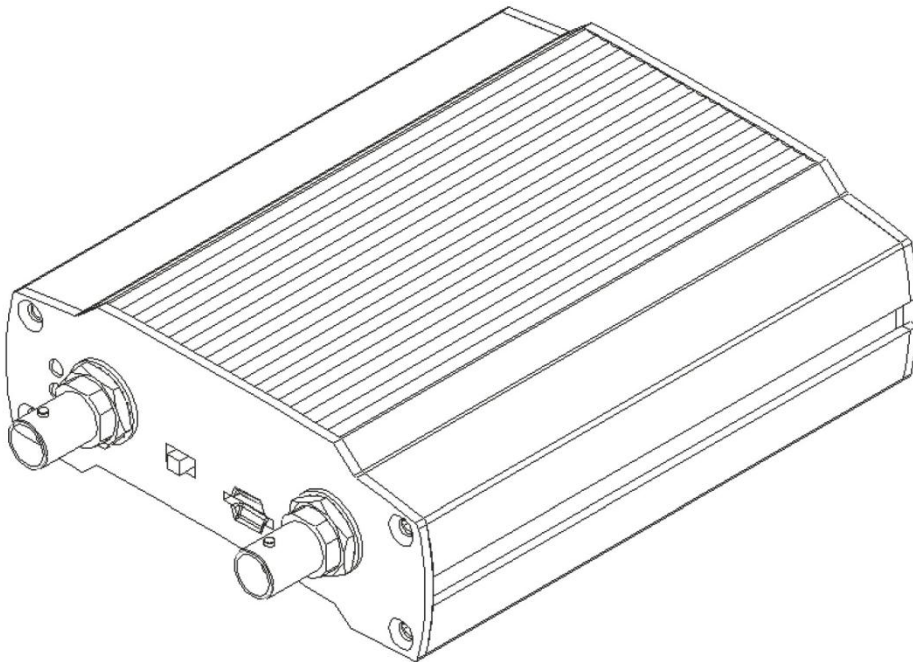# H.264 VIDEO ENCODER

GANZ PixelPro WITH GXi TECHNOLOGY **SERIES**

ZS1-1DS

| 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.

- Do not operate the encoder in environments beyond the specified temperature.
  Refer to "**Environment Condition**" on "*APPENDIX (A) : SPECIFICATIONS*" in this manual.

- Before applying power to the encoder, 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

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

- Video compression: H.264/MJPEG, 25/30FPS@D1(PAL/NTSC)
- Audio compression: G.711(µLaw)
- Analog video out for external monitors
- Video Motion Detection supported
- Two-way mono audio supported

Network

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

Additional Features

- RS-485 supported
- microSD supported
- PoE supported
- Built-in Video Content Analysis
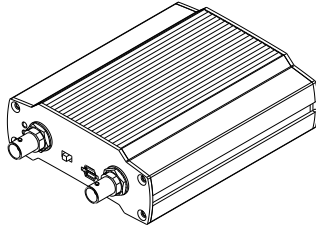- SDK (Software Development Kit) provided

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:

Encoder   **DC power adaptor**
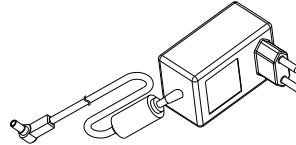
Mounting brackets   **8 Pin terminal blocks**

Screws and anchor blocks   **Quick Installation Guide**

Hex wrench driver   **Jumper Cap**
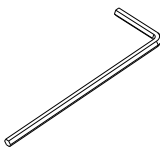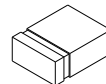
(i) **Note**   The above contents are subject to change without prior notice.

