GeoVision inc
The Vision of Security

GV-IPCam

Hardware Manual

- Fixed IP Dome
- Target Fixed 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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Contents

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

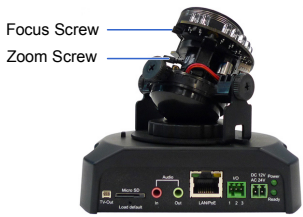
Optional devices can expand your camera's capabilities and versatility. Contact your dealer for more information.

Device	Description
Power Adapter	The power adapter is available for all Fixed IP Dome Camera. 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.
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-EFD2101 / 3101 / 5101.
Smoked Cover	The smoked cover is an IK7, tinted camera cover designed for GV-Fixed IP Dome to conceal the direction of the camera lens.

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.

For example,



Fixed IP Camera

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

Chapter 1 Fixed IP Dome

The Fixed IP Dome is a series of indoor camera designed with 3-axis mechanism for easy and flexible installation. The Fixed IP Dome features IR LED for infrared illumination for night surveillance. The **WDR Pro** models can produce clear image for scenes containing contrasting intensity of lights. The **motorized varifocal lens** models allow the user to remotely adjust the zoom and focus through the Web interface. The **super low lux** models are able to display color live view in near darkness. For related models, see *1.2 Features*. The models are detailed below:

<table>
<tr><th colspan="2">Model No.</th><th>Specification</th><th>Description</th></tr>
<tr><td>GV-FD1200</td><td rowspan="3">Varifocal Lens</td><td rowspan="2">Auto Iris, f: 3 ~ 9 mm, F/1.2, 1/2.7” ø 14 mm Mount</td><td>1.3 MP Low Lux, H.264, D/N, Fixed IP Dome</td></tr>
<tr><td>GV-FD1500
GV-FD2400
GV-FD2500
GV-FD3400</td><td>1.3 MP Super Low Lux / 2 MP WDR Pro / 2 MP Super Low Lux / 3 MP WDR Pro, H.264, D/N</td></tr>
<tr><td>GV-FD5300</td><td>f: 4.5 ~ 10 mm, F/1.6, 1/2.5” CS Mount</td><td>5 MP, H.264, D/N, Fixed IP Dome</td></tr>
</table>

Model No.		Specification	Description
GV-FD1210	Motorized varifocal Lens	Auto Iris, f: 3 ~ 9 mm, F/1.2, 1/2.7" ø 14 mm Mount	1.3 MP Low Lux, H.264, D/N, 3x Optical Zoom, Fixed IP Dome
GV-FD1510 GV-FD2510			1.3 MP / 2 MP Super Low Lux, H.264, D/N, 3x Optical Zoom, Fixed IP Dome
GV-FD2410 GV-FD3410			2 MP / 3 MP, H.264, D/N, WDR Pro, 3x Optical Zoom, Fixed IP Dome

Models with P-Iris

Model No.		Specification	Description
GV-FD1500 GV-FD2500 GV-FD3400	Varifocal Lens	P-Iris, f: 3 ~ 9 mm, F/1.2, 1/2.7" ø 14 mm Mount	1.3 MP Super Low Lux / 2 MP Super Low Lux / 3 MP WDR Pro, H.264, D/N, Fixed IP Dome
GV-FD1510 GV-FD2510 GV-FD3410	Motorized varifocal Lens		

1.1 Packing List

1.1.1 Packing List for Hard-Ceiling Mount

- Fixed IP Dome
- Torx Wrench

- Mounting Plate

- Short Screw Anchor x 3

- Ceiling Screw x 3

- Plate Screw x 3

- TV-out Wire

- Sticker
- Power Adapter
- GV-IPCAM Software DVD
- GV-Software DVD
- Warranty Card

Note: The power adapter can be excluded upon request.

1.1.2 Packing List for In-Ceiling Mount

- In-Ceiling Housing Cover

- Mounting Plate

- Mounting Bracket x 3

- Copper Pillar x 3

- Copper Pillar Screw x 6

- Bracket Screw x 3

- Thread Lock Screw

- Housing Cover Thread
- Sticker (In-Ceiling Mount)

1.2 Features

- Image sensor

Camera Model	Image Sensor
GV-FD1200 / 1210	1/3'' progressive scan low lux CMOS
GV-FD1500 / 1510	1/3'' progressive scan super low lux CMOS
GV-FD2500 / 2510	1/2.8'' progressive scan super low lux CMOS
GV-FD2400 / 2410 GV-FD3400 / 3410	1/3.2'' progressive scan CMOS
GV-FD5300	1/2.5" progressive scan CMOS

