

GV-DSP LPR

User's Manual



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



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Preface

Welcome to the *GV-DSP LPR User's Manual*.

The GV-DSP LPR has two models designed to meet different needs. Each model has its own firmware that can only be used on the specific model. This Manual is designed for the following models and firmware version:

Model	Firmware Version
GV-DSP LPR V1	1.26
GV-DSP LPR V2	1.0

This Manual provides an overview of the GV-DSP LPR and its accessories. The instructions will guide you through the installation and use of the GV-DSP LPR as well.

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Recognition Engine Version

GV-DSP LPR V1 of firmware version 1.26 and **GV-DSP LPR V2** of firmware version 1.0 only support the following versions of recognition engines:

No.	Country	Engine Version	No.	Country	Engine Version
1	Arabia	×	20	Israel	V3100
2	Australia	V4030	21	Italy	V4030
3	Austria	V2000	22	Japan	×
4	Belgium	V2000	23	Malaysia	×
5	Brazil	V3100	24	Mexico	V4030
6	Canada	×	25	Norway	V2000
7	Chile	V3200	26	Poland	V2000
8	China	V3100	27	Portugal	V3100
9	Columbia	V2000	28	Serbia	×
10	Croatia	×	29	Slovenia	×
11	Cyprus	V2000	30	South Africa	V3100
12	Czech	V3200	31	Spain	V3110
13	France	×	32	Taiwan	V4021
14	Germany	V2000	33	Taiwan Moto	V4021
15	Global	V4030	33	Thailand	×
16	Guernsey	V2000	34	Turkey	×
17	Hong Kong	×	35	UAE	V2000
18	Hungary	V2000	36	UK	V4030
19	Ireland	V2000	37	USA	V3110

Chapter 1 Introduction

The GV-DSP LPR is a Linux-based system built in a small box without a fan and hard drive. Integrating with a web server, the GV-DSP LPR can deliver live images and host its own web site, as well as sending recognition results and captured images to the GV-LPR System and GV-LPR Center. The GV-DSP LPR is beneficial for license plate recognition over long distance and in an outdoor environment.

1.1 Key Features

- Non-PC based solution for 1 port traffic or mobile license plate recognition
- Wide operating temperature range
- Web-based configuration for image, security settings and firmware upgrade
- Recognition triggered by video motion detection or sensor inputs
- Compatible with GV-LPR System and GV-LPR Center
- Digital watermark
- Hardware watchdog
- IP address filtering
- UMTS
- Recognition results, images and live videos compatible with other system through OCX SDK

1.2 Packing List

1. AC Power Cord x 1 *
2. Power Adaptor x 1
3. Wall Hook x 1 **
4. Conical Anchor x 4
5. Screw x 4
6. I/O Cable with RJ-45 Connector x 1 **
7. GV-LPR Software DVD x 1
8. GV-DSP LPR User's Manual on Software DVD
9. GV-LPR User's Manual on Software DVD
10. USB dongle for GV-LPR Software

* Only supplied with GV-DSP LPR V1

** Only supplied with GV-DSP LPR V2

1.3 System Requirements

These are the requirements for the computer that displays the image or controls the GV-DSP LPR.

- **OS:** Microsoft Windows 2000 / XP / 2003 / Vista
- **Web Browser:** Internet Explorer V6.0 or later

1.4 Physical Description

This section identifies the various components of the GV-DSP LPR.

1.4.1 Front View

1.4.1.1 GV-DSP LPR V1



Figure 1-1

No.	Name	Function
1	Video In	Connects a camera.
2	TV-Out	Connects an external monitor to output live videos and recognition results immediately. It is useful when you cannot access the GV-DSP LPR through the network.
3	Microphone In	Connects a microphone for audio input. (NOT functional now)
4	Audio Out	Connects a speaker or stereo device for audio output. (NOT functional now)
5	SD Card Slot	Inserts a Secure Digital (SD) card. The SD card is used for storing recognition images, and backing up offline data when the connection between GV-DSP LPR and GV-LPR System or the GV-LPR Center is interrupted.
6	Reset Button	Resets the unit and keeps all current configurations. When you press the Reset button, all three LED lights will be on. Wait until the Disk Full LED is off and Ready LED is on. Then you successfully reset the unit.
7	Default Button	It resets all configurations to their factory settings. See 5.3 <i>Restoring to Factory Default Settings</i> .
8	Power LED	Indicates the power is supplied.
9	Ready LED	Indicates the unit is ready for connection.
10	Disk Full LED	Indicates the SD card or hard drive is full.

1.4.1.2 GV-DSP LPR V2

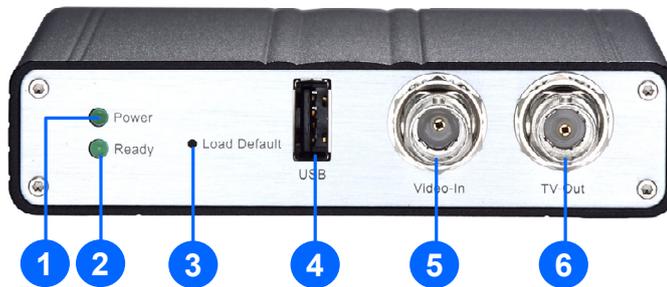


Figure 1-2

No.	Name	Function
1	Power LED	Indicates the power is supplied.
2	Ready LED	Indicates the unit is ready for connection.
3	Load Default Button	It resets all configurations to their factory settings. See 5.3 <i>Restoring to Factory Default Settings</i> .
4	USB Port	Connects a UMTS modem. See 4.4.2 <i>UMTS Setting</i> .
5	Video In	Connects a camera.
6	TV-Out	Connects an external monitor to output live videos and recognition results immediately. It is useful when you cannot access the GV-DSP LPR through the network.

1.4.2 Rear View

1.4.2.1 GV-DSP LPR V1

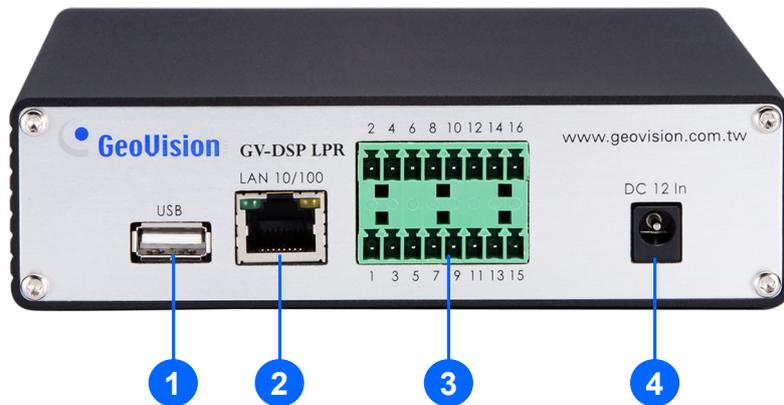


Figure 1-3

No.	Name	Function
1	USB Port	Connects a UMTS modem. See <i>4.4.2 UMTS Setting</i> .
2	Ethernet Port	Connects a 10/100 Ethernet network.
3	I/O Terminal Block	Connects digital inputs, relay outputs, RS-232 device and Wiegand device. See <i>Chapter 6 The I/O Terminal Block</i> . Note: Wiegand and RS-232 interface are NOT functional now.
4	DC In 12V	Connects the supplied power adaptor.

1.4.2.2 GV-DSP LPR V2

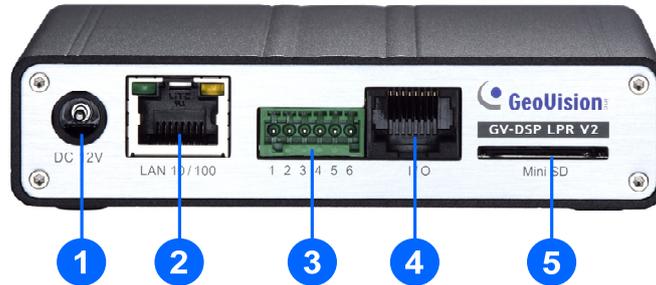


Figure 1-4

No.	Name	Function
1	DC 12 In	Connects the supplied power adaptor.
2	Ethernet Port	Connects a 10/100 Ethernet network.
3	RS-485 / RS-232 Terminal Block	Connects RS-485 and RS-232 devices. See <i>Chapter 6 The I/O Terminal Block</i> . Note: RS-485 and RS-232 interfaces are NOT functional now.
4	I/O Port	A port for digital inputs and relay outputs. Insert the supplied I/O Cable with RJ-45 Connector to this port. See <i>Chapter 6 The I/O Terminal Block</i> .
5	Mini SD Card Slot	Inserts a Mini Secure Digital (SD) card. The Mini SD card is used for storing recognition images, and backing up offline data when the connection between GV-DSP LPR and GV-LPR System or the GV-LPR Center is interrupted.

Chapter 2 Getting Started

This section provides basic information to get the GV-DSP LPR working on the network.

2.1 Installing on a Network

These instructions describe the basic connections to install the GV-DSP LPR on the network. Here we use the GV-DSP LPR V1 as the example to demonstrate the steps.

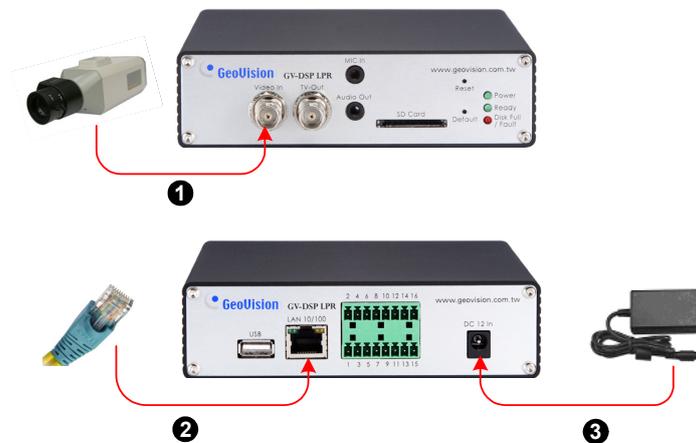


Figure 2-1

1. Connect the video output of your camera to the BNC video input.
2. Connect the hub or switch on the LAN to the unit's 10/100 Mbps Ethernet port.
3. Connect the power supply to the power input.
4. Wait until both Power and Ready LEDs are on and then you can set the IP address for the unit.

