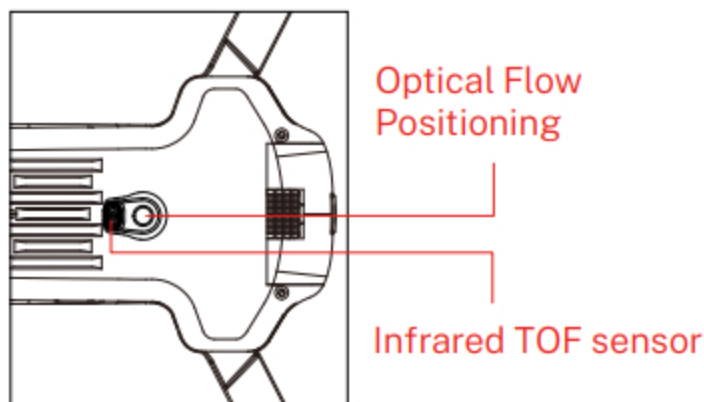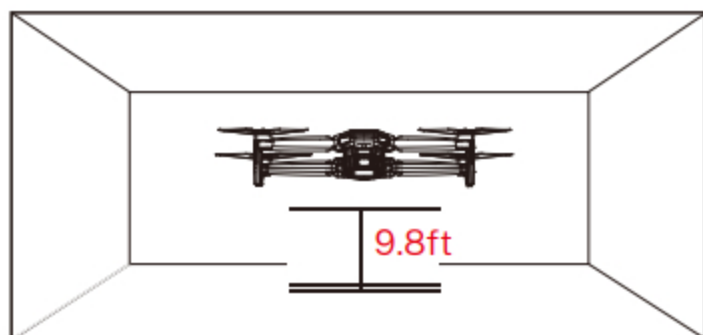## 3.3 TOF, Optical Flow Positioning

The F7GIM is equipped with advanced infrared TOF (Time of Flight) sensing and a downward Optical Flow Positioning system, enhancing adaptability across various environments:

- Infrared TOF Sensor: This technology ensures precise distance measurement, providing stable low-altitude flight and smooth landings.

- Optical Flow Positioning: Using downward vision cameras and sensors, this system enables the drone to hover steadily at low altitudes, especially indoors. This feature activates only in altitude mode (indoor mode).

9.8ft

Optical Flow Positioning

Infrared TOF sensor

⚠️

- Optical flow positioning can only assist flight in environments with sufficient lighting and textured surfaces. It cannot fully replace user judgment, so please pay attention to the aircraft's status and the APP prompts. Do not overly rely on the optical flow positioning.

- Optical flow positioning may perform poorly or fail in environments that are too bright, too dark, mirror-like, smooth single-colored surfaces, water surfaces, reflective surfaces, or sparsely textured surfaces.

- The optimal working range for optical flow positioning is between 1.64ft (0.5m) to 9.84ft (3m). Beyond this range, the performance of the downward optical flow vision system may be less effective, so please fly with caution.

- Ensure that the lens of the optical flow vision system is clean, and avoid blocking or interfering with it.

- Optical flow positioning can only be used in attitude mode. When the aircraft successfully acquires a GPS signal outdoors, it will automatically switch to GPS positioning mode.

- The TOF effectively at distances below 16.4ft (5m). However, it may not work properly over water surfaces or highly complex terrain.

3.4 Propellers

- The propellers on the adjacent motors of the F7GIM are forward and reverse propellers. The two propellers on the same motor are the same, and the propellers are marked A and B respectively.

Propellers	Mark A	Mark B
A ... B / B ... A (drone diagram)	(yellow propeller with A mark)	(green propeller with B mark)
Installation location	Installed to the motor with A mark on the arm	Installed to the motor with B mark on the arm
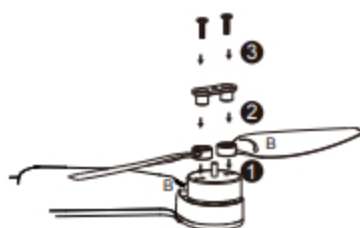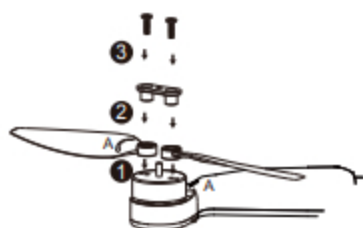
Install the propellers

- Taking the camera direction as the front, the left front arm and right rear arm must be installed with propellers marked with A; the right front arm and left rear arm must be installed with propellers marked with B. Use a screwdriver to install and make sure the screws are tightened.

Detach the Propellers
- Use the screwdriver to detach the propellers from the motors.

