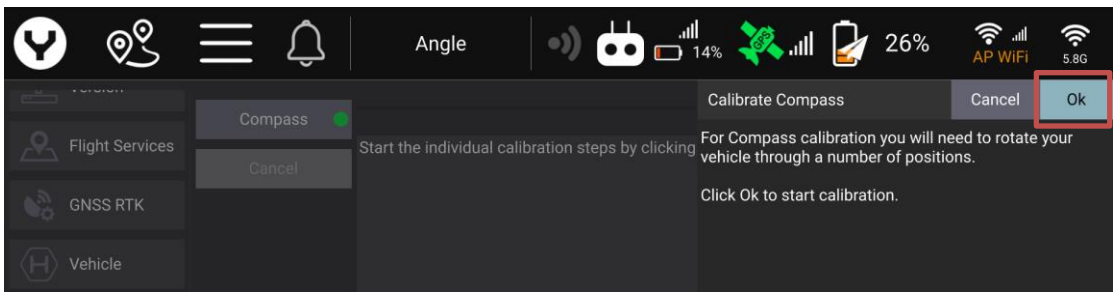
Notice: Do not calibrate the compass in parking garages, close to a building or near roads with a metal core. For optimum performance, only calibrate the drone in open spaces, far away from power lines and other metal structures or concrete buildings.

Be sure to perform the compass calibration procedure at least 3 meters (11 feet) away from the nearest cell phone or other electronic devices to ensure proper calibration.

Step 1: After the drone and T-One Transmitter are connected, place the drone on a horizontal and stable surface, tap the Settings Icon, then tap the “Compass” under the Sensors Item.



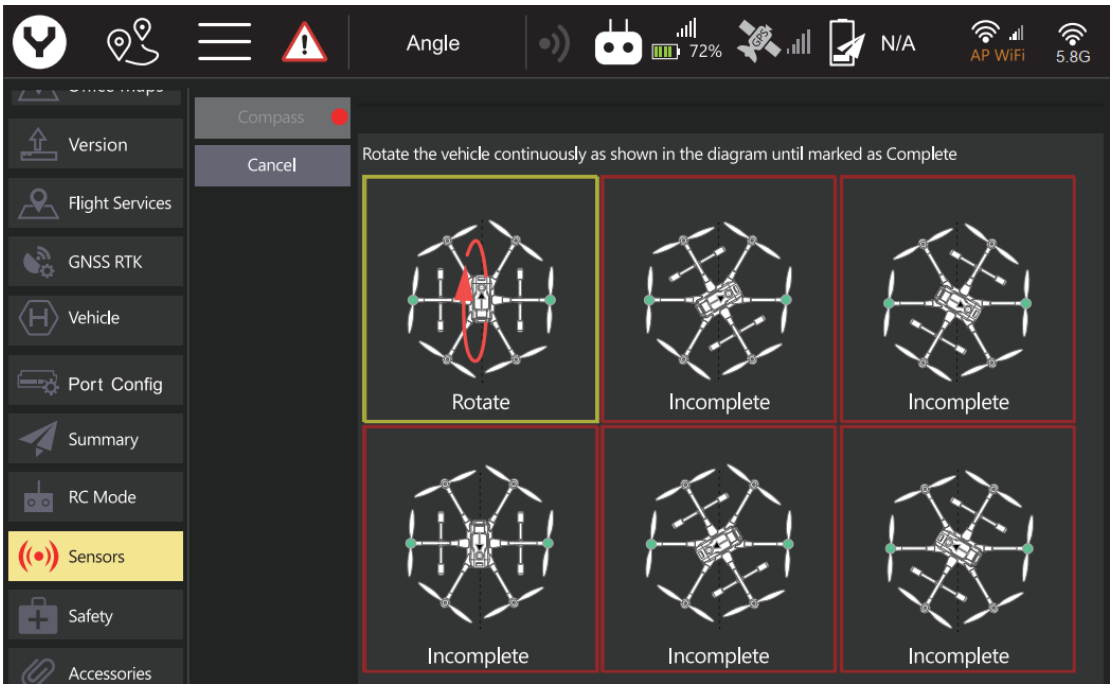
Step 2: Tap the “OK” Button to start to calibrate.



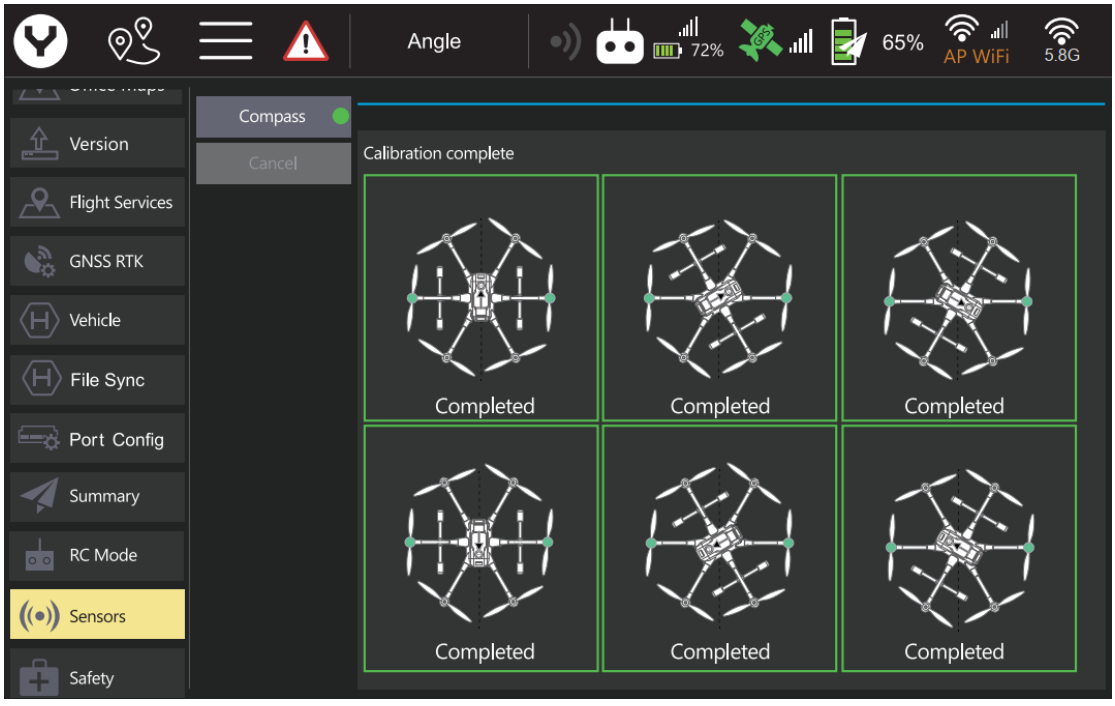
Step 3: Calibrating

Follow the onscreen display and instructions. During compass calibration, the drone will need to rotate along the specific axis which is shown by the LED of each motor arm, until a tone is heard to change to the next axis. Repeat this procedure for all six positions. A yellow box with a red arrow indicates the rotation axis, which is calibrating. A green box indicates a completed calibration.

During Calibration

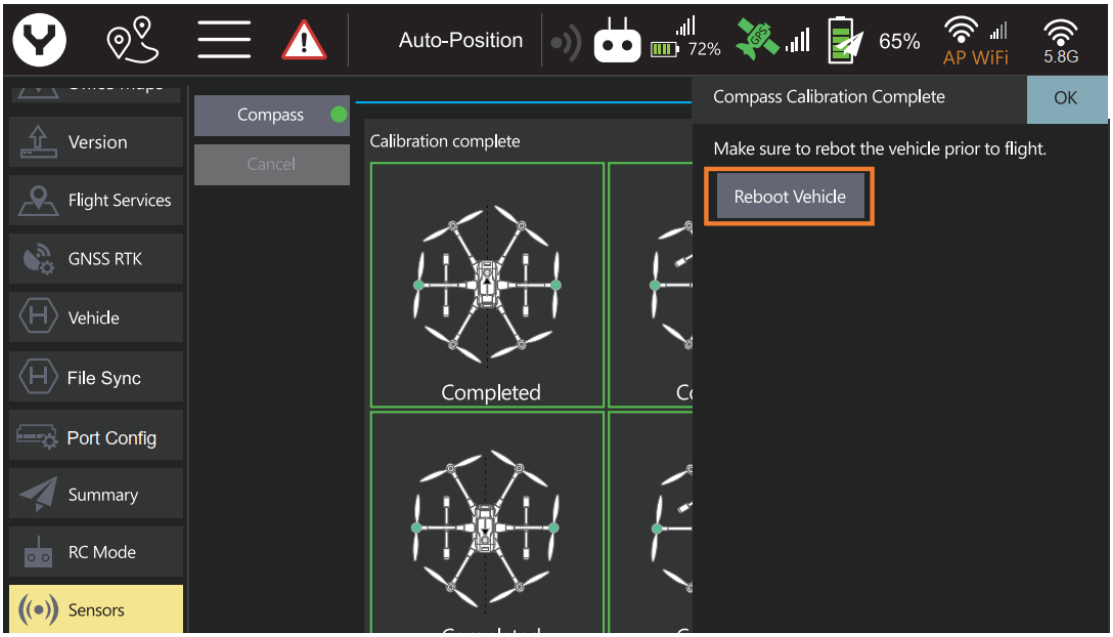


Calibration Finished for all Axis



Step 4: Reboot the drone

After all axes have been calibrated, tap the “Reboot Vehicle” Button on the popped-up dialog box to activate the calibration result.



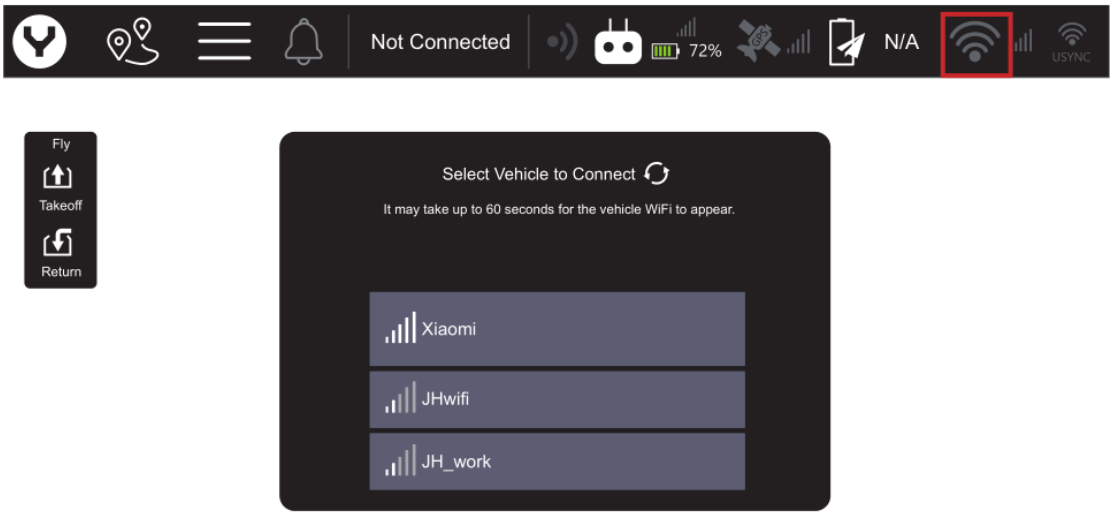
CORS Network Binding (RTK Version Only):

The Network CORS and RTK GPS have been disabled by the default setting. The drone will be positioned and navigated by using the single GPS technology.

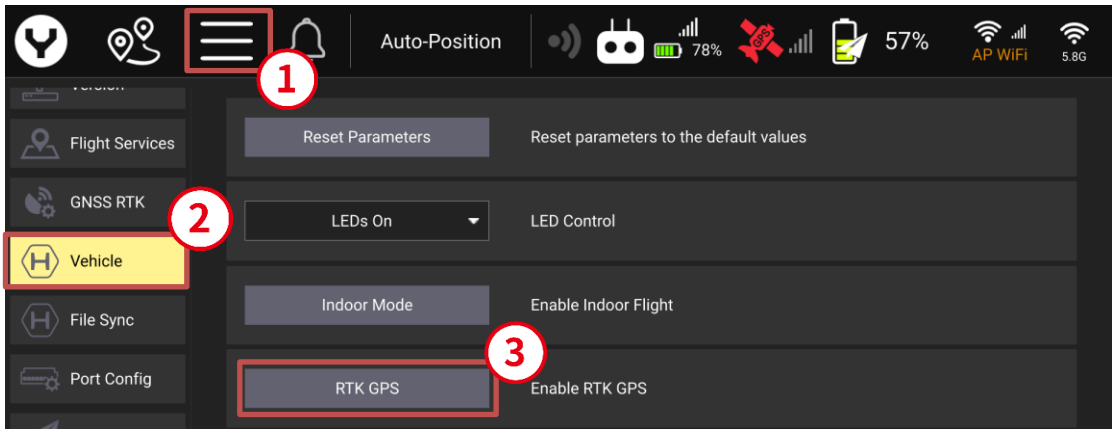
The RTCM Source was set to disable by default under the GNSS RTK item.

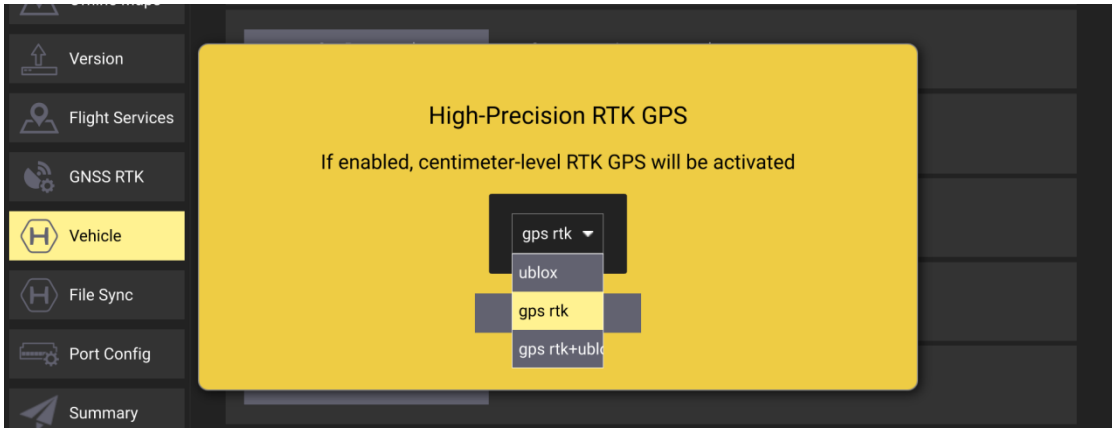
The operator can connect the drone with the Network CORS as per the following steps to get a higher positioning accuracy.

Step 1: After the T-One Transmitter and drone are bound, tap the Wi-Fi Icon and select a hotspot to make the T-One Transmitter connect to the internet.

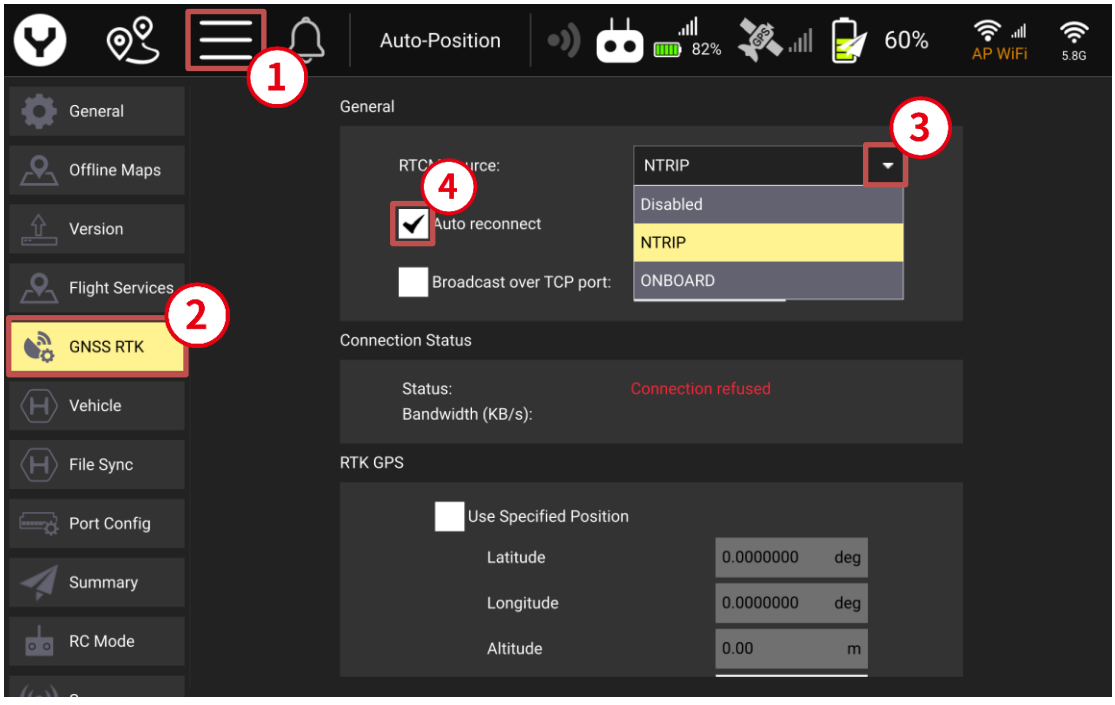


Step 2: Tap the Settings Icon, and then enter the **"**Vehicle" Menu. Tap the "RTK GPS" Button and select "gps rtk" Selection, after that restart the drone.

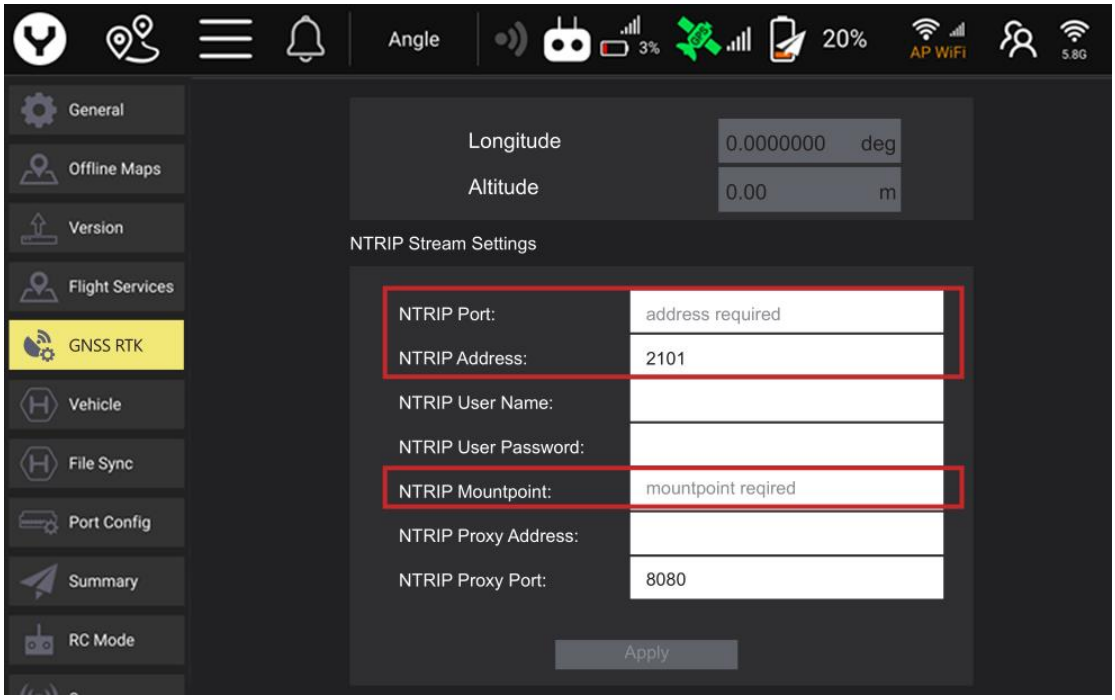




Step 3: Tap the "Settings" Icon then tap "GNSS RTK". Select "NTRIP" as the RTCM Source, then tick Auto reconnect.



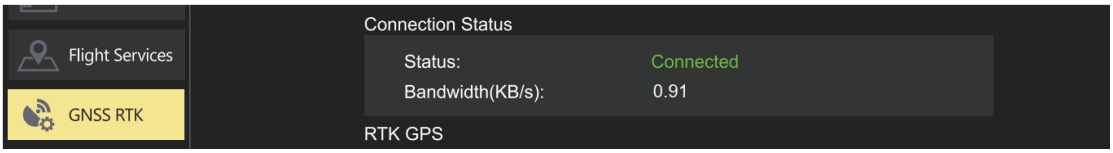
Step 4: Fill the following **"**NTRIP Stream Settings" parameters according to your CORS Network.



Notice: You must fill out the "Required" tagging forms.

Step 5: Tap "Apply" Button to finish the connection process.

Notice: When connect to the CORS Network has been successful, the "Connection Status" will display with a green "Connected".



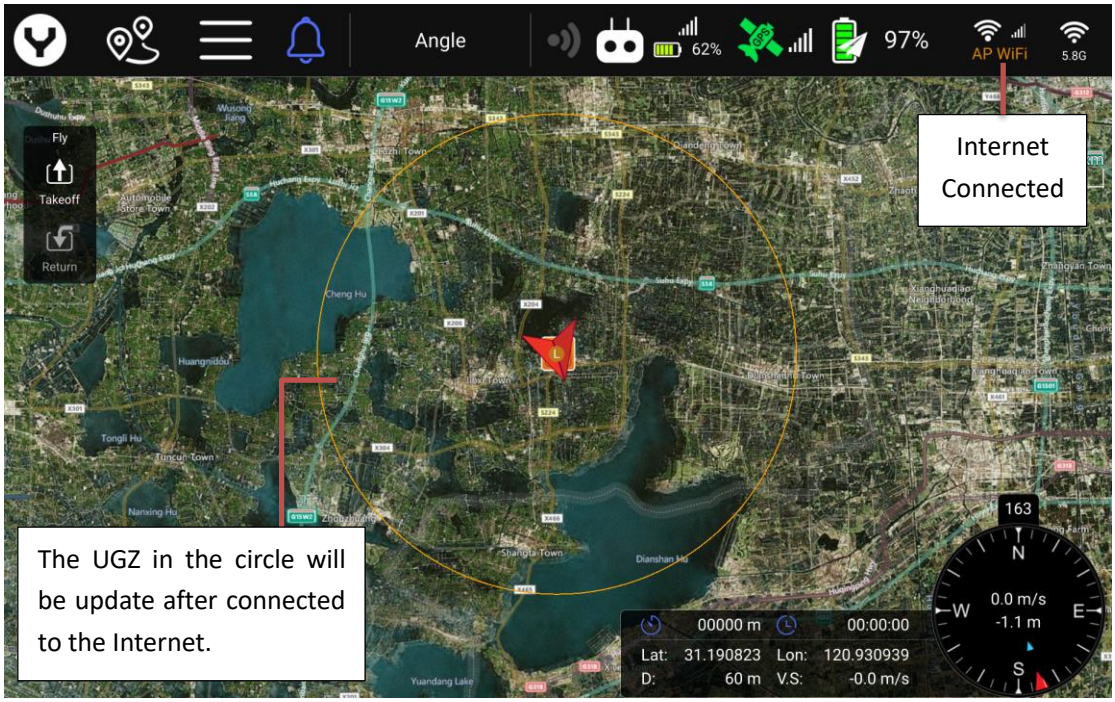
Notice: Do not enable the RTK GPS when the RTCM Source is unavailable. Unless is required by a special requirement in the Payload user manual.

After drone get an ideal GPS position accuracy the GPS Satellite Icon will shows "RTK" text inside, tap the icon the popped up windows indicates "3D RTK GPS Lock (fixed)".

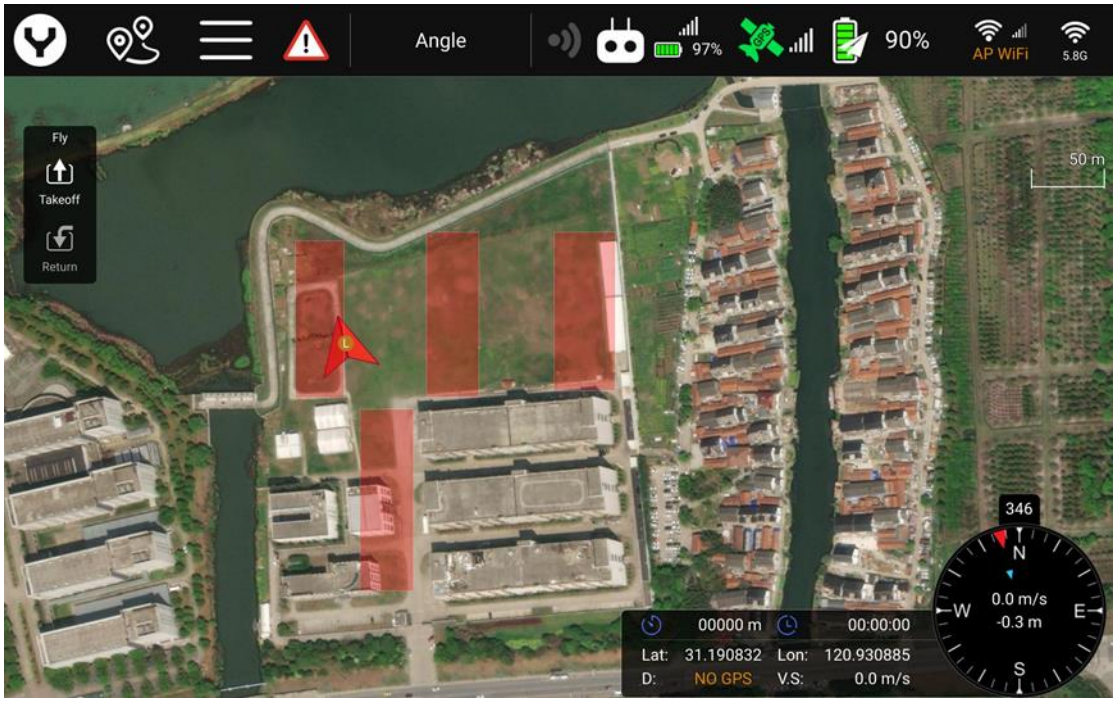
UGZ

1. UGZ Check

It is necessary to check the UAS Geo-awareness Zone (UGZ) before taking off to avoid fly enter the zone. The operator need connect the transmitter to the internet via Wi-Fi and the UGZ will be update around the drone current position in the area with 10km radius.

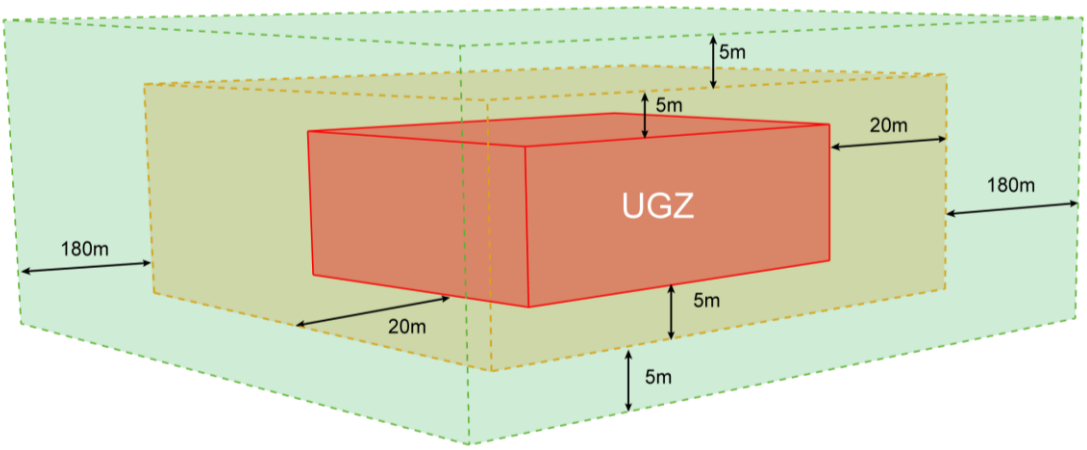


If there is any UGZ found, the zone will be marked with red color shown on the screen. And the drone will be blocked outside the UGZ. The drone won't go further into the zone.



2. Buffer Zone

Once the UGZ was detected the drone will generate 2 buffer zones with different safe level. Their spatial relationship is shown in the figure below:



The Red Color Zone: UGZ, download from the internet.

The Yellow Color Zone: 1st Level Buffer Zone, extend the vertical limitation from the UGZ with 5 meters and the horizontal limitation with 20m.

The Green Color Zone: 2nd Level Buffer Zone, extend the vertical limitation from the 1st Level Buffer Zone with 5 meters and the horizontal limitation with 180m.

3. Behavior

3.1 When in 2nd Level Buffer Zone

When the drone reached the edge or is in the 2nd Level Buffer Zone, the flight speed will be limited to 5m/s, and the minimum distance to the UGZ will be popped up per 10 seconds in the yellow warning message.

Drone is in 2nd Level Buffer Zone

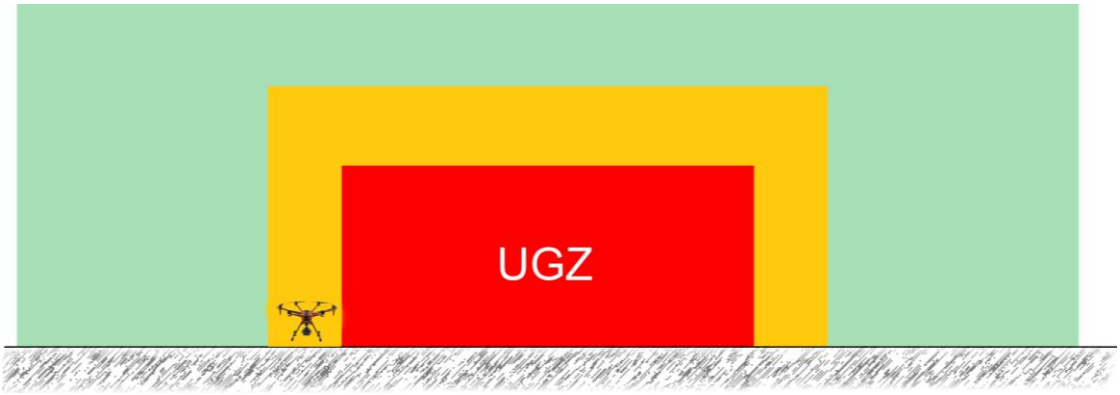
Yellow Warning Message (announce per 10 seconds)

3.2 When in 1st Level Buffer Zone

The minimum distance to the UGZ will be continuously announced with the time interval of 10 seconds and cannot be entered from outside.

Normally the drone cannot enter the 1st Level Buffer Zone from outside by remote control. They will be blocked once reached the edge of the 1st Level Buffer Zone. However, if the operator places the drone into the 1st Level Buffer Zone, the motor start and takeoff operation are also permitted in this zone. The difference is that the drone cannot get closer to the UGZ further more. Only the escape flight route would be acted by the drone and the escape speed will also be limited to 5m/s.

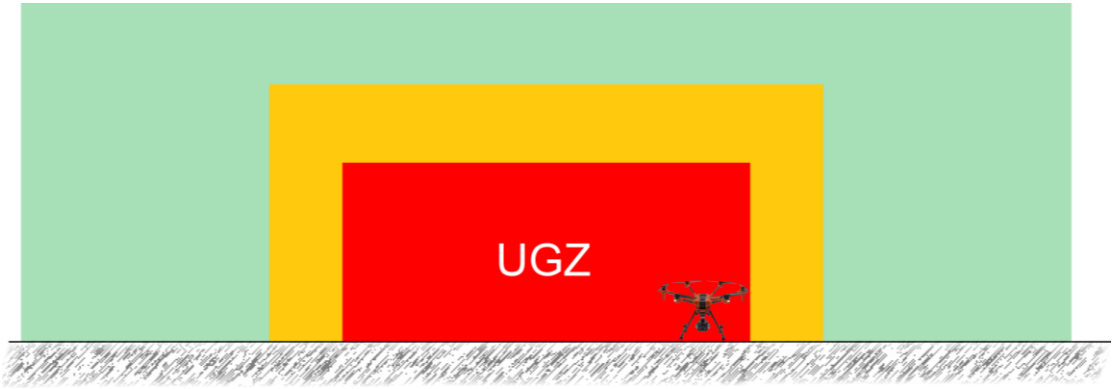
The drone is in the 1st Level Buffer Zone



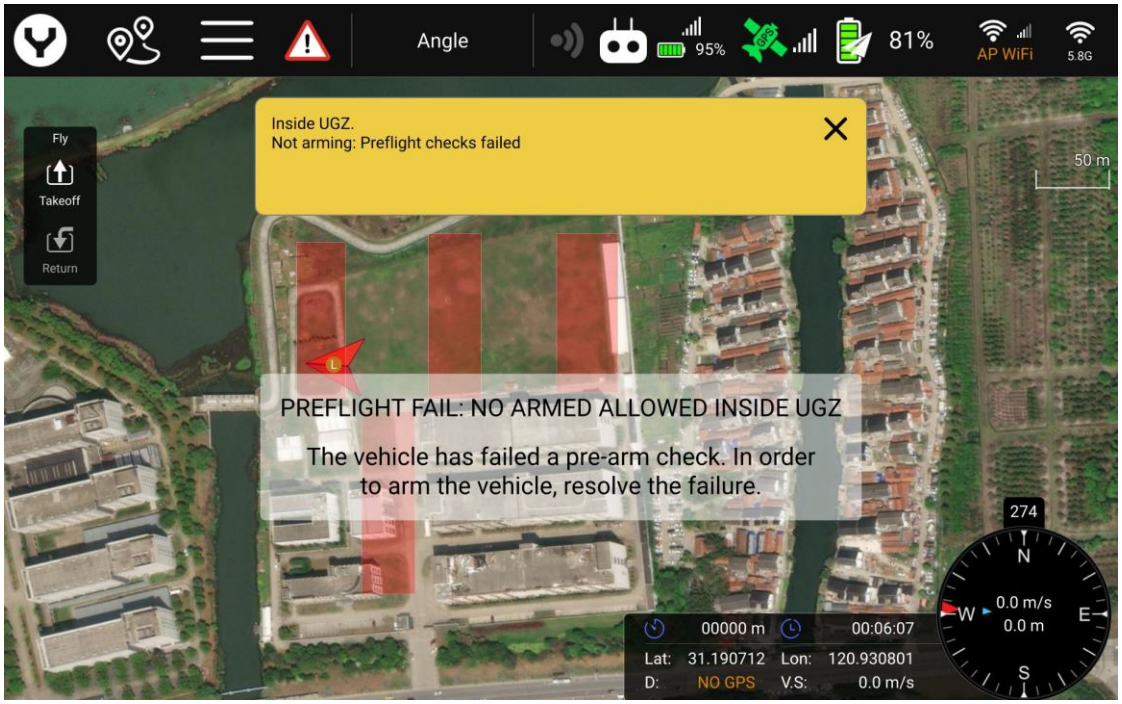
3.3 When in UGZ

When power on the drone in the UGZ, after communication established between the drone and transmitter, the text “Inside UGZ” will pop up pre 10 seconds, if the drone continuously stays in the UGZ. The motors also will be locked by the drone. When the operator attempts starting, the text “Not arming: Preflight checks failed” will popped up.

The drone is in the UGZ



The warning messages screenshot



Once the drone flies into horizontal range of the UGZ accidentally, the Landing or RTL mode will be enabled automatically in 10 seconds. The countdown will be shown in the yellow warning message.

Forced RTL

If the drone is flying above the UGZ, the RTL will be enabled after the countdown finished.

Forced Landing

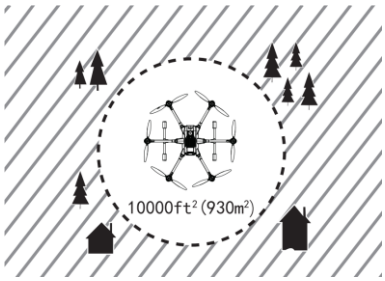
While the done is flying in or under the UGZ, the forced landing will be enabled after the countdown finished.

If ground conditions are really unsuitable for landing, the landing procedure can be interrupted by switching the Flight Mode Switch temporarily for 10 seconds. The operator must control the drone fly out the UGZ with the maximum horizontal speed 5m/s immediately, after 10 seconds the landing mode will be enabled automatically again.

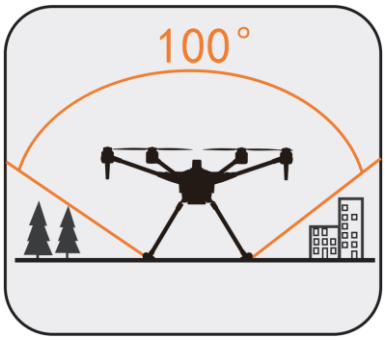
Minimum Environment Requirements

1. Space

Always operate the drone in open areas (approximately 10000 square feet/930 square meters or more) that are free of people, vehicles, trees and other obstructions. Never fly near or above crowds, airports or buildings.



Never attempt to operate the drone near tall buildings/obstructions that do not offer a clear view of the sky (minimum clearance of 100°).



2. Weather
   - 2.1 Do not attempt to take off the drone in strong winds above 13m/s.
   - 2.2 We do not recommend flying in the rain, but flying in such weather conditions is necessary for special reasons, please note that the protection level of this drone is IP44. Therefore, please do not take of under the condition of snow, hail and heavy rain (Rainfall exceeds 100mm in 24 hours).
   - 2.3 Do not fly the drone in environments that affect visibility, such as fog or sandstorms.
   - 2.4 Do not fly the drone during thunderstorms.

3. Wireless Communication

Please try to stay away from sources of electromagnetic interference when flying the drone. Including but not limited to high voltage lines, electricity/ transformer stations, radio towers, mobile phone masts, etc.

4. Others
   - 4.1 Do not attempt to take off the drone from a moving platform such as cars and ships.
   - 4.2 Please avoid taking off and landing on gravel roads. Excessive dust and foreign matter entering the motor will greatly affect the life of the motor.
   - 4.3 To fly a drone in an EASA member state, the operator must take an online training course which is administered through each member state. More information please refer to the documents “Easy Access Rules for Unmanned Aircraft Systems (Regulations (EU) 2019/947 and 2019/945)” issued by EASA.

     More regulation information:

     https://www.easa.europa.eu/en/document-library/easy-access-rules/easy-access-rules-unmanned-aircraft-systems-regulations-eu

5. About the TOF Height Sensor

The TOF Height Sensor will take effect when the height of the drone is lower or equal to 7 meters and the flight speed is no more than 1m/s by constant measuring the distance to the ground to get a more precise and stable height control. At the condition of the TOF Height Sensor is enabled please ensure that the environment meets the following requirements:

5.1 The ambient light immunity is 70KLus, Please fly under lighting conditions that meet this condition.

5.2 In the TOF Height Sensor enabled range, please do not fly above the mirror-reflective objects such as water and snow. And the transparent obstacles such as glass located between the sensor and ground is also forbidden.

6. About Indoor Position System

For the operator needs use the Optical Flow Lens to enable the Indoor Position System (IPS) at the condition of weak GNSS signal, please ensure there is ideal light around (from 15lux to 10,000lux) and fly above the richly textured ground. Be similar with the TOF Height Sensor the mirror-reflective ground surface and transparent obstacles on the ground will also disturb the IPS and even cause loss control and crash. Please avoid flying on the surface mentioned above when the drone is in IPS mode.

7. Personal Safety

After encountering disasters such as fires, explosions, lightning strikes, storms, tornadoes, heavy rains, floods, earthquakes, sandstorms, etc., when flying the drone, you need to pay attention to the safety of the launch and landing points and the changes in the environment at the disaster site to ensure personal safety as the first priority.

Pre-flight Checklist

Drone

	Part	**Check Items**
Visual Check	Propeller	Correct Propeller Type
		No Crack and Damage
		The Blades have been Secured
	Motor	The Rotor has No Slack
		No Foreign Matter
	Motor Arm	No Crack and Damage
		Hooks Fastened
	Landing Gear	No Crack and Damage
	Airframe	No Crack and Damage
		The Waterproof Rubber Plug has been Tightened
		Battery Lock has been Locked
		Heat Dissipation Vents are not Blocked
	Battery	No Balloon or Swell
	TOF Height Sensor	Not Covered by Dirt such as Dust or Fingerprint
	Obstacle Avoidance Lens	Not Covered by Dirt such as Dust or Fingerprint
	Optical Flow Lens	Not Covered by Dirt such as Dust or Fingerprint

Drone

	Part	Check Item
Functional Check	Motor	No Abnormal Sound When Rotating by Hand
		With Proper and Uniform Damping When Rotating by Hand
	Motor LED	Able to Be Lit
		Be Able to Correctly Display the Current Flight Mode
		Be Able to Correctly Display the GNSS Status
	GPS	Get the GPS Position Lock except Indoor Flight Mode
	Battery	Enough Power Left in the Battery
	Flight Path	No Obstacles in the Flight Path (Include Terrain)
		The Path won't Go Across the UGZ and Buffer Zone

Transmitter

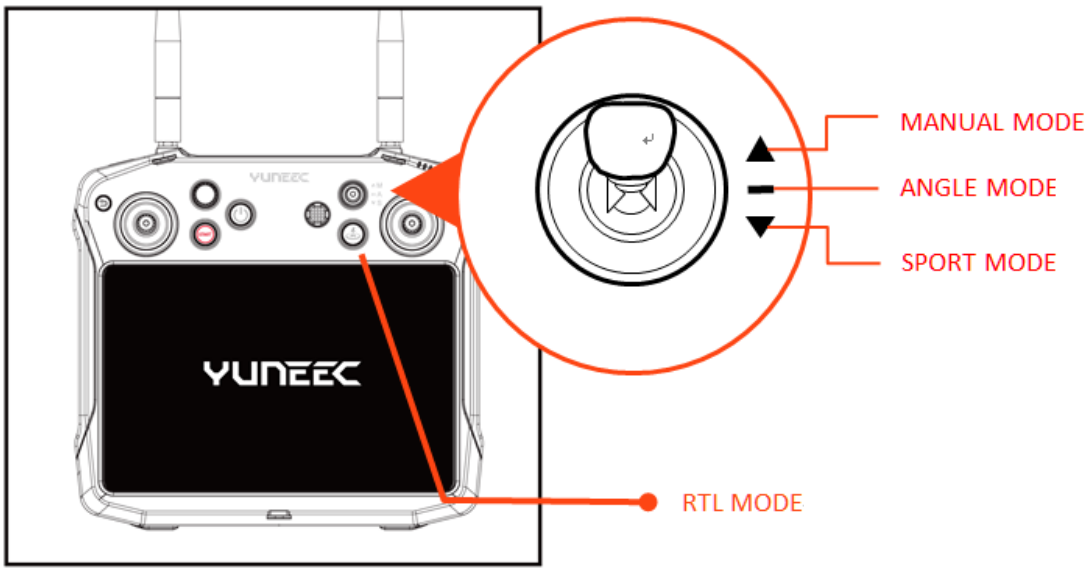
	Part	Check Items
Visual Check	Antenna	The Antennas have been Tightened on the Mount
		No Crack and Damage
	Waterproof Rubbers	The Waterproof Rubber Plug has been Tightened
		Not Damaged (On holes)
	Cooling System	Heat Dissipation Vents are not Blocked
	Screen	Display and Touch Functions are Normal
		No Crack and Damage
Functional Check	Joysticks, Knobs, Buttons and Switches	RC Mode is Familiar by the Pilot
		Rebound Normally After Released
		The Flight Mode is able to be Switched Correctly
	Dial	Compass and Course Displayed Normal
		Drone Attitude (Pitch & Roll) Displayed Normal
	Cooling System	Cooling Fan Running Normally without Abnormal Sound
	Communication	Artosyn RSSI Icon Displays Full Signal
		Video Link Without Screen Blur, Delay or Freeze
	Battery	Enough Power Left
		Remaining Power is able to be Displayed Correctly (Drone & Transmitter)
	GPS Position	The Drone & Transmitter Position is able to be Displayed Correctly on the Map (Except Indoor Flight Mode)
	Intelligent self-Check	No Yellow Warning Massage Popped Up On the Screen when Starting the Motors

Warning: The operator must strictly follow the above list to check before taking off. Otherwise, it may cause the risk of losing control, hitting a building, being lost, etc.

Take Off

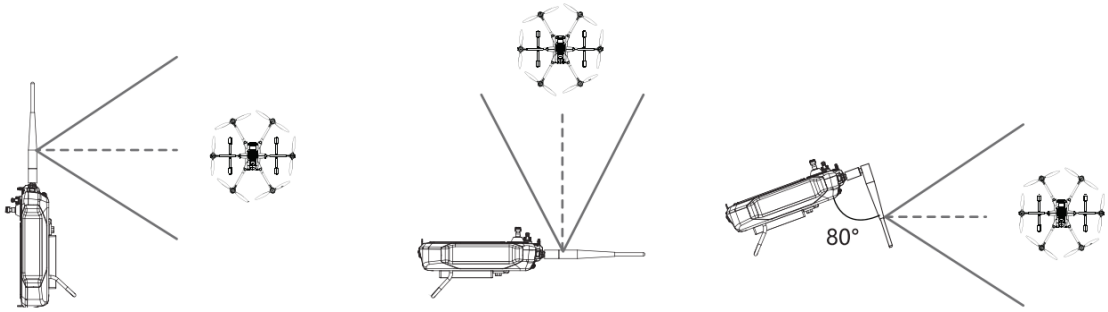
Takeoff Mode Selection

The drone has 4 different basic flight modes. We suggest placing the flight switch in the middle position to use the Angle Mode to take off.



Optimal Transmission Range

The signal between the drone and the T-One Transmitter is most reliable when the antennas are positioned in relation to the drone below.



Ensure that the drone is flying within the optimal transmission range.

In addition, during flight, the operator also needs to pay attention to the signal connection between the drone and the remote control in real time. When video link feedback or telemetry data occurs in the following situations, the communication may have already been interfered.

1. Video link starts screen blur, delay or freeze
2. Telemetry data freeze
3. Artosyn RSSI Icon displays weak signal

If the above phenomenon occurs, please return immediately to prevent communication lost.

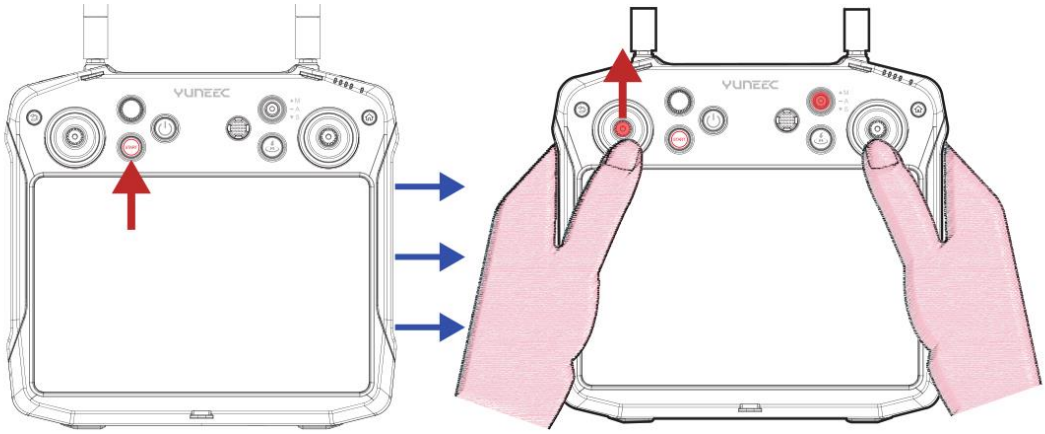
Take Off Operation

The RC Mode (Joystick Mode) was set to Mode 2 as default setting. The operator can switch to the familiar mode under the “RC Mode” Tab in the Extended Menu and the function of each joystick is marked on the arrow. If RC Mode switching is necessary, please refer to page 141 of this manual.

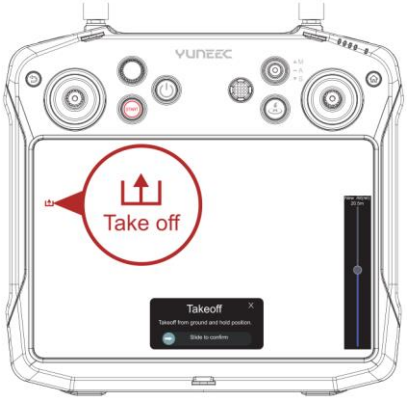
Take Off Method 1:

After the drone was positioned by GPS, we can start the motors by pressing and holding the Motor Start/Stop Button on the T-One Transmitter and release it when the motors start.

Slowly raise the Left Control Stick to take off (Mode 2 Shown).



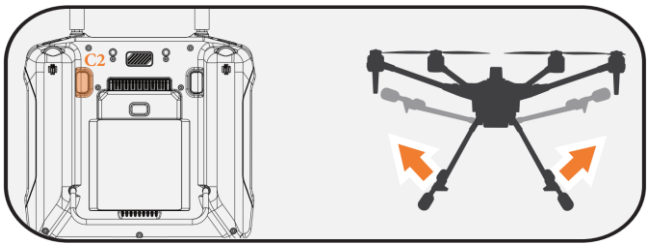
Take Off Method 2:



Tap the “Takeoff” Icon and set the takeoff height, then slide on the screen to take off. There is also a “Landing” Soft Key beneath the “Takeoff” Soft Key that may be used for auto-landing.

Notice: The operator must start the motors with the drone in a position that has at least 10 feet (approximately 3 meters) of clear and open space around it.

Retract Landing Gears



Press and hold the C2 button on the backside of the T-One transmitter to control the landing gears.

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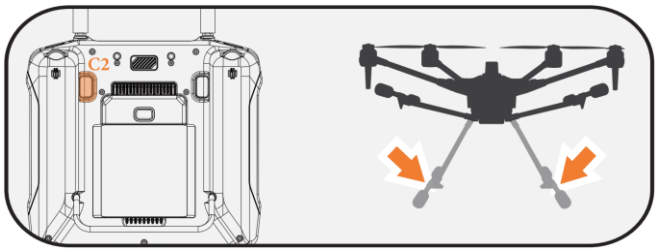
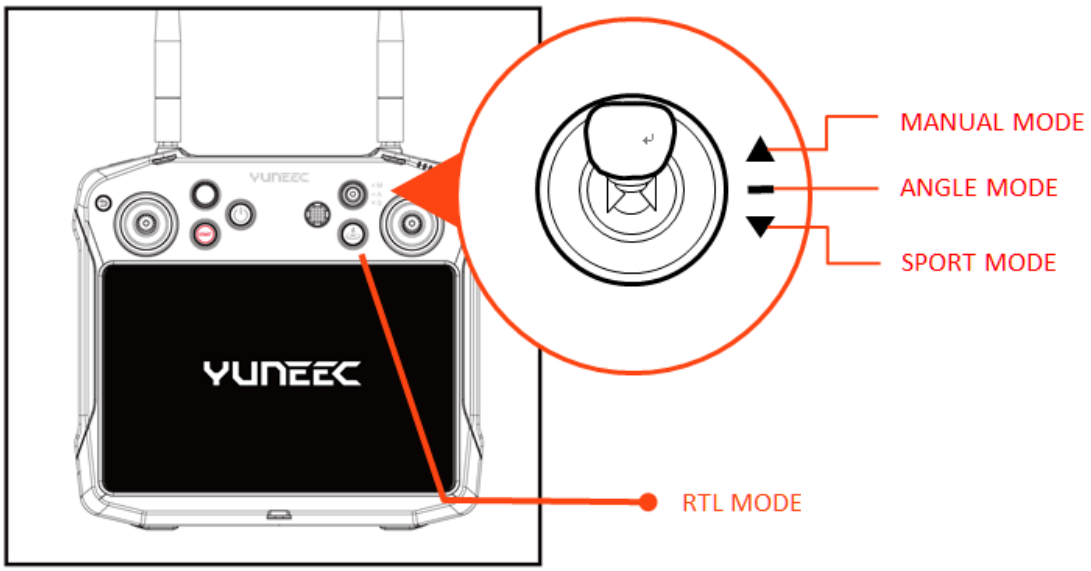


Notice: Always put down the landing gear before landing.

Control the Drone

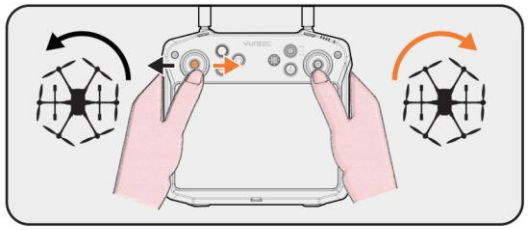
Basic Flight Control

Flight Mode Switch Overview



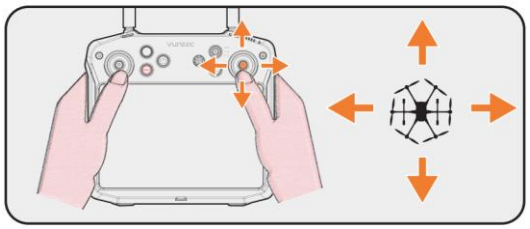
Angle Mode

When in Angle Mode and GPS is available, the drone will respond according to the T-One Transmitter.



Sport Mode

In Sport Mode, the drone responses are optimized for agility and speed, making it more responsive to joystick movements.

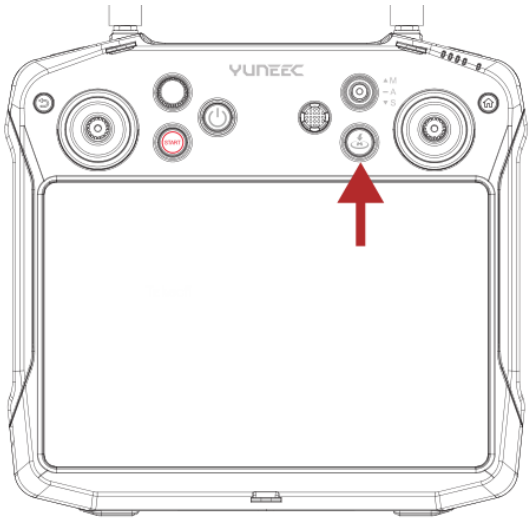


Manual Mode

When in Manual Mode, the Auto-positioning function will be deactivated. The aircraft will only use its IMU module to keep the flight height and attitude.

Tips: Manual Mode is not recommended for first-time pilots. Without Auto-positioning function, the aircraft will drift in slight winds and not maintain its position.

Mode 2 Shown



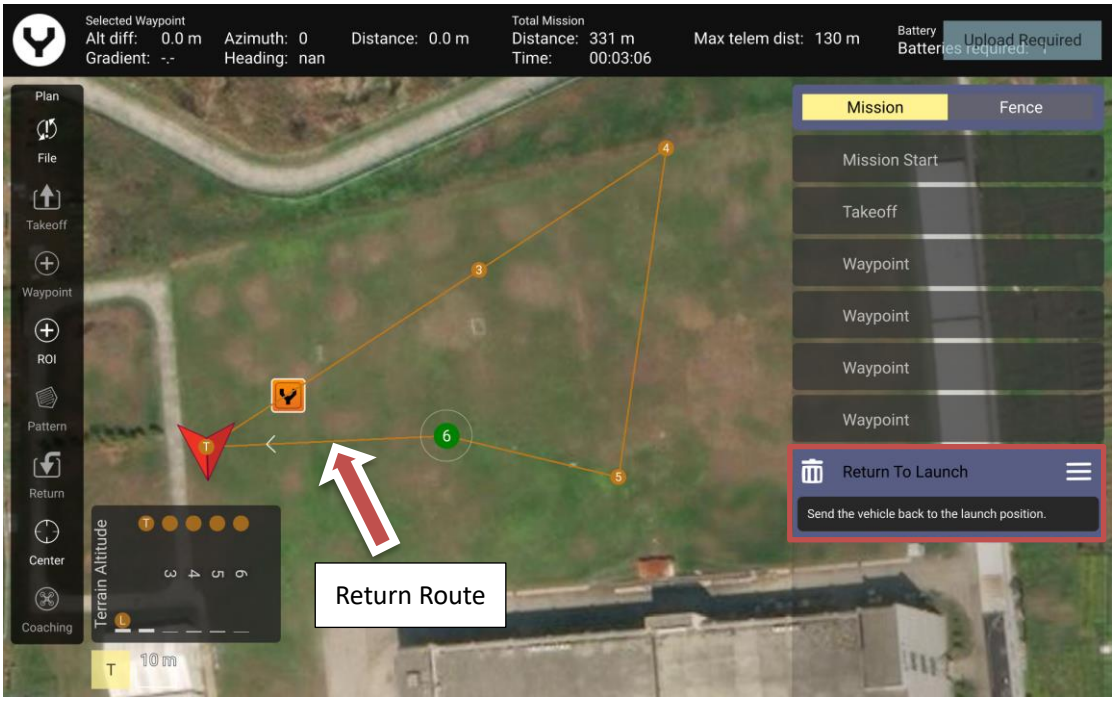
RTL Mode

The Return to Launch (RTL) function brings the drone back to the last recorded Home Point along a straight flight route at 10m/s and lands automatically. The RTL function can be active in all other flight modes except Indoor Mode by the following 5 situations.

1. Manual Active

Press and hold the RTL Button on the T-One Transmitter after the drone takes off.

2. RTL Command in the flight plan



3. Low Battery Active

3.1 Remaining Flight Time and Return Requited Time Comparison

The drone will calculate the remaining flight time according to the current and remaining battery capacity then compare with the time required to return based on the distance. If the remaining flight time reduces to the required time, the RTL will be active.

3.2 Absolute Low Battery Percentage

When the drone remaining battery percentage reduces to 10%, the RTL will be active.

4. Emergency Return

4.1 5-Rotor-Mode

If one of the motors or propeller gets failure, the drone will enter the 5 Motor Emergency Modes. Meanwhile the RTL will be active.

4.2 1 Battery Return

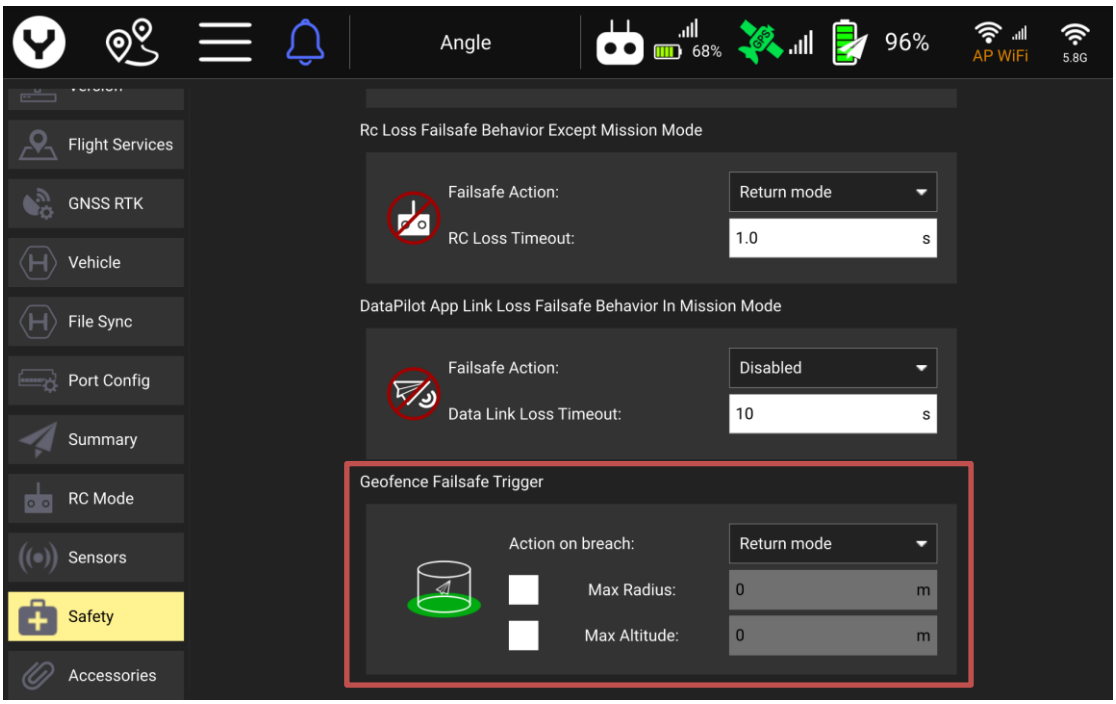
If one of the batteries gets failure or disconnected, the drone will enable the RTL mode automatically.

4.3 UGZ Return

When the drone is flying above the UGZ after the 10s countdown finished, the RTL will be enabled automatically.

5. Geofence Breach Return

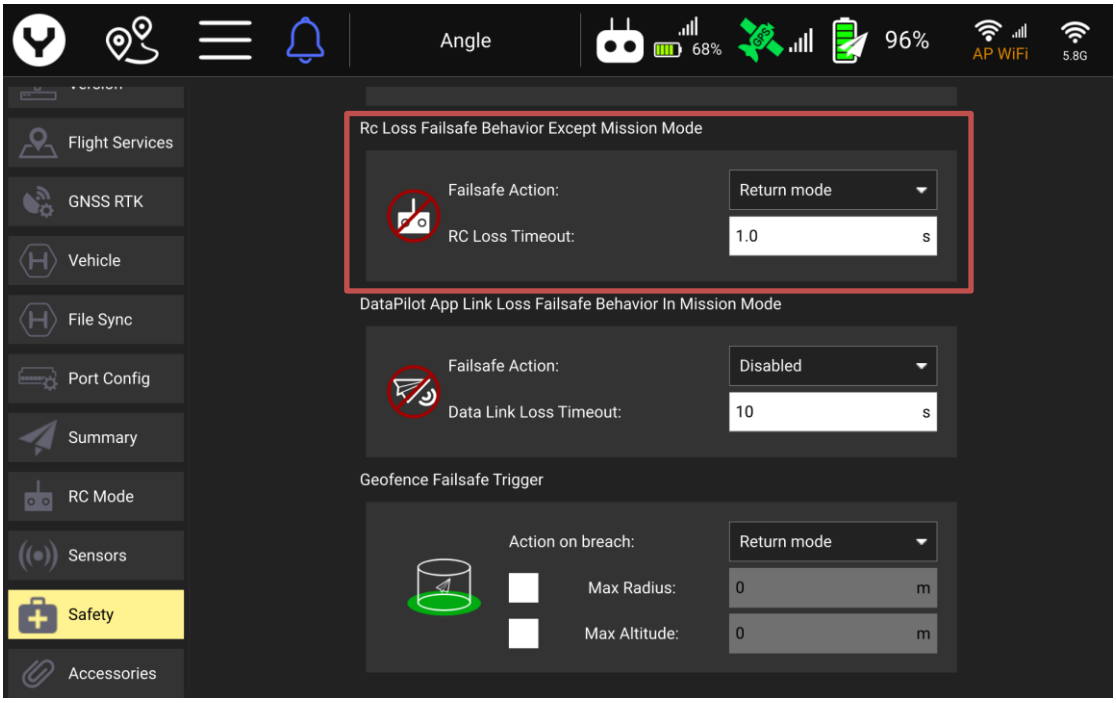
If the Geofence beach behavior happened and the Geofence Failsafe was set to “Return mode” the RTL will be enabled automatically.



6. Communication Lost Return

Under default settings, at the condition of the communication between the drone and transmitter was lost for 1 second, the RTL function will drive the drone back automatically.

The default setting in the “Safety” Tab under the Extended Menu



When the period that the drone has not gets the RC signal reached the Timeout setting, the Failsafe will be enabled, and the operator will get the yellow warning popped up as shown below:

If the Failsafe Action was set to “Return mode” as default, the RTL will be active.

Quit the RTL

1. Manual Quit

The operator can quit the RTL mode by short pressing the RTL button or switching the flight mode by using the Flight Mode Switch. Once the RTL mode was quitted the cancel warning massage will pop up.

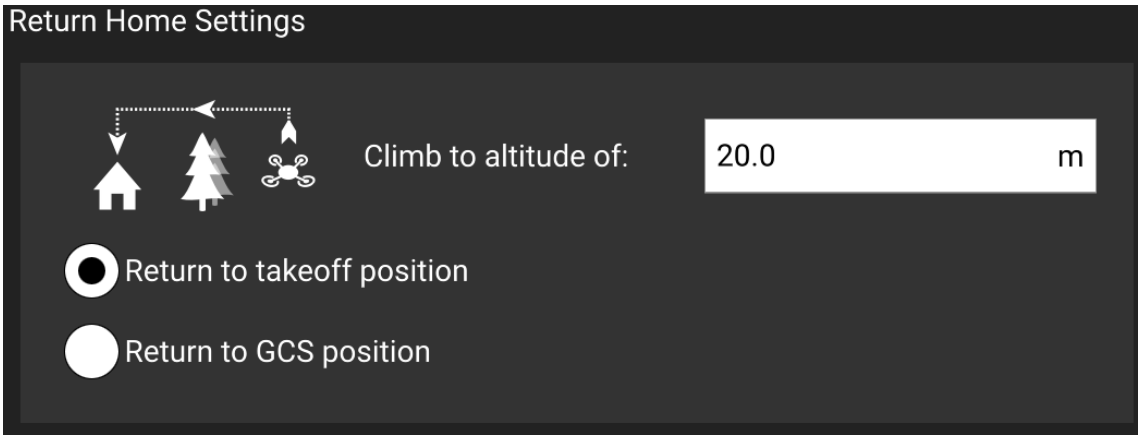
Notice: The low battery RTL is also can be quitted manually and won’t be enabled again. The operator needs to pay attention to the remaining power if the low battery RTL has already been quitted for each flight.

2. Auto Quit

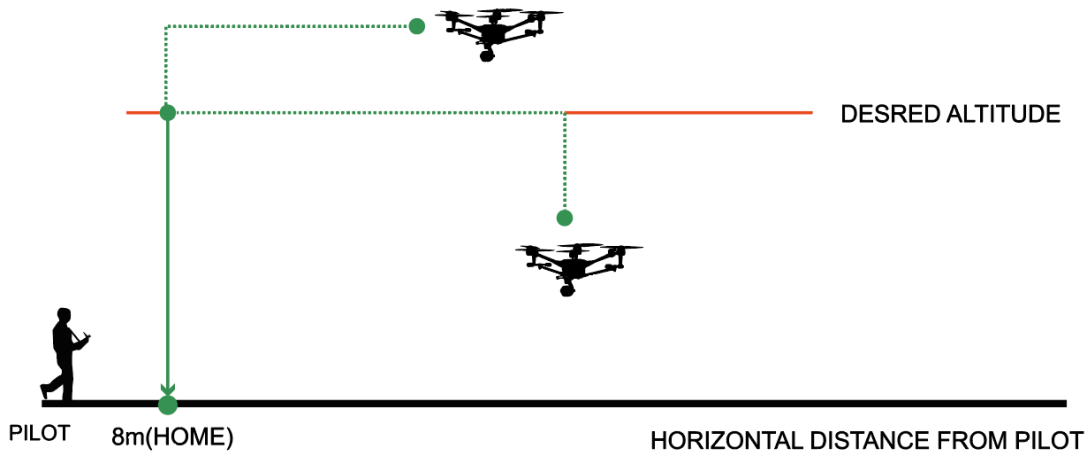
The RC signal will get stronger due to the drone is getting closer to the transmitter controlled by the Communication Lost RTL. Once the RC signal was captured again, the drone will quit the RTL mode automatically and switch to the current flight mode which the Flight Mode Switch is pointing to.

RTL Height

The RTL Height is set to 20m by default in the “Safety” Tab under the Extended Menu.



When the drone is below the height set, after the RTL Mode enabled, the drone will climb to the RTL height vertically first, then flying back to the return point.
If the drone is flying higher than the setting value, after the RTL enabled the drone will keep the current height and flying back.



Special Note in RTL Mode

When the drone is in the RTL Mode and the obstacle avoidance switch is disabled. Please confirm the following points to ensure safety when returning:

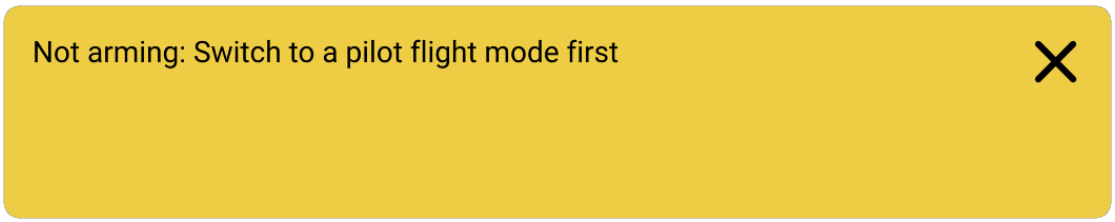
1. There are no obstacles blocking the return path.
2. Ensure a clear line of sight between transmitter and the drone.
3. Ensure the landing location is clear.

When the obstacle avoidance switch is enabled the RTL speed will be reduced to 8m/s and the drone will keep hover or climb up and attempt to fly above the obstacle according to the operator's selection when the obstacle was detected.

Precautions for the Sensors

1. GPS

The basic 4 flight modes mentioned above and the mission flight mode introduced later in this manual will be positioned and navigated by the GPS module. The performance such as the Max Horizontal Speed, which is introduced in the Drone Specification list is also control and limited by the GPS module. At the condition of non GPS lock, the drone will reject start up the motors.



If the GPS failure occurs when flying in the sky, the drone will only use the IMU to control the flight attitude and height. The yellow warning message will be popped up as shown:

Like in the manual mode, the drone will drift in slight winds and not maintain its position, especially in RTL mode the drone cannot fly back without the GPS navigation. The operator needs to visually and manually control the drone until the GPS navigation regained.
We recommend that take the following operations to regain GPS positioning again.

- Keep visual contact with the drone and manually control to keep the drone flying.
- Control the drone fly away from the building.
- Check if there are any obstacles blocking the drone from above such as trees, thick clouds, etc.
- Fly the drone higher to avoid the GPS signal blocked.

2. Compass

If the compass module gets disturbed and/or fails, the drone will loss the heading sensing ability and loss control or even crash.
The yellow warning message when the compass is defected.

If the drone still can be controlled, we recommend that take the following operations to minimize the adverse consequences of compass interference.

- Keep visual contact with the drone and manually control to keep the drone flying.
- Control the drone fly away from the building, high voltage power tower, mobile communication base station, etc. those may cause compass interference.
- Control the drone fly away from the area that causes the compass warning popped up, even there is no any man-made features built on the ground.

3. IMU

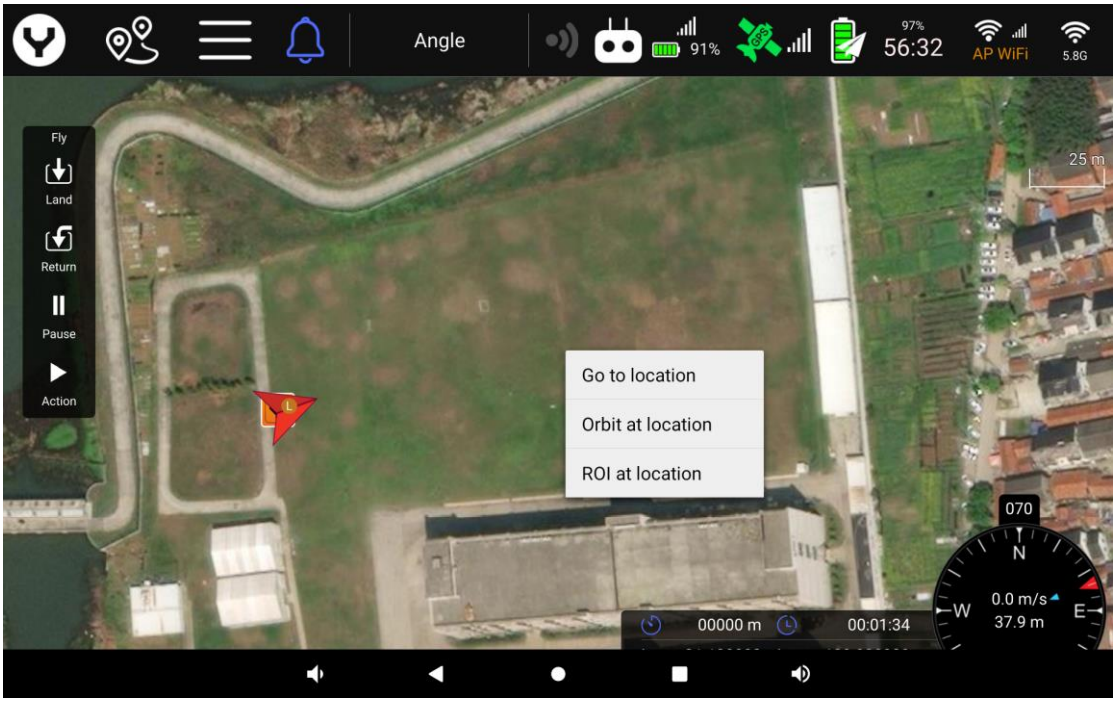
The IMU is composed by gyroscope, accelerometer and barometer. The flight attitude and height are sensed and controlled by this unit. For flight safety reasons they are limited to fixed values. To review these values please check the Drone Specification List of this manual.
The drone is equipped with tri-IMU modules At the condition of one of the IMU modules get failing the drone will switch to the other IMU to continue flying, we still strongly recommend to land the drone as soon as possible and contact an authorized Yuneec service center for repairs.

The different yellow warning messages (0# sensor fail shown) for the sub module installed in the IMU.

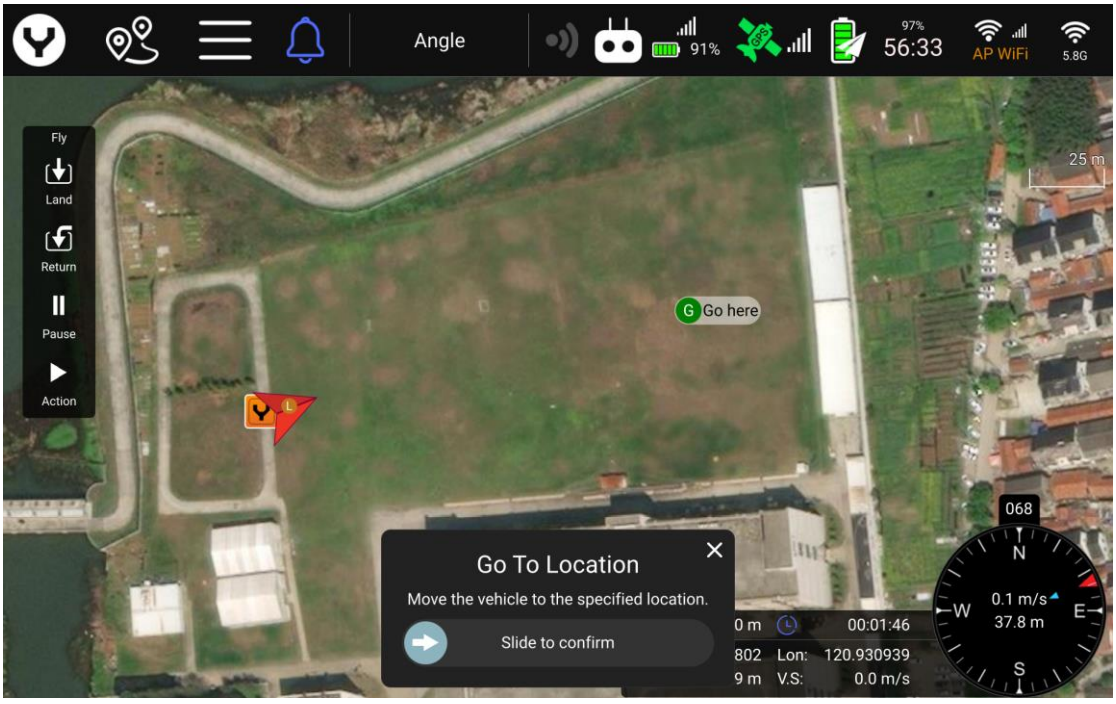
Go to Location Flight

After the drone has taken off with GPS lock, the operator can command the drone to fly to a specific point on the map by directly tapping on the screen.

