GeoVision inc
The Vision of Security

Surveillance System

Installation Guide V8.5.9.0

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

IGV8590-A

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Contents

Important Notice

GPU Decoding Specifications

In V8.5 or later, support for GPU (Graphics Processing Unit) decoding is added to lower the CPU loading and to increase the total frame rate supported by a GV-System. GPU decoding only supports the following software and hardware specifications:

Software Specifications

<table>
<tr><th colspan="2" rowspan="2"></th><th colspan="2">Supported</th><th rowspan="2">Not Supported</th></tr>
<tr><th>Sandy Bridge</th><th>Ivy Bridge / Haswell</th></tr>
<tr><td rowspan="2">Operating System</td><td>32-Bit</td><td colspan="2">Windows Vista / 7 / 8</td><td rowspan="2">Windows 2000 / XP / Server 2008</td></tr>
<tr><td>64-Bit</td><td>Windows 7 / 8 / Server 2008 R2 / Server 2012</td><td>Windows 7 / 8 / Server 2012</td></tr>
<tr><td colspan="2">GV-System</td><td>V8.5.0.0 or later</td><td>V8.5.8.0 or later</td><td></td></tr>
<tr><td colspan="2">Resolution</td><td>1 MP / 2 MP</td><td>1 MP / 2 MP / 3 MP / 4 MP / 5MP</td><td>CIF / VGA / D1 / 4MP / 5MP</td></tr>
<tr><td colspan="2">Codec</td><td colspan="2">H.264</td><td>MPEG4 / MJEPG</td></tr>
<tr><td colspan="5">Note:
1. To apply GPU decoding, the recommended memory (RAM) requirements is 4 GB dual channels for 64-bit OS and 3 GB for 32-bit OS.
2. Windows 8 and Server 2012 are only supported in GV-System V8.5.7.0 or later.</td></tr>
</table>

Hardware Specifications

Motherboard	Intel chipset with onboard VGA Ex: Intel® Q87, Q85, B85, Z87, H87, H81, Q77, Q75, Z77, Z75, H77, B75, Q67, H67, H61, Q65, B65, Z68 Express Chipset.
Note: If you want to use an external VGA card, it is required to connect a monitor to the onboard VGA to activate GPU decoding.	

Multi-Channel Playback Specifications

In V8.5 or later, multi-channel playback in ViewLog has been enhanced to improve the smoothness of the video by producing higher frame rate. However, playing back multiple channels at high resolution can increase the CPU loading especially if the GV-System is processing other tasks simultaneously. As a result of the high CPU loading, dropped frames may sometimes occur in recorded video when playing back multiple megapixel channels.

To avoid the problem, **it is recommended to play back megapixel video in single view**.

Important Notice before Using GV-Video Capture Card

1. **Exclusions:**

- Currently all GV-Video Capture Cards are not compatible with **VIA series**, **ATI series** chipset motherboards.
- Currently GV-600(S), GV-650(S), GV-800(S), GV-600A, GV-650A and GV-800A, GV-1120, GV-1240, GV-1480 Cards are not compatible with **VIA series**, **ATI series, Intel Sandy Bridge series**, **Intel Ivy Bridge series** and **Intel Haswell series** chipset motherboards.
- Currently GV-3008 Card is not compatible with **VIA series**, **ATI series**, **NVIDIA series**, **Intel Sandy Bridge series**, **Intel Ivy Bridge series** and **Intel Haswell series** chipset motherboards.
- If your GV-Video Capture Card or GV-System works in conjunction with GV-Multi Quad Card or GV-Keyboard V1 / V2, note these accessories **do not support 64-bit Windows versions**.

2. **Hard Disk Requirements:**

- It is strongly recommended to use two separate hard disks. One is for installing Windows operating system and GV-System software, and the other is for storing recorded files.
- The total of recording frame rates that you can assign to a single hard disk is listed as below:

Frame rate limit in a single hard disk when connecting to analog cameras

Software Compression		
Video Resolution (MPEG4)	**NTSC**	**PAL**
CIF	960 FPS	800 FPS
VGA/D1	480 FPS	400 FPS
Turbo VGA	416 FPS	400 FPS
Turbo D1	352 FPS	320 FPS

Note:

1. The above data was determined using the default codec MPEG4 and hard disks with average R/W speed above 110 MB/s.
2. The data for Turbo VGA and Turbo D1 was determined using GV-1480A Card.

Hardware Compression		
Video Resolution	**H.264**	
	NTSC	**PAL**
D1	480 FPS	400 FPS

Note: The above data was determined using the default codec H.264, default quality level Q3 and hard disks with average R/W speed above 110 MB/s.

Frame rate limit in a single hard disk when connecting to IP cameras

Video resolution	H.264		MJPEG	
	Frame Rate	**Bit Rate**	**Frame Rate**	**Bit Rate**
5 MP (2560 x 1920)	220 FPS	8.5 Mbit/s	80 FPS	30.4 Mbit/s
4 MP (2048 x 1944)	330 FPS	10.4 Mbit/s	105 FPS	40.53 Mbit/s
3 MP (2048 x 1536)	440 FPS	9.83 Mbit/s	140 FPS	38.67 Mbit/s
2 MP (1920 x 1080)	660 FPS	12.59 Mbit/s	210 FPS	44.93 Mbit/s
1.3 MP (1280 x 1024)	660 FPS	6.16 Mbit/s	300 FPS	32.26 Mbit/s

Note: The data above was determined using the bit rate listed above and hard disks with average R/W speed above 110 MB/s.

Frame rate limit in a single hard disk when connecting to SDI cameras

Hardware Compression		
Video Resolution	**H.264**	
	NTSC	**PAL**
1080p	360 FPS	300 FPS
1080i	360 FPS	300 FPS
720p	720 FPS	600 FPS
Note: The above data was determined using the default codec H.264, default quality level Q3 and hard disks with average R/W speed above 110 MB/s.		

The frame rate limit is based on the resolution of video sources. The higher video resolutions the lower frame rates you can assign to a single hard disk. In other words, the higher frame rates you wish to record the more hard disks you need to install. For the information of recording frame rates, you may consult the user's manual of the GV-System or the IP camera that you wish to connect to.

- The hard disk space required to install GV-System must be at least 1 GB.
- To use Advanced Video Analysis, at least 1 GB of memory is required.
- To use two or more of the following functions simultaneously, at least 2 GB of memory is required: Advanced Video Analysis, Video Analysis, IP Camera and Pre-Record by Memory.

3. CPU Requirements:

- For recording resolution of 640 x 480 or above, Pentium 4 processor with Hyper Threading is required.

4. Default Settings:

- For software recording rates, all GV-Video Capture Cards, except GV-SDI-204 Card, are set to CIF. For hardware recording rates, GV-5016 / 4008A / 4008 / 3008 Card is set to D1.
- For software recording rates, GV-SDI-204 Card is set to 980 x 540. For hardware recording rates, GV-SDI-204 Card is set to 1080P30.

5. The Card with PCI-E Interface:

- GV-Video Capture Cards with x1 interface support the PCI Express x1, x4, x8 or x16 slot. GV-1120B, GV-1240B, GV-1480B Cards with x4 interface support x4, x8 or x16 slot.

6. **GV-600A, GV-650A and GV-800A:**

- Starting from V8.3.2, GV-600 (V4), GV-650 (V4) and GV-800 (V4) are renamed to GV-600A, GV-650A and GV-800A. These V4 Cards and A Cards are the same video capture cards.

7. **End of Support:**

- Starting from V8.3, GV-System will not support **GV-250 Card**, **GV-Hybrid DVR (MPEG2) Card** and **GV-DSP Card**.
- Starting from V8.3.2, GV-System will not support **GV-2004 Card**.
- Starting from V8.3.2, GV-System will not support **MPEG2** codec.
- Starting form V8.3.3, GV-System will not support **GV-2008 Card**.
- Starting from V8.4, GV-System will not support **Windows 2000**.
- Starting from V8.5.6, GV-System will not support **GV-1008** and **GV-1016 Cards**.

Chapter 1 Video Capture Cards

This chapter includes the following information:

- **Minimum system requirements**
- **Packing list**
- **Connection diagrams**
- **Specifications**
- **Driver installation**
- **Comparison chart**

1.1 GV-SDI-204

The GV-SDI-204 Card provides up to 4 video channels of HD-SDI cameras, recording up to 120 / 100 fps (NTSC / PAL) in total at 1080p with H.264 hardware compression. You can install up to four GV-SDI-204 Cards for a total of 16 channels. The new technology of resolution is employed to enhance the live image without DSP Overlay. Even in multi views, the image on the largest division view can remain at high-quality resolution without DSP Overlay.

Minimum System Requirements

<table>
<tr><td rowspan="2">OS</td><td>32-bit</td><td colspan="2">Windows XP / Vista / 7 / 8 / Server 2008</td></tr>
<tr><td>64-bit</td><td colspan="2">Windows 7 / 8 / Server 2008 R2 / Server 2012</td></tr>
<tr><td rowspan="4">CPU</td><td colspan="2">GV-SDI-204</td><td>Core 2 Duo E4400, 2.00 GHz</td></tr>
<tr><td colspan="2">GV-SDI-204 x 2</td><td>Core 2 Quad Q9400, 2.66 GHz</td></tr>
<tr><td colspan="2">GV-SDI-204 x 3</td><td>Core i3-2130, 3.40 GHz</td></tr>
<tr><td colspan="2">GV-SDI-204 x 4</td><td>Core i3-2130, 3.40 GHz</td></tr>
<tr><td rowspan="2">RAM</td><td colspan="2">GV-SDI-204</td><td rowspan="2">2 x 1 GB Dual Channels</td></tr>
<tr><td colspan="2">GV-SDI-204 x 4</td></tr>
<tr><td rowspan="2">HDD</td><td colspan="2">GV-SDI-204</td><td>500 GB</td></tr>
<tr><td colspan="2">GV-SDI-204 x 4</td><td>2 TB</td></tr>
<tr><td>Graphic Card</td><td colspan="3">AGP or PCI-Express, 800 x 600 (1280 x 1024 recommended), 32-bit color</td></tr>
<tr><td>DirectX</td><td colspan="3">9.0c</td></tr>
</table>

Packing List

1. GV-SDI-204 Card x 1
2. SATA Power Converter Cable x 1
3. Hardware Watchdog Jumper Wire x 1
4. USB Dongle x 1
5. Software DVD x 1

Connecting the GV-SDI-204 Cards

Up to four GV-SDI-204 Cards can be connected. GV-SDI-204 Cards can also be installed with other types of GV-Video Capture Cards including GV-900A, GV-800B, GV-650B, GV-600B, and GV-1480A / 1240A / 1120A Combo Cards, GV-1480B / 1240B / 1120B Combo Cards, GV-4008 and GV-5016. With the combination of different video capture cards, the total number of channels cannot exceed 32 channels.

- Connect the HD-SDI cameras to the GV-SDI-204 Card using BNC cables.
- Using the supplied SATA Power Converter Cable, connect the GV-SDI-204 Card to power supply.
- Connect the supplied Hardware Watchdog Jump Wire (Figure 1-2).
- After you turn on the computer, the Power LED (D1) and Status LED (D10 and D18) should be lit in green to indicate the card is ready for use.

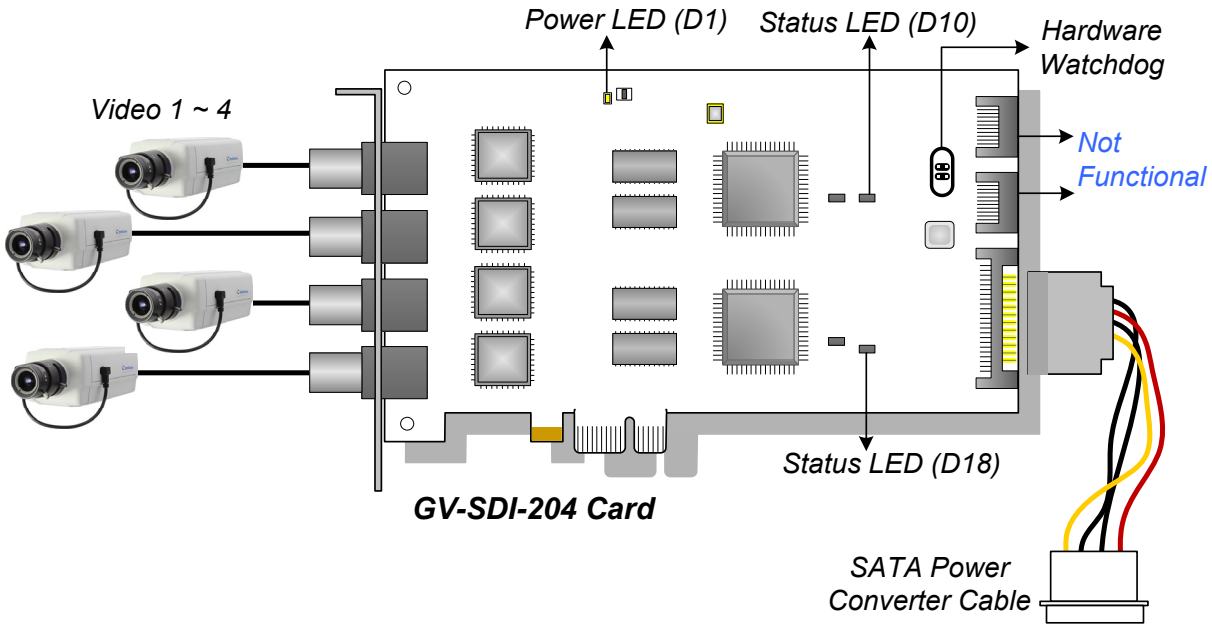


Figure 1-1

Note:

1. The GV-SDI-204 Card only works when the supplied USB Dongle is inserted to PC.
2. The connected HD-SDI cameras must have a resolution under 1080p_30, 720p_60 or 1080i_60. The Video Lost message will be displayed when the connected channels have higher resolution.

Connecting Hardware Watchdog

Insert the Hardware Watchdog Jumper Wire to the 2-pin connectors on the Card. The (+) pin on the Card must connect to the Reset (+) pin on the motherboard, and the (-) pin on the Card to the Ground (-) pin on the motherboard. Ensure the connection is correct; otherwise the hardware watchdog will not work.

When installing multiple capture cards, the Hardware Watchdog can be connected to any of the GV-SDI-204 cards, no matter if the cards are all GV-SDI-204 cards or a combination of GV-SDI-204 cards and other capture cards. If you are installing GV-SDI cards in addition to existing video capture cards and the Hardware Watchdog has already been connected, you do not need to change the connection to a GV-SDI-204 card.

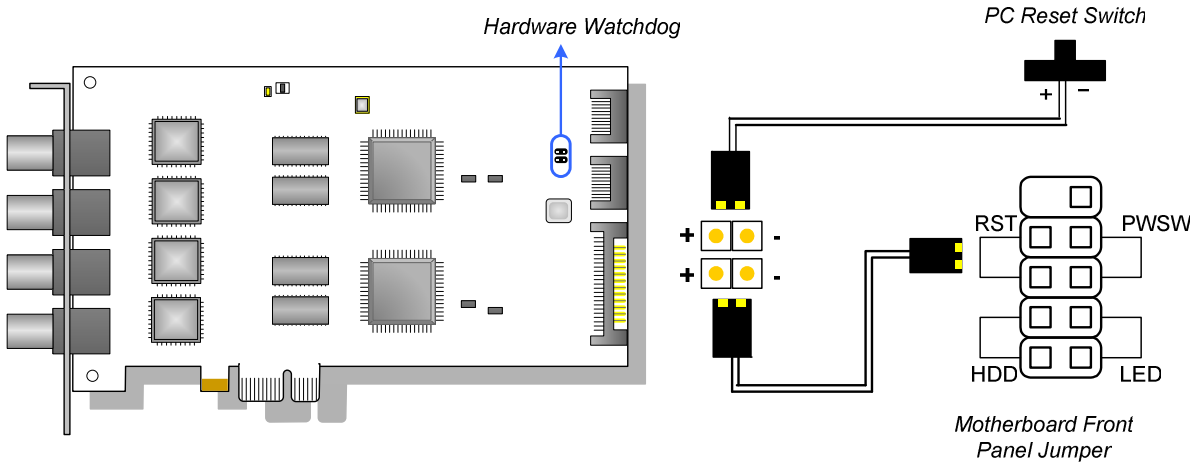


Figure 1-2

Note: To locate the motherboard's Reset (+) pin and (-) pin, please refer to the motherboard's user manual.

Installing Drivers

After installing the GV-SDI-204 Card in the computer, insert the software DVD to install GV-Series drivers. The DVD will run automatically and an installation window will pop up. Select **Install or Remove GeoVision GV-Series Driver**, and select the following two options to install card and USB dongle drivers.

- **Install or Remove GeoVision GV-Series Card Drivers:** installs card drivers.
- **Install GeoVision USB Device Drivers:** installs USB dongle drivers.

To verify the drivers are installed correctly, go to Windows Device Manager and see if their entries are listed. The image below is an example of installing one GV-SDI-204 card.

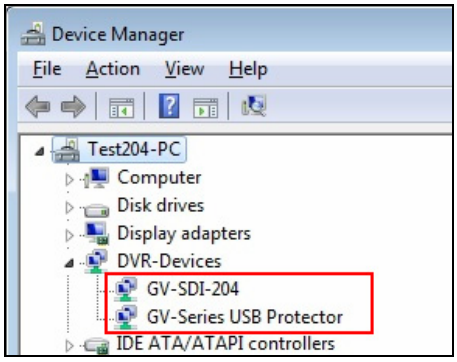


Figure 1-3

Expand the **DVR-Devices** field, you can see:

GV-SDI-204 Card	Entry
Single-card mode	GV-SDI-204 GV-Series USB Protector
Four-card mode	GV-SDI-204 GV-SDI-204 GV-SDI-204 GV-SDI-204 GV-Series USB Protector

Adjusting the Video Settings in the Main System

One distinct feature of GV-SDI-204 Cards is their ability of hardware compression, providing you with higher system performance and DVD recording quality.

To take full advantage of GV-SDI-204 Cards, you can adjust the video settings, including the recording quality and frame rate, before running the GV-System.

Setting up the video settings of the recorded files:

Considering computer performance or recording quality, you may adjust the settings to meet your needs.

1. On the Main System, click the **Configure** button, select **System Configure**, select **Camera Install**, and click **Hardware Compression Setup**. This dialog box appears.

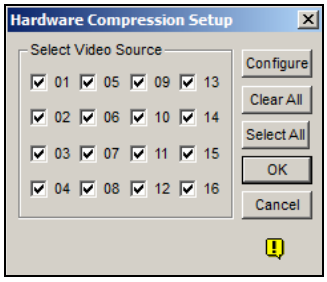


Figure 1-4

2. Select the cameras you want to set up, and click the Configure button. This dialog box appears.

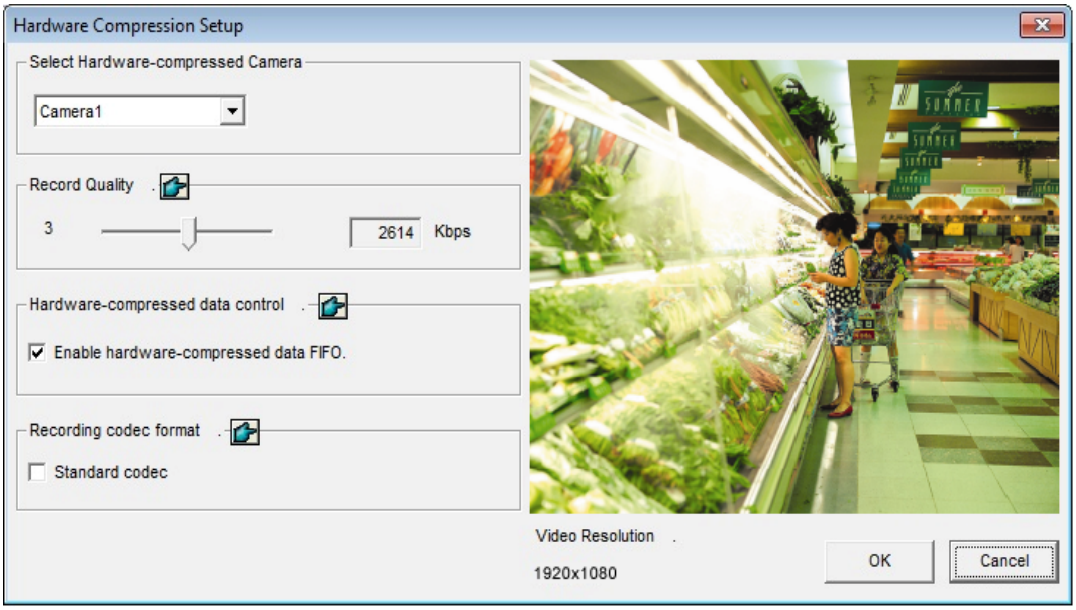


Figure 1-5

3. In the Select Hardware-compressed Camera section, select one camera to be configured.
4. Select the recording quality.
5. The **Enable hardware-compressed data FIFO** option is disabled by default. When the option is enabled, the hardware-compressed data from the video IP device, such as IP camera, video server and compact DVR, will be transmitted directly to remote servers instead of being compressed again on the DVR. The remote servers include CMS-related servers and WebCam Server. This feature can decrease the system load of DVR but increase that of remote servers.
6. To use standard H.264 codec in recording, enable **Standard codec** in the Recording codec format section.
7. To apply the same setting to all cameras, click the **Finger** button in each section.
8. To access the frame rate settings, on the Main System, click the **Configure** button, select **System Configure**, and select **Camera Configure**. This dialog box appears.

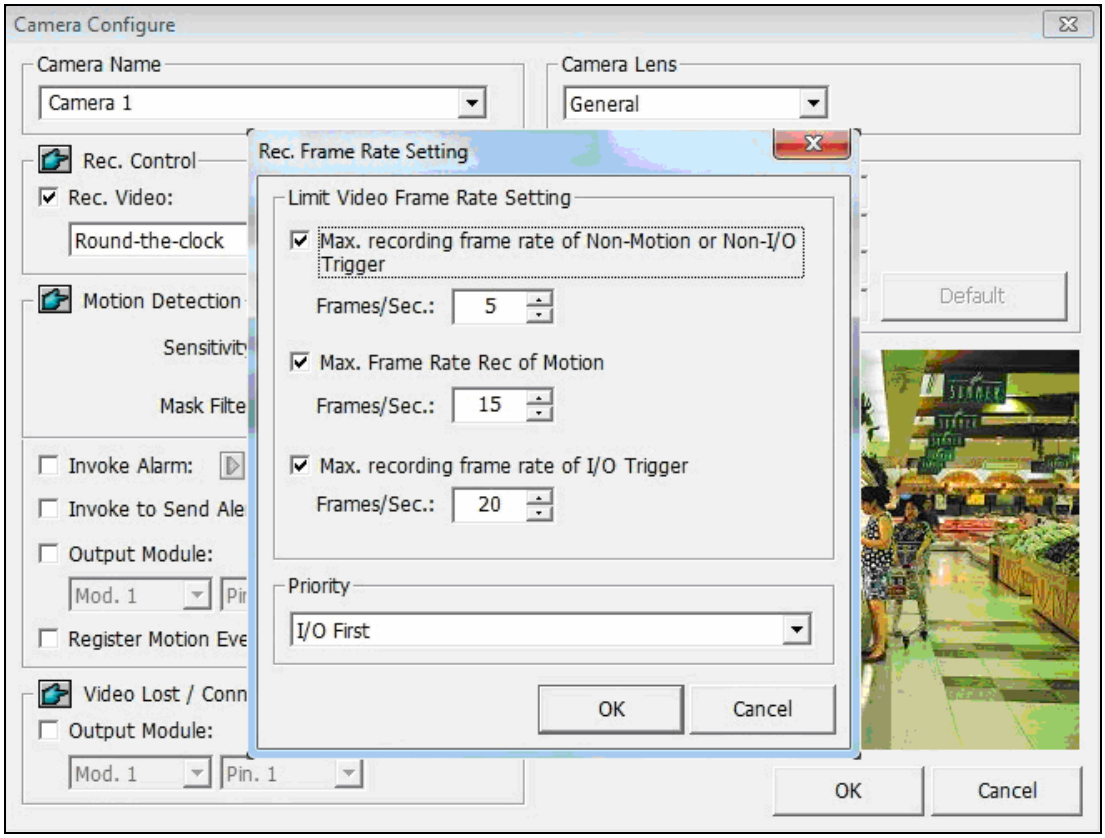


Figure 1-6

9. In the Rec Control section, click the **Arrow** button. The Hardware Rec. Frame Rate Setting dialog box appears.
10. Set the maximum frame rate for motion, non-motion, I/O trigger periods to save disk space when possible.

Specifications

			GV-SDI-204
Interface			PCI-E (x1)
Input Type			BNC
Video Input			4 Cams
Audio Input			N/A
Recording Rate and Display Rate	1080p	NTSC	120 fps
		PAL	100 fps
	720p	NTSC	240 fps
		PAL	200 fps
	1080i	NTSC	120 fps
		PAL	100 fps
Video Resolution	H/W	1080p	1920 x 1080
		720p	1280 x 720
		1080i	1920 x 1080
	S/W	1080p	960 x 540, 480 x 270
		720p	640 x 360
		1080i	960 x 540, 480 x 270
Video Compression Format		H/W	H.264
		S/W	Geo MPEG4, Geo H.264
Bit Rate Range			10M ~ 20M
GV-NET/IO Card Support			Yes (Note 2)
GV-Multi Quad Card Support			No
GV-Loop Through Card Support			No
Dimensions (W x H)			158 x 111 mm / 6.22 x 4.37 in

Note:

1. GV-SDI-204 does not support the TV-Out function.
2. To work together with GV-SDI-204, GV-NET/IO Card V3.2 or later must be set in the I/O Box Mode and connected to the PC through USB or DB9.

1.2 GV-5016

The GV-5016 Card provides up to 16 video and 16 audio channels, recording up to 480 / 400 fps (NTSC / PAL) in total with H.264 hardware compression. The new technology of resolution is employed to enhance the live image without DSP Overlay. Even in multi views, the image on the largest division view can remain at high-quality resolution without DSP Overlay.

Minimum System Requirements

<table>
<tr><td rowspan="2">OS</td><td>32-bit</td><td colspan="2">Windows XP / Vista / 7 / 8 / Server 2008</td></tr>
<tr><td>64-bit</td><td colspan="2">Windows 7 / 8 / Server 2008 R2 / Server 2012</td></tr>
<tr><td colspan="2" rowspan="2">CPU</td><td>GV-5016</td><td>Core 2 Quad, 2.4 GHz</td></tr>
<tr><td>GV-5016 x 2</td><td>Core i5 650, 3.20 GHz</td></tr>
<tr><td colspan="2" rowspan="2">RAM</td><td>GV-5016</td><td rowspan="2">2 x 1 GB Dual Channels</td></tr>
<tr><td>GV-5016 x 2</td></tr>
<tr><td colspan="2" rowspan="2">HDD</td><td>GV-5016</td><td>500 GB</td></tr>
<tr><td>GV-5016 x 2</td><td>1 TB</td></tr>
<tr><td colspan="2">Graphic Card</td><td colspan="2">AGP or PCI-Express, 800 x 600 (1280 x 1024 recommended), 32-bit color</td></tr>
<tr><td colspan="2">DirectX</td><td colspan="2">9.0c</td></tr>
</table>

Packing List

1. GV-5016 Card x 1
2. 1-16 LFH-Type Audio and Video Cable x 1
3. Hardware Watchdog Jumper Wire x 1
4. USB Dongle x 1
5. Software DVD x 1

Connecting One GV-5016 Card

- Connect the video and audio cables to the GV-5016 Card.
- Connect the supplied Hardware Watchdog Jump Wire (Figure 1-11).
- After you turn on the computer, the Power LED (D19) and Status LED (D17) should be lit in green to indicate the card is ready for use.

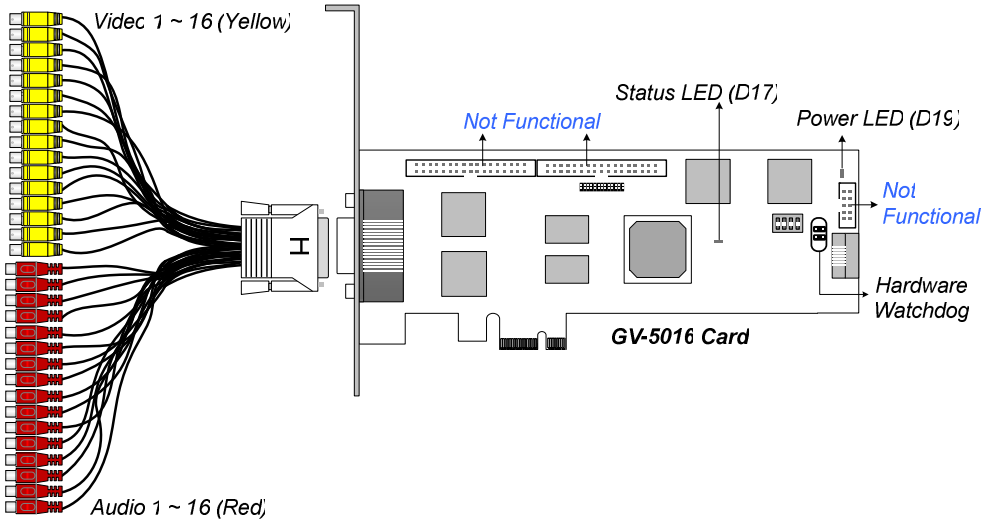


Figure 1-7

When connecting the cable, make sure the cable is connected correctly:

- The letter “H” on the connector should be on the same side as the chipsets.

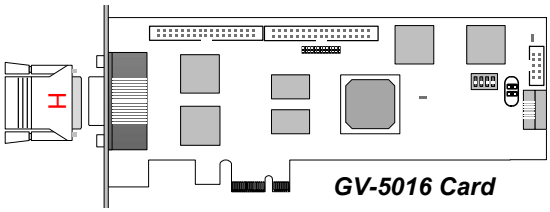


Figure 1-8

- The LFH connector on the cable is in the shape of a trapezoid and should match the trapezoid connector on the capture card.

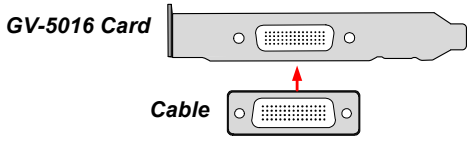


Figure 1-9

Note:

1. The GV-5016 Card only works when the supplied USB Dongle is inserted to PC.
2. The GV-5016 Card cannot work with microphones which acquire power from the PC. Use microphones which have external power supply.

Connecting Two GV-5016 Cards

You can install two GV-5016 Cards for a total of 32 channels. Master Card is the card with 1-16 channels and Slave Card is that with 17-32 channels. Normally, the card attached to the lower PCI-E slot number will act as Master, and the card attached to the higher PCI-E slot number will act as Slave.

- **Hardware Watchdog Connection:** Connect the supplied Hardware Watchdog Jump Wire to the Master Card only (Figure 1-11).

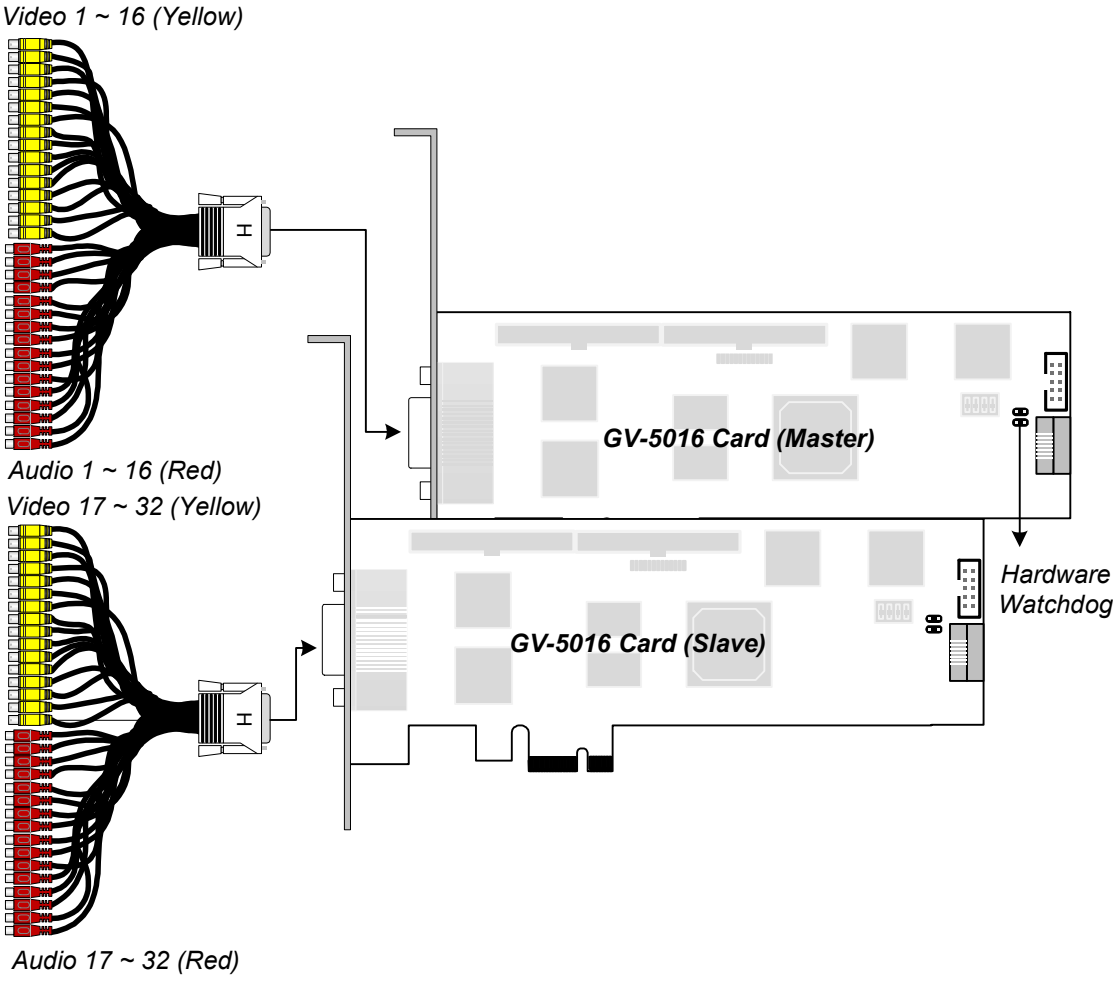


Figure 1-10

Connecting Hardware Watchdog

Insert the Hardware Watchdog Jumper Wire to the 2-pin connectors on the Card. The (+) pin on the Card must connect to the Reset (+) pin on the motherboard, and the (-) pin on the Card to the Ground (-) pin on the motherboard. Ensure the connection is correct; otherwise the hardware watchdog will not work.

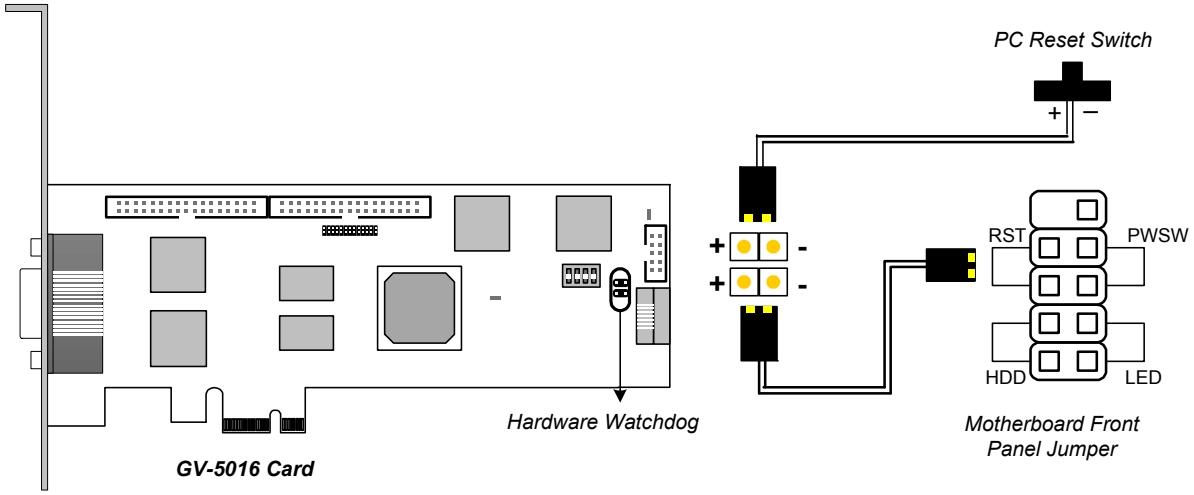


Figure 1-11

Note: To locate the motherboard's Reset (+) pin and (-) pin, please refer to the motherboard's user manual.

Installing Drivers

After installing the GV-5016 Card in the computer, insert the software DVD to install GV-Series drivers. The DVD will run automatically and an installation window will pop up. Select **Install or Remove GeoVision GV-Series Driver**, and select the following two options to install card and USB dongle drivers.

- **Install or Remove GeoVision GV-Series Card Drivers:** installs card drivers.
- **Install GeoVision USB Device Drivers:** installs USB dongle drivers.

To verify the drivers are installed correctly, go to Windows Device Manager and see if their entries are listed. The image below is an example of installing one GV-5016 card.

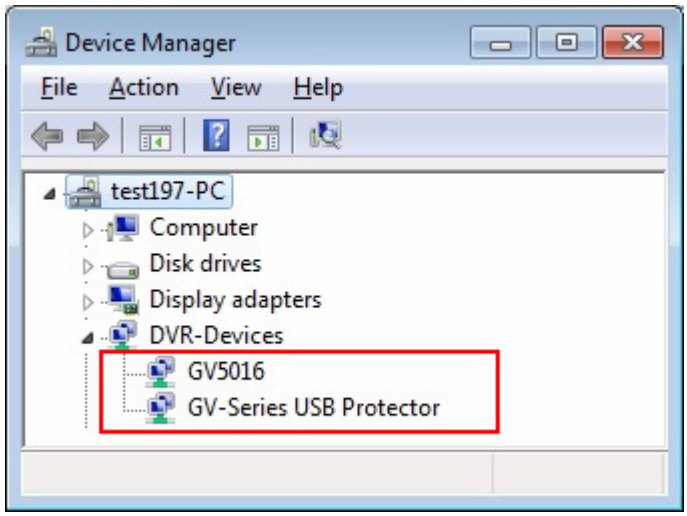


Figure 1-12

Expand the **DVR-Devices** field, you can see:

GV-5016 Card	Entry
Single-card mode	GV5016 GV-Series USB Protector
Two-card mode	GV5016 GV5016 GV-Series USB Protector

Adjusting the Video Settings in the Main System

One distinct feature of GV-5016 Cards is their ability of hardware compression, providing you with higher system performance and DVD recording quality.

To take full advantage of GV-5016 Cards, you can adjust the video settings, including the recording quality and frame rate, before running the GV-System.

Setting up the video settings of the recorded files:

Considering computer performance or recording quality, you may adjust the settings to meet your needs.

1. On the Main System, click the **Configure** button, select **System Configure**, select **Camera Install**, and click **Hardware Compression Setup**. This dialog box appears.

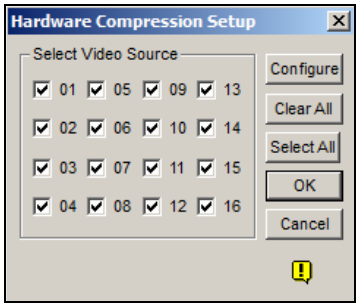


Figure 1-13

2. Select the cameras you want to set up, and click the Configure button. This dialog box appears.

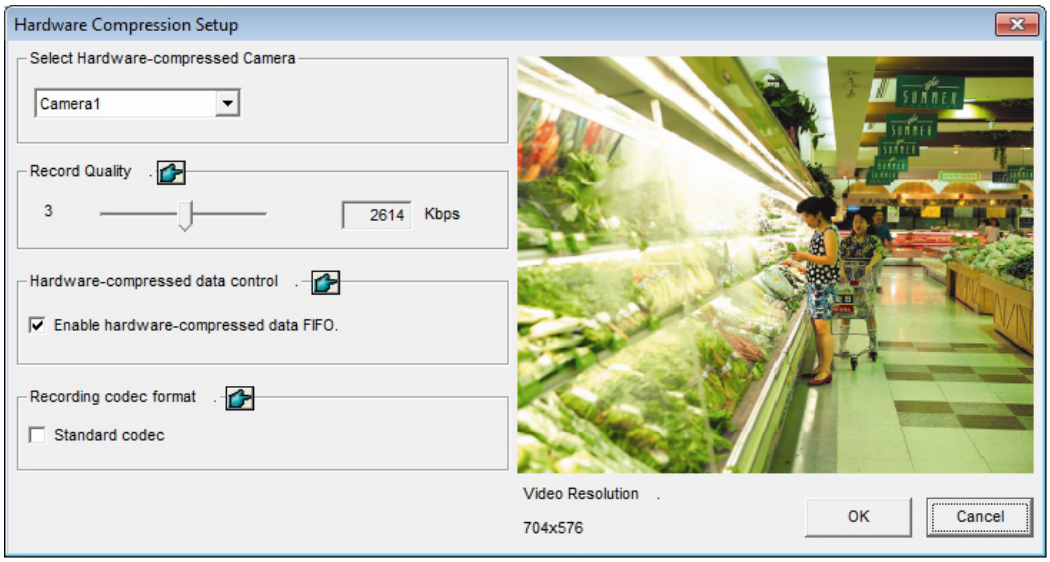


Figure 1-14

3. In the Select Hardware-compressed Camera section, select one camera to be configured.
4. Select the recording quality.
5. The **Enable hardware-compressed data FIFO** option is disabled by default. When the option is enabled, the hardware-compressed data from the video IP device, such as IP camera, video server and compact DVR, will be transmitted directly to remote servers instead of being compressed again on the DVR. The remote servers include CMS-related servers and WebCam Server. This feature can decrease the system load of DVR but increase that of remote servers.
6. To use standard H.264 codec in recording, enable **Standard codec** in the Recording codec format section.
7. If you want to apply the same setting to all cameras, click the **Finger** button in each section.
8. To access the frame rate settings, on the Main System, click the **Configure** button, select **System Configure**, and select **Camera Configure**. This dialog box appears.

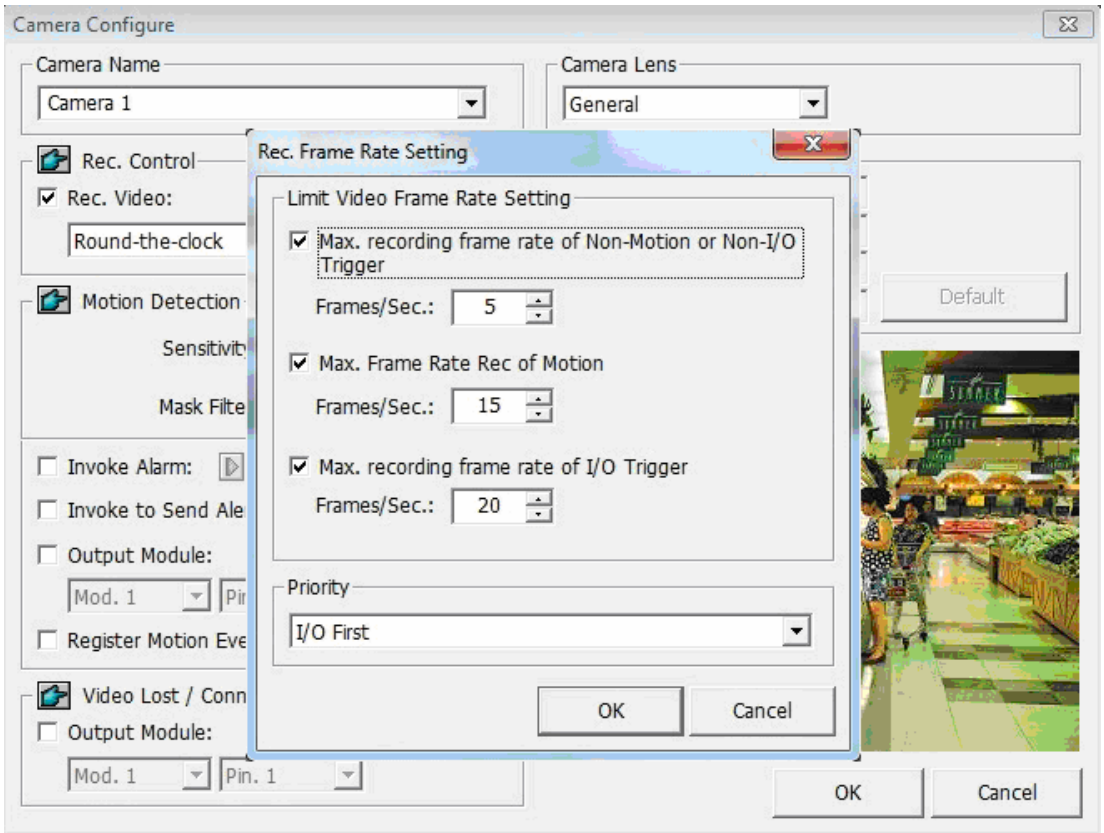


Figure 1-15

9. In the Rec Control section, click the **Arrow** button. The Hardware Rec. Frame Rate Setting dialog box appears.

10. Set the maximum frame rate for motion, non-motion, I/O trigger periods so as to save as much disk space as possible.
11. To adjust image quality, in the Video Attributes section, move the sliders to the desired values or click **Default** to apply default values.

Note: The default settings are as follows: Recording Quality is 3, Video Resolution is 704 x 480 (NTSC) or 704 x 576 (PAL), Codec is Geo H.264 and Frame Rate is 30 (NTSC) or 25 (PAL).

Specifications

		GV-5016		GV-5016 x 2
Interface		PCI-E (x1)		PCI-E (x1) x 2
Input Type		LFH		
Video Input		16 Cams		32 Cams
Audio Input		16 Channels		32 Channels
Recording Rate (D1)	NTSC	480 fps		960 fps
	PAL	400 fps		800 fps
Display Rate	NTSC	480 fps		960 fps
	PAL	400 fps		800 fps
Video Resolution	NTSC	H/W	704 x 480	704 x 480
		S/W	352 x 240	352 x 240
	PAL	H/W	704 x 576	704 x 576
		S/W	352 x 288	352 x 288
Video Compression Format	S/W	Geo MPEG4, Geo H264		
	H/W	H.264		
Audio Format		16 kHz / 16-bit, 32 kHz / 16-bit		
Bit Rate Range		5M ~ 10M		
GV-NET/IO Card Support		Yes (Note 2)		
GV-Multi Quad Card Support		No		
GV-Loop Through Card Support		No		
Dimensions (W x H)		168 x 70 mm / 6.61 x 2.75 in		

Note:

1. GV-5016 does not support the TV-Out function.
2. To work together with GV-5016, GV-NET/IO Card V3.2 or later must be set in the I/O Box Mode and connected to the PC through USB or DB9.

1.3 GV-4008

The GV-4008 Card provides up to 8 video and 8 audio channels, recording up to 240 / 200 fps (NTSC / PAL) in total with H.264 hardware compression. The new technology of resolution is employed to enhance the live image of D1 without DSP Overlay. Even in screen divisions, the largest division can remain at the high-quality D1 resolution.

Minimum System Requirements

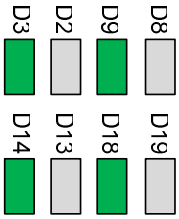
OS	32-bit	Windows XP / Vista / 7 / 8 / Server 2008	
	64-bit	Windows 7 / 8 / Server 2008 R2 / Server 2012	
CPU		GV-4008	Core 2 Duo, 2.33 GHz
		GV-4008 x 2	Core 2 Quad, 2.4 GHz
RAM		GV-4008	2 x 1 GB Dual Channels
		GV-4008 x 2	
HDD		GV-4008	250 GB
		GV-4008 x 2	500 GB
Graphic Card		AGP or PCI-Express, 800 x 600 (1280 x 1024 recommended), 32-bit color	
DirectX		9.0c	
Power Supply		400 Watts	

Packing List

1. GV-4008 Card x 1
2. 1-8 Cam Audio BNC Cable with BNC Male to RCA Female Adaptors x 1
3. 1-8 Cam Video BNC Cable x 1
4. Hardware Watchdog Jumper Wire x1
5. SATA Power Converter Cable x 1
6. USB Dongle x 1
7. Software DVD x 1

Connecting One GV-4008 Card

- Connect the video and audio cables to the GV-4008 Card.
- Using the supplied SATA Power Converter Cable, connect the GV-4008 Card to power supply. The Power LED in the top right corner should be lit in green and the 4 status LEDs (D3, D9, D14, D18) in the left corner should be lit in green to indicate the normal functionality.



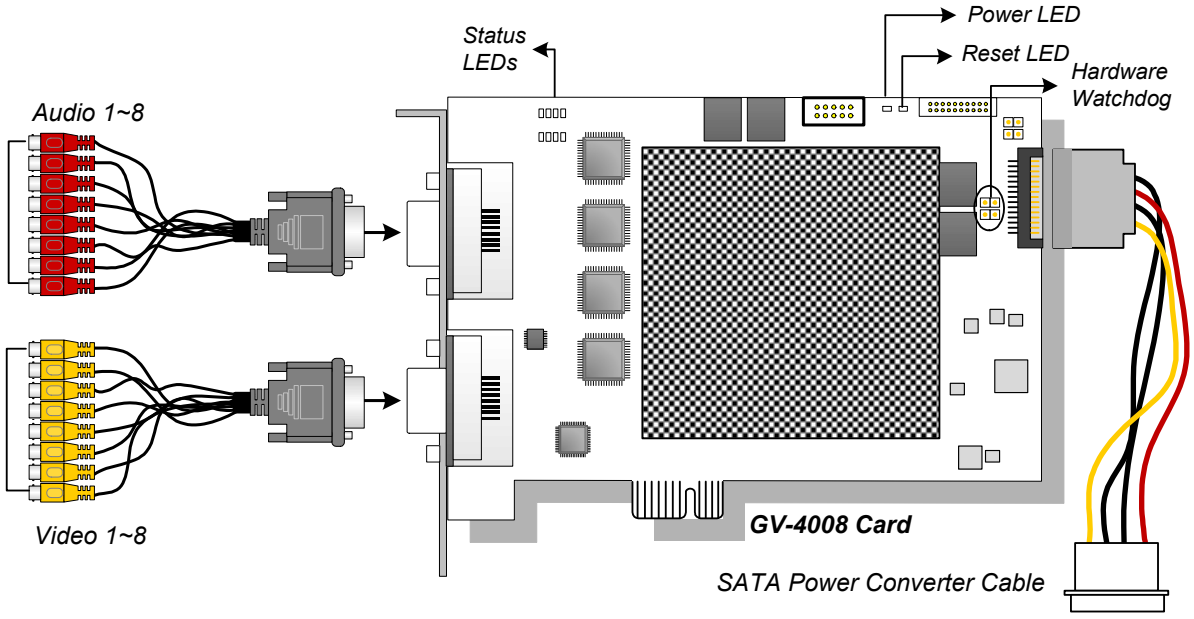


Figure 1-16

Note:

1. The GV-4008 Card only works when the supplied USB Dongle is inserted to PC.
2. The GV-4008 Card cannot work with microphones which acquire power from the PC. Use microphones which have external power supply.

