H.264 NETWORK CAMERA

GANZ
PixelPro

SERIES

ZN1-B4NMZ43

| Installation Guide

Before connecting, operating or adjusting this product, read this instruction booklet carefully and completely.
Precaution

• Please read this manual carefully before installing the unit.

• Never disassemble the camera. Unauthorized disassembly may cause equipment failure or damage to the unit.

• Please do not install the camera in a place exposed to direct sunlight.

• Do not operate the camera in environments beyond the specified temperature. Refer to “Environment Condition” on “APPENDIX (A) : SPECIFICATIONS” in this manual.

• Before applying power to the camera, check the power source to ensure that it is within the specifications. Refer to “Electrical Characteristics” on “APPENDIX (A) : SPECIFICATIONS”
Table of Contents

Precaution.......................................................................................................................... 2
1. FEATURES ....................................................................................................................... 4
2. PACKAGE CONTENTS ...................................................................................................... 5
3. PART NAMES .................................................................................................................. 6
4. CAMERA INSTALLATION ................................................................................................... 8
   4.1. Installing the camera ................................................................................................. 8
   4.2. Adjusting angle of the camera .................................................................................. 10
   4.3. Adjusting Zoom and Focus ....................................................................................... 11
   4.4. Setting Image Attribute ............................................................................................ 12
5. CONNECTIONS ................................................................................................................ 13
6. CONFIGURATION ............................................................................................................. 16
   6.1. Set up network environment ...................................................................................... 16
       6.1.1. Generic IP Environment .................................................................................... 16
       6.1.2. Custom IP Environment .................................................................................... 17
   6.2. View video on web page ............................................................................................ 18
       6.2.1. ActiveX Installation .......................................................................................... 18
       6.2.2. View video using IPAdmin Tool ........................................................................ 19
   6.3. Reboot ......................................................................................................................... 20
   6.4. Factory Default .......................................................................................................... 20
   6.5. Safe Mode .................................................................................................................. 21
APPENDIX (A): SPECIFICATIONS ...................................................................................... 23
   Summary ............................................................................................................................ 23
   Electrical Characteristics ................................................................................................. 24
   Environment Condition .................................................................................................... 24
   Mechanical Condition ...................................................................................................... 24
APPENDIX (B): POWER OVER ETHERNET ........................................................................ 25
   PoE compatibility .............................................................................................................. 25
   Power Comparison .......................................................................................................... 25
APPENDIX (C): DIMENSIONS ............................................................................................ 26
APPENDIX (D): HEXADECIMAL-DECIMAL CONVERSION TABLE .................................... 27
REVISION HISTORY ........................................................................................................... 28
1. FEATURES

Camera

- SONY EXMOR 1/2.9” 1080p CMOS Image Sensor
- True Day / Night
- DC Auto Iris Lens
- WDR
- Embedded IR Illuminator
- Remote Zoom/Focus Control (One Click Focus)
- Weather Proof (IP66)

Video

- H.264 Baseline, Main, High profile(MPEG-4 Part 10/AVC), MJEPG(Motion JPEG)
- Max 30 fps in 1080p
- Text Overlay
- Analog Video Output for 3 minutes (only for installation purpose)

Network

- 10/100 Base-T Ethernet

Integration

- Software Development Kit (SDK) available
- ONVIF Compliant (Profile S)

General

- microSD slot
- Power Over Ethernet (PoE)

Video Contents Analytics (VCA)

- VCA Presence (Standard)
- VCA Surveillance (Optional)
2. PACKAGE CONTENTS

Please unpack the package carefully and handle the equipment with care. The package contains:

- **Camera**
- **DC Power Adaptor**
- **Universal Plugs**
- **Screws and anchor blocks**
- **Quick Installation Guide**
- **Hex Wrench Driver**
- **Silicon Waterproof Band**
- **Video Output Cable**
- **Installation Template**

**Note**

The contents above are subject to change without prior notice.
3. PART NAMES

① Sunshield
Position the sunshield to prevent direct sunshine.

② Video Out Cable socket
Socket for the video output cable included in the package (CVBS: 1.0Vp-p / 75Ω BNC)
Once the PAL/NTSC button is pressed, the video displays for 3 minutes before returns back to ‘no video output’ status.

