

MiDRONE SKY 160 WiFi FPV

USER'S MANUAL



INTRODUCTION

We thank you for purchasing this product. This drone is equipped with a camera that lets you take pictures and video during the flight. It can be controlled either with the remote control up to a distance of about 30 meters. It can also be controlled via WiFi directly from your smartphone with a range of about 15 meters and transmit real-time images captured by the camera.

To take full advantage of this product and use it safely, please read this manual before use. Please also keep this manual for future reference.

WARNING

This product is not a toy. It is a high-tech device that requires accurate assembly and proper use to prevent any accidents. The user of this device must use it responsibly and ensure not cause any damage to third parties or to objects belonging to third parties.

This product is not suitable for children under 14 years.

Please use this product only in places where it is legally permitted.

Please refer to the legislation on the use of drones in your country.

Midrone can not be held responsible for any damage, loss, injury or death caused directly or indirectly by the use of this product, part of the product or the information contained in this manual.

Please refer to our website www.midrone.com for more information.

SAFETY INSTRUCTIONS

The propellers in movement can cause more or less serious injuries, which is why you should never use the drone near the crowd or flying too close to other people or animals.

Accidents can be caused by improper assembly of the drone or a lack of control, and also by the use of a drone and / or damaged remote.

Users of this product should be aware of the risks of potential damage and should therefore use it with great caution.

1. Avoid the crowds and obstacles : the speed and behavior of the drone can sometimes be unstable, it is strongly advised to use it in places away from the crowds, tall buildings or trees, high voltage cables, to prevent injury to the user or other persons or damages to the drone.
2. Do not fly the drone in bad weather (rain, wind, storm) to prevent damages or lost. Keep away from wet places to avoid dis-functioning of electronic parts.
3. Do not use the drone if you're tired because the control requires maximum concentration. Be very careful during learning until your control of the drone is acquired.
4. Keep the drone and the battery away from heat: this product is made of metal and plastic parts, and electrical parts. Therefore it should not be exposed to high temperatures such as near fire, near

a heating radiator or exposed too long to direct sunlight.

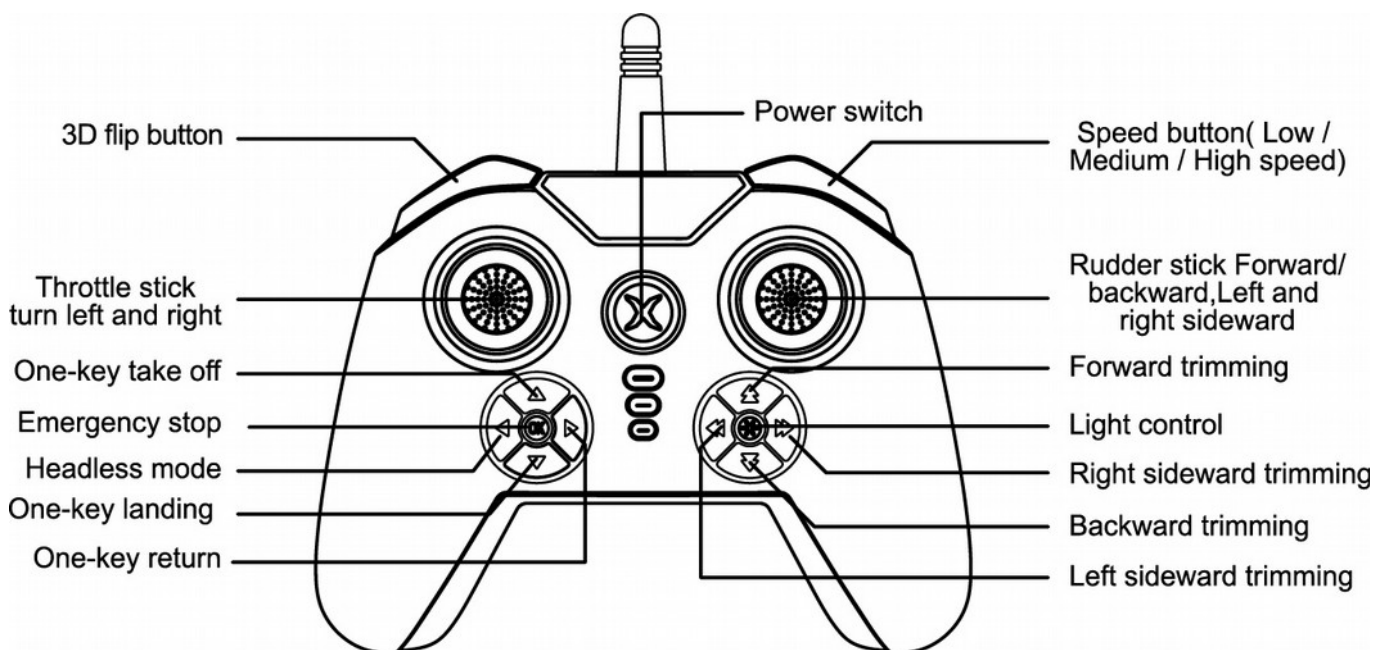
5. Never leave small parts of drone to reach of children to avoid the risk of suffocation.

