GeoVision Inc.
The Vision of Security

GV-IPCamera

Hardware Manual

- Vandal Proof IP Dome
- Target Vandal Proof IP Dome

Before attempting to connect or operate this product,
please read these instructions carefully and save this manual for future use.

ICH265HISIV104-A

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Content

Caution

Risk of explosion if battery is replaced by an incorrect type.
Dispose of used batteries according to the instructions.

Safety Notice

The GV-IPCAM uses a Lithium battery as the power supply for its internal real-time clock (RTC). The battery should not be replaced unless required!

If the battery does need replacing, please observe the following:

- Danger of Explosion if battery is incorrectly replaced
- Replace only with the same or equivalent battery, as recommended by the manufacturer
- Dispose of used batteries according to the manufacturer's instructions

Options

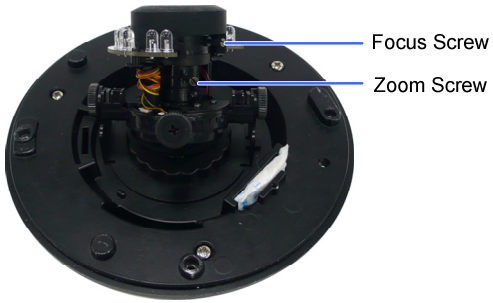
Optional devices can expand your camera's capabilities and versatility. Contact your dealer for more information.

Device	Description
Power Adapter	The power adapter is available for all Vandal Proof IP Dome. Contact your sales representative for the countries and areas supported.
GV-PA191 PoE Adapter	The GV-PA191 PoE adapter is designed to provide power and network connection to the cameras over a single Ethernet cable.
GV-POE Switch	The GV-POE Switch is designed to provide power along with network connection for IP devices. The GV-POE Switch is available in various models with different numbers and types of ports.
GV-Mount Accessories	The GV-Mount Accessories provide a comprehensive lineup of accessories for installation on ceiling, wall corner and pole. For details, see *GV-Mount Accessories Installation Guide* on the Software DVD.

Device	Description
GV-Relay V2	The GV-Relay V2 is designed to expand the voltage load of GV IP devices. It provides 4 relay outputs, and each can be set as normally open (NO) or normally closed (NC) independently as per your requirement. GV-Relay V2 does not support GV-EVD2100 / 3100 / 5100.
Metal PG21 Conduit Connector	The metal PG21 conduit connector is used for running the wires of GV-VD1530 / 2430 / 2530 / 3430, GV-VD1540 / 2440 / 2540 / 3440 / 4711 / 5340 / 5711, GV-VD2540-E / 5340-E, and GV-EVD2100 / 3100 / 5100 through a 3/4” conduit pipe.
Weatherproof Shield	The weatherproof shield is made for GV-VD1530 / 2430 / 2530 / 3430, GV-VD1540 / 2440 / 2540 / 3440 / 4711 / 5340 / 5711, and GV-VD2540-E / 5340-E to protect the camera from rain and snow.

Note for Adjusting Focus and Zoom

When adjusting the Focus and Zoom Screws, do not over tighten the Focus and Zoom screws. The screws only need to be as tight as your finger can do it. It is not necessary to use any tools to get them tighter. Doing so can damage the structure of lens.

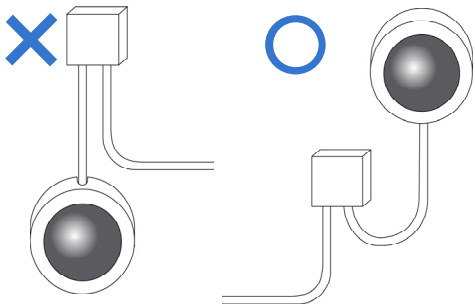


The maximum torque value for all the zoom and focus screws is 0.049 N.m

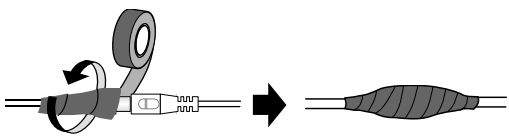
Note for Installing Camera Outdoor

When installing the camera outdoor, be sure that:

1. The camera is set up above the junction box to prevent water from entering the camera along the cables.



2. Any PoE, power, audio and I/O cables are waterproofed using waterproof silicon rubber or the like.



3. After opening the camera cover, ensure the screws are tightened and the cover is in place.

4. Make sure the housing cover is properly secured to prevent water from entering and damaging the inner housing.

Note for Silica Gel Bags

1. The silica gel bag loses it effectiveness when the dry camera is opened. To prevent the lens from fogging up, replace the silica gel bag every time you open the camera, and conceal the gel bag in camera within 2 minutes of exposing to open air.
2. When the camera is shipped, a silica gel bag will be included inside the camera. For the first-time user, replace the silica gel bag prior to the installation to avoid foggy live view.

Chapter 1 Vandal Proof IP Dome (Part I)

The Vandal Proof IP Dome is a series of outdoor camera designed for vandal protection. They are equipped with automatic infrared cut filters and IR LED for day and night surveillance. The **WDR Pro** models can produce clear image for scenes containing contrasting intensity of lights. The **super low lux** models can display color live view in near darkness. For related models, see *1.2 Features*.

These Vandal Proof IP Domes can be installed on wall and ceiling using the standard package. They can also be installed on wall corners and poles using the GV-Mount accessories (optional). For more details, see *GV-Mount Accessories Installation Guide* on the Software DVD.

Model No.		Specification	Description
GV-VD120D (IK10+, Transparent Cover) GV-VD121D (IK10+, Smoked Cover) GV-VD122D (IK7, Transparent Cover) GV-VD123D (IK7, Smoked Cover)	Varifocal Lens	Auto Iris, f:3 ~ 9 mm, F/1.3, 1/2.7" ø 14 mm lens mount	1.3 MP Low Lux, H.264

Model No.		Specification	Description
GV-VD220D (IK10+, Transparent Cover) GV-VD221D (IK10+, Smoked Cover) GV-VD222D (IK7, Transparent Cover) GV-VD223D (IK7, Smoked Cover)	Varifocal Lens	Auto Iris, f:3 ~ 9 mm, F/1.3, 1/2.7” ø 14 mm lens mount	2 MP, H.264
GV-VD320D (IK10+, Transparent Cover) GV-VD321D (IK10+, Smoked Cover) GV-VD322D (IK7, Transparent Cover) GV-VD323D (IK7, Smoked Cover)			3 MP, H.264
GV-VD1500 (IK10+, Transparent Cover) GV-VD2500 (IK10+, Transparent Cover)	Varifocal Lens	Auto Iris, f:3 ~ 9 mm, F/1.2, 1/2.7” ø 14 mm lens mount	1.3 MP / 2 MP Super Low Lux
GV-VD2400 (IK10+, Transparent Cover) GV-VD3400 (IK10+, Transparent Cover)			2 MP / 3 MP, H.264, WDR Pro

1.1 Packing List

- Vandal Proof IP Dome
- Screw Anchor x 4

- Ceiling Screw x 4

- T-Cap Screw x 3

- T-Cap x 3

- Focus Adjustment Cap

- GV-Software DVD
- Warranty Card
- Silica Gel Bag x 2
- Torx Wrench

- Blue Screw x 3

- Small Screw Cap x 3

- Plastic Clip x 3

- 2-Pin Terminal Block
- Power Adapter
- GV-IPCAM Software DVD

Note:

1. Focus Adjustment Cap is only needed and supplied for IK10+ models.
2. The power adapter can be excluded upon request.

1.2 Features

- Image sensor

Camera Model	Image Sensor
GV-VD120D / 121D / 122D / 123D	1/3" progressive scan low lux CMOS
GV-VD1500	1/3'' progressive scan super low lux CMOS
GV-VD2500	1/2.8'' progressive scan super low lux CMOS
GV-VD2400 / 3400	1/3.2" progressive scan CMOS
GV-VD220D / 221D / 222D / 223D	1/2.5'' progressive scan CMOS
GV-VD320D / 321D / 322D / 323D	

- Dual streams from H.264 or MJPEG
- Frame rate

Camera Model	Frame Rate
GV-VD120D / 121D / 122D / 123D / 1500	Up to 30 fps at 1280 x 1024
GV-VD220D / 221D / 222D / 223D / 2400 / 2500	Up to 30 fps at 1920 x 1080
GV-VD320D / 321D / 322D / 323D / 3400	Up to 20 fps at 2048 x 1536