2.2 Assigning an IP Address

Designed for use on an Ethernet network, the GV-DSP LPR must be assigned an IP address to make it accessible.

Note: The GV-DSP LPR has a default address of **192.168.0.230**. The computer used to set the IP address must be under the same IP and subnet sequence assigned to the unit.

1. Open your web browser, and type the default IP address <http://192.168.0.230/>
2. In both Login and Password fields, type the default value **admin**. Click **Apply**.
3. In the left menu, select **Network** and then **LAN** to begin the network settings.

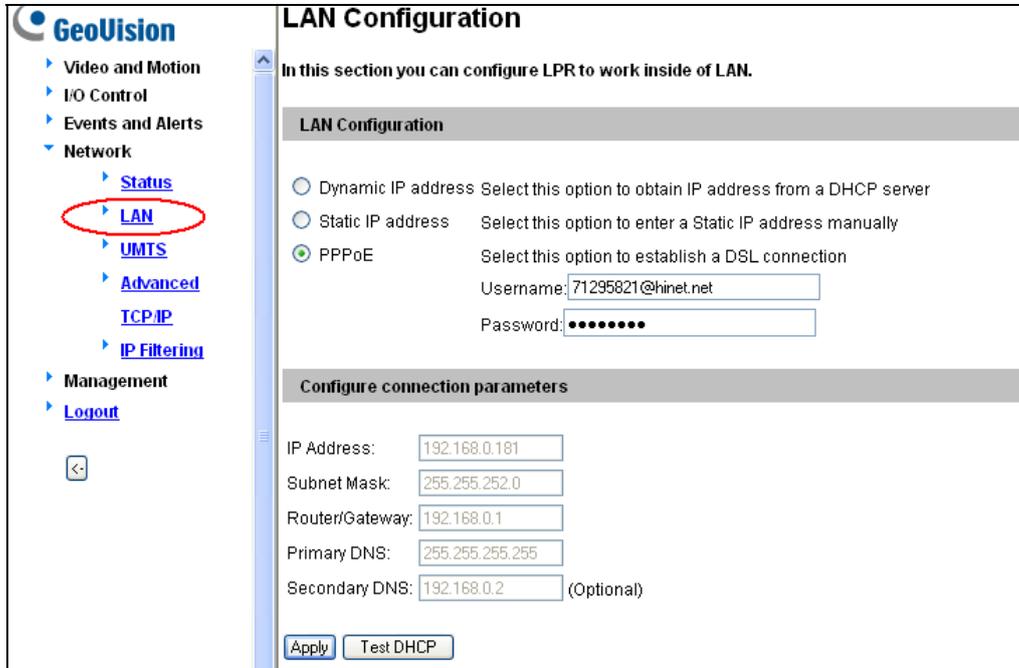


Figure 2-2

4. Select **Static IP address**. Type IP Address, Subnet Mask, Router/Gateway, Primary DNS and Secondary DNS in the **Configure connection parameters** section.
5. Click **Apply**. The GV-DSP LPR is accessible by entering the assigned IP address on the web browser.

Important:

- **Dynamic IP Address, PPPoE and UMTS** should only be enabled if you know which IP address the GV-DSP LPR will get from the DHCP server or ISP. Otherwise you must use the Dynamic DNS service to obtain a domain name linked to the GV-DSP LPR's changing IP address first.

For details on Dynamic IP Address and PPPoE settings, see *4.4.3 Advanced TCP/IP*.

- If **Dynamic IP Address, PPPoE or UMTS** is enabled and you cannot access the unit, you may have to reset it to the factory default and then perform the network settings again.

To restore the factory settings, see the **Default** button in *1.4.1 Front View*.

2.3 Configuration Basics

Once the camera is properly installed, these important features can be configured using the browser-based configuration page and are discussed in the following sections in this manual:

- **Date and time adjustment:** see *4.5.1 Date & Time Setting*.
- **Login and privileged passwords:** see *4.5.3 User Account*.
- **Network gateway:** see *4.4 Network*.
- **Video attribute (Brightness, Contrast, Saturation and Hue):** see *3.2.2 Adjustment of Video Attributes*.
- **Video format, resolution and frame rate:** see *4.1.1 Video Settings*.

Chapter 3 Accessing the GV-DSP LPR

Two types of users are allowed to log in the GV-DSP LPR: Administrator and Guest. The Administrator has unrestricted access to all system configurations, while the Guest has the access to live view and network status only.

3.1 Accessing Your Surveillance Images and Recognition Results

Once installed, your GV-DSP LPR is accessible on the network. Follow these steps to access your surveillance images and recognition results:

1. Start the Internet Explorer browser.
2. Enter the IP address or domain name of the GV-DSP LPR in the **Location/Address** field of your browser.

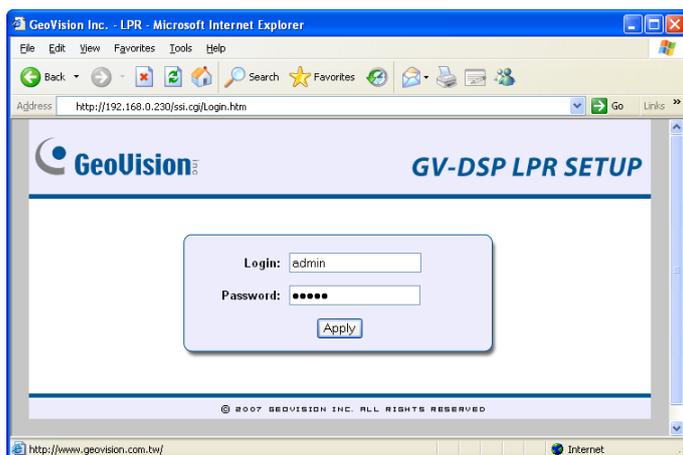


Figure 3-1

3. Enter a login name and password.
 - The default login name and password for Administrator are **admin**.
 - The default login name and password for Guest are **guest**.
4. A video image, similar to the example on Figure 3-2, is now displayed in your browser.

Note: To enable the updating of images in Internet Explorer, you must set your browser to allow ActiveX Controls and perform a once-only installation of GeoVision's ActiveX component onto your computer.

3.2 Functions Featured on the Main Page

This section introduces the features of the Live View window and Network Status on the main page. The two features are accessible by both Administrator and Guest.

Main Page of Guest Mode

- ▼ Video and Motion
 - ▶ Live View
- ▼ Network
 - ▶ Status



Figure 3-2

3.2.1 The Live View Window

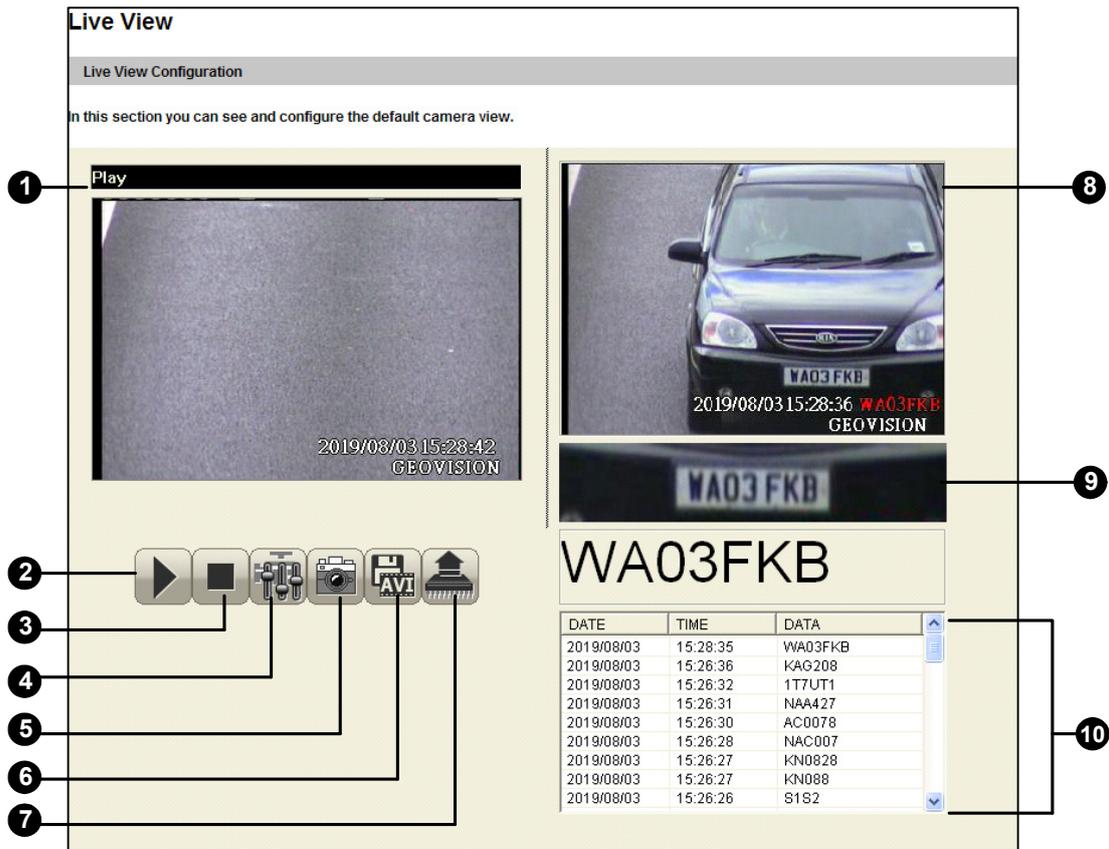


Figure 3-3

No.	Name	Function
1	Live View	Displays live video.
2	Play	Starts the connection and plays live video.
3	Stop	Terminates the connection.
4	Remote Config	Adjusts video attributes of the live video.
5	Snapshot	Takes a snapshot of live video.
6	File Save	Records the live video and saves in .avi format.
7	Firmware Upgrade	Upgrades the firmware of GV-DSP LPR.
8	Recognition Display	Displays the recognition image.
9	Number Display	Displays the plate number.
10	Record List	Lists the dates and times of detection results.

3.2.2 Adjustment of Video Attributes

To adjust video attributes of the live video, follow these steps:

1. Click the **Remote Config** button (No. 4, Figure 3-3).
2. Move the slide bars (Brightness, Contrast, Saturation and Hue) to adjust video attributes. Only the Administrator is allowed to adjust the configurations.