CHARGING AND USE OF THE LI-PO BATTERY

1. Check that the battery is in perfect condition before charging. If the battery appears damaged you do not charge it to avoid damage or injuries.
2. Always use the original charger to recharge the battery. Using a non-matching charger could cause irreversible damage to the battery and cause an accident.
3. When charging, if the charge connector is overheating, this means an excessive load and this can cause permanent damage to the battery. Please stop charging immediately if this happens.
4. Do not leave the battery unattended while charging and do not leave load near flammable material or in a vehicle.
5. When the drone has just finished flight, the battery temperature is higher, it is preferable to wait for 30 minutes, and charge the lithium battery when cooled, otherwise it may damage the battery .
6. Do not short-circuit the battery polarity when connecting the charger.
7. Do not expose the battery to excessive heat, never throw it into the fire to avoid any risk of explosion.
8. Do not dispose of the battery in domestic waste but bring it to a collection point for recycling, please check with your local authorities about it.

DESCRIPTION OF THE REMOTE CONTROL

The drone may be controlled in two ways. Or via the supplied remote control with a range of about 30 meters, or directly through the MiDrone SKY 160 APP on your smartphone in WiFi with a range of about 15 meters. This feature will be detailed later in this manual.



REMARKS : We recommend that you familiarize yourself with the buttons of the remote before you start using the drone.

BATTERY INSTALLATION

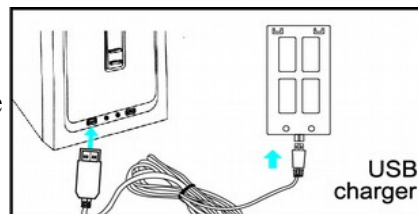
1. Install batteries in the remote control

The operation of the remote requires 4 AAA batteries (not included). Observe the battery polarity when inserting in the compartment at the back of the remote. Remove the batteries from remote control for a long period of non-use to avoid discharge and leakage.

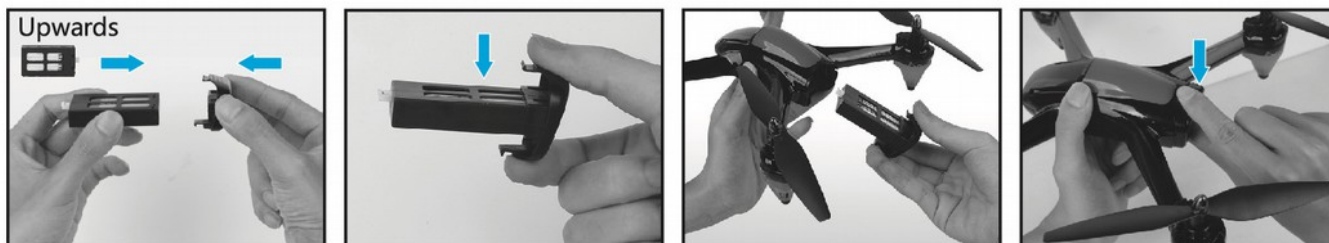


2. Charging and installing the Li-Po battery Plug the USB connector of the charging cable to a USB port on your computer or USB charger (not included), and the other end directly to the battery connector. The charge indicator LED will light in red on the charging cable when the battery is fully charged.

It takes about 90 to 120 minutes for the lithium battery to be fully charged, depending on the power of the USB charger used.



Install the fully charged battery into the slot provided for this purpose inside the drone as shown on the image below.



NOTE : the LED lights of the drone will flash quickly when the voltage of the battery is too low. When this happens, please proceed to landing and charge the battery before next flight.

REPLACEMENT OF THE PROPELLERS

If a propeller replacement is necessary pay special attention to the direction of rotation. The propellers that rotate clockwise are marked with a letter A. Those that rotate in the anti-clockwise direction are marked with a letter B.

PREPARATION FOR TAKE OFF

Before flying, settle in a space without obstacles with a clearance of about ten meters around you and five meters in height. Ensure that the battery of the drone and batteries from remote control are fully charged.

Install the battery in the drone, the drone LED lights flash slowly. Then place the drone to the ground or on a flat surface. Turn on the remote control, the lights of the drone will stop to flash and stay on. Before each flight you must establish the link between the drone and remote control by performing this operation: Push the left joystick fully upward and then pull it to the bottom.

UNLOCK PROCEDURE

1. Push the left joystick to the highest position (Figure 1).
2. Pull down the two joysticks outward diagonally together to unlock the drone (Figure 2).
3. Pull down the two joysticks inward diagonally together to calibrate the gyroscope (Figure 3).

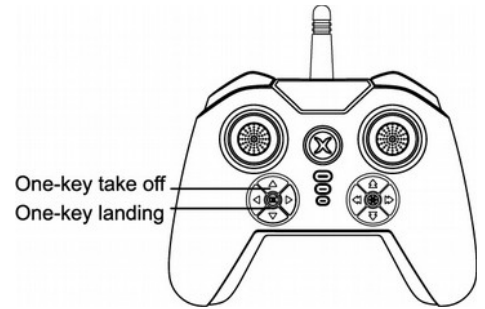


ONE KEY TAKE-OFF AND LANDING

After performing the unlock procedure explained above, you can press the auto take-off button on the remote control. The drone's blade will start to rotate slowly, then the drone will ascend automatically to the height of approx. 1,5 meter.

When you press the one key landing button, the drone will descend slowly to the land. The propellers will stop rotating after 3 to 5 seconds.

NOTE : you can still control the direction of the drone with the remote control during automatic landing procedure.





MANUAL LANDING

You can also proceed to the landing of the drone manually. Pull down the throttle joystick slowly and the drone will descend slowly to the ground.

