PowerEgg™ X

User Manual

V1.0

PowerVision

Contents

Product Profile

▌ Before Flight

It is recommended to watch all tutorial videos on the official PowerVision website and read the Safety Guidelines and Disclaimer before the first use. Prepare for your first flight by reviewing the Quick Start Guide.

Please refer to the User Manual, Safety Guidelines and Disclaimer for Smart Batteries for more information. To use the waterproof accessories, please read the Quick Start Guide.

▌ Download App and Watch the Tutorial Video

Scan the QR code or download the Vision+ 2 App from the App store.

⚠ Use the Vision+ 2 App or visit the PowerVision website to watch the tutorial video. The Vision+ 2 App requires the iOS 10.0 and above or Android 5.0 and above.

▌ About PowerEgg X

◆ Introduction

The PowerEgg X can be used an AI camera or a drone.

• AI Camera Mode

You can enter the AI Camera Mode by connecting your phone to the PowerEgg X's Wi-Fi. Use the Vision+ 2 App to control the AI camera and view your creations in real time. The maximum battery life ② is 3.5 hours.

① The visual systems and ultrasonic sensors scan only be operated in selected environment. Read the Safety Guidelines and Disclaimer and this manual for more details. Watch the Tutorial video of this product on PowerVision website or Vision+ 2 App to ensure proper use of relevant functions.

② The maximum flight time and working time are based on laboratory tests.

• Drone Mode

With a forward vision system, a downward vision system, and an ultrasonic sensor system ①, PowerEgg X can stably hover and fly both indoors and outdoors, return to home automatically, sense obstacles, and fly using Smart Flight modes. The High Precision Steady Gimbal Camera can record stable, ultra-clear 4K 60fps videos. The maximum flight time② is 30 minutes.

◆Diagram of PowerEgg X Parts

• Drone Diagram
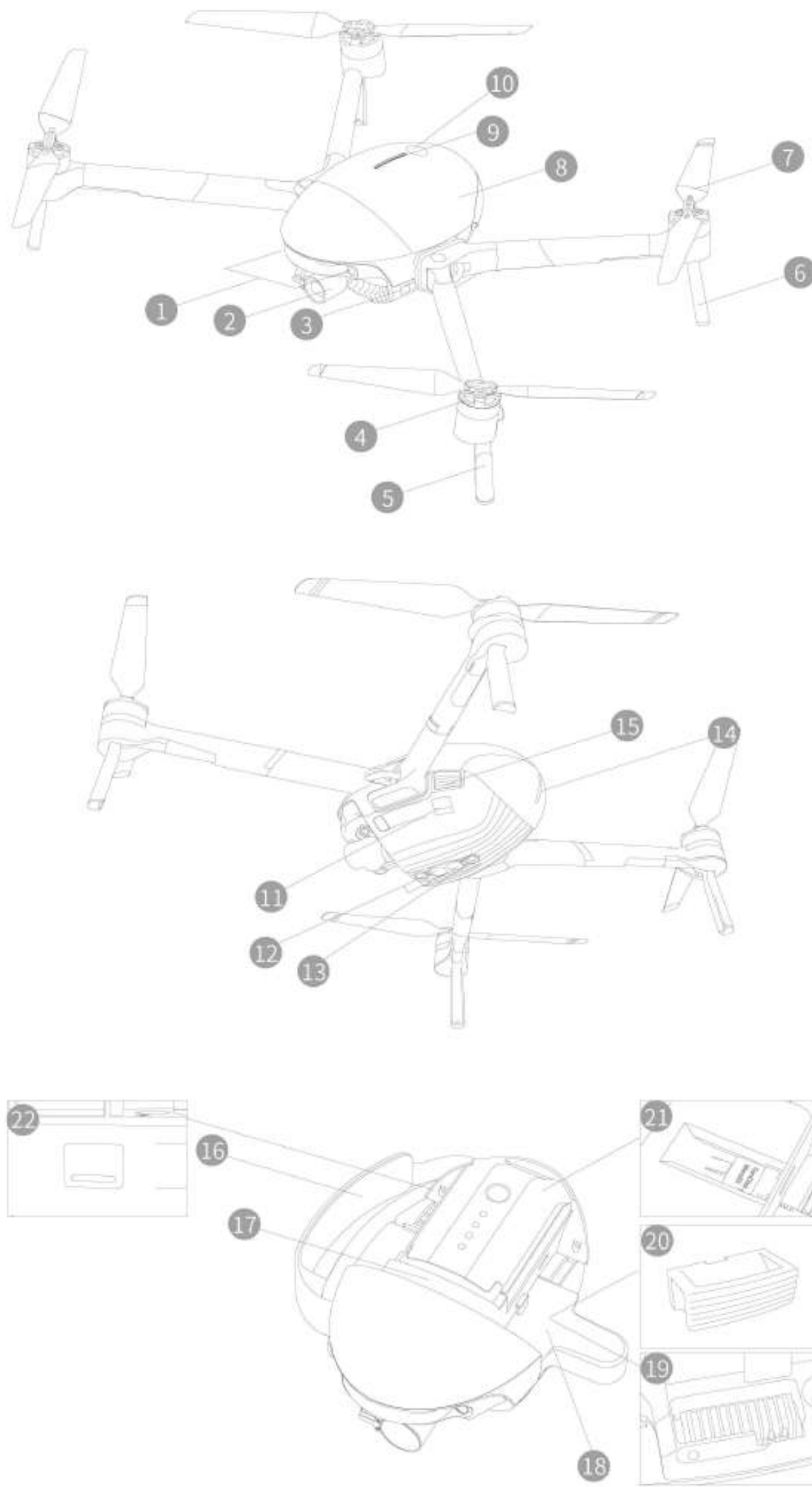
1. Forward Vision System	8. Battery Cover	16. Wristband
2. Gimbalized camera	9. Battery Level LEDs	17. Smart Battery
3. Mode indicator (headlight)	10. Power Button	18. Tripod Adapter
4. Motor	11. USB Mini Port	19. Arm Groove
5. Front Landing Gear	12. Downward Vision System	20. Arm Block
(With internal antenna)	13. Ultrasonic Sensor System	21. Micro SD Card Slot
6. Rear Landing Gear	14. Drone Status Indicator	22. USB-C Port
7. Propeller	15. Buckle of Battery Cover	

*16、18、20 are exclusively used in AI Camera mode.

• Remote Control Diagaram
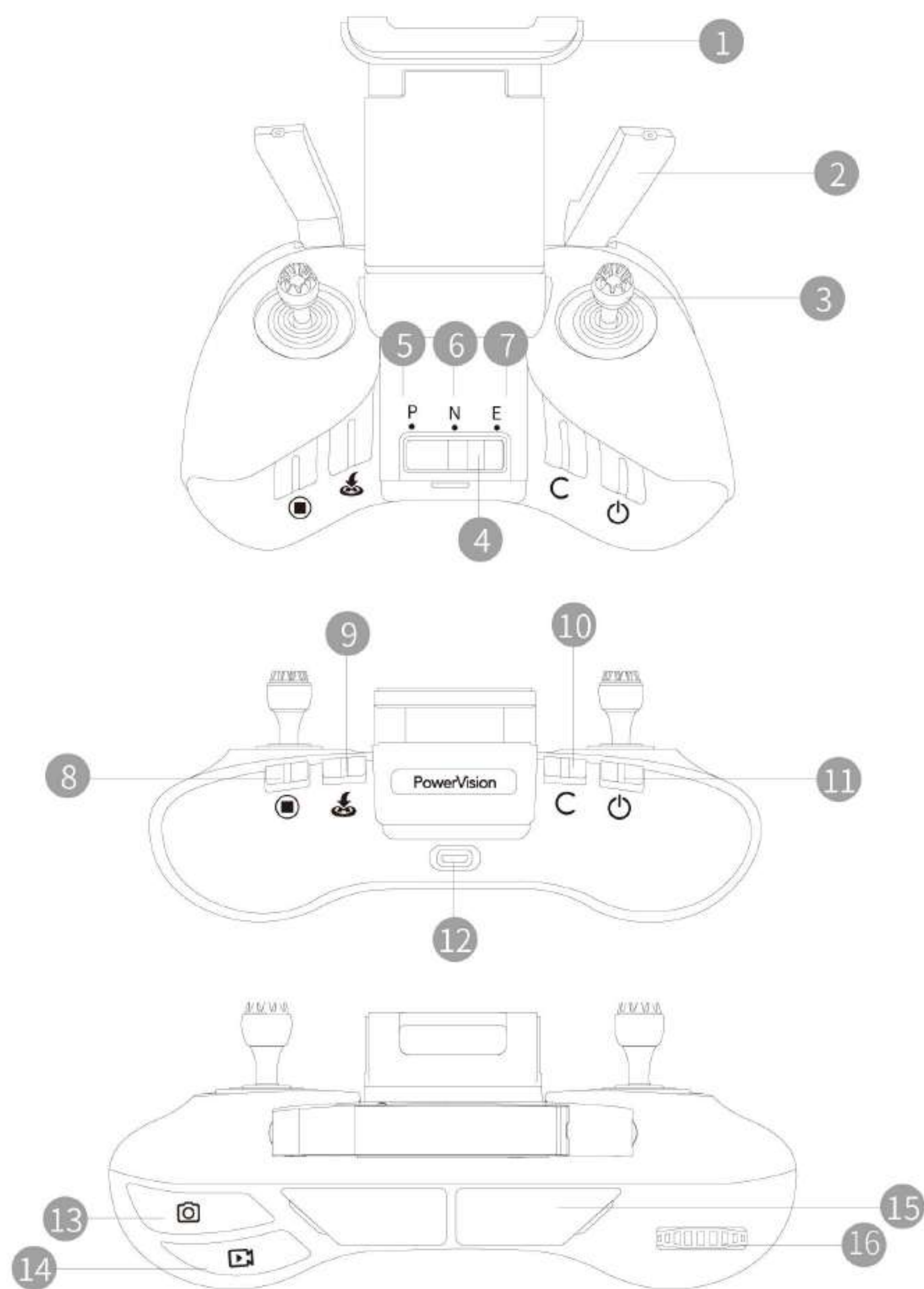
1. Mobile Device Holder

2. Antenna

3. Joystick

4. Flight Mode Switch

5. P Mode (Professional)

6. N Mode (Normal)

7. E Mode (Easy)

8. Emergency Stop Button

9. Return to Home

10. Customizable Button

11. Power Button

12. Charging Port (Micro USB)

13. Photo Button

14. Video Button

15. Mobile Device Port (USB)

16. Gimbal Control Thumbwheel

Smart Battery

◆ Functions

Battery Level	The battery level LEDs indicate the battery level.
Discharging Protection During Storage	When the battery level is higher than 65% and stored for ten days without any use, the battery automatically activates the discharging protection and discharges to the level of 65%.
Balanced Charging	The voltages of the battery cells are automatically balanced.
Temperature Protection	Charging will stop when the temperature gets lower than 10°C or exceeds 40°C.
Overcharge Protection	The smart battery will stop charging once its fully charged without exceeding its limit.
Overcurrent Protection	The smart will stop charging charging if the excess current is detected.
Over-discharge Protection	Discharging stops automatically to prevent excess discharge when the battery is not in-flight use.
Short Circuit Protection	The power supply automatically cut its power if a short circuit is detected.
Battery Cell Damage Detection	A warning will be shown when a damaged cell is detected.
Hibernation Mode	When the battery is turned on without being connected to to any device, it will turn itself off in 15 minutes., and the cell enters the hibernation to save power(and can be powered on again by pressing the Power button).
	When the smart battery level is lower than 10% for more than 6 hours, it will automatically enter a deep hibernation to prevent further discharge. The LEDs on the smart battery will blink after a short press of the power button. However, the smart battery will not be turned on, without itself being waked up by charging.
Communications	The smart battery's voltage, capacity, current and other information can be sent to the device via data port.

Power Button

Battery Level LEDs

LED4 LED3 LED2 LED1
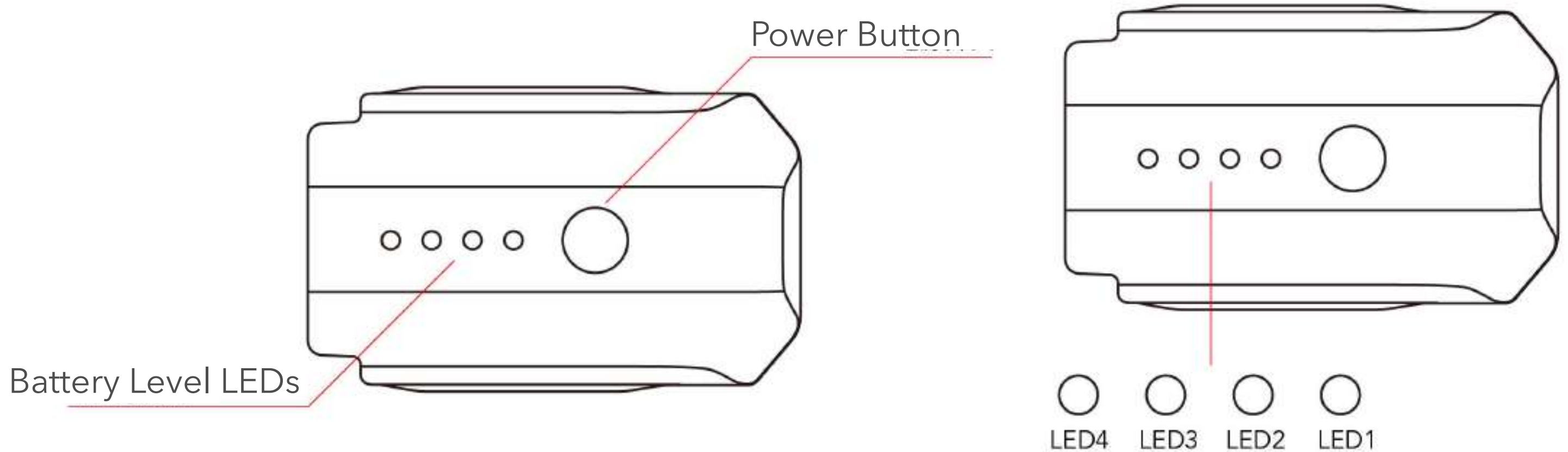
Charge the Smart Battery fully for activation before first use.

• Checking the battery level

Short press the power button once to check the battery level.

• Powering on/off

Press the power button once, , then press and hold for 2 sec to turn on/off the battery. The LEDs on the smart battery indicate the current battery level. The battery level LEDs go off when the drone is powered off.

• Smart Battery Charging

Use the power adapter provided by the PowerEgg X for charging.

1. Connect the power adapter to an AC power supply (100V~240V, 50/60Hz). Use a power socket converter if necessary.

2. Connect the Smart Battery to the power adapter, and make sure it has been
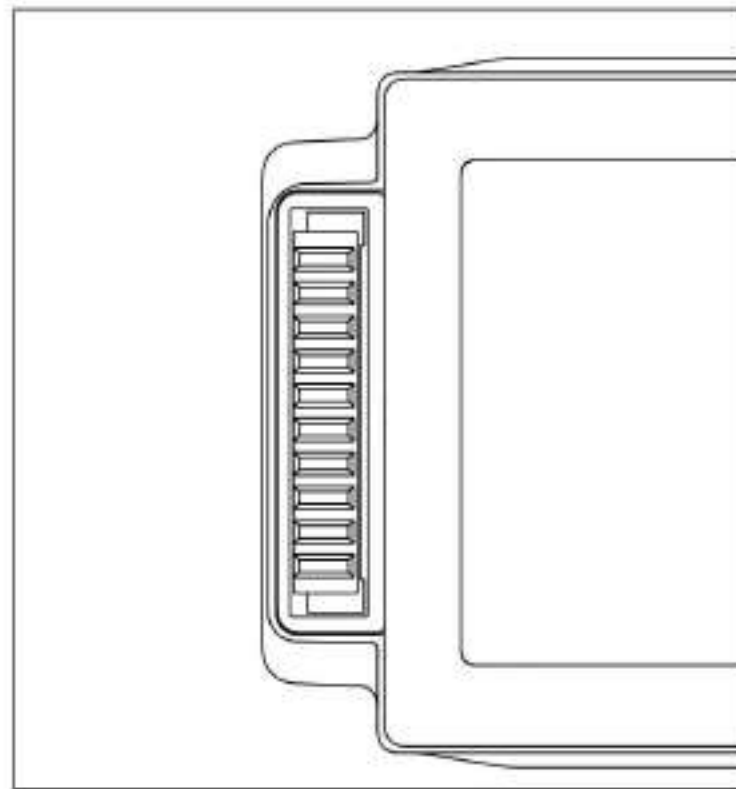
turned off.

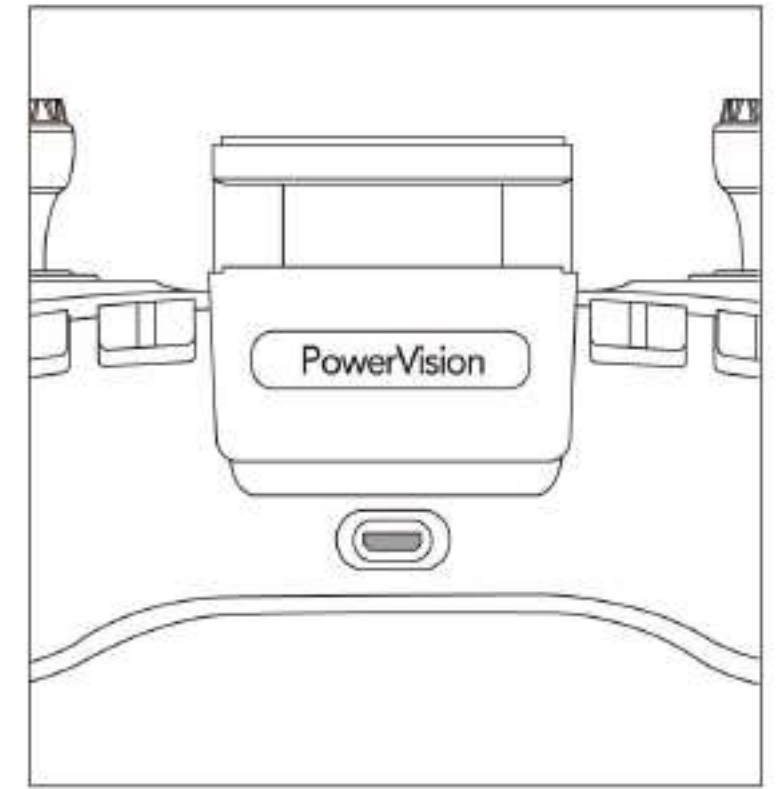3. The battery level LEDs blink in cycles to display the battery level during charging.

4. The LEDs on the smart battery will be turned off after the battery is fully charged, disconnect the battery after charging is completed.
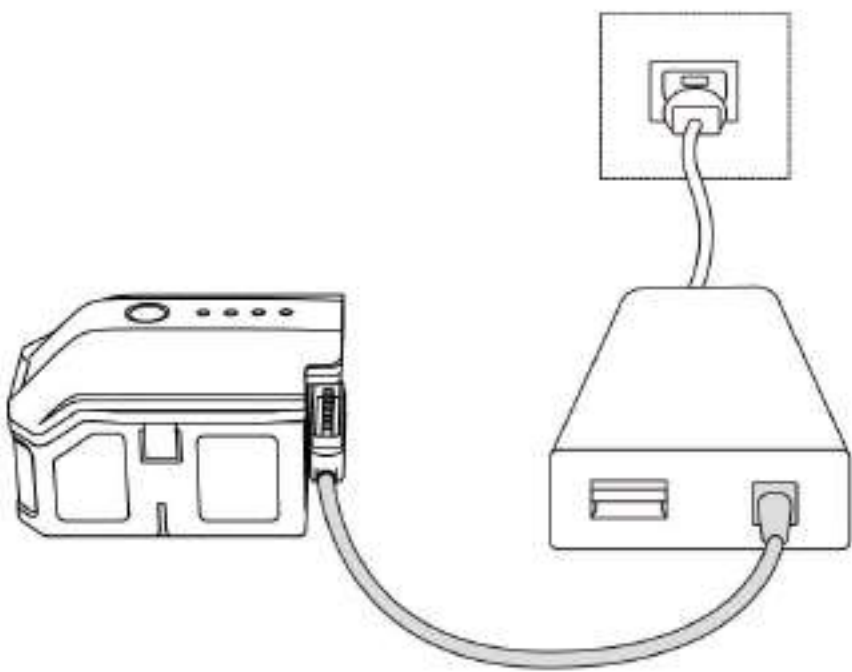
Example of charging
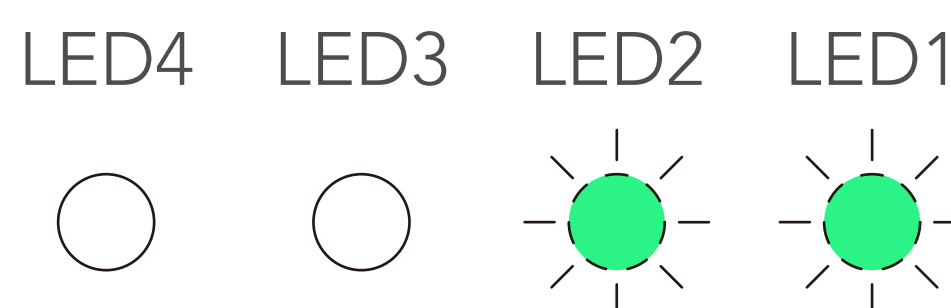

The charging port on the smart battery

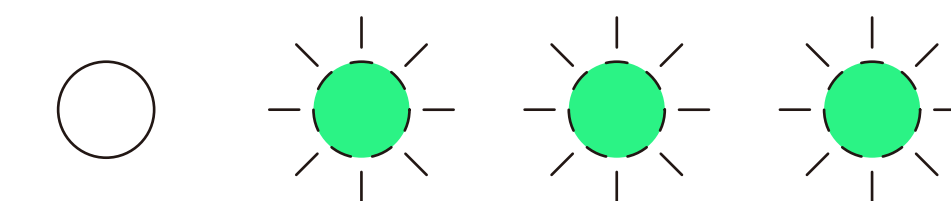The charging port on the remote controller

• Smart battery LEDs during Charging
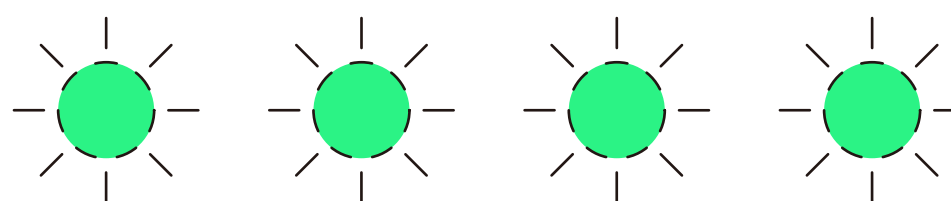
Battery Level:	LED4	LED3	LED2	LED1
0%-50%	○	○	☀	☀
50%-80%	○	☀	☀	☀
80%-100%	☀	☀	☀	☀
Fully Charged	●	●	●	●

⚠ DO NOT charge the battery immediately after the flight as the temperature may be too high. Charging the smart battery during high temperature may cause damage to the battery cells and the battery life will be affected. Wait until it cools down to the room temperature before charging again.

Please charge the smart battery when it is betwwen 10°C to 40°C.

Please read the Safety Guidelines for Using the Smart Battery for safety use.

User Sign Up

Download our Vision+ 2 App on your mobile devices.

For an Apple device, the iOS 10.0 or above is required.

For an Android device, the Android 5.0 or above is required.

You can find the App by scanning the QR code.

Open the Vision+ 2 App. An account is required to use all the functions of the product, you can sign up with an email address or a phone number. Please sign in once you have an account already.

If you haven't signed up yet, we will create a new account for you.

a. Sign up with your email address

① Fill your email address and click the 'Send Verification Code' button;

② Fill the 6-digit verification code you received in the input box and wait for verification;

③ After the verification, set your password. The password is required to be 8-20 characters, with both numbers and letters;

④ We will show you the quality service that PowerVision provides for you, as well as the corresponding service terms and policies. Read it carefully before you move on to the next step. Clicking the 'Accept' button indi cates that you agree with all of our service terms and policies.

b. Sign up with your phone number

① Click the 'Sign in with phone number' button in the sign-in interface;

② Fill the country code and your phone number correctly in the input box, and click the 'Send Verification Code' button;

③ Fill the 6-digit verification code you received in the input box and wait for verification;

④ After the verification, set your password. The password is required to be 8-20 characters, with both numbers and letters;

⑤ We will show you the quality service that PowerVision provides for you, as well as the corresponding service terms and policies. Read it carefully before you move on to the next step. Clicking the 'Accept' button indi cates that you agree with all of our service terms and policies.

◆ How to Sign In

Run the Vision+ 2 App. You can choose to sign in with verification code or your password.

- Sign in with verification code
  a. To use your email address with the account
  ① Fill your email address correctly in the input box, and click the 'Send Verification Code' button;
  ② Fill the 6-digit verification code you received in the input box and wait for verification;
  ③ After the verification, you can sign in the app successfully.

  b. To use your phone number with the account
  ① Click the 'Sign in with phone number' button in the sign-in interface;
  ② Fill the country code and your phone number correctly in the input box, and click the "Send Verification Code" button;
  ③ Fill the 6-digit verification code you received in the input box and wait for verification;
  ④ After the verification, you can sign in the app successfully

- Sign in with a password
  ① Click the 'Sign in with password' button in the sign-in interface;
  ② Fill your user name and password correctly in the input box and click the "Sign in" button.

◆ Forgot Password?

If you have failed to sign in multiple times, you can click the 'Forgot Password' button to change your password.
  ① Before changing your password, you need to fill the 6-digit verification code you received in the input box and wait for verification.
  ② After verification, you will be redirected to an interface that allows you to change your password.
  ③ Once finished, you can use your new password to sign in immediately.

▌Activate PowerEgg X

Activate PowerEgg X on Vision+ 2 App before the first use.

• Operating Steps

1. Power on the PowerEgg X, setup the device in either AI camera mode or drone mode.

2. **In the AI camera mode:** Connect your mobile device to PowerEgg X's WiFi: **EggX_xxxxxx**. The default password is **12345678**.
   In the drone mode: Connect your mobile device to the remote controller with a USB cable. Power on the remote controller and PowerEgg X, and the remote controller will automatically connect to the PowerEgg X.

3. Run the Vision+ 2 App. After the connection between the mobile device and the drone is established, a prompt to activate will be displayed on the App as shown in the following picture. Tap "Activate" to activate the drone.
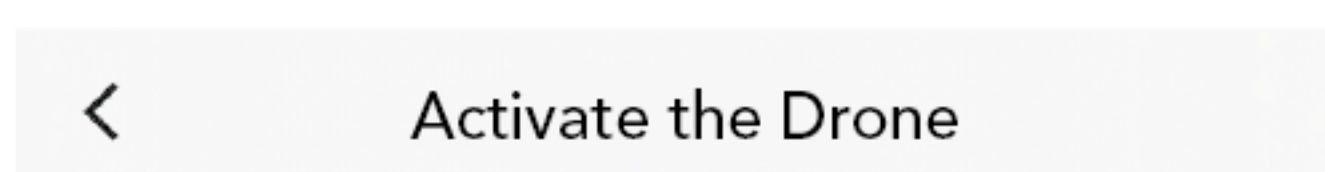
<   **Activate the Drone**

1. Activate the drone before the first use.
2. After activation is complete, the activation code will be automatically uploaded to the server. To ensure the code to be up loaded to the server in time, connect the drone to Wi-Fi or mobile data in 24 hours after the activation.

Activate the Drone

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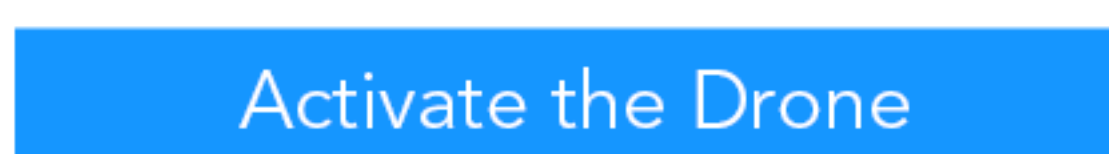
4. After the drone is activated, a prompt of "Activation Succeed" will be displayed on the App as shown in the following picture. Tap 'OK' to access the drone.

1. Activate the drone before the first use.
2. After activation is complete, the activation code will be automatically uploaded to ... up ... the ... urs ...

The Drone is successfully activated.
The Drone is successfully activated.

OK
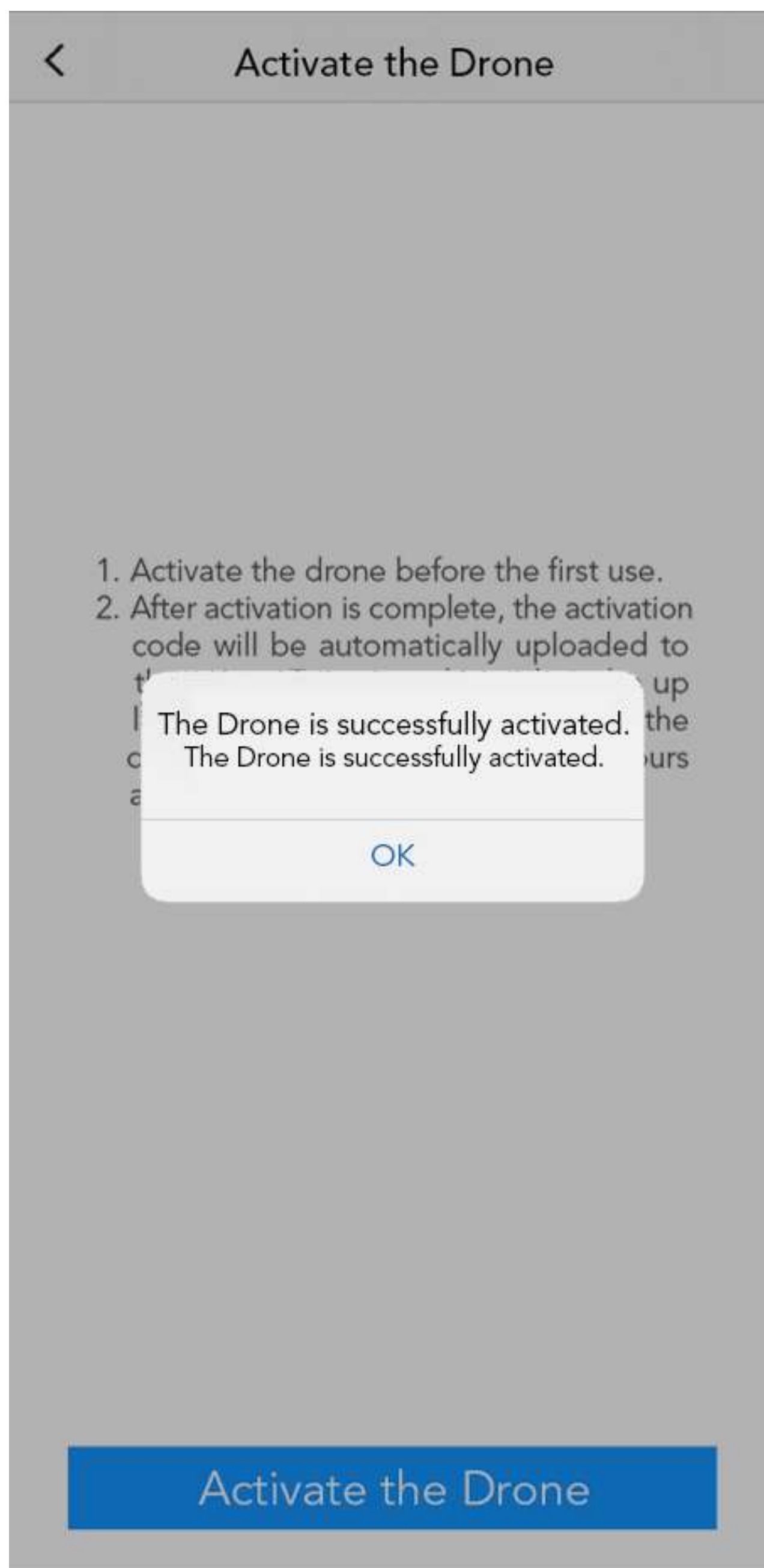
Activate the Drone

A failure notice will be shown on the App if the activation is not successful. Tap "Activate" again until the drone is activated successfully.

9:41 AM

Activate the Drone

Activation failed.
Please re-activate the Drone.

Cancel   Activate
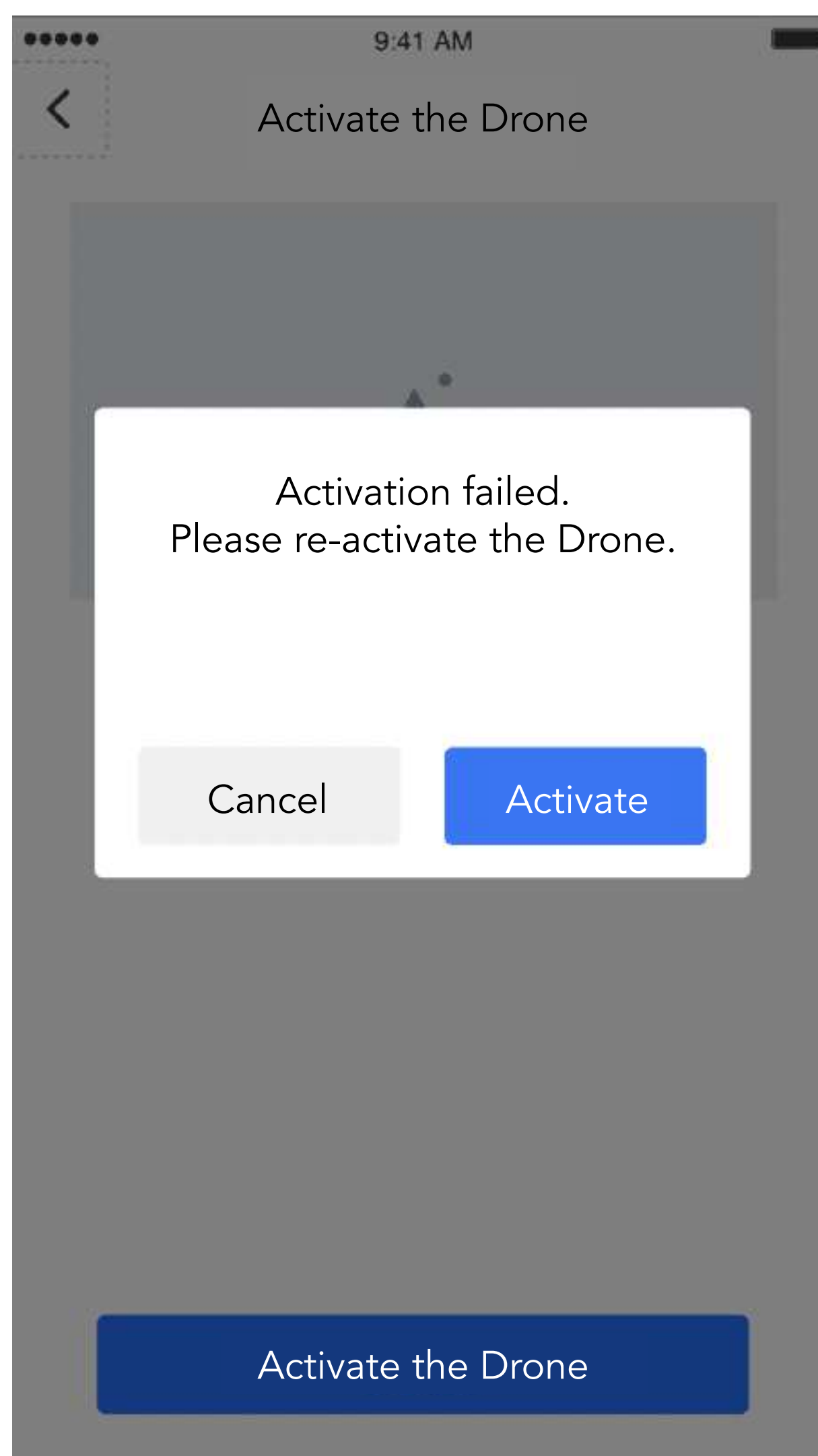
Activate the Drone

⚠ Caution: DO NOT power off the drone during the activation process.

Firmware Update

The firmware of PowerEgg X needs to be updated in each modes. In drone mode, the firmware for the drone and the remote controller will be updated. In the AI camera mode, only the drone firmware will be updated. In the drone mode, if both the drone firmware and the remote controller firmware have new versions for the update, usually the drone firmware will be updated first before the remote controller.

