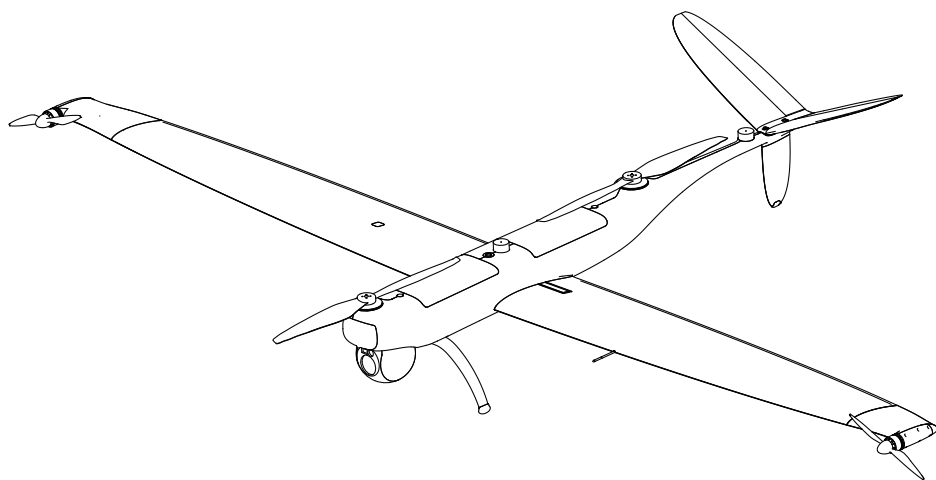


# Dragonfish Pro

## Quick Start Guide

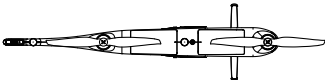

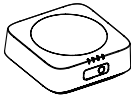
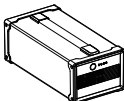
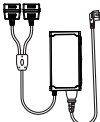
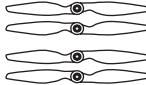

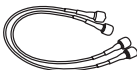
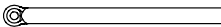






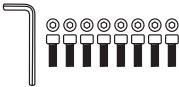

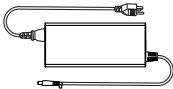

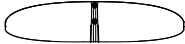



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## Item list

	Aircraft body	1pc
	9.7-inch ground station	1pc
	Base station	1pc
	Battery	4pcs (the actual quantity is subject to the purchased set)
	Charger + AC line	1pc
	Propeller blades	2pairs
	Base station antenna	2pcs
	Base station feeder	2pcs
	Airspeed indicator cover	1pc
	Base station tray	1pc

	Base station tripod	1pc
	Base station charger	1pc
	USB Type-C cable	1pc
	Repair tool kit	1pc
	Gimbal Camera	1pc (The gimbal model is subject to the actual set purchased)
	Ground station charger	1pc
	Ground station lanyard	1pc
	Tail	1pc
	Wing set	1pairs
	TF card	1pc
	Documentation	1set (includes Dragonfish Pro, Base station, Charger, Battery quick guide, Disclaimer)

