

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.

LDSP23V23-A



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

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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 V2	2.10
GV-DSP LPR V3	2.20
GV-DSP LPR V3	2.30

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.

Note: Be sure to load the default settings after you update from firmware V1.06 or earlier to V2.0 or later.

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Recognition Engine Version

GV-DSP LPR V2 / V3 of firmware version 2.30 only supports the following versions of recognition engines:

No.	Country	Engine Version	No.	Country	Engine Version
1.	Argentina	V6023	2.	Israel	V3000
3.	Australia	V4209	4.	Italy	V4038
5.	Austria	V6009	6.	Mexico	V4048
7.	Belgium	V6009	8.	Netherlands	V6019
9.	Brazil	V6019	10.	New Zealand	V6009
11.	Bulgaria	V6009	12.	Norway	V6009
13.	Chile	V6009	14.	Poland	V6018
15.	China	V4213	16.	Portugal	V6018
17.	Columbia	V6009	18.	Qatar	V3122
19.	Cyprus	V6009	20.	Russia	V6018
21.	Czech	V6009	22.	South Africa	V6010
23.	France	V6009	24.	Spain	V6018
25.	Germany	V6009	26.	Slovakia	V6023
27.	Global	V6019	28.	Taiwan	V4558
29.	Guernsey	V6009	30.	Taiwan Moto	V4021
31.	Hong Kong	V6009	32.	UK	V6009
33.	Hungary	V6009	34.	USA	V4209
35.	Ireland	V6009			

Note: Recognition engine for Qatar is only supported in GV-DSP LPR V2 / V3 of firmware version 2.03 or later.

Chapter 1 Introduction

The GV-DSP LPR is a Linux-based license plate recognition system built in a small box. Integrating with a Web server, the GV-DSP LPR can host its own Web site and compare captured license plates either with a standalone database created on GV-DSP LPR, or a database downloaded from the access control software GV-ASManager. When there is a match, GV-DSP LPR will open a gate or barrier.



Figure 1-1

The GV-DSP LPR can also deliver live view images and recognized plate numbers, date and time to the GV-System for security surveillance.



Figure 1-2

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
- Opening a gate barrier when a captured license plate matches the database
- Manageable by GV-ASManager access control system
- Vehicle database of up to 100,000 vehicles
- Standalone database
- Digital watermark
- Hardware watchdog
- IP address filtering
- WiFi
- UMTS
- GPS Tracking
- Recognition results, images and live videos compatible with other system through OCX SDK

1.2 Packing List

1. Power Adaptor x 1
2. Wall Hook x 1
3. Conical Anchor x 4
4. Screw x 4
5. I/O Cable with RJ-45 Connector x 1
6. GV-DSP LPR User's Manual on Software CD

1.3 System Requirements & Software Compatibility

System Requirements

OS	32-bit	Windows 7 / 8 / 8.1 / 10 / Server 2008
	64-bit	Windows 7 / 8 / 8.1 / 10 / Server 2008 R2 / Server 2012 R2
Browser		Internet Explorer 7.x to 11.x

Software Compatibility

GV-DSP LPR Firmware	Compatible GV-ASManager Version
GV-DSP LPR F/W V2.03	GV-ASManager V4.2.1 & V4.2.2
GV-DSP LPR F/W V2.04	GV-ASManager V4.2.3
GV-DSP LPR F/W V2.1	GV-ASManager V4.3
GV-DSP LPR F/W V2.20	GV-ASManager V4.4.0.0
GV-DSP LPR F/W V2.30	GV-ASManager V4.4.2.0 & V4.4.3.0

1.4 Options

GV-GPS Receiver	GV-GPS Receiver is a Global Position System receiver, allowing you to perform vehicle tracking and location verification functions.
GV-Relay V2	Working with this module, GV-DSP LPR can drive the loads of relay outputs over 5 volts.

1.5 Physical Description

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

1.5.1 Front View

GV-DSP LPR V2 / V3



Figure 1-3

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 <i>5.3 Restoring to Factory Default Settings</i> .
4	USB Port	Connects a UMTS modem. See <i>4.5.3 UMTS</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.

1.5.2 Rear View

GV-DSP LPR V2 / V3



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	Terminal Block	Connects RS-232 devices. See <i>Chapter 6 The I/O Terminal Block</i> .
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> . Note: The Wiegand interface is NOT functional now.
5	Mini SD Card Slot (only for GV-DSP LPR V2)	Inserts a Mini Secure Digital (SD) card. The Mini SD card is used for storing recognition images and data.
6	Micro SD Card Slot (only for GV-DSP LPR V3)	Inserts a Micro Secure Digital (SD) card. The Micro SD card is used for storing recognition images and data.

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 V3 as the example to demonstrate the steps.

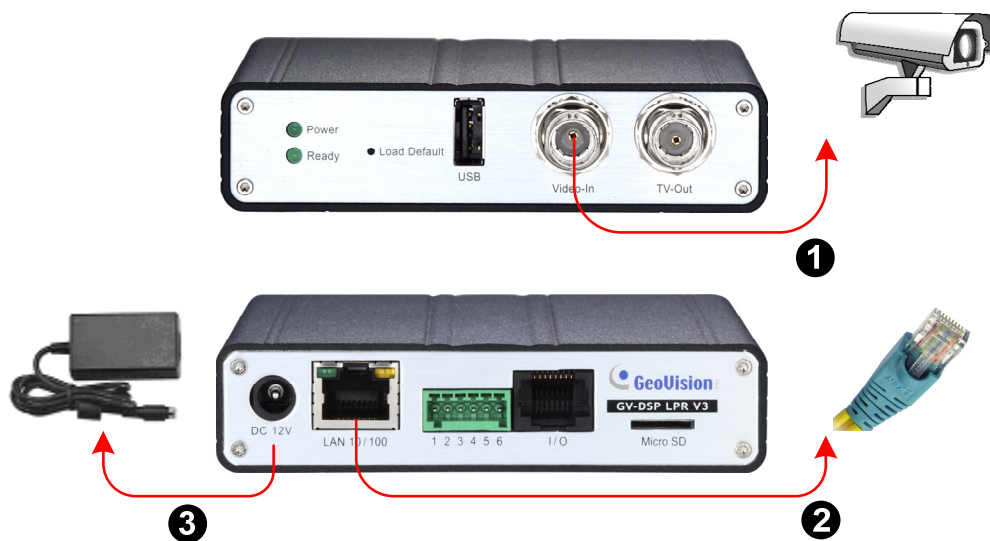


Figure 2-1

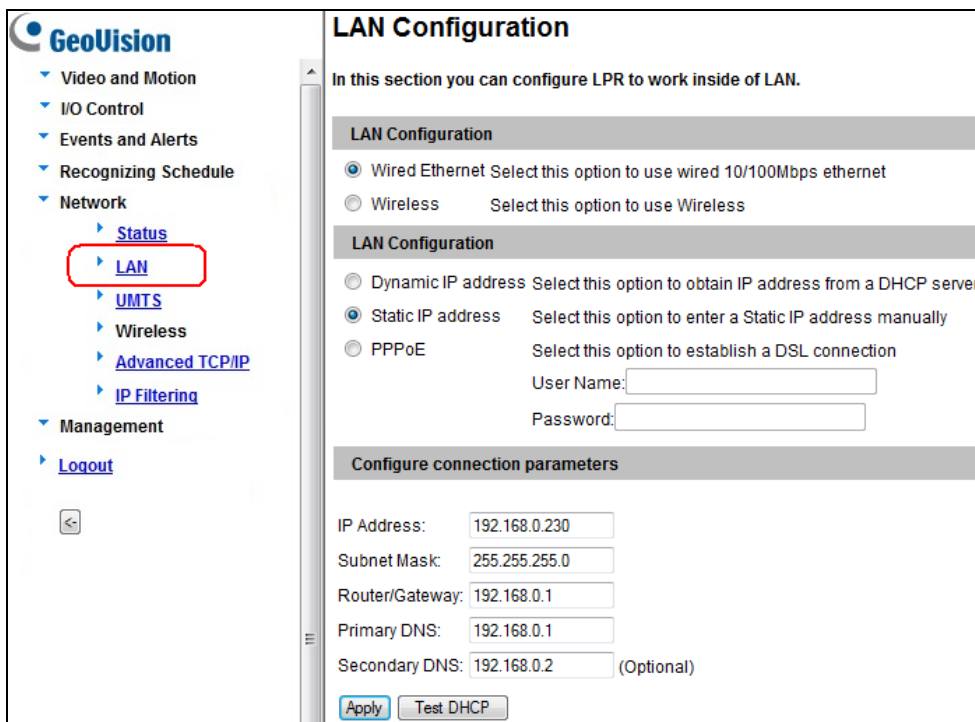
1. Connect the video output of your camera to the BNC video input.
2. Connect the hub or switch on the LAN to the unit's 10/100 Mbps Ethernet port.
3. Connect the power supply to the power input.
4. Wait until both Power and Ready LEDs are on and then you can set the IP address for the unit.

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.



GeoVision

- Video and Motion
- I/O Control
- Events and Alerts
- Recognizing Schedule
- Network
 - Status
 - LAN**
 - UMTS
 - Wireless
 - Advanced TCP/IP
 - IP Filtering
- Management
 - Logout

LAN Configuration

In this section you can configure LPR to work inside of LAN.

LAN Configuration

☒ Wired Ethernet Select this option to use wired 10/100Mbps ethernet

☐ Wireless Select this option to use Wireless

LAN Configuration

☐ Dynamic IP address Select this option to obtain IP address from a DHCP server

☒ Static IP address Select this option to enter a Static IP address manually

☐ PPPoE Select this option to establish a DSL connection

User Name:

Password:

Configure connection parameters

IP Address:

Subnet Mask:

Router/Gateway:

Primary DNS:

Secondary DNS: (Optional)

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 *4.5.5 Advanced TCP/IP*.