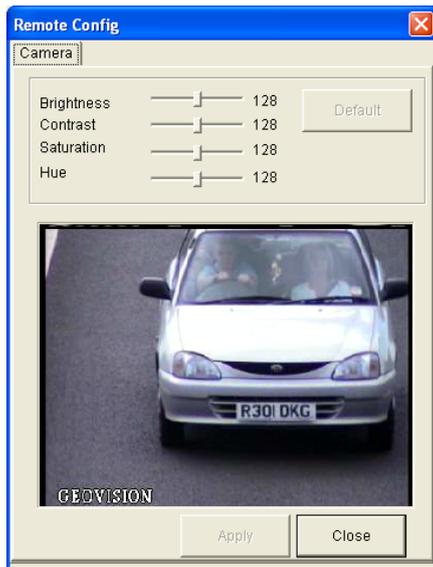


Figure 3-4

3.2.3 Snapshot of a Live Video

To take a snapshot of a live video, follow these steps:

1. Click the **Snapshot** button (No. 5, Figure 3-3). The Snapshot window appears.
2. Click the **Print** button to print out the displayed image. Or click the **Save** button to save the image to the local computer.



Figure 3-5

3.2.4 Video Recording

You can record live video for a certain period of time to your local computer.

1. Click the **File Save** button (No.6, Figure 3-3). The Save As dialog box appears.

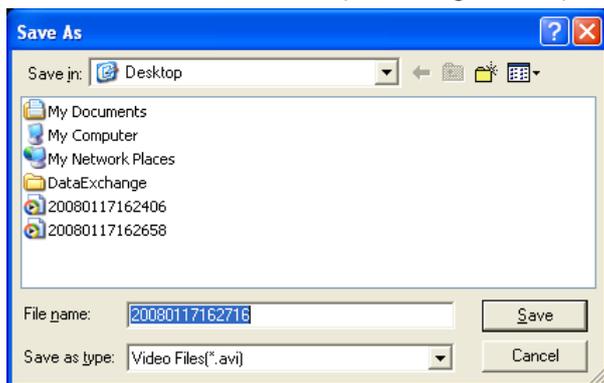


Figure 3-6

2. Specify **Save in**, type the **File name**, and click the **Save** button to start recording.
3. To stop recording, click the **Stop** button (No.3, Figure 3-3).

3.2.5 Firmware Upgrade

This window allows you to upgrade the firmware over LAN. For details, see Chapter 5.

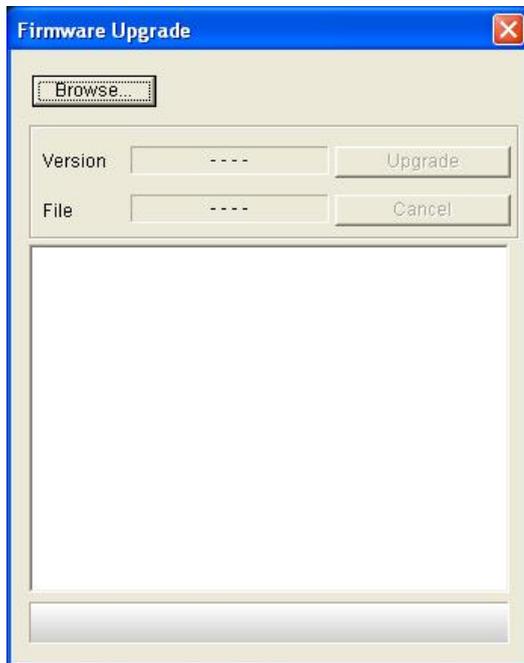


Figure 3-7

3.2.6 Network Status

To view the network status, in the left menu, click **Network** and select **Status**.

Network Status Information	
Current Status Information	
In this section you can see an overview of LPR status.	
interface:	Wired
IP Acquirement:	Fixed
MAC Address:	0013E20100F1
IP Address:	192.168.1.21
Subnet Mask:	255.255.254.0
Gateway:	192.168.0.1
Domain Name Server 1:	192.168.0.1
Domain Name Server 2:	192.168.0.2

Figure 3-8

Chapter 4 Administrator Mode

The Administrator can access the system configuration via the Internet. Four categories of configurations are involved in the system configuration: **Video and Motion**, **I/O Control**, **Network**, and **Management**.

- ▼ **Video and Motion**
 - ▶ Live View
 - ▶ Video Settings
 - ▶ Detection Mode
 - ▶ LPR Center
 - ▶ Recognition Engine Settings
- ▼ **I/O Control**
 - ▶ Input Setting
 - ▶ Output Setting
- ▼ **Events and Alerts**
 - ▶ FTP
- ▼ **Network**
 - ▶ Status
 - ▶ LAN
 - ▶ UMTS
 - ▶ Advanced TCP/IP
 - ▶ IP Filtering
- ▼ **Management**
 - ▶ Date and Time
 - ▶ Storage Settings
 - ▶ User Account
 - ▶ Log Information
 - ▶ Tools
- ▼ **Logout**

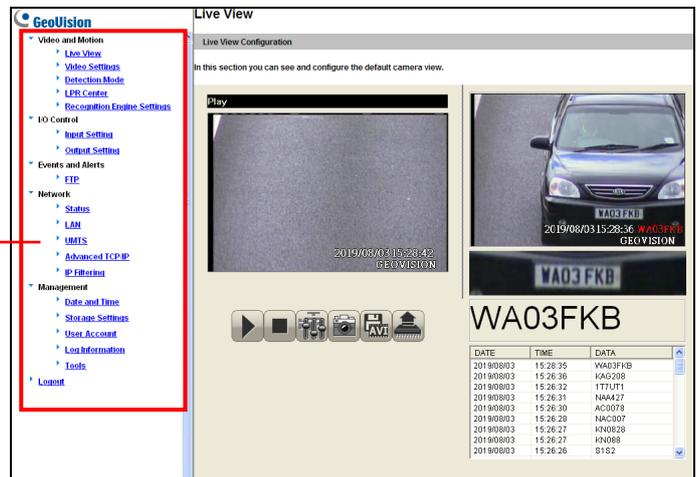


Figure 4-1

4.1 Video and Motion

This section includes video settings and detection methods to activate license plate recognition.

4.1.1 Video Settings

In this section you can define your country for engine and video signal type.

Engine Setting

Country

Video Signal Type

	Signal Format	Resolution	Live Resolution	Frames per second
<input checked="" type="radio"/>	NTSC	720*480	<input type="text" value="720*480"/>	<input type="text" value="5"/>
<input type="radio"/>	PAL	720*576	<input type="text" value="360*288"/>	<input type="text" value="12 (360*288 only)"/>

Overlay Text

Overlay Time

Overlay Recognition Results

Text Alignment

Video Saving Setting

Save Image Size

Watermark

TV OUTPUT Port Setting

Frames per second

Overlay Plate and Time :

Figure 4-2

[Engine Setting] Select the country where you installed the system. The recognition engine performs license plate recognition by country.

[Video Signal Type] The GV-DSP LPR supports both NTSC and PAL video signals. Select either **NTSC** or **PAL**.

There are several resolution and frame rates available. Note that **10** fps is only available when the resolution is set to 360 x 240 (360 x 288).

NTSC	PAL
720 x 480	720 x 576
360 x 240	360 x 288

Frame Rate	NTSC	1, 3, 5, 7, 10
	PAL	1, 3, 5, 8, 12

- **Overlay Text:** Enter a text message that will be overlaid on live and captured images, e.g. company name.
- **Overlay Time:** Select this option to display the time stamp on live and captured images.
- **Overlay Recognition Results:** Select this option to display the recognition result on the live and captured images.
- **Text Alignment:** Select a position for the text, time stamp and recognition results to appear on live and captured images, e.g. down left, down right, top left or top right.

[Video Saving Setting]

- **Save Image Size:** Select the size of the captured image that is saved to the SD card.
- **Watermark:** Enable the watermark overlay that appears on captured images. Note that this feature is NOT functional now.

[TV Output Port Setting] The unit allows the direct connection of an external monitor to output live images and recognition results immediately. When the unit is installed at the place where the network is not accessible, the TV-Out port can be used for camera adjustment to ensure the image of license plate is captured properly. Select the frame rate and text overlay for the TV output.

4.1.2 Detection Mode

You can activate license plate recognition by motion detection or sensor triggers. For motion detection, up to 8 detection areas can be defined; whenever vehicles cross the defined detection areas, the license plate recognition will be activated.



Detection Mode

Motion(stationary camera) ▼

If the recognition is still repeating, it will notify after second

Output recognition result quickly.(It will increase error rate of recognition system.)

Motion Detection Setting

Detected Sensitivity ▼

Detected Object Size ▼

Recognition and Motion Area Setting.

Use the mouse to define the area...

Reset

Save

2008/03/26 03:37:52
GEOVISION

I/O Mode Setting

Trigger Input Input 1 Input 2 Input 3 Input 4

Apply

Figure 4-3

[Detection Mode] From the drop-down list on top left, select the method to activate license plate recognition.

- **Disable:** Deactivate recognition.
- **Motion (Stationary Camera):** Activate recognition by motion detection. Select this mode if your camera is fixed at one place.
- **Motion (Mobile Camera):** Activate recognition by motion detection. Select this option if your camera is not fixed at one place or is installed on a vehicle.
- **Motion (Continuous Recognition):** Activate round-the-clock recognition.

- **I/O:** Activate recognition by input triggers. If this option is selected, choose which inputs (Input 1 to Input 4) will trigger recognition in the **I/O Mode Setting** section.
 - ⊙ **If the recognition is still repeating, it will notify after 1 second:** Select this option to avoid multiple recognition results for the same license plate due to the position of the camera. Enter the duration of a recognition result to be displayed if the next license plate recognized is the same as the previous one. Note that this option only works for detection mode of Motion (Stationary Camera), Motion (Mobile Camera), and Motion (Continuous Recognition).
 - ⊙ **Output recognition result quickly:** Select this option if you want to have a faster recognition result at the cost of the accuracy. This option is suitable for a large amount of traffic and every frame received by the GV-DSP LPR will go through recognition process (approximately at the processing rate of 1 frame per second).

[Motion Detection Setting]

- **Detected Sensitivity:** Select the sensitivity level of motion detection from the drop-down list. The default value is set to 5. The higher the value, the more sensitive the system is to the motion.
- **Detected Object Size:** Select the value of the targeted object's normal size. The default value is set to 1. The higher the value, the bigger the object's size is.

