

GV-IPCam H.264

Hardware Manual



- PT Camera
- PTZ Camera

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

ICH264TG2V10



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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 PT and PTZ 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-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.

Chapter 1 PTZ Camera

The GV-PTZ010D camera is a ceiling-mount device that provides panning, tilting and zooming functions. The camera is designed to monitor a wide area and also to focus on a specific part on the live view when suspicious events occur. There are two models:

Model	Model No.	Description
GV-PTZ010D	GV-PTZ010D-N	NTSC, IPCAM, 10x Optical Zoom, D1, H.264, Fixed Iris
	GV-PTZ010D-P	PAL, IPCAM, 10x Optical Zoom, D1, H.264, Fixed Iris

1.1 Packing List

- GV-PTZ010D

- Mounting Cover



- Screw Anchor x 3



- Short Screw x 3



- GV-PTZ010D Software CD

- GV-NVR Software DVD

- Warranty Card

- Mounting Base



- Wall Mount Bracket



- Long Screw x 3



- Round Screw x 3



- Washer x 3



- Terminal block

Note: Power adapter can be purchased upon request.

1.2 Features

- 1/4" CCD image sensor
- Dual streams from H.264, MPEG4 or MJPEG
- Up to 30 fps at 704 x 480 / Up to 25 fps at 704 x 576
- Day and night function (electronic)
- 10x optical zoom lens
- 10x digital zoom
- Pan and tilt (Pan: -175° ~ 175°; Tilt: -45° ~ 90°)
- Micro SD card slot (SD/SDHC) for local storage
- Two-way audio
- One sensor input and alarm output
- Input-triggered Preset points
- Motion detection
- Privacy mask
- IP address filtering
- DC 12 V / AC 24 V / PoE (IEEE 802.3af)
- Support for iPhone, iPad, Android and 3GPP
- 28 languages on Web interface

1.3 Overview



Figure 1-1

No.	Name	Description
1	DC 12V / AC 24V Terminal Block	Connects to a DV 12V or AC 24V Power Adapter.
2	LAN/PoE	Connects to a 10/100 Ethernet or PoE.
3	I/O Terminal Block	For details, see <i>1.7 I/O Terminal Block</i> .
4	Memory Card Slot	Inserts a micro SD card (SD/SDHC, version 2.0 only, Class 10) to store recording data.
5	Audio Out	Connects a speaker for audio output.
6	Audio In	Connects a microphone for audio input.
7	Status LED	Turns green when the system operates normally and turns off when system error occurs.

No.	Name	Description
8	Power LED	Turns green when the power is on and turns off when the power is off.
9	Microphone	Records the sounds.
10	Default	Resets the camera to factory default settings. For details, see <i>1.9 Loading Factory Default</i> .

1.4 Installation

The GV-PTZ010D / GV-PT series is designed for indoor usage. Make sure that the installing location is shielded from rain and moisture. There are two ways to mount the PTZ / PT Camera: **Ceiling Mount** and **L-Shaped Wall Mount**.

1.4.1 Ceiling Mount

1. Use the mounting base to make 3 marks on the wall for screw anchors.



Figure 1-2

2. Drill the marks and insert 3 screw anchors.
3. Attach the mounting base with the PTZ / PT Camera with 3 short screws.



Figure 1-3

4. Fix the mounting base (now with the PTZ / PT Camera attached) to the wall with 3 long screws.



Figure 1-4

5. Put on the mounting cover. To fit the installation environment, you can cut the parts indicated by arrows to make an opening for wires and cables.



Figure 1-5

1.4.2 L-Shaped Wall Mount

You may wall-mount the GV-PTZ010D / GV-PT series with or without the mounting cover.

1. Take the wall mount bracket and make 2 marks on the wall for screw anchors.

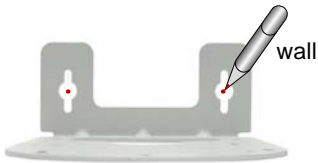


Figure 1-6

2. Drill the marks and insert 2 screw anchors.
3. Insert the long screws and leave enough distance (approximately 2 mm) to hang the wall mount bracket later.

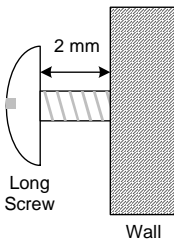


Figure 1-7

4. Hang the wall mount bracket on the screws and push the wall mount bracket downward. Make sure the long screws are tightened.

