Z-1Pro

Intelligent Black Light Full-Color Night Vision Micro Pod

Characteristics

- Carriers an ultra-starlight image sensor visible light camera, combined with the AI-ISP full-color night vision imaging engine, can present clear full-color images in extremely low-light environments, delivering night vision-level low-light imaging experience. 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 100g.
- 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 customized 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-1Pro	
Dimensions	59.2 x 48.4 x 80.2mm	
Weight	100g	
Operating Voltage	10 ~ 26.4VDC	
Power	6W (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: -110° ~ +120°, Yaw: ±140°	
Max Rotation Speed	150°/s	
Visible Light Camera		
Image Sensor	1/1.8-inch CMOS, Effective Pixels: 4.09M	
Lens	Actual Focal Length: 8.5mm (Equivalent focal length: 41.1mm) Aperture: f/1.0 HFOV: 57.1° VFOV: 30.4° DFOV: 66.3°	
Resolution	2688(H) x 1520(V)	
Pixel Size	2.9μm(H) x 2.9μm(V)	
Equivalent Digital Zoom Rate	6x	
Object Detection Distance	EN62676-4:2015	Person[1]: 122m; Light vehicle[2]: 161m; Large vehicle[3]: 343m
	Johnson Criteria	Person: 1466m; Light vehicle: 4494m; Large vehicle: 9575m
Object Identification Distance	EN62676-4:2015	Person: 25m; Light vehicle: 32m; Large vehicle: 69m
	Johnson Criteria	Person: 366m; Light vehicle: 1124m; Large vehicle: 2394m
Object Verification Distance	EN62676-4:2015	Person: 12m; Light vehicle: 16m; Large vehicle: 34m
	Johnson Criteria	Person: 183m; Light vehicle: 562m; Large vehicle: 1197m
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	

[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

Image & Video		
Image Format	JPEG	
Maximum Image Resolution	2688 x 1520	
Video Format	MP4	
Maximum Video Resolution	Stream: 2688 x 1520 @30fps Recording: 1920 x 1080 @30fps (2688 x 1520 @ 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[4]	OSD OFF & target detection OFF	Dragonfly: 230ms QGC: 200ms FPS: 30
	OSD ON & target detection OFF	Dragonfly: 340ms QGC: 310ms FPS: 26
	OSD OFF & target detection ON	Dragonfly:240ms QGC: 200ms FPS: 30
	OSD ON & target detection ON	Dragonfly: 300ms QGC: 310ms FPS: 26
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)	

[4] 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