



User manual

## **Z10TL**

10x Zoom IR Laser Night Vision Object Tracking Gimbal Camera

**Compatible with DJI M200/M210/M210RTK**



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

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## Camera Introduction

Z10TL is a high-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 high-precision encoder in each motor. It can be used on DJI drones M200 / M210 / M210RTK. Controlled by APP DJI PILOT it can fulfill many powerful functions, such as: photos or videos with 10 times optical zoom, object tracking, IR laser night vision and so on. The speed of Z10TL gimbal is adjustable, LOW speed mode for tele end, the control will be more accurate; Fast mode for wide end, 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. You can input a degree in APP Payload Setting and get the gimbal attitude angles exactly.

## Camera Description



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.

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# Mechanics@Electronic Characteristics

Input voltage	3S~ 4S	Idle current	330mA@12V
Dynamic current	450mA@12V	Working environment temp	-40 C ~ +60 C
Size	131.4*119.8*150.5mm	Weight	554g

Pitch/Tilt: Pitch angle range of action :  $\pm 90$

Roll: Roll angle range of action :  $\pm 85^{\circ}$

Yaw/Pan: Yaw angle range of action :  $\pm 360^{\circ}$

Vibration angle: Pitch/Roll:  $\pm 0.02^{\circ}$ , Yaw:  $\pm 0.03^{\circ}$

## Application Description

### DJI Pilot

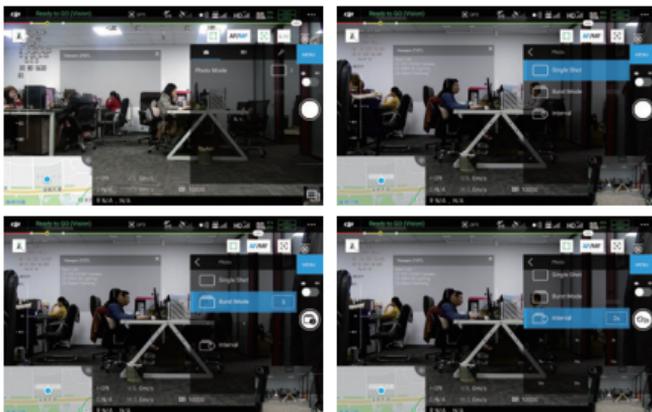
After mounting Z10TL on DJI drone and connecting with remote control, you can operate the gimbal camera via APP DJI Pilot. The gimbal attitude angels (tilt and pan) can be controlled by DJI remote control. Control method please refer to DJI related user manual.

### 1. Menu instruction

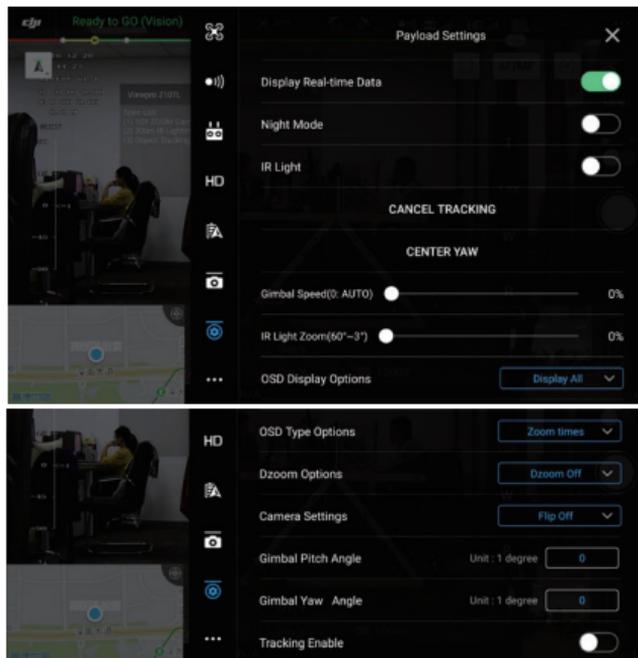


## 1.1 Camera settings - Photo mode settings:

You can choose single shot, burst mode or interval mode.

