H.264 FULL HD NETWORK INDOOR DOME
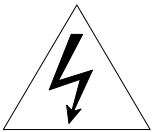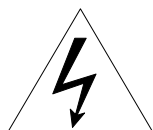
ZN-DN312XE-M

Installation Manual

GANZ®

INFORMATION TO USER

CAUTION
RISK OF ELECTRIC SHOCK,
DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
CONTACT QUALIFIED SERVICE PERSONNEL FOR INTERNAL PARTS.

This symbol is intended to alert the user the presence of un-insulated "dangerous voltage" within the product's enclosure, which may be sufficient magnitude to constitute an electric shock risk to persons.
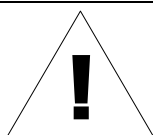
This symbol is intended to alert the user the presence of important operating and maintenance (servicing) instructions within the guide manual.

Table of Contents

1. FEATURES

Camera

- Full HD indoor dome IP camera (Vandal proof)
- High quality compression in real time streaming
- 1/2.7" High Quality CMOS Image Sensor
- True Day / Night (ICR) and WDR
- Improved color rolling suppression

Streaming

- Dual streaming mode
- De-interlacing on DSP
- Burnt-in text
- Unicast/Multicast

Video/Audio

- Video compression: H.264, MJPEG, 25/30FPS@1080p(PAL/NTSC)
- Audio compression: G.711(µLaw, aLaw)/PCM
- Analog video out for external monitors
- Video motion detection
- Two-way mono audio

Network

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

Additional Features

- Micro SD card
- PoE supported
- Built-in Video Content Analysis
- Internal fan
- SDK (Software Development Kit) provided

2. PACKAGE CONTENTS

The package contains main camera, DC power adaptor, DC jack cable, 9-pin and 2-pin terminal blocks, video-out cable, screws, anchors, hex wrench driver, and clamping cores. Unpack carefully and handle the equipment with care.

Camera
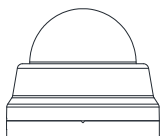
DC power adaptor
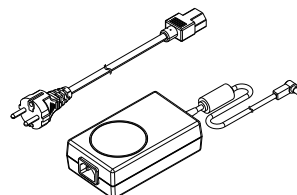
DC Jack Cable

9-pin and 2-pin terminal block
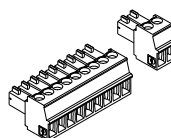
Video out cable
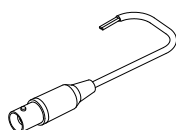
Screws and anchors

Quick installation guide
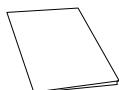
Hex wrench driver
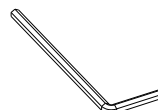
Clamping core
To prevent electromagnetic interference

i

Note

The above contents are subject to change without prior notice.

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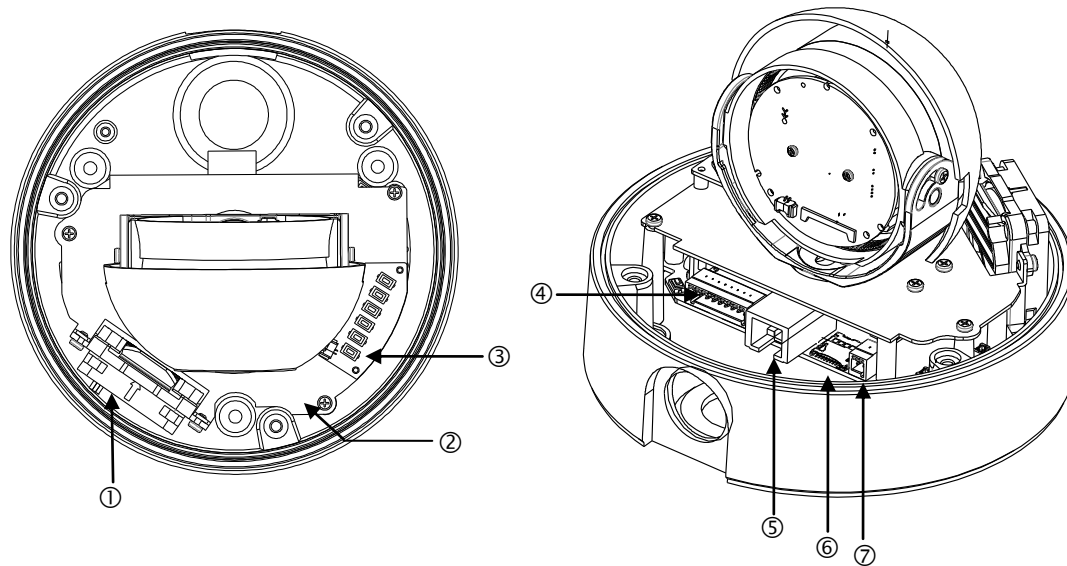
* Models herein and their appearance are subject to change without any prior notice.