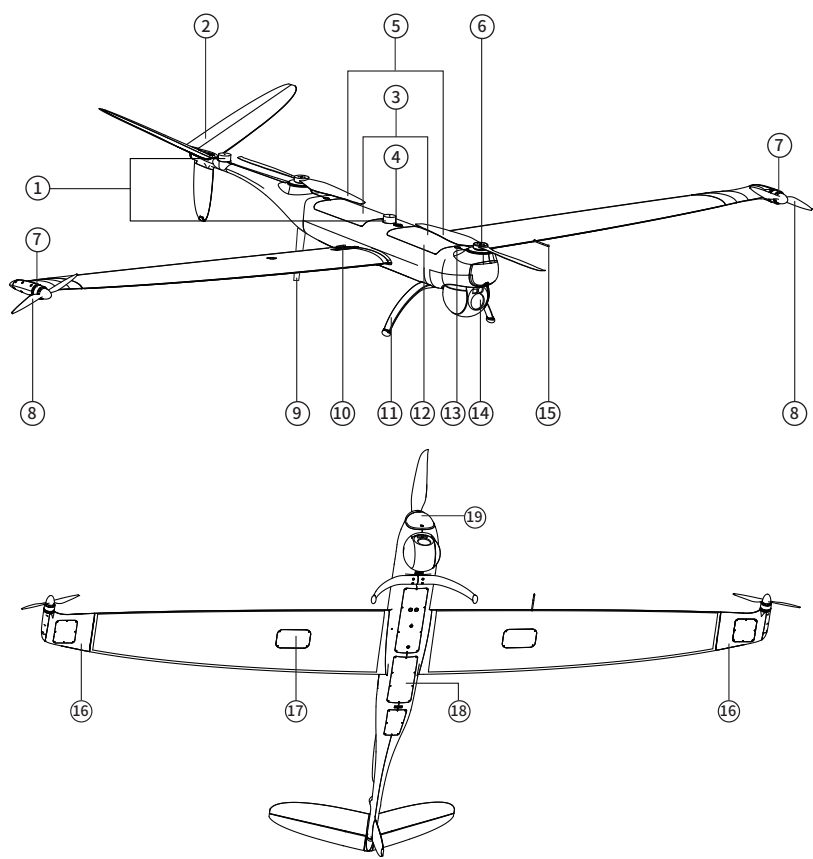
# Getting to know the aircraft

The Dragonfish Pro aircraft integrates intelligent and superior flight control technology, gimbal technology, and imaging technology. The aircraft boasts a new tilt rotor design that combines the efficiency of fixed-wing aircraft endurance with the takeoff convenience of traditional multi-rotor drones. A 5 second self-check system ensures the aircraft is safe and ready for operation. It can be assembled quickly, enabling set up and take-off in a matter of minutes.

The Dragonfish Pro offers a maximum flight time of up to 158 minutes and a video transmission range of 30 km. It comes built in with a range of intelligent features such as automatic take-off and landing, intelligent tracking, terrain follow and more.

Tough and reliable, the Dragonfish Pro has an IP43 protection rating to enable operations across a variety of terrains. It also features a modular payload mount with an integrated quick release function that enables operators to mount a dual sensor, a triple sensor, or a multispectral payload effortlessly to suit mission needs.

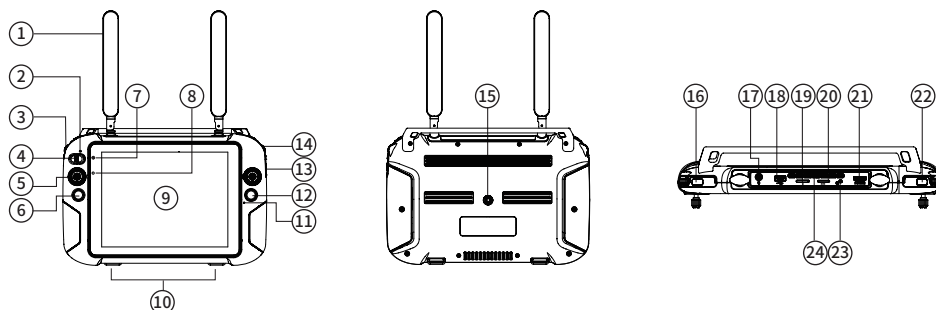
onside the aircraft is a GNSS Base Station and the integrated, Dual RTK modules that equip the aircraft with additional redundancy. This allows the Dragonfish Pro to fly confidently in complex environments while capturing precise, centimeter-accurate data.



- ① RTK antenna
- ② Tail
- ③ Smart battery
- ④ Power button/indicator
- ⑤ Propeller blades
- ⑥ Body motor
- ⑦ Wing motor
- ⑧ Wingtip propellers
- ⑨ Rear landing gear
- ⑩ Wing lock
- ⑪ Front landing gear
- ⑫ Battery cover
- ⑬ Battery release button
- ⑭ Gimbal camera
- ⑮ Airspeed sensor
- ⑯ Tilt wingtip
- ⑰ GPS module
- ⑱ Ultrasonic Positioning Sensors
- ⑲ Millimeter-wave radar

