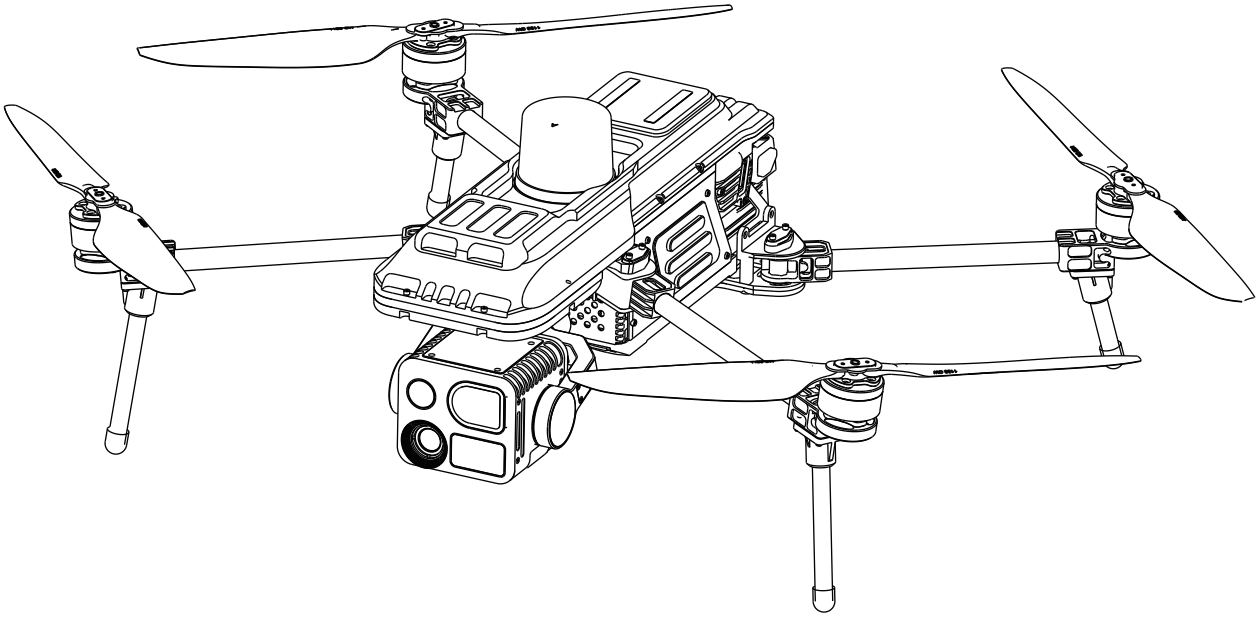
NOVA-4T

Quick Start Guide and Disclaimer

V1.0 202508



Disclaimer and Warning

Thank you for purchasing the NOVA-4T product from Shenzhen HEQ Intelligent Technology Co.,Ltd. Please read this document carefully before using the product to understand your legal rights and responsibilities, as well as the safety instructions. Failure to do so may result in property damage, safety incidents, or even personal injury. By using this product, you acknowledge that you have understood, recognized, and accepted all terms and conditions of this statement. The user assumes full responsibility for their actions and all consequences arising therefrom. You agree to use this product solely for legitimate purposes and accept these terms, as well as any related policies or guidelines established by Shenzhen HEQ Intelligent Technology Co., Ltd. Shenzhen Heqi Intelligent Technology Co., Ltd. ("HEQ Intelligent") reserves the right to interpret this document and all related materials. Updates may be made without prior notice. For the latest product information, please visit the official website at www.hequa-vtech.com.

Safety Operation Guidelines

Please read the user manual carefully to ensure proper use of the NOVA-4T. Before using this product, make sure you understand and comply with all applicable local laws and regulations. By using this product, you acknowledge that you have carefully reviewed the disclaimer and warnings and that you fully understand, acknowledge, and accept all terms and conditions herein. You assume full responsibility for the use of this product and any resulting consequences. You agree to use the product solely for legitimate purposes, consenting to these terms and any relevant regulations, policies, and guidelines established by HEQ Intelligent. HEQ Intelligent assumes no liability for damages, injuries, or legal responsibilities arising directly or indirectly from the use of this product. Users must adhere to all safety guidelines mentioned herein and beyond.

1.Never approach rotating propellers or motors.
2.If the aircraft experiences an accident (e.g., collision or overturn) or abnormal flight conditions, cease operation immediately. Do not use the aircraft again until it has been repaired by HEQ Intelligent's maintenance department.
3.During flight, if the GCS Fly app displays a low battery warning, follow the instructions to return to base and land promptly. Do not force continued flight.
4.After landing, wait for the motors to completely stop before turning off the aircraft and remote controller power. Avoid touching the motor surfaces to prevent burns.
5.Never modify the aircraft or its components yourself, as this may affect performance and cause accidents during flight.
6.Never power on the aircraft if it has been exposed to water, as this will cause permanent damage.
7.Keep the aircraft away from people or animals when upgrading firmware, calibrating systems, or adjusting parameters.

Drone Flight Safety Restrictions

To ensure public safety and maintain order in the airspace, please adhere strictly to the following flight restrictions:
1.Prohibited operation while impaired
Operating drones is strictly prohibited while under the influence of alcohol or drugs, or when experiencing dizziness, fatigue, or other conditions that may impair judgment or control.

2. Prohibited in unauthorized no-fly zones

Flying drones is strictly prohibited in unauthorized airspace over or near sensitive areas, such as airports, train stations, power plants, government buildings, and military facilities.

3. Prohibited from Carrying Hazardous or Prohibited Items

It is strictly forbidden to use drones to transport or drop any flammable, explosive, toxic, or other dangerous items that violate laws and regulations.

4. Prohibition on Exceeding Altitude Limits

Flight altitudes must adhere strictly to local laws, regulations, and restrictions imposed by the aviation authority. Exceeding permitted altitudes is strictly prohibited.

5. Prohibition on Violating Privacy

The illegal tracking, surveillance, or filming of private residences, vehicles, or activities is strictly prohibited. Respect and protect personal privacy rights at all times.

Contents

Product Overview

The NOVA-4T is a professional-grade quadcopter drone with a carbon fiber and composite plastic structure that provides high rigidity and a lightweight design. Its foldable design makes it portable and easy to deploy, ideal for tasks such as aerial photography and surveying. With robust power performance, the drone can withstand winds up to Force 6 and deliver extended endurance for prolonged operations. It is equipped with a high-precision multi-mode positioning system that maintains stable flight with a hovering accuracy of ±0.1 meters. It features a 48-megapixel wide-angle lens, a 48-megapixel telephoto lens, and an infrared thermal imager complemented by a laser rangefinder that measures distances from 5 to 1,200 meters, enabling nighttime reconnaissance and long-range monitoring. The standard screen-based remote controller offers a control range of 10–12.5 kilometers. This industry-grade drone is widely applicable in professional scenarios such as agriculture, security, and emergency rescue due to its outstanding performance and comprehensive functionality.

