4K Ultra HD 600 MHz Multi-Format 5x1 Scaler w/ Auto-Switching & Split HDMI & HDBaseT™ Outputs

User Manual

Version A1

Important Safety Instructions

GENERAL SAFETY INFORMATION

1. Read these instructions.

2. Keep these instructions.

3. Heed all warnings.

4. Follow all instructions.

5. Do not use this product near water.

6. Clean only with a dry cloth.

7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.

8. Do not install or place this product near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.

11. Only use attachments/accessories specified by the manufacturer.

12. To reduce the risk of electric shock and/or damage to this product, never handle or touch this unit or power cord if your hands are wet or damp. Do not expose this product to rain or moisture.

13. Unplug this apparatus during lightning storms or when unused for long periods of time.

14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

15. Batteries that may be included with this product and/or accessories should never be exposed to open flame or excessive heat. Always dispose of used batteries according to the instructions.

For the latest warranty coverage information, refer to the Warranty and Return Policy under the Connect section of the Gefen website at http://www.gefen.com/connect/warranty-and-return-policy

Contacting Gefen Technical Support

Technical Support

1-707-283-5900   1-800-472-5555
8:00 AM to 5:00 PM Monday - Friday, Pacific Time

Email
support@gefen.com

Web
http://www.gefen.com

Mailing Address
Gefen

Nortek Security & Control, LLC

c/o Customer Service

5919 Sea Otter Place, Suite 100

Carlsbad, CA 92010 USA

Operating Notes

- When using the 5x1 Scaler for the first time, it is recommended that the unit be configured using the web interface. Firmware update is handled through Gefen Syner-G Software Suite. Download the application at: http://www.gefen.com/synerg/
- It is recommended that a power cycle be performed after upgrading firmware on this product.
- This manual has been written and is based on firmware version 3.57.
- This product supports 2 Channels of LPCM audio only.
- This product will accept full bandwidth 4K Ultra HD (3840 x 2160 @ 60 Hz 4:4:4) from the HDMI and DisplayPort™ inputs, however due to bandwidth limitations over the HDBaseT™ link the output resolution can be scaled to a maximum of 3840 x 2160 @ 30 Hz 4:4:4.
- Automatic switching is not available for the VGA input when set to composite or component video modes.
- The HDBaseT™ link is not active when the unit is in standby mode. This means that the unit cannot be powered on with the IR remote control from the IR input on a remote HDBaseT™ Receiver unit. The IR remote control is fully functional when communicating directly with the main unit.
- CEC is only supported on the local HDMI output.
- This unit is compatible with the EXTUHDA-HBTL-RX HDBaseT™ receiver available from Gefen (Sold separately)
- It is highly recommended to disable ECHO when controlling a serial (RS-232) device from a remote receiver. This setting can be changed with the command #SET_ECHO (pg. 50) using the RS-232 or IP Control interface.

This product uses software that is subject to open source licenses, including one or more of the General Public License Version 2 and Version 2.1, Lesser General Public License Version 2.1 and Version 3, BSD, and BSD-style licenses. Distribution and use of this product is subject to the license terms and limitations of liability provided in those licenses. Specific license terms and Copyright Notifications are provided in the source code. For three years from date of activation of this product, any party may request, and we will supply, for software covered by an applicable license (e.g. GPL or LGPL), a complete machine-readable copy of the corresponding open source code on a medium customarily used for software interchange. The following software and libraries are included with this product and subject to their respective open source licenses:

• lwIP
• jQuery

lwIP is licenced under the BSD licence:

Features and Package Contents

Features*

- Automatic switching of all video inputs
- Manual switching of video inputs via front panel button, handheld IR remote, electrical IR, RS-232, IP Control interface, and web server interface
- Split HDMI and HDBaseT™ Outputs feed local and remote displays simultaneously
- Inputs:
  - 3x HDMI
  - 1x DisplayPort™
  - 1x VGA
  - 5x L/R Unbalanced Analog Audio
  - 1x L/R Balanced and Unbalanced Mic/Line
- Outputs:
  - 1x HDMI
  - 1x HDBaseT™
  - 1x L/R Unbalanced Analog Audio
- Selectable 48V Phantom Power and Ducking feature for Mic/Line input
- HDMI and DP inputs support up to 600 MHz TMDS clock and 18 Gbps data throughput
- HDMI and DP inputs support up to 4K DCI 4096 x 2160, 60 Hz, 4:4:4 and 4K Ultra HD 3840 x 2160, 60 Hz, 4:4:4
- VGA input supports up to WUXGA (1920 x 1200, 60 Hz, 4:4:4) and 1080p Full HD (60 Hz, 4:4:4)
- Configurable built-in scaler up to 3840 x 2160, 30 Hz, 4:4:4
- Each of the 5 unbalanced audio inputs can be associated with any of the video inputs and be embedded into then HDMI and HDBaseT™ outputs
- When used with optional EXT-UHDA-HBTL-RX HDBaseT™ Receiver, extends the HDMI output, 2-way IR, and RS-232 over a single CAT-5e:
  - 4K Ultra HD (3840 x 2160 @ 30 Hz, 4:2:0), up to 130 feet/40 meters (8-bit color)
  - 1080p Full HD (60 Hz) or WUXGA (1920x1200 @ 60 Hz), up to 230 feet/70 meters (up to 12-bit Deep Color
- HDMI features supported:
  - HDMI 2.0
  - HDCP 2.2 and 1.4
  - 12-bit Deep Color (at 1080p)
  - LPCM 2.0 pass-through
  - CEC pass-through (Local HDMI output only)
  - Lip Sync pass-through
- DisplayPort™ features supported:
  - DP 1.2
  - HDCP 2.2 and 1.4
  - LPCM 2.0 pass-through
- VGA input supported formats:
  - VGA, YPbPr (Component Video), and Composite Video
- RS-232 extension and unit control
- 2-way IR extension and unit control
- Analog L/R unbalanced audio breakout
- 5 independent dry contacts for input switching
- Uses Gefen's implementation of HDBaseT™ technology with enhanced features
- Advanced EDID Management for rapid integration of source and display
- Field-updateable firmware via USB Type-A port and RS-232 interface
- Locking HDMI connectors
- Locking power connector
- Power over HDBaseT™ (POH) provides power to a compatible Receiver unit (such as EXT-UHDA-HBTL-RX) over the link cable
- IR In/Ext port works with Gefen EXT-RMT-EXTIRN IR Extender Module or electrical IR from a third-party controller
- Handheld IR Remote works with intuitive On-Screen-Display (OSD)
- IP Control via IP Control interface and web server interface
- Compact enclosure is top-or-bottom surface-mountable, or can be placed in a shelf

Package Contents

- (1) 4K Ultra HD Multi-Format 5x1 Scaler w/ Auto-Switching and HDBaseT™ Output
- (1) 12V DC power supply with locking connector and US/EU/UK/AU Regional Plugs
- (1) RMT-MF-51A Handheld IR Remote with (1) CR2025 battery
- (8) 3-pin Phoenix plugs
- (1) 6-pin Phoenix plug
- (2) Mounting Brackets
- (4) Unit-to-Mounting Bracket Screws (M3X5)
- (4) Self-adhesive rubber feet
- (1) Quick Start Guide

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Multi-Format 5x1 Scaler

01   Getting Started

Panel Layout

Front

ID	Name	Description
1	**Power On**	Power off: Not illuminated. Power on: Illuminates Blue.
2	**IR**	IR receiver window for remote control.
3	**AUTO**	Enable/Disable Auto-Switching mode. When the button indicator illuminates blue, the device is in auto-switching mode. When the button indicator is off, the device is in manual-switching mode. Hold this button for >3 seconds to switch between modes.
4	**Input Sources (1 to 5)**	Press these buttons for discrete source selection. The active source will be illuminated blue on the front panel.
5	**IP Control**	Connect an Ethernet cable between this jack and a Local Area Network for Web Interface and IP Control interface control.
6	**RS-232 Port**	Connect RS-232 Tx, Rx and Ground from an automation control device to this port using the included removable 3-pin "Captive Screw" Phoenix plug. Make sure to follow the pin assignment indicator on the unit panel. RS-232 extension and unit control are concurrently active.
7	**IR In/Ext**	Connect a Gefen EXT-RMT-EXTIRN IR Extender module (available separately) or the IR output of a third-party controller to this port. If using the IR Extender, place it within the line of sight of your handheld IR Remote. IR signals accepted by this port can be used to control the scaler and be extended via the optional HDBaseT Receiver to a remotely located device.
8	**IR Out**	Connect an EXT-IREMIT IR Emitter (sold separately) from this port to the IR sensor of the device to be controlled. IR signals are received from the remote HDBaseT™ receiver.
9	**Input Control**	This input control is for direct source input selection. Connect up to 5 momentary switches between the common pin (marked as C on panel) and the pin corresponding to each source. Pressing and releasing the button for each source will select that source.

