# Hawkeye 4K Thumb Cam 2 Gyroflow Smooth
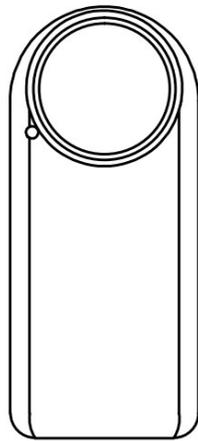
- Gyroflow Video Smooth

  - Built in battery

    - Wi-Fi

- AV output/Video trigger

V2.8

Newst Manual:

https://drive.google.com/file/d/1DTtlx1eGgTv_7EghYOsfUN_17E_0MGby/view?usp=sharing

Contents

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：
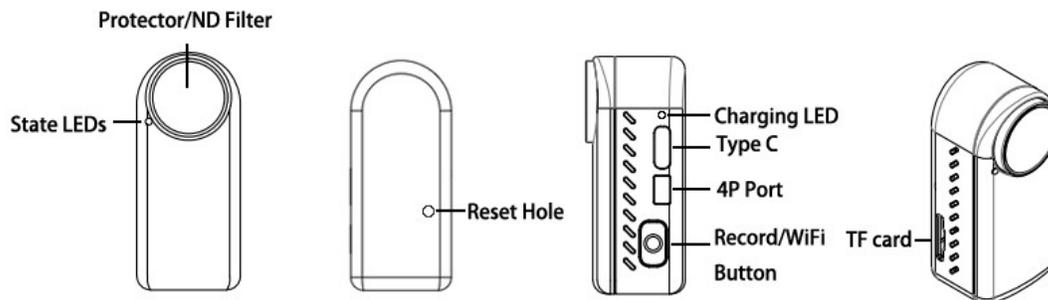
Note: ND filters are optional.

Button:

Name	Long press	Click	Double Click
Power/Record/ WiFi Button	Power ON	Start/Stop Recording **Power ON(WHEN Quick recording mode ON)**	Turn ON/OFF WiFi

LED indicator：

Charging LED	ON: charging; OFF: finish
2.5K　4：3 50FPS	Red + Green, Flashing when recording
2.5K 50FPS	Red Flashing when recording
1080P 50FPS	Green Flashing when recording
4K 30	Green Flashing when recording

Wifi LED indicator:

ALL LED alternately flashing

## APP control the camera:

Sear *"OKJ"* on the ios.

Google Play:

Double click to turn on the camera Wi-Fi （When the camera is ON），LED are flashing alternative.

Double Click
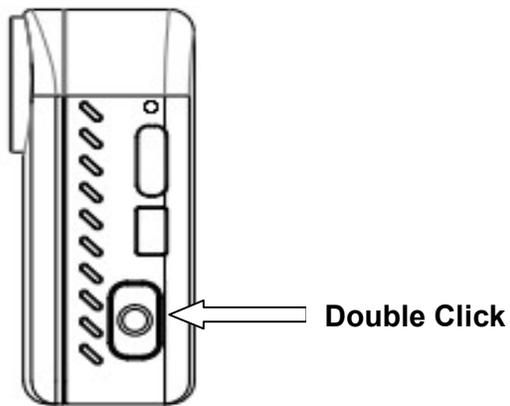
Search "Hawkeye-xxxx" in Wi-Fi with the smart phone and connect it.
Default password: 12345678

Wi-Fi

✓ Hawkeye-54ef3312c741
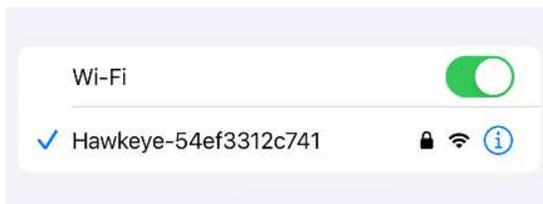
After connecting the camera, run OKJ APP and then connect the camera.

4 PIN ports(1.25MM):
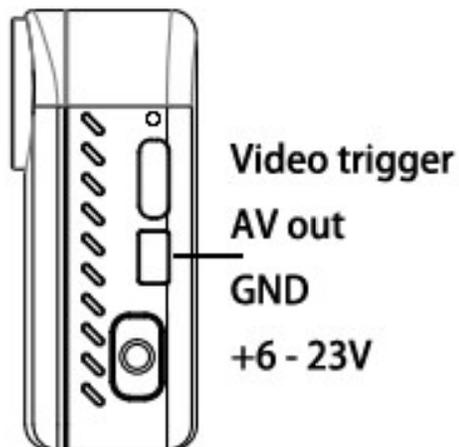
Video trigger: Active low. Please follow remote control. <u>Remote control to record video 1:</u>
**AV Out: Analog video output**
GND: Ground
Power: +6-23V

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

Type C Port:

A8,B8 : TV output (16pin or 24pin), need to set TV OUT ON to enable TV output on APP.