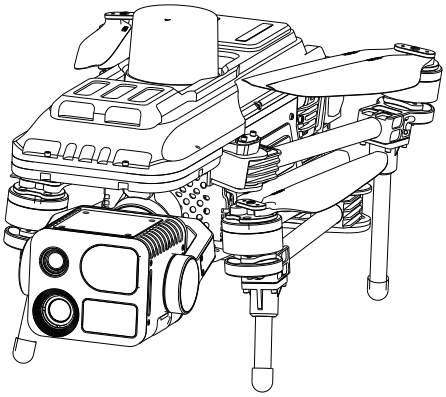
Parameter List

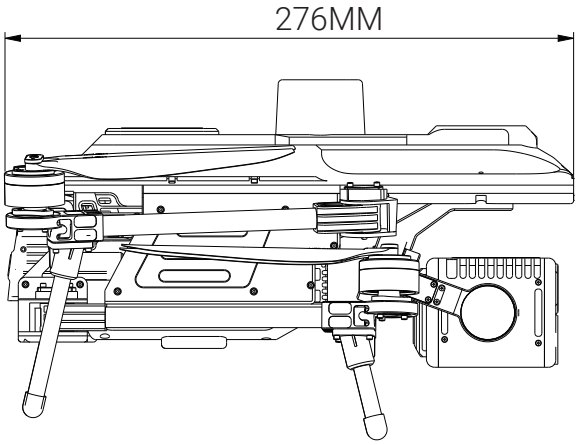
Drone Parameters

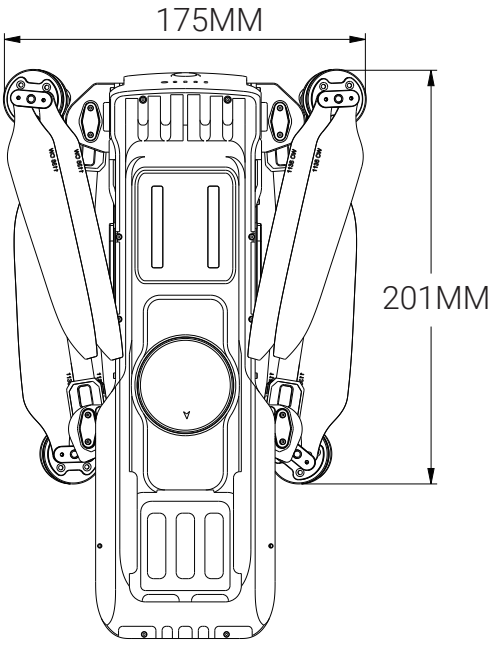
Type	Quadcopter	Maximum Flight Time	45min-55min
Wheelbase	480mm	Recommended Cruising Speed	8-15m/s
Takeoff Weight	1580g	Maximum Horizontal Flight Speed	25m/s
Maximum Load	300g	Maximum Cruising Range	25km
Recommended Load	300g	GNSS Positioning Type	GPS+Galileo+ BeiDou+GLONASS
Main Material	Carbon fiber + plastic	Maximum Take-Off Altitude	4000m
Control Radius	10-12.5km (without interference and obstruction)	Maximum Ascent Speed	6m/s
Mission Flight Altitude	Recommended less than 1000m	Maximum Descent Speed	6m/s
Wind Resistance	level 6	Unfolded Size	661X583X175mm
Hovering Time	35min-40min	Folding Method (with blades)	Collapsible
Positioning Method	GNSS+Optical Flow+TOF	Target Solution	Supported
Hovering Accuracy	Vertical: +/-0.1m (visual positioning), +/-1m (GNSS positioning) Horizontal: +/-0.3m (visual positioning), +/-1m (GNSS positioning)		
Communication Frequency Band	Standard 2.4G/5.8G (other frequency bands can be customized)		
Standard Configuration	1*Main frame, 1*K40T four-sensor AI gimbal camera, 1*remote control with screen, propeller*2 sets, 1*portable packaging box		

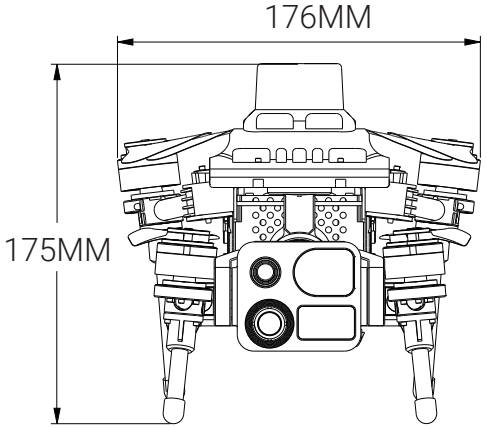
Product Dimensions (unit: mm)

