The content is subject to update without prior notice.

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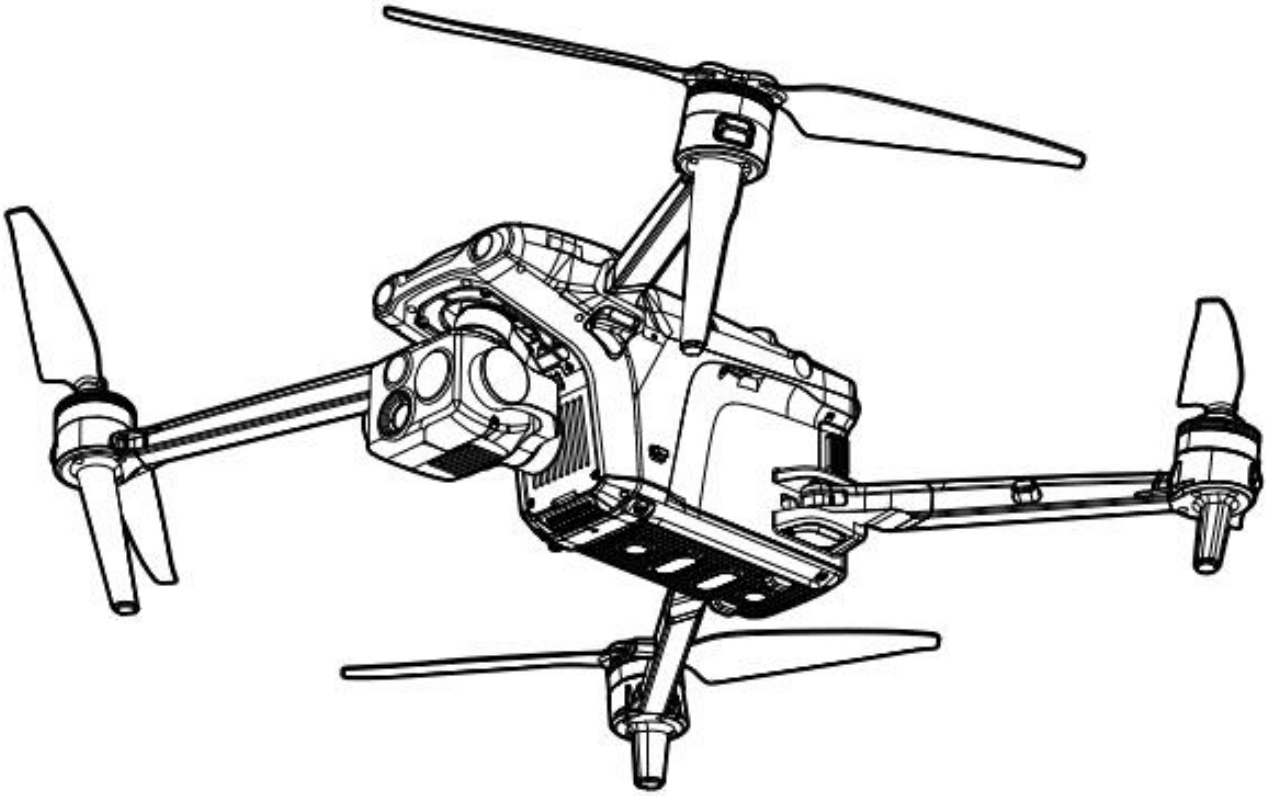
GDU-TECH



GDU-S200

Series Quadcopters
Quadrotor UAV

Quick Guide V1.0

2024.04

Instructions

Warning

Thank you for using this product. This is a specialized electronic product. Incorrect operation may cause damage to items, personal injury or even death. The legal consequences caused by this shall be borne by the user. Minors under the age of 18 shall not use this product. To ensure user experience and your personal safety, please read the following documents carefully before using this product:
Disclaimer and Safety Operation Guide
User Manual
This manual is subject to update without prior notice. Please refer to the latest version on the official website (www.gdu-tech.com). The whole machine has a one-year after-sales warranty. For specific after-sales policies, please refer to the official website.

Drone real-name registration

According to the *Civil Unmanned Aerial Vehicle Real-Name Registration Management Regulations* released by the Civil Aviation Administration of China, drone owners must register their real names in the drone real-name registration system (https://www.faa.gov/) after purchase, fill in relevant information, and paste the registration mark given by the system on the fuselage.

