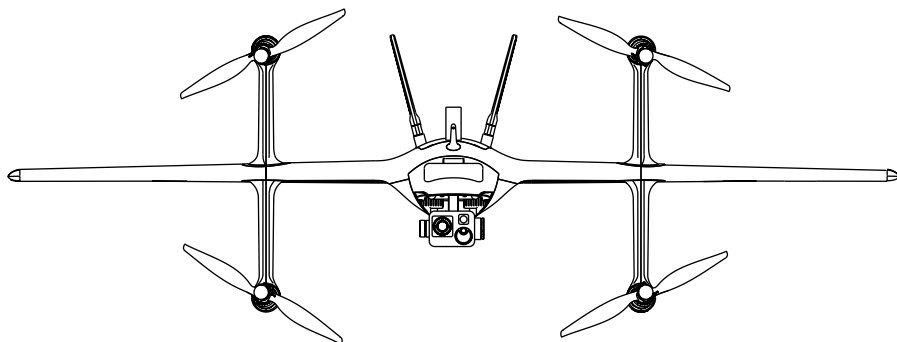


# SWAN K1 TRIO 640

Quick Start Guide and Disclaimer

快速入门指南和免责声明

V1.0 2023.08



**HEQ**

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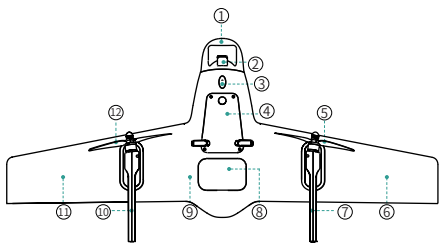
# 产品概述

## 简介

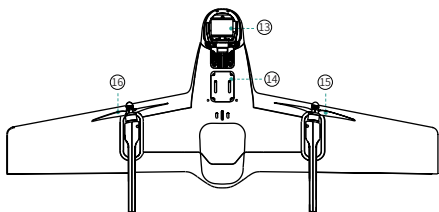
Swan K1 Trio 640 搭载 HEQ G640 三光云台：高度集成热成像、可见光相机和激光测距仪。这一强大的组合使得 Swan K1 Trio 640 能够在各种复杂的使用场景和光照条件下表现出色。您可以通过可见光相机获取清晰的图像，实时还原目标的原本色彩，同时，在低照度环境下，热成像功能能够捕捉肉眼难以察觉的画面，为您提供更全面的视觉信息。远距离激光测距模块赋予相机目标坐标解算和跟踪等高级功能，使其在定位和监测任务中表现出色。G640 三光云台的重量仅为 220g，在不影响整机性能的前提下，性能进一步提升，能够应对各种复杂的使用场景和光照条件，如公安应急、消防救援、电力巡检、军事侦查、户外搜寻等行业领域。同时具备录像拍照、数字变焦、云台增稳控制，目标坐标解算及跟踪等功能。整机采用模块化快拆设计，用户只需 3 分钟就能快速组装使用，轻松开启无人机探测应用新领域。

# 产品清单

## 飞行器清单

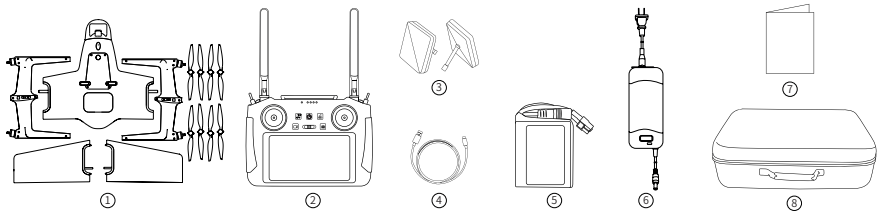


- 1、主机头罩
- 2、SD 卡卡槽
- 3、空速计
- 4、飞控舱盖
- 5、螺旋桨（黑桨帽）
- 6、右机翼
- 7、右机臂
- 8、电池舱盖
- 9、主机身
- 10、左机臂
- 11、左机翼
- 12、螺旋桨（银桨帽）



- 13、G640 云台相机
- 14、图传仓盖
- 15、螺旋桨（黑桨帽）
- 16、螺旋桨（银桨帽）

## 包装清单

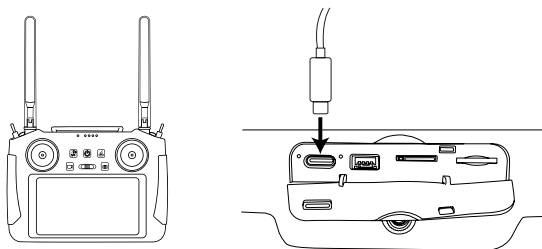


- 1、飞行器
- 2、高亮屏遥控
- 3、增程天线
- 4、Type-C 遥控充电线
- 5、5500mah 聚合物高压锂电池
- 6、电池充电器
- 7、快速入门指南和免责声明
- 8、便携式手提箱

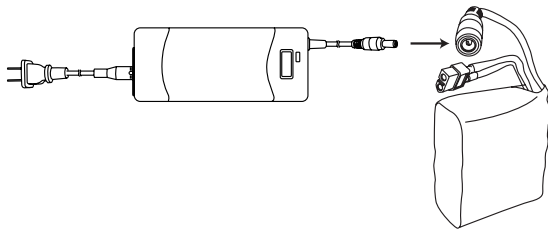
## 充电

### 遥控器、电池充电

打开遥控器底部盖子，使用标配充电器给遥控器充电；  
遥控器充电时，请确保遥控器处于关机状态并且使用原厂充电器进行充电。



电池充电时，请使用原厂充电器进行充电。

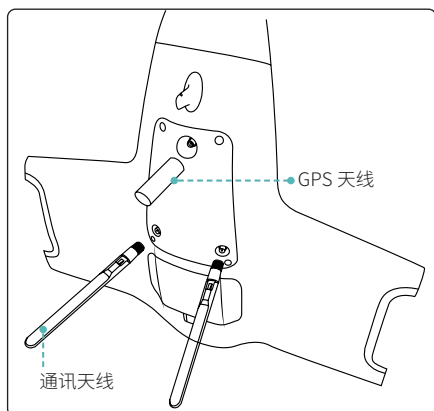


## 安装天线

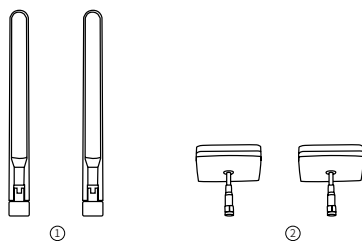
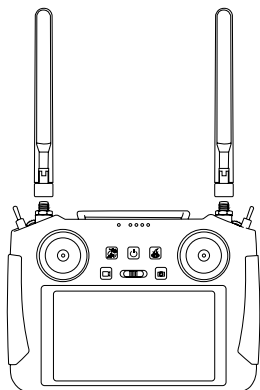
### 机身、遥控器安装天线

将通讯天线顺时针旋转，安装至机身上。

注意：务必安装好天线后再给飞行器上电，然后打开遥控器。



将全向天线 / 增程天线顺时针旋转，安装至遥控器上。



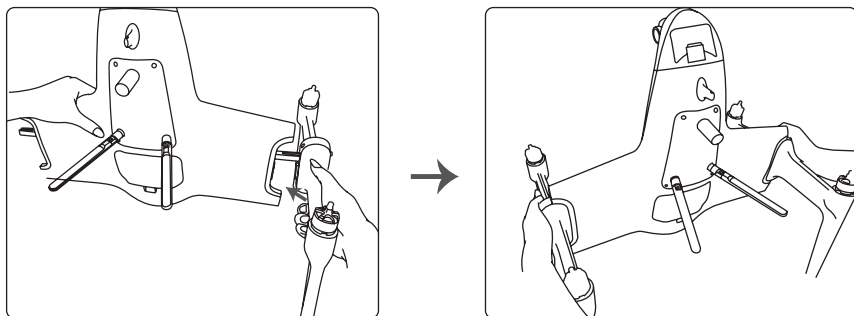
全向天线<sup>①</sup>：使用全向天线图传距离可达 8KM；  
增程天线<sup>②</sup>：使用增程天线图传距离可达 15KM；  
(具体图传距离需根据用户所在地磁场环境情况决定)

! 遥控器天线可以与飞行器通讯天线通用。

# 组装飞行器

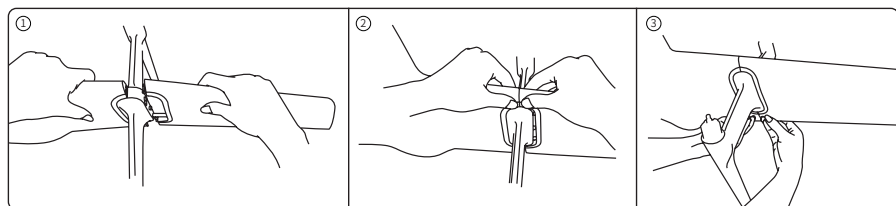
## 组装机臂

插入机臂确保机臂与机身位置贴合。



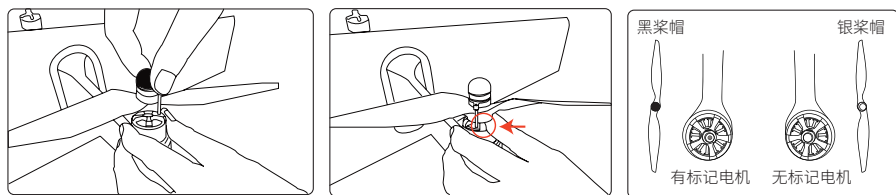
## 组装机翼

插入机翼确保机翼与机身位置贴合。



## 安装螺旋桨

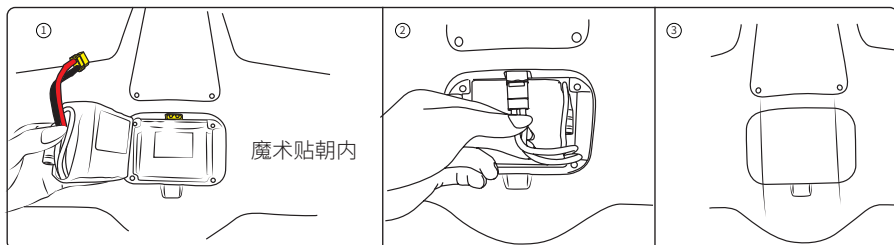
黑色帽桨叶安装在**有标记**电机上，握住电机座**逆时针**拧紧桨叶，转动桨叶上的卡扣，注意卡扣需要卡紧到位；银色帽桨叶安装在**无标记**电机上，握住电机座**顺时针**拧紧桨叶，转动桨叶上的卡扣，注意卡扣需要卡紧到位。



