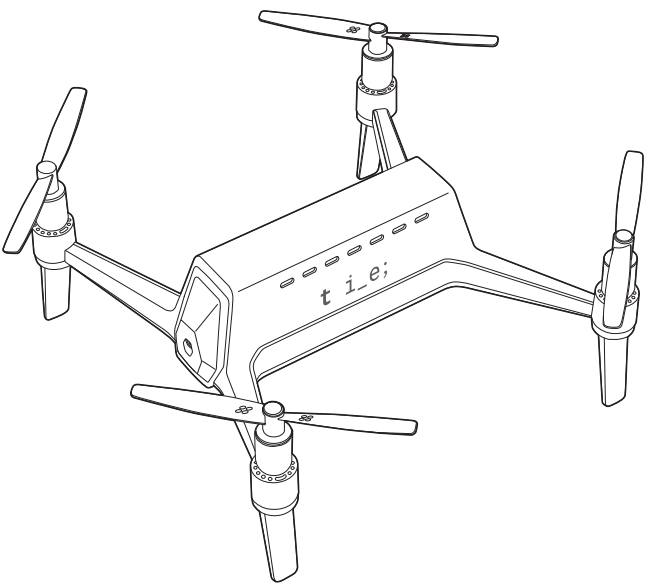
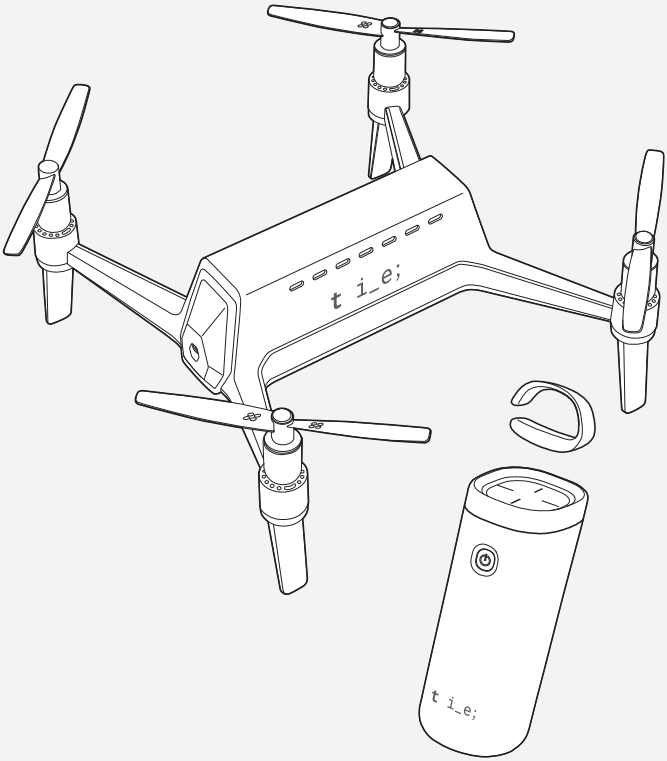
SHIFT RED User Manual



t i_e;

For comfortable use of SHIFT RED, check out the tutorial videos
on the SHIFT website(www.thisiseng.com/support/videotutorials).



Read this User Manual carefully before using the SHIFT drone product. this is engineering Inc. shall not be included in any legal action or held liable for any direct or indirect damage resulting from the use of the product. All information in this User Manual may be updated on the SHIFT website (www.thisiseng.com) without prior notice.

contents

01_PRODUCT OVERVIEW

· About SHIFT RED 6
· Product Components 7
· Aircraft Parts and Specifications 8
· Controller Parts and Specifications 10

02_PRECAUTIONS

· Precautions 12
- Age Recommendation 12
- Compliance with Relevant Laws 12
- Pre-flight Inspection 13
- Precautions During Flight 14
- Rules on Managing Drone and Controller Batteries 15
- Unauthorized Disassembly Prohibited 17
- Legal Responsibility for Footage 17

03_HANDLING THE AIRCRAFT

· Attaching the Propellers 18
· Attaching the Protectors 19
· Powering On / Pairing with the Controller 20
· Powering Off 21
· Charging 22
· Firmware Updates 23
· Aircraft Status Indication 24

 © 2019. this is engineering Inc. All Rights Reserved.

04_HANDLING THE CONTROLLER

· Powering On / Pairing with the Aircraft 25
· Powering Off 27
· Charging 28
· Firmware Updates 29
· Preference Settings 30
· Controller Status Indication 33

05_CONTROLLING THE DRONE

· Taking Off 37
· Landing 40
· Flight Control 41
· Emergency Measures 47

06_USING THE MOBILE APPLICATION

· Installation and Execution 49
· Using Free Flight Modes 52
· Recording Preference Settings 55
· Sensor Calibration 56

07_DECLARATIONS OF CONFORMITY

57

08_WARRANTY AND SERVICE INFORMATION

62

© 2019. this is engineering Inc. All Rights Reserved.

01

PRODUCT OVERVIEW

About SHIFT RED

SHIFT RED is a package consisting of the SHIFT drone and its controller.

This drone product is a portable and compact quadcopter equipped with software gimbal, vision recognition, and hyper-sensor fusion technology. Shake-free FHD video shooting and real-time video transmission functionality offer you a stable but dynamic drone figh

One of the most important features of SHIFT RED is its controlling method. The Near-Field Micro-Sensing technology offers you the most intuitive, precise flight controlling experience as the world's first invented one-hand drone controll system.

Opening a New Era
with SHIFT RED, the Perfect Small

© 2019. this is engineering Inc. All Rights Reserved.

Product Components

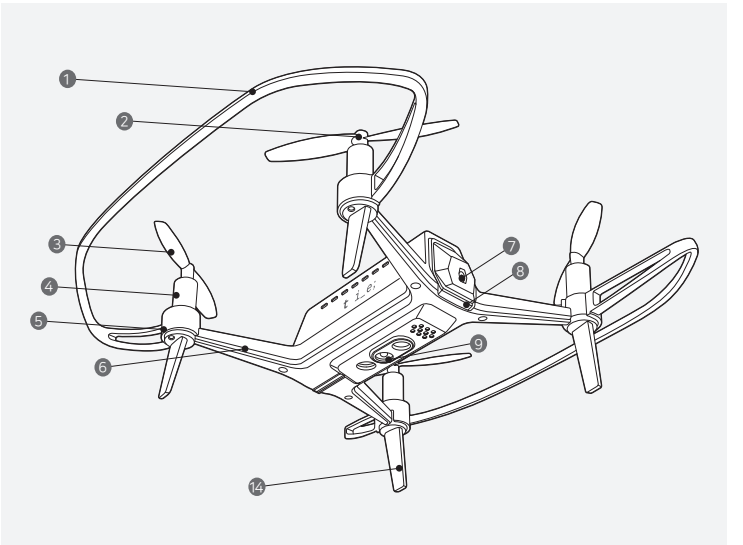
* The pictograms in this User Manual are for reference only, and may not be an accurate representation of the actual product.

1. Controller with a ring (1 pc)
2. Aircraft with propellers (1 pc)
3. Protectors (2 pcs)
4. Battery (1 pc)
5. USB Type-C cable (1 pc)
6. User Manual (1 pc)
7. Spare propellers (CW type - 2 pcs, CCW type - 2 pcs)
8. Removal wrench (1 pc)
9. Micro SD card (including adapter) (1 pc)
10. Control ring fit-band

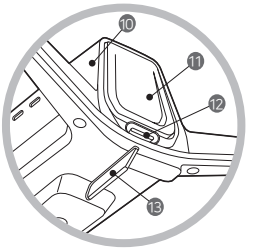
© 2019. this is engineering Inc. All Rights Reserved.

t i e;

Aircraft Parts



1. Protectors
2. Propellers (CCW)
3. Propellers (CW)
4. Motors
5. Motor housings
6. Arms
7. Vision camera
8. Front LED
9. Integrated 3D sensing system
10. Micro SD slot (inside)
11. Battery
12. USB port (Type-C)
13. Power button (LED)
14. Landing gears



© 2019. this is engineering Inc. All Rights Reserved.

Specifications

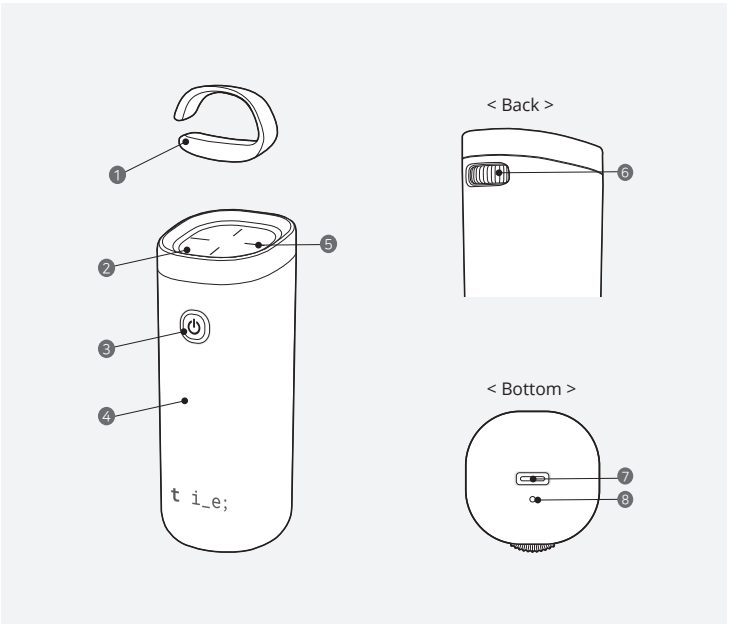
Weight with Battery	93 g
Dimension (WxDxH) without Propellers	115 X 115 X 59 mm
Dimension (WxDxH) with Propellers & Protectors	194 X 188 X 59 mm
Radio Frequency	2.4 GHz, 5 GHz Dual Band (for video streaming)
Max Distance	300 m
Max Altitude	25 m
Flight Time	10 min (Max)
Operating Temp.	0~40 ℃
Streaming Range	100 m (Max)
Video Streaming	HD 720 p @ 30 fps (Max)
Video Recording	FHD 1080 p @ 30 fps
Camera Sensor	5 M CMOS
Lens Shooting Range	40 cm to ∞
Photo Filename Extension	JPG
Video Filename Extension	MP4
Battery	Li-Po, 3.7 V, 1100 mAh
DC Input	5 V, 1.2 A
Charging Type	USB Type-C
Charging Time	60 min

The maximum flight time has been measured based on takeoff under windless conditions, and this may vary with flight conditions and operations. The maximum flight time should be used only as a reference.