- When the GV-DSP LPR is unable to obtain a dynamic IP address from the DHCP server, the default static IP address 192.168.0.230 will be applied instead.
- 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 *1.5.1 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 *4.6.1 Date & Time Setting*.
- **Login and privileged passwords:** see *4.6.3 User Account*.
- **Network gateway:** see *4.5 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.

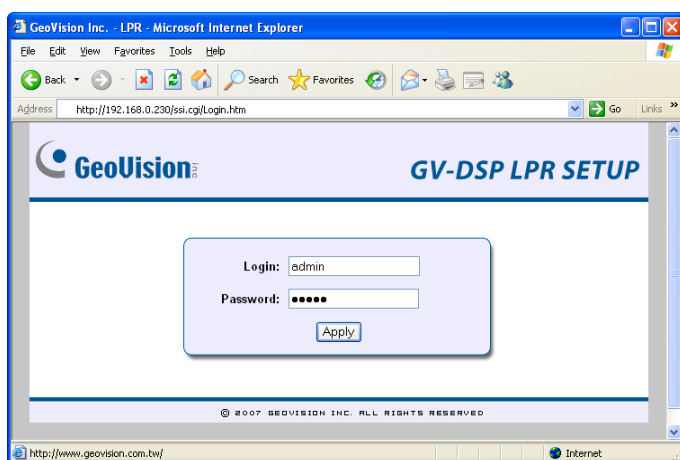


Figure 3-1

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

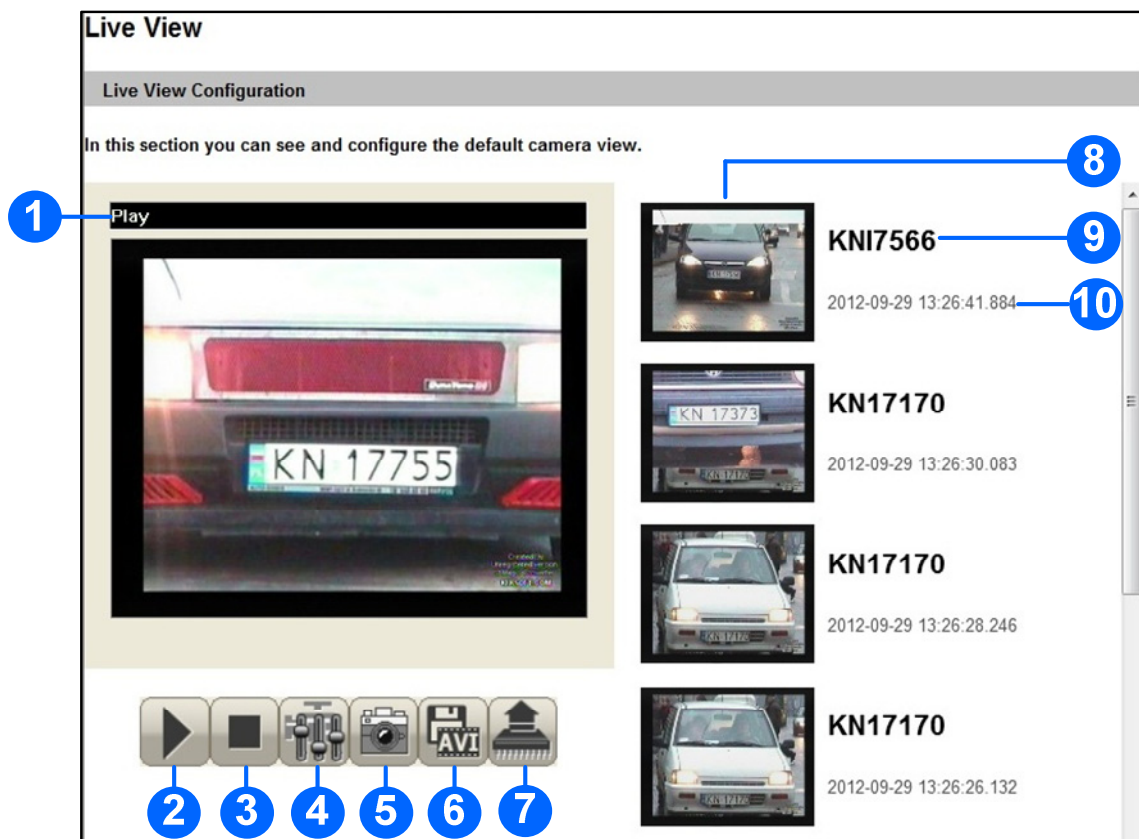


Figure 3-3

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	Captured Image	Displays the captured image.
9	Number Display	Displays the recognized 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.

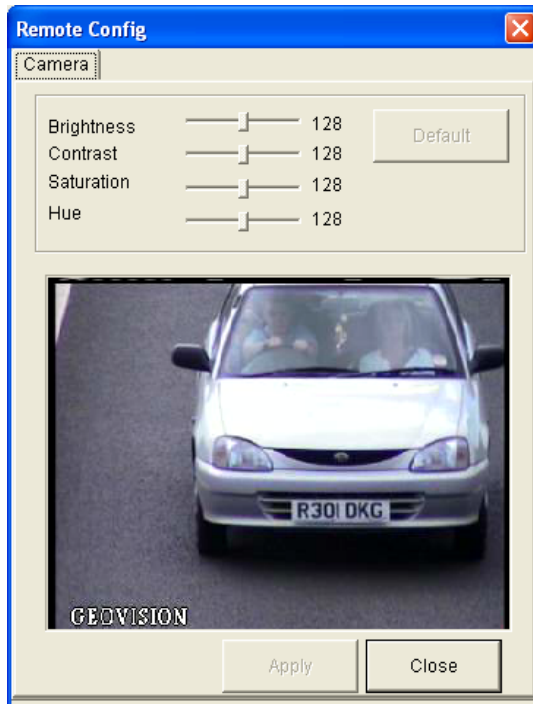


Figure 3-4

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.

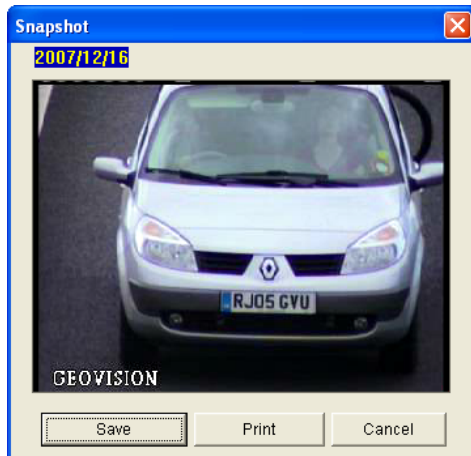


Figure 3-5

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.

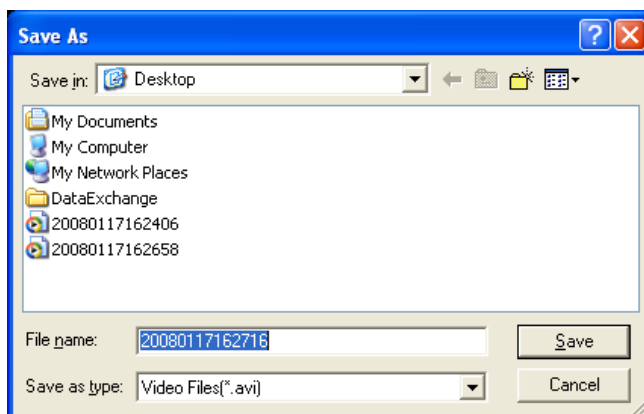


Figure 3-6

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.

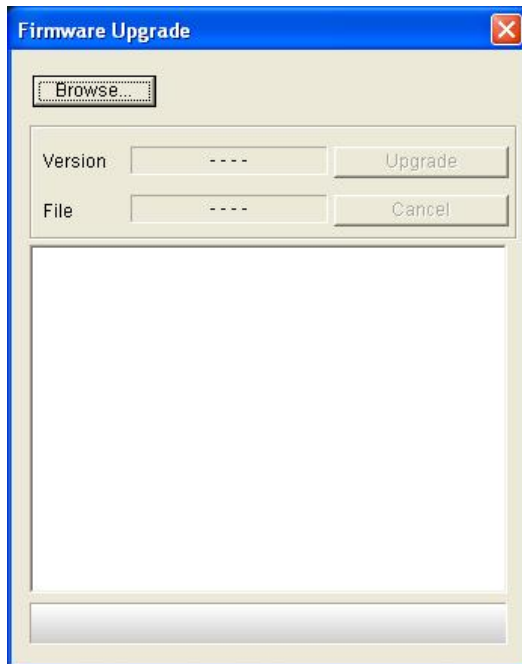


Figure 3-7

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. Six categories of configurations are involved in the system configuration: **Video and Motion**, **I/O Control**, **Events and Alerts**, **Recognizing Schedule**, **Network**, and **Management**.

