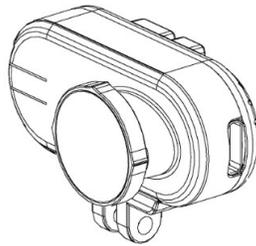




Hawkeye 4K Thumb 3D/Gyroflow Cam



- Low latency TV output
 - WDR
 - Video repair
- RC trigger to capture

V1.4

Newst Manual:

https://drive.google.com/file/d/1ZkVCds3cGbcvCygsNZgR4szd_ehTGKm9/view?usp=sharing

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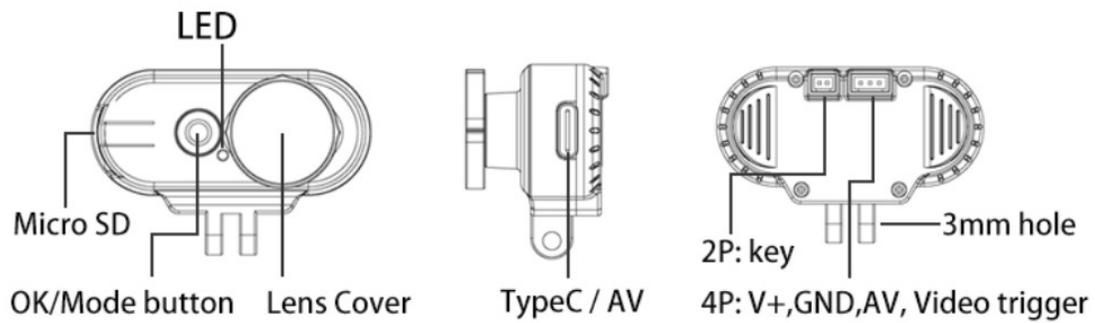
Safety Guidelines :

Please read the instruction manual carefully before using the camera for the first time.

Please check the latest version manual on our website.

- 1.It's a high-precision product, do not drop or crash it.
- 2.Do not expose the camera to strong magnetic objects, such as magnets or electrical motors. Avoid exposing the product to strong radio waves. Strong magnetic fields may cause the products breakdown or image/audio damage.
- 3.Never leave the products exposed to high temperatures and direct sunlight.
- 4.In case of overheating, smoke, or unpleasant smell, unplug your device immediately to prevent fire hazard.
- 5.Keep the product out of children's reach. Power cable may cause children accidental suffocation or electric shock.
- 6.Keep the device in cool, dry and dust-free places.
- 7.Please do not throw the product or it's battery to the garbage, find a specific recycling place for it.

Features:



Wires:

Red: 5.5-23V DC input + (5.5V to 5S battery, 6S not allow connect to camera DIRECTLY !Except our 6S power cable!) (USB CAN ONLY 5V)

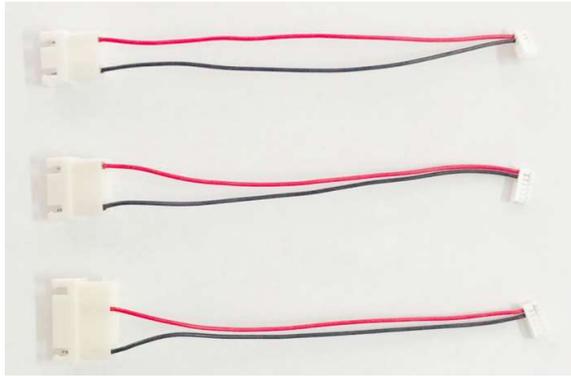
Black: GND

Yellow: Video Out

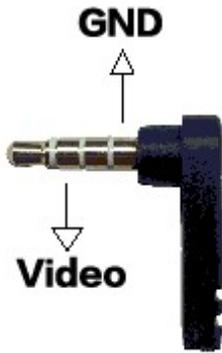
Blue: Video trigger (active low)

Note: Never connect video/trigger port to power+!!!

3S,4S,6S Power cable: **Note: 6S is 4S of it.**



Video pin:



Note: the 3.5mm ear phone port is for Little pilot monitor; other monitors/TV/goggles please use RCA port.



New AV cable:



For DJI goggles, plug into the DJI goggles 3.5mm earphone port, goggles switch to AV IN:

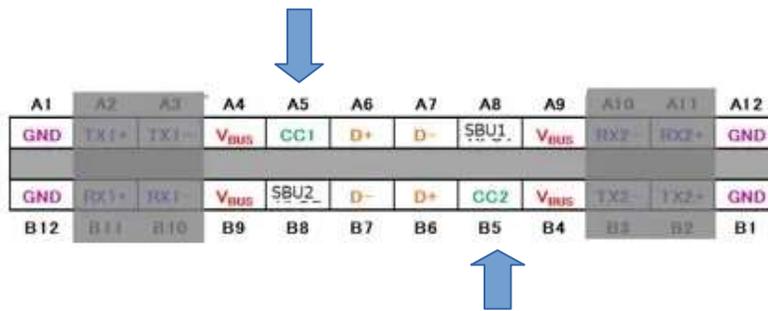


LED indicator:

	LED
2.5K 4:3 50FPS	Red + Blue
2.5K 50FPS	Red
1080P 50FPS	Blue
4K 30	OFF

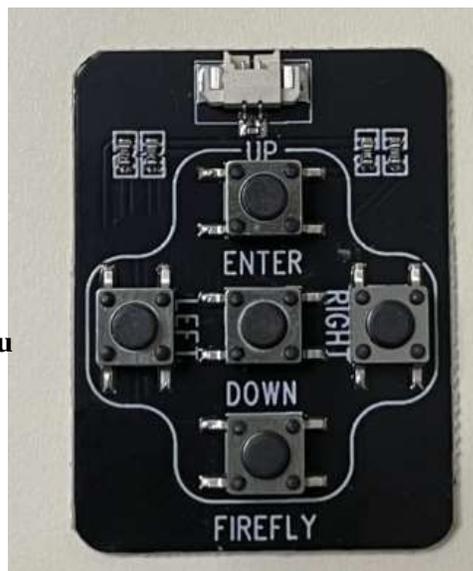
Type C Port:

A5,B5 : TV output (16pin or 24pin)



OSD key board:

**Up button: switch to video mode/
Press 5 seconds to format SD card**



**Left: Menu settings
Double click: system menu**

Right: Playback

Enter: OK/recording

Down:

Performance and Specifications:

	Resolutions	4K 50FPS(4:3 ,2880*2160) 4K 30FPS/ 1080P 50FPS/ 2.5K 50/30FPS/ 2.5K 50/30FPS 4:3
	AV output	PAL/NTSC PAL has lower latency!
	Micro SD card	U1 Sandisk recommend
	SD card supported	8-128G (FAT32/exFAT)
	Size	22.5 ×50*13.5 MM
	Weight	15.5g
	File format	*.MP4/H.265
	Lens	F/2.0 , 7 glasses
	Angle	Diagonal 170 degrees
	Voltage	5.5-23V
	Current	500mA

Buttons:

Name	Functions	Description
Power/ OK Button	Power ON/OFF; Start/Stop Recording	Press Once to power on; Press once to start/stop recording after power on.
Mode Button	Toggle between	Press and hold for 2 seconds to toggle different resolutions.

Format SD Card:

You need to format SD card to FAT32/exFAT for the first time. You can hold **UP BUTTON of the keyboard for 5 seconds** to format SD card.

Please watch:

<https://www.youtube.com/shorts/XV1YJ1RS3ws>

PC CAM:

Hold OK button don't release, then connect USB to computer, hold for

about 10 seconds, the camera will enter PC CAM mode. Use amcap.exe to open the pc cam.

You can set USB mode (U disk or PC CAM) in the menu.

Please watch:

<https://youtube.com/shorts/iGPOdA0fMCg?feature=share>

Video Settings:

Resolution: 4K 50/30fps、2.5K 50fps, 2.5K 50/30(4:3)fps, 1080p 50fps, 1080p 30fps.

Note: High frame rates make the TV output more smooth! We advice to use >=50fps for FPV!

Note: 4K 50FPS can't log the gyro data!

Loop recording: 1、3、5、10minutes. When the SD card is full, video will be auto loop recording. When the SD card is full, video will be auto loop recording. The oldest file will be deleted first.

WDR: Off、 On. WDR effect will be On/Off. **Note: When this function is turned on, the image will not become dark even toward the sun. The image would not looks so clear if this function is ON sometimes. As a FPV cam, this function should be turned ON.**

Exposure: +2.0、 +5/3、 +4/3、 +1.0、 +2/3、 +1/3、 0、 -1/3、 -2/3、 -1.0、 -4/3、 -5/3、 -2.0. **Note:** Higher value for brighter image. If you want brighter image, set this value higher. If the image is over exposure, set the value smaller.

Record Audio: Off、 On.

Time-lapse record: Off、 0.05、 0.1、 0.5、 1、 3、 5、 10、 30、 60sec. **Note:** Time-lapse is a video recording mode that captures video at a very low frame rate: around one to two frames per second, although this depends on the length of the recording. When played back, time-lapse video is almost the opposite of slow motion. Higher value for shorter video. There's no voice in this mode.

Metering: Average、 Center-weighted、 Spot, Upper, Lower.

Sharpness: Strong、 Normal、 Soft.

Contrast: High、 Medium、 Low.

Auto Recording: Off、 On. **Note:** The camera will turn on and record automatically without pressing button. When you stop recording, you need to press the record button. When the power is suddenly cut off or the stop recording button is not pressed, the file will be damaged. You need to use the keyboard to enter the playback mode. When you play back the damaged file, the file will be repaired automatically.

Fixed frame rate: off, ON: the frame rate will not drop in dark condintions.

Electronic shutter: Fix the shutter speed. Auto, 1/60, 1/120, 1/240, 1/480, 1/960, 1/1200, 1/1440, 1/1920, 1/3840, 1/7680.

Gyro log: off, on. Save the gyrolog and stable the image in PC.

Gyro calibration: Please place the camera horizontally and keep it safe still, press OK button to start.

System Settings:

Date time setting. Set daytime.

Auto power off: Off, 1, 2, 3, 5, 10minutes. The camera will turn off when there's no operation.

Beep sound: Off, On. Set the beep sound on/off.

Language: English, French, Spanish, Portuguese, Deutsch, Italiano, 简体中文, 繁体中文, Russian, 日本語, Korean, Multi languages.

Frequency: 50, 60HZ. Light frequency indoor. **When the video flickers indoor, change this setting.**

TV mode: NTSC, PAL. **TV ratio:** 16:9, 4:3, 4:3 Full. Adjust the TV output scale.

ISO: Auto, 100, 200, 400, 800, 1600, 3200. The term was carried over from film, when the ISO rating was known as the "film speed" and "ASA." Having a standard of sensitivity is important, as it allows you to shoot the same ISO on different cameras and trust that the exposure value will be equal. Lower ISO, darker image, less noise.

Color: Color, Black & white, Sepia, Flat color.

White balance: Auto, Hawkeye, Hawkeye2, Hawkeye3, Hawkeye4, Hawkeye5, Hawkeye6. White balance affects the image, warmer or cooler. Different Lens should use different white balance too. We recommend Hawkeye 4 for the standard lens.

White balance auto lock: Off, On. When start recording, the current white balance will be locked.

Denoise: OFF, ON

Image rotation: Off, On. Turn the image upside down.

OSD Mode: Off, On. OSD on TV output. OSD on TV output. To disable the OSD, turn this Off.

USB: Mass storage, PC Cam.

Format: Format the SD card. **Note: format the SD card at the first time, or the camera can't recognize the SD card.**

Default settings. if you have any question, you can set to default settings.

