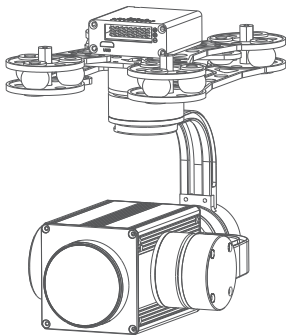




## User manual

### **Z 30F**

30x Optical Zoom Camera Gimbal



Images are for reference only, please subject to the actual product.

# Contents

## Z30F Pinpoint-precision Gimbal

1.Gimbal introduction .....	2
2.Object tracking function (Optional) .....	2
3.Gimbal description .....	3
4.Packing list .....	4
5.Gimbal dimension .....	4
6.Installing .....	4
7.Mechanics@Electronic characteristics .....	5
8.Working characteristics .....	5
9.Gimbal's signal wire box .....	6

## Z30F Zoom Camera

1.Camera introduction .....	10
2.Parameter index .....	10
3.Functional characteristics .....	11

## Gimbal Introduction

Z30F is a pinpoint-precision professional 3-axis gimbal which features high stability, small size, light weight and low power consumption. The 3-axis gimbal based on FOC motor control technology, adopts pinpoint-precision encoder in each motor.

The speed of Z30F gimbal is adjustable, LOW speed mode is used for large zoom range, 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 return to initial position automatically and rapidly.

Z30F supports PWM and serial command control, suitable for close range remote control or remote data command control.

## Object Tracking Function

### 1. Function description

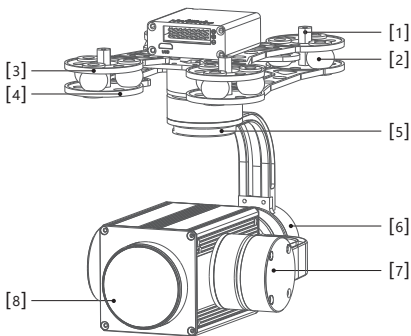
Built-in normalization, cross-correlation and tracking algorithm, combining with object missing recapture algorithm, achieve stable track of the target.

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

### 2. Tracking Performance

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

## Gimbal Description



[1] Gimbal fixed copper cylinder

[2] Damping balls

[3] Upper damping board

[4] Lower damping board

[5] YAW axis motor

[6] Roll axis motor

[7] Pitch axis motor

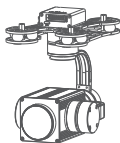
[8] HD zoom camera



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.

## Gimal Dimenstion

Gimbal\*1



Screw pack\*1

M3\*5mm button head  
hexagon screw\*12

Copper cylinders\*4

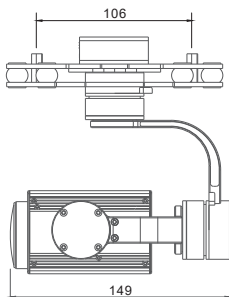
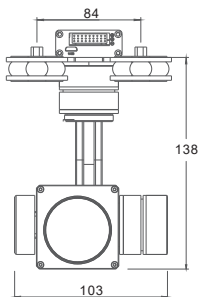


Damping balls\*12

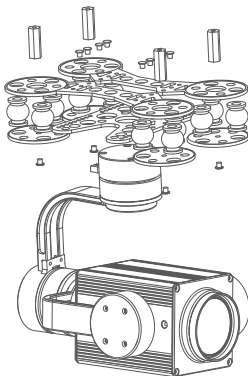


## Installing

Unit: mm



## Installing



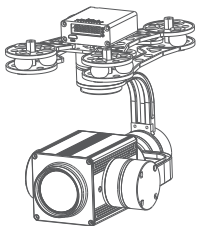
### Mechanics@Electronic Characteristics

Input voltage	3S~ 4S	Idle current	330mA@12V
Dynamic current	450mA@12V	Working environment temp	-10° C~+50° C
Size	L149*W103*H138mm	Weight	640g

### Working Characteristics

Pitch angle range of action: $\pm 90^{\circ}$
Roll angle range of action: $\pm 85^{\circ}$
Yaw/Pan: Yaw angle range of action : $\pm 150^{\circ}$
Vibration angle: Pitch/Roll: $\pm 0.02^{\circ}$ , Yaw: $\pm 0.03^{\circ}$

