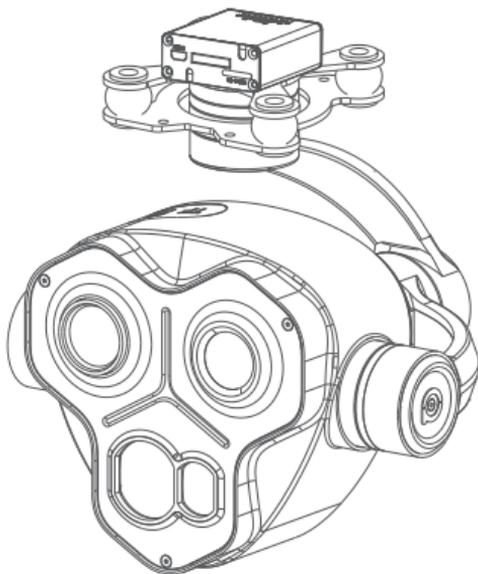




Quick Start Guide

WOOKONG

Dual-Sensor Laser Rangefinder 10X Zoom
Camera with 3-axis Gimbal

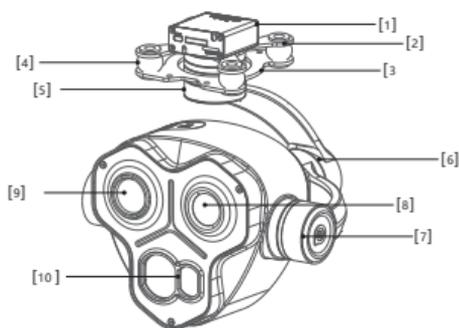


Images are for reference only, please subject to the actual product.

WOOKONG

The WOOKONG gimbal camera features an 10x optical zoom day camera, 640*480 thermal camera and laser rangefinder. It has fast auto-focus speed, 1080p FHD image quality and object tracking function. The high-precise laser rangefinder can accurately resolve the longitude and latitude and distance of the object within 1500 meters. Which make the camera is highly powerful and applicable. All parameters have been perfectly set, you just need to install the gimbal camera to UAV, then ready to fly.

Overview



- [1] Control box
- [2] Upper damping board
- [3] Lower damping board
- [4] Damping ball
- [5] YAW axis motor
- [6] Roll axis motor
- [7] Pitch axis motor
- [8] 10x FHD zoom camera
- [9] Infrared thermal camera
- [10] Laser rangefinder



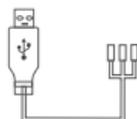
Please make sure that the motor is not stopped by any object during the rotation, if the gimbal is blocked during rotation, please remove the obstruction immediately.

In the box

Gimbal camera*1



USB to TTL *1



Copper cylinders*4



Anti shedding buckle*4



Button head hexagon screw*16

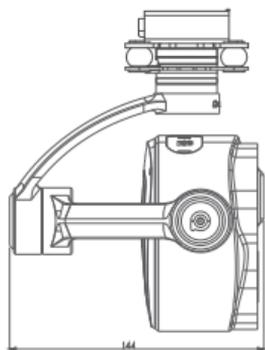
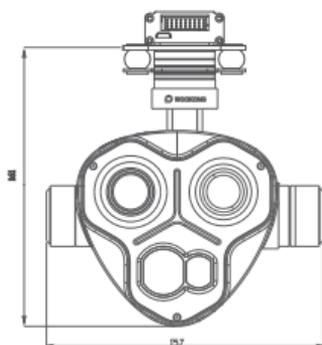


