SMO 4K
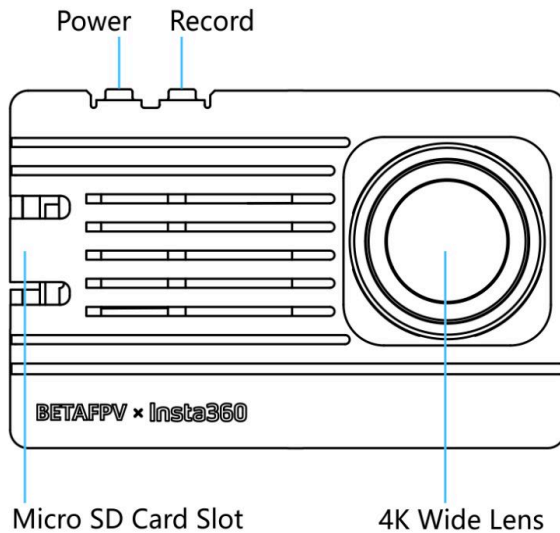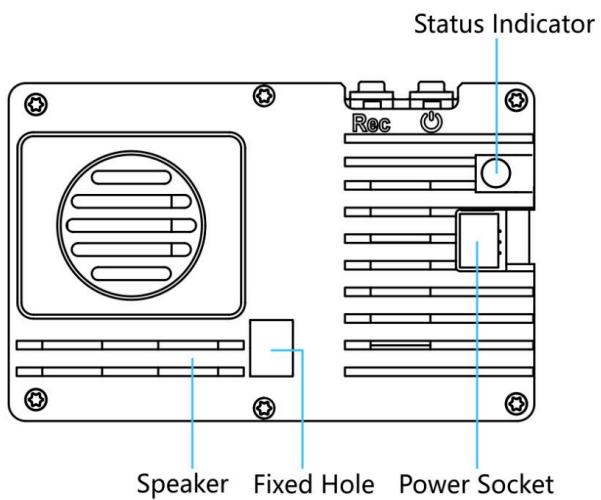
The SMO 4K camera is a camera developed by BETAFPV and Insta360 for FPV aerial photography. The camera is developed based on the Insta360 ONE R camera.
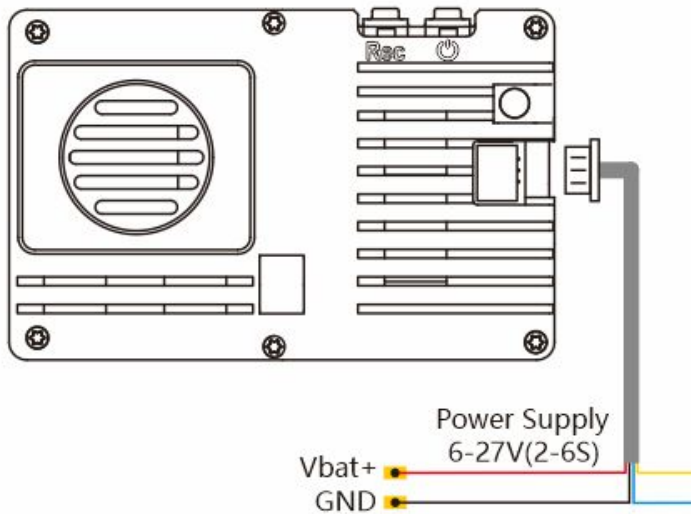
Front side of SMO 4K

Back side of SMO 4K
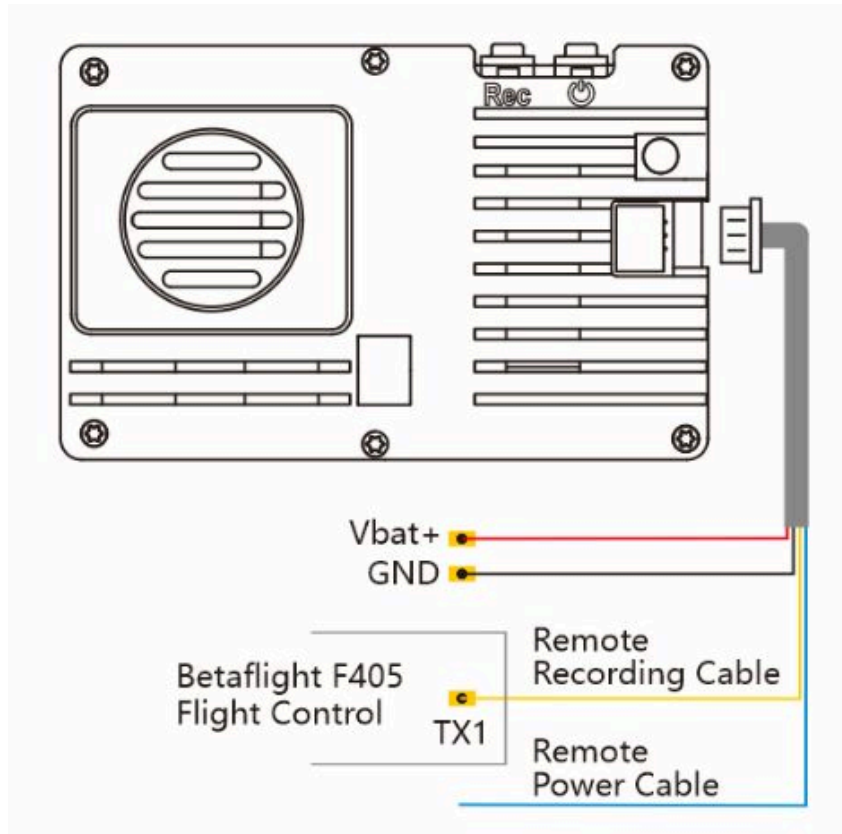
Preparation Before Using

