HUBSAN®



ZINO MINI SE

User Manual

HUBSAN
ENGLISH LANGUAGE EDITION



INDEX OF TOPICS

Disclaimer Notice
Flight restrictions
Flight requirements 4

Important safety information 5

Using smart batteries 6

1 - DRONE

1.1 - Dorne Parts 7
1.2 - Aircraft battery
1.2.1 - Battery charging 9
1.2.2 - Battery installation 9
1.2.3 - Intelligent battery function 10
1.2.4 - Precautions for low temperatures 11
1.2.5 - Battery precautions 11
1.2.6 - The propellers 11

2 - RADIO CONTROL

2.1 - Radio control components 12
2.2 - Radio control functions 13
2.3 - Charging the radio control battery 14
2.4 - Radio Control Diagram 15
2.5 - Angle of the radio control antennas 15
2.6 - Radio control calibration 16
2.7 - Radio control stick setting 16

3 - FLIGHT

3.1 - Download the X-Hubsan 2.0 Application 17
3.2 - Main interface guide 17
3.3 - Drone and Radio Control Pairing 18
3.4 - Drone calibration
3.4.1 - Horizontal calibration 19
3.4.2 - Compass calibration 19
3.4.3 - Starting and stopping engines 20

4 - FLIGHT CONTROL

4.1 - Flight control mode 21
4.2 - Drone LED indicators 21
4.3 - RTH (Return to home) 21
4.4 - Landing pad search 23
4.5 - Optical Flow positioning system 24

5 - FLIGHT MODE

5.1 - 360° Shooting 25
5.2 - Comet mode 25
5.3 - Orbit mode 26
5.4 - Waypoint 26
5.5 - Line Fly mode 27
5.6 - Follow me mode (Follow) 27
5.7 - Hyperlapse photography 28
5.8 - Free Flight Mode 28
5.9 - Circle Mode 29
5.10 - Panorama mode 29

6 - CAMERA

6.1 - Camera Settings 30
6.2 - Gimbal tilt 30
6.3 - Image and Video Storage 31

7 - APP X-HUBSAN 2.0

7.1 - Home page 32
7.2 - Settings and calibrations 32
7.3 - Waypoint Setting 33
7.4 - Controls 33
7.5 - FPV 33
7.6 - Cardan joint - (Gimbal) 33
7.7 - Map 33
7.8 - Smart battery 33
7.9 - General purpose 34
7.10 - General purpose - *Version* 34
7.11 - General purpose - *Live Streaming* 34
7.12 - General purpose - *Novice guide* 34

8 - VARIOUS WINDOWS

8.1 - Accounts 35
8.2 - Flight log 35
8.3 - Search for drone 35
8.4 - Web site 35
8.5 - Video Editor 35
8.6 - Service 35
8.7 - Tutorial 35

9 - VARIOUS TOPICS

9.1 Problems: causes and remedies 36
9.2 Refund or Replacement Policies 38
9.3 Warranty service 40
9.4 Limitations of Liability 42
9.5 FCC information 44
9.6 Examples of some functions 45
Annotations 46
Technical features 47

DISCLAIMER NOTICE

Users are encouraged to read the product instructions for use and this disclaimer before using any Hubsan product. By using Hubsan products, users agree to Hubsan's terms and conditions of liability and operational guidelines. This product is not suitable for children under 14 years of age. While using one or more Hubsan products, users also accept all responsibility for their behaviours, actions as well as any consequences resulting from their use. These products may only be used for appropriate purposes and in accordance with current laws and related regulations. Terms and any applicable guidelines, Hubsan may make them available. Users agree to comply with these terms and conditions, together with all relevant guidelines established by Hubsan. Part of the details in this document may change as the version of the software installed on the product is updated. Please read the details carefully before updating your software version.

FLIGHT RESTRICTIONS

Some flight functions of the product are limited in some areas. When using this product, you are deemed to have carefully read the regulations relevant to the current ICAO airspace control provisions and regulations governing UAVs. For any failure to comply with the above, you are responsible for the consequences for your actions, as well as for any indirect and/or direct liability that may arise arising from such limitations.

FLIGHT REQUIREMENTS

1 - Choose an open environment without buildings and tall obstacles (such as trees, poles, etc.). GPS flight control signals can be severely weakened near buildings and obstacles. The GPS functions as well as the "GPS Mode" and "Return to Home" modes may not work correctly.
2 - Do not fly the Drone in adverse weather conditions (such as wind, rain or fog).
3 - Fly the Drone at ambient temperatures between 0 and 40 °C.
4 - During flight, keep a safe distance from obstacles, people, high voltage lines, trees, water, etc.
5 - To avoid interference of the signal on the Radio Control, do not fly the Drone near electromagnetic complexes (such as places with radio stations, power plants, radio and television towers, etc.).
6 - The Drone cannot be used in or near the Arctic Circle and Antarctica.
7 - Do not fly in no-fly zones.
8 - Do not use the Drone near high voltage lines, airports or areas with strong electromagnetic interference stresses.

IMPORTANT SAFETY INFORMATION

USE

Exercise extreme caution and responsibility when using the Drone. Small electronic components inside the Drone may be damaged due to shock or exposure to liquids. To avoid damage, do not operate the Drone with broken or damaged components.

MAINTENANCE

Do not attempt to open or repair the drives yourself. Please contact Hubsan technical support or an authorized reseller directly for assistance. For more information, visit the official website at www.hubsan.com.

BATTERIES

Do not disassemble, crush, impact, burn, drop or step on the battery. Do not short or contact the battery terminal with metal. Do not expose the battery to temperatures above 60°C. Charge the Drone battery before flight. Please use a Hubsan dedicated charger for charging. Keep the battery out of the reach of children and away from any type of moisture.

FLIGHT

Please be mindful of your personal safety and the safety of others when flying.

- Do not fly in adverse weather conditions.
- Do not attempt to grab the Drone while it is in flight.
- This product is intended for experienced riders over the age of 14.
- After each flight, disengage the motors and turn off the Drone, disconnect the battery, then you can turn off the radio control.

SYMBOLOGY



Forbidden operation



Instruction



Important information



Explanation - Reference



READ THE DISCLAIMER AND SAFETY GUIDELINES BEFORE USE

READ THE INSTRUCTIONS IN THIS MANUAL CAREFULLY BEFORE USING THE DRONE

USE OF INTELLIGENT BATTERIES

LiPo batteries are different from conventional batteries in that their chemical contents are enclosed in a particularly thin and light foil casing. This has the benefit of significantly reducing their weight but makes them more susceptible to damage if handled roughly and inappropriately. Like all batteries, there is a risk of fire or explosion if safety practices are ignored.

- If you plan not to fly the Drone for a long period, it is advisable to keep the battery at approximately 50% charge to maintain performance and battery life batteries.

- Use Hubsan charger for battery charging.
- Discharge the battery at a temperature no lower than 5°C. To avoid discharge complete and therefore damage the battery, do not prolong the discharge time.
- Do not charge on flammable surfaces: such as carpets or other.
- After 3 months of inactivity the batteries must be recharged.

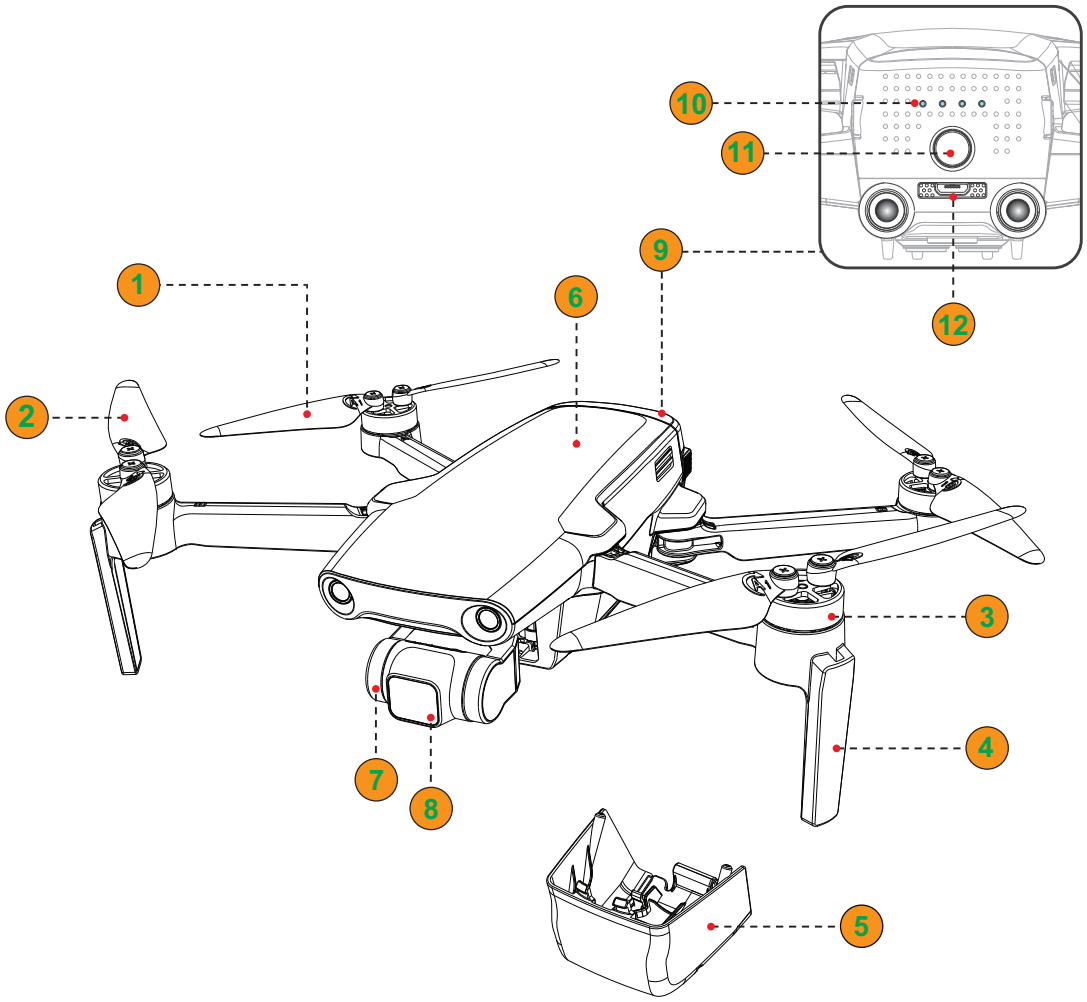


1. Do not disassemble or reassemble the battery.
2. Do not short circuit the battery.
3. Do not use or charge near heat sources.
4. Do not put the battery in contact with water or any type of liquid.
5. Do not charge batteries in sunlight or near heat sources.
6. Do not puncture or subject the battery to force of any kind.
7. Do not handle the battery improperly.
8. Never charge a damaged, deformed or swollen battery.
9. Do not weld on or near the battery.
10. Do not overcharge or excessively discharge the battery.
11. Do not reverse the charge or polarity of the battery.
12. Do not connect the battery to a car charger, cigarette lighter or any other non-conventional power source.
13. This battery should be used only for its designated use.
14. Do not use other types of batteries with lithium batteries at the same time.
15. Do not exceed the specified charging time.
16. Do not place the battery inside a microwave oven or in areas subject to high pressure.
17. Do not expose or leave the battery under the sun.
18. Do not fly the Drone in places with strong interference from high voltage lines, electrical power substations, high-speed railway lines, radio and television transmission towers, telephone towers, etc.
19. Do not use or charge in temperatures below 0°C or above 45°C.
20. If a newly purchased battery is used, and it has a bad odor or other abnormality, return it to the seller immediately.
21. Keep out of reach of children.
22. Use a dedicated charger and follow all charging requirements.
23. Minors using the battery and its dedicated unit must always be supervised by an adult.
24. Do not use batteries in facilities with high static electricity.

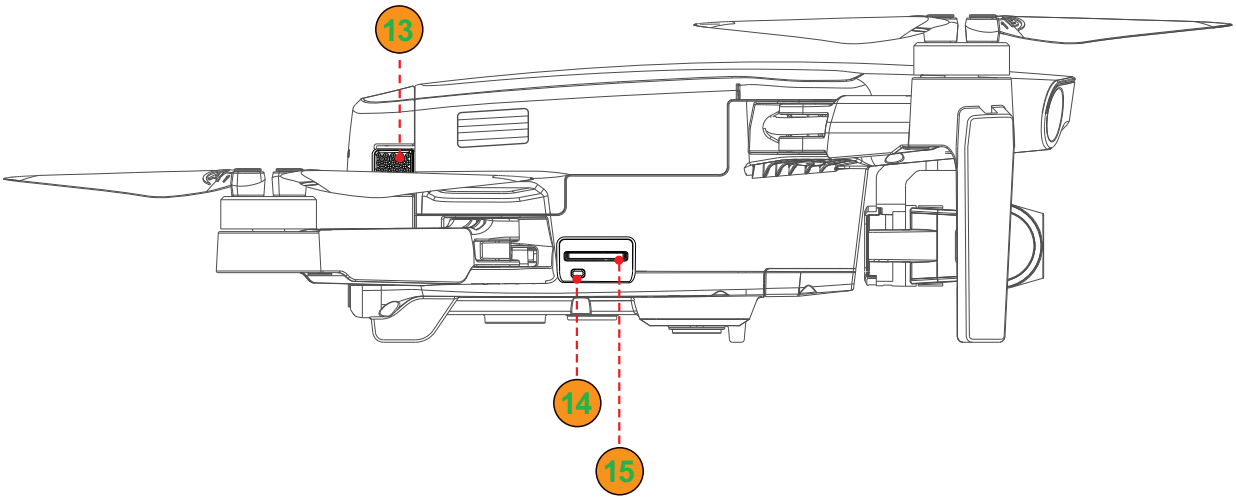
1. DRONE

1.1 - Drone parts





1. Propeller A
2. Propeller B
3. Engine
4. Foot (with antenna)
5. Gimbal protection
6. Drone body
7. 3 axis Gimbal
8. Camera 4K HD
9. Smart Battery
10. Battery level indicator
11. Power button
12. USB Port



13 **Battery fixing clips**

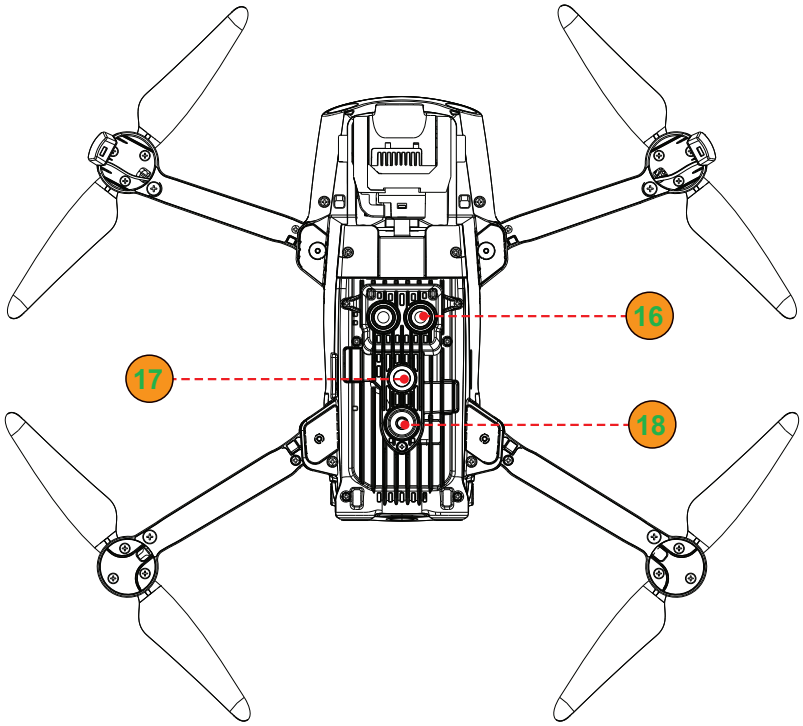
14 **Button for pairing with radio control**

15 **TF card slot**

16 **Sensors for altitude hold at low altitude**

17 **Ground vision sensor VPU**

18 **LED landing light for night flight**



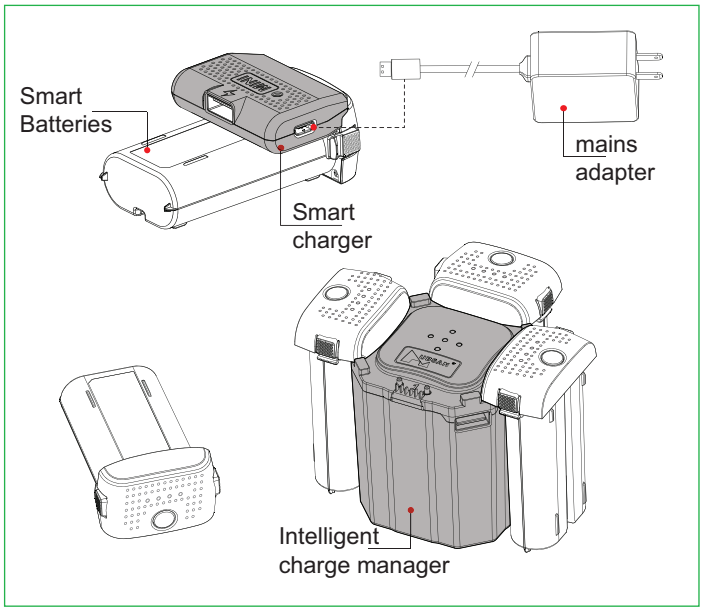
The aircraft, when in operation and after the flight, generates heat. Avoid holding the drone with your hands in the part underneath where the aluminum heat sink is housed, to avoid burns.