⚠ 起飞前请务必检查四个桨叶卡扣是否卡紧到位

## 安装电池

打开电池舱盖，将带有魔术贴一面的电池放置电池仓内部，接上电源开关，盖上电池舱盖。

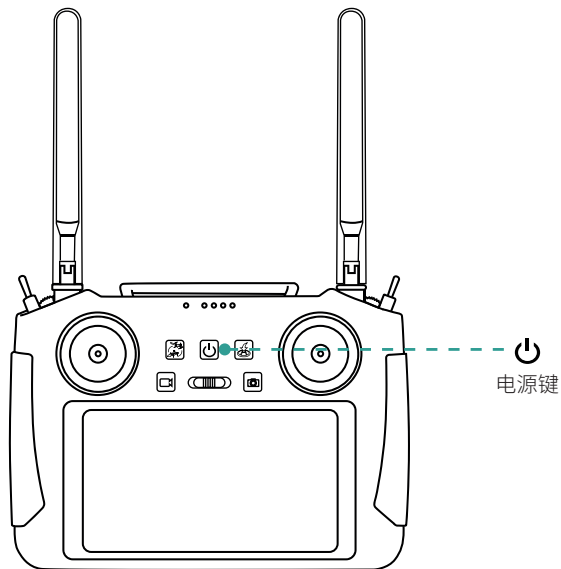


## 遥控器

### 开启与关闭

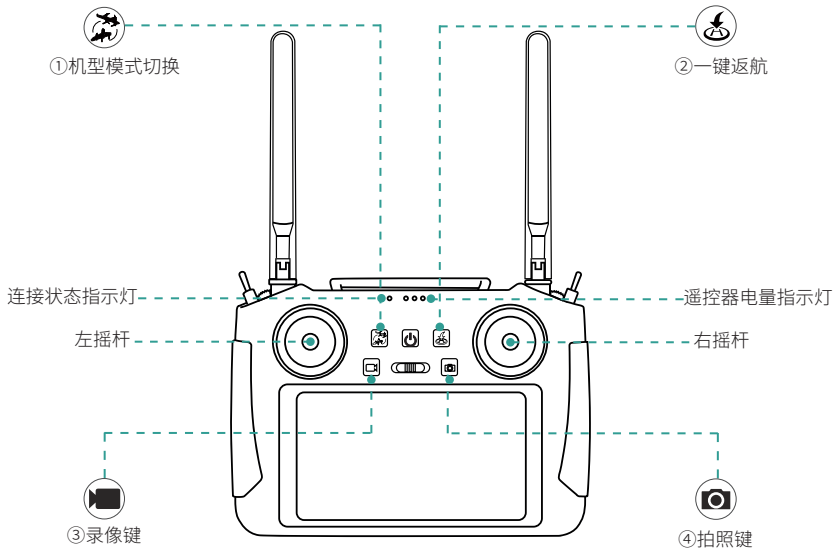
短按一次电源键，再长按 2 秒开启遥控器。

长按 2 秒电源键，点击屏幕“关机”。

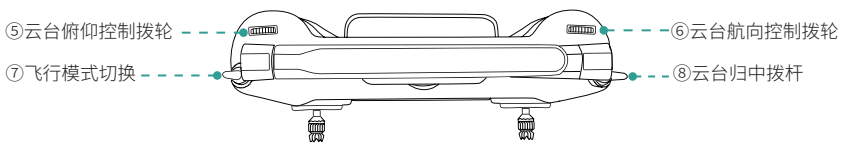


## 按键介绍

- ①机种模式切换：旋翼 / 固定翼模式切换；
- ②一键返航：短按一次按钮，执行返航模式；如需取消返航模式，再按一次按钮或滑动屏幕弹窗按钮取消返航模式；
- ③录像按键：短按一次开启录像 / 再次短按停止录像；
- ④拍摄按键：短按一次拍照；



- ⑤云台俯仰控制：拨动拨轮，控制云台俯仰；
- ⑥云台航向控制：拨动拨轮，控制云台航向；
- ⑦飞行模式切换：切换定高模式 / 位置模式；
- ⑧云台归中控制：拨动拨杆，控制云台归中。