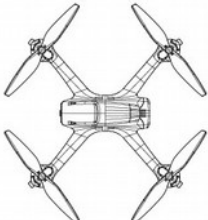



FLYING CONTROL

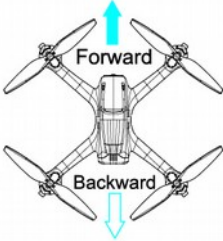

ACCELERATOR (left joystick)

<p>Ascending ↑</p>  <p>Descending ↓</p>	<p>Push up the left throttle stick, and the rotation speed of the main blades will increase. The drone begins to ascend. Pull down the left throttle stick, and the rotation speed of the main blades will reduce. The drone begins to descend.</p>	
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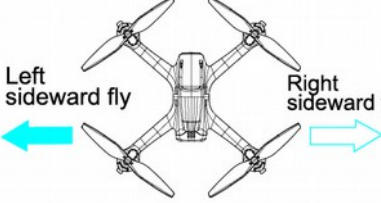

LEFT / RIGHT TURN (left joystick)

<p>Turn right ↻</p>  <p>Turn left ↻</p>	<p>Push the left throttle stick to the left, and the drone will turn to left. Push the stick to the right, and the drone will turn to right.</p>	
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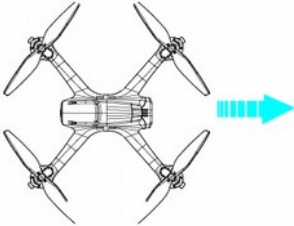

FORWARD / BACKWARD FLY (right joystick)

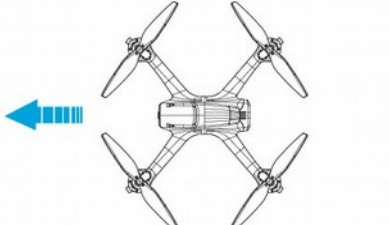

	<p>When the right rudder stick is pushed upward, the drone will fly forward.</p> <p>When the right rudder stick is pulled downward, the drone will fly backward.</p>	
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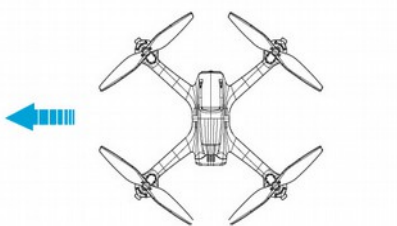

SIDEWARD FLY (right joystick)

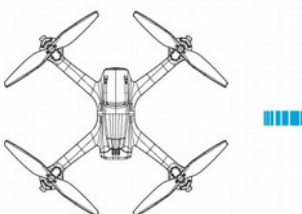

	<p>When push the right rudder stick to the left, the drone will fly sideward to the left.</p> <p>When push right the rudder stick to the right, the drone will fly sideward to the right.</p>	
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FLYING MICRO ADJUSTMENTS (TRIM)

	<p>If the drone moves backward while hovering, press the forward trimming button, until the drone stops moving backward.</p>	
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	<p>If the drone moves forward while hovering, press the backward trimming button, until the drone stops moving forward.</p>	
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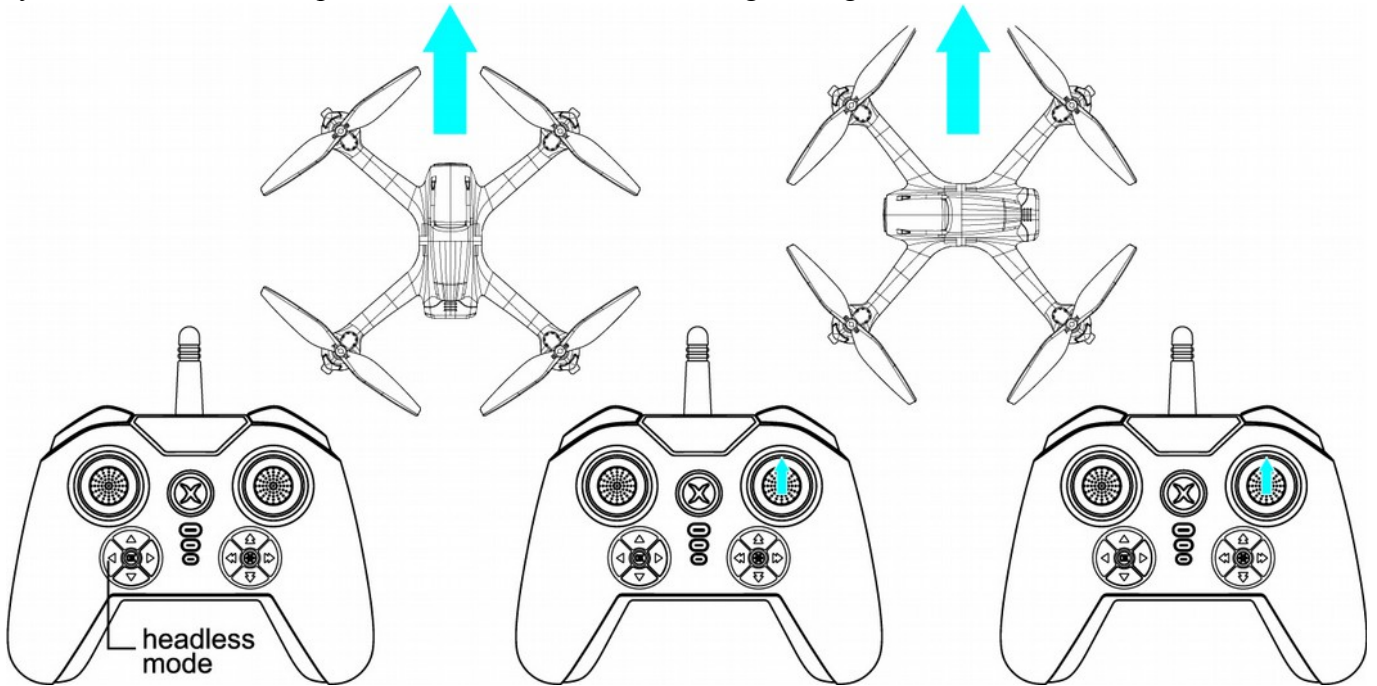
	<p>If the drone flies to the left while hovering, press the right sideward trimming button, until the drone stops flying to the left.</p>	
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	<p>If the drone flies to the right while hovering, press the left sideward trimming button, until the drone stops flying to the right.</p>	
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FLYING IN HEADLESS MODE (DIRECTION LOCK, HEADFREE)