## Connection of Control Box and Wiring Instruction

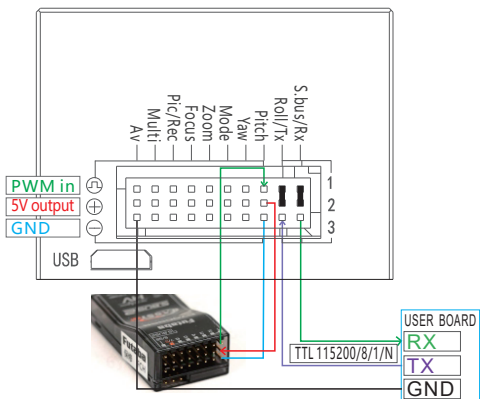


HDMI: micro HDMI OUTPUT

1080P 60fps default

SD card: max 32G, class10

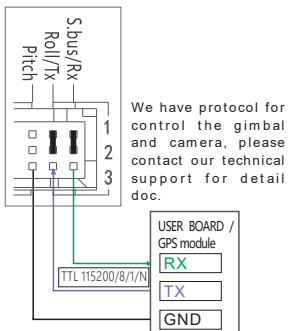
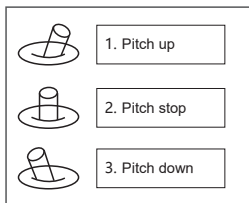
FAT32 or format



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

Roll/ Tx: connect to Tx2 for track function.

Pitch: PWM in, pitch control

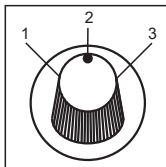


Yaw:PWM in, Yaw control





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.

One click: Home position.

Two click: Look down.

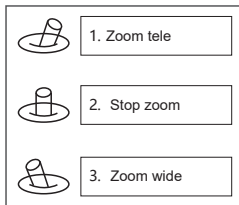
Three click: Yaw not followed by frame.

Four click: Yaw followed by frame.

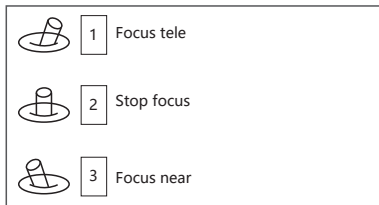
Five click: Restore the factory settings.

(Click = from 2 to 3 and back to 2 quickly)

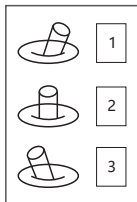
ZOOM: Zoom the camera



Focus: Focus the camera



## Pic /Rec picture / Start record, stop record



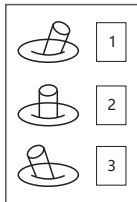
Switch 2 to 1: camera mode change.

Picture mode: the number is quantity of SD card can storage;

Record mode: the time is recording time from start record.

Switch 2 to 3: A) take a picture. B) Start record / stop record

## Multi: Backup PWM channel for customize



AV: AV output.

## Camera Introduction

Z30F has 4 mega effective pixels, supports 30x optical autofocus, possess HD 1080p video. There are two video streams in the camera, one is 1080p 30FPS, local H.264 compression, stored in the device SD card, another video output 1080p 60FPS HDMI HD signal for the wireless transmission, According to the characteristics of UAV photography application, we design fast auto-focus speed, small size and support PWM and serial 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 HD optical zoom lens, 5 million HD lens.
- 4.Zoom focal length  $f=4.5\sim 135\text{mm}$ , aperture diameter  $\phi 16.0$ .
- 5.Supports wide dynamic state with dynamic range up to 105dB.
- 6.Miroc-HDMI HD 1080p output, 1080P video stream in local TF card storage.
- 7.Real time fast focus function, the focus time  $<1\text{s}$ .
- 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  $-10^{\circ}\text{C}\sim 55^{\circ}\text{C}$  .
- 10.Support PWM and serial command control.

## Functional Characteristics

### Zoom Range

Zoom focal length  $F=4.5\sim135\text{mm}$ , 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  $< 1\text{s}$ .

### Wide Dynamic

Adopt 105dB wide dynamic range, in the presence of backlight 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: The device can still clearly display image features in ultra low illumination or poor light environment.

### Output Interface

Adopt HDMI output, support HDMI 1.3 standard. Hardware interface adopts standard HDMI signal output socket, 1080P local storage, 1080P HDMI output.

### Multiple Control Modes

Support PWM control and serial command control.