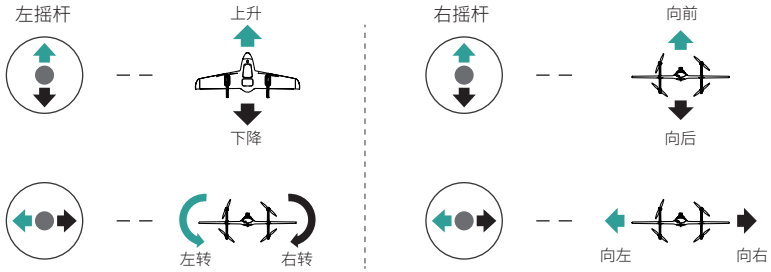


## 操控飞行器

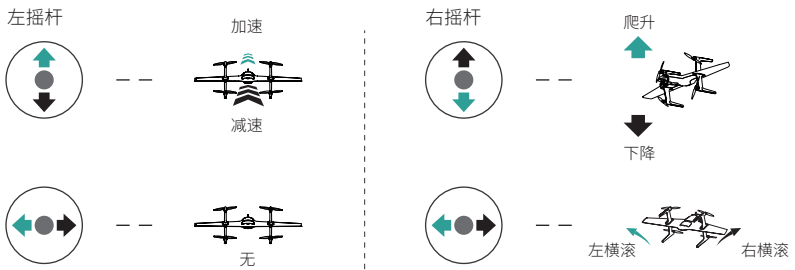
遥控器摇杆操控方式分为美国手和日本手，如下图所示。

### 美国手 (Mode 2)

#### 旋翼状态




#### 固定翼状态

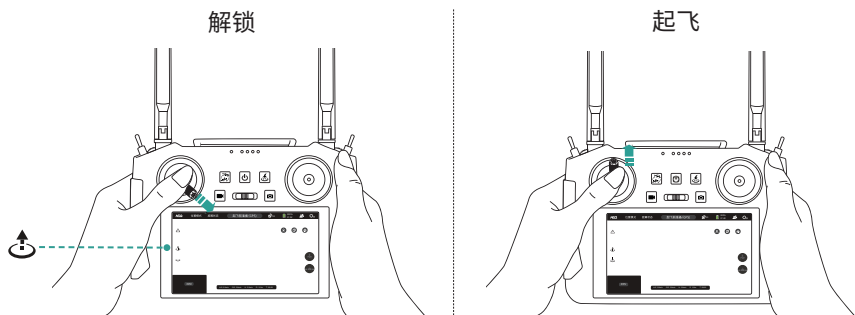


## 起飞、解锁 / 降落、上锁 (美国手)

### 解锁、起飞


方法一：进入位置模式后，向右下方推动左摇杆，解锁飞行器；电机转动后，向上推动左摇杆；

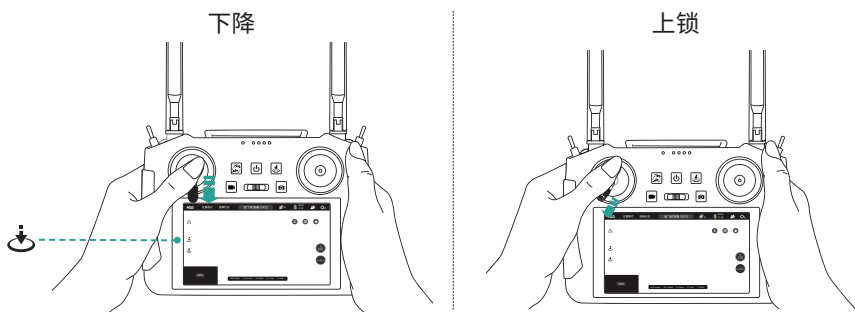
方法二：点击遥控屏幕中的  (一键起飞) 图标，滑动按钮执行起飞。



### 下降、上锁

方法一：向下推动左摇杆使飞行器降落在平地之后，迅速向左下方推动左摇杆并保持 5 秒以上电机停转；

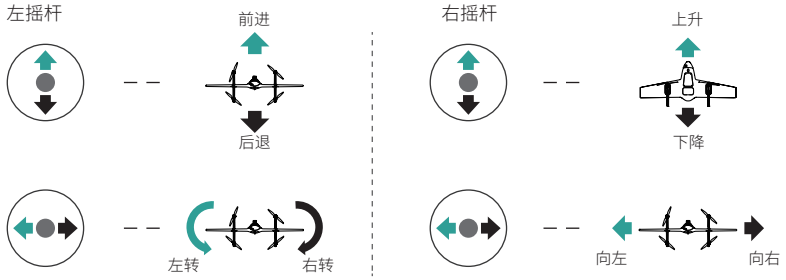
方法二：点击遥控屏幕中的  (一键降落) 图标，滑动按钮执行降落。



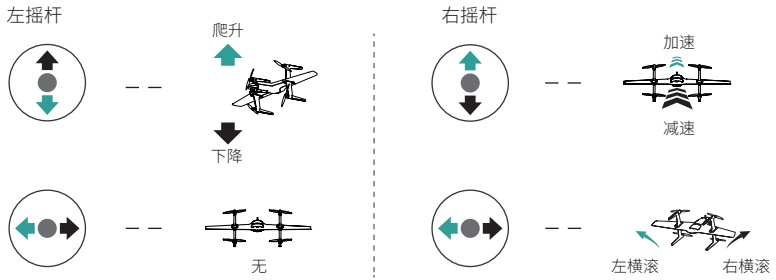
 遥控器出厂设置默认为美国手。

# 日本手 (Mode 1)

## 旋翼状态




## 固定翼状态

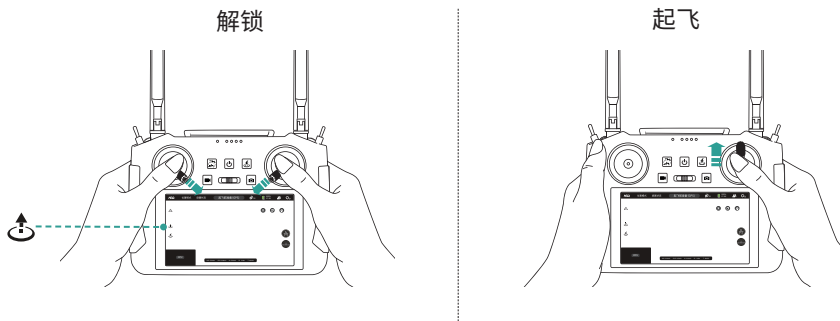


## 飞行器起飞、解锁 / 降落、上锁（日本手）

### 解锁、起飞


方法一：进入位置模式后，向右下方推动左摇杆的同时向左下方推动右摇杆（简称：内八拨动左右摇杆），解锁飞行器；电机转动后，向上推动右摇杆；

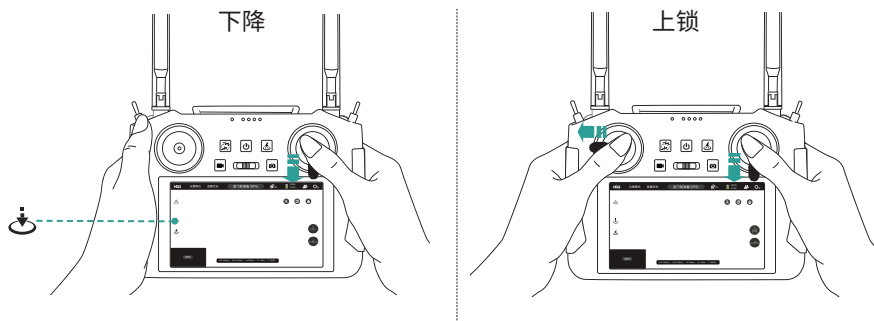
方法二：点击遥控屏幕中的 （一键起飞）图标，滑动按钮执行起飞。



### 下降、上锁

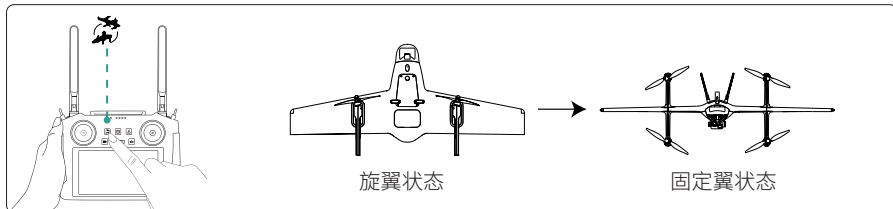
方法一：向下方拨动右摇杆使飞行器降落在平地之后，迅速将左摇杆向左拨动的同时右摇杆向下拨动并保持 5 秒以上电机停转飞行器降落在平地之后，向正下方拨动右摇杆并保持 5 秒以上电机停转；


方法二：点击遥控屏幕中的 （一键降落）图标，滑动按钮执行降落。

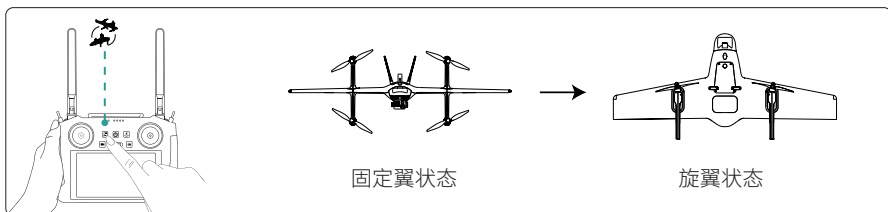



 遥控器出厂设置默认为美国手。

## 旋翼 / 固定翼切换



在旋翼状态下，飞行器上升至 30 米以上高度（视周围环境确定切换高度），按  键切换为固定翼状态。

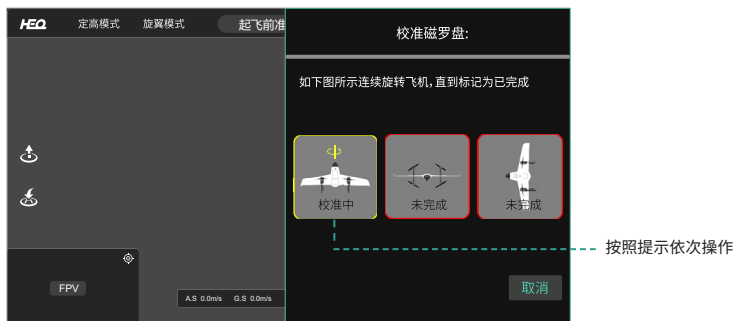


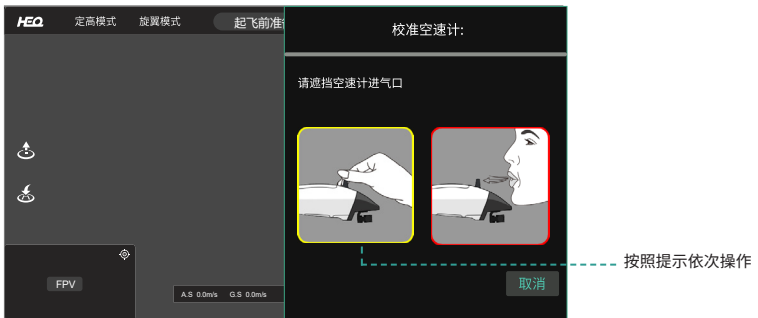
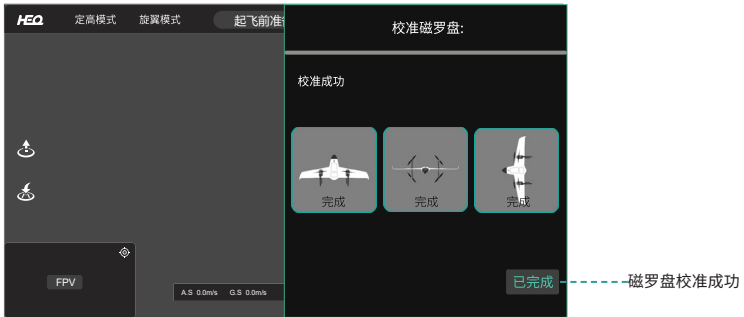
再次按  键，飞行器将切换为旋翼状态。

## 飞行器校准

飞行器起飞前需要校准磁罗盘和空速计；若空速绝对值大于 5 需要重新校准。

飞行器第一次飞行，需要完成磁罗盘校准再飞行；若更换地点环境需要重新校准磁罗盘，不更换地点环境则不需要校准。



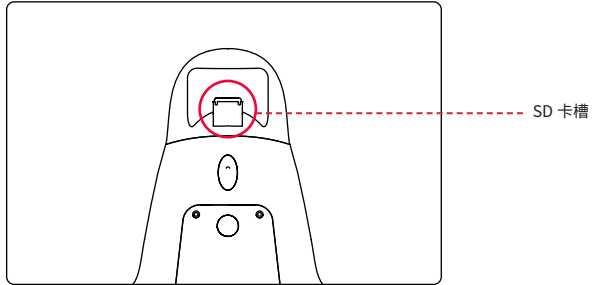


## 云台

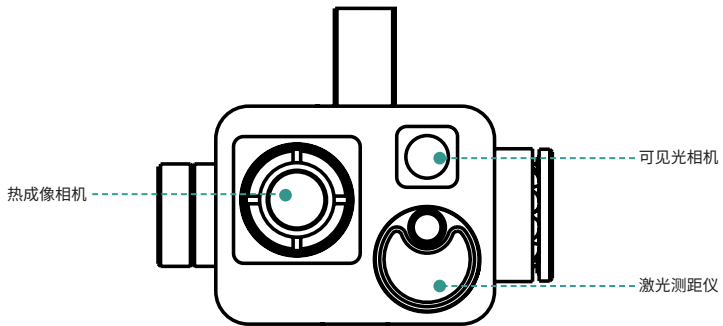
打开主机头罩顶端 SD 卡槽的硅胶盖，插入 SD 卡，即可拍摄 / 拷贝高清图片和视频。

插入 SD 时，飞机必须处于断电状态。

使用 U3 速率的 SD 卡进行拍照 / 录像 (≥读 170MB/ 写 90MB)。



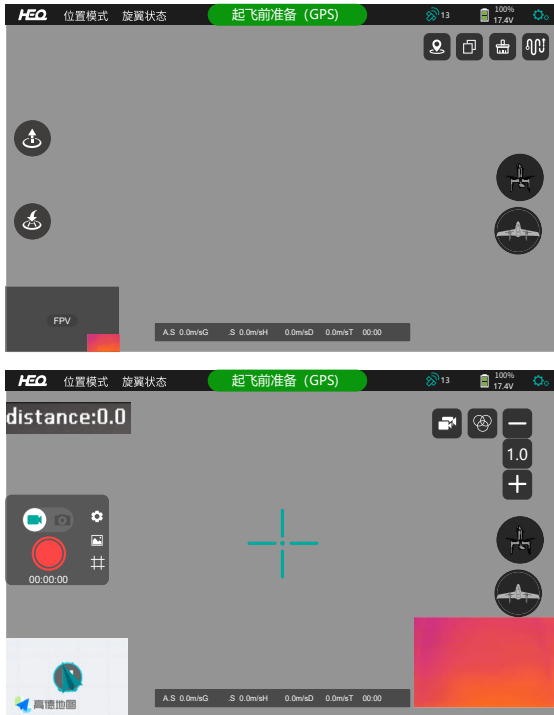
## G640 云台相机



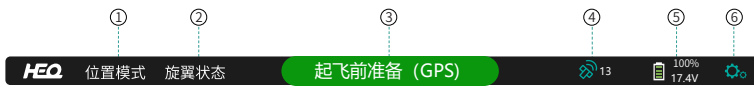


# HEQ FLY App 介绍

## APP 界面介绍



### 飞行器信息提示栏



- 1、飞行模式：定高模式 / 位置模式切换
- 2、机型模式：旋翼状态 / 固定翼状态显示
- 3、关键信息提示
- 4、GPS 状态：GPS 卫星信号强弱
- 5、飞行器电电量显示：无人机电池剩余电量百分比
- 6、系统设置