Folded Dimensions

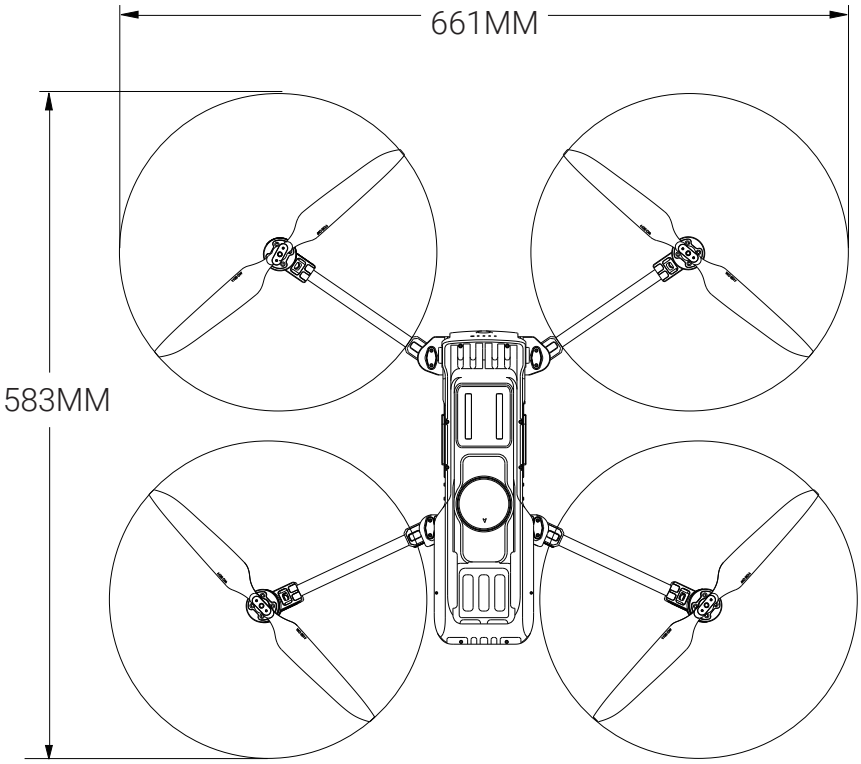


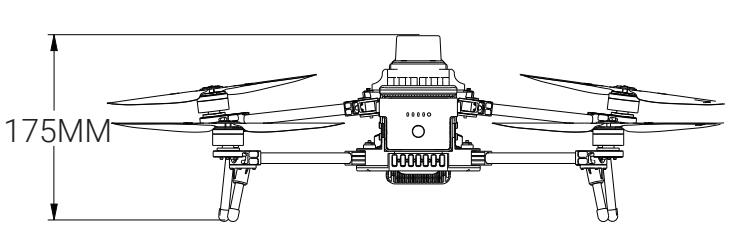


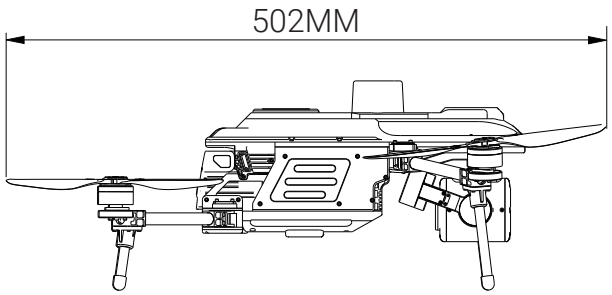




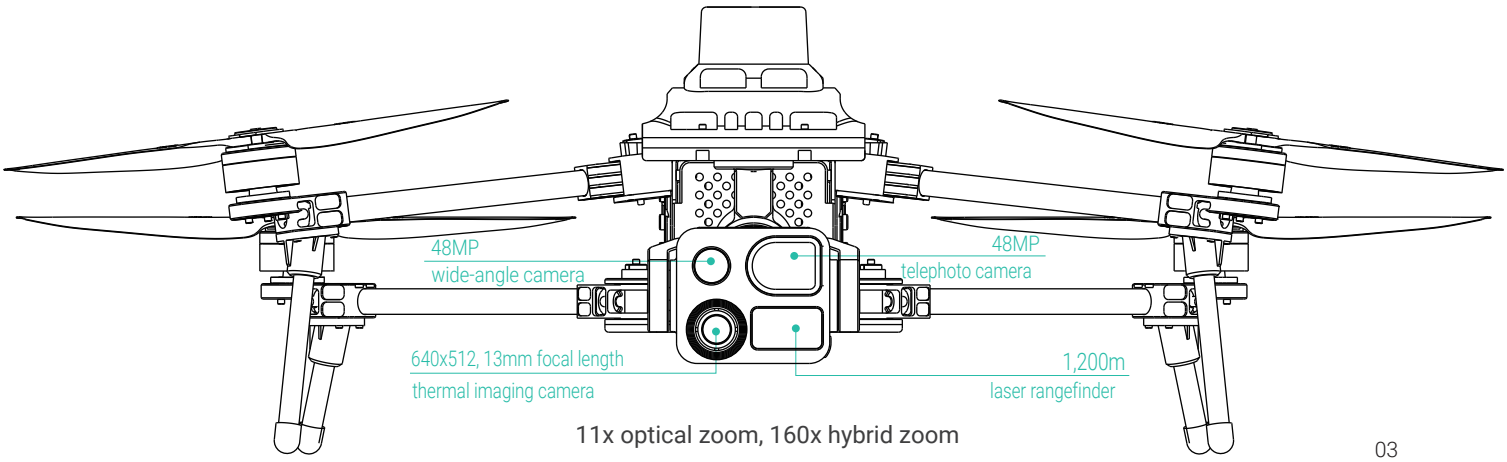
UNFOLDED DIMENSIONS







K40T GIMBAL



11x optical zoom, 160x hybrid zoom

PARAMETER LIST

Gimbal Parameters

Axes	Mechanical three-axis
Control Angle Range	Pitch: -135° to 45° Roll: -45° to 45° Yaw: -135° to 135°
Maximum Control Speed	180°/S
Angle Jitter	±0.005°
Dimensions	114x84x95mm
Interface	Ethernet port/serial port/sbus

Infrared Camera Parameters

Detector Type	Vanadium Oxide Uncooled Infrared Focal Plane Detector
Resolution	640x512 13mm focal length
Pixel Pitch	12μm
Frame Rate	50Hz / 25Hz
Response Band	8~14μm

Wide Angle Camera

Sensor size	1/2 inch
Effective Pixels	48 million
FOV	ME FOV:85.4° DFOV:84°±2°
Wide-angle Focal Length	4.49mm
Wide-angle Aperture	F2.8

Zoom Camera

Sensor size	1/2 inch
Effective Pixels	48 million
Variable aperture	F3.7 ~F4.6
Effective Focal Length	15.2~50mm

Laser Rangefinder

Measurement range	5-1200 m
Measurement accuracy	±1 m

REMOTE CONTROL PARAMETERS

Image Transmission

Antenna	Dual Antenna
Maximum Effective Signal Range	15km
Operating Frequency	7+7（2.4G+5.8G）
Equivalent Isotropically Radiated Power (EIRP)	15dBm~29dBm

Battery

Battery Capacity	5000mAh
Charging Method	PD 30W Fast Charging
Charging Time	1.5 hours (powered off)
Operating Time	4.5 hours (power adaptive mode, room temperature 25℃)

Bluetooth

Bluetooth Protocol	5.0
Operating Frequency	2.4G
Bluetooth EIRP	8dBm（max）

WIFI

WiFi Protocol	IEEE 802.11a/b/g/n/ac
Wi-Fi EIRP	17dBm (max)
Operating Frequency	2.4G/5.8G

Display

Resolution	1920x1080	**Frame Rate**	60FPS
Size	5.5 inches	**Max Brightness**	1000nit
Touch	5-point multi-touch		

General Parameters

System	Android 11
HDMI	1080p
Protection level	IP53
Weight	700g
Hardware Interfaces	Charging: Type-C, External Storage: TF card slot
Operating Temperature	-10℃~45℃
Memory	4GB RAM, 32GB internal storage (expandable via Micro SD card)
Dimensions	Length 175mm*Width 137mm*Thickness 47.4mm (without joystick installed) Length 175mm*Width 137mm*Thickness 64mm (with joystick installed)

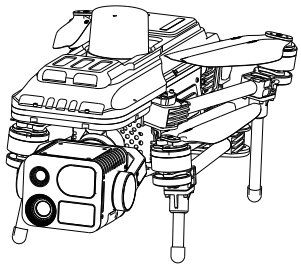
RECEIVER PARAMETERS

Hardware Interface	SBus:3-Pin Data Transmission (connect flight control):Uart4-Pin Network Interface:4-Pin USB Interface:4-Pin		
Remote Control Signal	16 channels SBus	**Weight (without antenna)**	50 g
Antenna Gain	3 dBi	**Working Voltage**	12V-27V
Working Environment Temperature	-10℃ ~ 45℃	**Size (without antenna)**	57 x 47 x 18.1(mm)

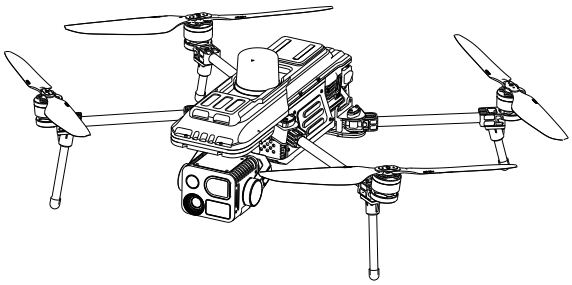
GETTING STARTED

The NOVA-4T folds by default. Follow these steps to prepare the drone and remote controller.

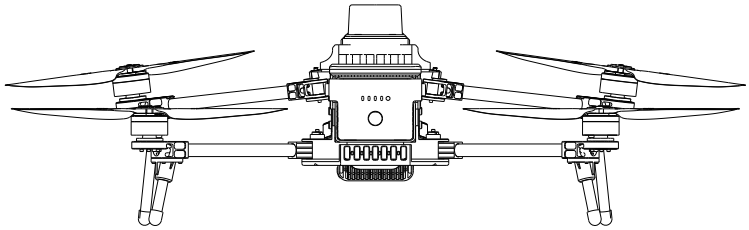
1. Unfold the arms



2. Unfold the propellers



3. Install the smart battery. Ensure that it is properly seated, then briefly press the battery power button once. Next, hold it down to power on the drone.



