



**FOXTECH HOBBY Co., Ltd**

Add:(3rd Floor) No.9 Haitai Fazhan Sixth Avenue  
XiQing District Tianjin China  
Web: [www.foxtechfpv.com](http://www.foxtechfpv.com)

## **FH336 V2 36X Optical Zoom Starlight Camera with 3-axis Gimbal**



### **Warning and Disclaimer**

Make sure not to adjust the gimbal or change its mechanical structure by yourself. Be sure to mount the camera to gimbal before power on, and then install the gimbal on the aircraft.

To avoid gimbal performance degradation or damage caused by imbalanced payload, please do not add other peripherals for the gimbal camera (filter, hood, etc). When in aerial photography, make sure your aircraft flight control system is working at the safe mode.

We strongly recommend that you remove aircraft propellers before doing gimbal configuration. Use extra non-power battery for gimbal. Keep children away from the preset flight region.

Considering that we are not able to control user's specific usage, installation, assembly, modification ( including the use of non-specified parts ), and improper use. Direct or indirect damage or injury caused by the behavior above, our company will not cover any loss and responsibility.



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### Main features

- 1) 945g, light weight
- 2) 1/2 inch 2.17MP CMOS sensor
- 3) 36X optical zoom, 1080P 30 /25fps HDMI output
- 4) 1080P 60/30 H.264 video recorded for on-board TF card
- 5) Auto object tracking
- 6) Geotagging
- 7) PWM/ Serial command/Sbus control
- 8) Convenient wiring hub for RC receiver and video output
- 9) 3-axis high stabilized gimbal system

### Gimbal description



[1]Yaw axis motor  
[3]Pitch axis motor  
[4]Wiring hub

[2]Roll axis motor  
[5]Camera



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### System specification

36X zoom camera	
Sensor	1/2 inch 2.17MP CMOS SENSOR
Video Output	HDMI+Ethernet
Focal length	36x optical zoom, 6.0-216mm
Wide Dynamic	Up to 120dB
Auto focus	Less than 1S
IR cut	Support
FOV	Horizontal: WIDE 56.50° TELE 2.12° Vertical: WIDE 34.58° TELE 1.99°
Low illumination	Color DSS(1/1s, 77.7dB): 0.001Lux Black&white DSS(1/1s, 77.7dB): 0.0002Lux
Aperture	Φ 16.0
Vertical Roll / Horizon Mirror/Static	Support
Gimbal system	
Input voltage	3S-4S
Rotate range	Pitch: -45°~+90°; Roll:±70° Yaw:±290°
Angle amount of jitter	Pitch and roll:±0.01° Yaw:±0.01°
Control interface	PWM/ Serial command/Sbus control
Working Current	Static current:450mA(@12V) Dynamic current:550mA(@12V)



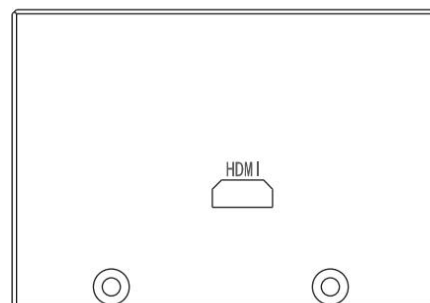
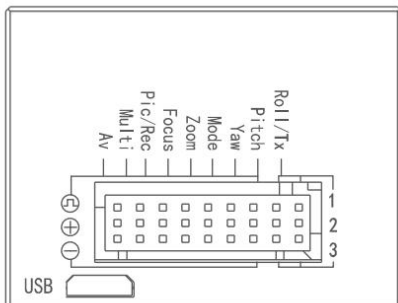
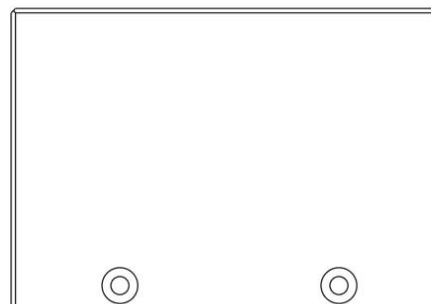
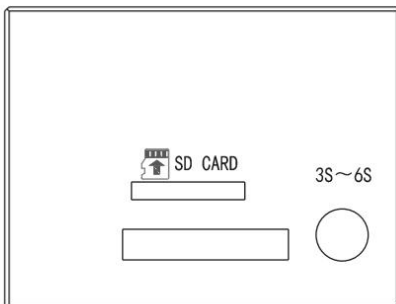
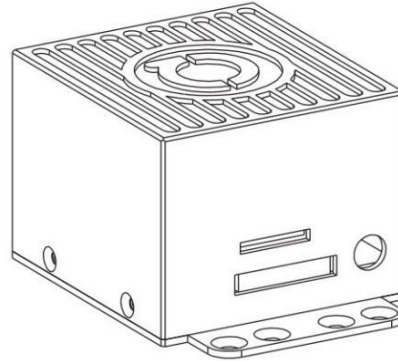
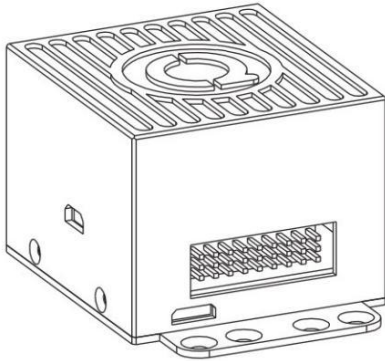
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**Gimbal wiring hub drawing**