## 地图工具栏



① ② ③ ④

- 1、飞行器定位：一键定位地图上飞行器的位置
  - 2、地图类型：卫星地图与街道地图切换
  - 3、清除按键：清除地图上飞行器的飞行轨迹
  - 4、航线规划：规划飞行器航线自动飞行
- 

## 姿态球



姿态球：飞行器横滚和俯仰的姿态

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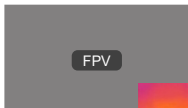
## 飞行参数

A.S 0.0m/s G.S 0.0m/s H 0.0m/s D 0.0m/s T 00:00

① ② ③ ④ ⑤

- 1、空速：飞行中飞行器相对于空气的速度
  - 2、地速：飞行中飞行器相对于地面运动的速度
  - 3、飞行高度：飞行器距离地面的高度
  - 4、离家距离：起飞点到飞行器所在位置的距离
  - 5、飞行时间：飞行器解锁开始计算的时间
- 

## 画面切换



①



②



③

- 1、FPV 画面
- 2、地图画面
- 3、热成像画面

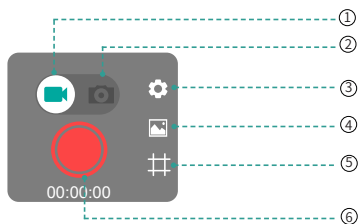
## 智能工具栏



- 1、一键起飞
- 2、一键返航

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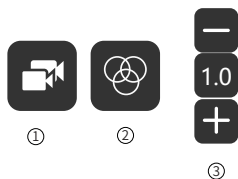
## 拍摄设置栏



- 1、录像
- 2、拍摄
- 3、设置：设置拍摄尺寸
- 4、相册：预览拍摄图片 / 视频
- 5、参考线
- 6、开始 / 结束录制

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## 视频切换



- 1、预览模式切换：主可见光，副红外；仅可见光；主红外副可见光；仅红外
- 2、伪彩切换
- 3、视频放大缩小

## 激光测距

**distance:0.0**

激光测距距离显示

## 参数列表

| 飞行器参数  |                   |
|--------|-------------------|
| 翼展     | 1.1m              |
| 空机重量   | 1.12kg            |
| 飞行时间   | 50-60mins         |
| 飞行速度   | 10m/s-25m/s       |
| 航程     | 35~40km           |
| 起飞重量   | 2.02kg            |
| 最大飞行高度 | 500m              |
| 抗风等级   | 5级                |
| 图传距离   | 15km              |
| 遥控器频段  | 5.8GHz            |
| 图传分辨率  | 1080P             |
| 包装尺寸   | 580mmX470mmX202mm |

| 红外相机参数 |                |
|--------|----------------|
| 探测器类型  | 氧化钒非制冷红外焦平面探测器 |
| 分辨率    | 640x512        |
| 像元间距   | 12 $\mu$ m     |
| 探测器帧频  | 50Hz /30Hz(1)  |
| 响应波段   | 8~14 $\mu$ m   |

| 可见光相机参数 |                             |
|---------|-----------------------------|
| 传感器大小   | 对角线 6.294 毫米 (1/2.86 型)     |
| 总像素     | 1253万像素                     |
| 有效像素    | 1227万像素                     |
| FOV     | 74°                         |
| 芯片尺寸    | 6.240 mm (H) x 4.672 mm (V) |

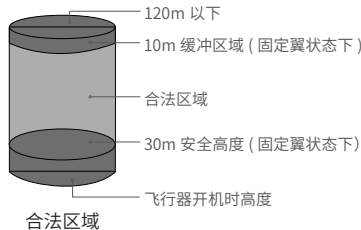
| 激光测距 |        |
|------|--------|
| 量程   | 3~600m |
| 分辨率  | 0.1m   |
| 波段   | 905nm  |

# 安全操作指引

飞行时请选择室外空旷无遮挡的飞行环境飞行。飞行器飞行限高 500 m，请勿超过安全飞行高度。飞行时需严格遵守当地法律法规。飞行前务必阅读《HEQ 免责声明和安全操作指引》以了解安全注意事项。

## 飞行环境

- 1、在没有人群、树林、机场和建筑物的空旷环境飞行。
- 2、务必远离风力发电站、高压线、变电站、无线电信号塔、高大建筑物以及具有磁干扰的环境。
- 3、在天气良好环境飞行（下雨、刮风，或极端天气请勿飞行）。
- 4、在合法区域飞行。
- 5、请勿在室内飞行。
- 6、SWAN-K1 仅能承受 10.7m/s（5 级）以下的风速，当风速大于等于 10.7m/s 时，请勿飞行。如遇大风，请及时降落。
- 7、飞行时，请保持在视线范围内操控，使垂起固定翼与障碍物、人群、水面、山体等保持距离。



## 飞行前检查

- 1、飞行器左侧拨杆已拨到位置模式；
- 2、飞行前请确保螺旋桨拧紧和机身组装完成；
- 3、无人机和遥控电量充足；
- 4、飞行前已连接 WIFI；
- 5、GPS 信号  $\geq 9$  颗卫星；
- 6、电源开启后相机和云台能正常工作。
- 7、保证空速计入气孔无异物堵塞，无破损。
- 8、保证机身散热孔无异物堵塞，无遮挡。

## 操作指引

- 先开启遥控器，再给垂起固定翼上电，通信后遥控器将会“滴”一声。
- 启动前务必保证垂起固定翼已经搜到足够卫星，处于位置锁定状态。
- 放置好垂起固定翼后，请保持一定距离后再解锁。将遥控器油门拉至最低，航向杆最右启动垂起固定翼，电机将会怠速。
- 禁止在正处于运动状态的载具上起飞。
- 务必根据 HEQ FLY APP 提示校准空速计和磁罗盘。
- 起降必须在平整无沙土的空旷地面上。
- 禁止触摸正在运行的电机或螺旋桨叶。
- 操作过程中请勿接打电话、发送短信，或使用其他可能干扰您操作的设备。
- 禁止在神志受到酒精或药物影响的情况下操作垂起固定翼。
- 固定翼模式飞行过程中，如触发返航（失控、地理围栏、低电量等），则以固定翼模式返航至返航点，并降落。如过程中需要取消返航，则需要按 B（返航按钮）解除返航状态。
- 在旋翼模式下飞行高度至少 30 米以上切换固定翼模式，否则会切换失败，SWAN-K1 再次进入旋翼模式，HEQ FLY APP 将提示：“Abort: dangerous height”。此时将垂起固定翼再次升高，先按遥控器 A 键复位状态，再按一次 A 键切换至固定翼模式。
- 低电量警报时请尽快返航并降落。
- 在失控时或者飞至地理围栏时，垂起固定翼将会自动返航并降落。
- 降落时请将垂起固定翼飞至 H 点上方，盘旋降低飞行高度，然后再切换旋翼模式手动降落。
- GPS 信号质量会受到环境的影响，切勿过于依赖自动返航功能，在垂起固定翼自动返航降落过程中如偏离返航点，请关闭自动返航功能，手控至合适位置降落。
- 垂起固定翼降落后，将油门拉到最低，航向杆打到最左上锁。上锁后电机停转。
- 电机停转后，请先给垂起固定翼断电，再关闭遥控器，以避免触发失控保护。

## 免责声明

感谢您购买禾启智能 (HEQ™) SWAN-K1 垂直起降固定翼 (以下简称“SWAN-K1 或垂起固定翼”)。操控禾启智能 (HEQ™) SWAN-K1 垂起固定翼, 需具备一定的风险意识, 禁止未满 18 周岁的未成年人使用。请将垂起固定翼以及配件放置在儿童无法接触到的地方。

SWAN-K1 具备垂直起降功能, 在部件未损坏以及安装到位的情况下可以在水平面环境上垂直起飞, 飞至安全高度后切换为固定翼模式, 将不再受飞行场的限制。在旋翼模式下, 垂起固定翼可以定点悬停; 固定翼模式下, SWAN-K1 将会保持高度直线飞行, 您可以通过打杆改变 SWAN-K1 姿态和飞行高度, 松开摇杆后 SWAN-K1 将保持高度并平稳的直线飞行, 让您能轻松自如体验固定翼的 FPV 飞行。访问 <https://store.hequavtech.com> 获得最新的说明和警告, 禾启智能 (HEQ™) 保留更新本免责声明的权利。最新的免责声明, 请以 <https://store.hequavtech.com> 官网上为准。

使用前请您务必仔细阅读本《免责声明和快速入门指南》的全部内容, 了解您的合法权益、责任和安全使用说明。一旦使用本产品, 即视为您对本声明全部内容的理解、认可和接受。操控者承诺仅出于正当目的使用本产品, 并同意免责声明的全部条款内容, 且禁止任何非法用途。操控者承诺对自己的行为及因此产生的所有后果负责。深圳市禾启智能科技有限公司对非法使用本产品引起的后果概不承担责任; 不承担因使用本产品产生的第三方责任; 对于非正常渠道获取本产品的单位或个人不提供任何技术支持和保修政策。因操控不当所造成的损害或损伤, 禾启智能 (HEQ™) 将不承担相应的损失及赔偿。

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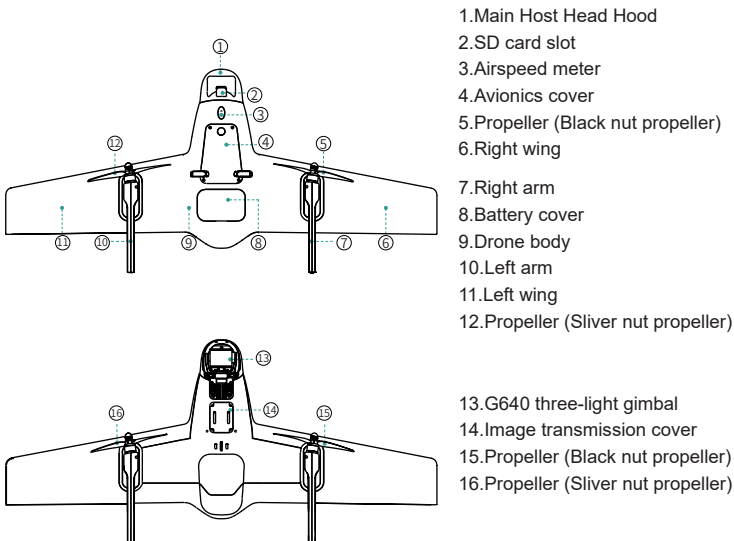
# Product Overview

