V3.0

2023.01

Z-8RC

User Manual

Using this Manual – Legend

 Important

 Tips

 Explanation

Caution

1. The Z-8RC equipped with a laser lighting module, which is a Class 3B invisible laser. DO NOT exposure eyes to the beam within 12 meters or observe the beam by any optical instrument. DO NOT place any inflammable within 20 centimeters in front of the lighting module.
2. When not in use, store the Z-8 in the package box. The recommended storage environment is a relative humidity less than 40% at a temperature of 20±5° C. If the lenses fog up. The water vapor will usually dissipate after turning on the device for a while.
3. Do not place the product under direct sunlight, in areas with poor ventilation, or near a heat source such as a heater.
4. Do not frequently power on/off the product. After it is turned off, wait at least 30 seconds before turning back on, otherwise the product life will be affected.
5. Make sure the pod port and pod surface are free from any liquid before installation.
6. Make sure the pod is securely installed onto the aircraft, the microSD card slot cover is clean and firmly in place.
7. Make sure the pod surface is dry before opening the microSD card slot cover.
8. Do not plug or unplug the microSD card during use.
9. Do not touch the surface of the camera lenses and keep it away from hard objects. As doing so may lead to blurred images and affect the imaging quality.
10. Clean the surface of the camera lenses with a soft, dry, clean cloth. Do not use alkaline detergents.
11. When not receiving valid carrier INS data, the yaw shaft of the pod will drift about 15 degrees per hour because of the earth rotation. To make sure the pod attitude corrects, it is necessary to transmit valid carrier INS data, usually the GNSS should be positioning.

Catalog

Introduction

Synopsis

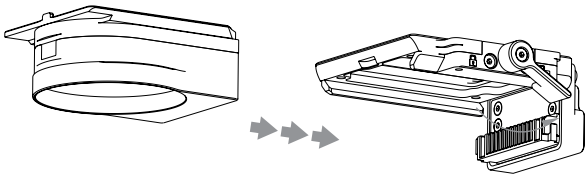
The Z-8RC equips with a high-accuracy 3-axis gimbal and a 20.35M pixels 1500x hybrid zoom camera, which presents scene hundreds of meters away. Combined with the laser lighting module and starlight level night vision function, the Z-8RC can provide a clear image even in complete dark environments. Thanks to the laser range finder, the Z-8RC can provide the location of a target and the distance to it that improves working efficiency. The Z-8RC can be mounted tool-lessly onto unmanned aerial vehicles with its quick-release port. It is able to be applied on multiple industries such as firefighting, forest police, public security, search & rescue and environment protection.

Characteristics

- Carries a 20.35M pixels 1500x hybrid zoom (20x optical zoom) camera, an 1800m laser range finder and 2 laser lighting modules.
- 3-axis mechanical stabilized structure which is able to spin continually around its yaw axis.
- With the Dual-IMU complementary algorithms with IMU temperature control and carrier AHRS fusion, the Z-8RC provides a stabilization accuracy at $\pm 0.01°$.
- Image supports shooting point coordinate EXIF save.
- Support remote screen projection and docking command platform.
- Can be mounted tool-lessly onto unmanned aerial vehicles with its quick-release port.

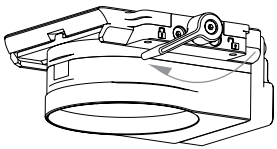
Installation

Turn the locking knob to release position, and push the pod along the guide rail at a constant speed until it makes a slight "click". Turn the locking knob to lock position.



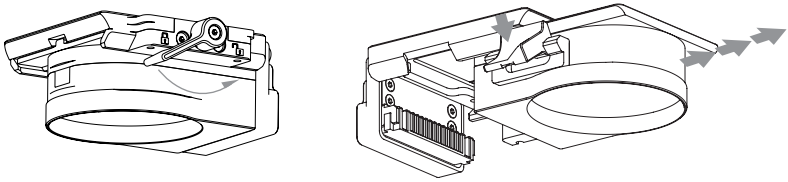
⚠ Make sure the load is installed and locked after installation!

Do not install or remove the load while it is powered on, otherwise it may cause damage to the equipment!



Disassembly

Turn the locking knob to release position. Press and hold the release position on the other side and remove it.



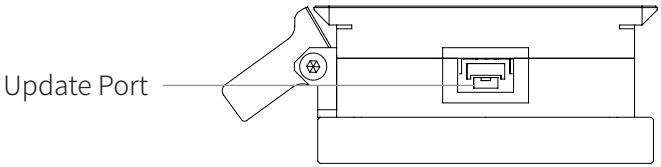
Pod Controls

See "Image Viewing and Pod Control" in the AZ-1R User Manual for control instructions.