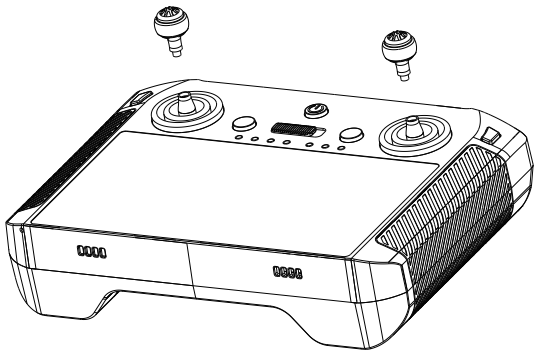
⚠ Warning

1. Always deploy the front arms before the rear arms.
2. Ensure that all arms and propellers are fully extended before powering on the drone, in order to avoid interfering with the gimbal self-check.
3. Verify that the smart battery is securely installed before powering on.

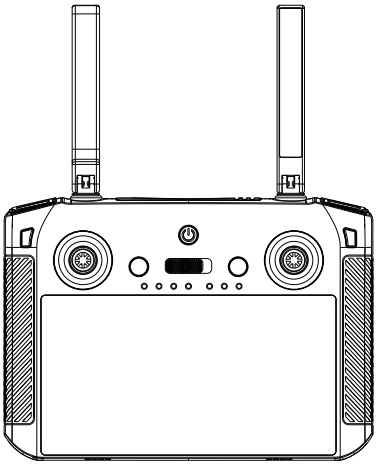
Prepare the Remote Control

Follow these steps to prepare the SCEPTER15 remote control.

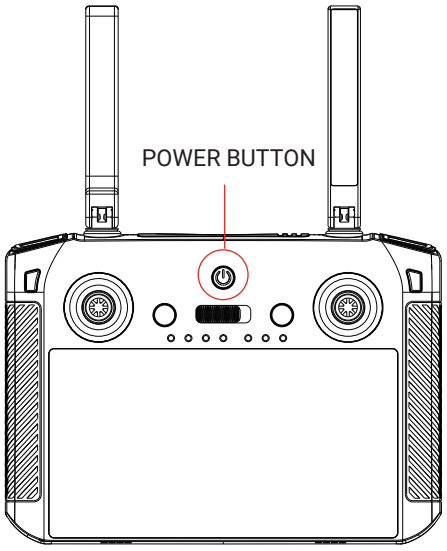
1. Remove the joystick from its slot and attach it to the remote control.



2. Extend the antenna.



3. Briefly press the power button, then hold it down to turn on the remote control.

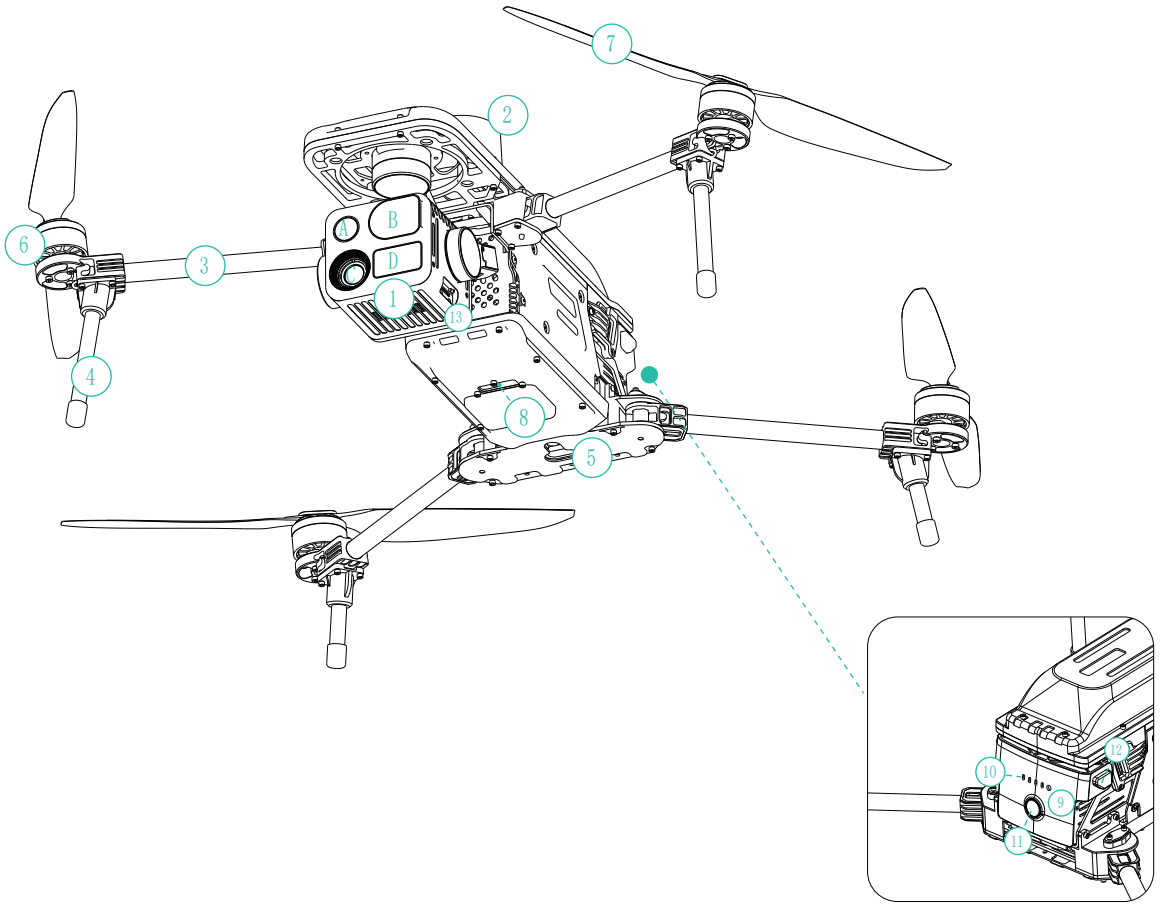


Warning

Make sure the joystick is securely fastened before takeoff.