1.2 Aircraft battery



1.2.1 Battery charging

The capacity of the lithium battery of the drone is 3000 mAh, for a voltage of 7.2 V, the standard version is supplied without a charger therefore it is sufficient, to charge the battery with a phone charger with Micro USB adapter, the time of charging, a 2A charger, and about 2.5 hours. By purchasing the versions with bag or "combo", a standard charger is supplied, the charging time is approximately 90 minutes. Press the button on the battery once, a series of LEDs will light up based on the battery charge.



1 - Connect the power supply to the AC mains (100V-240V, 50-60 Hz).

2 - Connect the switched off smart battery to the charging adapter.

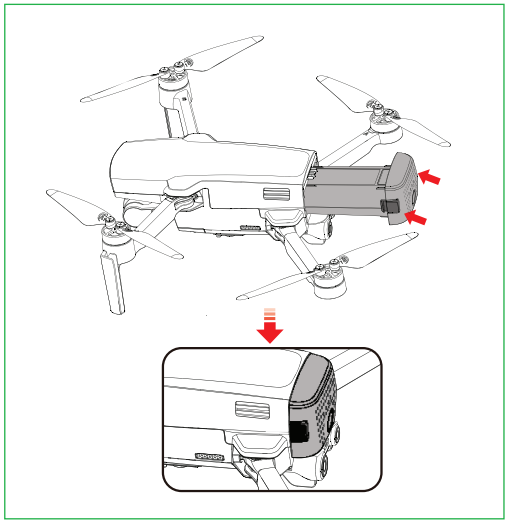
3 - The battery level indicator will flash and indicate the charge level

4 - The smart battery is fully charged when the power lights are all off.

Disconnect the battery from the power supply after charging.

1.2.2 Battery installation

1. **Have a 100% charged battery**
2. **Insert the battery into the compartment, press the clips on both sides of the battery until you hear the click.**
3. **If the battery has been inserted correctly it should be flush with the structure of the drone.**



For long-term storage of the battery, after using it, recharge it (at least 50%) to avoid compromising its life.

1.2.3 Intelligent battery functions

1) Power display: The battery has a power indicator, which can display the battery power.

2) Battery storage protection: After the battery is fully charged and stored for 10 days without any use, it will automatically turn into self-discharge mode to protect itself (there may be slight heating during discharging).

3) Balance Protection: The battery automatically balances the cell voltage to protect against deterioration.

4) Charging temperature protection: When the battery temperature is below 5°C or above 40°C, it may be damaged. So the battery will not charge at these temperature values,

5) Overcharge protection: High current charging will seriously damage the battery. Therefore when the charging current is too high, the battery will automatically stop charging.

6) Overcharge protection: Overcharging will seriously damage the battery. When the battery is fully charged, it will automatically stop charging.

7) Over-discharge protection: Over-discharge will seriously damage the battery. When the battery is not in use it will stop supplying power at a certain voltage. While the over-discharge protection will not allow the Drone to start.

8) Short circuit protection: When the battery detects a short circuit, it will cut off to protect itself.

9) Cell damage detection: When the battery is detected to be damaged or severely unbalanced, the damage will be indicated.

10) Hibernation Protection: When the Drone is powered on but in standby, it will enter a non-operational state after 20 minutes to maintain charging. When the battery charge is less than 5%, if the Drone is stationary but not turned off, it will automatically turn off. If the Drone is turned off, the battery will automatically enter the sleep state to avoid excessive discharge. At this time, short press the off switch, the battery can be reactivated by charging it.

11) Communication: the aircraft can send information, such as battery voltage and power, in real time through the communication interface located on the battery, furthermore the information also appears on the display of the radio control.



BATTERY BUTTON
Short press to check battery level, it will automatically turn off after 3 seconds.
First short press and then long press to switch on/off, the indicator light turns on or off.

1.2.4 Precautions for low temperatures

1 - If the battery is used in a low temperature environment (-10°C to 5°C), please fully charge the battery and keep it warm before use.

2 - The battery cannot be used in an environment with a temperature lower than -10°C.

3 - In a low temperature environment, it is recommended to immediately stop the flight when the APP communicates "Low battery alarm".

4 - In a low temperature environment, it is recommended to preheat the battery to 5°C or above before flight.

5 - In low temperature environments, the wind resistance of the Drone will be reduced due to the limitation of the battery output power. Please operate with caution.

6 - Before flying in a low temperature environment, it is possible to insert the battery into the Drone after heating it for 1 or 2 minutes. Takeoff is possible after the battery has warmed up.

1.2.5 Battery precautions

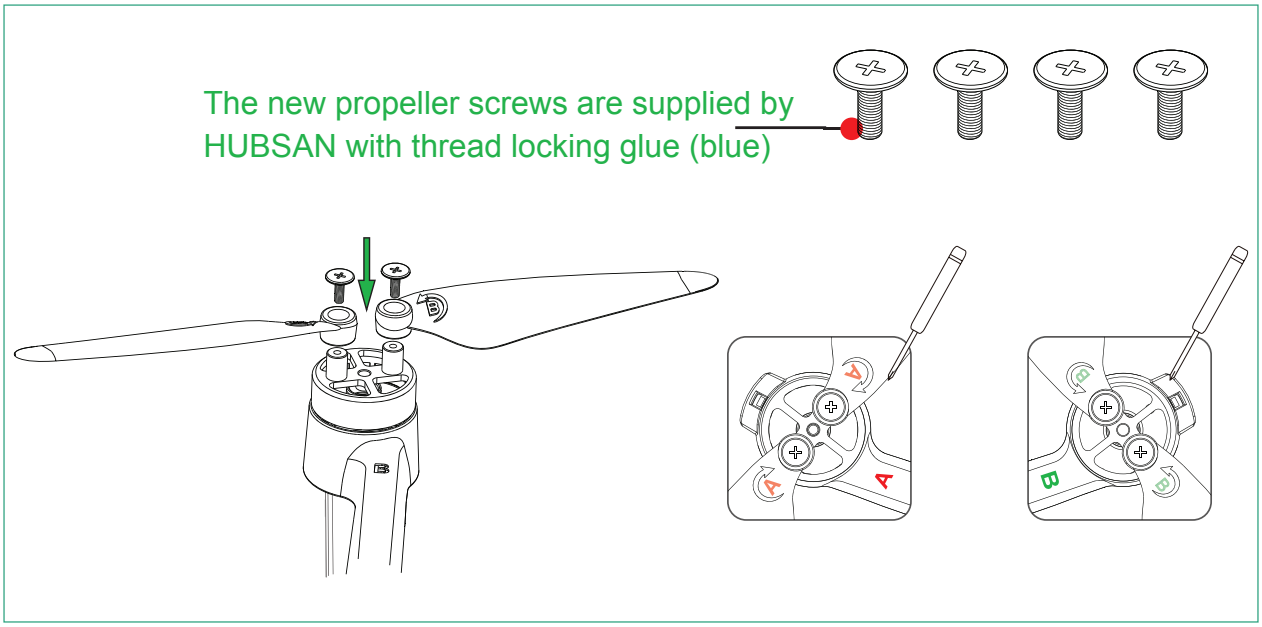
Make sure to fully charge the battery each time before flying the Drone. The flight battery must use a dedicated Hubsan power adapter for charging.

1 - If the temperature of the intelligent flight battery is high at the end of the flight it must be cooled to room temperature before charging.

2 - The charging temperature range of the intelligent flight battery is 5°C to 40°C. If the battery cell temperature is not in this range, the battery management system will prohibit charging. The optimal temperature range for charging is 25 ± 3°C. Charging in this temperature range can extend battery life.

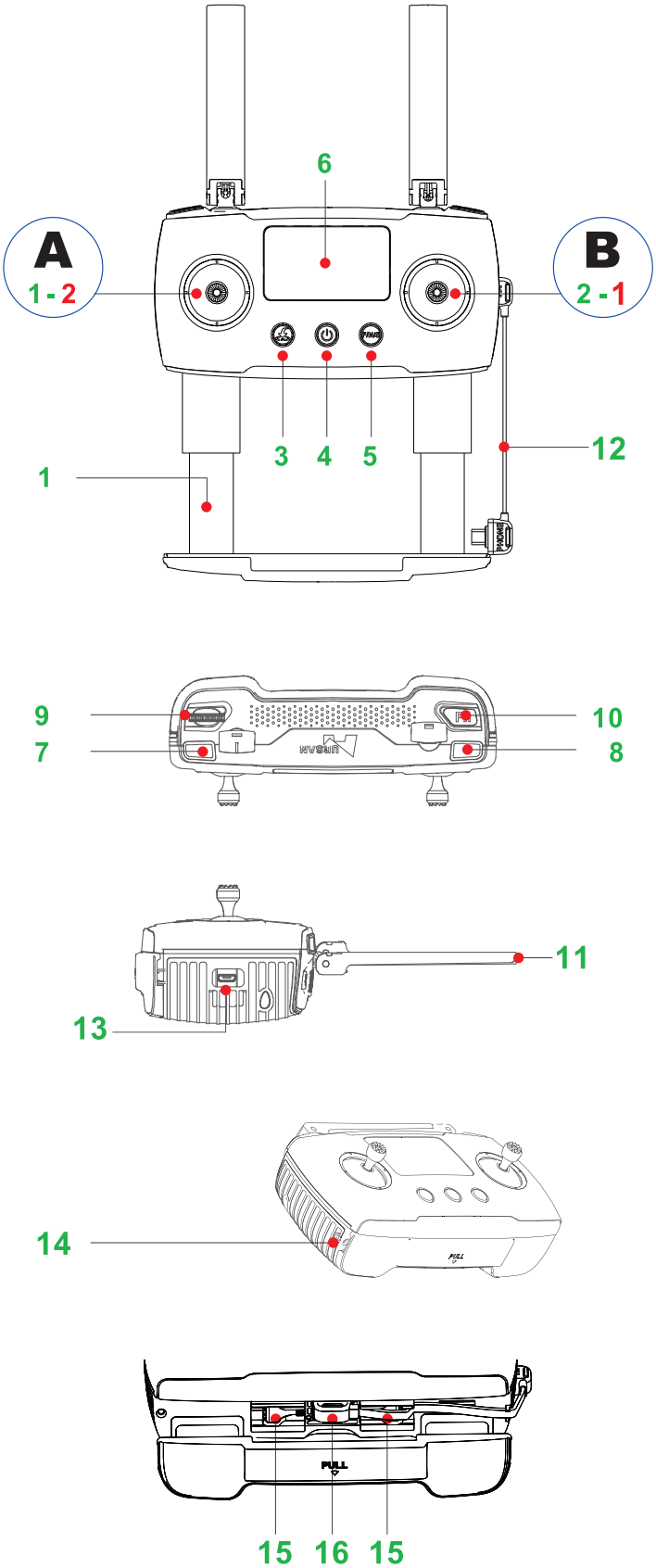
1.2.6 The propellers

Before installing the propeller, carefully check the letters next to the Drone's motor and the letter engraved on the propeller. The two letters must match during installation. If the propeller blade is damaged it must be replaced, turn the screws counterclockwise to remove them.



2. Radio control

2.1 Names of components of the radio control





1) Smartphone support

A 1-2) Up-Down / Left-Right rotation

B 2-1) Forward/Backward - Left/Right

3) RHT (Return to home)

4) On and off button

5) Speed button:**F**/**N**/**S** **F**ilm mod. - **N**ormal mod. - **S**port mod.

6) Display

7) Button for taking photos

8) Button to record videos

9) Gimbal adjustment

10) Programmable button

11) Antennas

12) Smartphone connection cable

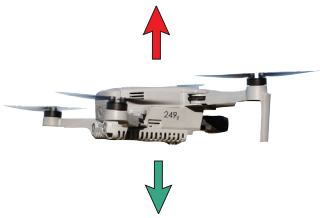
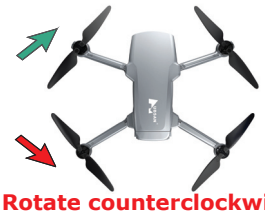
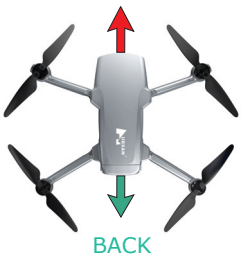
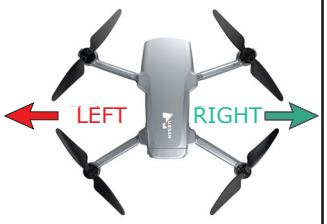
13) Mini USB port for battery charging and connection.

14) Hole for lanyard.