3. PART NAMES

3.1. Front Panel
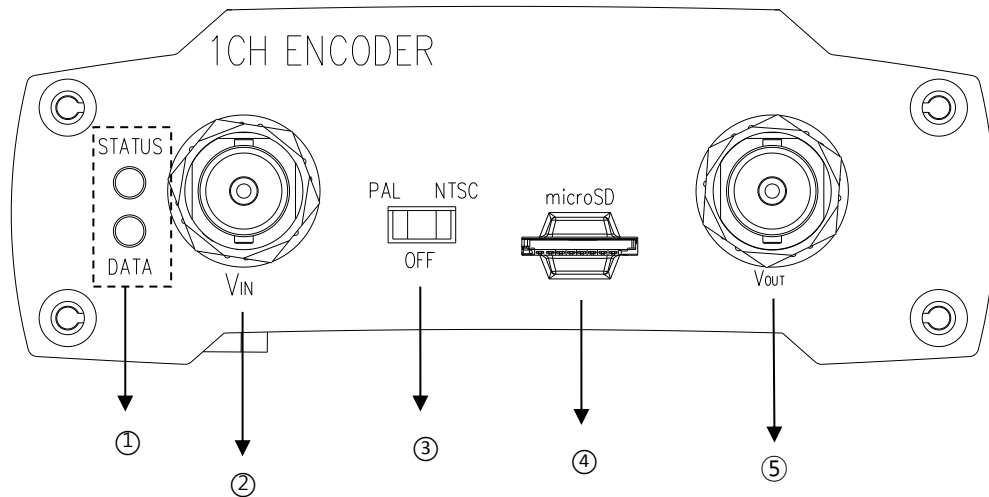
① **System Status LEDs**
They indicate certain system information.

-   **Status:** The LED turns on in orange when the encoder is powered on.
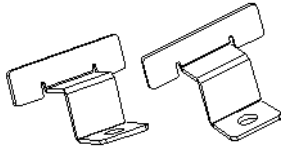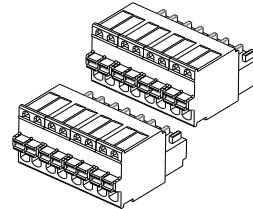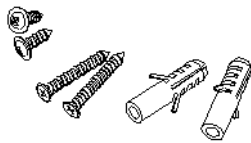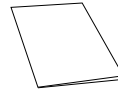-   **Data:** The LED turns on in green when the video signal comes in with a proper connection.

② **Video Input BNC connector**
As a video input connector, connect to a camera.

③ **Video input/output Configuration Switch**
This switch enables video input and output to be turned on or off. No video comes in or out with this switch off and only some test patterns will be displayed on the Webpage. You can change the video standard format of the device by moving the switch to NTSC side or PAL side as required. The device needs to be rebooted after moving the switch in order to apply the change.

④ **microSD slot**
Insert a microSD card for local storage.

⑤ **Loop out BNC connector**
As a loop out connector, connect to a device such as a recorder or monitor.

3.2. Back Panel
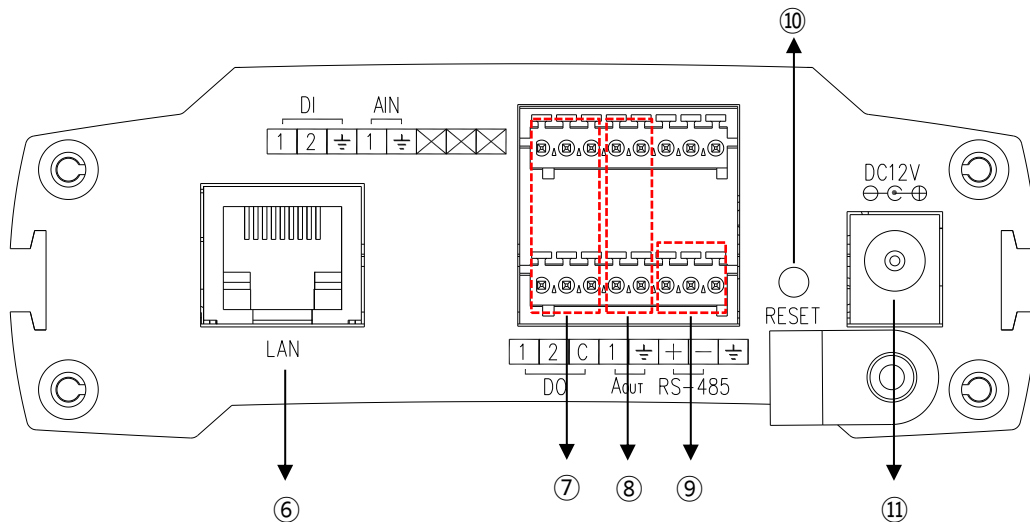
⑥ LAN connector
Use the RJ45 LAN connector for 10/100 Base-T Ethernet. (PoE supported)

⑦ DI/DO
The encoder supports two channels for each of DI and DO. Refer to the section "エラー! 参照元が見つかりません。" for more specific information.