Click the “Go to location” then the tapped point will be marked on the map as the “Go here” Point.



Slide the slider then the drone will fly to the “Go here” Point on a straight flight line.



After arrival, the drone will stay hovering at the “Go here” Point.

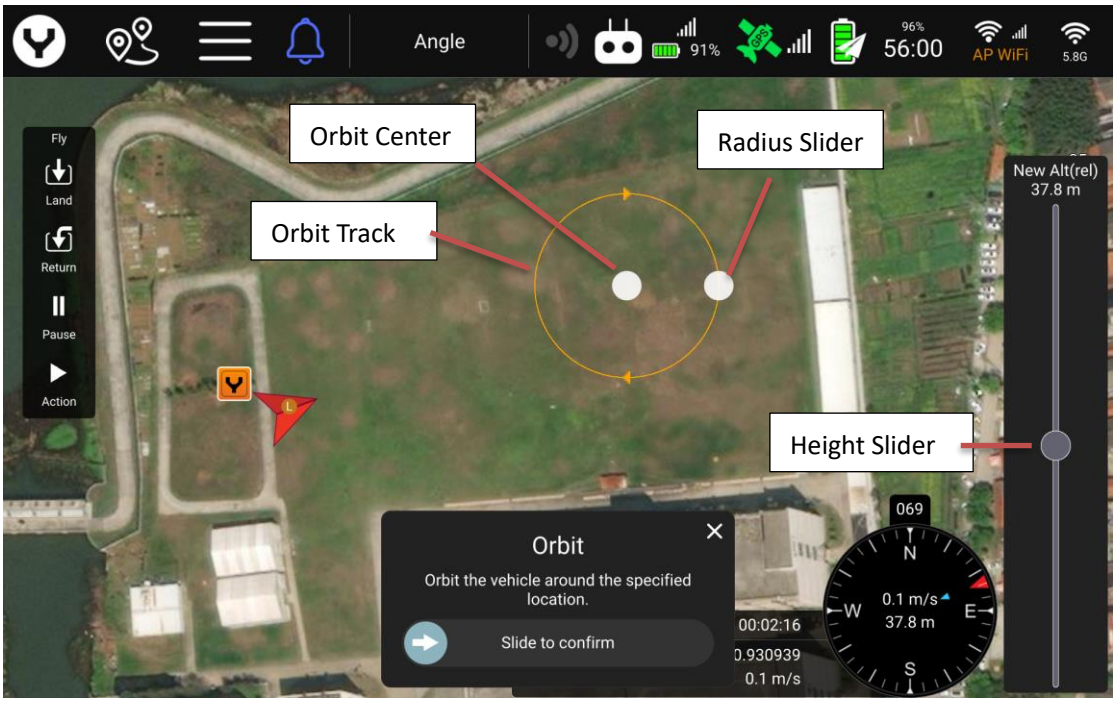
Notice: The users can stop the “Go to Location” Mission flight by pushing or pulling any joystick in any direction.

Orbit Flight

After the drone was taken off with GPS Lock, the operator can command the drone to fly to orbit a specific point on the map by tapping the screen directly.

Tap the “Orbit at location” then the tapped point will be marked on the map as the orbit center point.

Orbit Flight Setting Interface Overview:

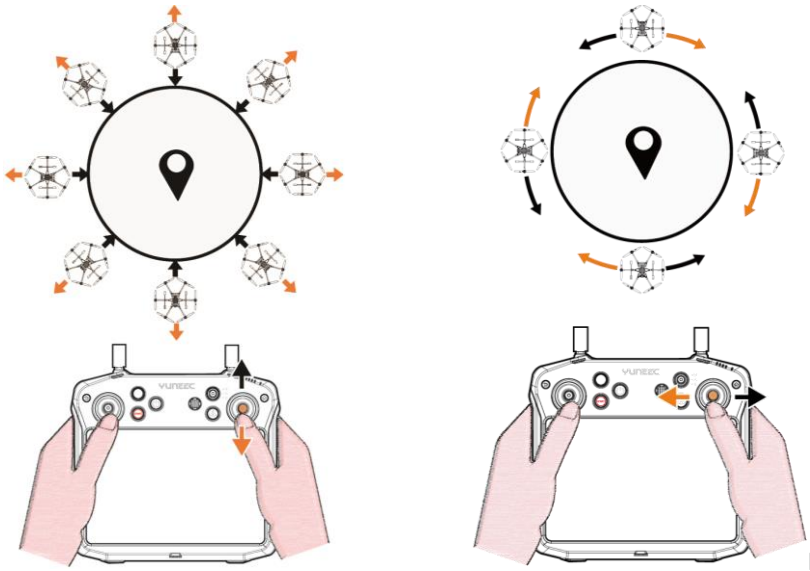


The operator can adjust the initial orbit center and radius by dragging the white dot of the orbit center point and the radius slider.

After the height is confirmed, slide the slider on the bottom to start.

Adjust the Orbit Speed, Radius and Height in Orbit Flying

After the orbit flight is started, operator can adjust the radius by using the elevator/pitch joystick; meanwhile, the orbit speed can be adjusted by the aileron/roll joystick when orbiting.



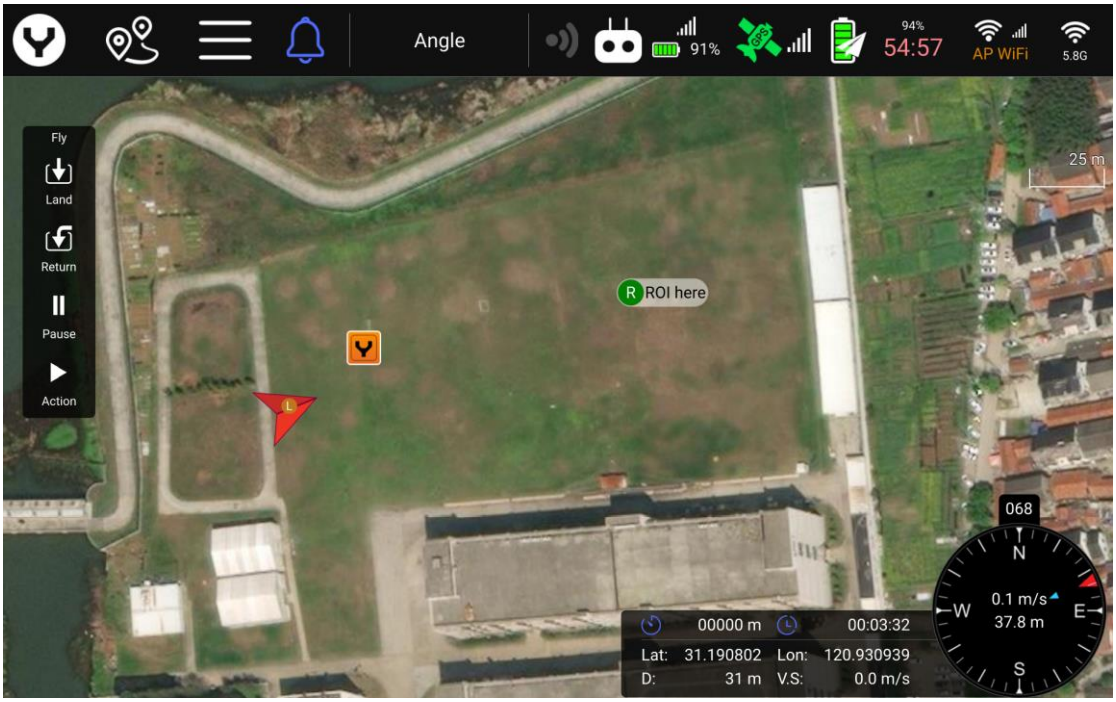
Mode 2 shown

To adjust the height, operators can use the throttle joystick.

ROI Flight

After the drone has taken off with GPS Lock, operator can command the gimbal towards a specific point of interest on the map by directly tapping the screen.

Select the “ROI at location” then slide to confirm, the tapped point will be marked on the map as the ROI point.

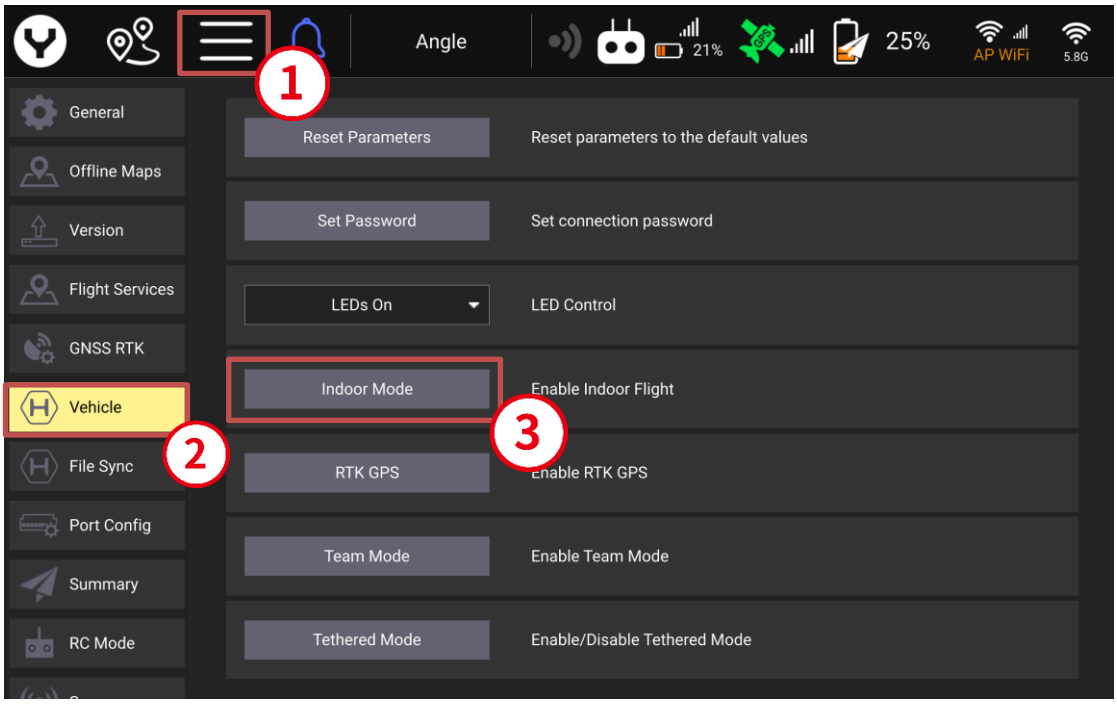


After the ROI point is set, the gimbal will turn its pan direction to look at the ROI point.

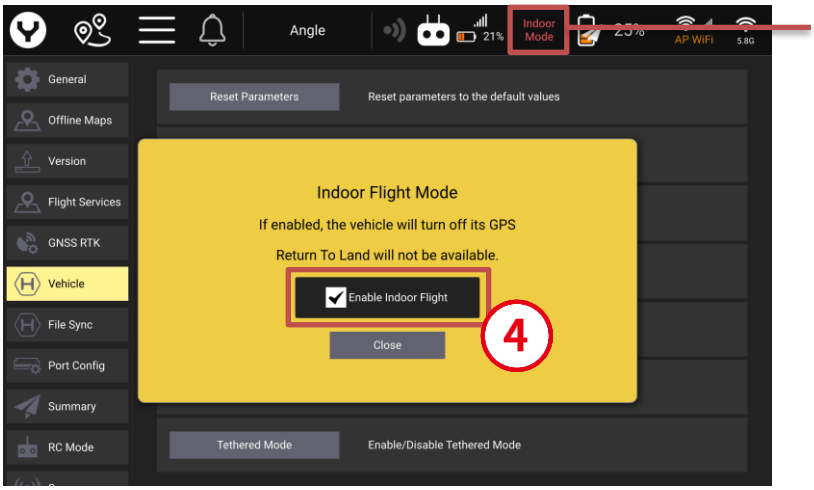
Indoor Flight (Without Position System)

When flying the drone without GPS signal, please switch to the Indoor Flight Mode first then start the motors.

Step 1: After the drone and transmitter are connected tap the Settings Icon, then select the "Vehicle" item, and tap the "Indoor Mode" Button.



Step2: Tick the "Enable Indoor Flight".



After the Indoor Flight Mode is switched on, the text "Indoor Mode" will appear instead the GPS Icon on the top of the screen.

Step 3: Push the Flight Mode Switch to the Manual Mode then press and hold the Motor Start/Stop Button for about 3 seconds to start the motors.

Notice: Please tick off the box after each indoor flight, otherwise, the drone won't get a GPS lock when flying outdoor next time. And the RTL mode cannot be enabled in the Indoor Flight Mode.

Notice: The performance is still be limited by the Autopilot when in the Indoor Flight Mode, but the Max Horizontal Speed will not be limited due to the GPS module has been disabled. Please refer to the Drone Specification List for details.

Landing

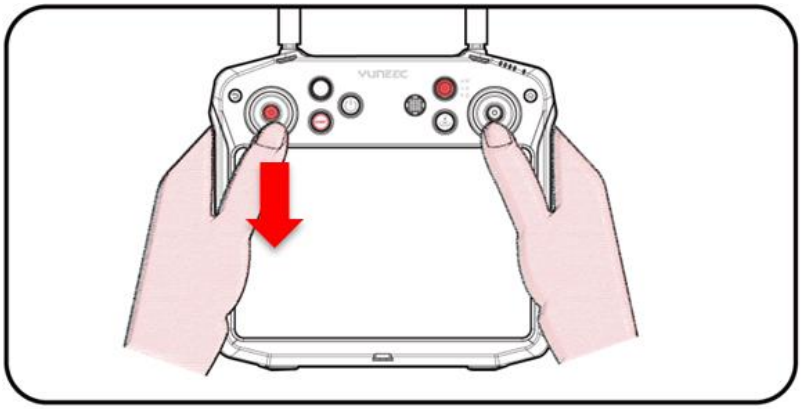
Environment Requirements

In most cases, the takeoff point and landing point of the drone are at the same location, so the environmental requirements during takeoff also apply. However, special attention should be paid to the following points.

1. Altitude difference between landing point and take-off point.
2. Ensure the landing location is clear of people, vehicle and other obstacles
3. Please be aware of dust in the landing environment, excessive dust and foreign matter entering the motor will greatly affect the life of the motor.

Manual Landing

In Manual, Angle, Sport and Indoor Flight Mode, slowly lower the throttle joystick below the center position, drone will descend slowly and land. After the drone lands, the motors will stop after 2 seconds without any operation.



Mode 2 Shown

Auto Landing

1. Manual Active

The manual active auto landing can be applied in all flight modes except Indoor Flight Mode.

Tap the “Land” Button then slide the slider to confirm, the drone will land directly at the current position.

2. Auto Active

2.1 At the final stage of the RLT, the drone will hover on the landing point first then continue descent the height to land.

2.2 When the remaining battery is lower than 5%, the drone will start auto force landing due to the low battery protection.

2.3 When the done is flying in or under the UGZ, the forced landing will be enabled after the countdown finished.

Notice: When the drone is in the Auto Landing Mode except caused by RTL, there is a text of “Land” shown in the Flight Modes Indicator.

Due to the Landing process is a part contained in the RTL, the flight mode still indicates the “RTL” text when landing by the RTL mode.

Quit the Auto Landing

The Auto Landing can be quitted except at the condition of low battery force landing, just an Input via the joysticks to any direction. The drone will switch to the Angle mode automatically no matter what the Flight Mode Switch is pointing after the auto landing is quitted. Then the flight mode can be selected as wish via this switch.

Caution: Normally the descent rate when landing will be controlled by the Autopilot to be limited within -0.8m/s. But In the following situations, the drone’s descent rate may exceed this value:

1. When landing in high-altitude environment
2. When the TOF Height Sensor works abnormal, such as the sensor covered by dirt.

Therefore during landing, please also always monitor the drone’s descent rate and push the throttle joystick slightly upward to control the descent rate no more than -0.8m/s when contacting the ground.

Post-Flight Checklist

Please strictly follow this list to check after flying to ensure the safety of the drone during storage or next flight. At the same time, doing post-flight inspections will also help ensure the service life of the drone.

Before Powering Off

1. The time has been increased in the HOBBS Meter
2. The motor has been stopped before powering off or changing the battery for the drone
3. For the mission breaking operators, the remaining mission has been updated before powering off
4. The camera is not recording video

After Powering Off

1. The power of the battery also has been cut-off, No LED lighted on the battery
2. The battery temperature is within the normal range
3. There is no balloon or swell occurred on the battery
4. The remaining battery life check
5. The motor temperature is within the normal range
6. There is no looseness in the stator and rotor of the motor
7. The rotor of the motor can rotate smoothly when pushed by hand
8. There is no dust and other foreign matter entered into the motor
9. There is no damage or cracks on the blade
10. There is no looseness between the propeller mound and motor
11. There is no damage or cracks on the Land Gear Server
12. There is no damage or cracks on the Airframe, Motor Arms and Landing Gears
13. There is no dust and foreign matter blocked the TOF Height Sensor
14. There is no dust and foreign matter blocked the Obstacle Avoidance Lens
15. There is no dust and foreign matter blocked the Optical Flow Lens
16. There is no dust and foreign matter blocked the heat dissipation vent on the top of the drone
17. There is no damage or cracks on the waterproof rubber plugs
18. Water stains were promptly wiped if flew in the rain
19. There is no damage or cracks on the damping balls which installed in the payload bracket

Notice: If does not check according to the list above, the operator may face the following risks

1. Data lost caused by power off suddenly
2. Chips overheat and shorten the control distance due to the heat dissipation vent is blocked
3. Motor life is shortened caused by dust, foreign matter and overheat
4. Battery over discharged due to uncheck the power cut-off situations
5. Battery life is shortened or even catch file caused by overheat
6. 5 Rotor Emergency Mode or even crash caused by unchecked propeller and rotor
7. Crash caused by unchecked structure part of the Airframe, Motor Arms and Landing Gears
8. Crash or Landing Gear dropped caused by the unfastened nuts
9. Rusty metal parts caused by water stains
10. Damping oil leaks from the damping ball

Warning: When the drone is powered on, high temperature will be delivered to the cooling fin located on the top shell. Please avoid touching the cooling fin before cooled down!

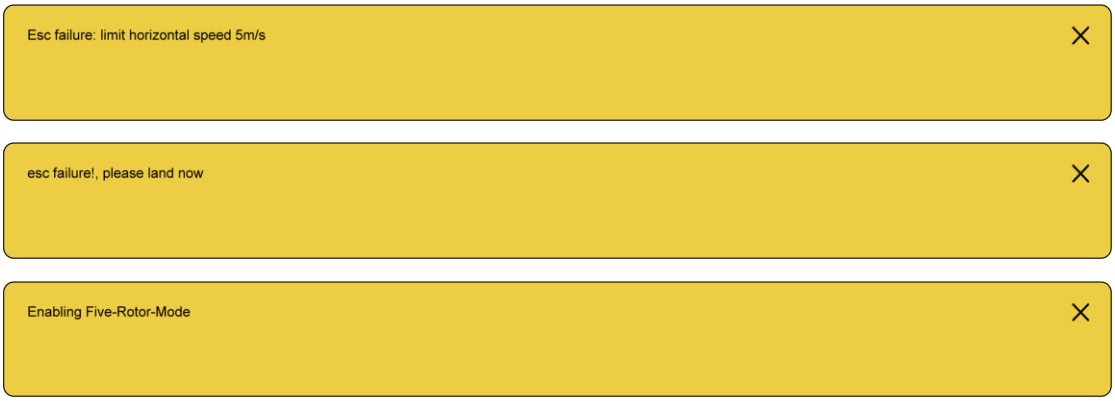
5 Rotor Emergency Mode

The drone will enter the 5 Rotor Emergency Mode at the condition of one of all 6 motors/propellers/ESCs got failure such as:

1. A propeller lost due to the screw unfastened
2. A motor blocked to stop
3. ESC hardware failure

Once the 5 Motors Emergency Mode has been entered, the RLT Mode will be also enabled to drive the drone return and land.

The faulty motor No. and reason will feedback by the yellow message warning then the other warnings will be popped up follow the sequence below:



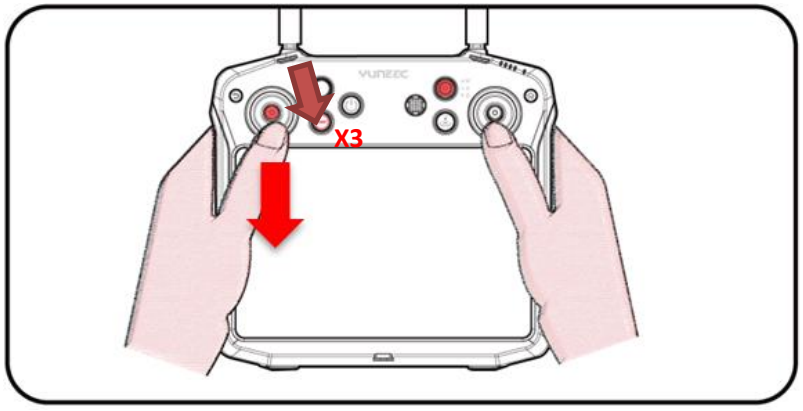
Please land the drone as soon as possible when the 5 Motors Emergency Mode occurred.

Emergency Motor Stop

The operator can force stop the motors by the following operation in the emergency situation such as the blades could hit the people and cause serious injury. Or the drone flies away under the loss control conditions caused by a faulty sensor.

To “force stop” the motors, pull the throttle joystick to the bottom, then press the Motor Start/Stop Button 3 times rapidly.

Warning: The motors will stop even if the drone is flying by using the force stop command.



Mode 2 Shown

Notice: If the motors were force stopped, to start the motors again, the operator must first reboot the drone.

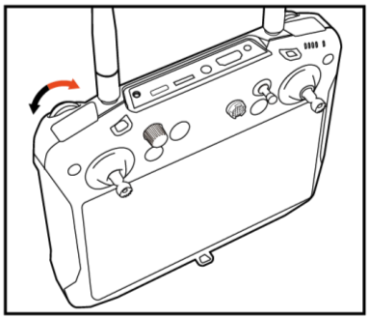
Gimbal Control

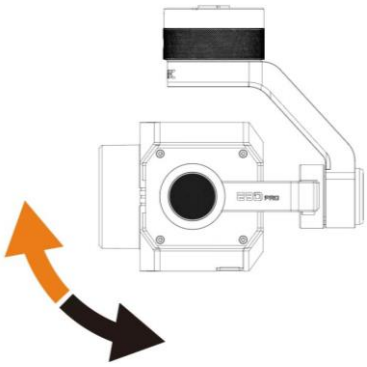
Gimbal Camera Tilt Control

The operator can control the tilt of the gimbal by using the Gimbal Tilt Control Knob.

Rotate the knob to the left to tilt down the gimbal, and rotate the knob to the right to tilt up the gimbal.

Keep the knob at the center point to hold the tilt angle of the gimbal.



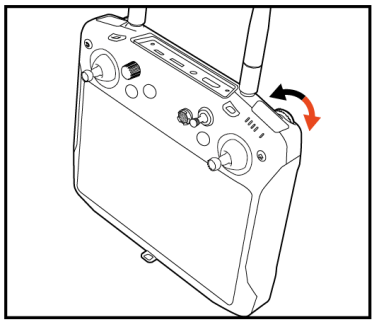


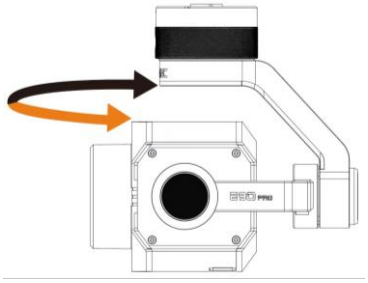
Gimbal Camera Pan Control

The operator can control the Pan of the gimbal by using the Gimbal Pan Control Knob.

Rotate the knob to the left to pan left the gimbal, and rotate the knob to the right to pan right the gimbal.

Keep the knob at the center point to hold the pan direction of the gimbal.



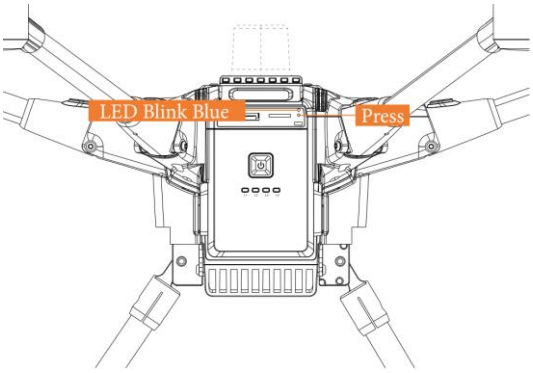


Re-Bind

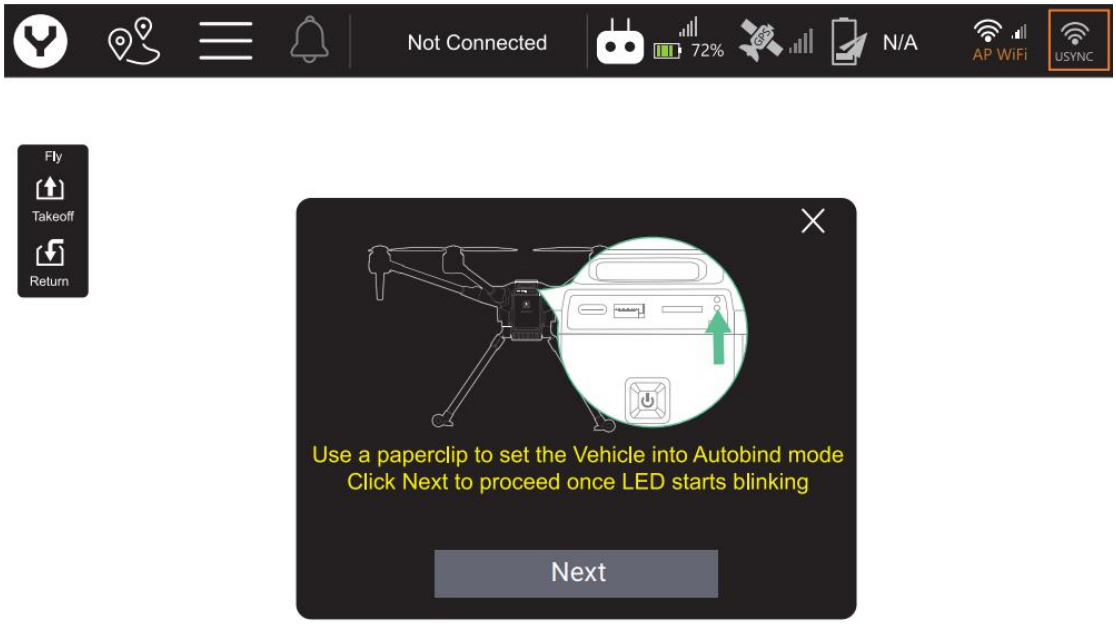
The drone and T-One Transmitter are already bound before being shipped from the factory. It is unnecessary to bind them again. The pilot can follow the steps below if rebinding is needed.

Step 1: Power on the Drone. Wait a few seconds for all systems to boot up.

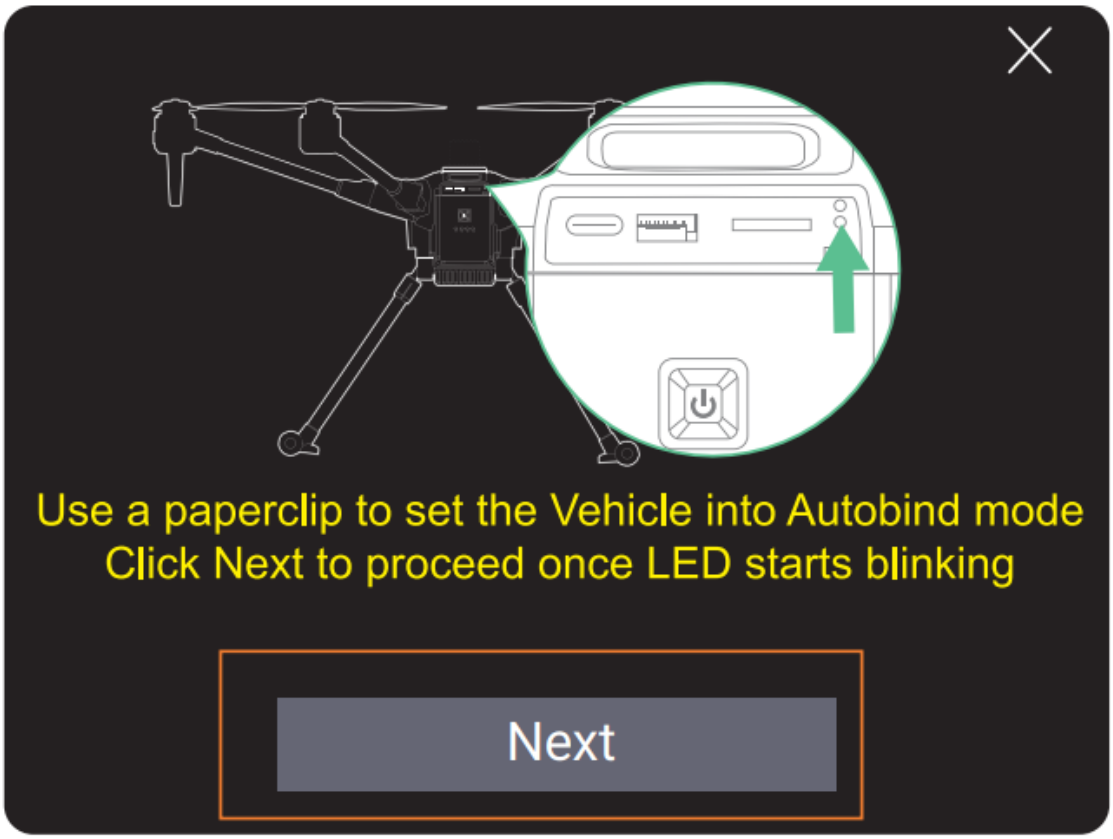
Step 2: After initialization completes, use a paperclip or similar item to push the Binding Button inside the hole as the picture shows. Release the button when the blue LED blinks quickly.



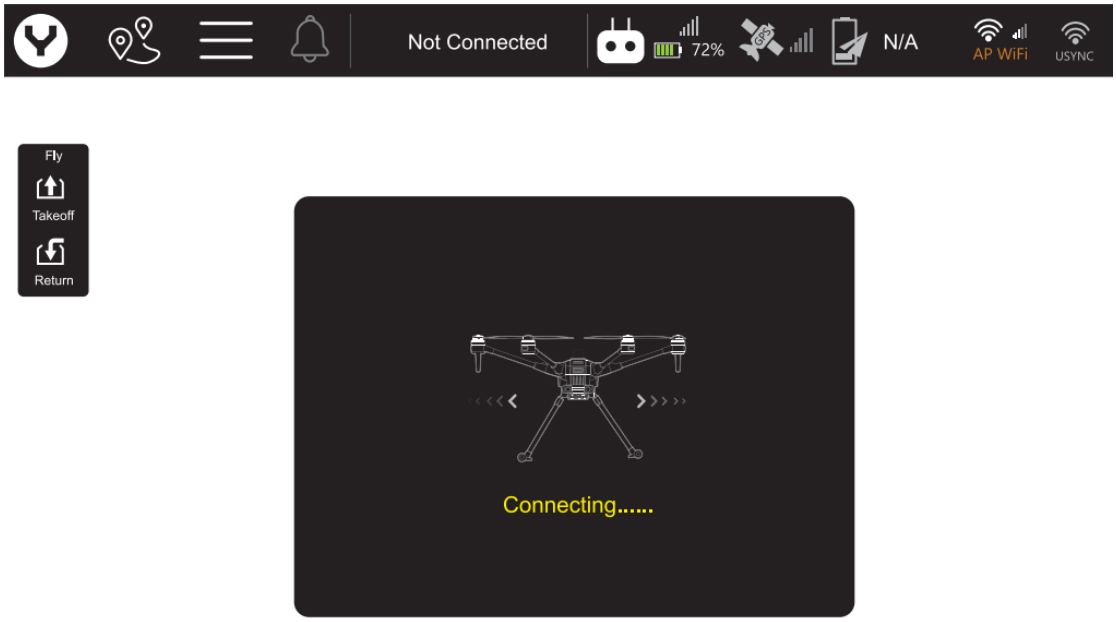
Step 3: Power on the T-One Transmitter and tap the “USYNC” Button to bind.



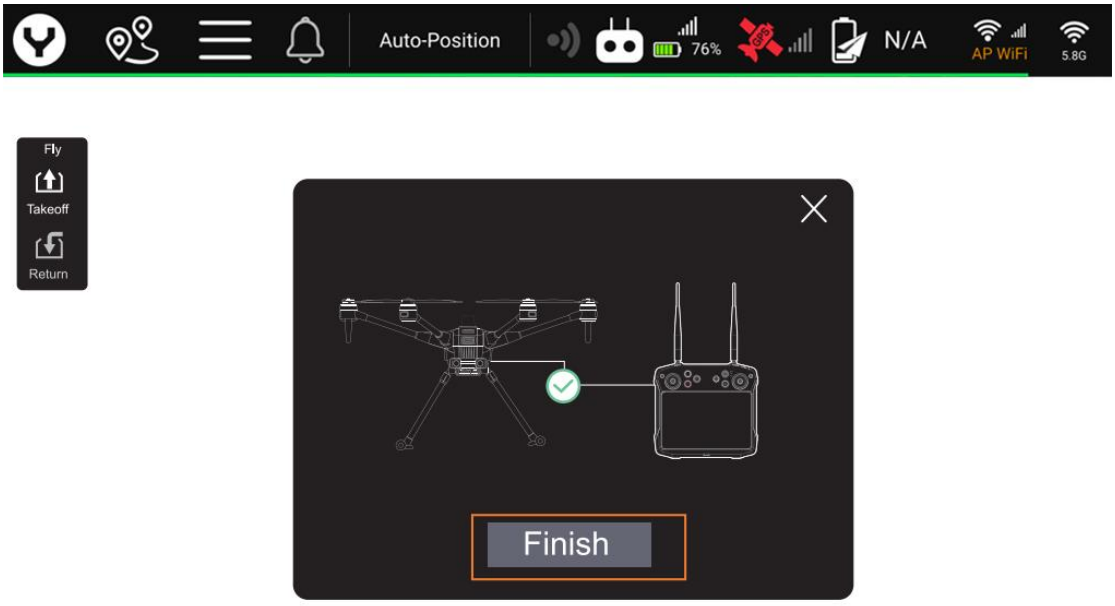
Step 4: Tap the “Next” Button to start the binding process.



Step 5: Connecting.



Step 6: Tap the “Finish” Button to finish the binding process.

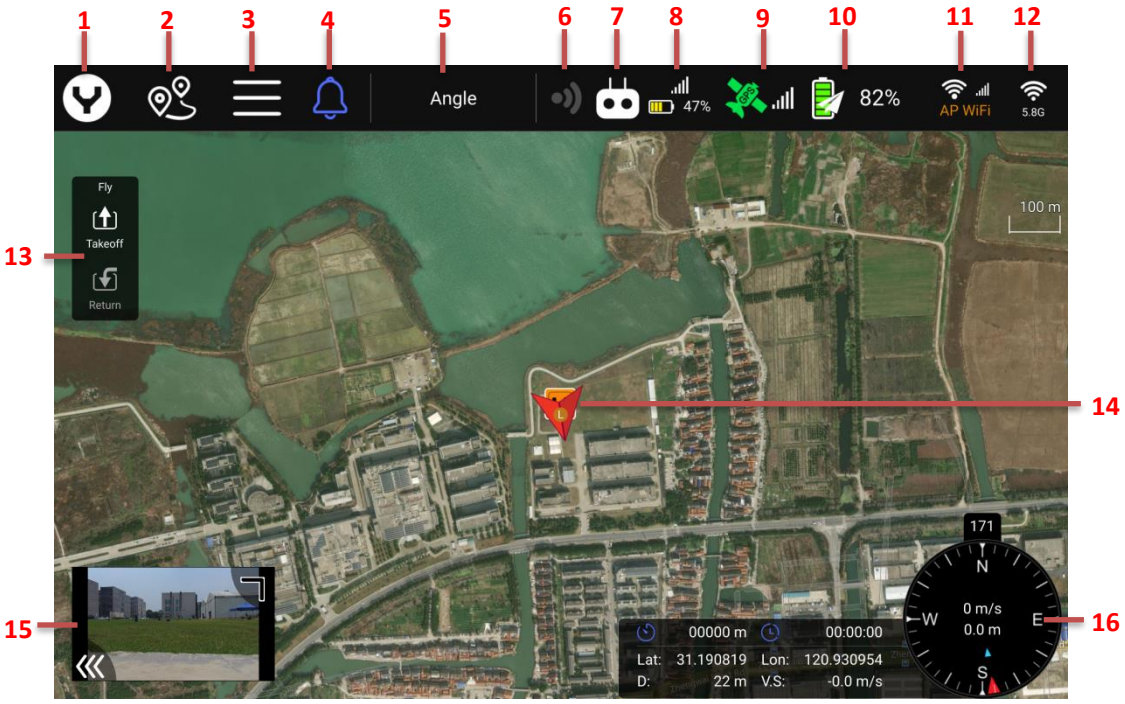


DataPilot 2.0 APP

DataPilot ™ is an economical and efficient task planning software tailored for industry operators, which is preinstalled in the smart transmitter for all the YUNEEC commercial drones.

Main Interface Overview

Full-Screen Map Interface



01 Main Interface Button

Return to the main interface from any other interface by tapping this button.

02 Mission Route Setting Button

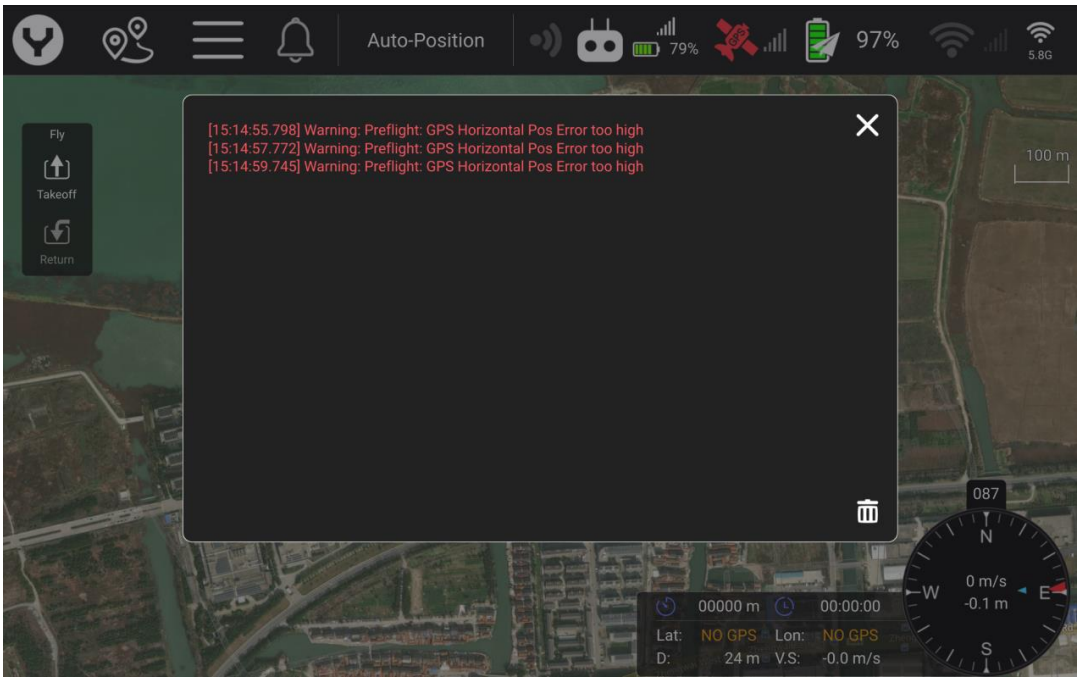
Tap this button to enter the PLAN window.

03 Settings Button

Tap this button to open the Extended Menu to view and adjust the parameters of other settings.

04 Warning Message Button

After the Warning Message is released by the drone, the Bell Icon will change to the Exclamation Mark . To view the Warning Message, please tap the Exclamation Mark, and then the Warning Message Window will like pop open as shown below. Tap the Close Button to close the Warning Message Window. Tap the Trash Can Icon to clean the Warning Messages.

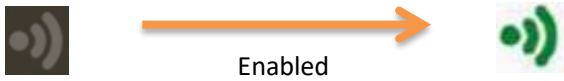


05 Flight Modes Indicator

Display the current Flight Mode of the drone.

06 Obstacle Avoidance Indicator

After the Obstacle Avoidance is switched on, this icon will turn green to remind the operator this function is enabled.



07 Communication Status Indicator

This indicator shows 2 different communication statuses, as in the picture shown below:

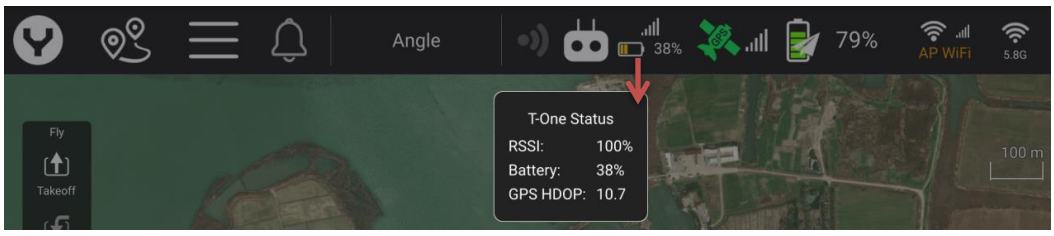
Gray: The drone doesn't connect to the transmitter.

White: The communication between the DataPilot ™ 2.0 App and the Autopilot was established.

08 Transmitter Battery & RSSI

This icon displays the Remaining Battery Power and acts as the RSSI (Received Signal Strength Indication) of the transmitter.

Tap this icon to display more information such as GPS HDOP of the transmitter status.

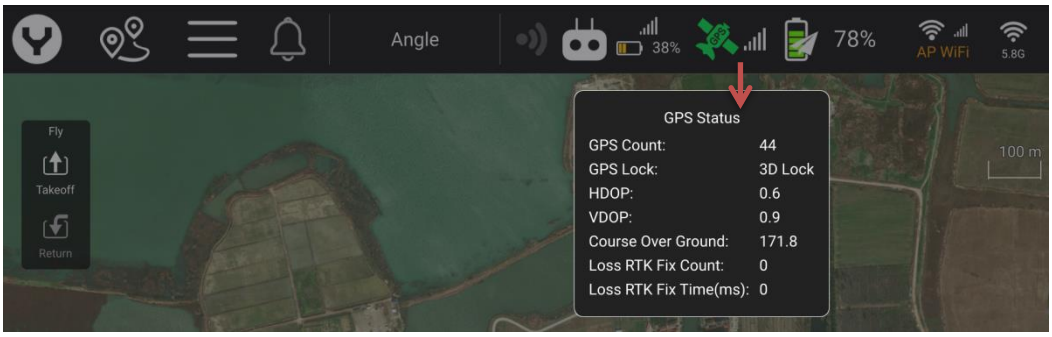


To close the dialog box, just tap other areas on the screen.

09 Drone GPS Indicator

This icon displays the drone GPS status. When the icon turns green it means the drone has an ideal positioning accuracy for flight.

Tap this icon to display more information of the drone GPS status.

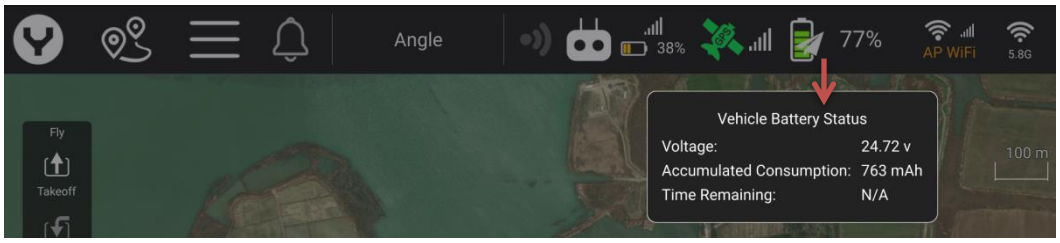


To close the dialog box, just tap other areas on the screen.

10 Drone Battery Indicator

This icon displays the remaining power and percentage of the drone flight battery.

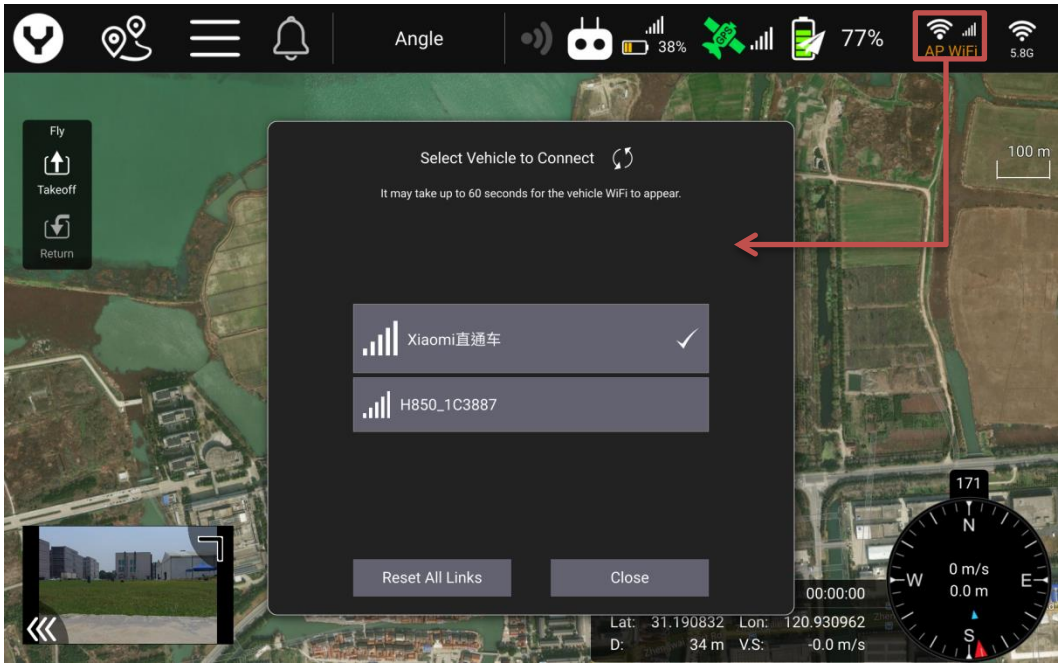
Tap this icon to display more information of the drone battery status.



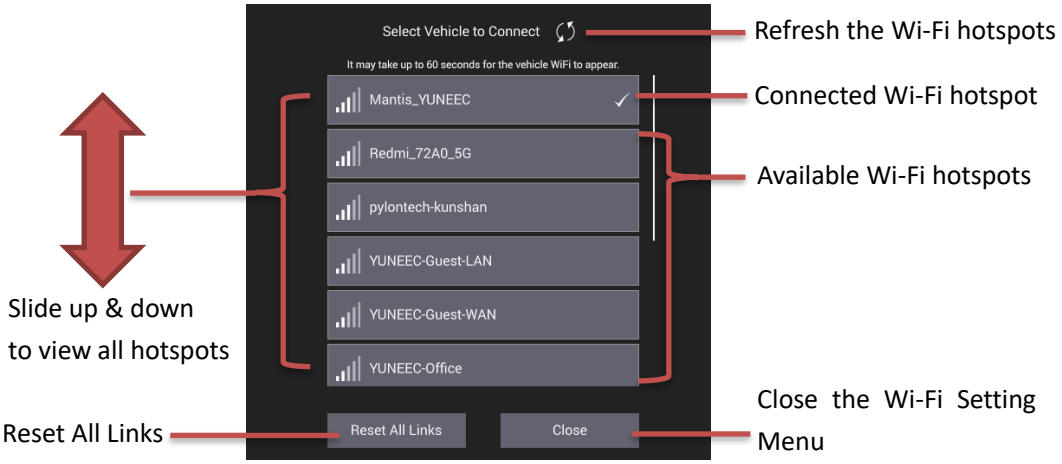
To close the dialog box, just tap other areas on the screen.

11 Wi-Fi RSSI & Setting Button

This icon displays the Wi-Fi RSSI. The users can also open the Wi-Fi Setting Menu by tapping this button.



The operator can select, refresh, connect or reset the available Wi-Fi hotspot under the Wi-Fi Setting Menu.

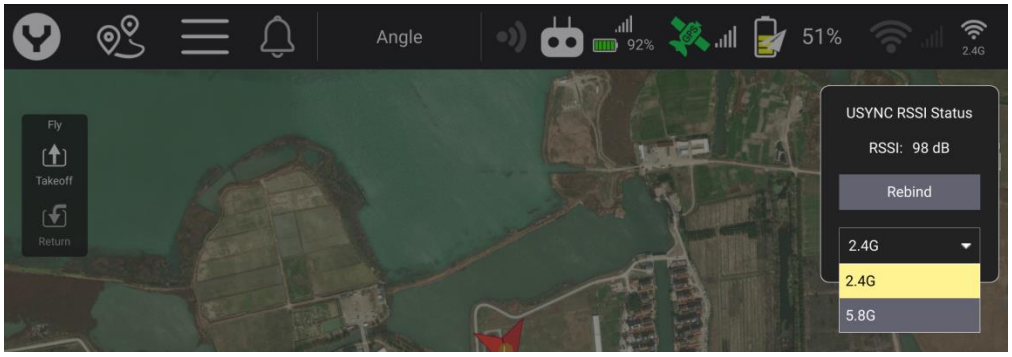


The operator can select the wanted Wi-Fi hotspot by tapping the SSID in the available Wi-Fi hotspot list, and then enter the passwords to connect.

Once the Internet is connected, the operator can download the electronic map, get the Network CORS Source or act other operations.

12 Artosyn RSSI & Menu Button

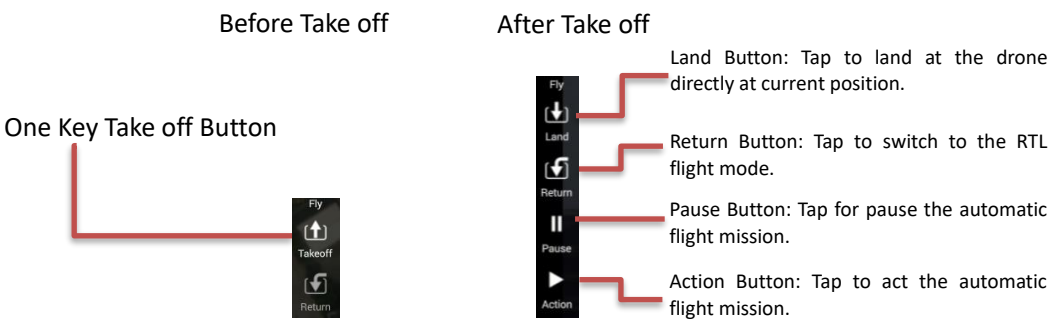
This button displays the Artosyn RSSI and the using frequency. The operator can also open the Artosyn Menu by tapping this button for binding, unbinding or changing frequency.



After the Artosyn Menu opened the users can switch the communicate frequency between 2.4G & 5.8G by tapping the white-down arrow. Normally the 2.4G is suitable for flying outdoor while the 5.8G is designed for avoiding disturbs the Wi-Fi devices.

13 Flight Quick Control Panel

The operator can send the control command by using this panel. After the drone took off the panel will add 2 items as the screenshot below:



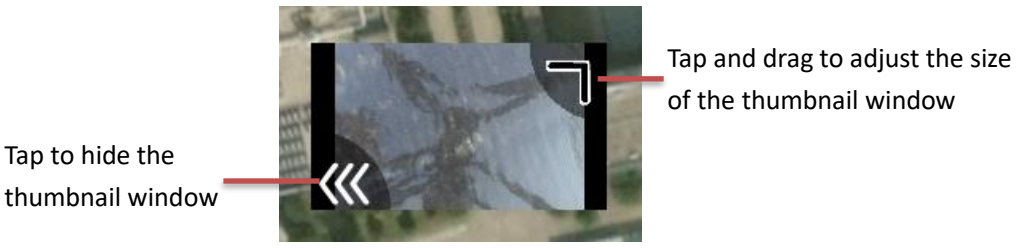
14 Drone

Indicate the drone position and course. The L point means the Launch Point of the drone.

15 Map /Video Switch

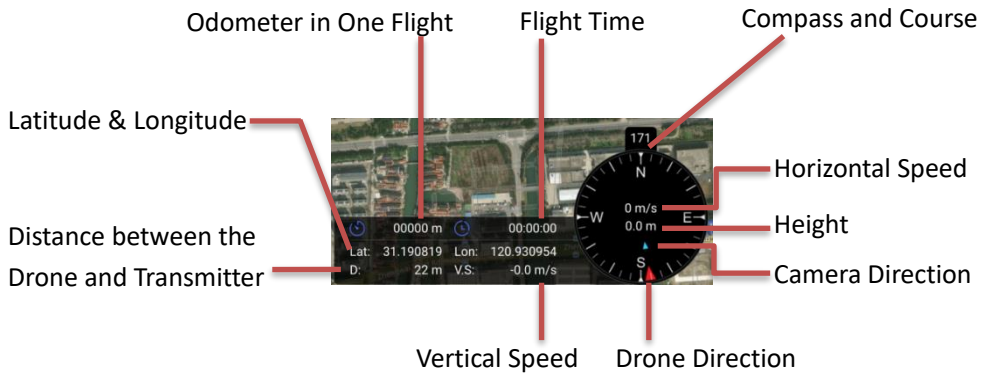
Display the thumbnail window of the map or video link feedback. Tap to view the full-screen map or Video Link Feedback Interface.

The operator can tap the Hide Icon to hide the thumbnail window, or drag the icon to adjust the size of the window.

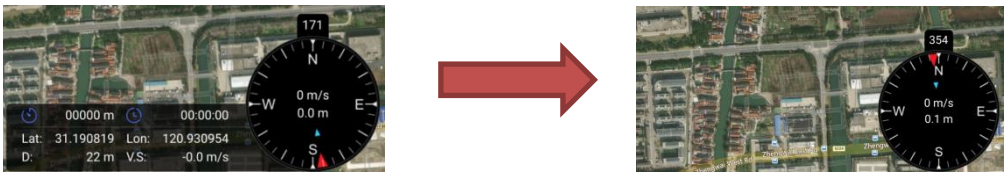


16 Flight Data Panel

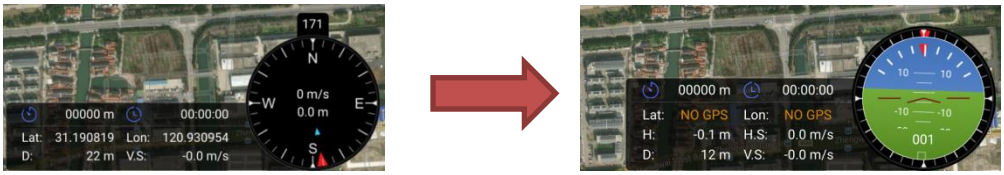
Indicate the flight data



The operator can hide the panel left to the compass by single tapping the compass dial.



The compass also can be switched to the gyroscopic horizon dial by tapping the dial in quick succession.



The Height and Horizontal Speed data will also be moved to the panel left to the dial.

Video Link Feedback Interface

After The Main Screen has been switched to the Video Link Feedback Interface, the operator will get the screen shown below:

1Camera Quick Access Menu

The operator can adjust the camera parameter quickly by using this menu. Such as exposure mode, white balance, etc.

Notice: According to different camera types and parameter setting this menu could be changed.

2 Zoom Icon

This icon displays the zoom ratio of the camera.

Notice: According to different camera types this icon could be changed.

3 Gimbal Attitude Indicator

The position of the yellow dot in the gimbal tilt indicator bar shows the gimbal tilt attitude. The red marks in the bar show the gimbal is tilted up meanwhile the green marks show the gimbal is tilted down. For further accuracy, we can read the gimbal tilt angle in the rectangle under the vertical bar.

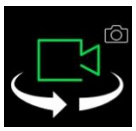
There is also a black arrow in the yellow dot which shows which direction of the gimbal lens is pointing to. When the arrow is straight up it shows the gimbal lens is pointing to the front of the drone.

4 Camera Type and SD card Remaining Capacity

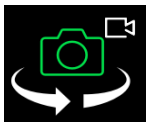
Display the camera type and SD card remaining capacity.

5 Photo/Video Mode Switch

Switch the camera mode between the photo mode and the video recording mode. Just tap the icon to switch the camera working mode.



Camera in Video Mode



Camera in Photo Mode

6 Shutter/Record Button

In the video recording mode, the icon is a red dot. Tap it to start recording the video and tap again to stop recording.

In the single photo mode, the icon is a white dot. Tap it to capture a photo.

In the time lapse photo mode, the icon is a white dot with a time interval shown at the center, tap it to start the time interval shooting and tap again to stop.

If the SD card is full or the camera without a SD card the icon is a gray dot that means you cannot record anything.

Five different statuses of the Shutter or Start/Stop Recording Soft Button

Tap to start recording video

Tap to record one photo

Tap to start time interval shooting

Tap to stop the video recording or time interval shooting

No SD card or SD card full

7 Counter in photo mode/ Timer in video mode

In the photo mode, the counter shows how many photos you have recorded within a single power on time. Once you have powered off the drone, the counter number will be reset.

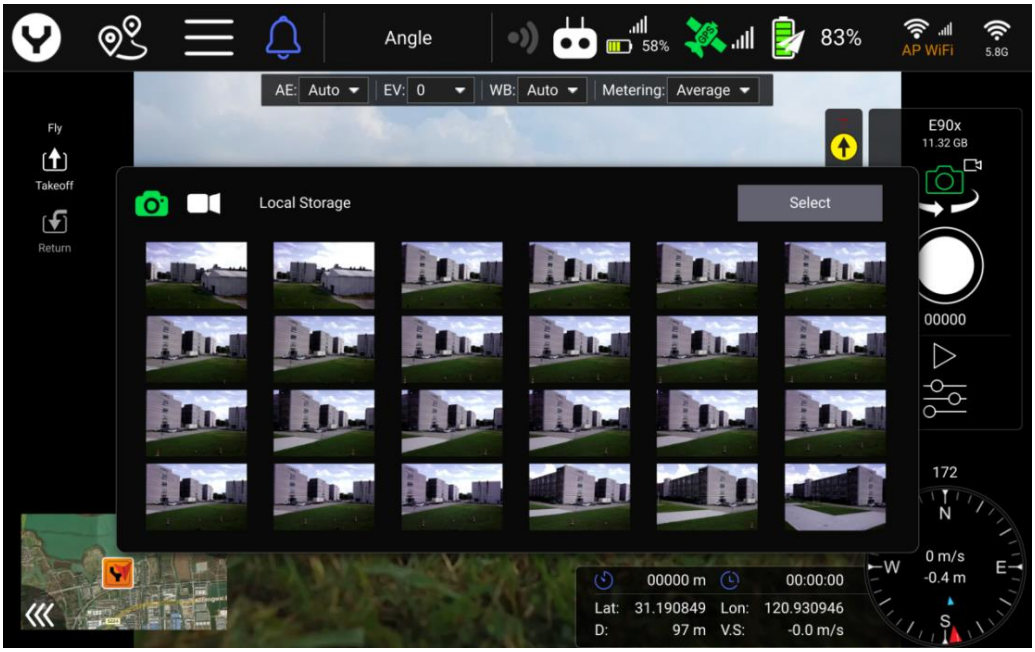
In the video mode, the timer shows the time you have recorded in each single video shoot.

8 Gallery

The main function of gallery preview enables operators to check the pictures and videos taken on the transmitter, without pulling out the SD card in the camera. It offers the ability to check the quality of its own aerial photos or videos without landing, so that operator can quickly reshoot the unsatisfactory photos or videos, greatly improving the efficiency.

The photos or videos also can be deleted in the gallery function to save the storage capacity of the transmitter.

Notice: When deleting in the gallery, the device will only delete the file in the transmitter, you won't delete them in the micro-SD card inserted in the gimbal camera.



9 Camera Setting Button

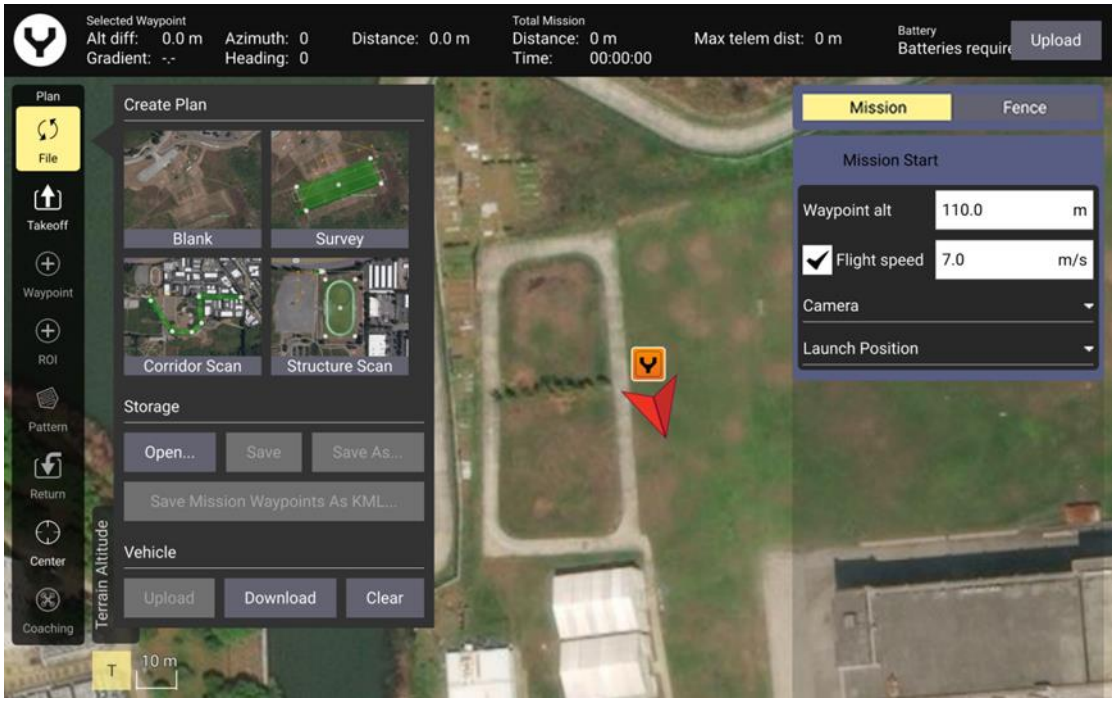
Tap this button to open the Camera Setting Menu for further settings.

Notice: According to different camera types the camera setting menu could be different. Please refer to the corresponding chapter of the gimbal manual for the Camera Setting Menu instruction in detail.

Plan A Flight Mission

To enter PLAN window, tap the Mission Route Setting Button [] on the top of the DataPilot™ 2.0 home screen. The PLAN window will open, allowing the operator to create Waypoint and Pattern type missions, sync missions between desktop, transmitter, and the drone, store/recall missions, and center a mission around a particular point on the screen.

After enter the PLAN window, the “Create Plan” Menu will be open automatically under the “Plan” Panel beside the “File” Button and the first step of all the missions—Mission Start Setting Menu will be open under the “Mission” Tab which indicate the mission steps at the right side of the screen.

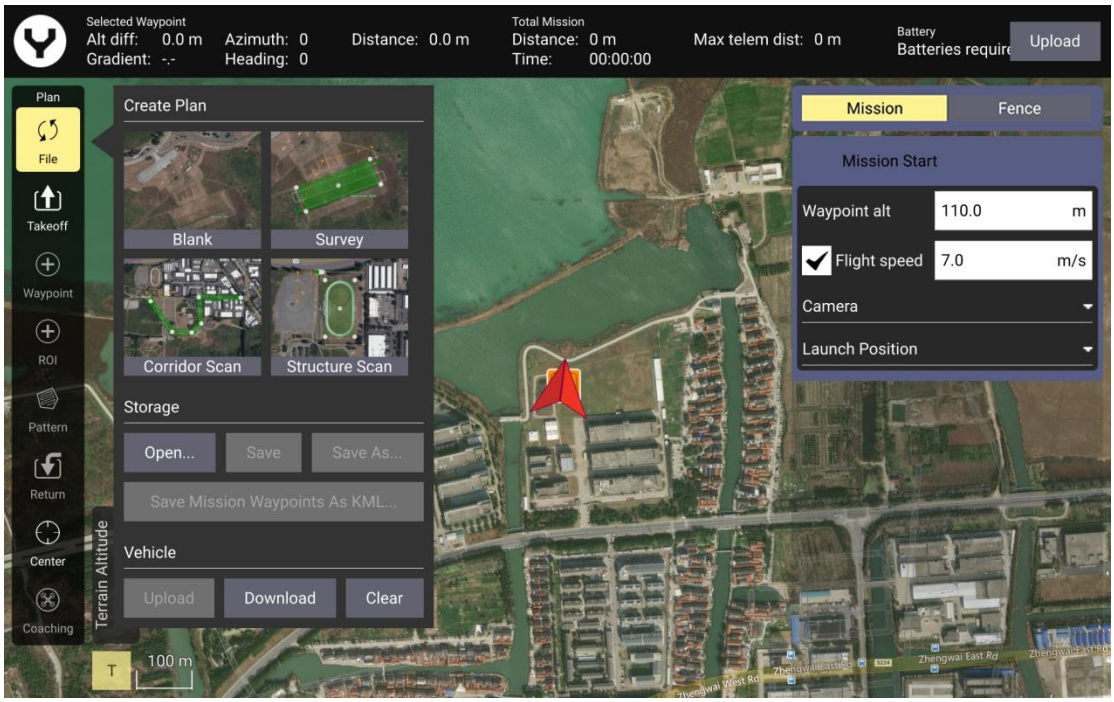


Mission Start Setting Menu

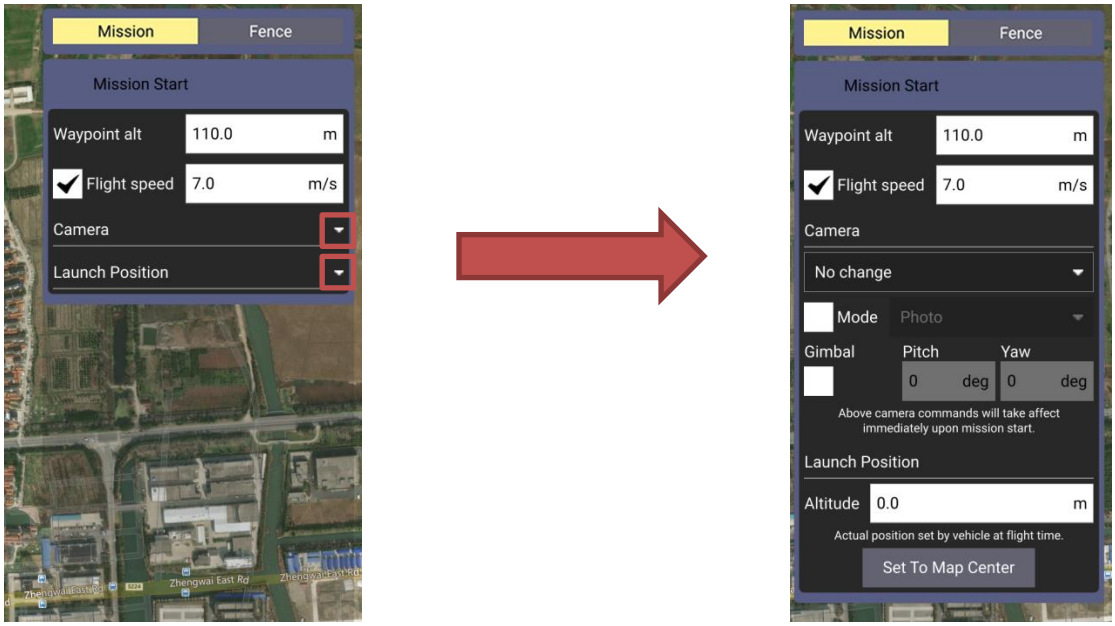
The “Mission Start” is the first step for all kinds of the flight mission. And the corresponding setting menu is located at the first entry under the “Mission” Tab.

The parameters of all the following mission steps will be set according what they are in the Mission Start Setting Menu, unless the operator set the special steps separately by opening the menu behind.

The Mission Start Setting Menu also act as a global setting menu, the changes in this menu will affect the plans added which are listed below.



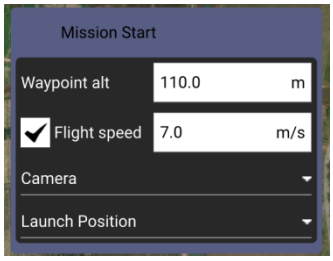
The Camera and Launch Position Sub Menus are folded by default. Tap the white-down arrow to view all the settings in the Mission Start Setting Menu. The operator can fold them by tapping the text of the “Camera” and “Launch Position”.



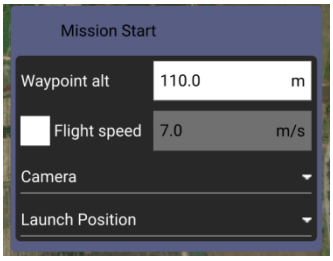
Mission Start Setting Menu Instructions

1. Waypoint alt: The global waypoint altitude setting entry for all the following waypoints.

2. Flight speed: This entry has been ticked automatically which means applied as the global waypoint speed setting for all the following plan steps. To edit or take effect of the setting, please ensure the box was ticked.



Checked: editing is available

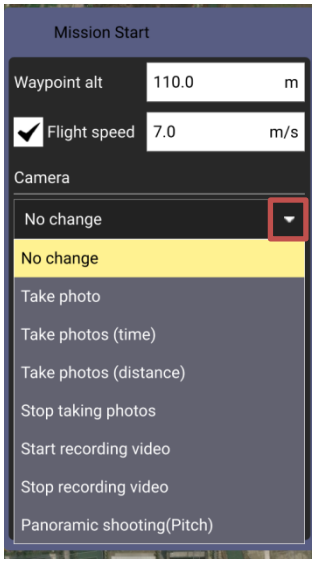


Unchecked: editing is unavailable

Notice: For a pattern type mission (survey or scan) the flight speed can be only changed in the Mission Start Setting Menu.

3. Camera Behavior Select Menu

The Camera Behavior Select Menu will appear after the Camera Sub Menu is unfolded. Be similar with the items above this entry acts as the global setting of all the waypoints below. Tap the white-down arrow to open the drop-down menu to select.



No Change – Camera maintains its current mode/settings.

Take Photo – Captures a photo at the current position.

Take Photos (Time) – Captures photos over a set time interval.

Take Photos (Distance) – Captures photos over a set distance travelled.

Stop Taking Photos – Stops the camera from taking photos.

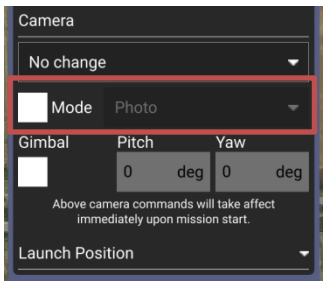
Start Recording Video – Begins video recording.

Stop Recording Video – Stops video recording.

Notice: We suggest the operator keeping the camera behavior in the Mission Start Setting Menu as “No change” by default. The behavior can be set separately in the following mission plan step menus.

4. Camera Mode Menu

Normally the operator need not do any setting to the Camera Mode Menu in the Mission Start Menu for global setting. Just let them what they are by default setting. The following added mission plan steps can set the suitable mode for the camera.



The Camera Mode is unchecked by default setting in the Mission Start Menu, and the drop-down menu beside cannot be open. Also, it won't affect the following mission plan steps if keep unchecked.

If the operator insists change the Camera Mode in the Mission Start Menu for global setting, please check the box in front of the "Mode" and tap the white-down arrow to open the drop-down menu to select.

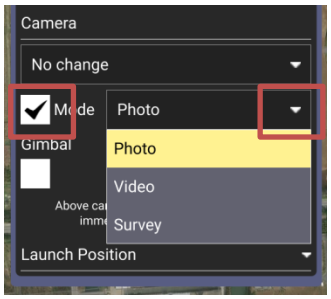


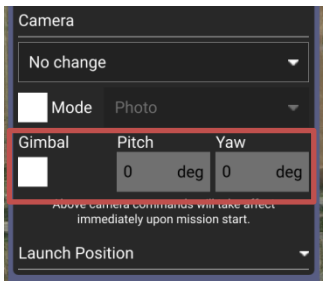
Photo: Switch the camera to photo mode.

Video: Switch the camera to video mode.

Survey: Switch the camera to survey mode, the Autopilot will take control of the camera to capture the photos.

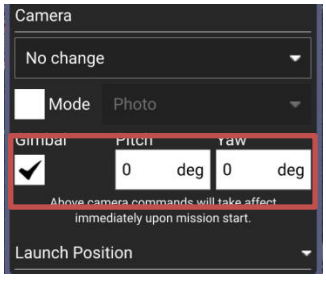
5. Gimbal Attitude Menu

Be similar with the Camera Mode Menu we do not suggest the operator change any default setting for the gimbal in the Mission Start Menu. The operator can set the gimbal attitude in each following added waypoint. For the pattern flight plan, the Autopilot will control the gimbal attitude automatically.



The gimbal attitude is unchecked by default setting in the Mission Start Menu, and the "Pitch" and "Yaw" angle cannot be set. Also, it won't affect the following mission plan steps if keep unchecked.

If the operator insists change the gimbal attitude in the Mission Start Menu for global setting, please check the box under the "Gimbal" then type in the Pitch and Yaw degree.