15) Compartment for storing sticks

16) Compartment for storing the USB connector

2.2 Radio control functions

RADIO CONTROL	DRONE	FUNCTIONS
 **A** 1	Climb  Descent	The power stick is used to make the drone ascend or descend. Pushing the stick forward makes the Drone go up, pushing it back makes the Drone go down. When the stick is in the central position the Drone maintains height. The stick must be pushed forward to allow the Drone to take off. The faster it is pushed, the higher the Drone climbs. Slowly and gradually push the stick back to achieve a soft landing.
 **A** 1	**Rotate clockwise**  **Rotate counterclockwise**	The rudder is used to control the rotations of the Drone. By pushing the stick to the left the Drone rotates counterclockwise, while pushing it to the right it will rotate clockwise. With the stick in the center position the angular speed is equal to 0° therefore the Drone does not rotate. The faster the stick is operated, the faster the rotation will be.
 **B** 2	FORWARD  BACK	The stick controls the forward or backward movement of the Drone. By pushing the stick forward the Drone will tilt and fly forward. By pushing the stick back the Drone will tilt and fly backwards. The stick, in the central position, will maintain the hover position. The degree of push of the stick will determine the degree of inclination of the drone and therefore the speed of the forward or backward movement. The greater the stick thrust, the greater the inclination angle and the speed both forwards and backwards.
 **B** 2	 LEFT RIGHT	The stick controls the left or right movement of the Drone. By pushing the stick to the left the Drone will tilt and fly to the left. By pushing the stick to the right the Drone will fly to the right. The stick, in the central position, will maintain its altitude height (hovering). The sudden movement of the stick will determine the degree of inclination of the Drone and therefore the speed of its movement, left or right. The greater the thrust of the stick, the greater the inclination angle and the flight speed of the Drone both to the left and to the right.
3	RTH (Return to home)	Long press the button to enter RTH mode, short press to exit. During the return flight, the Remote Control will emit "Beep ... Beep ..." (once every three seconds).
4	Switch of power supply	Press the button first briefly and then for a long time to turn it on or off.
5	Mode **F**ilm **N**ormal **S**port	**Film** mode: aircraft flight speed 1 m/s. - **Normal** Mode: the Drone flies at the maximum speed set by the APP, 10 m/s. - **Sports** Mode: The maximum flight speed of the Drone is 16m/s.
6	Display	View flight parameters.
7	Photo	Make a short press to take photos.

RADIOCONTROL	DRONE	FUNCTIONS
8	Video	Long press to start recording, short press to end recording.
9	Gimbal adjustment	Check the angle of the gimbal joint.
10	Button Programmable	Press and hold the FN button, rotate the gimbal adjustment wheel to adjust the brightness of the remote control display. The remote control buzzer beeps when the battery is low or RTH is activated. Press the FN button for 1.5 seconds and the beeping will stop. Long press the FN button to reset the beep. Custom keys, set the function on the APP and save it when the APP is not connected, (short press) the FN button does not operate. Function one: Exit the current flight mode. the APP is working for the various functions. Short press FN to exit the current mode and the Drone frees itself. Function two: Short press FN to perform gimbal return. Function three: No function to set.
11	Charging port and USB adapter	Charging the remote control and connecting to a smartphone or tablet device.
12	I notify Low battery	Low battery warning for the Drone or the remote control: Emission of "Beep ... Beep ..." acoustic signals from the Remote Control (once per second).
13	Stand-by Protection	If the remote control is idle for 10 minutes after stand-by, the remote control will make a "Beep... Beep..." (once every three seconds) After 3 minutes of warning, the remote control will automatically turn off.

The remote control sticks are self-centering thanks to a spring system: the sticks will center themselves automatically when they are released. The sensitivity of the sticks depends on the force that is applied to push or pull them from the center point.

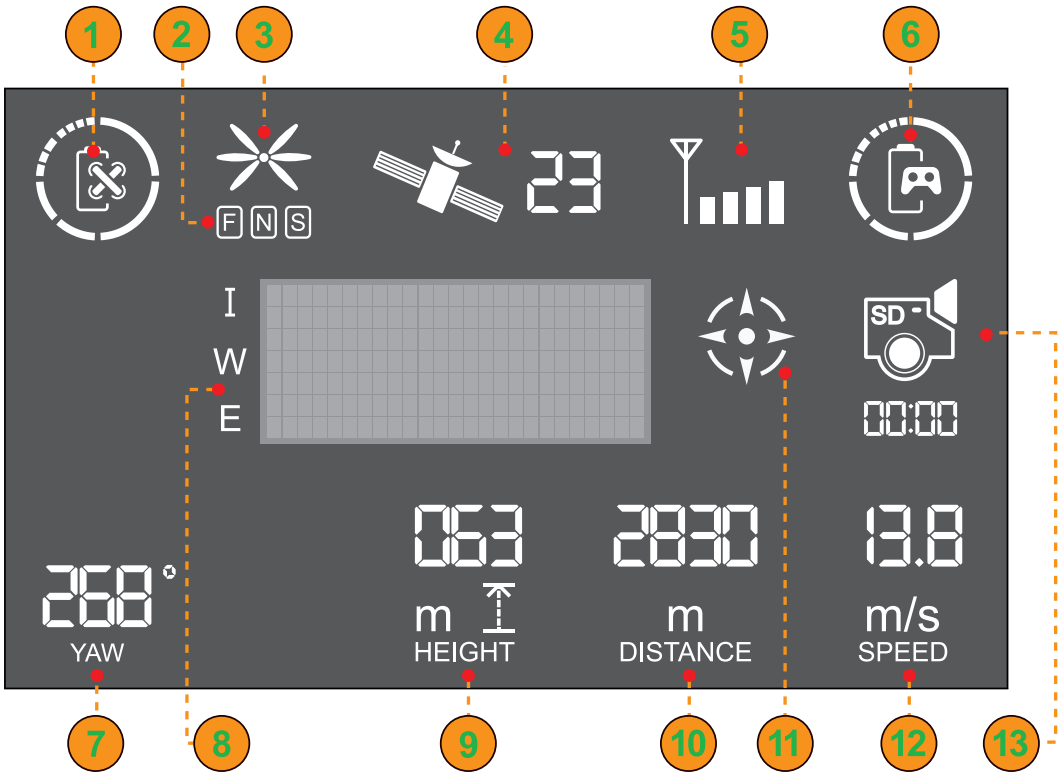
2.3 Charging the radio control battery

The remote is charged using the Micro USB cable as shown:



- he charging time of the radio control is approximately 2.5 hours.
- The control battery charge indicator light flashes while charging.
- When charging is complete, the control indicator will be solid.
- Use on full charge approximately 1.5 hours.

2.4 Radio Control Diagram



1. **Drone battery level**
2. **Speed mode**
3. **State of the propellers**
4. **GPS satellites locked**
5. **Drone control signal**
6. **Radio control battery level**
7. **Heading angle**
8. **Information area**
9. **Flight height**
10. **Flight distance**
11. **Compass calibration**
12. **Drone speed**
13. **Photo / Video**

2.5 Angle of the Radio Control antennas

1 - Adjust the angle of the antennas and direct them as much as possible towards the Drone.

2 - The distance between the two antennas is adequately narrow to maintain directivity for the long distance.

3 - The antennas are appropriately separated to maintain a wide range of action;

4 - Do not place obstacles and cross the antennas well.





2.6 Radio control calibration

1 - Pull both joysticks to the top left corner and simultaneously press and hold the power button to turn on the Remote Control, release the power button and the sticks after hearing the Remote Control emits some beeps.

2 - Rotate both sticks to the maximum angle clockwise at least 3 times, then release the sticks.

3 - Long press any button **(except the power button)** on the transmitter, when the remote control emits 3 beeps and the display indicates the battery level and the transmission signal level, the calibration has been completed.

4 - Turn off and restart the radio control.



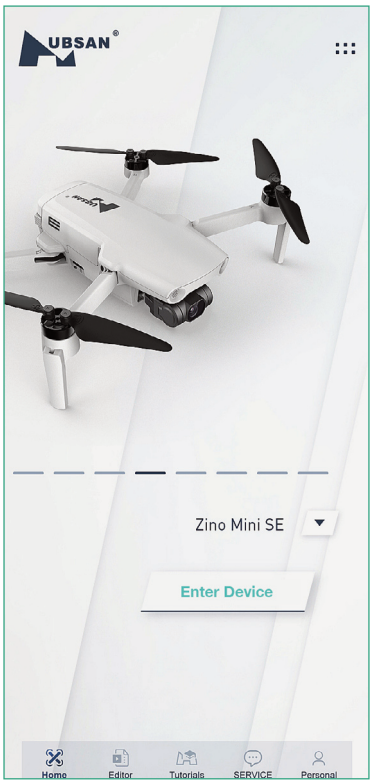
2.7 Setting the radio control sticks

Open the menu from the App: *Settings - Control - Stick Control Settings.* The setting allows you to change the control mode (Mode 1 - Mode 2). Please remember that the default setting is MODE 2



3. Flight

3.1 X-Hubsan 2.0 application



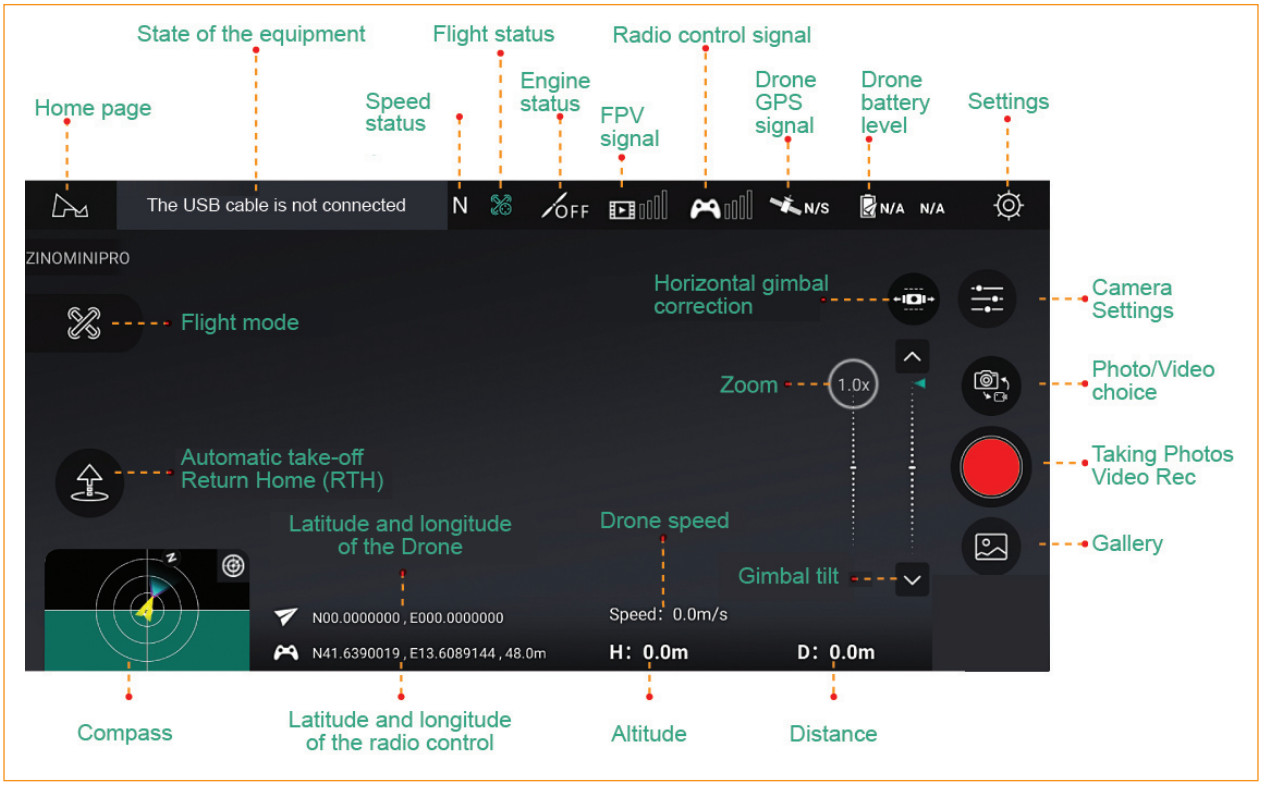
Before flying, the user will need to download the **X-Hubsan 2.0** Application.

Download the Application for free by scanning the QR code shown on the side.

Alternatively, download it via the APPLE Store for **IOS** systems or with Google Play for **ANDROID** systems.

QR code to download the X-HUBSAN 2.0 App for Android

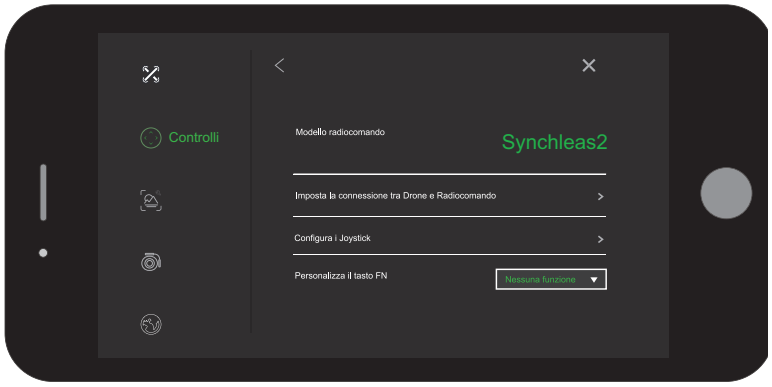
3.2 Guida all'interfaccia principale



(Note: This interface is in map mode).

3.3 Pairing the Drone with the Radio Control

To use the Drone for the first time, you need to activate it:



1 - Press the button on the battery to turn on the Drone.

2 - Turn on the Radio Control and connect to the Smartphone or Tablet and wait for the Radio Control to connect correctly with the Drone.

3 - Open the X-HUBSAN 2.0 APP from your Smartphone or Tablet, after which you will automatically enter the activation interface.

4 - A new user must necessarily register on the HUBSAN account, while a user who is already registered and who has therefore already had access previously via the App can be accessed directly by entering the username and password to activate the Drone.

5 - Run the X-HUBSAN 2.0 APP and select the Drone model.

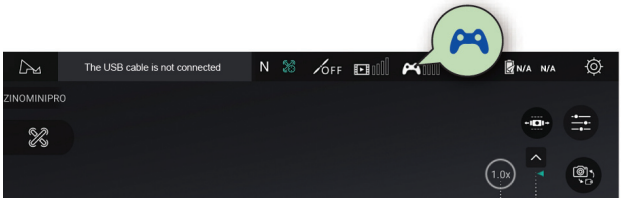
6 - Turn on the Drone.

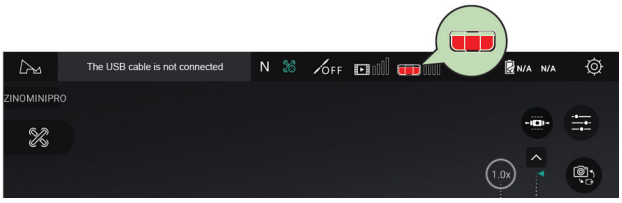
7 - Turn on the remote control and connect it to the Smartphone or Tablet using the RC cable, supplied in the package, with a connector suitable for the device model.



8 - Start the association (this step is necessary only for the first association ciation. If replacing the radio control, it must be done manually).

9 - Long press the Drone's link button to enter link mode.



