

Skydroid C20 User Manual

V1.0



22x zoom three-axis night vision gimbal

Skydroid Co., Ltd

Suggestion: When you read this User Manual, you should read and operate at the same time. When reading these instructions, if you encounter difficulties, please refer to this user manual or call our after-sales service (400-6996-520) or visit our official QQ chat group: 318480806 to view the relevant questions and answers.



Skydroid official group No.2



Skydroid Wechat group

After sales service terms

1. This clause is only applicable to the products produced by Skydroid, and the products sold by Skydroid authorized dealers are also applicable to this clause.
 2. As of the date of purchase, if the product of our company is verified by our technicians as a quality problem caused by non-human factors within one week, Skydroid shall afford the shipping fee for the repaired product. If the Skydroid product is verified as a quality problem by our technicians within one week and one year after purchase, the user and Skydroid shall afford the shipping fee for sending the repaired product respectively.
 3. Purchase voucher and warranty card or on-line transaction record shall be provided when repairing.
 4. Within 7 days from the date of purchase, Skydroid products have quality problems that are not caused by human activities under normal use, and the appearance is not damaged. With the warranty card and purchase proof, the users can negotiate to replace products of the same model for free from our local dealers; When receiving the replacement product, the dealer is kindly requested to inform Skydroid of the replacement at the first time.
 5. Skydroid will provide lifelong after-sales service for Skydroid products. If the quality problem is caused by non-human factors, it will be guaranteed free of charge within one year; The user shall pay the round-trip shipping and maintenance fees for man-made damage, modification, dismantling and exceeding the one-year free warranty period from the date of purchase.
 6. To ensure your rights and interests are protected and that you can be served in a timely and effective manner, please complete the warranty card and ask for the purchase voucher when purchasing Skydroid products. Users shall provide warranty card and purchase certificate to enjoy the after-sales service terms.
 7. The repaired products will be sent back to the customer within 15 working days after receiving by Skydroid, and the repair report will be enclosed.
 8. The above after-sales service terms are limited to Skydroid products sold in Chinese Mainland. Send the after-sales problems of Hong Kong, Macao, Taiwan and overseas customers to the email: sales01@skydroid.xin
- The specific after-sales rules depend on the situations.

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Warnings and Disclaimers

The content mentioned in this article relates to your safety, legal rights and responsibilities. Before using this product, please read this manual carefully to ensure that the product has been correctly set. Failure to observe and operate in accordance with the instructions and warnings in this document may cause harm to you and the people around you, and damage this product or other surrounding objects. The right of final interpretation of this document and all relevant documents belongs to Skydroid. It is subject to update without notice. Please visit: <http://www.skydroid.xin/> Official website to obtain the latest product information.

C20 gimbal has been commissioned according to the camera and lens it carries before deliver out the factory. Do not adjust the gimbal or change its mechanical mechanism, nor add other external equipment to the C20. The structure of the C10 is precise. Do not disassemble the C20 by yourself, or it will cause the gimbal working abnormally.

For the safety of you and others, please ensure that the drone is in a safe state during the gimbal commissioning and is not energized for commissioning in a flammable, explosive and children's environment. It is strongly recommended that you remove the propellers of the drone before commissioning

A) Working temperature: - 10 ° C~+60 °

B) Storage temperature: - 25 ° C~+60 ° C

C) Atmospheric pressure: 86kPa~106kPa

D) The place of use shall not have explosive media, the surrounding media shall not contain gases and conductive media that corrode metals and damage insulation, and shall not be filled with water vapor or have serious mold.

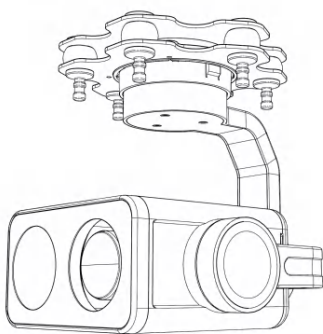
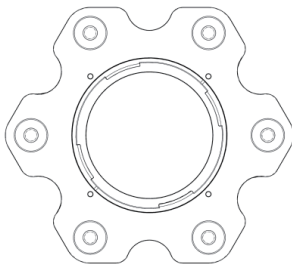
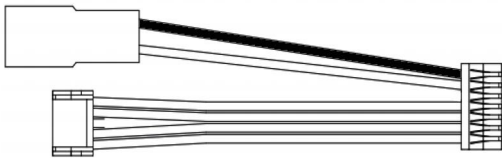



E) The place of use shall be equipped with facilities to prevent rain, snow, wind, sand and ash.

Because our company cannot control the specific use, installation, modification and improper use of users. For the direct and indirect loss or damage caused by the above, our company will not bear the corresponding loss and compensation liability. If you use, install, and assemble Skydroid products, the corresponding results will be borne by the user. Our company is not responsible for indirect or direct losses and injuries caused by the use of this product.