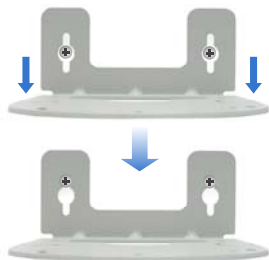


Figure 1-8

5. **Without Mounting Cover**

- Attach the wall mount bracket with the PTZ / PT Camera using 3 washers and 3 round screws.



Figure 1-9

With Mounting Cover

- To install the mounting cover, attach the mounting base to the camera and then put on the mounting cover. See steps 3 and 5 in the *Ceiling Mount* section.
- Attach the wall mount bracket with the PTZ / PT Camera using 3 round screws.



Figure 1-10

1.5 Connecting the Camera

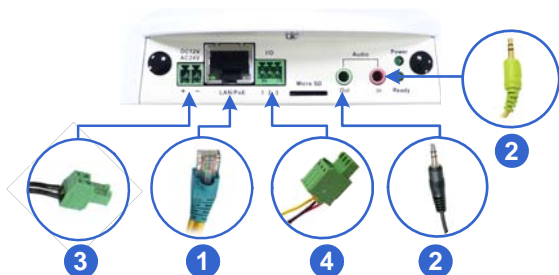


Figure 1-11

1. Use a standard network cable to connect the camera to your network.
2. Optionally connect a speaker and an external microphone.
3. Connect power using one of the following methods:
 - plugging the power adapter to the power port.
 - using the Power over Ethernet (PoE) function to provide power over the network cable.
4. Optionally connect to an input / output device. For details, see *1.7 I/O Terminal Block*.
5. The status LED of the camera will be on.
6. Access the camera. See *2.1. Accessing the Live View, GV-IPCam H.264 Firmware Manual*.

1.6 Focus Adjustment

On initial installation, it is advised that you adjust the focus for image clarity. Print out the diagram of radiating lines included on Software DVD and hang up the diagram at the surveillance area. Use the **Zoom In / Out** and **Focus In / Out** buttons on the PTZ control panel from the Web interface (No.4 and 5, Figure 1-15) and adjust the PTZ Camera until it displays clear radiating lines as shown in picture on the left.

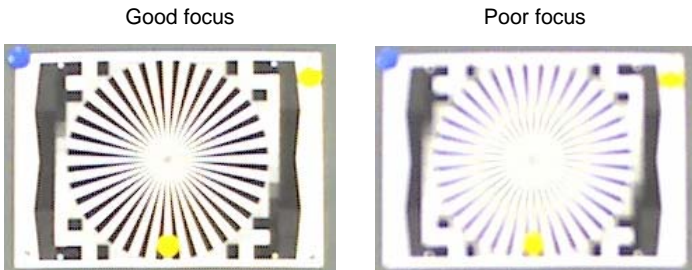


Figure 1-12

To access live view for the first time or to assign an IP address, see 2.1 *Accessing the Live View, GV-IPCam H.264 Firmware Manual.*

1.7 I/O Terminal Block

The 3-pin terminal block, located on the back panel of the PTZ Camera, provides the interface to one digital input and one digital output. 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.

1.7.1 Pin Assignment

The pin assignment for the terminal block:

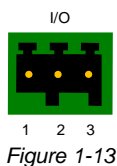


Figure 1-13

Pin	Function
1	Output
2	GND
3	Input

For details on how to enable an installed I/O device, see *4.2 I/O Settings*, *GV-IPCam H.264 Firmware Manual*.

1.7.2 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.

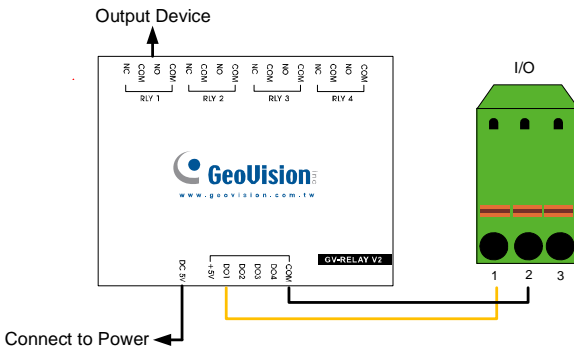


Figure 1-14


GV-Relay V2	I/O Wires
COM	Pin 2 (Ground)
DO1	Pin 1 (Output)

1.8 PTZ Control

After you have installed the PTZ Camera on network and accessed the camera's Web interface you are ready to configure the PTZ Camera.