① Fan
The fan and heater (underneath the black panel) are equipped dehumidify and extract heat from internal parts.

② Reset button
The reset button can be used for restarting the device or resetting back to Factory Default. Refer to *6.3. Reset* and *6.4. Factory Default* for more details. Reset button is located under PCB.

③ Visual standard output configuration switch
The first switch (SW1) sets the visual standard output fsystem. Pressing this button converts the video output standard to NTSC, PAL, or Off.

④ Video output, audio and IO terminal connector
A 9-pin terminal block is included in the device package. Connect this terminal block into this connector for cable connection of video output, audio input/output, and digital input/output. Refer to *5.1. Connector* for more details.

⑤ LAN connector
This is a RJ45 LAN connector for 10/100 Base-T Ethernet.

⑥ Micro SD card slot
It is a memory card slot for external storage.

⑦ Power Adaptor Connector (DC 12V)
The camera requires a DC 12V 1A power adapter.

4. INSTALLATION
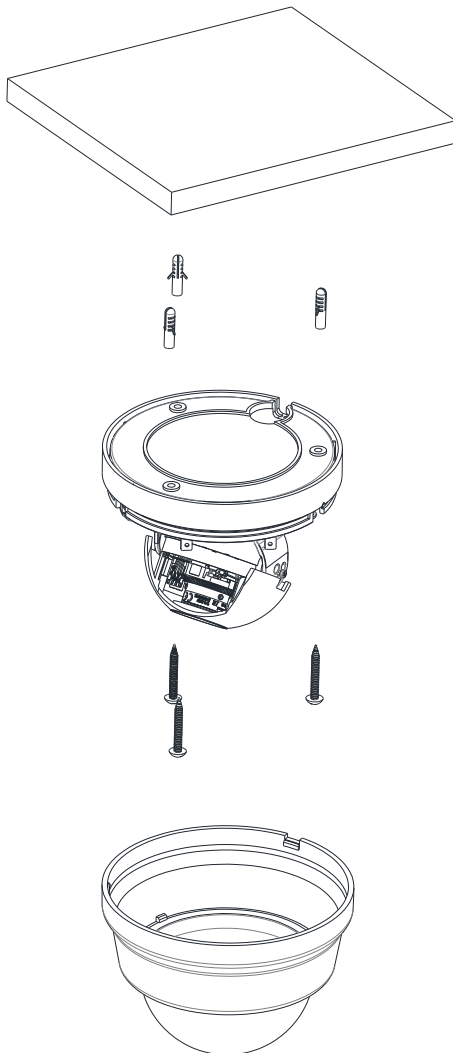
1) Place the installation template (paper) that is included in the package on the desired installation surface.

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

3) Place the camera body and match three alignment holes with three anchor blocks. Fasten the camera with screws.

4) Connect all the required cables to the camera.

5) Adjust the lens position. Detailed information can be found in *4.2. Setting the Lens Position*.

6) Place the dome cover on the main body of the camera. Dome cover has three alignment holes that match camera body's alignment holes.

7) Once properly placed, insert alignment screws into the three holes of the body and fasten them up.

