

C14PRO User Manual



Small HD three-axis four-light Stabilized gimbal

V1.1

After sales service terms

1. This clause is only applicable to the products produced by skydroid, and the products sold by Sky-droid authorized dealers are also applicable to this clause.
 2. As of the date of purchase, if the product of our skydroid 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 Sky-droid 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 document is related to your safety, legitimate rights, interests, and responsibilities. Before using this product, please read this document carefully to ensure that the product has been correctly set up. Failure to comply with and operate according to the instructions and warnings in this document may cause harm to you and people around you, and may damage this product or other surrounding items. skydroid Technology reserves the final right to interpret this document and all related documents. Updates will be made without prior notice. Please visit the official website at <https://skydroidglobal.com> for the latest product information.

The C14PRO gimbal has been debugged according to the camera and lens it is equipped with before leaving the factory. Do not adjust the gimbal or change its mechanical structure on your own, and do not add other external devices to the gimbal. The gimbal has a precise structure. Do not disassemble or assemble the C14PRO by yourself, otherwise it may cause abnormal operation of the gimbal camera.

For the safety of you and others, please ensure that the aircraft is in a safe state during the gimbal debugging. Do not power on and debug in an environment with flammable, explosive substances or in the presence of children. It is highly recommended that you remove the aircraft's propellers before debugging.

A) Ambient temperature: -10°C to +60°C B) Storage temperature: -25°C to +60°C C) Atmospheric pressure: 86 kPa to 106 kPa

D) The use location should not have explosive media. The surrounding media should not contain gases that corrode metals and damage insulation, nor conductive media. The presence of excessive water vapor and severe mold is not allowed.

E) The use location should be equipped with facilities to protect against rain, snow, wind, sand, and dust.

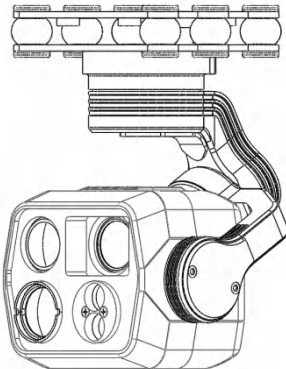
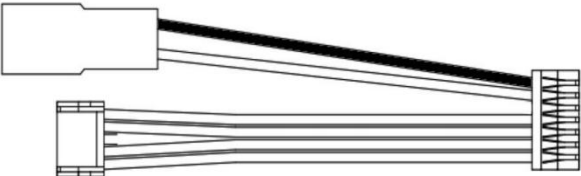
Since our skydroid has no control over specific user usage, installation, modification, and misuse, etc., our skydroid will not assume liability for any direct or indirect losses or damages caused thereby. If users install, assemble or use skydroid

Technology products, they shall bear the corresponding consequences. Our skydroid will not be held responsible for any direct or indirect losses or damages caused by the use of this product.

I、 Product Introduction

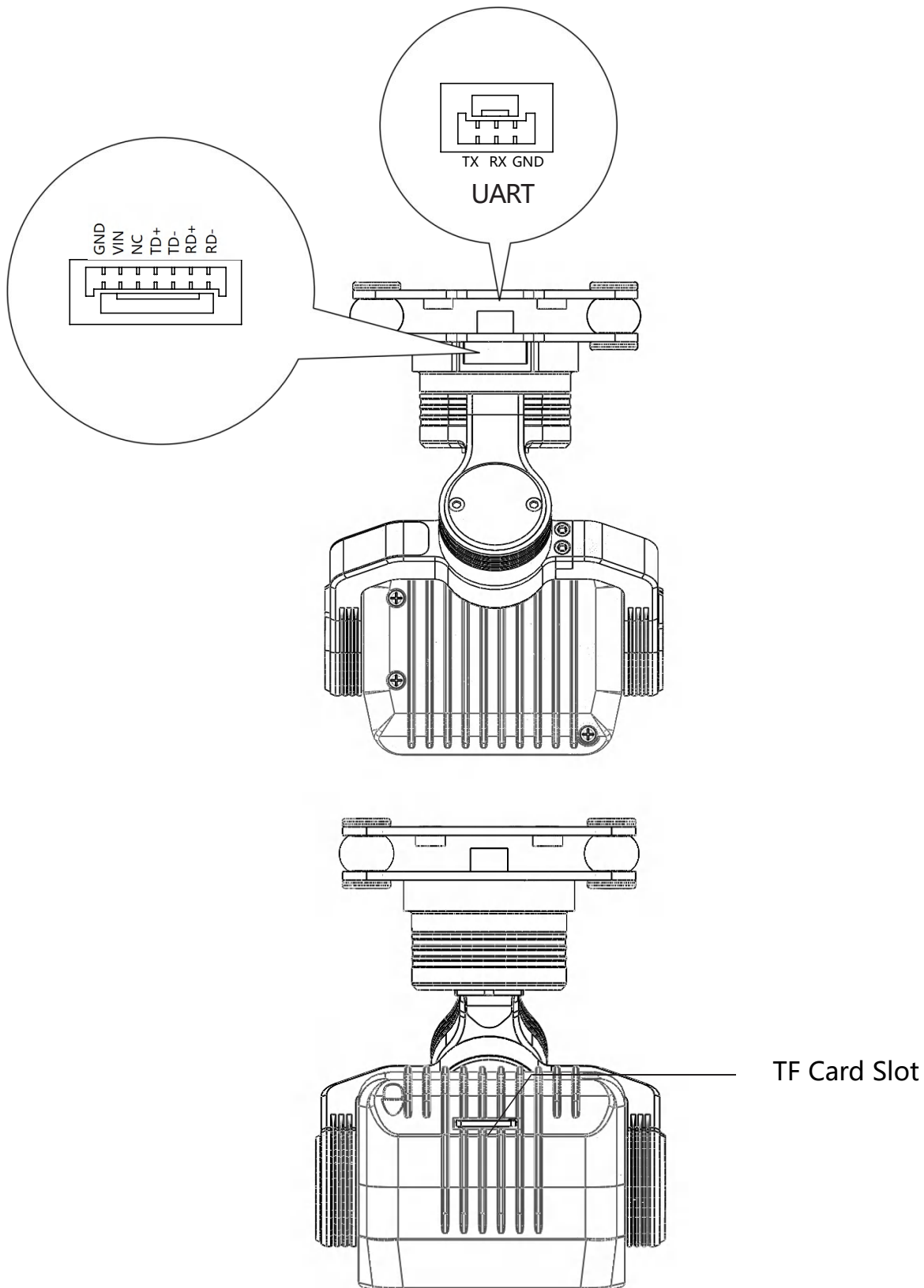
The C14PRO is a compact HD four-light mechanically stabilized gimbal. It utilizes a new generation imaging chip and it integrates distortion-free HD short-focus and long-focus cameras with an effective pixel count of 48 million, it boasts robust 4K video recording and 8K photo-taking capabilities, supporting 100x hybrid electronic zoom , which brings distant scenery into sharp focus. Equipped with a thermal imaging camera with a resolution of 640×512, it offers a wide field of view and clear images, enabling long - distance observation of various heat sources. In combination with the laser ranging module, the effective ranging distance can reach up to 1.2 kilometer. The industrial - grade three - axis stabilization structure is adopted, which significantly reduces frame jitter, keeping the image in a stable state at all times. It can be applied in fields such as fire rescue, animal protection, and security monitoring.

II、Product List

C14PRO Main Body×1	
Gimbal fixing screws (M2.5*6) ×4	
Ethernet port power cable ×1	
Memory Card × 1 (Already installed)	
Card reader×1	

III、Product Overview

Interface and Definition Instructions



IV、Product Parameters

C14PRO Paramater	
Video output signal interface	Ethernet Port
Control signal input interface	Ethernet Port
Operating Voltage	15V~80V
Operating Current	15V 376mA
Operating Temperature	-10°C~+50°C
Storage Temperature	-20°C~+50°C
Weight	210g
Dimensions	65.5mm (Length) × 68.57mm (Width) × 92mm (Height)
Controllable angle range	-110° to +75° (Pitch axis); -165° to +165° (Yaw axis); -40° to +40° (Roll axis)
Stabilization Method	3-axis Mechanical Stabilization
Angular Jitter	Hovering: ±0.01° Flying: ±0.02°
Video Output	RTSP
Control Method	UDP
Ceiling-mounted/Inverted-mounted mode	supported
Global centering/One-key downward/Yaw centering	supported

C14PRO Visible Light Camera Parameters			
Lens pixel	48 million	Video resolution for card recording	3840*2160
CMOS size	1/2.0	Video storage format	MP4
Zoom Ratio	100x Hybrid Electronic Zoom	Photograph resolution	8000*6000
Video transmission resolution	1280*720	Photograph storage format	JPG
Supported Memory Card Type	MicroSD Card (Max. 128GB)	Supported file systems	FAT32/exfat

C14PRO short-focus lens parameters			
Aperture	$F=2.6\pm5\%$	Focal Length	$5.4\text{mm}\pm5\%$
HFOV/VFOV/DFOV	$61.4^\circ/47.9^\circ/73.8^\circ$		