Connecting Two GV-4008 Cards

You can install two GV-4008 Cards for a total of 16 channels. Master Card is the card with 1-8 channels and Slave Card is that with 9-16 channels. Normally, the card attached to the lower PCI slot number will act as Master, and the card attached to the higher PCI slot number will act as Slave.

- **Hardware Watchdog Connection:** Connect the supplied Hardware Watchdog Jump Wire to the Master Card only (Figure 1-18).
- **Accessory Card Connections:** To work together with GV-4008 Cards, GV-NET/IO Card V3.2 or later must be set in the I/O Box Mode and connected to the PC through USB or DB9.

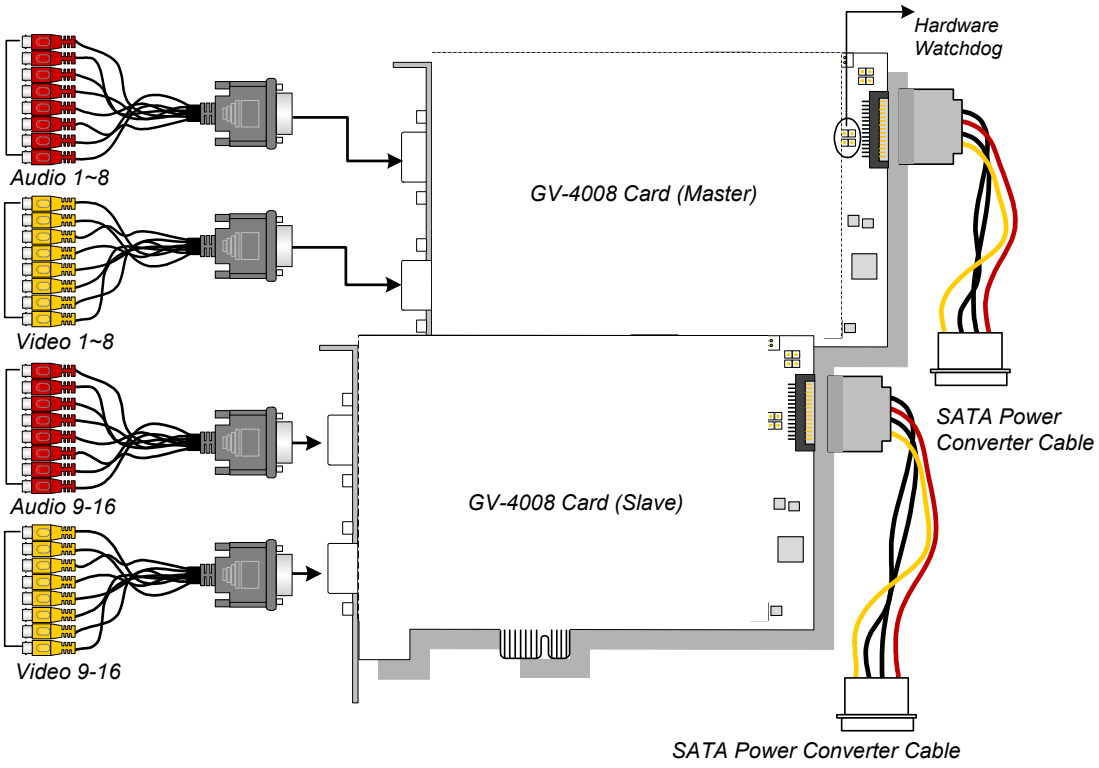


Figure 1-17

Connecting Hardware Watchdog

Insert the Hardware Watchdog Jumper Wire to the 2-pin connectors on the Card. The (+) pin on the Card must connect to the Reset (+) pin on the motherboard, and the (-) pin on the Card to the Ground (-) pin on the motherboard. Ensure the connection is correct; otherwise the hardware watchdog will be damaged.

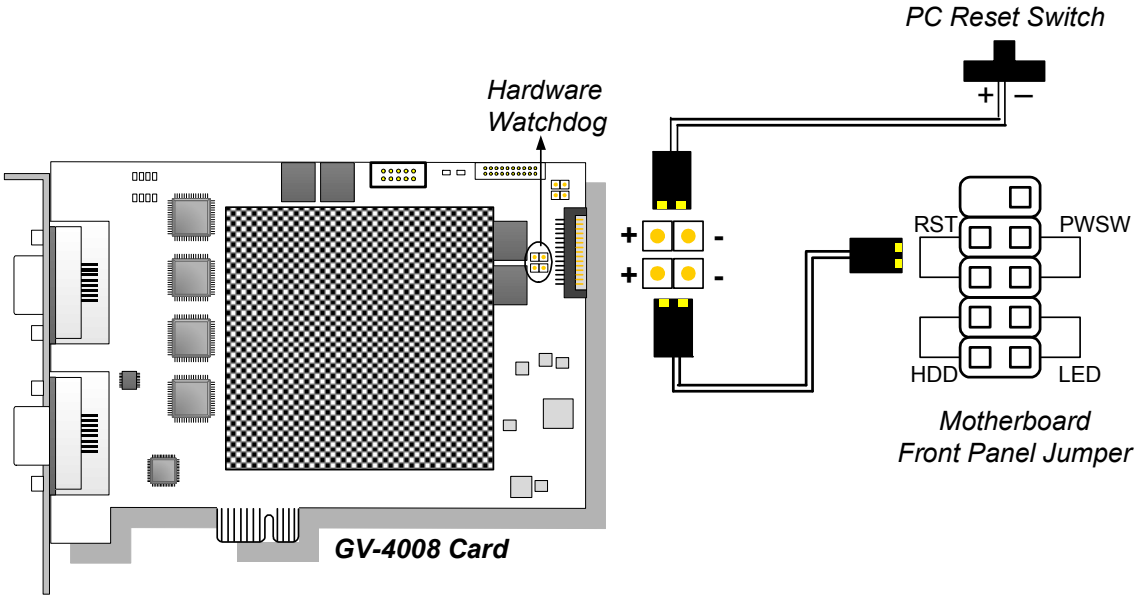


Figure 1-18

Note: To locate the motherboard's Reset (+) pin and (-) pin, please refer to the motherboard's user manual.

Installing Drivers

After installing the GV-4008 Card in the computer, insert the software DVD to install GV-Series drivers. The DVD will run automatically and an installation window will pop up. Select **Install or Remove GeoVision GV-Series Driver**, and select the following two options to install card and USB dongle drivers.

- **Install or Remove GeoVision GV-Series Card Drivers:** installs card drivers.
- **Install GeoVision USB Device Drivers:** installs USB dongle drivers.

Note: For the installation of two GV-4008 cards, it is required to restart the computer after the driver is installed.

To verify the drivers are installed correctly, go to Windows Device Manager and see if their entries are listed. The image below is an example of installing one GV-4008 card.

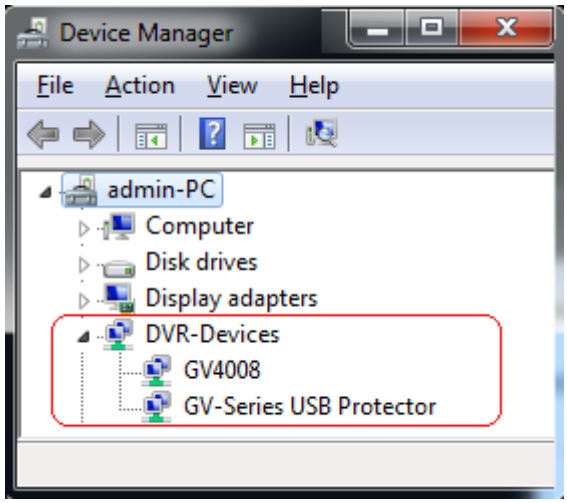


Figure 1-19

Expand the **DVR-Devices** field, you can see:

GV-4008 Card	Entry
Single-card mode	GV4008 GV-Series USB Protector
Two-card mode	GV4008 GV4008 GV-Series USB Protector

Troubleshooting Power Supply Issues

When the **Reset LED** on the top of the Card is flashing red color or the four **Status LEDs** are not all on, it indicates that the GV-4008 Card is short of power supply. Make sure your power supply is of 400 watts at least. If not, replace it with the power supply of 400 or larger watts. The power supply issues should be solved.

Adjusting the Video Settings in the Main System

One distinct feature of GV-4008 Cards is their ability of hardware compression, providing you with higher system performance and DVD recording quality.

To take full advantage of GV-4008 Cards, you can adjust the video settings, including the recording quality and frame rate, before running the GV-System.

Setting up the video settings of the recorded files:

Considering computer performance or recording quality, you may adjust the settings to meet your needs.

1. On the Main System, click the **Configure** button, select **System Configure**, select **Camera Install**, and click **Hardware Compression Setup**. This dialog box appears.

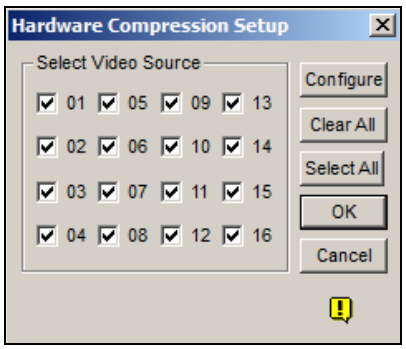


Figure 1-20

2. Select the cameras you want to set up, and click the Configure button. This dialog box appears.

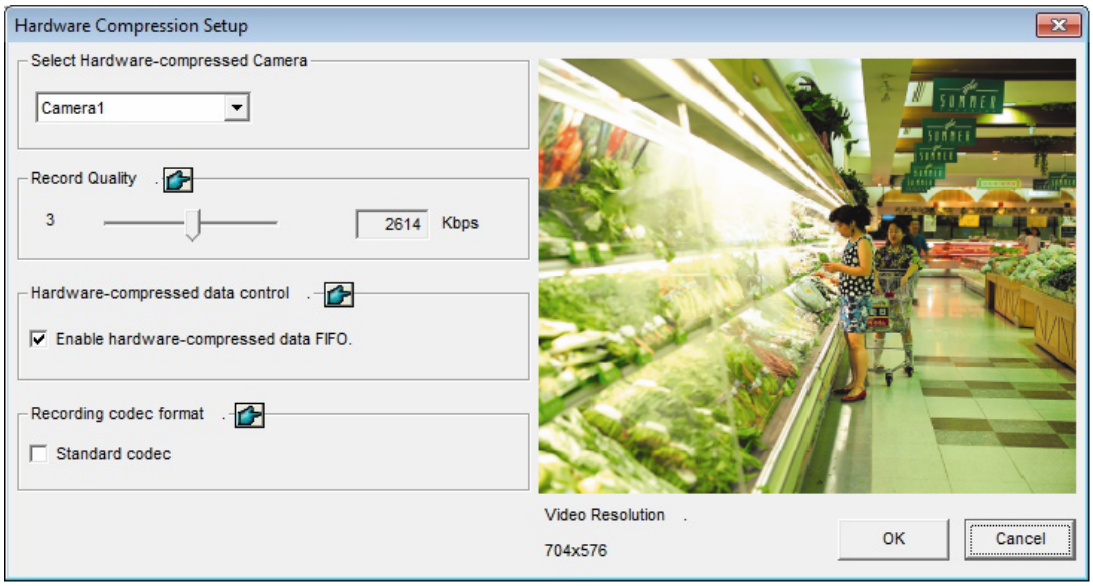


Figure 1-21

3. In the Select Hardware-compressed Camera section, select one camera to be configured.
4. Select the recording quality.
5. The **Enable hardware-compressed data FIFO** option is disabled by default. When the option is enabled, the hardware-compressed data from the video IP device, such as IP camera, video server and compact DVR, will be transmitted directly to remote servers instead of being compressed again on the DVR. The remote servers include CMS-related servers and WebCam Server. This feature can decrease the system load of DVR but increase that of remote servers.
6. To use standard H.264 codec in recording, enable **Standard codec** in the Recording codec format section.
7. If you want to apply the same setting to all cameras, click the **Finger** button in each section.

8. To access the frame rate settings, on the Main System, click the **Configure** button, select **System Configure**, and select **Camera Configure**. This dialog box appears.

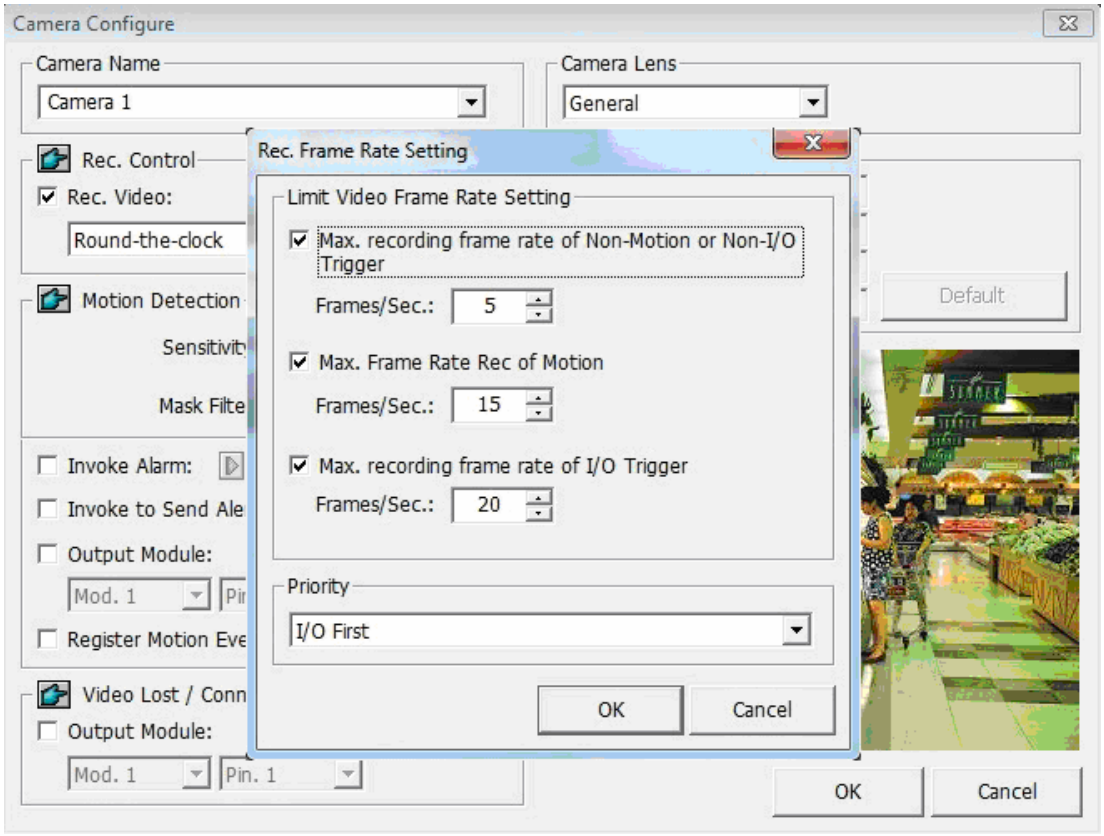


Figure 1-22

9. In the Rec Control section, click the **Arrow** button. The Hardware Rec. Frame Rate Setting dialog box appears.
10. Set the maximum frame rate for motion, non-motion, and I/O trigger periods so as to save as much disk space as possible.
11. To adjust image quality, in the Video Attributes section, move the sliders to the desired values or click **Default** to apply default values.

Note: The default settings are as follows: Recording Quality is 3, Video Resolution is 704 x 480 (NTSC) or 704 x 576 (PAL), Codec is Geo H.264 and Frame Rate is 30 (NTSC) or 25 (PAL).

Specifications

		GV-4008		GV-4008 x 2
Interface		PCI-E (x1)		PCI-E (x1) x 2
Input Type		DVI		
Video Input		8 Cams		16 Cams
Audio Input		8 Channels		16 Channels
Recording Rate (D1)	NTSC	240 fps		480 fps
	PAL	200 fps		400 fps
Display Rate	NTSC	240 fps		480 fps
	PAL	200 fps		400 fps
Video Resolution	NTSC	H/W	704 x 480	704 x 480
		S/W	352 x 240	352 x 240
	PAL	H/W	704 x 576	704 x 576
		S/W	352 x 288	352 x 288
Video Compression Format	S/W	Geo MPEG4, Geo H264		
	H/W	H.264		
Audio Format		16 kHz / 16-bit, 32 kHz / 16-bit		
Bit Rate Range		2.5M ~ 5M		
GV-NET/IO Card Support		Yes (Note2)		
GV-Multi Quad Card Support		No		
Dimensions (W x H)		169 x 99 mm / 6.65 x 3.9 in		

Note:

1. GV-4008 does not support the TV-Out function.
2. To work together with GV-4008, GV-NET/IO Card V3.2 or later must be set in the I/O Box Mode and connected to the PC through USB or DB9.
3. In screen divisions, the largest division is set to D1 resolution and the other divisions to CIF resolution.

1.4 GV-4008A

The GV-4008A Card provides up to 8 video and 8 audio channels, recording up to 240 / 200 fps (NTSC / PAL) in total with H.264 hardware compression. The new technology of resolution is employed to enhance the live image without DSP Overlay. Even in multi views, the image on the largest division view can remain at the high-quality resolution without DSP Overlay.

Minimum System Requirements

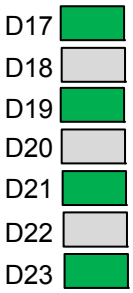
OS	32-bit	Windows XP / Vista / 7 / 8 / Server 2008	
	64-bit	Windows 7 / 8 / Server 2008 R2 / Server 2012	
CPU		GV-4008A	Core 2 Duo, 2.33 GHz
		GV-4008A x 2	Core 2 Quad, 2.4 GHz
RAM		GV-4008A	2 x 1 GB Dual Channels
		GV-4008A x 2	
HDD		GV-4008A	250 GB
		GV-4008A x 2	500 GB
Graphic Card		AGP or PCI-Express, 800 x 600 (1280 x 1024 recommended), 32-bit color	
DirectX		9.0c	
Power Supply		400 Watts	

Packing List

1. GV-4008A Card x 1
2. 1-8 DVI-Type Audio Cable x 1
3. 1-8 DVI-Type Video Cable x 1
4. Hardware Watchdog Jumper Wire x 1
5. Internal Power Y Cable x 1
6. USB Dongle x 1
7. Software DVD x 1

Connecting One GV-4008A Card

- Connect the video and audio cables to the GV-4008A Card.
- Connect the supplied Hardware Watchdog Jump Wire (Figure 1-16).
- Connect the computer's internal power supply to the GV-4008A Card. The LEDs (D17, D19, D21, D23) should be lit in green to indicate the card is ready for use.



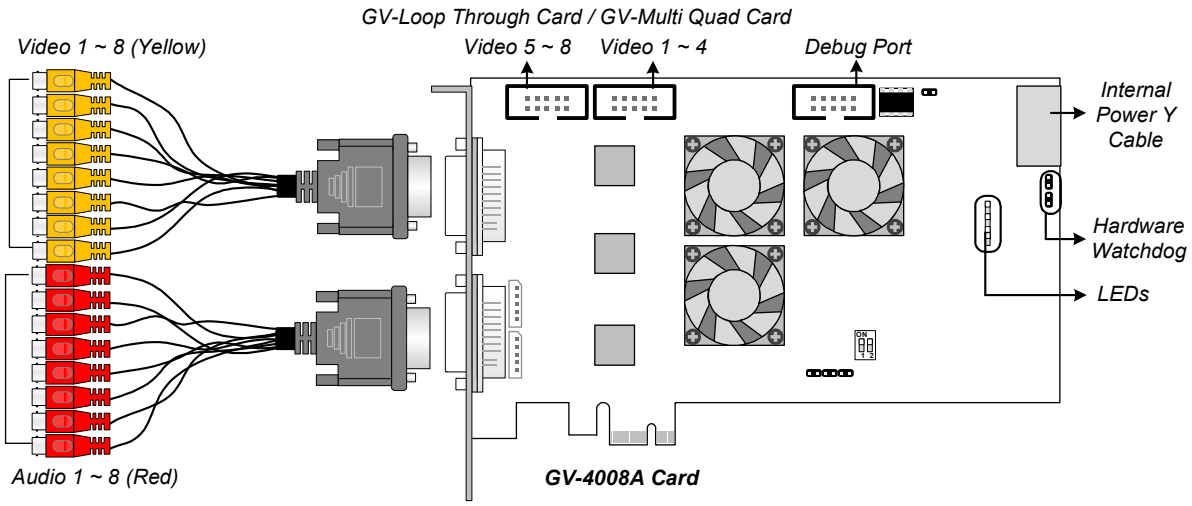


Figure 1-23

Note:

1. The GV-4008A Card only works when the supplied USB Dongle is inserted to PC.
2. The GV-4008A Card cannot work with microphones which acquire power from the PC. Use microphones which have external power supply.

Connecting Two GV-4008A Cards

You can install two GV-4008A Cards for a total of 16 channels. Master Card is the card with 1-8 channels and Slave Card is that with 9-16 channels. Normally, the card attached to the lower PCI-E slot number will act as Master, and the card attached to the higher PCI-E slot number will act as Slave.

- **Hardware Watchdog Connection:** Connect the supplied Hardware Watchdog Jump Wire to the Master Card only (Figure 1-16).
- **Accessory Card Connections:**
  - ⊙ GV-Loop Through Card: Connect the card to two 10-pin connectors on each Master and Slave Card by using a supplied cable with four 10-pin headers.
  - ⊙ GV-Multi Quad Card: Connect the card to two 10-pin connectors on each Master and Slave Card by using a supplied cable with four 10-pin headers.

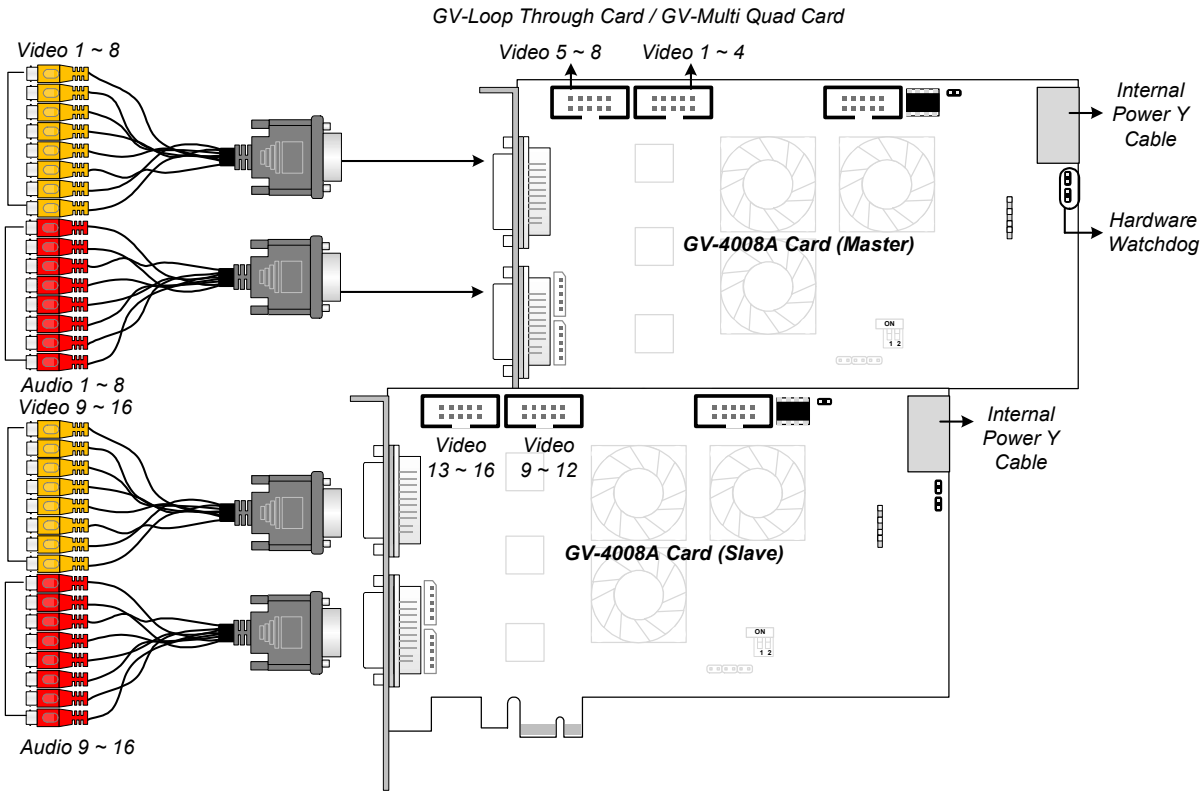


Figure 1-24

Connecting Hardware Watchdog

Insert the Hardware Watchdog Jumper Wire to the 2-pin connectors on the Card. The (+) pin on the Card must connect to the Reset (+) pin on the motherboard, and the (-) pin on the Card to the Ground (-) pin on the motherboard. Ensure the connection is correct; otherwise the hardware watchdog will not work.

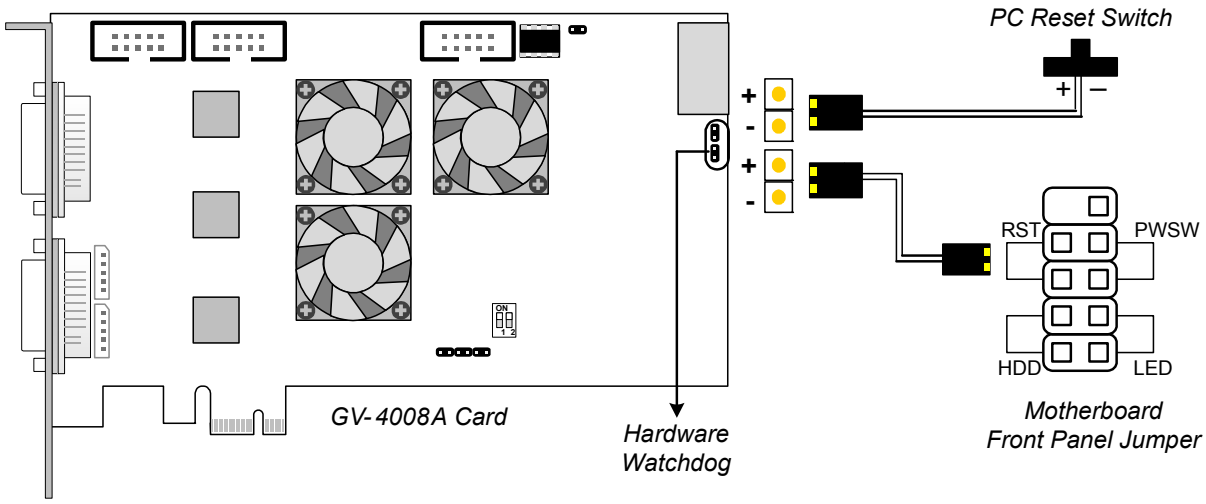


Figure 1-25

Note: To locate the motherboard's Reset (+) pin and (-) pin, please refer to the motherboard's user manual.

Installing Drivers

After installing the GV-4008A Card in the computer, insert the software DVD to install GV-Series drivers. The DVD will run automatically and an installation window will pop up. Select **Install or Remove GeoVision GV-Series Driver**, and select the following two options to install card and USB dongle drivers.

- **Install or Remove GeoVision GV-Series Card Drivers:** installs card drivers.
- **Install GeoVision USB Device Drivers:** installs USB dongle drivers.

To verify the drivers are installed correctly, go to Windows Device Manager and see if their entries are listed.

Expand the **DVR-Devices** field, you can see:

GV-4008A Card	Entry
Single-card mode	GV4008(A) GV-Series USB Protector
Two-card mode	GV4008(A) GV4008(A) GV-Series USB Protector

Adjusting the Video Settings in the Main System

One distinct feature of GV-4008A Cards is their ability of hardware compression, providing you with higher system performance and DVD recording quality.

To take full advantage of GV-4008A Cards, you can adjust the video settings, including the recording quality and frame rate, before running the GV-System.

For details on adjusting the video settings, see *Setting up the video settings of the recorded files* in *1.1 4008 Card*.

Specifications

		GV-4008A		GV-4008A x 2
Interface		PCI-E (x1)		PCI-E (x1) x 2
Input Type		DVI		
Video Input		8 Cams		16 Cams
Audio Input		8 Channels		16 Channels
Recording Rate (D1)	NTSC	240 fps		480 fps
	PAL	200 fps		400 fps
Display Rate	NTSC	240 fps		480 fps
	PAL	200 fps		400 fps
Video Resolution	NTSC	H/W	704 x 480	704 x 480
		S/W	352 x 240	352 x 240
	PAL	H/W	704 x 576	704 x 576
		S/W	352 x 288	352 x 288
Video Compression Format	S/W	Geo MPEG4, Geo H264		
	H/W	H.264		
Audio Format		16 kHz / 16-bit, 32 kHz / 16-bit		
Bit Rate Range		2.5M ~ 5M		
GV-NET/IO Card Support		Yes (Note 2)		
GV-Multi Quad Card Support		Yes		
GV-Loop Through Card Support		Yes		
Dimensions (W x H)		169 x 112 mm / 6.65 x 4.41 in		

Note:

1. GV-4008A does not support the TV-Out function.
2. To work together with GV-4008A, GV-NET/IO Card V3.2 or later must be set in the I/O Box Mode and connected to the PC through USB or DB9.

1.5 GV-3008

The GV-3008 Card provides up to 8 video and 8 audio channels, recording up to 240 / 200 fps (NTSC / PAL) in total with H.264 hardware compression. The GV-3008 Card provides the high-resolution live image with DSP Overlay. Even in multi views, the image on the largest division view can remain at the high-quality resolution.

Minimum System Requirements

OS	32-bit	Windows XP / Vista / 7 / 8 / Server 2008	
	64-bit	Windows 7 / 8 / Server 2008 R2 / Server 2012	
CPU		GV-3008	Core 2 Duo, 2.33 GHz
		GV-3008 x 2	Core 2 Quad, 2.4 GHz
RAM		GV-3008	2 x 1 GB Dual Channels
		GV-3008 x 2	
HDD		GV-3008	250 GB
		GV-3008 x 2	500 GB
Graphic Card		AGP or PCI-Express, 800 x 600 (1280 x 1024 recommended), 32-bit color	
DirectX		9.0c	
Power Supply		400 Watts	

Packing List

1. GV-3008 Card x 1
2. 1-4 D-Type Video and Audio Cable x 1
3. 5-8 D-Type Video and Audio Cable x 1
4. Hardware Watchdog Jumper Wire x1
5. Software DVD x 1

Connecting One GV-3008 Card

- Connect the D-Type video and audio cables to the GV-3008 Card.
- Connect the supplied Hardware Watchdog Jump Wire (Figure 1-28).
- Connect the computer's internal power supply to the GV-3008 Card. The Power LED should be lit in green to indicate the card is ready for use.

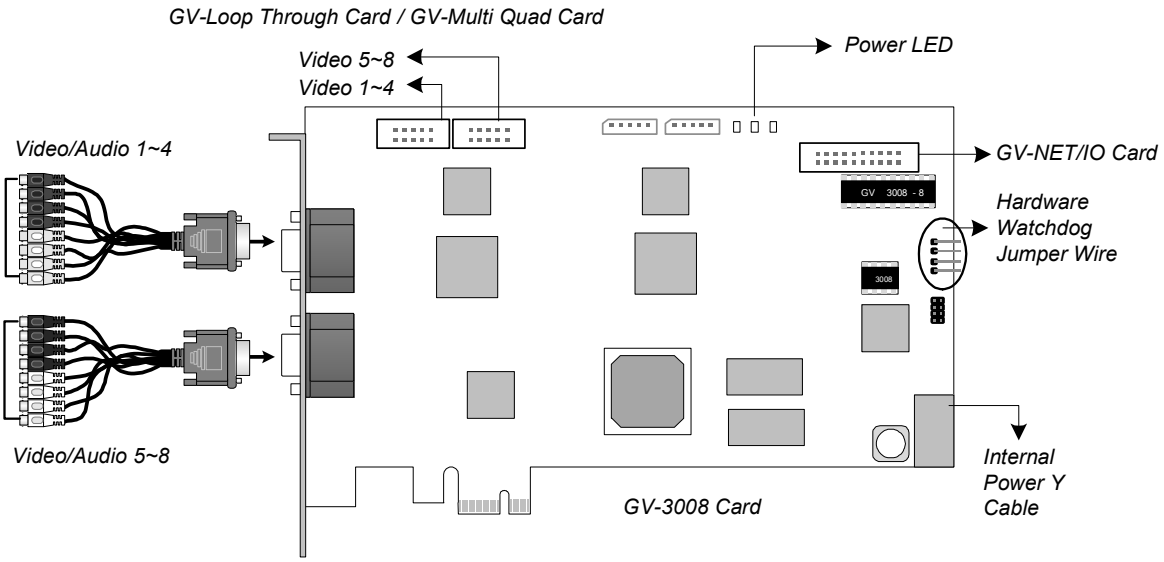


Figure 1-26

Connecting Two GV-3008 Cards

You can install two GV-3008 Cards for a total of 16 channels. Master Card is the card with 1-8 channels and Slave Card is that with 9-16 channels. The Master and Slave cards can be distinguished by the labels on cards, as shown below:

Master Card: 

Slave Card: 

IMPORTANT:

1. The Slave Cards cannot work alone. They need to work in conjunction with the Master Cards.
2. If both GV-3008 Cards are Master Cards, it is required to identify which are Master and Slave by the PCI-E slot number. Normally, the card attached to the lower PCI-E slot number will act as Master, and the card attached to the higher PCI-E slot number will act as Slave.

- **Hardware Watchdog Connection:** Connect the supplied Hardware Watchdog Jump Wire to the Master Card only (Figure 1-28).
- **Accessory Card Connections:**
  - ⊙ GV-NET/IO Card: Connect the card only to the Master Card.
  - ⊙ GV-Loop Through Card: Connect the card to two 10-pin connectors on each Master and Slave Card by using a supplied cable with four 10-pin headers.
  - ⊙ GV-Multi Quad Card: Connect the card to two 10-pin connectors on each Master and Slave Card by using a supplied cable with four 10-pin headers.

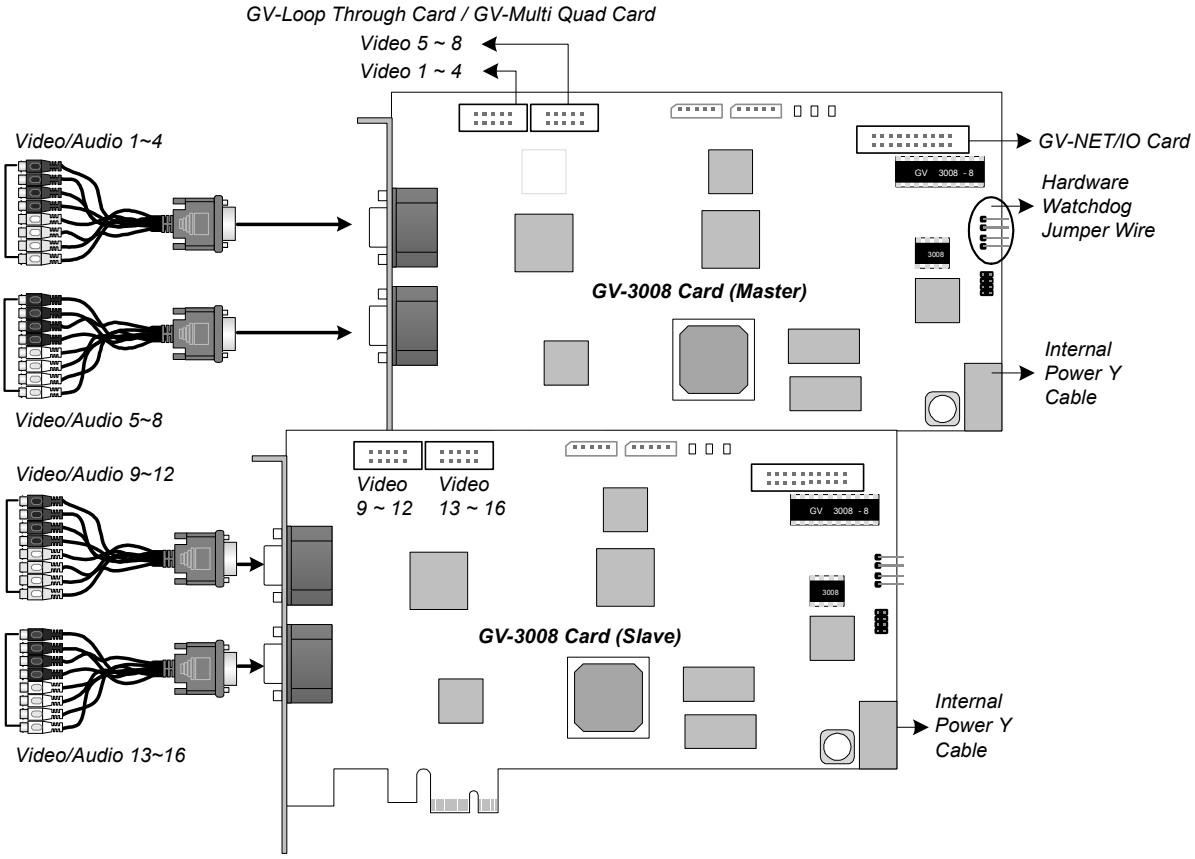

GV-Loop Through Card / GV-Multi Quad Card
Video 5 ~ 8
Video 1 ~ 4
Video/Audio 1~4
GV-NET/IO Card
Hardware
Watchdog
Jumper Wire
GV-3008 Card (Master)
Internal
Power Y
Cable
Video/Audio 5~8
Video/Audio 9~12
Video
9 ~ 12
Video
13 ~ 16
GV-3008 Card (Slave)
Internal
Power Y
Cable
Video/Audio 13~16

Figure 1-27

Connecting Hardware Watchdog

To restart the computer automatically by the hardware watchdog on the GV-Video Capture Card, a connection needs to be made from the card to the motherboard.

1. Using the supplied jumper wire, connect the reset jumper pins on the card and on the motherboard.

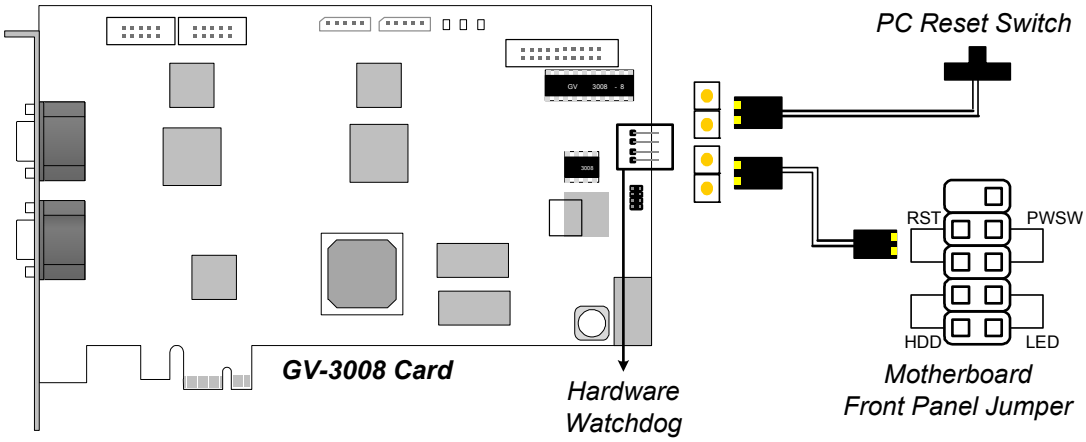


Figure 1-28

2. If the computer has a reset switch, the switch's jumper wire should already be connected to the motherboard's reset jumper pins. Remove the switch wire from the motherboard and connect it to the reset jumper pins on the card.

Installing Drivers

After installing the GV-3008 Card in the computer, insert the software DVD to install GV-Series drivers. The DVD will run automatically and an installation window will pop up. Select **Install or Remove GeoVision GV-Series Driver**, and select **Install or Remove GeoVision GV-Series Card Drivers** to install card drivers.

To verify the drivers are installed correctly, go to Windows Device Manager and see if their entries are listed.

Expand the **DVR-Devices** field, you can see:

<table>
<tr><th colspan="2">GV-3008 Card</th><th>Entry</th></tr>
<tr><td colspan="2">Single-card mode</td><td>GV3008 Capture
GV3008 Encode #1
GV3008 Encode #2</td></tr>
<tr><td rowspan="2">Two-card mode</td><td>Two Master Cards</td><td>GV3008 Capture
GV3008 Capture
GV3008 Encode #1
GV3008 Encode #1
GV3008 Encode #2
GV3008 Encode #2</td></tr>
<tr><td>One Master and Slave Card</td><td>GV3008 Capture
GV3008 Capture
GV3008 Encode #1
GV3008 Encode #2
GV3008 Encode #3
GV3008 Encode #4</td></tr>
</table>

Adjusting the Video Settings in the Main System

One distinct feature of GV-3008 Cards is their ability of hardware compression, providing you with higher system performance and DVD recording quality.

To take full advantage of GV-3008 Cards, you can adjust the video settings, including the recording quality and frame rate, before running the GV-System.

For details on adjusting the video settings, see *Setting up the video settings of the recorded files* in *1.1 4008 Card*.

Specifications

		GV-3008		GV-3008 x 2
Interface		PCI-E (x1)		PCI-E (x1) x 2
Input Type		D-Type		
Video Input		8 Cams		16 Cams
Audio Input		8 Channels		16 Channels
Recording Rate (D1)	NTSC	240 fps		480 fps
	PAL	200 fps		400 fps
Display Rate	NTSC	240 fps		480 fps
	PAL	200 fps		400 fps
Video Resolution	NTSC	H/W	704 x 480	704 x 480
		S/W	352 x 240	352 x 240
	PAL	H/W	704 x 576	704 x 576
		S/W	352 x 288	352 x 288
Video Compression Format	S/W	Geo MPEG4, Geo H264		
	H/W	H.264		
Audio Format		16 kHz / 16-bit		
Bit Rate Range		2.5M ~ 10M		
GV-NET/IO Card Support		Yes		
GV-Multi Quad Card Support		Yes		
GV-Loop Through Card Support		Yes		
Dimensions (W x H)		180 x 112 mm / 7.09 x 4.41 in		
Note: GV-3008 does not support the TV-Out function.				

1.6 GV-1120A, 1240A, 1480A

GV-Combo A Card (GV-1120A, GV-1240A and GV-1480A) are the three-in-one combo cards, providing one single card solution for 16 video / audio recording, real-time display and TV-out display.

Minimum System Requirements

OS	32-bit	Windows XP / Vista / 7 / 8 / Server 2008		
	64-bit	Windows 7 / 8 / Server 2008 R2 / Server 2012		
CPU		GV-1120A	Pentium 4, 3.0 GHz with Hyper Threading	
			Turbo Mode: Pentium 4, 3.0 GHz, Dual Core	
		GV-1120A x 2	Pentium 4, 3.0 GHz, Dual Core	
			Turbo Mode: Core 2 Quad, 2.4 GHz	
		GV-1240A	Pentium 4, 3.0 GHz, Dual Core	
			Turbo Mode: Core 2 Duo, 3.0 GHz	
		GV-1240A x 2	Core 2 Duo, 2.53 GHz	
			Turbo Mode: Core 2 Quad, 2.8 GHz	
		GV-1480A	Core 2 Duo, 3.0 GHz	
			Turbo Mode: Core 2 Quad, 2.4 GHz	
		GV-1480A x 2	Core 2 Quad, 2.4 GHz	
			Turbo Mode: Core i7-920, 2.66 GHz	
RAM		GV-1120A / 1240A / 1480A	Windows XP	2 x 512 MB Dual Channels
			Windows Vista / 7 / 8 / Server 2008 / Server 2012	2 x 1 GB Dual Channels
		GV-1120A x 2 / 1240A x 2 / 1480A x 2	2 x 1 GB Dual Channels	
HDD		GV-1120A	80 GB / Turbo Mode: 120 GB	
		GV-1120 A x 2	160 GB / Turbo Mode: 250 GB	
		GV-1240A	120 GB / Turbo Mode: 160 GB	
		GV-1240A x 2	250 GB / Turbo Mode: 320 GB	
		GV-1480A	250 GB / Turbo Mode: 320 GB	
		GV-1480A x 2	500 GB / Turbo Mode: 750 GB	

Graphic Card	AGP or PCI-Express, 800 x 600 (1280 x 1024 recommended), 32-bit color
DirectX	9.0c

Packing List (D-Type)

1. GV-Combo A Card x 1
2. Audio Extension Card x 1
3. 1-8 D-Type Video Cable x 1
4. 9-16 D-Type Video Cable x 1
5. 1-8 D-Type Audio Cable x 1
6. 9-16 D-Type Audio Cable x 1
7. Internal Power Y Cable x 1
8. Hardware Watchdog Jumper Wire x 1
9. Software DVD x 1

Packing List (DVI-Type)

1. GV- Combo A Card x 1
2. 1-16 DVI-Type Video plus TV Out Cable x 1
3. 1-16 DVI-Type Audio Cable x 1
4. Internal Power Y Cable x 1
5. Hardware Watchdog Jumper Wire x 1
6. Software DVD x 1

Connecting One GV-Combo A Card (D-Type)

- Plug the Audio Extension Card in the assigned connectors on the GV-Combo A Card.
- Connect D-Type video and audio cables to the GV-Combo A Card and Audio Extension Card respectively.
- Connect the supplied Hardware Watchdog Jump Wire (Figure 1-33).
- Connect the PC's internal power supply to the GV-Combo A Card.
- Connect the TV monitor to the GV-Combo A Card if needed.

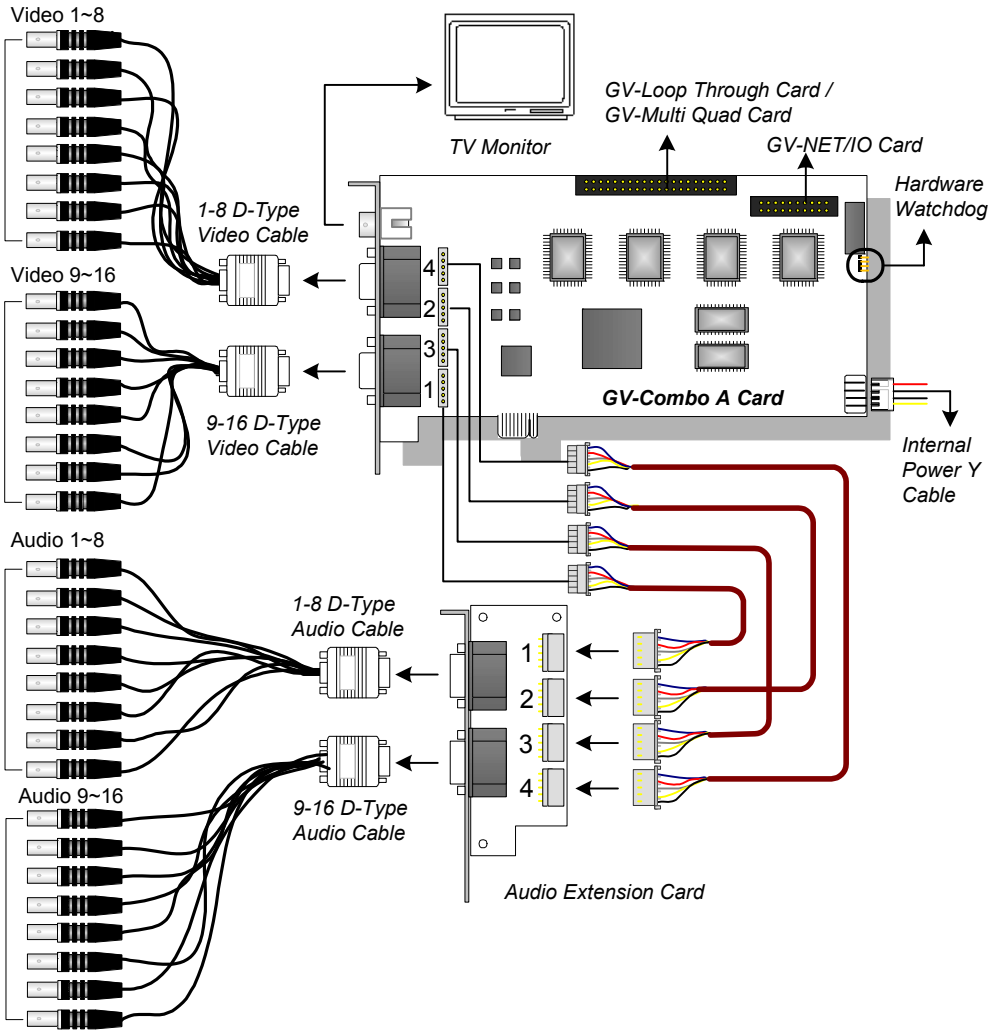


Figure 1-29

Note: The Card only works when it connects to PC's power supply using the supplied Internal Power Y Cable.

Connecting One GV-Combo A Card (DVI-Type)

- Connect the DVI video and audio cables to the GV-Combo A Card.
- Connect the supplied Hardware Watchdog Jump Wire (Figure 1-33).
- Connect the PC's internal power supply to the GV-Combo A Card.
- Connect the DVI TV Out cable to the TV monitor if needed.

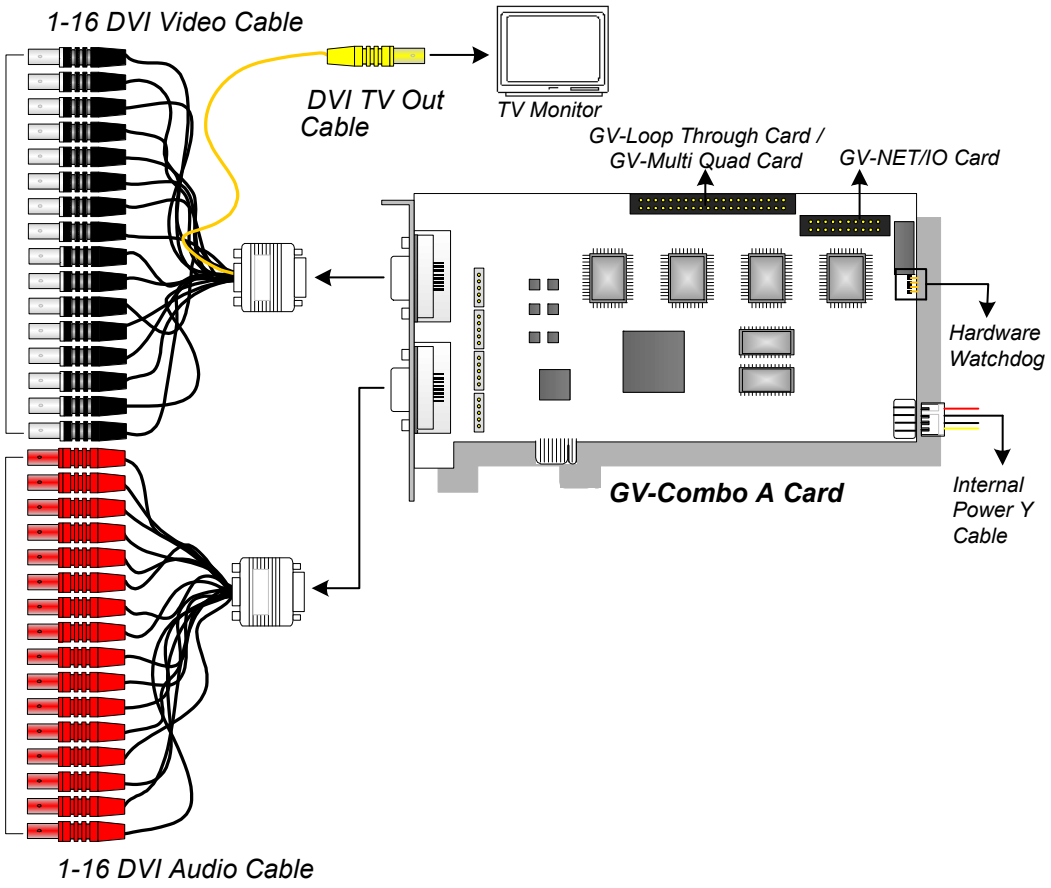


Figure 1-30

Note: The Card only works when it connects to PC's power supply using the supplied Internal Power Y Cable.