The streaming range may vary with capabilities of your smartphone and surrounding signals.

© 2019. this is engineering Inc. All Rights Reserved.

Controller Parts



1. Control ring
2. Control pad
3. Power/setting
4. Control stick
5. LED indicators
6. Jog button
7. USB port (Type-C)
8. Reset

 © 2019. this is engineering Inc. All Rights Reserved.

Specifications

Weight	67 g
Dimension (WxDxH)	37 X 39 X 96 mm
Radio Frequency	2.4 GHz
Control Range	300 m (Max)
Operation Time	60 min (Max)
Operating Temp.	0~40℃
Battery	Li-Po, 3.7 V, 300 mAh
DC Input	5 V, 400 mA
Charging Type	USB Type-C
Charging Time	60 min

The maximum control range (maximum flight distance) can vary with surrounding signals. Exercise caution not to let the drone out of your sight; an uncontrolled drone may disappear or cause accidents.

© 2019. this is engineering Inc. All Rights Reserved.

02

PRECAUTIONS

Precautions

Please observe the following when using the SHIFT drone product to prevent accidents and situations of potential legal liability.

Age Recommendation

· The SHIFT drone is not recommended for children below 14 years of age. Children below 14 years of age must be accompanied and supervised by an adult guardian when flying the drone

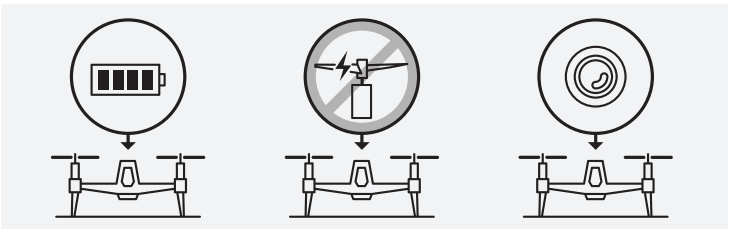
Compliance with Relevant Laws

· When flying unmanned aerial vehicles (UAVs), you must observe the rules and regulations of the authorities having jurisdiction over the relevant airspace.

· The operation of drones is prohibited near airports and areas where manned aerial vehicles are flying at low altitudes. Borders and other areas where the operation of drones may result in security issues are classified as restricted. Please observe all guidelines concerning altitude limit, flight prohibition, and restricted zones.

 © 2019. this is engineering Inc. All Rights Reserved.

▮ Pre-flight Inspectio



· Make sure that the drone and controller batteries are fully charged. The charging status of the drone and controller can be checked using the SHIFT Drone application.
· Inspect the propellers. All propellers should be firmly fixed. Worn, cracked, bent or damaged propellers must be replaced.
· Make sure that the intelligent vision (camera) on the front side of the drone, and the lenses and sensors of the bottom sensor system are clean and free of stains.

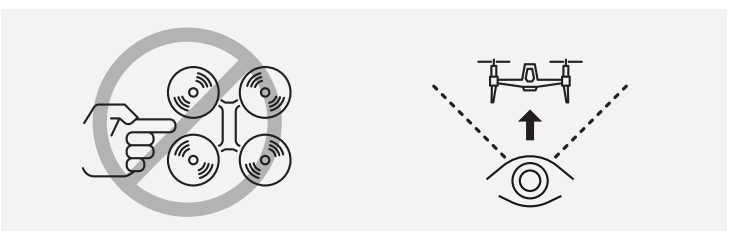
· Pay special attention to the battery level of the drone and controller, and take the necessary safety measures when the drone, controller, or mobile application gives a warning. Read the “Emergency Measures” section.
· Check that the intended flight path is free of obstacles such as people, animals, trees, and buildings (This product lacks functions such as return-to-home, and collision avoidance or speed control based on obstacle detection).

© 2019. this is engineering Inc. All Rights Reserved.

t i e;

· Do not fly the drone in areas under the influence of strong magnetic fields or magnets.
· The recommended flight conditions are mild weather conditions with a temperature between 0°C–40°C (32°F–104°F). Be wary of sudden changes in wind direction or weather. Do not use the aircraft in adverse weather conditions such as rain, snow, fog, and wind.

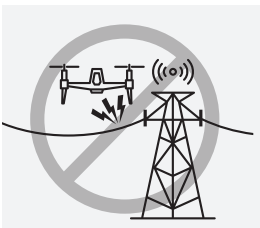
Precautions During Flight



· Only use the genuine SHIFT RED propellers. Do not use together with propellers of other brands.
· Do not attempt to grab or touch propellers that are in operation. Doing so may result in serious injury.
· Keep a safe distance away from the drone.
· The distance between the drone and user should be no more than 300 m (984 ft), and the drone should be controlled within visible range.

 © 2019. this is engineering Inc. All Rights Reserved.

· The drone may not work properly when flying over highly reflective surfaces such as water- or snow-covered areas, or when flying in dark.
· Exercise caution right after flight as the motor and aircraft are heated up from operation.



· Using the controller in the proximity (within 30 cm [1.0 ft]) of other rings, metallic objects or magnetic materials, near electronic devices that employ wireless communication or run on motors, inside a steel-framed building, or within the influence of a utility pole or a wireless station may affect the detection range of the controller and controllability of the drone.

· In particular, a high density of Wi-Fi APs may disturb communications between the drone and application. Before using the application, check your Wi-Fi environment.
· When the drone is flying over a dark (below 300 lux) or extremely bright (over 100,000 lux) surface, or toward a bright light source, its flight performance may be affected. Check the surrounding brightness before operating the drone.

■ Precautions on Managing Drone and Controller Batteries

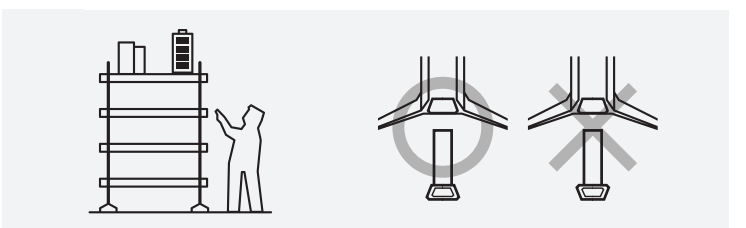
· Always use genuine SHIFT LiPo batteries.
· Inspect batteries before charging or use.
· If a battery has been shocked, or if you notice abnormal smell, heat, discoloration, deformation, or signs of leakage from it, never charge or use the defective battery.

© 2019. this is engineering Inc. All Rights Reserved.

t i e;

· Do not modify or disassemble the battery wiring.
· Do not touch battery terminals with a pointed tool such as tweezers or a needle. This may damage the battery and potentially cause a fire.

· The ideal temperature range for battery charging is 5°C–45 °C (41°F–113°F). Make sure that the battery temperature does not exceed 60°C (140°F). An overheated battery may cause serious damage or catch fire. Do not charge a battery near a heating apparatus or flammable material, inside a vehicle, and any other area exceeding 50°C (122°F).
· Do not expose batteries to moisture or direct sunlight.



· Keep batteries out of reach of children.
· Inserting the drone battery in the wrong direction may damage both the battery and drone.
· Exercise caution when handling the battery immediately after flight as it is heated up from operation.

 © 2019. this is engineering Inc. All Rights Reserved.

▮ Unauthorized Disassembly Prohibited

· Unauthorized disassembly, replacement of parts, and reassembly of the SHIFT drone and controller are strictly prohibited, except for the removal, installation, or replacement of propellers, protectors, or batteries. this is engineering Inc. shall not be included in any legal action or held liable for direct or indirect damage resulting from the aforementioned unauthorized changes to the drone or controller by the user. Where an unauthorized change has been made, the product shall not be covered by the warranty policy. Repairs may be denied or performed for a fee.

▮ Legal Responsibility for Footage

· Unauthorized recording or distribution of footage containing other persons falls under privacy infringement, and violators must assume legal responsibility. Prior permission must be obtained if using the SHIFT drone to take photos or videos of other persons, and saving or distributing such content.

· Unauthorized recording or distribution of footage containing private property falls under trespassing, and violators must assume legal responsibility. Always obtain permission in advance.

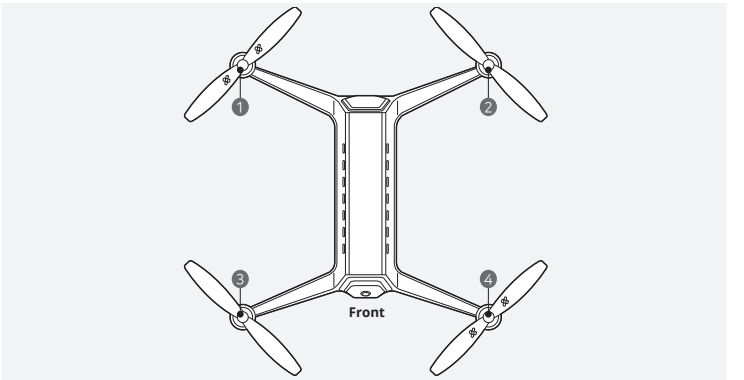
© 2019. this is engineering Inc. All Rights Reserved.

03

HANDLING THE AIRCRAFT

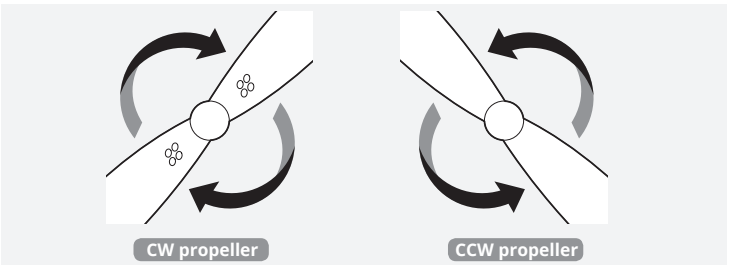
Attaching the Propellers

Before your flight, firmly mount all propellers in the correct positions. Note the rotational direction of each propeller.



