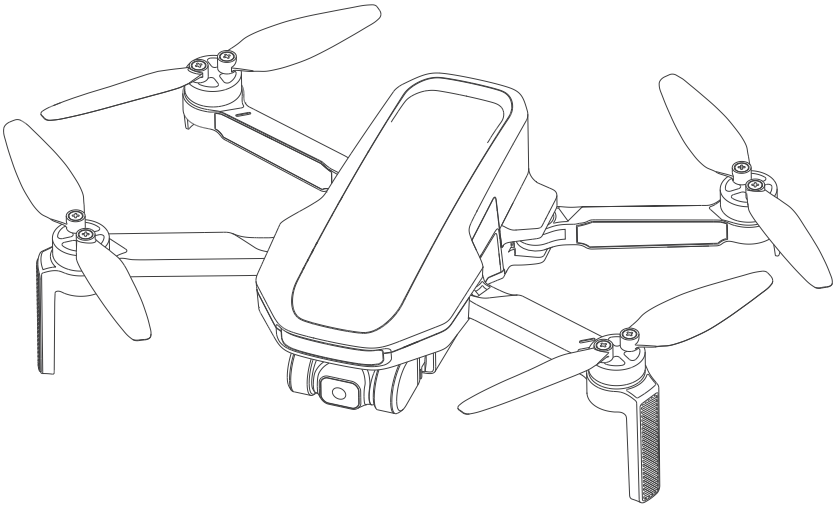
Potensic ATOM SE

DANGER
Only suitable for ages 16+



# User Manual

V07. 25. 06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# Contents

# 1. Disclaimer & Precautions

## 1.1 Disclaimer

Drones are products with potential dangers and relatively complex operations. Prior to usage, it is crucial to thoroughly read the complete User Manual to grasp basic knowledge and become familiar with the drone's functions. For the initial use of ATOM SE, it is recommended to operate it in GPS mode in a spacious outdoor area to acquaint yourself with its functions.

Strictly adhere to the Manual's operational instructions and precautions to ensure safe and correct usage.

Users below the age of 16 should be supervised by an adult, and the product should be kept out of reach of children.

The Company disclaims responsibility and does not provide warranty services for any direct or indirect losses (including property loss and personal injury) resulting from the user's failure to follow the Manual's safety guidelines.

Avoid dismantling any part of the product except for propellers or modifying it without official guidance; users will be accountable for any consequences arising from such violations.

For assistance with usage, operation, and maintenance issues, feel free to contact our local dealer or the Company.

Potensic reserves the final interpretation rights of this document and related product documents, and the information is subject to change without notice. For the latest updates, please visit **https://www.potensic.com**.

## 1.2 Safety Precautions

**Keep away from obstacles and crowds**

To ensure the safety of both the user and those around, please keep the product away from crowded areas, high-rise buildings, and high-voltage cables. Additionally, refrain from using it in severe weather conditions such as strong winds, heavy rain, and thunderstorms. This precaution is necessary as the product may exhibit unpredictable flight speeds, status fluctuations, and potential hazards.

**Keep off moisture**

To prevent anomalies or damage caused by humidity affecting precise electronic components and mechanical parts inside the product, please ensure it is kept away from moisture.

**Safe operation**

When operating the drone, the likelihood of unforeseen risks rises when users are fatigued, in poor mental condition, or lack experience. To ensure safety, it is essential to refit or repair the product using original parts. Operate the product strictly within specified limits, and be sure to adhere to local safety regulations.

**Keep away from high-speed revolving parts**

While the product's propellers are spinning at a high speed, keep it away from crowds and animals to prevent scratches or disturbances. Avoid touching the spinning propellers with your hands.

**Keep away from heat source**

To prevent anomalies, deformation, and potential damage, keep the product away from heat and high-temperature exposure. This precaution is especially crucial as the product comprises metal, fiber, plastic, and electronic elements.

## 1.3 Warning & Prompts

01. Keep the package and manual in a secure place as they contain important information.
02. Users are responsible for ensuring that the use of this drone does not cause harm to the person or property of others.
03. Our company and dealers are not liable for losses and personal injuries resulting from improper use or operation.
04. Users must strictly follow the steps outlined in the user manual to install and test the drone. During flight, maintain a minimum distance of 1 to 2 meters from users or other individuals to prevent the drone from colliding with human bodies, causing injury.
05. The product should be assembled by an adult. Users aged below 16 should not handle the product alone. The battery should be charged under the supervision of an adult and should be kept away from flammable materials during the charging process.
06. The product contains small parts. Please place them out of reach of children to prevent accidental ingestion.
07. Do not operate the product over roads or standing water to avoid accidents.

08. It is forbidden to dismantle or refit the product, except for the propellers, as doing so may lead to malfunctions in the drone.
09. Please recharge the intelligent battery with a USB charger that conforms to FCC/CE standards.
10. The remote controller has a built-in 3.7 V lithium battery which needs no replacement.
11. Do not short-circuit or squeeze the battery to avoid explosion.
12. Do not place the battery in hot place (in fire or near electric heater).
13. Keep a safe distance from the high-speed revolving propellers; avoid using the product in crowds to prevent scratches or injuries.
14. Do not use the product in places with strong magnetic field, such as near high-voltage cable, buildings that contain metals, automobiles and trains; otherwise, the connection stability can be compromised.
15. Please make sure to thoroughly understand local laws and regulations to avoid any unauthorized use of the drone.
16. To comply with the requirements of the aeronautical radio magnetic environment, during the period of radio control orders issued by the relevant national authorities within the specified regions, the use of remote controller should be suspended as instructed.
17. Please refrain from flying at low altitudes over water surfaces.
18. Please stay away from airports, flight paths, and other restricted areas.

# 2. Reading Tips

## 2.1 Legend

**Prohibited**

**Operation & use prompts**

**Important**

**Technical Terms and reference information**

## 2.2 Suggestions of Use

1. It is advisable to watch the tutorial video and **Quick Start Guide** before referring to the **Manual**.
2. Be sure to read the **Disclaimer & Precautions** section first when consulting the **Manual**.

## 2.3 Tutorial Video/Download App

**Scan the QR code on the right and you can:**

1. Download PotensicPro App (hereinafter referred to as "the App").
2. Watch the tutorial videos.
3. Access the latest User Manual.
4. Learn about the frequently asked questions (FAQ)

## 2.4 Registration & Help

It's required to set up an account when using the App for the first time to have better user experience.

**Registration Procedures**

1. Enter your email;
2. Set your password;
3. Check and agree with the Protocols;
4. Register.

You can log into the App after registration.

Note: An Internet connection is required during the registration.

**Help**

Thanks for purchasing Potensic ATOM SE. Before using the drone for the first time, we recommend that you read the user manual carefully.

Please contact our support team at **support@potensic.com** if you encounter any problem or issue with the drone. Make sure to submit your order ID and the details of the issue.

## 2.5 Technical Terms

| | |
|---|---|
| **IMU** | IMU (inertial measurement unit), the most important core sensor of the drone. |
| **TOF (Time of Flight)** | TOF (time of flight), the period from transmission and receiving of detection infrared signal, in order to determine the target distance. |
| **Downward Vision System** | The sensor system, which lies at the bottom of the drone and consists of camera and TOF module. |
| **Vision Positioning** | High-accuracy positioning, which is realized through Downward Vision System. |
| **Compass** | Geomagnetic sensor, which enables the drone to identify the direction. |
| **Barometer** | Atmospheric pressure sensor, which enables the drone to determine the altitude through atmospheric pressure. |
| **Lock/unlock** | Refers to the transition of the drone's motors from a stationary state to idle rotation. |
| **Idling** | Once unlocked, the motor will start revolving at a fixed speed, but it has insufficient lifting force to take off. |
| **Auto return** | The drone will return to HOME point automatically based on GPS positioning. |
| **EIS** | Electronic Image Stabilization; the camera will detect the data of high-frequency vibration and eliminate picture flutter through algorithm. |
| **Drone head** | Position of the drone camera. |
| **Throttle control stick** | Ascend or descend the drone. |
| **Pitch control stick** | Fly the drone forward or backward. |
| **Roll control stick** | Fly the drone leftward or rightward. |
| **Yaw control stick** | Enables the drone to rotate clockwise or anticlockwise. |

# 3. Overview

This chapter introduces the functional characteristics of ATOM SE, as well as the component of the drone and the remote controller.

## 3.1 Introduction

ATOM SE features foldable arms for convenient portability, with a lightweight body weighing less than 250 g. The drone possesses a Vision Positioning System, which allows for precise hovering in low-altitude indoor and outdoor environments. Equipped with a GPS sensor, the drone enables positioning and automatic return. The camera utilizes a 1/3-inch Sony CMOS image sensor, capable of capturing high-definition 4K/30 fps video and 12 million pixels photos. ATOM SE employs proprietary ShakeVanish electronic image stabilization technology for clear and stable footage.

ATOM SE's remote controller utilizes the PixSync 2.0 2.4G digital transmission technology, achieving a maximum communication distance of up to 4 km and 720P video transmission in ideal conditions. The controller features a retractable and foldable design, providing a placement for your mobile device when unfolded. When connected to the controller via a USB cable, you can operate and configure your drone through the App, as well as view high-definition video transmission. The built-in lithium battery in the remote controller has a maximum working time of approximately 2.3 hours.

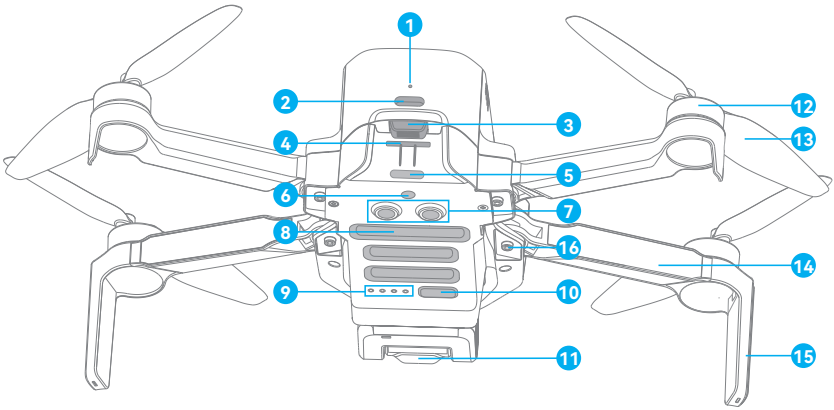
ATOM SE utilizes proprietary SurgeFly flight control technology, achieving a maximum flight speed of 16 m/s (52 ft/s) and a maximum flight time of approximately 31 minutes, with resistance against wind up to Level 5.

- Test conditions of the max. flight time: Fly at an even speed of 5 m/s at 25℃ and in breezeless condition.
- Test conditions of the max. transmission distance: Measured at an open and no-interference environment, with a flight height of 120 m, and without considering the return of the drone.
- Power consumption will increase considerably when the drone is returning against the wind. If you receive a prompt of encountering strong wind from the App, please make sure to lower the flight altitude and return in time to ensure safety of the drone.