Connecting GV-NET/IO Card to GV-Combo A Card

Connect the GV-NET/IO Card to the 20-pin GV-NET/IO port on the GV-Combo A Card. Some GV-Combo A Cards are built in two 20-pin ports. Ensure to connect the GV-NET/IO Card to the correct port as illustrated below.

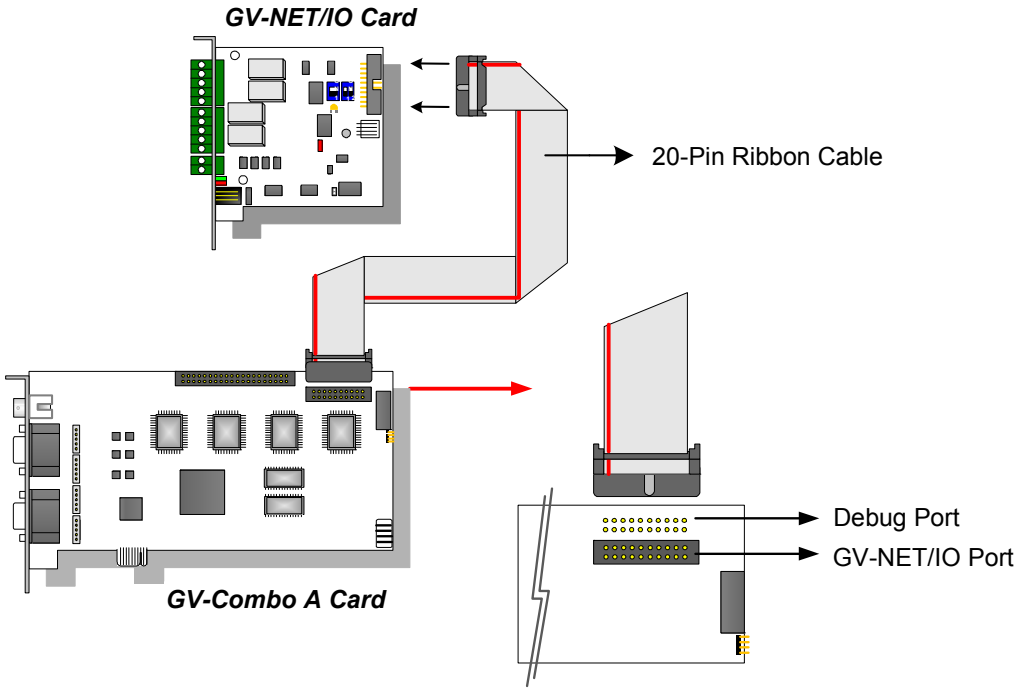


Figure 1-31

Note: If the GV-NET/IO Card is connected to the Debug port, it may lead to the GV-NET/IO Card to be damaged, or the GV-Combo A Card to burn out, causing Video Lost or an error message of “can’t find keypro” to pop up.

Connecting Two GV-Combo A Cards

You can install two GV-Combo A Cards of the same model for up to 32 channels. Master Card is the card with 1-16 channels and Slave Card is that with 17-32 channels. Normally, the card attached to the lower PCI-E slot number will act as Master, and the card attached to the higher PCI-E slot number will act as Slave.

- **TV Output Connection:** The RCA connector in the Master Card is for displaying 1-16 channels, and the one in the Slave Card is for displaying 17-32 channels.
- **Hardware Watchdog Connection:** Connect the supplied Hardware Watchdog Jump Wire to the Master Card only (Figure 1-33).
- **Accessory Card Connections:**
  - ⊙ GV-NET/IO Card: Connect the card only to the Master Card.
  - ⊙ GV-Loop Through Card: Connect the card for each video capture card.
  - ⊙ GV-Multi Quad Card: Only connect one card to any of two video capture cards.

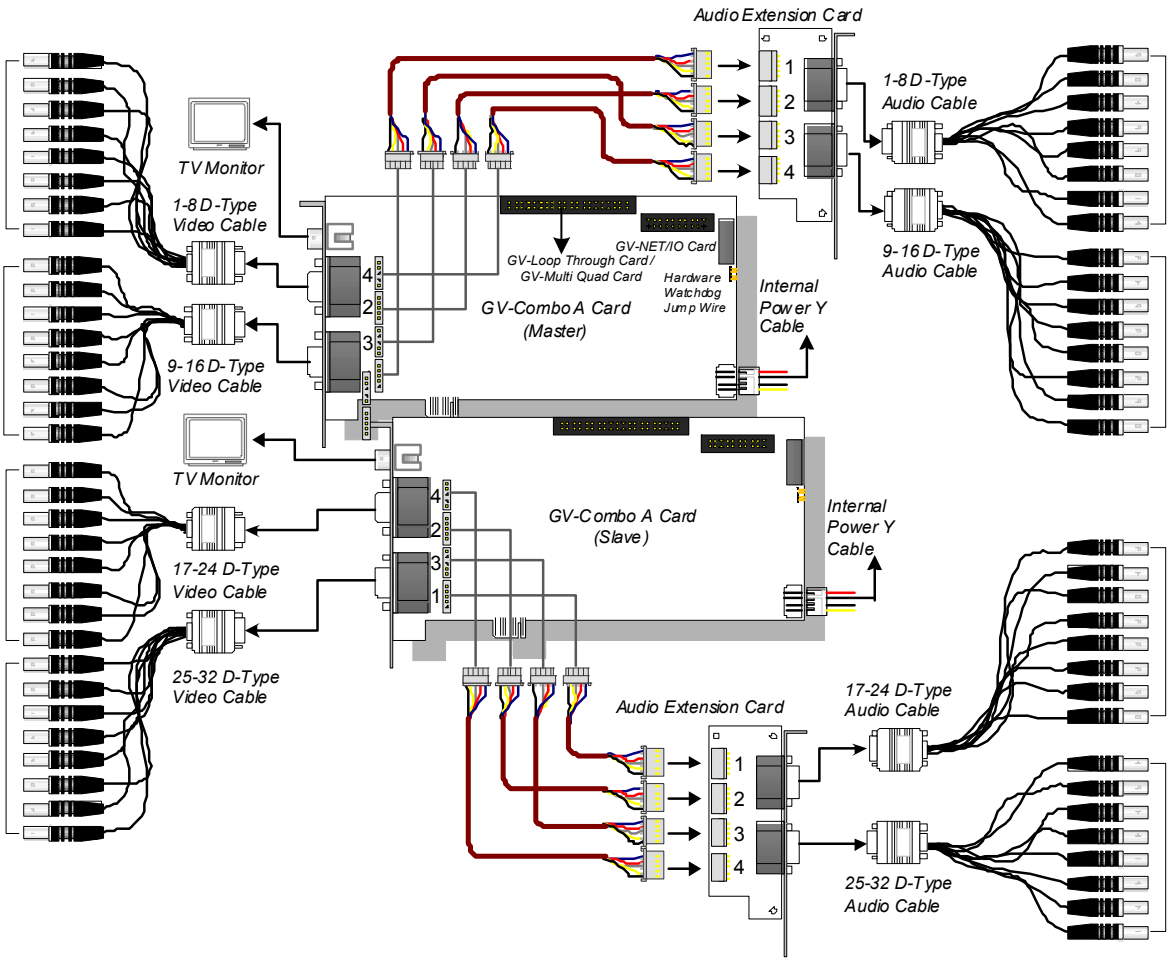


Figure1-32

Connecting Hardware Watchdog

Insert the Hardware Watchdog Jumper Wire to the 2-pin connectors on the Card and on the motherboard as illustrated below. Ensure the connection is correct; otherwise the hardware watchdog will not work.

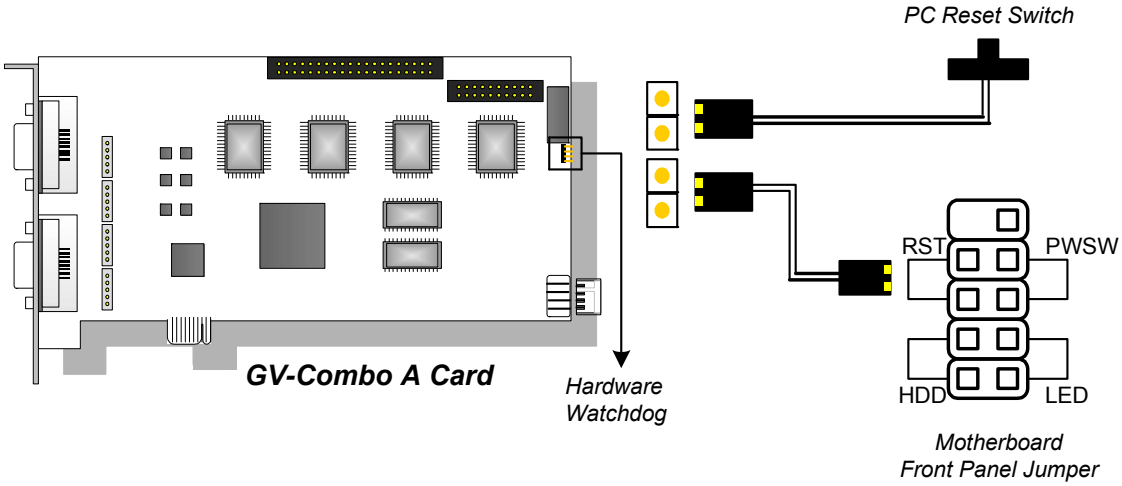


Figure 1-33

Installing Drivers

After installing the GV-Combo A Card in the computer, insert the software DVD. The DVD will run automatically and an installation window will pop up. Select **Install or Remove GeoVision GV-Series Driver**, and select **Install or Remove GeoVision GV-Series Card Drivers** to install card drivers.

To verify the drivers are installed correctly, go to Windows Device Manager and see if their entries are listed.

Expand the **DVR-Devices** field, you can see:

Card Model		Entry
GV-1120A	Single-card mode	GV1480A/GV1240A/GV1248A/GV1120A
	Two-card mode	GV1480A/GV1240A/GV1248A/GV1120A GV1480A/GV1240A/GV1248A/GV1120A
GV-1240A	Single-card mode	GV1480A/GV1240A/GV1248A/GV1120A
	Two-card mode	GV1480A/GV1240A/GV1248A/GV1120A GV1480A/GV1240A/GV1248A/GV1120A
GV-1480A	Single-card mode	GV1480A/GV1240A/GV1248A/GV1120A
	Two-card mode	GV1480A/GV1240A/GV1248A/GV1120A GV1480A/GV1240A/GV1248A/GV1120A

Specifications

			GV-1120A	GV-1240A	GV-1480A
Interface Type			PCI-E (x1)		
Input Type			D-Type, DVI		
Video Input			8, 12, 16 Cams	8, 16 Cams	16 Cams
Audio Input			8, 12, 16 Channels	8, 16 Channels	16 Channels
TV Output			D-Type: RCA Connector DVI: BNC Connector		
Recording Rate	CIF	NTSC	120 fps	240 fps	480 fps
		PAL	100 fps	200 fps	400 fps
	D1	NTSC	80 fps	120 fps	240 fps
		PAL	72 fps	100 fps	200 fps
	Turbo VGA	NTSC	120 fps	240 fps	416 fps
		PAL	100 fps	200 fps	400 fps
	Turbo D1	NTSC	120 fps	240 fps	352 fps
		PAL	100 fps	200 fps	320 fps
Display Rate	NTSC		480 fps		
	PAL		400 fps		
Video Resolution		NTSC	704 x 480, 704 x 480 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 240, 320 x 240		
		PAL	704 x 576, 704 x 576 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 288, 320 x 240		
Video Compression Format			Geo MPEG4, Geo H264		
Audio Format			16 kHz / 16-bit, 32 kHz / 16-bit		
GV-Multi Quad Card Support			Yes		
GV-Loop Through Card Support			Yes		
GV-NET/IO Card Support			Yes		
Dimensions	D-Type		179 x 112 mm / 7.04 x 4.41 in		
	DVI-Type				

Note: Turbo Mode is only applied in VGA and D1 resolutions. To activate Turbo Mode, see *Activating Turbo Mode*, *Chapter 1*, *GV-DVR User's Manual* on the Software DVD.

			GV-1120A x 2	GV-1240A x 2	GV-1480A x 2
Interface Type			PCI-E (x1) x 2		
Input Type			D-Type, DVI		
Video Input			16, 20, 24, 28, 32 Cams	16, 24, 32 Cams	32 Cams
Audio Input			16, 20, 24, 28, 32 Channels	16, 24, 32 Channels	32 Channels
TV Output			D-Type: RCA Connector DVI: BNC Connector		
Recording Rate	CIF	NTSC	240 fps	480 fps	960 fps
		PAL	200 fps	400 fps	800 fps
	D1	NTSC	160 fps	240 fps	480 fps
		PAL	144 fps	200 fps	400 fps
	Turbo VGA	NTSC	240 fps	480 fps	832 fps
		PAL	200 fps	400 fps	800 fps
	Turbo D1	NTSC	240 fps	480 fps	704 fps
		PAL	200 fps	400 fps	640 fps
Display Rate	NTSC		960 fps		
	PAL		800 fps		
Video Resolution		NTSC	704 x 480, 704 x 480 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 240, 320 x 240		
		PAL	704 x 576, 704 x 576 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 288, 320 x 240		
Video Compression Format			Geo MPEG4, Geo H264		
Audio Format			16 kHz / 16-bit, 32 kHz / 16-bit		
GV-Multi Quad Card Support			Yes		
GV-Loop Through Card Support			Yes		
GV-NET/IO Card Support			Yes		
Dimensions	D-Type		179 x 112 mm / 7.04 x 4.41 in		
	DVI-Type				

Note: Turbo Mode is only applied in VGA and D1 resolutions. To activate Turbo Mode, see *Activating Turbo Mode*, *Chapter 1*, *GV-DVR User's Manual* on the Software DVD.

1.7 GV-1120B, GV-1240B, GV-1480B

GV-Combo B Card (GV-1120B, GV-1240B and GV-1480B) are of GV-Comb Card series, providing one single card solution for 16 video / audio recording and real-time display.

Minimum System Requirements

<table>
<tr><td rowspan="2">OS</td><td>32-bit</td><td colspan="3">Windows XP / Vista / 7 / 8 / Server 2008</td></tr>
<tr><td>64-bit</td><td colspan="3">Windows 7 / 8 / Server 2008 R2 / Server 2012</td></tr>
<tr><td colspan="2" rowspan="6">CPU</td><td>GV-1120B</td><td colspan="2">Pentium 4, 3.0 GHz with Hyper Threading</td></tr>
<tr><td>GV-1120B x 2</td><td colspan="2">Core 2 Duo, E7200, 2.53 GHz</td></tr>
<tr><td>GV-1240B</td><td colspan="2">Pentium 4, 3.0 GHz, Dual Core</td></tr>
<tr><td>GV-1240B x 2</td><td colspan="2">Core 2 Duo, 3.0 GHz</td></tr>
<tr><td>GV-1480B</td><td colspan="2">Core 2 Duo, 3.0 GHz</td></tr>
<tr><td>GV-1480B x 2</td><td colspan="2">Core 2 Quad, 2.4 GHz</td></tr>
<tr><td colspan="2" rowspan="3">RAM</td><td rowspan="2">GV-1120B / 1240B / 1480B</td><td>Windows XP</td><td>2 x 512 MB Dual Channels</td></tr>
<tr><td>Windows Vista / 7 / 8 / Server 2008 / Server 2012</td><td>2 x 1 GB Dual Channels</td></tr>
<tr><td>GV-1120B x 2 / 1240B x 2 / 1480B x 2</td><td colspan="2">2 x 1 GB Dual Channels</td></tr>
<tr><td colspan="2" rowspan="6">HDD</td><td>GV-1120B</td><td colspan="2">80 GB</td></tr>
<tr><td>GV-1120B x 2</td><td colspan="2">160 GB</td></tr>
<tr><td>GV-1240B</td><td colspan="2">120 GB</td></tr>
<tr><td>GV-1240B x 2</td><td colspan="2">250 GB</td></tr>
<tr><td>GV-1480B</td><td colspan="2">250 GB</td></tr>
<tr><td>GV-1480B x 2</td><td colspan="2">500 GB</td></tr>
<tr><td colspan="2">Graphic Card</td><td colspan="3">AGP or PCI-Express, 800 x 600 (1280 x 1024 recommended), 32-bit color</td></tr>
<tr><td colspan="2">DirectX</td><td colspan="3">9.0c</td></tr>
</table>

Packing List (DVI-Type)

1. GV- Combo B Card x 1
2. 1-16 DVI-Type Video Cable x 1
3. 1-16 DVI-Type Audio Cable x 1
4. Hardware Watchdog Jumper Wire x 1
5. Software DVD x 1

Connecting One GV-Combo B Card (DVI-Type)

- Connect the DVI video and audio cables to the GV-Combo B Card.
- Connect the supplied Hardware Watchdog Jump Wire (Figure 1-36).

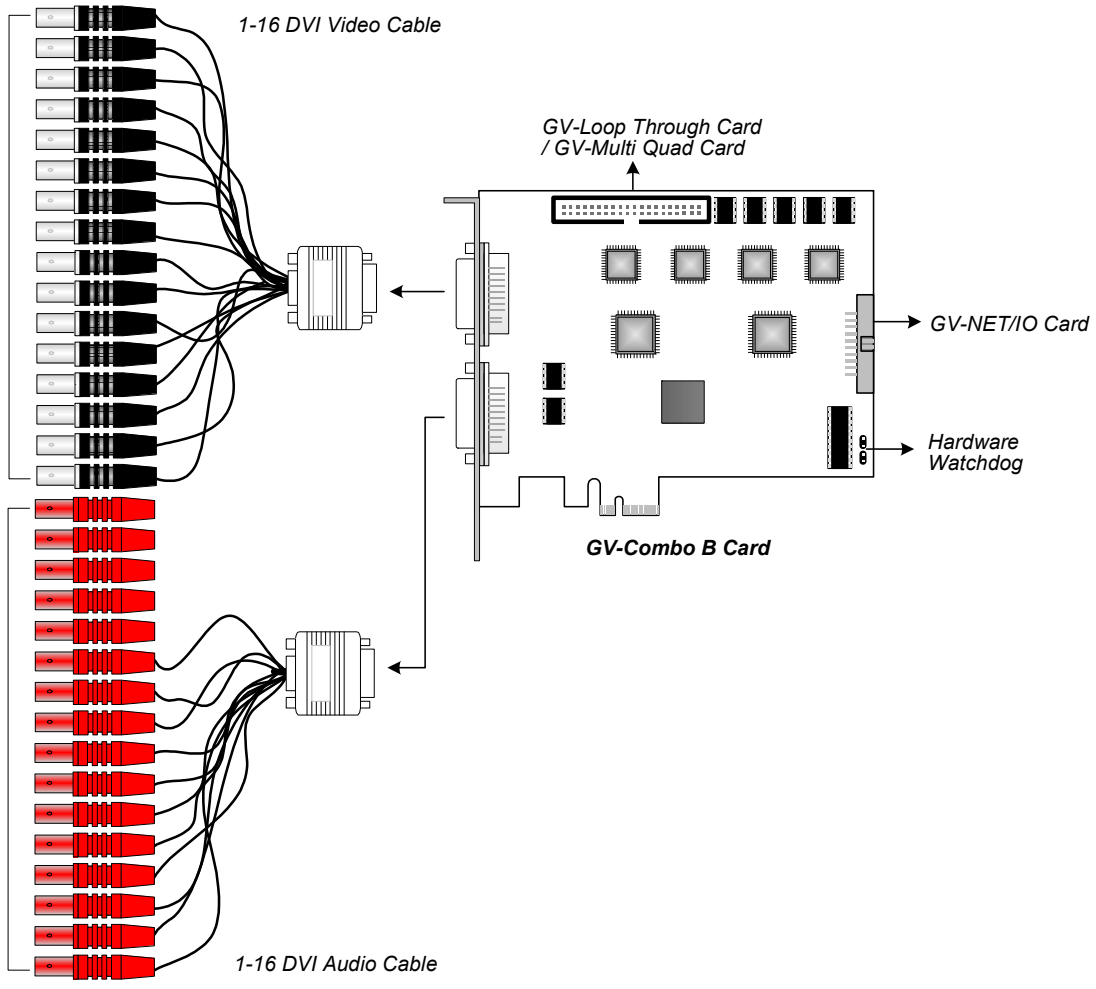


Figure 1-34

Note: Combo B Cards cannot work with microphones which acquire power from the PC. Use microphones that have external power supply.

Connecting Two GV-Combo B Cards

You can install two GV-Combo B Cards of the same model for up to 32 channels. Master Card is the card with 1-16 channels and Slave Card is that with 17-32 channels. Normally, the card attached to the lower PCI-E slot number will act as Master, and the card attached to the higher PCI-E slot number will act as Slave.

- **Hardware Watchdog Connection:** Connect the supplied Hardware Watchdog Jump Wire to the Master Card only (Figure 1-36).
- **Accessory Card Connections:**
  - ⊙ GV-NET/IO Card: Connect the card only to the Master Card.
  - ⊙ GV-Loop Through Card: Connect the card for each video capture card.
  - ⊙ GV-Multi Quad Card: Only connect one card to any of two video capture cards.

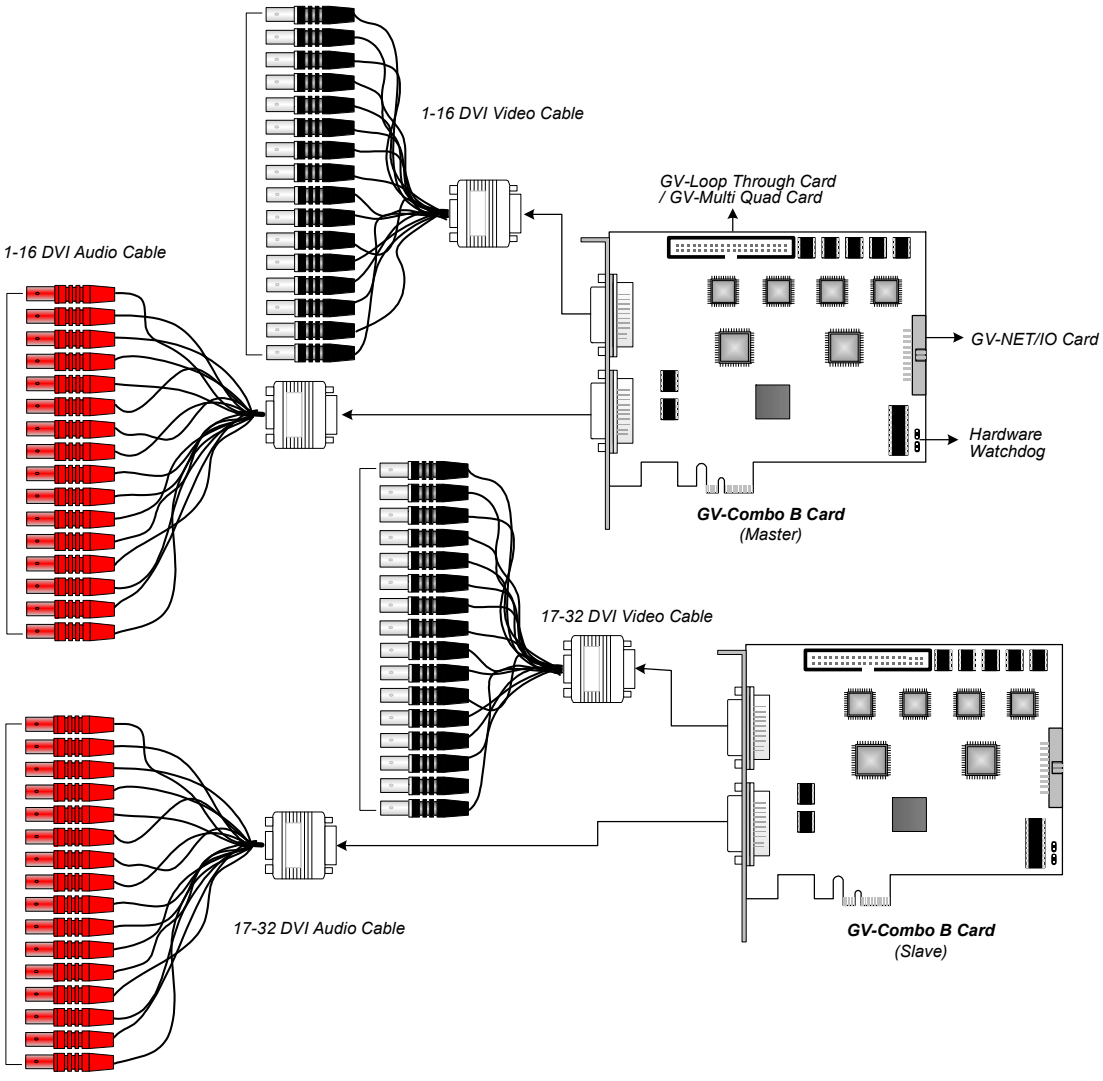


Figure 1-35

Connecting Hardware Watchdog

Insert the Hardware Watchdog Jumper Wire to the 2-pin connectors on the Card and on the motherboard as illustrated below. Ensure the connection is correct; otherwise the hardware watchdog will not work.

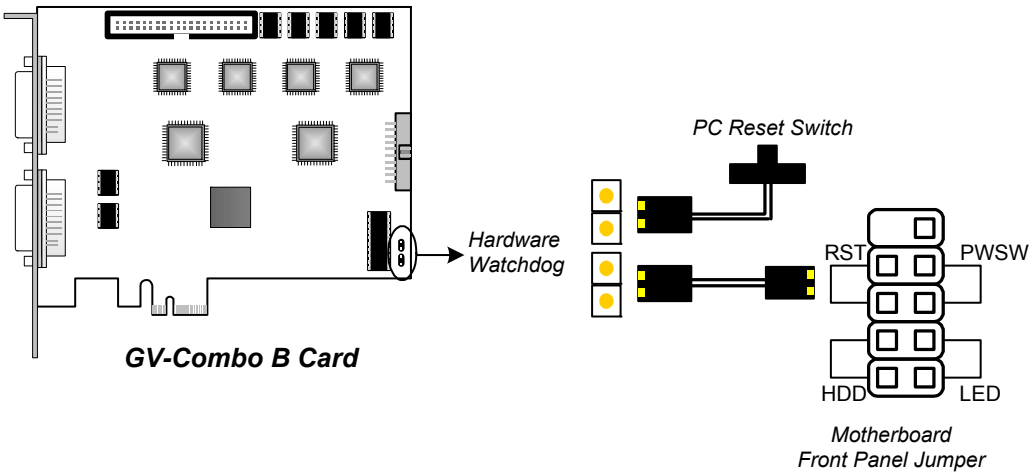


Figure 1-36

Installing Drivers

After installing the GV-Combo B Card in the computer, insert the software DVD. The DVD will run automatically and an installation window will pop up. Select **Install or Remove GeoVision GV-Series Driver**, and select **Install or Remove GeoVision GV-Series Card Drivers** to install card drivers.

To verify the drivers are installed correctly, go to Windows Device Manager and see if their entries are listed. The image below is an example of installing one GV-Combo B card.

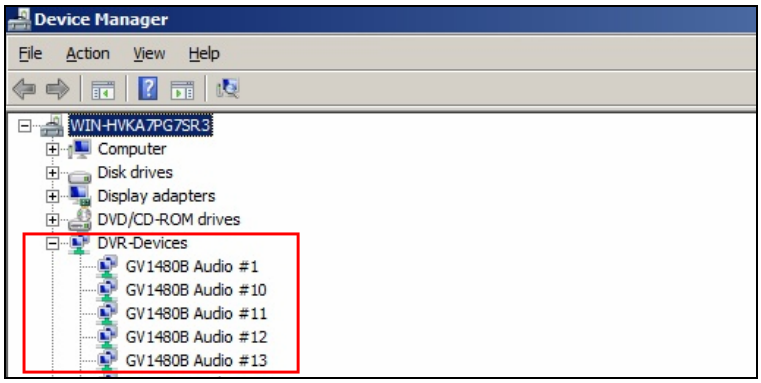


Figure 1-37

Expand the **DVR-Devices** field, you can see:

Card Model		Entry
GV-1120B	Single-card mode	GV-1120B Audio #1~#16 GV-1120B Video #1~#16
	Two-card mode	GV-1120B Audio #1~#16 GV-1120B Audio #1~#16 GV-1120B Video #1~#16 GV-1120B Video #1~#16
GV-1240B	Single-card mode	GV-1240B Audio #1~#16 GV-1240B Video #1~#16
	Two-card mode	GV-1240B Audio #1~#16 GV-1240B Audio #1~#16 GV-1240B Video #1~#16 GV-1240B Video #1~#16
GV-1480B	Single-card mode	GV-1480B Audio #1~#16 GV-1480B Video #1~#16
	Two-card mode	GV-1480B Audio #1~#16 GV-1480B Audio #1~#16 GV-1480B Video #1~#16 GV-1480B Video #1~#16

Specifications

			GV-1120B	GV-1240B	GV-1480B
Interface Type			PCI-E (x4)		
Input Type			DVI		
Video Input			16 Cams	16 Cams	16 Cams
Audio Input			16 Channels	16 Channels	16 Channels
Recording Rate	CIF	NTSC	120 fps	240 fps	480 fps
		PAL	100 fps	200 fps	400 fps
	D1	NTSC	120 fps	240 fps	480 fps
		PAL	100 fps	200 fps	400 fps
Display Rate	CIF	NTSC	480 fps		
		PAL	400 fps		
	D1	NTSC	480 fps		
		PAL	400 fps		
Video Resolution		NTSC	704 x 480, 704 x 480 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 240, 320 x 240		
		PAL	704 x 576, 704 x 576 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 288, 320 x 240		
Video Compression Format			Geo MPEG4, Geo H264		
Audio Format			16 kHz / 16-bit, 32 kHz / 16-bit		
GV-Multi Quad Card Support			Yes		
GV-Loop Through Card Support			Yes		
GV-NET/IO Card Support			Yes		
Dimensions	DVI-Type		156 x 111 mm / 6.14 x 4.37 in		

			GV-1120B x 2	GV-1240B x 2	GV-1480B x 2
Interface Type			PCI-E (x4) x 2		
Input Type			DVI		
Video Input			32 Cams	32 Cams	32 Cams
Audio Input			32 Channels	32 Channels	32 Channels
Recording Rate	CIF	NTSC	240 fps	480 fps	960 fps
		PAL	200 fps	400 fps	800 fps
	D1	NTSC	240 fps	480 fps	960 fps
		PAL	200 fps	400 fps	800 fps
Display Rate	CIF	NTSC	960 fps		
		PAL	800 fps		
	D1	NTSC	960 fps		
		PAL	800 fps		
Video Resolution		NTSC	704 x 480, 704 x 480 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 240, 320 x 240		
		PAL	704 x 576, 704 x 576 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 288, 320 x 240		
Video Compression Format			Geo MPEG4, Geo H264		
Audio Format			16 kHz / 16-bit, 32 kHz / 16-bit		
GV-Multi Quad Card Support			Yes		
GV-Loop Through Card Support			Yes		
GV-NET/IO Card Support			Yes		
Dimensions	DVI-Type		156 x 111 mm / 6.14 x 4.37 in		

1.8 GV-900A

One GV-900A Card provides up to 32 video channels and 8 audio channels, recording up to 240 / 200 fps (NTSC / PAL) in total with H.264 software compression.

Minimum System Requirements

OS	32-bit	Windows XP / Vista / 7 / 8 / Server 2008	
	64-bit	Windows 7 / 8 / Server 2008 R2 / Server 2012	
CPU		GV-900A	Pentium 4, 3.0 GHz with Dual Core
		GV-900A x 2	Core i5-750, 2.66 GHz
RAM		2 x 1 GB Dual Channels	
HDD		GV-900A	160 GB
		GV-900A x 2	500 GB
Graphic Card		AGP or PCI-Express, 800 x 600 (1280 x 1024 recommended), 32-bit color	
DirectX		9.0c	

Packing List

1. GV-900A Card x 1
2. 1-16 Cams with 4-Port Audio DVI-Type Cable x 2 / 1-8 Cams with 4-Port Audio DVI-Type Cable x 2 / 1-4 Cams with 4-Port Audio DVI-Type Cable x 2
3. Hardware Watchdog Jumper Wire x 1
4. Software DVD x 1

Note: The two **1-16 Cams with 4-Port Audio DVI-Type** cables are supplied with the GV-900A card with 32 video inputs, the two **1-8 Cams with 4-Port Audio DVI-Type** cables are supplied with the GV-900A card with 16 video inputs and the two **1-4 Cams with 4-Port Audio DVI-Type** cables are supplied with the GV-900A card with 8 video inputs.

Connecting One GV-900A Card

Here we use the GV-900A Card of 8 channels to illustrate the connection.

- Connect the video / audio cables into the DVI ports of the GV-900A Card.
- Connect the supplied Hardware Watchdog Jump Wire (Figure 1-40).

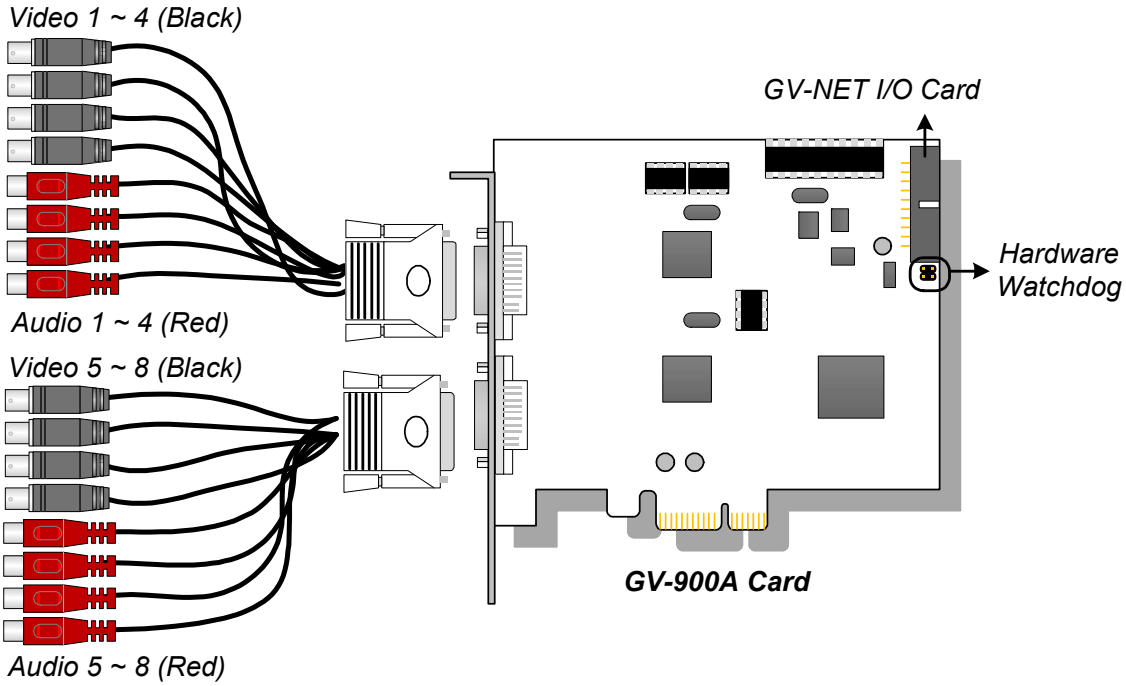


Figure 1-38

Connecting Two GV-900A Cards

You can install two GV-900A Cards for up to 32 channels. Normally, the card attached to the lower PCI-E slot number will act as Master, and the card attached to the higher PCI-E slot number will act as Slave.

- **Hardware Watchdog Connection:** Connect the supplied Hardware Watchdog Jump Wire to the Master Card only (Figure 1-40).
- **Accessory Card Connections:**
  - ⊙ GV-NET/IO Card: Connect the card to the Master Card only.

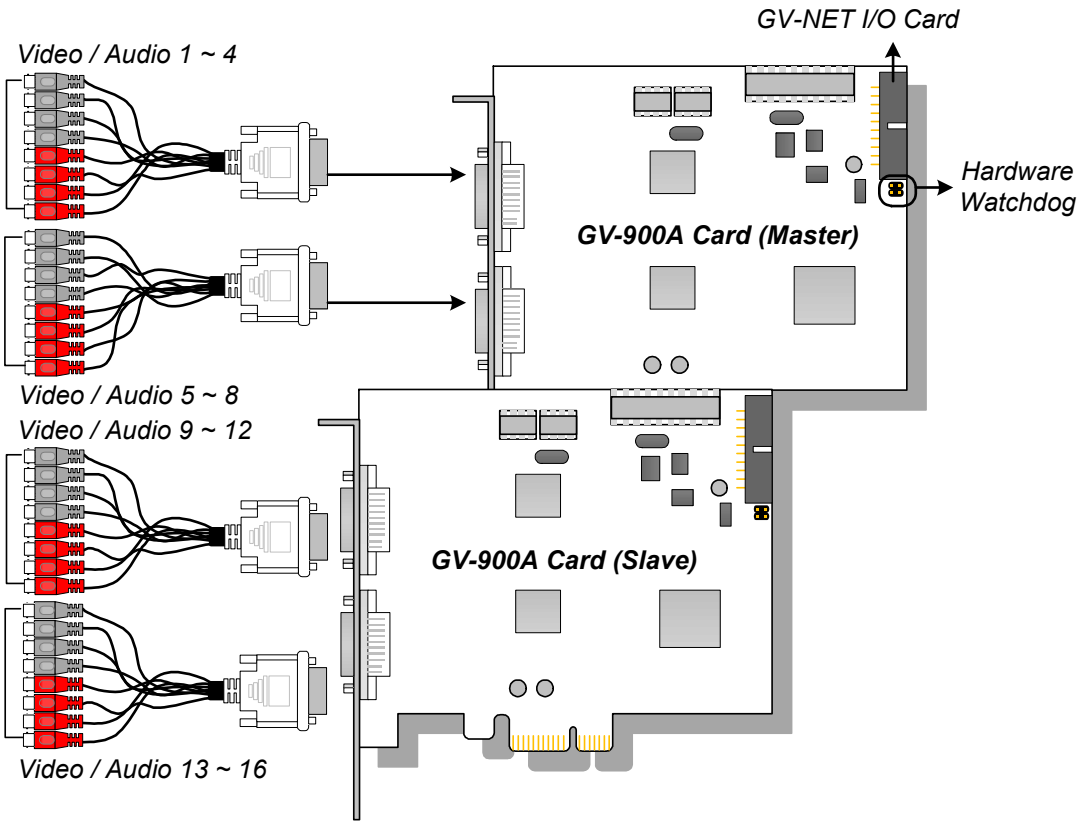


Figure 1-39

Connecting Hardware Watchdog

Insert the Hardware Watchdog Jumper Wire to the 2-pin connectors on the Card. The (+) pin on the Card must connect to the Reset (+) pin on the motherboard, and the (-) pin on the Card to the Ground (-) pin on the motherboard. Ensure the connection is correct; otherwise the hardware watchdog will not work.

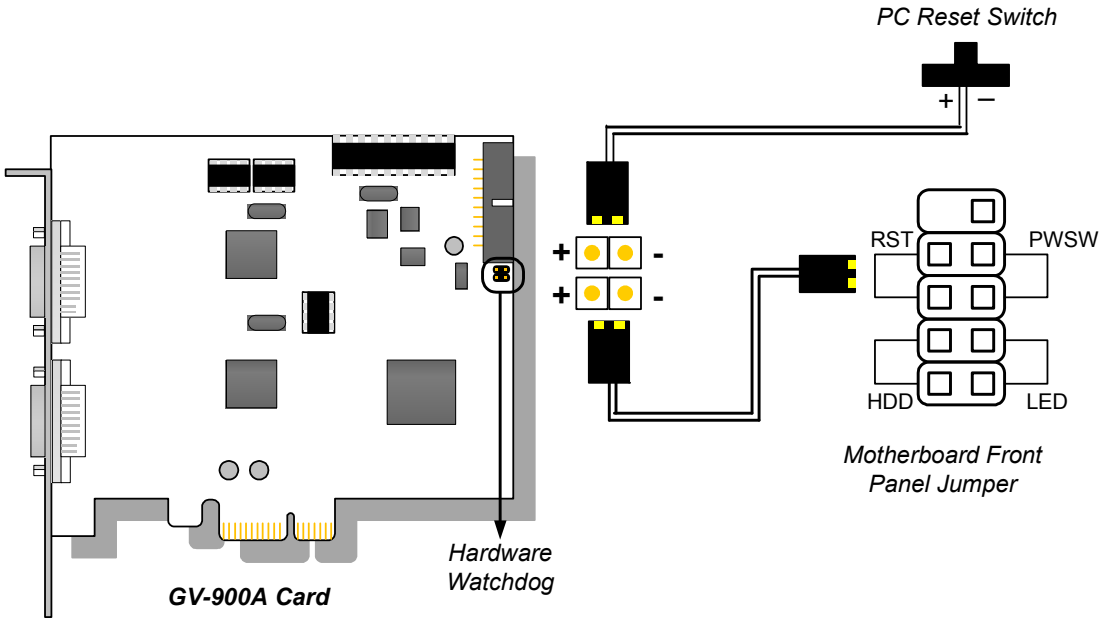


Figure 1-40

Note: To locate the motherboard's Reset (+) pin and (-) pin, please refer to the motherboard's user manual.

Installing Drivers

After installing the GV-900A Card in the computer, insert the software DVD. The DVD will run automatically and an installation window will pop up. Select **Install or Remove GeoVision GV-Series Driver**, and select **Install or Remove GeoVision GV-Series Card Drivers** to install card drivers.

To verify the drivers are installed correctly, go to Windows Device Manager and see if their entries are listed.

Expand the **DVR-Devices** field, you can see:

GV-900A Card	Entry	
Single-card mode	GV900(A) Audio #1 ~ 8 GV900(A) Video #1 ~ 8	
Two-card mode	GV900(A) Audio #1	GV900(A) Video #1
	GV900(A) Audio #1	GV900(A) Video #1
	GV900(A) Audio #2	GV900(A) Video #2
	GV900(A) Audio #2	GV900(A) Video #2
	GV900(A) Audio #3	GV900(A) Video #3
	GV900(A) Audio #3	GV900(A) Video #3
	GV900(A) Audio #4	GV900(A) Video #4
	GV900(A) Audio #4	GV900(A) Video #4
	GV900(A) Audio #5	GV900(A) Video #5
	GV900(A) Audio #5	GV900(A) Video #5
	GV900(A) Audio #6	GV900(A) Video #6
	GV900(A) Audio #6	GV900(A) Video #6
	GV900(A) Audio #7	GV900(A) Video #7
	GV900(A) Audio #7	GV900(A) Video #7
	GV900(A) Audio #8	GV900(A) Video #8
	GV900(A) Audio #8	GV900(A) Video #8

Specifications

			GV-900A	GV-900A x 2
Interface			PCI-E (x1)	PCI-E (x1) x 2
Input Type			DVI	
Video Input			8, 16, 32 Cams	16, 24, 32 Cams
Audio Input			8 Channels	16 Channels
Recording Rate	CIF	NTSC	8-port: 240 fps 32-port: 240 fps	8+8 port: 480 fps 16+16 port: 480 fps
		PAL	8-port: 200 fps 32-port: 200 fps	8+8 port: 400 fps 16+16 port: 400 fps
	D1	NTSC	8-port: 240 fps 32-port: 120 fps	8+8 port: 480 fps 16+16 port: 240 fps
		PAL	8-port: 200 fps 32-port: 100 fps	8+8 port: 400 fps 16+16 port: 200 fps
Display Rate	CIF	NTSC	8-port: 240 fps 32-port: 240 fps	8+8 port: 480 fps 16+16 port: 480 fps
		PAL	8-port: 200 fps 32-port: 200 fps	8+8 port: 400 fps 16+16 port: 400 fps
	D1	NTSC	8-port: 240 fps 32-port: 120 fps	8+8 port: 480 fps 16+16 port: 240 fps
		PAL	8-port: 200 fps 32-port: 100 fps	8+8 port: 400 fps 16+16 port: 200 fps
Video Resolution		NTSC	704 x 480, 704 x 480 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 240, 320 x 240	
		PAL	704x 576, 704 x 576 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 288, 320 x 240	
Video Compression Format			Geo MPEG4, Geo H264	
Audio Format			16 kHz / 16-bit, 32 kHz / 16-bit	
GV-NET/IO Card Support			Yes	
Dimensions (W x H)			120 x 112 mm / 4.7 x 4.4 in	

1.9 GV-650A, GV-800A

The GV-650A and GV-800A Cards have similar appearances, system requirements and packing list so that we introduce both together in this section. However, you may choose between the two according to your need for recording rate and audio channels.

Minimum System Requirements

<table>
<tr><td rowspan="2">OS</td><td>32-bit</td><td colspan="3">Windows XP / Vista / 7 / 8 / Server 2008</td></tr>
<tr><td>64-bit</td><td colspan="3">Windows 7 / 8 / Server 2008 R2 / Server 2012</td></tr>
<tr><td colspan="2" rowspan="4">CPU</td><td>GV-650A</td><td colspan="2">Pentium 4, 2.4 GHz</td></tr>
<tr><td>GV-650A x 2</td><td colspan="2">Pentium 4, 2.8 GHz with Hyper Threading</td></tr>
<tr><td>GV-800A</td><td colspan="2">Pentium 4, 3.0 GHz with Hyper Threading</td></tr>
<tr><td>GV-800A x 2</td><td colspan="2">Pentium 4, 3.0 GHz Dual Core</td></tr>
<tr><td colspan="2" rowspan="3">RAM</td><td rowspan="2">GV-650A / GV-800A</td><td>Windows XP</td><td>2 x 512 MB Dual Channels</td></tr>
<tr><td>Windows Vista / 7 / 8 / Server 2008 / Server 2012</td><td>2 x 1 GB Dual Channels</td></tr>
<tr><td>GV-650A x 2 / GV-800A x 2</td><td colspan="2">2 x 1 GB Dual Channels</td></tr>
<tr><td colspan="2" rowspan="2">HDD</td><td>GV-650A / GV-800A</td><td colspan="2">80 GB</td></tr>
<tr><td>GV-650A x 2 / GV-800A x 2</td><td colspan="2">160 GB</td></tr>
<tr><td colspan="2">Graphic Card</td><td colspan="3">AGP or PCI-Express, 800 x 600 (1280 x 1024 recommended), 32-bit color</td></tr>
<tr><td colspan="2">DirectX</td><td colspan="3">9.0c</td></tr>
</table>

Packing List

1. GV-800A or GV-650A Card x 1
2. Audio Extension Card x 1 **
3. 1-8 Cams with 4-Port Audio D-Type Cable x 1
4. 9-16 Cams D-Type Cable x 1 *
5. Hardware Watchdog Jumper Wire x 1
6. Software DVD x 1

* Supplied with 12-16 Cams D-Type Video Capture Card

** Supplied with GV-800A Card only

Connecting One GV-650A / GV-800A Card

The GV-650A Card is designed with a D-Type connector while the GV-800A Card is designed with two types of connectors: BNC and D-Type. BNC type only provides four video channels; audio extension card is required for extension. D-Type can provide up to 16 video channels and four audio channels together.

For the D-Type video capture card, plug the black video/audio cable into the black connector on the GV-650A / 800A Card; the blue video cable into the blue connector, as illustrated below.

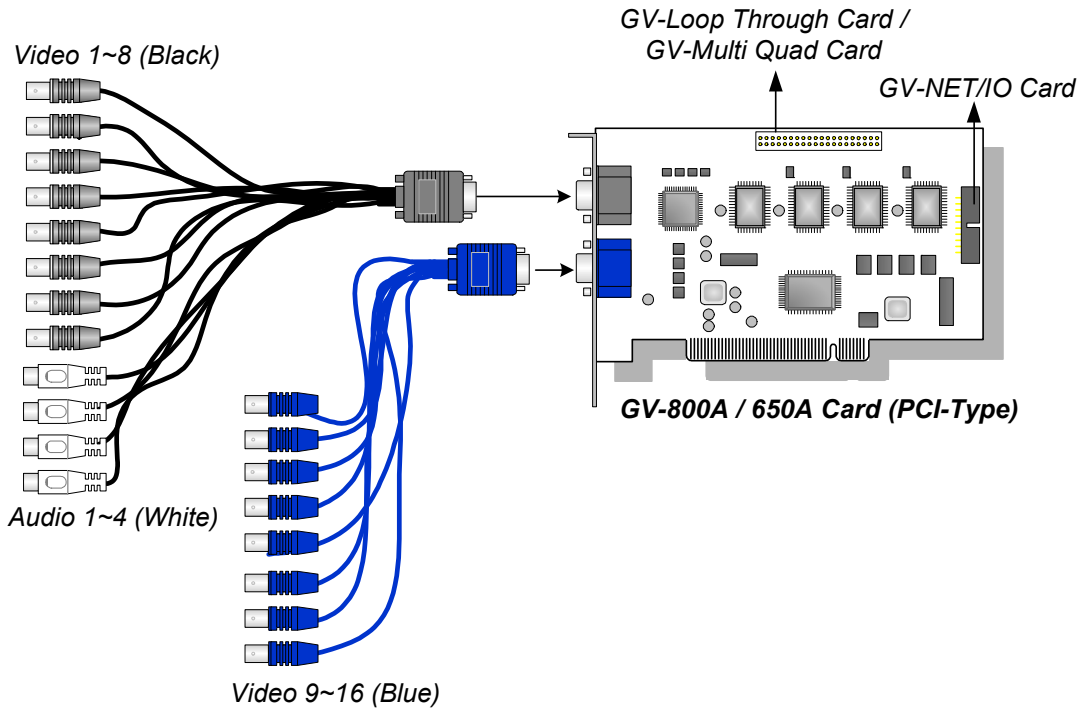


Figure 1-41 D-Type GV-650A / GV-800A Card with PCI interface

Note: The GV-650A Card only supports two audio channels so that only two audio ports can work in the supplied 1-8 Cams with 4-Port Audio D-Type cable.

For the BNC-type video capture card, plug the Audio Extension Card into the connector on the GV-804A Card, as illustrated below.

