Viewpro

User Manual

WK10TIRM

10x Zoom Thermal Imager & Laser Rangefinder
Object Tracking Gimbal Camera

Compatible with DJI M200/M210/M210RTK

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

Content

Camera Introduction

WK10TIRM 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 meet many powerful functions, such as: photos or videos with 10 times optical zoom, object tracking, laser rangefinder, thermal imager and so on. The speed of WK10TIRM 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. 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.

Mechanics@Electronic Characteristics

Input voltage	4S ~ 6S	Idle current	450mA@12V
Dynamic current	550mA@12V	Working environment temperature	－40℃ ~ ＋60℃
Size	156.7*145*175.5mm	Weight	751g

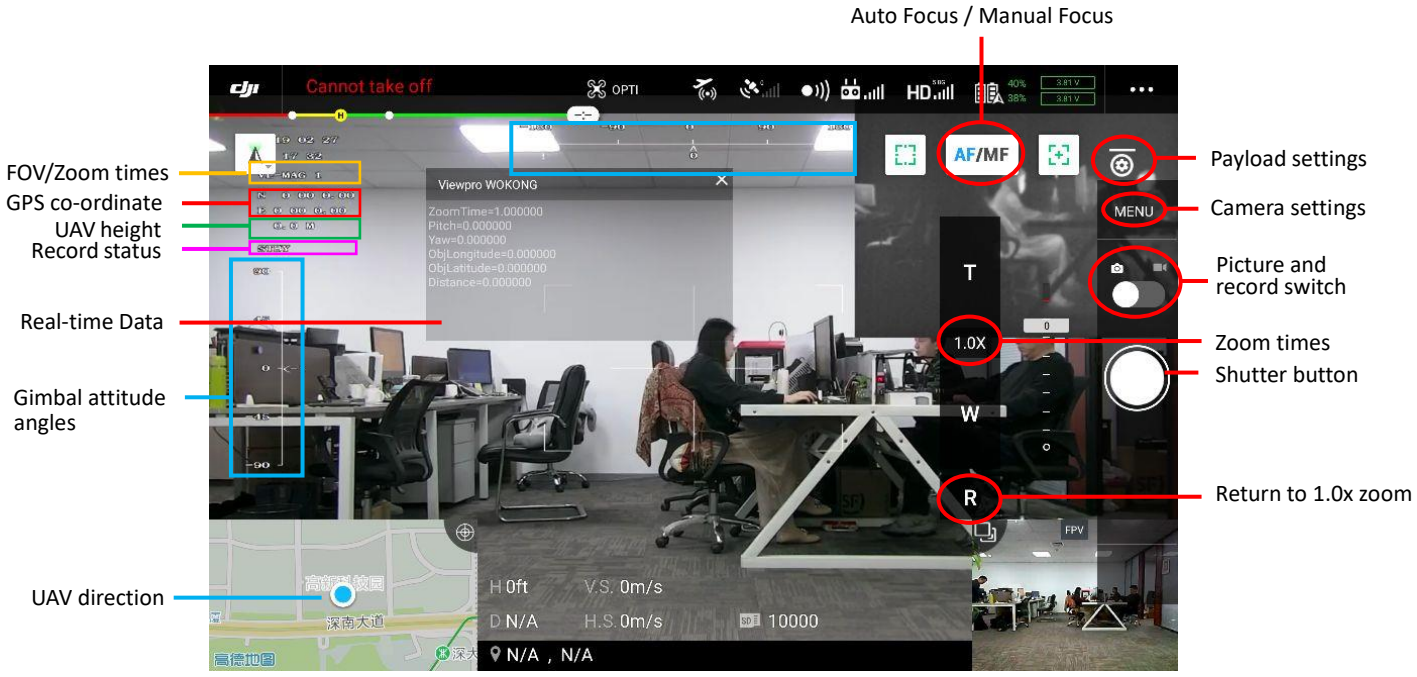
Pitch/Tilt: Pitch angle range of action: ±90°
Roll: Roll angle range of action: ±85°
Yaw/Pan: Yaw angle range of action: ±360°
Vibration angle: Pitch/Roll: ±0.01°, Yaw: ±0.01°

Application Description

DJI Pilot

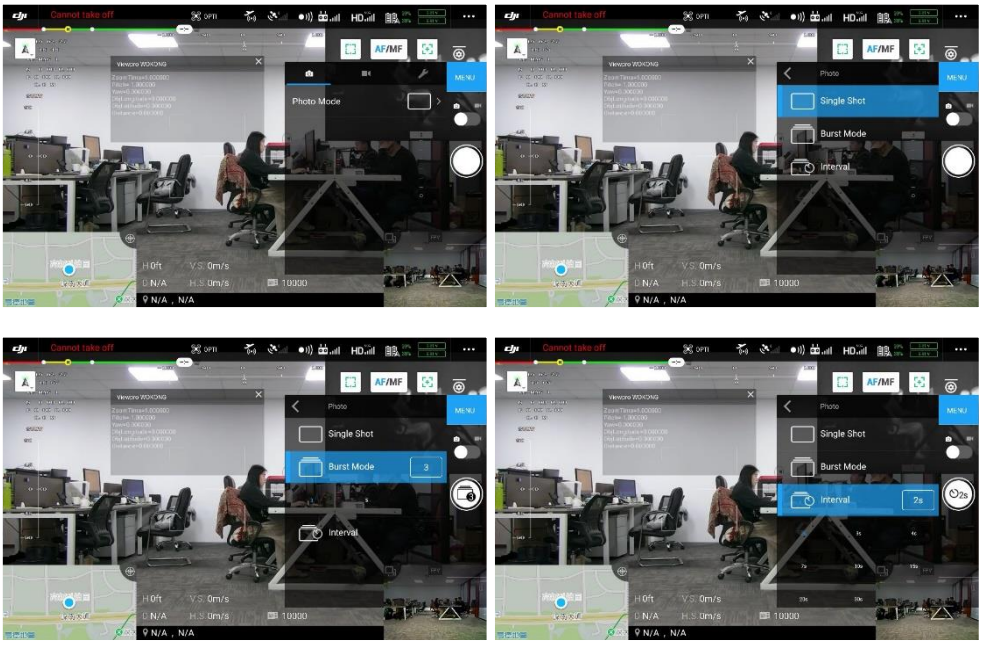
After mounting WK10TIRM on DJI drone and connecting with remote control, you can operate the gimbal camera via APP DJI Pilot. The gimbal attitude angles (tilt and pan) can be controlled by DJI remote control. Control method please refer to DJI related user manual.