❶,❹ : Position of CW propeller (use propellers marked with the SHIFT emblem)

❷,❸ : Position of CCW propeller



❗ If the propellers are not positioned correctly, the aircraft will be incapable of normal flight. Ensure that the propellers are mounted in the correct positions.

❗ When detaching the propellers, use the provided removal wrench.

❗ For safer use, always check that the propellers are firmly installed before every flight. Do not attempt to grab or touch propellers that are in operation. Read the “Precautions” section before operating the propellers.

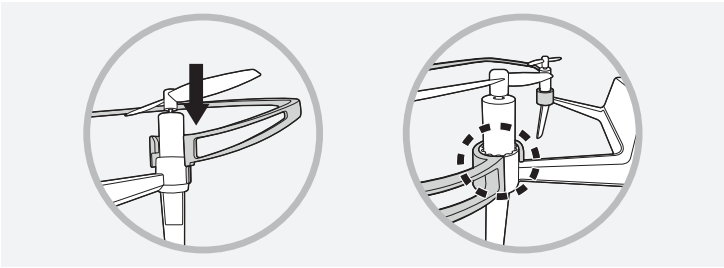
© 2019. this is engineering Inc. All Rights Reserved.

Attaching the Protectors

The SHIFT drone comes with two protectors, to be attached on each side during flight. Attaching the drone with the protectors is recommended to protect the aircraft and propellers. Read the instructions on attaching/removing protectors before flight.

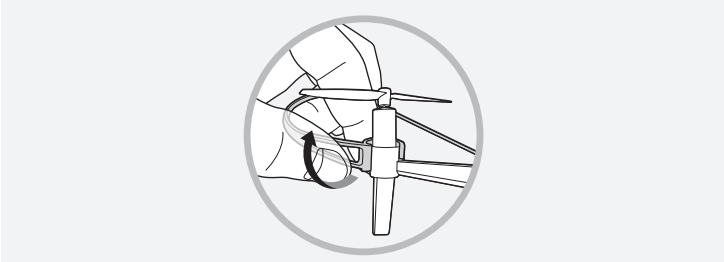
▮ Attaching the protectors

The inner side of the protector has a groove that fits the shape of the motor housing. The mounting part is designed to be placed upon the arm of the aircraft. Push the protector downward until in contact with the motor housing. Slightly stretch the mounting part, and make sure it clicks into place.



▮ Removing the protectors

The protector can be easily removed from the aircraft by holding its holed part and lifting it upward.

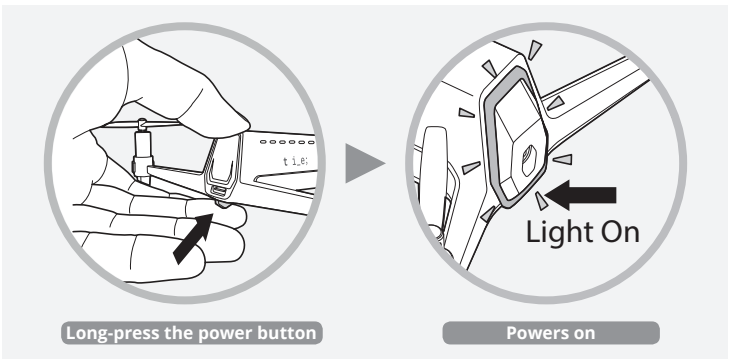


© 2019. this is engineering Inc. All Rights Reserved.

t i e;

Powering On / Pairing with the Controller

1. Press and hold the power button for two seconds after inserting the battery into the aircraft, and the aircraft will power on with the power LED turning solid orange. If the aircraft has successfully started up (taking approximately 9 to 10 seconds), the front LED turns solid blue, indicating that it is ready for flight.



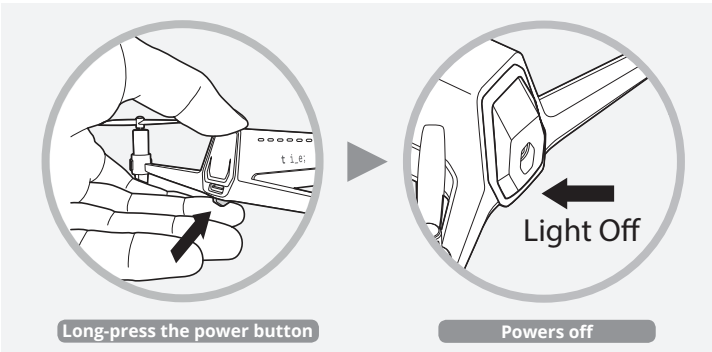
After the power LED turns solid, the aircraft should be placed on a horizontal surface to start up with the front LED turning solid.

2. When the aircraft and controller are ready for flight, they are automatically paired. The front LED and power LED on the bottom blink three times.
(For how to turn on the controller, see “Handling the Controller” > “Powering On/ Pairing with the Aircraft”)

 © 2019. this is engineering Inc. All Rights Reserved.

Powering Off

1. Press and hold the power button on the aircraft for two seconds, and the aircraft will power off with the front LED and power LED on the bottom going off.

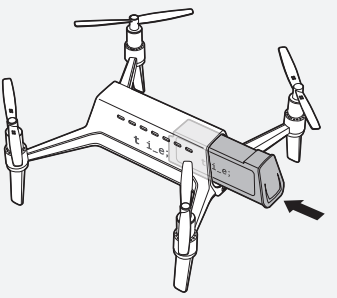


- Turn off the aircraft only when it has safely landed. Using the power button while the aircraft is still in flight may result in accidents.
- Data loss may occur if the battery is removed without turning off the aircraft. Turn off the aircraft using the power button, not by removing the battery.
- When the aircraft is powered on for more than 10 minutes without taking off, it is automatically powered off to prevent battery discharge.

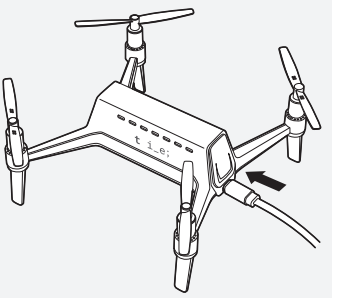
© 2019. this is engineering Inc. All Rights Reserved.

Charging

1. Insert the battery into the battery slot.

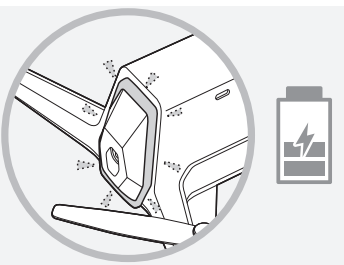


2. Connect the aircraft to a USB port using the provided USB cable to begin charging.

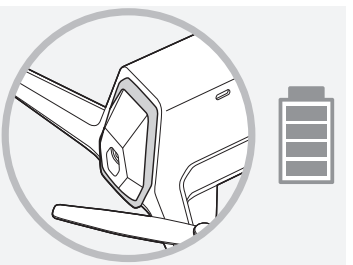


A certified USB adapter rated at 5 V and 1.5 A is recommended for charging. Connecting to a PC may cause delayed or unsuccessful charging.

3. During charging, the front LED of the aircraft displays the charging status.



When being charged, the front LED blinks



After charging completion, the front LED remains solid

The aircraft cannot fly while charged (unpaired from controller and mobile application).

 © 2019. this is engineering Inc. All Rights Reserved.

Firmware Updates

Firmware updates are provided to optimize the performance of SHIFT RED. Update the aircraft to the latest firmware by following the procedure below:

1. From the download page (www.thisiseng.com/support/download/) of the SHIFT website, download the firmware to a micro SD card.

2. With the aircraft powered off, remove the battery and insert the micro SD card into the micro SD slot.

3. When the aircraft is powered on after inserting the battery, the firmware update begins automatically and the front LED blinks.

4. The firmware update takes approximately two minutes, and the aircraft is automatically rebooted in the process. Do not remove the battery or turn off the aircraft while updating.

5. Upon the completion of the firmware update, the aircraft is automatically powered off, and the firmware file in the micro SD card is deleted.

© 2019. this is engineering Inc. All Rights Reserved.

```
t i e;
```

Aircraft Status Indication

Aircraft Status	Pattern
Charging in progress	Front LED blinks
Charging complete	Front LED stays solid
Firmware update in progress	Front LED blinks
Firmware update complete	Front LED turns off (powered off)
Powered on	Power button LED and front LED stay solid
Powered off	Power button LED and front LED turn off
Controller pairing complete	Power button LED and front LED blink three times, then turn solid
Takeoff complete (hovering	Power button LED and front LED blink once, then turn solid
Manual control mode	Power button LED and front LED stay solid
Landing complete	Power button LED and front LED blink twice, then turn solid
Emergency	Power button LED and front LED blink three times repeatedly

© 2019. this is engineering Inc. All Rights Reserved.

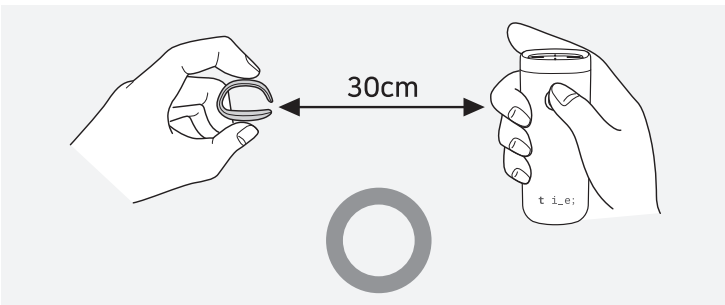
04

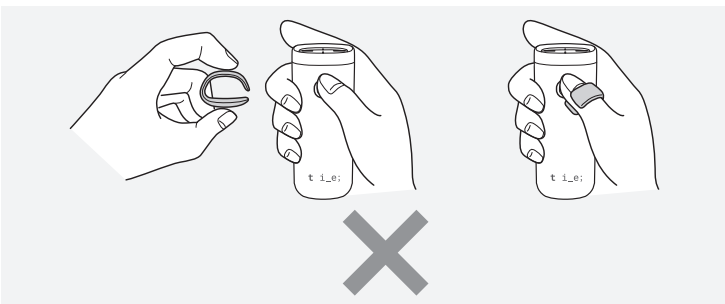
HANDLING THE CONTROLLER

Powering On / Pairing with the Aircraft

The controller calibrates automatically whenever it is powered on.
The automatic calibration process optimizes controller performance by assessing the surroundings in order to detect fine movement of the control ring. With every change in the place of flight, users are recommended to turn the controller off and on again, thereby recalibrating to optimize control sensitivity.