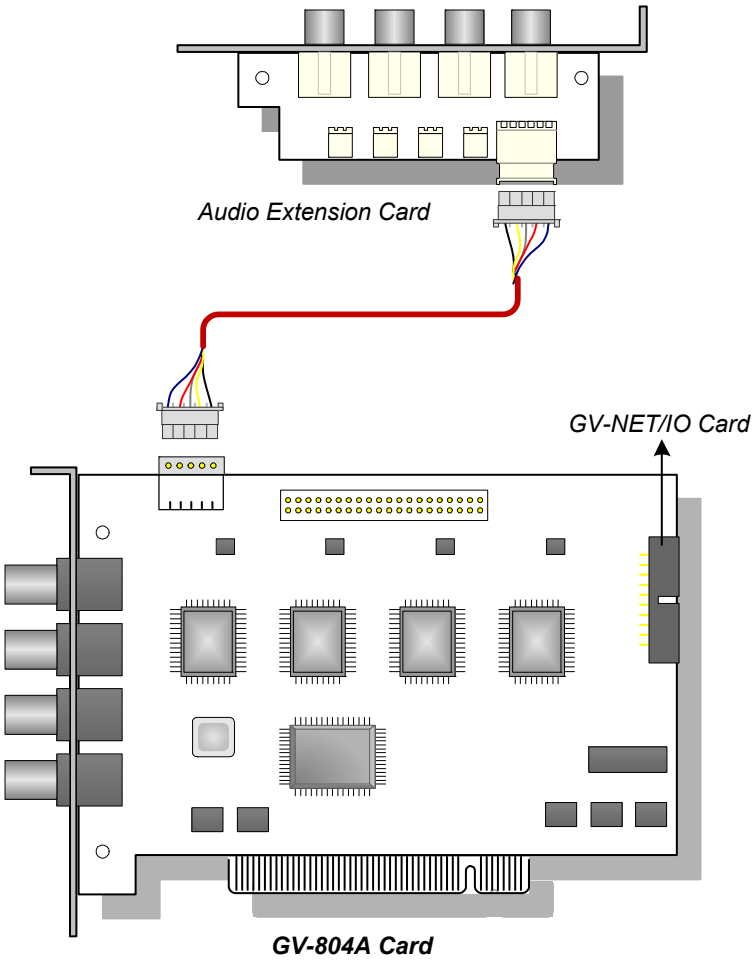


Figure 1-42 BNC-type GV-804A Card

Connecting Two GV-650A / GV-800A Cards

You can install two GV-650A / GV-800A of the same model for up to 32 channels. Master Card is the card with 1-16 channels and Slave Card is that with 17-32 channels. Normally, the card attached to the lower PCI slot number will act as Master, and the card attached to the higher PCI slot number will act as Slave.

Note: To install two GV-800A Cards, ensure one of both has PCI-E interface. For the detailed rules for two-card mode, see *1.10 Installing Two Cards*.

- **Two GV-650A Cards only support four audio channels:** Connect microphones to Audio 1 and Audio 2 connectors of the Master Card, and Audio 5 and Audio 6 connectors of the Slave Card.
- **Hardware Watchdog Connection:** Connect the supplied Hardware Watchdog Jump Wire to the Master Card only (Figure 1-44).
- **Accessory Card Connections:**
  - ⊙ GV-NET/IO Card: Connect the card to the Master Card only.
  - ⊙ GV-Loop Through Card: Connect the card for each video capture card.
  - ⊙ GV-Multi Quad Card: Only connect one card to any of two video capture cards.

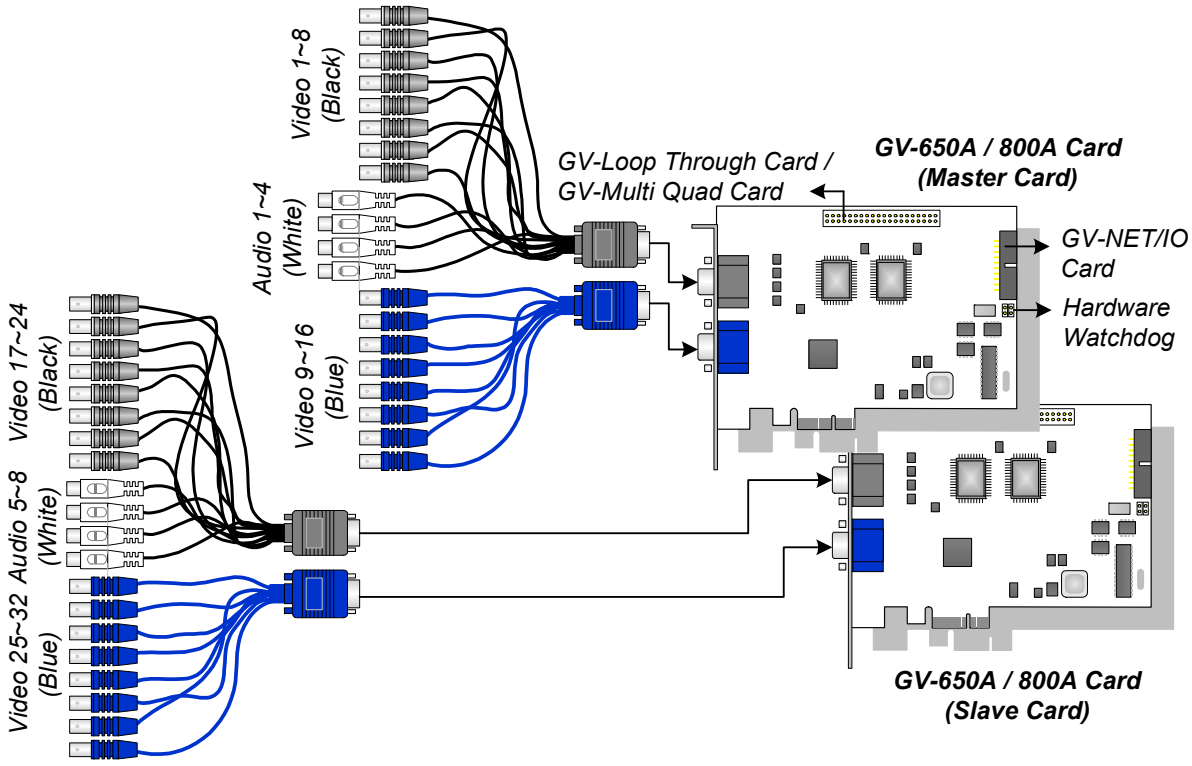


Figure 1-43 D-Type GV-650A / 800A Cards with PCI-E interface

Connecting Hardware Watchdog

Insert the Hardware Watchdog Jumper Wire to the 2-pin connectors on the Card. The (+) pin on the Card must connect to the Reset (+) pin on the motherboard, and the (-) pin on the Card to the Ground (-) pin on the motherboard. Ensure the connection is correct; otherwise the hardware watchdog will not work.

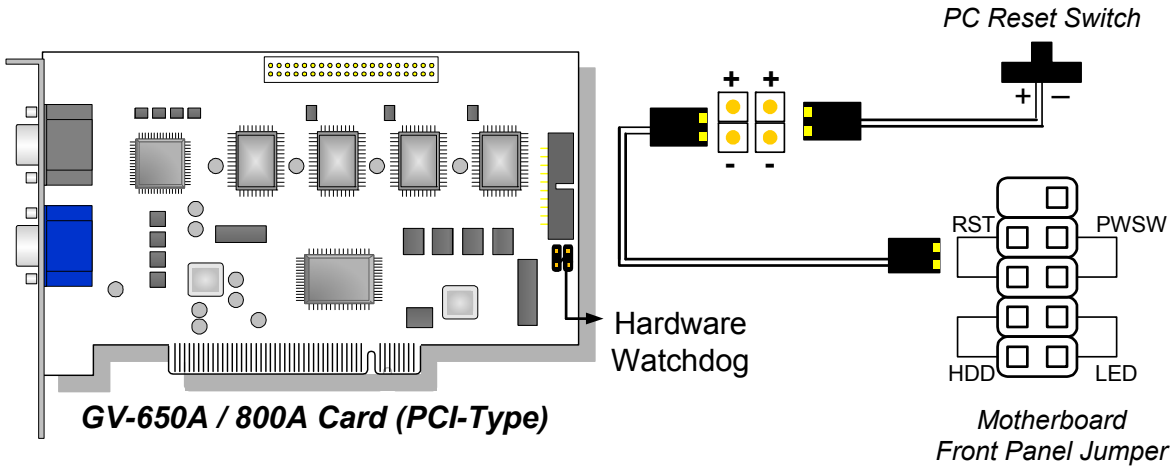


Figure 1-44

Note: To locate the motherboard's Reset (+) pin and (-) pin, please refer to the motherboard's user manual.

Installing Drivers

After installing the GV-650A / GV-800A Card in the computer, insert the software DVD. The DVD will run automatically and an installation window will pop up. Select **Install or Remove GeoVision GV-Series Driver**, and select **Install or Remove GeoVision GV-Series Card Drivers** to install card drivers.

To verify the drivers are installed correctly, go to Windows Device Manager and see if their entries are listed.

Expand the **DVR-Devices** field, you can see:

Card Model		Entry
GV-650A Card	Single-card mode	GV650(V4) Audio #1 ~ 2 GV650(V4) Video Capture #1 ~ 2
	Two-card mode	GV650(V4) Audio #1 GV650(V4) Audio #1 GV650(V4) Audio #2 GV650(V4) Audio #2 GV650(V4) Video Capture #1 GV650(V4) Video Capture #1 GV650(V4) Video Capture #2 GV650(V4) Video Capture #2
GV-800A Card	Single-card mode	GV800(V4) Audio #1 ~ 4 GV800(V4) Video Capture #1 ~ 4
	Two-card mode	GV800(V4) Audio #1 GV800(V4) Audio #1 GV800(V4) Audio #2 GV800(V4) Audio #2 GV800(V4) Audio #3 GV800(V4) Audio #3 GV800(V4) Audio #4 GV800(V4) Audio #4 GV800(V4) Video Capture #1 GV800(V4) Video Capture #1 GV800(V4) Video Capture #2 GV800(V4) Video Capture #2 GV800(V4) Video Capture #3 GV800(V4) Video Capture #3 GV800(V4) Video Capture #4 GV800(V4) Video Capture #4

Specifications

			GV-650A	GV-800A
Interface			PCI, PCI-E (x1)	
Input Type			D-Type	BNC, D-Type
Video Input			4, 8, 12, 16 Cams	
Audio Input			2 Channels	4 Channels
Recording Rate	CIF	NTSC	60 fps	120 fps
		PAL	50 fps	100 fps
	D1	NTSC	30 fps	60 fps
		PAL	25 fps	50 fps
Display Rate	CIF	NTSC	60 fps	120 fps
		PAL	50 fps	100 fps
	D1	NTSC	30 fps	60 fps
		PAL	25 fps	50 fps
Video Resolution		NTSC	704 x 480, 704 x 480 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 240, 320 x 240	
		PAL	704x 576, 704 x 576 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 288, 320 x 240	
Video Compression Format			Geo MPEG4, Geo H264	
Audio Format			16 kHz / 16-bit	
GV-NET/IO Card Support			Yes	
GV-Multi Quad Card Support			Yes	
GV-Loop Through Card Support			Yes	
Dimensions (W x H)		BNC	GV-804A	152 x 94 mm / 5.98 x 3.7 in
		D-Type	GV-650A	174 x 98 mm / 6.85 x 3.86 in
			GV-800A	174 x 98 mm / 6.85 x 3.86 in

			GV-650A x 2	GV-800A x 2
Interface			PCI x 2, PCI-E (x1) x 2, PCI x 1 + PCI-E (x1) x 1	PCI-E (x1) x 2, PCI x 1 + PCI-E (x1) x 1
Input Type			D-Type	BNC, D-Type
Video Input			32 Cams (Max.)	
Audio Input			4 Channels	8 Channels
Recording Rate	CIF	NTSC	120 fps	240 fps
		PAL	100 fps	200 fps
	D1	NTSC	60 fps	120 fps
		PAL	50 fps	100 fps
Display Rate	CIF	NTSC	120 fps	240 fps
		PAL	100 fps	200 fps
	D1	NTSC	60 fps	120 fps
		PAL	50 fps	100 fps
Video Resolution		NTSC	704 x 480, 704 x 480 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 240, 320 x 240	
		PAL	704x 576, 704 x 576 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 288, 320 x 240	
Video Compression Format			Geo MPEG4, Geo H264	
Audio Format			16 kHz / 16-bit	
GV-NET/IO Card Support			Yes	
GV-Multi Quad Card Support			Yes	
GV-Loop Through Card Support			Yes	
Dimensions (W x H)		BNC	GV-804A	152 x 94 mm / 5.98 x 3.7 in
		D-Type	GV-650A	174 x 98 mm / 6.85 x 3.86 in
			GV-800A	174 x 98 mm / 6.85 x 3.86 in

1.10 GV-600A

There are two types of GV-600A Cards: BNC and D-Type. BNC-Type only provides four video channels; video and audio extension cards are required for extension. D-Type can provide up to 16 video channels and one audio channel together.

Minimum System Requirements

<table>
<tr><td rowspan="2">OS</td><td>32-bit</td><td colspan="3">Windows XP / Vista / 7 / 8 / Server 2008</td></tr>
<tr><td>64-bit</td><td colspan="3">Windows 7 / 8 / Server 2008 R2 / Server 2012</td></tr>
<tr><td colspan="2" rowspan="2">CPU</td><td>GV-600A</td><td colspan="2">Pentium 4, 2.0 GHz</td></tr>
<tr><td>GV-600A x 2</td><td colspan="2">Pentium 4, 2.6 GHz with Hyper Threading</td></tr>
<tr><td colspan="2" rowspan="3">RAM</td><td rowspan="2">GV-600A</td><td>Windows XP</td><td>2 x 512 MB Dual Channels</td></tr>
<tr><td>Windows Vista / 7 / 8 / Server 2008 / Server 2012</td><td>2 x 1 GB Dual Channels</td></tr>
<tr><td>GV-600A x 2</td><td colspan="2">2 x 1 GB Dual Channels</td></tr>
<tr><td colspan="2" rowspan="2">HDD</td><td>GV-600A</td><td colspan="2">80 GB</td></tr>
<tr><td>GV-600A x 2</td><td colspan="2">160 GB</td></tr>
<tr><td colspan="2">Graphic Card</td><td colspan="3">AGP or PCI-Express, 800 x 600 (1280 x 1024 recommended), 32-bit color</td></tr>
<tr><td colspan="2">DirectX</td><td colspan="3">9.0c</td></tr>
</table>

Packing List

1. GV-600A Card x 1
2. Audio Extension Card x 1 **
3. 1-8 Cams with 4-Port Audio D-Type
4. 9-16 Cams D-Type Cable x 1 *
5. Hardware Watchdog Jumper
6. Software DVD x 1

* Supplied with 10-16 Cams D-Type Video Capture Card

** Supplied with BNC Video Capture Card

Connecting One GV-600A Card

For the D-Type video capture card, plug the black video / audio cable into the black connector on the GV-600A Card; the blue video cable into the blue connector, as illustrated below.

Note: The GV-600A Card only supports one audio channel so that only one audio port can work in the supplied 1-8 Cams with 4-Port Audio D-Type cable.

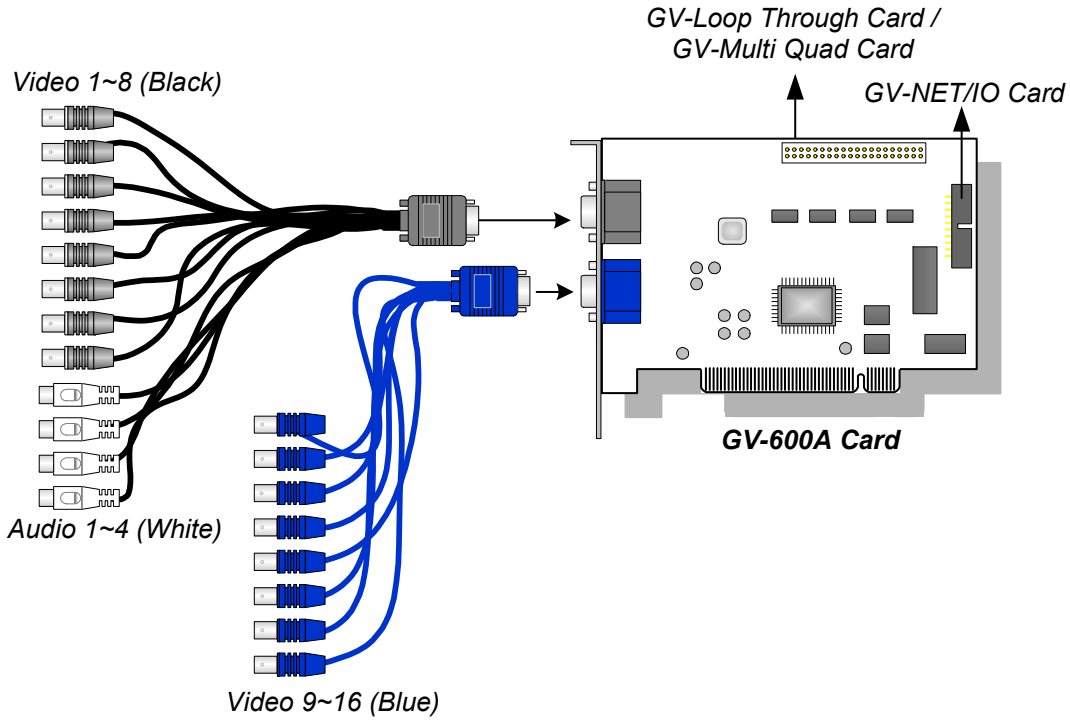


Figure 1-45

For the BNC-Type video capture card, plug the Audio Extension Card into the connector on the GV-600A Card, as illustrated below.

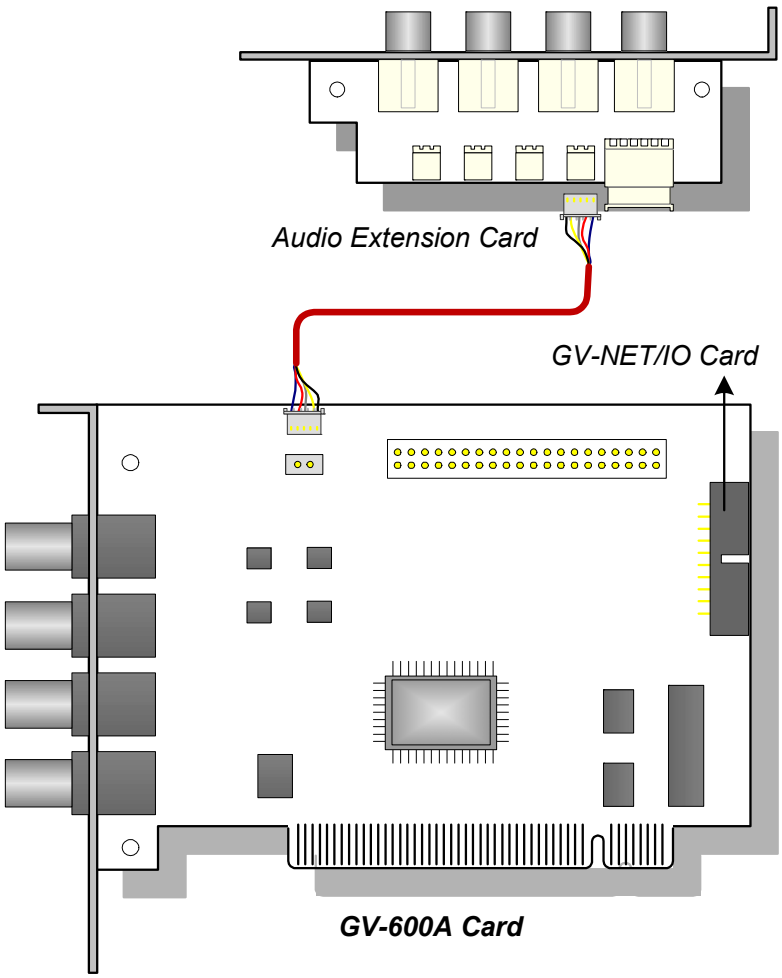


Figure 1-46

Connecting Two GV-600A Cards

You can install two GV-600A Cards for up to 32 channels. Master Card is the card with 1-16 channels and Slave Card is that with 17-32 channels. Normally, the card attached to the lower PCI slot number will act as Master, and the card attached to the higher PCI slot number will act as Slave.

- **Two GV-600A Cards only support two audio channels:** Connect microphones to Audio 1 connector of the Master Card, and Audio 5 connector of the Slave Card.
- **Hardware Watchdog Connection:** Connect the supplied Hardware Watchdog Jump Wire to the Master Card only (Figure 1-48).
- **Accessory Card Connections:**
  - ⊙ GV-NET/IO Card: Connect the card to the Master Card only.
  - ⊙ GV-Loop Through Card: Connect the card for each video capture card.
  - ⊙ GV-Multi Quad Card: Only connect one card to any of two video capture cards.

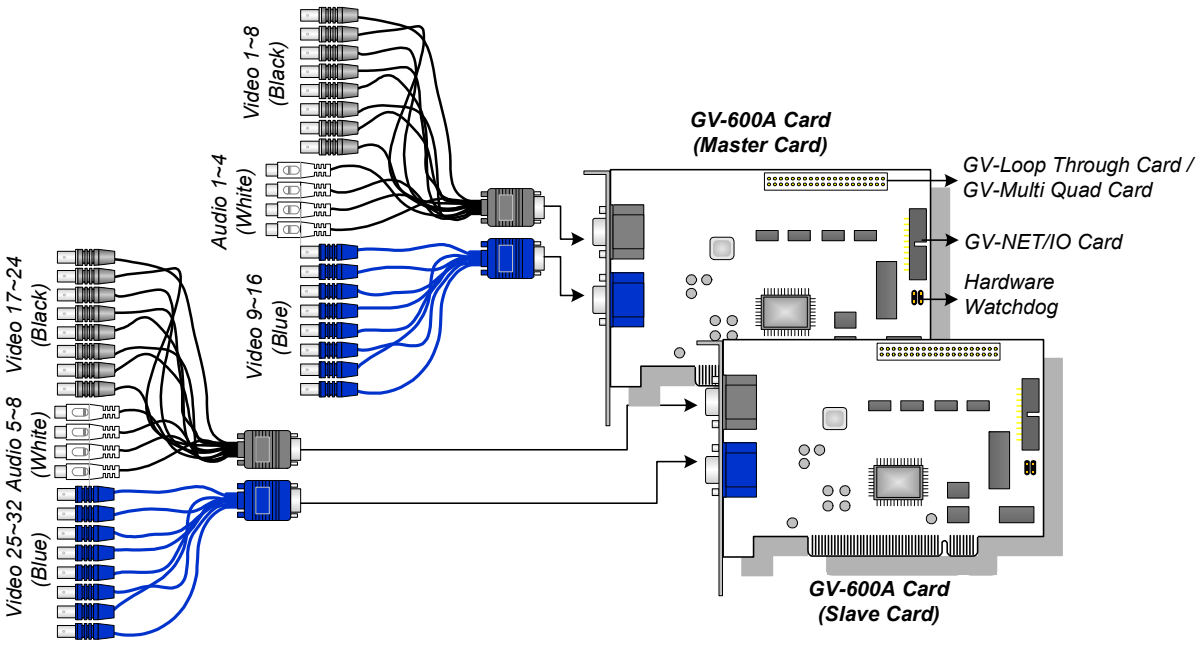


Figure 1-47

Connecting Hardware Watchdog

To reboot the computer by the hardware watchdog on the GV-Video Capture Card, a connection needs to be made from the card to the motherboard.

1. Using the supplied jumper wire, connect the reset jumper pins on the card and on the motherboard.

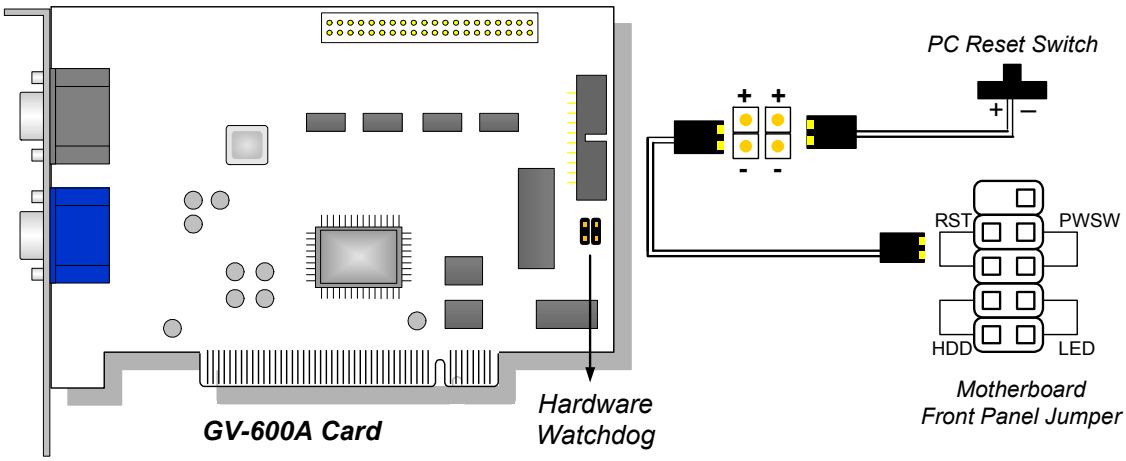


Figure 1-48

2. If the computer has a reset switch, the switch's jumper wire should already be connected to the motherboard's reset jumper pins. Remove the switch wire from the motherboard and connect it to the reset jumper pins on the card.

Installing Drivers

After installing the GV-600A Card in the computer, insert the software DVD. The DVD will run automatically and an installation window will pop up. Select **Install or Remove GeoVision GV-Series Driver**, and select **Install or Remove GeoVision GV-Series Card Drivers** to install card drivers.

To verify the drivers are installed correctly, go to Windows Device Manager and see if their entries are listed.

Expand the **DVR-Devices** field, you can see:

GV-600A Card	Entry
Single-card mode	GV600(V4) Audio GV600(V4) Video Capture
Two-card mode	GV600(V4) Audio GV600(V4) Audio GV600(V4) Video Capture GV600(V4) Video Capture

Specifications

			GV-600A	GV-600A x 2
Interface			PCI	PCI x 2
Input Type			BNC, D-Type	
Video Input			1, 2, 4, 6, 8, 10, 12, 14, 16 Cams	32 Cams (Max.)
Audio Input			1 Channel	2 Channels
Recording Rate	CIF	NTSC	30 fps	60 fps
		PAL	25 fps	50 fps
	D1	NTSC	15 fps	30 fps
		PAL	12.5 fps	25 fps
Display Rate	CIF	NTSC	30 fps	60 fps
		PAL	25 fps	50 fps
	D1	NTSC	15 fps	30 fps
		PAL	12.5 fps	25 fps
Video Resolution		NTSC	704 x 480, 704 x 480 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 240, 320 x 240	
		PAL	704 x 576, 704 x 576 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 288, 320 x 240	
Video Compression Format			Geo MPEG4, Geo H264	
Audio Format			16 kHz / 16-bit	
GV-NET/IO Card Support			Yes	
GV-Multi Quad Card Support			Yes	
GV-Loop Through Card Support			Yes	
Dimensions (W x H)			144 x 89 mm / 5.67 x 3.50 in	

1.11 GV-600B, GV-650B, GV-800B

There are two types of GV-600B / GV-650B / GV-800B Card: PCI and PCI-E. Both types of the GV-600B / GV-650B / GV-800B Card provide up to 16 video channels and 4 audio channels. The GV-600B, GV-650B and GV-800B Cards have the same appearances and similar system requirements so that we introduce the three cards together in this section. However, you may choose among the three according to your need for recording rate.

Minimum System Requirements

<table>
<tr><td rowspan="2">OS</td><td>32-bit</td><td colspan="3">Windows XP / Vista / 7 / 8 / Server 2008</td></tr>
<tr><td>64-bit</td><td colspan="3">Windows 7 / 8 / Server 2008 R2 / Server 2012</td></tr>
<tr><td colspan="2" rowspan="6">CPU</td><td>GV-600B</td><td colspan="2">Pentium 4, 2.0 GHz</td></tr>
<tr><td>GV-600B x 2</td><td colspan="2">Pentium 4, 2.6 GHz with Hyper Threading</td></tr>
<tr><td>GV-650B</td><td colspan="2">Pentium 4, 2.4 GHz</td></tr>
<tr><td>GV-650B x 2</td><td colspan="2">Pentium 4, 2.8 GHz with Hyper Threading</td></tr>
<tr><td>GV-800B</td><td colspan="2">Pentium 4, 3.0 GHz with Hyper Threading</td></tr>
<tr><td>GV-800B x 2</td><td colspan="2">Pentium 4, 3.0 GHz Dual Core</td></tr>
<tr><td colspan="2" rowspan="3">RAM</td><td rowspan="2">GV-600B / 650B / 800B</td><td>Windows XP</td><td>2 x 512 MB Dual Channels</td></tr>
<tr><td>Windows Vista / 7 / 8 / Server 2008 / Server 2012</td><td>2 x 1 GB Dual Channels</td></tr>
<tr><td>GV-600B x 2 / 650B x 2 / 800B x 2</td><td colspan="2">2 x 1 GB Dual Channels</td></tr>
<tr><td colspan="2" rowspan="2">HDD</td><td>GV-600B / 650B / 800B</td><td colspan="2">80 GB</td></tr>
<tr><td>GV-600B x 2 / 650B x 2 / 800B x 2</td><td colspan="2">160 GB</td></tr>
<tr><td colspan="2">Graphic Card</td><td colspan="3">AGP or PCI-Express, 800 x 600 (1280 x 1024 recommended), 32-bit color</td></tr>
<tr><td colspan="2">DirectX</td><td colspan="3">9.0c</td></tr>
</table>

Packing List

1. GV-600B, GV-650B or GV-800B Card x 1
2. 1-16 Cams with 4-Port Audio DVI-Type Cable x 1 / 1-8 Cams with 4-Port Audio DVI-Type Cable x 1 / 1-4 Cams with 4-Port Audio DVI-Type Cable x 1
3. Hardware Watchdog Jumper Wire x 1
4. Software DVD x 1

Note: The **1-16 Cams with 4-Port Audio DVI-Type** cable is supplied with GV-600B / GV-650B / GV-800B card with 16 video inputs, the **1-8 Cams with 4-Port Audio DVI-Type** cable is supplied with GV-600B / GV-650B / GV-800B card with 8 video inputs, while the **1-4 Cams with 4-Port Audio DVI-Type** cable is supplied with GV-600B / GV-650B / GV-800B card with 4 video inputs.

Connecting One GV-600B / GV-650B / GV-800B Card

There are two types of GV-600B / GV-650B / GV-800B Card: PCI and PCI-E. Here we take the GV-600B / GV-650B / GV-800B Card with PCI interface for example to illustrate the connection.

- Connect the video / audio cables into the DVI ports of the GV-600B / GV-650B / GV-800B Card.
- Connect the supplied Hardware Watchdog Jump Wire (Figure 1-51).

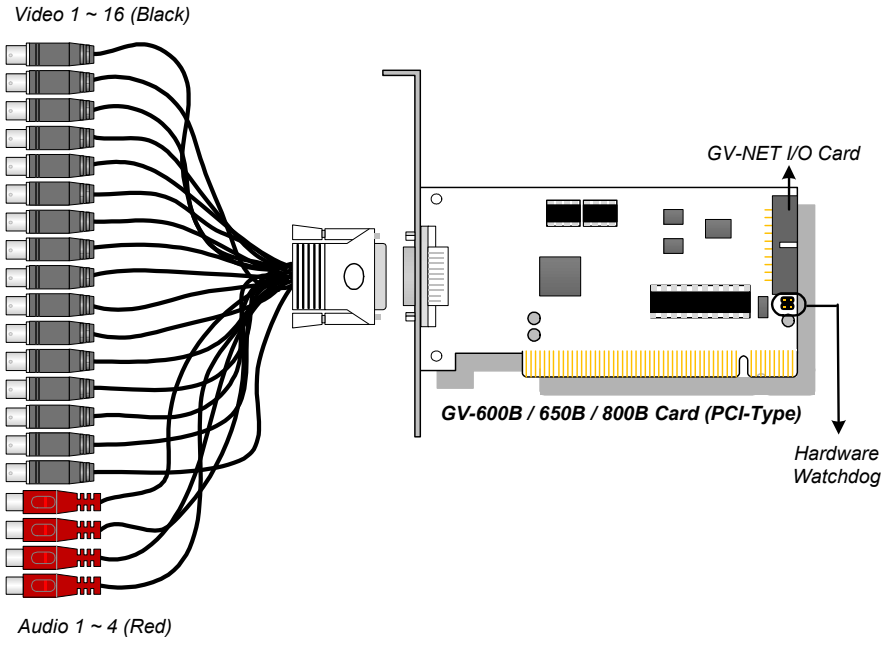


Figure 1-49

Connecting Two GV-600B / GV-650B / GV-800B Cards

You can install two GV-600B / GV-650B / GV-800B Cards of the same model for up to 32 channels. Master Card is the card with 1-16 channels and Slave Card is that with 17-32 channels. Normally, the card attached to the lower PCI-E slot number will act as Master, and the card attached to the higher PCI-E slot number will act as Slave.

Note: To install two GV-600B / GV-650B / GV-800B Cards, ensure one of both has PCI-E interface. For the detailed rules for two-card mode, see *1.10 Installing Two Cards*.

Here we take two GV-600B / GV-650B / GV-800B Cards with PCI-E interfaces for example to illustrate the connection.

- **Hardware Watchdog Connection:** Connect the supplied Hardware Watchdog Jump Wire to the Master Card only (Figure 1-51).
- **Accessory Card Connection:** Connect the GV-NET/IO Card to the Master Card only.

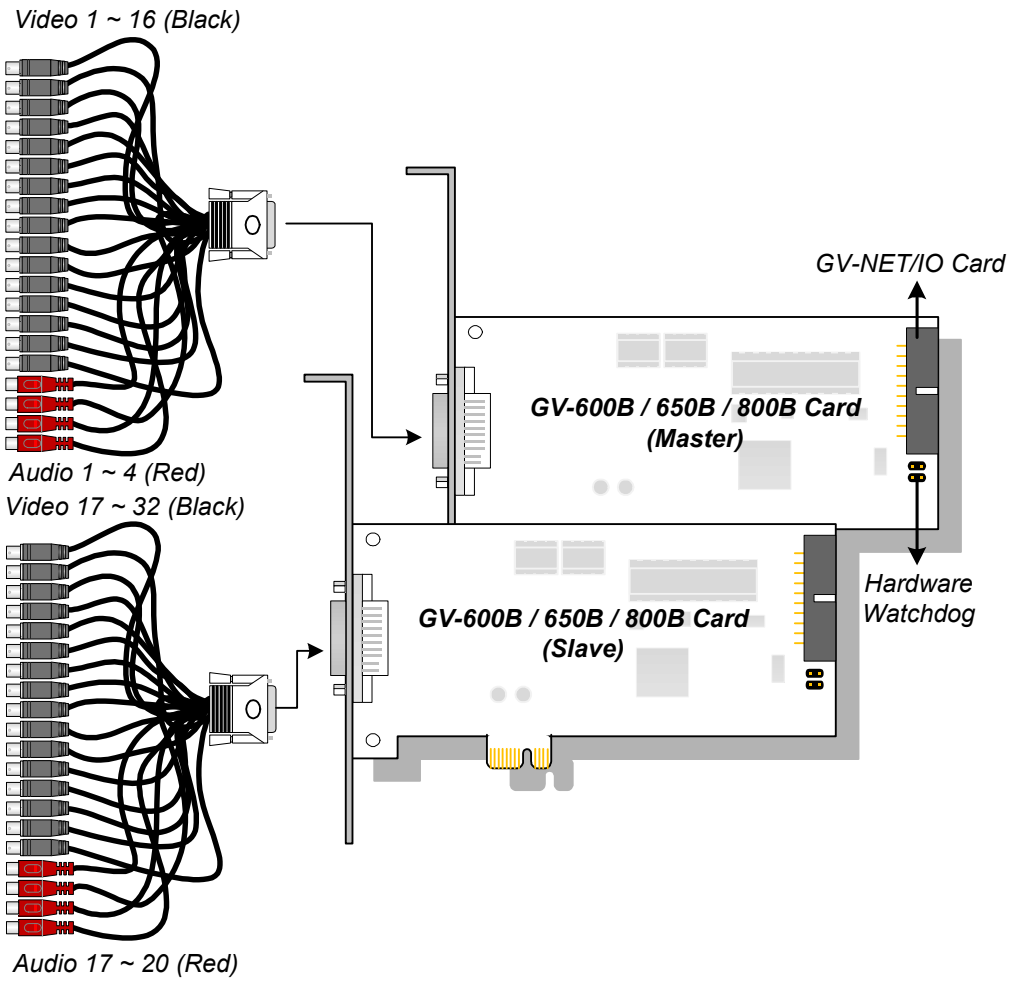


Figure 1-50

Connecting Hardware Watchdog

Insert the Hardware Watchdog Jumper Wire to the 2-pin connectors on the Card. The (+) pin on the Card must connect to the Reset (+) pin on the motherboard, and the (-) pin on the Card to the Ground (-) pin on the motherboard. Ensure the connection is correct; otherwise the hardware watchdog will not work.

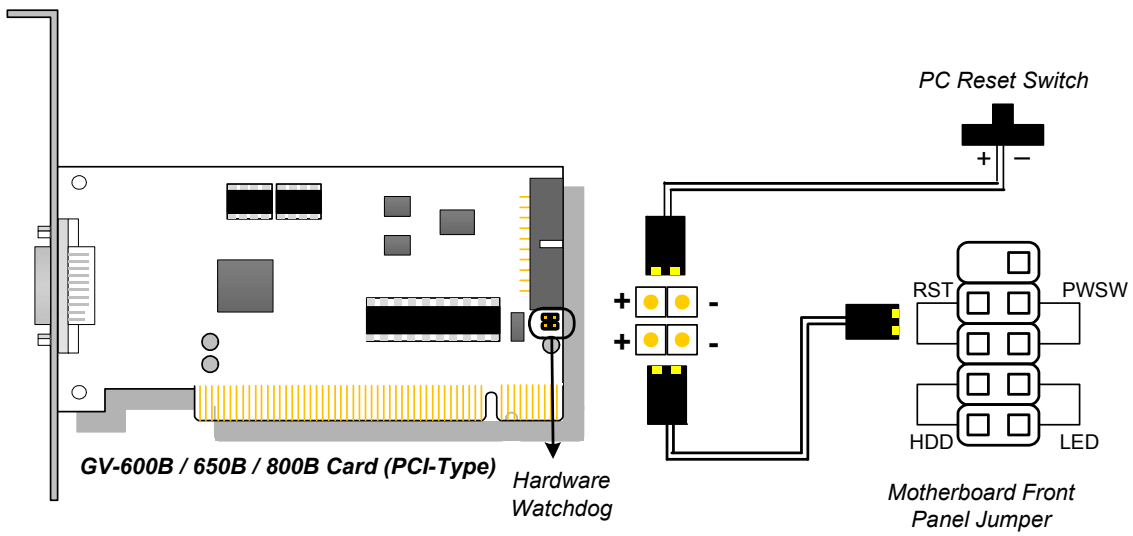


Figure 1-51

Note: To locate the motherboard's Reset (+) pin and (-) pin, please refer to the motherboard's user manual.

Installing Drivers

After installing the GV-600B / GV-650B / GV-800B Card in the computer, insert the software DVD. The DVD will run automatically and an installation window will pop up. Select **Install or Remove GeoVision GV-Series Driver**, and select **Install or Remove GeoVision GV-Series Card Drivers** to install card drivers.

To verify the drivers are installed correctly, go to Windows Device Manager and see if their entries are listed.

Expand the **DVR-Devices** field, you can see:

Card Models	Entry	
GV-600B	GV600(B) Audio #1 ~ 4 GV600(B) Video #1 ~ 4	
GV-600B x 2	GV600(B) Audio #1 GV600(B) Audio #1 GV600(B) Audio #2 GV600(B) Audio #2 GV600(B) Audio #3 GV600(B) Audio #3 GV600(B) Audio #4 GV600(B) Audio #4	GV600(B) Video #1 GV600(B) Video #1 GV600(B) Video #2 GV600(B) Video #2 GV600(B) Video #3 GV600(B) Video #3 GV600(B) Video #4 GV600(B) Video #4
GV-650B	GV650(B) Audio #1 ~ 4 GV650(B) Video #1 ~ 4	
GV-650B x 2	GV650(B) Audio #1 GV650(B) Audio #1 GV650(B) Audio #2 GV650(B) Audio #2 GV650(B) Audio #3 GV650(B) Audio #3 GV650(B) Audio #4 GV650(B) Audio #4	GV650(B) Video #1 GV650(B) Video #1 GV650(B) Video #2 GV650(B) Video #2 GV650(B) Video #3 GV650(B) Video #3 GV650(B) Video #4 GV650(B) Video #4
GV-800B	GV800(B) Audio #1 ~ 4 GV800(B) Video #1 ~ 4	
GV-800B x 2	GV800(B) Audio #1 GV800(B) Audio #1 GV800(B) Audio #2 GV800(B) Audio #2 GV800(B) Audio #3 GV800(B) Audio #3 GV800(B) Audio #4 GV800(B) Audio #4	GV800(B) Video #1 GV800(B) Video #1 GV800(B) Video #2 GV800(B) Video #2 GV800(B) Video #3 GV800(B) Video #3 GV800(B) Video #4 GV800(B) Video #4

Specifications

			GV-600B	GV-650B	GV-800B
Interface			PCI, PCI-E (x1)		
Input Type			DVI		
Video Input			4, 8, 16 Cams		
Audio Input			4 Channels		
Recording Rate	CIF	NTSC	4-port: 30 fps 16-port: 30 fps	4-port: 60 fps 16-port: 60 fps	4-port: 120 fps 16-port: 120 fps
		PAL	4-port: 25 fps 16-port: 25 fps	4-port: 50 fps 16-port: 50 fps	4-port: 100 fps 16-port: 100 fps
	D1	NTSC	4-port: 30 fps 16-port: 15 fps	4-port: 60 fps 16-port: 30 fps	4-port: 120 fps 16-port: 60 fps
		PAL	4-port: 25 fps 16-port: 12.5 fps	4-port: 50 fps 16-port: 25 fps	4-port: 100 fps 16-port: 50 fps
Display Rate	CIF	NTSC	4-port: 30 fps 16-port: 30 fps	4-port: 60 fps 16-port: 60 fps	4-port: 120 fps 16-port: 120 fps
		PAL	4-port: 25 fps 16-port: 25 fps	4-port: 50 fps 16-port: 50 fps	4-port: 100 fps 16-port: 100 fps
	D1	NTSC	4-port: 30 fps 16-port: 15 fps	4-port: 60 fps 16-port: 30 fps	4-port: 120 fps 16-port: 60 fps
		PAL	4-port: 25 fps 16-port: 12.5 fps	4-port: 50 fps 16-port: 25 fps	4-port: 100 fps 16-port: 50 fps
Video Resolution		NTSC	704 x 480, 704 x 480 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 240, 320 x 240		
		PAL	704 x 576, 704 x 576 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 288, 320 x 240		
Video Compression Format			Geo MPEG4, Geo H264		
Audio Format			16 kHz / 16-bit , 32 kHz / 16-bit		
GV-NET/IO Card Support			Yes		
Dimensions (W x H)			PCI-Type: 120 x 65 mm / 4.7 x 2.5 in PCI-E Type: 120 x 82 mm / 4.7 x 3.2 in		

			GV-600B x 2	GV-650B x 2	GV-800B x 2
Interface			PCI-E (x1) x 2, PCI x 1 + PCI-E (x1) x 1		
Input Type			DVI		
Video Input			8, 12, 16, 20, 24, 32 Cams		
Audio Input			8 Channels		
Recording Rate	CIF	NTSC	4+4 port: 60 fps 16+16 port: 60 fps	4+4 port: 120 fps 16+16 port: 120 fps	4+4 port: 240 fps 16+16 port: 240 fps
		PAL	4+4 port: 50 fps 16+16 port: 50 fps	4+4 port: 100 fps 16+16 port: 100 fps	4+4 port: 200 fps 16+16 port: 200 fps
	D1	NTSC	4+4 port: 60 fps 16+16 port: 30 fps	4+4 port: 120 fps 16+16 port: 60 fps	4+4 port: 240 fps 16+16 port: 120 fps
		PAL	4+4 port: 50 fps 16+16 port: 25 fps	4+4 port: 100 fps 16+16 port: 50 fps	4+4 port: 200 fps 16+16 port: 100 fps
Display Rate	CIF	NTSC	4+4 port: 60 fps 16+16 port: 60 fps	4+4 port: 120 fps 16+16 port: 120 fps	4+4 port: 240 fps 16+16 port: 240 fps
		PAL	4+4 port: 50 fps 16+16 port: 50 fps	4+4 port: 100 fps 16+16 port: 100 fps	4+4 port: 200 fps 16+16 port: 200 fps
	D1	NTSC	4+4 port: 60 fps 16+16 port: 30 fps	4+4 port: 120 fps 16+16 port: 60 fps	4+4 port: 240 fps 16+16 port: 120 fps
		PAL	4+4 port: 50 fps 16+16 port: 25 fps	4+4 port: 100 fps 16+16 port: 50 fps	4+4 port: 200 fps 16+16 port: 100 fps
Video Resolution		NTSC	704 x 480, 704 x 480 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 240, 320 x 240		
		PAL	704 x 576, 704 x 576 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 288, 320 x 240		
Video Compression Format			Geo MPEG4, Geo H264		
Audio Format			16 kHz / 16-bit , 32 kHz / 16-bit		
GV-NET/IO Card Support			Yes		
Dimensions (W x H)			PCI-Type: 120 x 65 mm / 4.7 x 2.5 in PCI-E Type: 120 x 82 mm / 4.7 x 3.2 in		

1.12 Installing Two Cards

You can install two video capture cards of the same model for a total of 32 channels. For example, 2 x GV-650A Cards (16 channels) = 32 channels.

It is also possible to implement two video capture cards of different channels. For example, GV-650A Card (12 channels) + GV-650A Card (16 channels) = 28 channels.

Note: Besides GV-804A Card, all GV video capture cards support two-card mode.

Rules to Use Two Cards

GV video capture cards have two interface types: PCI and PCI Express (PCI-E). When you install two video capture cards, ensure they are installed in the right slots as instructed in the following tables.

- **GV-600A, GV-650A, GV-800A**

<table>
<tr><th>Card Combination</th><th>V3.20 and later</th><th colspan="2">V4.20 and later</th></tr>
<tr><td>V3.20 and later</td><td>X</td><td colspan="2">X</td></tr>
<tr><td rowspan="6">V4.20 and later</td><td rowspan="6">X</td><td>GV-600A</td><td>PCI x 2</td></tr>
<tr><td rowspan="3">GV-650A</td><td>PCI x 2</td></tr>
<tr><td>PCI-E x 2</td></tr>
<tr><td>PCI x 1+ PCI-E x 1</td></tr>
<tr><td rowspan="2">GV-800A</td><td>PCI-E x 2</td></tr>
<tr><td>PCI x 1+ PCI-E x 1</td></tr>
</table>

1. The V3.20 (and later) Cards or the combination of V3.20 and V4.20 (and later) Cards do not support two-card mode.
2. For GV-600A cards, it is required to use two PCI slots.
3. For GV-650A cards, you can use two PCI slots, two PCI Express slots, or the combination of PCI and PCI Express slots.
4. For GV-800A cards, it is required to use two PCI Express slots, or the combination of PCI and PCI Express slots.

- **GV-600B, GV-650B, GV-800B**

Card Combination	**GV-600B / 650B / 800B**
GV-600B / 650B / 800B	PCI-E x 2 PCI x 1+ PCI-E x 1

1. For GV-600B / 650B / 800B card, it is required to use two PCI Express slots, or the combination of PCI and PCI Express slots.

- **GV-1120A, GV-1240A, GV-1480A**

Card Combination	**V1.02 / V2.00 and later**	**Combo A Cards (GV-1120A / 1240A / 1480A)**
V1.02 / V2.00 and later	PCI-E x 2 PCI x 1+ PCI-E x 1	**X**
Combo A Cards (GV-1120A / 1240A / 1480A)	**X**	PCI-E x 2

1. V1.02 / V2.00 (and later) and Combo A Cards all support two-card mode, but the combination of V1.02 / V2.00 (and later) and Combo A Cards does not support two-card mode.
2. When you install two V1.02 / V2.00 (and later) Cards, it is required to use two PCI Express slots or the combination of PCI and PCI Express slots.
3. When you install two Combo A Cards, it is required to use only two PCI Express slots.

1.13 Installing Drivers

After you install the GV-Video Capture Card on the computer, the Found New Hardware Wizard will automatically detect the device. Ignore the wizard and follow these steps to install drivers:

1. Insert the software DVD. It will run automatically and pop up a window.
2. Select **Install or Remove GeoVision GV-Series Cards Driver** and select **Install or Remove GeoVision GV-Series Card Drivers**. This dialog box appears.

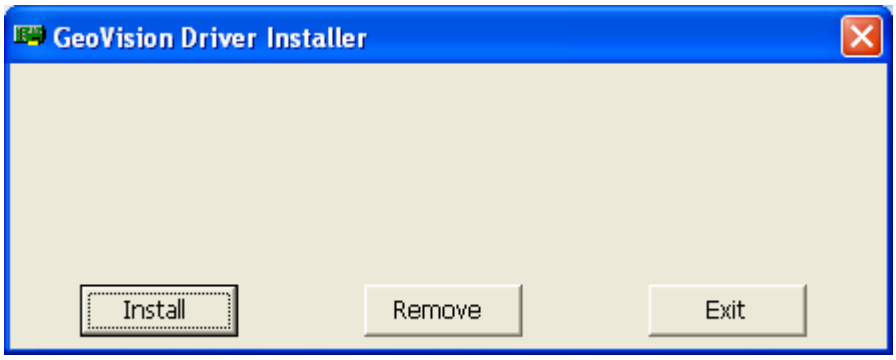


Figure 1-52

3. Click **Install** to install the drivers. When the installation is complete, this message will appear: Install Successfully.
4. Click **Exit** to close the dialog box.

1.14 Comparison Chart (H/W Compression)

				GV-SDI-204	GV-SDI-204 x 4
Interface				PCI-E (x1)	PCI-E (x1) x 4
Input Type				BNC	
Video Input				4	16
Recording Rate and Display Rate	1080p	NTSC		120 fps	480 fps
		PAL		100 fps	400 fps
	720p	NTSC		240 fps	960 fps
		PAL		200 fps	800 fps
	1080i	NTSC		120 fps	480 fps
		PAL		100 fps	400 fps
Video Codec		H/W		H.264	
		S/W		Geo MPEG4, Geo H.264	
Video Resolution		H/W	1080p	1920 x 1080	
			720p	1280 x 720	
			1080i	1920 x 1080	
		S/W	1080p	960 x 540, 480 x 270	
			720p	640 x 360	
			1080i	960 x 540, 480 x 270	
GV-Multi Quad Card Support				X	X
GV-Loop Through Card Support				X	X
GV-NET/IO Card Support				O[1]	O[1]
GV-I/O 12-In Card Support				O[1]	O[1]
GV-I/O 12-Out Card Support				O[1]	O[1]
Hardware Watchdog				O	O
Minimum System Requirements					
OS				Windows XP (32-bit) / Vista (32-bit) / 7 & 8 (32-bit and 64-bit) / Server 2008 (32-bit and R2, 64-bit) / Server 2012 (64-bit)	
DirectX				9.0c	
CPU				Core 2 Duo, 2.00 GHz	Core i3, 3.40 GHz
RAM				2 x 1 GB Dual Channels	
HDD				500 GB	2 TB
Graphic Card				AGP or PCI-Express, 800 x 600 (1280 x 1024 recommended), 32-bit color	

Note:

1. To work together with GV-SDI-204, GV-NET/IO Card V3.2 or later must be set in the I/O Box Mode and connected to the PC through USB or DB9.
2. All Specifications are subject to change without notice.

