

SKYDROID 云卓

Skydroid C20用户手册

V1.0



22倍变焦三轴夜视云台

泉州云卓科技有限公司

建议：在您阅读本用户手册时，边阅读边操作。您在阅读这些说明时，如遇到困难请查阅**本用户手册**或致电我们售后（400-6996-520）及云卓微信公众平台，云卓官方群：318480806 查看相关问题问答。



云卓官方群2群



云卓微信公众平台

售后服务条款

- 1.本条款仅适用于泉州云卓科技有限公司所生产的产品,云卓授权经销商销售的产品亦适用本条款。
 - 2.本公司产品自购买之日起,一周内经我司核实为非人为造成的质量问题,由云卓承担返修产品的往返快递费,购买云卓产品一周以上一年以内经我司核实为质量问题,用户和云卓各自承担寄出返修产品的快递费。
 - 3.返修时需提供购买凭证和保修卡或网络平台交易记录。
 - 4.云卓产品自购买之日起七天内,在正常使用情况下出现非人为造成的质量问题,外观无损坏,凭保修卡及购机凭证在经销商处协商可以免费更换同型号产品;经销商在收到更换产品时烦请第一时间通知云卓公司予以备案更换。
 - 5.云卓产品将由泉州云卓科技有限公司提供终身售后服务,属于非人为造成的质量问题,一年内免费保修;对于自购买之日起人为的损坏、改装、拆机及超过一年免费保修期的,用户须支付往返邮费及维修费用。
 - 6.为确保您的权益受到保护,并能及时有效的为您服务,请在购买云卓产品时完整填写好保修卡及索要购机凭证。用户享受本售后服务条款必须提供保修卡及购机凭证。
 - 7.返修产品将于云卓公司收到后的 15 个工作日内寄回给顾客,并附上维修报告。
 - 8.以上售后服务条款仅限于中国大陆销售的云卓产品。
- 港澳台及海外客户的售后问题发至邮箱 sales01@skydroid.xin,具体售后细则视情况而定。

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警告和免责声明

本文所提及的内容关系到您的安全以及合法权益与责任。使用本产品之前,请仔细阅读本文以确保已对产品进行正确的设置,不遵守和不按照本文的说明与警告来操作可能会给您和周围的人带来伤害,损坏本产品或其他周围的物品。本文档及所有相关的文档最终解释权归云卓科技所有。如有更新,恕不另行通知。请访问<http://www.skydroid.xin/>官方网站以获取最新的产品信息。

C20云台出厂前已根据其所搭载的相机和镜头完成调试,切勿自行调整云台或者改变其机械机构,也不要为云台增加其他外接设备。云台结构精密,请勿自行对C20作任何拆装,否则将会导致云台相机工作异常。

为了您和他人的安全,请确保云台调试时,飞行器处于安全的状态,不在易燃易爆及有儿童的环境下通电调试,强烈建议您在调试前取下飞行器的螺旋桨。

A) 环境温度:-10°C~+60°

B) 贮存温度:-25°C~+60°C。

C) 大气压力:86kPa~106kPa

D) 使用地点不允许有爆炸危险的介质,周围介质中不应含有腐蚀金属和破坏绝缘的气体及导电介

质,不允许充满水蒸气及有严重的霉菌存在。

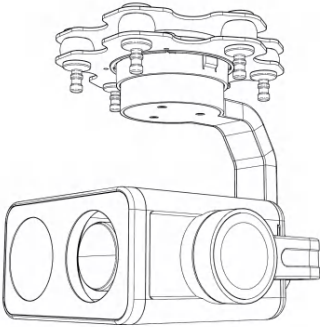
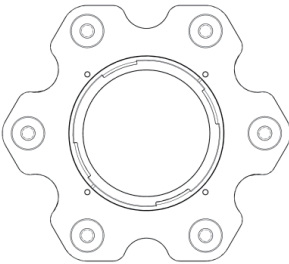
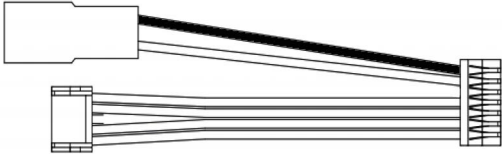
E) 使用地点应具有防御雨、雪、风、沙、灰的设施。

由于我公司无法控制用户的具体使用、安装、改装以及使用不当等情况。由以上所造成的直接、间接损失或损伤,我公司将不承担相应的损失及赔偿责任。如使用、安装、组装云卓科技产品,相应的结果由用户承担。因使用本产品而造成的间接或直接损失与伤害,我公司概不负责。

一、产品简介

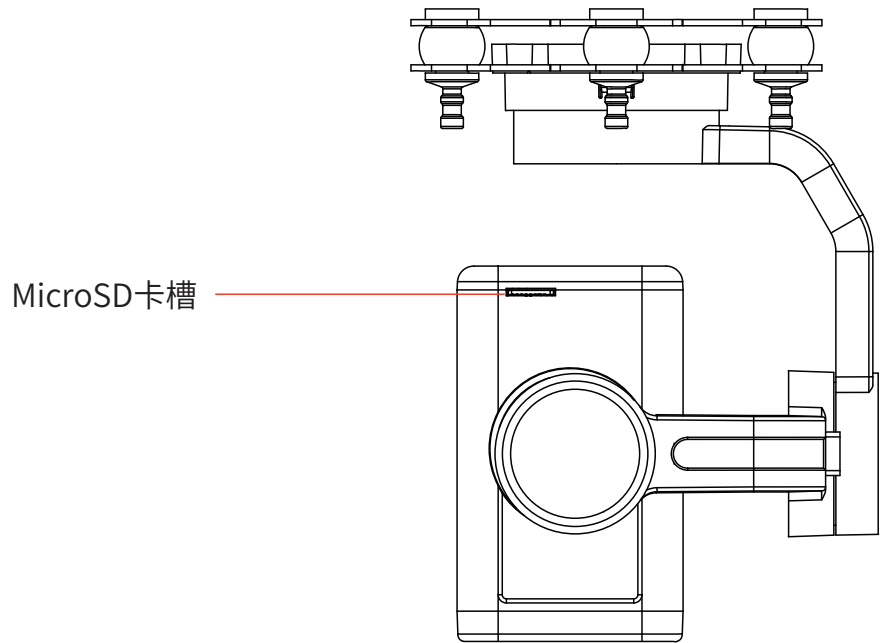
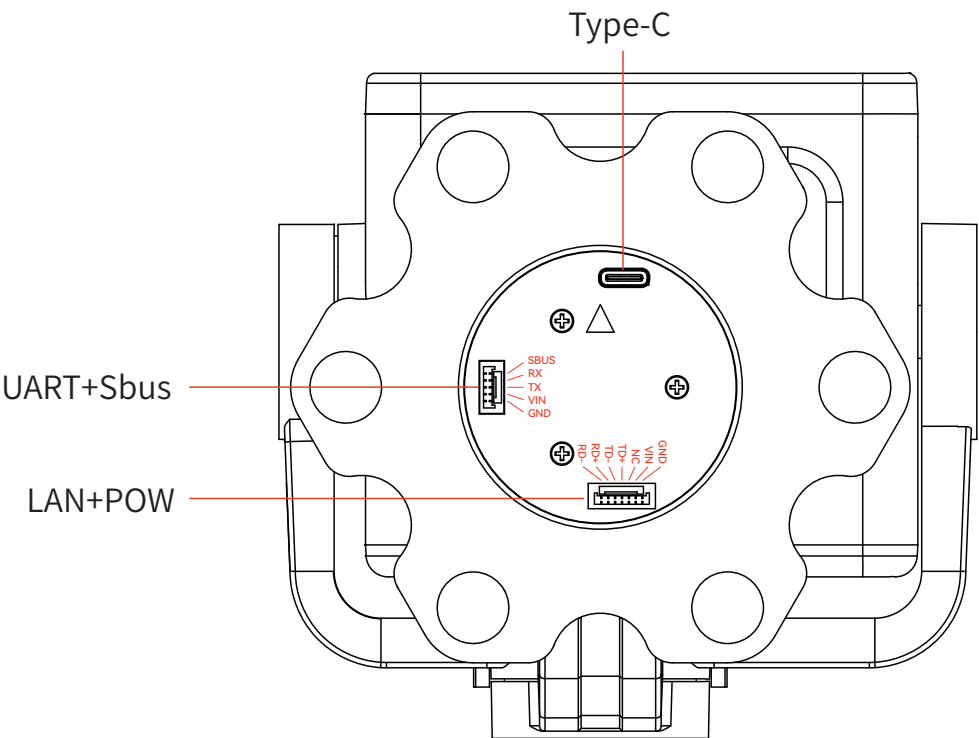
C20是一款高性能双光三轴变焦吊舱,采用影像级传感器,有效像素达到200万,拥有强悍的视频录制和拍照能力,22倍光学变焦和夜视功能带来突破光线和空间的局限,赋予视觉的全新维度,随时随地捕捉清晰的图像,为您展现真实视野。使用工业级三轴增稳结构,大幅降低画面抖动,使画面始终处于平稳状态。C20搭载可变焦高亮聚光灯,让夜间作业变得更加高效、轻松和安全。可应用于公安监控、电力巡检、搜寻救援等各类无人机任务。

二、产品清单

C20吊舱×1	
C20快拆减震板×1	
网口电源线 (4pin或者5pin) ×1 (二选一)	
C20串口控制线×1	
32G金士顿内存卡×1 (已安装)	
读卡器×1	