⑧ Audio In/Out
The encoder has one channel mono audio input/output. As the output power for the audio is low, an amplifier speaker is needed.

⑨ RS-485
RS-485 terminal block is used for PTZ controls.

⑩ Reset
Reboot the device system or reset the device to its Factory default settings. Refer to the section **"6.3 Reset"** and **"6.4 Factory default"** for more specific information.

⑪ Power connector
Connect the power adaptor for power supply.

4. INSTALLATION

To wall-mount the encoder, follow this instruction:

The encoder has one mounting hole on each side. Mount the device using the included screws and anchor blocks. Refer to the image below.
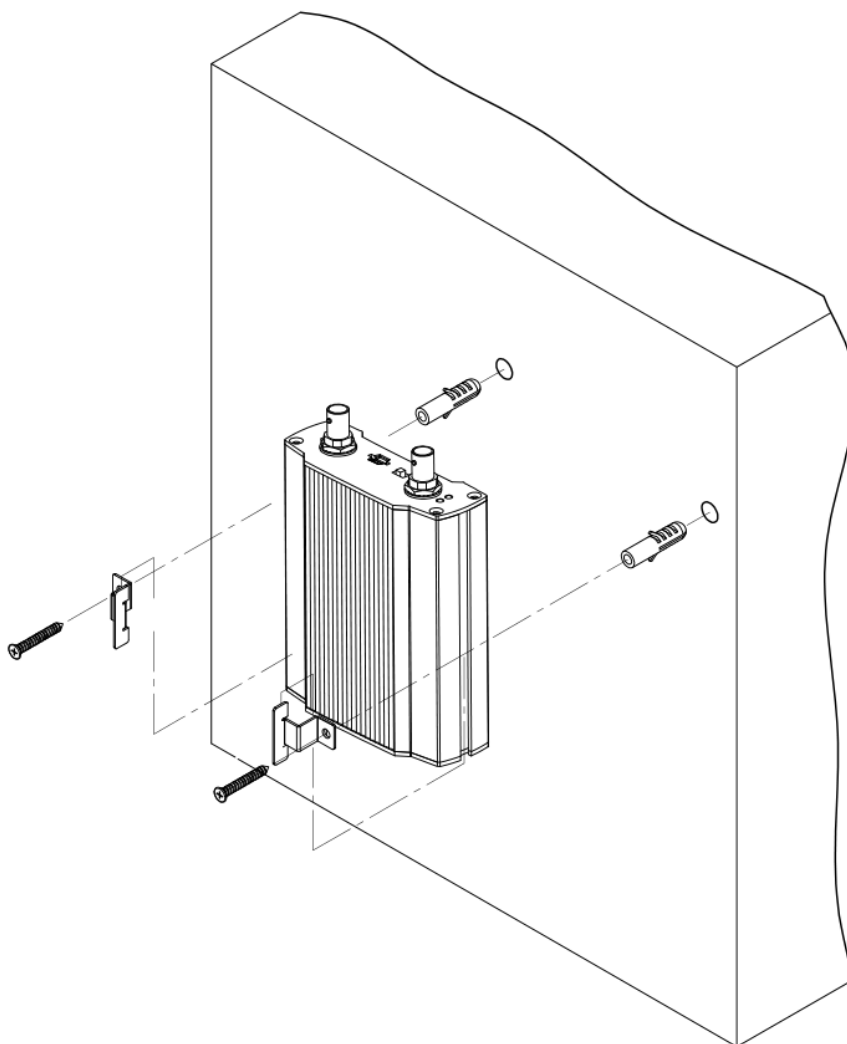
5. CONNECTIONS

Video connection

Connect the camera to the **Video input BNC connector** on the back panel using 75 ohm video coaxial cable with a BNC connector. Video channel input can be looped to other equipment as CRT monitor through **Loop out BNC connector**.

