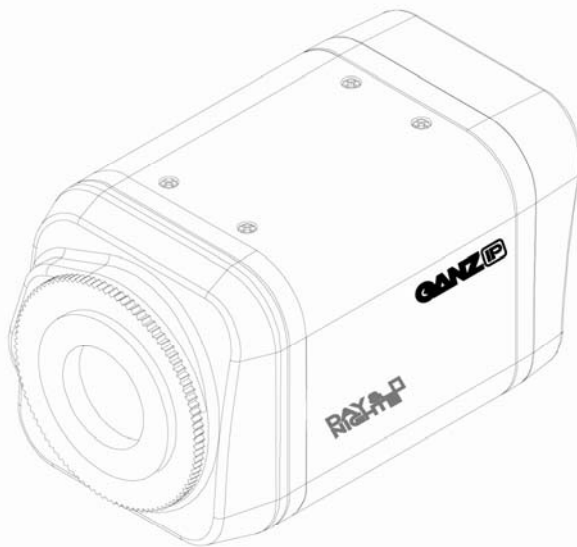


NETWORK CAMERA

# **ZN-NH21VE**

---

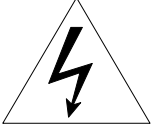
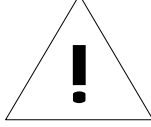
| Installation Manual

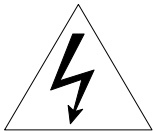


**000**

**GANZ**®

## INFORMATION TO USER

	<b>CAUTION</b> RISK OF ELECTRIC SHOCK, DO NOT OPEN	
<p>CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SEERVICCE PERSONEL.</p>		





This symbol is intended to alert the user to the presence of un-insulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

---

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# 1. FEATURES

---

## Camera

- Box type IP Megapixel Camera
- Aptina (Micron) 1/3.2" (4:3) CMOS 2M pixels

## Streaming

- Dual streaming mode (such as different codec/resolution/bit rate and so on.)
- De-interlacing on DSP
- Burnt-in text supported
- Unicast/Multicast supported

## Video/Audio

- Megapixel Compression: H.264, MJPEG, Up to 1600 x 1200
- Video compression: H.264/MPEG/MJPEG (Dual Stream@D1)
- Audio compression: G.711( $\mu$ Law, aLaw)/PCM
- Video Motion Detection supported
- 2-way mono audio supported

## Network

- RTSP/ HTTP protocol supported
- 10/100 Base-T Ethernet

## Additional Features

- RS-485 supported
- USB 2.0 supported (External storage, Wireless LAN)
- Micro SD card slot supported
- PoE supported
- Built-in Video Content Analysis
- OSD supported
- SDK (Software Development Kit) provided

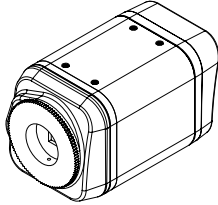
## VCA (Video Content Analysis)

- VCA Presence (Included as basic)
- VCA Surveillance (Optional)

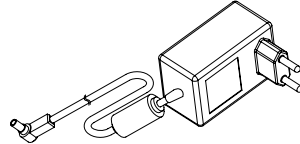
## 2. PACKAGE CONTENTS

Unpack carefully and handle the equipment with care. The packaging contains:

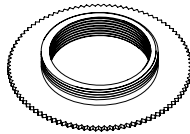
### ZN-NH21VE



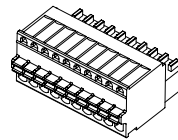
### DC power adaptor



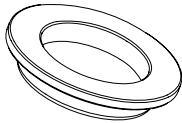
### Mount ring



### 9 Pin terminal block



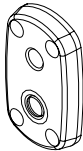
### Rubber cap (for protecting CCD)