Version. Version number. Check its the newest firmware on www.CNfpv.com.

Triggers:

The trigger pins need to be connected to the trigger control cable. Scan to watch.

https://youtu.be/ulYC6Mg8_qI



Note: Don't connect the trigger pins to any power. If you want to control it by a MCU, connect it to a 3.3V GPIO through a 1K resistance.

Installation:

Soft mount is needed between the camera and the drone frame. **Use TPU Mount or 3M double-sided tape.**

Record videos:

Please insert SD card, then press Power/OK button once to record. Please use U1 speed SD card at least(8-128G). Format the SD card to **FAT32/exFAT** in the camera at the first time.

Press OK key to stop recording before unplug the power.

How to format SD card :

<https://youtube.com/shorts/XV1YJ1RS3ws?feature=share>

Transferring Files:

1. Connect the camera to a computer via micro USB cable or card reader, and then turn on the camera.
2. Double click “My Computer” and locate “Removable Disk”. Enter “Removable Disk” and you will find all video files in the folder.

 20240311114534_202420.MP4 **Video,**
 20240311114534_202420.gcsv **Gyro file**

Update Firmware:

- 1.Delete all the files and folders in the SD card(suggest:8G/16G).
- 2.Download the bin firmware to SD card .
- 3.Insert the SD card into the camera.
- 4.Power on the camera and it will update firmware automatically.
- 5.When updating, the LED will flash.
- 6.When the update process is finished, the LED will stop flashing.
- 7.The camera will reboot again.
- 8.Please check on www.CNfpv.com for new firmware updates.

Scan to watch how to update firmware:

<https://youtu.be/B9CU0tcSqqU>



FCC STATEMENT:

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 instructions, 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 off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with part 15 of the FCC Rules. 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.

NOTE:

Check on www.CNfpv.com for new firmware/Manual updates.

For more information please check our

Youtube/Facebook/Instagram channel:

Hawkeye Firefly Official

Youtube



Facebook



Instagram :



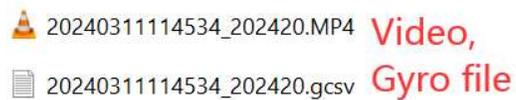
How to use Gyroflow :

IOS:

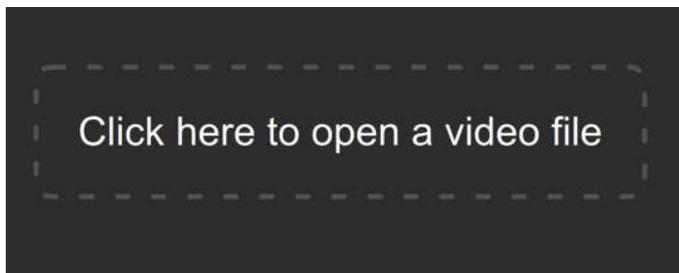
<https://youtu.be/NalAbzdivl0?si=Ji2aoBxGAELgyFMN>



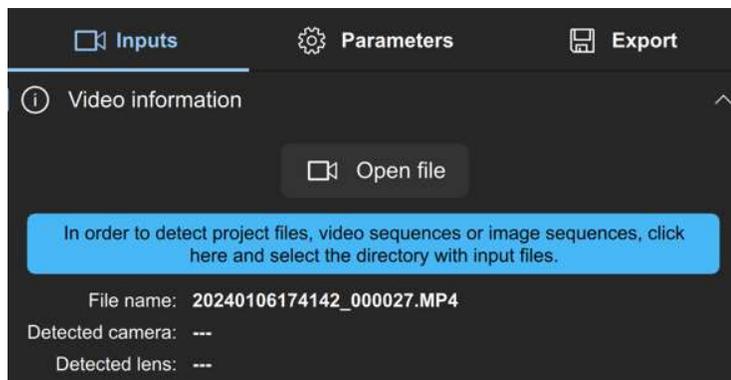
1. Use sd card reader to ready the video and gyro data on the sd card, make sure they are on the same directory.



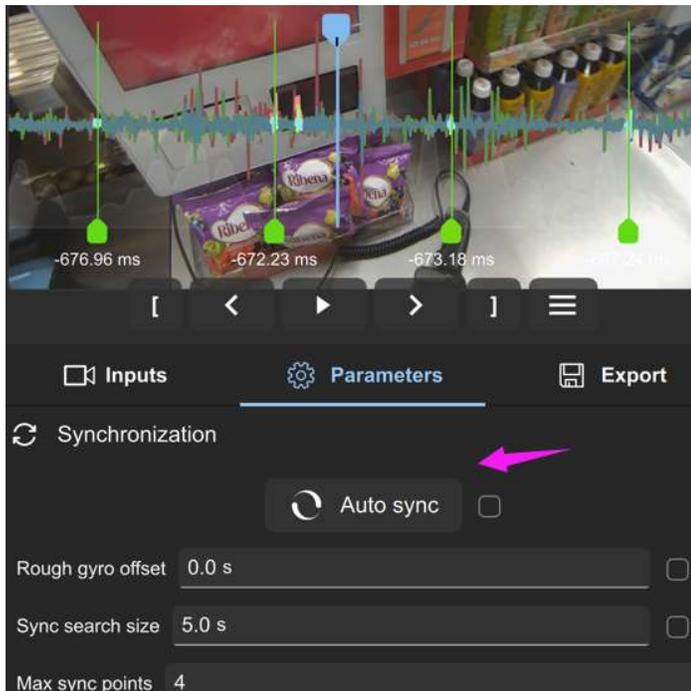
2. Select a video file in the sd card directory.