1.Product introduction

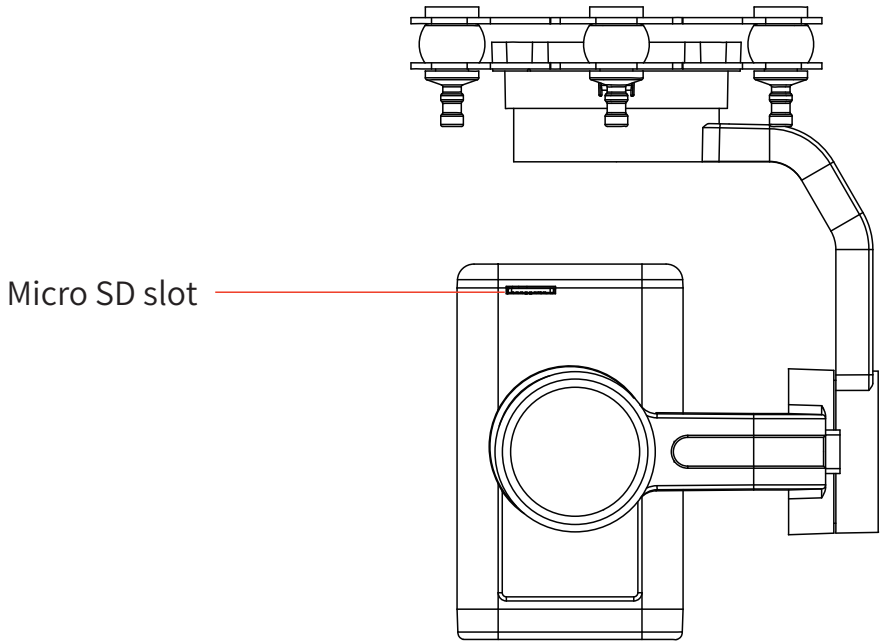
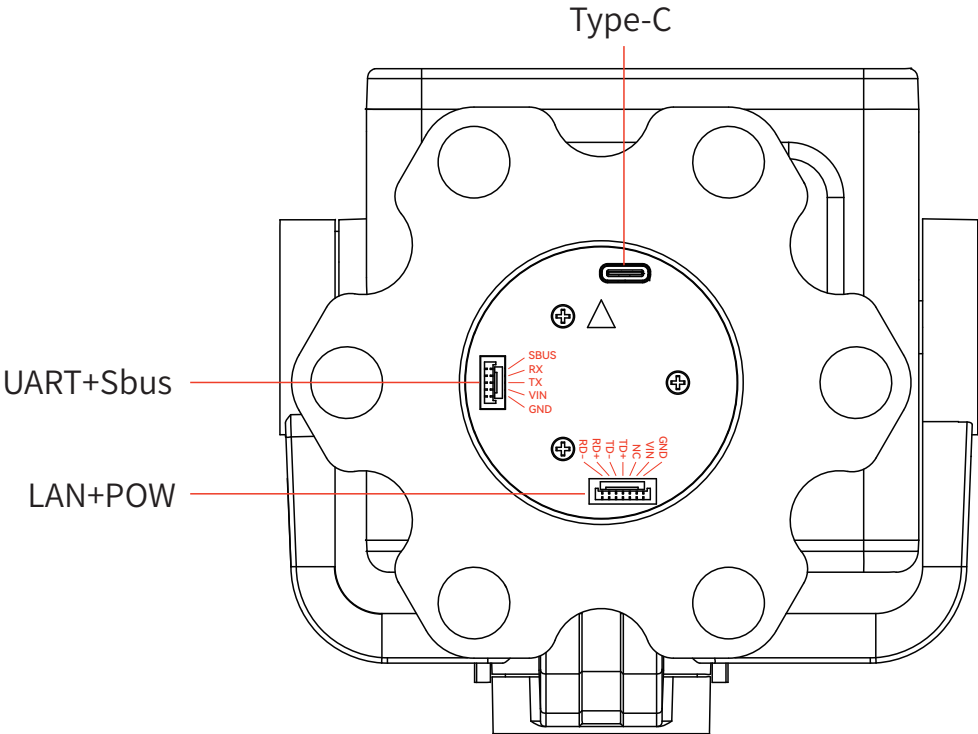
C20 is a high-performance dual light three-axis zoom gimbal, equipped with image grade sensors and effective pixels of up to 2 million. It has powerful video recording and photography capabilities, with 22x optical zoom and night vision functions that break through the limitations of light and space, giving vision a new dimension, capturing clear images anytime, anywhere, and presenting a real field of view for you. Using an industrial grade three-axis stabilization structure, it significantly reduces image jitter and keeps the image in a stable state. The C20 is equipped with a variable focus and high brightness spotlight, making night work more efficient, easy, and safe. It can be applied to various unmanned aerial vehicle tasks such as public security monitoring, power inspection, search and rescue.

2.Product packing List

C20 gimbal*1	
C20 quick disassemble shock absorber plate*1	
Ethernet power cable*1 (4pin or 5pin, optional)	
C20 serial port control cable*1	
32G Kingston memory card*1	
Card reader*1	

3.Overview of C20

C20 ports introduction

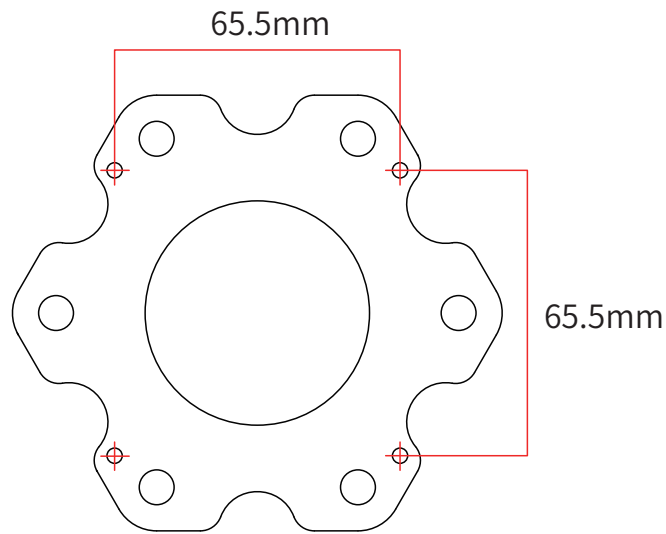


4.Product specifications

C20 three-axis night vision gimbal	
Video output signal interface	network port
Control signal input interface	SBUS UART Ethernet port
Working voltage	18V~72V
Working current	160mA, When turn on the searchlight 1A
Working temperature	-10°C~+50°C
Weight (includes quick disassemble shock absorber plate)	500g
Size (includes quick disassemble shock absorber plate)	126mm(L)*120mm(W)*135mm(H)
Controllable angle range	-90°~+45°(Pitch); -150°~+150°(Direction); -45°~+45°(Roll)
Lens zoom	22x optical zoom
Lens specification	1/2.7" SC2235 CMOS
Focal length	f=4.7~94mm
Aperture	F1.6~F3.5
Horizontal perspective	58.3°~3.2°(Far view - Wide angle)
Output mode	RTSP code stream H.264/H.265
Image transmission resolution	1080P
Video recording storage resolution	1080P
Video storage format	AVI
Photo storage resolution	1080P
Photo storage format	JPG
Hoist mode/ Upside down mode	support
One click back/One click down/heading back to the center	support
Supports storage card types	Supports Micro SD storage (up to 256GB)
Support file system	FAT32
Searchlight color temperature	6500K
Searchlight zoom	Automatic zoom
Searchlight brightness	3000nit

5.Installation and debugging

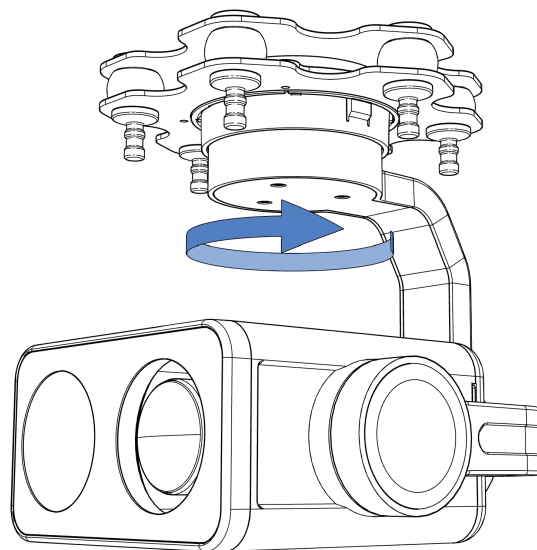
5.1 The schematic diagram of the screw hole position and spacing for the quick release shock absorber plate is as follows:



Note: The screw size used to fix the shock absorber plate is M3 * 8, with a quantity of 4 pieces.

