GefenPRO®

1080P PROGRESSIVE

dvi digital visual interface

8x8 DVIKVM Dual Link Matrix w/ Push Button Control

GEF-DVIKVM-848DL-PB

User Manual

www.gefenpro.com

ASKING FOR ASSISTANCE

Technical Support:

Telephone	(818) 772-9100 (800) 545-6900
Fax	(818) 772-9120

Technical Support Hours:

8:00 AM - 5:00 PM Monday - Friday, Pacific Time
For 24 / 7 support, see the back of the product for the support number

Write To:

Gefen LLC
c/o Customer Service
20600 Nordhoff St
Chatsworth, CA 91311

www.gefenpro.com
support@gefenpro.com

Notice

Gefen LLC reserves the right to make changes in the hardware, packaging and any accompanying documentation without prior written notice.

8x8 DVIKVM Dual Link Matrix with Push Button Control
is a trademark of Gefen LLC

© 2011 Gefen LLC, All Rights Reserved
All trademarks are the property of their respective owners

CONTENTS

INTRODUCTION

Congratulations on your purchase of the 8x8 DVIKVM Dual Link Matrix. Your complete satisfaction is very important to us.

GefenPRO

In the realm of video distribution, certain features are invaluable in a commercial or broadcast environment. Accommodations such as a built-in power supply and flat black rack-mount enclosures set GefenPRO apart from our traditional products. Complex distribution units allow for professional DVI, 3G-SDI, and HDMI signals to be routed and converted easily and seamlessly, while being backed up by a renowned and dependable technical support team. Gefen invites you to explore the GefenPRO product line and hopes that you find the solution that fits your needs.

The GefenPRO 8x8 DVIKVM Dual Link Matrix

The GefenPRO 8x8 DVIKVM Dual Link Matrix with Push Button Control provides a professional-grade KVM solution to route DVI, USB, and Audio from any eight computers to any eight Hi-Def workstations. Dual link resolutions up to 3840 x 2400 are supported. Audio can be routed with the video or independently from the video using mini-stereo cables to provide full multimedia content for digital signage applications. The front panel display shows the current routing status and the front panel push buttons are used to manage local source routing. Four methods are available for controlling the GefenPRO 8x8 DVIKVM Dual Link Matrix: front panel push buttons, an included IR remote, a built-in RS-232 interface, or by using IP control via the built-in Web interface.

How It Works

Connect up to eight KVM source devices to the GefenPRO 8x8 DVI KVM Dual Link Matrix with Front Panel Push Button Control using the supplied DVI cables. Connect up to eight monitors to the DVI outputs. Connect the USB devices (keyboard, mouse device, etc.) to the USB input and output connectors.
For audio, connect mini-stereo cables between each audio source and the audio inputs on the Matrix. Connect the mini-stereo cables between the audio outputs on the Matrix to the audio device. Plug in the power cord and apply power to the Matrix. The DVI, USB and Audio sources will be routed according to the current routing selection.

READ THESE NOTES BEFORE INSTALLING OR OPERATING THE 8X8 DVIKVM DUAL LINK MATRIX WITH PUSH BUTTON CONTROL

- The 8x8 DVIKVM Dual Link Matrix will not pass HDCP content.
- There is no internal scaling in the 8x8 DVIKVM Dual Link Matrix. All of the attached monitors must be able to display the resolutions output by the source devices. For maximum compatibility it is recommended that only one compatible/common resolution be used by all of the source devices.
- Advanced EDID features and IP configuration features are accessible via the RS-232 serial communication port. See page 23 for more information.
- Routing and EDID features can be accessed via a web browser using the IP control feature, built into the 8x8 DVIKVM Dual Link Matrix.
- **IMPORTANT:** If the unit is installed in a closed or multi-rack assembly, do not block the ventilation holes of the enclosure.

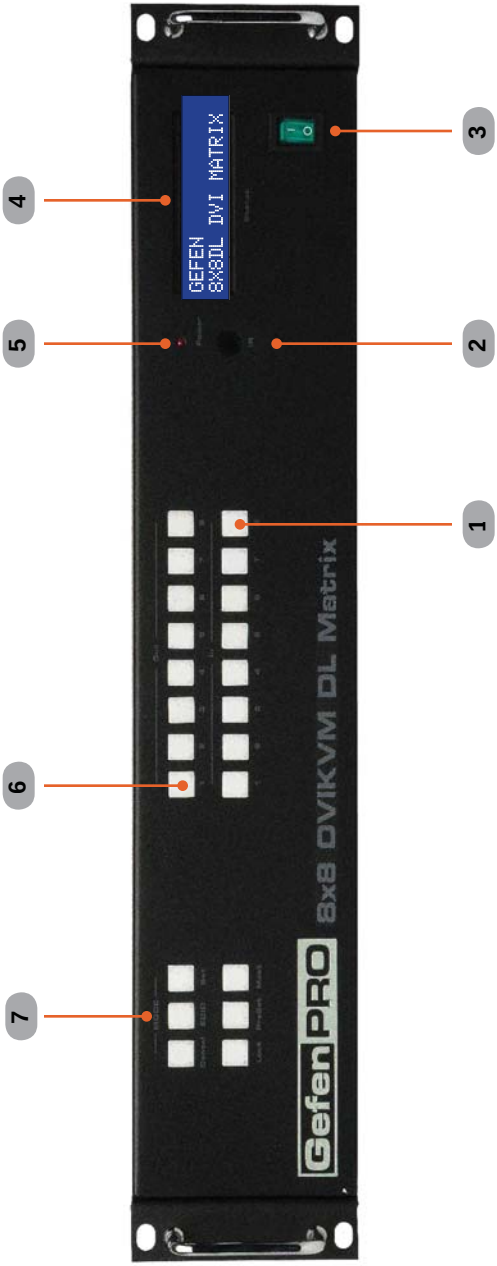
Features

- Supports resolutions up to 2560x1600
- Front panel control buttons for local switching
- Status LCD (shows routing status)
- Advanced EDID management permits uploading of custom internal or external EDID settings
- Serial RS-232 interface for remote control via a computer or control automation devices
- IP Control
- Output masking command
- IR Remote Control
- IR Extender
- Power On/Off switch
- Internal power supply
- Grounding Terminal
- Standby mode
- Supports DDWG standards for DVI
- Rack mountable

Package Includes

(1) GefenPRO 8x8 DVIKVM Dual Link Matrix
(8) 6 ft. DVI Dual Link cables (M-M)
(8) Audio Cables
(8) USB Cables
(1) IR Remote Control Unit
(1) AC Power Cord
(1) User Manual

Front Panel


GEFEN
8X8DL DVI MATRIX
8x8 DVIKVM DL Matrix
GefenPRO
1
2
3
4
5
6
7

PANEL DESCRIPTIONS

Front Panel

1 Input Buttons (1 - 8)
Used for routing an Input to an Output. Each of these buttons represents an Input. See page 14 for more information on routing DVI sources.

2 IR Window
Receives signals from the IR Remote Control unit.

3 Power Switch
Turn the power on or off using this switch.

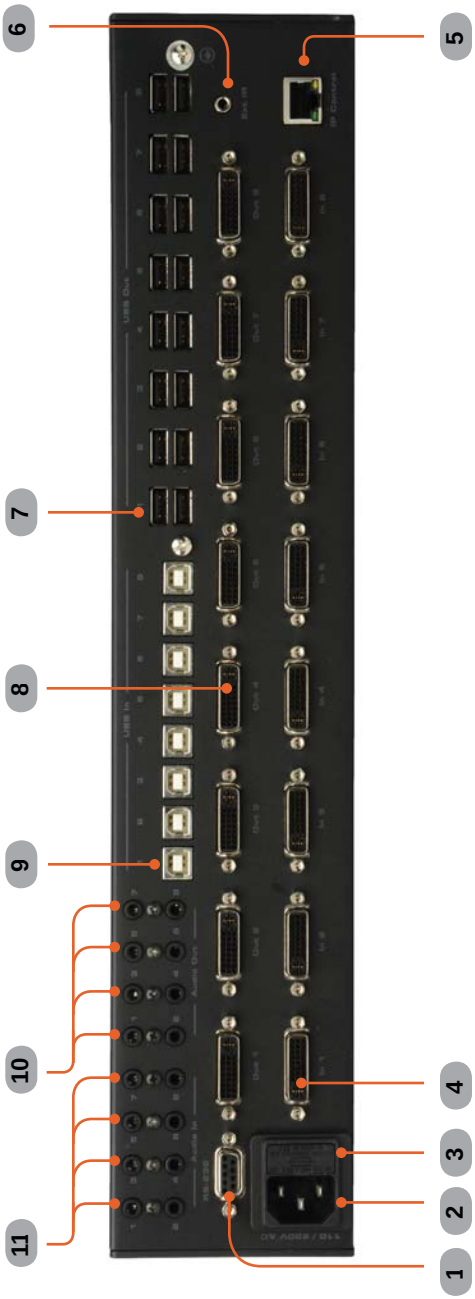
4 LCD Display
Displays the current routing status of the Matrix and is also used to manage source routing.

5 Power Indicator
This LED indicator will glow bright red when the power is turned on.

6 Output Buttons (1 - 8)
Used for routing an Input to an Output. Each of these buttons represents an Output. See page 14 for more information on routing DVI sources.

7 Control Buttons
These buttons are used to control other features on the product. See pages 14 - 22 for details.

Back Panel



Back Panel

1 RS-232 Serial Port
Connects to the RS-232 control device. The 8x8 DVIKVM Dual Link Matrix may be controlled remotely using this port. See pages 23 - 50 for details.

2 AC 110 / 220V (50/60 Hz) Power Cable Receptacle
Connect the included AC power cord from this receptacle to an available electrical outlet.

3 Fuse Drawer
Each power receptacle houses a fuse drawer. Within each fuse drawer are two (2) 250 V fuses. One fuse is active and the other is a spare.

4 DVI Input Ports (1 - 8)
Connect DVI source devices to these ports.

5 IP Control Interface
Connect to this port to control the 8x8 DVIKVM Dual Link Matrix using IP Control. See page 51 for more information.

6 IR Extender Port
Connect an IR extender cable to this port.

7 USB Output Ports (16)
Connect USB devices to these ports (two outputs per channel).

8 DVI Output Ports (1 - 8)
Connect DVI monitors to these ports.

9 USB Input Ports (1 - 8)
Connect USB source devices to these ports

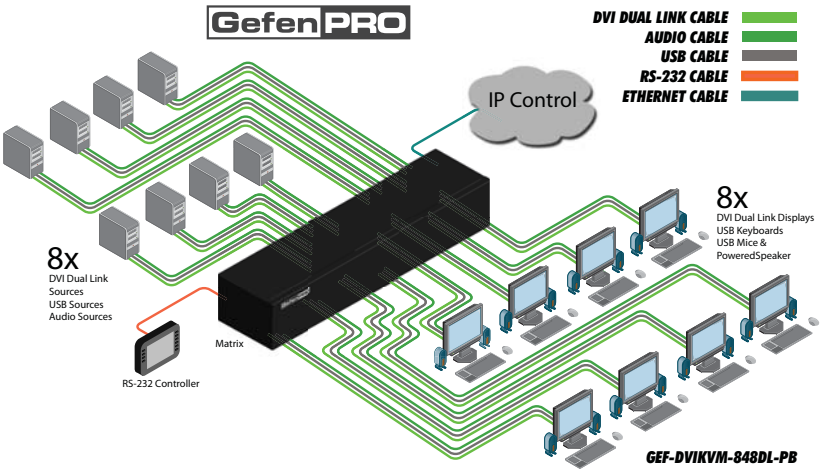
10 Audio Output Connector (3.5 mm Mini-Stereo)
Connect audio devices to these ports using 3.5 mm mini-stereo cables.

11 Audio Input Connectors (3.5 mm Mini-Stereo)
Connect audio output devices to these ports using 3.4 mm mini-stereo cables.

How to Connect the GefenPRO 8x8 DVIKVM Dual Link Matrix

1. Connect up to 8 DVI source devices to the DVI inputs on the rear panel of the GefenPRO 8x8 DVIKVM Dual Link Matrix using the supplied DVI cables.
2. Connect up to 8 DVI monitor to the DVI outputs on the rear panel of the GefenPRO 8x8 DVIKVM Dual Link Matrix with user-supplied DVI cables.
3. Connect the included AC power cable to the power receptacle on the rear panel of the GefenPRO 8x8 DVIKVM Dual Link Matrix. Connect the opposite end of the cable into an available electrical outlet.

