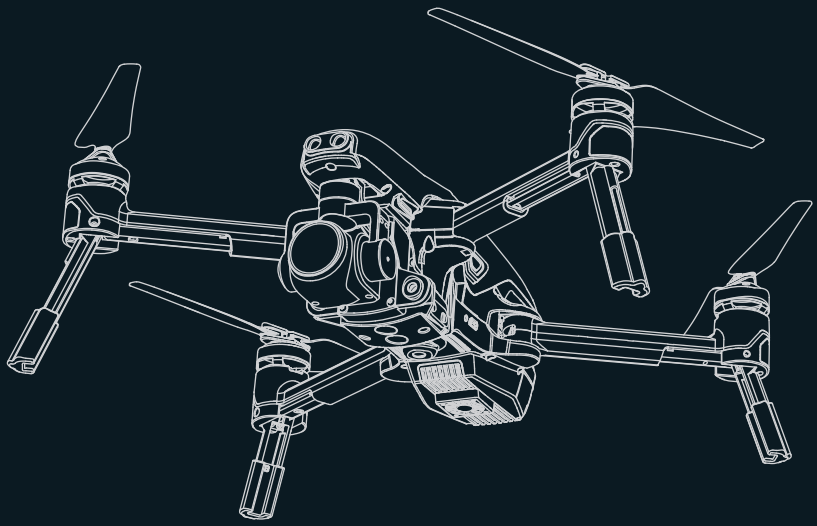
VITUS

QUICK START GUIDE V1.3

Nov. 24nd, 2017



www.walkera.com

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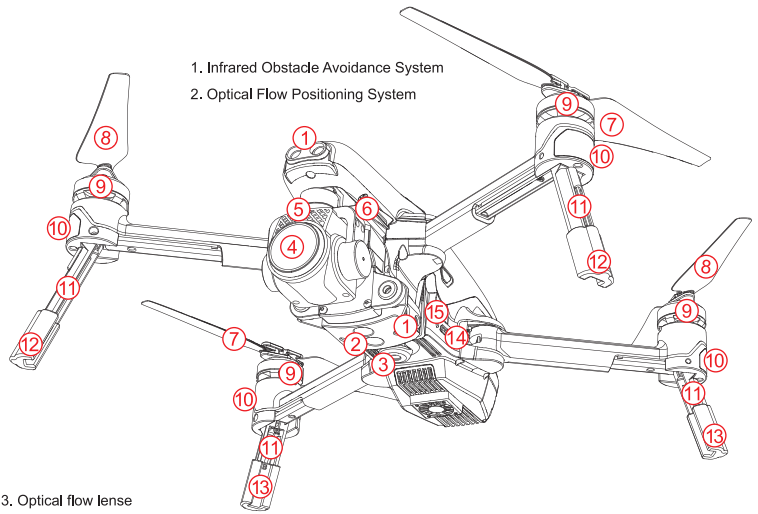
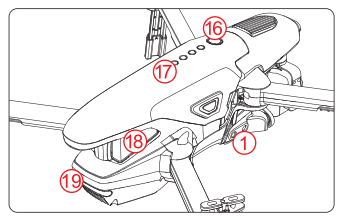
1.0 Get to know your aircraft

- Foldable design is employed to greatly improve compactness without compromising quality and function.
- Equipped with advanced Optical Flow Positioning System & Infrared Obstacle Avoidance System, it is capable of achieving accurate positioning and auto obstacle avoidance.
- More accurate and safer flight is achieved using GPS/GLONASS dual-satellite positioning & navigation system.
- 5.8G WiFi digital video transmission system is used.
- 4K camera with 3D gimbal is capable of shooting stable and high-definition videos.



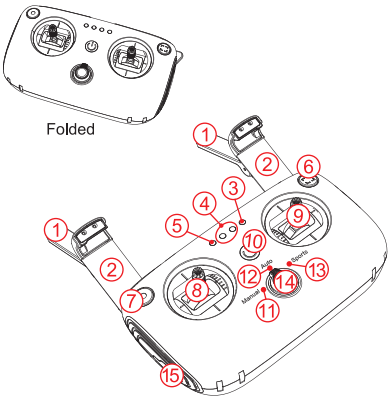
3. Optical flow lense
4. Gimbal and Camera
5. Camera fixture (Please remove before flight)
6. Micro SD card slot
7. CW propeller( )
8. CCW propeller( )
9. Brushless motor
10. Indicator
11. Landing gear
12. Stand cushion(A)
13. Stand cushion(B)
14. Upgrade port (Micro USB)
15. Reset key
16. Power button
17. Battery level indicators
18. Smart flight battery
19. Status indicator



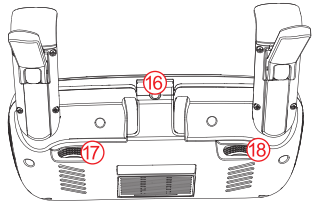
* To avoid property loss and personal injury caused by wrong operation, please read the manual carefully, upgrade the firmware and calibrate the related items by watching the tutorial video at www.walkera.com before using VITUS.

