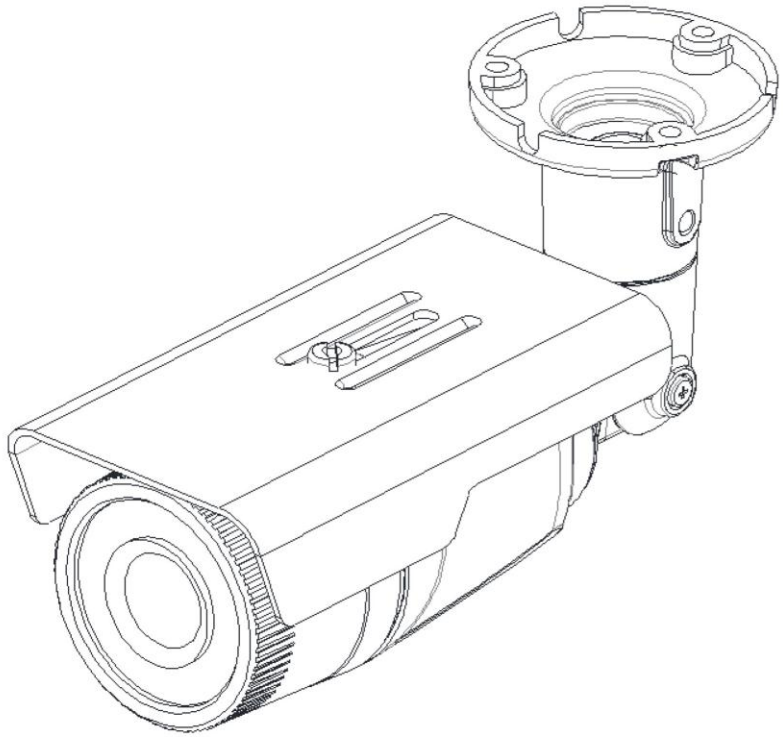
H.264 NETWORK CAMERA

GANZ PixelPro WITH GXi TECHNOLOGY SERIES

ZN1-B4NMZ43

Installation Guide

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



GANZ®

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

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)

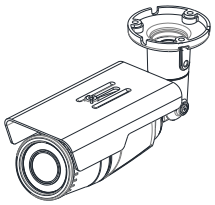
Video Contents Analytics (VCA)

- VCA Presence (Standard)
- VCA Surveillance (Optional)