⚠️
- Please use the propellers provided by Bwine, and do not mix propellers of different types.

- Please check whether the propeller is installed correctly and tightly before each flight.

- Please check to make sure that the propellers are in good condition before each flight.

3.5 Smart Flight Battery

- The F7GIM smart flight battery has a capacity of 3200mAh, a rated voltage of 7.7V, and includes charge/discharge management features. This battery uses high-energy, large-capacity cells to provide strong support for the aircraft's flight time.

3.5.1 Battery Features

|	
Balance Protection	Automatically balance the internal battery cell voltage to protect the battery.
Overcharge Protection	It can prevent the battery from being overcharged and causing serious damage to the battery. When the battery is fully charged, remove the charger device in time.
Over-discharge Protection	It can avoid damaging the battery due to over-discharge.
Short Circuit Protection	When the battery detects a short circuit, the output will be cut off to protect the battery.

⚠️

- Please read carefully and strictly abide by Bwine's Requirements in this User Manual, Flight Guide & Safety Disclaimer, and stickers on the battery surface before using the battery. The user shall bear the consequences caused by failure to use it as required.
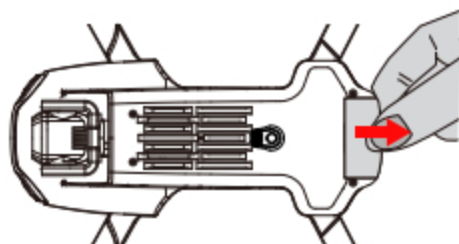
3.5.2 Install / Remove the Battery

· **Install**

Insert the smart flight battery into the battery compartment and push it down until you hear a "click" from the battery buckle, indicating that it pops up and locks. Make sure the battery is in place.
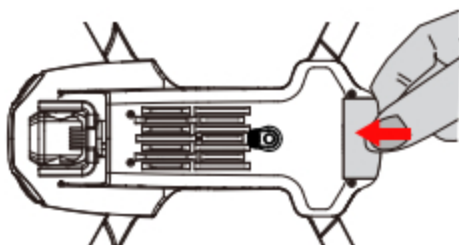
· **Remove**

To remove the battery, press the buckle on the bottom of the battery and pull the battery out of the compartment.


⚠️

· Do not install the battery into the aircraft or remove the battery from the aircraft when the battery power is turned on. Otherwise, the poor contact of the battery interface during the operation may cause the battery to short-circuit and burn the aircraft.

· The battery must be installed or removed with the battery power turned off.
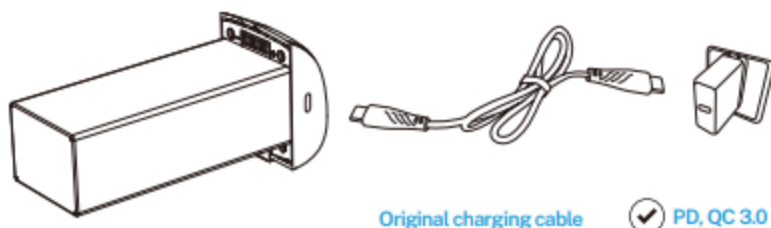
3.5.3 Powering On/Off

- Long press the power button to power on or off.

3.5.4 Checking Battery Level

- Long press the power button until all four bars of the indicator light up, then release the power button. After powering on, the power indicator shows the current battery level.
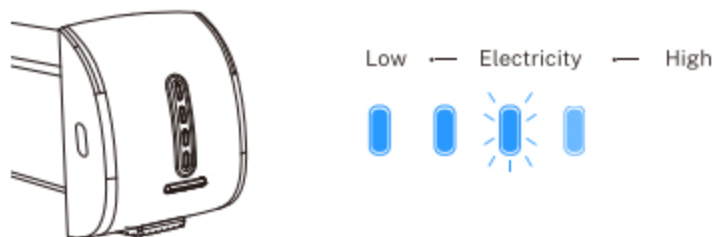
3.5.5 Charging the Battery

Original charging cable ✔ PD, QC 3.0

- Before using the smart flight battery, be sure to fully charge it.

- Please use the USB cable provided in the package for charging. Support PD, QC3.0 plug.

- Please do not use a charger over 12V to charge the battery

- In the charging state, the battery power indicator will flash and indicate the current charge level. When the fourth indicator light is always on, it indicates that the charging is complete.

- After charging is complete, please remove the charger in time.

- Charging time: 2.5 hours (using the Type-C fast charging cable that comes with the package).

3.5.6 Low Temperature Notice

- When using the battery in a low-temperature environment (32°F-41°F / 0°C-5°C), please make sure that the battery is fully charged. The flight time will be reduced as the discharge capacity of the battery will be reduced when working in a low-temperature environment.

