GeoVision inc
The Vision of Security

GV-GF Fingerprint Reader

User's Manual

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

GF1911.1912.1921.1922-B

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Preface

Welcome to the *GV-GF Fingerprint Reader User's Manual*.

This Manual applies to the following GV-GF Fingerprint Readers:

Product	Version
GV-GF1911 / 1912	V1.0
GV-GF1921 / 1922	V1.1

Contents

Regulatory Notices

FCC Notice

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

Class A

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their own expense.

CE Notice

This is a Class A product. In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures.

RoHS Compliance

The Restriction of Hazardous Substances (RoHS) Directive is to forbid the use of hazardous materials of production. To meet the RoHS Directive requirements, this product is made to be RoHS compliant.

WEEE Compliance

This product is subject to the Waste Electrical and Electronic Equipment (WEEE) Directive and made compliant with the WEEE requirements.

Caution

- The fingerprint reader is designed only for indoor usage. Avoid exposing to sunshine or rains.
- To keep the fingerprint reader in good working condition, it is recommended to have regular maintenance and physical cleaning of the reader.

Installation Considerations

Note the distance limitations for Wiegand and RS-485 communications:

- Wiegand interface: 30 meters (98.43 feet)
- RS-485 interface: 600 meters (1968.50 feet)

Recommended RS-485 cable: standard 485 cable (a twisted pair of 24 AWG wires)

Firmware and Software Compatibility

The GV-AS Controller, GV-EV48 Controller and GV-ASManager compatible with GV-GF1911 / 1912 / 1921 / 1922 are listed below.

	GV-GF1911 / 1912	GV-GF1921 / 1922
GV-ASManager	V4.0 or later	
GV-AS100 / 110 / 120	V1.06 or later	N/A
GV-AS400	V1.04 or later	N/A
GV-AS210 / 810	V1.0 or later	V1.1 or later
GV-AS410	V1.1 or later	
GV-EV48 Elevator Controller	V1.0 or later	

Chapter 1 Introduction

The fingerprint reader can work with GV-AS / GV-EV Controller and GV-ASManager to create a complete access control system. Three types of operation modes are supported: Card + Fingerprint, Fingerprint Only and Card Only.

Card + Fingerprint Mode

With the fingerprint reader only, you can enroll and manage users through the supplied Manager Enroll Card and Delete Card, along with optional MIFARE cards.

The fingerprint templates are stored in the user card. The user gains access by scanning both his/her finger and the card. The reader compares the presented finger with digital template stored in the card. If the finger is successfully authenticated, a signal is sent to momentarily activate the door relay of the controller.

Fingerprint Only Mode

The fingerprints are enrolled through a GV-GF1911 reader installed on the computer running the GV-ASManager software using RS485 connection or through a GV-GF1921 / 1922 reader using TCP/IP connection. The fingerprint data are distributed through GV-ASManager to the assigned fingerprint readers installed on GV-AS / GV-EV Controllers for access control.

Card Only Mode

This mode requires the users to present their cards only to be granted access.

Note: GV-GF1921 / 1922 can also work as a standalone device. For details, see *7. A Standalone Fingerprint Reader*.

1.1 Packing List

If any of the items are missing or damaged, contact your dealer to arrange a replacement.

GV-GF1911 / 1912

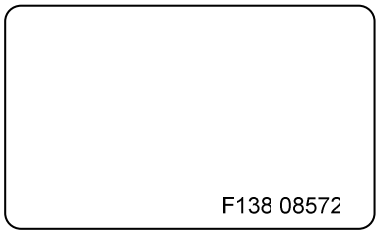
- Fingerprint reader x 1 (with a cable of 100 cm / 3.28 feet)
- Manager Enroll Card x 1
- Manager Delete Card x 1
- Self-Tapping Screw (M3 x 6L) x 2
- Self-Tapping Screw (M4 x 15L) x 3
- Plastic Screw Anchor x 4
- Buzzer Hole Plate
- Security Torx
- Software CD

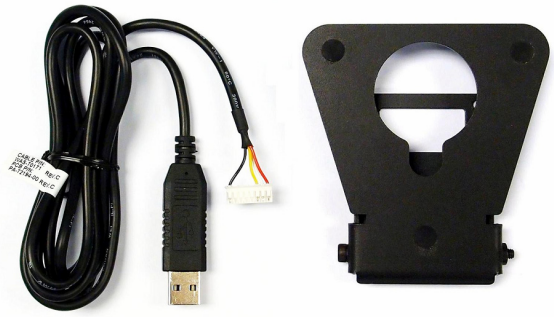
GV-GF1921 / 1922

- Fingerprint reader x 1
- Manager Enroll Card x 1
- Manager Delete Card x 1
- Mounting Plate x 1
- Standard Screw x 2
- Plastic Screw Anchor x 2
- Security Screw x 1
- Torx Wrench x 1
- Connector Wire x 1
- Software CD

1.2 Options

You can order the following optional accessories:

GV-AS ID Card & GV-AS ID Tag	For Card + Fingerprint Mode, the **GV-AS ID F Card** or **GV-AS ID F Tag** is required. You can find the serial number **Fxxx,xxxxx** at the bottom right corner of the card, or at the center of the tag.   For Card Only Mode, both the GV-AS ID F Card / Tag and the GV-AS ID Card / Tag are supported, but the GV-AS ID F Card / Tag cannot contain any fingerprint data.
GV-HUB V2	The GV-Hub V2 adds four RS-232/RS-485 serial ports through the computer's USB port, allowing connection between the fingerprint reader and the computer. 
GV-COM V2	The GV-COM V2 can convert the standard RS-232 signal, through USB connector, to RS-485 signal, allowing connection between the fingerprint reader and the computer. 

GV-NET/IO Card V3.1 **GV-NET/IO Card V3.2**	The GV-NET/IO Card is a RS-485 / RS-232 interface converter that provides 4 inputs and 4 relay outputs. Using the GV-NET/IO Card, you can connect the fingerprint reader to the computer. 
PC Service Package	The package includes a USB cable for connecting the fingerprint reader to a computer and a reader mount to hold the reader for fingerprint enrollment. See *7. Upgrading Firmware* later. 

Note:

1. For **Card + Fingerprint Mode**, GV-GF Fingerprint Readers can only work with GeoVision's user cards and tags.
2. For **Card + Fingerprint Mode**, be sure that your user card has the serial number starting with the letter F; otherwise, you cannot record the fingerprints to the user card.
3. GV-HUB V2, GV-COM V2, GV-NET/IO Card and PC Service Package are only compatible with GV-GF1911 / 1912.

1.3 Serial Number / MAC Address

To find the serial number of GV-GF1911 / 1912, see the **XID** number on the back of fingerprint reader.

Figure 1-1

For **GV-GF1921** and **GV-GF1922**, you can find the MAC address on the back of the device.

Figure 1-2

You can also find the serial number (for GV-GF1911 / 1912) or the MAC address (for GV-GF1921 / 1922) using the **GV-Net Module Utility** supplied on the software CD. For details to use the utility, see *GV-Net Module Utility*, Chapter 10.

1.4 Installation

Follow the steps below to install the GV-GF1921 / 1922 on wall.

1. Place the mounting plate on the wall as illustrated below.

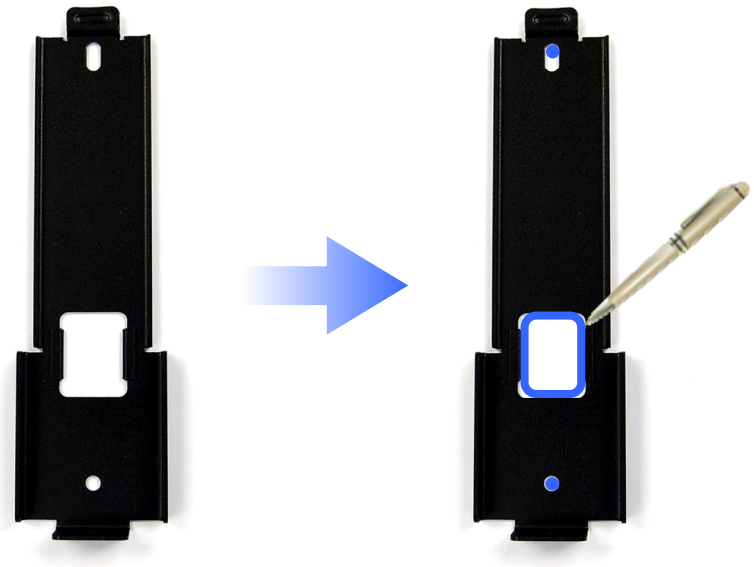


Figure 1-3

2. Mark the location of the 2 holes and the rectangle as labeled above.
3. Drill the rectangle to create a space for running the cables and wires.
4. At the 2 dots, drill a hole slightly smaller than the plastic screw anchors provided.
5. Insert the 2 plastic screw anchors in the drilled holes.
6. Place the mounting plate on the wall and secure with the 2 standard screws provided.

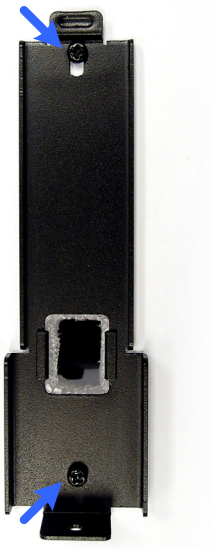


Figure 1-4

7. Place fingerprint reader on the mounting plate and thread the cables through the rectangular hole.

Figure 1-5

8. Secure the security screw on the bottom.

Figure 1-6

Chapter 2 Connecting GV-AS Controller

Depending on the model of the fingerprint reader, three types of communication links are provided: **Wiegand**, **RS-485** and **TCP/IP (LAN)**.

2.1 Connecting through Wiegand Interface

Supported models: **GV-GF1911 / 1912**.

2.1.1 Physical Connection

The fingerprint reader is connected with an unshielded 9-wire cable of 100 cm / 3.28 feet. Connect these 4 unshielded wires to the assigned pins on the Wiegand interface of the GV-AS Controller: Red, Black, White and Green wires.

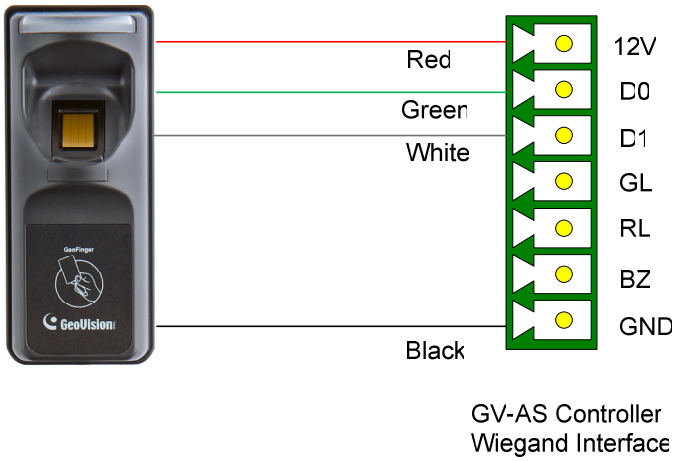


Figure 2-1

The table below shows the wire assignments of the fingerprint reader used for Wiegand connection.

Wire	Red	Black	White	Green	Yellow	Blue	Orange	Brown	Silver
Function	12V	GND	Data-1	Data-0	N/C	N/C	N/C	N/C	N/C

For the wiring of extending distance it is recommended to use the standard RS-485 cable (a twisted pair of 24 AWG wires). The maximum distance of the Wiegand output cable should be restricted to a length of 30 meters (98.43 feet).

2.1.2 Software Configuration

To define the fingerprint reader connected to the GV-AS Controller. On the Web interface of GV-AS Controller, click **Wiegand Setting** in the left menu. The Wiegand Configuration page appears. Select the function, e,g. Door/Gate 1 Entry, that the fingerprint reader is used for, and click **Submit**.

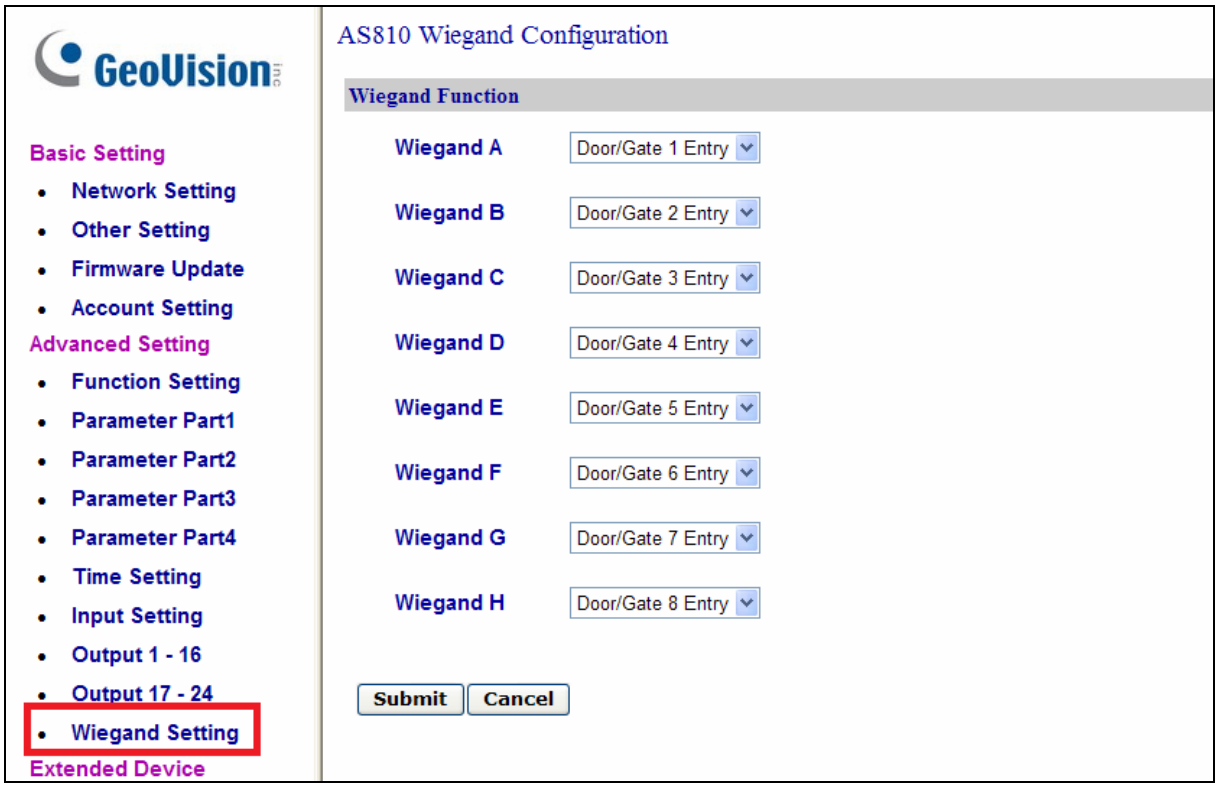


Figure 2-2

2.2 Connecting through RS-485 Interface

Supported models: **GV-GF1911 / 1912**.

2.2.1 Physical Connection

Use the terminal block on the above four reader models for RS-485 connection to the GV-AS Controller.