Wiring Diagram for the GefenPRO 8x8 DVIKVM Dual Link Matrix



WARNING: This product should always be connected to a grounded electrical socket.

Booting Up / Standby Screen

The front-panel LCD of the 8x8 DVIKVM Dual Link Matrix is a 16 character 2 line display. This display is used to aid in performing routing commands, as well as displaying additional system information. When the unit is powered on, the following screens are displayed:

After a few moments, the standby screen is displayed:

RMT-16IR
Remote Control Unit

1 ***Activity Indicator***
This LED will be activated momentarily each time a button is pressed.

2 ***Monitor and Source Selection Buttons (1 - 16)***
These buttons are used to select which source is routed to a monitor.

See page 13 for information on using the IR Remote Control unit.

Installing the RMT-16416IR Battery

1. Remove the battery cover on the back of the IR Remote Control unit.
2. Insert the included battery into the open battery slot. The positive (+) side of the battery should be facing up.
3. Replace the battery cover.

The Remote Control unit ships with two batteries. One battery is required for operation and the other battery is a spare.

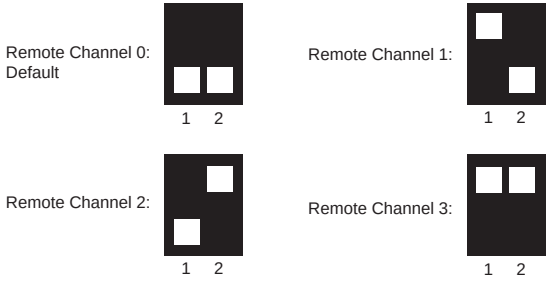
Battery Slot

WARNING: Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.

How to Resolve IR Code Conflicts

In the event that IR commands from other remote controls interfere with the supplied IR Remote Control unit, changing the IR Remote Control's IR channel will fix the problem. The IR Remote Control unit has a bank of DIP switches used for setting the IR channel.

The DIP switch bank is located underneath the battery cover.



Left: Picture of the opened rear battery compartment of the IR remote showing the exposed DIP Switch bank between the battery chambers.

It is important that the IR channel on the Remote Control unit, matches the IR channel set on the 8x8 DVIKVM Dual Link Matrix. For example, if both DIP switches on the IR Remote Control unit are set to IR channel 0 (both DIP switches down), then the 8x8 DVIKVM Dual Link Matrix must also be set to IR channel 0. See page 47 on how to change the IR channel on the 8x8 DVIKVM Dual Link Matrix.

IR Remote Control Key Mapping

Each input and output on the 8x8 DVIKVM Dual Link Matrix is represented by a button on the IR Remote Control unit. The table below lists the corresponding inputs and outputs.

Remote Button	Monitor / Source
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8

Routing Sources using the IR Remote Control unit

Issuing a routing command is a two step process. The first step is to select the monitor where the source will be routed. The second step is to select the source.

Example 1
Route the source device connected to In 7 to the monitor connected to Out 3.

1. Press button 3 (monitor 3) on the IR remote control unit.
2. Press button 7 (source 7) on the IR remote control unit.

The source connected to In 7 will be routed to the monitor connected to Out 3.

Example 2
Route the source device connected to In 1 to the monitor connected to Out 1.

1. Press button 1 (monitor 1) on the IR remote control unit.
2. Press button 1 (source 1) on the IR remote control unit.

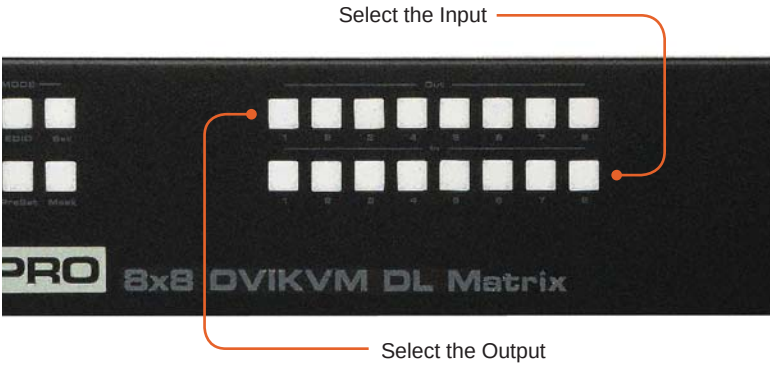
The source connected to In 1 will be routed to the monitor connected to Out 1.

Routing Sources

In order to change current routing state:

1 Press Set Button to activate Routing Mode.

2 Press any Input on the bottom row of buttons (1 - 8). The system indicates the current routing status.



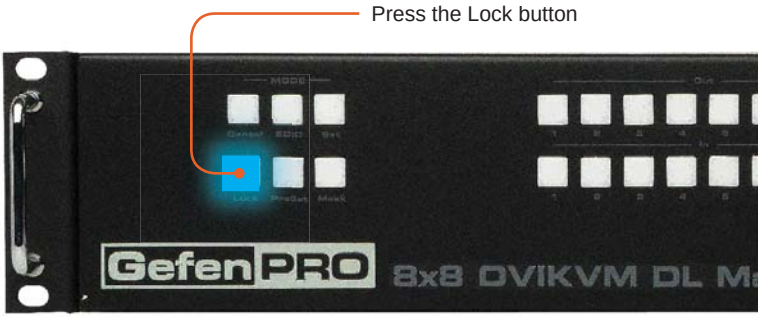
3 Press the desired Output button. One or more Output buttons may be selected.

4 Press the Set button to complete the operation. The system will remain in Routing Mode.

System Lock Mode

Locking the Matrix prevents changes to any of the Matrix settings. This feature is useful in case any of the front panel buttons are pressed by accident. Locking the Matrix also prevents changes using the IR Remote Control Unit.

1 Press the Lock button to activate System Lock Mode.



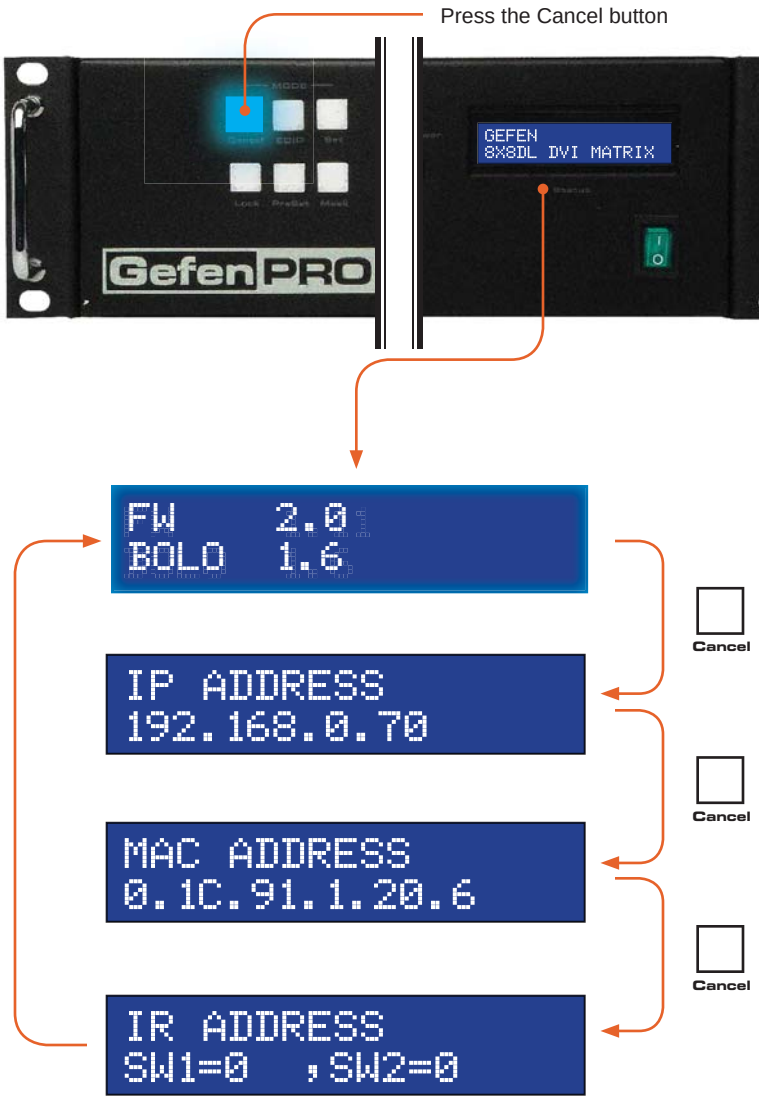
2 Press the Lock button a second time to deactivate System Lock Mode.

Returning to Standby Mode

Press the Cancel button, while in any mode, to return to the Standby Mode screen.

Cycling between Information Screens

Press the Cancel button, while in Status Check Mode, to cycle through the Information Screens.



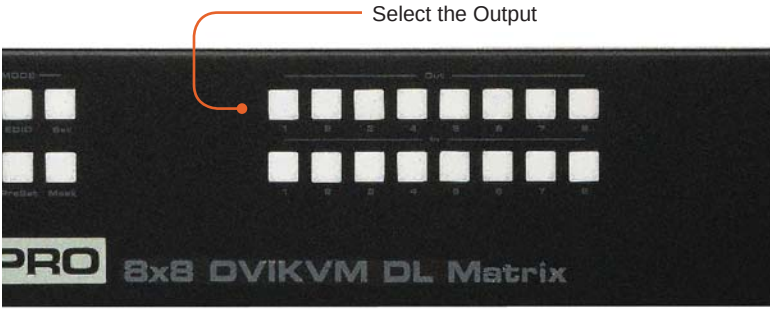
Activating / Deactivating Standby Mode

Press and hold the Cancel button for 5 seconds to activate or deactivate Standby Mode.

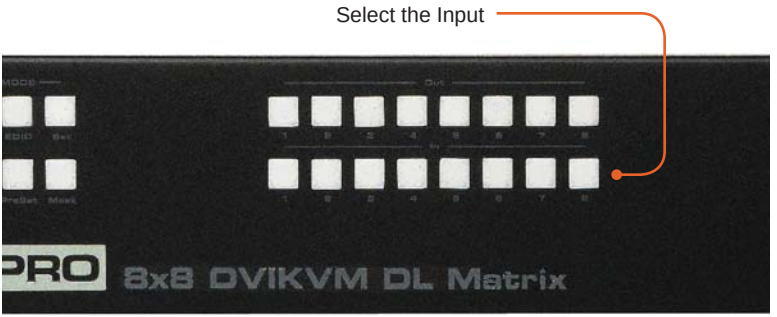
Saving the Downstream EDID to Local Memory:

1 Press EDID button *once* to activate DSTOLO (Downstream To Local) Mode.

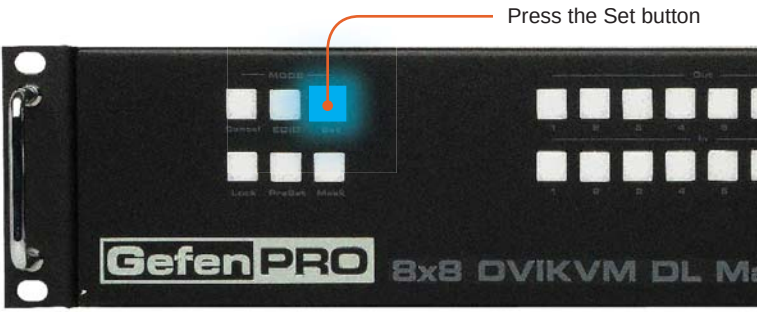
2 Press the Output button to select the EDID data source.



3 Press the Input button to select EDID data destination.



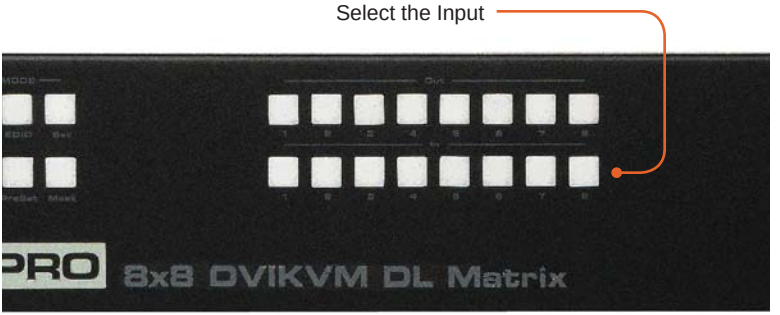
4 Press the Set button to complete the operation. The system will remain in DSTOLO mode.