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

Camera Model	Frame Rate
GV-FD1200 / 1210 GV-FD1500 / 1510	30 fps at 1280 x 1024
GV-FD2400 / 2410 GV-FD2500 / 2510	30 fps at 1920 x 1080
GV-FD3400 / 3410	20 fps at 2048 x 1536
GV-FD5300	10 fps at 2560 x 1920

- Day and night function (with removable IR-cut filter)
- P-Iris for auto iris adjustment (for GV-FD1500 / 1510 / 2500 / 2510 / 3400 / 3410 only)
- Wide Dynamic Range Pro (for GV-FD2400 / 2410 / 3400 / 3410 only)
- Defog
- 3-axis mechanism (pan / tilt / roll)
- Intelligent IR
- 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-FD1500 / 1510 / 2500 / 2510)
- 2D noise reduction (except for GV-FD1500 / 1510 / 2500 / 2510)
- 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

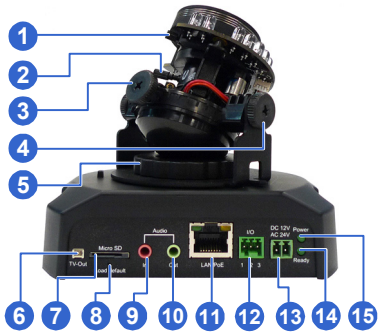


Figure 1-1

No.	Name	Description
1	Focus Screw	Adjusts the focus of the camera.
2	Zoom Screw	Adjusts the zoom of the camera.
3	Rotational Screw	Loosens to adjust the camera angle.
4	Tilt Screw	Loosens the screw to tilt the camera.
5	Pan Disc	Loosens to pan the camera.
6	Video Out	Connects to a portable monitor for setting the focus and angle of Fixed IP Dome during initial installation.
7	Memory Card Slot	Inserts a micro SD card (SD/SDHC, version 2.0, Class 10) to store recording data.
8	Default Button	Restores the camera to factory default. For details, see *1.7 Loading Factory Default*.

No.	Name	Description
9	Audio In	Connects a microphone for audio input.
10	Audio Out	Connects a speaker for audio output.
11	LAN / PoE	Connects to a 10/100 Ethernet or PoE.
12	I/O Terminal Block	Connects to I/O devices. For details, see *1.6 I/O Terminal Block*.
13	DC 12V Port	Connects to power.
14	Status LED	Turns on (green) when the system operates normally and turns off when system error occurs.
15	Power LED	Turns on (green) when the power is on and turns off when there is no power supply.

1.4 Installation

The Fixed IP Dome is designed for indoors. With the standard packing, there are three ways to install the Fixed IP Dome: **hard-ceiling mount**, **in-ceiling mount** and **wall-surface mount**.

Note: You may also install the camera to ceilings, wall corners (concave or convex), and poles with optional mounting kits. For details, see *GV-Mount Accessories Installation Guide* on the Software CD.

1.4.1 Hard-Ceiling Mount

Figure 1-2

1. Paste the supplied sticker onto a desired location on the ceiling. Drill the three red dots and the ellipse mark only if you wish to run the wires into the ceiling.

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

   A. Use the torx wrench to loosen the housing cover at the front and the back.

Figure 1-3

   B. Take out the camera body

Figure 1-4

3. Secure the camera body to the mounting plate with three ceiling screws.

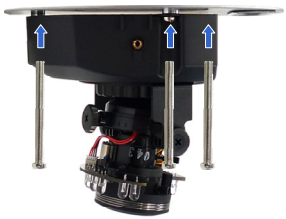


Figure 1-5

4. Connect the network, power and other cables to the camera. See *1.5 Connecting the Camera*.
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 to a desired angle as illustrated below.

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

Pan Adjustment

Figure 1-6

Tilt Adjustment

Figure 1-7

Rotational Adjustment

Figure 1-8

7. Adjust image clarity using the GV-IP Device Utility program. For details, see *2.2 Adjusting Image Clarity, GV-IPCam Firmware Manual*.
8. Secure the housing cover as shown in step 2. Remove the indicated part when necessary.

Figure 1-9

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 1-10

1. Follow step 2 in the *1.4.1 Hard-Ceiling Mount* to remove the housing cover and take out the camera body.
2. Paste the supplied sticker onto a desired location on the ceiling and cut a circle on the ceiling along the edge of the sticker.
3. On the mounting plate, locate the 3 holes labeled as 1 and insert the 3 copper pillars from the back side.