三、产品概览

接口及定义说明

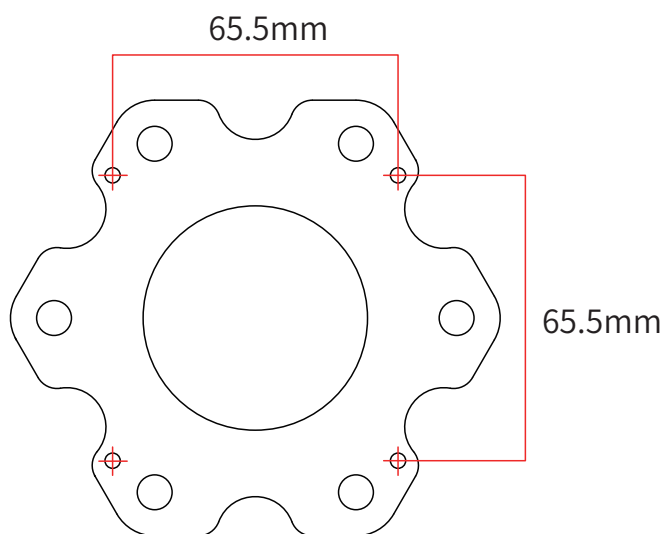


四、产品参数

C20三轴云台	
视频输出信号接口	网口
控制信号输入接口	网口(SBUS和UART后续版本升级可用)
工作电压	18V~72V
工作电流	160mA, 打开探照灯1A
工作环境温度	-10°C~+50°C
重量(含快拆减震板)	500g
外形尺寸(含快拆减震板)	126mm(长)*120mm(宽)*135mm(高)
可控角度范围	-90°~+45°(俯仰轴);-150°~+150°(方向轴);-45°~+45°(横滚轴)
镜头变焦倍数	22倍光学变焦
镜头规格	1/2.7" SC2235 CMOS
镜头焦距	f=4.7~94mm
光圈	F1.6~F3.5
水平视角	58.3°~3.2°(远望-广角)
输出方式	RTSP码流H.264/H.265
图传分辨率	1080P
卡录视频分辨率	1080P
视频存储格式	AVI
照片存储分辨率	1080P
照片存储格式	JPG
吊装/倒装模式	支持
全局回中/一键向下/偏航回中	支持
支持存储卡类型	支持MicroSD存储(最大256G)
支持文件系统	FAT32
探照灯色温	6500K
探照灯变焦	自动变焦
探照灯亮度	2500流明

五、安装与调试

5.1 快拆减震板螺丝孔位与间距示意图如下：

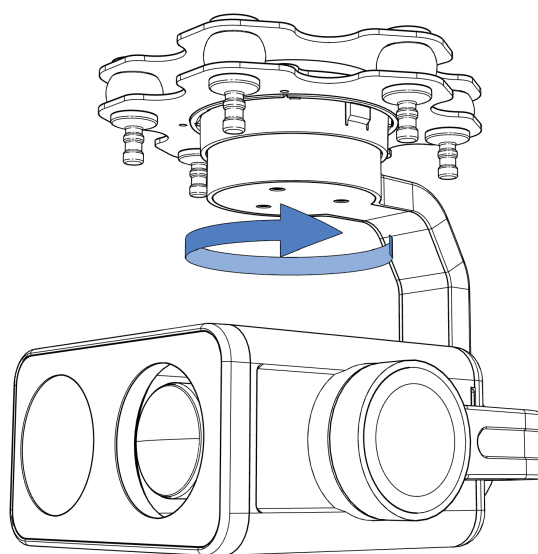


注：用于固定减震板的螺丝规格为 M3*8, 用量4。

云台不使用时请勿悬挂于飞行器上, 长期悬挂会加速避震球变形导致避震效果下降出现果冻现象。

云台安装时减震板之间必须保持相互间的绝对垂直与平行, 不正确的安装将引起避震球变形导致避震效果下降和无法自检。

快装快拆示意图



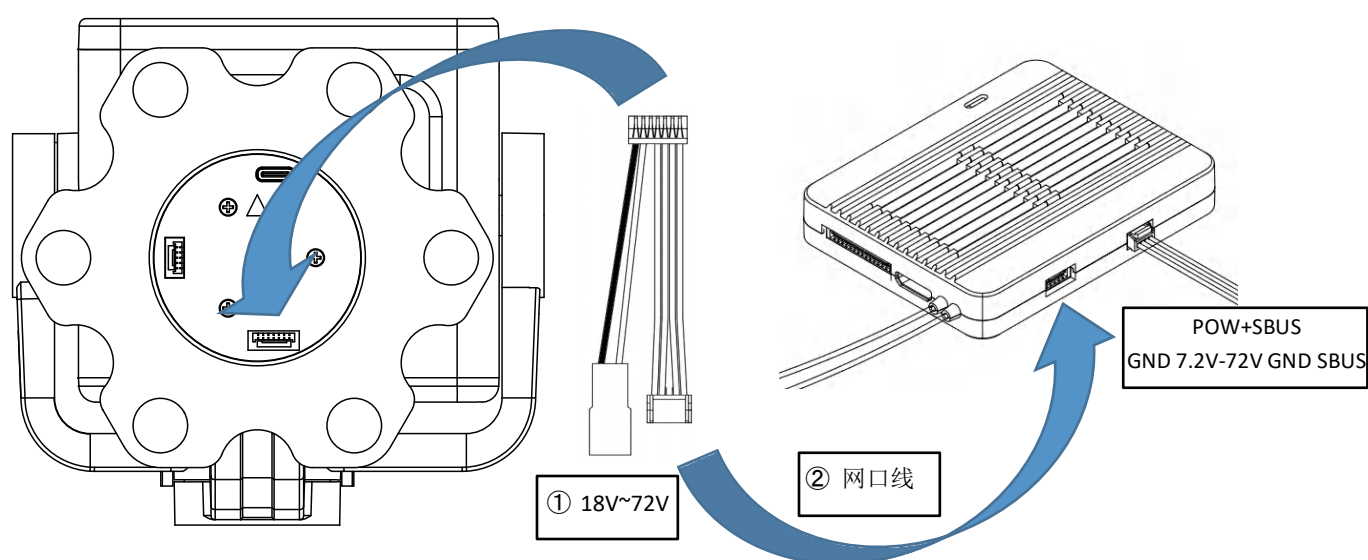
对准快拆板锁扣孔位, 逆时针旋转即可完快装; 按下两边卡扣, 顺时针旋转即可完成快拆。

5.2 云台工作模式

吊装模式:云台吊装模式请安装好后在上电,手持将会使云台自检困难,吊装模式可用于无人机等空中设备。

倒装模式:云台倒立放置上电将自动进入倒装模式,可安装在无人车、无人船等地面载具上。

5.3 云台线路连接图及说明



①C20三轴云台供电范围为18V-72V(打开探照灯电流达到1A, 建议通过动力电池供电, 不经过分电板)

②C20的网络IP高清视频输出RTSP码流为 `rtsp://192.168.144.108:554/main`

③C20云台可通过网口、串口、sbus信号控制(后续ota升级)