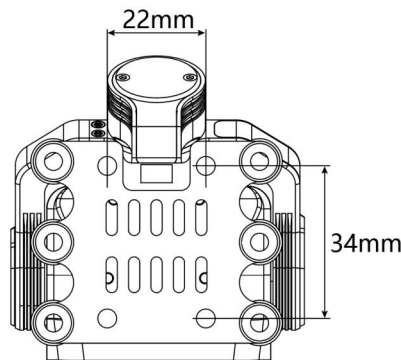
C14PRO long-focus lens parameters			
Aperture	$F=2.4\pm10\%$	Focal Length	$25\text{mm}\pm5\%$
HFOV/VFOV/DFOV	$14.7^\circ/11^\circ/18.3^\circ$		

C14PRO Thermal Imaging Camera			
Resolution	640*512	Aperture	F=1.0
Focal length	11mm	Pixel pitch	10μm
Frame rate	30Hz	Response band	8~14μm
Thermal time constant	< 12ms	Field of view angle	32.84°x26.35°
Detection range	1.1km		

C14PRO Laser Ranging Parameters			
Wavelength	905nm±5nm	Detection range	0.1M~1200M
Ranging capability	0.1m to 1200m, max 1500m (night mode) Measurement range may be affected under strong sunlight or low visibility conditions	Ranging Accuracy	±0.5m (≤100m) ±0.5m+d*0.7‰ (100m<d<1200m)
Receiving Aperture	Φ6.5mm	Measurement Frequency	1.5~10Hz
False Alarm Rate	≤1%	Accuracy rate	≥98%

V、Installation and Debugging

5.1 The schematic diagram of screw holes and their spacing is as follows:

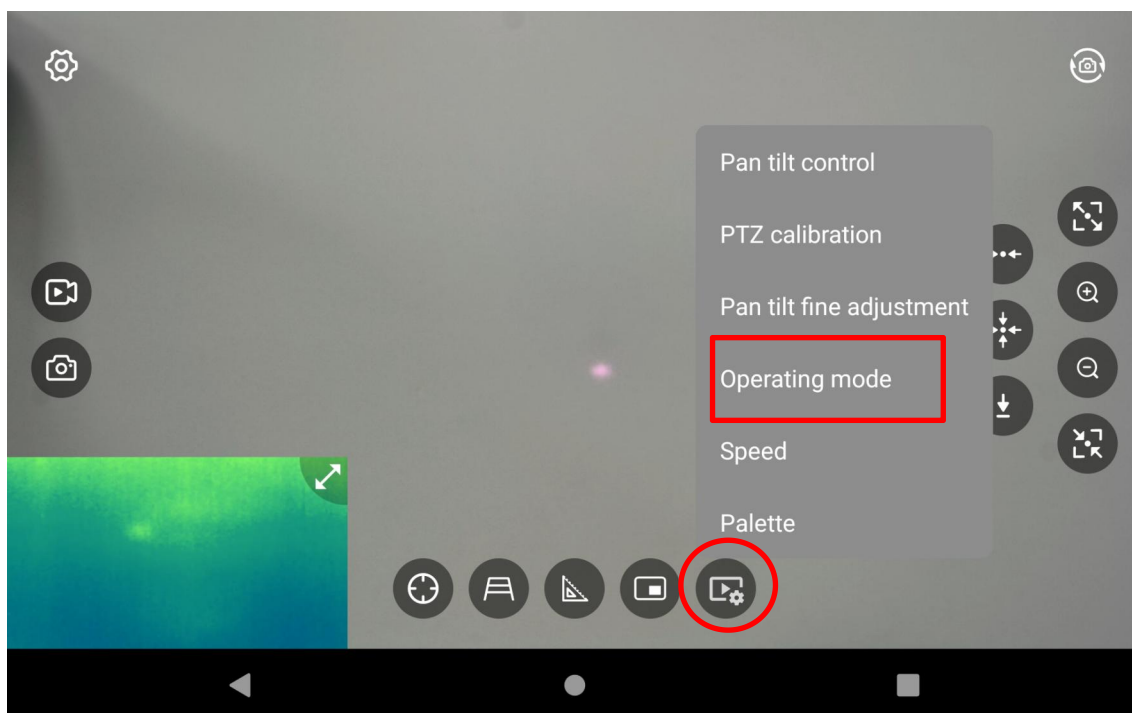


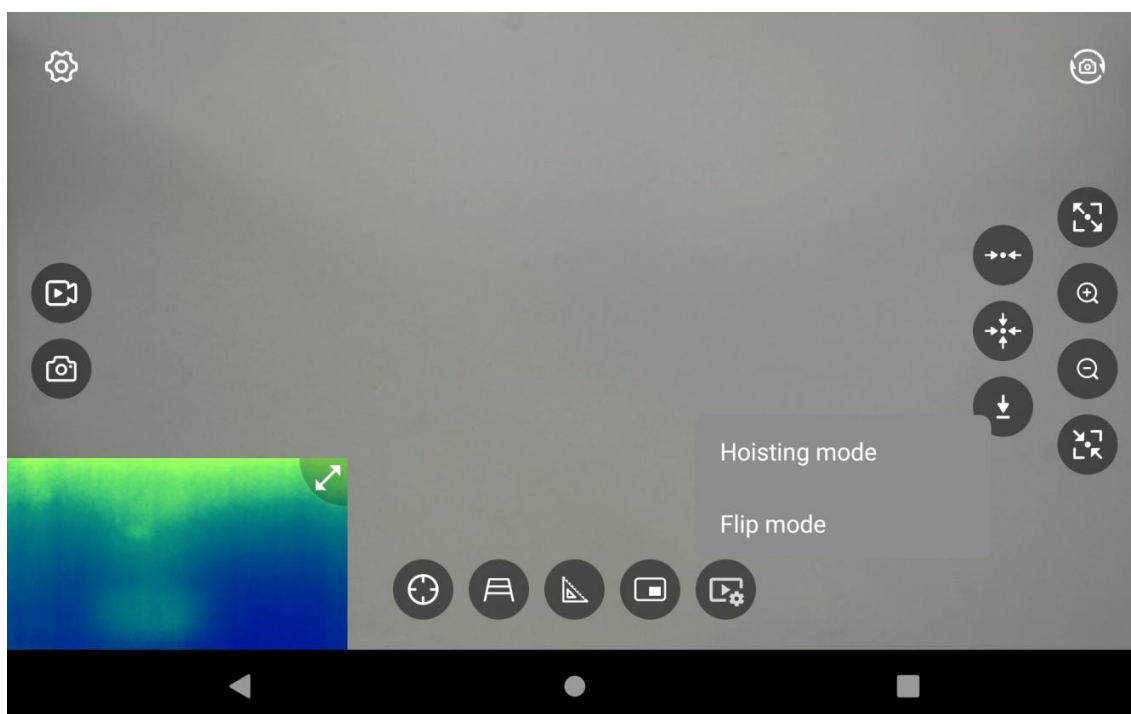
Note: The screw specifications for the pan - tilt are M2.5*6, and the quantity is 4.

Do not hang the gimbal on the aircraft when it is not in use. Long - term hanging will accelerate the deformation of the shock - absorbing balls, resulting in a decline in shock - absorbing performance and the appearance of the "jello" effect.

When installing the gimbal, the shock - absorbing plates must be kept absolutely perpendicular and parallel to each other. Incorrect installation will cause the shock - absorbing balls to deform, leading to a decrease in shock - absorbing performance and failure of self - inspection.