**Pre-Flight Checklist:**

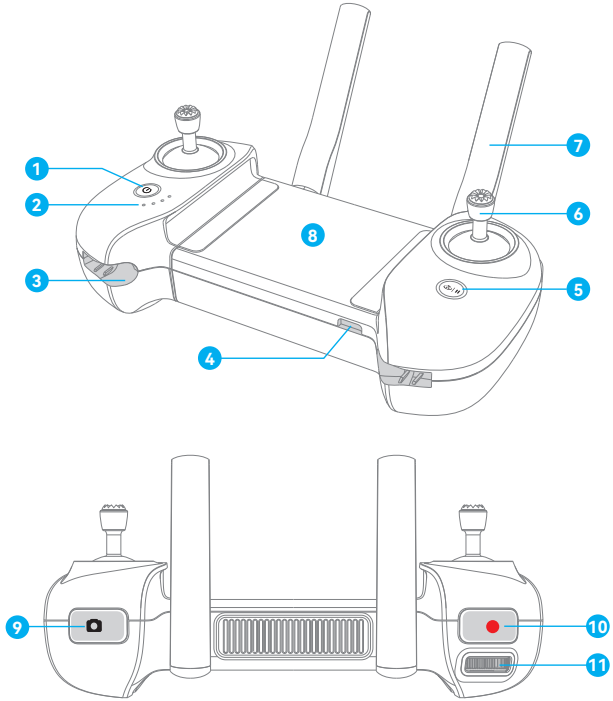
1. Pay attention to the local weather forecast and make sure it is suitable for flying the drone.
2. Make sure the battery is fully charged.
3. Make sure the firmware is updated to the latest version.
4. Make sure the flight environment is open and free of interference.
5. Before takeoff, make sure the battery is secured and the buckle pops out correctly, and no deformed propellers and loose screws.
6. Power on the drone on open and level ground, wait for the drone to enter GPS Mode before takeoff, and pay attention to the HOME point.

## 3.2 Drone Diagram




1. Charging indicator
2. TYPE-C charging port
3. Battery buckle
4. SD card slot
5. Tail indicator
6. Monocular visual module
7. TOF module
8. Bottom cooling hole
9. Power indicator
10. Power/frequency pairing button
11. Integrated single-axis gimbal camera
12. Brushless motor
13. Propeller
14. Arm
15. Antenna tripod
16. Arm shaft

## 3.3 Remote Controller Diagram




**1. Power button**
Long press for 2 s to power on/off.

**2. Power indicator**
Indicate the power level or other status of the remote controller

**3. Control stick slot**
One slot respectively at the left and right side, which are used to store the sticks

**4. TYPE-C interface**
To charge the remote controller/connect mobile device

**5. RTH/Pause button**
Long press for 1 s to return to HOME point automatically
Short press to pause auto flight

**6. Control stick**

**7. Foldable double antennas**

**8. Placement for mobile device**
To place mobile device.

**9. Shoot button**
Short press it to shoot one picture

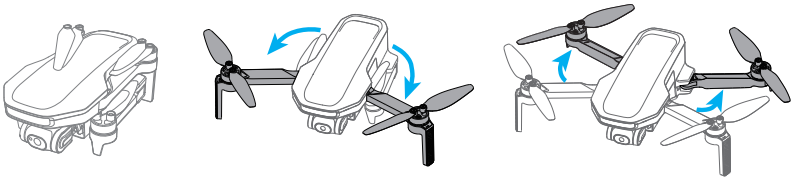
**10. Record button**
Short press to start/stop recording

**11. Thumbwheel**
Dial the thumbwheel horizontally to control the tilt of the gimbal.

## 3.4 Preparing the Drone

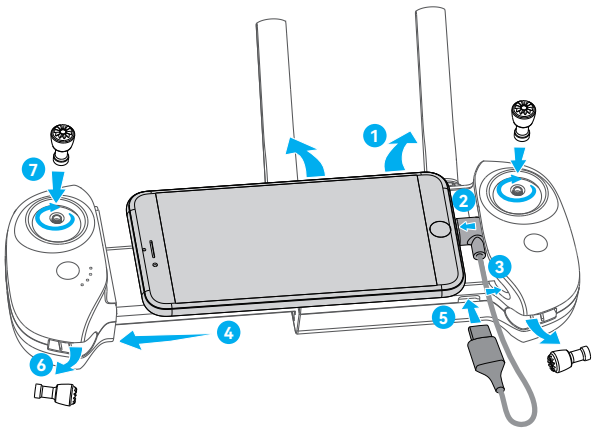
**The product is delivered under folded status. Please unfold it as follows:**

1. Unfold the front arm before the rear arm.
2. Unfold the propeller blades.

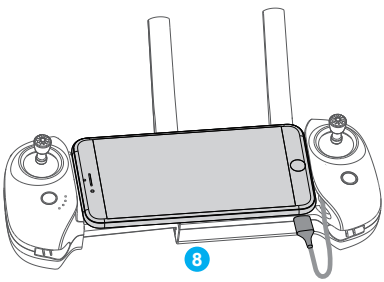


## 3.5 Preparing the Remote Controller

**Installation of mobile phone and control stick**

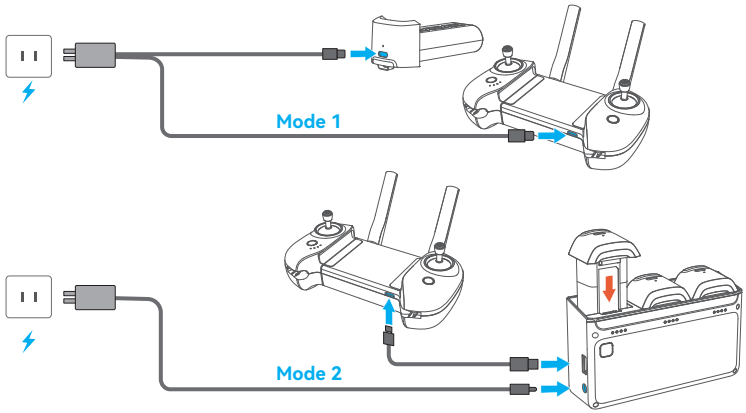



1. Unfold the antenna.
2. Connect your mobile phone to the USB cable.
3. Insert the part of your mobile phone with the USB cable into the slot of the remote controller.
4. Pull and open the remote control with both hands and fix your mobile phone stably.
5. Connect the other end of the USB cable to the remote controller.
6. Take out the sticks.
7. Screw in both control sticks clockwise.
8. Installation completed.



## 3.6 Charging/Startup and Shutdown

Before the first flight, it is essential to wake up the battery; otherwise the drone won't start. Connect the TYPE-C charging port of the battery and a USB charger to the AC power supply to finish a single charging (USB charger is not included in the package. User can use a charger that conforms to FCC/CE specification to charge the battery). The red indicator will stay on during charging, and turn off automatically after charging is done. Users can charge the battery with the Parallel Charging HUB if a Fly More Combo is purchased. For more details, please refer to the Fly More Combo of Parallel Charging HUB. The Parallel Charging HUB can also charge the remote controller.




- The shortest charging period is approx. 1 h 25 min through the TYPE-C charging port. Make sure your charger supports 5V/3A output in order to achieve this charging speed.
- User is suggested to charge the battery through the Parallel Charging HUB, in order to charge 3 batteries quickly at the same time.

- It is suggested to remove the battery from the drone to charge for safety reasons; otherwise, the drone won't power on if the battery is being charged in the drone.
- If the charging cable is connected while the drone is on, it will power off automatically and the charging will continue.
- The battery may become too hot after use; do not charge it until it cools down; otherwise, charging can be rejected by the smart battery.
- Charge the battery every three months to sustain the cell's activity.
- Please connect the original cable or any cable that supports over 3A current to the TYPE-C port; otherwise, it may cause charging failure or battery damage.

### Startup

**Drone:** Make sure the battery is inserted in the battery bin, short press and then long press the power button until all indicators are on, and then release the button to start up.

**Remote controller:** Long press the power button until all indicators are on, and then release the button to finish startup.

### Shutdown

**Drone:** Short press and then long press the power button of the drone until all indicators are off, and then release the button to shut down.

**Remote controller:** Long press the power button until all indicators are off, and then release the button to shut down.

# 4. Drone

ATOM SE consists of a flight control system, a communication system, a positioning system, a power system and a smart flight battery. This chapter sets down the functions of all parts of the drone.

## 4.1 Positioning

ATOM SE adopts Potensic's new SurgeFly flight control technology, which supports the following two positioning modes:

**GPS positioning:** Provide precise positioning and navigation to the drone; support precise hovering, smart flight and auto return.

**Vision positioning:** It can realize high-precision positioning at a low altitude based on the Downward Vision System. The visual positioning can be realized without a GPS signal, so that the product can be used indoors.

**How to switch:** The flight control system will switch automatically according to the environment of the drone. If both the GPS and lower visual system fail, the flight control will be switched to attitude mode, under which, the drone fails to realize stable hovering and the user needs to correct the flight gesture manually through the control stick.

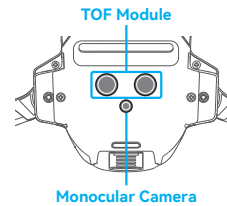
The difficulty of drone handling will be increased greatly in Attitude Mode; make sure to master the behaviors and operation of the drone in this mode prior to use; avoid flying the drone over a long distance to avoid risks due to failed judgment of drone behaviors.

- **In Vision Positioning (OPTI Mode), the Intelligent Flight Modes are not available, and the flight mode will be limited to Video Mode.**

- **The difficulty of controlling the drone will increase dramatically in ATTI Mode so make sure to master the operation of the drone in this mode. Always keep the drone within sight in order to avoid risks in case of failed judgment of the drone's attitude and direction.**

## 4.2 Downward Vision System

The ATOM SE is equipped with a downward vision system, it is located beneath the drone. The Downward Vision System consists of a monocular camera and a TOF module. The TOF module includes a transmitter tube and a receiver tube, it can precisely calculate the fly height above the ground by calculating the infrared signals transmission and receiving time. In combination with the monocular camera, the system can help achieve high-precision positioning at low altitudes.




**Detection Fileds**

The Downward Vision System works best when the drone is at an altitude of 0.3 to 5 m, and its operating range is 0.3 to 10 m.

When GPS is unavailable, the Downward Vision System is enabled if the surface has a discernable surface and sufficient light. The Downward Vision System works best when the drone is at an altitude of 0.3 to 5 m. When the altitude exceeds 5 m, the drone will enter ATTI Mode. Please fly with caution.

**How to use**

The Downward Vision System has enabled automatically if the positioning conditions are satisfied. The drone tail indicator blinks cyan twice, which indicates the Downward Vision System is working.

Speed limit: To ensure positioning accuracy and flight safety during visual positioning flight, the drone will actively limit its flight speed.

- In OPTI Mode, the maximum flight altitude is 5 m.
- Vision positioning is only an auxiliary flight function. Please always pay attention to changes in the flight environment and positioning mode, and do not rely too much on the automatic judgment of the drone. Users need to control the remote controller at all times and be prepared to operate the drone manually at any moment.
- The Vision System cannot work properly in any of the following situations
  1. Pure-color surface.
  2. Surface with strong reflection, such as smooth metal surfaces.
  3. Transparent object surface, such as water surface and glass.
  4. The moving texture, such as running pets and moving vehicles.
  5. Scenarios with drastic change of light; For example, the drone flies to outdoor space with strong light from indoor space.
  6. Places with weak or strong light.
  7. The surface with highly repetitive texture, such as floor tile with the same texture and small size, and highly consistent strip pattern.
- For the sake of safety, please check the camera and TOF transceiver tube before the flight, and clean it with a soft cloth if there is any dirt, dust, or water on it;
- Contact Potensic Support if there is any damage to the Vision System.