1. Before turning on, place the controller ring at least 30 cm (1.0 ft) away from the controller stick.

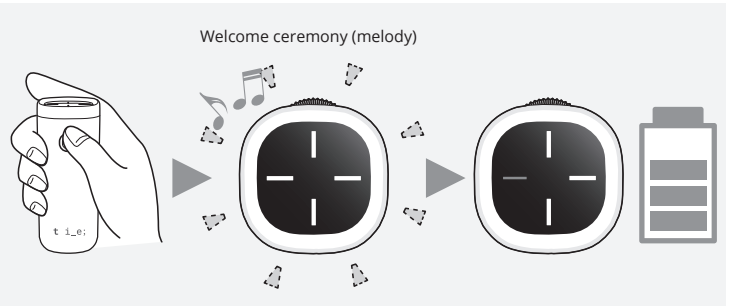




If the control ring is within 30 cm (1.0 ft) of the controller during automatic calibration, you may be unable to control the drone or experience serious errors.

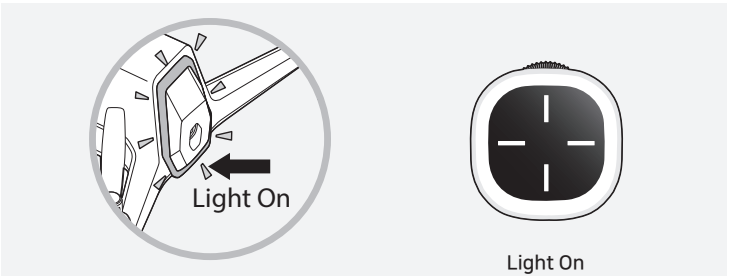
© 2019. this is engineering Inc. All Rights Reserved.

2. Press and hold the power button for at least two seconds to turn on the controller. After the automatic calibration and welcome ceremony, the stick displays the battery level for about two seconds.



If automatic calibration is unsuccessful due to environmental factors, the controller gives a warning beep and powers off automatically. When turning on the controller, ensure that there are no electronic devices or metallic objects that may cause interference, and place the controller ring at least 30 cm (1.0 ft) away.

3. When the aircraft and controller are ready for flight, they are automatically paired and the controller's LED indicator turns solid white (For how to turn on the aircraft, see "Handling the Aircraft" > "Powering On/Pairing with the Controller").

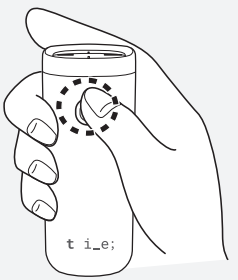


If the LED indicator does not turn solid, the controller and aircraft have not been paired successfully. Turn off the aircraft and controller, and turn on again.

 © 2019. this is engineering Inc. All Rights Reserved.

Powering Off

1. Press and hold the power button for at least two seconds to turn off the controller.

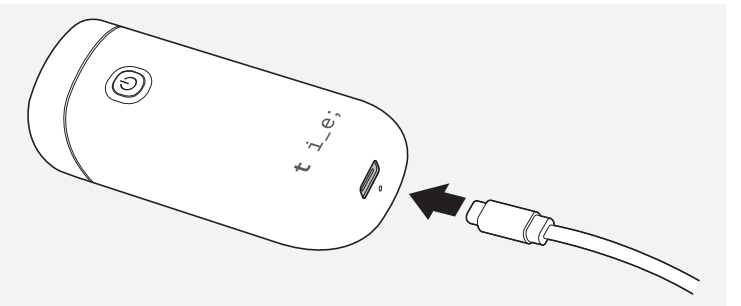


If the controller does not turn off properly, use the reset button on the bottom. Force the controller to shut down by pressing the reset hole with a pin of appropriate thickness. Hold the pin vertically when pressing the reset hole to prevent damage to the controller.

© 2019. this is engineering Inc. All Rights Reserved.

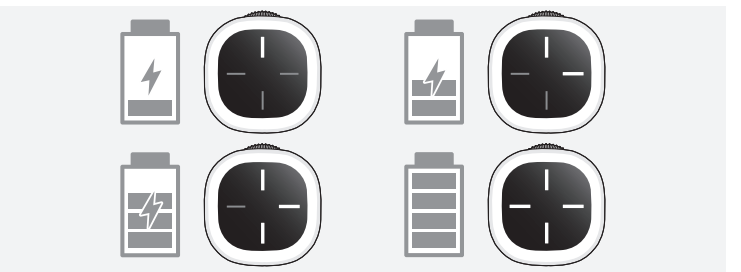
Charging

1. Connect the USB port of the controller to a USB charger using the provided USB cable to begin charging.



A certified USB adapter rated at 5 V and 1.5 A is recommended for charging. Connecting to a PC may cause delayed or unsuccessful charging.

2. While the controller is being charged when powered off, the LED indicator on the controller pad displays the charging status.
   · Charging in progress: The number of bars blinking on the LED indicator shows the battery level.
   · Charging complete: All four LEDs turn solid white.



The controller may be used while charging. In this case, the LED indicator does not display the battery level.

 © 2019. this is engineering Inc. All Rights Reserved.

Firmware Updates

Firmware updates are provided to optimize the performance of SHIFT RED. Update the controller to the latest firmware by following the procedure below:

1. From the download page (www.thisiseng.com/support/download/) of the SHIFT website, download the controller firmware and update software.

2. Turn off the controller, and connect to a PC using the USB cable while holding the jog button pressed.

3. Once the software detects the controller, you can proceed with the firmware update as guided by the software. Keep the USB cable connected while updating. Do not remove the USB cable before the update is complete.

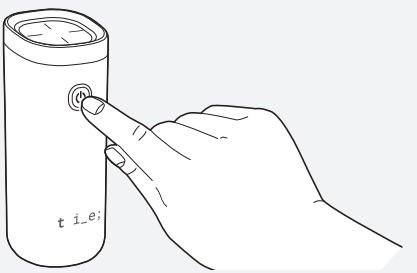
4. When the firmware update is complete, the controller automatically enters the charging state. The USB cable can be removed now.

© 2019. this is engineering Inc. All Rights Reserved.

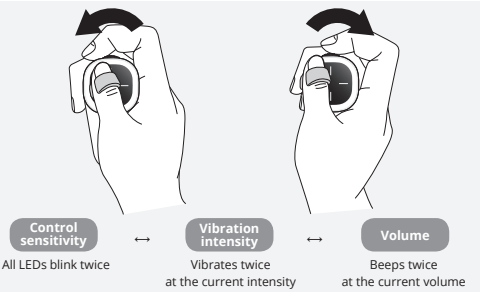
Preference Settings

Before takeoff, you can press the power button once to enter Preferences mode, and adjust settings such as control sensitivity, vibration intensity, and volume. Move the jog button left or right to switch between options: control sensitivity ↔ vibration intensity ↔ volume.

1. Briefly press the power button of the controller before flight to enter preference settings mode.



2. The first menu selected upon entering preference settings is “control sensitivity setting.” Moving the jog button left and right switches between menus in the order of control sensitivity, vibration intensity, and volume. The selected setting is indicated through a distinct alarm pattern as shown below.



 © 2019. this is engineering Inc. All Rights Reserved.

3. Check the current settings from the lit LEDs on the upper pad of the controller.

Control sensitivity	Vibration intensity	Volume
Level 1 (default)	No vibration	Sound off

Level 2	Weaker vibration	Decrease volume

Level 3	Normal vibration (default)	Normal volume (default)

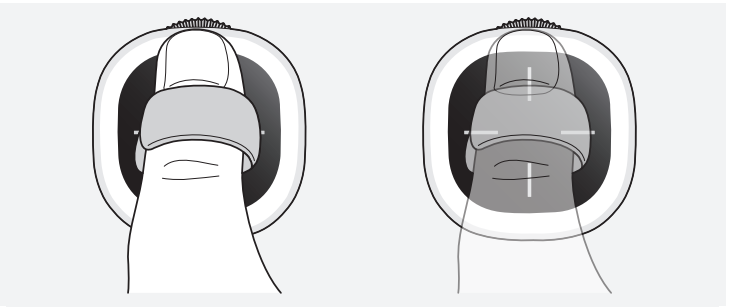
Level 4	Stronger vibration	Increase volume

In control sensitivity setting mode, you can set the acceleration or deceleration of the aircraft according to the distance moved by the ring.

4. Place your thumb with the ring slightly above the control pad, and move in the direction of the desired level (as shown in the figure above). The LED representing the selected direction will turn on.

© 2019. this is engineering Inc. All Rights Reserved.

5. Lightly make contact with the center of the control pad to save your setting.



6. Press the power button on the controller to end the preference setting. Your setting is stored even after the controller and drone are powered off.

When vibration and volume are turned off under preferences, be extra cautious during take-off and landing (Note that LEDs indicating power on/off, warnings and emergency alarms remain active regardless of vibration and volume settings).

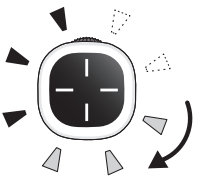
 © 2019. this is engineering Inc. All Rights Reserved.

Controller Status Indication

Controller Status	Pattern
Charging in progress	Corresponding LED indicators begin blinking from top in clockwise direction according to the charging level
Charging complete	All LED indicators stay solid
Powered on	Welcome ceremony, then current charging status displayed
Powered off	Farewell ceremony

© 2019. this is engineering Inc. All Rights Reserved.

```
t i e;
```

Controller Status	Pattern
Controller pairing in progress	 All LED indicators blink in clockwise direction
Controller pairing complete	All LED indicators stay solid
Takeoff begin	LED indicators turn solid sequentially in upward direction

 © 2019. this is engineering Inc. All Rights Reserved.