Pin Number	Source
1	HDMI 1
2	HDMI 2
3	HDMI 3
4	DisplayPort™
5	VGA/YPbPr/CVBS

Back

ID	Name	Description
10	**Audio Out**	Connect an amplifier to one of the included removable 3-pin "Captive Screw" Phoenix plugs and attach to the unbalanced stereo audio out port. Make sure to follow channel and polarity markings. The audio on this port will correspond to the selected video source and is mixed with Mic audio.
11	**Audio In 1~5**	Connect unbalanced stereo audio sources to the included removable 3-pin "Captive Screw" Phoenix connectors plugs, observing channel and polarity markings, and attach them to one of the 5 audio input ports. Each audio input is assignable.
12	**Bal In Port** **Mic/Line Switch**	Connect either a balanced or unbalanced condenser/dynamic microphone, or other single-channel audio source to one of the included 3-pin "Captive Screw" Phoenix plugs and attach to this connector, observing polarity markings. The Mic/Line mode and 48V Phantom Power is set via this switch.
13	**HDBaseT™ Out**	Connect a CAT-5e or better cable, shielded CAT-6A preferred, up to the recommended length for a given resolution, from this port to the HDBaseT™ In port on the optional Receiver unit.
14	**HDMI Out**	Connect a Gefen Locking HDMI cable from this port to an HDMI capable display. The HDMI output includes internal HDMI audio or external audio from any of the audio inputs.
15	**HDMI In (1-3)**	Connect a Gefen Locking HDMI cable from an HDMI source to each of these ports. A DVI source can be connected using an adapter.
16	**DisplayPort™ In (4)**	Connect a DisplayPort 1.2 cable from a DisplayPort source to this port.
17	**VGA In (5)**	Connect a VGA cable from a VGA source (e.g. computer) to this port. Component (YPbPr) and Composite (CVBS) video can also be connected using an adapter cable.
18	**Firmware Port**	To update the system firmware, connect a USB thumb drive that contains the firmware file to this USB Type-A port. Firmware update requires the use of Gefen Syner-G™ software.
19	**12V DC**	Connect the included 12V DC power supply to this power connector.

Installation and Basic Operation

Connecting the Multi-Format 5x1 Scaler

HDMI / DisplayPort™ / VGA / Audio

1. Use Gefen HDMI cables to connect sources to the 3 **HDMI In** ports. Use a DisplayPort™ 1.2 cable to connect a source to the **DisplayPort™ In**. Use a VGA cable to connect a source to the VGA In port.

2. Connect up to 5 un-balanced (single-ended) analog stereo audio sources to **Inputs 1** through **5** using the 3-pin Phoenix plugs that came attached to the unit. Follow channel and polarity markings shown on the scaler's back panel. Any of these 5 audio inputs can be linked to any of the 5 video sources and embedded into the HDMI and HDBaseT™ outputs.

3. Connect a balanced or unbalanced single channel audio source, a microphone with 48V Phantom Power or a non-powered microphone to the **Bal-In** 3-pin Phoenix connector. Follow ground and polarity markings shown on the scaler's back panel. Be sure to set the 3-position slide switch located to the right of the connector for the correct operation mode, **48V Mic**, (Non-Powered) **Mic** or **Line**.

4. Switch between the five inputs by pressing and releasing one of the input buttons on the front panel (marked 1 thru 5). The button for the selected input will illuminate. To activate **Auto-Switching**, press and hold the **Auto** button for 3 seconds or longer until it illuminates. To deactivate, press and hold the **Auto** button again for 3 seconds or longer. Press and release the **Power** button to turn the unit On or Off.

5. Connect a Gefen HDMI cable between the **HDMI Out** port of the 5x1 Receiver and a display monitor.

6. If extending AV to a remote display using HDBaseT™, use a **CAT-5e cable** (shielded CAT-6A preferred) up to the maximum recommended length for resolution/timing and color depth and connect between the **HDBaseT™ Out** port and the **HDBaseT™ In** port on the optional Receiver.

CAT-5 / RS-232 / Input Control

1. The **RS-232 port** can be used to control the scaler and to extend 2-way RS-232 communications between the unit and the optional Receiver over the HDBaseT™ cable. The remote display can be controlled from the source side by an RS-232 control device, or the Scaler and a connected source can be controlled from the remote location. To connect an RS-232 device to the Scaler, remove the 3-pin Phoenix plug that came attached to the unit. Wire Tx, Ground and Rx from an RS-232-enabled device to the connector, and plug it back into the Scaler. **To ensure proper operation, follow the pin-out of the connector as printed on the unit's enclosure.**

2. The **Input Control** contact-closure port can be used with up to 5 momentary switches. Each press and release of the button switches to the assigned input. Each switch can be connected between the C and the designated connection for each of the 5 inputs.

IR / Audio / IP / Power

1. The **IR In/Ext port** facilitates IR control of the unit and extends IR from the source side to the viewing location. Connect a Gefen **EXT-RMT-EXTIRN** IR Extender module (available separately) or the **IR output** of a third-party controller to the **IR In/Ext port**. If using an HDBaseT Receiver, connect a Gefen **EXT-IREMIT** IR Emitter (sold separately) to the **IR Out port** of the Receiver and attach it to the IR sensor window of the device to be controlled.

2. If using an HDBaseT™ Receiver, IR can also be extended from the remote end to the Scaler side to control the scaler as well as a source. Connect a Gefen **EXT-IREMIT** IR Emitter (sold separately) to the **IR Out port** and attach it to the IR sensor window of the device to be controlled. Connect a Gefen **EXT-RMT-EXTIRN** IR Extender or the IR output of a third-party controller to the **IR In/Ext port** of the Receiver.

3. To use de-embedded audio from the HDMI output with an outboard audio amplifier, wire the **Audio Out** of the 5x1 Scaler to your amplifier.

4. To use the built-in *Web Server*, *Telnet* or *UDP* to control the scaler, connect an Ethernet cable from your Local Area Network (LAN) to the IP Control port. Use the Gefen Syner-G™ software to discover and configure IP settings. The *default IP address* is **192.168.1.72**, and the *password* is '**admin**' for the Administrator account.

5. To provide power to the Scaler and the HDBaseT™ Receiver (through the link cable), connect the Scaler's power supply to its 12V DC jack and to an available electrical outlet. The Receiver can also be powered locally, but it cannot power the Scaler.

6. The IR remote can be used at the Scaler side or remotely at the Receiver end. It provides access to Main Volume and Microphone Level controls and the intuitive On Screen Display (OSD).

Sample Wiring Diagram
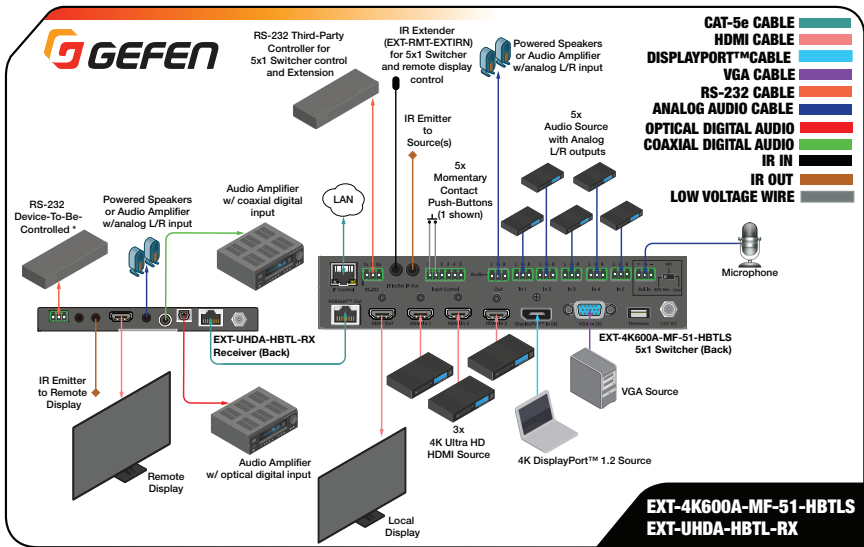
Network Configuration using Syner-G