When the gimbal is not in use, do not hang it on the drone. Long time suspension will accelerate the deformation of the shock-absorbing ball, leading to a decrease in shock-absorbing effect and jelly phenomenon. When installing the gimbal, the shock absorption plates shall be kept absolutely perpendicular and parallel to each other. Incorrect installation will cause deformation of the shock absorption ball, resulting in a decrease in shock absorption effect and inability to self check.

Quick installation and disassembly schematic diagram



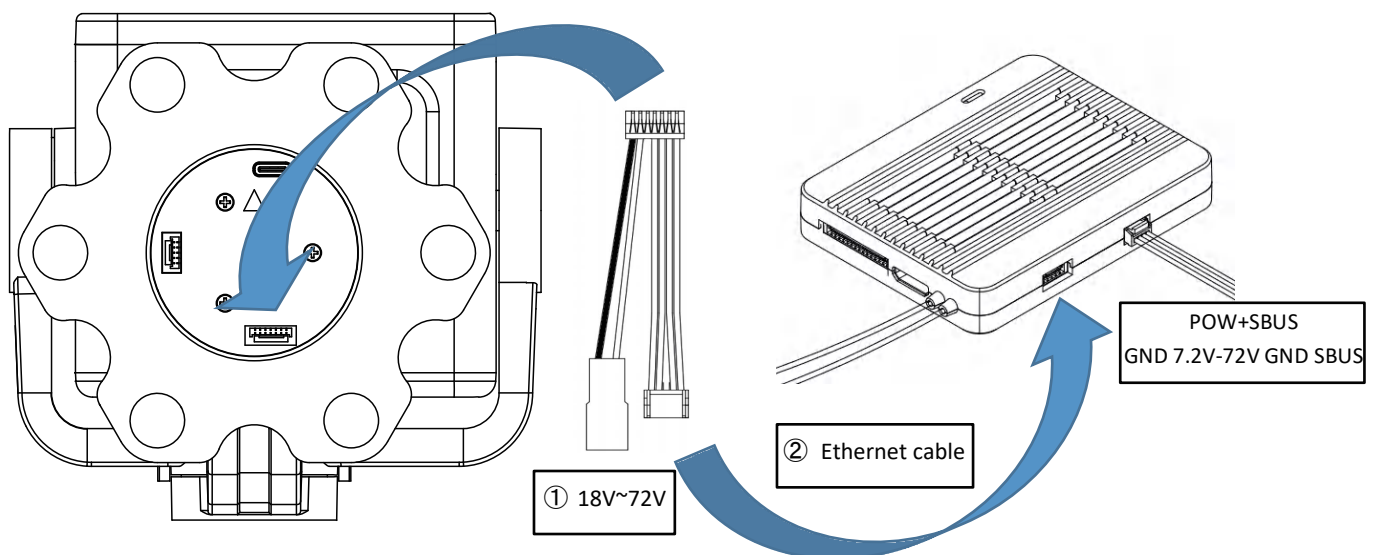
Align the locking hole of the quick release plate and rotate counterclockwise to complete the quick installation; Press the buckles on both sides and rotate clockwise to complete the quick disassembly.

5.2 Gimbal working mode

Hoist mode: Please install the gimbal hoist mode before powering it on. Handholding it will make it difficult for self checking. The hoist mode can be used for aerial equipment such as drones.

Upside down mode: When the gimbal is placed upside down and powered on, it will automatically enter upside down mode and can be installed on ground vehicles such as unmanned vehicles and ships.

5.3 Gimbal cable connection diagram and explanation



- ① The power supply range of C20 is 18V-72V (when the searchlight is turned on, the current reaches 1A. It is recommended to supply power through the power battery, without passing through the distribution board)
- ② The network IP high-definition video output RTSP bitstream of C20 is `rtsp://192.168.144.108:554/main`
- ③ C20 can be controlled through Ethernet, serial port, and SBUS signals (subsequent OTA upgrades)

5.4 Use of C20

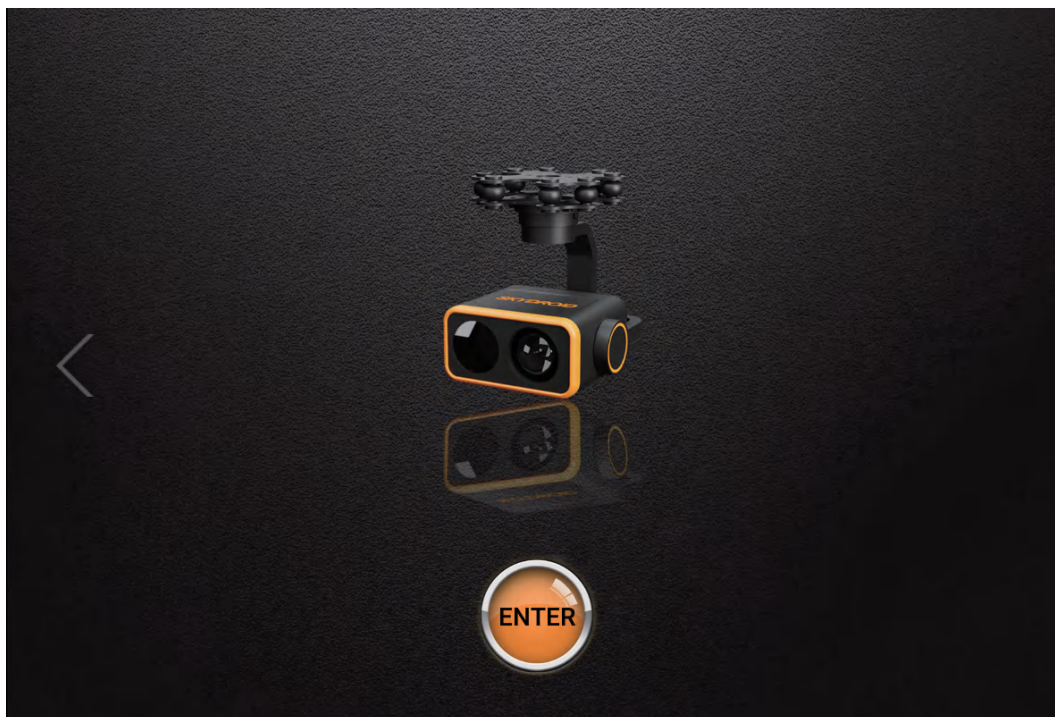
Install the latest version of gimbal FPV software on the remote control and open it.