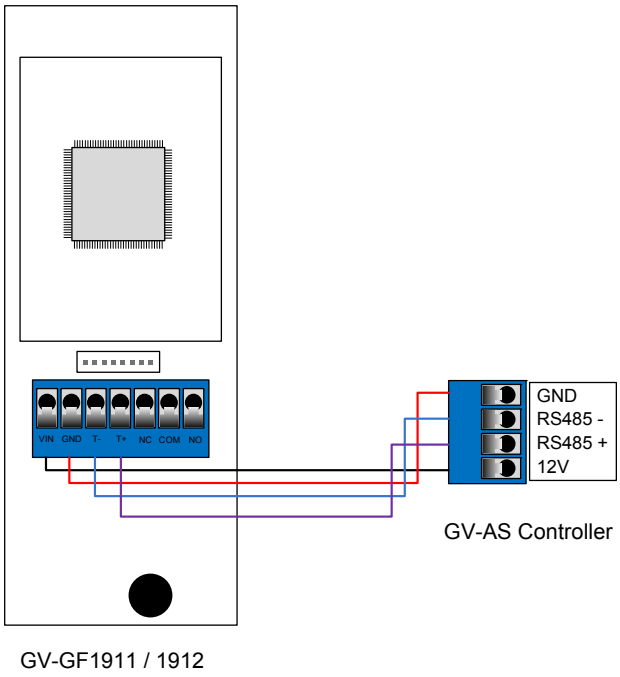


Figure 2-3

The table below shows the pin assignments of the fingerprint reader used for RS-485 connection.

Pin	VIN	GND	T-	T+
Function	12V	GND	RS-485 -	RS-485 +

2.2.2 Software Configuration

To define the fingerprint reader connected to the GV-AS Controller, on the Web interface of GV-AS Controller, click **Extended Reader** in the left menu. The Extended Reader Configuration page appears.

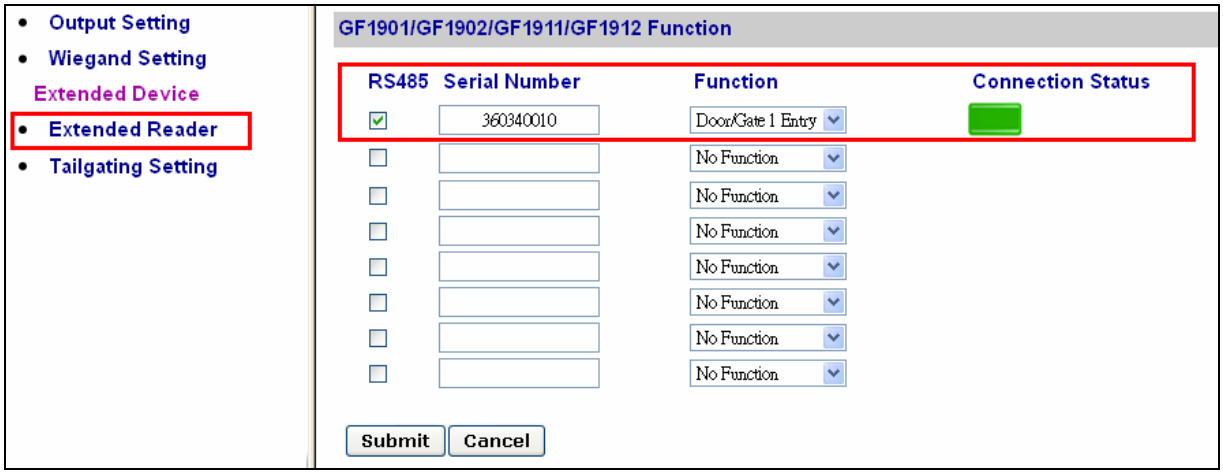


Figure 2-4

Type **Serial Number** of your fingerprint reader (See *1.3 Serial Number / MAC Address*), and select **Function** that the fingerprint reader is used for, and click **Submit**. If the fingerprint reader is detected, the **Connection Status** field will be green.

IMPORTANT: For RS-485 connection, make sure to check the **RS485** box before the serial number to establish connection.

2.3 Connecting through TCP/IP Interface

Supported models: **GV-GF1911 / 1912 / 1921 / 1922**

Note: The GV-GF1921 / 1922 can also work as a standalone device without connecting to a GV-AS Controller. For details, see *7. A Standalone Fingerprint Reader*.

2.3.1 Physical Connection

The fingerprint reader and GV-AS Controller can be physically connected through LAN. Prepare a 12V DC power adapter to connect the fingerprint reader to a power source.

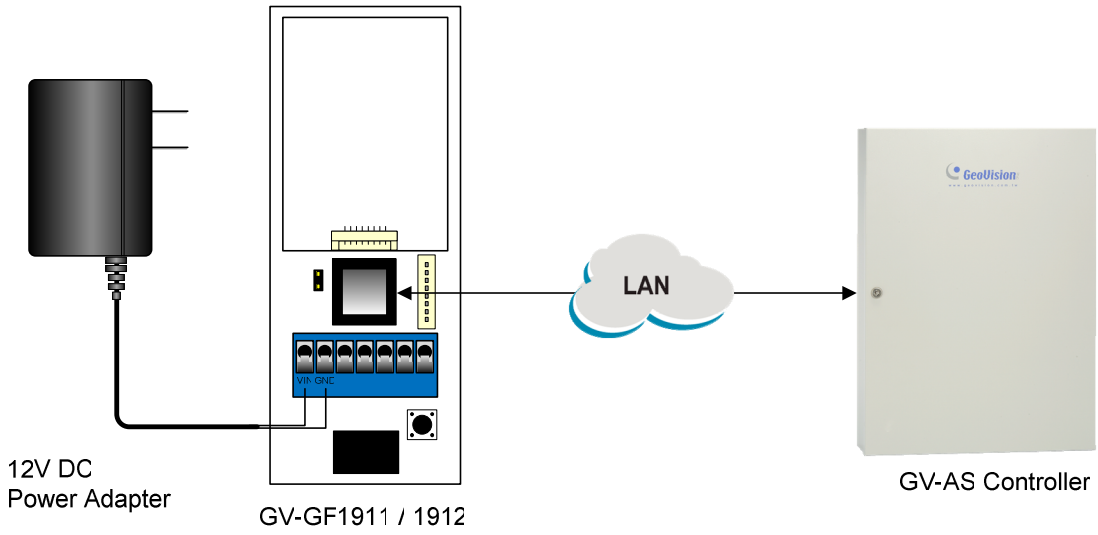


Figure 2-5

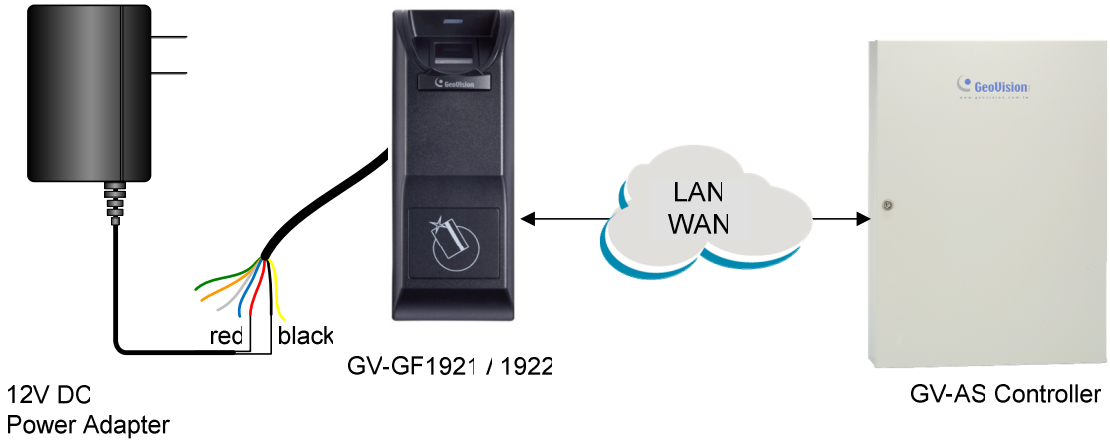


Figure 2-6

The table below shows the pin assignments of the fingerprint reader used for power connection.

Pin	**GV-GF1911 / 1912**	VIN	GND
	GV-GF1921 / 1922	Red wire	Black wire
Function		12V	GND

Note:

1. Make sure your GV-AS Controller and GV-ASManager support the network connection with the fingerprint reader. See *Firmware and Software Compatibility*.
2. Instead of using a 12V DC power adapter, you also connect the fingerprint reader to GV-AS Controller for power supply.

2.3.2 Accessing the Web Interface

By default, the fingerprint reader is assigned with an unused IP address by the DHCP server when the fingerprint reader is connected to the network. This IP address remains unchanged unless you unplug or disconnect your fingerprint reader from the network.

Note: If your router does not support DHCP, the default IP address will be **192.168.0.10**. The default login ID and password are **admin**.

Follow the steps below to look up the IP address of your fingerprint reader / GV-AS Controller and access the Web interface:

1. Look up the IP address using GV-Net Module Utility.
   A. Install **GV-Net Module Utility** from the Software CD.
   B. Run the utility. The **GV-Net Module Utility** window appears and automatically searches for the GV-AS Controller and GV-GF1911 / 1912 / 1921 / 1922 on the same LAN.

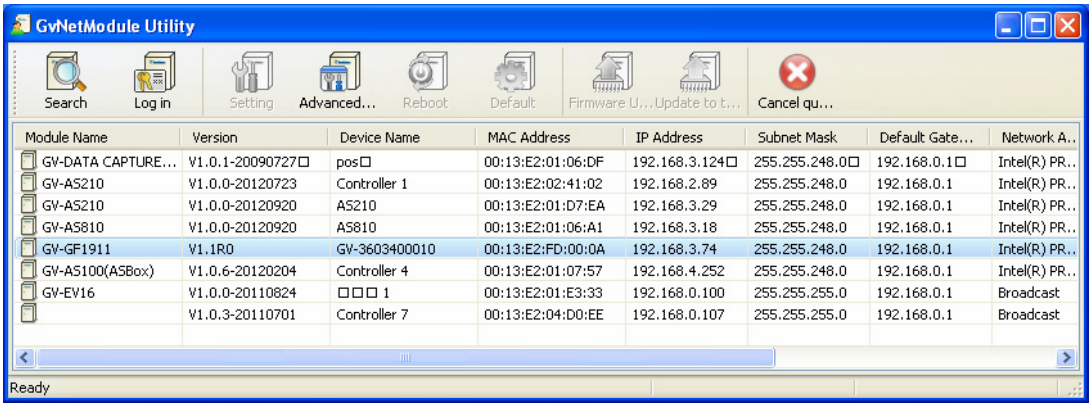


Figure 2-7

   C. Click **Module Name** or **MAC Address** to sort.
   D. Find the IP address of your device.
2. You can access the Web interface using any of the following method:
   - Right-click the device on GV-Net Module Utility and select **Advanced Setting**.
   - Type the IP address into the Web browser.
3. Type ID and password. The default ID and password are **admin**.

2.3.3 Software Configuration

To connect the fingerprint reader and GV-AS Controller through the network, you need to provide information such as a serial number, MAC address and IP address for your fingerprint reader and GV-AS Controller to locate and connect to each other.

A. Define fingerprint reader on GV-AS Controller.

1. Log in the Web interface of GV-AS Controller. For details, see *2.3.2 Accessing the Web Interface*.
2. On the Web interface of GV-AS Controller, click **Extended Reader** in the left menu. The Extended Reader Configuration page appears.
3. **For GV-GF1921 / 1922:**

   Type the **MAC address** of your fingerprint reader in the Serial Number column under the **GV-Reader/CR420/GF1921/GF1922 Function** section. Do not select the RS-485 box.

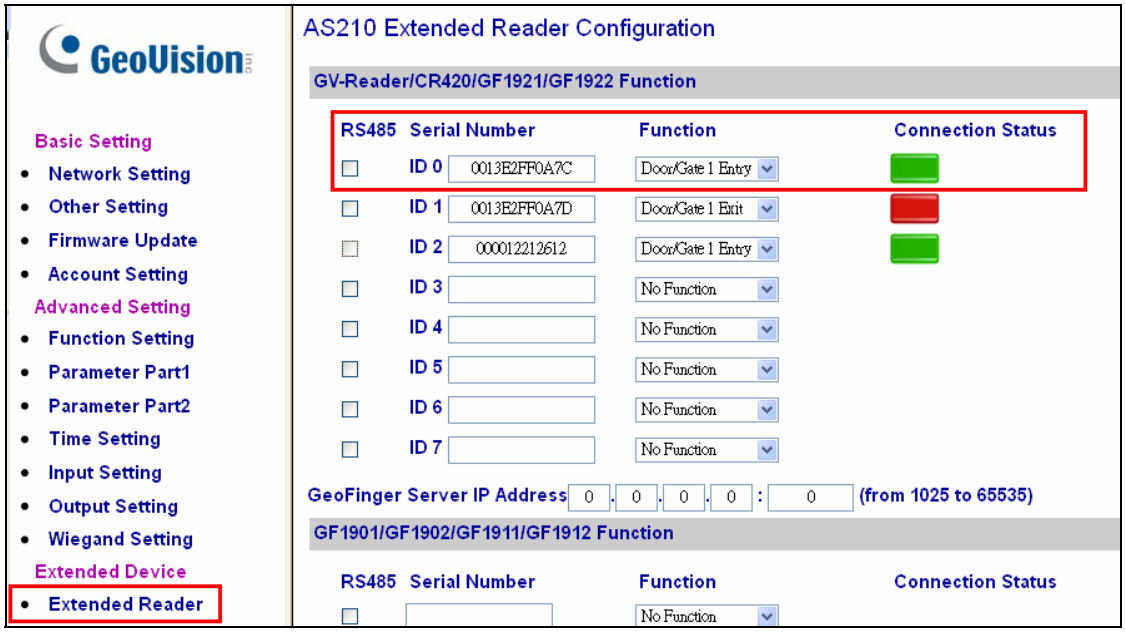


Figure 2-8

In the **GeoFinger Server IP Address** field, you can type the IP address and port of the GV-ASManager's GeoFinger Server in order for GV-ASManager to receive data from the GV-GF1921 / 1922 listed on this page during remote fingerprint enrollment. In addition, the GV-AS Controller will be connected to the GV-GF1921 / 1922 listed. You can therefore skip the steps in *B. Specify the GV-AS Controller on your fingerprint reader* if you fill in the GeoFinger Server IP Address.

For GV-GF1911 / 1912:

Type the **Serial Number** of your fingerprint reader in the Serial Number column under the **GF1901/GF1902/GF1911/GF1912 Function** section.

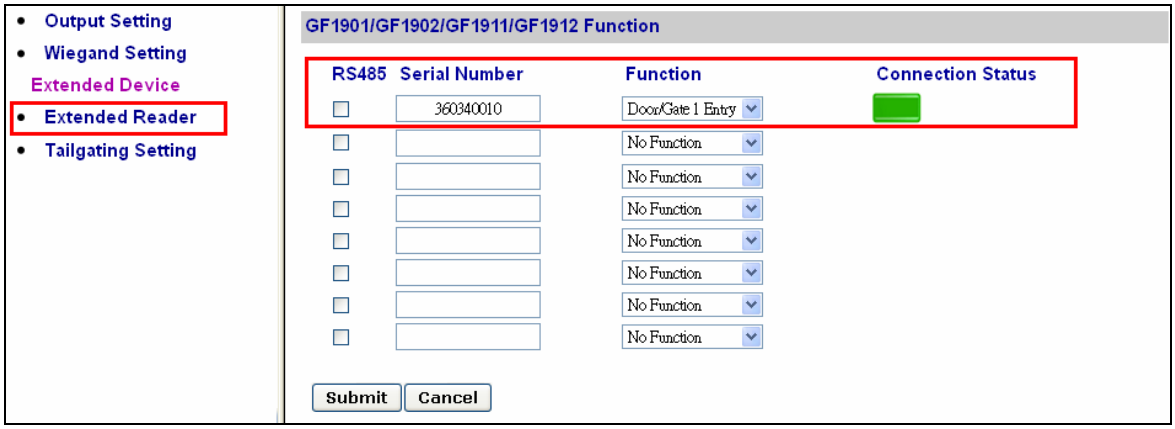


Figure 2-9

Note: Select the **RS-485** checkbox only if the GV-GF1911 / 1912 is connected to the controller through RS-485 connection. For TCP/IP connection, do not check the **RS485** box.

