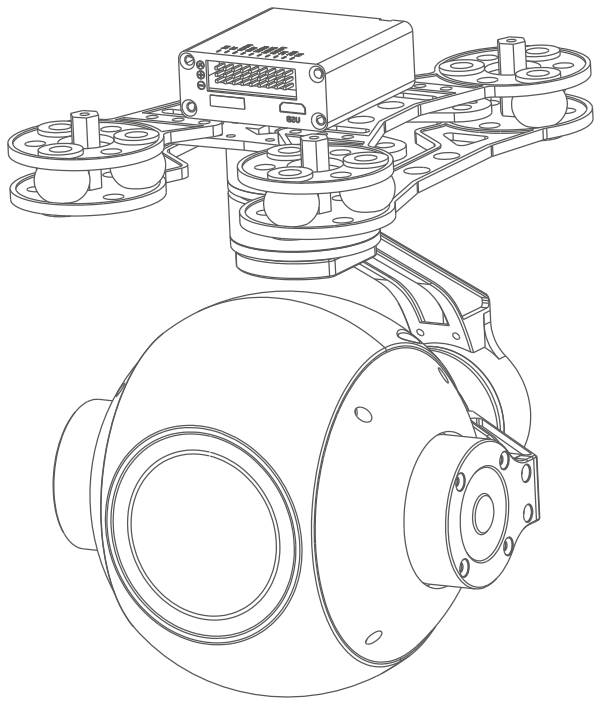
FOXTECH SEEKER-30 HD 30X Optical Zoom Camera with 3-axis Gimbal

User manual



FOXTECH

Contents

SEEKER-30 High-precision 3-axis Gimbal

30X Optical Zoom Camera

3-axis Gimbal introduction

FOXTECH SEEKER-30 is a high-precision professional 3-axis gimbal with a 30X 1080P Optical Zoom Camera which features high stability,small size and light weight. The 3-axis gimbal adopts high-precision encoder in each motor, based on FOC motor control technology.

The speed of the gimbal is ajustable, LOW speed mode is used for large zoom range, so the control will be more accurate; Fast speed mode is used for small zooming range, which makes the gimbal control sensitive and quick. Also the one-key to center function will allow the gimbal returning to initial position automatically and rapidly.

Object tracking function(optional)

1、Function description

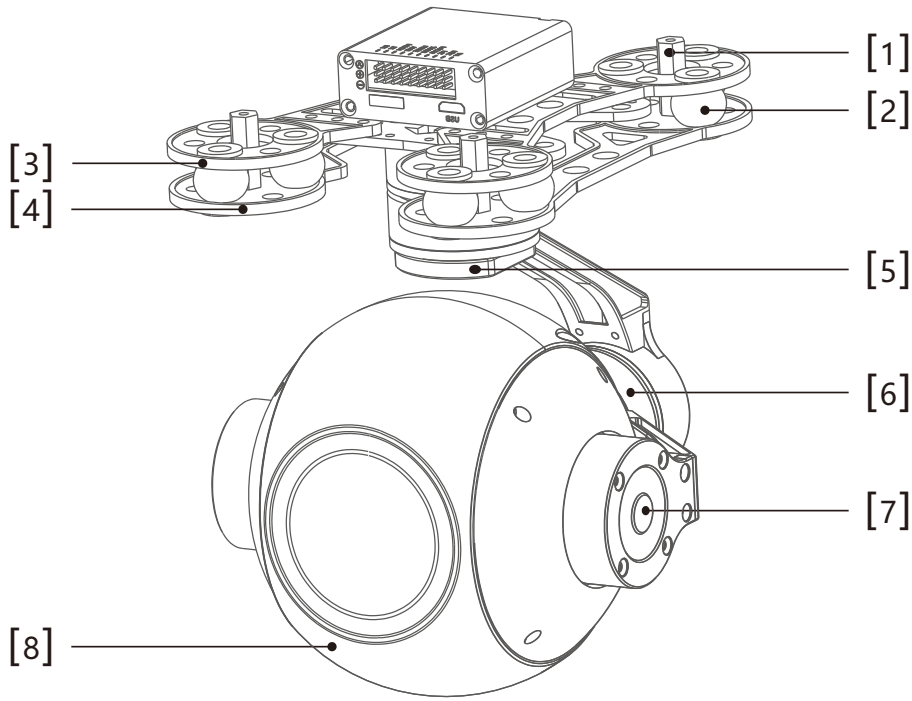
Build-in normalization ,cross-correlation and tracking algorithm, combining with object missing recapture algorithm, achieve stable track of the target.

