

LILY(LILY-NG-16)

User Manual V1.0

2017.2

Contents

FCC Statement

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. 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.

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, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. 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 & your body.

- English:

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) This device may not cause interference, and (2) This device must accept any interference, including interference that may cause undesired operation of the device.

- French:

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

- (1) l'appareil ne doit pas produire de brouillage, et
- (2) l'utilisateur de l'appareil doit accepter tout brouilla

Legend

Symbols



Warning



Tips

Reading Suggestions

HIGHGREAT has provided the following manuals for LILY users:

In the Box

《Battery Safety Instructions Disclaimer》

《LILY Quick Start Guide 》

《LILY User Manual》

To learn how to use LILY, we suggest you read the provided manuals in this order: *In the Box*, *Battery Safety Instructions, Disclaimer* and then *LILY Quick Start Guide*. If you want to learn more, please read *LILY User Manual*.

Downloading the App

Before using this product, you need to download and install the LILY app. You can scan the following QR codes, or search for LILY in App Store or Google Play.



iOS



Android

LILY supports Android 4.3 and later versions, iOS 8.4 and later versions.

Product Profile

This section will introduce LILY's features and the names of LILY's structural components.

Introduction

LILY is a portable and easy-to-use drone for selfie. It consists of the aircraft itself and an accompanying app.

Through using the app, you can control LILY's flight, take photos and record videos. The app also allows you to control LILY by voice commands, earphones and other methods simply and easily.

Features Highlights

In order to give you a convenient and safe selfie experience, LILY has various great features:

App

The app is specifically developed for LILY and is really simple to use. It can be used as a remote controller for flight control and photo & video shooting.

Indoor Flight

LILY uses the optic flow and ultrasonic positioning system to support indoor flight. You can also enjoy it indoors, free of the no-fly zone restrictions

High Definition Photo & Video Shooting

LILY is equipped with a professional high definition camera that supports 4208x3120 photo shooting and 1920x1080 video shooting.

EIS (Electronic Image Stabilisation)

After EIS, your 4K video footages become 1080p high definition videos. The videos won't be blurry even if you're flying during recording.

Target Tracking

LILY can automatically follow and record video on the moving target you've chosen.

Orbit

Automatically fly and record video around a certain point with a certain radius

and at a certain altitude.

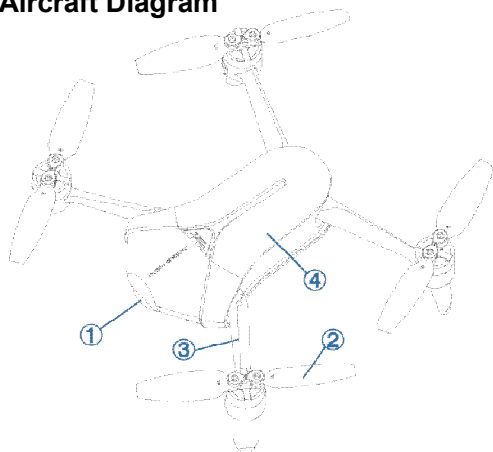
Return to Home

After outdoor flight, LILY can return to you by just one tap on screen.

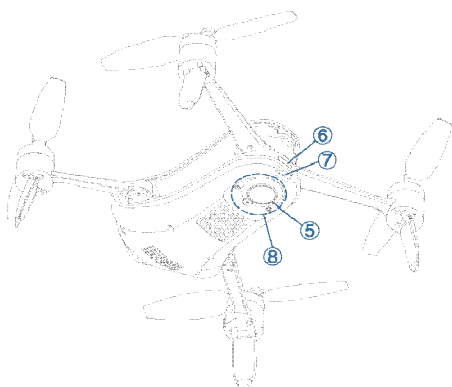
Sharing

Directly share your photos & Videos with your friends on SNS.

Aircraft Diagram



- ① Camera
- ② Propeller
- ③ Arm
- ④ Battery ware house



- ⑤ Reset Key
- ⑥ Power key, light indicator
- ⑦ Micro USB port
- ⑧ Optic Flow and Ultrasonic Positioning Module

Aircraft Profile

LILY mainly consists of the flight system, the positioning system, the communication system, the power supply system and the camera system. This section will explain the functions of each of the parts.

On/Off Switch and Power Indicator

The On/Off Switch has an inbuilt Power Indicator.

Hold the On/Off Switch for 3 seconds. Wait until the Power Indicator starts flashing blue, then remove your finger and LILY will switch on. After a few seconds, LILY will make a noise alerting you that the ESC has turned on.

After connecting to the app, the Power Indicator will turn solid blue.

Hold the On/Off Switch for 3 seconds. Wait until the blue light of the Power Indicator goes out, then remove your finger and LILY will switch off.

INDICATOR	COLOR	MEANING
Normal Status		
	Slow Green Flashing Green Double Flash	Normal Status Optic Flow and Ultrasonic Positioning
Assistant Prompts		
	Solid Light Blue	Horizontal Compass Calibration work
	Light Blue Double Flash	Horizontal Compass Calibration not work
	Solid Blue	Vertical Compass Calibration work
	Blue Double Flash	Vertical Compass Calibration not work
	Solid Blue for 3s	Hold And Power Off
Warning And Abnormal Status		
	Red Double Flash	Critical Battery Warning
	Slow Red Flashing	Low Battery Warning
	Solid Red	No-Fly Zone Warning
	Light off	GPS Failure
	Red-Blue Alternate Flashing	Other Failure

GPS Positioning

LILY uses a GPS&GLONASS dual-mode satellite positioning system. The satellite positioning system is GPS based, with GLONASS acting as a supplementary system.