! Caution

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

4.1. Installation Template
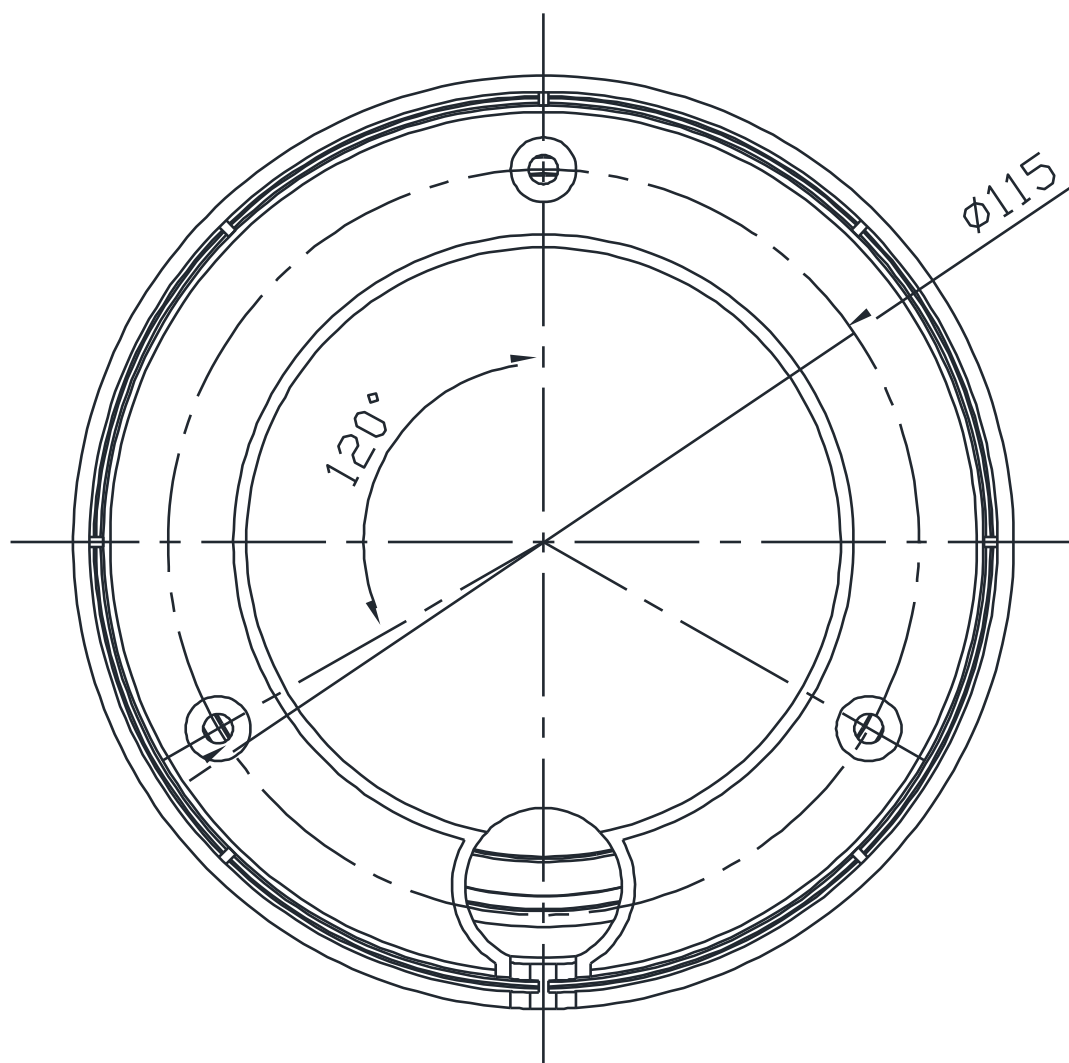
⚠️ **Caution**

Installation template image's size scale in this installation guide is not 1:1.
The correct-size template design paper can be found inside the package separately.

4.2. Setting the Lens Position

Instruction below describes how to set the lens positions and manually adjust zoom and focus.

1) Remove the dome cover.
2) Adjust the lens to the desired position by manually moving its reinforced body, upper lens shell, or horizontal platform in the following directions.
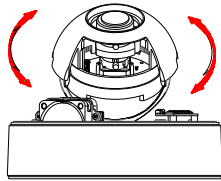
| A. Rotate the lens with upper lens shell | B. Pan the lens with reinforced lower body | C. Tilt the lens with horizontal platform |
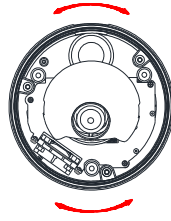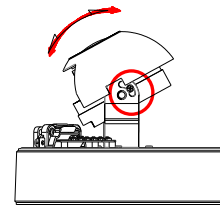
Connect to the web page of the device to see its real-time image. Refer to *step 6. Configuration* for details about using its web page.

