Gefen TOOLBOX

8x8 Matrix for HDMI

GTB-HDFST-848
GTB-HDFST-848-BLK
User Manual

gefentoolbox.com

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2.0N

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INTRODUCTION

Congratulations on your purchase of the GefenToolBox 8x8 Matrix for HDMI. Your complete satisfaction is very important to us.

About Gefen

We specialize in total integration for your home theater, while also focusing on going above and beyond customer expectations to ensure you get the most from your hardware. We invite you to explore our distinct product line. Please visit http://www.gefen.com for the latest offerings in High-Definition signal solutions or call us between the hours of 8:00 am and 5:00 pm Monday-Friday, Pacific Standard Time for assistance with your A/V needs. We'll be happy to assist you.

The GefenToolBox 8x8 Matrix for HDMI

The GefenToolBox 8x8 Matrix for HDMI routes eight Hi-Def sources to any eight HDTV displays. Resolutions up to 1080p Full HD and 1920x1200 plus 3DTV are supported, along with multichannel digital audio formats such as Dolby® True HD and DTS-HD® Master Audio™.

The Matrix eliminates the need to disconnect and reconnect Hi-Def sources. It works with any HDMI source that needs to be connected to an HDTV display. Each source is accessible at all times from any display using the front-panel push buttons, IR remote control, RS-232 interface, or via Telnet protocol.

How It Works

Connect the Hi-Def audio/video sources to the eight HDMI inputs using the supplied HDMI cables. Connect up to eight HDTV displays to the HDMI outputs. 3D content can be displayed when connecting a 3DTV and 3D source. Connect the power supply to the matrix and plug the power cable into an available electrical outlet. Apply power to the sources and displays. The Hi-Def sources will be routed according to the current routing selection.

Fast Switching Technology (FST) is a Gefen software implementation for HDMI products. FST was created to improve the lengthy HDMI authentication process, based on the HDMI and HDCP specifications. FST allows for connecting/disconnecting or turning any of the HDTV displays on or off without affecting other displays within the audio/video distribution system.

READ THESE NOTES BEFORE INSTALLING OR OPERATING THE GEFENTOOLBOX 8X8 MATRIX FOR HDMI

- EDID contains the A/V capabilities of a display device in regards to video resolutions and audio formats supported. This information is used by the source device to determine the format of the A/V signal on the outputs. The GefenToolBox 8x8 Matrix for HDMI incorporates advanced EDID management to ensure compatibility with all sources and display devices. See pages 25 for more details.

- The GefenToolBox 8x8 Matrix for HDMI can detect the presence of Deep Color (12-bit signal) automatically and will disable Deep Color EDID features across all other outputs if any connected device or display is not capable of processing Deep Color. This automatic behavior ensures compatibility among all output devices in a mixed-device environment. This feature cannot be disabled.

- When powering the GefenToolBox 8x8 Matrix for HDMI, the Matrix will undergo a momentary initialization sequence. This is normal operation and may take a few seconds.

Supported HDMI Features

- 225 MHz (up to 12 bit YUV 444 @ 1080p)
- Deep Color
- Dolby® TrueHD and DTS-HD Master Audio™
- Lip-Sync

Features

- Route any eight Hi-Def sources to any eight HDTV displays
- Supports resolutions up to1080p Full HD and 12-bit Deep Color
- 3DTV pass-through
- Supports LPCM 7.1 audio, Dolby Digital® Plus, Dolby® TrueHD, and DTS-HD Master Audio™
- Advanced EDID Management for rapid integration of sources and displays
- Gefen FST speeds up the HDCP authentication process
- Fast and Slow FST Modes
- Front Panel Push-Button Switching
- Supports the use of DVI sources and displays with HDMI-to-DVI cables or adapters
- IP Control via Web Graphical User Interface and Telnet
- RS-232 serial control for automation
- IR Remote Control (handheld remote included)
- Field-upgradable firmware via built in Web Graphical User Interface
- 24V DC Power supply
- Wall-mountable
- Uses Gefen Mono-LOK HDMI connectors for secure cable connections
- Available in Black and White finishes

Package Includes

(1) GefenToolBox 8x8 Matrix for HDMI
(1) IR Remote Control
(1) 24V DC Locking Power Supply
(1) AC power cord
(1) Quick Start Guide

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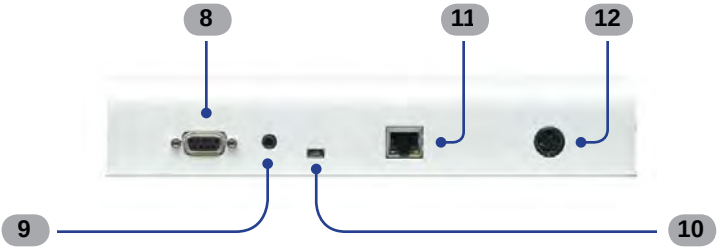
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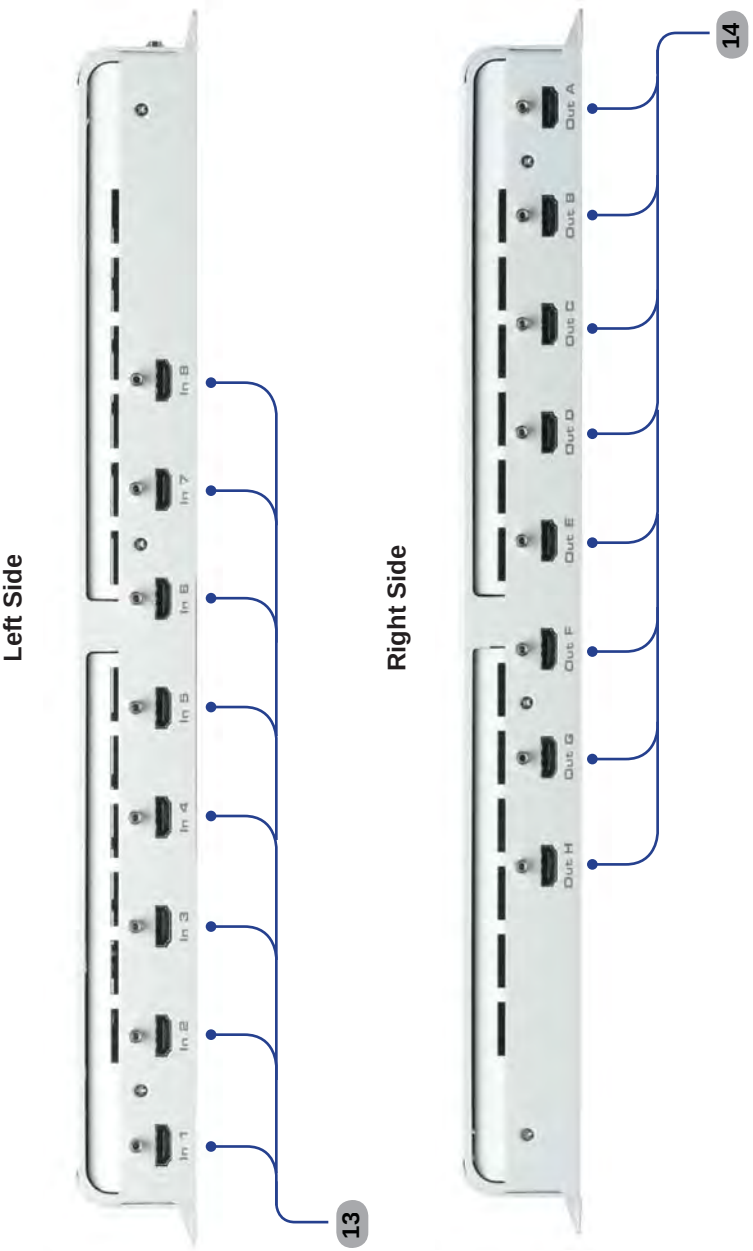
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PANEL DESCRIPTIONS