Software download address: :<http://file.skydroid.xin/SkydroidCameraFPV.apk>

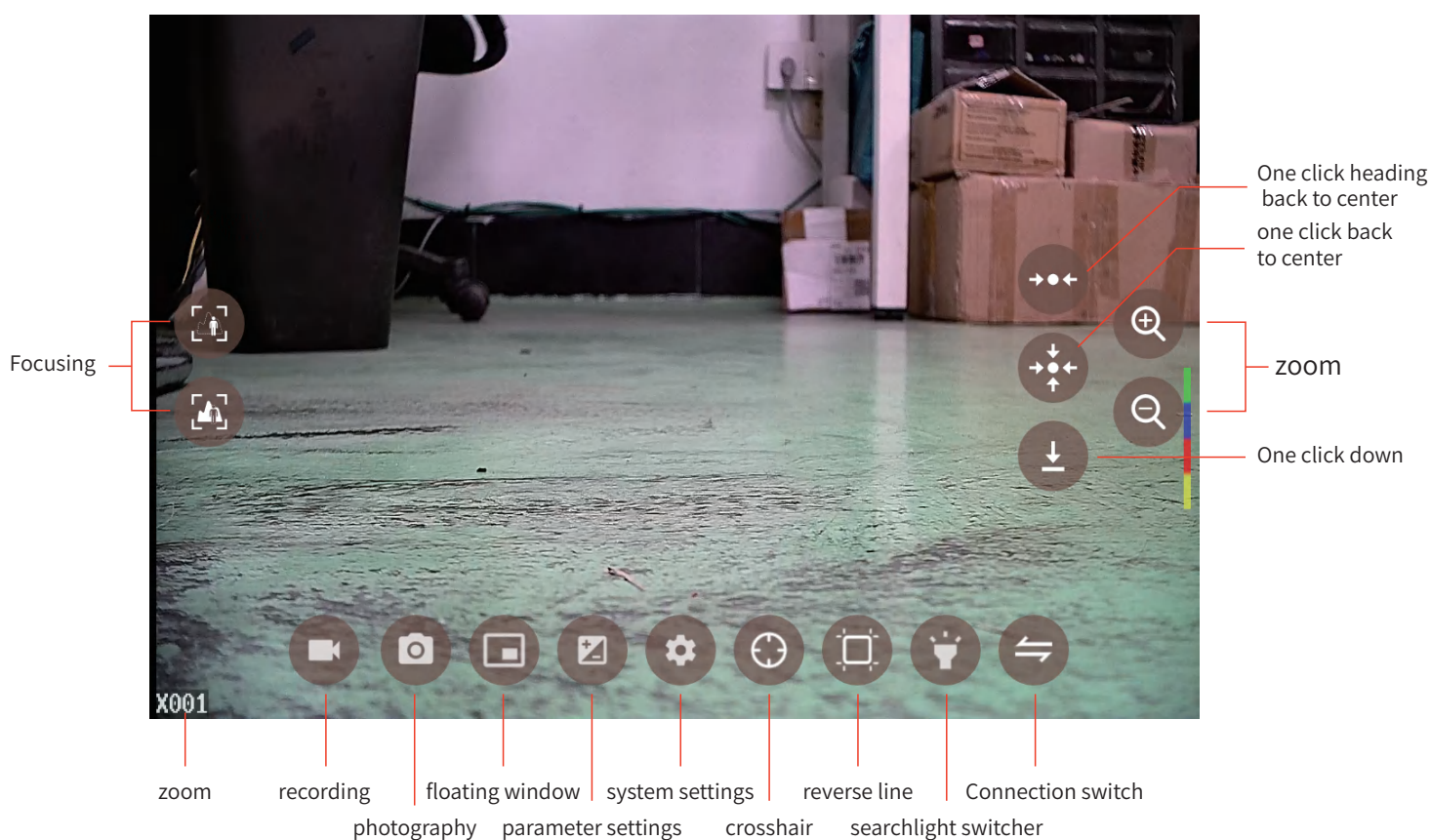
① Self check

After the installation of the gimbal is fixed, power on it and the gimbal will self check. Please wait for the self check to complete.

② Open the gimbal FPV, select the C20 connection, and click to enter.