To see how to install the PTZ Camera on network, see *Getting Started, Chapter 2, GV-IPCam H.264 Firmware Manual*. To see how to access to live image, see *3.1 Accessing Your Surveillance Images, GV-IPCam H.264 Firmware Manual*.

1.8.1 The PTZ Control Panel

The control panel allows users to adjust focus, image quality and configure camera movements. On the main page, click the **PTZ Control** button  (No. 9, Figure 20-3) and select **PTZ Control Panel**. The PTZ control panel appears.

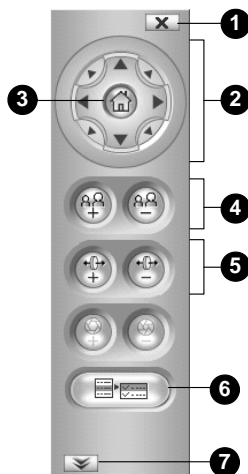


Figure 1-15

Buttons on the PTZ control panel:

No.	Name	Description
1	Exit	Closes the PTZ control panel.
2	Pan / Tilt Control	Moves the PTZ Camera to 8 directions: up, down, left, right, left up, left down, right up and right down.
3	Home	Brings the camera view back to the home point where the camera faces front at a 90 degree angle to the base of the device.
4	Zoom In / Out	Shortens (zoom in) or lengthens (zoom out) the apparent distance between the camera and the view.
5	Focus In / Out	Adjusts the sharpness of the camera view.
6	Option	Brings up these functions: Auto focus, PTZ speed, maximum number of preset points, image quality, Preset point, Sequence, Auto Pan, digital zoom and default loading. <i>See 1.8.2 Automatic Focus, 1.8.3 PTZ Camera Settings, 1.8.4 Image Settings, 1.8.5 Preset Settings, 1.8.6 Sequence Settings, 1.8.7 Auto Pan Settings, 1.8.8 System Configuration.</i>
7	Show Preset	Opens and closes the number pad. For details, see <i>1.8.5 Preset Settings</i> .

Note: For **GV-IP Cameras equipped with varifocal motorized lens**, the following functions of PTZ panel are supported: Zoom In/Out, Focus In/Out, Option (Auto Focus, Preset Set, Preset Go) and Show Preset.

1.8.2 Automatic Focus

When the camera view is fuzzy, you may use the auto focus feature to obtain a sharper view. On the PTZ control panel, click the **Option** button (No. 6, Figure 1-15) and select **AF** for automatic focus.

1.8.3 PTZ Camera Settings

Accessing the PTZ Camera Settings

To access PTZ camera settings, click the **Option** button (No. 6, Figure 1-15) on the PTZ control panel and select **Setup**. The setup dialog box appears.

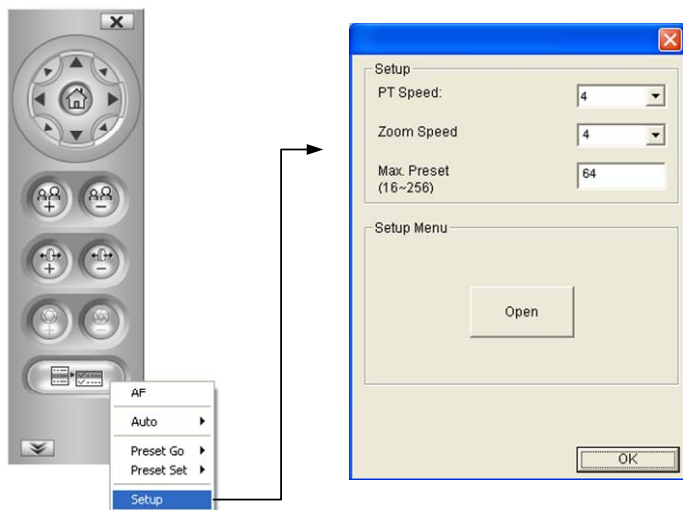


Figure 1-16

- **PT Speed:** Determines the panning (horizontal movement) and tilting (vertical movement) speed when using the **Pan / Tilt Control** buttons on the PTZ control panel. The drop-down list contains 5 speed settings: 1 is the slowest and 5 the fastest.
- **Zoom Speed:** Determines the zooming speed. The drop-down list contains 4 speed settings: 1 is the slowest and 4 the fastest.
- **Max. Preset:** Determines the maximum number of Preset points allowed to be configured and accessed. The number of Preset points ranges from 16 to 256.