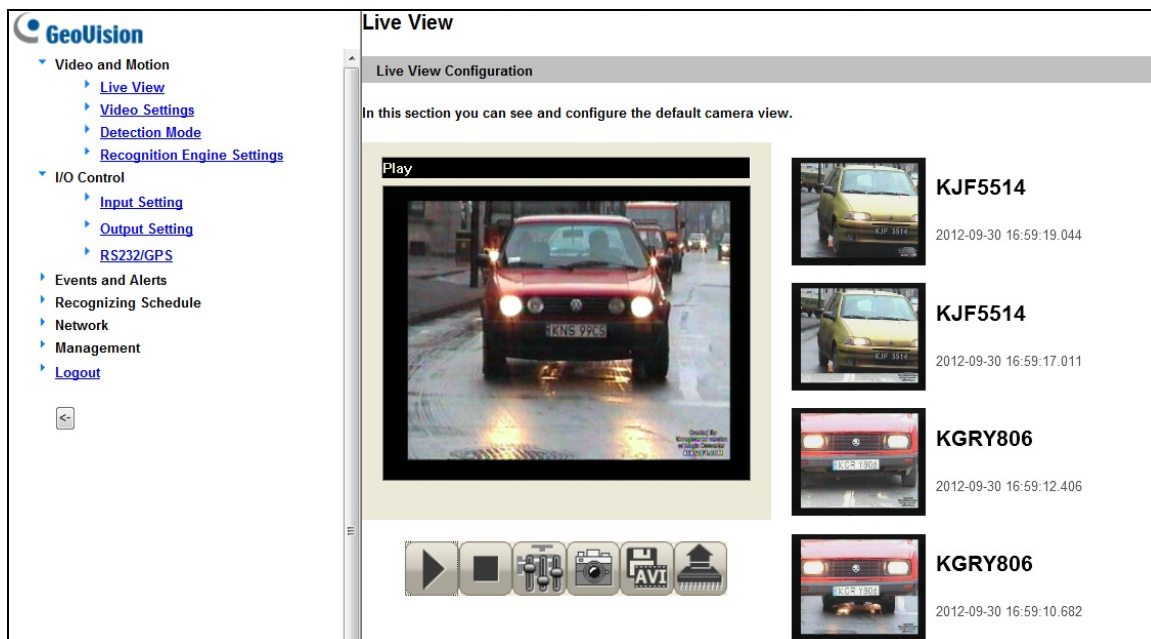


Figure 4-1

List of Menu Options

Find the topic of interest by referring to the section number prefixed to each option. The available options vary among video server models.

4.1 Video and Motion	4.1.1 Video Settings 4.1.2 Detection Mode 4.1.3 Recognition Engine Settings
4.2 I/O Control	4.2.1 Input Setting 4.2.2 Output Setting 4.2.3 RS232 / GPS
4.3 Events and Alerts	4.3.1 LPR Remote Server 4.3.2 VSM 4.3.3 FTP 4.4.4 Inquire Recognized Database 4.4.5 Registry Database
4.4 Recognizing Schedule	
4.5 Network	4.5.1 Status 4.5.2 LAN 4.5.3 UMTS 4.5.4 Wireless 4.5.5 Advanced TCP/IP 4.5.6 IP Filter 4.5.7 SNMP Setting
4.6 Management	4.6.1 Date & Time Setting 4.6.2 Storage Settings 4.6.3 User Account 4.6.4 Log Information 4.6.5 Tools

4.1 Video and Motion

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

4.1.1 Video Settings

Video Settings

In this section you can set video signal type.

Video Signal Type

	Signal Format	Resolution	Live Resolution	Frames per second
☐	NTSC	720*480	360*240 ▼	10 (360*240 only) ▼
☒	PAL	720*576	720*576 ▼	5 ▼

☐ Enable Deinterlacing

☐ Overlay Text

☐ Overlay Time

☐ Overlay GPS

☐ 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

[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	D1	NTSC	1, 3, 5
		PAL	1, 3, 5
	CIF	NTSC	1, 3, 5, 7, 10
		PAL	1, 3, 5, 8, 12

- **Enable Deinterlacing:** Select this option to avoid interlace of the odd and even video lines.
- **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 GPS:** Select this option to display the GPS data (coordinates of the vehicle) on live and captured images. For this function to work, you need to connect a RS-232 GPS Receiver to the terminal block on the GV-DSP LPR. See 6.2.2 *Terminal Block*.
- **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 memory 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(Continuous Recognition)

If the recognition is still repeating, it will notify after 1 second(0~300)

☒ Parking Mode (SD storage is necessary)

Motion Detection Setting

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

Detected Sensitivity 5

Detected Object Size 1

Recognition and Motion Area Setting.



Use the mouse to define the area...

Reset

Save

2015/02/16 17:31:01
192.168.0.99

I/O Mode Setting

Trigger Input
☐ Input 1
☐ Input 2

☐ Force Export.(Used in I/O Mode)

Capture Frame Number in Each Triggered(1-5) 3

Repeat Recognition when Recongition Failed(0~3) 1

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.
- **Parking (I/O):** This option is designed for parking areas. The recognition is activated by input triggers at the parking area. Select which inputs will trigger recognition in the **I/O Mode Setting** section below.
- **Parking (Motion):** This option is designed for parking areas. The recognition is activated by motion detection at the parking area. Select this option if the parking area is without a gate installed to trigger the recognition.
- **If the recognition is still repeating, it will notify after the specified second:** Select this option to avoid multiple recognition results for the same license plate due to the position of the camera. Specify the duration of a recognition result to be displayed if the next license plate recognized is the same as the previous one.
- **Parking Mode:** This option is automatically selected if the GV-DSP LPR is set to parking lot mode on a connected GV-ASManager. To see details on how to set up a parking lot in GV-ASManager, see *13.8 Managing Parking Lots in GV-ASManager User's Manual*.

Note: For the parking lot function to work properly:

1. GV-DSP LPR must remain connected to GV-ASManager.
 2. The time of GV-ASManager and GV-DSP LPR must be synchronized to the same NTP server.
 3. A micro SD card must be inserted in the GV-DSP LPR.
 4. The following versions should be used.
 - GV-ASManager V4.3 or later
 - GV-DSP LPR firmware V2.1 or later
-

[Motion Detection Setting]

- **Output recognition result quickly (It will increase error rate of recognition system):** Select this option if you want to have a faster recognition result at the cost of accuracy. This option is suitable for a large amount of traffic and every frame received by the GV-DSP LPR will go through a fast recognition process (approximately at the processing rate of 1 frame per second).

- **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.

[I/O Mode Setting]

- **Trigger Input:** Select to trigger **Input 1** or **Input 2**.
- **Force Export (Used in I/O Mode):** Select to display the symbol ********* to represent unknown license plates even though the recognition fails. If the option is not selected, the recognition failure will not be recorded.
- **Capture Frame Number in Each Triggered (1~5):** Select the number of image frames from 1 to 5 to be captured when the recognition is activated by input trigger.
- **Repeat Recognition when Recognition Failed (0~3):** Select the number of recognitions from 1 to 3 to be performed after the recognition fails after being activated by input trigger.

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

4.1.3 Recognition Engine Settings

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

Recognition Engine Settings

In this section you can set parameters of LPR engine.

Engine Setting

Country

GLOBAL

Maximum Number of Characters :(1~16)

10

Minimum Number of Characters:(1~16)

4

(Chinese characters need 2 digits-> CHINA 5~8(6 + 1 chinese))

Maximum Height of Characters:(12~240)

200

Minimum Height of Characters:(12~240)

12

Maximum Numbers of Plate(1~8)

1

☐ 2 Row Enable

(Two row recognition will be triggered if numbers of recognized characters are more than numbers of plate in one row.)

Maximum Numbers of Plate in One Row(1~16)

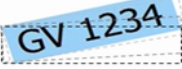
4

Minimum Numbers of Plate in One Row(1~16)

2

☒ Fast Slope Detetion Enable

☒ Slope Detection Enable



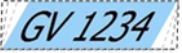
Minimum Slope Angle:(-25~25)

-10

Maximum Slope Angle:(-25~25)

10

☒ Slant Detection Enable



Minimum Slant Angle:(-15~15)

-10

Maximum Slant Angle:(-15~15)

10

☐ Special Plate Detection Enable

(Chinese characters need 2 digits-> CHINA 5~8(6 + 1 chinese))

Maximum Number of Special Characters:(1~16)

7

Minimum Number of Special Characters:(1~16)

4

☐ Enable Word Filter

☐ Special Enable Moto Enable

☐ IdFilter Enable

☐ Digit Filter Enable

☐ I to 1 Enable
☐ 1 to I Enable

☐ 0 to O Enable

☐ Q to 0 Enable

☒ Enable Color Inverse

☐ Enable Gray Scale Inverse

☒ Plate Filter Enable

GarbageSkipCharNo:(-1~8)

1

(Plate will be skipped if it consist of "1", "7", "I", "T", to prevent false detection by the hood)

SkipDigitNum:(0~16)

0

(Plate will be skipped if the number of digits <= SkipDigitNum)

SkipEngNum:(0~16)

0

(Plate will be skipped if the number of alphabet <= SkipEngNum)

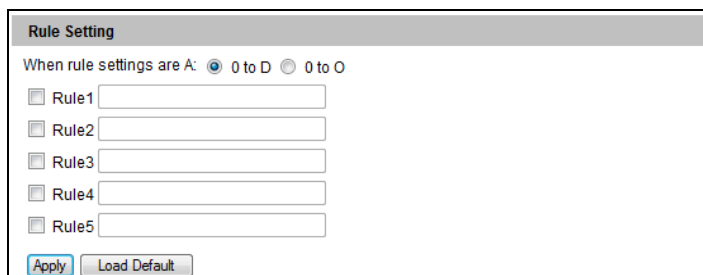


Figure 4-4

[Engine Setting]

- **Country:** Select a recognition engine to be set up.
- **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.
- **Two Row Enable:** This option can recognize two rows of characters on license plates. Note this option is only available on the engine version of V5000 or later.
- **Maximum numbers of plate in one row:** Set the maximum number of characters in one row 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 numbers of plate in one row:** Set the minimum number of characters in one row 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.
- **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 sub options 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.
 - ⦿ **Enable Word Filter:** Enable the recognition for the character “軍” on license plates of military vehicles. Note this option is only available on the engine of Taiwan.
 - ⦿ **Special Enable Moto Enable:** Enable the recognition for motorcycle license plate.
 - ⦿ **IdFilter 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).
- **Q to 0 Enable:** Always identify the character “Q” as “0” (zero). Note this option is only available on the engine version of V5000 or later.