## 4.3 Drone Status Indicator

| | | | | |
|---|---|---|---|---|
| **Start-up/ Shut-down** | Startup / Shutdown in progress: Green indicator is solid on | | | |
| **Flight status** | **GPS positioning** | **Vision positioning** | **Attitude mode** | **Return** |
| | Indicator flashes slowly in green | Indicator flashes slowly in cyan | Indicator flashes slowly in blue | Indicator flashes slowly in red |
| **Warning & Error** | **Remote controller has no connection with the drone (disconnected)** | **Low battery** | **Sensor error** | **Emergency stop of propeller** |
| | Indicator is in solid blue | Indicator flashes quickly in red | Indicator is in solid red | The indicator repeatedly briefly lights up in red and then remains off for an extended period. |
| **Upgrade & calibration** | **Compass calibration (horizontal)** | **Compass calibration (vertical)** | **Frequency pairing mode** | **Upgrade mode** |
| | Indicator alternately flashes between red and green. | Indicator alternately flashes between blue and green. | Indicator flashes quickly in green | Indicator flashes quickly in blue |

## 4.4 Smart Battery

### 4.4.1 Function

ATOM SE's smart battery is equipped with high-energy cells and utilizes an advanced battery management system. Detailed information is as follows:

| Basic Parameters | | | |
|---|---|---|---|
| Model: DSBT02A | | | |
| **Cell Qty.** | 2 series | **Battery Capacity** | 2500 mAh |
| **Rated Voltage** | 7.2 V | **Charge Completion Voltage** | 8.4 V |
| **Charging Mode** | TYPE-C/<br>Parallel Charging HUB | **Max. Charge Current** | TYPE-C: 5 V/3 A<br>Parallel Charging HUB: 8 V/2.2 A x 3 |

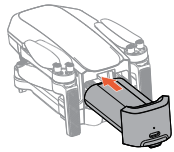
| Function | Description |
|---|---|
| **Balance protection** | During charging, the voltages of the battey cells are automatically balanced. |
| **Auto-discharging protection** | After being fully charged, the battery will start to auto-discharge to 50%-70% of the battery level when it's left idle for 5 days to protect the cells. |
| **Overcharge protection** | The battery stops charging automatically once fully charged. |
| **Temperature protection** | Charging will stop automatically if the temperature of the battery is below 0℃ or above 40℃ to prevent damage. |
| **Auto-limit of charging current** | The battery will restrict the charging current automatically if an excess current is detected to protect the cells. |
| **Over-discharge protection** | Discharging stops automatically to prevent excess discharge when the battery is not in flight use. The battery will enter Hibernation mode and it's recommended to charge the battery. |
| **Short-circuit protection** | The power supply will be automatically cut if a short-circuit is detected to protect the drone and the battery. |
| **Battery health monitoring** | The BMS will monitor the battery health, and prompt warnings if a damaged battery cell is detected so you can replace the battery in time. |
| **Communication function** | Information about charge cycles and remaining battery level is transmitted to the drone and you can view it in the App. |

- **If the battery is not used for a long time, it needs to be charged every three months to ensure its health.**
- **Please store the battery in a cool and dry place where children cannot reach.**

### 4.4.2 Battery Installation & Removal

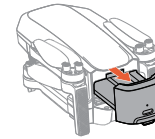
**Installation:**

Insert the battery in the battery compartment and secure the buckle. You will hear a clicking sound when the battery is fully engaged.

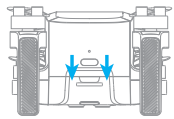


**Removal:**

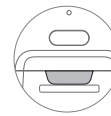
Press the battery buckle and detach the battery from the battery compartment to remove it.



⚠ • After inserting the battery, please ensure that the battery buckle snaps back into place. This is crucial for flight safety.



**Make sure to power off the product before removing the battery.**



**Buckle is in position, safe**

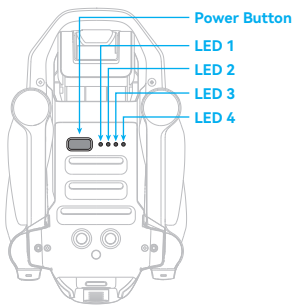
**Buckle is not in position, which may result in the battery falling during flight.**

### 4.4.3 Charging

See 3.6 for charging method

### 4.4.4 View Power Level

Once the battery is inserted in the drone, short press the power button to view the power level of smart battery, as shown in the picture below:




| LED 1 | LED 2 | LED 3 | LED 4 | Current power level |
|---|---|---|---|---|
| ☼ | ● | ● | ● | 0% ~ 25% |
| ☼ | ● | ● | ● | 25% ~ 30% |
| ☼ | ☼ | ● | ● | 30% ~ 50% |
| ☼ | ☼ | ● | ● | 50% ~ 55% |
| ☼ | ☼ | ☼ | ● | 55% ~ 75% |
| ☼ | ☼ | ☼ | ● | 75% ~ 80% |
| ☼ | ☼ | ☼ | ☼ | 80% ~ 97% |
| ☼ | ☼ | ☼ | ☼ | 97% ~ 100% |
| ☼ Indicator is on | | ☼ Indicator is flashing | | ● Indicator is off |

### 4.4.5 Operation Instructions of Smart Battery at High/Low Temperature

When the battery temperature is < 5°C, the App will prompt a low temperature warning of the battery, and the battery needs to be preheated before flying.

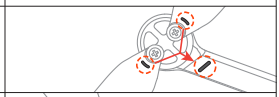
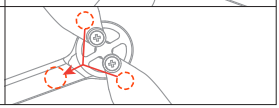
When the battery temperature is > 60°C, the App will prompt a high temperature warning of the battery, and the drone will not be able to fly.

⚠ • The discharge capacity will be weakened greatly and flight duration will reduce at a low temperature, which is normal.

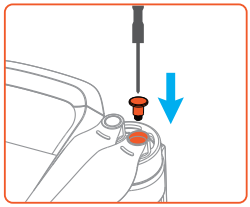
• Avoid long-term running at a low temperature, otherwise, the battery life can be shortened.

## 4.5 Propellers

There are two types of ATOM SE propellers, which are designed to spin in different directions. Marks are used to indicate which propellers should be attached to which motors, the two blades attached to one motor are the same.

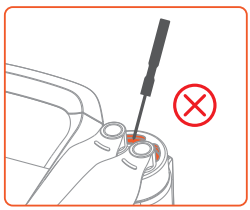
| | Propeller | Installation Instructions | Schematic Diagram of Installation |
|---|---|---|---|
| Marked propeller |  | Install the marked propeller blades on marked arm |  |
| Unmarked propeller |  | Install the unmarked propeller blades on unmarked arm |  |

- Use the the screwdriver from the package to mount the propellers.
- When replacing the propeller blades, it is easier to handle by gripping the motor with your hand.



- Make sure you attach the marked propellers to the motors of the arm with marks and the unmarked propellers to the motors of the arm without marks. Otherwise the drone will be unable to fly.
- If a propeller is broken, remove the two propellers and screws on the corresponding motor and discard them. Use two propellers from the same package. DO NOT mix with propellers in other packages.
- Propeller blades are sharp. Handle with care. DO NOT squeeze or bend the propellers during transportation or storage.
- Purchase the propellers separately if necessary.
- Stay away from the rotating propellers and motors to avoid injuries.
- Please check the propeller blades immediately if there are any jitters or speed loss in flight, and timely replace the propellers if it's damaged or deformed.
- Make sure the motors are mounted securely and rotating smoothly. Land the drone immediately if a motor is stuck and unable to rotate freely. Stop flying the drone and contact support if there is any abnormal sound with the motor.
- Make sure that the propellers are installed securely before each flight. Check to make sure the screws on the propellers are tightened.

- When mount or remove the propellers, do not put the screwdriver or other foreign materials inside the motors, otherwise the motor may be damaged.



## 4.6 Flight Data

ATOM SE will record automatically the flight data and you can access it in the App.

Flight record displays the basic data for each flight.

Flight log records the detailed data of each flight. If you encounter any issue during the flight, you can report it in the App and upload the flight log if necessary to seek for assistance.

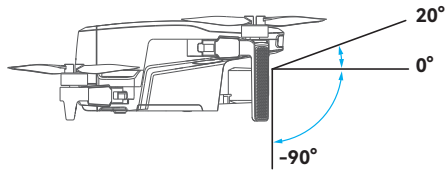
- All flight data is stored on your mobile device, and the company will not obtain any of your flight data unless you voluntarily upload it to the cloud seeking for assistance.

## 4.7 Single Axis Gimbal Camera

### 4.7.1 Single Axis Gimbal

The ATOM SE camera is mounted with a single-axis gimbal, to adjust pitch angle freely from +20° to -90° (horizontal direction is 0°).

The angle of the gimbal can be adjusted by dialing the left thumbwheel of the remote controller.




- The gimbal will be recovered to -9° automatically after each startup.

- Avoid collision and moving the lens by force as the gimbal contains precision elements.
- Ensure that the gimbal is free from foreign matter, and the lens is clean before takeoff.
- The gimbal is connected to the drone through elastic and shock absorption support, to eliminate camera vibration. Do not pull the gimbal by force. For any damage of shock absorption support, please contact the customer service for help.

- Do not bind or paste any object on the gimbal. Otherwise, it may damage the drone.

### 4.7.2 Camera

| Basic Parameters | |
|---|---|
| Sensor brand: SONY | Sensor size: 1/3" |
| Effective pixel: 12MP | Aperture: F2.2 |
| FOV: 118° | Focus range: 3 m ~ ∞ |
| ISO range: 100 ~ 6400 | Shutter range: 1/30 s ~ 1/25,000 s |
| Memory: Micro SD card | Shooting distortion: < 1% (after calibration) |
| Picture size: 12MP | Picture format: JPG/JPG+RAW (DNG) |
| Video format: MP4 | Codec: H.264 |
| Video specification: 4K@30 fps; 2.7K@30 fps; 1080P@60/30 fps | |

- Do not touch the lens after recording for a long period of time to avoid scald.
- Do not record video when the drone is not flying; otherwise the drone will trigger overheat protection.
- The sensor will crop out the edges at 1080P/60fps, it's simply capturing a central section of what the full-frame sensor would capture, and FOV is about 66°.

### 4.7.3 Image Storage

Videos and pictures recorded by ATOM SE will be stored on the SD card instead of the App or your phone gallery. Make sure to insert the SD card prior to flight. Otherwise, it's unable for ATOM SE to record videos or capture pictures. (SD card is not included in the pack list.)

User can preview and download the videos and pictures (the drone and the remote controller should be connected) in App.

**SD Card Requirements**

File format: FAT32, exFAT

Capacity: 4G ~ 256G

Speed requirements: It is suggested to use SD card above U1 (UHS Speed Class 1) or C10 (Class 10)

- The video downloaded from App is just 720P resolution used in video transmission. Please read SD card with computer or other device in order to acquire videos of higher definition.

- The recording can be terminated due to slow write-in when using the U1/C10 SD cards of certain brands.
- If important data is stored on your SD card, please backup them properly.
- Do not insert or unplug the SD card when the product is powered on. It may lead to data damage or loss, or even SD card damage when inserting or unplugging SD card during video recording.
- Potensic does not bear responsibility for any loss due to user's misoperation of SD card.