1. Menu instruction

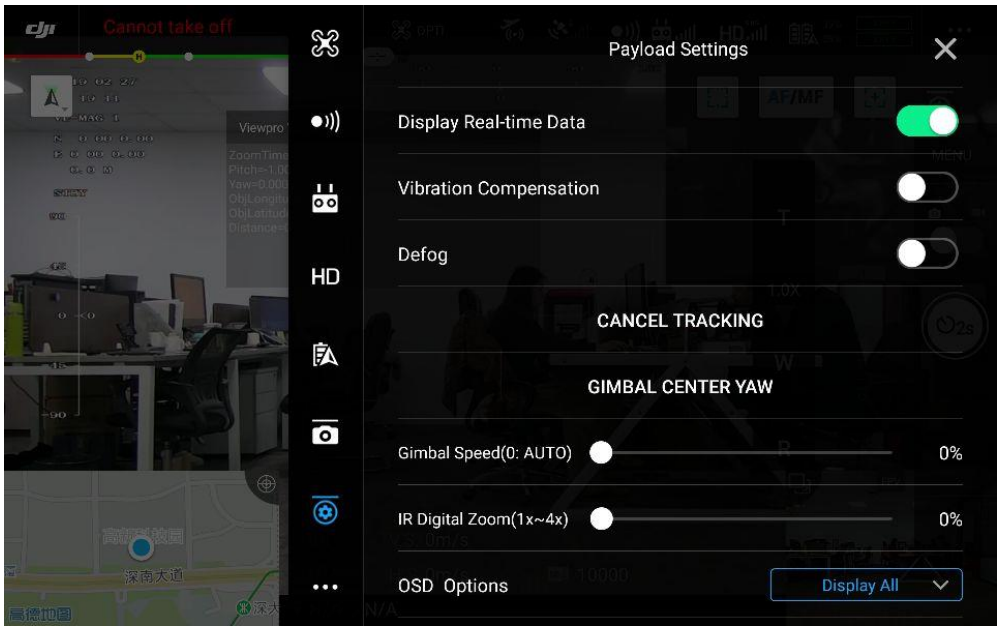


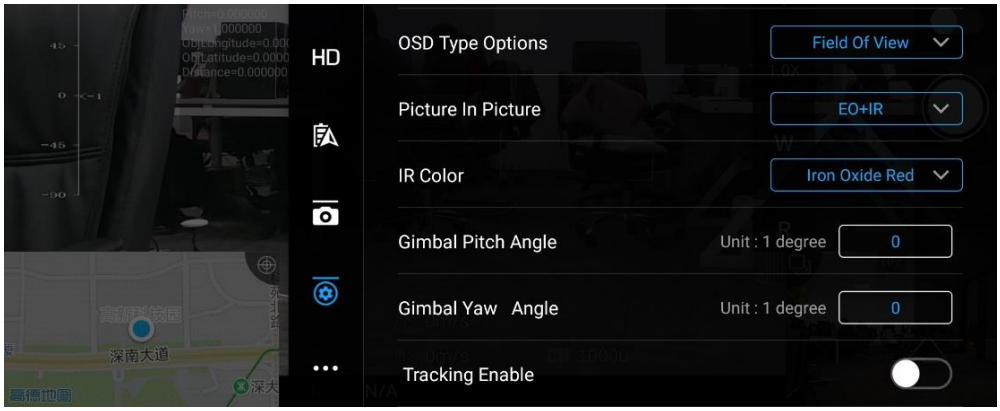
1.1 Camera settings – Photo mode settings