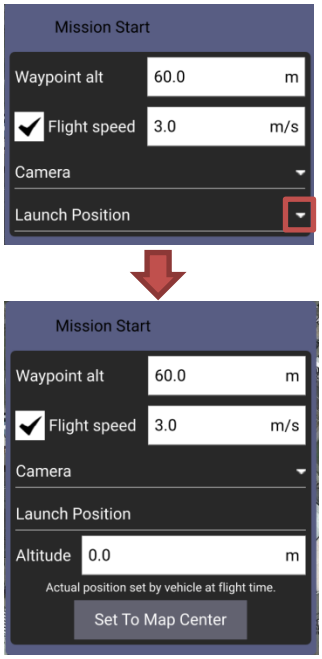
To adjust pitch, select a value between 0 (flat to the ground) and 90 (straight down).

To adjust the yaw, select a value between -180(left of the airframe centerline) and 180(right of the airframe centerline).

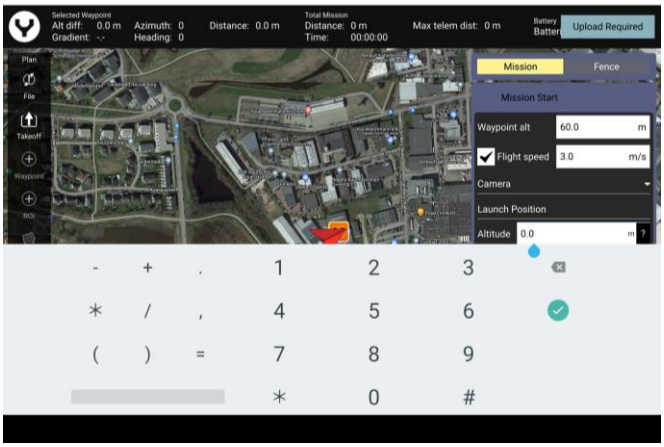
6. Launch Position

Normally the operator needs not to set the Launch Position manually. Just like the tip shown “Actual position set by vehicle at flight time.” when open the menu by tapping the white-down arrow.

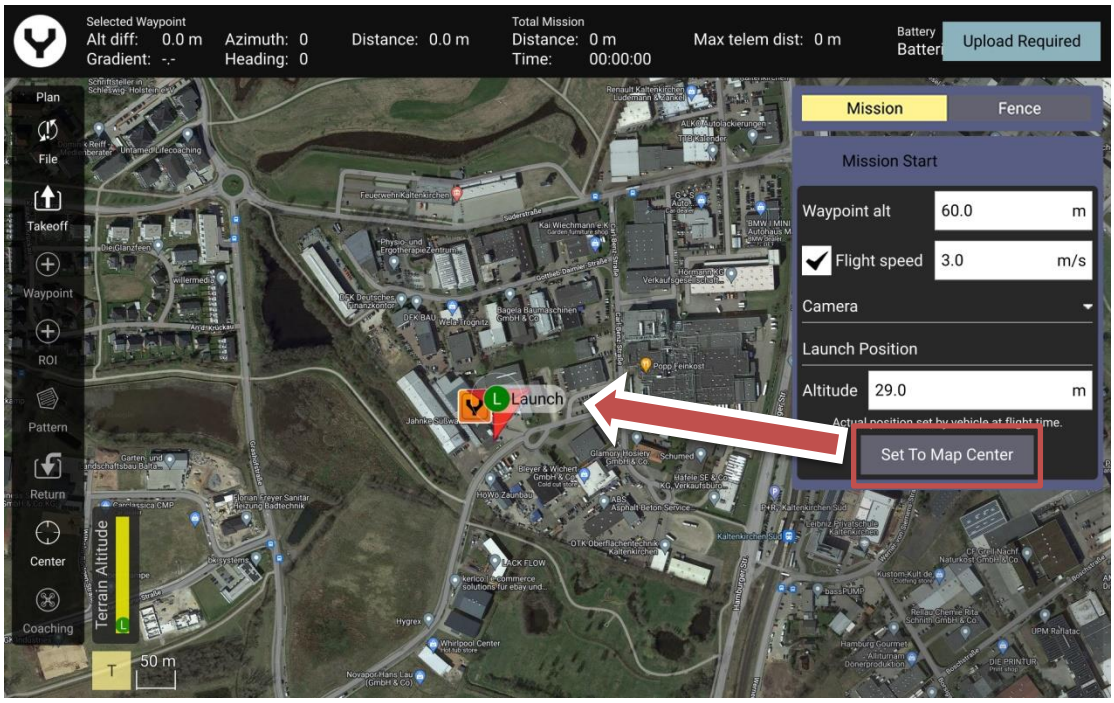
If the operator insists modify the Launch Position by their own, please unfold the menu and type in the Altitude of the Launch Point.



Tap the enter box beside the “Altitude” then the soft keyboard will pop up, Then the operator can modify the value.



Tap the “Set To Map Center” Button to set the Launch Position to the center of the map.

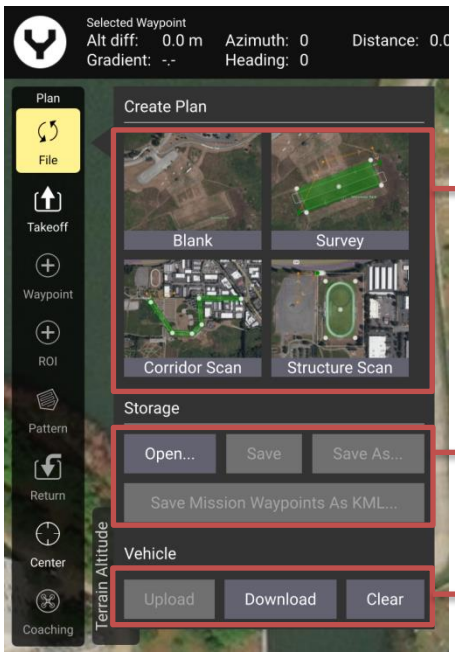


Plan Panel Functions

The Plan Panel allows the operator to create a new mission, save/open a mission or insert other plans (such as add a Waypoint etc.) after the selected plan step.

1. File

This button was tapped automatically after the operator enters the PLAN window and the Create Plan Menu is popped up.



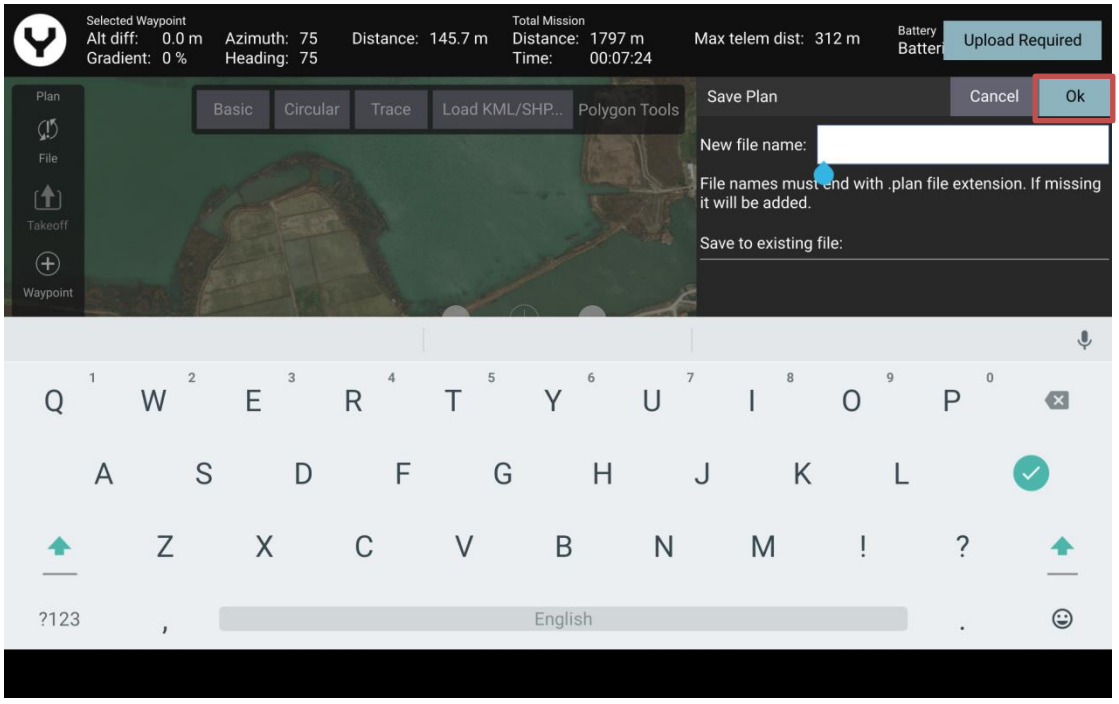
Select a flight plan type to create.

Open or save the created flight mission as .plan or .KML file.

Upload the flight mission to the drone. And download or clear the flight mission stored in the drone.

1.1 Save a Mission

After a flight mission has been set, the operator can save the mission in the transmitter. For a new created mission, the operator need tap the “Save As…” Button to name and save the .plan file.

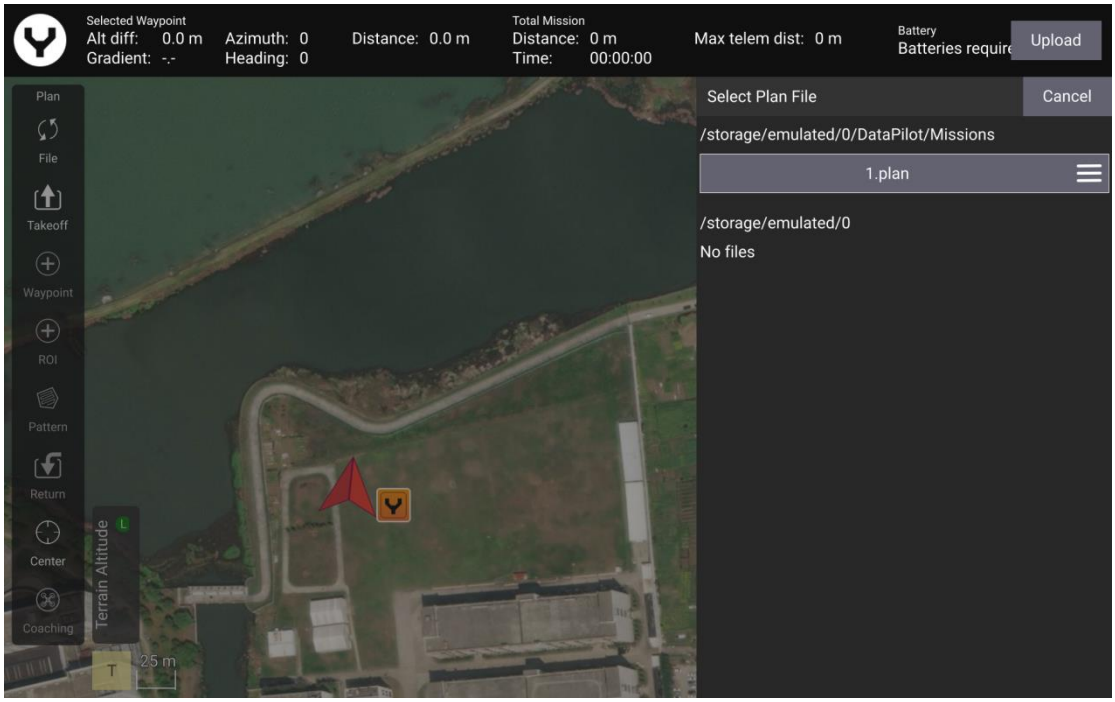


Enter the plan name then tap the “Ok” Button to save the mission.

Once the mission has been saved the “Save” Button is available to overwrite the mission directly.

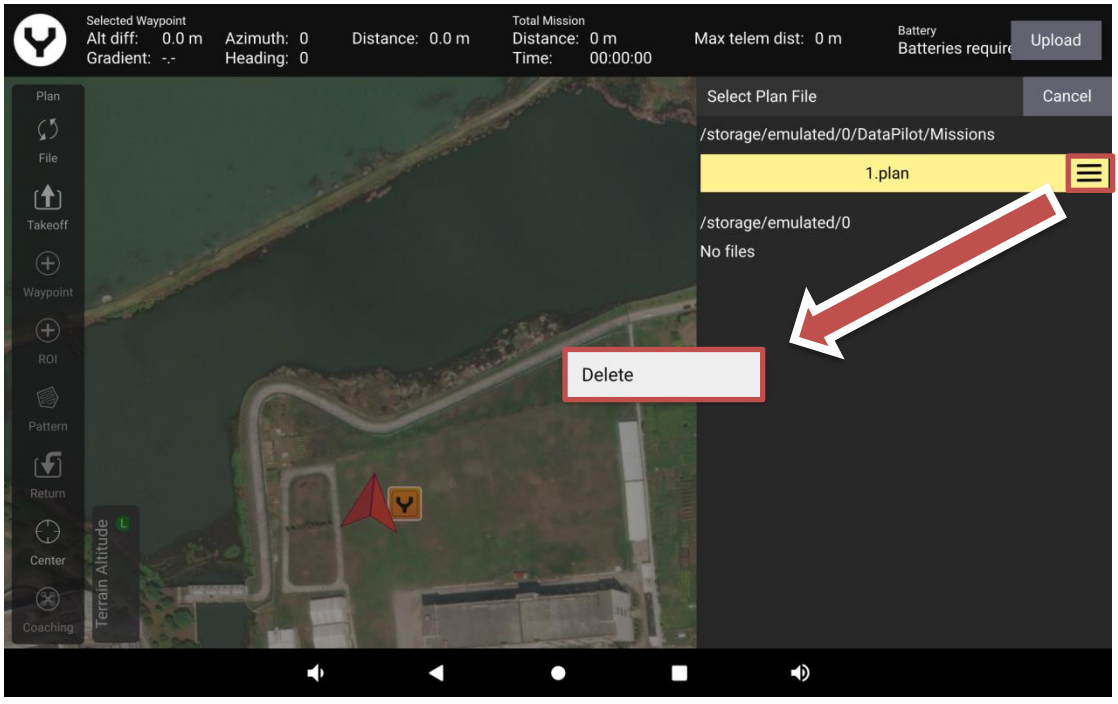
1.2 Open the Mission

Tap the “Open” Button and select the stored mission (the .plan file) in the transmitter.



1.3 Delete the Stored Mission

Tap the Setting Icon at the right side of the .plan file then tap the “Delete” Button to delete the unwanted mission.



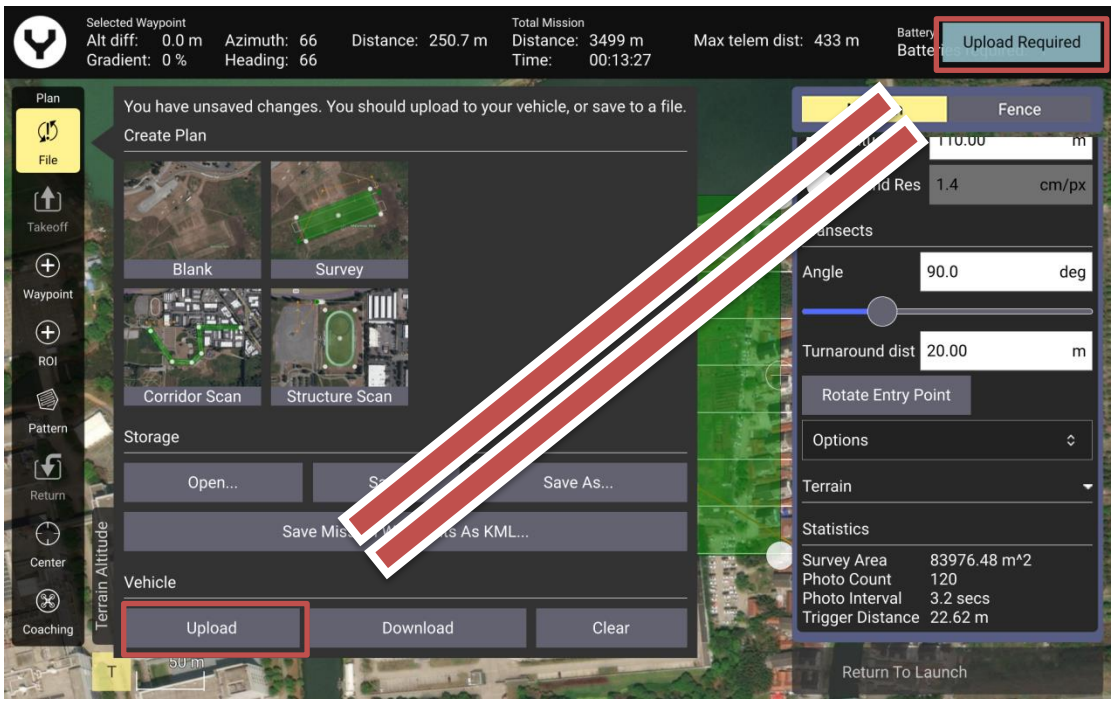
1.4 Save Mission Waypoint As KML…

Although the DataPilot 2.0 App only supports importing the mission in .plan format, the operators can still save mission waypoint as .KML file to get better compatibility.

Be similar with the steps which used in saving a .plan file, tap the “Save Mission Waypoint As KML…” Button and enter the file name to save.

1.5 Upload the Mission to the Drone

The operator can tap the “Upload” Button in the Create Plan Menu. This button is equal to the “Upload” Button or the “Upload Required” Button at the upper right corner of screen.



1.6 Download the Mission from the Drone

Normally if there is a mission left in the drone, the DataPilot 2.0 app will download it automatically after the communication established. The operator needn’t to specifically tap the “Download” Button.

1.7 Clear the Mission

Tap the “Clear” Button to clear the mission both in the drone and the editing mission in the transmitter.

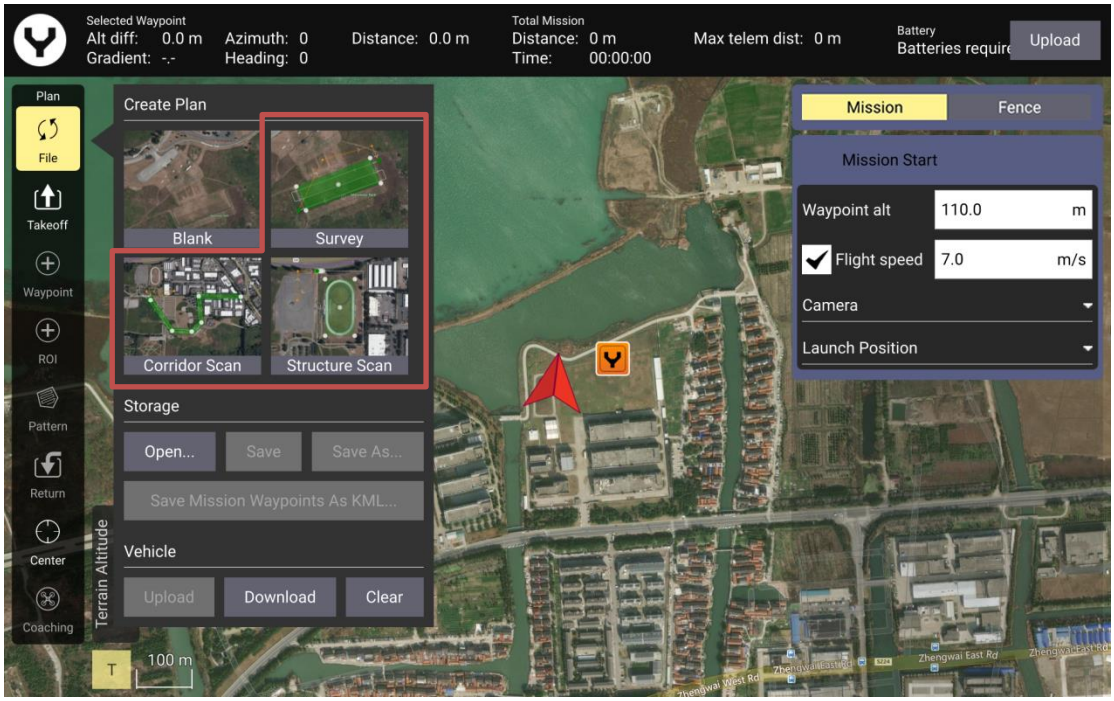
2. Takeoff

Every mission needs the Takeoff Point and the menu of the Takeoff Point should just behind the Mission Start Menu on the right of the screen. And the position of the Takeoff Point should be the same with the Launch Point except the altitude to ensure the drone fly vertically first then execute the mission. Geographically speaking the Takeoff Point is directly above the Launch Position which contained in the Mission Start Menu.

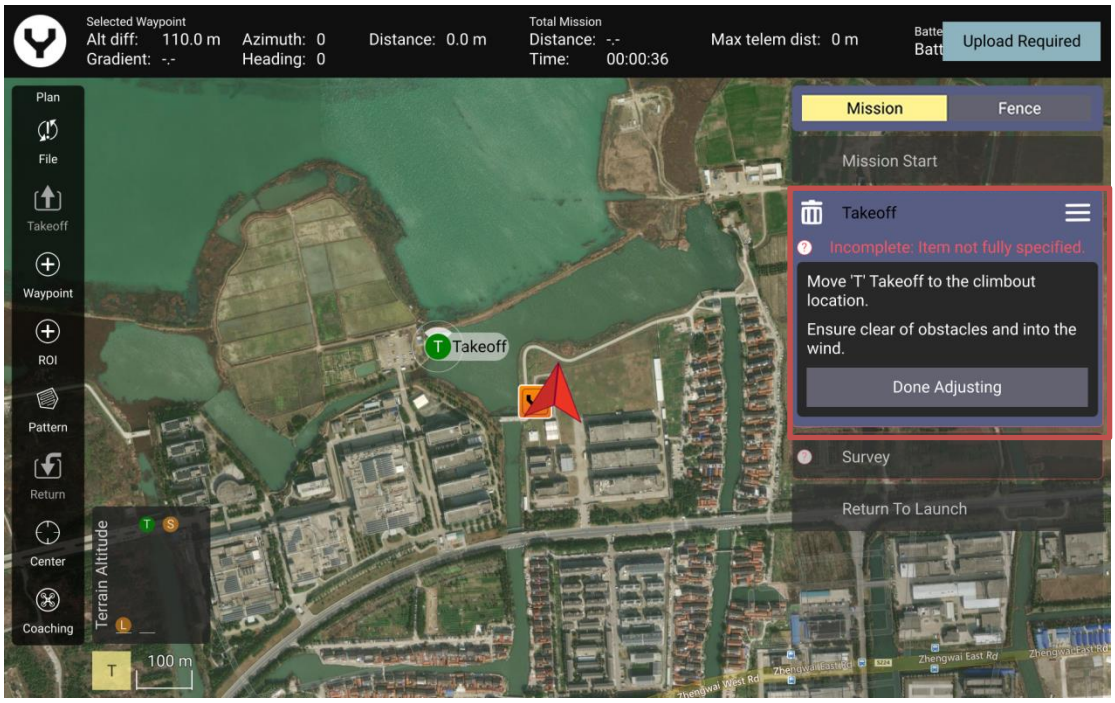
2.1 Add the Takeoff Point

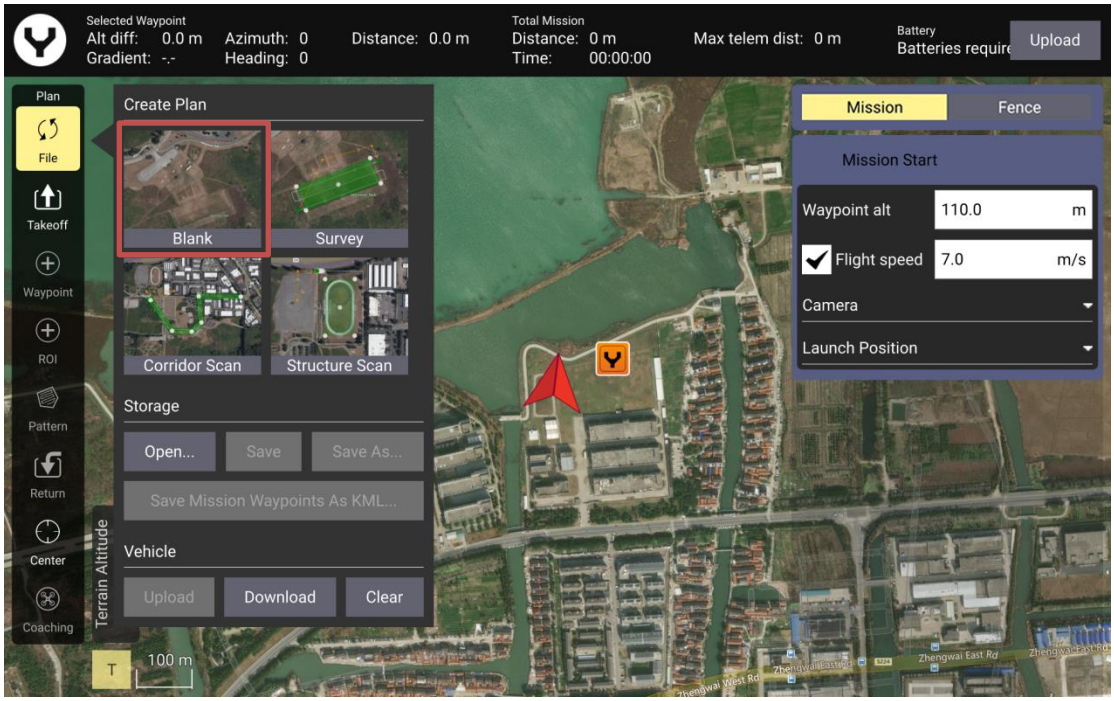
The takeoff Point will be created automatically when the operator selects the non-Blank plans in the Create Plan Menu.

For the Blank Plan the operator need add the Takeoff Point manually then add other plans in the flight mission.



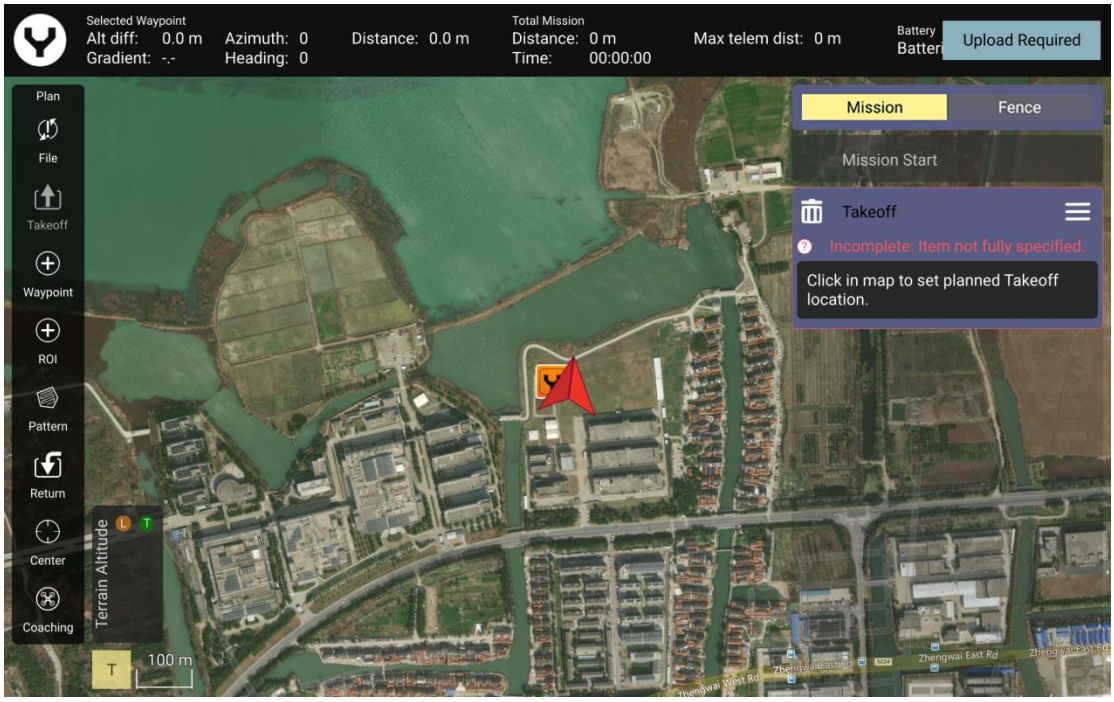
When select the non-Blank mission the Takeoff Point will be added automatically behind the Mission Start Menu.





For the Blank Plan the operator need tap the “Takeoff” Button in the Plan Panel first then click in map to set planned Takeoff location.

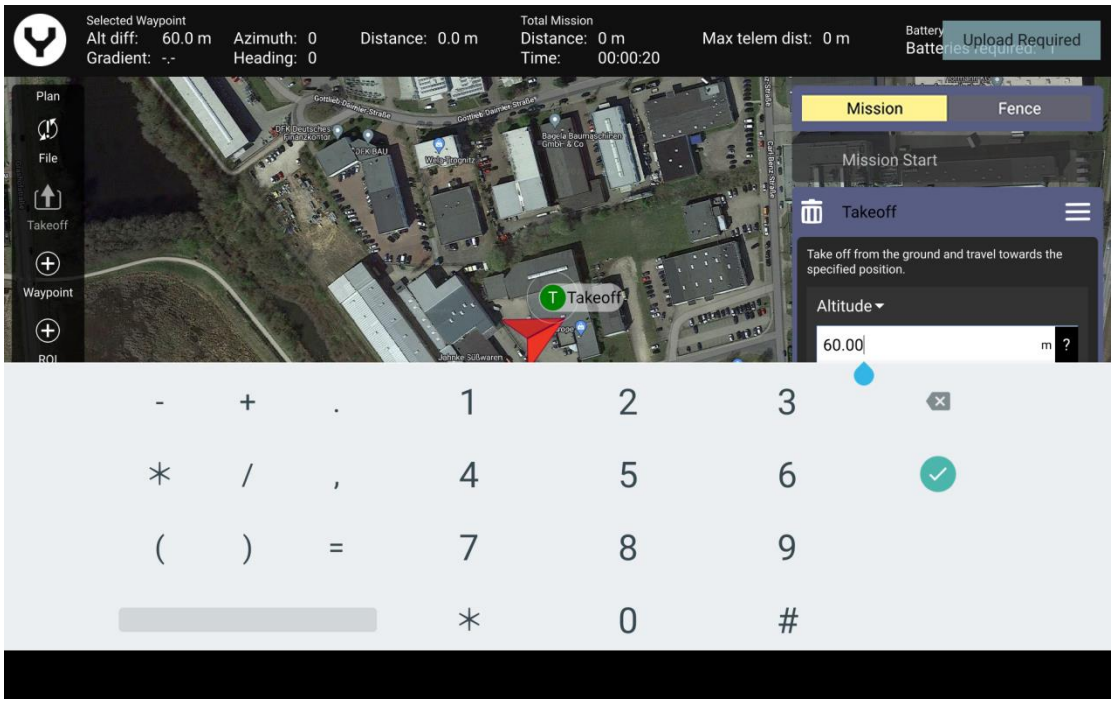
Once the Takeoff Point was set, the operator need select it first then the following mission plans will be available by lighting up in the Plan Panel.



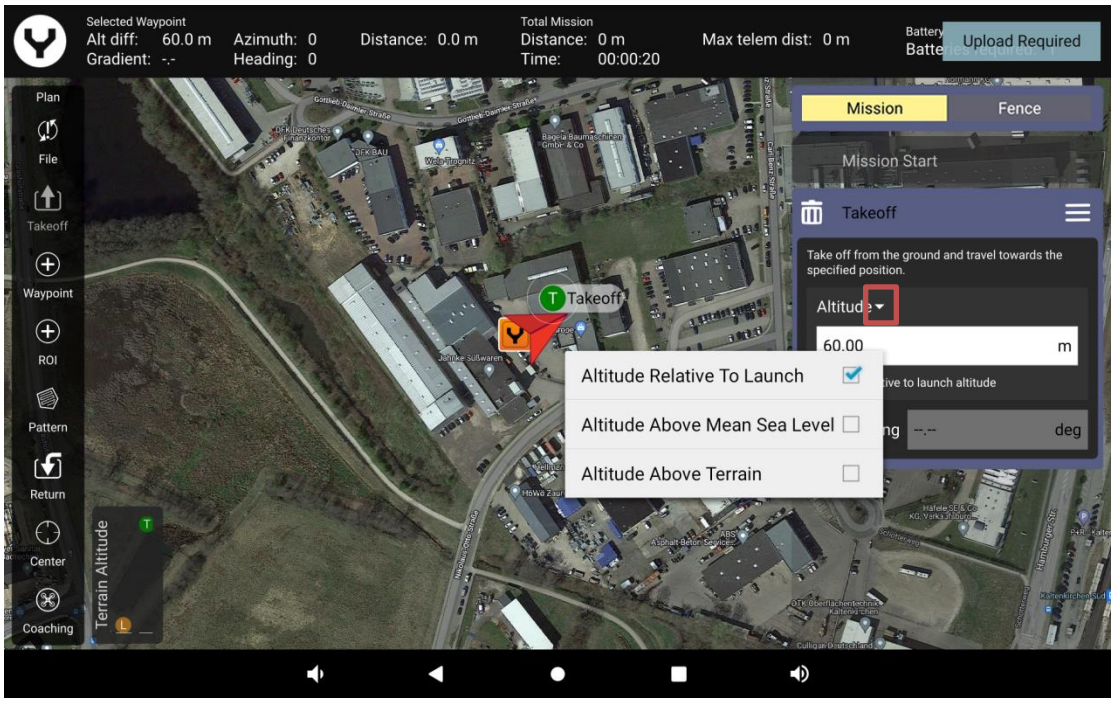
2.2 Takeoff Point Altitude Setting

The Altitude of the Takeoff Point will be set automatically according to what we set for the “Waypoint alt” in the Mission Start Menu.

The operator can modify the value by tapping the enter box under the “Altitude” then enter the value.

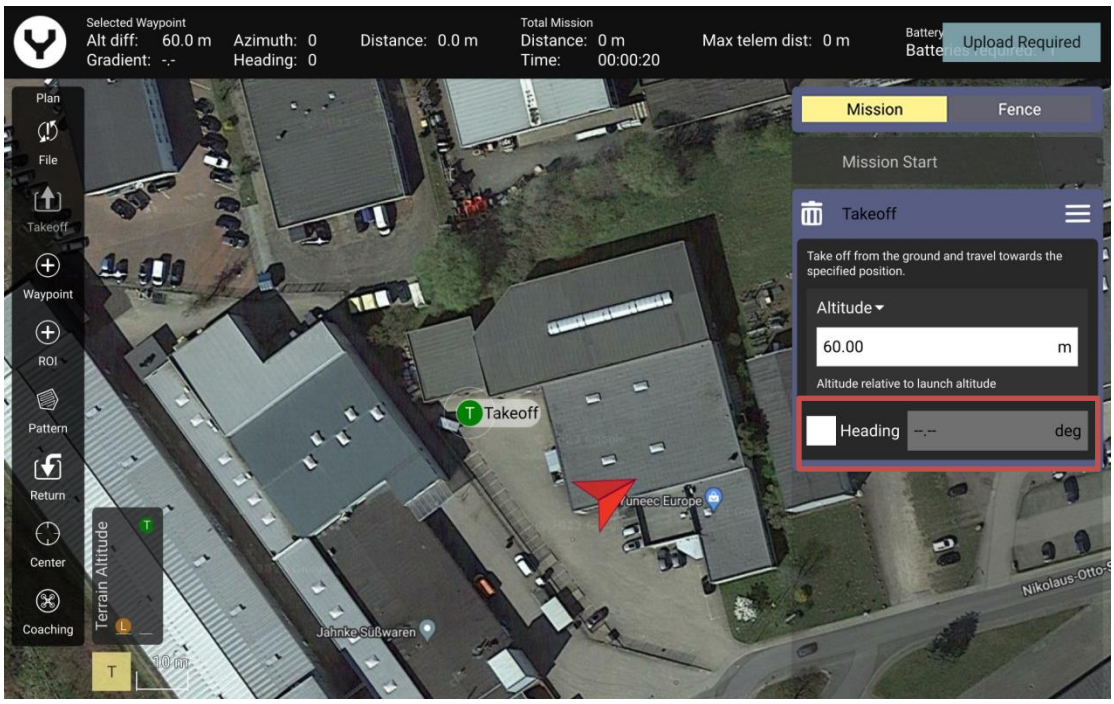


The altitude type is also can be set. Tap the white-down arrow beside the “Altitude” then tick the altitude type you want. The “Altitude Relative To Launch” was set by default.

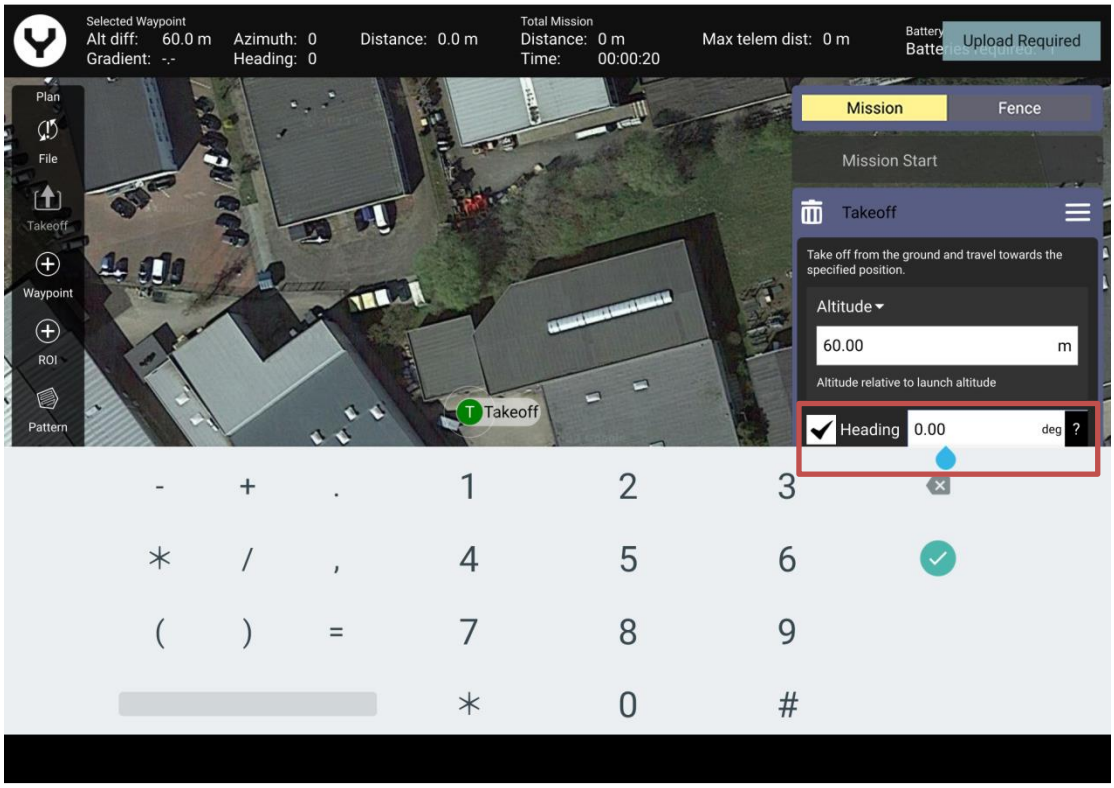


2.3 Set the Heading of the Takeoff Point

The heading of the Takeoff Point setting was off by default. The drone will keep the original heading when taking off at the vertical climb period.

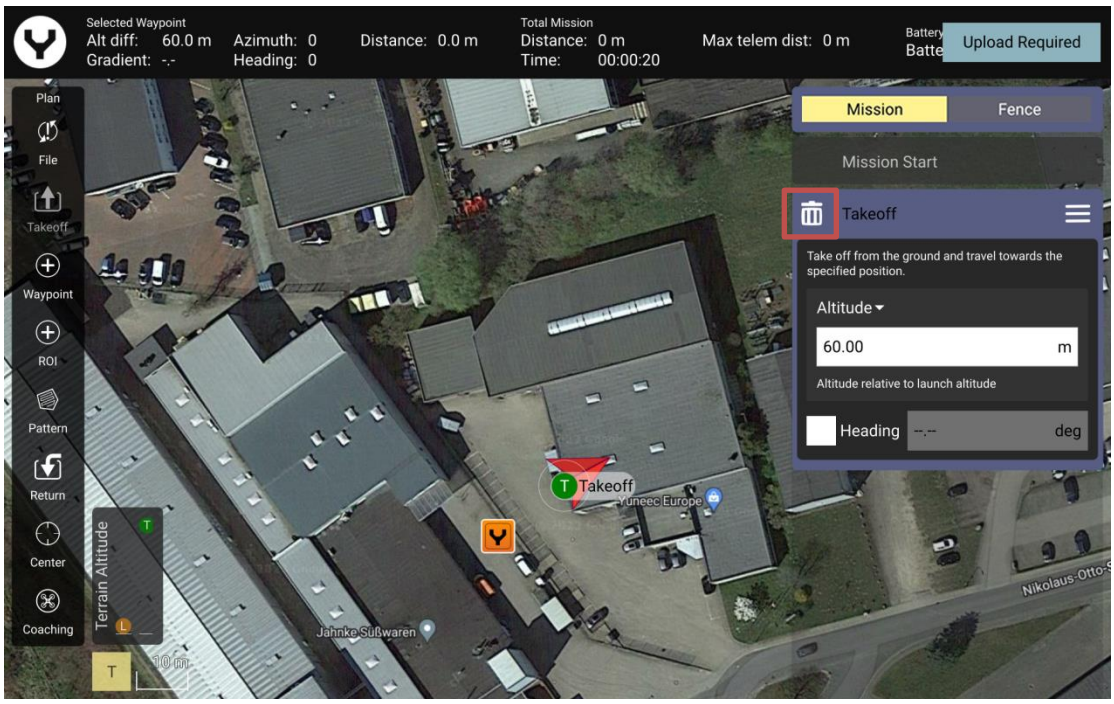


We do not suggest the operator to change the Heading of the Takeoff Point manually. If the special heading is needed, please tick the box before the “Heading” then tap the enter box to type in the wanted heading degree on the soft keyboard.



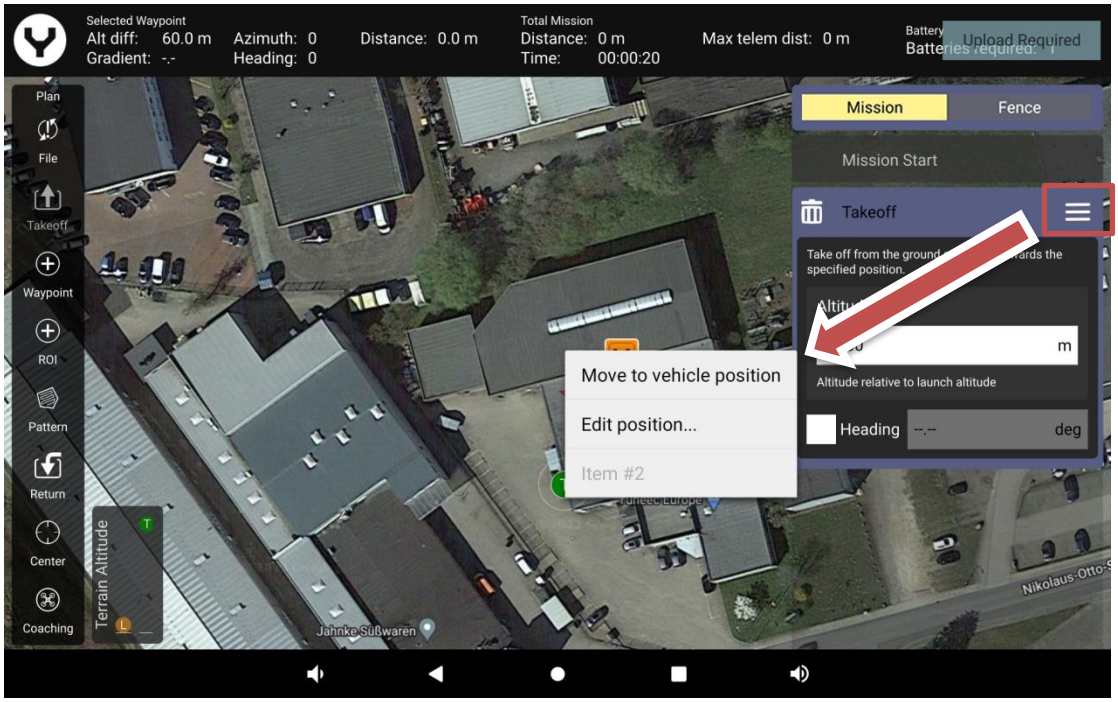
2.4 Delete the Takeoff Point

Tap the Trash Can Icon to delete the added Takeoff Point. Normally we do not need this function, without the Takeoff Point the following plan cannot be added.



2.5 Takeoff Point Position Edit Menu

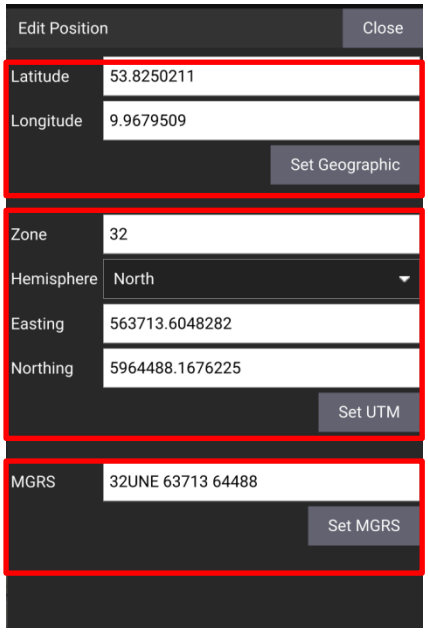
Tap the Triple Horizontal Lines (Setting) Icon to open the Takeoff Point Position Edit Menu.



Move to vehicle position: This selection is only available when the drone is connected with the transmitter, at the condition of an ideal GPS lock. Tap this selection will move the Takeoff Point to drone's current position.

Edit position…: The position of the Takeoff Point can be set more precisely by enter the Edit Position Interface although it can be adjusted roughly by dragging directly on the map when selected.

The Edit Position Interface support 3 different coordinate system as the screenshot shown below:



Geographic System

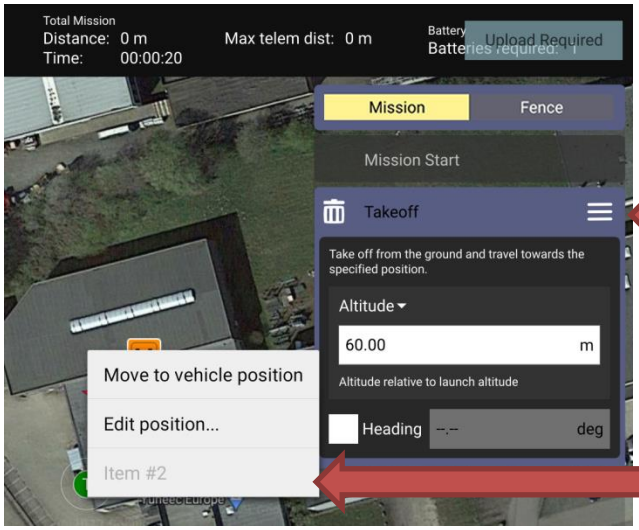
UTM System

MGRS System

Choose the coordinate system then type in the pentameter via the soft keyboard by tapping the enter box. Once the location is confirmed, tap the corresponding Set Button of the coordinate you are using. The Takeoff Point will move to the position set in this interface.

Notice: Normally we do not suggest the operator to modify the position of the Takeoff Point just leave it auto set by the DataPilot 2.0 App directly above the Launch Point at the beginning of execute a fight mission.

Item #: Indicate the Item number in the whole flight mission. In most cases the Takeoff Point is the 2nd item just behind the Mission Start. So it often shows Item #2.

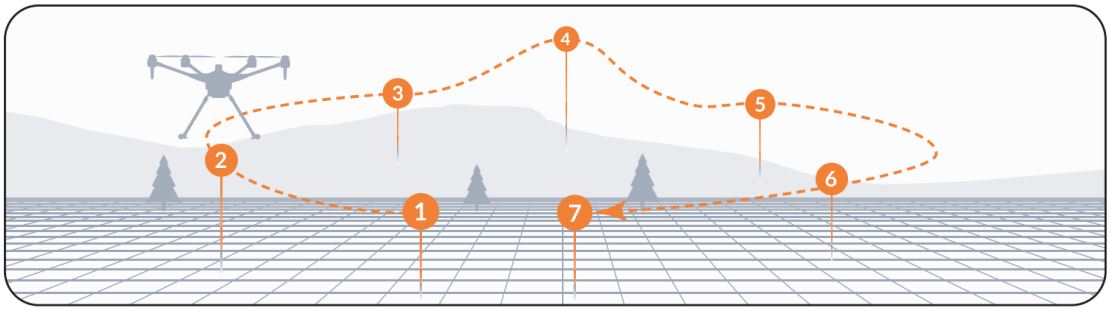


The Takeoff Point acts as the 2nd item just behind the Mission Start.

So, the Item # is 2.

3. Waypoint

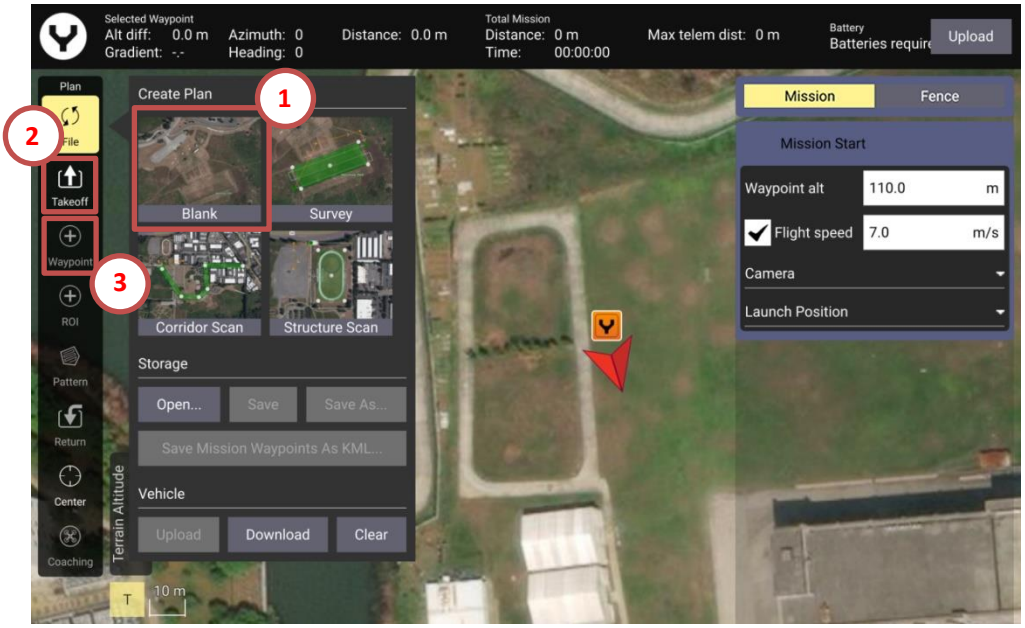
A waypoint defines a specific location and behavior at a specific point in time, allowing for intelligent auto-functions during flight. Waypoint flight is ideal for capturing oblique images, perimeter monitoring, and many other uses.



3.1 Add Waypoints

If the operator needs to plan a fight mission in a new area, connect the transmitter to the internet via a Wi-Fi hotspot to download maps.

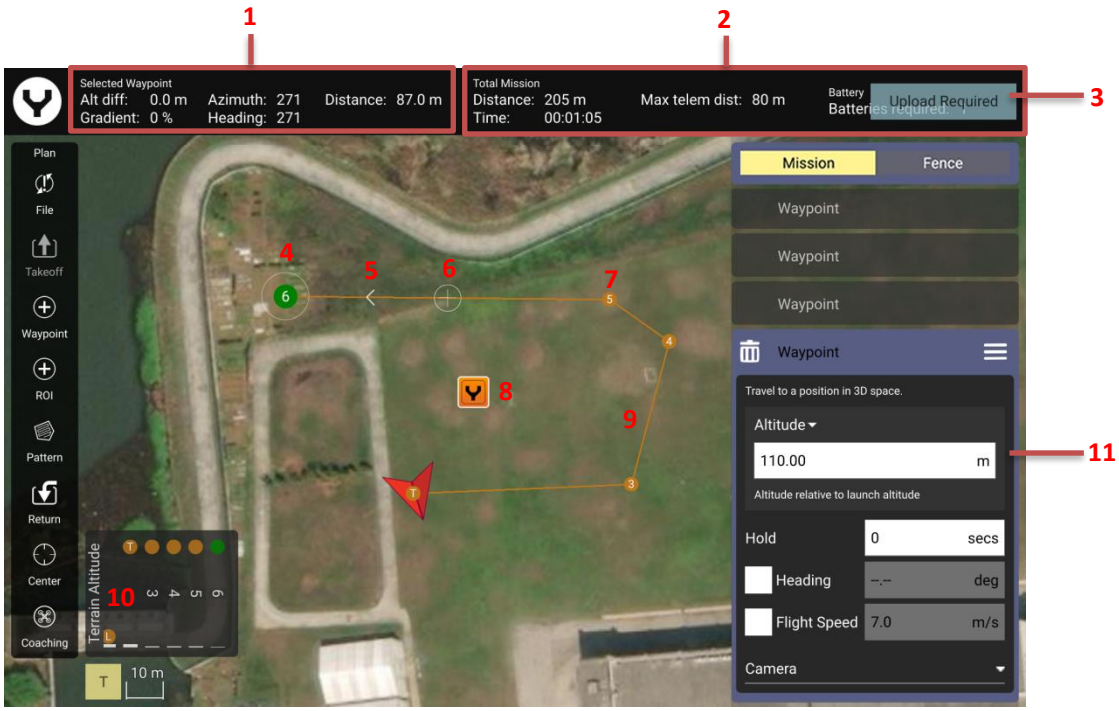
After entered the PLAN window, select a “Blank” Plan and tap the “Takeoff” Icon on the left side of the screen, and the Takeoff Point will be set at the drone current position. If the transmitter doesn’t connect to the drone or the drone doesn’t have GPS lock the operator needs to tap on the map to set the Takeoff Point position manually.



Once the Takeoff Point has been set, the waypoint can be added. Tap the “Waypoint” Icon first then tap on the map directly to set the waypoint position.

After the waypoints were added they will be shown on the screen as the picture below.

3.2 Waypoint User Interface Overview



1 Selected Waypoint Parameters

Display the parameters of the selected waypoint.

2 Mission Summary

Display the summary of the entire flight mission added to this map.

3 Upload Button

When a new mission was set, please tap this button to upload the mission to the drone.

4 Selected Waypoint

When a waypoint was selected, it will be marked color in green.

5 Ahead Direction Indicator

This white-arrow shows the forward direction of the drone along the flight route.

6 Insert Button

Tap to insert a waypoint before the selected one on the flight route.

7 Other Waypoint

Other unselected waypoints on the flight route.

8 Transmitter Position

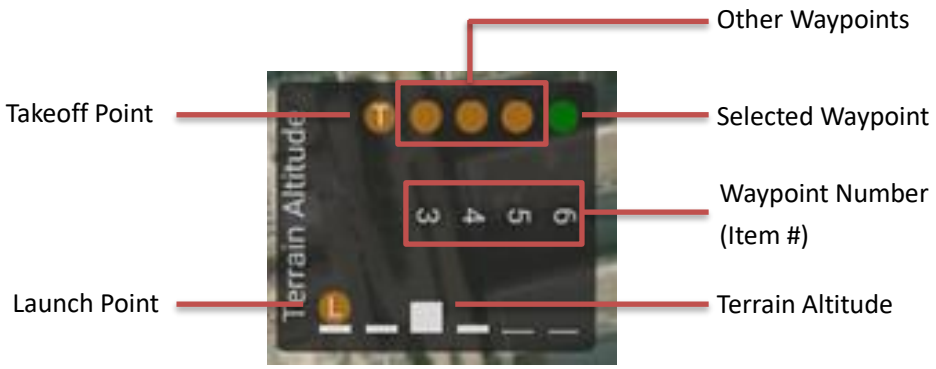
After the transmitter has got a precise GPS lock, the icon will appear on the map.

9 Flight Route

The flight route of this mission

10 Terrain Altitude Indicator

This window displays the Terrain Altitude and Waypoint Height for mission planning.



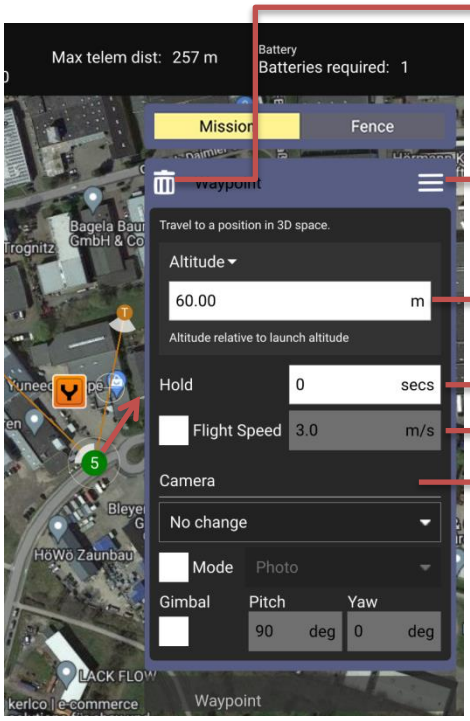
11Waypoint Setting Menu

This menu is the setting panel for each waypoint to adjust the waypoint parameters in detail.

3.3 Adjust the Waypoint Parameters

Once a waypoint was set and selected, the screen will pop up the Waypoint Setting Menu on the right side. In this menu, almost every parameter of a waypoint can be set freely, such as Altitude, Flight Speed, Hold Time, etc. Even the direction of the gimbal and the cameras behaviors are also included.

The most functions in the Waypoint Setting Menu are the same with what they are in the Mission Start Setting Menu and Takeoff Point Setting Menu. We will introduce the differences in detail below:



Delete this waypoint

Position Edit Menu

Waypoint Altitude Setting

The operator can type in the value directly for altitude setting.

Tap the white-down arrow to open the Altitude Type Selection Menu.

Hold Time Setting

For setting the hover time on this Waypoint

Flight Speed Setting

Tick the Box before the “Flight Speed” then type in the speed you want for this waypoint. Otherwise, the speed will be set according to the Mission Start Setting Menu automatically.

Camera and Gimbal Setting Menu Button

Tap the white-down arrow to open the Camera and Gimbal Setting for the selected waypoint.

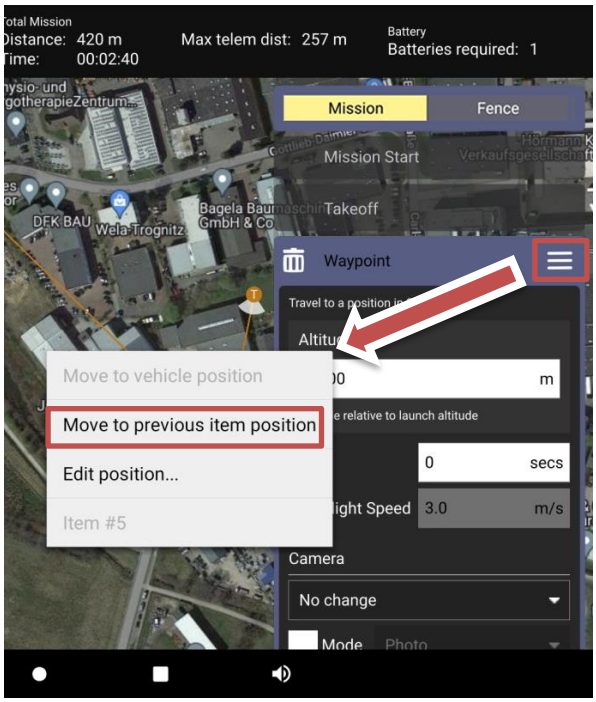
The setting method is the same as what introduced in the Mission Start Setting Menu.

3.4 Waypoint Position Edit Menu

Be similar with the Takeoff Point Setting Menu, the Waypoint Setting Menu also has a Triple Horizontal Lines Icon to open the Position Edit Menu.

Due to the Waypoint is not the 2nd item of the flight mission in most cases, there is a more selection in the Waypoint Position Edit Menu.

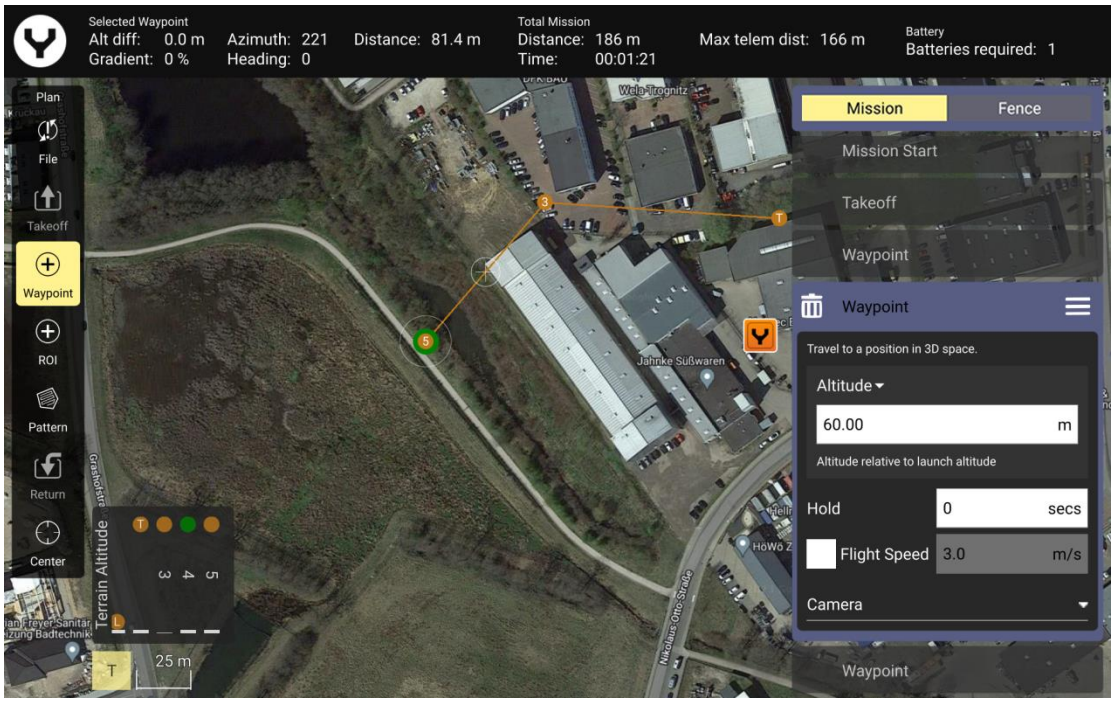
The “Move to previous item position” Selection



As literally shown, tapping this selection will move the selected item to the previous item position.

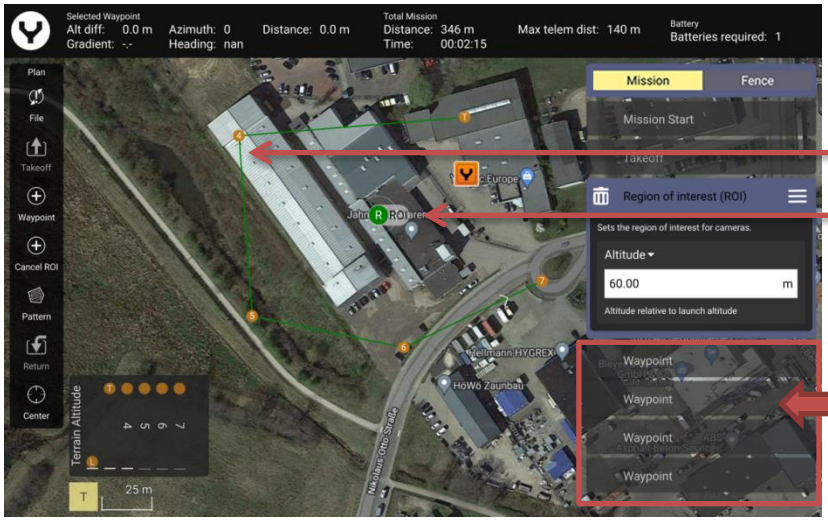
It would be easy to edit a vertical climb route with this function.

After tapping the “Move to previous item position”, the 2 waypoints (Waypoint 4 & Waypoint 5) are overlapping from a horizontal perspective.



4. ROI

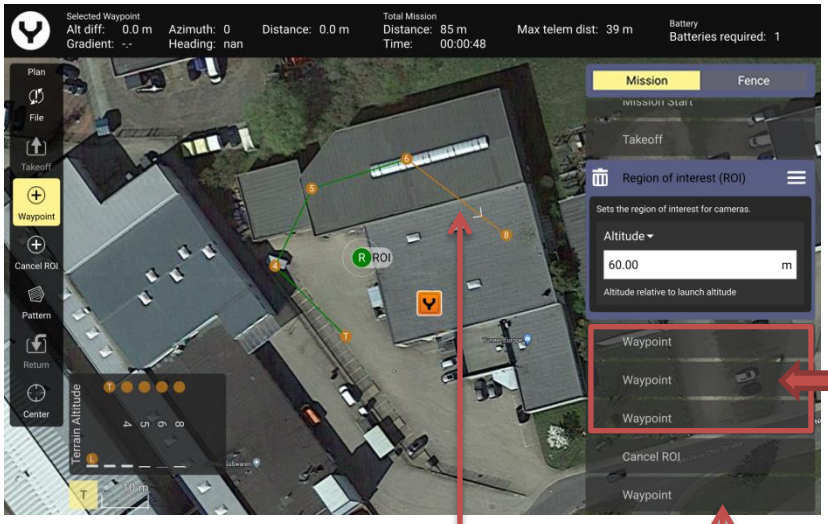
The ROI function in the mission plan can add the Region of Interest Point on the map. Normally this function is applied in a flight mission only consisting of waypoints. After the Takeoff Point is added the ROI Point is allowed, tap the “ROI” Button in the Plan Panel on the left side of the screen then tap on the map directly to add the ROI Point and the altitude can be set in the “Region of interest (ROI)” Setting Menu at the right side of the screen. Then the waypoints which are added after the ROI Point will point their gimbal camera towards the ROI Point.



When the ROI Point is selected the flight route affected by the ROI Point will be marked green.

The waypoints which are after the ROI will be affected.

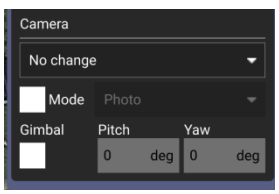
Once a ROI Point is added the original “ROI” Button will changed to “Cancel ROI” Button. If the operator wants to finish the ROI flight route, please select the last waypoint of the ROI route then tap the “Cancel ROI” Button and continue adding waypoints. The waypoints behind the “Cancel ROI” item won’t toward the camera to the ROI Point.



If there is a “Cancel ROI” Item exist in the mission steps.

The waypoints which are between the “ROI” and “Cancel ROI” steps will take the ROI effect.

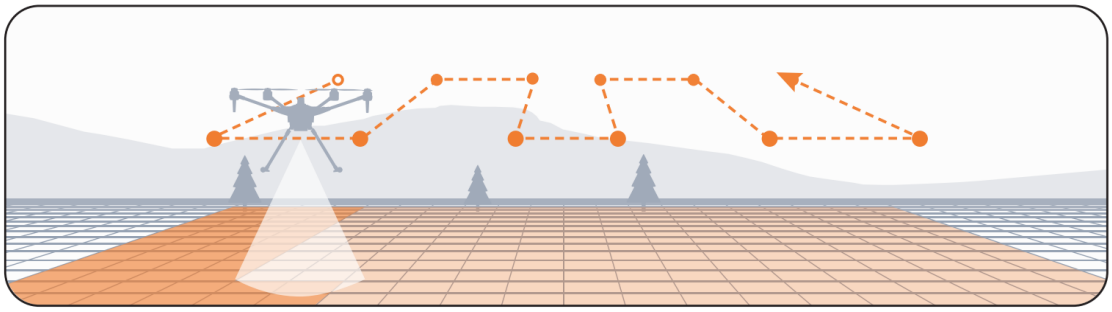
The flight route behind the “Cancel ROI” returns to yellow color, which means the ROI is disabled.



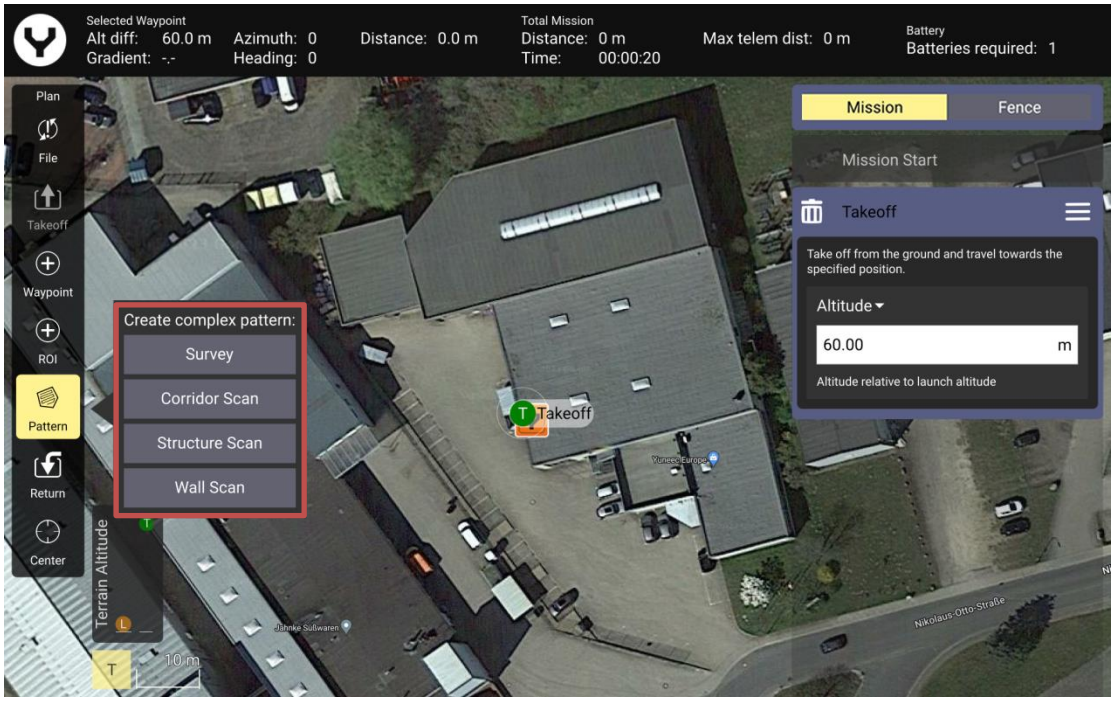
Notice: For the waypoints which are wanted to use combine the ROI function, please do not tick the box under the “Gimbal”. Let the ROI Point control the gimbal direction automatically.

5. Pattern

Pattern is designed for mapping and 3D scanning of ground-based objects.



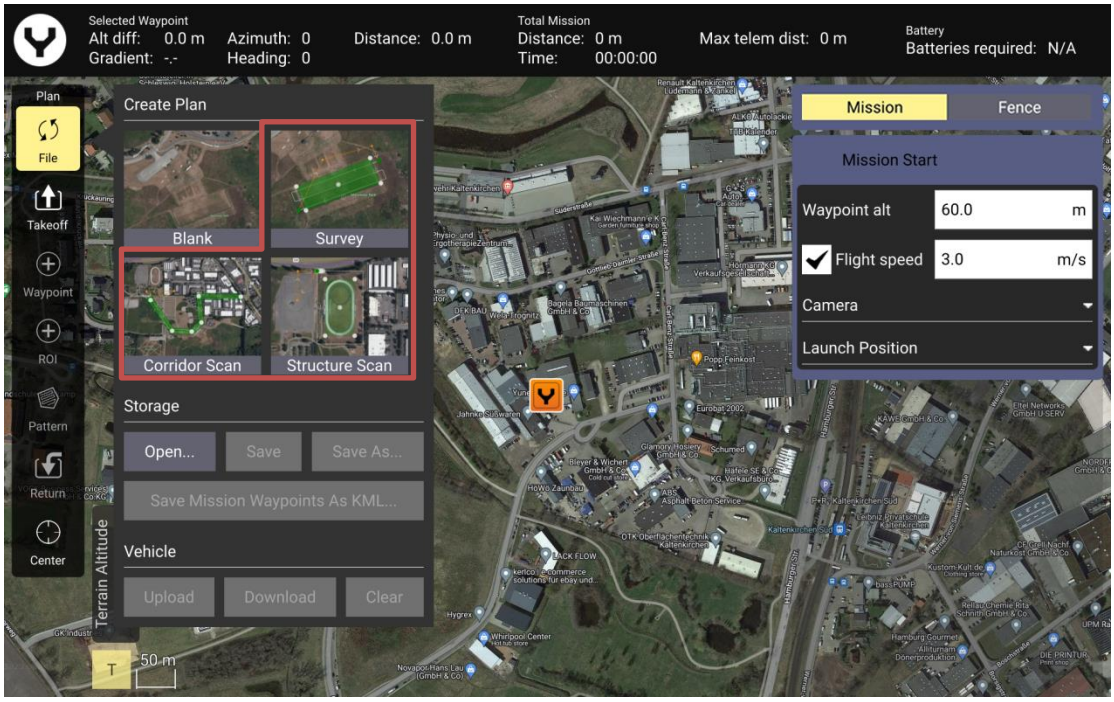
After the Takeoff Point is selected (on the map marked in green) the “Pattern” Button is enabled on the Plan Panel. Tap the button to open the sub menu then select a wanted pattern type to insert after the Takeoff Point.