Controller Status	Pattern
Control mode switching (fligh ↔ hovering)	Vibrates and beeps once
Control range feedback	Vibrates at different levels as ring approache maximum control range (active only in free flight mode
Flight mode switching (assist mode ↔ free flight mode	Vibrates and beeps once

© 2019. this is engineering Inc. All Rights Reserved.

t i e;

Controller Status	Pattern
Landing begins	LED indicators turn solid sequentially in downward direction
Preference settings and mode alert	**Level 1** · Control sensitivity 1 · Vibration off · Volume off **Level 2** · Control sensitivity 2 · Weak vibration · Low volume **Level 3** · Control sensitivity 3 · Medium vibration · Medium volume **Level 4** · Control sensitivity 4 · Strong vibration · High volume Different patterns indicate current setting
Warning (low battery voltage, weak signal)	Drone battery voltage warning: Two beeps every two seconds Controller battery voltage warning: One beep every two seconds Weak signal warning: Melody
Emergency alert (Self-stopping mode; communications disconnected)	Vibrates once and gives three beeps per second as an emergency alert

© 2019. this is engineering Inc. All Rights Reserved.

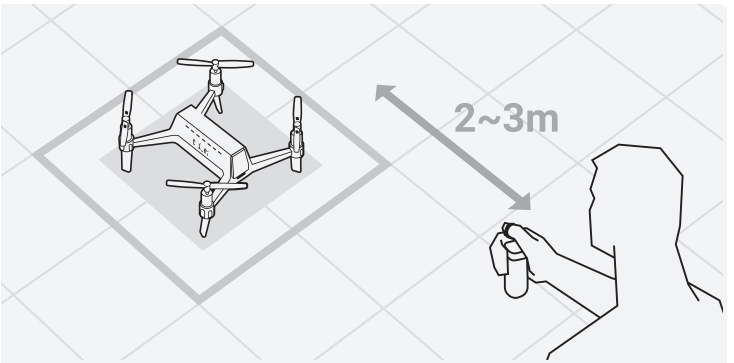
05

CONTROLLING THE DRONE

This section describes how to control the drone for takeoff, landing, and flight, and take actions for an emergency stop. Before proceeding with each maneuver, read the “Pre-flight inspection” and “Precautions during flight” subsections under Section 02 Precautions. The drone has a flight altitude limit of 25 m (82 ft), and the maximum flight distance (maximum control range) may vary with surrounding signals. Exercise caution not to let the drone out of your sight; an uncontrolled drone may disappear or cause accidents.

Taking Off

1. Place the drone level, horizontal to the ground and headed in the direction you are headed, and pair it with the controller.



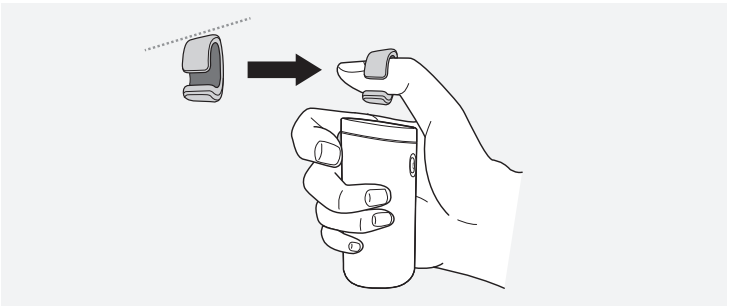
The drone may not take off normally if placed in an area with vibrations, if the battery voltage is low, if placed on a non-horizontal surface, or if placed on a surface with holes or gaps.

When flying with the front of the aircraft facing the user, note that the front/back/left/right control directions work in reverse.

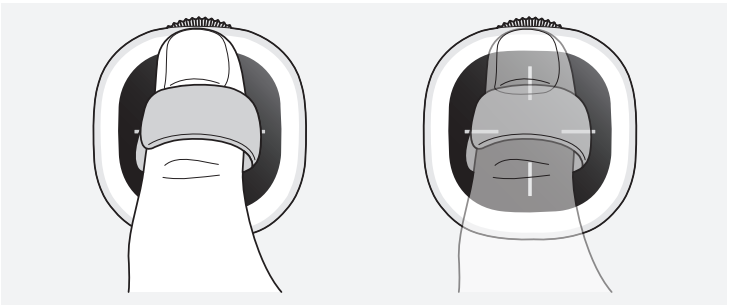
© 2019. this is engineering Inc. All Rights Reserved.

```
t i e;
```

2. Wear the control ring on your thumb, and wrap your hand gently around the control stick. For details on wearing the control ring and using the control stick, read the “Flight control” subsection.

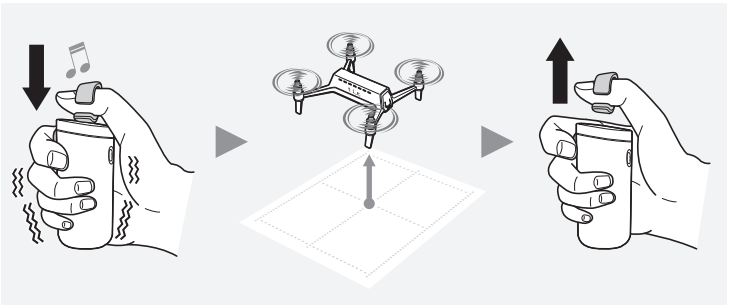


3. Touch the center of the control pad with the ring.

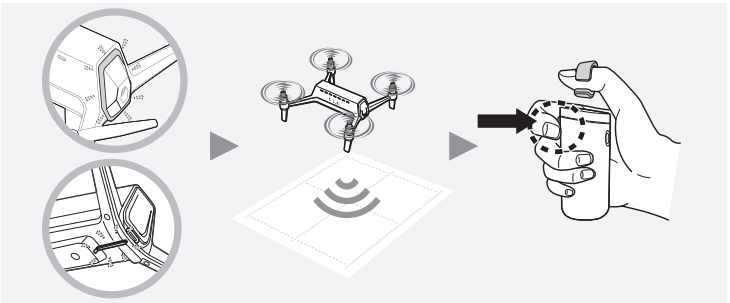


 © 2019. this is engineering Inc. All Rights Reserved.

4. Maintain the contact with the pad for over one second, and the drone will take off while playing a takeoff melody. After takeoff, lift the ring off the pad.



5. When the drone succeeds in automatic takeoff, the front LED and power button LED on the drone blink once, and the drone stands by while hovering at a height of 1 m (3.3 ft). For details on controlling after takeoff, read the “Flight Control” subsection.



Note that pressing the ring on the pad for over one second during hovering initiates automatic landing.

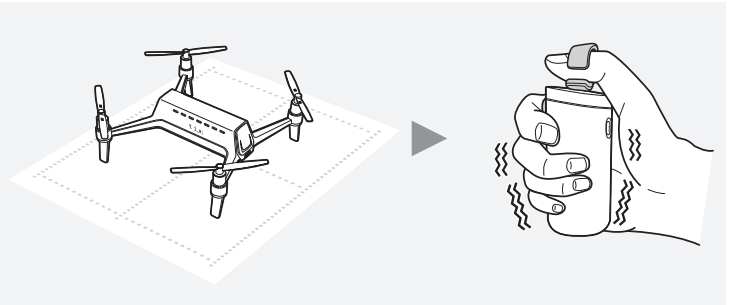
© 2019. this is engineering Inc. All Rights Reserved.

t i e;

Landing

1. While the drone is hovering, touch the center of the pad with the ring for over one second to initiate automatic landing. During automatic landing, you cannot control the drone by moving the ring.

2. Once the drone comes to a complete stop, the controller vibrates and the motors stop automatically.

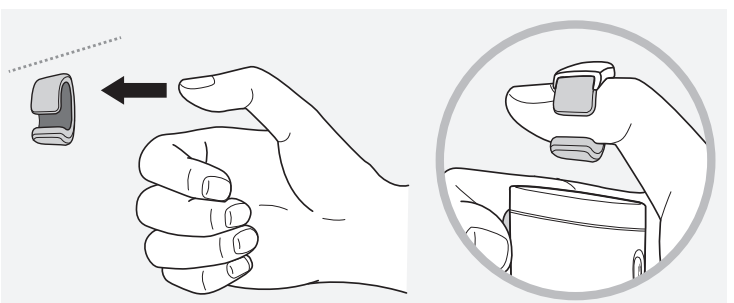


Make sure the drone is within 10 m (33 ft) around you during takeoff or landing.

 © 2019. this is engineering Inc. All Rights Reserved.

Flight Control

1. As shown in the figure, wear the ring on your left or right thumb with the thicker part facing downward. Wrap your other fingers around the control stick, and place your index finger on the jog button.



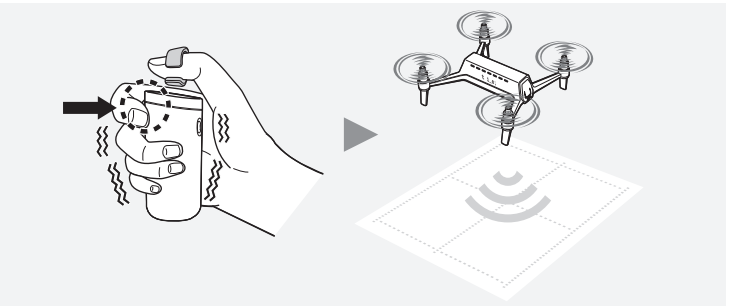
The control ring is ergonomically designed with different shapes at the top and bottom; insert your thumb through the wider opening so that the narrower opening is nearer to your fingertip.