Saving the default EDID to Local Memory

1 Press the EDID button *twice* to activate DETOLO (Default EDID To Local) Mode.

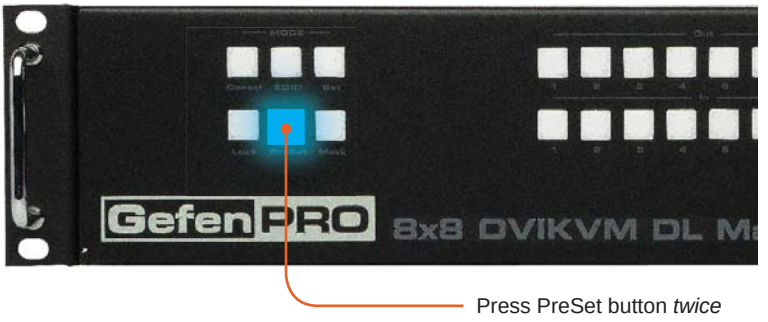
2 Press the Input button to select EDID data destination.



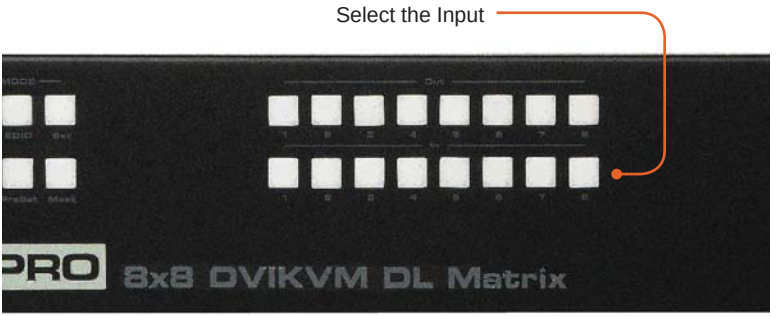
3 Press the Set button to complete the operation. The system will remain in DETOLO mode.

Saving the current Routing State

1 Set the routing state (see page 14), then press the PreSet button *twice* to activate Preset Mode.



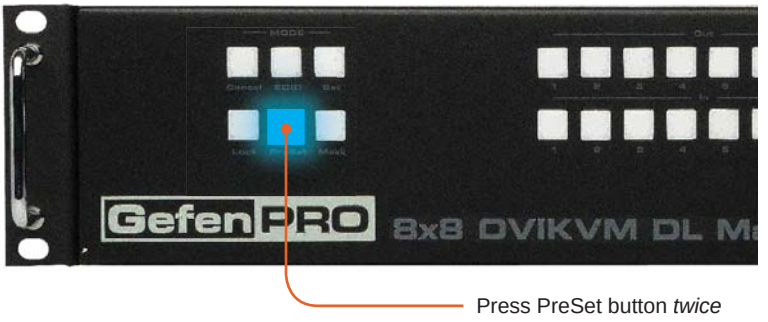
2 Press an Input button (1 - 8) to store the current routing state.



3 Press the Set button to complete the operation. The system will remain in Save Current Preset Mode.

Recalling a Routing State

1 Press the PreSet button *once* to activate Recall Preset Mode.



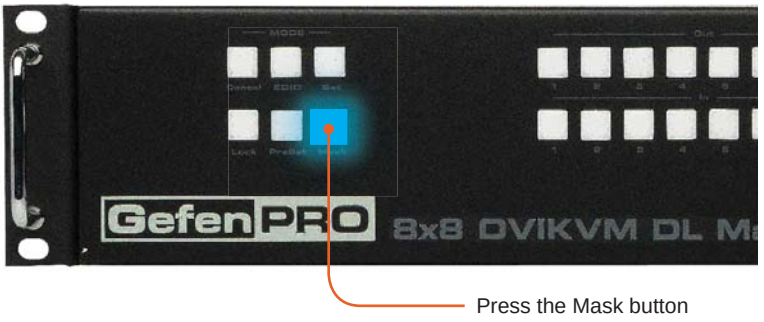
2 Press the Input button (1 - 8) of the routing state to be recalled.

3 Press the Set button to complete the operation. The system will remain in Recall Saved Set Mode.

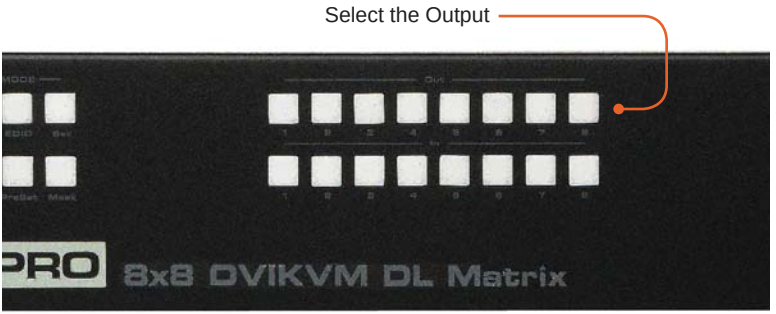
Masking Outputs

Masking prevents the output device (display, etc) from receiving an output signal, instead of powering-down the output device. The masking process is identical for masking or unmasking outputs.

1 Press the Mask button to activate Mask Mode.



2 Select the Output to be masked.



3 Press the Set button to complete the operation. The system will remain in Save Current Preset Mode.

Only Pins 2 (RX), 3 (TX), and 5 (Ground) are used on the RS-232 serial interface

RS232 Settings

Bits per second 19200

Data bits 8

Parity ..... None

Stop bits 1

Flow Control ..... None

IMPORTANT: When sending RS-232 commands, a *carriage return* and a *line feed* character must be included at the end of each line. Telnet Commands, Device Names, and Command Names are all case-sensitive.

EDID Management

Command	Description
#edidbatolo	Read downstream EDID and stores in any Local Input
#ediddetolo	Sets Local EDID to Default EDID
#ediddstoba	Read downstream EDID and stores in EDID Bank
#ediddstolo	Read downstream EDID and stores into a Local EDID
#lock_edid	Secures Local EDID
#prbaedid	Read EDID from an EDID bank and sends to serial port
#prdsedid	Read downstream EDID and sends to serial port
#predidst	Prints EDID details
#prloedid	Read Input Local EDID and sends to serial port

#edidbatolo Command

The #edidbatolo command reads the downstream EDID and stores it to any local input.

Syntax:

```
#edidbatolo param1 param2 [param3...param9]
```

Parameters:

param1	EDID bank offset	[1 - 5]
param2	Input	[1 - 8]

Notes:

If *param2 = 0*, then the EDID in the specified bank is copied to all eight inputs.

#ediddetolo Command

The #ediddetolo command stores the Default EDID (640x480) in the specified Local EDID inputs.

Syntax:

```
#ediddetolo param1 param2 param3...param9
```

param1	Input	[1 - 8]

Notes:

If *param1 = 0*, then all 8 DVI inputs will be set to the Default EDID.

#ediddstoba Command

The #ededdstoba command reads the downstream EDID and stores it to a specified EDID bank.

Syntax:

```
#ediddstoba param1 param2
```

Parameters:

param1	A downstream monitor	[1 - 8]
param2	EDID bank offset	[1 - 5]

#ediddstolo Command

The #ediddstolo command reads the downstream EDID and stores it to a Local EDID input.

Syntax:

```
#ediddstolo param1 param2 [param3...param9]
```

Parameters:

param1	A downstream monitor	[1 - 8]
param2	Input list	[1 - 8]

Notes:

If *param2 = 0*, then the downstream EDID is stored to all 8 DVI inputs.

Examples:

```
#ediddstolo 2 1 2 3 4 5    inputs 1-5 use display 2 EDID
#ediddstolo 3 0            all inputs use display 3 EDID
```

#lock_edid Command

The #lock_edid command secures the Local EDID and disables the automatic loading of the downstream EDID after the Matrix is powered on.

Syntax:

```
#lock_edid param1
```

Parameters:

param1 Input [0 - 1]

Value	Meaning
0	Disable
1	Enable

#prbaedid Command

The #PRBAEDID command reads the EDID file from the specified bank and sends to serial port.

Syntax:

```
#PRBAEDID param1
```

Parameters:

param1	Input	[1 - 5]

#prdsedid Command

The #prdsedid command reads the downstream EDID and sends it to the serial port.

Syntax:

```
#prdsedid param1
```

Parameters:

param1	A downstream monitor	[1 - 8]

#predidst Command

The #predidst command reads the downstream EDID. This command displays a table containing details relating to the Local EDID and the monitor name.

Syntax:

```
#predidst
```

Parameters:

None

#prloedid Command

The #prloedid command reads the local EDID of a specified input and spools it to the serial port.

Syntax:

```
#prloedid param1
```

Parameters:

param1	A specified Input	[1 - 8]

IP / Telnet Configuration

Command	Description
#display_telnet_welcome	Set Telnet welcome message on login
#ipconfig	Displays all TCP/IP settings
#resetip	Resets IP configuration to factory settings
#set_http_port	Sets the Web server listening port
#set_telnet_pass	Prompts for password when using Telnet
#set_telnet_port	Sets the Telnet listening port
#set_telnet_username	Sets the user name for the login procedure
#sgateway	Sets the IP gateway address
#show_telnet_pass	Prompts for password when using Telnet
#show_telnet_username	Prompts for user name when using Telnet
#show_ver_data	
#sipadd	Sets the IP address of the matrix
#snetmask	Sets the IP network mask
#use_telnet_pass	Use password during Telnet sessions

#display_telnet_welcome Command

The #display_telnet_welcome sets (enables/disables) the Telnet welcome message on login.

Syntax:

```
#display_telnet_welcome param1
```

Parameters:

param1 State [0 - 1]

State	Meaning
0	Do not display welcome message
1	Display welcome message

#ipconfig Command

The #ipconfig command displays all TCP/IP settings on the matrix.

Syntax:

```
#ipconfig
```

Parameters:

None

Example:

```
#ipconfig

-------------- TCP/IP settings -------------
MAC add  = 00:1C:91:01:50:07
IP add   = 192.168.1.72
Net Mask = 255.255.255.0
Gateway  = 192.168.2.1
Web Server Port = 80
Telnet Server Port = 23
Telnet password at login is set to ON
Telnet welcome at login is set to ON
```

#resetip Command

The #resetip command resets all TCP/IP settings to factory defaults.

Syntax:

```
#resetip
```

Parameters:

None

Notes:
The matrix must be rebooted after executing this command.

#set_http_port Command

The #set_http_port command sets the Web server listening port.

Syntax:

```
#set_http_port param1
```

Parameters:

param1	Port	[0 - 65535]

Default:

```
80
```

Notes:
The matrix must be rebooted after executing this command.

#set_telnet_pass Command

The #set_telnet_pass command sets the Telnet password. The maximum length of the password is 20 characters. The password is case-sensitive.

Syntax:

```
#set_telnet_pass param1
```

Parameters:

param1	Password	

Default:

Admin

Notes:
The matrix must be rebooted after executing this command.

#set_telnet_port Command

The #set_telnet_port command sets the Telnet listening port. The default port value is 23.

Syntax:

```
#set_telnet_port param1
```

Parameters:

param1	Port	[0 - 65535]

Notes:
The matrix must be rebooted after executing this command.

#set_telnet_username Command

The #set_telnet_username command sets the Telnet user name. The maximum length of the user name is 20 characters. The user name is case-sensitive.

Syntax:

```
#set_telnet_username param1
```

Parameters:

param1	User name

Default:

Admin

Notes:
The matrix must be rebooted after executing this command.

#sgateway Command

The #sgateway sets the IP gateway (router) address. Dot-decimal notation must be used when specifying the IP address.

Syntax:

```
#sgateway param1
```

Parameters:

param1	IP gateway

Example:

```
#sgateway 192.168.1.1
```

Default:

```
192.168.1.254
```

Notes:
The matrix must be rebooted after executing this command.

#show_telnet_pass Command

The #show_telnet_pass command shows the Telnet password for login (if required).

Syntax:

```
#show_telnet_pass
```

Default:

```
Admin
```

#show_telnet_username Command

The #show_telnet_username command returns the user name required for login.

Syntax:

```
#show_telnet_username
```

Parameters:

None

Default:
```
Admin
```

#show_ver_data Command

The #show_ver_data command displays the hardware and firmware version of the matrix.

Syntax:

```
#show_ver_data
```

Parameters:

None

#sipadd Command

The #sipadd command sets the IP address of the matrix. Dot-decimal notation must be used when specifying the IP address.