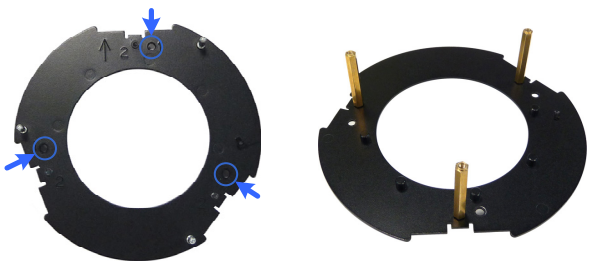


Figure 1-11

4. From the side with the numbering, secure the copper pillars with 3 copper pillar screws.

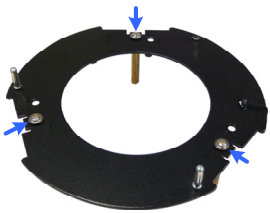


Figure 1-12

5. Place the 3 mounting brackets at the indent next to the copper pillars (labeled as 2 on the mounting plate) and secure them using the 3 bracket screws.

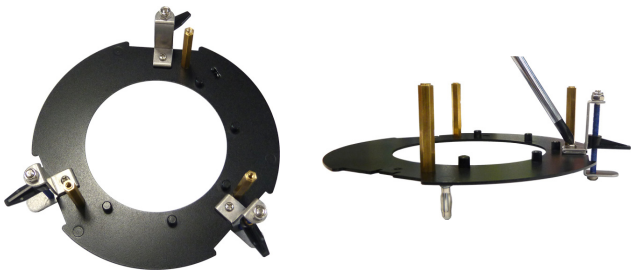


Figure 1-13

6. Place the mounting plate on the camera body with the copper pillars inserted in the locations indicated below. The arrow on the mounting plate should be pointing toward the front of the camera.

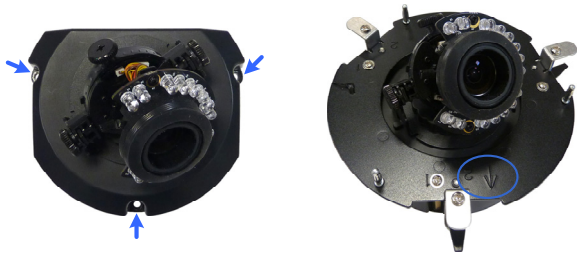
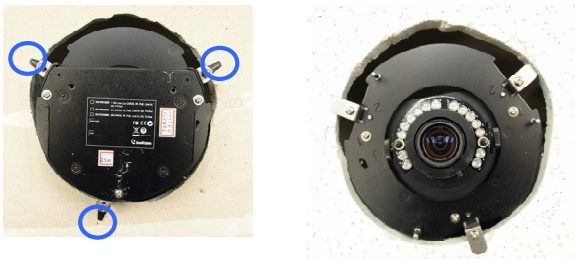


Figure 1-14

7. From the bottom of the camera, secure the copper pillars using the 3 copper pillars screws.
8. Place the camera into the ceiling opening.
9. On the back side, make sure the black plastic clips are slightly above the ceiling board and pointing outward.



Back Side Front Side

Figure 1-15

10. Tighten the bracket screws from the front side of the camera.

11. Connect the network, power and other cables to the camera. See *1.5 Connecting the Camera*.
12. Access the live view. See *2.1 Accessing the Live View, GV-IPCam Firmware Manual*.
13. Follow steps 6 and 7 in *1.4.1 Hard-Ceiling Mount* section to adjust the angle, focus and zoom of the camera.
14. Use the housing cover thread and the thread lock screw to attach the housing cover to the camera body.

Figure 1-16

15. Place the housing cover on the camera body with the GeoVision logo pointing toward the front of the camera.

Figure 1-17

1.4.3 Wall-Surface Mount

Figure 1-18

1. Follow step 2 in *1.4.1 Hard-Ceiling Mount* section to remove the housing cover and take out the camera body.
2. Paste the supplied sticker onto a desired location on the wall. Drill the three red dots, and the ellipse mark only if you wish to run the wires into the wall.
3. Insert the short screw anchors and secure the camera and the mounting plate with three plate screws.

