S230TE Dual-Axis Triple-Sensor Electro-Optical Pod

1. Product Profile

S230TE optoelectronic pod consists of an uncooled infrared thermal camera, a 40x continuously zoomed visible camera, a laser rangefinder, 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) Equipped with automatic target recognition and target tracking functions;
b) Equipped with self-diagnostic and fault reporting functions;
c) Capable of 40x optical zoom in the visible spectrum;
d) Capable of detection in both the infrared and visible spectra, and capable of outputting infrared and visible spectrum images;
e) Visible light mode includes optical zoom, auto-focus, manual focus, and low-light environment functionality;
f) Infrared mode features 5x continuous zoom functionality;
g) Equipped with laser ranging functionality;
h) Capable of two-degree-of-freedom movement in azimuth and elevation directions;
i) Supports multiple operating modes, including automatic search, manual search, follow, and track;
j) In manual search mode, can receive control station commands and execute pod operations;
k) Capable of isolating carrier interference and maintaining a stable aiming line;
l) Capable of locking/unlocking targets, with the pod outputting images with tracking frames after target lock;
m) Possesses target tracking capability resistant to natural interference;
n) Possesses memory tracking functionality, enabling rapid reacquisition of the target after temporary loss;
o) Possesses the ability to adjust aperture size;
p) Possesses the ability to switch tracking points;
q) Possesses the ability to calculate target coordinates based on laser ranging, pod azimuth and elevation angles, and UAV attitude information;
r) Capable of bidirectional communication with the control station via 100Mbps Ethernet/RS422, and output infrared images, visible light images, system operating status, camera operating 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

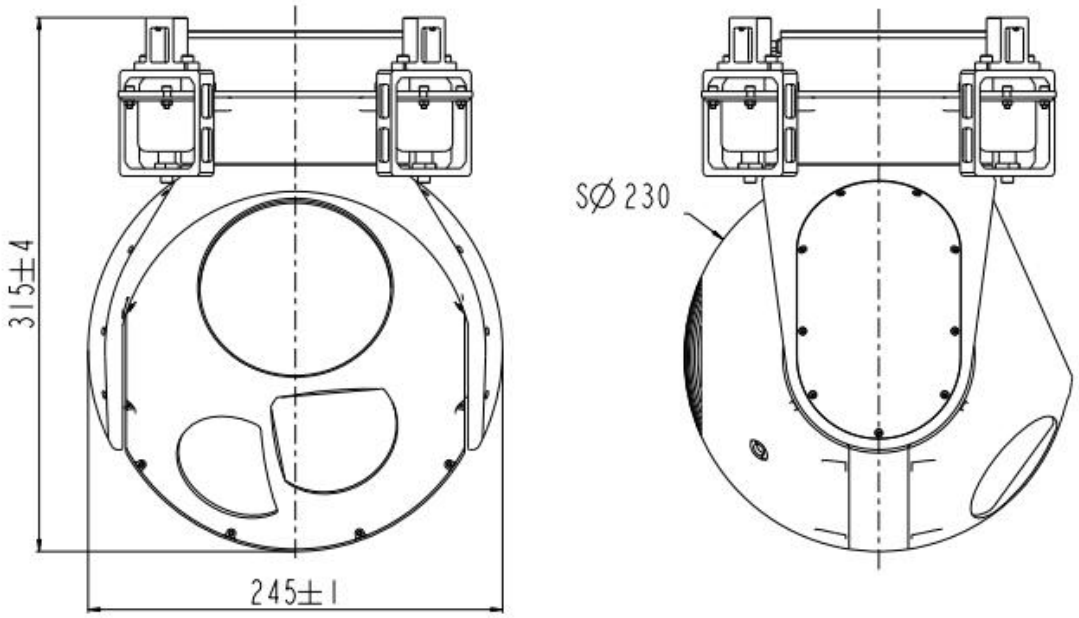
Dropped fixed-wing UAVs, rotary-wing UAVs, tethered UAVs, etc

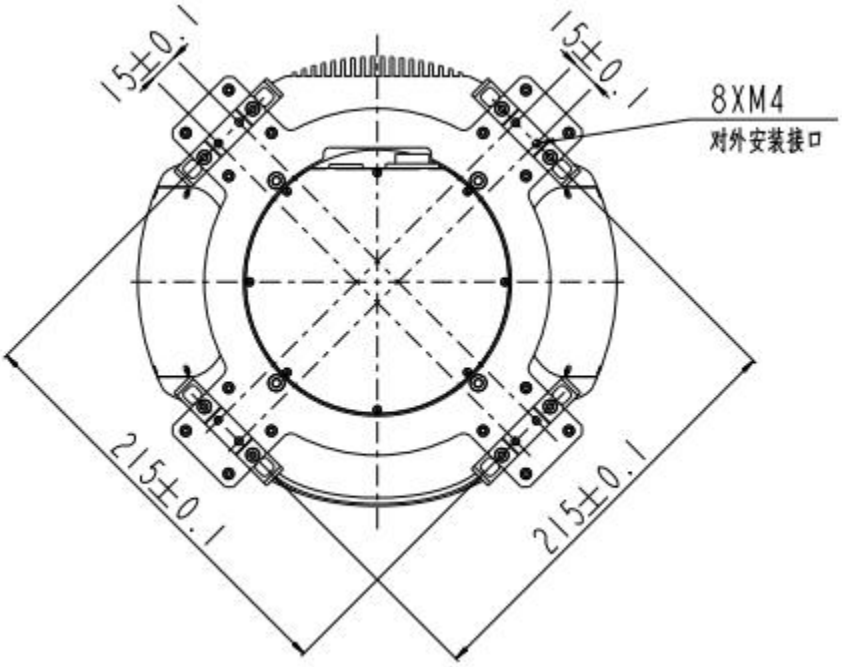
.5. Main Technical Parameters

Model	S230TE
Thermal imaging camera	
Detector Type	Uncooled Focal Plane Detector
Operating Band	8μm～14μm
Detector Resolution	640×512
Image size	12μm
Lens focal length	20mm～100mm
Field of view	21.7°×17.5°～4.4°×3.5°
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	40x
Hybrid zoom	80x
Focal length	4.25mm～170mm
Field of view	62.1°×37.4°～1.7°×0.97°(±5%)
Zoom Method	Auto Focus, Manual Focus
Minimum Illumination	0.01Lux (B/W)
Laser Rangefinder	
Wavelength	1535nm
Maximum ranging distance	≥6 km (under conditions of visibility ≥15 km)
Minimum ranging distance	≤20m
Ranging accuracy	≤2m
Ranging frequency	1-5Hz
Servo platform	
Azimuth angle	360°×n (360°continuous rotation)
Pitch angle	-115°～+90° (positive upward)
Frame Angle Accuracy	≤0.1°（1σ）
Stabilization accuracy	≤0.05mrad（1σ）
Corner position accuracy	≤1mrad（1σ）
Maximum turning speed	Azimuth ≥60°/s, Pitch ≥60°/s
Maximum rotational	Azimuth ≥100°/s², pitch ≥100°/s²

acceleration	
System metrics	
Image tracking	Automatic tracking of selected targets (optional)
AI recognition	Automatic detection and identification of typical targets
Rated operating voltage	24VDC
Power supply voltage range	20V to 32VDC
Power	Stable power consumption: ≤60W
Weight	≤8.7Kg
Volume	≤230mm × 245mm × 315mm
Image tracking	Automatic tracking of selected targets (optional)
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