Support custom characters of user OSD, adaptive gate, cross cursor, trace information display.

2、Tracking performance

1)Update rate of deviation pixel 50Hz
2)Output delay of deviation pixel <15ms
3)Minimum target contrast 5%
4)the minimal signal-to-noise ratio (SNR) 4
5)Minimum target size 16*16 pixel
6)Maximum target size 160*160 pixel
7)Tracking speed 32 pixel/frame
8)The mean square root values of pulse noise in the target position<0.5 pixel

Pod description



[1]Pod fixed copper pillar

[2]Damping sphere

[3]Upper plate of gimbal board

[4]Under plate of gimbal board

[5]YAW axis motor

[6]Roll axis motor

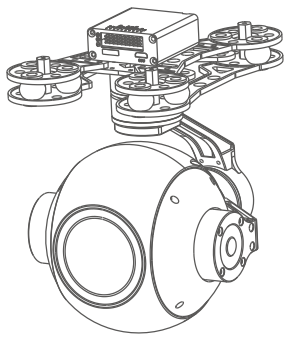
[7]Pitch axis motor

[8]HD zoom camera

Please make sure that the motor is not stopped by any object during the rotation，if the gimbal is blocked during rotation, please remove the obstruction immediately.

Packing list

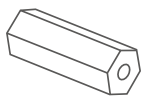
Pod*1



Screw pack*1

M3*5mm half round inner six angle screw*12
(fixed copper pillar and damping plate)