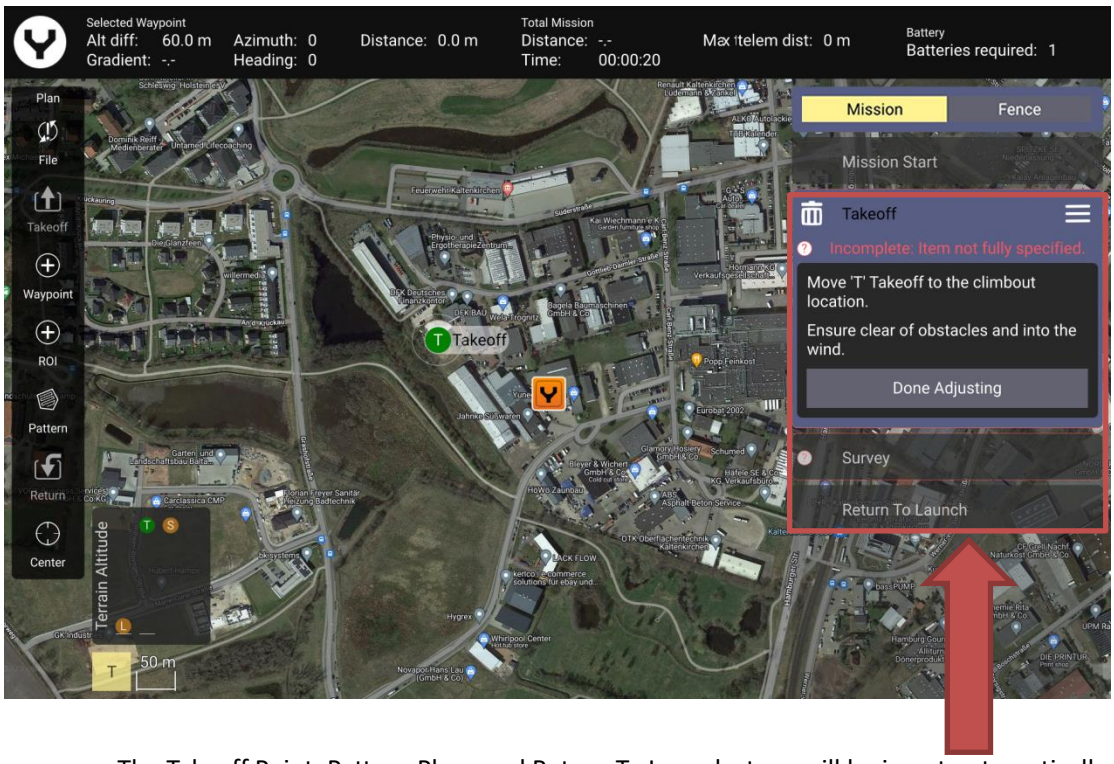
Normally we only select 1 pattern type in each flight mission to make us easy to tidy the data captured in different flight.

And the pattern flight mission is also can be created as a set automatically when entering the PLAN window at the sub menu of the “File” Button in the Plan Panel. So, the separated pattern plan step is seldom used.

The selections in the Create Plan Menu almost contain all the pattern types.



All the steps of a pattern fight mission will be created by just 1 tap in the Create Plan Menu.

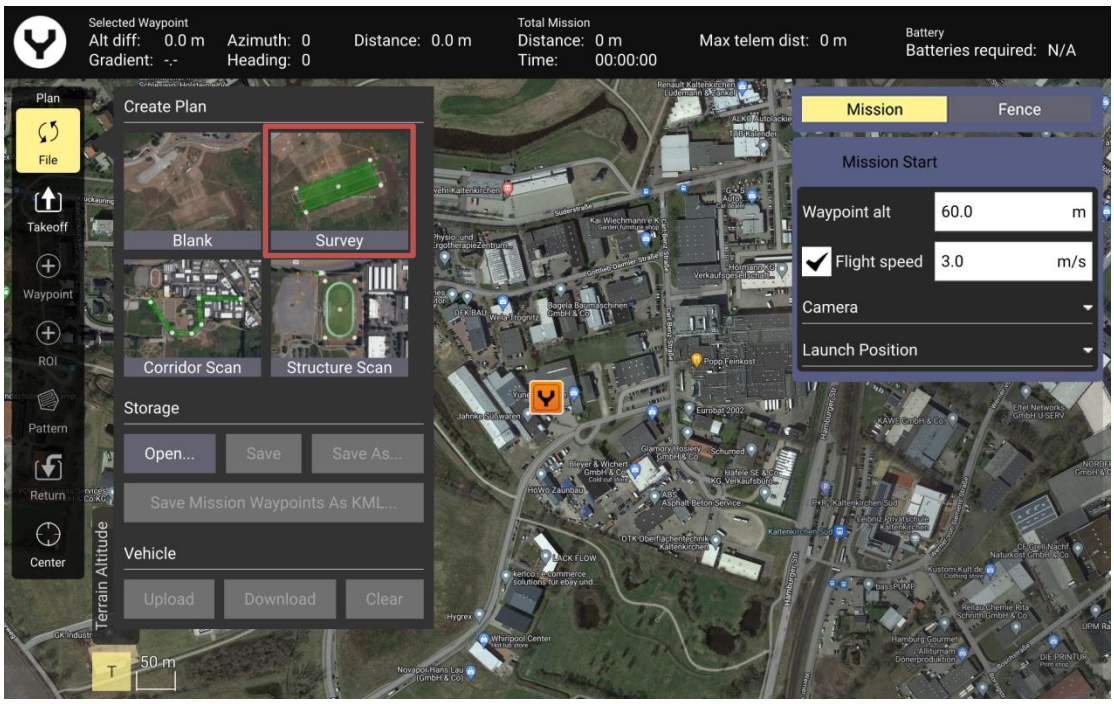


The Takeoff Point, Pattern Plans and Return To Launch steps will be insert automatically.

Otherwise by using the sub menu opened by the “Pattern” Button in the Plan Panel the operator needs to add the steps of a pattern flight mission one by one.

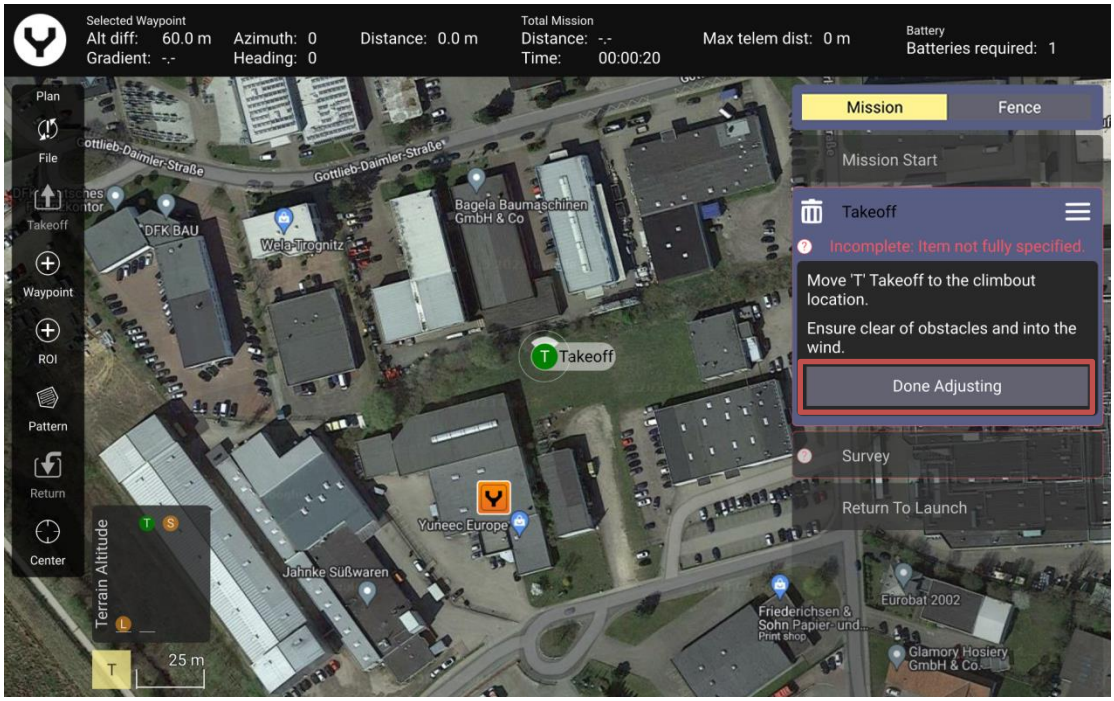
5.1 Survey Plan

Survey mode allows the operator to quickly place a survey grid over a desired area. To select a survey grid mission, tap the “Survey” Button in the Create Plan Menu.



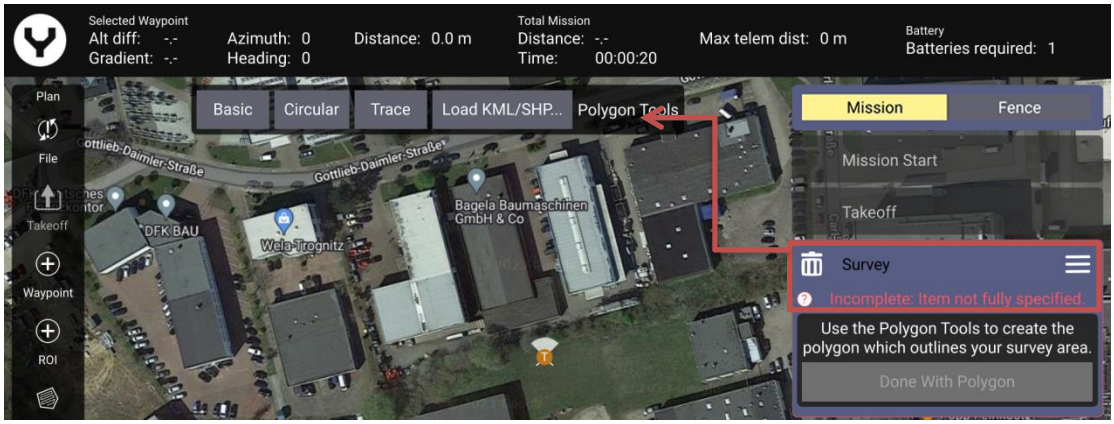
If the transmitter isn’t connected with the drone or the drone hasn’t the ideal GPS position the operator need adjust the Takeoff Point by their own.

When the position of the Takeoff Point is confirmed tap the “Done Adjusting” Button.



At the condition of the drone is connected with the transmitter also the GPS positioning is available the Takeoff Point will be set at the drone’s current position automatically the operator can set the survey area directly.

After the Takeoff Point has been set and the Survey Step has been selected, the operator can divide the survey area on the map.
There are 3 preset templates to choose for editing the survey area. The operator can choose one of them for a Survey plan.



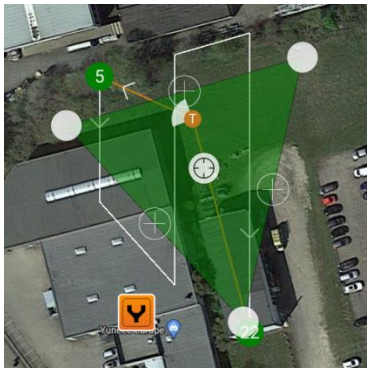
Basic Preset Template Overview

Tap the “Basic” Button, the App will generate a rectangle survey area.
Tap and hold the center dot to drag the survey area on the map.
Tap and hold the white vertices then drag them to adjust the shape of the survey area.
Tap “+” dot allows the operator to add more white vertices to the edge of the survey grid for a better fit.

Circular Preset Template Overview

Tap the “Circular” Button, the App will generate a circular survey area.
Tap and hold the center dot to drag the survey area on the map.
Tap the white dot on the edge of the Circle to adjust the radius of the survey area.

Trace Preset Template Overview



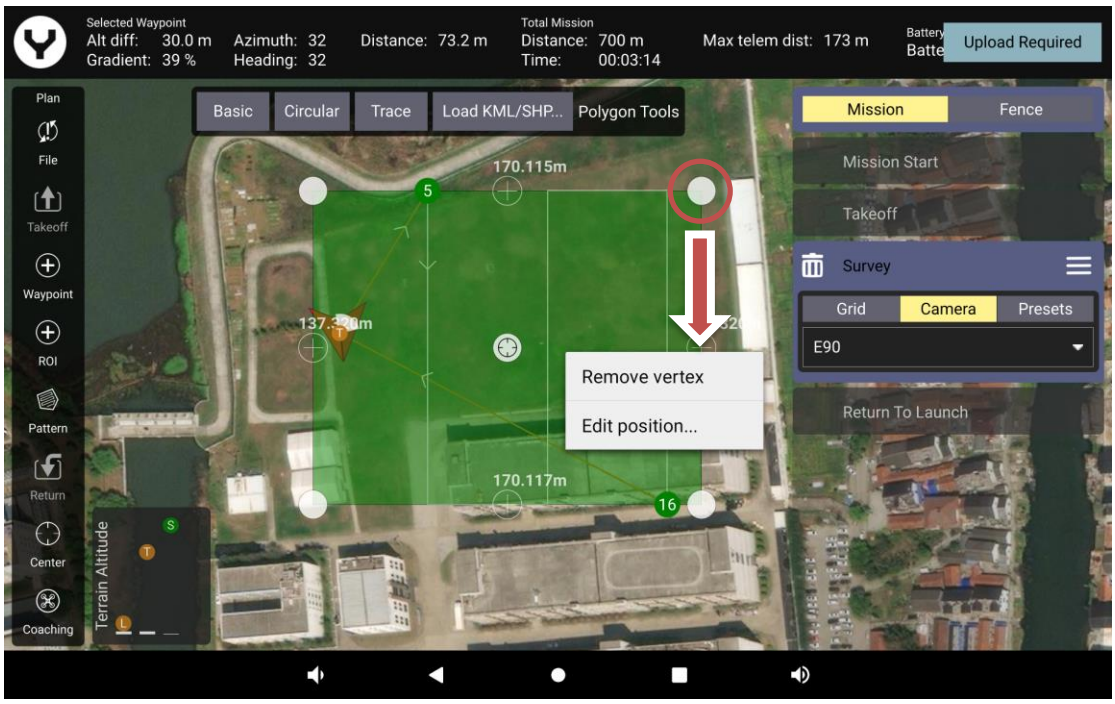
Tap the “Trace” Button, then tap on the screen to set the vertex of your survey area. Once you have no less than 3 vertices. A triangular survey area will be generated automatically. The operator can add more vertices to get a better fit. After the shape is confirmed tap the “Done Tracing” Button to quit the vertex adding mode.
Tap and hold the center dot to drag the survey area on the map.
Tap and hold the white vertices then drag them to adjust the shape of the survey area.
Tap “+” dot allows the operator to add more white vertices to the edge of the survey grid for a better fit.

The white line in the green survey area means the flight route when surveying.

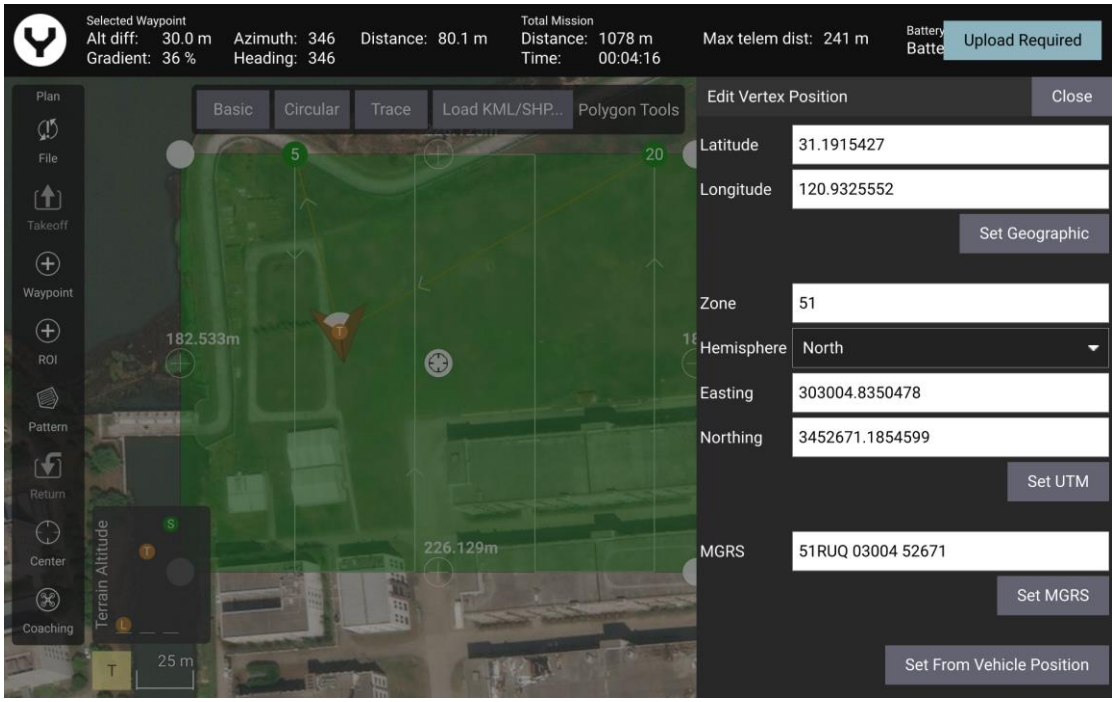
Vertex Precise Adjust

The existed vertex of the survey area can be deleted or adjust precisely by tapping the vertex.

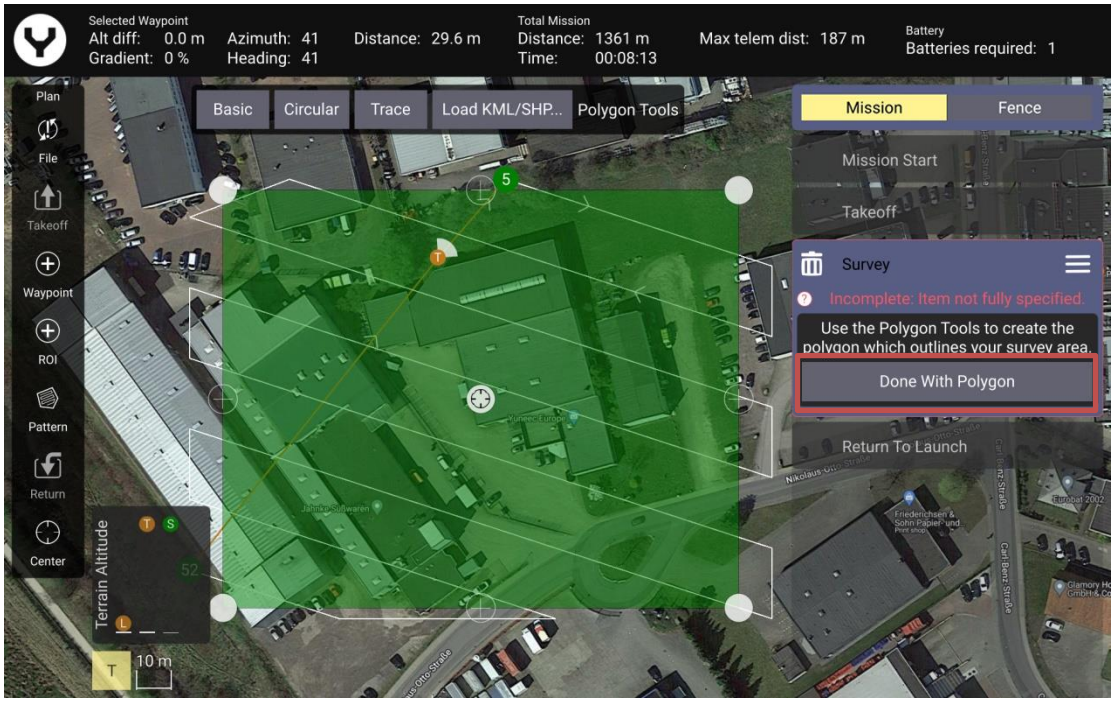
The menu will pop up after tapping the vertex



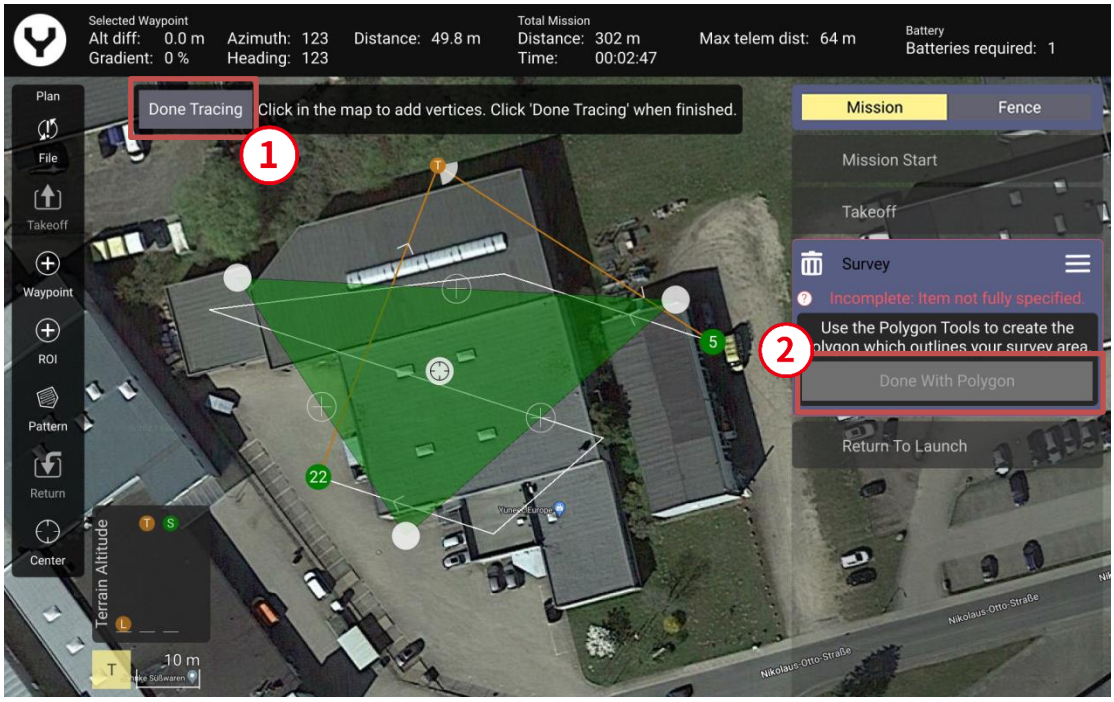
Tap the “Remove vertex” to delete the selected vertex. Tap the “Edit position…” to open the Edit Vertex Position Interface which is the similar with what used for the Takeoff Point and Waypoint.



After the green template covered the survey area you want on the map, please tap the “Done with Polygon” Button and then tap the “Done Adjusting” Button for the further settings.



Notice: For the Trace template, please tap the “Done Tracing” First, and then tap the “Done with Polygon” and other buttons.



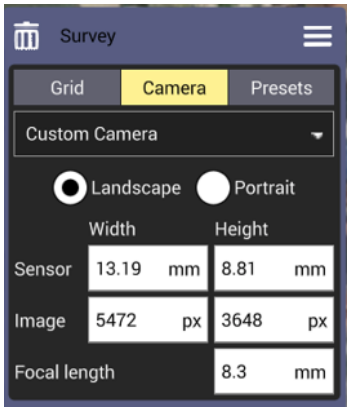
In addition to creating by yourself the survey area is also can be imported by tapping the “Load KML/SHP…” Button.

Adjust the Survey Parameters

After the survey area has been confirmed the operator can adjust the survey parameters. Before modifying, please ensure the correct camera is selected. To change the camera, please tap the “Camera” Tab under the selected Survey Setting Menu to choose the corresponding one.

Select the Camera

Different cameras have different sensor size and lens parameters. Selecting the correct camera type is very important to get a correct flight route and achieve a correct survey result.



Tap the “Camera” Button beside the “Gird” Button to select the camera type or set the camera parameters.

The operator can set the parameters manually when the “Custom Camera” was selected.

Type the parameters directly to finish the setting operation.

The DataPilot 2.0 App also has preset the camera select list.

The operators can easily select the gimbal cameras purchased.

After the camera type was selected, the operator does not need to individually set the camera parameters. The app will calculate the flight route and photo taking interval automatically.

Notice: If use the thermal imaging lenses for surveying, please select the items marked with “Thermal” behind.

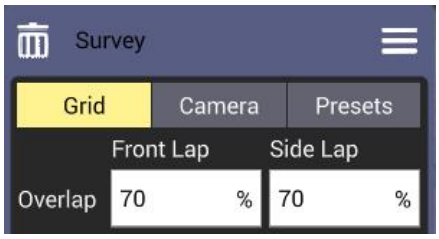
After the camera was selected, please tap the “Grid” Tab to switch back to continue adjust the survey grid parameters.

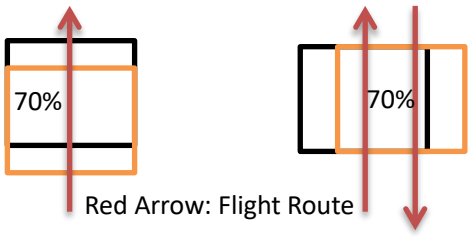
Notice: There are various items in the Survey Setting Menu. The operator may need to drag the menu up and down to view all items.

Overlap

Front Overlap – Creates images with a percentage of each image overlapping to the front of the image.

Side Overlap – Creates images with a percentage of each image overlapping to the side of the image.

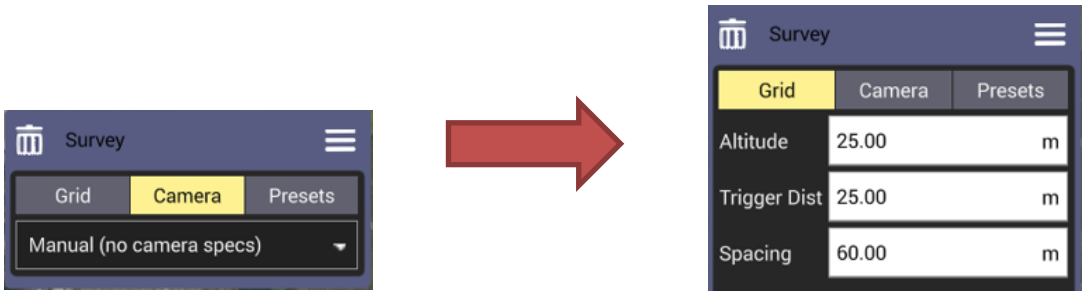




Front Lap for 2 photos

Side Lap for 2 photos

Notice: When the "Manual (no camera specs)" was selected under the "Camera" Tab, the "Overlap" will be replaced by the "Trigger Dist" and "Spacing" Setting Form meanwhile the "Ground Res" will be hidden.



Altitude or Ground Res

Altitude – Sets the survey grid altitude. This is not changeable mid-flight.

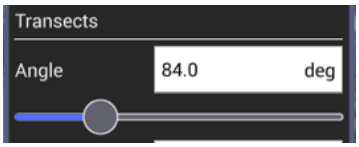
Ground Res – Sets the ground resolution in distance/pixel, which will automatically calculate and set the survey flight altitude.

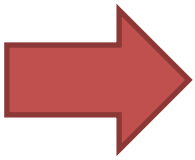
Select one and type in the parameters directly.

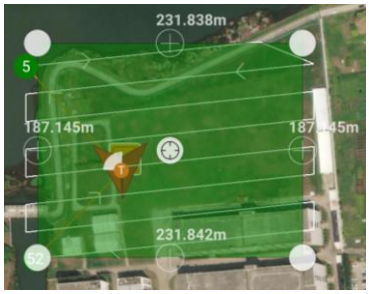
Note: A higher ground resolution requires a lower flight altitude. If unsure about ground resolution altitude, enter desired ground resolution then view the corresponding altitude in the altitude setting (greyed out), and vice versa.

Transects

Angle –Drag the slider or type in the parameter to adjust the Angle of the survey grid lines.



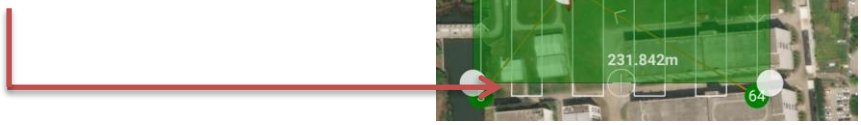




Turnaround dist

– Sets the distance outside the survey for the drone to turnaround.

Type in the parameters directly to adjust the distance



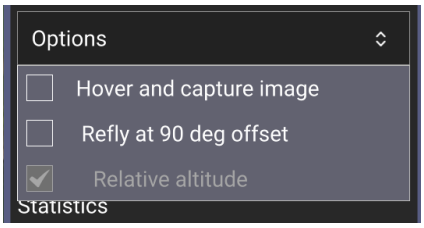
Rotate Entry Point Button

-The DataPilot 2.0 App will offer more than one solution to lead the drone to enter and exit the survey area, the operator can change the Entry and Exit Point by tapping the “Rotate Entry Point” Button according to the actual conditions.

For example, the Entry point and the Exit Point were at the south of the survey area. After tapping the “Rotate Entry Point” Button, they have changed to the north.

Options

Tap the “Options” to open the drop-down menu.

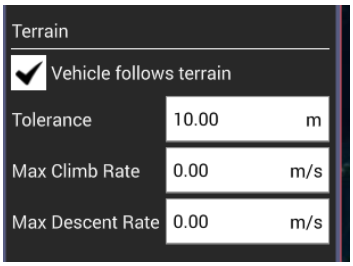


Hover and capture image – After this Item is ticked the drone will stop and hover and then capture the image at each capture point for better image quality.

Refly at 90 Degree Offset – Overlays a secondary survey grid 90 degrees from the first survey (also known as cross-hatch). This feature is useful for extremely high-quality maps and for early morning or late afternoon flights where long shadows may provide deep contrasts.

Tick the “Refly at 90 Degree Offset”

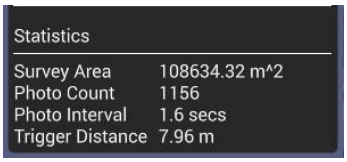
Terrain



Tap the “Terrain” Button and tick the “Vehicle follows terrain” to make the drone fly closer to the ground for capturing more pictures or fill the holes in the following inner process working flow.

The operator can type in the parameters directly in the text box for setting.

Statistics

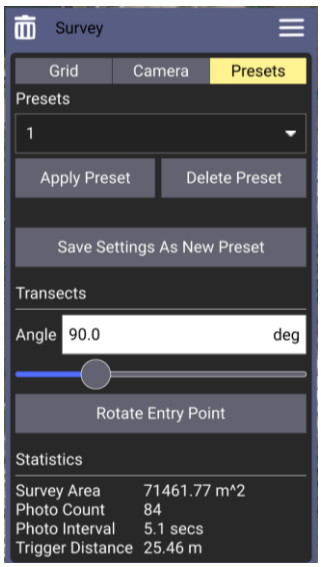


Display the key parameters of this survey mission.

Preset Function

The operator can save some frequently used settings of the “Transects” Items such as Angel and Entry Point in the DataPilot 2.0 App as a Preset. When creating the survey area, the saved preset parameters can be selected. The operator can determine whether to apply these preset settings.

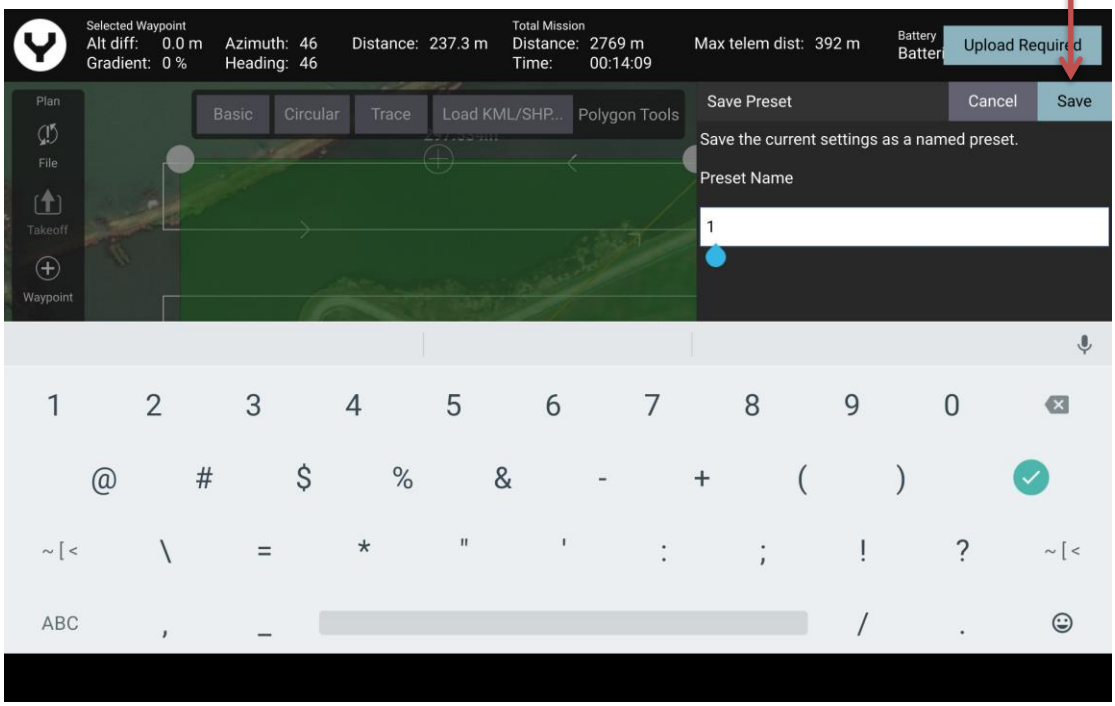
Presets

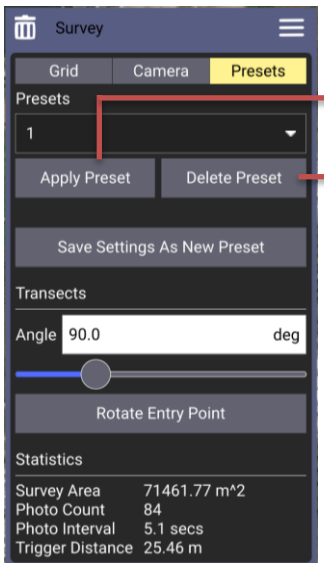


Tap the “Presets” Button and the operator can set the Angle or the Entry Point of the survey area.

Tap the “Save Settings As New Preset” Button to create a new save.

Type in the name and tap the “Save” Button to finish.





After the preset file name was selected tap the “Apply Preset” Button to load the parameters for the current survey area.

Tap the “Delete Preset” Button to delete the selected preset files.

Create the New Survey Area when Preset File Is Existed

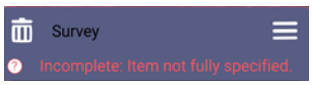
Once the transmitter detected there is the preset file exists, the last applied preset setting will be loaded automatically when creating the new survey area. For example, the last preset file we applied has a 90.0 degree setting in the Angle Item, now we have the horizontal flight route at the beginning as the screenshot shown below.

After tap the “Done With Polygon” Button the operator can select the existed preset files in the drop-down menu then tap the “Apply Preset” Button.

Or set the Angle and Entry Point manually for this time.

Once the Transects parameters were confirmed tap the “Done Adjusting” Button to finish the preliminary settings of the survey area.

Delete the Survey Plan



Tap the Trash Can Icon to delete the survey plan.

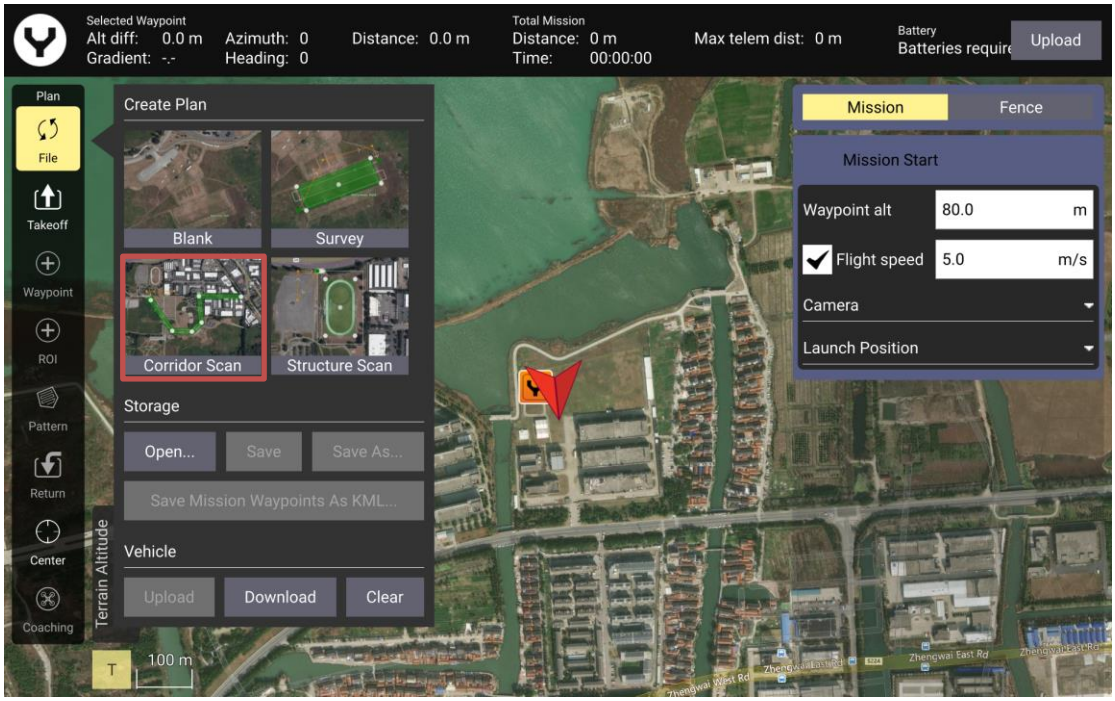
5.2 Corridor Scan Plan

Corridor Scans

Roadways, power lines, train tracks, footpaths, and other narrow winding areas may be set up as “Corridor Scans.” Corridor scans enable the drone to fly long pathways with overlap for these sorts of missions.

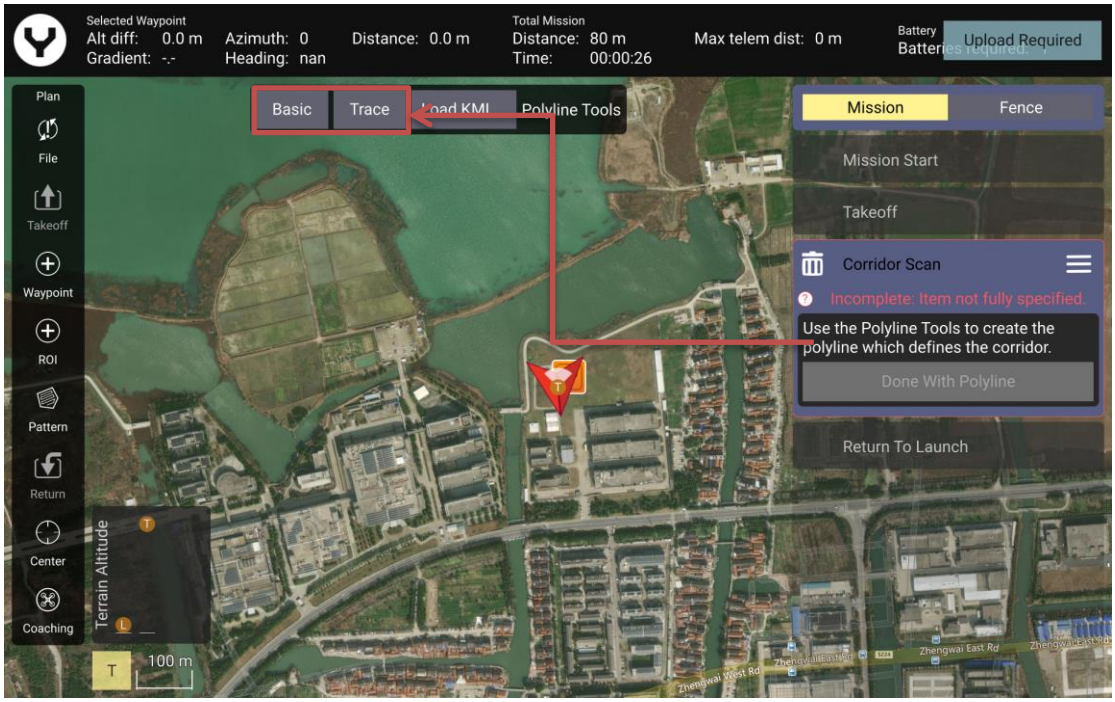
This is an example of a corridor scan

To create the Corridor Scans, tap the “Corridor Scan” Button after tapping the Mission Route Setting Icon.



If the transmitter is already connected with the drone and the drone GPS position was locked, the Takeoff Point will be set above the drone location, otherwise place the Takeoff Point at the position you need then tap the “Done Adjusting” Button to finish setting. Then tap the “Corridor Scan” Step on the right side of the screen to set the scan area.

There are 2 preset templates to choose for editing the Corridor Scan area. The operator can choose one of them for a Corridor Scan plan.



Basic Preset Template Overview

Tap the “Basic” Button, the App will generate a Corridor Scan area with 2 vertices.

Tap and hold the vertices dot to drag the Corridor Scan area on the map.

Tap “+” dot allows additional vertices to be created/inserted in the pathway, allowing for numerous angles to follow the road.

Trace Preset Template Overview

Tap the “Trace” Button, and then tap on the screen to set the vertex of your Corridor Scan area. Once you have no less than 2 vertices. A Corridor Scan area will be generated automatically. The operator can add more vertices by tapping on the screen directly to allowing for numerous angles to follow the road.

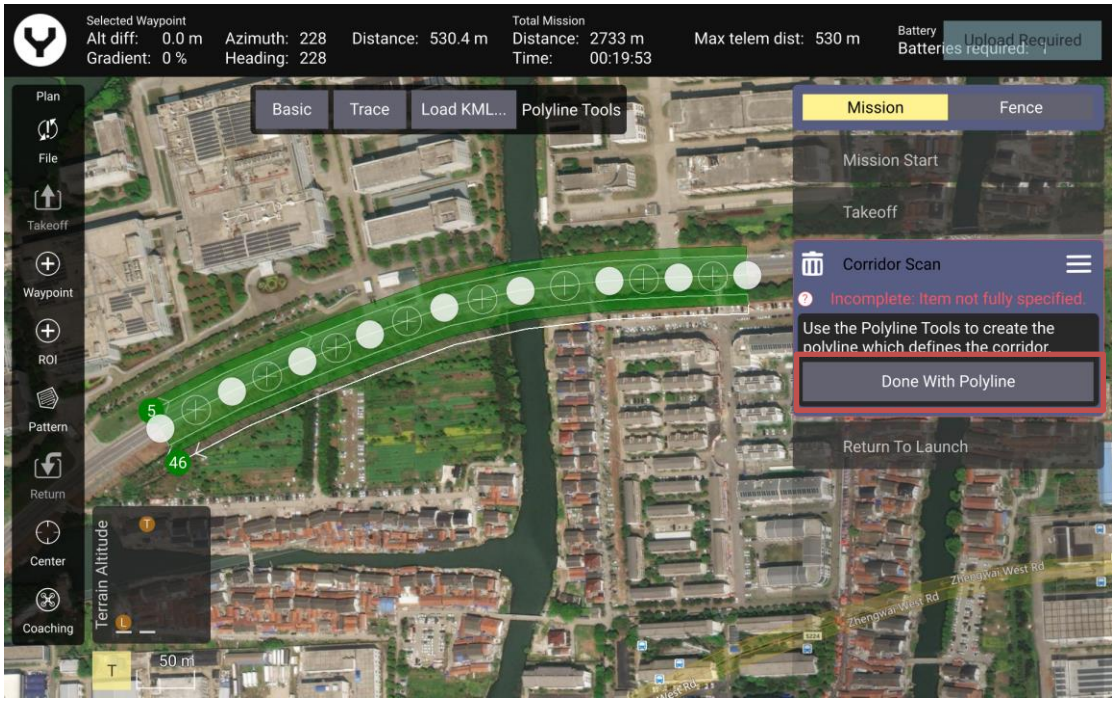
Tap and hold the vertices dot to drag the corridor scan area on the map.

Tap “+” dot allows additional vertices to be created/inserted in the pathway, allowing for numerous angles to follow the road.

Click the “Done Tracing” Button to finish the shape settings of the Trace Template.
Be similar with the survey mission the scan area is also can be imported by tapping the “Load KML/SHP…” Button.

Notice: The vertexes in the Corridor Scan plan are also can be removed or adjusted precisely by tapping the existed vertex.

After the green template covered the Corridor Scan area you want on the map, please tap the “Done with Polygon” Button for the further settings.



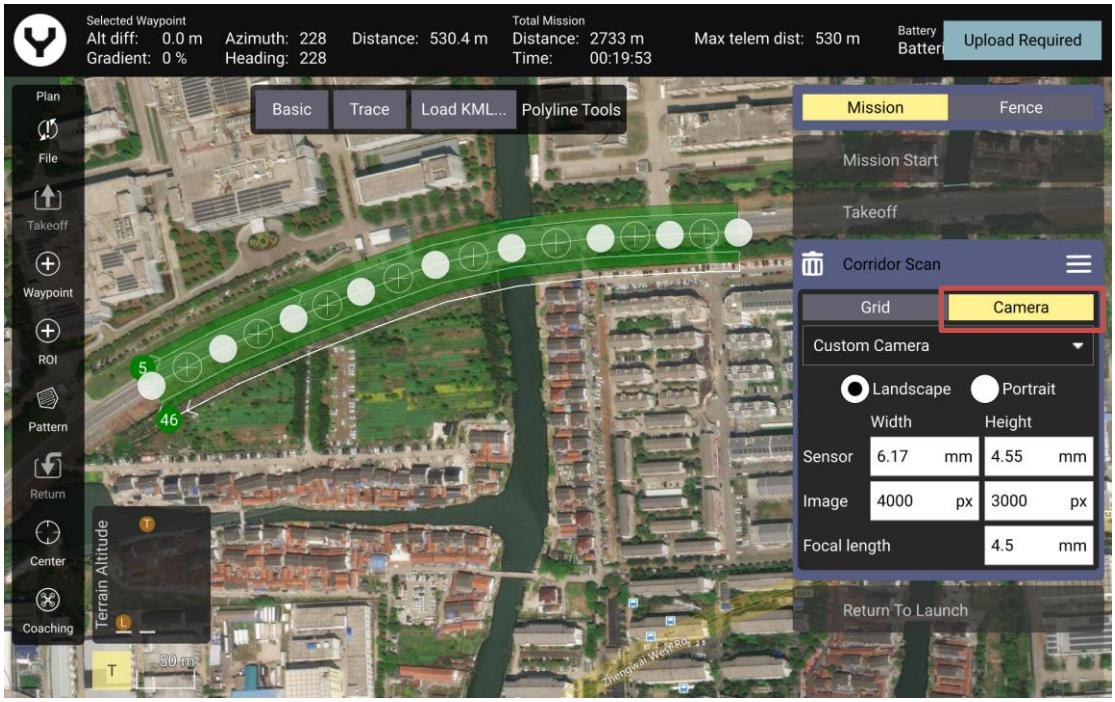
In this image, nine vertices have been inserted, allowing the drone to follow the curvature of the roadway.

Adjust the Corridor Scan parameters

After the Corridor Scan area has been confirmed the operator can adjust the scan parameters.

Select the Camera

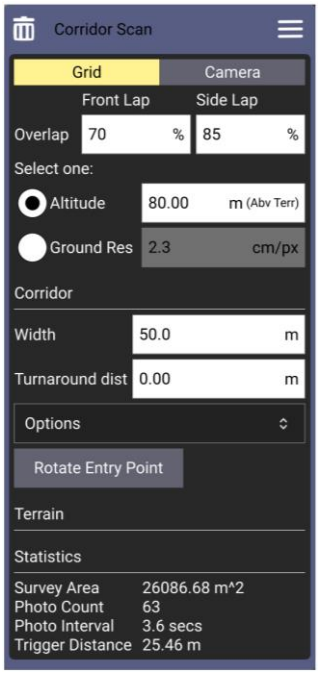
The operator can consider the corridor scan as a special survey mission with a very narrow mapping area. So tap the “Camera” Tab and select the corresponding camera attached on the drone before setting the flight route.



Adjust the Corridor Scan Grid Parameters

After the camera type has been confirmed the operator can adjust the scan grid parameters. Click the “Grid” Tab under the selected Corridor Scan Setting Menu to adjust the flight route.

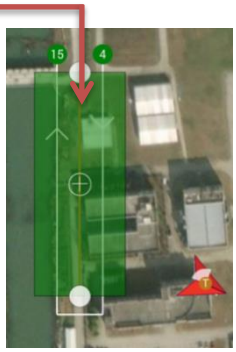
Notice: Be similar to the Survey mode the Corridor Scan Setting Menu is shown on the right side of the screen. Through this menu, the operator can set all the Corridor Scan parameters. Drag the menu up and down to view more items.



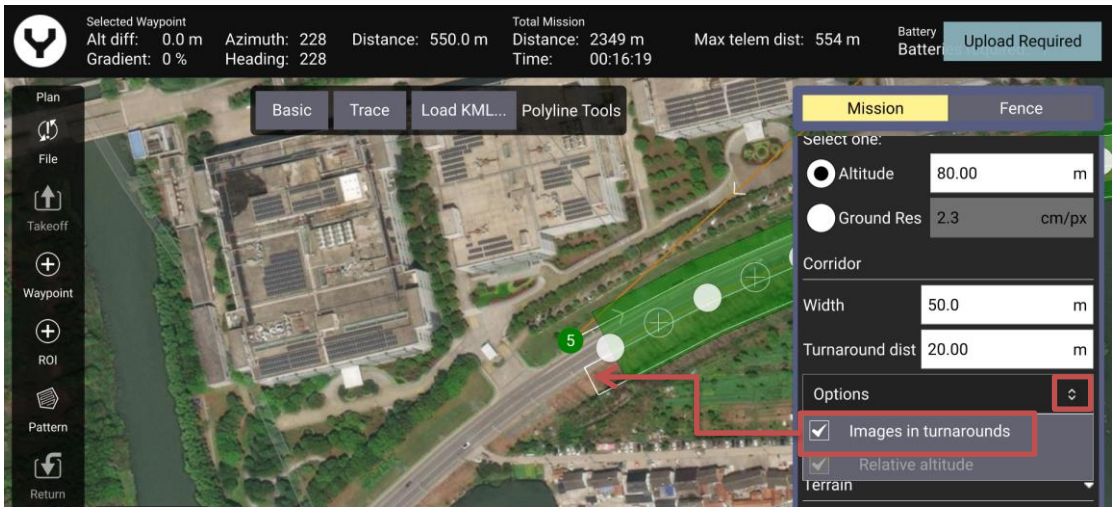
The most functions in the Corridor Scan Setting Menu are the same as what in the Survey mission.

But the Corridor Scan Setting Menu still has a function that the Survey doesn’t. That is “Width” Setting.

Type the width parameter directly in the enter box to adjust the width of the corridor.



The Corridor Scan also supports the Image in turnarounds functions which the Survey doesn’t. Open the drop-down menu of the Options and tick the box before the “Image in turnarounds” then the drone will take photos at the turning flight route.

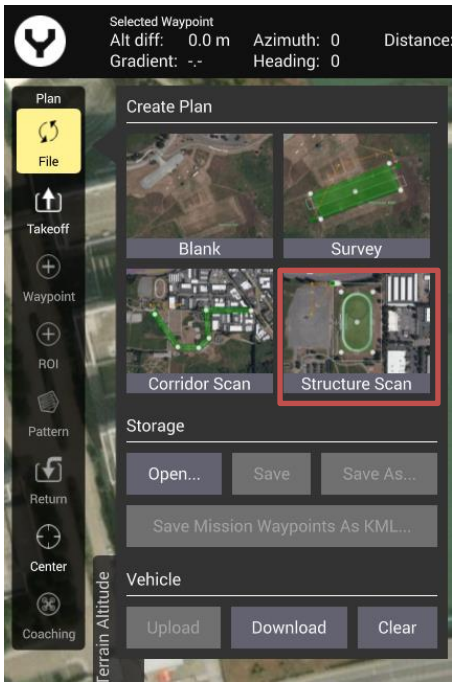


Delete the Corridor Scan Plan

Tap the Trash Can Icon to delete the Corridor Scan plan.

5.3 Structure Scan Plan

Structure Scan

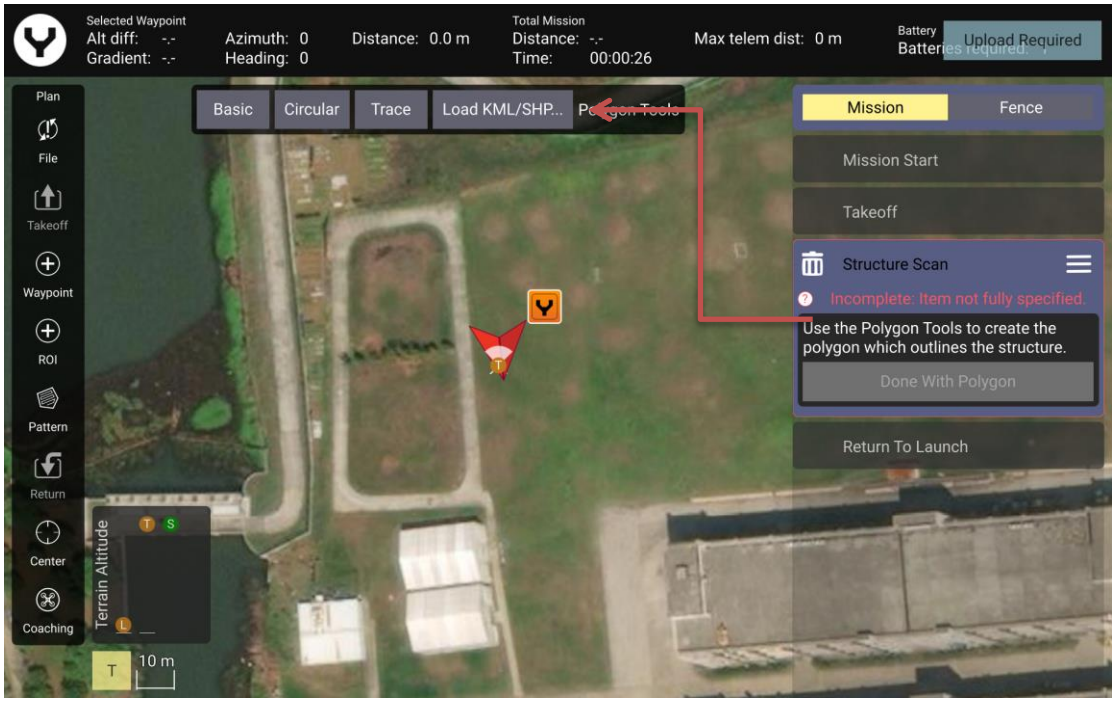


A Structure Scan allows the operator to create a grid flight pattern that captures images over vertical surfaces (e.g., walls) around a structure with an arbitrary polygonal (or circular) ground footprint. Structure Scans may be combined with nadir/survey flights to better serve architects, engineers, and construction companies looking to create accurate 3D models, or output. las files for products such as Revit or Autodesk workflows.

Structure Scans may also be used for virtually any vertical scan element, and may be combined with other automated flight profiles.

As the screenshot shown above to create the Structure Scan plan. Normally the operator just needs one key tap the “Structure Scan” Button in the Create Plan Menu, all the necessary mission steps such as Takeoff Point, RTL and the Structure Scan itself will be automatically created.

After the Takeoff Point has been set, tap the Structure Scan step on the right side of the screen then set the scan area for the Structure Scan function.

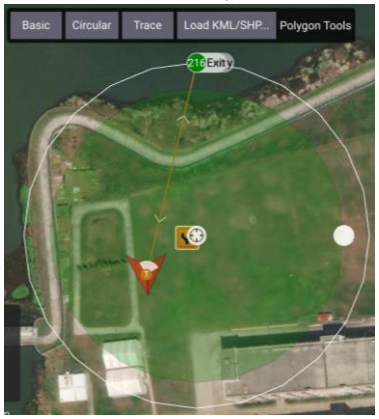


Be similar to the Survey mission, there are also 3 preset templates for the Structure Scan. The operator can choose one of them for a Structure Scan plan.

Basic Preset Template Overview

A green overlay will appear with four corners.
Tap and hold the center dot to drag the scan area on the map.
Tap and hold the white vertices then drag them to adjust the shape of the scan area.
Tap "+" dot allows the operator to add more white vertices to the edge of the scan area for a better fit.

Circular Preset Template Overview

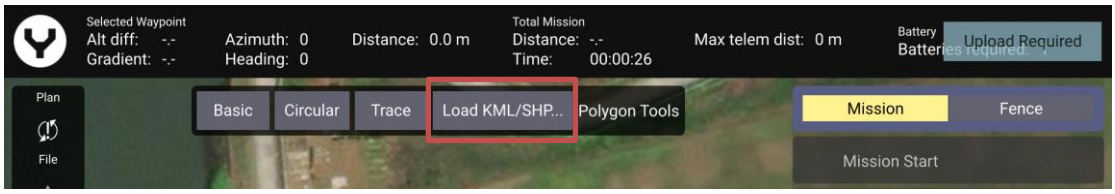


Tap the "Circular" Button, the App will generate a circular scan area.
Tap and hold the center dot to drag the position of the scan area on the map.
Tap the white dot on the edge of the circle to adjust the radius of the Structure Scan.

Trace Preset Template Overview

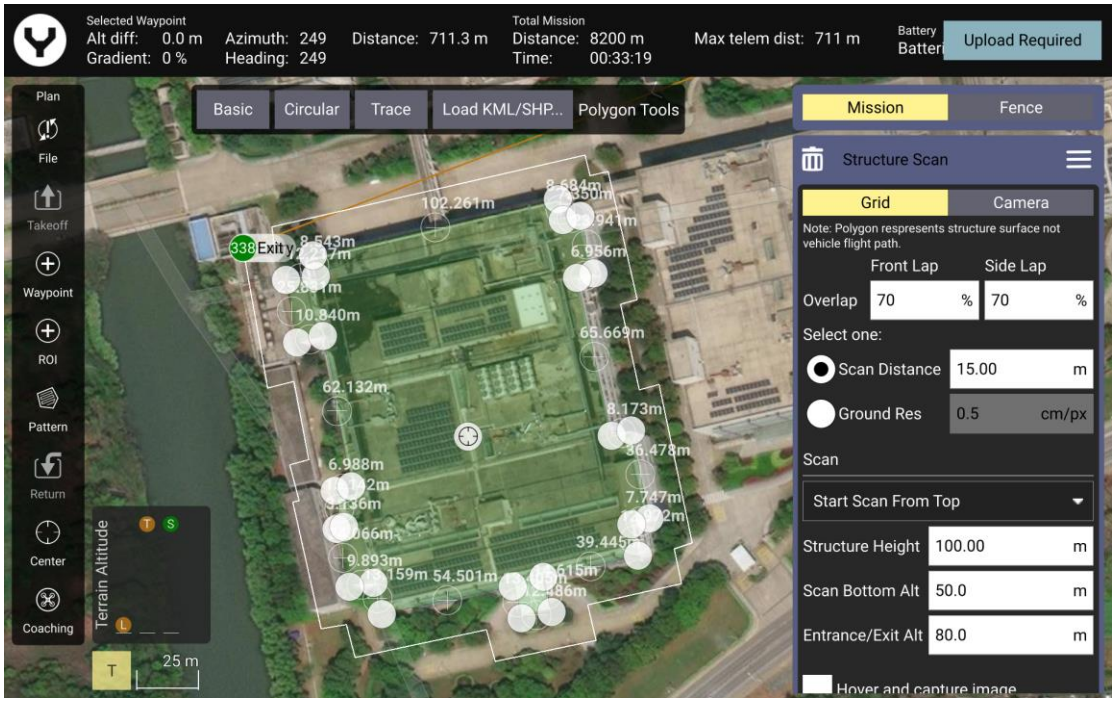
Tap the "Trace" Button, then tap on the screen to set the vertex of your Structure Scan area. Once you have no less than 3 vertices. A triangular Structure Scan area will be generated automatically. The operator can add more vertices to get a better fit. After the shape is confirmed tap the "Done Tracing" Button to quit the vertex adding mode.
Tap and hold the center dot to drag the Structure Scan area on the map.
Tap and hold the white vertices then drag them to adjust the shape of the Structure Scan area.
Tap "+" dot allows the operator to add more white vertices to the edge for a better fit.

Finally tap the "Done With Polygon" Button to start the further settings.
In addition to manually drawing the scan area, the operator who already has the scan area can import the wanted area by tapping the "Load KML/SHP…" Button.



Notice: The vertexes in the Structure Scan plan are also can be removed or adjusted precisely by tapping the existed vertex.

A green overlay will appear which represent the scan area. The region shown in green must be modified so that it surrounds the structure and the white line indicates the flight route.

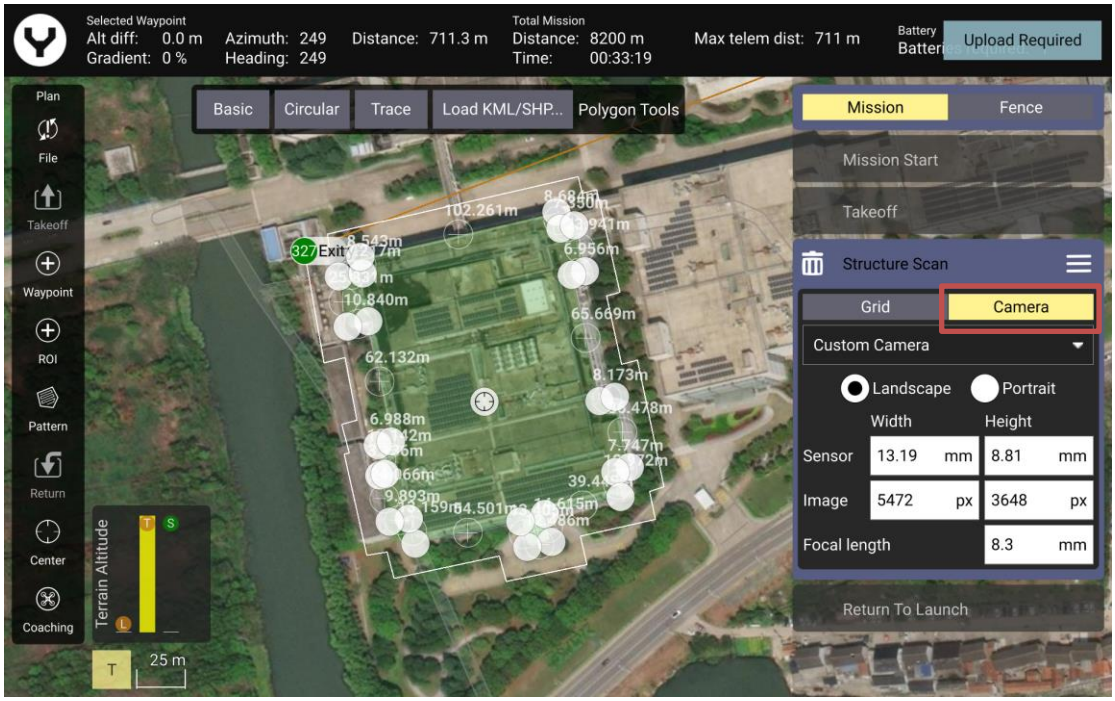


• Drag the opaque vertices on the map to the edge of the structure.

• If the structure footprint is more than a simple square, click the semi-transparent circles between the vertices to create a new vertex. This allows for complex shapes such as the one seen above.

Structural scanning is a special survey operation of the vertical walls, the correct camera selection is critical for height separation of each layer and distance separation of each photo.

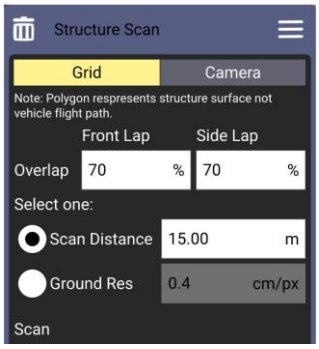
Tap the “Camera” Tab in the Structure Scan Setting Menu and open the drop-down menu to choose the camera or enter the parameters manually when the “Custom Camera” was selected.



Adjust the Structure Scan Parameters

After the Structure Scan area and cameras has been confirmed the operator can adjust the scan parameters. Click the “Grid” Tab under the selected Structure Scan mission to adjust the flight route.

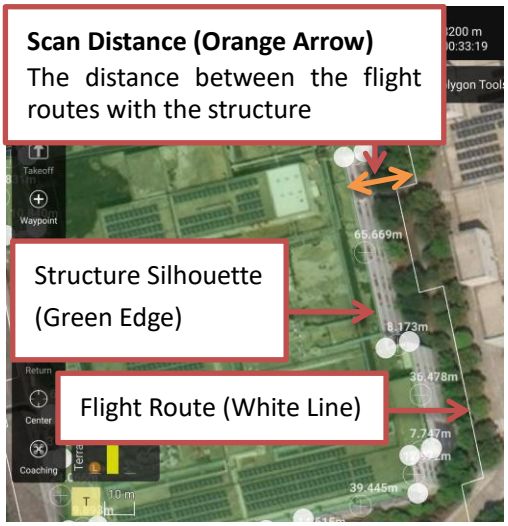
Notice: The operator need drag the menu up and down to view more items.

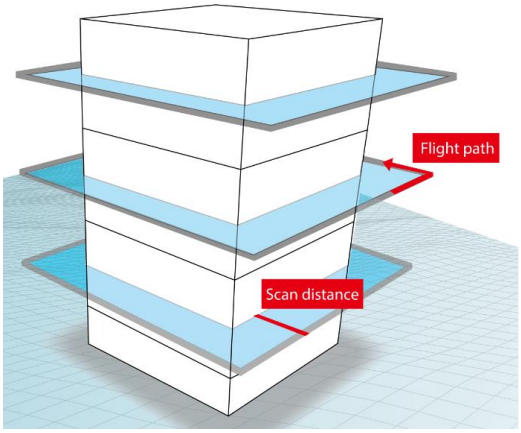


At the condition of the camera parameters have been entered the “Overlap” and the “Ground Res” is supported under the “Grid” Tab.

The “Scan Distance” and “Ground Res” are mutually exclusive and affect each other. Operator can only select one to enter the parameter.

The closer Scan Distance the higher Ground Res and the further the lower Ground Res it would be.

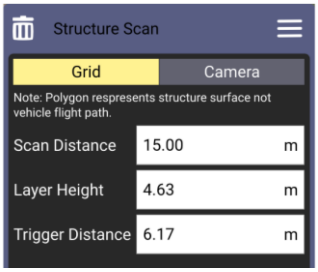




The Scan Distance in 3D View

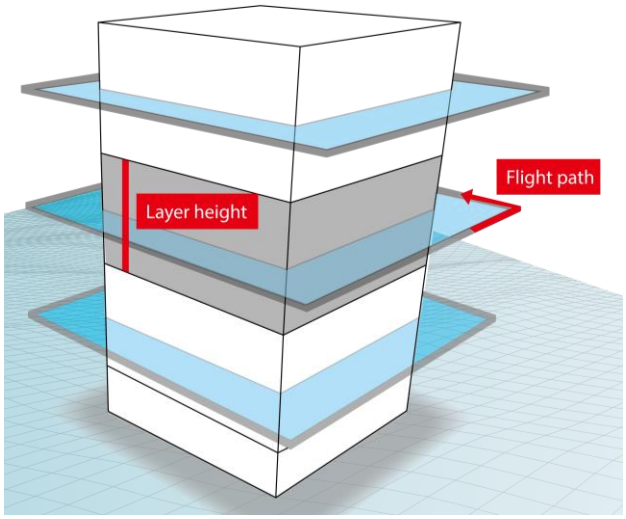
Notice: The Structure Scan is a specialized Survey for the vertical walls so exactly speaking the Ground Res means the Wall Res in a Structure Scan mission.

If the camera parameters in unavailable (select the “Manual” Selection under the “Camera” Tab) the operators need enter the Structure Scan Grid parameters by theirself. The Grid menu should be as the screenshot shown below:



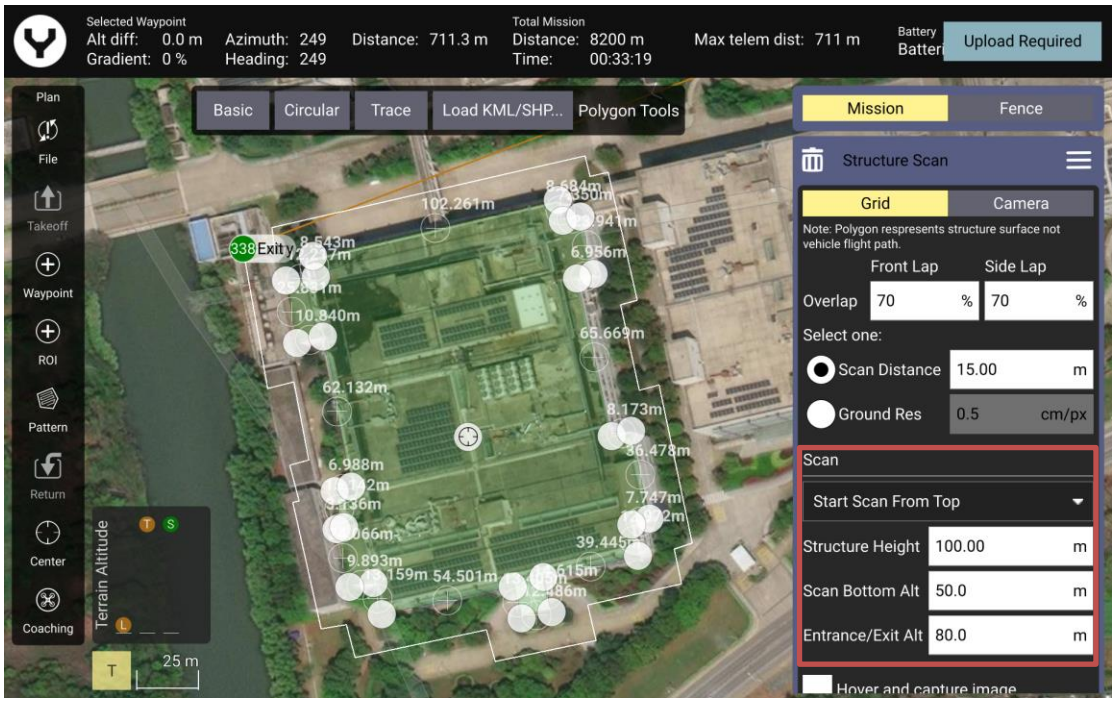
Layer Height: The thickness of the scan layer for the corresponding flight path which is at the same altitude

Trigger Distance: The distance between two photos captured by the gimbal camera

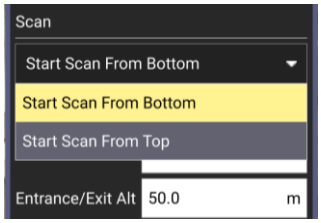


The Layer Height in 3D view (Gray Color)

In addition to the parameters mentioned above can affect the flight route in a Structure Scan mission the rest marked in the screenshot below will also affect at the different scan period.



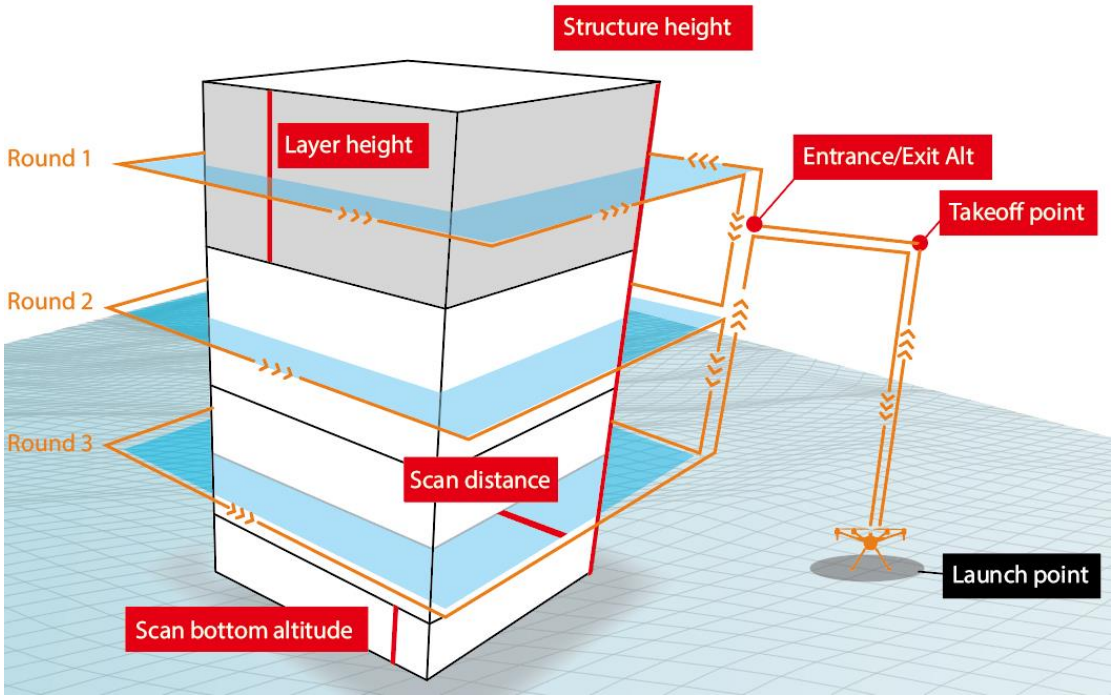
Scan Direction Selection



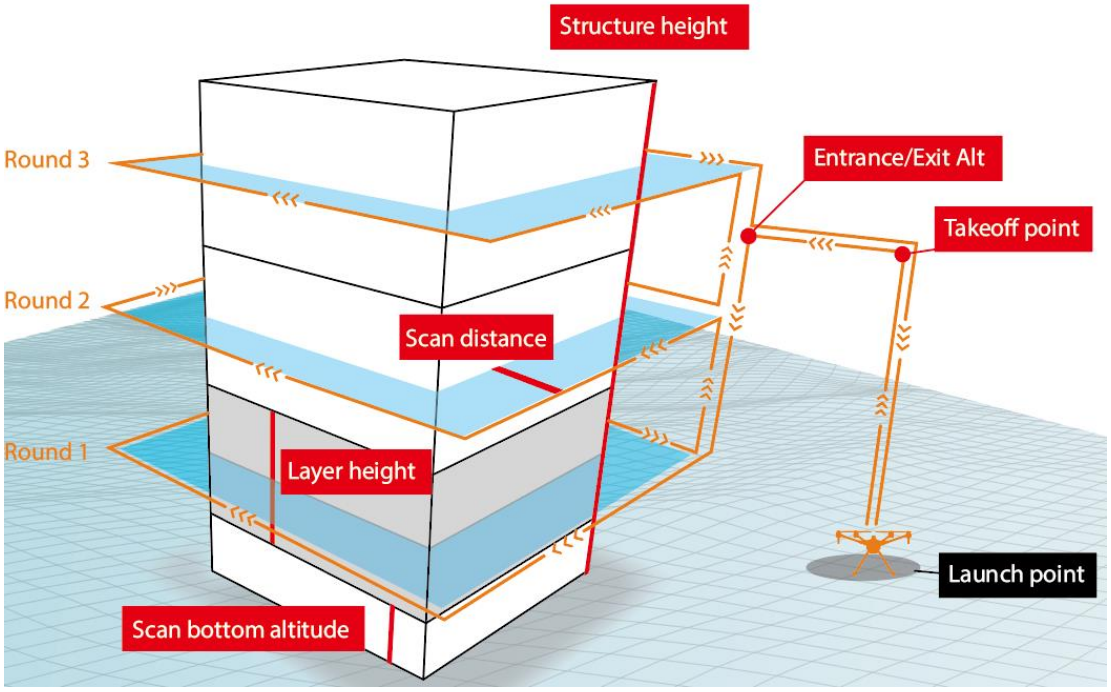
Tap the white-down arrow to open the menu then the operator can select start from bottom or top.

