GeoVision inc
The Vision of Security

Quick Start Guide

GV-Face Recognition Camera

- GV-VD8700
- GV-FD8700-FR

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

VD8700-QG-B

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Note: No memory card slot or local storage function for Argentina.

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Contents

Note for Connecting to GV-VMS / DVR / NVR

The camera is designed to work with and record on GV-DVR / NVR / VMS, a video management system.

Once the camera is connected to the GV-DVR / NVR / VMS, the resolution set on the GV-DVR / NVR / VMS will override the resolution set on the camera's Web interface. You can only change the resolution settings through the Web interface when the connection to the GV-DVR / NVR / VMS is interrupted.

Face Recognition is only supported by GV-VMS. When applying Face Recognition, one camera can only be connected to one GV-VMS at a time.

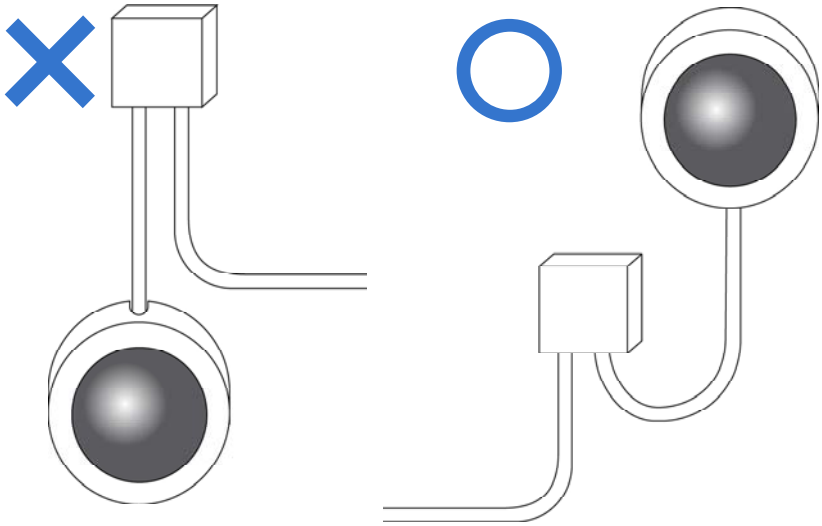
Note for Recording

1. By default, the recording function is disabled. Configure the function in the camera's Web interface to record alarm events to the memory card inserted in the camera upon disconnection from GV-DVR / NVR / VMS. See *4.4.3 Tools*, *GV-Face Recognition Camera User's Manual* for details.
2. Mind the following when using a memory card for recording:
   - Recorded data on the memory card can be damaged or lost if the data are accessed while the camera is under physical shock, power interruption, memory card detachment or when the memory card reaches the end of its lifespan. No guarantee is provided for such causes.
   - The stored data can be lost if the memory card is not accessed for a long period of time. Back up your data periodically if you seldom access the memory card.
   - Memory cards are expendable and their durability varies according to the conditions of the installed site and how they are used. Back up your data regularly and replace the memory card annually.
   - Replace the memory card when its read/write speed is lower than 6 MB/s or when the memory card is frequently undetected by the camera.
   - To avoid power outage, it is highly recommended to apply a battery backup (UPS).
3. For better performance, it is highly recommended to use memory cards of the following specifications:
   - Micro SD card of MLC NAND flash, Class 10.

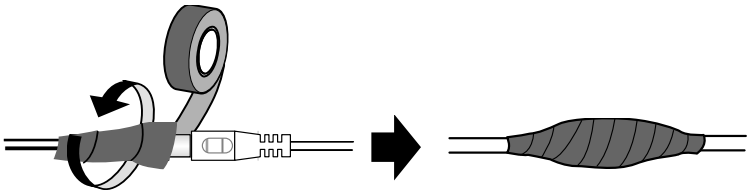
Note for Installing Camera Outdoor

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. The screws are tightened and the cover is in place after opening the camera cover.

1. Introduction

Welcome to the *GV-Face Recognition Camera Quick Start Guide*. In the following sections, you will learn the basic installations and configurations. For a detailed user manual, see *GV-Face Recognition Camera User's Manual*.