5.2 Gimbal Working Modes

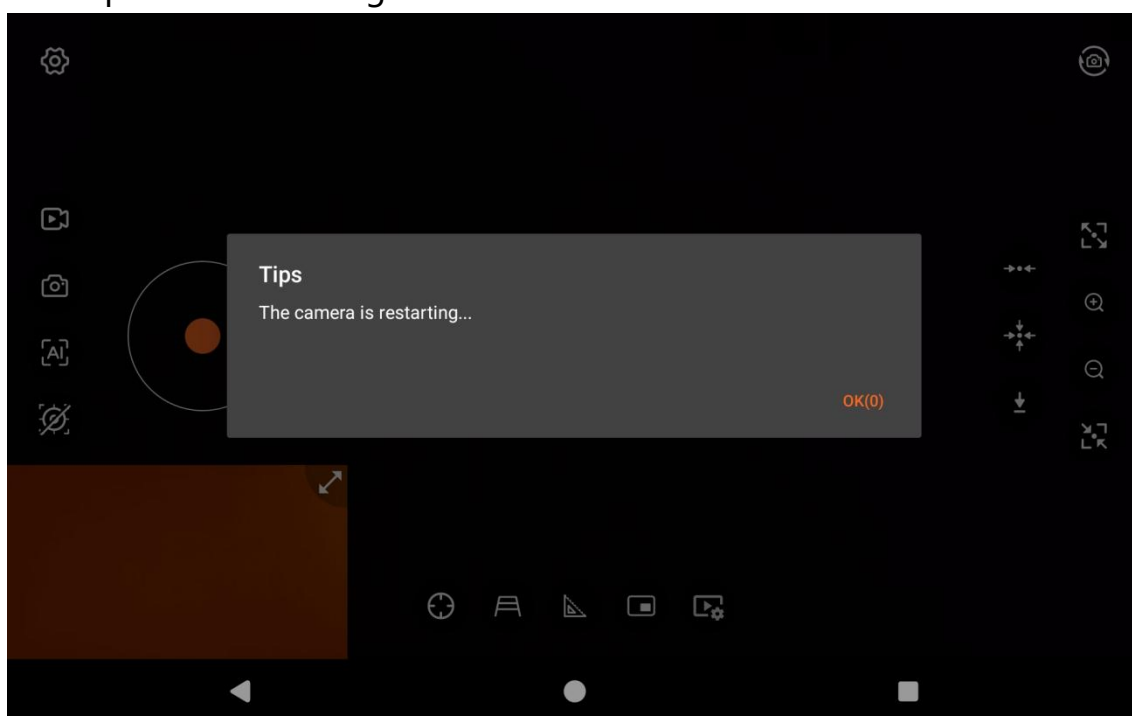




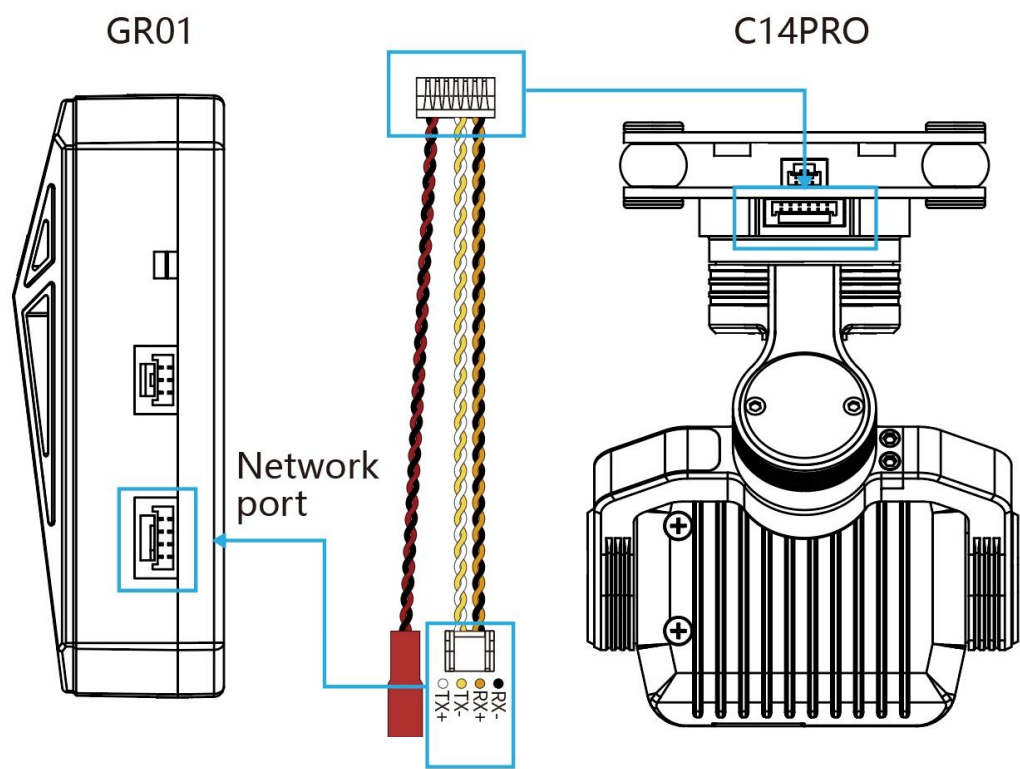
You can set the gimbal to the hoisting mode or the flip mode in the FPV settings.

Attention: The gimbal is set to hanging mode by default out of factory. DO NOT power on it when mounted upside down.

After configuring the working mode, the gimbal will restart automatically and the video image will flip accordingly. You must remount the gimbal in the orientation matching the selected mode. Improper installation will cause gimbal motor self-test failure and permanent damage.



5.3 Gimbal Wiring Diagram and Explanation



power	Red JST - 2P male connector. Power supply: 15V - 80V (DC power supply or lithium - battery)	
Ethernet cable (for 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	

5.4 Usage of C14PRO

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

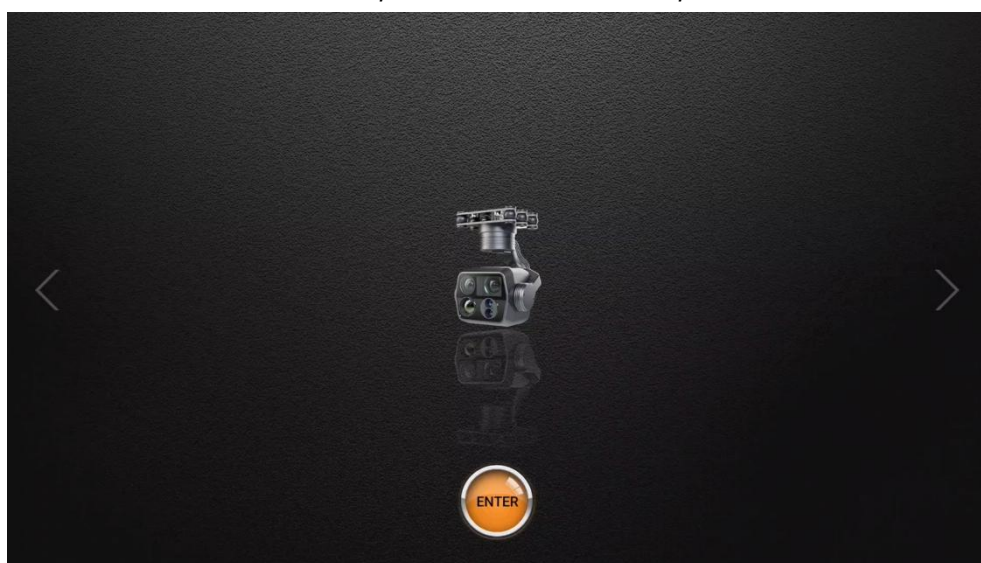
Software download address: <http://file.skydroid.xin/skydroidCameraFPV.apk>



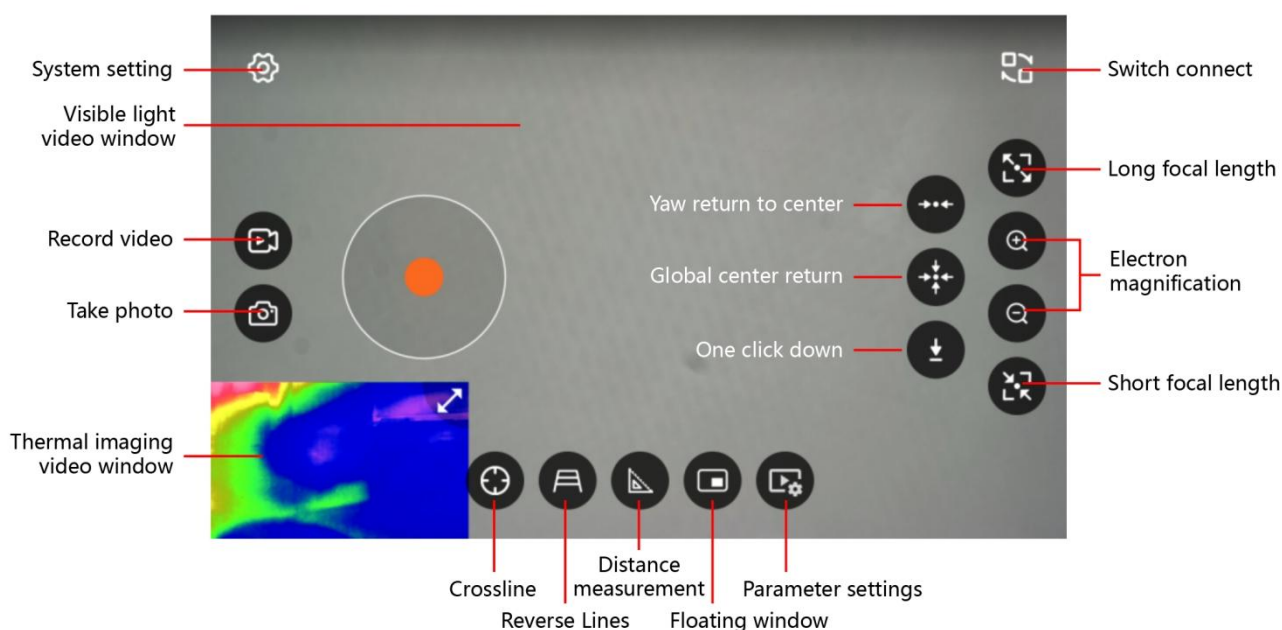
① Gimbal startup

After the gimbal is properly installed and fixed, power it on. The gimbal will start up. Please wait until the startup is complete.