1 Power Indicator
This LED indicator will glow bright green when the matrix is powered on.

2 Lock Indicator
This LED indicator will glow bright orange when the matrix is locked.

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

4 Menu
Pressing this button changes between routing mode and status mode.

5 Lock
Temporarily locks the front panel buttons. This prevents inadvertent routing changes or power-down using the front panel buttons. The LED above the button turns bright orange when the front panel is locked. Press once to lock the front panel buttons. Press this button again to unlock the front panel buttons.

6 Navigation Buttons
These buttons are used to navigate between the inputs and outputs of the Gefen *8x8 Matrix for HDMI*. For details on how these controls are used, see page 10.

7 Power
Turn the power on or off by pressing this button.

8 RS-232
Connects to the RS-232 control device. The *8x8 Matrix for HDMI* may be switched remotely using this port. See page 26 for more information.

9 IR Ext
Connect an IR extender cable (Gefen part no. EXT-RMT-EXTIR) to this port. See page 24 for more information.

10 USB Service Port
Reserved for future use.

11 IP Control
Connect the *8x8 Matrix for HDMI* to a network in order to use IP / Telnet control.

12 24V DC
Connect the included 24V DC power supply to this receptacle.

13 In 1 - In 8
Connect a Hi-Def source device to each of these input ports.

14 Out 1 - Out 8
Connect HDTV displays or other audio/video output devices to these ports.

How to Connect the 8x8 Matrix for HDMI

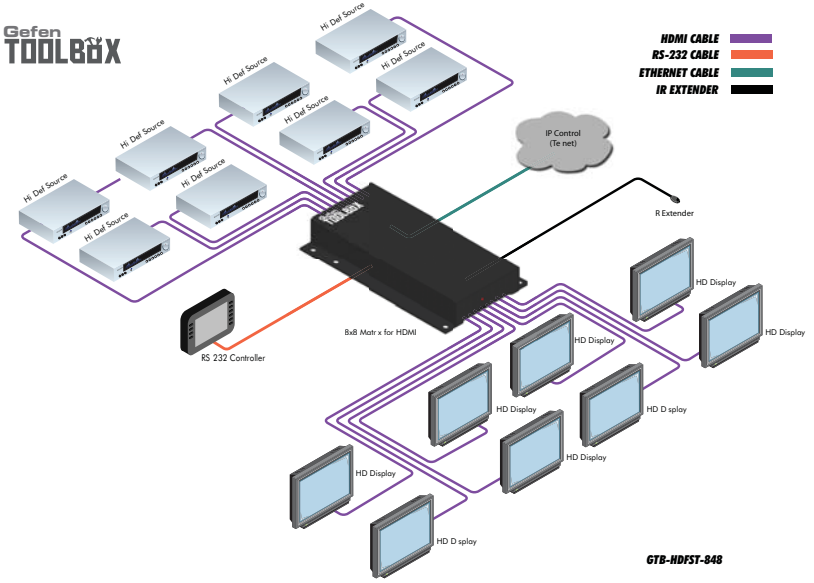
1. Connect up to eight (8) Hi-Def sources to the HDMI inputs on the left side of the *8x8 Matrix for HDMI* using the included HDMI cables.

2. Connect up to eight (8) HDTV displays to the HDMI outputs on the right side of the *8x8 Matrix for HDMI*.

3. Connect the included 24V DC power supply to the power receptacle on the Matrix.

4. Connect the AC power cord to the power supply and connect the power cord to an available electrical outlet.

Wiring Diagram for the 8x8 Matrix for HDMI



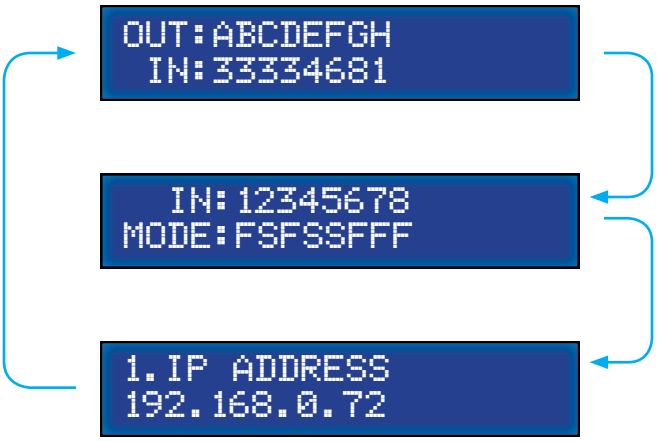
Main Display

The **Main Display** of the 8x8 Matrix for HDMI is a 16 character 2 line display. This display shows the current routing status of the matrix and is also used to display additional system information. When the unit is powered on, the following screen is displayed:

After a few moments, the status screen is displayed. The status screen is shown below:

Displaying Additional Information

Consecutively pressing the **Menu** button, on the front panel, will cycle through other screens such as FST mode and IP information:



Determining the Current Routing State

In the example below, the first row (OUT) represents each HDMI output on the matrix. The bottom row (IN) represents each HDMI input on the matrix. Together, these two rows display the current routing state.

Starting on the bottom row, we can see that Input 3 has been routed to Outputs A, B, C, and D. Continuing on, Input 4 is routed to Output E, Input 6 is routed to Output F, Input 8 is routed to Output G, and finally Input 1 is routed to Output H.

Note that each output (A - H) specified in the LCD display, corresponds to each of the HDMI outputs (1 - 8) on the matrix.