1. Download the application here: http://www.gefen.com/synerg/
   Launch the Gefen Syner-G application.

2. Select the EXT-4K600A-MF-51-HBTLS from the list of products.

Select Function			
Discover and Configure IP	**Manage a Product**		**EDID Editor**

My PC	192.168.0.150	8C:AE:4C:FF:11:BA	Ethernet 5
Product Name	**IP Address**	**MAC Address**	**Description**
EXT-UHDV-KA-LANS-RX	192.168.0.186	00:1C:91:05:43:E0	EXT-UHDV-KA-LANS-RX
EXT-UHDV-KA-LANS-TX	192.168.0.50	00:1C:91:05:40:20	EXT-UHDV-KA-LANS-TX
EXT-UHDV-KA-LANS-TX	192.168.0.11	00:1C:91:03:C0:01	Samsung
EXT-4K600A-MF-51-HBT	192.168.0.72	00:1C:91:03:80:09	EXT-4K600A-MF-51-HBT
EXT-UHDV-KA-LANS-RX	192.168.0.30	00:1C:91:05:40:01	EXT-UHDV-KA-LANS-RX
EXT-CU-LAN	192.168.0.74	00:1C:91:04:62:83	EXT-CU-LAN

3. Under the **Device Settings** section, select either Static or DHCP from the **IP Mode** drop-down list.

   - Select Static to manually enter the IP address, subnet mask, and gateway IP. Consult with your network administrator, if necessary.
   - Select DHCP to let the DHCP server automatically assign the IP address, subnet mask, and gateway IP.
   - Telnet Port is fixed at 80.

Device Settings			
Product Name	EXT-4K600A-MF-51-HBTLS	IP Mode	Static
MAC Address	00:1C:91:03:80:09	Web GUI Port	80
IP Address	192.168.0.72	Telnet Port	23
Subnet Mask	255.255.255.0	Firmware Version	3.3.7
Gateway IP	192.168.0.1	Hardware Version	2.0_0907
DNS	192.168.0.1	Description	EXT-4K600A-MF-51-HBTLS

> **i** **NOTE:** The default IP address is 192.168.1.72

4. Click the **Save** button at the bottom of the screen.

5. After saving, select **Reboot** for the new network settings to take effect.

6. Use the IP address of the switcher to access the built-in web interface or start a Telnet session. See the following for more information:

IR Remote Control Unit

ID	Name	Description
1	Power	Press this button to toggle between *On* and *Off* power modes. Powering on the unit via IR from the HDBaseT™ receiver is not possible as the link is not active when the unit is in standby mode. This button is fully functional when communicating directly with the main unit. **It is possible to power off the 5x1 switcher/scaler from the remote location via the IR remote. The scaler, however, cannot be turned back on from the remote location.**
2	Mute	Toggles mute/un-mute of both analog and HDMI outputs.
3	Inputs	Press these buttons for discrete source selection. The ◄ and ► buttons can be used to cycle between inputs in numerical order.
4	ADJ	Performs an auto-sync action for the VGA input.
5	RES	Resolution will cycle on each press of this button based on available output resolutions. Long pressing this button will reset the resolution to 720p 60Hz.
6	Menu buttons	**MENU**: Activates/Deactivates OSD menu. **EXIT**: Exit OSD menu or cancel current operation. **OK**: Option confirmation **UP/DOWN/LEFT/RIGHT**: OSD menu navigation
7	Main Volume	Decrease (▼) or increase (▲) audio output volume (HDMI, HDBaseT™, and Audio out ports).
8	Mic Volume	Decrease (▼) or increase (▲) MIC input audio volume.

Remote Bottom - Installing the Batteries
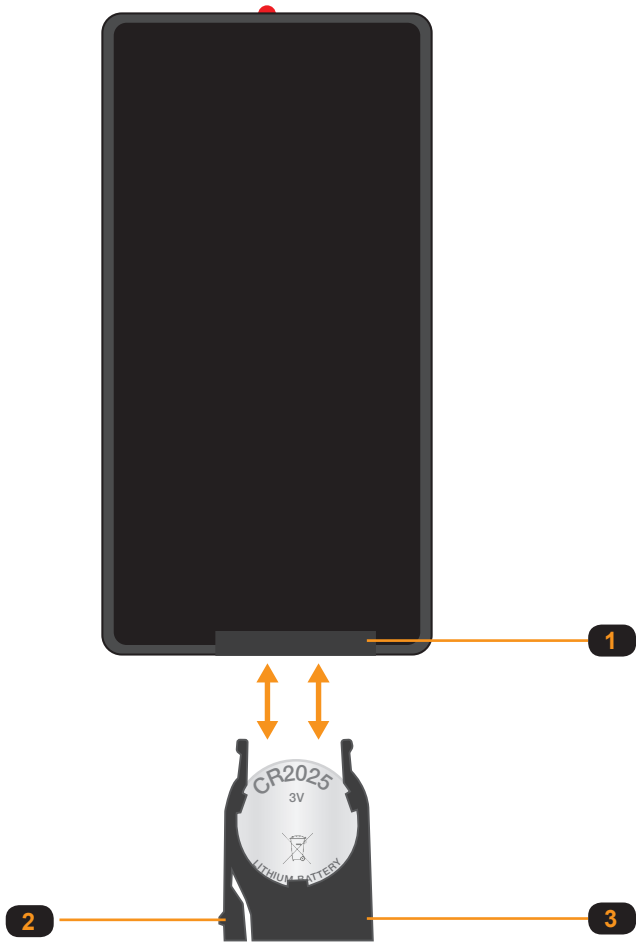
ID	Name	Description
1	**Battery slot**	Holds battery carriage in place.
2	**Release Tab**	Press inward with your thumb to release the tab that holds the battery carriage in place. Remove and replace the battery, then slide and snap the battery carriage back in to place.
3	**Battery Carriage**	Holds the lithium battery for operating the IR remote. Use only a CR2025 3V Lithium Battery.

Multi-Format 5x1 Scaler

02 Basic Operation

Introduction

EXT-4K600A-MF-51-HBTLS

4K Ultra HD 600 MHz Multi-Format 5x1 Scaler w/ Auto-Switching & Split HDMI & HDBaseT™ Outputs

Auto-Switch 4K Ultra HD 600 MHz HDMI, DisplayPort™ 1.2 and VGA. Scale and extend up to 70 meters/230 feet, over a single CAT-5.

The EXT-4K600A-MF-51-HBTLS is a 5x1 Presentation Switcher with three 4K 600 MHz HDMI, one DisplayPort™ 1.2, one VGA, five independently assignable stereo analog audio and one balanced/unbalanced microphone/line input.

The latter features switchable 48V Phantom Power and Ducking. The five video inputs, along with their embedded or assigned audio, can be switched automatically or manually. Control options include the front panel, hand-held IR remote with On-Screen-Display, electrical IR, RS-232, IP Control interface, web server interface and contact closure.

The split HDMI and HDBaseT™ outputs feature a scaler, configurable to 3840 x 2160, 30 Hz, 4:4:4. They feed a local and a remote display simultaneously, adding flexibility in larger presentation environments. The Switcher and its recommended Receiver [the EXT-UHDA-HBTL-RX, (sold separately)] use Gefen's implementation of the HDBaseT™ technology to extend the HDMI output of the Switcher up to 230 feet/70 meters at 1080p Full HD and up to 130 feet/40 meters at 4K, using one CAT-5e or better cable.

The HDMI and DisplayPort™ inputs support resolutions up to 4K DCI (4096 x 2160) 60 Hz 4:4:4, with HDCP 2.2 and 1.4. The HDMI input and output, and the HDBaseT™ output support 2 channels of LPCM digital audio. The VGA input supports resolutions up to WUXGA (1920 x 1200) and 1080p Full HD.

When used with third-party adaptors, the VGA input also supports Component (YPbPr) and Composite video. The Switcher features an analog L/R audio de-embedder. The optional Receiver also features analog and digital audio (optical and coaxial) outputs. Any or all audio outputs can be connected to sound-reinforcement systems at the source side or the remote end, adding impact and presence to AV presentations.

The 5x1 Switcher features Advanced EDID Management to ensure that sources are optimized for the displays in use. The Switcher, when used with the optional HDBaseT™ Receiver, provides 2-way RS-232 and IR extension. This facilitates the control of the Switcher, AV sources placed near the Switcher and the remote display or another device placed near the Receiver unit.

Industry-standard Power-Over-HDBaseT™ (POH) technology provides power from the Switcher to the Receiver over the same cable that extends the AV signal. The Switcher features an integrated IR Sensor on its front panel, as well as an electrical IR input.

