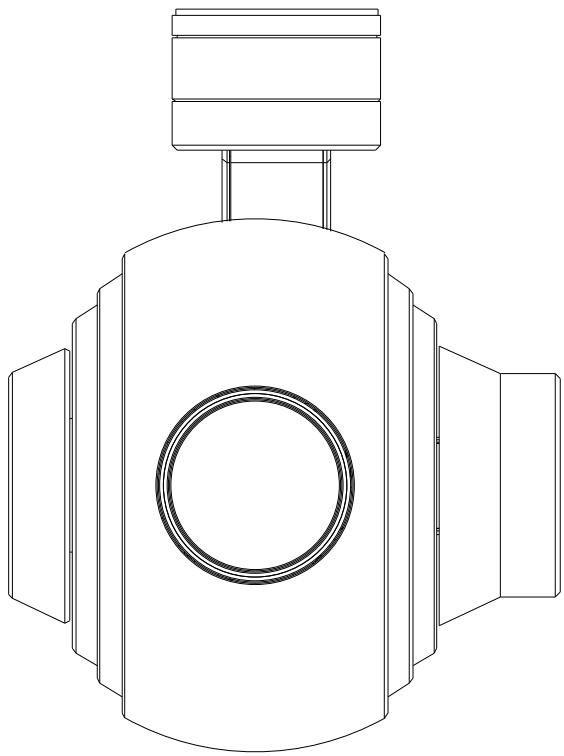
FOXTECH

User manual

Seeker-10 360TR



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Gimbal Camera Introduction

FOXTECH Seeker-10 360TR is a 3-axis gimbal camera featuring 10X optical zoom, 360 degrees infinite rotation and object tracking.It supports Ethernet output, the video output resolution is 1080p/30fps,the effective pixels is 2.12MP.

SEEKER-10 360TR 3-axis gimbal developed based on FOC technology, features excellent stability, accuracy and sensitivity.It has fast speed and low speed modes. Fast speed mode is used for small zooming range;Low speed mode is used for large zooming range.

SEEKER-10 360TR supports PWM, S.BUS and serial command control.

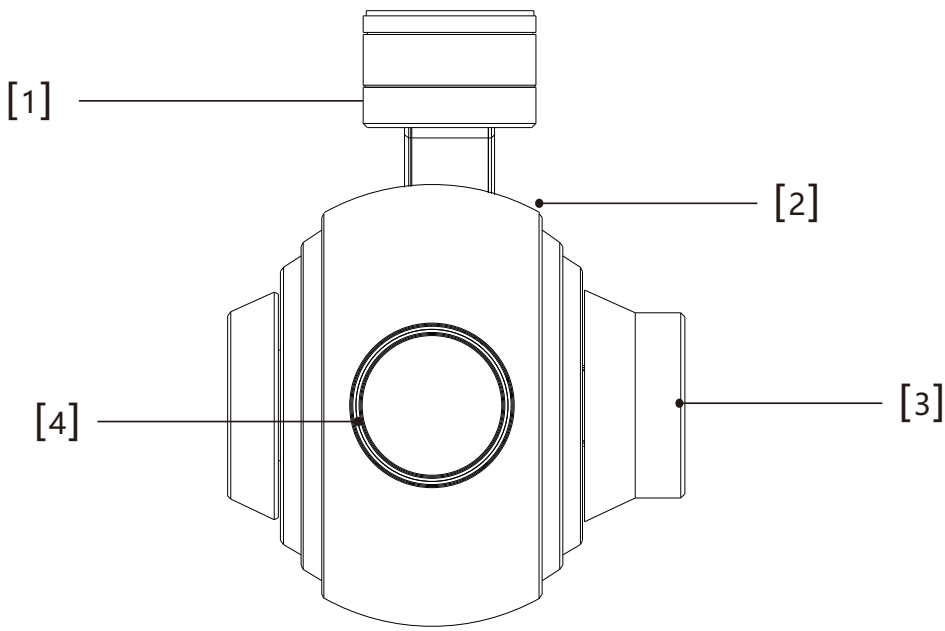
Target Tracking Function

1、The built-in normalized cross-correlation tracking algorithm, combined with the target lost recapture algorithm, realizes the stable tracking of the target; Support user to display custom characters, adaptive gate, cross wire and tracking information display.