### Hex wrench driver



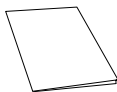
### Adaptor for mounting the camera



### Screws



### Quick Installation Guide



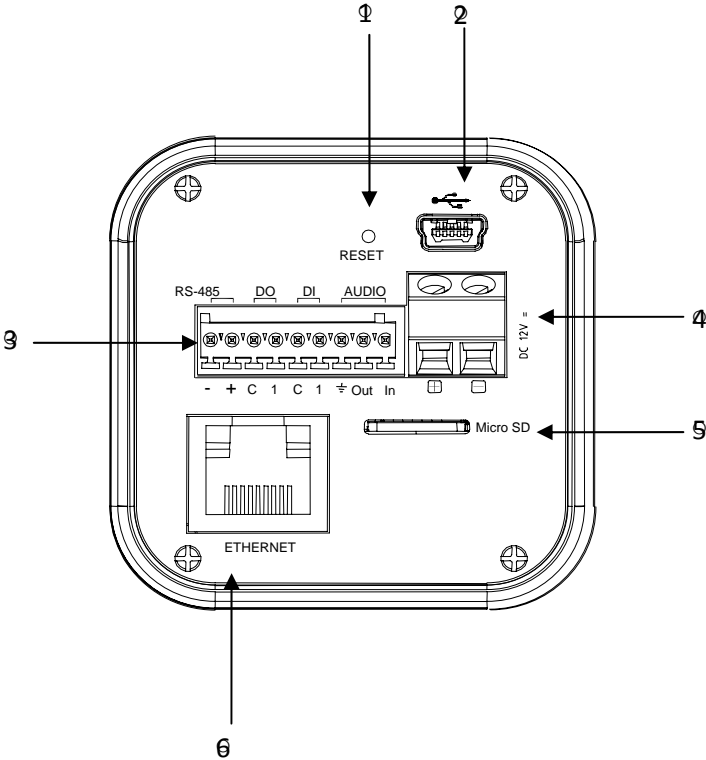
### DC Jack Adaptor Cable



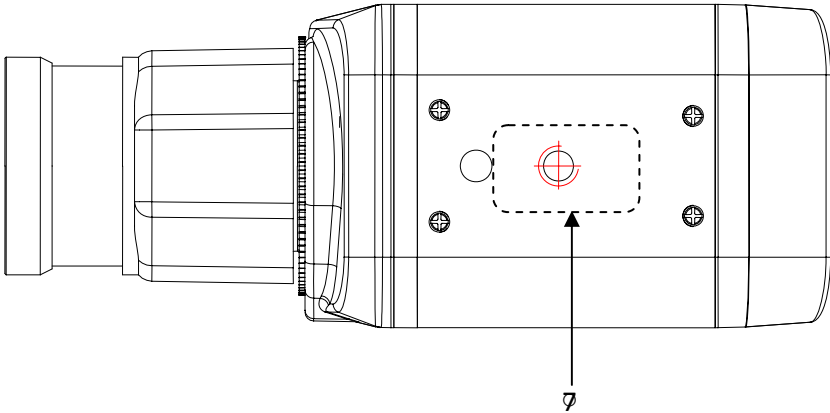
The above contents are subject to change without prior notice.

# 3. PART NAMES

## 3.1. Rear View



## 3.2. Bottom View



① **Reset**

Reset switch is used for restarting or resetting camera as Factory Default (FD). Refer to the section “6.3. Reset” for more specific information.

② **USB connector**

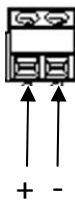
Insert a USB storage device or Wi-Fi devices. (Only Ralink RT73 chipsets based wireless devices are available.)

③ **9 pin terminal block for D/I, D/O, audio, and serial communication**

Refer to the section “5.1.Connectors” for more specific information.

④ **Power Adaptor Connector (DC 12V)**

ZN-NH21VE needs a DC12V for power supply. Refer to the section “Power Adaptor Connector (DC 12V)” for more specific information.



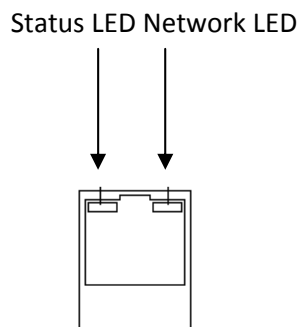
Make sure the polarity is correct. Incorrect connection may cause malfunction or damage to the IP device.

⑤ **Micro SD Card slot**

It is a memory card slot for external storage.

⑥ **LAN Connector (Ethernet)**

This is a RJ45 LAN connector for 10/100 Base-T Ethernet.

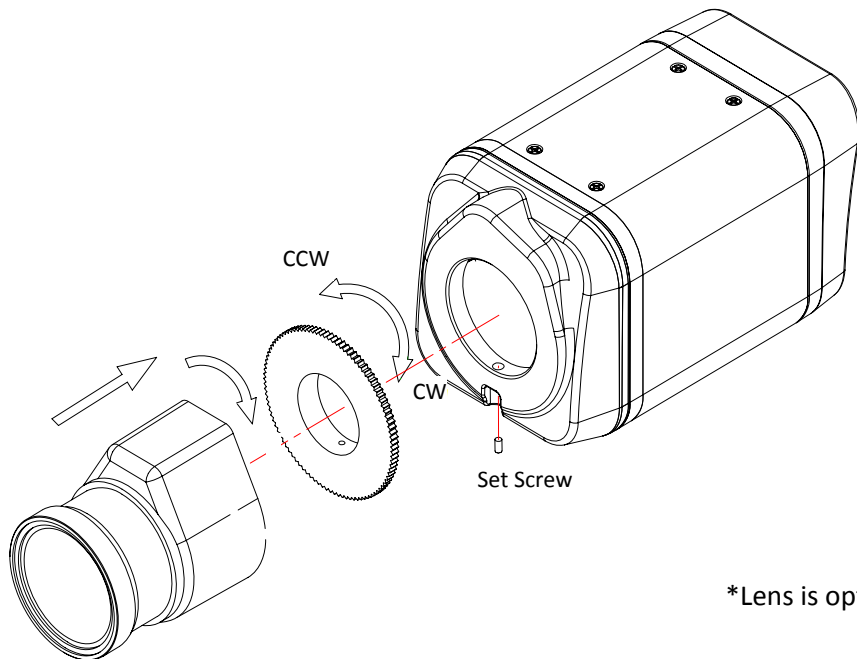


⑦ **Adaptor for mounting the camera**

Mounting points adaptor is provided on the bottom (or the top) of the camera for mounting the camera on a bracket or tripod.