For details on how to look up the serial number or the MAC address, see *1.3 Serial Number / MAC Address*.

4. Use the **Function** drop-down list to specify which door the fingerprint reader is connected to.
5. Click **Submit**. If the fingerprint reader is detected, a green bar appears in the **Connection Status** field.

B. Specify the GV-AS Controller on your fingerprint reader.

6. Log in the Web interface of the fingerprint reader. For details, see *2.3.2 Accessing the Web Interface*.

7. For **GV-GF1911 / 1912**, click **SETTINGS** and select **GV-AS Controller**. This page appears. Type the IP address of GV-AS Controller and click **Save**.

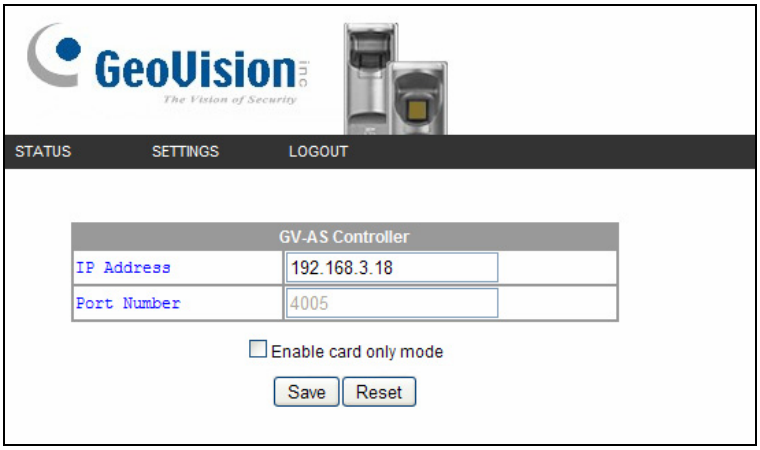


Figure 2-10

8. For **GV-GF1921 / 1922**, select **Other Settings**. This page appears. Type the IP address or domain name of GV-AS Controller and click **Submit**.

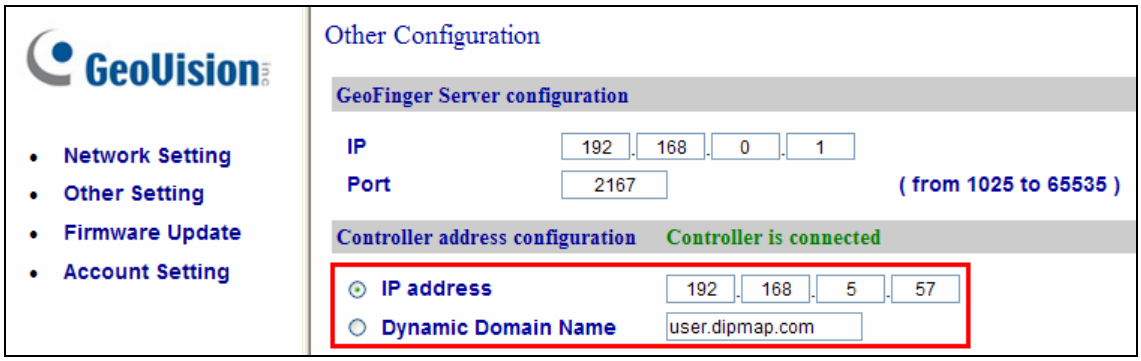


Figure 2-11

If the connection is established, the message “Controller is connected” appears (Figure 2-11) and a green bar appears on in the Connection Status field of the GV-AS Controller (Figure 2-8 and Figure 2-9).

Note: If the fingerprint reader fails to connect to the GV-AS Controller, the reader beeps (for GV-GF1911 / 1912) or the light turns purple (for GV-GF1921 / 1922) until the connection is established.

Chapter 3 Fingerprint Only Mode

The Fingerprint Only mode must work with the **GV-ASManager** software and the **GV-GF1911 / GV-GF1921 / GV-GF1922** reader to enroll fingerprints. You must first enroll fingerprint data using GV-ASManager and then upload the fingerprints to the fingerprint readers. To gain access, the user's fingerprint must match the enrolled fingerprint.

3.1 Enrolling Fingerprints

There are two ways to enroll fingerprints: locally and remotely.

For **local fingerprint enrollment**, a GV-GF1911 / 1921 / 1922 needs to be connected to GV-ASManager, and the user needs to register his or her fingerprints at the site of the GV-ASManager.

For **remote fingerprint enrollment**, first enroll empty fingerprints for a user on the GV-ASManager. The user can then go to a connected GV-GF1921 / 1922 at a later time, and register his or her fingerprints using an assigned card. This function is useful when the user is not around GV-ASManager.

Note: The enrolled fingerprints will be saved on the fingerprint reader instead of on the GV-ASManager.

3.1.1 Enrolling Fingerprints Locally

There are two ways to enroll fingerprint data locally:

- **GV-GF1911: RS-485 Connection with GV-ASManager**
  You need to physically connect **GV-GF1911** to the computer running GV-ASManager through RS-485 connection. To establish RS-485 connection to the computer, a RS-485 to RS-232 converter, such as GV-COM, GV-Hub, GV-NET/IO Card or the USB cable in PC Service Package (optional accessory), is required.

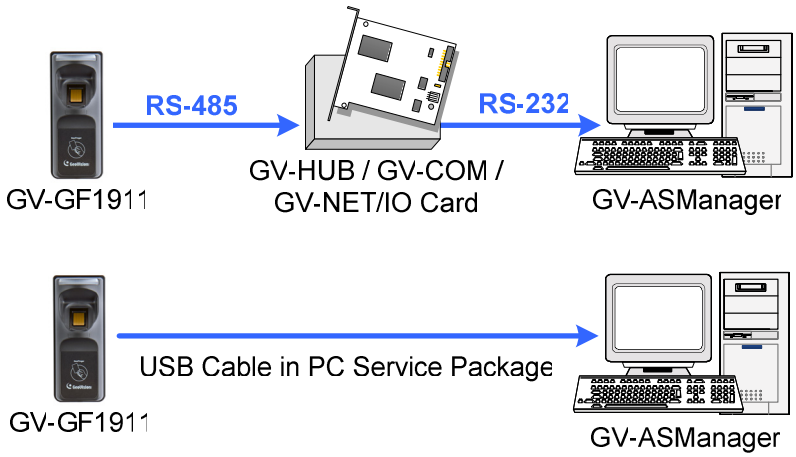


Figure 3-1

- **GV-GF1921 / 1922: TCP/IP Connection with GV-ASManager**
  GV-ASManager and **GV-GF1921 / 1922** can be connected through TCP/IP connection.

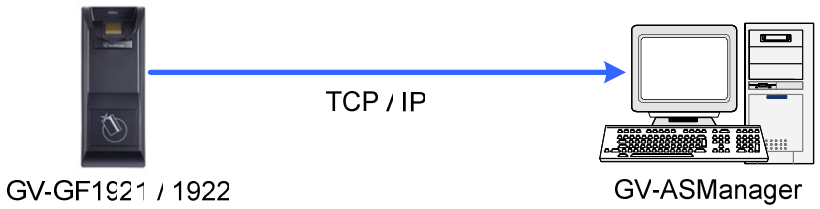


Figure 3-2

Note:

1. Fingerprint enrollment does not support Wiegand connection.
2. After connecting GV-HUB, GV-COM, GV-NET/IO Card or USB Cable to the computer, you must install the driver from the supplied software CD.

Enrolling Fingerprints Locally on GV-ASManager

Before you start enrolling fingerprints, make sure you have added cards, created user accounts and assigned cards to the users. See *4.3 Setting Cards* and *4.6 Setting User* in *GV-ASManager User's Manual.* Follow the steps below to enroll the fingerprints on the GV-ASManager.

Note: Each user's fingerprints need to go along with a card number. If you do not have cards or card readers, you can create virtual card numbers to represent the enrolled fingerprints.

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1. On the menu bar of GV-ASManager, click **Personnel** and select **Users**. The User List window appears.
2. Double-click one user listed in the window. The User Setup dialog box appears.
3. Click the **Fingerprint** tab. This dialog box appears.

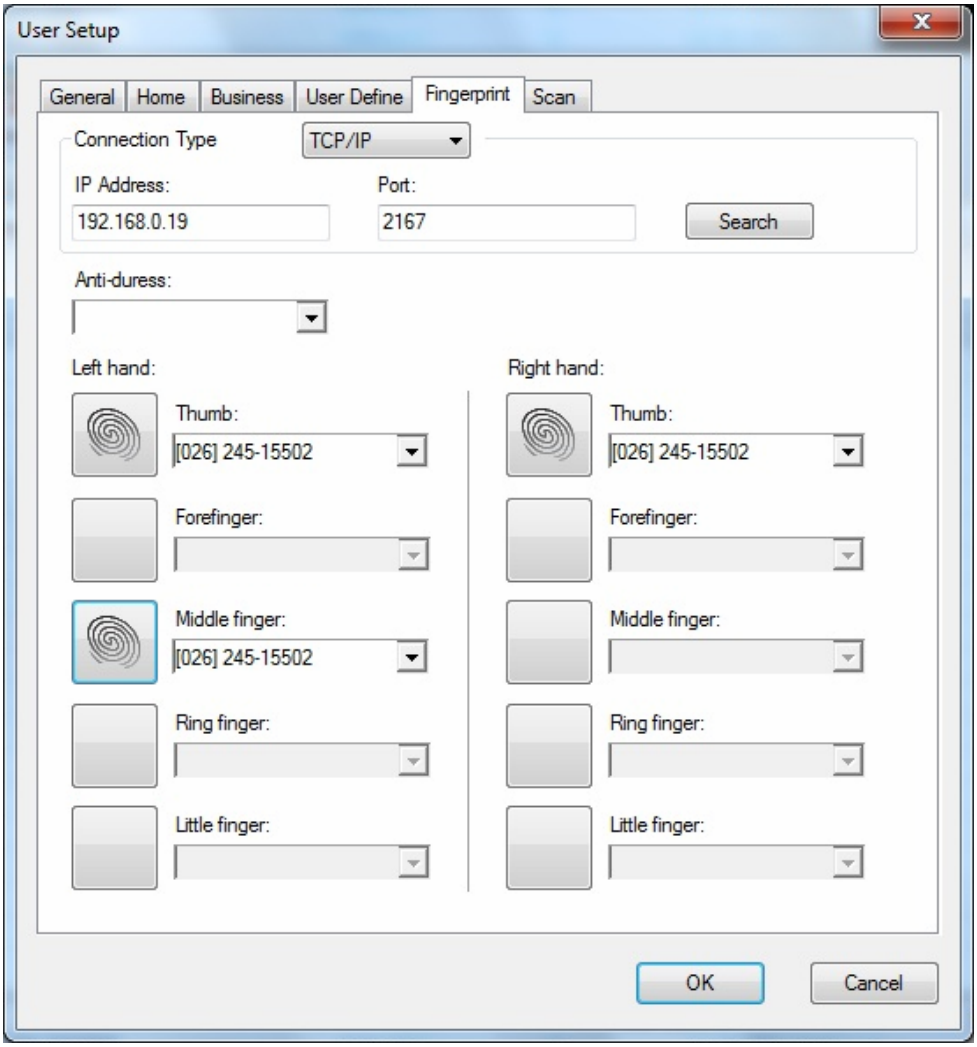

Figure 3-3

4. Establish connection between GV-ASManager and GV-GF1911 / 1921 / 1922.
   - **GV-GF1911:** Select **COM** for Connection Type and click **Search** to detect the GV-GF1911 connected.
   - **GV-GF1921 / 1922:** Select **TCP/IP** for Connection Type. Type the **IP Address** and **Port** of the GV-GF1921 / 1922 or you can also click **Search** to detect available fingerprint readers on the LAN.
5. In the Left Hand and Right Hand sections, click any finger square and select **Enroll Fingerprints**.

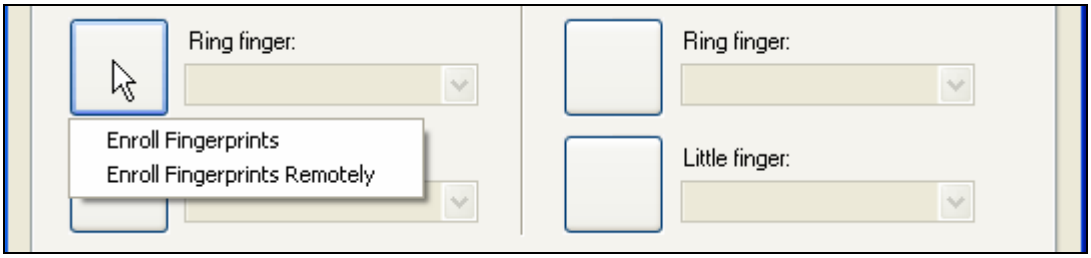

Figure 3-4

6. Place the specific finger on the fingerprint reader. It is required to register the same fingerprint twice to complete the enrollment. All ten fingerprints of a user can be enrolled.
7. Use the drop-down list to assign a card to the fingerprints.
8. To delete the enrolled fingerprint, place the mouse pointer on the desired fingerprint image. The button appears. Click the button to delete the fingerprint.
9. For the **Anti-duress** function, select a fingerprint from the Anti-duress drop-down list. When the user is forced to open the door under threat, he can present the designated finger to activate an alarm and send a warning signal to the GV-ASManager.
10. Click **OK** to apply the settings.

3.1.2 Enrolling Fingerprints Remotely (GV-GF1921 / 1922 Only)

Before you start enrolling the fingerprint, make sure you have added cards, created user accounts, and assigned cards to the users. See *4.3 Setting Cards* and *4.6 Setting User* in *GV-ASManager User's Manual.* Follow the steps below to remotely enroll fingerprints on a GV-GF1921 / 1922.

1. On the menu bar of GV-ASManager, click **Personnel** and select **Users**. The User List window appears.
2. Double-click one user listed in the window. The User Setup dialog box appears.
3. Click the **Fingerprint** tab.
4. In the Left Hand and Right Hand sections, click a finger square and select **Enroll Fingerprints Remotely**.