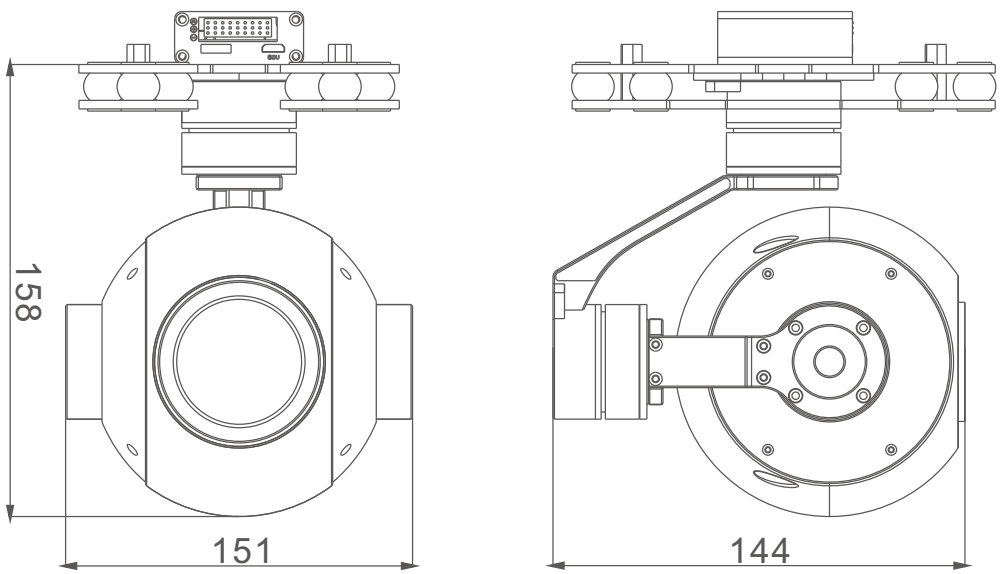
Copper pillar*4



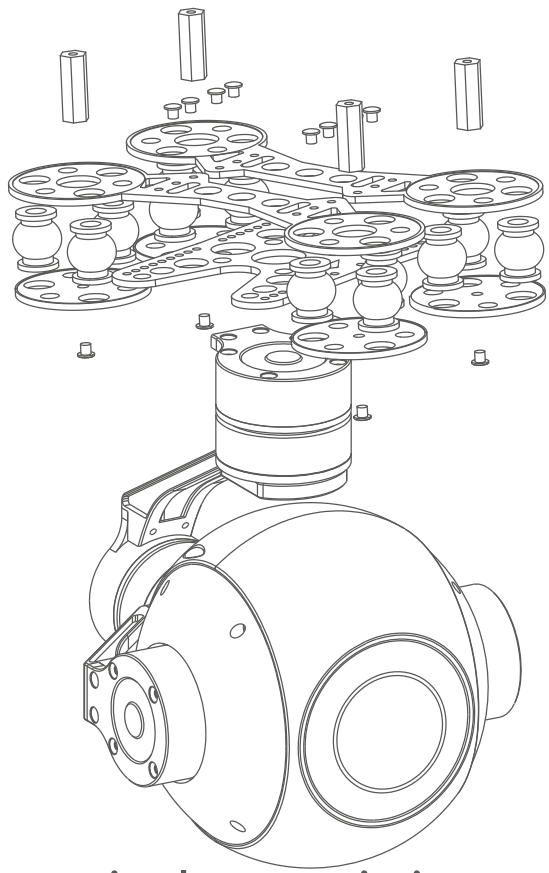
Damping sphere*12

DIMENSIONS

unit:mm



Installing



Mechanics@Electronic characteristics

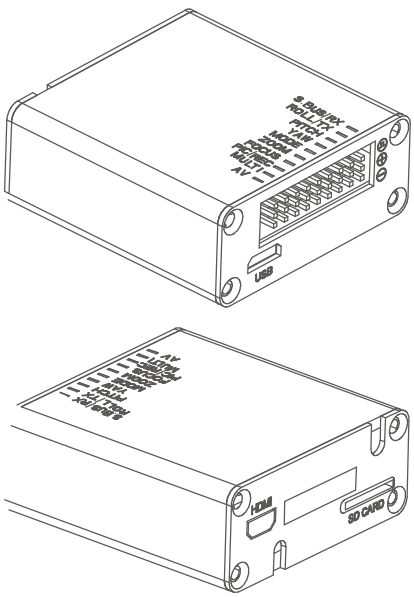
Voltage	3S~6S(12V)	Quiescent current	330mA@12V
Working current	450mA@12V	Work environment	-20°~+80°
Size	L144*W151*H158mm	Weight	848g

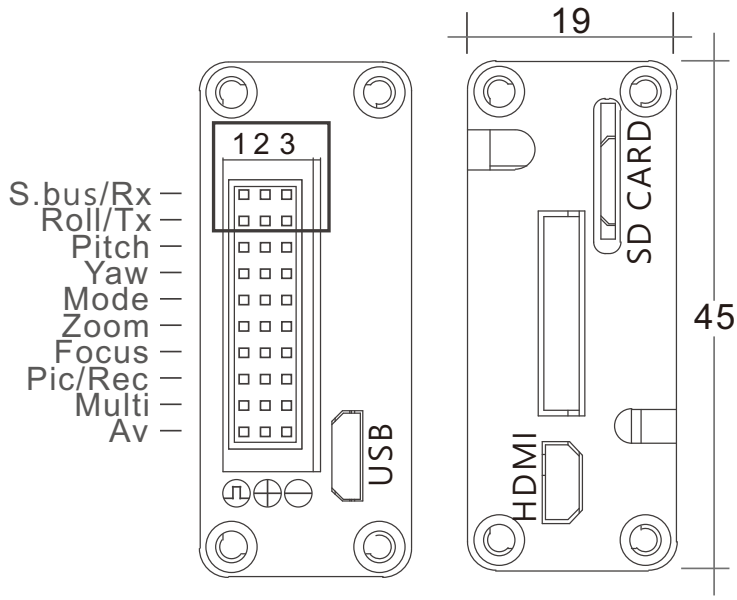
Working characteristics

Pitch angle range of action:-90°~+90°
Roll angle range of action:-85°~+85°
Yaw angle range of action:-150°~+150°
Angle jitter:pitch and roll direction±0.02° ,horizontal direction ±0.03°

Gimbal signal wire box

unit:mm





Connection of control box and wiring instructions

1、Camera control line

Zoom: camera zoom control line, connect PWM receiver on third gear, or rocker.

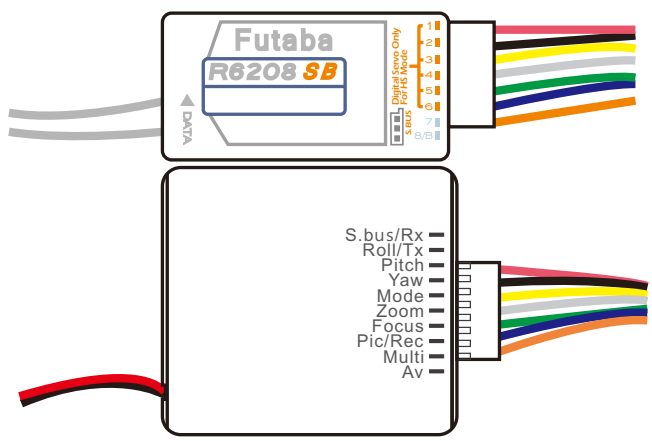
Focus: camera manual focus control line, connect receiver on third gear, or rocker. If not connect, the camera will focus automatically after zooming.