5.4 C20的使用

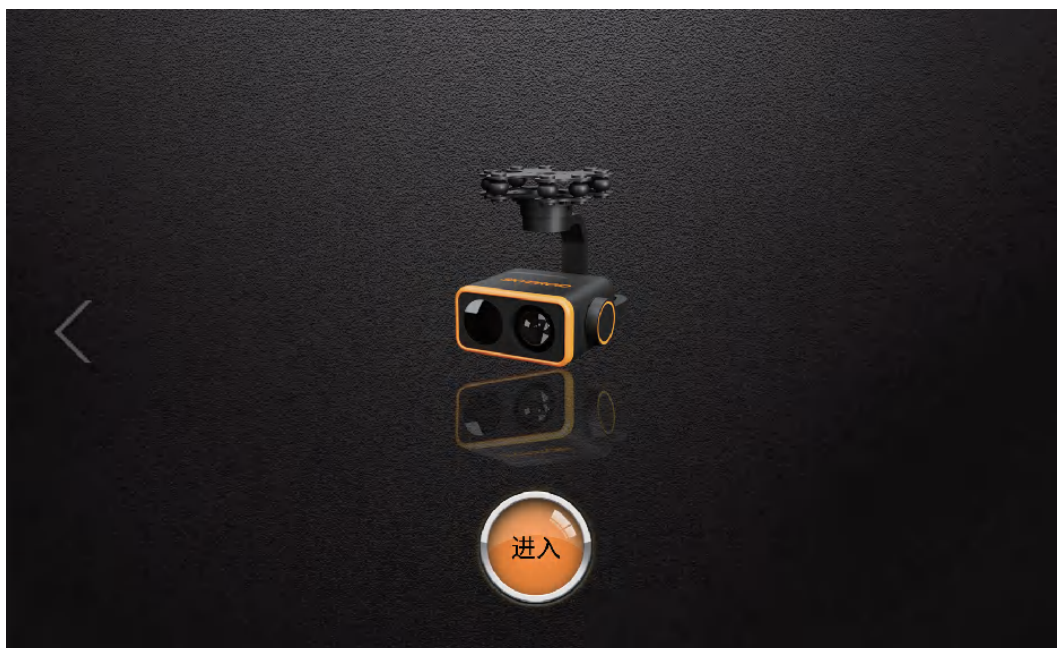
遥控器安装最新版云台FPV软件，并打开。

软件地址：<http://file.skydroid.xin/SkydroidCameraFPV.apk>

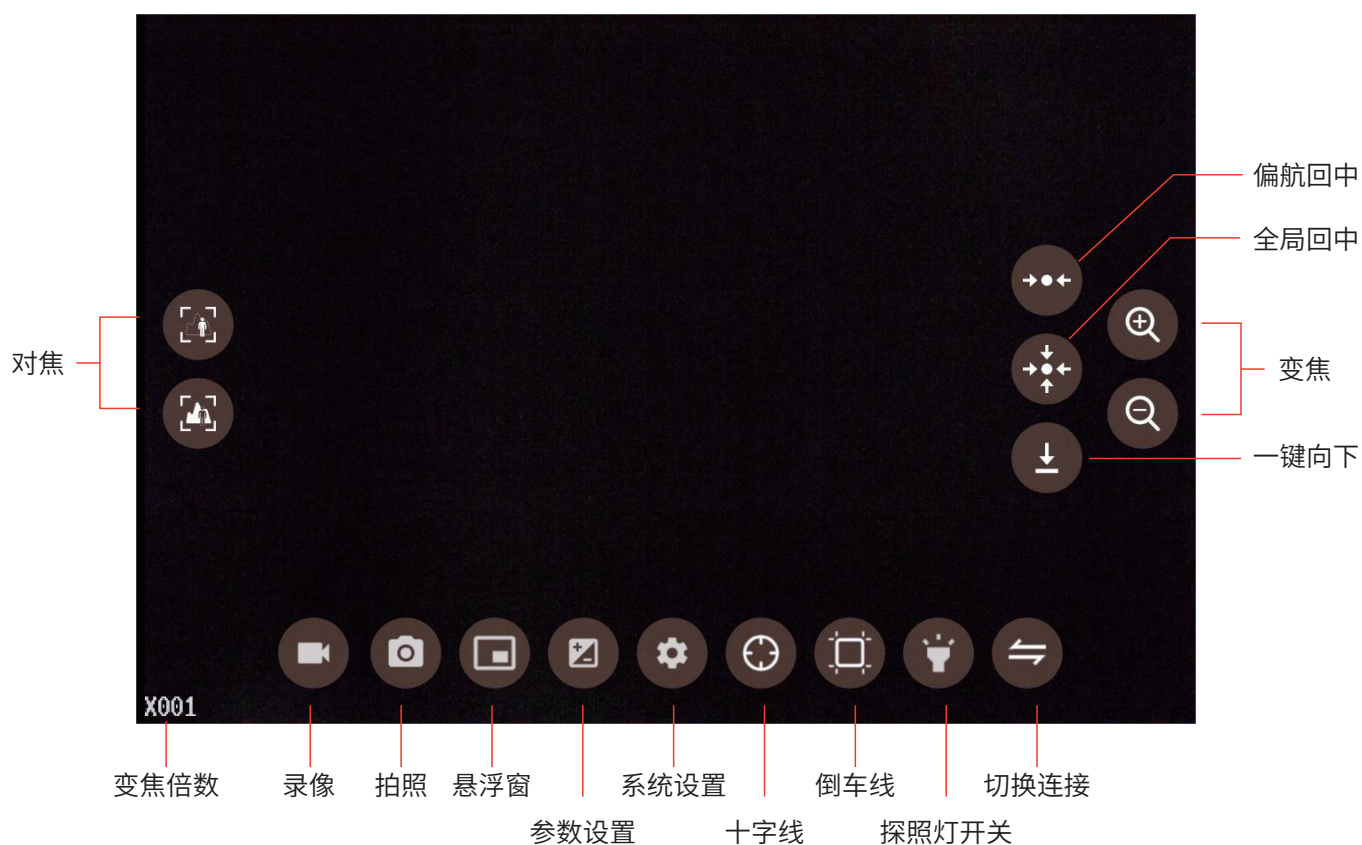
①云台自检

云台安装固定好后，供电，云台会自检，请等待自检完成。

② 打开云台FPV，选择C20连接方式，点击进入。

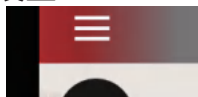


③云台FPV主页介绍

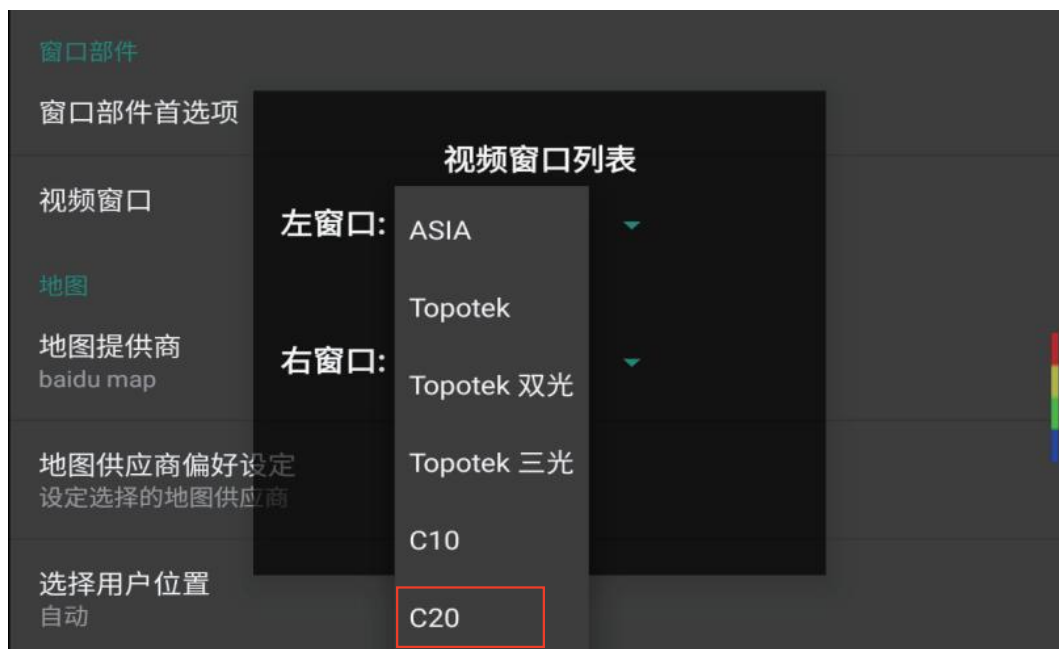


④FLY GCS画面设置

APP首页左上角



->常用设置->其他设置->用户界面->视频窗口->C20



5.5 云台的参数设置



参数设置里可以设置相机参数以及云台固件的升级、校准等功能。

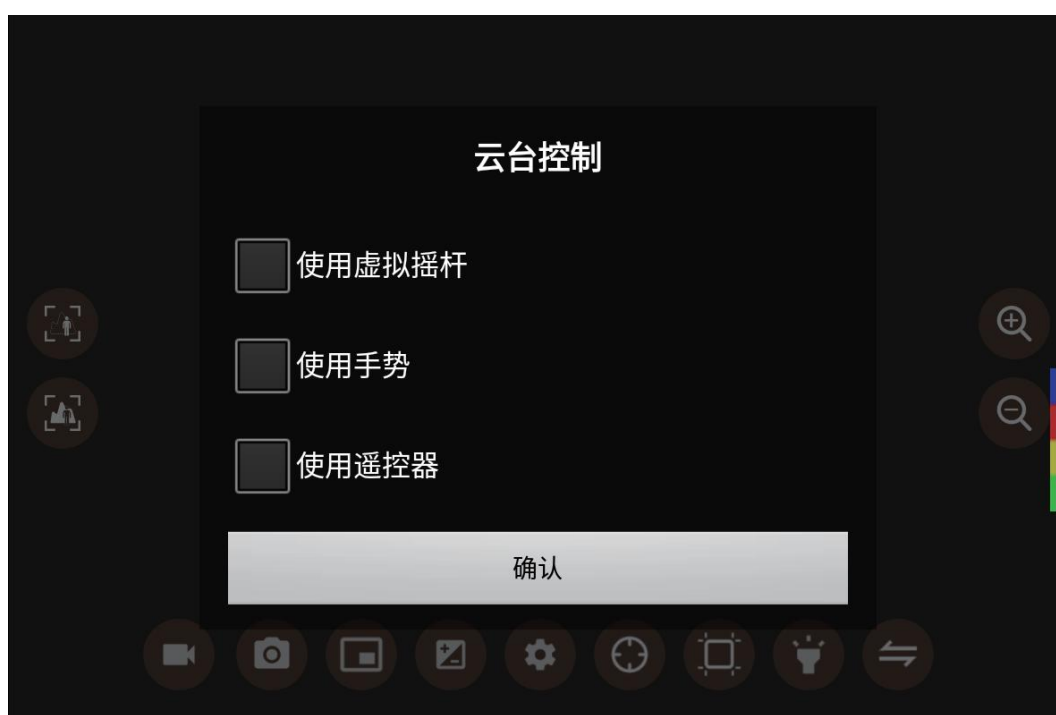
5.5.1 相机参数



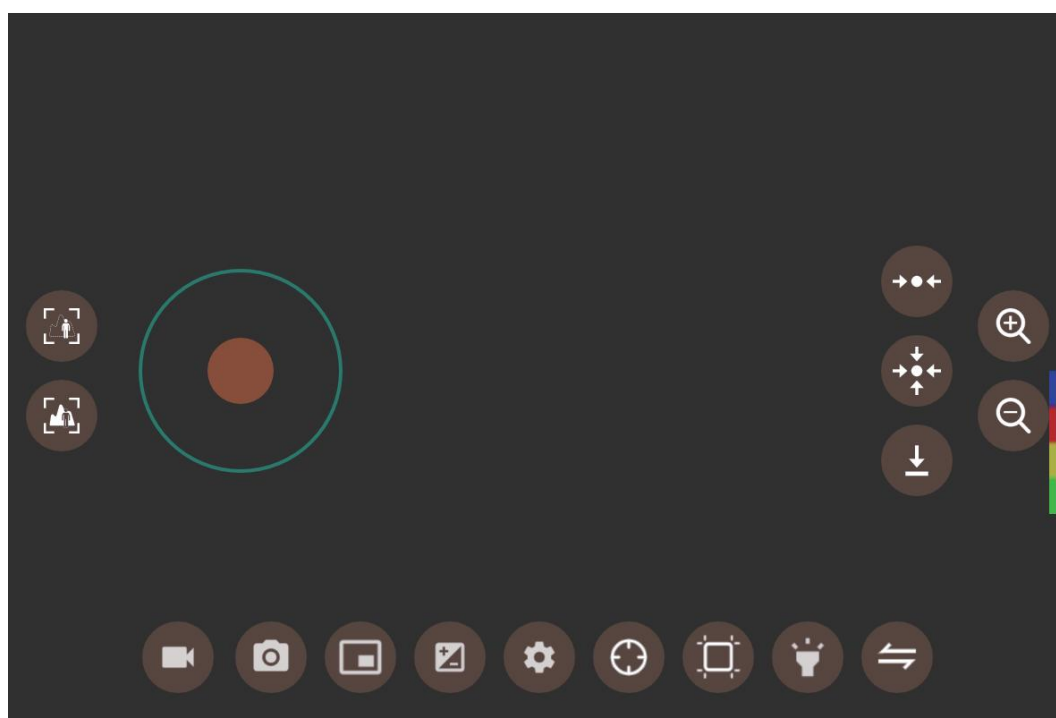
可设置一些相关的相机参数以及画面的翻转。

5.5.2 云台控制

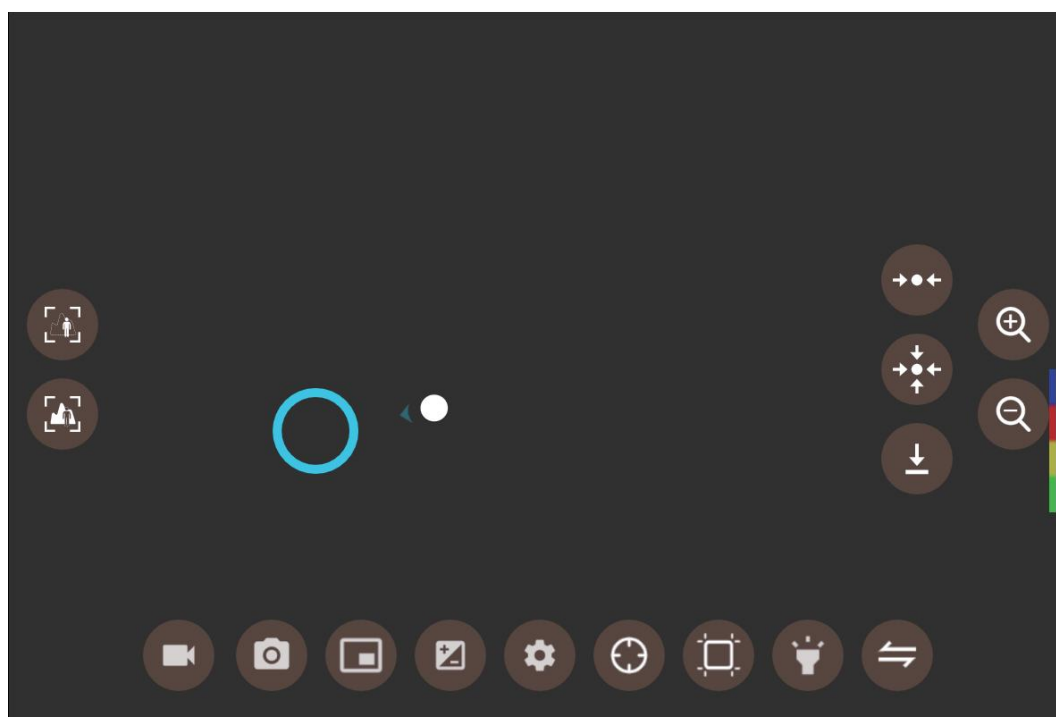
点击参数设置->云台控制, 有三种控制方式可供选择, 可同时勾选多种方式。



①虚拟摇杆控制,可通过虚拟摇杆控制云台转向和俯仰,且支持一键回中等功能。

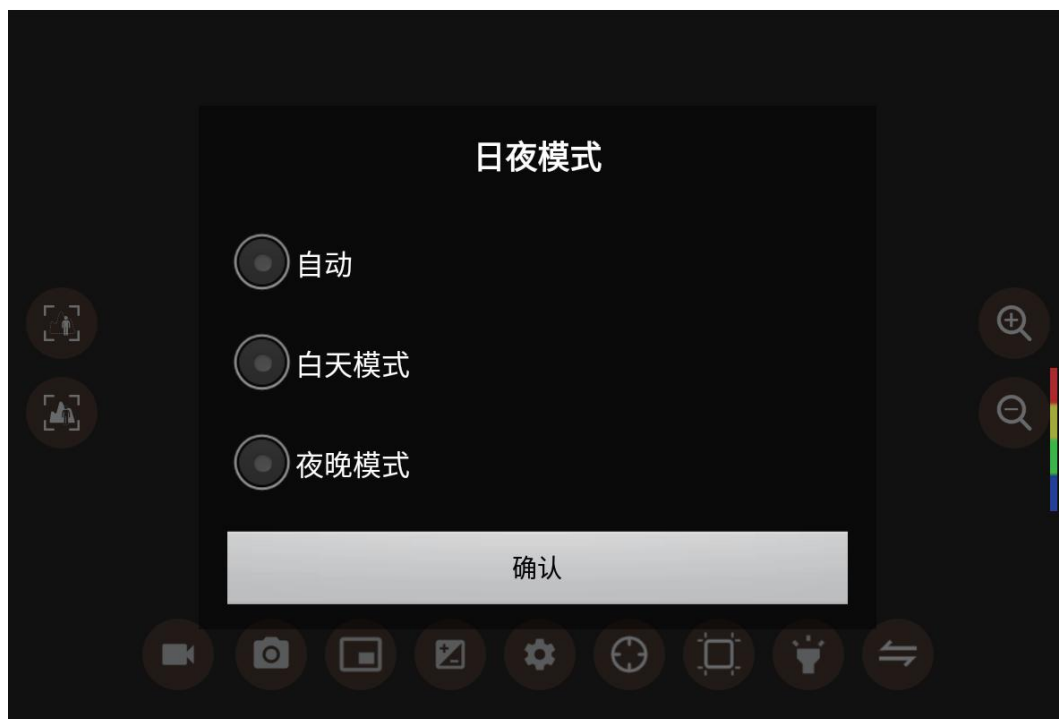


②手势控制,通过滑动屏幕控制云台转向和俯仰。



③遥控器通道控制,通过遥控器的11通道和12通道控制云台转向和俯仰。(遥控器通道可通过遥控器助手->舵量查看查询)

