FOXTECH SEEKER-30 TIR 30X Optical Zoom Camera with 3-axis Gimbal
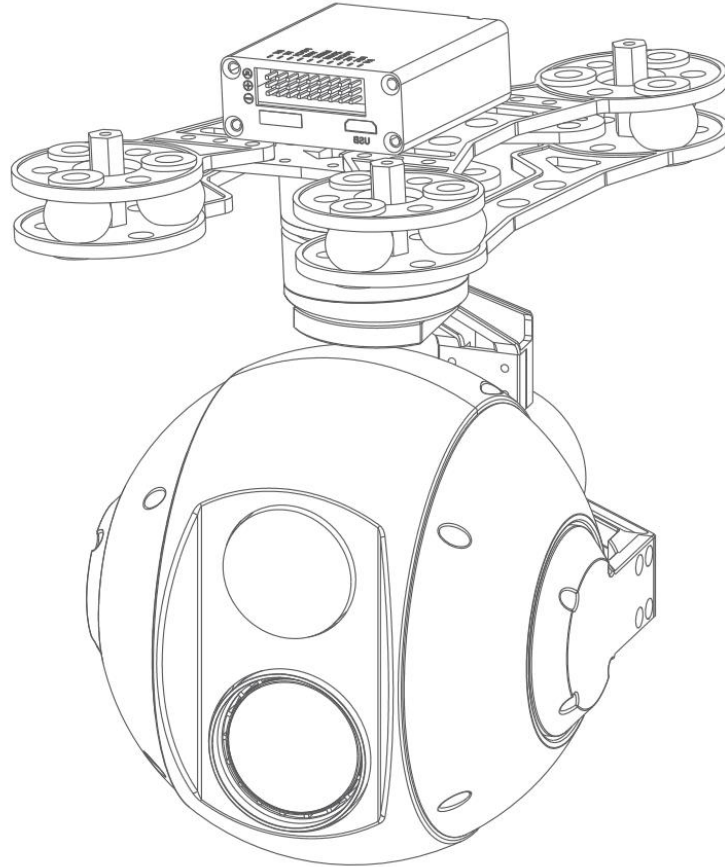
Warning and Disclaimer

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.

Features:

-Weight:1400g(cameras included)

-1/2.8 inch 2.13MP Exmor R CMOS sensor

-30X optical zoom,1080P/60 HDMI output for video downlink

-1080P/30 H.264 video recorded for on-board TF card

-Thermal camera: 640x480, 25HZ, 2X,4X digital zooming

-Auto object tracking function

-Geotag,gimbal Yaw/Pitch angle info,height,time will be displayed

-PWM control and serial command control

-Convenient wiring hub for RC receiver and video output

-3-aixs high stabilized gimbal system

-Adjustable control speed: SLOW speed for large zoom range,accurate.FAST speed for small zoom range,sensitive and quick.

-One key back to home position

Gimbal:
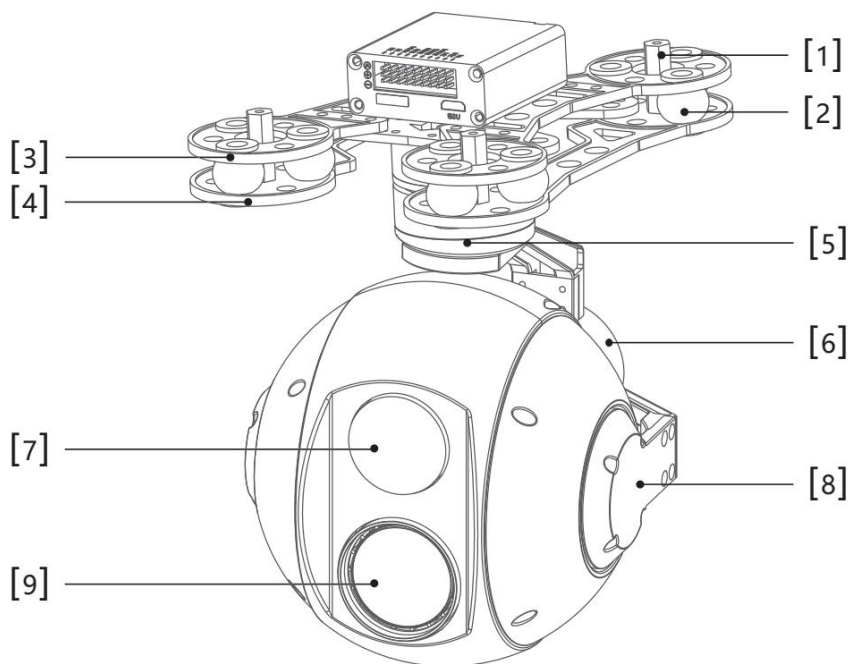
[1]Copper mounting standoff   [2]Rubber damper
[3]Upper damper board   [4]Lower damper board
[5]Yaw axis motor   [6]Roll axis motor
[7]Thermal Camera   [8]Pitch axis motor
[9]Daylight HD zoom camera