② Open the Gimbal FPV software, select the C14PRO, and click to enter.



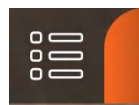
③ Introduction to the Home Page of the Gimbal FPV



④ FLY GCS Screen Settings

Skydroid FLY Download Link: <http://file.skydroid.xin/skydroidFly.apk>

On the top-left corner of the APP' s homepage



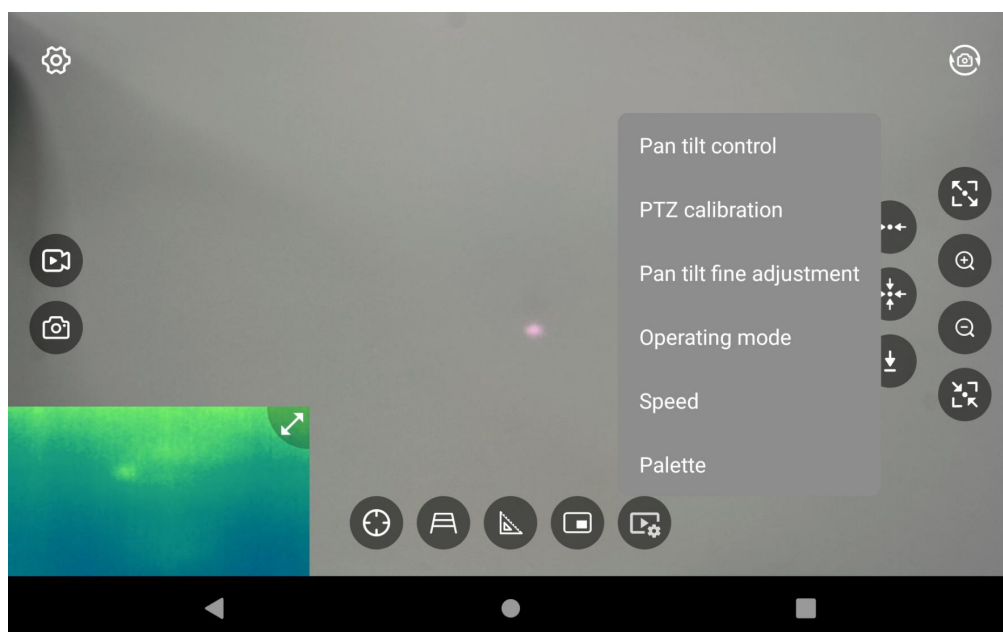
->



-> Tap to

open the left window and set it to C14/C14PRO.

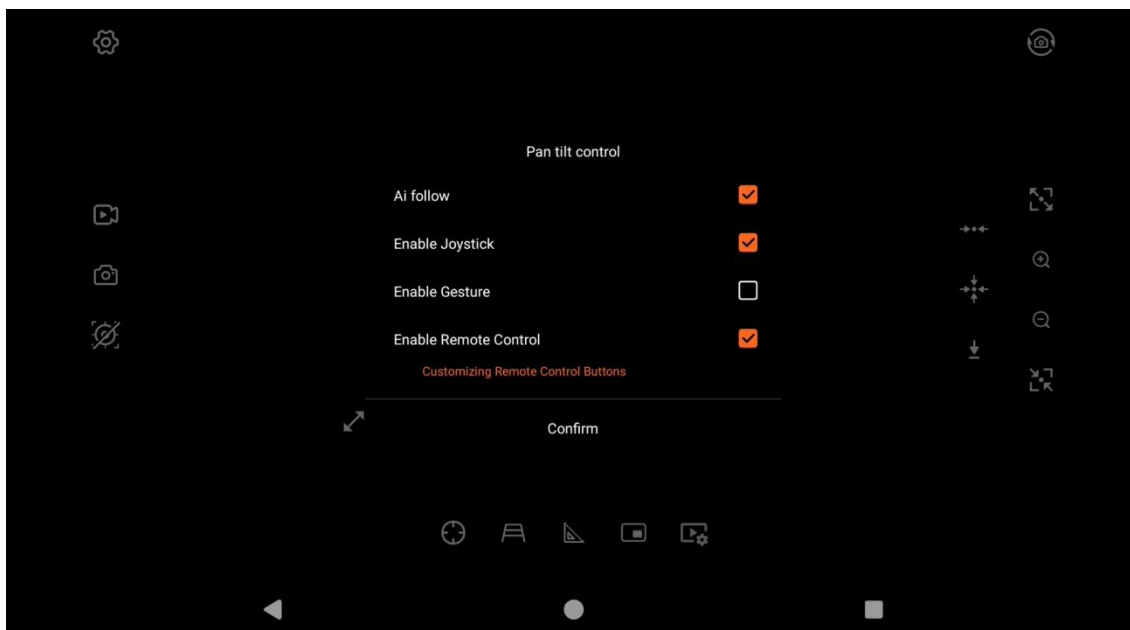
5.5 Gimbal Parameter Settings



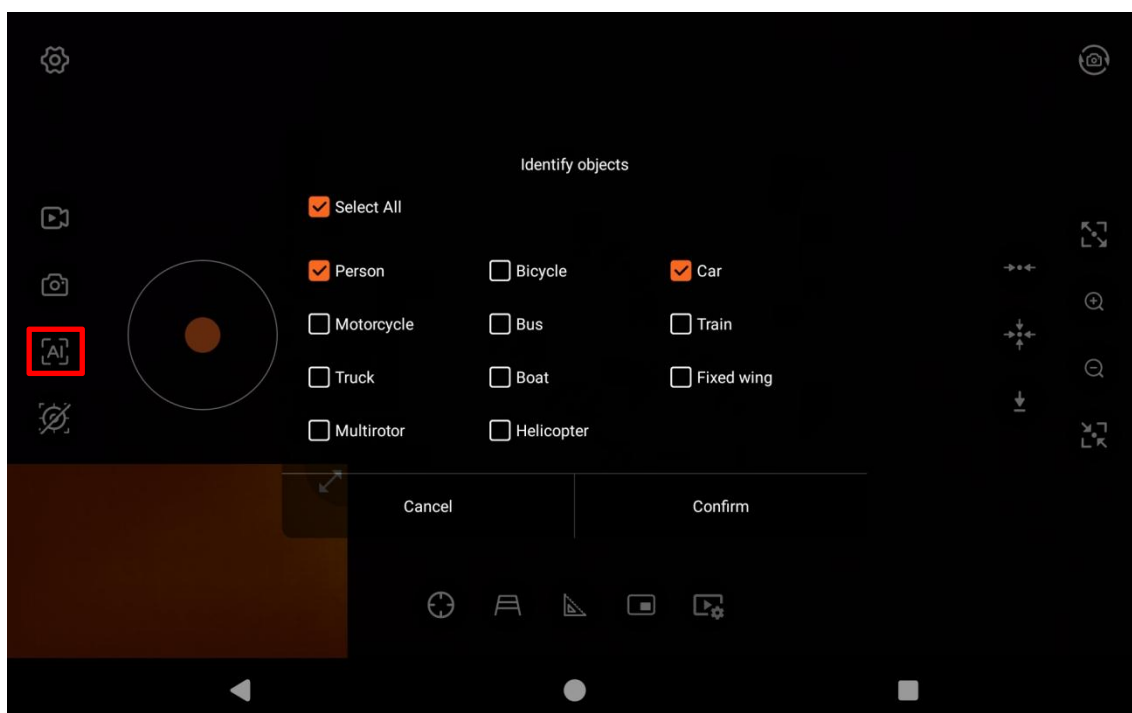
Gimbal control, calibration, fine-tuning, operating modes, speed, and color palette can be configured in the parameter setting

5.5.1 Gimbal Control

Click Parameter Settings -> Pan-tilt Control, there are target following and three control methods to choose from, and multiple methods can be selected simultaneously. (Target following cannot be used simultaneously with gesture control.)



① Gimbal AI Object Tracking, tap the AI icon to select single, multiple or all targets for automatic identification and tracking.