5.5.3 日夜模式



可设置相机的白天模式和夜晚模式，默认为自动。

5.5.4 云台校准



温度校准：校准云台使用时的温度，以免因环境温度与IMU工作温度差异过大导致云台无法正常工作。

水平校准：请将云台放置在水平平面上且确保云台处于静止状态，且不要触碰或者晃动云台。

垂直校准：水平较准完成后，云台将会自动俯仰朝下，确保云台处于静止状态，且不要触碰或者晃动云台，点击校准即可。

云台微调：微调云台的水平轴与俯仰轴。

5.5.5 云台速度



云台的控制速度有匀速模式和变速模式。

5.5.6 云台升级



云台固件的升级，请将云台固件升级到最新，升级成功后云台将会自检。

温馨提示:使用前请仔细阅读操作说明书!

因版本演进及客户需求变更,相应命令及控制会有所变更。请联系云卓科技有限公司, 来获取最新资讯及技术支持, 因产品更新升级, 尺寸重量等参数可能会有变化, 敬请谅解。



微信公众号

泉州云卓科技全国服务热线
400-6996-520

产品名称:C20

制造商:泉州云卓科技有限公司

地址:福建省泉州市高新产业园区海西育成基地A幢2楼

邮箱:sales01@skydroid.xin

www.skydroid.xin

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.

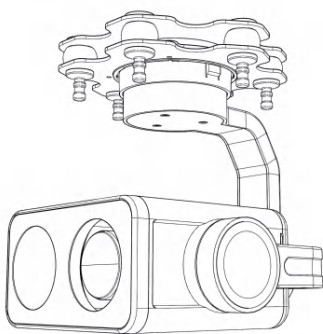
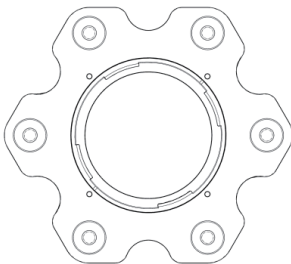
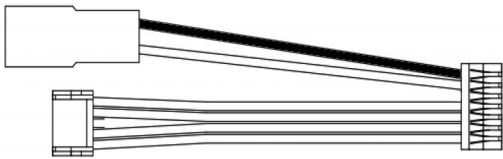
E) The place of use shall be equipped with facilities to prevent rain, snow, wind, sand and ash.