FOXTECH

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Specification

30X zoom camera	
Sensor	1/2.8 inch 2.13MP Exmor R CMOS SENSOR
Video output	1080P/60 HDMI
Video recorded	1080P/30 H.264
Focal length	30X optical focal zoom,4.3-129mm
Wide Dynamic	Up to 105dB
Auto focus	Less than 1S
Low illumination	0.01lux@F1.6
Aperture	Φ 16.0
Vertical Roll / Horizon Mirror/Static	Support
AWB/AGC/ACC/	Support
Gimbal system	
Input voltage	4S-6S
Rotate range	Pitch:±90° Roll:±85° Yaw:±170°
Angle amount of jitter	Pitch and roll:±0.01° Yaw:±0.01°
Control interface	PWM and serial command
Working Current	Static current:400mA(@16V) Dynamic current:500mA(@16V)

Observation Distance							
	640*480	People(1.8m x 0.5m)			Car（4.2m x 1.8m)		
Focal Length	Field Angle (°)	Detect (m)	Discern (m)	Recognize (m)	Detect (m)	Discern (m)	Recognize (m)
25mm	24.6x18.5	735	184	92	2255	564	282

Thermal camera		
Imaging Index	Working system	Un-cooled long wave (8μm～14μm)
	Detector pixels	640×480
	Pixel size	17μm
	Focusing	Athermalizing
	Emissivity correction	Emissivity 0.01~1 adjustable
	NETD	≤50mK(@25℃)
	MRTD	≤650mK(@Characteristic frequency）
	Image enhancement	Automatically adjusts image brightness and contrast
	Color palette	Black hot, white hot, pseudo color
	Automatic non-uniformity correctionfunction	Yes(with or without shutter)
	Digital zoom	2X,4X
	Time synchronization function	Yes
	Temperature warning	Warning temperature -20℃～120℃
Tracking index	Target Memory Time	4S
	Data refresh rate	25Hz
	Output lag	＜3ms
	Tracking velocity	±32 pix/frame
	Target size	16x16 pixels to128x128 pixels