Size : 64\*45\*20

Unit : mm



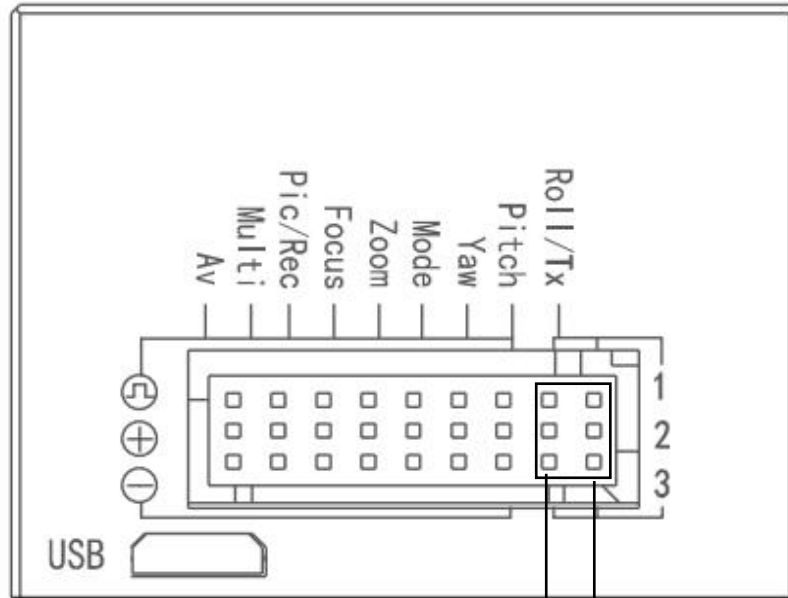
**Notice:HDMI output is 1080P 30FPS,SD card supports max class 10**

**128G**



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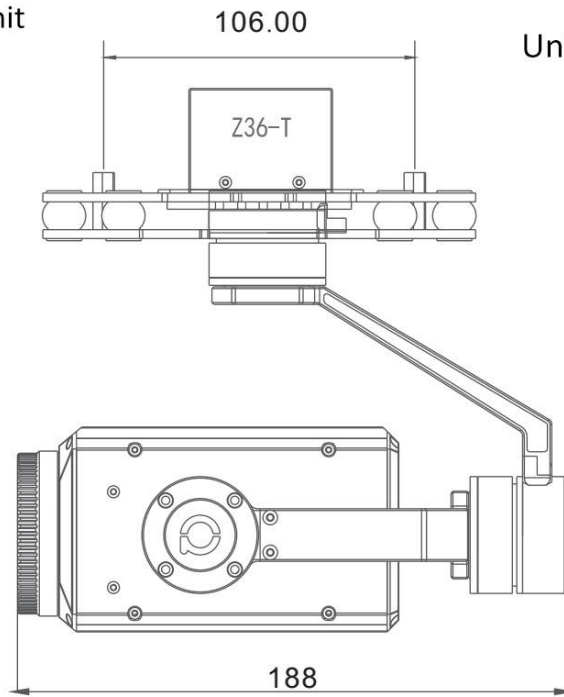
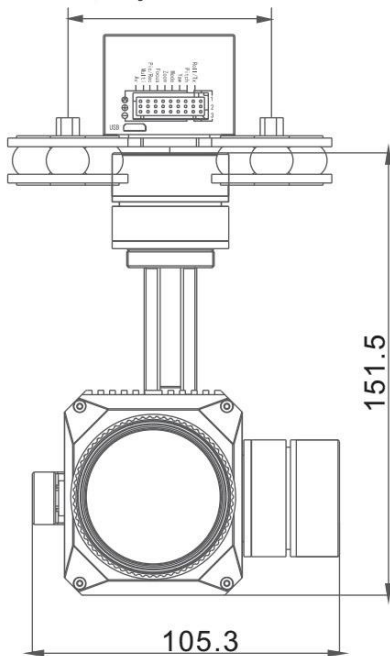
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**Tx3 Rx3**