There are two kinds of firmware updates-mandatory and non-mandatory. Non-mandatory updates include bug fixes and performance improvement, which are recommended. However, normal use of the device will not be affected if the updates are skipped. Mandatory update includes critical fixes, the device cannot be operated without the update.

The firmware update includes three steps: downloading, transmitting. Wait patiently during the upgrade. After each step completes, it will automatically enter the next step.

• Instructions for Update

1. Use the Vision+ 2 App to update the firmware. Power on the drone, run the App, and connect your mobile device to the Internet. If a firmware update is available, you will be notified on the homepage of the App, as shown in the following picture. Tap the prompt box "Discover a Firmware Update", and update the firmware by following the on-screen instructions.
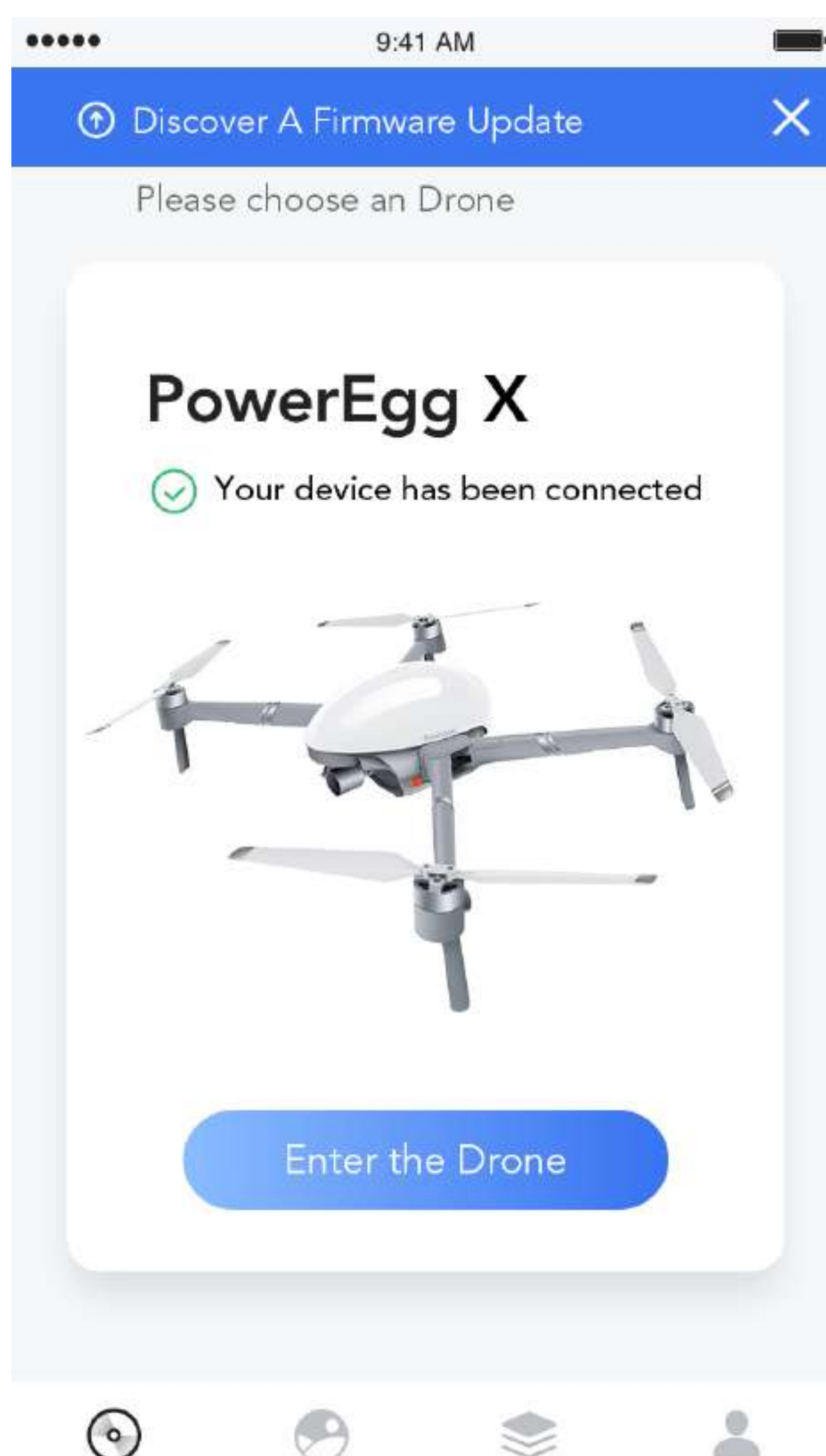
2. After you enter the updated interface, you will be notified again. For non-mandatory updates, you can choose to cancel it as shown in the following picture.
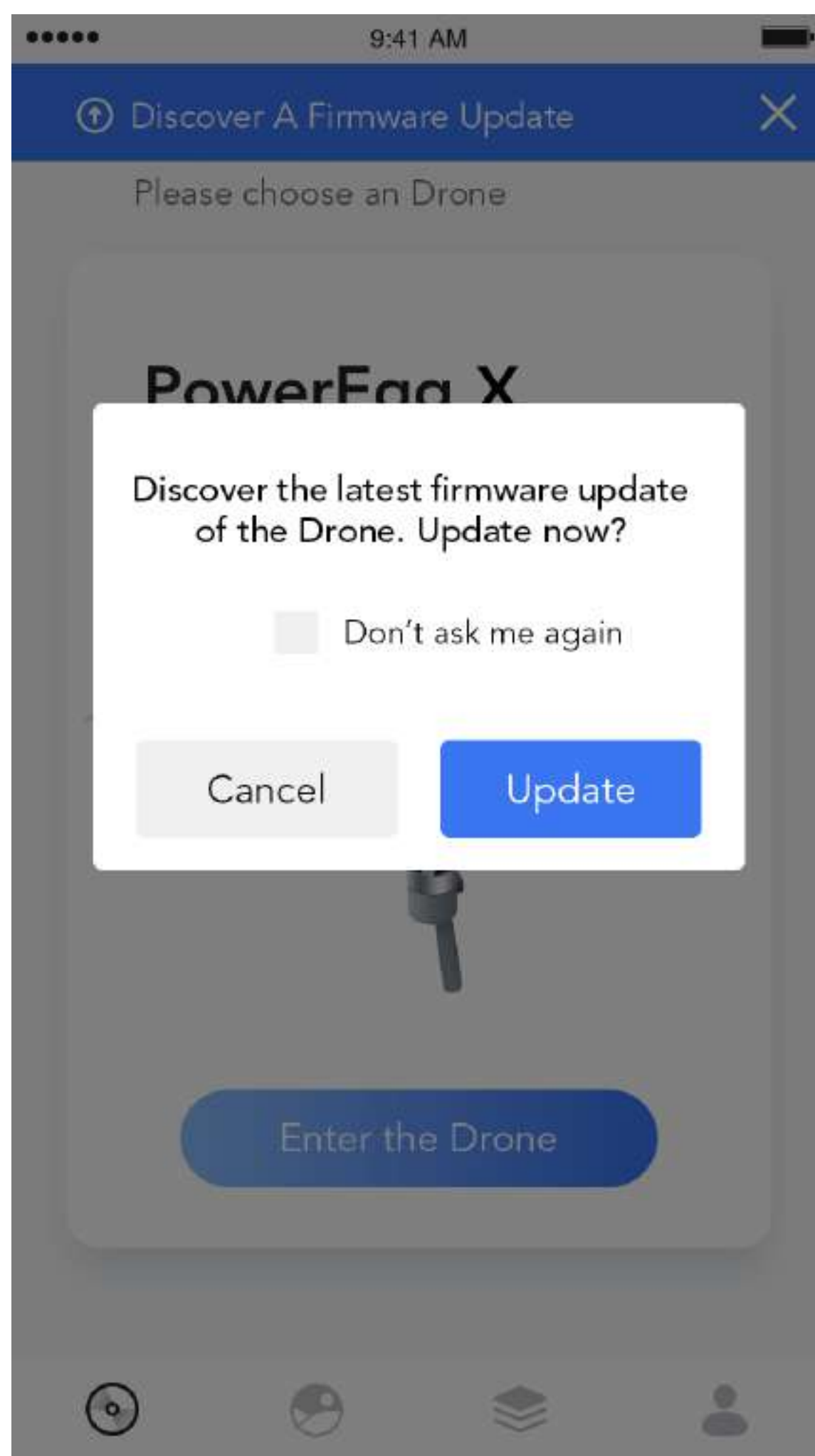
3. After you select "Update", you will first enter the firmware download interface. After you choose "Download", the download progress is displayed in real-time. Once you choose "'Download", DO NOT close the current page, DO NOT power off the PowerEgg X (the drone and the remote control), and Please keep the drone connected to the Internet when downloading. You will be notified when the download is complete
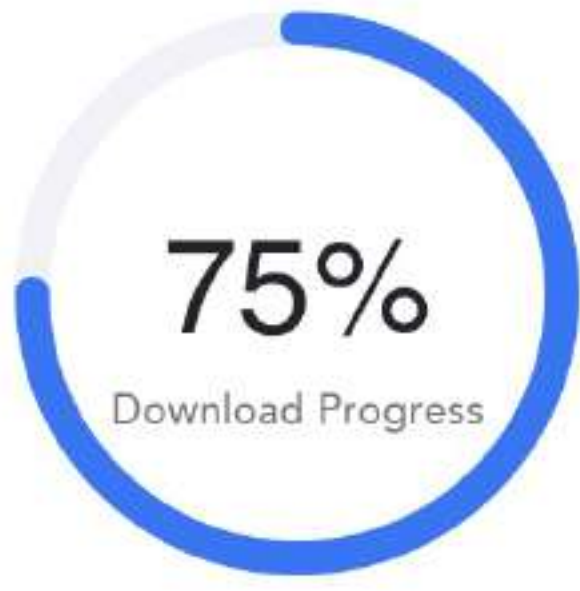
Download the Drone Firmware

75%
Download Progress

Downloading the firmware

Downloading the firmware. DO NOT
disconnect to the Wi-Fi or mobile network

100%
Download Profress

Download Profress

4. When the download is complete, the firmware transmission will automatically start. Then you need to confirm the update again. If the network is interrupted due to exceptions, you do not need to download the firmware again when entering the firmware update next time.
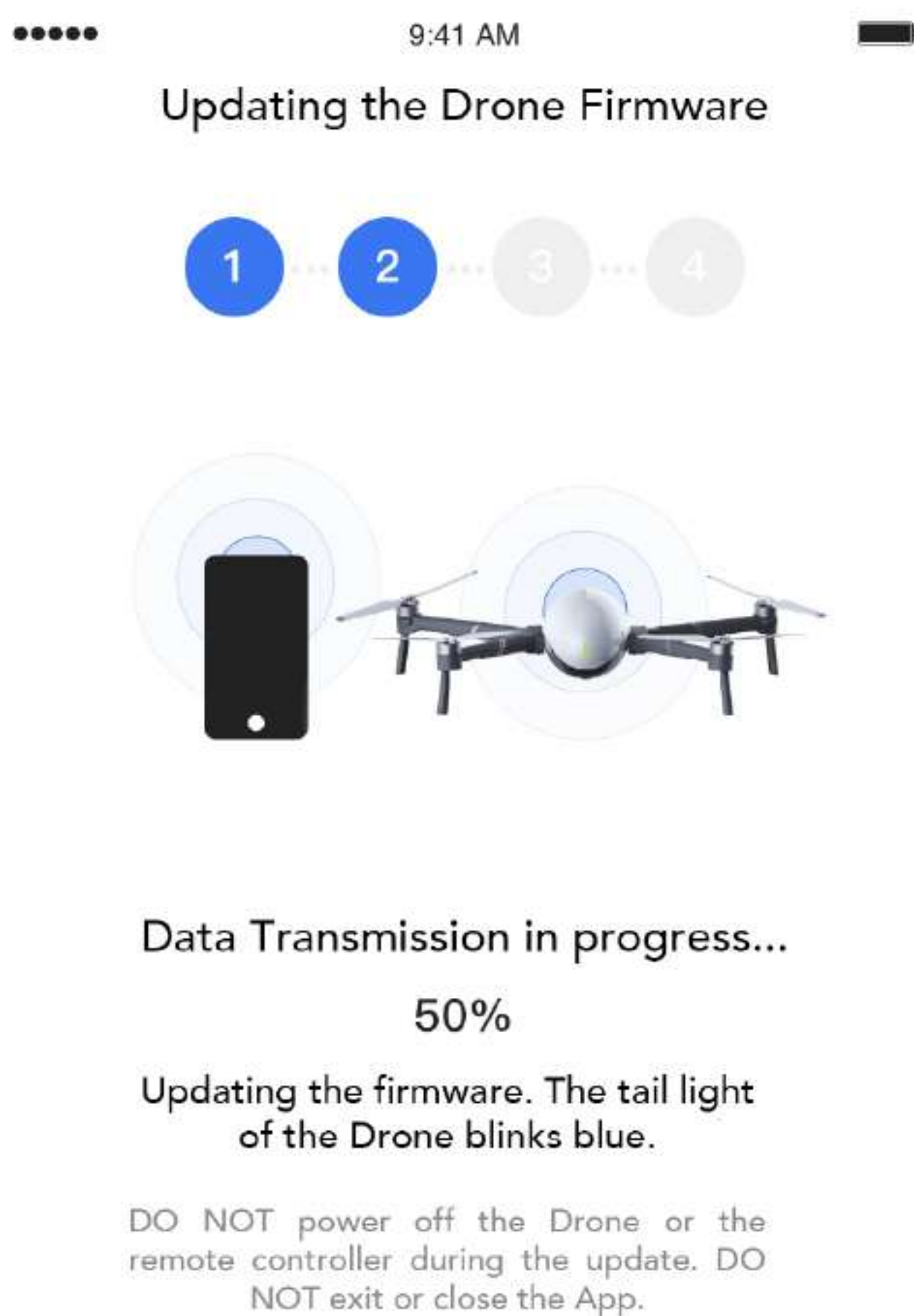
9:41 AM

Updating the Drone Firmware ✕

1 ··· 2 ··· 3 ··· 4

Update

5. After selecting "Update", you will enter the firmware transmission process. During this process, the downloaded firmware is transmitted from the mobile device to the PowerEgg X (the drone and the remote control). The progress will be displayed in real-time. DO NOT interrupt the transmission.

6. When the transmission is complete, the firmware installation automatically starts. During this process, the firmware will be automatically installed on the PowerEgg X (the drone and the remote control).
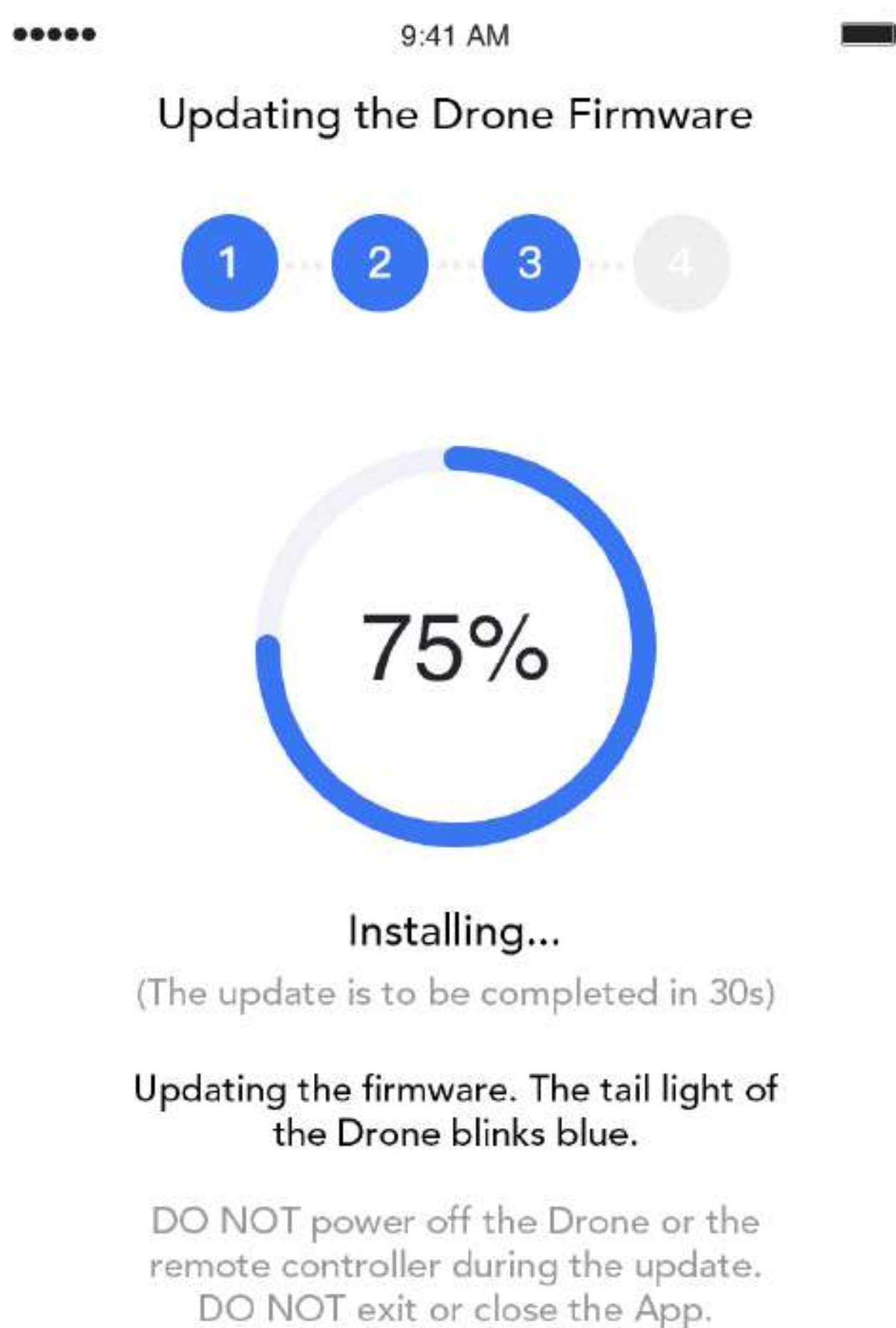
7. When the installation is complete, there is a prompt indicating that the firmware update is full. Tap "Finish" to automatically skip to the shooting interface.


Cautions:

1. In either drone mode or AI camera mode, before you update the firmware, make sure that you have powered on the drone, run the Vision+ 2 App and connected your phone to the Internet. Additionally, make sure the battery level of the drone (or AI camera) and the remote control is higher than 50%.

2. During the update process, DO NOT power off the drone. DO NOT exit or close the Vision+ 2 App. DO NOT interrupt the update process, and keep your phone connected to the Internet. In the drone mode, during the update process, DO NOT unplug the USB cable when the remote controller and mobile phone are connected via USB cable.

3. The drone indicator blinks during the update process. When the update is completed, it is normal that the drone automatically restarts or beeps;

4. DO NOT update firmware during flight, or it will affect the operation safety.

AI Camera Mode

Prepare the AI Camera

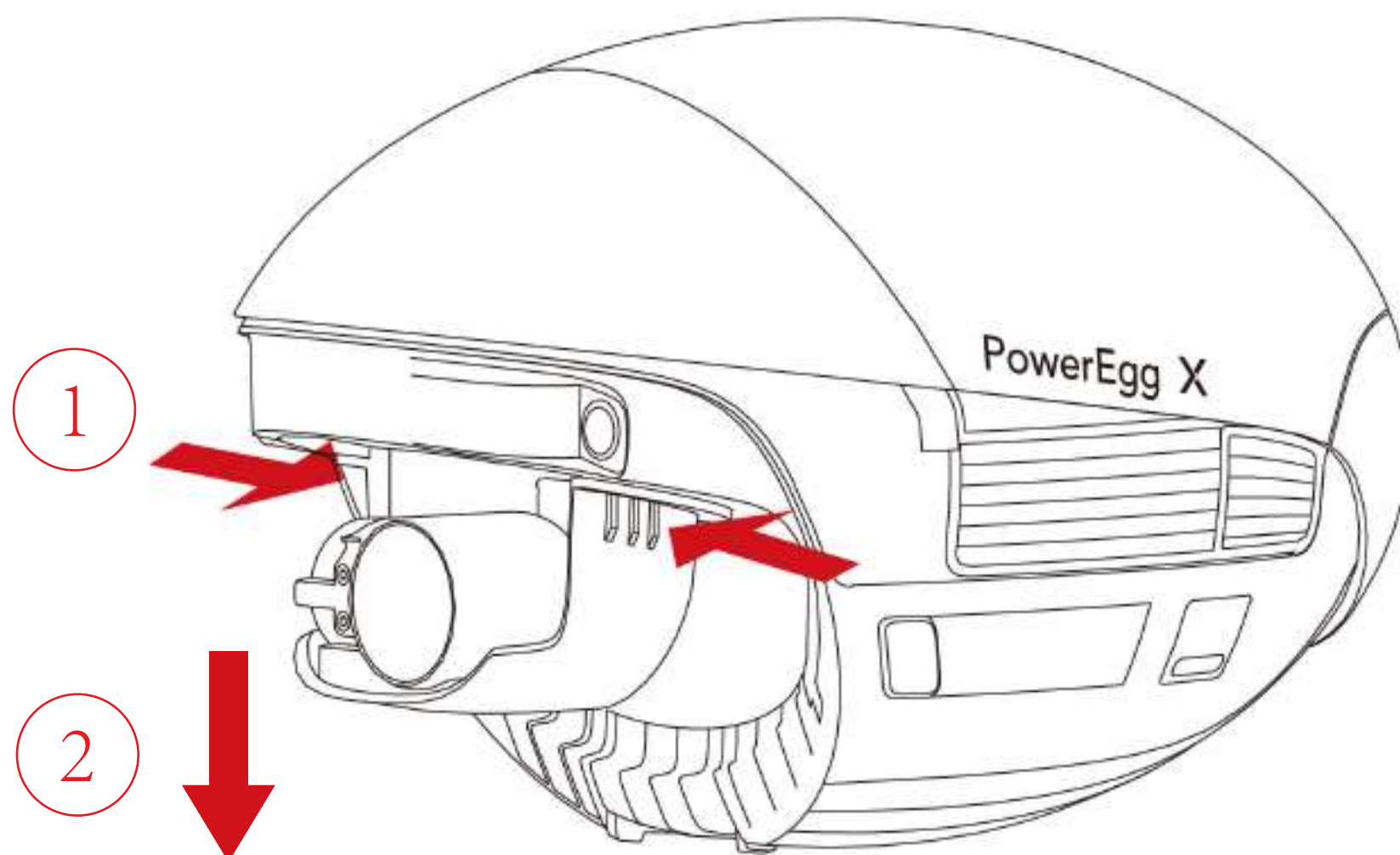1. Remove the protective shell of the device

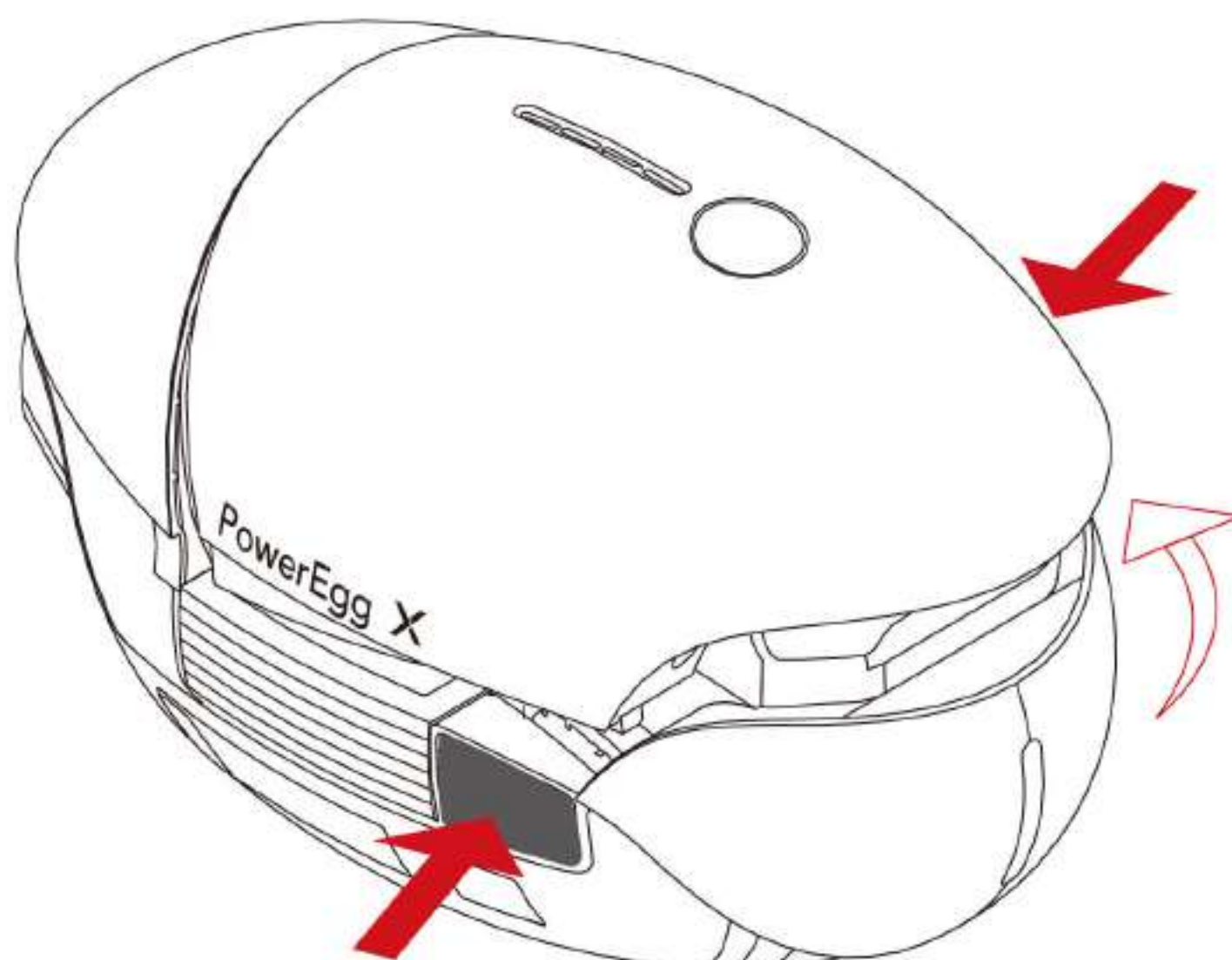   Pull the buckles of the protective shell and remove the shell upwards.
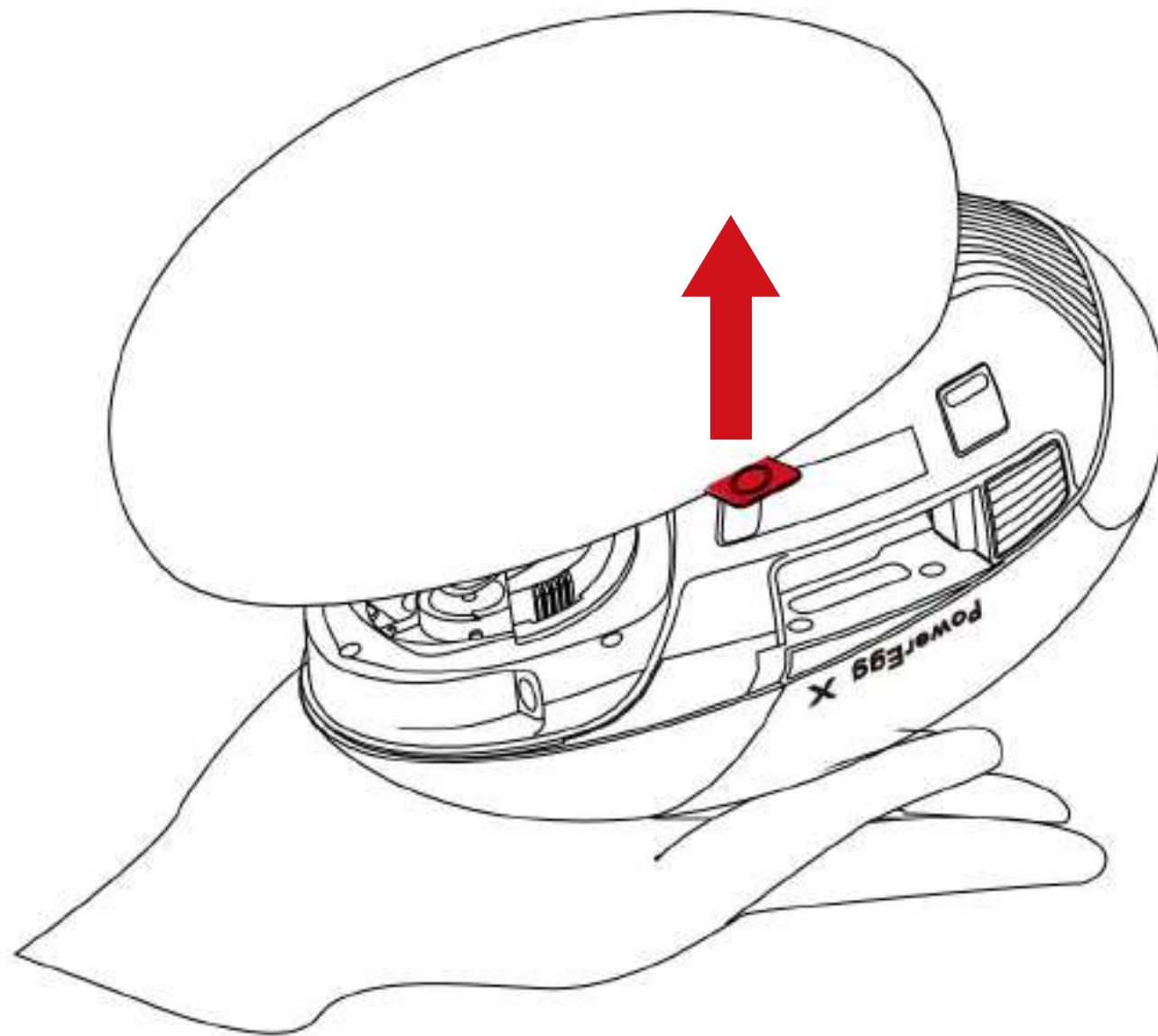
2. Remove the gimbal gimbal protector

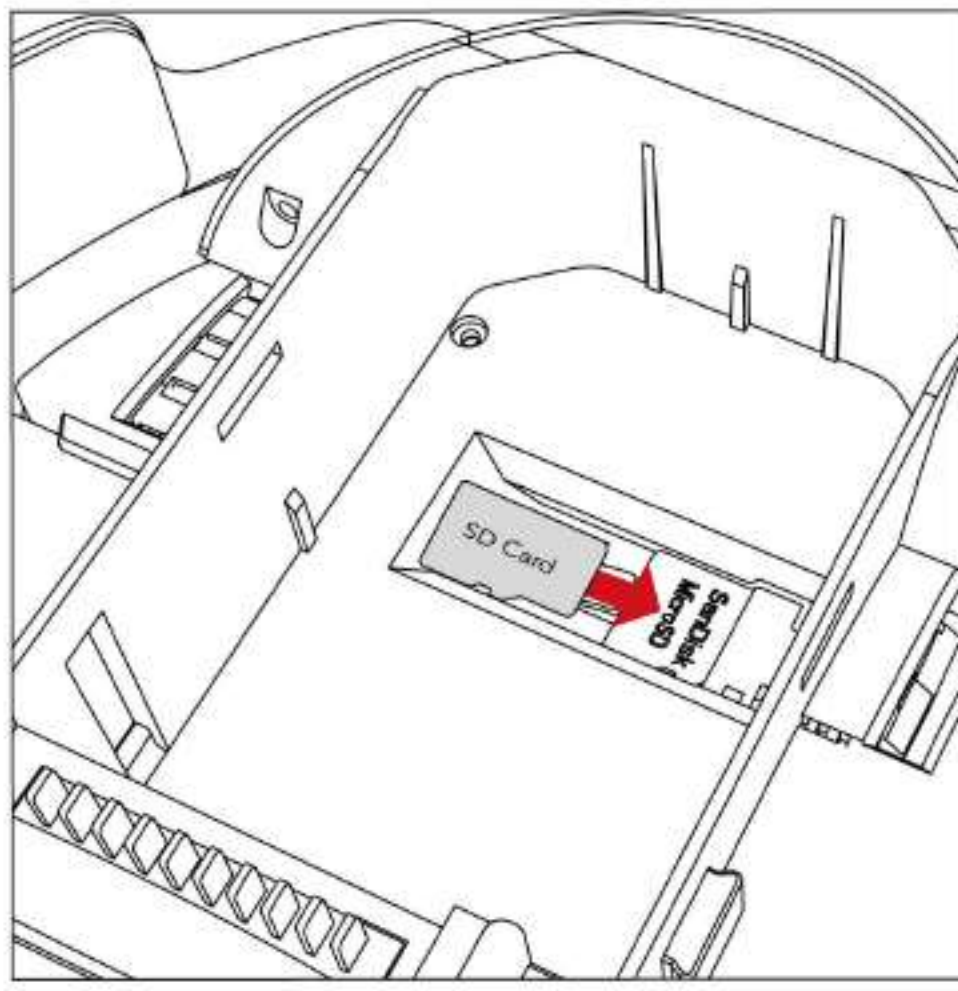   Press the buckles on both sides of the protector, and pull it downwards.

3. Install Micro-SD card and battery

   Press the buckles on both sides of the battery cover, and it will automatically

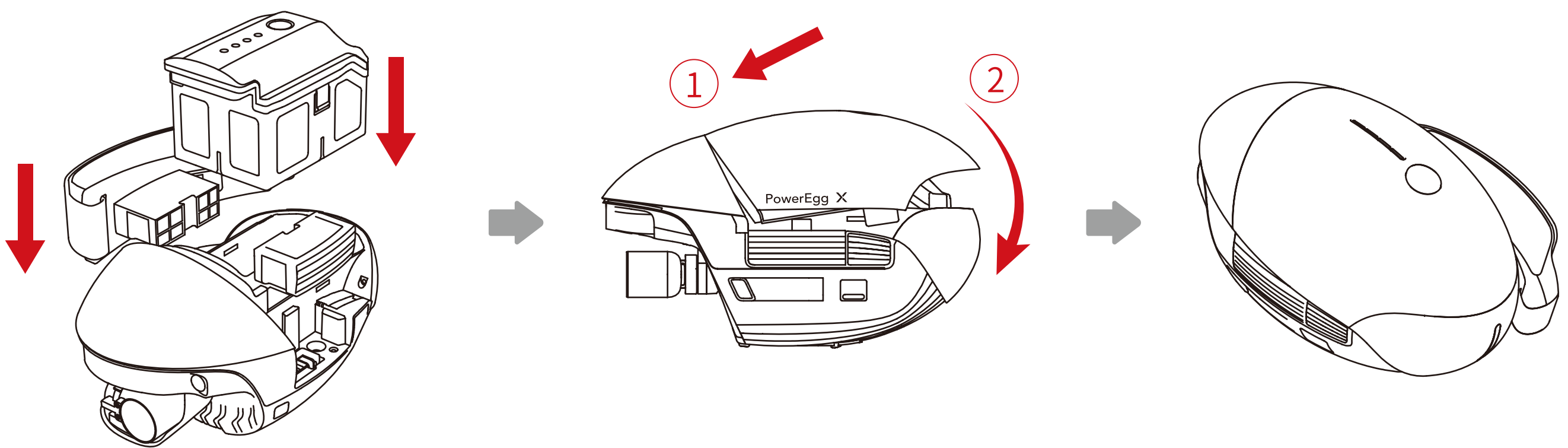   pop up. Then the battery cover can be removed.

4. Install Micro-SD card

Insert the Micro-SD card into the slot before using it.

5. Install the arm block and wristband

Install the arm block on the left side of the drone and the wristband onto the right. Install the battery into the battery compartment, snap the battery cover back to its place.