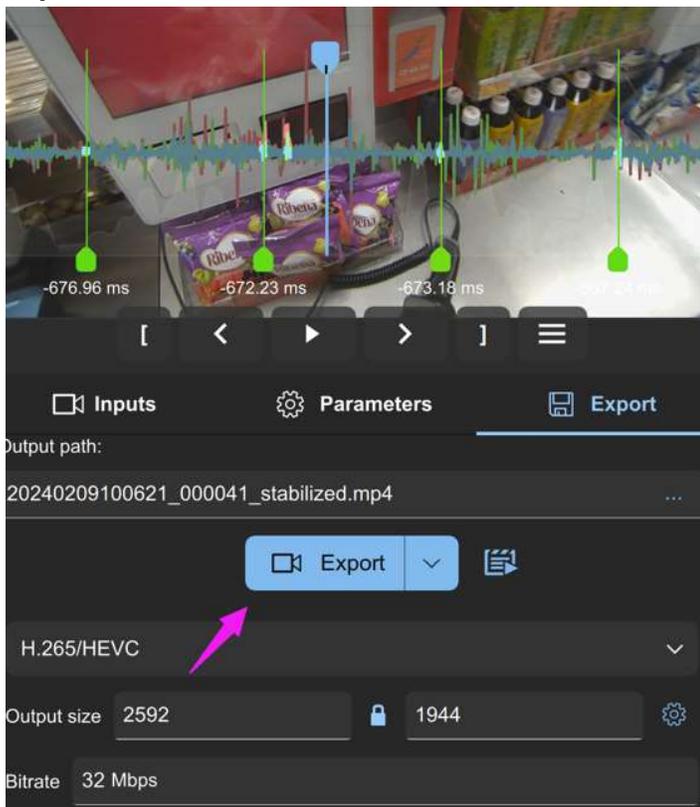
3. Click on the blue font to select the file directory for access authorization.



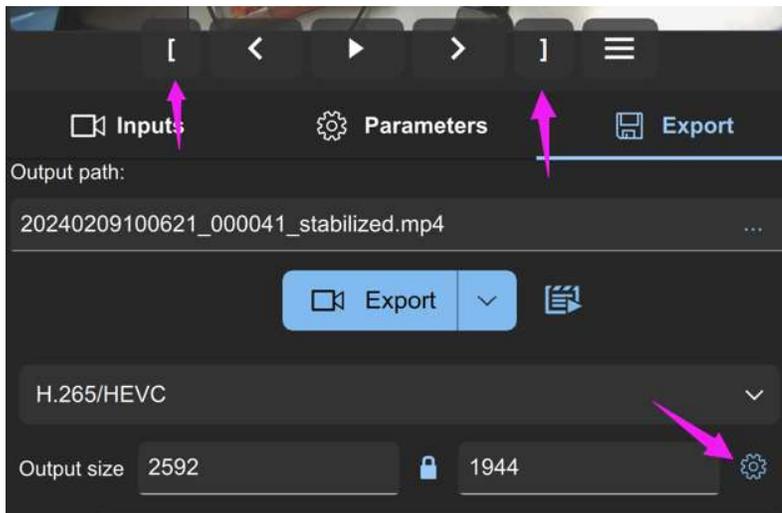
4. Click auto sync to sync the video and gyro data.



5. Export video



6. You can select a video clip or change resolutions to reduce the rendering time.



Android:

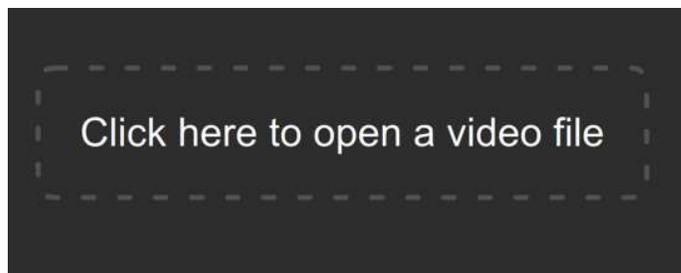
<https://youtu.be/ZI3kAOvrAfg?si=z0yYrb3mUpwil68T>



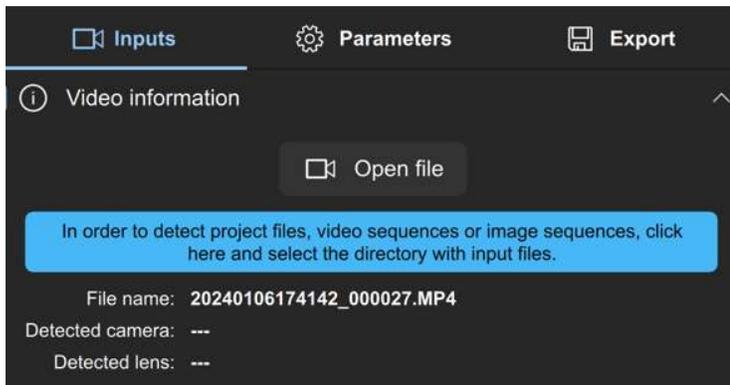
1. Use sd card reader to ready the video and gyro data on the sd card, make sure they are on the same directory.

 20240311114534_202420.MP4 **Video,**
 20240311114534_202420.gcsv **Gyro file**

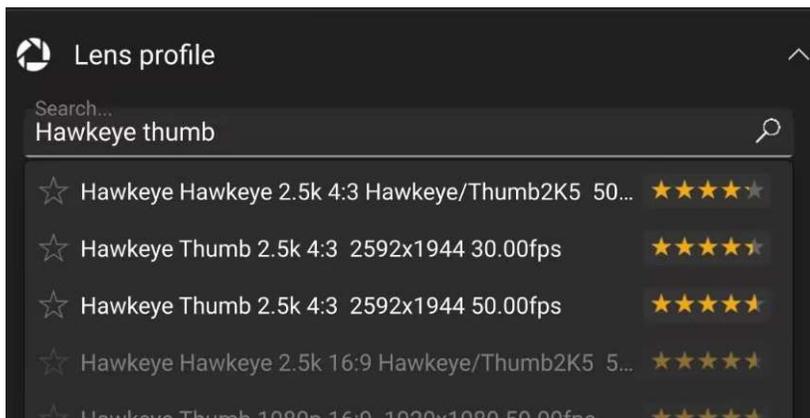
2. Select a video file in the sd card directory.