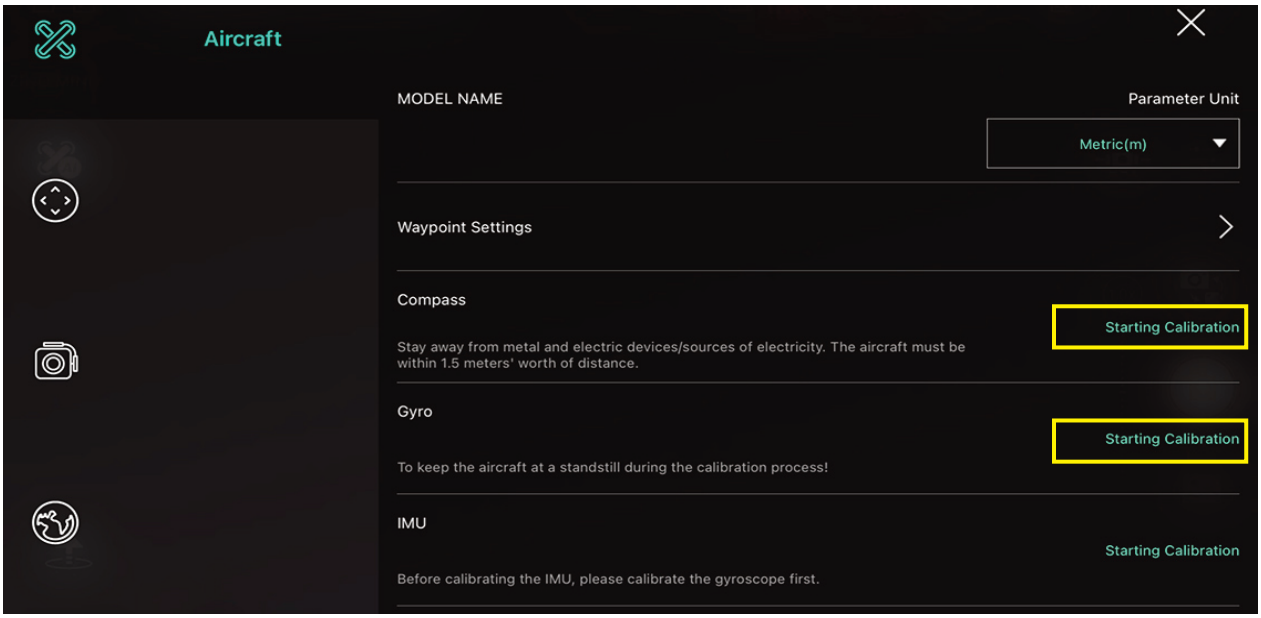


- **The pairing process was done at the factory. The Drone can therefore take off directly.**
- **After entering pairing mode, the image indicator (yellow) flashes rapidly and will become solid after pairing is successful.**
- **Keep the remote control no more than one meter away from the drone during the pairing process.**
- **The Drone is unable to activate the pairing during flight.**

3.4 Drone calibration

3.4.1 Horizontal calibration

If during flight the drone shows significant horizontal deviation, land and disarm the engines. Place the drone on a perfectly level horizontal surface. Open the setting interface in the APP, select horizontal calibration. The drone will automatically perform the calibration, at the end a message on the screen of the mobile device will inform you of the completion of this phase. **Do not move or move the Drone during calibration.**



3.4.2 Compass calibration

When using the drone for the first time, the compass calibration before take-off message will be displayed. Follow the on-screen instructions, rotate the drone horizontally, then point the drone's bow down towards the ground and rotate it clockwise. The compass calibration message will disappear once completed. Complete compass calibration before flying the drone for the first time. The compass is susceptible to interference from other electronic devices, resulting in erratic flight. Regular calibration helps keep the compass and its readings accurate. Select "Compass Calibration" in the APP setting interface.



Calibration 1



Calibration 2

The compass is susceptible to interference from other electronic devices, resulting in erratic flight. Regular calibration helps keep the compass and its readings accurate. Select "Compass Calibration" in the APP setting interface.

3.4.3 Starting and stopping engines

The conditions for starting the engines must be the following:

1 - The Drone, the Radio Control, the Smartphone or the Tablet must be connected;

2 - The Drone is calibrated with the compass (the App does not require calibration);

3 - The Drone must be positioned horizontally;

4 - The Drone has not locked onto sufficient GPS satellites useful for the flight. Do not force takeoff;

5 - The power of the drone should be =15%;

STARTING THE ENGINES

Push both sticks into the bottom outer corners. With the engines running, release the sticks.

STOPPING THE ENGINES

Push both sticks into the bottom outer corners. With the engines stopped, release the sticks.

FORCED STOP OF THE ENGINES

With the Drone in flight it is possible to force the engines to stop by pushing both sticks in the lower external corners for at least 2 seconds. This function must be used with extreme caution, since stopping the motors will inevitably cause the Drone to fall, causing parts to break, furthermore the fall could compromise the safety of people or things.



Do not move the sticks diagonally down and outwards during flight, otherwise the motors will shut down causing the Drone to fall.

When in flight, use the sticks gently.
After activating or deactivating the engines, release the sticks.

4. Flight Control

4.1 Flight Control Mode

FLIGHT CONTROL MODE The flight controller analyzes the GPS signal and changes the corresponding modes	
GPS MODE	The Drone uses GPS fixed points if the signal is optimal, it also uses the assistance of the optical flow sensor for stable and precise flight.
MODE FLOW OPTICAL	When the Drone is in flight and detects a poor GPS signal, it uses the optical stabilization mode. The effective fixed height in optical stabilization is 5 meters, and above 5 meters for attitude mode. In this mode, the maximum speed of the Drone is 2 m/s. The "intelligent" mode is not available. It is advisable to fly with great caution.
MODE ALTITUDE FOR PILOTS EXPERTS	When the GPS control and the optical stabilization system are insufficient, only manual flight is available, the intelligent mode is inactive. The attitude mode and fixed point of the Drone will not normally be stable, so you need to land as soon as possible.

FLIGHT SPEED	
FILM MODE	The Drone will fly at a maximum speed of 3 m/s
NORMAL MODE	The Drone will fly at a maximum speed of 10 m/s, furthermore the speed can be adjusted via the App settings between 10 and 100%.
SPORT MODE	The Drone will fly at a maximum speed of 16 m/s. This mode is only available with GPS signals. The anti-collision sensors are not active.

4.2 Drone LED indicators

VIDEO (Red LED) - IMAGES (Yellow LED)		
ERROR OF CAMERA	• The Red LED flashes slowly.	
ERROR OF FUNCTION	• Red LED on. • LED Yellow off.	
START	• LED Red on. • Yellow LED off.	
VIDEO WORKING	• LED Red on. • Yellow LED off.	
PHOTO WORKING	• LED Red off. • Yellow LED on.	
PAIRING	• LED Red off. • Yellow LED flashes quickly.	
DISCONNEC-TION	• LED Red on. • Yellow LED flashes quickly and slowly.	
UPDATE	• LED Red flashes fast file transfer. • Yellow LED flashes fast file transfer	• • Slow flashing while writing file.

4.3 Return to Home (RTH)

There are three types of Return Home (RTH): RTH with one button, RTH with low battery and RTH for disconnection with the Radio Control. At take-off the GPS must have locked more than 6 satellites (preferably 10), the Drone marks the take-off point as the starting point.

RTH PROCESS	
1	Make sure whose take-off point has been registered (Home)
2	Activate the following parameters to perform RTH: **1 - Set the altitude of the drone during RTH;** **2 - Activate the Landing Pad search if necessary;** a) Regardless of the flight altitude if the Drone is within 5 meters from the landing base, it can land regularly; b) If the distance from the landing point is between 5 and 20 meters you can return to the landing point with the same altitude. c) Starting from 20 meters from the take-off point if the altitude of the Drone is higher than that defined by the application, the drone performs the RTH without modification the altitude. On the contrary, if the altitude is lower than that defined in the application the Drone will rise to perform the RTH and finally land.
3	During the RTH phase the Drone will search for the landing mat. Make sure this feature has been activated.

RTH PROCESS WITH ONE KEY
From the remote control press the RTH button. - From the App press the RTH button

RTH PROCESS FOR LOW BATTERY	
The flight controller will display a warning if the battery is low. If the battery charge is insufficient the Drone will automatically return to the landing base, otherwise it will land directly. Furthermore, in the absence of a GPS signal, the Drone will land directly.	
1	The emergency battery voltage is automatically calculated based on the altitude and flight distance.
2	After normal or forced landing due to low battery, if the charge is less than 10%, the Drone enters protection mode: it deactivates image transmission but preserves normal data communication.

RTH DUE TO CONNECTION LOSS	
When the Drone loses connection with the Radio Control for more than 5 seconds, it returns to the take-off point and lands automatically.	
1	After the Drone has lost the connection for more than 5 seconds it will activate the RTH.
2	If the connection is restored during the return flight, the return flight may be cancelled.
3	Direct landing in the absence or weak GPS signal strength.
4	The moment the Drone re-establishes the connection, the priority control signal establishes a connection. If the image connection is not re-established within 10 seconds after the signal is re-established, the image connection can also be activated from the shortcut button.

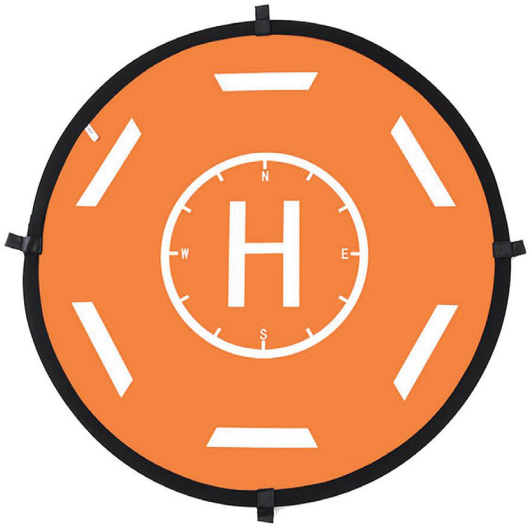


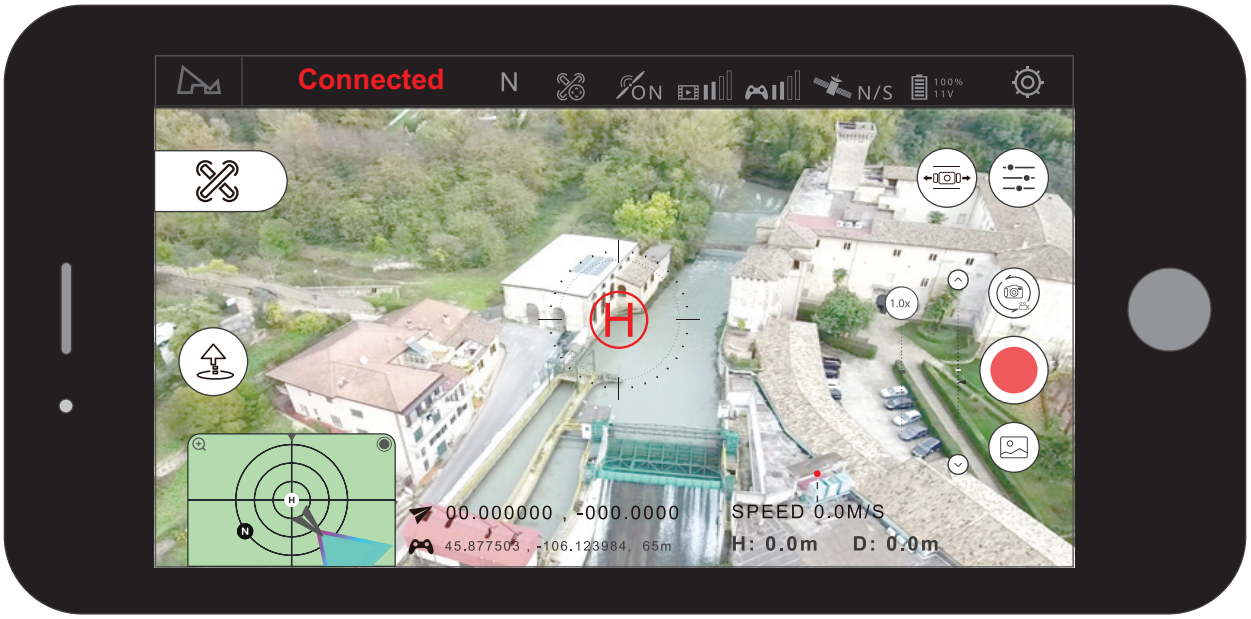
During a forced take-off, in the absence of GPS signals, if during the flight the Drone locks onto the GPS signal, it will record that point as the initial take-off position and therefore RTH.

4.4 Landing pad search

When the Drone is returning and at a height of approximately 10 meters from the ground, it will automatically search for the Landing Pad to perform the landing. The Gimbal does not take into account the take-off phase but only the landing phase.

REQUIREMENTS OF LANDING PAD	
1	Sharp contrast between the bottom and the writing on the Landing pad.
2	The letter **"H"** character on the landing pad should be printed in white.
3	The landing pad must be free of obstacles and possibly flat.

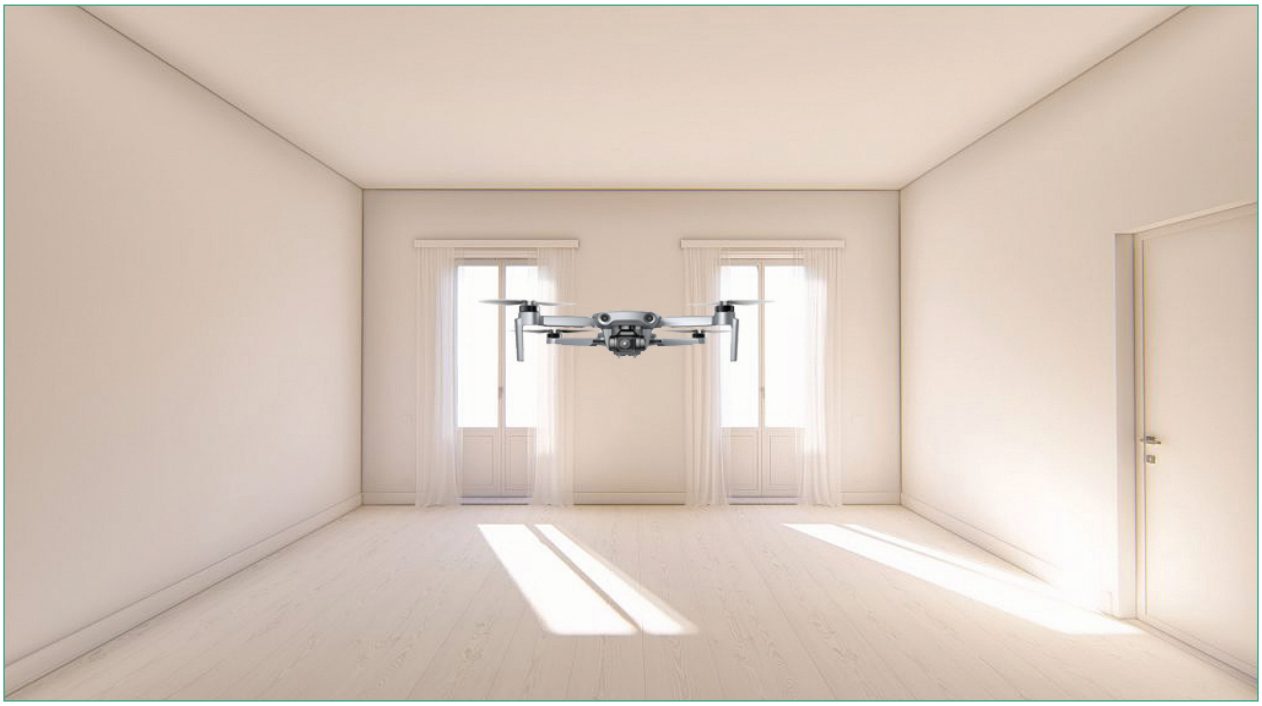




LANDING PHASES	
1	The Drone will first pan towards the top of the landing pad for recognition, after which, once recognized, it will land softly. When you land from a height of less than 3 meters, the Drone's camera will resume horizontal view and will no longer be able to adjust the position and will therefore land directly. If errors or other unexpected circumstances occur, press the landing stop button
2	If the Drone does not find the landing pad within a radius of 5 meters or the battery is flat, it will land directly.
3	Landing pad mat search cannot be done in video mode.
4	If the landing pa is not needed, turn off this feature.

4.5 Optical flow positioning system

The aircraft is equipped with a downward optical flow vision positioning system which is composed of a downward vision camera and a TOF (time of flight) so that the drone can stably clear at low altitudes without, or with weak GPS signals.



1) Optical flow vision systems work well with adequate lighting and clearly visible or structured obstacles. The Drone is not designed to replace the pilot's commands and assessments, pay attention to the suggestions of the X-HUBSAN 2 APP.

