S230TG Dual-Axis Triple-Sensor Electro-Optical Pod

1. Product Profile

S220TC optoelectronic pod consists of an uncooled infrared thermal camera, a 30x continuously zoomed visible camera, a laser illuminator, a two-axis servo-stabilized platform and an image processing component (auto identification and tracking). It is characterized by high precision and long acting distance, can be applied to medium and small-sized UAVs to accomplish day and night reconnaissance, surveillance and other tasks on the target area.

The optoelectronic pod realizes all-day detection, identification and tracking of ground targets by means of uncooled infrared thermal camera and visible light camera, and outputs real-time infrared and visible light video for the mission executives to view at the same time.

The pod has been adapted to a number of domestic mainstream flight control platforms, and can realize seamless docking with the flight control; and can be accessed to the Users' View Control Studio software platform, to assist the company to quickly complete the development of the unmanned aircraft system.

The optoelectronic pod is mainly used in reconnaissance, border patrol, personnel search and rescue, forest fire prevention and other scenarios.

2. Product Picture

Picture 1 product

3. Product Features

a) Features automatic target recognition and target tracking capabilities;
b) Includes self-diagnostic and fault reporting functions;
c) Offers 30x optical zoom functionality in the visible light spectrum;
d) Capable of detecting in the long-wave infrared and visible light spectra, and can output infrared and visible light images;
e) Visible light functionality includes optical zoom, auto-focus, manual focus, and low-light performance;
f) Infrared has 3x continuous zoom functionality;
g) Capable of laser ranging and illumination functionality;
h) Capable of two-degree-of-freedom movement in azimuth and elevation;
i) Capable of multiple operating modes including automatic search, manual search, follow-up, and tracking;
j) In manual search mode, capable of receiving control station commands and performing pod operations;
k) Capable of isolating carrier disturbances and maintaining a stable aiming line;
l) Capable of locking/unlocking targets, with the pod outputting images with tracking frames after target lock;
m) Capable of target tracking with resistance to natural interference;
n) Capable of memory tracking, enabling rapid reacquisition of targets after brief loss;
o) Capable of adjusting aperture size;
p) Capable of switching tracking points;
q) Capable of calculating target coordinates based on laser ranging, pod azimuth and pitch angles, and UAV attitude information;
r) Capable of bidirectional communication with the control station via 100Mbps Ethernet/RS422, and outputting infrared images, visible light images, system operational status, camera operational status, optical axis position, and other information;
s) Equipped with HD-SDI/100Mbps Ethernet multi-channel video output interfaces;
t) Capable of photography and video recording functions.

4. Applications

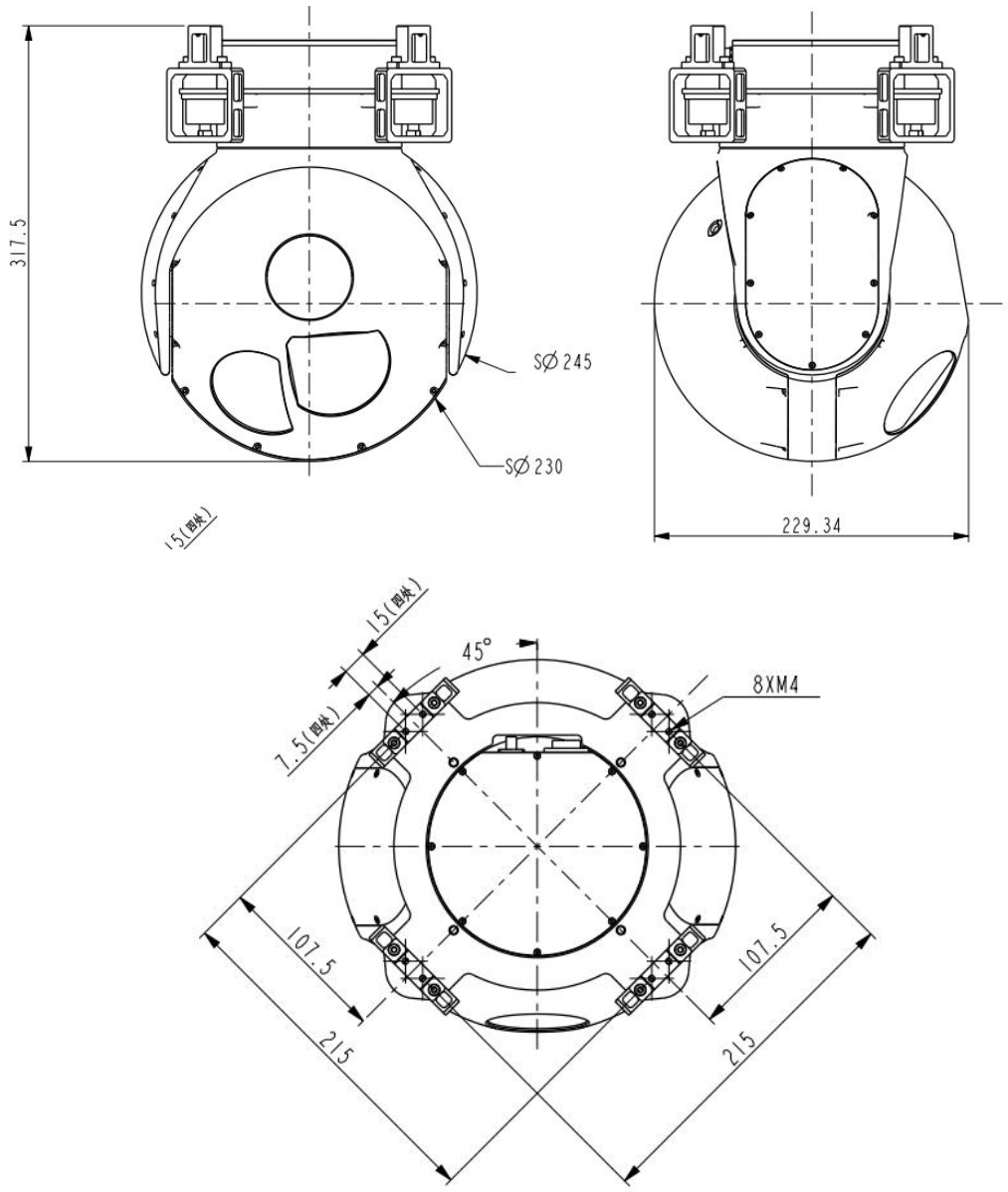
Dropped fixed-wing UAVs, rotary-wing UAVs, tethered UAVs, etc