During outdoor flight, LILY uses GPS positioning when the number of searched-out GPS satellites ≥ 8 .

Optic Flow and Ultrasonic Positioning

LILY will use the optic flow and ultrasonic positioning during indoor flight. If the GPS signal is weak (the number of searched-out GPS satellites < 8) during outdoor flight, the aircraft will automatically use optic flow and ultrasonic

positioning for supplement.

The optic flow and ultrasonic positioning system combines dynamic image analysis to horizontally position the aircraft during flight and ultrasonic distance measurement to determine the distance from the ground. It positions the aircraft during indoor flight and assists the GPS positioning system during outdoor flight.

The optic flow and ultrasonic positioning module is located on the base of the aircraft. It consists of an optic flow camera and an ultrasonic sensor.

Usage Conditions and Restrictions

The optic flow and ultrasonic positioning system is used for indoor flight. It is also used for outdoor flight if the GPS signal is weak. The operating height range for this positioning system is 0.5-3m.

When using this positioning system, after the aircraft has taken off and ascended to 0.5m, it will determine if the requirements for using this system have been met. If they have not, it will initiate landing. If the requirements are not met for this system during flight, the aircraft will also initiate landing.

Requirements for the optic flow and ultrasonic positioning system: When using this system, the area underneath the aircraft needs to have a clear textured surface that is not too sparse or too dense. Users can put a textured carpet or cloth on the ground, table or any large, horizontal surface to provide the required textured surface.



The optic flow and ultrasonic positioning system may not work under these circumstances, please use with caution:

- ◎Above highly reflective surfaces;
 - ◎Above water or transparent objects;
 - ◎Above people or moving objects;
 - ◎In areas with rapidly changing/flashing lights;
 - ◎Above very bright or very dark surfaces;
 - ◎Above objects that easily absorb ultrasonic waves;
 - ◎Above surfaces without clear textures or with too sparse or too dense textures;
 - ◎During fast flight at low levels (0.5m or less), the optic flow and ultrasonic positioning system may not work.
-

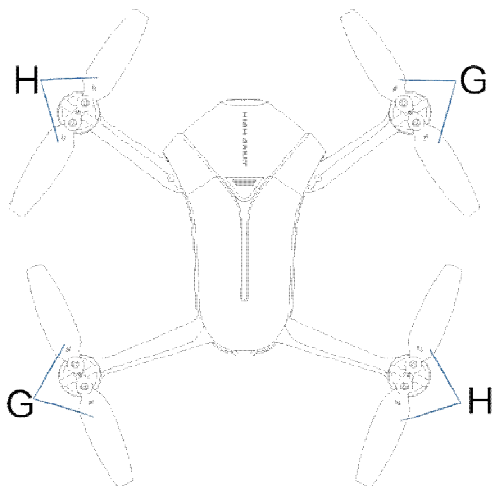


-
- ◎Ensure that the lens of the optic flow camera is clear.
 - ◎Because the ultrasonic positioning system may be disturbed by ultrasonic waves emitted by other ultrasonic equipment, please do not use LILY near other ultrasonic equipment, including other drones.
 - ◎The Ultrasonic Sensor will emit ultrasonic waves that are inaudible to humans but may make some animals nervous. Please do not use LILY close to animals.
-

Propeller

LILY has 4 sets of 3-inch foldable Propellers. The propeller blades are already mounted; users only need to expand the Arms before flight. When you're done flying, fold the Arms and the blades into the base of the aircraft to prevent damaging them.

The blades have either “H” or “G” on the top to indicate in which direction they spin, as shown in the following figure:

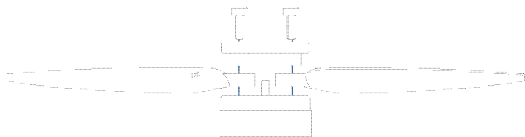


Replacing the Propeller Blades

Blades must be replaced with ones that spin in the same direction. Blades with an “H” on top must be replaced with ones that also have an “H”; Blades with a “G” on top must be replaced with ones that also have a “G”, as in the above figure.

How to replace the propeller blades:

Use a wrench or a screwdriver to loosen the screws, remove the old ones and mount the new ones onto the base, as shown in the following figure:



Please ensure that the propeller is tightly screwed in, to prevent against the screws coming loose and the propellers blades coming off during flight. It will need to be retightened after every 10 hours of flight.

Battery

The battery is designed specifically for use with LILY. It has a rated capacity of 1450mAh and a nominal voltage of 11.4V.

The battery's major characteristics are as follows:

- ◎Balance Charging Protection: automatic balance of the battery's internal cell voltage to preserve the battery;
- ◎Overcharge Protection: Overcharging can seriously damage the battery. The battery will stop charging once it's charged to 13.05V;
- ◎Over-discharge Protection: Over-discharging can seriously damage the battery. The battery will cease output once it's discharged to 4.6V;
- ◎Short-circuit Protection: The battery will cease output to protect itself once short circuit occurs.

Before using LILY, ensure that the battery is fully charged. For more details about charging the battery, please refer to “Charging the Battery” on page 10.

Using the Battery

Please plug the battery into the battery compartment before using LILY.



⊙ Please don't remove the batteries while the aircraft is turned on.

⊙ Battery overheating may affect the performance of LILY. Do not use it in hot environments (over 40°C). If the app notifies you of battery overheating, please immediately initiate landing, and suspend use before it's fully cooled down.

⊙ The battery may be very hot after use. Please do not touch it with bare hands immediately after use, for fear of burns.