Accessing the VISCA OSD Configuration

The VISCA OSD Configuration contains three groups of settings: image settings, PTZ settings and system configuration. To access these settings, click the **Option** button (No.6, Figure 1-15), select **Setup** and click **Open**. The dialog box appears. Alternatively, you can click **Digital I / O and PTZ** on the Web interface and select **PTZ Setting**.

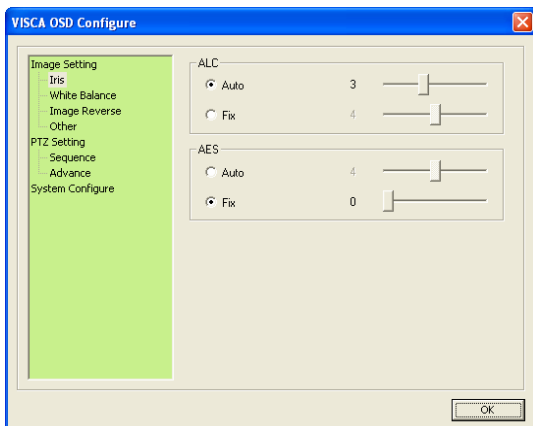


Figure 1-17

1.8.4 Image Settings

Image Setting provides features on iris control, white balance, image orientation and other image processing tools to generate clearer images. To access these features, open the VISCA OSD Configuration dialog box and select **Image Setting**.

[Iris] adjusts the amount of exposure.

- **ALC:** Automatic Light Control (ALC) is used to adjust light levels.
 - **Auto:** The amount of exposure is automatically adjusted. Select **Auto** to enable this option. If the adjusted image is still too dark or bright, move the slider. A higher value makes the image brighter.
 - **Fixed:** The amount of exposure is controlled by different aperture size. Use the slider to select from 0 to 8. A higher value signifies a bigger aperture and therefore makes the image brighter.
- **AES:** Automatic Electronic Shutter (AES) adjusts the amount of exposure by different shutter speeds.
 - **Auto:** The shutter speed is automatically adjusted. To enable this option, select **Auto**. If the adjusted image is still too dim or bright, use the slider to select from 0 to 8. A higher value indicates a slower shutter speed and therefore produces brighter image.
 - **Fixed:** The shutter speed for each level is fixed. Use the slider to select from 0 to 8. A higher value indicates a faster shutter speed and therefore produces a dimmer image.

[White Balance] Adjusts the color intensity to make the images normal to the human eye.

- **ATW:** Auto Tracking White Balance (ATW) automatically adjusts the color intensity for scenes with changing light source. Use the slider to select from 0 to 8. A higher value produces a brighter image and a lower value produces a more yellowish image.

- **AWB:** Automatic White Balance (AWB) automatically compensates for colors under different light levels. AWB is ideal for scenes with a fixed light source. Use the slider to select from 0 to 8. A higher value produces a brighter image and a lower value produces a dimmer image.
- **R Gain:** Adjusts the red element of the live view. Use the slider to select from 0 to 8. A higher value indicates a stronger degree of red.
- **B Gain:** Adjusts the blue element of the live view. Use the slider to select from 0 to 8. A higher value indicates a stronger degree of blue.

[Image Reverse]

- **Positive/Negative:** With the Positive mode, the colors in the live view appear as it is through the eye. With the negative mode, colors in live view are changed to their complementary colors (opposite colors), i.e. black will be changed to white, red to green etc. Use the drop-down list to select between **Positive** and **Negative** mode.
- **H Reverse:** Reverses the view horizontally. Use the drop-down list to select On or Off.
- **V Reverse:** Reverses the view vertically. Use the drop-down list to select On or Off.

[Other]

- **BLC:** Backlight Compensation (BLC) is used to compensate AGC in adjusting color intensity. For scenes with strong light in the background and dim light in the foreground, AGC is not effective because AGC averages the light intensity of a whole frame. BLC compensates for this characteristic by restricting AGC to adjust color intensity of a specific area. To turn on, use the drop-down list, select **On**, and select a level among 0 to 7. A higher value indicates a stronger compensation effect.

■ AGC

- ⊙ **Freeze:** Instantly freezes the live view image when **On** is selected.
- ⊙ **AGC:** Automatic Gain Control (AGC) utilizes an electronic circuit which amplifies video signal when the signal strength falls below a given value due to lack of the light on the camera. Adjust camera sensitivity to provide clear images. Under strong light intensity, AGC decreases the camera sensitivity to produce dimmer images. Under weak light intensity, AGC increases the camera sensitivity to produce brighter images. To adjust AGC, use the slider to select among 0 to 8. A higher value produces brighter images.
- ⊙ **Sense Up:** Use the slider to select among 0 to 8. A higher value produces brighter images.