			GV-5016	GV-5016 x 2
Interface			PCI-E (x1)	PCI-E (x1) x 2
Input Type			LFH	
Video Input			16	32
Total Recording Rate (D1)	NTSC		480 fps	960 fps
	PAL		400 fps	800 fps
Display Rate	NTSC		480 fps	960 fps
	PAL		400 fps	800 fps
Video Codec	H/W		H.264	
	S/W		Geo MPEG4, Geo H.264	
Video Resolution	NTSC	H/W	704 x 480	
		S/W	352 x 240	
	PAL	H/W	704 x 576	
		S/W	352 x 288	
Audio Input			16	32
Audio Format			16 kHz / 16-bit, 32 kHz / 16-bit	
GV-Multi Quad Card Support			X	X
GV-Loop Through Card Support			X	X
GV-NET/IO Card Support			O[1]	O[1]
GV-I/O 12-In Card Support			O[1]	O[1]
GV-I/O 12-Out Card Support			O[1]	O[1]
Hardware Watchdog			O	O
Minimum System Requirements				
OS			Windows XP (32-bit) / Vista (32-bit) / 7 & 8 (32-bit and 64-bit) / Server 2008 (32-bit and R2, 64-bit) / Server 2012 (64-bit)	
DirectX			9.0c	
CPU			Core 2 Quad, 2.4 GHz	Core i5 650, 3.20 GHz
RAM			2 x 1 GB Dual Channels	
HDD			500 GB	1 TB
Graphic Card			AGP or PCI-Express, 800 x 600 (1280 x 1024 recommended), 32-bit color	

Note:

1. To work together with GV-5016, GV-NET/IO Card V3.2 or later must be set in the I/O Box Mode and connected to the PC through USB or DB9.
2. All Specifications are subject to change without notice.

			GV-4008A	GV-4008A x 2
Interface			PCI-E (x1)	PCI-E (x1) x 2
Input Type			DVI	
Video Input			8	16
Total Recording Rate (D1)	NTSC		240 fps	480 fps
	PAL		200 fps	400 fps
Display Rate	NTSC		240 fps	480 fps
	PAL		200 fps	400 fps
Video Codec	H/W		H.264	
	S/W		Geo MPEG4, Geo H.264	
Video Resolution	NTSC	H/W	704 x 480	
		S/W	352 x 240	
	PAL	H/W	704 x 576	
		S/W	352 x 288	
Audio Input			8	16
Audio Format			16 kHz / 16-bit, 32 kHz / 16-bit	
GV-Multi Quad Card Support			O	O
GV-Loop Through Card Support			O	O
GV-NET/IO Card Support			O[1]	O[1]
GV-I/O 12-In Card Support			O[1]	O[1]
GV-I/O 12-Out Card Support			O[1]	O[1]
Hardware Watchdog			O	O
Minimum System Requirements				
OS			Windows XP (32-bit) / Vista (32-bit) / 7 & 8 (32-bit and 64-bit) / Server 2008 (32-bit and R2, 64-bit) / Server 2012 (64-bit)	
DirectX			9.0c	
CPU			Core 2 Duo, 2.33 GHz	Core 2 Quad, 2.4 GHz
RAM			2 x 1 GB Dual Channels	
HDD			250 GB	500 GB
Graphic Card			AGP or PCI-Express, 800 x 600 (1280 x 1024 recommended), 32-bit color	

Note:

1. GV-Net/IO Card V3.2 or later must be set in the I/O Box Mode and connected to the PC through USB or DB9.
2. All Specifications are subject to change without notice.

			GV-4008	GV-4008 x 2
Interface			PCI-E (x1)	PCI-E (x1) x 2
Input Type			DVI	
Video Input			8	16
Total Recording Rate (D1)	NTSC		240 fps	480 fps
	PAL		200 fps	400 fps
Display Rate	NTSC		240 fps	480 fps
	PAL		200 fps	400 fps
Video Codec	H/W		H.264	
	S/W		Geo MPEG4, Geo H.264	
Video Resolution	NTSC	H/W	704 x 480	
		S/W	352 x 240	
	PAL	H/W	704 x 576	
		S/W	352 x 288	
Audio Input			8	16
Audio Format			16 kHz / 16-bit, 32 kHz / 16-bit	
GV-Multi Quad Card Support			X	X
GV-Loop Through Card Support			X	X
GV-NET/IO Card Support			O[1]	O[1]
GV-I/O 12-In Card Support			O[1]	O[1]
GV-I/O 12-Out Card Support			O[1]	O[1]
Hardware Watchdog			O	O
Minimum System Requirements				
OS			Windows XP (32-bit) / Vista (32-bit) / 7 & 8 (32-bit and 64-bit) / Server 2008 (32-bit and R2, 64-bit) / Server 2012 (64-bit)	
DirectX			9.0c	
CPU			Core 2 Duo, 2.33 GHz	Core 2 Quad, 2.4 GHz
RAM			2 x 1 GB Dual Channels	
HDD			250 GB	500 GB
Graphic Card			AGP or PCI-Express, 800 x 600 (1280 x 1024 recommended), 32-bit color	

Note:

1. GV-Net/IO Card V3.2 or later must be set in the I/O Box Mode and connected to the PC through USB or DB9.
2. All Specifications are subject to change without notice.

			GV-3008	GV-3008 x 2
Interface			PCI-E (x1)	PCI-E (x1) x 2
Input Type			D-Type	
Video Input			8	16
Total Recording Rate (D1)	NTSC		240 fps	480 fps
	PAL		200 fps	400 fps
Display Rate	NTSC		240 fps	480 fps
	PAL		200 fps	400 fps
Video Codec	H/W		H.264	
	S/W		Geo MPEG4, Geo H.264	
Video Resolution	NTSC	H/W	704 x 480	
		S/W	352 x 240	
	PAL	H/W	704 x 576	
		S/W	352 x 288	
Audio Input			8	16
Audio Format			16 kHz / 16-bit	
GV-Multi Quad Card Support			O	O
GV-Loop Through Card Support			O	O
GV-NET/IO Card Support			O	O
GV-I/O 12-In Card Support			O	O
GV-I/O 12-Out Card Support			O	O
Hardware Watchdog			O	O
Minimum System Requirements				
OS			Windows XP (32-bit) / Vista (32-bit) / 7 & 8 (32-bit and 64-bit) / Server 2008 (32-bit and R2, 64-bit) / Server 2012 (64-bit)	
DirectX			9.0c	
CPU			Core 2 Duo, 2.33 GHz	Core 2 Quad, 2.4 GHz
RAM			2 x 1 GB Dual Channels	
HDD			250 GB	500 GB
Graphic Card			AGP or PCI-Express, 800 x 600 (1280 x 1024 recommended), 32-bit color	
Note: All Specifications are subject to change without notice.				

1.15 Comparison Chart (S/W Compression: Single Card)

			GV-600A	GV-650A	GV-800A
Interface			PCI	PCI, PCI-E (x1)	
Input Type			BNC, D-Type	D-Type	BNC, D-Type
Video Input			1, 2, 4, 6, 8, 10, 12, 14, 16	4, 8, 12, 16	4, 8, 12, 16
Total Recording Rate	CIF	NTSC	30 fps	60 fps	120 fps
		PAL	25 fps	50 fps	100 fps
	D1	NTSC	15 fps	30 fps	60 fps
		PAL	12.5 fps	25 fps	50 fps
Display Rate	CIF	NTSC	30 fps	60 fps	120 fps
		PAL	25 fps	50 fps	100 fps
	D1	NTSC	15fps	30 fps	60 fps
		PAL	12.5 fps	25 fps	50 fps
Video Codec			Geo MPEG4, Geo H.264		
Video Resolution		NTSC	704 x 480, 704 x 480 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 240, 320 x 240		
		PAL	704 x 576, 704 x 576 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 288, 320 x 240		
Audio Input			1	2	4
Audio Format			16 kHz / 16-bit		
GV-Multi Quad Card Support			O	O	O
GV-Loop Through Card			O	O	O
GV-NET/IO Card Support			O	O	O
GV-I/O 12-In Card Support			O	O	O
GV-I/O 12-Out Card Support			O	O	O
Hardware Watchdog			O	O	O
Minimum System Requirements					
OS			Windows XP (32-bit) / Vista (32-bit) / 7 & 8 (32-bit and 64-bit) / Server 2008 (32-bit and R2, 64-bit) / Server 2012 (64-bit)		
DirectX			9.0c		
CPU			Pentium 4, 2.0 GHz	Pentium 4, 2.4 GHz	Pentium 4, 3.0 GHz with HT
RAM			2 x 512 MB Dual Channels (Windows XP)		
			2 x 1 GB Dual Channels (Windows Vista / 7 / 8 / Server 2008 / Server 2012)		
HDD			80 GB		
Graphic Card			AGP or PCI-Express, 800 x 600 (1280 x 1024 recommended), 32-bit color		

Note: All Specifications are subject to change without notice.

			GV-600B	GV-650B	GV-800B	GV-900A
Interface			PCI, PCI-E (x1)			PCI-E (x1)
Input Type			DVI			
Video Input			4, 8, 16			8, 16, 32
Total Recording Rate	CIF	NTSC	30 fps	60 fps	120 fps	240 fps
		PAL	25 fps	50 fps	100 fps	200 fps
	D1	NTSC	15 fps	30 fps	60 fps	120 fps
		PAL	12.5 fps	25 fps	50 fps	100 fps
Display Rate	CIF	NTSC	30 fps	60 fps	120 fps	240 fps
		PAL	25 fps	50 fps	100 fps	200 fps
	D1	NTSC	15fps	30 fps	60 fps	120 fps
		PAL	12.5 fps	25 fps	50 fps	100 fps
Video Codec			Geo MPEG4, Geo H.264			
Video Resolution		NTSC	704 x 480, 704 x 480 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 240, 320 x 240			
		PAL	704 x 576, 704 x 576 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 288, 320 x 240			
Audio Input			4			8
Audio Format			16 kHz / 16-bit, 32 kHz / 16-bit			
GV-Multi Quad Card Support			X	X	X	X
GV-Loop Through Card			X	X	X	X
GV-NET/IO Card Support			O	O	O	O
GV-I/O 12-In Card Support			O	O	O	O
GV-I/O 12-Out Card Support			O	O	O	O
Hardware Watchdog			O	O	O	O
Minimum System Requirements						
OS			Windows XP (32-bit) / Vista (32-bit) / 7 & 8 (32-bit and 64-bit) / Server 2008 (32-bit and R2, 64-bit) / Server 2012 (64-bit)			
DirectX			9.0c			
CPU			Pentium 4, 2.0 GHz	Pentium 4, 2.4 GHz	Pentium 4, 3.0 GHz with HT	Pentium 4, 3.0 GHz Dual Core
RAM			2 x 512 MB Dual Channels (Windows XP)			2 x 1 GB Dual Channels
			2 x 1 GB Dual Channels (Windows Vista / 7 / 8 / Server 2008 / Server 2012)			
HDD			80 GB			160 GB
Graphic Card			AGP or PCI-Express, 800 x 600 (1280 x 1024 recommended), 32-bit color			

Note: All specifications are subject to change without notice.

			GV-1120A	GV-1240A	GV-1480A
Interface			PCI-E (x1)		
Input Type			D-Type, DVI		
Video Input			8, 12, 16	8, 16	16
Total Recording Rate	CIF	NTSC	120 fps	240 fps	480 fps
		PAL	100 fps	200 fps	400 fps
	D1	NTSC	80 fps	120 fps	240 fps
		PAL	72 fps	100 fps	200 fps
Display Rate	NTSC		480 fps	480 fps	480 fps
	PAL		400 fps	400 fps	400 fps
Video Codec			Geo MPEG4, Geo H.264		
Video Resolution		NTSC	704 x 480, 704 x 480 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 240, 320 x 240		
		PAL	704 x 576, 704 x 576 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 288, 320 x 240		
Audio Input			8, 12, 16	8, 16	16
Audio Format			16 kHz / 16-bit, 32 kHz / 16-bit		
GV-Multi Quad Card Support			O	O	O
GV-Loop Through Card			O	O	O
GV-NET/IO Card Support			O	O	O
GV-I/O 12-In Card Support			O	O	O
GV-I/O 12-Out Card Support			O	O	O
Hardware Watchdog			O	O	O
Minimum System Requirements					
OS			Windows XP (32-bit) / Vista (32-bit) / 7 & 8 (32-bit and 64-bit) / Server 2008 (32-bit and R2, 64-bit) / Server 2012 (64-bit)		
DirectX			9.0c		
CPU			Pentium 4, 3.0 GHz With HT	Pentium 4, 3.0 GHz Dual Core	Core 2 Duo, 3.0 GHz
RAM			2 x 512 MB Dual Channels (Windows XP)		
			2 x 1 GB Dual Channels (Windows Vista / 7 / 8 / Server 2008 / Server 2012)		
HDD			80 GB	120 GB	250 GB
Graphic Card			AGP or PCI-Express, 800 x 600 (1280 x 1024 recommended), 32-bit color		

Note: All specifications are subject to change without notice.

			GV-1120B	GV-1240B	GV-1480B
Interface			PCI-E (x4)		
Input Type			DVI		
Video Input			16	16	16
Total Recording Rate	CIF	NTSC	120 fps	240 fps	480 fps
		PAL	100 fps	200 fps	400 fps
	D1	NTSC	120 fps	240 fps	480 fps
		PAL	100 fps	200 fps	400 fps
Display Rate	CIF	NTSC	480 fps	480 fps	480 fps
		PAL	400 fps	400 fps	400 fps
	D1	NTSC	480 fps	480 fps	480 fps
		PAL	400 fps	400 fps	400 fps
Video Codec			Geo MPEG4, Geo H.264		
Video Resolution		NTSC	704 x 480, 704 x 480 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 240, 320 x 240		
		PAL	704 x 576, 704 x 576 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 288, 320 x 240		
Audio Input			16	16	16
Audio Format			16 kHz / 16-bit, 32 kHz / 16-bit		
GV-Multi Quad Card Support			O	O	O
GV-Loop Through Card			O	O	O
GV-NET/IO Card Support			O	O	O
GV-I/O 12-In Card Support			O	O	O
GV-I/O 12-Out Card Support			O	O	O
Hardware Watchdog			O	O	O
Minimum System Requirements					
OS			Windows XP (32-bit) / Vista (32-bit) / 7 & 8 (32-bit and 64-bit) / Server 2008 (32-bit and R2, 64-bit) / Server 2012 (64-bit)		
DirectX			9.0c		
CPU			Pentium 4, 3.0 GHz With HT	Pentium 4, 3.0 GHz Dual Core	Core 2 Duo, 3.0 GHz
RAM			2 x 512 MB Dual Channels (Windows XP)		
			2 x 1 GB Dual Channels (Windows Vista / 7 / 8 / Server 2008, R2 / Server 2012)		
HDD			80 GB	120 GB	250 GB
Graphic Card			AGP or PCI-Express, 800 x 600 (1280 x 1024 recommended), 32-bit color		
Note: All specifications are subject to change without notice.					

1.16 Comparison Chart (S/W Compression: Two Cards)

			GV-600A x 2	GV-650A x 2	GV-800A x 2
Interface			PCI x 2	PCIx 2, PCI-E(x1)x 2, PCIx 1 + PCI-E(x1)x 1	PCI-E(x1) x 2, PCI x 1 + PCI-E(x1) x 1
Input Type			BNC, D-Type	D-Type	BNC, D-Type
Video Input			32 (Max.)		
Total Recording Rate	CIF	NTSC	60 fps	120 fps	240 fps
		PAL	50 fps	100 fps	200 fps
	D1	NTSC	30 fps	60 fps	120 fps
		PAL	25 fps	50 fps	100 fps
Display Rate	CIF	NTSC	60 fps	120 fps	240 fps
		PAL	50 fps	100 fps	200 fps
	D1	NTSC	30 fps	60 fps	120 fps
		PAL	25 fps	50 fps	100 fps
Video Codec			Geo MPEG4, Geo H.264		
Video Resolution		NTSC	704 x 480, 704 x 480 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 240, 320 x 240		
		PAL	704 x 576, 704 x 576 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 288, 320 x 240		
Audio Input			2	4	8
Audio Format			16 kHz / 16-bit		
GV-Multi Quad Card Support			O	O	O
GV-Loop Through Card Support			O	O	O
GV-NET/IO Card Support			O	O	O
GV-I/O 12-In Card Support			O	O	O
GV-I/O 12-Out Card Support			O	O	O
Hardware Watchdog			O	O	O
Minimum System Requirements					
OS			Windows XP (32-bit) / Vista (32-bit) / 7 & 8 (32-bit and 64-bit) / Server 2008 (32-bit and R2, 64-bit) / Server 2012 (64-bit)		
DirectX			9.0c		
CPU			Pentium 4, 2.6 GHz with HT	Pentium 4, 2.8 GHz with HT	Pentium 4, 3.0 GHz Dual Core
RAM			2 x 1 GB Dual Channels		
HDD			160 GB		
Graphic Card			AGP or PCI-Express, 800 x 600 (1280 x 1024 recommended), 32-bit color		

Note: All specifications are subject to change without notice.

			GV-600B x 2	GV-650B x 2	GV-800B x 2	GV-900A x 2
Interface			PCI-E (x1) x 2, PCI x 1 + PCI-E (x1) x 1		PCI-E (x1) x 2	
Input Type			DVI			
Video Input			8, 12, 16, 20, 24, 32		16, 24, 32	
Total Recording Rate	CIF	NTSC	60 fps	120 fps	240 fps	480 fps
		PAL	50 fps	100 fps	200 fps	400 fps
	D1	NTSC	30 fps	60 fps	120 fps	240 fps
		PAL	25 fps	50 fps	100 fps	200 fps
Display Rate	CIF	NTSC	60 fps	120 fps	240 fps	480 fps
		PAL	50 fps	100 fps	200 fps	400 fps
	D1	NTSC	30 fps	60 fps	120 fps	240 fps
		PAL	25 fps	50 fps	100 fps	200 fps
Video Codec			Geo MPEG4, Geo H.264			
Video Resolution		NTSC	704 x 480, 704 x 480 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 240, 320 x 240			
		PAL	704 x 576, 704 x 576 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 288, 320 x 240			
Audio Input			8	8	8	16
Audio Format			16 kHz / 16-bit, 32 kHz / 16-bit			
GV-Multi Quad Card Support			X	X	X	X
GV-Loop Through Card Support			X	X	X	X
GV-NET/IO Card Support			O	O	O	O
GV-I/O 12-In Card Support			O	O	O	O
GV-I/O 12-Out Card Support			O	O	O	O
Hardware Watchdog			O	O	O	O
Minimum System Requirements						
OS			Windows XP (32-bit) / Vista (32-bit) / 7 & 8 (32-bit and 64-bit) / Server 2008 (32-bit and R2, 64-bit) / Server 2012 (64-bit)			
DirectX			9.0c			
CPU			Pentium 4, 2.6 GHz with HT	Pentium 4, 2.8 GHz with HT	Pentium 4, 3.0 GHz Dual Core	Core i5-750, 2.66 GHz
RAM			2 x 1 GB Dual Channels			
HDD			160 GB		500 GB	
Graphic Card			AGP or PCI-Express, 800 x 600 (1280 x 1024 recommended), 32-bit color			
Note: All specifications are subject to change without notice.						

			GV-1120A x 2	GV-1240A x 2	GV-1480A x 2
Interface			PCI-E (x1) x 2		
Input Type			D-Type, DVI		
Video Input			16, 20, 24, 28, 32	16, 24, 32	32
Total Recording Rate	CIF	NTSC	240 fps	480 fps	960 fps
		PAL	200 fps	400 fps	800 fps
	D1	NTSC	160 fps	240 fps	480 fps
		PAL	144 fps	200 fps	400 fps
Display Rate	NTSC		960 fps	960 fps	960 fps
	PAL		800 fps	800 fps	800 fps
Video Codec			Geo MPEG4, Geo H.264		
Video Resolution		NTSC	704 x 480, 704 x 480 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 240, 320 x 240		
		PAL	704 x 576, 704 x 576 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 288, 320 x 240		
Audio Input			16, 20, 24, 28, 32	16, 24, 32	32
Audio Format			16 kHz / 16-bit, 32 kHz / 16-bit		
GV-Multi Quad Card Support			O	O	O
GV-Loop Through Card			O	O	O
GV-NET/IO Card Support			O	O	O
GV-I/O 12-In Card Support			O	O	O
GV-I/O 12-Out Card Support			O	O	O
Hardware Watchdog			O	O	O
Minimum System Requirements					
OS			Windows XP (32-bit) / Vista (32-bit) / 7 & 8 (32-bit and 64-bit) / Server 2008 (32-bit and R2, 64-bit) / Server 2012 (64-bit)		
DirectX			9.0c		
CPU			Pentium 4, 3.0 GHz Dual Core	Core 2 Duo, 2.53 GHz	Core 2 Quad, 2.4 GHz
RAM			2 x 1 GB Dual Channels		
HDD			160 GB	250 GB	500 GB
Graphic Card			AGP or PCI-Express, 800 x 600 (1280 x 1024 recommended), 32-bit color		

Note: All specifications are subject to change without notice.

			GV-1120B x 2	GV-1240B x 2	GV-1480B x 2
Interface			PCI-E (x4) x 2		
Input Type			DVI		
Video Input			32	32	32
Total Recording Rate	CIF	NTSC	240 fps	480 fps	960 fps
		PAL	200 fps	400 fps	800 fps
	D1	NTSC	240 fps	480 fps	960 fps
		PAL	200 fps	400 fps	800 fps
Display Rate	CIF	NTSC	960 fps	960 fps	960 fps
		PAL	800 fps	800 fps	800 fps
	D1	NTSC	960 fps	960 fps	960 fps
		PAL	800 fps	800 fps	800 fps
Video Codec			Geo MPEG4, Geo H.264		
Video Resolution		NTSC	704 x 480, 704 x 480 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 240, 320 x 240		
		PAL	704 x 576, 704 x 576 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 288, 320 x 240		
Audio Input			32	32	32
Audio Format			16 kHz / 16-bit, 32 kHz / 16-bit		
GV-Multi Quad Card Support			O	O	O
GV-Loop Through Card			O	O	O
GV-NET/IO Card Support			O	O	O
GV-I/O 12-In Card Support			O	O	O
GV-I/O 12-Out Card Support			O	O	O
Hardware Watchdog			O	O	O
Minimum System Requirements					
OS			Windows XP (32-bit) / Vista (32-bit) / 7 & 8 (32-bit and 64-bit) / Server 2008 (32-bit and R2, 64-bit) / Server 2012 (64-bit)		
DirectX			9.0c		
CPU			Core 2 Duo, E7200, 2.53 GHz	Core 2 Duo, 3.0 GHz	Core 2 Quad, 2.4 GHz
RAM			2 x 1 GB Dual Channels		
HDD			160 GB	250 GB	500 GB
Graphic Card			AGP or PCI-Express, 800 x 600 (1280 x 1024 recommended), 32-bit color		

Note: All specifications are subject to change without notice.

Chapter 2 Hardware Accessories

This chapter includes the following information:

- **System requirements**
- **Packing list**
- **Connection diagrams**
- **Specifications**
- **Driver installation**

2.1 GV-Multi Quad Card

The GV-Multi Quad Card connects up to 5 TV monitors (spot monitors). One port supports up to 16 screen divisions, while the other 4 ports support 1 and 4 screen divisions. It also allows self-defined channel sequence and position changes of divisions on the monitor screen.

For further operations on GV-System, see *Quad Spot Monitors Controller,* Chapter 11, *GV-DVR User's Manual* on the Software DVD.

System Requirement

- GV-System Version 8.1 or above

Packing List

1. GV-Multi Quad Card x 1
2. 1-5 D-Type Video Cable x 1
3. 40-Pin Ribbon Cable x 1
4. 40-Pin Ribbon Cable with Four 10-Pin Headers x 1

Connections

- Use the supplied Ribbon Cable to connect the GV-Multi Quad Card to the GV-Video Capture Card as illustrated below.

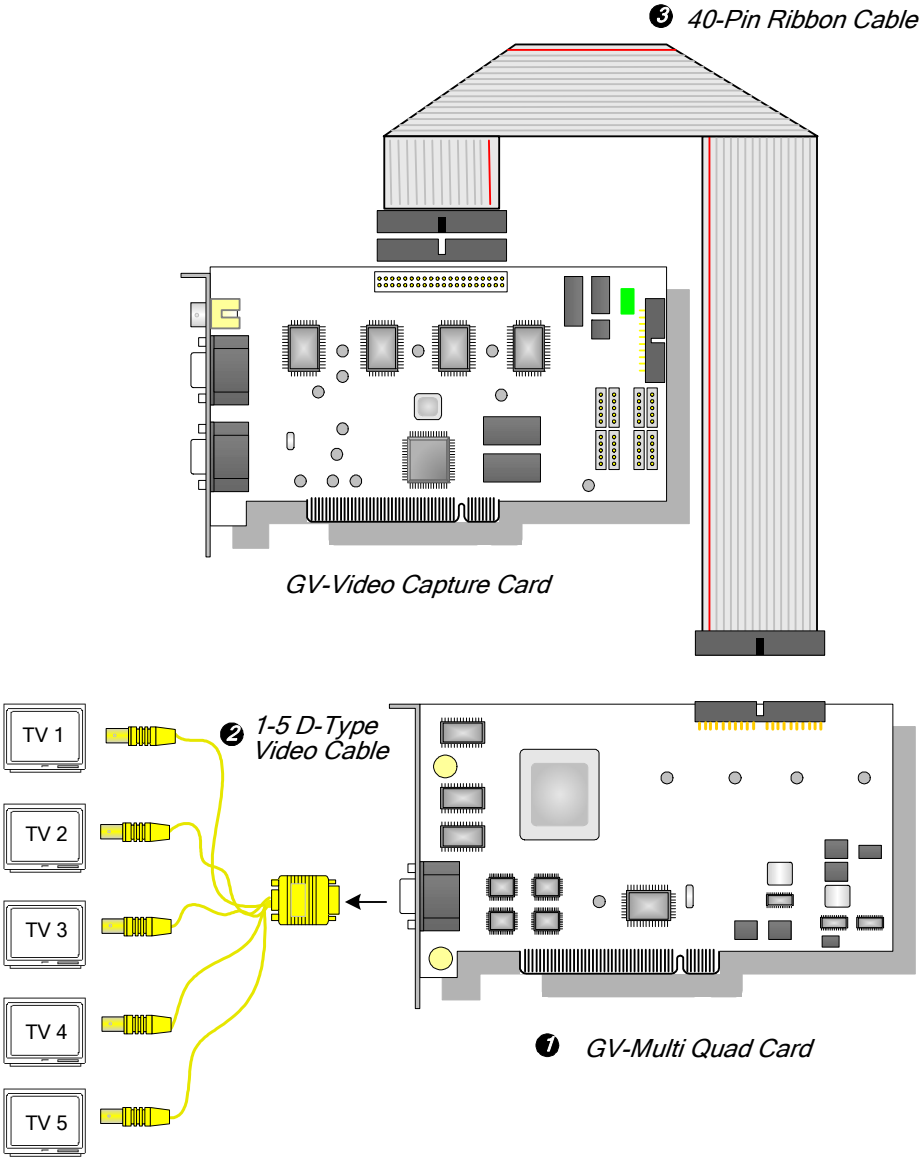


Figure 2-1 GV-Multi Quad Card connections

Connections with Two Video Capture Cards

In the computer where two video capture cards are installed, the GV-Multi Quad Card should connect to only one video capture card. Use the supplied Ribbon Cable to connect the GV-Multi Quad Card to the video capture card of your choice.

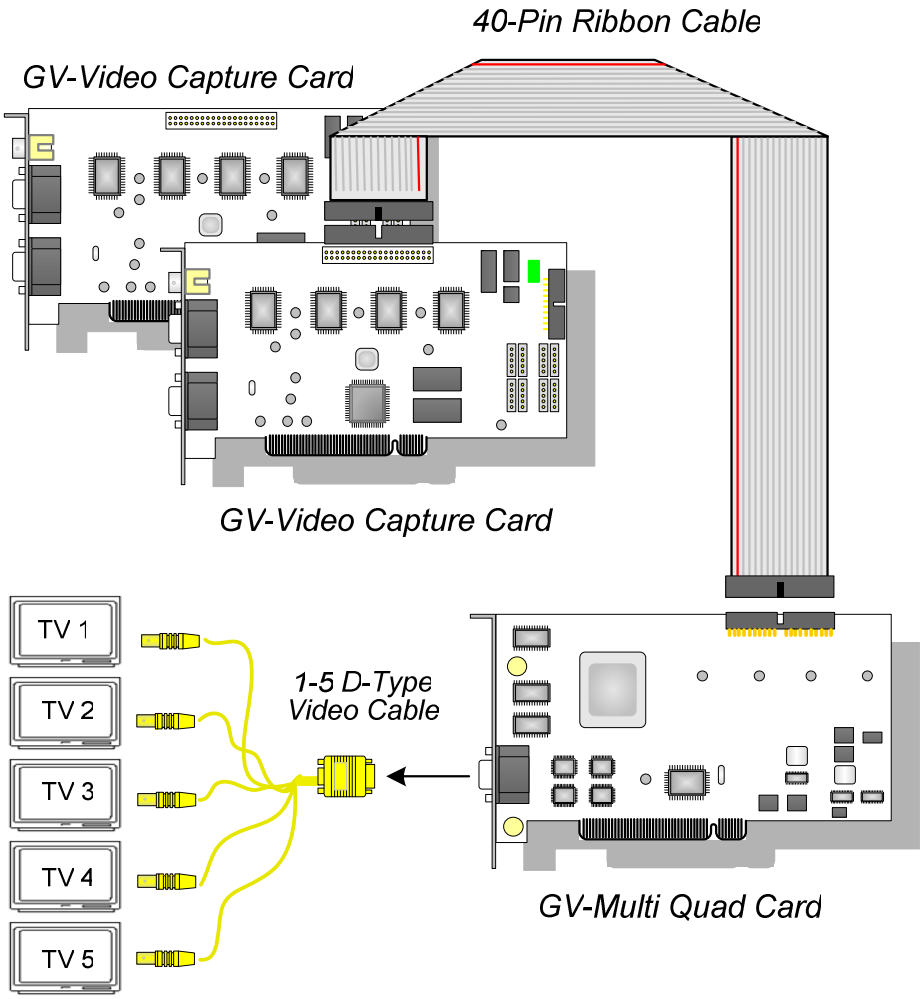


Figure 2-2

Installing Drivers

After you install the GV-Multi Quad Card to the computer, the Hardware Wizard will automatically detect the device. Ignore the wizard, and follow the steps in *2.13 Installing Drivers* to install drivers.

To verify the drivers are installed correctly, go to **Device Manager**. Expanding the **Sound, video and game controllers** field, you should see the entries for **GVTVOUT Audio #A** and **GVTVOUT Video Capture #A**.

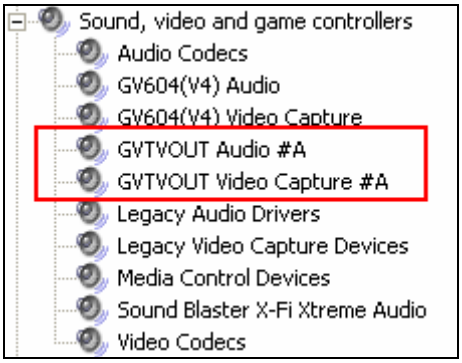


Figure 2-3 Verifying GV-Multi Quad Card drivers

Specifications

Interface for GV-Video Capture Card	40-Pin Connector
TV Output	DB15 to 5 BNC Connectors
Input Signal	16 Channels
TV Monitor Layout	Port 1: supports up to 16 screen divisions. Port 2 ~ Port 5: support 1 and 4 screen divisions.
Compatible Model	All GV-Video Capture Card models
Dimensions (W x H)	178 x 104 mm / 7.01 x 4.09 in

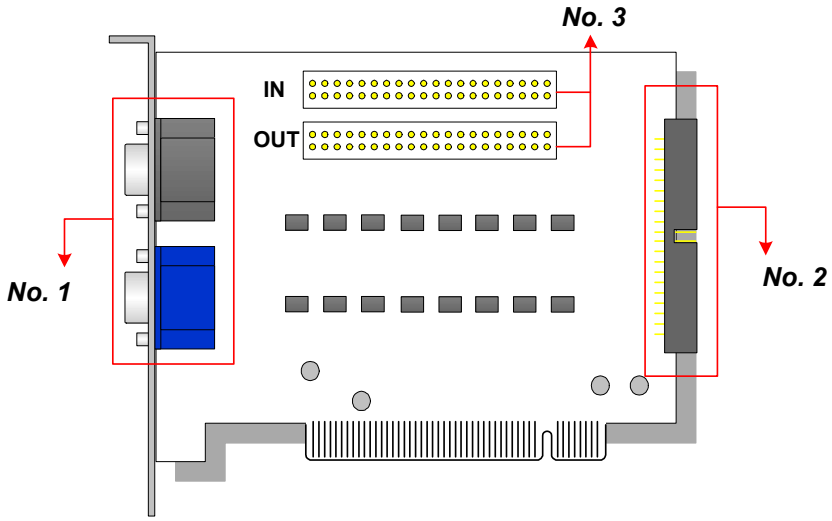
2.2 GV-Loop Through Card

The GV-Loop Through Card is designed to take the video signal directly from the GV-Video Capture Card, without internal device processes, and then split it into 16 signals while maintaining video quality. With the duplicate 16 signals, the card can meet your need for multiple monitors.

Packing List

1. GV-Loop Through Card x 1
2. 1-8 D-Type Video Cable x 1
3. 9-16 D-Type Video Cable x 1
4. 40-Pin Ribbon Cable x 1
5. 40-Pin Ribbon Cable with Four
6. 10-Pin Headers x 1

Overview



No. 1: Video OUT
No. 2: Video OUT
No. 3: Video IN (IN for GV Video Capture Card only)

Figure 2-4 GV-Loop Through Card

Note:

1. For No. 2 Video Out, an extra D-Type extension card is required.
2. Select either No. 1 or No. 2 for video out. Using both at the same time may cause video degradation.
3. Only connect GV-Video Capture Card to No. 3. Other devices are prohibited.

Connections

- Connect D-type cables and the GV-Video Capture Card to the GV-Loop Through Card as illustrated below.

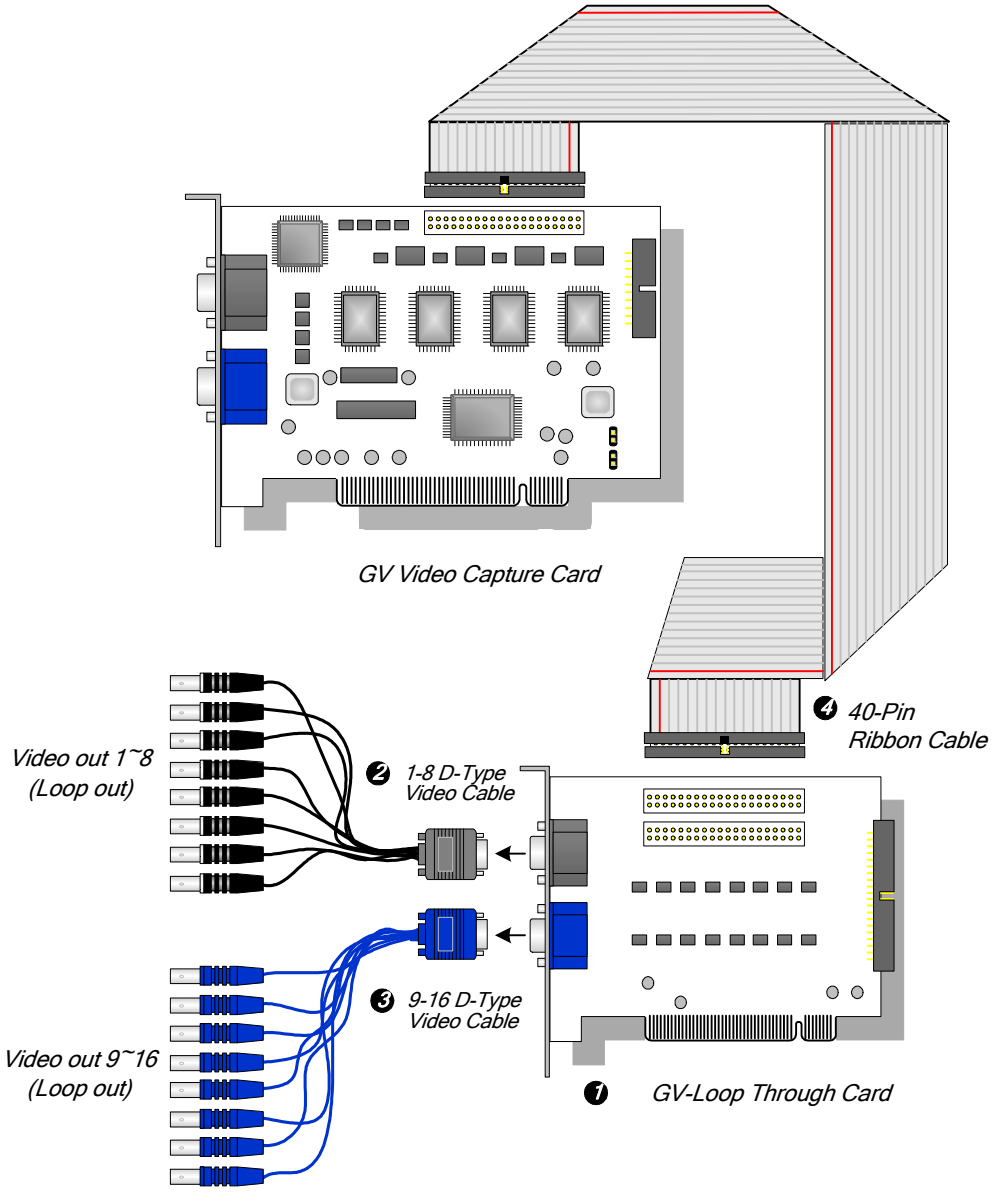


Figure 2-5 GV-Loop Through Card connections

Connections with Two Video Capture Cards

If your system is equipped with two video capture cards, you can connect the GV-Loop Through Card to each video capture card.

Specifications

Interface for GV-Video Capture Card	40-Pin Connector x 2
Output Interface	DB15 Connector x 2
	40-Pin Connector x 1
Input Signal	16 Channels
Compatible Model	All GV-Video Capture Card models
Dimensions (W x H)	130 x 98 mm / 5.12 x 3.86 in

2.3 GV-NET Card V3.2

The GV-NET Card is a RS-485 / RS-232 interface converter. This Card connects to the RS-232 port or USB port on your computer, and allows RS-485 devices, such as PTZ domes, to be connected through the Card.

System Requirements

If the GV-NET Card is listed as **Prolific USB-to-Serial Comm Port** under Windows Device Manager, GV-System version 8.2 or above is required. If the GV-NET Card is listed as **XR21B1411 USB UART** under Windows Device Manager, GV-System version 8.5.7.0 or above is required.

To see how to check the device name under Windows Device Manager, refer to *Installing USB Driver* later in this Installation Guide.

Packing List

1. GV-NET Card x 1
2. RJ-11 to DB9 Cable x 1
3. RJ-11 to USB Cable x 1
4. Pin Internal USB Cable x 1
5. Pin to 4-Pin Mini Power Cable x 1

Overview

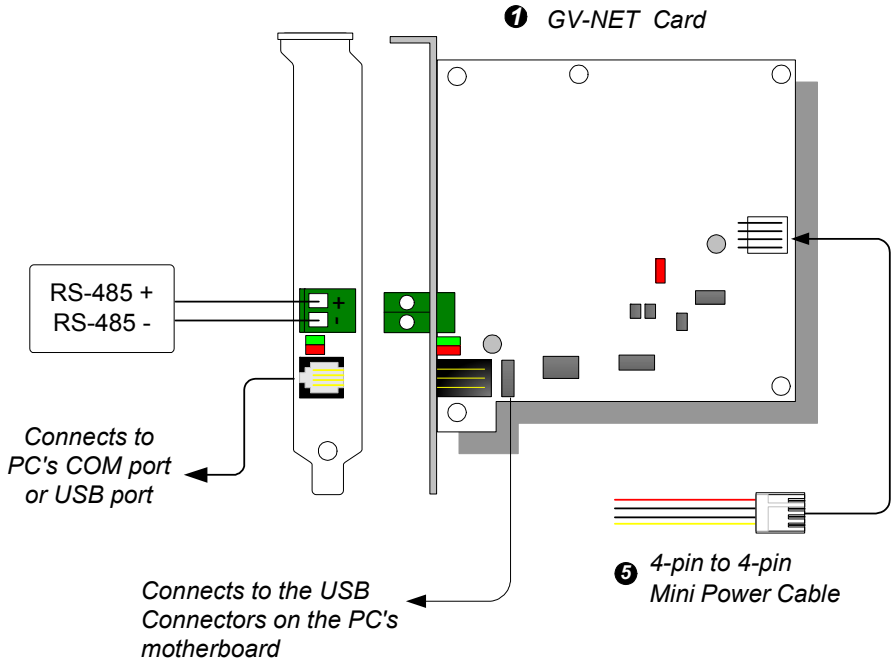


Figure 2-6 GV-Net Card Connections

Note: The GV-NET Card only provides RS-485 / RS-232 data conversion; the connection to the GV-Video Capture Card is not required.

RS-485 Device Connections

To connect the GV-NET Card to the RS-485 devices, there are three ways of connections. See the pictures below.

1. You can connect a RJ-11 to DB9 Cable to the PC's COM Port when a RS-485 device is connected.

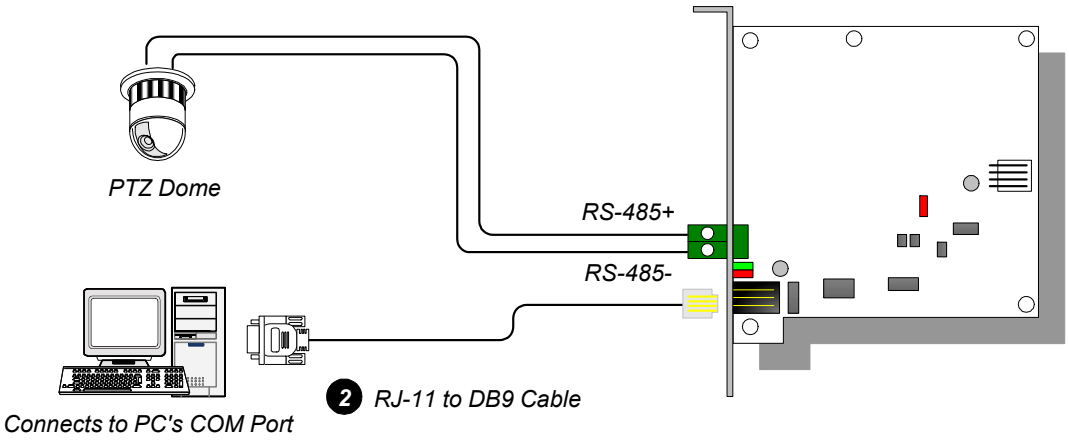


Figure 2-7

2. You can connect a RJ-11 to USB Cable to the PC's USB Port when a RS-485 device is connected.

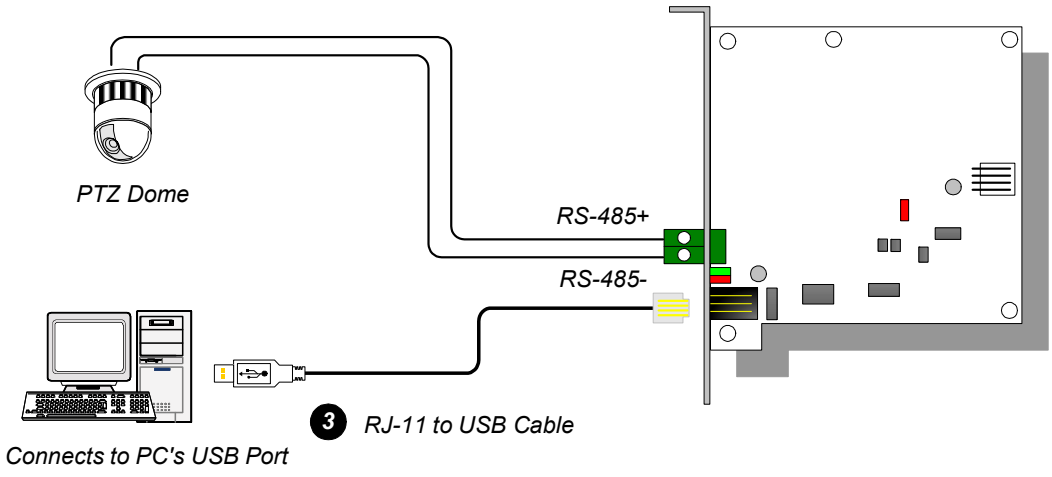


Figure 2-8

Note: It is required to install the USB driver. For details, see *2.13 Installing USB Driver.*

3. You can connect a 3-Pin Internal USB Cable to the USB connectors on the PC's Motherboard when a RS-485 device is connected.

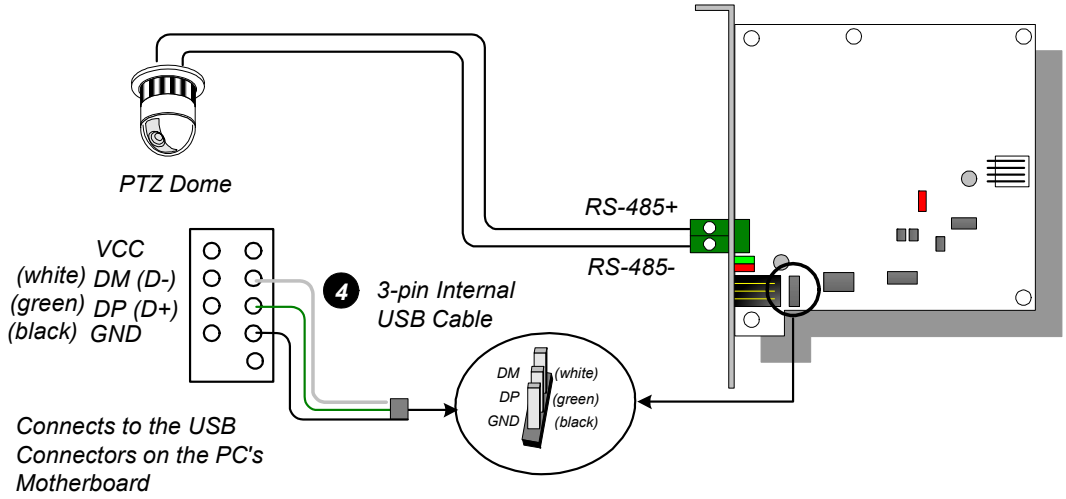


Figure 2-9

Note: It is required to install the USB driver. For details, see *2.13 Installing USB Driver.*

Specifications

OS Supported	32-bit	Windows XP / Vista / 7 / 8 / Server 2008
	64-bit	Windows 7 / 8 / Server 2008 / Server 2012
Interface		RJ-11 to DB9 (RS-232)
		RJ-11 to USB
		3-Pin Internal USB to Internal USB
		RS-485+ / RS-485-
Communication		RS-485 1,200~115,200 bps; USB
Environmental Condition		0~50 Degree C / 32~122 Degree F 5%~95% (Non-Condensing)
Compatible Model		All GV-Video Capture Card Models
Dimensions (W x H)		97 x 90 mm / 3.82 x 3.54 in

2.4 GV-NET/IO Card V3.2

The GV-NET/IO Card is a RS-485 / RS-232 interface converter, providing 4 inputs and 4 relay outputs as well. It supports both DC and AC output voltages.

Key Features

1. A USB port is provided for PC connection, and it is used with 30 DC output voltages.
2. It can switch between two modes, NET/IO Card Mode and I/O Box Mode, which expand its capability.
3. Up to 4 GV-NET/IO Cards can be chained together when it is on the I/O Box Mode.
4. It can act as an independent device when it is on the I/O Box Mode.

System Requirements

If the GV-NET/IO Card is listed as **Prolific USB-to-Serial Comm Port** under Windows Device Manager, GV-System version 8.2 or above is required. If the GV-NET/IO Card is listed as **XR21B1411 USB UART** under Windows Device Manager, GV-System version 8.5.7.0 or above is required.

To see how to check the device name under Windows Device Manager, refer to *Installing USB Driver* later in this Installation Guide.