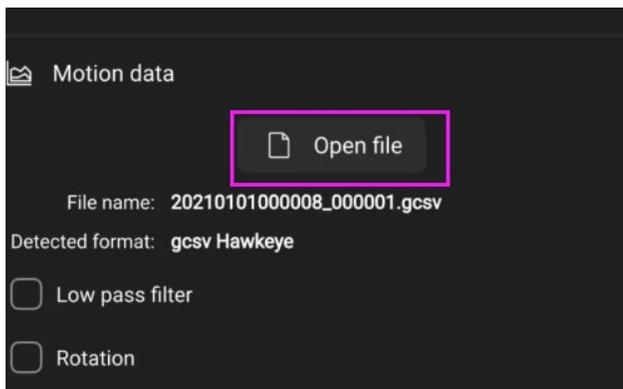
3. Click on the blue font to select the file directory for access authorization.

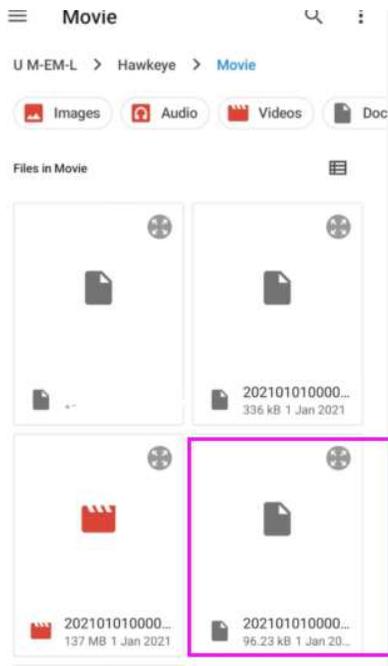


4. Input “hawkeye thumb” to select lens profile(match the resolution). (1.55 version no need this step)

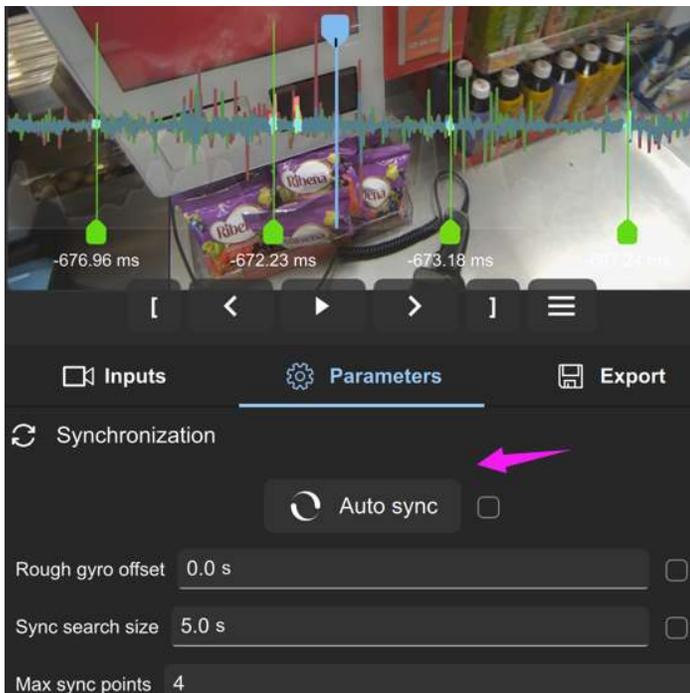


5. Load the Motion data (1.55 version no need this step):

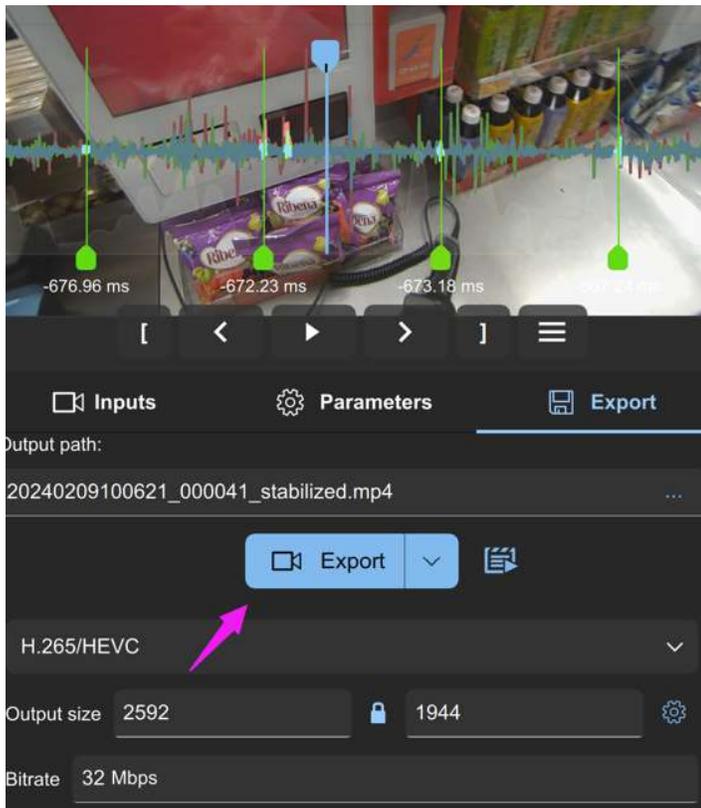




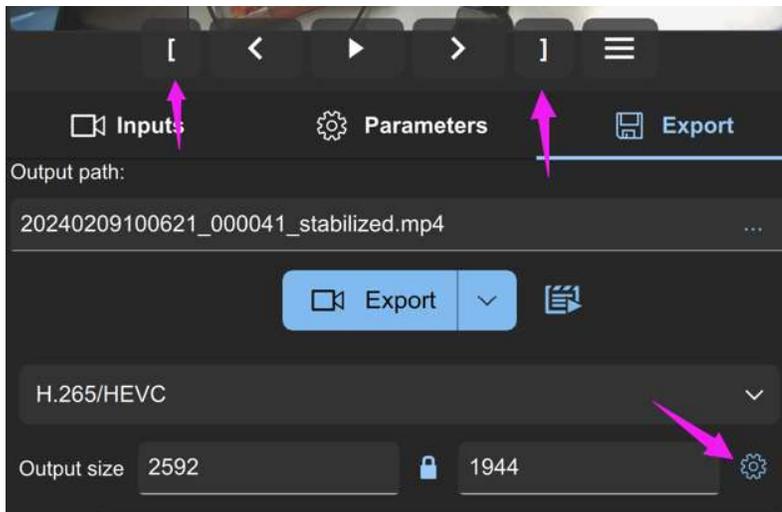
6. Click “auto sync” .



7. When finished, Export video



8. You can select a video clip or change resolutions to reduce the rendering time.



PC :

Software downloads (WIN 10, 11):

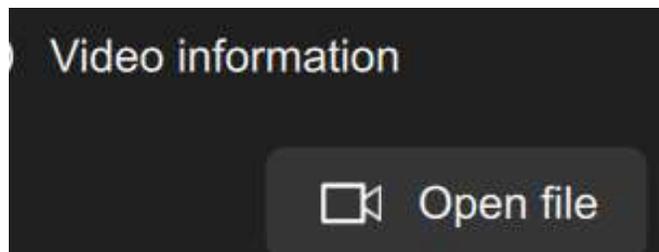