■ APC: Aperture Compensation (APC) is used to adjust the sharpness of the image.

- ⊙ **H Gain:** Sharpens the horizontal elements of the image. Use the slider to adjust the horizontal compensation between 0 and 12.
- ⊙ **V Gain:** Sharpens the vertical elements of the image. Use the slider to adjust the vertical compensation between 0 and 12.

■ Gamma: Adjusts the contrast of the image. Use the drop-down list to select between 1 and 2. The “2” option produces stronger contrast.

1.8.5 Preset Settings

For PTZ Camera to automatically move toward a point in live view, establish a Preset. A Preset is a point in live view that can be configured and saved for future use. The PTZ Camera allows up to **256** Preset points. For details on the maximum number of Preset points, see *1.8.3 PTZ Camera Settings*.

Configuring a Preset Point

To configure a Preset point:

1. Use one of the **Pan / Tilt Control** buttons (No. 2, Figure 1-15) to move the camera to a desired point in live view.
2. To save this Preset point, click the **Option** button (No. 6, Figure 1-15), select **Preset Set** and select the desired Preset number
3. A confirmation message appears. Click **Yes**.
4. To configure more Preset points, repeat steps 1 to 3 and select a different Preset number to save.

Renaming a Preset Point

To rename a Preset point:

1. Click the **Option** button (No. 6, Figure 1-15), select **Preset Set** and select **Naming**. The dialog box appears.

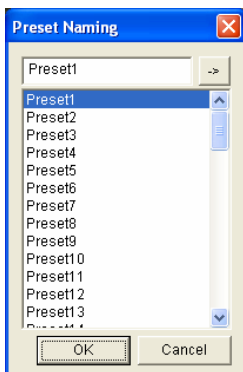




Figure 1-18

2. Click the Preset point you wish to rename and type the new name in the blank at the top.
3. Click  and click **OK** to save.

Starting and Stopping a Preset Point

To start a Preset movement, click the **Option** button (No. 6, Figure 1-15), select **Preset Go**, and select a **Preset** number which has been set previously.

Alternatively, you may use the number pad on the PTZ control panel to enable a Preset movement:

1. Click the **Show Preset** button (No. 7, Figure 1-15) to open the number pad.
2. Click the number of Preset point.
3. Click  to start.

To stop a Preset movement, click the **Home** button (No. 3, Figure 1-15) or click one of the **Pan / Tilt Control** button (No. 2, Figure 1-15).

1.8.6 Sequence Settings

For PTZ Camera to automatically perform a series of movements, you can configure a Sequence. A Sequence links up more than two Preset points to form a sequence of movements. Up to 8 Sequences can be created.

Configuring a Sequence

1. After you have configured the Preset points you wish the camera to follow (for details, see 1.8.5 Preset Settings), you are ready to configure a **Sequence**.
2. Open the VISCA OSD Configuration dialog box and select **Sequence**.

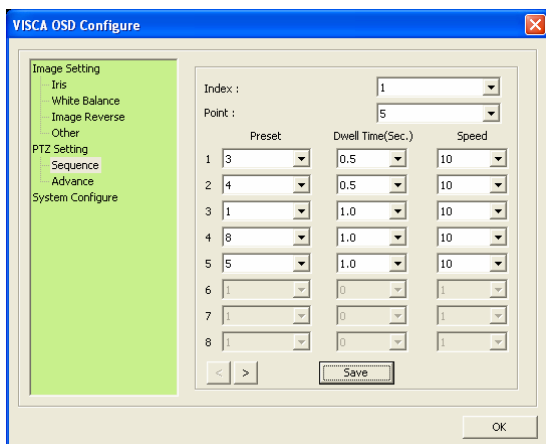


Figure 1-19

3. Use the **Index** drop-down list to select the Sequence number you wish to configure. Up to 8 Indexes can be created.
4. Use the **Point** drop-down list to select the number of Preset points to be included in the Sequence. A Sequence can contain up to 32 Preset points.