## Getting to know the portable ground station

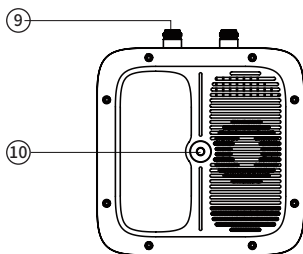
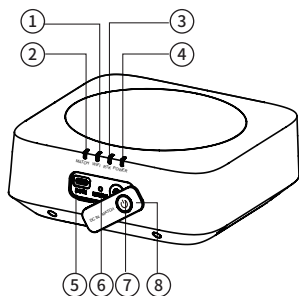
The Dragonfish Pro is equipped with a 9.7-inch TFT-LCD touch screen (2048\*1536). It offers a brightness of 1000 cd/m2, making it almost twice as bright as typical mobile devices. The screen can display images clearly even in direct sunlight, and a built-in 256G memory makes it convenient for storing all your critical data. With an image transmission range of 30km and a battery life of 4.5 hours, the ground station guarantees optimal performance and reliability.



- ① Antenna
- ② Mode switch indicator
- ③ Gimbal pitch control wheel
- ④ Manual/Auto mode switch key
- ⑤ Joystick
- ⑥ Home button
- ⑦ Power status indicator
- ⑧ Light perception sensor
- ⑨ Touch screen
- ⑩ Hooks (for lanyard support)
- ⑪ Microphone
- ⑫ Photo/Video button
- ⑬ Zoom button
- ⑭ Gimbal level control dial
- ⑮ Tripod mounting interface
- ⑯ Power button
- ⑰ Charging port
- ⑱ USB port
- ⑲ SD card slot
- ⑳ SIM card slot
- ㉑ HDMI port
- ㉒ Custom buttons
- ㉓ Headphone jack
- ㉔ Air outlet

## Getting to know the base station

The Dragonfish base station is a high-precision satellite signal receiver that supports GPS, Beidou, Galileo and GLONASS navigation systems. It can be used across a variety of applications and environments. The base station and the integrated, Dual RTK modules equip the aircraft with additional redundancy and positioning accuracy to provide precise, centimeter accurate data. It also enables the Dragonfish Pro to withstand signal interference in strong magnetic environments such as power lines and near buildings.



① WiFi indicator

② Linking indicator

③ RTK indicator

④ Power indicator

⑤ Charging port

⑥ Frequency button

⑦ Power button

⑧ Port cover

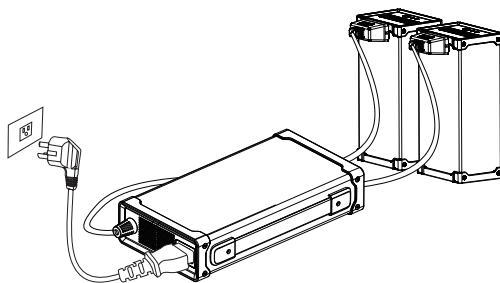
⑨ Antenna interface

⑩ Tripod interface

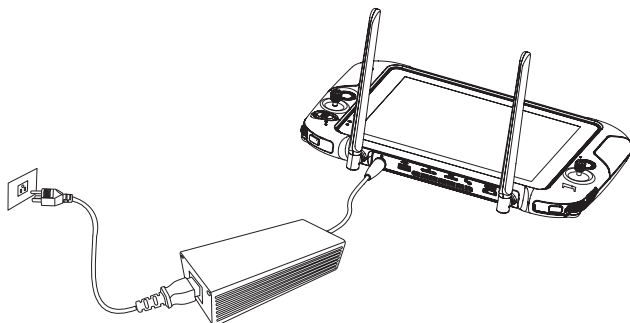
## Using the Dragonfish Pro

### Charging

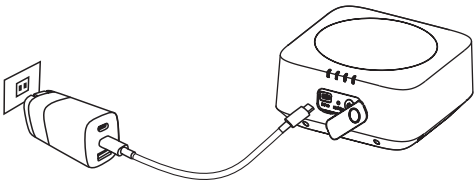
#### 1. Charging the Intelligent flight battery