[Recognition and Motion Area Setting] To configure the area of motion detection, first click **Reset** to clear the default setting. Then drag the mouse button to select an area of the image. You can define up to 8 areas to outline your detection areas. Every time when an area is selected, you will be prompted for confirmation.

1. Click **Save** to save the defined areas.
2. Click **Apply** to take effect.

For the related settings of input devices, see *4.2.1 Input Setting*.

4.1.3 LPR Center

When the alarm events of motion detection and sensor trigger occur, the GV-LPR Center, GV-LPR System or GV-DVR System can get alerts with recognition results and captured images.

LPR Center

LPR Name Setting

Name

Period of Connection Checking (Second)

Set time interval (0~255):

Connection Port Settings:

POS Port number:

POS ACK Port number:

LPR Live Center Port:

POS Overlay Plate and Time:

Center Remote Control

Control Pin Output 1 Output 2 Output 3 Output 4

Center IP setting

No.	IP Address	Port number	Offline Backup	Customize	Connect Status
1	192.168.0.225	7550	Disable <input type="button" value="change"/>	<input type="button" value="Delete"/>	Disconnect
2	192.168.0.238	7550	Disable <input type="button" value="change"/>	<input type="button" value="Delete"/>	Disconnect

Add New Center IP Address

Port number

Offline Backup

Figure 4-4

[LPR Name Setting] Type a descriptive name for the GV-DSP LPR.

[Period of Connection Checking] Set the time interval in seconds of each reconnection attempt.

[Connection Port Settings] Both of **POS Port** and **POS ACK Port** are used for transmitting the recognition result to the GV-DVR System. The default port numbers are 4000 and 3999 respectively. The **LPR Live Center Port** is used for displaying the recognition result on the live view. When you want to access more than one GV-DSP LPR on the browser screen, set different LPR Live Center Ports for each GV-DSP LPR; otherwise you cannot see the recognition result on the live view.

POS Overlay Plate and Time: Select whether the recognition results will contain Plate ID and Time or only Plate ID when they are transmitted to the GV-DVR System.

[Center Remote Control] Select outputs allowed to be triggered by the GV-LPR Center or GV-LPR System remotely.

[Center IP Setting] Connect the GV-DSP LPR to the GV-LPR Center or GV-LPR System for central monitoring. The maximum of 4 GV-LPR Centers can be connected at one time.

- **Add New Center IP Address:** Type the IP address of the GV-LPR Center or GV-LPR System you want to enable connection. Then click **Apply** for connection.
- **Offline Backup:** When disconnected from the GV-LPR Center or GV-LPR System, the GV-DSP LPR can store recognition data to the SD card. When the connection recovers, the GV-DSP LPR can immediately send the stored data to the GV-LPR Center or GV-LPR System. For the Offline Backup to work, you must select **Enable saving results on SD Card** in Storage Settings (Figure 4-11) ahead.

Note: The GV-DVR System refers to GV-System or GV-NVR.

4.1.4 Recognition Engine Settings

You can adjust the recognition engine to improve the recognition process and increase the accuracy.

Note this page is only available on the following engines: Australia, Brazil, Chile, China, Czech, Israel, Italy, Mexico, Portugal, South Africa, Spain, Taiwan, UK and USA.

Recognition Engine Settings

In this section you can set parameters of LPR engine.

Recognition Engine Settings

Recognition Loop:(1~20)	<input style="width: 100%;" type="text" value="10"/>
Maximum Number of Characters :(1~16)	<input style="width: 100%;" type="text" value="8"/>
Minimum Number of Characters:(1~16)	<input style="width: 100%;" type="text" value="5"/>
Maximum Height of Characters:(12~240)	<input style="width: 100%;" type="text" value="120"/>
Minimum Height of Characters:(12~240)	<input style="width: 100%;" type="text" value="12"/>
Maximum Numbers of Plate:(1~8)	<input style="width: 100%;" type="text" value="1"/>
<input type="checkbox"/> 2 Row Enable <input checked="" type="checkbox"/> Fast Slope Detetion Enable <input type="checkbox"/> Slope Detection Enable	
Minimum Slope Angle:(-15~15)	<input style="width: 100%;" type="text" value="-10"/>
Maximum Slope Angle:(-15~15)	<input style="width: 100%;" type="text" value="10"/>
<input checked="" type="checkbox"/> Slant Detection Enable <input type="checkbox"/> Special Plate Detection Enable	
Minimum Slant Angle:(-15~15)	<input style="width: 100%;" type="text" value="-10"/>
Maximum Slant Angle:(-15~15)	<input style="width: 100%;" type="text" value="10"/>
Maximum Number of Special Characters:(1~16)	<input style="width: 100%;" type="text"/>
Minimum Number of Special Characters:(1~16)	<input style="width: 100%;" type="text"/>
<input type="checkbox"/> Moto Enable <input type="checkbox"/> Alphabet Filter Enable <input type="checkbox"/> Digit Filter Enable <input type="checkbox"/> I to 1 Enable <input type="checkbox"/> 1 to I Enable <input type="checkbox"/> 0 to O Enable	

Rule Setting

When rule settings are A: 0 to D 0 to O

<input type="checkbox"/> Rule1	<input style="width: 100%;" type="text"/>
<input type="checkbox"/> Rule2	<input style="width: 100%;" type="text"/>
<input type="checkbox"/> Rule3	<input style="width: 100%;" type="text"/>
<input type="checkbox"/> Rule4	<input style="width: 100%;" type="text"/>
<input type="checkbox"/> Rule5	<input style="width: 100%;" type="text"/>

Figure 4-5

[Recognition Engine Settings]

- **Recognition loop:** Set the number of recognition the system will perform to the same license plate.

- **Maximum number of characters:** Set the maximum number of characters allowed on the license plate to activate the recognition process. If the number of characters exceeds the limit, the system will not start the recognition.
- **Minimum number of characters:** Set the minimum number of characters allowed on the license plate to activate the recognition process. If the number of characters does not reach the minimum requirement, the system will not start the recognition.
- **Maximum height of characters:** You can set the maximum height of characters on the license plate in pixels to activate the recognition process.
- **Minimum height of characters:** Set the minimum height of characters on the license plate in pixels to activate the recognition process.
- **Maximum number of plates:** Set the maximum number of plates to be recognized simultaneously.
- **Enable two row plates:** This option can recognize two rows of characters on license plates. Note this option is only available on the Italy and UK recognition engines.
- **Fast Slope Detection Enable:** This option can increase the recognition speed by 10 % but decrease the accuracy by 3%.
- **Slope Detection Enable:** The license plate tilting in a horizontal direction can be detected.
 - ⊙ **Minimum angle of slope:** Set the minimum tilt angle to be allowed to activate the recognition process.
 - ⊙ **Maximum angle of slope:** Set the maximum tilt angle to be allowed to activate the recognition process.
- **Slant Detection Enable:** The license plate tilting in a vertical direction can be detected.
 - ⊙ **Minimum angle of slant:** Set the minimum tilt angle to be allowed to activate the recognition process.
 - ⊙ **Maximum angle of slant:** Set the maximum tilt angle to be allowed to activate the recognition process.
- **Special Plate Detection Enable:** This option can recognize traditional Chinese characters. This option and the following suboptions are only available on the Taiwan recognition engine.
 - ⊙ **Maximum number of characters:** Set the maximum number of special characters allowed on the license plate to activate the recognition process. If the number of characters exceeds the limit, the system will not start the recognition.

- ⊙ **Minimum number of characters:** Set the minimum number of special characters allowed on the license plate to activate the recognition process. If the number of characters does not reach the minimum requirement, the system will not start the recognition.
- ⊙ **Moto Enable:** Enable the recognition for motorcycle license plate.
- ⊙ **Alphabet Filter Enable:** Select this option to filter out extraneous alphabetical characters around the license plate and increase recognition accuracy.
- ⊙ **Digit Filter Enable:** Select this option to filter out extraneous numerical characters around the license plate and increase recognition accuracy.

The following options can be enabled to avoid misidentification of certain characters in some countries.

- **I to 1 Enable:** Always identify the character “I” as “1” (one).
- **1 to I Enable:** Always identify the character “1” as “I” (letter I).
- **0 to O Enable:** Always identify the character “0” as “O” (letter O).

[Rule Setting] You can set up recognition rules to increase recognition accuracy. The rule can only consist of letters A and D, and its length must equal that of the license plate number. Use “A” and “D” to represent one alphabetical character and one numerical character of your license plate number respectively. For example, if the license plate is “ABC123” you can type “AAADDD” in one of the Rule fields. Up to 5 rules can be set.

- **(When rule settings are A) 0 to D:** Always identify the letter “O” as letter “D”. This is the default setting. It is useful to avoid misidentification in some countries’ license plates which is hard to distinguish between letter “O” and letter “D”. Select this option to activate a concurrent condition with the rules that you have set. For instance, if the rule entered in the field is “AADDD”, the recognition result will be “AD123” for license plate which appears to be “A0123”
- **(When rule settings are A) 0 to O:** Always identify the letter “O” as letter “O”. Select this option to activate a concurrent condition with the rules that you have set. For instance, if the rule entered in the field is “AAADDA”, the recognition result will be “IBZ02O” for license plate which appears to be “IBZ020”

4.2 I/O Control

The I/O terminal block on the rear panel of the GV-DSP LPR provides the interface for digital inputs and relay outputs. For details on the I/O terminal block, see Chapter 6.

4.2.1 Input Setting

The GV-DSP LPR can connect up to 4 input devices, whereas GV-DSP LPR V2 can connect up to 2 input devices, e.g. sensors.

The screenshot shows the 'Input Setting' configuration page. At the top, it says 'In this section you can configure LPR digital input port (4 sets)'. Below this, there is a section for 'Digital Input 1'. The settings for this input are:

- Enable
- Name:
- Normal State: Open Circuit (N/O) Grounded Circuit (N/C)
- Latch Mode: Enable
- Trigger digital output relay: Output 1 Output 2 Output 3 Output 4

The section for 'Digital Input 2' is partially visible at the bottom of the screenshot.

Figure 4-6

- **Normal State:** Set up the input state to trigger actions by selecting **Open Circuit (N/O)** or **Grounded Circuit (N/C)**.
- **Latch Mode:** Enable this option to have a momentary output alarm.
- **Trigger digital output relay:** Select the output(s) to be triggered after the input is activated.