⊙ If the battery leaks, emits an odor, generates heat by itself, changes shape (swells, etc.), changes color or shows any other abnormalities during use, charging or storage, please remove the battery immediately and cease use.

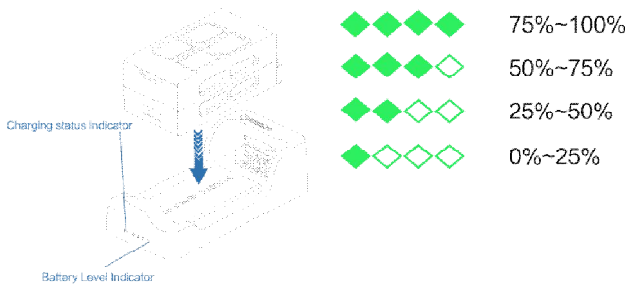
⊙ Do not use the battery in cold environments (under 5°C), or it may cause irreversible damage to it. When the temperature is low, the battery's usage time may drop. Please warm it up to 5°C or higher before plugging it into the aircraft, 20°C or higher is better.

Charging the Battery

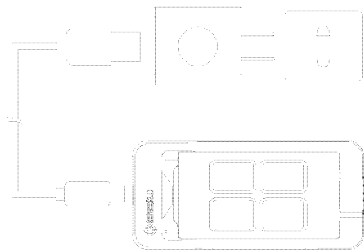
The battery comes with a charger, an adapter, and a USB cable.



Put the battery into the battery adapter, The indicator will show the current battery level. The indicator will go out automatically after 5 seconds. The indicator's status and the corresponding battery level in percentage are as follows:



Plug the battery down into the charger. Use the USB cable to connect the charger to the adapter. Plug the adapter into a power socket to begin charging.



The charger uses quick charge technology. Using it together with the accompanying adapter allows for quick charge. The Charging Status Indicator will be solid orange during quick charge. If you don't use the provided adapter, it may only achieve slow charge instead of quick charge. The Charging Status Indicator will be solid red during slow charge. If the Charging Status Indicator turns solid green, this means the battery is fully charged. Please turn off the power source and remove the battery from the charger.

The Charging Status Indicator's status and the corresponding meanings are as follows:

Indicator	Color	Meaning
	No Display	Not Charging
	Small Light Show Battery For 5 Minutes	Indicat Current Battery
	Solid Green(Both)	Charging Completed
	Fast Green Flashing	Fast Charging
	Slow Orange Flashing	Slow Charging
	Fast Red Flashing	Failure

charging devices to charge the battery. Any issues that occur due to use of other charging equipment shall be the responsibility of the user.

Ⓢ Do not connect power sources or power banks to the Micro-USB port on the base of the aircraft. This may not only be unable to charge the battery effectively, but also damage the aircraft.



Ⓢ Users can use a power bank to charge the battery. Plug the battery down into the charger, and use the USB cable to connect the charger to the power bank to begin charging.

Ⓢ The adapter can only be used below 2000m above sea level.

Camera

LILY is equipped with a high definition camera that can take 4208x3120 photos and shoot 1920x1080 videos.

Micro-USB Port

While LILY is turned on, use the provided USB cable and adapter to connect LILY to your computer. You can then copy your photos and videos onto your computer.



Ⓢ LILY must be turned on to be able to connect to your computer.

Ⓢ LILY's Micro-USB port can only be connected to data communication ports, do not connect it to power sources or power banks.

Reset Button

Hold down the Reset Button on the base of the aircraft for 3 seconds until the Aircraft Status indicator finishes blue, so as to reset the Wi-Fi, including:
The default SSID and password:

SSID: HG-XXXXXXX. Labelled beside the battery compartment on the base of the aircraft, the XXXXXX are THE LAST 6 alphanumeric digits of the Wi-Fi's MAC address

Password: Hlgreat02

App

This section will cover the main parts of the LILY app and the settings.

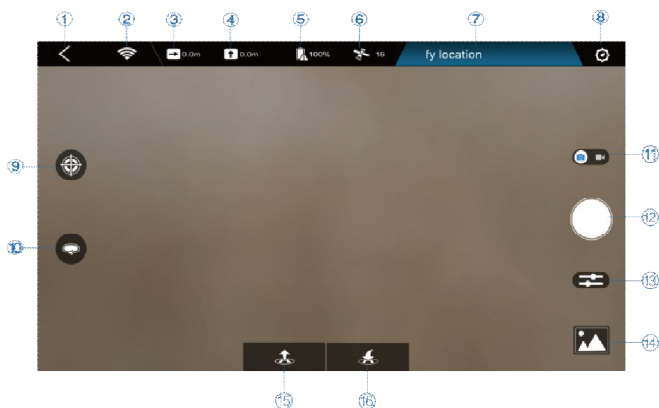
App Profile

The LILY app is specifically developed to be used with LILY. Users can use LILY as a remote controller for flight control and photo & video shooting. You can also directly share your photos and videos to social networks.

Tap the little LILY icon at the bottom to enter the main interface.

App Main Interface

All the necessary status indicators and main function buttons are on the main interface. The layout is as follows:



- | | | |
|---------------------------|----------------------------|----------------------------|
| 1. Back to main interface | 2. Wi-Fi Connection Status | 3. Current Flight Distance |
| 4. Current Flight Height | 5. Aircraft Battery | 6. Positioning Status |
| 7. Status Bar | 8. APP Settings | 9. Target Tracking |
| 10. Orbit | 11. Photo/Video Switch | 12. Shutter |
| 13. Camera Setting | 14. Media Library | 15. Takeoff/Landing/Stop |
| 16. Return to Home | | |

Here's a brief description of these status indicators and function buttons. For more details on flight control and camera operation, please refer to "Flight/Shooting" on page 23.