2、Tracking Performance

1) Data refresh rate: 50Hz
2) output lag < 15ms
3) min. target contrast 5%
4) Signal-to-noise ratio 4
5) Target Size: 32x32 to128*128 pixels
6) Tracking Velocity: ±32 pix/frame
7) The root mean square value of noise at the target position < 0.5 pixel
8) Target memory time: 100 sessions

Gimbal Diagram



[1]Yaw axis motor

[2]Roll axis motor

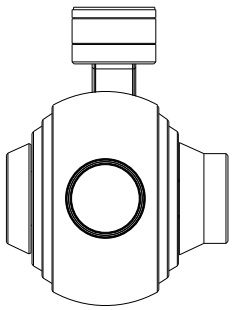
[3]Pitch axis motor

[4]HD Zoom Camera

Please ensure that the motor is not blocked by anything during rotation. If the gimbal is blocked during rotation, please clear the obstruction immediately.

Packing List

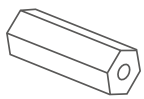
gimbal camera*1



pack of screw*1

M3*5mm*12

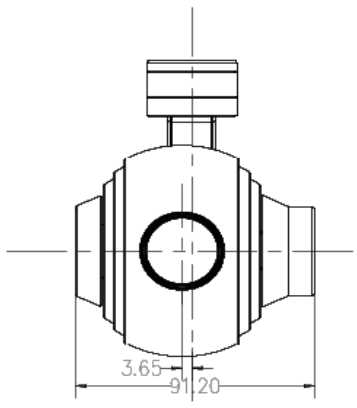
copper pillar*4

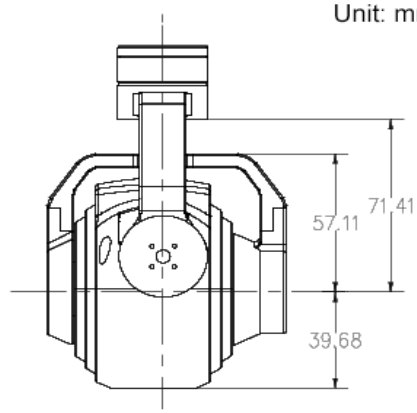


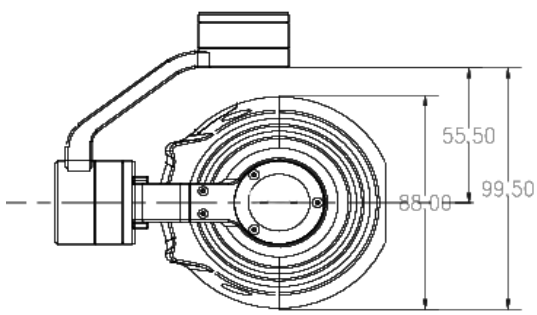
Damper*12

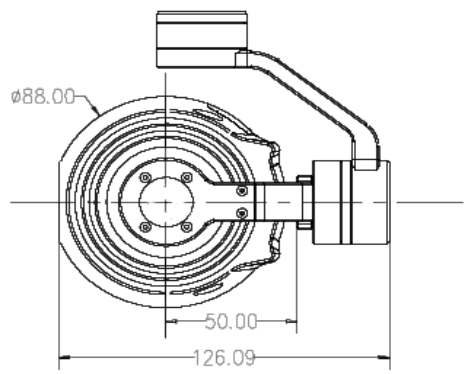
Dimensional Drawing

Unit: mm

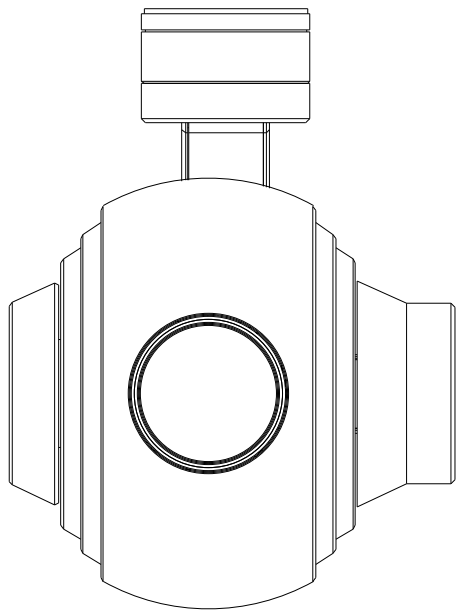








Installation



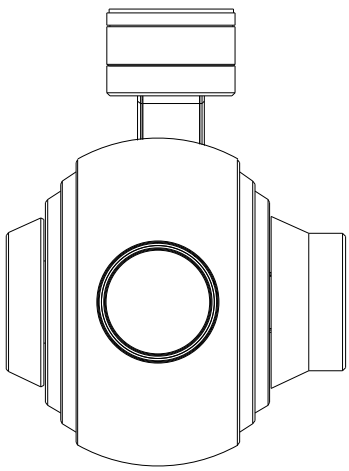
Mechanical&electronic characteristics

Voltage	12V	IDDQ	330mA@12v
IDDT	450mA@12V	temperature	-20~+80
Size	L91.2*W126.9*H99.5mm	Weight	620g