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



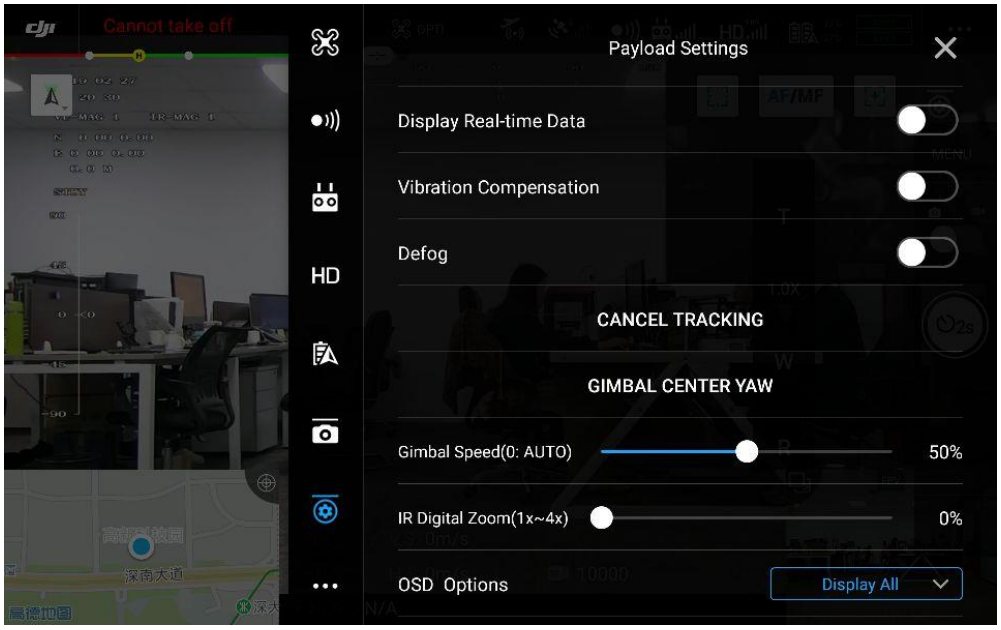
1.2 Payload Settings





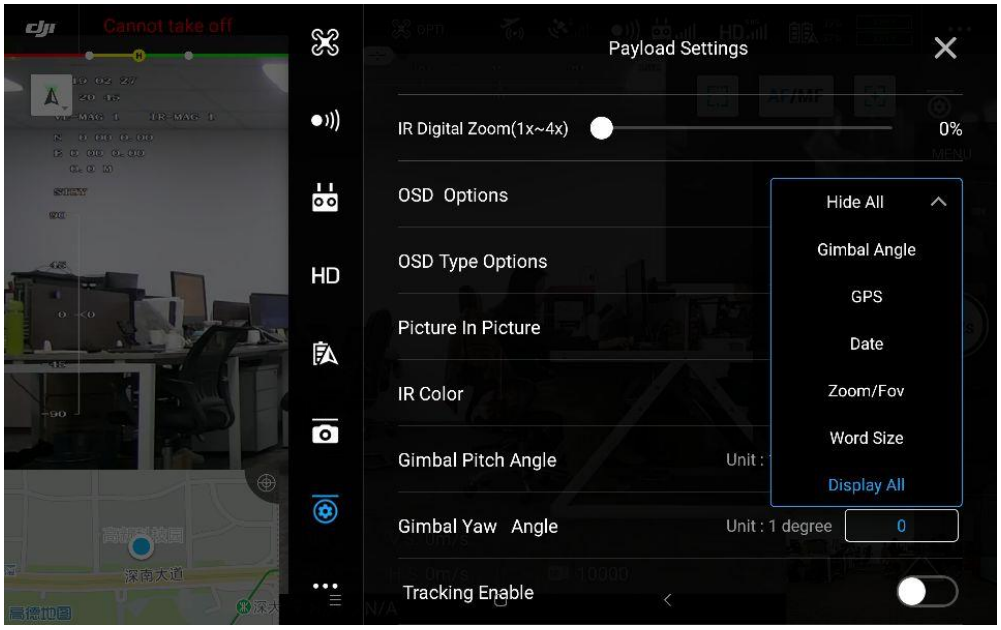
Gimbal Speed:

Gimbal speed is adjustable. When it's 0%, the speed will 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.

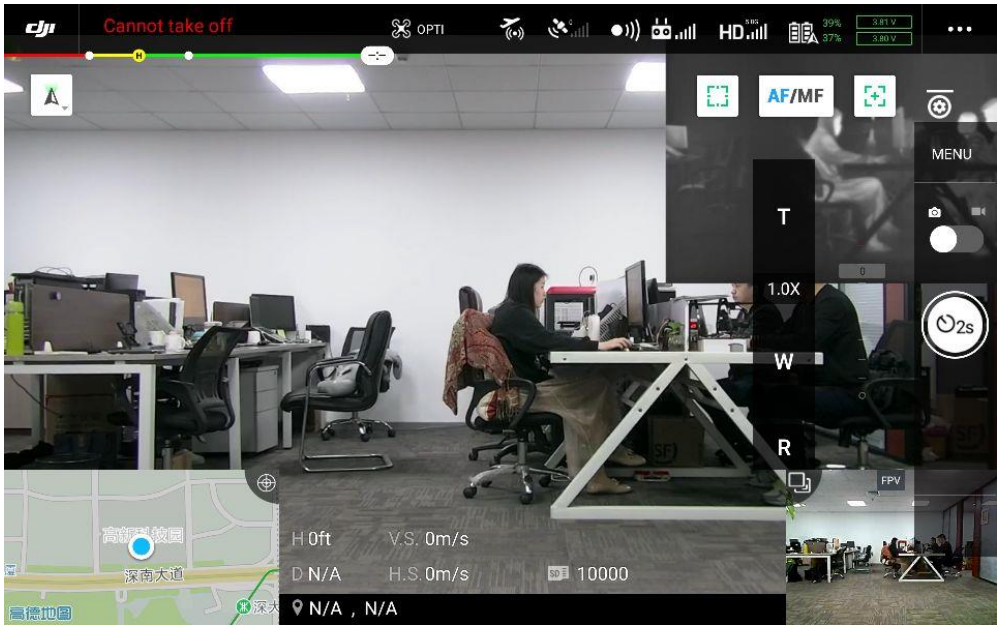


OSD Display Options:

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

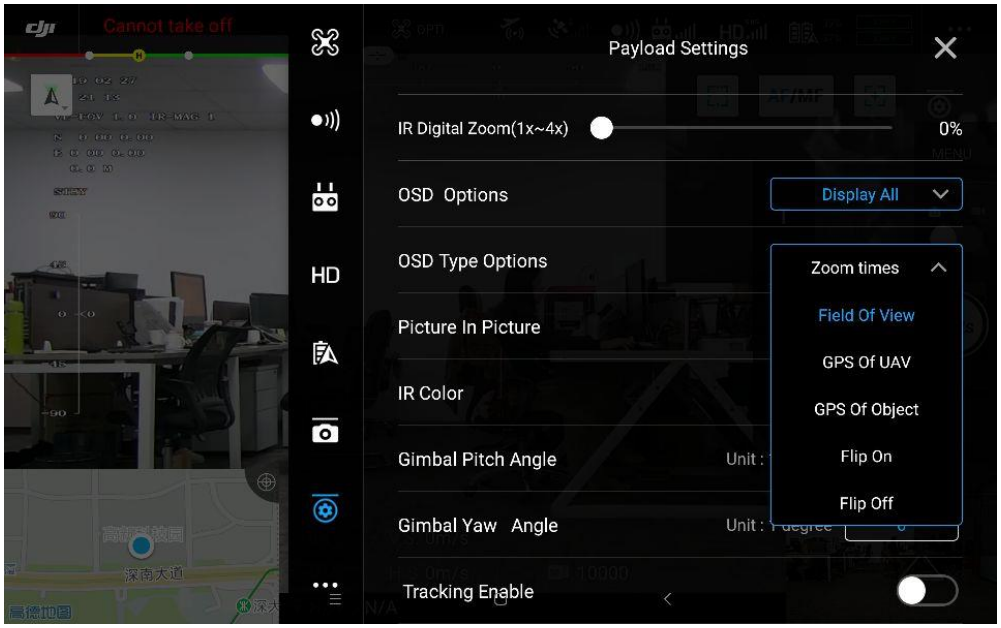


Hide All



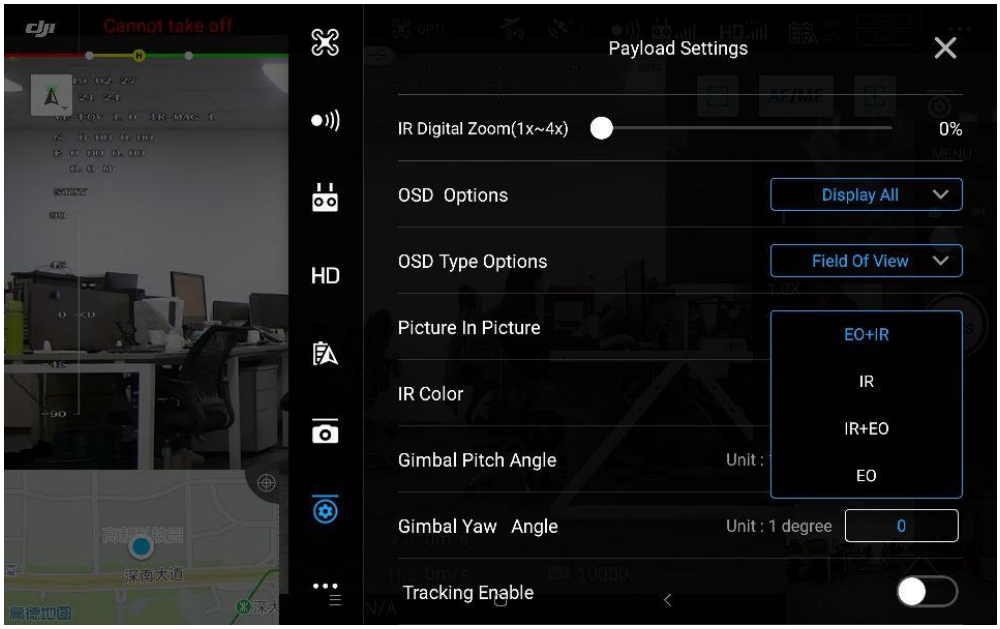
OSD Type Options:

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

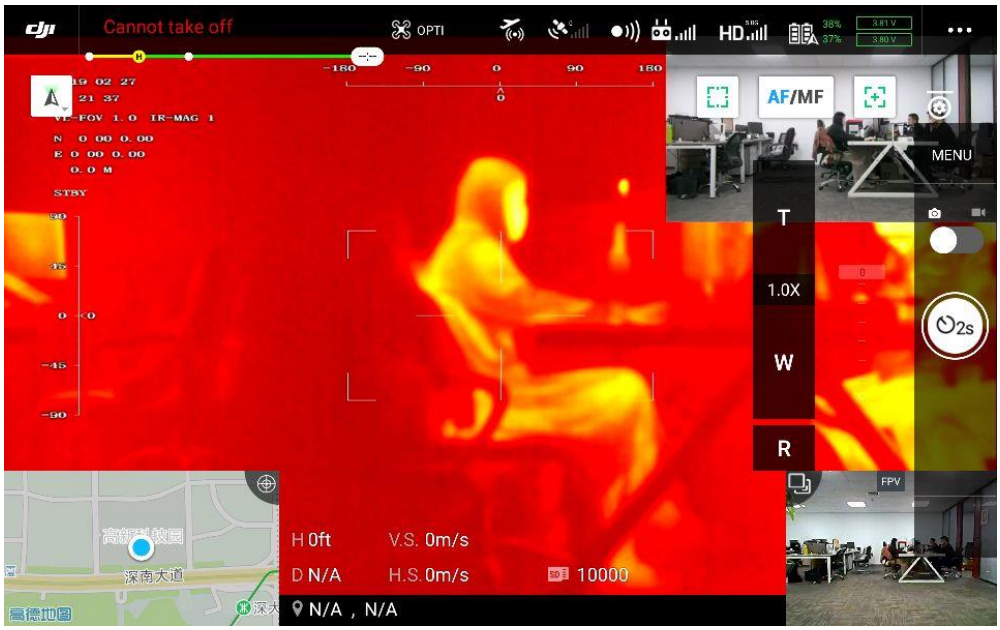


Picture In Picture:

There are 4 picture models, EO+IR, IR, IR+EO, EO. According to your choice, the screen will show different picture.