**Dimension**

54.00~102.00  
Distance adjustment based on 4mm unit



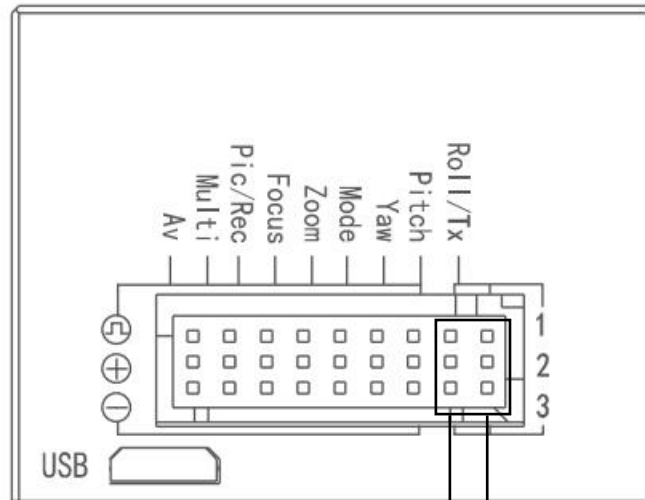
Unit : mm



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### GPS data overlay and serial port wiring diagram



Tx3 Rx3

GPS Baud rate:115200,8,1,null

Serial ports will be needed(marked by the black box,see photo above),please connect RX1 and RX2,TX1 and TX2,with wire jumper.TX and RX from external serial cable connect to TX3 and RX3 respectively.GND from external serial cable connect to GND of the wiring hub.

**Please notice:DO NOT connect 5V and GND to the ports marked by the black box.**

### Gimbal and camera control via PWM





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### **Gimbal control**

1)Yaw axis control: speed mode, connect stick channel(or 3-position switch channel, push stick to middle position to stop)

2)Pitch axis control: speed mode, connect stick channel(or 3-position switch channel, push stick to middle position to stop)

3)Mode control: angle mode, connect knob channel(speed mode: connect 3-position switch channel or Stick channel)

If connecting knob channel, rotate to one end, the gimbal is at lowest speed when controlling YAW and PITCH axis.

Rotate the knob to any position, gimbal is at higher speed when controlling YAW and PITCH axis. Rotate to knob to another end, gimbal back to center position.

4)Multi:tracking function control

### **Camera control**

1)Zoom control:connect 3-position switch or stick channel

2)Focus: connect 3-position switch or stick channel for manual focus control. If do not connect any channel, then camera will auto focus after zooming

3)Pic/REC:taking picture/recording, connect 3-position switch channel

Flip the stick from middle position to high position, taking picture/recording mode switch

Flip the stick from middle position to low position:

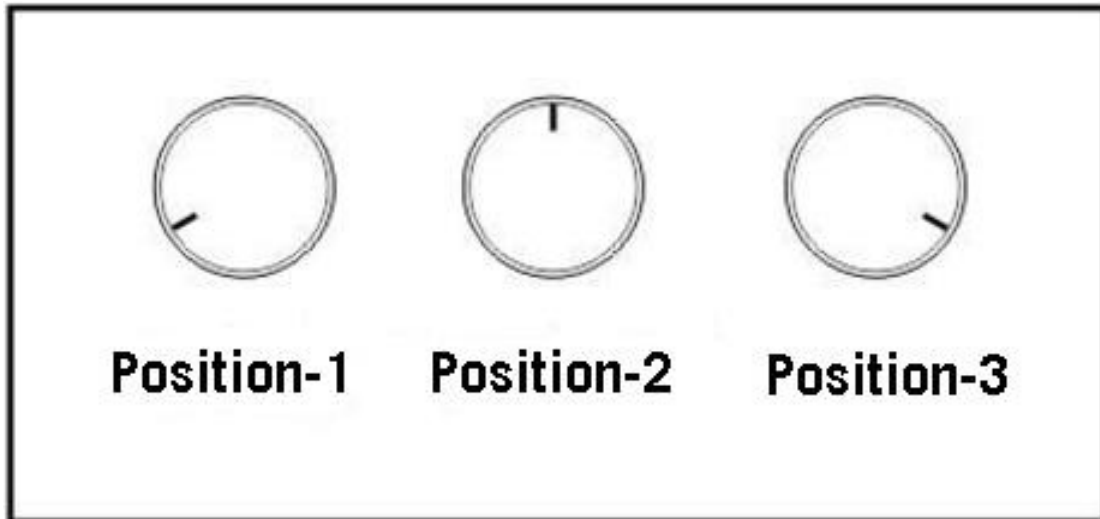
A:If under recording mode:record start,flip from middle to low again,record stop B:If under taking picture mode,start taking picture



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### Mode function description(connect "MODE" to knob channel)



Rotate knob to position-3:low speed lock mode.The gimbal will move at the lowest speed when controlling YAW and PITCH, and gimbal YAW axis will not follow drone flight direction.

Rotate knob to any position except position-3:variable speed follow mode. Gimbal speed will be faster(the speed depends on the angle you rotate the knob, the bigger the faster).

Rotate knob to position-1,gimbal back to home position.

Flip 1 time between position 2 and position 1,gimbal goes back to home position

Flip 2 times between position 2 and position 1,gimbal goes to speed mode.

Flip 3 times between position 2 and position 1,gimbal goes to angle mode.

Flip 4 times between position 2 and position 1,gimbal goes to accelerometer calibration

Flip 5 times between position 2 and position 1,gimbal goes to gyro calibration

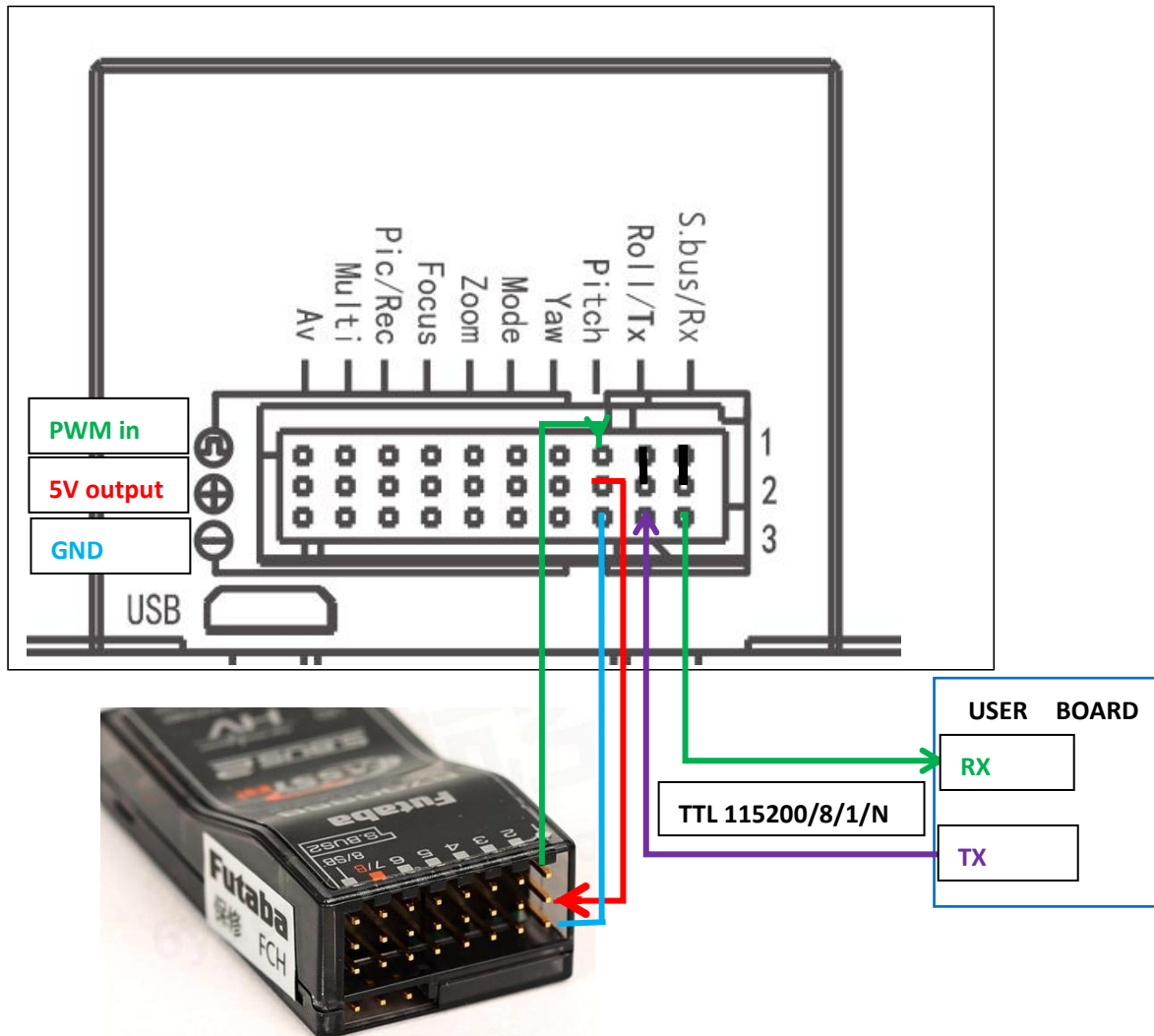
**Notice:**gimbal will goes to gyro calibration automatically if the gimbal stays still with the power on.The gimbal will works in the mode that is used last time.The factory work mode for the gimbal is angle mode.