When this mode is enabled, the drone uses the direction it has stored at the time of synchronization and takes the pilot's position as a reference when using the right joystick on the remote. The movement front or back of this joystick will move away the drone or let it come closer from the pilot, and regardless of the orientation of the front of the drone.

The operation of this mode requires that the pilot remains in the same place as at the time of synchronization and keeps the drone in front of him during the flight.



1. FLY DIRECTION SETTING

Before the flight, place the drone in front of you with the back of the drone pointing to the remote control. Perform the synchronization's procedure as explained earlier in this manual in "preparation for take off" section and proceed to take off.

2. Once this step is done and the drone is flying, press the mode Headless button on the remote control to activate CF Mode / Direction Lock. The LED lights of the drone will flash quickly to confirm that this mode is engaged. Press again the mode headless button on the remote to exit the CF Mode / Direction Lock.

NOTE: If the drone is impacted by objects during flying, headless mode may not keep flying straight, the drone may fly with drifting. If this happens, please proceed to landing, and reset the gyro of the drone by pushing the 2 levers of the remote to the center and the bottom with an angle of 45 degrees as shown on the image on the right.



EMERGENCY STOP

If the drone crashes something during flying or if you need to stop it quickly, you can press the emergency stop button on the remote control. The propellers will stop to rotate immediately and the drone will fall down.

NOTE : never press this key if the drone is normally flying at a certain altitude or it will fall down and will get damaged or cause injuries to people, animals or objects.



Emergency stop

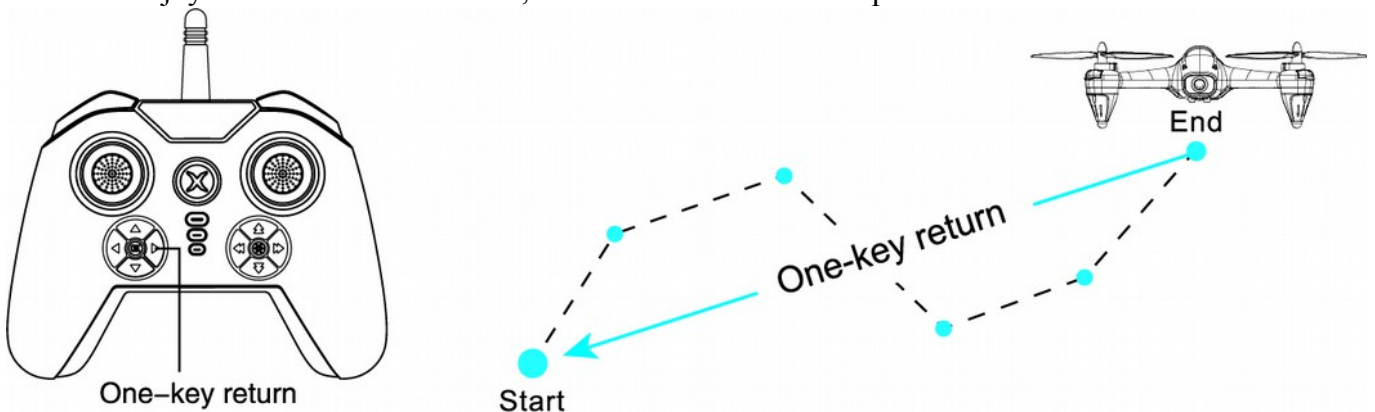
PROTECT FUNCTION

If the drone hit an obstacle during flying, the propellers will stop immediately to protect the motors, the drone will fall down vertically. If this happens, when you restart the drone, you will need to calibrate the gyroscope and start the unlock procedure again before new take off.



