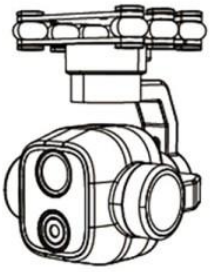
Skydroid C12 User Manual

Product introduction:

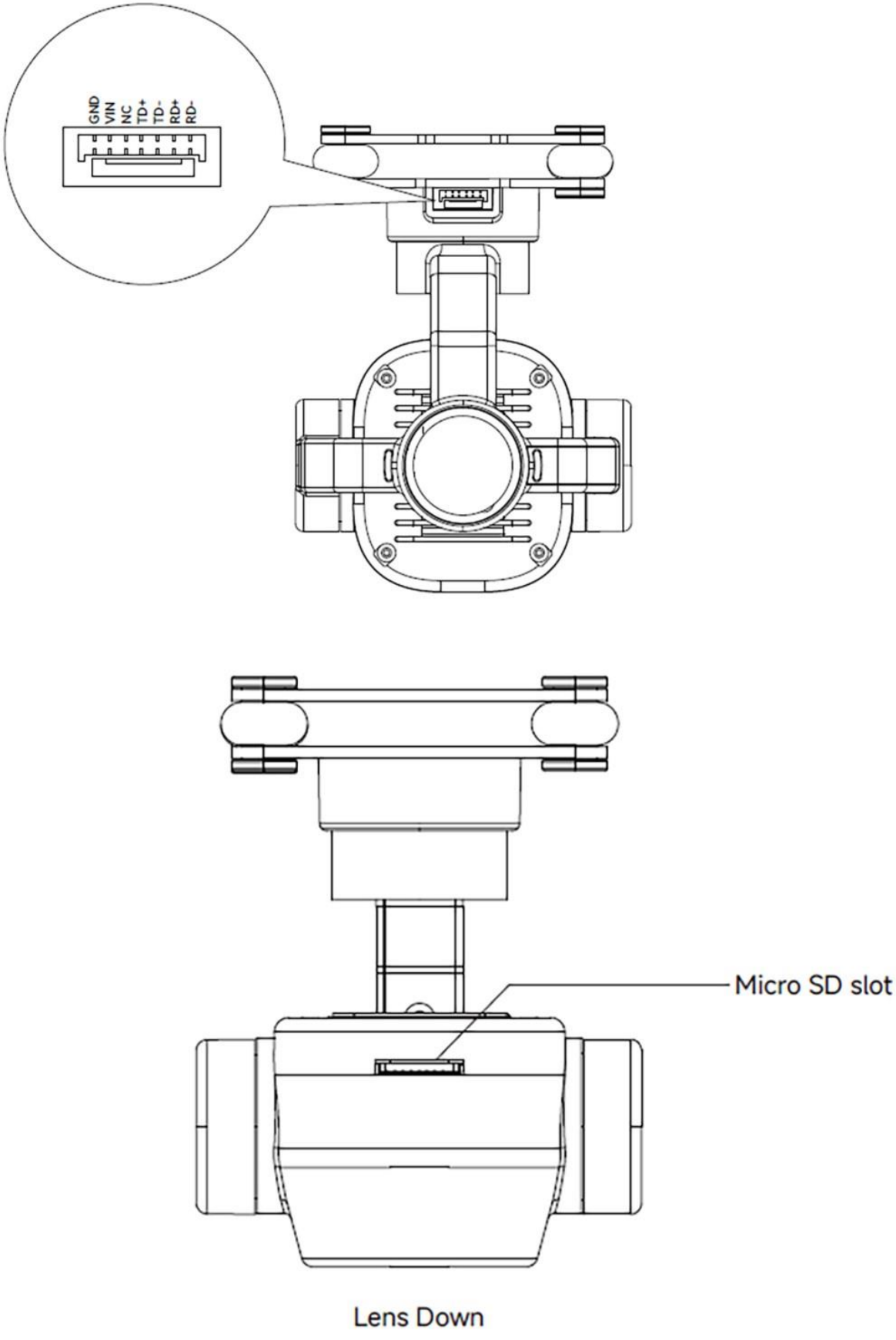
C12 is a small high-definition dual light gimbal that uses a new generation imaging chip and a high-definition distortion free camera, with effective pixels reaching 5 million. It has powerful 2K video recording and photography capabilities, supports digital zoom, and captures clear images anytime, anywhere, making distant scenery closer to you. Equipped with a high-resolution thermal imaging camera, it has a wide field
of view, clear images, and can observe various heat sources from a long distance. Using an industrial grade 3-axis stabilization structure, it significantly reduces image jitter and keeps the image in a stable state. Can be used in fields such as fire rescue, animal protection, and safety monitoring.

Product packing List

C12 gimbal*1	
Fixing screw(M2.5*6) ×4	
Ethernet power cable*1	
32G Kingston memory card*1	
Card reader*1	

Overview of C12

C12 ports introduction



Product specifications

C12 gimbal parameters	
Video output signal interface	LAN port
Control signal input interface	LAN port
Working voltage	7.2V~72V
Working current	210mA
Working temperature	-10℃~+50℃
Weight （ includes quick disassemble shock absorber plate ）	117g
Size （ includes quick disassemble shock absorber plate ）	62mm(L)*65mm(W)*86mm(H)
Controllable angle range	-90°~+10° (Pitch) ； -90°~+90°(Direction);-45°~+45° (Roll)
Hoist mode/ Upside down mode	support
One click back/One click down/One click head up	support