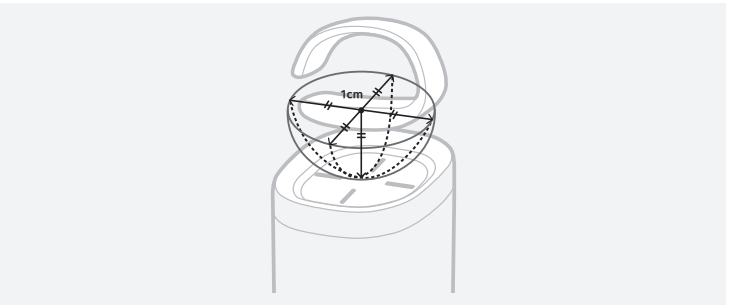
A control ring fit-band is provided to allow a better fit if your thumb is smaller or thinner than the control ring. Attach the fit-band on the top side of the control ring.

© 2019. this is engineering Inc. All Rights Reserved.

t i e;

2. While the drone is hovering, press and hold the jog button as shown in the figure to switch to flight mode. Ring control is enabled after the controller vibrates once.



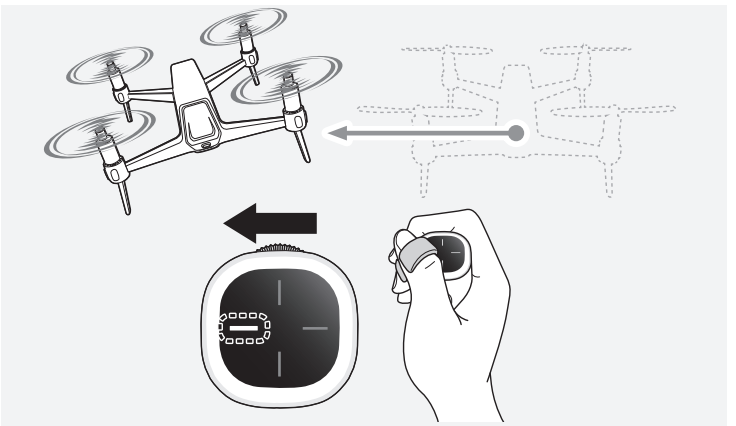


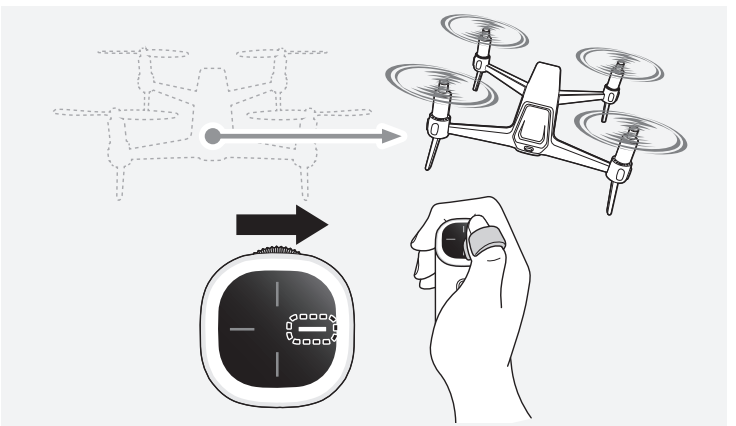
When switching to flight mode using the jog button, the center of the ring on your thumb should be within 1 cm (0.4 in) around and above the center of the controller pad. If the ring is out of the range, the controller gives off a warning and fails in switching to flight mode.

When switching to flight mode, exercise caution in moving the ring as accidents may occur from sudden movement of the drone.

 © 2019. this is engineering Inc. All Rights Reserved.

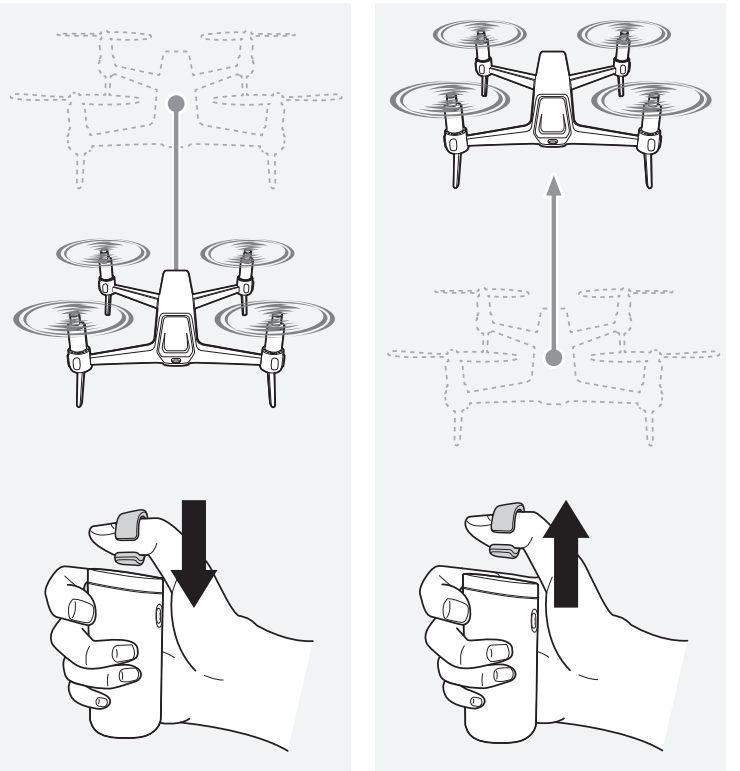
3. The drone flies proportionately to the height and direction of the ring. Move your ring-wearing thumb in the desired direction of flight, and the drone will fly in the same direction.





© 2019. this is engineering Inc. All Rights Reserved.

t i e;

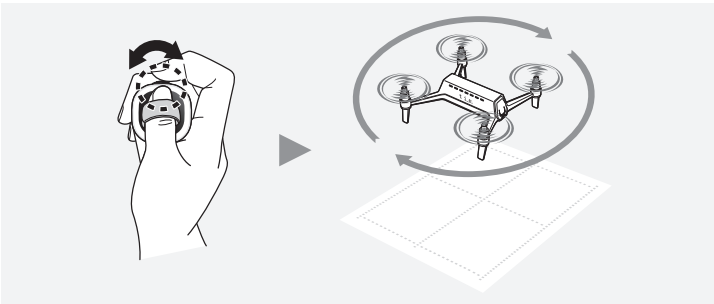


Your thumb with the ring should be at an adequate height above the controller pad to allow better control over the flight altitude.

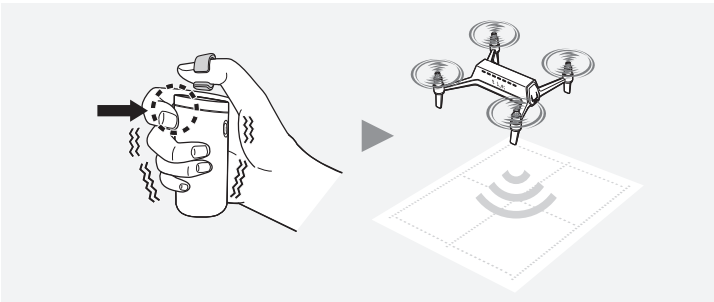
The degree of acceleration or deceleration can be set proportionately to the distance moved by the ring. Read the “Preference Settings” subsection under the “Handling the Controller” section.

 © 2019. this is engineering Inc. All Rights Reserved.

4. When turning the head of the aircraft to the desired direction, turn the jog button accordingly.

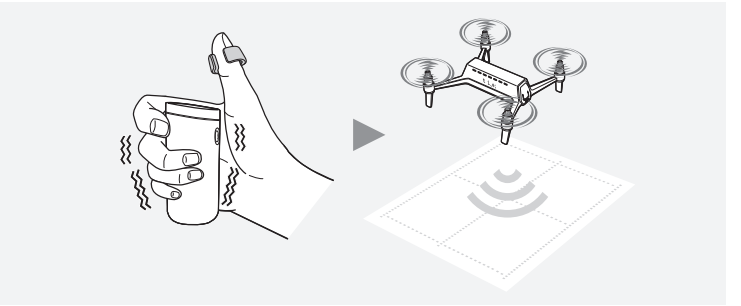


5. If you press the jog button during flight, the controller vibrates once and the drone switches to hovering.



© 2019. this is engineering Inc. All Rights Reserved.

6. If the ring is out of the sensing range of the controller, the controller vibrates once and the drone automatically switches to hovering.



To prevent unintended loss of control over the aircraft during flight, the controller warns the user by vibrating at different levels as the ring approaches the detection limit.

The controller's range of ring detection may change unpredictably depending on surrounding sources of electromagnetic interference, and this may hinder flight control.

7. You can switch between assist mode and a free flight mode by holding the jog button during flight for over one second until the controller vibrates. Free flight mode is selected by default when the controller is initially paired with the drone. When the drone and controller are re-paired, the flight mode initializes into free flight mode.

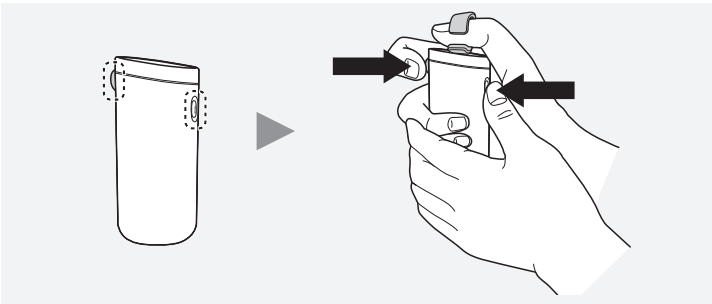
- Assist mode: The drone maintains a constant speed and altitude. This mode is useful if you are unfamiliar with controlling the drone or need to shoot a video under stable conditions. When switched to assist mode, the drone maintains the previous flight altitude, which may be adjusted by moving the control ring up or down. Note that there is no vibration feedback for control range in assist mode.
- Free flight modes: The flight direction and altitude are set according to the movement of the control ring. These modes allow greater precision and degree of freedom in flight control.

 © 2019. this is engineering Inc. All Rights Reserved.

Emergency Measures

▮ Manual emergency stop

· The drone motors stop immediately when you press the jog button and power button on the controller at the same time.



Exercise caution as a manual stop in midflight may cause damage to the aircraft or personal injuries.

▮ Self-stopping of the drone

· In case of a sudden change in surroundings such as a temperature drop or battery shortage, the drone switches to self-stopping to protect itself and maintain the battery performance.