Gimbal wiring hub drawing
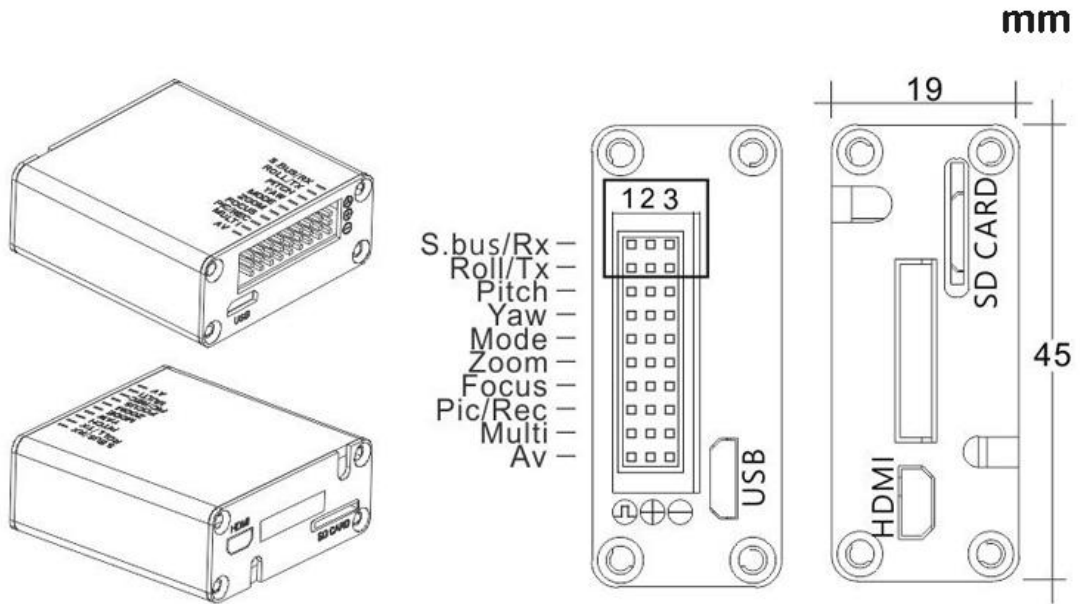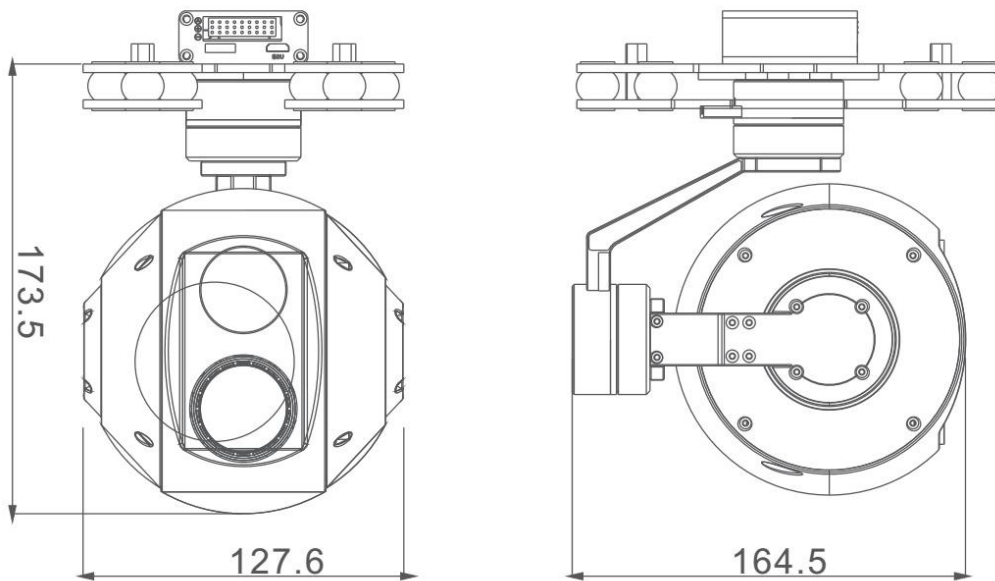
mm

S.bus/Rx —	
Roll/Tx —	
Pitch —	
Yaw —	
Mode —	
Zoom —	
Focus —	
Pic/Rec —	
Multi —	
Av —	

1 2 3

USB

SD CARD

HDMI

19

45

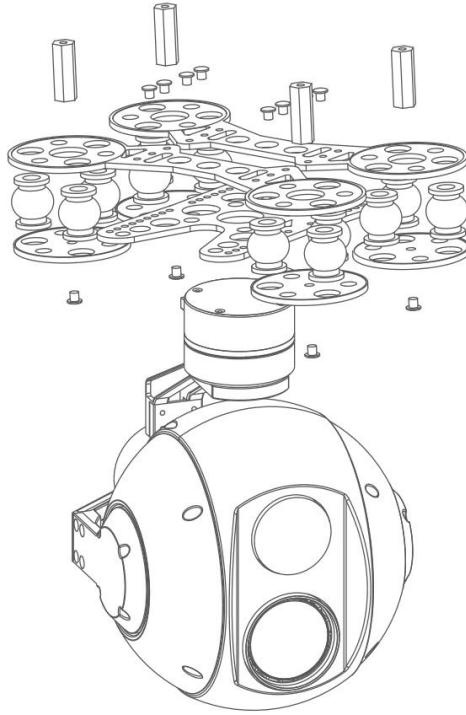## Dimension

Unit ：mm

173.5

127.6

164.5

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Installation

Gimbal and camera control via PWM

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 channel or rocker 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 control,connect 3-position switch channel

Middle to low:quit tracking mode,cursor disappear

Low to middle:go to tracking mode,cursor appear

Middle to high:one square appears,object is locked,tracking is activated

Middle to high again:re-track mode,cursor appears in the square.Gimbal is still tracking the object,now you can move the cursor to track another object(middle to high stick again).