# 5. Remote Controller

## 5.1 Overview

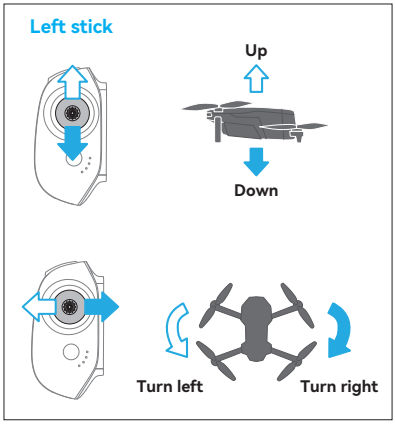
Potensic ATOM SE is equipped with the DSRC02A Remote controller, which boasts Potensic long-range PixSync 2.0 video transmission technology, offering a maximum transmission range of 4 km (13,123 ft) and 720p when displaying video from the drone to PotensicPro on your mobile device. Easily control the drone and camera using the onboard buttons. The detachable control sticks make the remote controller easier to store. Thanks to the 2.4Ghz dual band antenna, in a wide-open area with no electromagnetic interference, PixSync 2.0 smoothly transmits video feed at up to 720p at a max altitude of 120 m.

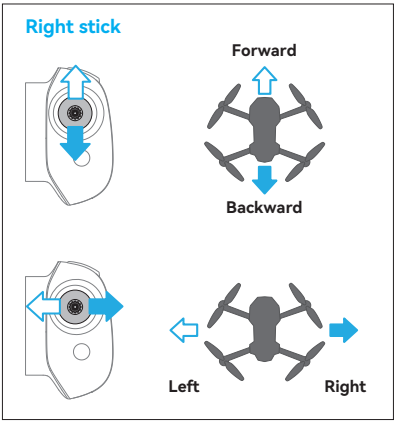
The built-in battery has a capacity of 3000 mAh and a maximum run time of 2.3 hours. There is a TYPE-C port for device connection. The remote controller charges the mobile device with a charging ability of 5 V/500 mA.

- When used with different drone hardware configurations, the remote controller will automatically select the corresponding firmware version for updating and support the following transmission technologies enabled by the hardware performance of the connected drone models:
  a. ATOM SE: PixSync 2.0  b. ATOM: PixSync 3.0

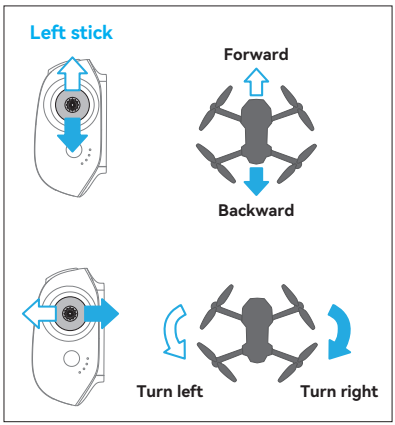
## 5.2 Control Stick Mode

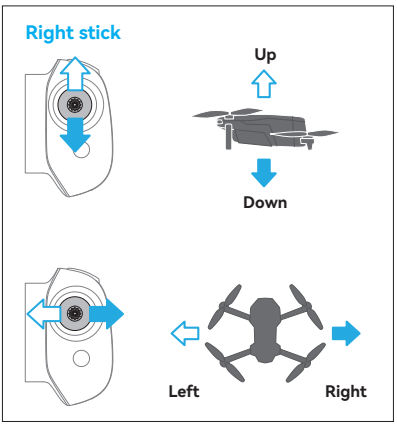
**Mode 1 (Left Hand Throttle)**



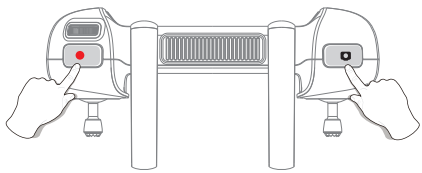
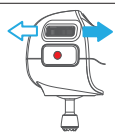

**Mode 2 (Right Hand Throttle)**



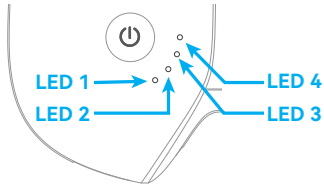
## 5.3 Function

### 5.3.1 Function List

| | |
|---|---|
| **Charge** | 1. Connect the USB Charger to the TYPE-C charging port.<br>2. The battery is being charged when the LED indicators start flashing.<br>3. Charging is completed when 4 LED indicators are solid on and data cable can be removed. |
| **Charge mobile phone** | When a mobile device is connected, the remote controller automatically charges the device with a charging ability of 5 V/500 mA. |
| **Indicator function** | See 5.3.2 |
| **Flight control** | See 5.2 |
| **Low battery prompt** | When power level of the remote controller is lower than 10%, the remote controller will emit a beep sound every other second. |
| **Auto shutdown** | The remote controller will shut down automatically if it has no connection or operation for 20 mins. |
| **One-key return** | See 7.9 |
| **Pause** | If the drone is performing an Intelligent Flight like Circle Flight or auto landing, press once to make the drone brake and hover in place. Press again to resume the drone flight. |
| **Emergency Propeller Stop Mid-Flight** | For any emergency situations during the flight, press "Shoot" and "Record" button for 2 s at the same time till the remote controller beeps, the drone will stop running and fall down.<br>  |
| **Shoot** | Short press it to shoot one photo<br>When the camera is in video mode, short press it to switch to photo mode<br>  |
| **Record video** | Short press it to start/stop video recording<br>When the camera is in photo mode, shot press it to switch to video mode<br>  |
| **Gimbal Dial** | Dial it to the right to increase the pitch angle (head up)<br>Dial it to the left to decrease the pitch angle (head down)<br>  |
| **Remote controller frequency pairing** | See 5.3.3 |

### 5.3.2 Indicator

As shown in the picture below, the remote controller is fitted with 4 white LED indicators to indicate the power level and other status.




Indicator is on

Indicator is flashing

Indicator is off

**Charging indication**

| LED 1 | LED 2 | LED 3 | LED 4 | Current power level of battery |
|---|---|---|---|---|
| ☼ | ● | ● | ● | 0% ~ 25% |
| ☼ | ☼ | ● | ● | 25% ~ 50% |
| ☼ | ☼ | ☼ | ● | 50% ~ 75% |
| ☼ | ☼ | ☼ | ☼ | 75% ~ 99% |
| ☼ | ☼ | ☼ | ☼ | 99% ~ 100% |

**Power indication (in use)**

| LED 1 | LED 2 | LED 3 | LED 4 | Current power level of battery |
|---|---|---|---|---|
| ☼ | ● | ● | ● | 0% ~ 10% |
| ☼ | ● | ● | ● | 10% ~ 25% |
| ☼ | ☼ | ● | ● | 25% ~ 50% |
| ☼ | ☼ | ☼ | ● | 50% ~ 75% |
| ☼ | ☼ | ☼ | ☼ | 75% ~ 100% |

**Status indication**

| | LED 1 | LED 2 | LED 3 | LED 4 |
|---|---|---|---|---|
| Frequency pairing | ☼ | ☼ | ☼ | ☼ |
| | Flashing slowly at the same time | | | |
| Upgrade mode | ☼ ● ● ●... | ☼ ☼ ● ●... | ☼ ☼ ☼ ●... | |
| | Turning on sequentially | | | |
| Start calibration | ☼ | ☼ | ☼ | ☼ |
| | Flashing slowly at the same time | | | |

### 5.3.3 Remote Controller Function

ATOM SE drone and the remote controller can be used immediately after startup since they have passed frequency pairing before delivery. If a new remote controller or drone is used for the first time, user must conduct frequency pairing for them as follows prior to use:

1. Power on the remote controller and connect it with the mobile phone, launch PotensicPro App, tap Settings and select "Re-pair the drone" to enter the frequency pairing interface.
2. Power on the drone and long press the power button till the drone status indicators flash green, the drone is ready to pairing.
3. Wait for about 7 s, the remote controller beeps once to indicate frequency pairing is successful and the flight interface of the App will show realtime video transmission.

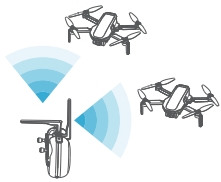
- **Make sure the remote controller is within 1 m of the drone during frequency pairing, and there is no 2.4G frequency interference.**

- **If frequency pairing fails, check if there are interferences nearby, or other drones are also in frequency pairing mode, or the remote controller is too far away or blocked. Eliminate the problems above and try again.**
- **Do not relocate or operate the remote controller and the drone during frequency pairing.**

## 5.4 Antenna Angle

Adjust the antenna angle along with the changes of drone altitude and distance, to ensure the best communication status of the remote controller.

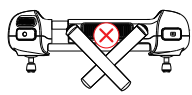
Wider communication angle is ensured at a close distance in this mode.



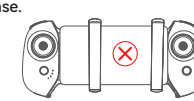
Keep both antennas pointing directly towards the drone to acquire a longer transmission distance.

When the drone is directly above the remote controller, the transmission signal is significantly weakened due to the poor antenna angle. To address this, please lower the flight altitude or fly the drone horizontally for some distance, ensuring that the antenna points towards the drone as much as possible, as shown in the picture.

Do not cross the antenna in any case.



Do not press the antenna on your mobile device in any case.



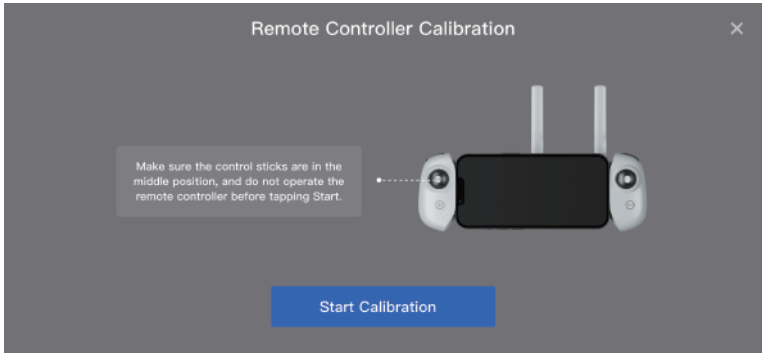
## 5.5 Remote Controller Calibration

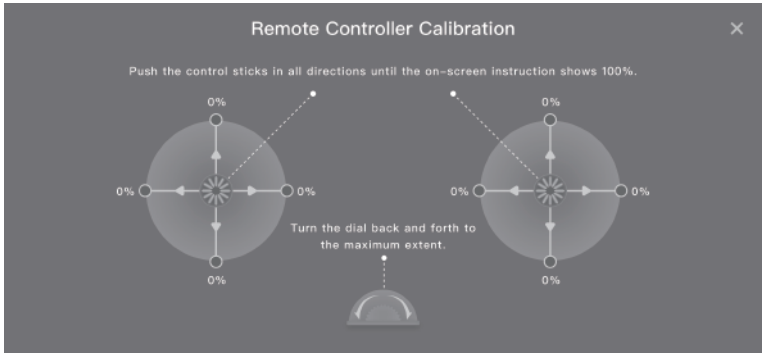
### 5.5.1 When to perform remote controller calibration

1. When the drone drifts automatically in one direction without any toggling of the control sticks.
2. When the drone automatically and continuously rotates in one direction.
3. When the control sticks are over-sensitive or lack sensitivity.