## Introduction

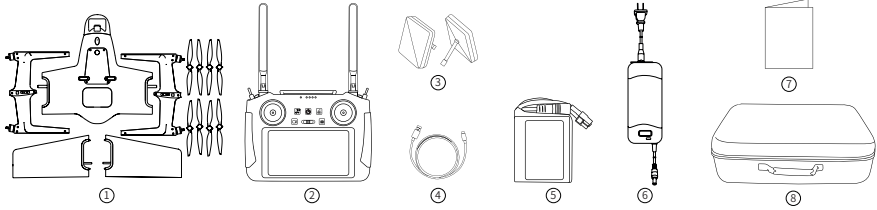
The Swan K1 Trio 640 is equipped with the HEQ G640 three-light gimbal, integrating high-resolution thermal imaging, visible light camera, and long-range laser rangefinder. This powerful combination allows the Swan K1 Trio 640 to excel in various complex scenarios and lighting conditions. With the visible light camera, you can capture clear images and faithfully reproduce the original colors of the targets. Additionally, the thermal imaging function excels in low-light conditions, capturing details that are often imperceptible to the naked eye, providing you with comprehensive visual information. The long-range laser rangefinder module adds advanced features like target coordinate calculation and tracking, making it perform exceptionally well in positioning and monitoring tasks. Despite its robust capabilities, the G640 three-light gimbal camera weighs only 220g. It further enhances performance without compromising the overall drone's capabilities, making it suitable for diverse applications in industries such as public safety and emergency response, firefighting, power line inspection, military reconnaissance, outdoor search, and more. The camera also supports features like video recording, photography, digital zoom, gimbal stabilization control, target coordinate calculation, and tracking. The drone features a modular quick-release design, allowing users to assemble it in just 3 minutes, making it easy to explore new applications in the field of drone-based detection.

## Product List

### Aircraft List



## Package List



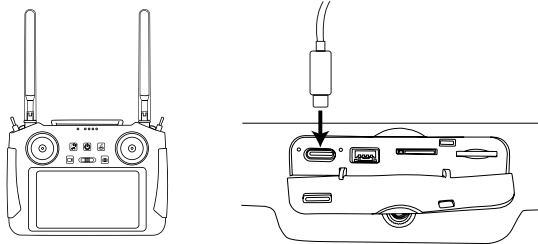
1. Aircraft
2. High light screen remote control
3. Long-range antenna
4. Type-C charging cable for remote
5. Lithium battery
6. Battery charger
7. Quick start guide and Disclaimer
8. Portable carrying case

## Charging

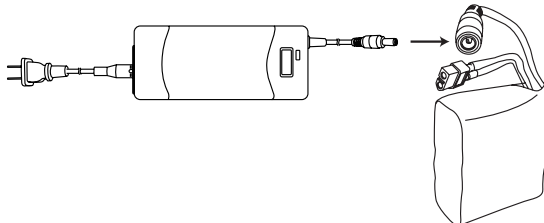
### Charging the remote control and battery

Open the bottom cover of the remote control and use the standard charger to charge the remote control; When charging the remote control, please ensure that the remote control is turned off and charged with the original charger.

Use the standard charger to charge the remote control. It takes about 5 hours to charge completely.



When charging the battery, please use the original charger for charging.

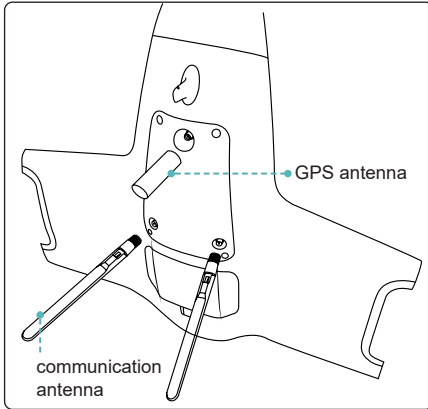


# Install the antennas

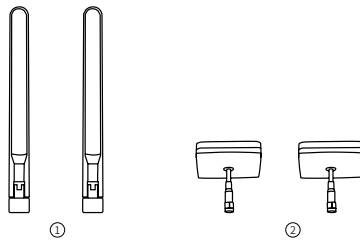
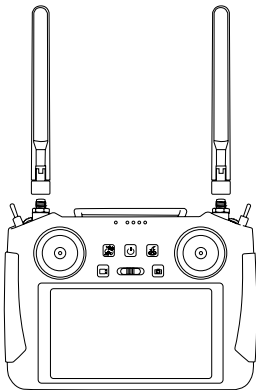
## Installation of the Drone Body and Remote Controller Antenna

Rotate the communication antenna clockwise and install it on the drone body.

Note: Make sure to install the antenna before powering up the aircraft, and then turn on the remote controller.



Rotate the omnidirectional/long-range antenna clockwise and install it on the remote control.



Omnidirectional antenna <sup>①</sup>: Image transmission distance up to 8KM.

long-range antenna <sup>②</sup>: Image transmission distance up to 15KM.

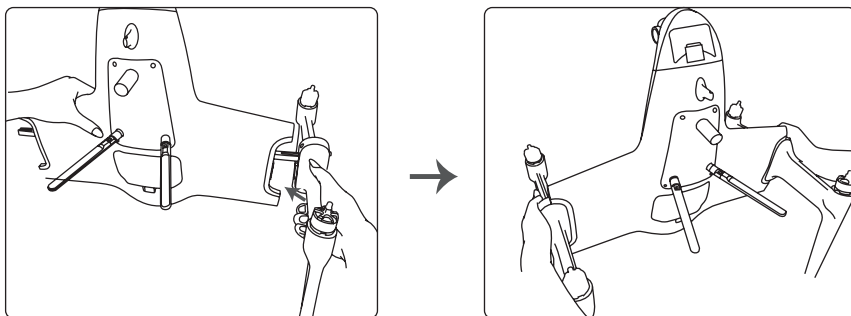
(The specific transmission distance depends on the user's location and the magnetic field environment)

! The remote control antenna can be used in common with the aircraft communication antenna.

# Assembling the aircraft

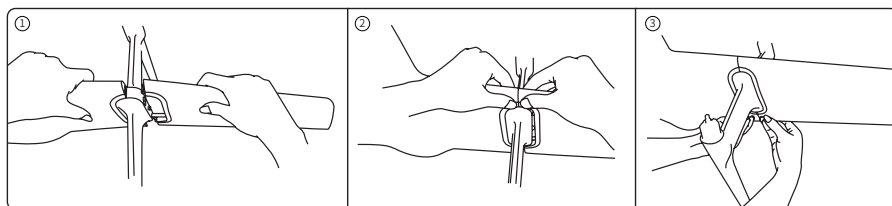
## Assemble the arms

Make sure the arm fits well with the fuselage.



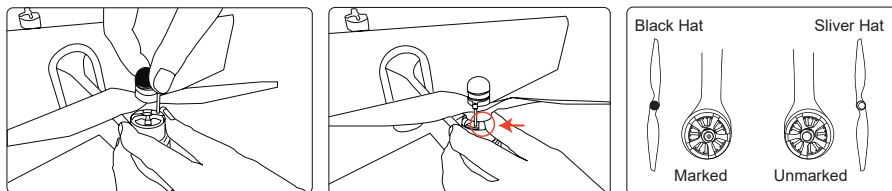
## Assemble the wings

Make sure the wings fits well with the fuselage.



## Install the propellers

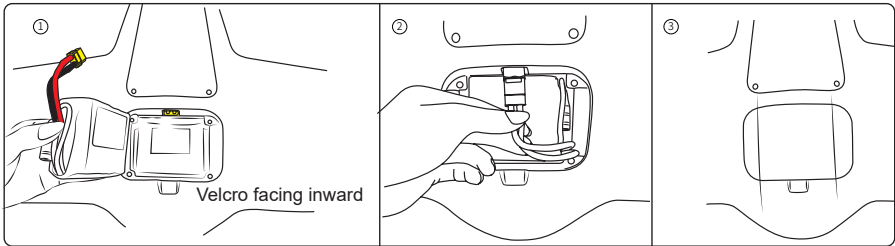
The black cap propeller is installed on the marked motor. Hold the motor base and tighten the propeller counterclockwise. Rotate the buckle on the propeller to ensure it clicks into place. Make sure the buckle is securely fastened; the silver cap propeller is installed on the unmarked motor. Hold the motor base and tighten the propeller clockwise. Rotate the buckle on the propeller to ensure it clicks into place. Make sure the buckle is securely fastened.



**⚠** Before takeoff, please make sure that all four propeller buckles are securely fastened in place.

## Installing the battery

Open the battery cover, place the battery on the side with velcro inside, connect the power switch, and cover it.

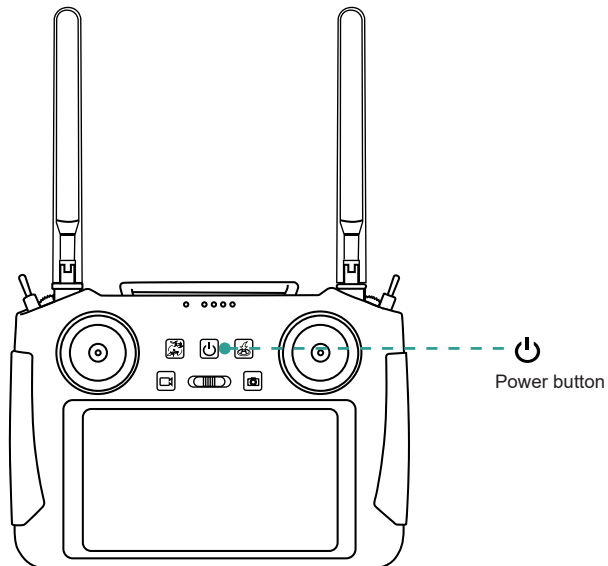


## Remote control

### Power on / off

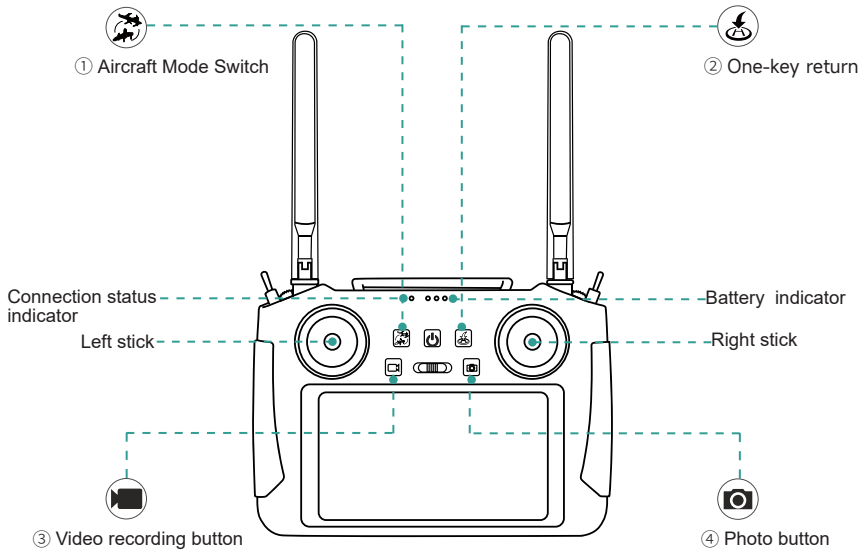
Short press, and then long press for 2 seconds.