## 4. INSTALLATION



\*Lens is optional.



**Note**

We recommend that use a **megapixel lens with manual iris** to support the full resolution of megapixel camera.

### 4.1. Installing a C/CS Mounting lens

1. Remove the protective rubber cap from the front of the camera.
2. Install the mount ring for lens and adjust the mount ring to fit C or CS lens.
3. Tighten the setscrews using the hex wrench in the package.

### 4.2. Setting the Image Attribute

You can set the image attribute of camera through the webpage.

The menu of image attribute can be seen under **Setup > Video & Audio > Video-in > Image Signal Processing**. The following features can be adjusted:

- Brightness
- Contrast
- Saturation
- Sharpness
- Mirroring
- Lighting Attribute

For more detailed information, refer to the 'Webpage User's Manual' in the SDK.

### 4.3. Installing a Wireless USB Adapter (Optional)

---

**Note**

A wireless USB adapter is sold separately as an optional kit. Please contact your supplier or system integrator to purchase a wireless USB adapter.

---

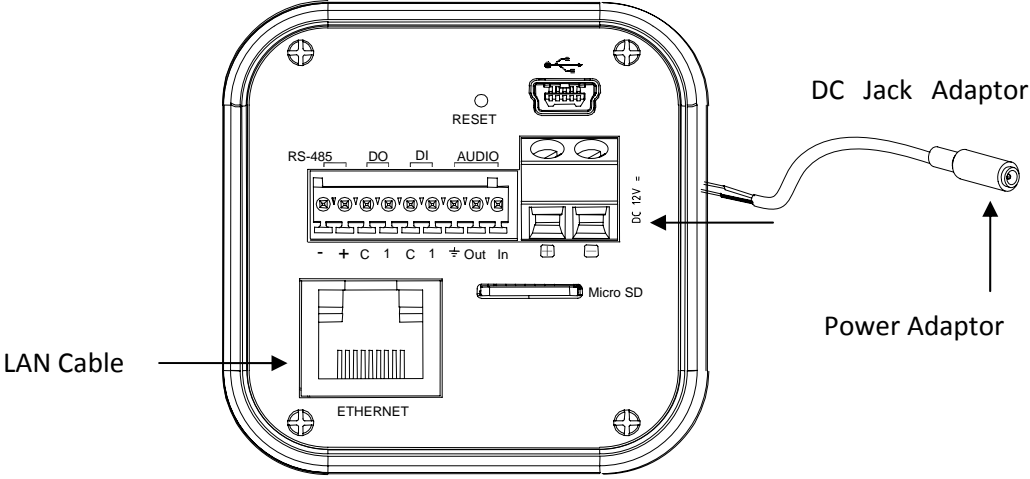
The kit includes:

- USB cable
- 3M Double-coated tape
- Wireless USB adapter

Perform the following steps to install a wireless USB adapter:

1. Connect one end of the USB cable to the camera.
2. Connect the other end of the USB cable to a wireless USB adapter.
3. Use the enclosed double-coated tape to attach the wireless USB adapter to the desired area. You can attach the adapter on the body (side, top, or bottom) of the camera, ceiling, or wall.

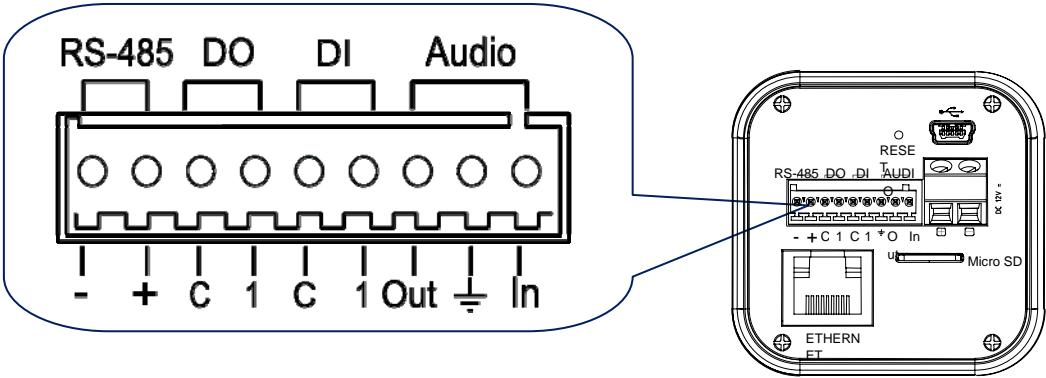
# 5. CONNECTIONS



When connecting the DC power supply, make sure the polarity is correct. Incorrect connection may cause malfunction or damage to the camera.