### 5.5.2 Calibration Procedure

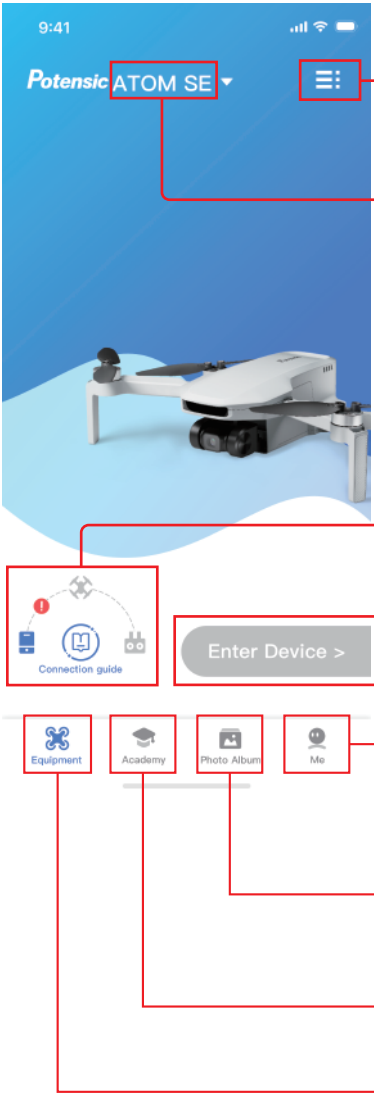
1. Turn on the remote controller, and connect the mobile device, tap Settings in App, select "Remote Controller Calibration"
2. Make sure the control sticks are in the middle position and do not operate it before tapping to start the calibration.
3. Tap "Start Calibration", then follow the on-screen instructions and toggle the sticks in all directions until the App displays 100%, and rotate the dial back and forth to its maximum extent.
4. When App prompts "Calibration Succeeded", the remote controller calibration is completed.



# 6. PotensicPro App

## 6.1 App Homepage




Tap to view flight records and logs

Tap to choose the corresponding model. The drone model will be matched automatically if user has connected the remote controller to the mobile phone

Display connection status

Tap to enter the flight interface

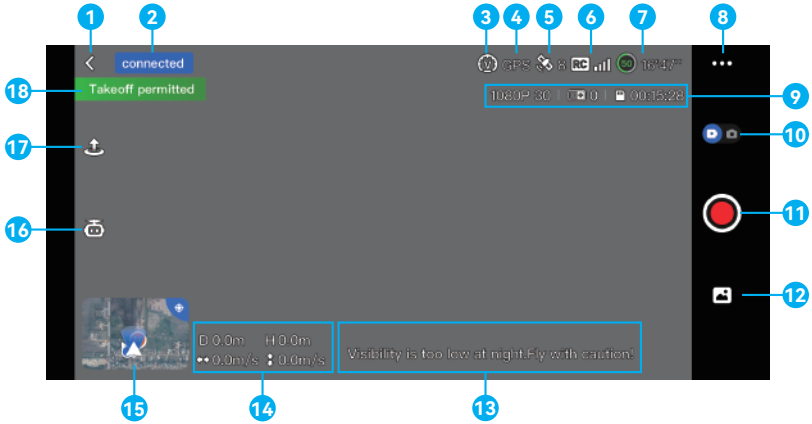
Me: Report a problem, modify account info, browse User Agreement, find the missing drone, close account and other settings

Photo album in App (Connect the drone to see the contents in the drone SD card)

Tap to view the manual, tutorial videos, and FAQs

Homepage of App

## 6.2 Flight Interface




1. **Return button:** Tap to return to the homepage

2. **Navigation prompt bar:** Display drone status and flight mode

3. **Flight mode:** Video Normal Sport

4. **Positioning mode:**
   GPS **GPS positioning** OPTI **Vision positioning** Atti **Attitude mode, no positioning**

5. **GPS status:** Display GPS signal status and quantity of satellites connected

6. **Signal quality of video transmission:** RC **Display the strength of video transmission connection signal between the drone and the remote controller**

7. **Power level of the smart battery:** 50 16'47" Estimated Remaining Flight Time

8. **Settings**

   **Tap to view information about Safety, Calibration, Control, Camera and About.**
   **Safety**
   Switch on or off Beginner Mode: If switched on, the drone will be confined to fly in a cylindrical space with a radius of 30 m and a height of 30 m and restricted to fly only in Video Mode. After installing the propeller guards, make sure to enable Beginner Mode.
   Set measurement system (Metric or Imperial) and speed (Video/Normal/Sport)
   Set minimum return altitude and virtual fence.
   Enable/disable Flight Safety Tips.
   Battery information: check the temperature, current, voltage and others of the smart battery.
   **Calibration**
   This sector includes compass calibration, remote controller calibration and drone re-pairing.
   **Control**
   Remote Controller Settings: Tap to switch control stick mode (Mode 1: Left Hand Throttle; Mode 2: Right Hand Throttle)
   **Camera**
   General Settings: Tap to set white balance, gridlines, segmental recording, etc. Tap to check Micro-SD card capacity and format.
   Other Settings: Enable/disable Telemetry Data.
   **About**
   View device information, firmware information, App version, etc.

## 9. Shooting Information Display/Settings

**Photo Mode: displays photo format, EV (exposure value) and the remaining numbers of photos or the available capacity of the current microSD card.**


Tap 60627 P to switch between the display of the remaining numbers of photos or the available capacity of the current microSD card.

Tap 0.0 to set EV.

Tap JPG to set photo format to JPG or RAW+JPG.

**Video Mode: displays video resolution, EV (exposure value) and the remaining video recording time or the available capacity of the current microSD card.**


Tap 05:15:45 to switch between the display of the remaining video recording time or the available capacity of the current microSD card.

Tap 0.0 to set EV.

Tap **4K 30** to set video resolution and frame rate.
4K: 30 fps 2.7K: 30 fps 1080P: 60/30 fps

## 10. Shooting Information Display/Settings:

**to switch from shooting to video recording** **to switch from video recording to shooting.**

## 11. Shoot/Record button:

**Video recording mode, tap to start video recording**

**Video recording in progress, tap to cancel**

**Shooting mode, tap to shoot picture**

## 12. Album: **Preview or download shot videos or pictures in SD card.**

## 13. Flight Safety Tips

Users can turn on/off Flight Safety Tips in App Settings → Safety. After turning it on, flight-related tips or suggestions will be displayed on the lower right side of the flight interface.

## 14. Display flight speed and distance

**D Horizontal distance from the drone to HOME point**

**H Relative height from the drone to HOME point**

**Flight speed of the drone**

**Ascent/descent speed of the drone**

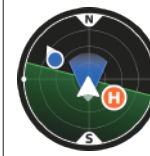
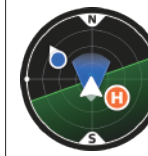
## 15. Attitude Indicator/Thumbnail map

Tap the upper right corner to switch to Attitude Indicator Mode

Tap thumbnail map to switch to full-screen map

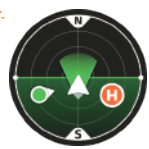
The attitude indicator displays information of drone direction, tilt angle, remote controller direction, HOME point and more.

The attitude indicator can show the angle and direction of the drone in real time as follows:

| | | | | |
|---|---|---|---|---|
| **Legend** |  |  |  |  |
| **Tilting direction of the drone** | **Tilt forward:** the horizon line tilts towards the upper half of the attitude indicator | **Tilt backward:** the horizon line tilts towards the lower half of the attitude indicator | **Tilt to the right:** the horizon line tilts towards the right side | **Tilt to the left:** the horizon line tilts towards the left side |

**Different colors of the attitude indicator:**

| Legend | Description |
|---|---|
|  | Green indicates that the drone is flying at a relatively small tilt angle, and optimal video quality can be achieved. |
|  | Yellow indicates that the drone is flying at a relatively large tilt angle, and the video quality may be reduced. |
|  | Red indicates that the drone is flying at a very large tilt angle. If the attitude indicator frequently turns red during flight, the drone may be encountering strong winds and the video quality can be compromised. Please fly the drone back and land it as soon as possible. |

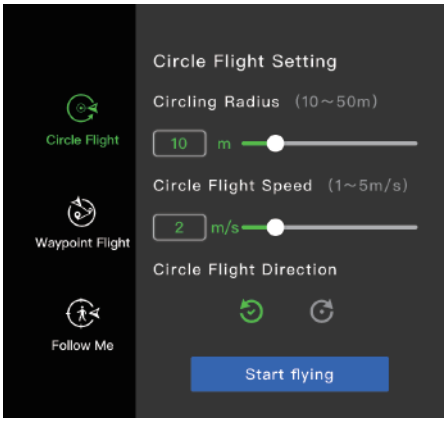


- When the icons of the drone and the remote controller both turn green, it indicates that the remote controller is facing the drone which guarantees the optimal communication signal.
- After the drone is powered on and enters GPS mode, the current GPS coordinates will be updated as the HOME point. Pay attention to the update prompt of the HOME point.

- When the drone takes off in OPTI mode and then enters GPS mode, the HOME point is no longer the take-off point. Pay attention to the return safety.

## 16. Intelligent Flight Modes

Intelligent Flight Modes include Circle Flight, Waypoint Flight and Follow-Me Flight.




## 17. One-key takeoff, landing/return

The App will display different buttons based on drone status. Tap to initiate one-key takeoff, landing or return.

**Tap to unlock, take off and hover at a height of 1.2 m**

**Tap to land or auto return.**

## 18. Display important information or status of drone

- Make sure to fully charge the mobile device prior to flight, because the power of the mobile device will be consumed even if it is charged by the remote controller.
- Mobile cellular data is required when using the PotensicPro App. Please contact your wireless carrier for data charges.
- While using the App, make sure to read and master the pop-up prompts and warning information of App to know the current status of the drone.
- It is recommended to replace any outdated mobile device which may have a negative impact on user experience of App and lead to potential dangers. For any poor user experience and safety problems due to the use of an outdated mobile device, Potensic does not bear any liability.

# 7. Flight

This chapter introduces safe flight practices and requirements.

## 7.1 Requirements of Flight Environment

01. Do not fly in adverse weather conditions such as strong winds, rain, snow, hail, or dense fog.
02. Choose an open area free of tall buildings for your flight. Structures with significant steel reinforcement can interfere with the compass and block GPS signals, leading to poor or failed positioning. Ensure you hear the voice prompt "HOME point updated" before continuing your flight. If flying near tall buildings, HOME point accuracy may be compromised, so closely monitor the drone's position and manually control the landing as it nears the HOME point.
03. Ensure the drone remains within visual line of sight (VLOS) during flight to avoid GPS signal blockage by mountains or trees. For beyond-visual-line-of-sight (BVLOS) flights, ensure the drone is in good condition, you possess the necessary pilot qualifications, and the flight complies with local laws and regulations.
04. Fly away from obstacles, crowds, water surfaces, airports, highways, high-speed train stations, and urban areas unless you have obtained relevant permissions or approvals according to local laws and regulations.
05. Avoid flying near high-voltage power lines, communication base stations, or transmission towers to prevent signal interference with the remote controller.
06. Exercise caution when flying above 3000 m (9842 ft), as battery and propulsion system performance may decrease due to environmental factors. Do not exceed the specified altitude (2000 m/6562 ft when propeller guards are installed).
07. Braking distance increases with altitude. Allow sufficient braking distance for safe flight in high-altitude regions.
08. GPS positioning and Waypoint flights are not available within the polar circles.
09. Fly only in well-lit environments with clear surface textures and minimal glare. Daytime flights only.
10. Avoid flying near flocks of birds.
11. Exercise caution when taking off from moving surfaces (such as cars or boats). Do not take off from uniform or highly reflective surfaces (e.g., car roofs, monochrome tiles, glass).
12. Choose flat, hard surfaces for takeoff. Avoid gravel or bushy areas. Excessive vibration before unlocking the motors may prevent takeoff.
13. Be cautious when taking off from desert or sandy beach surfaces to prevent dust from entering the drone.
14. Do not use the drone in flammable or explosive environments.
15. Avoid flying in extremely cold or hot conditions to prevent hazards.
16. Use the drone, remote controller, smart battery, charging cable, and charging hub only in dry environments.
17. Do not operate the drone, remote controller, smart battery, charging cable, or charging hub in hazardous conditions such as accident sites, fires, explosions, floods, tsunamis, avalanches, landslides, earthquakes, dusty environments, or sandstorms. Avoid salt spray and mold exposure during operation.