2) The optical flow system cannot be used normally in environments with light that is too bright, too dark, specular, watery, reflective, poorly structured, etc.

3) The best working range of the downward optical flow system is 0.5 to 5 meters. When this range is exceeded, positioning performance may decrease. Fly with caution.

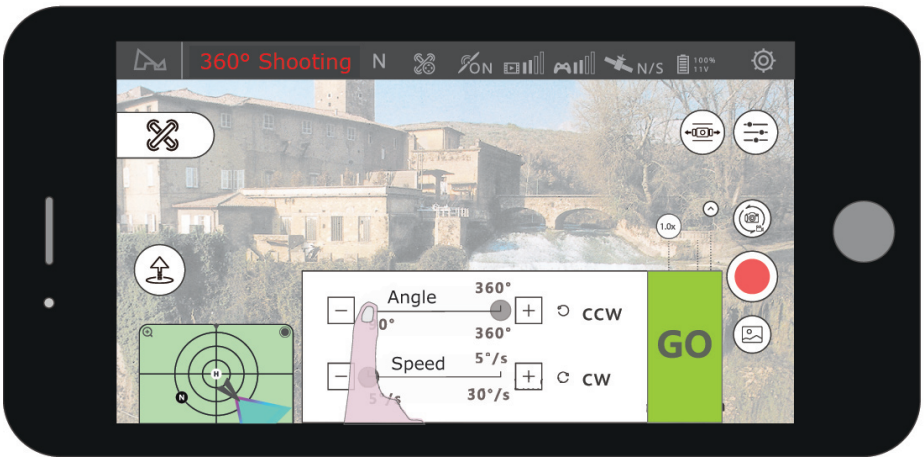
4) Always keep the vision sensors clean. Do not obstruct and/or interfere with the detection system.

5) The optical flow vision system can only be used indoors and cannot be used outdoors. The drone will automatically switch to position-holding mode, via GPS signals in open spaces.

5. FLIGHT MODE

5.1 360° Shooting

360° Shooting	
1	Select the direction of rotation: clockwise - anticlockwise
2	Set the rotation angle and range (90° - 360°, accuracy +/- 1°)
3	Set the rotation speed (1-30 sec., accuracy +/- 1s)
4	Click GO, the Drone moves to the assigned position and will start filming and recording during rotation.
5	During execution it is possible to exit the mode by clicking on the Exit button, in this case the video will be saved.



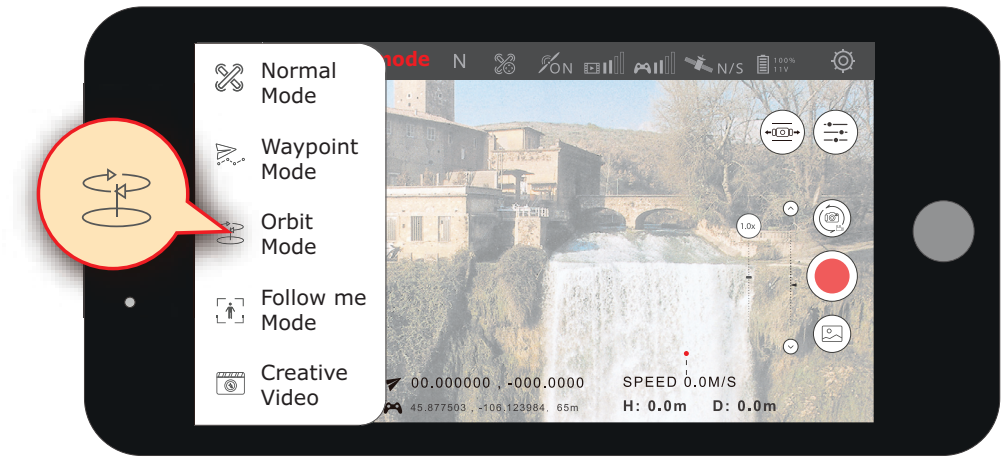
5.2 Volo Comet Mode Flight

COMET MODE	
After selecting the center point on the App, the Drone will automatically fly along the ellipse track and record the video. Use this mode in open spaces.	
1	Select the subject to surround, the camera will always remain pointed at the subject to be filmed.
2	Select the direction of rotation of the Drone: clockwise or counterclockwise.
3	Click on GO, the Drone will start filming in this mode.



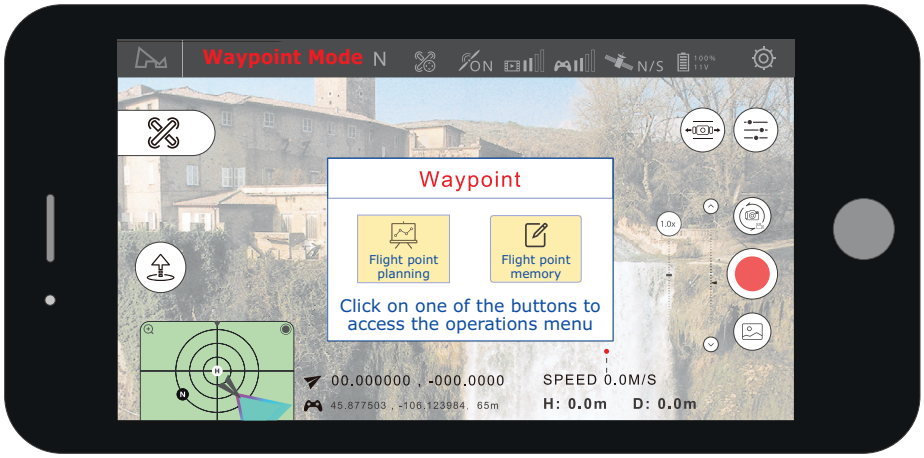
5.3 Orbit Mode Flight

Click “Mode Selection”, then “Change Orbit” to set the current position or the center position of the mobile device. During Orbit mode you can adjust the speed and direction of the Drone by moving the control stick left or right and adjust the radius of the Orbit by moving the control stick forward or backward.



5.4 Flight Waypoint Mode

The Drone will fly along a flight route created on the screen or a previously stored route. You can adjust the speed of the Drone during flight.

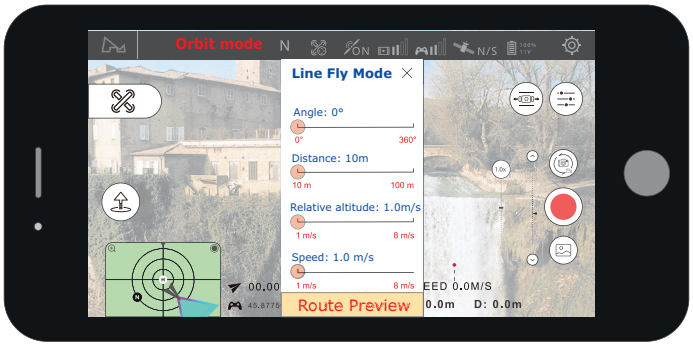


WAYPOINT PLANNING and STORAGE

It is possible to preset the Waypoint parameters such as: the number of them, the altitude of each of them and other parameters. The Drone will follow the preset parameters after activating Waypoint mode. You can also control the speed of the Drone during flight or you can pause it or resume Waypoint mode.
After accessing Waypoint mode, take off the Drone and click on the "Save Waypoint" button on the App, the Drone will perform the learning of the positions. Once all Waypoints have been stored, they will be loaded and executed. The Drone will fly based on the stored data. If the Drone, when starting the Waypoint, is not in the starting position of the first Waypoint, it will move to the first starting point before starting this function.

5.5 Line Fly Mode

Click on “Mode Selection”, then on “Line Fly Mode” to set the angle, distance and speed of the Drone.



SETTINGS AND CONFIGURATIONS	
1	Set the angle (0 - 360°, precision +/- 1°); Set the distance (10 - 6000 meters, accuracy +/- 1 m); Set the speed (1 - 8 m/s, accuracy +/- 0.1 m/s).
2	Once the configuration is finished, the Drone will perform Line Fly mode. During the flight pilots can take photos or videos manually, also you can pause, resume or stop the flight at any time. During the flight, the altitude (altitude) can be changed but the directions cannot be changed.
3	If the Drone's battery runs out or the connection is lost, the aircraft will always set RTH (Return Home) as its priority.

5.6 Flight Follow Me Mode

Enter "Follow" mode to choose tracking of a subject or the GPS of the remote control.

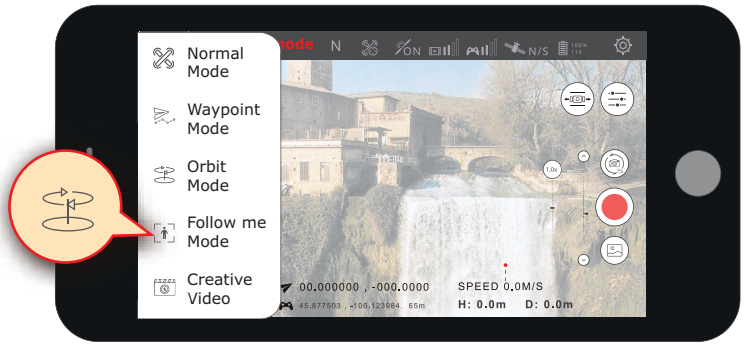
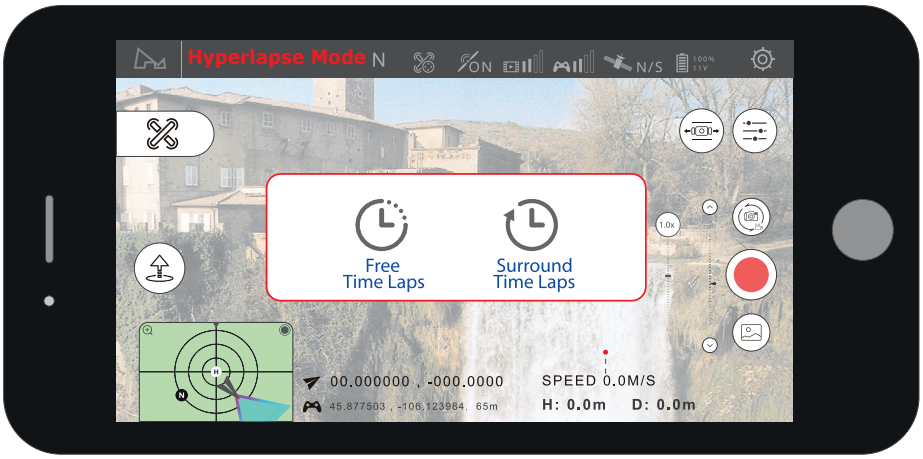


IMAGE TRACKING
Open Follow on the App. Select the subject to follow from track mode, click on “GO” the Drone will follow the subject's movements. The altitude and distance detection range is 5 - 15 meters. This function cannot be performed if the distance between the drone and the subject is less than 5 meters. In follow me mode the Drone will follow the control device (Radio Control) when it is connected to the GPS.

Advanced features can be used after the Drone has passed the GPS accuracy test. If the Drone has little autonomy or loses connection, it will give priority to RTH (Return to Home).

5.7 Hyperlapse photography

By choosing the Time-lapse mode you can choose the “free” or “circular” mode.



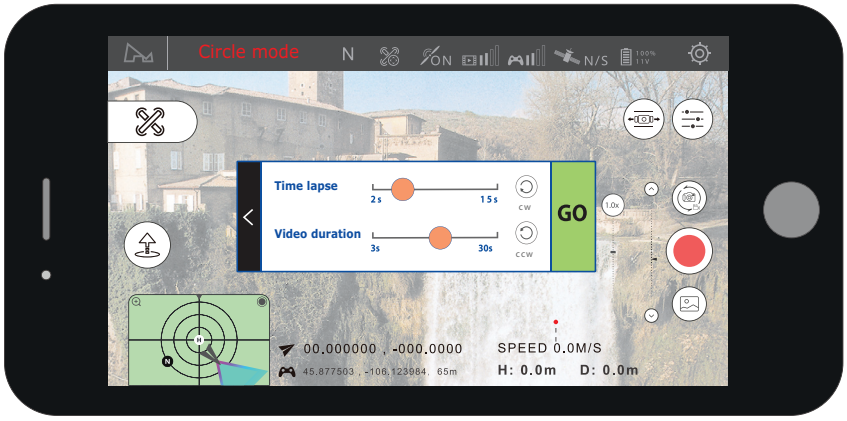
5.8 Free Flight Mode

TIME-LAPSE MODE (Free)	
The Drone will take a certain number of photos and automatically compose the Time-lapse video based on the set parameters. During the shooting process, the user can freely control the flight of the Drone.	
1	Select Free Time-lapse.
2	Set the camera shutter interval, time of video to generate, and maximum flight speed.
3	Once finished, click on GO to start taking images.



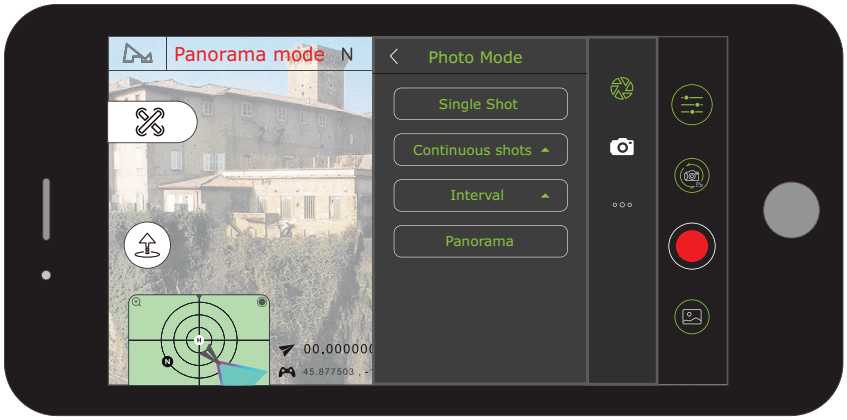
5.9 Circle Mode Flight

CIRCLE MODE	
The Drone will take a certain number of photos and automatically compose the Time-lapse video based on the point of interest of the circle and the set parameters. While shooting, moving the sticks will automatically stop the activity.	
1	Select the circle.
2	Set the camera shutter interval, time of video to generate and maximum flight speed.
3	Set the direction of the circle and position the center of the circle by adjusting the radius and heading direction of the Drone.
4	Once finished, click on GO to start taking photos.



5.10 Flight Panorama Mode

In panorama mode you can choose 180° spherical, vertical and wide-angle shooting. In this mode the Drone automatically performs the shooting activity. Once shooting is complete, you can view photos and videos from the built-in MMC, export and edit photos and videos. While filming, you can automatically stop the activity.



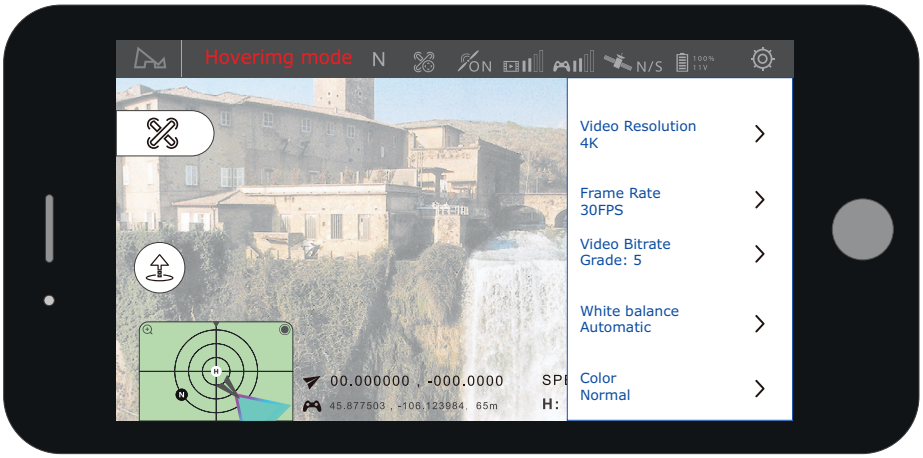
Neither the APP nor the Drone will compose the files of the final panoramas or circles, therefore it will be necessary to have Video/Photo Editing software to carry out the editing.