If all inputs are routed to their respective outputs, the front-panel display would look something like this:

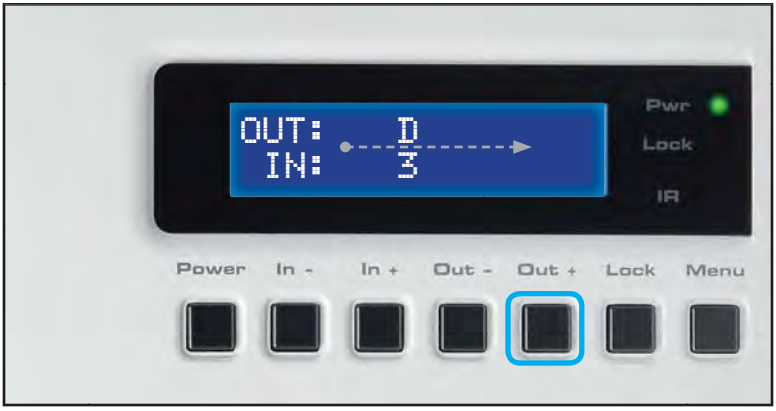
Sometimes, this is referred to as a “1-to-1” routing state. This is the factory (default) setting for the *8x8 Matrix for HDMI*.

Routing Sources

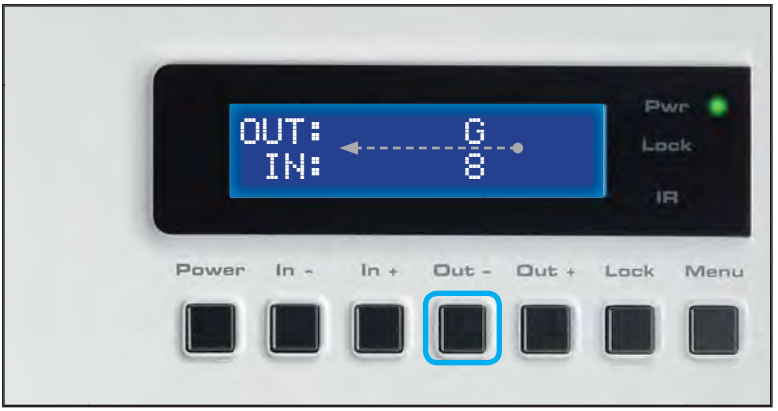
Selecting the Output

1. To select the output, press the **Out -** or **Out +** button once. The routing state for Output A will be displayed:

2. Press the **Out -** or **Out +** button again to cycle through the routing state for each output. Consecutively pressing the **Out +** button will cycle through each output, from left to right, starting with Output A:

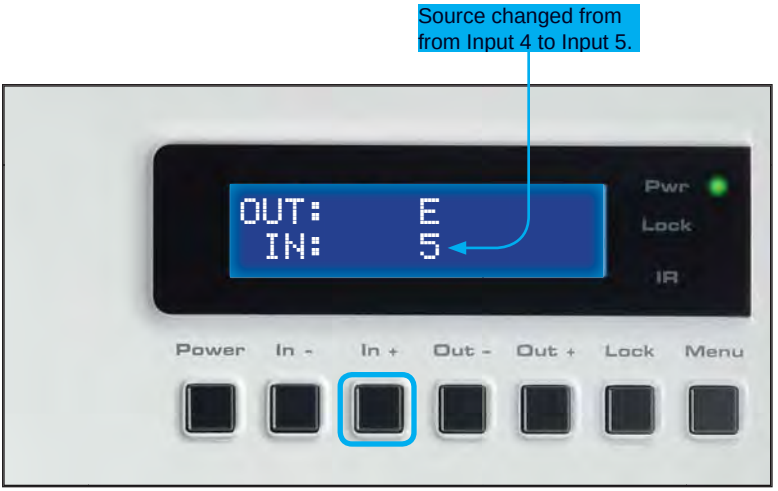


3. Consecutively pressing the **Out -** button will cycle through each output, from right to left, starting with Output H:

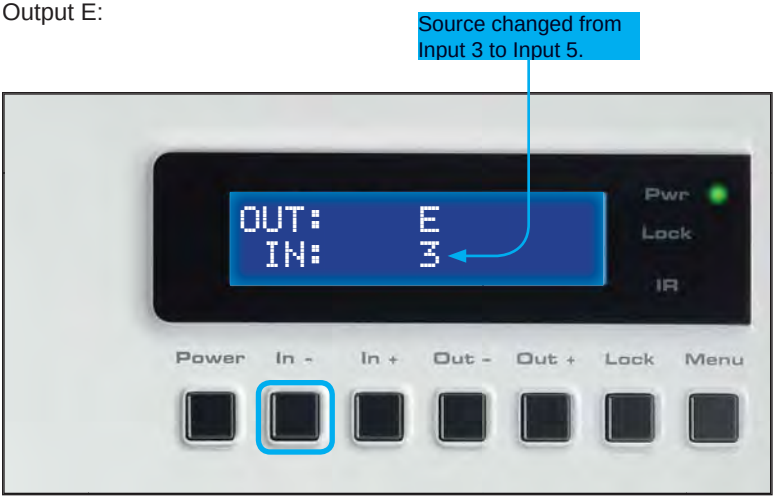


Changing the Source

4. Once the desired output has been selected, press the **In +** or **In -** button. Consecutively pressing the **In +** button will increment the input source value by a factor of 1 (within a range of 1 - 8). For example, if Input 4 was originally routed to Output E, then pressing the **In +** button will route Input 5 to Output E.



5. Consecutively pressing the **In -** button will decrement the input source value by a factor of 1 (within a range of 1 - 8). For example, if Input 4 was originally routed to Output E, pressing the **In -** button will route Input 3 to Output E:



To change the routing status of another output, press the Out + or Out - buttons to navigate to the desired output. Use the **In +** or **In -** buttons to change the source.

6. Press the Menu button to return to the Routing Screen.

NOTE: If the Menu button is not pressed after a routing change has been made, then the *8x8 Matrix for HDMI* will automatically return to the Routing Screen after about 20 seconds.

Locking / Unlocking the Front Panel

To prevent an accidental routing change or power-down (by pressing the **Power** button), the front-panel buttons on the *8x8 Matrix for HDMI* can be locked. Locking the matrix also disables many RS-232 / Telnet commands. See page 26.

1. Press the **Lock** button on the front-panel:

The Lock LED will glow bright orange to indicate that the front-panel buttons on the *8x8 Matrix for HDMI* have been locked.

If any buttons (other than the **Lock** button) are pressed while the The *8x8 Matrix for HDMI* is Locked, the following message will be displayed:

2. To unlock the 8x8 Matrix for HDMI, press the **Lock** button a second time.

Fast Switching Technology

Fast Switching Technology (FST) is a Gefen software implementation for HDMI products. FST was created to improve the lengthy HDMI authentication process, based on the HDMI and HDCP specifications.