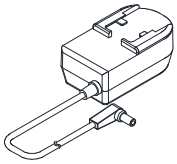
2. PACKAGE CONTENTS

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

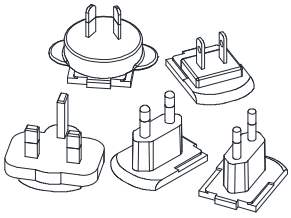
Camera



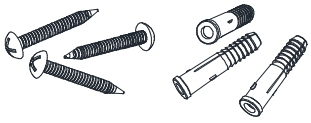
DC Power Adaptor



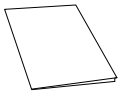
Universal Plugs



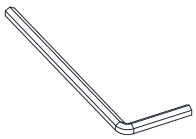
Screws and anchor blocks



Quick Installation Guide

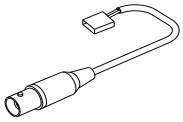


Hex Wrench Driver

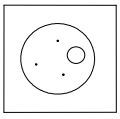


Silicon Waterproof Band

Video Output Cable



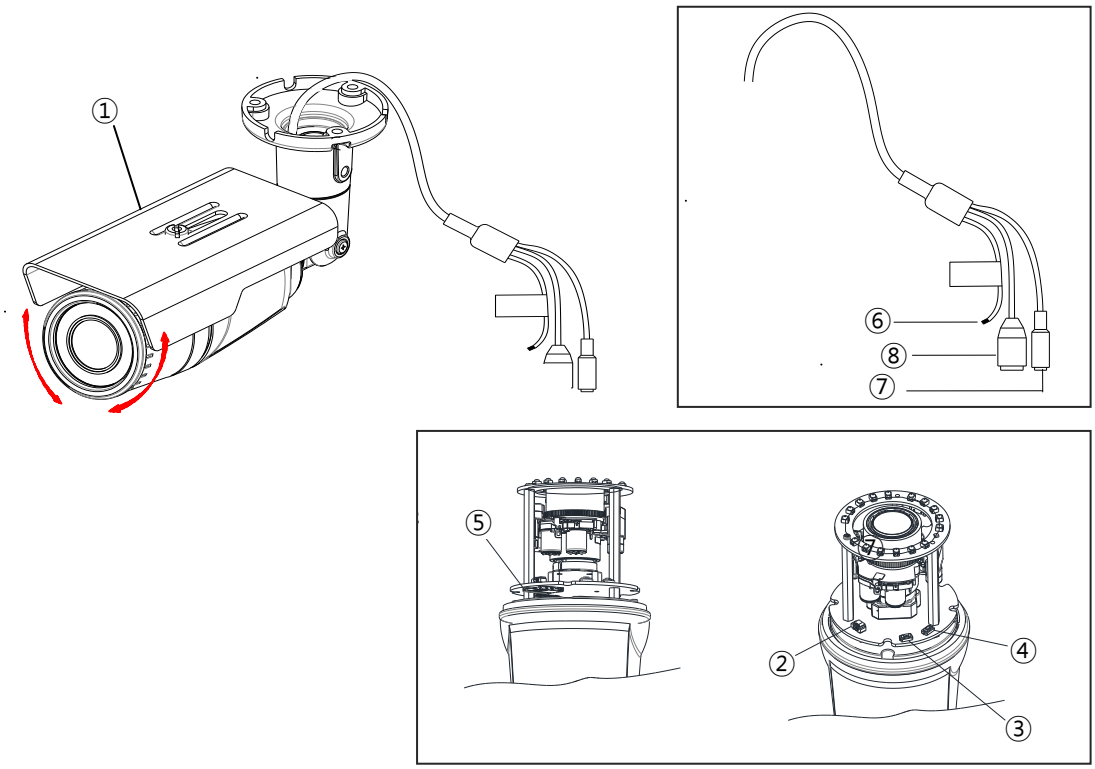
Installation Template



Note

The contents above are subject to change without prior notice.

3. PART NAMES



* Models herein and their appearance are subject to change without any prior notice.

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.

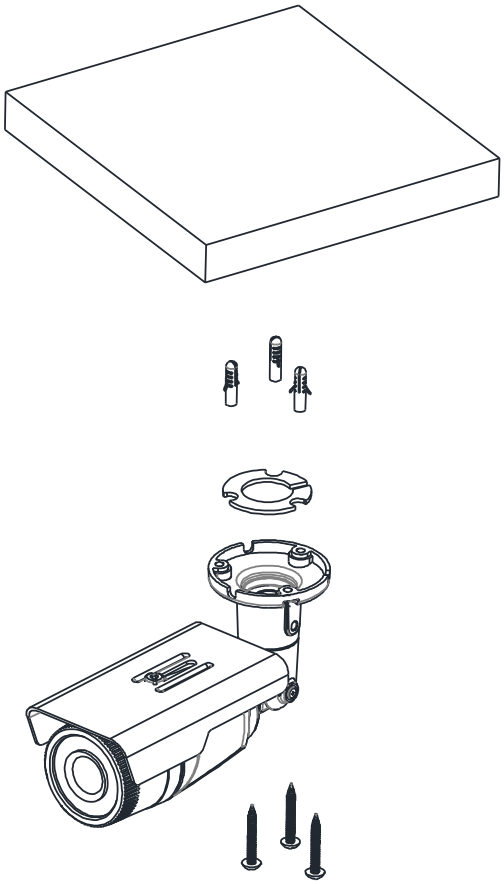
⑥ Terminal Connector
Connector for cable connection of digital input/output. Refer to **5. CONNECTIONS** for more details.

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**.

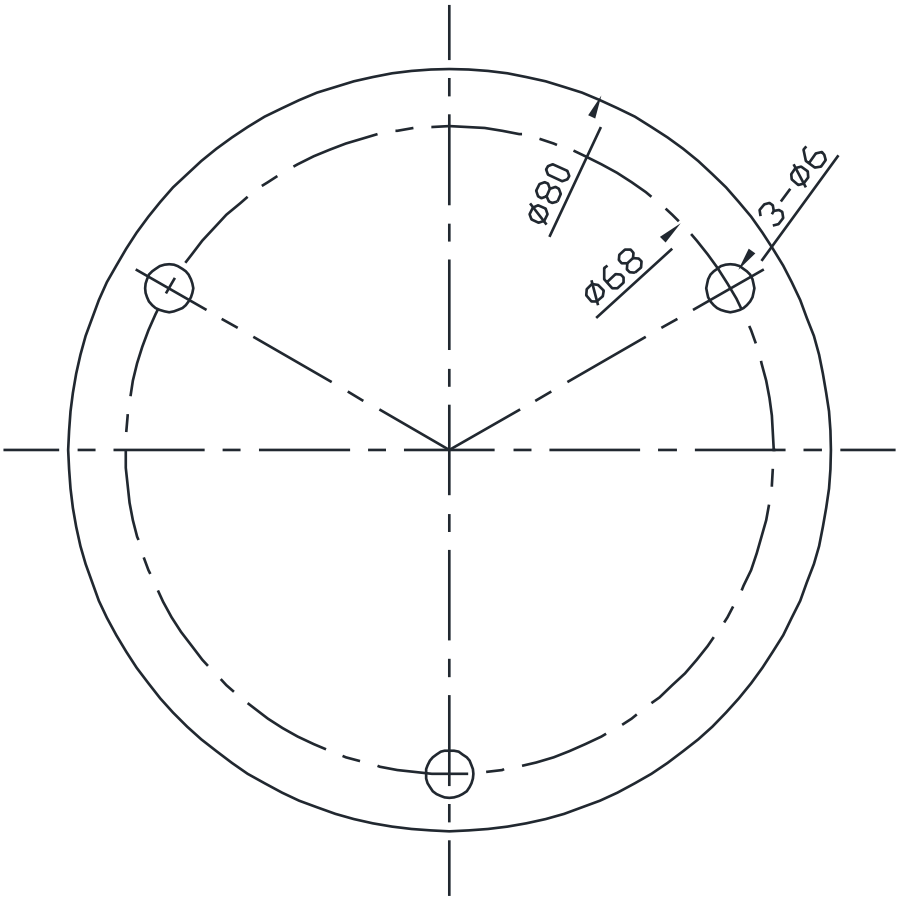
Caution

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.