- Day and night function (with removable IR-cut filter)
- Wide Dynamic Range Pro (for GV-VD2400 / 3400 only)
- Defog
- Intelligent IR
- Vandal resistance (IK10+ and IK7)
- Ingress protection (IP67 rating)

- 3-axis mechanism (pan / tilt / roll)
- Micro SD card slot (SD/SDHC) for local storage
- NAS recording
- Recording assigned by GV-Edge Recording Manager (Windows & Mac)
- One sensor input and alarm output
- TV-out support
- Two-way audio
- 3D noise reduction (for GV-VD1500 / 2500)
- 2D noise reduction (except for GV-VD1500 / 2500)
- Motion detection
- Tampering alarm
- Visual automation
- Text overlay
- Privacy mask
- IP address filtering
- DC 12V / AC 24V / PoE (IEEE 802.3af)
- Megapixel lens
- Support for iPhone, iPad, Android and 3GPP
- 31 languages on Web interface
- ONVIF (Profile S) conformant

1.3 Overview

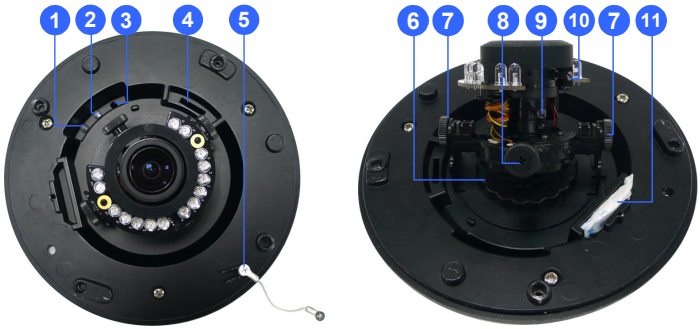


Figure 1-1

No.	Name	Description
1	Power LED	Turns on (green) when the power is on and turns off when there is no power supply.
2	Status LED	Turns on (green) when the system operates normally and turns off when system error occurs.
3	Default Button	Resets the camera to factory default. For details, see *1.6 Loading Factory Default*.
4	Memory Card Slot	Inserts a micro SD card (SD/SDHC, version 2.0 only, Class 10) to store recording data.
5	Thread Lock	Locks the housing cover to the camera body to prevent the cover from falling.
6	Pan Disc	Loosens to pan the camera.
7	Tilt Screw	Loosen the screw to tilt the camera.

No.	Name	Description
8	Rotational Screw	Loosens to adjust the camera angle.
9	Zoom Screw	Adjusts the zoom of the camera.
10	Focus Screw	Adjusts the focus of the camera.
11	Silica Gel Bag	Absorbs moisture in the camera body.

1.4 Installation

The Vandal Proof IP Dome is designed for outdoors. With the standard package, there are two ways to install the Vandal Proof IP Dome: **hard-ceiling mount** and **in-ceiling mount**.

Note: You can also install the camera:

- on a power box (of the 4" square and double gang type) using the standard package
- to ceilings, wall corners (concave or convex), and poles using optional mounting kits

For details on these installations, see *GV-Mount Accessories Installation Guide* on the Software DVD.

1.4.1 Hard-Ceiling Mount

Figure 1-2

1. Unpack the camera package and take out the camera body.

Unscrew the housing cover

Unscrew thread lock

Unscrew the inner housing

Take out the camera body

2. Mark the position of four screw holes on the desired installation location, and drill holes in the marked locations. Drill the ellipse part if you wish to put the wires through it.

Figure 1-3

3. Insert the screw anchors to the 4 holes on the ceiling.
4. Secure the back cover to the ceiling with 4 ceiling screws.

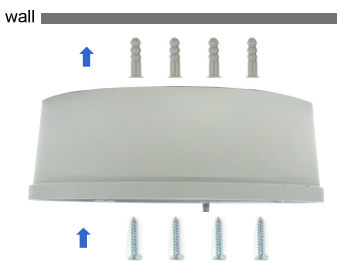


Figure 1-4

5. Refer to step 1 to secure the camera body with inner housing.
6. Thread the cable through the conduit entry at the side of the back cover. Alternatively pass the wires through the ellipse hole at the bottom of the back cover.

7. Connect the network, power and other cables to the camera. See *1.5 Connecting the Camera*.
8. Access the live view. See *2.1 Accessing the Live View, GV-IPCam Firmware Manual*.
9. Based on the live view, adjust the camera to a desired angle as illustrated below.

Tip: The 3-axis mechanism offers flexible and easy installation.

Pan Adjustment

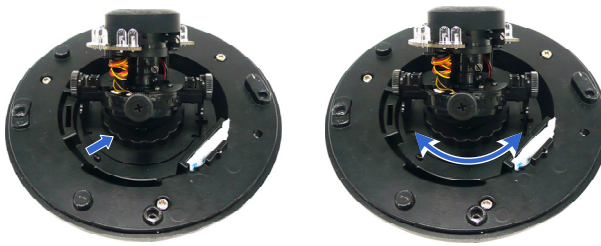
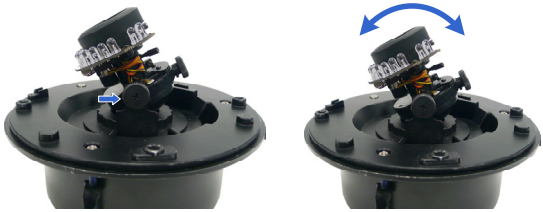


Figure 1-5

Tilt Adjustment



Rotational Adjustment

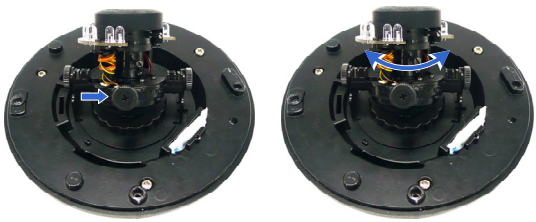


Figure 1-6

10. Adjust image clarity using the GV-IP Device Utility program. For details, see *2.2 Adjusting Image Clarity, GV-IPCam Firmware Manual*.
11. Screw on the thread lock as shown in step 1.
12. Replace the silica gel bag on the camera body within 2 minutes of opening the silica gel bag package.
13. Secure the housing cover to the camera body as shown in step 1.

Note: Adjust the black mask inside the housing cover to make sure the camera view is not obscured.

1.4.2 In-Ceiling Mount

Figure 1-7

1. Follow step 1 in *1.4.1 Hard-Ceiling Mount* section to remove the housing cover, thread lock and back cover, and take out the camera body.
2. Cut out a circle with a diameter of 142 mm on the ceiling.
3. Insert a blue screw to the indicated holes on the camera body.

Figure 1-8

4. Screw in a plastic clip to the blue screw, hold it with one hand and use a screw driver to rotate the blue screw until the plastic clip moves half way down.

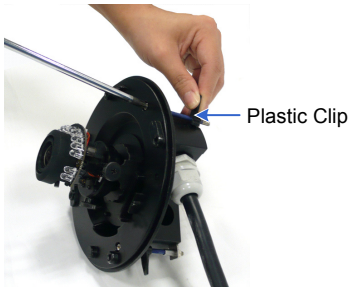


Figure 1-9

5. Secure a T-cap on top of the blue screw with a small screw cap and a T-cap screw. Do not tighten the small screw cap so that the plastic clip can move down freely.

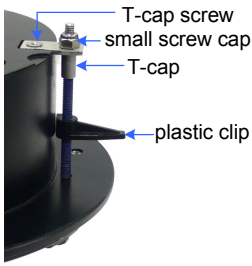


Figure 1-10

6. Repeat steps 4 and 5 for the other two blue screws.

7. Insert the camera to the ceiling with the plastic screws moved inward.

Figure 1-11

8. Move the blue screws out and rotate the blue screw with a screw driver until the plastic clip and the bottom of the camera body clamps the ceiling tightly.

Figure 1-12

9. Connect the network, power and other cables to the camera. See *1.5 Connecting the Camera*.
10. Access the live view. See *2.1 Accessing the Live View, GV-IPCam Firmware Manual*.
11. Follow steps 9 to 10 in *1.4.1 Hard-Ceiling Mount* section to adjust the angle, focus and zoom of the camera.
12. Follow steps 11 to 13 in *1.4.1 Hard-Ceiling Mount* section to secure the thread lock, replace the silica gel bag and secure the housing cover.