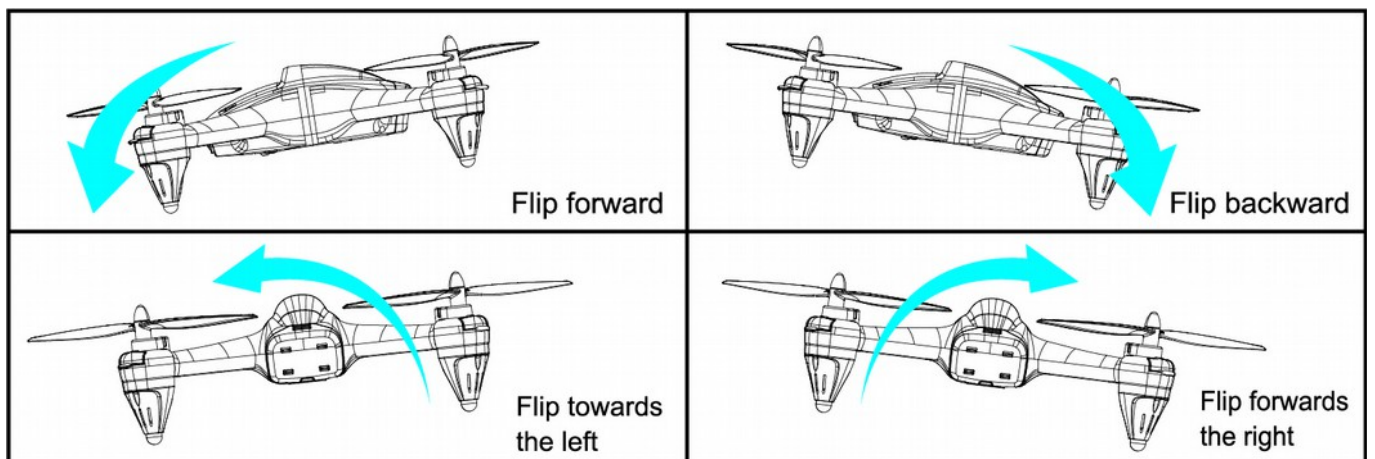
ONE KEY RETURN

The drone will return automatically to its starting point when you press the one key return button on the remote control. The drone's front and back lights flash quickly together. Press this button again or push the forward joystick to exit this function, the drone will hover at its position.



360° ROLLOVER (3D FLIP)

When you are piloting the drone well in hand, you can now perform tricks of style! Fly the drone up to 2-3 meters height. Press the 3D Flip button on the top left of the remote control. The remote control will emit a beep sound. Then you can use the right joystick to control rollover direction to achieve a 360° rollover forward, back, left or right .



INSTRUCTIONS FOR USE IN WIFI MODE

You can either control the drone by Midrone SKY 160 application on the smartphone, or mount the smartphone on the remote control and use the smartphone screen only for video transmission. This second option will be explained later in this manual.

WIFI CONNECTION BETWEEN THE DRONE AND SMARTPHONE

Download and install the application

The app Midrone SKY 160 is needed to control the drone through the smartphone. It is available free for download on Google Play for Android phones and on the App Store for iPhones.



WiFi connection

1. Connect the battery of the drone, the LED lights will flash to indicate that the drone is waiting for a connection.
2. Go to the WiFi settings of the smartphone and start the search for new devices.
3. Select "MIDR_SD160xxx » from the list and wait until the connection is successfully established.
4. Place the drone on a flat surface and start Midrone SKY 160 application on the smartphone.

Important informations

1. It is recommended to set the smartphone in airplane mode during control of the drone to avoid receiving a call during the flight or any other disturbance which could alter the signal and cause loss of control of the drone.
2. Other WiFi networks nearby can disturb the video signal.
3. Do not use the drone near high-voltage cables or other magnetic fields to avoid the alteration of the transmission signal and loss of control of the drone.
4. When the drone is turned off and on, verify that the wireless connection is restored correctly.

CONTROL THE DRONE THROUGH THE SMARTPHONE

It is possible to control the drone without the remote control directly through the smartphone screen. Place the drone on a flat surface and make sure the WiFi connection is established. Start MiDrone SKY 160 app on the smartphone.

HOME SCREEN :



Play : press this button to show the control interface of the drone
Setup : press this button to enter the parameters menu of the APP.
Instructions : press this button to show the instructions of the APP.

CONTROL INTERFACE :



1. Return to previous screen
2. Press once to take a picture
3. Press once to start recording video. Press again to stop the video recording
4. Photo album : press to see your recorded photos and videos.
5. Speed : press to select the flying speed of the drone (3 levels, level 1 by default)
6. Altitude hold menu : press to show auto take-off/landing buttons and stop button
7. Gravity sensor : press to activate avatar mode (control the drone by tilting of the smartphone)
8. Press this button to show or hide the virtual joysticks and other controls of the drone.
9. Press this button to show or hide the setup menu
10. Headless mode
11. Gyroscope calibration
12. Camera inversion
13. 3D view (split screen in 2 parts for VR Goggles)
14. One key unlock / take-off
15. One key landing
16. Emergency stop : press this key to stop the propellers immediately
17. Follow drawing : draw a flight pass on the screen and the drone will follow it. Make sure that the drone is in a clear space with no obstacles around.
18. 3D Flip
19. Voice controls : the drone can respond to simple voice commands such as « Forward », see in the App for more details.



20. Throttle control (Altitude)

21/22 : Left / right turn

23/24 : Left / right side flying

25/26 : Forward / Backward flying

27/28 : Forward / Backward fine tune (TRIM)

29/30 : Left / right turn fine tune (TRIM)