> **i**
> **Note**
>
> Confirm to setting of **Video input/output configuration switch** before you turn on the encoder.

Audio connection

Connect to the audio input device such as a Mic.

Aout ——————— | Speaker |

Ain ——————— | Mic |
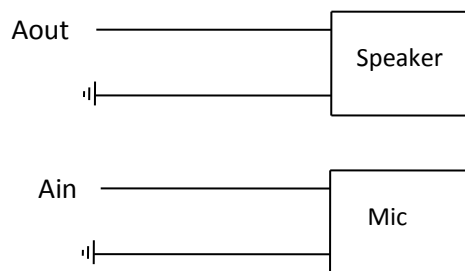
Sensor Input (DI)
There are two sensor interface types – Voltage Type and Relay Type. The interface type can be controlled by web user interface.
Refer to the provided "**PixelPro GXi series Web Page User's Manual"** for more details.

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
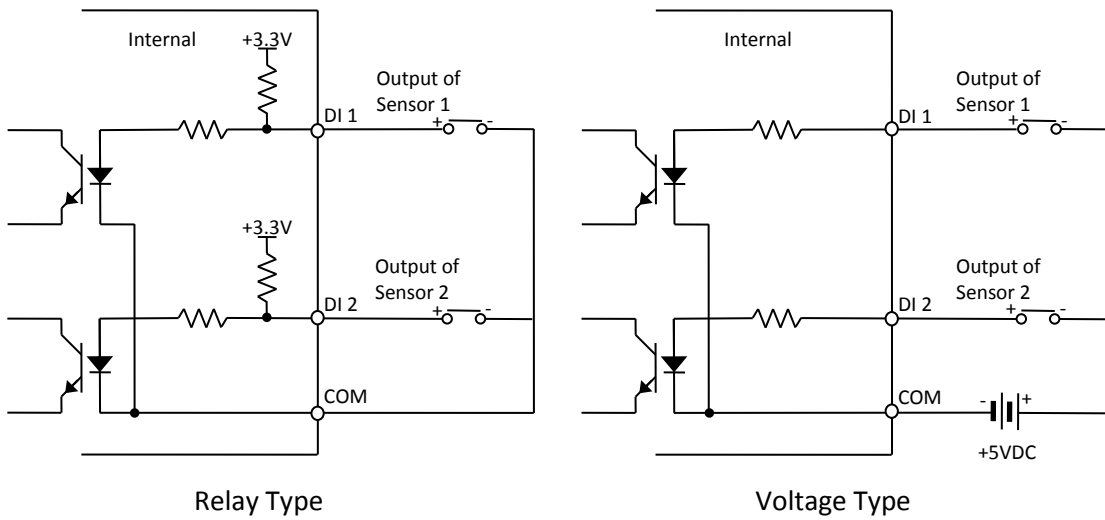
Signal	Description
COM	Connect (-) cable of electronic power source for sensors to this port as shown in the circuit above.
D1~D2	Connect output of sensors for each port as shown in the circuit above.

⚠ **Caution**	Do not exceed the maximum input voltage or relay rate. Do not use voltage and relay type sensor together.

Alarm Output (DO)
Only the relay type is supported.
Relay Rating: Max 24VDC 50mA

⚠ **Caution**   Do not exceed the maximum relay rating.

Relay Type

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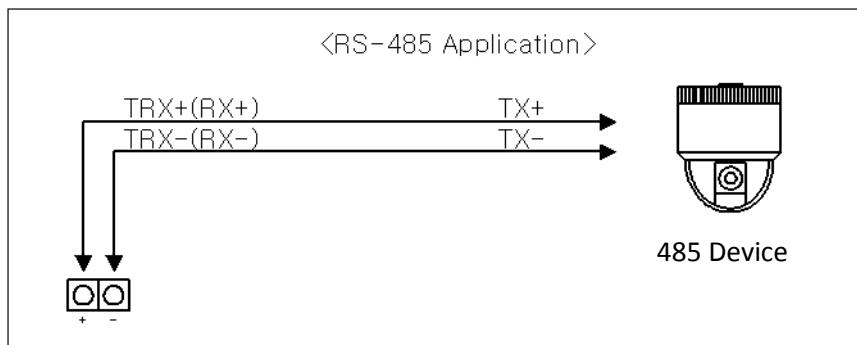
RS-485 Connection

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 area network before running the installation.