Long press for 2 seconds, and click "Power off" on the screen.

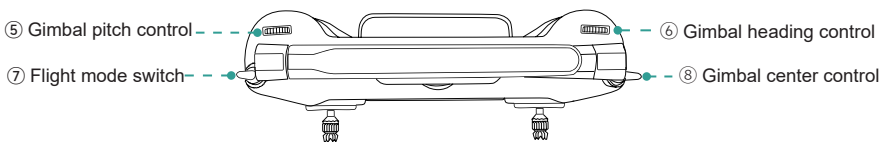


## Button Introduction

- ① Model mode switch: A switch that changes the mode between rotor and fixed-wing.
- ② One-key return function: Press the button once to initiate the return mode. To cancel the return mode, either press the button again or click the cancel button on the screen.
- ③ Video recording button: Press once to start recording/Press again to stop recording.
- ④ Photo button: Press once to take a photo.



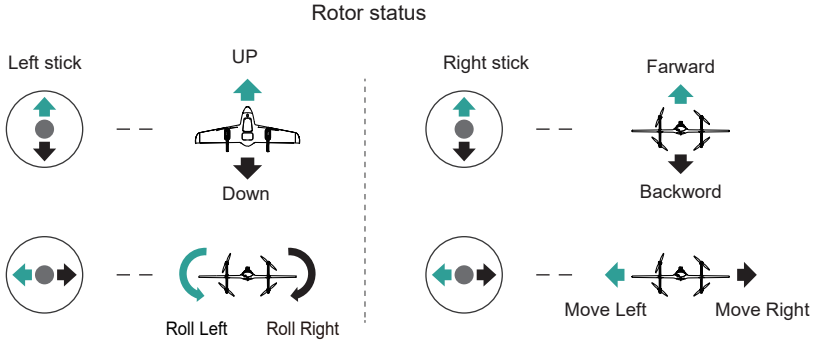
- ⑤ Gimbal pitch control: turn the dial to control the gimbal pitch.
- ⑥ Gimbal heading control: turn the dial to control the gimbal heading.
- ⑦ Flight mode switch: switch between altitude hold mode and position mode.
- ⑧ Gimbal center control: move the joystick to control the gimbal centering.



## Aircraft control

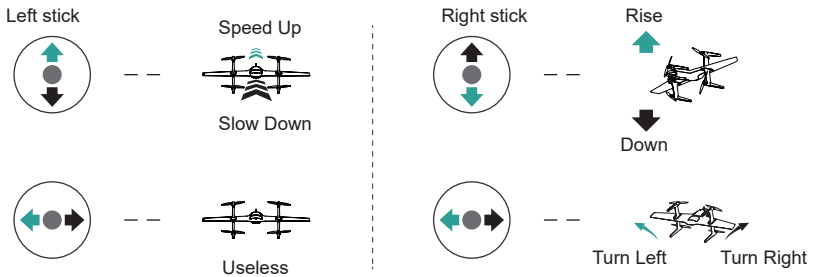
The operation mode of the remote control's joystick is divided into American hand and Japanese hand, as shown in the figure below.

Mode 2



---


## Fixed wing status

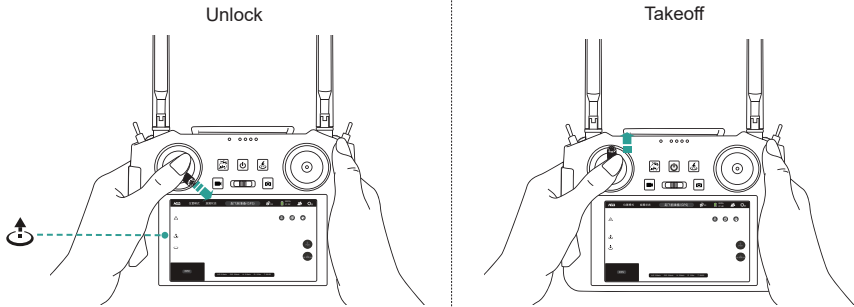


## Unlock, Takeoff / Landing, lock (Mode 2)

### Unlock / takeoff


Method 1: After entering position mode, push the left joystick towards the lower right to unlock the aircraft. After the motor starts, push the left joystick upwards.

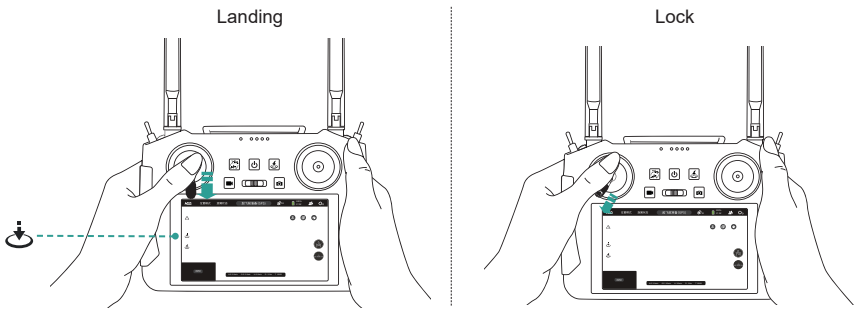
Method 2: Click the "one-key takeoff"  icon on the remote control screen and slide the button to execute takeoff.




### Landing / Lock

Method 1: Push the left joystick downwards to make the aircraft land on the ground, then quickly push it to the lower left and keep it for more than 5 seconds to stop the motor after the aircraft lands on the ground.

Method 2: Click the "one-key landing"  icon on the remote control screen and slide the button to execute landing.

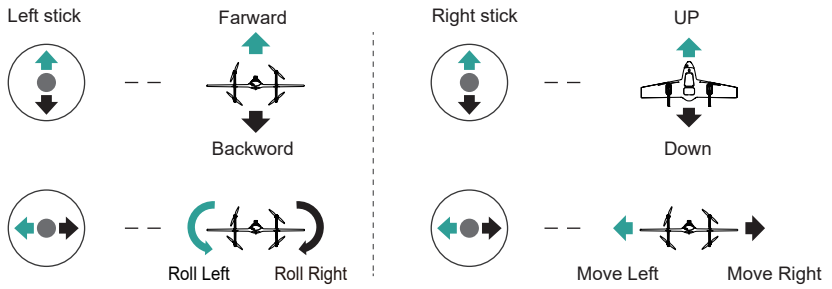


 The default factory settings for the remote control are set to the "Mode 2" configuration (commonly known as the "American mode")

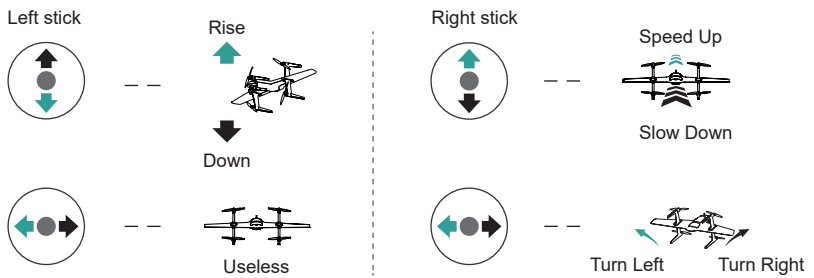


# Mode 1

## Rotor status




## Fixed wing status

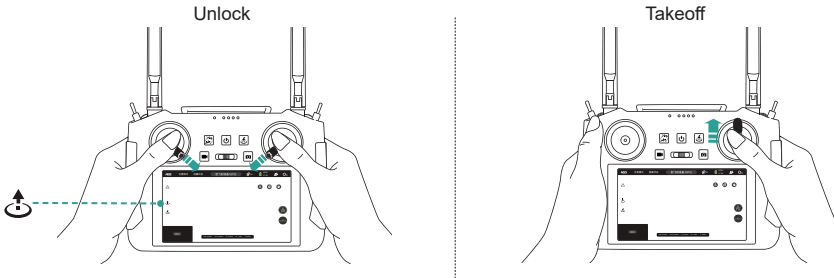


## Unlock, Takeoff / Landing, lock (Mode 1)

### Unlock / takeoff


Method 1: After entering position mode, push the left joystick to the lower right while pushing the right joystick to the lower left (referred to as the "inner eight" maneuver of the left and right joysticks) to unlock the aircraft. After the motors start, push the right joystick upwards to take off.

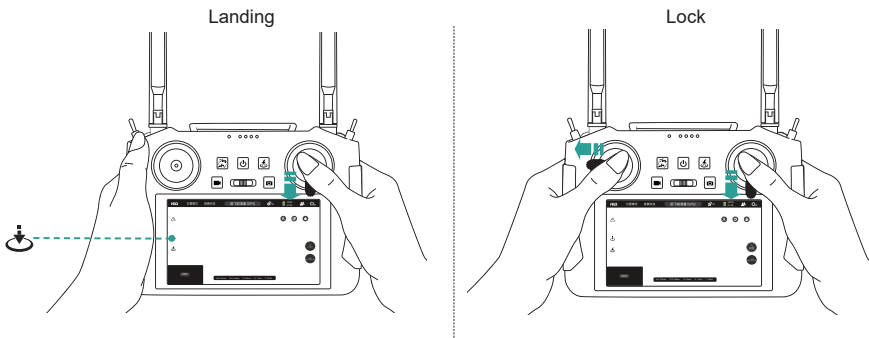
Method 2: Click the "one-key takeoff"  icon on the remote control screen, slide the button to execute takeoff.