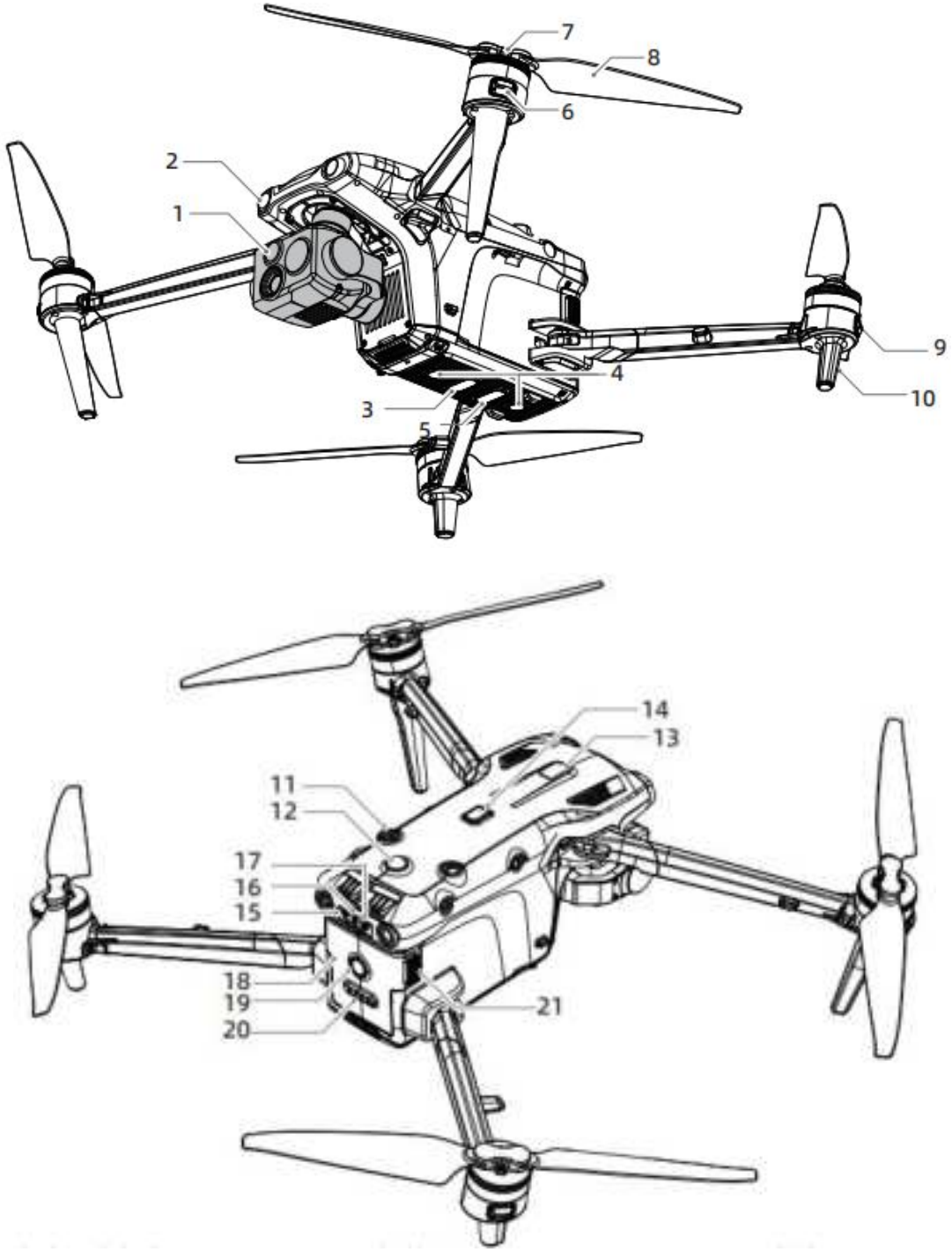
Introduction

The GDU-S200 series drones implement advanced flight control algorithms, camera processing algorithms, gimbal stabilization algorithms, and visual AI algorithms. They integrate omnidirectional obstacle avoidance systems, high-precision RTK systems, and visual positioning systems. They boast advanced automatic flight capabilities, such as automatic cruising, AI intelligent identification and tracking, automatic return, and automatic precise landing, as well as visual assisted positioning, visual omnidirectional obstacle avoidance, etc., ensuring safer and more stable flight. The fuselage can be folded for easy storage and portability, meeting the complex needs of different industries and scenarios.