Component Names

NOVA 4T



1.K40T Gimbal

A. Wide-Angle Camera

B. Telephoto Camera

C. Thermal Imaging Camera

D. Laser Rangefinder

2.GPS

3. Arm

4. Tripod with integrated antenna

5. Optical Flow Module

6. Motor

7. Propeller

8. Flight controller Type-C port

9. Intelligent Battery

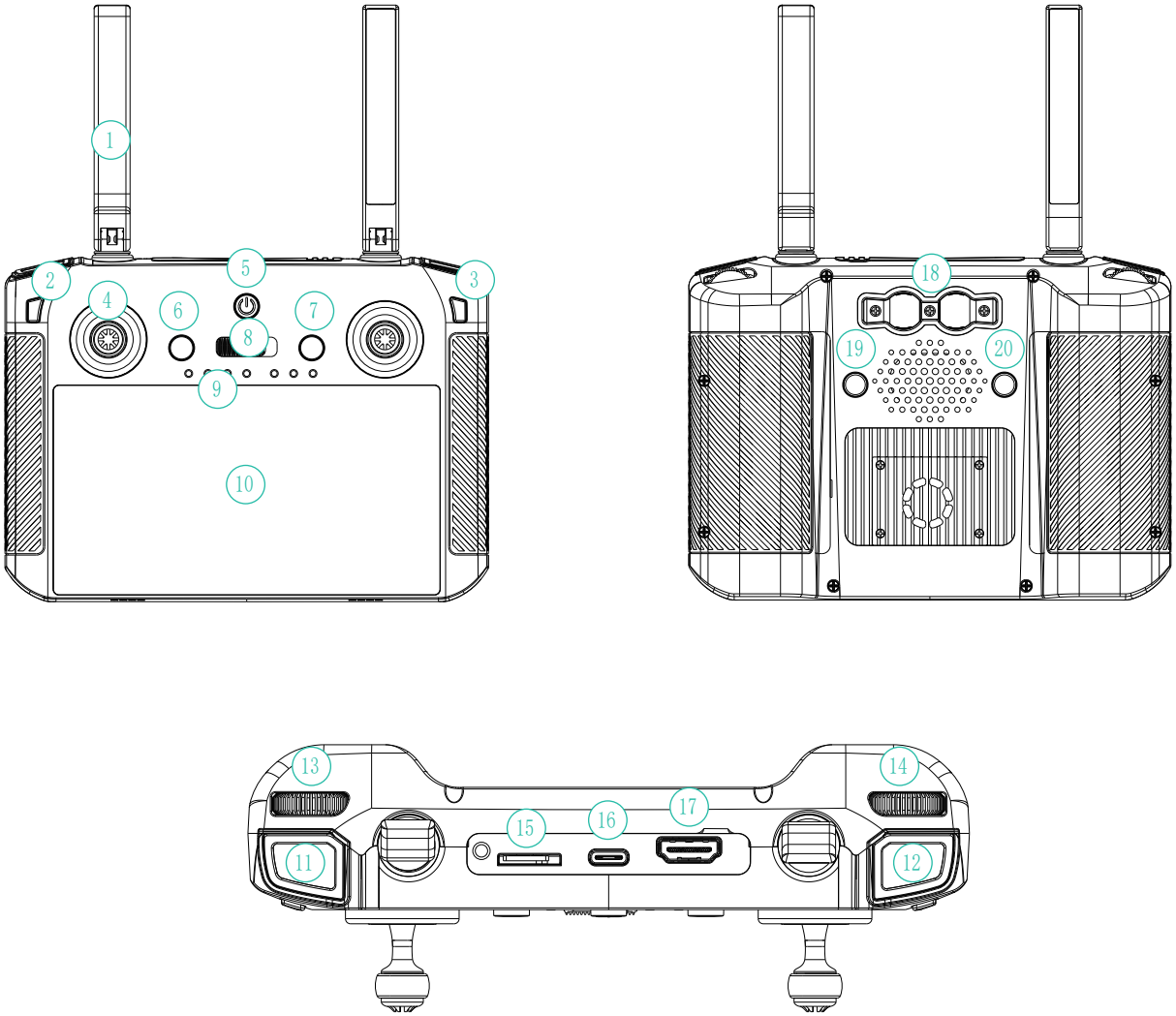
10. Battery indicator light

11. Battery Switch

12. Battery Latch

13. Gimbal SD card slot

SCEPTER15 Remote Controller

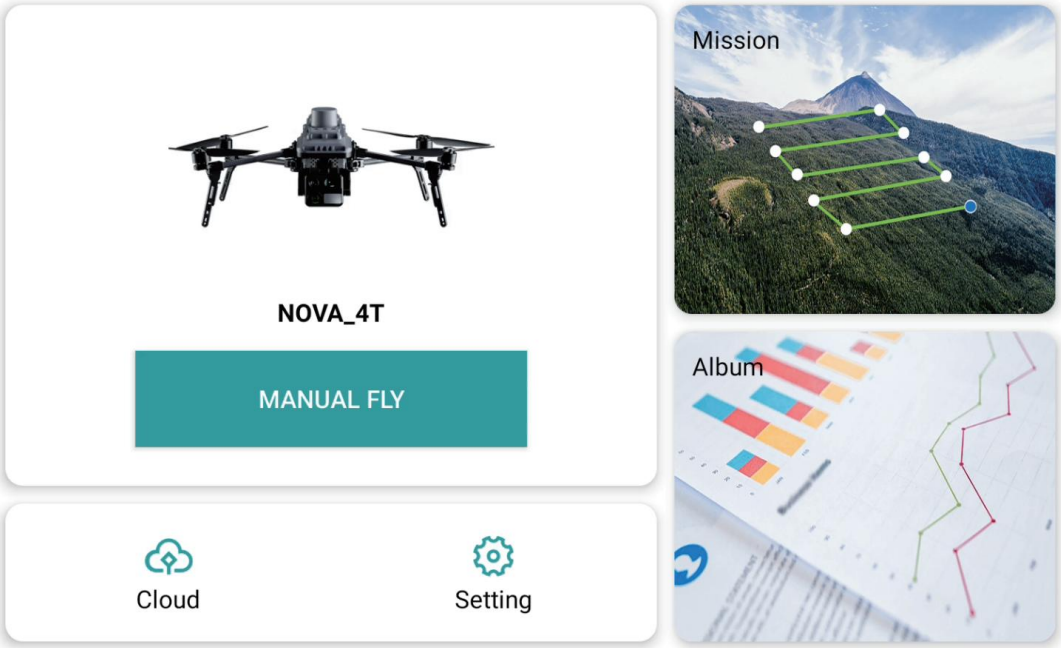


1. Antenna
2. Streaming button
3. Gimbal Center Return
4. Joystick
5. Power button
6. C1 Custom Button
7. One-Touch Return-to-Home Button
8. Flight Mode Switch Button
9. Battery Indicator
10. Touchscreen display
11. Photo Button
12. Video Recording Button (Start/Stop Recording)
13. Gimbal Pitch Wheel
14. Gimbal Yaw Wheel
15. SD card slot
16. Type-C Charging Port
17. HDMI port
18. Joystick Storage Slot
19. R3 Custom Button
20. L3 Custom Button