- **Enable Color Inverse:** Enable the recognition for both license plates of “white characters on black background” and “black characters on white background”. By default, this option is enabled. Note this option is only available on the engines of China and Global.
- **Enable Gray Scale Inverse:** Enable the recognition for the license plate of “white characters on black background” only. By default, this option is disabled. Note this option is only available on the engines of China and Global.
- **Plate Filter Enable:** Enable this option to skip the recognition when the license plate is partially covered by objects.
- **GarbageSkipCharNo (-1~8):** Enable this option to skip the recognition when the license plate is composed of the characters of 1, 7, I and T. You can type the value according to the following formula. By default, the value is set to “-1”, meaning the option is disabled.

$$(\text{Total No. of characters on the license plate}) - (\text{Total No. of “1, 7, I and T” characters on the license plate}) \leq \text{GarbageSkipCharNo}$$

For example, you type “5”. When the license plate is GIT0077, the system will not activate the recognition because the total number of characters on the license plate minus the total number of “1, 7, I and T” characters on the license plate equals three, which is less than five ($7 - 4 = 3$; $3 < 5$).
- **Skip Digit Number:** Type the number of digits on the license plate to skip the recognition. For example, you type “3”. When the license plate is T4G23, the system will not activate the recognition because three digits “4, 2 and 3” are detected.
- **Skip Engine Number:** Type the number of alphabetical characters on the license plate to skip the recognition. For example, you type “3”. When the license plate is T4GL23, the system will not activate the recognition because three alphabets “T, G and L” are detected.

[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 2 input devices, e.g. sensors.

Input Setting

In this section you can configure LPR digital input port.

Digital Input 1

☐ Enable

Name

Normal State ☒ Open Circuit (N/O) ☐ Grounded Circuit (N/C)

Latch Mode ☐ Enable

Trigger digital output relay ☐ Output 1 ☐ Output 2

Figure 4-5

- **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 2 output devices. To start the output device, select **Enable**.

Note: Connect a gate or barrier only to output 1.

- **General Mode:** Choose the output signal that mostly suits the device you are using: **Open Circuit (N/O)**, **Grounded Circuit (N/C)**.
- **Toggle Mode:** The output continues to be triggered until a new input trigger ends the output.
- **Pulse Mode:** The output is triggered for the amount of time you specify in the **Trigger Pulse Mode for x Seconds** field.

[Alarm Settings] Only for **Output 2**, you can choose to automatically trigger output 2 under the selected conditions, which can be categorized under the below events.

- **Plate Recognition related events:** Unregistered / Registered Vehicle (Invalid Schedule) / Keyword / Hotlist
- **Parking Lot related events:** Gate Disabled / No Entry / Full / Re-entry / No Entry Record / Share Space Full

Note:

1. The **Alarm Settings** only work when the database of GV-DSP LPR is controlled by GV-ASManager V4.4.0.0 or later. See [4.3.10 Registry Database](#) to configure the settings.
 2. The **Parking Lot related functions** only work when the parking lot function is enabled on GV-ASManager V4.4.0.0 or later. See [13.8 Managing Parking Lots](#) on *GV-ASManager User's Manual*.
-

Output Setting

In this section you can configure LPR digital output port.

Digital Output 1 - Normal State

☐ Enable

Name

Output1

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

☐ Enable

Name

Output2

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 - Alarm Settings

☒ Plate Recognized: Registered Vehicle

☒ Plate Recognized: Registered Vehicle(Invalid Schedule)

☒ Plate Recognized: Unregistered Vehicle

☒ Plate Recognized: Unregistered Vehicle(Invalid Schedule)

☒ Parking Access Denied: Gate Disabled

☒ Parking Access Denied: No Entry

☒ Parking Access Denied: Full

☒ Parking Access Denied: Re-entry

☒ Parking Access Denied: No entry record

☒ Parking Access Denied: Share Space Full

☒ Keyword

☒ Hotlist

Figure 4-6

4.2.3 RS232 / GPS

By using a RS-232 cable, GV-DSP LPR can connect to the receiver's site, such as GV-System, to export the recognition data, including plate numbers and recognition time. GV-DSP LPR can also connect to the GV-GPS Receiver to display the coordinates of the vehicle on the live and captured images.

Note:

1. You can select either RS232 data transmission or GPS positioning function. The two functions cannot be enabled at the same time.
2. GV-DSP LPR only supports GPS receiver with RS-232 interface.

RS232/GPS

In this section you can configure the LPR integration with GPS or output recognized result via RS232.

GPS and RS232 Settings

☒ Enable

☒ Enable GPS

Select GPS Baudrate 9600

Set GPS update frequency 3 seconds(1~180)

☐ Enable

User-defined GPS Location 2503.3865,N,12156.5017,E Example:(2503.3865,N,12156.5017,E)

☐ Enable output recognize result via RS232

RS232 Overlay Plate and Time : Plate File Name

Figure 4-7

- **Enable GPS:** Select this option to enable the GPS positioning function.
 - ⊙ **Select GPS Baudrate:** Two baud rate options are available: 9600 and 4800. By default the value is 9600.
 - ⊙ **Set GPS update frequency:** Set the frequency in seconds for GPS data updated from the satellite.
 - ⊙ **Enable User-defined GPS Location:** Select this option if your GV-DSP LPR is installed in a fixed location and type the coordinates of its position.

- **Enable output recognize result via RS232:** Select this option to enable RS-232 data transmission.
 - ⊙ **RS232 Overlay Plate and Time:** Select the type of data you want to export: **Plate ID Only**, **Plate ID and Time** or **Plate File Name**.

To connect the GV-GPS Receiver to the GV-DSP LPR, see *Chapter 6 I/O Terminal Block*.

4.3 Events & Alerts

4.3.1 LPR Remote Server

When the alarm events of motion detection and sensor trigger occur, the GV-System can get alerts with recognized license plate overlaid on the live images. This application is illustrated below.



Figure 4-8

Note:

1. This application is only supported by GV-System V8.5.5 or later.
 2. The maximum resolution is 720 x 480 (NTSC) / 720 x 576 (PAL) and the frame rate is 5 (NTSC) / 5 (PAL).
-

LPR Remote Server

LPR Name Setting

Name

Connection Port Settings:

POS Port Number:

POS ACK Port Number:

POS Overlay Plate and Time : ▼

Figure 4-9

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

[Connection Port Settings] Both of **POS Port** and **POS ACK Port** are used for transmitting recognition result to the GV- System. The default port numbers are **4000** and **3999** respectively.

- **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-System.

The GV-DSP-LPR will be added to the GV-System through the POS device settings. To set up the GV-DSP LPR on the GV-System, see 7.3 *POS Device Setup, DVR's User Manual*.

4.3.2 VSM

GV-DSP LPR can connect up to two Vital Sign Monitors (VSM). After a system event occurs, such as Log In, Log Out or Video Lost, the central monitoring station VSM can get notified by text alerts. Up to two VSM servers can be connected simultaneously. For the live monitoring through VSM, you must already have a subscriber account on VSM.

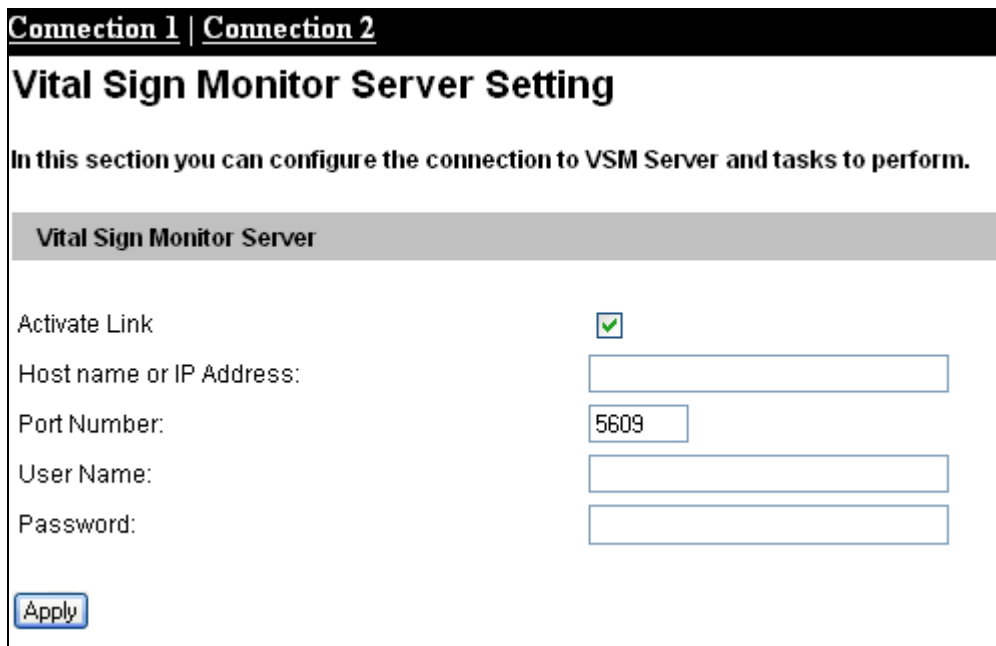


Figure 4-10

To enable the VSM connection:

1. **Activate Link:** Enable the monitoring through VSM.
2. **Host Name or IP Address:** Type the host name or IP address of VSM.
Port Number: Match the port to **Port 2** on VSM. Or keep the default value 5609.
3. **User Name:** Type a valid user name to log into VSM.
4. **Password:** Type a valid password to log into VSM.
5. Click **Apply**. Once the connection is established, the Status section will display “Connected” and connected time.
6. Click the **Connection 2** tab to create connection to the other VSM if available.
7. At the VSM site, set the appropriate port connecting to the GV-DSP LPR.
 - A. Click the **Preference Settings** button, select **System Configure**, click the **Network** tab, and check **Accept connections from GV-Compact DVR, Video Server & IP Cam**.
 - B. Keep the default port **5609** for the Port 2 option, or modify it if necessary.

4.3.3 FTP

The GV-DSP LPR can act as an FTP server, allowing for download of captured images and recognition results. You can also download the captured images recorded on the SD card via the FTP server.

Figure 4-11

To build the connection among GV-DSP LPR, GV-Video Server and GV-LPR Center or GV-LPR System, follow the steps below:

1. On the GV-DSP LPR, select **Enable ftp access to the LPR** For the GV-DSP-LPR to act as an FTP server and click **Apply**. The default port is **21**. Modify the port value if necessary.
2. Select **Enable Export Result**, and the captured images will be exported to the FTP.
3. At a remote 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.