Camera control

1)Zoom control:daylight sensor zoom control,connect 3-position switch or rocker channel

2)Focus:Picture in picture switch and palette switch,connect 3-position switch channel. Middle to Low:palette switch.

Middle to High:picture in picture switch.

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

Middle to high,recording start

Middle to high again, recording stop
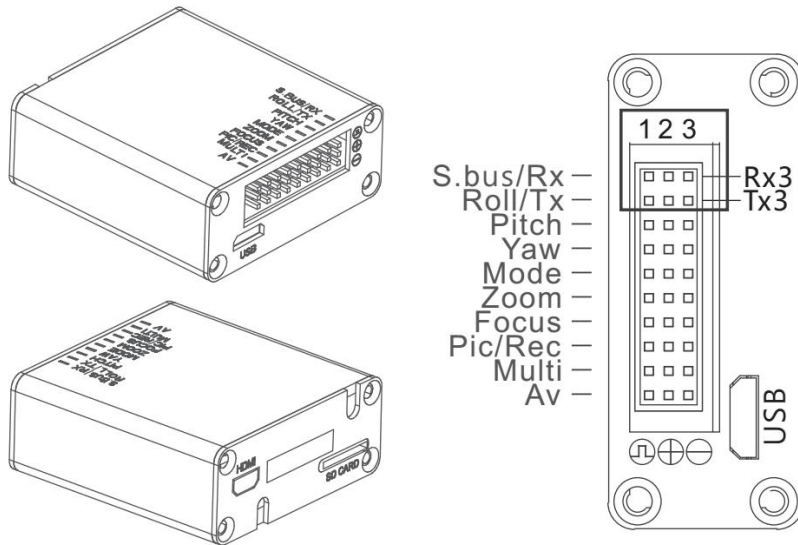
Middle to low, taking picture

Middle to low, taking another picture

## GPS data overlay and serial port wiring diagram

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.

Mode function description(connect "MODE"to knob channel)
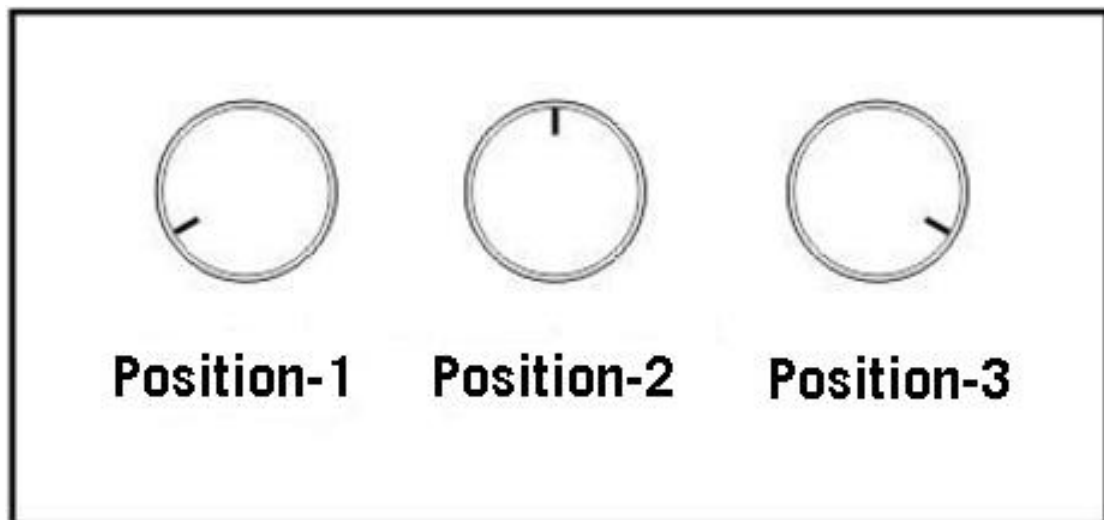
Position-1　　　Position-2　　　Position-3