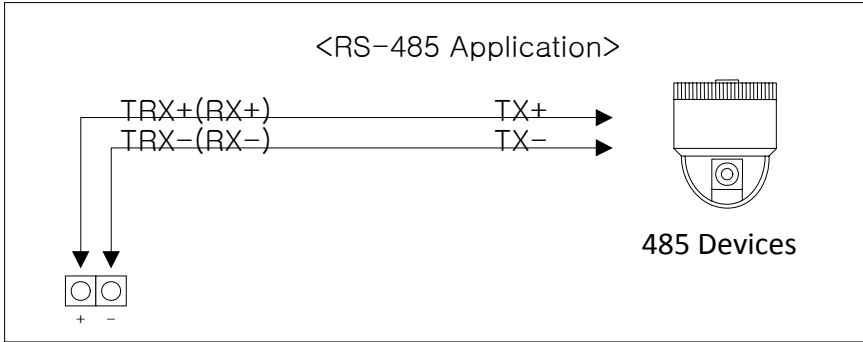
### 5.1.Connectors

① 9 pin terminal block



② RS-485

The RS-485 serial port consists of TRX+(RX+) and TRX-(RX-) as following the following image.



RS-485 Connection

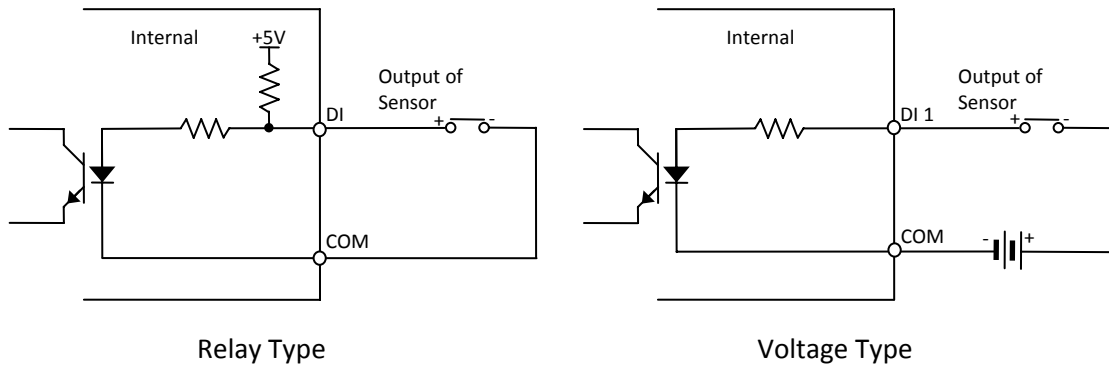
③ Sensor (DI) connection

ZN-NH21VE provides 1 channel D/I. It can be connected to either a voltage type sensor or a relay type sensor as the following figures. It can be selected by software.

Input voltage range: 0 VDC minimum to 24 VDC maximum  
Input voltage threshold: 1 V



Do not exceed the maximum input voltage or relay rate.



④ Alarm (DO) connection

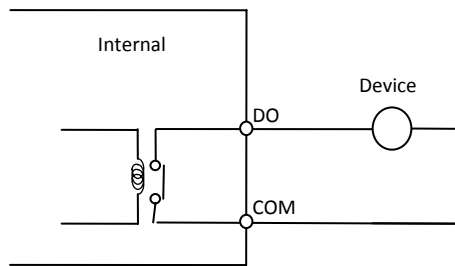
Only the relay type is supported.

Relay Rating: Max 24VAC 500mA or 12VDC 1A



**Caution**

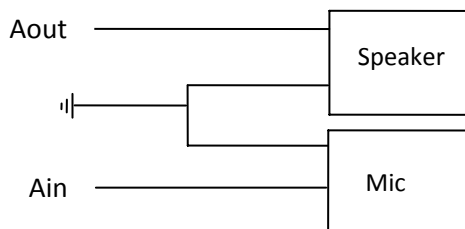
Do not exceed the maximum relay rating.



Relay Type

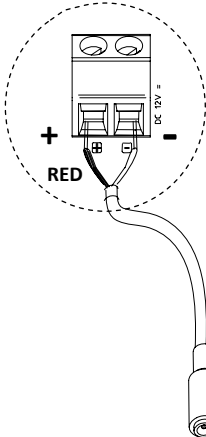
⑤ Audio connection

ZN-NH21VE has a mono audio input and a mono audio output. As the output power for the audio is low, amplifier speaker is needed. (Do not use a headphone or earphone directly to the camera.)