If the switcher is mounted in a location where its IR sensor is not within line of sight, a Gefen EXT-RMT-EXTIRN IR Extender Module or a third-party controller with electrical IR output can be connected to the IR input on its back panel.

The 5x1 Switcher features a compact form-factor that can be placed on a shelf or securely mounted on or under a surface. The optional Receiver's small, ultra-low-profile enclosure can be securely surface-mounted and conveniently hidden away from sight in the equipment closet or behind the display. Locking HDMI ports on the Switcher and locking power jacks on both units ensure long-lasting and reliable connections.

NOTE: Shielded (STP) CAT-5e (or better) cable is recommended. An unshielded (UTP) CAT-5e (or better) cable may be acceptable depending on cable quality, but isn't the preferred choice. Care should always be given to keep these cables away from power lines and other sources of electromagnetic interference.

Powering the Multi-Format Scaler

1. Make sure the included 12V DC power supply is connected from the Multi-Format Scaler to an available electrical outlet.

2. Press and release the **Power button** on the front panel.

3. The power button will illuminate blue.

Power On
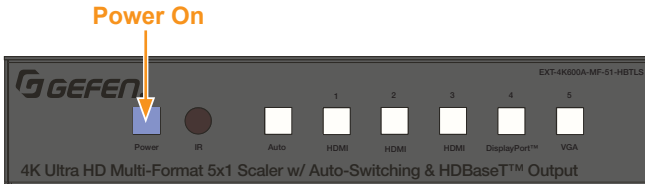
> **NOTE:** The Multi-Format Scaler can also be turned on and off with the IR Remote Control, the Web Interface, or by an external controller using either RS-232 or IP Telnet control.

Selecting a Video Input

The Multi-Format Scaler allows you to switch between five simultaneous connections. By default, AUTO is active, as well as the auto-detected Input.

Press the button corresponding to your desired Input. The selected button will illuminate blue.

Select from the following inputs: AUTO, HDMI (1-2-3), DisplayPort and VGA.

Auto On   HDMI 1 Detected
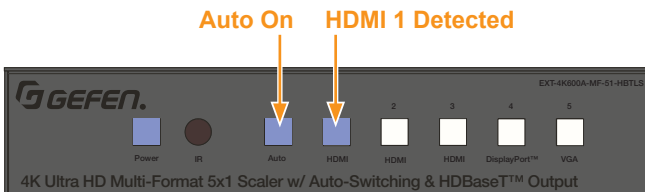
> **NOTE:** The Video Input Selection can also be changed with the IR Remote Control, the Web Interface, or by an external controller using either RS-232 or IP Telnet control, or via the Contact Closure Inputs on the back panel.

Selecting an Audio Input

Audio inputs must be selected and/or paired with video inputs using the built-in Web interface or On Screen Display (OSD). See **Setup ► Audio** (page 31) for more information.

You can use the included *IR Remote Control* to operate the Multi-Format Scaler by pointing the remote at the IR Window on the unit.

IR Window
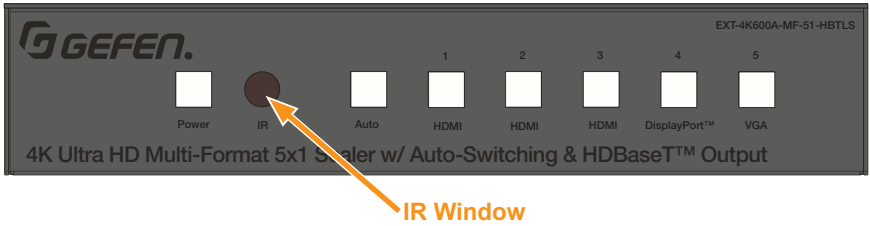
If the Multi-Format Scaler is concealed in a cabinet or otherwise out of range of the remote, you can plug in a Gefen IR Extender (Gefen part no. EXT-RMT-EXTIR, available separately) to the IR Ext port on the back panel and place the sensor where it will be in range of the remote.

IR Extender
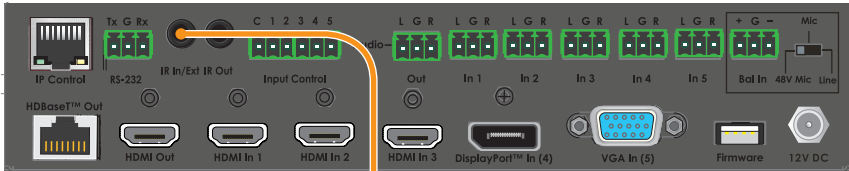
EXT-RMT-EXTIRN IR Extender
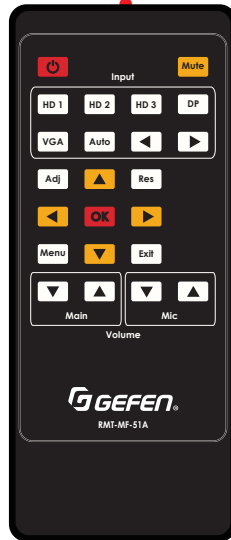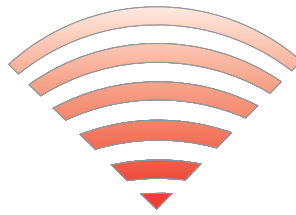
Accessing the Menu System

Input selection can be controlled using the front panel of the The Multi-Format Scaler. However, the included IR remote control must be used to access the built-in menu system. The menu system is used to manage and control audio, video, and system features.

To access the menu system, press the **Menu** button on the included IR remote control. The default time-out value for the menu system is 5 seconds. This value can be changed using options found in the **System ► OSD Timeout** menu (page 24).
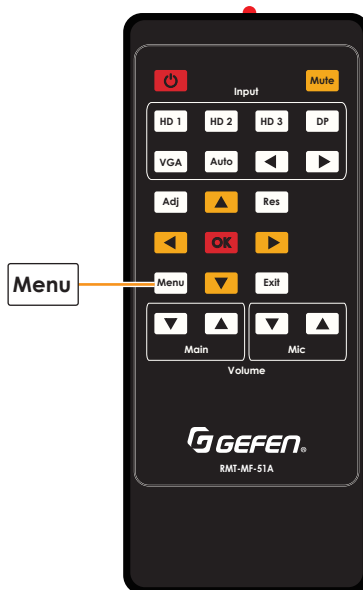
The switcher provides a powerful OSD operation menu. Press the MENU button on IR remote to view the menu and change settings.

Press OK to choose a setting or to apply the selected setting

Press the ▲ and ▼ buttons to move up and down within the menu system or change settings

Press the ◄ or ► buttons to go Back or to Navigate forward into the menus
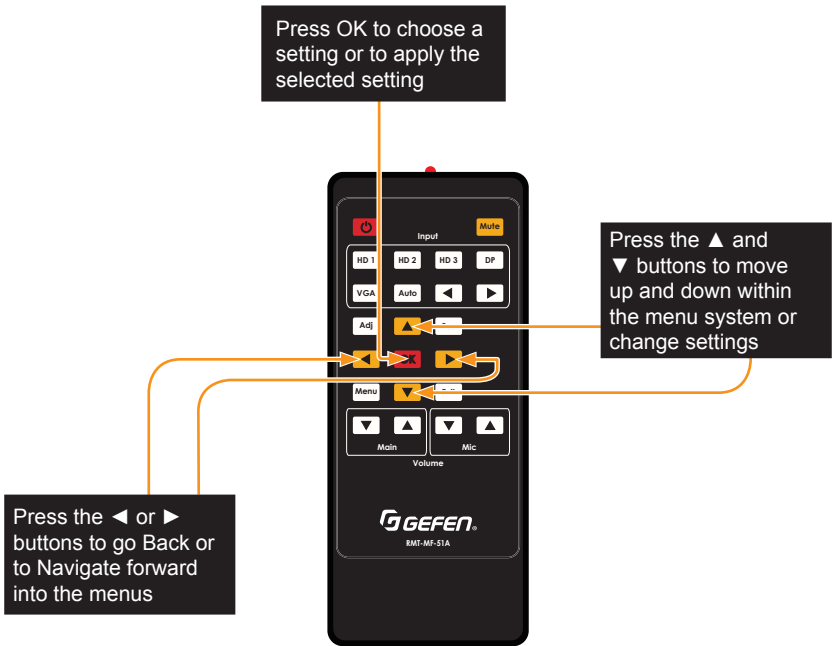
Main Menu

The Main Menu includes *Audio Input*, *Audio Setup*, *Video Setup*, *VGA*, *Network* and *System* options.