5. Use the **Preset** drop-down list to select the Preset points for the Sequence.
6. Use the **Dwell Time** drop-down list to select the staying time that the camera stays at the Preset point. The dwell time ranges from 0 to 127 seconds at an interval of 0.5 second.
7. Use the **Speed** drop-down list to select the speed at which the camera moves toward the Preset point.
8. To configure another Sequence, repeat steps 3 to 8 and select a different Index number.
9. Click **Save** to complete the settings.

Starting and Stopping a Sequence

To start a Sequence, click the **Option** button (No. 6, Figure 1-15) select **Auto** and select a **Go Sequence** number which you have set previously.

To stop a Sequence, click on a **Pan / Tilt Control** button (No. 2, Figure 1-15) or the **Home** button (No. 3, Figure 1-15).

1.8.7 Auto Pan Settings

For the PTZ Camera to survey a horizontal view, establish an Auto Pan. Up to 4 sets of Auto Pan can be created.

Configuring an Auto Pan

To configure a horizontal movement:

1. Adjust the angle of the camera view using the **Up** and **Down Control** buttons since any vertical movements of the camera will not be recorded by Auto Pan.
2. On the control panel, click the **Option** button (No. 6, Figure 1-15), select **Auto** and select a **Set Auto Pan** number.
3. Click the **Right** or the **Left Control** buttons on the PTZ control panel to perform the desired movement.
4. Click the **Option** button (No. 6, Figure 1-15), select **Auto** and select an **End Auto Pan** number to save this configuration.

Configuring the Speed of Auto Pan

You can configure the speed for each set of Auto Pan differently:

1. Open the VISCA OSD Configuration dialog box and select **Advance**.

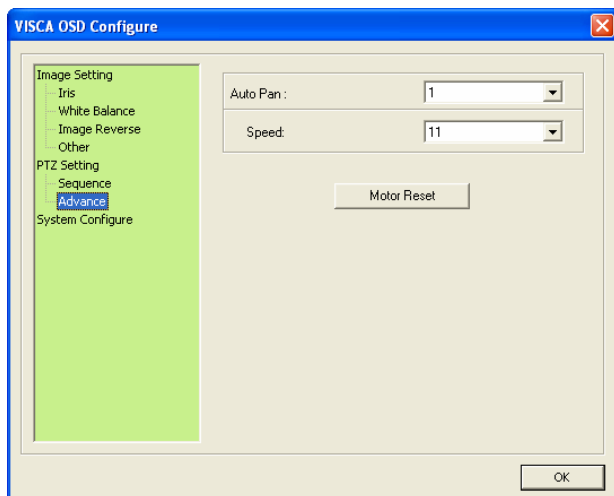


Figure 1-20

2. Select the **Auto Pan** number you wish to configure and select the **Speed**.
3. To configure the speed of another Auto Pan, repeat step 2.
4. Click **OK**.

Starting and Stopping Autopan

To start an Auto Pan, click the **Option** button (No. 6, Figure 1-15), select **Auto** and select a desired **Auto Pan** number. The PTZ Camera will first return to the starting position of the selected Auto Pan and proceeds with the selected Auto Pan movement.

To stop Auto Pan, click the **Option** button (No. 6, Figure 1-15), select **Auto** and select **Autopan Stop**. Alternatively click on a **Pan / Tilt Control** button (No. 2, Figure 1-15) or the **Home** button (No. 3, Figure 1-15).

Rebooting the Camera

When the system crashes and fails to respond to the PTZ control panel, reboot the camera.

1. Open the VISCA OSD Configuration dialog box.
2. Click the **Motor Reset** button to reboot.
3. Wait until the camera has panned and tilted its full range and returned to the home point.

1.8.8 System Configuration

To configure lens settings, open the VISCA OSD Configuration dialog box and select **System Configure**.

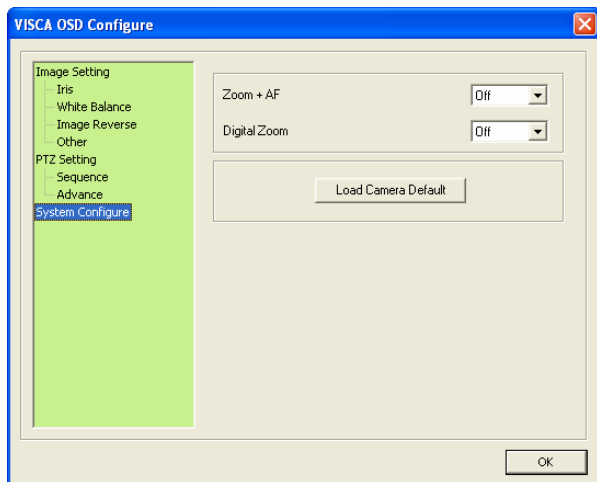


Figure 1-21

- **Zoom + AF:** Automatically focuses after zooming. It is advised to use this feature with a zooming distance of at least 1 meter.
- **Digital Zoom:** Allows up to 10x Digital Zoom. This function is enabled after the Optical Zoom level is fully reached Use the drop-down list to select among off, 2x, 4x, 6x, 8x and 10x.
- **Load Camera Default:** Loads the factory default setting of Iris, White Balance, Image Reverse and Other in the VISCA OSD Configuration dialog box (Figure 1-17).