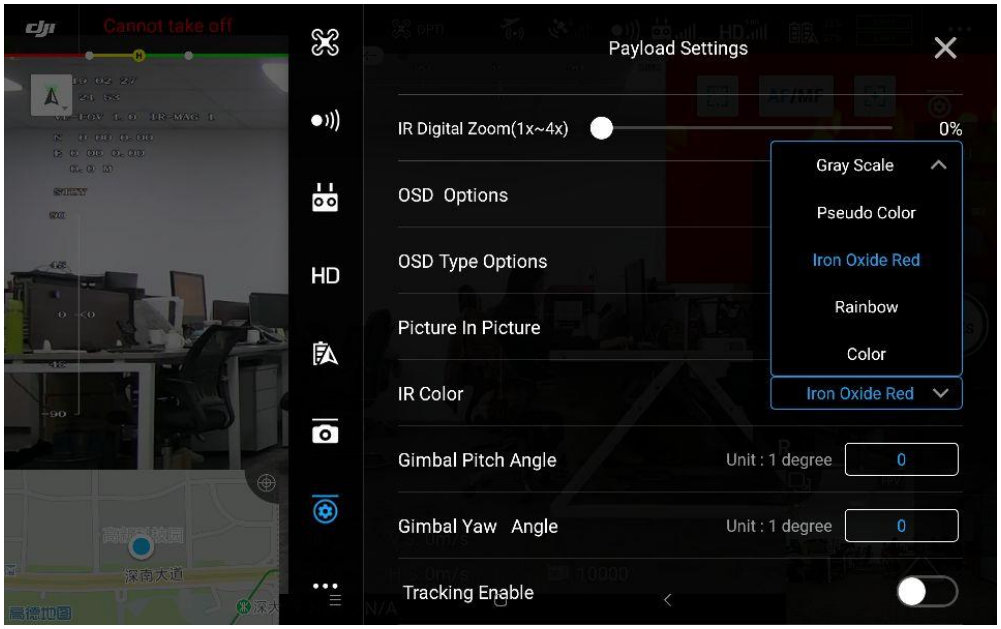


IR+EO



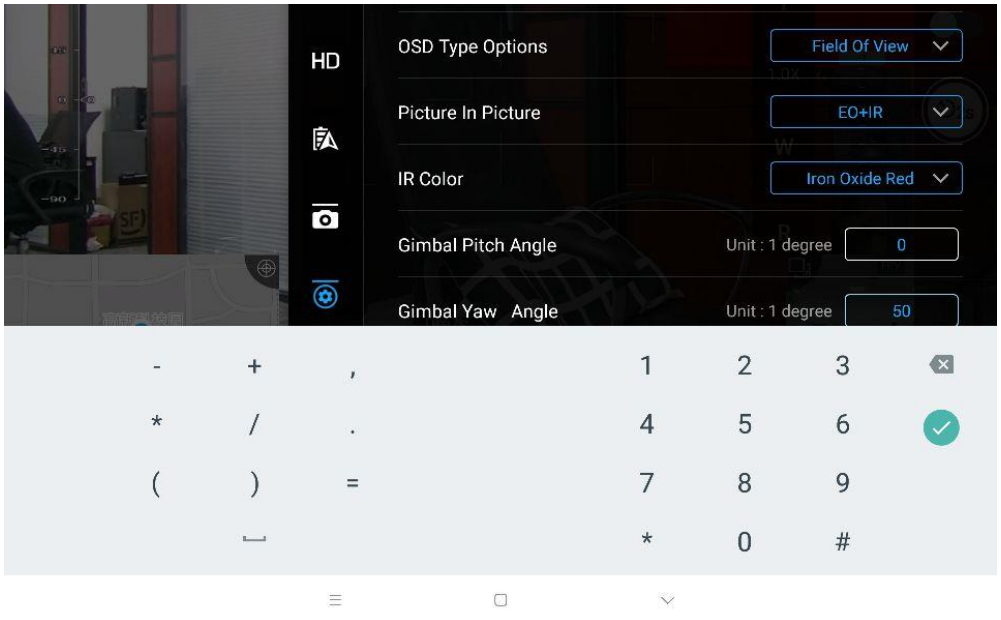
IR Color:

There are 5 color models for select, Gray Scale, Pseudo Color, Iron Oxide Red, Rainbow, Color. You can choose different model for different scene.