6. CAMERA



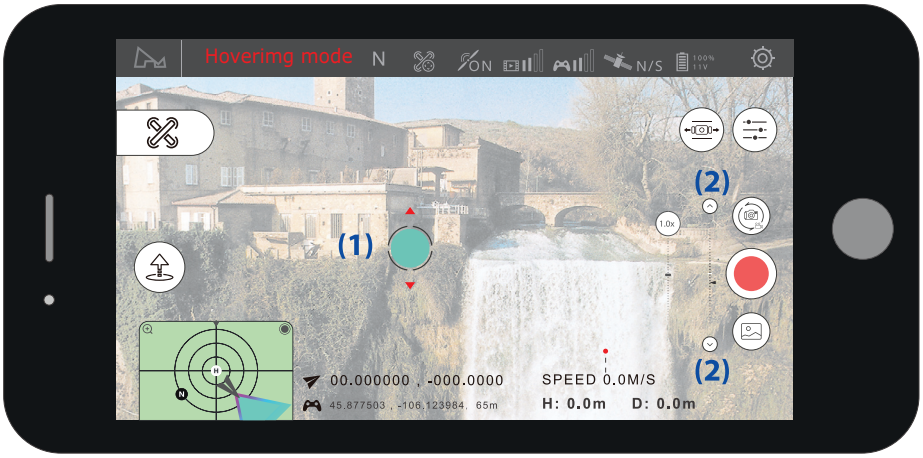
6.1 Camera Settings

Select the camera icon on the main interface of the App to set the resolution, white balance, color and other parameters.



6.2 Gimbal tilt adjustment

APPLICATION SETUP	
1	Long click on a blank part of the video preview interface, the device will make a vibration. The icon will appear at the location where you pressed it. You can adjust the tilt of the gimbal by sliding your finger up and down the screen.
2	You can optimize the pitch angle of the gimbal by clicking the up-down button of the gimbal tilt slider. Furthermore, it is possible to adjust the horizon of the camera using the appropriate button on the right in the main interface.

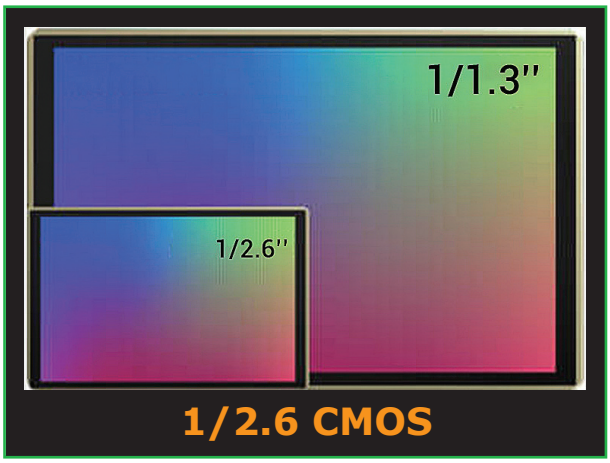


You can adjust the angle of the Gimbal by rotating the control wheel on the remote control.



6.3 Storing Images and Videos

Via an external TF U3 memory card, which depending on the model purchased, can have a capacity of 16 GB, 32 GB, 64 GB or 128 GB. The system supports hot plugging, therefore it is possible to insert the TF Card even with the device turned on, however it is preferable to insert or disconnect the TF Card with the drone turned off.



Make sure there are no impurities on the Gimbal before taking off. Avoid shocks to the Gimbal after turning on the Drone. The Gimbal is built with precision components, if damaged they could be damaged compromising its performance.
Take care of your gimbal and camera.
Keep the Gimbal clean, prevent it from coming into contact with sand, stones or dust otherwise movements could be blocked, affecting its performance.
Do not take off or land on surfaces that could impact the Gimbal as such impacts could cause malfunctions in the Gimbal's motors.
Do not attach any objects to the camera head, additional weight could affect the camera's performance and even burn the motor.
Remove the Gimbal protection clip before turning on the Drone.
Reinsert the gimbal latch to protect it during storage or transportation.
Flying in thick fog or clouds can cause "condensation" inside the Gimbal, resulting in temporary blocking. If this happens, wait for the Gimbal to dry before returning to regular use.

7. APP X-HUBSAN 2.0

7.1 Home page and settings



1 Home of the App, you can access various functions: Home, Photo and Video Editor, Tutorial, Service, Account, Hubsan Official Site, Flight Log, etc.

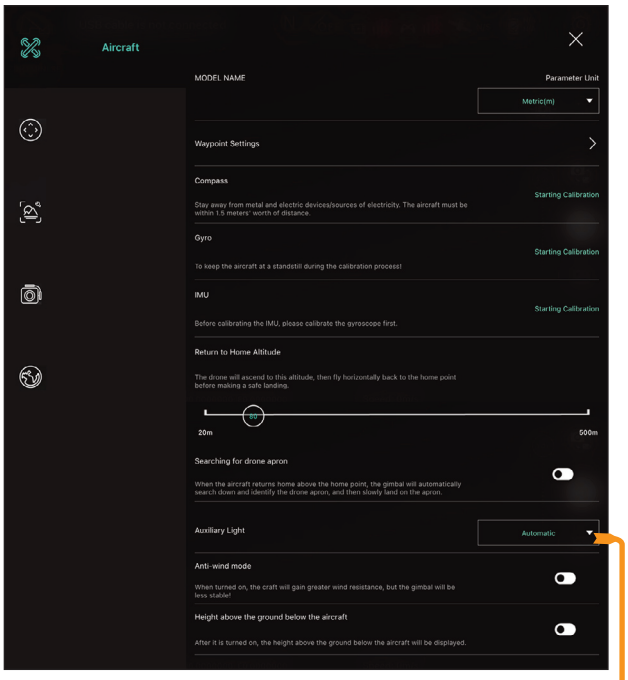


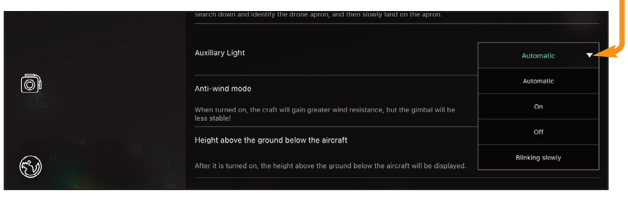


2 Main interface where you can access all flight functions, camera settings, flight mode information, etc.

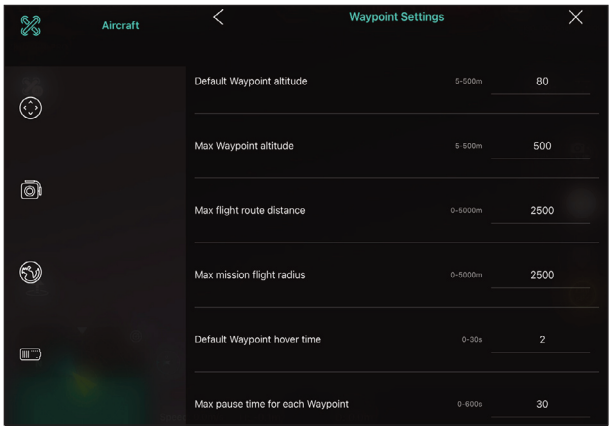
3 Below are some of the easy-to-use App windows, the flight modes, Waypoint, Orbit, Follow me, etc., which are explained in the previous pages.