2.0 Get to know your remote controller

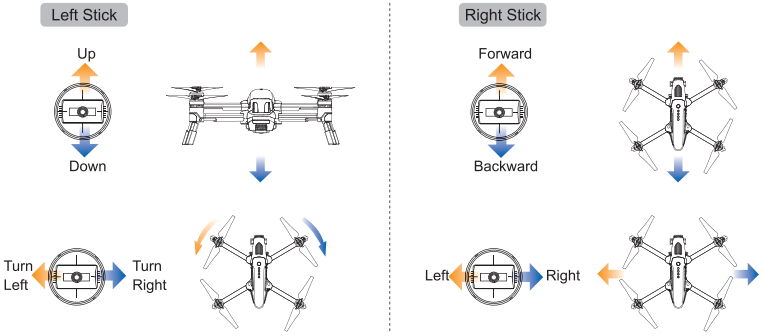
DEVO F8S is in-built with a ground receiving terminal of 5.8G WiFi digital video transmission system, which can achieve a real-time display of high-definition images on a mobile device by using Walkera Drone APP, with a foldable holder capable of holding mobile devices.



1. Antenna
2. Mobile Device Holder
3. Power Indicator
4. Charging Indicator
5. Status Indicator
6. Photo Button
7. Video Button
8. Left Stick
9. Right Stick
10. Power Button
11. Manual Mode
12. Auto Mode
13. Sports Mode
14. Return To Home button
15. Charging Port
16. Training/Upgrade Port
17. Camera-EV Dial
18. Gimbal-Pitch Dial



Take “left-hand throttle (MODE 2)” as an example. The left stick controls the aircraft's altitude and heading, while the right stick controls its forward, backward, left and right movements.



* 1) MODE 2 (Throttle stick on the left): Left stick–THRO/RUDD; Right stick –ELEV/AILE.
2) MODE 1 (Throttle stick on the right): Left stick–ELEV/RUDD; Right stick–THRO/AILE.
3) Please fly your aircraft in the open air without shelter and without electromagnetic interference. The maximum signal range for the remote controller being about 1.5km is tested in experiment and only for reference.

3.0 Specifications

- Aircraft

Main Rotor Dia.:	177mm
Dimensions (L x W x H):	229 x 279 x 113mm
Weight:	890g(batteries included)
Remote Controller:	DEVO F8S
Main board:	VITUS 320
Brushless Motor:	WK-WS-28-017A
Brushless ESC:	VITUS 320
Battery:	11.4V 5200mAh LiPo 3S
Flight Time:	22minutes for positioning flight (with10% battery level residual) / 25minutes for ultimate flight
Working temperature:	-10℃~+40℃

- Gimbal

Controllable turn range:	-90°~ 0° pitch

- Optical Flow Positioning System

Velocity range:	Velocity ≤ 50km/h (2m above ground and sufficient lighting)
Altitude range:	≤ 3m
Hover accuracy range :	±0.5m
Frequency:	50Hz
Operating environment:	Surfaces with rich patterns and sufficient lighting

- Infrared Obstacle Avoidance System

Obstacle detecting range:	7m
FOV:	horizontal 30°; vertical ±30°
Frequency:	20Hz

- Camera

Image Sensor:	SONY: 1/2.3" CMOS; pixel 12MP
Lens:	FOV 85° ; 4.4mm; f/2.8 aperture
ISO Scope:	100-3200
E-shutter:	1/2-1/8000
Photo resolution:	4000x3000(12MP) / 3840x2160(8MP)
Record resolution:	UHD: 3840x2160(4k) 30fps / FHD: 1920x1080 30fps/60fps
Max. code rate of video storage:	64Mbit/s
Supported file system & format:	Fat32; exFat
Picture format:	JPEG
Video format:	MP4
Memory card supported:	Micro SD card (maximum 64G, transmitting speed is C10 and above or UHS-1)

- DEVO F8S remote controller

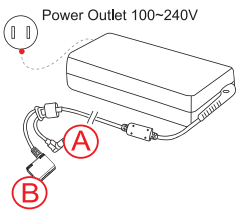
Dimensions (L x W x H):	173 x 101 x 71mm
Working frequency:	2.4G
Signal range:	About 1.5KM (open without shelter, no electromagnetic interference)
Built-in battery:	7.4V 2200mAh Li-po 2S
Mobile device holder:	Applicable to tablet and phone

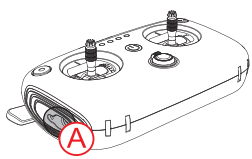
4.0 Attention before flight

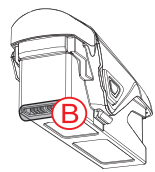
1) The video transmission of the aircraft is by WIFI. Please fly your aircraft in the open air without shelter and without electromagnetic interference. Avoid using it where there is WIFI interference.
2) The VITUS is intended for pilots, 14 years or older, with RC hobby experience.
3) Please do not fly in severe weather conditions, such as rainy, snowy, windy or foggy conditions.
4) Always choose large open fields for flying, for the densely constructed buildings may affect compass, shelter GPS signal and deteriorate positioning effect of aircraft, and even lead to inability to position it.
5) Please keep away from high-speed rotating parts (such as propeller or brushless motor) when flying the aircraft.
6) Always keep the aircraft within sight, and keep it away from obstacles, crowds and water.
7) Do not fly close to high-voltage power lines, cellphone towers, or radio towers, as these may disrupt your control signal.
8) Always check local laws before flying, and never violate local laws or ordinances concerning legal flying areas.
9) When aircraft flying above 4500 meters, flight performance may be undermined because of decreased performance of battery and gravity system in such environment.