1.5 Connecting the Camera

Connect your Vandal Proof IP Dome to power, network and other cables needed.

1.5.1 Wire Definition

The cables of Vandal Proof IP Dome are illustrated and defined below.

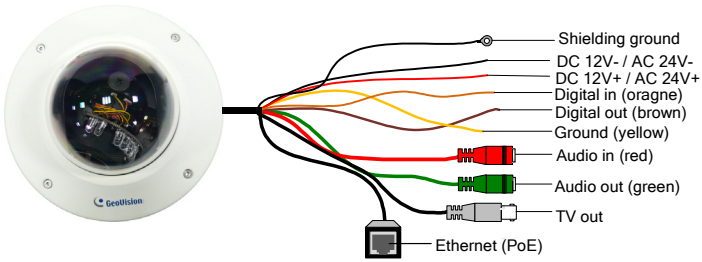


Figure 1-13

No.	Wire Color	Definition
1	Black (thick)	Shielding Ground
2	Black (thin)	DC 12V- / AC 24V-
3	Red	DC 12V+ / AC 24V+
4	Orange	Digital In
5	Brown	Digital out
6	Yellow	Ground
7	Red RCA	Audio in
8	Green RCA	Audio out
9	Black BNC	TV out

Note: The TV-out function can only be used during installation to adjust the focus of the camera. To use the TV out function, connect the supplied black BNC wire to a monitor and select your signal format (NTSC or PAL) at the **TV Out** field on the Web interface. The default signal format is NTSC. For details, see *4.1.1 Video Settings, GV-IPCam Firmware Manual*. The TV-out wire must be removed before you secure the housing cover.

1.5.2 Power Connection

There are two ways to supply power to the camera:

- Use a Power over Ethernet (PoE) adapter to connect the camera to the network, and the power will be provided at the same time.
- Plug the power adapter to the 12V terminal block as shown below.

1. Insert the thin black wire of the Vandal Proof IP Dome to the left pin (-) and the red wire to the right pin (+).

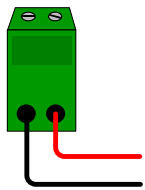


Figure 1-14

2. Connect the DC 12V Power Adapter to the Terminal Block.

Figure 1-15

1.5.3 Voltage Load Expansion (Optional)

The camera can only drive a maximum load of **200mA 5V DC**. To expand the maximum voltage load to **10A 250V AC**, **10A 125V AC** or **5A 100V DC**, connect the camera to a GV-Relay V2 module (optional product). Refer to the figure and table below.

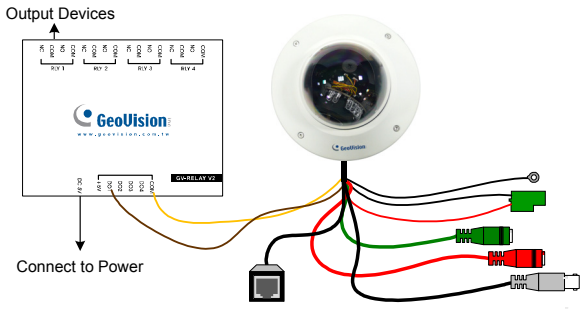


Figure 1-16

GV-Relay V2	Vandal Proof IP Dome
COM	Ground (Yellow)
DO1	Digital Out (Brown)

1.6 Loading Factory Default

1. Keep the power and network cables (or PoE) connected to the camera.
2. Use a pin to press and hold the **default** button on the inner housing.
3. Release the **default** button when the **status LED** blinks. This shall take about 8 seconds.
4. When the **status LED** fades, the process of loading default settings is completed and the camera reboots automatically.

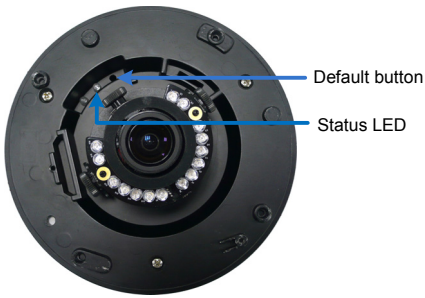


Figure 1-17

5. Insert a new Silica Gel Bag and fasten the camera's cover immediately.

Chapter 2 Vandal Proof IP Dome (Part II)

These Vandal Proof IP Domes are outdoor cameras designed with IK10+ vandal resistance and IP67 ingress protection. They provide superior night vision with their high power LEDs and allow up to 20 m (65.6 ft), 25 m (82 ft), 30 m (98.4 ft) effective IR distance. The **super low lux** models are able to display color live view in dear darkness. The **WDR Pro** models can process scenes with contrasting intensity of lights. The **motorized varifocal** models support remote focus and zoom adjustment. The **arctic** models can withstand extreme temperatures. For related models, see *2.2 Features*.

These Vandal Proof IP Domes can be installed on the ceiling using the standard package. They can also be installed on wall surfaces, wall corners and poles using the GV-Mount accessories (optional). For more details, see *GV-Mount Accessories Installation Guide* on the Software DVD.

Model No.		Specification	Description
GV-VD1530 GV-VD2430 GV-VD2530 GV-VD3430	Varifocal lens	Auto Iris, f:3 ~ 9 mm, F/1.2, 1/2.7” ø 14 mm lens mount	1.3 MP Super Low Lux / 2 MP WDR Pro / 2 MP Super Low Lux / 3 MP WDR Pro, H.264,
GV-VD1540 GV-VD2440 GV-VD2540 GV-VD3440	Motorized varifocal lens, high power IR LEDs		1.3 MP Super Low Lux / 2 MP WDR Pro / 2 MP Super Low Lux / 3 MP WDR Pro, H.264,
GV-VD2540-E	Motorized varifocal lens, high power IR LEDs, extreme temperature tolerance		2 MP Super Low Lux, H.264
GV-VD4711	Motorized varifocal lens, high power IR LEDs	Auto Iris, f: 2.8 ~ 12 mm, F/1.7, 1/2.7” ø 14 mm lens mount	4 MP Super Low Lux, WDR Pro, H.265
GV-VD5711	Motorized varifocal lens, high power IR LEDs	Auto Iris, f: 4 ~ 8 mm, F/1.65, 1/1.8” ø 14 mm lens mount	5 MP. Low Lux, WDR, H.265
GV-VD5340	Motorized Varifocal Lens, high power IR LEDs	Auto Iris, f: 3.3 ~ 9 mm, F/1.2, 1/2.7”	5 MP, H.264

GV-VD5340-E	Motorized varifocal Lens, high power IR LEDs, extreme temperature tolerance	ø 14 mm lens mount	

2.1 Packing List

- Vandal Proof IP Dome
- Torx Wrench

- 3-Pin Terminal Block

- Audio wires x 2

- Power Adapter (excluding GV-VD4711 / 5711)

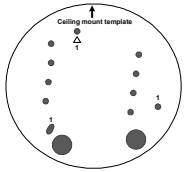
- TV out wire

- RJ-45 Connector x 2

- Back Plate

- Focus Adjustment Cap (for GV-VD1530 / 2430 / 2530 / 3430 only)

- Installation sticker



- Screw Anchor x 4

- Long Screw x 4

- Flat Screw

- Short Screw x 2

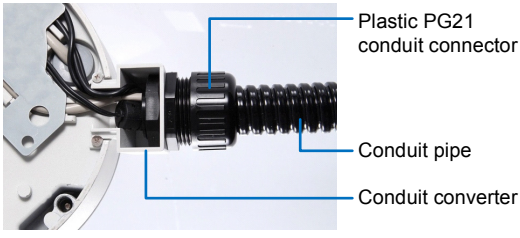
- Silica Gel Bag
- Sticker (for Silica Gel Bag)
- Ruler
- Conduit Converter

- Plastic PG21 conduit connector

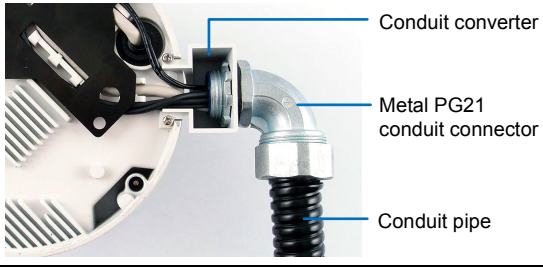
- GV-Vandal Proof IP Dome Hardware Installation Guide
- GV-Software DVD
- GV-IPCAM Software DVD
- Warranty Card

Note: The power adapter can be excluded upon request.