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.
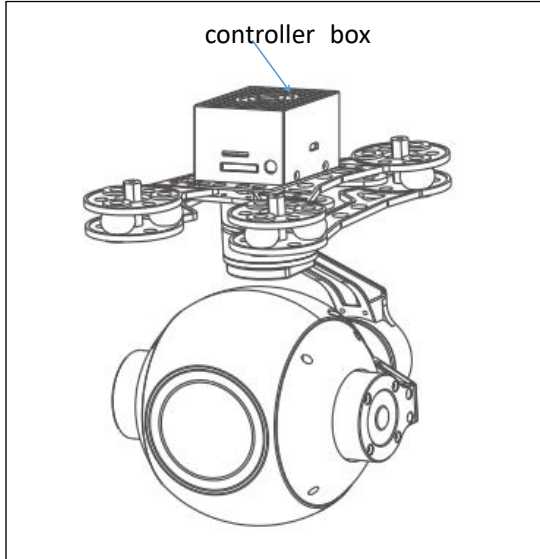Flip 3 times between position 2 and position 1,gimbal goes to angle mode.
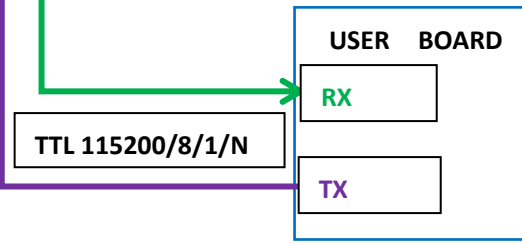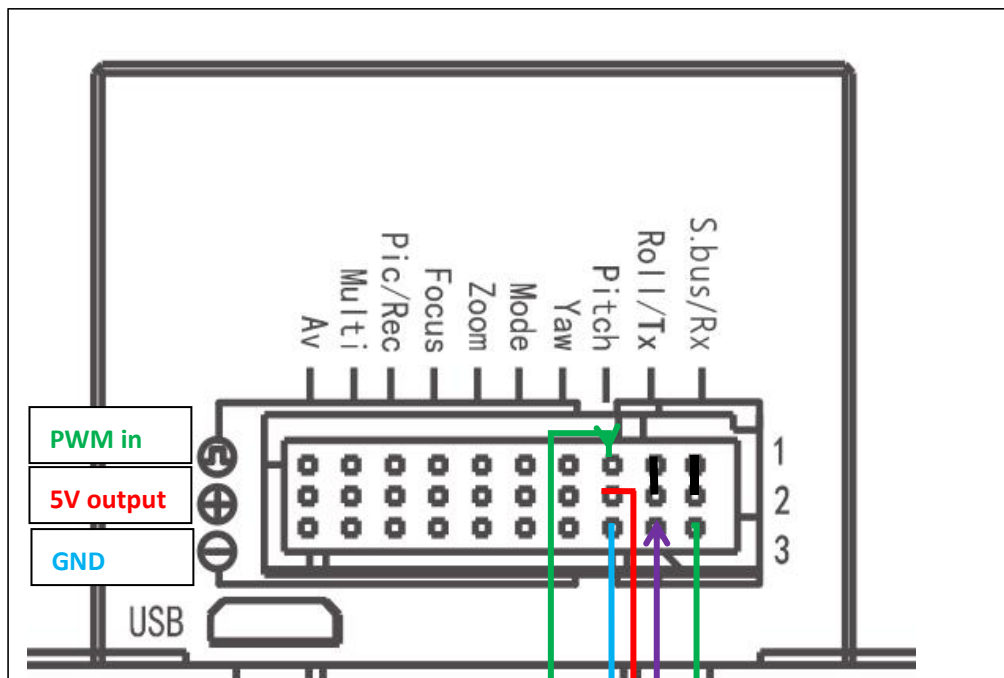Flip 4 times between position 2 and position 1,gimbal goes to accelerometer calibration
Flip 5 times between position 2 and position 1,gimbla goes to gyro calibration
Notice:gimbal will goes to gyro calibration automatically if the gimbal stays still with the power on.The gimbal will works in the mode that is used last time.The factory work mode for the gimbal is angle mode.