A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12
GND	TX1+	TX1-	V_{BUS}	CC1	D+	D-	SBU1	V_{BUS}	RX2-	RX2+	GND

GND	RX1+	RX1-	V_{BUS}	SBU2	D-	D+	CC2	V_{BUS}	TX2-	TX2+	GND
B12	B11	B10	B9	B8	B7	B6	B5	B4	B3	B2	B1

A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12
GND	TX1+	TX1-	V_{BUS}	CC1	D+	D-	SBU1	V_{BUS}	RX2-	RX2+	GND

GND	RX1+	RX1-	V_{BUS}	SBU2	D-	D+	CC2	V_{BUS}	TX2-	TX2+	GND
B12	B11	B10	B9	B8	B7	B6	B5	B4	B3	B2	B1
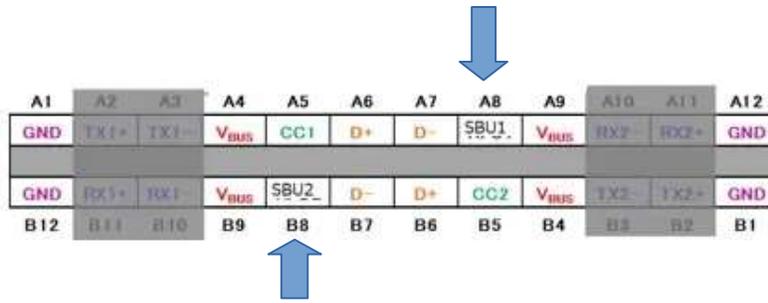
Performance and Specifications:

	Resolutions	4K 50FPS(4:3 ,2880*2160 No gyro data) 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	8-256G(FAT32/exFAT)
	Size	52.5×23*21.7 MM
	Weight	34g
	File format	*.MP4/H.265
	Lens	F/2.0 ，7 glasses
	Angle	Diagonal 170 degrees
	Voltage	USB 5V, 4PIN PORT6-23V
	Current	500mA
	Battery	620maH
		Wi-Fi OFF, 1080P for about 1.7 hours(100minutes)

Format SD Card:

You need to format SD card to FAT32/exFAT for the first time

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 U3 speed SD card. Format the SD card to FAT32 or exFAT at the first time.

When *Quick record mode* or *Auto record mode* is ON, the camera will auto record video after power on, no need to press record button.

File Transfer:

When the camera is **turned ON**, connect it to the computer with a USB cable and the camera will automatically enter Mass Storage Mode.

PC CAM:

When the camera is turned OFF, connect it to the computer with a USB cable and the camera will automatically enter PC CAM mode.
Use "amcap" software to see the pc cam.

Video Smooth Software:

(**Please DO use this special designed version, we have preseted all the settings for this camera**):

Windows64:

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

Gyrofflow iOS and Android, PC:

Please search "gyroflow: on app store for google play(1.54).

Gyroflow **1.55** android nightly build:

https://drive.google.com/file/d/1gHmF8C-gqs___9XqPbChQVJ-LdMjNdhN/view?usp=sharing

How to use Gyroflow :

IOS：

https://youtu.be/NaIAbzdivl0?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.**(**4K 50 can not be stabled, cause no gyro data in this resolution**）

20240311114534_202420.MP4 Video,

20240311114534_202420.gcsv Gyro file

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

Click here to open a video file

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

Inputs   Parameters   Export

Video information

Open file

In order to detect project files, video sequences or image sequences, click here and select the directory with input files.