4.2.2 Output Setting

The GV-DSP LPR can connect up to 4 output devices, whereas GV-DSP LPR V2 can connect up to 2 output devices, e.g. alarms.

There are six output signals are available: N/O (Open Circuit), N/C (Grounded Circuit), N/O Toggle, N/C Toggle, N/O Pulse and N/C Pulse. Choose the one that mostly suits the device you are using. For **Toggle** output type, the output continues to be triggered until a new input trigger ends the output. For **Pulse** output type, the output is triggered for the amount of time you specify in the Trigger Pulse Mode for x Seconds field.

Output Setting

In this section you can configure LPR digital output port(4 sets).

Digital Output 1 - Normal State

Enable

Name

General Mode Open Circuit (N/O) Grounded Circuit (N/C)

Toggle Mode Open Circuit (N/O) Grounded Circuit (N/C)

Pulse Mode Open Circuit (N/O) Grounded Circuit (N/C)

Trigger Pulse Mode for seconds(1~60)

Digital Output 2 - Normal State

Figure 4-7

4.3 Events & Alerts

4.3.1 FTP

The GV-DSP LPR can act as a FTP server, sending its own captured images and overview images from GV-Video Server together to GV-LPR Center or GV-LPR System.

FTP Server Setting

Act as FTP server

In this section you can enable/disable LPR internal ftp server for file transfer.

Enable ftp access to the LPR

Use alternative Port

Time Interval(-60~60 seconds)

Frame Interval(0~30 frames)

Figure 4-8

Follow the steps to build the connection among GV-DSP LPR, GV-Video Server and GV-LPR Center or GV-LPR System:

1. On the GV-DSP LPR, select **Enable ftp access to the LPR** to act as a FTP server and click **Apply**. The default port is 21.
2. There might be a time or a frame gap between the captured images from GV-DSP LPR and the overview image from GV-Video Server. To ensure the two images match each other, you can set the **Time Interval** or **Frame Interval**.

For example, the time difference between the captured image (GV-DSP LPR) and the overview image (GV-Video Server) is 60 seconds. To prevent from any matching errors, setting 60 in the Time Interval field can ensure the images match each other at the GV-LPR Center or GV-LPR System.

3. To connect to GV-LPR Center or GV-LPR System, in the left menu (Figure 4-1), click **Video and Motion**, click **LPR Center**, and type the IP address of the GV-LPR Center or GV-LPR System in the Add New Center IP Address field. For details, see *4.1.3 LPR Center*.
4. At the GV-Video Server site, on the FTP setting page, enable the FTP function and type the IP address, User Name and Password to access the FTP server of the GV-DSP LPR. Make sure the port value is the same as that of the GV-DSP LPR.

4.4 Network

The Network section includes some basic but important network configurations that enable the GV-DSP LPR to be connected to a TCP/IP network.

4.4.1 LAN

According to your network environment, select among Static IP, DHCP, PPPoE and UMTS.



Figure 4-9

[LAN Configuration]

- **Dynamic IP address:** The network environment has a DHCP server. This option should only be enabled if you know which IP address the GV-DSP LPR will get from the DHCP server, or you have obtained a domain name from the DDNS service provider.
- **Static IP address:** Assign a static IP or fixed IP to the GV-DSP LPR. Type TCP/IP and DNS parameters of the unit in the **Configure connection parameters** section.
- **PPPoE:** The Network environment is xDSL connection. Type the Username and Password provided by ISP to establish the connection. If you use the xDSL connection with dynamic IP addresses, you must use the DDNS function to obtain a domain name linked to the changing IP address of the GV-DSP LPR first.

[Configure connection parameters] Type the IP address, Subnet Mask, Router/Gateway, Primary DNS server and Secondary DNS server of the GV-DSP LPR.

Parameters	Default
IP address	192.168.0.230
Subnet Mask	255.255.255.0
Router/Gateway	192.168.0.1
Primary DNS server	192.168.0.1
Secondary DNS server	192.168.0.2

For details on the DDNS function (Dynamic DNS Server), see 4.3.2 *Advanced TCP/IP*.

4.4.2 UMTS

UMTS stands for Universal Mobile Telephone System. UMTS is a third-generation (3G) broadband, packet-based transmission of text, digitized voice, video, and multimedia at data rates up to 2 megabits per second. UMTS offers a consistent set of services to mobile computer and phone users, no matter where they are located in the world.

After an UMTS-compatible wireless device is attached to the USB port and the UMTS function is enabled, the GV-DSP LPR can have Internet access. Currently the GV-DSP LPR only supports the wireless module for UMTS applications: Huawei E220 USB Modem (HSDA/UMTS/EDGE/GPRS/GSM).

Figure 4-10

To enable the UMTS service, type Username, Password, PIN number and APN (Access Point Name) that are provided by your network operator. If you use the UMTS connection with dynamic IP addresses, you must enable the DDNS function to obtain a domain name linked to the changing IP address of the GV-DSP LPR first.

4.4.3 Advanced TCP/IP

This section introduces the advanced TCP/IP settings, including DDNS Server, HTTP port, and streaming port.

Advanced TCP/IP

Dynamic DNS Server Settings

In this section you can configure your LPR to obtain a domain name by using a dynamic IP.

Enable

Service Provider: GeoVision DDNS Server ex: [Register Geovision DDNS Server](#)

Host Name: username.dipmap.com

User Name:

Password:

Update Time : [Refresh](#)

Apply

HTTP Port Settings

In this section you can change the default HTTP port number (80) to any port within the range 1-65535. It is a simple method to increase system security using port mapping. You can configure HTTP connection to an alternative port.

HTTP Port: 80

Apply

LPR Streaming Port Settings

In this section you can configure Streaming connection from a determine port. The default setting is 10000.

VSS Port: 10000

Apply

Figure 4-11

[Dynamic DNS Server Settings] DDNS (Dynamic Domain Name System) provides a convenient way of accessing the GV-DSP LPR when using a dynamic IP. DDNS assigns a domain name to the GV-DSP LPR, so that the Administrator does not need to go through the trouble of checking if the IP address assigned by DHCP Server or ISP (in xDSL connection) has changed.

Before enabling the DDNS function, the Administrator should apply for a host name from the DDNS service provider's website. There are 2 providers listed in the GV-DSP LPR: GeoVision DDNS Server and DynDNS.org.

To enable the DDNS function:

1. **Enable:** Enable the DDNS function.
2. **Service Provider:** Select the DDNS service provider you have registered with.
3. **Host Name:** Type the host name used to link to the GV-DSP LPR. For the users of GeoVision DDNS Server, it is unnecessary to enter the host name. The system will detect the host name automatically.
4. **User Name:** Type the user name used to enable the service from the DDNS.
5. **Password:** Type the password used to enable the service from the DDNS.
6. Click **Apply**. The Update Time from the DDNS will be displayed.

[HTTP Port Settings]

The HTTP port enables connecting the GV-DSP LPR to the web. For security integration, the Administrator can hide the server from the general HTTP port by changing the default HTTP port of 80 to a different port number within the range of 1024 through 65535.

[LPR Streaming Port Settings]

The VSS port enables connecting the GV-DSP LPR to the GV-LPR Center or the GV-LPR System. The default setting is 10000.

4.4.4 IP Filter

The Administrator can set IP filtering to restrict access to the GV-DSP LPR.

IP Filter Setting

IP Filtering

In this section you can allow or deny network connection listed in the table.

Enable IP Filtering

No.	IP Address Range in CIDR format	Action	Customize
1	192.168.0.33	Deny	<input type="button" value="Delete"/>

Filtered IP: (ex: 192.168.0.0/24)

Action to take:

Figure 4-12

To enable the IP Filter function:

1. **Enable IP Filtering:** Enable the IP Filtering function.
2. **Filtered IP:** Type the IP address you want to restrict the access.
3. **Action to take:** Select the action of **Allow** or **Deny** to be taken for the IP address you have specified.
4. Click **Apply**.

4.5 Management

The Management section includes the settings of data and time, SD card and user account. Also you can view the firmware version and execute certain system operations.

4.5.1 Date & Time Setting

You can set up the date and time appearing in the image's caption.

Date and Time Settings

In this section you can configure time and date or just synchronize with a NTP server.

Date and Time on LPR

Sun Dec 6 22:45:54 2009

Time Zone

(GMT+08:00) China,Hong Kong,Australia Western,Singapore,Taiwan,Russia ▼

Enable Daylight Saving Time

Start (MM/dd/hh/mm)

End (MM/dd/hh/mm)

Synchronized with a Network Time Server

Synchronized with Network Time Server (NTP)

Host name or IP Address:

Update period: 24 hours; Update Time: AM 05:10

Synchronized with your computer or modify manually

Modify manually

Date (yyy/mm/dd)

Time (hh:mm:ss)

Synchronized with your computer

Figure 4-13

[Date & Time on LPR] Display the current date and time on the GV-DSP LPR.

[Time Zone] Set the time zone for local settings. Select **Enable Daylight Saving Time** to automatically adjust the GV-DSP LPR for daylight saving time. Type the Start Time and End Time to enable the daylight saving function.

[Synchronized with a Network Time Server] Use the NTP server to automatically update the date and time of the GV-DSP LPR every 24 hours. Type the host name or the IP address of the NTP server for connection.

[Synchronized with your computer or modify manually] Manually change the date and time of the GV-DSP LPR. Or, synchronize the date and time of the GV-DSP LPR with those of the local computer.

4.5.2 Storage Settings

The GV-DSP LPR has one SD card slot. You can store the recognition results or images to the SD card. The image is stored in the JPEG compressed format.

Storage Settings

In this section you can configure the disk storage to archive videos and events.

Storage Settings

Enable saving results on SD Card

Enable recycling

Stop recording or start recycling disk when free space of disk is smaller than

Disk Information

Total Size	Used Size	Free space	Utilization	Remove	Format
951	906	44	95%	<input type="button" value="Remove"/>	<input type="button" value="Format"/>

(Unit: Megabyte)

Figure 4-14

To add a SD card:

1. Insert a SD card to the SD card slot.
2. Click the **Refresh** button to detect the SD card. The total size, used size, free space and utilization of the SD card will be displayed. Note that it may take several seconds for your web browser to update the information of the SD card.
3. If you like to format the SD card or erase all data stored on it, click the **Format** button.

To remove a SD card:

1. Click the **Remove** button.
2. When you are prompted to ensure the action, click **Yes**. The page will be refreshed and the displayed information of the will be cleaned.
3. Remove the SD card from the SD card slot.