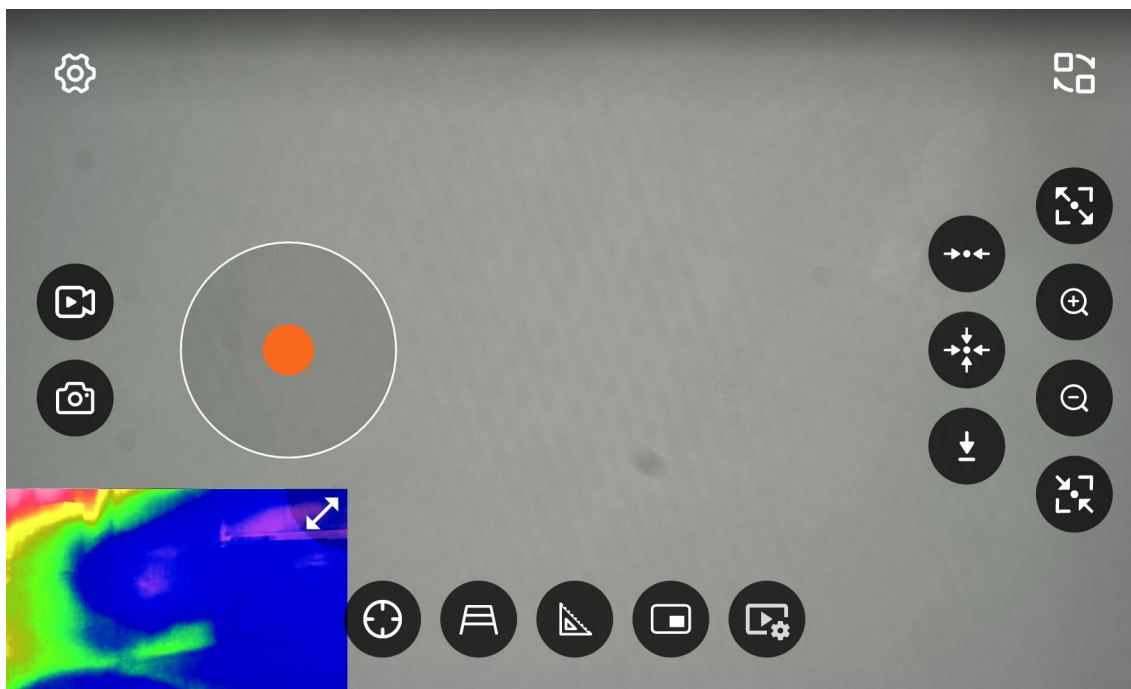
C14PRO will identify objects automatically (marked with green frames for detected targets).



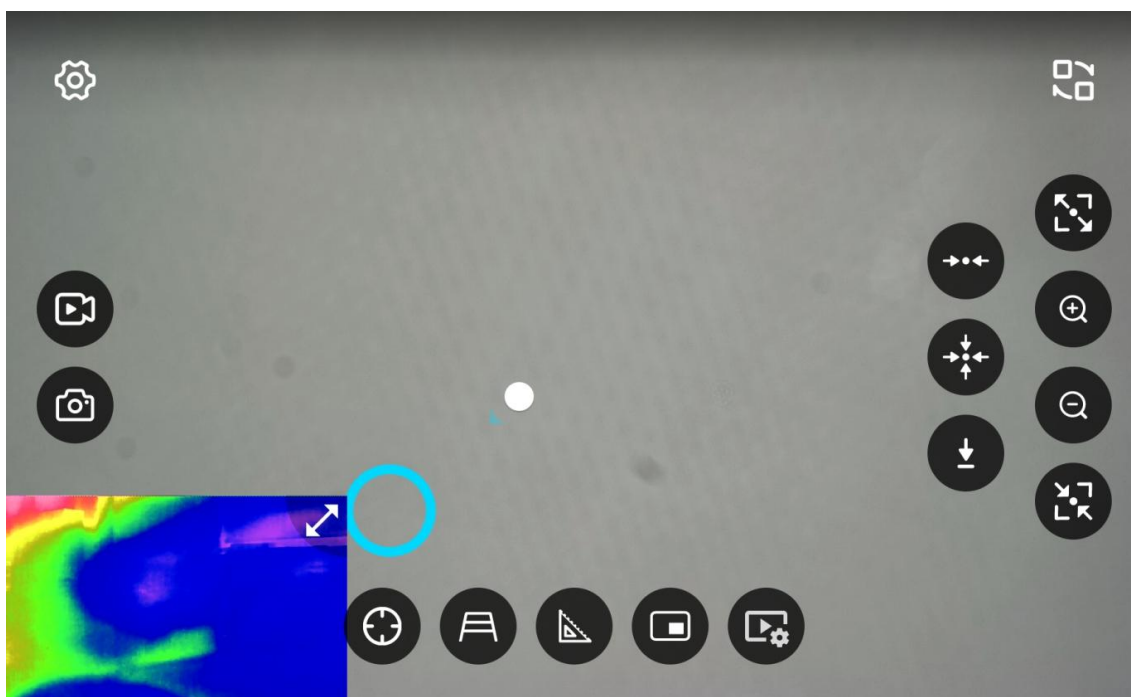
Tap the target inside the frame to lock it (the frame will turn white). The C14PRO will then track the target autonomously.



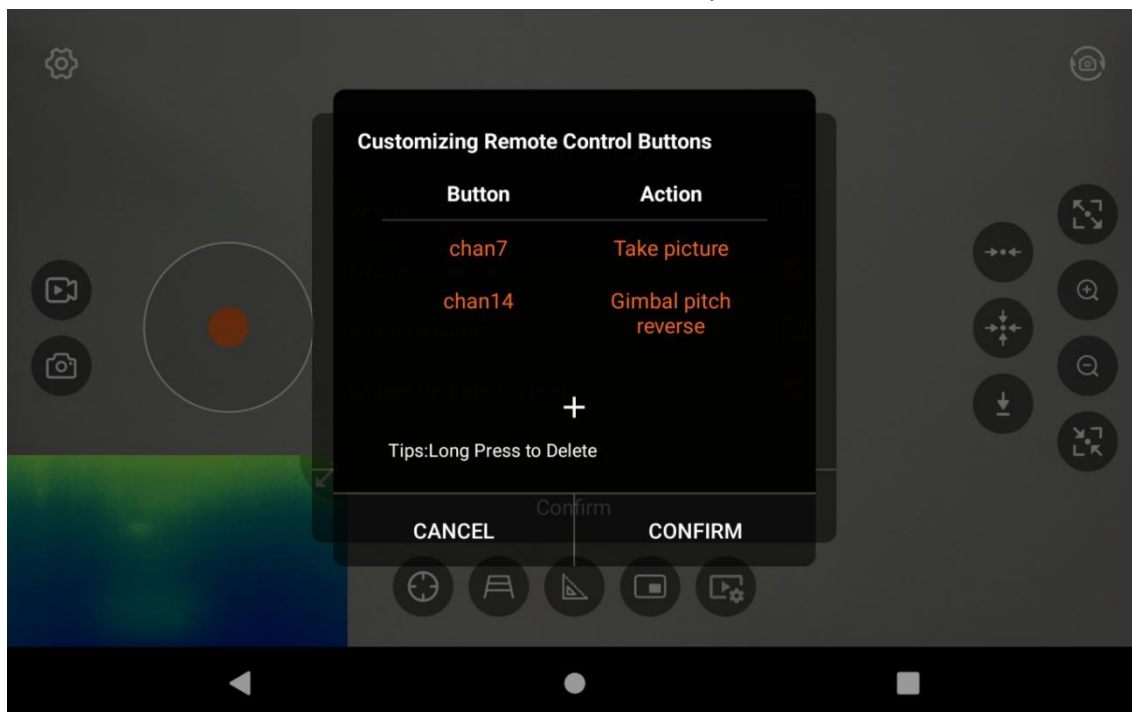
- ② Virtual joystick control: You can use the virtual joystick to control the pan and tilt of the gimbal. It also supports functions such as one - key return to the center.



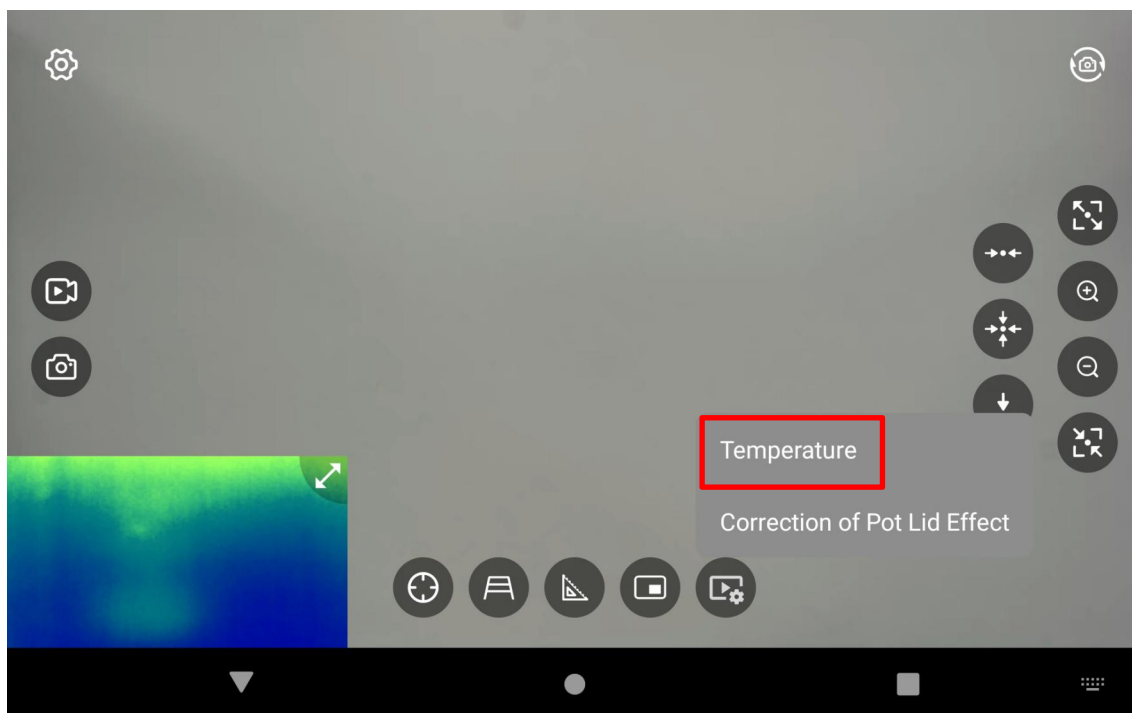
- ③ Gesture control: Control the pan and tilt of the gimbal by swiping the screen.