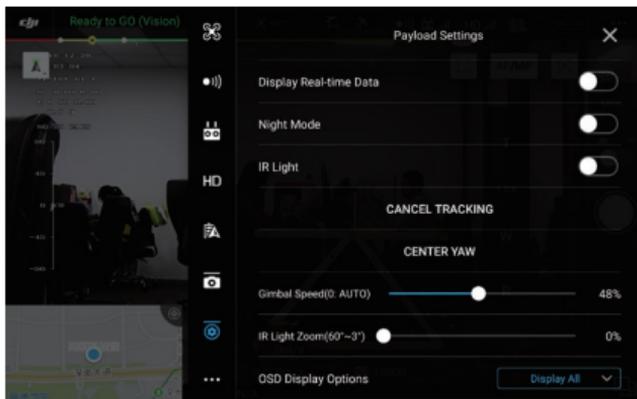


## 1.2 Payload Settings:



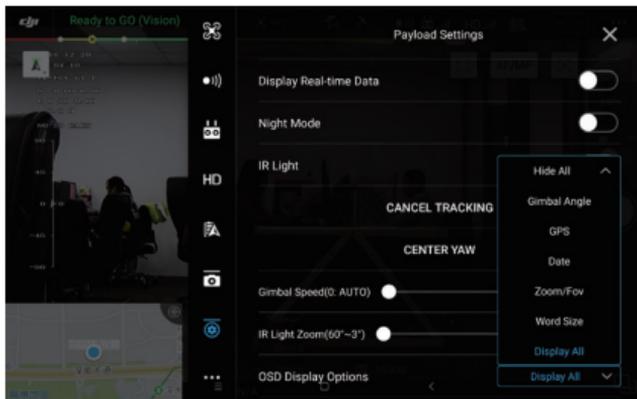
## Gimbal Speed:

Gimbal speed is adjustable. When it's 0%, the speed will be adjust automatically, quick speed for wide end, slow speed for tele end. When you adjust it to 1% manually, the speed will be low even in wide end. The high the percentage is, the quicker the speed will be.

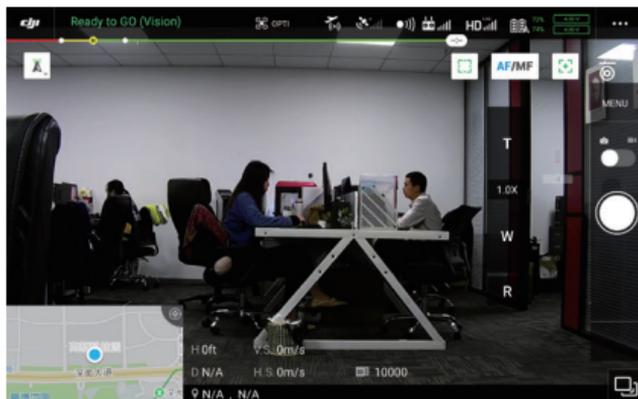


## OSD Display Options:

You can DIY you on-screen-display (OSD). Choose Hide All, then you can choose to display the items you want only.

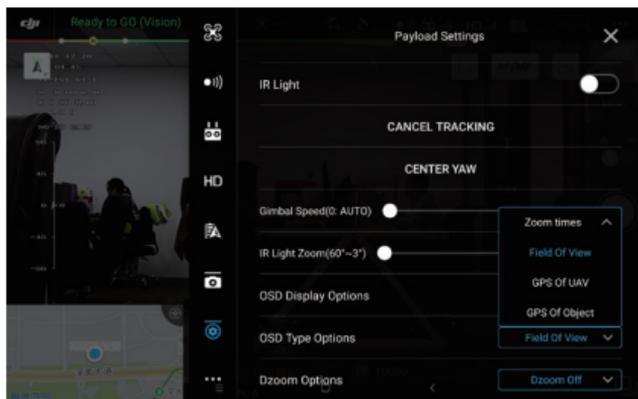


Hide All:



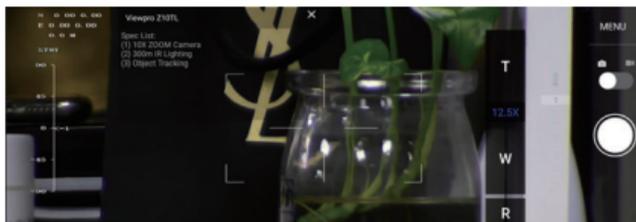
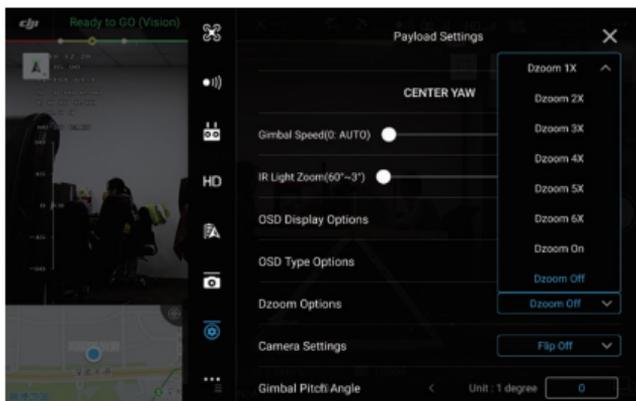
### OSD Type Options:

You can choose to display FOV (Field of View) or Zoom times, GPS co-ordinate of UAV or the object (estimate).