- In a low-temperature environment, due to the battery output power limitation, the aircraft's wind resistance and flight performance will be reduced. Please be careful.

- Pay more attention when flying in low-temperature and high-altitude environments.

3.5.7 Daily Preservation Advice

- It is recommended to charge and discharge it once a month, do not store with a full charge, keep 50%-60% of the power, the storage temperature is 50°F-104°F (10°C-40°C), and the best storage temperature is 66.2°F-69.8°F (19°C -21°C).

- If water enters the battery and the battery protection board fails, the battery cannot be used normally. Do not use the battery in rain or in a humid environment, as this may cause the battery to self-ignite or even explode.

- If the battery is squeezed, deformed, and dropped from a high altitude, it is forbidden to use it again.

- Prolonged exposure to high temperatures is forbidden. High temperatures will cause the internal pressure of the battery to become too high and cause an explosion.

- The positive and negative poles are short-circuited for a long time (such as the battery contacts have water, short-circuit caused by hair or foreign objects, etc.). If it exceeds 30 minutes, the protection board IC will fail and disconnect, and the battery cannot be used normally.

- If the aircraft has not been used for a month, the battery must be removed to prevent the battery from being discharged for a long time.
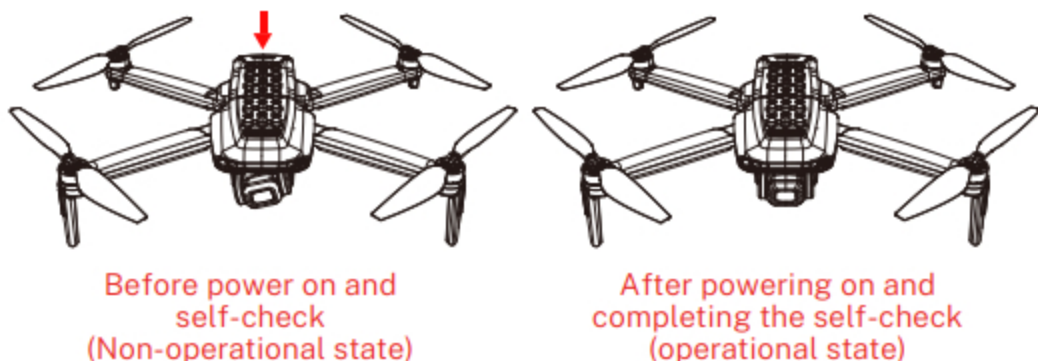
3.6 Camera Overview

- The camera uses an upgraded 5.8GHz Wi-Fi FPV real-time transmission function, equipped with a 120°FOV lens and a 90° adjustable camera as well as 3-axis brushless gimbal, which can stably shoot 4K HD video and 6K ultra-clear images, providing you with a broad field of vision for unforgettable moments.

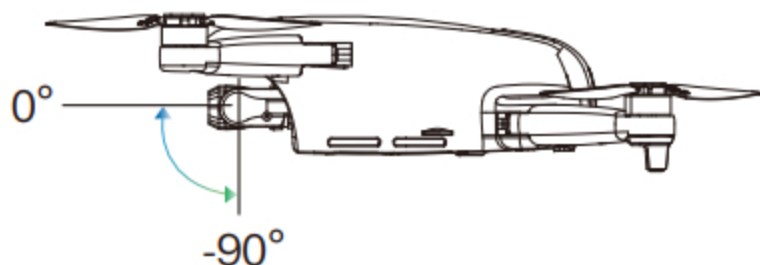### 3.6.1 3-Axis Brushless Gimbal

- The F7GIM is equipped with a three-axis mechanical stabilization gimbal, with roll, pitch, and yaw axes powered by brushless motors. This ensures stable and smooth image transmission.
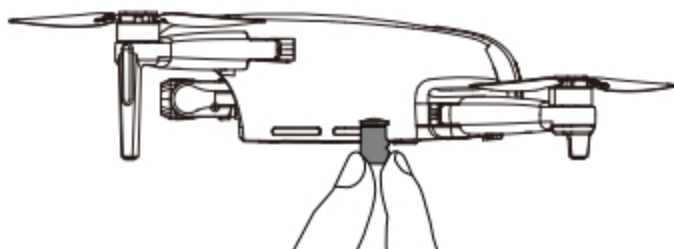
Roll Axis   Tilt Axis   Yaw Axis
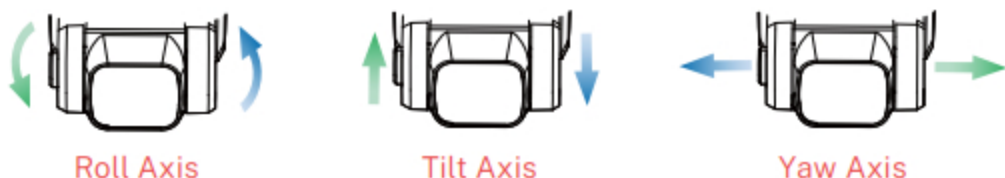
- The gimbal will not function and may appear tilted before it is powered on and completes its self-check. This is normal. Once powered on, the gimbal will automatically perform a self-check, which takes about 20 seconds. After the self-check, the gimbal will stabilize and level itself automatically.