④ Remote control channel control: Control the pan and tilt of the gimbal, as well as functions like taking photos and recording videos through customizing the remote control channels. (The remote control channels can be checked through the Remote Control Assistant -> Rudder Volume View.)

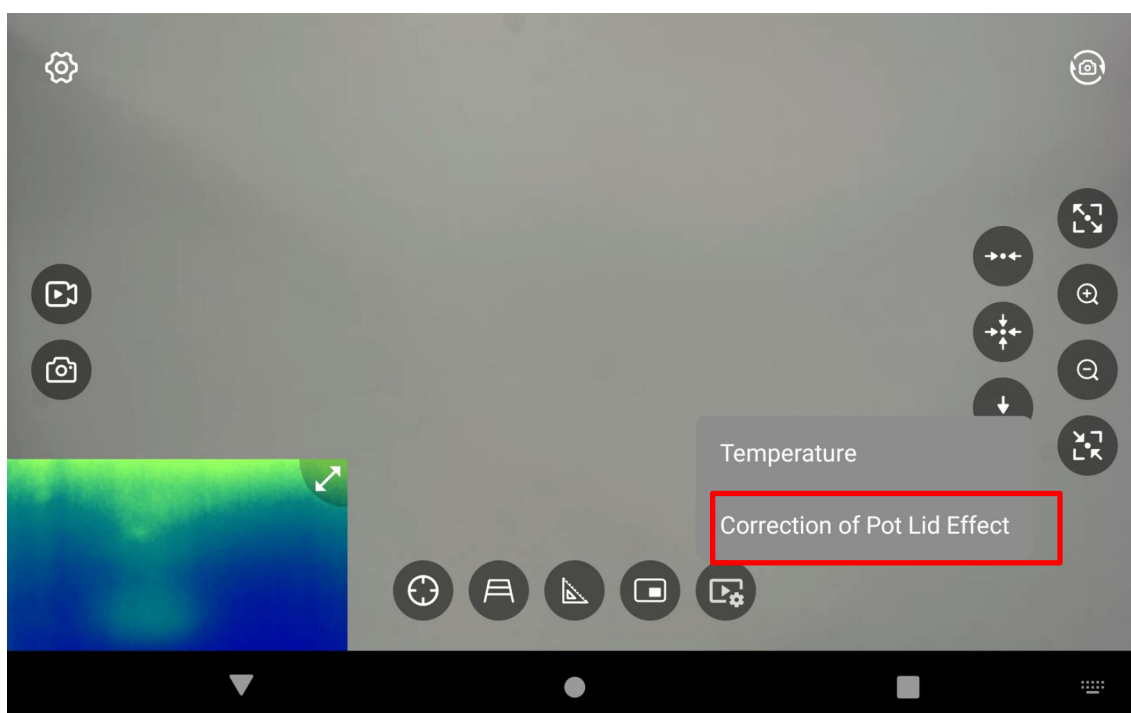


5.5.2 Gimbal Calibration



Temperature Calibration This function calibrates the operating temperature of the gimbal, preventing malfunctions caused by excessive temperature deviation between the ambient environment and the IMU. Temperature calibration is completed at the factory. Do not perform re-calibration unless necessary. Please contact Skydroid technical support to obtain the calibration password before any calibration.

5.5.3 Correction of Pot Lid Effect



Note : The pot lid effect has been calibrated at the factory. Due to the special calibration method, do not calibrate it yourself unless necessary. Before calibration, please contact the relevant technicians from skydroid for confirmation.

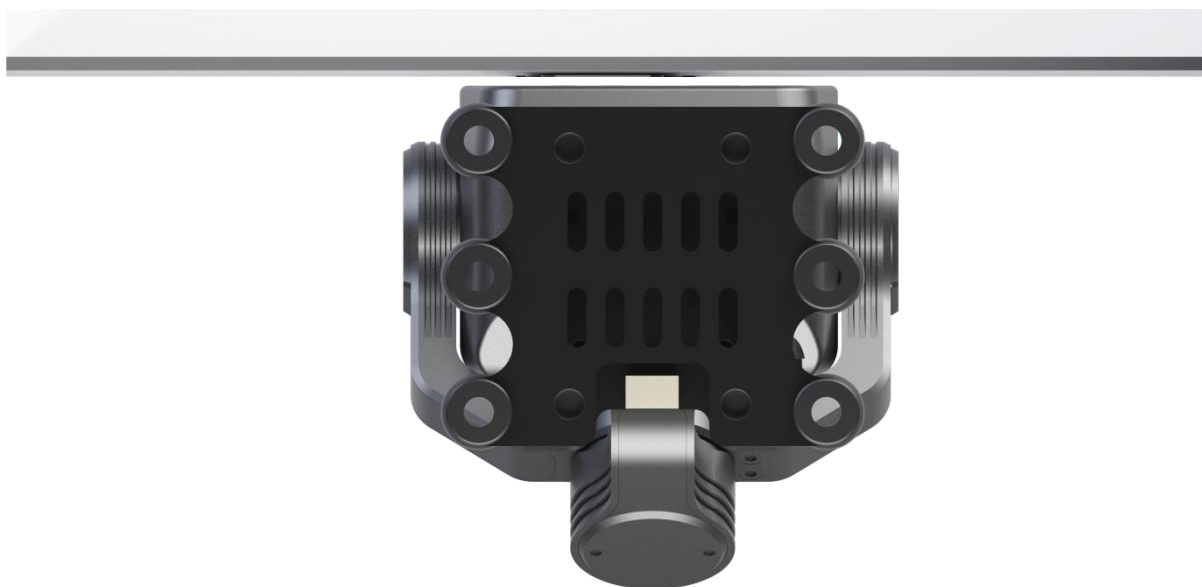
Calibration method:

- ① Power on the C13 and let it preheat for more than five minutes.
- ② Select a panel with a flat surface, uniform temperature, even frosting, and low reflectivity.
- ③ Move the C13 close to and make contact with the target surface. It is optimal when the imaging of the target surface covers the entire field of view without any stray light entering.

- ④ Click "Calibrate the Lid Effect", and the calibration is successful when the screen turns into a uniform gray.



Schematic diagram of the calibration target surface for the lid - like effect

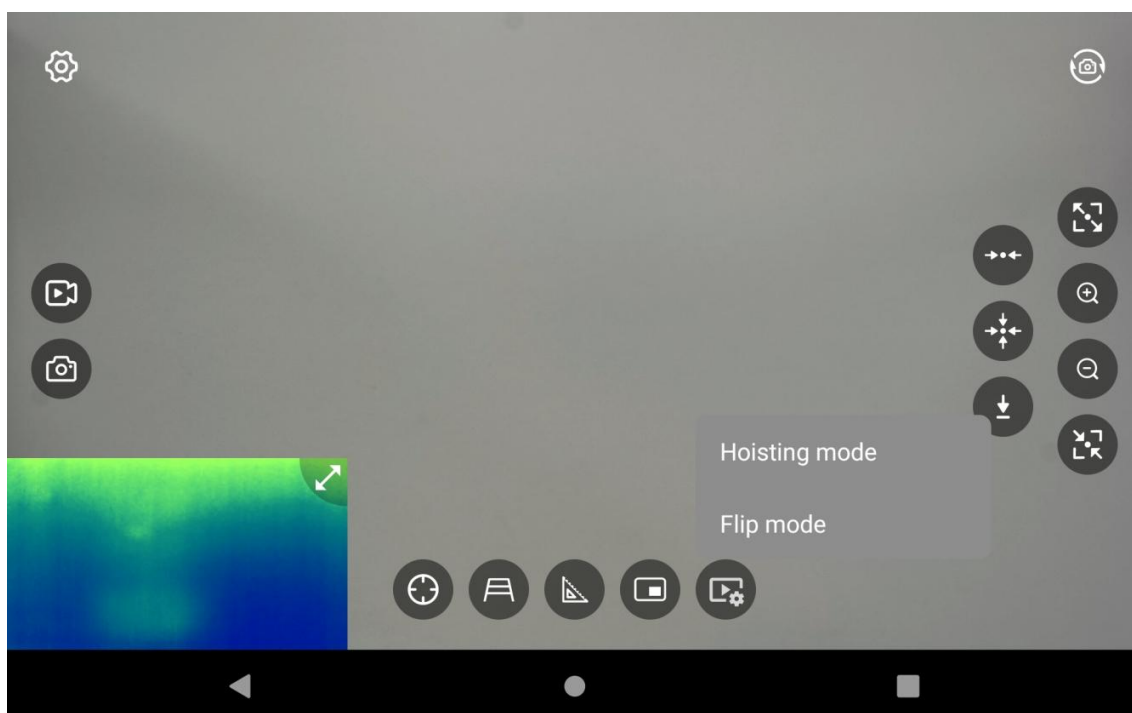


Schematic diagram of calibrating the lid effect

Gimbal Fine-Tuning: Fine-tune the gimbal's horizontal and pitch axes.