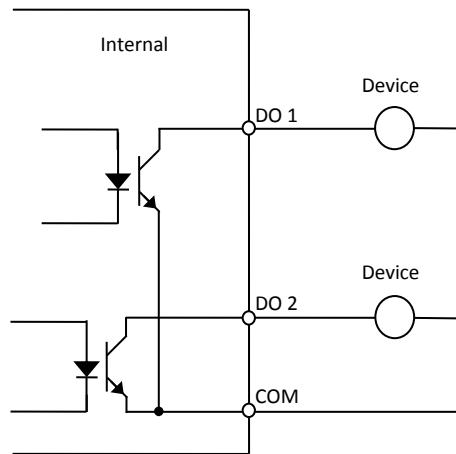IP address   : **192.168.xxx.xxx**
Subnet mask: **255.255.0.0**
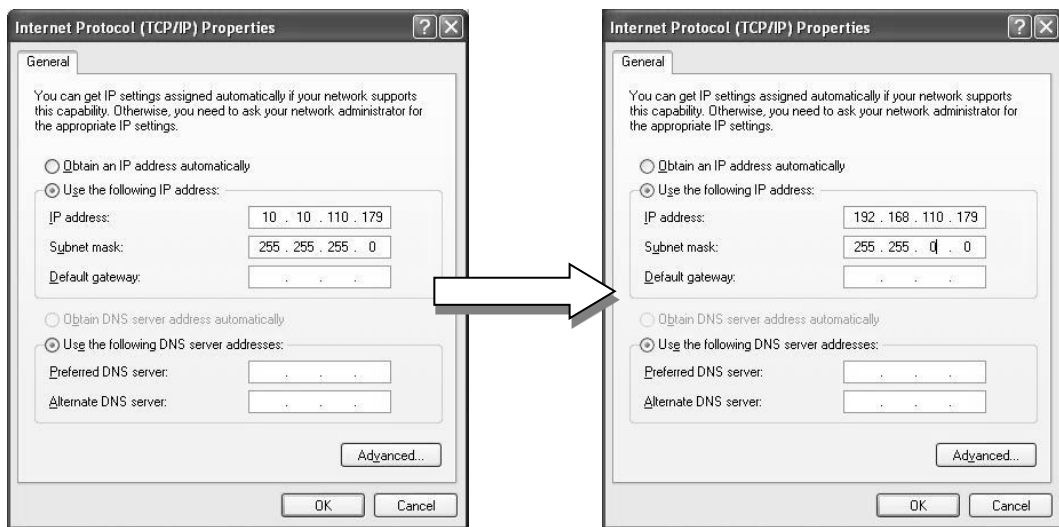
6.1.1. Generic IP Environment

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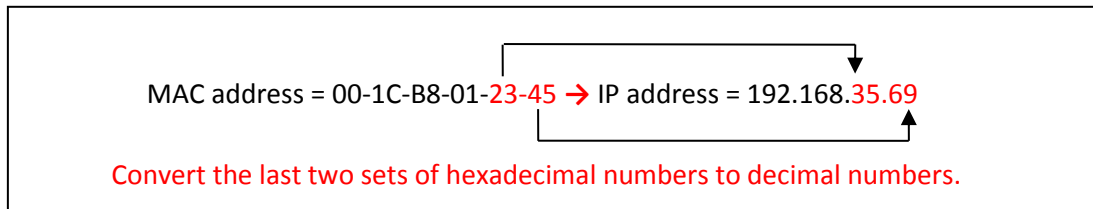
2. Start the Microsoft® Internet Explorer web browser and enter the address of the device.