③ Introduction to the homepage of gimbal FPV

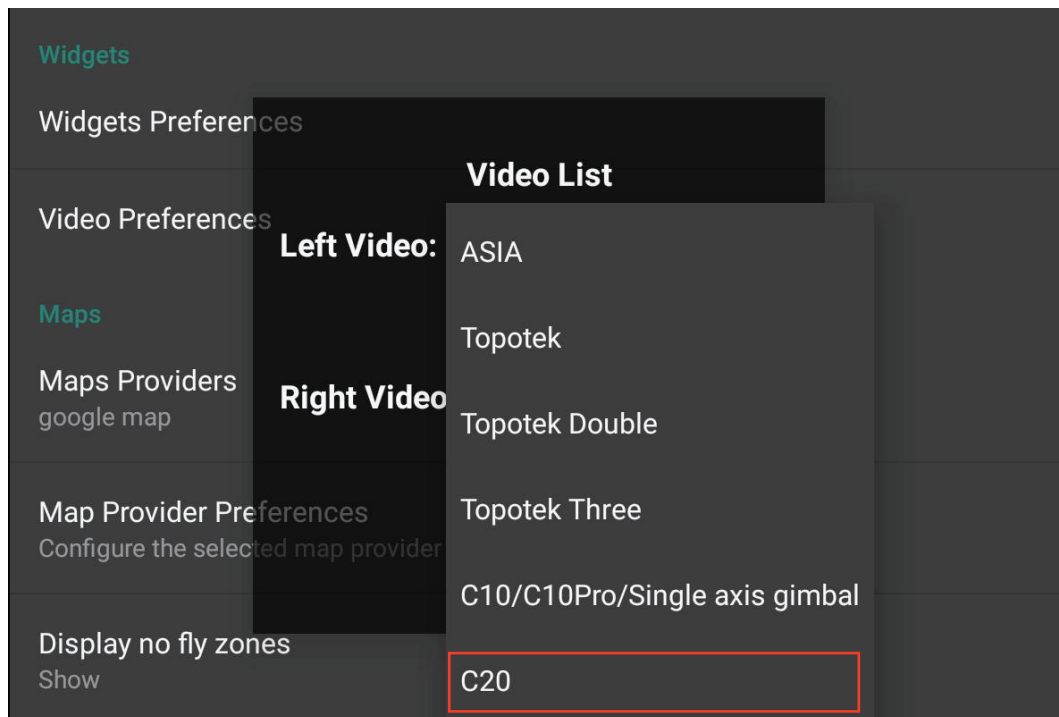


④FLY GCS settings

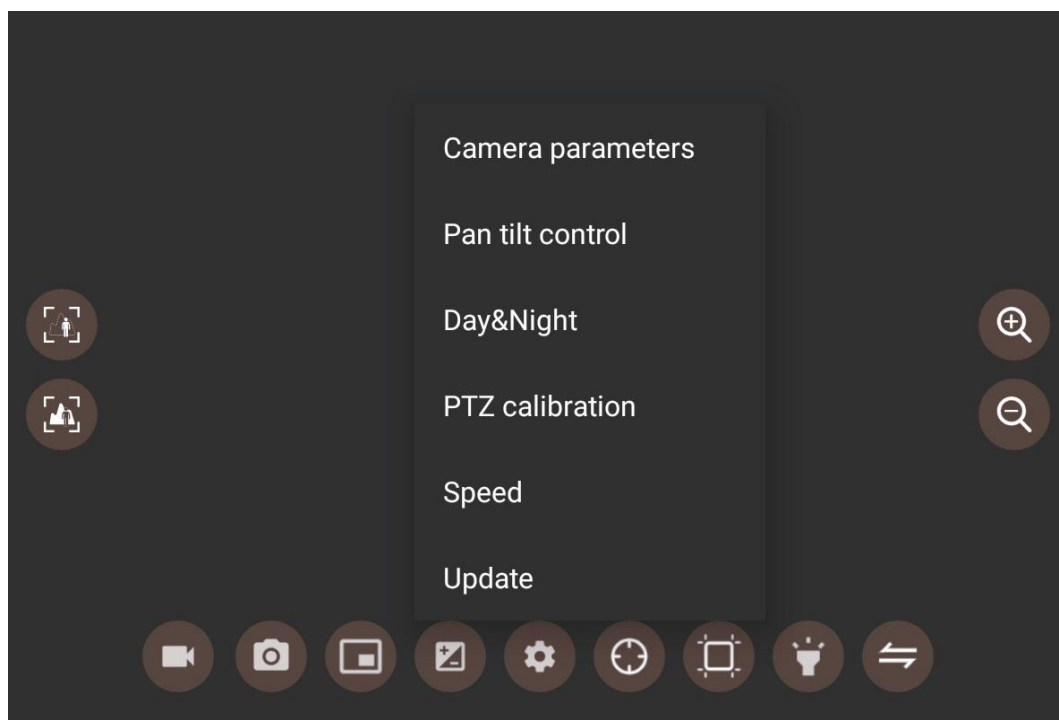
APP homepage top left corner
->Video window ->C20



->Common settings ->Other settings ->User interface

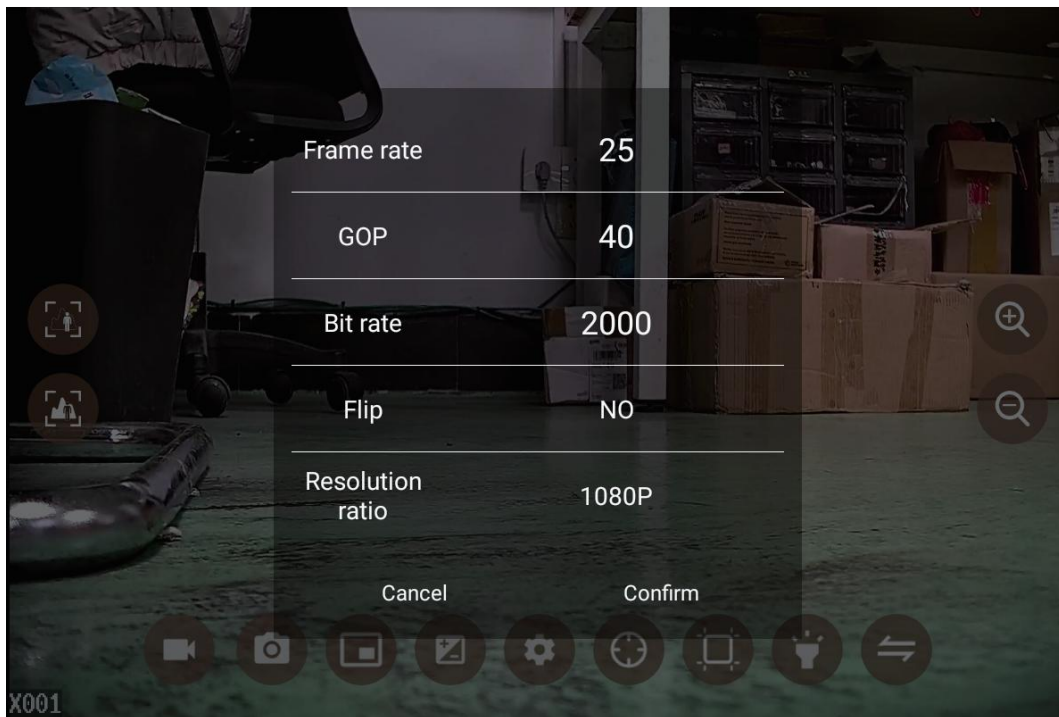


5.5 Parameter settings for C20



In the parameter settings, camera parameters and functions such as calibrating and upgrading the firmware can be set.

