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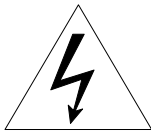
# ZN-DN312XE-M

## Installation Manual

GANZ®

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# 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**
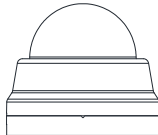
**DC power adaptor**
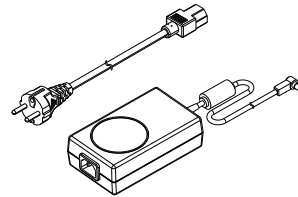
**DC Jack Cable**

**9-pin and 2-pin terminal block**
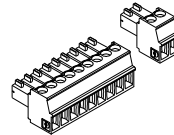
**Video out cable**

**Screws and anchors**

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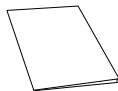
**Hex wrench driver**
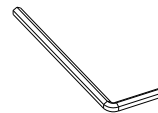
**Clamping core**
To prevent electromagnetic interference

**Note**

The above contents are subject to change without prior notice.

# 3. PART NAMES
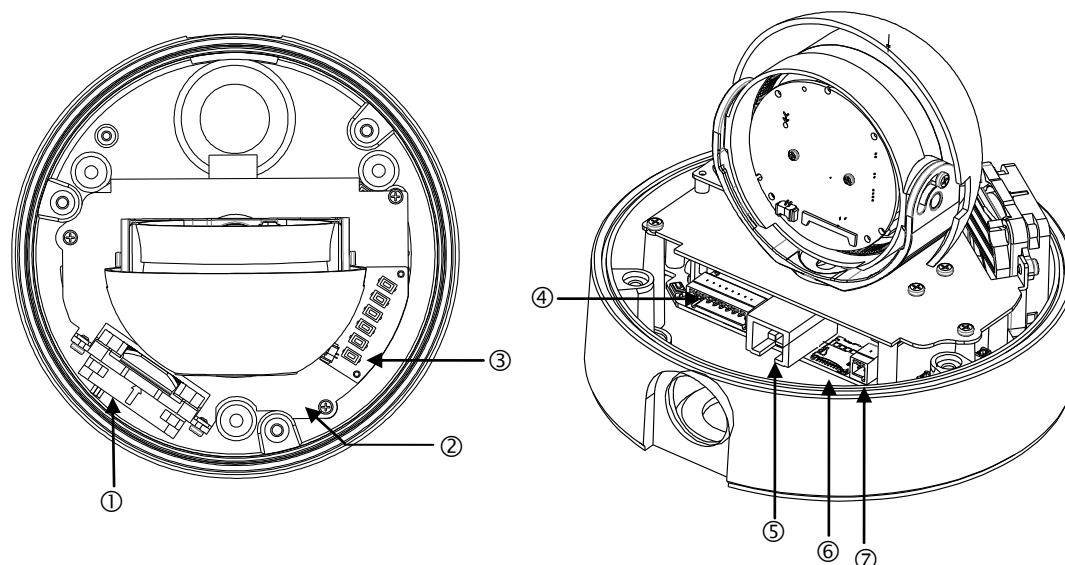


* Models herein and their appearance are subject to change without any prior notice.

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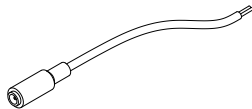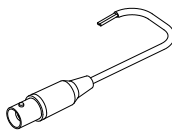The fan and heater (underneath the black panel) are equipped dehumidify and extract heat from internal parts.