6. How to use the tripod

Use the tripod adapter when needed.
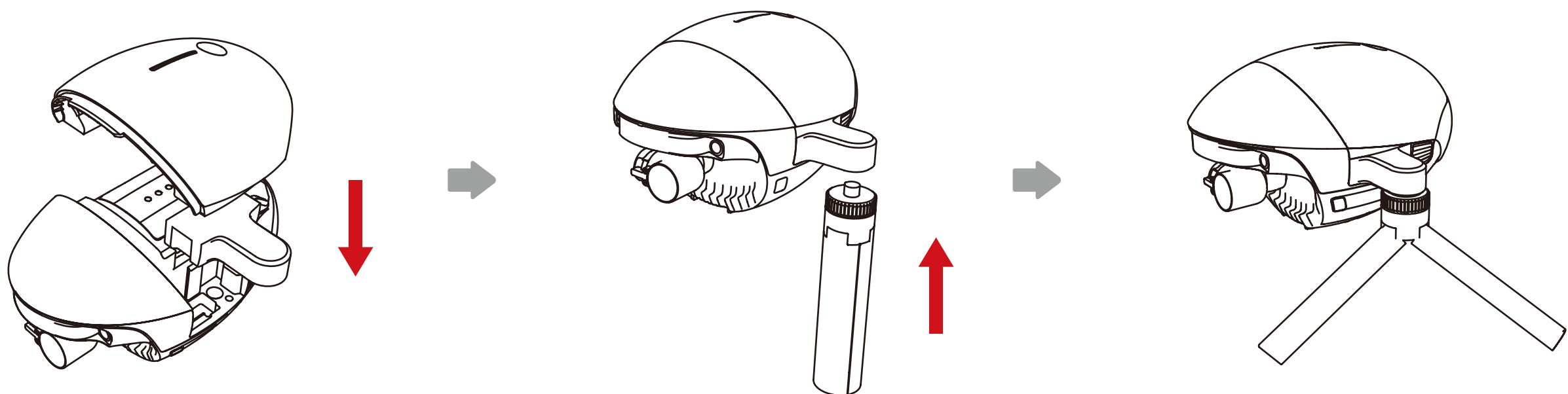
Install the tripod adapter   Install the tripod

7. Power on

Press the power button once, , then press and hold for 2 sec to turn on/off the Drone.

8. Connect to PowerEgg X's Wi-Fi

Connect your mobile device to PowerEgg X's Wi-Fi: EggX_xxxxxx. The default password is **12345678**.

9. Run the Vision+ 2 App on your phone and enter the AI camera mode

①. Download and run the Vision+ 2 App.

②. Sign in and follow the instructions to activate the device (skip to the next step if the device has already been activated).

③. The Vision+ 2 App will automatically detect and access the AI camera.

Introduction to Vision+ 2 App


2. Connection 3. Battery level 4. Microphone switch 5. More settings

1. Home button

6. Camera parameters

7. Real time image

10. Gimbal mode

8. Gimbal control

9. Camera mode

11. Media library

12. Camera settings

13. Shutter button
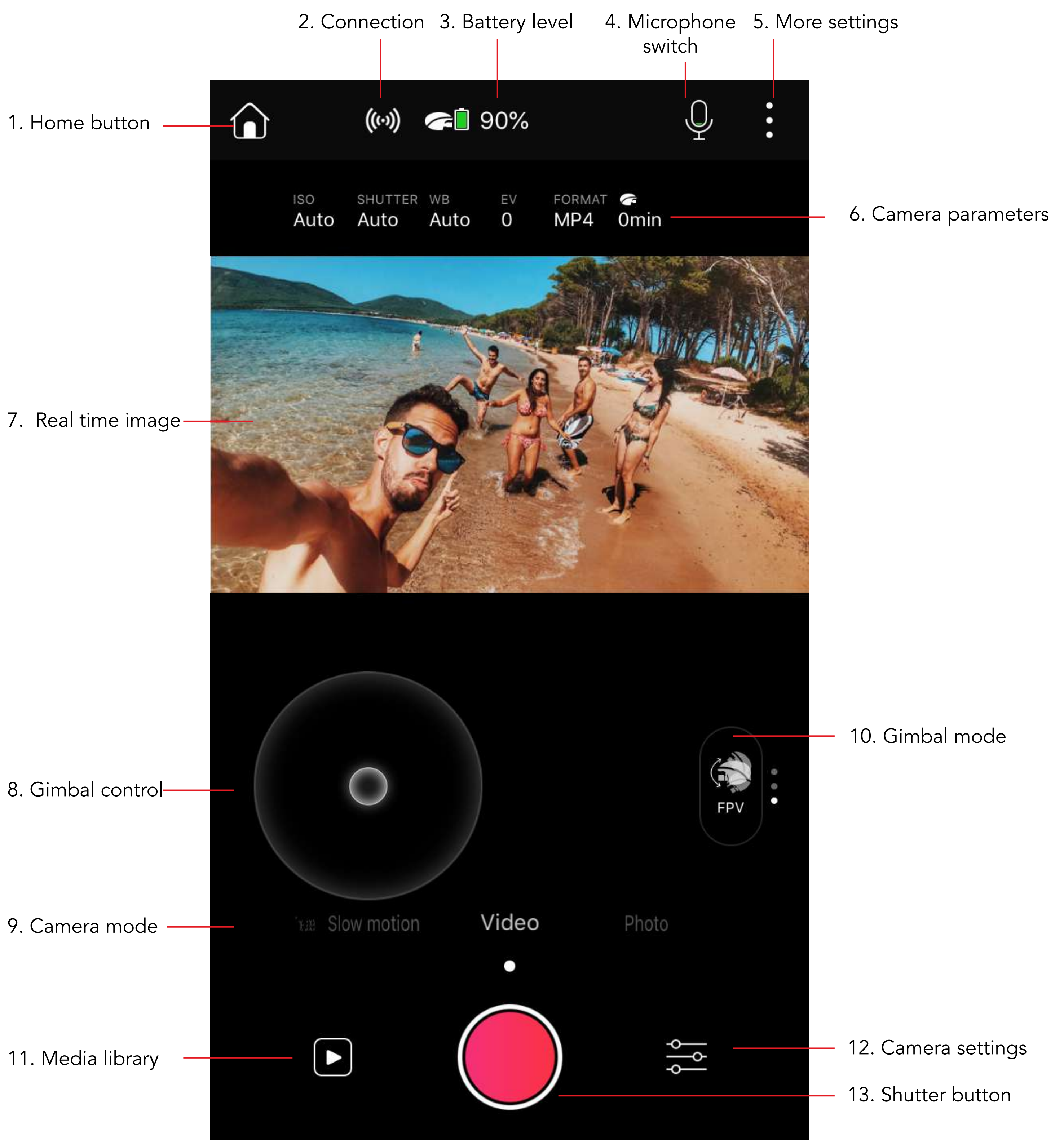
1. Home button: click it to return to the homepage of Vison+2 App.

2. Connection: indicating the connection type and connection status between the App and PowerEgg X.

3. Battery level: indicating the battery level of PowerEgg X.

4. Microphone switch: Turn on/off the microphone during the video mode.

5. More settings: including live streaming , gimbal settings and generalsettings.

6. Camera settings: showing part of the current settings of the camera and the remaining space in the memory card.

7. Real time image: showing the real-time image shot by the camera.

8. Gimbal control: be used to control the shooting direction of the camera Double click the center can restore the gimbal to its initial position.

9. Camera mode: currently, there are four modes for you to choose from: photo, video, slow motion, and time-lapse.

10. Gimbal mode: quickly switch the working mode of the gimbal.

11. Media library: with the App, you can view the pictures or videos that you have shot in PowerEgg X. And you can download any of those files at any time.

12. Camera settings: refer to the instructions of camera settings to set the camera parameters.

13. Shutter button.

▌ Photo Shooting Mode

Self-timer

Icon of Modes
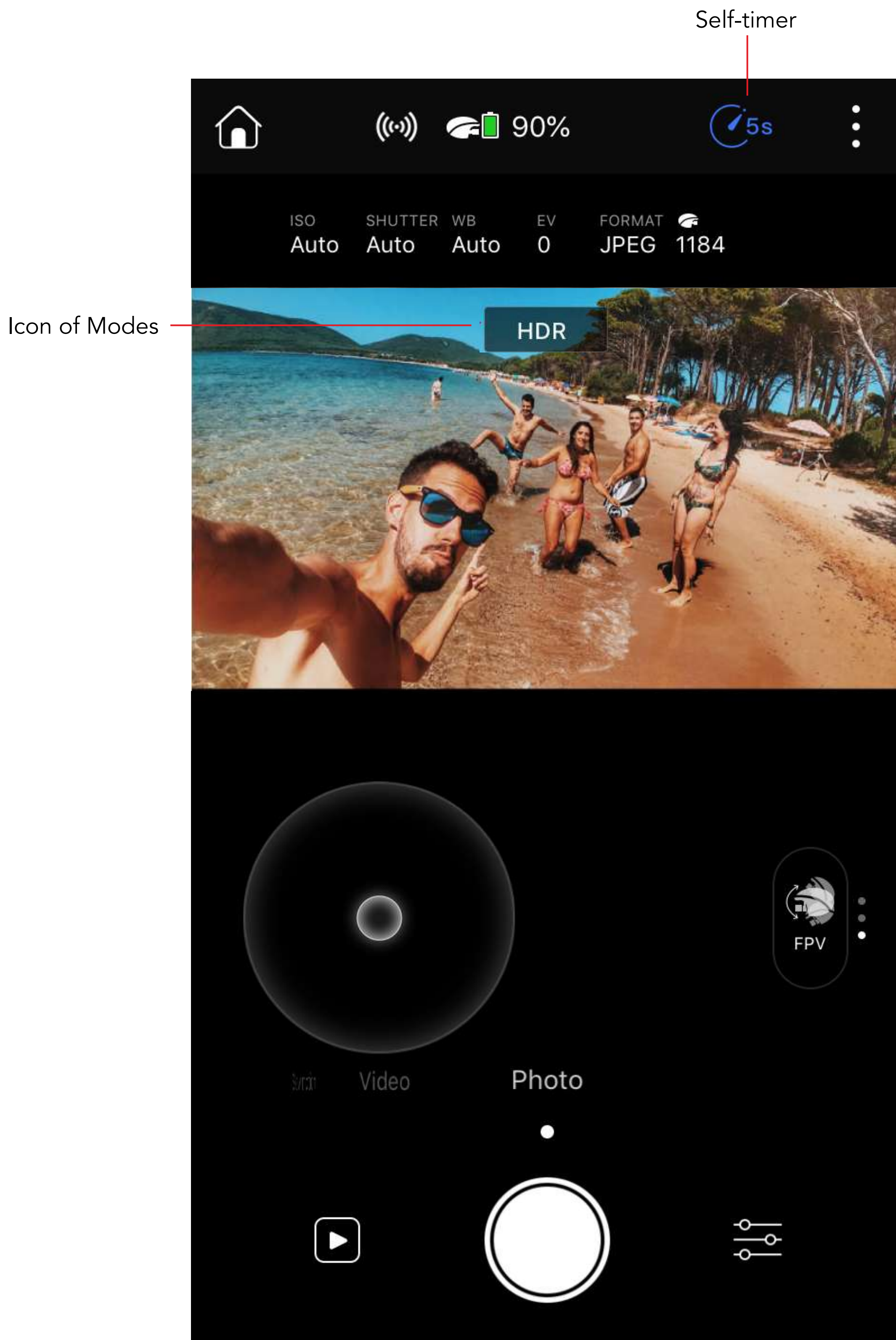
PowerEgg X supports single shot, HDR, continuous shot and AEB continuous shot.

Select a shooting mode. The corresponding icon will be displayed on the top of the image.

▌ Video Shooting Mode

Microphone switch

Before shooting   In shooting
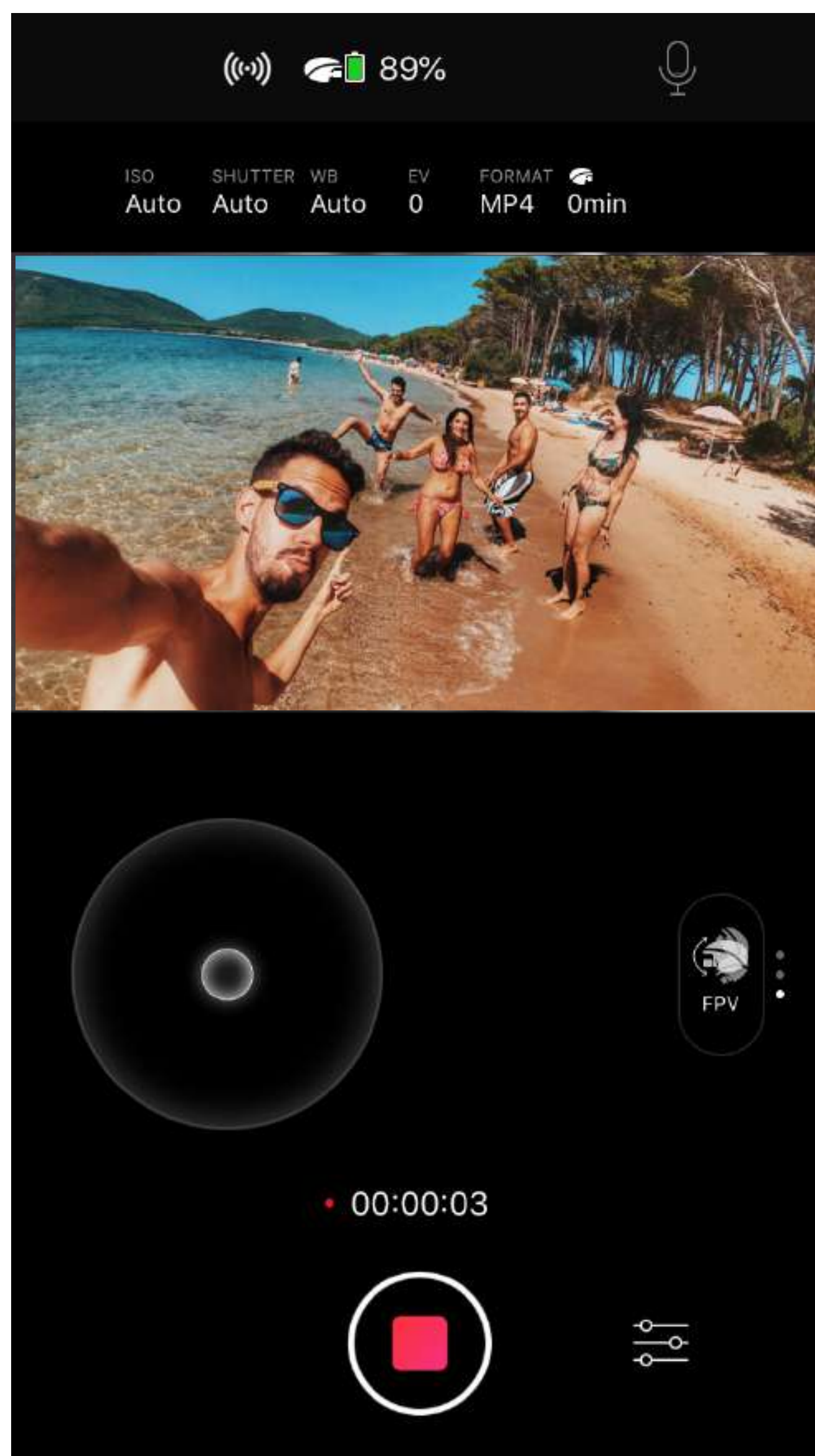
PowerEgg X supports 4K 60fps video shooting, which allow you to create ultra-clear footage.

1. Microphone: tap the button to turn on or off the receiver. When it is on, the sound collected by the receiver on your mobile device will be synchronized with the footage captured by the PowerEgg X. **You can only switch it on or off before taking the video.**

2. During the 4K video shooting, you can also press the white button on the bottom left corner to take a photo while the video is recording.

Slow Motion Mode

video format
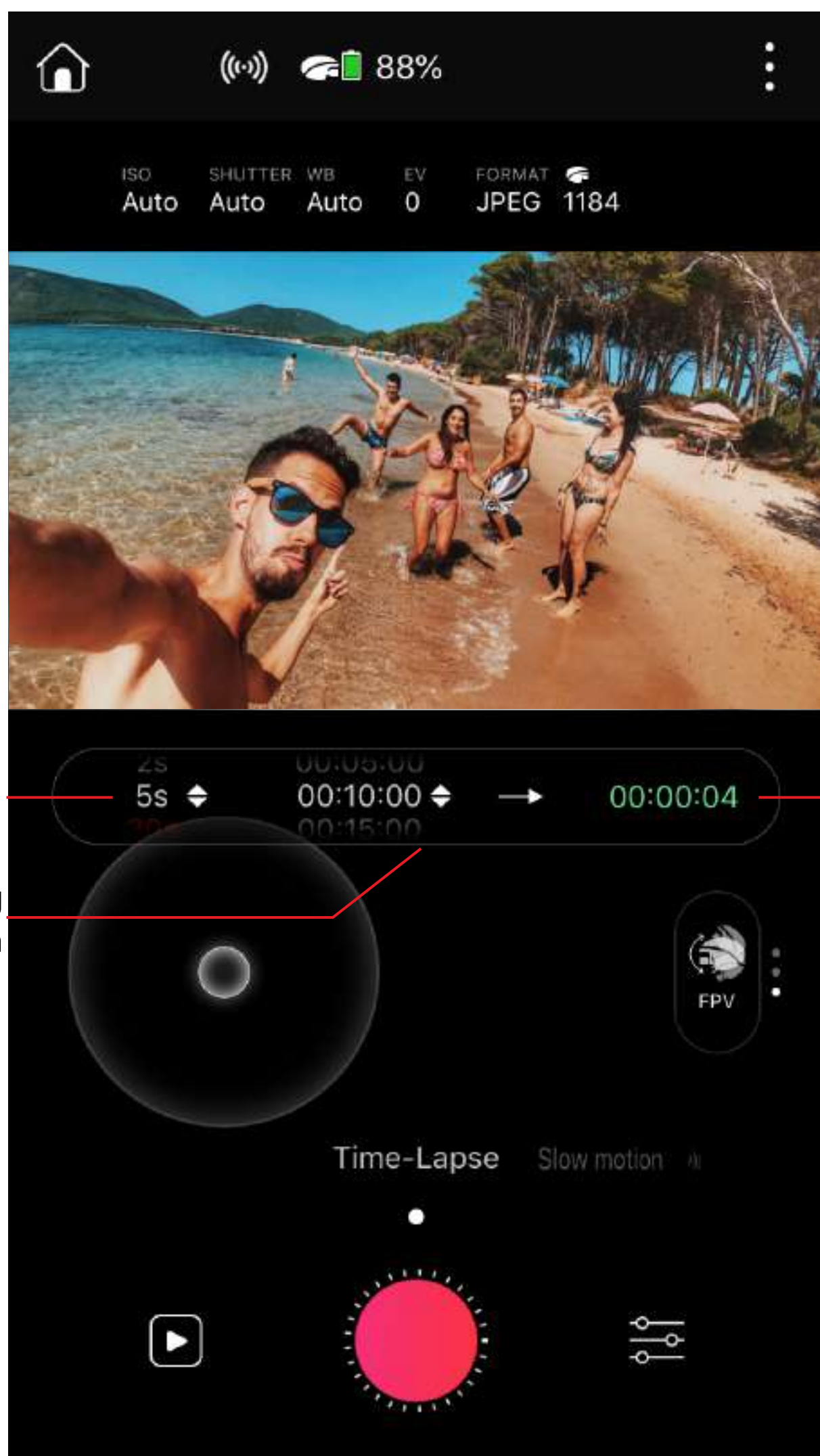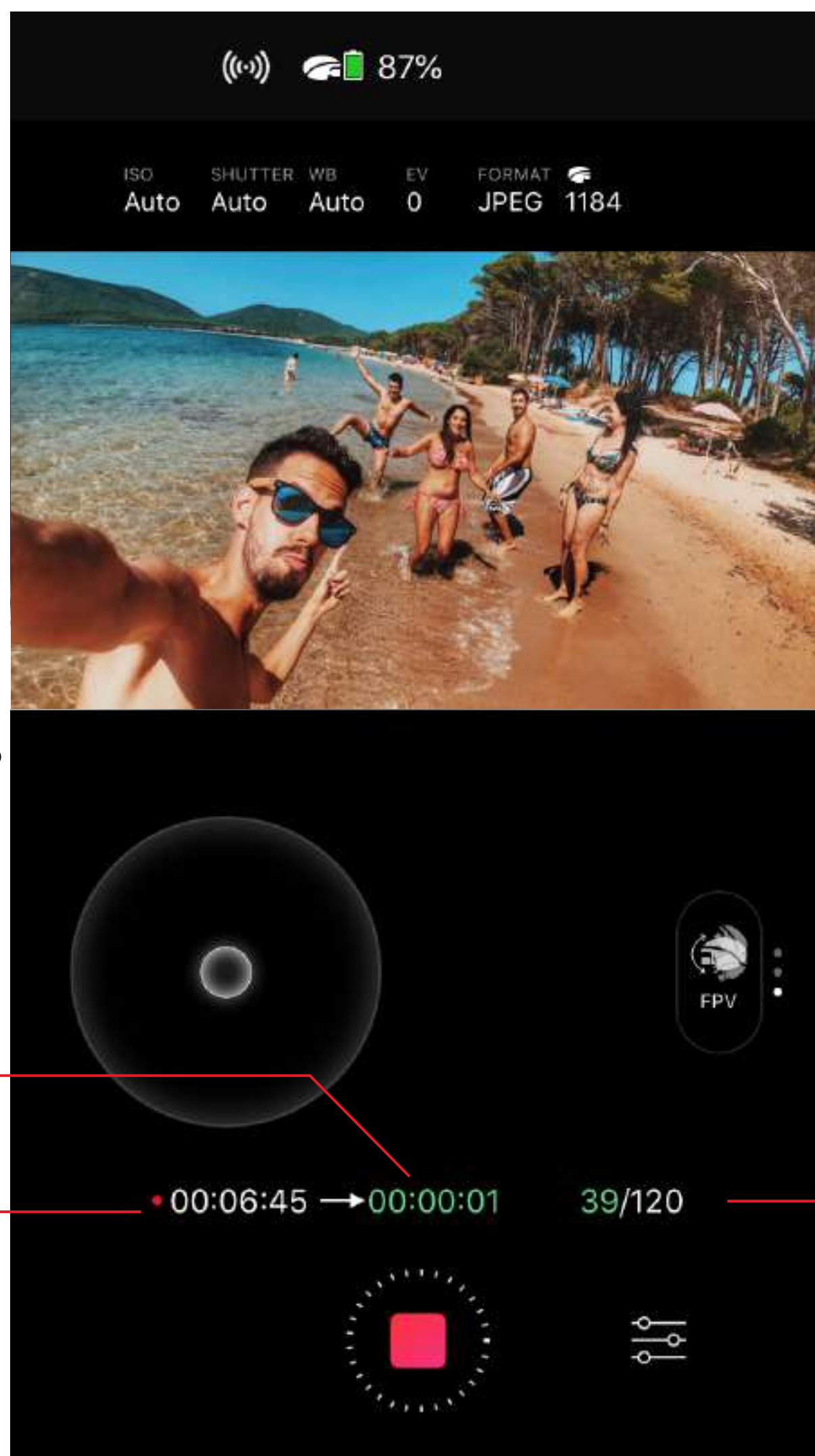

Before shooting

In shooting

PowerEgg X supports both FHD 120fps and HD 120 fps for slow-motion shooting. You can easily switch the shooting mode with the button [HD 4X] on the upper right.

Time-lapse Mode

Before shooting   In shooting

Through time-lapse photography, PowerEgg X can record changes in traffic, cloud orientations, and more over long periods of time in a short video with a duration of just a few seconds.

If you want to take time-lapse pictures, please setup your time-laps settings first:

Shutter Interval: taking a photo at regular intervals. You can set the range at 1s\2s\5s\30s\60s.

Shooting Duration: the total time that you need to shoot the pictures. You can set the duration at 30s\1min\5min\10min\ 15min\ 20min\30min\1hour.

After the above two settings are completed, the Vision+ 2 App will automatically calculate the video duration that can be generated after shooting. Please note the maximum generated video duration is 15s. Then, you can start your shooting by slightly tapping the "Photo" button after you secure the PowerEgg X into place and adjust the camera lens properly. You can observe the remaining duration of shooting and the current shooting schedule in the process.

After shooting, PowerEgg X will automatically synthesize the photos into a 1080p MP4 Video at 30fps. You can preview and download the video via " Media Library" in the lower-left corner.

Autonomous Personal AI Camera
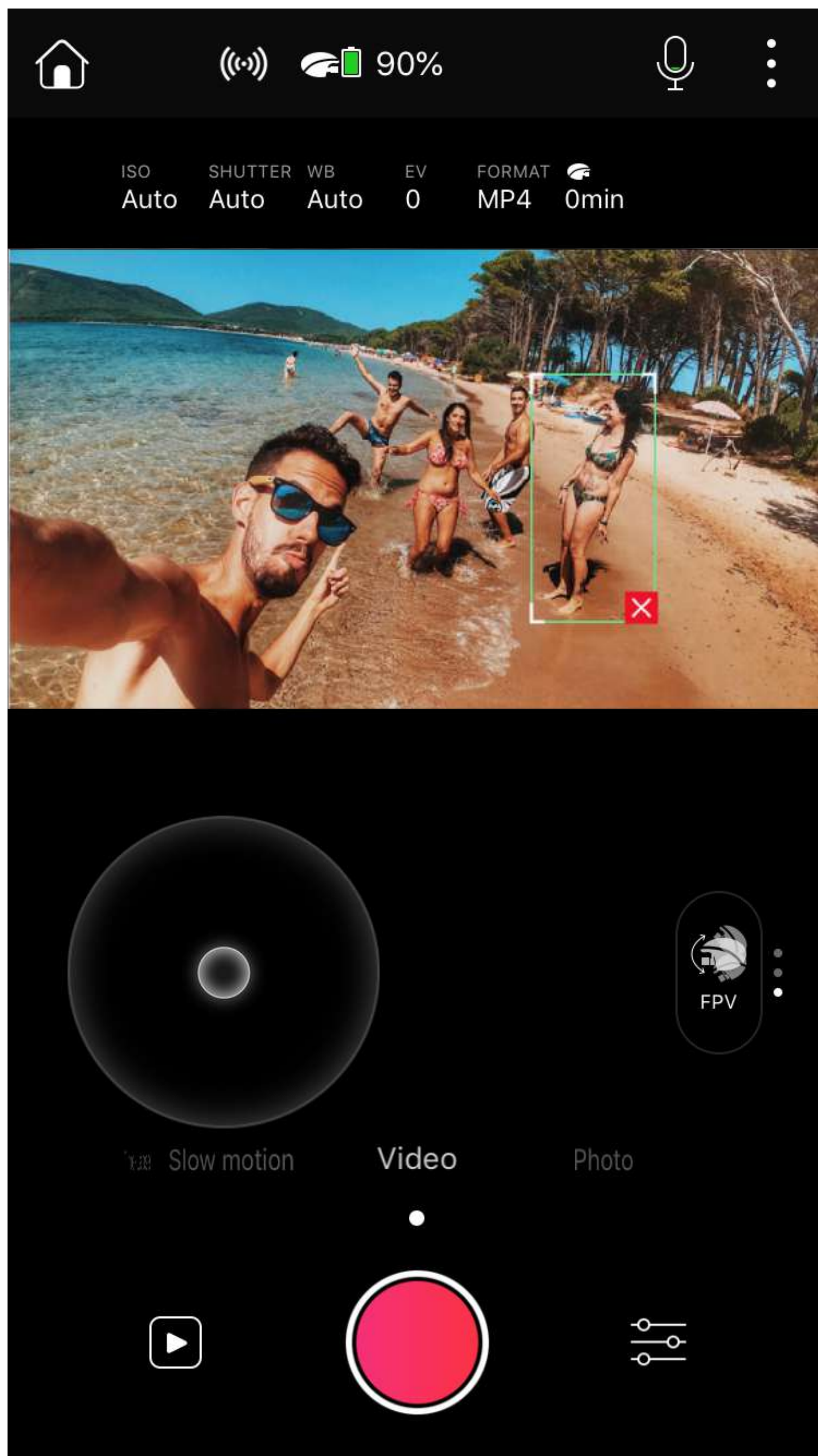
Autonomous Personal AI Camera Function: PowerEgg X camera can detect and recognize people, vehicle and some other objects, it can also follow them once selected, by rotating its gimbal

How to initiate this function?

① Aim the lens towards the target person or vehicle;

② After double-tapping or drawing a box (after long-pressing) around the person or the vehicle, PowerEgg X will swing the gimbal camera make sure that the target object is always in the   picture;

③ Whether you are shooting videos or taking pictures, the camera will always try to follow the target object until you cancel it manually.

Gesture Control

PowerEgg X will automatically start taking pictures or shooting videos by identifying specific gestures you make. Currently, it supports four gestures, and the corresponding functions are as shown below:

(1) Follow: make a palm gesture towards the camera by reaching out one of your hands with five fingers slightly apart and the camera will start (finish) following the target smartly;

(2) Photo: make a "V" gesture towards the camera, and the camera will take pictures automatically;

(3) Group Photo: Make an "OK" gesture towards the camera and the camera will start taking group photos automatically. .

(4) Video: Make a thumb-up gesture towards the camera and the camera will start (finish) recording videos

Gimbal Mode

PowerEgg X has three gimbal modes: Follow Mode, Lock Mode and FPV Mode. You can tap "Gimbal Mode" button to switch modes.

Follow Mode: In this mode, the camera follows user's motion in the pan and pitch axes.

Lock mode: In Lock mode, you can choose Pitch lock to lock the pitch and roll axes and only follows user's pan motion，or，use tri-axial lock to lock all 3 axes， which will make the camera to point to a fixed direction.

1. Pitch lock: The bottom part of the drone as the axis line, the camera lens always maintains a forward direction when the drone nose, where the camera locates, moves upwards or downwards from a forward position.

2. Tri-axial lock: Taking the bottom part of the drone body as the center point, the camera lens always maintains a front direction when the drone nose, where the camera locates, moves upwards or downwards, to the left or right side from a forward position, or rotate when taking long diameter of the drone body as the axis line.

FPV Mode: In FPV mode, the camera will only follow user's motion without locking any axis.

Live Mode

In addition to shooting great videos with PowerEgg X, you can also share the beautiful moments to your family, friends and others via live stream.

PowerEgg X currently supports live broadcasting on Weibo Live Streaming Platform. Stay tuned for other mainstream live streaming platforms coming soon!

How to make live streams?

① To use Live Mode, you need to select a live streaming platform on "More" → "Live" and grant the Vision+ 2 App access to the account as per instructions.

② After signing in, you can start live broadcasting by tapping "Start Live Stream" in Vision+ 2 App.

③ Please note that poor network, platform account restrictions and other factors may lead to failure during live streaming. If you still fail to make live streams after a few tries, please contact the corresponding live streaming platform to consult solutions.
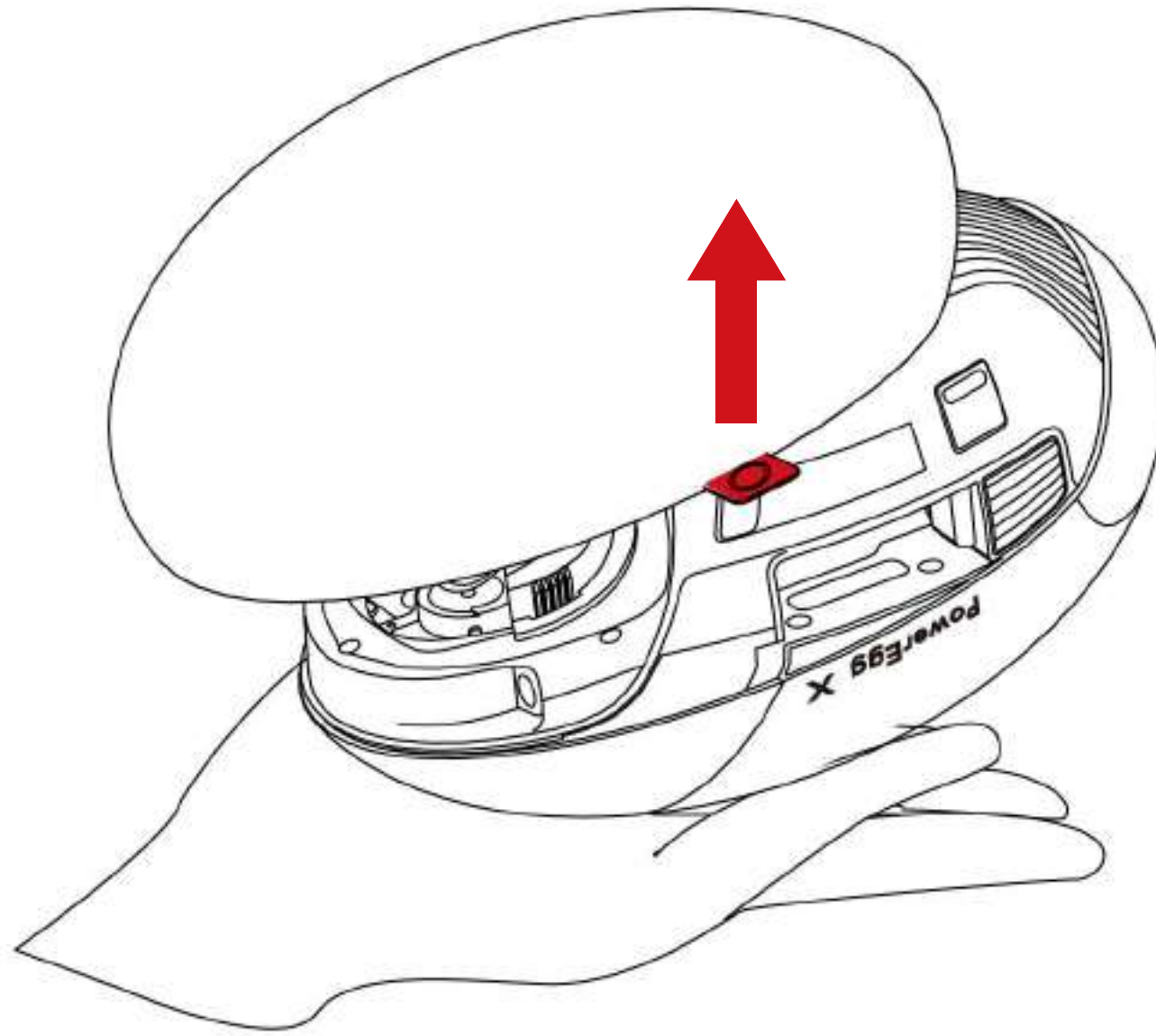
Drone Mode

▌ Preparing the Drone

Before using it in drone mode, please follow the instructions to install and unfold the drone as illustrated below:

1. Remove the protective Shell of the drone and the gimbal holder.

Remove the protective shell from the device by pulling the handle.

Remove the gimbal holder by pressing and pulling the holder from both sides.
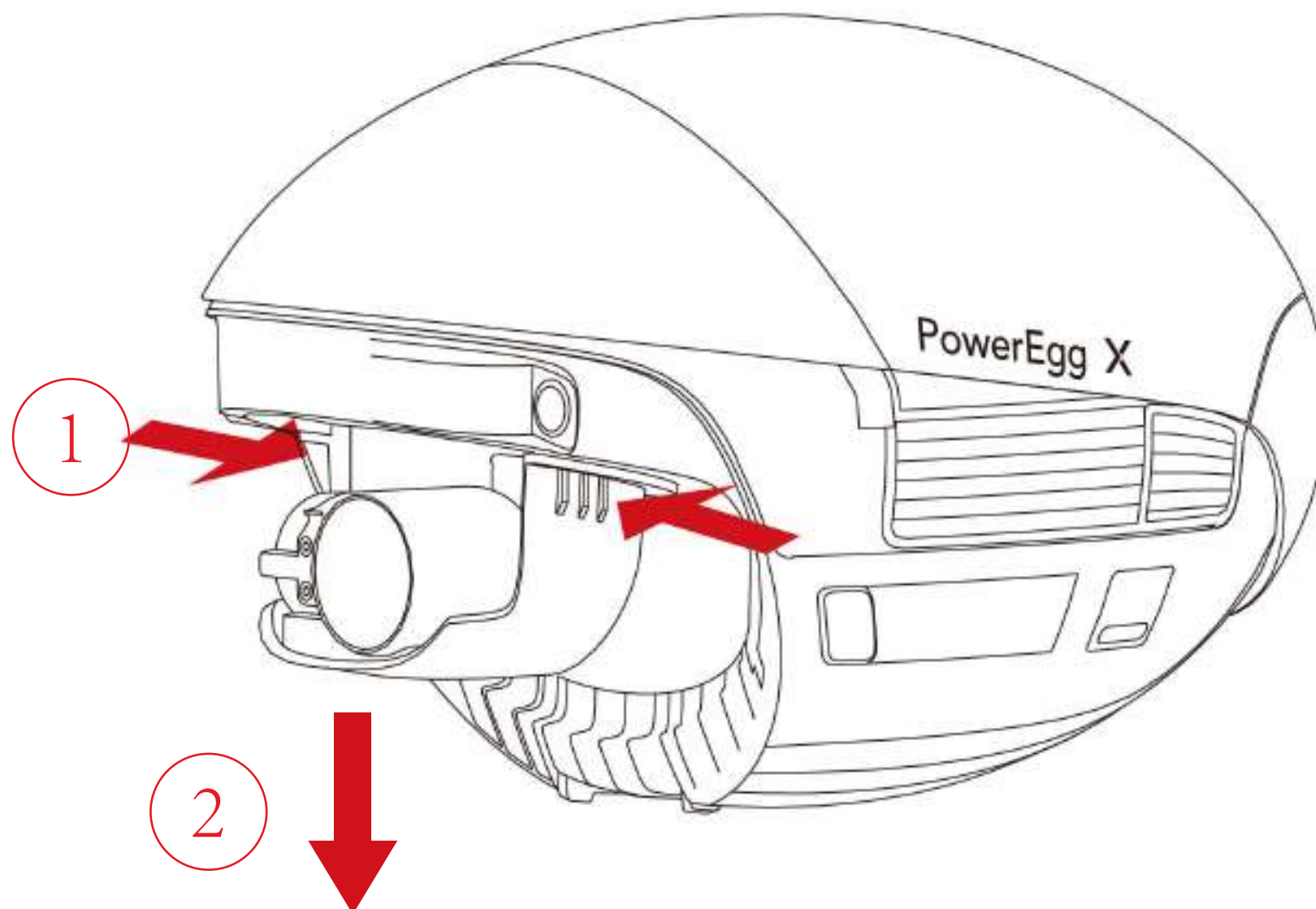
2. Install the drone's arms and batteries.