File name: 20240106174142_000027.MP4

Detected camera: ---

Detected lens: ---
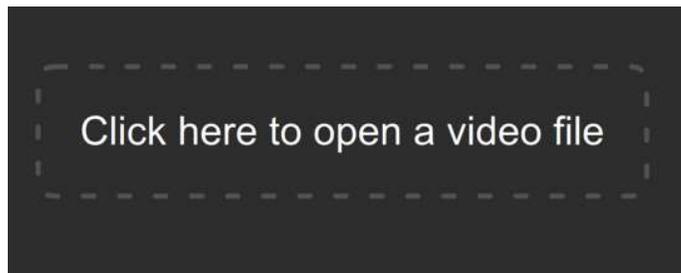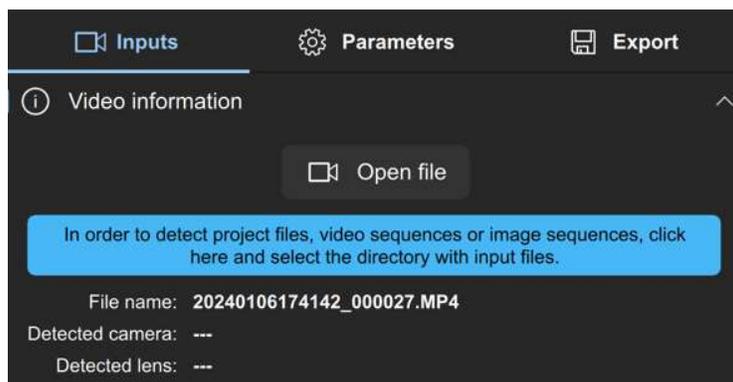
4. Click auto sync to sync the video and gyro data.
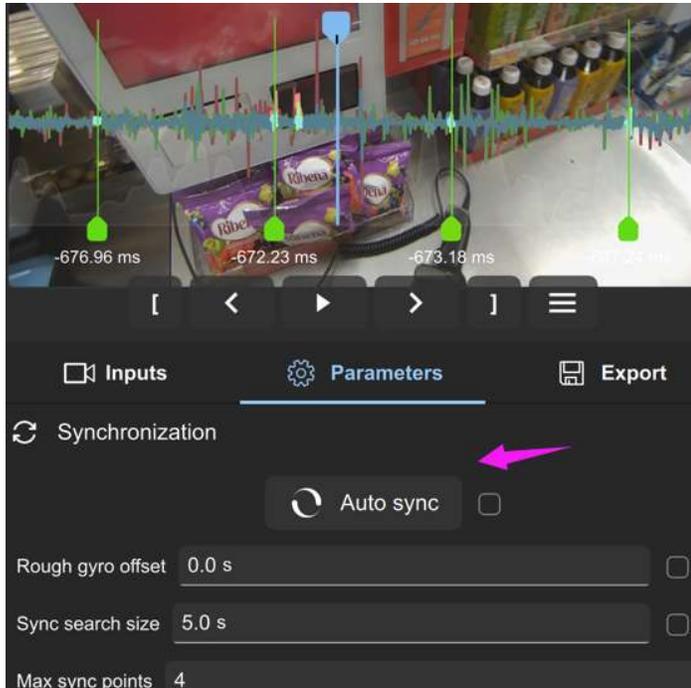
5. Export video
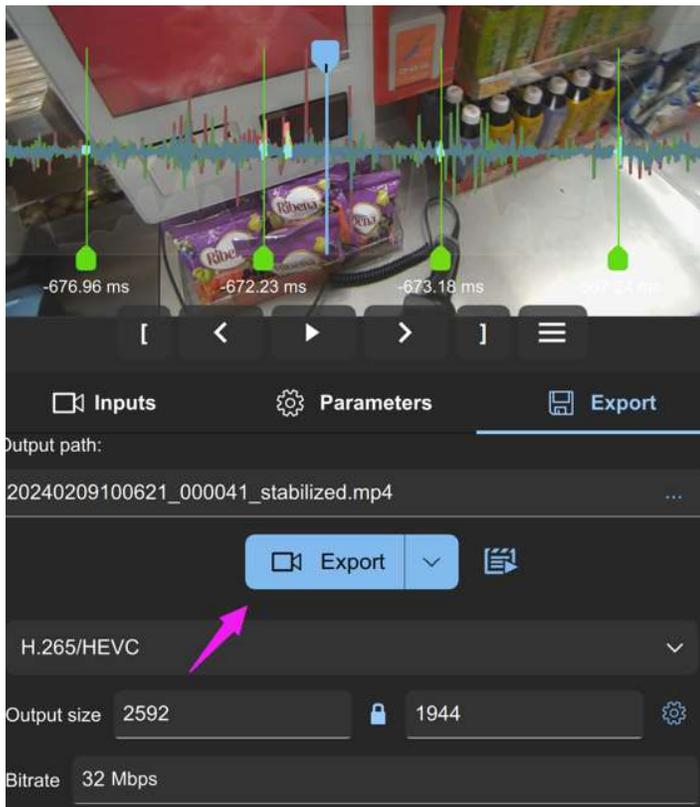
6. You can select a video clip or change resolutions to reduce the rending time.

Android:

Use sd card reader to ready the video and gyro data on the sd card, make sure they are on the same directory. （**4K 50 can not be stabled, cause no gyro data in this resolution**）

1.

20240311114534_202420.MP4 Video,

20240311114534_202420.gcsv Gyro file

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

Click here to open a video file

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

Inputs   Parameters   Export

Video information

Open file

In order to detect project files, video sequences or image sequences, click here and select the directory with input files.