⑥ Power Adaptor Connector (DC 12V)

Power adaptor connector connects to DC Jack adapter cable.



Make sure the polarity is correct. Incorrect connection may cause malfunction or damage to the IP device



Power Adaptor Connector (DC 12V)



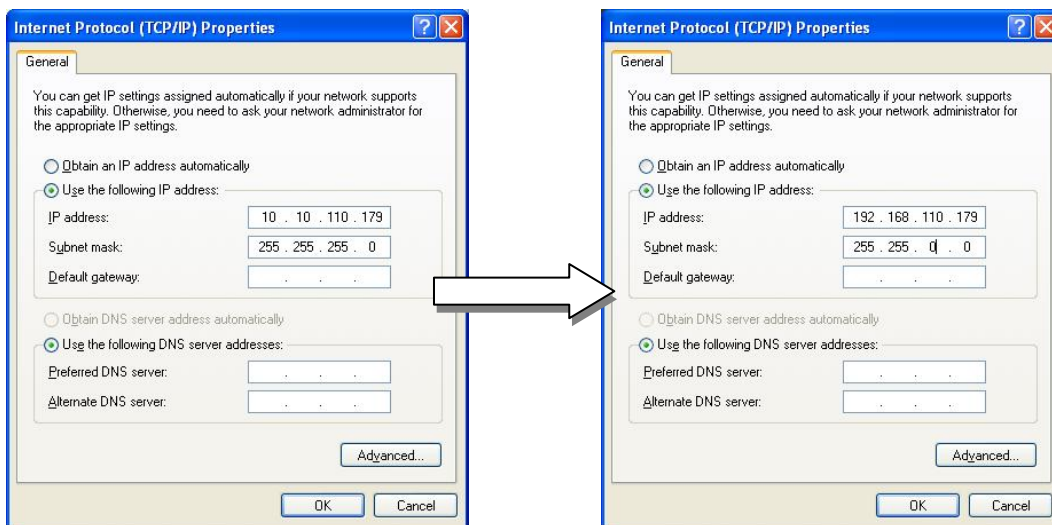
## 6. CONFIGURATION

### 6.1. Set up network environment

The default IP address of your IP device is 192.168.XXX.XXX. You can find the available IP address from the MAC address of your device. Please make sure the device and your PC are on the same network segment before running the installation. If the network segment between your PC and the device is different, change your PC's settings as below.

IP address : **192.168.xxx.xxx**

Subnet mask: **255.255.0.0**



### 6.2. View video on web page

View the live video on a web page using your IP device and its IP address. You can use the ZNS-GIT IPAdmin Tool or enter the IP address on the web page.

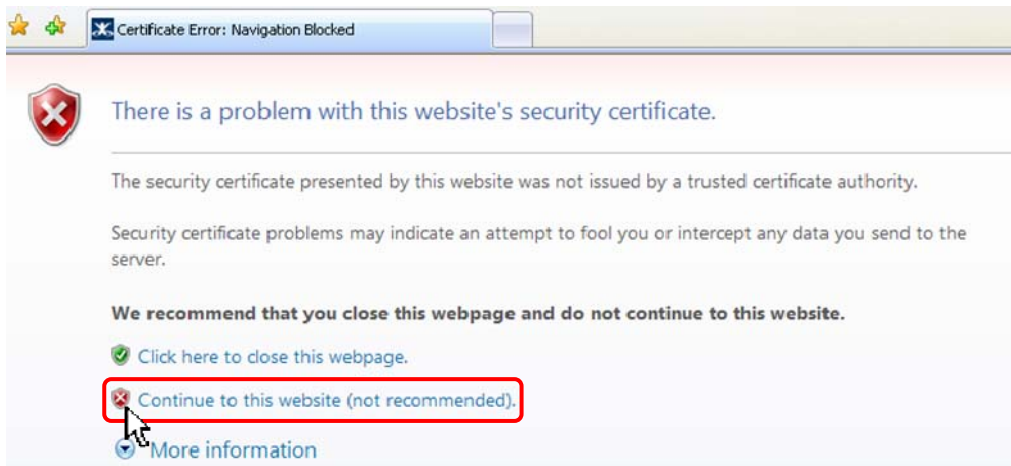
#### 6.2.1. View video using ZNS-GIT IPAdmin Tool

ZNS-GIT IPAdmin Tool automatically searches all activated GANZ Network Camera and Encoder series and shows the product name, IP address, MAC address and etc. ZNS-GIT IPAdmin Tool is provided with SDK at the following SDK path.

```
{SDK root}\BIN\TOOLS\AdminTool\
```

To use the ZNS-GIT IPAdmin Tool and view the live video on a web page:

1. Start ZNS-GIT IPAdmin Tool. Names and info of currently activated devices appear as a list.
2. Right-click on the desired device and select **Web view**.
3. Select **Continue to this website** on the Security Certificate Alert page.  
(The explanation and captured images at this manual are mainly on the basis of Internet Explorer 7.0)



4. Click **pop-up blocked** and install the ActiveX control as below. You need to install the ActiveX for displaying the images.