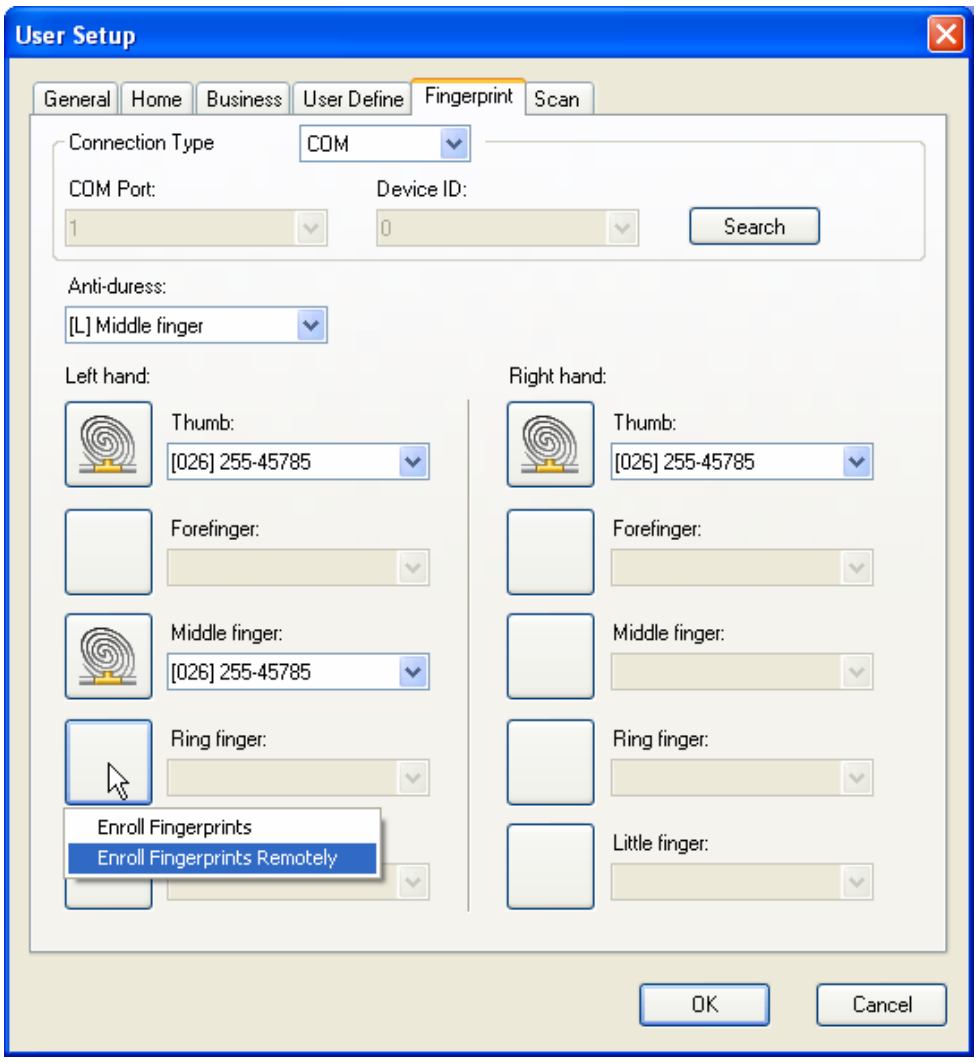

Figure 3-5

Note: For remote fingerprint enrollment, you do not need to select Connection Type or type the IP address of the fingerprint reader at the top of the page.

5. Use the drop-down list to assign a card to the empty fingerprint.
6. Repeat steps 4 and 5 for other fingers if needed.
7. To delete the empty fingerprints, place the mouse pointer on the desired finger square. The button appears. Click the button to delete the fingerprint.
8. For the **Anti-duress** function, select a finger from the Anti-duress drop-down list. When the user is forced to open the door under threat, he can present the designated finger to activate an alarm and send a warning signal to the GV-ASManager.
9. Click **OK** to apply the settings.

Next, refer to the section below to upload the empty fingerprints to GV-GF1921 / 1922. The user can then register fingerprints anytime by swiping the assigned card and registering the same finger twice at the GV-GF1921 / 1922 specified in *Figure 3-11*.

If multiple empty fingerprints have been enrolled for the user, have the user register left hand before right hand and in the order of thumb, forefinger, middle finger, ring finger and little finger. Using Figure 3-5 as an example, register in the order of left hand thumb, left hand middle finger, right hand thumb.

Allowing GV-GF1921 / 1922 to Transmit Data Back to GV-ASManager

To allow GV-GF1921 / 1922 to transmit data back to GV-ASManager for remote fingerprint enrollment, you must go to the Web interface of the GV-AS Controller or the GV-GF1921 / 1922 to complete the settings below. See *2.3.2 Accessing the Web Interface* for details on how to access the Web interface.

Complete setting A **OR** B:

A. Go to the Web interface of the GV-GF1921 / 1922, click **Other Setting** in the left menu, and type the **IP** address and **Port** number of the GV-ASManager's GeoFinger Server.

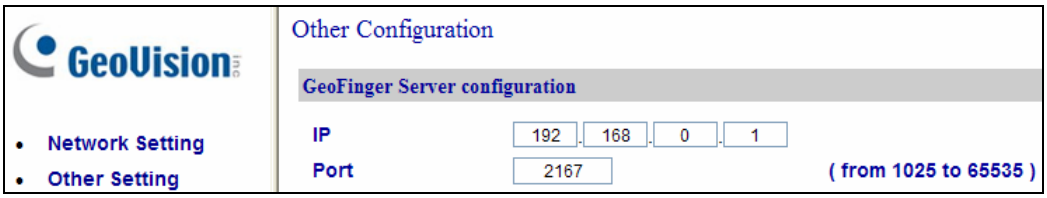

Figure 3-6

B. Go to the Web interface of the GV-AS Controller, click **Extended Reader** in the left menu, type the **IP** address and **Port** number of the GV-ASManager's GeoFinger Server.

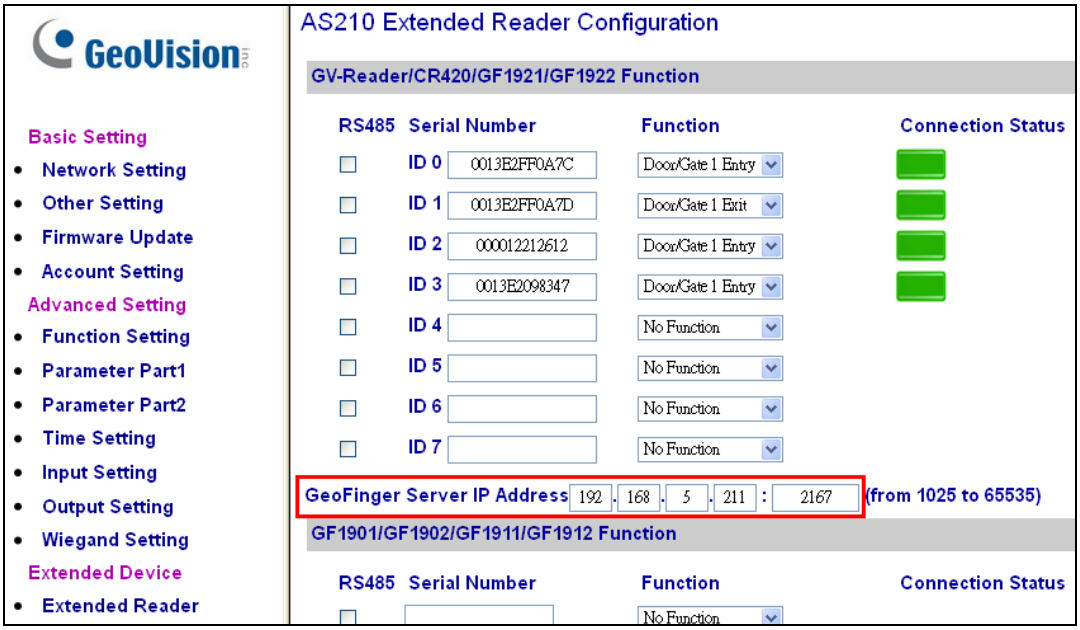

Figure 3-7

Note: The GeoFinger Server IP Address is the IP Address of the computer running GV-ASManager. The GeoFinger Server port can be located in GV-ASManager by selecting **Tools** > **Servers** > **GeoFinger Server**.

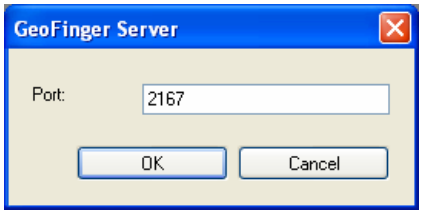

Figure 3-8

3.2 Uploading Fingerprints to Fingerprint Readers

There are two ways to upload enrolled fingerprints from GV-ASManager to fingerprint readers.

For **GV-GF1911 / 1912**, data can be sent to the GV-AS Controller through network connection and then sent to GV-GF1911 / 1912 through RS-485.

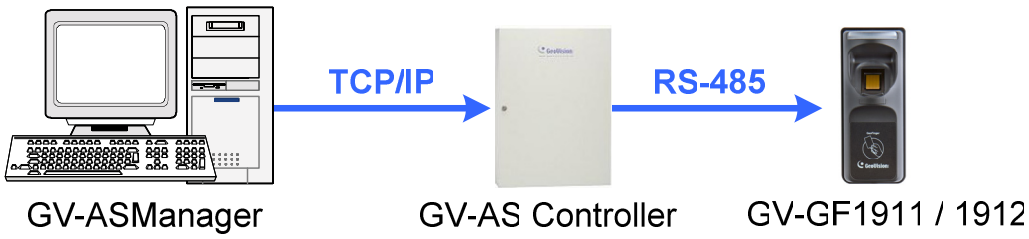

Figure 3-9

For **GV-GF1911 / 1912 / 1921 / 1922**, data can be sent directly from GV-ASManager through TCP / IP.

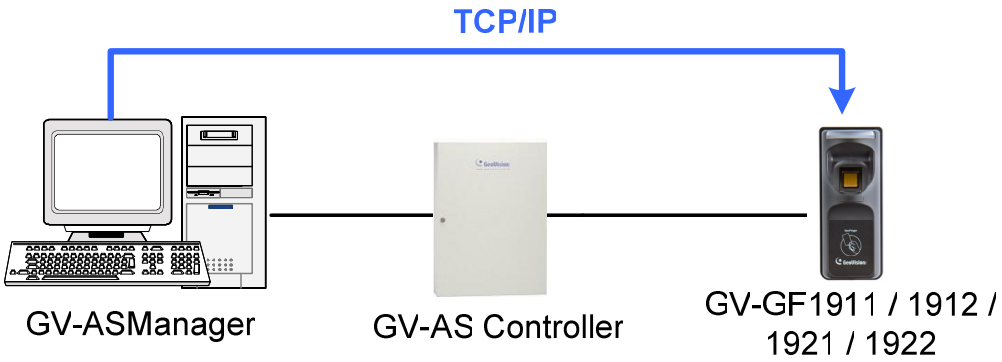

Figure 3-10

To upload data from GV-ASManager to the fingerprint reader, follow the instruction below.

A. Connect GV-ASManager and Fingerprint Reader

1. On the menu bar of GV-ASManager, click **Setup** and select **Devices**.
2. Double-click a controller and select a **Gate** tab. This dialog box appears.

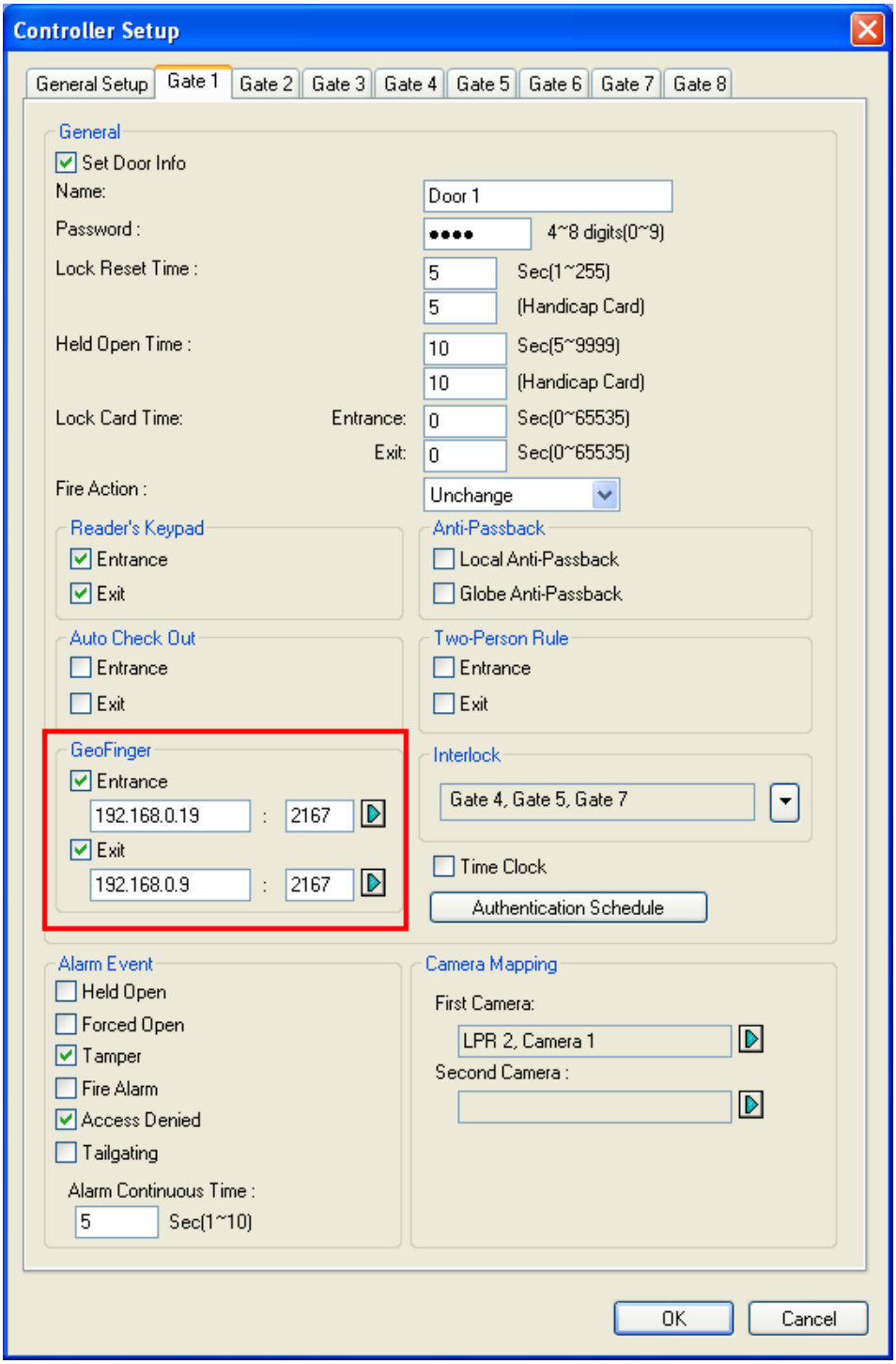

Figure 3-11

3. If your fingerprint reader is connected to GV-AS Controller through RS485 (Figure 3-4), select **Entrance** or **Exit** under GeoFinger section without typing an IP address/MAC address or serial number.

   If your fingerprint reader is connected to GV-AS Controller through TCP/IP, define the fingerprint reader. Under GeoFinger section, select **Entrance** or **Exit** and type the fingerprint reader's **IP address** and **port** or the following information:

   - For GV-GF1911 / 1912, type **gv-** and the 10-digit serial number.
     For example: GV-0123456789
   - For GV-GF1921 / 1922, type the machine name (Fig 8-1).
     For example: GV-0013e2ff0a76

   For details on looking up the IP address, serial number or machine name, see *2.3.2 Accessing the Web Interface*.