File name: 20240106174142_000027.MP4
Detected camera: ---
Detected lens: ---
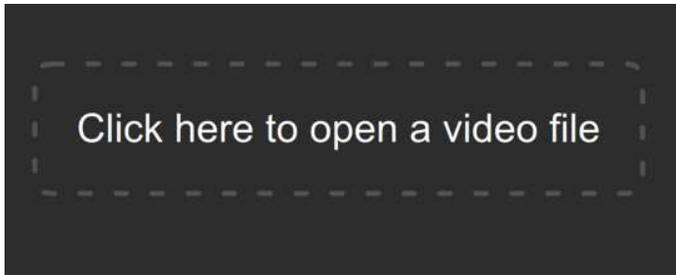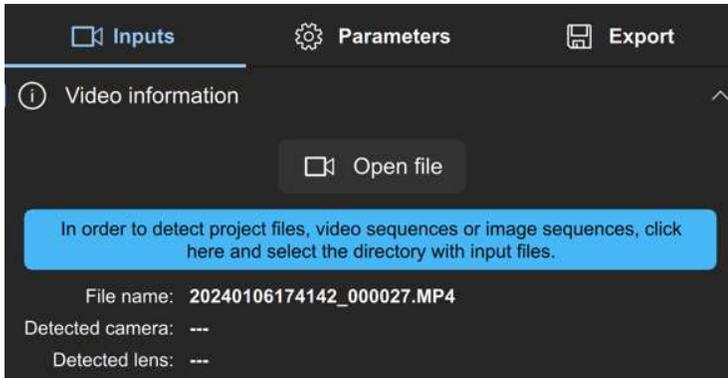
4. **Input "hawkeye thumb" to select lens profile(match the resolution).** (*1.55 version no need this step*）

Lens profile

Search...
Hawkeye thumb

☆ Hawkeye Hawkeye 2.5k 4:3 Hawkeye/Thumb2K5 50... ★★★★★
☆ Hawkeye Thumb 2.5k 4:3 2592x1944 30.00fps ★★★★★
☆ Hawkeye Thumb 2.5k 4:3 2592x1944 50.00fps ★★★★★
☆ Hawkeye Hawkeye 2.5k 16:9 Hawkeye/Thumb2K5 5... ★★★★★
☆ Hawkeye Thumb 1080p 16:9 1920x1080 50.00fps ★★★★★
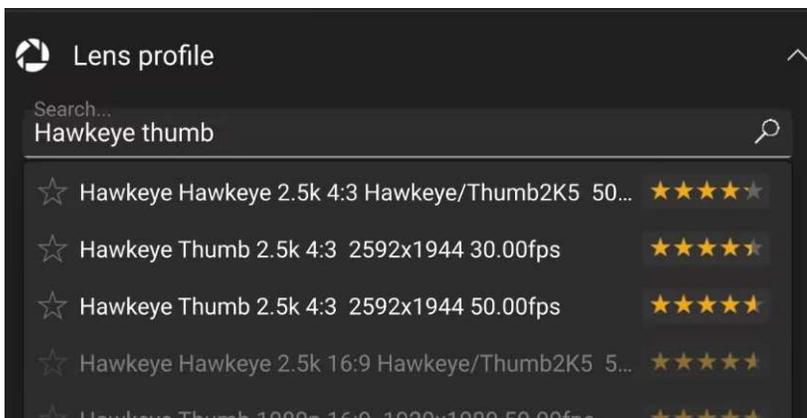
5. Load the Motion data (1.55 version no need this step):