Press the buckles on both sides of the battery compartment, the rear part of the battery compartment will automatically pop up. Then you can remove the battery cover.
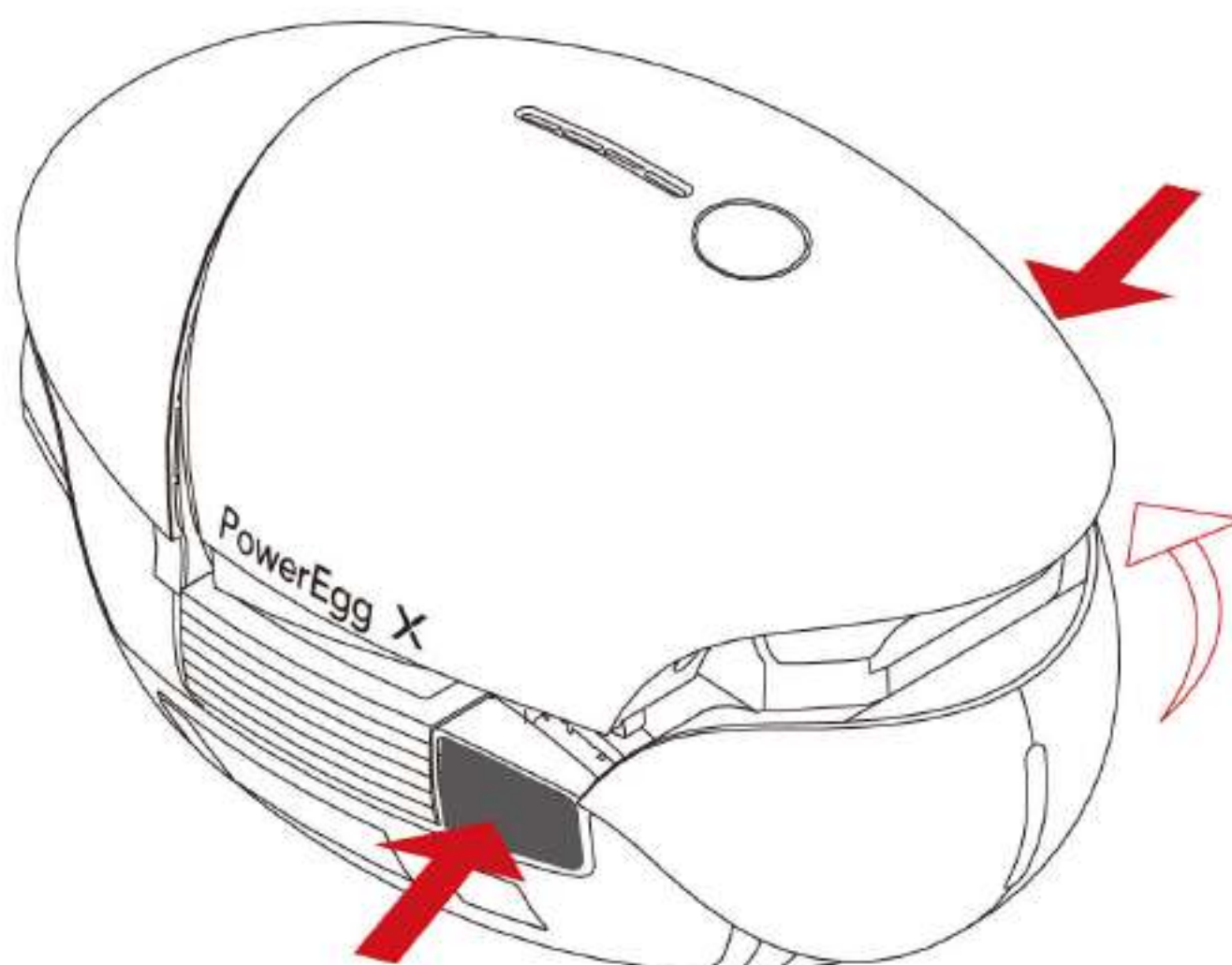
Insert the arInsert the arms into the slots on the left and right sides of the drone.ms into the slots on the left and right sides of the aircraft.
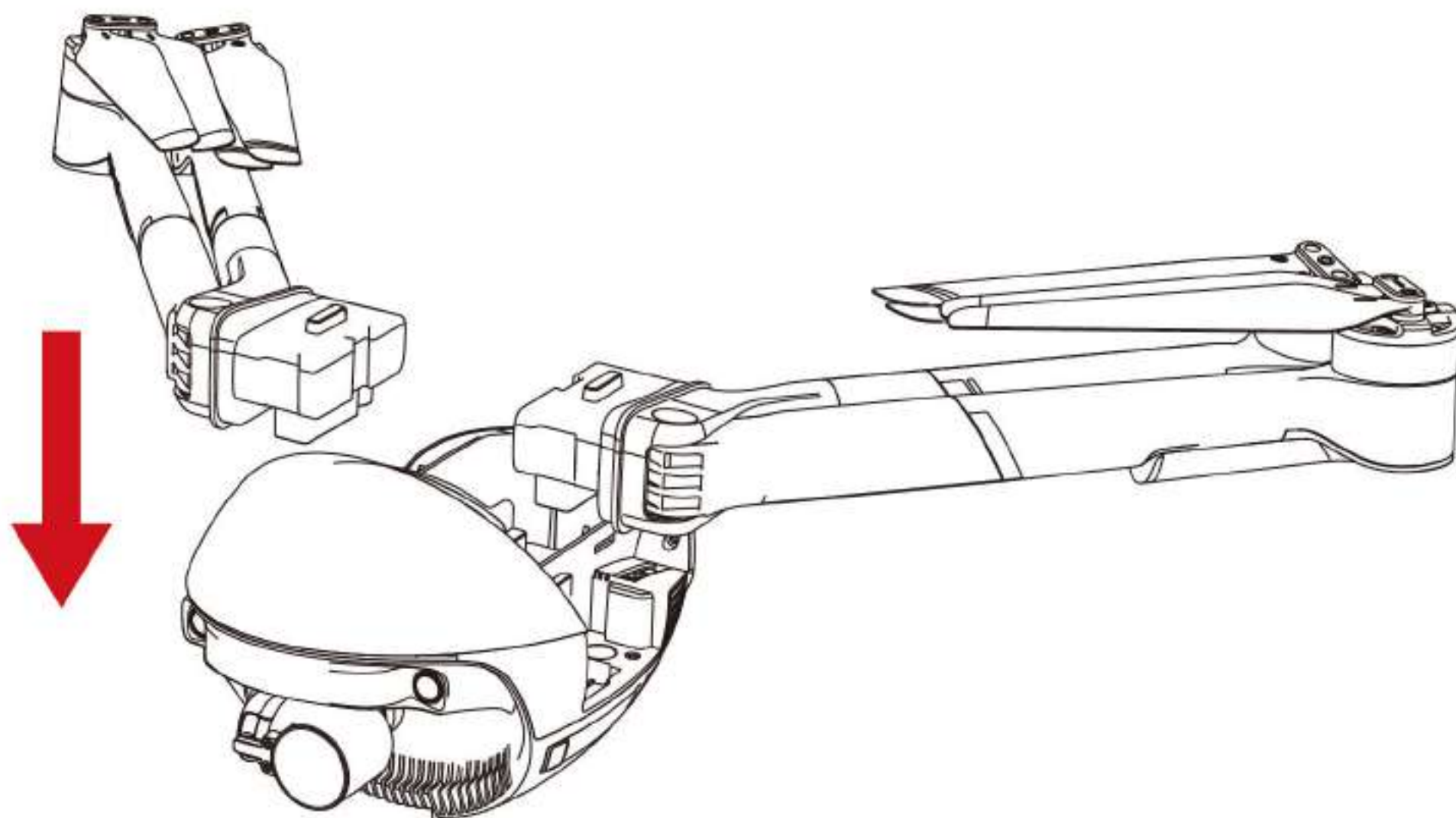
If a Micro SD Card is needed, please insert the card into the slot first.
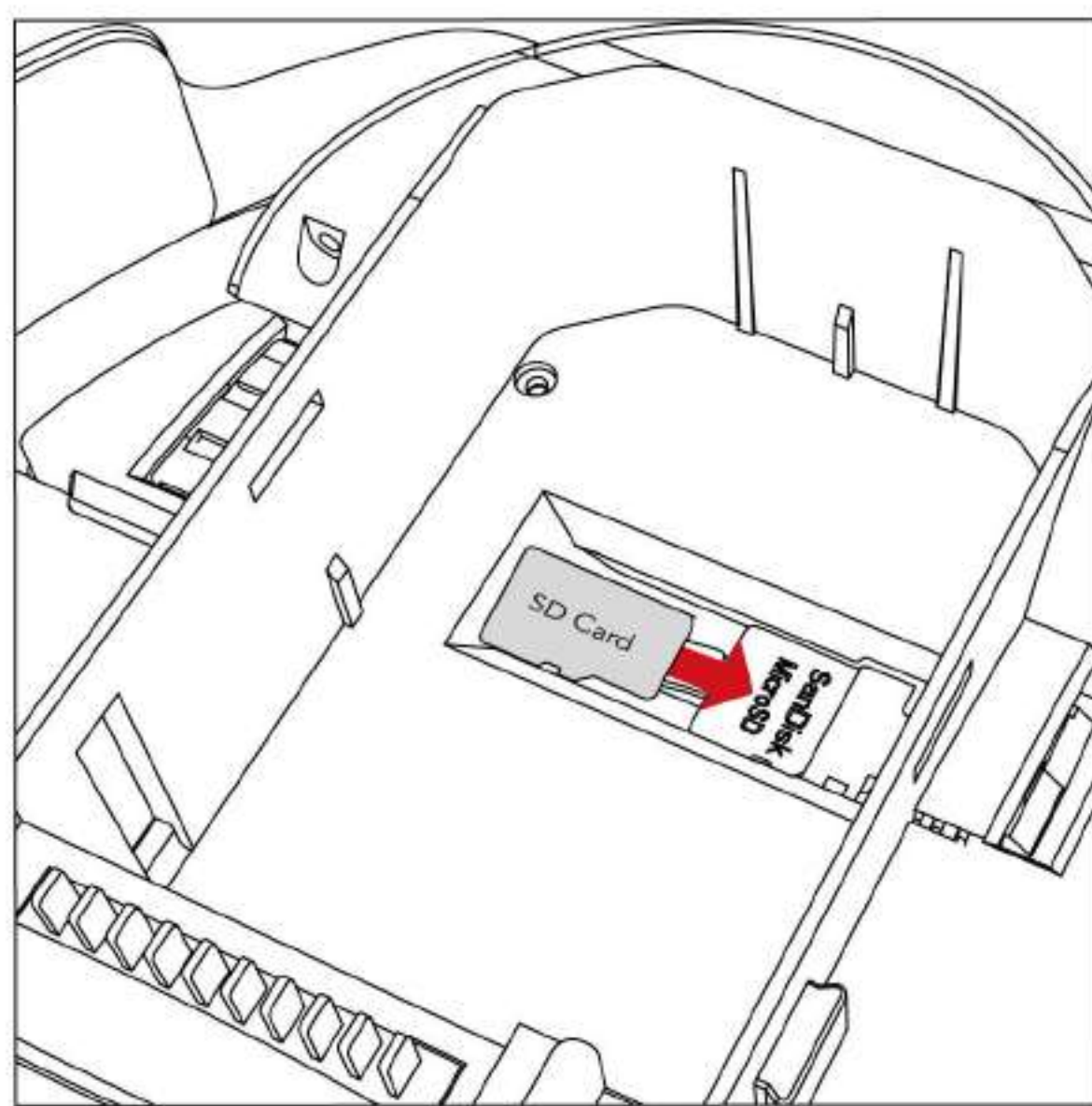
Insert the battery into the battery compartment.
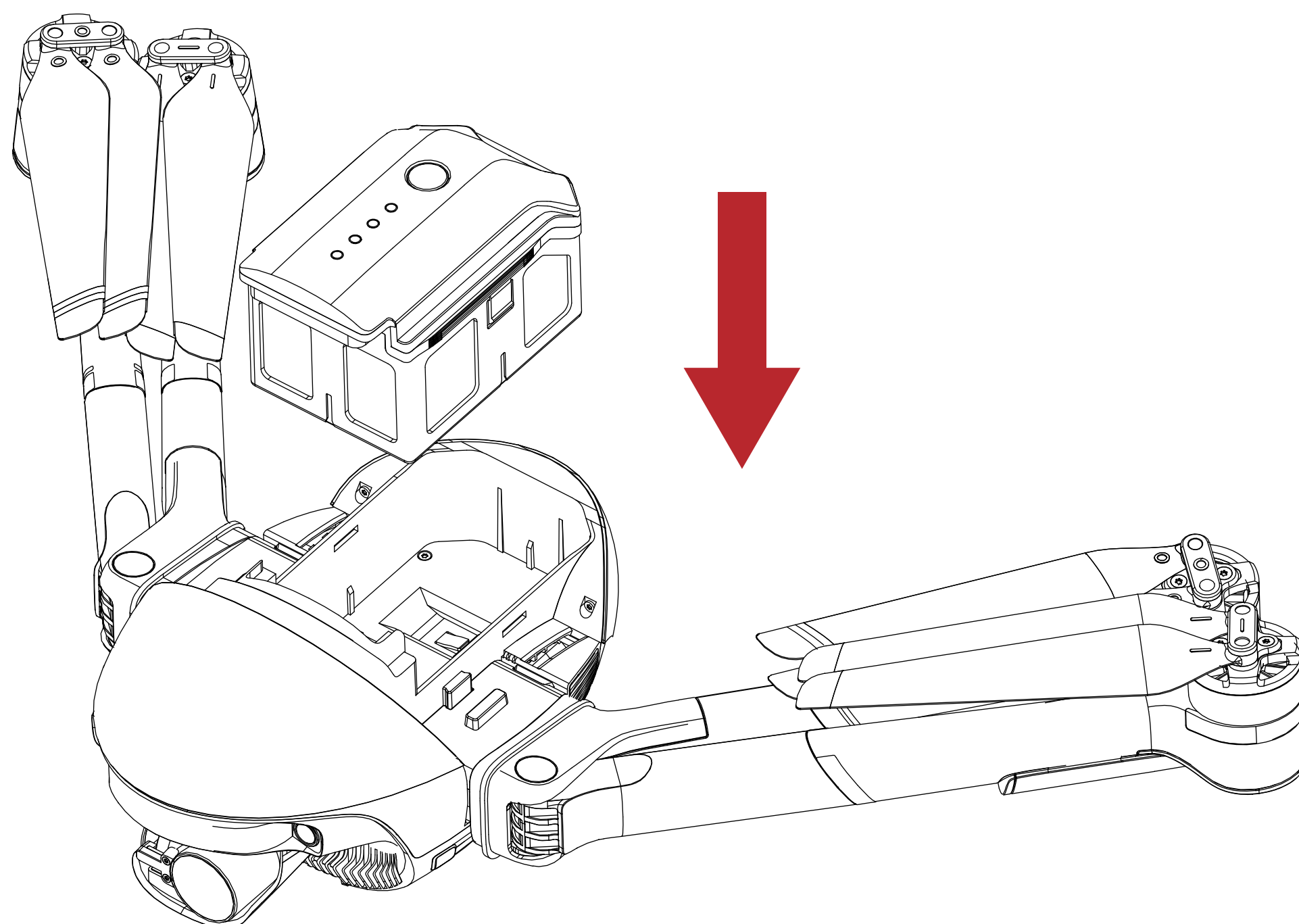
Buckle up the battery cover and secure the battery compartment into place.
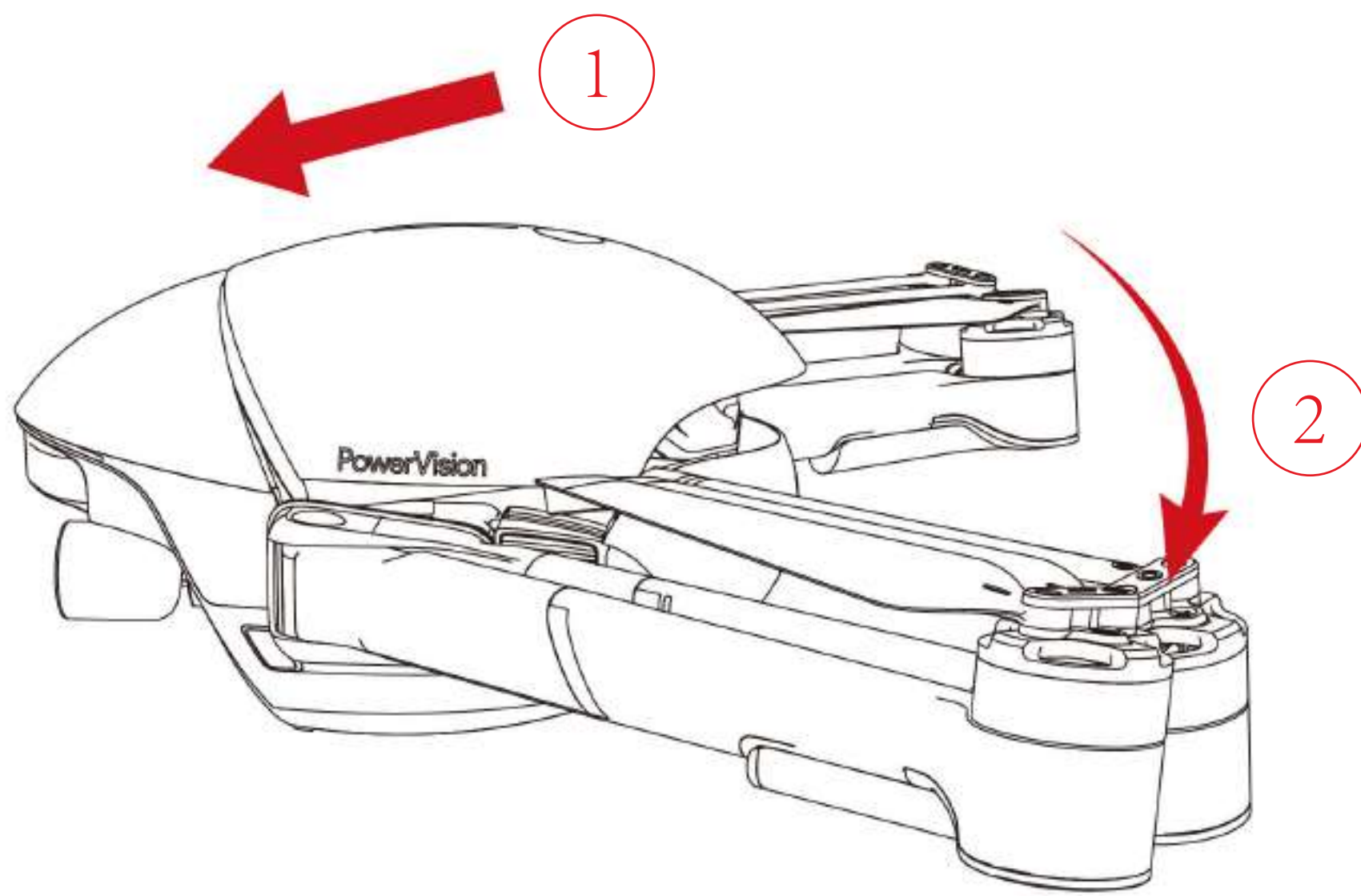
3. Unfold arms and their stands

Unfold the left and right arms and lock their positions in sequence：
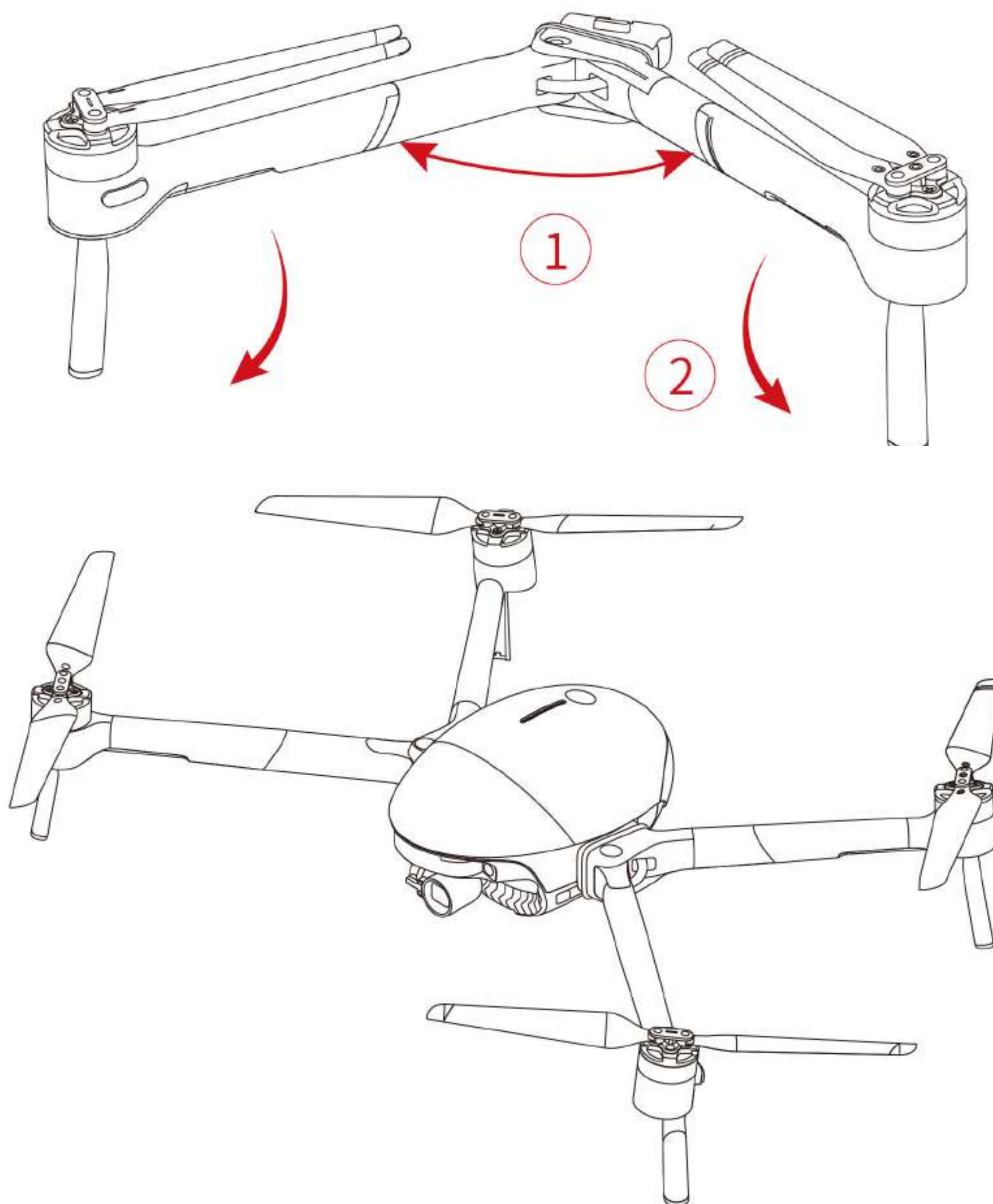
⚠ Make sure the gimbal holder is removed and all arms and stands are unfolded before powering on the drone.

⚠ Caution: When storing and shipping the PowerEgg X, make sure the arms and the drone body are stored separately, and the protective cases of drone and gimbal are well installed.

• Prepare the Remote Controller

In drone mode, PowerEgg X needs to be controlled by the remote controller.

1. Unfold the antennas.
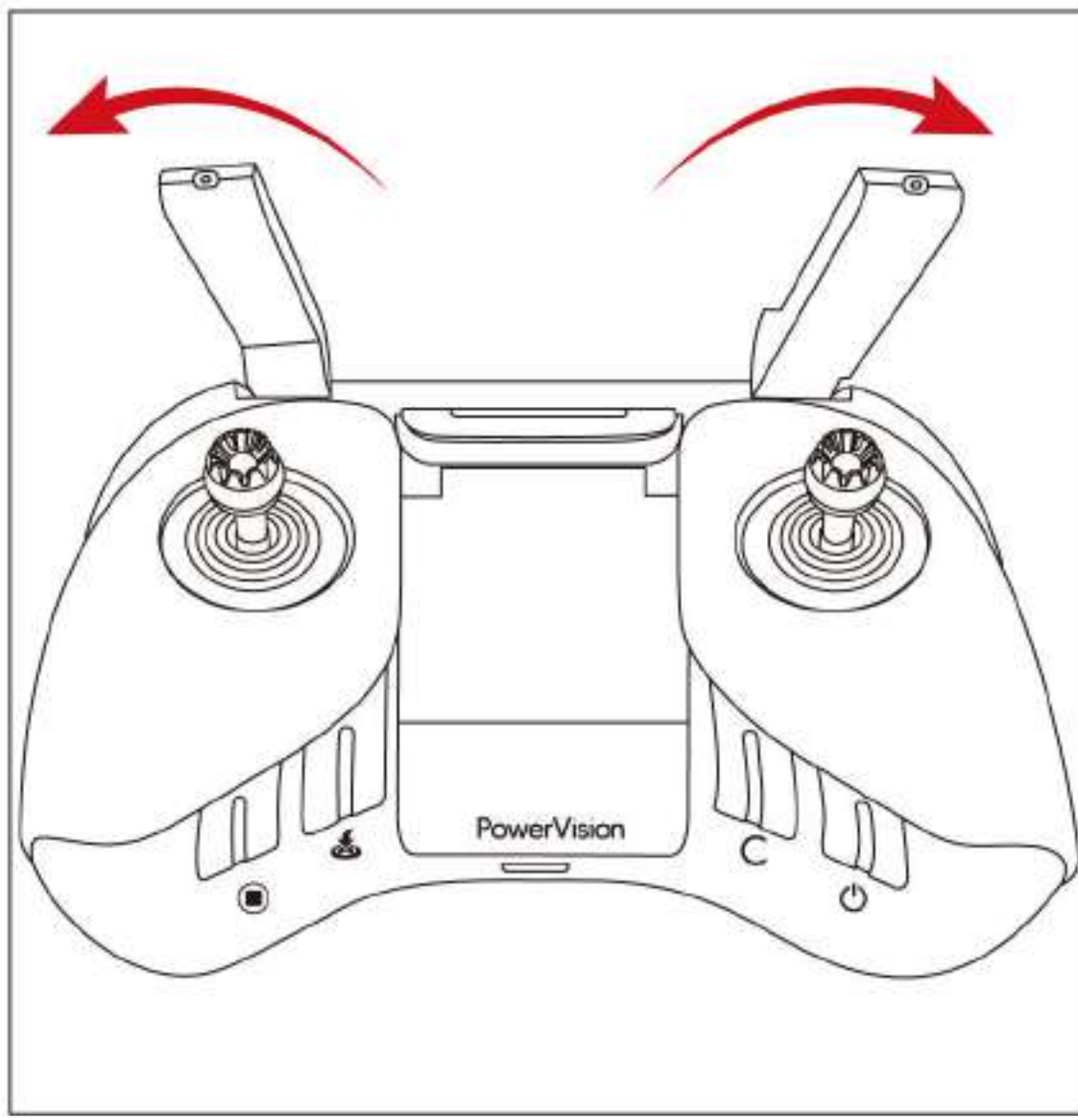
2. Follow this sequence and place the mobile device holder into a comfortable position.
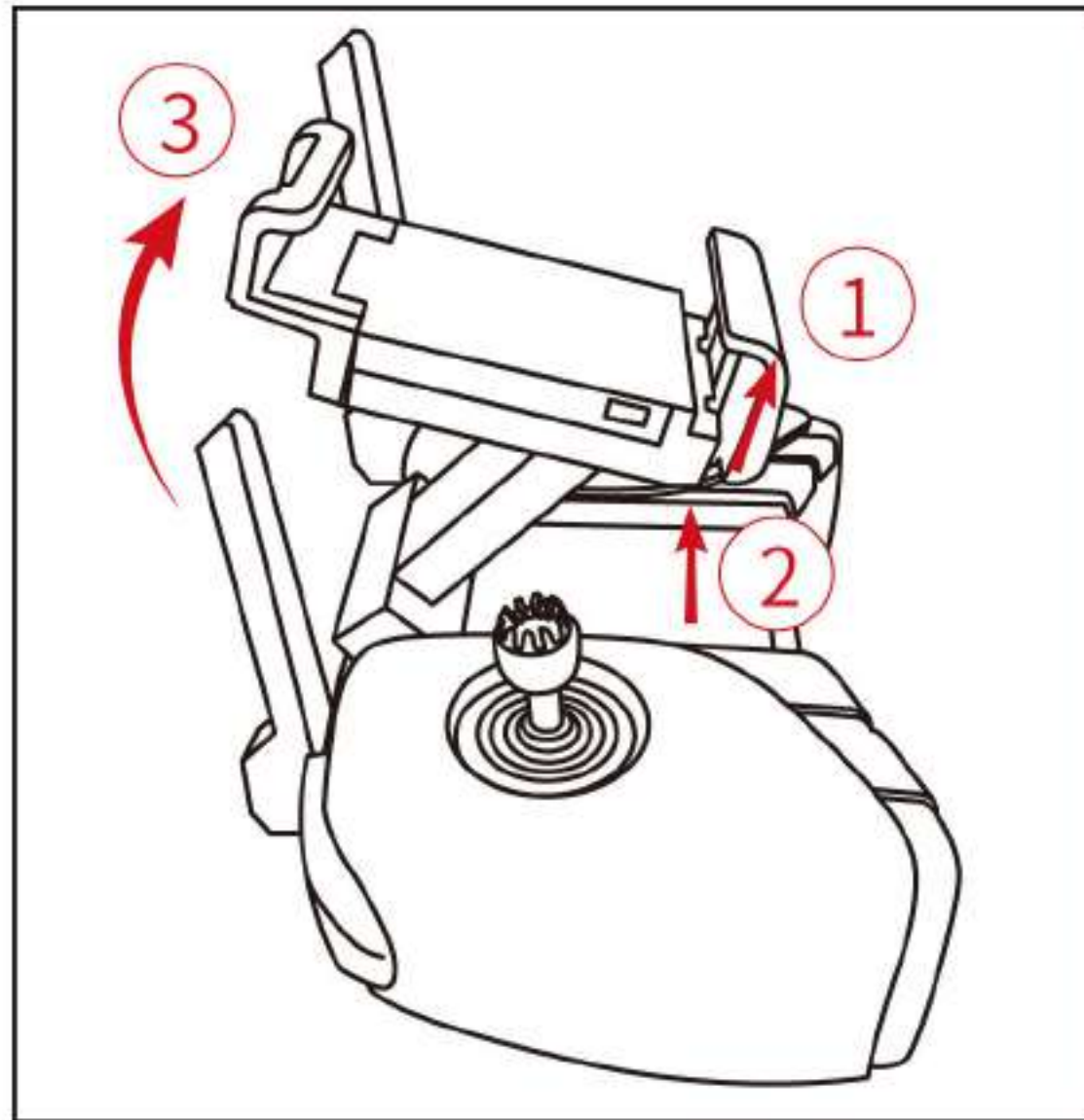
3. Put your mobile device onto the holder and adjust its angle.
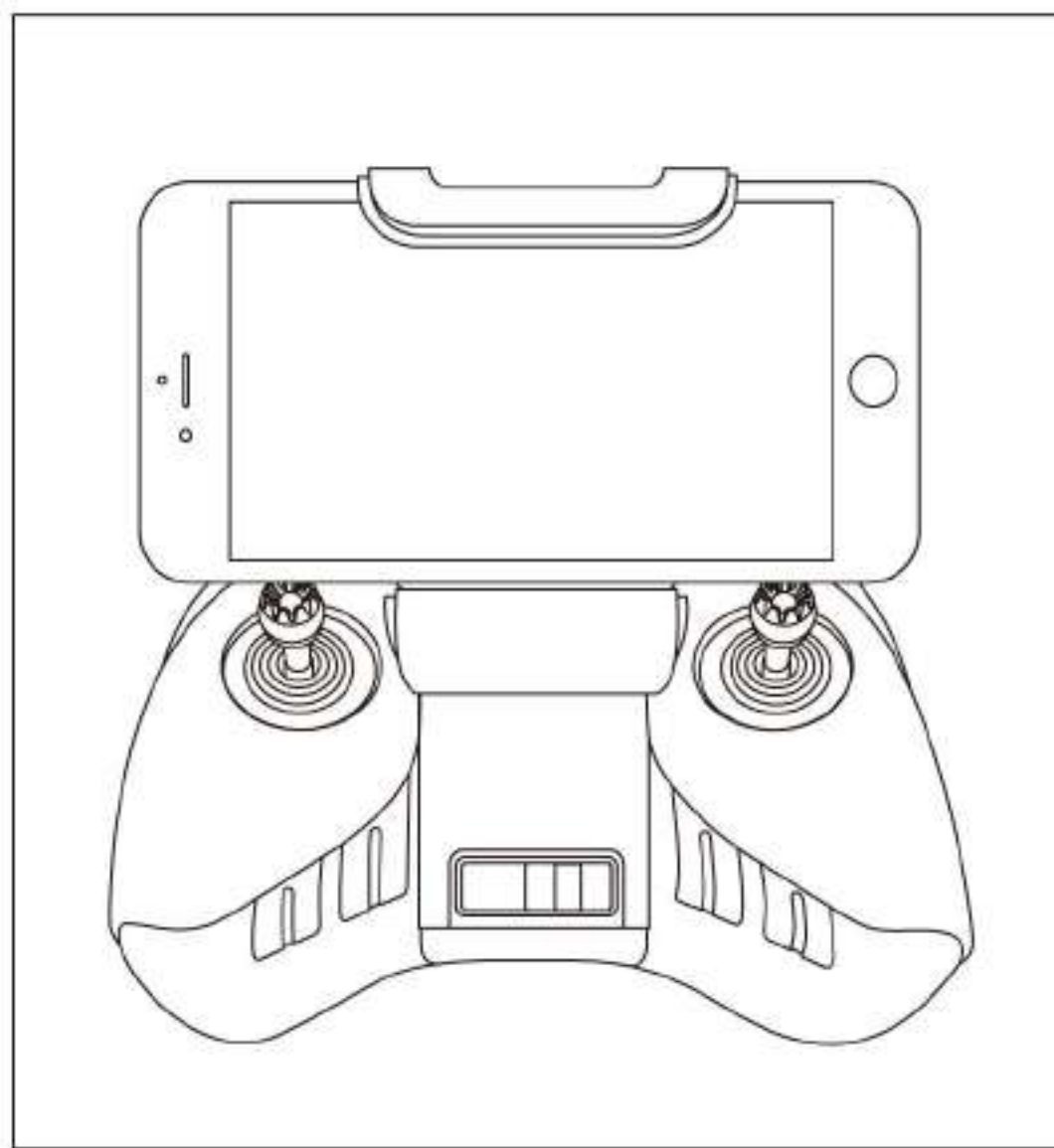
4. Use a cable to connect your mobile device and the remote controller.
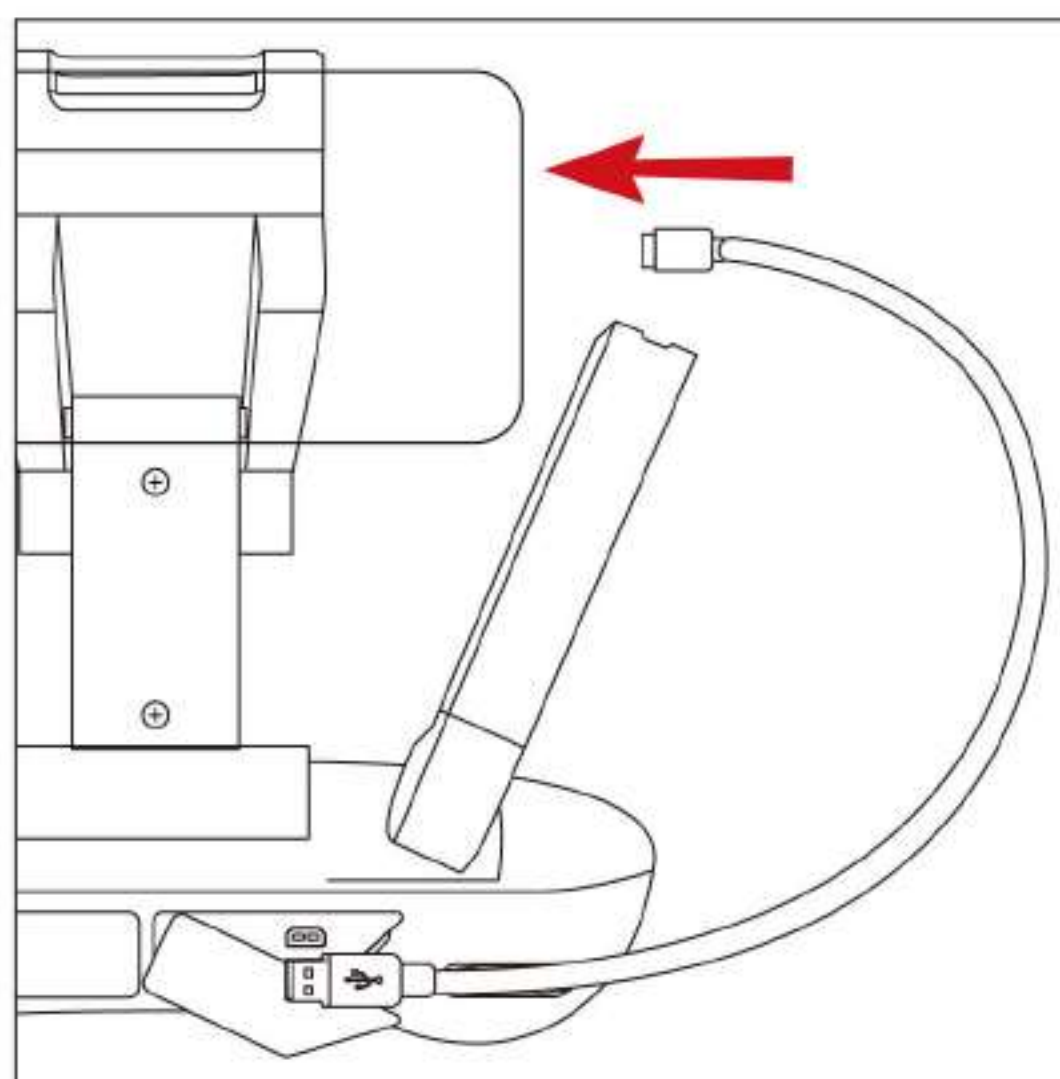
Remote Controller

PowerEgg X comes with a remote controller, which can send pilot's control commands to the drone, at the same time, the remote controller receives signal from designated data link and transmit real time high resolution video back to your mobile device via Vision+ 2 App.