## 7.2 Pre-flight Checklist

The following pre-flight checks are required:

1. Ensure the smart battery, remote controller, and mobile device are fully charged.
2. Verify that the smart battery and propellers are correctly installed. Check for any deformation or looseness in the propellers and screws.
3. Ensure the front and rear arms are fully extended.
4. After powering on, check that the camera and gimbal are functioning properly and that the motors start normally.
5. Confirm the App is running correctly. Check that all firmware is updated to the latest version.
6. Ensure the SD card is inserted and the camera lens is clean.
7. Always use original accessories. Using non-original parts may compromise the drone's safety.
8. Check the local weather conditions to ensure they are suitable for flying. Ensure the flight environment is open and free of interference.
9. Power on the drone on a flat, open surface, wait for it to enter GPS mode, and confirm the HOME point location before takeoff.

## 7.3 Connection

**Please follow the steps below:**

1. Please finish the steps in "3.5 Preparing the Remote Controller" and turn on the remote control.
2. Please finish the steps in "3.4 Preparing the drone" and turn on the remote control.
3. Launch App to view the connection status. Connection is finished when it shows .
4. Tap Enter Device > to enter the flight interface.

- It is advised to tap and follow the animated guide to operate for first-time users.

## 7.4 Flight Mode

ATOM SE has three flight modes-Video/Normal/Sport, which can be switched via the App.

**Video Mode**

Ascent speed: 2 m/s, descent speed: 1.5 m/s, flight speed: 6 m/s

The drone enters Beginner Mode by default when being used for the first time. The flight speed will be limited to the same as in Video Mode to allow you to familiarize yourself with the controls of the drone.

**Normal Mode**

Ascent speed: 4 m/s, descent speed: 3 m/s, flight speed: 10 m/s

You can exit Beginner Mode after you have mastered adequate flight skills, and the drone will switch to Normal Mode by default.

**Sport Mode**

Ascent speed: 5 m/s, descent speed: 4 m/s, flight speed: 16 m/s

Video mode is recommended in aerial photography. Sport mode is recommended if you would like to get a speedy flight experience. Please pay more attention in Sport Mode flights as the the responsiveness of the drone significantly increases in Sport mode.

- To ensure flight safety, the Sport Mode is only available when the battery level is greater than 30% and the flight altitude greater than 8 m. During the flight in Sport Mode, if the battery level drops below 30% or the flight altitude is lower than 4 m, the drone will exit Sport Mode automatically.
- The maximum speed and braking distance of the drone significantly increase in Sport Mode. A minimum braking distance of 30 m (100 ft) is required in windless conditions to ensure safety.

## 7.5 Compass Calibration

### 7.5.1 Scenarios Requiring Compass Calibration

1. Compass calibration is required for first-time use.
2. Flying the drone at a location more than 500 km (310 miles) away from its last flight.

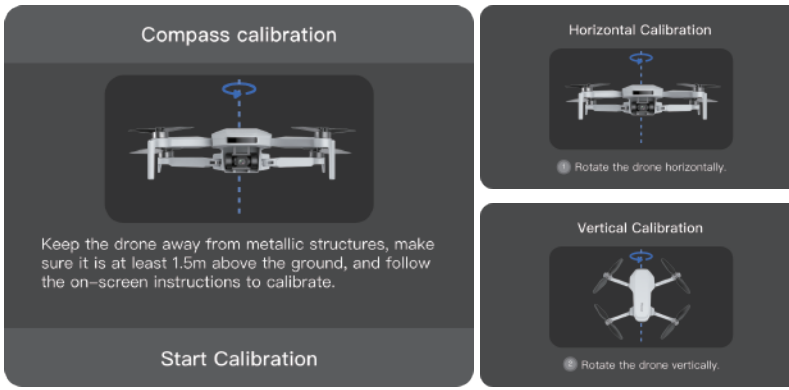
- DO NOT calibrate the compass in locations where magnetic interference may occur such as close to magnetite deposits or large metallic structures such as metal mines, steel reinforced basements, bridges, cars, or scaffolding.
- DO NOT carry objects that contain ferromagnetic materials such as mobile phones near the drone during calibration.
- Make sure the drone is at least 1.5 m (4.92 ft) above the ground during the calibration.
- It is not necessary to calibrate the compass when flying indoors.

### 7.5.2 Calibration Procedure

Choose an open area to carry out the following procedure.

1. When calibration is required, the App will pop up the calibration interface automatically, just tap "Start calibration", and the tail indicator will alternatively flash in red and green.
2. Hold the drone horizontally and rotate it 360° till the app shows vertical calibration, and the tail indicator will alternatively flash blue and green.
3. Hold the drone vertically and rotate it 360° around a vertical axis till the App prompts the calibration completed.

You can also trigger compass calibration manually in the App: Settings → Calibration → Compass Calibration.




⚠ • When you get the prompt "Calibration failed" in the App repeatedly, change the location and try the calibration procedure again.

⊘ • Do not calibrate compass while arms are folded.

## » 7.6 Beginner Mode

The drone is automatically set to Beginner Mode for first-time use.

In Beginner Mode:

1. The flight distance and height will be restricted at 0 ~ 30 m
2. The speed level will be restricted to the same as in Video mode
3. Users operating the drone for the first time are suggested to learn and master the drone in Beginner Mode

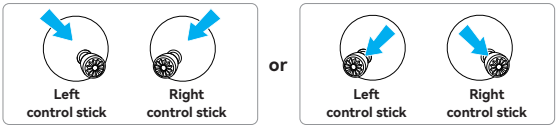
## 7.7 Takeoff/Landing/Hovering

### 7.7.1 Manual Takeoff/Landing

#### Takeoff

**Step 1: Start the motors**

Use a combination stick command to start the motors. Push both sticks to the bottom inner or outer corner depending on your control stick mode to start the motors. Release both sticks simultaneously once the motors are spinning.




**Step 2: Push throttle control stick to take off**

Push the throttle control stick upwards gently as shown in the picture, release the control stick when the drone leaves ground and it will keep hovering.


#### Landing

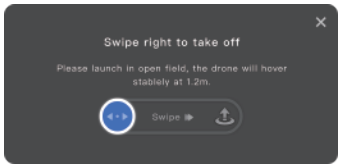
Pull the throttle control stick until the drone lands on ground. Release the throttle control stick when the motors are no longer spinning.

- Take off from stable and level surface, do not take off from or land on the palm or by hand.
- It is not suggested to take off at low battery, for it may affect the battery service life. Please handle it with caution and undertake the corresponding consequences if forced takeoff is required.
- When the drone is not in a level and stationary condition, stay at least 5 m away from the drone, and push both sticks to the bottom inner corner for 2 seconds to forcibly unlock the motors.
- Keep the distance over 0.5 m between the drone and ground, for it may fail to enter good hovering status due to air flow when it is close to the ground.
- If the drone fails to be locked after landing due to anomaly, pull down the throttle control stick to the limit position for 3 s and the drone will be locked by force.

### 7.7.2 One-key Takeoff / Landing

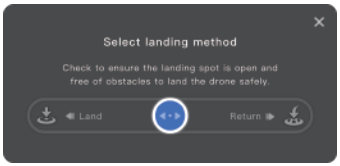
**One-key takeoff**

Tap one-key takeoff button in App, then swipe right in the pop-up window to start the drone automatically then ascend to the height of 1.2 m and maintain hovering.




**One-key landing**

Tap one-key landing button in App, then swipe left in the pop-up window to land the drone, or swipe right to start returning.



## 7.8 Smart Flight

### 7.8.1 Circle Flight

| | |
|---|---|
| **Description** | Start circle flight, the drone will fly forwards by taking the current position as circle center until it reaches the starting point of circle flight; When user tap GO in App, the drone will fly around the circle at a set speed and direction. |
| **Adjustable parameter** | User can set the radius,speed and direction of the Circle Flight in Circle Flight Setting. |
| **How to start** | When GPS signal is normal and flight height is ≥5 m, tap and select in App. |
| **How to exit** | 1. Tap on the left to exit Circle Flight.<br>2. Move a control stick (not the throttle stick) to stop Circle Flight. The drone will hover in place.<br>3. Short press the RTH/Pause button on the remote controller to stop Circle Flight. The drone will hover in place. |

- When circle flight is enabled, the drone will ascend to 5 m automatically if its height is less than 5 m.

- This drone does not have automatic obstacle avoidance. During Circle flight, the throttle stick cannot control altitude. Ensure there are no obstacles within the circle flight path and fly with caution.

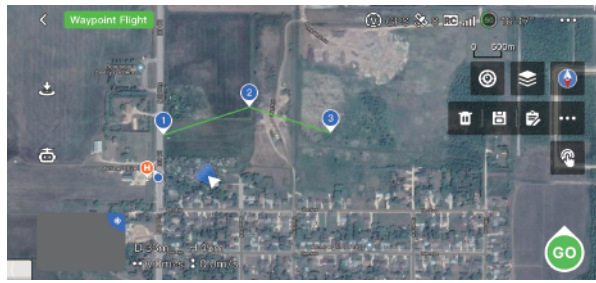
### 7.8.2 Follow Me Flight

| | |
|---|---|
| **Description** | Once follow me flight is enabled, the drone will follow your mobile device at the current distance; The flight height and yaw can be adjusted during follow me flight. |
| **How to start** | When GPS signal is strong and horizontal flight distance is 5 ~ 50 m, tap and select in App. |
| **How to exit** | 1. Tap on the left to exit Follow Me Flight.<br>2. Short press the RTH/Pause button on the remote controller to stop Follow Me Flight. The drone will hover in place. |

- When follow me flight is enabled, the drone will ascend to 5m automatically if its height is less than 5 m.
- The follow accuracy depends on the quality of the drone GPS signal and positioning accuracy of your mobile device.

- The follow me flight depends on the positioning of your mobile device. The App requires positioning permission, otherwise this function cannot be enabled.