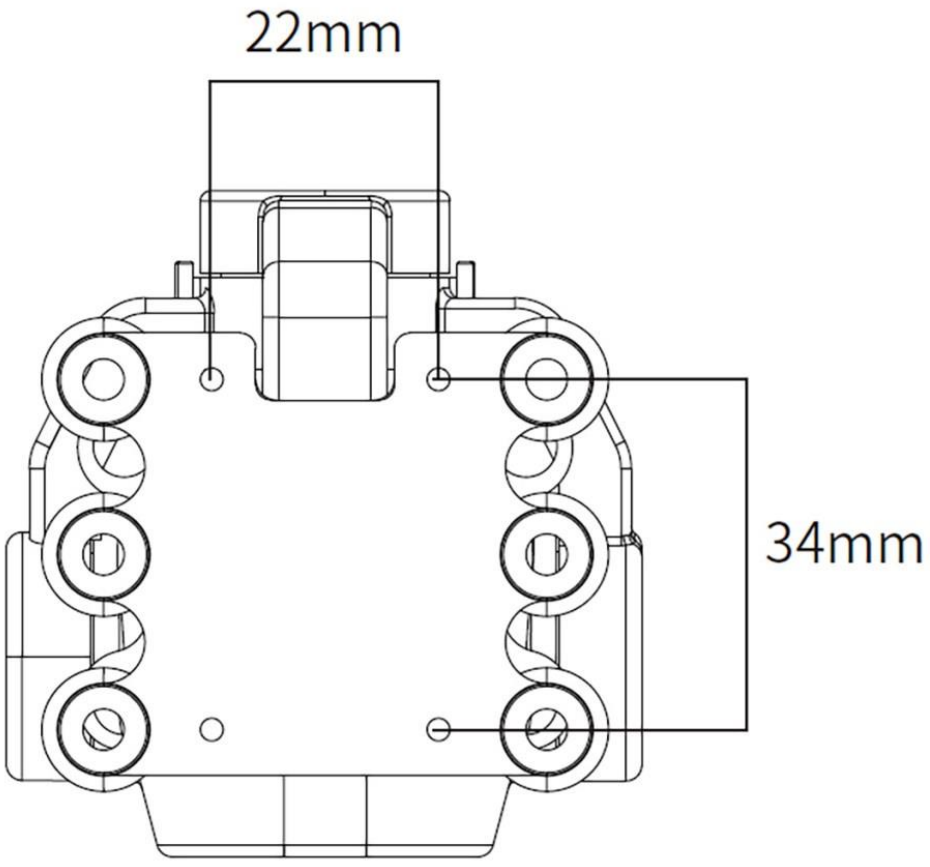
C12 visible light camera parameters	
Lens resolution	500万
Focal length	f=3.5~4.75mm
Aperture	F2.0
HFOV / VFOV / DFOV	100° / 52° / 122°
Zoom magnification	4x Electron magnification
Image transmission resolution	1280*720
Video record resolution	2560*1440
Video storage format	MP4
Photography resolution	2560*1440
Photo storage format	JEPG
Supports storage card types	Supports Micro SD storage (up to 256GB)
Support file system	FAT32

C12 thermal imaging camera parameters	
Resolution	384*288

Frame rate	≤25Hz
Thermal time constant	＜10ms
Focal length	7mm
Aperture	F1.0
FOV	24.8°*18.7°
Pixel spacing	12μm
Spectral range	8~14μm

Installation and debugging

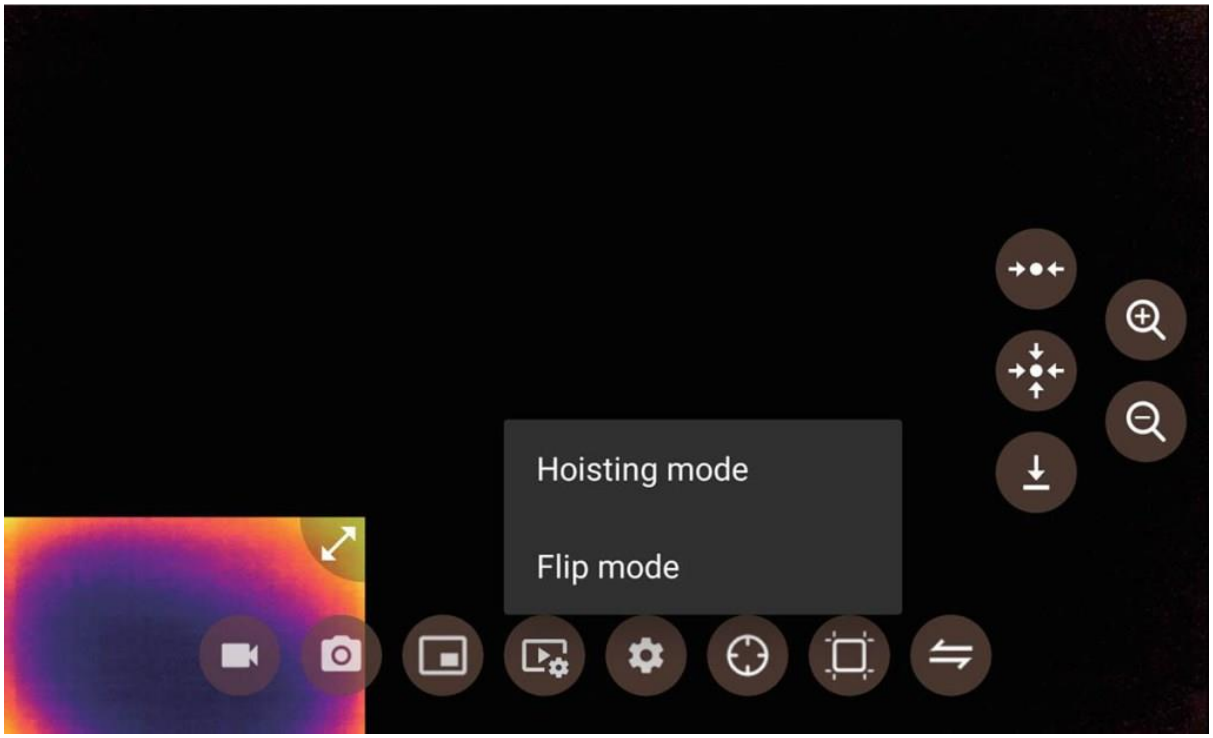
The schematic diagram of the screw hole position and spacing is as follows:



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.

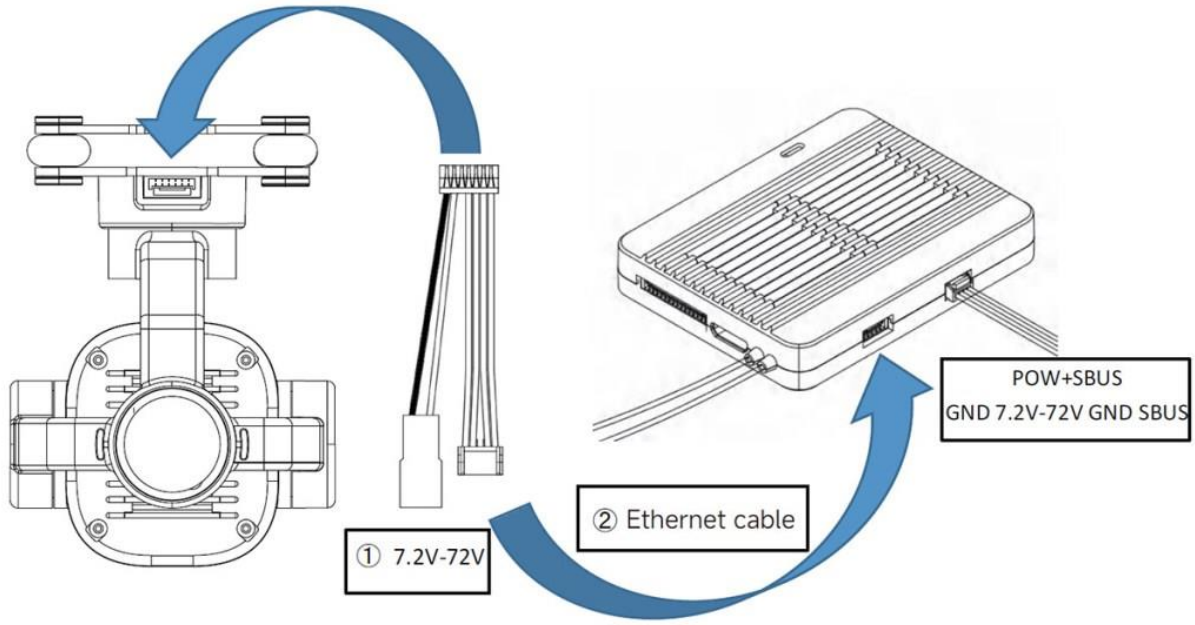
Gimbal working mode



The hoist mode or upside down mode can be set on the FPV App

Note: The default hoist mode is set before shipping, please do not invert and power on; Please place the gimbal correctly according to the working mode. Incorrect placement may cause damage to the gimbal motor.