Packing List

1. GV-NET/IO Card x 1
2. 20-Pin Ribbon Cable with 4 Connectors x1
3. RJ-11 to DB9 Cable x 1
4. RJ-11 to USB Cable x 1
5. 3-Pin Internal USB Cable x 1
6. 4-Pin to 4-Pin Mini Power Cable x 1
7. Software DVD x 1

Overview

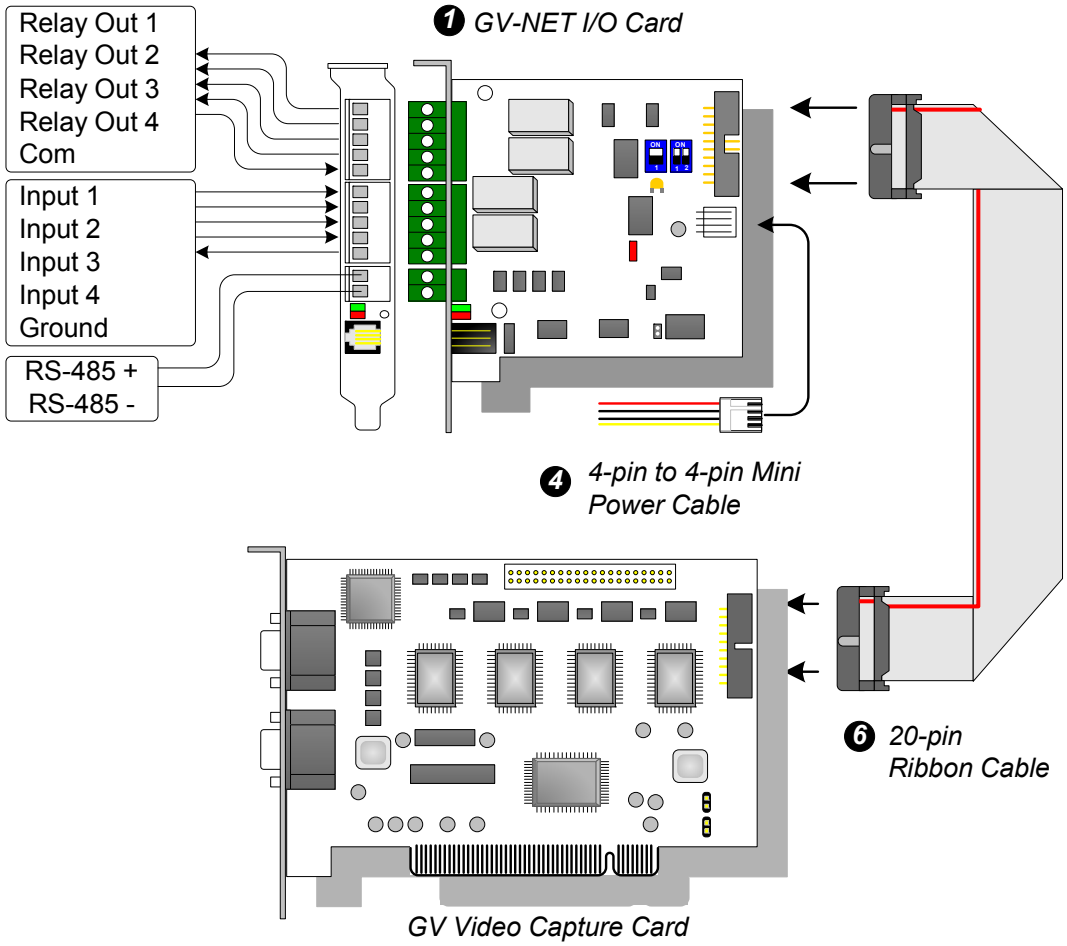
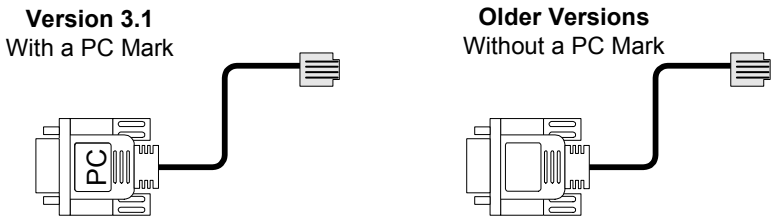


Figure 2-10 GV-NET/IO Card connections

Note:

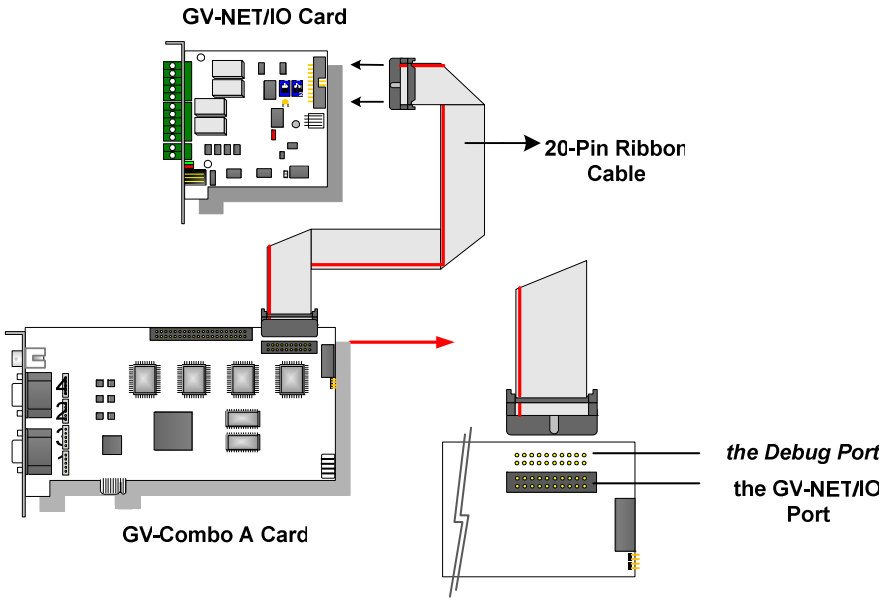
1. The supplied RJ-11 to DB9 Cable of older versions is not compatible with the GV-NET/IO Card V3.1 or later.



2. When the GV-NET/IO Card V3.1 or later is in the I/O Box mode, it is incompatible with the GV-IO 12-In Card of versions earlier than V3.
3. To prevent the noise interference in I/O operation, tightly screw the GV-NET/IO Card V3.1 or later to the PC case.

---

4. Ensure to connect the GV-NET/IO Card to the 20-pin GV-NET/IO port on the GV-Combo A Card as illustrated below. Wrong connection may damage the GV-NET/IO Card or the GV-Combo A Card, causing Video Lost or an error message of “can’t find keypro” to pop up.



Connections with Two Video Capture Cards

If your system is equipped with two video capture cards, connect the GV-NET/IO Card to the video capture card of 1-16 channels.

Connections in NET/IO Card Mode

For the connections in the NET/IO Card Mode, follow the instructions below:

- It is required to connect the GV-NET/IO Card to GV-Video Capture Card with the 20-Pin Ribbon Cable.
- If you want to connect the GV-NET/IO Card to RS-485 devices, you have three ways of connections. See below.

Three Ways of Connections of GV-NET/IO Card and RS-485 Devices:

1. You can connect a RJ-11 to DB9 Cable to the PC's COM Port when a RS-485 device is connected. **(Allowed for AC/DC Output Voltage)**

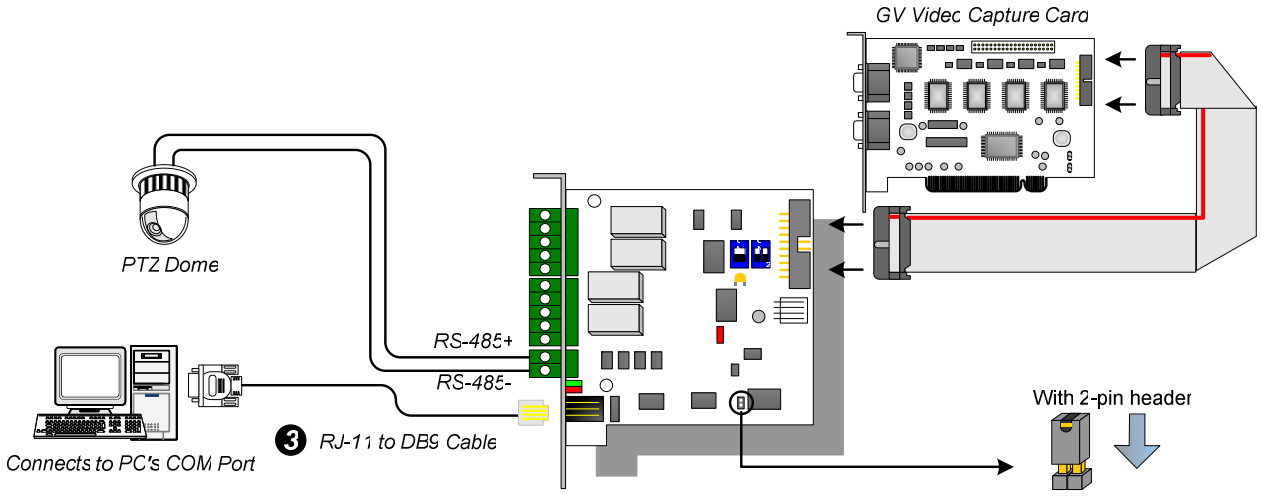


Figure 2-11

2. You can connect a RJ-11 to USB Cable to the PC's USB Port when a RS-485 device is connected. **(Allowed for AC/DC Output Voltage)**

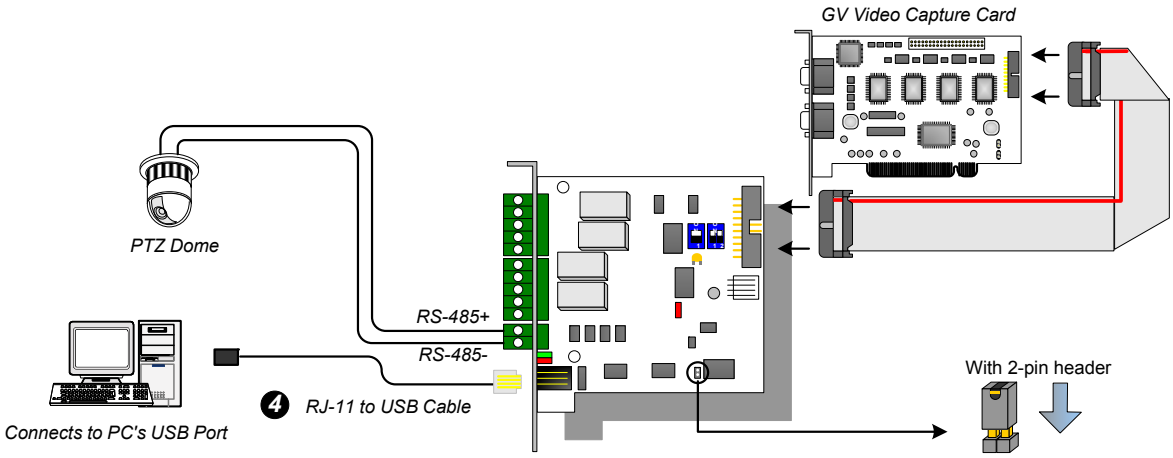


Figure 2-12

Note: It is required to install the USB driver. For details, see *2.13 Installing USB Driver.*

3. You can connect a 3-Pin Internal USB Cable to the USB Connectors on the PC's Motherboard when a RS-485 device is connected. **(Allowed for AC/DC Output Voltage)**

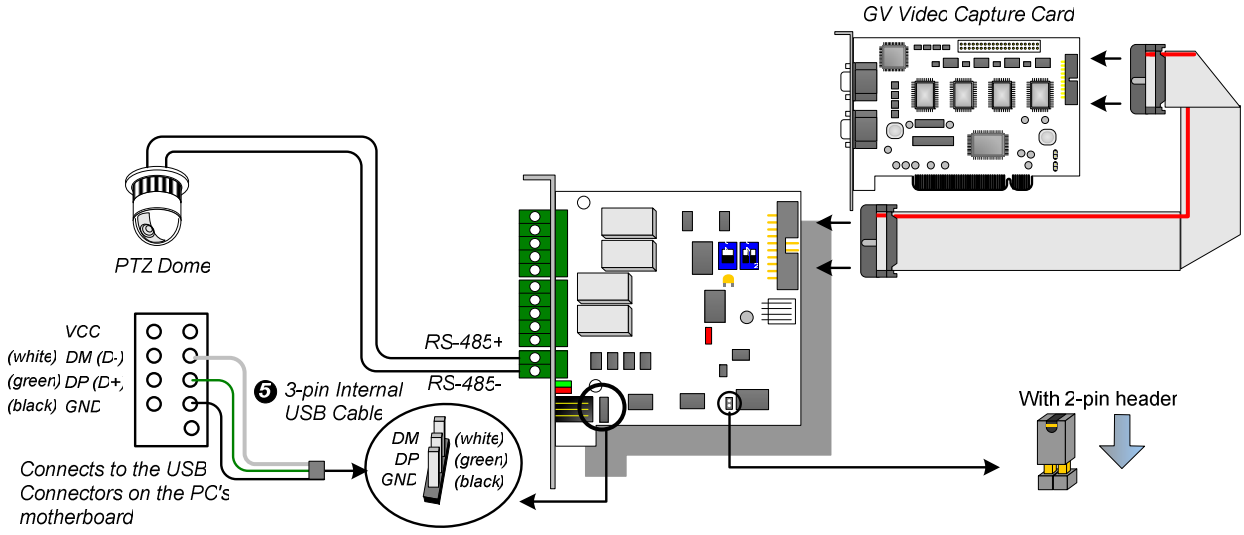


Figure 2-13

Note: It is required to install the USB driver. For details, see *2.13 Installing USB Driver.*

Connections In I/O Box Mode

For the connections in the I/O Box Mode, follow the instructions below:

- It is not necessary to connect the GV-NET/IO Card to GV-Video Capture Card.
- Connect the GV-NET/IO Card to the PC by one of the following three ways.

Three Ways of Connections of GV-NET/IO Card and PC:

1. You can connect a RJ-11 to DB9 Cable to the PC's COM Port. **(Allowed for AC/DC Output Voltage)**

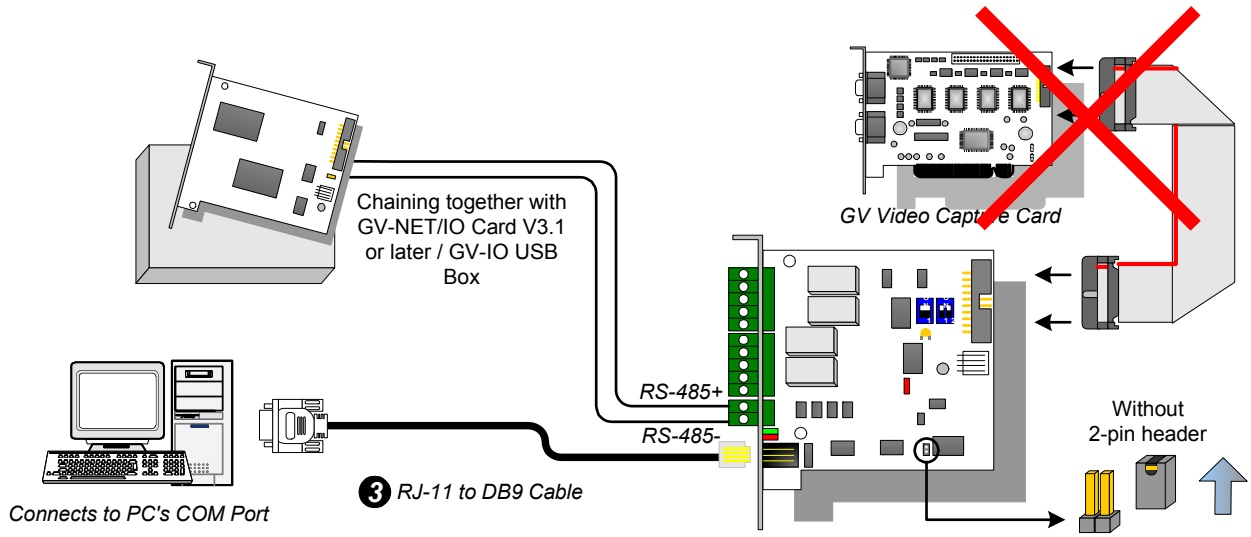


Figure 2-14

2. You can connect a RJ-11 to USB Cable to the PC's USB Port. **(Allowed for DC Output Voltage only)**

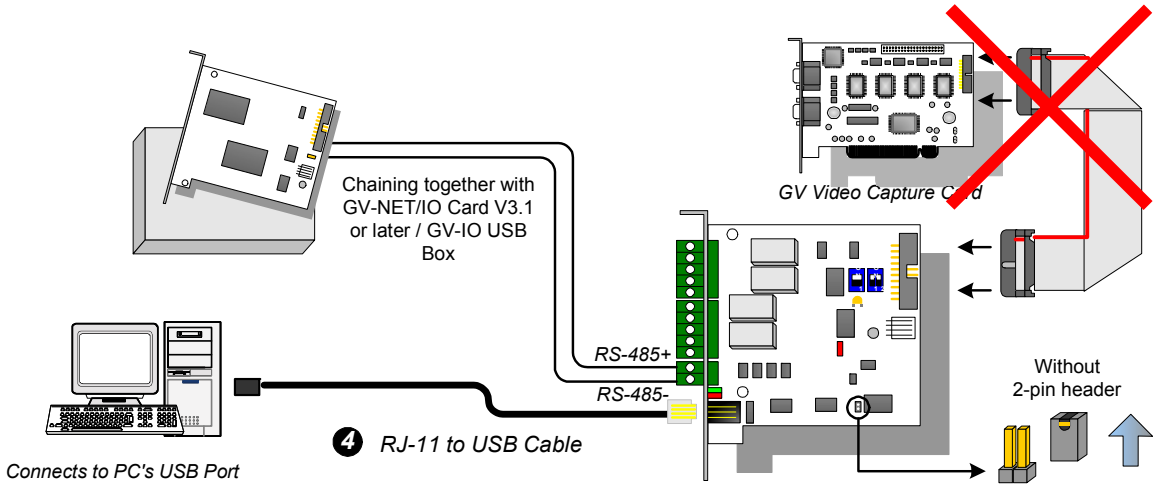


Figure 2-15

Note: It is required to install the USB driver. For details, see *2.13 Installing USB Driver.*

3. You can connect a 3-Pin Internal USB Cable to the USB Connectors on the PC's Motherboard. **(Allowed for DC Output Voltage only)**

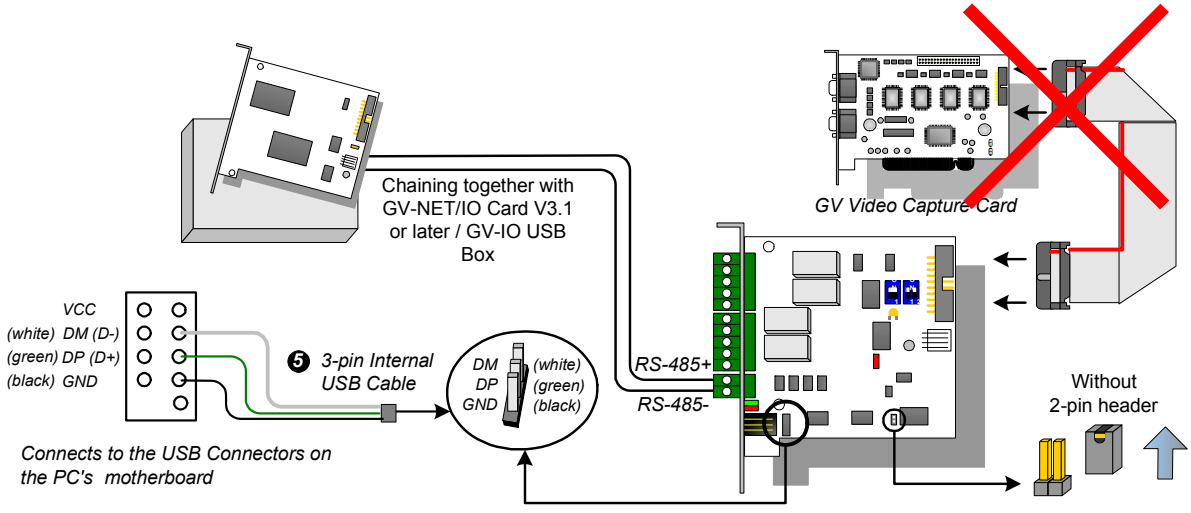


Figure 2-16

Note: It is required to install the USB driver. For details, see *2.13 Installing USB Driver.*

Switching Modes

The GV-NET/IO Card provides two modes for users to expand its capability: I/O Box Mode and NET/IO Card Mode. With a mode-switch jumper to insert on the 2-pin header, you can switch between modes.

- **NET/IO Card Mode (default):** With the switch jumper inserted, this default mode acts as a GV-NET/IO Card. It is required to connect the GV-NET/IO Card to the GV-Video Capture Card for usage.
- **I/O Box Mode:** Without the switch jumper inserted, the GV-NET/IO Card can work as an independent device. It is NOT necessary to connect to the GV-Video Capture Card for usage.

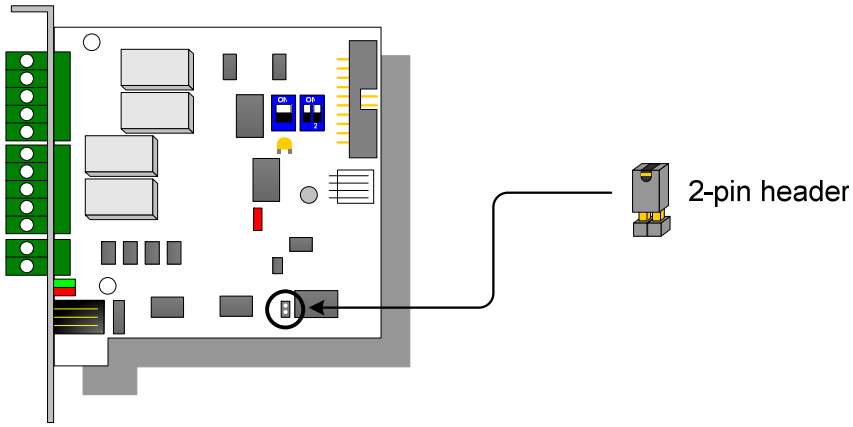


Figure 2-17

Extended Connections

Via the RS-485 connectors, up to 4 GV-NET/IO Cards can be chained together when the GV-NET/IO Card is on the I/O Box mode. For extended connections, the address assignment is shown below.

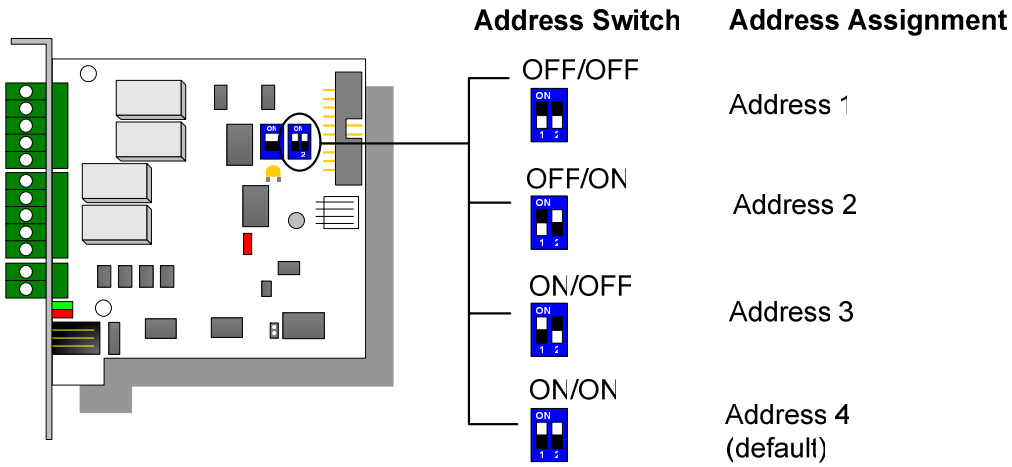


Figure 2-18

Note: When the GV-NET/IO Card is set to the I/O Box Mode, it can have extended connections with GV-I/O Boxes.

DIP Switch

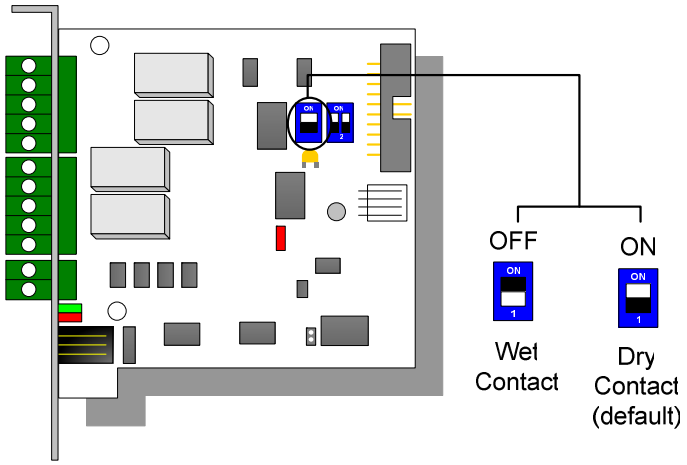


Figure 2-19

Specifications

OS Supported	32-bit	Windows XP / Vista / 7 / 8 / Server 2008	
	64-bit	Windows 7 / 8 / Server 2008 / Server 2012	
Input	Input	4	
	Input Signal	Dry Contact, Wet Contact 9~30V AC/DC	
Output	Relay Output	4	
	Relay Status	Normal Open	
	Relay Capacitance	USB Connection	30V DC, 3A
		RS-232 Connection	125 / 250V AC, 3A 30V DC, 3A
Interface		RJ-11 to DB9	
		RJ-11 to USB	
		3-Pin Internal USB to Internal USB	
Mode Switch	I/O Box Mode	Without GV-Video Capture Card	
	NET/IO Card Mode	With GV-Video Capture Card	
Address		1~4	
Communication		RS-485, USB, RS-232	
Operating Temperature		0°C ~ 50°C / 32°F ~ 122°F	
Humidity		5% ~ 95% (Non-Condensing)	
Compatible Model		All GV-Video Capture Card Models	
Dimensions (W x H)		99 x 90 mm / 3.90 x 3.54 in	

2.5 GV-Hub V2

The GV-Hub V2 adds four RS-232/RS-485 serial ports through your computer's USB port. The USB solution for serial port extension is perfect for any RS-485 to RS-232 conversion requirements, such as POS and PTZ applications.

Packing List

1. GV-Hub V2 x 1
2. A to B USB Cable x 1
   (1.2 meters / 3.93 feet)
3. DB9 RS-232 Cable x 4
   (1.8 meters / 5.90 feet)
4. Software DVD x 1

Overview

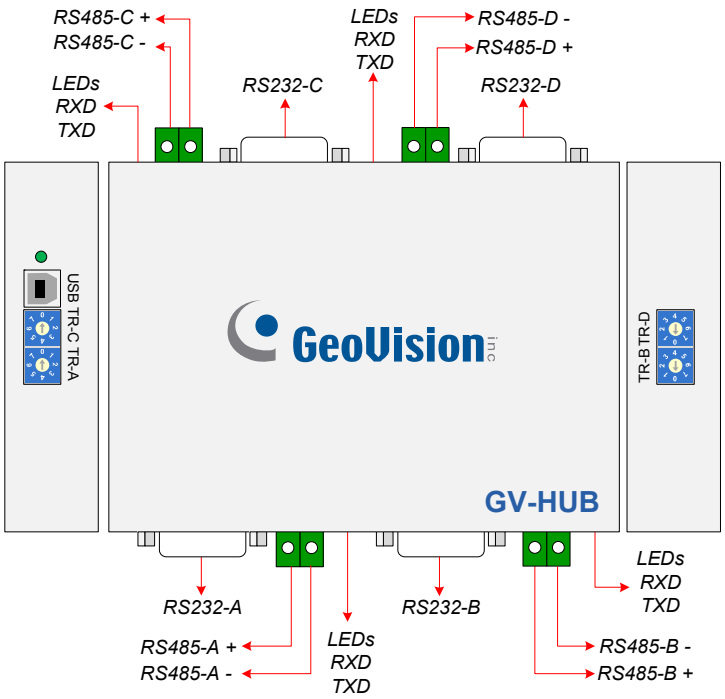


Figure 2-20

Note: There are four sets of RS-232 / 485 ports (A-D). In a single set, you can only choose RS-232 or RS-485 port for connection.

Connections

Following provides two examples of using the GV-Hub V2:

Connecting POS Systems

The GV-Hub V2 can provide a local connection for up to four POS systems, and deliver transaction data to the GV-System over a USB cable.

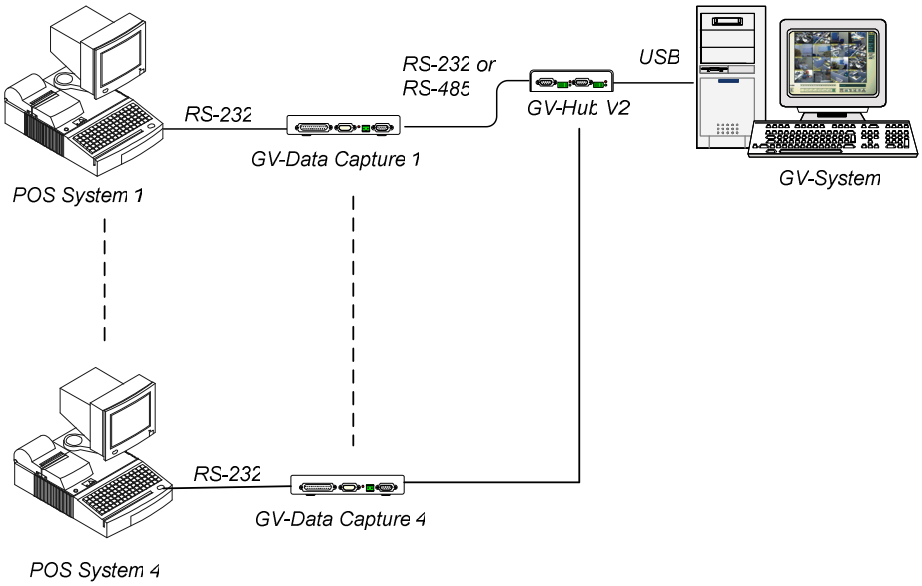


Figure 2-21

Connecting RS-485 Devices

With the GV-Hub V2, the GV-System can connect up to 16 PTZ domes and nine GV-I/O Boxes (16 ports, 8 ports, 4 ports) simultaneously.

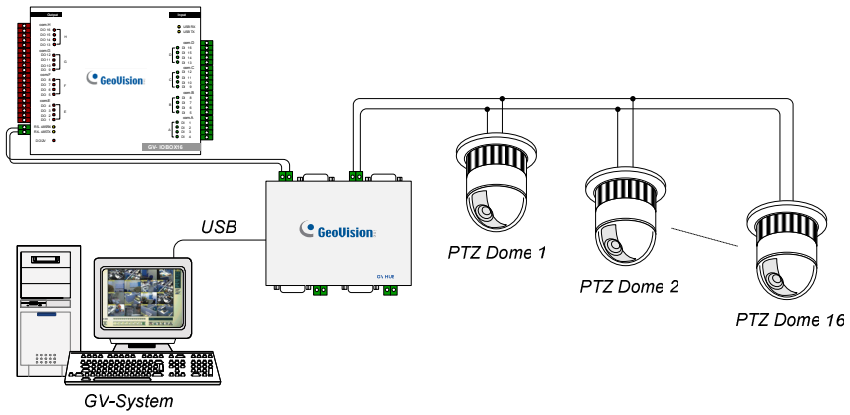


Figure 2-22

Extending Transmission over the Distance

The transmission signals between the RS-485 communications become weak over the distance. To maintain the signals, switch on the Terminal Resistance Switch to reduce the resistance value. The loger the distance, the smaller the resistance value (Ω) should be switched on.

Terminal Resistance Switch

1. TR-A, TR-B, TR-C and TR-D is the Terminal Resistance Switch for RS485-A, RS-485-B, RS-485-C, and RS-485D respectively.
2. Followings are the address assignments of the Terminal Resistance Switch.

Switch No.	Resistance Value (Ω)	Switch No.	Resistance Value (Ω)
0	∞	4	30 Ω
1	120 Ω	5	24 Ω
2	60 Ω	6	20 Ω
3	40 Ω	7	17.14 Ω

Installing Drivers

When you connect the GV-Hub V2 to the computer, the Found New Hardware Wizard will automatically detect the device. To install the drive, follow the steps described in *2.13 Installing USB Driver*.

To verify the drivers are installed correctly, go to **Device Manager**. Expanding the **Ports** field, you should see the 4 entries for **Prolific USB-to Serial Bridge**.

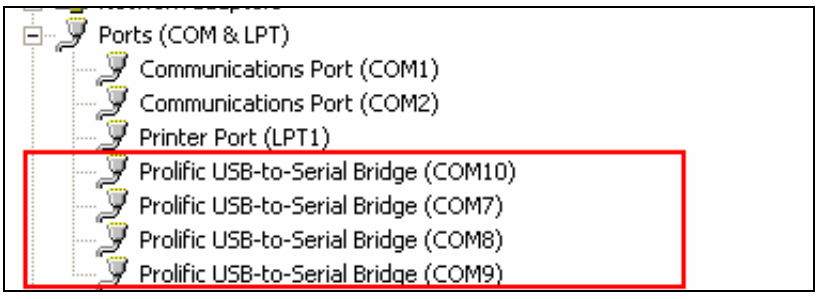


Figure 2-23

Specifications

OS Supported	32-bit	Windows XP / Vista / 7 / Server 2008
	64-bit	Windows 7 / Server 2008
Serial Interface	RS-232	Signal: DCD, RxD, TxD, DTR, GND, DSR, RTS, CTS
		Connecter: DB9 Male x 4 (A, B, C, D)
	RS-485	Signal: D+, D-
		Connector: Terminal Block x 4 (0 ~7, ∞~17.14 Ω)
	Serial Line Protection	16 KV ESD for All Signals
USB	Compliance	USB 2.0 Backward Compatible
	Speed	Full Speed 12 Mbps
Communication Parameters	Parity	None, Even, Odd
	Data Bit	7, 8
	Stop Bit	1 , 2
	Flow Control	RTS/CTS, XON/XOFF
	Speed	600 bps to 115,200 bps
Environmental Conditions		0~55 Degree C / 32~131 Degree F 5%~95% (Non-Condensing)
Dimensions (W x H x D)		103 x 30 x 125 mm / 4.06 x 1.18 x 4.92 in

2.6 GV-COM V2

The GV-COM V2 adds one RS-485 port to your computer through a USB connector. The GV-COM V2 can convert the standard RS-232 signal, through USB connector, to RS-485 2-wire control for PTZ cameras, GV-Data Capture Box or any other RS-485 devices.

Packing List

1. GV-COM V2 x 1
2. USB Extension Cable x 1
   (1.8 meters / 5.91 feet)
3. Software DVD x 1

Overview

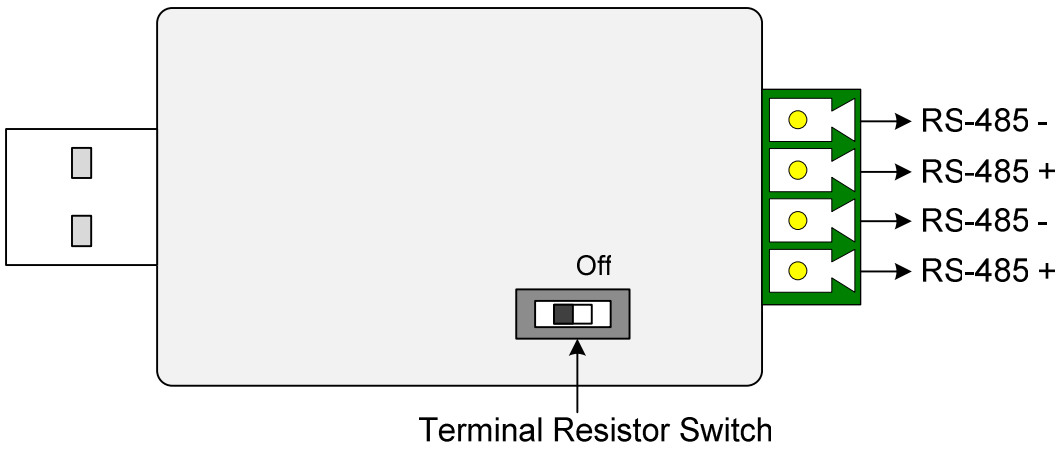


Figure 2-24

Note: The GV-COM V2 is only capable of converting one RS-485 signal to RS-232 signal. The RS-485 port is extended into two sets of connection points.

Extending Transmission over the Distance

When the transmission signals between the RS-485 communications become weak over the distance, switch on the Terminal Resistance Switch to maintain the signals.

The diagram below illustrates how to use the Terminal Resistance Switch to maintain the signals:

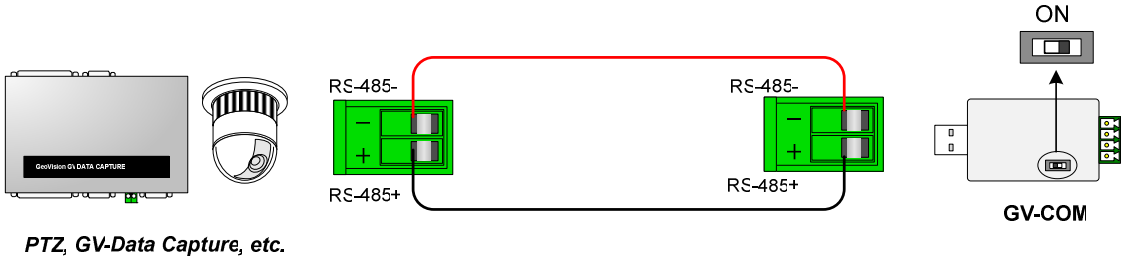
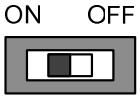


Figure 2-25 Terminal Resistor connections

Terminal Resistance Switch



The default setting of the Switch is OFF. To switch on the Terminal Resistance Switch, push the switch to the **ON** position.

Installing Drivers

When you connect GV-COM V2 to the computer, the Found New Hardware Wizard will automatically detect the device. To install the drive, follow the steps described in *2.13 Installing USB Driver*.

To verify the drivers are installed correctly, go to **Device Manage**r. Expand the **Ports** field, and you should see one entry for Prolific USB-to-Serial Bridge.

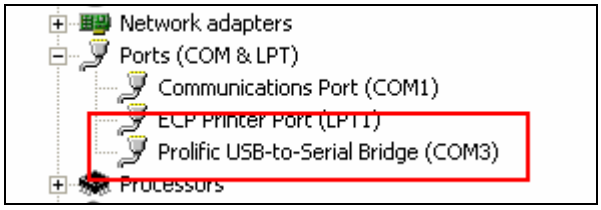


Figure 2-26

Specifications

OS Supported	32-bit	Windows XP / Vista / 7 / 8 / Server 2008
	64-bit	Windows 7 / 8 / Server 2008 / Server 2012
Serial Interface	RS-485	Signal: RS485+, RS485-
		Connector: Terminal Resistance Switch (120Ω)
	Serial Line Protection	16 KV ESD for All Signals
USB	Compliance	USB 2.0 Backward Compatible
	Speed	Full speed 12 Mbps
Communication Parameters	Parity	None, Even, Odd
	Data Bit	7, 8
	Stop Bit	1, 2
	Flow Control	RTS/CTS, XON/XOFF
	Speed	600 bps to 115,200 bps
Environmental Conditions		0~55 Degree C / 32~131 Degree F 5%~95% (Non-Condensing)
Dimensions (W x H x D)		68.5 x 33.5 x 16 mm / 2.7 x 1.32 x 0.63 in

2.7 GV-I/O 12-In Card V3

The GV-I/O 12-In Card is designed to work with the GV-NET/IO Card. With 12 digital inputs, the GV-I/O 12-In Card can expand the GV-System's capacity up to 16 digital inputs.

System Requirements

- GV-NET/IO Card

Packing List

1. GV-I/O 12-In Card x 1
2. 20-Pin Ribbon Cable with 4 connectors x 1
3. 4-Pin to 4-Pin Mini Power Cable x 1

Connections

Insert the GV-I/O 12-In Card to an empty card slot. Connect the 20-Pin Ribbon Cable to the GV Video Capture Card, the GV-I/O 12-Out Card, and the GV-NET/IO Card as shown below.

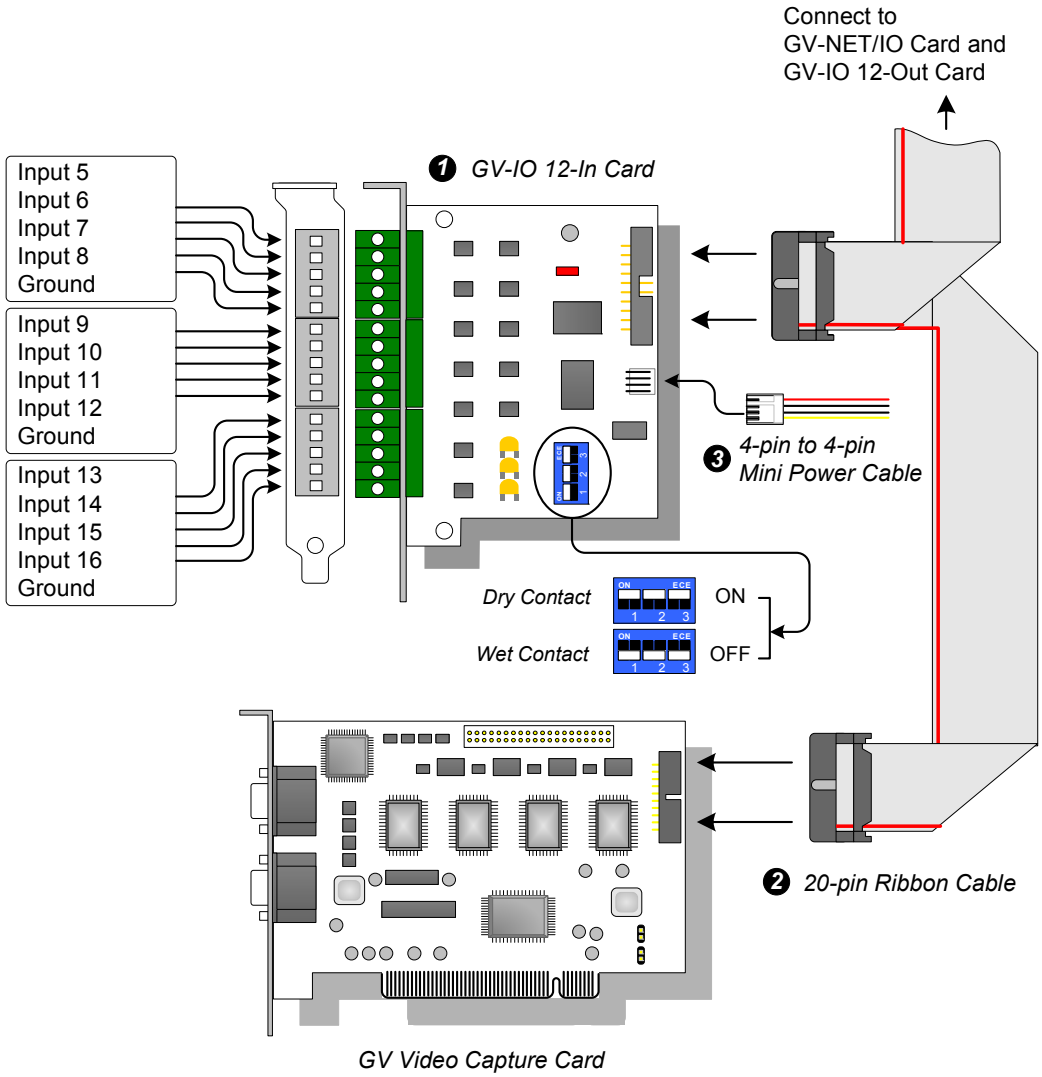


Figure 2-27 GV-I/O 12-In Card connections

Note:

1. Use of DIP switch:
   a. Use the switch for dry contact and 9-30V wet contact.
   b. The card allows the use of mixing dry and wet contact devices together. (Default Setting: Dry Contact)
   c. The 12 inputs divided as four-in-one groups are related to the three switches on the card for dry and wet contact.
2. To prevent the noise interference in I/O operation, tightly screw the GV-I/O 12-In Card to the PC case.
3. The GV-I/O 12-In Card must work with the GV-NET/IO Card together.

Specifications

Input	Input	12
	Input Signal	Dry Contact, Wet Contact 9~30V AC/DC
DC IN		DC 5V, 1A
Environmental Condition		0~50 Degree C / 32~122 Degree F 5%~95% (Non-Condensing)
Compatible Model		All GV-Video Capture Card Models
Dimensions (W x H)		90 x 99 mm / 3.54 x 3.90 in

2.8 GV-I/O 12-Out Card V3

The GV-I/O 12-Out Card is designed to work with the GV-NET/IO Card. With 12 relay outputs, the GV-I/O 12-out Card can expand the GV-System's capacity up to 16 relay outputs.

System Requirements

- GV-NET/IO Card

Packing List

1. GV-I/O 12-Out Card x 1
2. 20-Pin Ribbon Cable with 4 Connectors x 1
3. 4-Pin to 4-Pin Mini Power Cable x 1

Connections

Insert the GV-I/O 12-Out Card to an empty card slot. Connect the 20-Pin Ribbon Cable to the GV Video Capture Card, the GV-I/O 12-In Card, and the GV-NET/IO Card as shown below.

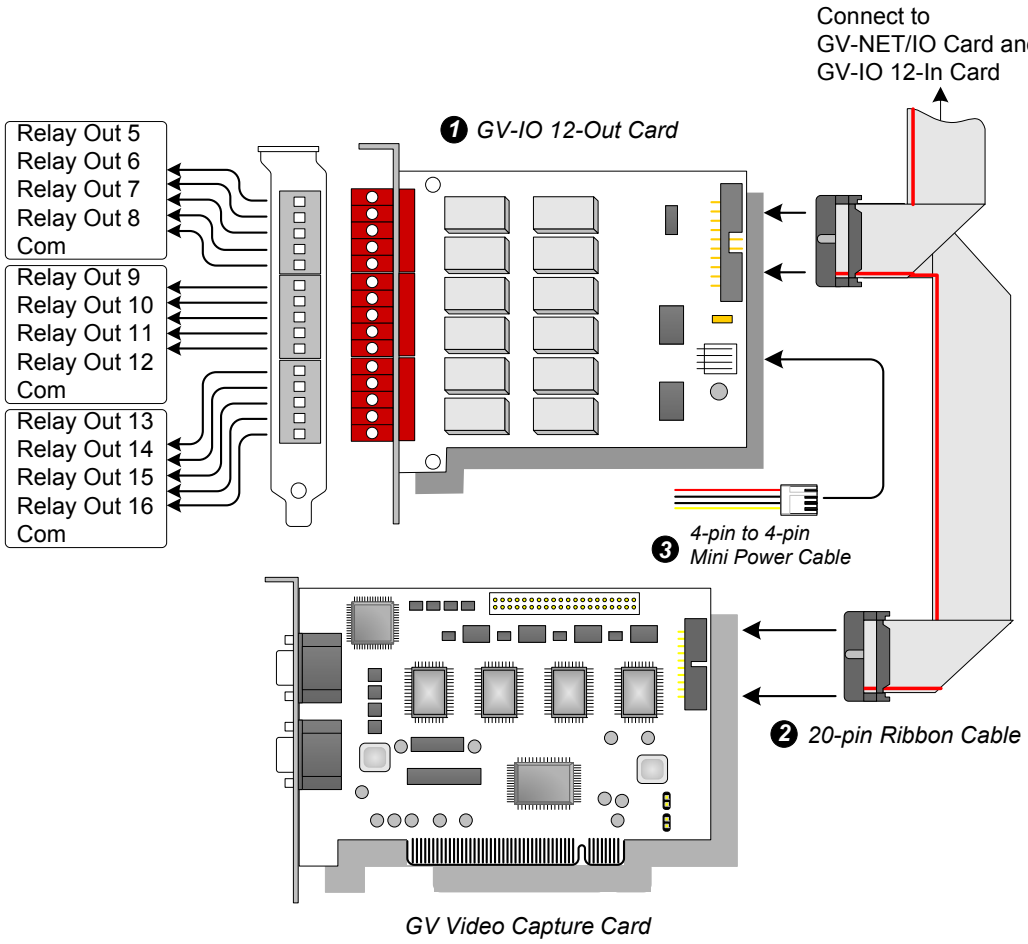


Figure 2-28 GV-I/O 12-Out Card connections

Note:

1. To prevent noise interference in I/O operation, tightly screw the GV-I/O 12-Out Card to the computer case.
2. The GV-I/O 12-Out Card must work together with the GV-NET/IO Card.

Specifications

Output	Relay Output	12	
	Relay Status	Normal Open	
	Relay Capacitance	USB Connection	30V DC, 3A
		RS-232 Connection	125 / 250V AC, 3A
DC IN		DC 5V, 1A	
Environmental Condition		0~50 Degree C / 32~122 Degree F 5%~95% (Non-Condensing)	
Compatible Model		All GV-Video Capture Card Models	
Dimensions (W x H)		120 x 99 mm / 4.72 x 3.90 in	

2.9 GV-I/O Box 16 Ports

The GV-I/O Box 16 Ports provides 16 inputs and 16 relay outputs, and supports both DC and AC output voltages.

Key Features

- 16 inputs and 16 outputs are provided.
- Up to 9 pieces of GV-I/O Box 16 can be chained together.
- A USB port is provided for PC connection, and it is only used for 30 DC output voltage.

System Requirements

If the GV-I/O Box is listed as **Prolific USB-to-Serial Comm Port** under Windows Device Manager, GV-System version 8.2 or above is required. If the GV-I/O Box is listed as **XR21B1411 USB UART** under Windows Device Manager, GV-System version 8.5.7.0 or above is required.

To see how to check the device name under Windows Device Manager, refer to *2.13 Installing USB Driver.*

Packing List

1. GV-I/O Box 16 Ports x 1
2. USB Cable (Type A to B) x 1
3. Power Adapter DC 12V x 1
4. Software DVD

Note: The GV-I/O box 16 Ports comes with the option of an Ethernet module. See *2.12 Accessing GV-I/O Box over Networks*.

Overview

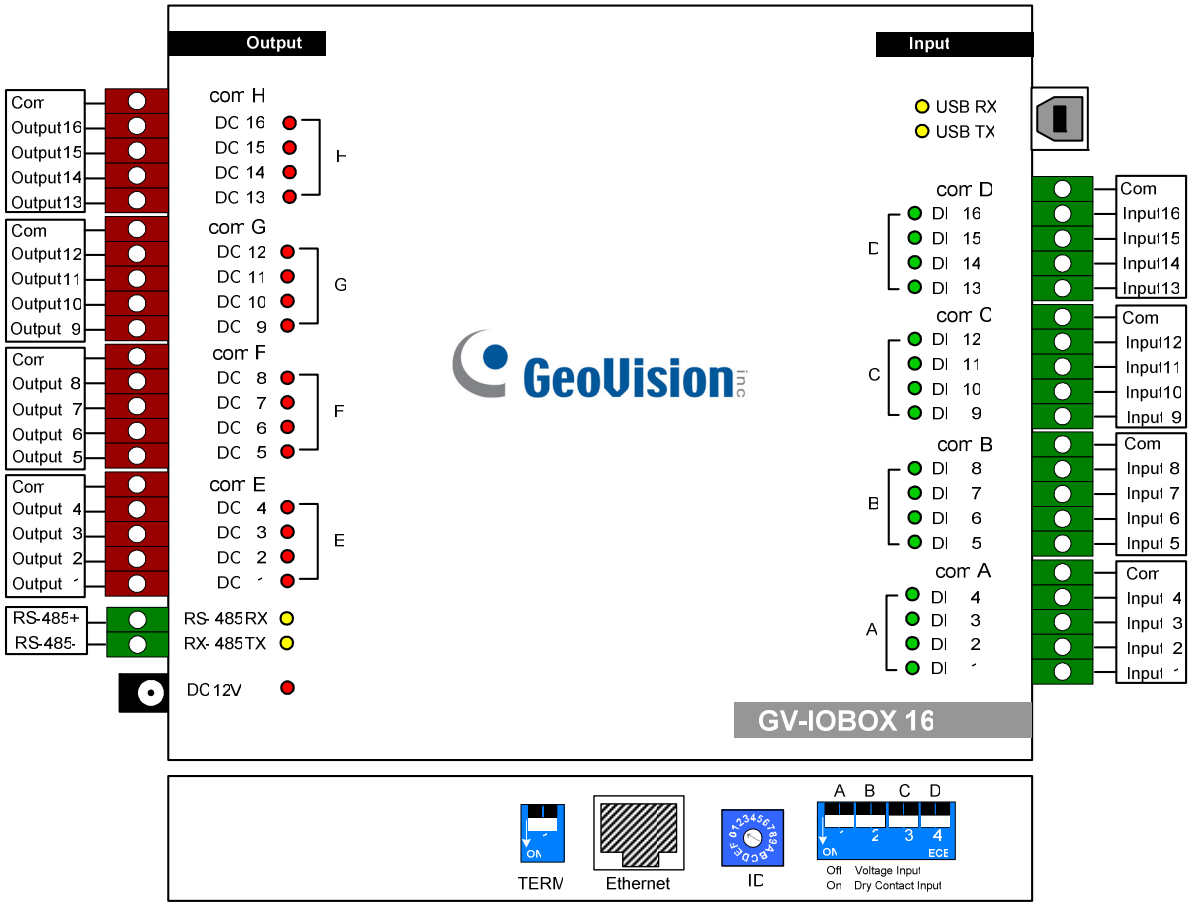
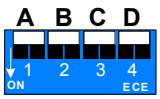


Figure 2-29

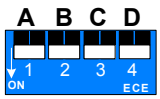
DIP Switch

The GV-I/O Box 16 Ports allows the use of mixing dry and wet contact devices together. The 16 inputs divided as four-in-one groups (A, B, C and D) are related to the 4 switches on the box for dry and wet contact.