1.1 Packing List

1.1.1 GV-VD8700

- GV-VD8700 Camera
- Screw x 4
- Screw Anchor x 4
- Audio Wire x 2
- I/O Cable
- RJ-45 Connector
- Installation Sticker
- Waterproof Rubber Sets (for RJ-45 Cat.5 and DC12V / for RJ-45 Cat. 6)
- PG21 Conduit Connector
- Torx Wrench
- Big Concave Hexagon Wrench
- Small Concave Hexagon Wrench
- Silica Gel Bag
- Sticker (for Silica Gel Bag)
- Conduit Converter
- Ruler
- 8 GB Micro SD Card (MLC, SDHC, Class 10) (The Micro SD Card is preinstalled and formatted in the camera)
- Download Guide
- Warranty Card

1.1.2 GV-FD8700-FR

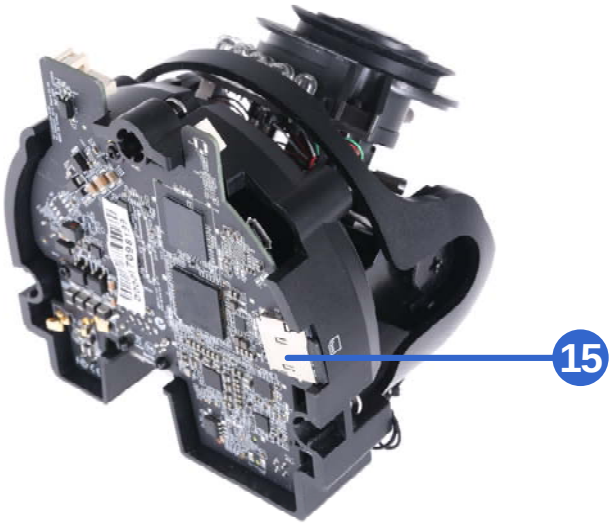
- GV-FD8700-FR Camera
- Screw x 3
- Screw Anchor x 3
- I/O Cable
- Audio Wire x 2
- Torx Wrench
- Installation Sticker
- 8 GB Micro SD Card (MLC, SDHC, Class 10) (The Micro SD Card is preinstalled and formatted in the camera)
- Download Guide
- Warranty Card

1.2 Optional Accessories

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

Name	Details
GV-Mount Accessories	The GV-Mount Accessories provides a comprehensive lineup of accessories for installing the camera on ceiling, wall corner and pole. For details, see *GV-Mount Accessories Installation Guide*.
GV-PA191 PoE Adapter	The GV-PA191 is a Power over Ethernet (PoE) adapter designed to provide power to the IP device through 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.
Metal PG21 Conduit Connector (only for GV-VD8700)	The metal PG21 conduit connector allows you to run the wires through a 3/4" conduit pipe.
Power Adapter	Contact our sales representatives for the countries and areas supported.