GCS FLY APP

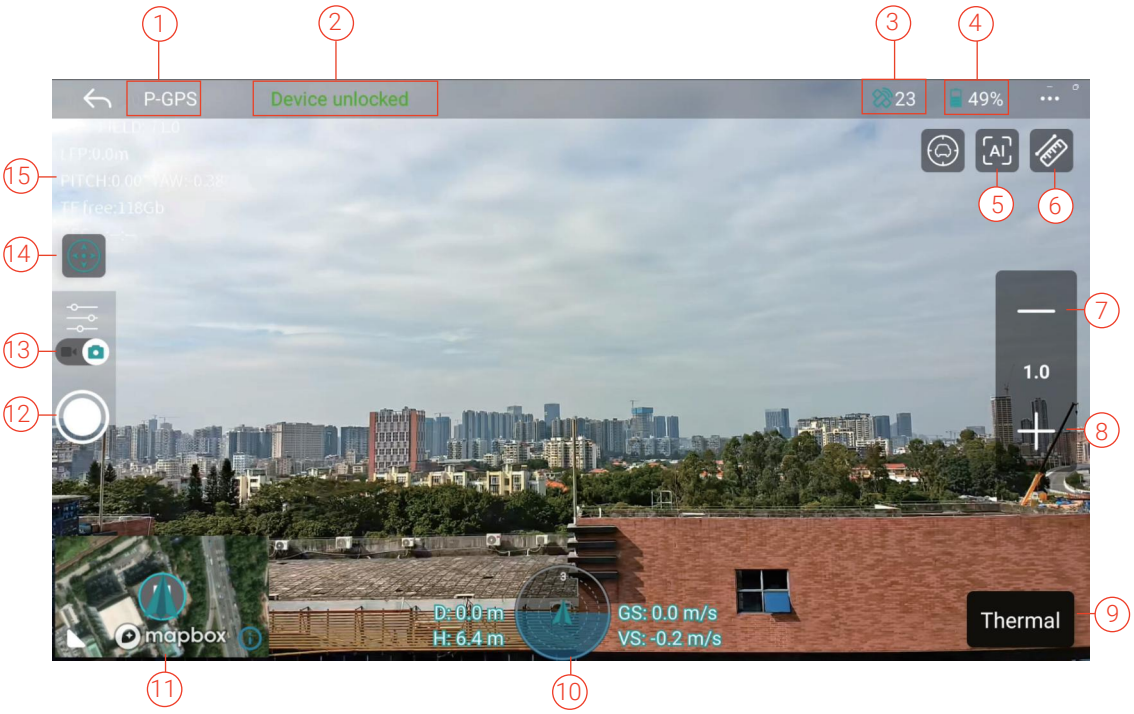
Home

Launch the GCS Fly app to access the home screen.

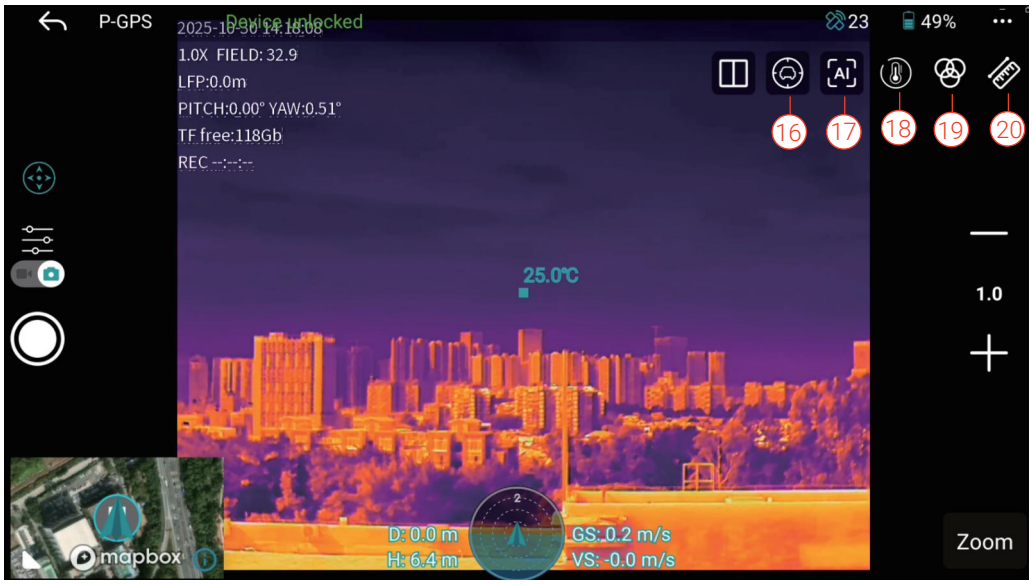


- Settings
  Map switching, language settings, and connection settings.
  Flight Tasks
- Waypoint editing and uploading, executing flight tasks.
  Gallery
- Access the K40T gallery.

Camera Interface



1. Aircraft Gear Position
2. Aircraft status bar
3. GPS satellite count
4. Aircraft battery level
5. Gimbal tracking
6. Laser Rangefinder
7. Zoom Out
8. Zoom in
9. IR Switch
10. Aircraft Attitude Ball
11. Map
12. Photo/video capture
13. Switch to Photo/Video Capture
14. Gimbal One-Touch Center/Down Key
15. Gimbal OSD target resolution



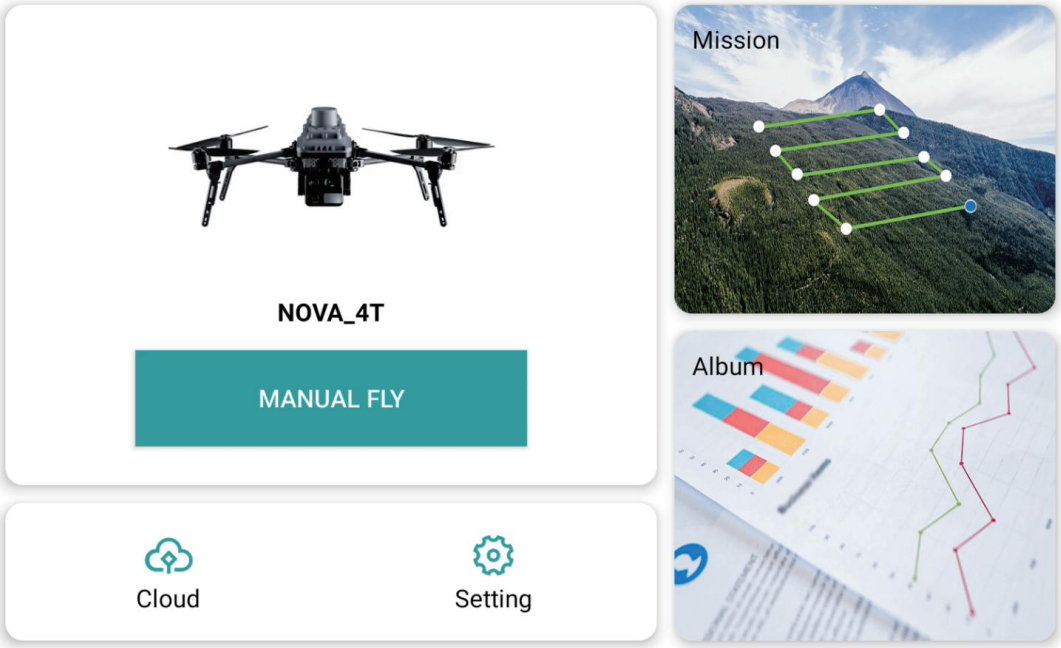
16.Split-Screen Button
17. Tracking Button
18. Temperature Measurement Button
19. Thermal imaging palette switch
20. Settings Panel