After the top or bottom selected the flight route will be generated combined with the “Structure Height”, “Scan Bottom Alt” and “Entrance/Exit Alt”.

The Flight Route Schematic Diagram when Scan From the Top



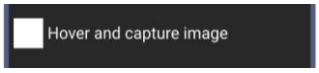
The Flight Route Schematic Diagram when Scan From the Bottom



The orange line means the flight route and the arrows on the orange line means the direction. No matter from the top or the bottom the orbit order is from Round 1 to Round 3 according to the corresponding schematic diagram shown above. Have to be aware of is the Layer Height will be replaced by Overlap and the Scan Distance can be set by using the Ground Res at the condition of the camera was selected.

Notice: Please ensure there is no obstacle when the drone is flying from the Takeoff Point to the Entrance/Exit Alt Point and on the return route.

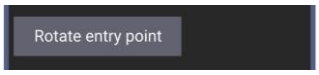
Hover and capture image



The drone will keep hover when taking the photo after ticking.

This function may increase the accuracy of the scan result but take more time for a flight mission.

Rotate entry point button

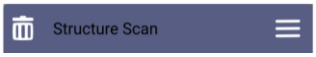


Tap this button to switch the corner of the structure for the drone to entry and exit the scan rounds.

Statistics

Display the key parameters of this Structure Scan mission.

Delete the Structure Scan Plan

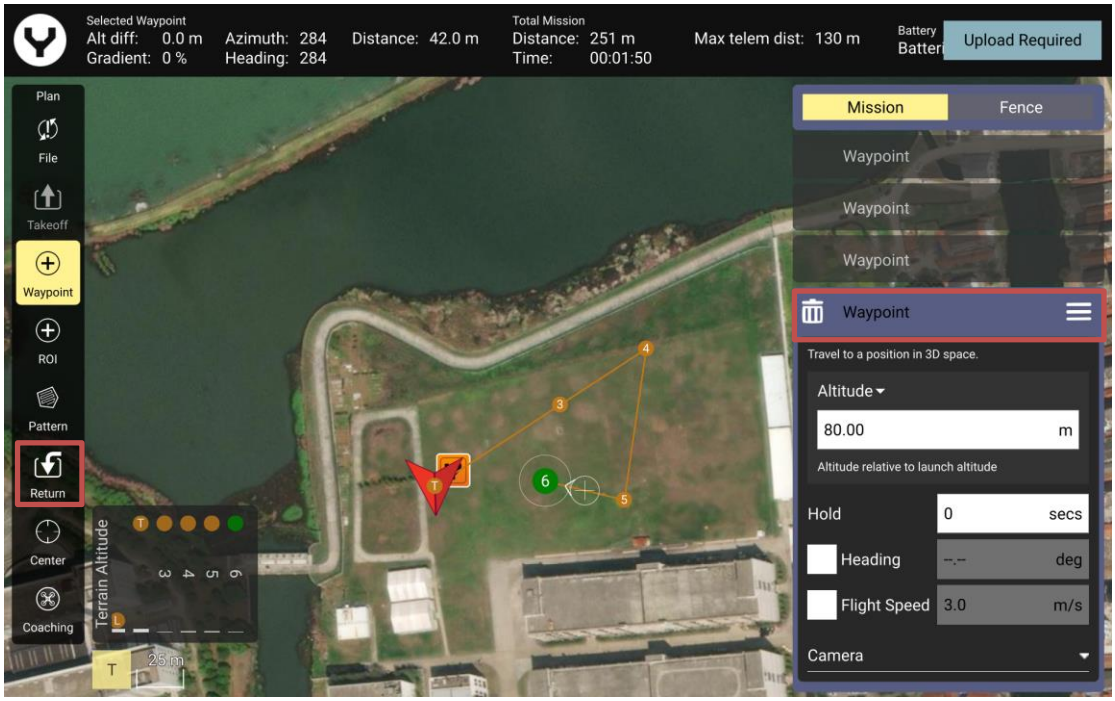


Tap the Trash Can Icon to delete the Structure Scan plan.

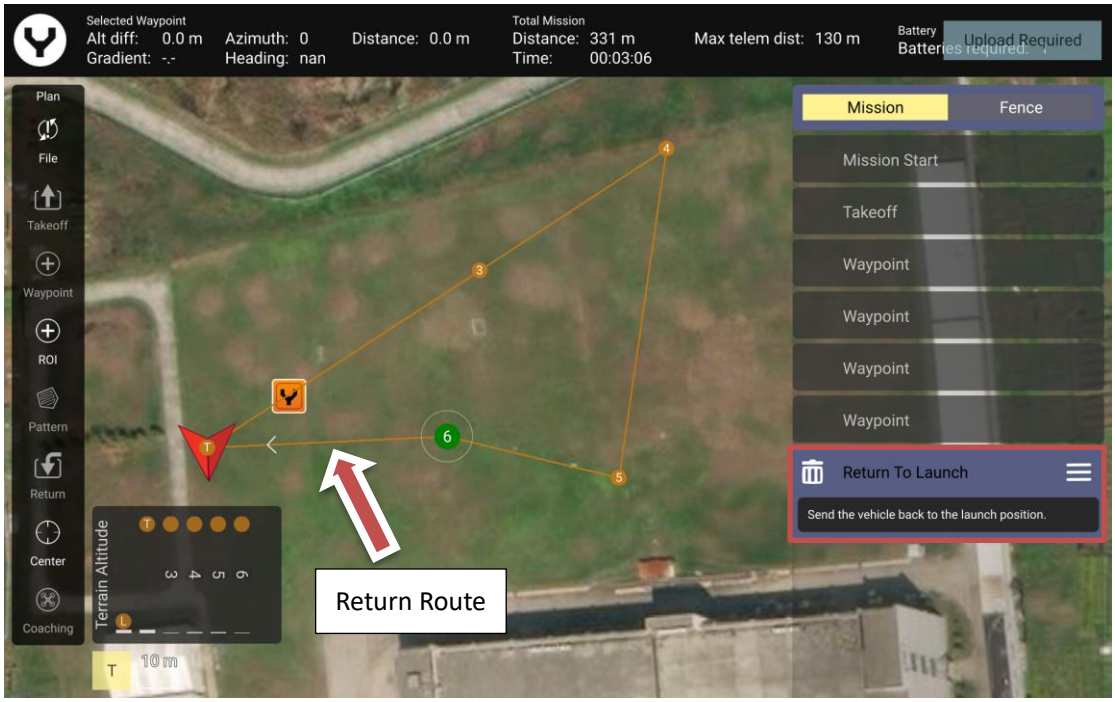
6. Return Button

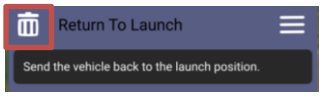
Tap to add a “Return To Launch” command after all the flight mission was finished to ensure the done will fly back. Normally the operator need not to tap the “Return” Button if create the pattern flight mission by selecting in the Create Plan Menu which opened after the “File” Button in the Plan Panel is enabled. But if add the mission plan step by step especially in Waypoint mission the operator needs tap the “Return” Button after the last mission step is selected.

After the last step is selected the “Return” Button will light up which indicate can be selected.



Once the “Return” Button is tapped the “Return To Launch” step will be added at the last and the return flight route will be added on the map.

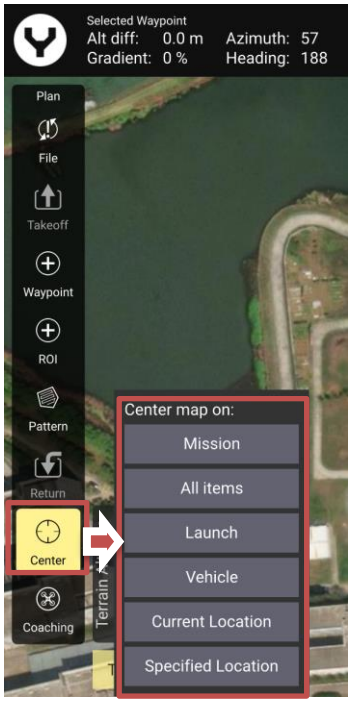




To delete the “Return To Launch” command, please tap the Trash Can Icon.

7. Center Button

Tap the “Center” Button to open the sub menu to select the center point located on the screen.



Mission- Move the whole flight mission to the center.

All items- Move all items added on the map to the center.

Launch- Move the Launch Point to the center.

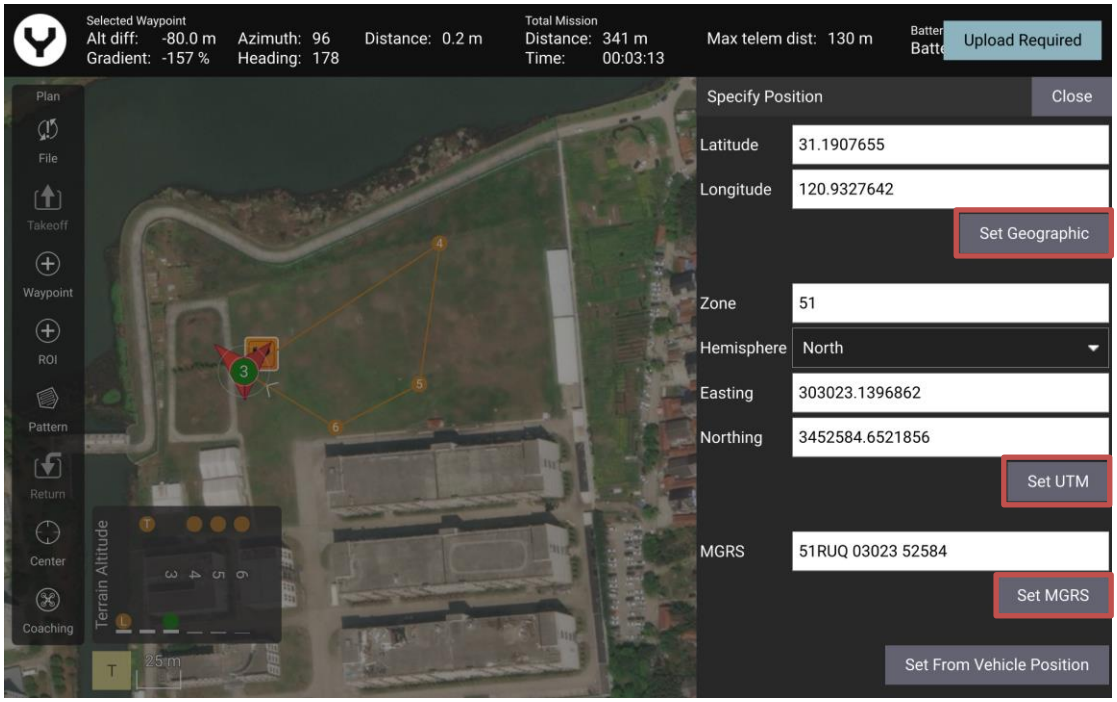
Vehicle- Move the vehicle position to the center.

Current Location- Move the current location of the transmitter to the center of the map.

Specified Location

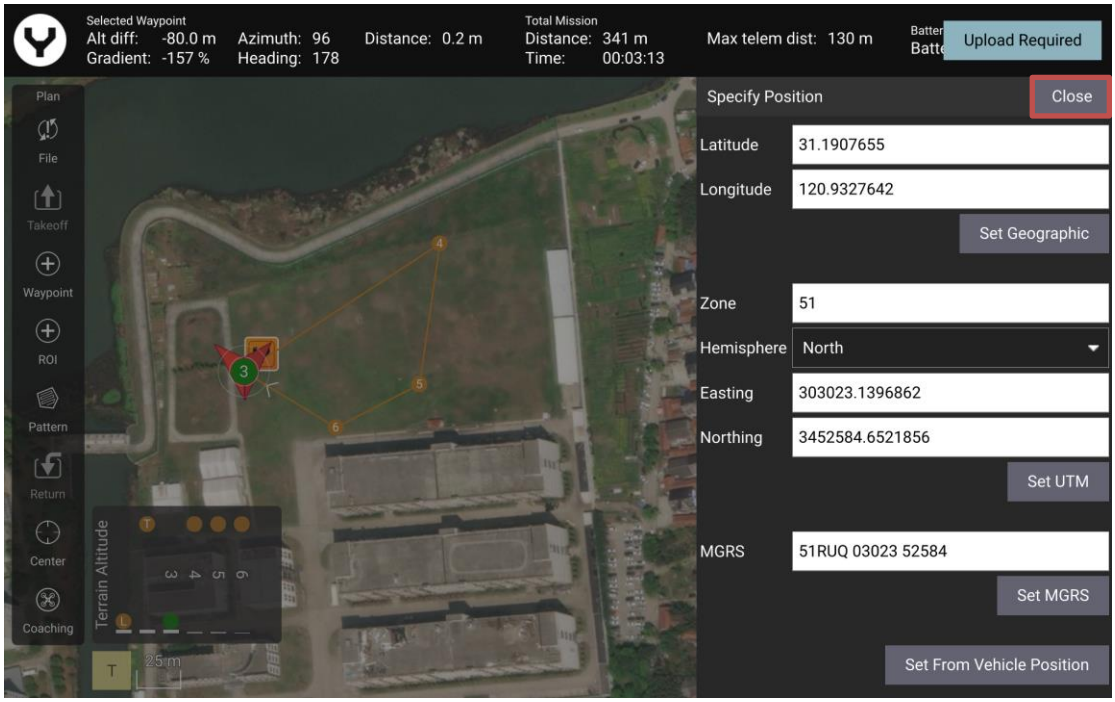
Tap the “Specified Location” Button to open the Edit Position Interface. Be similar with the waypoints and vertexes there are 3 different coordinate systems supported in the menu.

After enter the coordinate then tap the corresponding Set button then the entered coordinate position will be moved to the center of the map.

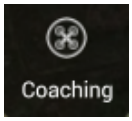


Tap the “Set From Vehicle Position” Button the drone’s current position will be entered into the menu and the map center will focus on the drone.

Tap the “Close” Button to quit the Coordinate Enter Menu.

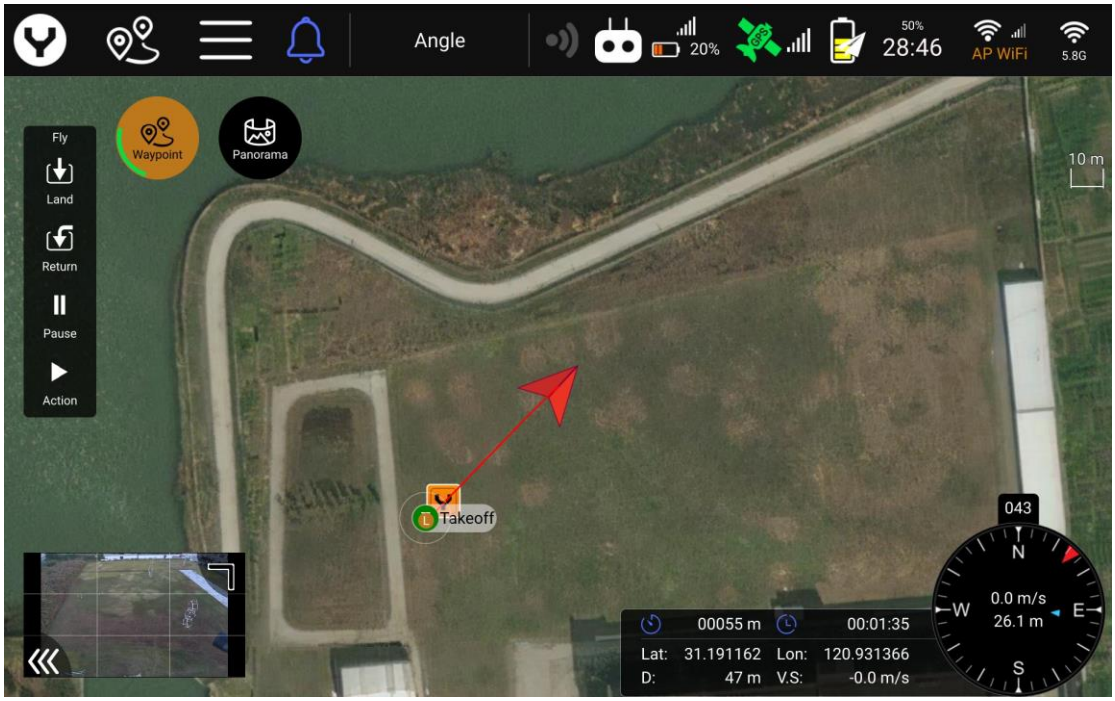


8. Coaching

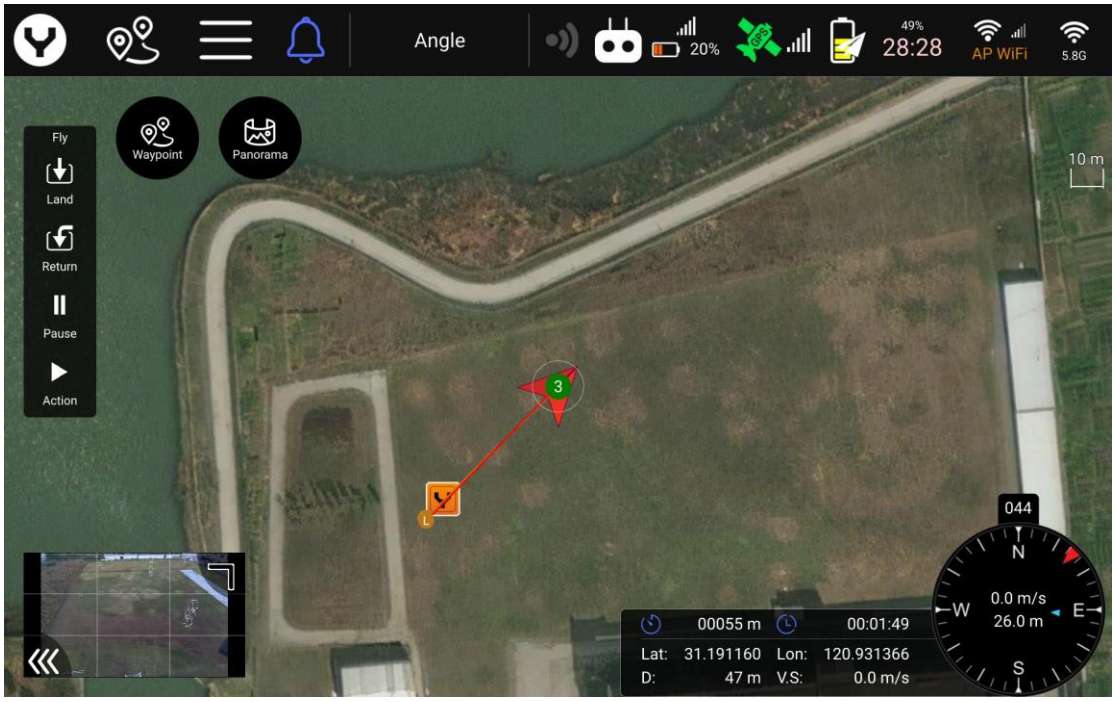


After the drone and transmitter are connected the “Coaching” Button will appeared on the Plan Panel.

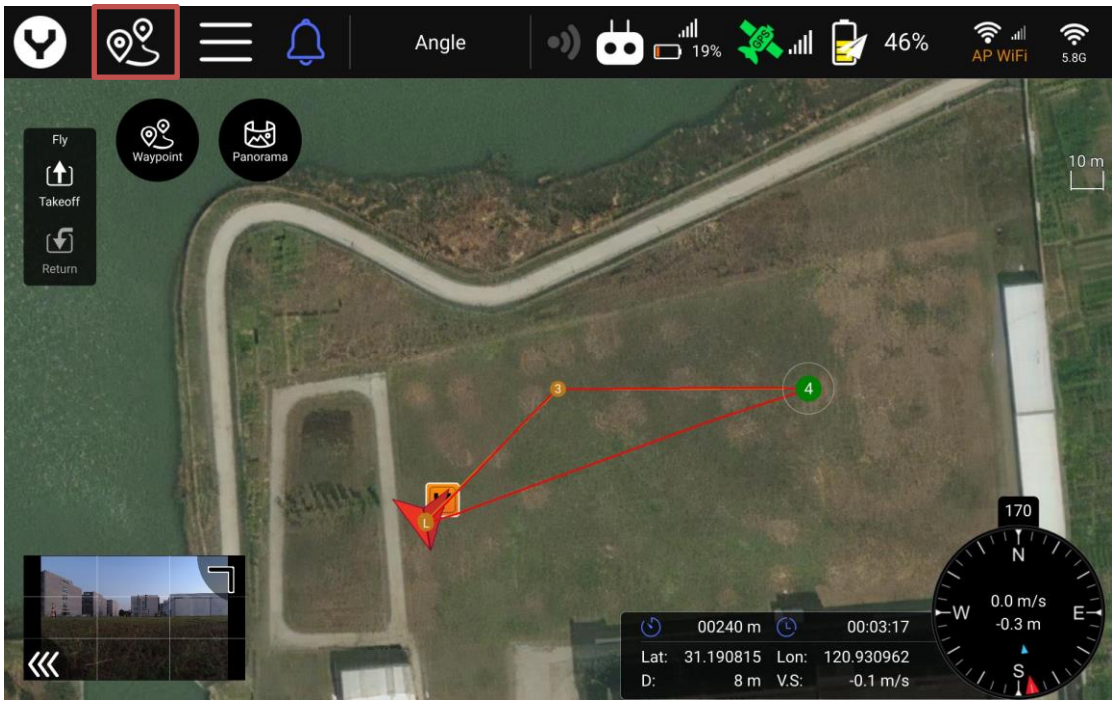
The Coaching function will allow the DataPilot 2.0 App to capture the drone current GPS position as a new waypoint.
After the Takeoff Point has been set in a Blank Plan, and then tap the “Coaching” Button, the operator will enter a new interface which is specially designed for capturing the drone position and generating the waypoints.
Once the drone reached the wanted position long press the “Waypoint” Button to add the waypoint on the map.



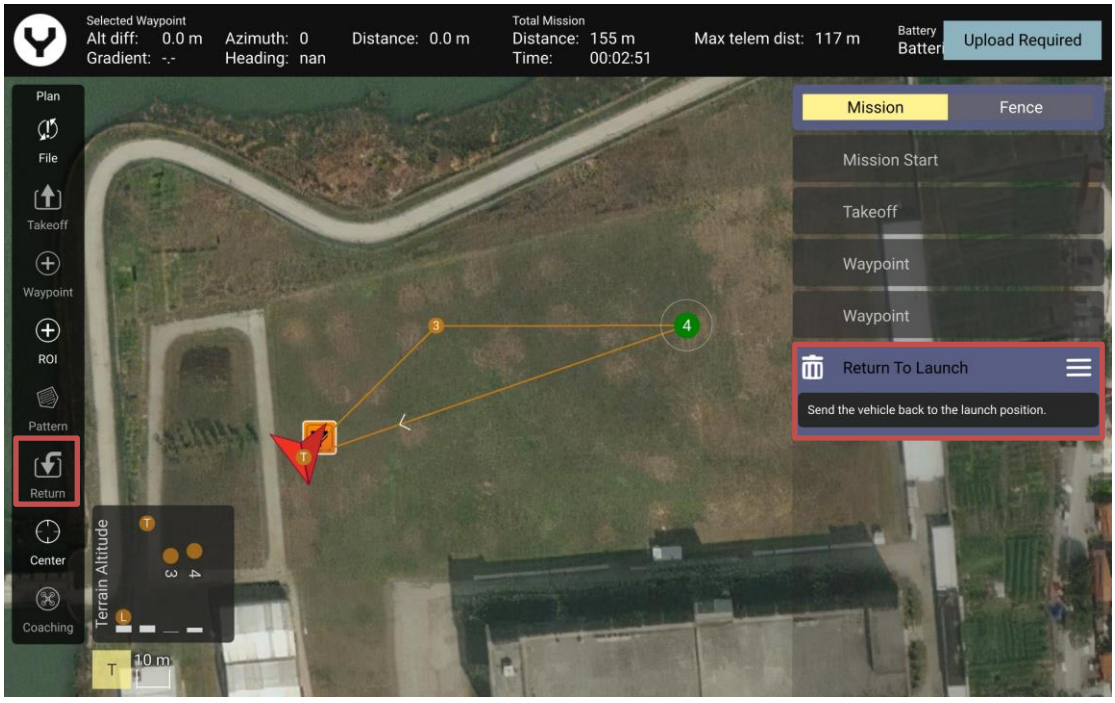
The newly added waypoint appeared on the drone position.



When all the wanted waypoints have been added, please fly the drone back and land. Then tap the Mission Route Setting Button after landed.



Add a “RTL” command for safety is suggested.



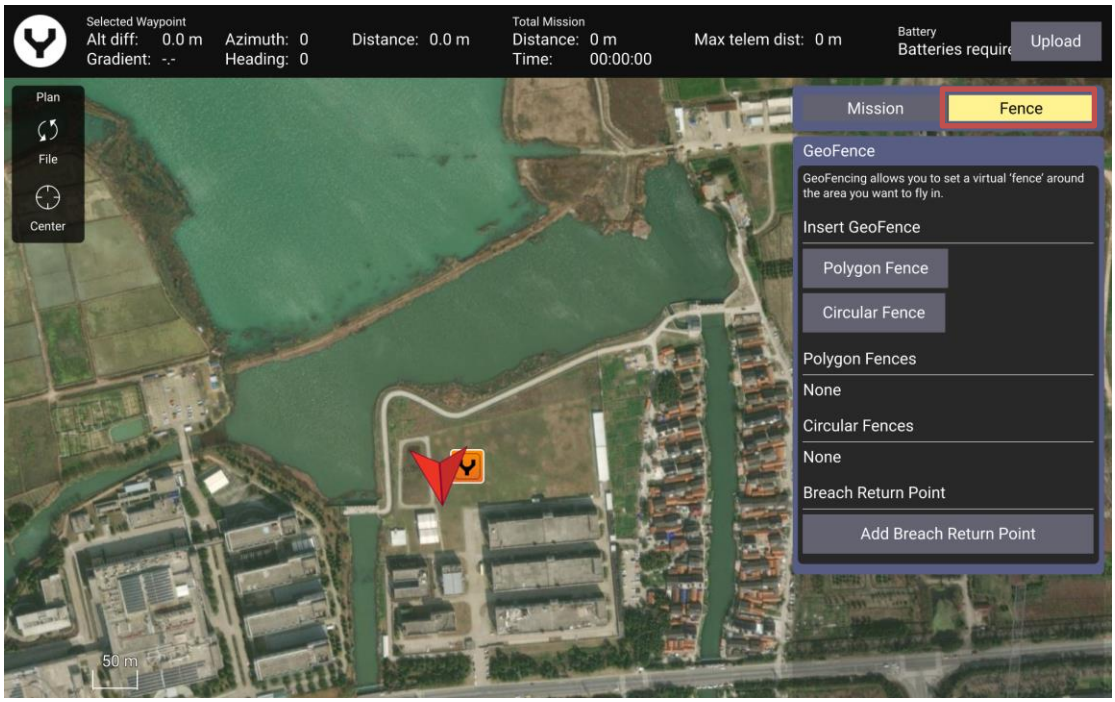
As same as the Waypoint function mentioned above the waypoints which added by Coaching function are also can be edited in detail. The operator can adjust them by using the same method.

Notice: The gimbal attitude and camera settings won’t be recorded in the Waypoint Setting Menu when capturing the position via the Coaching function.

Custom Electronic Fence

In the PLAN window, the operator not only can create a flight mission and upload to the drone the Custom Electronic Fence is supported also.

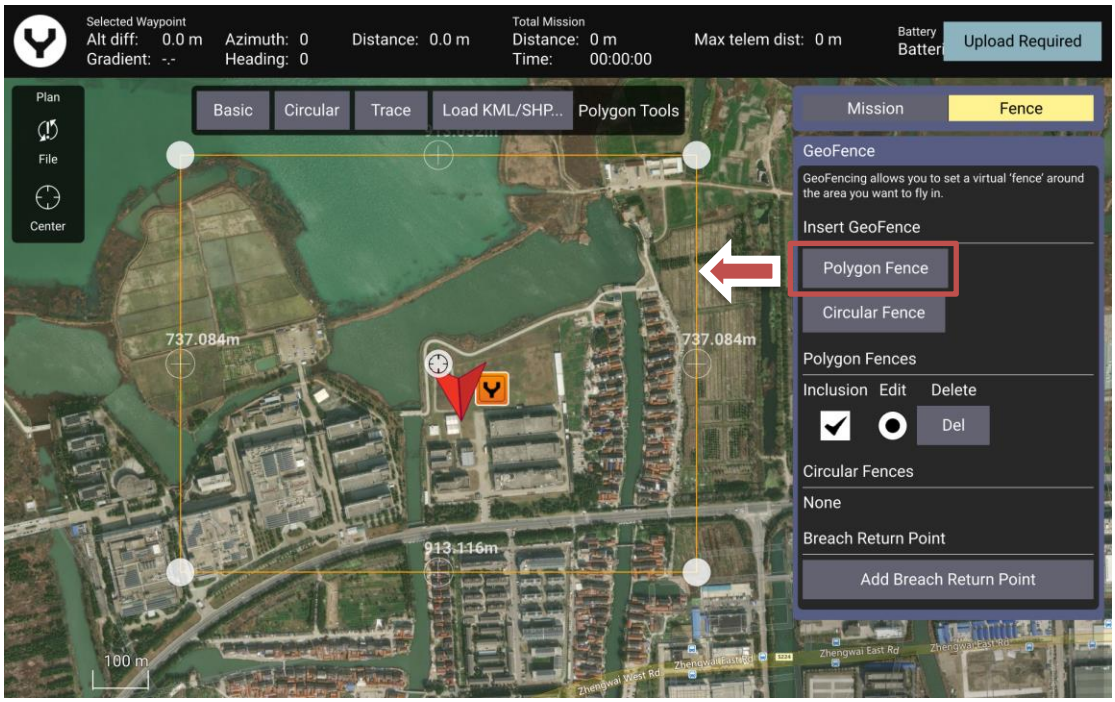
After entered the PLAN window tap the “Fence” Tab beside the “Mission” Tab to switch.



Add the Fence

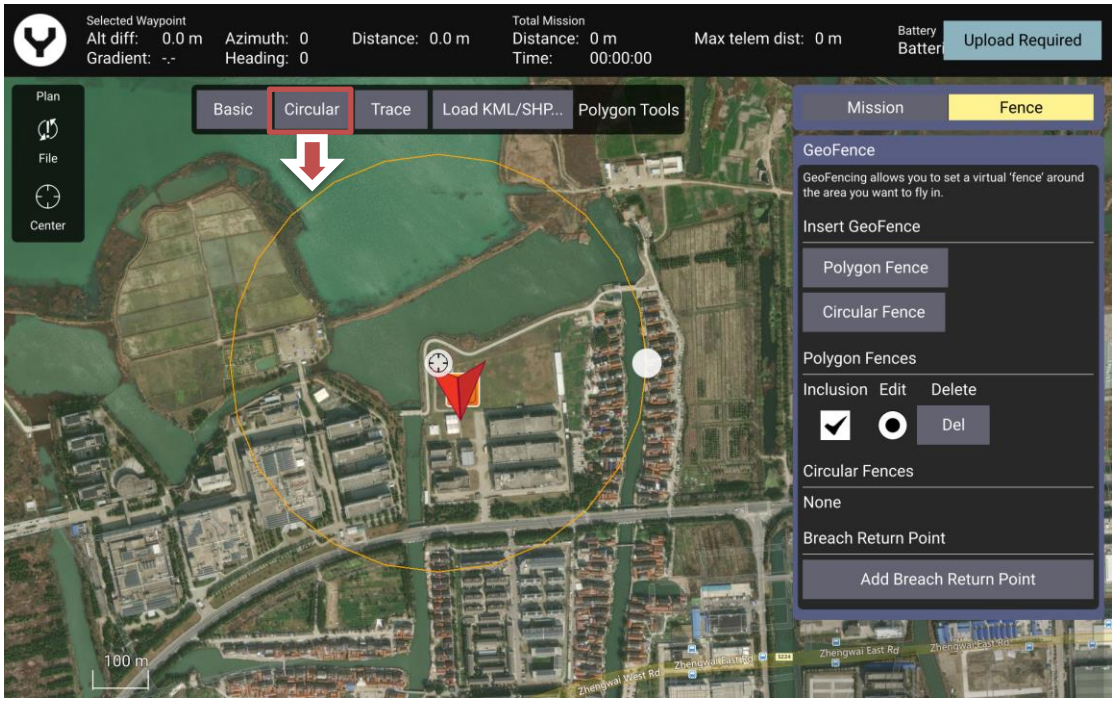
1. Polygon Fence

Tap the “Polygon Fence” Button to insert.

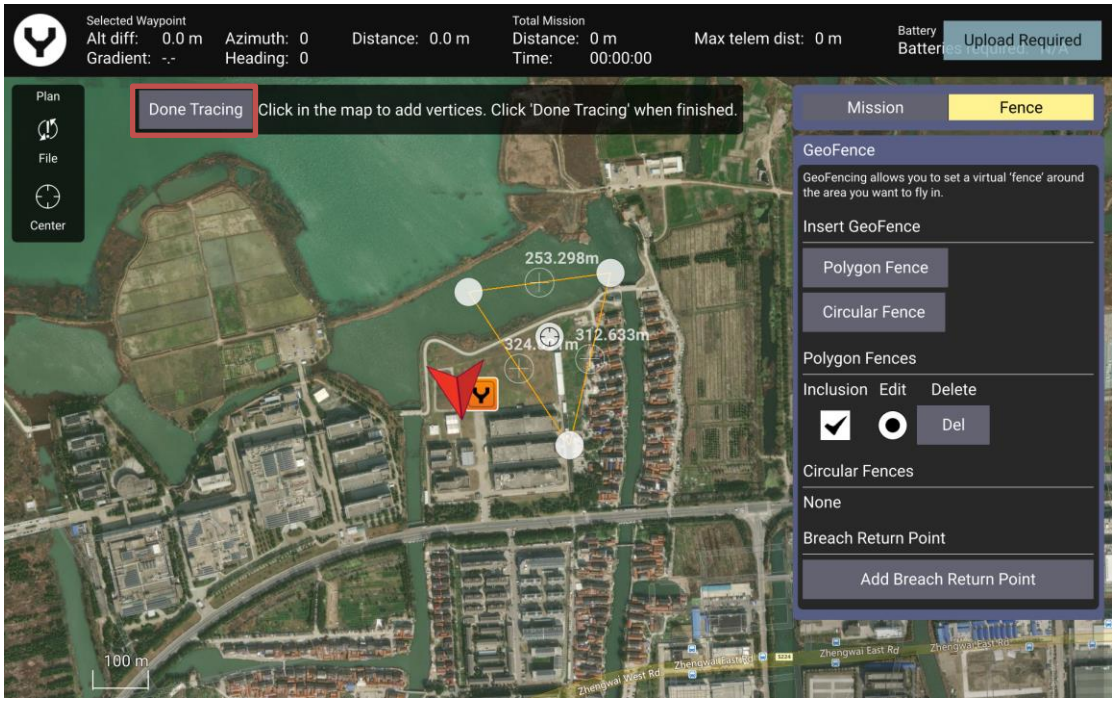


A square fence will appear on the screen after tap the “Polygon Fence” Button. And the Basic is the default Polygon Fence type.

The operator can switch the Basic Polygon Fence to the Circular Fence by tapping the “Circular” Button in the Polygon Tools Selecting Bar.



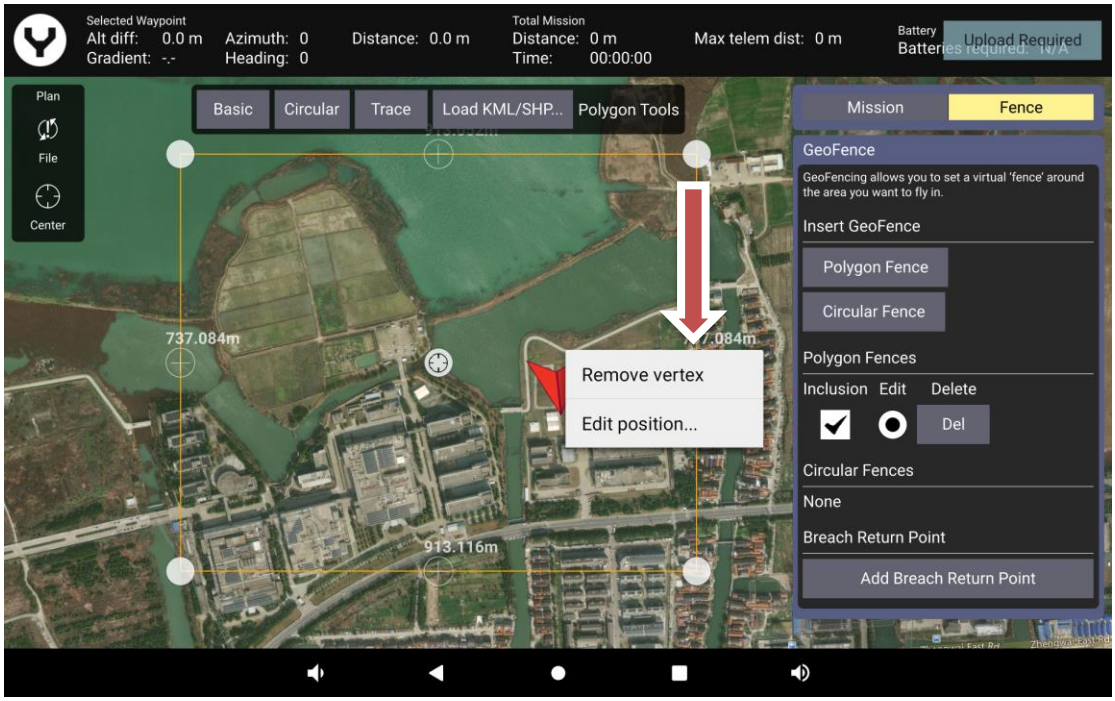
If the operator wants to insert the fence more freely, please select the “Trace” Button and tap on the map directly to add the vertex. Once the quantity of the vertexes is no less than 3, a fence will be created. The operator can add more vertexes by continuously tapping on the screen for the fence with complex edge. When finished, tap the “Done Tracing” Button to confirm the fence.



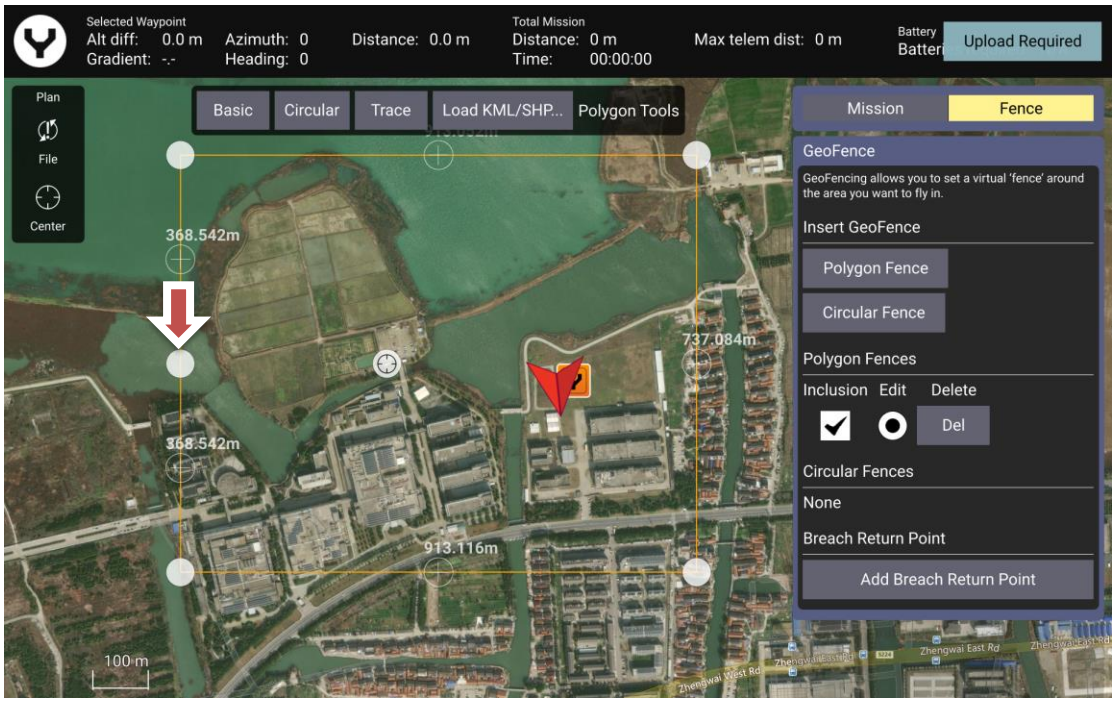
Once a Polygon Fence is inserted the operator can adjust the shape and position.

- Tap and drag the center dot of the fence to move the position.
- For a Circular Fence, tap and drag the dot on the right side to adjust the radius.
- For the Basic and Traced Fence the operator can do the following setting for the vertexes:
  (1) Tap and drag the vertex to adjust the shape of the fence.
  (2) Press the vertex to remove or edit the position precisely.
  (3) Tap the “+” dot between 2 vertexes to insert a new vertex.

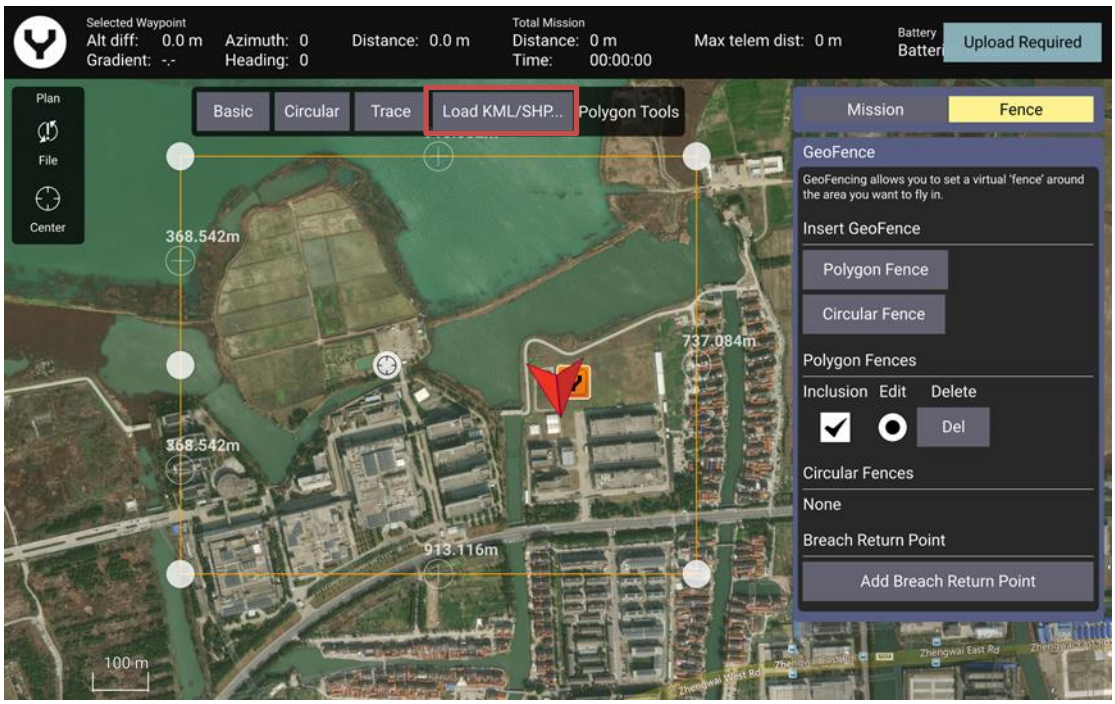
Tap the vertex to open the menu, choose the “Remove vertex” to delete the vertex and choose “Edit position…” to open the Edit Position Interface for precisely adjust.



Tap the “+” dot between 2 vertexes to insert a new vertex.



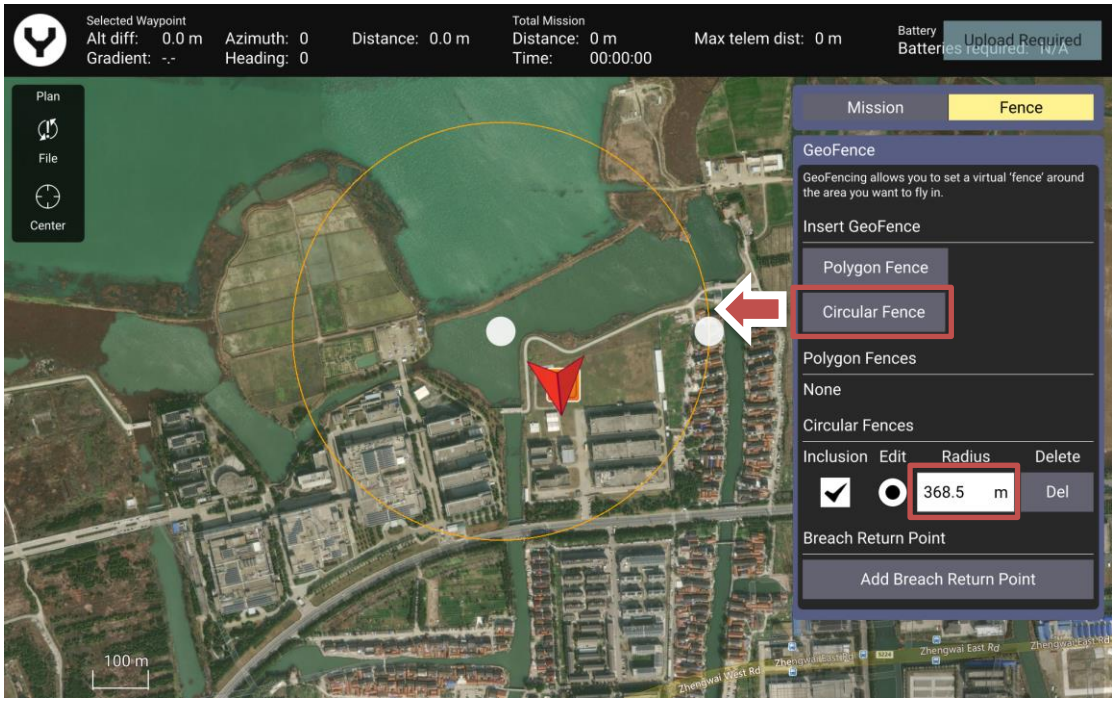
Beside set the fence manually the operator can also load the .KML file to define the shape of the fence. Tap the “Load KML/SHP…” Button and select the file on the popped-up menu from the right side of the screen to load.



2. Circular Fence

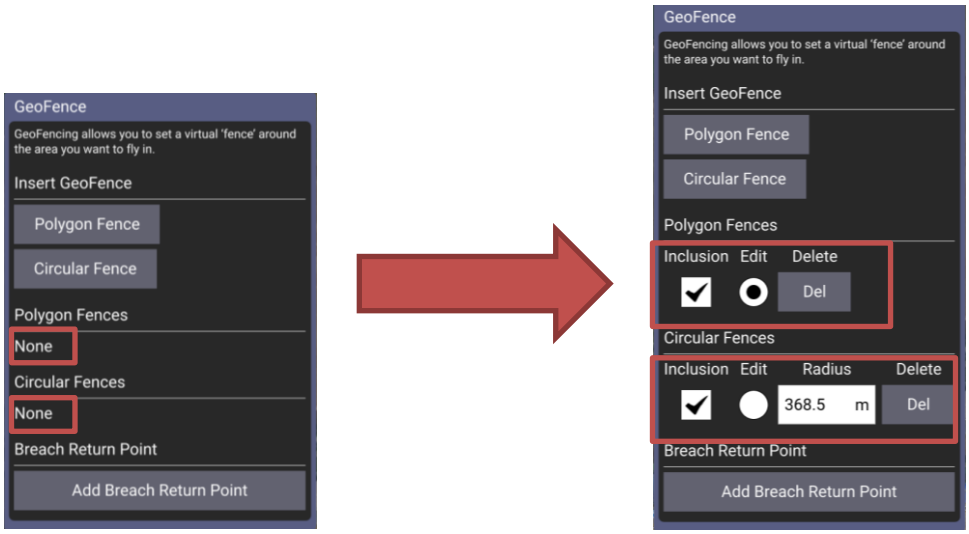
The Circular Fence can be added directly by tapping the “Circular Fence” Button.

Tap and drag the center dot to move the position of the Circular Fence. Tap and drag the dot on the side to adjust the radius. The radius also can be adjusted precisely by typing in the number directly in the box under the text “Radius”.



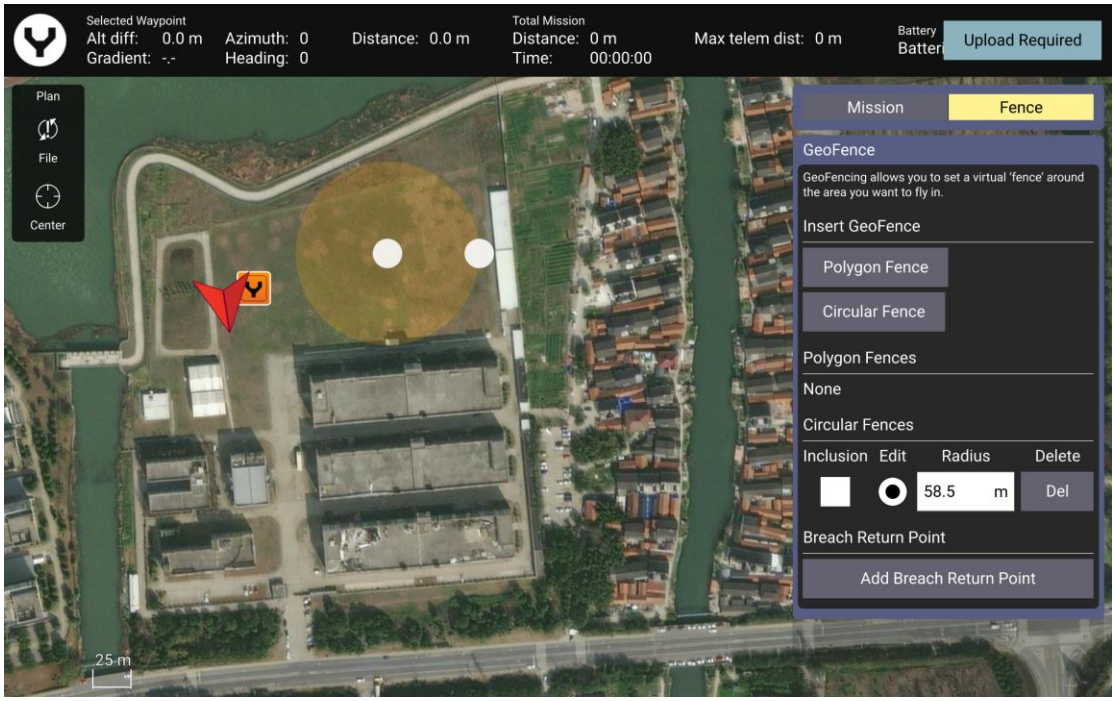
Fence Setting Menu

Once the fence is inserted the menu will appear under the corresponding fence type otherwise there is an only text “None”.



Before **After**

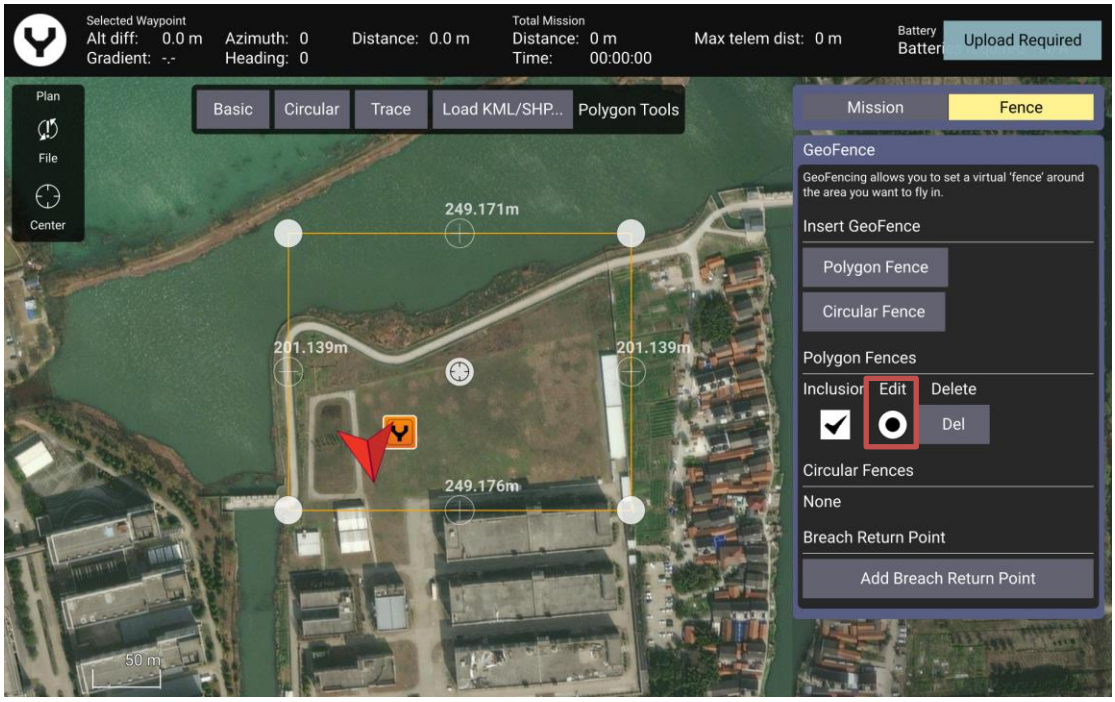
Inclusion: This item is checked by default setting and the drone is limited in the fence. If the drone reached the edge of the fence from inside the system would consider the breach behavior happened. The operator can uncheck the “Inclusion” Item to transfer the area which is unwanted to fly in. Once the “Inclusion” is unchecked there is a semitransparent yellow layer on the map to indicate the area to be avoided.



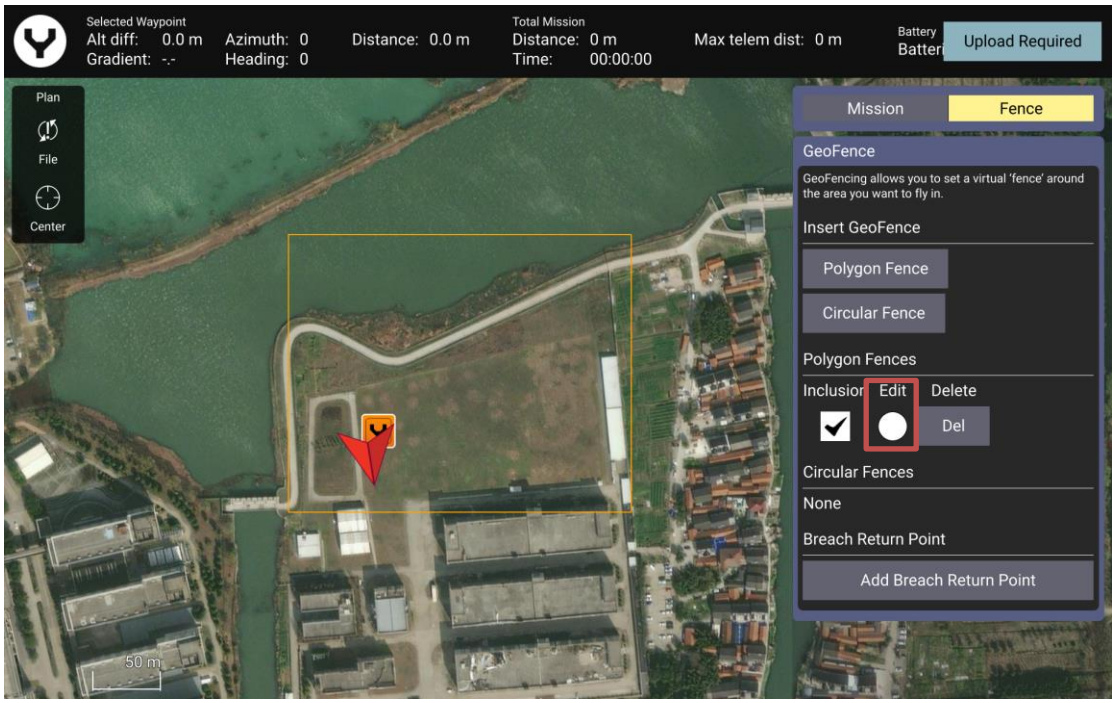
Notice: If uncheck the “Inclusion” Item, please move the fence to ensure the drone current position out of the area covered by the semitransparent yellow layer.

Edit: The “Edit” Item is selected by default setting and all the vertexes, vertex adding button, fence position center dot and radius adjust dot (for Circular Fence only) will be displayed on the screen. The operator can switch them off by unselect the “Edit” Item.

The Edit Item is Selected



The Edit Item is Unselected



Del Button:

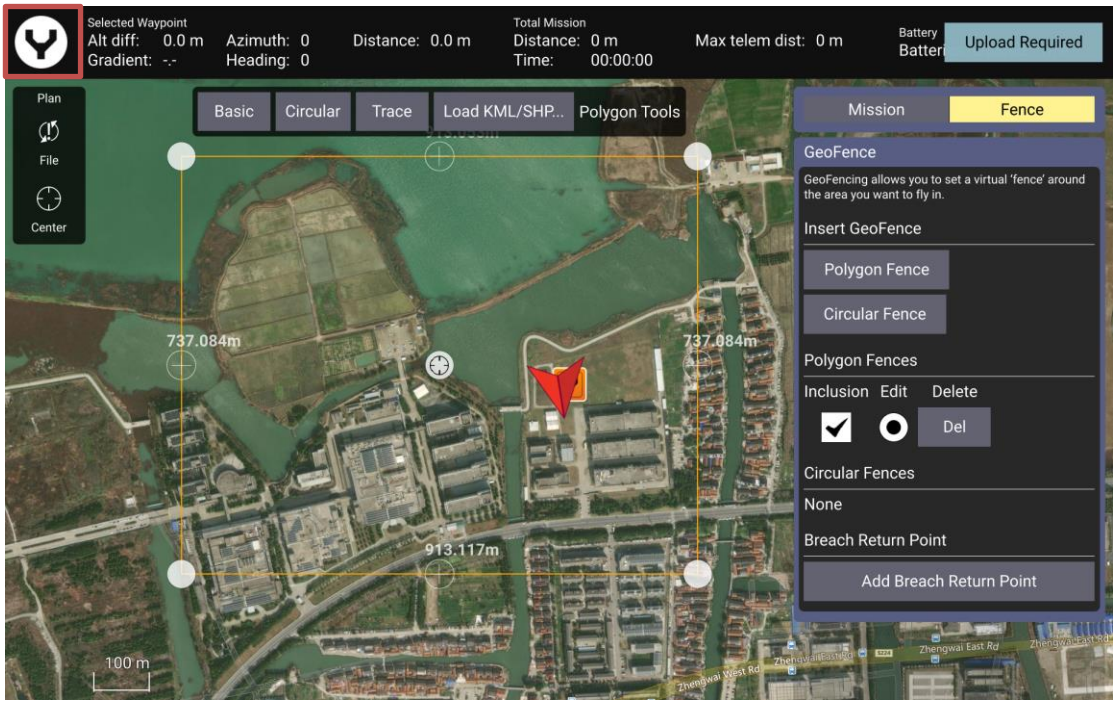
Tap the “Del” Button to delete the corresponding fence (Polygon or Circular).

Notice: Do not forget to tap the “Upload Required” Button to send the fence to the drone.

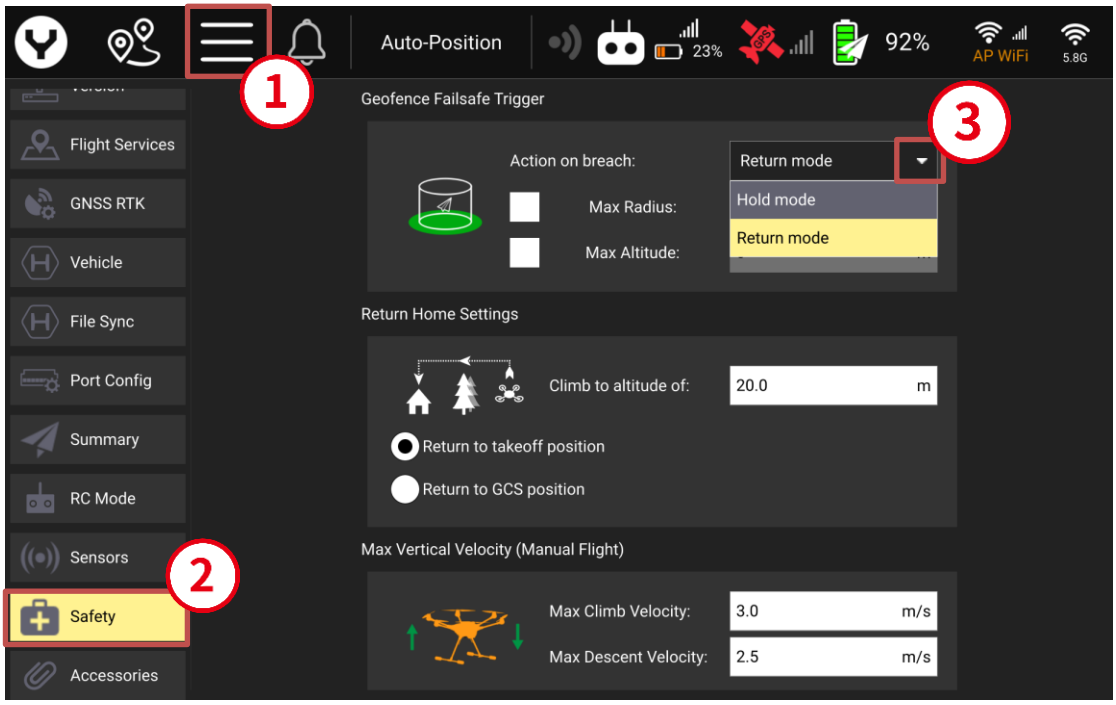
Breach Behavior Select

After the fence area is confirmed, the operator can select the breach behavior when the drone reaches the edge of the fence.

Tap the Main Interface Button to return to the Home Page of the DataPilot 2.0 App and tap the Settings Button to open the menu.



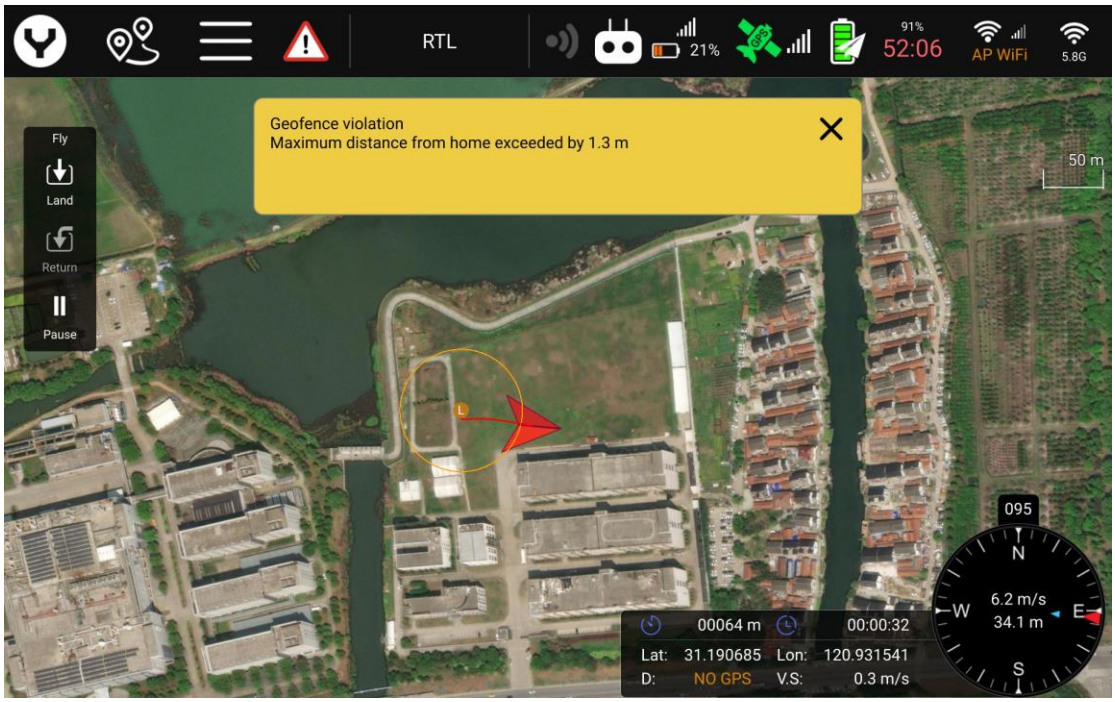
Tap the “Safety” Button and tap the white-down arrow beside the “Action on breach” to open the drop-down menu to select the behavior.



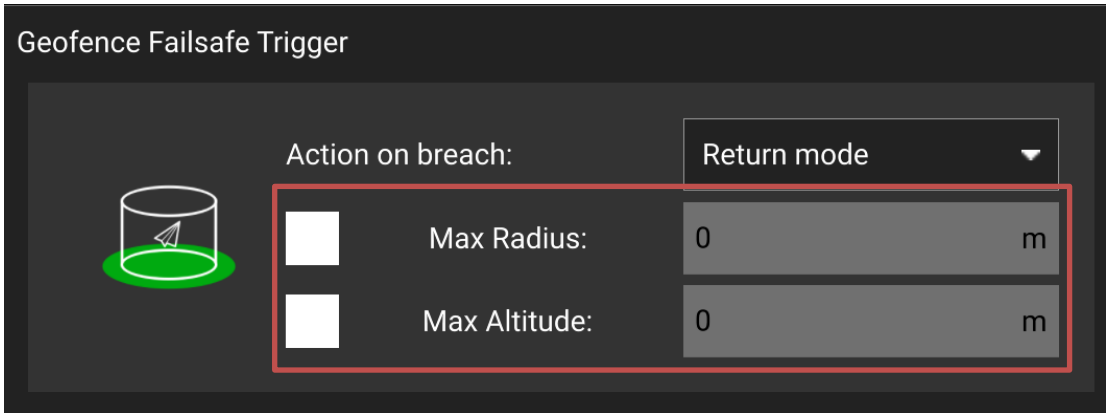
Hold mode- The drone will keep hovering after it reaches the edge of the fence, the operator needs to switch the drone to RTL Mode manually to return the drone to the Launch Point.

Return mode- The drone will switch to the RTL Mode automatically after reaching the edge of the fence.

Once the drone breaches the Geofence, the corresponding failsafe would be enabled. And the yellow warning message will pop up with the exceeded distance.



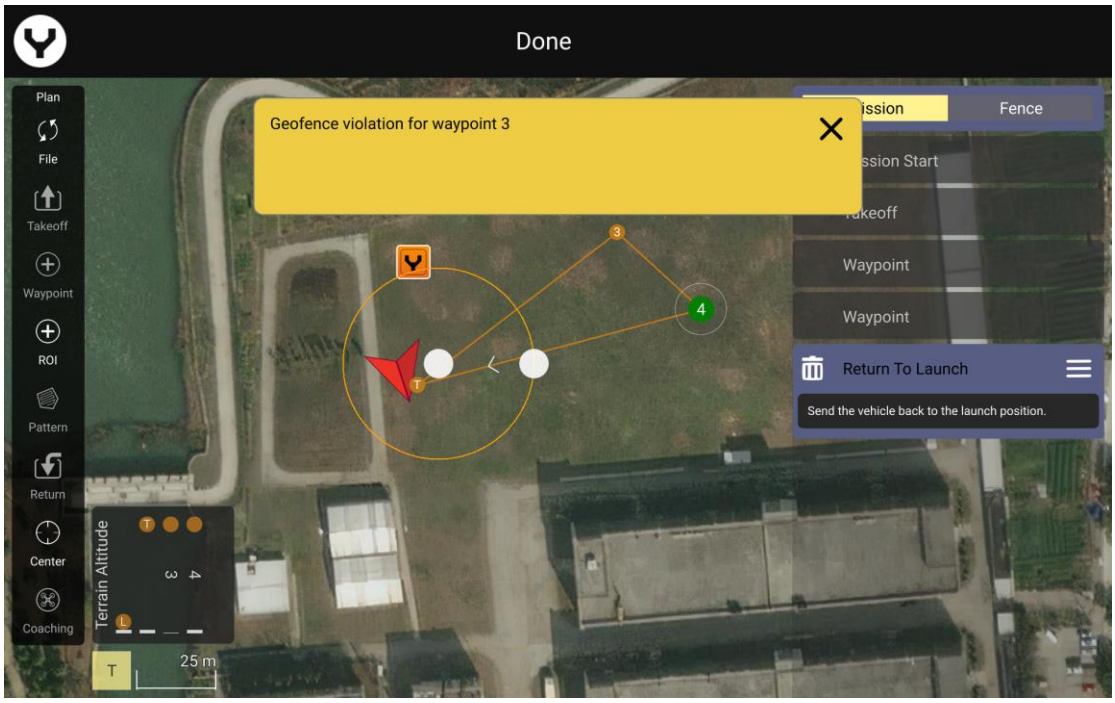
Notice: At the condition of the Custom Electronic Fence is existed the “Max Radius” and “Max Altitude” are suggested keep unchecked as default setting. Otherwise another Geo-fence would be created automatically with the center of the Launch Point with the parameters set in the “Geofence Failsafe Trigger” Menu.



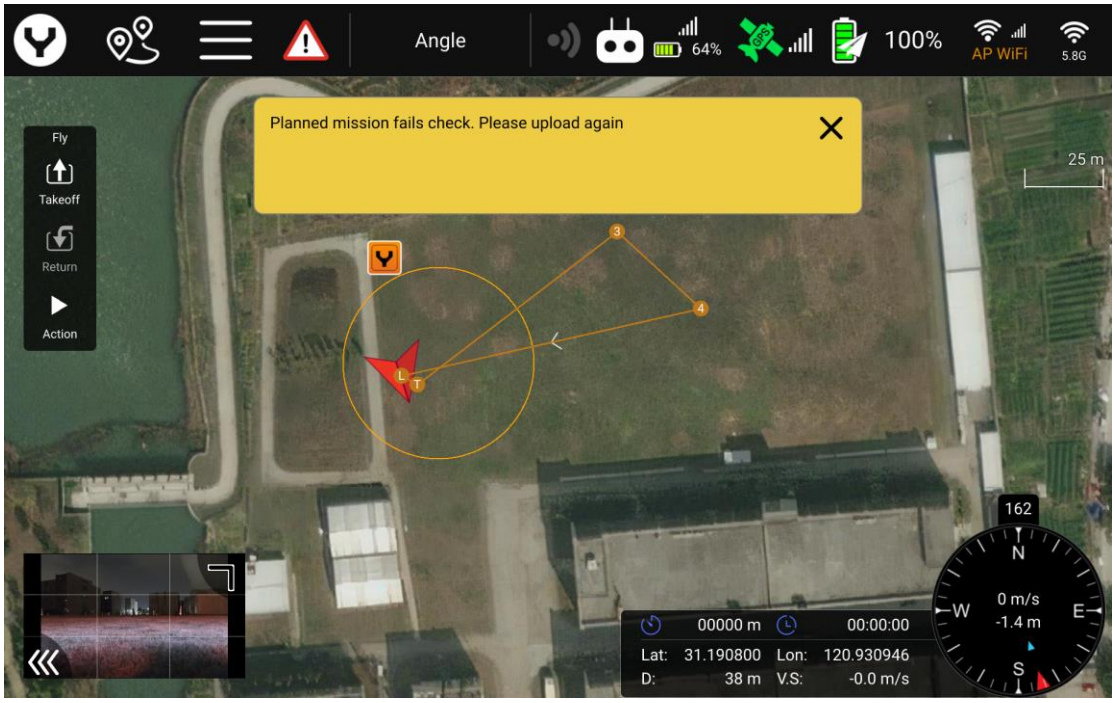
The Impact of Fence on Flight Route Editing

If the fight route will lead the drone reach the edge of the existed fence, the drone won't takeoff when the operator trying to start the motor and execute the mission. The yellow warning message will pop up at the upload and mission start steps.

The Yellow Warning Message When Uploading



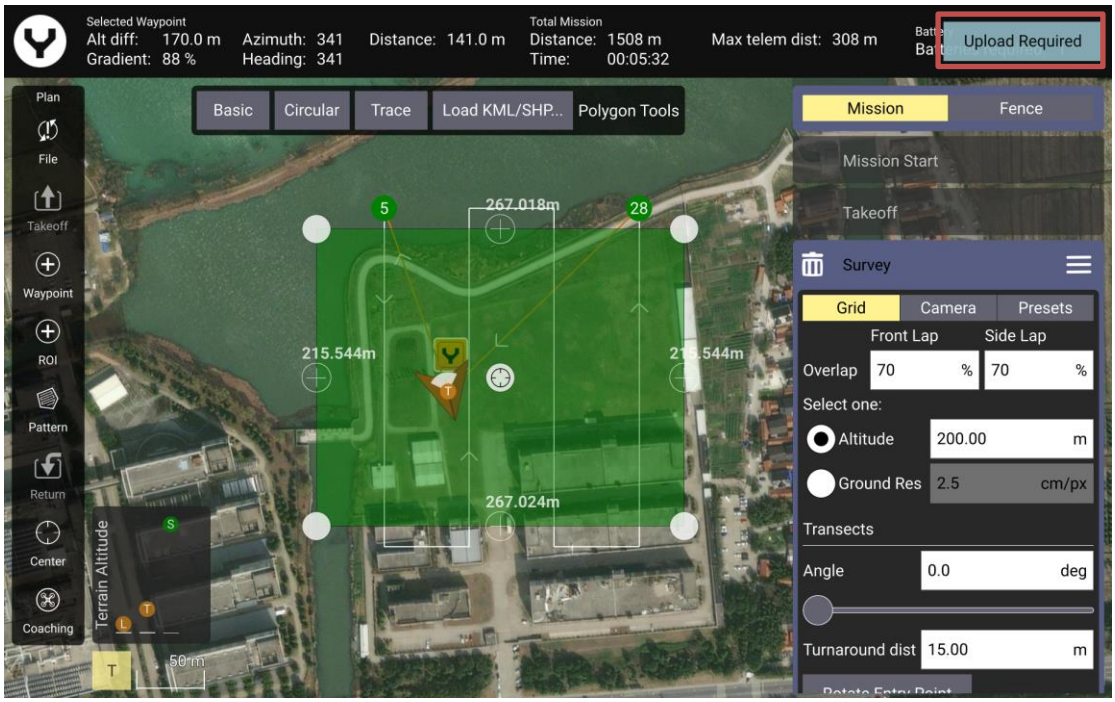
The Yellow Warning Message When Starting



Execute the Flight Mission

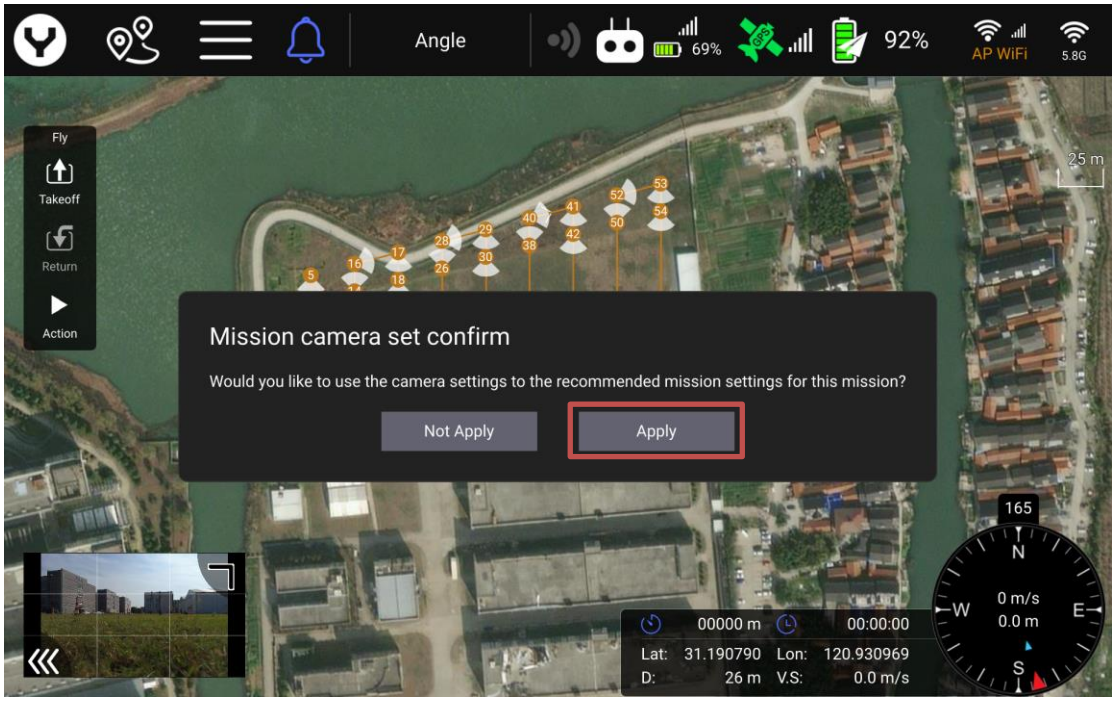
No matter what kind of flight plan was created (Including the Custom Electronic Fence), to execute the mission or enable the fence, the operator needs to upload to the drone first.