<https://drive.google.com/file/d/1b9hHcAquPv38hZttc9Xcz6gURHscVj-k/view>

1. The video and the gyro files are placed in the same directly and the file names are the same.

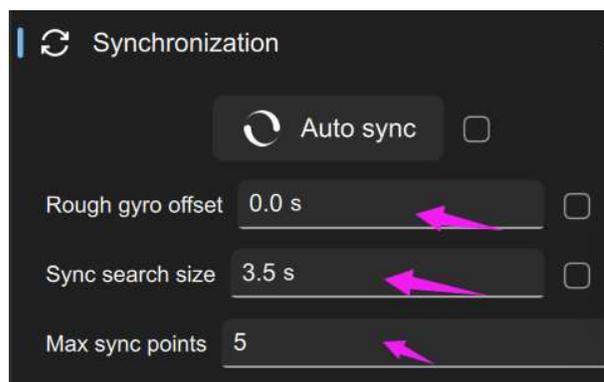
 202403111114534_202420.MP4 **Video,**
 202403111114534_202420.gcsv **Gyro file**

2. Double click to run gyroflow.exe and drop the video file in to the software.

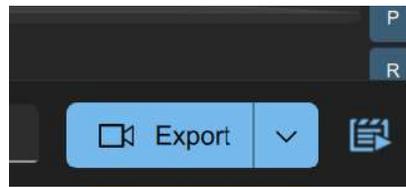
 Gyroflow.exe



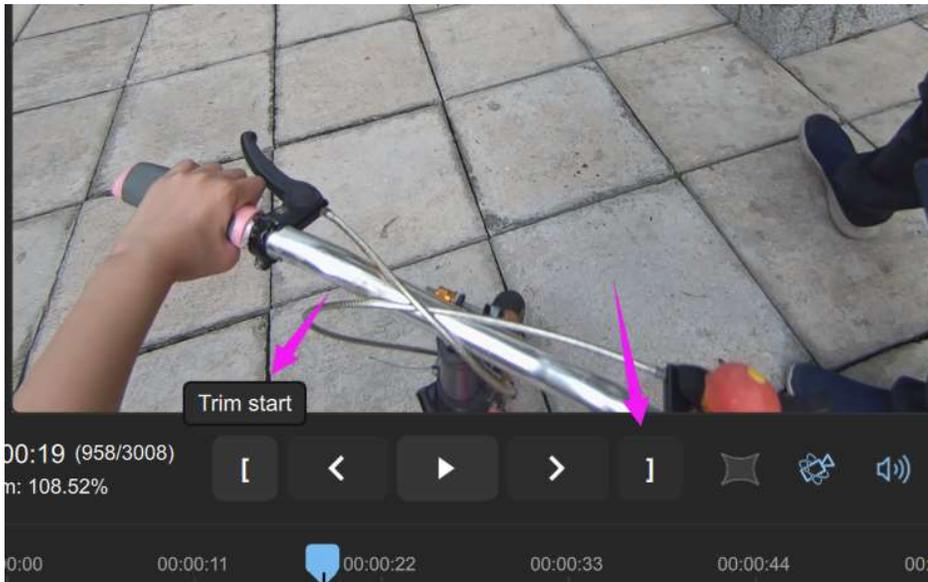
2. Sync search size: **3.5**, max sync points: **5**, then Click “Auto sync” and wait.



3. When the sync process is finished, export video.

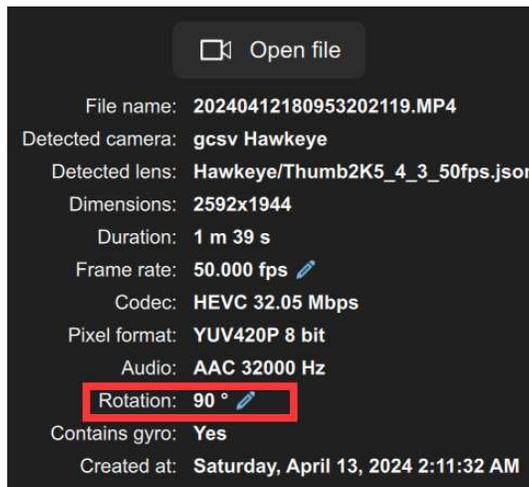
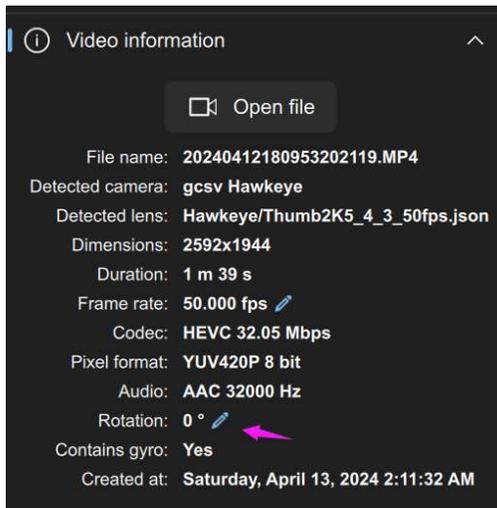