Main Menu
Audio Input
Audio Setup
Video Setup
VGA
Network
System
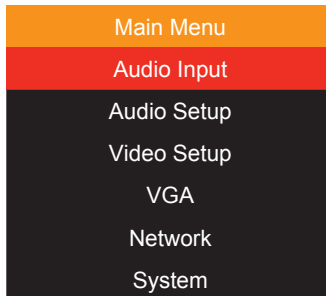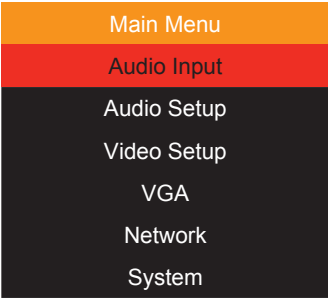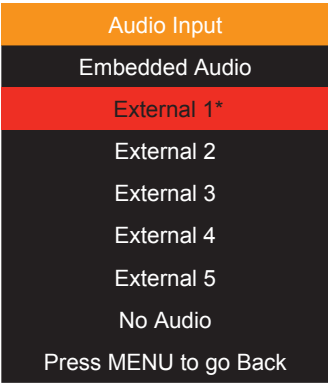
Menu System
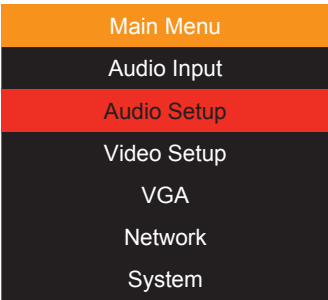
The Main Menu includes **Audio Input**, **Audio Setup**, **Video Setup**, **VGA**, **Network** and **System** options.

- Use the **IR Remote Control** to navigate menu options.
- Press the IR Remote **Menu** button at any time to save settings and return to the previous menu.
- On sub-menus, an **Asterisk** (*) adjacent to an option indicates the currently selected option.
- Orange indicates the menu title, and selected options appear in red.

Main ► Audio Input Menu

1. Press the **Menu** button on the IR remote control. The menu system will be displayed. 2. Select Audio Input to choose an audio source.	**Main Menu** **Audio Input** Audio Setup Video Setup VGA Network System
3. Press ▲ or ▼ to highlight an option, and press the **OK** button.	**Audio Input** Embedded Audio **External 1*** External 2 External 3 External 4 External 5 No Audio Press MENU to go Back

Main ► Audio Setup Menu

1. Select Audio Setup to access audio setup options.	**Main Menu** Audio Input **Audio Setup** Video Setup VGA Network System

Main ► Audio Setup

2. Press ▲ or ▼ to highlight an option, and press the **OK** button repeatedly to cycle through available options: **Emb**, **Ext** (1 through 5), **No Audio** and **No Change**. **Mixer Mode** options include: **On**, **Off** and **Auto**.	**Audio Setup** HDMI 1 — Ext 1 HDMI 2 — Emb HDMI 3 — Emb Display Port 4 — Emb VGA — Ext 1 Mixer Mode — On Press MENU to go Back

Main ► Video Setup Menu

1. Select <u>Video Setup</u> to access video setup options.	**Main Menu** Audio Input Audio Setup Video Setup VGA Network System
2. Select <u>Output Resolution</u> to access video output resolution options.	**Video Setup** Output Resolution Picture Adjust Aspect Ratio Overscan HDCP Press MENU to go Back

Menu System

Main ► Video Setup ► Output Resolution

1. Press ▲ or ▼ to highlight an option, then press the **OK** button.	**Output Resolution** 1024 x 768 60 Hz 1280 x 800 60 Hz 1360 x 768 60 Hz 1680 x 1050 60 Hz 1920 x 1200 60 Hz 1280 x 720 50 Hz 1280 x 760 60 Hz 1920 x 1080 50 Hz 1920 x 1080 60 Hz 3840 x 2160 30 Hz NATIVE * Press MENU to go Back
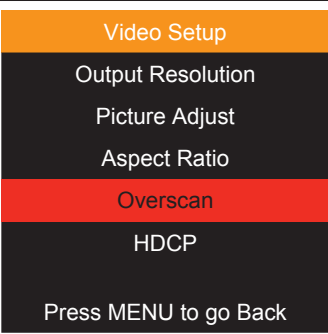
Main ► Video Setup ► Picture Adjust

1. Select Picture Adjust to access adjustment options.	**Video Setup** Output Resolution Picture Adjust Aspect Ratio Overscan HDCP Press MENU to go Back
2. Press the ▲ or ▼ buttons to highlight an option, then press ◄ or ► to adjust the value.	**Picture Adjust** ◄ Brightness 50 ► ◄ Contrast 50 ► ◄ Color 50 ► ◄ Sharpness 10 ► ◄ Tint 50 ► Press MENU to go Back

Main ► Video Setup ► Aspect Ratio
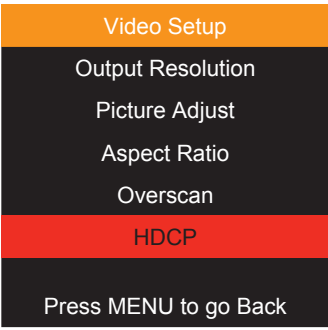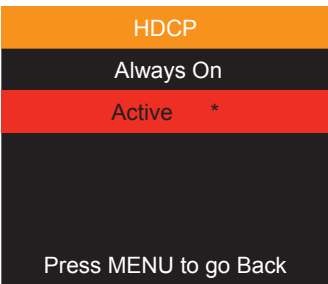
<table>
<tr>
<td>

1. Select <u>Aspect Ratio</u> to access aspect ratio options.

</td>
<td>

Video Setup

Output Resolution

Picture Adjust

Aspect Ratio

Overscan

HDCP

Press MENU to go Back

</td>
</tr>
<tr>
<td>

2. Press the ▲ or ▼ buttons to highlight **16:9**, **4:3** or **AUTO**, then press **OK**.

</td>
<td>

Aspect Ratio

16:9

4:3

AUTO

Press MENU to go Back

</td>
</tr>
</table>

Video Setup ► Overscan
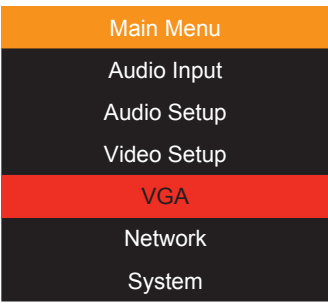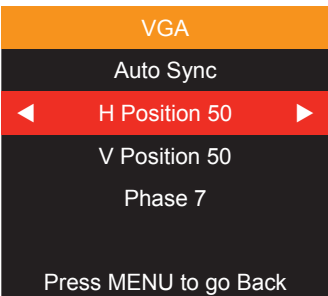
<table>
<tr>
<td>

1. Select <u>Overscan</u> to access overscan *Vertical* and *Horizontal* overscan options.

</td>
<td>

Video Setup

Output Resolution

Picture Adjust

Aspect Ratio

Overscan

HDCP

Press MENU to go Back

</td>
</tr>
<tr>
<td>

2. Press the ▲ or ▼ buttons to highlight an option, then press ◄ or ► to adjust the value.

</td>
<td>

Overscan

◄　　H Overscan 0　　►

◄　　V Overscan 0　　►

Press MENU to go Back

</td>
</tr>
</table>

Menu System

Main ► Video Setup ► HDCP
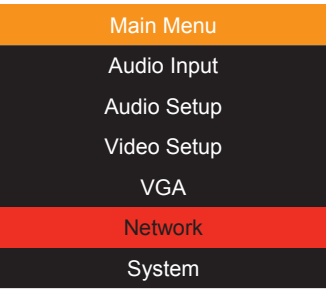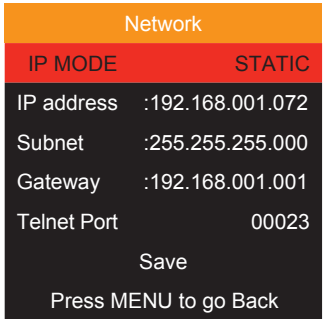
1. Select <u>HDCP</u> to access options.	**Video Setup** Output Resolution Picture Adjust Aspect Ratio Overscan **HDCP** Press MENU to go Back
2. Press the ▲ or ▼ buttons to highlight an option, then press **OK** to select.	**HDCP** Always On Active * Press MENU to go Back