1.Back to main interface



Return back to main interface after clicking it, you can enter into personal interface in main interface.

2.Wi-Fi Connection Status



Wi-Fi connected



Wi-Fi disconnected



⊙ If the Wi-Fi connection is lost during flight, LILY will return and land if the GPS positioning is being used, or initiate landing
⊙ if the optic flow and ultrasonic positioning is being used.

3.Current Flight Distance



The current flight distance will be displayed after the icon.

4.Current Flight Height



The current flight height will be displayed after the icon

5.Aircraft Battery



Full battery(The battery level will be displayed in percentage after the icon)



Low battery(The battery level will be displayed in percentage after the icon)

6.Positioning Status



GPS positioning status normal(The number of searched-out satellites will be displayed after the icon. The number ≥ 8 means normal)



GPS positioning status normal(The number of earched-out satellites will be displayed after the icon. The number < 8 means abnormal)



Optic flow and ultrasonic positioning status normal



Optic flow and ultrasonic positioning status abnormal



If the positioning status gets abnormal during flight, LILY will start to hover until the positioning status returns to normal or user lands it.

7. Status Bar

The status bar will display the current status information. Different levels of status will be displayed in different colors; red-abnormal status, yellow-status warning, blue-normal status. Abnormal status will be displayed by priority if there're several pieces of status information. Tap to see all the status information.

8. APP Settings



Tap to enter the app setting and see "About".

Some of the settings will need to access the Internet by using mobile data or switching to router Wi-Fi.

9. Target Tracking



Aircraft automatically follow the chosen target, and record video.

10. Orbit



Aircraft automatically fly around the chosen target, and record video.

11. Photo/Video Switch



Toggle to switch between the main interface and the conventional video recording interface.

12. Shutter



Tap to take photo(s)

13. Camera Setting



Tap to enter the camera settings:

Modes



Single shot: Tap to enter the single shot mode



Burst shot: Tap to enter the burst shot mode and select how many photos to take.

ParametersAWB: Tap to set the white balance

EV: Tap to select the exposure value

14. Media Library



Tap to enter your media library

15. Takeoff/Landing



Tap to initiate takeoff, or activate palm takeoff.



Tap to initiate landing, or enable palm landing.



Tap to stop during takeoff/landing.

16. Return to Home



Aircraft automatically return to the takeoff point and land.

App Settings

Photograph Vibration

It's turned off by default.

When it is activated, your mobile device will vibrate after taking photos.

App Mute

It's turned off by default.

When it is activated, your mobile device will be mute when the app is used.

Control Method

It's set to "Motion Sensing" by default.

LILY comes with 4 control methods that users can choose between: "Motion Sensing", "Swipe Screen", "Free Sticks" and "Safe Sticks".

The motion sensing method uses your mobile device's gravity sensor. It allows you to control LILY's flight by tilting your mobile device. For specifics on operation, please refer to "Motion Sensing Method" on page 27.

Looking through the camera's perspective, the swipe screen method allows you to control LILY's flight by swiping the screen in the viewfinder frame. For specifics on operation, please refer to "Swipe Screen Method" on page 29.

Just like the remote controller, the free sticks method allows you to control LILY's flight by holding the virtual sticks and toggling up/down/left/right. For specifics on operation, please refer to "Free Sticks Method" on page 30. You

can choose between “American Operator” (left-hand throttle) and “Japanese Operator” (right-hand throttle).

Just like the remote controller too, the safe sticks method allows you to control LILY’s flight by tapping on the arrows on the four directions in the virtual sticks. For specifics on operation, please refer to “SafeSticks Method” on page 32. Also, you can choose between “American Operator” (left-hand throttle) and “Japanese Operator” (right-hand throttle).

Language

Various languages for you to choose from.

Compass Calibration

LILY can assist with compass calibration. Please refer to “Calibrating the Compass” on page 24.

Aircraft FC Update

Upgrade the aircraft flight control.

Aircraft OS Update

Upgrade the aircraft operating system.

Quick Guide

Download *LILY Quick Start Guide*, which may help you to learn to use.

Reset Guide Pages

Once again display the function guide pages, which may help you to learn the function of each button.

Available

Check the available storage space on LILY. Please schedule your shooting progress according to the available storage space and timely clear LILY’s memory.

About

App Upgrade, Fault Report, Feedback, etc.

Fault Report will help you deal with malfunction. Input your contact method, the SN

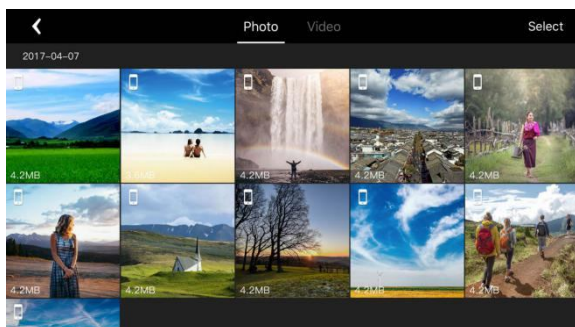
Media Library

When opening the media library, it will go to the photo gallery by default. Tap the “Video” button at the top of the screen to switch to the video gallery.

Photos

When you are connected to LILY’s Wi-Fi, after you take photos the thumbnails will automatically be sent to your mobile device. The photo gallery displays thumbnails in date order. Swipe up to load more thumbnails and swipe down to load new thumbnails.

If a photo is already downloaded to your mobile device, a mobile phone icon will be added to the top right hand corner of the thumbnail.