FST provides quicker audio/video source switching and greatly improves the overall audio/video system behavior and performance when more than one HDTV display is used in the system setup.

FST allows connecting / disconnecting or turning ON / OFF of HDTV displays without having these activities affect other Hi-Def sources routed to any other HDTV display in the same system.

Fast Mode:

Setting the *8x8 Matrix for HDMI* to **Fast Mode** will improve performance when connecting / disconnecting Hi-Def sources, and powering ON / OFF HDTV displays.

NOTE: When switching from **Slow Mode** to **Fast Mode**, the HDTV displays connected to the Matrix will blink momentarily.

Slow Mode:

When set to **Slow Mode**, the Matrix will follow the standard authentication process, based on the HDMI and HDCP specifications. **Slow Mode** is recommended when the source does not support multiple devices.

Determining the Current Switching Mode

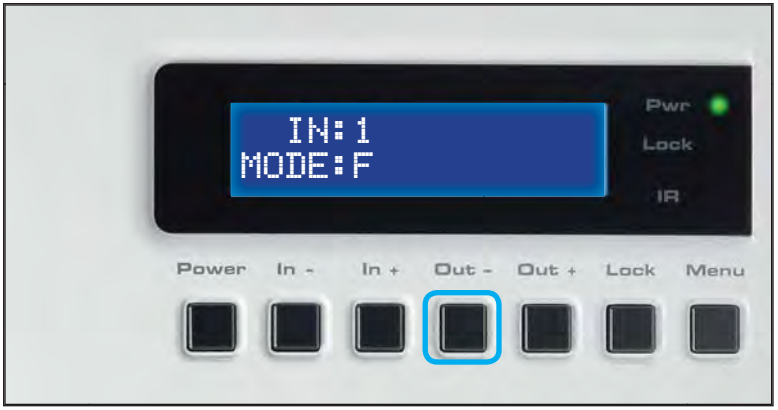
Each HDMI input can be set to **Fast Mode** or **Slow Mode**. It is recommended that each HDMI input be set to **Fast Mode** for best performance.

1. Consecutively press the **Menu** button on the front panel until the switching modes screen is displayed.

   The first row (IN) represents each HDMI input on the matrix. The bottom row (MODE) represents the current switching mode of each HDMI input.

Selecting the Input

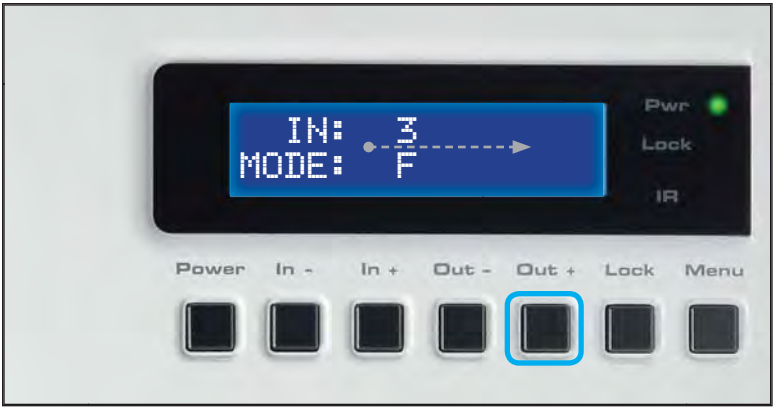
2. To change the switching mode on an HDMI input, press the **Out -** (or **Out +**) button once. The switching mode for Input 1 will be displayed:



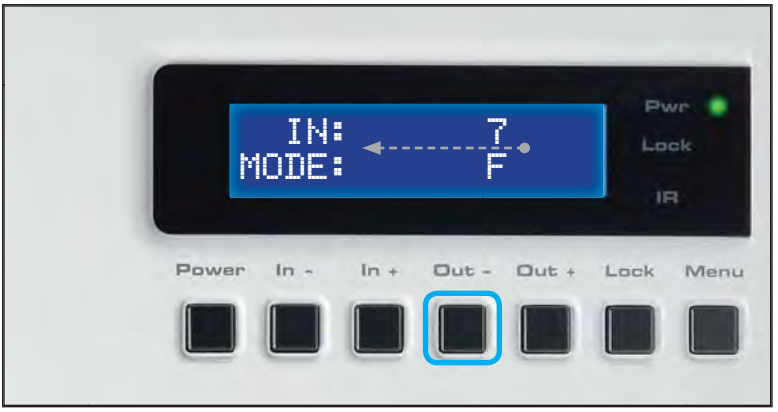
The letter **F** indicates that the HDMI input is using Fast Mode switching. If the HDMI input is set to Slow Mode switching, a letter **S** will be displayed under the input.

3. Press the **Out -** or **Out +** button again to cycle through the routing state for each output. Consecutively pressing the **Out +** button will cycle through each input, from left to right, starting with Input 1:

> **NOTE:** In Routing mode, the **Out +** and **Out -** buttons cycle through each *output*. In Switching mode, these same buttons are used to cycle through each *input*.

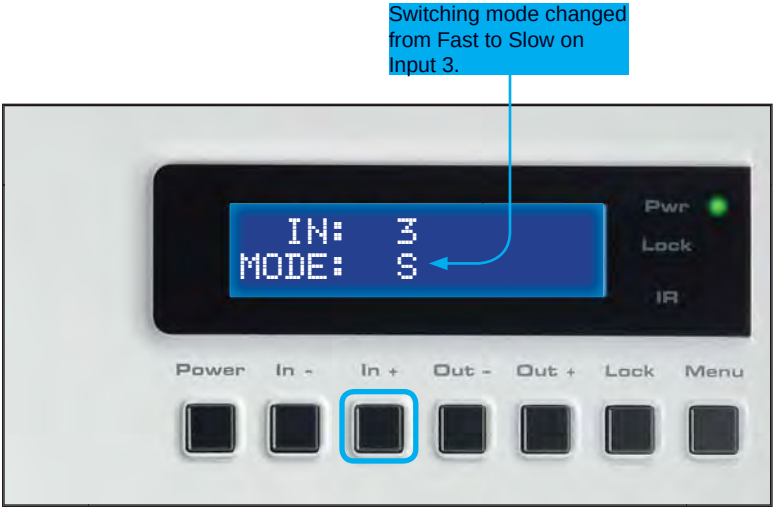


4. Consecutively pressing the **Out -** button will cycle through each output, from right to left:



Changing the Switching Mode

5. Once the desired input has been selected, press the **In +** or **In -** button to toggle between Fast or Slow switching mode.



To change the switching mode of another input, press the **Out +** or **Out -** button to navigate to the desired input. Press the **In +** or **In -** button to toggle the switching mode between Fast (F) or Slow (S).