## FH336 V2 36X with tracking connect block



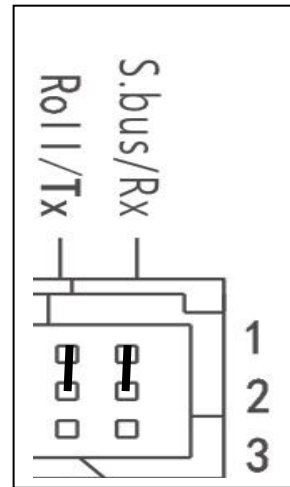
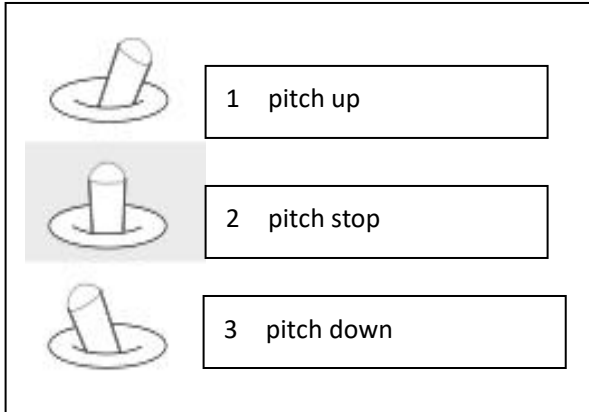
HDMI : micro HDMI OUTPUT  
1080P 60fps default  
SD card: max 128G , class10  
FAT32 or exFAT format



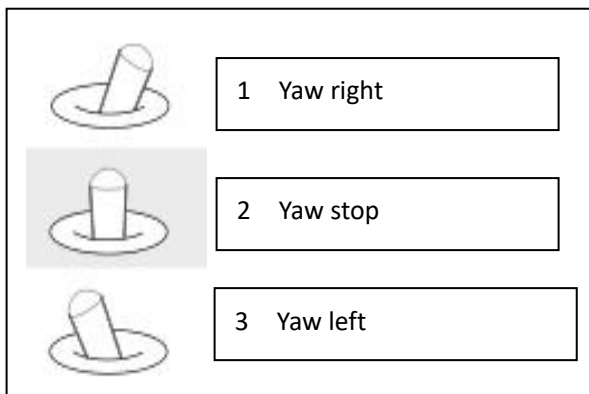
S.bus/Rx : connect to Rx2 for track function.

Roll/ Tx : connect to Tx2 for track function.