B. Select and Upload Fingerprints Data from GV-ASManager to Fingerprint Readers

4. On the menu bar of GV-ASManager, click **Setup** and select **Fingerprint Access**. This dialog box appears.

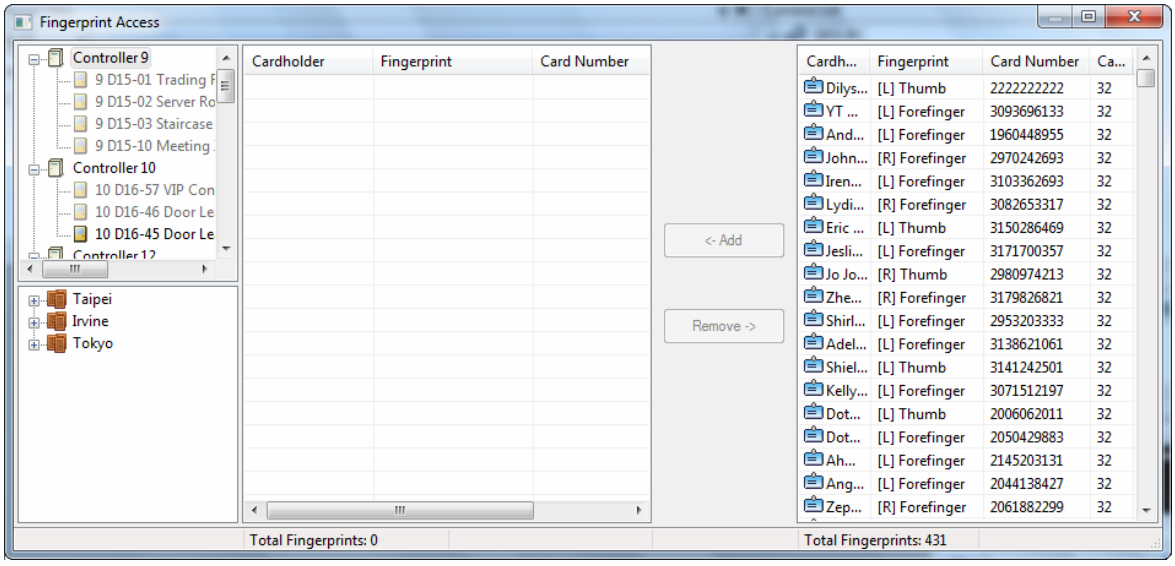

Figure 3-12

5. To upload the fingerprints to a door or a controller, select the desired Door/Gate or controller in the top-left panel. If you have assigned multiple controllers to a door group, select the desired door group in the bottom-left panel. See *Uploading Fingerprints to Controllers Using Door Groups* later in this chapter to see how to set up door groups.
6. Select the desired fingerprint data on the right side. The **Add** button becomes available.
7. Click the **Add** button to upload the selected fingerprint data to the selected Door/Gate or door group. When the uploading is complete, check marks will appear in the **In** (Enter) or **Out** (Exit) columns. The resulting window after uploading may look like this:

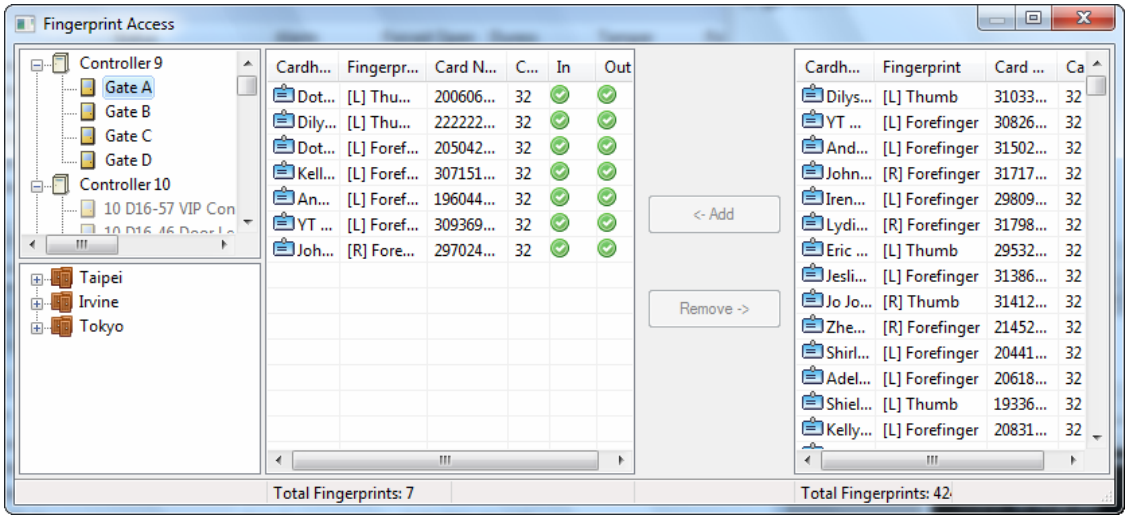

Figure 3-13

Tip:

1. If some green checkmarks are missing in the **In** or **Out** columns, right-click the door / gate in the Device View on the main screen, and select **Sync GeoFinger** to re-upload the data.
2. Each fingerprint reader can store up to 1,900 fingerprints.

3.3 Uploading Fingerprints Using Door Groups

When a large number of GV-AS Controllers are connected to the GV-ASManager, you can organize the GV-AS Controllers into different door groups. Using door groups, you can quickly upload fingerprints to all the GV-AS Controllers in a door group instead of uploading to each controller one by one.

1. On the menu bar of GV-ASManager, click **Setup** and select **Door groups**. This window appears and the connected controllers are listed on the right.

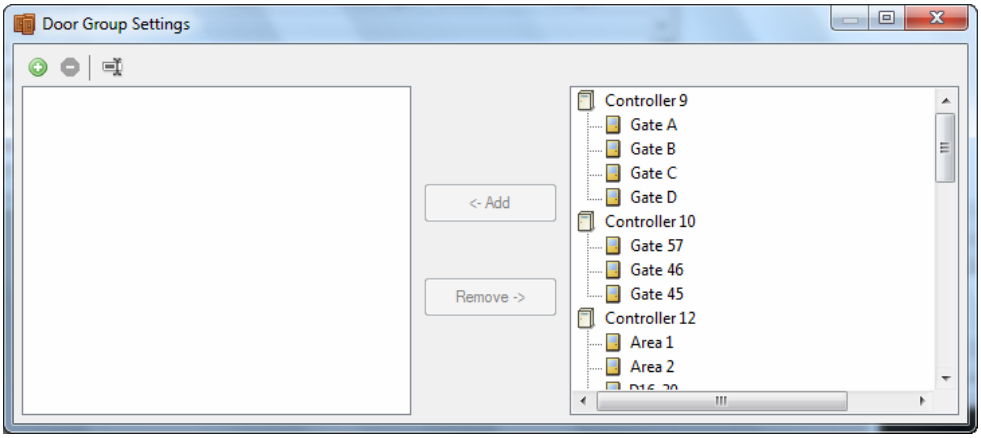

Figure 3-14

2. Click the **Add Group** button . A new group is created.
3. Click the new group and click the **Rename Group** button to rename the group.
4. Select the door group and then select the controllers to add to the group.
5. Click the **Add** button. The selected GV-AS Controllers are now assigned to the group.

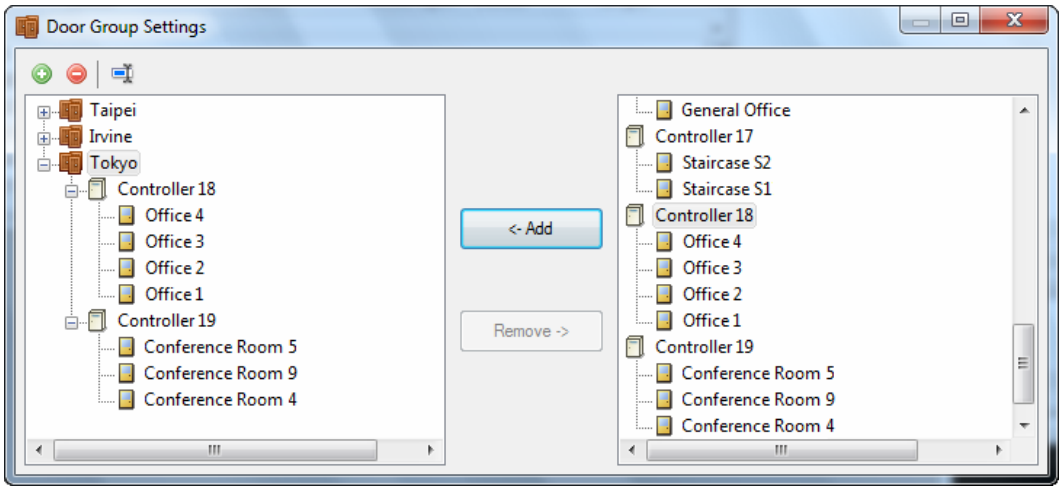

Figure 3-15

3.4 Using the Fingerprint Reader

After you connect the fingerprint reader to the controller and enroll the fingerprints, scan your finger to gain access.

1. If the presented fingerprint matches any record in the fingerprint reader, the light will turn from blue to green. Access signal will be passed to the controller and the access will be granted.
2. If the presented fingerprint does NOT match the record in the fingerprint reader, the light will turn from steady blue to yellow and the reader will beep for three times. Then the light will come back to a steady blue. The reader will not pass access signal to the controller and the access will be denied.

Note: The light on fingerprint reader turns red if the access is not within the established schedule on GV-AS Manager.

Chapter 4 Card + Fingerprint Mode

4.1 Enrollment

The user's fingerprints are stored in the user card and each user card can store up to 2 fingerprints. The user must gain access by scanning both the user card and the finger.

Cards Required for Enrollment

- Manager Enroll Card (supplied in the package)
- User Card

Note: For **Card + Fingerprint Mode**, GV-GF Fingerprint Readers can only work with GV-AS ID F cards and tags. Every GV-AS ID F card or tag can only store 2 fingerprints.

Enrollment Procedure

	**Step 1:** In the standby mode, the light is blue on. Present the Manager Enroll Card. The light starts blinking green.
	**Step 2:** Present the User Card till the light blinks blue. Or present the Manager Enroll Card to exit the enroll mode.

<table>
<tr>
<td> 
 
  </td>
<td>Step 3:

GV-GF1911/1912
With the light blinking blue, scan your fingerprint and withdraw when the reader beeps. The light turns green and then back to blue again.

Scan the same fingerprint again till beep, and withdraw your finger. The light again turns green and then blinks green.

Note: It is required to scan the same fingerprint twice to complete the enrollment.

GV-GF1921 / 1922

With the light blinking blue, scan your fingerprint and withdraw only when your hear a long beep. The light blinks blue, signifying that one fingerprint has been enrolled.</td>
</tr>
<tr>
<td>  </td>
<td>Step 4:
GV-GF1911 / 1912
To enroll the second fingerprint, repeat step 3.

GV-GF1921 / 1922

To enroll the second fingerprint, press another finger on the reader while the light blinks blue. Withdraw your finger when the reader beeps. The light shall blink green.</td>
</tr>
</table>

<table>
<tr>
<td> 
</td>
<td>Step 5:
Present the User Card to record fingerprints till beep. The light turns green and then steady blue.

The enrollment is complete and you can use the Card Plus Fingerprint on the fingerprint reader.</td>
</tr>
<tr>
<td colspan="2">Note:
1. You will need the corresponding user card when deleting an individual user. Once you lose the user card, you cannot delete its related user from the reader.
2. The new fingerprints enrolled will replace the existing enrolled fingerprints.</td>
</tr>
</table>

4.2 Deletion

Card data will be deleted from the reader and fingerprint templates will be erased from the user card.

Cards Required for Deletion

- Manager Delete Card (supplied in the package)
- User Card

Note: For **Card + Fingerprint Mode**, GV-GF Fingerprint Readers can only work with GV-AS ID F cards and tags.

Deletion Procedure

	**Step 1:** In the standby mode, the light is blue on. Present the Manager Delete Card. The light starts blinking red.
	**Step 2:** With the light blinking red, present the User Card. The light starts blinking green. Present the User Card again to delete all fingerprints stored in the card. When the deletion is complete, the light turns green and then steady blue.

4.3 Using the Fingerprint Reader

After you connect the fingerprint reader to the controller, present the user card. The light on the reader will start blinking blue. Then scan your finger to gain access.

1. If the presented fingerprint matches any record in the card, the light will turn from blue to green. Access signal will be passed to the controller. The access will be granted.
2. If the presented fingerprint does NOT match the record in the card, the light will turn from steady blue to blinking red and beep for three times. Then the light will come back to a steady blue. The reader will not pass access signal to the controller. The access will be denied.

Note: The light on fingerprint reader turns red if the access is not within the established schedule on GV-AS Manager.

Chapter 5 Card Only Mode

This Card Only mode allows the users to gain access with a card. This mode is only supported by the fingerprint reader using MIFARE cards or GV-AS ID Cards / Tags.

For **GV-GF1911 / 1912**, if you are not using the GeoVision user card and tag, you need to access the Web interface and select **Enable card only mode** to enable the function. To access the Web interface, see *2.3.2 Accessing the Web Interface* to find the fingerprint reader's IP address for login.

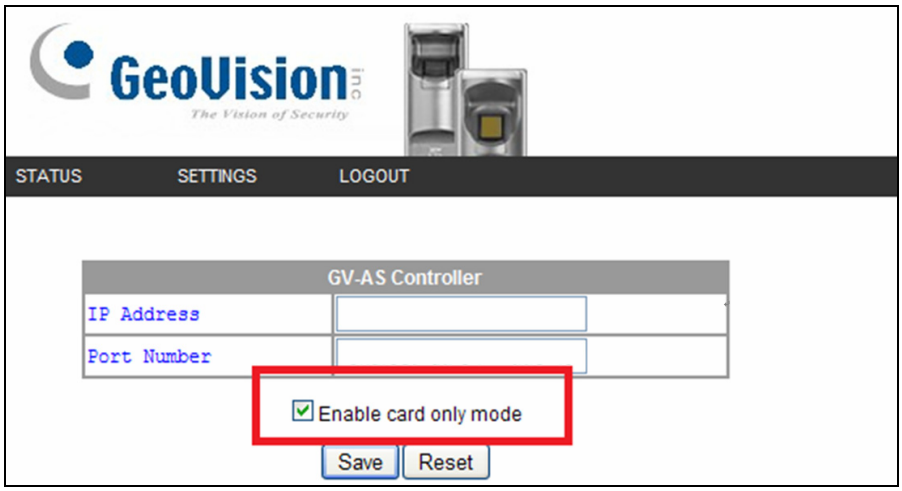

Figure 5-1

5.1 Enrollment

Before enrollment, establish a user account and assign a card to the user on the connected GV-AS Manager. For details, see *4.3 Setting Cards* and *4.6 Setting User* in *GV-ASManager User's Manual*.

To enroll, use a MIFARE card and follow the procedure below.

	**Step 1:** In the standby mode, the light is blue on. Present the Manager Enroll Card. The light starts blinking green.
	**Step 2:** Present the User Card till the light blinks blue. Or present the Manager Enroll Card to exit the enroll mode.
	**Step 3:** With the light blinking blue, present the User Card again to confirm. The light turns steady blue and the enrollment is complete.

5.2 Deletion

To delete the access right of a card, inactivate or delete the user account established on the GV-AS Manager. For details, see *4.3 Setting Cards* and *4.6 Setting User* in *GV-ASManager User's Manual.*

5.3 Using the Fingerprint Reader

After you connect the fingerprint reader to the controller, present the card you enrolled.

1. If the card is detected as an enrolled card, the light will turn from blue to green. The access signal will be passed to the controller and the access will be granted.
2. If the card does not match any of the enrolled cards, the light will turn from blue to red. The access will be denied.

Note: The light on fingerprint reader turns red if the access is not within the established schedule on GV-AS Manager.

Chapter 6 Connecting an Alarm Device

You can connect one output device like a siren to the reader for warning when the access is granted.

6.1 GV-GF1911 / 1912

The example below illustrates the connection of an output device to the fingerprint reader. Connect (+) point of the output device to **COM** of the fingerprint reader, connect the (-) points of the output device and the external power supply together, and connect the (+) point of the external power supply to **NO** or **NC** of the fingerprint reader based on the state of the output device.