Highlights

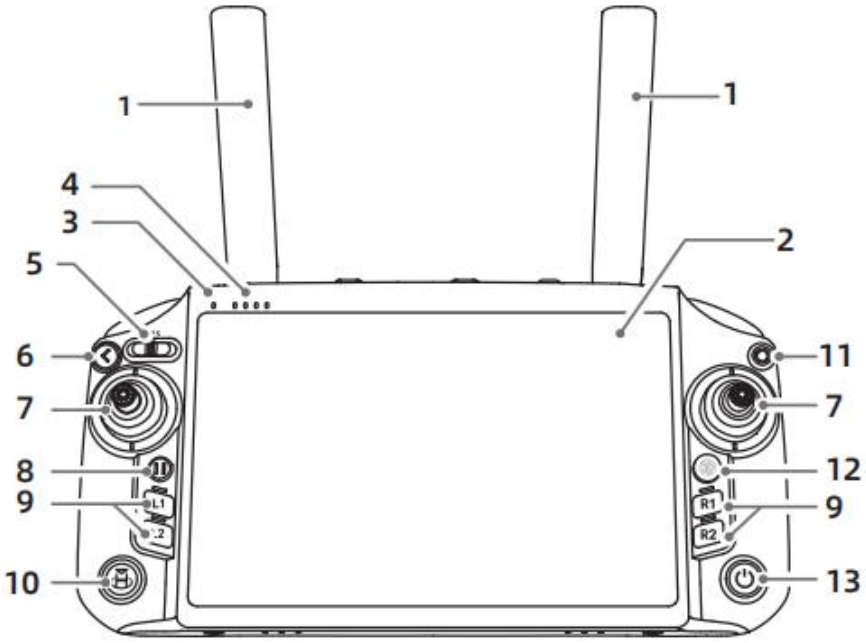
1. Flagship imaging performance, 8K wide-angle, high-definition zoom, an ideal choice for inspection.
2. 10X optical zoom, 160X hybrid zoom, flexible in both near and far distances.
3. Integration of powerful AI capabilities, more intelligent.
4. 45min ultra-long battery life, efficient operation.
5. Omnidirectional perception, safe flight.
6. Maximum flight speed: 21m/s, wind resistance: 12m/s.
7. Rich accessories, unlimited potential.
8. Small and portable, pocket-size.

List of aircraft components



1 Integrated gimbal camera	8 Propeller	15 Parameter adjustment interface (USB-C)
2 Forward obstacle avoidance system	9 Flight status indicator light	16 Camera microSD card slot
3 Fill light	10 Tripod (with antenna)	17 5G/4G interface
4 Downward vision system	11 Upward vision system	18 Intelligent flight battery
5 Infrared sensor system	12 Night flight light	19 Battery switch
6 Nose indicator light	13 PSDK interface	20 Battery indicator light
7 Motor	14 Parachute interface	21 Battery buckle

Remote controller



1 Remote controller's external antenna
Transmits control signals and wireless image transmission signals between the remote controller and the aircraft.

2 Touch screen
Displays system and application App screens, supports 10-point touch. Please wipe the water on the screen to ensure effective touch function.

3 Status indicator light
Displays the system status of the remote controller. Detailed description can be found in the remote controller indicator light section.

4 Battery indicator
Displays the battery level of the aircraft.

5 Flight mode switch
Used to switch flight modes: T mode (tripod), P mode (standard), S mode (sport), and A mode (attitude), which can be customized in the App.

6 Back button / system function button
Single click to return to the previous interface, double click to return to the system homepage. Use the back button and other buttons to form a key combination. You can view detailed instructions in the remote control button function section.

7 Joystick
You can switch flight modes in GDU Flight II.

8 Emergency stop button
Short press to make the aircraft brake urgently and hover in place (when GNSS or vision system is effective).