Tap the “Upload Required” or “Upload” to upload to the drone.



Tap the Main Interface Button to switch back from PLAN window and slide the slider to confirm.

Tap the “Apply” Button to use the camera settings to the recommanded mission settings.



Then the mission will start automatically.

Operations in Mission Flight Mode

Pause the Flight Mission

The operator can interrupt the flight mission by the following 3 method:

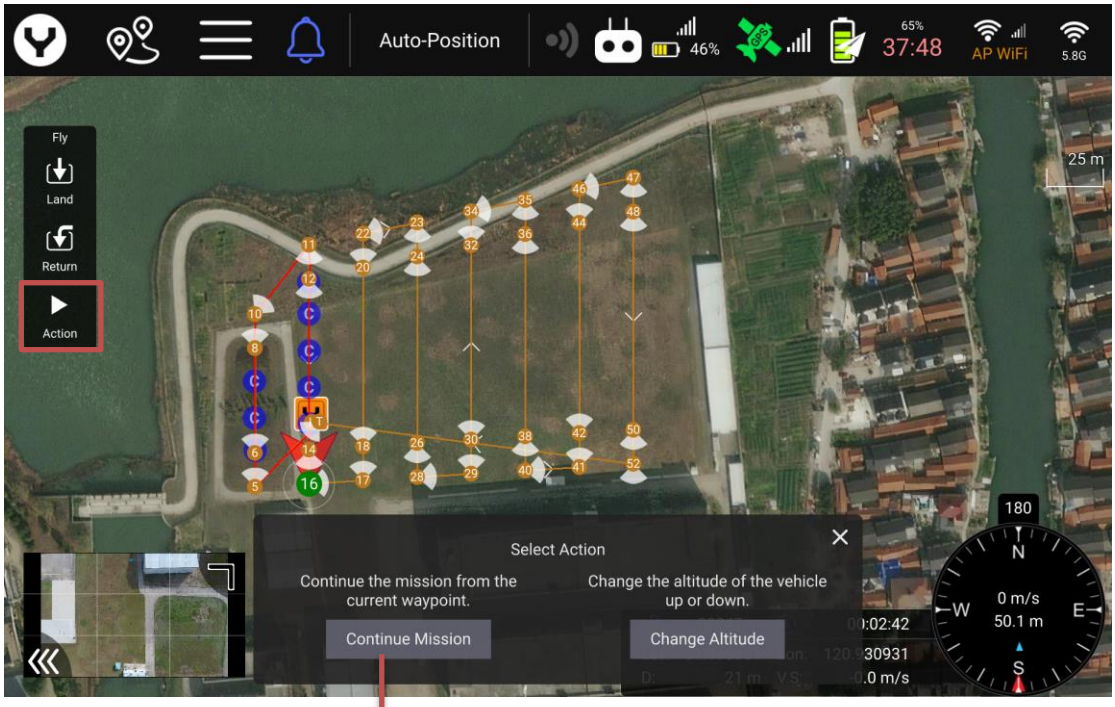
1. Switch the flight mode by using the Flight Mode Switch.
2. Tap the “Pause” Button then slide to confirm.

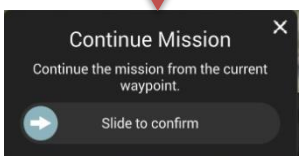
3. The operator can move the joysticks to any direction to pause the flight mission immediately especially in emergency cases, such as the drone could hit an obstacle.

Continue the Flight Mission

1. Slide the slider to continue the mission directly.

2. Tap the “Action” Button and select “Continue Mission” then slide the slider to continue.





Tap the “Continue Mission” Button then slide to confirm to continue the mission.

Change the Flight Height

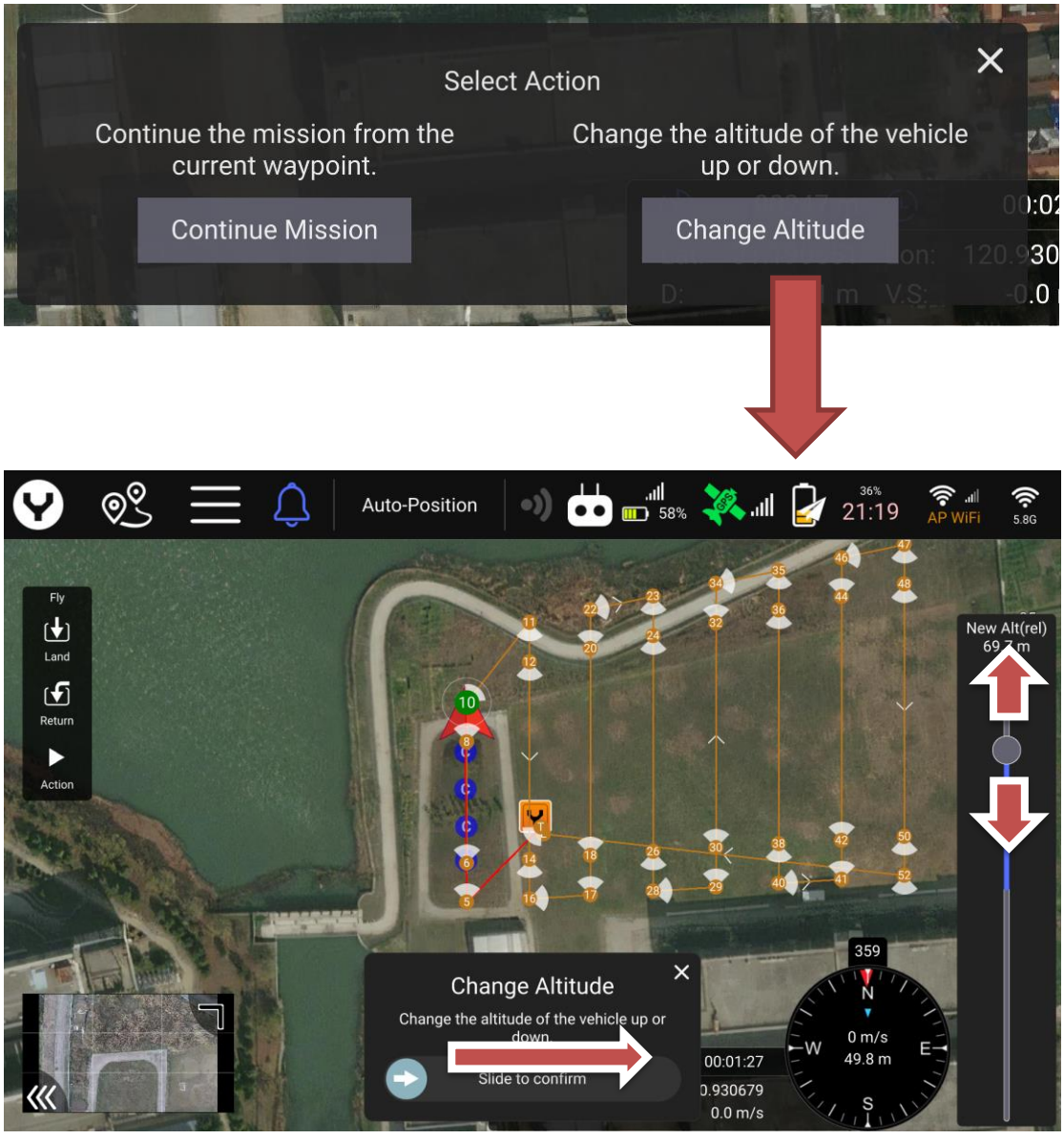
The flight height can be changed by the operator during a flight mission.

1. Change the Height Before Pause

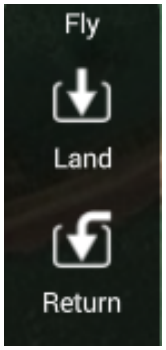
Tap the “Pause” Button then the Altitude Adjust Bar will appear on the right side of the screen. Slide the slider to the wanted height then slide the slider in the Pause Confirmation window the drone will stop flying ahead and climb the height vertically until reached the new setting then keep hover.

2. Change the Height After Pause

Tap the “Action” Button after a flight mission has already been paused, and then tap the “Change Altitude” Button the Altitude Adjust Bar will appear on the right side of the screen. After the new height was set slide the slider in the Change Altitude Confirmation window the drone will climb the height vertically until reached the new setting then continue keep hover.



Land or Return in Mission Flight



Tap the “Land” Button and slide to confirm then the drone lands at the current position.

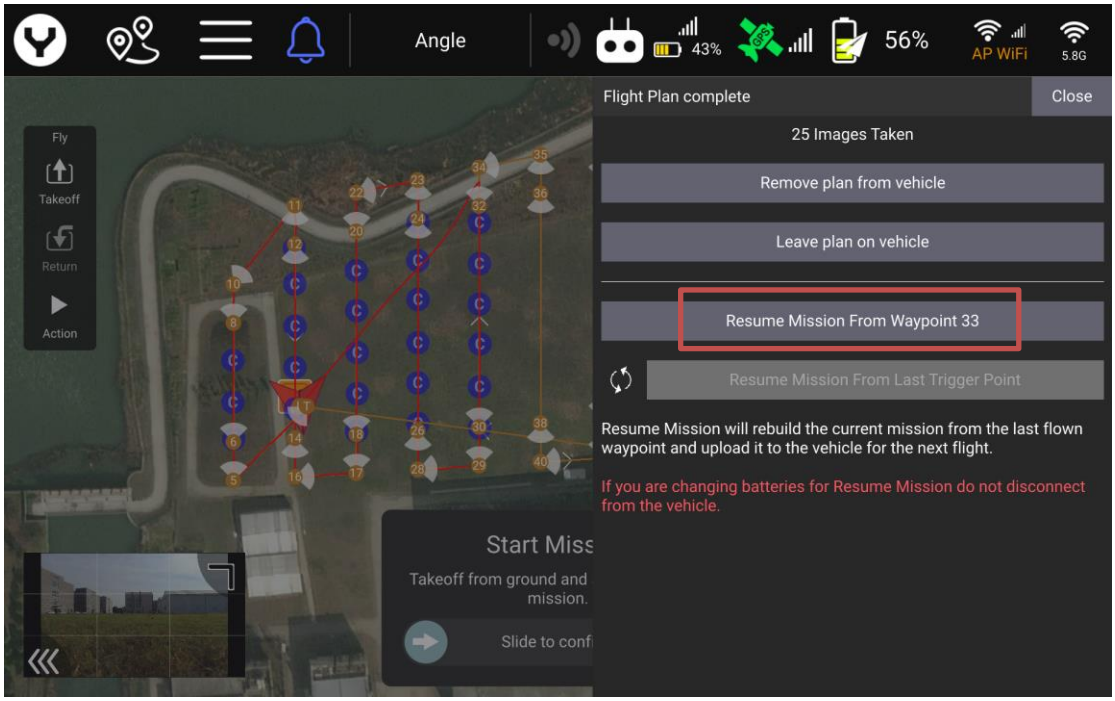
Tap the “Return” Button and slide to confirm then the drone returns to the Launch Point.

Notice: For a mission which with gimbal attitude and camera behavior controlled by the drone automatically such as a Survey or a Scan mission, control the gimbal camera manually by using the Gimbal Tilt Control Knob and Gimbal Pan Control Knob on the T-One transmitter is not suggested. Otherwise, the surveying and mapping result may be very unsatisfactory.

Breakpoint Continuation

Sometimes surveying a huge area, the drone can’t finish the job in 1 flight. The breakpoint continuation function allows the operator to change the drone battery and continue the unfinished mission.

When the drone has landed with the mission unfinished, the dialog box will pop up as in the picture shown.

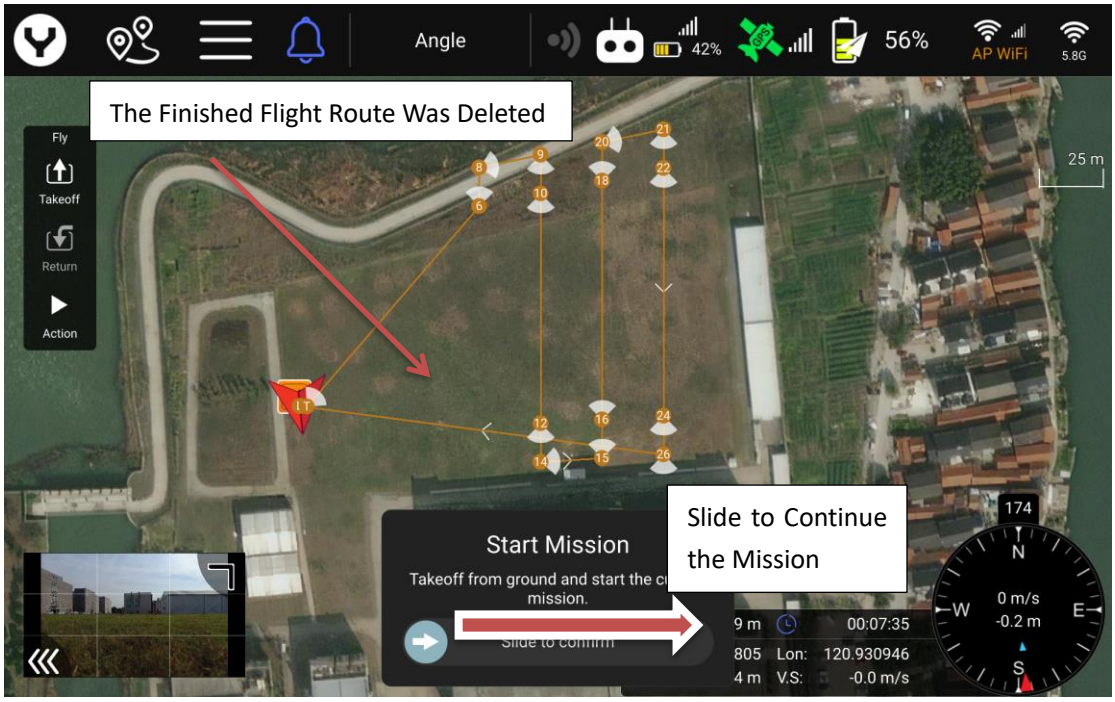


Tap the “Resume Mission From Waypoint XX” Button, the mission will be updated. It will delete the flight route already finished.

Notice: It would take a few minutes to update, if there are a large number of waypoints in the mission, please be patient, do not power off the drone and transmitter before the mission has been refreshed.

After the drone and the transmitter are connected again, the unfinished flight mission will be loaded automatically, and the operator only needs to slide to confirm to continue.

After the drone and the transmitter connected again:



Extended Menu

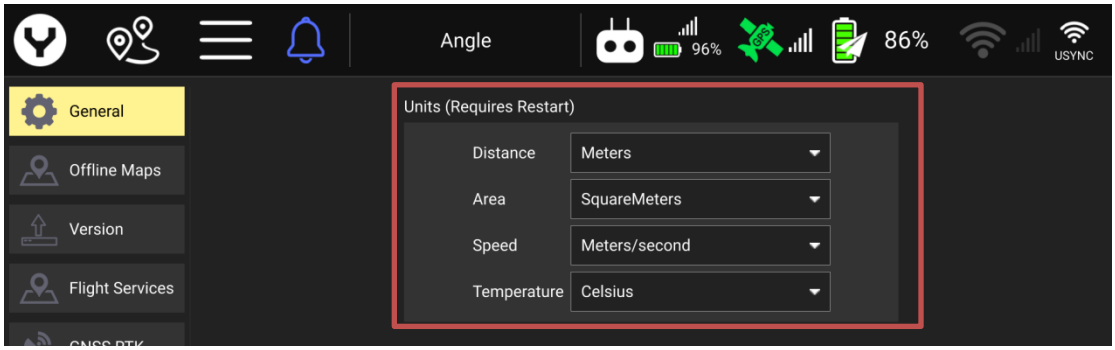
Tap the Settings Button to open the Extended Menu to view and adjust the parameters for more professional and personalized uses. We suggest entering this menu after the drone and transmitter are connected to view all the items.

Notice: Due to the DataPilot 2.0 App is a cross platform flight control application, beside the H600/H600-RTK, there are many items in the Extended Menu that are designed for other types of drones such as H520E and H850 please ignore the items which are not introduce in this manual. They may be not compatible or the H600/H600-RTK drone doesn't have this function.

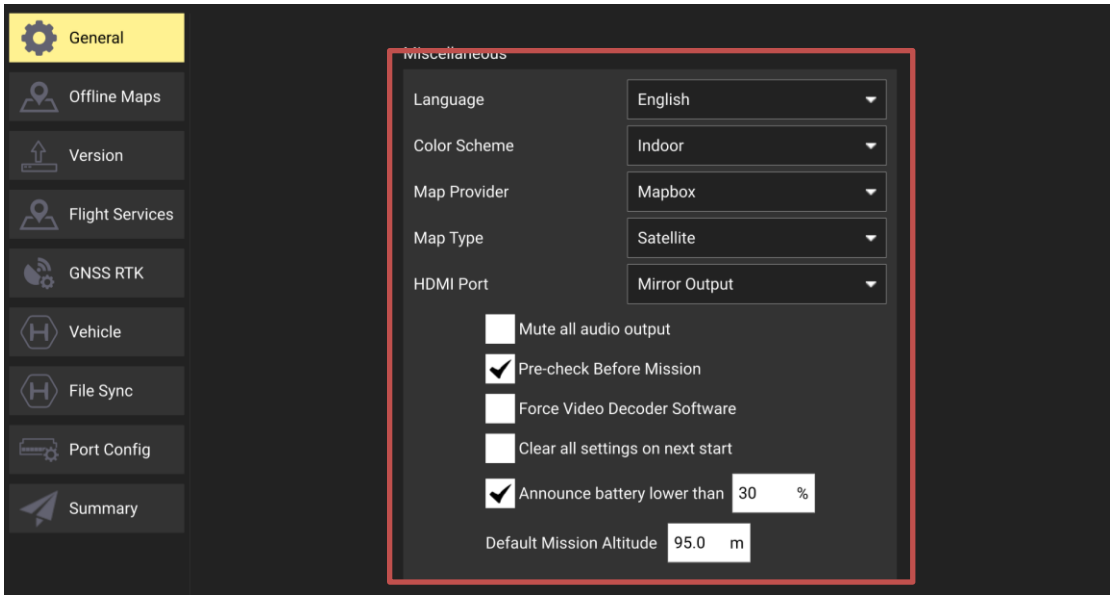
Introduction of Common Functions in Extended Menu

1. General

Units- Operator can make selections according to their own requirements in the drop-down menu.

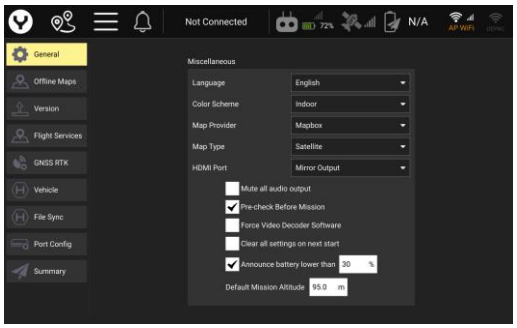


Miscellaneous

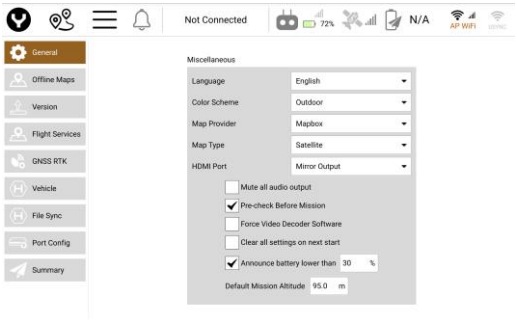


Language- Operator can make selections according to their own requirements in the drop-down menu.

Color Scheme- The DataPilot 2.0 supports 2 different Color Schemes. Indoor Scheme will provide a dark interface meanwhile the Outdoor has a bright interface.



Indoor



Outdoor

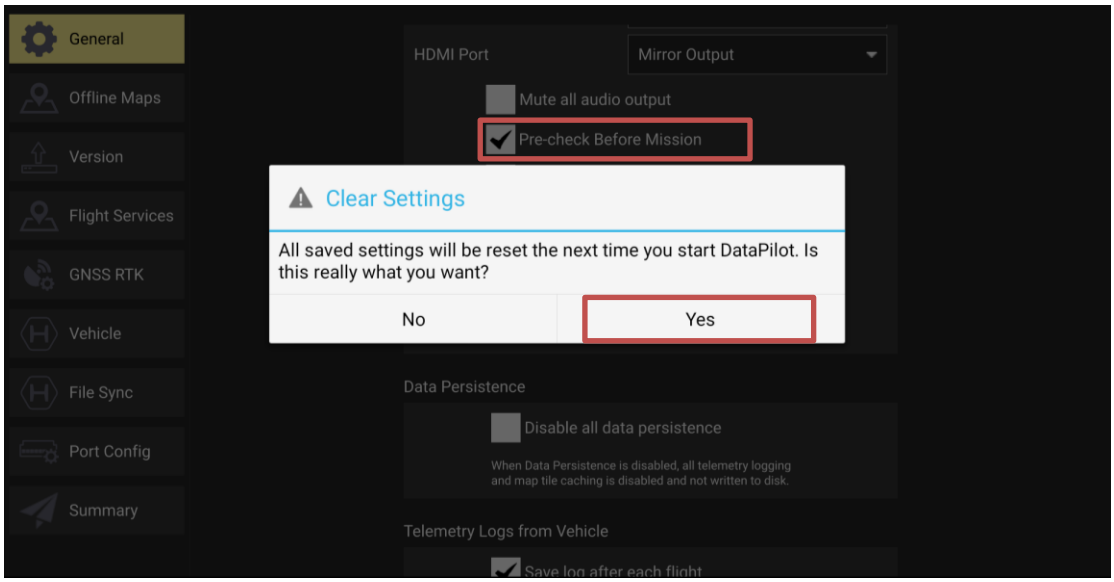
Map Provider and Map Type- The operator can change the Map Provider and Type according to their network speed or requirements.

Mute all audio output- After tick the checking box all the audio warning will be muted (including but not limited to the low battery audio warnings), only the yellow warning message will be popped up on the screen. For the safety reason tick this selection is not suggested. And this selection will be reset to uncheck every time when restart the transmitter.

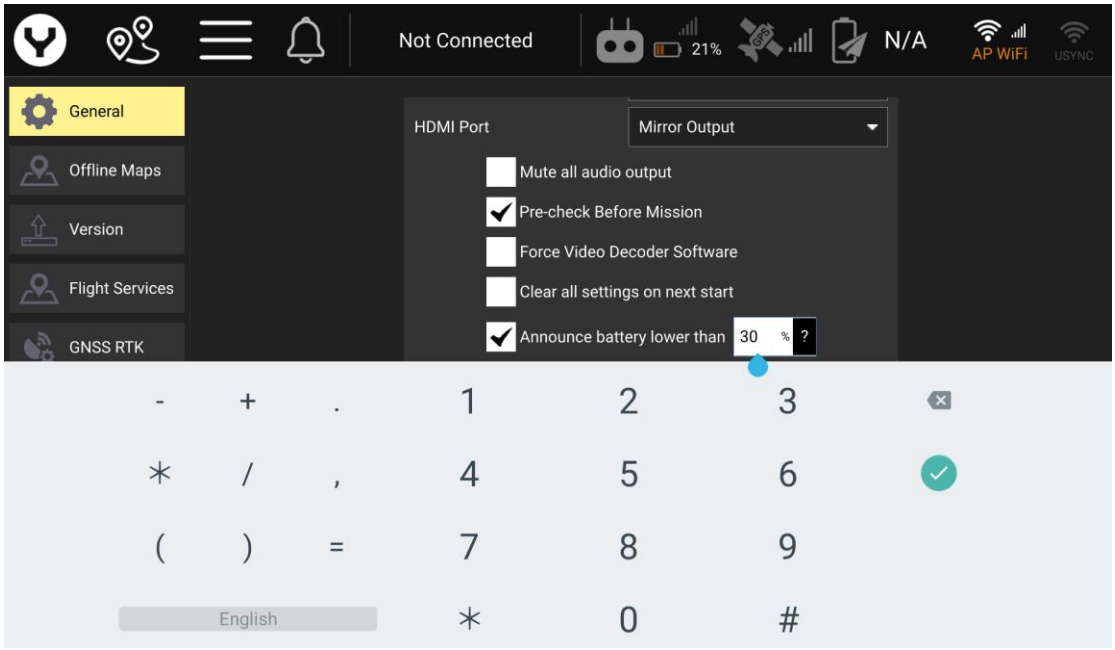
Pre-check Before Mission- After ticking the checking box the following checks will be done when the operator slide the Start Mission Confirm Slider. Otherwise the mission will be executed directly.

1. Mission Check: If there isn't a mission stored in the drone the arm will be denied.
2. SD Card Check: If there isn't a SD card inserted in the camera there would be a confirm window popped up. The operator can decide whether execute the mission without the SD card.
3. Camera Setting Check: If the camera settings do not match the flight mission requirements the confirm window popped up. The operator can decide whether apply the camera settings to the recommended mission settings.
4. Camera Mode Check: If the camera is not in photo mode yet, the popped up window will ask the operator whether to switch to photo mode by tapping the "Yes" or "No" Button.

Clear all settings on next start- Tick the checking box then tap the "Yes" Button to set the DataPilot 2.0 App to the default setting when next start.

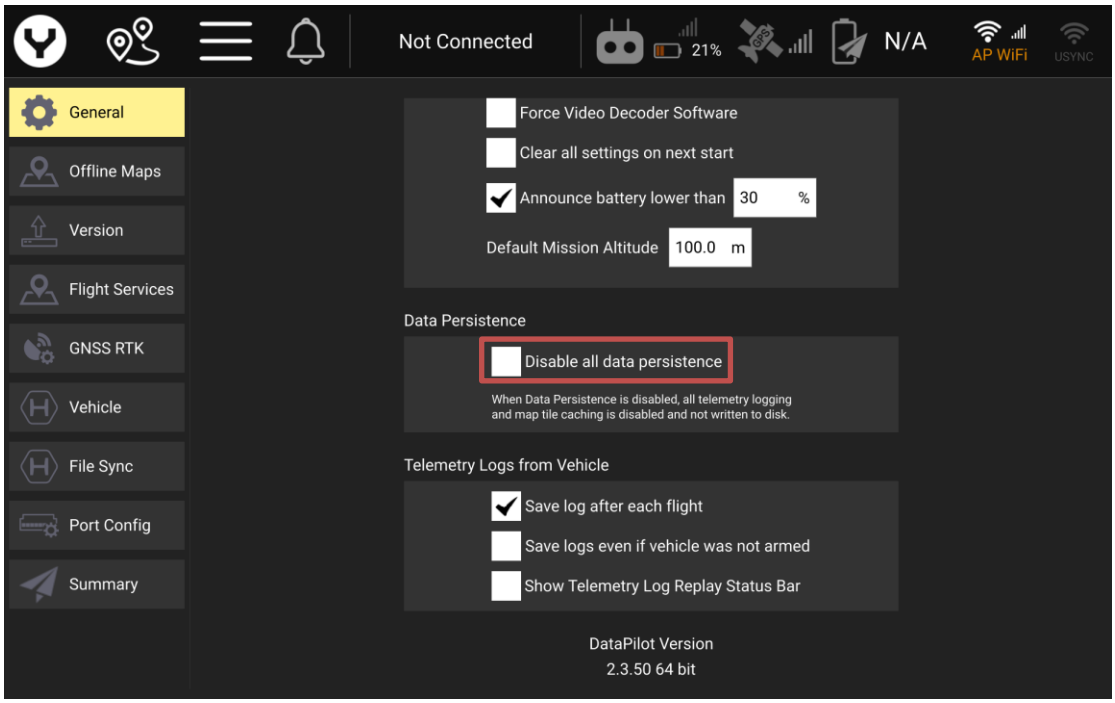


Announce battery lower than- If uncheck this item, the drone low battery warning will only be triggered by the drone after reduced to 15%. At the condition this item has been checked the low battery warning will be automatically triggered by the transmitter once the drone remaining power is reduced to the set value.
Also this value can be set by the operator. Just tap the enter box and type in the wanted battery remaining present on the popped up soft keyboard if this item is checked.



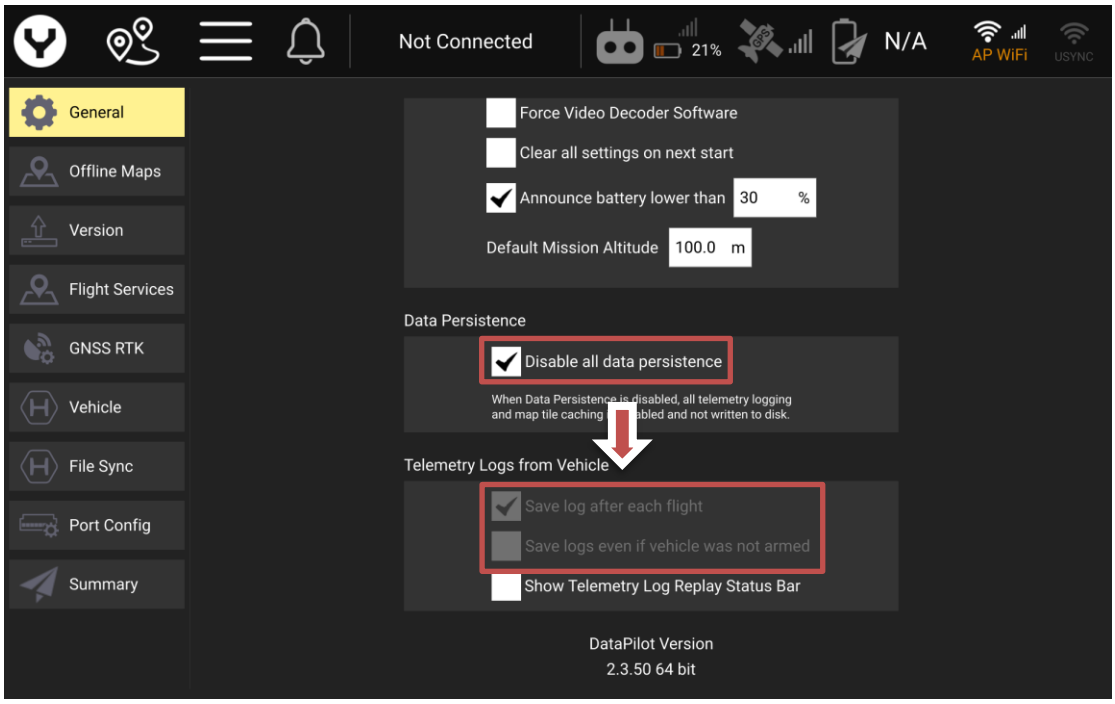
Default Mission Altitude- Set the default "Waypoint alt" in the Mission Start Setting Menu.

Disable all data persistence- Not only will the flight data be stored in the drone, but also the telemetry data can be saved in the transmitter. This item is unchecked by default setting, if checked not only the telemetry data won't be saved, but also the map tile will only be downloaded in cache rather than the disk when auto download in the main interface. And the operator may need to download again after the transmitter restarted.

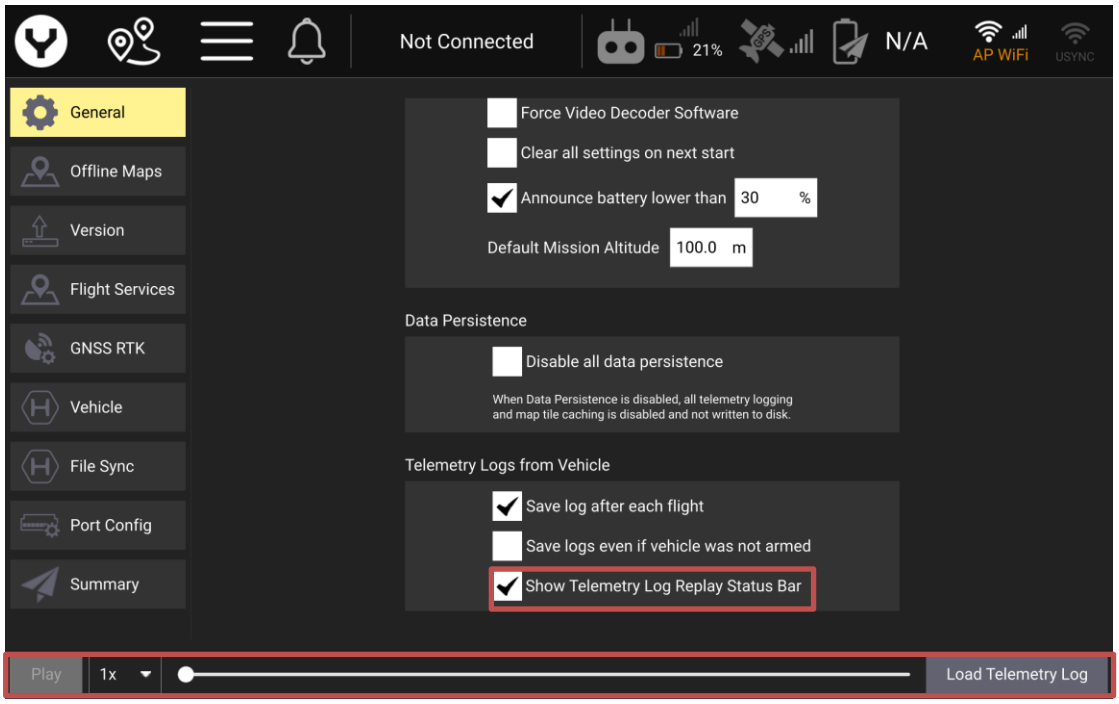


Telemetry Logs from Vehicle- The operator can select the telemetry saving mode when the "Disable all data persistence" is unchecked. Or replay the telemetry data after checking the "Show Telemetry Log Replay Status Bar".

The save mode cannot be select after checking the "Disable all data persistence" item.

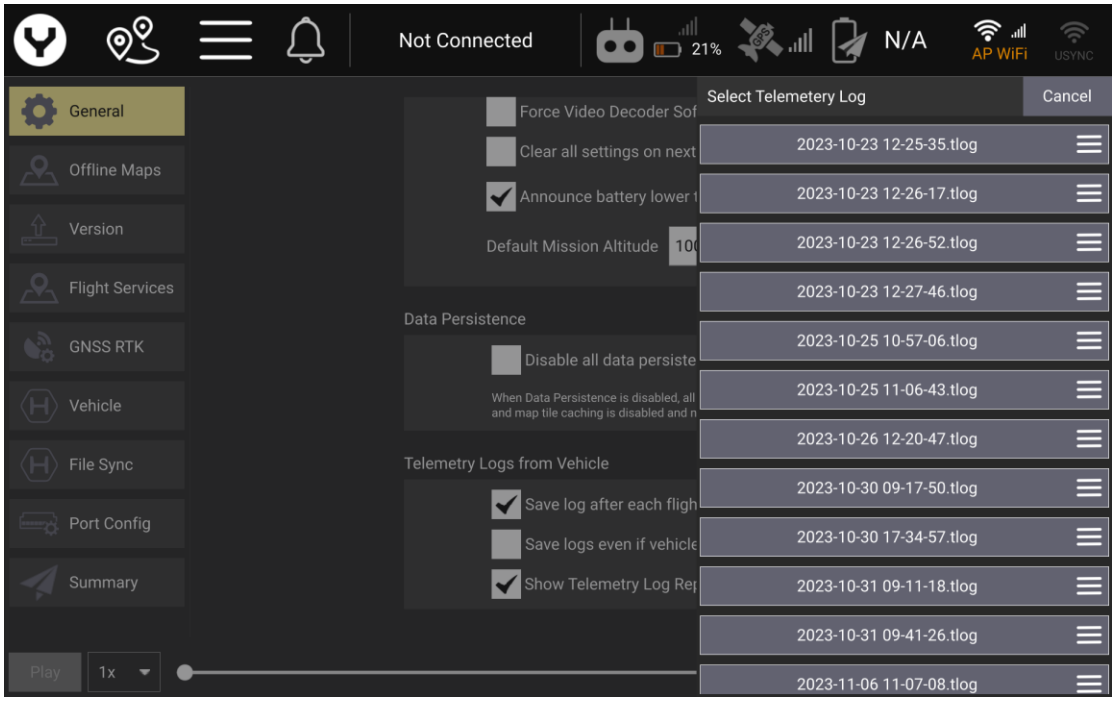


1. Save log after each flight: The log will be started to record after the motors have been armed and will be stopped after each flight.
2. Save logs even if vehicle was not armed: Once the connection established between the drone and transmitter the log saving will be started no matter whether the motors have been armed or not.
3. Show Telemetry Log Replay Status Bar: After ticking this item, the Telemetry Log Replay Status Bar will appear on the bottom of the screen.

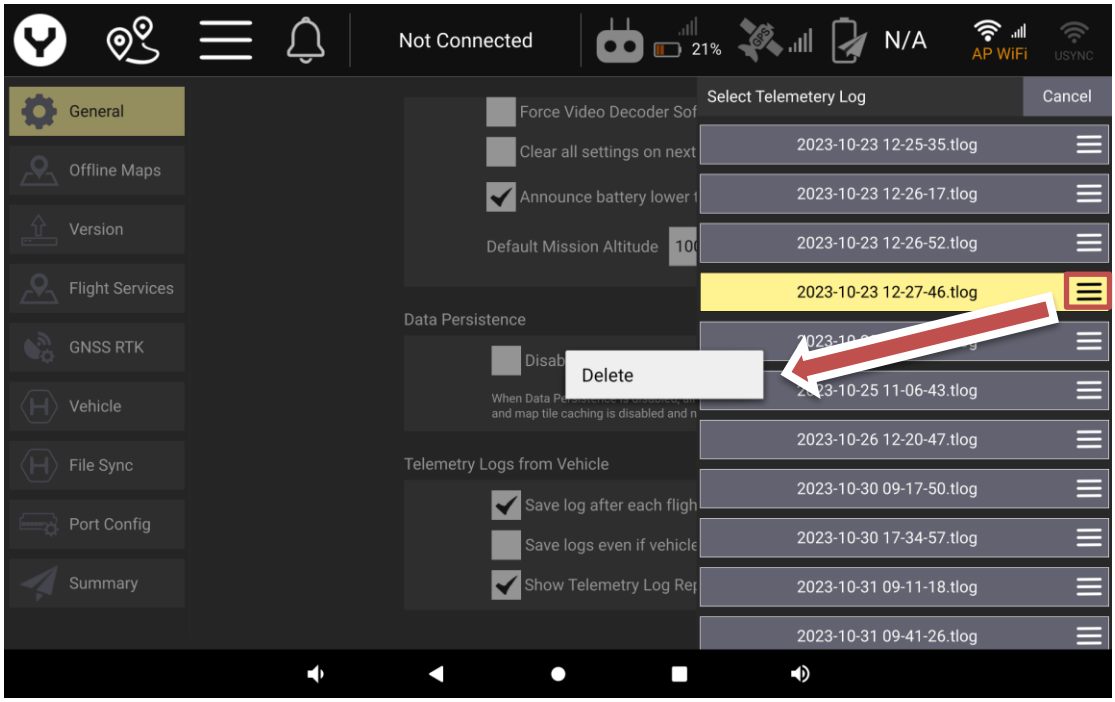


Replay the Telemetry Log

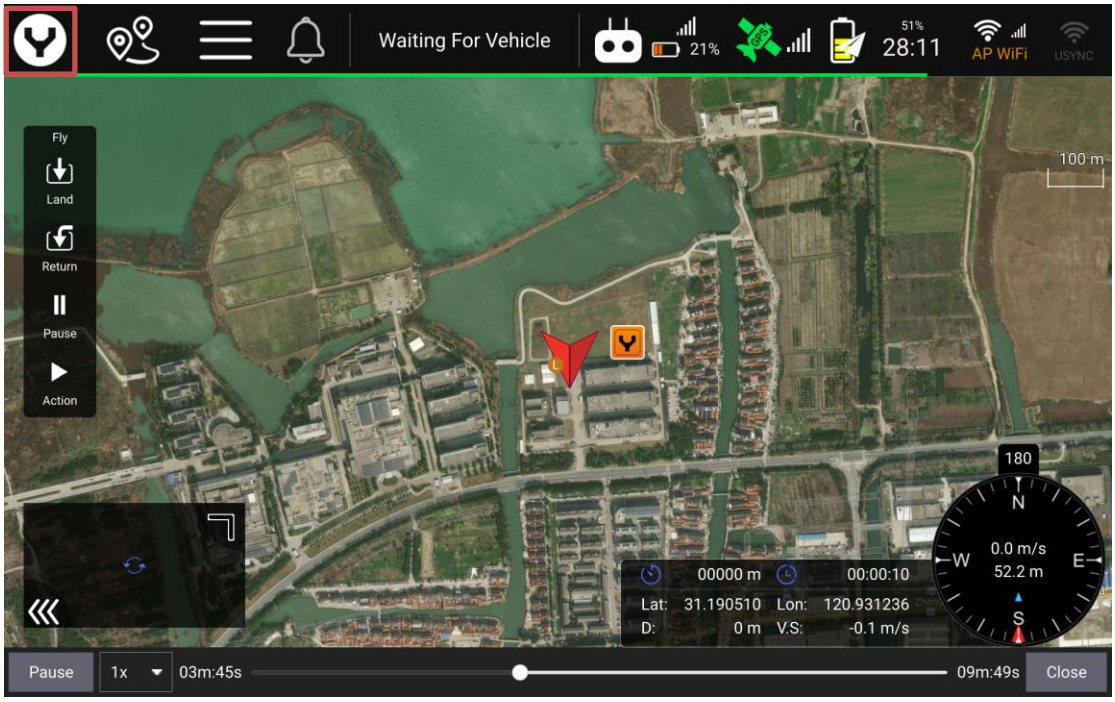
This function is very useful to find the lost drone. After the drone and transmitter has been disconnected, tap the “Load Telemetry Log” to open the Telemetry Menu. Tap the wanted Telemetry Log to load.



To delete the unwanted log, please tap the Setting Icon of each Telemetry Log and tap the “Delete” Button.



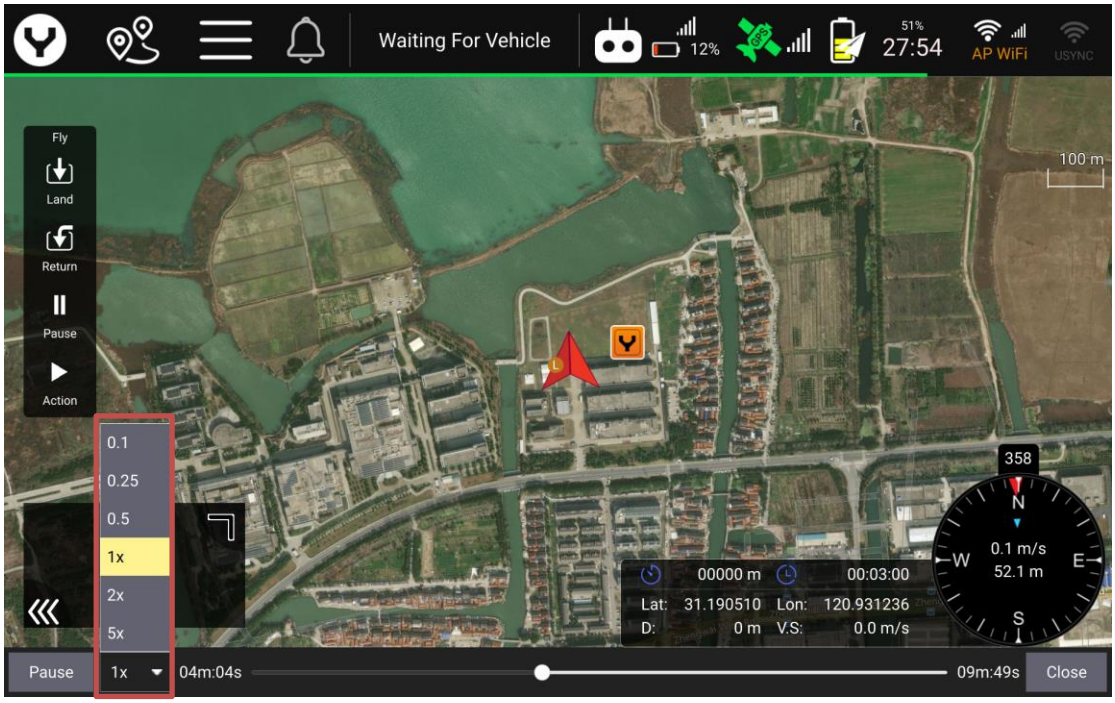
After the Telemetry Log has been selected the Replay will be started automatically. Tap the Main Interface Button to return and view the replay.



Operations when replaying

Tap the “Pause” Button to pause the replay and the Pause Button will change to the “Start” Button. Tap the “Start” Button to continue.

Tap the 1x to open the drop down menu to select the Time Compression Rate of the replay.



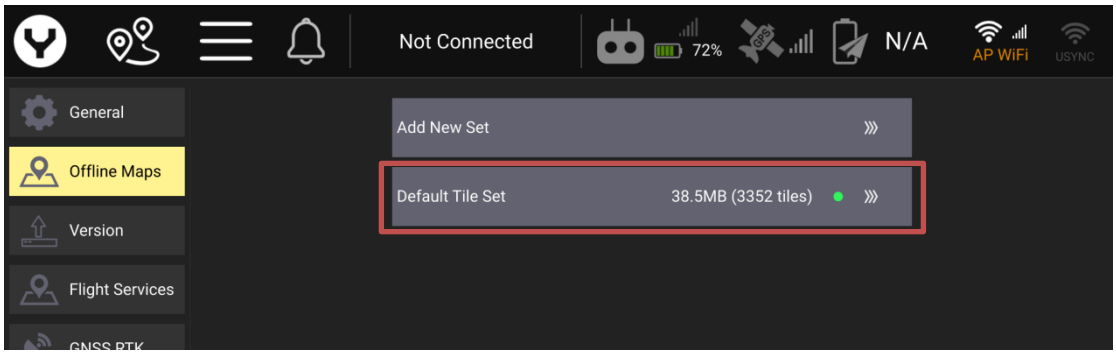
The operator also can slide the slider on the Telemetry Log Replay Status Bar to view the wanted replay period.

Tap the “Close” Button to quit the replay, and the button will change to the “Load Telemetry Log” Button again. The operator can select the other Telemetry Log to replay.

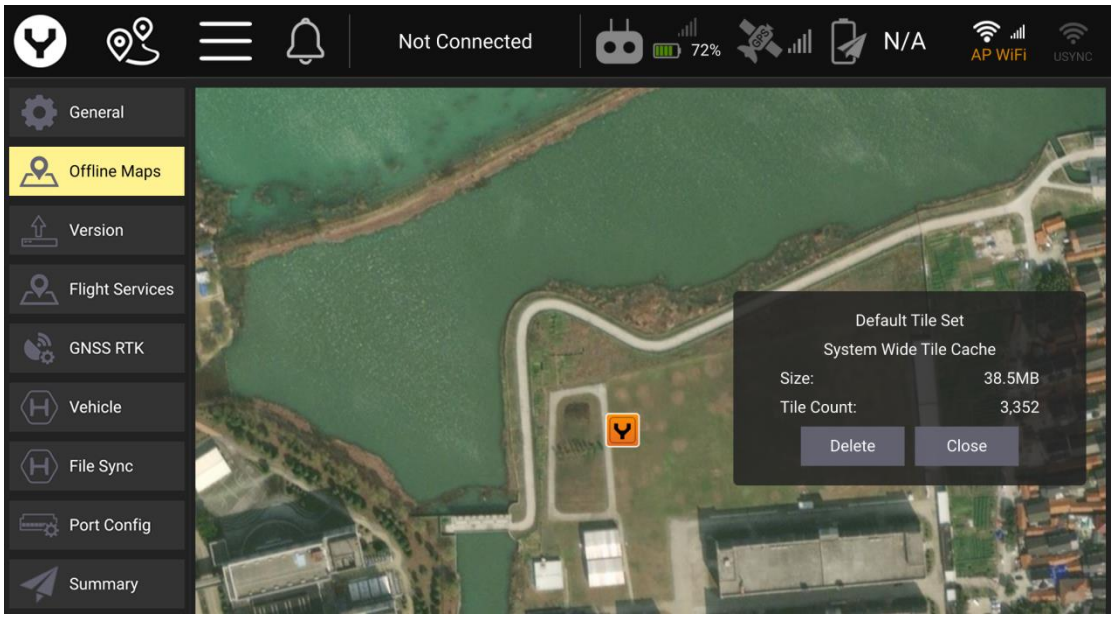
2. Offline Maps

The Offline Maps allows the DataPilot 2.0 App store the map tile in the cache in the transmitter for working in the field without the internet.

After the transmitter is connected with the internet the map will be downloaded automatically according to the drone or the transmitter GPS position. The first downloaded map will be set as the default tile.

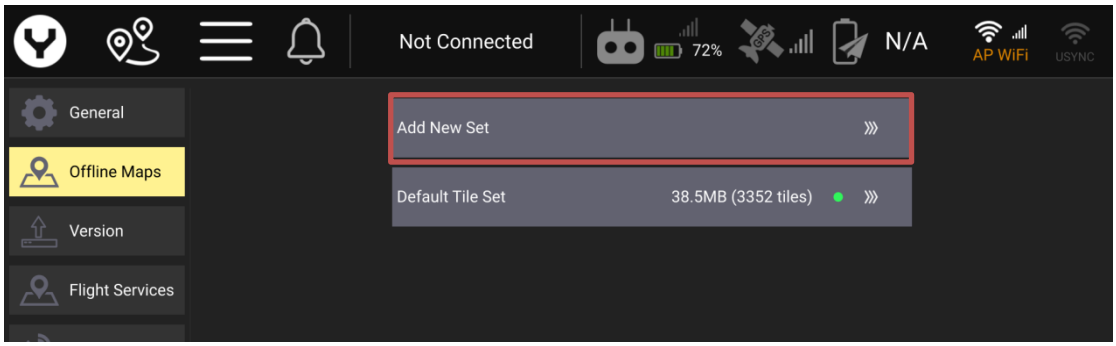


The operator can delete the default tile by tap the “Default Tile Set” Button and then tap the “Delete” Button.



Tap the “Close” Button to return.

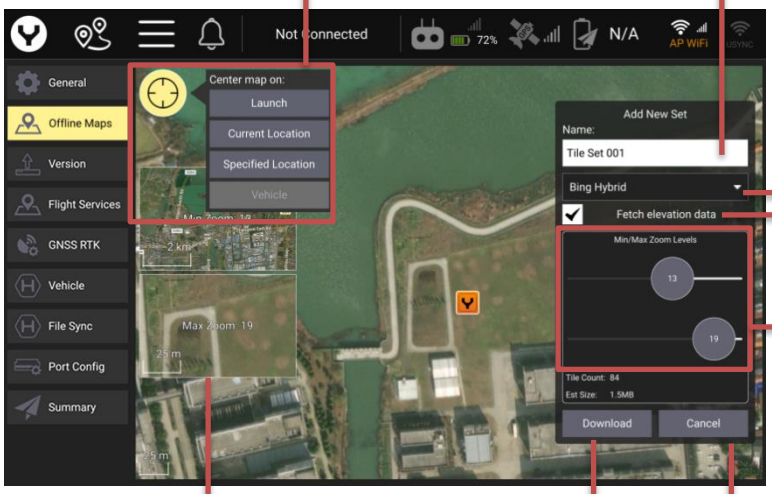
The operator can also add a new tile set manually beside the default tile set, tap “Add New Set” Button to edit.



New Set Edit Interface Introduction

Map Center Setting Button
The operator can tap this button and select the center position on the sub menu.

New Tile Set Name Edit Box
The operator can edit the name of the new tile set in this box.



Map Type Selection
The operator can select the Map Provider and Type in the drop-down menu.

Tick to fetch the elevation data on the map.

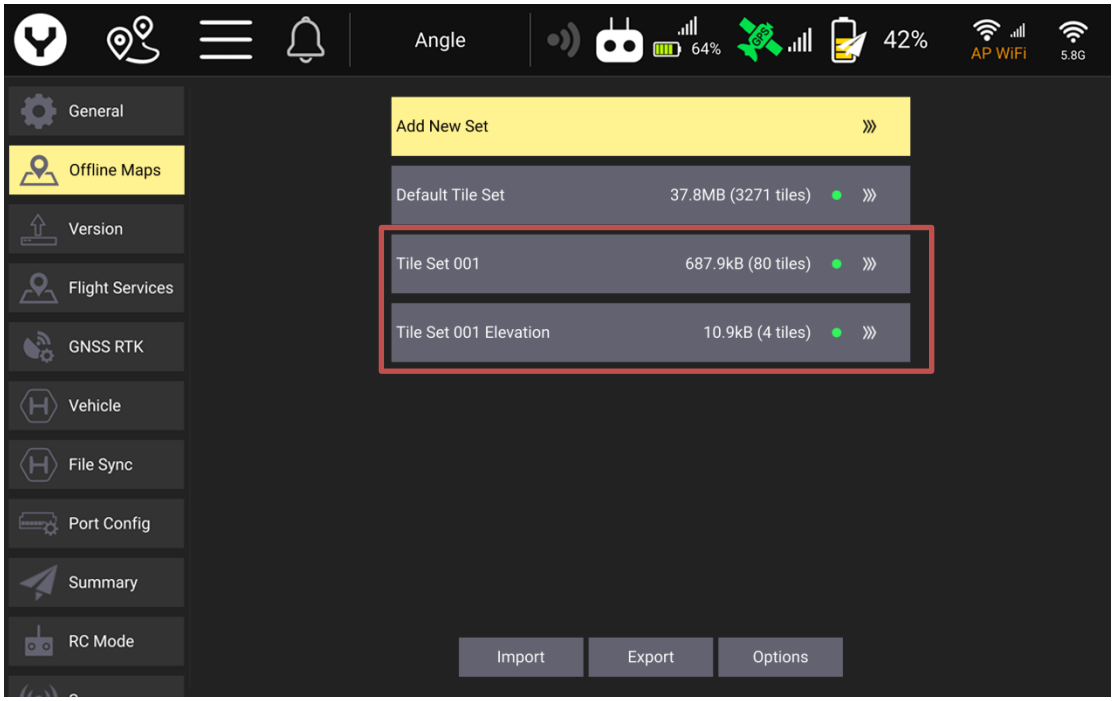
Slide to adjust the Min/Max Zoom Level.

Tap the "Cancel" to return.

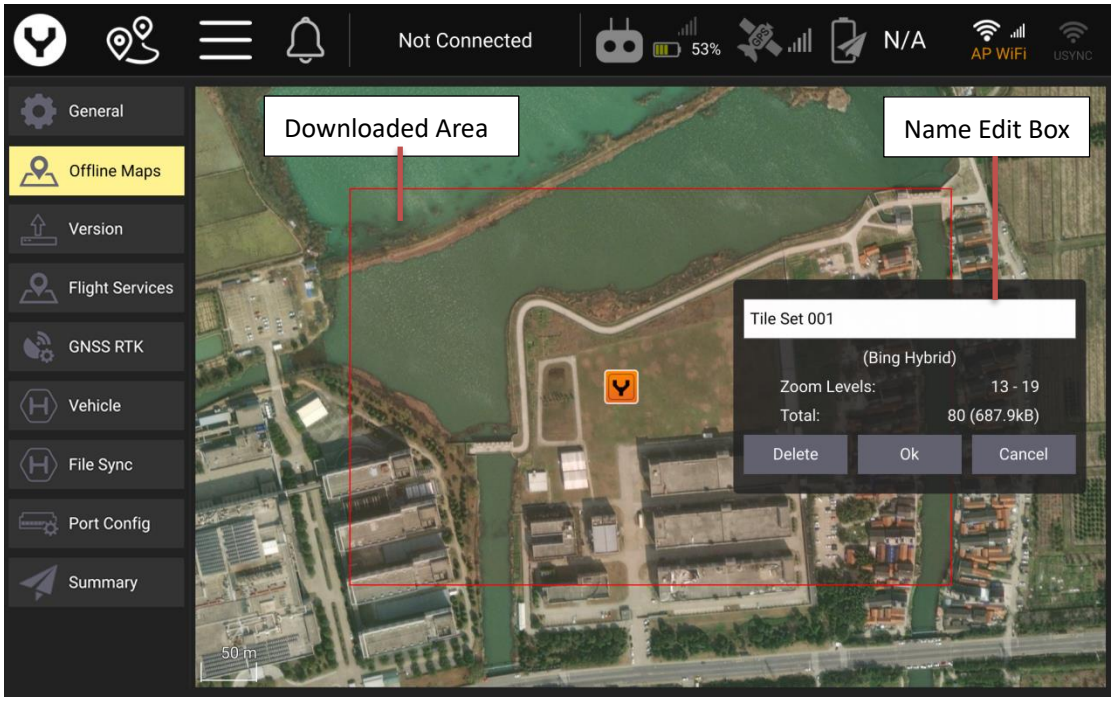
The Min/Max Zoom Level effect preview

Tap "Download" Button to save the new set.

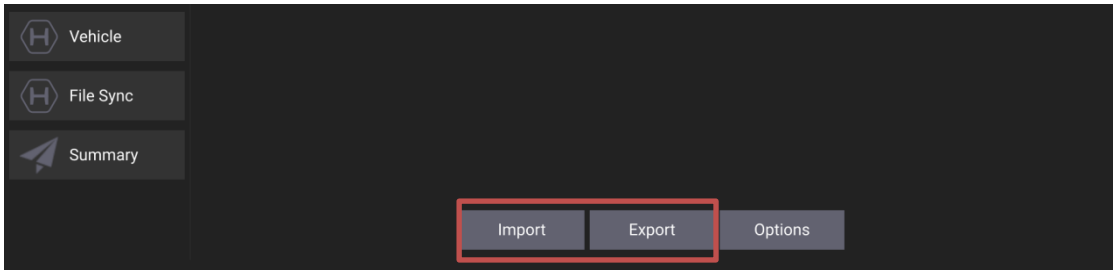
After clicking the "Download" Button the new tile set will be downloaded and saved in the Offline Maps Menu.



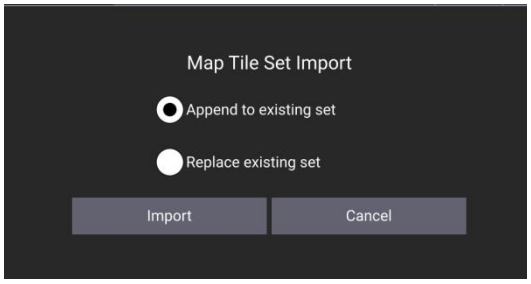
Similar to the Default Tile Set the new added tile set can be reviewed by tapping the name and can be deleted by tapping the "Delete" Button.
The difference is the new added tile set can be renamed and tap the "OK" Button to confirm.



The downloaded map tile set can be imported and exported between devices.

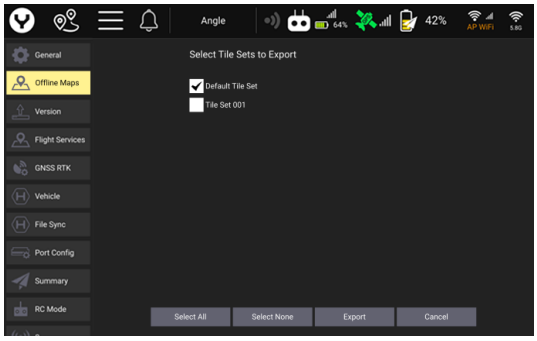


Import



After tapping the “Import” Button, select an import method then tap the “Import” Button on the popped-up dialog box, and select the file to import.

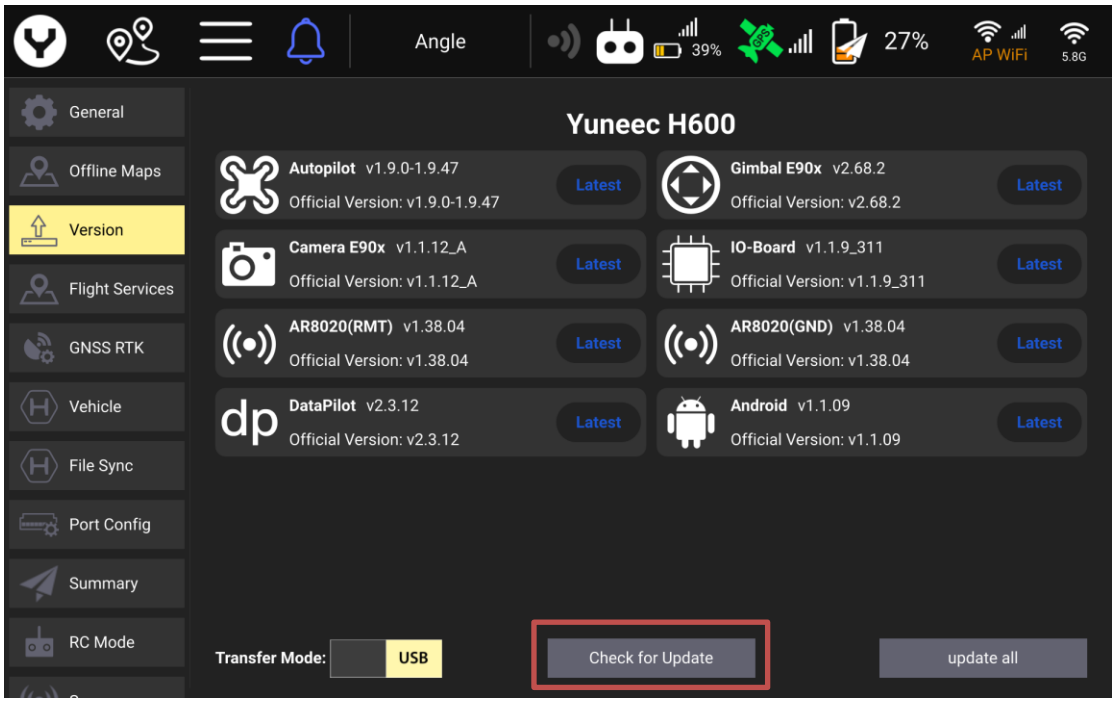
Export



After tapping the “Export” Button on the Offline Maps Menu, tick the tile set wanted and tap the “Export” Button then assign the name and save path on the popped-up dialog box, finally tap the “Ok” Button to export.

3. Version

The operator can check the Version of each module or system of the drone.
If the transmitter is already connected to the internet the users can tap the “Check for Update” Button to keep the firmware up-to-date.



The text “Latest” shown behind each module means this module is already up-to-date. Once the later version was detected, the operator can select the transfer mode (WIFI or USB) then tap the “update all” Button to upgrade the firmware.

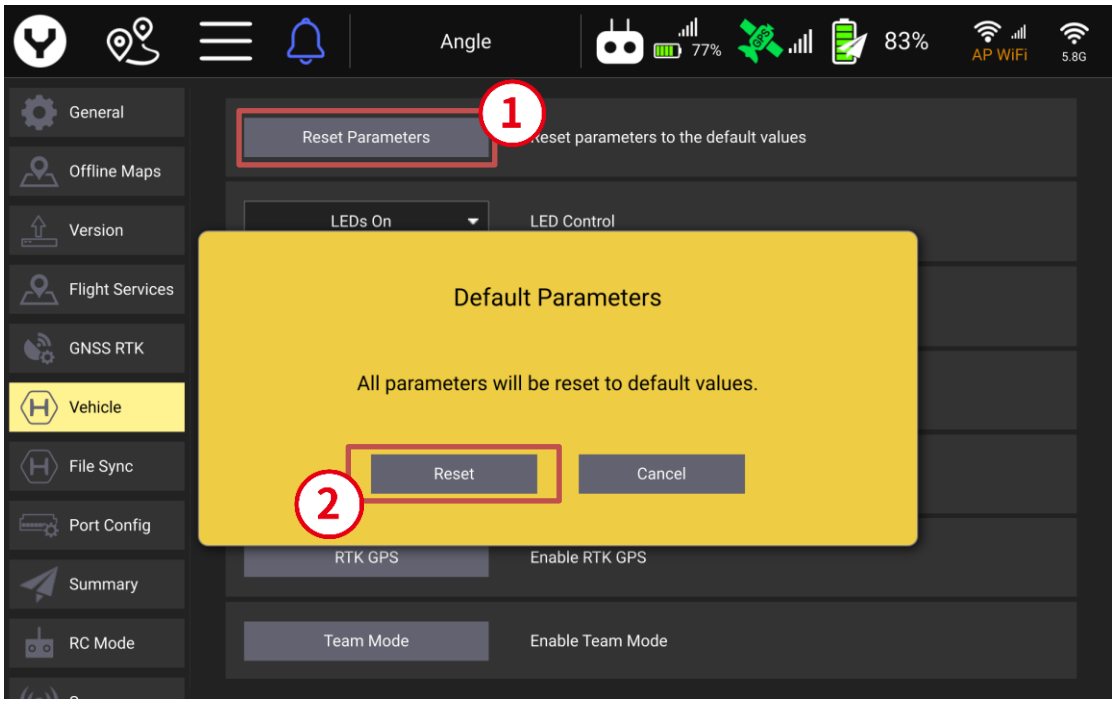
4. GNSS RTK

In the sub-menu under the GNSS RTK item, the operator can enter parameters to connect the drone system to the CORS Source. Please refer to the corresponding chapter in the quick start guide and this user manual mentioned above.

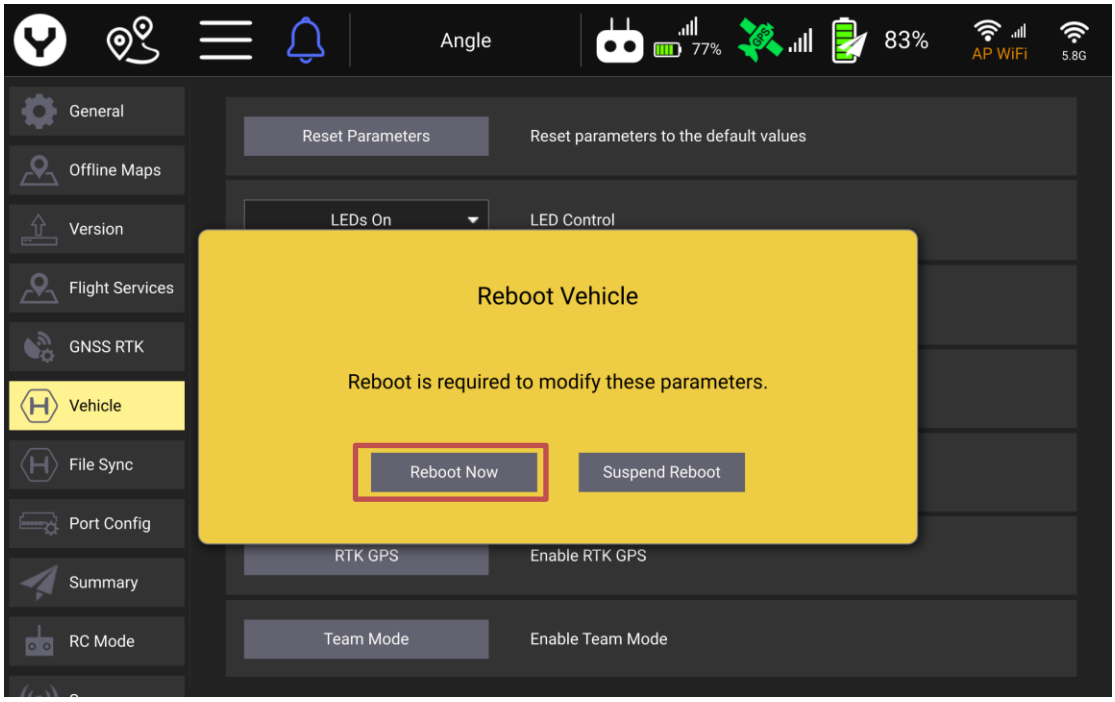
5. Vehicle

The operator can reset parameters, control the motor LEDs, enable the Indoor Mode, enable the RTK GPS and check the Vehicle Info under the vehicle item.

Reset Parameter button



Tap the “Reset Parameters” Button first then tap the “Reset” Button.

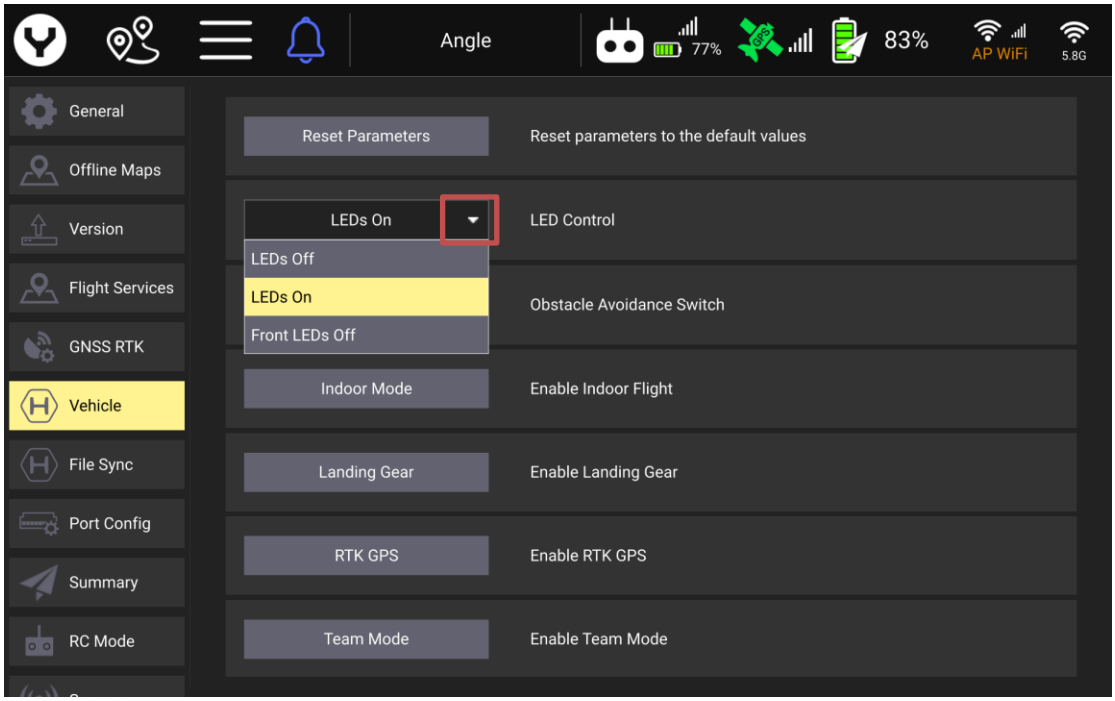


Tap the “Reboot Now” Button to reboot the drone then the reset will take effect.

LED Control

In the cases of taking the aerial photography at night, the motor LED can influence the color effect of the photos. The operator can control the motor LED according to the following introduction.

Tap the white-down arrow to open the drop-down menu then select the needed LED setting, the “LEDs On” is the default setting.



LEDs Off- Switch off all the motor LEDs.

LEDs On- Switch on all the motor LEDs.

Front LEDs Off – Only switch off the LEDs on the front motor arms.

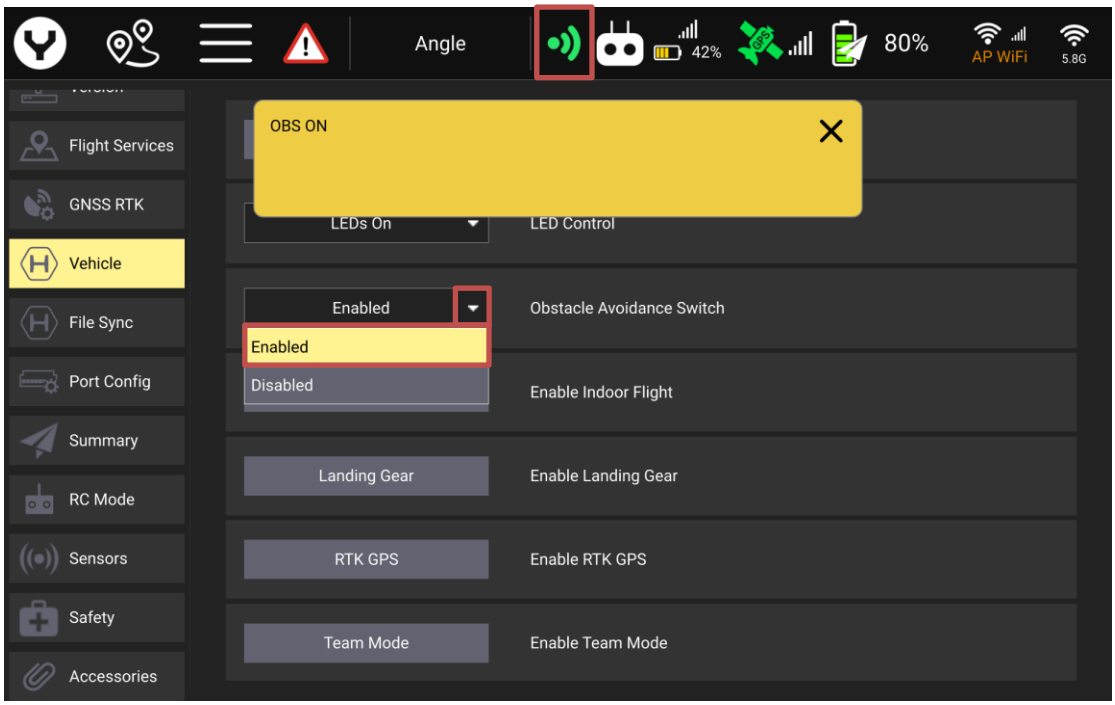
Normally we do not suggest turning off the motor LEDS, due to the operator can judge the direction of the drone by the color of the LED light. Much other useful information may also be delivered via the motor LEDs.