③ PAL/NTSC button
Pressing the PAL/NTSC button each time changes the mode as follows.
No video output -> PAL -> NTSC

④ Reset button
Use the button to restart the device or to reset it to Factory Default. Refer to 6.3. Reboot and 6.4. Factory Default for more details.

⑤ microSD slot
Supports up to 64GB. Recommend Class 4 and higher for HD recordings.

⑥ Terminal Connector
Connector for cable connection of digital input/output. Refer to 5. CONNECTIONS for more details.

* Models herein and their appearance are subject to change without any prior notice.
7. **Power Adaptor Connector**
Use 12VDC for the power supply.

8. **LAN connector**
RJ45 LAN connector for 10/100 Base-T Ethernet (PoE supported).
4. CAMERA INSTALLATION

4.1. Installing the camera

1) Place the installation template included in the package on the desired installation surface.

2) Drill three holes in correct positions based on the template paper, and insert anchor blocks into the holes.

3) Attach the silicon waterproof band included in the package to the camera’s mounting surface by aligning it with the screw holes.

4) Connect the required cables to the device including a power cable and a LAN cable. Refer to the image on 5. CONNECTIONS for the right connections.

5) Place the camera body, match three alignment holes with three anchor blocks, and hold against the surface to mount the camera.

6) Tighten the anchor blocks with screws.

7) Adjust the heading direction of the camera. Refer to 4.2. Adjusting angle of the camera for the detail.

8) Adjusting zoom and focus can be done after the device is connected to the network. For the detail, refer to 4.3 Adjusting zoom and focus.

Sealing gaps is recommended as gaps may appear after the camera installation. Gaps may cause problems such as moisture, water leakage and etc., which negatively affect the operation of the camera if gaps appear but remain unsealed.

To prevent products from damage, place the camera on a stable and non-vibrating surface. If the stability is in doubt, consult safety personnel for reinforcements, and then proceed with the installation.
Installation Template

(Unit: mm)

Caution

Installation template’s image size scale in this installation guide is not 1:1. The correct-size template paper can be found inside the package separately.
4.2. **Adjusting angle of the camera**

1. Adjust the camera to the desired angle by unscrewing the joints referring to the following pictures.

2. Insert the video output cable (included in the package) to the video output cable socket, and connect it to an analogue video test monitor to check if the camera angle has been set as intended. If the angle is appropriate, disconnect the camera from the analogue monitor, and then remove the video output cable from the camera.
4.3. Adjusting Zoom and Focus

*To be able to adjust zoom and focus, it is necessary to connect the device to a network. Please refer to 6. CONFIGURATION for the detailed method.

Once the device is on the network and the webpage is open, go to Setup > Video & Audio > Zoom/Focus. Then, the features shown below will appear.

1. Adjust zoom and focus by clicking arrow buttons: the buttons ◀◀ ▶▶ move the lens more extensively than the buttons ◀ ▶.
2. Click One Click Focus to automatically set the lens.
4.4. Setting Image Attribute

Through the camera’s webpage, users can configure image settings. The menu of image attribute is available under Video Appearance menu in Setup > Video & Audio > Camera. The following features can be adjusted: Brightness, Contrast, Saturation, Sharpness and Orientation.

For more detailed information, refer to the provided “PixelPro GXi series Web Page User’s Manual”.

```
Setup > Video & Audio > Camera

General
Friendly name: ZN-2BT352X-MIR

Video Appearance:
Brightness: 128 [0 ... 255, 128]
Contrast: 128 [0 ... 255, 128]
Saturation: 128 [0 ... 255, 128]
Sharpness: 128 [0 ... 255, 128]
Orientation: ✓ Vertical ✓ Horizontal

Exposure
Exposure mode: Auto
Minimum shutter speed: 1/8000 (1/50 ... 1/5000 sec)
Shutter speed: 1/50 (1/2 ... 1/500 sec)
Pickerless
50Hz or 60Hz
Maximum AGC: 50 [0 ... 100]
Exposure adjustment: 0 EV
Backlight compensation: On ✓ Off ✓ center ✓
Digital slow shutter: ✓ Off ✓
Smart IR: Auto ✓ Manual 128 [0 ... 255, 128]

Digital Wide Dynamic Range

Day & Night
Day & Night mode: Auto ✓ Day Off ✓ Night
Day to Night level: 0 [0 ... 63, 0]
Night to Day level: 3 [1 ... 64, 3]

White Balance
White balance mode: abv1 ✓
Red: 128 [0 ... 255]
Blue: 128 [0 ... 255]

Image Signal Processing
Dynamic 2D DNR: 15 [0 ... 15]
```
5. CONNECTIONS