Selecting Photos

To select a photo, tap the tick in the bottom right hand corner of the photo. To select all the photos taken in one day, tap the “Select All” next to the date.

Deleting Photos

After selecting photos, tap the “Delete” button in the upper right hand corner of the screen to remove them from your media library. When you are connected to LILY’s Wi-Fi, it will delete the files from both LILY and your mobile device. When the Wi-Fi is not connected, it will not delete the files from LILY.

The browsing page also has a “Delete” button, so you can delete photos directly.



When an Android device is connected to LILY's Wi-Fi, it will ask you to choose to delete from the mobile device or from LILY.

Downloading & Browsing

After selecting photos, tap the "Download" button in the upper right hand corner of the screen to download them to your mobile device. You can also download and browse a photo by tapping on the thumbnail. You can directly download and browse the previous/next photo by swiping left/right on the photo browsing page. Tapping on a photo will make it full screen.



If you have an iOS device, allow access to your gallery in system settings, otherwise you will only be able to tap the "Download" button in the top right hand corner to download photos to your gallery. Other downloading methods will download photos into a new folder and won't be able to download photos into your gallery.

Photo Sharing

There is a "Share" button on the browsing page, tapping it will directly share your photos to your Facebook, WeChat and Weibo.



Sharing your photos will need to access the Internet by using mobile data or switching to router Wi-Fi.

Videos

Browsing through videos is basically the same as browsing through photos, but to download videos to your mobile device you need to tap the "Download" button on the top right hand corner after selecting them. There will be a progress bar during the download. You can download multiple videos at the same time. You can also background download.

There's a "Share" button on both the video gallery page and the playing page. You can share your videos directly with your friends on WeChat, Weibo and Facebook.



iOS mobile device users, please allow access to your gallery in

system settings, otherwise you will only be able to download videos into a new folder and not into your gallery.

Flying/Shooting

Before flying please read *Disclaimer* and *Battery Safety Instructions* to understand the safety precautions. This section will cover what you need to know and how you need to prepare before flying LILY, as well as details on flight and photo & video shooting operations.

Flight Environment Requirements



We suggest you conduct the first flight in an open outdoor area, and you can turn off the novice mode to conduct indoor flight after getting familiar with the flight control.

Outdoors

1. Don't fly LILY in bad weather conditions, such as in high wind, rain, snow.
2. When flying, always keep LILY in your line of sight. Ensure that you avoid obstacles, high voltage wires, trees and shrubbery, groups of people, bodies of water.
3. Please fly in open area, do not fly near buildings and keep a good distance from tall buildings, for fear that the GPS signal would be blocked.
4. Do not fly near complex electromagnetic environments, such as near signal tower, base station, for fear that the Wi-Fi signal would be interfered.
5. Do not fly near areas with abnormal magnetic fields, for fear that the compass would be interfered. LILY cannot fly in the north and south poles.
6. In areas 3000m or higher above sea level, the flight performance may be affected due to environmental conditions. Please use with caution.
7. If the GPS signal is weak, LILY will use the optic flow and ultrasonic positioning. Please fulfil the requirements for the optic flow and ultrasonic positioning, see "Indoors".

Indoors

1. During indoor flight, LILY uses the optic flow and ultrasonic positioning. The flight area needs to be above a clear textured surface that is not too sparse or too dense. If you can't find an appropriate textured surface, you can put a textured carpet or cloth on the ground, table or any large, horizontal surface to provide the required texture.
2. Indoor flight needs to be conducted in a well-lit area (luminosity > 15lux) such as an area illuminated

by an ordinary fluorescent lamp.

3. During fast flight at low levels (0.5m or less), the optic flow and ultrasonic positioning system may not work.

4. For more requirements for indoor flight, please refer to "Optic Flow and Ultrasonic Positioning" on page 6.

Flight Restrictions

◎ Maximum ascent height under the GPS positioning: 50m.

◎ Maximum ascent height under the optic flow and ultrasonic positioning: 3m.

◎ Maximum control distance: 120m (in open air free of interference).

No-Fly Zone

Please do not fly in areas where flying is illegal or restricted.

According to regulations, the surrounding areas of airports are strictly no fly zones.

In no-fly zones, LILY will not be able to fly while using the GPS positioning.

The Aircraft Status Indicator will be slow yellow flashing. The app will prompt the no-fly zone warning

Preflight Checklist

Please check the following items before flying. You can take off only if all of the items are OK:

1. Check that LILY and your mobile device have enough power;
2. Check that the Arms are fully expanded;
3. Check that the propeller blades and other parts of the aircraft aren't loose or damaged;
4. Check that the lenses on both the optic flow camera and the front facing camera are clean.

Calibrating the Compass

LILY relies on the compass to determine its heading.

The compass is easily interfered by other magnetic materials and electronic devices. This can lead to data inaccuracies, unsafe flight, even crash. And the on-site magnetic field condition also affects the accuracy of the compass. So, regular calibrations before flight help the compass to work at its best.



You're required to calibrate your compass in the following cases!

Before the first flight, and before the first outdoor flight;

◎ The location you are flying is quite far from the last location you flew;

◎ The Aircraft Status Indicator is fast purple flashing, indicating compass failure;

◎ The Aircraft drifts severely, for example: cannot fly straight.

◎ Expand the arms before calibrating, so as to avoid interference.

◎ Do not calibrate your compass near large metal objects or in places with strong magnetic field interferences.

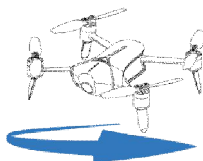
◎ Do not place LILY close to other magnetic materials and electronic devices (such as magnet, mobile phone, tablet PC and stereo equipment).