· Before the drone switches to self-stopping, the front LED and power button on the aircraft blink twice repeatedly and the controller vibrates and sounds to declare an emergency. At this point, you should perform a safe landing within thirty seconds. About one minute later, the drone enters self-stopping mode. In this mode, the drone keeps hovering and its flight becomes uncontrollable, while its front LED and power LED are blinking three times repeatedly, until it lands automatically in five seconds. Meanwhile, the controller vibrates (3 times/second) and gives off a warning sound.

© 2019. this is engineering Inc. All Rights Reserved.

■ Self-stopping of the controller

· In case of a sudden change in surroundings such as a temperature drop or battery shortage, the controller switches to self-stopping to protect itself and maintain the battery performance.

· Once the controller switches to this mode, it vibrates and sounds for 30 seconds to notify the user of an emergency. After the 30 seconds of warning, the controller is automatically powered off. The aircraft then blinks its front LED and power button three times repeatedly before automatically landing. Before the controller is powered off, make sure the aircraft is positioned in a safe place or landed.

The controller may be charged during use with a portable battery.

■ Self-stopping due to weak signals

· In case of weak signals between the controller and drone due to interference, the controller gives off a warning sound and vibrates (1 time/2 seconds) to indicate weak signal strength. At this point, you should immediately perform a safe landing. When the signaling between the controller and drone is lost, the controller vibrates (3 times/second) to declare an emergency. The drone then switches to hovering, and lands automatically in five seconds.

The signal strength between the controller and drone depends on your surroundings.

 © 2019. this is engineering Inc. All Rights Reserved.

06

USING THE MOBILE APPLICATION

Installation and Execution

The SHIFT drone comes with a mobile application, “SHIFT Drone.”
You can use the application to preview a drone video in real time, and try various flight modes for the drone to shoot from different perspectives.

1. Check the model and mobile OS version of the smartphone on which the application is intended to run. Below are the minimum requirements to use SHIFT Drone:
   · Android: Any device compatible with Wi-Fi Dual Band and 802.11ac / Android 4.4 (KitKat) or later
   · iPhone: iPhone 6/iOS 10.0 or later

2. Search “SHIFT Drone” in Google Play or App Store, and download the app to your smartphone.

3. Turn on the drone, connect to SHIFT-DRONE-XXXXXXXX from your smartphone’s Wi-Fi settings, and run the application.

Each SHIFT drone unit has a unique Wi-Fi network name in the form of SHIFT-DRONE-last 8 digits of the serial number.

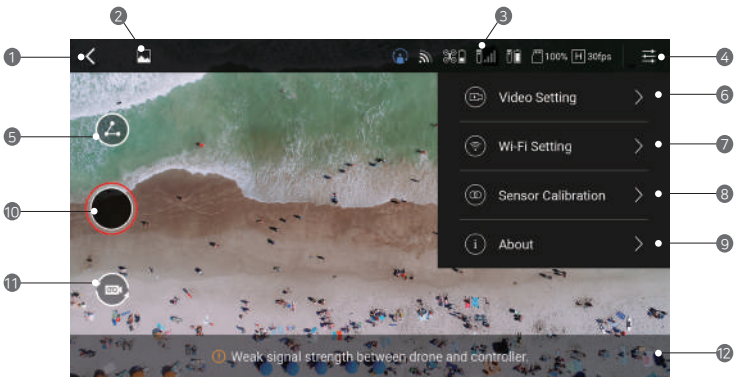
The initial password to connect to SHIFT-DRONE-XXXXXXXX is 1234567890. Please reset the password for security, and remember it for future use.

While the drone is powered on, pressing and holding the power button for over three seconds turns off the front LED and power LED on the bottom and shuts down the drone.
If you hold for over ten seconds, the Wi-Fi network name and password will be initialized while the front LED and power LED on the bottom are blinking. The drone is turned off once initialization is complete.

© 2019. this is engineering Inc. All Rights Reserved.

t i e;

4. See below for details on the interface of the application.



1. Go to the main screen
2. Go to the gallery
3. Drone/controller status information
4. Setting menu
5. Lezero Pilot mode
6. Video quality/frame settings
7. Wi-Fi setting
8. Sensor calibration
9. Version information
10. Take video/photo
11. Change video/photo mode
12. Notice

The screenshots of the application interface provided in this User Manual are for illustration purposes only, and may not be an exact representation of the application.

© 2019. this is engineering Inc. All Rights Reserved.

5. To take photos and videos using the SHIFT Drone application, a micro SD card must be inserted in the aircraft. The micro SD card slot can be seen when the battery is removed. The micro SD card can only be inserted in the designated direction. Use the provided micro SD card, or a micro SD card of video speed class 10 or UHS class 1 or higher with a capacity of no more than 32 GB.

- Before removing the micro SD card, always check that the drone is powered off.
- Keep the micro SD card out of reach of children as it is dangerous if swallowed.
- Check the free space of the micro SD card. When it falls below 100 Mbytes, video or photo recording becomes disabled.

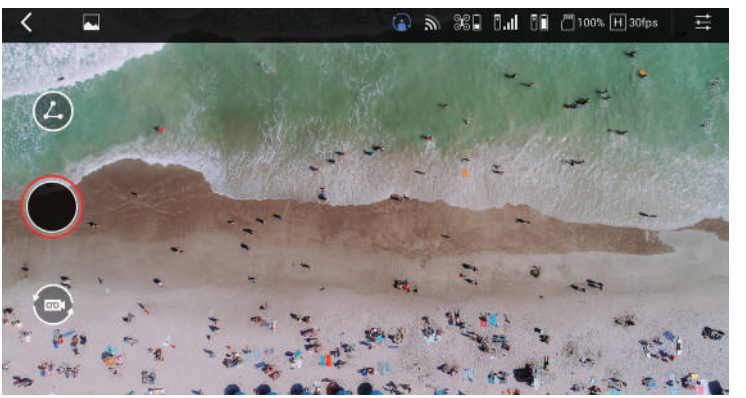
© 2019. this is engineering Inc. All Rights Reserved.

t i e;

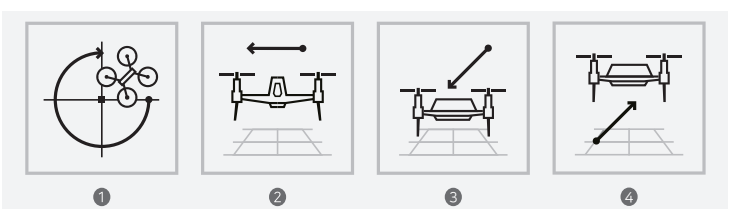
Using Lezero Pilot Modes

Application “SHIFT Drone” offers various flight modes (Lezero Pilot modes) for users to take semi-professional videos and photos. Exercise caution against collisions when in a flight mode. Maintain a distance of at least 2 m (6.6 ft) away from the drone during operations. Visit the website (www.thisiseng.com) for detailed instructions on using the SHIFT Drone application.

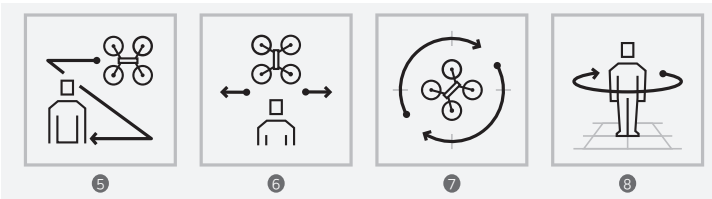
1. To start a Lezero Pilot mode, tap on the button indicated below. The button to enter Lezero Pilot mode becomes active only when the drone is hovering.



2. Choose one of the eight Lezero Pilot modes while referring to the descriptions below.

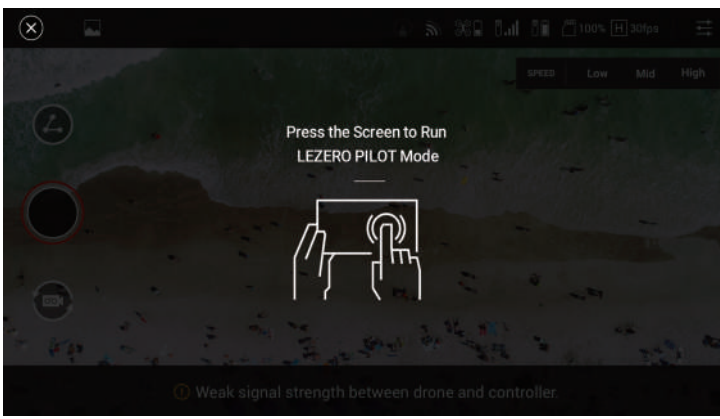


 © 2019. this is engineering Inc. All Rights Reserved.



1. Orbit: The drone flies in orbit.
2. Dolly: The drone flies steadily from right to left.
3. Dolly In: The drone starts far and moves near.
4. Dolly Out: The drone starts near and moves far.
5. Following: The drone flies while following the target.
6. Horizontal Tracking: The drone tracks the target while in horizontal flight.
7. Yaw Tracking: The drone performs a yaw rotation toward the target while flying in position.
8. Hero: The drone flies while tracking the target, and orbits once when the target stops.

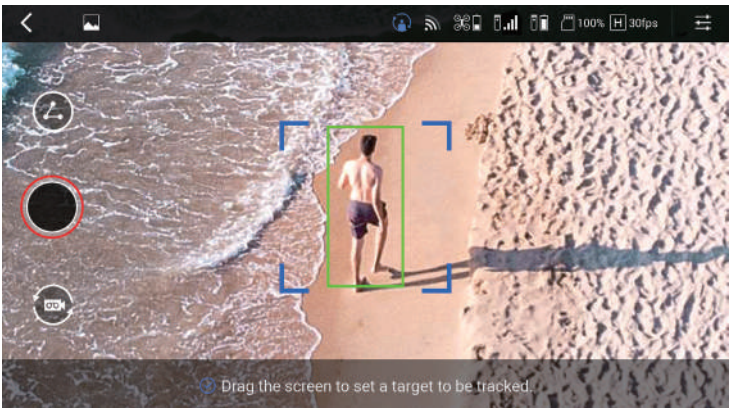
3. Long-press the screen to begin free flight in the selected mode. While flying in the selected mode, you can take photos or videos.