- Wait for a few seconds while the web page loads. The live video is displayed as below.

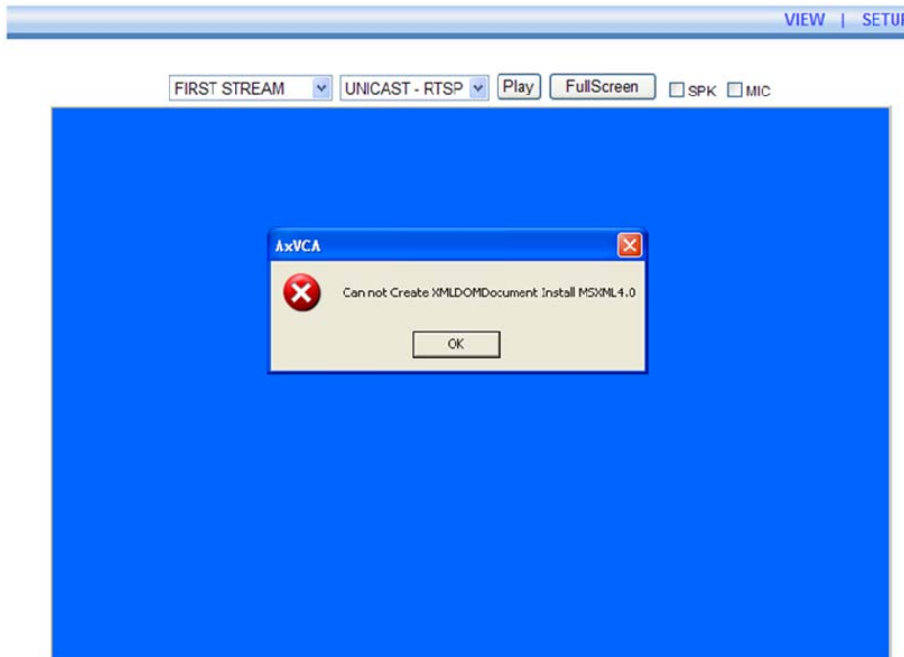


Plugin1 Plugin2

v1.20.00

- If the live video is not displayed and “Can not Create XMLDOMDocument Install MSXML4.0” message is shown as below, please download and Install from the link below.

<http://www.microsoft.com/downloads/details.aspx?familyid=3144B72B-B4F2-46DA-B4B6-C5D7485F2B42&displaylang=en>  
 (VCA Library requires MS XML 4.0 library which is an xml parser made by Microsoft.)

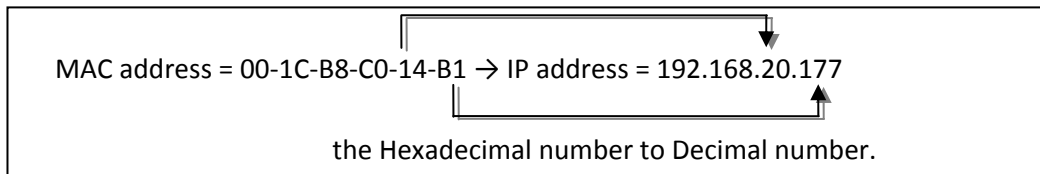


## 6.2.2. View video using IP address

View the live video on a web page using your IP device and its IP address. To have the correct IP address ready and use it on a web page:

1. Convert a MAC address to an IP address or check the IP address on the ZNS-GIT IPAdmin Tool.

(The MAC address is attached on the side or bottom of the device.)



2. Open a web browser and enter the IP address of the device.
3. Click **Continue to this website** on the Security Certificate Alert page.
4. Click **pop-up blocked** and install the ActiveX control. You need to install the ActiveX for displaying the images.
5. Wait for a few seconds while the web page loads. The live video is displayed.

## 6.3. Reset

1. While the device is in use, press and hold the Reset .
2. Release the Reset button after 3 seconds.
3. Wait for the system to reboot.

## 6.4. Factory Default

1. Disconnect the power supply from the device.
2. Connect the power to the device with the Reset button pressed and held.
3. Release the Reset button after 5 seconds.
4. Wait for the system to reboot.