Wet Contact

To change the inputs to different kind of contact, push the switch upward.



Dry Contact

To change the inputs to different kind of contact, push the switch downward.

Note: The RS-485 connectors do not have the conversion function from RS-485 to RS-232, so don't connect RS-485 devices, such as PTZ camera, to the connectors.

Connections to PC

There are three ways to connect the GV-I/O Box 16 Ports to the PC. Only one of three methods can be used at a time.

(1) Use the USB cable to connect the PC.

(2) Through the option of GV-Hub, GV-COM, GV-NET Card or GV-NET/IO Card, use the RS-485 connectors to connect the PC.

(3) Through network connection. This is an optional function. See *2.12 Accessing GV-I/O Box over Networks*.

1. Use the USB cable to connect one GV-I/O Box 16 Ports to PC. **(Allowed for DC Output Voltage only)**

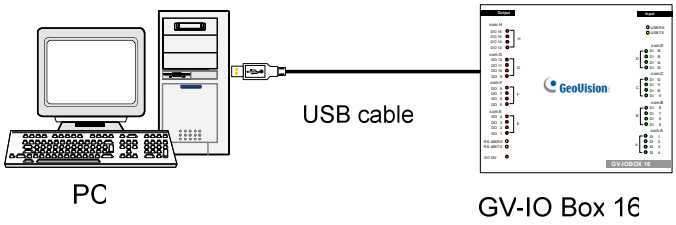


Figure 2-30

Note: It is required to install the USB driver. See *2.13 Installing USB Driver*.

2. Use the RS-485 connectors to connect one GV-I/O Box 16 Ports to PC. **(Allowed for AC/DC Output Voltage)**

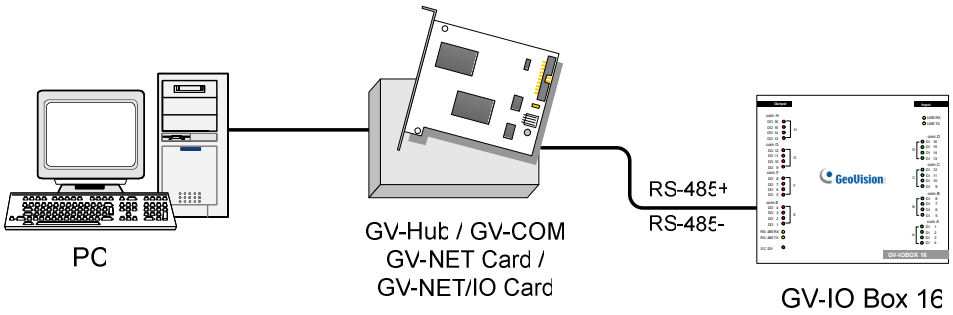


Figure 2-31

Assigning Addresses to GV-I/O Box 16 Ports

Up to 9 pieces of GV-I/O Box 16 Ports can be chained together to expand the I/O capacity. Use the ID switch (1~9) to assign addresses 1~9 to the connected GV-I/O Box 16 Ports.

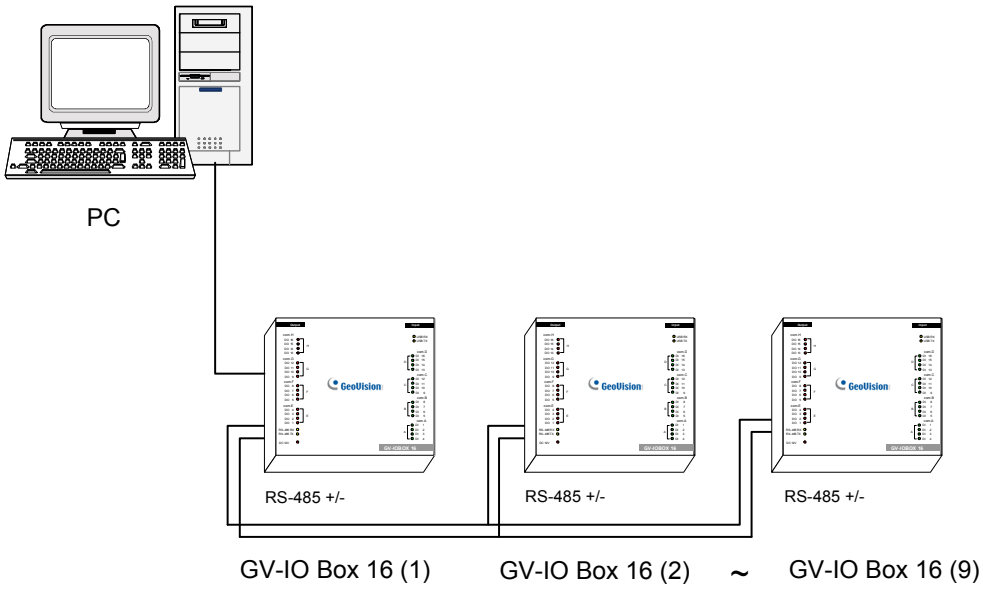
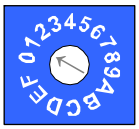


Figure 2-32

ID Switch



ID

1. Addresses 0 and A to F are NOT functional.
2. Assign the addresses when the power is off.
3. If you want to change the assigned address of the connected GV-I/O Box 16 Ports, set the switch to the new address, and then re-plug the power adaptor.

Extending Transmission over the Distance

When the transmission signals between the RS-485 communications become weak over the distance, switch on the Terminal Resistance Switches to maintain the signals. Three conditions below illustrate how the Terminal Resistance Switches should be switched on.

1. **Multiple pieces of GV-I/O Box 16 Ports are connected with the PC through one single RS-485 cable.**

   After you connect multiple pieces of GV-I/O Box 16 Ports with the PC, only switch on the Terminal Resistance Switches in the first and last connected pieces of GV-I/O Box 16 Ports.

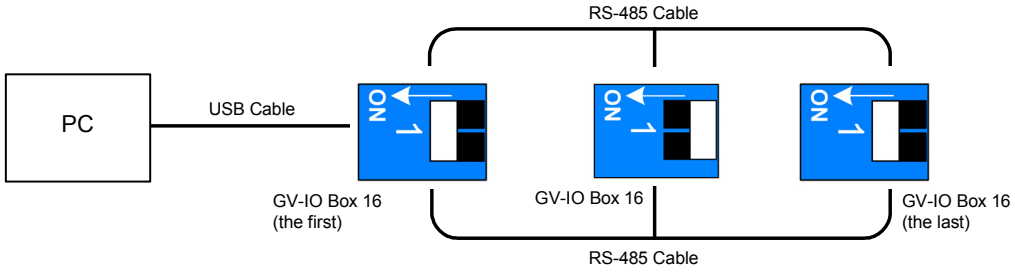


Figure 2-33

2. **Multiple pieces of GV-I/O Box 16 Ports are connected with the PC through a RS-485 / RS-232 conversion device.**

   After you connect multiple pieces of GV-I/O Box 16 Ports with the PC through a RS-485 / RS-232 conversion device, such as GV-NET/IO Card and GV-Hub, insert a Terminal Resistor in the conversion device and switch on the Terminal Resistance Switch of the last connected GV-I/O Box 16 Ports.

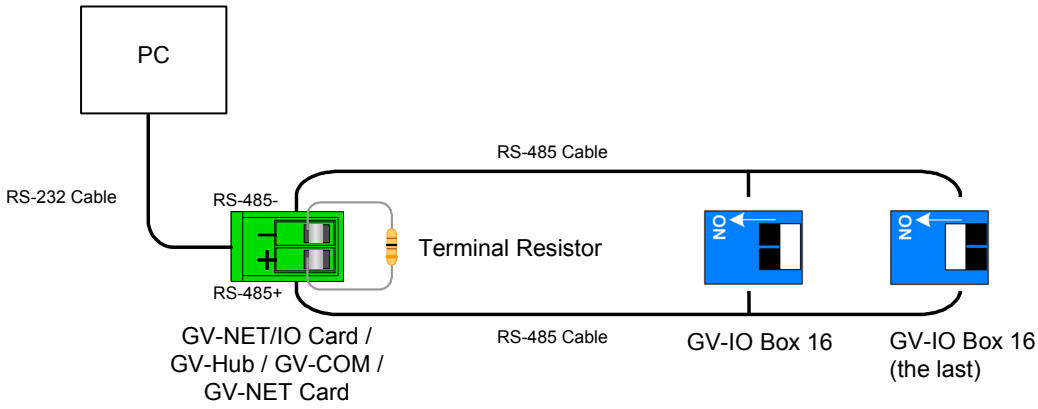


Figure 2-34

3. **Multiple pieces of GV-I/O Box 16 Ports are connected with the PC through separate RS-485 cables.**

   After you connect multiple pieces of GV-I/O Box 16 Ports with the PC through separate RS-485 cables, switch on Terminal Resistance Switches of the connected piece of GV-I/O Box 16 Ports at the end of each cable.

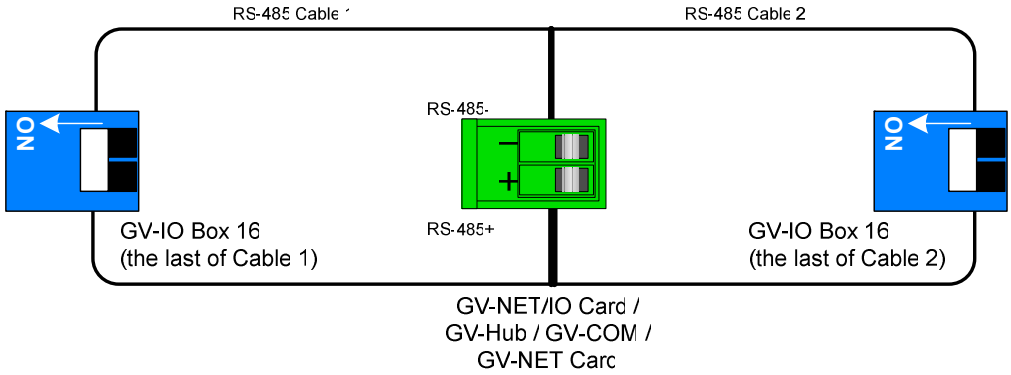
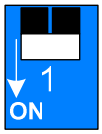


Figure 2-35

Terminal Resistance Switch



The default setting of the Switch is OFF. To switch on the Terminal Resistance Switch, push the switch downward.

Specifications

OS Supported	32-bit	Windows XP / Vista / 7 / 8 / Server 2008	
	64-bit	Windows 7 / 8 / Server 2008 R2 / Server 2012	
Input	Input	16	
	Input Signal	Dry Contact	
		Wet Contact, 9-30V AC/DC	
Output	Relay Output	16	
	Relay Status	Normal Open	
	Relay Capacitance	USB Connection	30V DC, 3A
		RS-232 / RS-485 Connection	125 / 250V AC, 3A 30V DC, 3A
Ethernet		RJ-45, 10/100 Mbps (Optional)	
DC IN		DC 12V, 1A	
Address		0-9, A-F	
Terminal Resistance		120Ω	
Environmental Condition		0~50 Degree C / 32~122 Degree F 5%~95% (Non-Condensing)	
Dimensions (W x H x D)		180 x 27 x 183 mm / 7.09 x 1.06 x 7.2 in	

2.10 GV-I/O Box 8 Ports

The GV-I/O Box 8 Ports provides 8 inputs and 8 relay outputs, and supports both DC and AC output voltages.

Key Features

- 8 inputs and 8 outputs are provided.
- Up to 9 pieces of GV-I/O Box 8 can be chained together.
- A USB port is provided for PC connection, and it is only used for 30 DC output voltage.

System Requirements

If the GV-I/O Box is listed as **Prolific USB-to-Serial Comm Port** under Windows Device Manager, GV-System version 8.2 or above is required. If the GV-I/O Box is listed as **XR21B1411 USB UART** under Windows Device Manager, GV-System version 8.5.7.0 or above is required.

To see how to check the device name under Windows Device Manager, refer to *2.13 Installing USB Driver*.

Packing List

1. GV-I/O Box 8 Ports x 1
2. USB Cable (Type A to B) x 1
3. Power Adapter DC 12V x 1
4. Software DVD x 1

Note: The GV-I/O box 8 Ports comes with the option of an Ethernet module. See *2.12 Accessing GV-I/O Box over Networks*.

Overview

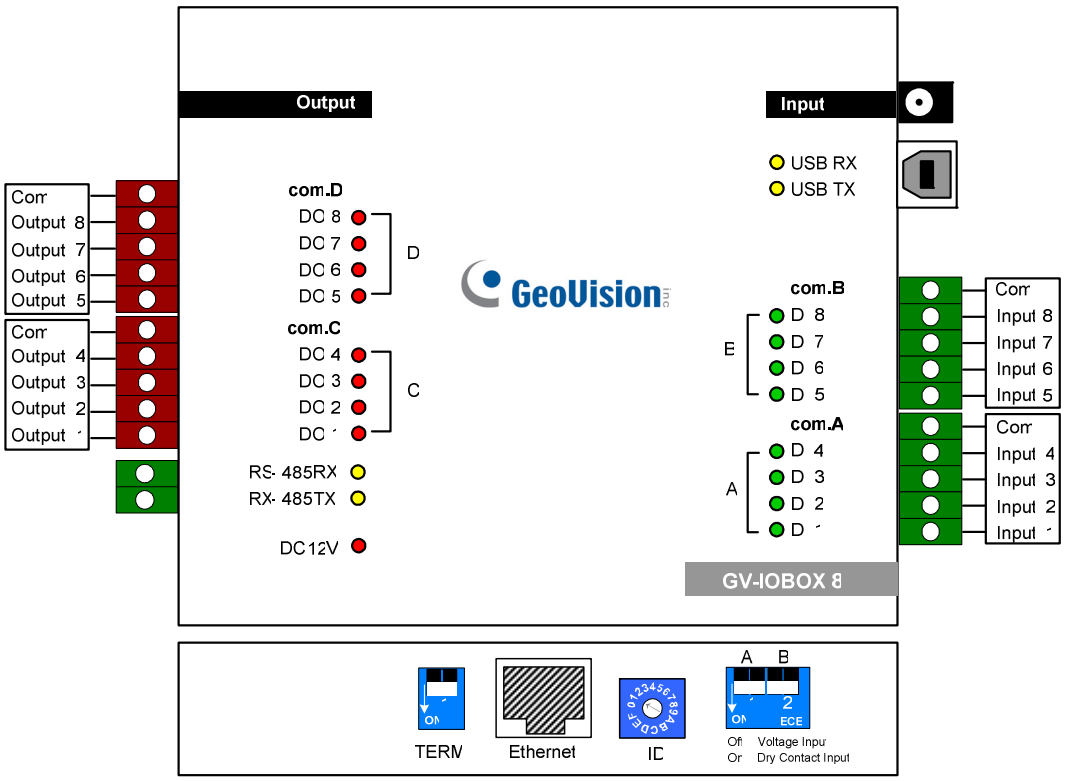
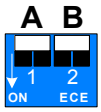


Figure 2-36

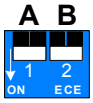
DIP Switch

The GV-I/O Box 8 Ports allows the use of mixing dry and wet contact devices together. The 8 inputs divided as four-in-one groups (A and B) are related to the 2 switches on the box for dry and wet contact.



Wet Contact

To change the inputs to different kind of contact, push the switch upward.



Dry Contact

To change the inputs to different kind of contact, push the switch downward.

Note:

1. The RS-485 connectors do not have the conversion function from RS-485 to RS-232, so don't connect RS-485 devices, such as PTZ camera, to the connectors.
2. To add a GV-I/O Box 8 Ports to the GV-System of version 8.2, select **GVIO-USB (16)** from the Device drop-down list in the System Configure dialog box.

Connections to PC

There are three ways to connect a GV-I/O Box 8 Ports to the PC. Only one of the three methods can be used at a time.

(1) Use the USB cable to connect the PC.

(2) Through the option of GV-Hub, GV-COM, GV-NET Card or GV-NET/IO Card, use the RS-485 connectors to connect the PC.

(3) Through network connection that is an optional function. See *2.12 Accessing GV-I/O Box over Networks*

1. Use the USB cable to connect one GV-I/O Box 8 Ports to the PC. **(Allowed for DC Output Voltage only)**

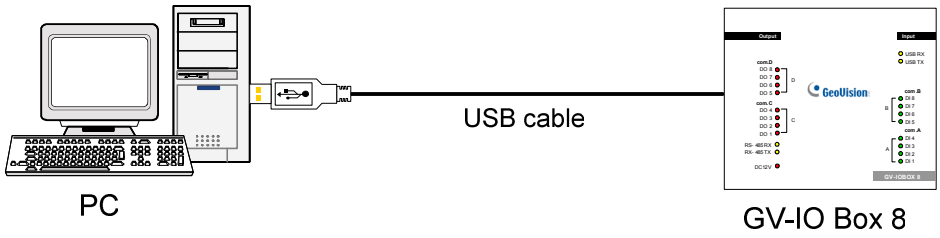


Figure 2-37

Note: It is required to install the USB driver. See *2.13 Installing USB Driver.*

2. Use the RS-485 connectors to connect one GV-I/O Box 8 Ports with the PC. **(Allowed for AC/DC Output Voltage)**

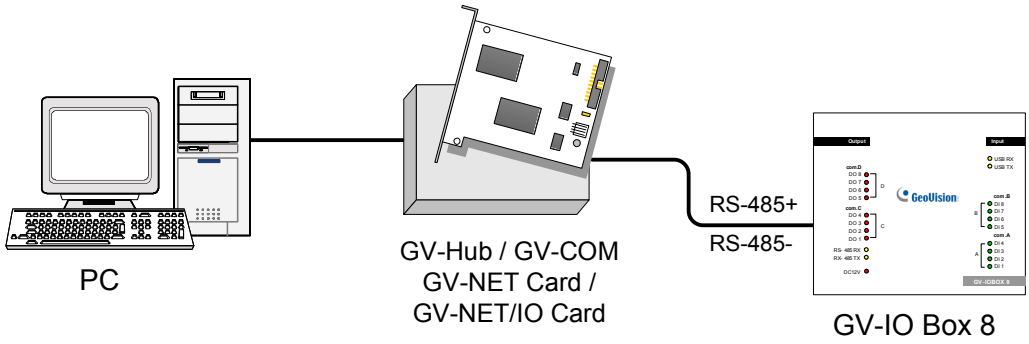


Figure 2-38

Assigning Addresses to GV-I/O Box 8 Ports

Up to 9 pieces of GV-I/O Box 8 Ports can be chained together to expand the I/O capacity. Use the ID switch (1~9) to assign addresses 1~9 to the connected pieces of GV-I/O Box 8 Ports.

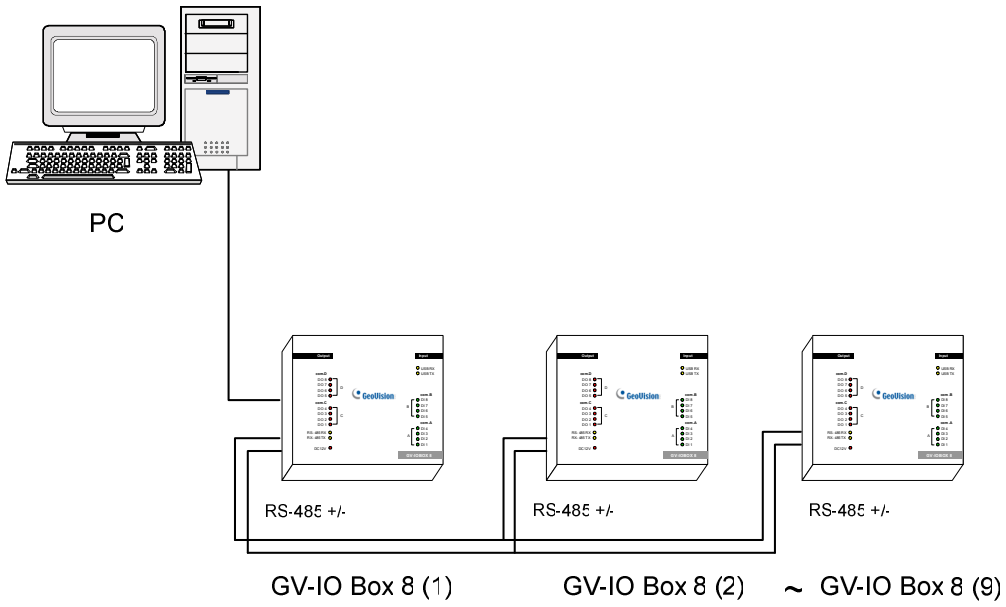
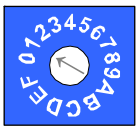


Figure 2-39

ID Switch



ID

1. Addresses 0 and A to F are NOT functional.
2. Assign the addresses when the power is off.
3. If you want to change the assigned address of the connected GV-I/O Box 8 Ports, set the switch to the new address, and then re-plug the power adaptor.

Extending Transmission over the Distance

When the transmission signals between the RS-485 communications become weak over the distance, switch on the Terminal Resistance Switches to maintain the signals. Three conditions below illustrate how the Terminal Resistance Switches should be switched on.

1. **Multiple pieces of GV-I/O Box 8 Ports are connected with the PC through one single RS-485 cable.**

   After you connect multiple pieces of GV-I/O Box 8 Ports with the PC, only switch on the Terminal Resistance Switches in the first and last connected pieces of GV-I/O Box 8 Ports.

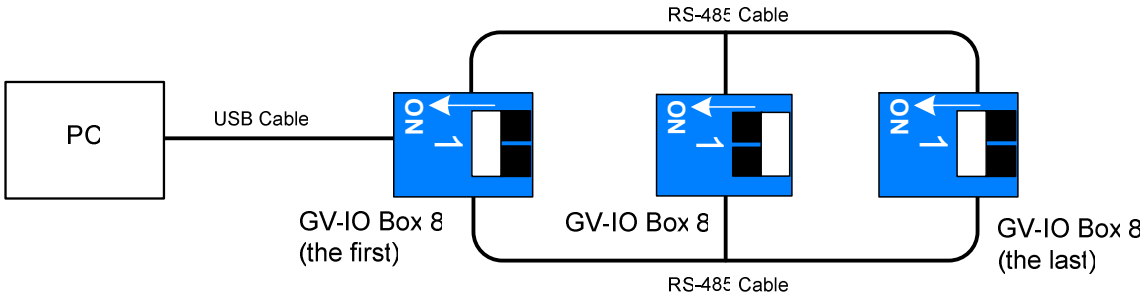


Figure 2-40

2. **Multiple pieces of GV-I/O Box 8 Ports are connected with the PC through a RS-485 / RS-232 conversion device.**

   After you connect multiple pieces of GV-I/O Box 8 Ports with the PC through a RS-485 / RS-232 conversion device, such as GV-NET/IO Card and GV-Hub, insert a Terminal Resistor in the conversion device and switch on the Terminal Resistance Switch of the last connected GV-I/O Box 8 Ports.

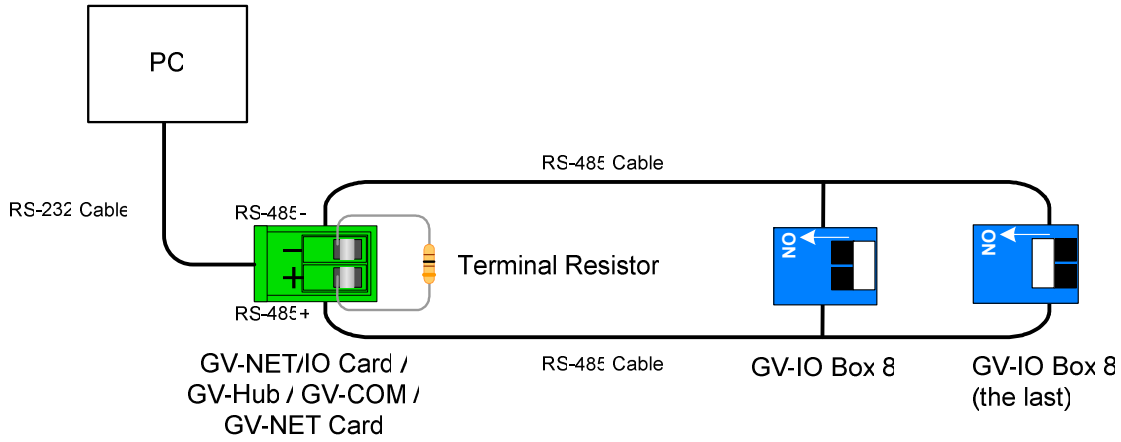


Figure 2-41

3. 3. **Multiple pieces of GV-I/O Box 8 Ports are connected with the PC through separate RS-485 cables.**

After you connect multiple pieces of GV-I/O Box 8 Ports with the PC through separate RS-485 cables, switch on Terminal Resistance Switches of the connected piece of GV-I/O Box 8 Ports at the end of each cable.

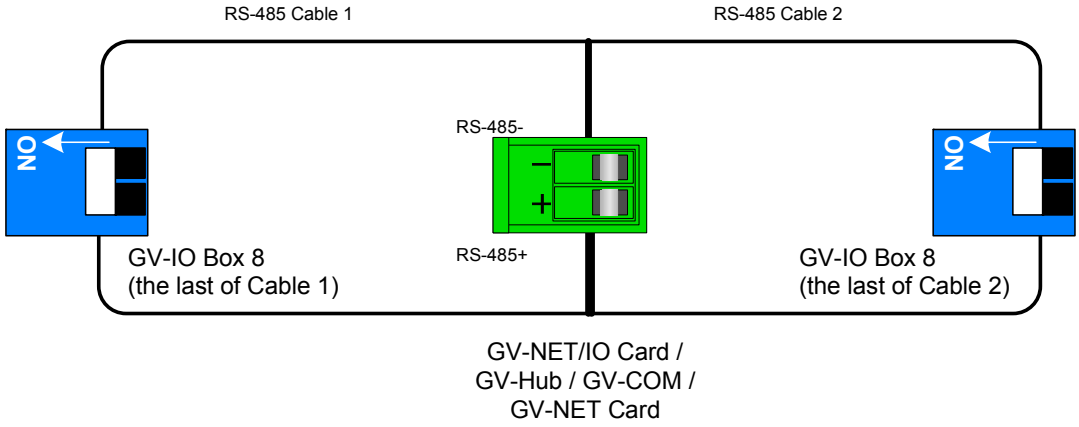
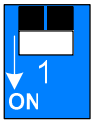


Figure 2-42

Terminal Resistance Switch



The default setting of the Switch is OFF. To switch on the Terminal Resistance Switch, push the switch downward.

Specifications

OS Supported	32-bit	Windows XP / Vista / 7 / 8 / Server 2008	
	64-bit	Windows 7 / 8 / Server 2008 R2 / Server 2012	
Input	Input	8	
	Input Signal	Dry Contact	
		Wet Contact, 9-30V AC/DC	
Output	Relay Output	8	
	Relay Status	Normal Open	
	Relay Capacitance	USB Connection	30V DC, 3A
		RS-232 / RS-485 Connection	125 / 250V AC, 3A 30V DC, 3A
Ethernet		RJ-45, 10/100 Mbps (Optional)	
DC IN		DC 12V, 1A	
Address		0-9, A-F	
Terminal Resistance		120Ω	
Environmental Condition		0~50 Degree C / 32~122 Degree F 5%~95% (Non-Condensing)	
Dimensions (W x H x D)		135 x 28 x 145 mm / 5.31 x 1.10 x 5.70 in	

2.11 GV-I/O Box 4 Ports

A small but a capable device, the GV-I/O Box 4 Ports provides 4 inputs and 4 relay outputs. It supports both DC and AC output voltages, and provides a USB port for PC connection.

Key Features

- 4 inputs and 4 outputs are provided.
- Up to 9 pieces of GV-I/O Box 4 can be chained together.
- A USB port is provided for PC connection, and it is only used for 30 DC output voltage.

System Requirements

If the GV-I/O Box is listed as **Prolific USB-to-Serial Comm Port** under Windows Device Manager, GV-System version 8.2 or above is required. If the GV-I/O Box is listed as **XR21B1411 USB UART** under Windows Device Manager, GV-System version 8.5.7.0 or above is required.

To see how to check the device name under Windows Device Manager, refer to *2.13 Installing USB Driver*.

Packing List

1. GV-I/O Box 4 Ports x 1
2. RJ-11 to DB9 Cable x 1
3. RJ-11 to USB Cable x 1
4. Terminal Resistor x 1
5. Power Adapter DC 12V x 1
6. Software DVD x 1

Note: The GV-I/O Box 4 Ports does not provide the option of an Ethernet module.

Overview

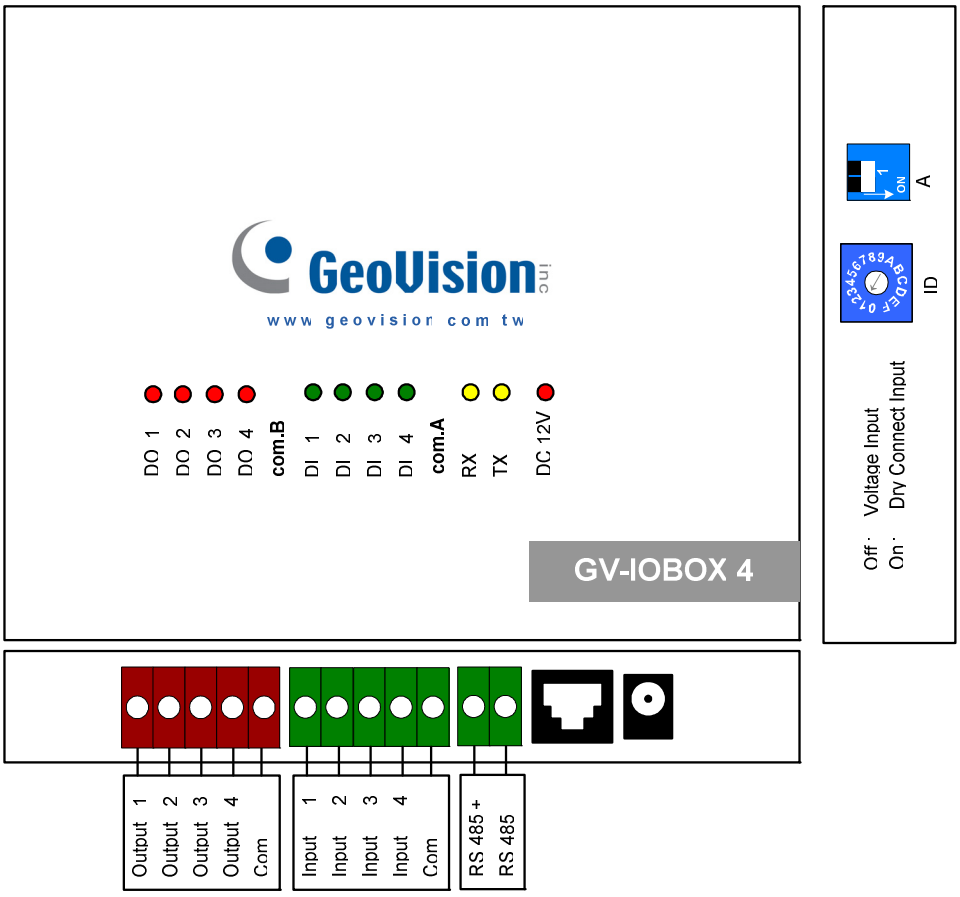
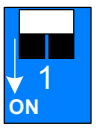


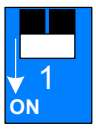
Figure 2-43

DIP Switch



A
Wet Contact

To change the inputs to different kind of contact, push the switch upward.



A
Dry Contact

To change the inputs to different kind of contact, push the switch downward.

Note: The RS-485 connectors do not have the conversion function from RS-485 to RS-232. It will not work if you connect RS-485 devices, such as PTZ camera, to the connectors.

Connections to PC

There are two ways to connect a GV-I/O Box 4 Ports to the PC:

1. Use the RJ-11 to USB cable to connect a GV-I/O Box 4 Ports to the PC. **(Allowed for DC Output Voltage only)**

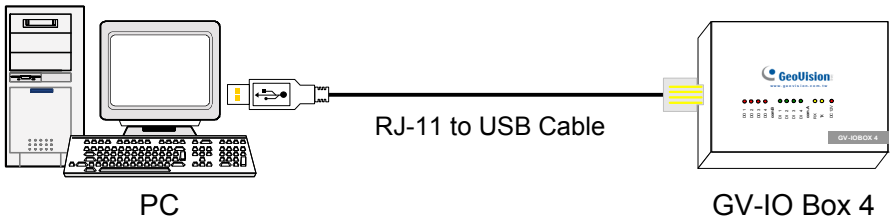


Figure 2-44

Note: It is required to install the USB driver. See *2.13 Installing USB Driver*.

2. Use the RJ-11 to DB9 cable to connect a GV-I/O Box 4 Ports to the PC. **(Allowed for AC/DC Output Voltage)**

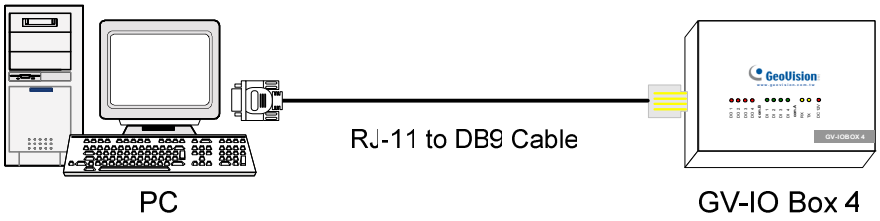


Figure 2-45

Assigning Addresses to GV-I/O Box 4 Ports

Up to 9 pieces of GV-I/O Box 4 Ports can be chained together to expand the I/O capacity. Use the ID switch to assign addresses 1~ 9 to the connected pieces of GV-I/O Box 4 Ports.

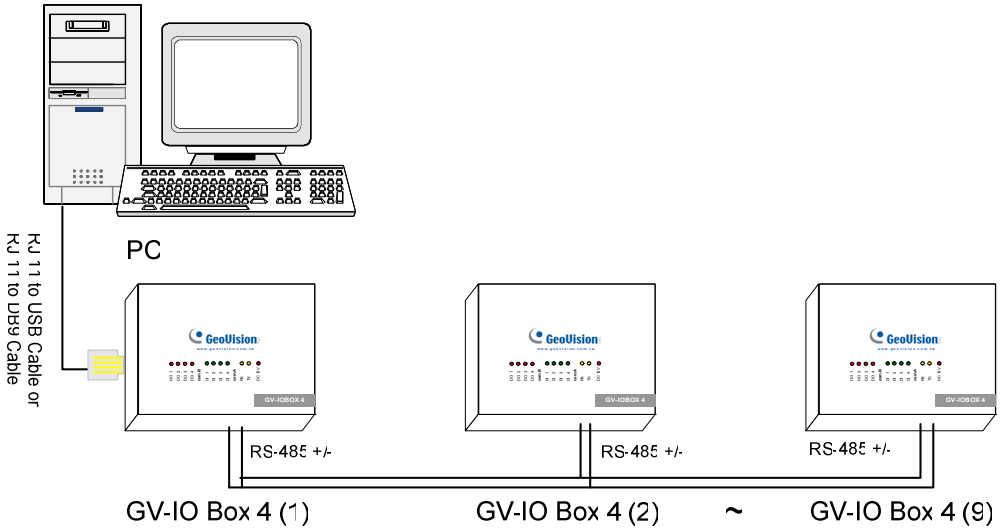


Figure 2-46

ID Switch

ID

1. Address 0 and A to F are NOT functional.
2. Assign the addresses when the power is off.
3. If you want to change the assigned address of the connected GV-I/O Box 4 Ports, set the switch to the new address, and then re-plug the power adaptor.

Extending Transmission over the Distance

When the transmission signals between the RS-485 communications become weak over the distance, use the supplied Terminal Resistor to maintain the signals. Three conditions below illustrate how the Terminal Resistors should be inserted.

1. **Multiple pieces of GV-I/O Box 4 Ports are connected with the PC through one single RS-485 cable.**

   When you connect one GV-I/O Box 4 Ports to another GV-I/O Box 4 Ports or more, only insert the Terminal Resistors in the first and last connected pieces of GV-I/O Box 4 Ports.

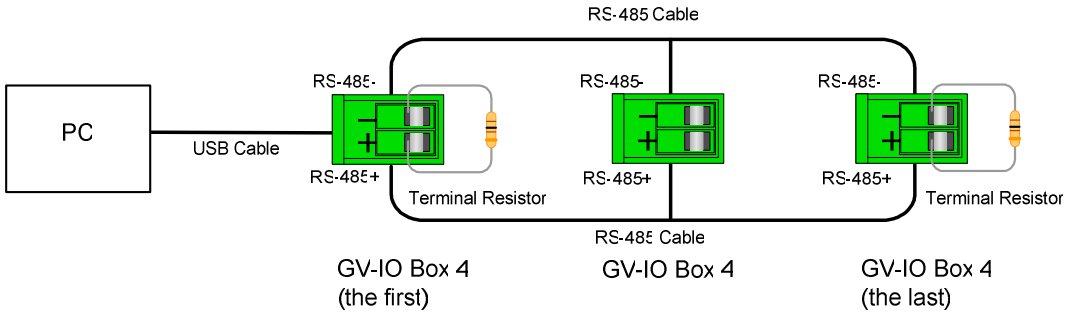


Figure 2-47

2. **Multiple pieces of GV-I/O Box 4 Ports are connected with the PC through a RS-485 / RS-232 conversion device.**

   After you connect multiple pieces of GV-I/O Box 4 Ports with the PC through RS-485 / RS-232 conversion device, such as GV-NET/IO Card and GV-Hub, insert the Terminal Resistors in the conversion device and the last connected GV-I/O Box 4 Ports.

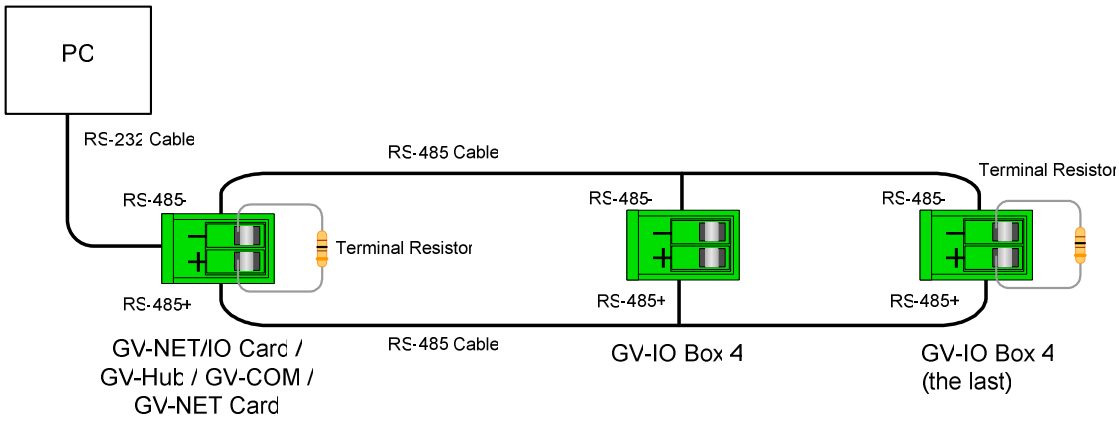


Figure 2-48

3. **Multiple pieces of GV-I/O Box 4 Ports are connected with the PC through separate RS-485 cables.**

   After you connect multiple pieces of GV-I/O Box 4 Ports with the PC through separate RS-485 cables, insert the Terminal Resistors in the connected piece of GV-I/O Box 4 Ports at the end of each cable.

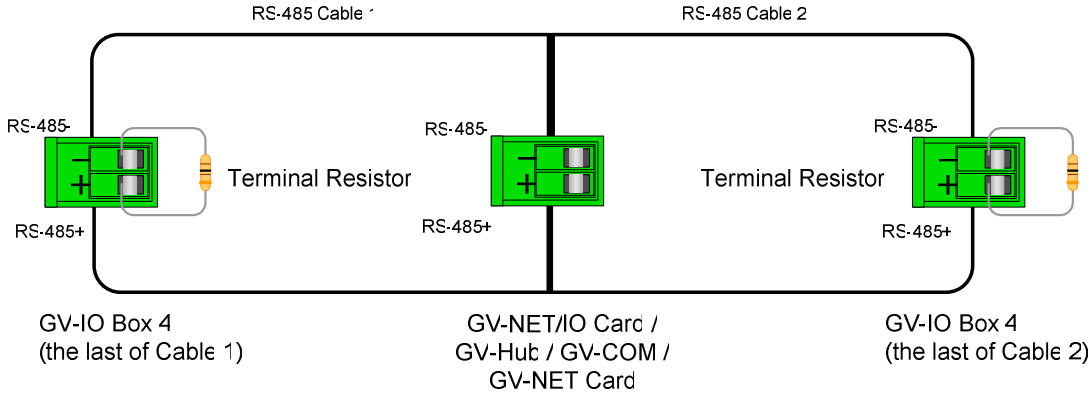


Figure 2-49

Specification

OS Supported	32-bit	Windows XP / Vista / 7 / 8 / Server 2008	
	64-bit	Windows 7 / 8 / Server 2008 R2 / Server 2012	
Input	Input	4	
	Input Signal	Dry Contact	
		Wet Contact, 9-30V AC/DC	
Output	Relay Output	4	
	Relay Status	Normal Open	
	Relay Capacitance	USB Connection	30V DC, 3A
		RS-232 / RS-485 Connection	125 / 250V AC, 3A 30V DC, 3A
DC IN		DC 12V, 1A	
Address		0-9, A-F	
Terminal Resistance		120Ω	
Environmental Condition		0~50 Degree C / 32~122 Degree F 5%~95% (Non-Condensing)	
Dimensions (W x H x D)		111.4 x 27.5 x 101 mm / 4.39 x 1.08 x 3.98 in	

2.12 Accessing GV-I/O Box over Networks

GV-I/O Box 8 and **GV-I/O Box 16** come with the option of network connectivity. With network connectivity, GV-I/O Box can be linked to GV-System, GV-GIS and Control Center over networks for I/O management.

GV-I/O Box with network connectivity can support two network environments: Fixed IP and DHCP. Depending on your network, choose Fixed IP for a static IP address or DHCP for a dynamic IP address such as those assigned by an ISP or other DHCP server.

GV-I/O Box is linked to GV-System by using the **Virtual I/O** function. Please note these specifications when GV-I/O Box works with GV-System:

1. GV-System supports up to 9 I/O modules which include real I/O devices and virtual I/O devices linked through networks.
2. Up to 5 connections, which include GV-System and any CMS applications, are allowed to control one GV-I/O Box.

Note:

1. GV-I/O Box has a default IP address of **192.168.0.100**. The computer used to set the IP address must be under the same network or subnet sequence assigned to the Box.
2. To link GV-I/O Box to GV-System, see *Virtual I/O Control*, Chapter 6 in *GV-DVR User's Manual* on the Software DVD.

2.12.1 Fixed IP Connection

To assign GV-I/O Box to a fixed IP:

1. Open an Internet browser, and type the default IP address **https://192.168.0.100**. The login dialog box appears.
2. Type default value **admin** for both Username and Password, and click **OK**. This page appears.

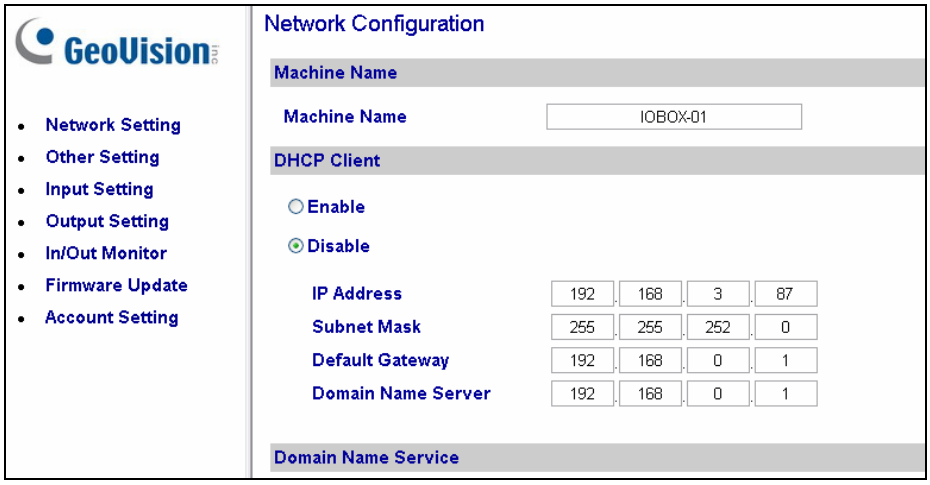


Figure 2-50

3. In the Machine Name field, edit the name of the connected GV-I/O Box.
4. Click **Disable**. Type the static IP address information, including IP Address, Subnet Mask, Default Gateway and Domain Name Server.
5. Click **Submit**. When the setting is complete, the Status field will indicate *Register Success*. Then GV-I/O Box can be accessed with this fixed IP address.

Note: If you like to use the domain name instead of IP address, you may use Domain Name Service as well. For details on domain name service, see *2.12.2 DHCP Connection*.

2.12.2 DHCP Connection

DDNS (Dynamic Domain Name System) provides another way of accessing GV-I/O Box when using a dynamic IP from a DHCP server. DDNS assigns a domain name to GV-I/O Box so that GV servers can always access GV-I/O Box by using the domain name.

To enable the DDNS function, first you should apply for a domain name from the DDNS service provider's website. There are 2 providers listed in GV-I/O Box: **GeoVision DDNS Server** and **DynDNS.org**. To register at GeoVision DDNS Server, see the following instructions. For details on DynDNS, please consult them at www.dyndns.org.

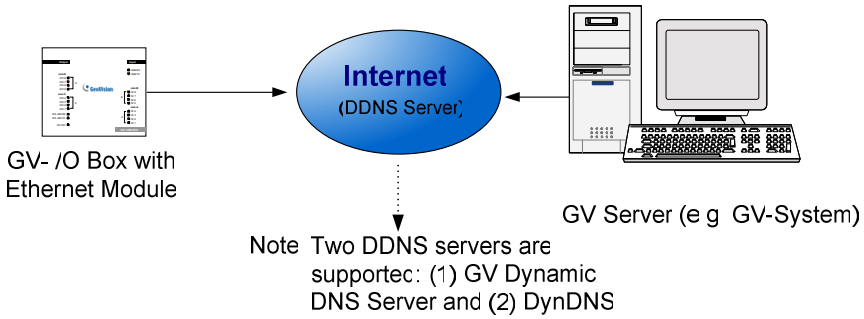


Figure 2-51

2.12.2.1 Registering a DDNS Domain Name

To obtain a domain name from the GeoVision DDNS Server:

1. Click the **GeoVision DDNS** button on the Network Configuration page (*Figure 2-50)*. Or open an Internet browser, and type the Web address **http://ns.dipmap.com/register.aspx**. This page appears.

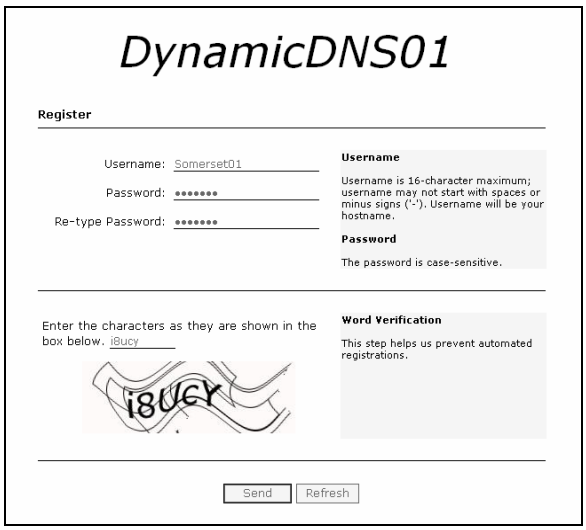


Figure 2-52

2. In the Username field, type a name. Username can be up to 16 characters with the choices of “a ~ z”, “0 ~9”, and “-”. Note that space or “-” cannot be used as the first character.
3. In the Password filed, type a password. Passwords are case-sensitive and must be at least 6 characters. Type the password again in the Re-type Password field for confirmation.
4. In the Word Verification section, type the characters or numbers shown in the box. For example, type *i8UCY* in the required field. Word Verification is not case-sensitive.
5. Click the **Send** button. When the registration is complete, this page will appear. The **Hostname** is the domain name, consisting of the registered username and “dipmap.com”, e.g. somerset01.dipmap.com.

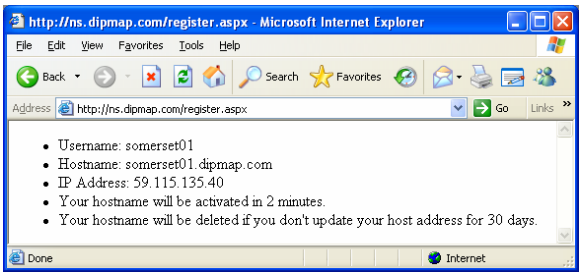


Figure 2-53

Note: The registered username will be invalid when it is not used for one month.

2.12.2.2 Configuring GV-I/O Box on Internet

After acquiring a domain name from the DDNS Server, you need to configure the domain name on GV-I/O Box so that GV servers can access GV-I/O Box by using the domain name on Internet.

1. Follow the Steps 1 to 2 in *2.12.1 Fixed IP Connection*. The Network Configuration page appears.
2. Click **Enable**, and select **Send to DDNS**.
3. Type **Host Name**, **User Name** and **Password** that are registered on the DDNS Server. If you select GeoVision DDNS, the system will automatically bring up the Host Name.

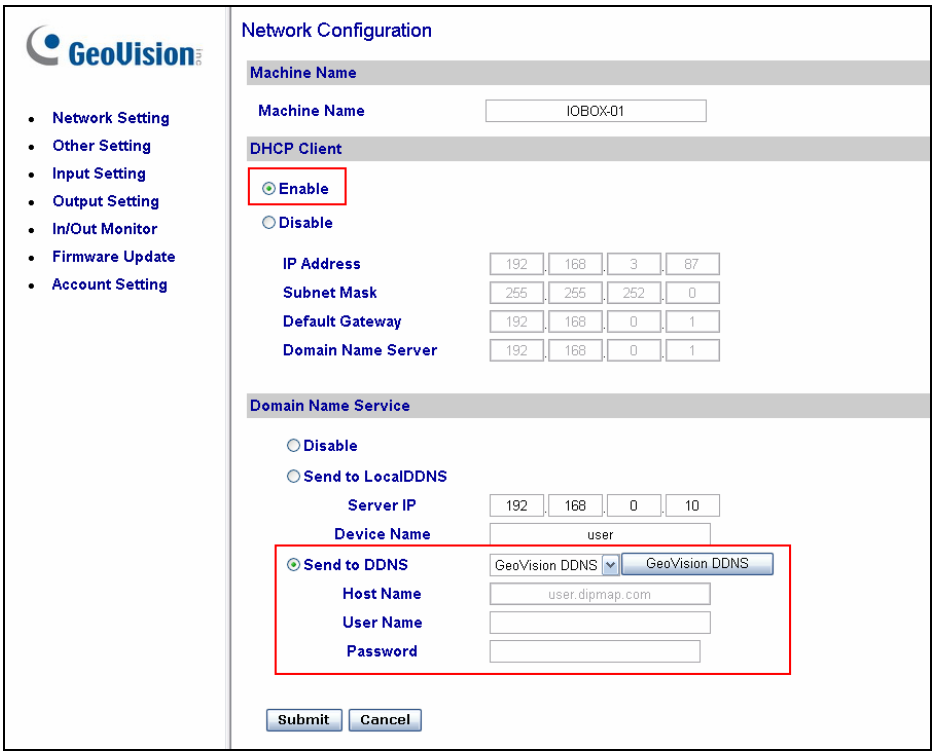


Figure 2-54

4. Click **Submit**. When the setting is complete, the Status field will indicate: Register Success. Then GV-I/O Box can be accessed with this domain name.