FH336-TR 36X with tracking connect block

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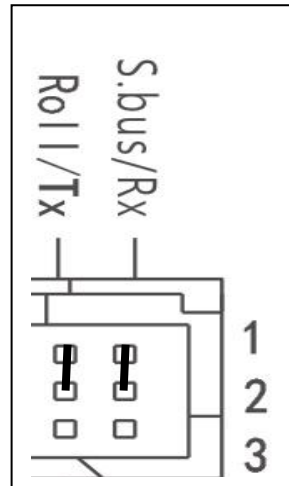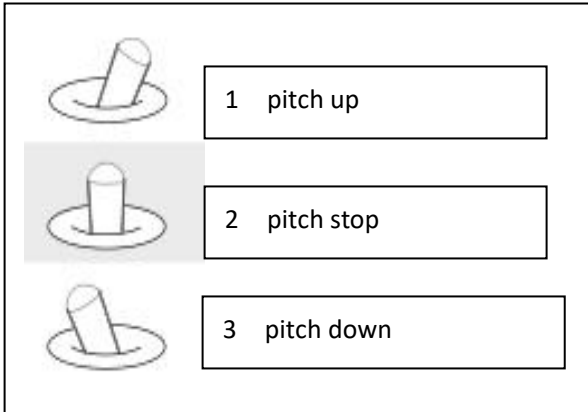
HDMI : micro HDMI OUTPUT
   1080P 60fps default
SD card: max 128G ，class10
   FAT32 or exFAT format

Av
Multi
Pic./Rec
Focus
Zoom
Mode
Yaw
Pitch
Roll/Tx
S.bus/Rx

PWM in
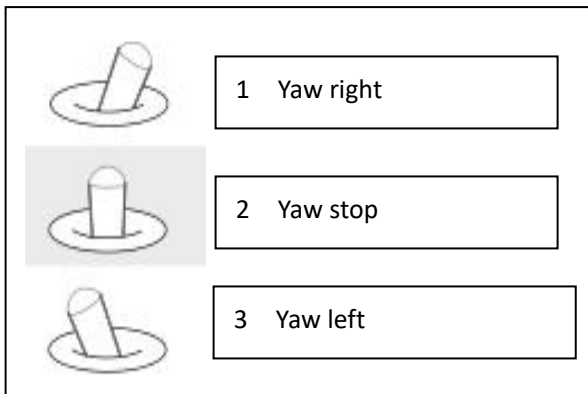5V output
GND

USB

1
2
3

USER BOARD

RX

TTL 115200/8/1/N

TX

Futaba
FCH

S.bus/Rx ： connect to Rx2 for track function.
Roll/ Tx ： connect to Tx2 for track function.
Pitch: : PWM in, pitch control

	1	pitch up
	2	pitch stop
	3	pitch down

S.bus/Rx
Roll/Tx

1
2
3

Yaw ： PWM in, Yaw control

	1	Yaw right
	2	Yaw stop
	3	Yaw left

Mode： change the speed / home position

1 2 3
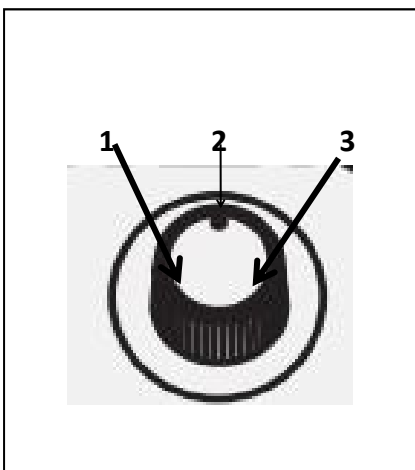
Position 1： lowest speed for pitch and yaw.
Position 2: middle speed for pitch and yaw.
Position 3: highest speed for pitch and yaw. the speed is continuously
quickly from 1 to 3.

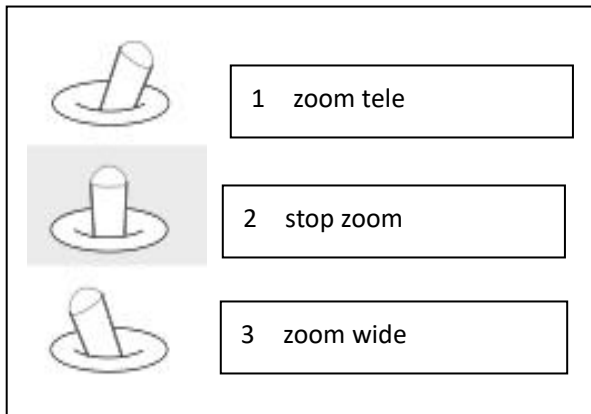**Click = from 2 to 3 and back to 2 quickly.**