Note: The captured images may be lost if you do not remove the SD card properly.

[Storage Settings]

- **Enable saving results on SD Card:** Enable this option to save the recognition results or images onto the SD card.
- **Enable recycling:** If this option is checked, the system will overwrite the oldest stored files when the space of the SD card is lower than the specified space. If this option is not checked, the system will stop recording when the specified space is reached.

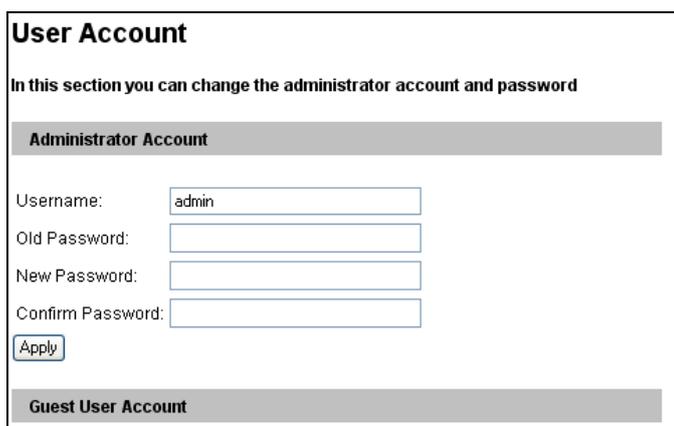
Note:

1. The GV-DSP LPR doesn't support SD High Capacity (SDHC) cards.
 2. The SD card of 1G capacity can save approximately 30,000 captured images of D1 resolution, and 120,000 captured images of CIF resolution. The SD card of 4G capacities can save approximately 120,000 captured images of D1 resolution, and 480,000 captured images of CIF resolution.
-

4.5.3 User Account

The GV-DSP LPR has two types of password protection: Guest password for restricting unwanted users from accessing the GV-DSP LPR, and Administrator password for restricting who can enter privileged commands.

Default Guest login name and password are **guest**. Default Administrator login name and password are **admin**.



The screenshot shows a web interface titled "User Account". Below the title is a subtitle: "In this section you can change the administrator account and password". There are two main sections: "Administrator Account" and "Guest User Account". The "Administrator Account" section contains four input fields: "Username" (with "admin" entered), "Old Password", "New Password", and "Confirm Password". Below these fields is an "Apply" button. The "Guest User Account" section is currently empty.

Figure 4-15

4.5.4 Log Information

The log contains dump data that is used by service personnel for analyzing problems.

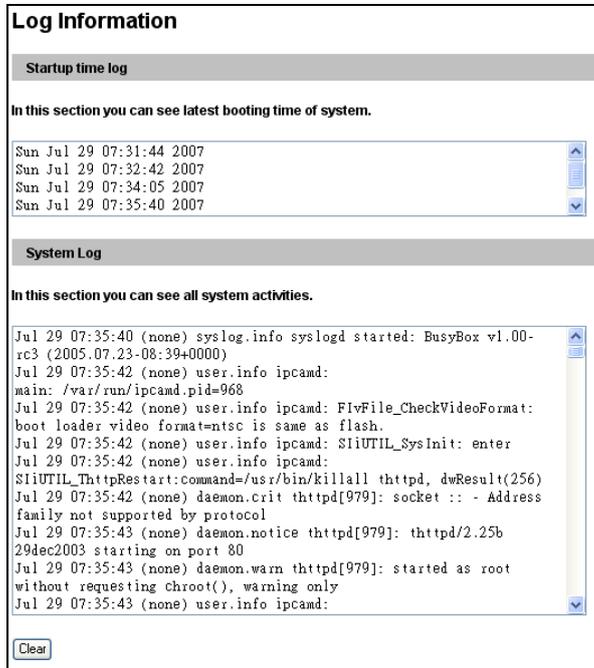
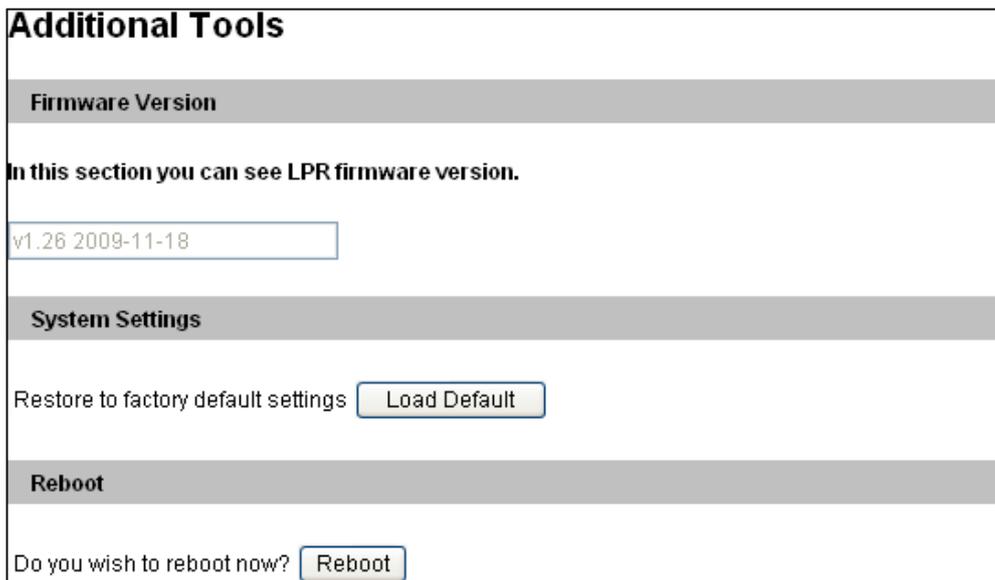


Figure 4-16

4.5.5 Tools

This section allows you to execute certain system operations and view the firmware version.



Additional Tools

Firmware Version

In this section you can see LPR firmware version.

v1.26 2009-11-18

System Settings

Restore to factory default settings

Reboot

Do you wish to reboot now?

Figure 4-17

[Firmware Version] This section displays the firmware version of the GV-DSP LPR.

[System Settings] Clicking the **Load Default** button will make the GV-DSP LPR restore factory default settings. The Ready LED on the front panel will turn off. Wait until the Ready LED turns on and then you can re-log in the GV-DSP LPR.

Note: After applying default settings, you will need to configure the GV-DSP LPR's network settings again.

[Reboot] Clicking the **Reboot** button will make the GV-DSP LPR perform software reset. The Ready LED on the front panel will turn off. Wait until the Ready LED turns on and then you can re-log in the GV-DSP LPR.

Chapter 5 Advanced Applications

This chapter introduces more advanced applications.

5.1 Upgrading System Firmware

GeoVision will periodically release the updated firmware on the website. The new firmware can be simply loaded into the GV-DSP LPR over LAN or by using the IP Device Utility included in the Software DVD.

Important Notes before You Start

Before you start updating the firmware, please read these important notes:

1. While the firmware is being updated,
 - A. the power supply must not be interrupted, and
 - B. do not unplug the Ethernet cable if the cable is the source of power supply (Power over Ethernet or PoE supported).
2. Do not turn the power off in 5 minutes after the firmware is updated.
3. If you use the IP Device Utility for firmware upgrade, the computer used to upgrade firmware must be under the same IP and subnet sequence of the GV-DSP LPR.

WARNING: The interruption of power supply during updating causes not only update failures but also damages to your GV-DSP LPR. In this case, please contact your sales representative and send your device back to GeoVision for repair.

5.1.1 Upgrading Firmware over LAN

1. In the Live View window, click the **Firmware Upgrade** button (No. 7, Figure 3-3). This dialog box appears.

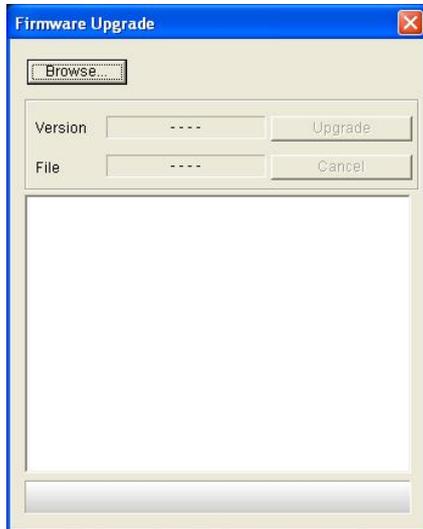


Figure 5-1

2. Click the **Browse** button to locate the firmware file (.img) saved at your local computer.
3. Click the **Upgrade** button to process the upgrade.

5.1.2 Upgrading Firmware by Using the Utility

The IP Device Utility provides a direct way to upgrade the firmware to multiple GV-DSP LPRs. Note the computer used to upgrade firmware must be under the same IP and subnet sequence of the GV-DSP LPR.

1. Insert the Software DVD, select **IP Device Utility**, and follow the onscreen instructions to install the program.

2. Double-click the **GV IP Device Utility** icon created on your desktop. This dialog box appears.

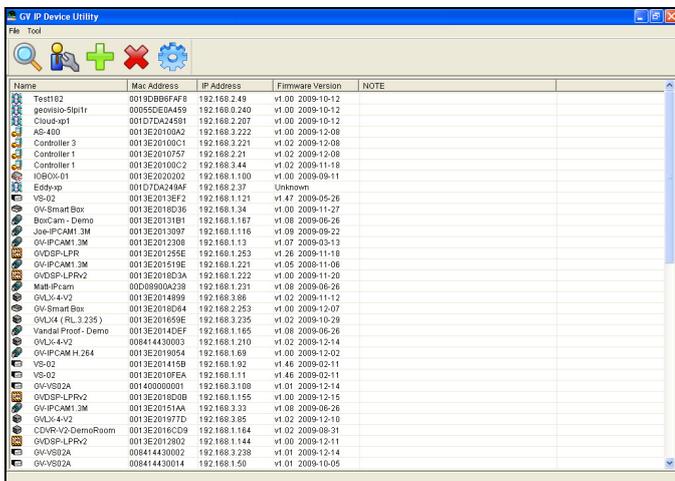


Figure 5-2

3. Click the **Search** button  to locate the available GV-DSP LPRs on the same LAN. Or click the **New** button and assign the IP address to locate a GV-DSP LPR over the Internet. Or highlight one GV-DSP LPR in the list and click the **Delete** button to remove it.
4. Double-click one GV-DSP LRP in the list. This dialog box appears.