Caution

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



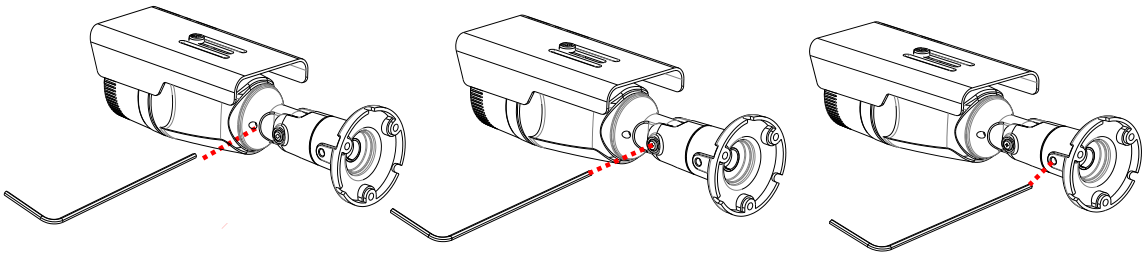
(Unit: mm)

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.

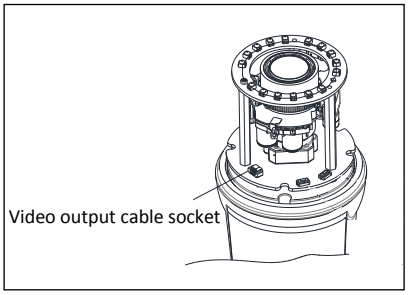


Adjust the joint to install the camera on the wall.

Tilting adjustment

Panning adjustment

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.

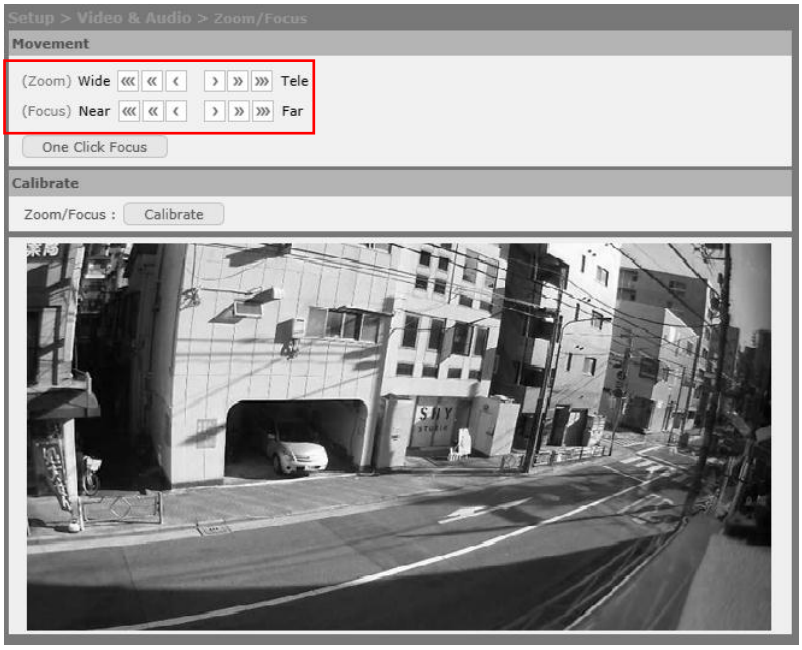


4.3. Adjusting Zoom and Focus

*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.