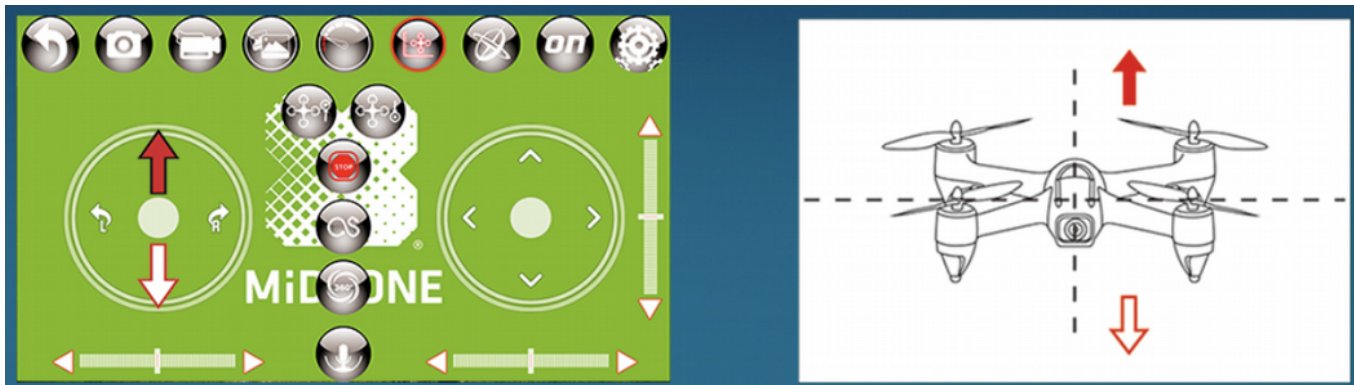
31/32 : Left / right side flying fine tune (TRIM)

FLIGHT WITH VIRTUAL JOYSTICKS

Start-up

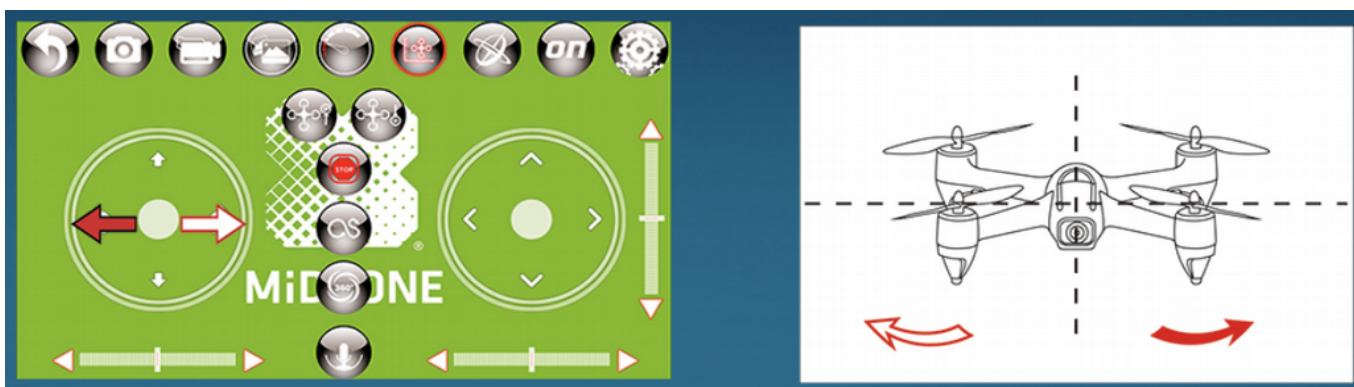
1. Show virtual joysticks on the control panel (icon 8 above image is ON)
2. The virtual joysticks work the same way as the physical joysticks of the remote control.
3. Please move slowly the ball of virtual joysticks for not losing control of the drone.

Accelerator



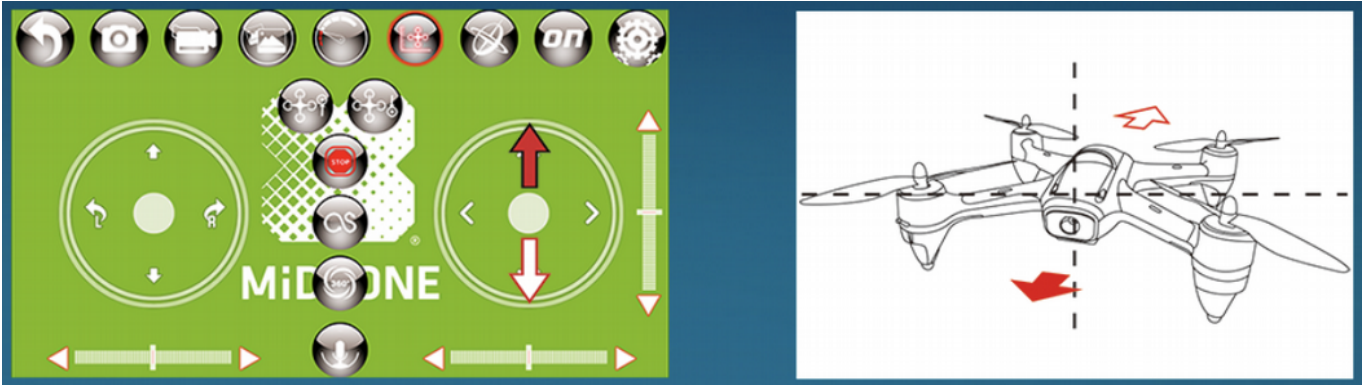
Slide the ball of the left joystick up to move the drone up and slide the ball down to move it down.