Note: You can choose to run the wires through a conduit pipe. After you have threaded all the wires, install the supplied conduit converter and plastic PG21 conduit connector with a self-prepared 1/2" conduit pipe to the camera. Power will have to be supplied through a PoE adapter, because the power adapter wire does not fit in a 1/2" pipe. You will have to purchase your own PG21 conduit connector if you want to use 3/4" or 1" pipe.



A metal PG21 conduit connector can be purchased upon request. The metal PG21 conduit connector can be connected with a 3/4" pipe.



2.2 Features

- Image sensor

Camera Model	Image Sensor
GV-VD1530 / 1540	1/3" progressive scan super low lux CMOS
GV-VD2430 / 2440 GV-VD3430 / 3440	1/3.2" progressive scan CMOS
GV-VD2530 / 2540 GV-VD2540-E	1/2.8'' progressive scan super low lux CMOS
GV-VD4711	1/3" progressive scan super low lux CMOS
GV-VD5711	1/1.8" progressive scan low lux CMOS
GV-VD5340 GV-VD5340-E	1/2.5'' progressive scan CMOS

- Minimum illumination at 0.01 lux (GV-VD1530 / 1540 / 1540-E)
- Dual streams from H.264 or MJPEG

  Dual streams from H.265, H.264 or MJPEG (for GV-VD4711 /5711)
- Frame rate

Camera Model	Frame Rate
GV-VD1530 / 1540	Up to 30 fps at 1280 x 1024
GV-VD2430 / 2440 GV-VD2530 / 2540 GV-VD2540-E	Up to 30 fps at 1920 x 1080
GV-VD3430 / 3440	Up to 20 fps at 2048 x 1536
GV-VD4711	Up to 25 fps at 2560 x 1440 Up to 30 fps at 2048 x 1520
GV-VD5711	Up to 30 fps at 2592 x 1944
GV-VD5340 GV-VD5340-E	Up to 10 fps at 2560 x 1920

- Day and night function (with removable IR-cut filter)
- Intelligent IR
- External high-power IR LEDs

- Wide Dynamic Range Pro (for GV-VD2430 / 2440 / 2440-E / 3430 / 3440 / 3440-E / 4711)
- Motorized varifocal lens for remote focus/zoom adjustment (GV-VD1540 / 1540-E / 2440 / 2440-E / 2540 / 2540-E / 3440 / 3440-E / 4711 / 5711 / 5340 / 5340-E)
- Defog
- Vandal resistance (IK10+)
- Ingress protection (IP67 rating)
- Wide temperature tolerance: -40°C ~ 50°C / -40°F ~ 122°F (for GV-VD2540-E / 5340-E)
- 3-axis mechanism (pan / tilt / roll)
- Micro SD card slot of SD/SDHC/SDXC/UHS-I for local storage (GV-VD4711 / 5711)
- Micro SD card slot of SD/SDHC for local storage
- NAS recording (excluding GV-VD4711 / 5711)
- Recording assigned by GV-Edge Recording Manager (Windows & Mac)
- One sensor input and alarm output
- TV-out support
- Two-way audio
- 3D noise reduction (for GV-VD1530 / 1540 / 2530 / 2540 / 2540-E / 4711 / 5711)
- 2D noise reduction (for GV-VD2430 / 2440 / 3430 / 3440 / 5340 / 5340-E)
- Smart streaming (for GV-VD4711 / 5711)
- Motion detection
- Tampering alarm
- Visual automation
- Text overlay
- Privacy mask
- IP address filtering
- DC 12V / AC 24V / PoE+ (IEEE 802.3at)

- Megapixel lens
- Support for iPhone, iPad, Android and 3GPP
- 31 languages on Web interface
- ONVIF (Profile S) conformant

2.3 Overview

Figure 2-1

No.	Name	Description
1	LED Indicators	The power LED (top) turns on (green) when the power is on and turns off when there is no power supply. The status LED (bottom) turns on (green) when the system operates normally and turns off when system error occurs.
2	Audio In	Connects to a microphone for audio output.
3	LAN / PoE	Connects to a 10/100 Ethernet or PoE.
4	Default Button	Resets the camera to factory default. For details, see *2.6 Loading Factory Default*.
5	Video Out	Connects to a portable monitor for setting the focus and angle of the camera during initial setup.
6	Memory Card Slot	Inserts a micro SD card (SD/SDHC, version 2.0 only, Class 10) to store recording data.
7	Audio Out	Connects to a speaker for audio output.
8	DC 12V / AC 24V	Connects to power.
9	I/O Terminal Block	Connects to an I/O device.
10	Rotational Screw	Loosens to rotate the camera.
11	Cable Gland	Waterproofs the Ethernet cable.
12	Tilt Screw	Loosen the screw to tilt the camera.
13	Conduit Connector	Waterproofs the audio, TV out, power adapter and I/O wires.
14	Silica Gel Bag	Absorbs moisture in the camera body.

2.4 Installation

The Vandal Proof IP Dome is designed for outdoors. With the standard package, you can install the camera on the ceiling.

Note: You can also install the camera:

- on a power box (of the 4" square and double gang type) using the standard package
- to ceilings, wall corners (concave or convex), and poles using optional mounting kits

For details on these installations, see *GV-Mount Accessories Installation Guide* on the Software DVD.

IMPORTANT: When installing the Vandal Proof IP Dome near the corner, maintain at least 25 cm away from the walls to avoid reflection problems.

1. Remove the housing cover with the supplied torx wrench.
2. Thread wires into the camera.
   A. Unscrew the conduit connector from the back.

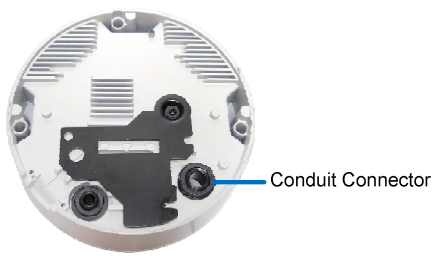


Figure 2-2

B. Unplug the conduit connector inside the housing and disintegrate the connector. You should have 4 parts:

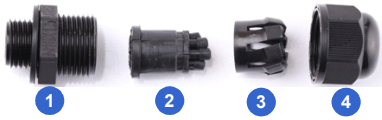


Figure 2-3

C. Remove the terminal block from the supplied power adapter. (Power adapter is not supplied for GV-VD4711 / 5711)

D. Thread the audio wires (optional), TV out wire (optional), adapter wires and I/O wires (optional) through the conduit entry and then through part 1, 2, 3 and 4 of the conduit connector.

Tip:

1. To make the threading easier, it is advised to thread the wires in the order described here.
2. Use a pair of pliers to help you pull the wires through the camera.

For part 2, there are 8 holes each labeled with its diameter. Remove the plugs and push the wires to the corresponding hole listed below:

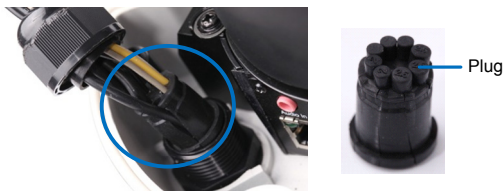
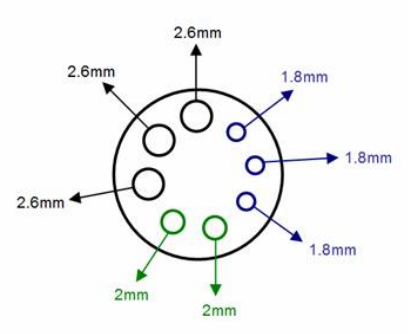


Figure 2-4



2.6 mm: Audio, BNC

2 mm: DC12V / AC24V

1.8 mm: DIDO

Figure 2-5

IMPORTANT:

1. Use the supplied ruler and leave about 10 cm of power and I/O wires between their connectors and the cable gland; leave at least 11 cm of audio/TV-out wires between their connectors and the cable gland.
2. The plugs are used to prevent water from entering the camera housing. Keep the unused holes plugged and save the removed plugs for future use.
3. Only thread the wires through their designated holes on the conduit connector to make sure the wires are properly sealed.