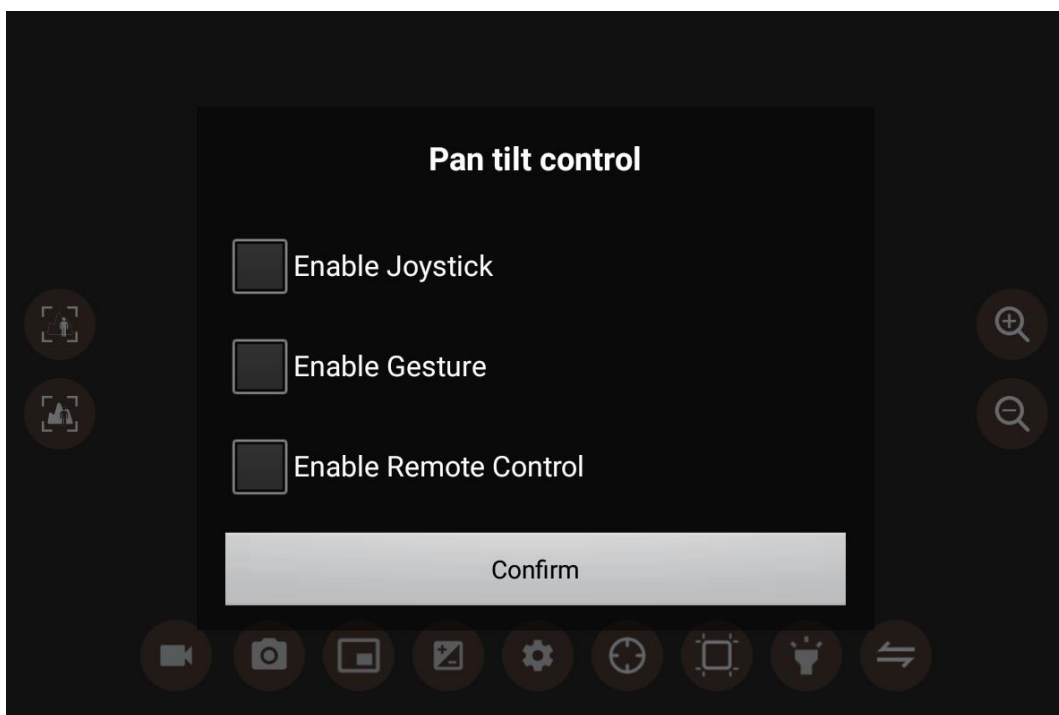
5.5.1 C20 parameters



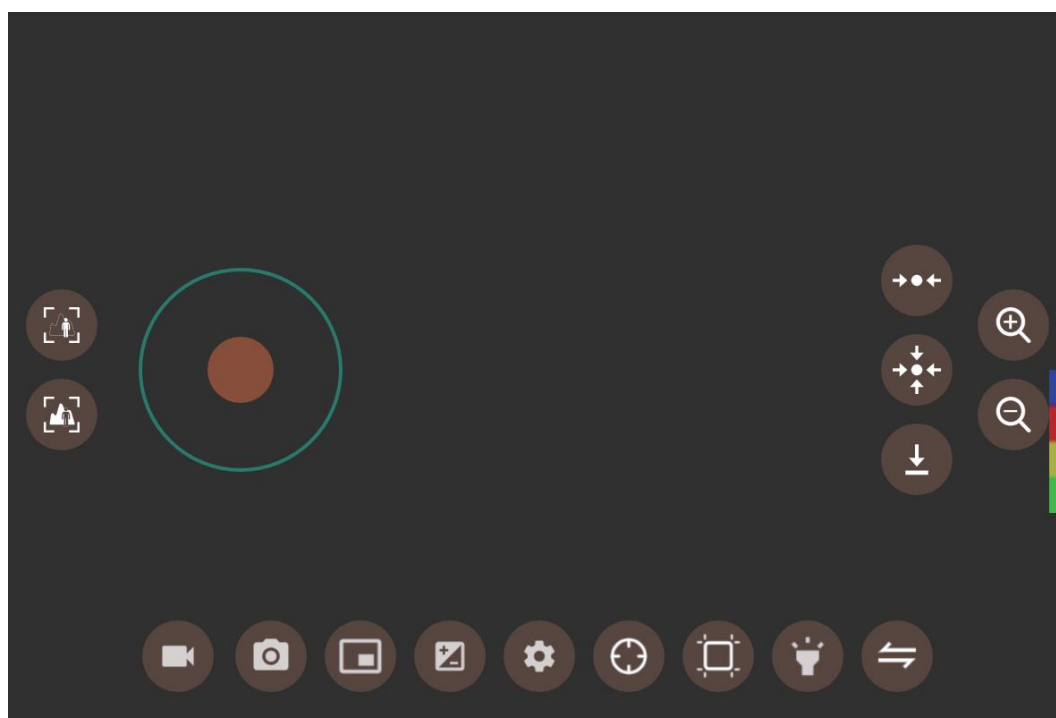
You can set some relevant camera parameters and flip the screen.

5.5.2 Gimbal control

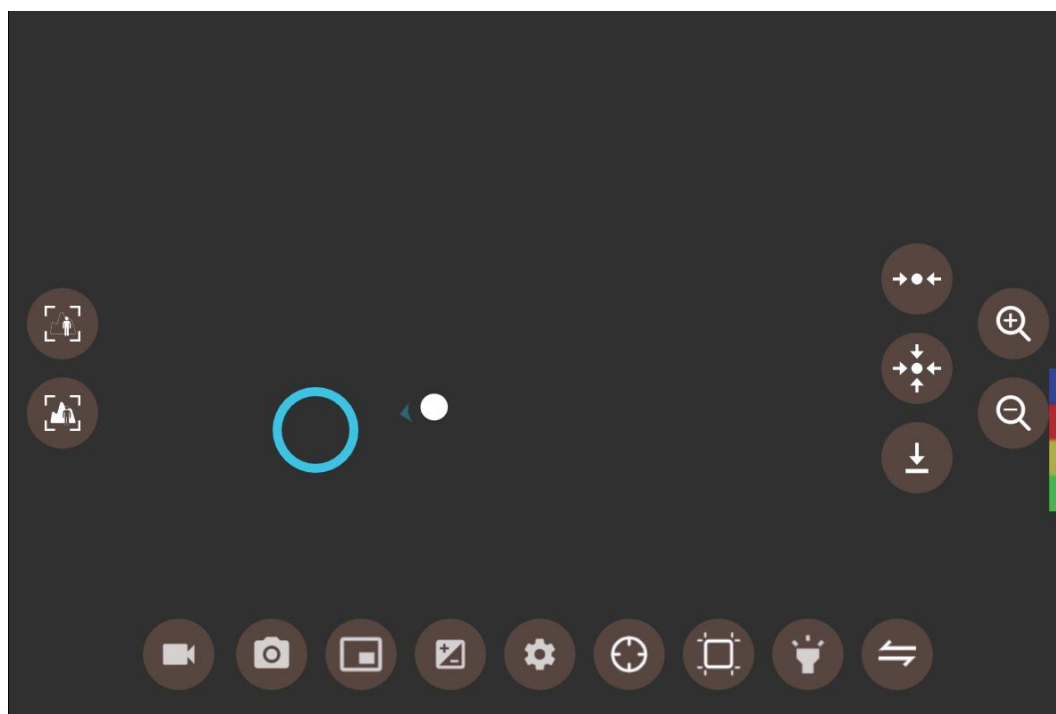
Click on parameter settings -> gimbal control, there are three control ways to choose, which can be chosen simultaneously.