Gimbal cable connection diagram and explanation



①Power supply	Red JST-2P male port,Power supply: 7.2V-72V (DC power supply or lithium battery)	
②Ethernet cable (signal transmission)	Network IP signal	RX-: Network IP signal RX+: Network IP signal TX-: Network IP signal TX+: Network IP signal
Video transmission	Visible light video output RTSP stream rtsp://192.168.144.108:554/stream=1	
	Thermal imaging video output RTSP stream rtsp://192.168.144.108:555/stream=2	

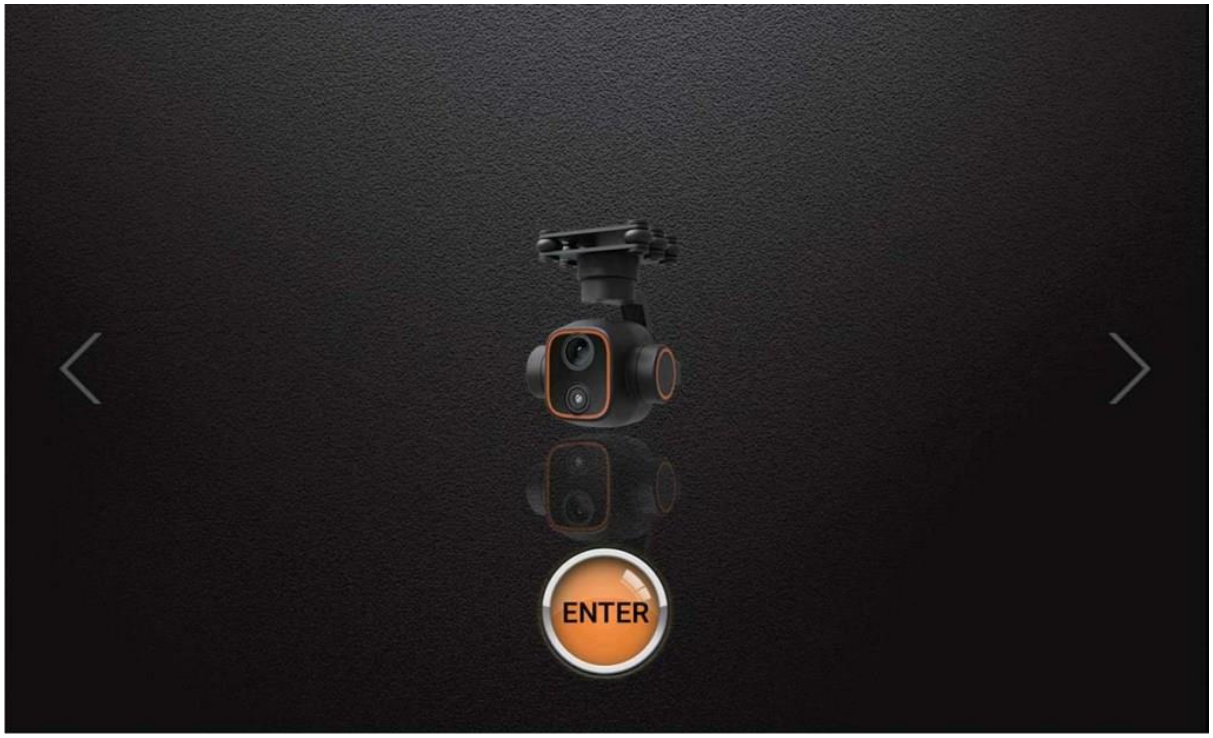
Use of C12

Install the latest version of gimbal FPV software on the remote control and open it.
Software download address: http://file.skydroid.xin/SkydroidCameraFPV.apk

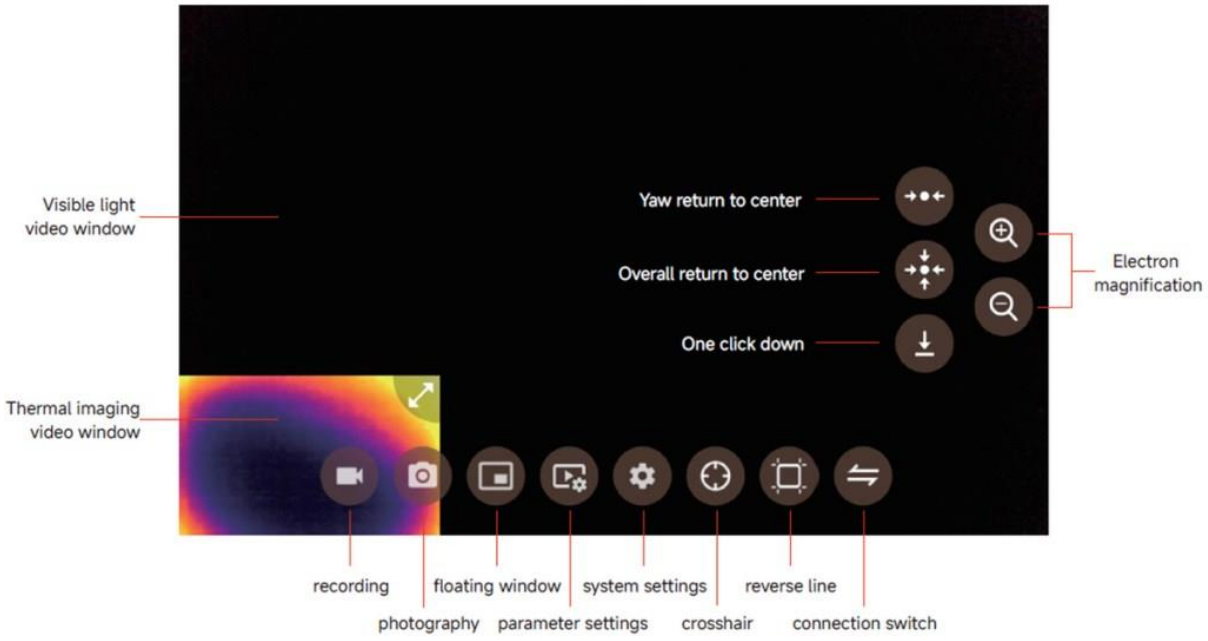
① Power on it

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

② Open the gimbal FPV, select the C12 connection, and click to enter.