Syntax:

```
#sipadd param1
```

Parameters:

param1	IP address

Example:

```
#sipadd 192.168.1.72
```

Notes:
The matrix must be rebooted after executing this command.

#snetmask Command

The #snetmask command sets the IP network mask. Dot-decimal notation must be used when specifying the IP network mask.

Syntax:

```
#snetmask param1
```

Parameters:

param1	Network mask

Default:

```
255.255.255.0
```

Notes:
The matrix must be rebooted after executing this command.

#use_telnet_pass Command

The #use_telnet_pass command requires or disables login credentials.

Syntax:

```
#use_telnet_pass param1
```

Parameters:

param1 State [0 - 1]

Value	Meaning
0	Disable password
1	Enable (force) password

Default:
Disabled (no password required)

Routing

Command	Description
#callpreset	Recalls a routing / mask preset
#saudio	Routes audio independently from video
#savepreset	Saves the current routing/masking state to a preset
a	Routes audio independently from video
r	Routes the specified inputs to the specified outputs
s	Routes the specified input to all outputs

#callpreset Command

The #callpreset command recalls a routing preset. Any masked outputs will also be recalled.

Syntax:

```
#callpreset param1
```

Parameters:

param1	Preset	[1 - 8]

#saudio Command

The #saudio command routes audio independently from the video. If param1 is set to 0, then each audio input will be routed to its associated output (e.g. 1-1, 2-2, 3-3, etc.).

Syntax:

```
#saudio param1
```

Parameters:

param1	Preset	[1 - 8]

#savepreset Command

The #savepreset command saves the current routing state to the specified preset. Any masked outputs will also be saved as part of the current routing state.

Syntax:

```
#savepreset param1
```

Parameters:

param1	Preset	[1 - 8]

a Command

The a command routes the audio independently from the video.

Syntax:

```
a param1 param2...param9
```

Parameters:

param1	Audio input	[1 - 8]
param2	Audio output	[1 - 8]

Example:

```
a 1 2 3
Audıo ınput 1 ıs routed to outputs: 2 3
```

r Command

The r command routes the specified input to the specified outputs. If *param2* is set to 0, then the specified input is routed to all outputs.

Syntax:

```
r param1 param2[...param9]
```

Parameters:

param1	Input	[1 - 8]
param2	Outputs	[1 - 8]

Examples:

```
r 7 3 4 5 6 1 2
Input 7 is routed to outputs: 3 4 5 6 1 2

r 2 0
All outputs are routed to Input 2
```

s Command

The s command routes the specified input to all outputs.

Syntax:

```
s param1
```

Parameters:

param1	Input	[1 - 8]

Example:

```
s 1
All outputs are routed to Input 1
```

Masking

Command	Description
#maskaud	Masks the selected audio output(s)
#maskout	Masks the selected (video) output(s)
#maskusb	Masks the selected USB channel(s)
#unmaskout	Unmasks the selected output(s)

#maskaud Command

The #maskaud command masks the selected audio output(s).

Syntax:

```
#maskaud param1 param2
```

Parameters:

param1	Output	[1 - 8]
param2	State	[0 - 1]

Value	Meaning
0	Active
1	Mask

Notes:

The current masking state will be lost if power is interrupted or if the masking state is not saved (see #savepreset on page 38).

#maskout Command

The #maskout command allows blanking of the specified outputs.

Syntax:

```
#maskout param1 param2
```

Parameters:

param1	Output	[1 - 8]
param2	State	[0 - 1]

Value	Meaning
0	Active
1	Mask

Notes:

The current masking state will be lost if power is interrupted or if the masking state is not saved (see #savepreset on page 38).

#maskusb Command

The #maskusb command masks the selected USB channel(s).

Syntax:

```
#maskusb param1 param2
```

Parameters:

param1	Output	[1 - 8]
param2	State	[0 - 1]

Value	Meaning
0	Active
1	Mask

Notes:

The current masking state will be lost if power is interrupted or if the masking state is not saved (see #savepreset on page 38).

#unmaskout Command

The #unmaskout command unmasks the specified outputs. If *param1* is set to 0, then all outputs will be unmasked.

Syntax:

```
#unmaskout param1...param8
```

Parameters:

param1	Output	[1 - 8]

Examples:

```
#unmaskout 3 5 7
Activate outputs: 3 5 7

#unmaskout 0
Activate all outputs
```

Miscellaneous

Command	Description
#activebolo	Activates the boot loader
#audswitch	Enables / disables independent audio routing
#fadefault	Resets the matrix to factory default routing
#help	Displays all available commands
#lock_fo	Toggles the +5V lock power state
#prpreset	Prints the routing preset table
#set_input_name	Specifies a name for an input
#set_ir	Sets the IR channel of the matrix
#set_output_name	Specifies a name for an output
f	Toggles / displays +5V input
l	Displays the dual-link / single-link status table
m	Displays the current routing status

#activebolo Command

The #activebolo command activates the boot loader. This command is used when updating the matrix firmware. See page 69 for details on this procedure.

Syntax:

`#activebolo`

Parameters:

None

#audswitch Command

The #audswitch command enables / disables independent audio routing.

Syntax:

```
#audswitch param1
```

Parameters:

param1 Output [0 - 1]

Value	Meaning
0	Disable
1	Enable

#fadefault Command

The #fadefault command disables the EDID lock state, sets the default routing state (1-1, 2-2, 3-3, etc.) and resets the input and output names to the default names (e.g. Output 1, Input 1).

Syntax:

```
#fadefault
```

Parameters:

None

#help Command

The #help command displays help on the specified command. If *param1* is not specified, then the full list of commands is displayed.

Syntax:

```
#help [param1]
```

Parameters:

param1	Command name

Example:

```
#help #callpreset

Cmd #callpreset: Recall a routing and mask state preset
Syntax: #callpreset param1
Param1 = 1-16 (preset)
 e.g: #callpreset 2
```

#lock_fo Command

The #lock_fo enables/disables the power lock state. Enabling this feature will store the +5V status for each input prior to shutting down the matrix. This preserves the +5V state when the unit is restarted.

Syntax:

```
#lock_fo param1
```

Parameters:

param1 State [0 - 1]

Value	Meaning
0	Disable power lock
1	Enable power lock

#prpreset Command

The #prpreset command displays the routing preset table.

Syntax:

```
#prpreset
```

Parameters:

None

Example:

```
#prpreset

PreSet|Out1| 2 | 3 | 4 | 5 | 6 | 7 | 8
------|----|---|---|---|---|---|---|----
  1   |M 0 |M 0|M 0|M 0|M 0|M 0|M 0|M 0
  2   |M 0 |M 0|M 0|M 0|M 0|M 0|M 0|M 0
  3   |M 0 |M 0|M 0|M 0|M 0|M 0|M 0|M 0
  4   |M 0 |M 0|M 0|M 0|M 0|M 0|M 0|M 0
  5   |M 0 |M 0|M 0|M 0|M 0|M 0|M 0|M 0
  6   |M 0 |M 0|M 0|M 0|M 0|M 0|M 0|M 0
  7   |M 0 |M 0|M 0|M 0|M 0|M 0|M 0|M 0
  8   |M 0 |M 0|M 0|M 0|M 0|M 0|M 0|M 0
------|----|---|---|---|---|---|---|----
```

#set_input_name Command

The #set_input_name command provides a name to the selected input. For example, “Input 1” could be renamed as “Computer 1”. The maximum string length for *param2* is 15 characters. Special characters and spaces are not permitted. If required, use the underscore character (“_”) to separate characters.

Syntax:

```
#set_input_name param1 param2
```

Parameters:

param1	Input	[1 - 16]
param2	Name	

Example:

```
#set_input_name 5 computer1
computer1 is assigned to input 5
```

#set_ir Command

The #set_ir set the IR channel for the matrix. The associated DIP switch settings for the IR remote control unit are returned. See page 12 for details on setting the IR channel for the IR remote control.

Syntax:

```
#set_ir param1
```

Parameters:

param1	Channel	[0 - 3]

Example:

```
#set_ir 2
RMT_IR - SW1=0,SW2=1
```

#set_output_name Command

The #set_output_name command provides a name to the selected output. For example, “Output 1” could be renamed as “HDDisplay”. The maximum string length for *param2* is 15 characters. Special characters and spaces are not permitted. If required, use the underscore character (“_”) to separate characters.

Syntax:

```
#set_output_name param1 param2
```

Parameters:

param1	Output	[1 - 16]
param2	Name	

Example:

```
#set_output_name 3 display_3
display_3 is assigned to output 3
```

f Command

The f command returns the state of pin 14 on the DVI input.

Syntax:

```
f param1 param2
```

Parameters:

param1	Input	[1 - 8]
param2	State	[0 - 1]

I Command

The I (lower-case “L”) command displays the link status of each input. If the input is receiving a dual-link signal, then the Link status will be set to “Dual”. If a single-link source is used, then the Link status will be set to “Single”.

Syntax:

```
I
```

Parameters:

None

Example:

```
I
Input   |  Signal  | Link
--------|----------|--------
  1     |    NONE  | Single
  2     |    NONE  | Single
  3     |    NONE  | Single
  4     |    NONE  | Single
  5     |    NONE  | Single
  6     |    NONE  | Single
  7     |    NONE  | Single
  8     |    NONE  | Single
--------|----------|--------
```

m Command

The m command displays the current matrix status and routing information.

Syntax:

m

Parameters:

None

Example:

m

```
  Output       |   Input        |  HPD  | Status | AUDIOin
---------------|----------------|-------|--------|--------
       Output_1|         Input_1|   LOW | ACTIVE | 1
       Output_2|         Input_2|   LOW | ACTIVE | 1
       Output_3|         Input_3|   LOW | ACTIVE | 1
       Output_4|         Input_4|   LOW | ACTIVE | 1
       Output_5|         Input_5|   LOW | ACTIVE | 1
       Output_6|         Input_6|   LOW | ACTIVE | 1
       Output_7|         Input_7|   LOW | ACTIVE | 1
       Output_8|         Input_8|   LOW | ACTIVE | 1
---------------|----------------|-------|--------|--------
RMT_IR - SW1=0,SW2=1
```

Configuring the IP Address

The 8x8 DVIKVM Dual Link Matrix supports IP-based control using a built-in Web server or via Telnet. Before using the built-in Web server or Telnet control, the network settings for the 16x16 DVI Matrix must be configured via RS-232. The default network settings for the matrix are as follows:

IP Address:	`192.168.0.70`
Subnet:	`255.255.255.0`
Gateway:	`192.168.0.1`
Port:	`80`

To access the 8x8 DVIKVM Dual Link Matrix, make sure that the computer and the matrix are within the same subnet. Otherwise use the following procedure to change the address to match your network:

1. Connect an RS-232 cable from the PC to the matrix.

2. Launch a terminal emulation program (e.g. HyperTerminal) and use the following settings:

Baud Rate:	19200
Data Bits:	8
Parity:	None
Stop Bits:	1

3. Enter the following command with the IP address to be assigned to the matrix. See page 35 for details on the `#sipadd` command. Dot-decimal notation must be used when specifying the IP address.

   Example: `#sipadd 192.168.1.236`

   NOTE: If the subnet, gateway, and/or netmask need to be changed, refer to pages 33 and 35. Consult the network administrator to obtain the proper IP address and settings for this product to properly communicate on the network.

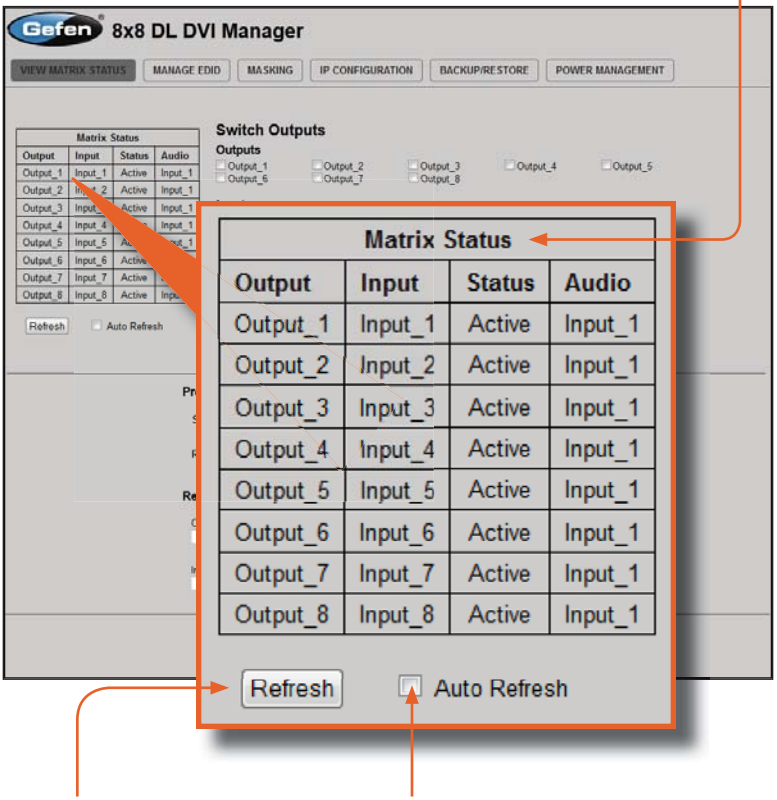
4. Power -cycle the matrix to reboot and complete the IP address change.