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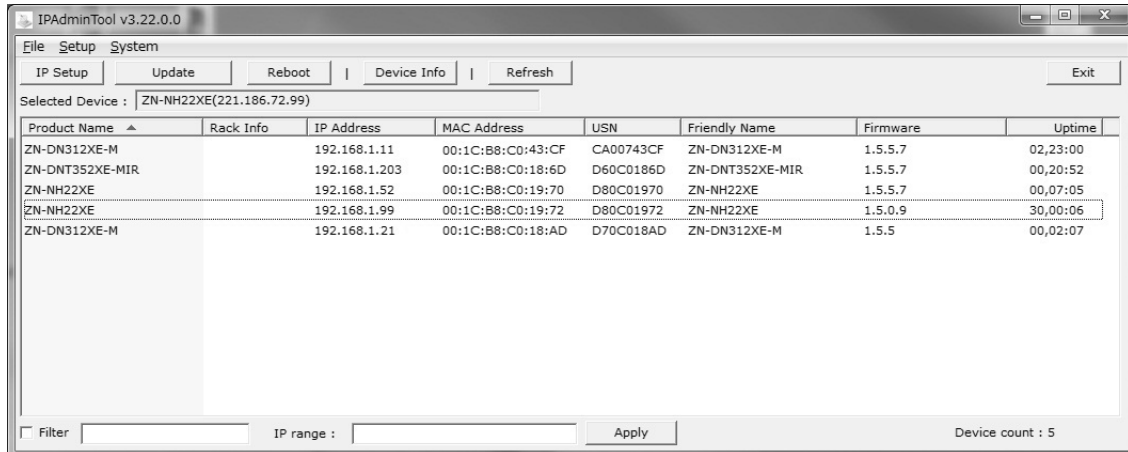
To modify the device's default IP address for customized network area;

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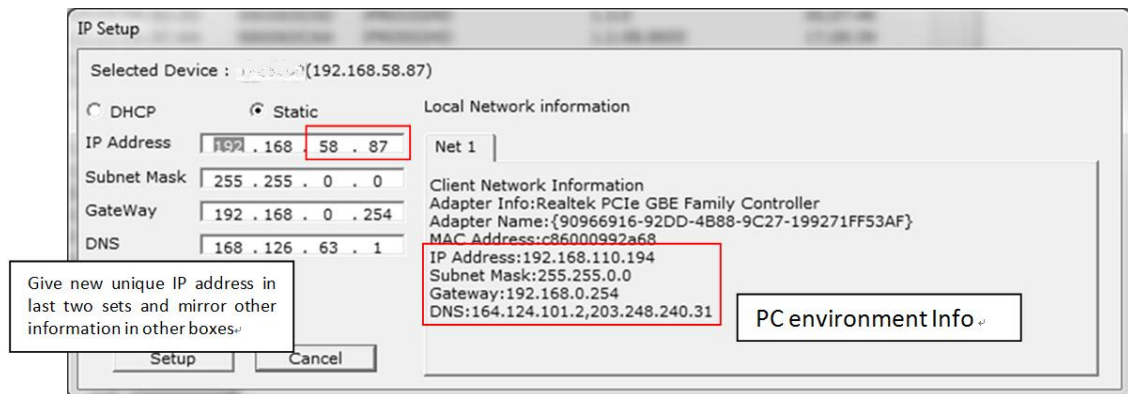
3. In the IP Setup's window, information under **'Local Network information'** displays the user/PC's network area information. Those information need to be incorporated to the IP Address, Subnet Mask, Gateway, and DNS boxes, except the last 2 sets of IP Address, which are to be the unique numbers for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

This website wants to install the following add-on: 'AxUMF.cab' from 'Cap Co'.   What's the risk?   Install   ×

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

Internet Explorer - Security Warning

Do you want to install this software?

    Name: AxUMF.cab
    Publisher: Cap Co

More options   Install   Don't Install

While files from the Internet can be useful, this file type can potentially harm your computer. Only install software from publishers you trust. What's the risk?