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

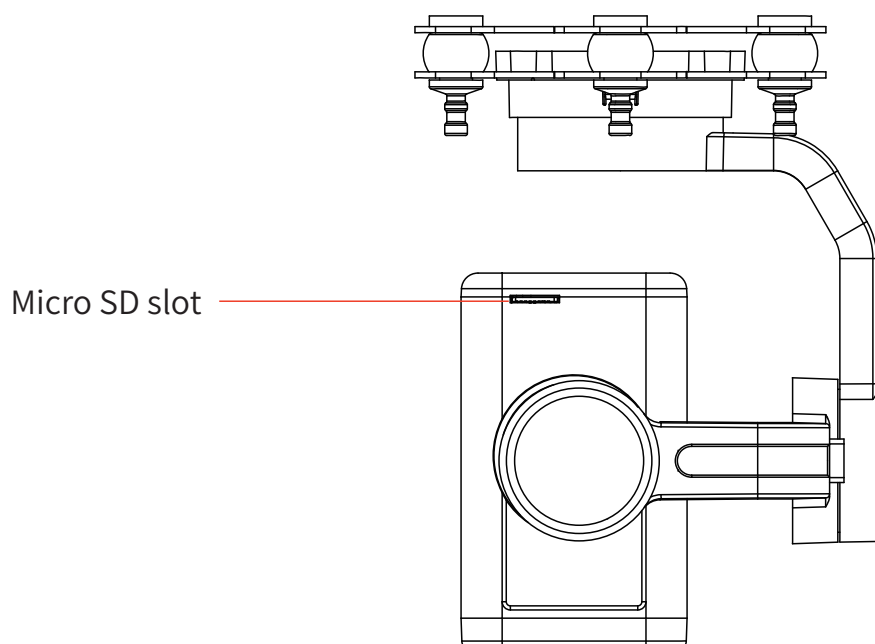
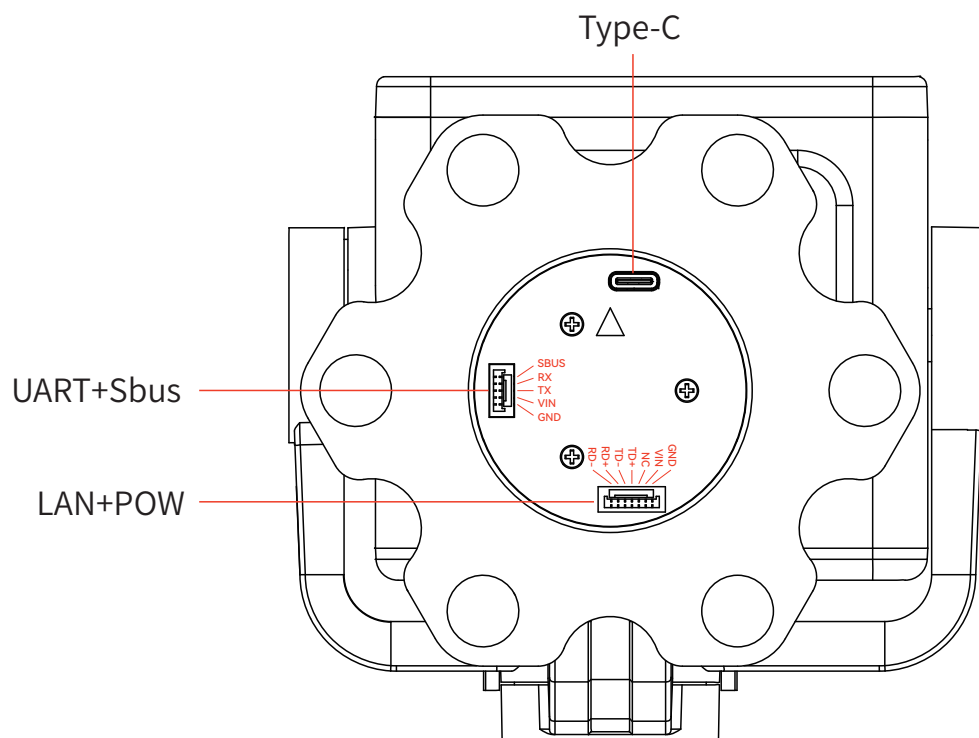
C20 is a high-performance dual light three-axis zoom gimbal, equipped with image grade sensors and effective pixels of up to 2 million. It has powerful video recording and photography capabilities, with 22x optical zoom and night vision functions that break through the limitations of light and space, 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

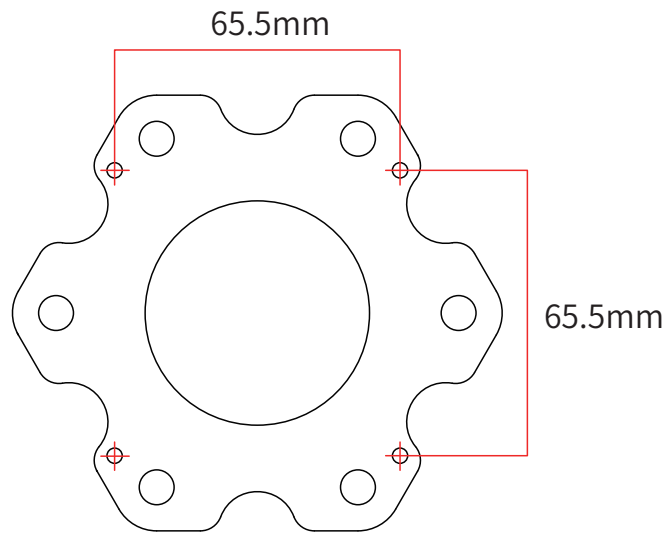


4.Product specifications

C20 three-axis night vision gimbal	
Video output signal interface	network port
Control signal input interface	network 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	2500lm

5.Installation and debugging

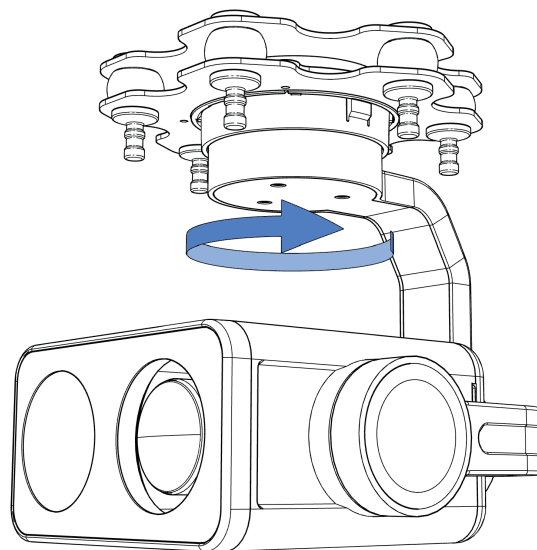
5.1 The schematic diagram of the screw hole position and spacing for the quick release shock absorber plate is as follows:



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



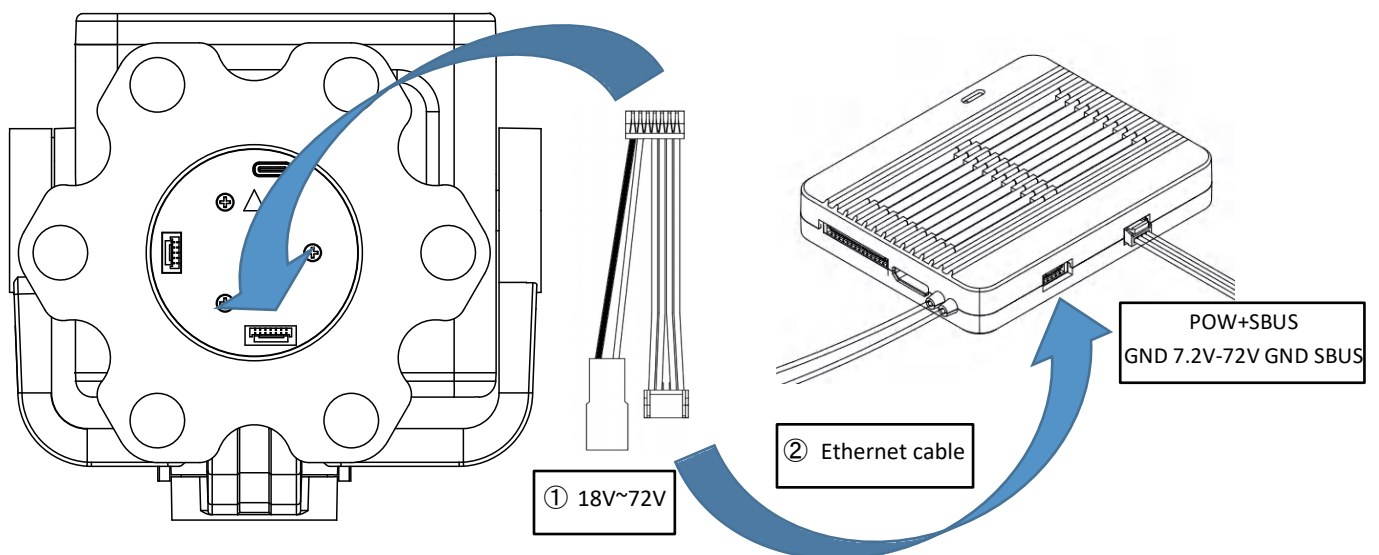
Align the locking hole of the quick release plate and rotate counterclockwise to complete the quick installation; Press the buckles on both sides and rotate clockwise to complete the quick disassembly.

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

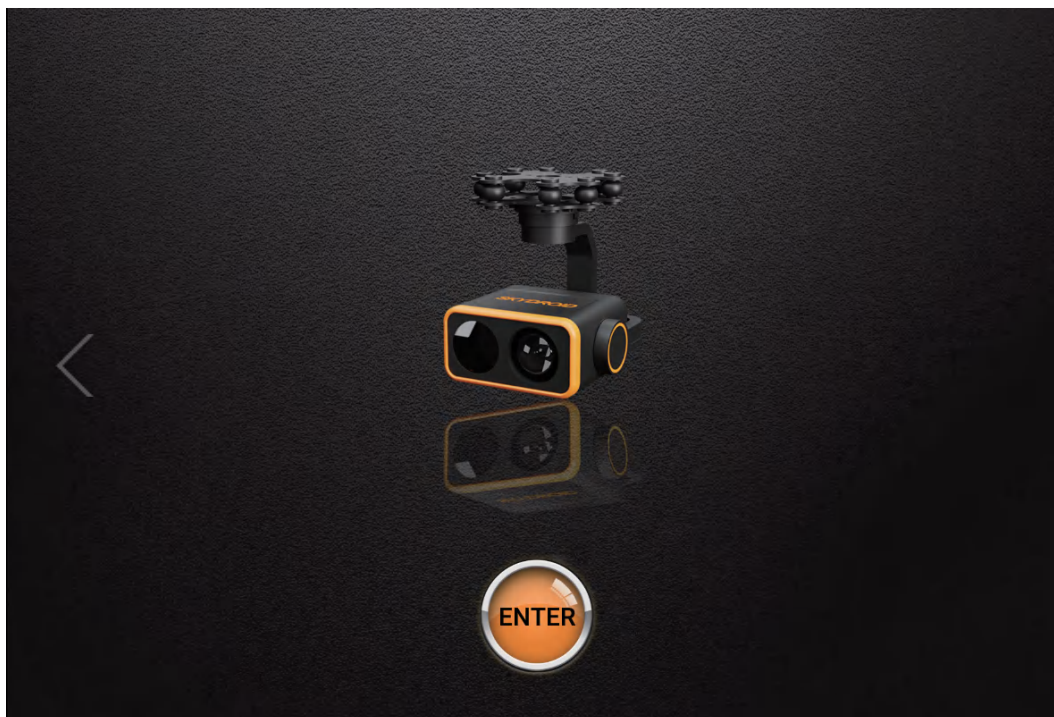
Install the latest version of gimbal FPV software on the remote control and open it.