5. After the matrix has rebooted, the Web interface can be accessed by typing in the IP address that was specified in step 3.

   Pages 52 - 67 describe the layout and operation of each function of the built-in Web server.

View Matrix Status

Matrix Status
Displays the current routing status of each input and output on the matrix.

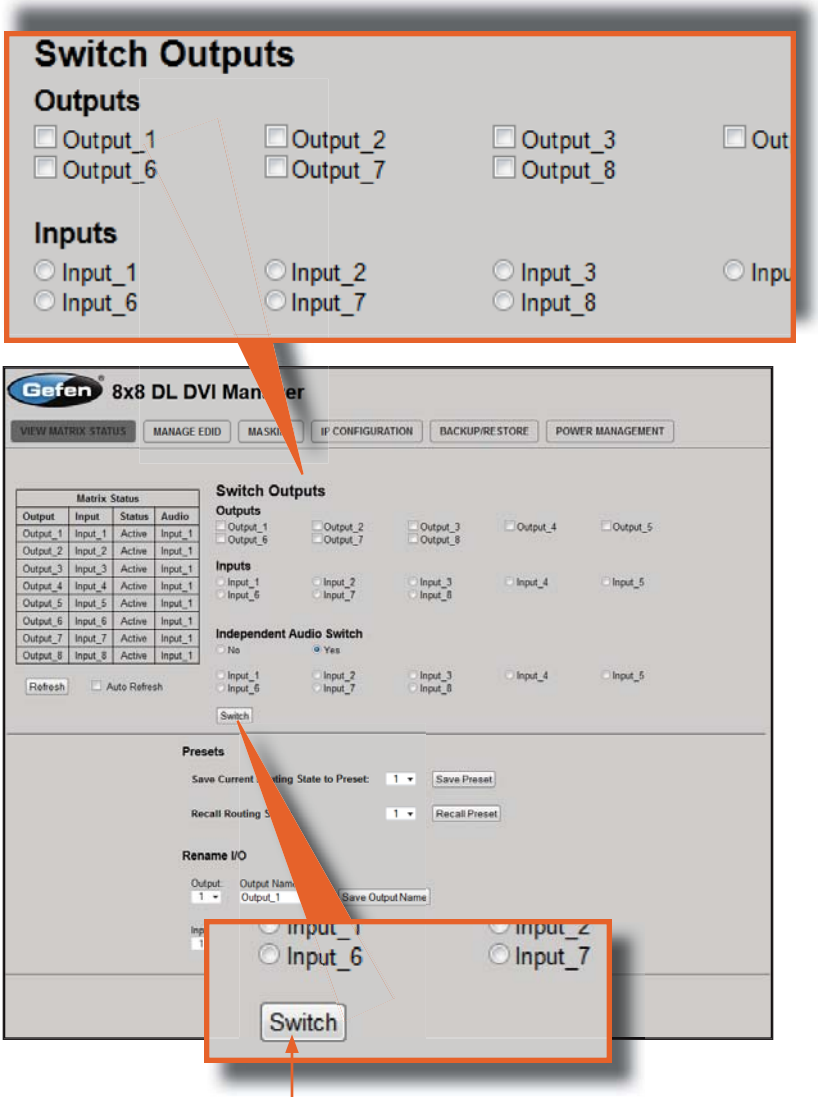


Refresh
Click to refresh the Matrix Status screen

Auto Refresh
Check this box to enable Auto Refresh. The Auto Refresh function automatically refreshes the interface every 10 seconds.

Switch Outputs
Used to route the specified input to the selected output(s). To route a source, place a check mark next to each Output. Next, click the radio button next to the desired Input. Press the Switch button to apply the routing change.

Audio switching can also be managed through this panel. See page 54 for details.



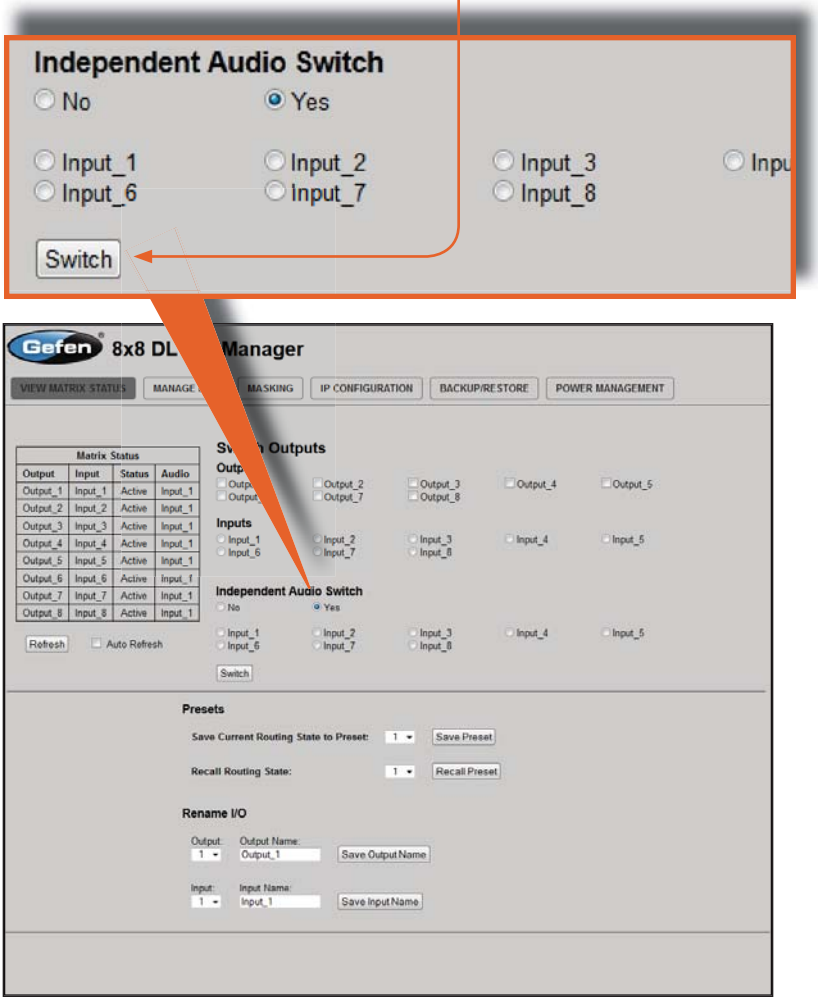
Switch
Click this button to apply the routing change.

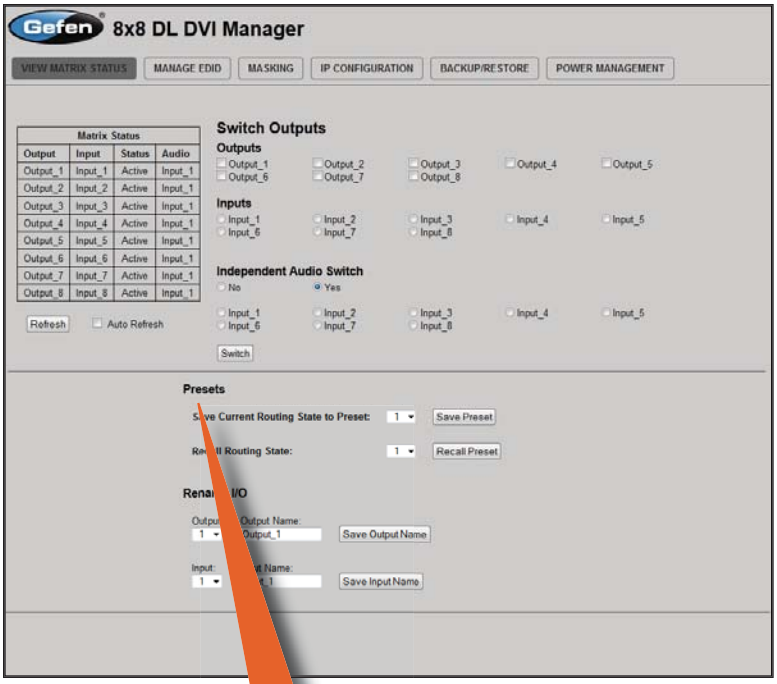
Independent Audio Switch
Enables / disables independent audio switching. Click the “Yes” radio button to enable independent audio switching. To disable, click the “No” radio button.

Once independent audio switching is enabled, click the radio button next to the Input which will provide this function. Each input can be independently enabled or disabled.

Click the Switch button to apply the changes.

Switch
Click this button to apply the routing change.



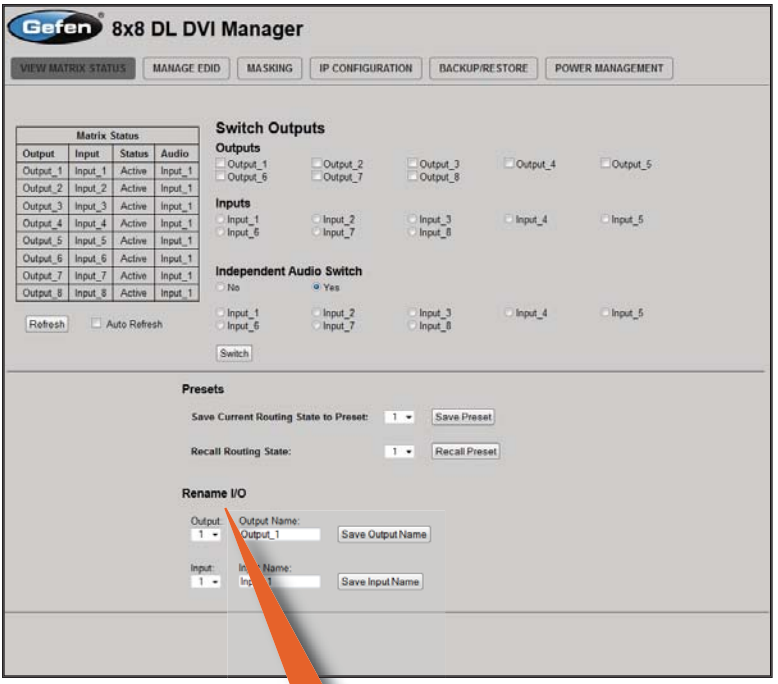


Presets
Provides saving and recalling of routing states.

Save Preset
Click the down-arrow on the pull-down list to select the preset location (1-16). Click the Save Preset button to save the preset.

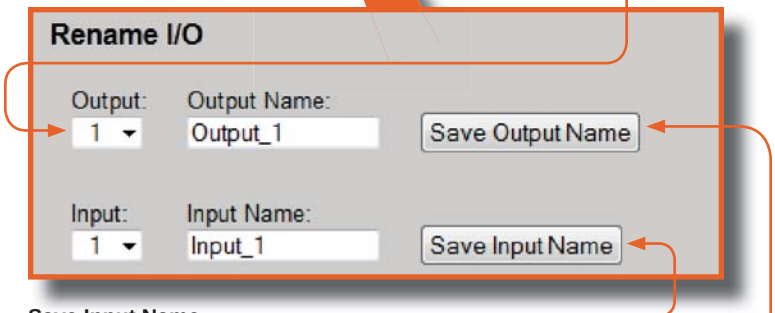
Pull-down list

Recall Preset
Click the down-arrow on the pull-down list to select the routing state (1-16) to recall. Click the Recall Preset button to recall the preset.



Rename I/O
Provides custom naming of each input and output on the matrix.