To access the SD card data via the FTP, select **Enable Ftp access to SD**. The GV-DSP LPR will act as an FTP server allowing users to download image files and recognition results.

To access the internal FTP server through a web browser, enter the IP address or the domain name of the GV-DSP LPR in your browser like this:

<ftp://192.168.0.230>

When you are prompted for Username and Password, enter the default value **lprftpsvr** in both fields. Then you should find the image files recorded after recognition.

To change login information of the internal FTP server, see 4.6.3 *User Account*.

4.3.4 Inquire Recognized Database

You can enquire the history of a plate number from the database stored in the memory card.

Note: Make sure you have inserted a memory card that contains the database of recognized license plate numbers.

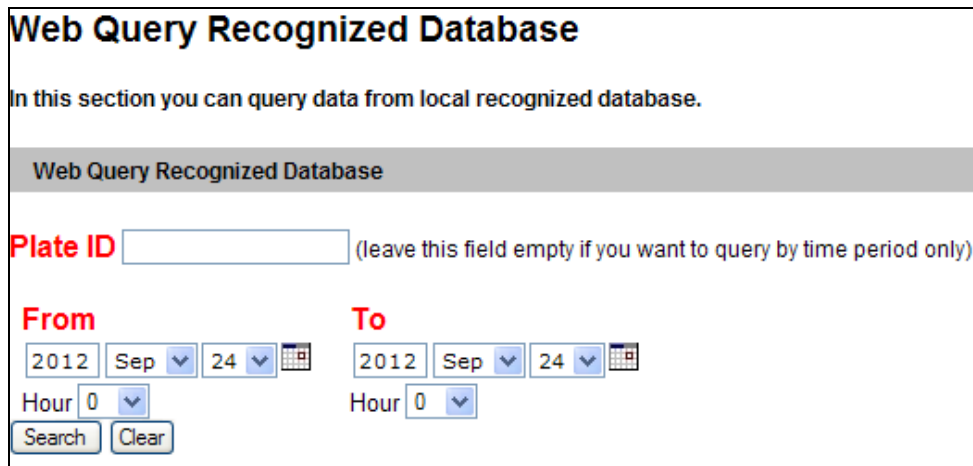


Figure 4-12

1. Type a car plate number in the Plate ID field. The entries are case-sensitive.
2. Specify a start time and an end time by typing the year and using the drop-down lists.
3. Click the **Search** button to start matching.

Tip: To list all the license plates captured during a period, leave the **Plate ID** field blank and specify the time period.

4.3.5 Registry Database

You can automatically activate an output, for example, opening a gate when a captured license plate matches a number from the database based on the matching criterion.

You can create a standalone database on GV-DSP LPR or obtain the database from GV-ASManager, the software of license plate recognition and access control.

For the integration of GV-ASManager and GV-DSP LPR, the vehicle database is transmitted from GV-ASManager and saved on the memory card of the GV-DSP LPR. To set up the connection with the GV-ASManager, see *13.2 Setting Up GV-DSP-LPR* in *GV-ASManager User's Manual*.

To access the database from GV-ASManager:

- Make sure a memory card containing the vehicle database is inserted to the GV-DSP LPR and the storage settings are configured. For detail, see *4.6.2 Storage Settings*.
- Make sure the output settings of the gate or barrier are configured and enabled. The gate or barrier must be connected to **output 1** of GV-DSP LPR. For detail, see *4.2.2 Output Settings*.

Note: This function is only supported for GV-ASManager V4.0 or later.

Registry Database Setting

Registry Database

In this section you can set registry database and compared mode.

☒ Enable Registry Database (SD storage is necessary)

Database Control by Standalone

Registry Database Comparison Complete (All Characters Match)

Apply

Standalone Database(Support White List only)

Plate Number FYD1122

Add
Query
Query All
Delete
Delete All

Plate No.	Create Time	
FYD1122	2016-06-06 11:04:22	Delete

Figure 4-13

[Registry Database]

1. Select **Enable Registry Database**.
2. Select a type of database for **Database Control** to specify the source of database.
 - **AS Manager:** Select to allow the vehicle database transmitted from GV-ASManager and saved on the memory card of the GV-DSP LPR. To set up the connection with the GV-ASManager, see *13.2 Setting Up GV-DSP-LPR in GV-ASManager User's Manual*.
 - **Standalone:** Select to activate the function of **Standalone Database**. You can manually register license plates on GV-DSP LPR. See *Standalone Database, Support White List only* below.

Note: When you activate **Standalone Database**, do not connect the GV-DSP LPR to GV-ASManager.

3. Select one comparison type for **Registry Database Comparison** using the drop-down list. The detected license plate will trigger the output under the selected condition:
 - **Complete (All Characters Match):** The detected license plate matches every character of a license plate in database.
 - **Like (One Character Mismatch):** The detected license plate matches all except one character of a license plate in the database. The first and last characters of that license plate must remain unchanged.
 - **Somewhat Like (Two Characters Mismatch):** The detected license plate matches all except two characters of a license plate in the database. The first and last characters of that license plate must remain unchanged.
4. Click **Apply**.

[Standalone Database, Support White List only]

You have to select **Standalone Database** to activate this function.

- **Plate Number:** Type license plates and click **Add** to create your database. Click **Query/Query All** to search certain/all license plates. Click **Delete/Delete All** to remove certain/all license plates.

4.4 Recognizing Schedule Settings

You can set up the schedule for the recognition to start.

Recognizing Schedule Settings

In this section you can configure schedule time.

Select schedule time

☐ Span 1

Motion(stationary camera)
 00
 00
 ~
 00
 00
 Next Day

☐ Span 2

Motion(stationary camera)
 00
 00
 ~
 00
 00
 Next Day

☐ Span 3

Motion(stationary camera)
 00
 00
 ~
 00
 00
 Next Day

☐ Weekend

Motion(stationary camera)
 ☒ Saturday and Sunday
 ☐ Only Sunday

☐ Special Day

Motion(stationary camera)
 (MM/DD)
 01.
 02.
 03.
 04.
 05.
 06.
 07.
 08.
 09.
 10.
 11.
 12.

Figure 4-14

- **Span 1- Span 3:** Set a different recognition mode for each time frame during the day. Each day can be divided into 3 time frames, represented by Span 1 to Span 3. The time frame settings will work from Monday through Sunday.
- **Weekend:** Enable this option to have a whole-day recognition on the weekend and select a recognition mode to be used. Define whether your weekend includes **Saturday and Sunday** or **Only Sunday**.
- **Special Day:** Set the recognition mode on a specified day.

Note: If the settings for Special Day conflict with those for Span 1-3 or Weekend, the Special Day settings will get priority.

4.5 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.

4.5.1 Status

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

Network Status Information	
In this section you can see an overview of LPR status.	
Current Status Information	
interface:	Wired
IP Acquirement:	Fixed
MAC Address:	0013E2018D5C
IP Address:	192.168.0.72
Subnet Mask:	255.255.252.0
Gateway:	192.168.0.1
Domain Name Server 1:	192.168.0.1
Domain Name Server 2:	192.168.0.2

Figure 4-15

4.5.2 LAN

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

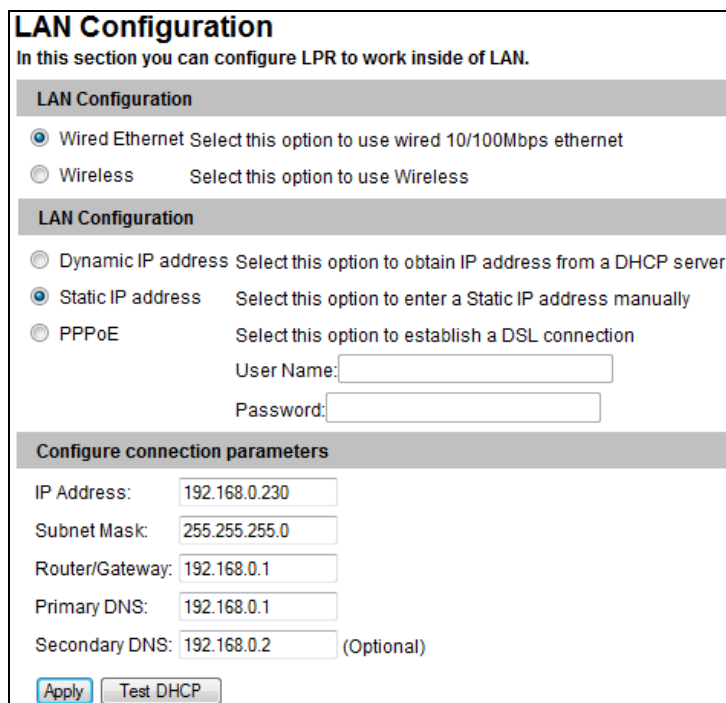


Figure 4-16

[LAN Configuration]

According to the network environment, select **Wired** or **Wireless**. Before enabling the **Wireless**, set up **WLAN configuration** first. For setup details, see 4.5.4 *Wireless*.

[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.