Pre-Flight Check

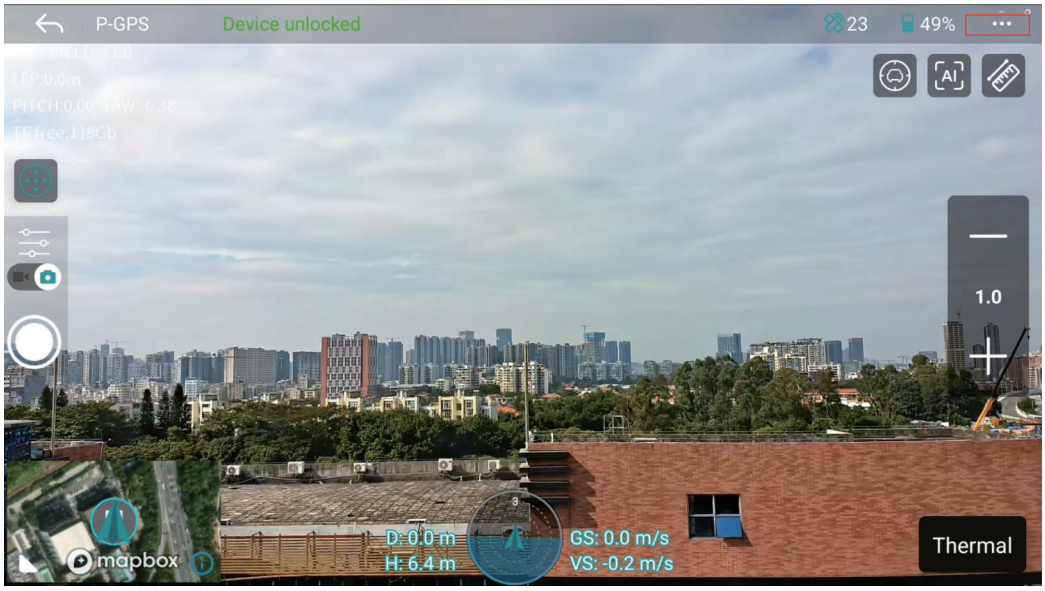
1. Ensure that the remote controller and the drone's intelligent battery have sufficient power.
2. Verify that the front and rear arms are fully extended.
3. Confirm that the propellers are fully deployed.
4. After powering on, listen for the motor self-test sound.
5. After powering on, check that the gimbal camera is functioning normally. (Gimbal camera startup time: 90 seconds.)
6. Verify that the GCS Fly app is operating normally.
7. Ensure the drone's intelligent battery is securely installed with the latches fully engaged.

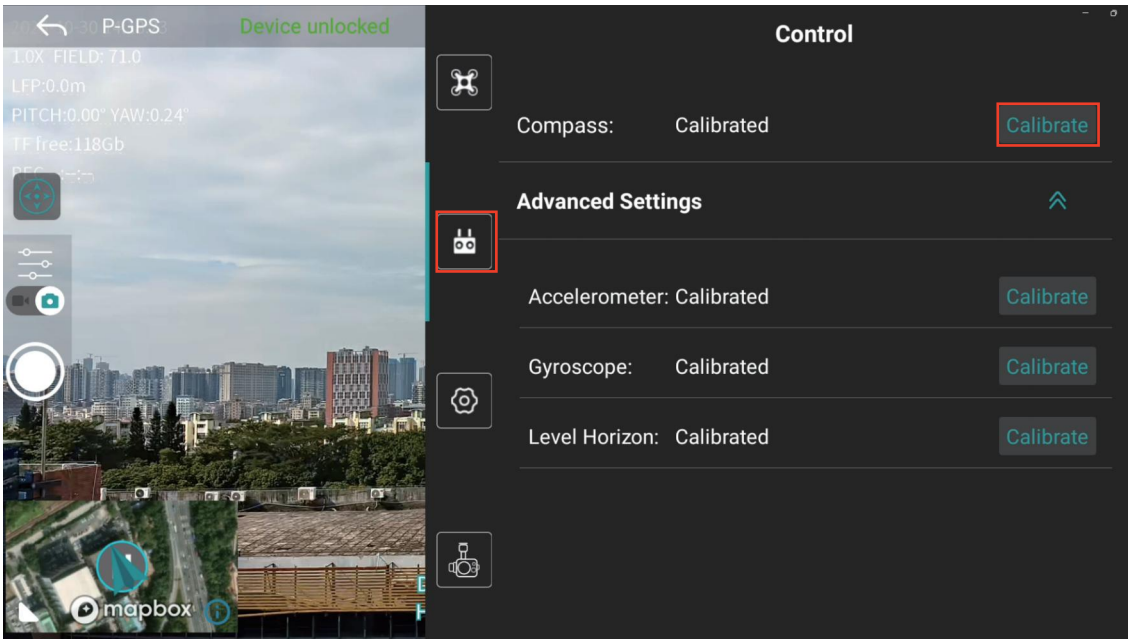
Calibrate the Magnetic Compass

Launch the GCS Fly app and navigate to the Manual Flight interface.



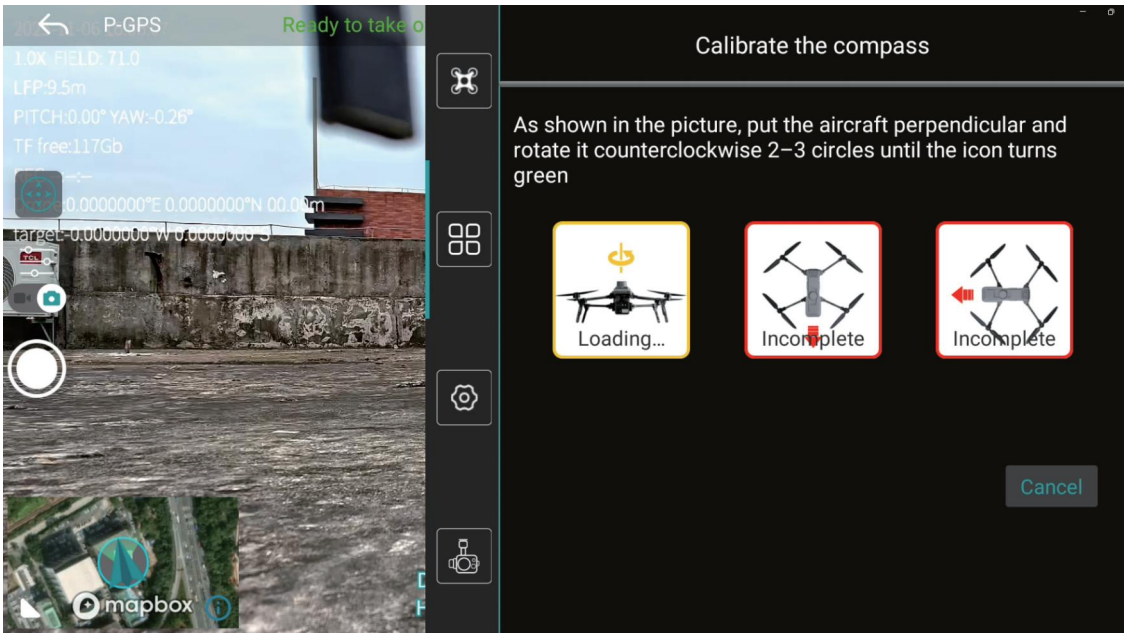
To calibrate the magnetic compass, tap the settings icon in the upper-right corner, select the remote control icon, enter the magnetic compass calibration interface, and tap Calibrate.





Warning

Before calibrating the drone, ensure that the environment is free from strong magnetic interference.



1. Position the aircraft horizontally on the ground in an open area until the calibration icon on the remote controller turns yellow.
2. Rotate the aircraft horizontally counterclockwise two to three full turns until the icon turns green, which indicates successful calibration.
3. Repeat these steps to position the drone according to the angles in the diagram before proceeding to the next calibration step.