Pull-down list



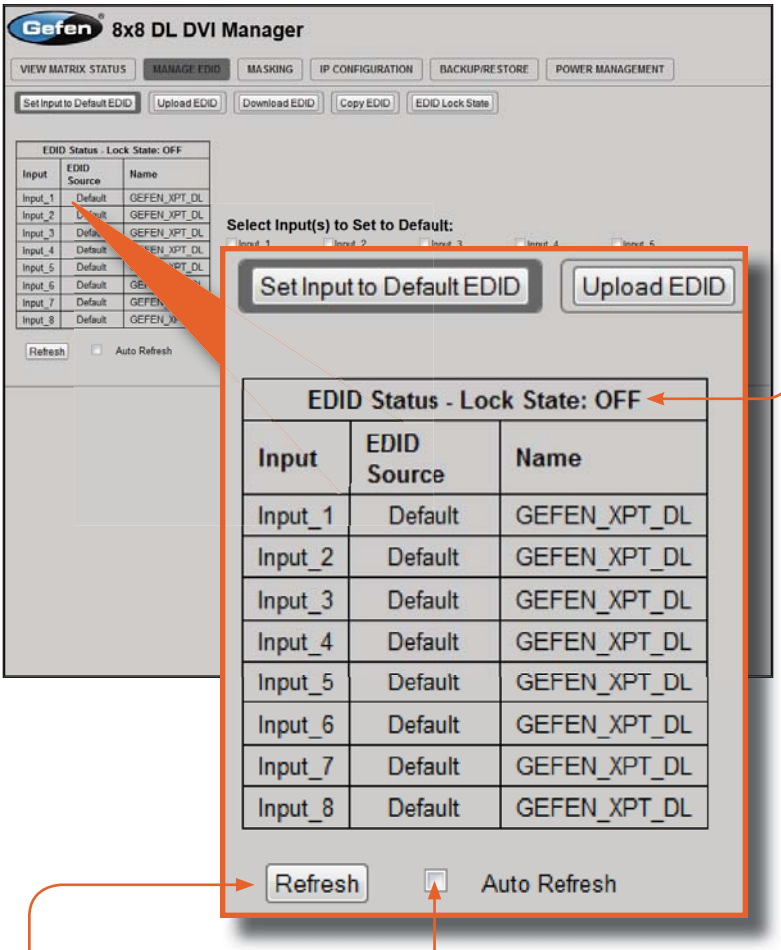
Save Input Name
Select the DVI input to rename from the pull-down list. Type the name of the input in the Input Name field. Click the Save Input Name button to save changes. See page 47 for naming restrictions.

Save Output Name
Select the DVI output to rename from the pull-down list. Type the name of the output in the Output Name field. Click the Save Output Name button to save changes. See page 48 for naming restrictions.

Manage EDID

Set Input to Default EDID

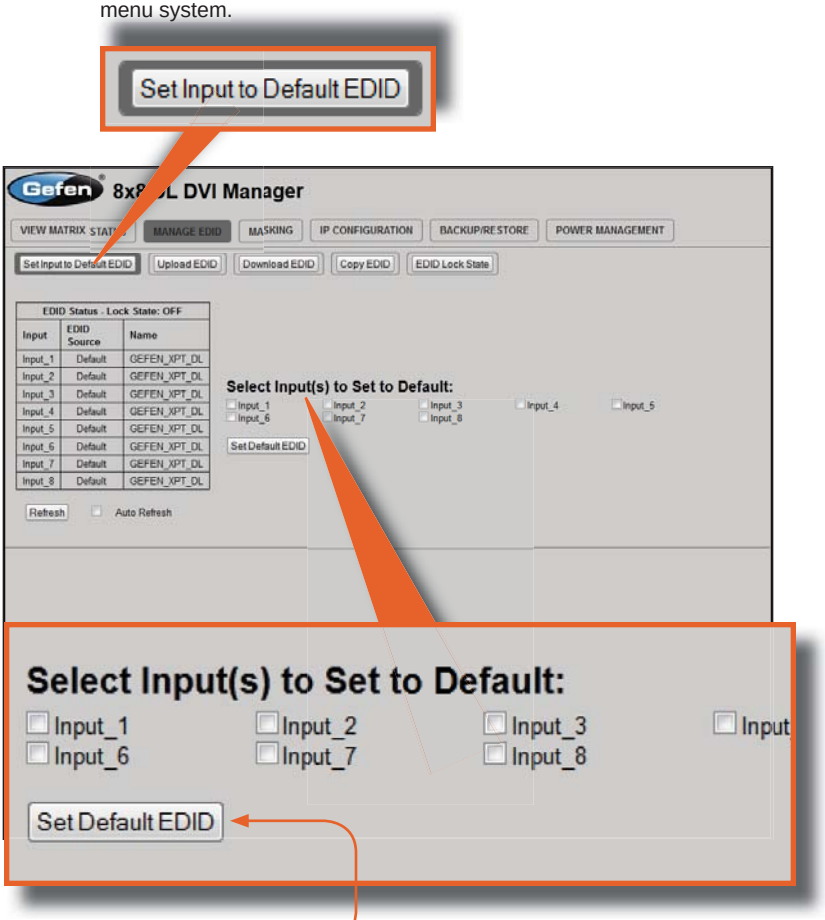
EDID Status
Displays the current EDID status for each input on the matrix and indicates the current Lock State.



Refresh
Click to refresh the Matrix Status screen

Auto Refresh
Check this box to enable Auto Refresh. Auto Refresh will automatically update the screen every 10 seconds.

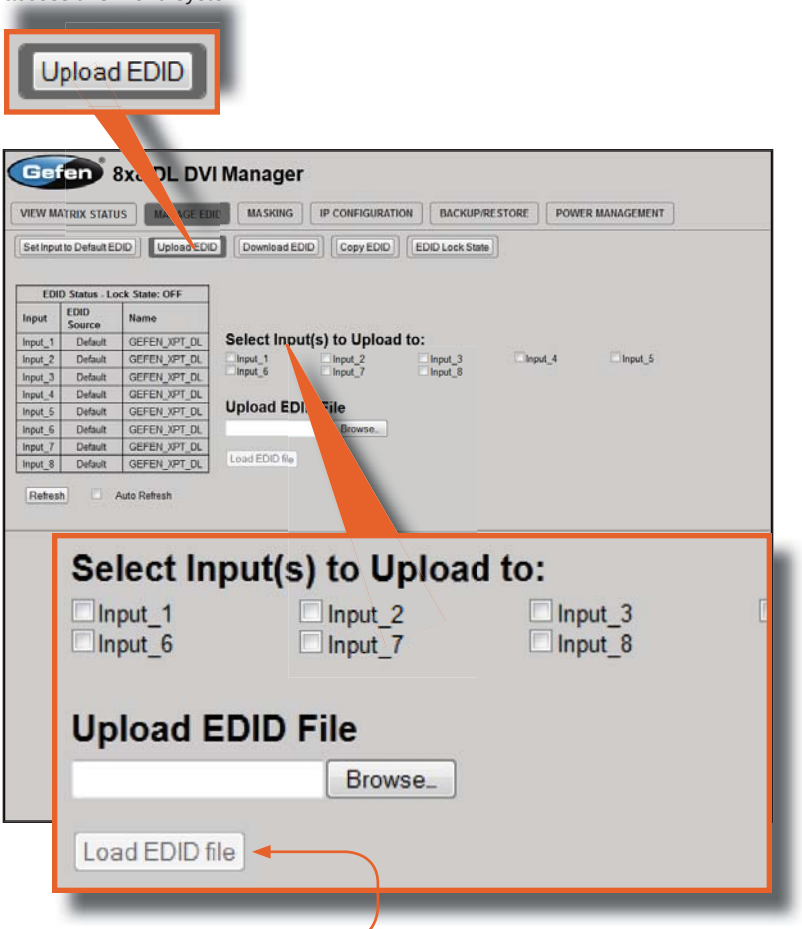
Set Input to Default EDID
Press this button from the Manage EDID screen to access this menu system.



Set Default EDID
Place a check mark next to the input(s) that should be set to the default EDID. Click the Set Default EDID button to apply the default EDID to the selected inputs.

Upload EDID

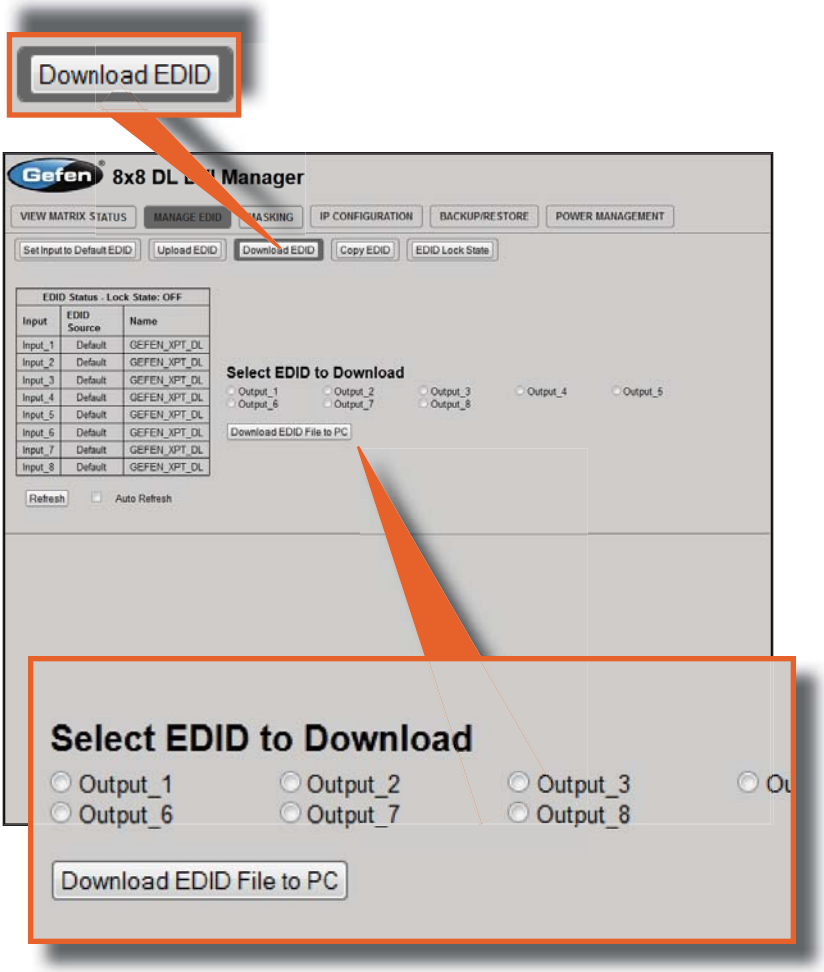
Upload EDID
Press this button from the Manage EDID screen to access this menu system.



Load EDID file
Place a check mark next to the input(s) that will receive the EDID data from the file. The EDID file must be in .bin format. Click the Browse button to locate the EDID on the computer. Click the Load EDID file button to upload the EDID file to the matrix.

Download EDID

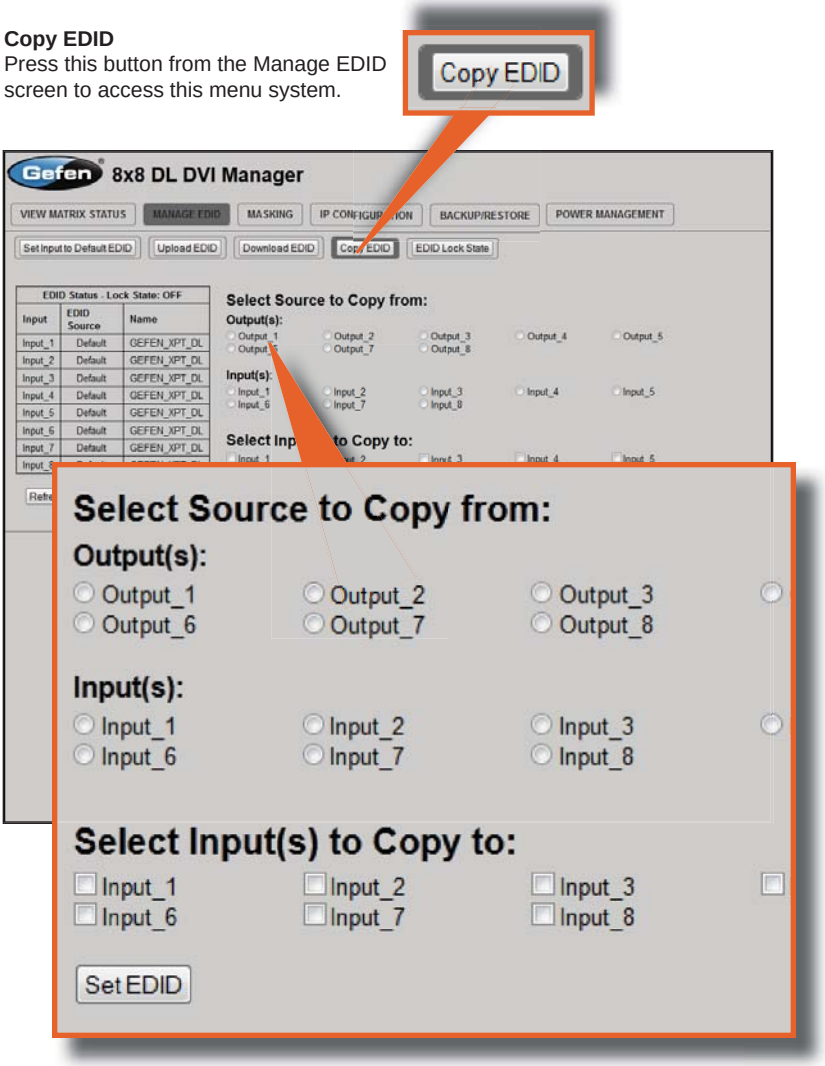
Download EDID
Press this button from the Manage EDID screen to access this menu system.