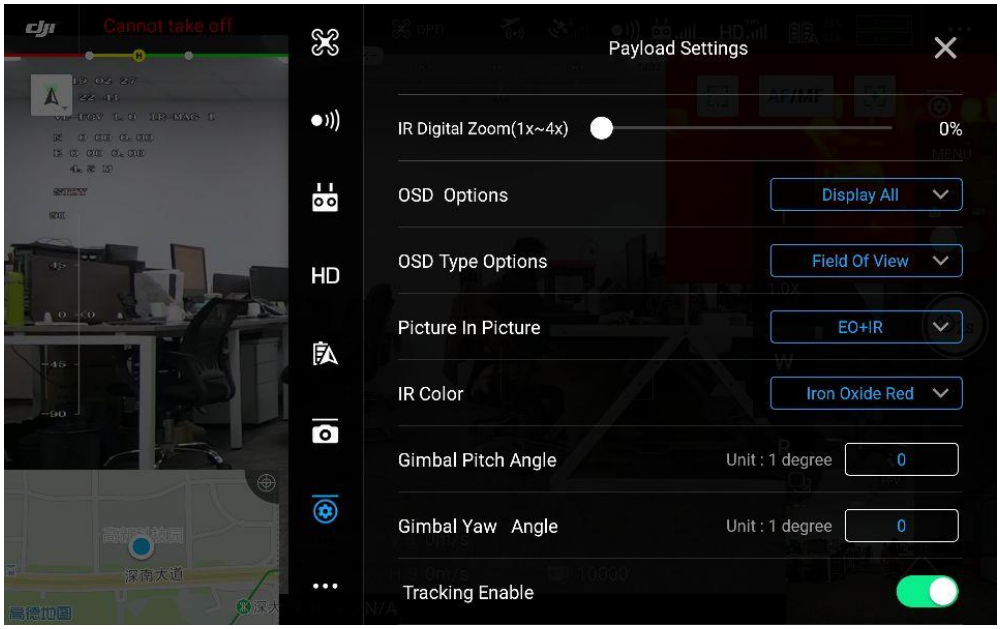
Gimbal Pitch Angle/ Gimbal Yaw Angle:

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



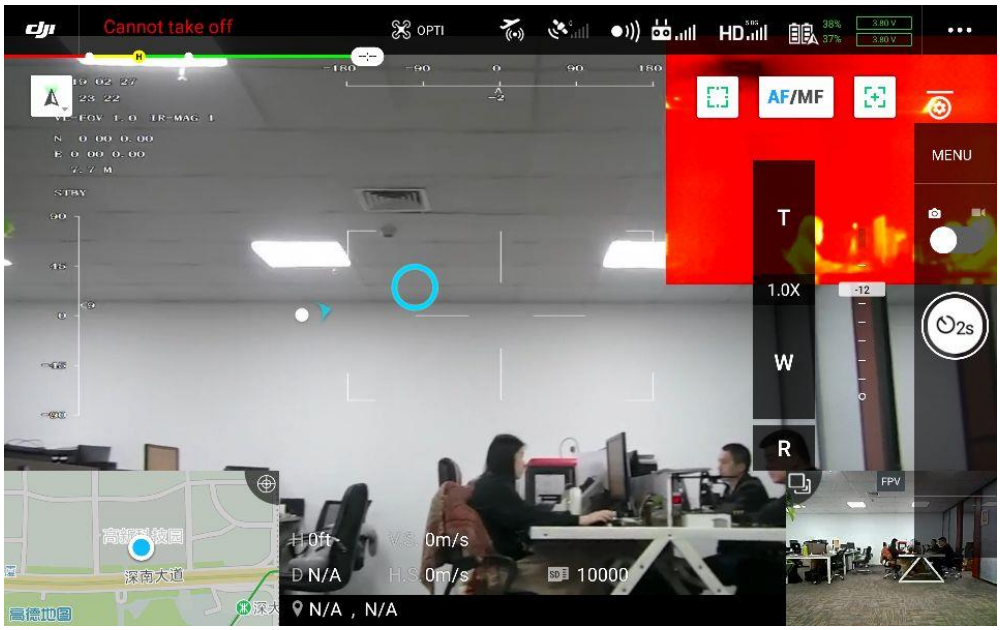
Tracking Enable:

Turn on/ off the object tracking function.



Drag Control:

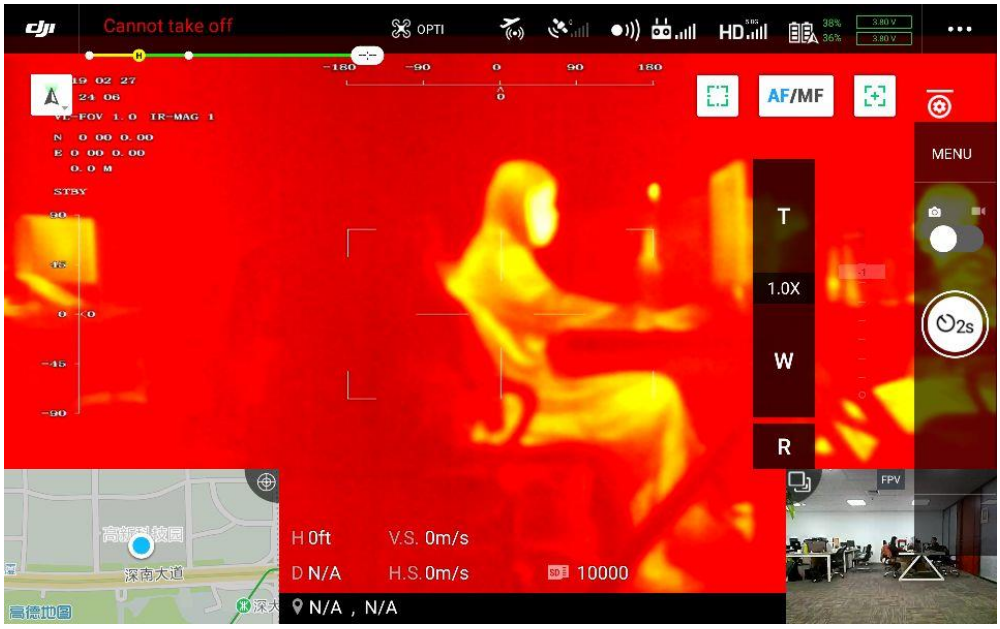
Press on the screen then drag to control pan and tilt.