1.3 Overview

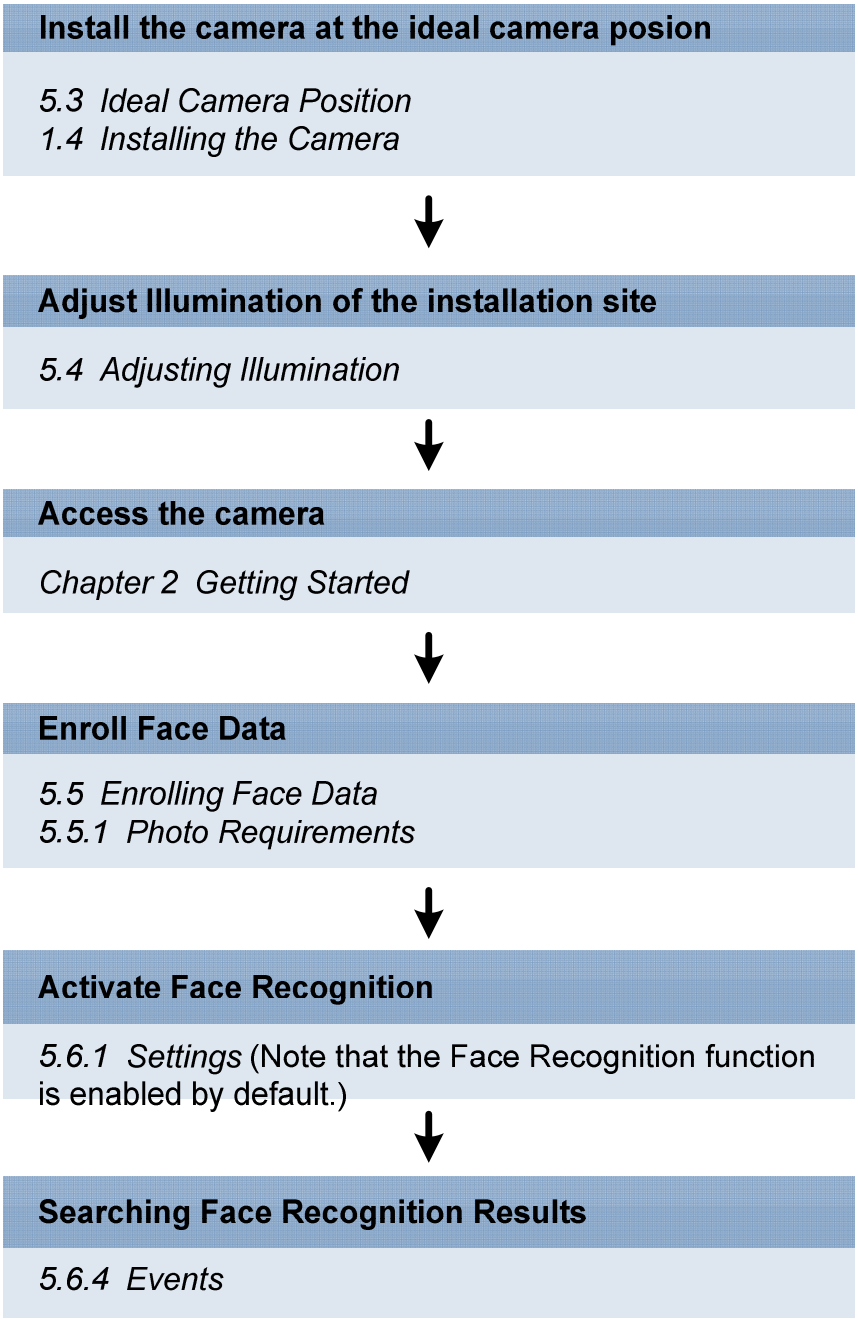


1 Introduction

No.	Name	Description
1	LED Indicators	The power LED (top) turns on when the power is on and turns off when there is no power supply. The status LED (bottom) turns on when the system operates normally and turns off when an error occurs.
2	Audio Out	Currently not functional.
3	Line In	Connects to a microphone for audio input. **Note:** This interface only works with an external microphone with powered supply.
4	LAN / PoE	Connects to a 10/100 Ethernet or PoE.
5	DC 12V	Connects to power.
6	Rotational Screw	Loosens to rotate the camera.
7	Conduit Connector	Waterproofs the Ethernet cable. **Note:** Not available for GV-FD8700-FR.
8	Default Button	Resets the camera to factory default settings. For details, see *Chapter 7 Restoring to Factory Default Setting.*
9	Focus Screw	Adjusts the focus of the camera.
10	Zoom Screw	Zoom the camera in or out.
11	Tilt Screw	Loosens the screw to tilt the camera.
12	I/O Connector	Connects to I/O devices.
13	Built-in Microphone Connectors	Connects to a built-in microphone. For details, see *Chapter 3 Connecting the Camera*. **Note:** Not available for GV-FD8700-FR.
14	Conduit Connector	Waterproofs the audio / I/O wires. **Note:** Not available for GV-FD8700-FR.
15	Memory Card Slot	Contains a micro-SD card (SD/SDHC/SDXC/UHS-I, Class 10) to store recording data.

1.4 Installation Flowchart

See the flowchart for a clear idea of the installation process before proceeding to *Chapter 2 Installation*. Refer to the relevant sections in the *User's Manual* if needed.



2. Installation

This section introduces the standard installations of the cameras.

Note:

1. An improper installation location can affect face recognition results. For optimal face recognition results, follow the recommended guidelines to install the camera. For details, see *5.1 Ideal Camera Position*.
2. You can also install the camera on ceilings, wall corners (concave or convex), and poles. For details on these installations, see *GV-Mount Accessories Installation Guide*.

2.1 GV-VD8700

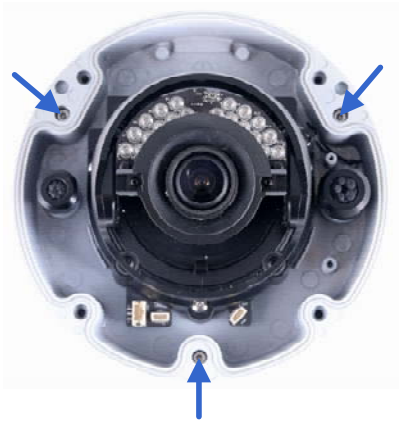
The camera is designed for outdoors. With the standard package, you can install the camera on the ceiling.

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

2. Optionally remove the cables that attach the built-in microphone to the camera to assist with installation.

Cables for built-in microphone

3. 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.