3. Install the Ethernet cable.

   A. Rotate to remove the indicated cap and the plug inside.

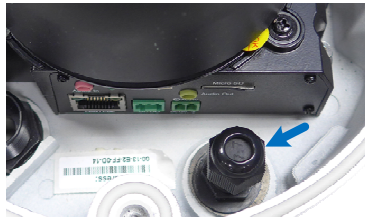


Figure 2-6

   B. Thread an Ethernet cable (the end with no RJ-45 connector) from the back panel through the cable gland

Figure 2-7

IMPORTANT: Use the supplied ruler and leave about 11 cm of the Ethernet cable between the connector and the cable gland.

   C. Re-install the cap. Make sure the cap is installed tightly to waterproof the camera.

4. Connect the wires to the camera.
   A. Install the terminal blocks to the power adapter and I/O devices. See *2.5.1 Power Connection* and *2.5.2 I/O Device Connections*.
   B. Install the supplied RJ-45 connector to the Ethernet cable.
   C. Plug all the connectors to the camera panel.

Tip: Unscrew the indicated screws and lift the camera to help you connect the wires.

   D. Arrange the wires in the conduit connector and re-install it to the camera.

5. Sort out the wires at the back. You can have the wires come out from position A, B or both. The instructions here describe sorting wires for position A.

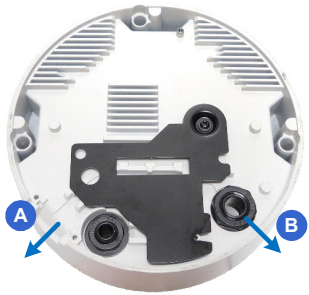


Figure 2-8

From the back of the camera housing, unscrew and rotate the plate to one side, sort out the wires and secure the plate back.

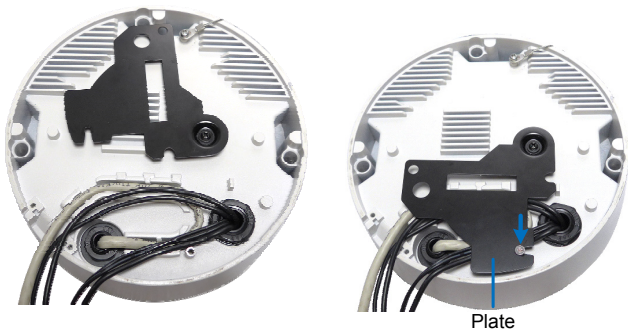


Figure 2-9

6. Secure the back plate to the ceiling.

   A. Paste the sticker to the ceiling. The arrow on the sticker indicates the direction that the camera faces.

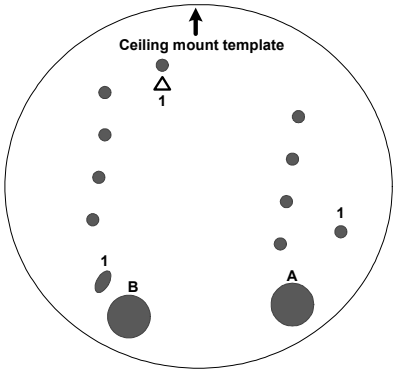


Figure 2-10

   B. Drill 3 holes for screws. The recommended ones are indicated as '1'.

   C. Insert the screw anchors to the 3 holes.

   D. Depending on how you want to run the wires (see step 5). Drill the right hole (Figure 2-10) for position A and the left for position B or both if required.

   E. Secure the back plate to the ceiling with long screws.

7. Secure the camera to the ceiling.

   A. Secure the safety lock to the camera using a short screw. Use flat screw for number 1 and small screw for number 2.

Figure 2-11

   B. Thread all the wires into the ceiling and connect them.

Note: The TV-out function can only be used during initial installation to adjust the focus of the camera. To use the TV out function, connect the supplied black BNC wire to a monitor and select your signal format (NTSC or PAL) at the **TV Out** field on the Web interface. The default signal format is NTSC. For details, see *4.1.1 Video Settings, GV-IPCam Firmware Manual*. The TV-out wire must be removed before you secure the housing cover.

C. Secure the camera using the torx wrench

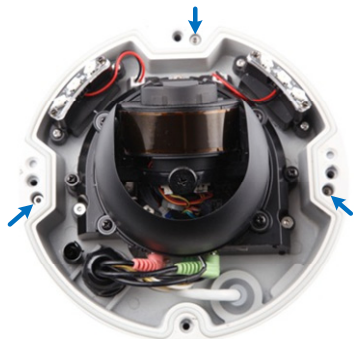


Figure 2-12

8. Access the live view. See *2.1 Accessing the Live View, GV-IPCam Firmware Manual*.
9. Adjust the camera's angle, focus and zoom of the camera.

Pan Adjustment

Tilt Adjustment

Rotational Adjustment

Figure 2-13

10. Replace the silica gel bag and secure the camera cover using the torx wrench.

IMPORTANT: If the center of the camera view is less than 25° to the ceiling, or lower than the grey line (as illustrated below), disassemble the indicated ring so the view is not obstructed. However, with the ring disassembled, slight reflections may occur.

2.4.1 Installation of Weatherproof Shield

Optionally purchase a weatherproof shield to protect the camera from rain and snow.

Figure 2-14

Note: A weatherproof shield can be purchased upon request. The pan and tilt angle of the camera is limited by the shield.

---

1. Remove the housing cover.

Figure 2-15

2. Remove the three screws from the housing cover.

Figure 2-16

3. Secure the three screws of the weatherproof shield to the housing cover.

Figure 2-17

4. Secure the housing cover.

2.5 Connecting the Camera

Connect your Vandal Proof IP Dome to power, network and other wires needed.

2.5.1 Power Connection

There are two ways to supply power to the camera:

- Use a Power over Ethernet (PoE) adapter to connect the camera to the network, and the power will be provided at the same time.
- Plug the power adapter to the terminal block by inserting the striped wire to the right pin (-) and the black wire to the left pin (+).

Figure 2-18

2.5.2 I/O Device Connections

The camera supports one digital input and one digital output of dry contact.

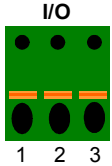


Figure 2-21

Pin	Function
1	Digital Output
2	GND
3	Digital Input

For details on how to enable an installed I/O device, see *4.2 I/O Settings, GV-IPCam Firmware Manual*.

2.5.3 Voltage Load Expansion (Optional)

The camera can only drive a maximum load of **200mA 5V DC**. To expand the maximum voltage load to **10A 250V AC**, **10A 125V AC** or **5A 100V DC**, connect the camera to a GV-Relay V2 module (optional product). Refer to the figure and table below.

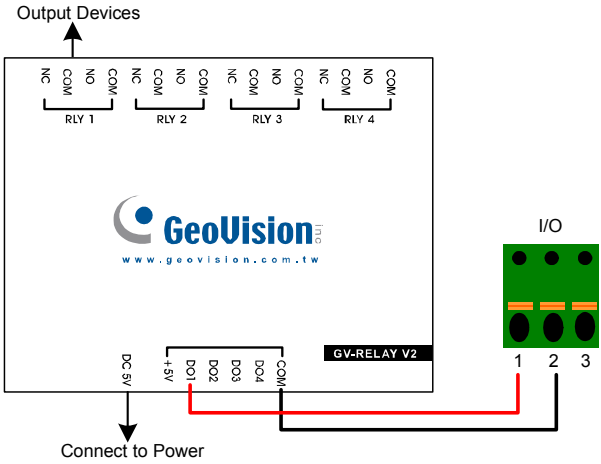


Figure 2-19

GV-Relay V2	Vandal Proof IP Dome
COM	Pin 2 of I/O terminal block
DO1	Pin 1 of I/O terminal block

2.6 Loading Factory Default

Use a pin to press and hold the default button for about **8 seconds**. Release the default button when the status LED blinks. For details, see *1.6 Loading Factory Default*.

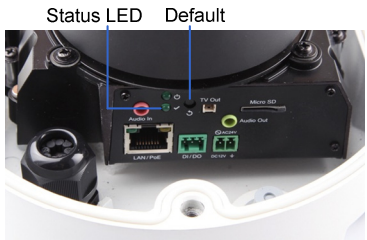


Figure 2-20

Chapter 3 Vandal Proof IP Dome (Part III)

These Vandal Proof IP Domes are outdoor cameras equipped with a removable IR-cut filter for optimal day and night surveillance. The cameras adhere to IK10 vandal resistance and IP67 ingress protection. They can support H.265 video codec to achieve better compression ratio while maintaining high quality picture. For night operations, the cameras allow up to 30 m (98.4 ft) effective IR distance. All models have P-Iris for precise control of exposure and better image clarity and contrast. The Super Low Lux model, featuring Wide Dynamic Range Pro (WDR Pro), provides clear live views not only in near darkness but also under contrasting light intensities. Adjustable in 3 axis (pan, tilt and rotate), the cameras offer effective surveillance solution with all the essential features and excellent image quality.