1.9 Loading Factory Default

There are two types of default settings: **camera default settings** and **system default settings**. Camera default settings include all settings on Iris, White Balance, Image Reverse and Other in the VISCA OSD Configuration dialog box (Figure 1-22). System default settings refer to all the settings except the camera settings.

To load camera default settings:

1. On the left menu of Web interface, select **Digital I/O and PTZ**, select **PTZ Settings**, and select **System Configure**. The VISCA OSD Configure dialog box appears.
2. Click the **Load Camera Default** button.

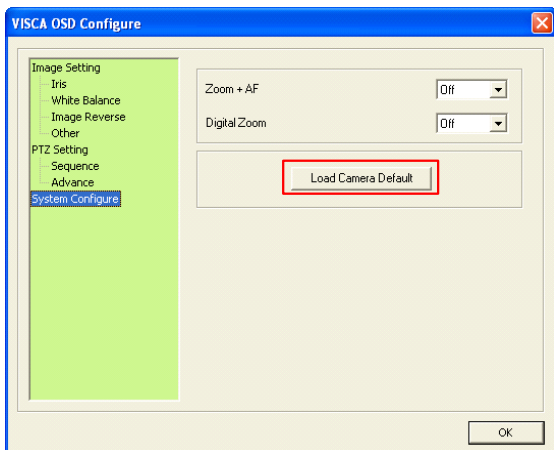


Figure 1-22

To load system default settings:

1. Unplug the power cable and the network cable (or the PoE cable).
2. Press and hold the **default** button.



Figure 1-23

3. Power on the camera using the power cable or the PoE cable.
4. Hold the **default** button until the two network LEDs fade. This will take about 25 seconds.

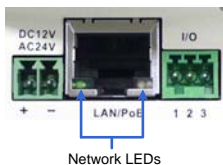


Figure 1-24

5. When default loading is completed, the camera will pan and tilt to its full range and return to the home point.

Chapter 2 PT Camera

The GV-PT camera is a series of indoor pan and tilt camera that is designed to monitor a wide surveillance area. The camera support remote pan and tilt control and is capable of storing pre-established panning/tilting movements and points on live view for immediate monitoring. Equipped with IR LEDs and IR-cut filter, the GV-PT camera provides excellent image quality in the dark.

2.1 Packing List

- GV-PT130D/220D/320D

- Mounting Cover



- Screw Anchor x 3



- Mounting Base



- Wall Mount Bracket



- Long Screw x 3



- Short Screw x 3



- Terminal Block

- Power Adapter

- GV-NVR Software DVD

- Round Screw x 3



- Washer x 3



- GV-IPCAM H.264 Software DVD

- Warranty Card

Note: The power adapter can be excluded upon request.

2.2 Features

- 1/2.5" progressive scan CMOS
- Dual streams from H.264 and MJPEG
- Frame rate

Camera Model	Frame Rate
GV-PT130D	30 fps at 1280 x 1024
GV-PT220D	30 fps at 1920 x 1080
GV-PT320D	20 fps at 2048 x 1536

- Pan and tilt (Pan: -175° ~ 175°; Tilt: -45° ~ 90°)
- Input-triggered Preset points
- One sensor input and alarm output
- Built-in / external microphone
- Micro SD card slot (SD/SDHC) for local storage
- DC 12 V / AC 24 V / PoE (IEEE 802.3af)
- Day/Night function (with removable IR-cut filter)
- NAS recording
- Recording assigned by GV-Edge Recording Manager (Windows & Mac)
- Intelligent IR
- Wide Dynamic Range (WDR)
- 2-way audio
- 2D noise reduction
- Motion detection
- Defog
- IP address filtering
- Supports iPhone, iPad, Android & 3GPP
- 31 languages on Web interface
- ONVIF (Profile S) conformant

2.3 Overview



Figure 2-1

No.	Name	Description
1	DC 12V / AC 24V Terminal Block	Connects to a DV 12V or AC 24V Power Adapter.
2	LAN / PoE	Connects to a 10/100 Ethernet or PoE.
3	I/O Terminal Block	For details, see <i>2.7 I/O Terminal Block</i> .
4	Memory Card Slot	Inserts a micro SD card (SD/SDHC, version 2.0 only, Class 10) to store recording data.
5	Audio Out	Connects a speaker for audio output.
6	Audio In	Connects a microphone for audio input.