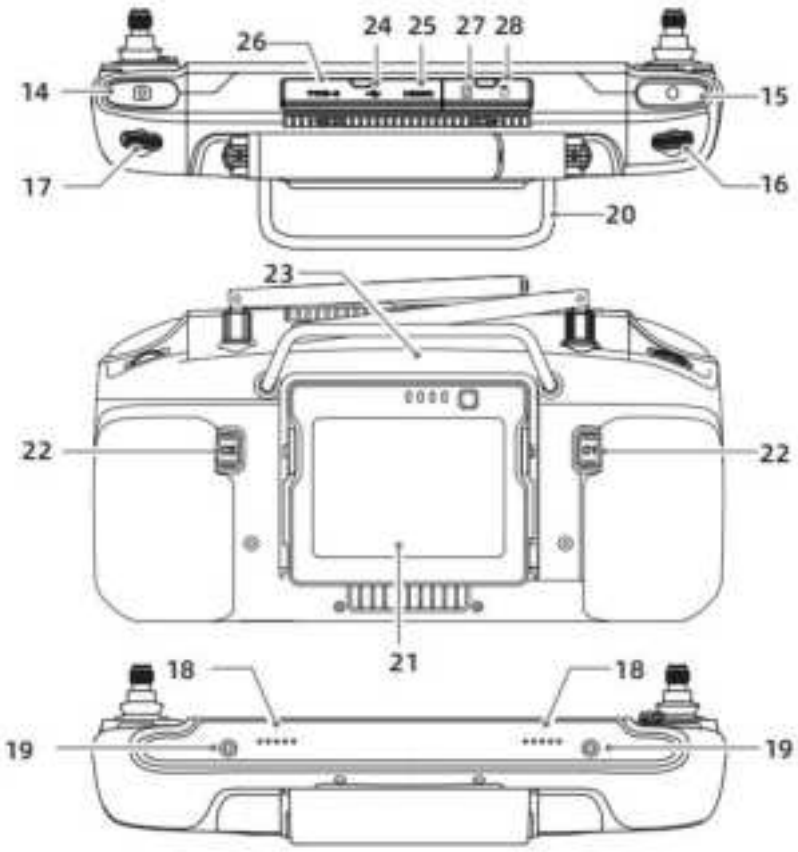
9 L1/L2/R1/R2 buttons (customizable)
The button mapping function can be viewed in GDU Flight II.

10 Smart RTH button
Press and hold to start smart RTH, and short press again to cancel smart RTH.

11 Confirm button
Click to confirm the current operation.

12 Five-way button
Up, down, left, right, and back to center.

13 Power button
Short press once to turn on/off the remote control display. When the remote control is turned off, press and hold for 3-5 seconds to turn on the remote control; when the remote control is turned on, press and hold for 3-5 seconds, and then click the "Power Off" button displayed on the remote control screen to turn off the remote control; when the remote control is turned on, press and hold for 8 seconds to force shutdown.



14 Photo button
Press to take a photo.

15 Recording button
Start or stop recording.

16 Left dial
Turn to adjust the pitch angle of the gimbal camera.

17 Right dial
Turn to adjust the EV value of the gimbal camera.

18 Sound pickup
Avoid foreign objects blocking the sound pickup effect when using.

19 Lanyard hole
Can be used to install the remote control strap.

20 Handle

21 External battery for remote control

22 C1/C2 button (customizable)

23 Speaker

24 USB-A interface
Connect to mobile devices, USB card readers, etc., or network adapter output.

25 HDMI interface
Output HDMI signal to external display.

26 Type-C port
Android system debugging, external expansion and connecting to charging devices to charge the remote control.

27 SIM card
Connect to mobile network.

28 SD card
Supports microSD cards.

Prepare the aircraft

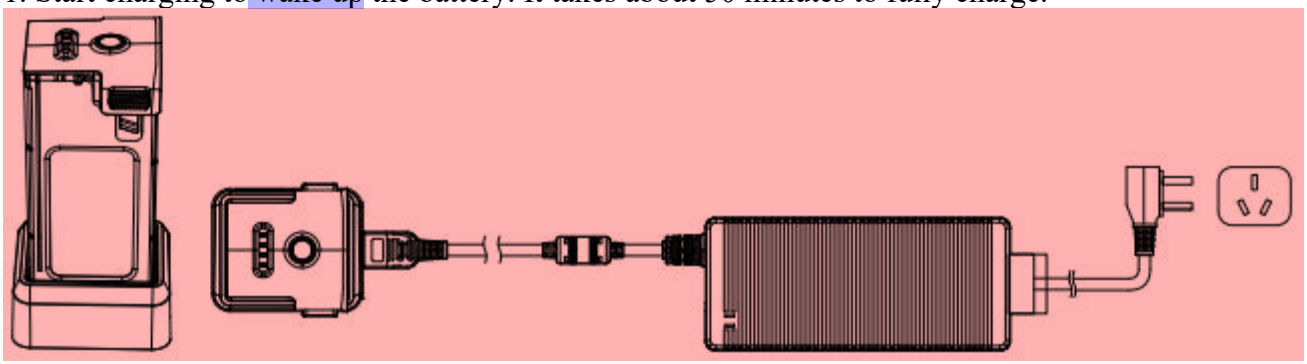
First use

The S200 series drones are in storage state when they leave the factory. Please follow the steps below to prepare the aircraft and remote controller.