Motion data

Open file

File name: 20210101000008_000001.gcsv
Detected format: gcsv Hawkeye

Low pass filter

Rotation
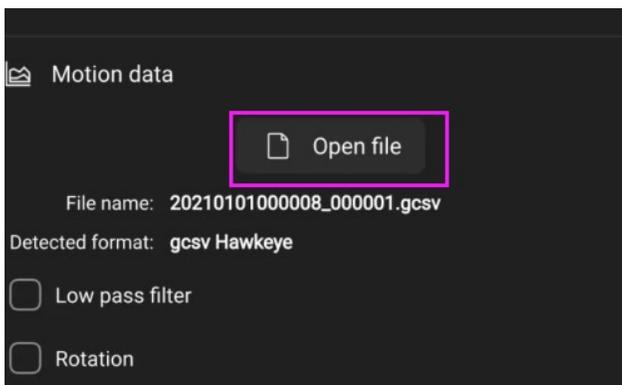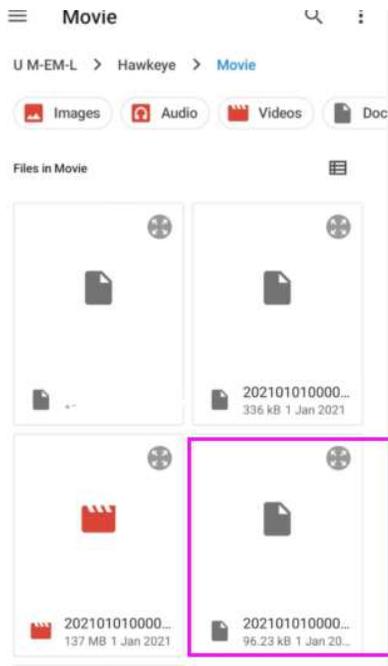
6. Click "auto sync".
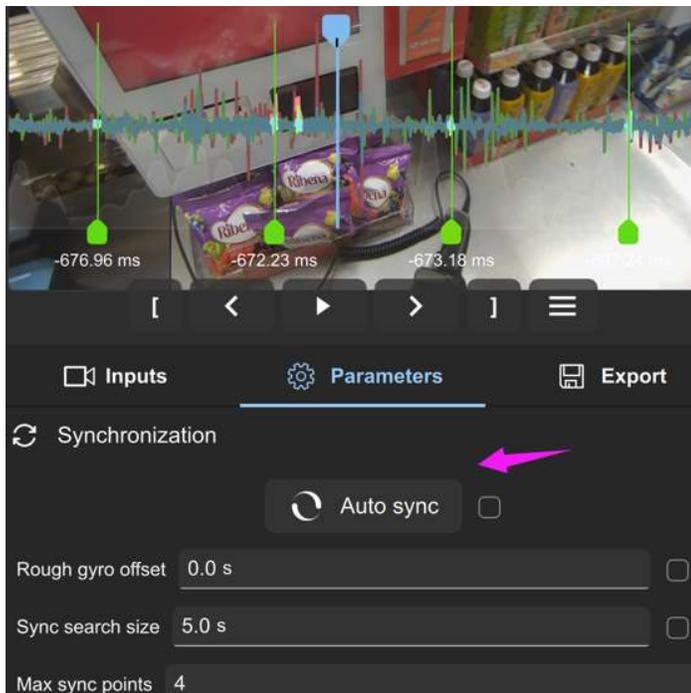
7. When finished, Export video
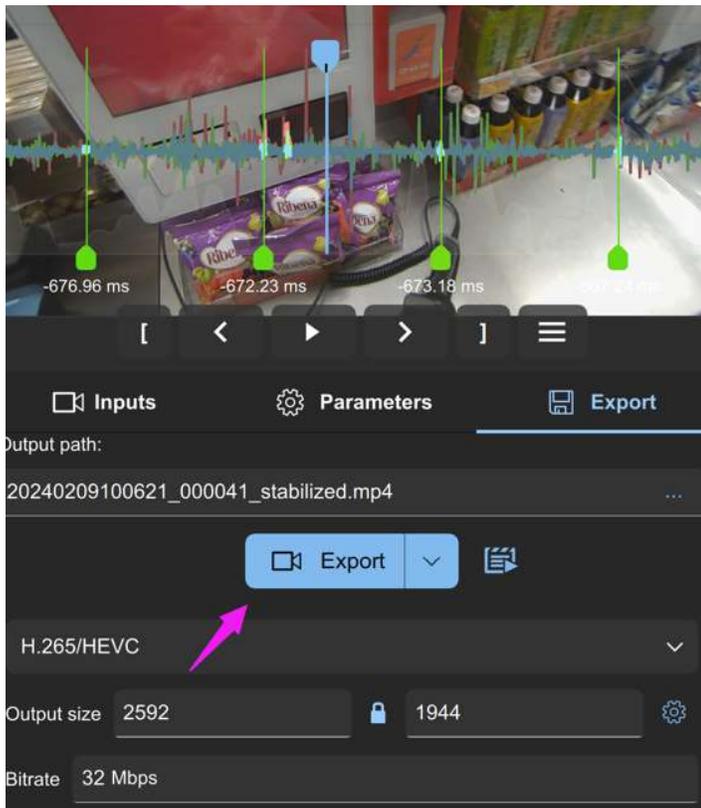
8. You can select a video clip or change resolutions to reduce the rendering time.
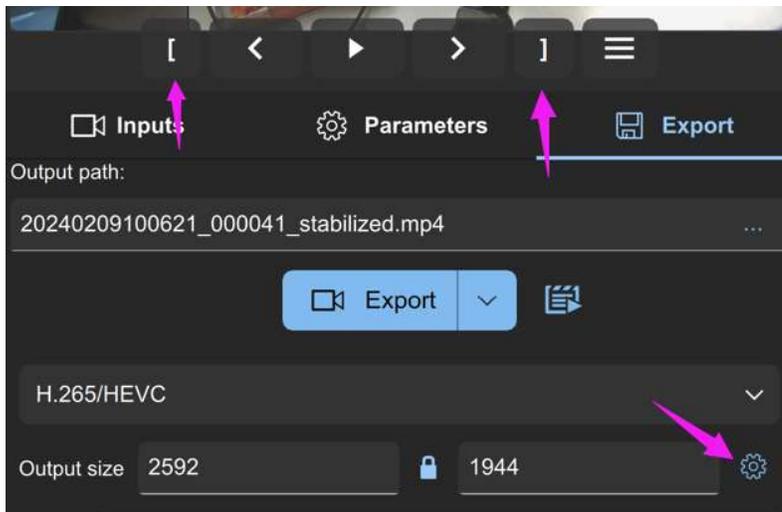
PC :

Software downloads (For WIN 10, 11):

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

The video and the gyro files are placed in the same directly and the file names are the same. **(4K 50 cannot be stabled, cause no gyro data in this resolution)**

1.