The fore motor LEDs should always keep white color, the left motor LEDs will always keep red color and the right motor LEDs will always keep green color in normally flight. For the rear motor LEDs they will be affected by the flight mode selecting and many other conditions such as low battery, GPS position lost, etc. Please refer to the Motor LED Introduction chapter for more detailed information.

Obstacle Avoidance Switch

Tap the white-down arrow to open the drop-down menu to enable or disable the Obstacle Avoidance function.

After the Obstacle Avoidance function enabled, the Obstacle Avoidance Indicator will flash green and the operator will get an “OBS ON” yellow warning message on the screen.

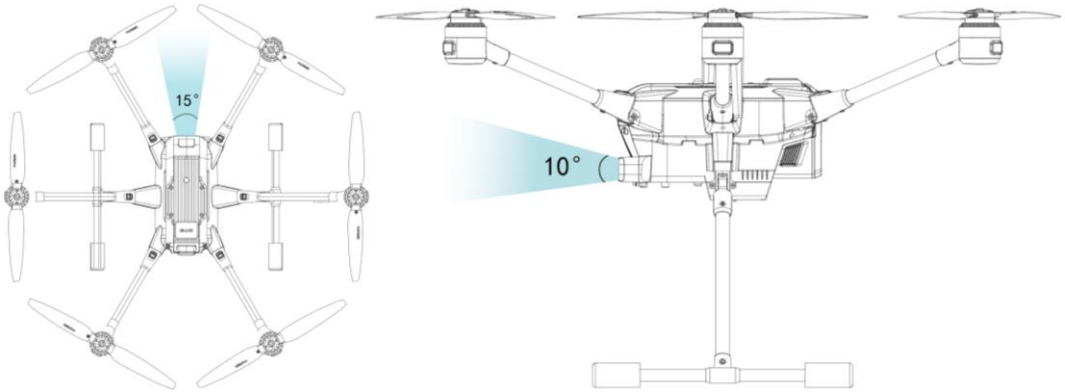


Obstacle Avoidance Supported Flight Mode

The Obstacle Avoidance function is only supported when the drone is in the Angle, RTL and Mission Mode. Therefore please ensure the drone is in the flight mode mentioned above after the Obstacle Avoidance Switch has been switched to “Enable” when the Obstacle Avoidance function is needed.

Obstacle Avoidance Sense Range

FOV: Right & Left 15° ; Up & Down 10°



Warning: The obstacles which are not in the area marked blue cannot be sensed by the drone, and still has the possibility to be crashed.

Additional Environment Requirements for Using the Obstacle Avoidance System

The Obstacle Avoidance System installed in the H600/H600-RTK needs an ideal lighting environment (from 15 lux to 10,000 lux) to ensure the Obstacle Avoidance Lens can get a correct exposure. At the scenes with drastic and rapid changes in lighting and scenes with direct exposure to strong light sources the Obstacle Avoidance System could be strongly disturbed. When using the obstacle avoidance function in the above scenes, the operator needs to fly the drone with caution.

Obstacle Requirement

The obstacles with the following characteristics can be ideally detected by drones via the Obstacle Avoidance Lens.

1. The obstacles have rich texture. Objects with solid-colored surfaces will significantly reduce the perceptibility.
2. Matte surface. Objects with strongly reflective surfaces will greatly affect the avoidance effect of the drone.
3. Enough volume. Obstacles that are too small cannot be sensed by drones.

Obstacle Avoidance Behavior

1. Speed Limited

Once the Obstacle Avoidance switched to “Enable” the Maximum horizontal speed will be limited to 8m/s to ensure the drone won’t crash into the obstacles for all the supported flight modes.

2. Obstacle Avoidance Behavior In Angle Mode

The drone starts slowing down when the obstacle detected at the front of the drone about 16 meters and starts keep hovering when the distance is reduced to 8 meters. After the drone stopped the ahead command will be rejected by the autopilot even the operator continue pushing the Elevator/Pitch Joystick. While the control commands to other direction won’t be affected by the Obstacle Avoidance System.

3. Obstacle Avoidance Behavior In Mission Mode

When the drone is executing a flight mission such as waypoint, survey, etc. and an obstacle was detected, the drone will active the RTL mode to return or Hold mode to keep hover according to the operator’s setting.

4. Obstacle Avoidance Behavior In RTL Mode

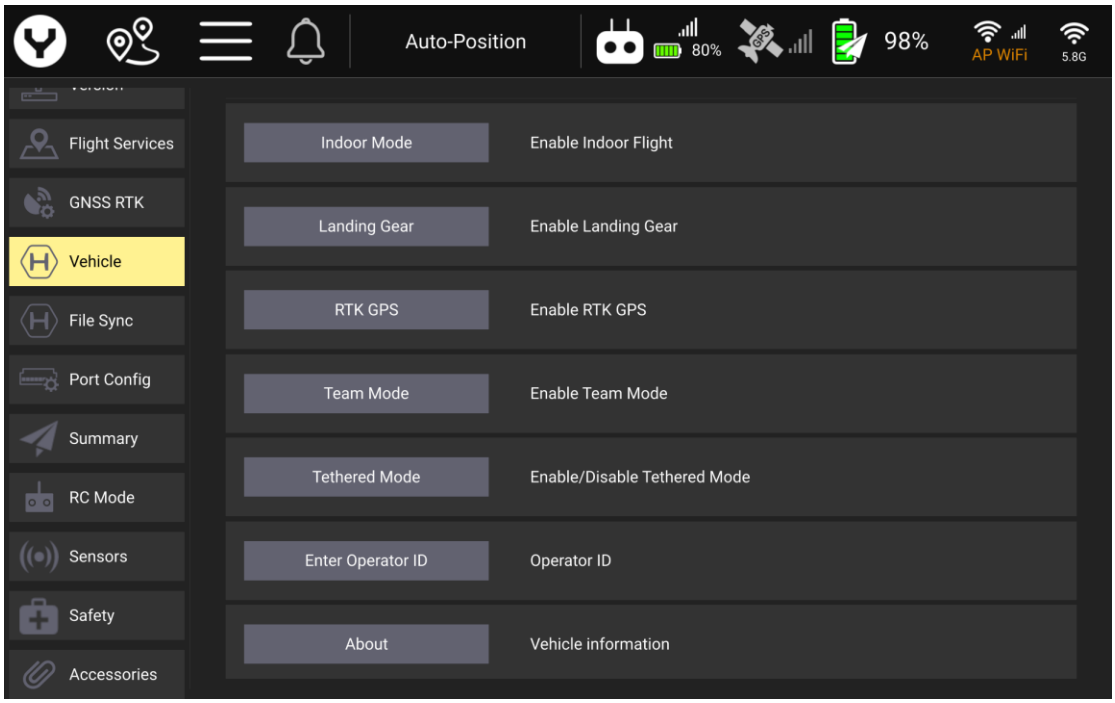
When the obstacle detected on the return route the drone will active the Hold mode to keep hover or Climb Up behavior according to the operator’s setting. In the Climb Up process the drone will elevate 5 meters pre 5 seconds until the obstacle cannot be detected by the Obstacle Avoidance Lens, then the drone will continue return to launch.

Indoor Mode Button

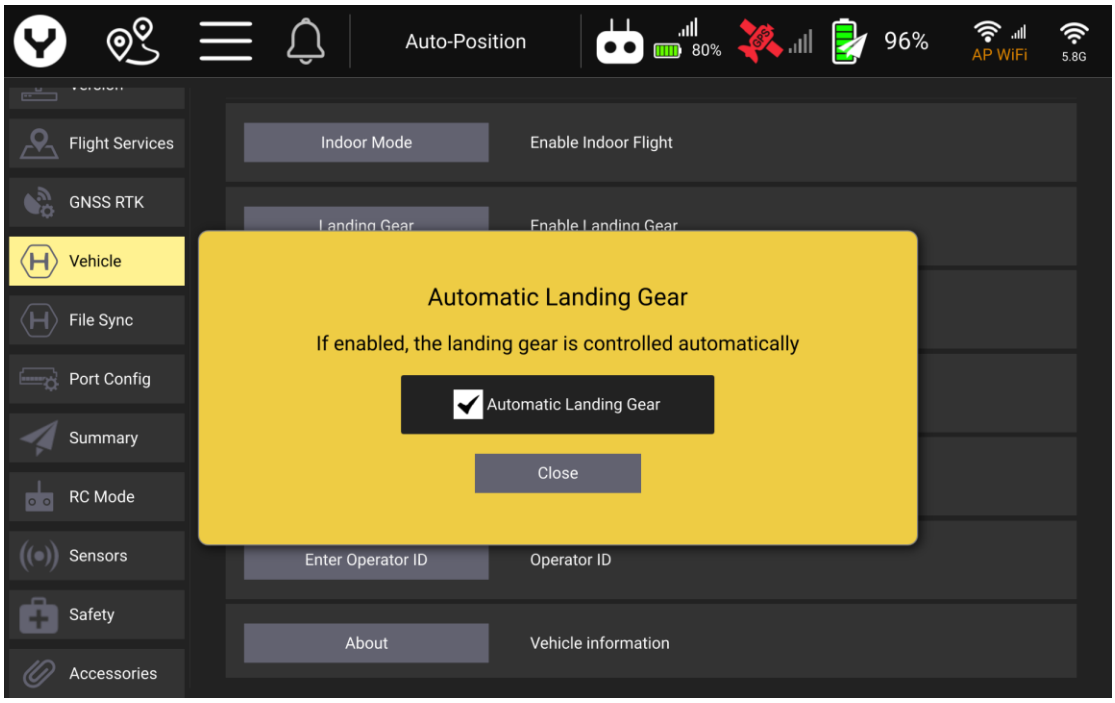
To disable the GPS totally for starting the motors without GPS position, please refer to the corresponding chapter introduced above for more details.

Landing Gear Button

Tap this button to open the popped up window to enable or disable the Automatic Landing Gear function.



The Automatic Landing Gear function is enabled by default setting, the landing gear will be retracted automatically after reaching 10 meters height in basic flight mode. In mission mode the landing gear cannot be controlled by the Landing Gear Switch. Please keep this item was checked to ensure the Landing Gear can be retracted.



RTK GPS Button

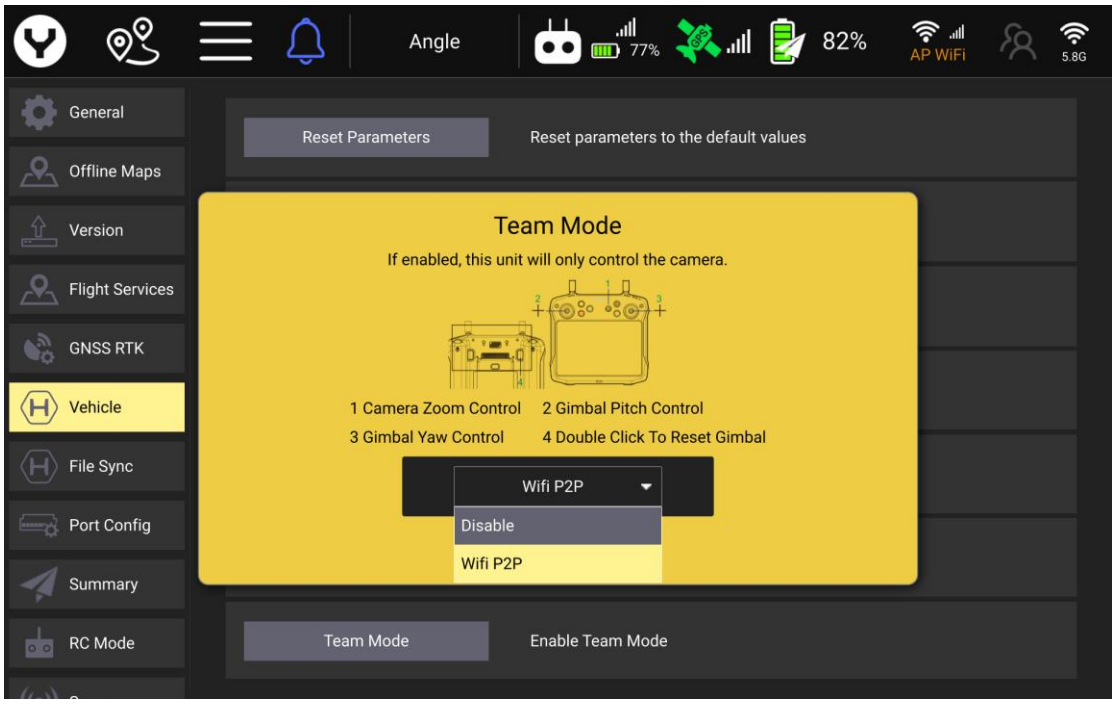
Tap this button to enable or disable the High-Precision RTK GPS, please refer to the corresponding chapter introduced above for more details.

Team Mode Button

By using the Team Mode the operators can control the drone and the gimbal camera separately. This allows pilots and camera operators to concentrate on their respective tasks to create more stunning works.

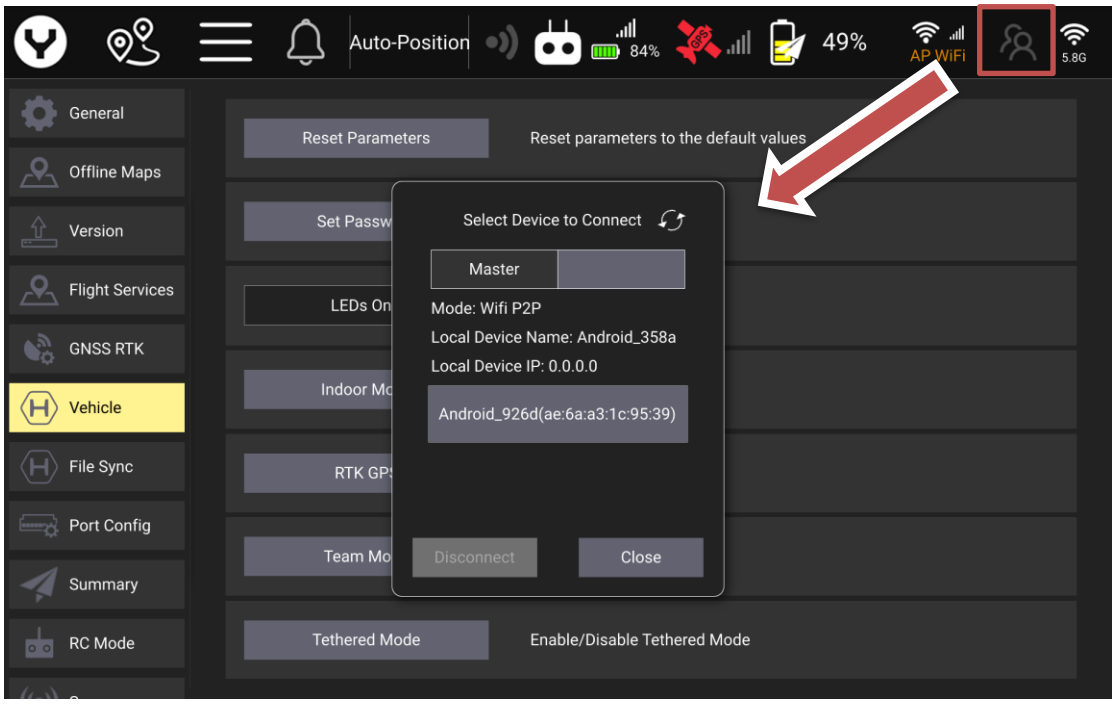
To enable the Team Mode function 2pcs of T-One transmitters is necessary, one of them plays the role of the Master which is in charge to control the drone flight, meanwhile the other one acts as Slave controller for gimbal and camera operating.

Tap this button and enable the “Wifi P2P” mode to enable the team mode for both controllers.

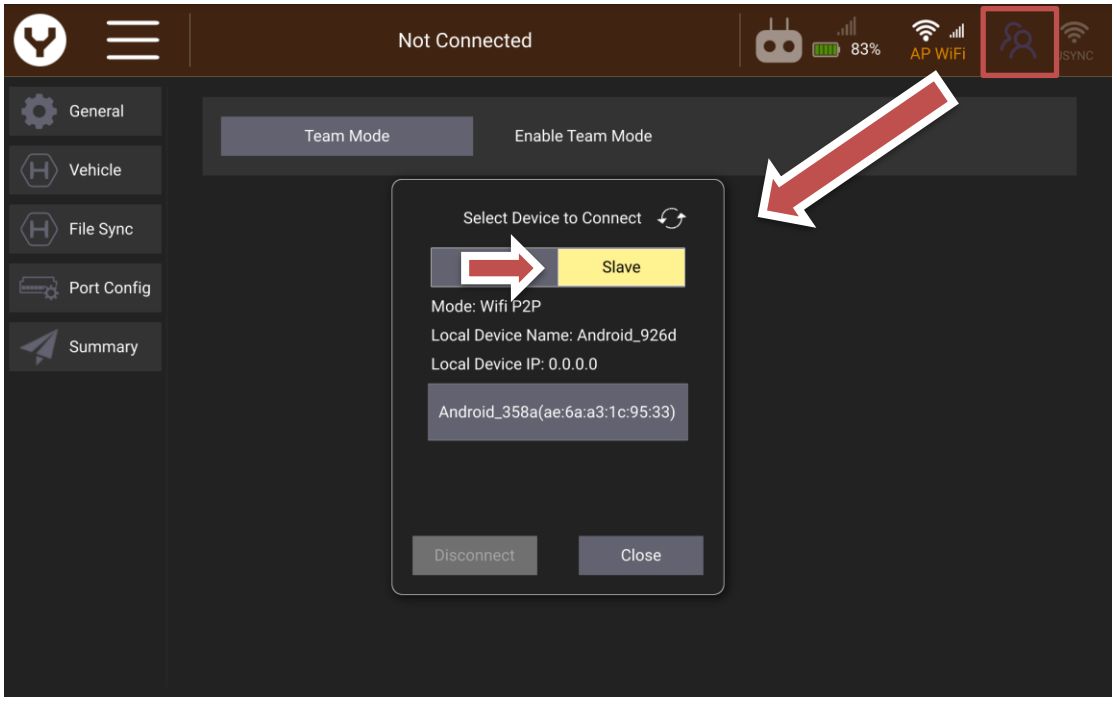


Tap the Team Mode Icon then switch the new T-One transmitter to Slave Mode meanwhile keep the original transmitter which is already connected to the drone as the Master Mode.

Master

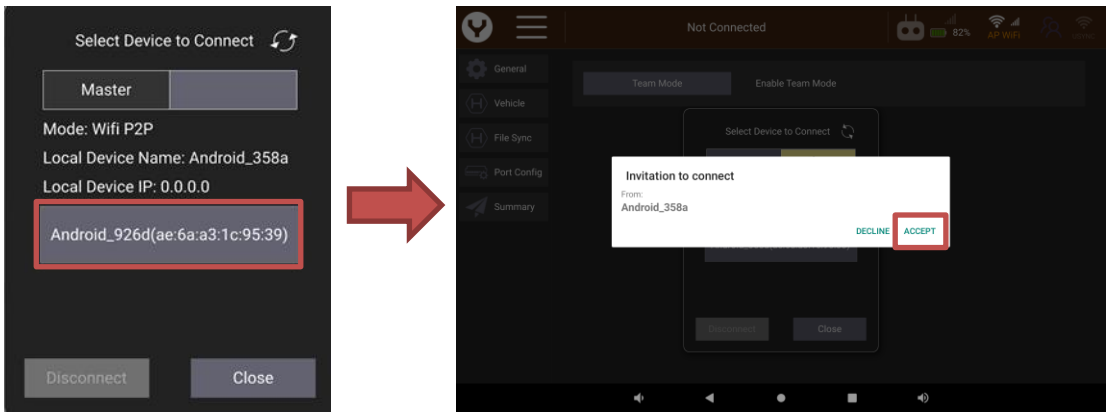


Slave



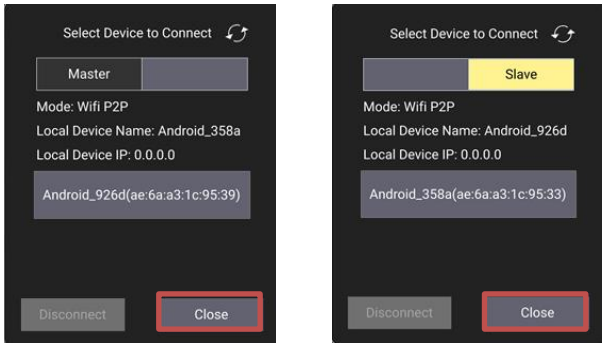
Wait for a while until the Local Device Name appeared on both controllers. Usually the Slave controller would display the Master device name and the Master would also display the Slave one on the screen.

Tap the searched Local Device Name on the Master controller and tap the “ACCEPT” Button on the Slave controller.



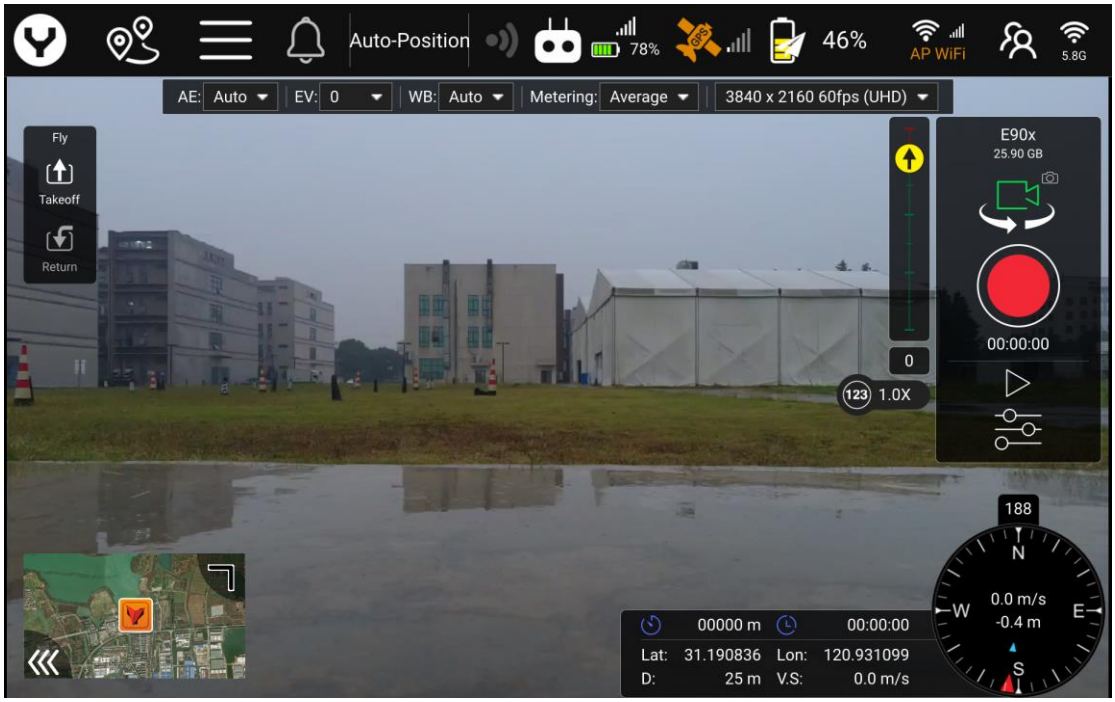
Master **Slave**

Then the Team Mode binding will be finished and the video link will appear on both controllers.

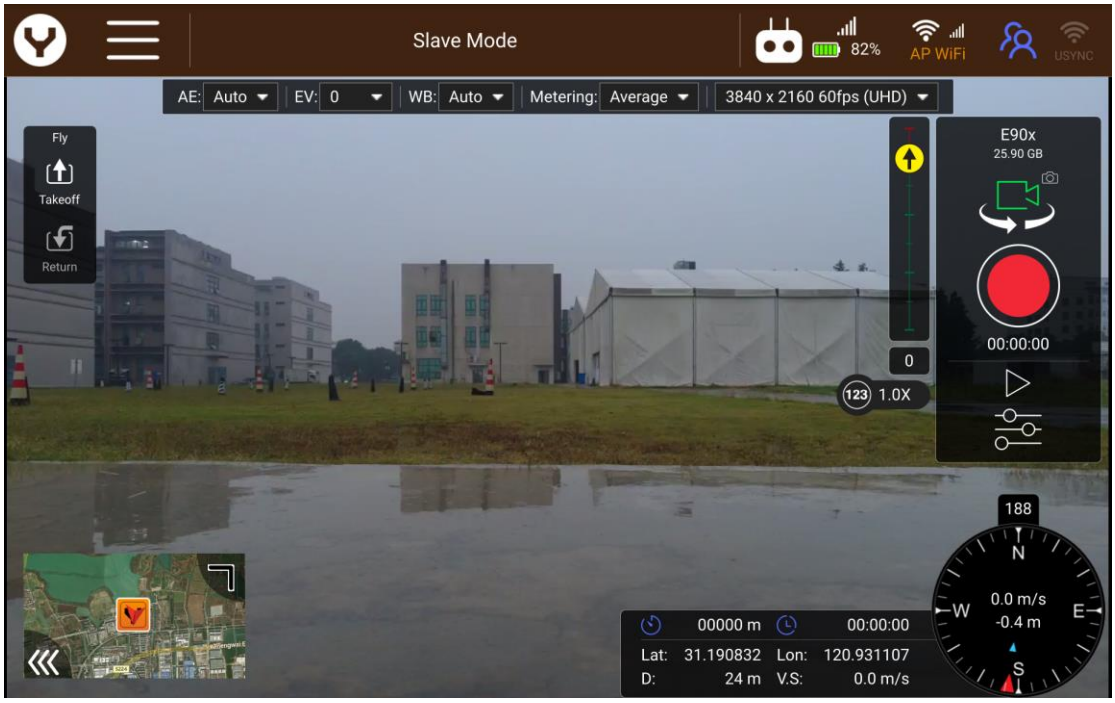


The operator can tap the “Close” Button to hide the Team Mode Device Select Menu for a better video link feedback view after the Team Mode is enabled.

Master Controller in Team Mode



Salve Controller in Team Mode

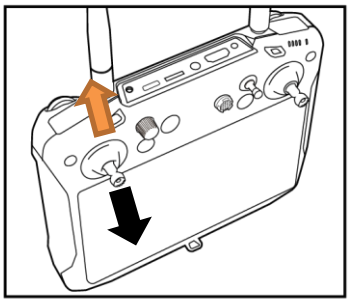


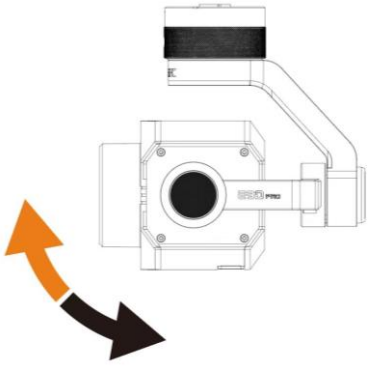
After the Team Mode the enabled the Master Controller cannot control the Gimbal Tilt and Pan until quit. But the Camera Settings can be controlled by both controllers.

Gimbal Control in Team Mode

Gimbal Tilt Control

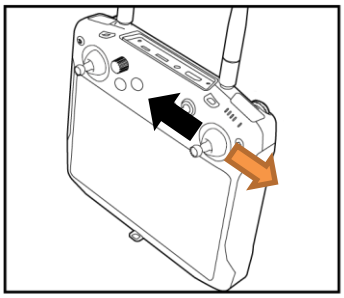
Move the Left Control Stick of the Slave Controller to tilt the gimbal up and down.

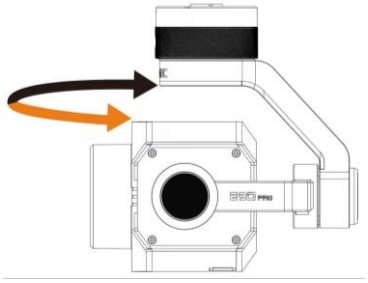




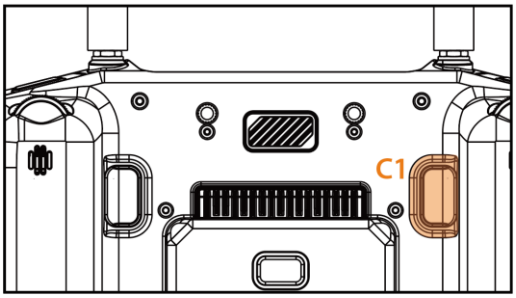
Gimbal Pan Control

Move the Right Control Stick of the Slave Controller to pan the gimbal left and right.



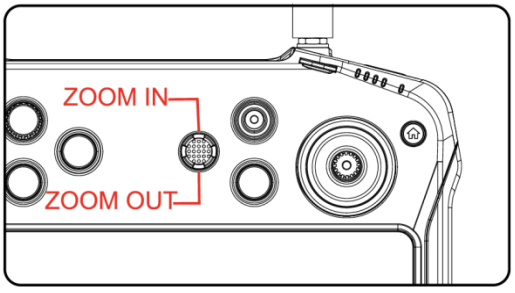


Back to the Center



Be similar with the single control mode, to move the gimbal back to the center position please double click the C1 Button on the back of the Slave Controller.

Zoom Function



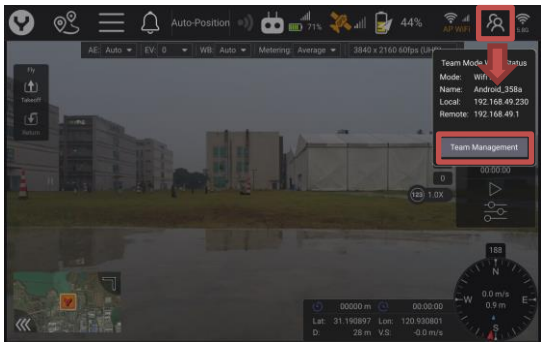
After enabled the Team Mode, to zoom the camera via the 5D button is also need to be operated by the Slave Controller.

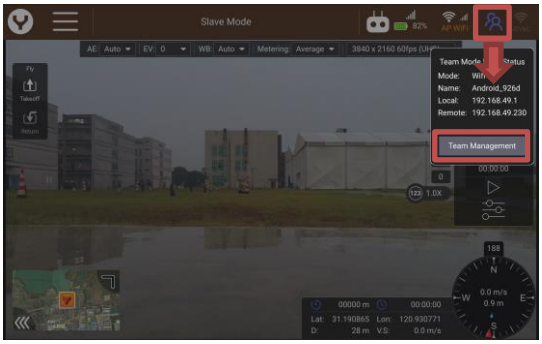
But the Pinch to Zoom Function is available for both.

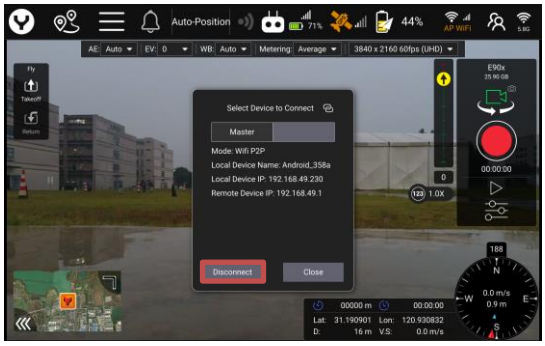
Quit the Team Mode

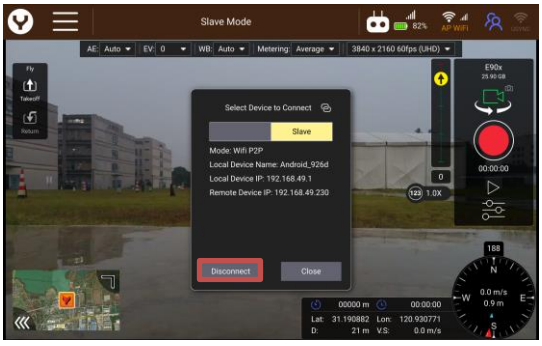
Tap the Team Mode Icon no matter on the Master or Slave Controller then tap the “Team Management” Button to open the Team Mode Device Select Menu and tap the “Disconnect” Button to disconnect.

Master **Slave**

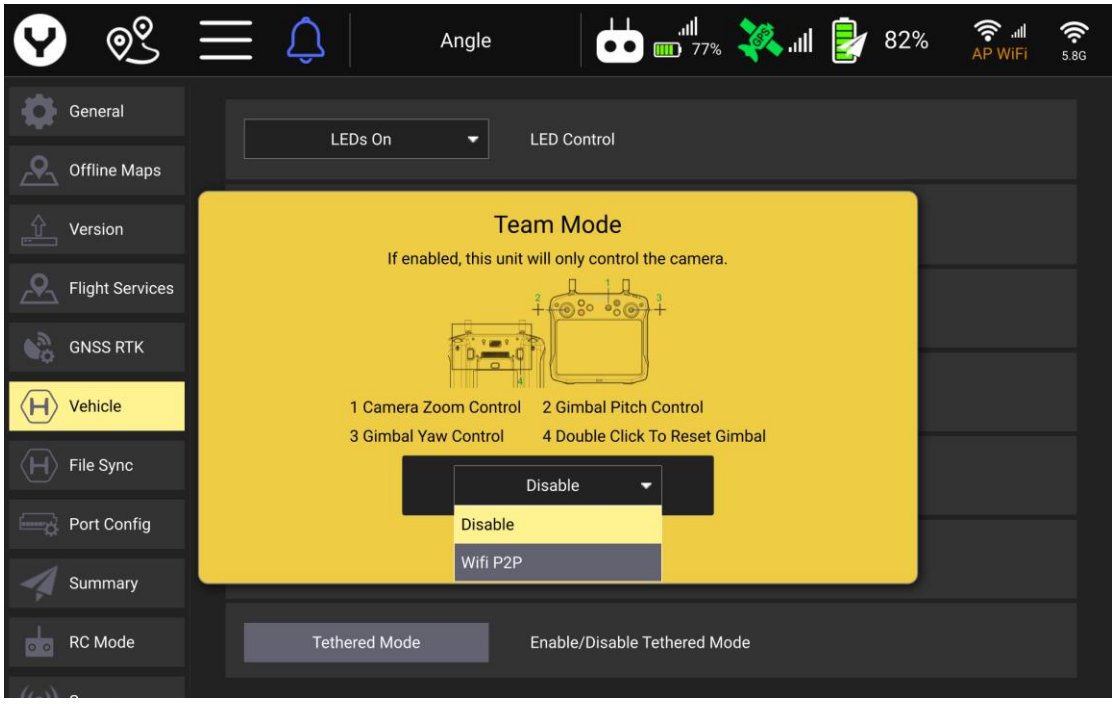






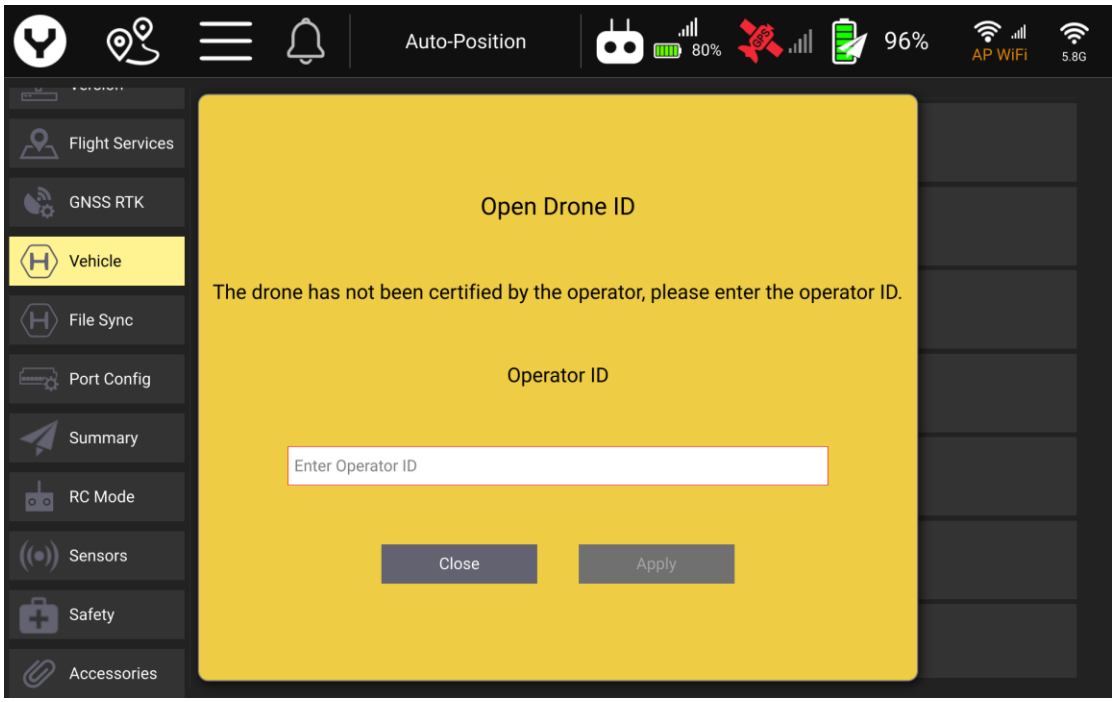


Finally disable the “Wifi P2P” to quit the Team Mode completely.



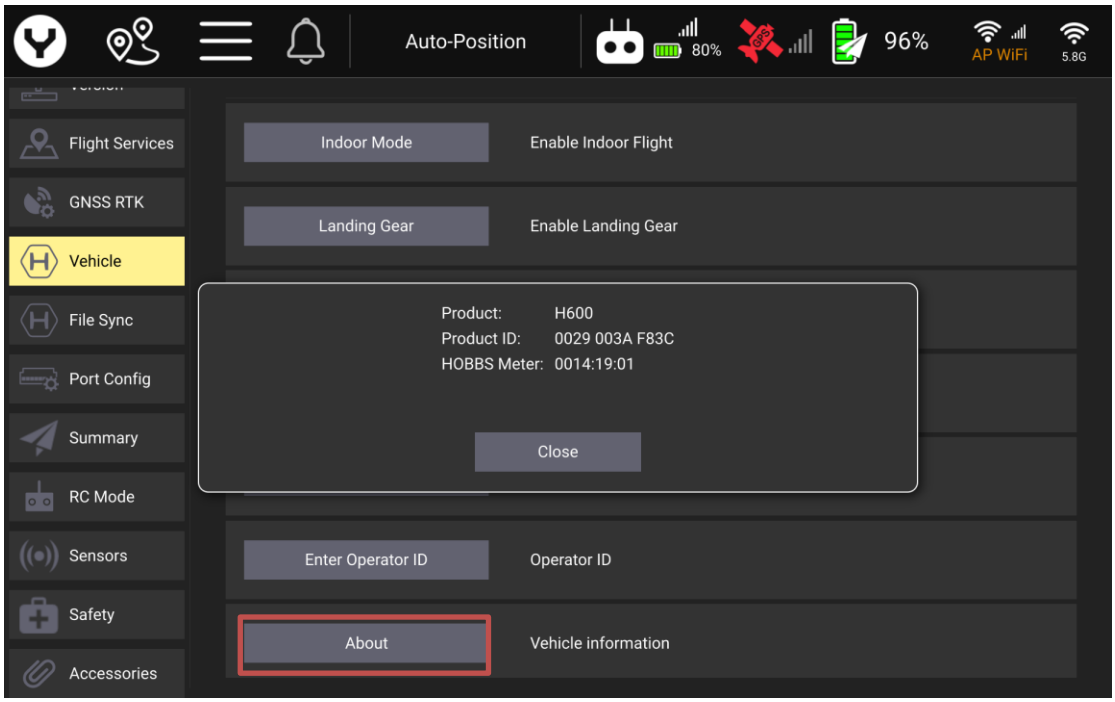
Operator ID Button

Be the same as the first time the drone connected to the transmitter, the yellow Operator ID enter window will pop up to enter or change the Operator ID. Then tap the “Apply” Button to take effect.



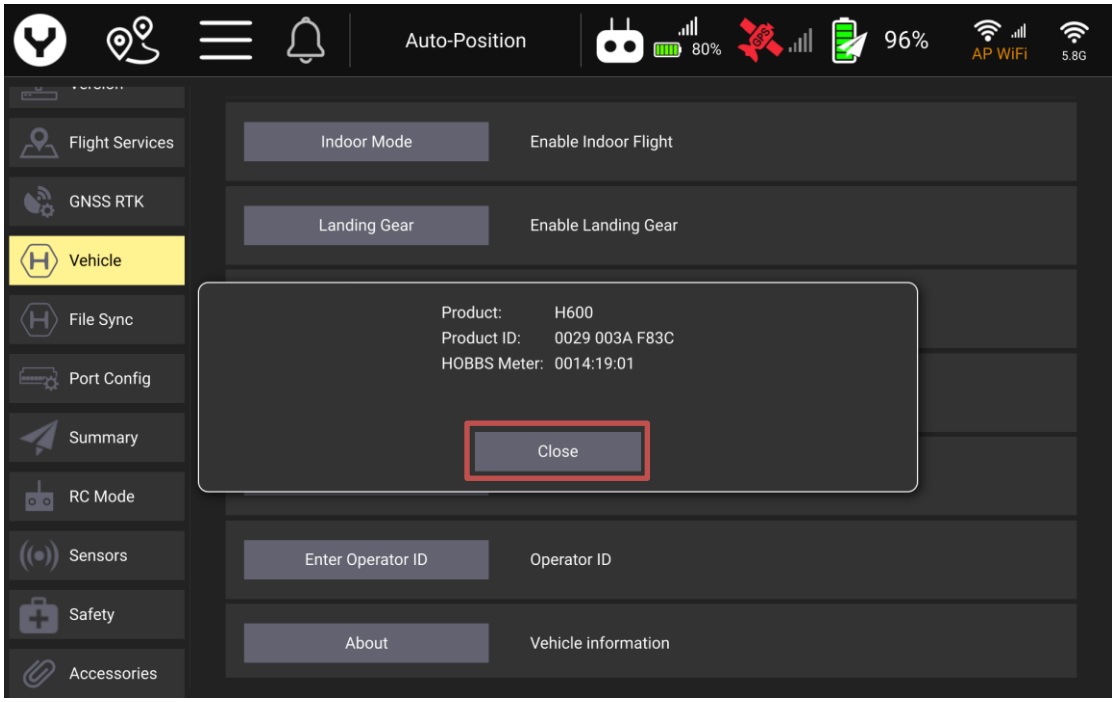
About Button

Tap this button to check the Product type, Vehicle ID and HOBBS Meter.



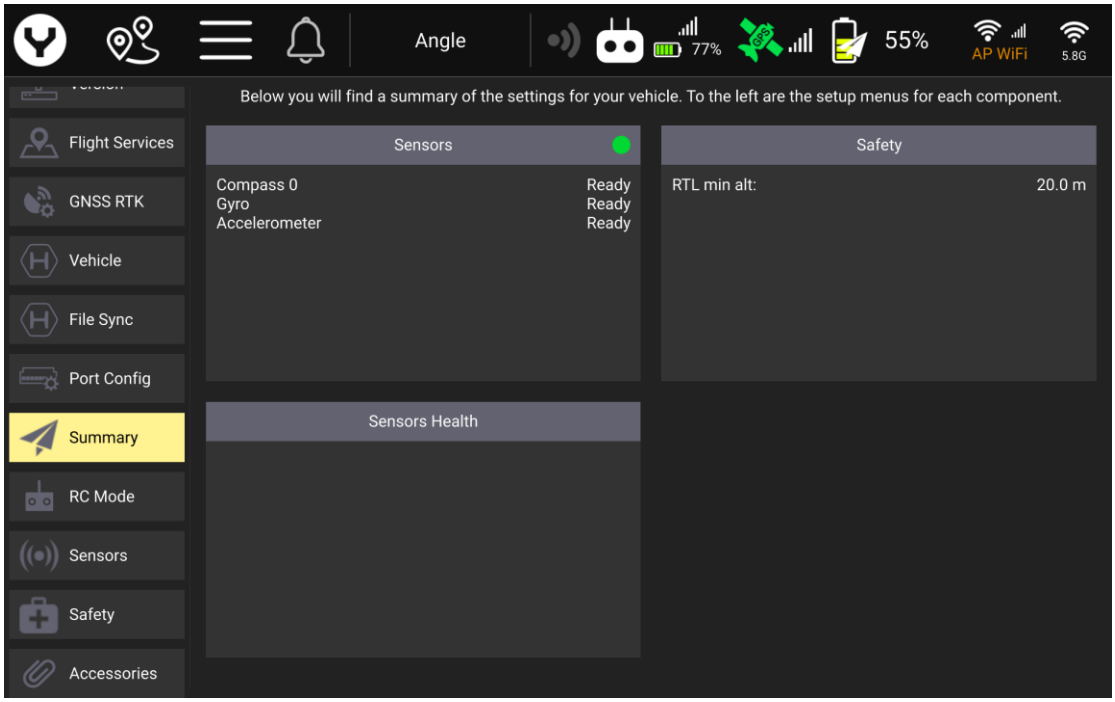
In the popped up window, the HOBBS Meter will record the overall operating time of the drone since the first flight. And the time will be increased after landed of each flight. The operator can specify appropriate maintenance plans based on the time records by the HOBBS Meter. Please refer to the Maintenance Plan chapter in the Attachment for more details.

Tap the “Close” Button to quit the popped up window.



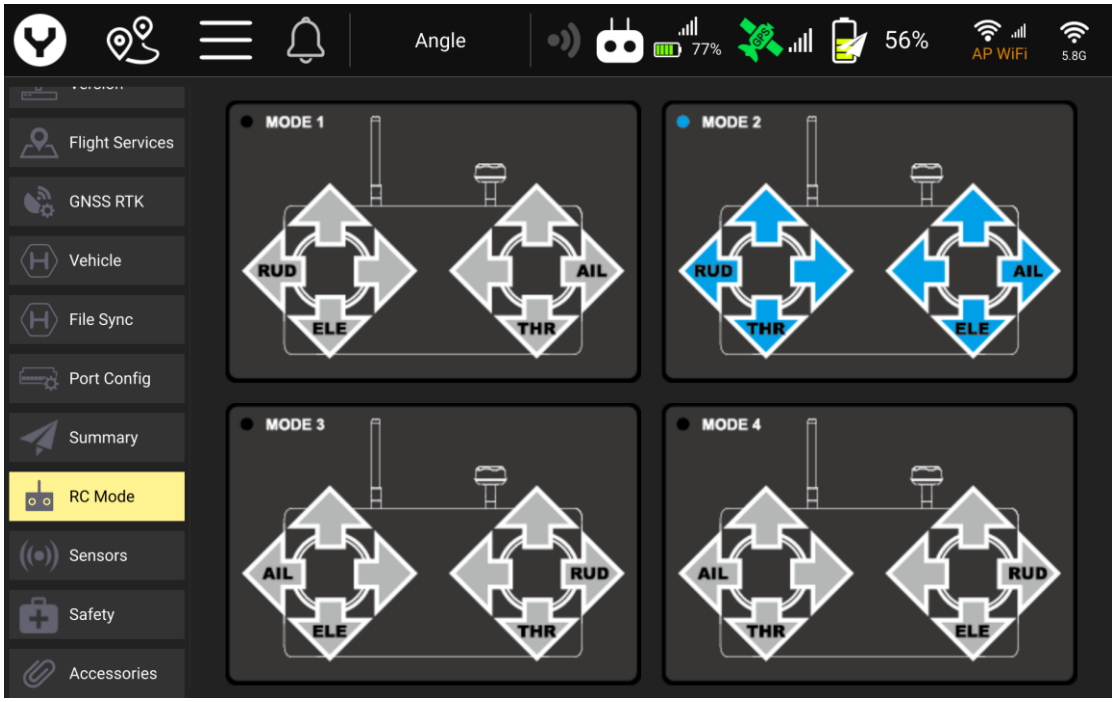
6. Summary

This item displays the Summary of the settings for the vehicle.



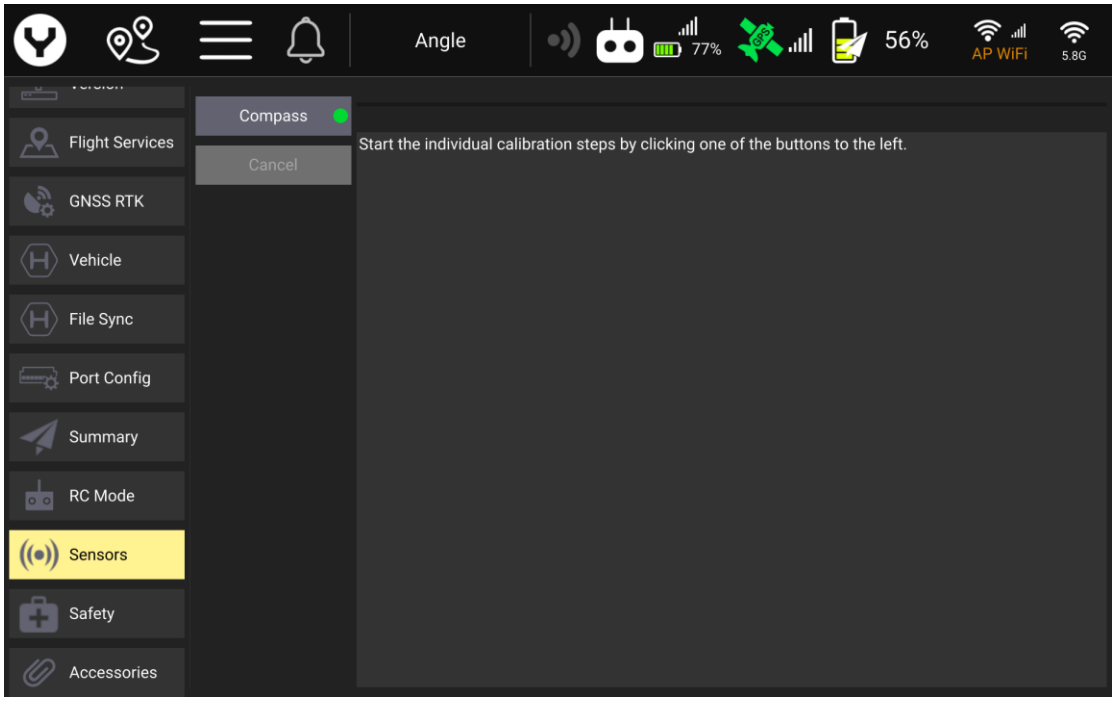
7. RC Mode

Tap to select the Joysticks Mode you wish to use.



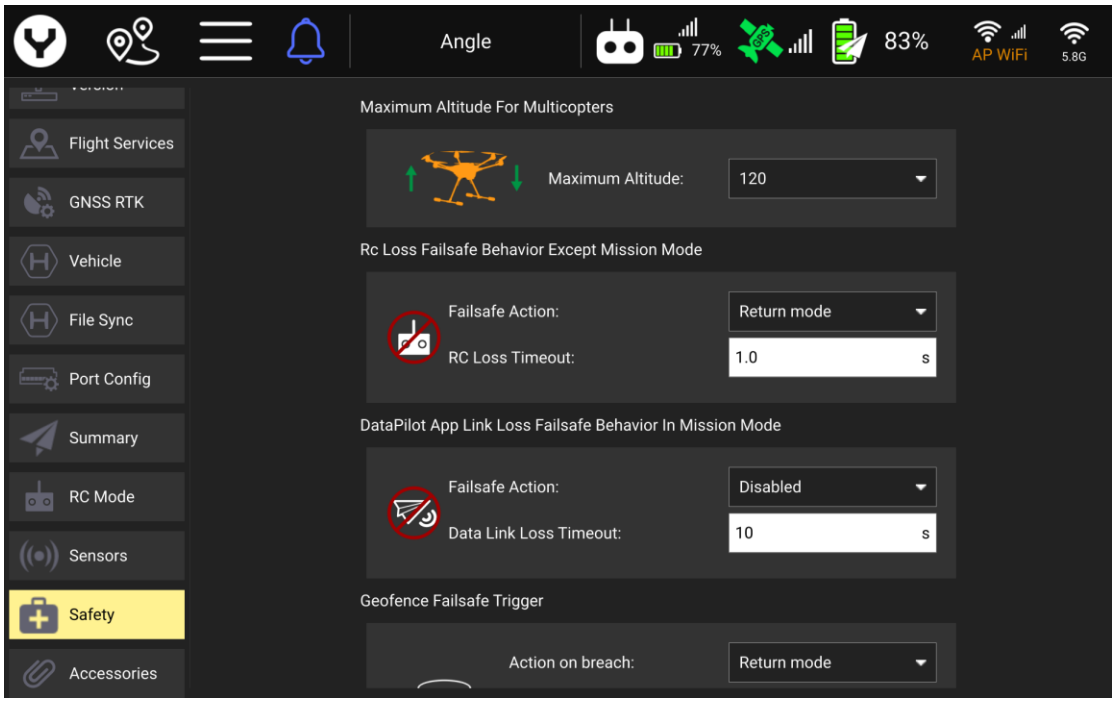
8. Sensors

The operator can check the compass status and also start the magnetometer calibration in this interface. Normally it will display a green dot. If the dot turns red the compass needs to be calibrated again.



9. Safety

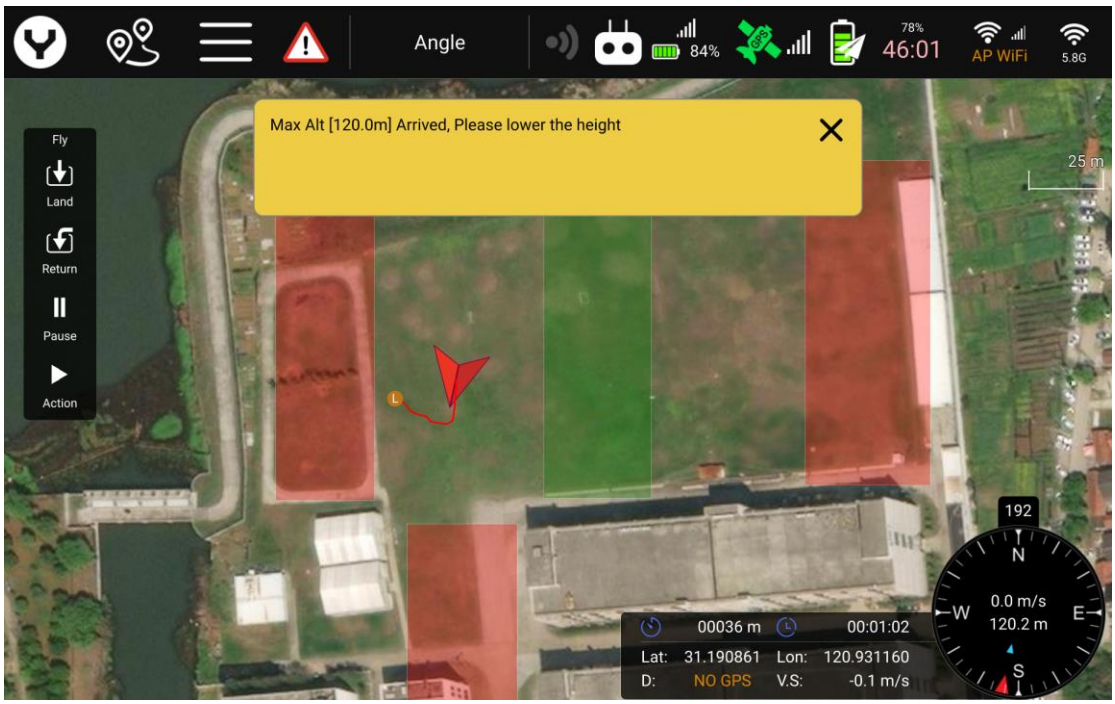
The operator can change the drone Maximum flight height, Failsafe behavior and Geo-fence via this interface.



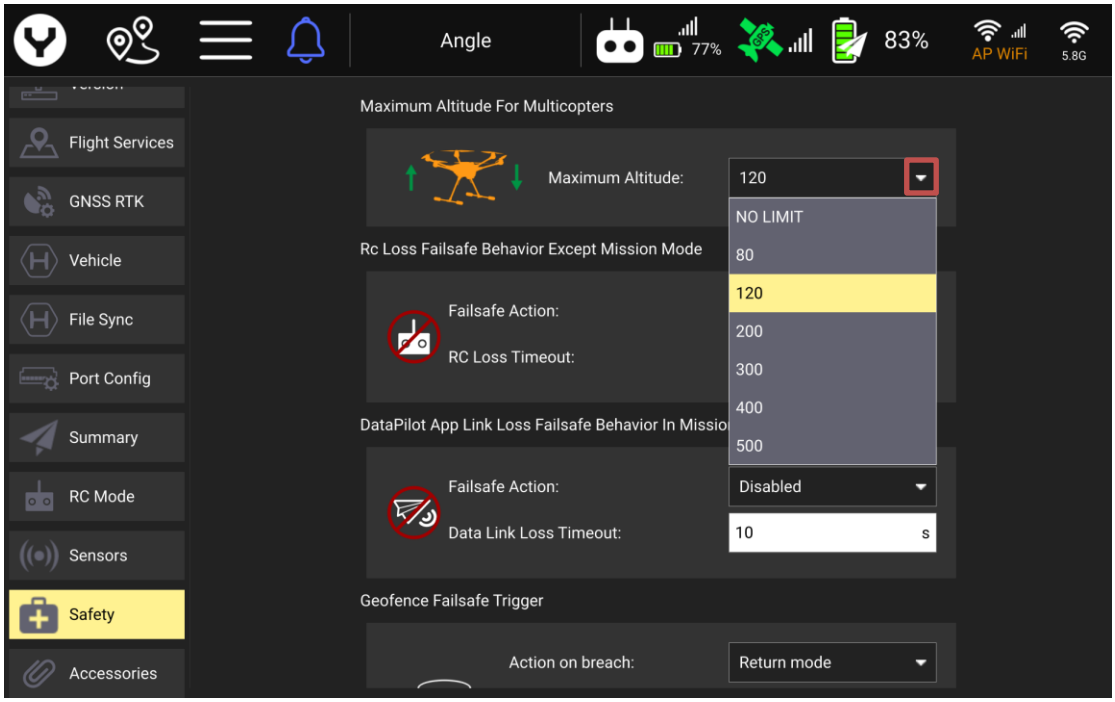
Maximum Altitude For Multicopters

This value was set to 120 meters as the default setting the drone won't climb higher after the limitation has been reached, even the operator keeps pushing the Throttle Joystick upwards.

The yellow warning message after reached the height limitation



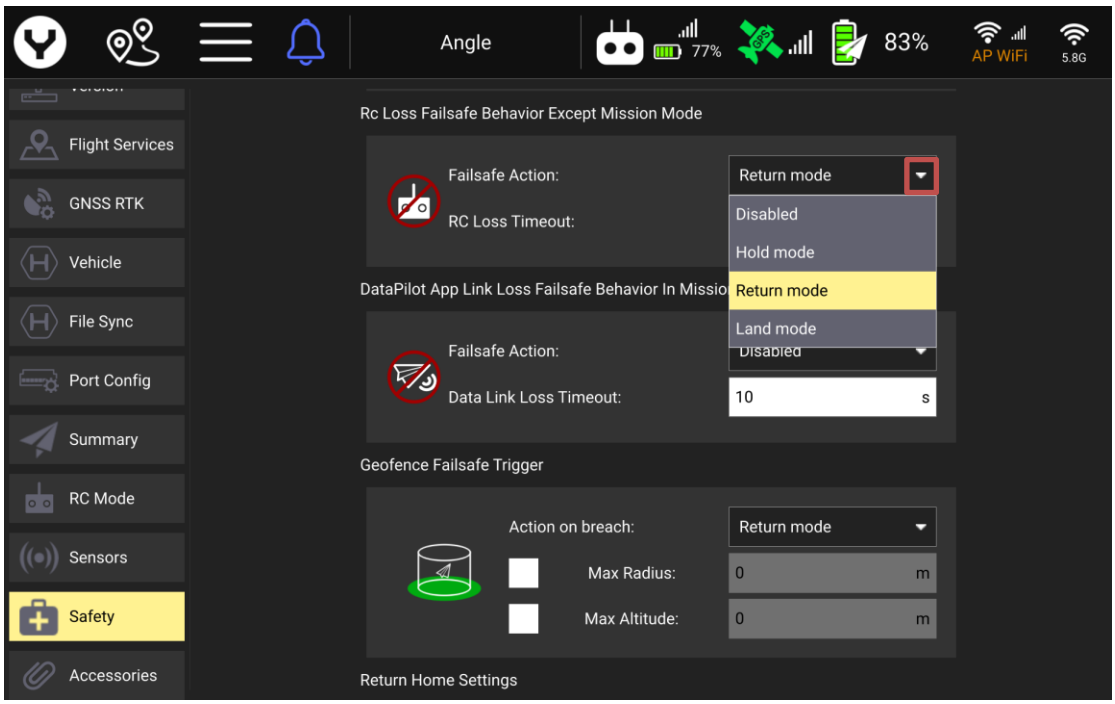
To adjust the flight height limitation, please tap the white-down arrow to open the drop-down menu then select the wanted setting.



RC Loss Failsafe Trigger and Data Link Loss Failsafe Trigger

These 2 item sections allow the operator to edit the drone behavior after the RC or Data Link Loss. For the drone please retain the “Disable” selection for the Data Link Loss Failsafe Trigger. Only editing the RC Loss Failsafe Trigger is enough.

Tap the white-down arrow to open the drop-down menu then select a Failsafe behavior.



Disabled- The drone will maintain the last flight mode before the RC Loss. This selection is designed for preventing the Mission Flight Mode interrupted by the RTL behavior caused by the RC lost. For example, survey for a large area which contains the flight route very far away from the transmitter.

Hold mode- The drone will keep hovering after the RC Loss happens.

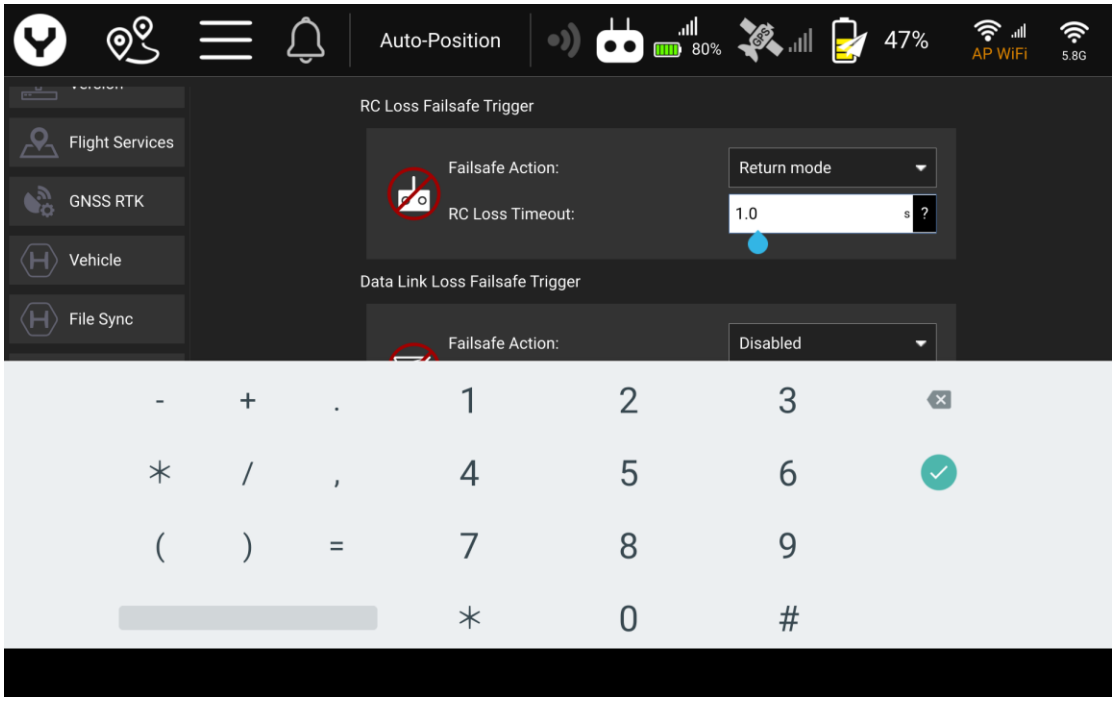
Return mode-The drone will trigger the RTL Mode after RC Loss. (Most recommended and default setting for the safety reason)

Land mode-The drone will land directly at its current position after RC Loss.

Timeout setting

The timeout is also can be adjusted by the operator. If the RC loss time is shorter than the setting value, the drone will not active the Failsafe behavior and continue execute the last command received.

To adjust the Timeout period, please tap the enter box then type the wanted time via the popped up soft keyboard.

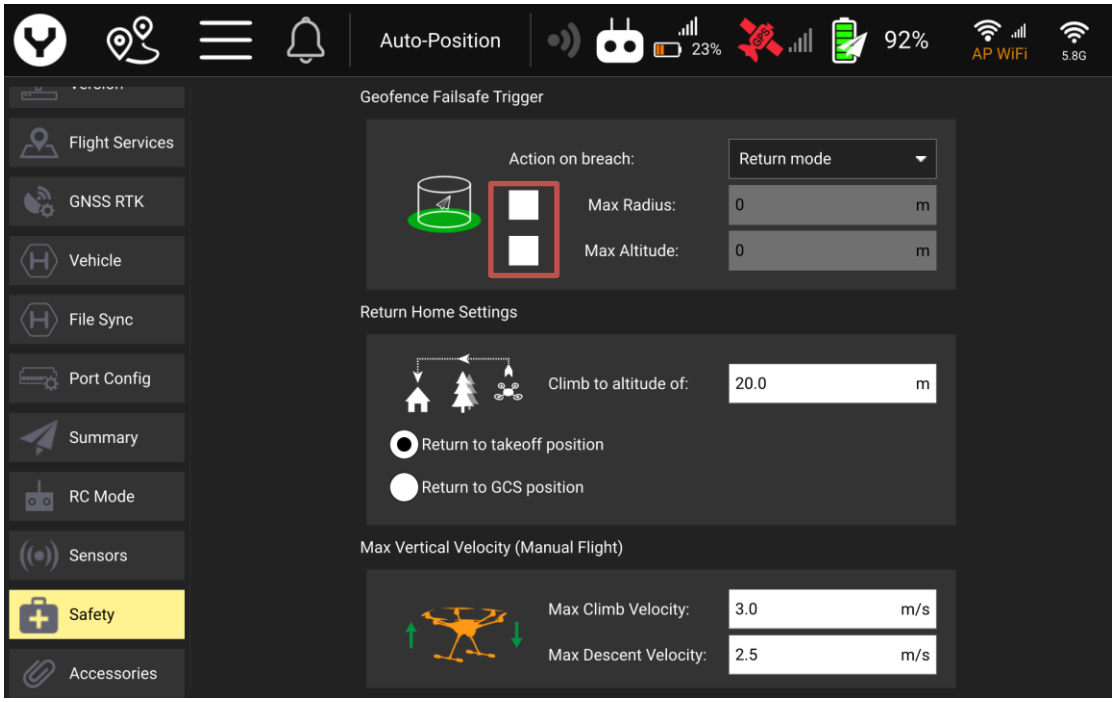


Notice: For flight safety reasons, we strongly recommend keep the Timeout setting as the default setting.

Geofence Failsafe Trigger

The operator can set the Radius and Height of the Geo-fence and also the drone behavior after reaching the edge of the Geo-fence.

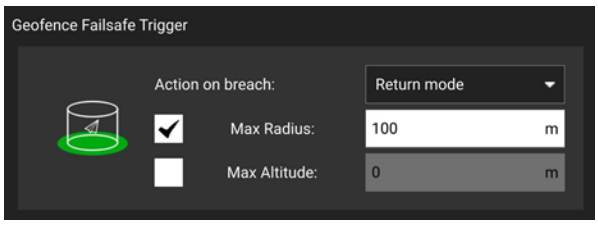
Be different with the Custom Electronic Fence function in the PLAN window, the shape and position of the Geo-fence in the Safety Menu cannot be edited by the operator. It only offers a cylindrical fence covers on the drone with the center of circle is aligned with the Takeoff Point.



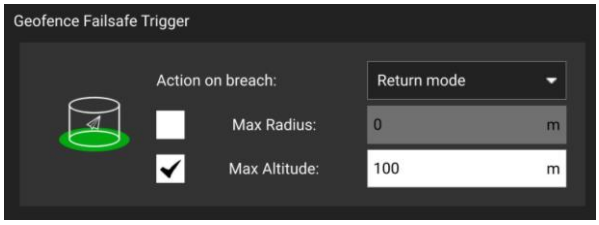
Tick the box before the “Max Radius” and “Max Altitude” to enable the Geo-fence range.
For the operator wants to limit the flight radius only, just tick the box in front of the “Max Radius” text.

Also for the flight height limited only requirement, just tick the box in front of the “Max Altitude” is enough. The unchecked item won’t be active to limit the drone.

The operator can type in the parameters directly to edit the Geo-fence after the boxes were ticked.

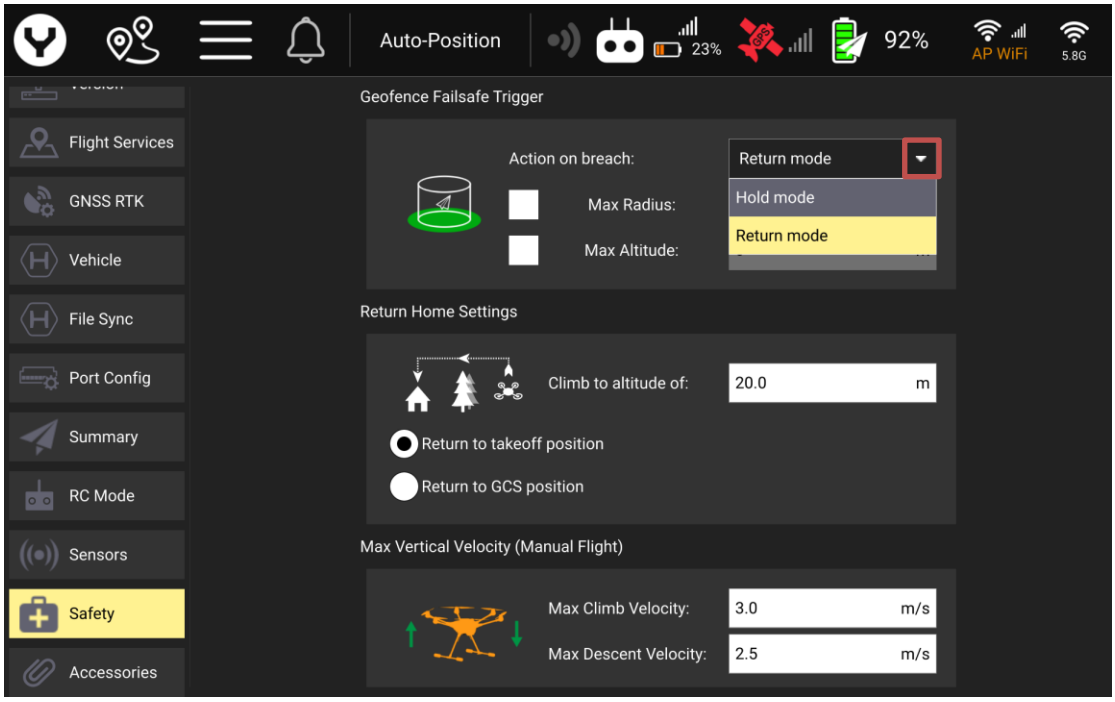


Limit Radius Only



Limit Height Only

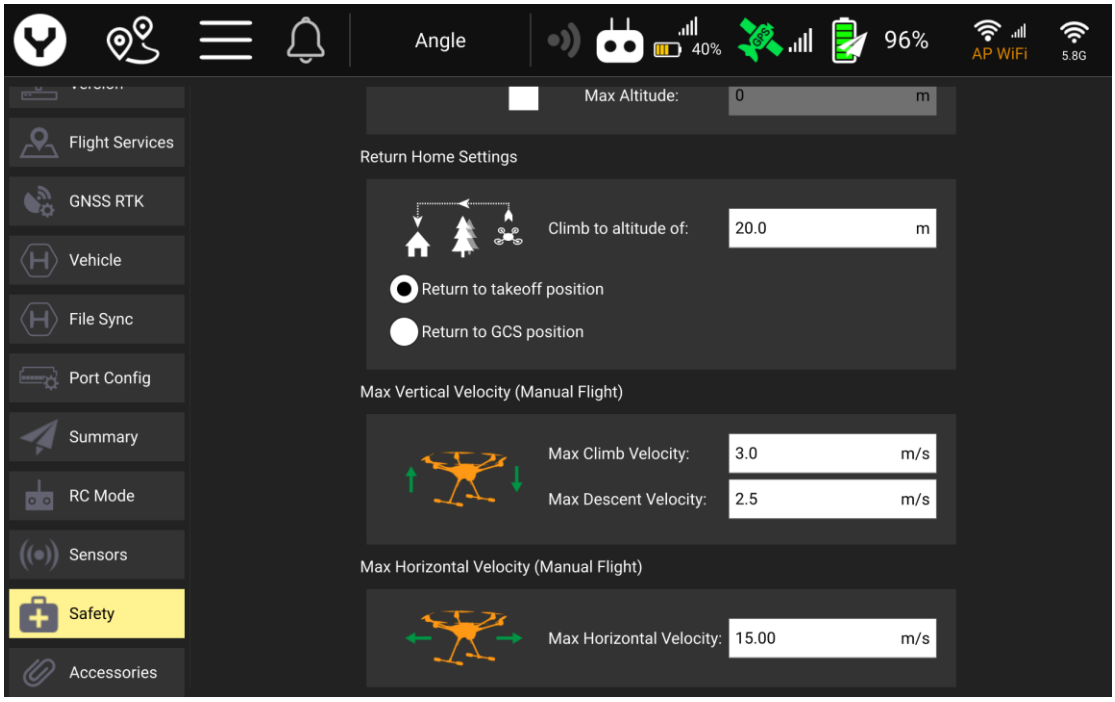
Tap the white-down arrow to open the drop-down menu then select the “Action on the breach”.