Main ► VGA Menu
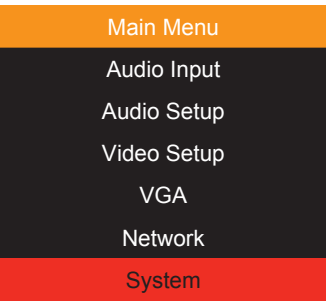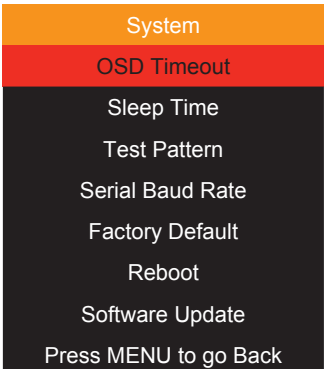
1. Select <u>VGA</u> to access VGA output options.	**Main Menu** Audio Input Audio Setup Video Setup VGA Network System
2. For *Auto Sync*, highlight the option and press **OK**. Press the ▲ or ▼ buttons to highlight an adjustable option, then press ◄ or ► to change the value.	**VGA** Auto Sync ◄ H Position 50 ► V Position 50 Phase 7 Press MENU to go Back

Main ► Network Menu

1. Select <u>Network</u> to access network setting options.	**Main Menu** Audio Input Audio Setup Video Setup VGA **Network** System
2. Press the ▲ or ▼ buttons to highlight a setting. For <u>IP MODE</u>, press **OK** to toggle options. For Network settings, highlight the setting then press ◄ or ► to change numbers. Press **OK** to accept and move to the next number. Select **SAVE** when finished.	**Network** IP MODE STATIC IP address :192.168.001.072 Subnet :255.255.255.000 Gateway :192.168.001.001 Telnet Port 00023 Save Press MENU to go Back

Main ► System Menu

1. Select <u>System</u> to access system options.	**Main Menu** Audio Input Audio Setup Video Setup VGA Network **System**
2. Press the ▲ or ▼ buttons to highlight an option, then press **OK** to select.	**System** **OSD Timeout** Sleep Time Test Pattern Serial Baud Rate Factory Default Reboot Software Update Press MENU to go Back

Menu System

Main ► System ► OSD Timeout

1. Press the ▲ or ▼ buttons to highlight a setting. Press **OK** select an option.	**OSD Timeout** OFF 5 seconds 10 seconds * 30 seconds 60 seconds Press MENU to go Back
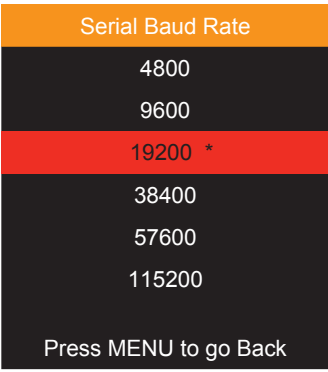
Main ► System ► Sleep Timer

1. Press the ▲ or ▼ buttons to highlight an option. Press **OK** select an option.	**Sleep Timer** OFF * 10 Min 30 Min 1 Hour 3 Hour Press MENU to go Back
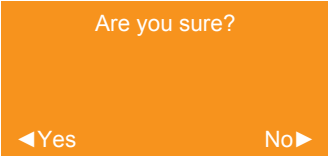
Main ► System ► Test Pattern

2. Press the ▲ or ▼ buttons to highlight a setting. Press **OK** select an option.	**Test Pattern** OFF * White Red Green Blue Black Press MENU to go Back
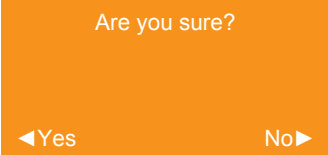
Main ► System ► Serial Baud Rate

1. Press the ▲ or ▼ buttons to highlight a setting. Press **OK** select an option.	Serial Baud Rate 4800 9600 19200 * 38400 57600 115200 Press MENU to go Back

Main ► System ► Factory Default

1. Once selected, press the ◄ to choose **Yes**, or press ► to choose **No**.	Are you sure? ◄Yes No►

Main ► System ► Reboot

1. Once selected, press the ◄ to choose **Yes**, or press ► to choose **No**.	Are you sure? ◄Yes No►

Main ► System ► System Update

1. Once selected, press the ◄ to choose **Yes**, or press ► to choose **No**.	Update? ◄Yes No►

Web Interface

Using the built-in Web Interface

This is the login page. Options for login are *Administrator* and *Operator*. Password defaults are '*admin*' and '*operator*'. The Web Interface is divided into six tabs at the top of the screen: **Main**, **Setup**, **Names**, **EDID**, **Network**, **System**. Some tabs have sub-tabs.

Default IP Address

192.168.1.72

Username

Select the username from the drop-down list:

- Operator
- Administrator

Administrator login provides unrestricted access to all features and settings. *Operator* login limits access to routing features, preset selection, and input/output info.

Password

Enter the password for the associated username.

Main ► Input Select

This is the *Main* tab containing day-to-day operational items.
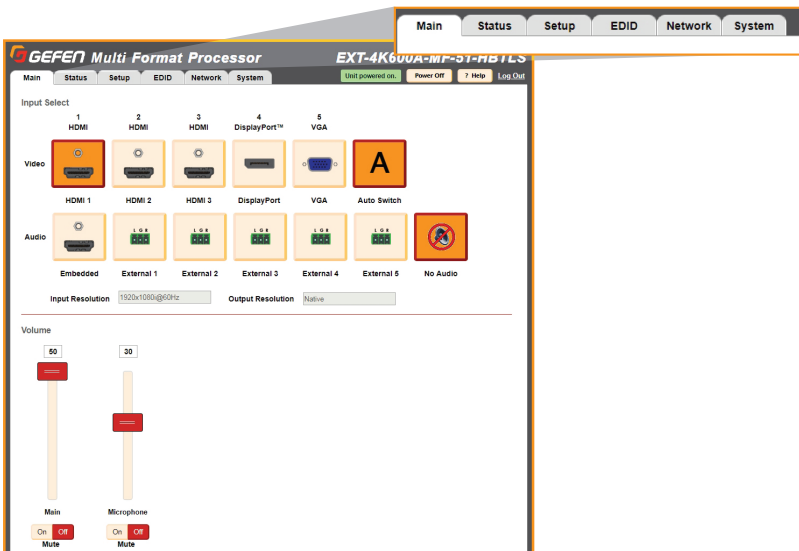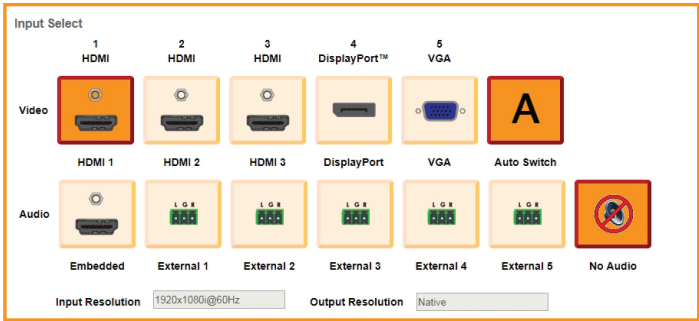
Illuminated orange are the current **Video** and **Audio** Inputs in use. Click on desired *Video* or *Audio* input to make changes.

With **Auto Switch** enabled, the scaler will automatically switch the input when it detects a new input source. The *Auto Switch* function uses an *Auto Switch Fallback* feature to scan for the active input source starting from HDMI 1.

For example: All 3 HDMI ports are connected and the input is set to HDMI 2. If you unplug or turn off HDMI 2, it will first switch to HDMI 1 since an HDMI 1 signal is present. If not, it will switch to HDMI 3 if a signal is present.

This occurs only if the current source is turned off.

The **No Audio** button is a pseudo audio input that offers no audio, but it's separate from mute.

The current **Input Resolution** and **Output Resolution** are displayed below the input options.

Main ► Volume

Adjust the *Main* volume and *Microphone* volume.

Click **Mute**, **On** or **Off** for *Main* and *Microphone* volume.

To adjust the volume level, use the sliders to adjust the setting up or down.