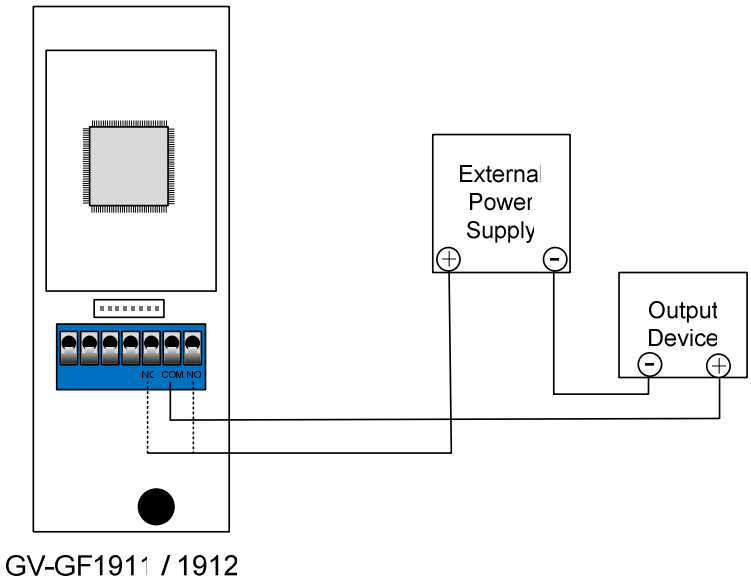

Figure 6-1

6.2 GV-GF1921 / 1922

Connect (+) point of the output device to the yellow wire (**COM**) of the fingerprint reader, connect the (-) points of the output device and the external power supply together, and connect the (+) point of the external power supply to the pink wire (**NO**) or the orange wire (**NC**) of the fingerprint reader based on the state of the output device. For a door sensor, connect the blue wire to the sensor.

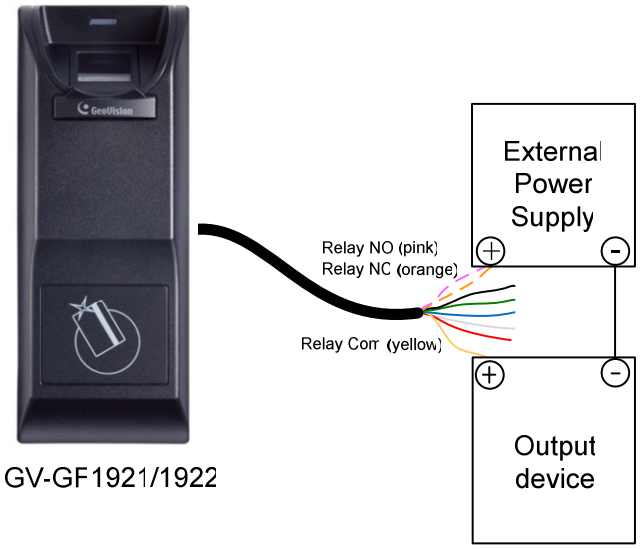

Figure 6-2

Wire Definition

Wire Color	Definition
Orange	Relay NC
Pink	Relay NO
Yellow	Relay Com

Chapter 7 A Standalone Fingerprint Reader

The **GV-GF1921 / 1922** can also work on its own without connecting to GV-AS Controller and GV-AS Manager.

7.1 Physical Connection

Connect the input and output devices with the data cable. Each **GV-GF1921 / 1922** can connect to 2 inputs (1 door sensor and 1 button) and 1 output (door relay).

Data Cable

Wire Color	Definition
Red	+12V
Black	GND
Green	IN1 (only for button input)
Blue	IN2 (only for door sensor)
White	IN Com
Orange	Relay NC
Pink	Relay NO
Yellow	Relay Com

7.2 Enabling the Local Mode

Make sure you activate local mode function of the GV-GF1921 / 1922 and configure related settings from its Web interface. To restrict enrollment and deletion to one enroll card and one delete card, type the identification number of your card. For more details, see *Local mode configuration*, *8.2 Other Settings*.

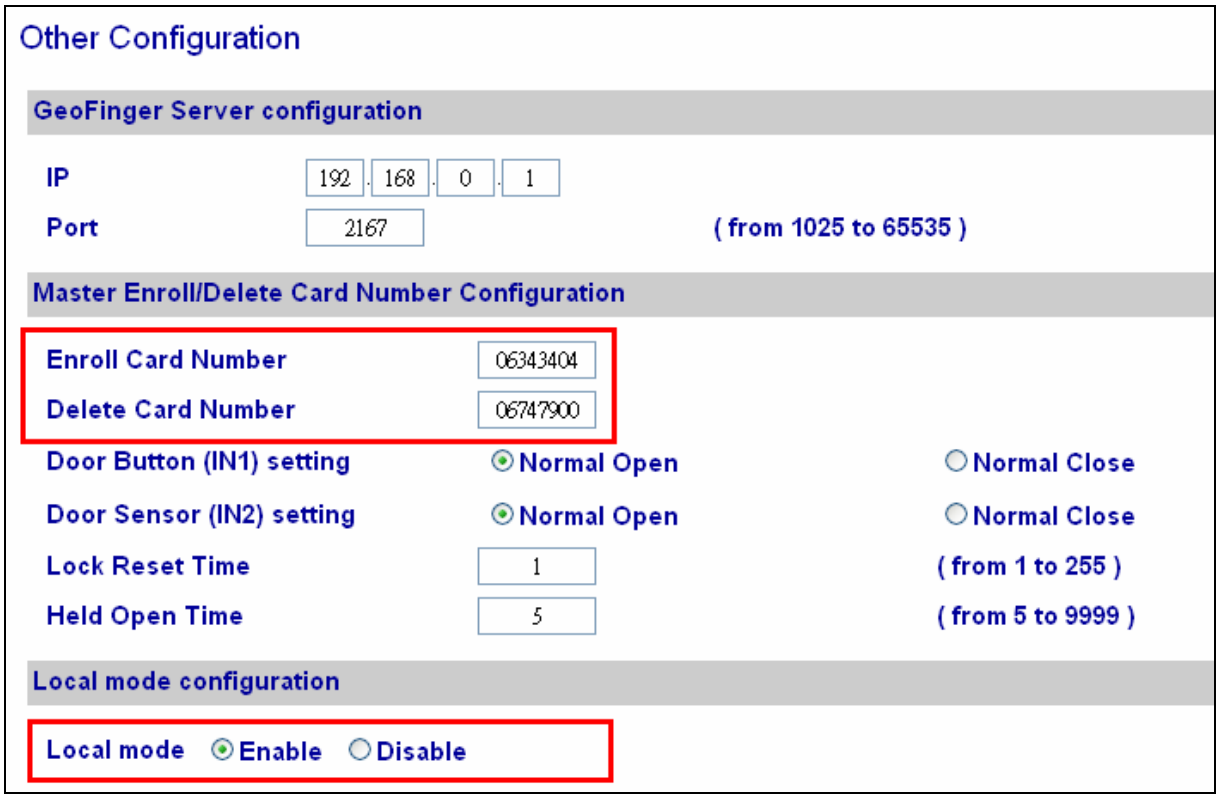

Figure 7-1

7.3 Fingerprints and Card Enrollment

After you have connected your GV-GF1921 / 1922 to power and I/O devices, you are ready to enroll fingerprints or cards with fingerprints. The standalone GV-GF1921 / 1922 supports the **Fingerprint Only Mode**.

7.3.1 Fingerprint Only Mode

Use any **MIFARE card** during enrollment for this mode.

- To enroll fingerprints, follow the steps in *4.1 Enrollment*.
- To delete enrolled fingerprints, see *4.2 Deletion*.
- To obtain access, see *3.4 Using the Fingerprint Reader*.

Note: For this mode, it is still required to use the user cards to enroll fingerprints because each uesr's fingerprints need to go along with a card number. However, the enrolled fingerprints are stored on the reader instead of the cards.

Chapter 8 Web Interface for GV-GF1921 / 1922

The GV-GF1921 / 1922 can be configured through the Web interface. For details on accessing the Web interface, see *2.3.2 Accessing the Web Interface*.

8.1 Network Settings

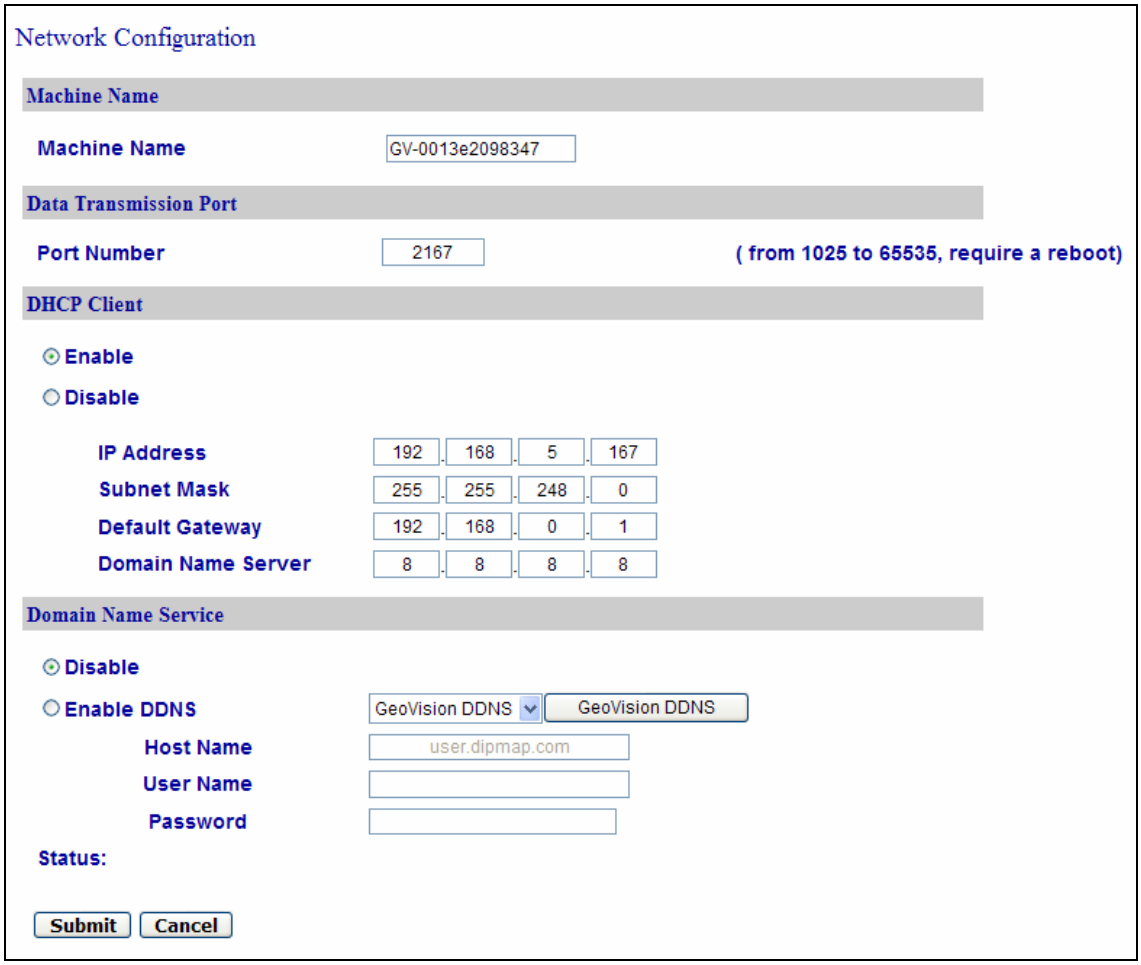

Figure 8-1

[Machine Name]

The device name is displayed. Click the space to change the device name.

[Data Transmission Port]

Make sure this port matches the port you defined for the reader on the Controller Setup page of the GV-ASManager.

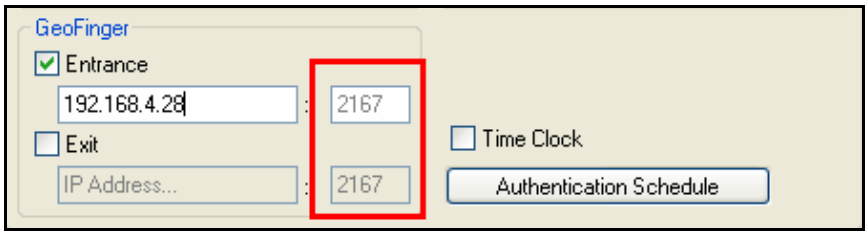

Figure 8-2

[DHCP Client]

By default, the DHCP service is enabled and when the fingerprint reader is connected to the network, it is automatically assigned an unused IP address by the DHCP server. This IP address remains unchanged unless the fingerprint reader is disconnected and reconnected to the network. If the router does not support DHCP, the default IP address will be **192.168.0.10**.

To designate a fixed IP address, select **Disable** and specify the **IP Address**, **Subnet Mask**, **Default Gateway** and **Domain Name Server**.

Tip: You can also configure the Machine Name and IP address settings using the GV-Net Module Utility. From the GV-Net Module Utility window, double-click the device name/IP address to configure.

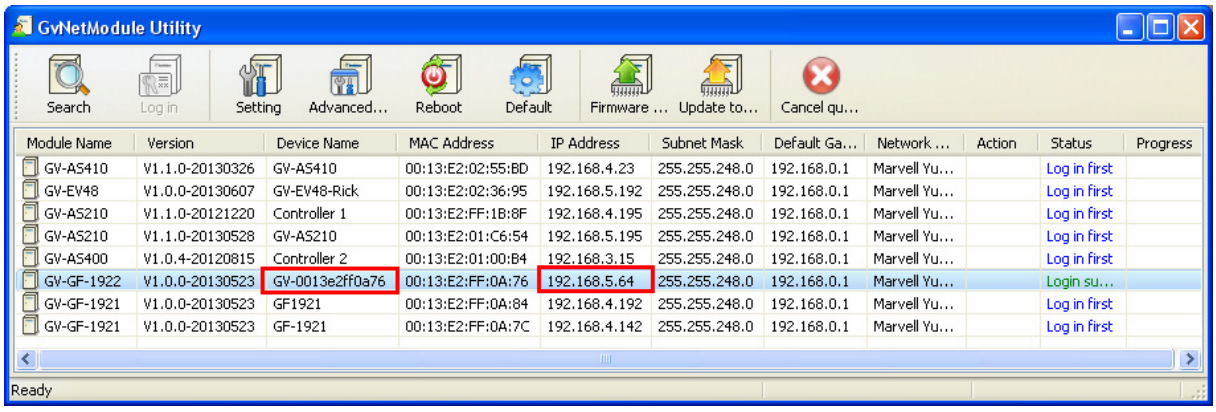

Figure 8-3

[Domain Name Service]

The Dynamic Domain Name System (DDNS) provides a convenient way of accessing the fingerprint reader when using a dynamic IP. The DDNS assigns a domain name to the fingerprint reader so that the user can log in the Web interface using the domain name, without checking the IP address every time.

To activate this function:

1. Select **Enable DDNS**.
2. Click **GeoVision DDNS** to register for a host name or select the service provider (**GeoVision DDNS** or **DynDNS.org**) you have registered, using the drop-down list.
3. Type the **Host Name**, **User Name** and **Password** to enable the DDNS service.
4. Click **Submit**.