3) Configure each setting of 6 switches as below.

SW1	SW2	SW3
PAL/NTSC	TELE	WIDE
SW4	SW5	SW6
FAR	NEAR	Auto-Focus

4.3. Setting the Image Attribute

Through the camera's webpage, users can configure image settings.
The camera image's brightness, contrast, saturation and sharpness are adjustable through the image settings. (**Setup > Video & Audio > Camera)**.

5. CONNECTIONS
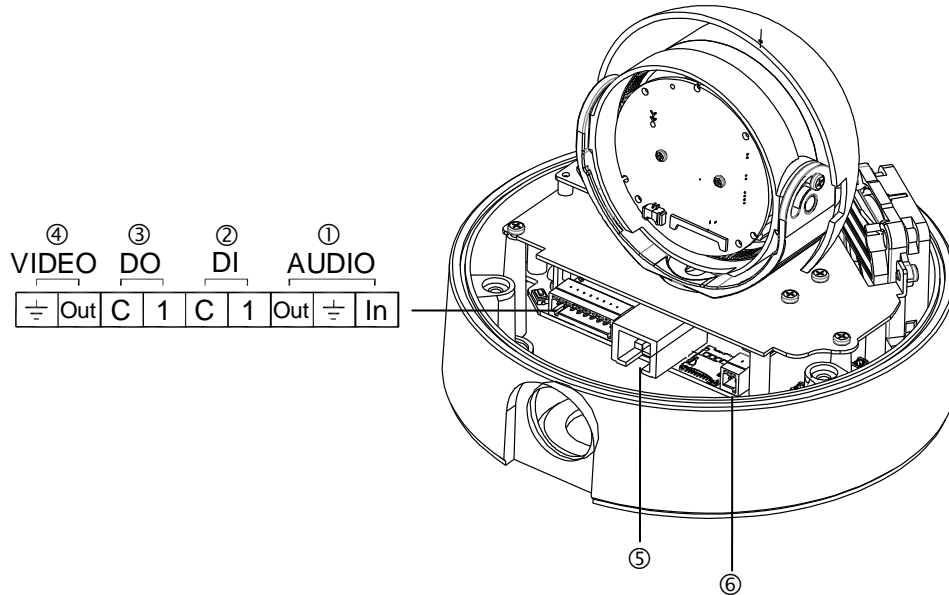
① Audio input/output

The camera has a mono audio input and a mono audio output. Due to low audio output power, an amplified speaker is recommended for enhanced sound (Do not connect a headphone or earphone directly to the camera).
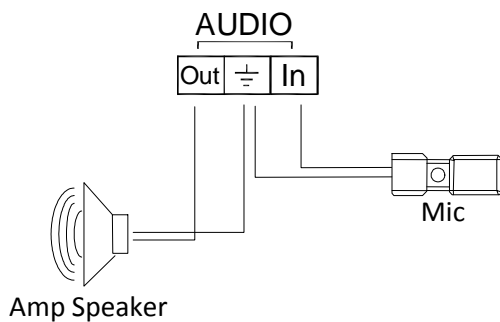
② Analog video output connection

Connect a display device (such as a monitor) to the video output connector and check if the camera is properly streaming the images.

③ Sensor (DI) connection

The camera provides 1 channel D/I. It can be connected to either a voltage type sensor or a relay type sensor as the following figures. Settings can be done through the camera's webpage.

Input voltage range: 0VDC minimum to 5VDC maximum, Max 50mA
Input voltage threshold: 1.5V

⚠ **Caution**   Do not exceed the maximum input voltage or relay rate.
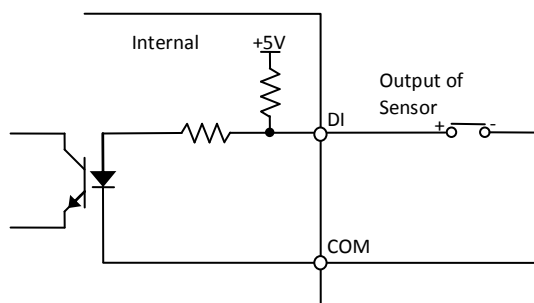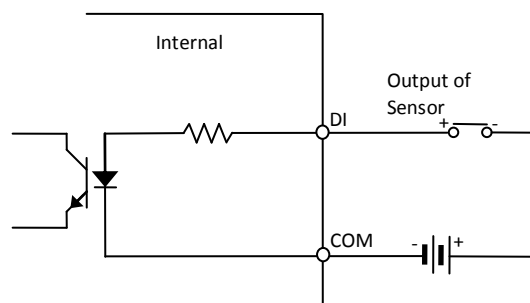
Relay Type   Voltage Type