6. Press the **Menu** button to return to the Switching mode Screen.

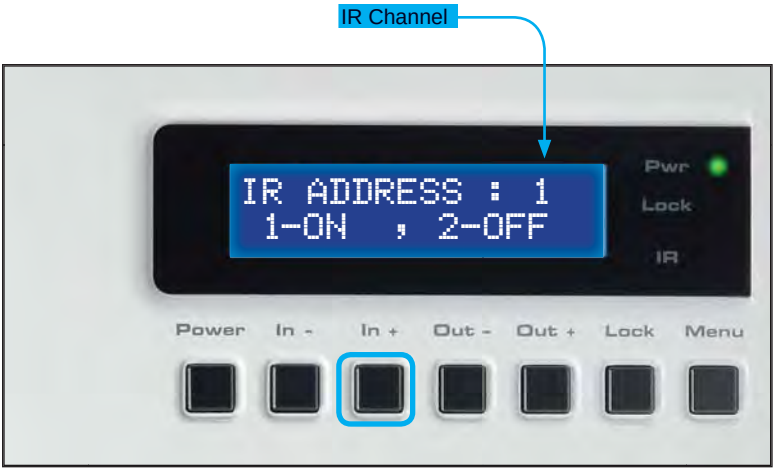
Press the Menu button a second time to the Routing screen.

Setting the IR Channel on the 8x8 Matrix for HDMI

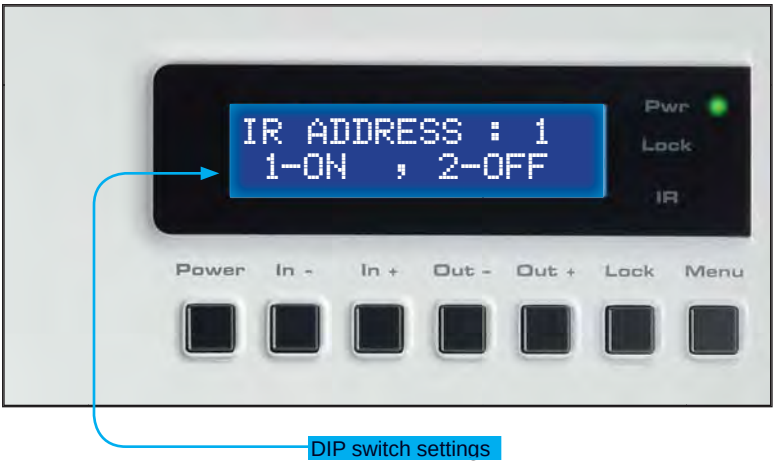
In order for the *8x8 Matrix for HDM* to communicate with the included IR Remote Control, both the matrix and the IR Remote Control must be set to the same IR channel. Follow the procedure outlined below to set the IR channel on the 8x8 Matrix for HDMI.

1. From the Routing screen, simultaneously press the **In -**, **In +**, and the **Out -** buttons to display the IR Address screen. The current IR address will be displayed along with the DIP switch settings for the IR remote control:

2. Use the **In +** (or **In -**) button to change the IR channel.



3. After setting the IR address, make sure that the DIP switches on the IR Remote Control are set according to the information in the LCD display:



In this case, the *8x8 Matrix for HDMI* is set to IR channel 1. Therefore, the DIP switch 1 on the IR Remote Control must be set to the ON position and DIP switch 2 must be set to the OFF position.

4. Press the Menu button to return to the Routing screen.

RMT-848IR Layout and Description

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

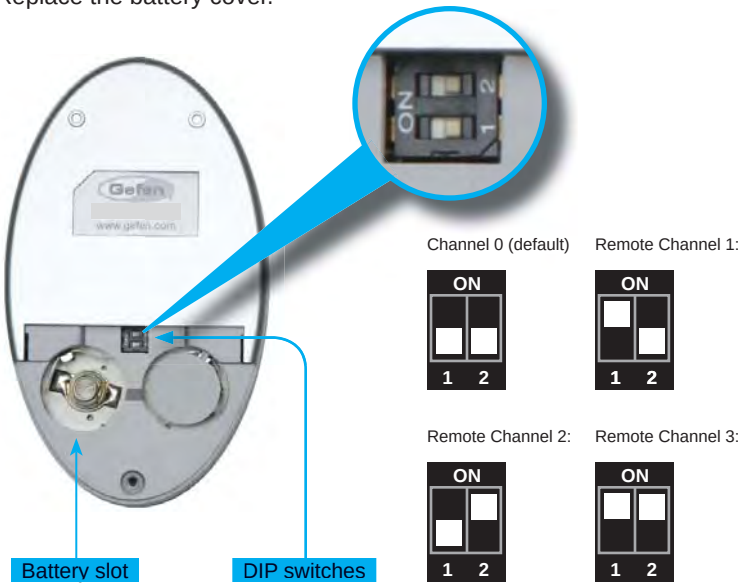
2 ***Display and Source Selection Buttons***
These buttons are used to select which source is routed to a display. The Source and Display buttons are mapped as follows:

NOTE: An Activity Indicator that flashes quickly while holding down any one of the 16 buttons indicates a low battery. Replace the IR Remote Control battery as soon as possible.

Installing the IR Remote Control Battery

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

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.



Setting the IR Channel

The IR channel on the IR Remote Control must match the IR channel used by the *8x8 Matrix for HDMI*. 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 Matrix for HDMI* must also be set to IR channel 0. See page 51 for information on how to change the IR channel on the *8x8 Matrix for HDMI*.

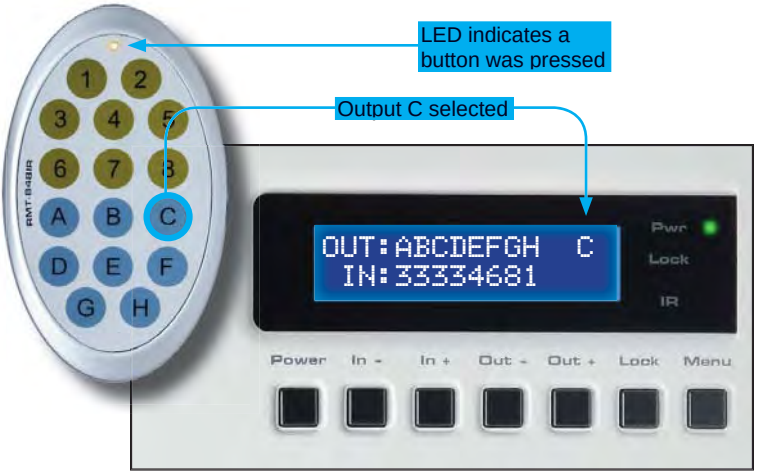
WARNING: Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.