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

> **i**
> **Note**
>
> Depends 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. Access through 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 "W**eb view"**
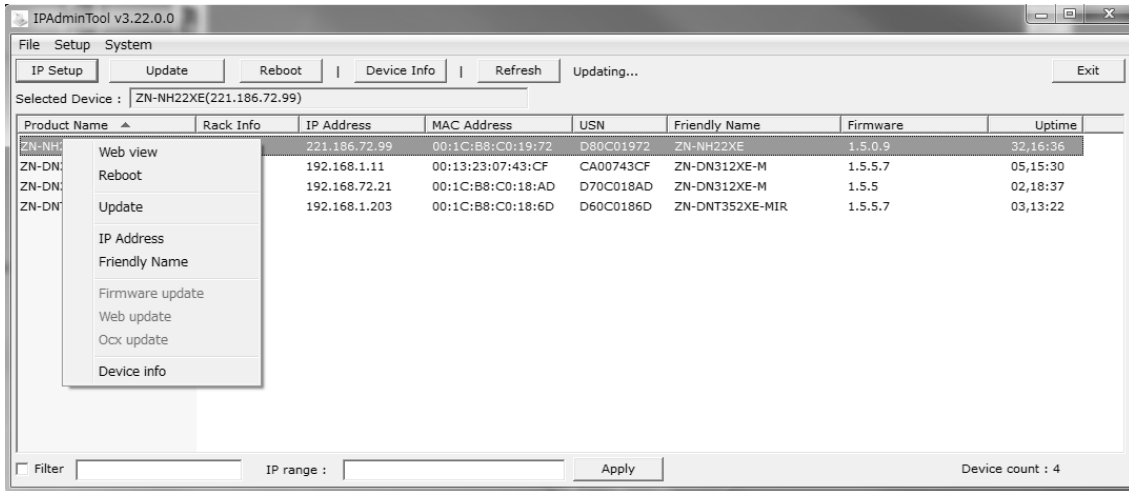
3. The system's default web browser opens the device's address.

⚠ **Caution**	Whether directly accessing the streaming video through 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. Reset

1.   While the device is in use, press the Reset button.
2.   Wait for the system to reboot.
3.

| ⚠ **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:

To proceed back to the Factory Default reset:
1.   Press the reset button and hold.
2.   Release the button after 10 seconds.
3.   Wait for the system to reboot.

	The factory default settings can be inferred as follows:
ⓘ Note	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.

> **i** **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.

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

i **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

Video	
Input	1 channel
Output	1 channel (Loop Out, BNC connector)
Compression Format	H.264, MJPEG Selectable per Stream
Number of Streams	Dual Stream, Configurable
Resolution	D1, 4CIF, 2CIF, VGA, CIF, QCIF, QVGA
Compression FPS	25/30 fps@D1 (PAL/NTSC)
Deinterlacing	Supported (DSP)
Motion Detection	Supported (DSP)
Burnt-in Text (Digital)	Supported (DSP)
Audio	
Input/output	1 channel / 1 channel
Compression Format	G.711
Function	
Digital Input/output	2 channel / 2 channel
RS-485	1 channel
Network	10/100 Base-T
Power Over Ethernet	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 (up to 64GB) ※ microSD Card is not included (Recommend Class 4 and higher for HD recordings)

Electrical Characteristics

Video Input	1Vp-p, 75Ω
Video Output	1Vp-p, 75Ω
Audio Input	Mic-in, 0.178Vp-p, 10KΩ
Audio Output	Line out, 2.26Vp-p , 10KΩ
Sensor(D/I)	Max 50mA@5VDC
Alarm(D/O)	Max 50mA@24VDC On-state resistance: 50 Ω (max continuous)
Power Source Consumption(Approx)	12VDC, PoE IEEE802.3af 3W @ 12VDC

Environment Condition

Operating Temperature	0 ºC ~ 50 ºC (32ºF ~ 122 ºF)
Operating Humidity	Up to 85% RH

Mechanical Condition

Dimension	103.4(W)mm x 37.7(H) mmx 140.7(D) mm
Weight (Approx)	430g

* 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.

i 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

i Note	Disconnecting PoE does not reboot the device as long as a power adaptor is connected.