④ **Alarm (DO) connection**
Only the relay type is supported.
Relay Rating: Max 24VDC 50mA

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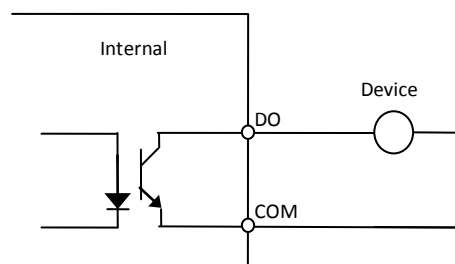
Relay Type

⑤ LAN connection
This is a RJ45 LAN connector for 10/100 Base-T Ethernet. Connect a LAN cable.

LED   LED
Green Orange
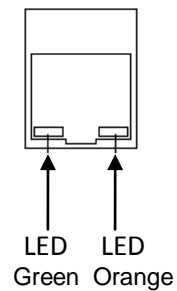
When the device is powered-on, both LEDs blink for a second. Then the orange LED turns on initially for a while, and eventually green LED turns on when the device is ready.

⑥ 12V DC Power
A 12 DC power connector is required for this device.

12V

Black   Red
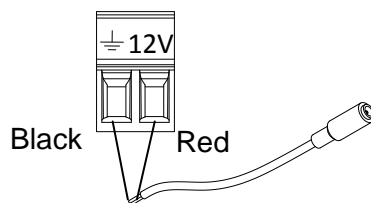
6. CONFIGURATION

6.1.Set up network environment

The default IP address of your IP device is 192.168.XXX.XXX. Users can identify the IP address of the device from converting the MAC address' hexadecimal numbers, which is attached to the device. Please make sure the device and the PC are on the same area network before running the installation. If the area network between the PC and the device is different, change the PC's settings as described below.

IP address   : **192.168.xxx.xxx**
Subnet mask: **255.255.0.0**
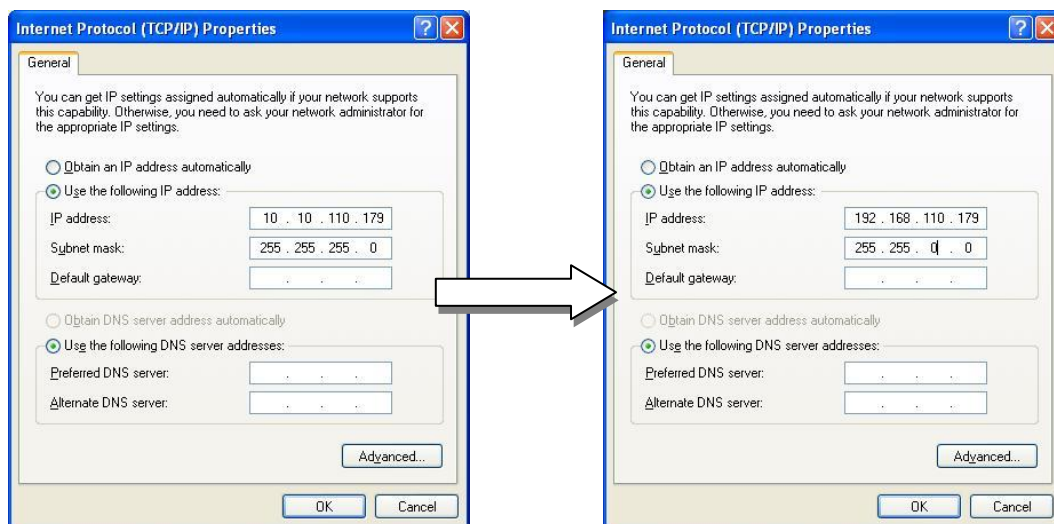
6.2. View video on web page

By accessing the IP address of the device through a web browser, users can view the live streaming images. Users also may use the IPAdminTool to access the webpage of streaming images

6.2.1. View video using IPAdmin Tool

IPAdminTool automatically scans all of the products including encoders and cameras on the network and displays product's information, including product name, IP address, MAC address, firmware information, and devices' uptime. IPAdminTool is provided with SDK at the following SDK path.