5.0 Charging

1) Connect charger to AC power (100~240V 50/60HZ).
2) Please charge when the remote controller and the smart flight battery are switched off.
3) Smart-flight battery's level indicator light being off indicates battery fully charged; while remote-controller's charging indicator having steady-on green light indicates battery fully charged.







6.0 Downloading/Installing Game App Walkera GO & Operation App Walkera Drone

Please go to Walkera official website (www.walkera.com) or Google Play to download/install it for Android system.

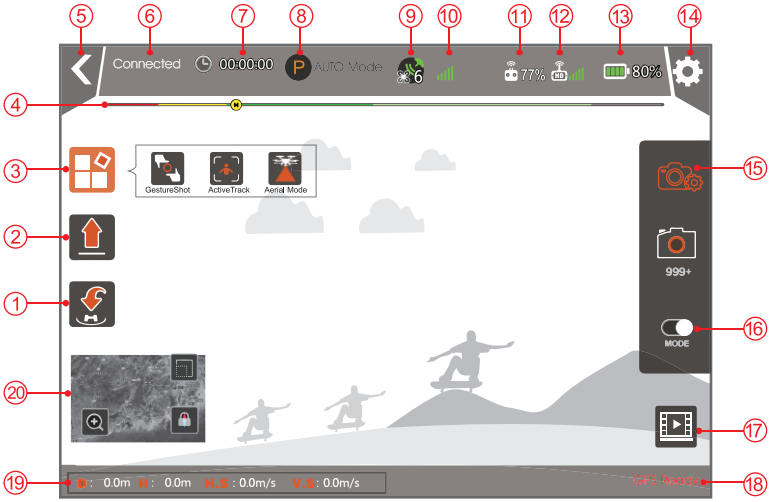
Please download/install it from App Store for iOS system.

To obtain best experience, tablet devices are recommended to run this software,

which supports **iOS 9.0 / Android 5.0** or above.

7.0 Walkera Drone Operating Main Interface Instructions

On the interface, HD video and photographs can be previewed in realtime and you can set the dynamic parameters, such as aircraft, remote controller, gimbal and battery.

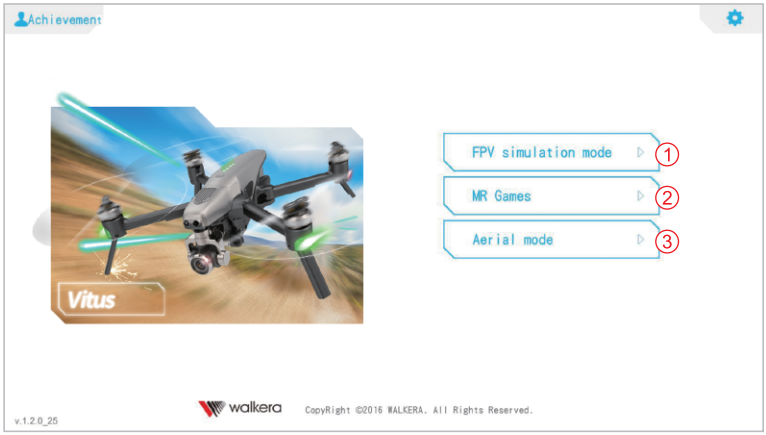


1. Return Home [ ]: Click it, the aircraft stops waypoints flying, and return back automatically.
2. Auto Takeoff [ ]: Click it, the aircraft takes off automatically.
3. Function box [ ]: Gesture shot, Active Track, and Aerial Modes.
4. **Battery level return [ ]: When the residual battery level reach , aircraft will automatically return back.**
5. Back [ ]: Back to last step.
6. **Device connection status: Display connected or disconnected.**
7. Flight time [ ]: Aircraft flight time
8. The aircraft model: Displays aircraft's flight mode.
9. Number of aircraft satellite [ ]: Displays the received satellites of aircraft.
10. Positioning accuracy [ ]: Displays aircraft positioning accuracy.
11. Remote controller signal and battery level[77%]
12. Transmission signal strength[ ]
13. Battery level [80%]: Real-time display of current smart flight battery's remaining level (voltage can be customizable)
14. Setting [ ]: Click the icon to open the setting menu to perform general settings, settings for aircraft, remote controller, gimbal & battery
15. Camera setting [ ]: Click the icon to show professional, image, video and other settings. Under the same resolution, the higher the code rate is, the better the image quality is, and the video transmission distance can be accordingly reduced.
16. Photo & video switch [ ]:
    Photo: Photo button is used to trigger the camera to take pictures. While this function is also supported in the remote controller.
    Video: video button to start/stop video. You can also press the video button on the remote controller for video.
17. Video display [ ]
18. GPS positioning status: When connected, "GPS positioning" appears; when disconnected, "GPS not positioning" appears.
19. Flight status parameters:
    Distance: horizontal distance between aircraft and returning point.
    Height: vertical distance between aircraft and returning point.
    Horizontal speed: speed of aircraft in a horizontal direction.
    Vertical speed: speed of aircraft in the vertical direction.
20. A thumbnail map icon: Click the thumbnail icon to quickly switch to the map interface.