Turn left / right



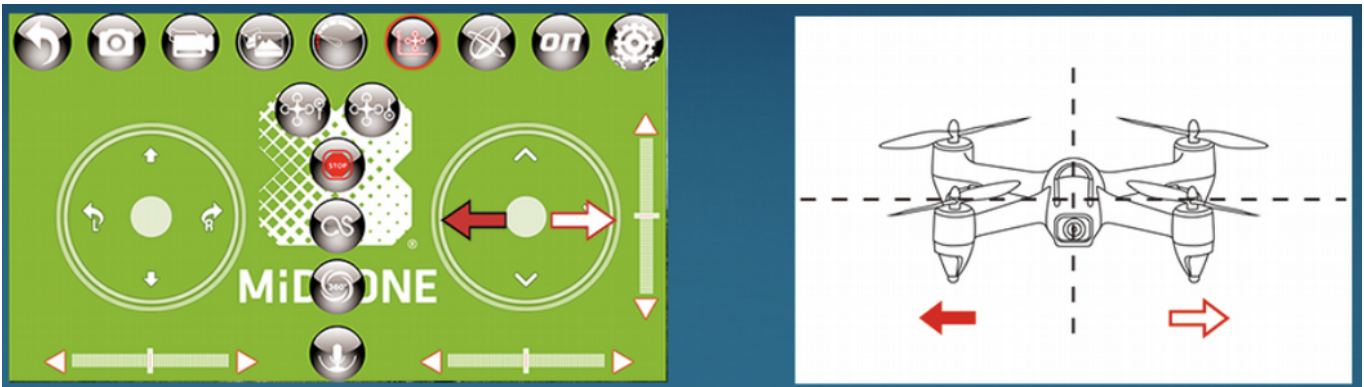
Slide the ball of the left joystick to the left to let the drone turn to the left and drag it to the right to let the drone turn to the right.

Forward / Backward fly



Slide the ball of the right joystick up to fly the drone forward and slide down to fly it backwards.

Left / right sideward fly



Slide the ball of the right joystick left to fly the drone leftward and slide it to the right to fly the drone rightward.

Note :

The micro-adjustments left / right (rotation and deviation) are located below the virtual joysticks. The micro adjustments forward / backward are on the right of the screen in left hand mode and on the left of the screen for right hand mode.

G-SENSOR CONTROL



Enable G-sensor control on the control interface (icon 7 in the control interface description on the left picture)
When this mode is enabled, the right joystick automatically switches to control by tilting the smartphone. The controls of the left joystick remains active for the management of the altitude and rotation.

Tilt the smartphone forward to fly the drone forward and tilt backward to fly the drone backwards.

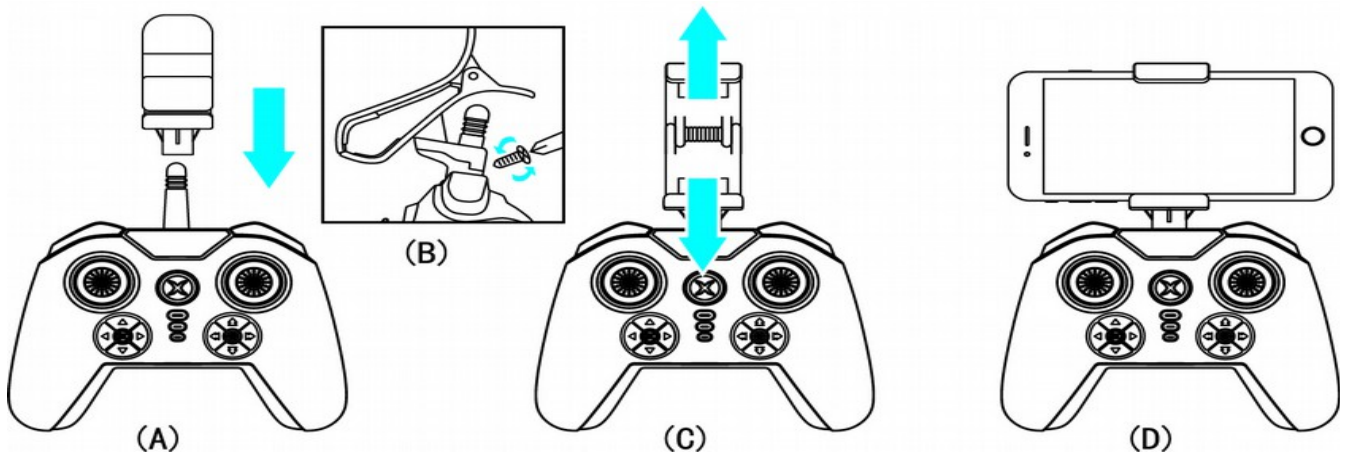
Tilt the smartphone to the left to fly the drone leftward and tilt it to the right to fly the drone rightward.

DRONE CONTROL BY REMOTE CONTROL

You can mount the smartphone on the remote and use the smartphone screen for video display only.

INSTALLING THE SMARTPHONE ON REMOTE CONTROL

Follow the instructions below to install the mobile phone mount on the remote control and to secure the smartphone on it.



FLIGHT PREPARATION

First synchronize the drone with the remote control as explained earlier in this manual.

Then start the Midrone 160 App on the smartphone and disable the display of joysticks on the control interface.

You can now control the drone with the remote control and enjoy the video transmission on the screen of your smartphone.

TROUBLESHOOTING

Problem	Cause	Solution
The remote control does not work at all	1. The batteries are used	Replace the batteries
	2. The batteries are not well installed	Check polarity indications and insert the batteries in the right direction
	3. The ON/OFF switch is on OFF	Power ON the remote control
The controls do not work properly	1. The drone battery is not correctly installed	Verify the connection of the battery
	2. The remote control and drone are not synchronized	Start again the synchronization procedure explained in this manual
	3. Bad weather conditions	Do not fly the drone in windy conditions or if it rains
The drone does not take off	1. The propellers are not rotating fast enough	Push the left joystick upward
	2. The drone battery is discharged	Recharge the battery
Brutal landing	1. The left joystick is pulled down too quickly	Pull the left Joystick slowly for a soft landing
Loss of control	1. Exceeding the maximum range of the remote control	The maximum range is approximately 70 m with remote and 30m in WiFi
	2. Bad weather conditions	Do not fly the drone in windy conditions or if it rains

WARRANTY CONDITIONS

1. Warranty period

The Midrone products and accessories are guaranteed against manufacturing defects for a total period of 24 months ** (consisting of an initial period of six months and a second period of 18 months) from the date of original purchase. Midrone sole obligation in the event of such defects during this period is to repair or replace the defective product or part with a comparable product or part at the sole discretion of Midrone.