{SDK root}\BIN\TOOLS\AdminTool\

To use the IPAdminTool and view the live video on a web page:

1. Start IPAdminTool. Currently connected devices' names and status appear on the list.
2. Right-click on the desired device and select **Web view**.
3. When the dialog box appears to request user name and password, enter the default value for the administrator account (case-sensitive) as below:
   ID: *root*
   Password: *pass*
4. Click the installation warning message on the view page and click the Install button in the warning message box. If the page does not respond after the installation, refresh the page.

5. Install the setup.exe file by clicking the link shown on the main page.

6. Follow the instructions of the dialog boxes and complete the installation.

7. When the dialog box appears to request user name and password, enter the default value for the administrator account (case-sensitive) as below:
ID: root
Password: pass
8. Refresh the page and check if the live streaming images are successfully displayed on a monitor.

6.2.2.View video using IP address

Users may view the live streaming images on a web page using the device's IP address. To have the correct IP address ready and access through a web page:
1. Convert a MAC address to an IP address check the IP address on the IPAdminTool. Refer to *Appendix (D). Hexadecimal-Decimal Conversion Table*.

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

MAC address = 00-13-23-01-**14**-**B1** → IP address = 192.168.**20**.**177**

the Hexadecimal number to Decimal number.
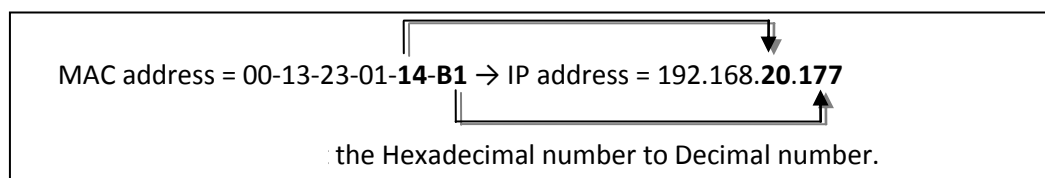
2. Open a web browser and enter the IP address of the device.
3. Grant the Security Certificate Alert and install the ActiveX if those have not been completed yet. .
4. Wait for a few seconds while the web page loads. The live streaming image is displayed.

6.3. Reset

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

6.4. Factory Default

1. Press reset button and hold.
2. Release the Reset button after LED blinks for 5 seconds.
3. Wait for the system to reboot.

The factory default settings are described as below:

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		
CMOS	Image Sensor	1/2.7" 1080p CMOS
	Effective Pixels	1920x1080
	Scanning system	Progressive scanning
ELECTRICAL	Resolution	1920 x 1080
	Min. Illumination	Color: 1.0 lux, F1.2 BW: 0.001 lux, F1.2
	AGC Control	Auto
Lens		3.0~9.0mm Vari-Focal F1.2 Remote Zoom / Focus Control (One-click AF)
Day & Night		Removal IR Cut Filter
Video		
Compression Format		H.264 and MJPEG Selectable per Stream
Number of Streams		Dual Stream, Configurable
Resolution		1920x1080, 1280x720, 800x450, 480x270, 320x180
Compression FPS		25/30fps@1080p
Motion Detection		Built-in
Burnt-in Text (Digital)		Video stream overlay text
Output		Analog video output for installation only
Audio		
Input/output		1/1 channel
Compression Format		G.711
Function		
Digital Input/output		1/1 channel
RS-485		Not supported
Network		10/100 Base-T
Power over Ethernet (PoE)		Supported
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, SNMP v2/v3
SD Slot		1 Micro SD slot ※ Micro SD Card is not included

Electrical Characteristics

Power Source	DC 12V / PoE IEEE802.3af (Class 0)
Power Consumption	1100mA (Heater On)
Video Output	1 Vp-p, 75Ω, Composite
Audio Input	Linein, 1.43Vp-p(Min 1.35Vp-p, max 1.49 Vp-p), 39 KΩ
Audio Output	Lineout, 46mW Power, 16 Ω
D/I	Max 50mA@5VDC, TTL level 4.5V threshold
D/O	Max 500mA@24VAC or 1A@12VDC On-state resistance: 50 Ω (max continuous)