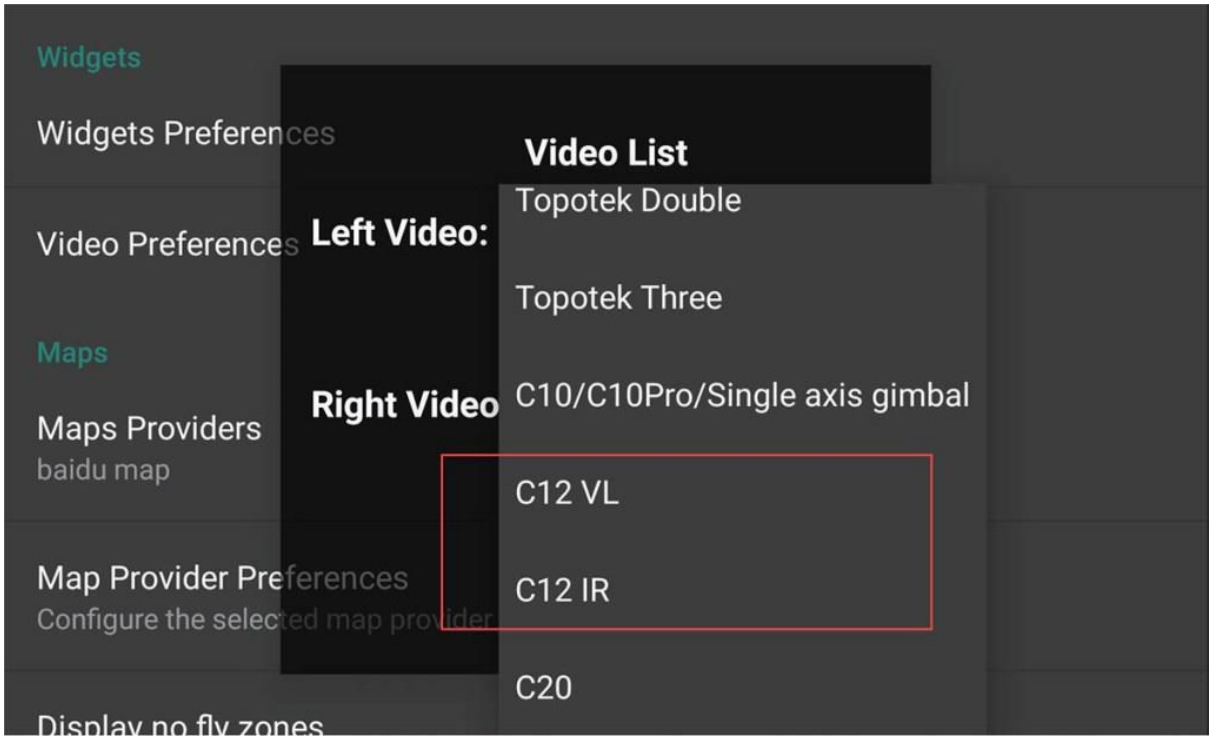
③ Introduction to the homepage of gimbal FPV



④FLY GCS settings

APP homepage top left corner →Common settings →Other settings →User interface →Video window →C12

Note: C12 is a dual beam gimbal that requires both video windows to be set



Parameter settings for C12

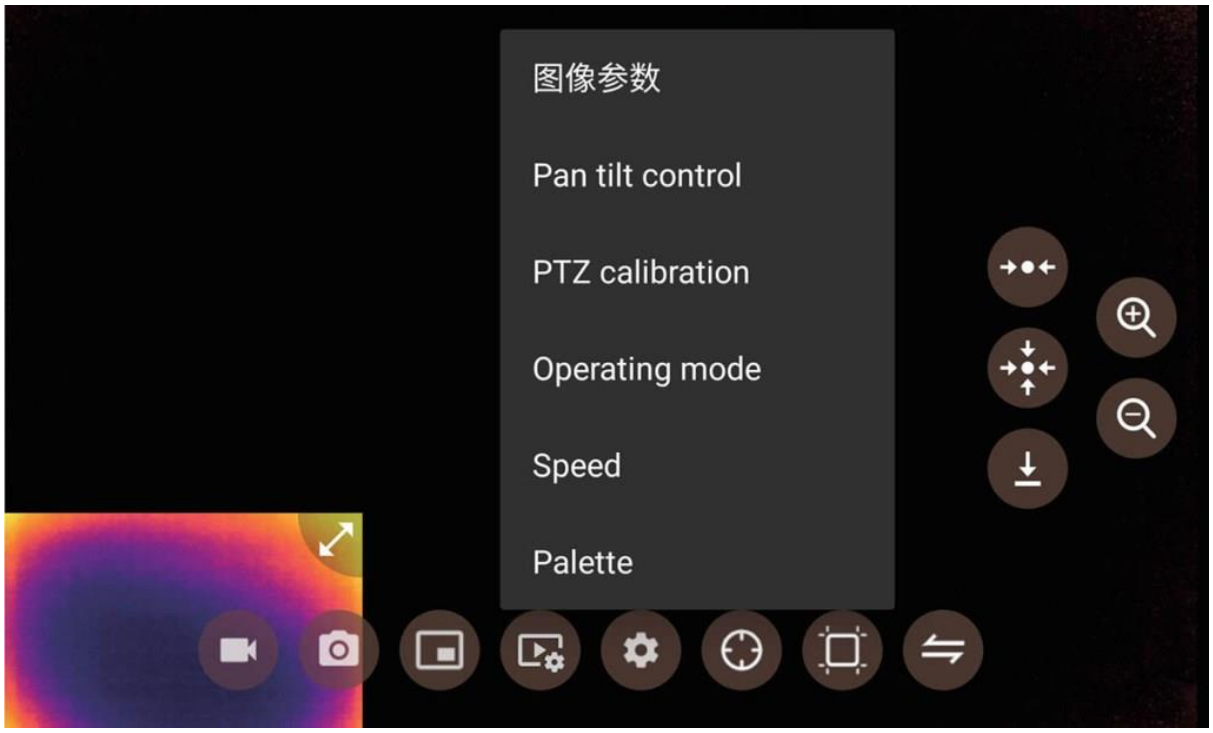
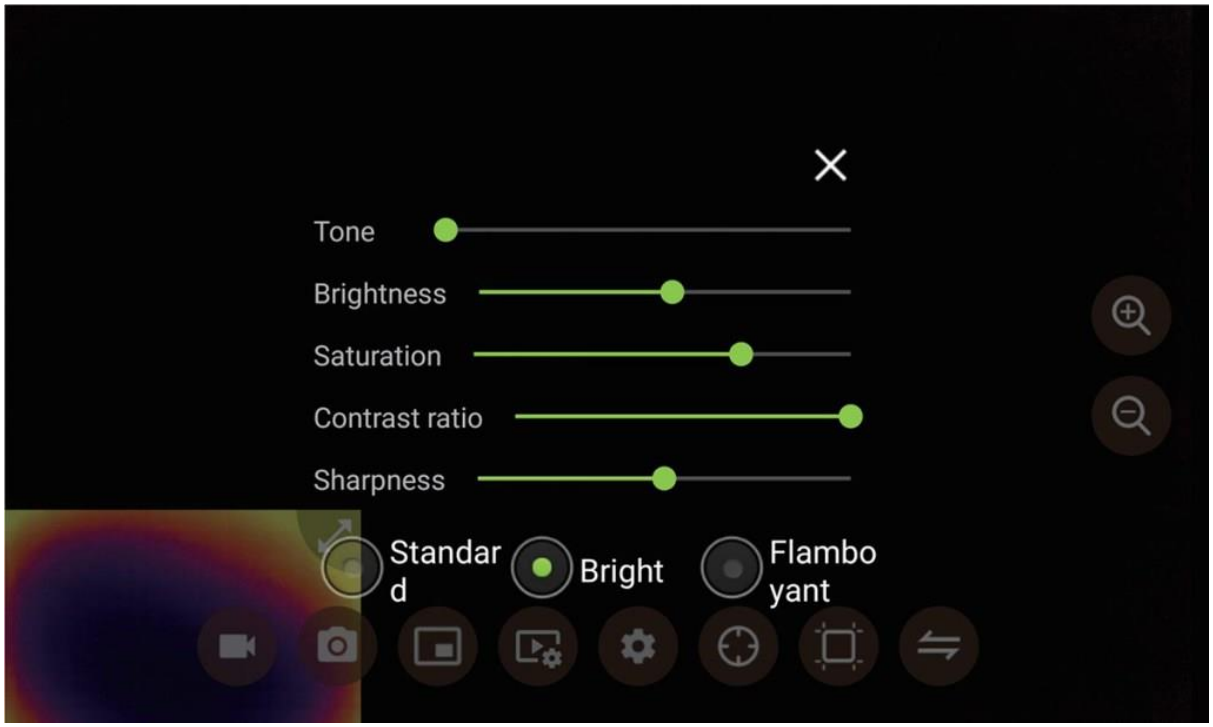