No.	Name	Description
7	Status LED	Turns green when the system operates normally and turns off when system error occurs.
8	Power LED	Turns green when the power is on and turns off when the power is off.
9	Focus Ring	Manually rotates this ring left or right to adjust focus.
10	IR	Turns on to automatically illuminate a surveillance area by infrared light to produce clearer images during the night.
11	Microphone	Records the sounds.
12	Default	Resets the camera to system default settings. For details, see <i>2.9 Loading Factory Default Settings</i> .

2.4 Installation

For installation procedures of the GV-PT Camera, see *1.4 Installation*.

2.5 Connecting the Camera

For procedures of connecting the GV-PT Camera, see *1.5 Connecting the Camera*.

2.6 Focus Adjustment

After you have followed *1.5 Connecting the Camera* and connected all the necessary cables and wires, follow the steps below to adjust image clarity.

1. Access the live view. For details, see *2.1 Accessing the Live View, GV-IPCam H.264 Firmware Manual*.
2. Adjust image clarity using the GV-IP Device Utility program. For details, see *2.2 Adjusting Image Clarity, GV-IPCam H.264 Firmware Manual*.

2.7 I/O Terminal Block

The 3-pin terminal block, located on the back panel of the PT Camera, provides the interface to one digital input and one digital output. 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.

2.7.1 Pin Assignment

The pin assignment for the terminal block:



Figure 2-2

Pin	Function
1	Output
2	GND
3	Input

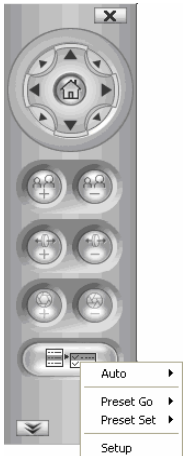
For details on how to enable an installed I/O device, see *4.2 I/O Settings*, *GV-IPCam H.264 Firmware Manual*.

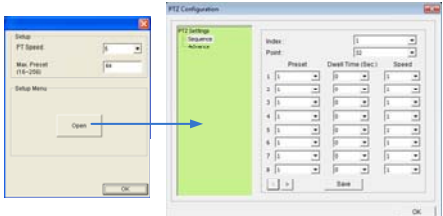
2.7.2 Voltage Load Expansion (Optional)

You can install a GV-Relay V2 to expand the maximum voltage load of your GV-PT Camera. For details, see *1.7.2 Voltage Load Expansion*.

2.8 PT Control

The GV-PT Camera shares similar user interfaces and features with the GV-PTZ010D camera. See below for the supported functions and reference.

Supported Function	Description
PT Control Panel	<p>The PT camera supports the following buttons on the control panel: Exit, Pan / Tilt Control, Home, Option and Show Preset. For details, see <i>1.8.1 The PTZ Control Panel</i>.</p> 
PT Camera Settings	<p>Contains settings on PT speed and the maximum number of preset points. For details, see <i>Accessing the PTZ Camera Settings in 1.8.3 PTZ Camera Settings</i>.</p>
Preset point	<p>A Preset point is a point in live view that can be configured and accessed using a hot key. For details, see <i>1.8.5 Preset Settings</i>.</p>

Supported Function	Description
<p>Sequence</p>	<p>A Sequence consists of a series of Preset points. Configure a Sequence to direct the camera to perform a series of movements. For details, see <i>1.8.6 Sequence Settings</i>.</p> 
<p>Auto Pan</p>	<p>The camera can be configured to monitor the surveillance area in a horizontal movement. For details, see <i>1.8.7 Auto Pan Settings</i>.</p>

2.9 Loading Factory Default

1. Keep the power and network cables connected to the camera.
2. Use a pin to press and hold the **default** button on the panel.



Figure 2-3

3. Release the **default** button when the **status LED** blinks. This shall take about 8 seconds.
4. When the **status LED** turns orange, the process of loading default settings is completed and the camera is ready for use.