◆ Operations of the Remote Control

• Powering On or Off

Press the power button of the remote control for 3s to power on/off the remote controller.
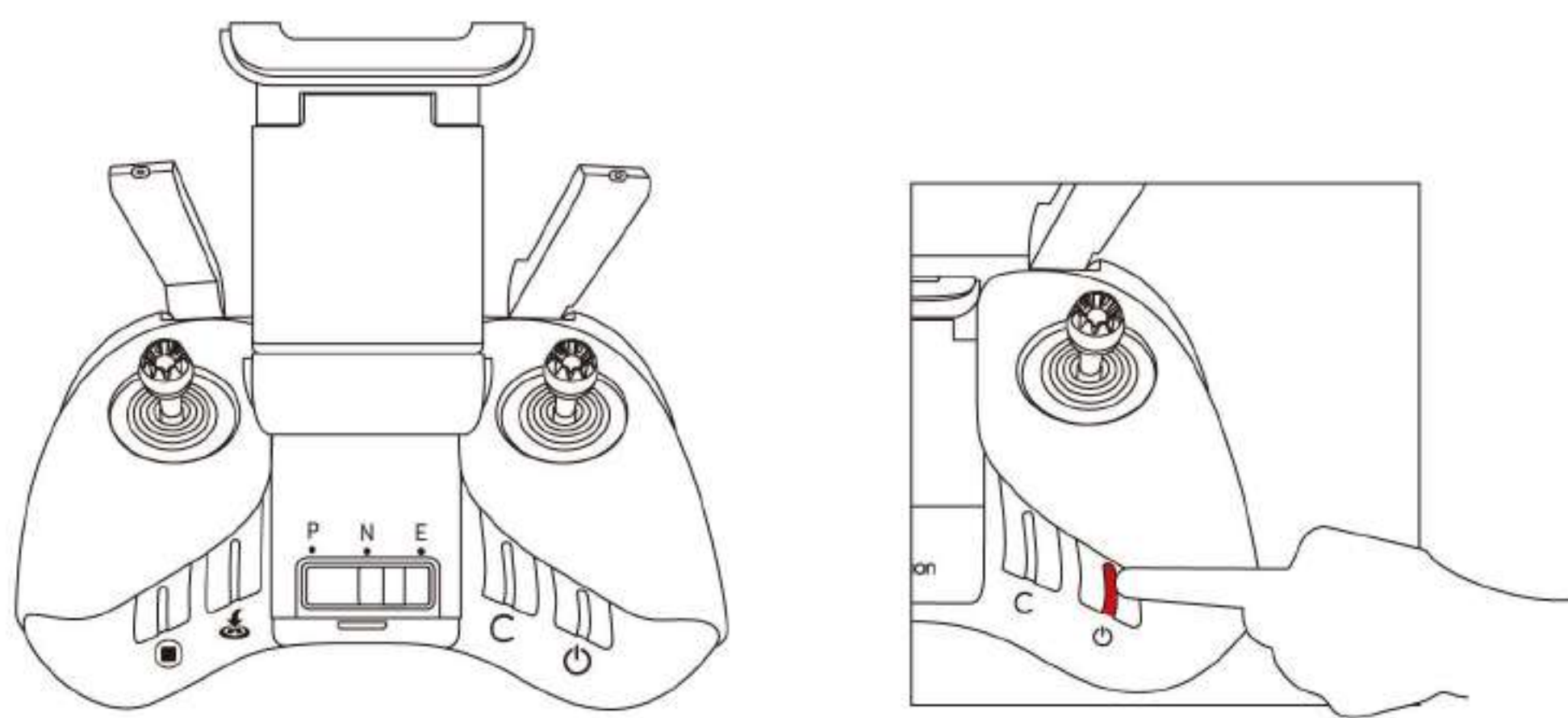
The LED on the power button indicates the battery level of the remote controller. Please charge the battery before its get too low.

<20%   20%-60%   >60%

• Charging

To charge the remote controller, use a Micro USB cable to connect remote controller to the power adapter. . The power indicator blinks during charging and keeps on the solid green after the remote controller is fully charged. It will take about 2 hours to charge the battery.
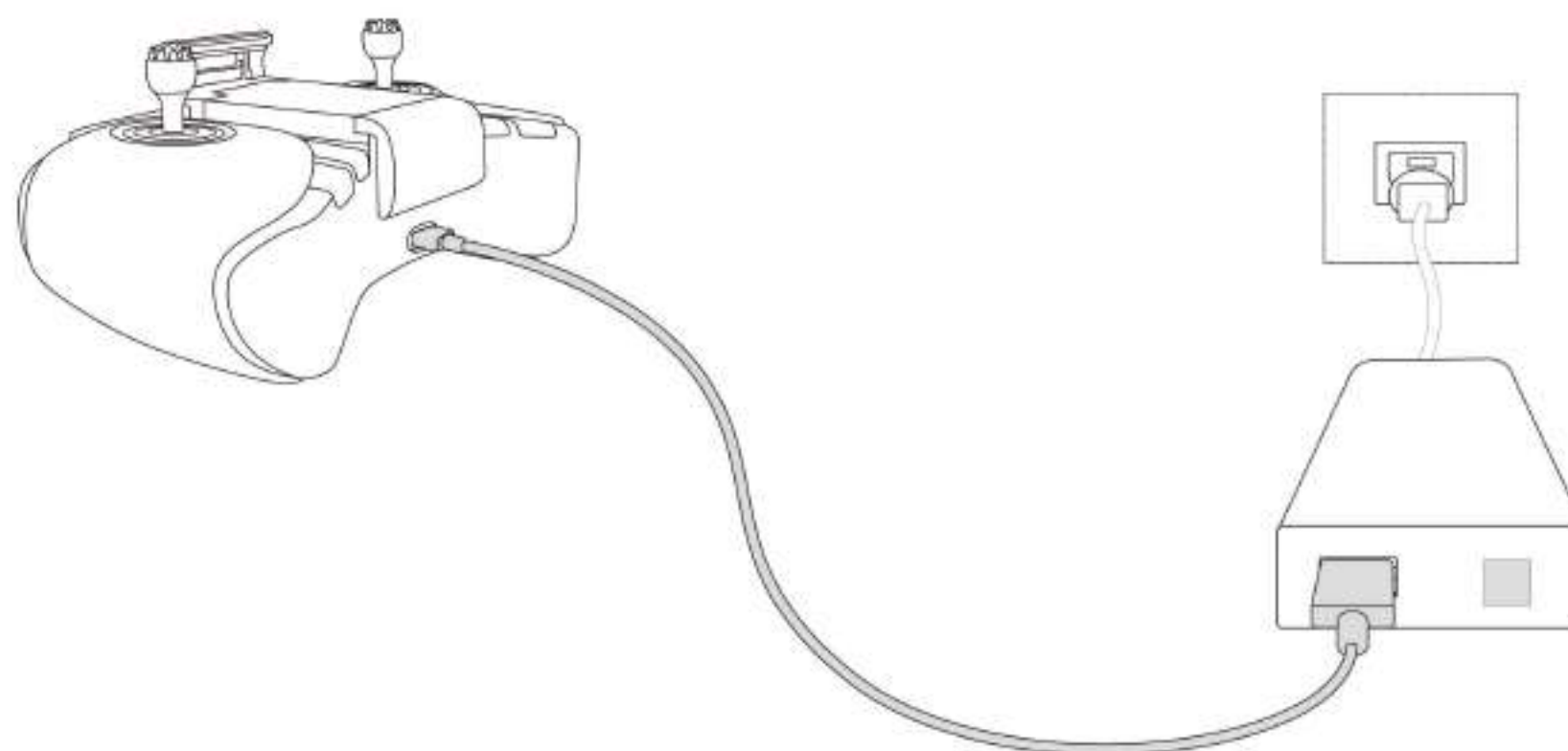
• Operating the Gimbal Camera

1. Photo button: short press once to take pictures.

2. Video button: short press once to start/stop recording.

3. Gimbal Pitch Control Thumbwheel: use the thumbwheel to control thePitch angle of the gimbal.

31
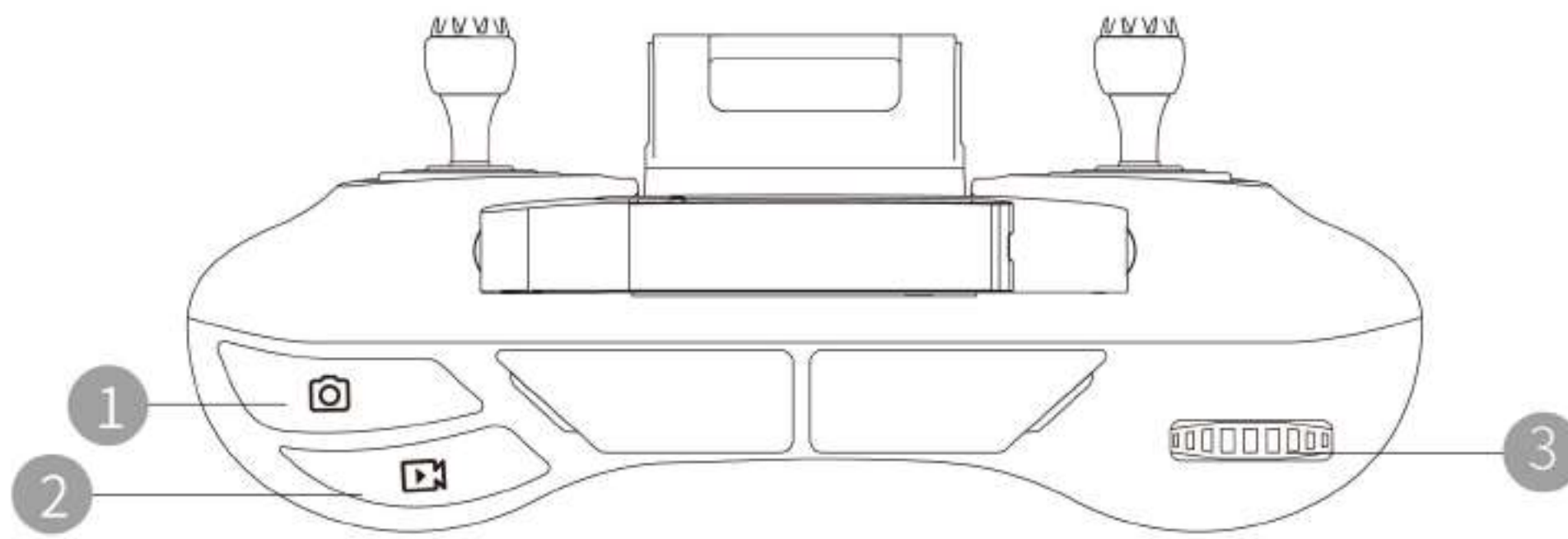
• Operating the Remote Controller

Piloting Mode: there are three piloting modes, i.e., Right-hand Throttle Mode (Mode 1), Left-hand Throttle Mode (Mode 2) and Chinese Throttle Control Mode (Mode 3). You can also customize your mode in the Vision+ 2 App. For beginners, Mode 2 is recommended

The default factory settings for piloting mode is Mode 2. Throughout the entire user manual, mode 2 is used as example to show how to use the remote controller.

Tips:

Left-hand Throttles Mode (Mode 2): the throttle stick is on the left side;

Right-hand Throttle Mode (Mode 1): the throttle stick is on the right side.

Right-hand Throttle Mode (Mode 1):
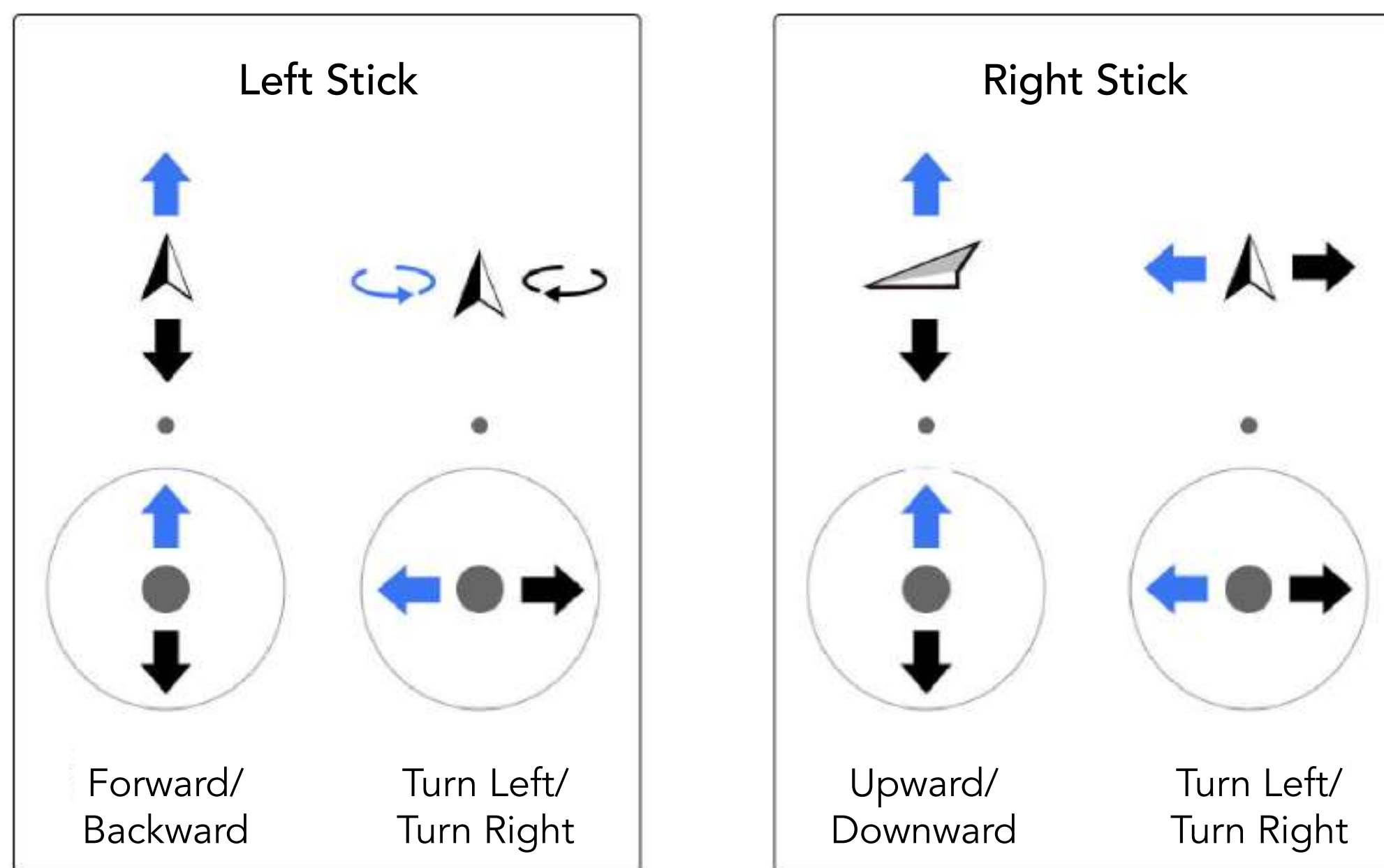
Left-hand Throttles Mode (Mode 2)
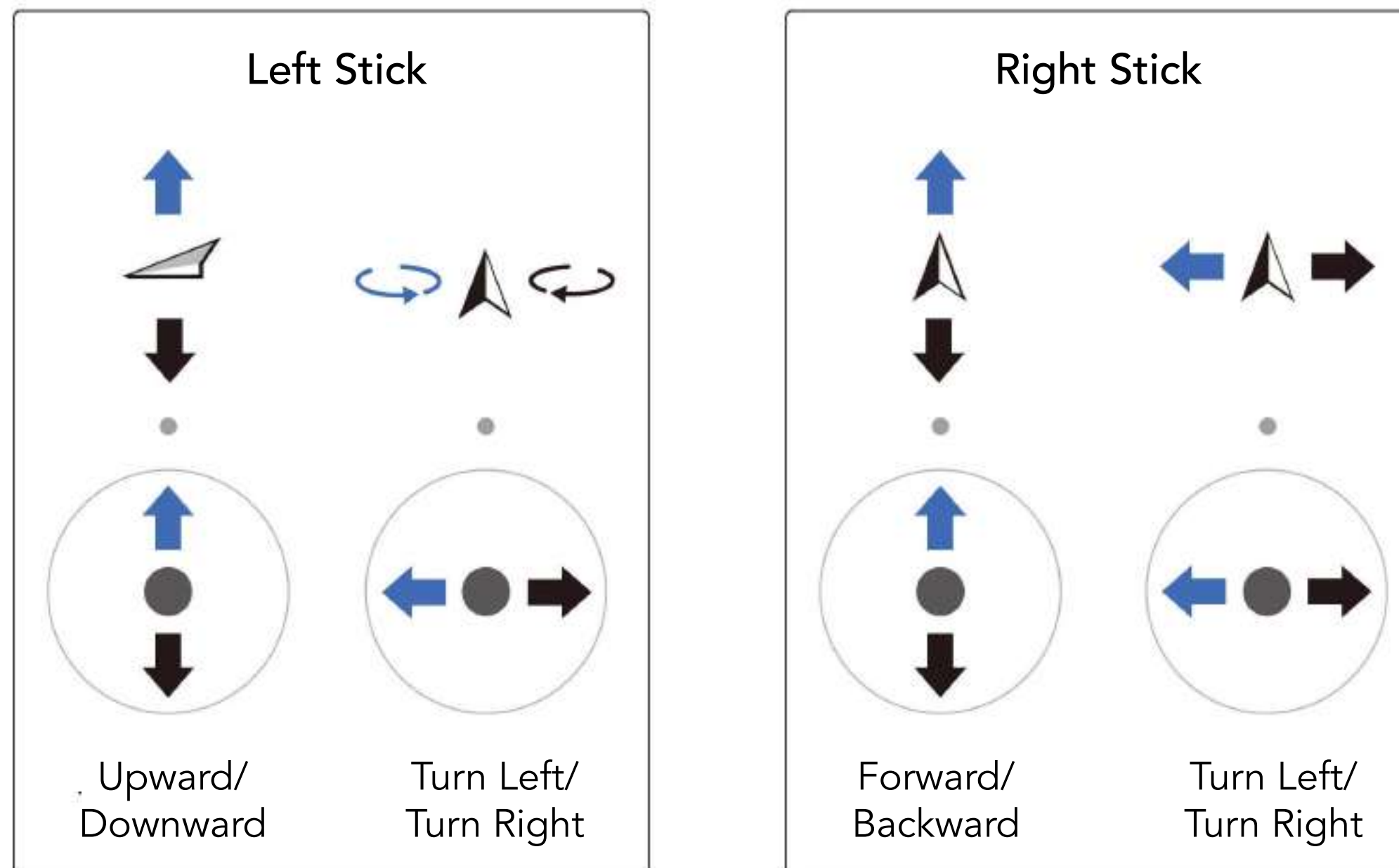
• Controlling the Drone

1. Throttle Stick
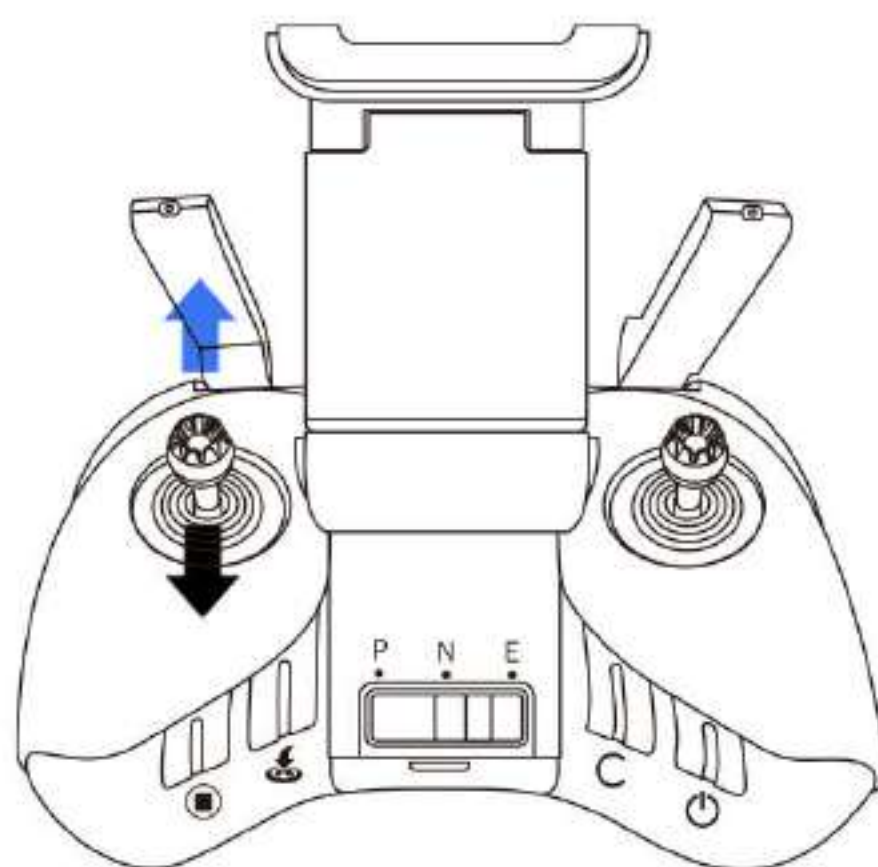
Moving the throttle stick up or down changes the drone's climb rate. Push the stick up to ascend and down to descend. Elevation of the drone remains unchanged when the stick is in the center position. When the drone begins to take off, you must push the stick up and cross the center position to lift the drone from the ground. Please push the stick slowly to prevent the drone from a sudden and unexpected rise.

2. Yaw Stick
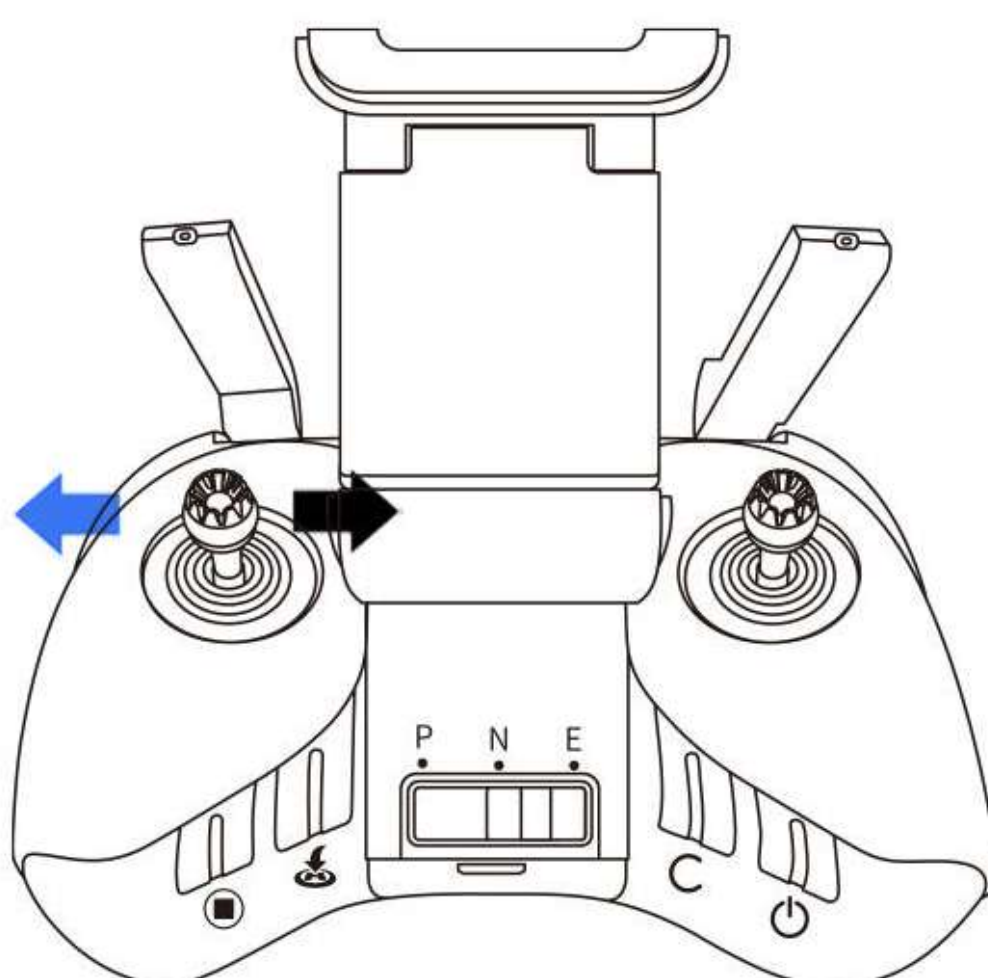
Moving the Yaw stick to the left or right controls the heading of the drone. Push the stick left to rotate the drone counter-clockwise and right to yaw the Drone to the left and right to yaw the Drone to the right. When the stick is in the center position, the yaw rate is zero and the drone keeps its direction. The more the stick is pushed away from the center position, the faster the drone will rotate.

3. Pitch Stick
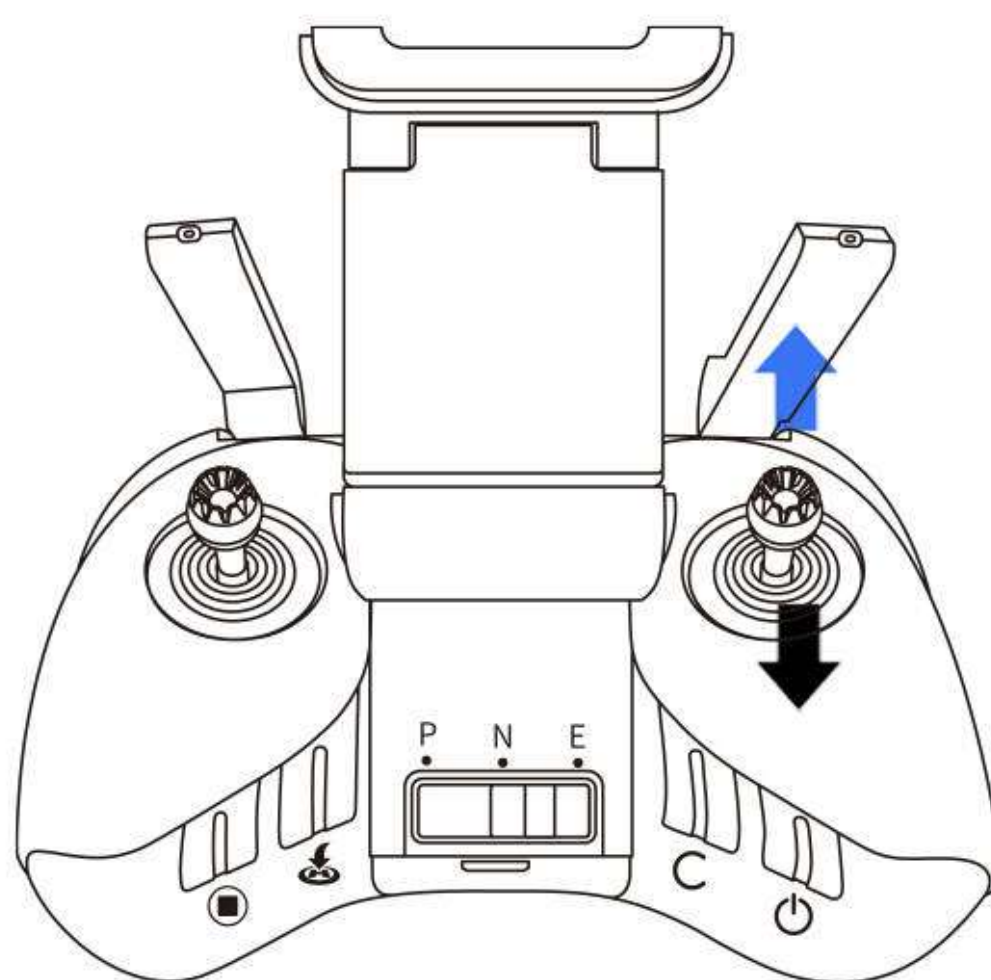
Moving the pitch stick up and down changes the Drone's pitch. Push the stick up to fly forward and down to fly backwards. The Drone remains horizontal when the stick is in the center position. The amount of stick controls the speed of the Drone.

4. Roll Stick
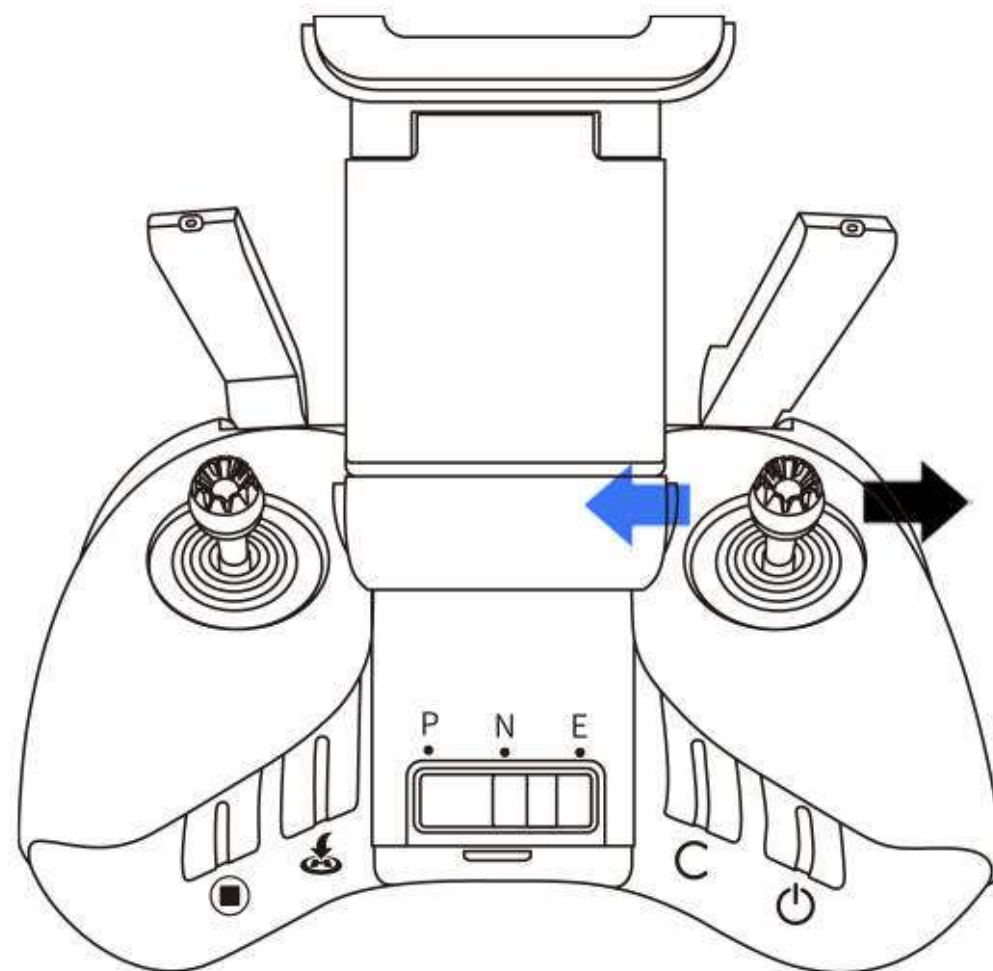
Moving the roll stick to the left or right changes the drone's roll. Push the stick left to fly left and right to operate right. The drone remains horizontal when the stick is in the center position. The more the stick is pushed away from the center position, the faster the drone will fly with a bigger incline angle.

• Switching flight modes,

Toggle the switch to choose a flight mode from three options.

Three Switches
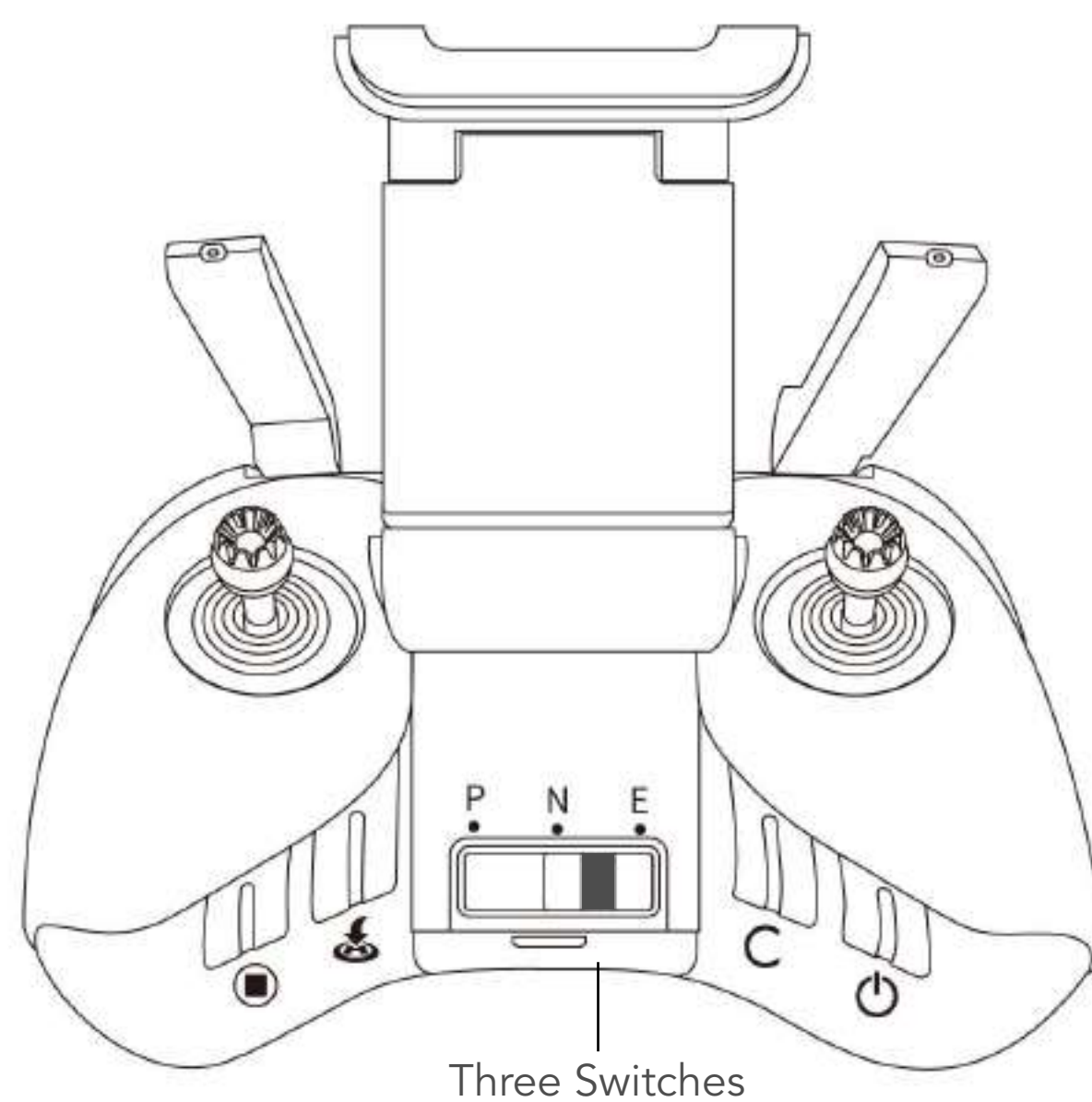
P mode (Professional Mode): The Drone can fly with highest speed;

N mode (Normal Mode): The Drone is at the easiest state to fly;

E mode (Easy Mode): The Drone is at the easiest state to fly.