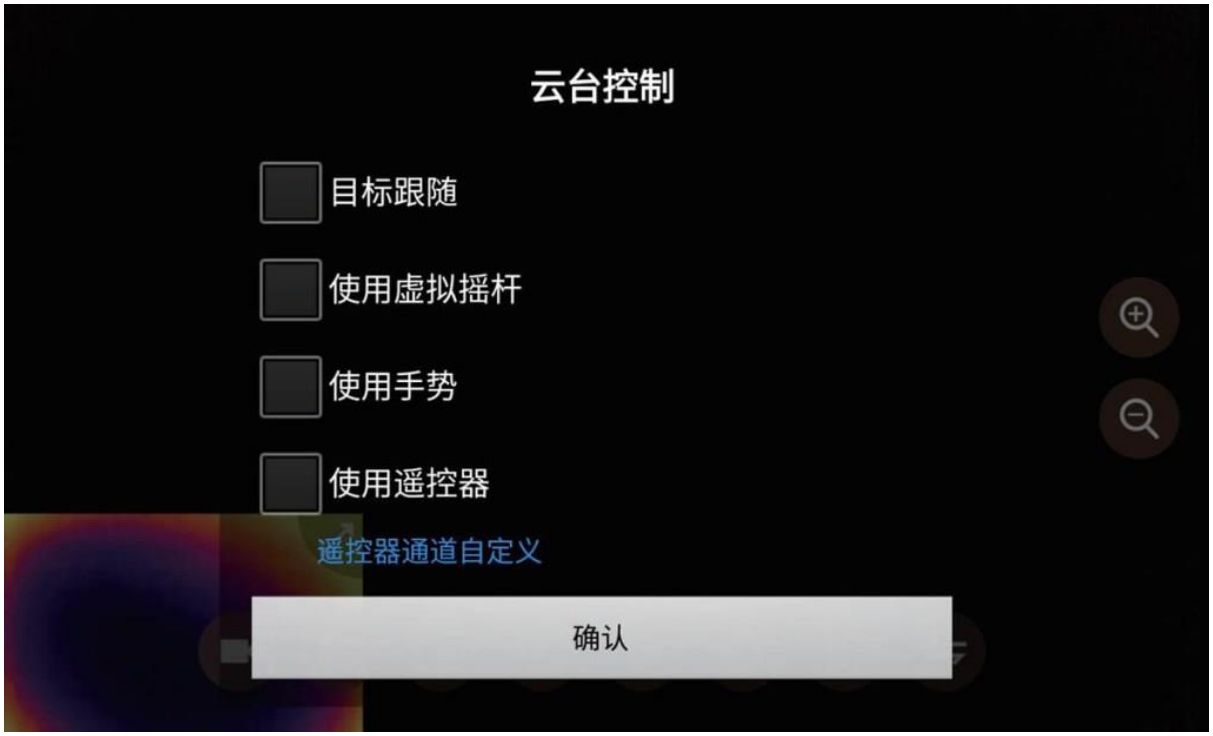
Image parameters



You can set some relevant camera parameters

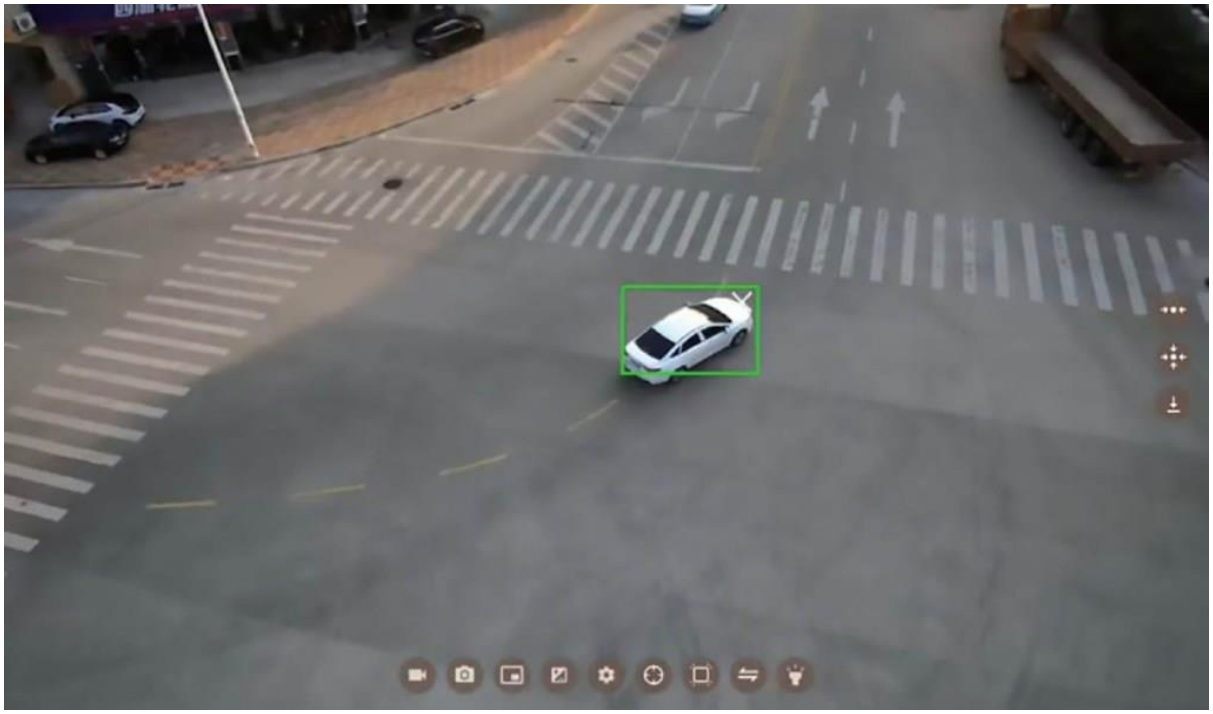
Gimbal control.