2.12.3 Other Setting

In the left menu, click **Other Setting**. This page appears.

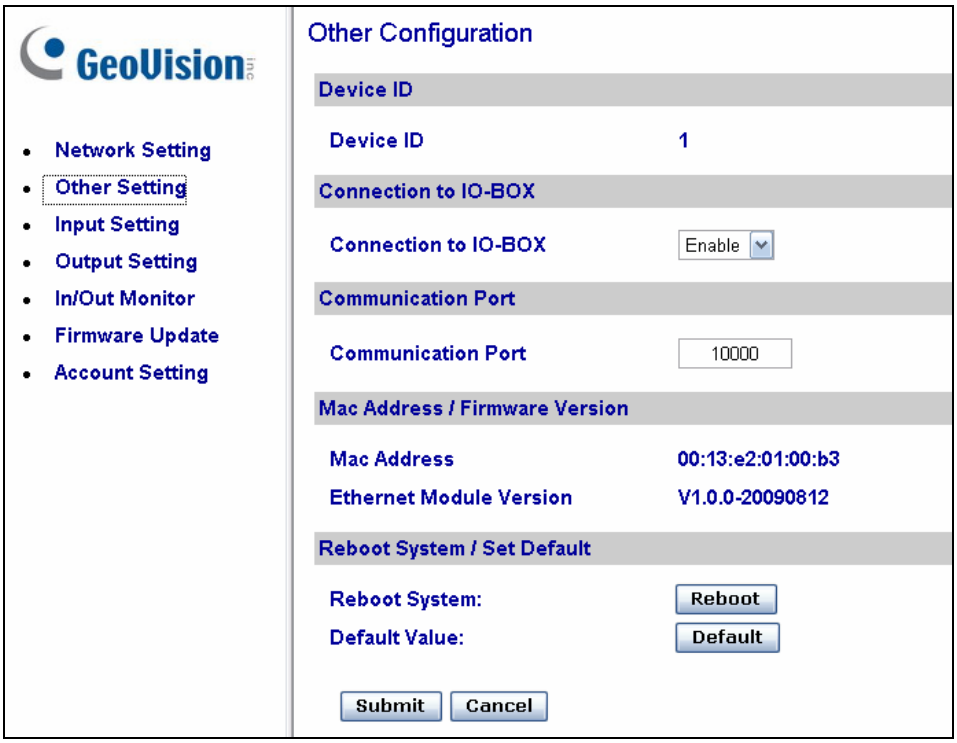


Figure 2-55

[Device ID] Indicates the current ID of the device.

[Connection to IO-BOX] Select **Enable** to use GV-I/O Box through network or select **Disable** to use GV-I/O Box through USB or RS-485 connection. GV-I/O Box cannot support more than one method simultaneously.

[Communication Port] Keeps the default port value **10000**.

[Mac Address/Firmware Version] Indicates the MAC address of the network medium and the Ethernet module version of GV-I/O Box.

[Reboot System/Set Default]

- **Reboot System:** Performs a warm boot of GV-I/O Box. This operation keeps the current configuration.
- **Default Value:** Resets all configuration parameters to their factory settings. This may take 5 seconds to complete.

Note: If you switch the connection from USB or RS-485 to network, first remove the USB or RS-485 cable from GV-I/O Box and then select **Enable** in this setting page; otherwise, the network connection will not function.

2.12.4 Input Setting

In the left menu, click Input Setting. This page appears.

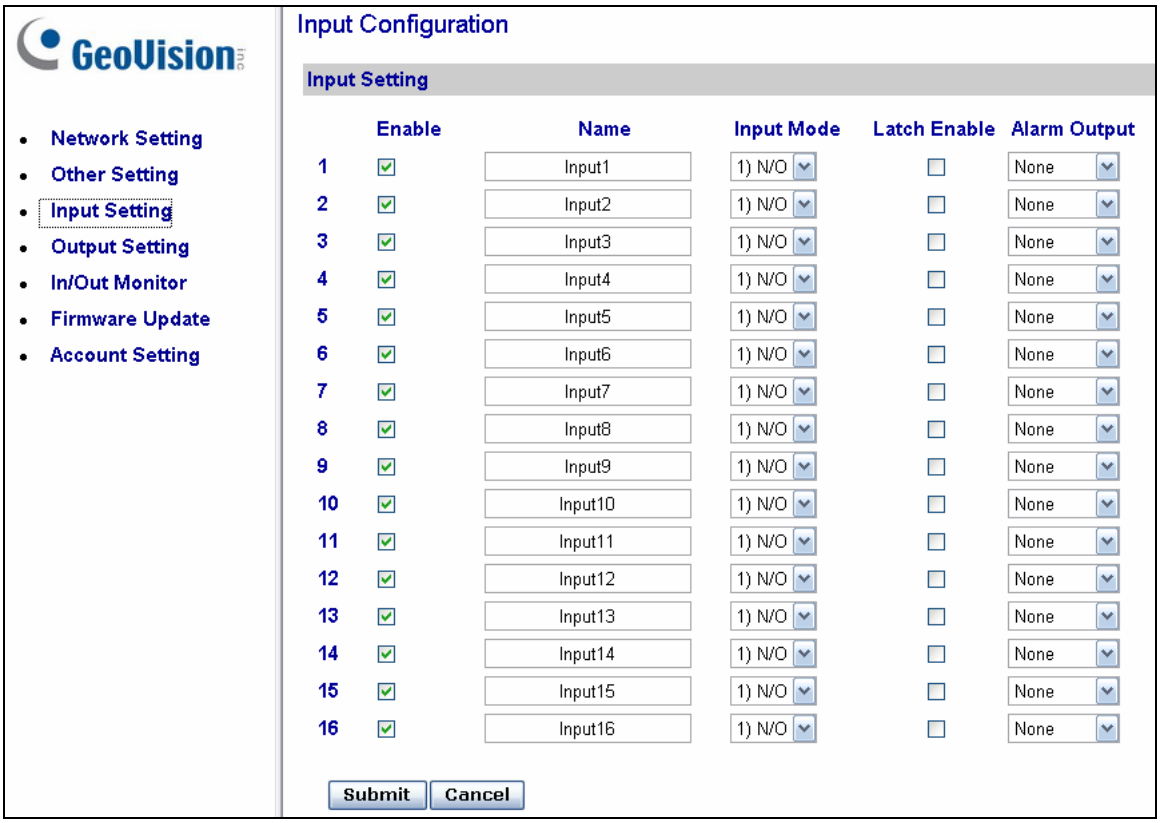


Figure 2-56

- **Enable:** Select to enable this Input function to be used by GV-I/O Box.
- **Name:** Edit the name of the Input.
- **Input Mode:** Configure the input to **NC** (normally closed) or **NO** (normally open) mode.
- **Enable Latch:** Instead of constant output alarm in N/O and N/C, the option provides a momentary alarm when triggered.
- **Alarm Output:** Select **None** for no alarm output, or select between **Output 1** and **Output 16** to trigger when the input is detected.

Click **Submit** button to save the changes, or click **Cancel** button to return the changes to its previous state.

2.12.5 Output Setting

In the left menu, click **Output Setting**. This page appears.

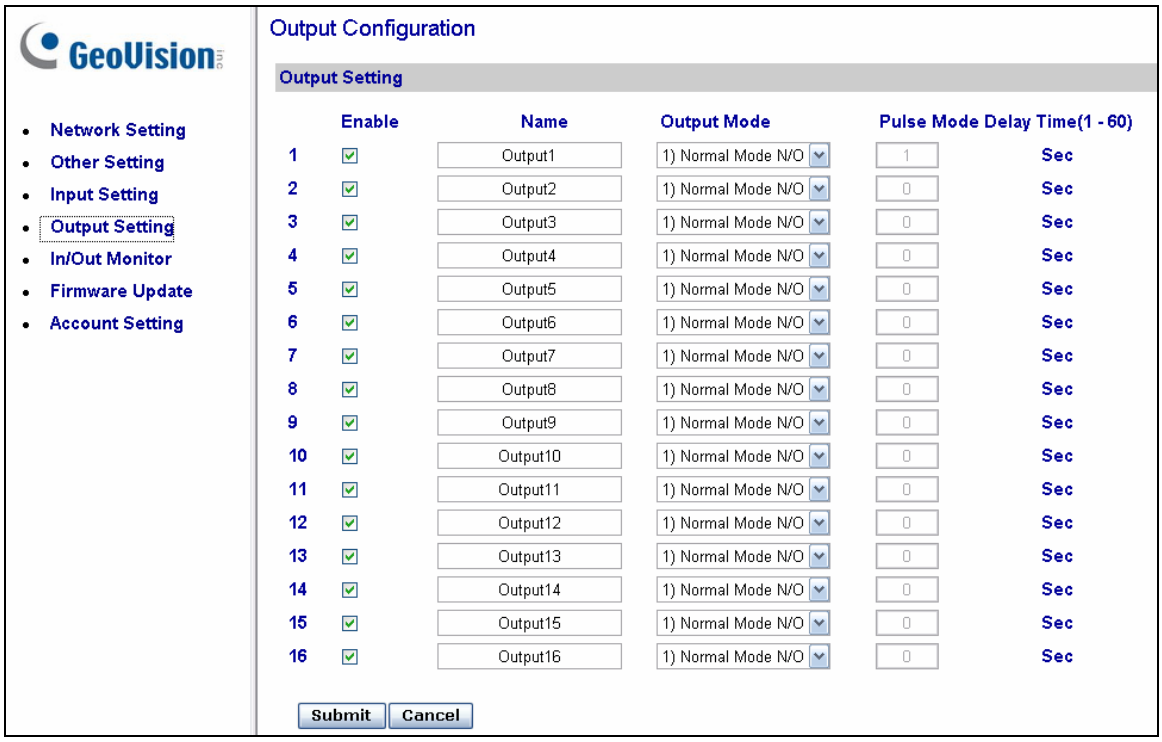


Figure 2-57

- **Enable:** Select to enable this Output function to be used by GV-I/O Box.
- **Name:** Edit the name of the Output.
- **Output Mode:** Configure the input to **NC** (normally closed) or **NO** (normally open) mode.
  - ⊙ **Normal Mode (N/O and N/C):** Output continues to be triggered until the source of the output condition is stopped.
  - ⊙ **Toggle Mode (N/O and N/C):** Output continues to be triggered until a new input trigger ends the output.
  - ⊙ **Pulse Mode (N/O and N/C):** Output is triggered for the amount of time set in the **Pulse Mode Delay Time (1-60)** field.
- **Pulse Mode Delay Time (1-60):** Enter the time in seconds for the pulse delay time between 1 and 60 seconds.

Click **Submit** button to save the changes, or click **Cancel** button to return the changes to its previous state.

2.12.6 In/Out Monitor

In the left menu, click **In/Out Monitor**. This page appears.

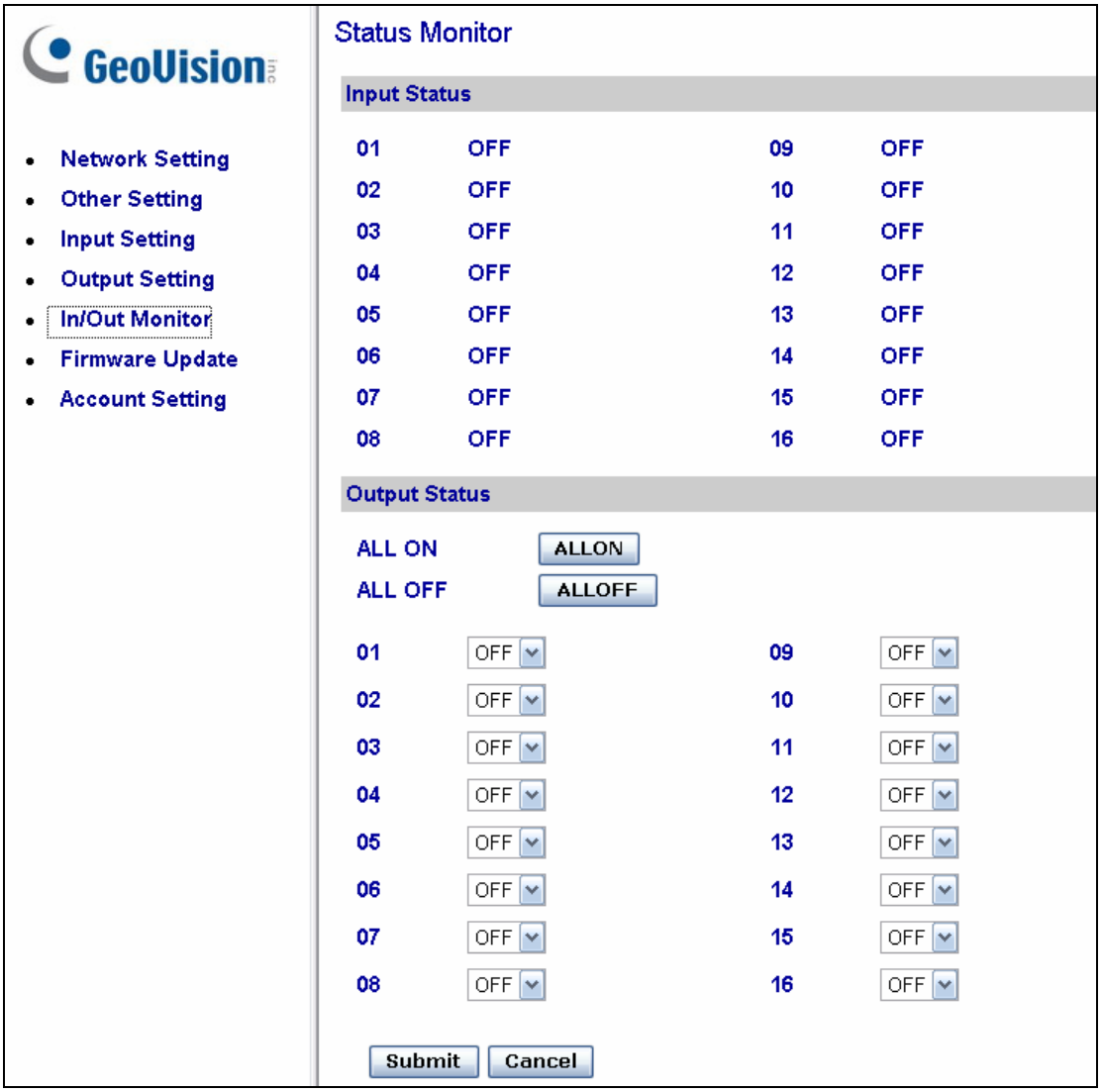


Figure 2-58

- **Input Status:** Indicates the current status of the 16 inputs, whether it is **On** (triggered) or **OFF** (no input).
- **Output Status:** Indicates the current status of the 16 outputs, whether it is **ON** (triggered) or **Off** (no output). Click **ALL ON** button to force all 16 outputs to be triggered. Click **ALL OFF** button to turn off all 16 outputs. Select the individual outputs to turn it **ON** to force the output to be triggered or turn it **OFF**.

Click **Submit** button to save the changes, or click **Cancel** button to return the changes to its previous state.

2.12.7 Updating Firmware

To update the firmware of GV-I/O Box:

IMPORTANT: For firmware update from Version 1.0 to the latest version, it is required to access the GV-I/O Box over the network on Windows XP.

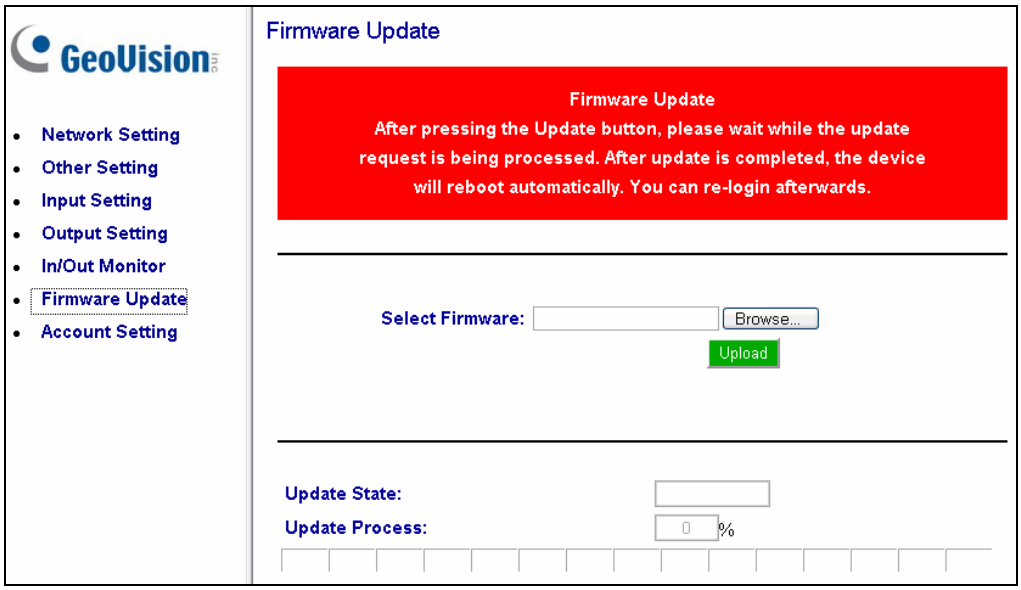


Figure 2-59

1. Click the **Browse…** button to open the firmware file (*.bin)
2. Click the **Upload** button. This update procedure may take 60 seconds to complete.
3. When the Update is complete, a dialog box appears and asks you to reboot the system.
4. Click **OK**. GV-I/O Box starts the Reboot operation.

Note: It is required to reboot GV-I/O Box after updating the firmware. Without rebooting, the firmware update is not complete.

2.12.8 Changing Login ID and Password

In the left menu, click **Account Setting**. This page appears. You can modify the login name and password. The password is case sensitive and is limited to 4 characters with the choices of “a ~ z” and “0 ~ 9”.

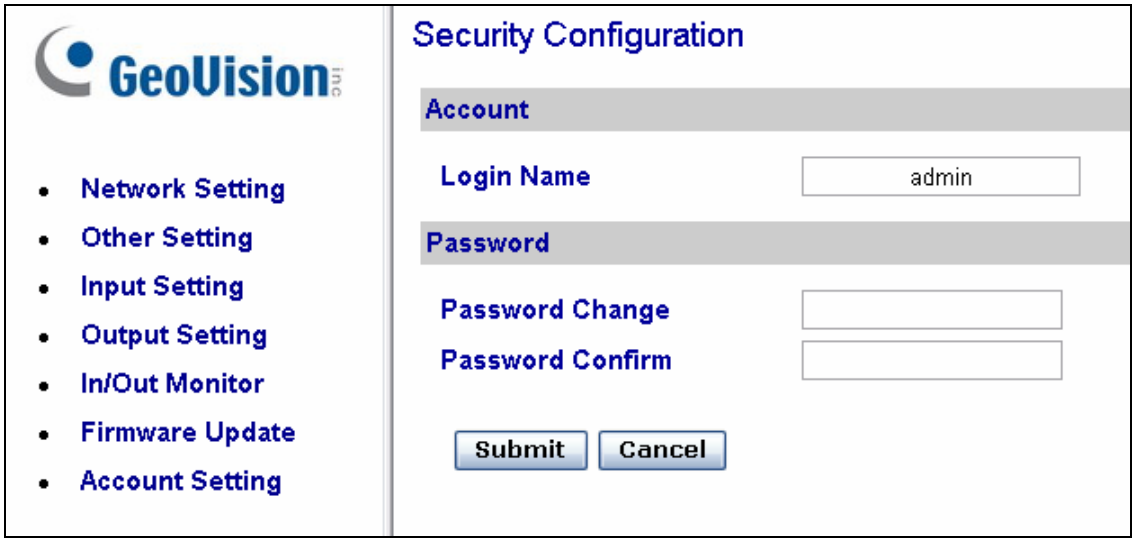


Figure 2-60

2.13 Installing USB Driver

To use the USB function, it is required to install the driver on the PC. Follow these steps to install the driver:

1. Insert the Software DVD. It will run automatically and pop up a window.
2. Select **Install or Remove GeoVision GV-Series Driver**, and then click **Install GeoVision USB Devices Driver**. This dialog box appears.

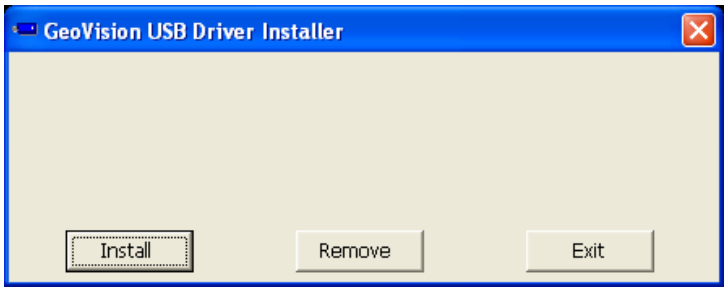


Figure 2-61

3. Click **Install** to install the drivers. When the installation is complete, this message will appear: *Install Successfully.*
4. Click **Exit** to close the dialog box and restart the PC.

To verify the drivers are installed correctly, go to Windows **Device Manager** after restarting the PC. Expanding the **Ports** field, you should see **Prolific USB-to-Serial Comm Port** or **XR21B1411 USB UART** depending on the version of the driver. The COM number in the parenthesis indicates the COM port currently in use.

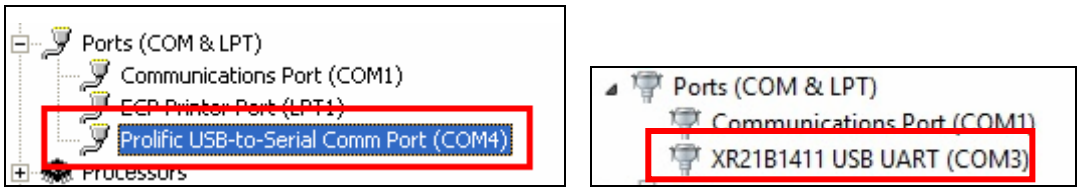


Figure 2-62

Note: If you unplug the GV-NET/IO Card or GV-I/O Box from the PC and connect another GV-NET/IO Card or GV-I/O Box to the same USB port, the COM port may still be changed. Access the Windows Device Manager again to look up the new COM port number.

Chapter 3 Software Installation

This chapter includes the following information:

- **Important notice**
- **Installing a program**
- **Program list**

3.1 Before You Start

For optimal performance of your system, it is important to follow these recommendations before installing GV-System software:

- It is strongly recommended to use two separate hard disks. One is for installing Windows OS and GV-System software, and the other is for storing recorded files and system logs.
- When formatting the two hard disks, select **NTFS** as the file system.
- GV-System is a multi-channel video recording system. With normal use of the system, the drive containing video files will become fragmented. This is because GV-System constantly stores video files of multi channels simultaneously, and video files will be scattered all over the drive. It is **not necessary** to regularly perform disk defragmentation. Since GV-System software and video files are stored on two separated hard disks, the performance of GV-System will not be affected.

3.2 Installing the System

When you insert the Software DVD, the Install Program window will pop up automatically:

Figure 3-1 The Install Program Window

Installing the System

To install the GV-System, follow these steps:

1. In the Install Program window, click **Install GeoVision Primary Applications**.
2. To select **GV-DVR/NVR**, and follow the on-screen instructions.
3. Follow the above steps to install other programs one by one.

Uninstalling the System

To uninstall the GV-System, follow these steps:

1. Close any open programs because your computer will restart during the uninstalling process.
2. On the taskbar, click **Start**, point to **Control Panel,** select **Add or Remove Programs** and then click **Geovision Digital Surveillance System**.

Note: Uninstalling the system will not delete video files and log files previously saved in the computer.

3.3 Program List

The Surveillance System Software includes **GeoVision Primary Applications** and **GeoVision Supplemental Utilities**. To use the **GeoVision Primary Applications**, you need a proper GV-USB dongle installed on your computer. To use the **GeoVision Supplemental Utilities**, you can install these GeoVision utilities for free.

GeoVision Primary Applications includes the following programs:

First Page:

1. GV-DVR/NVR
2. GV-Center V2
3. GV-Vital Sign Monitor
4. GV-Dispatch Server
5. GV-Control Center
6. GV-Video Wall Server
7. GV-Remote Desktop Server
8. GV-GIS
9. GV-Backup Center
10. GV-Mobile Server

Figure 3-2 First page of program installation

Second page:

11. GV-Recording Server
12. GV-Redundant and Failover Server
13. GV-POS Data Sender [Only for Graphic Mode POS device]
14. GV-POS Text Sender [Only for Windows-Based and Text Mode POS device]

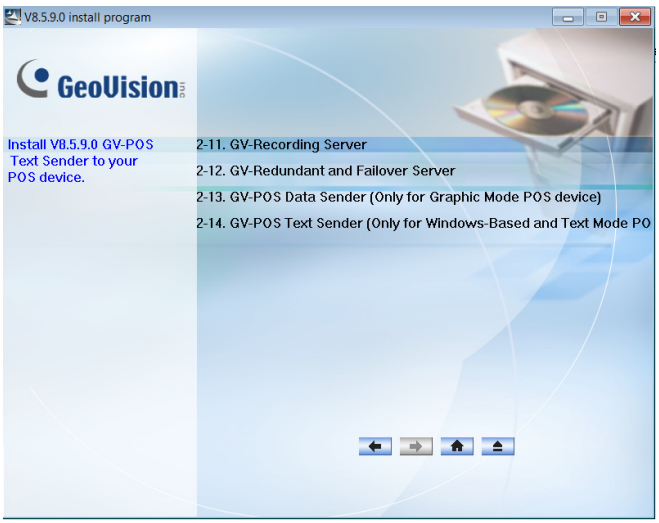


Figure 3-3 Second page of program installation

GeoVision Supplemental Utilities includes the following programs:

First Page:

1. GV-Authentication Server
2. GV-Audio Broadcast
3. GV-Bandwidth Control Client Site
4. GV-Backup Viewer
5. GV-Dynamic DNS Service
6. GV-E-Map Server
7. GV-Fast Backup and Restore Multicam System
8. GV-IP Device Utility
9. GV-Local DDNS Server
10. GV-MultiView

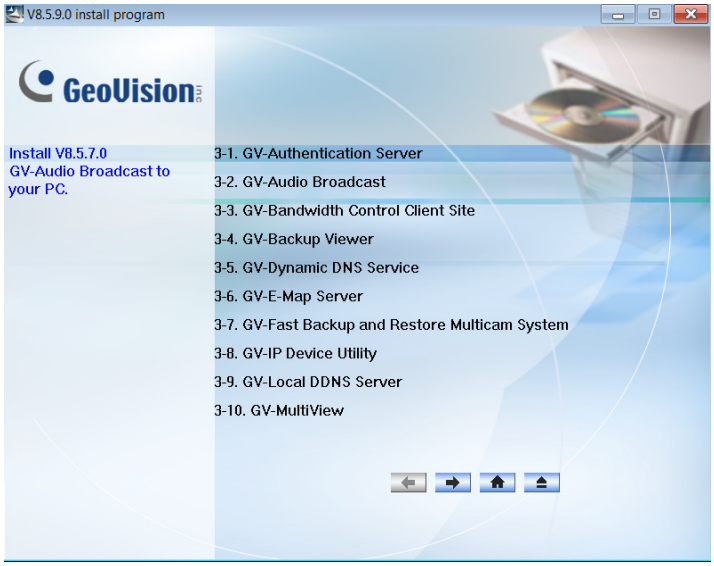


Figure 3-4 First page of program installation

Second page

11. GV-Multicast
12. GV-MultiLang Tool
13. GV-SetLanguage
14. GV-Mcamctrl Utility [Only for GV-Joystick]
15. GV-Remote ViewLog
16. GV-Remote E-Map
17. GV-SMS Server
18. GV-Skype Video Utility
19. GV-SDCardSync Utility
20. GV-AView for Android Smartphone in Android Market

Figure 3-5 Second page of program installation

Third page:

21. GV-iView for iPhone and iPod Touch in iTunes Store
22. GV-iView HD for iPad in iTunes Store

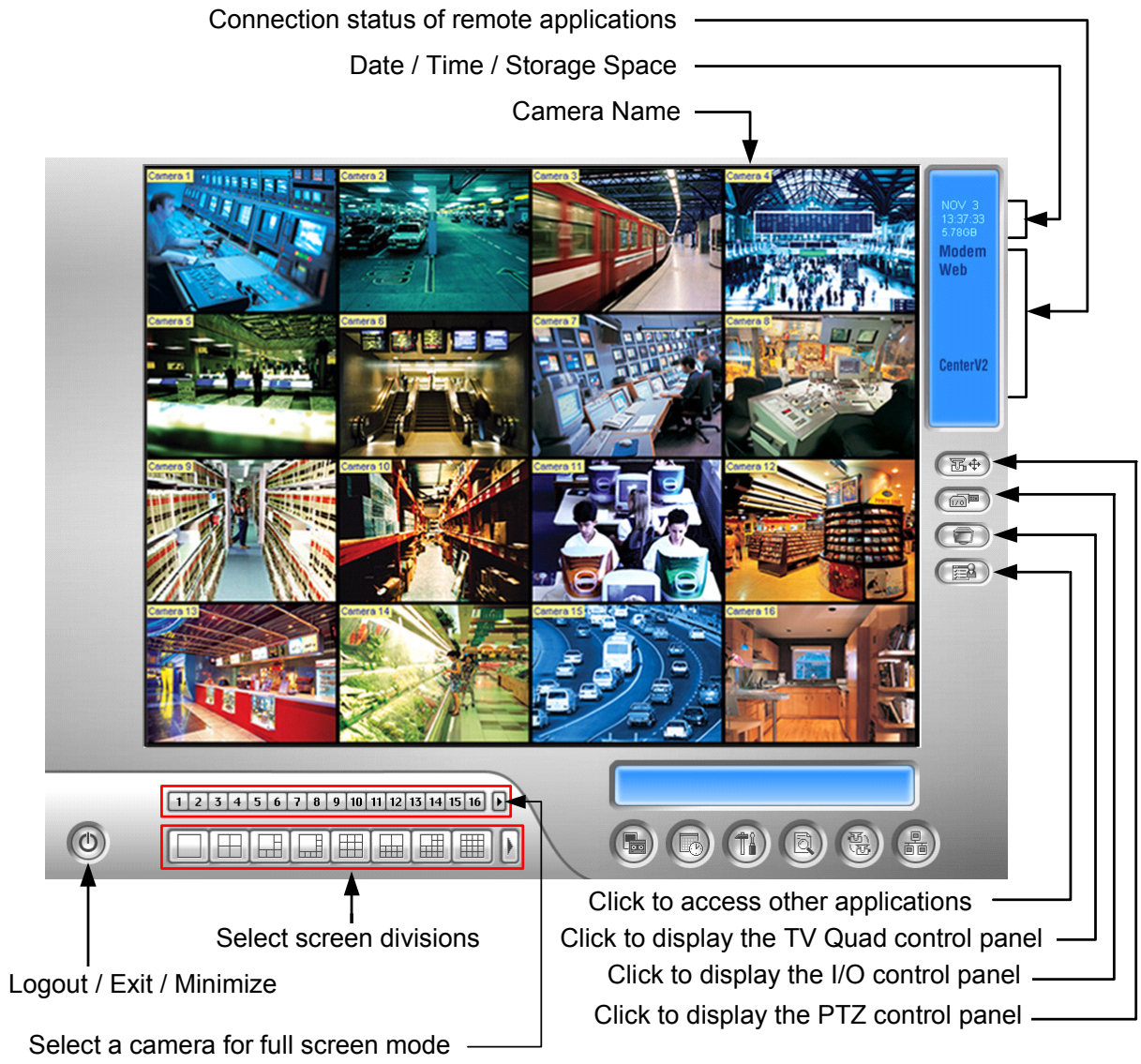
Figure 3-6 Third page of program installation

Chapter 4 Screen Overview

This chapter provides an overview of the major screens:

- **Main System**
- **ViewLog**
- **SingleView Viewer**
- **MultiView Viewer**
- **Center V2**

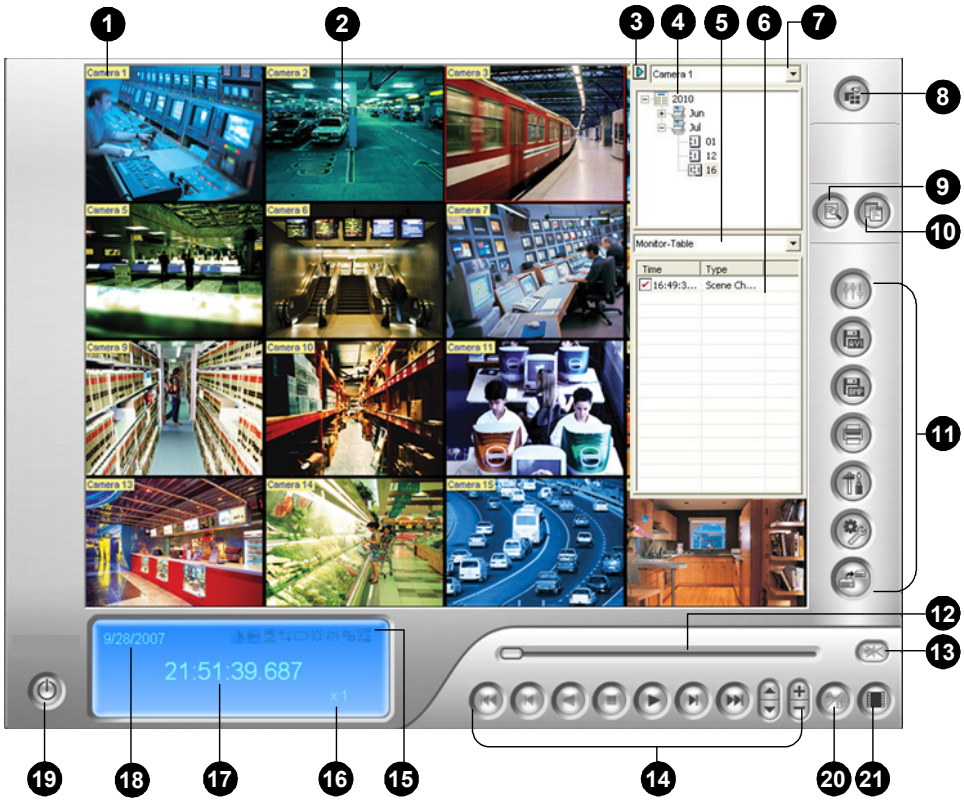
4.1 Main System



The controls in the main screen:

No	Name	Description
1	Camera Number	Indicates the camera number matching the port number in the GV video capture card.
2	Camera Name	Indicates the given camera name.
3	Date/Time	Indicates the current date and time.
4	Storage Space	Indicates the remaining disk space.
5	Connection	Indicates the connection status of remote applications.
6	PTZ Control	Displays the PTZ control panel.
7	I/O Control	Displays the I/O control panel.
8	TV-Out	Displays the TV Quad control panel.
9	User-Defined	Accesses other applications.
10	Location Name	Indicates the GV-System's name, usually named by its geographical location.
11	Network	Enables the connection to remote applications
12	Camera Scan	Rotates through the screen divisions.
13	ViewLog	Brings up these options: Instant Play, Video/Audio Log, System Log, Search POS Data, POS Live View, Live Object Index, Search Object Index, Live Panorama View and E-Map.
14	Configure	Accesses system settings.
15	Schedule	Sets up recording schedules.
16	Monitor	Starts or stops monitoring.
17	Camera Select	Selects the desired camera number for main division view.
18	Screen Division	Selects screen divisions.
19	Exit	Brings up these options: Login/Change User, Logout, Minimize, Restart Multicam and Exit.

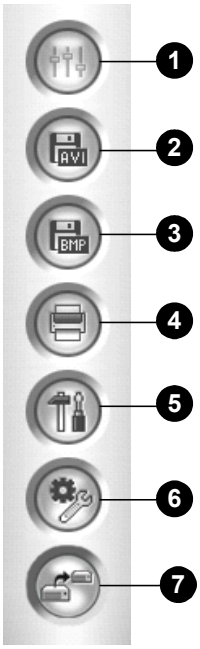
4.2 ViewLog


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
Camera 1
2010
Jun
Jul
01
12
16
Monitor-Table
Time
Type
16:49:3...
Scene Ch...
9/28/2007
21:51:39.687
x1

The controls in the ViewLog window:

No	Name	Description
1	Camera Name	Indicates the given camera name.
2	Camera View	Displays the playback video.
3	Arrow Switch	Switches between list mode and line mode. Sets up MDB filter.
4	Date Tree	Displays date folders.
5	Display Option	Specifies event type to display in List Mode or Line Mode.
6	Video Event List	Displays video events within a certain date folder.
7	Camera Select	Sets a desired camera for display.
8	View Mode	Sets screen divisions: Single View, Panorama View, Quad View or Multi View. Single View also includes these options: Standard,
9	Advanced	Accesses basic search, advanced search and bookmark. Reloads video event list.
10	Normal	Displays or closes Timeline or Video Event List.
11	Function Panel	Provides various settings for ViewLog.
12	Slider	Moves the slider to rewind or forward the video during playback
13	Audio Playback	Enables audio playback.
14	Playback Panel	Contains typical playback control buttons.
15	Function Icons	A highlighted icon indicates an enabled function. From left to right are the A to B Mode, auto playing of next events, the contrast and
16	Playback Speed	Indicates the playback speed. x1 represents normal playback
17	Time Display	Indicates the time of the playback video.
18	Date Display	Indicates the date of the playback video.
19	Exit	Closes or minimizes the ViewLog window.
20	A to B Mode	Plays repeatedly the set frames A to B.
21	Playback Mode	Plays back video frame by frame, on real time, with smooth playback or with just key frames.

Functional Panel



The controls in the Functional Panel:

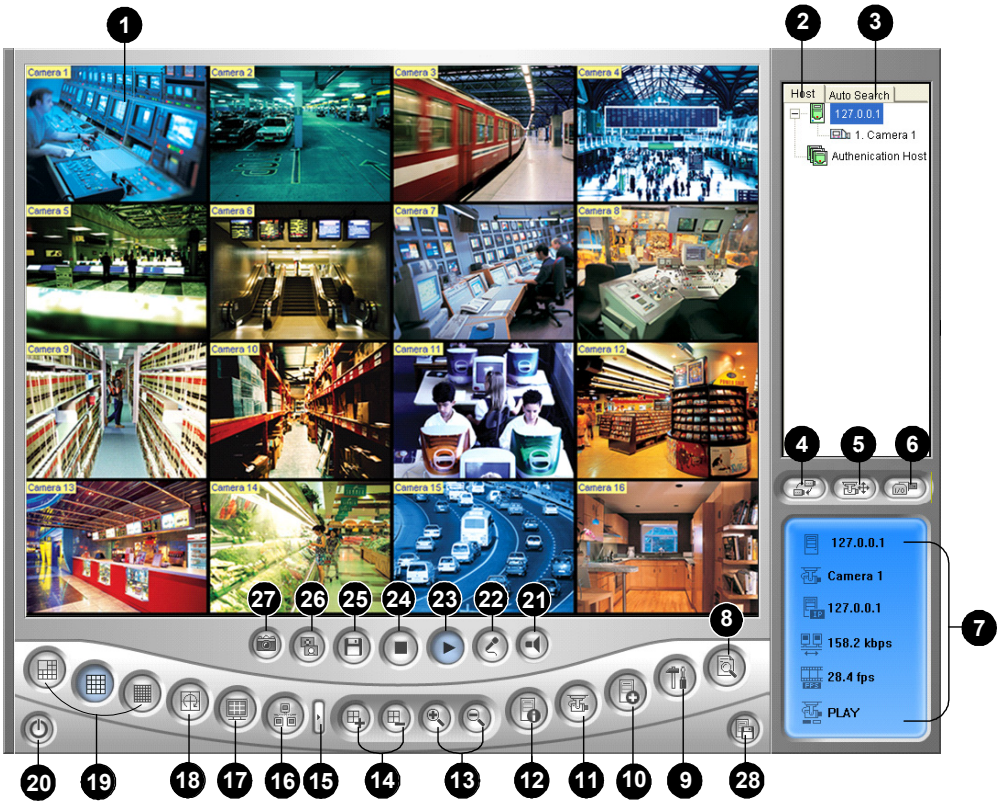
No	Name	Description
1	Effects	Adds effects to the images. The effect options include: Contrast/Brightness, Light Enhancement, Equalization, Sharpen, Smooth, Grayscale, Undo to Prev. Action, Undo All Effects, Copy Image to Clipboard, Sample, and Advanced Video Analysis.
2	Save As AVI	Save a video file as avi or exe format.
3	Save As Image	Save a video image as bmp, jpg, gif, png, or tif format.
4	Print	Specifies various settings for printing.
5	Setting	Accesses system settings of ViewLog.
6	Tools	Brings up these options: Object Search, Advanced Log Browser, Delete, Remote ViewLog Service, Remote Storage System, Address Book, Display GIS Window, Select Map API, and Tool Kit.
7	Backup	Backs up video files.

4.3 SingleView Viewer

The controls in the SingleView Viewer:

No	Name	Description
1	Countdown Timer	Indicates the remaining time when you log in as Guest. When the time is up, you will be logged out automatically.
2	Menu	Includes these options: Information, Video, Audio, Preset Go, I/O Control, Alarm Notify, Camera Adjustment, Download and POS/Wiegand.
3	Expand / Close	Expands or closes the Menu option list.
4	Option Selection Bar	Selects the Menu option. For the list of options, see “Menu” above.
5	Show System Menu	Brings up these options: Alarm Notify, Video and Audio Configuration, Remote Config, Change Server, Show Camera Name and Image Enhance.
6	Show Camera Menu	Select the desired camera for display.
7	PTZ Control	Displays the PTZ control panel.
8	I/O Control	Displays the I/O control panel.
9	Full Screen	Switches to full screen view.
10	File Save	Saves live video in the local computer.
11	Change Quality	Adjusts video quality with two options: **Geo H264** and **Geo MPEG4**. For hardware-compressed or megapixel video stream, you have options of **Hardware Streaming JPEG, Hardware Streaming MPEG4** or **Hardware Streaming H.264**.
12	Snapshot	Takes a snapshot of the displayed live video.
13	Speaker	Enables live audio from the remote GV-System.
14	Microphone	Enables speaking to the remote GV-System.
15	Stop	Terminates the connection to the remote GV-System.
16	Play	Connects to the remote GV-System.

4.4 MultiView Viewer



The controls in the MultiView Viewer:

No	Name	Description
1	Monitoring Window	Displays live video.
2	Host Window	Displays the connected GV-Systems and their available cameras.
3	Auto Search	Displays all hosts on the same LAN.
4	Show Camera Menu	Select the desired camera for display. If a panorama view is created at the GV-System, it is also included in this menu.
5	PTZ Control	Displays the PTZ control panel.
6	I/O Control	Displays the I/O control panel.
7	Channel Status	Indicates the general information of the selected channel.
8	ViewLog	Accesses Remote ViewLog.
9	Configure	Accesses system settings of the MultiView.
10	Edit Host	Adds, deletes or modifies GV-System.
11	Camera Status	Displays the camera status of the connected GV-System.
12	Host Information	Displays the general information of the connected GV-System.
13	Zoom in and out	Zooms in or out the selected channel.
14	Add/Remove Channel	Adds or deletes the channels for video polling.
15	Next	Goes to the next page of Screen Division buttons.
16	Multicast	Accesses the Multicast function.
17	Full Screen	Switches to a full screen view.
18	Video Polling	Rotates through the selected channels.
19	Screen Division	Sets the screen divisions to 4, 6, 8, 9, 10, 13, 16 or 32.
20	Exit/Minimize	Closes or minimizes the MultiView window.
21	Speaker	Enables speaking to the remote GV-System.
22	Microphone	Enables live audio from the remote GV-System.
23	Play	Establishes the connection to a GV-System.
24	Stop	Terminates the connection to a GV-System.
25	Save	Saves live video.
26	Quality	Changes video resolution.
27	Snapshot	Takes a snapshot of the selected channel.
28	Save Camera to Multiple Host	Saves the selected cameras and creates a Multiple Host.

4.5 Center V2


1
Camera 1
Camera 2
Camera 3
Camera 4
Camera 5
Camera 6
Camera 7
Camera 8
Camera 9
Camera 10
Camera 11
Camera 12
Camera 13
Camera 14
Camera 15
Camera 16
Camera 17
Camera 18
Camera 19
Camera 20
Camera 21
Camera 22
Camera 23
Camera 24
Jul. 06 07:44:38
5.15 GB
1 / 800
2
3
4
CenterV2
Taipei
1
Camera1
Module 1
Tokyo
A
Camera 1
Camera 2
Module 1
admin
5
6
7
8
9
10
11
12
13
ID
Type
Message
Message Time
Start Time
1 Motion Camera1 detected motion 7/6/2004 7:39:33 AM 9/19/2008 10:50:01 AM
1 Attachment Record file of Camera1. [Live] 7/6/2004 7:39:39 AM 9/19/2008 10:50:01 AM
A Login/Logout Login 7/6/2004 7:40:51 AM
A System Start Monitoring All Type Events 7/6/2004 7:40:51 AM 7/6/2004 7:40:50 AM
A System Stop I/O Monitoring 7/6/2004 7:40:51 AM 7/6/2004 7:40:51 AM
A System Stop all cameras monitoring 7/6/2004 7:40:51 AM 7/6/2004 7:40:51 AM
A Motion Camera 2 detected motion 7/6/2004 7:40:51 AM 7/6/2004 7:40:51 AM
A Attachment Record file of Camera 2. [Live] 7/6/2004 7:41:18 AM 7/6/2004 7:40:51 AM
1 Motion Camera1 detected motion 7/6/2004 7:41:27 AM 9/19/2008 10:51:54 AM
1 Attachment Record file of Camera1. [Live] 7/6/2004 7:41:37 AM 9/19/2008 10:51:54 AM
1 Motion Camera1 detected motion 7/6/2004 7:41:41 AM 9/19/2008 10:52:08 AM
1 Attachment Record file of Camera1. [Live] 7/6/2004 7:41:49 AM 9/19/2008 10:52:08 AM
1 Motion Camera1 detected motion 7/6/2004 7:41:50 AM 9/19/2008 10:52:18 AM
1 Attachment Record file of Camera1. [Live] 7/6/2004 7:42:02 AM 9/19/2008 10:52:18 AM
14
15
16
17
18
19
20
21

The controls in the Center V2 window:

No	Name	Description
1	Monitoring Window	Displays live video.
2	Status Panel	Indicates the date, time, remaining disk space and the total number of online channels versus available channels.
3	Find A Subscriber	Searches for desired ID in the Current Subscriber field.
4	Subscriber List	Displays subscribers' IDs and online status. Blue Icon: Indicates the subscriber is online. Gray Icon: Indicates the subscriber is offline. Alarm Icon: Indicates either motion has been detected or the I/O has been triggered at the subscriber's site.
5	Tools	Accesses Event Log, Event List, audio and microphone control, SMS Server configuration, and short message notification.
6	Host Information	Displays the connection status of subscribers.
7	Accounts	Adds, deletes or modifies subscriber accounts.
8	Preference Settings	Brings up these options: System Configure, Event Log Settings, Notification, Password Setup, E-mail Setup, Customize Alarm Report, SMS Setup, I/O Device, Automatic Failover Support and Version Information.
9	Previous Page	Displays the previous page of camera views.
10	Next Page	Displays the next page of camera views.
11	Refresh Channel	Refreshes the connection status.
12	Split Mode	Sets the screen division. Different resolution provides options of screen divisions for a single monitor and dual monitors.
13	Exit	Closes or minimizes the Center V2 window.
14	Flag	Flags an event for later reference.
15	Clipboard	Displays the Alarm Report dialog box.
16	Clip	Indicates an event coming with an attachment. Double-click the event to open the attached video file.
17	ID	Indicates a subscriber's ID.
18	Event Type	Indicates the event type: Alarm, Attachment, Connection, Login/Logout, Motion, System and Trigger.
19	Message	Indicates associated information for each event type.
20	Message Time	Indicates when Center V2 receives an event.
21	Start Time	Indicates when an event happens at the subscriber's site.

Troubleshooting

GV-System is designed to provide you with trouble-free performance. If it does not appear to be functioning correctly, please make sure all connectors are properly attached and follow these troubleshooting steps:

GV-System has video and/or audio lost.

If your GV-System fails to show video, audio or both, try these steps:

1. Check the video/audio connection.
2. Make sure the video/audio device is turned on.
3. Make sure the video standard in your country matches the setting in GV-System.
4. Switch the cable from the functional channel to the non-functional channel, and vice versa. If the previously non-functional channel is now able to deliver video/audio, you should check the video/audio device itself and its related cables.

The screen image appears distorted or jitters.

If the screen image seems to be distorted, jitter, or not to look right, try these steps:

1. Make sure the video standard in your country matches the setting in GV-System.
2. Make sure the camera and its cable are not damaged or frayed. Try to replace a camera or cable to see if this fixes the problem.

Messages “Can’t find keypro” and “Card Setup Fail” appear when GV-System starts.

1. Verify the video capture card driver. See *2.13 Installing Drivers*.
2. Insert the video capture card to a different PCI slot to see if this fixes the problem.
3. If you are using the video capture card V1, attach an appropriate Keypro to the PC’s parallel port and run **Dos2kreg.exe** from the GV-System folder.
4. If using GV-600, GV-650 or GV-650 and running the version between 7.0 and 7.0.5.0, you may need an appropriate USB dongle.
5. If running the version of 8.0 or later and using GV-600A, GV-650A, GV-800A, GV-1120A, GV-1240A or GV-1480A, you may follow Steps 1 and 2 to fix the problem.

A message “Can’t find new xxx Module:1, Address:1, in Com1” appears.

1. Check the RS-485 or USB connection between the GV-System and the GV I/O device.
2. Check whether the power adapter is properly attached to the GV I/O device.
3. Check whether the Port and Address settings on the I/O Devices tab in the System Configure dialog box are correct.

A message “No PTZ Device Installed” or “Default PTZ Device not Activate” appears.

1. Make sure the Activate option is enabled in Main System. See Step 4, “PTZ Control Panel”, Chapter 1, *GV-DVR User’s Manual* on the Software DVD.
2. If multiple PTZ cameras are installed, make sure to activate each PTZ camera individually.

How can I find more help?

1. Visit our website at http://www.geovision.com.tw/english/4_1.asp
2. Write us at support@geovision.com.tw