7.2 Settings e Calibrations

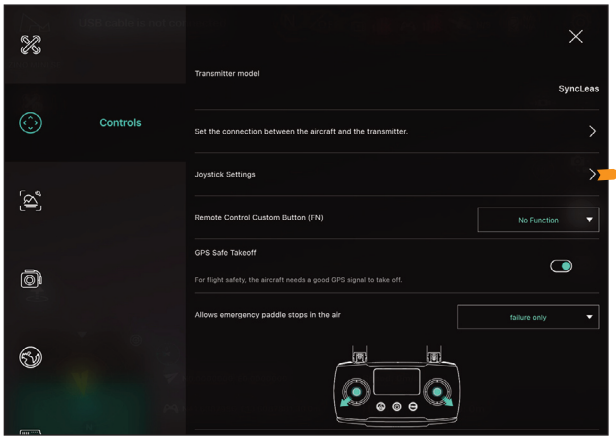


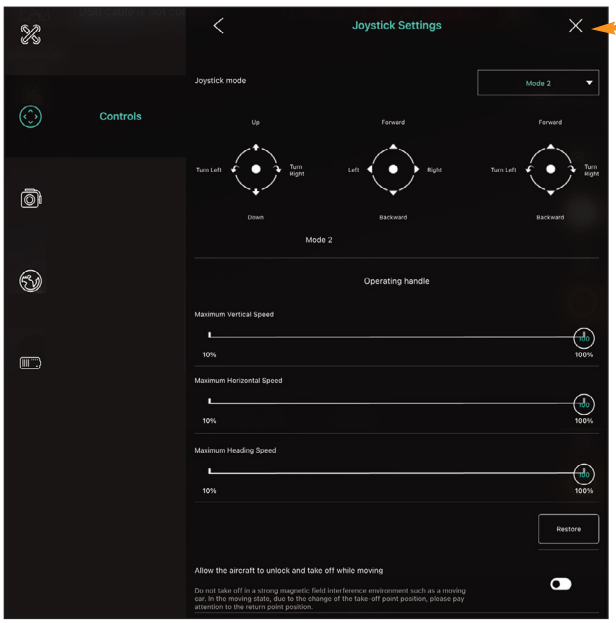


7.3 Waypoint Setting

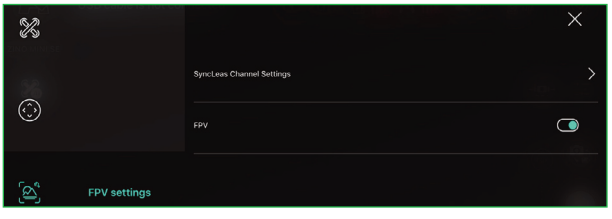


7.4 Control

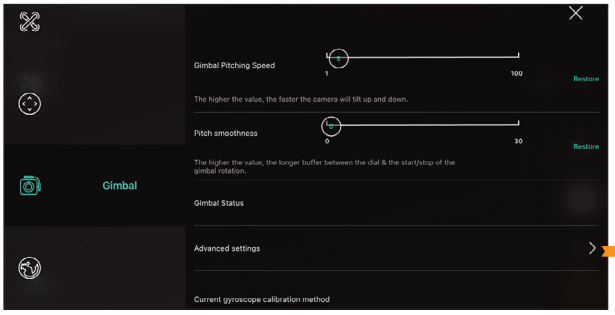


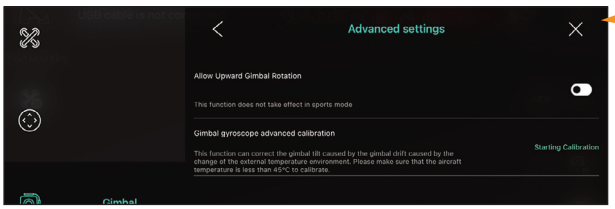


7.5 FPV

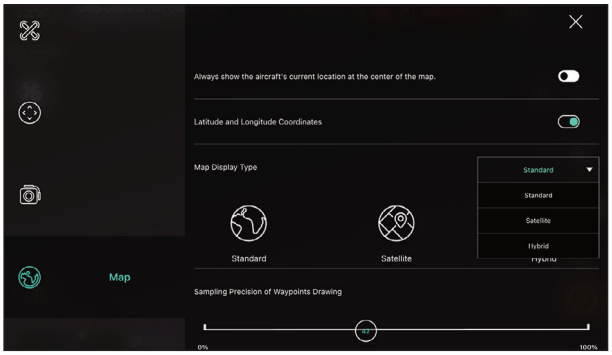


7.6 Cardan Joint (Gimbal)

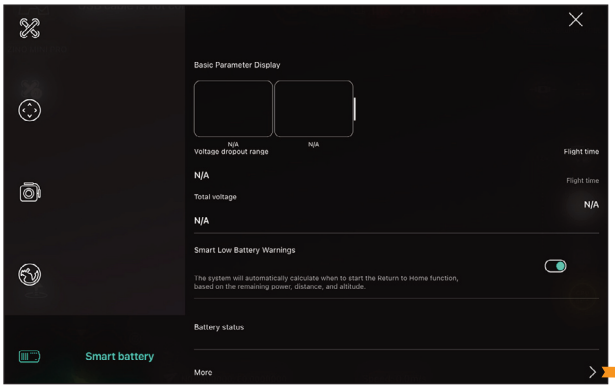


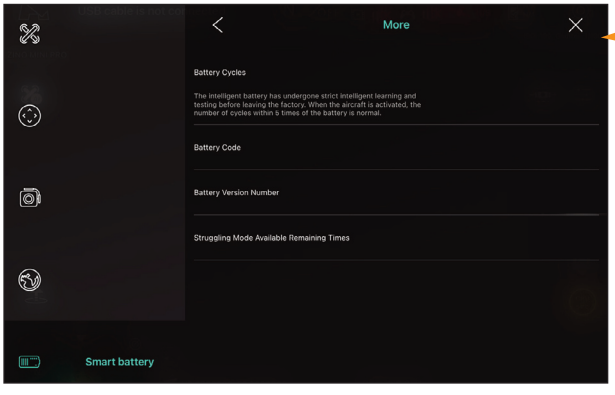


7.7 Map

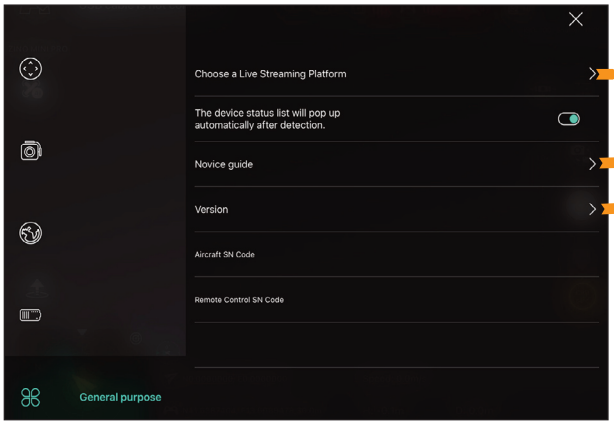


7.8 Smart battery



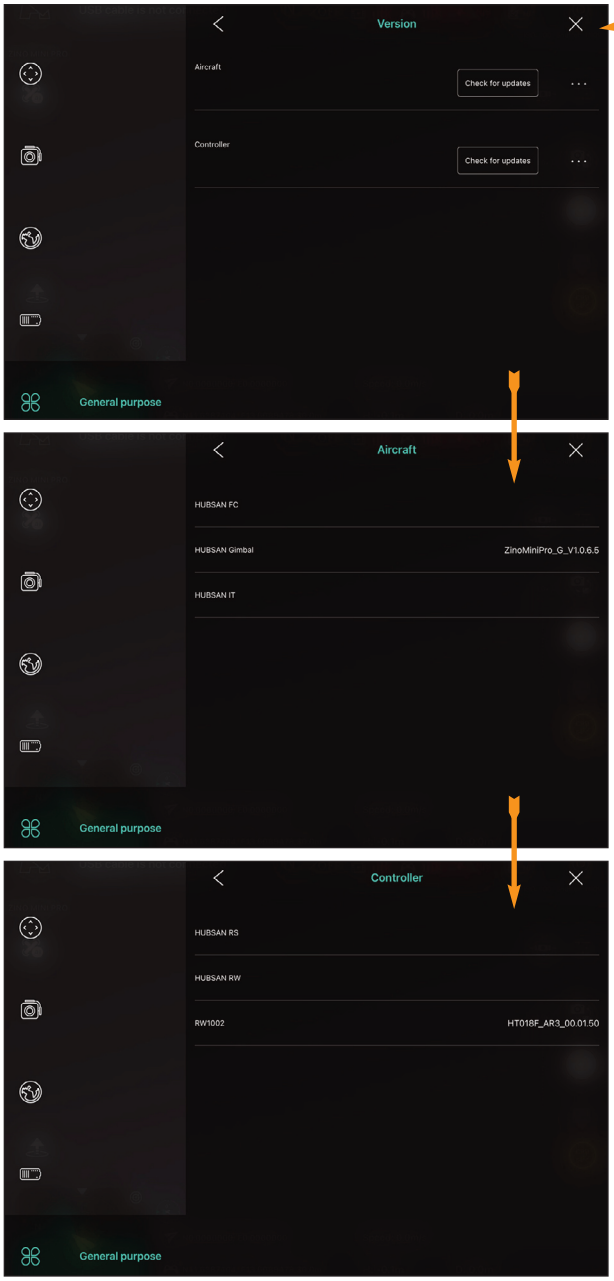


7.9 General purpose



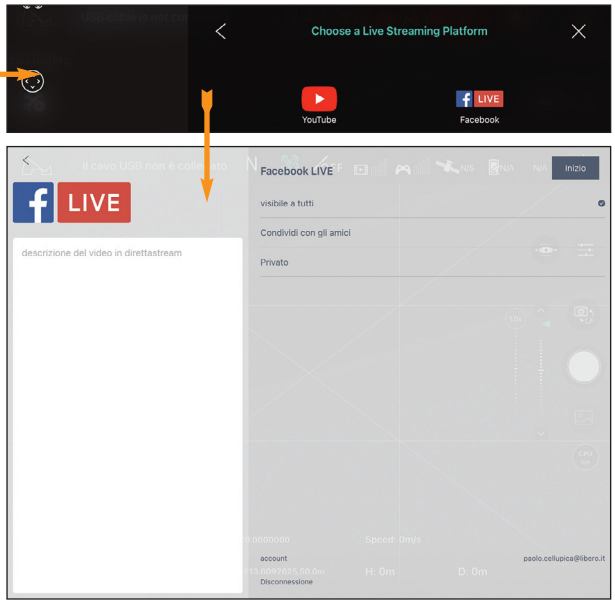
7.10 General purpose

Version



7.11 General purpose

Live Streaming



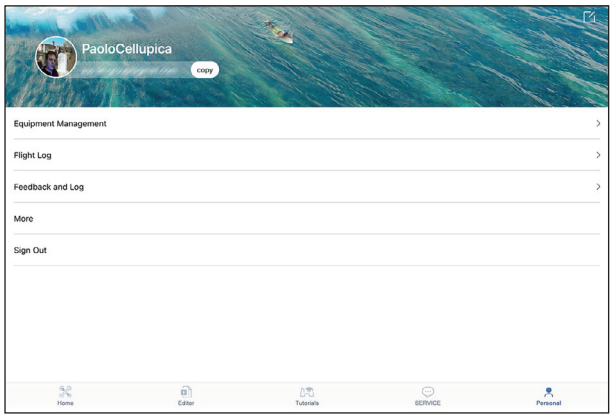
7.12 General purpose

Novice guide

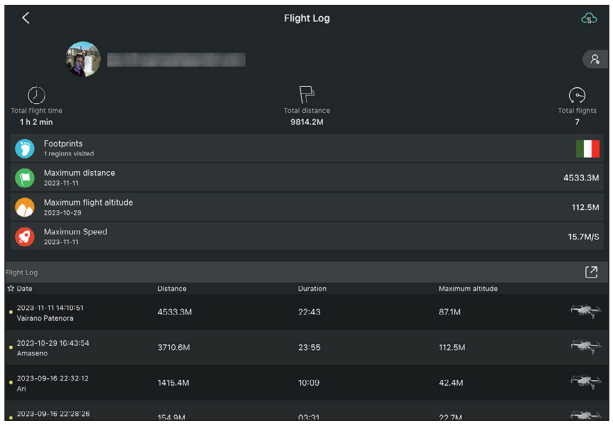


8 VARIOUS FIESTRES

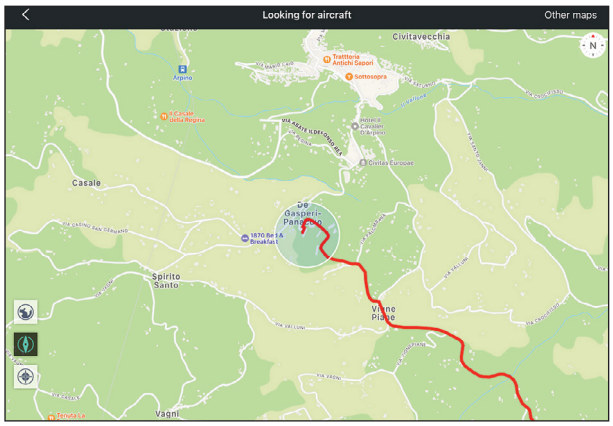
8.1 Accoun



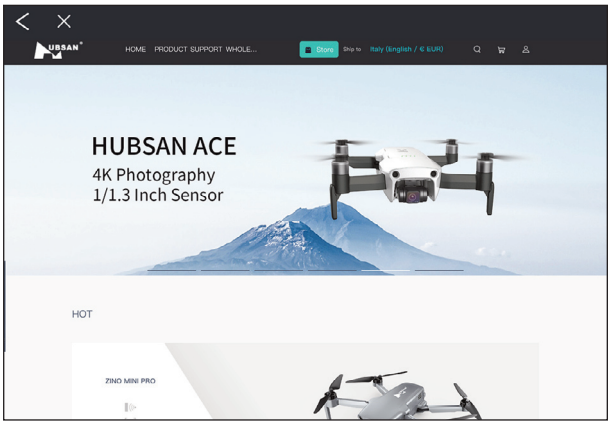
8.2 Flight Log



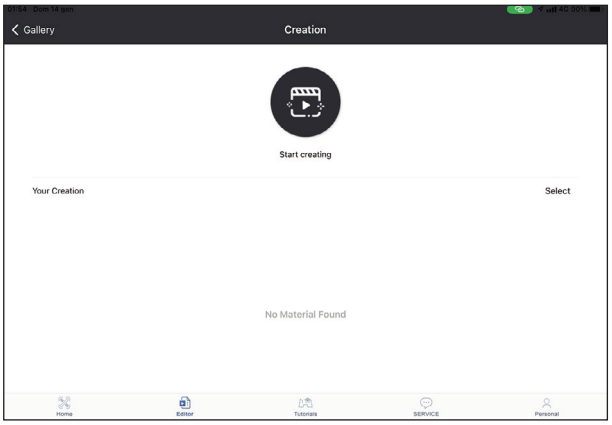
8.3 Find may Drone



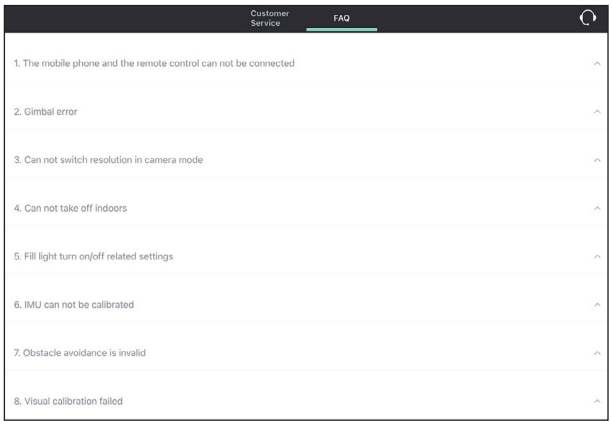
8.4 Web Site



8.5 Video Editor



8.6 Service



8.7 Tutorial





INCONVENIENCES - Causes and Remedies

1 - The Drone and the Radio Control do not connect.

- Check the App if the status of the control signal icon has changed.
- Adjust the radio control antenna, refer to the manual.
- Check the entry relating to USB connections in the Android tutorial.

2 - Disconnection between the radio control and the smartphone/tablet.

- Check whether the USB cable is inserted backwards, especially for the Micro cable USB Android, the two ends are identical, pay attention to the TX and signs RX at the ends of the connection cable.
- Check whether the Smartphone cover prevents the correct insertion of the USB connector.
- Check whether the Smartphone housing, located on the Radio Control, does not press any buttons on the Smartphone, this could also cause disturbances.
- Check for dust or other debris inside the USB connectors and clean them if necessary.
- Activate the "airplane" mode on your Smartphone to ensure connection stability.
- For Android devices, be sure to set the "USB Debugging Mode". For USB connection mode, use the default "Charging Only" option.
- Contact Hubsan Customer Service if you cannot resolve the problem.

3 - The Drone is not detected.

- Restart the Drone, the Radio Control and the X-Hubsan 2.0 App
- Try updating the Drone's firmware.
- Check if the LED on the side of the Drone is on; if it is flashing it means there is an anomaly.

4 - Stuck image transmission or unstable control signal and frequent disconnection.

- Adjust the angle of the Radio Control antenna with respect to the position of the Drone.
- Possibly try to change the flight area, trying to avoid tall buildings, radio and television towers or other obstacles.
- Update the Drone to the latest firmware.

5 - The Drone flies unstable, tilts to the right or left, does not respond normally to the radio control.

- Try changing the flight zone, trying to avoid tall buildings, radio or television towers or other obstacles.
- Perform compass calibration and horizontal calibration of the Drone.
- Calibrate the radio control sticks.
- If necessary, evaluate whether there is too strong wind

6 - The Drone's GPS is not accurate and does not pass the accuracy test.

- Fly with at least 6 satellites available.
- Possibly try changing the flight zone.
- Replace your mobile device, Smartphone or Tablet.

7 - Short flight autonomy.

- Overcharging the battery or high ambient temperature can easily lead to a reduction in battery life; we recommend maintaining the remaining 50% charge and fully recharging the batteries before use.

8 - Gimbal tilt angle is high, Gimbal shows abnormality, Gimbal does not work, abnormal communication: Gimbal error code.

- Restart the Drone and recalibrate the Gimbal
- Check the App to see if the Gimbal status is normal.

9 - The pictures are not clear.

- Check whether the protective film on the gimbal lens has been removed.
- Check the App settings relating to the shooting parameters of the Camera.
- The source files are saved in the internal memory with AA streaming.
- Possibly try flying in an adequately lit environment.

10 - Lens fogging.

- Humid climate may cause condensation on the lens, store the unit in a humidity-free environment.
- Cover the Drone with a suitable cloth after use.

11 - Loss of images and videos.

- Perform the complete image and video storage operation to avoid loss of images or videos.

12 - Flight at constant height, via the optical positioning system, is not maintained.

- Not enough ambient light.
- Check whether the lens and the sensors of the optical positioning system installed on the bottom of the Drone are clean and free of foreign bodies.

Contact HUBSAN technical support team to resolve the problems, according to the corresponding inconveniences



POLICIES OF REFUND OR REPLACEMENT

Consumers of Hubsan products are entitled to additional warranties, these warranties do not limit or alter other consumer rights.

Our policy requires us that the customer is always satisfied with our products.

There are occasions when the customer may wish to exchange items. Within 7 days from the delivery date, Hubsan will accept all products for exchange.

For refund, Hubsan will accept all its products purchased on the Official Website.

For details on refunding products purchased outside of the Hubsan Official Website, please contact a local authorized distributor.

To request refund, repair or replacement service, please contact Hubsan Aftersales Team, for further information you will also be asked to fill a mandatory support form.

REFUNDS SERVICE

a) - Within 7 days of delivery, Hubsan will accept items in new, unaltered condition and free of damage from the customer.
b) - Within 7 days of delivery, Hubsan will accept items with obvious defects.

CIRCUMSTANCES IN WHICH IT IS DECLINED THE RIGHT TO REFUND

a) - Refund service is requested after the 7 day period.
b) - The returned product is in altered condition or with damage caused by the customer.
c) - The returned product does not include all accessories attached or in the package.
d) - Within 15 days of delivery, the product has suffered substantial damage during transportation.
e) - Within 15 days of delivery, the product does not correspond to the original description in one or more significant aspects.
c) - Within 15 days of delivery, the product has no manufacturing defects.

CIRCUMSTANCES IN WHICH HUBSAN DENYS THE RIGHT TO EXCHANGE THE PRODUCT

a) - The exchange service is required after 15 days from the delivery date.
b) - The payment transaction receipt is not provided or is believed to have been forged.
c) - The returned product is not in good condition, altered or damaged by the customer.

d) - The returned product does not include all accessories attached to the package.
e) - Malfunction or damage caused by unauthorized modifications to the product.
f) - Any signs of forgery on product labels, serial numbers, watermarks, etc.
g) - The product is damaged by external natural forces beyond our control, including fire, flood or lightning storm.
h) - Any malfunction or damage caused by unauthorized use or modifications to the product, exposure to humidity, any contact with substances, such as water, oil, sand, detergents, etc.
i) - After receiving a return confirmation from Hubsan, the product must be sent to our office within 7 days.

VARIOUS

a) - Payments by credit or debit card or PayPal may take up to 10 business days after the product has been received.
b) - International credit or debit card payments may take up to 14 business days after the product has been received.

Note: In case of defects on the part of the manufacturer, we will cover the cost of return shipping, repair or replacement, while the shipping costs to our office are the responsibility of the customer.



WARRANTY SERVICE

Consumers of Hubsan products are entitled to a warranty service; these guarantees do not limit or alter other consumer rights.

These guarantees include your rights to our exchange, refund and repair services.

The warranty will provide free repair services, subject to the conditions described below. The warranty service does not cover shipping costs for sending the product to Hubsan headquarters.

The Hubsan repair facility has the right to determine whether the product is eligible for warranty service.
Hubsan products are entitled to a one-year warranty.
Hubsan LiPo batteries are not covered by warranty service.

1. Conditions for a product to be eligible for the Hubsan warranty:

a) The product has not been used inappropriately.
b) The product was purchased completely new and sealed.
c) The product has not undergone tampering or unauthorized modifications.
d) No signs of forgery on product labels, serial number, watermarks, etc.
e) Payment transaction receipt or proof of purchase must be provided.
f) The product is not damaged by the user's determined negligence.
g) For repair or replacement of severely damaged products (under warranty), you must provide sufficient evidence that damage has occurred due to a defective component of a product.

2. Damage caused in these circumstances, the guarantee is not recognized:

a) Unauthorized modification, disassembly and/or improper installations on the product.
b) Operate under adverse natural forces (strong wind, rain, snow, storm, etc.)
c) Operation under the interference of an electromagnetic source or environment.
d) Failure to comply with the rules stated in the instruction manual.
e) Any missing components or pieces are not covered by the warranty.

3. Warranty service information

a) Hubsan warranty service team will investigate and identify the problem, once the product is received at our location, Hubsan will cover the cost of labor, materials, return and shipping if the problem is found to be due to the quality of the our product.

b) If the product is found to be unsuitable for warranty service, the customer can choose to pay the corresponding repair fee or request the product to be sent back undamaged. We will inform you in advance of the cost of the repair.
c) Customers can avail the warranty at a designated Hubsan repair center.
d) After receiving a confirmation for warranty service from Hubsan, the product must be sent back to Hubsan within 7 days.