Model No.		Specifications	Description
GV-VD3700	Varifocal lens	P-Iris, f:3 ~ 9 mm, F/1.7, 1/2.7” ø 14 mm lens mount	3 MP H.265, WDR Pro, Super Low Lux
GV-VD4700		P-Iris, f:2.8 ~ 12 mm, F/1.7, 1/2.7” ø 14 mm lens mount	4 MP H.265, WDR Pro, Super Low Lux
GV-VD5700		P-Iris, f:4 ~ 8 mm, F/1.65, 1/1.8” ø 14 mm lens mount	5 MP H.265, WDR, Low Lux

3.1 Packing List

- H.265 Vandal Proof IP Dome
- Torx Wrench

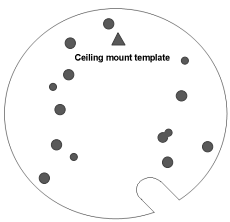
- Long Screw x 4

- Screw Anchor x 4

- Back Plate

- Short Screw (for Back Plate) x 3

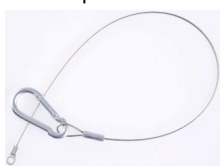
- Installation sticker



- RJ-45 Connector x 2

- Cable Stopper

- Anti-Drop Wire



- Screw (for the Anti-Drop Wire)

- Sticker (for Silica Gel Bag) x 2
- GV-Software DVD
- Warranty Card
- Silica Gel Bag x 2
- GV-IPCAM Software DVD
- Pan Angle Notification Card

Note: The supplied anti-drop wire is used for attaching the camera body to GV-Mount206. For more details, see *GV-Mount Accessories Installation Guide* on the Software DVD.

3.2 Features

- Image Sensor

Camera Model	Min. Illumination
GV-VD3700	1/2.8” progressive scan super low lux CMOS
GV-VD4700	1/3” progressive scan super low lux CMOS
GV-VD5700	1/1.8” progressive scan CMOS

- Min. illumination

Camera Model		Min. Illumination
GV-VD3700	Color	0.01 Lux
	B/W	0.01 Lux
GV-VD4700	Color	0.03 Lux
	B/W	0.02 Lux
GV-VD5700	Color	0.04 Lux
	B/W	0.03 Lux

- Dual streams from H.265, H.264 or MJPEG
- Frame Rate

Camera Model	Frame Rate
GV-VD3700	Up to 30 fps at 2048 x 1536
GV-VD4700	Up to 25 fps at 2560 x 1440, 30 fps at 2048 x 1520
GV-VD5700	Up to 30 fps at 2592 x 1944

- P-Iris for auto iris adjustment
- Vandal resistance (IK10 for metal casing)
- Ingress protection (IP67)
- Megapixel lens
- Intelligent IR

- IR distance up to 30 m (98.4 ft)
- Day and Night function (with removable IR-cut filter)
- External microphone
- 3-axis mechanism (pan / tilt / rotate)
- Micro SD card slot (SD/SDHC/SDXC/UHS-I) for local storage
- DC 12V / PoE (IEEE 802.3af)
- Two-way audio
- One sensor input and digital output
- Wide Dynamic Range Pro (WDR Pro) for GV-VD3700 / 4700
- Wide Dynamic Range (WDR) for GV-VD5700
- Defog
- Tampering Alarm
- 3D noise reduction
- Smart streaming
- Text overlay
- IP address filtering
- Recording assigned by GV-Edge Recording Manager (Windows & Mac)
- Supports iPhone, iPad, Android & 3GPP
- 31 languages on Web interface
- ONVIF (Profile S) conformant

3.3 Overview

Figure 3-1

No.	Name	Description
1	Rotational Screw	Loosen to rotate the lens.
2	SD Card Slot	Insert a micro SD card (SD/SDHC/SDXC/ UHS-I, Class 10) to store recording data. * UHS-II card type is not supported.
3	Base Screw	Loosen to pan the camera.
4	Tilt Screw	Loosen to tilt the camera.
5	Default Button	Reset the camera to factory default. For details, see *3.6 Loading Factory Default*.

3.4 Installation

The Vandal Proof IP Dome is designed for outdoors. With the standard package, you can install the camera on the ceiling.

Note: You can also install the camera to ceilings, wall corners (concave or convex), and poles using optional mounting kits.

For details on these installations, see *GV-Mount Accessories Installation Guide* on the Software DVD.

---

1. Remove the housing cover with the supplied torx wrench.

Figure 3-2

2. Thread the Ethernet cable into conduit connector.
   A. Remove the plug from the conduit connector.

Figure 3-3

B. Disintegrate the removed conduit connector. Thread the Ethernet cable through the 3 parts.

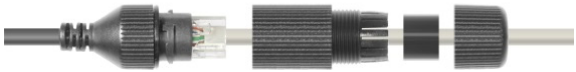


Figure 3-4

C. Assemble the conduit connector.

Figure 3-5

Note: If you can't plug the self-prepared RJ-45 connector into the jack of the conduit, it is suggested to use the supplied RJ-45 connector.

3. Secure the back plate to the ceiling.

   A. Paste the sticker to the ceiling. The triangle on the sticker indicates the direction that the camera faces.

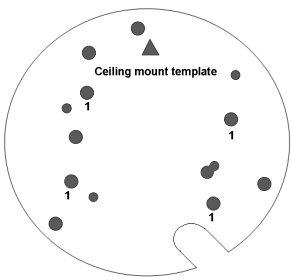


Figure 3-6

B. Drill 4 holes for screws. The recommended ones are indicated as '1'.

C. Insert the screw anchors to the 4 holes on the ceiling.

D. Secure the back plate to the ceiling with 4 long screws.

E. Align and secure the back plate to the rear side of the camera with the supplied short screws.

Figure 3-7

4. Insert your micro SD card into the SD card slot.

Figure 3-8

5. Access the live view. See *2.1 Accessing the Live View, GV-IPCam Firmware Manual*.

6. Based on the live view, adjust the camera's angle, focus and zoom.

Pan Adjustment

Figure 3-9

IMPORTANT:

1. Loosen the screw indicated below before adjusting the camera pan angle.

2. The front of the camera is marked with a white line in front of the memory card slot. When adjusting the camera pan angle, avoid turning the camera for more than 180 degrees in either direction. Continuous rotation greater than 180 degrees could pull off the internal cable and cause the camera to malfunction.

Tilt Adjustment

Rotational Adjustment

Figure 3-10

7. Paste the silica gel bag with a sticker right behind the lens.

Figure 3-11

8. Secure the housing cover back to the camera body.

Note: You can remove the cable stopper to thread the camera's cable through the side opening.

3.5 Connecting the Camera

Connect your camera to power, network and other cables needed.

3.5.1 Definition

Figure 3-12

Pin	Wire Name		Definition
1	4-Pin terminal block	DO +	Digital out +
2		DO -	Digital out -
3		DI +	Digital in +
4		DI -	Digital in -
5	5-Pin terminal block	L – Out	Audio out
6		A GND	Audio ground
7		L – IN	Audio in
8		GND	DC 12 V +
9		12 V	DC 12 V -
Wire	**Definition**		
RJ-45	Ethernet or PoE		

For details on how to enable an installed I/O device, see *4.2 I/O Settings, GV-IPCam Firmware Manual*.

3.5.2 Power Connection

There are two ways to supply power to the camera:

- Use a Power over Ethernet (PoE) adapter to connect the camera to the network, and the power will be provided at the same time.
- Connect the wires of your power adapter to the DC 12V+ and DC 12V- to the 5-pin terminal blocks.

Figure 3-13

3.5.3 Voltage Load Expansion (Optional)

The camera can only drive a maximum load of **200mA 5V DC**. To expand the maximum voltage load to **10A 250V AC**, **10A 125V AC** or **5A 100V DC**, connect the camera to a GV-Relay V2 module (optional product). Refer to the figure and table below.