The following components or parts are not within the scope of this warranty.

- Propellers & propeller protections : no warranty on this component
- The lithium battery receive a limited warranty for 6 months or 50 recharges

Existence of a lack of conformity on the day of purchase

To benefit from the conformity warranty of the defect in the product must exist at the acquisition date.

The defect in the product appears within 6 months after purchase

The defect in the product appears within 6 months after the purchase, it is presumed to exist at the date of acquisition.

The fault occurs more than 6 months after purchase

The fault appears more than six months after purchase, you can benefit from the guarantee of conformity only if you can prove that the defect existed at the time of purchase.

**** LAW 2014-344 of 17 March 2014 on the consumption, publication NOR: EFIX1307316L**

2. Warranty conditions

These conditions must be fulfilled for the warranty service.

You must include the purchase invoice or receipt as proof of purchase date.

- The product must not have been altered, modified, or repaired by unauthorized person.
- The product must have been used in a normal way as described in the manufacturer's manual.
- The serial number or lot number, labels and stickers sabotage must be intact, with no signs of tampering.

The guarantee is not applicable for

- Damage resulting from misuse, accident, shock, ...
- Damage resulting from the inability to use the product
- Damage resulting from a fault of the user
- Damage resulting from a job, use or installation not in accordance with the manufacturer's specifications
- Damage resulting from a bad use for the good preservation of the unit
- Damage resulting from use of inappropriate accessories or consumables
- Damages that result from use of unauthorized spare parts
- Damage resulting from modification or alteration of the product
- Damage resulting from pilot error
- The damage that result from misconfiguration
- Damage resulting from the use of the unit in a hazardous environment
- Damage resulting from the use of the unit in bad weather
- Damage resulting from the use of a defective or non-charged battery.
- Damage to components: Camera, Accu resulting from inadequate mounting of these components
- The damage resulting from the operation of the unit in an electro magnetic interference environment (radio transmission tower, high voltage son, high voltage transformer, etc.).
- Damage resulting from operating the unit in a known environment for interference from other wireless devices (Wi-Fi signals, data transmission, etc ...)
- The damage resulting from the operation of the unit with a higher weight than normal take off weight.

3. Return Product

The product can be returned to your dealer or directly at Midrone after asking in advance a return number on the site www.MiDrone.eu. If the returned unit is out of warranty, no refund or exchange will be allowed.

4. Spare parts available

The main spare parts such as propellers, battery, propeller protection are available for sale on the site www.MiDrone.eu

TECHNICAL SPECIFICATIONS

Drone size: 400x400x75mm
Drone weight with battery and camera: 130g
Flight stability with 6 axis gyroscope
Camera 480P – Real time video transmission on smartphone
Photo & Video resolution 640*480 pixels
Rechargeable LiPo battery 650mAh 3.7V
Fly time: 6-8 min in good conditions
Charging time: about 120min
3 flying speed - Direction lock (headless) -Return to remote control
Orbit Mode (follow a drawing) – Voice commands
Auto take-off – Auto landing – Altitude hold – Emergency stop
Range with 2,4Ghz remote control: about 30m
WiFi range with Smartphone: about 15m
APP MiDrone for iOS and Android for control via smartphone

Box content :

MiDrone SKY 160 Wifi with integrated camera
Remote control 2.4Ghz with holder for smartphone
4 blades installed + 4 blade protections + Screw driver
Battery LiPo 650mAh 3.7V + USB Charger
*4 batteries AAA 1.5V needed for remote controller (not included in the pack)

RESPECT THE ENVIRONMENT



This product or its battery can not be disposed of with household waste, it must be returned to a collection point to be recycled. Please check with your local authorities for details.

ABOUT THIS USER'S MANUAL

We strive to ensure that the information contained in this manual are as accurate as possible. Changes may be made to the manual or the product without prior notification. The latest updates will be available on our website www.midrone.com. Our company shall under no circumstances be held liable for injury or damage caused by errors or omissions in this manual.

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CE DECLARATION OF CONFORMITY

We, manufacturer / importer,
Company : A6 Europe s.a.
Address : 127-129 rue Colonel Bourg, 1140 Brussels, Belgium

Declare under our own responsibility that the following equipment :

Brand : MiDRONE
Item code: MIDR_SD160
Product description: R/C Drone MiDRONE SKY 160

is in compliance with the essential requirements and other relevant provisions of the European Directive RED 2014/53/EU. This product has been tested with the listed standards and found in compliance with the following European Directives :

N300440 V2.1.1 : 2017-03
EN301489-1 V2.2.0 : 2017-03
EN301489-3 V2.1.1 :2017-03
EN301489-17 V3.2.0: 2017-03
EN300328 V2.1.1 : 2016-11
EN624790:2010
EN60950-1:2006+A11: 2009+A1:2010+A12:2011+A2:2013
IEC62133: 2012
2006/66/EC (2013/56/EU)
2011/65/EU

Date : April 2018
David Peroo, Product Manager