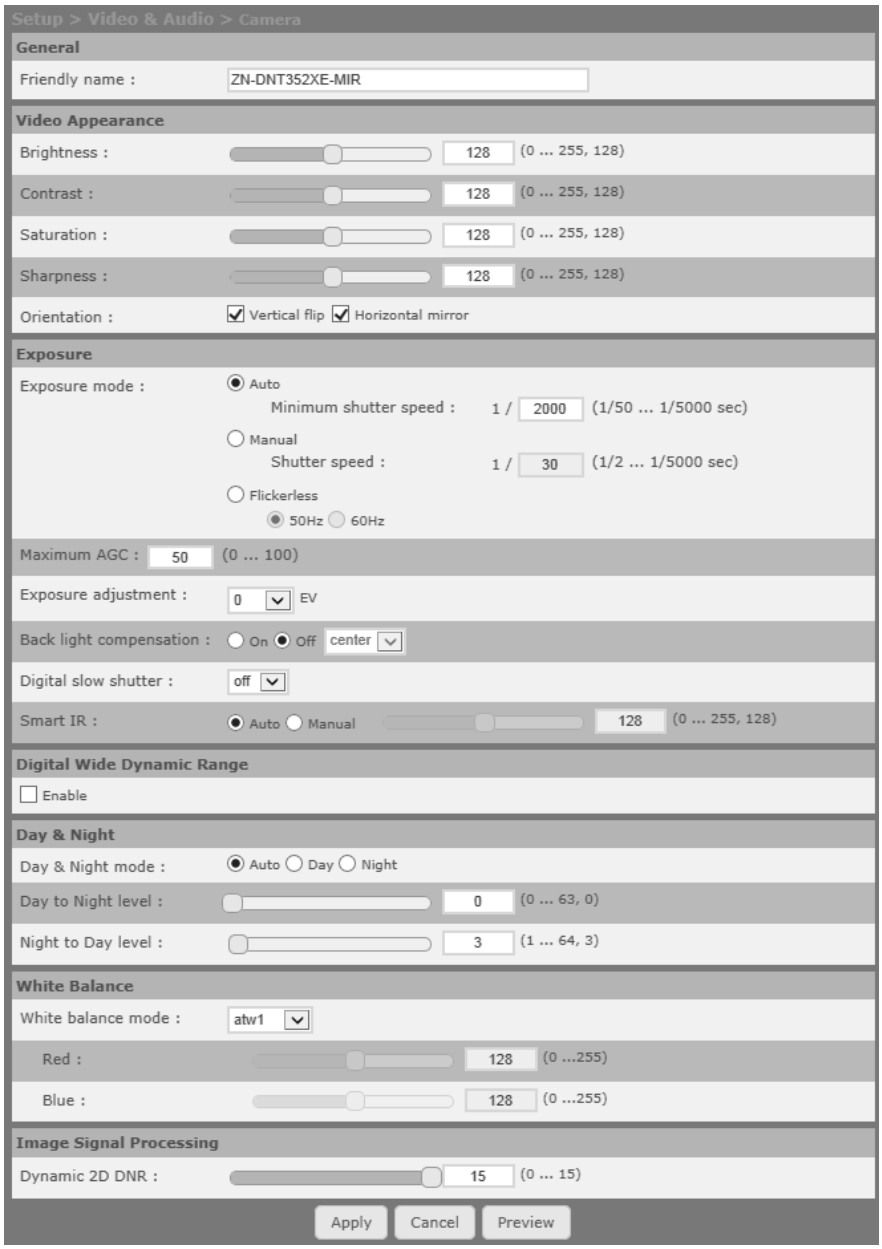


1. Adjust zoom and focus by clicking arrow buttons: the buttons «« »» move the lens more extensively than the buttons ‹ ›.
2. Click **One Click Focus** to automatically set the lens.

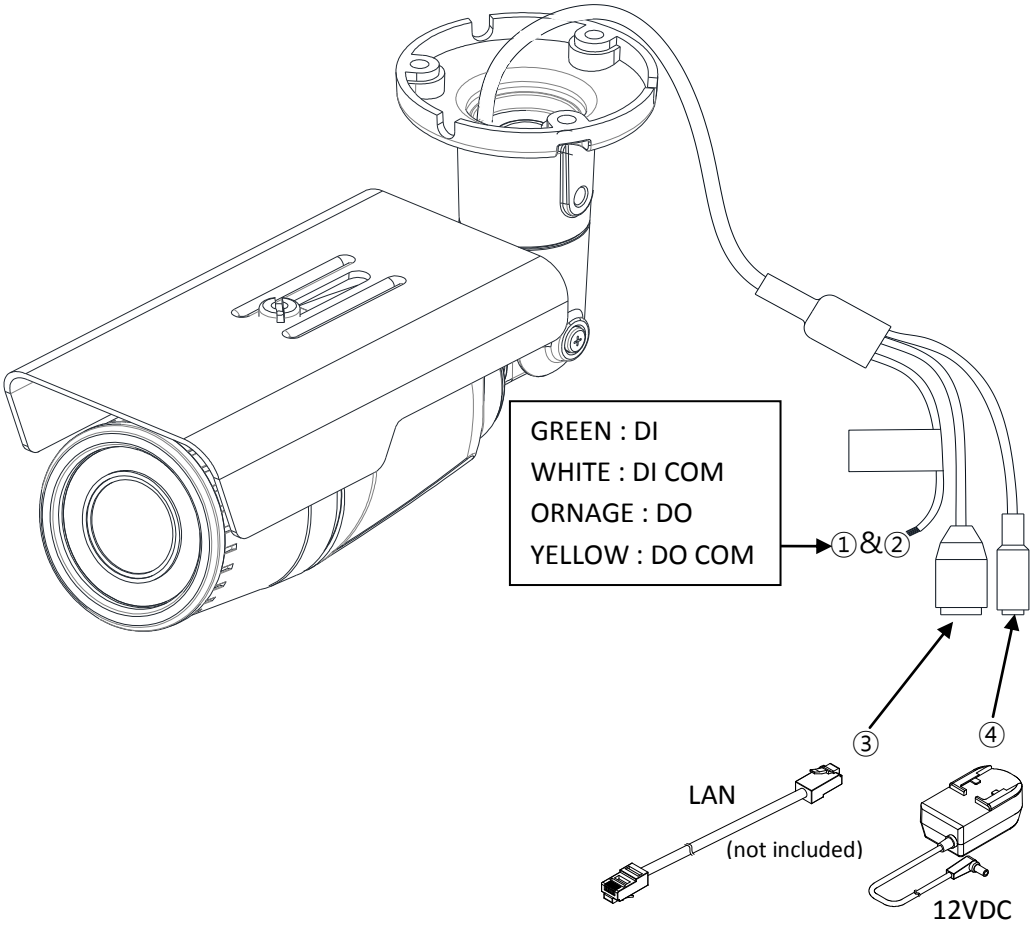
4.4. Setting Image Attribute

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"**.