20240311114534_202420.MP4 Video,

20240311114534_202420.gcsv Gyro file
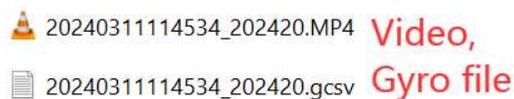
2. Double click to run gyroflow.exe and drop the video file in to the software.

Gyroflow.exe

Video information

◻️ Open file
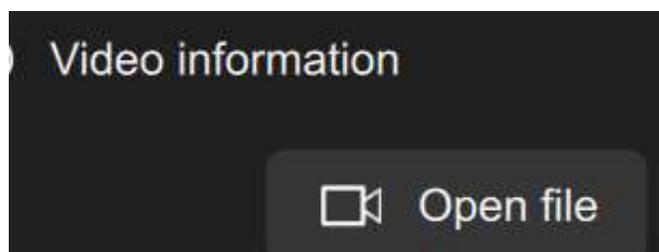
2. Sync search size: 3.5, max sync points: 5, then Click "Auto sync" and wait.
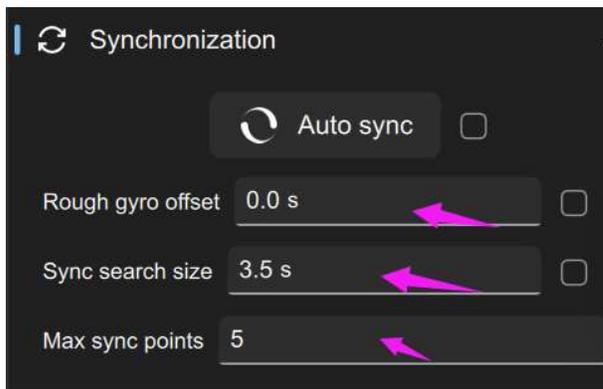
3. When the sync process is finished, export video.
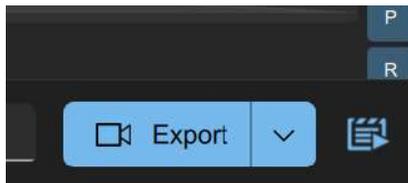
4. For saving time ,you can select a video click to output.
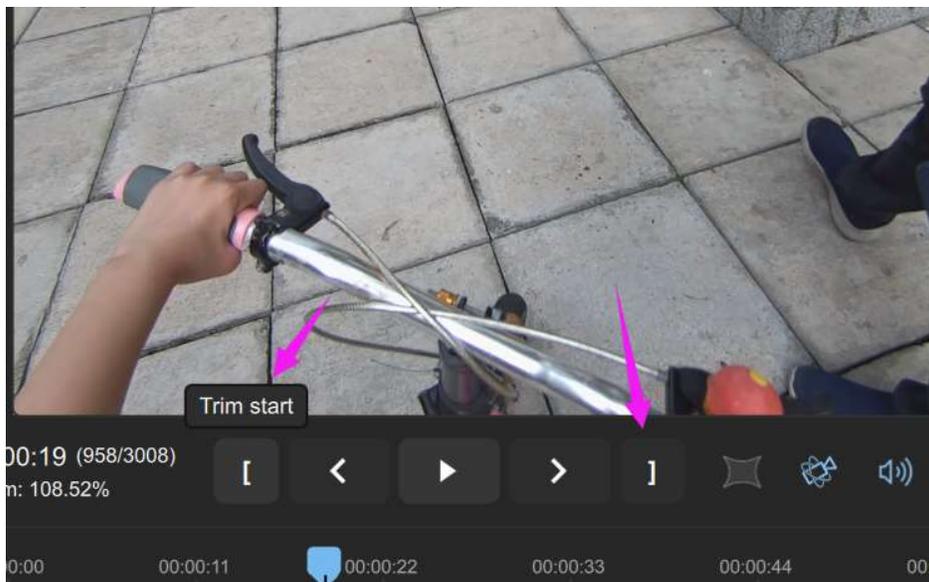
Portrait video：