GREEN : DI
WHITE : DI COM
ORNAGE : DO
YELLOW : DO COM

LAN (not included)
12VDC
① Sensor (DI) connection
Sensor (DI) can be connected to either a voltage type sensor or a relay type sensor as the following figures. The interface type can be controlled by web user interface. Refer to the provided “PixelPro GXi series Web Page User’s Manual” for more details.

Input voltage range: 0VDC minimum to 5VDC maximum, Max 50mA

Caution
Before connecting sensors, check driving voltage and output signal type of the sensor. Since the connection is different according to sensor type, be careful to connect the sensor. Do not exceed the maximum input voltage or relay rate.

② Alarm (DO) connection
Only the relay type is supported.

Relay Rating: Max 24VDC 50mA

Caution
Do not exceed the maximum relay rating.
3 LAN connection
This is a RJ45 LAN connector for 10/100 Base-T Ethernet. Use the Ethernet cable (RJ45) to connect the device to a hub or a router in the network. Refer to “Appendix (B). Power over Ethernet” for more details.

4 Power Connection
The camera can be powered from either 12VDC or PoE. If the camera is powered via PoE, refer to “Appendix (B). Power over Ethernet” for more details.
6. CONFIGURATION

6.1. Set up network environment

The default IP address of the device is 192.168.XXX.XXX. Users can identify the IP address of the device from converting the MAC address’s hexadecimal numbers, which is attached to the device. Be sure that the device and PC are on a same network before running the installation.

IP address: 192.168.xxx.xxx
Subnet mask: 255.255.0.0

6.1.1. Generic IP Environment

In case of generic private network environment where IP address 192.168.XXX.XXX are used, users may view the live streaming images on a web page using the device’s default IP address:

1. Convert the device’s MAC address to the IP address. Refer to the Hexadecimal-Decimal Conversion Chart at the end of the manual.
   (The MAC address of the device is attached on the side or bottom of the device.)

   MAC address = 00-1C-B8-01-23-45 → IP address = 192.168.35.69

   Convert the last two sets of hexadecimal numbers to decimal numbers.

2. Start the Microsoft® Internet Explorer web browser and enter the address of the device.

3. Web streaming and device configurations are supported through ActiveX program. When the ActiveX installation window appears, authorize and install the ActiveX.
6.1.2. Custom IP Environment

IPAdminTool is a management tool, which automatically scans all of the network products for users to perform administrative tasks, which includes network configurations, firmware update, device reboot, and device organizations.

To modify the device’s default IP address for customized network area;

1. Find the device from the IPAdminTool’s list and highlight the device’s name.

2. Right-click the mouse and select IP Address; IP Setup window appears.

3. In the IP Setup’s window, information under Local Network information displays the user/PC’s network area information. Those information need to be incorporated to the IP Address, Subnet Mask, Gateway, and DNS boxes, except the last 2 sets of IP Address, which are to be the unique numbers for the device. Refer to the image above for the setting.

4. Click Setup to complete the modification.
6.2. View video on web page

Type the proper IP address to view the live streaming images through a web browser. The default username and password is root / pass.

6.2.1. ActiveX Installation

1. When the browser asks to install the AxUMF software, click Install to proceed.

2. When Setup installation pop-up window appears, click Install to proceed with rest of installations.

Note

Depending on system OS and Internet Explorer version, installation experience may differ from one another. Figures described above are from Windows 7, Internet Explorer 9 environment.
6.2.2. View video using IPAdmin Tool

IPAdminTool automatically searches all activated network encoders and IP cameras and shows the product name, IP address, MAC address and etc.

1. From the IPAdminTool’s product list, select the device by highlighting it.

2. Right-click the mouse and select Web view.

3. The system’s default web browser opens the device’s address.

---

Caution!