### 7.8.3 Waypoint Flight

| | |
|---|---|
| **Description** | When waypoint flight function is enabled, User can freely set 1 or multiple waypoint coordinates in App map, and the drone will fly over the corresponding coordinates according to the sequence of set waypoint coordinates. |
| **How to start** | When GPS signal is strong and the current flight altitude is ≥ 5 m, tap in App and select to enter Waypoint Flight. Tap in the map to pin multiple waypoints, after that tap to start Waypoint Flight.<br>User can set 2-30 waypoints; The figure in waypoint icon indicates the flight sequence. Meanwhile, User can delete certain waypoints, save current Waypoint Flight task, or choose from the saved waypoint flights task.<br>  |
| **How to exit** | 1. Tap on the left to exit Waypoint Flight.<br>2. Move a control stick(Except the throttle stick) to stop Waypoint Flight. The drone will hover in place.<br>3. Short press the RTH/Pause button on the remote controller to stop Waypoint Flight. The drone will hover in place. |

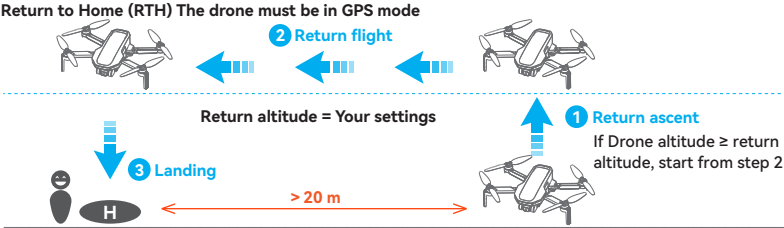
- During the waypoint flight, you can adjust the flight altitude by moving the throttle stick.
- During the waypoint flight, once reaches the virtual fence, the drone will exit the waypoint flight and hover in place.

## 7.9 Return (RTH)

The return consists of three steps, as follows:

1. Ascent: The drone ascends to the preset return altitude (this step is skipped if the drone's altitude is already higher than the return altitude).
2. Level flight: The drone maintains a straight flight at the set altitude towards the HOME point.
3. Landing: Once it reaches the HOME point, the drone will automatically land and stop its motors.

**Return to Home (RTH) The drone must be in GPS mode**



### How to RTH

**One key RTH:** Press and hold the RTH button on the remote controller for 1s or tap in App to pop up the menu, then swipe right to start the return (see 7.7.2).

**Auto RTH:** When either the drone battery level is low, the signal between the drone and the remote controller is lost or the drone is experiencing other abnormalities, Auto RTH will be triggered.

### How to exit the RTH

Method 1: Tap on the left of App to exit RTH.

Method 2: Briefly press the return button on the remote controller to exit RTH.

### RTH Requirements

The drone must take off in GPS mode and successfully record the HOME point.

If the drone takes off in OPTI mode and switches to GPS mode mid-flight, it will not be able to return to the takeoff point.

Please pay attention to the location of the HOME point on the map and the prompts in PotensicPro App.

- To ensure the safety of return flight, please set the appropriate return altitude in the app according to the flight environment.
- During the return course, users can still adjust the flight altitude by toggling the throttle control stick.
- When the drone is within 20 m of the HOME point and RTH is initiated, a pop-up window will appear in the App for the user to select between landing and return. If return is selected, the minimum return altitude is 5 m. The drone will land automatically if no action is taken after a countdown of 10 seconds. Please pay attention to flight safety.
- Tall buildings or obstacles can block the transmission signal and cause signal loss. Do not fly behind buildings beyond the return height, otherwise the drone will collide with obstacles and crash during the return. If the drone enters ATTI mode due to GPS failure or GPS signal interference, it will not be able to return. During the return process, strong headwinds may be encountered. Lowering the flight altitude appropriately can help reduce power consumption. If the power is insufficient, the drone will perform a forced landing in place. Please pay attention to the prompts in PotensicPro App. Do not initiate the return when there are obstacles overhead, such as tall trees, otherwise the drone may crash during the climb.

- Please pay attention to return safety, because the drone does not support obstacle avoidance and may crash when colliding with obstacles during the return course.
- For any GPS signal anomaly in communication loss return, the drone will maintain hovering at ATTI mode, until GPS signal is strong enough and the return will resume.

## 7.10 Emergency Propeller Stop Mid-Flight

In case of an emergency during flight where the drone needs to be stopped immediately, you can use the Emergency Propeller Stop Mid-Flight feature. Stopping the motors mid-flight will cause the drone to crash. Use this function with caution.

How to enable:

The Emergency Propeller Stop feature is disabled by default. To enable it, go to Potensic Eve App > Settings > Safety > Emergency Propeller Stop Mid-Flight. After enabling, in an emergency, press and hold the Photo and Video buttons simultaneously for 2 seconds. The motors will be stopped immediately. When using this feature, ensure the area below the drone is clear. See 5.3.1 Emergency Propeller Stop Mid-Flight for the detailed operation method.

- The Emergency Propeller Stop Mid-Flight feature is designed for situations where the drone is out of control or in other emergencies. By immediately stopping the motors, this feature reduces the risk of the propellers causing injury to people or damage to valuable objects. The drone may be damaged upon crashing, please use this feature with caution.

# 8. Appendix

## 8.1 Specification & Parameters

### Drone

**Model: DSDR04B**

**Takeoff Weight:** < 249 g (the takeoff weight includes battery and propeller blades)

**Folded Size:** 88x143x58 mm

**Unfolded Size (propeller blades included):** 300x242x58 mm

**Unfolded Size (propeller blades excluded):** 210x152x58 mm

**Diagonal Distance:** 219 mm

**Max Speed (Sport Mode):** Ascent speed: 5 m/s; Descent speed: 4 m/s; Flight speed: 16 m/s

**Max Wind Speed Resistance:** 38 km/h (Level 5)

**Operating Temperature:** 0℃ ~ 40℃

**GNSS:** GPS+GLONASS+Galileo+BeiDou

**Operating Frequency:** 2.400 ~ 2.4835 GHz

**Transmission Power:** 2.4 GHz: < 20 dBm

**Hovering Accuracy Range:** Vertical: ±0.1 m (with Vision Positioning),
±0.5 m (with GPS Positioning)
Horizontal Flight: ±0.3 m (with Vision Positioning),
±1.5 m (with GPS Positioning)

**Extra Payload:** Not supported

**Max hovering time:** 28 mins (indoor hovering)

**Max Flight Time:** 31 min (measured at breezeless condition and even speed of 5 m/s)

**Max Takeoff Altitude:** 4000 m

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### Downward Vision System

**Hovering range: 0.3 m ~ 5 m (ideal environment); Available at 0.3 m ~ 10 m.**

**Unavailable scenarios of vision positioning:**

1. Pure-color surface
2. Surface with strong reflection, such as smooth metal surface
3. Transparent object surface, such as water surface and glass
4. Moving texture, such as running pets
5. Scenarios with drastic change of light; for example, the drone flies to outdoor space with strong light from indoor space
6. The places with weak or strong light
7. The surface with repeating identical patterns or textures, such as floor tile with the same texture and size
8. The surface with highly consistent strip pattern

## Camera

**Lens Tilt Range:** +20° ~ -90°
**CMOS:** 1/3"
**Effective Pixel:** 12MP
**ISO Range:** 100 ~ 6400
**Electronic Shutter Speed:** 1/30 s ~ 1/25000 s
**FOV:** 118°
**Aperture:** F2.2
**Photo Resolution:** 4608*2592
**Image Format:** JPG/JPG+RAW (DNG)
**Video Resolution:** 4K@30 fps; 2.7K@30 fps; 1080P@60 fps; 1080P@30 fps;
**Video Format:** MP4 (H.264)
**Max Video Bitrate:** 40 Mbps
**Supported File System:** FAT32, exFAT
**Type Of Supported Storage Card:** Micro SD card; 4 ~ 256GB SD card transmission speed ≥ class 10 or U1 standard

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## Remote Controller

**Model: DSRC02A**
**Operation Frequency:** 2.402 ~ 2.483 GHz
**Max Transmission Distance (unobstructed, free of interference):** 4 km
**Operating Temperature:** 0°C ~ 40°C
**Battery:** 3000 mAh, lithium battery, 1 S
**Transmitter Power (EIRP):** 2.4GHz: ≤ 20 dBm
**Charging Interface:** TYPE-C
**Charging Specification:** 5 V/1 A
**Video Transmission System:** PixSync 2.0
**Image Transmission Quality:** 720P
**Latency (depending on environment and mobile device):** 200 ms
**Supported Mobile Device Size:** Length: 170 mm, Width: 100 mm, Thickness: 6.5 mm ~ 8.5 mm

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## Smart Flight Battery

**Model: DSBT02A**
**Capacity:** 2500 mAh
**Voltage:** 7.2 V
**Battery Type:** Li-ion 2 S
**Energy:** 18 Wh
**Battery Weight:** 103 g
**Working Temperature:** 0°C ~ 40°C

## 8.2 Post-Flight Checklist

- Make sure to perform a visual inspection so that the drone, remote controller, camera, flight batteries, and propellers are in good condition. Contact Potensic support if any damage is noticed.
- Make sure that the camera lens and vision system sensors are clean.
- Make sure to store the drone correctly before transporting it.

## 8.3 Maintenance Instructions

To avoid serious injury to children and animals, observe the following rule:

1. Small parts, such as cables and straps, are dangerous if swallowed. Keep all parts out of reach of children and animals.
2. Store the Smart Flight Battery and remote controller in a cool, dry place away from direct sunlight to ensure the built-in LiPo battery does NOT overheat. Recommended storage temperature: between 22℃ and 28℃ (71℉ and 82℉) for storage periods of more than three months. Never store in environments outside the temperature range of -10℃ to 45℃ (14℉ to 113℉).
3. DO NOT allow the camera to come into contact with or become immersed in water or other liquids. If it gets wet, wipe dry with a soft, absorbent cloth. Turning on a drone that has fallen in water may cause permanent component damage. DO NOT use substances containing alcohol, benzene, thinners, or other flammable substances to clean or maintain the camera. DO NOT store the camera in humid or dusty areas.
4. Check every drone part after any crash or serious impact. If there are any problems or questions, contact Potensic support.
5. Regularly check the Battery Level Indicators to see the current battery level and overall battery life. The battery is rated for 250 cycles. It is not recommended to continue use afterward.
6. Make sure to transport the drone with the arms folded when powered off.
7. Make sure to transport the remote controller with antennas folded when powered off.
8. The battery will enter sleep mode after long-term storage. Charge the battery to exit from sleep mode.
9. Store the drone, remote controller, battery, and charger in a dry environment.
10. Remove the battery before servicing the drone (e.g., cleaning or attaching and detaching the propellers). Make sure that the drone and the propellers are clean by removing any dirt or dust with a soft cloth. Do not clean the drone with a wet cloth or use a cleanser that contains alcohol. Liquids can penetrate the drone housing, which can cause a short circuit and destroy the electronics.
11. Make sure to turn off the battery to replace or to check the propellers.

## 8.4 Troubleshooting Procedures

1. Why can the battery not be used before the first flight?

   The battery must be activated by charging before using it for the first time.
2. No function

   Check if the Smart Flight battery and the remote controller are activated by charging. If the problem persists, contact Potensic support.
3. Power-on and start-up problems

   Check if the battery has power. If yes, contact Potensic support if it cannot be started normally.

4. SW update issues

   Follow the instructions in the user manual to update the firmware. If the firmware update fails, restart all the devices and try again. If the problem persists, contact Potensic support.

5. Shutdown and power-off problems

   Contact Potensic support.

6. How to detect careless handling or storage in unsafe conditions

   Contact Potensic support.

## 8.5 Risk and Warnings

When the drone detects a risk after powering on, there will be a warning prompt on PotensicPro. Pay attention to the list of situations below.

1. If the drone status is not suitable for takeoff.
2. If the compass experiences interference and needs to be calibrated.
3. Follow the on-screen instructions when prompted.

## 8.6 Disposal

Observe the local regulations related to electronic devices when disposing of the drone and remote controller.