#### 2. Charging the ground station

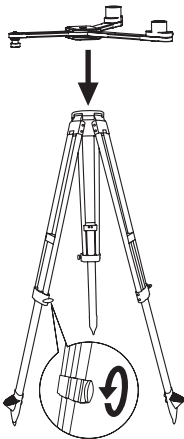
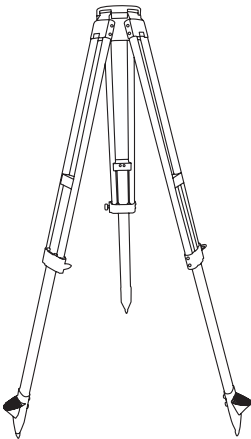


3. Charging the base station

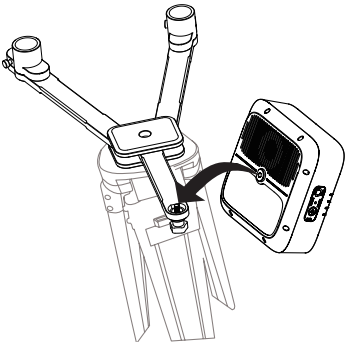


Setting up the base station

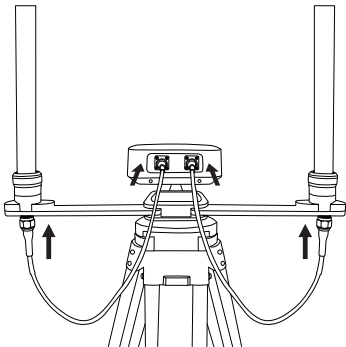
1. Unfold the tripod, install the base station tray, and lock the tray.



2. Install the base station body to the tray and tighten the lock on the tray nut. Ensure that the base station is level and stable.



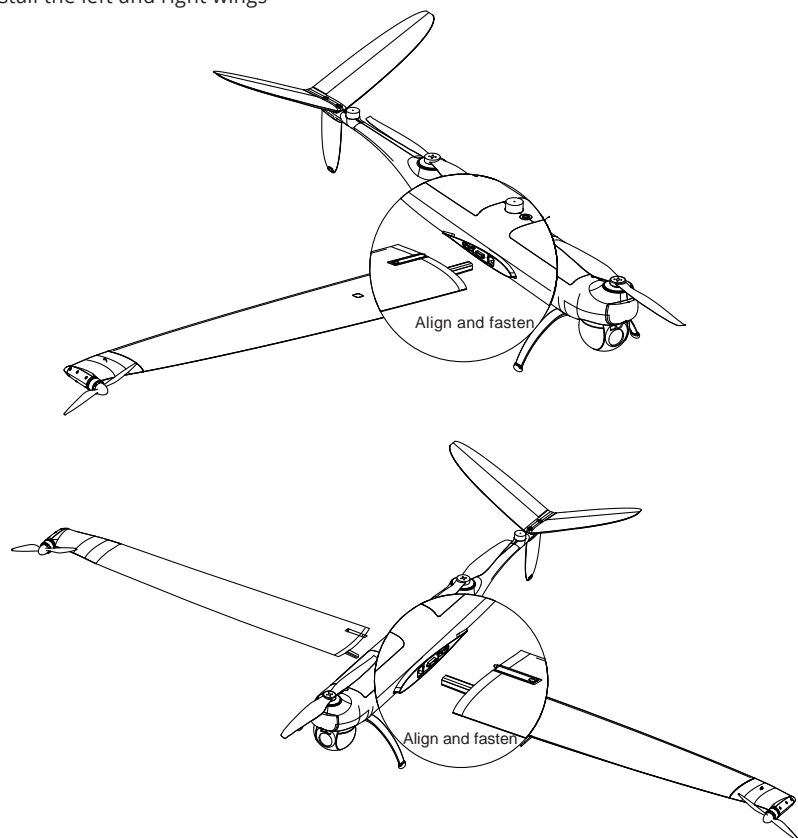
3. Install the antenna on the tripod and connect the antenna feeder to the base station antenna port.