Routing Sources using the IR Remote Control

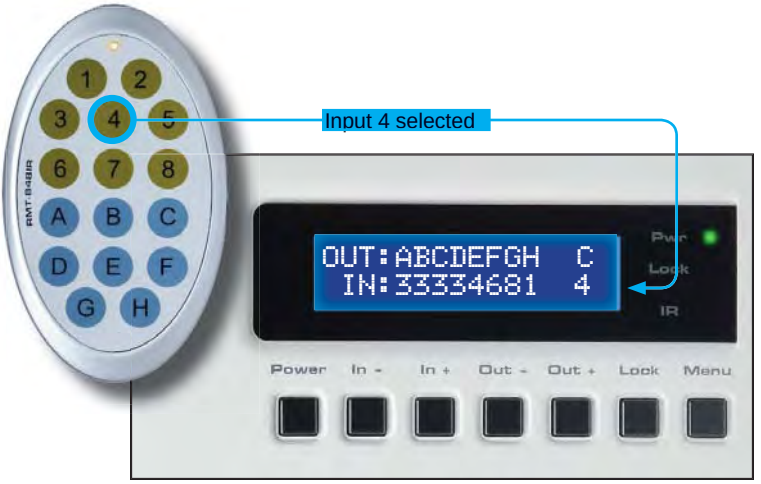
Buttons **1 - 8** on the IR remote control correspond to each HDMI input (Input 1 - 8) on the Matrix. Buttons **A - H** correspond to each HDMI output (Output A - H). To route a source to a display, press the desired output first, then press the input.

Routing Example: Route Input 4 to Output C

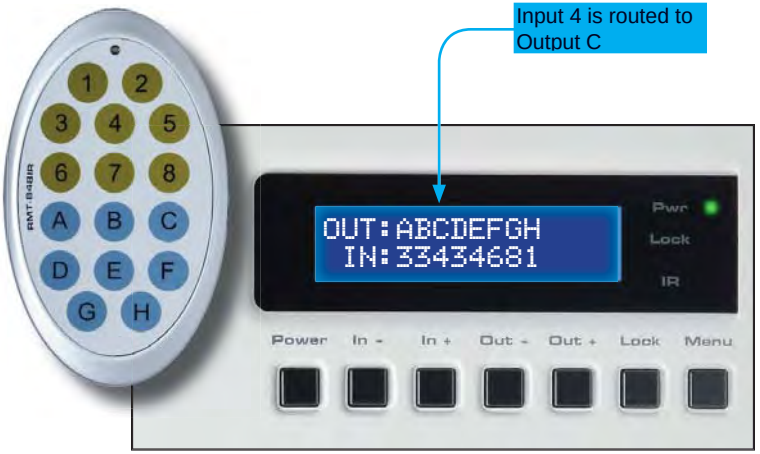
1. Select Output C by pressing button **C** on the IR Remote Control. The number 3 will appear in the upper right-hand corner of the LCD display:



2. Select Input 4 by pressing button **4** on the IR Remote Control. The number 4 will appear in the lower right-hand corner of the LCD display:



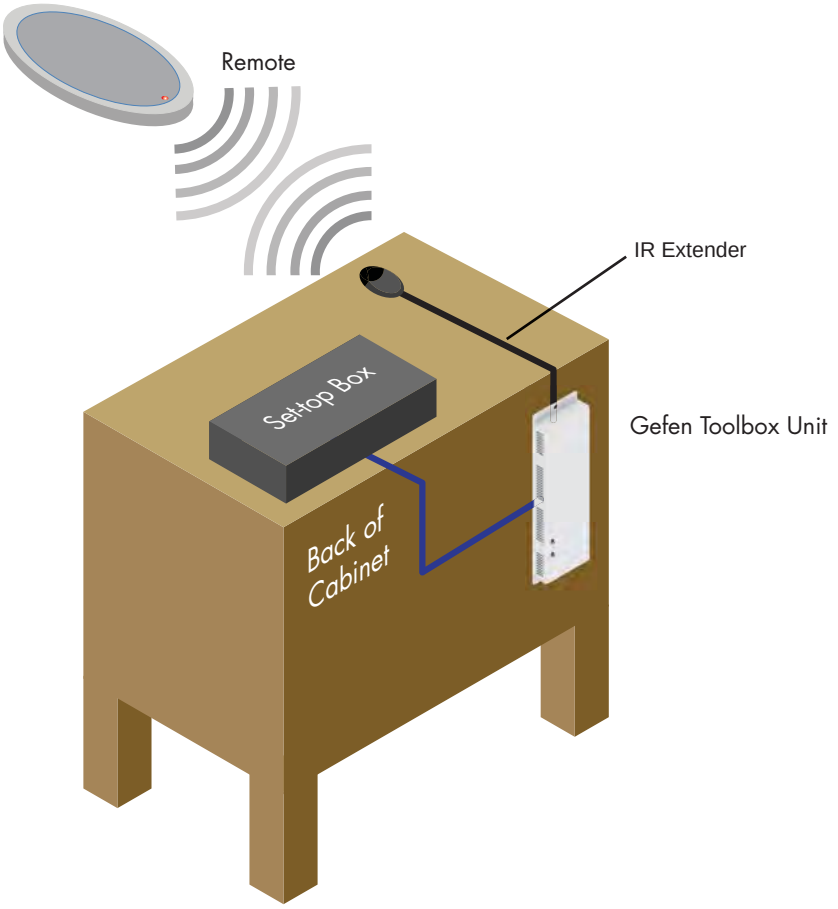
3. After the input and output have been selected on the IR Remote Control, the numbers on the far right-hand of the LCD display will disappear and the new routing state will be displayed in the LCD display:



Using The IR Extender

An optional IR Extender (Gefen Part No. EXT-RMT-EXTIR) can be used to extend the IR capabilities of the GefenToolBox *8x8 Matrix for HDMI*. One such application allows the Matrix to be hidden within or behind a cabinet (see illustration below).

Simply connect the IR extender to the IR extender port (see page 4).



External EDID Management

The 8x8 Matrix for HDMI features EDID Management. Before the source can send video or audio signals, the source device reads the EDID (Extended Display Identification Data) from the output devices connected to the Splitter. The EDID contains information about what type of audio/video data that the source can send to each output device.

The following EDID features are copied from Output A:

- Supported Resolutions
- 3D Support
- Audio Features

Display Connections:

- If a device is not connected to Output A, then no EDID changes are made, meaning that the previous EDID information will be used. This state will be in effect until a display is connected to Output A and the Matrix is power-cycled.
- EDID is built from Output A to the Input. The audio block will be copied from Output A. EDID-copying is performed only when the Matrix is reset or power-cycled.

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

NOTE: When the matrix is locked, routing and "set"-type commands will not function. The #lock_matrix command must be used before issuing any commands within this class. See page 39 for details.