The factory default settings can be inferred as follows:

IP address:	192.168.xx.yy
Network mask:	255.255.0.0
Gateway:	192.168.0.1
User ID:	root
Password:	pass

# APPENDIX (A): SPECIFICATIONS

## Summary

Camera Module		
Model	ZN-NH21VE	
Image Sensor	Aptina (Micron) 1/3.2" (4:3) CMOS 2M	
Effective Pixels	1600 x 1200 (UXGA, 2M)	
Scanning system	Progressive Scan	
Dynamic Range	71dB	
SNR	Max 42.3dB	
Minimum Illumination	0.5 Lux(50IRE), 0.1 Lux(DSS x5 ON)	
Lens (Optional)	3~8 mm, F1.0 Manual Iris Lens, CS Mount	
Day & Night	S/W	
Video		
Megapixel Compression	H.264 and MJPEG	
Compression Format	H.264, MPEG-4, and MJPEG	
Number of Streams	Dual Stream, Configurable	
Resolution	See <i>Resolutions table</i> below	
Compression FPS (In case of VCA or Burnt In Annotation on, fps could be decreased)	H.264	5 fps@UXGA (1600 x 1200) 8 fps@SXGA (1280 x 1024) 12 fps@HD720 (1280 x 720) 15 fps@XGA (1024 x 768), D1 (720 x 480)
	MJPEG	15 fps@UXGA (1600 x 1200)
	MPEG4	15fps@D1&720x480)
Motion Detection	Support (DSP)	
Burnt-in Text	Support (DSP)	
Video Output	Not Available	
Audio		
Input / Output	1/1 channel	
Compression Format	G.711	
Function		
Digital Input	1 channel (Dry and Wet Contact Selectable)	
Digital Output	1 channel (Dry Contact)	
RS-485	Support	
RS-232	Not Available	
Network	10/100 Base-T	
Protocol	TCP/IP, UDP/IP, HTTP, RTSP, RTCP, RTP/UDP, RTP/TCP, SNTP, mDNS, UPnP, SMTP, SOCK, IGMP, DHCP, FTP, DDNS, SSL v2/v3, IEEE 802.1X, SSH	
USB 2.0	Support (Mini-B plug)	
SD Slot	Supported (Micro SD type) ※ Micro SD Card is not included	

## Resolutions per Codec Frame rate

Codec Resolution	MPEG4	H.264	MJPEG
UXGA (1600x1200)	Not available	5 fps	15 fps
SXGA (1280x1024)	Not available	8 fps	
HD720 (1280x720)	Not available	12 fps	
XGA (1024x768)	Not available	15 fps	
D1 (720x)	15 fps		
4CIF (704x)			
VGA (640x)			
CIF (352x)			
QVGA (320x)			
QCIF (176x)			

## Electrical Characteristics

Audio Input	Linein, 1.43Vp-p(Min 1.35Vp-p, max 1.49 Vp-p), 39 K $\Omega$
Audio Output	Lineout, 46mW Power, 16 $\Omega$
Sensor(D/I)	TTL level 4.5V threshold, Max 50mA
Alarm(D/O)	Max 500mA@24VAC or 1A@12VDC
Power Source(Approx)	12V DC (Screw Terminal)
Power over Ethernet	IEEE802.3af(class 0)
Power Consumption (Approx)	300 mA @ +12V

## Environment Condition

Operating Temperature	0 °C ~ 50 °C (32 °F ~ 122 °F)
Operating Humidity	Up to 85% RH (Non-condensing)

## Mechanical Condition

Material	Aluminum Die Casting-2
Color	White Pearl
Dimension	55(W) x 55(H) x 91.4(D) mm
Weight (Approx)	260 g

## VCA (Video Content Analysis)

VCA Presence (Included as Standard)	
High Performance	Advanced Tracking Algorithm, Low False Alarm Rate
Easy to Use	Intuitive Web Browser Interface
Detection Zones	Multi-segment Polygons and Lines
On-screen Display	Real-time Display of Tracking Data and Events
Burnt-in Annotation	Stream
VCA Surveillance (Option)	
Detection Behavior	Camera Tampering, Direction, Stopping, Loitering, Entering, Exiting, Appear, and Disappear Filters
3D Behavior	Perspective Corrected Size and Speed Filters
Statistics	Counting Functions and Other Statistics
Meta Data	Binary XML Format
Image Stabilization (Option)	
Electronic Stabilization	Removes Camera Sway

## APPENDIX (B): POWER OVER ETHERNET

The Power over Ethernet(PoE) is designed to extract power from a conventional twisted pair Category 5 Ethernet cable, conforming to the IEEE 802.3af Power-over-Ethernet (PoE) standard. IEEE 802.3af allows for two power options for Category 5 cables.

The PoE module signature and control circuit provides the PoE compatibility signature and power classification required by the Power Sourcing Equipment (PSE) before applying up to 15W power to the port.

The high efficiency DC/DC converter operates over a wide input voltage range and provides a regulated low ripple and low noise output. The DC/DC converter also has built-in overload and short-circuit output protection.

### PoE compatibility

#### With non Power Sourcing Equipment (PSE)

When it is connected with non PSE, the power adaptor should be connected.