When camera play in portrait, input 90 degrees in "rotation" in gyroflow:
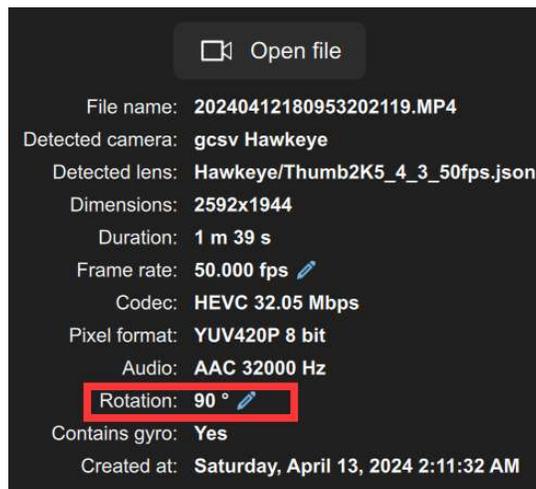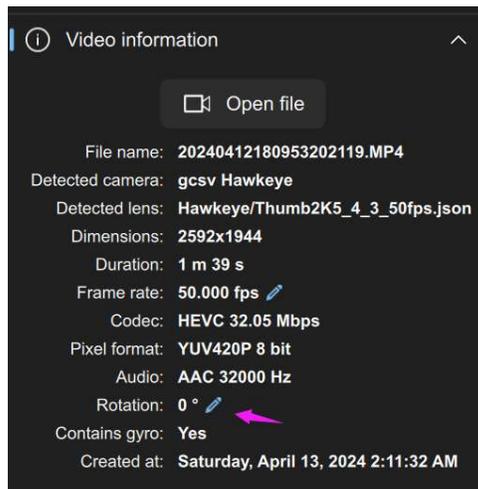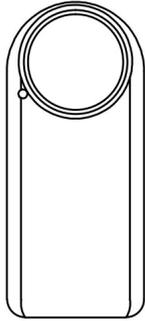
Set the output to portrait mode.
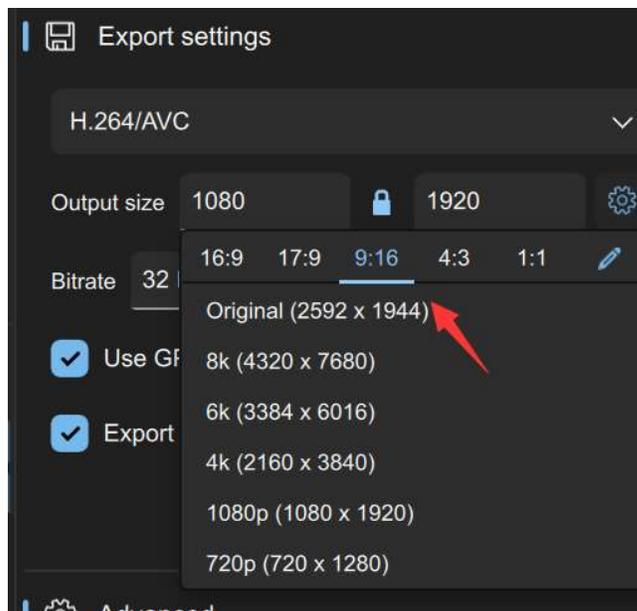
How to flip the chest clip to a vertical screen.

https://youtube.com/shorts/H8f_pgFre2Y?si=egb4KZYRow0yfU6A

Notes for Gyroflow :

1. Sync time change to 3-5 second:
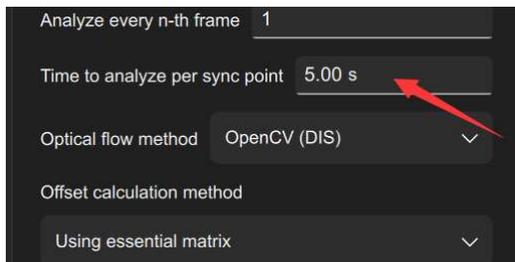
2.Use rs-sync:

3. (4K 50 can not be stabled, cause no gyro data in this resolution)

4.Select Dynamic zooming, then there will be no black side.
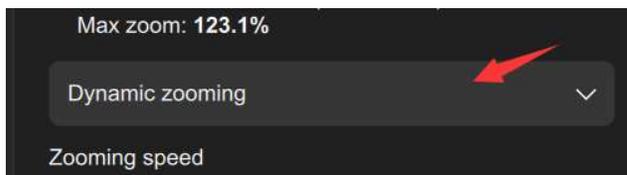
5.Sync points should be similar number, if its too different, delete it and add a sync point on other point(right click on the mouse).
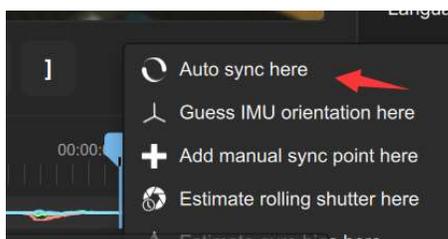
6.If can't export video , turn GPU off, change to H.264.
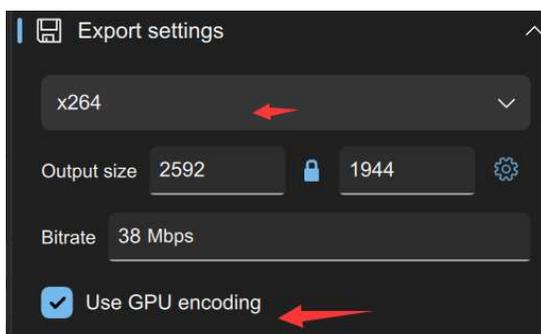
7.Software require Win 10,11. If can't open the software, install the VC pack: VC_redist.x64.exe .