• Return-To-Home (RTH) Button

When flying, press the RTH button and hold for 2s to activate RTH. The drone will return to the last recorded home point. During the return, the

remote controller beeps, and you can control the flight speed and altitude through the remote controller. Press the RTH button again to cancel the return.

- **Customizable Button**

  The button can be assigned to customized functions by using the Vision+ 2 App.

- **Power saving hibernation**

  Remote Controller beeps after 5 minutes of standing by, and you can toggle any stick to get the controller back to normal. The remote controller will automatically shut down after over 10 minutes of inactivity.

- **Optimal Transmission Zone**

  The signal between the drone and the remote control is most reliable when the antennas are positioned perpendicular to the Drone, while maintaining them in the same direction, as shown below.
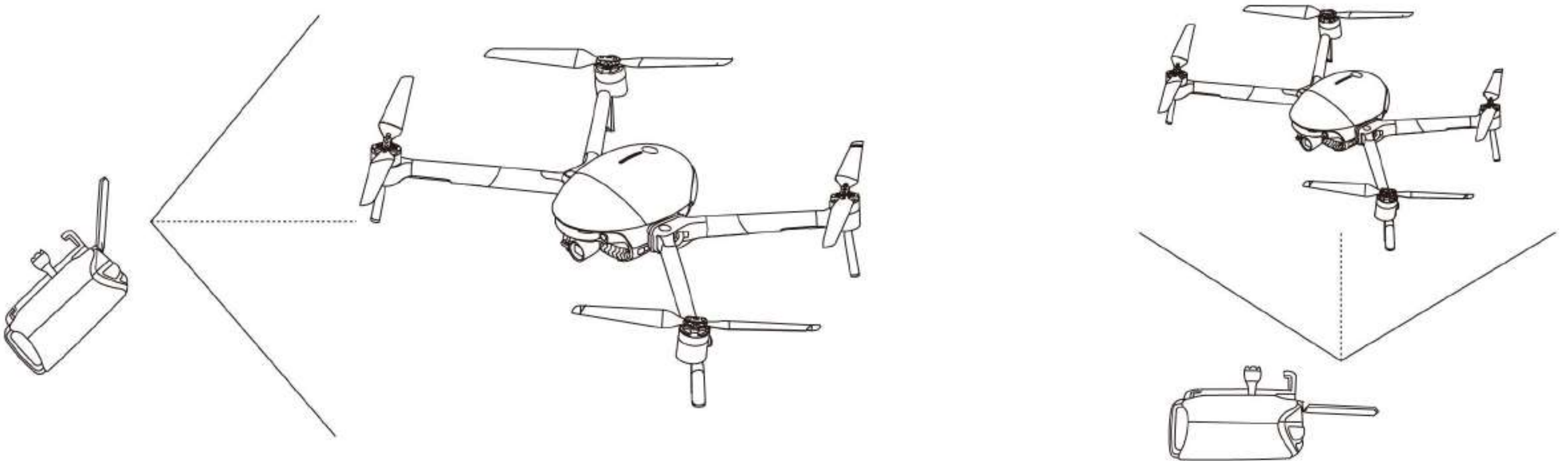
◆ Pairing the Remote Controller

- **Linking the Remote Controller**

  The remote control is paired to the drone before delivery and will be automatically connected to the Drone after powering on. The three LEDs on the left side blink in a sequence indicating the remote controller are searching and trying to connect to the drone. The blink will stop when both the Drone and the remote controller are connected.

- **Pairing the Remote Controller**

  A new remote controller should paired with the drone before use. The pairing process is shown as follows:

  1. Power on the drone and the remote controller.

2. Connect the mobile device and the remote control through a USB cable and run the Vision+ 2 App.

3. Select Pairing the Remote Controller on the guide page of linking the drone in drone mode.
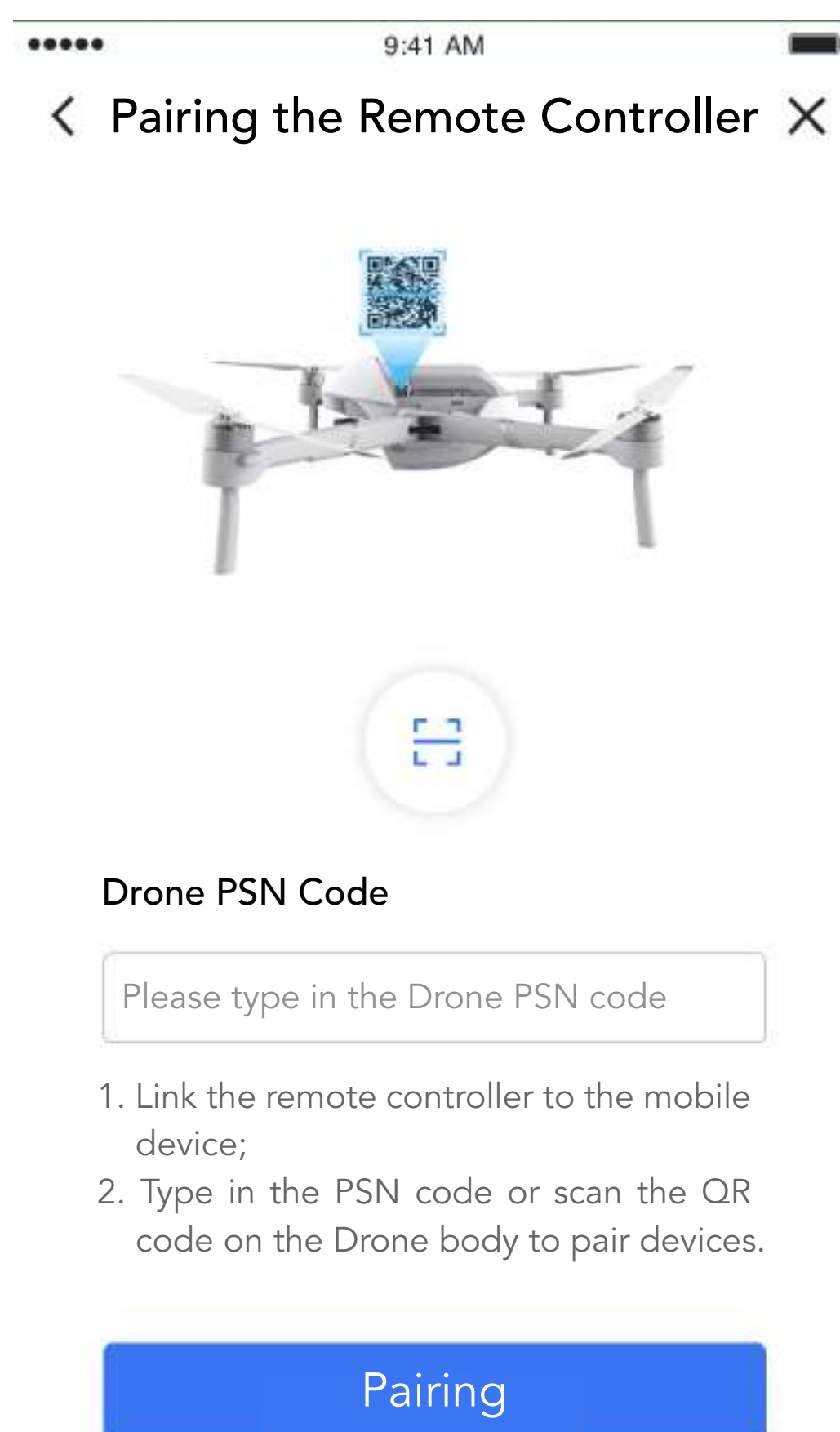
4. Scan the QR code on the drone body, or type in "SSID: EggX_xxxxxx" as per instructions prompted on the App.

Note: xxxxxx refers to the last six figures of PSN code labelled on the drone body.

Introduction of Drone

◆ Drone Status Indicator

PowerEgg X has mode status indicators (headlights) and flight status indicators (tail light) on the drone body.

Mode Status Indicator

Flight Status Indicator
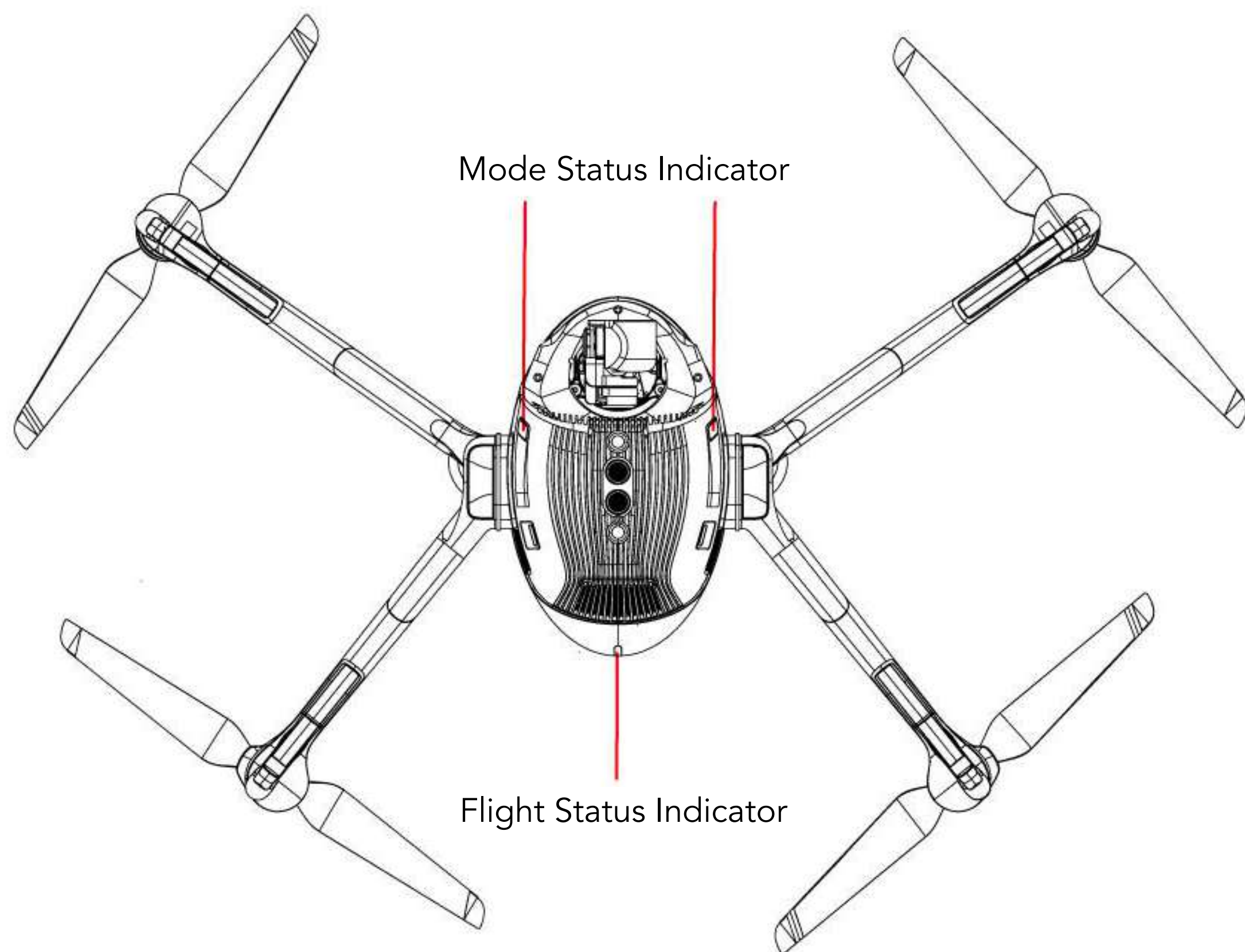
The mode status indicators, located at the front of the drone, indicate whether PowerEgg X has been configured to the drone mode. In drone mode, the indicators will always be solid red.

Flight status indicators of the drone indicate the status of the drone's flight control system.

• Flight Status Indicators (Tail Lights)

The remote controller and the drone have been paired before delivery. The three LEDs on the left on the left side of the controller blink in a sequence indicating that the remote control is searching and trying to connect to the drone. When the blink stops, it means that the connection between the drone and remote controller has been completed.

Normal States	
Status of Indicators	**Description of Drone States**
Green, blinking slowly	Positioning with GPS
Green, blinks twice	Positioning with Vision System
Yellow, blinking slowly	No GPS, or Vision System

Warning and the Abnormal States	
Status of Indicators	**Description of Drone States**
Yellow, blinking quickly	Remote Controller signal lost
Red, blinking slowly	Warning for Low battery
Red, blinking quickly	Warning for severe low battery
Red, solid	Serious error
Alternating red or yellow, blinking quickly	Compass calibration required
Mode Status Indicators (Head Lights)	
Status of Indicators	**Description of Drone States**
Red, solid	Inserting the right and left arms. Drone is in Drone Mode.
Red, blinking	Mode exception, single arm detected only
Red, off	Failure to detect arms. Drone is in AI Camera Mode.

◆ Propellers

• Cautions for use

1. Propeller blades are sharp. Handle carefully when attaching and detaching them.

2. Please only use the designated propellers provided by powervision.

3. Propellers are consumables. Please purchase the propeller separately if necessary.

4. Make sure that propellers are attached accurately and securely before each flight.

5. Make sure all propellers are in good condition before each flight. Replace old, broken or distorted propellers before a flight.

6. Stand clear of and DO NOT touch propellers or motors when they are spinning.

7. DO NOT squeeze or bend the propellers during storage. Improper handling of the propellers might lead to deformation and inferior flight performance or flight error.

8. Make sure the motors and arms are mounted securely. Land the drone immediately if any of the rotor has problem.

9. DO NOT attempt to make modifications to the rotors.

10. Please be aware that the motors might be hot after use, take the Drone with caution.

11. DO NOT block any of the Ventilations on the motors.

• To replace the propellers

When replacing a propeller, make sure the blades are straight so the screws are exposed.
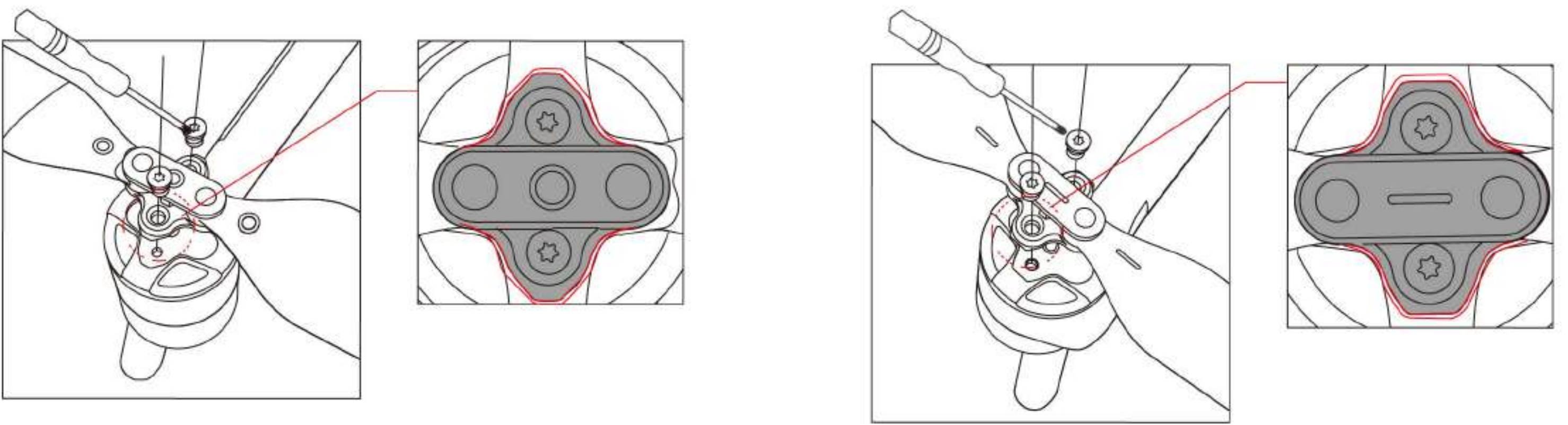
⚠ Cautions:

    1. Use T6 ✳ screwdriver and M2.5×3.5 screws with Teflon Paste.

    2. The blade clip of the propeller is matched to the end cap of the motor. Please attach the propeller following corresponding icons, as indicated in the drawing.

    3. DO NOT use the old screws again after replacement.

◆ Vision System

Equipped with forward facing and downward facing stereo vision cameras, vision systems, PowerEgg X can observe the surroundings to help with understanding its positions, as well as perceives the obstacles in those directions. The forward and downward vision systems are located at the nose and the tail of the drone.

Forward Binocular Vision System
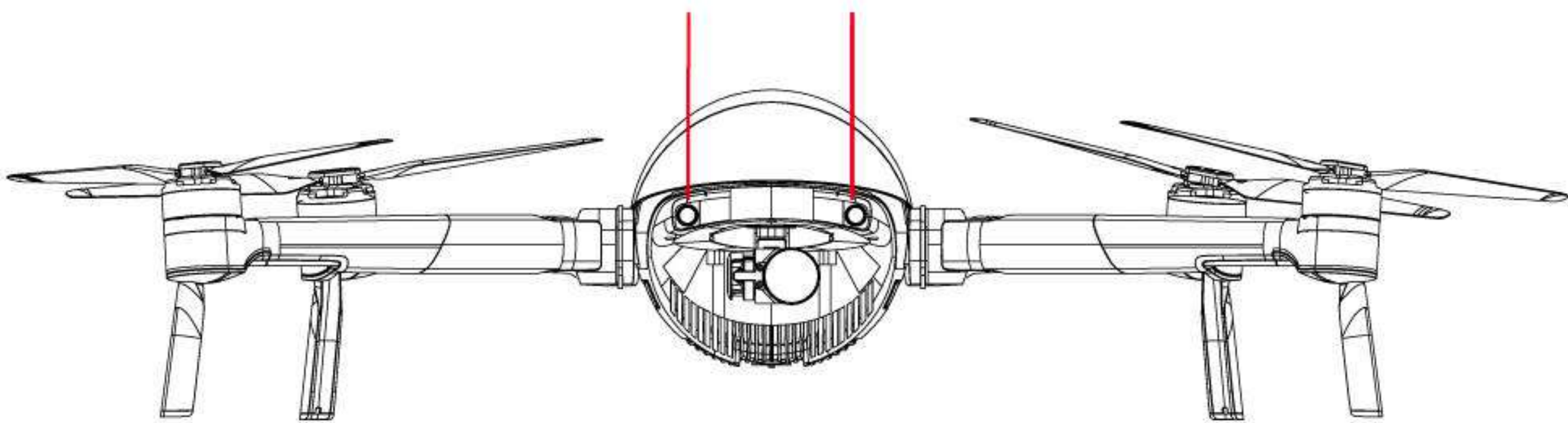
Downward Binocular Vision System

• Detection Range

40°

60°
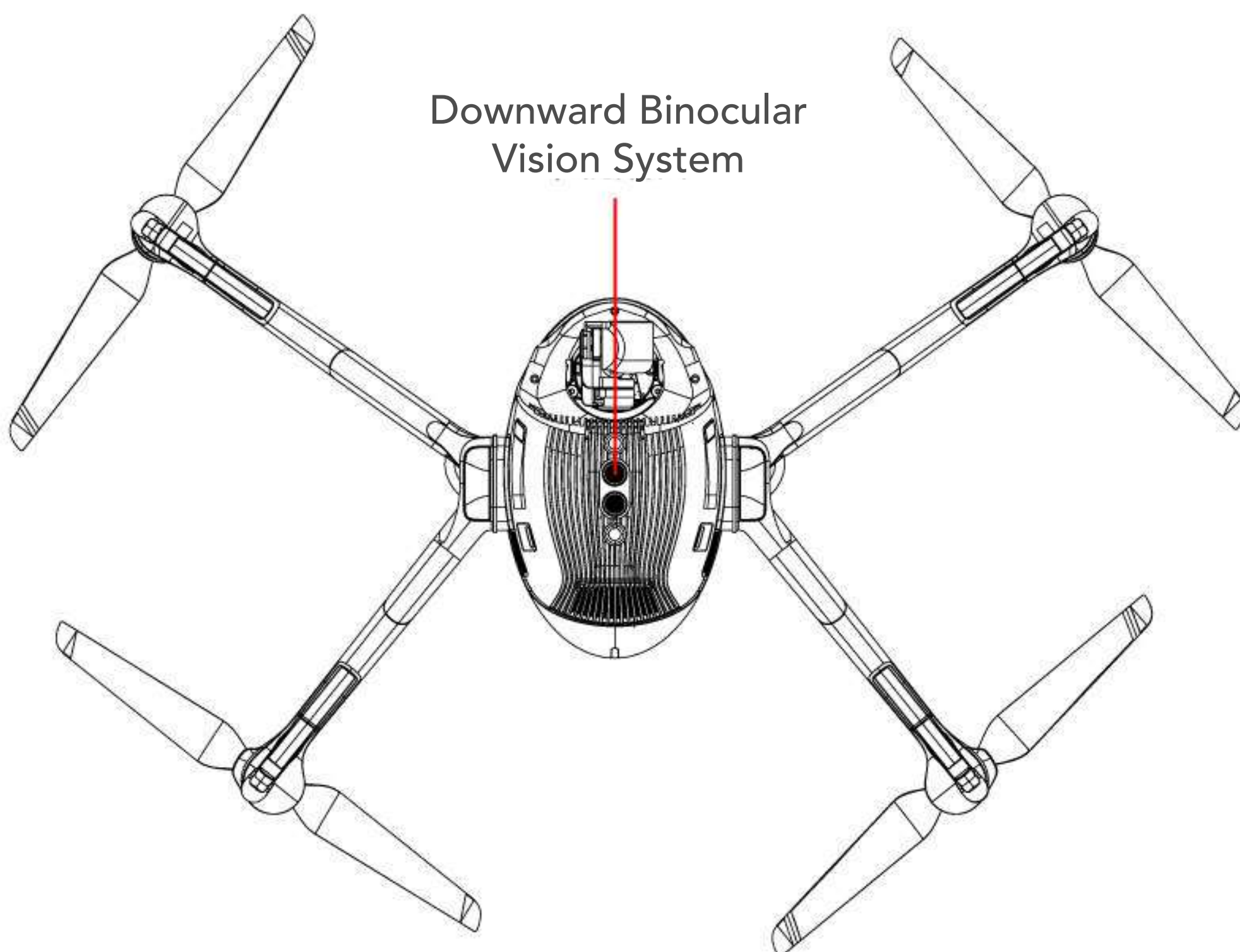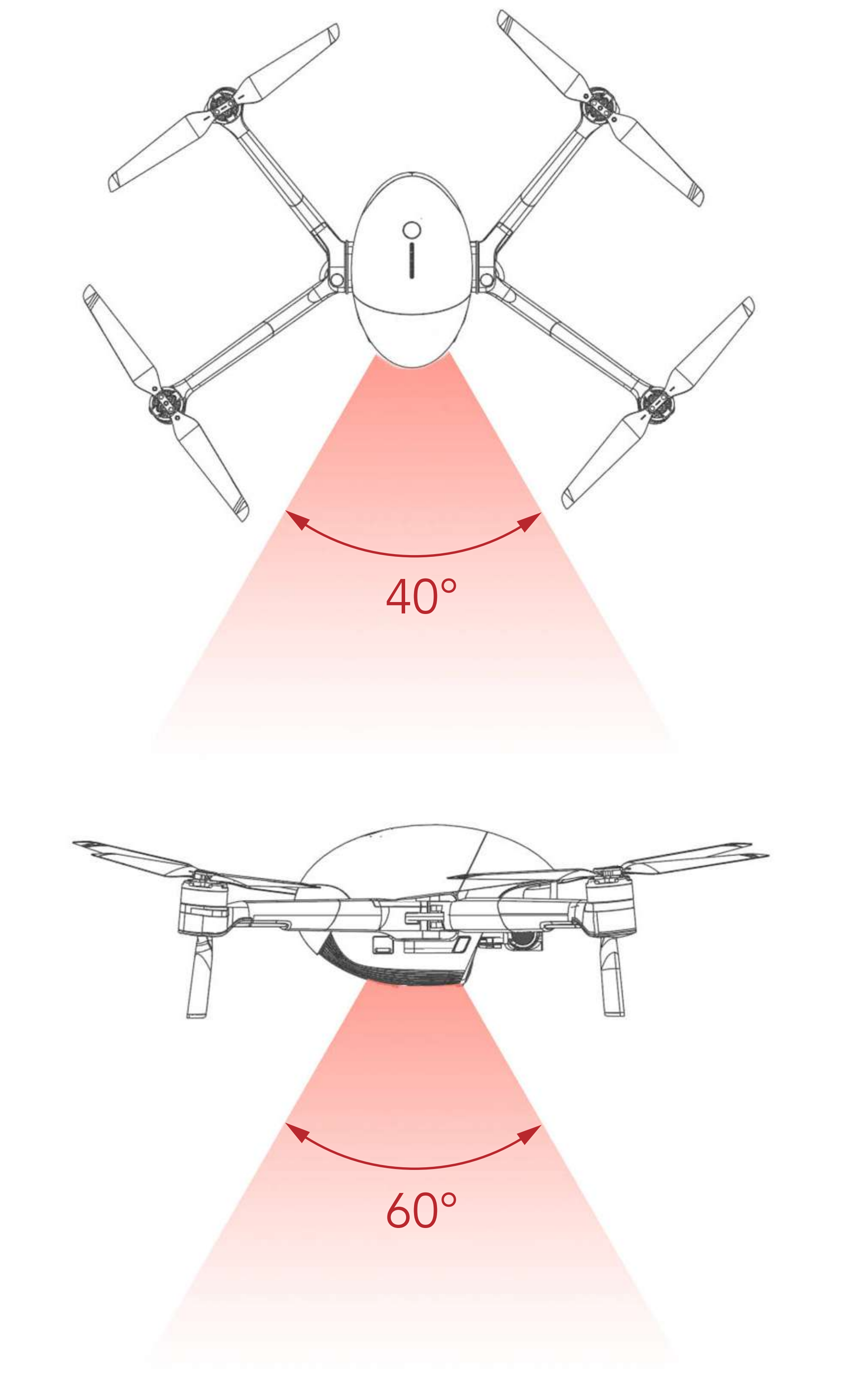
• Using the Vision System

1. When GPS is unavailable or weak, the positioning function of the Downward Vision System starts to help navigating the Drone. Downward Vision System works best when the drone is at an altitude from 0.5 to 6 meters above the surface. If the altitude of the drone is below 0.5m or above 6m, visual positioning performance may decline. Extra caution is required when flying in those conditions.

2. Forward Vision System Can detect obstacles in its way, and calculate the obstacle's distance and direction. The Forward vision system works the best when these is sufficient lighting and the obstacles can be seen by cameras with good contrast and textures. Although the Drone will try it best to slow down, due to inertia, to make sure the Drone can stop in time, the fly speed should be less than 8 m/s.

⚠️ Cautions:

- The Vision systems Please be aware that the vision systems only plays as a supporting role in flight safety and they cannot replace pilot's decision making and control. You should always pay attention to the surrounding environment and warnings from the Vision+ 2 App during the flight, maintain full control of the drone and take responsibility for flight operations.

- Downward Vision System may not work properly over the water surface. We recommend that you maintain full control of the flight, and make a reasonable judgment based on thesurrounding environment.

- Please note that the Vision Systems may not work properly when the drone is flying too fast. To gain the best performance with the vision systems, please fly below 10m/s with an altitude of 2 meters, or fly below 5m/s with an altitude around 1 meters.

- The vision systems will have difficulty with surfaces that has no apparent visual reference or under poor lighting. In order to make the full use of the vision system, please avoid flying around in environment.

  a) Flying over monochrome surfaces (e.g., pure black, pure white, pure red, or pure green);

  b) Flying over highly reflective surfaces (e.g., icesurface)

  c) Flying over water or transparent surfaces;

  d) Flying over moving surfaces or objects;

  e) Operating in an area where the lighting changes frequently or drastically;

  f) Flying over extremely dark ($<$15 lux) or bright ($>$40,000 lux) surfaces;

  g) Flying over surfaces with repeating identical patterns or textures (e.g., small tiles with the same color);

  h) Flying over small obstacles (e.g., tree branches or wires);

- Do not block the cameras, please always make the camera lens clear.

- Forward Vision System cannot work properly if the drone's attitude angle is greater than 30 °, or the flight speed faster than 8 m/s (flying forward). Extra attention is needed.

- A calibration of the vision system may be needed after the Drone experienced with strong shock or extreme temperature changes. The recalibration tools is provided, please go to our official website for more information about downloading the tools and proceed the calibration.

- DO NOT fly on (without waterproof case) or smoggy days, or if there is limited visibility (less than 100 m).

• Please check the camera lens of Vision System before take-off:

　　a) Remove the covers/ stickers and make the lens clear;

　　b) If there is any water droplet, fingerprint or dirt on the surface, please wipe with lint-free wipers before flight. DO NOT use alcohol or other organic solvents.

　　c) For any damage to the vision systems, please contact our customer support for repair.

◆ Basic Flight Modes

• **P Mode (Professional Flight Mode):** The Drone is more agile and faster then normal.

• **N Mode (Normal Flight Mode):** Use this mode to achieve precise hover positioning and best utilize the smart flight modes while using the GPS module or Vision Positioning System. The maximum flight attitude angle is 30°, with a maximum flight speed of 10m/s (22.37 mph). (When the GPS signal is weak, the vision system will be enabled and both the maximum flight speed and maximum attitude will be limited, to 3m/s and 15 degrees.)

• **E Mode (Easy Flight Mode):** The Drone is at the easiest to control, with 1m/s maximum fly speed.

⚠ Cautions:

When the GPS signal is weak, or the compass is interfered, as well as the vision positioning system cannot work properly, the Drone will be switched to Attitude mode, regardless of which flight mode user selects. In attitude mode, the Drone will help the pilot to stabilize its roll and pitch attitudes.

◆ Return-to-Home (RTH)

There are three types of RTH: Smart RTH, Smart Low Battery RTH, and Failsafe RTH. Return to home function requires the Drone to record a home point successfully, thus good GPS signal is needed.

• Smart RTH

Smart RTH is initiated either by long pressing the RTH button ♨ on the remote controller or tapping the button in Vision+ 2 App and slide to the right side. After launching, the drone will adjust the nose direction and start to return. During the return, you can short press the RTH button ♨ once on the remote

controller or tap the "Stop" in Vision+ 2 App to stop the return. After exiting smart RTH, you can regain control of the drone.

• Smart Low Battery RTH

PowerEgg X will intelligently estimate whether the current battery level is sufficient based on current location. If the current battery level is only enough to complete the return process, the Vision+ 2 App will ask if you need to perform the RTH function.

During the return, you can short press the RTH button once on the remote controller to cancel the return. If you cancel the Low Battery RTH and continue to operate the drone, the drone will force itself to land if the battery is critically low, which may cause the Drone to land in unintended field. possibly leading to a drone crash or loss.

If the current battery level is only enough for landing, the drone will initiate landing automatically . You cannot cancel the auto-landing in this situation, however, you can still control the Drone's horizontal motions during the landing.

• Failsafe RTH

During the flight, if the remote signal lost for more than 2s, the flight control system will take over the drone and return to the last recorded Home Point.

Before this return, the Drone will hover at its current position for 10 seconds, and then go back to the home point, with a straight flight path.

⚠ Cautions:

- When the GPS signal is weak or invalid, the drone cannot achieve RTH function.
- During the automatic return, the Drone ascends to the pre-set RTH height first and cannot be controlled before climbing to 20 meters above the surface. If the Drone has climbed to 20m about the surface but hasn't reach the pre-set return altitude, pilot can push the throttle stick to stop the climb, the Drone will return at that altitude.
- During the return, the pilot can control the flight speed and altitude through the remote controller or Vision+ 2 App, but cannot control the heading and lateral movements of the drone.

• Precise landing

During during the landing phase of a automatic return, the drone will match the terrain features after arriving at the Home Point. Once the match is successful, the drone will adjust its landing location to accurately return to the take-off point. Be aware that precise landing has a few prerequisite conditions, be cautious with the status of the Drone all the time.

1. During the return, the Home Point is not reloaded.

2. When taking off automatically, the drone launches a precise landing and does not terminate the operation when matching the terrain features of the take-off point.

Precise landing will only work if:

1. The ground environment of Home Point has no dynamic changes.

2. Ground below the Home Point has transparent textures and patterns (e.g., snow).

3. The light is not extremely dark (e.g., at night) or bright;

• Landing protection

Landing protection will be initiated at the final phase of the landing, except when the battery is critically low.

1. The Drone will land straight when the landing area is determined as good.

2. When the landing protection detects the intended landing area doesn't match landing requirement, the Drone will hover at 1 meter above the ground and the pilot will be notified. The pilot can pull the throttle stick to force the Drone to land.

Smart Flight Mode

Before starting this mode, please make sure the drone is fully charged, the GPS signal is good, and the remote control is in N mode. Click the ⒶⒾ from the Vision+ 2 App to enter the Smart Flight Mode menu.

◆ **Smart Following Shooting Mode**

In this mode, the Drone can identify and lock the selected target and autonomously follows the target to assist user's shooting.

• **Start Smart Following Shot Function**

1. Make sure the Drone has sufficient battery and hover at least 3 meters above the ground.

**3 meters
above the ground**
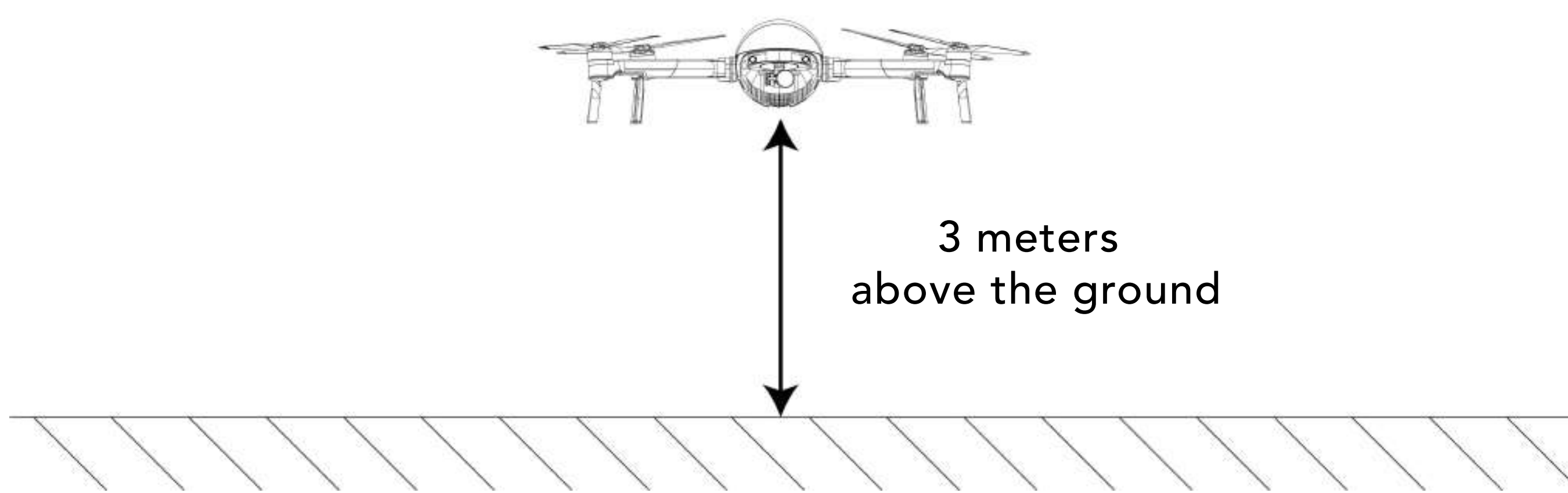
2. Enter the Vision+ 2 App, click on the AI Function ⒶⒾ , select the smart following shot function, and select shooting mode.