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

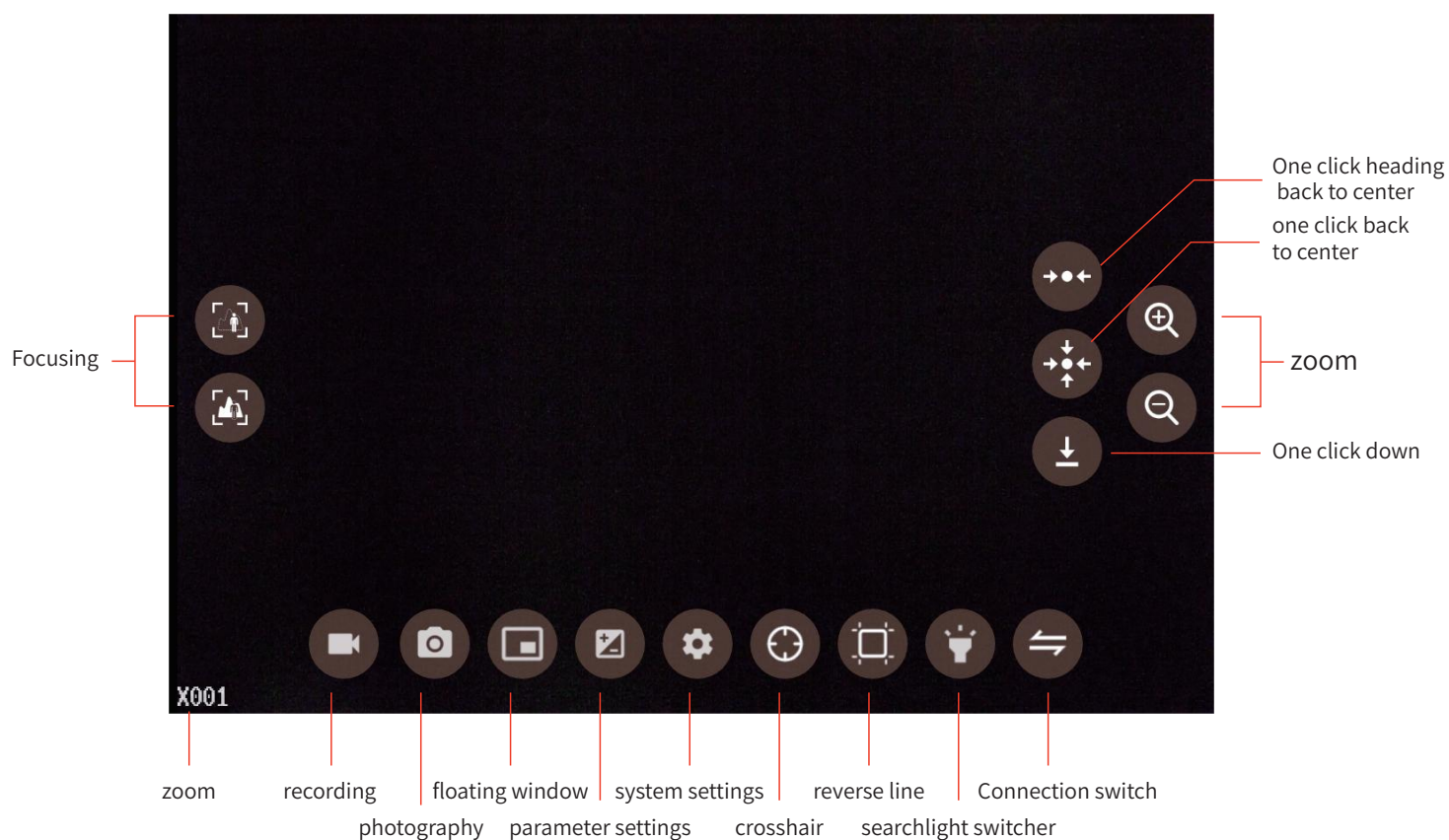
① Self check

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

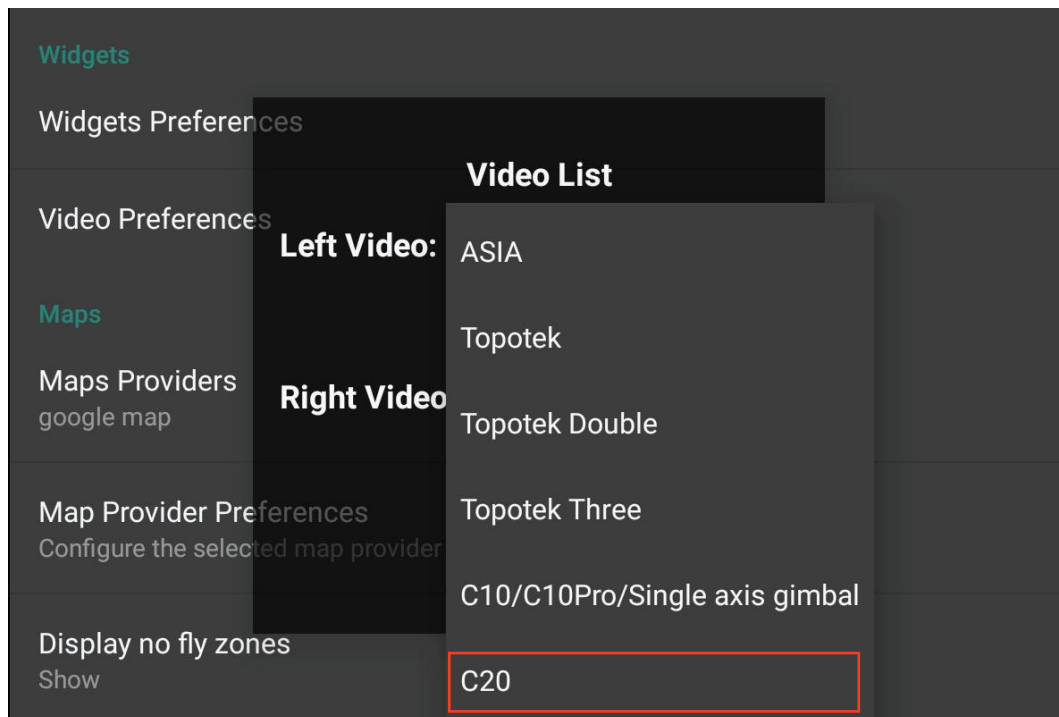


④FLY GCS settings

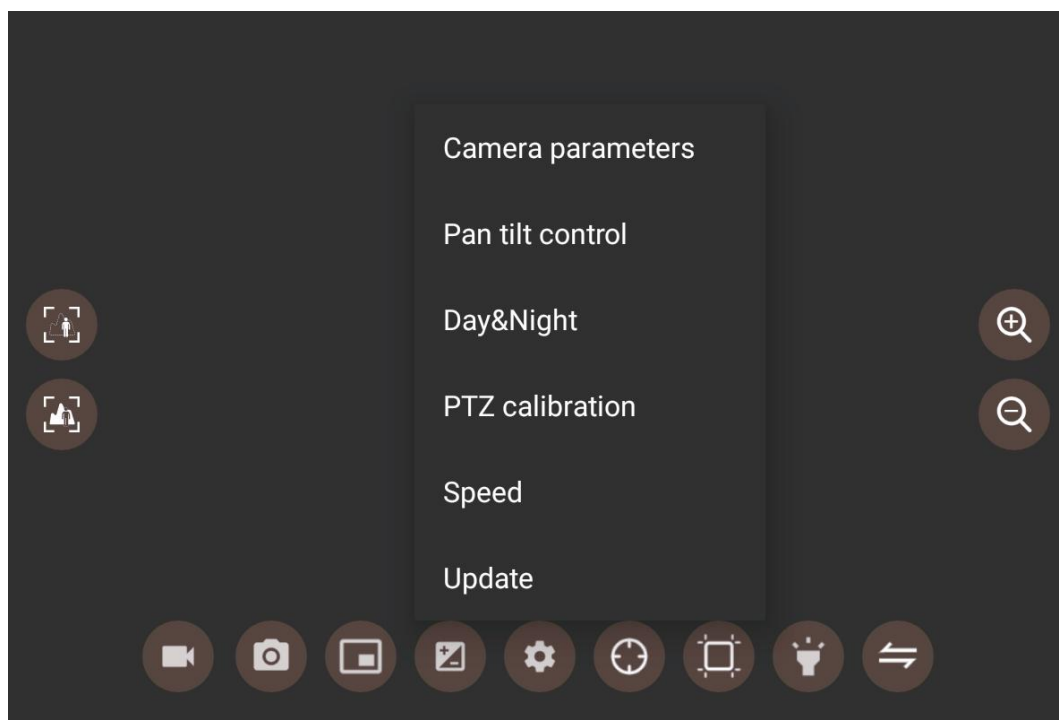
APP homepage top left corner
->Video window ->C20