**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.

## 4.1. Installation Template
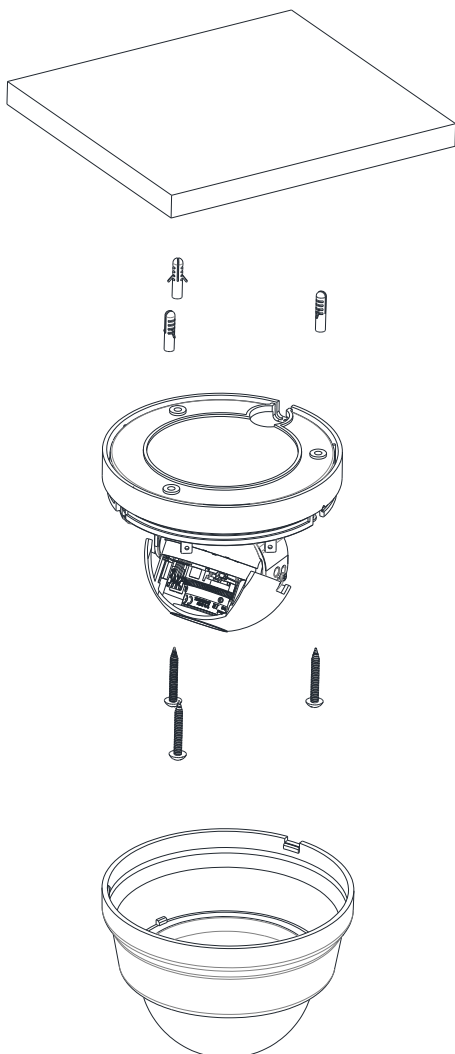


⚠️ **Caution**

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.
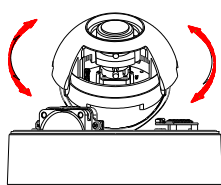


|  |  |  |
|---|---|---|
| A. Rotate the lens with upper lens shell | B. Pan the lens with reinforced lower body | C. Tilt the lens with horizontal platform |
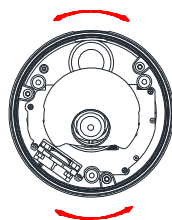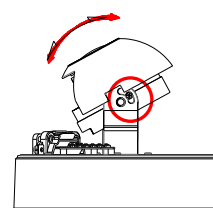
Connect to the web page of the device to see its real-time image. Refer to *step 6. Configuration* for details about using its web page.

3) Configure each setting of 6 switches as below.
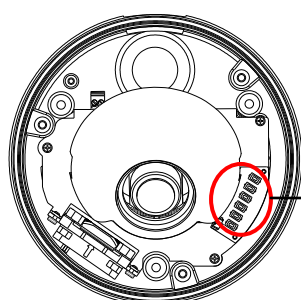


B. Pan the lens with reinforced lower body

| 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
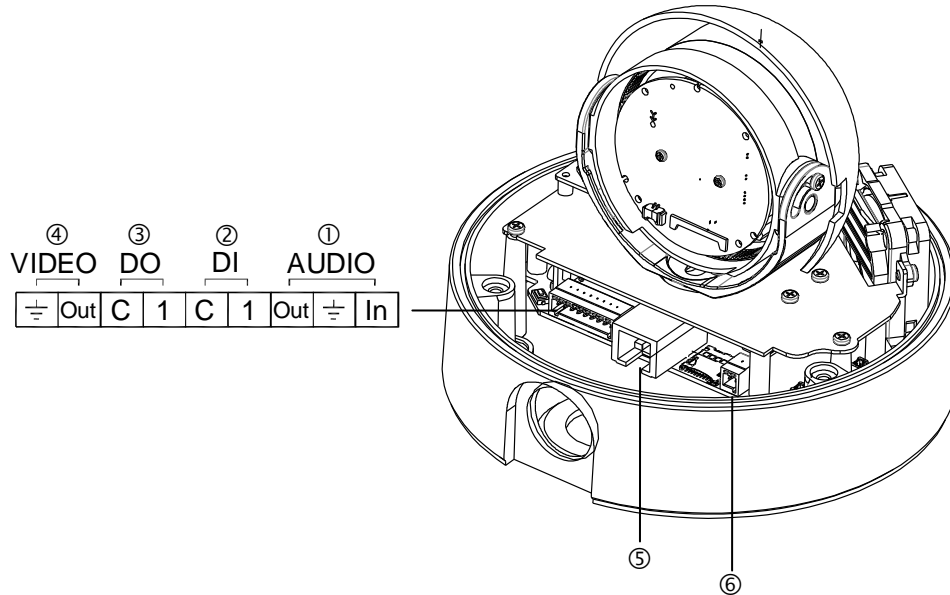
**① Audio input/output**

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).
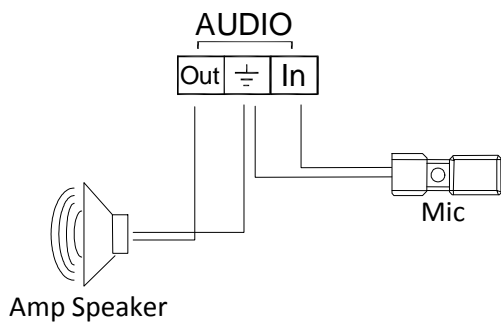
**② Analog video output connection**