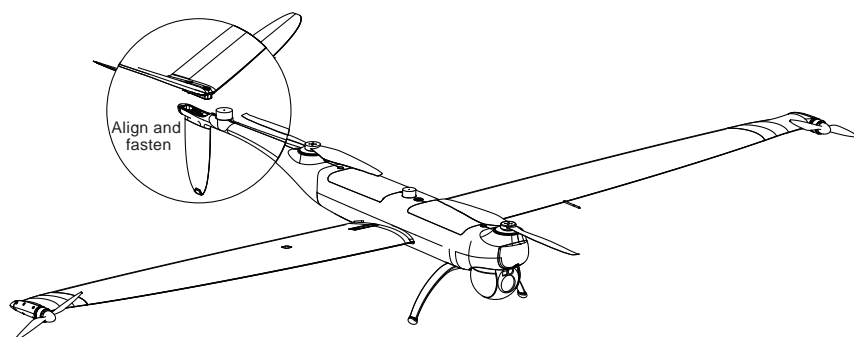


## Assembling the aircraft

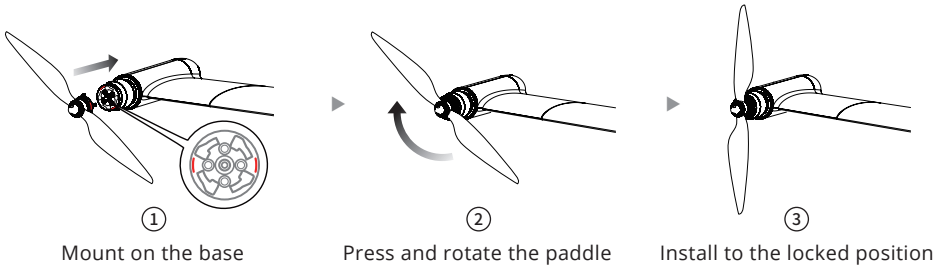
### 1. Install the left and right wings



### 2. Install the tail



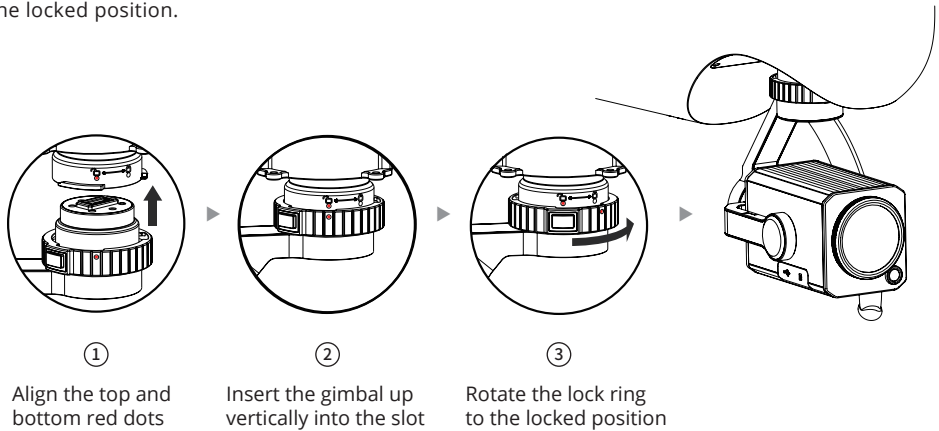
3.Install the wingtip propeller



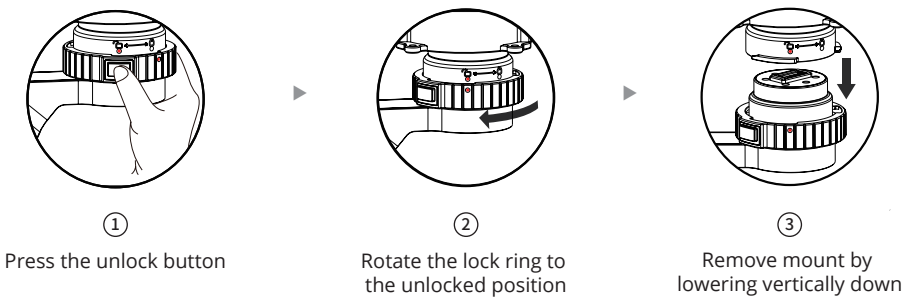
- Locking direction: Press and Rotate in the indicated direction to lock the propeller.
- Unlocking direction: Press and Rotate the propeller in the opposite direction to unlock it.
- The marked propeller is to be mounted on the marked motor
- Unmarked propeller is to be mounted on the unmarked motor

4. Mounting

Align the red dots on the mount with the red dots of the gimbal interface of the fuselage, and rotate the locked position.