Before you plan to fly, turn off the aircraft power, and connect wifi, click "A thumbnail map icon" to download the map.

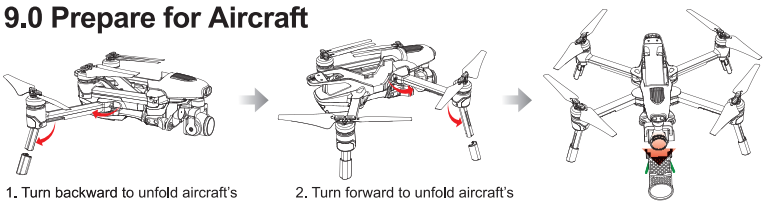
8.0 Walkera GO Main Interface Instruction

The Walkera GO can be activated when the aircraft is in Auto Mode with a strong GPS signal.



1. FPV simulation mode: Just connecting remote controller with your cellphone, you can enjoy a flight experience simulating a real scene.
2. MR games: With virtual reality combined with game, it has 3 game modes including racing, collection & battle.
   Racing Mode: Click to enter Racing mode. You can set up a virtual circuit in a real scene, practice the racing flight, and improve your flight skills.
   Collection Mode: Click to enter Collection mode. You can follow a prescribed route to collect COINS, and win rewards after completing the game.
   Combatting Mode: Click to enter Battle Mode. Enemy aircrafts around you, press fire and shoot down enemy planes to win the game.
3. Aerial mode: Simple aerial photo mode, photography & video.

9.0 Prepare for Aircraft

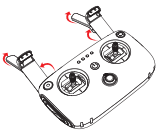


1. Turn backward to unfold aircraft's rear arm, propeller and landing gear. Mount the stand cushion(B).
2. Turn forward to unfold aircraft's front arm, propeller & landing gear. Mount the stand cushion(A).
3. Press the green position and remove the Camera fixture.

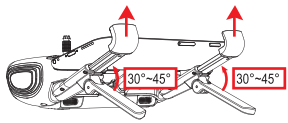
Attention:

- Be sure to unfold the rear arms before unfolding the front arms. Activate the aircraft after the arms, propellers and landing gears are all unfolded.

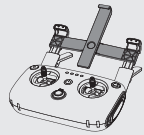
10.0 Prepare for Remote Controller



1. Unfold antenna & mobile device holder.



2. Pull upward mobile device holder, place a cellphone and clamp it. Adjust antenna & mobile device holder, make their included angle between 30°~45°.



Mount the tablet support, maximum size of the tablet can be up to 8.0".

11.0 Ready for Flight

Before you plan to fly, turn off the aircraft power, and connect wifi, click "A thumbnail map icon" to download the map.
Place the aircraft in an open outdoor area, with its tail facing the operator.

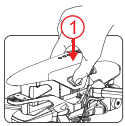
11.1 Aircraft Starting/Code-matching

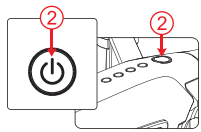
① Insert the battery.

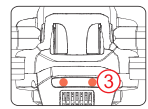
② Turn on the remote controller first, and then turn on the aircraft battery(if opposite, the drone will alarm) .

③ Place aircraft at horizontal position, ***right red LED light flashing until steady on indicates completion of*** IMU prewarming & code-matching.

(Right/left red LED lights alternatively flashing indicates aircraft being abnormal, see also APP tips.)







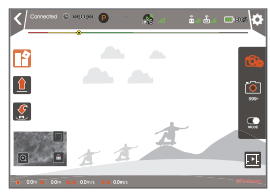
④ Open the Mobile Wi-Fi device and wait for 30 seconds, when at the same time “Vitus-Ground-***” and “Vitus-Air-***” appears, click “Vitus-Ground-***” , input password “1234567890” to connect and exit settings after a successful connection.

11.2 APP Connection

Connect the operation app. Walkera Drone

1. Click the icon on cellphone.

2. Select Model “VITUS”, touch “Go to connect”.



3. Enter main interface.

Connect the game software Walkera GO

Walkera GO

1. Click the icon on mobile device

2. Connecting .....

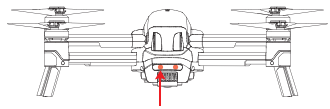
3. Enter main interface

Attention:

- Walkera GO & Walkera Drone cannot be simultaneously used on the same mobile device, you can use another APP only when an App is exited.