The process of compass calibration is as follows:

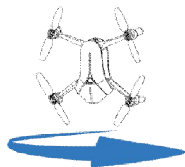
1. Expand the Arms. Turn on the aircraft. Connect to the aircraft's Wi-Fi.

Enter LILY's "Settings" - "Compass Calibration", and tap on "Start".

2. Keep the aircraft horizontal (the Aircraft Status Indicator will turn solid green if it's set to the required angle). Slowly rotate it 2-3 times. During this rotation, make sure the indicator stays solid green, or you will need to adjust the aircraft's angle once again. The app will automatically jump to the next step once it's done.



3. Keep the aircraft head vertical downwards (the Aircraft Status Indicator will turn solid white if it's set to the required angle). Slowly rotate it 2-3 times. During this rotation, make sure the indicator stays solid white, or you will need to adjust the aircraft's angle once again.



4. The app will notify you once calibration is completed. At this point the Aircraft Status Indicator will show the aircraft's actual status.



- ◎ After the horizontal calibration, immediately begin the vertical calibration, don't stop midway.
- ◎ The calibration will take effective immediately (no need to restart the aircraft).

Flight Protection

In order to ensure safe use and to avoid damage, HIGHGREAT has fitted LILY with multiple flight protection measures:



- ◎ If the battery level gets too low or a major failure occurs, LILY will immediately initiate landing.
- ◎ If both the GPS and the optic flow and ultrasonic positioning systems are not working, LILY will start to hover until the positioning status returns to normal or user lands it. But if the battery level gets too low while hovering, LILY will initiate landing.
- ◎ If the Wi-Fi connection is lost or the app drops out, LILY will return and land if the GPS positioning is being used, or initiate landing. ◎ if the optic flow and ultrasonic positioning is being used.
- ◎ When the app is minimized or you get a phone call, LILY will start to hover until you are back to the app. But if the battery level gets too low while hovering, LILY will initiate landing.
- ◎ When LILY tilts beyond 45°, it will automatically stop the motor as a safety precaution (excluding during somersault).
- ◎ In case of emergency, you can use the emergency shutdown function to immediately stop the motor and fall down. Refer to Page 42 "Emergency Shutdown".





Connecting the Aircraft to LILY

Connect your mobile device to the aircraft's Wi-Fi. The default SSID is like LILY-XXXXXX. Check the label beside the battery compartment on the base of the aircraft to acquire your SSID. The default password is HIGHGREAT. And you can change them in "App Settings".

environment

Open the main interface of LILY. First, toggle the "Indoor/Outdoor Switch" to

choose your current ent:indicates indoor, optic flow positioning will be used.
indicates outdoor, GPS positioning will be used.

At last, check if it shows that it's connected to the Wi-Fi  the aircraft's battery level is high  and that the optic flow positioning status is normal  the GPS positioning status is normal . If so, it's ready  to fly, and you can take off.



Please manually adjust the Camera's pitch angle depending on your need before flight. Refer to "Camera" on page 12.



- ⊙ When flying, keep LILY in your line of sight. Please ensure you keep LILY a good distance away from people.
- ⊙ When you touch LILY with your hand or other objects, like when using the palm takeoff/landing function, take care not to touch the propeller.
- ⊙ Take extra care not to run into people or objects during indoor flight.

Takeoff/Landing

Takeoff

Ground Takeoff : Tap it, LILY will directly take off and ascend to 1.5 meters (1 m for indoors).

Palm Takeoff: Please first place LILY on your palm/tray, and then tap the button, the propellers will start to rotate. Wait until they fully rotate, remove your palm/tray or slightly toss it.

Landing

Ground Landing: Tap it, it will start to descend and land onto the ground.

Palm Landing: Tap it, it will start to descend. During it descends to 2.2~1.1 meters above the ground (a progress bar will pop up on the screen), you can conduct palm landing. Stretch your palm/tray right under LILY, then it will land onto your palm/tray.

Flight Control



- ⊙ During your first flight, please begin with operating on a

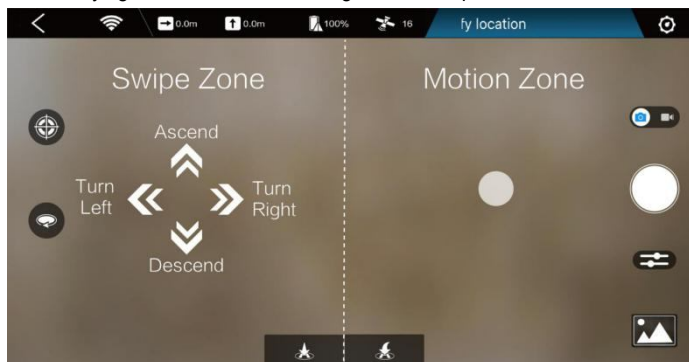
smallscale. Pay attention to the flight direction and adjust the flight speed, slowly working towards moderate-scale operation.

© Please don't operate on too large scale, so as to avoid accidental collision.

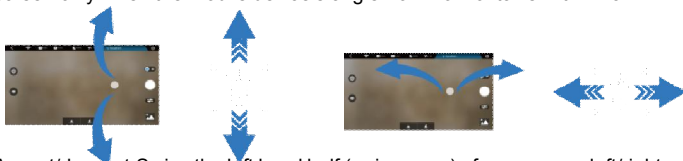
Motion Sensing Method

Using your mobile device's gravity sensor system, you can control flight by tilting your mobile device.