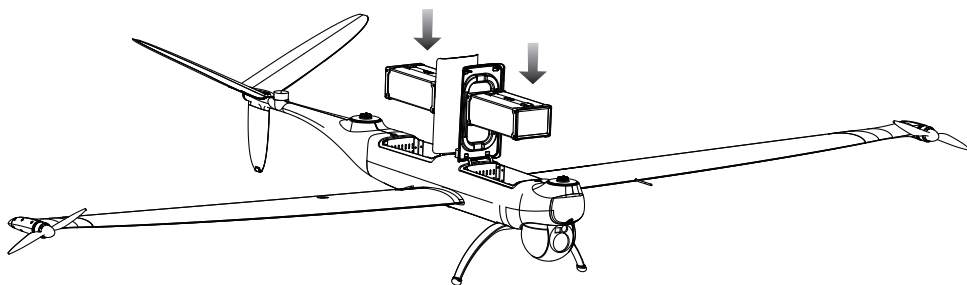


5. Unlock mount



## 6. Installing the intelligent Flight Battery

When installing or removing the aircraft battery, be sure to power off the aircraft.

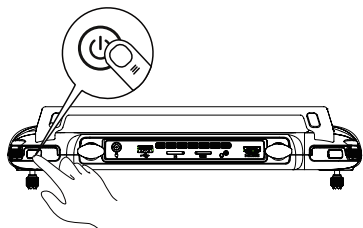


Align the battery to the battery interface on the fuselage and install it.

## Powering on / Activating the aircraft

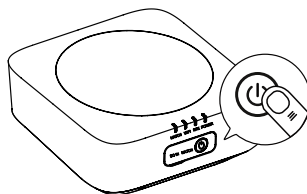
### 1. Powering on the base station

Short press the power button for 1 second to turn on the base station.



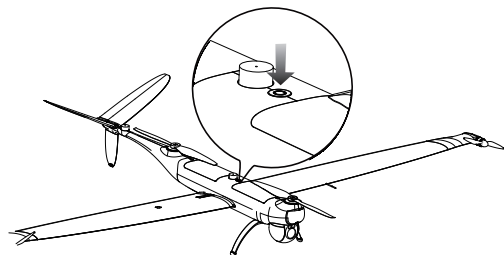
### 2. Powering on the ground station

Short press the power button for 1 second to turn on the ground station.



### 3. Powering on the aircraft

Press the power button on the aircraft body for 3 seconds to power on the aircraft.



### 4. Activating the aircraft

Open the APP and click the activation button to activate the aircraft.

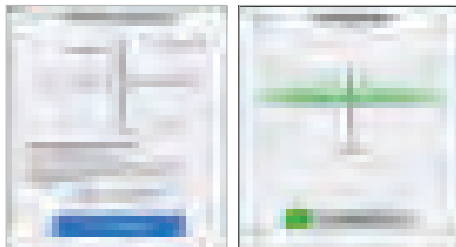
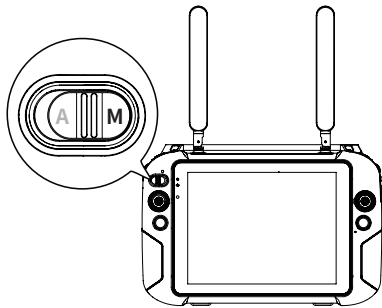


## Flight

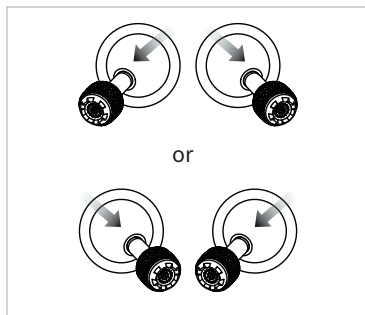
Enter the APP safe flight interface. Before taking off, please place the aircraft on a flat surface with the tail facing towards you.