Before power on and self-check (Non-operational state)   After powering on and completing the self-check (operational state)

3.6.2 The aircraft adjustment angle is -90° to 0°

0° ————

-90°

3.6.3 Image Storage

• The F7GIM is equipped with a micro-SD card slot for expanding storage capacity. (SD card is not included in package)

①Card speed: 10M/s.

②File format: Support FAT32 format.

③Memory capacity: A memory card with a memory capacity of 128G or less.

F7GIM	Picture	Video
App	5700×3200P 4096×3072P 3840×2160P	1280×720P@25fps
SD card	5700×3200P 4096×3072P 3840×2160P	3840×2160P@30fps 2688×1512P@50fps 2688×1512P@30fps 2048×1080P@50fps

⚠ • Check whether the capacity of the memory card is sufficient. If the capacity of the memory card is insufficient, videos and pictures cannot be stored in the memory card.

• If you cannot save pictures or videos, try formatting the memory card.

• Do not insert or remove the micro SD card after the aircraft is powered on, as this may cause damage to the card or result in data loss.

• After the memory card is installed, the picture and video files will be stored in the memory card, and the pictures and videos will not be stored on the mobile phone.

• After powering on and connecting the aircraft, you can use the app to download photos or videos stored on the aircraft's memory card to your mobile device.
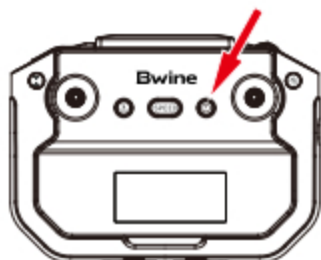
4 Remote Controller

4.1 Introduction

- Bwine remote controller uses the 5.8 GHz frequency band. The retractable handle can securely hold a phone and supports devices up to 6.7 inches in size.

- Remote controller built-in 3600mAh 3.7V capacity battery, charging time is 3.5 hours, and the longest working time is about 4 hours.

4.2 Remote Controller Instructions

### 4.2.1 Powering On/ Off

- Powering on: Long press the power button.

  Powering off: Long press the power button.

- Check the remote controller's battery level: Short press the power button.

4.2.2 The Type-C Port

- The remote controller has two Type-C ports:

- One port is located on the right side of the remote controller and is exclusively for charging.

- The other port is on the top (you need to open the phone holder to access it) and is used for data connection. This port connects the remote controller to your phone for image transmission.
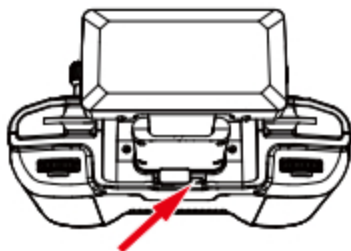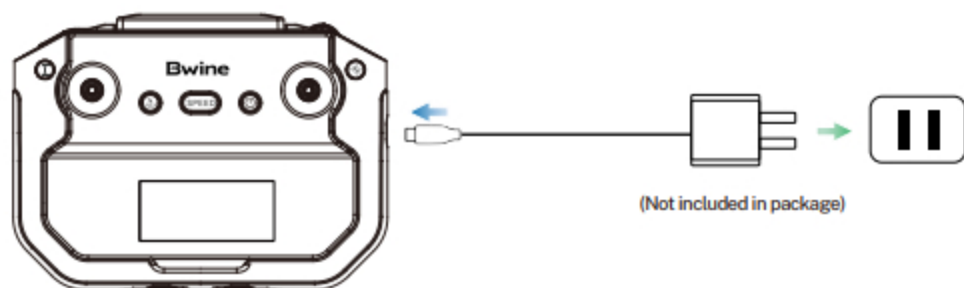
⚠️
- Important: If you attempt to use the charging port for data connection, the connection will fail, and image transmission will not be available.

4.2.3 Charging

- Connect the remote controller Type-C port to the charger to charge it.

(Not included in package)

4.2.4 Controlling the Camera

- Record Button: Short press it to start/stop recording.

- Shutter Button: Short press it to take a photo.

Camera Button

Recording Button