Environment Condition

Operating Temperature	Operating Range DC12V : 0˚C ~ 50˚C (32˚F ~ 122˚F) PoE : 0 ˚C ~ 50 ˚C (32˚F ~ 122˚F)
Operating Humidity	Up to 85% RH

Mechanical Condition

Material	Plastic (ABS)
Color	Ivory
Dimension	Housing : 144 (Ø) x 121(H) mm Dome : 100(Ø) mm
Weight (Approx)	520g

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. The IEEE 802.3af-2003 standard allows up to 15.4 W power to device. However, 12.95W is the maximum available power, as some power gets lost in the cable.

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

The device's power consumption is 5.28 W or 5.40W when the fan is on.

Note: For proper activation of 12V PoE, the Category 5 cable must be shorter than 140m and conform the PoE standard.

PoE compatibility

With non Power Sourcing Equipment (PSE)
When it is connected with non-PSE, the power adaptor should be used.

With power adaptor
Connecting both PSE and power adaptor do not cause any harms 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

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APPENDIX (C): DIMENSIONS

(Unit: mm)

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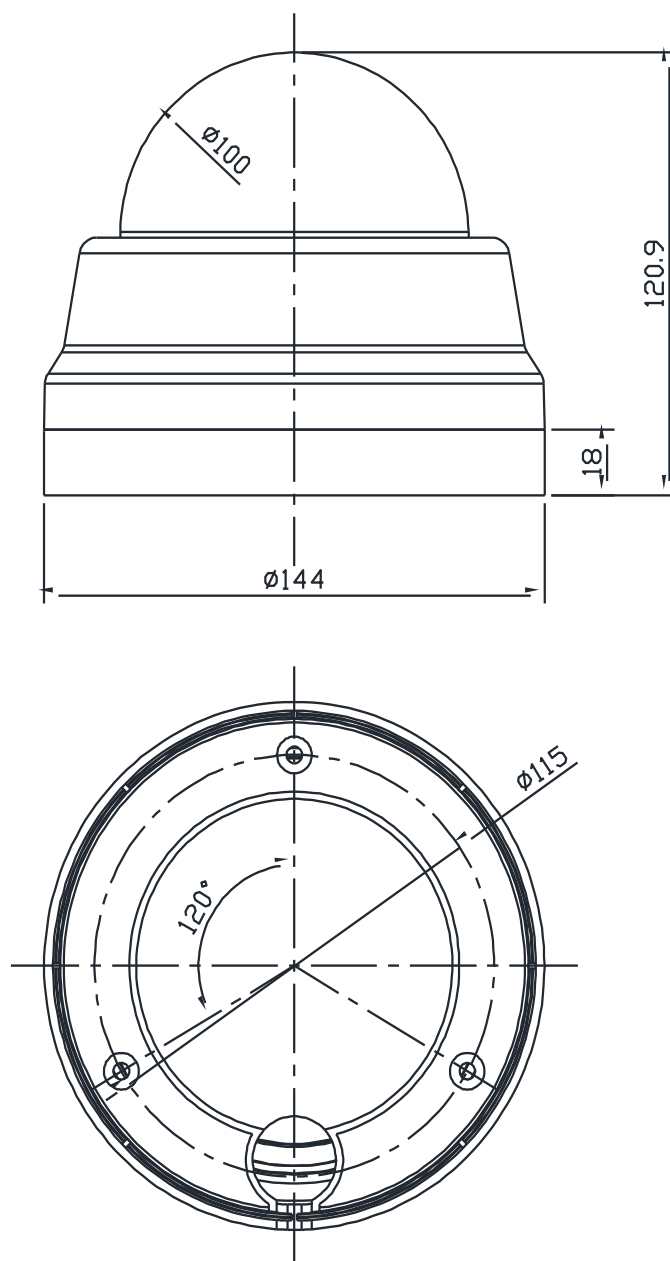
APPENDIX (D): HEXADECIMAL-DECIMAL CONVERSION TABLE

Refer to the following table when converting the MAC address of the device to the 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		

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REVISION HISTORY

MAN#	DATE(M/D/Y)	Comments
01A.01	05/24/2012	First release version