5. CONNECTIONS



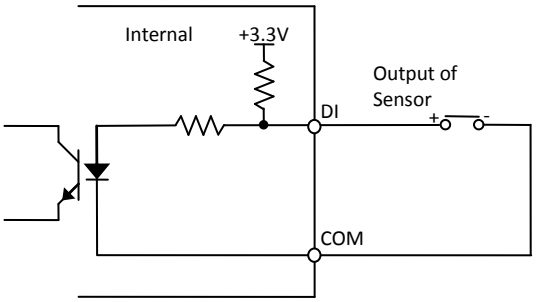
① **Sensor (DI) connection**

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.

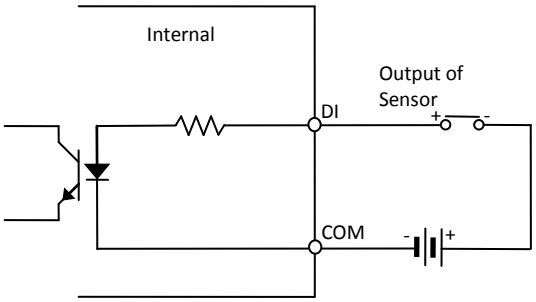
Input voltage range: 0VDC minimum to 5VDC maximum, Max 50mA

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.



Relay Type



Voltage Type

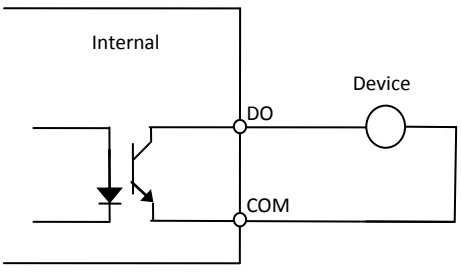
② **Alarm (DO) connection**

Only the relay type is supported.

Relay Rating: Max 24VDC 50mA

Caution

Do not exceed the maximum relay rating.



Relay Type

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**

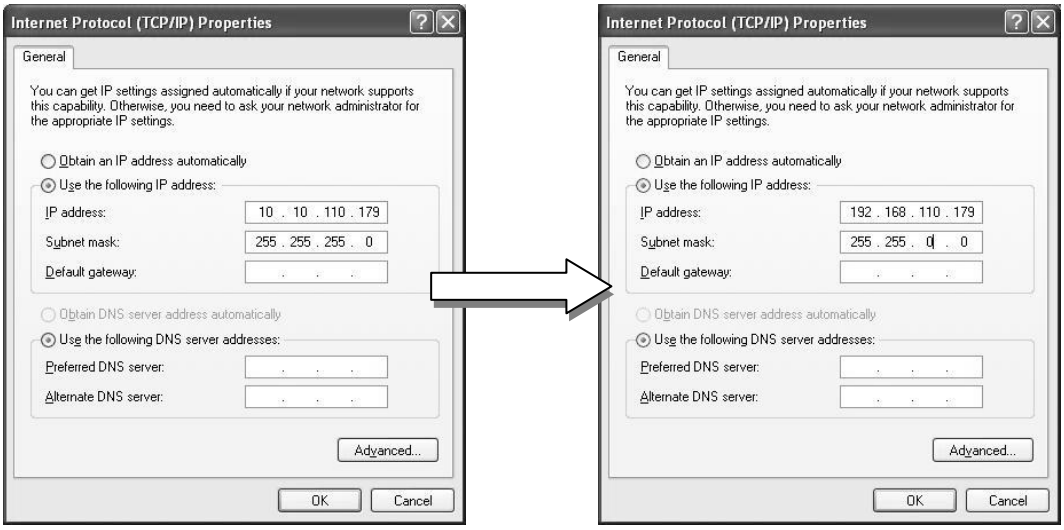
The camera can be powered from either 12VDC or PoE. If the camera is powered via PoE, refer to "***Appendix (B). Power over Ethernet"*** for more details.

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.

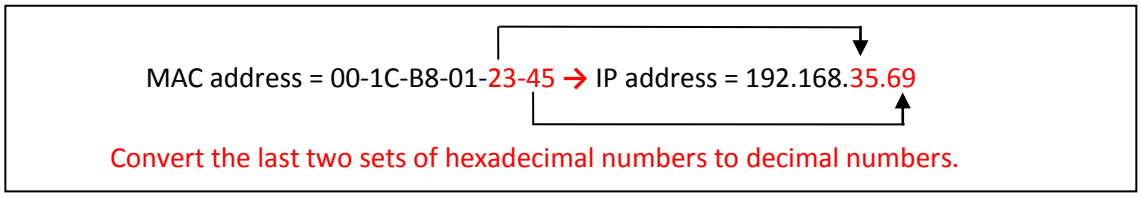
IP address : **192.168.xxx.xxx**
Subnet mask: **255.255.0.0**



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.)