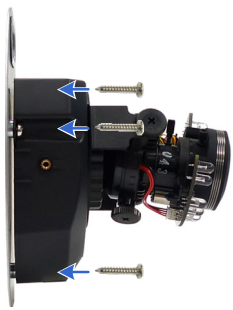


Figure 1-19

4. Connect the network, power and other cables to the camera. See *1.5 Connecting the Camera*.

5. Access the live view. See *2.1 Accessing the Live View, GV-IPCam Firmware Manual*.
6. Follow steps 6 and 7 in *1.4.1 Hard-Ceiling Mount* section to adjust the angle, focus and zoom of the camera.
7. Follow step 8 in *1.4.1 Hard-Ceiling Mount* section to secure the housing cover.

1.5 Connecting the Camera

Figure 1-20

1. Use a standard network cable to connect the camera to your network.
2. Optionally connect a speaker and an external microphone.
3. Optionally connect a monitor using a Video Out wire. Enable this function by selecting your signal format at the **TV Out** field on the Web interface. See *4.1.1 Video Settings, GV-IPCam Firmware Manual*.
4. Optionally connect to input / output devices. For details, see *1.6 I/O Terminal Block*.
5. Connect power using one of the following methods:
   - plugging the power adapter to power port.
   - using the Power over Ethernet (PoE) function and the power will be provided over the network cable.
6. The status LED of the camera will be on.

1.6 I/O Terminal Block

The terminal block, located on the back panel of the Fixed IP Dome, provides the interface to one input and one output devices. The I/O terminal block can be used for applications such as motion detection, event alerts via E-Mail and FTP, and center monitoring through Center V2 and VSM.

1.6.1 Pin Assignment

The Fixed IP Dome supports one digital input and one digital output of dry contact.

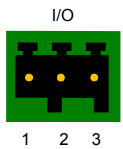


Figure 1-21

Pin	Function
1	Digital Output
2	GND
3	Digital Input

1.6.2 Voltage Load Expansion (Optional)

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

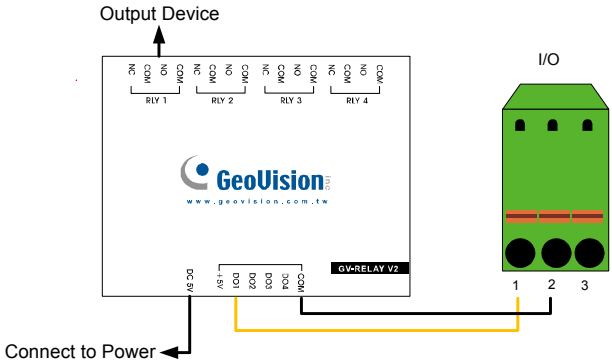


Figure 1-22

GV-Relay V2	Bullet Camera
COM	Pin 2 (GND)
DO1	Pin 1 (Digital Output)

1.7 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 panel.

Figure 1-23

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.

Chapter 2 Target Fixed Dome

The Target Fixed Dome (GV-EFD) is an indoor, fixed network camera equipped with an automatic IR-cut filter and IR LEDs for day and night surveillance. 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-EFD2101	Varifocal Lens	P-Iris, f: 3 ~ 9 mm, F/1.7, 1/2.8" Ø14 mm Mount	2 MP, H.264, Super Low Lux, WDR
GV-EFD3101	Varifocal Lens	P-Iris, f: 3 ~ 9 mm, F/1.7, 1/2.8" Ø14 mm Mount	3 MP, H.264, Super Low Lux, WDR Pro
GV-EFD5101	Varifocal Lens	P-Iris, f: 3 ~ 9 mm, F/1.7, 1/2.7" Ø14 mm Mount	5 MP, H.264, Low Lux, WDR

2.1 Packing List

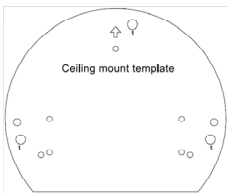
- Target Fixed IP Dome
- Torx Wrench

- Screw x 3

- Screw Anchor x 3

- TV-Out Wire

- Installation sticker



- GV-IPCam Software DVD
- GV-Software DVD
- Warranty Card

Note: Power adapter can be purchased upon request.