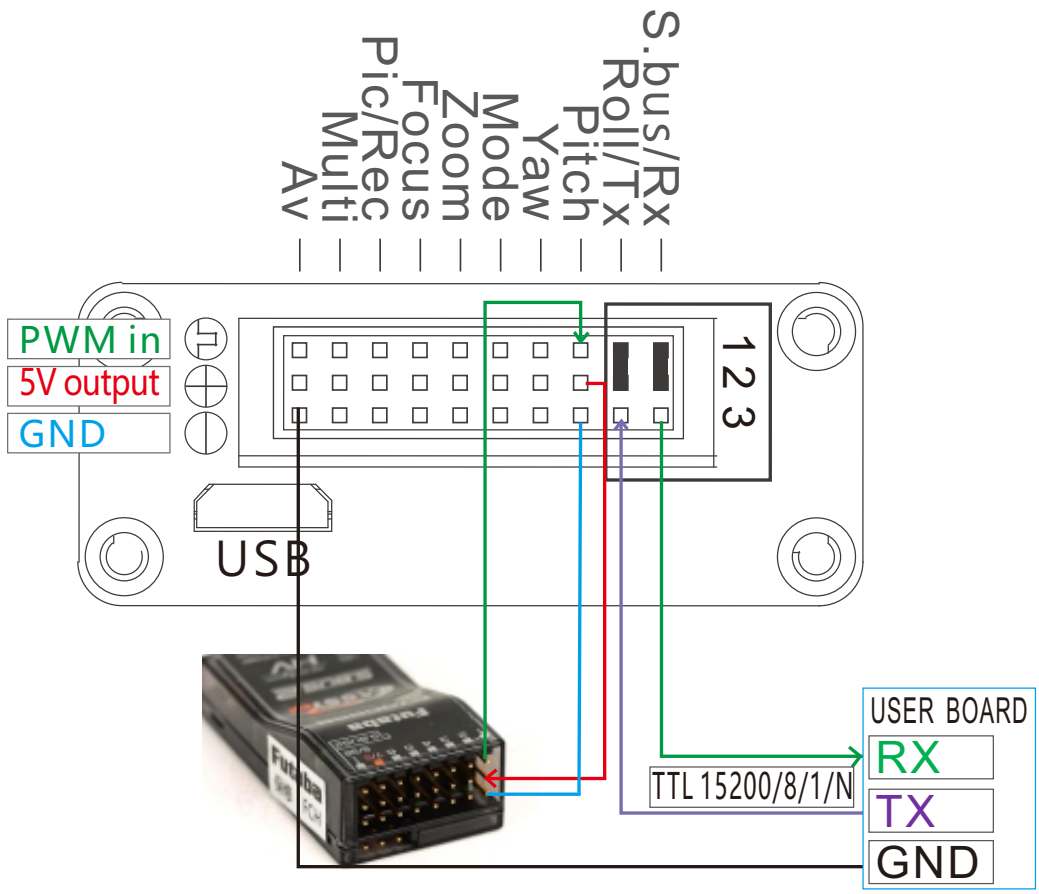
Performance

Pitch: -90° ~+90° ; Roll: -45° ~+45°
Yaw: n*360°
Control precision:Pitch & Roll: ±0.02° Yaw: ±0.03°

Tracking Gimbal Signal Wiring Diagram



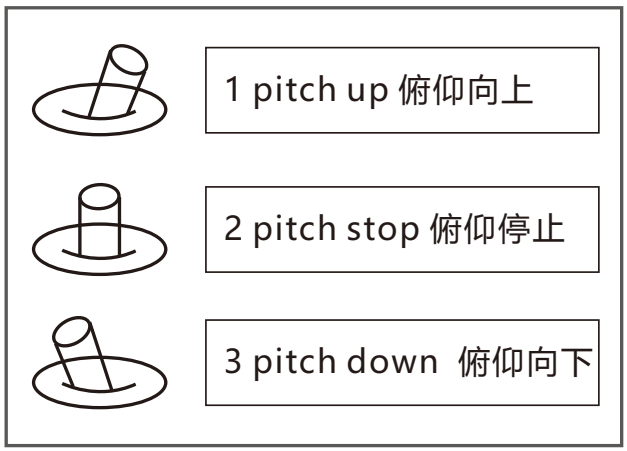
SD card: max 128G ,class10
FAT32 or exFAT format
SD card: 最大支持128G 卡，class10 高速卡
格式化为FAT32 or exFAT 格式