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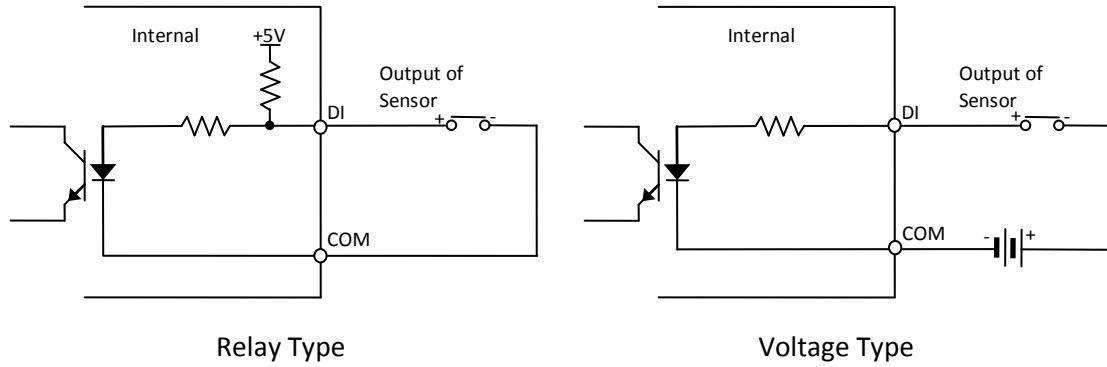
④ **Alarm (DO) connection**
Only the relay type is supported.
Relay Rating: Max 24VDC 50mA

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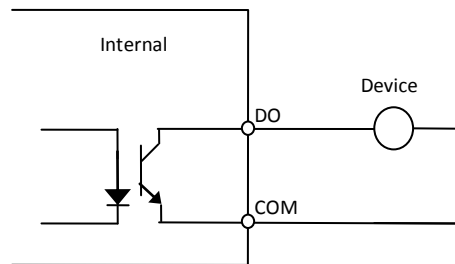


Relay Type

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



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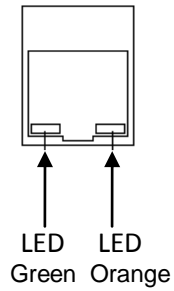
When the device is powered-on, both LEDs blink for a second. Then the orange LED turns on initially for a while, and eventually green LED turns on when the device is ready.

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

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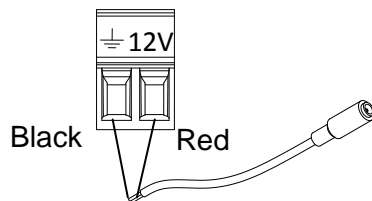
# 6. CONFIGURATION