Whether directly accessing the streaming video by typing IP address on a web page or taking steps through IPAdminTool, the ActiveX is needed to be installed for the Microsoft® Internet Explorer to have the complete configuration privileges.
6.3. Reboot

Perform the following procedures to reboot your device:

1. Press the reset button for 2 seconds while the device is in use.
2. Wait for the system to reboot.

⚠️ Caution

Please do not hold for more than 2 seconds.
Otherwise, the camera may be switched to its Factory Default settings.

6.4. Factory Default

Resetting the device back to the factory default will initialize all parameters including the IP address back to the factory defaults. To reset back to the factory default:

1. Press the reset button and hold it while the device is in use.
2. Release the button after 10 seconds.
3. 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
6.5. Safe Mode

What is Safe Mode?
Your IP camera or encoder could encounter an unexpected occasion such as broken firmware file or uncompleted loading of firmware file during system booting. To restore the device from the occasions, the device provides the emergency firmware as a factory default. Your device will get restarted with safe mode when there is any error on your booting system files.

Why does your IP camera or encoder boot in Safe Mode?
Normally, the cause of ‘safe mode’ is classified into two types.
* When the power supply is unplugged in the middle of system booting.
* When the firmware files required for system booting are damaged.

IMPORTANT: Your device will turn into the safe mode when it fails to boot certain times.

How to recover your system from Safe Mode

The messages above will appear on the webpage when your device has been rebooted in ‘safe mode’. Then, you should follow the instructions on the webpage according to the steps in a row.

There are two types of firmware files when you receive a firmware folder from your vendor. When you need to update the firmware as the final resolution in case
your device is in safe mode like above, ensure that the firmware means the firmware file for the device with the file name as GXi-V.1.X.X.X-~~~.enc.
There is another method to update firmware, which is using IPAdminTool. Please refer to ‘IPAdminTool User’s Manual.pdf’ for the detailed procedure.

If your device is still at safe mode after trying to update firmware, please contact your local agency to get further assistance.

* Firmware update for safe mode itself: If you want to update the firmware for safe mode, you should upload a firmware file with the following file name: GXi-SAFEMODE.~~~.enc.
# APPENDIX (A): SPECIFICATIONS

## Summary

<table>
<thead>
<tr>
<th>Camera Module</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CMOS</strong></td>
<td></td>
</tr>
<tr>
<td>Image Sensor</td>
<td>1/2.9” 1080p CMOS</td>
</tr>
<tr>
<td>Effective Pixels</td>
<td>1920x1080</td>
</tr>
<tr>
<td>Scanning system</td>
<td>Progressive scanning</td>
</tr>
<tr>
<td><strong>ELECTRICAL</strong></td>
<td></td>
</tr>
<tr>
<td>Resolution</td>
<td>1920 x 1080</td>
</tr>
<tr>
<td>Min. Illumination</td>
<td>Color: 1.0 lux, BW: 0 lux (IR LED On)</td>
</tr>
<tr>
<td>AGC Control</td>
<td>Auto</td>
</tr>
<tr>
<td>Lens</td>
<td>3.0(w) – 9.0mm(t), F1.2(w) – F2.5(t), Optical 3x Remote Zoom/Focus Control</td>
</tr>
<tr>
<td>Day &amp; Night</td>
<td>Removable IR Cut Filter</td>
</tr>
<tr>
<td>Wide Dynamic Range</td>
<td>Digital WDR</td>
</tr>
</tbody>
</table>

## Video

| Compression Format | H.264 and MJPEG Selectable per Stream |
| Number of Streams | Dual Stream, Configurable |
| Resolution | 1920x1080, 1280x720, 1120x630, 960x540, 800x450, 640x360, 480x270, 320x180 |
| Compression FPS | 30fps@1080p |
| Motion Detection | Built-in |
| Burnt-in Text (Digital) | Time stamp and text caption overlay |
| Analogue Output | NTSC/PAL (3 minutes, only for installation purpose) |

## Audio

| Input/output | - |
| Compression Format | - |

## Function

| Digital Input/output | 1/1 channel |
| RS-485 | Not supported |
| Network | 10/100 Base-T |
| Power over Ethernet (PoE) | Supported |

| Protocol | QoS Layer 3 DiffServ, TCP/IP, UDP/IP, HTTP, HTTPS, RTSP, RTCP, RTP/UDP, RTP/TCP, mDNS, UPnP™, SMTP, DHCP, DNS, DynDNS, NTP, SNMPv1/v2c/v3(MIB-II), IGMP, ICMP, SSLv2/v3, TLSv1 |

| SD Slot | 1 microSD slot |
| microSD Card is not included | (Recommend Class 4 and higher for HD recordings) |
Electrical Characteristics