Calibration & Firmware Upgrade

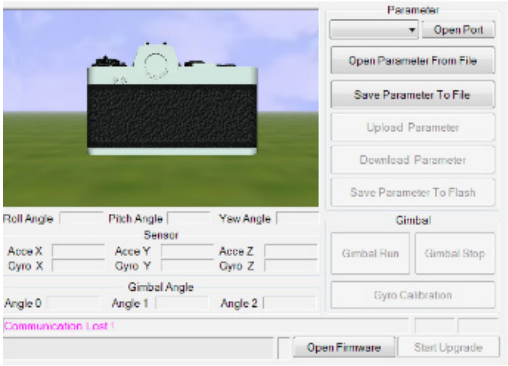
Adjust Software Installation & Settings

1. Install the driver of the config module.
   Win32 runs: CP210xVCPInstaller_x86.exe
   Win64 runs: CP210xVCPInstaller_x64.exe
2. Connect the update port of the gimbal and the computer with the config module.



3. Right-click [My Computer]-[Management]-[Device Manager]-[Port] (COM and LPT) to view the port number of the adjustment module.

4. Run GimbalConfig.exe, select the corresponding serial port number, and click "Open Port".



Calibration

Keep the pod still and click "Gyroscope calibration". When the "calibration success" is displayed in the lower left corner of the software, the calibration is complete.

Updating

Firmware upgrade steps:

1. Power on the pod and ensure that the pod and software have been successfully connected.
2. Decompress the firmware upgrade package, click the "Open Firmware" button in the software, select the upgrade package file you just decompressed, and click "Start upgrade" until the progress bar is completed, indicating that the upgrade is successful.

Just remain the pod still while calibrating. It is not necessary to hold the pod at its neutral position.

If error occurs during updating, check the cable connection and power supply, and repeat updating.

When not receiving valid carrier INS data, the yaw shaft of the pod will drift about 15 degrees per hour because of the earth rotation. To make sure the pod attitude corrects, it is necessary to transmit valid carrier INS data, usually the GNSS should be positioning.

Configuring

Video Stream Address

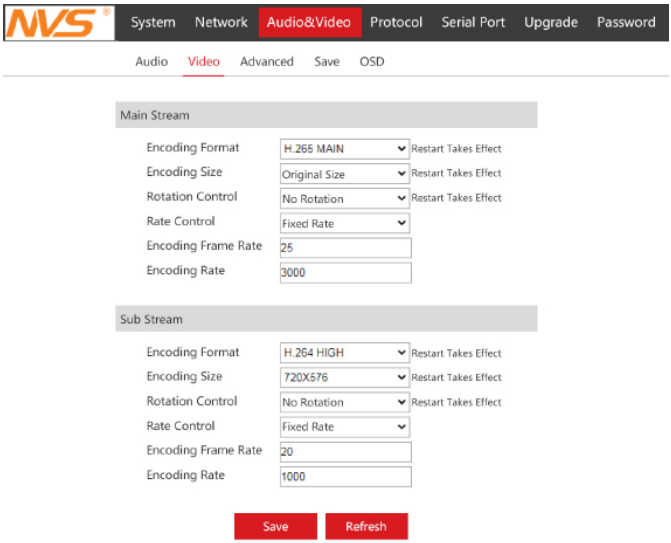
rtsp://192.168.144.108:554

Log in to the Web Interface

http://192.168.144.108/
Account: admin
Password: admin

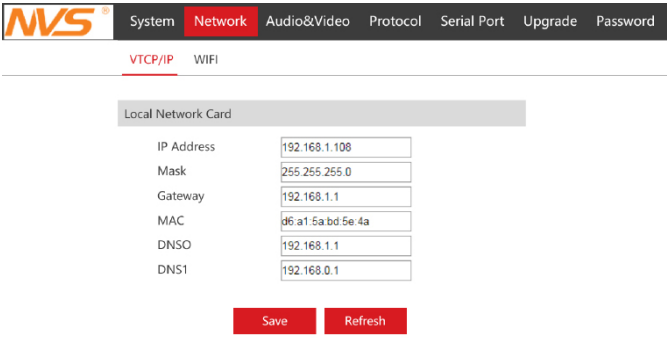
Video

Video Management:

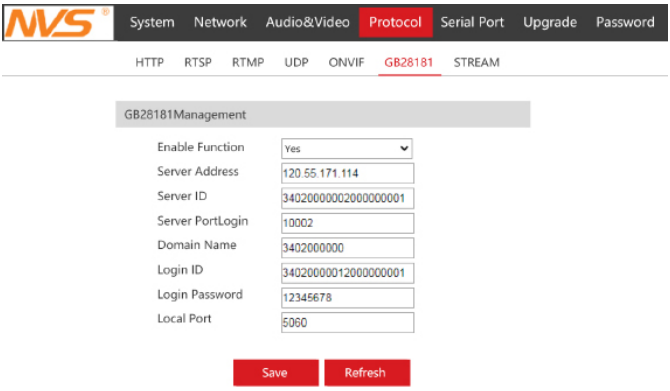


Network Protocol

TCP/IP:



GB28181:



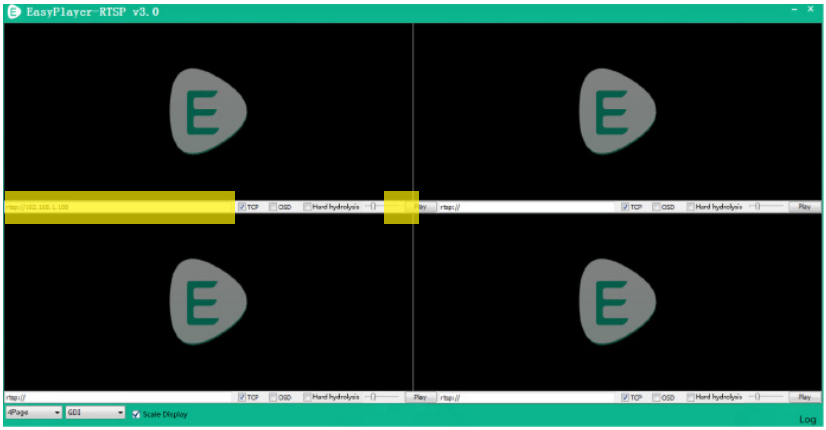
Video Playing

Use the Dragonfly Pod display control software, or enter the stream address in the streaming media player such as VLC, EasyPlayer, etc., to play the video. Make EasyPlayer as an example:

Windows Version

EasyPlayer operation steps are as follows:

1. Decompress the package
2. Open the application: EasyPlayer-RTSP
3. Enter the stream address and click "Play"



Android Version

1. Install the EasyPlayerRTSP APP
2. Open the APP and tap the "+" sign
3. Enter the stream address and click OK

Appendix 1 Specifications

Item		Parameters	
General	Dimensions	150 x 144 x 172mm	
	Weight	890g	
	Operating Voltage	20~53V	
	Power	18.4W (AVG, ranging & lighting off) 36W (Stall, ranging & lighting on)	
	Protection Rating	IP43	
Gimbal	Angular Vibration Range	±0.01°	
	Maximum Controllable Speed	Pitch: ±200° /s, Yaw: ±200° /s	
	Controllable Range	Pitch: -120°～ +60° , Yaw: ±360° constantly	
Zoom Camera	Image Sensor	1/2.3″ CMOS; Effective Pixels: 20.35M	
	Lens	Focal Length: 4.1~81.6mm HFOV: 70.2°～ 4° VFOV: 43.3°～ 2.3° DFOV: 78°～ 4.6°	
	Optical Zoom Rate	20x	
	Equivalent Digital Zoom Rate	75x	
	Aperture	F2~F16	
	Electronic Shutter Speed	1/2~1/2000s	
	Object Detective Distance	EN62676-4:2015	Person[1]: 1930.7m Vehicle[2]: 3129.6m
		Johnson Criteria	Person: 22054.1m Vehicle: 67632.4m

Item		Parameters	
Zoom Camera	Object Identification Distance	EN62676-4:2015	Person: 386.1m Vehicle: 625.9m
		Johnson Criteria	Person: 5513.5m Vehicle: 16908.1m
	Object Verified distance	EN62676-4:2015	Person: 193.1m Vehicle: 313.0m
		Johnson Criteria	Person: 2756.8m Vehicle: 8454.1m
Laser Range Finder	Wavelength	905nm	
	Measuring Range	5-1800m (12m vertical surface with 20% reflectivity)	
	Measuring Accuracy	±0.3m(< 300m) / ±1.0m(> 300m)	
	Beam Angle	2.5mrad	
	Measuring Method	Pulse	
	Max Laser Power	< 1mW	
	Laser Safety	Class 1M (IEC 60825-1: 2014)	
Laser Lighting Module	Wavelength	850±10nm	
	Laser Power	0.8W x2	
	Beam Angle	8° + 30°	
	Effective Illumination Distance	⩽ 200m	
	Laser Safety	Class 3B (IEC 60825-1:2014)	

[1] Person: 1.8 x 0.5m

[2] Vehicle: 4.2 x 1.8m

Item		Parameters
Image & Video	Output Video Resolution	1080P@25fps
	Store Video Resolution	4K@25fps
	Image Resolution	6016 x 3384
	Stream Encode Format	H.264, H.264H
	Stream Network Protocol	RTSP, UDP, GB/T28181
	Supported SD Card	Supports a SDXC card with a capacity of up to 128GB
Enviro-nment	Operating Temperature	-20°C～ 60°C
	Storage Temperature	-20°C～ 70°C
	Operating Humidity	⩽ 85%RH (Non-condensing)