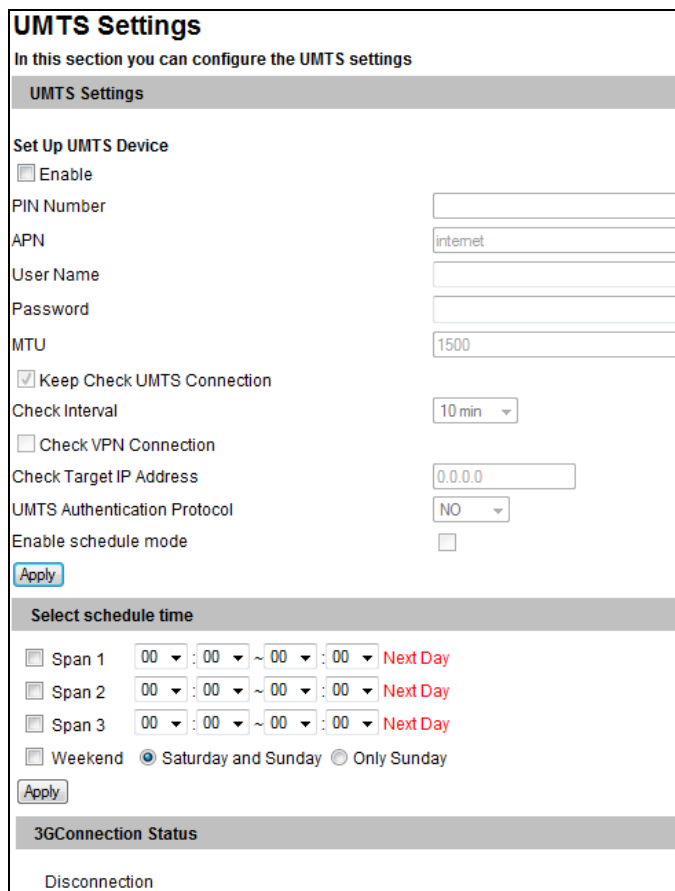
Parameters	Default
IP address	192.168.0.230
Subnet Mask	255.255.255.0
Router/Gateway	192.168.0.1
Primary DNS server	192.168.0.1
Secondary DNS server	192.168.0.2

For details on the DDNS function (Dynamic DNS Server), see *4.5.5 Advanced TCP/IP*.

4.5.3 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. For supported mobile broadband devices, see *Appendix B*.



UMTS Settings
In this section you can configure the UMTS settings

UMTS Settings

Set Up UMTS Device

☐ Enable

PIN Number

APN

User Name

Password

MTU

☒ Keep Check UMTS Connection

Check Interval

☐ Check VPN Connection

Check Target IP Address

UMTS Authentication Protocol

Enable schedule mode ☐

Select schedule time

☐ Span 1 : ~ : Next Day

☐ Span 2 : ~ : Next Day

☐ Span 3 : ~ : Next Day

☐ Weekend ☒ Saturday and Sunday ☐ Only Sunday

3GConnection Status

Disconnection

Figure 4-17

- **PIN number:** Type the PIN number that is provided by your network operator.
- **Access Point Name (APN):** Type Access Point Name that is provided by your network operator.
- **Username:** Type a valid username to enable the UMTS service from your network operator.
- **Password:** Type a valid password to enable the UMTS service from your network operator.

- **Maximum Transmission Unit (MTU):** Type the Maximum Transfer Unit. The default value is 1500.
- **Keep Check UMTS Connection:** Select this option to check the UMTS connection status and use the drop-down list to specify the desired time length for checking frequency. The GV-DSP LPR will rebuild the connection if disconnection is detected.
- **Check VPN Connection:** Select this option to check the VPN (Virtual Private Network) connection status. To check the IP address, type the target IP address in the **Check Target IP Address** field.
- **UMTS Authentication Protocol:** Use the drop-down list to select the UMTS Authentication Protocol provided by your network operator.
- **Enable Schedule Mode:** Starts the UMTS connection automatically based on the schedule you set in the Select Schedule Time section. Refer to *4.4 Recognizing Schedule Settings* for the same settings.
- **3G Connection Status:** Indicates the connection status of UMTS or VPN.

4.5.4 Wireless

To use the wireless function, a wireless LAN USB adaptor is required. The GV-DSP LPR now supports WiFi USB dongles: D-Link DWA-140 (H/W Version B1) and PEGATRON WL-166N11. For supported wireless LAN adaptors, see *Appendix A*.

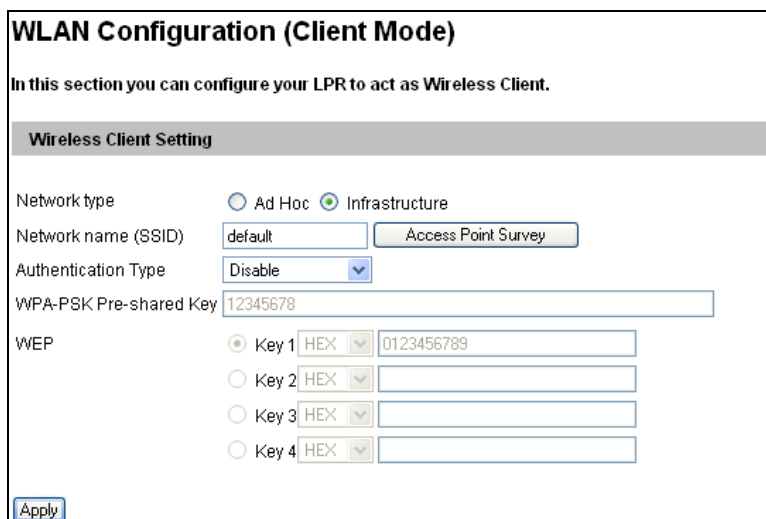


Figure 4-18

- **Network type:** Select the network mode **Ad Hoc** or **Infrastructure**.
- **Network Name (SSID):** The SSID (Service Set Identify) is a unique name that identifies a particular wireless network. Type SSID of the Wireless LAN group or Access Point you are going to connect to.
- **Authentication Type:** Select one of these network authentications and data encryptions: **Disable**, **WEP**, **WPAPSK-TKIP**, **WPAPSK-AES**, **WPA2PSK-TKIP** or **WPA2PSK-AES**.
 - **Disabled:** No authentication is needed within the wireless network.
 - **WEP (Wired Equivalent Privacy):** A type of data encryption. Type up to four WEP Keys in HEX or ASCII format. Note that if you use HEX format, only digits 0-9 and letters A-F, a-f are valid.
 - **WPAPSK-TKIP** and **WPA2PSK-TKIP:** Type WPA-PSK (Pre-Shared Key) for data encryption.
 - **WPAPSK-AES** and **WPA2PSK-AES:** Type WPA-PSK (Pre-Shared Key) for data encryption.

Note: Your encryption settings must match those used by the Access Points or wireless stations with which you want to associate.

4.5.5 Advanced TCP/IP

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

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: peee1939

Password: ••••••••

Update Time : Mon Feb 16 18:00:33 GMT+8 2015

Update Failure [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

HTTPS Settings

In this section you can change the default HTTPS port number (443) to any port within the range 1024-65535. It is a simple method to increase system security using port mapping. You can configure HTTPS connection to an alternative port.

☒ Enable

HTTP Port: 443

☐ Use customized certification and private key. External storage is necessary.

Certification Browse...

Private Key Browse...

Password

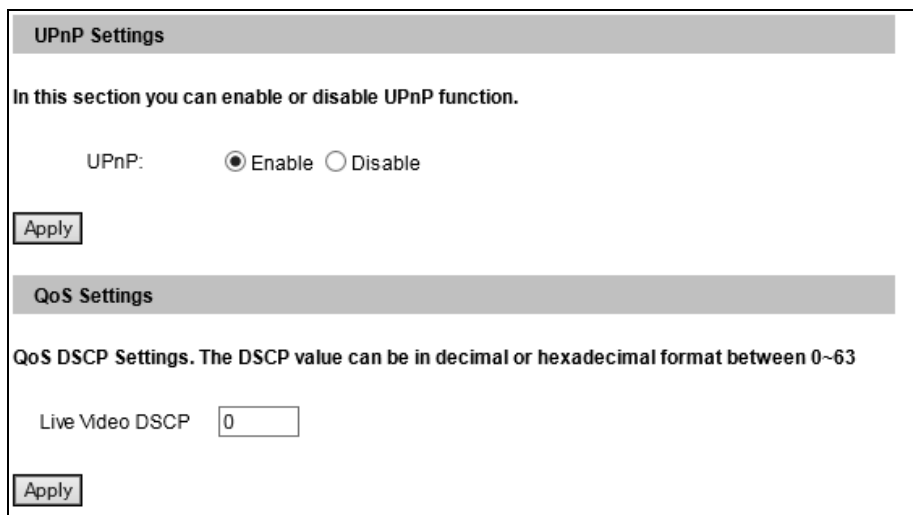
Apply

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



The screenshot displays two sections of a configuration page. The first section, titled 'UPnP Settings', contains the instruction 'In this section you can enable or disable UPnP function.' and a radio button selection for 'UPnP:' with 'Enable' selected and 'Disable' unselected. Below this is an 'Apply' button. The second section, titled 'QoS Settings', contains the instruction 'QoS DSCP Settings. The DSCP value can be in decimal or hexadecimal format between 0~63' and a text input field for 'Live Video DSCP' with the value '0'. Below this is another 'Apply' button.

Figure 4-19

[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.

[HTTPS Settings] By enabling the HTTPS settings, you can access the GV-DSP LPR through a secure protocol. You can use your own generated Certificate and Private Key or ones verified by the SSL authority. Click **Browse** to locate the Certificate file and Private Key file, and type the password if the .pem files are protected by a password. Click **Apply**. The Web interface will be restarted automatically and you will need to log in again.

Note: Only .pem file format is supported for Certification and Private Key.

[LPR Streaming Port Settings] The VSS port enables connecting the GV-DSP LPR to the GV-System. The default setting is **10000**.

[UPnP Settings] UPnP (Universal Plug & Play) is a networking architecture that provides compatibility among networking equipment, software and peripherals of the 400+ vendors that are part of the Universal Plug and Play Forum. It means that they are listed in the network devices table for the operating system (such as Windows XP) supported by this function. Enabling this function means you can connect to the camera directly by clicking on the camera listed in the network devices table.

[QoS Settings] The Quality of Service (QoS) is a bandwidth control mechanism that guarantees delay-sensitive data flows such as voice and video streams, obtain a certain amount of bandwidth to keep the streaming smooth.