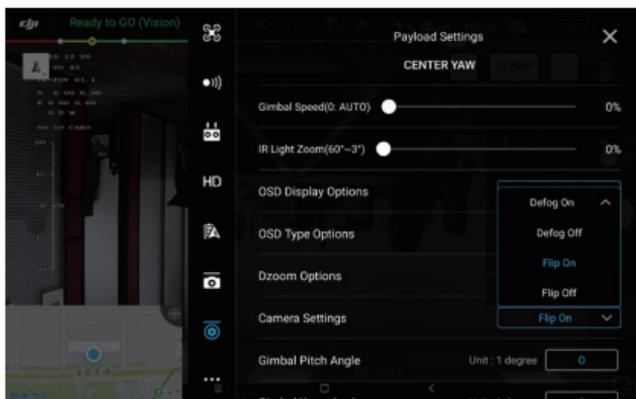
### Digital Zoom Options:

The EO camera of Z10TL has 6 times digital zoom. Press T continually will get digital zoom automatically after 10x full optical zoom. Or choose digital zoom from Payload settings directly. The zoom times number will become blue when it's in digital zoom statu.



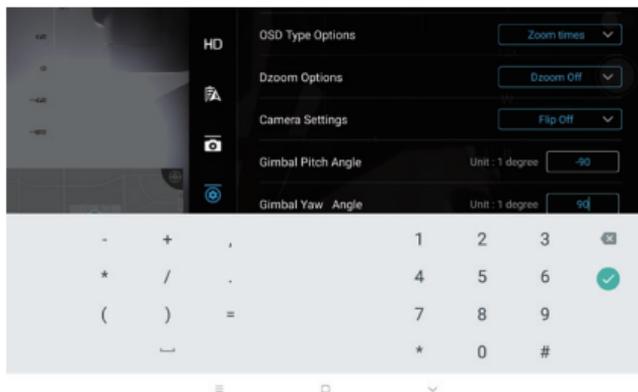
## Camera Settings:

Choose defog or flip the screen when necessary.



## Gimbal Pitch / Yaw Angle Settings:

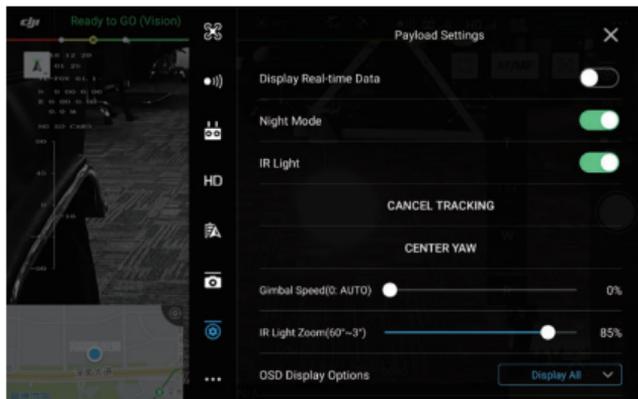
Input the pitch / yaw angle degrees to get exact attitude angles directly.

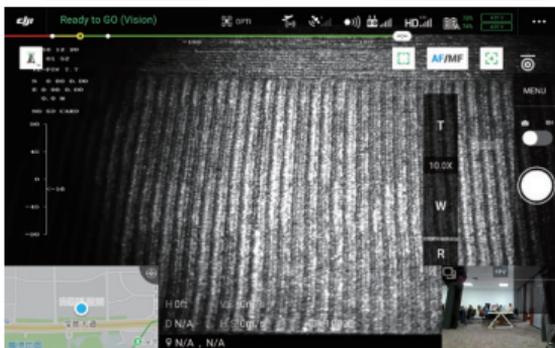
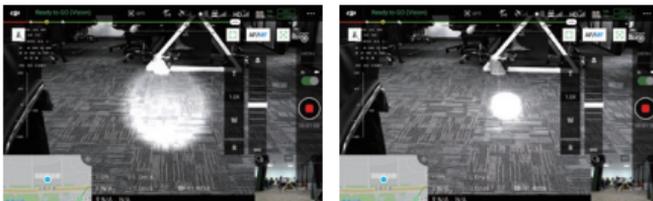