Power supply

The power supply range of the SMO 4K camera is 6V-27V, which can be directly supplied from a 2S-6S model aircraft battery. The red wire in the connecting wires in the accessory kit is the power supply wire and is soldered to the battery positive pad (VBat+), and the black wire is the ground wire and soldered to the battery negative pad (GND). Connect the white SH1.0 plug to the power connector of the camera.

Remote control configuration

The SMO 4K camera supports remote control of the camera's power on/off and start/stop of the video recording through the controller. The yellow wire controls turning the video on/off and the green wire controls turning the camera on/off.

The following example uses the Betaflight F405 flight controller to explain how to configure the remote control to turn the video recording function on/off. The connection diagram is shown in the figure below. Use the TX1 pin on the flight controller to control recording, and connect the yellow wire. If you use a different flight controller, different TX pads may be available instead of TX1 and they may use different resource assignments. You will need to adjust configuration accordingly for your specific flight controller.

Configure the PINIO function of TX1 pin through the following Betaflight commands.
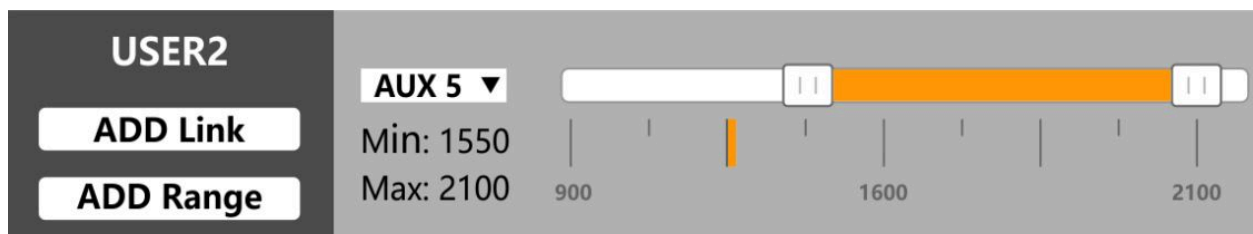
resource SERIAL_TX 1 NONE   //Turn off the serial port function of TX1 spindle

resource PINIO 2 A09   //Configure the TX1 pin (A09 pin) as the No. 2 PINIO function

set pinio_box = 40,41,255,255 //Set PINIO function interval

save   //Save configuration

The following diagram configures the PINIO function mapping relationship between the remote control and the flight control. In Betaflight Configuration, the PINIO function No. 2 (ie USER2 in the figure below) corresponds to the AUX5 channel of the remote control.
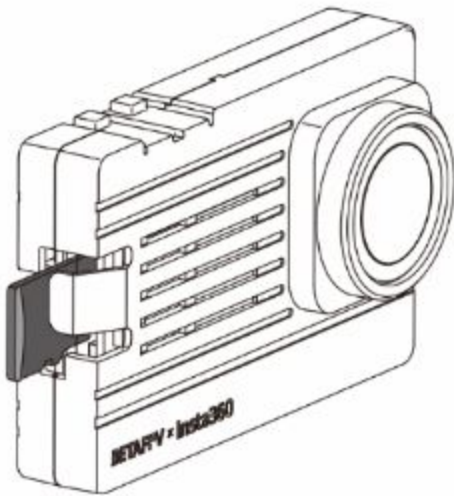
To activate or deactivate functions on the camera, you will need to move the switch from inactive (white area) to the active state (yellow area) and then back to the inactive state (white area).

Your flight controller and radio controller switch configuration must match the setup of your own equipment. Make sure you know what you are doing before configuring. If you do not use remote control function, cut or insulate the yellow and green wires separately and do not connect to any location.

Install Micro SD card

Lift the SD card protective cover and insert the Micro SD card with the label facing the side of the camera lens, then restore the protective cover.

插入Micro SD卡，标签朝向摄像头一侧

Please use UHS-I, V30 or higher versions and exFAT format Micro SD/TF memory cards. Using cards without enough speed may cause recording failure. The maximum size of Micro SD card this camera can support is 256 GB.

SMO 4K Interface

Power on/off

When the camera is off, press the power button. When the camera is on, the blue status light will be on.

When the camera is on, a long press the power button 2s will shut the camera off. Thus blue status light will also shut off.

Start/stop recording

When the camera is on, press the recording button to start recording. The status light flashes red.