**Battery Disposal**

Dispose of the batteries in specific recycling containers only after a complete discharge. DO NOT dispose of the batteries in regular trash containers. Strictly follow the local regulations regarding the disposal and recycling of batteries.

Dispose of a battery immediately if it cannot be powered on after over-discharging.

If the Smart Flight Battery cannot be fully discharged, contact a professional battery disposal/ recycling agency for further assistance.

## 8.7 C0 Certification

ATOM SE (DSDR04B) is compliant with C0 certification requirements.

| | |
|---|---|
| **Model:** | DSDR04B |
| **UAS Class:** | C0 |
| **Maximum Take-Off Mass (MTOM):** | 248 g |
| **Maximum Propeller speed:** | 18700 RPM |

**MTOM Statement**

The MTOM of ATOM SE (Model DSDR04B), including the Smart Flight Battery, Propellers, and a microSD card, is 248 g to comply with C0 requirements.

Users must follow the instructions below to comply with the MTOM requirements for each model:

1. DO NOT add any payload to the drone except the items listed in the List of Items including qualified accessories section.
2. DO NOT use any non-qualified replacement parts, such as smart fight batteries or propellers, etc.
3. DO NOT retrofit the drone.

**List of Items, including qualified accessories**

**For C0**

| Item | Model Number | Dimensions | Weight |
|---|---|---|---|
| Propellers | DSDR04B-PPS | 119.4×63.8 mm (Diameter×Thread Pitch) | 0.65 g (each piece) |
| Smart Flight Battery | DSBT02A | 83.7×42.5×34.5 mm | Approx. 103 g |
| microSD Card* | N/A | 15×11×1.0 mm | Approx. 0.3 g |

**List of Spare and Replacement Parts**

**For C0**

1. ATOM SE Propellers
2. ATOM SE Smart Flight Battery

**Remote Controller Warnings**

**Model: DSRC02A**

If the remote controller is disconnected from the drone, the PotensicPro App will prompt an on-screen note, and the drone will perform the preset behavior when the remote controller signal is lost. The remote controller will shut down automatically after 20 minutes of no operation.

- Avoid interference between the remote controller and other wireless equipment. Make sure to turn off the Wi-Fi on nearby mobile devices. Land the drone as soon as possible if there is interference.
- DO NOT operate the drone if lighting conditions are too bright or dark when using a mobile phone to monitor the flight. Users are responsible for correctly adjusting the display brightness when using the monitor in direct sunlight during flight operation.
- Release the control sticks or press the flight pause button if an unexpected operation occurs.

**EASA Notice**

Make sure to read the Drone Information Notices document included in the package before use.

Visit the link below for more EASA notice information on traceability.

https: //www.easa.europa.eu/en/document-library/general-publications/drones-information-notices

**Original instructions**

This manual is provided by **Shenzhen Potensic Intelligent Co., Ltd** and the content is subject to change.

Address: 7/F, Building A5, Nanshan Intelligent Park, Nanshan District, Shenzhen, CN

## 8.8 EU Compliance Notice

EU Compliance Statement: Shenzhen Potensic Intelligent Co., Ltd. declares that the device ATOM SE complies with the essential requirements and other relevant provisions of Directive 2014/53/EU and Regulation (EU) 2019/945.

The EU Declaration of Conformity (DoC) is available for download on our official website:

**https://www.potensic.com/downloads.html** (Go to the Download Center, select "ATOM SE", and download the EU Declaration of Conformity from the ATOM SE DoC file list.)

EU Representative Address: Ocean Trading GmbH, Anhalter Str.10, 10963, Berlin, Germany

E-mail: ear@oceantrading.de

Tel/Mobile: 0049-30/25758899

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

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

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

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

– Reorient or relocate the receiving antenna.

– Increase the separation between the equipment and receiver.

– Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

– Consult the dealer or an experienced radio/TV technician for help.

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

IC Statement:

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

(1) This device may not cause interference.

(2) This device must accept any interference, including interference that may cause undesired operation of the device.

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

(1) L' appareil ne doit pas produire de brouillage;

(2) L' appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d' en compromettre le fonctionnement.

ISED Radio Frequency Exposure Statement:

The device has been evaluated to meet general RF exposure requirements. The device can be used in mobile exposure conditions. The min separation distance is 20 cm.

ISED Déclaration d'exposition aux radiofréquences:

L'appareil a été évalué pour répondre aux exigences générales en matière d'exposition aux RF. L'appareil peut être utilisé dans des conditions d'exposition mobiles. La distance de séparation minimale est de 20 cm.

Operation of this device is restricted to indoor use only. (5150-5250MHz)

Le fonctionnement de cet appareil est limité à une utilisation en intérieur uniquement. (5150-5250MHz)

For Canada: The frequency stability of all transmission frequencies of U-NII-1, U-NII-3 meets the requirements of RSS-Gen Issue 5, Section 6.11, and the manufacturer states that their transmissions remain within the U-NII-1, U-NII-3 bands.

Pour le Canada: La stabilité de fréquence de toutes les fréquences de transmission U-NII-1, U-NII-3 répond aux exigences de la norme CNR-Gen, édition 5, section 6.11, et le fabricant déclare que leurs transmissions restent dans les bandes U-NII-1, U-NII-3.

EU Conformity Statement:

This product and - if applicable - the supplied accessories too are marked with "CE" and comply therefore with the applicable harmonized European standards listed under the RED Directive 2014/53/EU, the RoHS Directive 2011/65/EU and Amendment (EU)2015/863.

2012/19/EU (WEEE directive): Products marked with this symbol cannot be disposed of as unsorted municipal waste in the European Union. For proper recycling, return this product to your local supplier upon the purchase of equivalent new equipment, or dispose of it at designated collection points. For more information see: www.recyclethis.info

2023/1542/EU (battery directive): This product contains a battery that cannot be disposed of as unsorted municipal waste in the European Union. See the product documentation for specific battery information. The battery is marked with this symbol, which may include lettering to indicate cadmium (Cd), lead (Pb), or mercury (Hg). For proper recycling, return the battery to your supplier or to a designated collection point. For more information see: www.recyclethis.info

**Potensic ATOM SE Drone/飞行器**
Model/型号：DSDR04B
FCC ID: 2AYUO-DSDR04B
IC ID: 29543-DSDR04B
CMIIT ID: 25Z449GB0670
Nominal Voltage/标称电压：7.2 V
Max Charge Voltage/充电限制电压：8.4 V
Rated Capacity/额定容量：2500 mAh
Rated Energy/额定能量：18 Wh
Input/输入：5 V ⎓ 3 A

R 214-113197

**Potensic Remote Controller/遥控器**
Model/型号：DSRC02A
FCC ID: 2AYUO-DSRC02A
IC ID: 29543-DSRC02A
CMIIT ID: 25Z449G8P108
Nominal Voltage/标称电压：3.7 V
Max Charge Voltage/充电限制电压：4.2 V
Rated Capacity/额定容量：3000 mAh
Rated Energy/额定能量：11.1 Wh
Input/输入：5 V ⎓ 1 A

R 215-JRA026

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

EC REP **Ocean Trading GmbH** Anhalter Str.10, 10963, Berlin, Germany
E-mail: ear@oceantrading.de
Tel/Mobile: 0049-30/25758899

UK REP **OCEAN SUPPORT LTD** Amber, Office 119, Luminous House 300 South Row, Milton keynes, MK9 2FR
E-mail: info@topouxun.com


**Importer: Potensic SAS**
**EU contact address: 7 Place de l'Hôtel de Ville, 93600, Aulnay-sous-Bois Email: eu@potensic.com**

**Manufacturer/制造商:** Shenzhen Potensic Intelligent Co., Ltd./深圳市博坦智能有限公司
**Address/地址:** 7/F, Building A5, Nanshan Intelligent Park, Nanshan District, Shenzhen, CN/深圳市南山区南山智园 A5 栋 7 层
**Web: https://www.potensic.com** **Email: support@potensic.com** **MADE IN CHINA**

AGES 16+

**DANGER!** Only suitable for ages 16+
**GEFAHR!** Nur für Personen ab 16 Jahren geeignet
**PERICOLO!** Adatto solo a persone di età superiore ai 16 anni
**DANGER!** Convient uniquement aux personnes âgées de plus de 16 ans
**PELIGRO!** Solo apto para mayores de 16 años
**GEVAAR!** Alleen geschikt voor personen van 16 jaar en ouder
**FARA!** Endast lämpligt för personer på 16 år eller äldre
**¡PELIGRO!** Adequado apenas para maiores de 16 anos
**警告！** 本产品仅供 16 岁及以上人士使用
**警告！** 本產品僅供 16 歲及以上人士使用
**警告！** この製品の対象年齢は 16 歳以上です
**警告！** 본 제품은 16세 미만 사용 금지

**Warning!** High-speed spinning propellers can cause serious injury!
**Warnung!** Schnell drehende Propeller können schwere Verletzungen verursachen!
**ATTENZIONE!** Le eliche che girano ad alta velocità possono causare gravi lesioni!
**ATTENTION!** Les hélices tournant à grande vitesse peuvent provoquer des blessures graves!
**¡ADVERTENCIA!** ¡Las hélices girando a alta velocidad pueden causar lesiones graves!
**WAARSCHUWING!** Snel ronddraaiende propellers kunnen ernstig letsel veroorzaken!
**VARNING!** Högfrekventa snurrande propeller kan orsaka allvarliga skador!
**ATENÇÃO!** Hélices girando em alta velocidade podem causar ferimentos graves!
**警告！** 高速运转的螺旋桨可能造成严重伤害!
**警告！** 高速運轉的螺旋槳可能造成嚴重傷害!
**警告！** 高速で回転しているプロペラを触ると重大な傷害を引き起こすリスクがあります!
**경고!** 고속으로 회전하는 프로펠러는 심각한 부상을 초래할 수 있습니다!

**CAUTION!** Please read the User Manual and relevant flight safety guidelines carefully before using the drone.
**ACHTUNG!** Bitte lesen Sie vor der Verwendung der Drohne sorgfältig das Benutzerhandbuch sowie die entsprechenden Flugsicherheitsrichtlinien.
**ATTENZIONE!** Prima di utilizzare il drone, leggere attentamente il Manuale d'uso e le linee guida sulla sicurezza del volo.
**ATTENTION!** Veuillez lire attentivement le manuel de l'utilisateur et les consignes de sécurité relatives au vol avant d'utiliser le drone.
**¡PRECAUCIÓN!** Lea atentamente el Manual de Usuario y las pautas de seguridad de vuelo antes de usar el dron.
**LET OP!** Lees de Gebruikershandleiding en de relevante veiligheidsrichtlijnen voor vluchten grondig door voordat u de drone gebruikt.
**VARNING!** Läs användarhandboken och relevanta flygsäkerhetsriktlinjer noggrant innan du använder drönaren.
**CUIDADO!** Leia atentamente o Manual do Usuário e as diretrizes de segurança de voo relevantes antes de usar o drone.
**注意！** 使用飞行器之前，请熟读用户手册及相关飞行安全指南。
**注意！** 使用飛行器之前，請熟讀使用者手冊及相關飛行安全指南。
**注意！** ドローンを使用する前に、取扱説明書および関連する飛行安全ガイドをよくお読みください。
**주의!** 드론을 사용하기 전에 사용자 설명서와 관련 비행 안전 지침을 숙독하시기 바랍니다.

If you have any questions or suggestions about this document, please contact Potensic by sending a message to **support@potensic.com.**