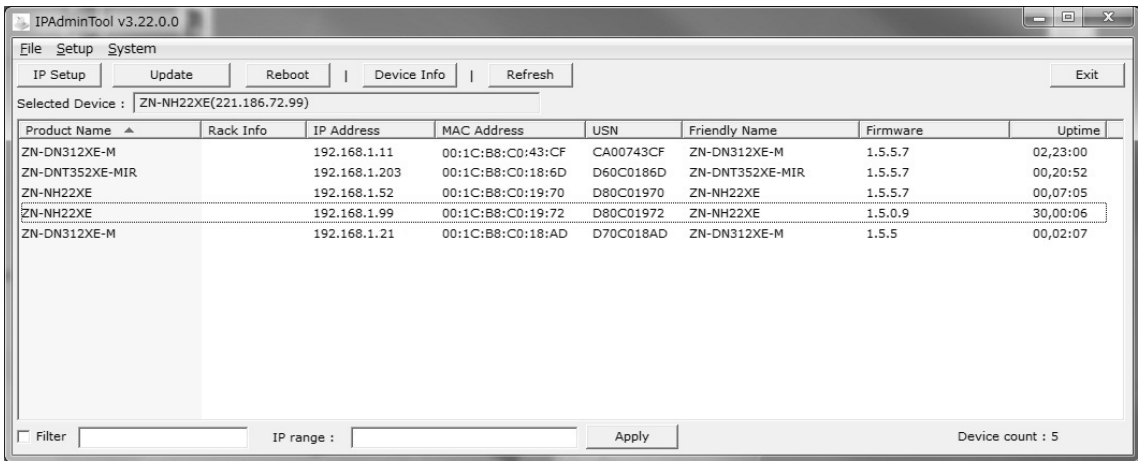


2. Start the Microsoft® Internet Explorer web browser and enter the address of the device.

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

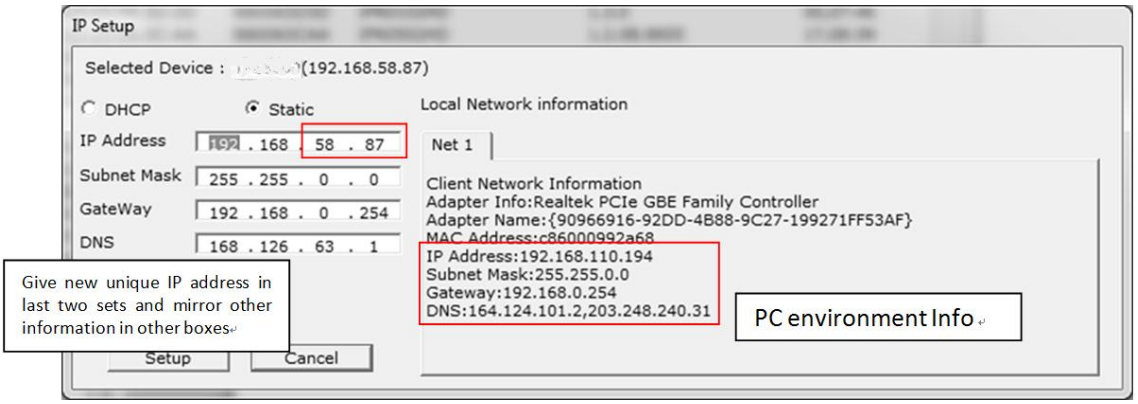
IPAdminTool is a management tool, which automatically scans all of the network products for users to perform administrative tasks, which includes network configurations, firmware update, device reboot, and device organizations.



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.



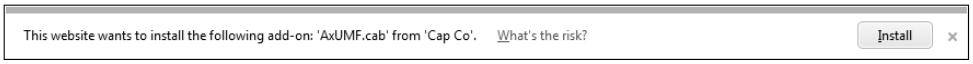
3. In the IP Setup's window, information under **Local Network information** displays the user/PC's network area information. Those information need to be incorporated to the IP Address, Subnet Mask, Gateway, and DNS boxes, except the last 2 sets of IP Address, which are to be the unique numbers for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

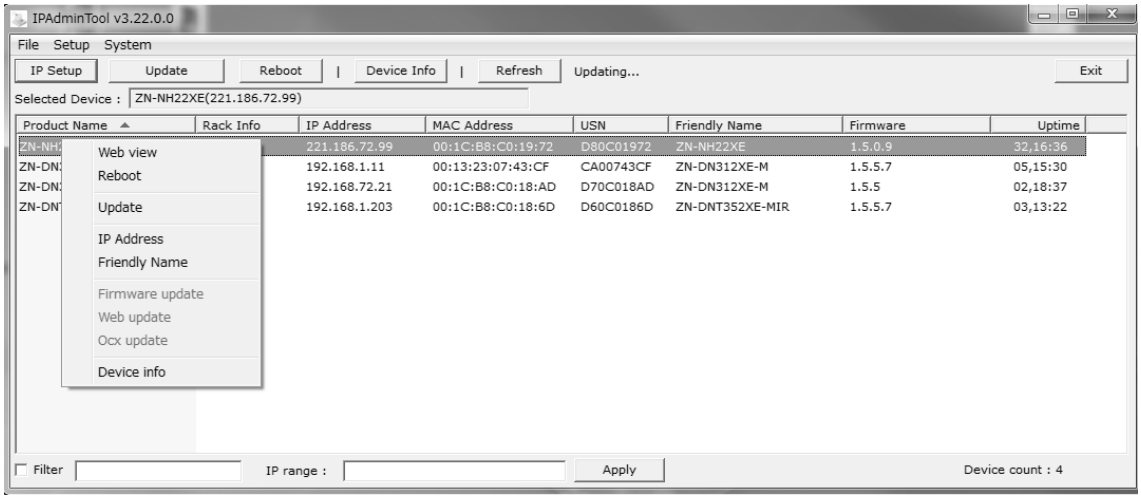
Depending on system OS and Internet Explorer version, installation experience may differ from one another. Figures described above are from Windows 7, Internet Explorer 9 environment.