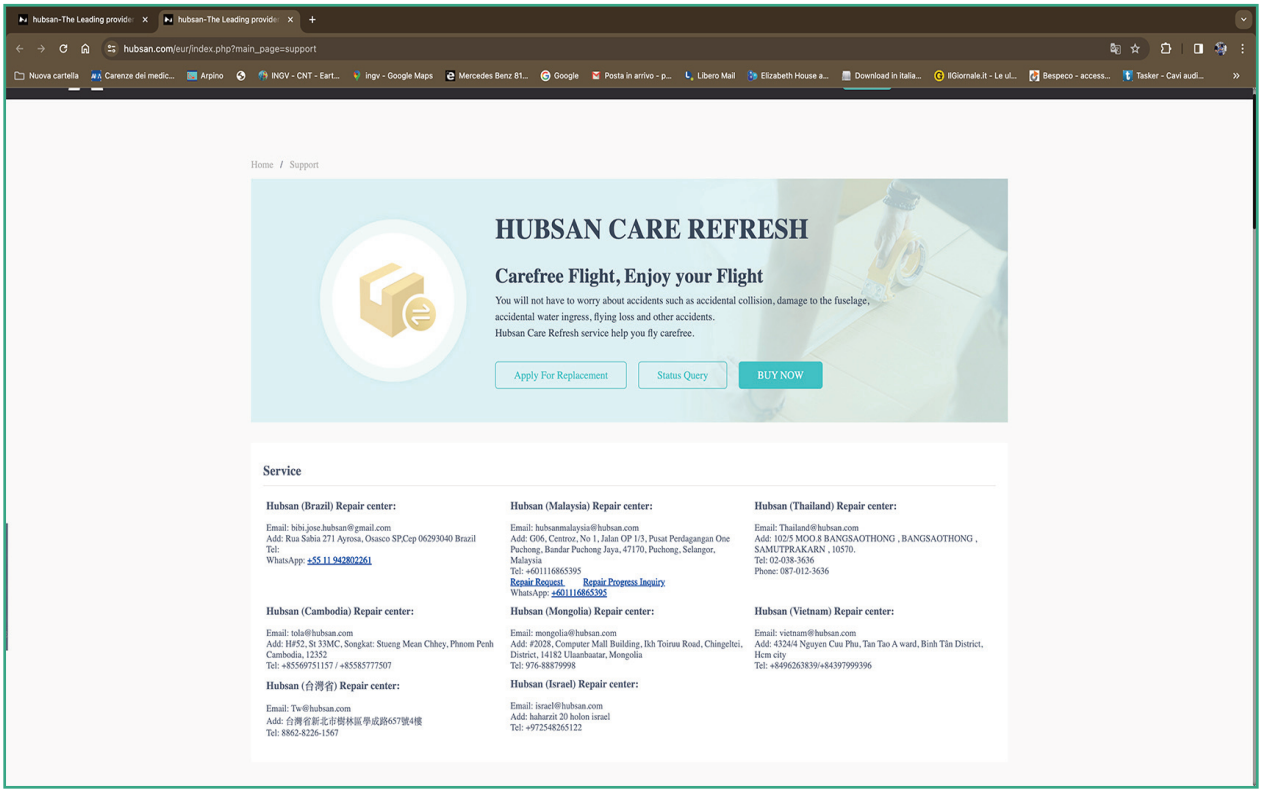
PAID REPAIR SERVICE

Hubsan also provides paid repair services for customers who do not meet the requirements for warranty, refund or replacement services. For paid repair service, you will be charged for diagnostics, labor, materials and shipping costs.

There will be no final costs until the product has been examined by our technicians. You may eventually decide not to proceed with the repair service.
After Hubsan has examined the products, diagnostic fees and return shipping costs will be charged, these assessments will be made before the customer ships the product.

CARE REFRESH ASSISTANCE SERVICE

The Care Refresh assistance service is available on the HUBSAN Official Website which gives the possibility, by paying a sum indicated within the platform, to replace the Drone in the event of loss, collision or other accident recognized by the Care Refresh formula. After connecting to the Hubsan Official Website, follow the video instructions step by step to obtain replacement coverage for your Drone.



LIMITATIONS OF LIABILITY

HUBSAN assumes no responsibility for damages, injuries or legal liabilities arising directly or indirectly from the use of its products. Hubsan is not responsible for:

1 - Damage, injury or any legal liability for user behaviour and in particular: state ofintoxication, effect of narcotics, anesthesia, dizziness, fatigue, nausea or influenced by other physical or mental conditions that could compromise common sense or mental abilities .

2 - Incorrect subjective judgment or intentional malfunction of the products.

3 - Any mental, physical harm, impairment, illness, insurance claim, or accident involving Hubsan products.

4 - Use of the product in no-fly zones.

5 - Malfunctions or problems caused by modifications, disassembly and reassembly, replacement or use of accessories not authorized by Hubsan, failure to follow the instructions in the manual during installation and use.

6 - Damage, injury, or any legal liability caused by mechanical failure due to natural wear and tear (aircraft flight time over 100 hours), corrosion, hardware aging, etc.

7 - Continued flight after low voltage protection alarms are activated.

8 - Drones in flight with the awareness of anomalous conditions: if water, oil, earth, sand, or other unknown material is present inside the devices, the Drone or the Radio Control are assembled incompletely, the main components have faults, defects or missing accessories, etc.

9 - Flying in situations or environments described below: areas with magnetic interference (such as high voltage lines, power plants, transmission towers, railway stations), radio interference, no-fly zones regulated by government regulations.

10 - If the pilot loses sight of the Drone due to eye problems, it is not suitable for use of Hubsan products.

11 - Use of the Drone in bad weather conditions such as: rain, wind, snow, hail, lightning, tornadoes, hurricanes.

12 - If the products are involved in or exposed to collision, fire, explosion, flood, tsunami, natural or artificial collapse, ice, avalanche, debris, landslide, earthquake.

14 - The acquisition, through the use of Hubsan products (in particular, but not limited to aircraft), of any data, audio, video that results in a violation of the law or rights.

15 - Any malfunction of your equipment or accessories, including memory cards, that results in an image or video not being recorded or stored legibly.

16 - Users making reckless and unsafe flights. (without sufficient training)

17 - Failure to follow precautions, instructions, guidelines and operating methods via advertisements on the Hubsan Website, product quick start guides, user manuals, etc.

18 - Other reasons, damages or injuries that are not within the limits of HUBSAN's liability.

DECLARATION OF CONFORMITY

Hereby, SHENZHEN HUBSAN TECHNOLOGY CO. LTD., declares that this product complies with the essential requirements and other relevant provisions of the EU Directive 2014/53. A copy of the original Declaration of Conformity can be obtained at the following address:

13th Floor, Bldg 1C,
SHENZEN NANSHAN SOFTWARE INDUSTRY BAS
Xefu Road, Nanshan District, Shenzhen, China

This product bears the selection symbol for waste electrical and electronic equipment (WEEE). This means that this product must be handled in accordance with the European Directive 2012/19 EU, in order to be able to be recycled or disposed of to minimize its impact on the environment.
For further information, please contact your local or regional authorities. Electronic products not included in the selective disposal process are potentially dangerous for the environment and human health due to the presence of dangerous substances.



- **Read the instructions for use carefully before use!**
- **Never leave units unattended while charging**
- **Unplug the charging cable immediately after charging**
- **Propellers can cause injury**
- **This product is not a toy**
- **Not suitable for children under 14 years of age**



Risk of battery explosion if replaced with a non-original Hubsan one.
Dispose of used batteries according to local regulations.
Keep all dangerous moving parts, especially propellers, away from your hands and body.

FCC INFORMATION

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 the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult your local dealer or an experienced Radio/TV technician for assistance.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following conditions:

1 - This device may not cause harmful interference.
2 - This device must accept any interference received, including interference that may cause undesired operation.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment must be installed with a minimum distance of 20 cm. between the radio control and the body. This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter.

Electrical and electronic equipment supplied with batteries (including internal batteries)

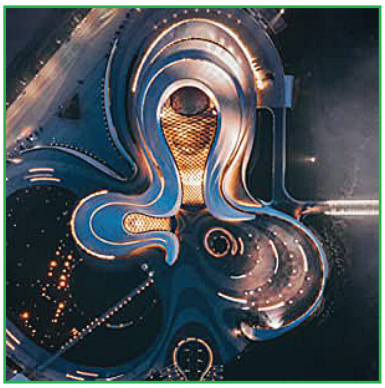
WEEE directive and product disposal

At the end of its useful life, this product must not be treated as household or general waste. It should be disposed of at a collection and recycling point for electrical and electronic equipment or returned to the supplier for disposal.

This symbol shown on the battery indicates that it must be disposed of separately. This battery is designed for separate collection at an authorized collection and disposal point.



SOME FUNCTIONS



Night flight

Night flying light and optical flow ensure hovering performance in low light conditions.
The 3 types of Altitude Hold modes (GPS Mode/Optical Flow Mode/Attitude Mode) keep the drone stationary for outdoors and indoors.



Landing Pad

Landing Pad Search When the Drone is landing from a height of about 10 meters above the ground, it will automatically enter the landing pad search function.



Tracking of images\Follow me:

ZINO MINI SE is equipped with our brand new AI tracking algorithm (ATVT3.0), which has undergone a huge improvement in latency and accuracy and can locate a subject, animal, or moving vehicles easily and automatically.
tically.



Hyperlapse photography

Time-lapse: It shows long, wonderful and subtle evolution in a short time, captures unique landscapes from perspective, and shoots magnificent and professional movies easily, through time-lapse photography.

Free: Set the shutter interval, duration of the generated video and flight speed, the Drone will automatically take a certain number of photos and synthesize the time-lapse video.

Circle: Set the center point, radius, shutter interval, duration of the generated video and flight speed, the Drone will automatically take a certain number of photos and synthesize the time-lapse video.



Panorama

Panoramic photo
In panoramic mode, you can choose Spherical, 180°.
Vertical shot and wide angle. In this mode, the Drone will automatically take some photos.
It is necessary to export these images from the internal memory of the Drone; to compose the panoramic photo you will need Photoshop or similar software.

Panoramic video:
Set the direction, angle and speed of the aircraft's on-site rotation, the Drone will rotate 360° and film automatically.



Personalized flight

Comet:
Once the subject is framed, the Drone takes the initial position as the starting point, flies clockwise on an elliptical trajectory around the subject and returns to the take-off point.

Line Fly:
The drone flies in a straight line with a specified angle and direction, precise and elegant, like a meteor in the sky.

Waypoint:
Create missions and draw routes on the map, it will autonomously fly along the designated route.

Orbit:
Set the center point of the orbit and it will fly around it.

ANNOTATIONS



Type: Foldable Drone **Brand:** Hubsan **Model:** Zino Mini SE
Distance: 6 KM **Autonomy:** 45 Minutes **Camera:** 4K 30 FPS
Gimbal: 3 Axis removable **Dimension Open:** 20,2x16,1x6,6 cm;
Dimension Closed: 13,7x9,4x6,1 cm **Motors:** Brushless 20A x 4 **Maximum altitude:** 4000 m
Satellite positioning systems: GPS + GLONASS - **Image transmission system:** SyncLeas 2
Flight speed: **N**ormal Mode: 10 m / s; - **S**port Mode: 16 m / s
Climb speed: **N**ormal Mode 3 m / s; - **S**port Mode: 4 m / s; - **F**ilm Mode: 2 m / s
Descent speed: **N**ormal Mode 3 m / s; - **S**port Mode: 3,5 m / s; - **F**ilm Mode: 1,5 m / s
Maximum wind resistance: Livel 5 (8,5~10,5 m/s) **Operating temperature:** -10 °C ~ 60 °C

Maximum Take-off Mass (MTOM): 249g

CAMERA AND GIMBAL FEATURES

Specifications Photo lens	Fov 80°, Opening f/2,2, EFL 3,5mm, AF point from 0,5 mm to ∞ Distortion: ‹1,5%
Sensor	CMOS 1–12,6”, 2,4 um - Zoom 3X
Risolution image	8000 x 6000
Video encoding max	4K@30fps
Photo format	JPEG
Range ISO	Photography: 100-1600 (aut.); 100-3200 (man.), Video: 100-3200 (aut.); 100-3200 (man.)
Speed shutter	3-1/8000 s
Resolution video	4K 3840x2160 30\60fps, 2.7K 2720x1530 30\60fps, FHD 1920x1080 30\60fps,

Format Video	MP4\MOV (h.264\mpeg-4 AVC)
Maximum video bitrate	100Mbps
File system	FAT32 - ex FAT32
Micro SD TF supported	U3 Micro SD 16G - 32G - 64G - 128 GB
Filter	Filter CPL e ND removable: can be equipped with filters CPL \ ND4 \ ND8 \ ND16 \ ND32
Joint design cardanic	Gimbal Mod. HY817C a 3 axis Inclination: da 120° a 45° Rotation: ±35° Panoramic: ± 35°
System stable	3 Axis(Yaw Picth Roll) Full speed Pitch: 120°/s
Range of rotation	Pith:-120°~+45° Roll:±35° Yaw:±35°

RADIO CONTROL AND BATTERY FEATURES

HT018Y Transmitter	Digital display remote control which features a high brightness screen to allow you to track flight telemetry data in real time and see it clearly under strong light outdoors, so as to better enhance user experience. Support using a mobile device to control the Drone directly.
Transmitter battery	3.6V 3350mAh 12.06Wh LiPo
Kind of interface	Lightning \ Micro USB \ Type-C
Method of recharge	Micro USB
Supported devices	Support mobile device size: thickness 6.5-8.5mm; Maximum length 160 mm
Batteries intelligent of the Drone	Built-in 3000mAh intelligent lithium battery, accurate monitoring of battery power to ensure flight safety. Ultra long flight time to avoid ruining your pleasure when the battery suddenly runs out during shooting
Battery specifications	7.2V 3000mAh 3,6V x 2

Adapter charging	Equipped with intelligent charging adapter can charge up to 4 batteries at the same time, the intelligent charging adapter can convert the battery into a mobile power supply (Power Bank).
Time charging	90 min
Weight	101,84 g
Working temperature	-0 °C - 50 °C
Ambient temp of charge	0 °C - 40 °C
Temperature of storage	Storage time is less than 3 months: -20 °C - 45 °C; if the storage time is more than 3 months: 22 °C - 28 °C
Data from charger	Input voltage: 100V-240V; Input Current: 2A; Output voltage: 12V; Output Current: 0.0-2A; Rated Output Power: 36W
Battery safety	Use and store the battery strictly in accordance with the rules of storage and use. If there is any abnormality in the battery, stop using it and contact HUBSAN service.

HUBSAN®



Product name: **Zino Mini SE**

Product standard number: **Q/HBS 001-2017**

Producer: **Shenzhen Hubsan Technology Co., Ltd**

Address: **Unit 2801-2802A, Building F, Xinghe WORLD**
Yabao Road, Bantian Street, Longgang District, Shenzhen, Cina

E-mail: **service@hubsan.com** • ***Web site:*** **www.hubsan.com**

* * *

HUBSAN ASSISTANCE ITALY/EUROPE
Via Monte Terminillo, 58 - 04100 LATINA - Tel. +393458503209
E-mail: **assistenza@hubsan.it** • **carlo@hubsan.com**
Web site: **www.hubsan.it**

• Edizione italiana a cura di: ***Paolo Cellupica*** • Italia • Gennaio 2024 • E-mail: ***paolo.cellupica@libero.it*** •