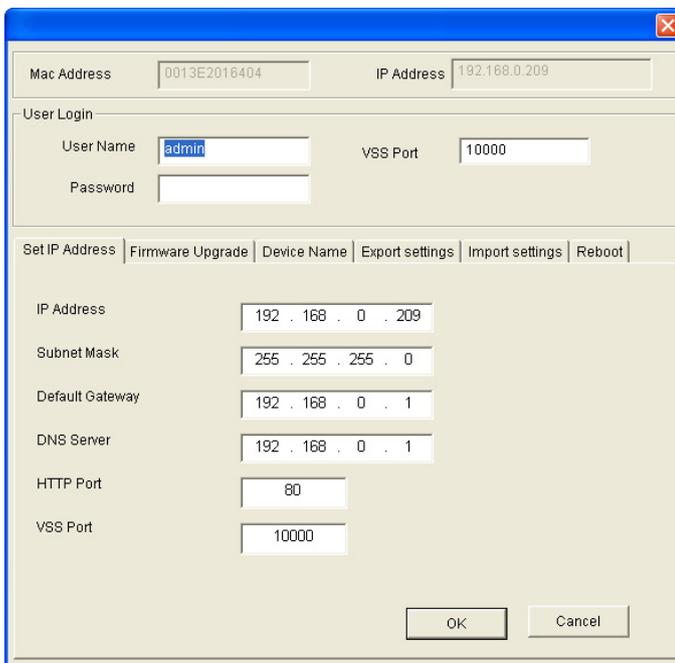
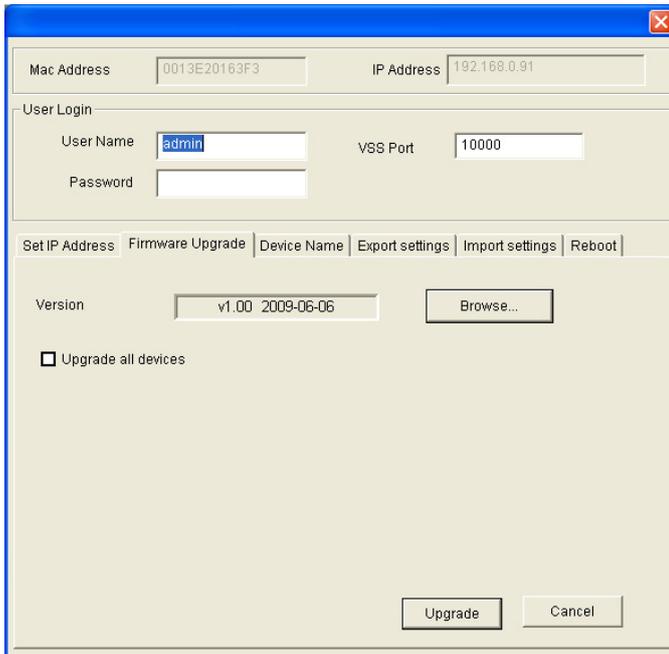


Figure 5-3

5. Click the **Firmware Upgrade** tab. This dialog box appears.



The screenshot shows a dialog box titled "Firmware Upgrade" with a blue border and a close button in the top right corner. The dialog is divided into several sections:

- Mac Address:** A text box containing "0013E20163F3".
- IP Address:** A text box containing "192.168.0.91".
- User Login:** A section containing:
 - User Name:** A text box containing "admin".
 - Password:** An empty text box.
 - VSS Port:** A text box containing "10000".
- Navigation Tabs:** A row of tabs: "Set IP Address", "Firmware Upgrade" (selected), "Device Name", "Export settings", "Import settings", and "Reboot".
- Version:** A text box containing "v1.00 2009-06-06" and a "Browse..." button to its right.
- Upgrade all devices:** A checkbox labeled "Upgrade all devices" which is currently unchecked.
- Buttons:** "Upgrade" and "Cancel" buttons are located at the bottom right of the dialog.

Figure 5-4

6. Click the **Browse** button to locate the firmware file (.img) saved at your local computer.
7. If you like to upgrade all the GV-DSP LPRs in the list, check **Upgrade all devices**.
8. Type **Password**, and click **Upgrade** to process the upgrade.

5.2 Backing Up and Restoring Settings

With the IP Device Utility included in the Software DVD, you can back up the configurations in the GV-DSP LPR, and restore the backup data to the current unit or import it to another unit.

Backing Up the Settings

1. Run **IP Device Utility** and locate the desired GV-DSP LPR. See Steps 1-3 in *5.1.2 Upgrading Firmware by Using the Utility*.
2. Double-click the GV-DSP LPR in the list. Figure 5-3 appears.
3. Click the **Export Settings** button. This dialog box appears.

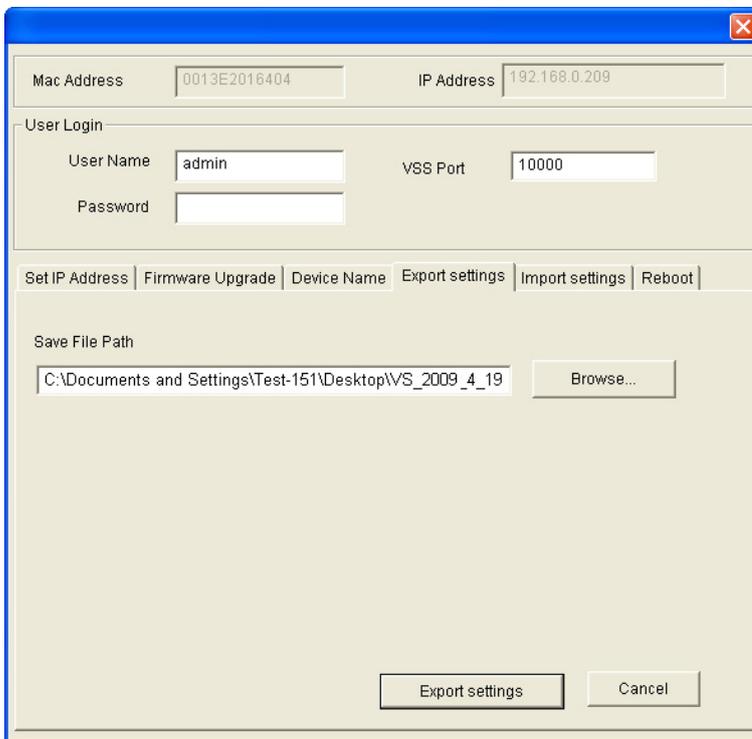


Figure 5-5

4. Click the **Browse** button to assign a file path.
5. Type **Password**, and click **Export Settings** to save the backup file.

Restoring the Settings

1. In Figure 5-3, click the **Import Settings** tab. This dialog box appears.

The screenshot shows a dialog box titled "Import Settings" with a blue header bar and a close button in the top right corner. The dialog is divided into several sections:

- Mac Address:** A text box containing "0013E2016404".
- IP Address:** A text box containing "192.168.0.209".
- User Login:** A section containing:
 - User Name:** A text box containing "admin".
 - Password:** An empty text box.
 - VSS Port:** A text box containing "10000".
- Navigation Tabs:** A row of tabs: "Set IP Address", "Firmware Upgrade", "Device Name", "Export settings", "Import settings" (which is selected), and "Reboot".
- Version:** A text box containing "v1.00 2009-07-02" and a "Browse..." button to its right.
- Buttons:** At the bottom, there are two buttons: "Update setting" and "Cancel".

Figure 5-6

2. Click the **Browse** button to locate the backup file (.dat).
3. Click **Update Settings** to start restoring.

5.3 Restoring to Factory Default Settings

Between the two models of GV-DSP LPR, the operation of restoring the GV-DSP LPR to original default values can vary and the way the LEDs flash can also be different.

To restore to default settings, use the **Reset** and **Default** buttons on the front panel of GV-DSP LPR V1, or the **Load Default** button on the front panel of GV-DSP LPR V2. For the location of these buttons see *1.6 Physical Description*.

Restoring GV-DSP LPR V1 to Default Settings

1. Press and then release the **Reset** button immediately.
2. Press and hold the **Default** button for about 30 seconds, during which all 3 LEDs first turn on for 5 seconds, Ready and Disk Full/Fault LEDs then turn off, then Ready and Disk Full/Fault LEDs flash once and finally all 3 LEDs turn on again.
3. Release the **Default** button. The process of loading default values is complete, and the GV-DSP LPR V1 starts rebooting itself with the 3 LEDs turning off.
4. Wait until the Power and Ready LEDs turn on again. After this all the settings are returned to default values.

Restoring GV-DSP LPR V2 to Default Settings

1. Unplug and plug the power cable to start.
2. Press and hold the **Load Default** button until the Ready LED blinks. This may take up to 60 seconds. The Ready LED will blink twice.
3. Release the **Load Default** button. The process of loading default values is complete, and the GV-DSP LPR V2 starts rebooting itself.
4. Wait until the Ready LED turns on again. After this all the settings are returned to default values.

Note: Before the **Ready LED** is on again, do not unplug the power cable; otherwise the loading of default values will fail.

Chapter 6 The I/O Terminal Block

6.1 GV-DSP LPR V1

The 16-pin terminal block, located on the rear panel, provides the interface to: four digital inputs, four relay outputs, an RS-232 interface, a Wiegand interface and auxiliary power. The I/O terminal block can be used to develop applications for motion detection, event alerts, access control and a variety of other functions.

Note: RS-232 and Wiegand interfaces are NOT functional now.

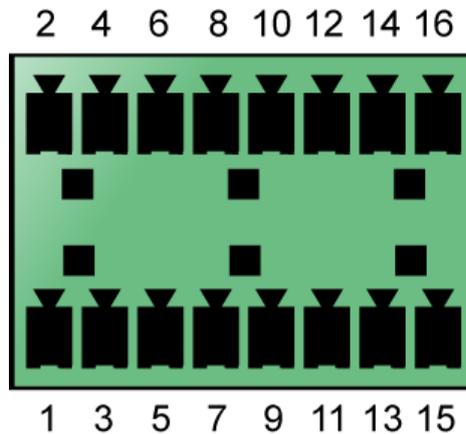


Figure 6-1

Pin Assignment

The pin assignment for the terminal block is described in the table below.