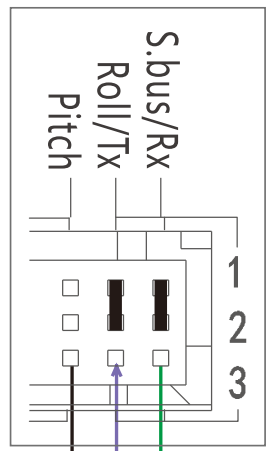


S.bus/Rx:connect to Rx2 for track function. (S.bus/Rx RX2

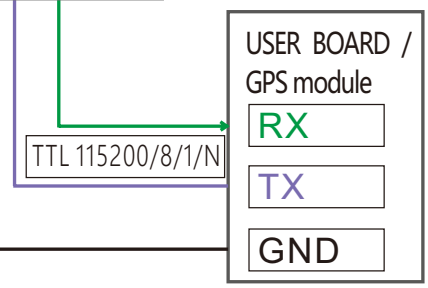
Roll/ Tx:connect to Tx2 for track function. (Roll/ Tx 用户不可用，默认出厂与TX2连接，用做跟踪功能)

Pitch:PWM in, pitch control (俯仰控制，PWM 输入)

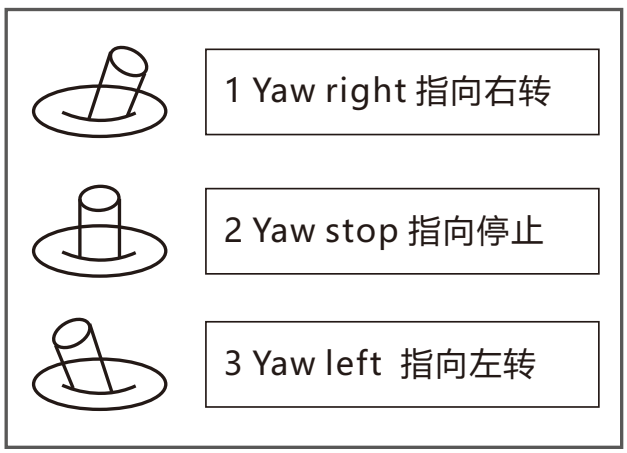




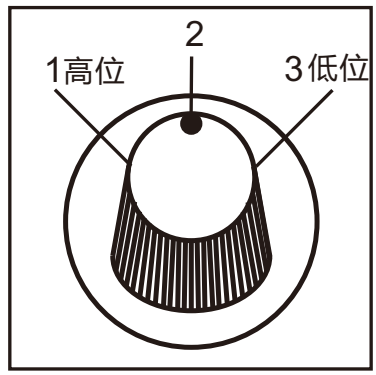
We have protocol for control the gimbal and camera, please contact our technical support for detail doc.



Yaw:PWM in, Yaw control(指向控制，PWM 输入)



Mode:change the speed / home position (调整云台控制速度/一键回中)



Position 3: Low speed mode,control Yaw and Pitch in this mode and then the gimbal will
move at the lowest speed;
Turn the knob to any position above position 3: change speed; at this time control Yaw and Pitch, gimbal control speed will be increased (The speed will change depending on the position of the switch)
Turn the knob to position 2-1-2: gimbal returns to the middle position.

Switch from 2 to 1 and back to 2 continuously and quickly, gimbal back to home;
Switch from 2-1-2-1-2 continuously and quickly,start follow mode;
Switch from 2-1-2-1-2-1-2,start head-locking mode.

ZOOM: zoom the camera (放大，缩小)


1 zoom tele 放大


2 stop zoom 停止


3 zoom wide 缩小

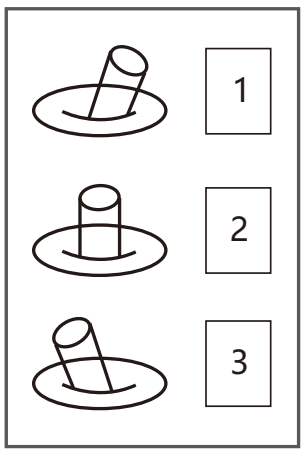
focus : focus the camera (手动调焦，默认自动对焦模式)