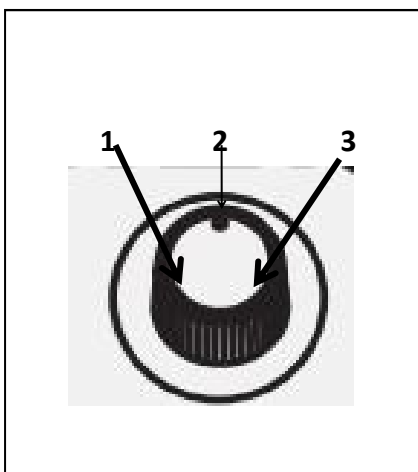
Pitch: : PWM in, pitch control



Yaw : PWM in, Yaw control



Mode: change the speed / home position



Position 1: lowest speed for pitch and yaw.

Position 2: middle speed for pitch and yaw.

Position 3: highest speed for pitch and yaw. the speed is continuously quickly from 1 to 3.

**Click = from 2 to 3 and back to 2 quickly.**

**One click : home position**

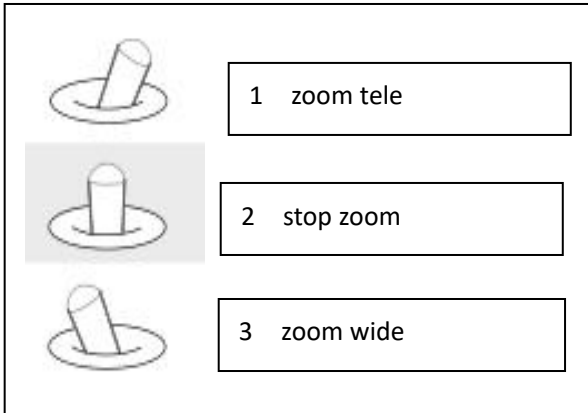
**Two click: look down**

**Three click: Yaw not followed by frame**

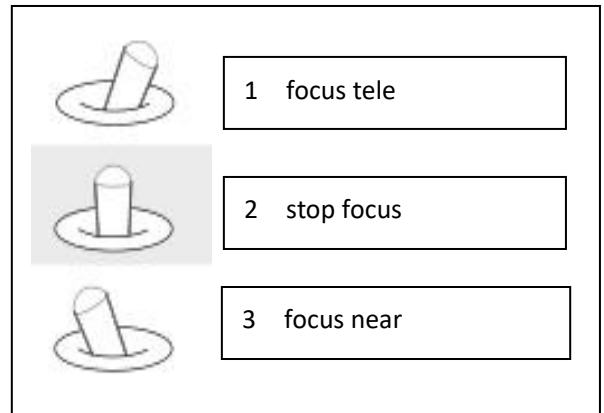
**Four click : Yaw followed by frame**

**Five click : restore the factory settings**

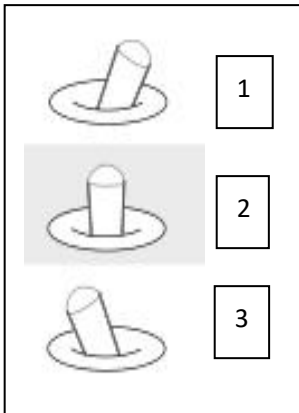
ZOOM: zoom the camera



focus : focus the camera



Pic/Rec : picture / start record, stop record



Switch 2 to 1:

start record stop record.

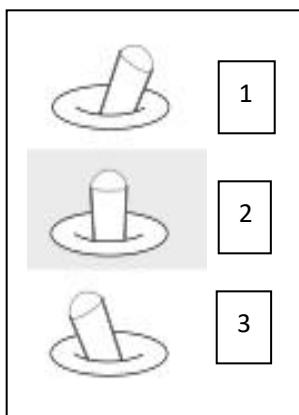
start record, the OSD display rec hh:mm:ss ;

Stop record, the OSD display STBY.

Switch 2 to 3: take a picture .

OSD display ' REC IMG ' a second.

Multi: tracking control



Position 1: exit the tracking

Switch 1 to 2: display the cross cursor. Adjust the object to the cross cursor.

Switch 2 to 3: start tracking.

Change the object during tracking

Switch 3 to 2: display the cross cursor, use Pitch/Yaw to adjust the cross cursor.

Switch 2 to 3: start tracking.

AV: NO AV output this model.