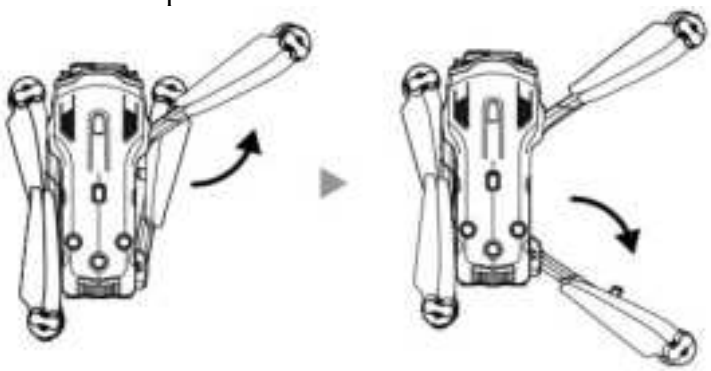
Prepare the aircraft

When using the aircraft for the first time, you need to charge the intelligent flight battery to wake up the battery. Use the standard charger and connect it to the charging base for charging.

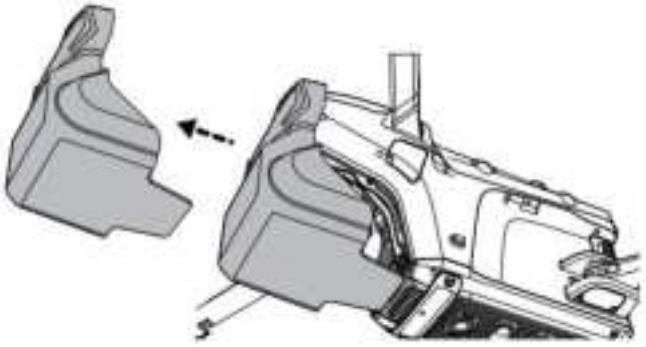
1. Start charging to wake up the battery. It takes about 50 minutes to fully charge.



2. Expand the front arm and then expand the rear arm.

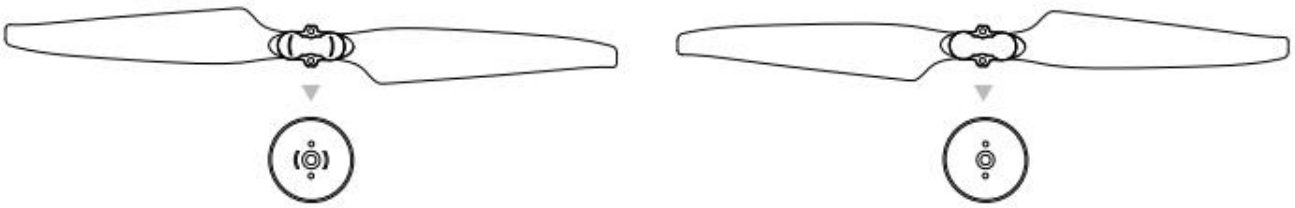


3. Remove the gimbal protective cover.



4. Install the propellers.

The aircraft must be equipped with two types of propellers, CW and CCW, two of each type. The CCW propeller has a white arc color mark on the shaft, while the CW propeller is unmarked. The markings of the propellers indicate different rotation directions. Place the propellers on the corresponding motors. The motors with white arc color marks on the middle axis match with the CCW propellers, while the unmarked motors with CW propellers. Use an M2.5 hexagon screwdriver to tighten the propeller locking screws to complete the propeller installation.