IMPORTANT: When sending RS-232 commands, a *carriage return* and a *line feed* character must be included at the end of each line. Commands and parameters are *not* case-sensitive.

Configuring the IP Address

The *8x8 Matrix for HDMI* supports IP-based control using Telnet. To set up Telnet control, the network settings for the matrix must be configured via RS-232. The default network settings for the matrix are as follows:

IP Address:	`192.168.1.72`
Subnet:	`255.255.255.0`
Gateway:	`192.168.1.254`
HTTP Port:	`80`
Telnet Port:	`23`

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

2. Launch a terminal emulation program (e.g. HyperTerminal) and use the RS-232 settings listed on page 26.

> **NOTE:** Depending upon the network, the IP address, subnet mask, gateway (router) IP, Telnet port, and HTTP port will need to be set. Consult your network administrator to obtain the proper settings.

3. Set the IP address for the matrix using the `#sipadd` command (see page 36 for details).

4. Set the subnet mask using the `#snetmask` command (see page 37 for details).

5. Set the gateway (router) IP address using the `#sgateway` command (see page 33 for details).

6. Set the Telnet listening port using the `#set_telnet_port` command (see page 32 for details).

7. Set the HTTP listening port using the `#set_http_port` command (see page 30 for details).

8. Set the Telnet username using the `#set_telnet_username` command (see page 32 for details).

9. Set the Telnet password using the `#set_telnet_pass` command (see page 31 for details).

10. Power-cycle the matrix to reboot and complete all IP setting changes.

11. After the matrix has rebooted, use the IP address that was specified in step 3 to Telnet to the matrix.

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_gateway	Displays the gateway address
#show_http_port	Displays the HTTP listening port
#show_ip	Displays the IP address of the Matrix
#show_mac_addr	Displays the MAC address of the Matrix
#show_netmask	Displays the netmask address
#show_telnet_port	Displays the Telnet listening port
#show_telnet_username	Prompts for user name when using Telnet
#show_ver_data	Displays the hardware / software version
#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 command 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  = 192.168.2.254
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:

This command is will be implemented in a future release of the firmware.
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_gateway Command

The #show_gateway command shows the current gateway address.

Syntax:

```
#show_gateway
```

Parameters:

None

Example:

```
#show_gateway
Gateway address is: 192.168.2.1
```

#show_http_port Command

The #show_http_port command shows the current HTTP listening port.

Syntax:

```
#set_http_port
```

Parameters:

None

Notes:

This command is will be implemented in a future release of the firmware.

#show_ip Command

The #show_ip command shows the current IP address of the Matrix.

Syntax:

```
#show_ip
```

Parameters:

None

#show_mac_addr Command

The #show_mac_addr command shows the MAC address of the Matrix.

Syntax:

```
#show_mac_addr
```

Parameters:

None

#show_netmask Command

The #show_netmask shows the netmask address.

Syntax:

`#show_netmask`

Parameters:

None

#show_telnet_port Command

The #show_telnet_port command shows the current Telnet listening port.

Syntax:

`#show_telnet_port`

Parameters:

None

#show_telnet_username Command

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

Syntax:

`#show_telnet_username`

Parameters:

None

#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 Telnet 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 / Naming / Presets

Command	Description
r	Routes the specified inputs to the specified outputs
#lock_matrix	Locks / unlocks the Matrix
#recall_preset	Recalls a routing / mask preset
#save_preset	Saves the current routing/masking state to a preset
#set_input_name	Specifies a name for an input
#set_output_name	Specifies a name for an output
#show_input_name	Displays the specified input name
#show_output_name	Displays the specified output name
#show_r	Displays the current routing state of the specified output

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	[A - H]

Examples:

```
r 7 A C D F G H
Input 7 is routed to outputs A, C, D, F, G, H

r 2 0
Input 2 is set to all outputs
```

#lock_matrix Command

The #lock_matrix command locks / unlocks the Matrix. When the Matrix is locked, all functions are disabled including the front panel, RS-232, and Telnet.

Syntax:

```
#lock_matrix param1
```

Parameters:

param1 Value [0 - 1]

Value	Meaning
0	Unlock Matrix
1	Lock Matrix

#recall_preset Command

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

Syntax:

```
#recall_preset param1
```

Parameters:

param1 Preset [1 - 8]

#save_preset Command

The #save_preset 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:

```
#save_preset param1
```

Parameters:

param1	Preset	[1 - 8]

#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 needed, use the underscore character (“_”) to separate characters.

Syntax:

```
#set_input_name param1 param2
```

Parameters:

param1	Input	[1 - 8]
param2	Name	

Example:

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

#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 needed, use the underscore character (“_”) to separate characters.

Syntax:

```
#set_output_name param1 param2
```

Parameters:

param1	Output	[A - H]
param2	Name	

Example:

```
#set_output_name 3 Sony_XBR7
Sony_XBR7 is assigned to output 3
```

#show_input_name Command

The #show_input_name command shows the name provided to the specified input using the #set_input_name command.

Syntax:

```
#show_input_name param1
```

Parameters:

param1	Input	[1 - 8]

Example:

```
#show_input_name 5
The name for input 5 is: Blu_ray
```

#show_output_name Command

The #show_output_name command shows the name provided to the specified input using the #set_output_name command.

Syntax:

```
#show_output_name param1
```

Parameters:

param1	Output	[A - H]

Example:

```
#show_output_name C
The name for output C is: Sony_XBR7
```

#show_input_name Command

The #show_input_name command shows the name provided to the specified input using the #set_input_name command.

Syntax:

```
#show_input_name param1
```

Parameters:

param1	Input	[1 - 8]

Example:

```
#show_input_name 5
The name for input 5 is: Blu_ray
```

#show_r Command

The #show_r command shows the current routing status of the specified output.

Syntax:

```
#show_r param1
```

Parameters:

param1	Output	[A - H]

Example:

```
#show_r c
Output C is routed to Input 2
```

Status

Command	Description
#help	Displays all available commands
#show_fw	Displays the Matrix firmware version
#show_hpd	Displays the HPD status of the specified output
#show_rsense	Displays the RSENSE status of the specified output
m	Displays the current matrix routing status in table format

#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
```

```
#recall_preset param1

Recall a routing state preset

Param1 = 1 - 8 (preset/input)
```

#show_fw Command

The #show_fw command displays the current firmware version of the Matrix.

Syntax:

```
#show_fw
```

Parameters:

None

Example:

```
#show_fw
Firmware version = GTB-HDFST-848 v2.0E
```

#show_hdp Command

The #show_hpd command displays the HPD (Hot-Plug Detect) status of the specified output.

Syntax:

```
#show_hpd param1
```

Parameters:

param1	Output	[A - H]

Example:

```
#show_hpd c
HPD of output C is low
```

FST

Command	Description
#fst_slow	Sets FST to slow (normal) mode
#fst_fast	Sets FST to fast mode
#show_fst	Displays the

#fst_slow Command

The #fst_slow command sets the FST (Fast Switching Technology) to slow (normal) mode for the specified inputs. If *param1* is set to 0, then all inputs are set to slow FST mode.

Syntax:

```
#fst_slow param1[...param9]
```

Parameters:

param1	Input	[1 - 8]

Examples:

```
#fst_slow 2 3 4
Inputs 2, 3, 4 are set to FST slow mode

#fst_slow 0
All inputs are set to FST slow mode
```

#fst_fast Command

The #fst_fast command sets the FST (Fast Switching Technology) to fast mode for the specified inputs. If *param1* is set to 0, then all inputs are set to fast FST mode.

Syntax:

```
#fst_fast param1[...param9]
```

Parameters:

param1	Input	[1 - 8]

Examples:

```
#fst_fast 2 3 4
Inputs 2, 3, 4 are set to FST fast mode

#fst_fast 0
All inputs are set to FST fast mode
```

#show_fst Command

The #show_fst command shows FST status for each specified input. If *param1* is set to 0, then the status for all inputs are displayed.

Syntax:

```
#show_fst param1
```

Parameters:

param1	Input	[1 - 8]

Examples:

```
#show_fst 2
Inputs 2 is in fast switching mode
```

Masking

Command	Description
#mask	Masks the specified outputs
#show_mask	Displays the mask status for the specified output
#unmask	Unmasks the specified outputs

#mask Command

The #mask command masks the specified outputs. If *param1* is set to 0, then all outputs are masked.

Syntax:

```
#mask param1[...param9]
```

Parameters:

param1	Output	[A - H]

Examples:

```
#mask c f
Outputs C, F are masked

#mask 0
All outputs are masked
```

#show_mask Command

The #show_mask command shows the mask status for the specified output.

Syntax:

```
#mask param1
```

Parameters:

param1	Output	[A - H]

Example:

```
#show_mask d
Outputs D is masked
```

#unmask Command

The #unmask command unmasks the specified outputs. If *param1* is set to 0, then all outputs are unmasked.

Syntax:

```
#unmask param1[...param9]
```

Parameters:

param1	Output	[A - H]

Examples:

```
#unmask d
Outputs D is unmasked

#unmask 0
All output are unmasked
```

Configuration

Command	Description
#activeisp	Activate ISP mode (for programming use only)
#fadefault	Resets the matrix to factory default routing
#power	Toggles power on the matrix
#reboot	Reboots the matrix
#set_ir	Sets the IR channel of the matrix
#show_ir	Displays the IR channel of the matrix

#activeisp Command

The #activeisp command activates ISP mode. This command is used when programming the matrix.

Syntax:

```
#activeisp param1
```

Parameters:

param1 State [0 - 1]

Value	Meaning
0	ISP mode disable
1	ISP mode 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

#power Command

The #power command toggles the power state on the matrix.

Syntax:

```
#power param1
```

Parameters:

param1 State [0 - 1]

Value	Meaning
0	Power matrix OFF
1	Power matrix ON

#reboot Command

The #reboot command reboots the matrix.

Syntax:

```
#reboot
```

Parameters:

None

Example:

```
#reboot

Matrix will reboot shortly *reboot unit in 2 seconds
Matrıx ıs ON
A2B2C2D7E1F1G3H2
```

#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 21 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
IR channel is set to channel 2
```

#show_ir Command

The #show_ir displays the current IR channel for the matrix.

Syntax:

```
#show_ir
```

Parameters:

None

Example:

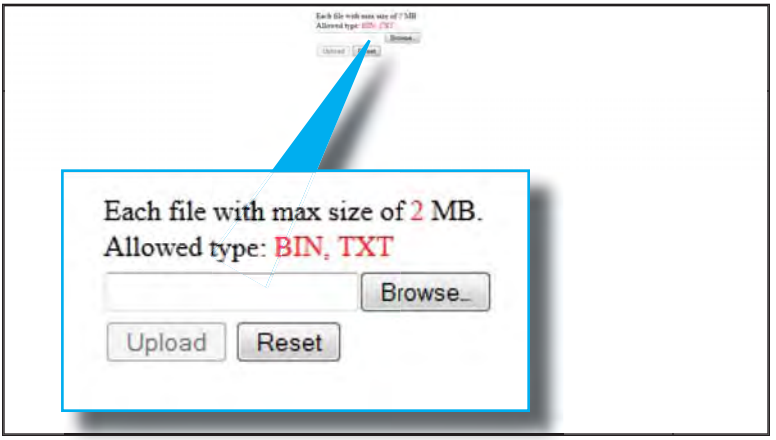
```
#show_ir
Current IR channel is: 2
```

Firmware Update Procedure

The following items are required to update the matrix firmware:

- GefenToolBox 8x8 Matrix for HDMI.
- Ethernet cable
- Firmware files: GTB-HDFST-848(vXX)(PACK).bin, where vXX = firmware version.

1. Power-on the matrix.
2. Connect the Ethernet cable between the matrix and the computer containing the firmware file.
3. Configure the matrix for IP control. See page 27 for more information.
4. In a Web browser, type in the IP address of the matrix. The following page will be displayed:



5. Click the Browse... button to display the File Upload dialog.
6. Select the firmware file and click Open.
7. Click the Upload button on the Web page.

   The update process should take approximately 5 minutes.

WALL MOUNTING INSTRUCTIONS

The *8x8 Matrix for HDMI* should be mounted vertically in a wall or cabinet with wood/drywall screws as shown in the diagram above. There should be an inch or two of clearance between the edges of the unit and any walls or vertical surfaces to allow for enough clearance for insertion and retraction of cables at the HDMI connectors.

For installation on a drywall surface, use a #6 drywall screw. It is recommended when installing on a drywall surface that studs be used to secure the Matrix should undue stress be applied when connecting and disconnecting HDMI cables.

SPECIFICATIONS

Maximum Pixel Clock ..... 225 MHz

Video Input Connectors ..... (8) HDMI Type-A, 19-pin, female

Video Input Connectors ..... (8) HDMI Type-A, 19-pin, female

IP Connector..... (1) RJ-45, sheilded

USB Port..... (1) Mini-B, female

RS-232 Port..... DB-9 serial, female

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

Power Supply .....24V DC

Power Consumption .....100W (max)

Operating Temperature .....0 - 40 °C

Dimensions (W x H x D)..... 9.3” x 16.8” x 1.8” (237mm x 428mm x 46mm)

Shipping Weight .....6 lbs. (2.7 kg)

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.

MA-GTB-HDFST-848

Rev A4
2.0N

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This product uses UL or CE listed power supplies.