1 无


2 无

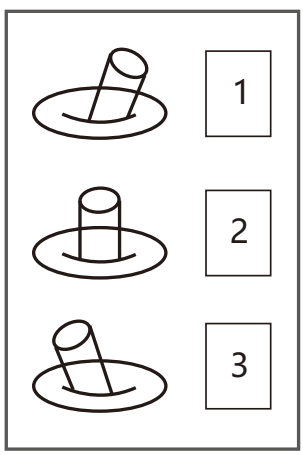

3 无

Pic/Rec:picture / start record，stop record（拍照，开始录像，停止录像）



Switch 2 to 1:
start record / stop record.(从2 切到 1 ,开始录像，再切一次， 停止录像)
start record, the OSD display rec hh:mm:ss ; (录像开始后，会显示录像时间)
Stop record, the OSD display STBY. (录像停止后，显示STBY)
Switch 2 to 3:
take a picture . (从2 切到 3,拍一张照片)
OSD display' REC IMG' a second. (拍照会显示 REC IMG 几秒钟)

Multi: tracking control (跟踪控制)



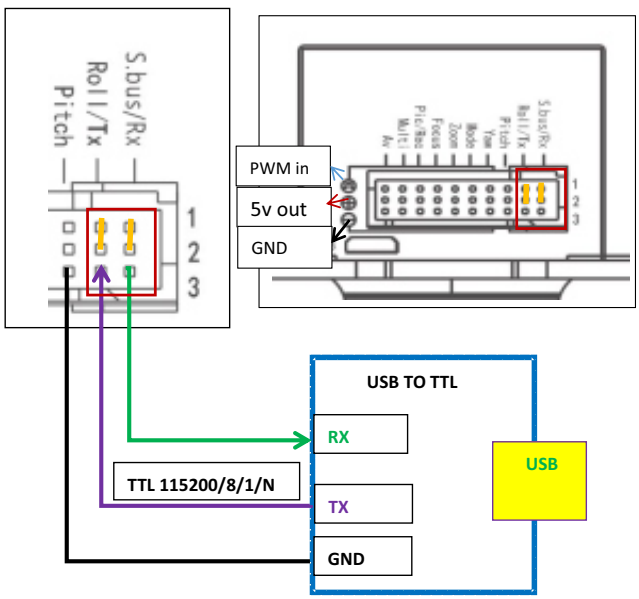
Position 1: exit the tracking (退出跟踪模式)
Switch 1 to 2: display the cross cursor. Adjust the object to the cross cursor. (调出十字标，调整目标到十字)
Switch 2 to 3: start tracking. (开始跟踪， 右下角显示偏移量)
Change the object during tracking (二次跟踪: 跟踪过程中，微调跟踪的目标)
Switch 3 to 2: display the cross cursor, use Pitch/Yaw to adjust the cross cursor. (调出十字标，用俯仰，航向通道调整十字标到新的目标位置)
Switch 2 to 3: start tracking. (开始跟踪，右下角显示偏移量)

AV: NO AV output this model。 (本型号没有AV 输出)

10X Zoom Camera	
Image Sensor	1/3" Panasonic CMOS Sensor
Total Pixels	1,956(H) x 1,266(V), 2.48M Pixels
Active pixels	1,944(H) x 1,092(V), 2.12M Pixels
Resolution	1080p/ 30(25)fps, 720p/30(25)fps
Video Output	Ethernet
Min. illumination	Color : 0.5 lux , BW : 0.1lux Color DSS : 0.125 lux , BW DSS : 0.025 lux
Zoom	10X Optical
Focal Length	f = 5.1mm ~ 51mm
Aperture Ratio	f1.6 (wide) ~ F1.8 (tele)
3-axis Gimbal	
Voltage	9-15V
Rotation Range	Yaw: n*360° Pitch: -90°~+90° Roll: -45°~+45°
Control precision	Pitch & Roll: ±0.02° Yaw: ±0.03°
Working Current	IDDQ: 330mA@12v
Power Consumption	250mA
Control	PWM/Sbus/Serial command/Ethernet
Weight	620g
Size	L91.2*W126.9*H99.5mm
Operating Temperature	-20℃ ~ +60℃ (Humidity : 20%RH ~ 95%RH)
Storage Temperature	-5℃ ~ +60℃ (Humidity : 20%RH ~ 80%RH)

GPS information overlay&serial port control diagram

TTL 3.3v UART baud: 115200/9600, 8/1/N, HEX



RX1/ RX2 and TX1 / TX2 must be connected with jumper caps before connecting UART/FTDI devices.

Please connect your RX to RX3, and TX to TX3 as shown in the figures.

CAUTION!!

1) the signals inside red frame are all TTL signals, DO NOT connect these pin headers to any power(VCC) or ground(GND)!

2) The other signals is for PWM input signals to control the gimbal,

PWM in: connect to your PWM reciever signals (does not include AV, AV output is for CVBS video signal)

5V out: for your PWM reciever power supply.

GND: connect to your PWM reciever GND.