5mm*12



8mm*4

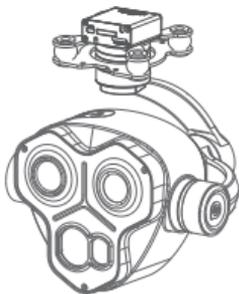
Gimbal Camera Dimension



Unit: mm

Installing

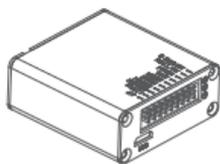
Install the camera as shown



Connection of Control Box and Wiring Instruction

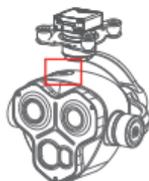


← Control Box position



1. Insert SD card

SD card: max 128G, class10
FAT32 or exFAT format



SD card position

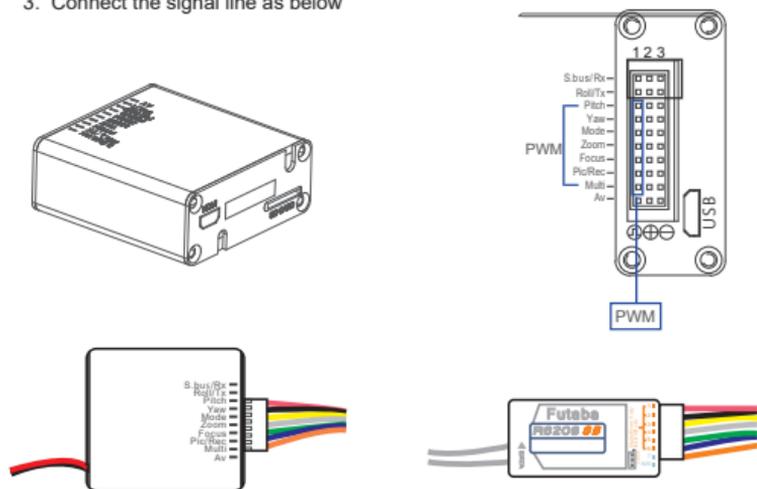
2. Connect HDMI to display

HDMI: micro HDMI OUTPUT
1080P 60fps default

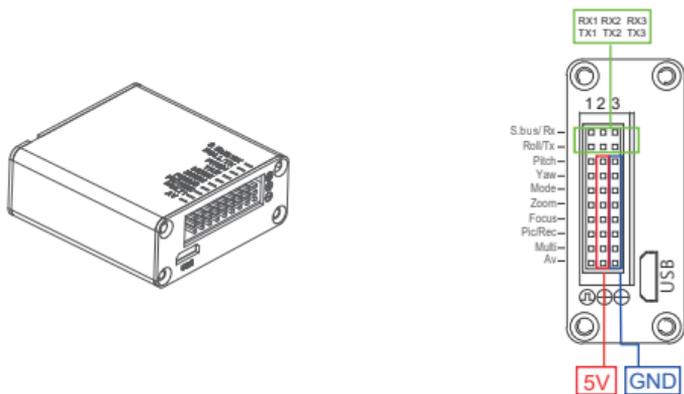


HDMI position

3. Connect the signal line as below

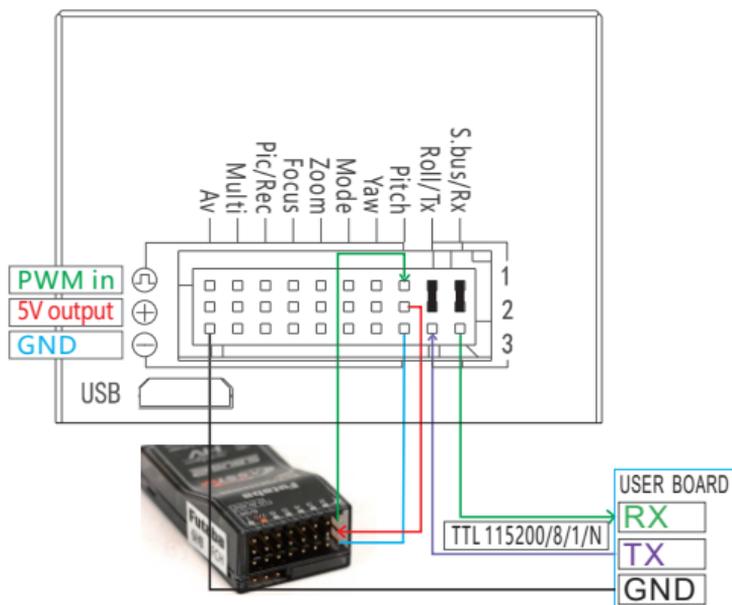


4. Power supply with 12V, red line is positive and black is negative.



Function Description

Signal functions

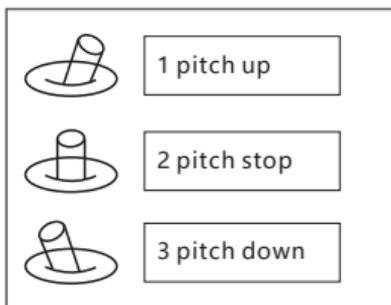


S.bus/Rx: connect to Rx2 for track function.

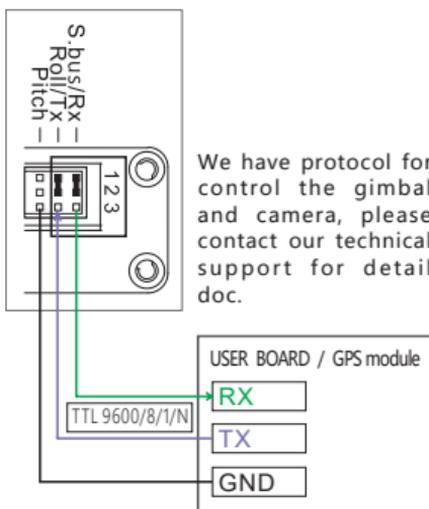
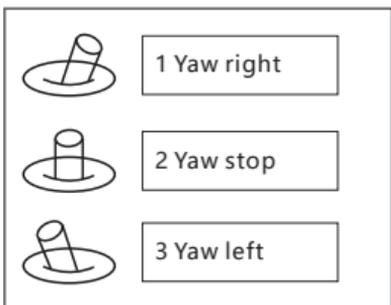
Roll/ Tx: connect to Tx2 for track function.

