

AOEXO SkyDome Series AI Dual-FOV Spherical Gimbal (XF Platform)

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Intelligent Full-Domain Reconnaissance System

Core Technological Innovations

[AOEXO Omnidirectional Perception Architecture]

- Pioneering "Wide-Area Recon + Precision Lock" dual-mode AI system (DV 5.0)
- Smart FOV switching engine (global view → 30x zoom lock in $\leq 0.3s$)
- Dynamic focus compensation algorithm eliminates target loss during FOV transitions

[AOEXO NightOps Module]

- Military-grade laser illumination (NightVision 3.0)
 - Adaptive beam adjustment (8°~30° auto-optimized)
 - Covert reconnaissance mode (850nm wavelength + dynamic strobe jamming)
- Dual-spectrum data fusion (visible light/laser imaging real-time calibration)

Enhanced Features

[Smart Recon Hub]

- 4th-gen AI tracking framework
 - Multi-target behavior prediction (pedestrian/vehicle/dynamic threat libraries)
 - 55% occlusion resistance improvement in complex backgrounds
- Tactical OSD enhancement module
 - Tri-axis geolocation overlay (longitude/latitude/altitude/carrier attitude)
 - SEI stream encryption metadata (GA/T compliance)

[Military-Grade Stabilization]

- Spherical three-axis stabilization (patented non-orthogonal design)
 - 360°xN continuous rotation (aerodynamic wind resistance optimization)
 - Dual-IMU fusion algorithm ($\pm 0.01^\circ$ shock resistance)
- MIL-STD wide-voltage system (14-53VDC smart power + reverse polarity protection)

[Intelligent Control Ecosystem]

- Dragonfly Tactical Display Suite
 - Protocol converter (private/MAVLink/S.BUS interoperability)
 - Mission preset management (wide-scan/zoom-lock modes)
- QGC Recon Pro Suite (Combat Edition)
 - Real-time SEI data parser
 - Recon trajectory replay system

Technical Specifications

General Parameters

Parameter	Specification
Product Name	AOEXO SkyDome Series AI Dual-FOV Spherical Gimbal (XF Platform)
Dimensions	Gimbal: 85.8×86×129.3mm; GCU: 45.4×40×13.5mm
Weight	Gimbal: 429g; GCU: 18.6g
Operating Voltage	14 – 53 VDC
Power Consumption	Gimbal: 6.7W (avg, light off)/55W (stall, light on); GCU: 1.8W
Installation	Upright/Inverted

Gimbal Parameters

Parameter	Specification
Gimbal Type	Non-orthogonal Three-Axis Stabilization
Stabilization Accuracy	±0.01°
Controllable Range	Pitch: -157°~+80°; Yaw: ±360° Continuous
Max Rotation Speed	Pitch/Yaw: ±200°/s

Zoom Camera

Parameter	Specification
Image Sensor	1/2.8" CMOS, 2.07MP
Focal Length	4.7–47mm
FOV	H:61.3°~6.8°, V:36.9°~3.9°, D:68.4°~7.8°
Resolution	1920×1080
Pixel Pitch	2.9μm
Optical Zoom	10×
Digital Zoom	3× Equivalent

Parameter	Specification
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	2.4mm
FOV	H:98.5°, V:44.3°, D:101.7°
Resolution	1920×1080
Pixel Pitch	2.9μm

Laser Illuminator

Parameter	Specification
Wavelength	850±10nm
Power	0.8W
Beam Angle	8°
Spot Diameter	14m @100m
Effective Range	≤200m
Eye Safety	Class 3B (IEC 60825-1:2014)

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

Metric	Detection	Recognition	Verification
Pedestrian [1]	8,103m	2,026m	1,013m
Small Vehicle [2]	24,851m	6,213m	3,106m
Large Vehicle [3]	52,943m	13,236m	6,618m

Reference Sizes:

- [1] Pedestrian: 1.8×0.5m (0.75m critical size)
- [2] Small Vehicle: 4.2×1.8m (2.3m critical size)
- [3] 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+)
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

[Full-Domain Recon System]

- **Border Patrol Edition:**
 - Night stealth reconnaissance
 - Automatic threat tagging
- **Urban Security Edition:**
 - Crowd density heatmaps
 - Anomaly behavior alerts
- **Power Inspection Edition:**
 - Equipment thermal anomalies detection
 - Laser ranging safety warnings