11.3 GPS Indicator Lights

When the left red LED light slowly flashes, the GPS function works.

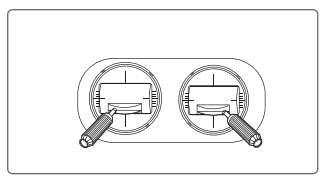


Left red LED light slowly flashes

11.4 Motor Unlock/Lock

Motor Unlock

After successful code-matching, move the left & right sticks down and toggle them outward, and hold for 1.5 seconds. You will see **the right red LED light slowly flashes**, indicating that motors are unlocked. The unlocked motors will rotate, and please immediately release sticks.



Motor Lock

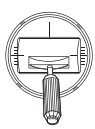
There are two methods to lock the motors:

Method 1: When the aircraft is landed, move the throttle stick down and hold for 2 seconds. The motors will then stop.

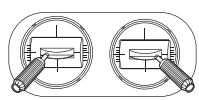
Method2: Move the left and right stick down and toggle them outward and hold for 2 seconds.

You will see **the right red LED light always on**, indicating that motors are locked.

Method 1



Method 2



12.0 Flight Control

1) Make sure that the GPS signal is received (left red LED light slowly flashes).
2) Only when "Connected" displays on the upper bar of the main interface of the Walkera Drone APP, you can perform APP operation.
3) Please unlock motors before takeoff. (refer to Page 10 for the detailed method)

AUTO takeoff (APP operation)

Click this icon on APP main interface, the aircraft will take off automatically.

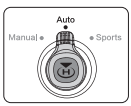
Attention:
1) Auto Takeoff is usable only under AUTO mode or SPORTS mode.
2) Auto takeoff default to 3m altitude, and it can be removed by pushing the throttle to midpoint or above, whenever manual control over the throttle is needed.

Auto Landing(APP operation)

Click this icon on APP main interface, the aircraft will land automatically.

Attention:
1) During landing, you can operate the aircraft forward, backward, rightward and leftward.
2) During the landing process, please switch the flight mode of the remote controller if landing needs to be cancelled.

AUTO Mode (Remote controller operation)



Switch to "Auto" position

Attention:
1) After charging each time, the first flight is default to AUTO mode.
2) In the AUTO mode, there are Altitude Hold, Fixed Point, and Brake Function, the flight speed is slower (≤5m/s).
3) When GPS signal is weak or disappearing, only Altitude hold rather than Fixed point is available.
4) No fixed point available in the Manual mode.

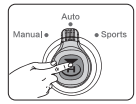
Sports Mode (Remote controller operation)

Switch to "Sports" position

Attention:
1) In the Sports mode, there are Altitude Hold, Fixed Point, and Brake Function, the flight speed is faster (≤10m/s).
2) When GPS signal is weak or disappearing, only Altitude Hold rather than Fixed Point is available.
3) No Fixed Point available in the Manual mode.

Return to Home (Remote controller or APP operation)

Click this icon on the APP interface,
the aircraft will return automatically.



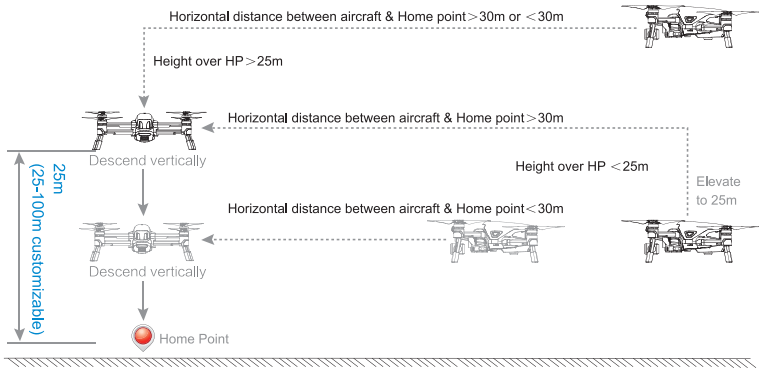
Long press (H),
the aircraft will return automatically.

Horizontal distance between aircraft & Home point＞30m

a. When the flight altitude is over RTH Height, the aircraft will keep the current altitude and automatically fly back above the Home Point, then descend vertically.
b. When the flight altitude is below RTH Height, the aircraft will ascend vertically to 25m high, then automatically fly back above the HP, and descend vertically.

Horizontal distance between aircraft & Home point＜30m

a. When the flight altitude is over RTH Height, the aircraft will keep the current altitude and automatically fly back above the Home Point, then descend vertically.
b. When the flight altitude is below RTH Height, the aircraft will keep the current altitude and automatically fly back above the Home Point, then descend vertically.



