

S280TB Dual-Axis Triple-Sensor Electro-Optical Pod

1. Product Profile

S280TB optoelectronic pod consists of an uncooled infrared thermal camera, a 15x 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) Capable of automatic target recognition and target tracking;
- b) Self-diagnosis and fault reporting functions;
- c) Capable of 15x optical zoom in the visible light spectrum;
- d) Capable of detecting in both the infrared and visible light spectra, and can output infrared and visible light images;
- e) Visible light mode features optical zoom, auto-focus, manual focus, and low-light functionality;
- f) Infrared mode features 5x continuous zoom functionality;
- g) Infrared with six color palette switching functions;
- h) Equipped with laser ranging functionality;
- i) Capable of two-degree-of-freedom motion in azimuth and elevation;
- j) Supports multiple operating modes including automatic search, manual search, follow-up, target tracking, and bookmarking;
- k) In manual search mode, capable of receiving control station commands and performing pod operations;
- l) Capable of isolating carrier disturbances and maintaining a stable aiming line;
- m) Features target lock/unlock functionality, with the pod outputting images with tracking frames after target lock;
- n) Features target tracking functionality with resistance to natural interference;
- o) Features memory tracking functionality, enabling rapid reacquisition of targets after temporary loss;
- p) Features adjustable aperture size functionality;
- q) Features tracking point switching functionality;
- r) Capable of bidirectional communication with the control station via RS422/100Mbps Ethernet, and outputting infrared images, visible light images, system operational status, camera operational status, optical axis position, and other information;
- s) Equipped with an HD-SDI/100Mbps Ethernet video output interface;
- t) Capable of photography and video recording functions;
- u) Capable of target localization functions.

4. Applications

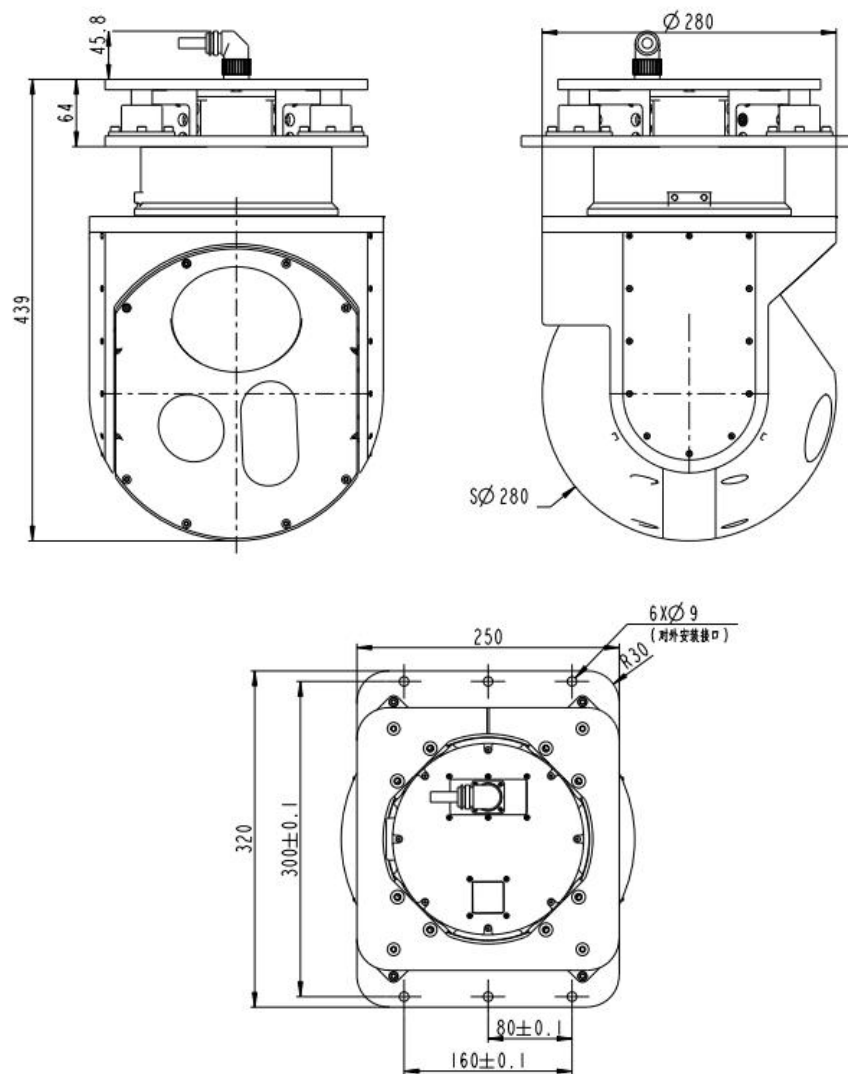
Dropped fixed-wing UAVs, rotary-wing UAVs, tethered UAVs, etc

5. Main Technical Parameters

Model	S280TB
Thermal imaging camera	
Detector Type	Uncooled Focal Plane Detector
Operating Band	8 μ m~14 μ m
Detector Resolution	640×512
Image size	12 μ m
Lens focal length	20mm to 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	0.4 μ m~0.9 μ m
Image size	2.8 μ m
Optical zoom	15x
electronic zoom	2x
Focal length	12mm~185mm
Field of view	25°×14°~2°×1°
Zoom Method	Auto Focus, Manual Focus
Minimum Illumination	0.01Lux (B/W)
Laser Illuminator	
Wavelength	1064nm
Laser energy	≥80mJ
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	≥6Km (under visibility ≥15Km)
Maximum distance	≥8km (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	-110°~+20° (positive upward)
Frame Angle Accuracy	≤1mrad (1 σ)

Stabilization accuracy	$\leq 0.1\text{mrad}$ (1σ)
Corner position accuracy	$\leq 1\text{mrad}$ (1σ)
Maximum turning speed	Azimuth $\geq 90^\circ/\text{s}$, Pitch $\geq 90^\circ/\text{s}$
Maximum rotational acceleration	Azimuth $\geq 90^\circ/\text{s}^2$, pitch $\geq 90^\circ/\text{s}^2$
Image processing components	
Automatic recognition	With human and vehicle target automatic identification number of targets ≥ 32
Target tracking	Target size $\geq 16 \times 16$
Tracking frame rate	$\leq 50\text{Hz}$
Image output	RTSP/UDP/RTMP optional, code rate 200kbps ~ 6Mbps can be set
System index	
Voltage range	20V~32VDC
Wattage	Stable power consumption: $\leq 100\text{W}$; Peak power consumption: $\leq 300\text{W}$
Weight	$\leq 19\text{Kg}$
Volume	280mm×280mm×484.8mm
Interfaces	
Control Interface	RS422/100Mbps
Video Interface	HD-SDI/100Mbps
Memory Interface	$\leq 128\text{G}$ memory card (Micro SD card)
Picture Format	jpg format
Video Format	avi format
Environmental adaptability	
Operating Temperature	$-20^\circ\text{C} \sim +60^\circ\text{C}$ (-40°C optional)
Storage Temperature	$-40^\circ\text{C} \sim +65^\circ\text{C}$
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