Safety lock

4. Thread wires into the camera.

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

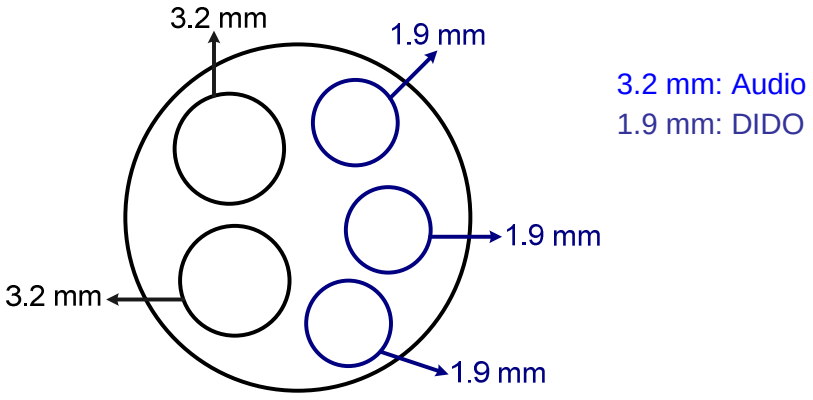
B. Unplug the conduit connector inside the housing and disintegrate the connector. You should have 3 parts:

C. Thread the audio wires and I/O wires through the conduit entry and then through parts 1, 2, and 3 of the conduit connector.

Tip:

1. To make the threading easier, it is recommended to thread the wires in the order described in *Step 4-C*.
2. Use a pair of pliers to help you pull the wires through the camera.

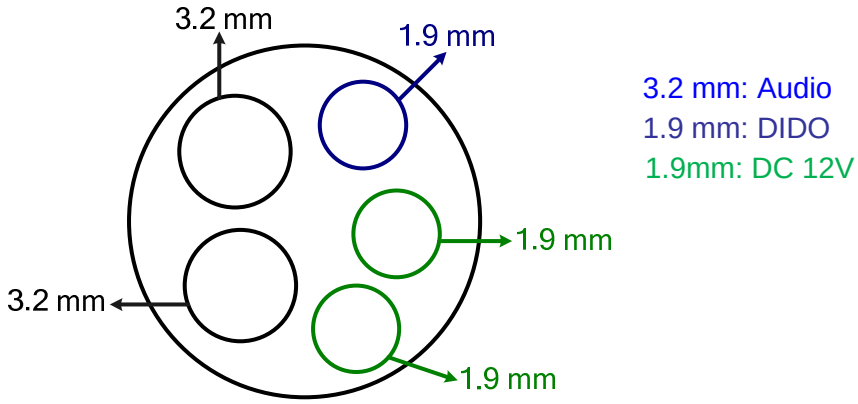
If you use cat 5 Ethernet cable, there are 5 holes each labeled with its diameter. Remove the plugs and push the wires to the corresponding hole listed below:



IMPORTANT:

1. Use the supplied ruler and leave at least 14 cm of I/O wires and 10 cm of audio wires between their connectors on the camera and the conduit connector.
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.

If you use cat 6 Ethernet cable, thread the DC 12V wires through the conduit connector. Refer to the following for the corresponding holes and their diameters.



IMPORTANT: Leave more than 10 cm of power wires between their connectors on the camera and the conduit connector.

5. Install the Ethernet cable.

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

   B. Thread an Ethernet cable (the end with no RJ-45 connector) and the optional power adapter wires from the back panel through the conduit connector.

IMPORTANT: Use the supplied ruler and leave about 14 cm of the Ethernet cable between the connector on the camera and the conduit connector.

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

6. Connect the wires to the camera. For details, see *Chapter 3 Connecting the Camera.*

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

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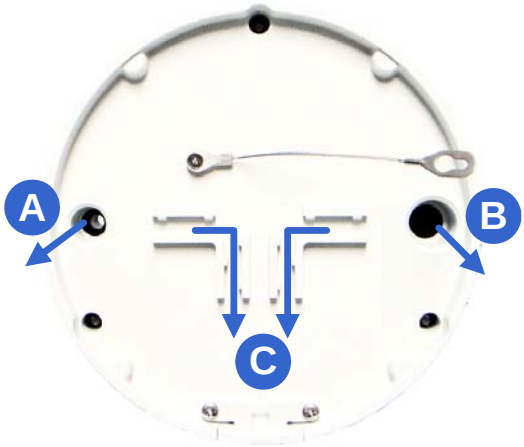
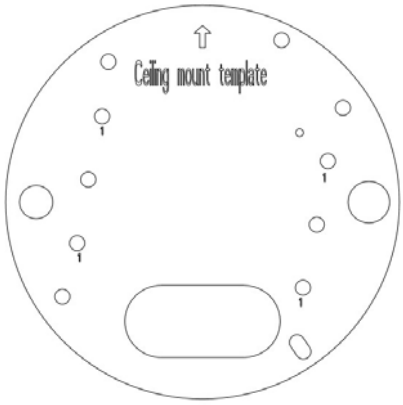
7. Sort out the wires at the back. You can have the wires come out from positions A and B or from C.



8. 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.