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.

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.

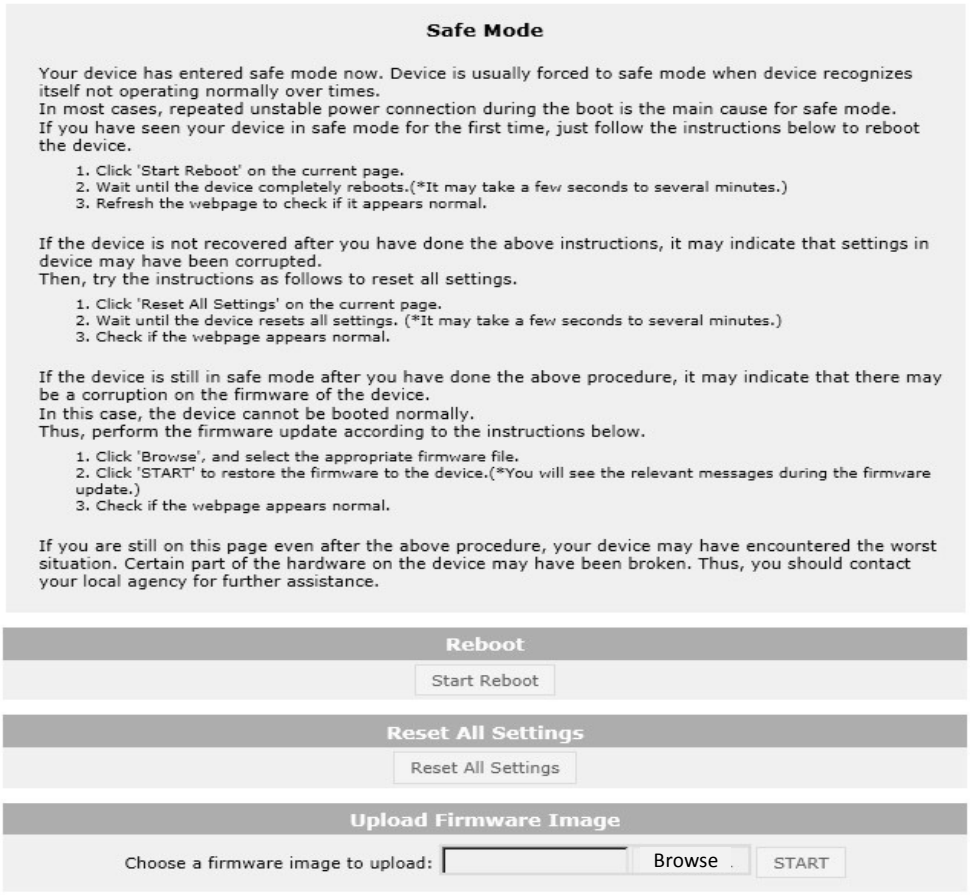
Why does your IP camera or encoder boot in Safe Mode?

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.

Note

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.

Note

There is another method to update firmware, which is using IPAdminTool.
Please refer to **'IPAdminTool User's Manual.pdf'** for the detailed procedure.

Note

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

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

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

Environment Condition

Operating Temperature	Operating Range [12VDC] -20°C ~ 50°C (-4°F ~ 122°F) [PoE] -20°C ~ 45°C (-4°F ~ 113°F)
Operating Humidity	Up to 85% RH

Mechanical Condition

Material	Aluminum Die-Casting
Color	Ivory
Dimension	83.5(H)mm X 86(W)mm X 287(D) mm
Weight (Approx)	870g (1.92 lbs)