### Manual takeoff

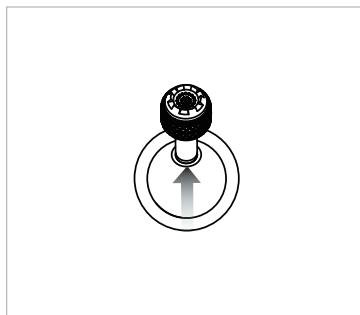
1. Switch the ground station gear to M gear.
2. Check the aircraft system status.



3. Simultaneously move the joystick in inwards or outwards and hold for 2 seconds to arm the motors.



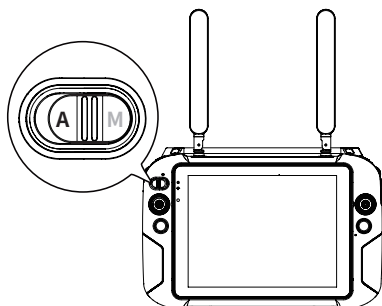
4. Push up the left stick (mode 2) to take off.



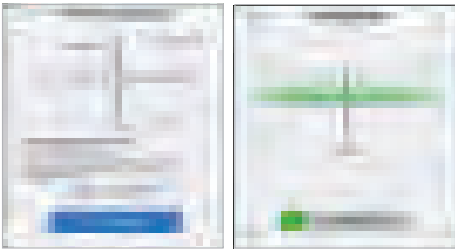
\*Manual mode is not recommended for non-professionals.

### Automatic takeoff

1. Switch the ground station gear to A gear
2. Click the Create Mission button to plan the mission



3. Aircraft system status check



4. Flight interface display



Specifications

Aircraft

Size	1.65x3.04x0.46 m
Weight (including two batteries, without gimbal)	14.5 kg
Single battery weight	3.6kg
Maximum load	2.5 kg
Maximum take-off weight	17.0 kg
Working frequency	Video Transmission 902-928 MHz (Only for FCC/ISED); 2.4000-2.4835 GHz; 5.150-5.250 GHz (Only for FCC/ISED); 5.725-5.850 GHz Data Transmission 5.729-5.771 GHz
Maximum angular velocity	Pitch: 180° /s Yaw: 60° /s
Maximum pitch angle	20°
Maximum roll angle	35°
Maximum ascent speed	Vertical flight mode: 4 m/s Fixed-wing flight mode: 5 m/s
Maximum descent speed (vertical)	Vertical flight mode: 3 m/s Fixed-wing flight mode: 5 m/s
Maximum horizontal flight speed	0~17 m/s (multi-rotor) 17~30 m/s (fixed-wing)

Maximum service altitude	6000 m
Maximum wind resistance	During fixed-wing flight: 15 m/s (level 7 wind) Vertical take-off and landing: 12 m/s (level 6 wind)
Maximum flight time	158 min
Supported Payloads	DG-Z2, T3, T3H, L20T, L50T
Supported Gimbal Configurations	Fast Disassembly
Ingress Protection Rating	IP43
GNSS	GPS + GLONASS + BeiDou + Galileo
Working temperature	-20° C to 50° C
EIRP (Equivalent radiated power)	900MHz FCC/ISED: < 30 dBm; 2.4 GHz FCC/ISED/RCM: < 30 dBm CE: < 20 dBm; 5.2 GHz FCC/ISED: < 25 dBm 5.8 GHz FCC/ISED/RCM: < 26 dBm
Hovering accuracy (P-GPS)	Vertical: ±0.1 m (when the visual positioning is working normally) ±0.5 m (when GPS is working normally) ±0.1 m (when RTK positioning is working normally) Horizontal: ±0.3 m (when visual positioning is working normally) ±1.5 m (when GPS is working normally) ±0.1 m (when RTK positioning is working normally)
RTK positioning accuracy	When RTK enabled and fixed: Multi-rotor: 1 cm+1 ppm (Horizontal) 1.5 cm + 1 ppm (Vertical) Fixed Wing: 3 cm+1 ppm (Horizontal) 3 cm + 1 ppm (Vertical)