The left hand half of the screen is the swipe zone which controls ascent/descent and direction; the right hand half is the motion zone which controls flying forward/backward/left/right, as in the picture below:



Fly forward/backward/left/right: Your mobile device tilted within 45° from horizontal, hold down on any part of the right hand half (motion zone) of your screen, and tilt your mobile device forward/backward/left/right. For fear of misoperation, the motion sensing can be activated by holding down on the screen only when the mobile device's angle from horizontal is within 45° .



Ascent/descent: Swipe the left hand half (swipe zone) of your screen left/right. Swipe and hold to continue the movement.

Swipe the left hand half (swipe zone) of your screen up/down. Swipe and



hold to continue the movement. Turn left/right:

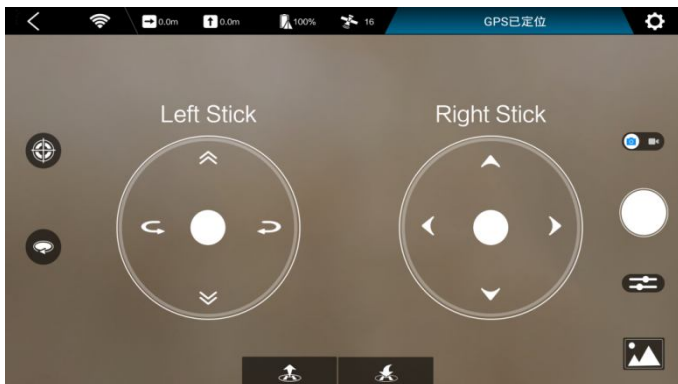


© App is set to “Selfie” by default. You can switch it to “Find a View” in “App Settings” - “Camera Orientation”. Please refer to “Camera Orientation” on page 18 for its meaning and applicable usage.

© The default control method is set to “Motion Sensing”. If it’s already switched to other methods, you can switch it back to “Motion Sensing” in “App Settings” - “Control Method”.

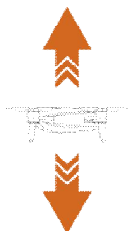
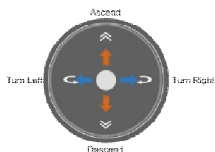
Free Sticks Method

Just like the remote controller, the free sticks method allows you to control LILY’s flight by holding the virtual sticks and toggling up/down/left/right. Take the American Operator mode for example: The left stick controls ascent/descent and direction (left-hand throttle); the right stick controls flying forward/backward/left/right, as in the picture below:

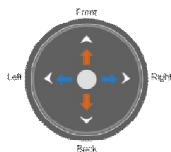


Ascent/descent: Hold down on the left stick (the dot at the center of the left circle) and toggle up and down. Toggle and hold to continue the movement.

Turn left/right: Hold down on the left stick (the dot at the center of the left circle) and toggle left and right. Toggle and hold to continue the movement.



Fly forward/backward/left/right: Hold down on the right stick (the dot at the center of the right circle) and toggle up/down/left/right. Toggle and hold to continue the movement.





◎ Actually, you don't have to stick to the position of the sticks drawn on the screen. Hold down on any part of the left side of the screen, and the left stick will follow to the point where you hold down; so it is for the right stick.

◎ The default control method is set to "Motion Sensing". You can switch it to "Free sticks" in "App Settings" - "Control Method". After choosing "Free sticks", you can choose between "American Operator" (left-hand throttle) and "Japanese Operator"⁵ (right-hand throttle).

◎ App is set to "Selfie" by default. You can switch it to "Find a View"⁵ in "App Settings" - "Camera Orientation". Please refer to "Camera Orientation" on page 18 for its meaning and applicable usage.

Safe Sticks Method

Just like the remote controller too, the safe sticks method allows you to control LILY's flight by tapping on the arrows on the four directions in the virtual sticks.

The operations of the safe sticks method are similar to the free sticks method. However, it uses tapping on the arrows on the four directions instead of toggling. For the details, please refer to "Free Sticks Method" on page 30.




◎ Different from the free sticks, the positions of safe sticks are fixed. The default control method is set to "Motion Sensing". You can switch it to "Safe sticks" in "App Settings" - "Control Method".

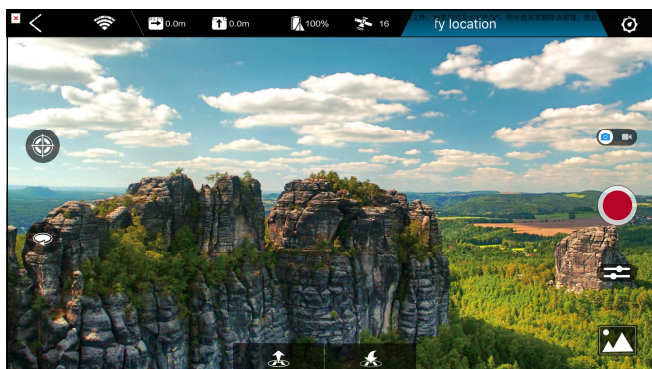
◎ After choosing "Safe sticks", you can choose between "American Operator" (left-hand throttle) and "Japanese Operator" (right-hand throttle).

◎ App is set to "Selfie" by default. You can switch it to "Find a View" in "App Settings" - "Camera Orientation". Please refer to "Camera Orientation" on page 18 for its meaning and applicable usage.

Taking Photos/Video Recording

Taking Photos

Single shot: In the single shot mode, every time you tap the  button, it will take one photo.

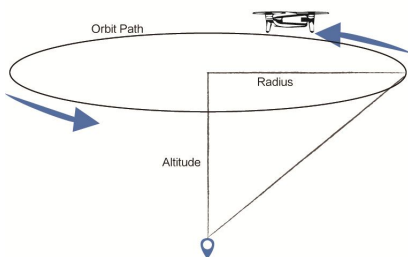


During the conventional video recording, you can use the motion sensing method, the swipe screen method, the free sticks method or the safe sticks method to control the flight.