To apply QoS to GV-DSP LPR, all network routers must support QoS, and QoS must be enabled on these devices. To enable QoS on the GV-DSP LPR, enter a Differentiated Services Code Point (DSCP) value. This value is a field in an IP packet that enables different levels of services for the network traffic. When the video stream from GV-DSP LPR reaches a router, the DSCP value will tell the router what service level to be applied, e.g. the bandwidth amount. This value ranges from 0 to 63 in decimal format. The default value is 0, meaning QoS is disabled.

4.5.6 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	<button>Delete</button>

Filtered IP: (ex: 192.168.0.0/24)

Action to take: Allow ▾

Apply

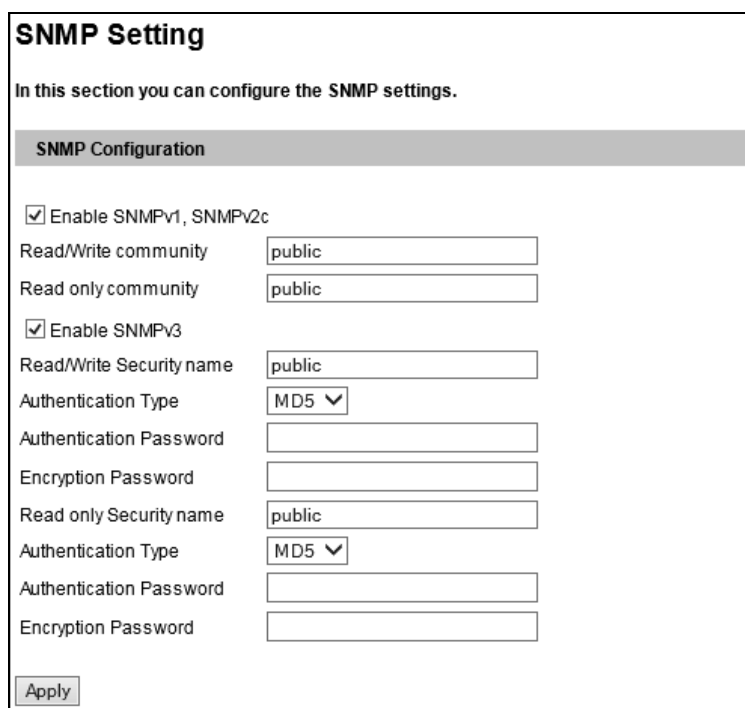
Figure 4-20

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**.

4.5.7 SNMP Setting

The Simple Network Management Protocol (SNMP) allows you to monitor the status of the camera with SNMP network management software.



SNMP Setting

In this section you can configure the SNMP settings.

SNMP Configuration

☒ Enable SNMPv1, SNMPv2c

Read/Write community:

Read only community:

☒ Enable SNMPv3

Read/Write Security name:

Authentication Type:

Authentication Password:

Encryption Password:

Read only Security name:

Authentication Type:

Authentication Password:

Encryption Password:

Figure 4-21

To set up the SNMP settings:

1. Select **Enable SNMPv1 SNMPv2c** to enable the function.
2. To enable access to **Read/Write Name**, type a community string. This will serve as a password to allow read and write access to the camera from the SNMP software.
3. To enable **Read Only Name**, type a community string to allow read only access to the camera from the SNMP software.
4. For a more secured connection, select **Enable SNMPv3** to enable SNMP version 3.
5. To enable access to SNMPv3 Read/Write community, type a **Read/Write Name**.
6. Select an **Authentication Type** to use for SNMP requests.
7. Type the **Authentication Password** and **Current Password (Encrypted)**. You will need to type these passwords in the SNMP software to be able to access the camera.
8. To enable access to SNMPv3 Read only community, type a **Read Only Name** and follow steps 6 – 7.
9. Click **Apply** to save the settings.

4.6 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.

4.6.1 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

Mon Jun 27 16:35:09 2011

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 (yyyy/mm/dd)

Time (hh:mm:ss)

☐ Synchronized with your computer

Figure 4-22

[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 and select the desired time for the update.

[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.

4.6.2 Storage Settings

The GV-DSP LPR V2 has a mini-SD card slot and the GV-DSP LPR V3 has a micro-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 Mini-SD Card
☐ Enable recycling
 Stop recording or start recycling disk when free space of disk is smaller than 32M

Apply

Disk Information

Total Size	Used Size	Free space	Utilization	Remove	Format
15305	3354	11950	21%	Remove	Format

(Unit: Megabyte)

(Must format for initial SD card set-up.)

Refresh

Figure 4-23

To add a Mini-SD/Micro SD card:

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

To remove a Mini-SD/Micro-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 memory card from the card slot.

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

[Storage Settings]

- **Enable saving results on Mini-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.

4.6.3 User Account

You can change the login name and password of Administrator, Guest and FTP Server User.

- The default Administrator login name and password are **admin**.
- The default Guest login name and password are **guest**.
- The default FTP Server login name and password are **lprftpsrver**.

User Account

In this section you can change the administrator account and password

Administrator Account

User Name:

Old Password:

New Password:

Confirm Password:

Apply

Guest User Account

User Name:

Old Password:

New Password:

Confirm Password:

Apply

FTP Server User Account

User Name:

Old Password:

New Password:

Confirm Password:

Apply

Figure 4-24

4.6.4 Log Information

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

Log Information

Startup time log

In this section you can see latest booting time of system.

Sun Jul 29 07:31:44 2007
Sun Jul 29 07:32:42 2007
Sun Jul 29 07:34:05 2007
Sun Jul 29 07:35:40 2007

System Log

In this section you can see all system activities.

Jul 29 07:35:40 (none) syslog.info syslogd started: BusyBox v1.00-rc3 (2005.07.23-08:39+0000)
Jul 29 07:35:42 (none) user.info ipcamd:
main: /var/run/ipcamd.pid=968
Jul 29 07:35:42 (none) user.info ipcamd: FlvFile_CheckVideoFormat:
boot loader video format=ntsc is same as flash.
Jul 29 07:35:42 (none) user.info ipcamd: SliUTIL_SysInit: enter
Jul 29 07:35:42 (none) user.info ipcamd:
SliUTIL_ThttpRestart:command=/usr/bin/killall tthttpd, dwResult(256)
Jul 29 07:35:42 (none) daemon.crit tthttpd[979]: socket :: - Address
family not supported by protocol
Jul 29 07:35:43 (none) daemon.notice tthttpd[979]: tthttpd/2.25b
29dec2003 starting on port 80
Jul 29 07:35:43 (none) daemon.warn tthttpd[979]: started as root
without requesting chroot(), warning only
Jul 29 07:35:43 (none) user.info ipcamd:

Clear

Figure 4-25

4.6.5 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.

v1.03 2010-10-04

System Settings

Restore to factory default settings

Reboot

Do you wish to reboot now?

Auto Reboot Setup

In this section you can set the system's auto reboot time.

☐ Enable

Day Interval days

Setup period: 24 hours; Setup Time: :

Figure 4-26

[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.

[Auto Reboot Setup] Selecting **Enable** will make the GV-DSP LPR perform software reset automatically at the specified time in the specified day interval.

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 the 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.

IMPORTANT: If you are upgrading from firmware V1.06 or before to firmware V2.0 or later, be sure to load the default settings when the firmware upgrade is complete. For detail steps on loading default values, see [5.2 Restoring to Factory Default Settings](#).

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.

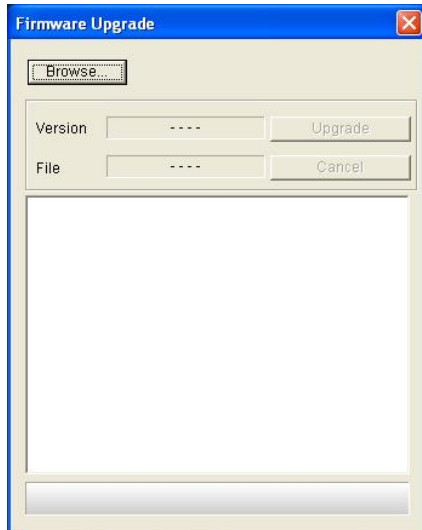


Figure 5-1

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.

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

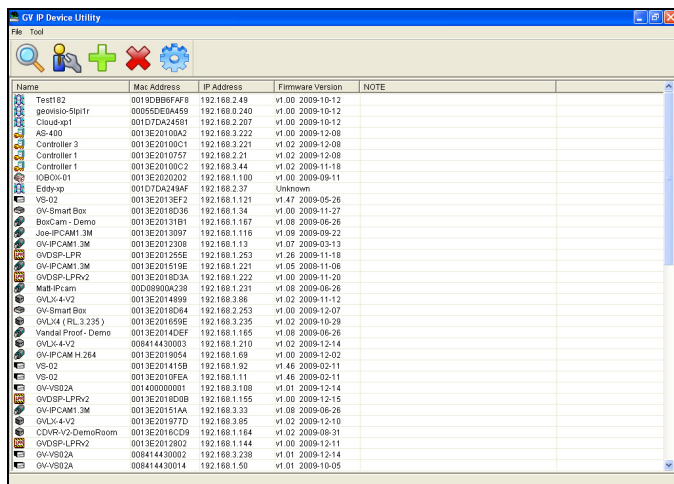


Figure 5-2

- 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.

- Double-click one GV-DSP LRP in the list. This dialog box appears.

