Z-1Mini

Intelligent 4K Full-Color Night Vision Micro Pod

Characteristics

- 4K resolution and AI-ISP full-color night vision imaging engine empowerment.
- 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 69g.
- Supports network, UART and S.BUS control and compatible with both private protocol and MAVLink protocol. Supports image transmission though network and HDMI.
- 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.
- Photos and videos can be downloaded online through the "Gallery" function of the Dragonfly software.
- 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 such as latitude, longitude and altitude. Image supports shooting point coordinate EXIF save.
- 10~26.4 VDC wide voltage input.

Specifications

General	
Product Name	Z-1$_{Mini}$
Dimensions	50.2 x 48.4 x 67.4mm
Weight	69g
Operating Voltage	10 ~ 26.4VDC
Power	4.5W (AVG) / 18W (Stall)
Mounting	Downward / Upward

Gimbal	
Gimbal Type	3-axis Nonorthogonal Mechanical Stabilization
Angular Accuracy	±0.01°
Controllable Range	Pitch: ±120°, Roll: ±60°, Yaw: ±160°
Max Controllable Speed	±200°/s

Fixed 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: 63.2°	
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

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	3840 x 2160
EXIF	Shooting point coordinate
Video Format	MP4
Maximum Video Resolution	Stream: 1920 x 1080 @30fps Recording: 3840 x 2160 @30fps
Stream Encode Format	H.264 , H.265
Stream Network Protocol	RTSP
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)