8.2 Other Settings

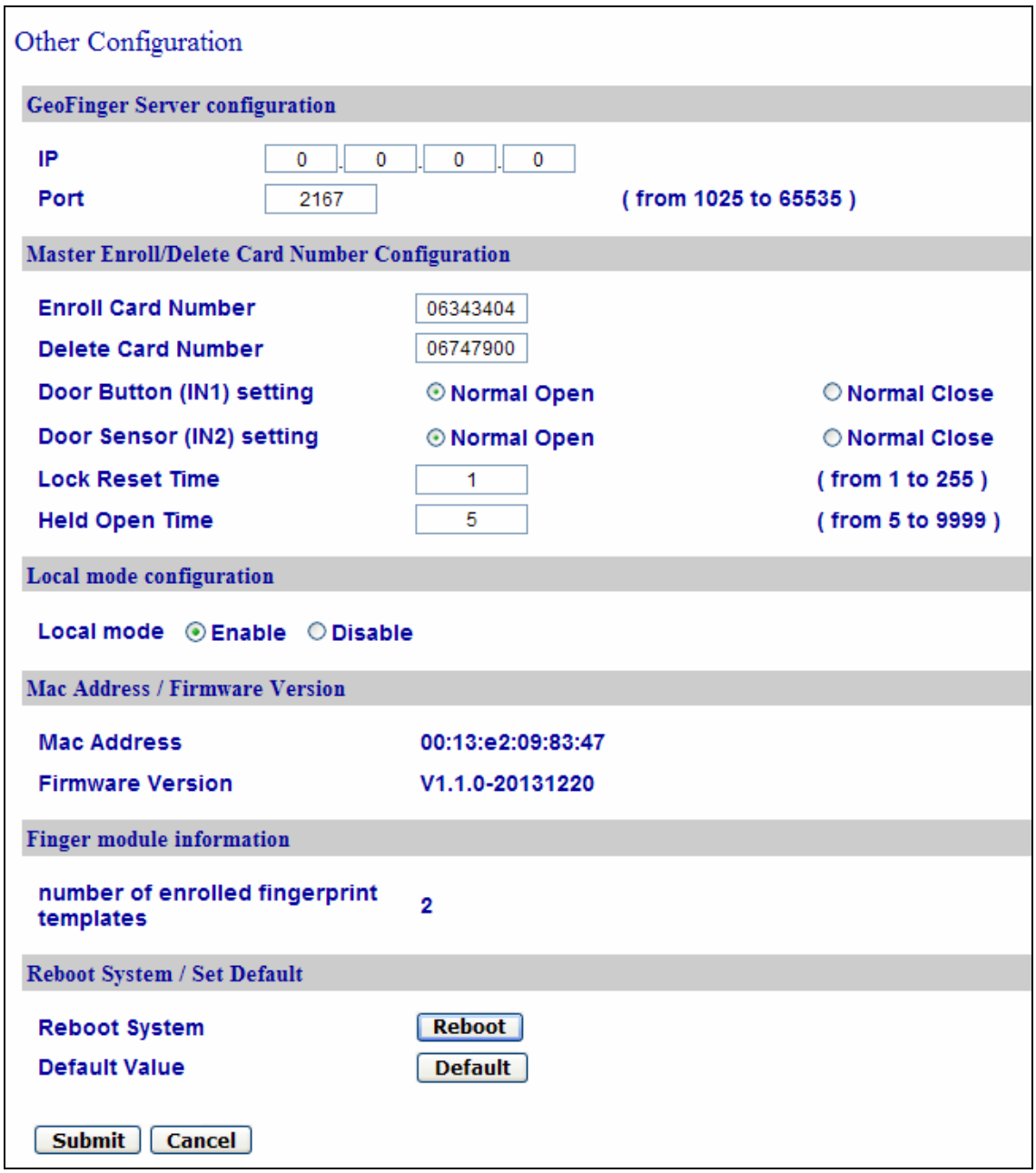

Figure 8-4

[GeoFinger Server Configuration]

Type the IP address and Port of the GV-ASManager in order for GV-GF1921 / 1922 to transmit registered fingerprints to GV-ASManager for remote fingerprint enrollment. The default port is **2167**.

Note: Make sure this port matches the GeoFinger Server port on the GV-AS Manager. (**GV-ASManager** > **Tools** > **Servers** > **GeoFinger Server**)

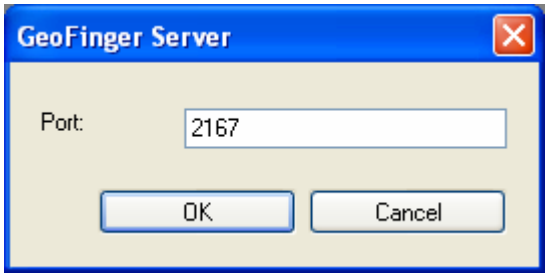

Figure 8-5

[Controller address configuration]

Type the IP address or the domain name of the GV-AS Controller to connect. This option is only available when **Local Mode** is disabled.

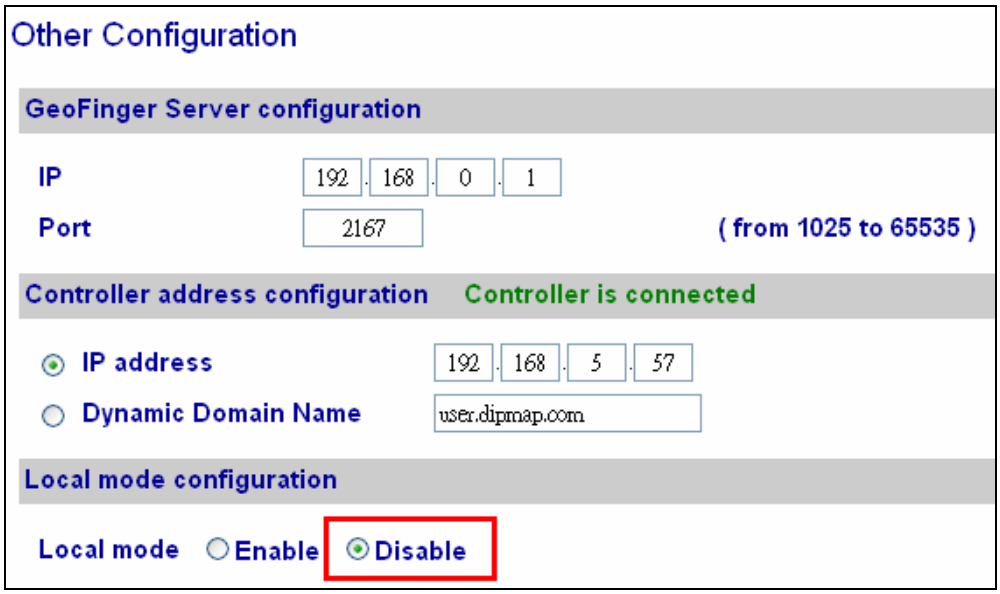

Figure 8-6

[Master Enroll / Delete Card Number configuration] This section is only available when **Local Mode** is enabled.

- **Enroll / Delete Card Number:** To restrict enrollment and deletion to one enroll card and one delete card, type the identification number of your card
- **Door Button Setting:** Specify the input states (**Normal Open** or **Normal Close**).
- **Lock Reset Time:** Sets the duration (in seconds) that a door/gate remains open until it is locked again. The default is **1** second. For example, if the Lock Reset Time is 5 seconds, and access is granted, the door/gate will be automatically locked after 5 seconds.

- **Held Open Time:** Sets the duration (in seconds) that the door/gate can be held opened before an alarm is generated. The default is **5** seconds. For example, if the Held Open Time is 3 seconds, the fingerprint reader will beep when the door is held open for more than 3 seconds.

[Local mode configuration]
The GV-GF1921 / 1922 can function as a standalone device without connecting to GV-AS Controller and GV-AS Manager. This function is disabled by default. To enable this function, select **Enable**.

[MAC Address / Firmware Version]
Shows the device's MAC address and firmware version.

[Finger module information]
Indicates the number of fingerprints enrolled.

[Reboot System / Set Default]
Click the **Reboot** button to reboot the device. The fingerprint reader beeps when the reboot is complete.

Click the **Default** button to restore the default settings. A confirmation dialog box appears to request for closing the Web interface. Click **Yes** to start loading the default settings. The fingerprint reader beeps when the restoration is complete.

8.3 Firmware Update

You can upgrade your device firmware through the Web interface. For details, see *9. Upgrading Firmware*.

8.4 Account Settings

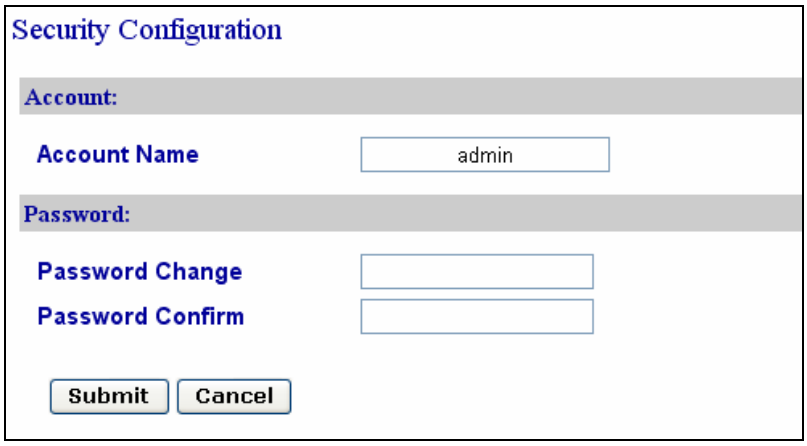

Figure 8-7

[Account]

Click to change the account name (login ID). The default login ID is **admin**.

[Password]

The default password is **admin**. To change the password, type the new password in **Password Change**, type the new password again in **Password Confirm** and click **Submit**. The password must be within 4 to 12 characters

Chapter 9 Upgrading Firmware

Upgrade your fingerprint reader firmware to the new version.

9.1 GV-GF1911 / 1912

For the user of **GV-GF1911 / 1912**, firmware upgrade is done through the **AutoISP** software, which is available on the software CD. The AutoISP software will detect the current version of your fingerprint reader and then automatically upgrade it to the new version.

9.1.1 Connecting to a Computer

You need to connect the fingerprint reader to a computer for firmware upgrade. For this connection, one of these optional accessories is required: a **USB cable** *(see PC Service Package, 1.2 Options*), **GV-HUB** or **GV-COM**.

Using the USB Cable

Using the USB cable from the optional PC Service Package, connect the fingerprint reader to a computer as illustrated below.

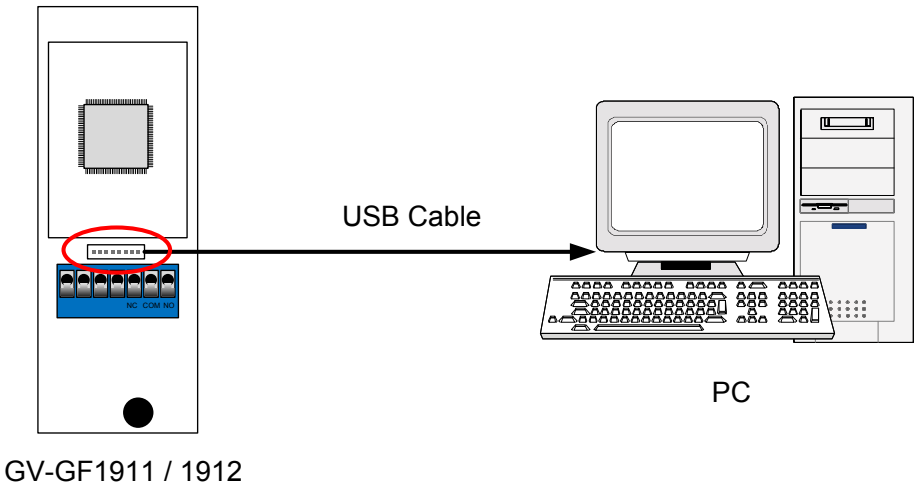

Figure 9-1

Using the GV-HUB or GV-COM

1. Connect the fingerprint reader to a computer through a GV-COM or GV-HUB, which provides the RS-485 to RS-232 function.
2. Power on the fingerprint reader. You can connect the **12V** and **GND** wires from the GV-AS Controller to the fingerprint reader. The diagram below illustrates the connection among fingerprint reader, GV-COM / GV-HUB and a computer. You can also prepare a **12V DC Power Adapter** to connect the fingerprint reader to a power source.

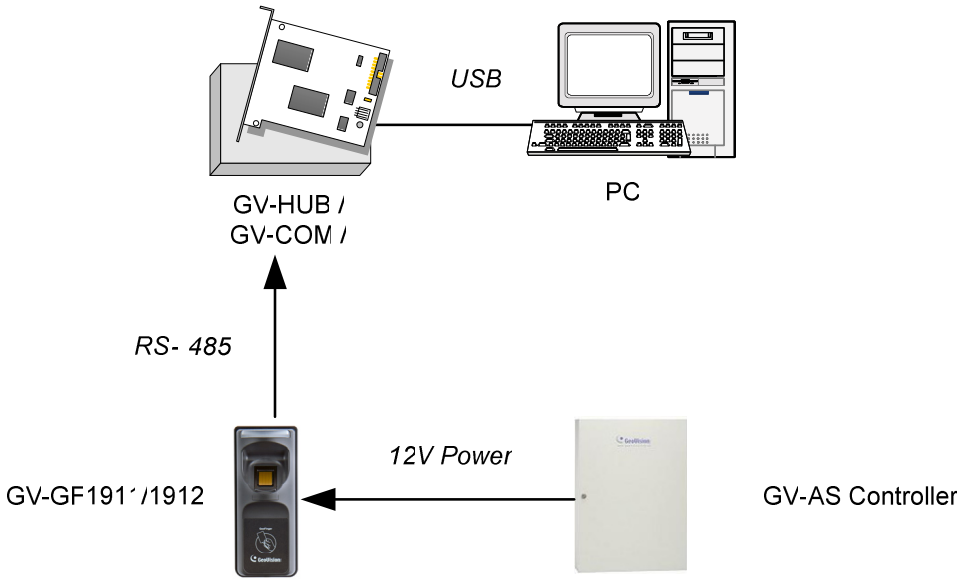

Figure 9-2

9.1.2 Installing Software

To upgrade the firmware for the fingerprint readers, you need to install the **AutoISP** software from the software CD to the dedicated computer. To install firmware upgrade software, follow the steps below:

1. Insert the software CD to the computer. It runs automatically and the following window pops up.

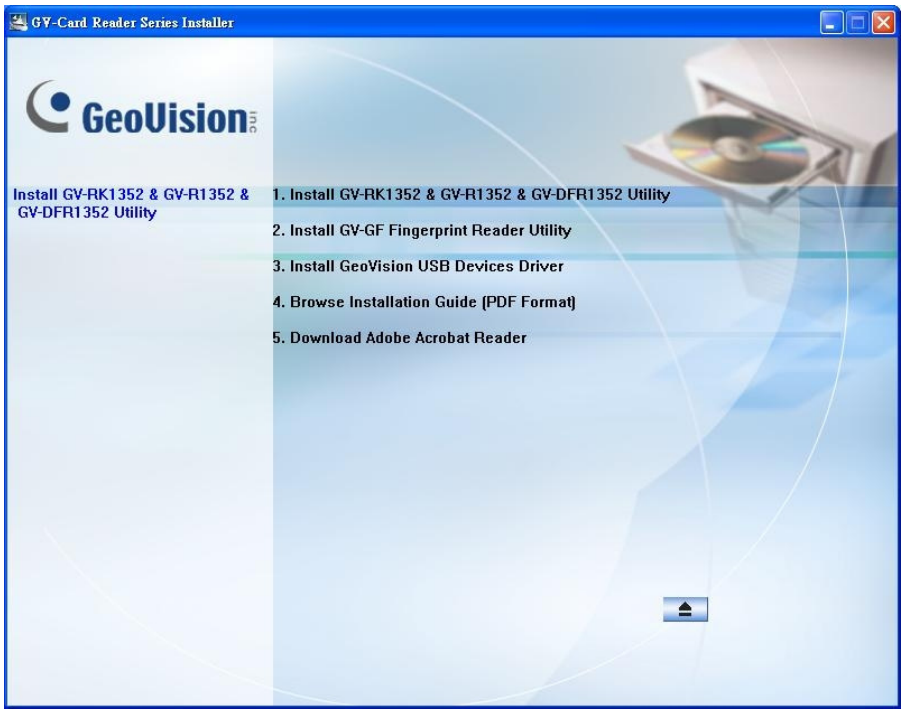

Figure 9-3

2. Select **Install GV-GF Fingerprint Reader Utility** to install the **AutoISP**.
3. Run **AutoISP**. This dialog box appears.