2. Main functions instruction

2.1 Thermal Imager

Integrated French ULIS high-precision uncooled long wave (8μm ~ 14μm) thermal image sensor, WK10TIRM can record and transmit thermal image and visible images at the same time. ULIS thermal sensors reveal details invisible to the naked eye by making subtle differences in temperature visible. This new view on the world can reveal when equipment or buildings are damaged, the location of lost people and much more.

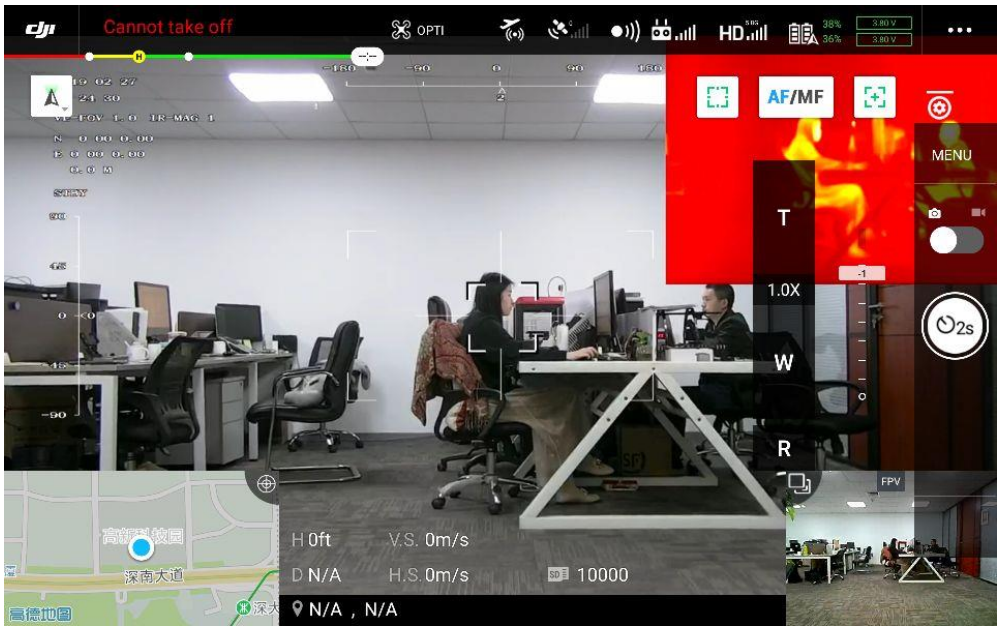


2.2 Object Tracking

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

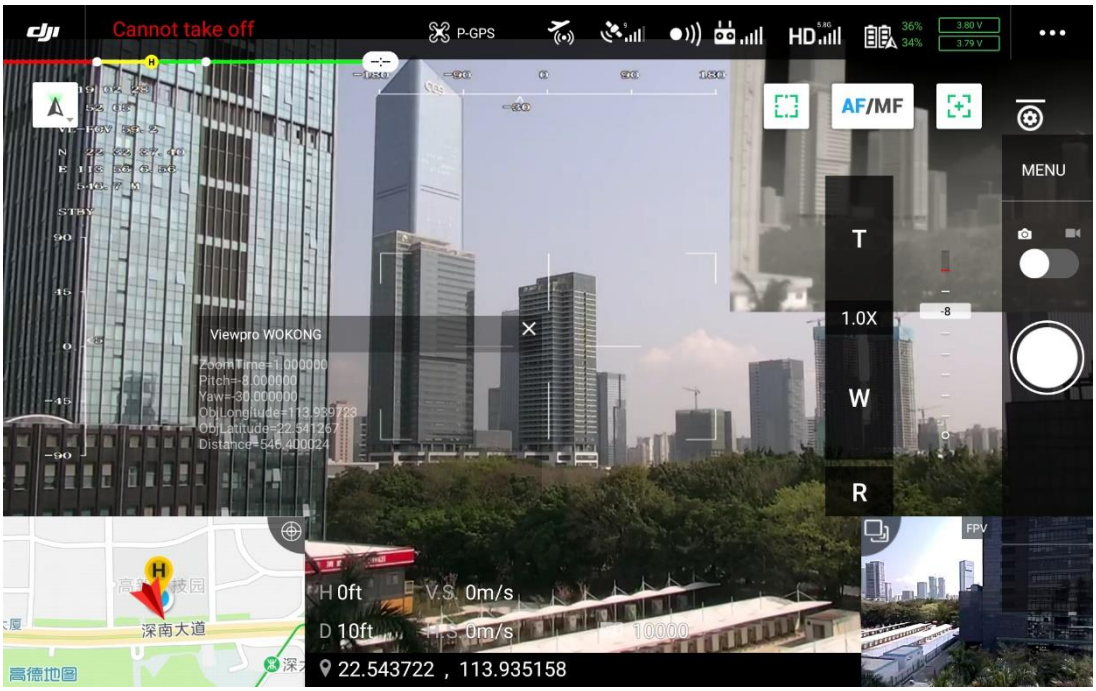
Stop tracking: Payload Settings – CANCEL TRACKING