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

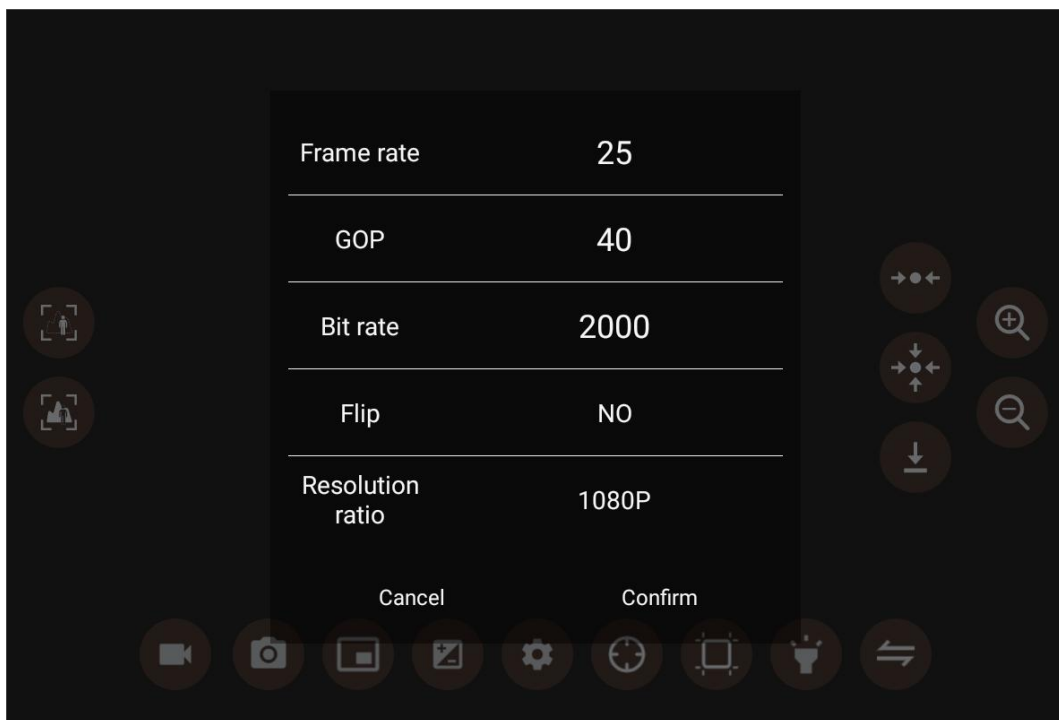


5.5 Parameter settings for C20



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

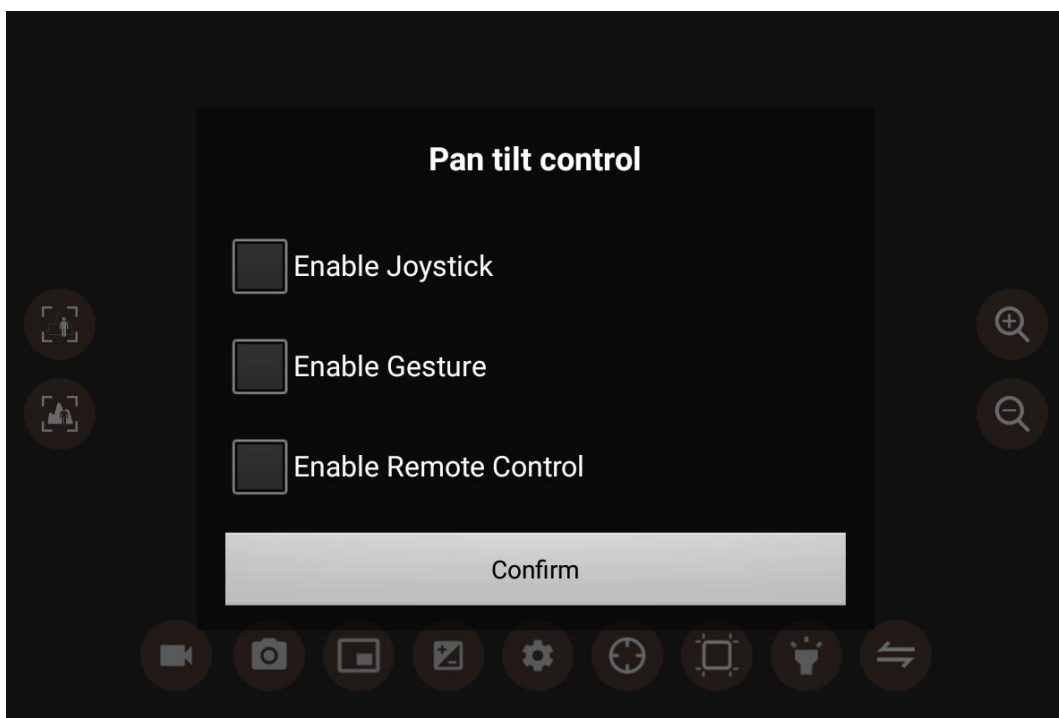
5.5.1 C20 parameters



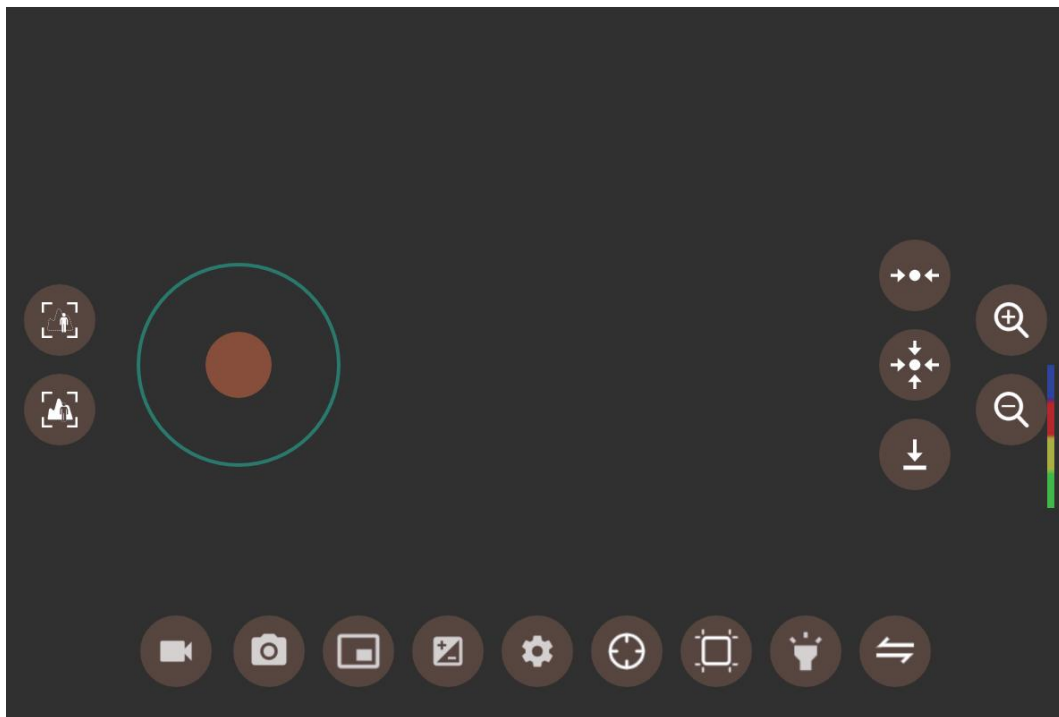
You can set some relevant camera parameters and flip the screen.

5.5.2 Gimbal control

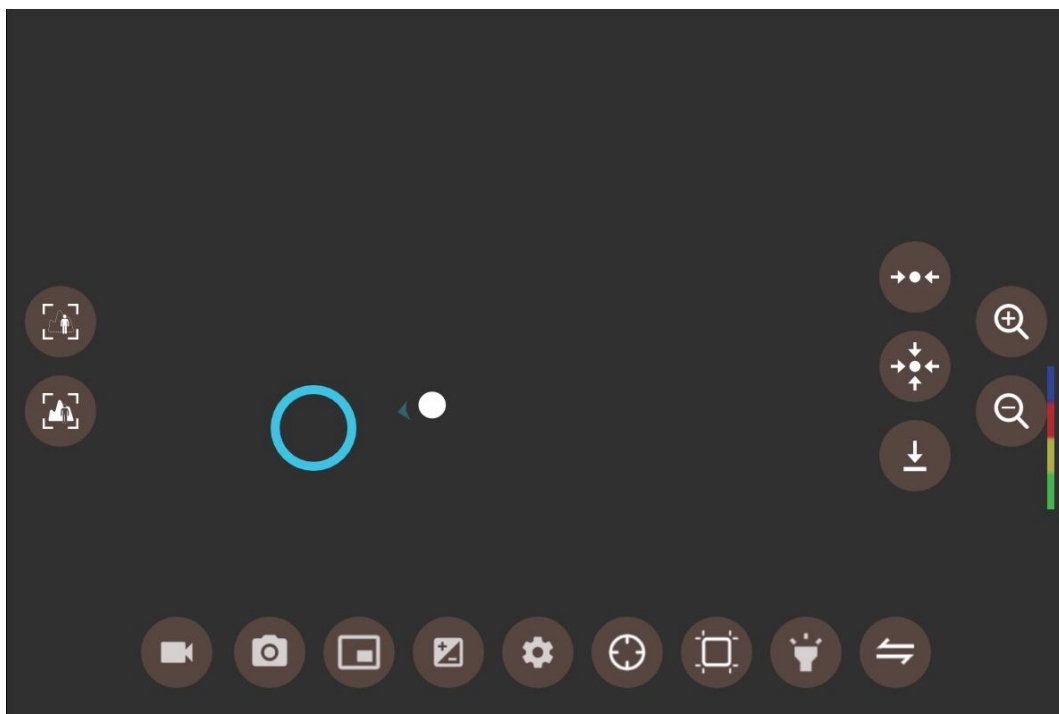
Click on parameter settings -> gimbal control, there are three control ways to choose, which can be chosen simultaneously.