4. For saving time ,you can select a video click to output.



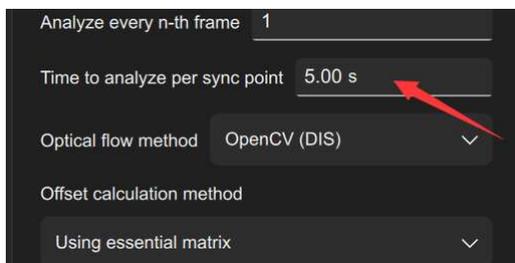
Portrait video :

Input 90 or 270 degrees in "rotation":



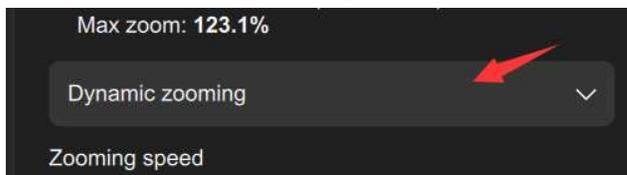
Notes for Gyroflow :

1.Sync time change to 3-5 second:

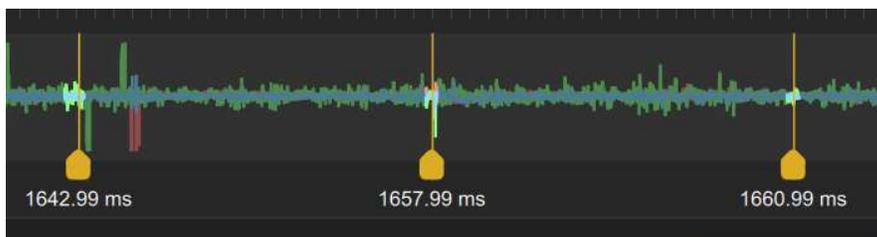


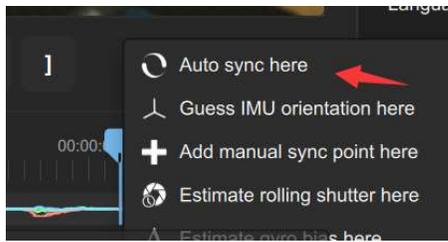
2.Use rs-sync:

3.Select Dynamic zooming, then there will be no black side.

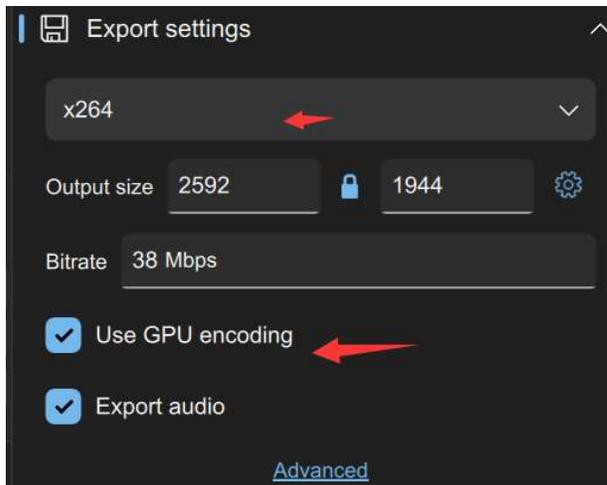


4.Sync points should be similar number, if its too different, delete it and add a sync point on other point(right click on the mouse).





5.If can't export video , turn GPU off, change to H.264.



6.Software require Win 10,11. If can't open the software, install the VC pack:

VC_redist.x64.exe .

Download link : https://aka.ms/vs/17/release/vc_redist.x64.exe

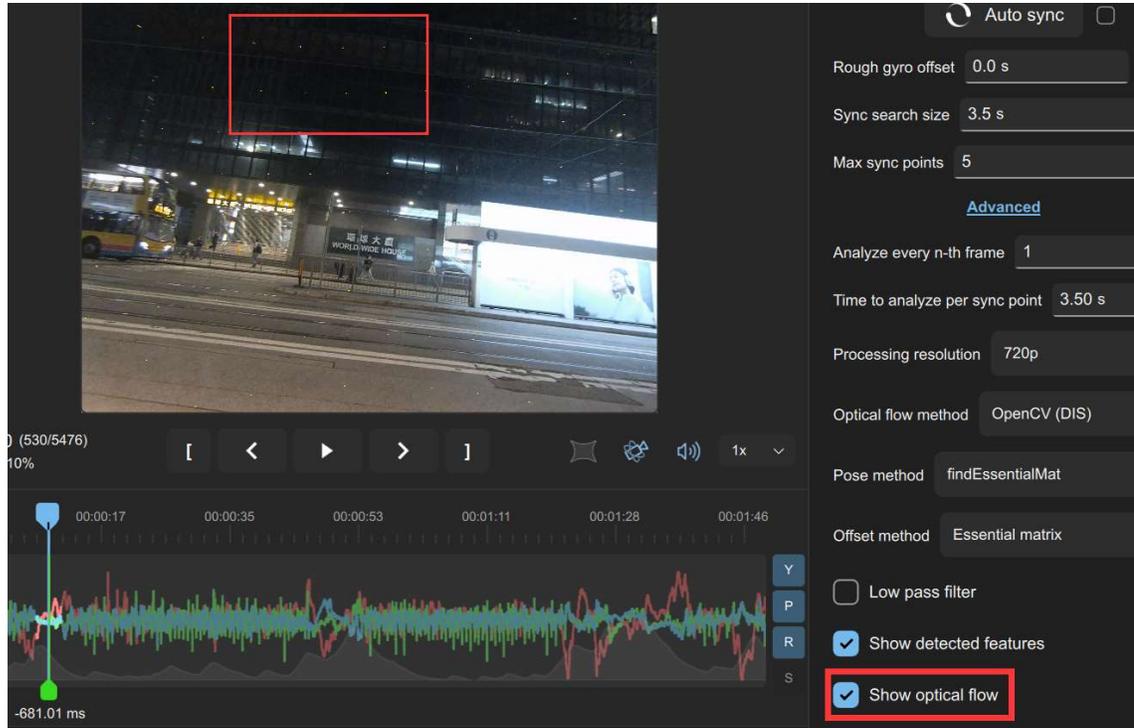
7. If still can't open, you can install VC:

8. <https://visualstudio.microsoft.com/zh-hans/downloads/?cid=learn-onpage->

[download-cta](#)



9. The light dot is optical flow, you could turn it off.



If you don't know how to setup the software, just download our preset software:

<https://drive.google.com/file/d/1b9hHcAqPv38hZttc9Xcz6gURHscVj-k/view>

Camera set up & tutorials:

<https://youtu.be/UvgmEo4Zv5E>



TV Cable:

3.5mm earphone port can directly connect to Little pilot Master/DJI:
Hold - button for 2 seconds to switch to AV IN

To Camera USB port



To other monitor/TV/goggles please use RCA port:
Please switch to AV IN



How to setup menu with monitor /goggles:

<https://youtube.com/shorts/NWS914nJCBI?feature=share>



How to replace FPC cable:

<https://m.youtube.com/shorts/qC4IM-10I5Y>



Remote control to record video 1:

A 2-way switches to control.

The following example uses Betaflight F405 flight controller to illustrate how to configure the remote control to turn on/off the video recording function. Use the TX1 pin on the flight controller to control the recording and connect the Hawkeye Cam's **TRG PIN**(video trigger PIN). If you use other flight controllers, there may be available TX pads instead of TX1, and they may use different resource allocations. You need to adjust the configuration accordingly for your specific flight controller.

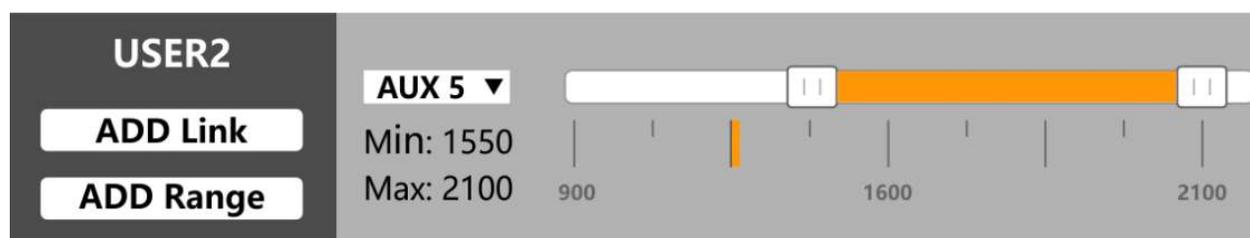


Configure the PINIO function of the TX1 pin through the following Betaflight commands.

```
resource SERIAL_TX 1 NONE // Close the serial port function of TX1 spindle
resource PINIO 2 A09 // Configure TX1 pin (A09 pin) as PINIO function No. 2
set pinio_box = 40,41,255,255 // Set the PINIO function interval
Save // Save configuration
```

(If you need to change to other pins, you only need to change the pin number of the first and second lines of instructions, and the instructions of the third and fourth lines remain unchanged.)

The following figure configures the PINIO function mapping relationship between the remote controller and the flight controller. In Betaflight configuration, PINIO No. 2 function (ie USER2 in the figure below) corresponds to the AUX5 channel of the remote control.



To activate or deactivate functions on the camera, you need to move the switch from the inactive state (white area) to the active state (yellow area), and then back to the inactive state (white area). To

The switch configuration of the flight controller and radio controller must match the settings of your own device. Before configuring, make sure you know what you are doing. If you are not using the remote control function, please cut off or insulate the yellow and green wires separately, and do not connect them to any location.

Remote control to record video 2 :

NOTE: FC Arm to record, dis-arm to stop recording.

The following example uses Betaflight F405 flight controller to illustrate how to configure the remote control to turn on/off the video recording function. Use the **TX2** pin on the flight controller to control the recording and connect the Hawkeye Cam's **TRG wire** (video trigger). If you use other flight controllers, there may be available TX pads instead of **TX2**, and they may use different resource allocations. You need to adjust the configuration accordingly for your specific flight controller.

Configure the PINIO function of the **TX2** pin through the following Betaflight commands.

```
resource SERIAL_TX 2 NONE // Close the serial port function of TX1 spindle
resource PINIO 2 A02 // Configure TX2 pin (A02 pin) as PINIO function No. 2
set pinio_config = 1,129,1,1 // set PINO 2 Reverse output(129), 1 for Forward output
set pinio_box = 40,0,255,255 // Set the PINIO2 as ARM state output
Save // MUST Save configuration
```

(If you need to change to other pins, you only need to change the pin number of the first and second lines of instructions, and the instructions of the third and fourth lines remain unchanged.)

After the settings, the camera will auto record when the drone is armed, and stop recording when it's dis-armed.

The switch configuration of the flight controller and radio controller must match the settings of your own device. Before configuring, make sure you know what you are doing. If you are not using the remote control function, please do not connect the wires to any location.

Mark: USE **resource** command to check the pin map