Download EDID File to PC
Select the radio button next to the output, containing the EDID to be downloaded. Click the Download EDID File to PC button to confirm the change. The downloaded EDID file will be in .bin format.

Copy EDID

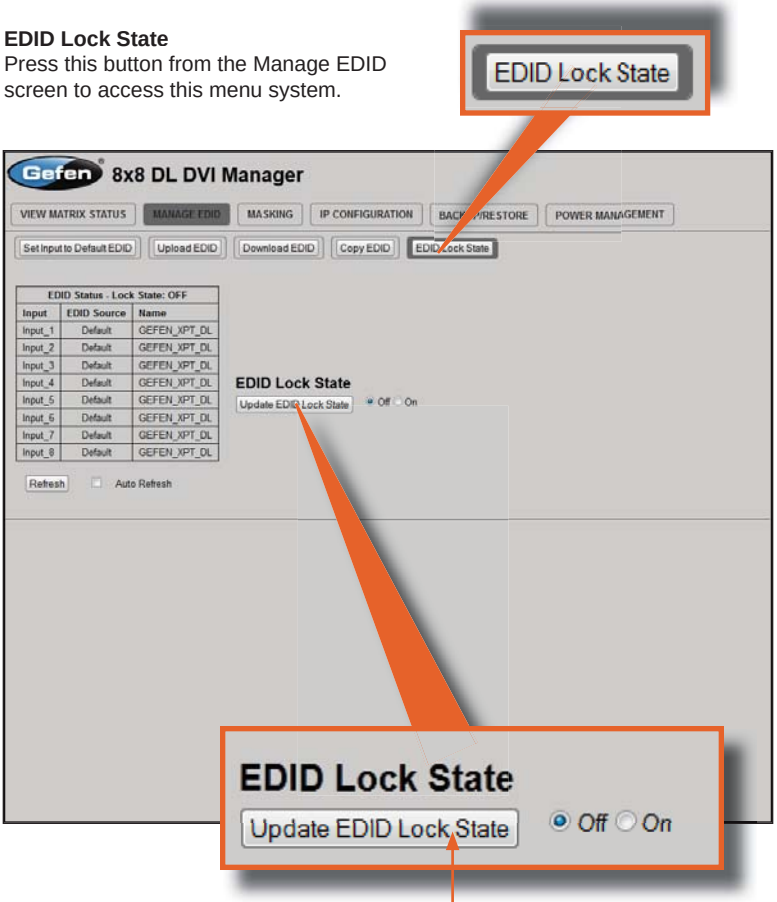
Copy EDID
Press this button from the Manage EDID screen to access this menu system.



Select Source to Copy from / Select Input(s) to Copy to
Click the radio button next to the input or output containing the EDID to copy. Note that only a single input or output can be selected at a time. Place a check mark next to the input(s) where the EDID will be copied. Click the Set EDID button to confirm the operation.

EDID Lock State

EDID Lock State
Press this button from the Manage EDID screen to access this menu system.

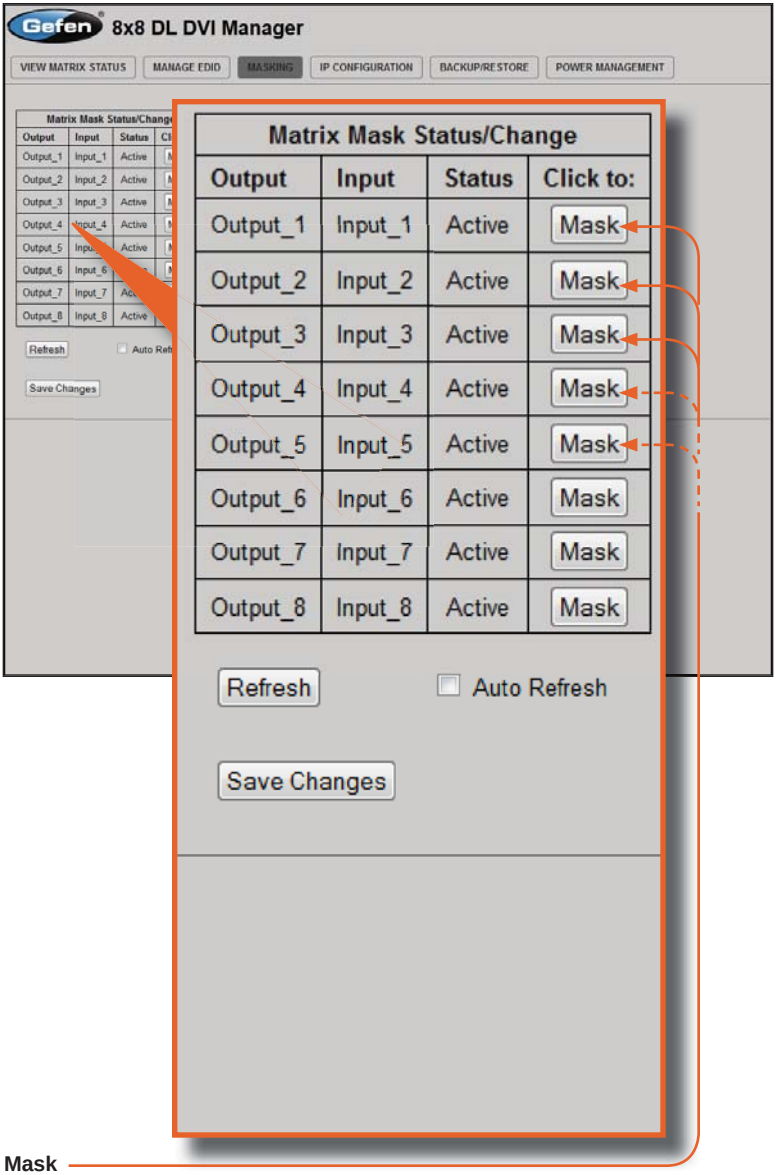


Update EDID Lock State
Secures the Local EDID and disables the automatic loading of the downstream EDID after the Matrix is powered on. Select the radio button next to the Off or On option then click the Update EDID Lock State button to apply the change.

The EDID Lock State has no effect when the Dynamic EDID function is activated.

Masking

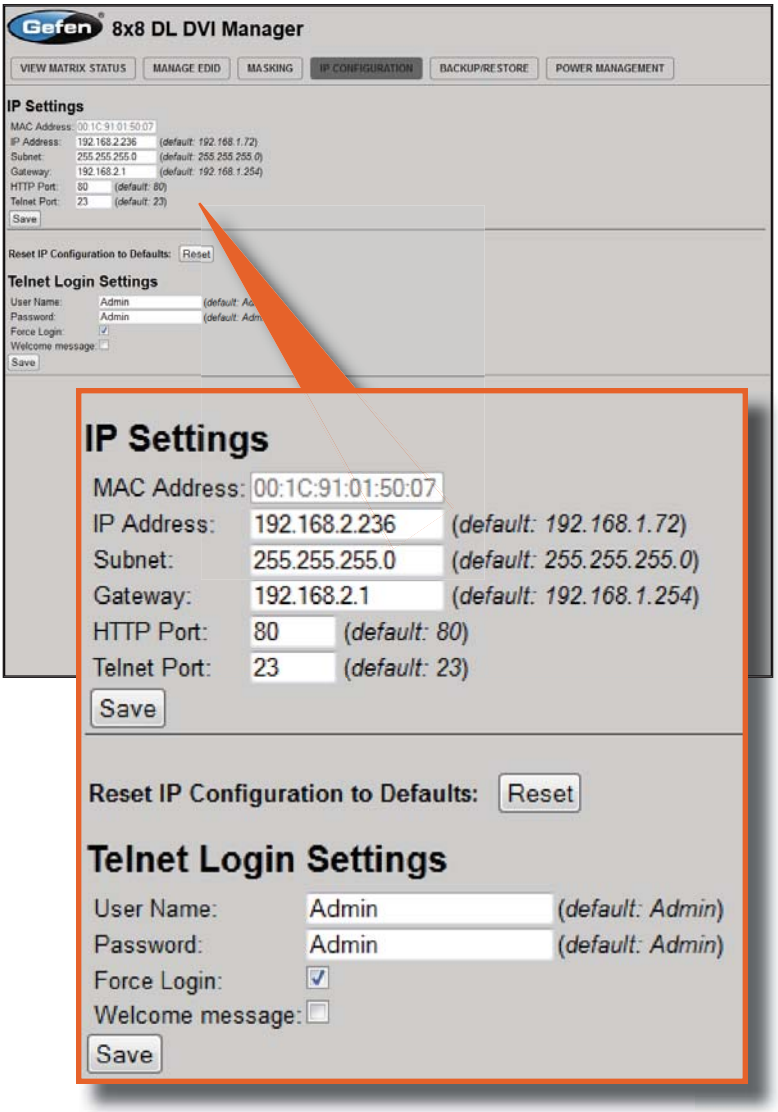
Matrix Mask Status / Change
Displays the current masking status for each output.



Mask
Click the Mask button to mask the selected output. If the output is already masked then the button will read “Active” (enabled). Click the (“Active”) button again to toggle the masking state to “Mask” (disabled).

IP Configuration

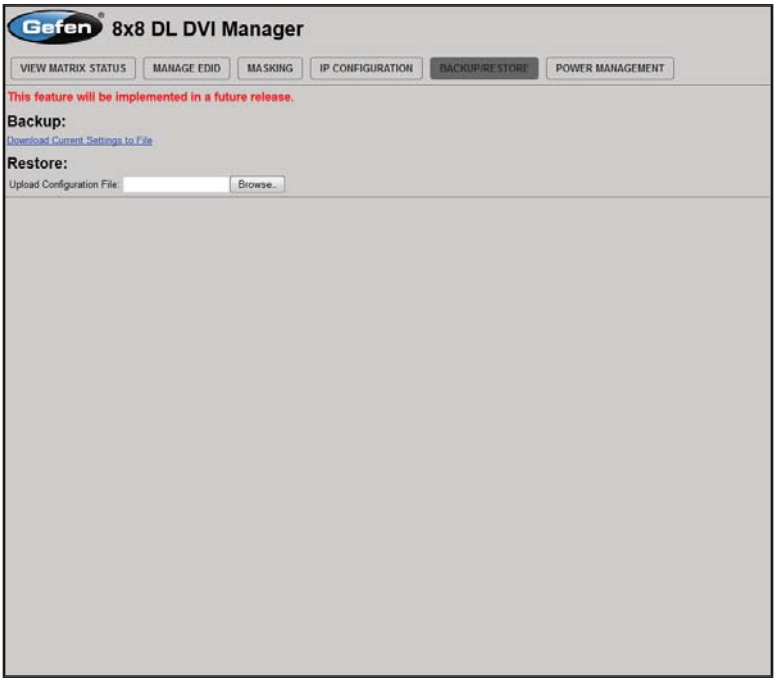
IP Settings
Assigns IP address, subnet, gateway, HTTP listening port, and Telnet port. Note that the MAC address can not be changed. Click the Save button to apply changes. The matrix must be rebooted for the changes to take effect.



Telnet Login Settings
Sets the user name and password for Telnet sessions to the matrix. Click the Save button to apply changes.