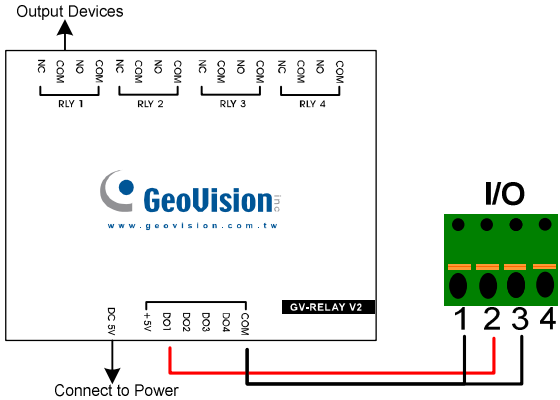


Figure 3-14

GV-Relay V2	Vandal Proof IP Dome
COM	Digital in + & Digital out +
DO1	Digital out -

3.6 Loading Factory Default

Insert a thin object into the default button next to the camera lens. Press and hold the default button for about **5 seconds** to load the factory default. For details, see *1.6 Loading Factory Default*.

Figure 3-15

Chapter 4 Target Vandal Proof IP Dome

The Target Vandal Proof IP Dome is an outdoor camera designed with IK10 vandal resistance and IP67 ingress protection. The camera is equipped with an automatic IR-cut filter and IR LEDs for day and night surveillance. With the super low lux CMOS image sensor, the camera is capable of providing a color live view in near darkness. Adjustable in 3 axis (pan, tilt and rotate), it offers an entry-level surveillance solution with all the essential features and excellent image quality.

Model No.		Specifications	Description
GV-EVD2100	Varifocal lens	P-Iris, f:3 ~ 9 mm, F/1.7, 1/2.8” ø 14 mm lens mount	2 MP H.264, WDR, Super Low Lux
GV-EVD3100			3 MP H.264, WDR Pro, Super Low Lux
GV-EVD5100		P-Iris, f:3 ~ 9 mm, F/1.7, 1/2.7” ø 14 mm lens mount	5 MP H.264, WDR, Low Lux

4.1 Packing List

- Target Vandal Proof IP Dome
- Torx Wrench

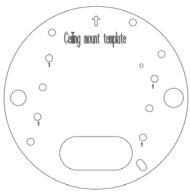
- Screw x 4

- Screw Anchor x 4

- TV-Out Wire

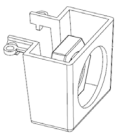
- Audio Wires x 2

- Installation sticker



- RJ-45 Connector

- Conduit Converter



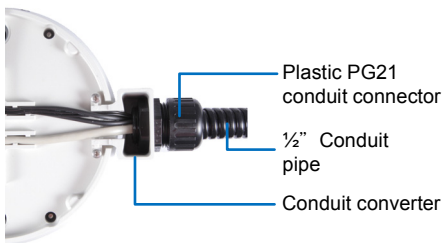
- Water proof rubber sets (for RJ-45 Cat.5 and 12V DC / for RJ-45 Cat.6)

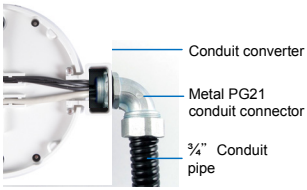
- Big Concave hexagon Wrench

- Small Concave hexagon Wrench

- Silica Gel Bag
- Sticker (for Silica Gel Bag)
- GV-IPCAM Software DVD
- Ruler
- GV-Software DVD
- Warranty Card

Note: With the supplied Conduit Converter, you can choose to run the wires through a conduit pipe. The installation of conduit converter and conduit pipe is illustrated as below. You may optionally purchase a plastic or metal PG21 conduit connector for a 1/2" or 3/4" pipe respectively. When you use a 1/2" pipe, power will have to be supplied through a PoE adapter because the power adapter wire does not fit in a 1/2" pipe.




Conduit converter
Metal PG21
conduit connector
¾" Conduit
pipe

4.2 Features

- Image Sensor

Camera Model	Min. Illumination
GV-EVD2100	1/2.8" progressive scan super low lux CMOS
GV-EVD3100	1/2.8" progressive scan super low lux CMOS
GV-EVD5100	1/3.2" progressive scan low lux CMOS

- Min. illumination

Camera Model	Min. Illumination
GV-EVD2100	0.004 lux
GV-EVD3100	0.01 lux
GV-EVD5100	0.10 Lux

- Dual streams from H.264 and MJPEG
- Frame Rate

Camera Model	Frame Rate
GV-EVD2100	Up to 30 fps at 1920 x 1080
GV-EVD3100	Up to 30 fps at 2048 x 1536
GV-EVD5100	Up to 30 fps at 2592 x 1944

- Vandal resistance (IK10)
- Ingress protection (IP67)
- Megapixel lens
- P-iris lens for auto iris control
- Intelligent IR

- IR distance

Camera Model	Frame Rate
GV-EVD2100	up to 50 m (164 ft)
GV-EVD3100	up to 50 m (164 ft)
GV-EVD5100	up to 30 m (98.4 ft)

- Day and Night function (with removable IR-cut filter)
- 3-axis mechanism (pan / tilt / rotate)
- DC 12V / PoE (IEEE 802.3af)
- Two-way audio
- 3D noise reduction
- Wide Dynamic Range (WDR) for GV-EVD2100 / 5100
- Wide Dynamic Range Pro (WDR Pro) for GV-EVD3100
- Defog
- Motion detection
- Tampering alarm
- Text overlay
- Privacy mask
- IP address filtering
- NAS recording
- Recording assigned by GV-Edge Recording Manager (Windows & Mac)
- Supports iPhone, iPad, Android & 3GPP
- 31 languages on Web interface
- ONVIF (Profile S) conformant

Note: For optimal performance and compatibility, it is highly recommended to use a GV-NAS System.

4.3 Overview

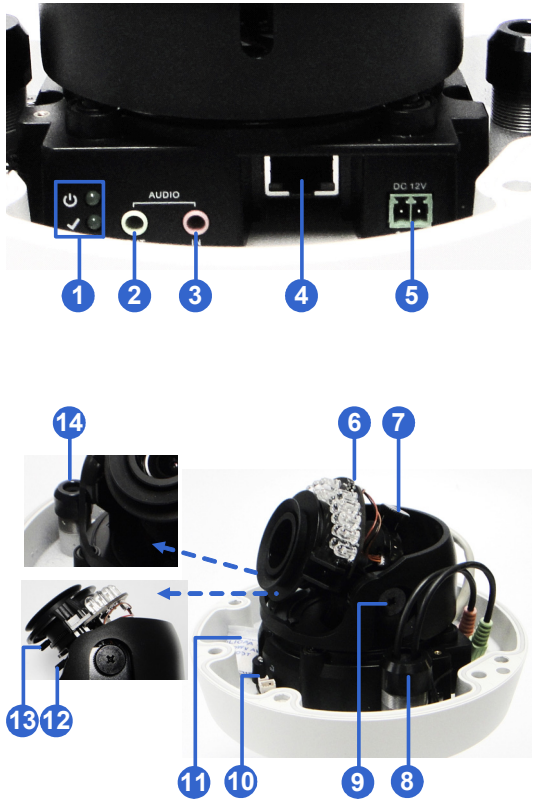


Figure 4-1

No.	Name	Description
1	LED Indicators	The power LED (top) turns on (green) when the power is on and turns off when there is no power supply. The status LED (bottom) turns on (green) when the system operates normally and turns off when system error occurs.
2	Audio Out	Connects to a speaker for audio output.
3	Audio In	Connects to a microphone for audio input.
4	LAN / PoE	Connects to a 10/100 Ethernet or PoE.
5	DC 12V	Connects to power.
6	Default Button	Resets the camera to factory default. For details, see *3.6 Loading Factory Default*.
7	Rotational Screw	Loosens to rotate the camera.
8	Cable Gland	Waterproofs the Ethernet cable.
9	Tilt Screw	Loosens the screw to tilt the camera.
10	TV-Out	Provides video input (D1 resolution) for a monitor.
11	Silica Gel Bag	Absorbs moisture in the camera body.
12	Zoom Screw	Adjusts the zoom of the camera.
13	Focus Screw	Adjusts the focus of the camera.
14	Conduit Connector	Waterproofs the audio wires.

Note: The TV-out function can only be used during installation to adjust the focus of the camera. To use the TV out function, connect the supplied black BNC wire to a monitor and select your signal format (NTSC or PAL) at the **TV Out** field on the Web interface. The default signal format is NTSC. For details, see *4.1.1 Video Settings, GV-IPCam Firmware Manual*. The TV-out wire must be removed before you secure the housing cover.