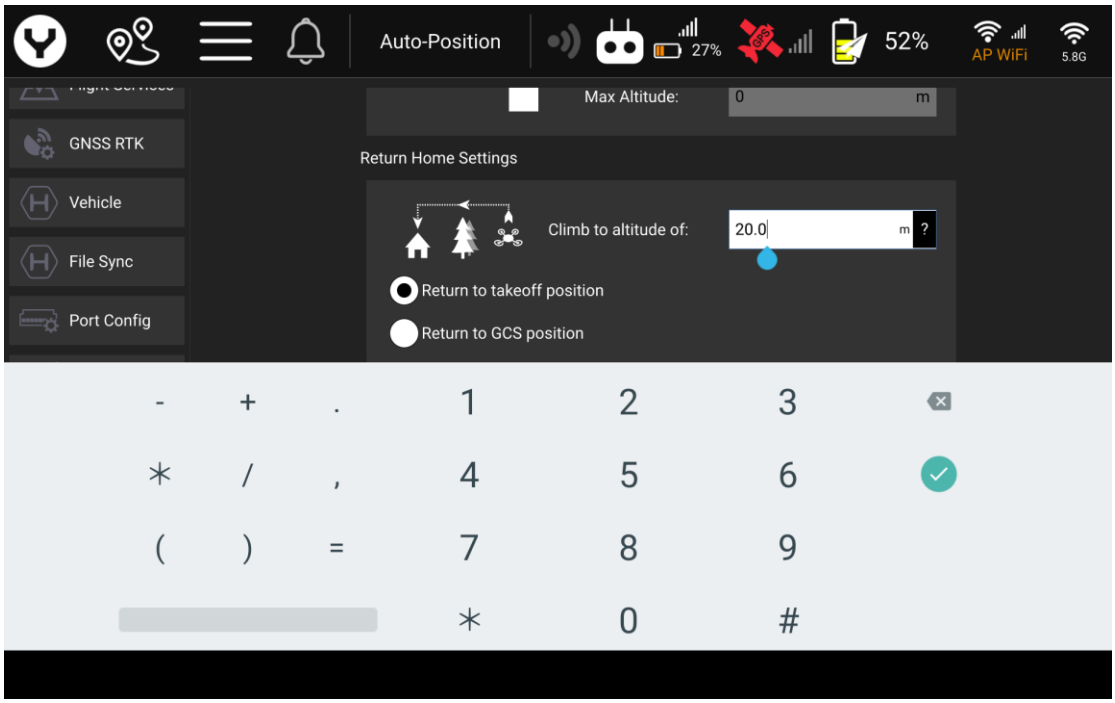
Hold mode- The drone will keep hovering after it reaches the edge of the fence, the operator needs to switch the drone to RTL Mode manually to return the drone to the Launch Point.

Return mode- The drone will switch to the RTL Mode automatically after reaching the edge of the fence.

Return Home Settings



Climb to the altitude of- The minimum height when executing the RTL. Tap the enter box then type in the value to set a new value. The 20m is the default setting.

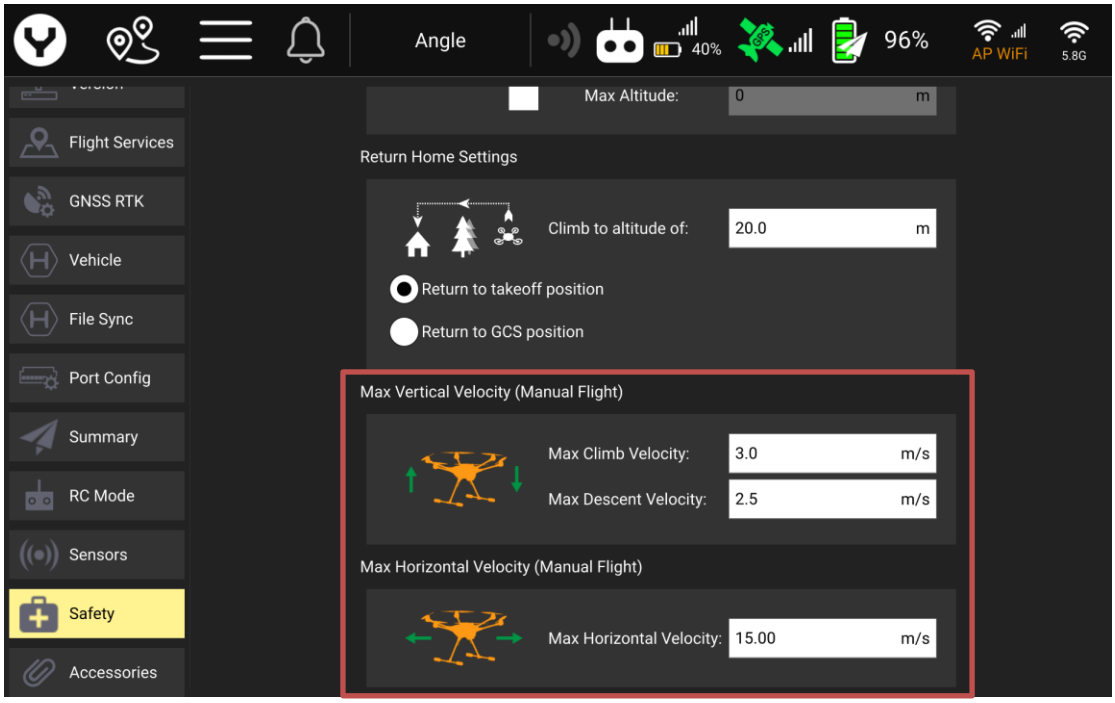


Return Point Setting- Tap the select dot directly to choose the return point.

If the “Return to takeoff position” was selected the drone will finally land on the Takeoff Point in RTL Mode.

If the “Return to GCS position was selected” the drone will land around the transmitter GPS position when the RTL Mode is active.

Max Vertical and Horizontal Velocity Setting



Tap the enter boxes for each item then type in the parameters to set the max climb, descent and horizontal velocity.

Notice: We suggest to not changing these parameters for safety purposes.

Attachment

OTA Upgrade

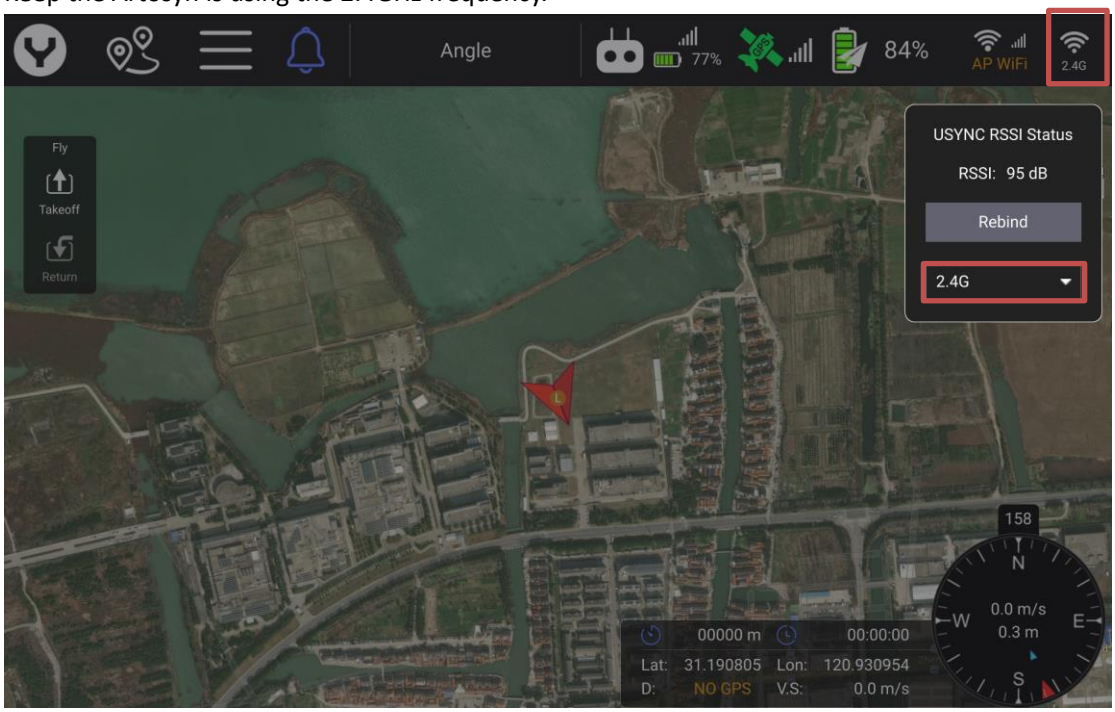
Connect the Transmitter with the Drone

Power on the transmitter and drone then wait the connection established. Make sure that you have enough power remain in the battery to finish all the OTA upgrade steps.

Notice: If the operator wants to update the gimbal and camera firmware version, please also attach the gimbal camera under the gimbal bracket and insert the SD card in the camera before power on the drone.

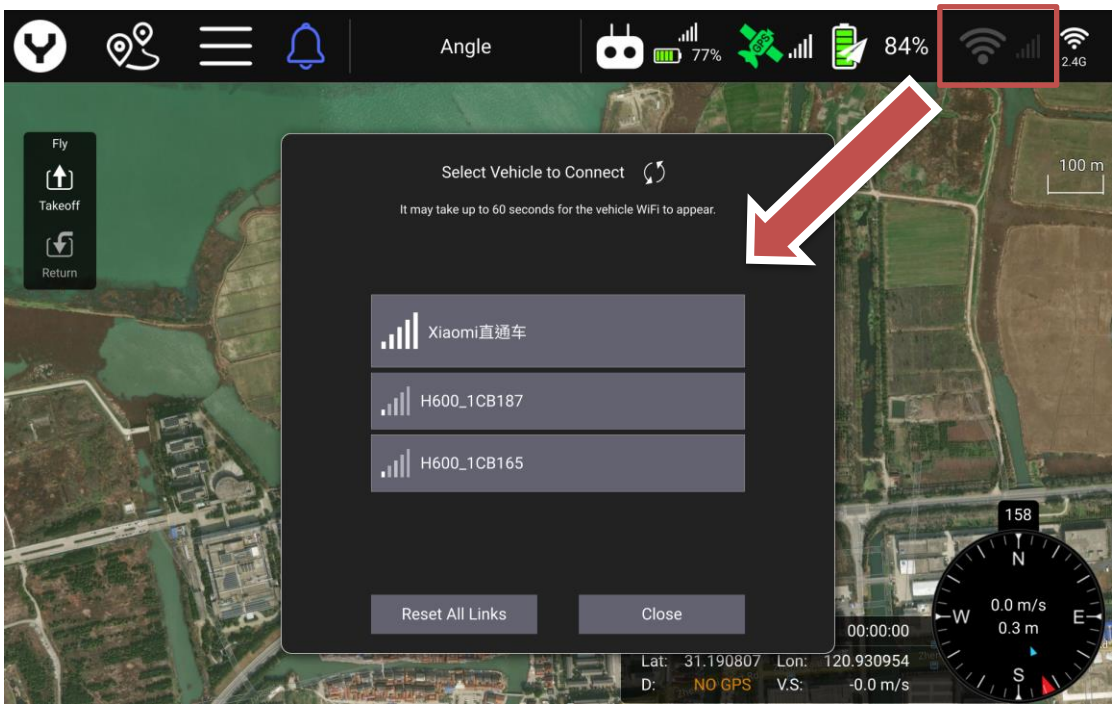
Switch to 5.8GHz Communicate Frequency

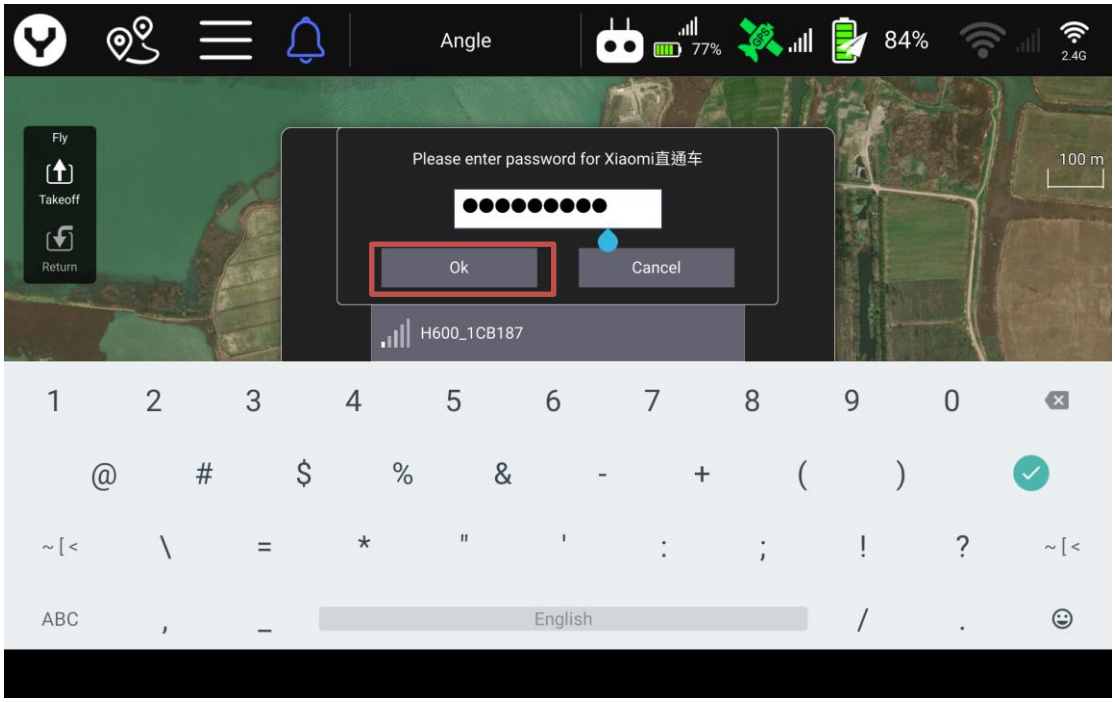
Keep the Artosyn is using the 2.4GHz frequency.



Connect the Internet via Wi-Fi

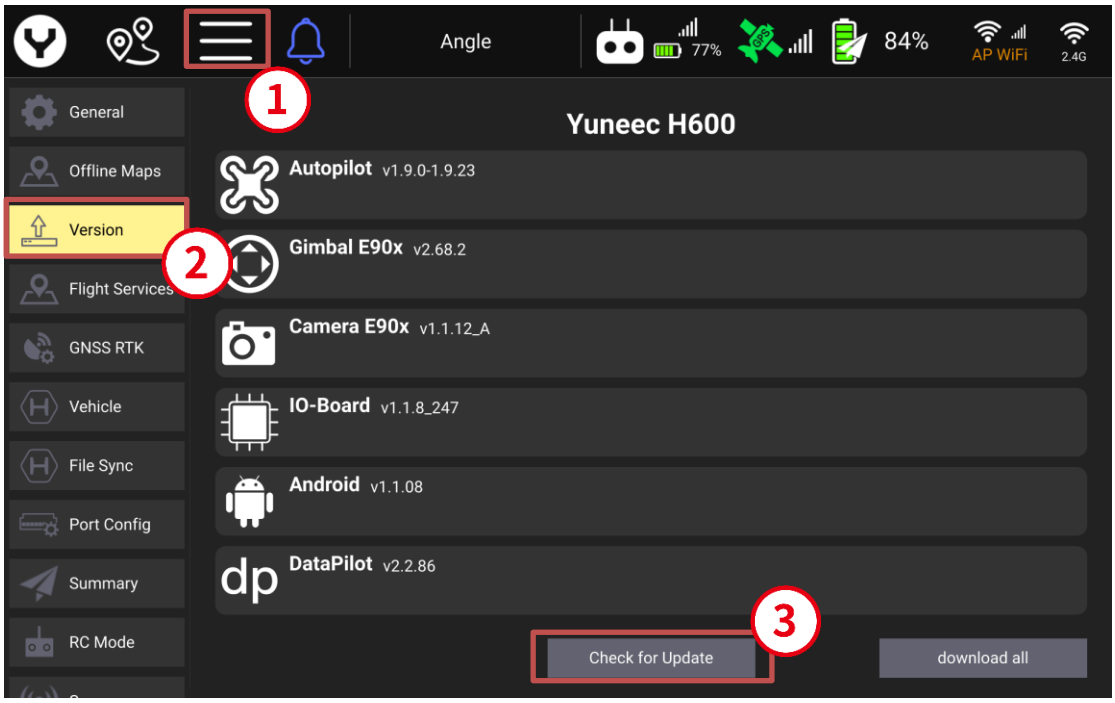
Tap the Wi-Fi Icon and select the hotspot then enter the passwords to connect.



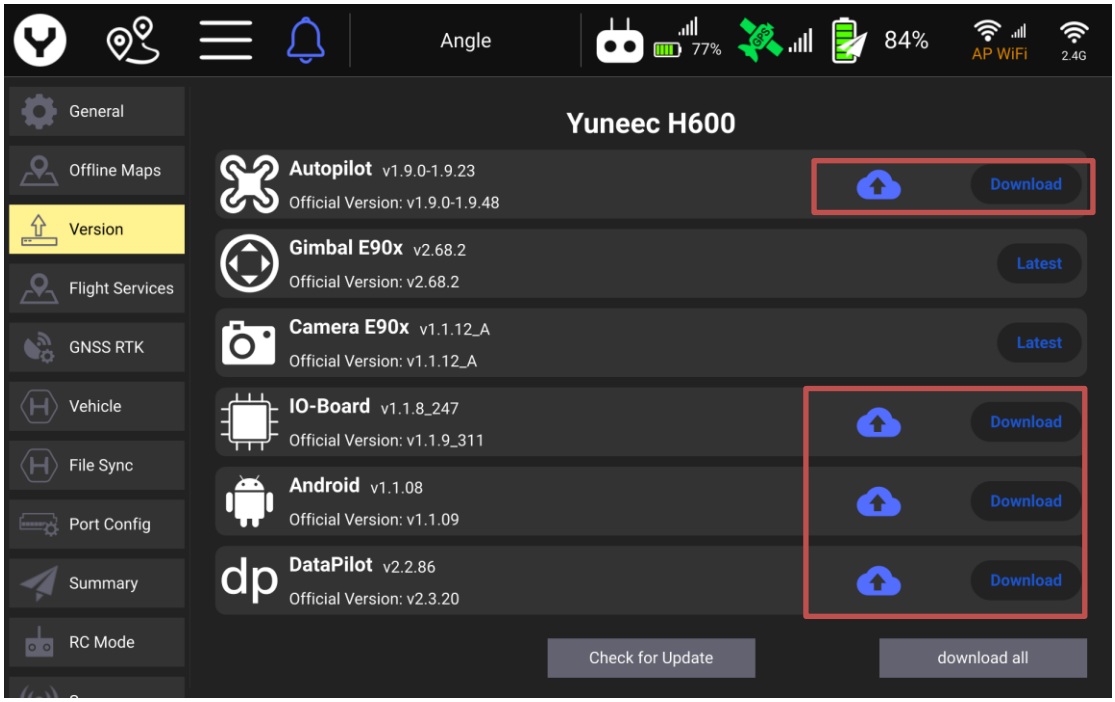


Update Checking

Tap the Settings Icon and enter the Version Menu then tap the "Check for Update" Button to check.

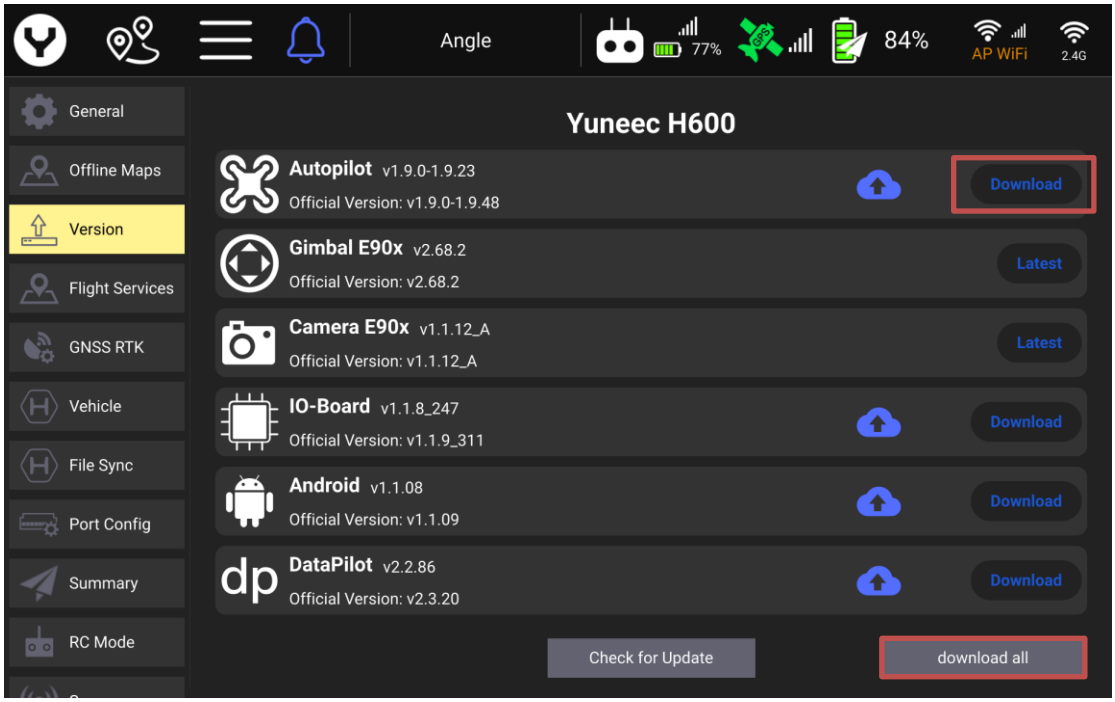


If there is any module version is not as the same as what uploaded in the YUNEEC OTA Server an Cloud Update Icon and a “Download” Button will appear beside.



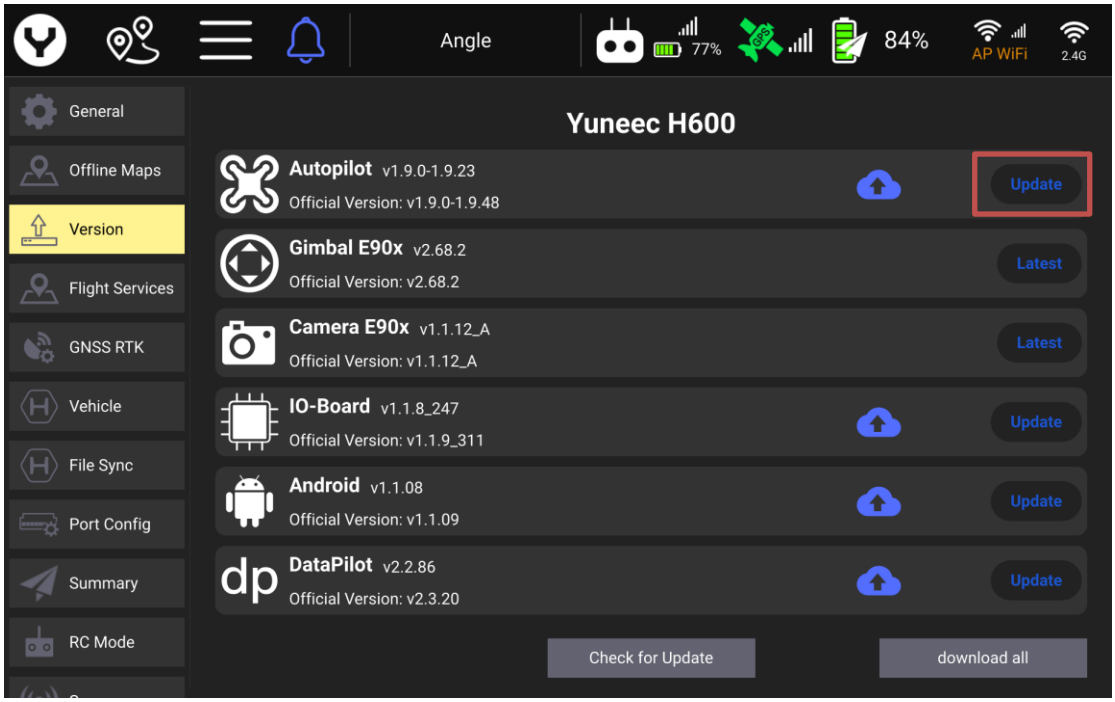
Firmware Download

The users can download the firmware one by one for each module or tap the “download all” Button to download all the firmware for all the modules.

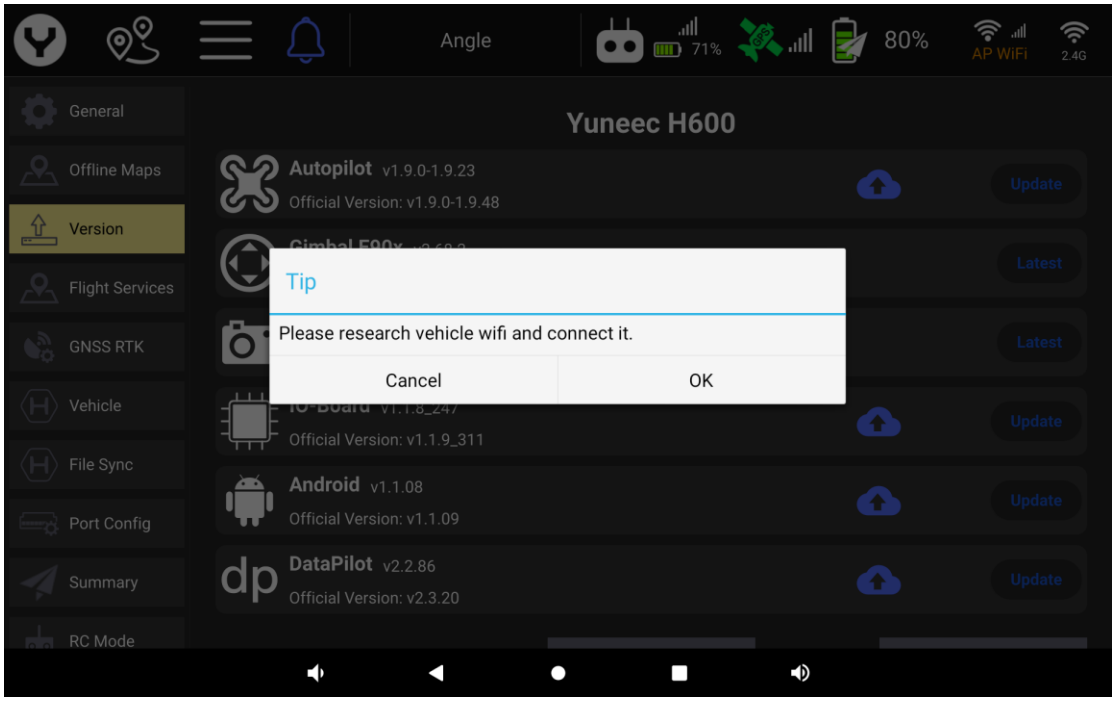


Firmware Update

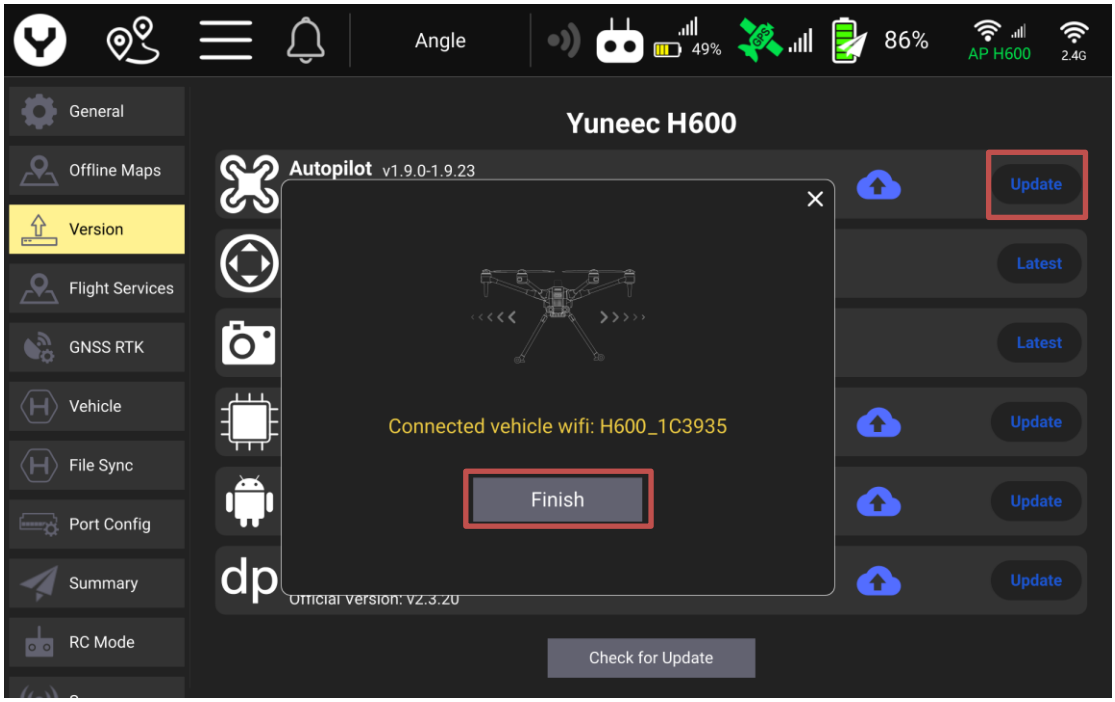
Once the download is finished the “Download” Button will be instead by a blue “Update” Button.



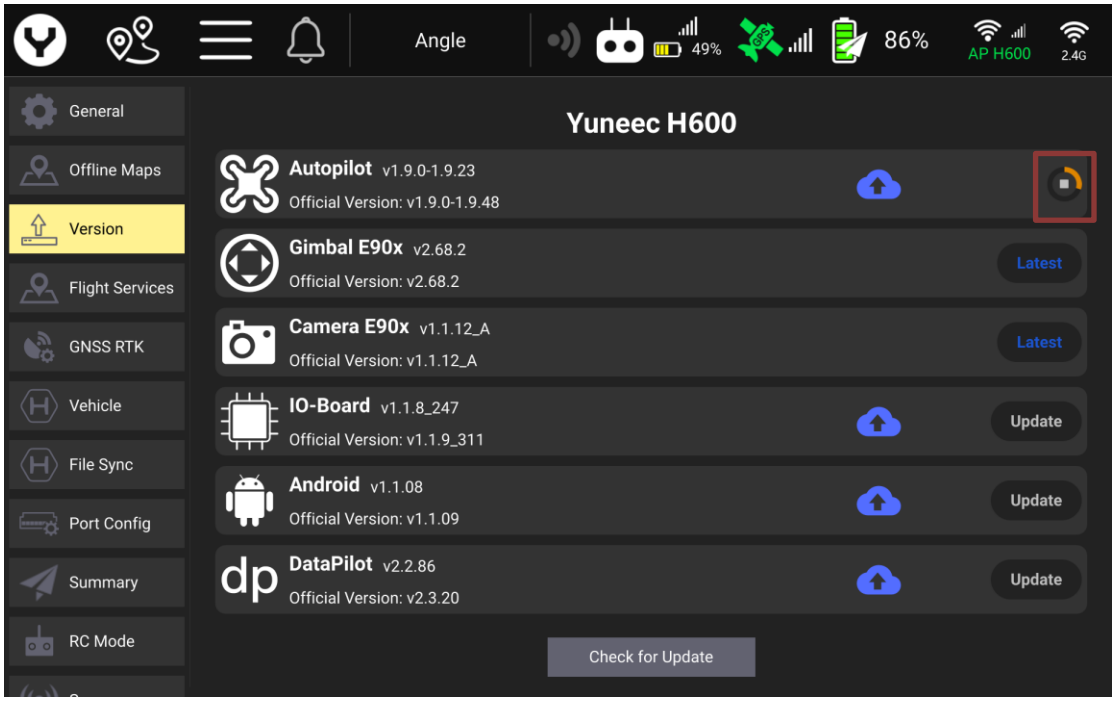
Tap the “Update” Button then tap the “OK” Button the transmitter will connect to the Wi-Fi module in the drone automatically.



Tap the “Finish” Button to finish the connection and a green “AP H600” text will display under the Wi-Fi Icon.



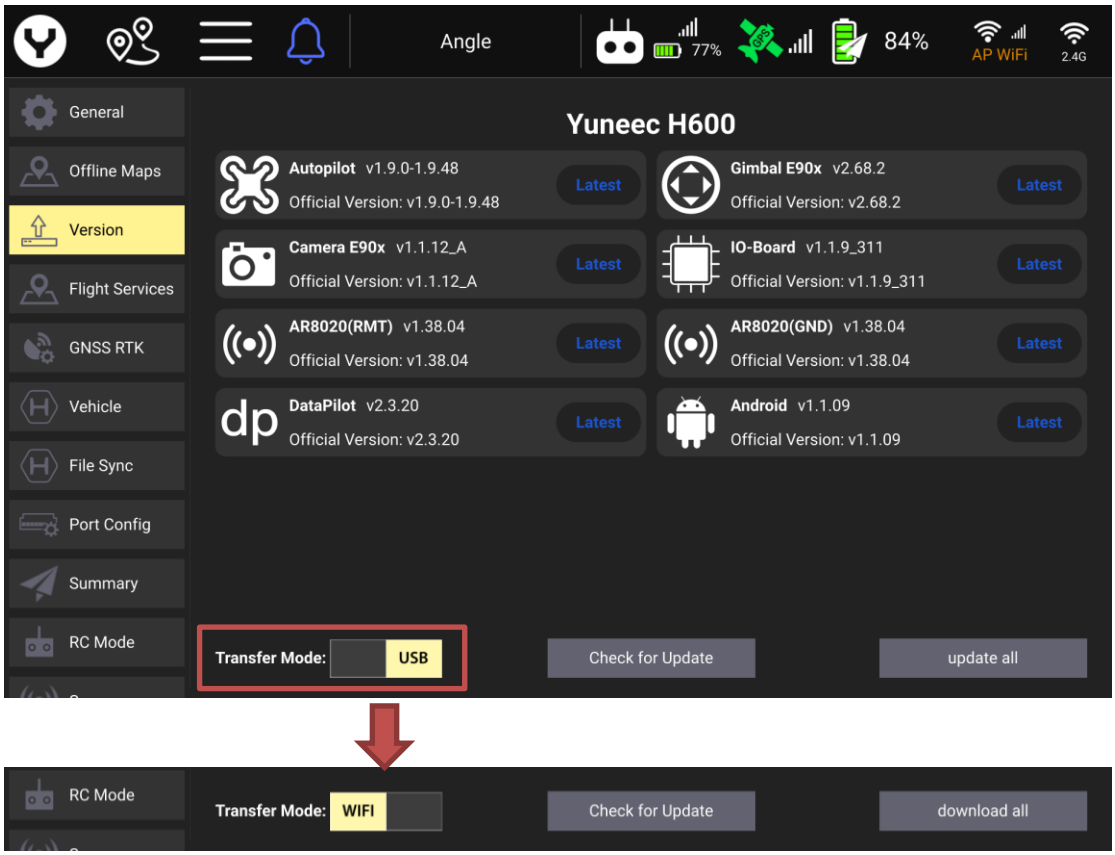
After the Wi-Fi is connected to the drone, tap the “Update” Button again the update will be started.



Notice: Please wait patiently for the progress bar to finish, otherwise incomplete firmware will cause the corresponding sub-module to fail to start. If this problem has occurred, please contact Yuneec authorized service center for repair.

Update all the modules one by one by tapping the “Update” Button behind each module. After the modules have been updated the “Latest” Icon will instead the “Update” Button.

Notice: The USB transfer mode is supported by the latest firmware version that means the operator can transfer the downloaded firmware to the drone via the USB cable to get a more stable data transfer quality. The USB transfer mode is the default mode in the latest version it also can be changed to Wi-Fi transfer mode by slide the switch to the left.



Transportation and Storage Requirements

General Precaution

Because the transport case carries flight batteries and precision equipment, the owner/operator must follow the transportation and storage requirements indicated in this manual.

The batteries should be securely packed and protected against short-circuits. Examine whether the package of the containers is in good condition and tighten closed before transport. Make sure in cargo conditions to secure the case without let them fall, drop, and/or break. Prevent collapse of cargo piles. Don't put the goods together with oxidizer and chief food chemicals. The transport vehicle and ship should be cleaned and sterilized before transport. During transport, the vehicle should prevent exposure, rain and high temperature. For stopovers, the vehicle should be away from fire and heat sources.

The Transportation and Storage Requirements List for All Units in the Drone System

1. Temperature Range: 0 to +45℃
2. Dry Environment: 60±15% RH
3. Stay away from strong magnetic objects to prevent compass module interference.
4. Avoid severe bumps, vibrations and collisions.
5. Altitude lower than 5000m to protect the barometer in the drone

Warning: Failed attempts to transport and store the drone according to the above precautions may result in damage to the gyroscope, accelerometer, barometer, interference with the compass or structural damage which may threaten flight safety.

Notice: After storage or transportation, make sure to check carefully according to the pre-flight checklist before takeoff.

Troubleshooting List

Yellow Message Warning

Text content	Conclusion or Solution
Not arming: Switch to a pilot flight mode first	Wait the drone get the GPS position locked.
ARMING DENIED: low battery	Change the full battery for the drone.
Stick not in the center	Release the hands from sticks, and check the sticks position.
ARMING DENIED: the battery lock is unstable	Check the battery position sensor and reinstall the battery.
ARMING DENIED: excessive battery consumption	Change the battery with longer remaining life.
Not arming: Preflight checks failed	1. More detailed reasons will be given below. Please check the sensor healthy and flight environment. 2. The drone is in the UGZ when the text "Inside UGZ" continuously announced.
On the edge of UGZ, min distance: XXX.X m	The drone is in the 1st or 2nd level buffer zone. This message will announced immediately after the drone touched the edge of the 1st level buffer zone.
Max A: [120.0m] Arrived, Please lower the height	The drone reached the height limitation set in the safety menu.
OBS ON	The Obstacle Avoidance was switched on
OBS OFF	The Obstacle Avoidance was switched off

Yellow Message Warning

Text content	Conclusion or Solution
Failsafe enabled: no RC	Failsafe behavior enabled due to the RC signal lost time longer than the setting value.
Communication Lost Warning: Connection to vehicle lost	The remote controller lost the signal feedback from the drone. Please check the antennas and enable the RTL mode to fly closer.
Low battery, return advised (1ST Level Low Battery Warning)	The remaining capacity reduced to 15%. Return the drone as soon as possible.
Critical battery, returning (2nd Level Low Battery Warning)	The remaining capacity reduced to 10%. The RTL enabled. Wait for the drone to land at the takeoff point.
Dangerous battery level, landing immediately (Forced Landing Warning)	The remaining capacity reduced to 5%. The Auto land enabled. Select a flat ground suitable for landing.
Flight time low! Activating RTL	The remaining flight time reduced to the time needed to return. The RTL active automatically.
Baro #0 fail: TIMEOUT!	Barometer broken in the main IMU module. Land as soon as possible if still can be controlled.
Gyro #0 fail: TIMEOUT!	Gyroscope broken in the main IMU module. Land as soon as possible if still can be controlled.
Accel #0 fail: TIMEOUT!	Accelerometer broken in the main IMU module. Land as soon as possible if still can be controlled.
Mag #0 fail: TIMEOUT!	Compass broken, communication to the Autopilot gets lost. Land as soon as possible if still can be controlled.
Failsafe enabled: no local position	GPS position lock lost when flying. The drone will be controlled by the IMU module, please: 1. Keep visual contact with the drone and manually control to keep the drone flying. 2. Control the drone fly away from the building. 3. Check if there are any obstacles blocking the drone from above such as trees, thick clouds, etc. 4. Fly the drone higher to avoid the GPS signal blocked. 5. Land as soon as possible.
Esc failure: limit horizontal speed 5m/s	1 of the 6 motors gets failure, Five-Rotor-Mode and low speed RTL mode enabled.
Esc failure, please land now	
Enabling Five-Rotor-Mode	

Yellow Message Warning

Text content	Conclusion or Solution
Geofence violation	The drone reached or exceeded the Geofence limitation. The Geofence Failsafe triggered.
Low battery: XX percent remaining	The remaining battery reduced to or has been lower than the setting value of the “Announce battery lower than” Item.

Boot up Issues

Phenomenon description	Conclusion or Solution
The charger cannot be powered on	Completely cut off the power supply, drain the remaining power in the capacitor, and try to restart the charger.
The battery cannot be detected by the charger after inserted	Plug out the battery and check the connect pins. Then reinsert the battery and test again. If the problem still exists Completely cut off the power supply, drain the remaining power in the capacitor, and try to restart the charger.
The drone cannot be powered on, the power LED won’t be lit	Check the battery remaining power and connection. If there is no problem with the power supply, it may be a failure with the power switching board on the battery.
No boot up sound after press and hold the power button on the drone	Check the battery remaining power and connection. If there is no problem with the power supply, it may be a failure with the Autopilot, ESC or motor.
No resistance when spin the motor by hands after powered on	ESC or motor failure.
Motor LED won’t be lit	Check the Autopilot boot up status by the boot up sound then Check the Motor LED setting.

Upgrade Issues

If there is any sub-module defected by the firmware upgrade process such as sudden power cut or progress bar blocked, please contact the Yuneec authorized service center for help.

Power off Issues

Plug out the battery directly, if the power off blocked. Then restart the device and check the corresponding module. Please contact the Yuneec authorized service center for help if necessary.

For the Transportation and Storage Requirements Violation

Experience	Solution
If the drone have experienced impacts, bumps and severe vibrations during transportation and storage.	1. Check the structural damage for the airframe, motor arms and landing gears. 2. Check if there is any damage and crack on the blades. 3. Check the antennas installed on the transmitter. 4. Check the battery deformation. Discard and replace it with a new one if necessary. 5. Spin the motors by hands to check. 6. Power on the transmitter and drone to check if there is any warning message popped up. 7. Check the accuracy of the Compass and Gyroscope dial.
Strong magnetic interference exists during drone transportation.	1. Check the accuracy of the Compass dial. 2. Recalibrate the Compass module.
Storing or transporting the drone outside the permitted temperature range.	1. Check all sensors working status and accuracy in the IMU module such as accelerometer, gyroscope and barometer, recalibrate if necessary. 2. Check the Compass working status and accuracy, recalibrate if necessary. 3. Battery check, discard and replace it with a new one if necessary.
Storing or transporting the drone higher the permitted maximum altitude.	Check the barometer.
Storing or transporting the drone higher the permitted relative humidity.	Open the top cover and check the rust condition for the PCB board and other metal parts such as motor shaft, bearings and screws.

Notice: If the failure still exists after the operator has tried the solutions list above to deal with the corresponding issue. Please contact the Yuneec authorized service center for help.

Maintenance

It is recommended to perform the following inspections and maintenance regularly (according to the flight cycles or HOBBS Meter time increments) to ensure flight safety. For the specific locations, please refer to the Overview chapter.

We recommend a tool kit consisting of:

Screwdrivers	#00 size Phillips
	#0 size Phillips
	1.5mm Hex
	2.0mm Hex
Clean	Microfiber Cleaning cloth
	Lens Cleaning Cloth
	Small Vacuum
	Small bristle brush
	Can of compressed air
For Machine Screws	Pre-applied thread sealant
Lubricating	Bottle of bearing lubricant: we recommend Tri-Flow w/needle applicator
Others	1. Small pair of Hemostats 2. Magnifying glass

Notice: If the drone is not maintained regularly, it may lead to risks such as propeller breakage, overheating, signal disconnection, etc. that endanger safety during use.

Notice: During maintenance, pay attention to sharp parts such as blade edges and tools to avoid scratching the skin. The operator can also wear gloves if necessary.

25 Flights Maintenance or per 25 hours increased in the HOBBS Meter

Drone

- ✓ Clean gimbal vibration dampers of dust/debris
- ✓ Check arm locks for positive operation
- ✓ Clean motors of debris, dust, using compressed air can. Manually spin to assure no grit is inside, and all props spin freely and identically
- ✓ Clean landing gear servers of debris, dust, check for leg tightness
- ✓ Verify all screws are secure. Hand tighten if necessary
- ✓ Wipe arms/legs of dust
- ✓ Calibrate the Compass
- ✓ Wipe TOF Height Sensor clean of dust and fingerprints
- ✓ Wipe Optical Flow Lens clean of dust and fingerprints
- ✓ Wipe Obstacle Avoidance Lens clean of dust and fingerprints

Transmitter

- ✓ Verify the antennas are secure. Hand tighten if necessary
- ✓ Check vents for debris/dust. Vacuum if necessary. Yuneec does not recommend blowing compressed air into these vents.
- ✓ Check the waterproof rubbers on the joysticks, Flight Mode Switch and 5D Button

Charger

- ✓ Clean air vents/fans using computer vacuum or hand blower (do not use compressed air)

100 Flights Maintenance or per 100 hours increased in the HOBBS Meter

Drone

- ✓ Inspect play of motors by lifting each motor and adding some pressure to the side if any motor is showing signs of play, replace
- ✓ Check the propellers for any cracking, stress marks, or pitting
- ✓ Check venting areas for debris/dust
- ✓ Check arm locking mechanism and adjust if necessary
- ✓ Brush, Blow, or vacuum dirt from landing gear servers, motors
- ✓ Check the damping ball installed in the payload bracket, replace them if necessary
- ✓ Check propeller locks for integrity, wear, and operation. If wear is noticed, replace the propeller lock
- ✓ Clean motors of debris, dust, manually spin to assure no grit, imbalanced grind, all props spin identically
- ✓ Clean landing gear servers of debris, dust, check for leg tightness
- ✓ Check landing rubber for wear and replace if necessary
- ✓ Check all screws and hand tighten if necessary
- ✓ Wipe TOF Height Sensor clean of dust and fingerprints
- ✓ Wipe Optical Flow Lens clean of dust and fingerprints
- ✓ Wipe Obstacle Avoidance Lens clean of dust and fingerprints
- ✓ Check all the waterproof rubbers and plugs and replace if necessary

Transmitter

- ✓ Remove battery and check connections for any grime
- ✓ Clean air vents/fans using computer vacuum or hand blower (do not use compressed air)
- ✓ Clean Joystick waterproof rubber with small brush
- ✓ Check stand/handle screws
- ✓ Check the rebound of the joysticks, knobs and buttons

Charger

- ✓ Clean the OLED screen
- ✓ Clean air vents/fans using computer vacuum or hand blower (do not use compressed air)
- ✓ Check the connector pins

ANNUAL FLIGHT MAINTENANCE:

Drone

- ✓ Update Firmware
- ✓ Open shell, generally clean dust, debris
- ✓ Perform all actions of 100 Flight maintenance recommendations

AND

- ✓ Check shell for cracks/breaks
- ✓ Check motherboard for cracks/breaks
- ✓ Inspect all legs and connectors for cracks and tight connection
- ✓ Check all connections for integrity
- ✓ Clear dust/debris from GPS module
- ✓ Check all solder joints for integrity
- ✓ Replace landing rubbers on legs
- ✓ Thread lock any metal to metal screw points
- ✓ Clean antennas of grime/dust/debris
- ✓ Replace arm locks and springs
- ✓ Check pins in the X-connector for integrity
- ✓ Inspect motor bearings for lubrication and wear
- ✓ Clean landing gear servers of debris, dust, check for leg tightness
- ✓ Check all moving parts for strength, integrity of function
- ✓ Remove and re-tighten all hex screws
- ✓ Remove and re-tighten all other fasteners
- ✓ Verify all sensors are optimized and functioning properly
- ✓ Calibrate Compass, Accelerometer (professionally, factory only), Gimbal (professionally, factory only)

Transmitter

- ✓ Update Firmware
- ✓ Update all software applications
- ✓ Remove battery
- ✓ Remove screws on back panel
- ✓ Clean air vents/fans using computer vacuum or hand blower (do not use compressed air)
- ✓ Check the rebound of the joysticks, knobs and buttons
- ✓ Check the joystick and knob potentiometers via the RC Monitor and replace if necessary
- ✓ Clear electronic components of dust/debris
- ✓ Check the battery performance
- ✓ Check all connectors for integrity
- ✓ Clean battery connector pins

Charger

- ✓ Clean the OLED screen
- ✓ Clean air vents/fans using computer vacuum or hand blower (do not use compressed air)
- ✓ Check the connector pins

RECOMENDED PART REPLACEMENT

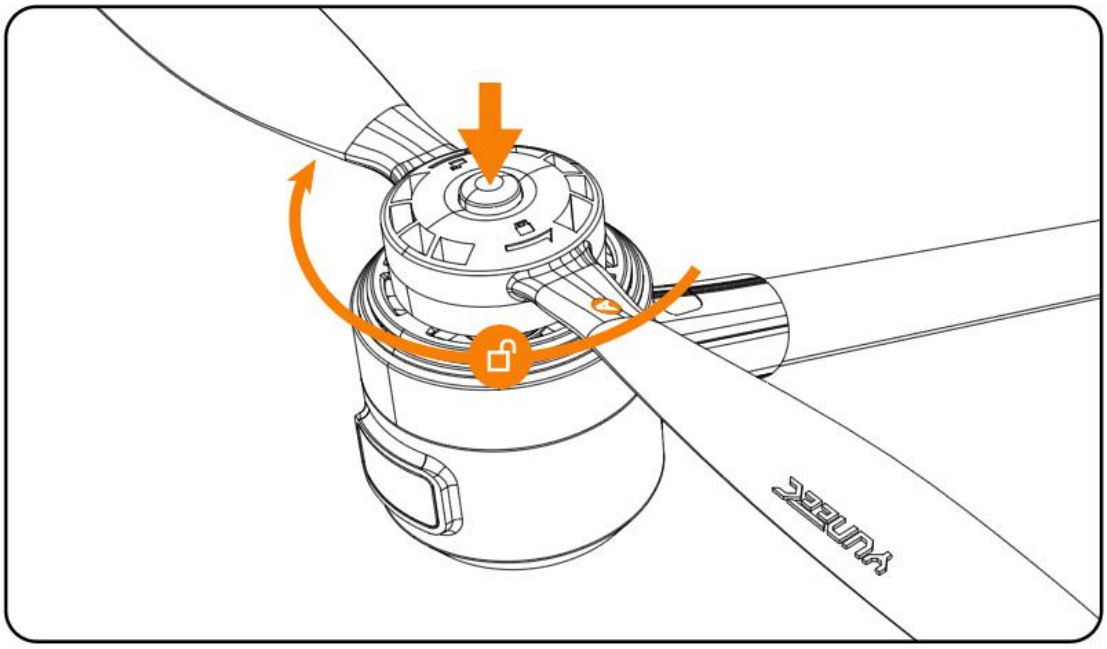
100 Flights/100 hours HOBBS Meter Increase	Propellers
	Landing Rubbers
200 Flights/200 hours HOBBS Meter Increase	Replace the flight batteries
	Replace battery connection board
	Replace transmitter battery
	Replace payload damping balls
400 Flights/400 hours HOBBS Meter Increase	Replace motors
	Replace drone cooling fan
	Replace T-One transmitter fan
	Replace the waterproof rubber parts if damage found

Maintenance Guide

Warning: Individual operator is only allowed to perform preliminary drone maintenance, repair or part replacement according to the methods in this guide. Other maintenance operations should be performed at Yuneec authorized service center. Otherwise, it may result in failure to assemble the parts back, reduced waterproof performance, incorrect sensor calibration, and other adverse consequences that threaten flight safety.

1. Propellers Replacement

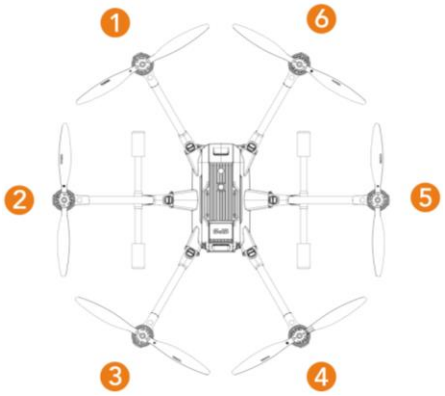
Press the release button and rotate the propellers to the fore edge to remove propellers.



Notice: There is an Unlock Icon marked on the center and the unlock direction is different for the A and B propeller. Please pay attention when removing.

There is the letter “A” or “B” labeled on the blade. When installing, the side marked with letters must facing up. And the operator must install the propeller on the corresponding motor.

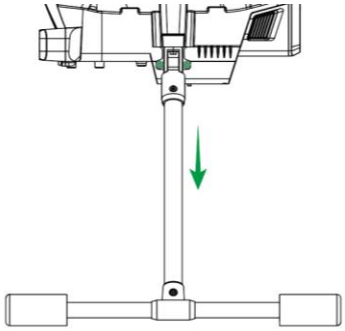
Propeller Installation Instructions



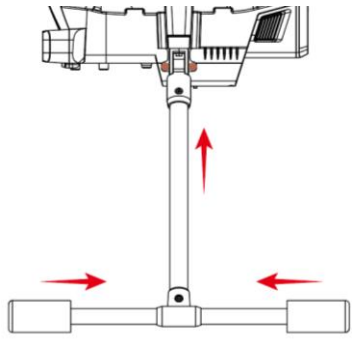
Propeller No.	Parts Info
1 & 3 & 5	Quick-released propeller A: H600
	Yuneec Item No.
2 & 4 & 6	Quick-released propeller B: H600
	Yuneec Item No.

Warning: Please install the propellers strictly according to the propeller installation instruction above, otherwise it may cause capsizing during takeoff.

2. Landing Gear Leg Replacement



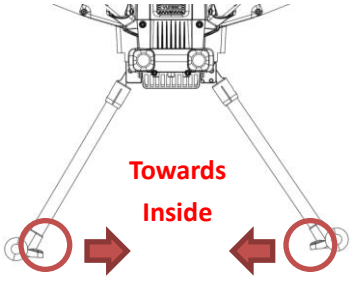
Unfasten the screws and then plug out the Landing Gear Leg from the airframe.



Insert the new landing gear leg tube into the airframe then secure the landing gear leg by fasten the screws.

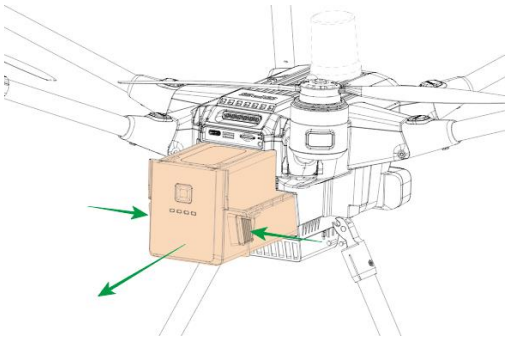
Then push the Foam Damping (Yuneec Item) on the horizontal carbon pole.

Notice: The left and right landing gear leg parts are the same (Yuneec Item).



Please pay attention to the installation direction when replacing the landing gear.

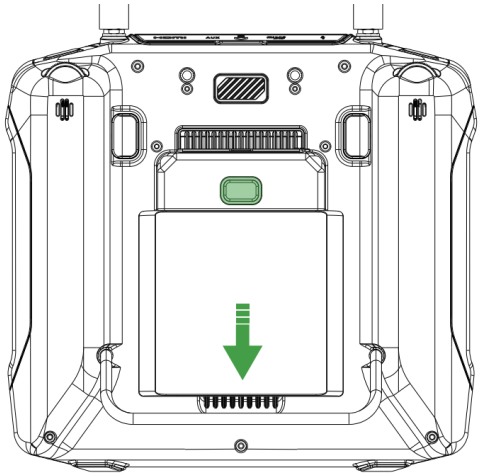
3. Drone Battery Replacement



To remove the battery please press and hold the release button from both sides, then pull the battery backward.

Then the operator can replace the new flight battery (Yuneec Item No.) for the drone and check the battery connector.

4. Transmitter Battery Replacement



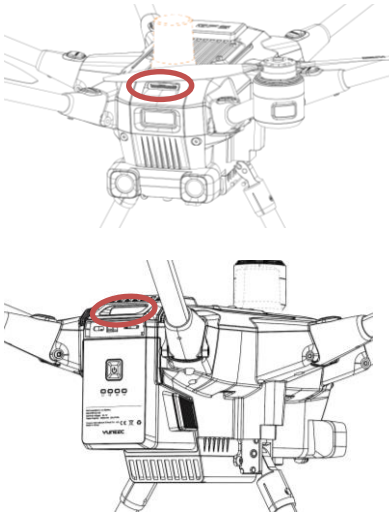
Press and hold the battery release button then slide the battery downwards to remove the battery.

Then the operator can replace the new T-One Transmitter battery (Yuneec Item No. YUNYP4A) and check the battery connector.

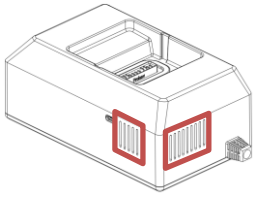
5. Dust Clean

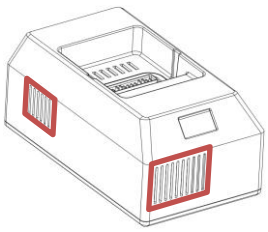
Warning: Please remove all the battery and pull the plug out of the socket for the charger. Ensure the power has already been cut off completely before start cleaning. Otherwise, the operator may face the risk of short circuit, equipment burnt or even electric shock and catch fire.

Heat dissipation vent and cooling fan position

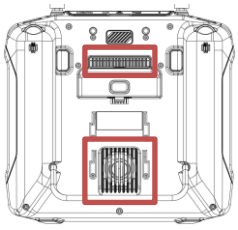


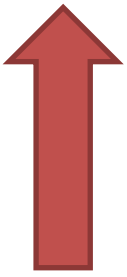
Drone





Charger





T-One Transmitter

20 Point Inspection after each maintenance finished

- Firmware Updated to current version
- Motor Shafts and Propellers Good
- Battery Slides in and makes good connection
- Landing gear in good condition
- Payload can be installed and in good condition
- Frame inspected for structural damage
- Full Transmitter System Check
- Battery Cells Balance normal
- LED Indicators checked
- Telemetry Data accurate and functioning
- Accelerometer Test Complete
- Compass Calibration Checked
- GPS Signal locked and acquired sufficient Satellites
- Stationary Hover Test Completed
- Range Tested and within specs
- Max flight height tested and within settings
- Tested Return Home and Auto Landing
- GPS Locked throughout flight
- Motors and Battery Tested for Normal Temperature
- Product Cleaned

Safeguards Compilation

The drone system has been pre-installed with the following safeguards to ensure the flight safety, and the manufacturer has verified safeguards measure before each version is released. Users can fly with confidence, and because of the safeguards testing contains dangerous behavior, operators should not verify it by themselves.

Safeguards List

1. RC Signal Lost
2. Low Battery RTL or Landing
3. 5-Rotors-Mode
4. Battery Lock Pre-Flight Check
5. GPS Positioning Pre-Flight Check
6. Sensor Test Pre-Flight Check

If any yellow warning message popped up due to the above safeguards, the operator can refer to the troubleshooting list to deal with.

Specification

T-One Transmitter

Weight	1.2kg
Size	210×195×75mm
Operating System	Android
Flight Control Software	DataPilot 2.0 App
Operating Frequency	2.400 - 2.4835 GHz 5.725 – 5.850 GHz
Transmission Protocol	2.4GHz & 5GHz
Transmission Power (EIRP)	2.4 GHz : CE<18dBm FCC <29dBm 5 GHz : CE<12dBm FCC <22dBm
Max Transmitting Distance (Unobstructed, free of interference)	CE: 8km FCC: 15km
Video Output Ports	HDMI
OSD Supported	Yes
Built-in Screen Size	7”
Video Link Resolution	720P
Operating Temperature	-20℃～45℃ -4° F～113° F
Battery	7.4V 10000mAh 74Wh Li-ion
USB Charger	Power Input: 100~240V AC 50/60Hz 1.3A Max Power: 45W

YC-200 Charger

Weight	724g
Size	150×87×65mm
Power Input	90～264V AC
Charging Voltage	26.4V DC
Charging Capability	1 Battery can be charged at a time
Screen	0.96 inches Dual Color OLED Screen
Max. Power	200W
Working Temperature	0～45℃
Storage Temperature	-20～80℃

Drone

Type	**H600**	**H600-RTK**
Weight	1600g (Without Payload & Battery)	1630g (Without Payload & Battery)
Size	Unfolded: 655×655×382mm Folded: 263×342×382mm	Unfolded: 655×655×382mm Folded: 263×342×382mm
Diagonal Size	610mm	610mm
Max Angular Velocity	120°/s	120°/s
Max Ascend Speed	5m/s	5m/s
Max Descent Speed	4m/s	4m/s
Max Horizontal Speed	10m/s Angle & RTL Mode 19m/s Sport Mode	10m/s Angle & RTL Mode 19m/s Sport Mode
Max Tolerable Wind Speed	13m/s	13m/s
Max Pitch and Roll Angles	35° Angle & RTL & Mission 24° Manual Mode	35° Angle & RTL & Mission 24° Manual Mode
Max Flight Height	500m	500m
Max Takeoff Sea Level	4000m	4000m
Max Flight Time	50min (Without Payload)	50min (Without Payload)
The propeller diameter	293mm	293mm
The Motor Type	BL3506	BL3506
Motor Diameter	42mm	42mm
The Motor KV Value	435	435
Propeller Max RPM	7500	7500
Battery	LiHv 6s 9800mAh	LiHv 6s 9800mAh
Charger	YC-200	YC-200
Recharge Time	1.5 hours	1.5 hours
Hovering Accuracy	Horizon:±1.5m;Vertical:±0.5m	Horizon:±1.5m;Vertical:±0.5m
Position System	GPS & GLONASS	GPS+GLONASS+BeiDou+Galileo
DGPS(RMS) Accuracy	**N/A**	Horizon:±0.4m;Vertical:±0.8m
RTK(RMS) Accuracy	**N/A**	1cm +1ppm(H); 1.5cm+1ppm(V)
Operating Temperature	0℃～40℃ 32° F～104° F	0℃～40℃ 32° F～104° F
Operating Humidity	45% ～ 85% RH	45% ～ 85% RH
Payload	X Connecter Series Gimbals	X Connecter Series Gimbals
Classification of the UA	Class 2	Class 2
DRI Protocol	Bluetooth Direct Remote ID Broadcast	Bluetooth Direct Remote ID Broadcast
Max Take off mass	3700g	3730g
Max Payload mass	1000g	1000g
Remote Controller	T-One Transmitter	T-One Transmitter
Sound Power Level	90dB	90dB

Battery

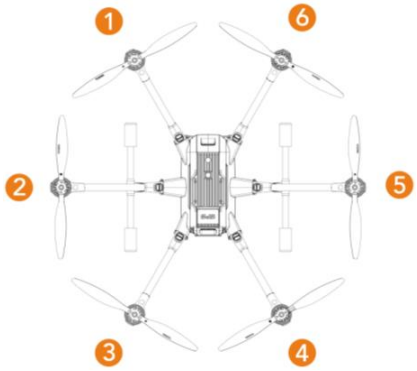
Dimensions	180 × 78 × 74 mm
Weight	1080g
Number of Cells	6
Maximum Instantaneous Discharge Current	98A
Maximum Continuous Discharge Current	40A
Standard Battery Voltage	23.1 V
Maximum Charge Rate	1C
Battery Type	Li-ion (3.85V per Cell)
Capacity	9800mAh
Energy	258.72Wh
Max Resistance of the Battery	25mΩ
Working Temperature	Charge: 0 ～ +45℃ Discharge: 0 ～ +60℃
Storage Temperature	0 ～ +45℃
The Impact of Temperature on Batteries	
Temperature	**Efficiency**
0 ～ +15℃	⩾80%
+15 ～ +25℃	⩾95%
+25 ～ +60℃	⩾90%

Motor LED Introduction

- Initialization Failed: All LEDS
- Binding Completed: All LEDS
- Compass Calibration: All LEDS
- Other Status all refer to the 2 rear LEDs (LED 3#/4#)

LED Position Introduction

Fore LEDs: 1# and 6#
Left LED: 2#
Right LED: 5#
Rear LEDs: 3# and 4#



STATUS	2 5	1 6	3 4
Initiate Compass Calibration	2 5 → 3 6 → 4 1 → 5 2 → 6 3 → 1 4		
Accelerometer/ Gyro Calibration Completed			
During Initialization			
Calibration Failed			
The Aircraft is in Manual Mode			
The Aircraft is in Angle Mode (without GPS lock)			
The Aircraft is in Angle Mode (with GPS lock)			
The Aircraft is in RTL Mode			
The Aircraft is in Task Mode			
First / Second Level Low Voltage Battery Warning			

Legend:

The LED is constantly on with the color in the icon.
The LED is flashing with the color in the icon.

Disclaimer and Statement

Disclaimer

Yuneec International (China) Co., Ltd shall not be held liable for any damage, injury or for use of the product in violation of legal regulations, especially in the following circumstances:

Damage and/or injury as well violation of legal regulations resulting from a failure to comply with the operating instructions or the instructions at www.yuneec.com, product information, user manual and other legally binding information;

Damage and/or injury as well violation of legal regulations, brought about by the influence of alcohol, drugs, medication or other narcotics which may impact the concentration of the user;

The same applies to illnesses affecting the concentration of the operator (dizziness, tiredness, nausea etc.) or other factors compromising mental and physical capabilities.

Intentionally caused damage, injury or violation of legal regulations;

Any request for compensation caused by an accident resulting from the use of the product;

Malfunction of the product caused by retrofitting or replacement with components which did not come from Yuneec;

Damage and/or injury caused by the use of replica parts (non-original parts);

Damage and/or injury as well as violation of legal regulations caused by incorrect operation or misjudgment;

Damage and/or injury caused by damaged spare parts or not using original Yuneec spare parts;

Damage and/or injury caused by unauthorized change settings and/or parameters;

Damage and/or injury caused by modifying and/or adding parts;

Damage and/or injury as well as violation of legal regulations caused by ignoring the low voltage battery warning;

Damage and/or injury caused by knowingly and negligibly flying with a damaged model or one which is unfit to fly, e.g., due to dirt, water penetration, coarse particles, oil or a model which has not been correctly or completely assembled or if the main components exhibit visible damage, defects or missing parts;

Damage and/or injury as well as violation of legal regulations caused by use of the product in a no-fly zone, e.g., next to an airfield, above a motorway or a natural conservation area;

Damage and/or injury as well as violation of legal regulations caused by operating the model in a magnetic field (e.g., high voltage lines, electricity/ transformer stations, radio towers, mobile phone masts etc.), a strong wireless signal environment, no-fly zones, poor visibility and in the event of vision impairments or other impacts on the pilot which are left unchecked etc.;

Damage and/or injury brought about through a violation of the legal regulations for operating the model, in unsuitable weather conditions, e.g., rain, wind, snow, hail, storms, hurricanes etc.;

Damage and/or injury as well as violation of legal regulations caused by force majeure, e.g., collision, fire, explosion, flooding, tsunami, landslide, avalanche, earthquake or other forces of nature;

Damage and/or injury as well as violation of legal regulations caused by the illegal or immoral use of the model, e.g., capturing videos or recording data which infringes upon/harms the privacy of other people;

Damage and/or injury as well as violation of legal regulations caused by incorrect use of the batteries, protection systems, chargers or aircraft;

Consequential damage caused by the incorrect operation of any kind of system components and accessory parts, especially memory cards, whereby image or video material from the camera can become defect;

Any non-compliance with legal obligations, personal injury, material damage and environmental damage caused by use and a failure to comply with the local laws and regulations;

Damage and/or injury as well as violation of legal regulations caused by hazardous use without sufficient practical experience;

Damage and/or injury as well as violation of legal regulations caused by flying in legally defined no-fly zones.

Further losses which do not fall within the scope of use are defined by Yuneec as improper.

This product is designed for both professional use and personal private use. The national and international laws and regulations in force at the time of taking off must be adhered to.

Battery Warnings and Usage Guidelines

WARNING: Lithium-ion (Li-ion) batteries are significantly more volatile than alkaline, NiCd or NiMH batteries. All instructions and warnings must be followed exactly to prevent property damage and/or serious injury as the mishandling of Li-ion batteries can result in fire. By handling, charging or using the included Li-ion battery you assume all risks associated with Li-ion batteries. If you do not agree with these conditions, please return the complete product in new, unused condition to the place of purchase immediately.

You must always charge the Li-ion battery in a safe, well-ventilated area away from flammable materials.

Never charge the Li-ion battery unattended at any time. When charging the battery, you must always remain in constant observation to monitor the charging process and react immediately to any potential problems that may occur.

After flying/discharging the Li-ion battery you must allow it to cool to ambient/room temperature before recharging.

To charge the Li-ion battery you must use only the included charger or a suitably compatible Li-ion battery charger. Failure to do so may result in a fire causing property damage and/or serious injury.

If at any time the Li-ion battery begins to balloon or swell, discontinue charging or discharging immediately.

Quickly and safely disconnect the battery, then place it in a safe, open area away from flammable materials to observe it for at least 15 minutes. Continuing to charge or discharge a battery that has begun to balloon or swell can result in a fire. A battery that has ballooned or swollen even a small amount must be removed from service completely.

Do not over-discharge the Li-ion battery. Discharging the battery too low can cause damage to the battery resulting in reduced power, flight duration or failure of the battery entirely. Li-ion cells should not be discharged to below 3.0V each under load.

Store the Li-ion battery at room temperature and in a dry area for best results.

When charging, transporting or temporarily storing the Li-ion battery the temperature range should be from approximately 32–113 ° F (0–45 ° C). Do not store the battery or aircraft in a hot garage, car or in direct sunlight. If stored in a hot garage or car the battery can be damaged or even catch fire.

Never leave batteries, chargers and power supplies unattended during use.
Never attempt to charge low voltage, ballooned/swollen, damaged or wet batteries.
Never allow children less than 14 years of age to charge batteries.
Never charge a battery if any of the wire leads have been damaged or shorted.
Never attempt to disassemble the battery, charger or power supply.
Never drop batteries, chargers or power supplies.
Always inspect the battery, charger and power supply before charging.
Always ensure correct polarity before connecting batteries, chargers and power supplies.
Always disconnect the battery after charging.
Always terminate all processes if the battery, charger or power supply malfunctions.

General Safety Precautions and Warnings

WARNING: Failure to use this product in the intended manner as described in the quick start guide and instruction manual can result in damage to the product, property and/or cause serious injury.

A Radio Controlled (RC) multirotor aircraft, APV platform, drone, etc., is not a toy! If misused it can cause serious bodily harm and damage to property.

WARNING: As the operator of this product, you are solely and wholly responsible for operating it in a manner that does not endanger yourself and others or result in damage to the product or the property of others.

Keep your hands, face and other parts of your body away from the spinning propellers/rotor blades and other moving parts at all times. Keep items that could impact or become entangled away from the propellers/rotor blades including debris, parts, tools, loose clothing, etc.

Always operate your aircraft in open areas that are free from people, vehicles and other obstructions.

Never fly near or above crowds, airports or buildings.

To ensure proper operation and safe flight performance never attempt to operate your aircraft nearby buildings or other obstructions that do not offer a clear view of the sky and can restrict GPS reception.

Do not attempt to operate your aircraft in areas with potential magnetic and/or radio interference including areas nearby broadcast towers, power transmission stations, high voltage power lines, etc.

Always keep a safe distance in all directions around your aircraft to avoid collisions and/or injury.

This aircraft is controlled by a radio signal subject to interference from many sources outside your control.

Interference can cause momentary loss of control.

To ensure proper and safe operation of the automatic landing function in Return Home Mode you must start the motors with the aircraft in an open space and achieve a proper GPS lock.

Do not attempt to operate your aircraft with any worn and/or damaged components, parts, etc. including, but not limited to, damaged propellers/rotor blades, old batteries, etc.

Never operate your aircraft in poor or severe weather conditions including heavy winds, precipitation, lightning, etc.

Always begin to operate your aircraft with a fully charged battery. Always land as soon as possible after the first level low voltage battery warning or land immediately after the second level low voltage battery warning.
Always operate your aircraft when the voltage of the battery in the transmitter/personal ground station is in a safe range (as indicated by the LED status indicator light of the transmitter/personal ground station).
Always keep the aircraft in a clear line of sight and under control, and keep the transmitter/personal ground station powered on while the aircraft is powered on.
Always move the throttle control stick down fully and turn off the power in the event the propellers/ rotor blades come into contact with any objects.
Always allow components and parts to cool after use before touching them and flying again.
Always remove batteries after use and store/transport them per the corresponding guidelines.
Avoid water exposure to all electronic components, parts, etc. not specifically designed and protected for use in water. Moisture causes damage to electronic components and parts.
Never place any portion of the aircraft or any related accessories, components or parts in your mouth as doing so could cause serious injury or even death.
Always keep chemicals, small parts and electronic components out of the reach of children.
To ensure safe fly, it is recommended to install the propeller protectors when operating the aircraft indoors or in nearby crowds.
Carefully follow the instructions and warnings included with this aircraft and any related accessories, components or parts (including, but not limited to, chargers, rechargeable batteries, etc.).

FCC Statement

This equipment has been tested and found to comply with the limits for 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 to 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.
This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:
This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

RF Exposure Warning

This equipment must be installed and operated in accordance with provided instructions and the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. End-users and installers must be provided with antenna installation instructions and transmitter operating conditions for satisfying RF exposure compliance.

IC Radiation Exposure Statement for Canada

This device complies with Industry Canada license-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. Leprésentappareilestconforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitationestautorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareildoit accepter tout brouillageradioélectriquesubi, mêmesi le brouillageest susceptible d'encompromettre le fonctionnement.

This equipment complies with IC RSS-102 radiation exposure limit set forth for an uncontrolled environment. Cetéquipementrespecte les limitesd'exposition aux rayonnements IC définies pour un environnement non contrôlé.

CE WARNING STATEMENT

This device meets the EU requirements on the limitation of the general public to electromagnetic fields by way of health protection.

EU Operation Frequency (The Maximum Transmitted Power)

T-One Transmitter:

2.4G: 2400-2483.5MHz (18dBm);

5G: 5725-5850MHz (12dBm);

2.4G Wi-Fi: 2400-2483.5MHz (18dBm);

5G Wi-Fi: 5725-5850MHz (12dBm);

H600/H600-RTK:

2.4G: 2400-2438.5MHz (18dBm);

5G: 5725-5850MHz (12dBm);

5G Wi-Fi: 5150-5250MHz (12dBm).

EU COMPLIANCE STATEMENT

Hereby, Yuneec International (China) Co., Ltd. declares that this device is in compliance with the essential requirements and other relevant provisions of the RED Directive 2014/53/EU.

The full text of the EU Declaration of Conformity is available at the following internet address：www.yuneec.com please visit the address above and enter into the corresponding product page.

H600/H600-RTK

Yuneec Support

www.yuneec.com

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