Pic/Rec: photography/video, mode switching, video and photography control, connect receiver on third gear.

Switch from middle to high:

photography/video mode switching

Switch from middle to low:



(1)In the video mode：if video record is stop , video record starts ,if video record is starting , switch from middle to low again, the video record will stop;

(2)In the photo mode: take a pictures

Multi：Multi control channel for other function, such as tracking, laser light. IR cut , etc

AV: analog output signal

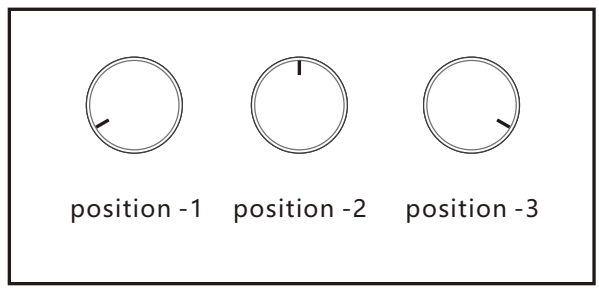
Pod PWM signal instructions:

YAW directional channel: speed mode ,connect rocker channel, (or third gear switch channel, stopping need third gear to middle position.)

PITCH Pitch channel: speed mode ,connect rocker channel, (or third gear switch channel, stopping need third gear to middle position.)

MODE gimbal one button back and speed adjustment:angle mode, A knob or a thirt gear channel switch.

Functional descriptions of mode (regard the third switch channel mode as the example)



Turn the knob to the three position: Low speed & not follow yaw mode, at this moment, the joystick controls YAW and PITCH, pod has the lowest speed of movement, its yaw does not follow the rotation of the aircraft;

Turn the knob to any position above three：variable speed & following mode, at this moment, the joystick controls YAW and PITCH, The movement speed of pod rises(Speed varies with position) ,pod works in follow yaw mode.

Turn the knob to the one position : high speed following mode.

Toggle switches one time between position -2 and -1 rapidly, pod returns to the home position;

Toggle switches two times between position -2 and -1, pod use speed mode (profile 1)

Toggle switches three times between position -2 and -1, pod use angle mode (profile 2);

Toggle switches four times between position -2 and -1, calibrate the accelerator.

Toggle switches five times between position -2 and -1, calibrate the gyroscope

Note: pod turns on in the static state, and the gyroscope is automatically calibrated ;The working mode of pod at the next boot time is the mode used last time, factory mode is speed mode.

30X Optical Zoom Camera

The 30X Optical Zoom Camera has 4 mega effective pixels, supports 30X optical autofocus. The zooming function makes it possible to see objects in detail over distance. The SEEKER-30 offers 1080p FULL HD 30fps video recording onboard and 1080p HDMI output for HD video transmission back to the ground. FOX-TECH SEEKER-30 support both PWM control and serial command control, suitable for close range remote control or remote data command control.

Parameter index

1、Adopt 1/3 inch, 4 million pixels CMOS SENSOR.

2、The output resolution is 1920*1080P/60 fps.

3、30X optical zoom lens.

4、Zoom focal length f=4.5~135mm, aperture diameter Φ16.

5、Supports wide dynamic state with dynamic range up to 105dB.

6、Miroc-HDMI HD 1080p60 output, 1080P30 video stream in local TF card storage.

7、Real time fast focus function, the focus time <1s.

8、Support Flip vertically, horizontal mirror, stationary picture,automatic white balance, automatic gain, automatic color correction, support OSD menu.

9、Wide temperature range, temperature range from -10℃~55℃ .

10、Support PWM and serial control.

Functional characteristics

Zoom Range

Zoom focal length f=4.5~135mm, zoom ranges up to 30X exhibiting image detail Perfectly.

The speed of focusing

Design for UAV aerial photography , according to aerial characteristics, using fast focus algorithm, focus time <1s.

Wide dynamic

Adopt 105d B wide dynamic range, in the presence of backlit or strong light, The view of the over bright and over dark regions can still be captured at the same time.

Ultra low illumination

Ultra low illumination: color 0.05lux@F1.6, The device can still clearly display image features in Ultra low illumination or poor light environment.

Output interface

Using HDMI high-definition output, support HDMI1.3 standard. The hardware interface uses a standard HDMI signal output socket, 1080P local storage, 1080P HDMI output.

Multiple control modes

Support PWM control and serial command control.