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## 9.7 inch ground control station

### Image transmission parameters

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Working frequency	902-928 MHz (Only for FCC/ISED); 2.4000-2.4835 GHz; 5.150-5.250 GHz (Only for FCC/ISED); 5.725-5.850 GHz
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Maximum transmitting distance  
(unobstructed, free of interference)

9FCC: 10 km  
CE: 5 km

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## Digital transmission

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Working frequency

5.729-5.771 GHz

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## Wi-Fi parameters

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Protocol

Wi-Fi Direct;  
Wireless;  
Display;

Working efficiency

802.11a/g/n/ac;  
Wi-Fi with 2×2 MIMO

2.400 - 2.4835 GHz  
5.150 - 5.250GHz (Only for FCC/ISED)  
5.725 - 5.850 GHz

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## Other parameters

---

Battery

Name: Lithium polymer Battery Capacity: 8200mAh  
Voltage: 11.4 V  
Battery type: Li-Po  
Energy: 93 Wh  
Charging time: 120 minutes

Battery life

Approximately 3 hours (maximum brightness)  
Approximately 4.5 hours (50% brightness)

Storage

ROM 256GB + expandable (support TF card)

Video output interface

HDMI interface

USB-A interface supply voltage/current

5V / 500m A

Working temperature

-20°C to 40°C

Storage temperature

-20°C to 60°C (within one month)  
-20°C to 45°C (within three months)  
-20°C to 30°C (within one year)

Charging environment temperature

0°C to 45°C

Satellite positioning module	GPS + GLONASS + Galileo
Size	319×233×74 mm (antenna folded) 319×398×74 mm (antenna expanded)
Weight	1987g

## Base station

### GNSS receiver

Satellite receiving frequency	Simultaneously receive: GPS: L1, L2, L5 BeiDou: B1, B2, B3 GLONASS: F1, F2 Galileo: E1, E5A, E5B
Positioning accuracy	Single Point Horizontal: 1.5 m (RMS) Vertical: 3.0 m (RMS) RTK Horizontal: 1 cm+1 ppm (RMS) Vertical: 1.5 cm + 1 ppm (RMS) 1 ppm: For every 1 km increase in distance, the accuracy will be 1 mm less. For example, the horizontal accuracy is 1.1 cm when the receiving end is 1 km away from the base station.
Positioning update rate	1 Hz, 2 Hz, 5 Hz, 10 Hz and 20Hz
Cold start	<40s
Hot Start	< 10 s
Recapture Initialization reliability	< 1 s
Initialization reliability	> 99.9%
Differential data transmission format	RTCM 2.X/3.X
Data link	Image transmission, Wi-Fi

## Electrical characteristics

Power consumption	7.5W
Power supply	5 to 20V DC
Battery	Type: Lithium polymer battery Capacity: 4950 mAh Energy: 57.1 WH
Runtime	>7.5h



Physical properties

Dimensions (base station body + extension rod)	193 mm×177 mm×73 mm
Weight	1275g
Ingress protection	IP64
Working temperature	-20°C to 50°C

Image transmission parameters

Working efficiency	902-928 MHz (Only for FCC/ISED); 2.4000-2.4835 GHz; 5.150-5.250 GHz (Only for FCC/ISED); 5.725-5.850 GHz
EIRP (Equivalent radiated power)	900MHz FCC/ISED: < 30 dBm; 2.4 GHz FCC/ISED/RCM: < 30 dBm CE: < 20 dBm; 5.2 GHz FCC/ISED: < 25 dBm 5.8 GHz FCC/ISED/RCM: < 26 dBm CE: < 14 dBm

WIFI parameters

Working efficiency	5.725-5.850GHz
EIRP (Equivalent radiated power)	5.725-5.850GHz FCC/ISED/RCM: < 26 dBm; CE: < 14 dBm
Communication distance	Base station and aircraft: 30km (FCC) Base station and ground station: 200m (FCC) (Unobstructed and free of interference, when the mobile station is used as a base station and the distance from the mobile station antenna to the bottom of the tripod is 2 m; and when the difference in height between the remote controller and mobile station is less than 10 m, and when the remote controller is 1.2 m from ground level)