Web Interface

Main ► I/O Status

This tab indicates the status of the inputs and outputs. The unit's power status is displayed at the top right of the status window, as well as the **Help** button.
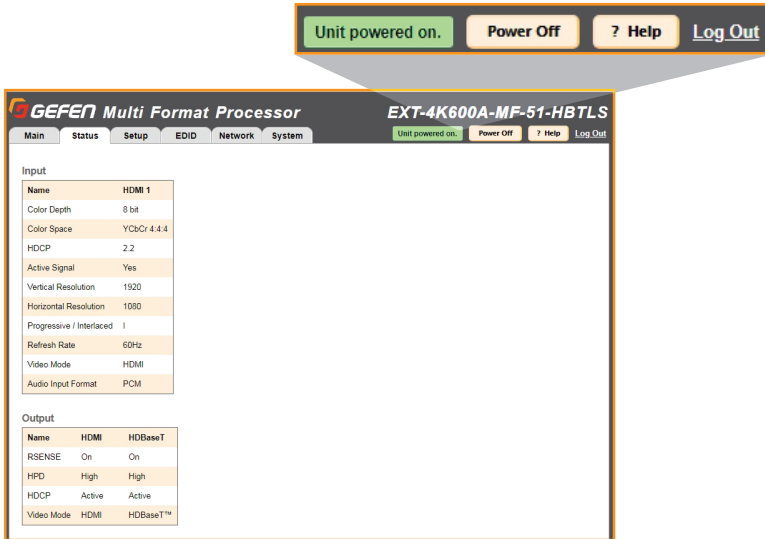
Input

The Input table displays the *Feature* and *Input* status for**:**

Color Depth :	The color depth of the input signal (8-bit, 10-bit, etc).
Color Space :	The color space (RGB or YCbCr) of the input signal.
HDCP :	Displays whether or not HDCP is detected on the input.
Active Signal :	Detects whether an input signal is present or not.
Horizontal Resolution :	The horizontal resolution (in pixels) of the input signal.
Vertical Resolution :	The vertical resolution (in pixels) of the input signal.
Progressive / Interlaced :	Detects whether the input signal is progressive or interlaced.
Refresh Rate :	The refresh rate (frequency) of the input signal.
Video Mode :	The video mode (HDMI or DVI) of the input signal.
Auto Input Format :	The current audio input format..

Output

The Output table displays the *Feature* and *Output* status for:

RSENSE :	Displays the current Rsense state (On/Off).
HPD :	Displays the current HPD state.
HDCP :	Displays the current HDCP state. The HDCP state can be set using the `#set_output_HDCP` command or through the **Setup ► HDCP** section of the Web interface or OSD menu.
Video Mode :	Displays the current output video mode.

page | 28

Setup ► Video

This tab is the main configuration page for the input and outputs. The *Output Resolution* modes include 12 presets and **Native**.

Native

The *Native* mode will attempt to set the output of the unit based on the native resolution detected in the EDID of the connected display.

Picture Settings

If desired, select an *Input*, then use the option sliders to set the **Brightness**, **Contrast**, **Color**, **Sharpness** and **Tint**. You can also set them manually by typing in numeric values (0 – 100)**.**

Aspect Ratio

Choose an Aspect Ratio for the selected Input: **16:9**, **4:3** or **Auto**.

Horizontal / Vertical Overscan

Use the sliders to adjust the *Horizontal* or *Vertical* overscan for the selected Input.

Web Interface

Setup ► VGA

This tab allows you to configure the window VGA Settings for the three VGA input modes: **VGA**, **YPbPr** and **Composite**.
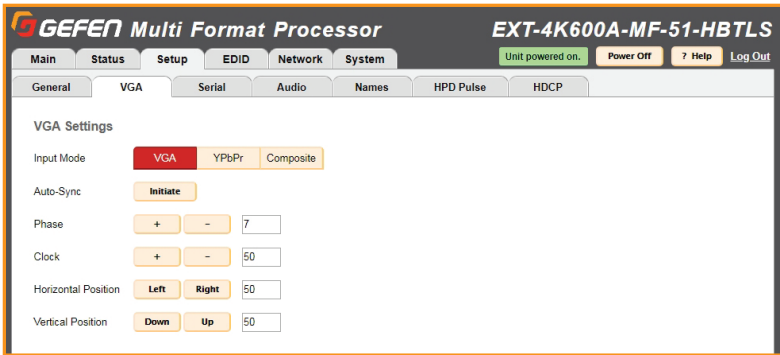
Input Mode

Select the input mode to adjust: **VGA**, **YPbPr** or **Composite**.

Note: Auto switching will not be active for composite or component (YPbPr) video when these modes are enabled.

Auto-Sync

Click the **Initiate** button to activate *Auto-Sync* for the selected input mode.

Phase / Clock

Click **+** or **–** to adjust values for *Phase* and *Clock* settings.

Horizontal Position

Click the **Left** or **Right** buttons to adjust the *Horizontal Position*.

Vertical Position

Click the **Down** or **Up** buttons to adjust the *Vertical Position*.

Setup ► Serial

Select the *Baud Rate* for the Serial connection: **4800**, **9600**, **19200**, **38400**, **57600** or **115200**. The default setting is **19200**.
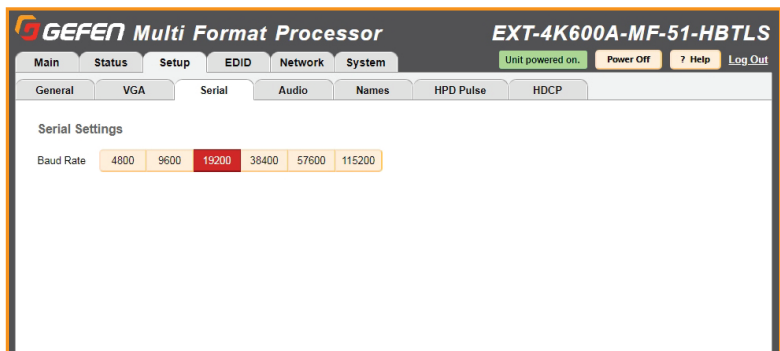
Setup ► Audio

This tab allows you to configure an **Audio Link** setting for each input (**HDMI 1-3**, **DisplayPort** and **VGA**) and global **Audio Mixer** settings.
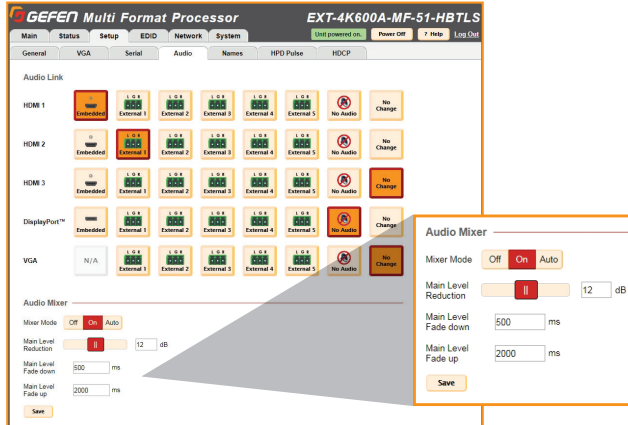
Audio Link

For each Input, click the option that represents the audio source you'd like to use when that input is selected. Select **No Audio** to have no audio, or select **No Change** keep the current audio source that is being used active when that input is selected.

Audio Mixer

Mixer Mode: Enable or disable the microphone input. The **On** setting will enable microphone mixing, and the **Off** setting will disable microphone mixing. The **Auto** setting will enable a ducking circuit that will reduce the current audio source level to allow the microphone audio to be heard more clearly.

Main Level Reduction: Move the slider to adjust the db setting. This is the amount of volume that the Main level will reduce when Mic audio is detected in the Auto Mode.

Main Level Fade down: Type in the desired fade down value. This is the amount of time that the main volume will take to reach the set reduction level value after audio is detected in Auto Mode.

Main Level Fade up: Type in the desired fade down value. This is the amount of time that it will take for volume to return to its precious level once Mic audio is no longer detected in Auto Mode.

Click **Save** to enable the new settings.

Setup ► Names

This tab allows you to Label/Name each of the user *Input* source labels that appear in the web interface and on-screen.
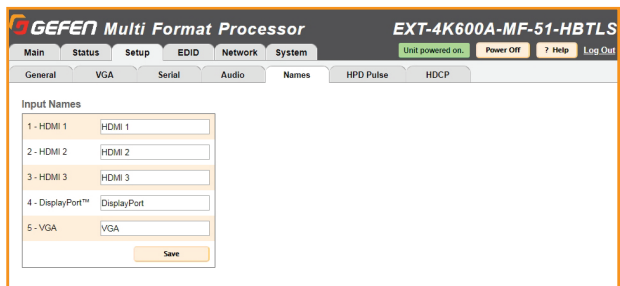
Setup ► HPD Pulse

This tab is used to perform **HPD** (*Hot Plug Detect*) pulse events.
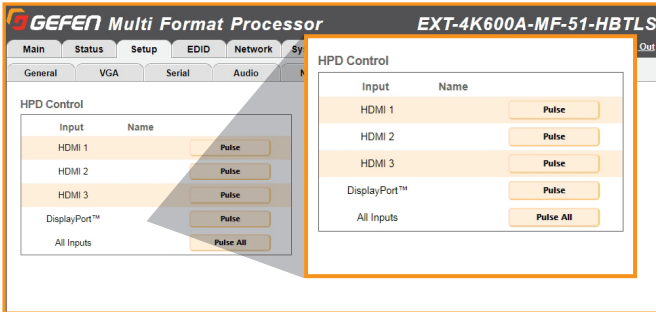
HPD is a low voltage pin in the HDMI cable that is set either HIGH or LOW that indicated the presence of a cable connection.