3. Select the target you want to follow. The user can click the target or select it by a frame after the Drone identifies the target. After clicking the Start ▶ , button, the Drone will keep a certain distance from the target and follow it. When the Drone is following the target, the user may need to reselect the target if it moves too fast or blocked for a long time.

• **Mode selection**

1. **General following:** The drone keeps a relative distance to the target and follows it with the shortest path.

2. **Parallel following:** The drone always maintains the shooting angle and follows the target in parallel.

3. **Target locking:** The Drone will keep the target in the frame but does not actively follows the target's motion.

• **Exit the Smart Following Shot Mode:**

You can press the stop button on the remote controller to stop the following,

or you can click the exit button on the App to exit the following mode. Switching the control mode to P or E will also terminate the smart following. Click the "Exit" button on the App to exit the following mode. Switch the remote controller to P / E mode and exit the mode.

⚠ Cautions:

    1. Please be aware people or other objects along the path of the drone.

    2. Be cautious with the smart following mode in these scenarios the smart following mode in these scenarios:

        a. The target moves on the non-level ground;

        b. The target undergoes a large deformation when moving;

        c. The target is blocked for a long time or is out of sight;

        d. The target is in snow-covered areas;

        e. The connected is similar in color or pattern to the surrounding environment;

    3. The environment is exceptionally dark (lighting < 300lux) or extremely bright (lighting > 10000lux);

    4. **Please be sure to comply with local laws and regulations regarding privacy.**

    5. It is recommended appropriate to select children as the following target.

    6. When the following target overlaps with other objects, the target may switch abnormally during the process.

    7. When the following target moves too fast to be followed safely, the drone will automatically stop following.

◆ Point of Interest

The Drone can autonomously fly around a target, the user can control the radius and speed of the following while take photos/ videos.

• Define the Point of Interest

    1. Enter the PowerVision Vision+ 2 App, select the 🔄 Point of Interest and enter the control interface.

    2. Move the drone to over the point of interest according to the App interface prompt, and set the current GPS position as the target point of interest.

    3. Move the drone more than 5 meters away from the point of interest.

    4. Click Start, and the drone will start to circle the point of interest.

    5. Click the altitude/radius/speed button and drag the value box to adjust the

flight trajectory, or use the stick to change the flight trajectory.

6. When the pilot hit the pause button, the Drone will stop and hover, click again to resume the following.

⚠ Cautions:

1. Please end the orbital flight immediately when the battery is low and start returning to home before the battery becomes critically low.

2. Please be sure to comply with local laws and regulations regarding privacy.

◆ QuickShot

QuickShot function allows the users to select from From a few preprogrammed flight path and complete a short video automatically,, currently, it supports: receding, skyward, surround, spiral, ellipse.

1. ↗ **Fading away:** The drone takes the target point as the initial orientation, rises while moving backwards, while the camera is following the target.

2. ⚡ **Sky rockting:** The Drone will climb vertically while keeping the target in the camera frame, no matter the Drone is directly above the target or at some distance.

3. ⟳ **Surrounding:** The Drone will orbit around the initial target position with a constant speed and radius, while the camera is pointing towards the target.

4. @ **spiral:** The Drone will fly a spiral trajectory while the camera will keep the target in the frame.

5. ↻ **Ellipse:** The Drone will fly a ellipse trajectory while the camera is pointing towards the target. The distance between the target's initial position and the drone is the long axis radius of the ellipse; the long axis radius of the ellipse is 1.5 times the radius of the short axis.

● Start the QuickShot

1. Please start QuickShot when the Drone is 3 meters above the ground.

3 meters
above the ground
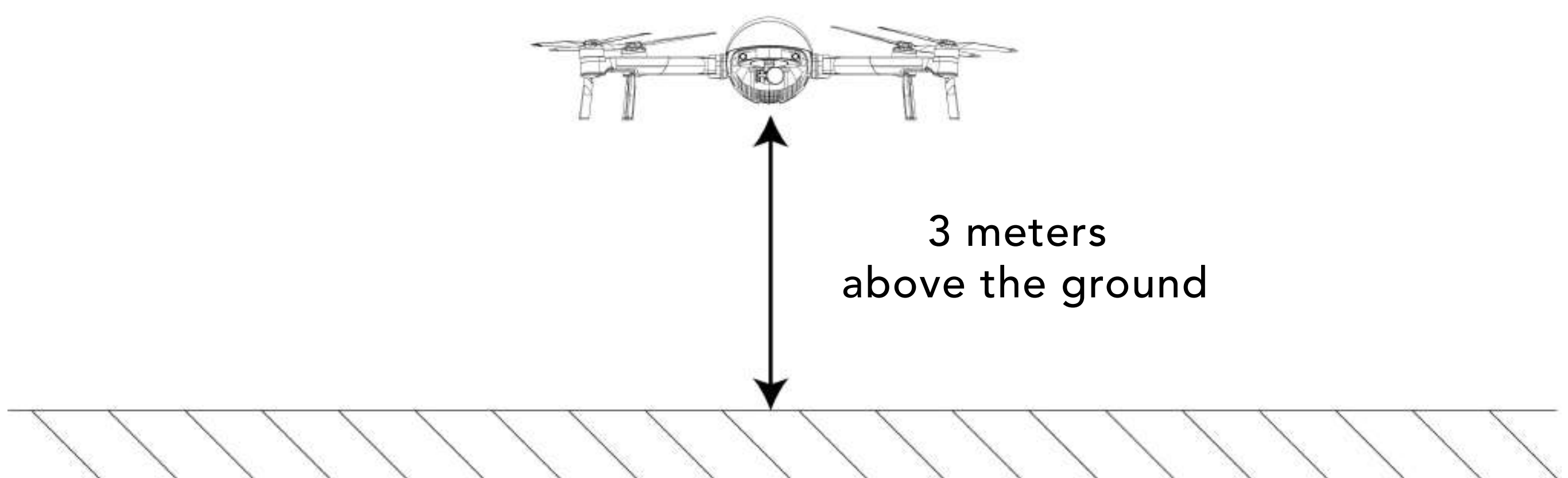
2. Enter the Vision+ 2 App, click on the AI Function, quickshot, and select shooting mode you need.

3. Click the pre-recognized target or draw a box on your target.

4. Adjust the flight parameters on the screen and click Start ▶ . The drone will automatically fly and perform shooting tasks.

5. After the quickshot has been completed, the Drone will, the drone will automatically return to the initial point.

● Exit quickShot shooting

The pilot can cancel the quickshot when she control sticks are used or the pause button ❚❚ is hit. The Drone will stop and hover.

⚠ Cautions:

1. Use the function in an open and unobstructed environment, and always pay attention to whether there are obstacles such as buildings and animals on the flight path of the drone.

2. Please be sure to comply with local laws and regulations regarding privacy.

● In the following scenarios, the use of quickshot is not recommended:

1. The target is blocked for a long time or is out of sight;

2. When the distance between the subject and the drone exceeds 50m;

3. The target looks similar to the surrounding environment;

4. The target is moving too fast;

5. The environment is very dark (lighting < 300lux) or extremely bright (lighting > 10000lux) .

▍Drone Flight

Please read the manual carefully before your first flight. Configue the Drone correctly and find an open space. DO NOT exceed the flight ceiling of 500 meters for safety consideration. Please follow the laws and regulations, and make sure to read the PowerEgg X Disclaimer and Safety Instructions for safety information.

◆ Flight Safety

• Flight Safety Guideline

Correctly Setting the Flight Mode

Open and unobstructed environment	Good GPS signal	Within visual range	Below 120 meters

⚠ Cautions:

1. Keep away from crowds, trees, power lines, tall buildings, airports and signal towers when flying.

2. Radio transmission towers, high-voltage wires, substations, and other sub stantial magnetic metal may interfere with remote control signals and com passes, which could affect the flight safety. threaten flight safety.

DO NOT fly in situations as followed:

1. DO NOT operate in the weather such as rain, fog, snow, thunder and lightning, wind (wind speed at 10 meters per second or above).

2. It is recommended to purchase a waterproof protective case for PowerEgg X when flying on rainy days and make sure the drone flies within the visual range.
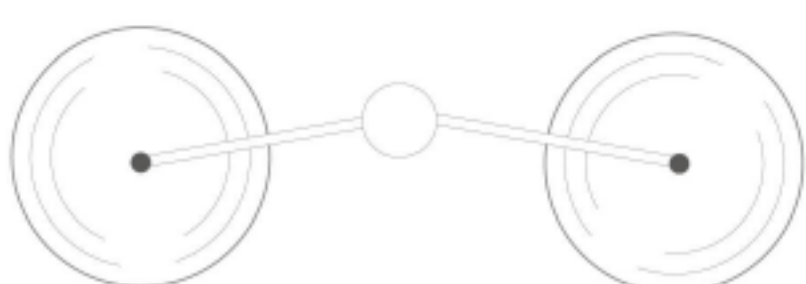
DO NOT touch the working propeller. Otherwise, severe personal or property damage may be caused.

DO NOT fly in any No-Fly Zones.

• Requirements for Flights

①. Requirements for Weather and Environment

⚠ Cautions:

1. DO NOT fly in bad weather, such as high winds (wind speed at level 5 or higher), rain, snow, fog, thunder and other weather.

2. DO NOT fly under weak GPS signal With a large field elevation. (i.e. flying from inside to the outside of a skyscraper), otherwise the positioning function will be abnormal, and the Drone will not be able to operate regularly.

3. DO NOT fly 4000 meters above the sea level in case of air density and ambient temperature influence.

4. DO NOT use the drone during disasters such as fire, explosion, lightning strike, tornado, storm, blizzard, flood, earthquake, sandstorm, tsunami, nuclear pollution.

⚠ Cautions:

1. When flying indoors, some functions may be limited due to insufficient ambient lighting conditions, no GPS signal, and narrow space.

2. The drone can only safely fly at wind speeds below 10 meters per second. DO NOT operate when the wind speed is higher than 10 meters per second.

②. The Requirement for Wireless Communication

⚠ Cautions:

1. The drone must be operated in an open area. Tall reinforced buildings, mountains, rocks, and trees may interfere with the compass and GPS signals.

2. When the remote controller is in use, turn of other electronics to avoid interference.

3. Do not fly around any source of electromagnetic interference. Those sources include but not limited to Wi-Fi hotspots, routers, Bluetooth devices, high-voltage power lines, high-voltage power stations, mobile phone base stations, television broadcast signal towers, satellite radars.

③. Requirements for Flight Safety

⚠ Cautions:

1. Users must not fly the drone under the influence of drugs or alcohol; under the condition of drug paralysis, dizziness or other physical discomfort or mental state in case of any personal injury and property damage.

2. The user must not use an drone in the event of an accident (such as collision, tipping or falling) or an abnormal flight condition. An drone suffering an accident must not fly until it has been Inspected or repaired by PowerVision

or otherafter-sales centers recommended by PowerVision.

⚠ Cautions:

1. When using the product, the pilot should be clear about how to operate the Drone and the pilot should have made emergency plans.

2. Make plans for each flight and avoid flying without planning ahead.

3. Before shooting with this camera, please be sure to respect the privacy of others. Users should fully understand local laws and regulations about privacy before using the camera.

4. DO NOT use for any illegal or improper purposes (including but not limited to espionage, military operations and criminal investigations).

5. DO NOT infringe the privacy rights of others with the drone.

◆ Pre-flight Inspection

1. Please make sure that PowerEgg X is correctly assembled with both arms are in place place, and the battery and its cover are securely installed.

2. Make sure the drone's arms and stands are fully deployed, and the drone is placed steady before take-off.

3. Please make sure that there are no obstructions above and around the drone during the flight.

4. Make sure the remote controller, the drone and mobile devices have sufficient power.

5. Make sure that the camera lens and the vision system are clean and not damaged (scratched or cracked).

6. Make sure that the protective cover of the gimbal and its motors are clean and undamaged, and the gimbal can move freely without any resistance.

9. Ensure that all propellers are free from damage, ageing, and deformation, and are correctly and firmly installed on the motor.

10. Make sure the drone's motors are clean, undamaged and can start usually.

11. Perform compass calibration, IMU calibration or visual calibration according to the instruction on App or the drone.

12. Make sure the firmware of drone, its remote controller, and the App have been updated to the latest version.

13. Be familiar with each flight mode and the return to home function of the drone.

14. The user should understand the local laws and regulations related to drone usage, and apply required authorization in order to fly the Drone.

15. Make sure the app is running correctly. If you fail to run the Vision+ 2 App during a flight, PowerVision will not be able to provide you with after-sales support services such as warranty, and it will not be liable to any relevant responsibilities.

16. Before using Vision+ 2 App, you must agree to the Terms of Usage and PowerVision Privacy Policy. Please carefully read the Terms of Usage and Privacy Policy, indicating the legal responsibilities of PowerVision in the App.

◆ Automatic Takeoff and Landing

• Automatic takeoff

The Drone can automatically take off by itself and hover at 1.5 meters above the ground while blinking green lights, once the take off sequence has been completed.

1. Open the Vision+ 2 App, select and open the PowerEgg X user interface.
2. Check the drone according to the self-check list.
3. Click the Auto Takeoff button ⬆ , read the conditions and slide to unlock the takeoff function.
4. The drone automatically takes off and hovers to an altitude of 1.5 meters.

• Automatic landing

Automatically land the Drone, the pilot can use this function when the Drone is has good positional information(Tail LED blinks green).

1. Click the Auto Landing button ⬇ , then confirm the landing.
2. During the descending process, the user can exit the automatic landing process by clicking the button ⬇ .
3. After the drone has landed , the propeller will stop.

⚠ Cautions: Please choose a proper landing area.

◆ Arm/Disarm the motors

• Arm the motors

Pull the control sticks together as shown below to arm the motors.

Or

52

• Disarm the motors

Method 1: After the drone touches the ground, pull the throttle stick to the lowest position and hold it for 3 seconds, the motors will stop.

Method 2: After the drone touches the ground, pull the throttle stick to the lowest position.

Then pull both control sticks down as shown until the motors stop.
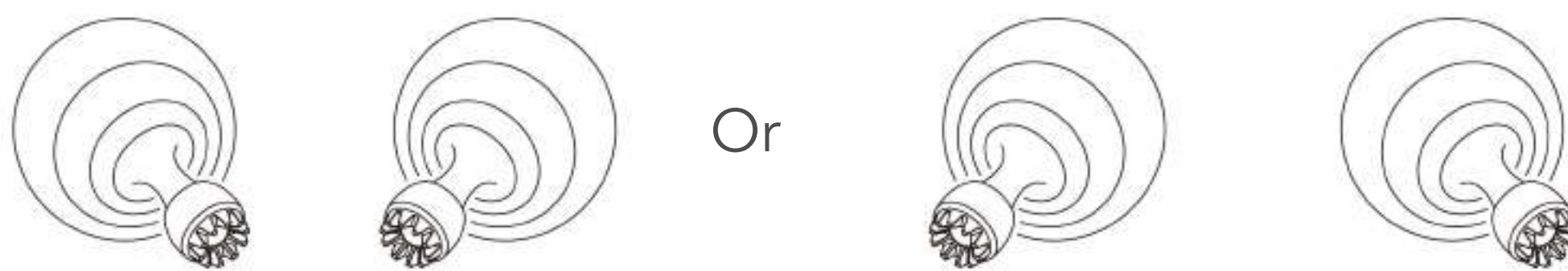
• Abnormal Conditions

1. When the Drone is tipped over with a bank angle greater than 90 degrees, the motors will be disarmed.

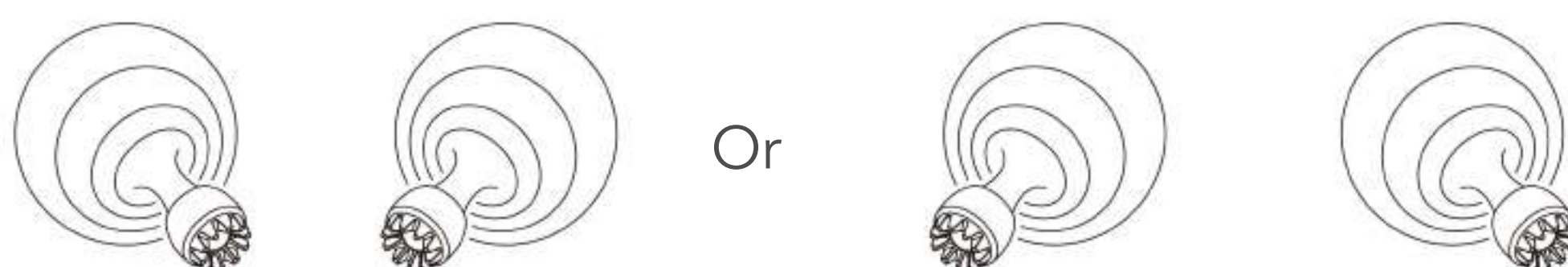2. When the Drone is armed but has not taken off yet, if the remote signal is lost for more than 30 seconds, the motors will be stopped.

3. Long-time standing by protection: If the motors have been armed for more than 1 minutes without the Drone been taken off as well as no control command from the remote controller or the mobile device, the motors will be stopped automatically.

4. Over-the-air stop: You can set and review how to kill the motors while the Drone is flying in the Vision+ 2 setup page.

⚠ Cautions: Over-the-air shutdown Will cause the Drone to crash, only use this function to avoid more critical damage.

◆ Example of an introductory flight.

• Steps

1. Set the flight mode and prepare the remote control.

2. Place the drone on a flat surface in an open area, with the taillights facing the user.

3. Press and hold the power button on the remote control for 3 seconds to turn on the remote control. Short press once and then long press the power button for 2 seconds to turn on the drone.

4. Wait until the cycling LEDs of the remote controller change to a state where only the power light is on.

5. Run PowerVision Vision+ 2 App to enter the control interface.

6. When the drone tail status indicator blinks green slowly, the motor can be armed.

7. After the motor have been armed, slowly push the throttle stick upwards to allow the drone to take off.

8. Pull down the throttle stick to lower the drone.

9. After the drone touches the ground, pull the throttle stick to the lowest position and hold it for 3 seconds, , the motors will stop.

10. Turn off the power of the drone and then the remote control in order.

• Tips for Aerial Photography

1. Be familiar with the environment, plan ahead your flight path.

2. Before the flight, please ensure that the status and function of the drone are both normal. Confirm that the number of GPS satellites is not less than 13.

3 Select a proper flight mode with the remote controller.

4. Fly and shoot in clear, calm weather.

5. Set camera parameters, such as resolution, format, and exposure, according to your needs.

6. During the flight, make control adjustments as small as possible to make the drone fly smoothly.

⚠ Cautions: Flight safety is critical, and please be sure to read the Safety Guidelines and Disclaimer carefully.

Flight in Rain & Takeoff/landing on Water

Purchase and use waterproof accessories for PowerEgg X, then you can enjoy experiences flying in the shower and takeoff/landing on water.

• Water-proof Flight Mode

When using a waterproof case or buoyancy accessory, make sure the Vision+ 2 activates the waterproof drone mode. In the waterproof flight mode, the power of the drone reduces, the flight speed has lower limits, the Smart flight function functions are disabled, and the vision systems are disabled.

◆ Water-proof Drone

• PowerEgg X Waterproof Case

A PowerEgg X drone with a waterproof protective case can be flown in the rain. The waterproof protective case creates a barrier along the contract surface between itself and the arms with rubber sealing strip to ensure that the PowerEgg X can generally work in humid, rainy environments and other environments where water may splash, and to prevent damage to the body from water ingress.

⚠ Cautions: The waterproof case is only valid for drone mode. DO NOT use the waterproof case in AI camera mode.

- Tips for using and maintaining the protective case:

  1. The rubber sealing strip should be kept intact and clean. Any dirt or foreign matters (including but not limited to sand, dust, hair, thin threads) may cause moisture to penetrate the case and damage the Drone.

  2. Before installing the waterproof case, please make sure there are no water droplets or mist on the inside of the case and the surface of the Drone.

  3. The sealing strip is not removable. If cleaning is needed, please rinse with water and then dry it. Avoid getting dirt or hair stuck in the sealing piece when wiping it.

  4. Keep the joint between the arms and the waterproof case tight during the installation to ensure that the buckle is well fastened.

  5. If the Drone touches seawater or other corrosive liquids during use, please rinse the waterproof protective case with fresh water and wipe to dry it. Otherwise, metals pieces such as hinges, buckles, and heat sinks will eventually corrode, and the O-rings will be salted, which will lead to malfunction of the product.

  6. If the Drone's arms accidentally touch the seawater, rinse them with fresh water, shake out the water inside, wipe the surface and place it until it gets dried.

  7. The waterproof protective case can only prevent rain and splashing water. DO NOT immerse the waterproof protective case and the arms in water for a long time. If the Drone has accidentally tipped into the water, pick it up immediately.

  8. A waterproof protective case will reduce the quality of optical imaging, and produce problems such as glare, reflection, slight distortion, which is normal.

  9. Wearing the waterproof case will reduce the battery life and handling quallities of the Drone. DO NOT use it in a high wind environment. Make sure the product has sufficient power when flying.

  10. Only fly the Drone in waterproof mode within your visual distance.
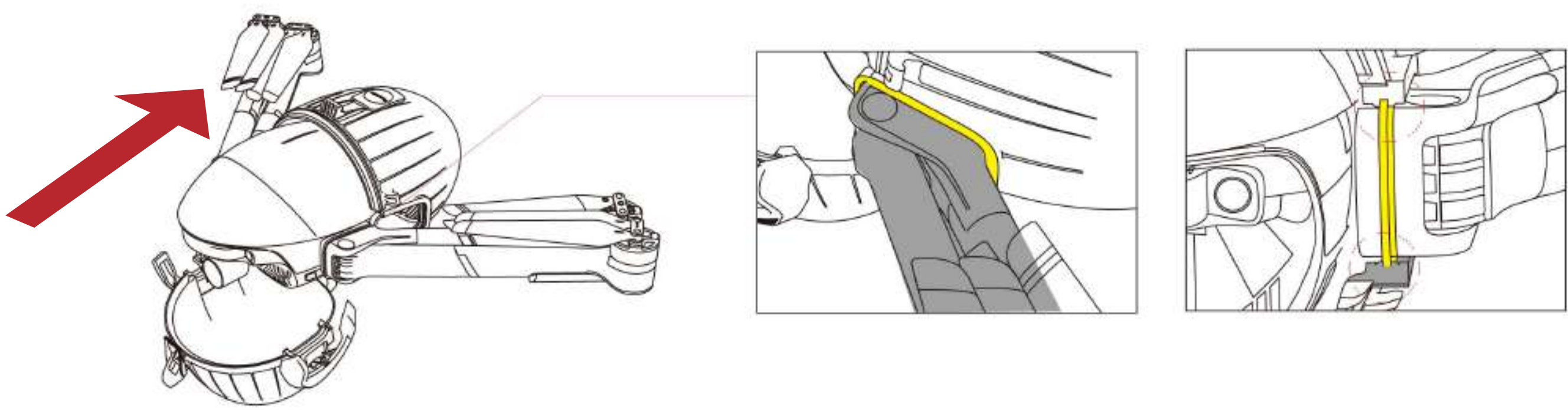
⚠ Cautions:

Failure to properly perform the instructions mentioned above of using the PowerEgg X and the waterproof protective case may result in the breakdown of the case. In this situation, water may get ingets in and then damage the drone and battery, which may cause an explosion or fire. The product warranty does not cover damage to the product due to human errors in use.

● PwerEgg X Waterproof Case Installation

1. Assemble the PowerEggX.
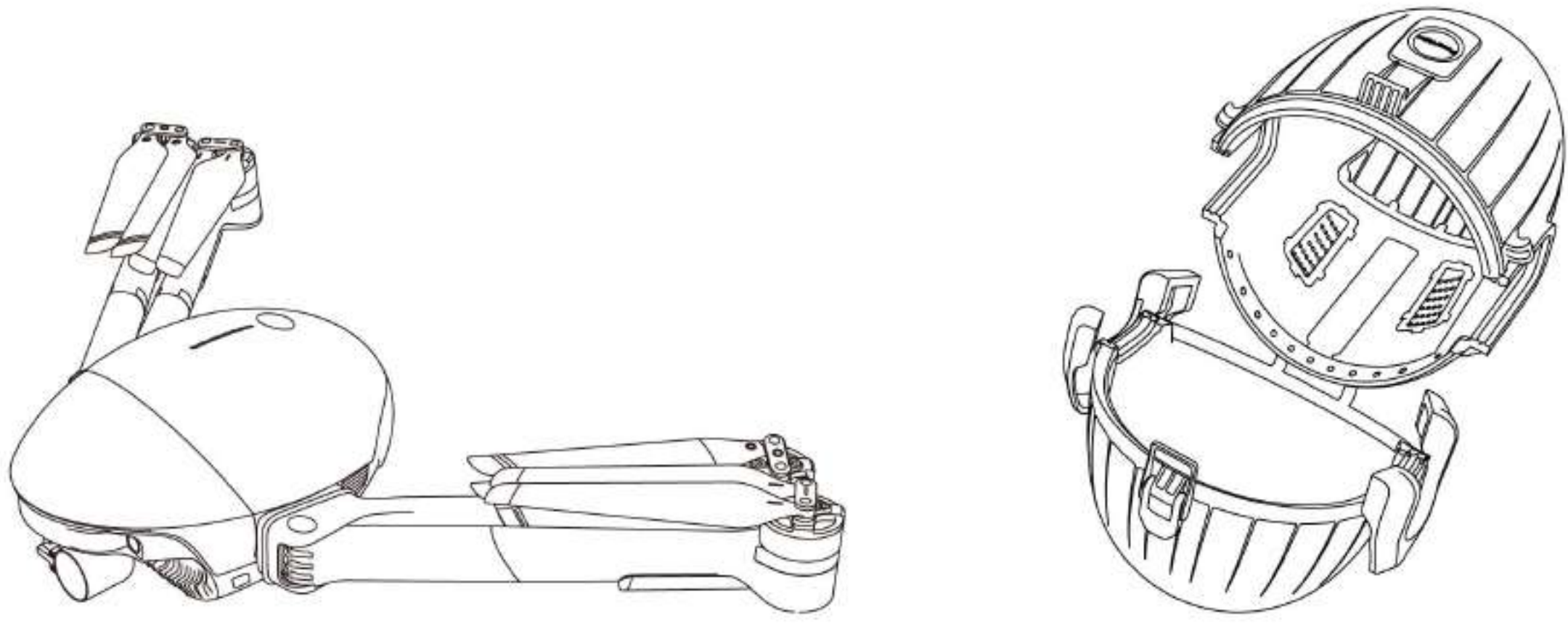
2. Open the waterproof case, and insert the rear end of the drone into the case.

⚠ Cautions:

When inserting, please make sure that the O-ring at the root of the machine arm is in full contact with the sealing rubber strip and the O-ring is embedded in the groove of the sealing rubber strip.

3. Close the front and rear of the waterproof protective case, and fasten the sealing buckle.
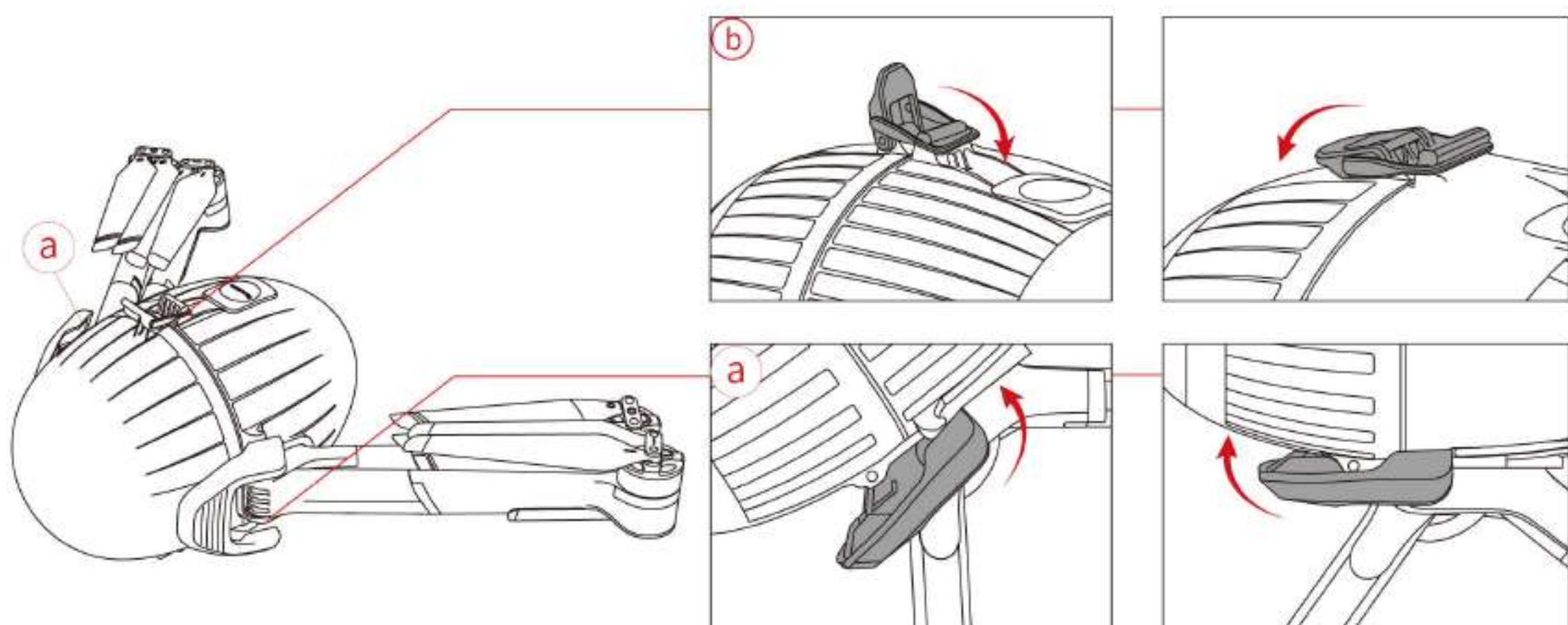
Installation sequence: a → b

Disassembly sequence: b → a

Cautions: Check if the lock is securely fastened.

4. Extend the arms and stand.

Tips: Fog on the waterproof case will affect image quallity.

Camera Lens fogging:

Under the protection of the waterproof protective case, the drone is completely sealed, occasionally there might be mist inside the case when flying in a humid environment.

Solutions:

1. Before installing the waterproof case, use a soft, dry cloth to wipe off any water droplets from the inside of the case.

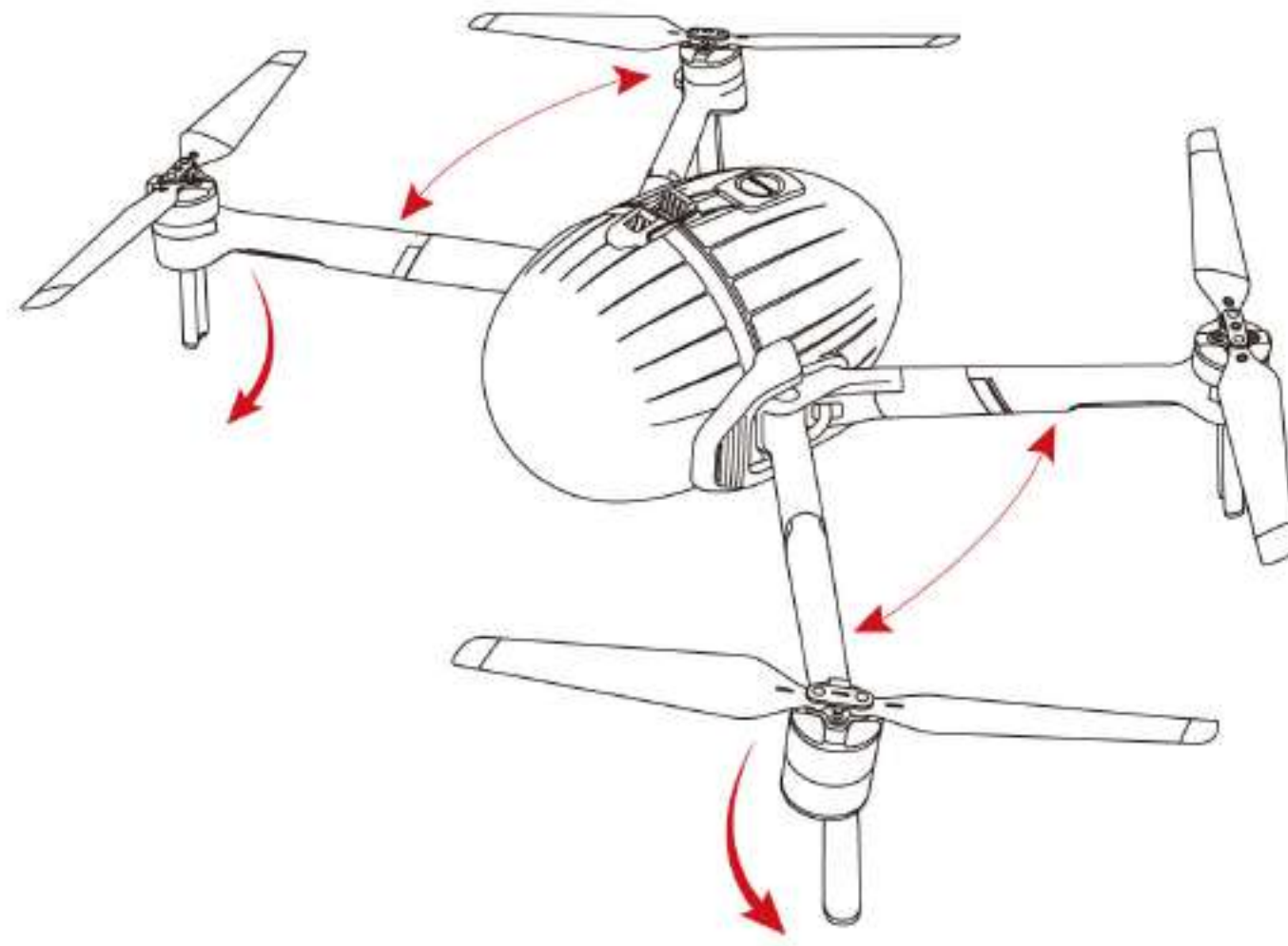2. Before installing the waterproof protective case, use goggle anti-fog agent to evenly coat (or spray) the part on the inner surface of the shell. Please refer to the instruction of anti-fog agent usage for more detail.

⚠ Caution: Mind the burns

After the drone is powered on, the metal heat sink at the rear of the waterproof protective case will heat up. Be cautious!

◆ Flight in Rain & Takeover/Landing on Water

• Buoyancy Accessories

In the drone mode, the PowerEgg X can be equipped with a waterproof protective case and floating accessories to achieve water surface take-off and landing, as well as to float on the water.

- Caution：

   1. After installing the floating accessories, you need to check and confirm that the floating accessories and the four tripods are firmly fixed. It is forbidden to take off the drone when the buoyancy fittings are installed incompletely or loosely. Otherwise, equipment damage or personal injury may be caused.

   2. DO NOT land the drone on the water without the waterproof protective case. Otherwise, the drone may accidentally splash water or fall into waster and cause damage.

   3. After installing the waterproof protective shell and buoyancy accessories, the handling quality of the drone will be degraded. DO NOT use it in high wind.

⚠ DO NOT fold, bend, or damage floating accessories. When using the drone, please make sure that the floating accessories are intact, so as not to cause Cause additional aerodynamic drag or water insufficient buoyancy, resulting in flight accidents.

- Take-off and Landing on water

   1. When taking off in rough water, do climb quickly from water to prevent the drone from being affected by waves.

   2. When landing on the water surface, the drone shall descend vertically to the water surface. If the horizontal speed is too high during the landing, the drone may tip over and float upside down. If the drone is upside down, it will automatically turn off the motor and cannot take off again.

   3. When the drone is floating on rough water, there may be a warning that the take-off conditions are not met. Please take the drone back as soon as possible.