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

   C. Insert the screw anchors to the 4 holes.

   D. Drill holes A & B or only hole C for sorting out the wires according to the figure in *Step 7*.

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

9. Secure the camera to the desired location.

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

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

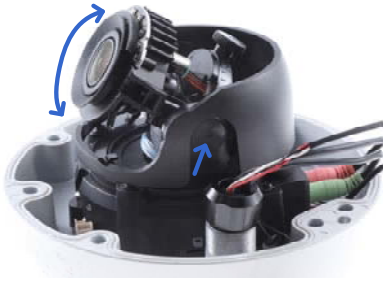
   C. Secure the camera to the back plate with the torx wrench.

10. Access the live view. For details, see *Chapter 4 Accessing the Camera.*

11. Adjust the angle, focus and zoom of the camera.

Pan Adjustment

Tilt Adjustment



Rotational Adjustment

Zoom Adjustment

Focus Adjustment

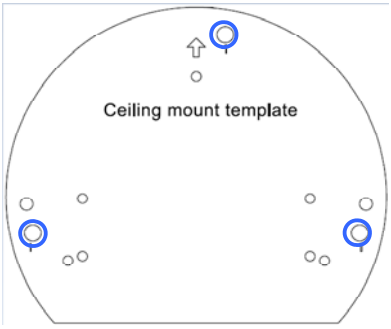
12. Replace the silica gel bag, organize the wires and secure the camera cover with the torx wrench.

2.2 GV-FD8700-FR

The camera is designed for indoors. With the standard package, you can install the camera on the ceiling or the wall. Before installation, 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.

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



3. Drill the marks and insert the screw anchors.
4. Connect the camera to network and power. For details, see *1.5 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 *Chapter 4 Accessing the Camera*.
7. Loosen the tile screw, pan screw or rotational screw. Adjust the angles based on the live view as needed, and tighten the screws again. See Step 11, *2.1 GV-VD8700* for illustrations.

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

3. Connecting the Camera

1. Use a standard network cable to connect the camera to your network.
2. Optionally connect an external microphone.
3. Connect power using one of the following methods:
   - Plug the power adapter to the power port.
   - Use the Power over Ethernet (PoE) function and the power will be provided over the network cable.
4. Optionally connect to input / output devices. See *I/O Connector* described below.
5. The status LED of the camera will be on.

Note:

1. The speaker output interface will be supported in the near future.
2. The microphone input interface only works with external microphone with power supply.

3.1 I/O Connector

The camera supports one digital input and one digital output of dry contact. For details on how to enable an installed I/O device, see *4.2.4 I/O Control* in the *User's Manual*.

Pin	Supplied I/O Cable	Function
1	Green	Digital Output
2	Black	GND
3	White	Digital Input

4. Accessing the Camera

4.1 System Requirements

To access the Web interface of the camera, make sure the connected network is stable and use one of the following Web browsers:

- Microsoft Internet Explorer 11 or later
- Google Chrome

Note: When using Google Chrome browser, only H.264 video codec is supported and there has a live view delay of 2~5 seconds.

4.2 Looking Up the IP Address and Logging In

By default, the camera is assigned with a dynamic IP address by the DHCP server when the camera is connected to the network. This IP address remains unchanged unless you unplug or disconnect your camera from the network.

Follow the steps below to check out the camera's IP address and log in its Web interface.

1. Download and install the **GV-IP Device Utility** program from our website.

Note: The PC installed with GV-IP Device Utility must be under the same LAN as the camera you wish to configure.

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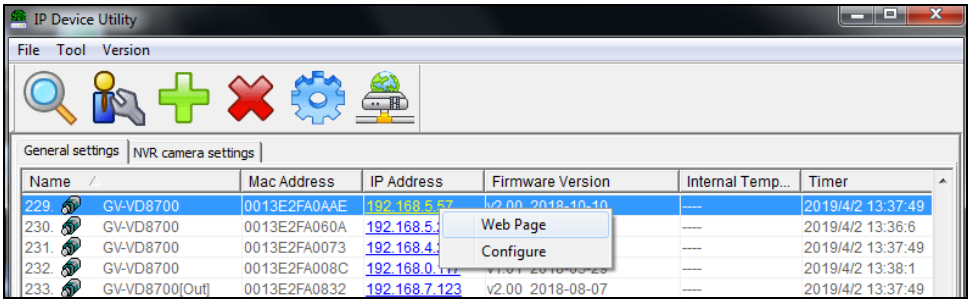
2. On the GV-IP Utility window, click the button to search for the IP devices connected in the same LAN. Click the **Name** or **Mac Address** column to sort.

4 Accessing the Camera

3. Find the camera with its Mac Address, click on its IP address and select **Web Page**.



4. On the login page, type the default ID and password **admin** and click **Apply**.

Note:

1. The default ID and Password are no longer supported in the latest version. For the first-time user, after entering **admin** in both ID and password fields, you will be requested to change the login credentials.
2. If the DHCP server on your network is unavailable, the camera can be accessed by the default IP 192.168.0.10. To change the default IP address, see *2.2 Changing the Static IP Address* in the User's Manual.