①Virtual joystick control, can control the C20 tilt and pitch, and supports one click return to center function.

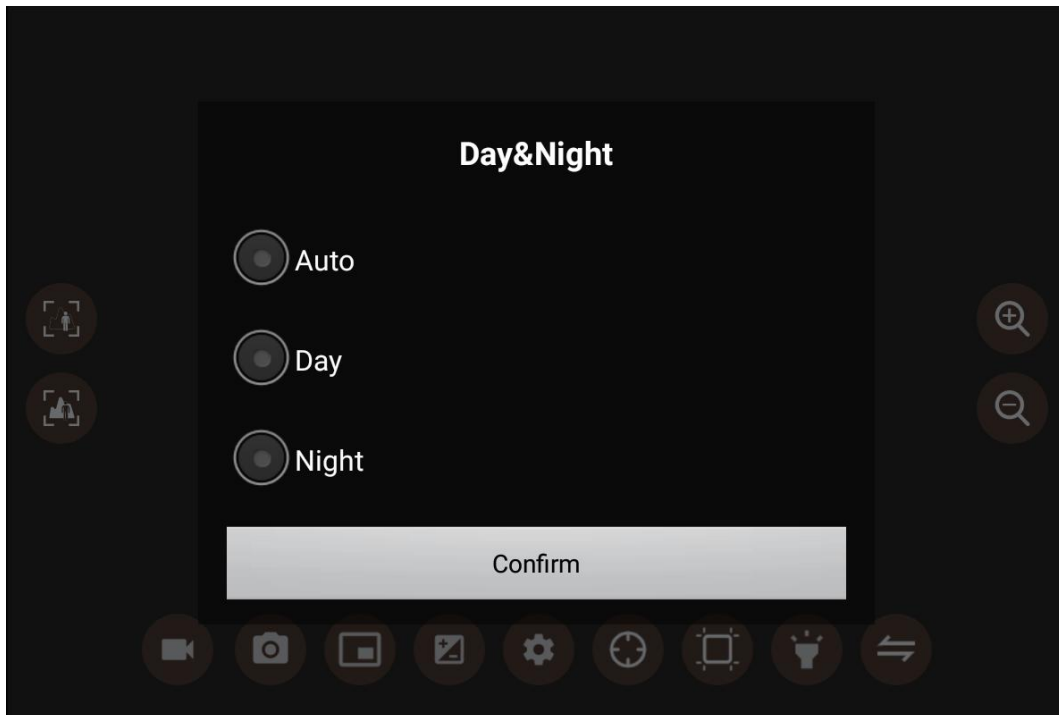


②Gesture control, can control the C20 tilt and pitch by sliding the screen



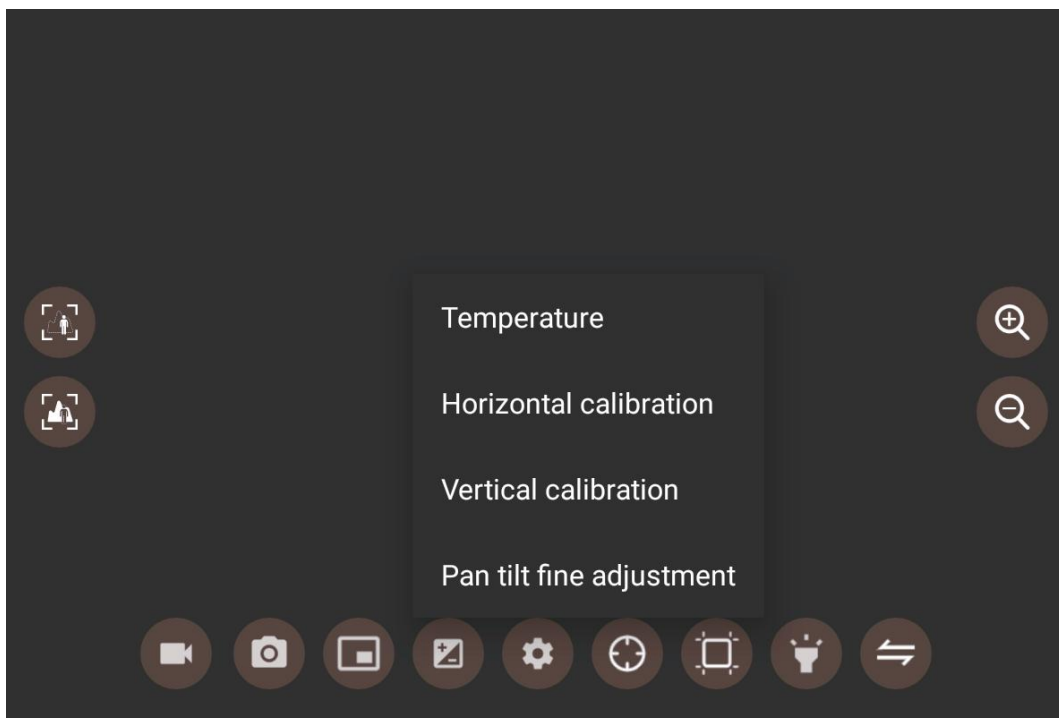
③Remote control channel control, can control the C20 tilt and pitch through the channel 11 and channel 12. (The remote control channel can be viewed and checked through the Assistant App ->Rudder View)

5.5.3 Day night mode



You can set the camera's day mode and night mode freely, default to automatic.