One click : home position
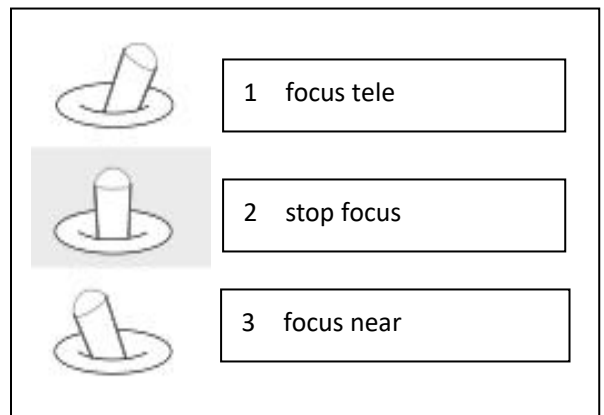
Two click: look down
Three click: Yaw not followed by frame

Four click : Yaw followed by frame
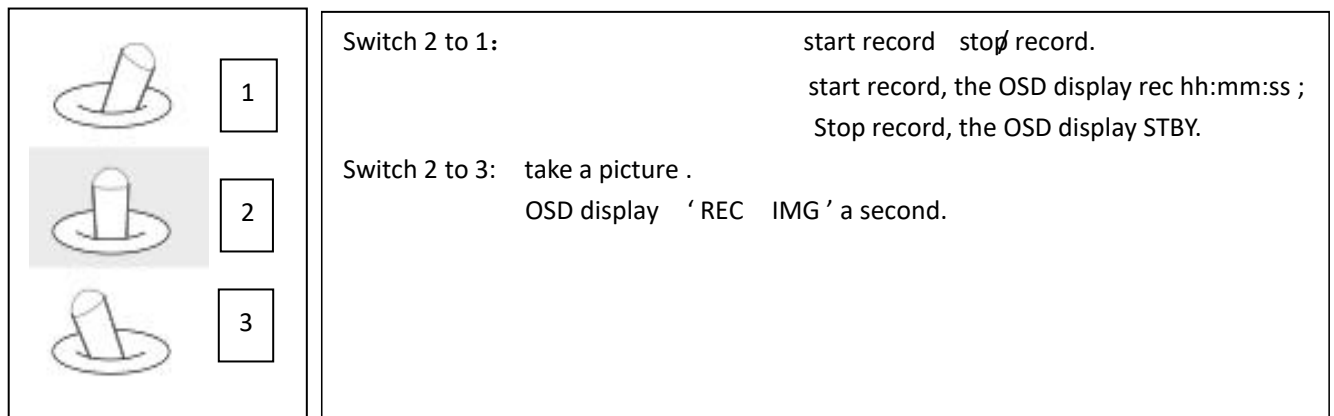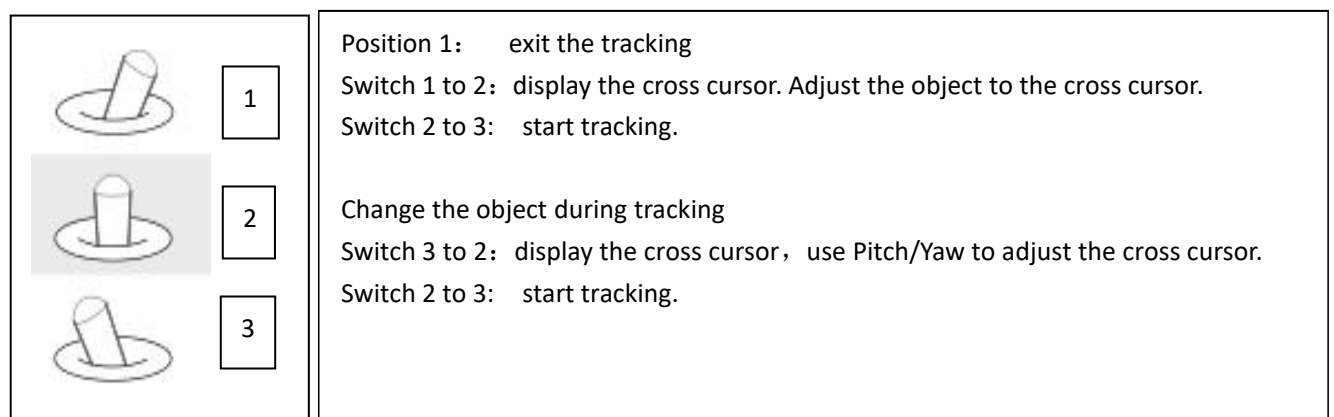
Five click : restore the factory settings

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ZOOM: zoom the camera

	1 zoom tele
	2 stop zoom
	3 zoom wide

focus : focus   the camera

	1 focus tele
	2 stop focus
	3 focus near

Pic/Rec   ：   picture / start record，   stop record

1	Switch 2 to 1： start record stop record.
2	start record, the OSD display rec hh:mm:ss ;
3	Stop record, the OSD display STBY.
	Switch 2 to 3： take a picture .
	OSD display ' REC IMG ' a second.