.5. Main Technical Parameters

Model	S230TG
Thermal imaging camera	
Detector Type	Uncooled Focal Plane Detector
Operating Band	8μm～14μm
Detector Resolution	640×512
Image size	12μm
Lens focal length	25mm to 75mm continuous zoom
Field of view	17.5°×14°～5.9°×4.7°
Noise Equivalent Temperature Difference	NETD≤50mK
Minimum Resolvable Temperature Difference	MRTD≤500mK
Visible Light Camera	
Resolution	1920×1080
Response Band	0.4μm～0.9μm
Image size	2.8μm
Optical zoom	30x
Hybrid zoom	60x
Focal length	4.3mm～129mm
Field of view	63.7°×35.8°～2.3°×1.3°
Zoom Method	Auto Focus, Manual Focus
Minimum Illumination	0.01Lux (B/W)
Laser Illuminator	
Wavelength	1064nm
Laser energy	≥40mJ
Laser pulse width	15ns±5ns
Laser Beam Scatter Angle	≤0.3mrad
Frequency	20Hz
Laser code	8 groups of codes can be pre-stored; accurate frequency code, variable interval code, pseudo-random code
Irradiation distance	≥4Km (under visibility ≥15Km)
Maximum distance	≥6km (under the condition of visibility ≥15Km)
Minimum distance	≤100m
Ranging accuracy	≤5m
Frequency	1～5Hz
Servo platform	
Azimuth angle	360°×n (360°continuous rotation)
Pitch angle	-120°～+90° (positive upward)
Frame Angle Accuracy	≤0.06°（1σ）

Stabilization accuracy	≤0.05mrad（1σ）
Corner position accuracy	≤1mrad（1σ）
Maximum turning speed	Azimuth ≥60°/s, Pitch ≥60°/s
Maximum rotational acceleration	Azimuth ≥100°/s², pitch ≥100°/s²
Image processing components	
Automatic recognition	With human and vehicle target automatic identification number of targets ≥ 32
Target tracking	Target size ≥ 16 × 16
Tracking frame rate	≤50Hz
Image output	RTSP/UDP/RTMP optional, code rate 200kbps ~ 6Mbps can be set
System index	
Voltage range	20V～32VDC
Wattage	Stable power consumption: ≤60W
Weight	≤8.5Kg
Volume	230mm×229.3mm×317.5mm
Interfaces	
Control Interface	RS422/100Mbps
Video Interface	HD-SDI/100Mbps
Memory Interface	≤128G memory card (Micro SD card)
Picture Format	jpg format
Video Format	avi format
Environmental adaptability	
Operating Temperature	-20℃～＋60℃ (-40℃ optional)
Storage Temperature	-40℃～＋65℃
Vibration conditions	Acceleration of 2g; 30min in each of the three directions of vertical, horizontal and longitudinal.
Shock conditions	Peak acceleration 20g, duration 11ms
Protection class	Can fly in light and moderate rain

6. Dimensions and Interface



Picture 2 Product Dimensions