   4. DO NOT throw the drone into the water, as it may cause the drone to tip over and fail to take off.

   5. After the drone's waterproof protective case touches the water for a long time, it may appear to hover unstably or be difficult to control. Please land as soon as possible to recover and dry the drone.

   6. The control distance of the remote controller depends on the distance between the remote controller and the drone above the water. The higher the remotecontroller is from the water surface, the farther the control and image transmission distance is.

⚠ When the drone lands on the water, the signal quality will be affected, especially in the presence of waves. Therefore, DO NOT land the drone beyond 100 meters

away from the remote controller.

• Takeoff and Landing on a Boat

1. DO NOT calibrate the drone on a shaking or moving boat.

2. Make sure that the drone has enough space to take off onboard. Otherwise, it shall take off on the water surface or ground.

3. If the boat is swaying; the drone may not be able to unlock.

• Floating accessorie Installation

1. Inserting the tripods in floating accessorie
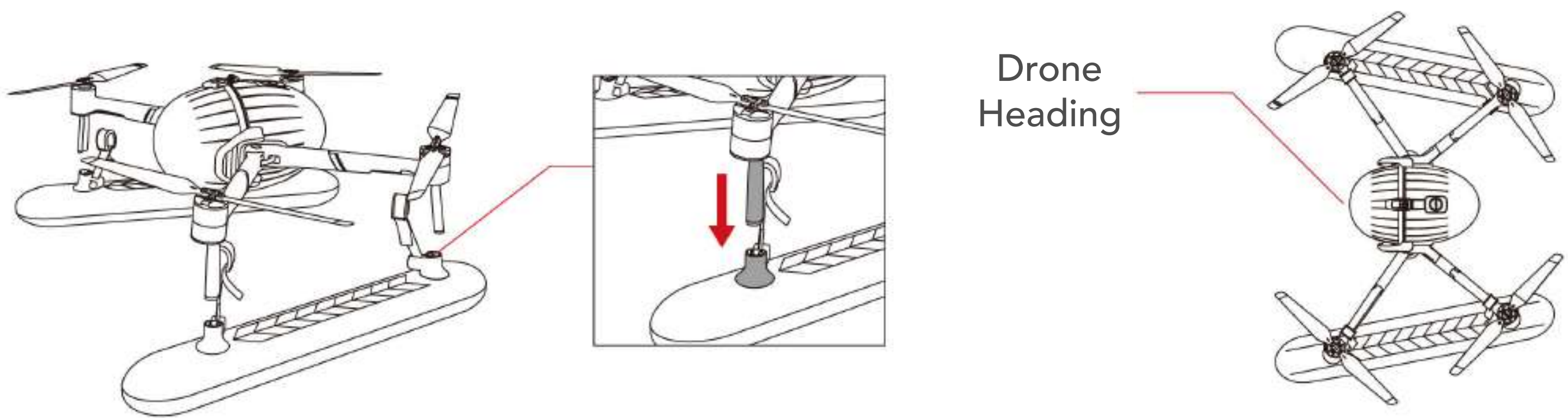
Drone
Heading

Notes: The drone heading ⫷⫷⫷⫷⫷ is as shown above.

2. Pass the strap around the arms and tighten the fasteners on the belt to secure the floating accessorie to the arms.
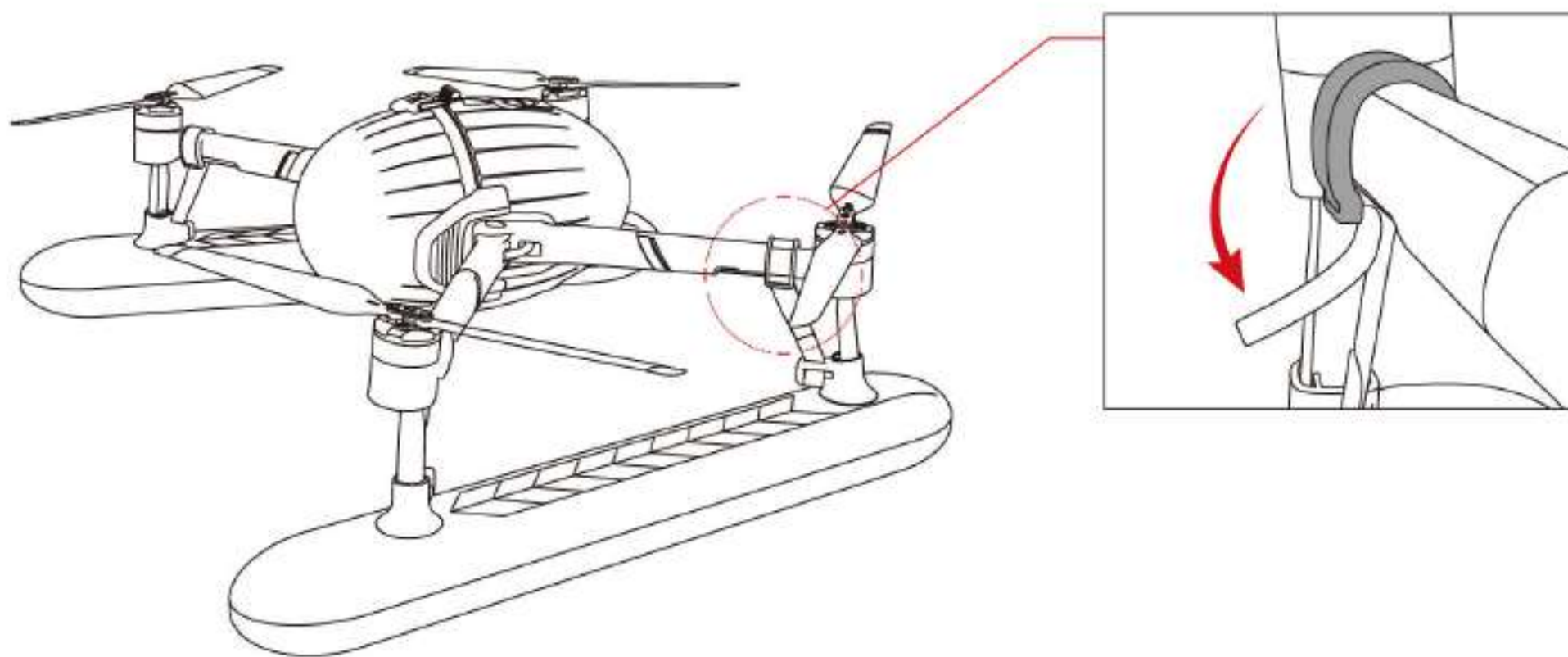
3. After the installation is completed, check and confirm that the buoyancy parts are installed tightly and that the joints of the legs are secured. Make sure the straps are out of the way of the rotors.
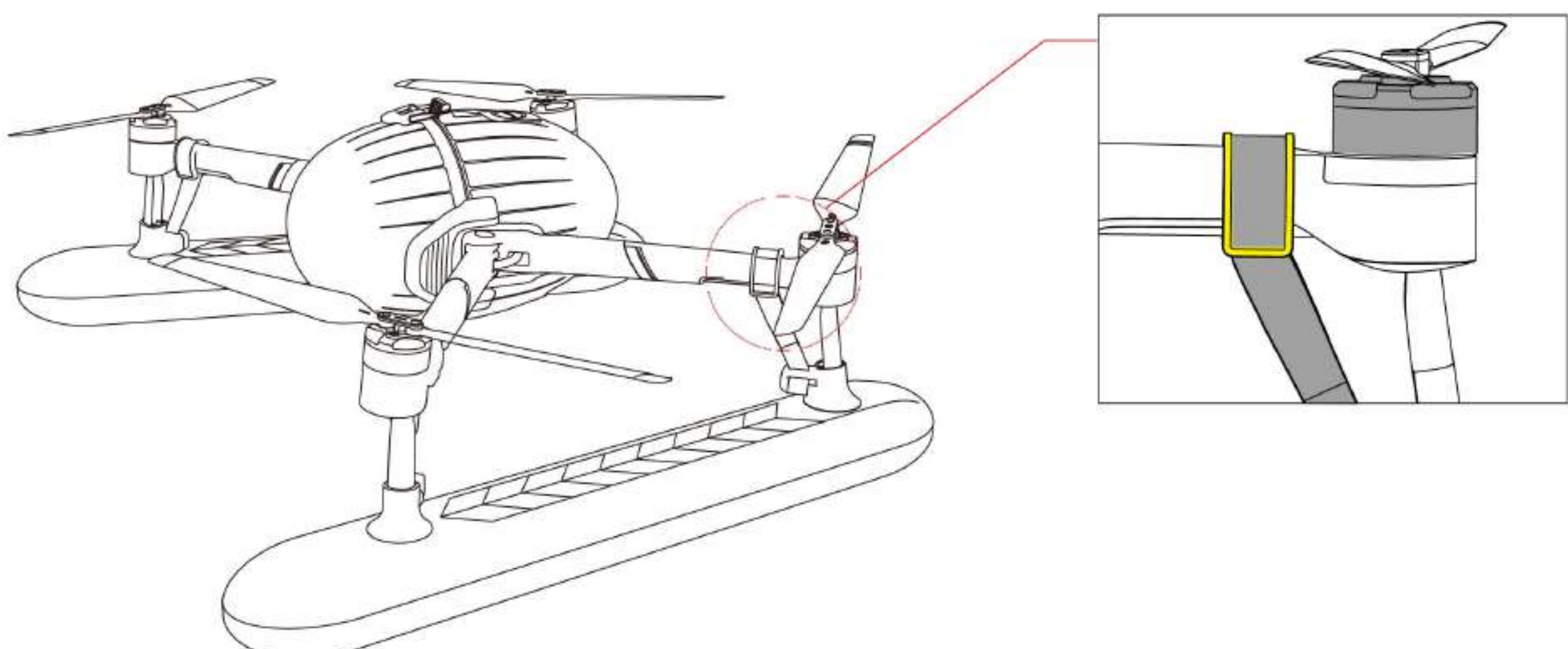
Appendix

▌ Vision System Calibration

Vision system calibration is recommended in the following situations:

1. Use times reached 50 times;

2. Storage or operating environment temperature exceeds the range of -10~40 ℃;

3. Severe collision;

4. When the Vision+ 2 App prompt out reminders like "The stereo vision system parameters are abnormal. Please calibrate with PV Desktop on PC".

• Software Support

1. The software supports Windows 8 /10 and macOS 10.13 or other latest versions.

2. The software supports both Chinese and English Language.

⚠ Cautions:

1. DO NOT stick any material that can cause light reflection on the display.

2. DO NOT calibrate the binocular system under strong light.

3. DO NOT delete any files and folders in the installation directory.

4. Please use a single monitor instead of dual monitors for extended calibration and try to avoid abnormal calibration parameters caused by different resolutions and screen sizes.

5. Please only use flat screen monitors.

• Preparation before Calibration

1. Download the "PVDesktop" stereo vision calibration software from the official website to your computer, double-click to install.

2. Unplug the arms:

3. Power on the device.

4. Access to the network: search for the wireless network through your computeraccording to the SSID identified by the QR code on the device body, enter the default password 12345678 to access to the connection.

• Start Calibration

1. Start the forward calibration

⚠ Cautions:

    1). Please point the forward facing stereo cameras at the calibration target at the calibration target on the screen, as shown below:
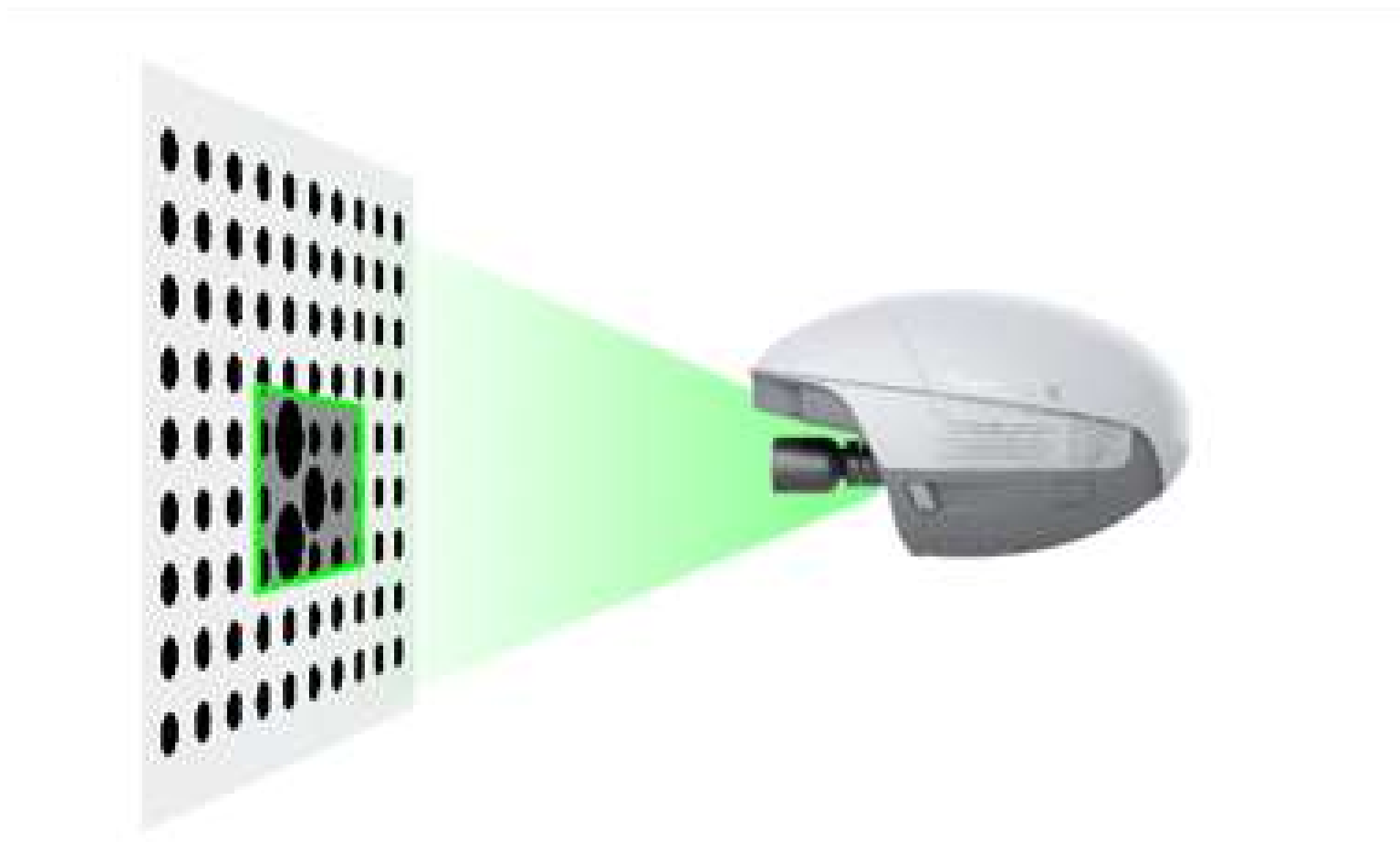
    2). Please keep the tail of the device still, adjust the position of the head, and align it with the black middle mark on the screen.

    3). Avoid horizontal and vertical motions.

    4). Select "Don't ask me again" and click "Start calibration" to directly enter the calibration interface.

    Use the Use the forward facing stereo cameras to aim the calibration target, adjust the position, and take pictures in sequence, as shown below, until all 26 pictures are taken.

Error message prompt

Preview box

PowerVision
Calibrating
1/26

Device is too far from the screen. Please adjust the distance.

Help information

Device position remains unchanged and adjust the incline angle of aircraft so as to make sure that the marked place is included in the green box.

Exit

Middle mark

After the acquisition is completed, it will automatically jump to the "downward calibration".

2. Start the downward calibration

⚠ Cautions before calibration:

1). Please point the downward facing stereo cameras at the calibration target on the screen, as shown below:

Preview box

Error message prompt

Help information

Middle mark

2). Please keep the tail of the drone still, adjust the position of the head, and align it with the black middle mark on the screen.

3). Avoid horizontal and vertical translations of the drone at the target as a whole.

4). Select "don't prompt again" and click "start calibration" to directly enter the calibration interface.
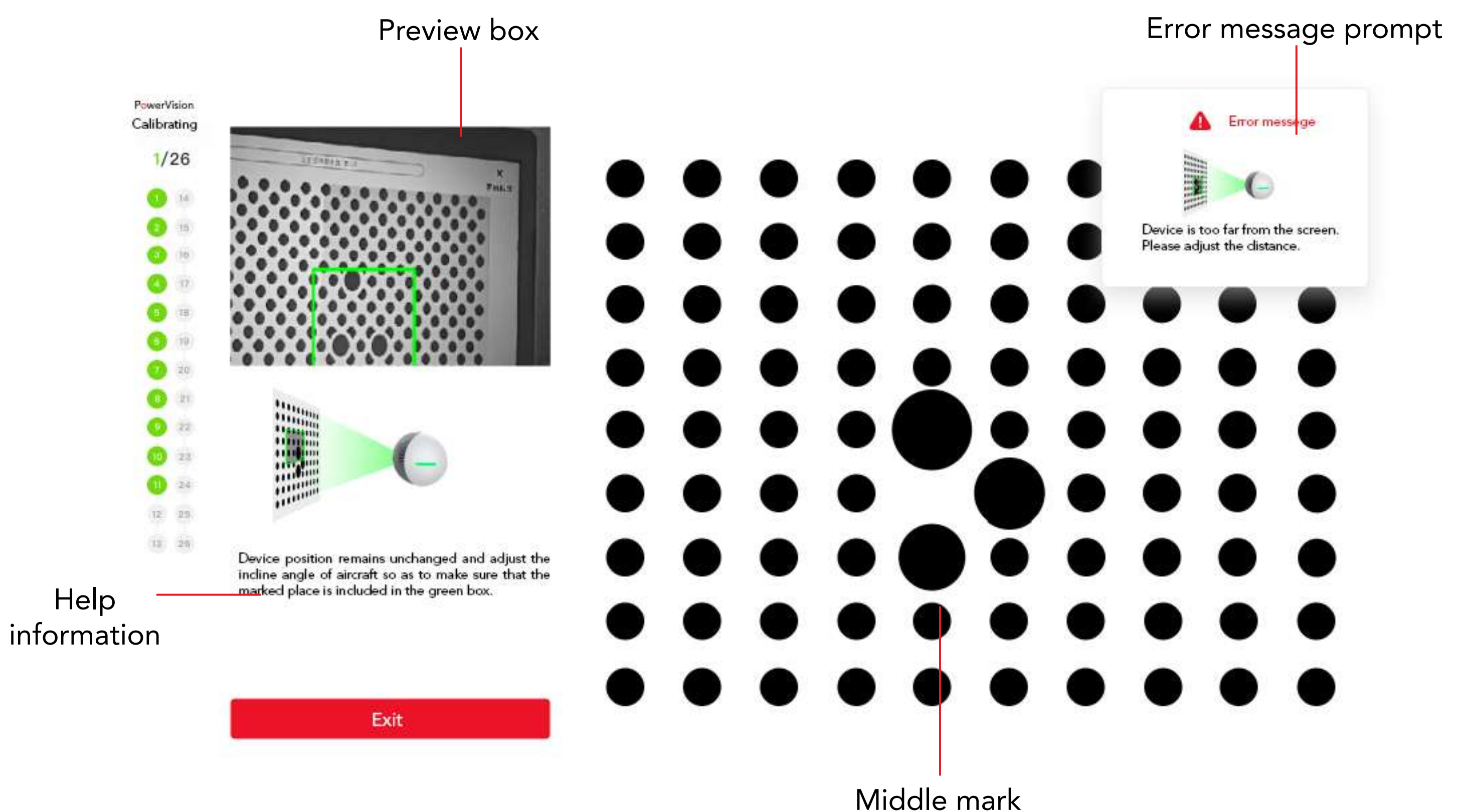
Use the drone's downward facing stereo cameras to aim the calibration target, adjust the drone's position, and take pictures in sequence, as shown below, until all 26 pictures are taken.

3. Parameter calculation

After the downward images are taken, it will automatically jump to the calculation process. At this time, the user doesn't need to do anything, please wait with patience.

Calibrating, please wait...(40%)
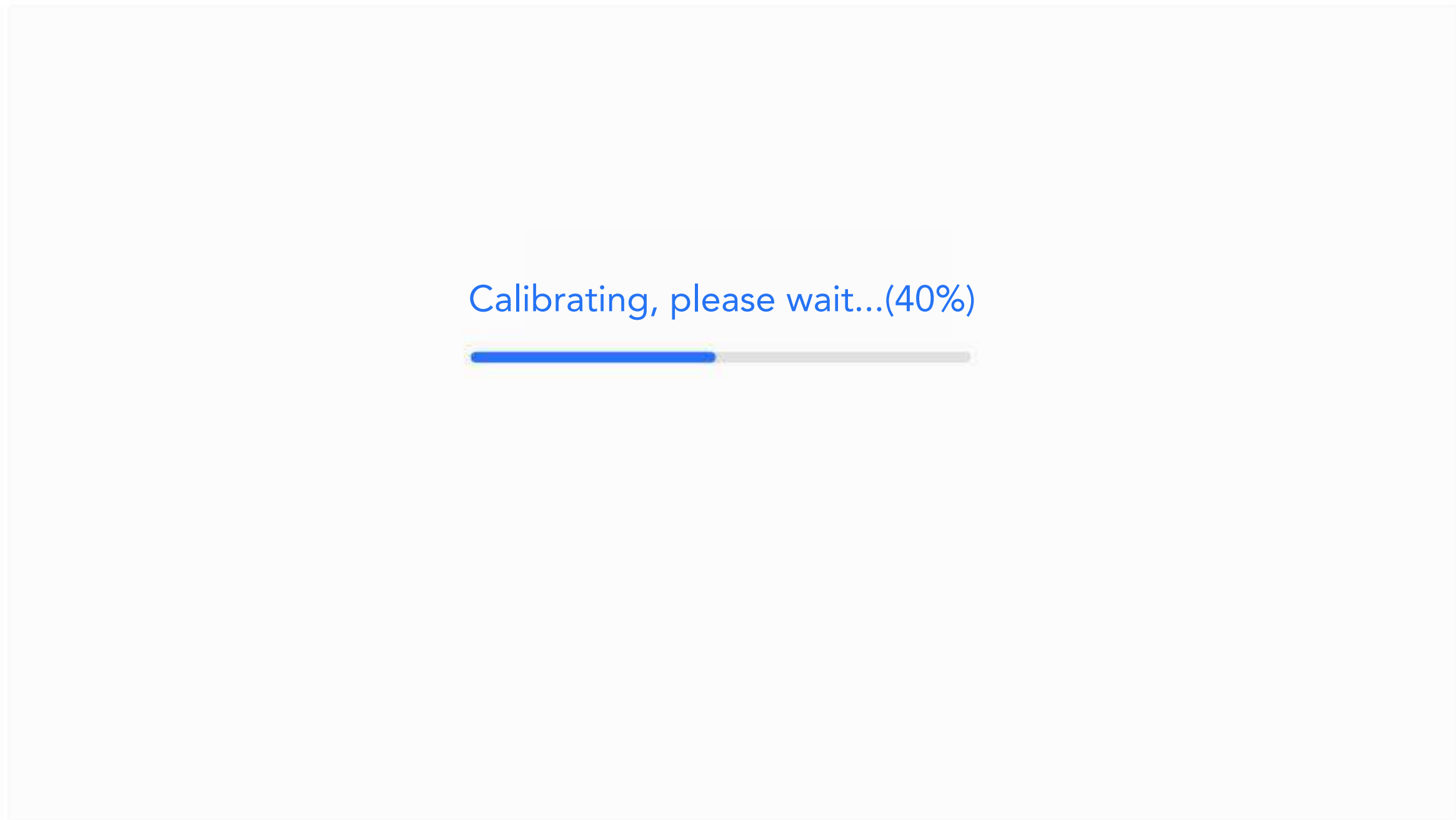
4. Calibration result query

　　　After the successful calibration, click the OK button to restart the drone automatically to make sure that the newly set parameters take effect. The user can also view them in the Log folder under the software installation directory.

• Firmware Reading

　　　Click the list button on the left side of the software and select "Firmware" to query the current version status of the drone, as shown below:

	Version Name	Version Number
Return	Aircraft Hardware	v2.7.35
Calibration		
Hardware		

Compass Calibration

Please calibrate the compass in any of the following situations:

1. Fly more than 50km from after the compass was last successfully calibrated.

2. PowerEgg X has not been used for more than 30 days.

3. The App reminds the user about compass interference, and the flight status indicator blinks red and yellow alternately.
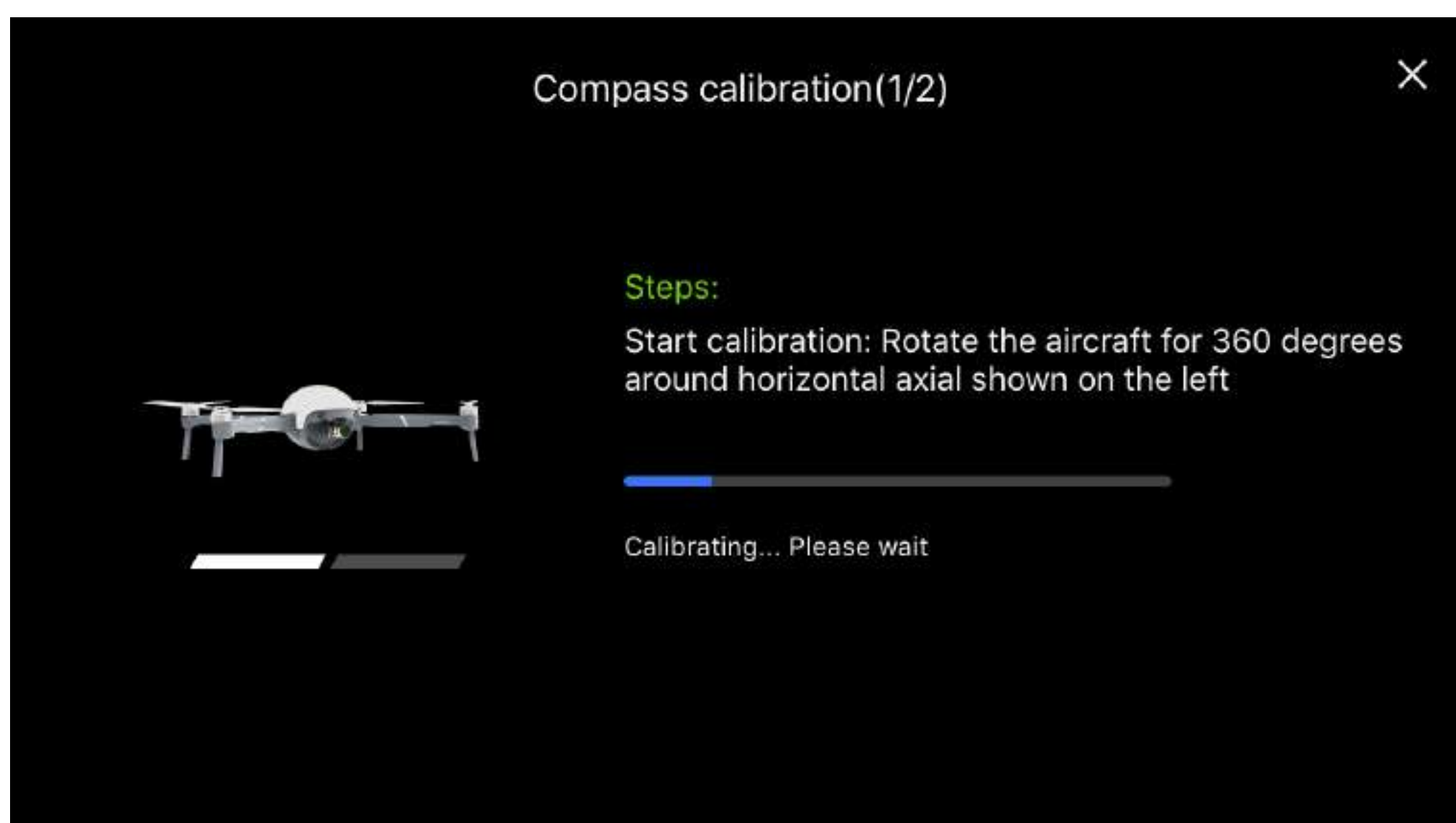
⚠ Caution:

DO NOT calibrate in areas with strong magnetic fields or near large pieces of metal, such as magnetic deposits, parking lots, building areas with steel bars, etc. When calibrating, DO NOT carry magnetic substances with you, such as mobile phones and magnets.

• Steps of Calibration

In an open field, perform the compass (magnetometer) calibration according to the following steps:

1. Enter the App and select the Compass Calibration

2. Rotate the drone horizontally 360 ° according to the instructions on the App interface.

3. Turn the drone nose down and rotate it 360 °.

4. After the calibration complet   es, the indicator no longer blinks yellow and red, and the app prompts that the calibration is successful. If the droneindicator still blinks red and yellow, the app prompts calibration fails, please re-do the calibration in another place.

Horizontal calibration
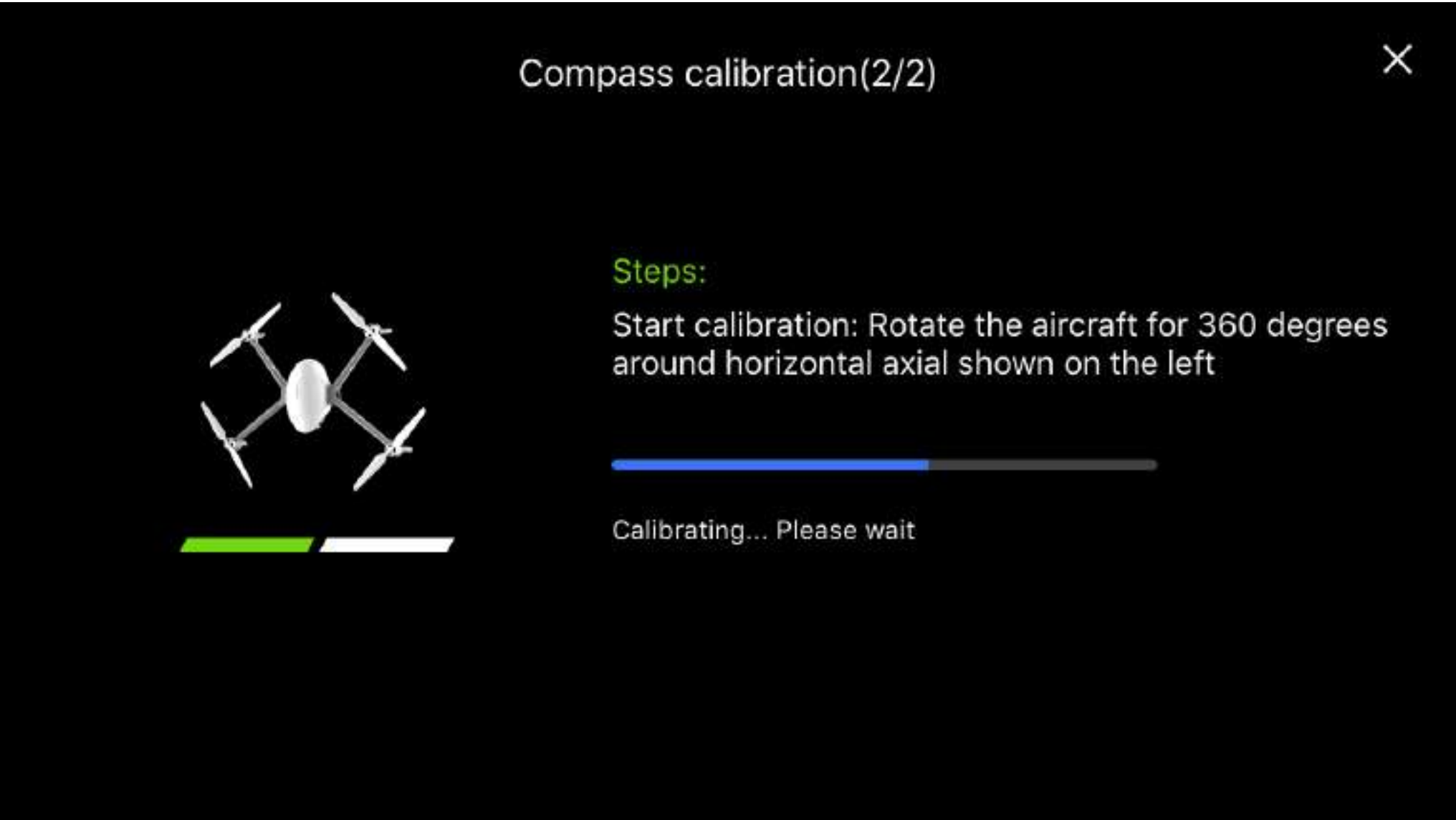
Vertical calibration

Technical Specifications

AI Camera	Weight	522g
	Size	165×100×100 mm
	Battery lifev	4 Hours
	Working Environment Temperature	0°C~40°C
	Working Frequency	FCC/IC: 2412~2462MHz CE: 2412~2472MHz SRRC: 2412~2472MHz MIC: 2412~2472MHz
	Transmitting Power (AI Camera Mode)	CE(EIRP):≤18.2dBm FCC:≤21dBm IC:≤21dBm MIC:≤10mw/MHz SRRC(EIRP):≤20dBm
Drone	Takeoff weight	862g
	Maximum Battery Life	30mins
	Diagonal Pitch	427.5mm
	Horizontal flight speed	18m/s
	Takeoff altitude	4000m
	GNSS	GPS+GLONASS
	Working Temperature	0°C~40°C
	Working Frequency	FCC/IC: 2412~2462MHz CE: 2412~2472MHz SRRC: 2412~2472MHz MIC: 2412~2472MHz
	Transmit Power (Drone Mode)	CE(EIRP): ≤17.3dBm FCC: ≤27dBm IC: ≤27dBm MIC: ≤10mw/MHz SRRC(EIRP): ≤20dBm
Gimbal	Controllable Rotation Range	In drone mode Tilt operation: -90° ~ +20° In AI camera mode Tilt operation: -90 ° ~ + 20 °; Level: -55 ° ~ + 55 °
Camera	Image sensor	1/2.8-inch CMOS: 12 megapixels or plus
	Lens	Viewing angle: 78.4° Equivalent focal length:27mm Aperture: f/1.8 Fixed focus lens focusing distance:1 m ~ ∞
	ISO Range	Video: 100 - 3200 Photo: 100 - 6400
	Electronic Shutter Speed	8 - 1/8000 s
	Maximum Photo Size	4000×3000
	Photo Shooting Mode	One shot Burst: 3/5/7 shots Auto bracketing (AEB): 3/5 shots @ 0.7EV steps Time-lapse shooting (interval: 3/5/7/10/15/30 / 60s)
	Video Size	4K: 3840x2160 24/25/30/48/50/60p FHD: 1920x1080 24/25/30/48/50/60/120p HD:1280x720 24/25/30/48/50/60/120/240p
	Maximum Video Bitrate	75 Mbps
	File System	FAT32 (≤32 GB); exFAT (>32 GB)
	Image Format	JPEG / RAW
	Video Format	MP4 / MOV(H.265/H.264/MPEG-4 AVC)
	Drone-based Memory	6G
	Memory Card Type	Micro SD Card SD Card 128GB maximum, Class10 or higher, UHS Speed Class 3 (U3) ratings
Remote Controller	Working Frequency	FCC/IC:2412~2462MHz CE:2412~2472MHz SRRC:2412~2472MHz MIC:2412~2472MHz
	Maximum Signal Transmission Distance	FCC: 6km; CE: 3km; SRRC: 3km
	Working Temperature	0°C ~ 40°C
	Equivalent Isotopically Radiated Power (EIRP)	CE(EIRP): ≤18.3dBm FCC: ≤27dBm IC: ≤27dBm MIC: ≤10mw/MHz SRRC(EIRP): ≤20dBm
	Built-in Battery	3500 mAh
	Working Current / Voltage	1700 mA @ 3.7 V(with USB connecting the mobile phone)
	Support for Mobile Devices	connector type: lightning Micro USB, USB-C
	Mobile Device Holder	width: 65mm-84mm (6 inches or less) thickness: 8.3mm or less
Charger	Input	100-240 V, 50/60 Hz
	Output	battery connector: 13.3 V ⎓ 3.76 A USB-A connector:5 V ⎓ 2 A
	Rated Power	50W
Smart Battery	Energy	43.32Wh
	Capacity	3800 mAh
	Rated Voltage	11.4 V
	Charging Limit Voltage	13.2V
	Battery Type	LiPo 3S
	Weight	237g
	Charging ambient temperature	10°C ~ 45°C
	Charging power	50W
App	iOS	iOS 10.0.0 or newer versions
	Android	Android 5.0 or newer versions

▍Warranty

Please visit the PowerVision official website https://www.powervision.me for the latest after-sales warranty information.