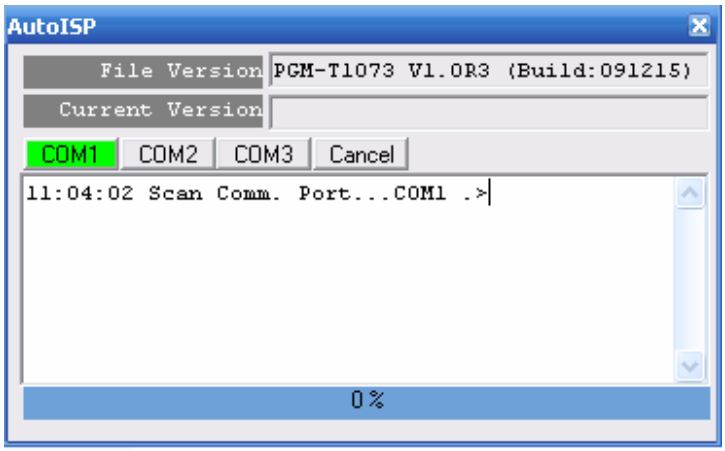

Figure 9-4

4. Wait for the **AutoISP** detecting the COM port that the fingerprint reader is connected to and automatically upgrading the firmware.

5. When the **AutoISP** automatically finishes firmware upgrading, the current version number shown in the dialog box will match the file version number. Click to close the dialog box.

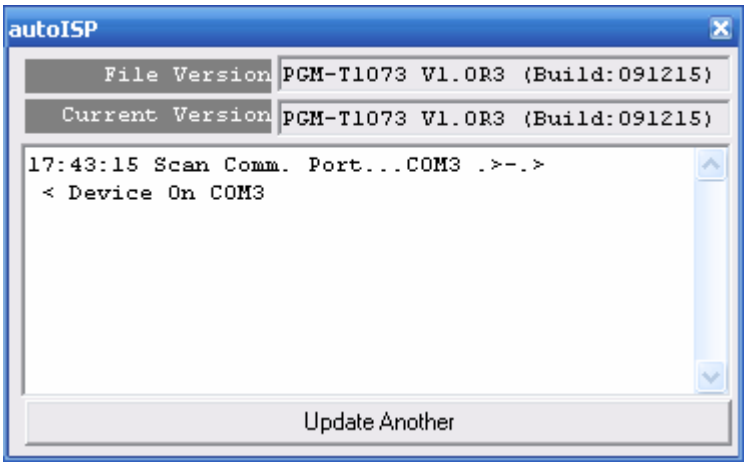

Figure 9-5

9.1 GV-GF1921 / 1922

The GV-GF1921 / 1922 can be upgraded through the Web interface or GV-Net Module Utility.

9.2.1 Upgrading Firmware through the Web Interface

1. Install the **GV-Net Module Utility** from the Software CD.
2. Run the **GV-Net Module Utility** and the GV-Net Module Utility window appears. It automatically searches for GV-AS Controller and GV fingerprint readers under the same LAN.
3. Right-click your fingerprint reader and select **Log in**. This dialog box appears.

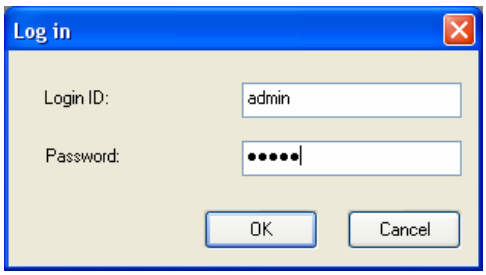

Figure 9-6

4. Type the username and password to log in. The buttons on the GV-Net Module Utility become accessible.

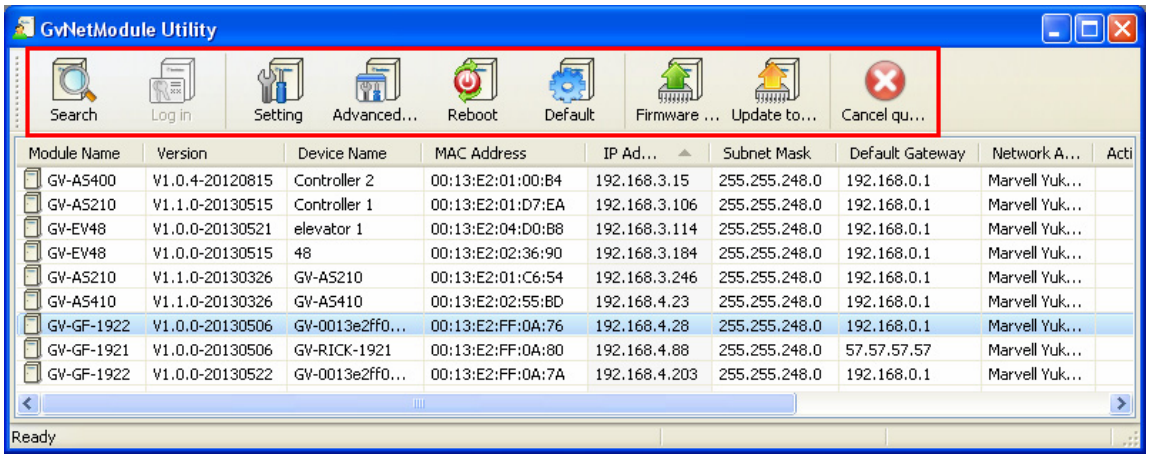

Figure 9-7

5. On GV-Net Module Utility window, click the **Firmware Upgrade** button. This dialog box appears.

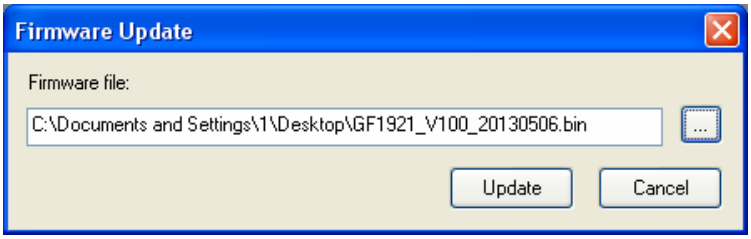

Figure 9-8

6. Select a firmware file and click **Update** to start upgrading. You can see the upgrade progress on the GV-Net Module Utility window. The fingerprint reader beeps when the upgrade and reboot are complete.

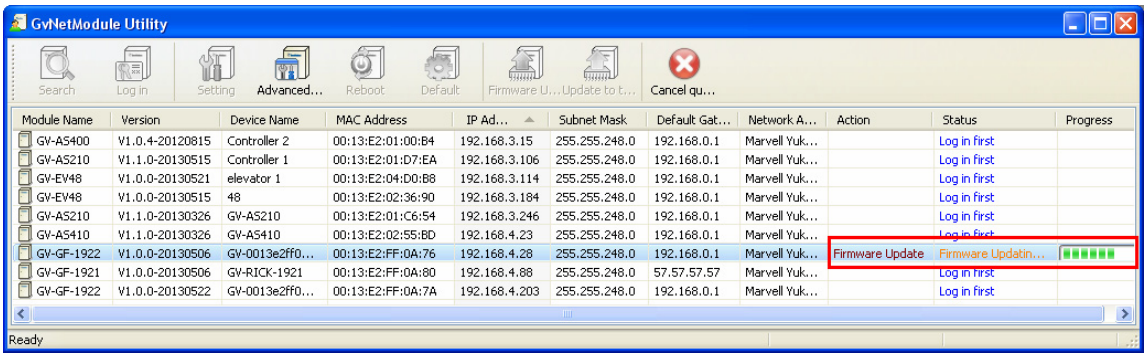

Figure 9-9

Chapter 10 GV-Net Module Utility

With the GV-Net Module Utility included in Software DVD, you can change settings and update the firmware of GV-AS Controller, fingerprint readers and GV-AS Manager.

1. Insert Software DVD, select **Install GeoVision Access Control System**, click **GV-Net Module Utility** and follow the onscreen instructions to install the program.
2. Run **GV-Net Module Utility**. This window appears.

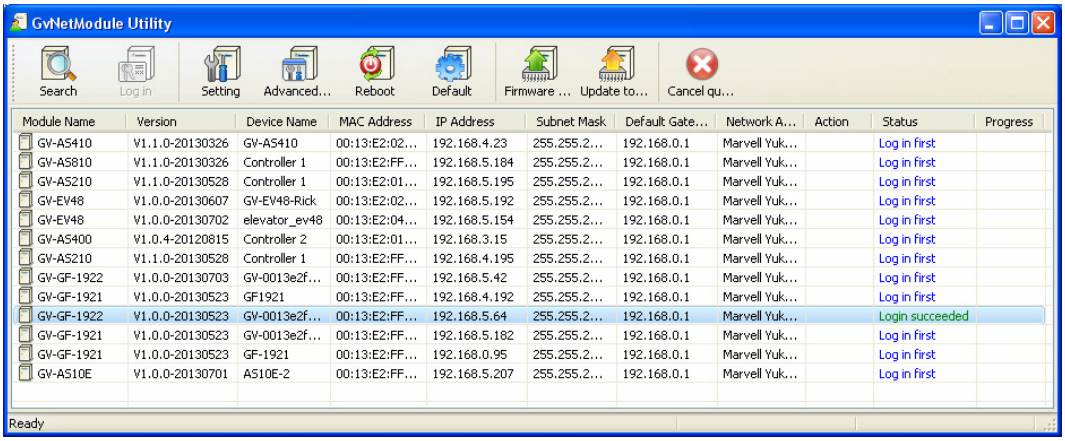

Figure 10-1

The buttons on the window:

- **Search:** Click this button to locate any GV-AS Controller, GV-I/O device, fingerprint readers or GV-AS Manager on the same LAN.
- **Set Login:** You can select the desired modules from the list, and click this button to log on to these modules with the same ID and password together.
- **Setting:** Click this button to change the Machine Name, network connection settings, 3DES Code, Device Port, login ID and password.
- **Advanced Setting:** Click this button to directly link to the Web interface of the selected module.
- **Reboot:** Click this button to perform a warm boot of the selected module. This operation will keep the current configuration.
- **Default:** Click this button to reset all configuration parameters to their factory settings. This may take 5 seconds to complete.
- **Firmware Update:** Click this button and assign the firmware file for update.

- **Update to the latest firmware version:** The GV-ASManager software comes with the latest GV-AS Controller firmware. Clicking this button can upgrade your GV-AS Controller firmware.
- **Cancel queue:** Click this button to cancel the scanning using the **Search** button.

Specifications

Model		GV-GF1911	GV-GF1912
			
Application		Indoor use only	
Communication Interface		Wiegand 26, RS-485, TCP/IP (LAN)	
Sensor		Capacitive	Optical
Sensing Area (H x W)		18 x 13 mm (0.71 x 0.51 in)	20 x 17 mm (0.79 x 0.67 in)
Operation Mode		Fingerprint Only (N/A for Wiegand) Card + Fingerprint Card Only	
Fingerprint Enrollment	(Fingerprint Only Mode)	RS-485	Not supported
	(Fingerprint + Card Mode)	RS-485, TCP/IP	RS-485, TCP/IP
Firmware Upgrade		RS-485, TCP/IP	
Number of Fingerprints Stored		1,900 (for Fingerprint Only mode)	
Supported Card		ISO14443A (MIFARE DESFire, MIFARE Plus and MIFARE Classic), 13.56 MHz	
Output		DC 24V, 2.5A	
Power		DC 7.5V ~ 12V, Max 250mA	
Operating Temperature		0 ~ 50° C (32 ~ 122° F)	
Humidity		10% ~ 90%	
Dimensions (H x W x D)		130 x 54 x 43 mm (5.12 x 2.13 x 1.69 in)	130 x 54 x 38 mm (5.12 x 2.13 x 1.50 in)
Weight		130 g (0.29 lb)	160 g (0.35 lb)
Certification		CE, FCC	

Note:

1. All specifications are subject to change without prior notice.
2. Data synchronization with GV-AS Controller and GV-ASManager through LAN is only supported with the following firmware and software versions:
   - GV-ASManager: V4.0 or later
   - GV-AS100 / 110 / 120: V1.06 or later
   - GV-AS400: V1.04 or later
   - GV-AS210 / 810 and GV-EV48: V1.0 or later
   - GV-AS410: V1.1 or later

Model	GV-GF1921	GV-GF1922
		
Application	Indoor use only	
Communication Interface	TCP/IP (10/100 Mbps Ethernet)	
Sensor	Capacitive	Optical
Sensing Area (H x W)	18 x 13 mm (0.71 x 0.51 in)	20 x 17 mm (0.79 x 0.67 in)
Operation Mode	Fingerprint Only, Card + Fingerprint, Card Only	
Fingerprint Enrollment	TCP/IP	
Firmware Upgrade	TCP/IP	
Number of Fingerprints Stored	1,900 (for Fingerprint Only mode)	
Supported Card	ISO14443A (MIFARE DESFire, MIFARE Plus and MIFARE Classic), 13.56 MHz	
Output	DC 30V, 0.3A	
Input	2 Ports, dry-contact	
Power	DC 12V, Max 250mA	
Operating Temperature	0 ~ 50° C (32 ~ 122° F)	
Humidity	10% ~ 90%	
Dimensions (H x W x D)	138 x 59 x 48 mm (5.43 x 2.32 x 1.89 in)	
Weight	130 g (0.29 lb)	160 g (0.35 lb)
Certification	CE, FCC	

Note:

1. All specifications are subject to change without prior notice.
2. GV-GF1921 / 1922 is only compatible with the following firmware and software versions.
   - GV-ASManager: V4.0 or later
   - GV-AS210 / 410 / 810: V1.1 or later
   - GV-EV48: V1.0 or later
3. GV-GF1921 / 1922 do not support third-party controllers.

LED Indicator

GV-GF1911 / 1912 / 1921 / 1922 (connected with GV-AS Manager)

LED Status		Description
Blue	Steady	The reader is ready for use.
	Flash continuously	The reader is waiting to detect a fingerprint during enrollment.
		The reader is waiting to detect a fingerprint to grant access under Card + Finger mode.
Green	Flash once	The detected fingerprint or card matches an enrolled account and the access is granted.
		An enrollment is successfully deleted. ***for GV-GF1911 / 1912 only**
	Flash continuously	The reader is waiting to detect a card during enrollment.
		The reader is waiting to detect a card for deletion. ***for GV-GF1911 / 1912 only**
Red	Flash once	The detected fingerprint or card does not match any enrolled account or when the access is not within the established schedule. The access is denied.
	Flash continuously	The reader is waiting to detect a fingerprint or card for deletion.
	Flash rapidly	The fingerprint or card is being deleted. ***for GV-GF1921 / 1922 only**
Purple	Steady	The reader is not connected to GV-AS Controller. ***for GV-GF1921 / 1922 only**
Yellow	Flash once	The fingerprint is not found. ***for GV-GF1921 / 1922 only**

GV-GF1921 / 1922 (Standalone)

LED Status		Description
Blue	Steady	The reader is ready for use.
	Flash once	The reader is downloading, deleting or checking the fingerprint.
	Flash continuously	The reader is waiting to detect a fingerprint during enrollment.
Green	Flash once	The detected fingerprint or card matches an enrolled account and the access is granted.
Red	Flash once	The detected fingerprint or card does not match any enrolled account or when the access is not within the established schedule. The access is denied.
	Flash continuously	The reader is waiting to detect a fingerprint or card for deletion.
	Flash rapidly	The fingerprint or card is being deleted.