Multi：   tracking control

1	Position 1： exit the tracking
	Switch 1 to 2：display the cross cursor. Adjust the object to the cross cursor.
2	Switch 2 to 3： start tracking.
3	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。
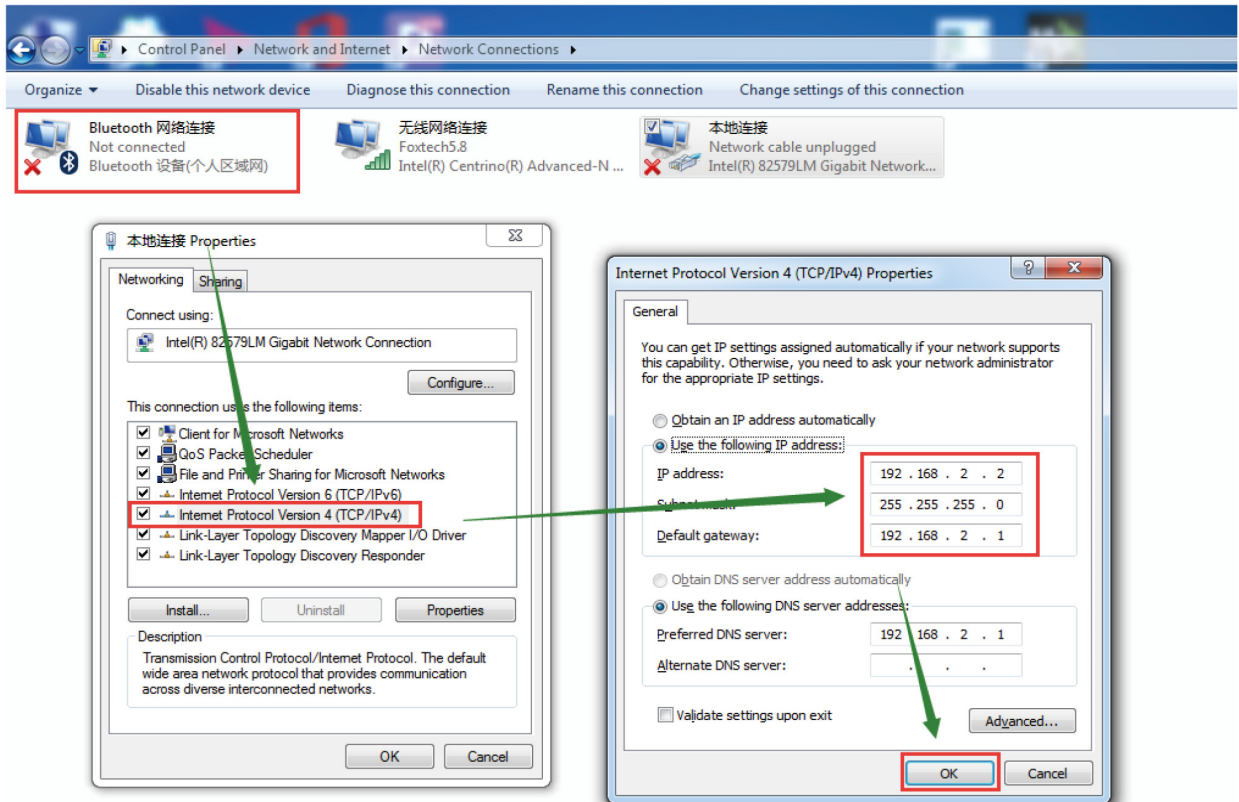
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IP Gimbal Software Connection

1. PC end IP Settings

The IP address of camera is: 192.168.2.119, set PC end and IP to a same network segment.

Eg: PC end: IP address: 192.168.2.2

Subnet mask: 255.255.255.0

Default gateway: 192.168.2.1

2. EasyPlayer Software Setting

1) Install Softwre "EasyPlayer", start it.

2) Choose one of the interfaces to input: rtsp://192.168.2.119/554, check " 硬解 ", click "Play" then images appear.