

AOEXO SkyEye Tri-Spectrum Spherical Gimbal (XF Platform)

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Product Positioning: Tactical-Grade Full-Domain Reconnaissance System

Core Technological Innovations

[AOEXO Tri-Spectrum Fusion Architecture]

- Pioneering "Wide-Angle Recon + 30x Lock + Laser Positioning" integrated combat system (TriVision 6.0)
- Smart FOV switching engine (Global→Detail→Positioning mode in $\leq 0.2s$)
- Real-time laser coordinate mapping (spatial positioning error $\leq 0.15m$)

[AOEXO NightOps System]

- Tactical laser rangefinder module (TacticalLaser)
 - Dynamic coordinate compensation (real-time carrier motion correction)
 - Stealth positioning mode (dual-encrypted datalink)
- Tri-spectrum fusion engine (visible light/laser/coordinate data overlay)

Enhanced Features

[Smart Combat Hub]

- 5th-gen AI tracking framework
 - Multi-spectral behavior analysis (pedestrian trajectory/vehicle features/thermal changes)
 - 60% occlusion resistance improvement
- MIL-STD information enhancement
 - Tactical OSD (lat/long/altitude/carrier attitude/laser ranging 4D overlay)
 - SEI stream combat markers (command system real-time parsing)

[Military-Grade Combat Platform]

- Spherical three-axis stabilization (patented non-orthogonal design)
 - 360°xN continuous rotation (12-grade wind resistance optimization)
 - Dual-IMU compensation ($\pm 0.01^\circ$ shock resistance)
- MIL-STD wide-voltage system (14-53VDC stabilization + EMI shielding)

[AOEXO Control Ecosystem]

- Dragonfly Tactical Pro Suite
 - Tri-spectrum PIP combat view (wide/zoom/laser synergy)
 - Protocol converter (MAVLink/S.BUS/private protocol)
- QGC Recon Pro Tactical Edition
 - Laser positioning trajectory replay
 - Battlefield simulation module

Technical Specifications

General Parameters

Parameter	Specification
Product Name	AOEXO SkyEye Tri-Spectrum Spherical Gimbal
Dimensions	Gimbal: 96.4×96×147mm; GCU: 45.4×40×13.5mm

Parameter	Specification
Weight	Gimbal: 576g; GCU: 18.6g
Operating Voltage	14 – 53 VDC
Power Consumption	Gimbal: 10.5W (avg, ranging off)/55W (stall, ranging on); GCU: 1.8W
Installation	Upright/Inverted

Positioning Accuracy

Horizontal Error	Vertical Error	@ Horizontal Distance	@ Relative Altitude
1.8m	0.7m	105m	75m
17.4m	6.7m	513m	119m
33.8m	13.7m	1003m	246m

[1] Measured with gimbal mounted on dual-antenna RTK UAV. Accuracy affected by carrier positioning/orientation, installation angle, slant range, measurement slope, and air quality. Data for reference only.

Gimbal Parameters

Parameter	Specification
Type	Non-orthogonal Three-Axis Stabilization
Stabilization Accuracy	$\pm 0.01^\circ$
Controllable Range	Pitch: $-150^\circ \sim +50^\circ$; Yaw: $\pm 360^\circ$ Continuous
Max Rotation Speed	Pitch/Yaw: $\pm 200^\circ/s$

Zoom Camera

Parameter	Specification
Image Sensor	1/2.8" CMOS, 2.07MP
Focal Length	4.7–47mm
FOV	H: $61.3^\circ \sim 6.8^\circ$, V: $36.9^\circ \sim 3.9^\circ$, D: $68.4^\circ \sim 7.8^\circ$

Parameter	Specification
Resolution	1920×1080
Pixel Pitch	2.9μm
Optical Zoom	10×
Digital Zoom	3× Equivalent
Minimum Illumination	0.01Lux/F1.6 (light off); 0.0015Lux/F1.6 (light on)

Wide-Angle Camera

Parameter	Specification
Image Sensor	1/2.8" CMOS, 2.07MP
Focal Length	5.1mm
FOV	H:71.4°, V:44.0°, D:79.6°
Resolution	1920×1080
Pixel Pitch	2.9μm

Laser Rangefinder

Parameter	Specification
Wavelength	905nm
Max Power	1mW
Beam Divergence	3.5mrad
Spot Diameter	0.35m @100m
Eye Safety	Class 1M (IEC 60825-1:2014)
Accuracy	±1.0m
Range	5–1,200m (12m target, 20% reflectivity)

Target Detection (EN62676-4:2015 Johnson's Criteria)

Metric	Detection	Recognition	Verification
Pedestrian [2]	8,103m	2,026m	1,013m

Metric	Detection	Recognition	Verification
Small Vehicle [3]	24,851m	6,213m	3,106m
Large Vehicle [4]	52,943m	13,236m	6,618m

Reference Sizes:

[2] Pedestrian: 1.8×0.5m (0.75m critical size)

[3] Small Vehicle: 4.2×1.8m (2.3m critical size)

[4] Large Vehicle: 6.0×4.0m (4.9m critical size)

AI Multi-Target Tracking

Parameter	Specification
Target Size	16×16 – 128×128 px
Recognition Speed	<40ms
Tracking Speed	±32 px/Frame
Update Rate	30Hz
Output Latency	≤5ms

Photo & Video

Parameter	Specification
Photo Format	JPEG
Max Photo Resolution	1920×1080
EXIF Data	Geolocation Coordinates
Video Format	MP4
Max Video Resolution	1080P@25fps
Codecs	H.264/H.265
Streaming Protocol	RTSP

Storage

Parameter	Specification
Supported Media	microSD Card (Max 256GB, Speed Class 10+)

Parameter	Specification
File System	HDD-FAT32

Environmental

Parameter	Specification
Operating Temperature	-20°C to 50°C
Storage Temperature	-40°C to 60°C
Humidity	≤85% RH (Non-condensing)

Industry Solutions

[Tri-Spectrum Tactical System]

- **Border Patrol Edition:**
 - Night stealth reconnaissance
 - Illegal crossing auto-alert + laser tagging
- **Power Inspection Edition:**
 - Equipment thermal anomaly detection
 - Laser safety distance prediction
- **Emergency Rescue Edition:**
 - Life sign thermal recognition
 - 3D terrain reconstruction