## 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**
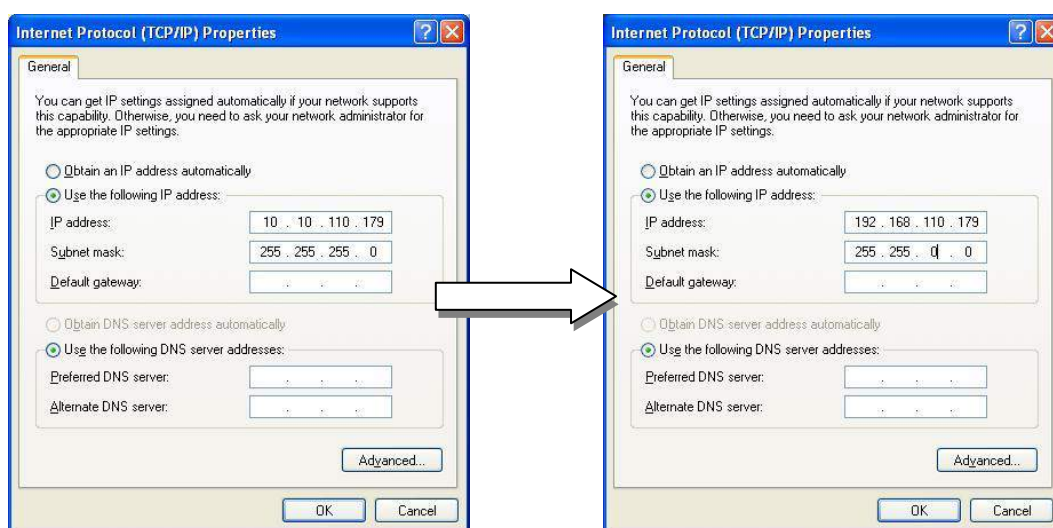


## 6.2. View video on web page

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

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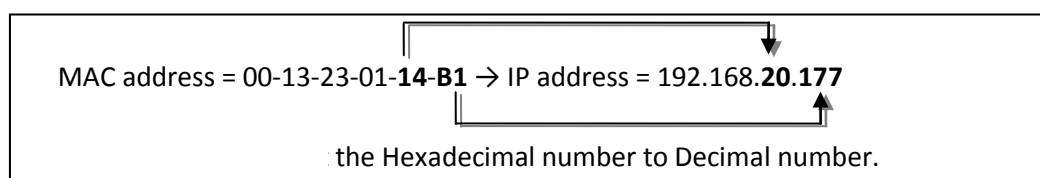
2. Open a web browser and enter the IP address of the device.
3. Grant the Security Certificate Alert and install the ActiveX if those have not been completed yet. .
4. Wait for a few seconds while the web page loads. The live streaming image is displayed.

## 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<br>On-state resistance: 50 Ω (max continuous) |

# Environment Condition

| Operating Temperature | Operating Range<br>DC12V : 0˚C ~ 50˚C (32˚F ~ 122˚F)<br>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<br>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

ø100

120.9

18

ø144

ø115

120°
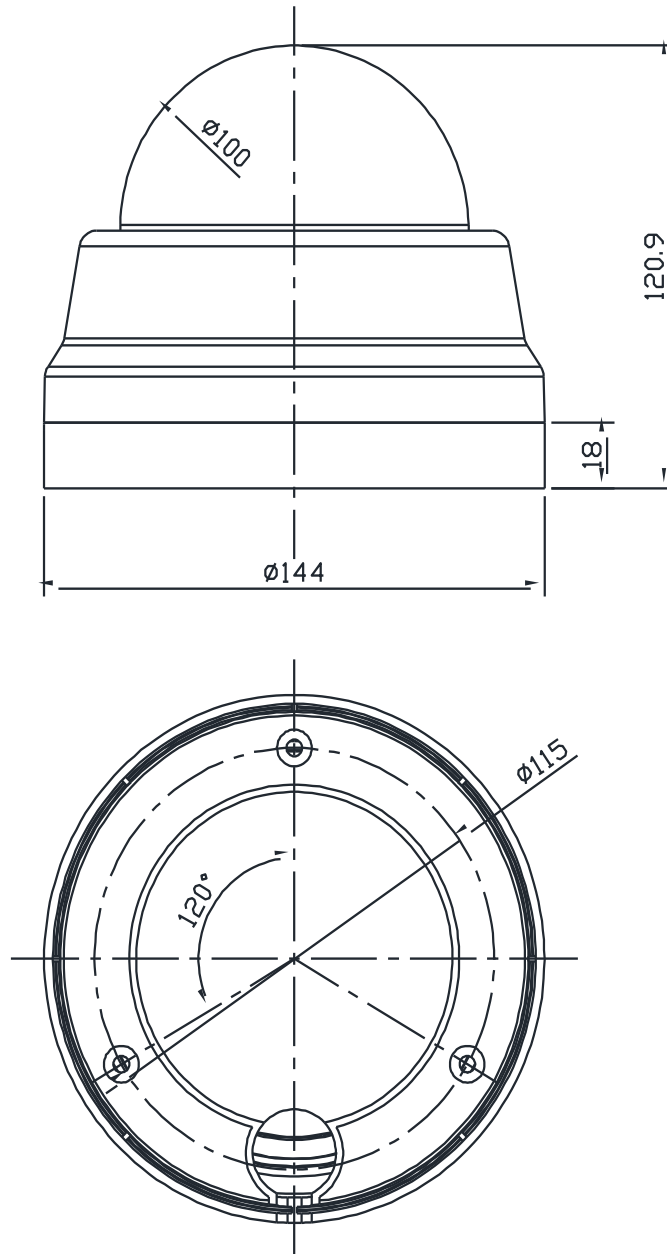
(Unit: mm)

# 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 | | |

# REVISION HISTORY

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