Pin	Function	Pin	Function
1	Relay Output 1	9	DC 5V Out for GV-Relay Module
2	Digital Input 1	10	Ground
3	Relay Output 2	11	RS-232 (TX)
4	Digital Input 2	12	Wiegand D0
5	Relay Output 3	13	RS-232 (RX)
6	Digital Input 3	14	Wiegand D1
7	Relay Output 4	15	Ground
8	Digital Input 4	16	DC 12V Out for Wiegand Card Reader

Relay Output

The relay outputs on the terminal block can only drive a maximum load of 5 volts. Working in conjunction with the GV-Relay V2 module, it can drive heavier loads. Refer to the figure and table below to connect the GV-Relay V2 module to the GV-DSP LPR V1.

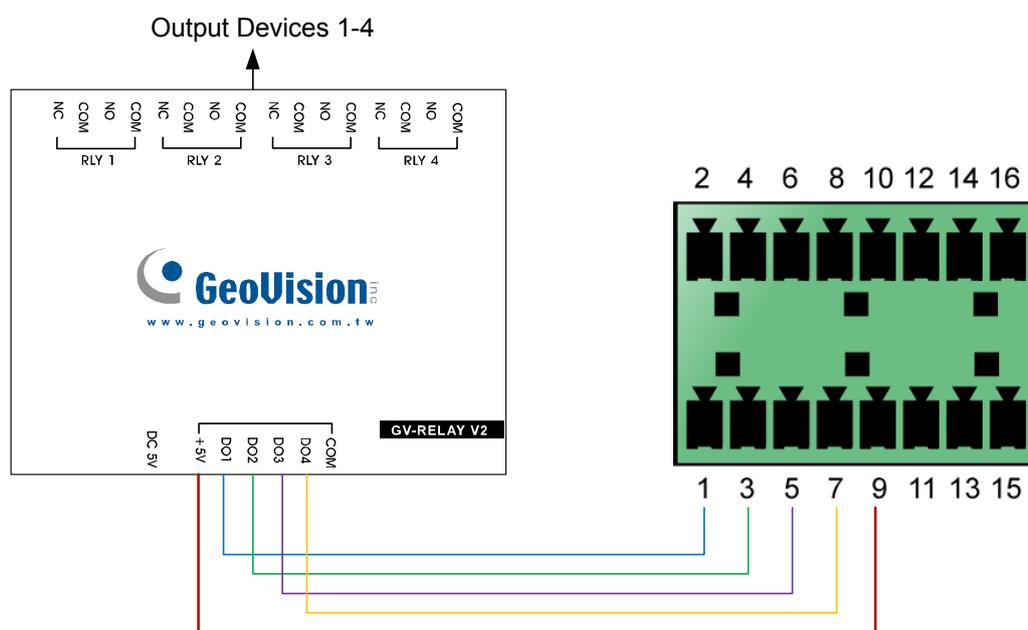


Figure 6-2

GV-Relay V2	I/O Terminal Block
DO 1	Pin 1
DO 2	Pin 3
DO 3	Pin 5
DO 4	Pin 7
+ 5V	Pin 9

Note that you don't need to use the DC 5V connector on the GV-Relay V2 module for power supply, since the power is supplied from the GV-DSP LPR V1.

Note: The GV-Relay V2 module is an optional product.

6.2 GV-DSP LPR V2

6.2.1 I/O Port

Owing to the model size, GV-DSP LPR V2 provides the **I/O Cable with RJ-45 Connector** for the extensible connection to other I/O devices. A RJ-45 connector and a bundle of shielded wires are on the each end of the cable.

Strip the desired wires first, and connect the auxiliary devices with the right wires according to the following pin assignment. Then insert the RJ-45 Connector to the **I/O Port** on GV-DSP LPR V2 (No. 4, Figure 1-4).

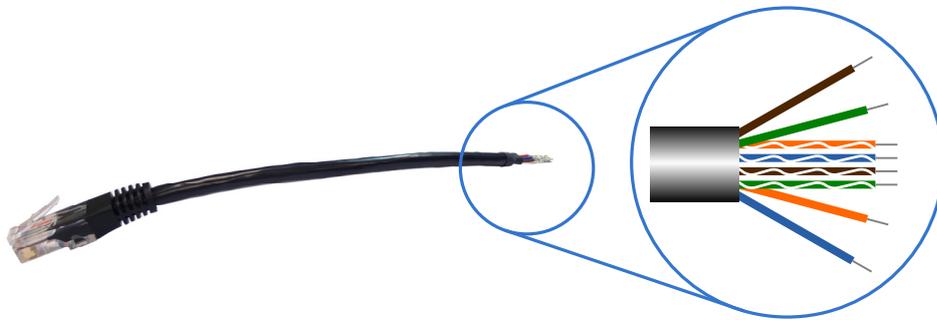


Figure 6-3

Pin Assignment

The table below lists the pin assignment for the shielded wires of the **I/O Cable with RJ-45 Connector**.

Pin	Wire	Function
1	Brown	Digital Out 1
2	White with Brown Stripe	Digital Out 2
3	White with Green Stripe	Ground
4	White with Blue Stripe	Digital In 1
5	Blue	Digital In 2
6	Green	Ground
7	Orange	Weigand D0
8	White with Orange Stripe	Weigand D1

Note: The Weigand interface is NOT functional now.

Relay Output

The relay outputs on the terminal block can only drive a maximum load of 5 volts. Working in conjunction with the GV-Relay V2 module, it can drive heavier loads. Refer to the figure and table below to connect the GV-Relay V2 module to the GV-DSP LPR V2.

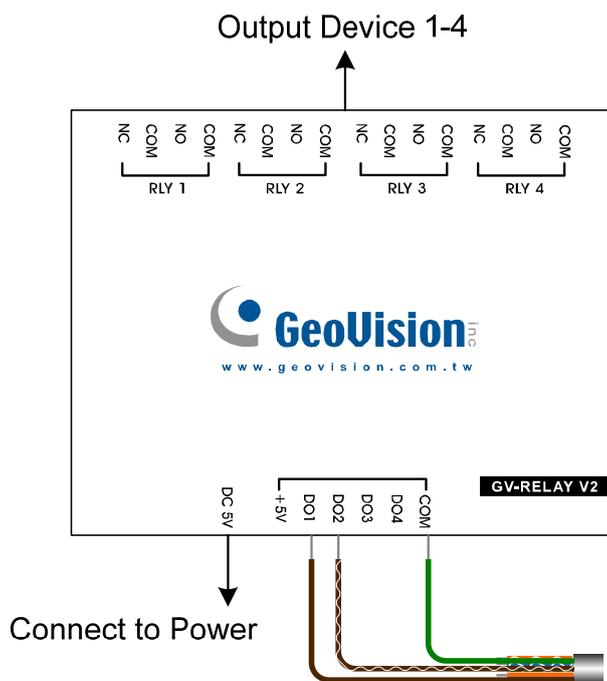


Figure 6-4

GV-Relay V2	Wire
DO 1	Brown
DO 2	White with Brown Stripe
COM	Green

Note: The GV-Relay V2 module is an optional product.

6.2.2 RS-485/RS-232 Terminal Block

The 6-pin terminal block, located on the rear panel, provides the RS-485 and RS-232 interfaces.

Note: RS-485 and RS-232 interfaces are NOT functional now.

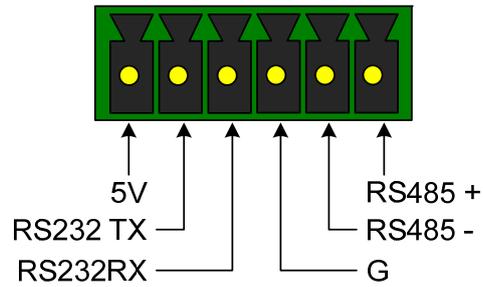


Figure 6-5

Pin	Function
5V	DC 5V Out
TX	RS-232 TX (Transmit)
RX	RX-232 RX (Receive)
G	Ground
RS-485 +	RS-485 +
RS-485 -	RS-485 -

Specifications

Model	GV-DSP LPR V1	GV-DSP LPR V2
Video Input/Output	1 Video In, 1 TV Out	
Audio Input/Output	1 Audio In, 1 Audio Out	None
Video Compression	GJPEG	
Audio Compression	G.723	
Live Resolutions	D1, CIF	
Live Frame Rate	NTSC	1, 3, 5, 7, 10
	PAL	1, 3, 5, 8, 12
Image Setting	Brightness, Contrast, Saturation, Hue	
Alarm and Event Management	<ul style="list-style-type: none"> • Events triggered by motion detection or sensor inputs • Central monitoring by LPR Center • Relay outputs triggered by sensor inputs or remotely by LPR Center 	
Connectors	<ul style="list-style-type: none"> • Video Input/TV Output: BNC ports • Audio Input/Output: Mini stereo jacks • Ethernet: 10/100Base-T • USB: 2.0 (only for UMTS) • SD Card Slot: standard SD cards (Not support SDHC cards) • Terminal Block: 4 Digital Inputs, 4 Relay Outputs, 1 RS-232, 1 Weigand 	<ul style="list-style-type: none"> • Video Input/TV Output: BNC ports • Audio Input: Mini stereo jacks • Ethernet: 10/100Base-T • USB: 2.0 (only for UMTS) • Mini SD Card Slot: standard Mini SD cards • I/O Port: 2 Digital Inputs, 2 Relay Outputs, 1 Weigand • RS-485 / RS-232 Terminal Block: RS-485 / RS-232 interface
Security	IP address filtering	
Installation	Web-based configuration	

Management Maintenance	Firmware upgrade through Web Browser	
Protocol	HTTP, TCP, UDP, DHCP, NTP, DDNS	
Storage	SD Card	Mini SD Card
Operation Temperature	-20 ~ 70°C (-4 ~ 158°F)	-20 ~ 60°C (-4 ~ 140°F)
Dimensions (W x D x H)	174 x 145 x 40 (mm) / 6.85 x 5.7 x 1.57 (in)	123 x 106 x 25 (mm) / 4.84 x 4.17 x 0.98 (in)
Weight	0.75 (kg) / 1.65 (lb)	0.345 (kg) / 0.76 (lb)
Country Support	Australia, Austria, Belgium, Brazil, Chile, China, Columbia, Cyprus, Czech Republic, Germany, Guernsey, Hungary, Ireland, Israel, Italy, Mexico, Norway, Poland, Portugal, South Africa, Spain, Taiwan, UAE, UK, USA	
Note: The RS-485, RS-232, and Weigand interfaces are NOT functional now.		