Attention:

1) After pressing Return To Home, please don't move other switches or buttons.
2) When the aircraft losses the remote controller's signals, it will automatically enter Failsafe RTH.
3) When the aircraft's battery voltage is too low and the horizontal distance between the aircraft and the Home Point is greater than 30m, the aircraft will automatically return to home. When the horizontal distance between the aircraft and the Home Point is less than 30m and the aircraft's battery voltage is too low, the aircraft will return automatically from the current position and land.
4) When GPS signal is abnormal or GPS not working, Auto return is unusable, but auto landing usable.
5) During the returning home process, please switch the flight mode of the remote controller if returning home needs to be cancelled.

Active Track Mode (APP operation)

There are two modes: Lock Mode & Follow Mode

in the Auto Mode

Click this icon

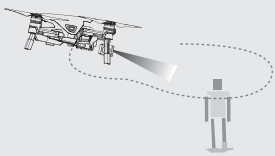
Click the icon

Choose what you need

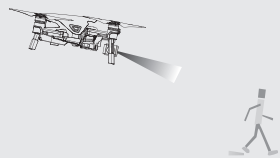
Attention:

1) Only Lock Mode is usable at optical flow positioning
2) In the Follow mode, the aircraft is kept at a constant altitude, so please keep an eye on the aircraft's surrounding to assure the personal and property security of you and other people.

Lock Mode: aircraft position unchanged, heading locks the target to be followed.



Follow Mode: aircraft position & heading locks the target to be followed.



Gesture Shot (APP operation)

Please follow these steps to use the Gesture Shot function.

Click this icon

Click the icon

Set the photo frame in the app image interface.

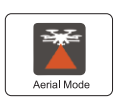
Make the Gesture Shot (both hands in front of your face and the target facing aircraft)

Attention:

Gesture Shot is valid only in the photo mode.
The aircraft should be more than 2m away to recognize you.

Aerial Mode (APP operation)

Click this icon



Click the icon

Attention:

The braking will slow down in Aerial Mode.

Circle Flight (APP Operation)

Aircraft in the Auto Mode

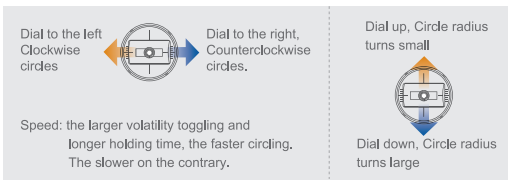
Click this icon on the APP map interface

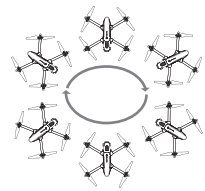
Click this icon to enter Circle Flight mode.

Attention:

1) The aircraft is at a quiescent state when it is in Circle Flight. The circling function can only work after you set circle speed and direction by **toggling aileron stick left or right** (-5m/s to +5m/s speed changeable, 0m/s at default).

2) **Dial elevator stick up or down** to change circle radius (5~50m radius changeable, 5m at default)

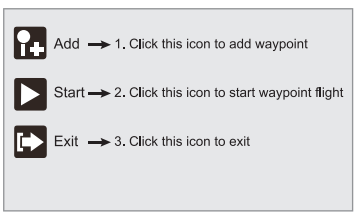




Waypoint Flight (APP Operation)

Click icon on APP map interface,

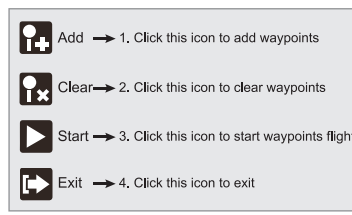
Click icon to enter the waypoint flight interface.



Waypoints Flight (APP Operation)

Click icon on APP map interface,

Click icon to enter the waypoints flight interface.



Mapping (APP Operation)

Click icon on APP map interface,

Click icon to enter the mapping interface.

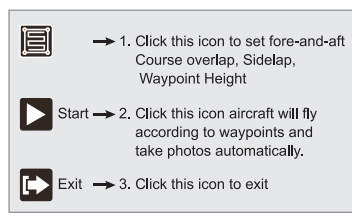
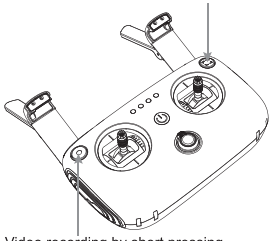


Photo & Video (remote controller or APP operation)

Remote Controller Operation:

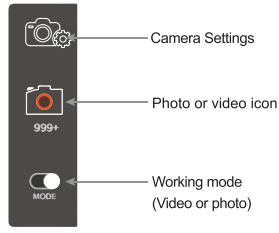
Take photo by short pressing the button of Remote Controller



Video recording by short pressing the button of Remote Controller

APP Operation:

1) Select working mode: photo or video
2) Touch the Photo or video icon to take photo or video