Note: The gimbal is factory-calibrated. Do not perform this operation unless gimbal malfunctions occur.

5.5.5 Operating Modes

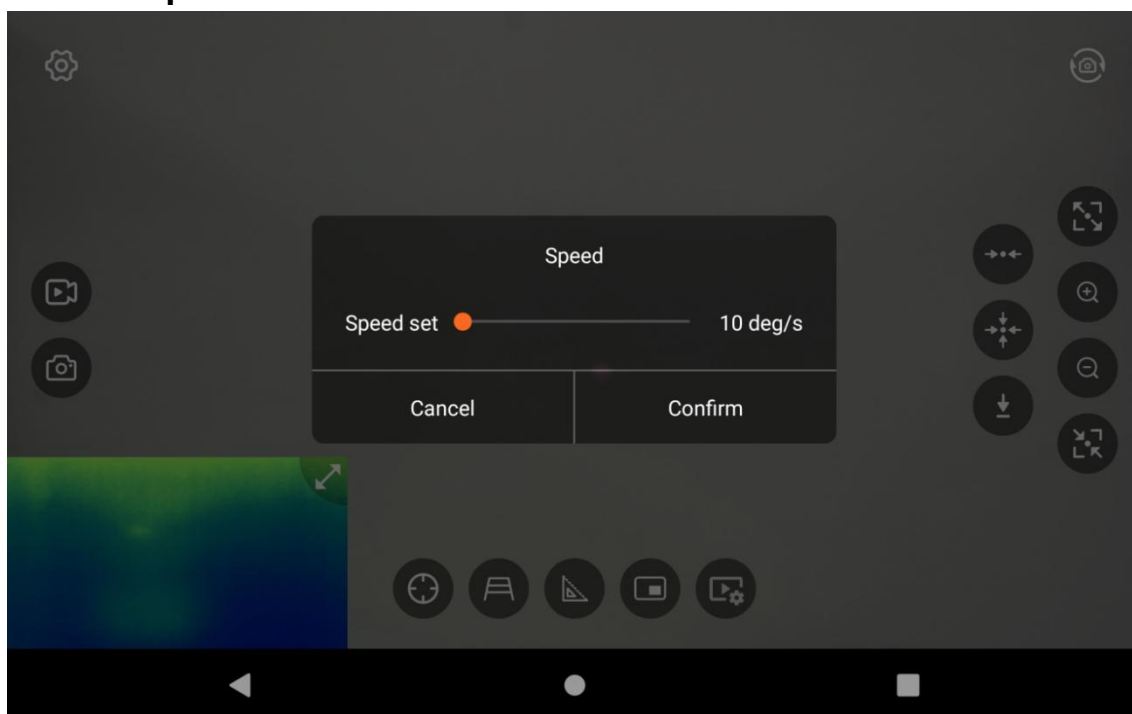


The gimbal can be set to either top-mounted or inverted-mounted mode.

Note : After setting the working mode, the gimbal will automatically restart and the image will automatically flip. The gimbal must be installed in the flipped position to match the set mode. Incorrect placement will cause the gimbal motor to fail the self-test and result in damage.

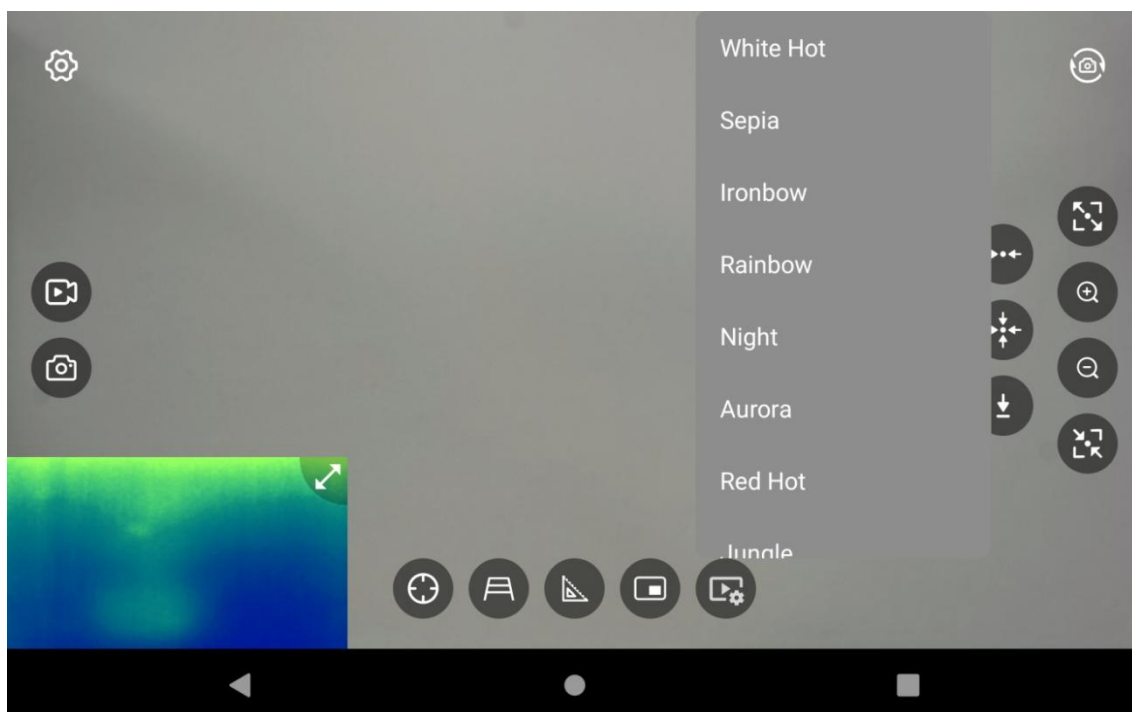


5.5.6 Gimbal Speed



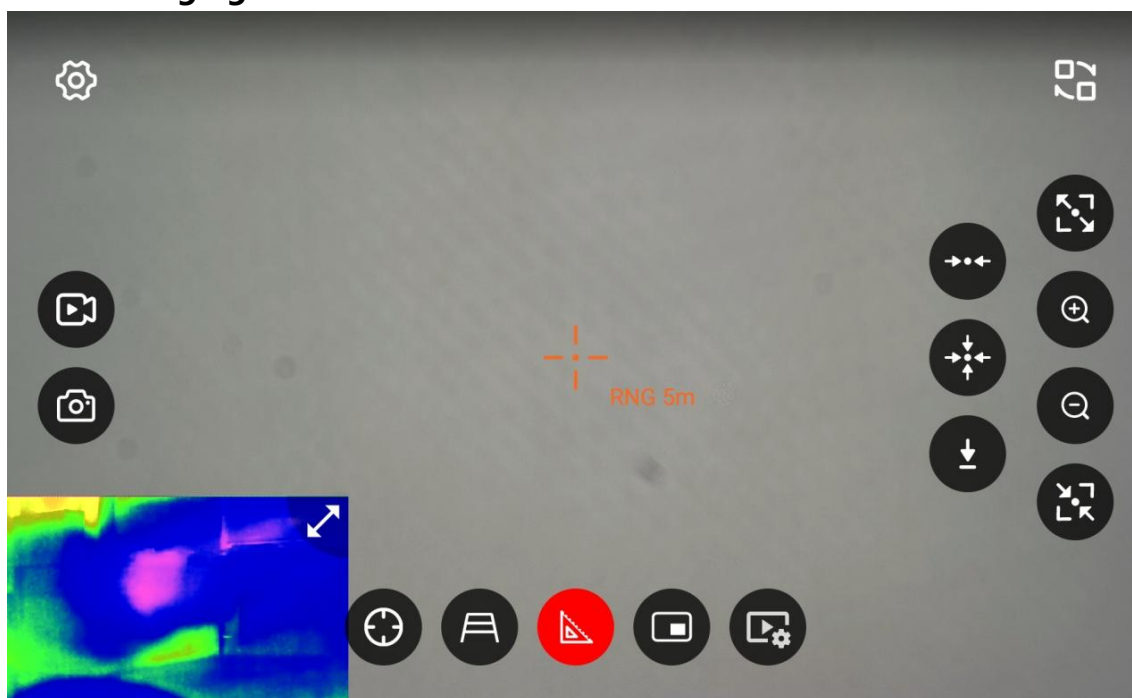
The control speed of the gimbal has two modes: constant speed mode and variable speed mode.