© 2019. this is engineering Inc. All Rights Reserved.

t i e;

4. A target must be designated in the Following, Horizontal Tracking, Yaw Tracking or Hero mode. Place the target in the center of the target box, and drag across the screen to designate the target. When the target is successfully designated, the border of the drag box changes from red to green and flight begins in the selected mode.



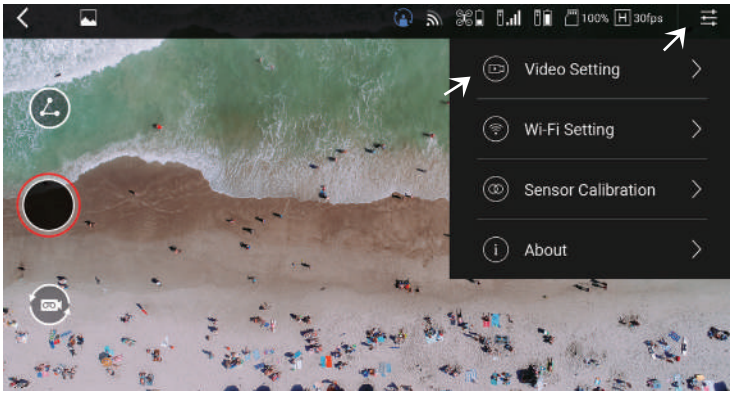
- The altitude must be at least 2 m (6.6 ft) in Following mode and Hero mode. In these modes, check the altitude of the drone before designating a target. The appropriate altitude for the selected mode is indicated by the icon turning active.
- When designating a target, the drone should be in a well-lit environment. The target must stand out from the background in terms of form and color to be successfully detected. The drone switches to hovering if the target is moving too fast or if tracking has failed due to obstacles. If the target falls inside the red drag box while maintaining a distance similar to the initial distance, tracking resumes after about two seconds.
- When in a Lezero Pilot mode, make sure that the flight path is free of obstacles such as people, animals, trees, and buildings. Since this product is not equipped with functions such as collision avoidance or speed control based on obstacle detection, you need to be extremely careful.

5. To stop the selected Lezero Pilot mode, long-press the screen, or hold the controller's jog button.

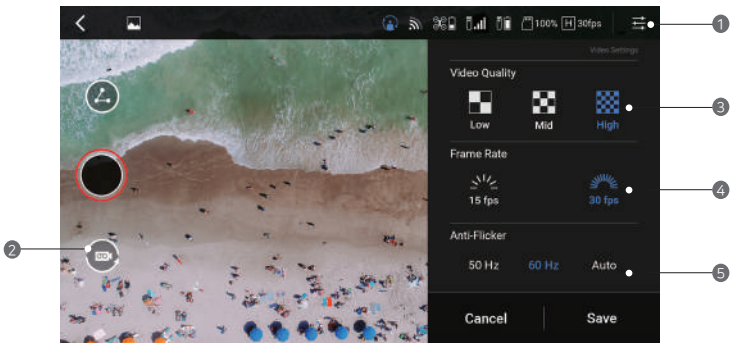
© 2019. this is engineering Inc. All Rights Reserved.

Recording Preference Settings

1. To change the photo/video quality settings, tap on the button indicated below.



2. Set the desired photo/video quality while referring to the following description.



1. Setting menu
2. Select photo/video mode
3. Select quality (low/mid/high)
4. Select frame rate (15 fps / 30 fps)
5. Select anti-flicker (50 Hz / 60 Hz / Auto)

© 2019. this is engineering Inc. All Rights Reserved.

```
t i e;
```

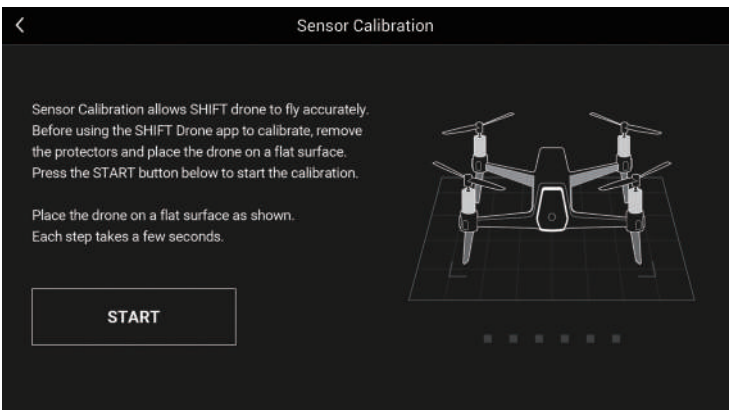
Sensor Calibration

The SHIFT drone achieves greater flight accuracy through sensor calibration.

1. Before using the SHIFT Drone application, place the drone on a flat surface with the protectors removed.

2. Turn on the drone, but do not run the motors.

3. To perform calibration, position the drone as illustrated in the SHIFT Drone application.



The application and drone must be connected with Wi-Fi during sensor calibration.

Each step of calibration may take some seconds (Max. time of 6 minutes with max. 1 minute per step).

Contact the customer center if flight performance does not improve even after sensor calibration.

© 2019. this is engineering Inc. All Rights Reserved.

t i e;

■ **FCC Information**

Product

Model name : SHIFT Drone1

Description : Shift RED Drone

FCC ID : 2AR74-SFD1D

Product

Model name : SHIFT Controller1

Description : Shift RED Controller

FCC ID : 2AR74-SFD1C

■ **FCC Statement**

1. This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
   (1) This device may not cause harmful interference.
   (2) This device must accept any interference received, including interference that may cause undesired operation.
2. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

■ **NOTE**

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

 © 2019. this is engineering Inc. All Rights Reserved.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.
- For Shift RED Drone

  This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.

  This equipment should be installed and operated with minimum distance 20cm between the radiator and your body.
- For Shift RED Controller

  This appliance and its antenna must not be co-located or operation in conjunction with any other antenna or transmitter.

RoHS Information

RoHS DECLARATION of Conformity

RoHS

In accordance with the following Directives

2011/65/EU

The restriction of the use of certain hazardous substances in electrical and electronic equipment

This declaration of conformity is issued under the sole responsibility of the manufacturer. The Object of the declaration does not contain any of the substances in excess of the maximum concentration values in EU Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011, unless the substances are in an application that is exempt under RoHS. “this is engineering Inc.” is compliant with the amendment to Annex 2, dated March 31, 2015 additionally restricts the use of DEHP, BBP, DBP and DIBP in Electrical and Electronic Equipment and becomes effective July 22, 2019.

© 2019. this is engineering Inc. All Rights Reserved.

t i e;

The following harmonized European standards and technical specifications have been applied:
IEC 62321 series

Manufacturer
Name : this is engineering Inc.
Address : 352, Daewangpanggyo-ro 815, Sujeong-gu, Seongnam-si, Gyeonggi, Korea
Telephone number : +82-31-5182-9056
Fax number : +82-31-5182-9057
e-mail : surport@thisiseng.com
web : www.thisiseng.com

■ Laser Safety Consideration

The SHIFT RED contains a laser emitter and corresponding drive circuitry. The laser output is designed to remain within Class 1 laser safety limits under all reasonably foreseeable conditions including single faults in compliance with IEC 60825-1 Safety Standards. The laser output will remain within Class 1 limits as long as this is engineering Inc. recommended device settings are used and the operating conditions specified are respected.

The laser output power must not be increased by any means and no optics should be used with the intention of focusing the laser beam.

Figure: Class 1 laser product label.

 © 2019. this is engineering Inc. All Rights Reserved.

■ KC Information

Product
Model name : SFD1D
Description : Shift RED Drone
KCC certification number : R-C-tie-SFD1D

Product
Model name : SFD1C
Description : Shift RED Controller
KCC certification number : R-C-tie-SFD1C

■ ENVIRONNEMENTAL PROTECTION NOTES

This product must not be disposed of with other waste. Instead, it is the user's responsibility to their waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local city office, your household waste disposal service or where you purchased the produce.

© 2019. this is engineering Inc. All Rights Reserved.

08

WARRANTY AND SERVICE INFORMATION

Warranty

this is engineering Inc. guarantees that the SHIFT product shall be free from defects in materials or manufacturing for the periods specified below. If the SHIFT product malfunctions under normal use during the warranty period, please visit the nearest service center or the SHIFT website (www.thisiseng.com) to file a warranty claim.

Product	Component	Part	Warranty Period
SHIFT RED	Drone	Main Board	12 months
		Motor	6 months
		Battery	First 6 months if used less than 100 times
		Propeller	No warranty
		Protector	No warranty
		Landing Gear	No warranty
	Controller	Ring	6 months
		Main Board	12 months
		Battery	First 6 months if used less than 100 times

The warranty policy of this is engineering Inc. may vary by the country or region of purchase. Details are available on the SHIFT website (www.thisiseng.com/support/warranty/).

 © 2019. this is engineering Inc. All Rights Reserved.

Multilingual Manual

The SHIFT RED User Manual is available in various languages to help global users learn how to use the product. Download the User Manual in your language from the SHIFT website, and read the instructions before use.

www.thisiseng.com/support/download/

한국어

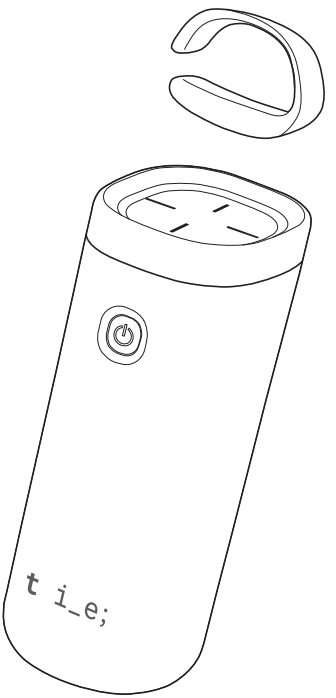
Español Latino

Deutsch

Français

日本語

© 2019. this is engineering Inc. All Rights Reserved.



www.thisiseng.com
this is engineering Inc.