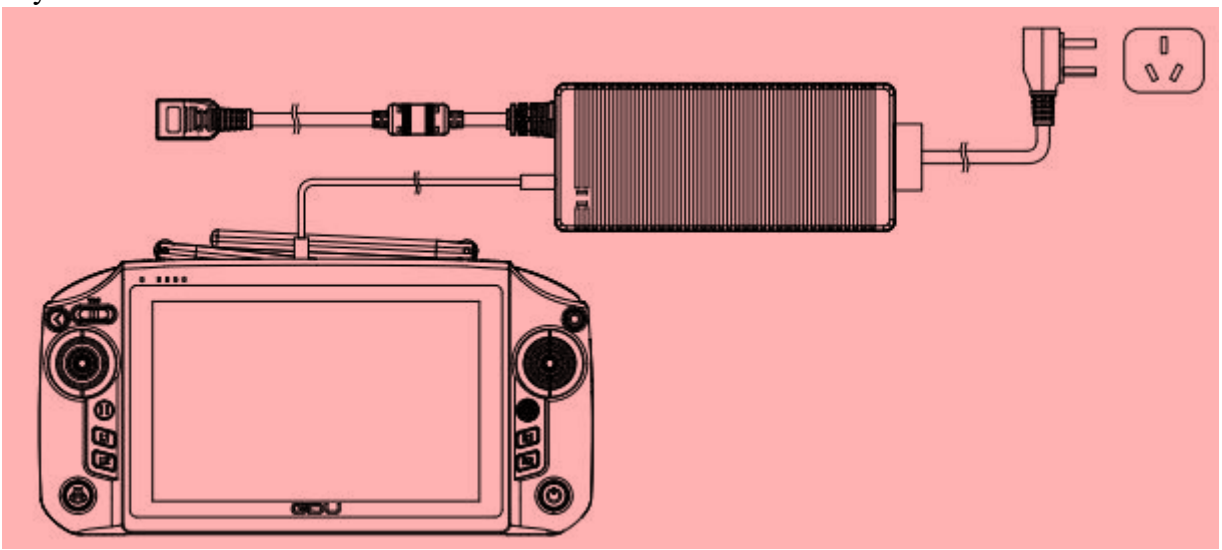


- Make sure the aircraft is turned off before installing the propeller.
- Make sure the gimbal cover has been removed and the front and rear arms have been unfolded to avoid affecting the aircraft initialization.
- When the aircraft is not in use, it is recommended to put the gimbal protection cover in place. Turn the gimbal camera to keep it horizontal and forward, then cover the visual system with the gimbal protection cover. Make sure to align the positioning holes, and then press the buckle to complete the installation.

- The propeller speed can reach up to 7000 RPM, so please keep away for safety.
- Before each flight, be sure to check whether each propeller is intact. If it is aging, damaged or deformed, please replace it before flying.
- Before each flight, be sure to check whether each propeller is installed correctly and firmly.
- Please use the propellers provided by GDU-TECH. Propellers of different models cannot be mixed.
- Before replacing the propeller, make sure the aircraft power is cut off.
- The propeller edge is sharp. Be cautious when replacing the propeller.
- Do not get close to or touch the rotating propeller or motor to avoid injury.
- Before the aircraft is ground tested, make sure the propeller has been removed.

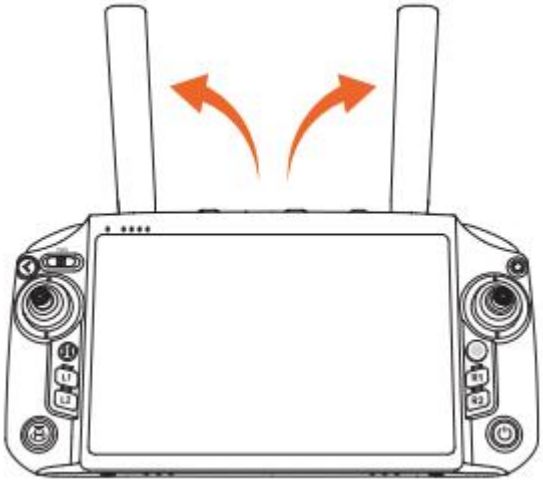
Prepare the remote controller

1. Use the standard charger to connect the remote-control Type-C port to charge to wake up the battery.



2. Unfold the remote controller's antenna and adjust it to a suitable position. Different antenna positions may result in different signal strengths. According to the relative position of the remote control and the aircraft, adjust the direction of the remote control's external antenna and align the antenna plane with the direction of the aircraft to optimize the signal quality between the remote

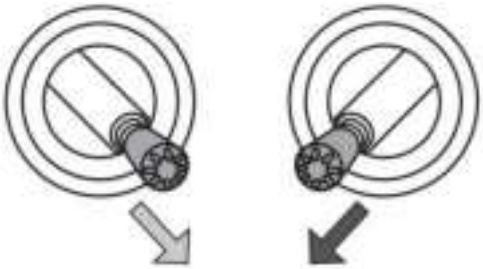
control and the aircraft.



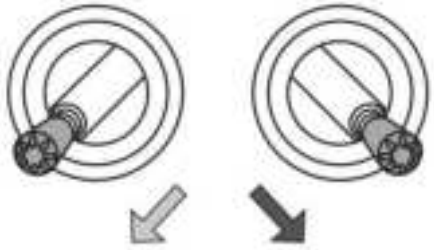
Start/stop the motor

Start the motor

Bend the stick to start the motor. After the motor starts, release the joystick immediately.



or



Stop the motor

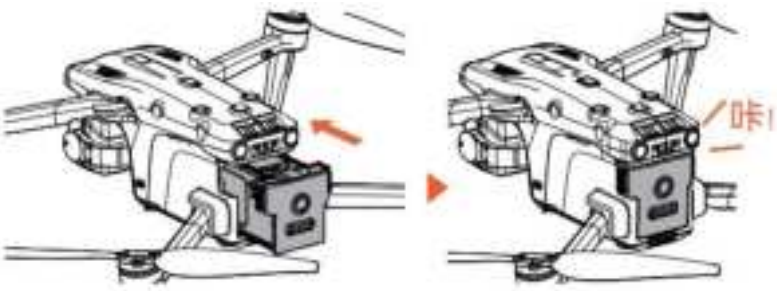
When the aircraft is on the ground and the motor starts, stop the motor in the following way: push the stick to the lowest position and hold it. The motor stops after 1 second.