4.4 Installation

The Target Vandal Proof IP Dome is designed for outdoors. With the standard package, you can install the camera on the ceiling.

Note: You can also install the camera to ceilings, wall corners (concave or convex), and poles using optional mounting kits.

For details on these installations, see *GV-Mount Accessories Installation Guide* on the Software DVD.

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1. Remove the housing cover with the supplied torx wrench.

Figure 4-2

2. Remove the back plate with the supplied torx wrench and remove the safety lock with a Philips screwdriver. Keep the removed screw for later use.

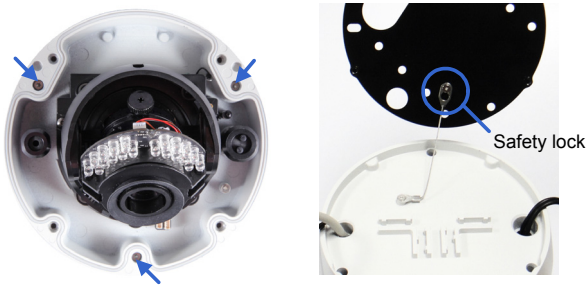


Figure 4-3

3. Thread an Ethernet cable and/or the adapter wire into the camera.

   A. Rotate to remove the indicated cap.

Figure 4-4

   B. Take out and disintegrate the connector. You should have 3 parts:

Figure 4-5

C. Thread an Ethernet cable (the end without RJ-45 connector) and/or the adapter wire from the back panel.

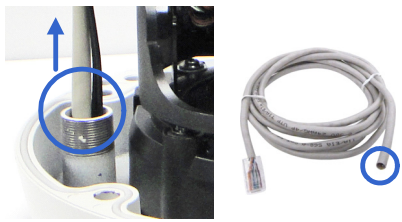


Figure 4-6

D. Thread an Ethernet cable / adapter wire through part 1 of the connector. According to the below situation, replace the connector if necessary.

- For users of PoE with a Cat.5 Ethernet cable, stay with 1a connector on the camera body.
- For users of PoE with a Cat.6 Ethernet cable, change the 1a connector to the supplied Waterproof rubber set (1b).
- For users of DC 12V, change the 1a connector to the supplied Waterproof rubber set (1c). Remove the terminal block from the power adapter and thread the adapter wire through the rubber.

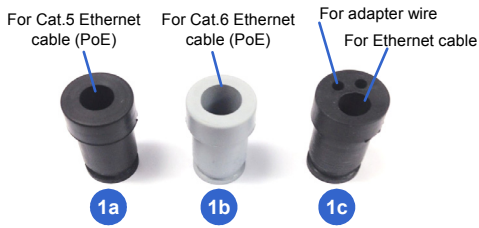


Figure 4-7

E. Thread the Ethernet cable and/or the adapter wire through part 2 and 3 of the connector.

Figure 4-8

IMPORTANT: Use the supplied ruler and leave about 14 cm of the Ethernet cable and 10 cm of the adapter wire between the connector and the cable gland.

F. Re-install the cap (part 3) with the supplied big concave hexagon wrench. Make sure the cap is installed tightly to waterproof the camera.

4. Thread audio wires (optional) into the camera.

   A. Rotate to remove the cap of the conduit connector.

Figure 4-9

B. Take out and disintegrate the connector. You should have 3 parts too.

C. Thread the audio wires from the back panel, remove the plugs of part 1 and thread through the 3 parts of the connector.

Figure 4-10

D. Re-install the cap (part 3) with the supplied small concave hexagon wrench. Make sure the cap is installed tightly to waterproof the camera.

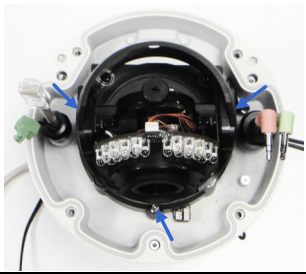
Tip: Use a pair of pliers to help you pull the wires through the camera.

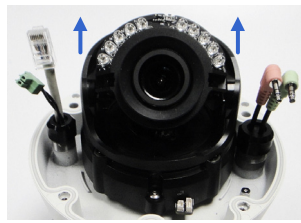
IMPORTANT:

1. Use the supplied ruler and leave about 10 cm of the audio wires between the connectors and the cable gland.
2. The plugs are used to prevent water from entering the camera housing. Keep the unused holes plugged and save the removed plugs for future use.

5. Connect the wires to the camera.
   A. Install the terminal block to the power adapter. See *3.5 Connection the camera.*
   B. Install the supplied RJ-45 connector to the Ethernet cable.
   C. Plug all the connectors to the camera panel.

Tip: Unscrew the indicated screws and lift the camera to help you connect the wires.





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6. Sort out the wires at the back. You can have the wires come out from both positions A and B, or from C.

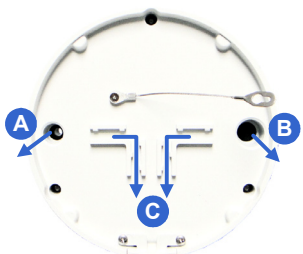

Figure 4-11

7. Secure the back plate to the ceiling.

   A. Paste the sticker to the ceiling. The arrow on the sticker indicates the direction that the camera faces.

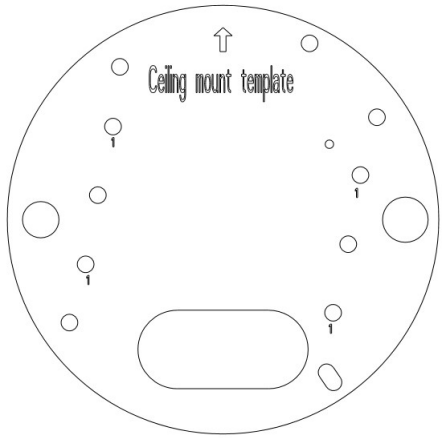

Figure 4-12

   B. Drill 4 holes for screws. The recommended ones are indicated as '1'.

   C. Insert the screw anchors to the 4 holes.

   D. Drill A & B holes or only C hole for sorting out the wires according to Figure 4-11.

   E. Secure the back plate to the ceiling with the supplied screws.

8. Secure the camera to the ceiling.

   A. Secure the safety lock to the camera with the screw you removed from the back plate in step 2.

Figure 4-13

   B. Thread all the wires into the ceiling and connect them.

   C. Secure the camera with the torx wrench.

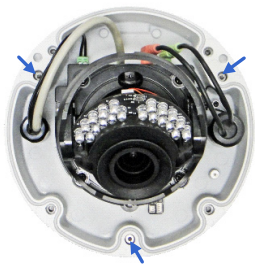

Figure 4-14

9. Access the live view. See *2.1 Accessing the Live View, GV-IPCam Firmware Manual*.

Note: The TV-out function can be used to access the live view. For details, see the note for TV-out in *4.3 Overview*.

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10. Adjust the camera's angle, focus and zoom of the camera.

Pan Adjustment

Tilt Adjustment

Rotational Adjustment

Figure 4-15

11. Replace the silica gel bag, press all the wires and cables into the notch and secure the camera cover with the torx wrench.

Figure 4-16

4.5 Connecting the Camera

There are two ways to supply power to the camera:

- Use a Power over Ethernet (PoE) adapter to connect the camera to the network, and the power will be provided at the same time.
- Plug the power adapter to the terminal block by inserting the striped wire to the right pin (-) and the black wire to the left pin (+).

Figure 4-17

4.6 Loading Factory Default

Press and hold the default button for about **8 seconds**. Release the default button when the status LED blinks. For details, see *1.6 Loading Factory Default*.

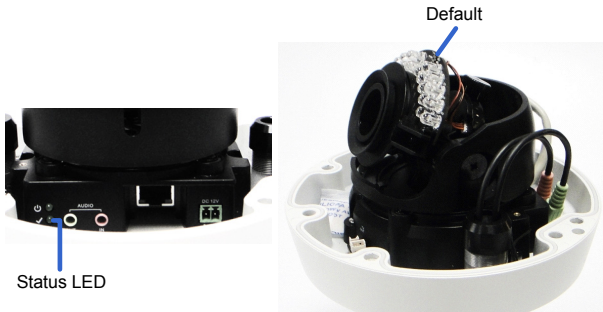

Figure 4-18