5.5.4 Gimbal calibration



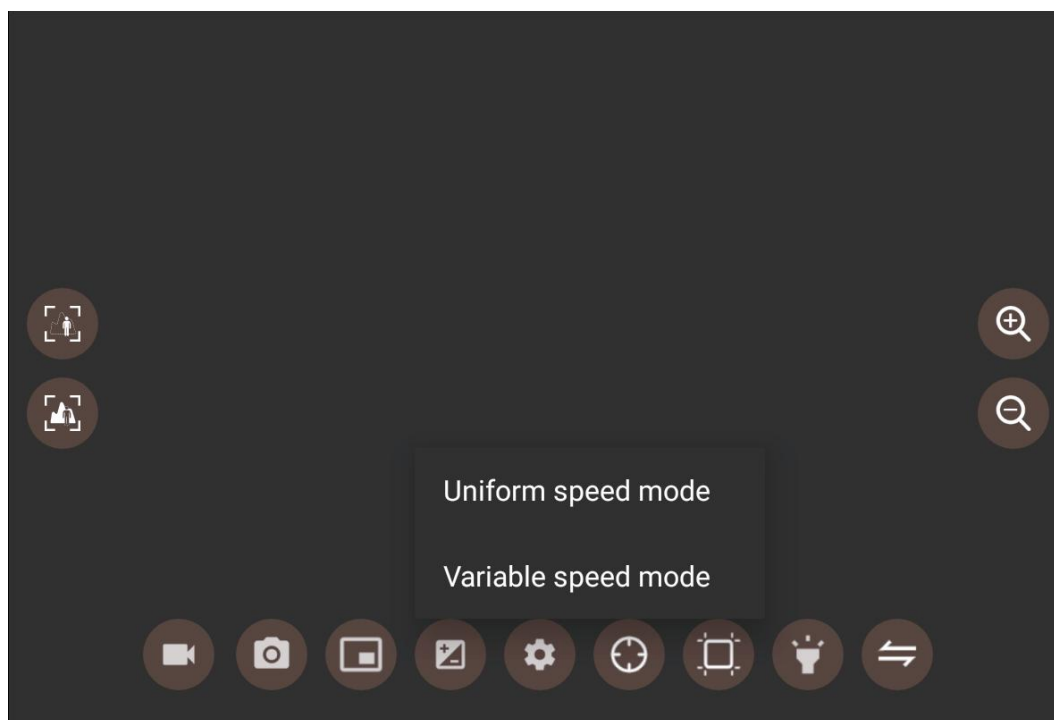
Temperature calibration: Calibrate the temperature of the C20 during use to avoid the inability of C20 due to significant differences between the ambient temperature and the operating temperature of the IMU.

Horizontal calibration: Please place the gimbal on a horizontal plane and ensure that it is in a stationary state, and do not touch or shake the gimbal.

Vertical calibration: After the horizontal calibration is completed, the gimbal will automatically pitch downwards, ensuring that the gimbal is in a stationary state and not touching or shaking the gimbal. And then, do calibration is OK.

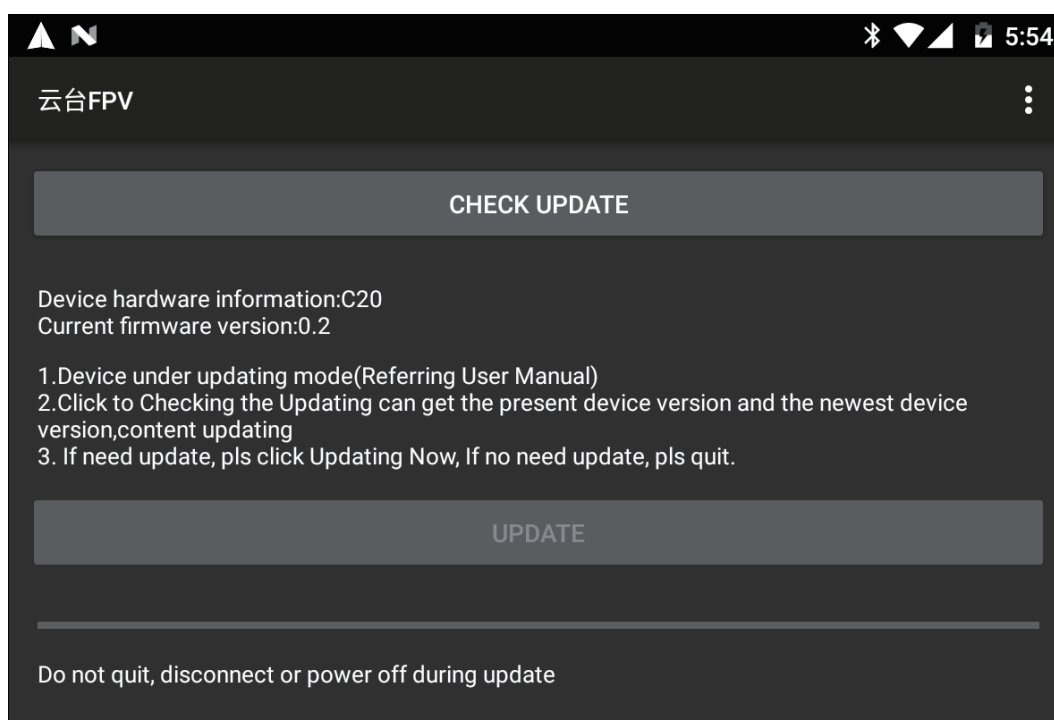
C20 fine adjustment: Fine adjust the horizontal and pitch axes of the gimbal.

5.5.5 Gimbal speed



The control speed of the gimbal includes constant speed mode and variable speed mode.

5.5.6 Gimbal firmware upgrade



Please upgrade the firmware to the latest version. After successful upgrade, the gimbal will do self check.

Tips: Please read the user manual carefully before use!

Due to version evolution and changes in customer requirements, corresponding commands and controls may change. Please contact Skydroid Co., Ltd. for the latest information and technical support. Due to product updates and upgrades, parameters such as size and weight may change. We apologize for any inconvenience caused by this.



Skydroid Wechat group

Skydroid after-sales service hot line:
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