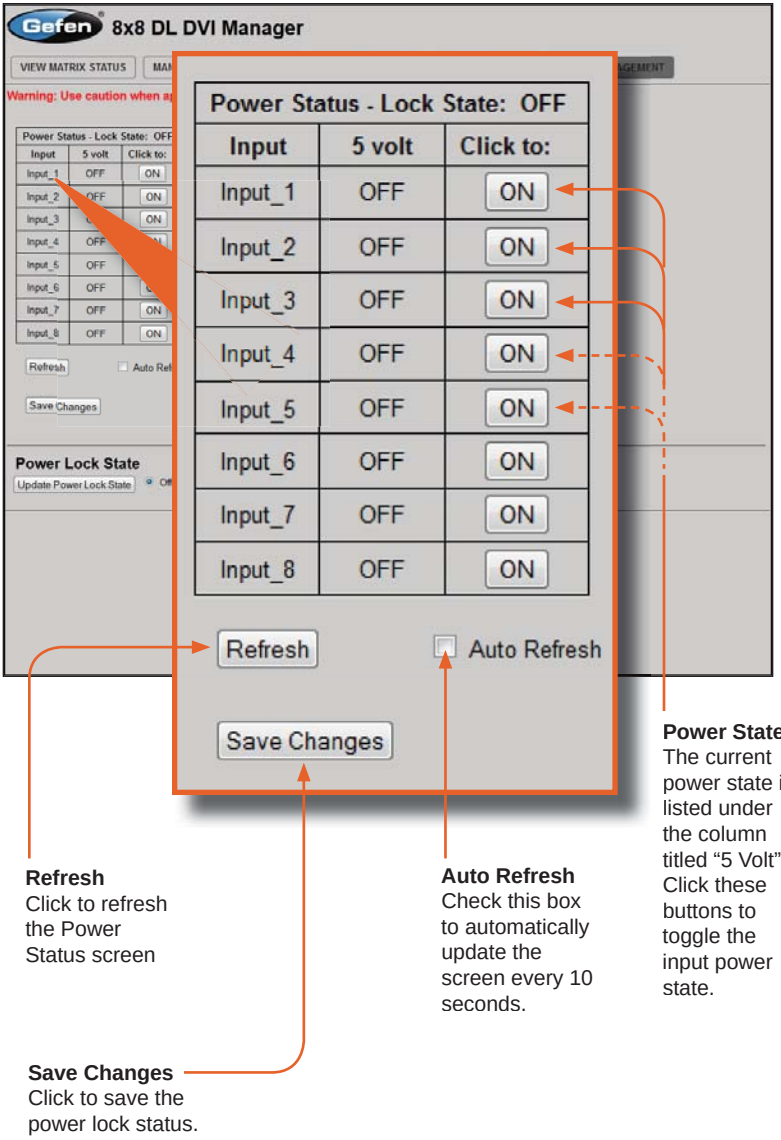
Backup / Restore

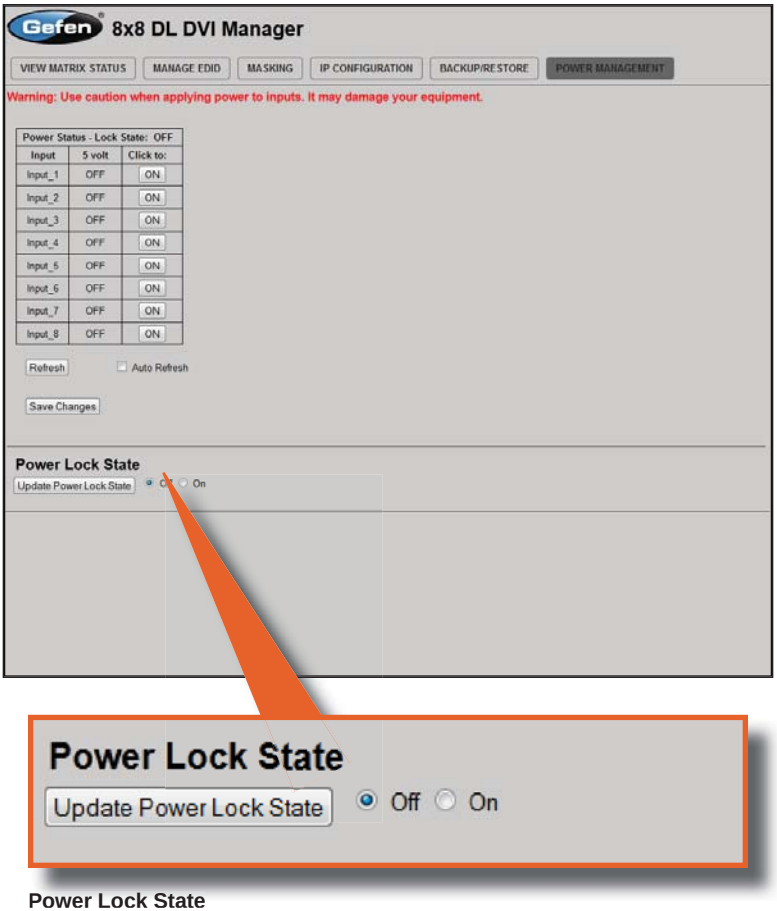
The Backup / Restore feature for the 8x8 DVIKVM Dual Link Matrix is not currently implemented and will be available in a future release of the firmware.



Power Management

Power Status
Enabling this feature will store the +5V status for that input prior to shutting down the matrix. This preserves the +5V state when the unit is restarted.



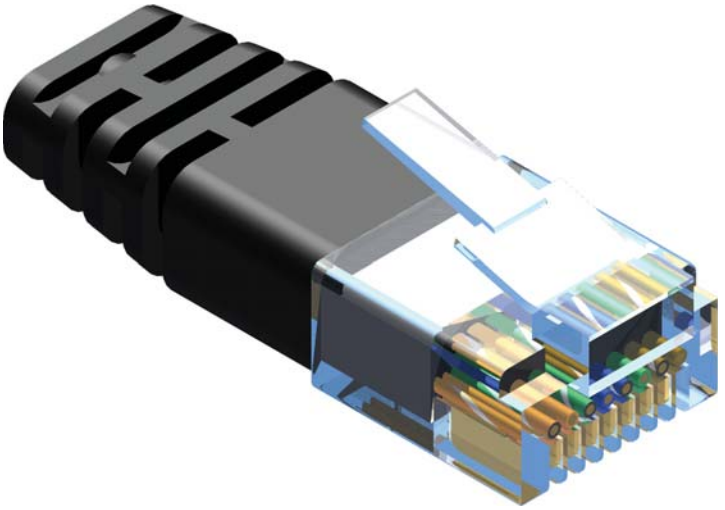


Power Lock State
In the case of an accidental power loss to the matrix, the +5V state for each input can be preserved.

Set the specified Power Status buttons (see previous page) and click the radio button next to ON. Click the Update Power Lock State button to apply changes.

By default, this option is set to Off.

NETWORK CABLE WIRING DIAGRAM



Gefen recommends the TIA/EIA-568-B wiring option. Please adhere to the table below when field-terminating the cable for use with Gefen products.

Pin	Color
1	Orange / White
2	Orange
3	Green / White
4	Blue
5	Blue / White
6	Green
7	Brown / White
8	Brown

Cabling comes in stranded and solid core types. Gefen recommends using solid core cabling.

It is recommended to use one continuous run from one end to the other. Connecting through a patch is not recommended.

Firmware Update Procedure

The following items are required to update firmware:

- RS-232 Terminal (e.g. Windows-based PC running HyperTerminal).
- RS-232 cable (do not use a null-modem cable)
- Firmware files: DVI16x16 and GEFMTXFP

To begin the update procedure the matrix Boot Loader must be activated. To activate the Boot Loader please follow the procedure below:

1. Power-on the matrix.
2. Connect an RS-232 cable to the PC and open the terminal program using the following settings:

   Baud rate: 19200
   Stop bits: 1
   Data bits: 8
   Flow control: None

3. Type the command: `#activebolo`

   Two options will be provided:

   To download the file DVI16x16 please type the command ‘activebolo 0’
   To download the file GEFMTXFP please type the command ‘activebolo 1’

4. Type the command: `#activebolo 0`

   This will begin the update process of the main board.

5. Once the Boot Loader is activated the following message should appear:

6. Press [1] on the computer keyboard to begin downloading program to the temporary memory

```
DVI16x16 Boot Loading
================== Main Menu ============================
Download new program -------- 1
Cancel ---------------------- 2
_________________________________________________________
```

7. Press [1] on the computer keyboard to begin downloading program to the temporary memory.

8. A message will appear in the terminal program:

   ```
   Waiting for the file to be sent ... (press 'a' to abort)
   ```

9. In Hyperterminal, click Transfer > Send file...

10. Click Browse... and select the .BIN file corresponding to the boot loader which was activated. In this first case, the file should start with DVI16x16.

11. Select Ymodem for the protocol.

12. Press Send on the Send File dialog box.

13. A message will appear in Hyperterminal:

    ```
    Programming Completed Successfully!
    ```

14. The unit will exit the boot loader screen and return to the standard Hyperterminal window.

15. Repeat steps 3 - 12 for the file GEFMTXFP.

a. Maximum recommended ambient temperature: 45 ˚C (104 ˚F).

b. Increase the air flow as needed to maintain the recommended temperature inside the rack.

c. Do not exceed maximum weight loads for the rack. Install heavier equipment in the lower part of the rack to maintain stability.

d. Connect a bonding wire between an approved safety ground and the grounding screw on the chassis.

SPECIFICATIONS

Video Amplifier Bandwidth.....2 x 165 MHz

Input Video Signal.....1.2 volts p-p

Input DDC Signal.....5 volts p-p (TTL)

DVI Input Connectors..... (8) DVI-I 29 pin female

DVI Output Connectors..... (8) DVI-I 29 pin female

USB Input Connectors.....(8) USB 2.0 type “B”

USB Output Connectors.....(16) USB 2.0 type “A”

Audio Output Connectors.....(8) 3.5 mm mini-stereo

Audio Input Connectors.....(8) 3.5 mm mini-stereo

Frequency Response..... < 0.1dB 20Hz - 100 kHz

THD.....0.002% @ 20 kHz

IR Extender.....3.5 mm mini-stereo

RS-232 Interface.....DB-9 female

IP Interface.....RJ-45

Power Supply.....100 ~ 240 V AC (IEC connector)

Power Consumption.....70 Watts (max.)

Operating Temperature.....0 ˚C ~ 45 ˚C / 32 ˚F ~ 113 ˚F

Storage Temperature.....-20 ˚C ~ 60 ˚C / -4 ˚F ~ 140 ˚F

Humidity Range.....20% ~ 90% RH (no condensation)

Power Consumption (Standby Mode).....600 mW

Rack Size.....2U

Dimensions.....19.0” W x 3.5” H x 4.2” D

Shipping Weight.....28.1 lbs.

WARRANTY

Gefen warrants the equipment it manufactures to be free from defects in material and workmanship.

If equipment fails because of such defects and Gefen is notified within two (2) years from the date of shipment, Gefen will, at its option, repair or replace the equipment, provided that the equipment has not been subjected to mechanical, electrical, or other abuse or modifications. Equipment that fails under conditions other than those covered will be repaired at the current price of parts and labor in effect at the time of repair. Such repairs are warranted for ninety (90) days from the day of reshipment to the Buyer.

This warranty is in lieu of all other warranties expressed or implied, including without limitation, any implied warranty or merchantability or fitness for any particular purpose, all of which are expressly disclaimed.

1. Proof of sale may be required in order to claim warranty.

2. Customers outside the US are responsible for shipping charges to and from Gefen.

3. Copper cables are limited to a 30 day warranty and cables must be in their original condition.

The information in this manual has been carefully checked and is believed to be accurate. However, Gefen assumes no responsibility for any inaccuracies that may be contained in this manual. In no event will Gefen be liable for direct, indirect, special, incidental, or consequential damages resulting from any defect or omission in this manual, even if advised of the possibility of such damages. The technical information contained herein regarding the features and specifications is subject to change without notice.

For the latest warranty coverage information, refer to the Warranty and Return Policy under the Support section of the Gefen Web site at www.gefen.com.

PRODUCT REGISTRATION

Please register your product online by visiting the Register Product page under the Support section of the Gefen Web site.

LICENSING

lwIP is licenced under the BSD licence:

Copyright (c) 2001-2004 Swedish Institute of Computer Science.
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

3. The name of the author may not be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Rev B2

20600 Nordhoff St., Chatsworth CA 91311

1-800-545-6900 818-772-9100 fax: 818-772-9120

www.gefenpro.com support@gefenpro.com