#### With power adaptor

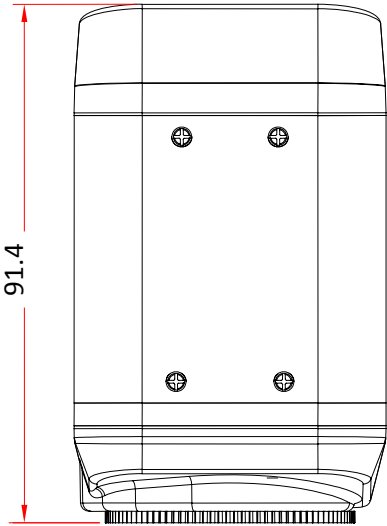
Connecting both PSE and power adaptor does not do any harm to the products. Disconnecting power adaptor while it is operating does not stop operation. The product continues to work without rebooting.

### Power classification

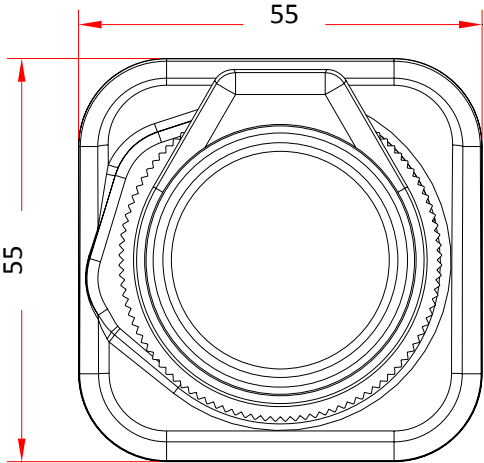
The PoE Power Class supported by the IP device is Class 0.

Class	Usage	Minimum Power Levels Output at the PSE	Maximum Power Levels at the Powered Device
0	Default	15.4W	0.44 to 12.95W

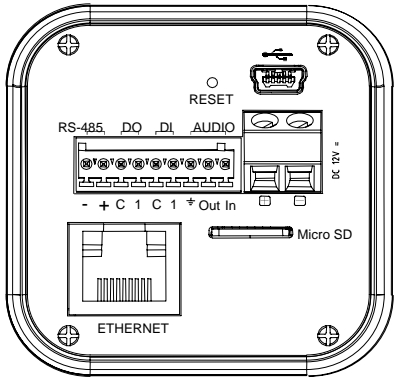
# APPENDIX (C): DIMENSIONS



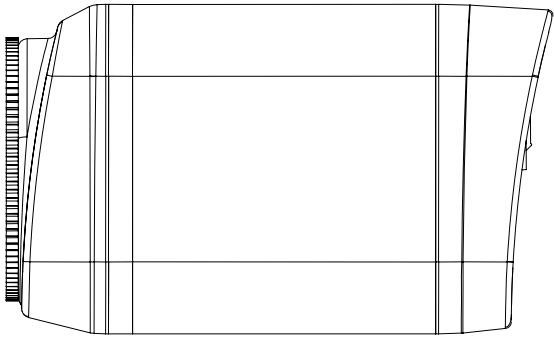
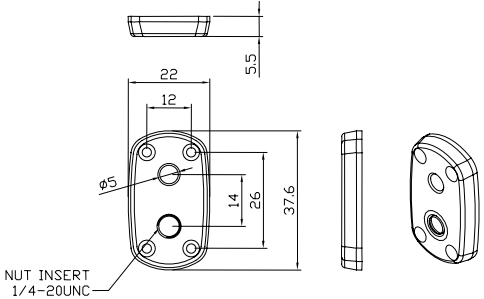
Top view



Front view



Rear view



Right side view

UNIT: mm

---

# APPENDIX (E): TROUBLE SHOOTING

---

## Checking your Firmware

Firmware is software that determines the functionality of the device. One of your first actions when troubleshooting a problem should be to check the currently installed version. The latest version may contain a correction that fixes your particular problem. The current firmware version in your device can be seen under Setup > About > Version.

## Upgrading the Firmware

New firmware can be downloaded at the FTP site. When you download firmware from the FTP, your product will receive the latest available functionality. Always read the upgrade instructions and release notes available with each new release, before updating the firmware. If you want to know more, please contact our sales person.

## Support

If you cannot resolve an issue, for additional assistance, please contact your supplier or system integrator

If you contact our support, please help us by providing a server report, log file and a brief description of the problem.

1. In the address bar of your browser, after the unit IP address enter following CGI command.

```
<IP ADDRESS> /nvc-cgi/admin/param.cgi?action=list
```

```
<IP ADDRESS> /nvc-cgi/admin/vca.cgi?action=list
```

The server report contains important information about the device, as well as a list of the current parameters.

2. The Log messages in the device can prove a useful diagnostic tool for troubleshooting.

```
Go to Setup > Maintenance > System Log > LOG LIST > message.
```