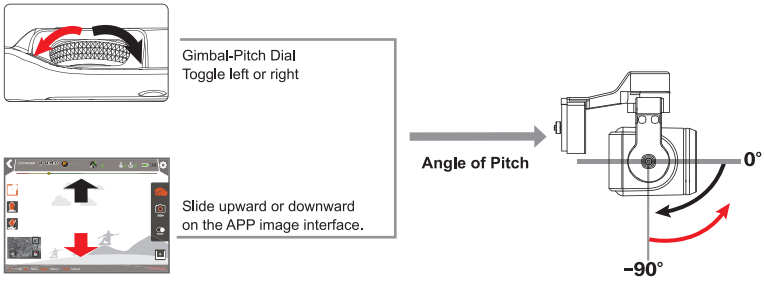
Attention:

The video defaults to be stored in Micro SD card. You can also change it to be stored in your mobile phone. (Method: App main interface → Setting → Gimbal → Location)

Gimbal Control (remote controller or APP operation)

The integrated gimbal provides camera with a stable platform, making the camera capable of obtaining stable pictures even under the condition of aircraft flying at a high speed.

You can use the APP software or Gimbal-Pitch Dial on Remote Controller to control the gimbal pitching.



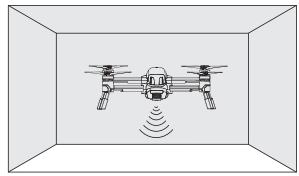
13.0 End flight

1. Manual landing or return to home function landing.
2. Power off the aircraft, then turn off remote controller.
3. Finally, remove the battery from the aircraft.

14.0 Additional Instruction

14.1 Optical Flow Positioning System

Utilizing camera to get aircraft location information, it achieves accurate positioning of aircraft. It is suitable for environments with altitude of less than 3 meters without GPS signal or with weak GPS signal.
Please make sure sufficient lighting of the environment and rich patterns of the ground surface,
as the optical flow positioning system identifies position variations based on the ground surface.

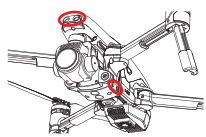


The measuring accuracy of the optical flow positioning system tends to be affected by illumination intensity and pattern of the ground objects, so please use this function under the circumstances below with caution:

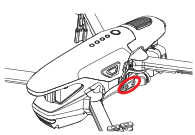
- Monochrome surfaces(eg pure black, pure white, pure red, pure green)
- Highly reflective surfaces
- Water or transparent surfaces.
- Surfaces of moving objects(eg stream of people, shrub or grass)
- Places where the illumination conditions dramatically change.
- Extremely dark(less than 10 lux) or bright(more than 10,000 lux) surfaces
- Surfaces without clear patterns
- Surfaces with highly repetitive patterns(eg checker bricks with the same color)

14.2 Infrared Obstacle Avoidance System

The infrared obstacle avoidance system on the aircraft utilizes infrared sensors to detect nearby obstacles and therefore automatically help the aircraft avoid obstacles.
However the aircraft is unable to avoid obstacles in manual or sports mode.



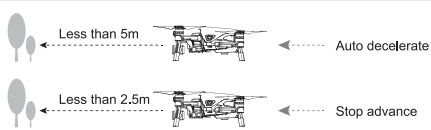
Infra-red obstacles avoidance at Forward, left side



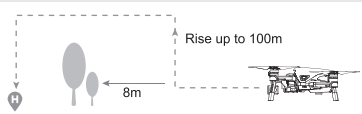
Infra-red obstacles avoidance at right side

Hovering status in auto mode:
Obstacles avoidance available at forward, left and right.

Flight status in auto mode:
Obstacles avoidance available at forward, left and right.



Return home status: forward obstacles avoidance only.



14.3 Compass Calibration

Attention:

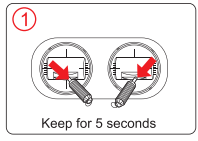
- Calibrate compass when abnormal circle flight or skewing occurs during flight (motor locked, right red LED remains on).
- Please conduct calibration in an open outdoor area away from electromagnetic interference.

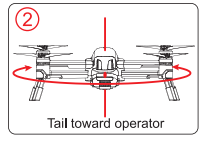
The compass calibration steps are as follows:

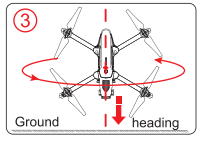
① Place right/left sticks at lowest location, toggle them inward and keep for 5 seconds until the aircraft's Left red LED light extinguishes and right red LED light flashes.

② Horizontal 360°rotation of aircraft until left red LED light is steady on and right red LED light flashes.

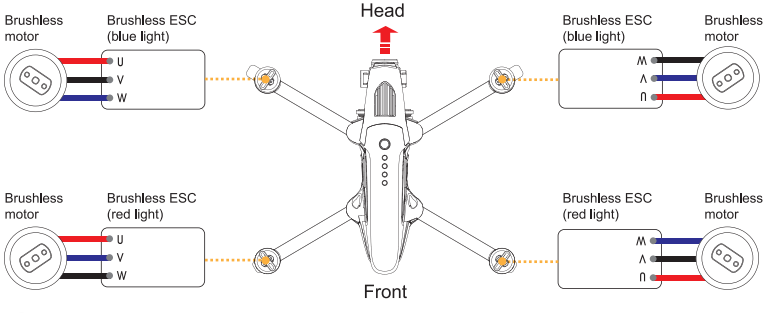
③ Vertical 360°rotation of aircraft (heading down) until right/left red light is steady on, indicating successful calibration, and place aircraft at a horizontal location In case of failure to calibrate, please follow above procedure to repeat calibration.