Pitch: PWM in, pitch control

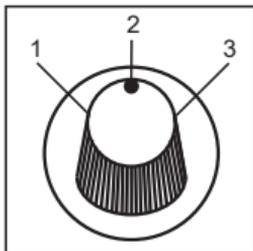
Pitch : PWM in, pitch control



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.

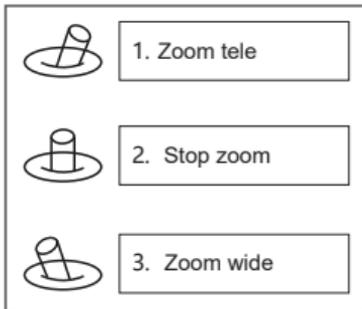
One click: Home position.

Two click: head locking. Yaw not followed by frame.

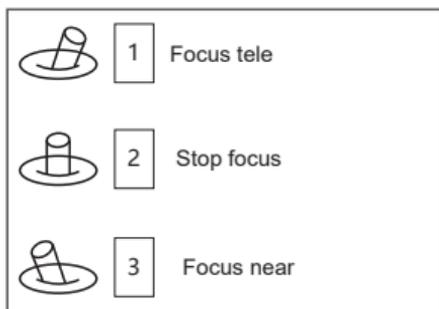
Three click: Yaw followed by frame.

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

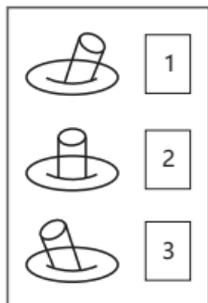
ZOOM: Zoom the camera



Focus: Focus the camera



Pic /Rec picture / Start record, stop record

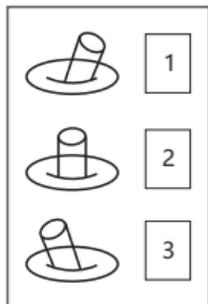


Switch 2 to 1: Start record / stop record.

Start record, the OSD display rec hh:mm:ss ;
Stop record, the OSD display STBY.

Switch 2 to 3: take a picture. OSD display 'REC IMG' for a second.

Multi: Tracking control



1. Position 1 exit the tracking

Switch 1 to 2: Display the cross cursor. Adjust the object to the cross cursor.

2. Switch 2 to 3: start tracking. Change the object during tracking

Switch 3 to 2: Display the cross cursor, use Pitch/Yaw to adjust the cross cursor.

Switch 2 to 3: Start tracking.

AV: NO AV output

Hardware Parameter

Working voltage	12V
Input voltage	4S ~ 6S
Output voltage	5V (connect with PWM)
Dynamic current	550mA @ 12V
Idle current	450mA @ 12V
Power consumption	≤ 6.6W
Working environment temp.	-10℃ ~ +60℃
Output	micro HDMI(HD output 1080P 60fps) / Network interface / SDI
Local-storage	SD card (Up to 128G, class 10, FAT32 or ex FAT format)
Control method	PWM / TTL / S.BUS

Gimbal Spec

Pitch/Tilt	±90°
Roll	±85°
Yaw/Pan	±170° ±360°*N (IP/SDI output)
Vibration angle	Pitch/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	12x (360x with optical zoom)
Min object distance	10mm(wide end) to 800mm(tele end)
Virtual 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	≤850mK (@characteristic frequency)
Image enhancement	Auto adjust image brightness and contrast ratio
Color palette	Black, white, pseudo color
Auto Non-uniform correction	Yes (no shutter)
Digital zoom	1x, 3x
Sync correct time	Yes
Thermometry type	/
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	5-1500 meters
Resolution	0.5m
Working current	80mA(max)
Working temperature	-20°C to + 60°C
Transmitting beam	905nm pulse laser
Divergence angle	3mrad
Laser pulse frequency	1HZ
Power	< 1mW (Eye-safe)
Distance-measurement mode	pulse mode

Packing Information

N.W.	810g
Product meas.	144*157*161mm
Accessories	1pc gimbal camera device, 16pcs screws, 4pcs copper cylinders, 4pcs anti shedding buckle, 1pc USB To TTL / Box