Click on parameter settings →gimbal control, there are target tracking and other three control ways to choose, which can be chosen simultaneously. （Target tracking can be used simultaneously with gesture control）.

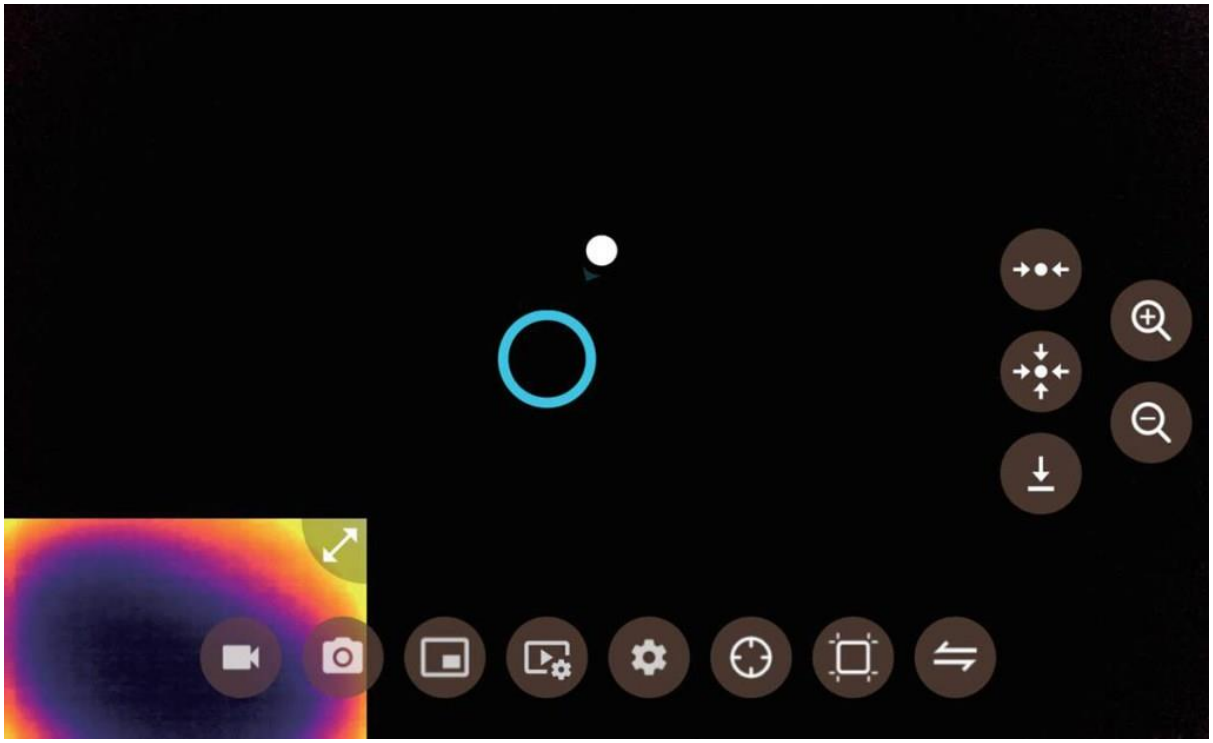


①C12‘s’ target tracking, after selecting this function, C12 will automatically track the target

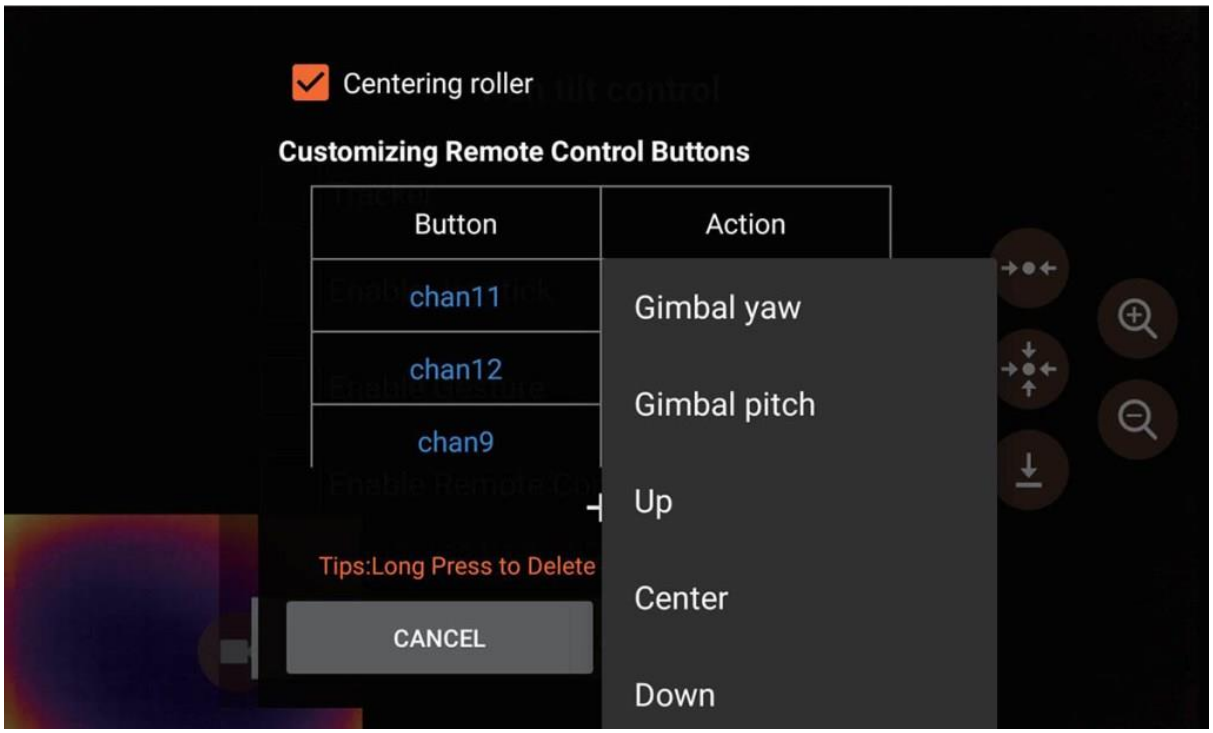
② Virtual joystick control, which can control C12 tilt through it, and supports one click return to center function.