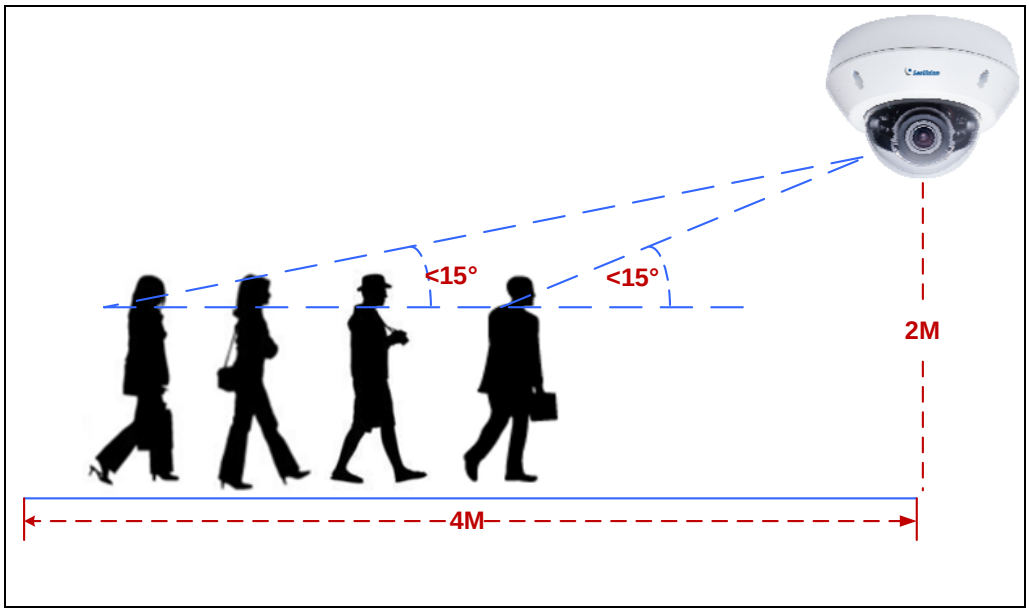
5. Setting up for Face Recognition

Face recognition works best when the camera is properly aligned with the face of the recognition target. Make sure you meet the criteria below when installing the camera so the camera can capture a clear frontal face image of the recognition target:

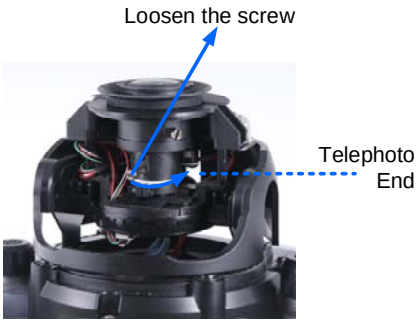
5.1 Ideal Camera Position

Less Ideal Installation Scenario	Recommended Installation Scenario
A height of > 2 m or < 2 m	An approximate height of 2 m
A distance of > 4 m or < 4 m	An approximate distance of 4 m
Wide angle end	Telephoto end
> 15° of lateral deviation	< 15° of lateral deviation
Results	
Less Accuracy	**Better Accuracy**

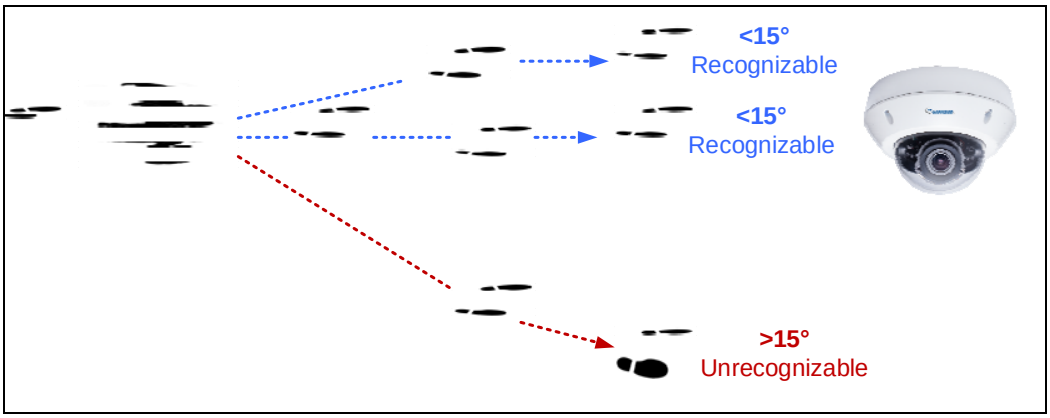
- **Height:** The more aligned the camera is to the front view of the face, the better the recognition results. Mount the camera at a 15-degree angle to the face of the recognition targets, or at a height of approximately 2 m (6.56 ft). The recognition result is at its best at a distance of approximately 4 m (13.12 ft).