2.2 Features

- Image Sensor

Camera Model	Min. Illumination
GV-EFD2101	1/2.8" progressive scan super low lux CMOS
GV-EFD3101	1/2.8" progressive scan super low lux CMOS
GV-EFD5101	1/3.2" progressive scan low lux CMOS

- Frame rate:

Camera Model	Frame Rate
GV-EFD2101	Up to 30 fps at 1920 x 1080
GV-EFD3101	Up to 30 fps at 2048 x 1536
GV-EFD5101	Up to 30 fps at 2592 x 1944

- Dual streams from H.264 or MJPEG
- Intelligent IR
- Day and night function (with removable IR-cut filter)
- Megapixel lens
- P-Iris lens for auto Iris control
- Intelligent IR
- 3-axis mechanism (pan / tilt / rotate)
- DV 12V / PoE (IEEE 802.3af)
- Two-way audio
- Wide Dynamic Range (WDR) for GV-EFD2101 / 5101
  Wide Dynamic Range (WDR) Pro for GV-EFD3101
- Defog
- Motion detection
- Tampering alarm
- Text overlay

- Privacy mask
- IP address filtering
- NAS Recording
- Recording assigned by GV-Edge Recording Manager (Windows & Mac)
- Support for iPhone, iPad, Android and 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.

2.3 Overview

Figure 2-1

No.	Name	Description
1	Lens	Receives image inputs.
2	Focus Screw	Adjusts the focus of the camera.
3	Zoom Screw	Adjusts the zoom of the camera.
4	Default Button	Resets the camera to factory default. For details, see *2.6 Loading Factory Default*.
5	TV-Out	Provides video inputs (D1 resolution).
6	Rotational Screw	Loosens to adjust the camera angle.
7	Pan Disc	Loosens to pan the camera.
8	Power	Turns on (green) when power is on.
9	Status	Turns on (green) when the system is ready.
10	Audio Out	Connects a speaker for audio output.
11	Audio In	Connects a microphone for audio input.

No.	Name	Description
12	Link	Turns on (green) when the network is connected.
13	ACT	Turns on (orange) when data are being transmitted.
14	DC 12V Port	Connects to power.
15	LAN / PoE	Connects to a 10/100 Ethernet or PoE.
16	Tilt Screw	Loosens the screw to adjust tilt angle.

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 connector 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.

2.4 Installation

The Target Fixed Dome can be installed on the wall or the ceiling. Before installing the camera, make sure the installing site is shielded from rain and moisture.

1. Use the supplied torx wrench to loosen three screws on the housing cover, and take out the camera body.

Figure 2-2

2. Place the installation sticker where you want to install it, and make 3 marks on the ceiling or the wall for screw anchors.

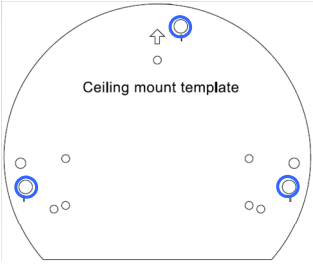


Figure 2-3

3. Drill the marks and insert the screw anchors.
4. Connect the camera to network and power. For details, see *2.5 Connecting the Camera*.
5. Secure the camera to the ceiling or the wall with the supplied screws.
6. Access the live view. For details, see *2.1 Accessing the Live View, GV-IPCam Firmware Manual*.

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 connector 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.

---

7. Adjust image clarity using the GV-IP Device Utility program. For details, see *2.2 Adjusting Image Clarity, GV-IPCam Firmware Manual*.

8. Loosen the tile screw, pan screw or rotational screw. Adjust the angles based on the live view as needed, and tighten the screws again.

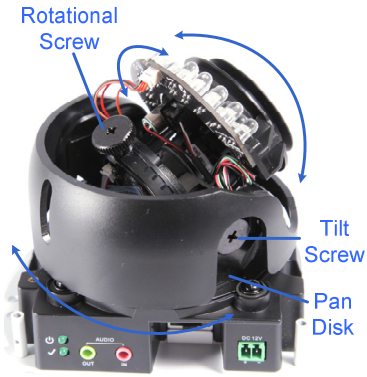


Figure 2-4

9. Place the housing cover back and tighten the three screws to secure it. Remove the indicated part when necessary.

Figure 2-5

2.5 Connecting the Camera

Figure 2-6

1. Connect power using one of the following methods:
   - Plug the power adapter to the 12V terminal block. The power adapter is an optional device. For detail, see *Options* in the manual.
   - Use the Power over Ethernet (PoE) function and the power will be provided over the network cable.

   The power and status LEDs shall turn on (green).
2. Use a standard network cable to connect the camera to your network.
3. You are ready to access the live view, adjust the image clarity and configure the basics. See *Getting Started, Chapter 2, GV-IPCam Firmware Manual*.

2.6 Loading Factory Default

1. Keep the power and network cables (or PoE) connected to the camera.
2. Press and hold the **default** button for about 8 seconds.

Figure 2-7

3. Release the **default** button when the **status LED** blinks.

Figure 2-8

When the **status LED** fades, the process of loading default settings is completed and the camera reboots automatically