### Landing / Lock

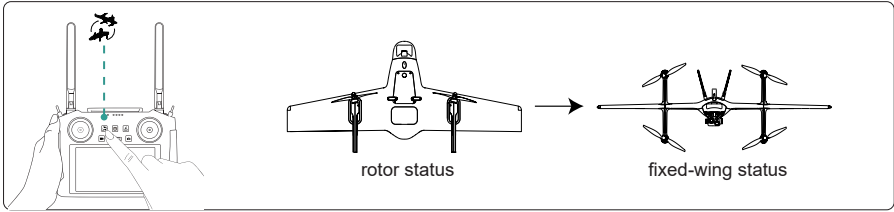
Method 1: Push the right joystick downwards to make the aircraft land on the ground, then quickly push the left joystick to the left while pushing the right joystick downwards and keep it for more than 5 seconds to stop the motor. After the aircraft lands on the ground, push the right joystick directly downwards and keep it for more than 5 seconds to stop the motor.


Method 2: Click the "one-key landing"  icon on the remote control screen, slide the button to execute landing.

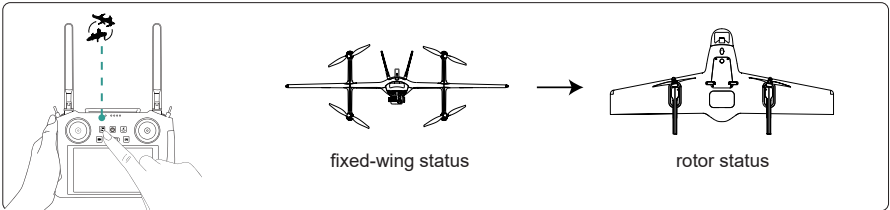



 The default factory settings for the remote control are set to the "Mode 2" configuration (commonly known as the "American mode")

## Rotor/Fixed-Wing Switching



In rotor mode, the aircraft will ascend to a height over 30 meters (determined based on the surrounding environment) and press the  button to switch to fixed-wing mode.

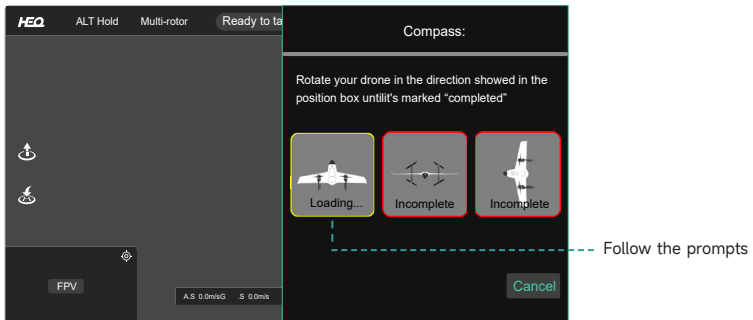
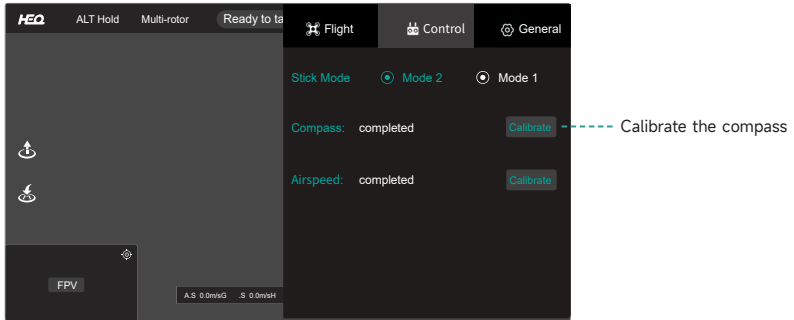
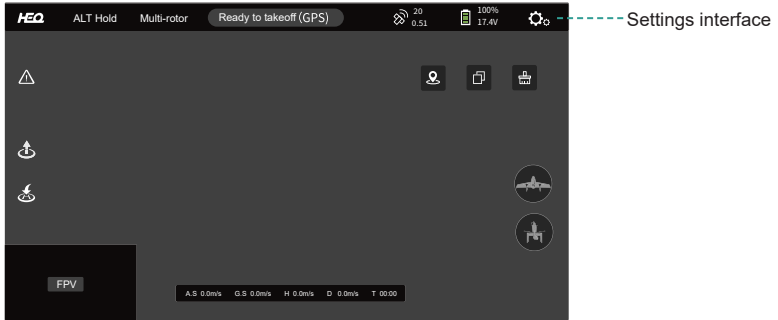


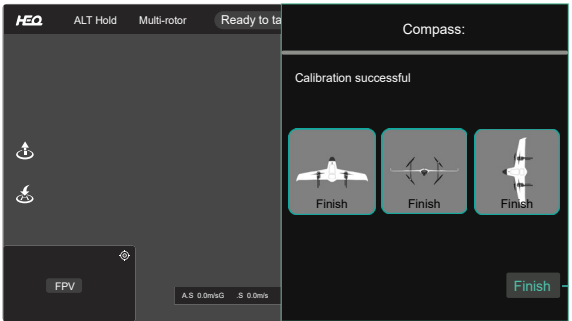
Press the  button again to switch back to rotor mode.

# Aircraft Calibration

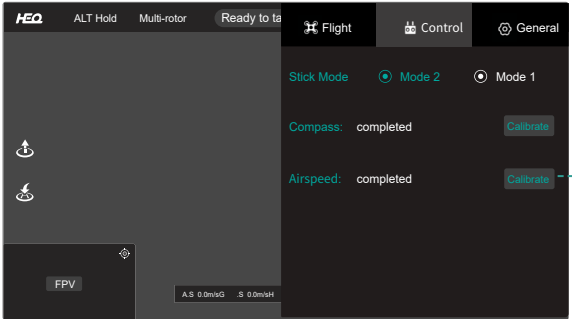
Please calibrate the airspeed meter and compass before flying, It needs to be re-calibrated If the absolute value of the airspeed is more than 5.

The compass needs to be calibrated for the first flight. If the location environment is changed, the magnetic compass needs to be re-calibrated. if the location environment is not changed, it is not necessary to calibrate it again.

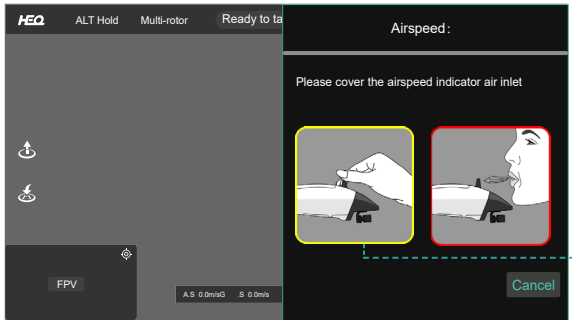




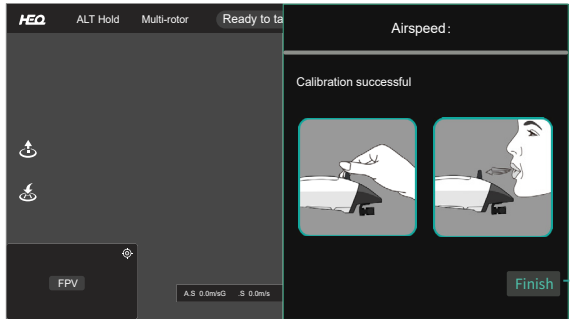
Compass calibration completed



Calibrate airspeed meter



Follow the prompts



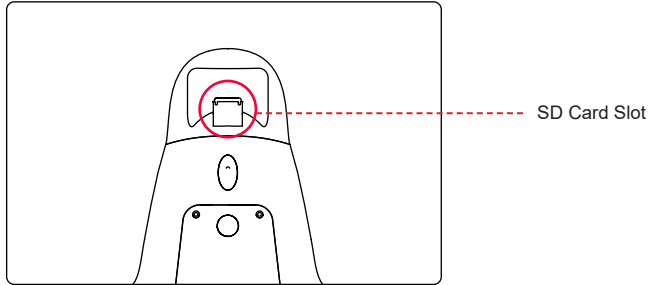
Calibration completed

# Gimbal

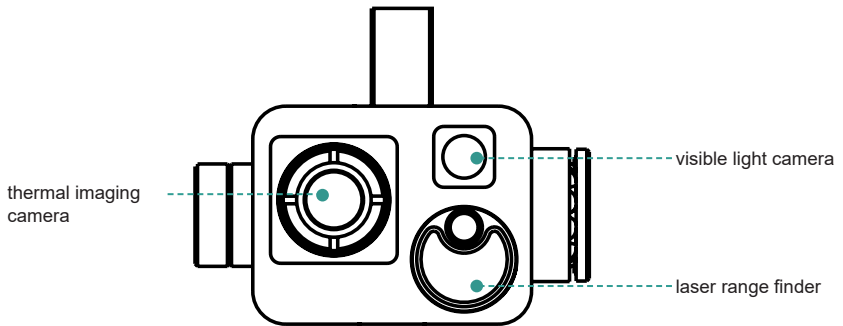
Open the silicone cover of the SD card slot on the top of the host hood, insert an SD card to capture/copy high-definition photos and videos.

Ensure the aircraft is powered off when inserting the SD card.

Use an SD card with a U3 Speed for taking photos/videos ( $\geq$  reading 170MB/writing 90MB).