<table>
<thead>
<tr>
<th>Power Source</th>
<th>12VDC / PoE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Consumption</td>
<td>Max. 7.6W @ 12VDC</td>
</tr>
<tr>
<td>Video Output</td>
<td>1 Vp-p, 75Ω, Composite</td>
</tr>
<tr>
<td>Audio Input</td>
<td>-</td>
</tr>
<tr>
<td>Audio Output</td>
<td>-</td>
</tr>
<tr>
<td>D/I</td>
<td>Max 50mA@5VDC, TTL level 1.5V threshold</td>
</tr>
</tbody>
</table>
| D/O                | Max 50mA@24VDC      
|                    | On-state resistance: 50 Ω (max continuous) |

Environment Condition

<table>
<thead>
<tr>
<th>Operating Temperature</th>
<th>Operating Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>[12VDC]</td>
<td>-20°C ~ 50°C (-4°F ~ 122°F)</td>
</tr>
<tr>
<td>[PoE]</td>
<td>-20°C ~ 45°C (-4°F ~ 113°F)</td>
</tr>
</tbody>
</table>

| Operating Humidity    | Up to 85% RH     |

Mechanical Condition

<table>
<thead>
<tr>
<th>Material</th>
<th>Aluminum Die-Casting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>Ivory</td>
</tr>
<tr>
<td>Dimension</td>
<td>83.5(H)mm X 86(W)mm X 287(D) mm</td>
</tr>
<tr>
<td>Weight (Approx)</td>
<td>870g (1.92 lbs)</td>
</tr>
</tbody>
</table>

* The specifications above are subject to change without any prior notice.
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 IEEE 802.3af-2003 standard allows up to 15.4 W of power the device. However, 12.95W is the available power, as some power gets lost in the cable. The updated IEEE 802.3at-2009 (PoE+) standard allows up to 25.5 W (Max 34.2 W) of power the device.

PoE has advantages over conventional power in such places where AC powers cannot be reached or expensive to wire.

Note

For proper activation of PoE, the cable must be shorter than 100m and conform the PoE standard.

PoE compatibility

With non-Power over Ethernet (non-PoE)
When it is connected with non-PoE, the power adaptor should be connected.

With power adaptor
Connecting both PoE and power adaptor does not do any harm to the product, but power adaptor will be the only power source for the device as it has priority over PoE. In this case, disconnecting power adaptor while it is operating will cause the device to reboot. And PoE will be the power source for the device after the reboot.

Power Comparison

The PoE Property supported by the device is 802.3af.

<table>
<thead>
<tr>
<th>Property</th>
<th>802.3af</th>
<th>802.3at</th>
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</thead>
<tbody>
<tr>
<td>Available Power</td>
<td>12.95 W</td>
<td>25.50 W</td>
</tr>
<tr>
<td>Max. Power by PSE</td>
<td>15.40 W</td>
<td>34.20 W</td>
</tr>
<tr>
<td>Max. Current</td>
<td>350 mA</td>
<td>600 mA</td>
</tr>
<tr>
<td>Recommended Cable</td>
<td>Category 5 and above</td>
<td>Category 5e and above</td>
</tr>
</tbody>
</table>

Note

Disconnecting PoE does not reboot the device as long as a power adaptor is connected.
APPENDIX (C): DIMENSIONS

(Unit: mm)
## APPENDIX (D): HEXADECIMAL-DECIMAL CONVERSION TABLE

Refer to the following table when you convert the MAC address of your device to IP address.

<table>
<thead>
<tr>
<th>Hex</th>
<th>Dec</th>
<th>Hex</th>
<th>Dec</th>
<th>Hex</th>
<th>Dec</th>
<th>Hex</th>
<th>Dec</th>
<th>Hex</th>
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<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>25</td>
<td>37</td>
<td>4A</td>
<td>74</td>
<td>6F</td>
<td>111</td>
<td>94</td>
<td>148</td>
<td>B9</td>
<td>185</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>26</td>
<td>38</td>
<td>4B</td>
<td>75</td>
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<td>112</td>
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<td>186</td>
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## REVISION HISTORY

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