Orbit (Only under Outdoor GPS Positioning)

Orbit enables the aircraft to automatically fly and record video around a certain point (the origin) with a certain radius and at a certain altitude.

When using it, first, you set the radius and the altitude to determine the orbit. Then, the aircraft flies backwards and upwards from the origin to the orbit. Finally, you control it to fly along the orbit counterclockwise or clockwise. Shown as follows (taking counterclockwise for example):



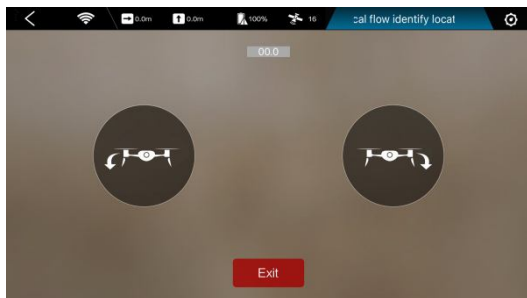
How to use it:

1. Fly LILY to any position (the origin). Then tap the More Features "Orbit" in the popup features list corner of the main interface, and select.
2. In the settings interface, drag the drone icon to the blue area to set the altitude and the radius of the orbit. The horizontal axis shows the radius, and the vertical axis shows the altitude. Please make sure that there is no obstacle near the orbit.



The aircraft will fly to the position where you drag it to. The radius and the altitude will be displayed on the screen as follows. After you've set the radius and the altitude, tap the "Start" button to go to the control interface.

3. In the control interface, the two round buttons respectively represent counterclockwise orbiting and clockwise orbiting, as shown below. Hold the left button, and the aircraft will fly and record video around the origin counterclockwise with the set radius and at the set altitude; Hold the right button, and the aircraft will fly and record video around the origin clockwise. Releasing your finger off the button will stop recording. The duration will be displayed at the top of the interface.



◎ The short video feature can be used only under outdoor GPS positioning.

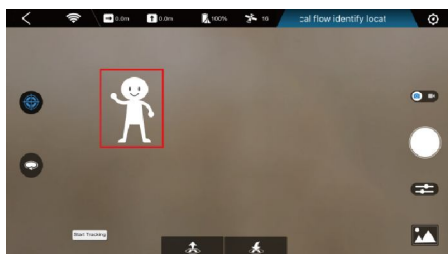
◎ The Camera's pitch angle must be adjusted to 22.5° first. It can be manually adjusted before flight, refer to "Camera" on page 12.

◎ Please be careful not to collide with other objects during orbiting. Release your finger off the button to stop if necessary.

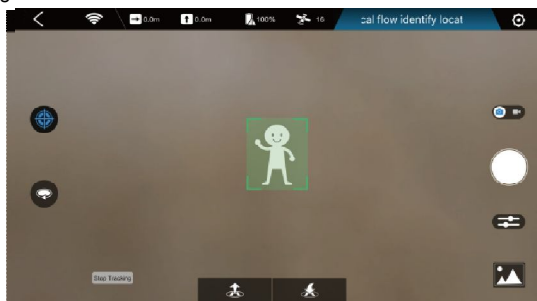
Target Tracking (Only under Outdoor GPS Positioning)

Target tracking enables the aircraft to automatically follow and record video on the moving target you've chosen.

1. Fly LILY to over 5 meters above the ground. Then tap the bottom left hand corner of the main interface, and select list.
2. Draw a frame on the screen to select the target to follow. A red frame will show up. Cover the target with the red frame.



3. Tap the “Start Tracking” button in the bottom left hand corner of the screen. The red frame will turn green, indicating the target tracking is started. When the target moves, LILY will follow it. Tap the “Start EIS” button to start to record during target tracking. Tapping the “Stop EIS” button will stop recording.



4. After you’ve finished the target tracking, tapping the “Stop Tracking” button will quit it.



- ◎ The target tracking feature can be used only under outdoor GPS positioning.
- ◎ The Camera’s pitch angle must be adjusted to - 45° first. It can be manually adjusted before flight, refer to “Camera” on page 12.
- ◎ If the illumination changes drastically, or the target moves too fast, makes a sudden turn or overlaps with a similar object, LILY may lose the target.
- ◎ Please be careful not to collide with other objects during target

tracking. Tap the “Stop Tracking” button if necessary.

Return to Home (Only under Outdoor GPS Positioning)

Return to Home enables the aircraft to automatically return to the takeoff point and land.

How to use it: Tap the “More Features”⁵⁵ button on the bottom left hand corner of the main interface, and select □ “Return to Home” in the popup features list.



ⓘ If there're trees, utility poles, highline or other obstacles on the way of the return, LILY may collide with it. Please confirm that there're no obstacles between the current position of LILY and the takeoff point.

ⓘ If it is about to collide, please tap the “stop” button, or immediately control it to avoid the obstacle manually.



ⓘ The return to home feature can be used only under outdoor GPS positioning.

ⓘ You can tap the “Stop” button to stop for other operations on the way of the return.

Warranty Card

Purchase Information

Serial No.: Purchase Date:

Dealer: Telephone:

Address:

User Name: Telephone:

Address:

Maintenance Records

Repair Date	Fault and Repair Conditions

In need of maintenance service, please contact your dealer, or contact HIGHGREAT customer service in the following ways:

E-mail: ass@hg-fly.com

TEL: 400-888-9686

Wechat: HighGreat-service