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

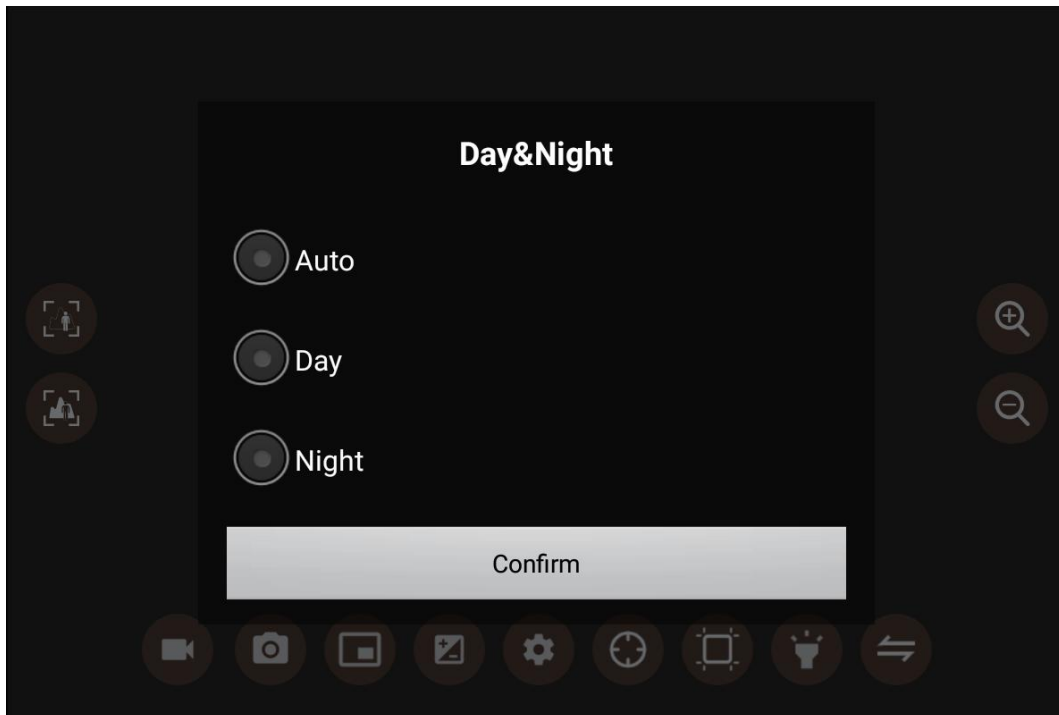


②Gesture control, can control the C20 tilt and pitch by sliding the screen



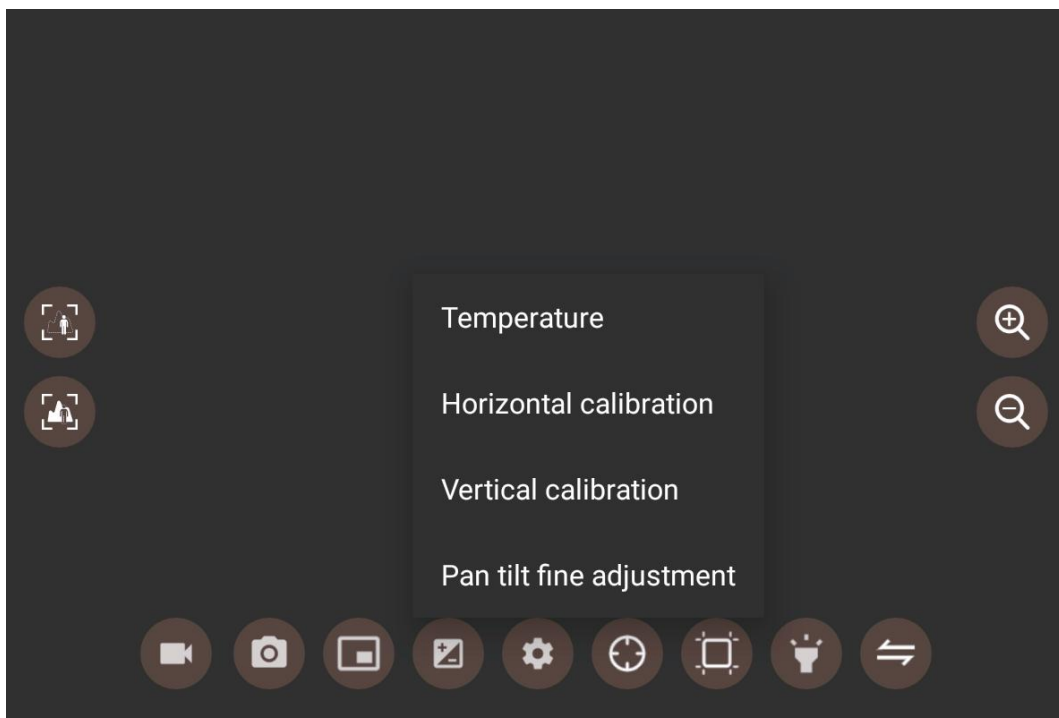
③Remote control channel control, can control the C20 tilt and pitch through the channel 11 and channel 12. (The remote control channel can be viewed and checked through the Assistant App ->Rudder View)

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



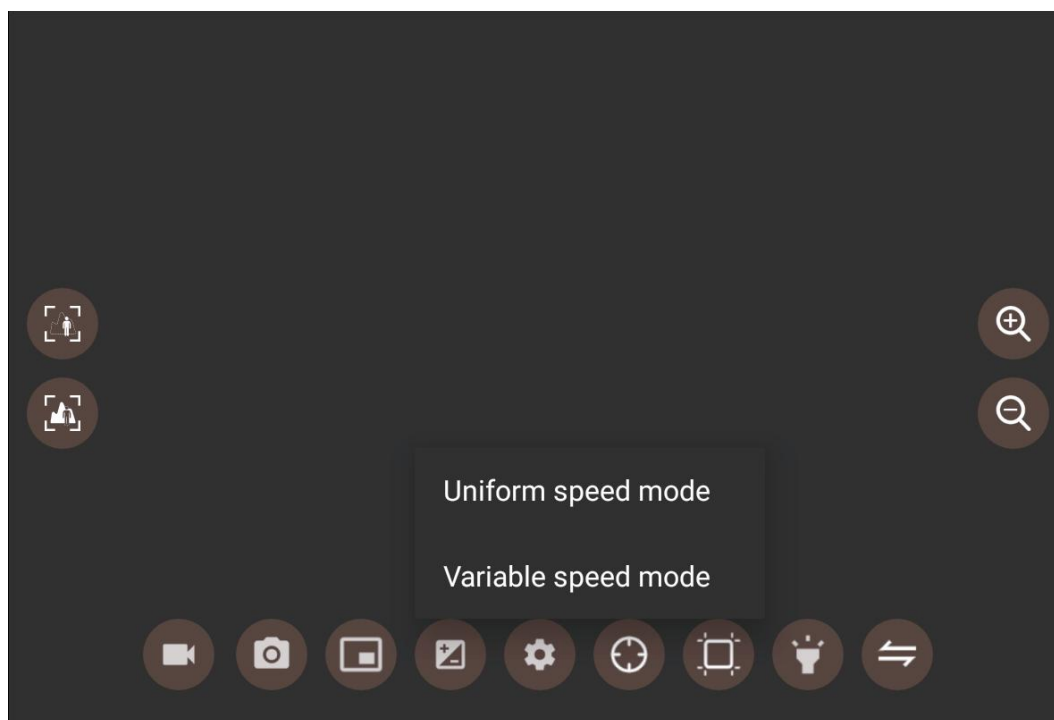
Temperature calibration: Calibrate the temperature of the C20 during use to avoid the inability of C20 due to significant differences between the ambient temperature and the operating temperature of the IMU.

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.

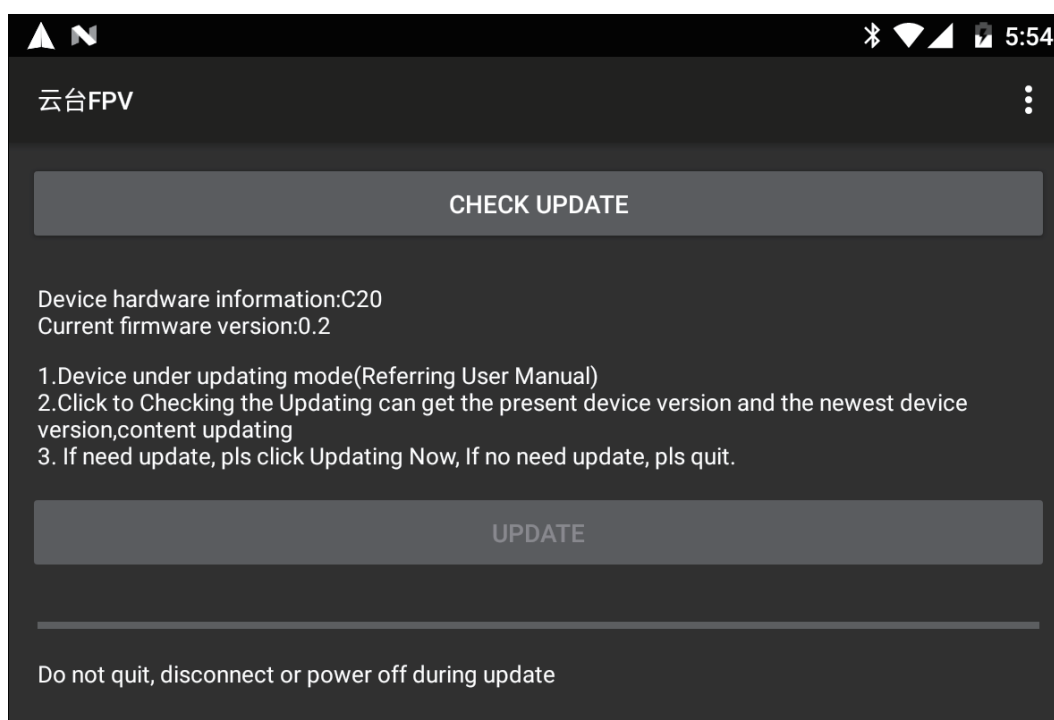
C20 fine adjustment: Fine adjust the horizontal and pitch axes of the gimbal.

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:
400-6996-520

Product name: C20

Manufacture: Skydroid Co.,Ltd

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