* 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

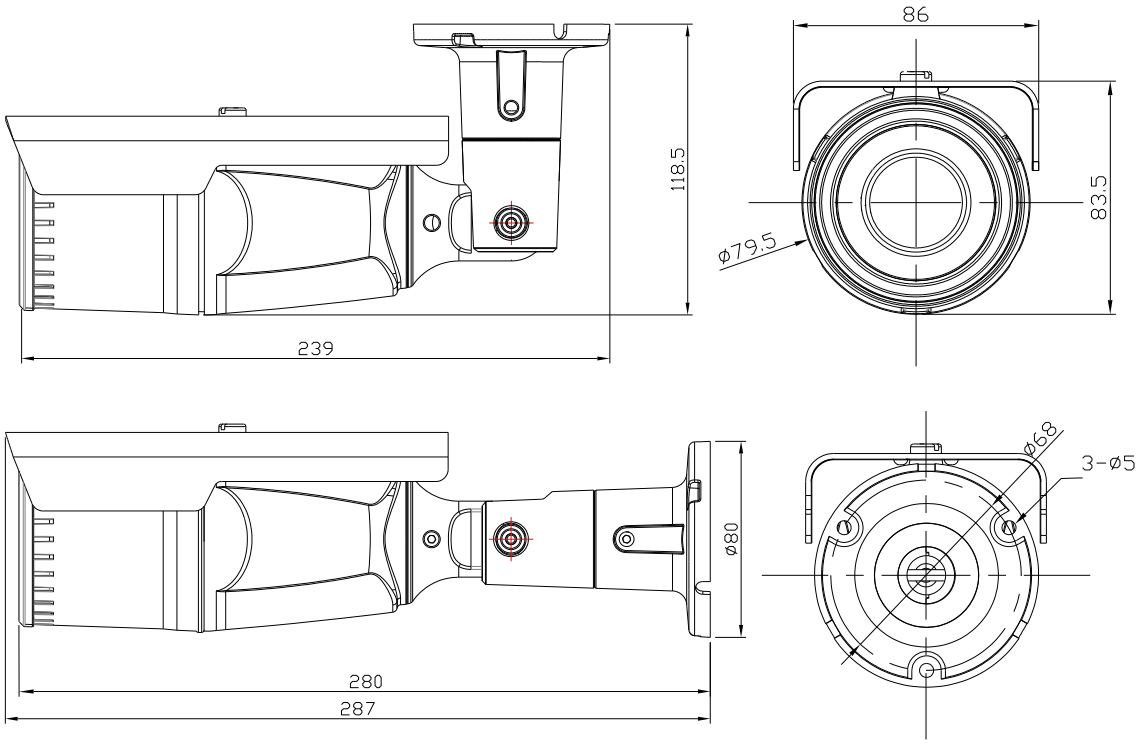
The PoE Property supported by the device is **802.3af**.

Property	802.3af	802.3at
Available Power	12.95 W	25.50 W
Max. Power by PSE	15.40 W	34.20 W
Max. Current	350 mA	600 mA
Recommended Cable	Category 5 and above	Category 5e and above

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.

Hex	Dec	Hex	Dec	Hex	Dec	Hex	Dec	Hex	Dec	Hex	Dec	Hex	Dec
0	0	25	37	4A	74	6F	111	94	148	B9	185	DE	222
1	1	26	38	4B	75	70	112	95	149	BA	186	DF	223
2	2	27	39	4C	76	71	113	96	150	BB	187	E0	224
3	3	28	40	4D	77	72	114	97	151	BC	188	E1	225
4	4	29	41	4E	78	73	115	98	152	BD	189	E2	226
5	5	2A	42	4F	79	74	116	99	153	BE	190	E3	227
6	6	2B	43	50	80	75	117	9A	154	BF	191	E4	228
7	7	2C	44	51	81	76	118	9B	155	C0	192	E5	229
8	8	2D	45	52	82	77	119	9C	156	C1	193	E6	230
9	9	2E	46	53	83	78	120	9D	157	C2	194	E7	231
0A	10	2F	47	54	84	79	121	9E	158	C3	195	E8	232
0B	11	30	48	55	85	7A	122	9F	159	C4	196	E9	233
0C	12	31	49	56	86	7B	123	A0	160	C5	197	EA	234
0D	13	32	50	57	87	7C	124	A1	161	C6	198	EB	235
0E	14	33	51	58	88	7D	125	A2	162	C7	199	EC	236
0F	15	34	52	59	89	7E	126	A3	163	C8	200	ED	237
10	16	35	53	5A	90	7F	127	A4	164	C9	201	EE	238
11	17	36	54	5B	91	80	128	A5	165	CA	202	EF	239
12	18	37	55	5C	92	81	129	A6	166	CB	203	F0	240
13	19	38	56	5D	93	82	130	A7	167	CC	204	F1	241
14	20	39	57	5E	94	83	131	A8	168	CD	205	F2	242
15	21	3A	58	5F	95	84	132	A9	169	CE	206	F3	243
16	22	3B	59	60	96	85	133	AA	170	CF	207	F4	244
17	23	3C	60	61	97	86	134	AB	171	D0	208	F5	245
18	24	3D	61	62	98	87	135	AC	172	D1	209	F6	246
19	25	3E	62	63	99	88	136	AD	173	D2	210	F7	247
1A	26	3F	63	64	100	89	137	AE	174	D3	211	F8	248
1B	27	40	64	65	101	8A	138	AF	175	D4	212	F9	249
1C	28	41	65	66	102	8B	139	B0	176	D5	213	FA	250
1D	29	42	66	67	103	8C	140	B1	177	D6	214	FB	251
1E	30	43	67	68	104	8D	141	B2	178	D7	215	FC	252
1F	31	44	68	69	105	8E	142	B3	179	D8	216	FD	253
20	32	45	69	6A	106	8F	143	B4	180	D9	217	FE	254
21	33	46	70	6B	107	90	144	B5	181	DA	218	FF	255
22	34	47	71	6C	108	91	145	B6	182	DB	219		
23	35	48	72	6D	109	92	146	B7	183	DC	220		
24	36	49	73	6E	110	93	147	B8	184	DD	221		

REVISION HISTORY

MAN#	DATE(M/D/Y)	Comments
11-2013-A	11/12/2013	First release version
01-2014-A	01/15/2014	Added safe mode section
02-2014-A	02/12/2014	Minor update on specification
03-2014-A	03/10/2014	Updated safe mode section
03-2014-B	03/25/2014	Added waterproof band installation on 4. Installation Revised on APPENDIX(B): Power Over Ethernet
03-2014-C	03/31/2014	Correct explanation for PoE