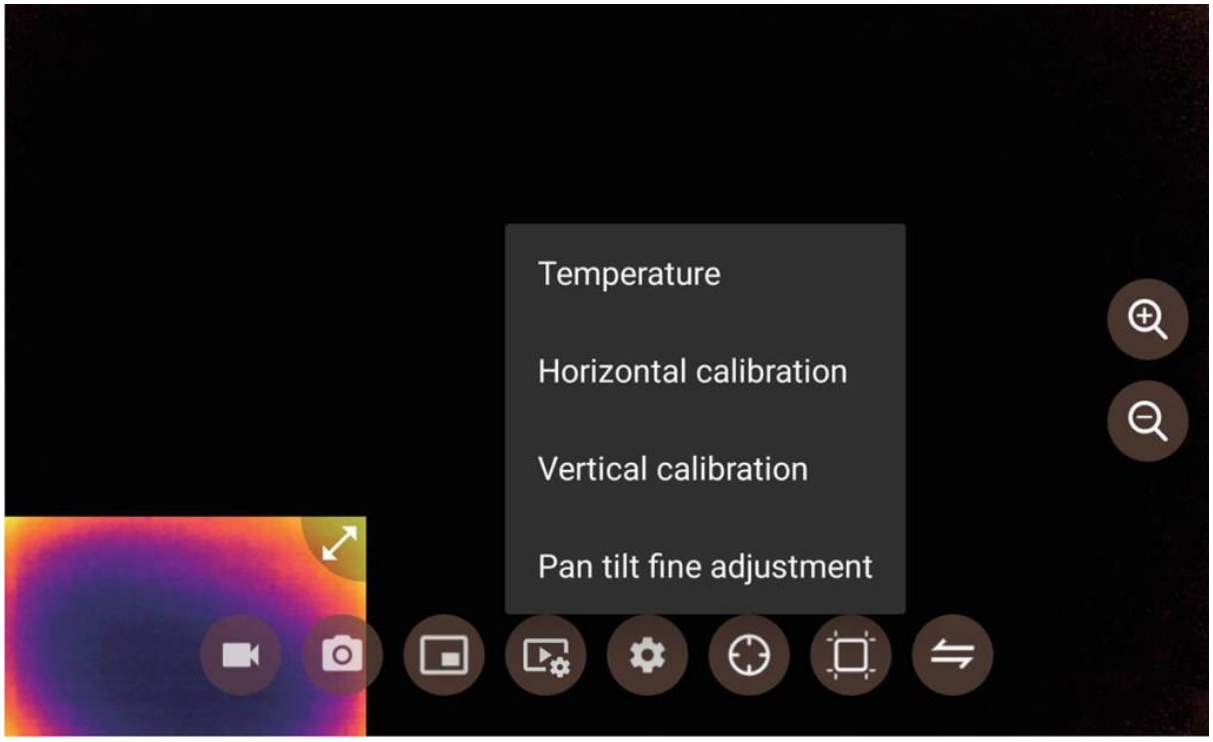
③ Gesture control, controlling C12 tilt by sliding the screen.



④ Use remote control channel to control it, using custom remote control channels to control C12, as well as functions such as photography and video recording. (The remote control channel can be viewed and queried through the Remote Control Assistant →Rudder View)



Gimbal calibration

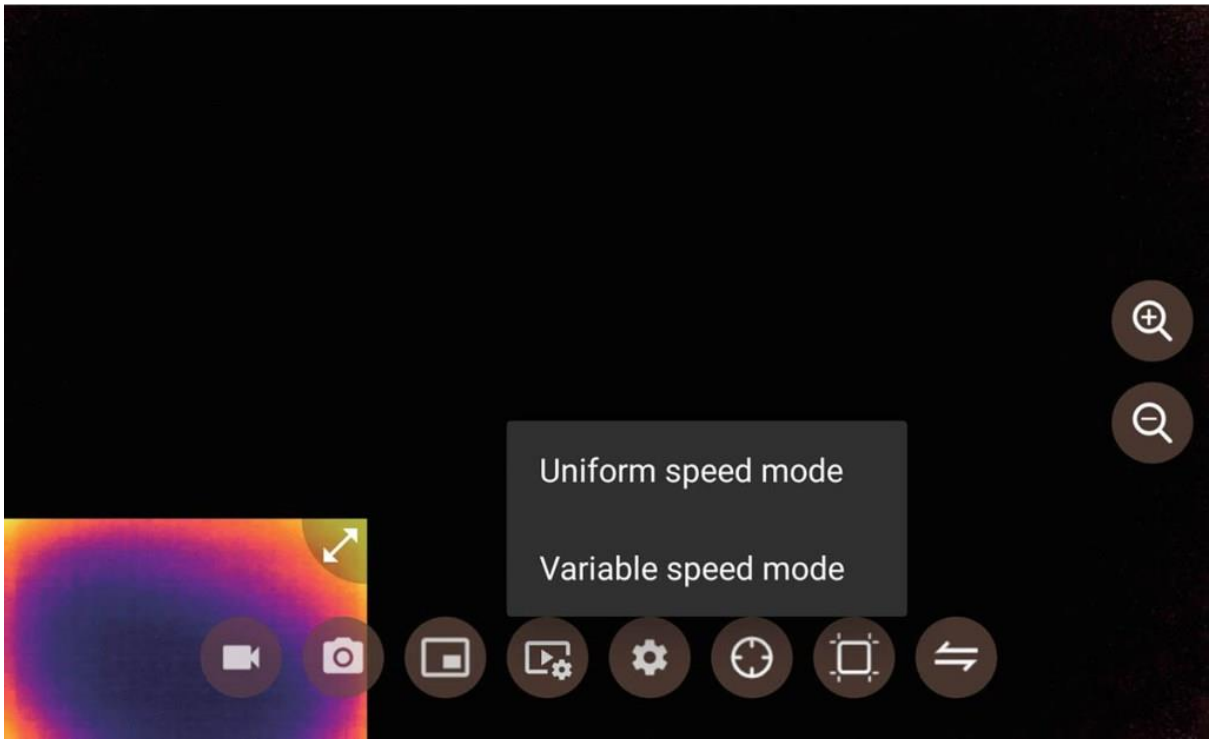


Temperature calibration: Calibrate the temperature of the C20 during use to avoid the inability of C20 due to significant differences between the ambient temperature and the operating temperature of the IMU. Horizontal calibration: Please place the gimbal on a horizontal plane and ensure that it is in 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.