Basic flight

1. Place the aircraft on a flat, open ground with the user facing the tail.
2. Turn on the remote control and aircraft.
3. Run the GDU Flight II APP and enter the camera interface.
4. Wait until the aircraft self-check completes. If there is no abnormal prompt in the GDU Flight II APP, you can start the motor.
5. Slowly push the stick upwards to let the aircraft take off smoothly.
6. Pull down the stick to make the aircraft descend.
7. After landing, pull the stick to the lowest position and hold it until the motor stops.
8. After stopping the motor, turn off the power of the aircraft and the remote control in turn.

⚠ · When taking off, be sure to place the aircraft on a stable and fixed surface. It does not support handheld or palm-held takeoff or landing.

Install/remove the battery



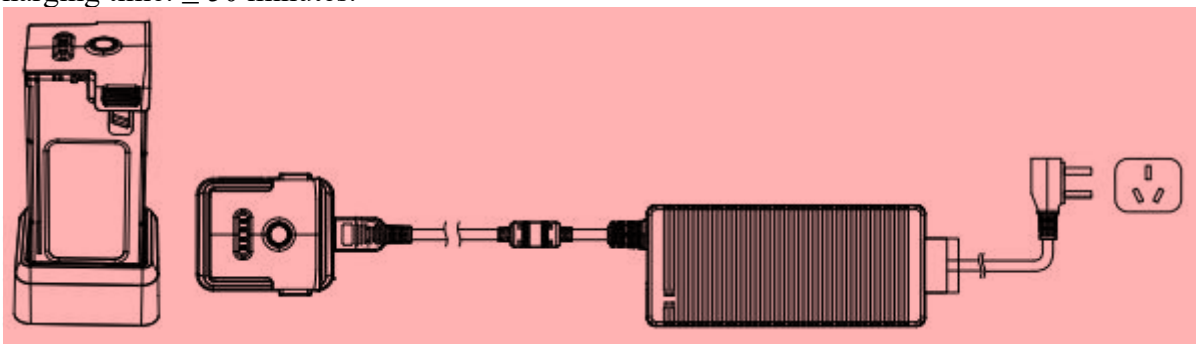
Install the battery

Remove the battery

咔!	Click!

Charging

1. Take out the aircraft battery;
2. Input voltage: 17V;
3. Charging time: ≤ 50 minutes.



⚠ · Running this device in a residential environment may cause wireless interference.

Turn on/off the battery

To turn on the battery:

When the battery is turned off, first short press the battery power button once, the power LED indicator will show a horse-drawn pattern, and then long press the power button for 2 seconds to turn on the battery. When the battery is turned on, the power LED lights will light up from bottom to top, and the battery power indicator will show the current battery power.

To turn off the battery:

When the battery is turned on, first short press the battery power button once, the power LED indicator will show a marquee pattern, and then long press the power button for 2 seconds to turn off the battery. After the battery is turned off, the power LED lights will light up from top to bottom until all the indicators are off.

Technical parameters

Aircraft (model: G D U - S200)	
Weight (including battery and propellers)	≤1650g
Wheelbase	486mm
Hovering accuracy (windless or light wind environment)	Vertical: ±0.1 m (visual positioning) ±0.5 m (GNSS) ±0.1 m (RTK) Horizontal: ±0.3 m (visual positioning) ±1.5 m (GNSS) ±0.1 m