5.5.7 Color Palatte



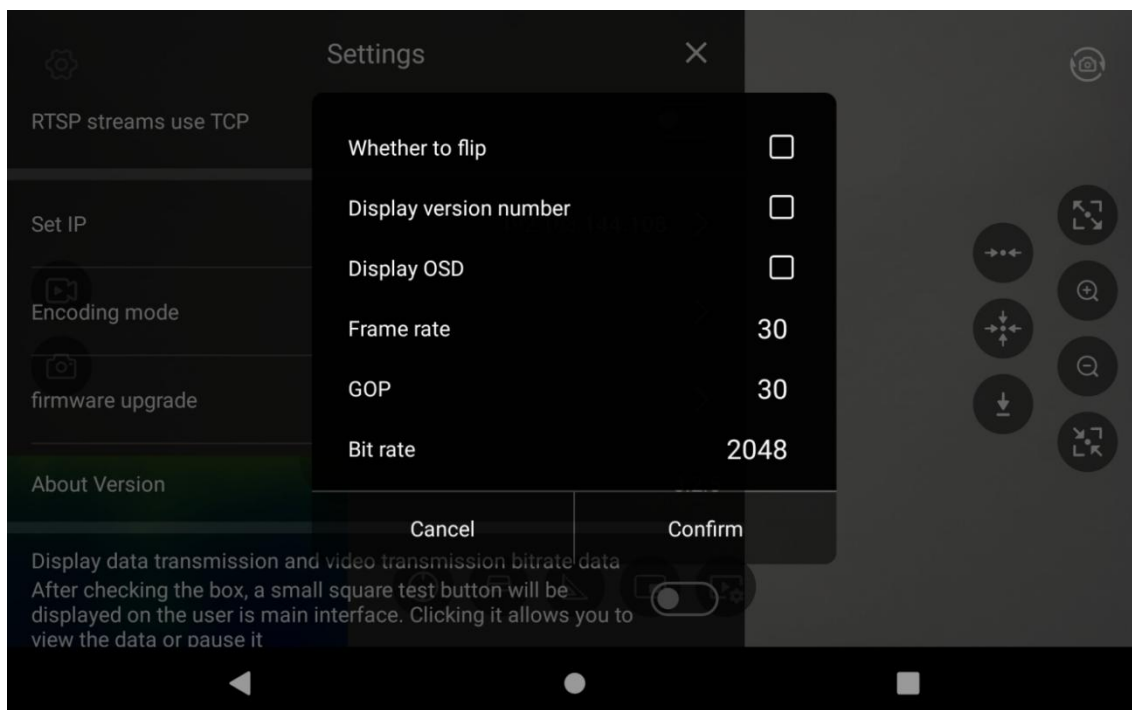
It is possible to adjust the imaging effect of the thermal imaging camera, with a total of eleven options available.

5.5.8 Laser Ranging



Press the ranging switch button to turn laser ranging on or off. The effective ranging range is 0.1m to 1.2 km.

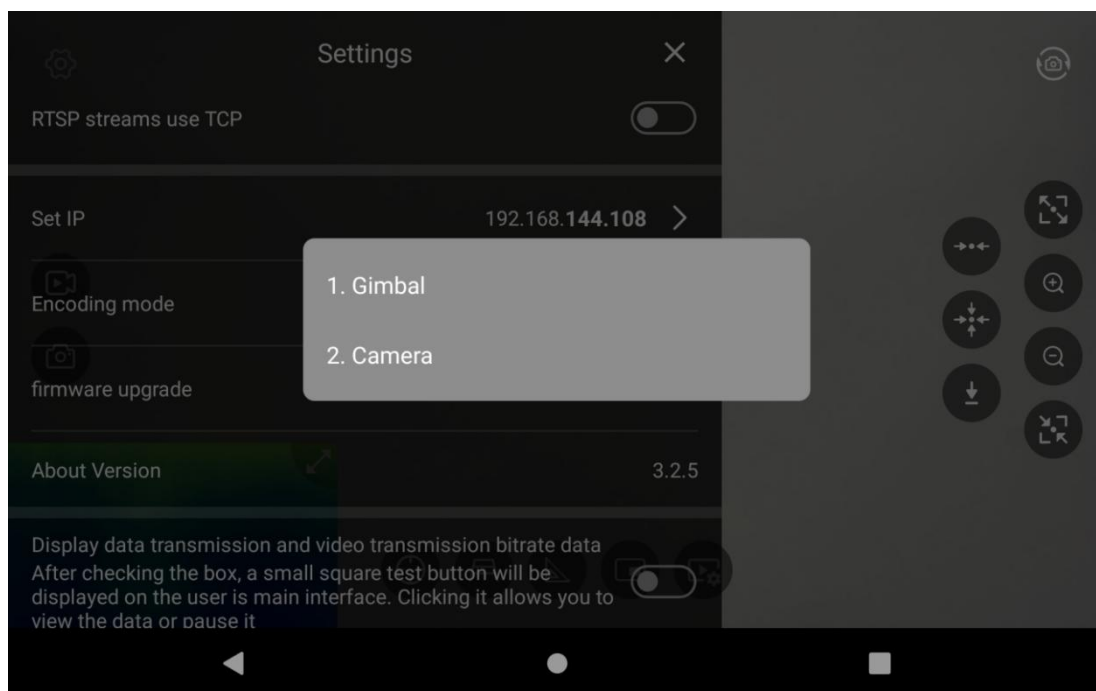
5.6 Set Encoding Mode



You can see screen flipping, view the camera version number, and set Display OSD

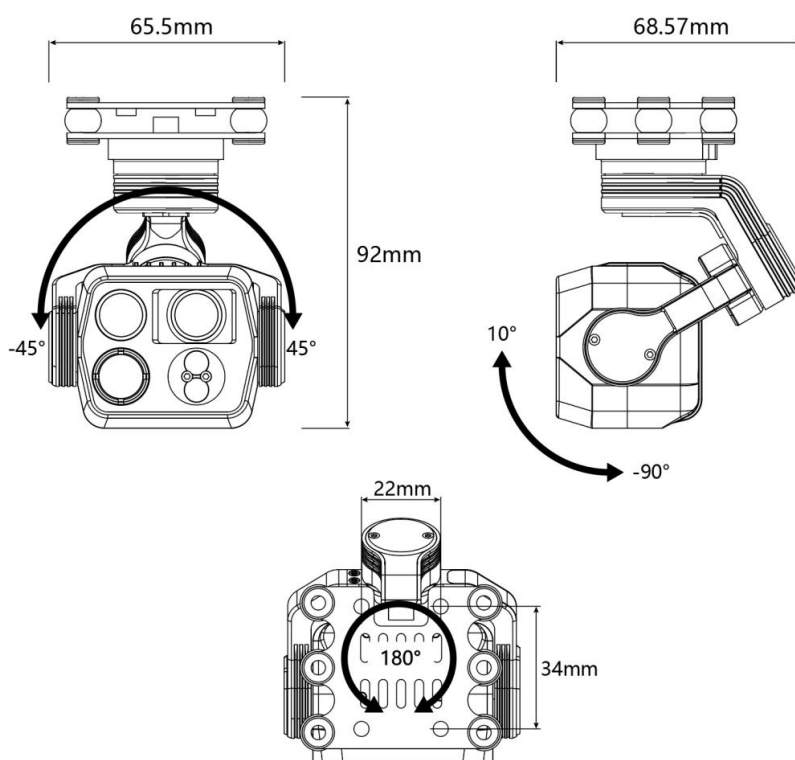
Notice: The camera will restart automatically after image flip settings are applied.

5.7 Firmware Upgrade



You can upgrade the gimbal firmware and camera firmware. Do not cut off the power or exit the upgrade interface during the upgrade process. (When upgrading the camera firmware, a TF card must be inserted into the C14PRO.)

VI、 Gimbal Dimensions and Angel Markin



As the product version evolves and customer requirements, the corresponding commands and controls are subject to adjustment. Please contact skydroid Technology Co., Ltd. to obtain the latest information and technical support. Please note that parameters such as dimensions and weight may change due to product upgrades and updates. We apologize for any inconvenience caused

VII、Precautions

To protect you, others from harm and safeguard your device from damage, please read all the follow-ing information before using your device.

1. Do not direct components to high - intensity radiation sources such as the sun;
2. The ideal operating ambient temperature ranges from 10°C to 60°C;
3. Do not touch the device and cables with wet hands;
4. Do not bend or damage the connecting wires;
5. Do not clean your device with thinner;
6. Do not unplug or plug in other cables without disconnecting the power supply;
7. Do not misconnect the attached cables to avoid damaging the device;
8. Be careful to prevent static electricity;
9. Do not disassemble the device. If there is a malfunction, please contact our skydroid and let professionals carry out the repair.

Due to version evolution and changes in customer requirements, relevant commands and controls may be subject to alteration. Please contact skydroid Technology Co., Ltd. to obtain the latest information and technical support. As the product is updated and upgraded, parameters such as dimensions and weight may change. Your understanding is highly appreciated.

Warm reminder: Please read the operation manual carefully before use!