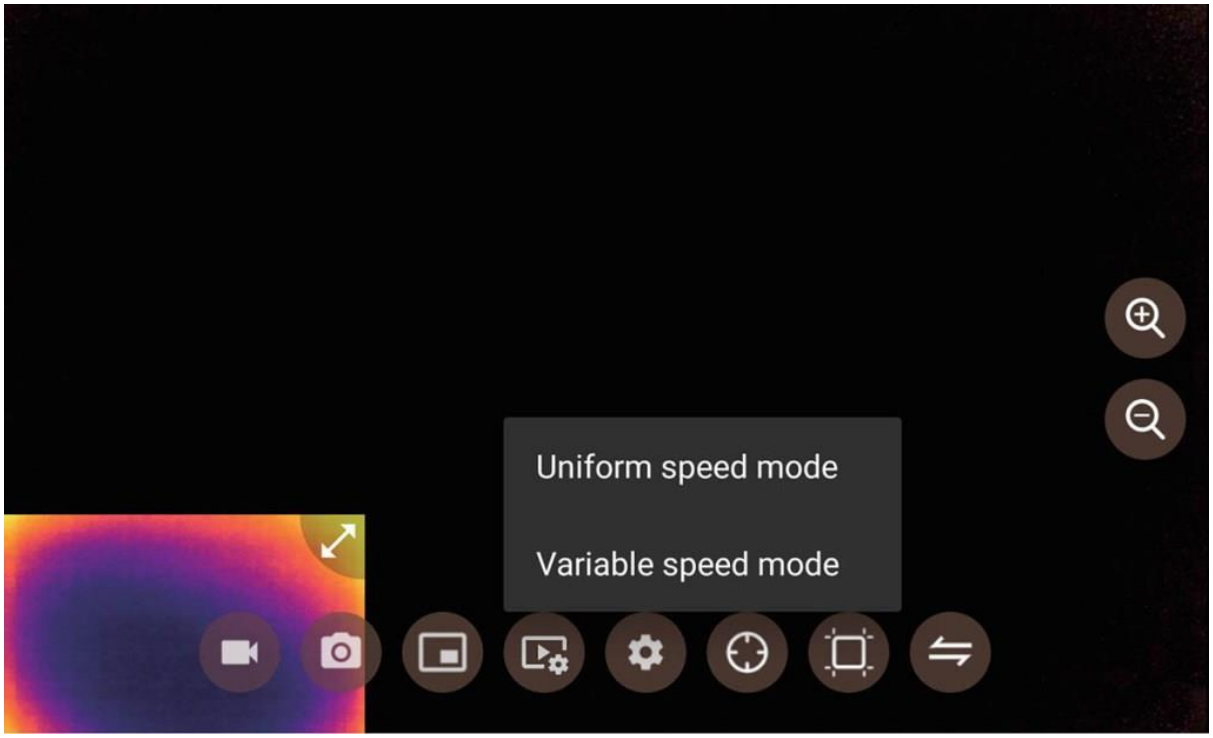
Gimbal working mode



Can set the C12 Pro in hoist mode or upside down mode

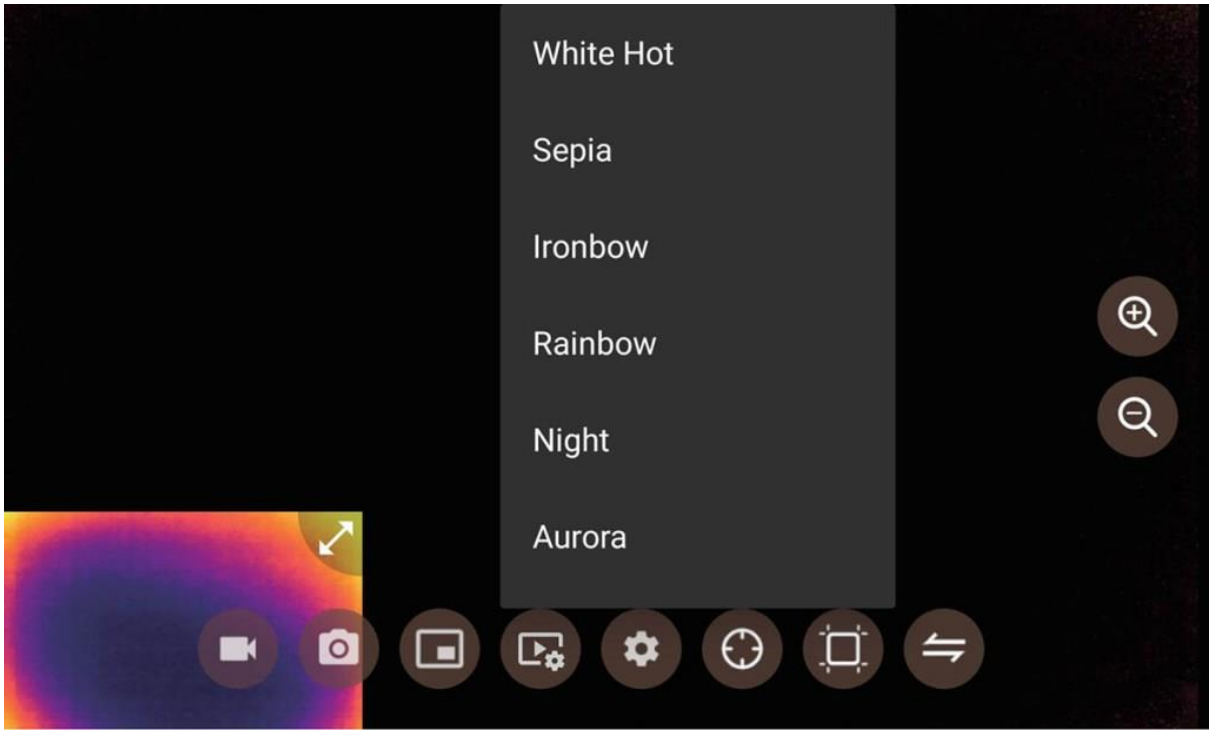
Note:Please place the gimbal correctly according to the working mode. Incorrect placement may cause damage to the gimbal motor.

Gimbal speed



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

Color palette



There are eleven optional imaging effects for adjustable thermal imaging cameras.

Setting Encoding Mode

You can set the screen to flip, view the camera firmware version, and display OSD.

Firmware Upgrade

Upgradeable the C12 firmware and camera firmware. Please do not power off or exit the upgrade interface during the upgrade process. (When upgrading camera firmware, C12 shall with a TF card inserted)

C12 size, angle annotation

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.

Precautions

To prevent you and others from harm or damage or protect your device, please read all the following information
before using your device.

1. Do not put the components directly at high-intensity radiation sources such as the sun;
2. The ideal operating environment temperature is -40 ℃~80 ℃;
3. Do not touch the device and cables with wet hands;
4. Do not bend or damage the connecting cables;
5. Do not use diluents to scrub your equipment;
6. Do not plug or unplug cables without disconnecting the power supply;
7. Do not connect the attached cables incorrectly to avoid damaging the equipment;
8. Please pay attention to preventing static electricity;
9. Please do not disassemble the equipment. If there is a malfunction, please contact our company for professional repair.