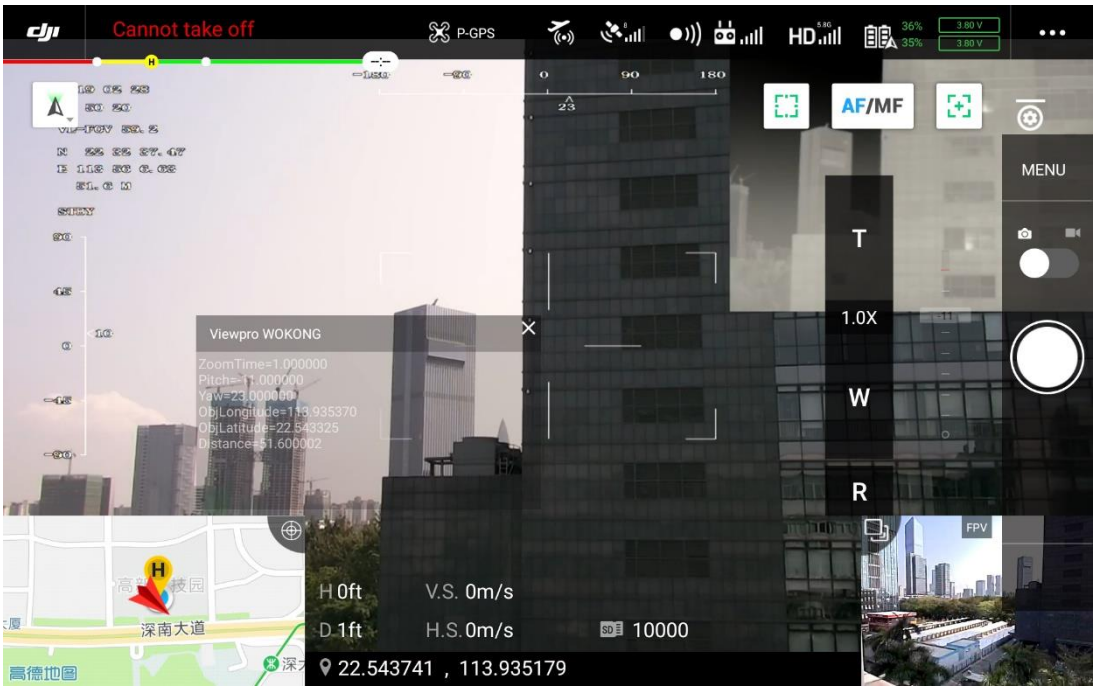
*Note: the gimbal will follow the object automatically after object is chosen, to control the gimbal manually please cancel tracking first.



2.3 Laser Rangefinder

WK10TIRM build-in infrared (IR) laser rangefinder, can resolve the geo graphic position and distance of the object automatically after GPS signal is synced from the UAV. The target is the object in the middle point of the screen. When the object distance is less than 5 meters or bigger than 1500 meters, the distance will show 0.





Specification

Hardware Parameter	
Working voltage	12V
Input voltage	4S ~ 6S
Dynamic current	550mA @ 12V
Idle current	450mA @ 12V
Power consumption	≤ 6.6W
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	Picth/Roll: ±0.01°, Yaw：±0.01°
One-key to center	√
Camera Spec	
Imager Sensor	1/3" CMOS
Picture quality	Full HD 1080 (1920*1080)
Effective pixel	4.08MP
Lens optical zoom	10x, F=3.2~33.6mm
Digital zoom	None
Min object distance	10mm(wide end) to 800mm(tele end)
Horizontal viewing angle	Wide 62° ~ Tele 6.5°
Sync system	Progressive scanning
S/N ratio	more than 52dB
Min illumination	0.5lux@F1.8, 50%, 1/30s
Illumination range	100 lx ~100,000 lx
Gain	Auto/Manual
White balance	ATW1 (Narrow), ATW2 (Wide), single touch, manual (B, R)
Shutter speed	1/1s to 1/10,000s, 22 steps
Exposure compensation	-12dB ~ +12dB (13steps in total)
Backlight compensation	Yes
Aperture control	16 steps
OSD	Yes

Camera Object Tracking	
Update rate of deviation pixel	50Hz
Output delay of deviation pixel	<10ms
Minimum object contrast	5%
SNR	4
Minimum object size	16*16 pixel
Maximum object size	160*160 pixel
Tracking speed	±32 pixel/frame
Object memory time	100 frames (4s)
The mean square root values of pulse noise in the object position	< 0.5 pixel
Thermal imager spec	
Lens size	19mm
Horizontal FOV	32°
Vertical FOV	24°
Diagonal FOV	39.4°
Detective Distance (Man: 1.8x0.5m)	559 meters
Recognize Distance (Man: 1.8x0.5m)	140 meters
Verified Distance (Man: 1.8x0.5m)	70 meters
Detective Distance (Car: 4.2x1.8m)	1714 meters
Recognize Distance (Car: 4.2x1.8m)	428 meters
Verified Distance (Car: 4.2x1.8m)	214 meters
Working mode	Uncooled long wave (8μm~14μm) thermal imager
Detector pixel	640*480
Pixel size	17μm
Focusing method	Athermal prime lens
Emissivity correction	0.01~1
NETD	≤50mK (@25℃)
MRTD	≤650mK (@characteristic frequency)
Image enhancement	Auto adjust image brightness and contrast ratio
Color palette	Gray Scale, pseudo color, Iron Oxide Red, Rainbow, Color
Auto Non-uniform correction	Yes (no shutter)
Digital zoom	1x ~ 4x
Sync correct time	Yes
Temperature warning	0℃~100℃

Thermal Object Tracking	
Update rate of deviation pixel	25Hz
Output delay of deviation pixel	<3ms
Minimum object size	16*16 pixel
Maximum object size	128*128 pixel
Tracking speed	±32 pixel/frame
Object memory time	100 frames (4s)
Laser Rangefinder	
Range	1500 meters
Location display	Latitude and longitude
Packing Information	
N.W.	751g
Product meas.	156.7*145*175.5mm
Accessories	1pc gimbal camra device/box
G.W.	2471g
Package meas.	360*300*250mm