When the camera is recording, press the recording button to stop recording. The status light will turn off.

When the camera is connected to WiFi in the mobile APP, the recording button will no longer work.

LED Indicator

The status LED indicates the working status of the camera.

State of the LED	Camera status
Blue light flashing	SD card error
Blue light normally on	The power is on and the SD card is normal
Red Light Flashing	Recording

APP download and WIFI connection

The SMO 4K camera and Insta360 ONE R camera use the same camera control APP.

Scan the QR code below on your mobile phone, or go to the APP Store and search "Insta360 ONE R" to download the APP.

After downloading the APP and installing it successfully, you can use the phone's WIFI to connect to the camera:

1. Turn on your phone's Bluetooth and WiFi functions.

2. If the camera is off, press the power button to start the camera.

3. Search for a WiFi station with the name of "**ONE R XXXXX**" by mobile phone, and connect to the WiFi with the password of **88888888**.

4. Open the APP and click the camera icon at the bottom of the app page to enter the camera control page. When you see the picture transmitted from the camera, the connection is successful.

5. After successful connection, you can record videos and set up through the app.
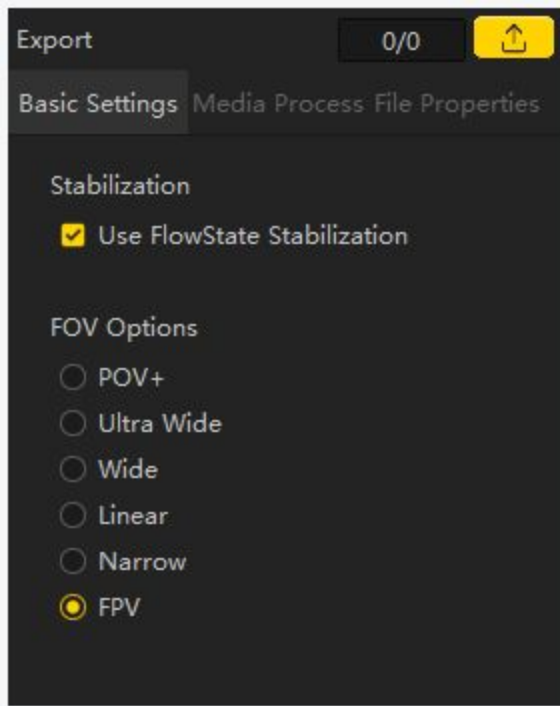
Note: The effective distance of WIFI connection is 2 meters (no interference and no shielding). Since the SMO 4K camera has no screen, the WiFi connection process is different from Insta360 ONE R. If prompted "First connection requires confirmation on camera", exit and proceed to step 3 above.

STUDIO Download & Stabilization Processing

The SMO 4K camera uses the same app as the Insta360 ONE R.

Go to https://www.insta360.com/cn/download/insta360-oner to download Insta360 STUDIO post-processing software.

Insta360 STUDIO has added an FPV augmenting model for processing SMO 4K aerial video. After importing the video, select "Basic Settings" on the right side, check "Enable FlowState Stabilization" and select "FPV" from the perspective box;

Camera parameters

This camera is customized from the Insta360 ONE R camera and uses the same master PCBA board as the ONE R camera.

Specification:

- Weight: 30g

- Size: 61.5mm×39.4mm×29.2mm

- Power supply range: 6V-27V (2S-6S Li-Po battery)

- Lens aperture: F2.8

- 35mm equivalent focal length: 16.4mm

- Video resolution:

4000x3000@24/25/30fps,

3840x2160@24/25/30/60fps,

2720x1530@24/25/30/60/100fps,

1920x1080@24/25/30/60/120/200fps

● Video format:

insv（可通过 APP 或 Studio 导出）

Insv (export through APP or Studio)

mp4（开启机内 Basic Stabilization 防抖）

Mp4 (Enable Basic Stabilization in the computer)

In 1.2.16 Firmware and subsequent firmware versions, the original INSV format shall be adjusted to MP4 format, the file name prefix shall have the "PRO_" mark, and Flow-state anti-shake effect shall be exported through APP or Studio

● Video code: H.264 / H.265

● Video mode:

Normal video, HDR video, Time-lapse photography, TimeShift mobile time-delay video; Base stabilization mode (camera stabilization),

Pro Buffeting mode (Use Insta360 App/Studio or supported plug-in export to implement FlowState buffeting)

● Video maximum bit rate: 100Mbps

● Bluetooth: BLE4.0

● Wi-Fi: 5G (standard range approx. 20 m)

● Micro SD card: UHS-I V30 speed level and above recommended, exFAT (FAT64) format (maximum storage capacity is 1T)

● Operating environment: -20° C ~ 40° C

Included

1 x SMO 4K camera
1 x Spare camera bottom cover
2 x Power cord with SH1.0 terminal
1 x UV filter

1 x ND16 filter
1 x Bottom cover screwdriver
2 x Spare screw for camera bottom cover
1 x Camera mounting screw and nut
1 x Manual