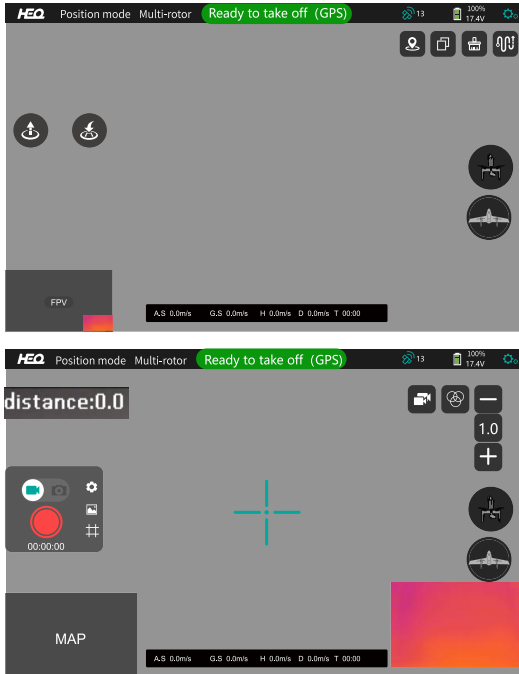


## G640 three-light gimbal

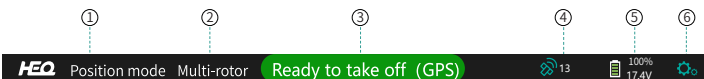


# HEQ FLY App Introduction

## APP interface introduction



### Aircraft information prompt bar



1. Flight mode: switch between altitude mode and position mode.
2. Model mode switch: display rotor status or fixed-wing status.
3. Key information prompt.
4. GPS status: GPS satellite signal strength.
5. Aircraft battery display: remaining battery percentage of the drone's battery.
6. System settings interface

## Map Toolbar



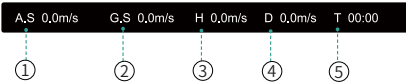
1. Aircraft positioning: One-click positioning the aircraft on the map.
  2. Map type: Switch between satellite map and street map.
  3. Clear button: Clear the flight path of the aircraft on the map.
  4. Route Planning: Plan automatic flight routes for the drone aircraft.
- 

## Attitude ball



1. Attitude ball: the roll and pitch attitude of the aircraft.
- 

## Flight Parameters



1. Airspeed: The speed of the aircraft relative to the air during flight.
  2. Ground speed: The speed of the aircraft relative to the ground during flight.
  3. Flight altitude: The height of the aircraft above the ground during flight.
  4. Distance from home: The distance from the takeoff point to the current location of the aircraft.
  5. Flight time: The time is calculated from when the aircraft is unlocked.
- 

## screen switching



- 1.FPV screen
- 2.map screen
- 3.Thermal imaging screen



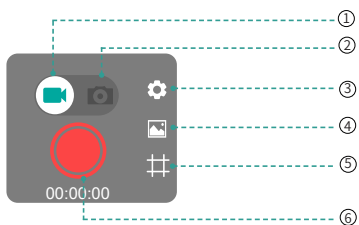
## Intelligent Toolbar



1. One-key takeoff
2. One-key return

---

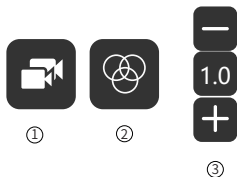
## Shooting Settings Bar



1. Record
2. Shoot
3. Settings: Set the shooting size
4. Album: Preview captured photos/videos
5. Reference line
6. Start/Stop recording

---

## Video Switching



1. Preview Mode Switching: Main Visible, Secondary Infrared; Only Visible; Main Infrared, Secondary Visible; Only Infrared.
2. Pseudo-color Switching.
3. Video Zoom In and Out.

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## Laser Ranging

**distance:0.0**

Laser ranging distance display

# Parameter list

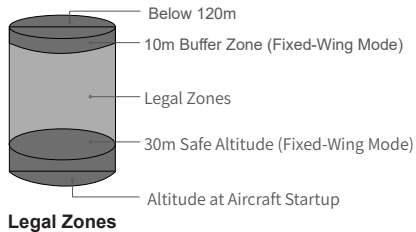
| <b>Aircraft Parameters</b>    |   |
|-------------------------------|---|
| Wingspan                      | 1.1m  |
| Empty Aircraft Weight         | 1.12kg  |
| Flight Duration               | 50~60 minutes   |
| Flight Speed                  | 10m/s-25m/s   |
| Range                         | 35-40km   |
| Takeoff Weight                | 2.02kg  |
| Maximum Flight Altitude       | 500m  |
| Wind Resistance Level         | Level 5   |
| Image Transmission Distance   | 15km  |
| Remote Control Frequency      | 5.8GHz  |
| Image Transmission Resolution | 1080p   |
| Package Dimensions            | 580mmX470mmX202mm                                     |
| <b>Infrared Camera</b>        |   |
| Detector Type                 | Uncooled Vanadium Oxide Infrared Focal Plane Detector |
| Resolution                    | 640x512   |
| Pixel Pitch                   | 12μm  |
| Detector Frame Rate           | 50Hz /30Hz(1)   |
| Response Spectrum             | 8~14μm  |
| <b>Visible Light Camera</b>   |   |
| Sensor Size                   | Diagonal 6.294mm (1/2.86-inch type)                   |
| Total Pixels                  | 12.53 million pixels                                  |
| Effective Pixels              | 12.27 million pixels                                  |
| FOV                           | 74°   |
| Chip Size                     | 6.240 mm (H) x 4.672 mm (V)                           |
| <b>Laser Rangefinder</b>      |   |
| Measurement Range             | 3~600m  |
| Resolution                    | 0.1m  |
| Wavelength                    | 905nm   |

# Safe Operation Guidelines

Please choose an open and unobstructed outdoor environment for flight. The aircraft's maximum flight altitude is 500m, please do not exceed the safe flight altitude. It is necessary to strictly abide by local laws and regulations. please read the "HEQ Disclaimer and Safety Guidelines" to understand safety precautions before flying.

## Safety Guidelines for Flying

1. Fly in open areas without crowds, trees, airports, or buildings.
2. Stay away from wind farms, high-voltage power lines, substations, radio signal towers, tall buildings, and environments that may generate magnetic interference.
3. Fly in good weather conditions and avoid flying in rain, strong winds, or extreme weather.
4. Adhere to legal regulations and fly in authorized areas.
5. Do not fly indoors.
6. SWAN-K1 can only withstand wind speeds of up to 10.7 m/s (Force 5). Do not fly when the wind speed is equal to or greater than 10.7 m/s. In case of strong winds, land promptly.
7. Maintain visual contact during flight to keep the vertical take-off fixed-wing aircraft at a safe distance from obstacles, crowds, bodies of water, mountains, and other objects.



## Pre-flight Checklist

1. Make sure the aircraft's left lever is set to position mode.
2. Ensure that the propellers are securely fastened, and the aircraft is fully assembled before flight.
3. Both the drone and remote controller should have sufficient battery power.
4. Ensure that you have connected to Wi-Fi before flight.
5. GPS signal strength should be  $\geq 9$  satellites.
6. After powering on, verify that the camera and gimbal are functioning correctly.
7. Ensure that the airspeed sensor inlet is free of obstructions and undamaged.
8. Ensure that there are no obstructions or blockages in the aircraft's ventilation holes.

## Operating Instructions

1. Start by turning on the remote controller, then power up the VTOL aircraft. Once communication is established, the remote controller will emit a "beep" sound.
2. Before takeoff, ensure that the VTOL aircraft has acquired a sufficient number of satellites and is in a position lock state.
3. After placing the VTOL aircraft at a certain distance, unlock it. Pull the throttle on the remote controller to the lowest position and push the yaw stick to the right to start the VTOL aircraft. The motor will idle.
4. Prohibited to take off from a moving vehicle.
5. Calibrate the airspeed sensor and compass according to the prompts in the HEQ FLY APP.
6. Taking off and landing must be on flat, sand-free, open ground.
7. Do not touch the motors or propeller blades while they are running.
8. Avoid making or receiving phone calls, sending text messages, or using other devices that may interfere with your operation during flight.
9. Operating the VTOL aircraft under the influence of alcohol or drugs is prohibited.
10. During fixed-wing mode flight, if a return home is triggered (due to loss of control, geofencing, low battery, etc.), the VTOL aircraft will return to the home point and land. To cancel the return home, press the "B" (return home button).
11. When flying in rotary-wing mode and switching to fixed-wing mode, the altitude must be at least 30 meters or higher; otherwise, the switch will fail, and the SWAN-K1 will return to rotary-wing mode. The HEQ FLY APP will display "Abort: dangerous height." To switch back to fixed-wing mode, raise the VTOL aircraft higher, press the "A" button on the remote controller to reset the status, and then press the "A" button again to switch to fixed-wing mode.
12. When the low battery warning is activated, return home and land as soon as possible.
13. In the event of a loss of control or flying into a geofenced area, the VTOL aircraft will automatically return home and land.
14. When landing, please fly the vertical fixed wing above point H, circle to lower the flight altitude, and then switch to rotor mode to land manually.
15. GPS signal quality can be affected by the environment. Do not overly rely on the automatic return home function. If the VTOL aircraft deviates from the return home point during the automatic return home and landing process, please disable the automatic return home function and manually guide the aircraft to a suitable landing location.
16. After the VTOL aircraft has landed, pull the throttle to the lowest position and move the yaw stick to the leftmost position to lock it. The motor stops after locking.
17. Once the motor has stopped, disconnect the power to the VTOL aircraft before turning off the remote controller to avoid triggering the loss of control protection.

## Disclaimer

Thank you for purchasing HEQ™ SWAN-K1 Vertical Takeoff and Landing Fixed-Wing (hereinafter referred to as "SWAN-K1" or "VTOL fixed-wing"). Operating the HEQ™ SWAN-K1 fixed-wing requires a certain level of risk awareness, and its use by individuals under 18 years of age is prohibited. Please keep the VTOL fixed-wing and accessories out of the reach of children.

The SWAN-K1 features vertical takeoff and landing capabilities, and, when its components are undamaged and properly installed, it can take off vertically in a horizontal plane environment. After reaching a safe altitude, it can switch to fixed-wing mode, no longer restricted by the flying field. In rotor mode, the SWAN-K1 can hover in place, and in fixed-wing mode, it will maintain straight-line flight at a constant altitude. You can change the SWAN-K1's attitude and flight altitude by manipulating the controls, and when you release the controls, the SWAN-K1 will maintain altitude and stable straight-line flight, allowing you to easily experience fixed-wing FPV flight. Visit <https://store.hequavtech.com> for the latest instructions and warnings. HEQ™ reserves the right to update this disclaimer. For the most current disclaimer, please refer to the official website at <https://store.hequavtech.com>.

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