14.4 Brushless ESC and Brushless Motor connection diagram



Attention:

- The red, blue and black wires of the brushless motors must be soldering to the brushless ESC according to the illustration.

14.5 Stick Mode Switch, Stick Calibration & Fixed ID

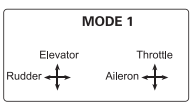
• Factory setting of DEVO F8S stick mode & stick calibration has been determined; please refer to the following operation method for switching and calibration.

• Be sure to switch off the aircraft power or lock motor before operation.

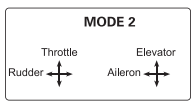
Stick Mode Switch

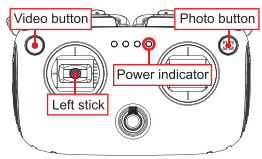
Enter stick Mode switch	1. Left stick at the lowest position + Long press 3~5 sec	When beeps, enter the stick mode switch
	2. Release left stick (back middle) + Short press Choose	MODE 1: The power indicator flashes once. MODE 2: The power indicator flashes twice.
Exit stick Mode switch	1. Left stick at the highest position + Long press 3~5 sec	When beeps, confirm and exit the stick mode switch.

MODE 1 is right-hand throttle



MODE 2 is left-hand throttle





※ ***Customization also supported in Walkera Drone APP.***

Stick Calibration

Long press " " for 3~5 sec, you will hear a beep. Enter stick calibration, repeatedly move sticks from minimum to maximum mechanical range for several times, and then back to the middle.

Long press " " for 3~5 sec, when beeps, confirm and exit the stick calibration.

• Beeping when you exit, indicating calibration fails, please recalibrate.

Customized Fixed ID of DEVO F8S:

Long press " " for 3~5 sec, when "beeps", Fixed ID is set.

Long press " " for 3~5 sec, when "beeps, beeps", Fixed ID is cleared.

15.0 Instruction of intelligent flight battery safety

Attention:

- Intelligent flight battery must be placed at a well-ventilated place.
- Improper use, charging or storage of battery may lead to fire accident, property loss or personal injury. The following safety guideline for use of battery must be followed.

15.1 Use of Battery

1) Battery is prevented from contacting with any liquid, and battery being moisturized or immersed into water is also inhibited. Never use it in rain or a wet condition. When internally contacting with water, battery may decompose, auto-ignite or explode.
2) Only batteries supplied by Walkera can be used. In case of replacement, please go to Walkera official website for the purchase information. Walkera will not be responsible for any flight failure or other accidents, which are resulted from use of other batteries which are not supplied by Walkera.
3) Use of any bulged, leaked batteries or those with damaged package is inhibited. In case of any happening, contact Walkera or one of its authorized dealers for professional treatment.
4) Please switch power off before batteries are inserted into or removed from the aircraft. Never insert or remove batteries when their power are switched on, otherwise power port may be damaged.
5) Its working temperature between -10℃~40℃must be kept; excessive high temperature (above 50℃) may cause fire or explosion, while excessive low temperature (under -10℃) may shorten its service life.
6) Never use battery in an electrostatic or magnetic field, otherwise battery pack may malfunction and lead to severe aircraft failure.
7) It is not permitted to decompose the battery by any means or puncture battery using any sharp object, otherwise fire accident or explosion may be caused.
8) Be sure to keep away from any battery which leaks the highly corrosive liquid. Please use clear water to rinse skin or eyes for at least 15 minutes if they get contacted with those corrosive liquid, and seek for medical service when necessary.
9) The battery which has been fallen off from aircraft or impacted by external force must be not reused.
10) When any battery drops into water by accident during aircraft flying or in other situation, battery must be immediately removed and placed in an open field, operator shall keep away from battery until it is aired dry. However, those air-dry batteries cannot be reused, and must be disposed of properly.
11) Never place battery into a microwave oven or pressure cooker.
12) Never place battery cell onto any conductor surface.
13) Never short circuit battery using a wire or other metal object.
14) Never hit against battery, and never place any heavy object onto battery or its charger.
15) Use a dry cloth to remove any dirt on battery connector if any, otherwise any improper contact may result in loss of energy or charging failure.

15.2 Battery Maintenance

1) Never overcharge battery, otherwise battery cell may be damaged.
2) Never use charger in an excessive high or low temperature.
3) Keeping battery unused for a long time may undermine its performance.

walkera

Manufacturer: Guangzhou Walkera Technology Co.,Ltd.
Add: No.48 Wantai Rd, Taishi Industrial Park, Dongchong Town,
Nansha Dist, Guangzhou, China.511453
Hotline: +86 400-931-8878

User manual is subject to change without prior notice.
Please go to Walkera official website to get the latest version.