- **Focus:** A large depth of field not only ensures an appropriate image size for the faces of the recognition targets, but also allows them to stay in focus for a longer period of time, thereby increasing the recognition accuracy. Calibrate the lens at the telephoto end for effective recognition at its optimal recognition distance of 4 m (13.12 ft).



- **Range:** The recognition result is at its best when the target walks straight to the camera. When the target deviates laterally, recognition is still possible as long as **the target stays within a 15 degree** range. The camera is unable to recognize the faces when the deviation exceeds 15 degrees.



5.2 Adjusting Illumination

After installing the camera properly, it is required to adjust the environment's lighting since the recognition process may vary depending on the illumination. Follow the guidelines below to set up the environment's lighting according to **Daytime** recognition needs.

Less Ideal Installation Scenario	Recommended Installation Scenario
Insufficient Lighting	Sufficient Lighting
Fast Moving Target	Target Moving at Constant Speed (1/60 Second Shutter Speed)
Results	
Less Ideal Recognition Performance	**Best Recognition Performance**

- **Lighting:** Sufficient light is required for effective recognition results, as moving targets often cause motion-blurred images under insufficient lighting.
- **Shutter Speed:** Adjust the shutter speed to 1/60 seconds manually when the camera is installed in places with high flow of people such as hallways.

For Nighttime Face Recognition, see *5.4.2 Nighttime* in the User's Manual.

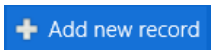
For other scenarios that may interfere with the recognition performance, such as intense lighting contrast in an environment, see *5.4.3 Low Illumination (WDR)* in the User's Manual.

5.3 Enrolling Face Data

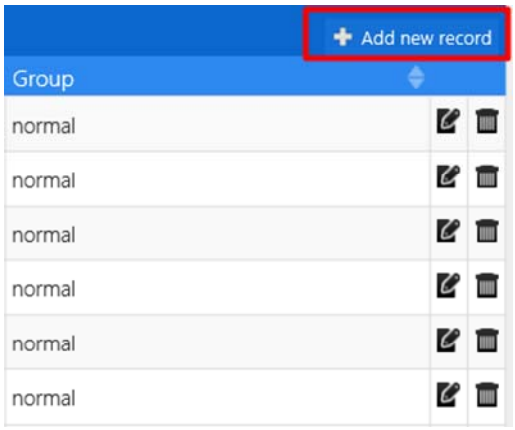
After the camera and the environment's lighting are set, it is required to create the face data by adding photos of the persons to be recognized into the Face Database of the camera.

To enroll Face Data:

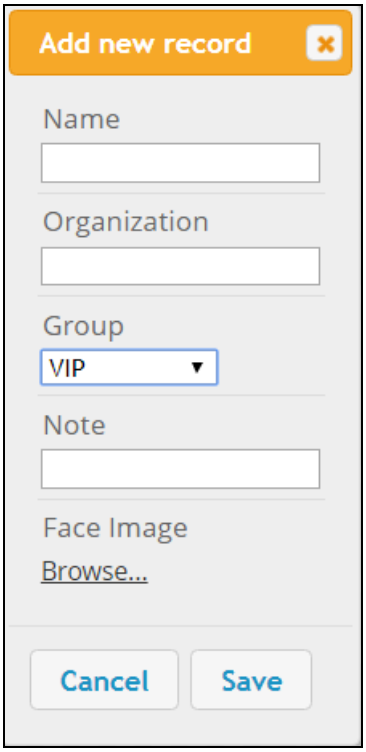
1. Click **System Settings**. Then in the left menu, click **Events and Alerts**, select **Face Recognition** and click the **Management** tab.

2. Click the **Add New Record** 

on the upper right corner. A dialog box appears.



3. Fill out the following information:



- **Name:** Type a desired name for the person.
- **Organization:** Type a desired organization name for the person.
- **Group:** Select from a list of three groups in which the person shall be categorized under. The three groups include **VIP**, **Normal**, **Unwelcomed**.
- **Note:** Type any additional remarks.
- **Browse:** Click to add portrait photos or snapshots, as face recognition data, for the person. Make sure the photos meet all the requirements as specified in *5.3.1 Photo Requirements*.

4. Click **Save** to save the face data. If the photos selected don't meet the required criteria, an error message will appear.

5. To add photos to or edit an existing profile, click the **Edit Record** icon shown in the figure of *Step 2*.

For details, see *5.5 Enrolling Face Data* in the User's Manual.