APPENDIX (C): DIMENSIONS
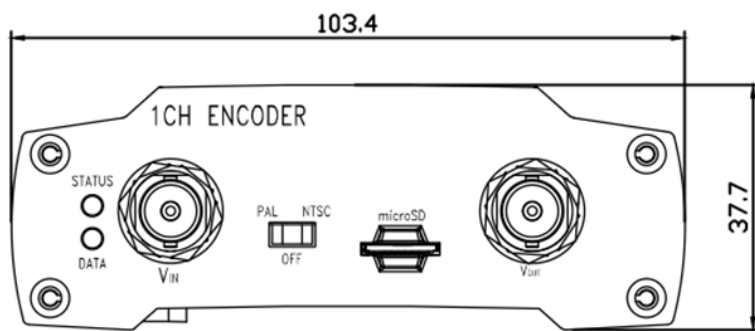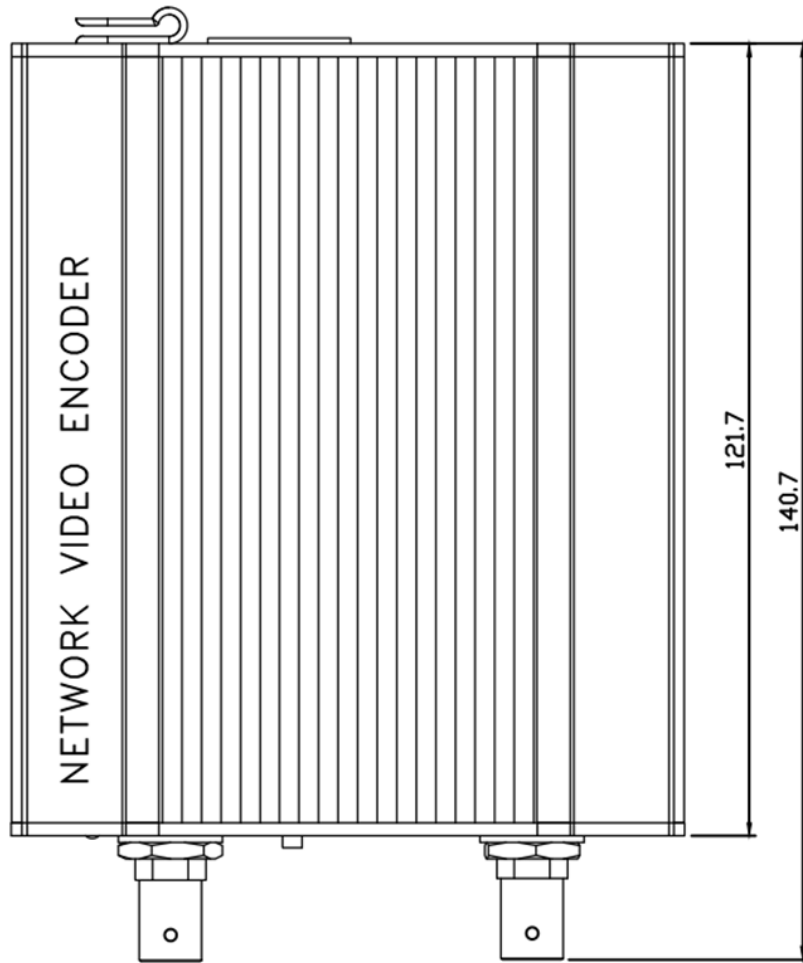
(Unit: mm)

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
00	0	25	37	4A	74	6F	111	94	148	B9	185	DE	222
01	1	26	38	4B	75	70	112	95	149	BA	186	DF	223
02	2	27	39	4C	76	71	113	96	150	BB	187	E0	224
03	3	28	40	4D	77	72	114	97	151	BC	188	E1	225
04	4	29	41	4E	78	73	115	98	152	BD	189	E2	226
05	5	2A	42	4F	79	74	116	99	153	BE	190	E3	227
06	6	2B	43	50	80	75	117	9A	154	BF	191	E4	228
07	7	2C	44	51	81	76	118	9B	155	C0	192	E5	229
08	8	2D	45	52	82	77	119	9C	156	C1	193	E6	230
09	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
01A.01	11/12/2013	Created.
03-2014-A	03/31/2014	Correct explanation for PoE