Hovering position accuracy (RTK)	(RTK) When RTK FIX, horizontal: 1 cm + 1ppm Vertical: 1.5 cm + 1ppm
Maximum take-off altitude	7000m
Maximum ascent speed	8 m/s
Maximum descent speed	6 m/s
Maximum horizontal flight speed	21 m/s
Maximum tilt angle	35°
Maximum wind speed	12 m/s
Maximum flight time	≥45 min (long battery life version)
Positioning mode	Supports RTK or single Beidou
GNSS	GPS + Galileo + Bei Dou + GLONASS
IP protection level	IP43
Working temperature	-20℃ - 50℃
Wide-angle camera (model: G D U - S200	
Image sensor	1/1.49 inch CMOS, effective pixels 50 million
Field of view	85°
Equivalent focal length	24mm
Aperture	f/1.9
Focus point	2m - ∞
ISO	Video: 100 - 6400 (automatic) 100 - 25600 (manual) Photo: 100 - 6400 (automatic) 100 - 25600 (manual)
Electronic shutter	8s-1/8000 s
Maximum photo size	8000 × 6000
Video resolution	7264×4086@15fps, 3840×2160@30fps/60fps, 1920×1080@30fps
Photo format	JPEG
Video format	MP4
Long-focus camera (model: G D U - S200)	
Image sensor	1/2-inch CMOS, effective pixels: 48 million
Field of view	25° - 9.7°
Equivalent focal length	96mm - 250mm
Aperture	f/3.7 - f/4.2
Focus point	5 m - ∞
ISO	Video: 100-11200 (automatic) 100-25600 (manual) Photo: 100- 11200 (Automatic) 100-25600 (manual)
Shutter speed	8s - l/8000 s
Maximum photo size	8000 x 6000
Video resolution	7264x4086@15fpS, 3840x2160@30fpS/60fpS, 1920x1080@30fpS
Zoom	10X optical zoom, 160X hybrid zoom
Infrared (GDU-S200)	
Sensor type	Uncooled vanadium oxide (VOX)
Sensor resolution	640 x 512

Pixel size	12pm
Focal length	9.1mm
Wavelength range	8Pm - 14pm
Temperature measurement accuracy	±2°C or ±2%, whichever is greater
Temperature measurement range	-20°C to 150°C < (high gain mode) 0°C to 550°C (low gain mode)
Zoom	32 times
Photo resolution	640x512
Video resolution	640x512@30fpS
Gimbal	
Stabilization system	Three-axis mechanical gimbal (pitch, roll, pan)
Maximum control speed (pitch)	≥ 100° / S
Angle jitter	≤ 0.01 °
Perception	
Perception system type	Six-way binocular vision system, supplemented by infrared sensor at the bottom of the fuselage
Effective use environment	Front, back, left, right, top: the surface has rich texture and sufficient lighting conditions (> 15 lux, normal indoor fluorescent lighting environment) Bottom: the surface is a diffuse reflective material with a reflectivity of > 20% (such as walls, trees, people, etc.), sufficient lighting conditions (> 15lux, normal indoor fluorescent lighting environment)
Image transmission	
Maximum signal effective distance (unobstructed and interference-free)	FCC: 15 km SRRC: 8km MIC/CE: 8km
Antenna	Dual-transmitter and four-receiver (transmitter-receiver integrated antenna)
Image transmission frequency band	Dual frequency: 2.400 GHz-2.4835 GHZ; 5.5 GHz-5.875 GHz
Equivalent omnidirectional radiated power	(EIRP) < 28dBm
Remote controller	
Size	7.02inches
Screen resolution	1920 x 1200
Screen brightness	> 1000 nits
Touch control	Multi-touch control
Battery capacity	Built-in lithium battery: 7000mAh@7.2V; External lithium battery (optional): 7000mAh@7.2V
Charging time	Built-in battery: 0-90% power 1.5h, 0-100% power 2.0h; External battery (optional): fast charging dual battery 0-100% power 3h;
External interface	USB-A/Mini HDMI/Type-C/SIM card /SD card
Video	Supports 4K/60fps H.264 and 4K/60fps H.265 video

Storage	Memory: 4+64G, supports 128G external expansion
Satellite positioning	GPS+BD
Size	262 x139 x103mm (antenna folded)
Weight	1050g (without external battery), 1300g (with external battery)
Operating temperature	-20 - 50°C
Intelligent flight battery	
Capacity	8000 mAh
Battery type	LiPo 4S
Energy	115Wh
Charging environment temperature	5℃ - 40℃
Long-endurance intelligent flight battery	
Capacity	9400 mAh
Battery type	LiPo 4S
Energy	140Wh
Charging environment temperature	5℃ - 40℃

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

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
This equipment 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 instruction manual, 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 o- and on, the user is encouraged to try to correct the interference by one or more of the following measures:
1. Reorient or relocate the receiving antenna.
2. Increase the separation between equipment and receiver.
3. Connect the equipment into an outlet on a circuit di- erent from that to which the receiver is connected.
4. Consult the dealer or an experienced radio/TV technician for help.

FCC Radiation Exposure Statement:
This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.
This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

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