## 2. Main functions instruction

### 2.1 IR laser light for Night Mode

Z10TL can let you see clearly even in a pitch-dark environment with an invisible light. Switch on IR light (then Night Mode will be turned on automatically), you will see a laser light spot on the target directly. The spot size is adjustable. Large size for wide end and small size for tele end automatically. You can also adjust the spot size manually from Payload Settings or by MF in the main screen, then zoom to see clearly.



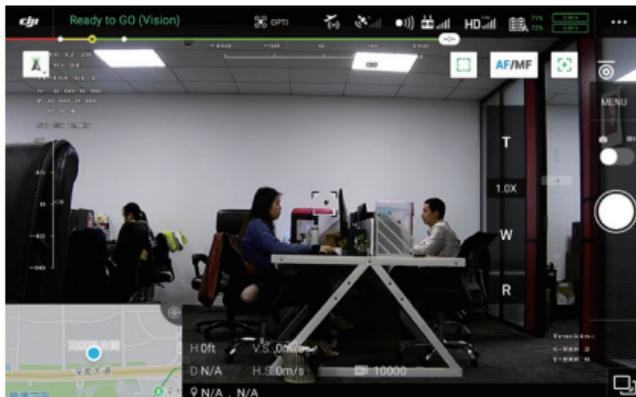
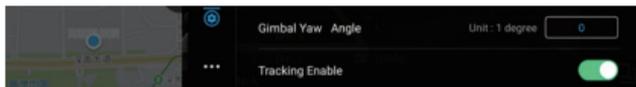


## 2.2 Object tracking

Start tracking: Enable tracking function, then single touch on the screen to pick tracking object.

Stop tracking: Payload Settings --CANCEL TRACKING

\*Note: the gimbal will follow the object automatically after object is chosen, to control the gimbal manually please cancel tracking first.



# Specification

Hardware Parameter	
Working voltage	12V
Input voltage	3S – 4S
Dynamic current	1100mA @12V
Idle current	800mA @ 12V
Power consumption	≤ 13.2W
Working environment temp.	-40℃ ~ +60℃
Output	Skyport
Local-storage	SD card (Up to 128G, class 10, FAT32 or ex FAT format)
Control method	DJI Pilot
Gimbal Spec	
Pitch/Tilt	±90°
Roll	±85°
Yaw/Pan	±360°
Vibration angle	Pitch/Roll: ±0.02°, Yaw: ±0.03°
One-key to center	√
Camera Spec	
Imager Sensor	1/2.8" CMOS
Picture quality	Full HD 1080 (1920*1080)
Effective pixel	2.43MP
Lens optical zoom	10x, F=4.7~47mm
Digital zoom	12x
Min object distance	1.5m
View angle	Horizontal: 58.7°(wide end) ~ 3.2°(tele end)
	Vertical: 45°(wide end) ~ 2.4°(tele end)
	Focus: 70.9°(wide end) ~ 7.1°(tele end)
Sync system	Progressive scanning
S/N ratio	≥52dB
Min illumination	Color 0.05lux@F1.6
Focus	Auto
Gain	Auto
White balance	Auto / Manual
Shutter speed	Auto
Image rotation	180°, Horizontal/Vertical mirror image
User presetting bit	20 sets
Defog	Yes
OSD	Yes

#### Camera Object Tracking

<b>Update rate of deviation pixel</b>	50Hz
<b>Output delay of deviation pixel</b>	<10ms
<b>Minimum object contrast</b>	5%
<b>SNR</b>	4
<b>Minimum object size</b>	16*16 pixel
<b>Maximum object size</b>	160*160 pixel
<b>Tracking speed</b>	±32 pixel/frame
<b>Object memory time</b>	100 frames (4s)
<b>The mean square root values of pulse noise in the object position</b>	< 0.5 pixel

#### Light Supplement

<b>Effective range</b>	300meters
<b>Illumination angle</b>	power zoom synchronously, 70°~2.0° adjustable

#### Packing Information

<b>N.W.</b>	554g
<b>Product meas.</b>	131.4*119.8*150.5mm
<b>Accessories</b>	1pc gimbal camra device / Hight quality plastic box with foam cushion