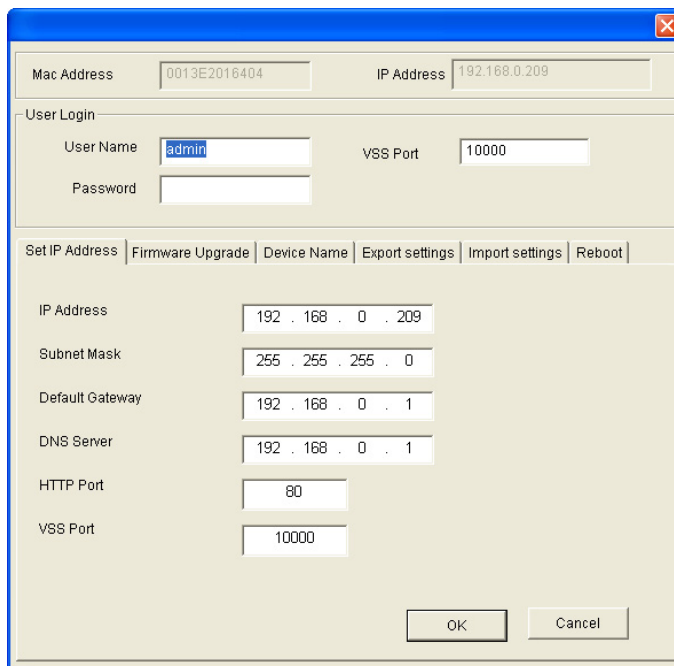
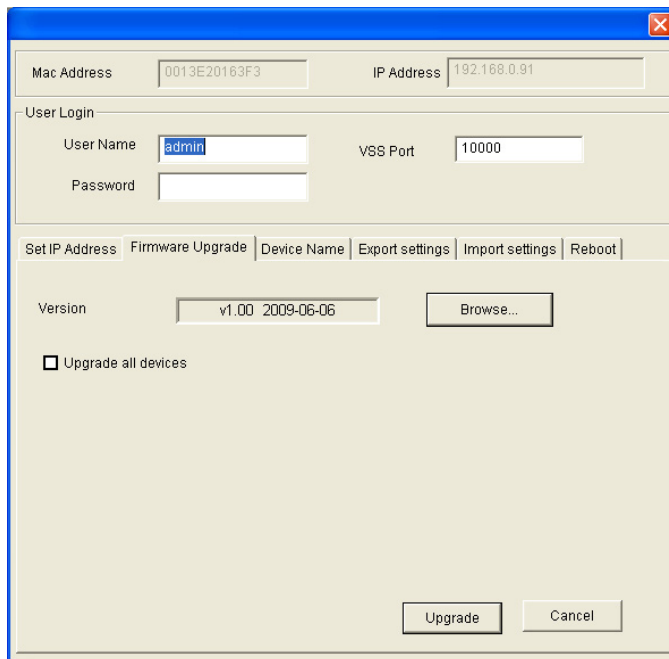


Figure 5-3

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



The image shows a 'Firmware Upgrade' dialog box with a blue title bar and a close button (X) in the top right corner. The dialog is divided into several sections. At the top, there are two text boxes: 'Mac Address' containing '0013E20163F3' and 'IP Address' containing '192.168.0.91'. Below these is a 'User Login' section with 'User Name' (containing 'admin') and 'Password' (empty) text boxes, and a 'VSS Port' text box containing '10000'. A horizontal tab bar is located below the login section, with tabs for 'Set IP Address', 'Firmware Upgrade' (which is selected), 'Device Name', 'Export settings', 'Import settings', and 'Reboot'. Below the tabs, there is a 'Version' section with a text box containing 'v1.00 2009-06-06' and a 'Browse...' button. At the bottom left, there is a checkbox labeled 'Upgrade all devices' which is currently unchecked. At the bottom right, there are two buttons: 'Upgrade' and 'Cancel'.

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 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 **Load Default** button (No. 3, Figure 1-2) on the front panel of GV-DSP LPR.

Restoring GV-DSP LPR 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 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 I/O Port

GV-DSP LPR 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 (No. 4, Figure 1-3).

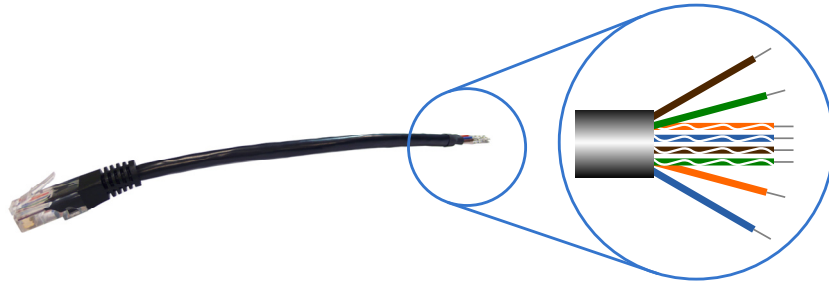


Figure 6-1

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	Wiegand D0
8	White with Orange Stripe	Wiegand D1

Note: The Wiegand interface is NOT functional now.

Relay Output

The relay outputs on the terminal block can only drive a maximum load of DC 5 V, 5 mA. 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.

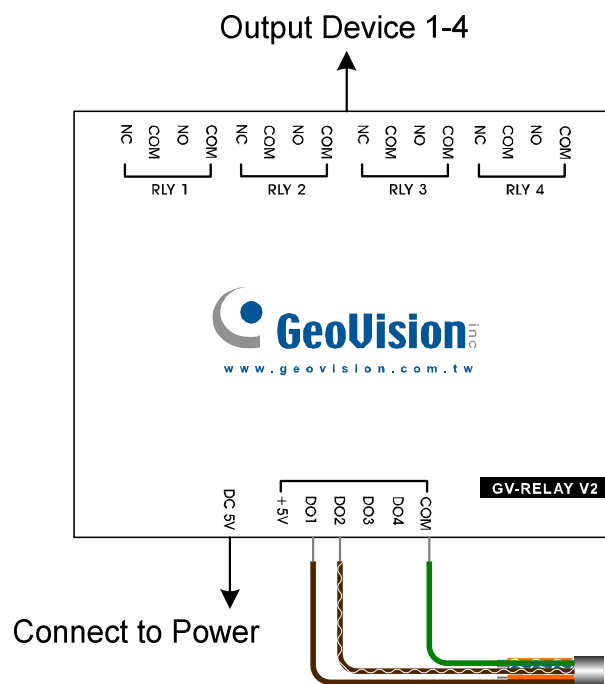


Figure 6-2

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 Terminal Block

The 6-pin terminal block, located on the rear panel, provides the RS-232 interface. Via the RS-232, the GV-DSP LPR can connect to GV-System or the GV-GPS Receiver.

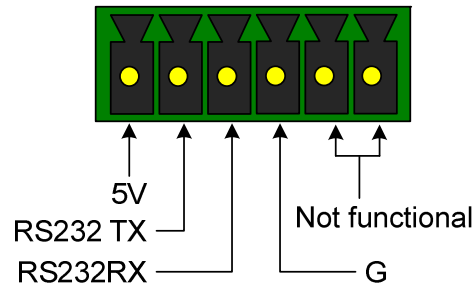


Figure 6-3

For data transmission using a RS-232 Cable:

Pin	Function	RS-232 Cable Wire
TX	RS-232 TX (Transmit)	Brown
RX	RX-232 RX (Receive)	Red
G	Ground	Silver

For GPS positioning using the GV-GPS Receiver:

Pin	Function	GV-GPS Receiver Wire
5V	DC 5V Out	Red
TX	GV-GPS TX (Transmit)	White
RX	GV-GPS RX (Receive)	Green
G	Ground	Black

Specifications

Model			GV-DSP LPR V2	GV-DSP LPR V3
Video Input/Output			1 Video In, 1 TV Out	
Video Compression			JPEG	
Live Resolutions	NTSC		360 x 240, 720 x 480	
	PAL		360 x 288, 720 x 576	
Live Frame Rate	D1	NTSC	1, 3, 5	
		PAL	1, 3, 5	
	CIF	NTSC	1, 3, 5, 7, 10	
		PAL	1, 3, 5, 8, 12	
Image Setting			Brightness, Contrast, Saturation, Hue	
Alarm and Event Management			• Events triggered by motion detection or sensor inputs • Relay outputs triggered by sensor inputs or matched license plate numbers	
Connectors	Video		1 input (BNC port)	
	Ethernet		RJ-45, 10 / 100 Base-T	
	USB		1 USB 2.0 (only for UMTS)	
	TV-Out		1 output (BNC port)	
	Local Storage		Mini-SD/SDHC memory card slot (for Class 6 card or above)	Micro-SD/SDHC memory card slot (for Class 6 card or above)
	I/O Port		2 digital inputs, 2 digital outputs	
	GPS		1 RS-232	
Security			IP address filtering	
Installation			Web-based configuration	

Specifications

Management Maintenance	Firmware upgrade through Web browser	
Protocol	HTTP, TCP, UDP, DHCP, NTP, DDNS	
Web Interface Language	English, German, Hebrew, Simplified Chinese, Traditional Chinese	
Operation Temperature	-20 ~ 60°C / -4 ~ 140°F	-20 ~ 55°C / -4 ~ 131°F
Dimensions (W x D x H)	123 x 106 x 25 mm / 4.84 x 4.17 x 0.98 in	
Weight	0.345 kg / 0.76 lb	
Power	DC 12V, 1A, 50~60 Hz	
Countries Supported	Argentina, Australia, Austria, Belgium, Brazil, Bulgaria, Chile, China, Columbia, Cyprus, Czech Republic, France, Germany, Guernsey, Hong Kong, Hungary, Ireland, Israel, Italy, Malaysia, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Qatar, Russia, Slovakia, South Africa, Spain, Taiwan, UK, USA	
Note: 1. The Wiegand interface is NOT functional. 2. GV-DSP LPR V2 / V3 (Firmware Version 1.05 and later) does not support for UAE engine.		

All specifications are subject to change without notice.

Appendix

A. Supported Wireless LAN USB Adaptor

Vendor	Model
D-Link	DWA-140 (H/W version B1), DWL-G122 (version C1)
EDIMAX	EW-7318Ug, EW-7718Un
Linksys	WUSB54GC
Pegatron	WL-166N11
Note: Linksys WUSB54GC ver. 3 is not supported.	

B. Supported Mobile Broadband Device

Vendor	Model
HUAWEI	E169, E220, E1692, EC169C, E1750 USB Modem (HSDPA/UMTS/EDGE/GPRS/GSM)
Novatel	MC950D (HSDPA/UMTS/EDGE/GPRS/GSM)
Verizon	USB760 Modem (EVDO)
Vodafone	K3565 (Rev 2)