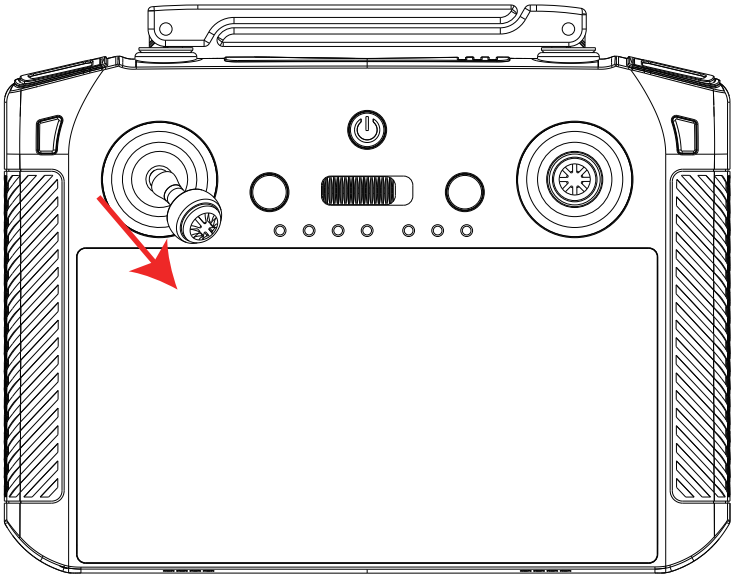
Warning

1. The first calibration maneuver is level flight.
2. The second is a nose-down vertical descent.
3. The third is a nose-forward level flight with the left wing vertical.

Manual Motor Start/Stop

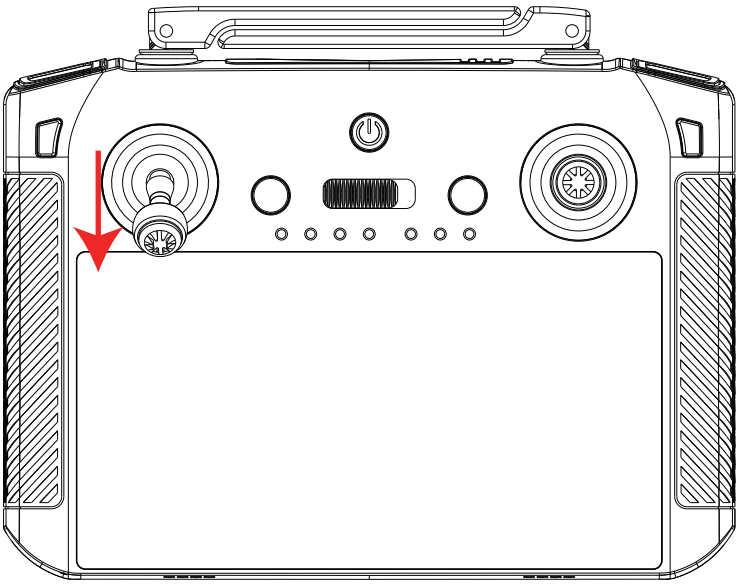
Starting the Motor

Pull the lever to start the motor. Release the lever immediately once the motor begins rotating.



Stop the Motor

After the motor starts rotating, pull the lever. Release the lever after the motor has stopped for two seconds.



Basic Flight

Flight Steps

1. Place the drone on a flat, open surface with the user facing the tail.
2. Turn on the remote controller and the drone.
3. Launch the GCS Fly app to access the flight interface.
4. Wait for the camera to initialize. Once the app shows no error alerts, activate the motors.
5. Slowly push the throttle stick upward to enable a smooth takeoff.
6. Lower the throttle stick to descend the drone.
7. After descending smoothly, pull the throttle stick to its lowest position and hold it there for at least two seconds, until the motors stop.
8. After landing, power off the drone, followed by the remote controller.

Warning

1. Place the drone on a flat, stable surface before taking off.
2. Handheld takeoffs and landings are not supported.

Maintenance and Care

Drone Maintenance

1. Before each flight, carefully inspect the propellers for cracks, nicks, deformation, or wear. It is recommended that you inspect them again after each flight. Minor propeller damage may cause vibrations during flight and affect stability. If the damage is severe, replace the propellers immediately.
2. Before and after each flight, inspect the motor by listening for abnormal sounds and feeling for vibrations. Unusual friction or stuttering is typically caused by bearing wear or motor mount issues.
3. Before and after each flight, inspect the smart battery for swelling or leakage. If abnormalities are detected, cease use immediately and dispose of the battery safely according to regulations.
4. When storing the battery long-term, maintain a charge level between 50% and 60%. Store it in a cool, dry place between 15°C and 25°C, away from heat sources such as radiators or direct sunlight.
5. Clean the gimbal with cleaning agents and lens cloths designed for this purpose. Avoid corrosive chemicals.

Remote Control Maintenance

1. Avoid dropping the remote control or exposing it to moisture or high temperatures (e.g., leaving it inside a vehicle). Store it in a dry, well-ventilated place.
2. Calibrate the remote control every three months. Use the ground station software to observe channel response and ensure an accurate joystick travel range (e.g., prevent reverse movement in the throttle or steering channels).

Battery Safety Guidelines

To ensure the safe use of batteries and prevent accidents caused by improper operation, strictly adhere to the following precautions:
1. Waterproofing and Moisture Protection: Never expose batteries to liquids. Do not use them in the rain or in humid environments. If a battery comes into contact with liquid, immediately remove it and place it in a dry area away from flammable materials. Contact technical support.
2. Do not use damaged batteries.
Never use batteries that are bulging, leaking, or have damaged packaging.
3. Temperature Environment
Use batteries only within the specified temperature range. Excessive heat may cause a fire or an explosion, and extreme cold reduces battery performance.
4. Do not disassemble or pierce.
Never disassemble or puncture batteries with sharp objects.
5. Leak Response
Battery fluid is highly corrosive. If leakage occurs, move away immediately. If the fluid comes into contact with your skin or eyes, rinse the affected area thoroughly with water and seek medical attention.
6. Storage and Impact Protection
Store batteries out of the reach of children. Do not reuse batteries if they have been dropped or subjected to impact.
7. Charge after cooling
After flight, the battery remains hot. Allow it to cool to room temperature before charging; otherwise, it may fail to charge.
8. Charging Temperature Range
Charge the battery between 5°C and 45°C. The ideal charging temperature range is 22°C to 28°C, which extends the battery's life.
9. Keep away from heat sources. Do not place the battery near sources of heat, such as direct sunlight, hot car interiors, open flames, or heating furnaces.
10. Avoid deep discharge storage. Do not store the battery for extended periods after deep discharge, as this may cause irreversible cell damage.
11. Protect from Static Electricity and Magnetic Fields
Do not operate the aircraft in environments with strong static electricity (e.g., thunderstorms) or intense magnetic fields.
12. Prevent short circuits. Do not place batteries on conductive surfaces (e.g., metal shelves) or short-circuit terminals with metal objects.
13. Use stable power sources for charging.
Always charge using a voltage-stabilized power source. Unstable power supplies (e.g., generators or outdoor power stations) may damage batteries.
14. Maintain a safe charging environment. During charging, place the batteries and charging equipment on a flat, nonflammable surface (e.g., a concrete floor).
15. Use official equipment.
The use of non-official batteries and charging devices is strictly prohibited. If replacement is necessary, please purchase through official channels. Users are fully responsible for any malfunctions or accidents resulting from the use of non-official equipment.