Z-2Pro

Intelligent 4K Full-Color Night Vision Dual-Sensor Micro Pod

Characteristics

- Integrates a 4K-resolution visible light camera and a 640x512 thermal camera. Powered by the AI-ISP full-color night vision imaging engine, delivers clear full-color images in low-light environments. Featuring AI-HDR, it ensures both highlights and shadow details remain vividly visible even in complex lighting scenarios with extreme brightness contrasts.
- Features AI multi-object detection and tracking, which can constantly track one of the persons and vehicles intelligently identified in the image.
- Micro 3-axis nonorthogonal mechanical stabilized structure reducing the weight down to 130g.
- Supports network, UART and S.BUS control and compatible with both private protocol and MAVLink protocol.
- Thanks to the Dual-IMU complementary algorithms with IMU temperature control and carrier AHRS fusion, the gimbal provides a stabilization accuracy at ±0.01°.
- Can be mounted onto multiple carriers, whether downward or upward.
- With the Dragonfly software, user can watch the image and control the pod without protocol ducking, and download photos and videos online as well.
- With the XF-QGC software, all the functions of the pod can be achieved in conjunction with an open source autopilot.
- Screen supports overlaying OSD information. Image supports EXIF saving. Live video stream and recording supports SEI saving. (The SEI functionality will be supported via subsequent firmware updates)
- 10~26.4 VDC wide voltage input.

Specifications

General		
Product Name	Z-2Pro	
Dimensions	57.8 x 53 x 85.1mm	
Weight	130g	
Operating Voltage	10~ 26.4VDC	
Power	6.5W (AVG) / 20W (Stall)	
Mounting	Downward / Upward	
Gimbal		
Gimbal Type	3-axis Nonorthogonal Mechanical Stabilization	
Angular Accuracy	±0.01°	
Max Stable Tilt Angle	45°	
Controllable Range	Pitch: -120° ~ +65°, Yaw: ±140°	
Max Rotation Speed	150°/s	
Visible Light Camera		
Image Sensor	1/2.8-inch CMOS, Effective Pixels: 8.29M	
Lens	Actual Focal Length: 6.0mm (Equivalent focal length: 40.6mm) Aperture: f/1.0 HFOV: 54.7° VFOV: 30.2° DFOV: 62.2°	
Resolution	3840 (H) x 2160(V)	
Pixel Size	1.45μm(H) x 1.45μm(V)	
Equivalent Digital Zoom Rate	8x	
Object Detection Distance	EN62676-4:2015	Person[1]: 175m; Light vehicle[2]: 230m; Large vehicle[3]: 491m
	Johnson Criteria	Person: 2069m; Light vehicle: 6345m; Large vehicle: 13517m
Object Identification Distance	EN62676-4:2015	Person: 35m; Light vehicle: 46m; Large vehicle: 98m
	Johnson Criteria	Person: 517m; Light vehicle: 1586m; Large vehicle: 3379m
Object Verification Distance	EN62676-4:2015	Person: 18m; Light vehicle: 23m; Large vehicle: 49m
	Johnson Criteria	Person: 259m; Light vehicle: 793m; Large vehicle: 1690m

[1] Reference dimension of person: 1.8x0.5m. Critical dimension under Johnson criteria is 0.75m

[2] Reference dimension of light vehicle: 4.2x1.8m. Critical dimension under Johnson criteria is 2.3m

[3] Reference dimension of large vehicle: 6.0x4.0m. Critical dimension under Johnson criteria is 4.9m

Thermal Camera		
Thermal Sensor	Uncooled VOx Microbolometer	
Lens	Actual Focal Length: 9.1mm (Equivalent focal length: 40.0mm) Aperture: f/1.0 HFOV: 48.3° VFOV: 38.7° DFOV: 62.2°	
Resolution	640(H) x 512(V)	
Pixel Size	12μm(H) x 12μm(V)	
Spectral Band	8~14μm	
Sensitivity (NETD)	<40mk@25℃	
Object Detection Distance	Johnson Criteria	Person: 379m; Light vehicle: 1163m; Large vehicle: 2477m
Object Identification Distance		Person: 95m; Light vehicle: 291m; Large vehicle: 619m
Object Verification Distance		Person: 47m; Light vehicle:145m; Large vehicle: 310m
Temperature Measurement	Optional (Thermometry type, the temperature measurement functionality will be supported via subsequent firmware updates)	
Temperature Measurement Method	Spot Measurement, Area Measurement	
Temperature Measurement Range	High Gain: -20°C~150°C Low Gain: 0°C~550°C	
Temperature Measurement Accuracy	±2°C or ±2% (whichever is greater) @23±3°C @5m	
Temperature Alert	High-temp Alert, Low-temp Alert	
Sun Burn Protection	Supported[4]	
Palette	White Hot, Black Hot, Tint, Fulgurite, Iron Red, Hot Iron, Medical, Arctic, Rainbow 1, Rainbow 2	
AI Multi-object Detection & Tracking		
Object Size	16x16 ~ 128x128 px	
Object Identification Delay	＜40ms	
Tracking Speed	±32 px / field	
Tracking Deviation Refresh Rate	30Hz	
Tracking Deviation Output Delay	≤5ms	

[4] Do not expose the thermal camera lens to a strong energy source such as sun, lava or laser beam. The temperature of the observation target should not exceed 600℃, otherwise it will cause permanent damage

Image & Video		
Image Format	JPEG	
Maximum Image Resolution	3840 x 2160	
Video Format	MP4	
Maximum Video Resolution	Stream: 3840 x 2160 @30fps Recording: 1920 x 1080 @30fps (3840 x 2160 @ 30fps will be supported via subsequent firmware updates)	
OSD	Time, Camera attitude, Carrier coordinate, Magnification level, Storage status	
EXIF	Time, Camera attitude, Carrier coordinate, Resolution	
SEI	Will be supported via subsequent firmware updates	
Stream Encode Format	H.264，H.265	
Stream Network Protocol	RTSP	
Average Stream Delay & FPS[5]	OSD OFF & target detection OFF	Dragonfly: 320ms QGC: 340ms FPS: 25
	OSD ON & target detection OFF	Dragonfly: 430ms QGC: 420ms FPS: 21
	OSD OFF & target detection ON	Dragonfly: 420ms QGC: 480ms FPS: 18
Storage		
Supported SD Cards	Supports a U3/V30 or above MicroSD card with a capacity of up to 256GB	
Environment		
Operating Temperature	-20℃ ~ 50℃	
Storage Temperature	-40℃ ~ 60℃	
Operating Humidity	≤85%RH (Non-condensing)	

[5] Measured with the pod directly wired to a computer at 1x zoom ratio. When the zoom ratio exceeds 1x, video stream delay will increase and frame rates will decrease