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

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

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

    download-cta

10. 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/1b9hHcAquPv38hZttc9Xcz6gURHscVj-k/view

<u>Update Firmware:</u>

1. Delete all the files and folders in the SD card.
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/36fSIRs1pzE?si=vT9vUGLPa9ztV3Sk

<u>Video Settings:</u>

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 smoother! 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 look 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 meter, Lower meter.
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.
QUICK recording mode：OFF, ON: When it's ON. Short press to turn on the camera (long press to turn on by default), and then it will automatically start recording; press again to stop recording, and then within 5 seconds, if there is no operation, the camera will automatically shut down.
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 gyro log and stable the image in PC.
Gyro calibration：Please place the camera horizontally and keep it sate 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,中文.
Frequency：50、60HZ. Light frequency indoor. **When the video flickers indoor, change this setting.**
TV mode：NTSC、PAL. **We suggest NTSC that more smooth.**

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、6500K,6000K,5500K, 5000K,4150K,4000K, 3000K,2850K,2700K. White balance affects the image, warmer or cooler. Different Lens should use different white balance too. We recommend Hawkeye 4 for the stander lens.

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

De-noise：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.

Camera set up & tutorials:

https://youtu.be/UvgmEo4Zv5E

Gyroflow software tutorial:

https://youtu.be/Q0Rv532HyX0

Triggers:

The trigger pins(Active Low) need to be connected to the trigger control cable. Scan to watch.

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.

Remote control to record video:

A 2 way switch 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.
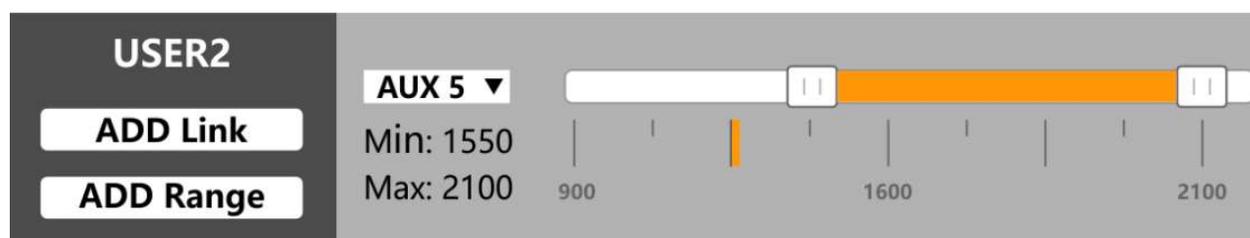
To activate or deactivate functions on the camera, you need to move the switch from the inactive state (white area) to the active state (yellow area), and then back to the inactive state (white area). To
The switch configuration of the flight controller and radio controller must match the settings of 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 :
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
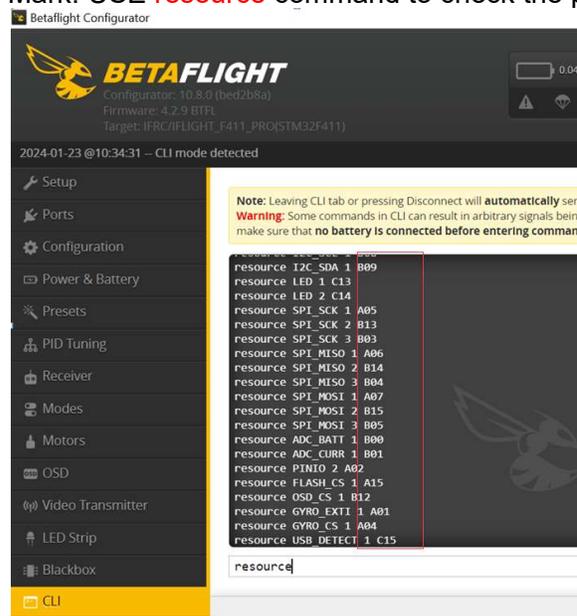
3D print files download from:

https://www.thingiverse.com/hawkeyefpv2/designs

NOTE:

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

For more information please check our

Youtube/Facebook/Instagram/Ticktock channel:

 HawkeyeFPV

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.