5.3.1 Photo Requirements

For face recognition to work, it is required for the photos to meet the following criteria:

- Each photo should consist of only one face.
- The file size of the photo cannot exceed 350 KB.
- Only JPG / JPEG format is supported.
- Make sure the face of the person does not occupy more than 50% of the image.

See the examples below:

Best Example	Example of Failure - 1	Example of Failure - 2
		
The face occupies 50% of the image.	The face occupies more than 50% of the image.	The size of the person's face is less than 120 pixels.

The accuracy of the face recognition can be improved by conforming to the suggestions below:

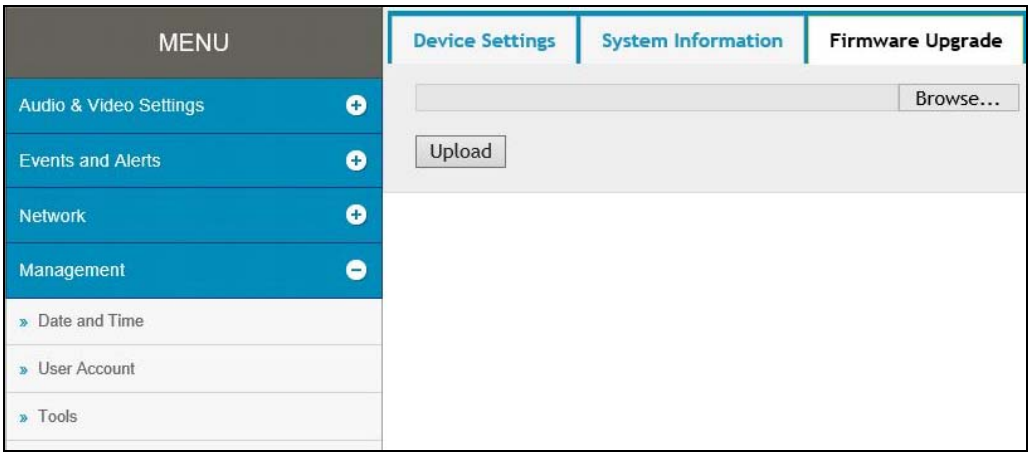
- Enroll 5 or more photos for each person with different angles
- Make sure the lighting is sufficient to reduce shadows on faces.
- Avoid glare from the glasses that obscures the eyes.
- Take the photo of the person from a distance of about 1 ~ 1.5 meters (3.2 ~ 4.9 feet) away from the camera to minimize image distortions.

It is recommended to enroll at least **5 or more** photos with different angles for each person. See *5.5.1 Photo Requirements* in the User's Manual for more examples. You can enroll a maximum of **20** photos per Face ID.

6. Upgrading System Firmware

GeoVision periodically releases updated firmware on the GeoVision website. To load the new firmware into the camera, follow the instructions below.

1. On the top bar, go to **System Settings**. In **Tools** under **Management**, select **Firmware Upgrade**.

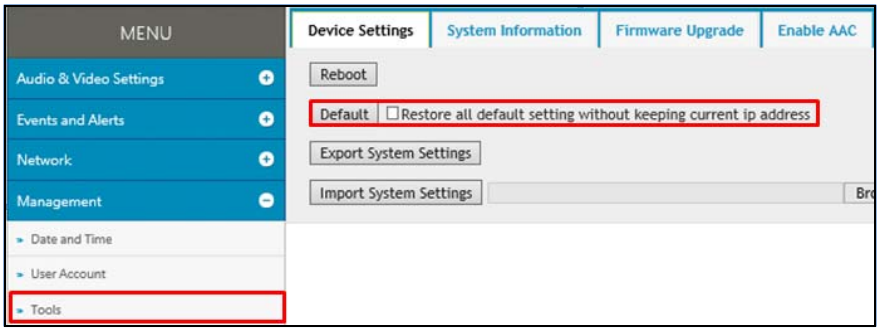


2. Click the **Browse** button to locate the firmware file (.zip) saved at your local computer.
3. Click the **Upload** button to start upgrading.

7. Restoring to Factory Default

If for any reason the camera is not responding correctly, you can reset it to its factory default setting by using its Web interface or pressing the **Default** button on the camera.

7.1 Using the Web Interface



1. After logging on to the Web interface, go to **System Settings**.
2. In the left menu of Web interface, select **Management** and click **Tools**.
3. Under the **Device Settings** tab, click the **Default** button to restore the factory default settings, and the current IP address of the camera will be kept.
4. To restore the camera and its IP address to factory default settings, select **Restore All Default Setting Without Keeping Current IP Address** and click **Default**.

7.2 Directly on the Camera

1. Press and hold the **Default** button.

2. Release the **Default** button when the status LED stops blinking. The process of loading default settings is completed and the camera reboots automatically.