Momentarily changing this voltage from HIGH to LOW and then back to HIGH creates a *Pulse* that *disconnects* and *reconnects*, triggering a connection reset between the unit and the input source(s) without unplugging and plugging in the HDMI cable(s).

Setup ► HDCP Mode

This tab will configure the HDCP (*High-bandwidth Digital Content Protection*) options available.
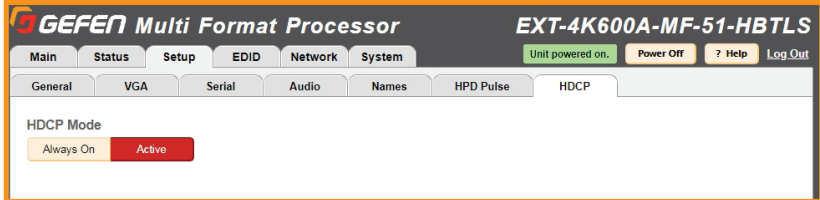
Always On / Active

Click the **Always On** button to encrypt all output content with HDCP. **Active** will set the output HDCP encryption based on the selected source's current HDCP status.

EDID ► Mode

This tab is used to configure the **EDID** (Extended Display Identification Data), typically a 256 byte file that is hosted on a sink (display or other endpoint device) that contains video and audio capability information for that device.
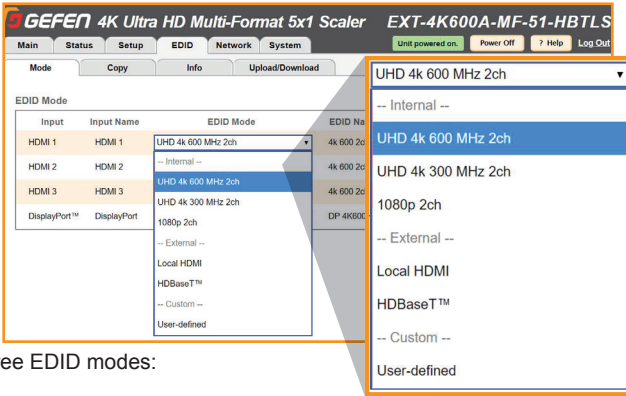
There are three EDID modes:

Internal

Pre-configured and non-customizable EDIDs that have specific limitations on the resolution and number of allowable audio channels.

External

An EDID that is "pass-through" from a connected display through the unit and directly to the source with little to no modification.

Custom

The *User Defined* EDID can be uploaded, and each input has a memory location that stores the selected EDID. When using the Custom EDID mode, the EDID Lock function will be available to prevent accidental overwrite of the EDID that has been uploaded.

EDID ► Copy

The EDID Copy option provides the ability to copy the **HDMI** or **HDBaseT** Output or any EDID that is currently stored in an input's memory to another input.
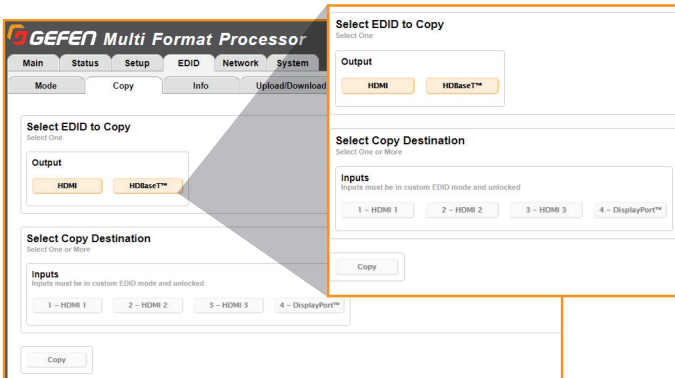
When a custom EDID has been uploaded to an input, use this option to copy it to the other inputs. Select an EDID to copy, then select the copy destination.

NOTE: The EDID Mode of the destination must be set to *Custom*, and the EDID Lock must be turned off to allow the copy procedure. The **Copy** button will then be available.

EDID ► Info

This tab is an information page that displays the current settings for the selected EDID.
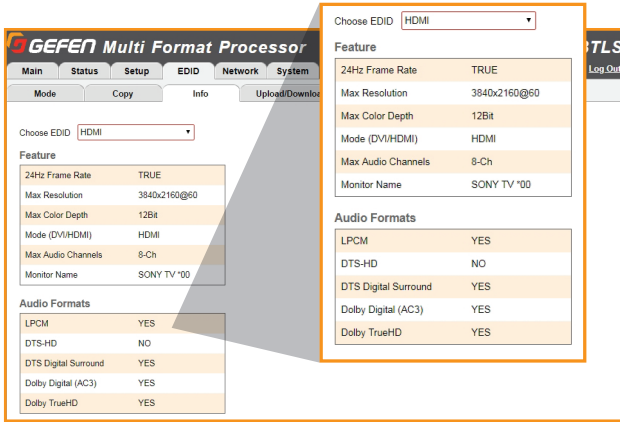
Select the output or any of the 4 digital inputs to view the EDID information. Information is sourced from the input's local memory, so the information displayed depends on which mode is currently in use.

EDID ► Upload/Download

This tab is used to download an EDID to the computer or to upload an externally sourced EDID .bin file for use with an input.
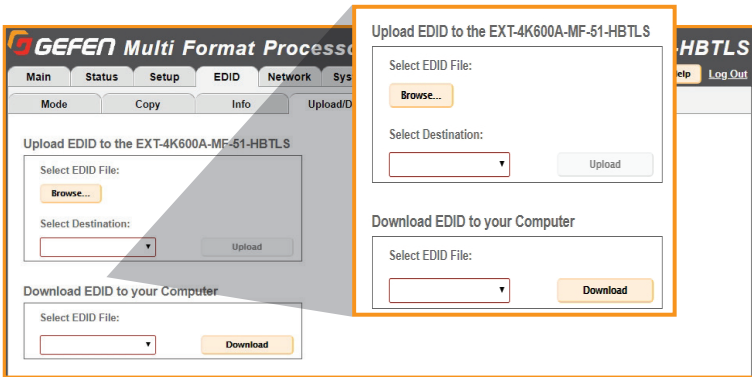
To upload an externally sourced EDID, select the **Browse** button and then select an EDID .bin file from the computer. Once selected, the filename will be displayed. You can then select an input as the destination and click **Upload**.

NOTE: The desired input EDID mode must be set to **Custom** to enable the option in the destination drop-down menu.

You can also download an EDID to your computer by selecting an option from the **Select EDID File** drop-down menu. Options include the *Output*, *any of the 4 inputs* or the *2 internal EDIDs*. A downloaded EDID may be loaded into the *Gefen Syner-G™* or other EDID modification software to then customize and re-upload back to the unit.

Network ► Settings

This tab is used to configure all of the network related options on the switcher. Once revisions have been made, select **Save**. Select the **Set Network Defaults** option to return to default network settings.

IP Settings

MAC Address
The MAC address of the switcher. The MAC address cannot be changed.

Mode
The network mode setting.

Options
Static
DHCP

IP Address
Enter the new IP address of the switcher in this field. This option is only available if the network mode is set to **Static**.

Subnet
Enter the new subnet mask of the switcher in this field. This option is only available if the network mode is set to **Static**.

Gateway
Enter the new gateway (router) address in this field. This option is only available if the network mode is set to **Static**.

HTTP Port
Shows the port used by HTTP (web interface).

Network ► Settings (continued)

TCP/Telnet Settings

Enable TCP Access
Click **Enable** to make TCP available, or click **Disable** to disable TCP access.

TCP Port
Type in the a TCP port number. Default is set to **23**.

Login Message on Connect
Click **Show** to display the Telnet Welcome Message. Click **Hide** to disable the *Telnet Welcome Message*.

Require Password on Connect
Click **Enable** to force the password prompt at the beginning of a Telnet session. Click to **Disable** to disable the password prompt. See page 26 for the default password.

Web Login Settings

Username
Select **Operator** or **Administrator**.

Old Password
Enter the current (old) password in this field. See page 26 for default passwords.

New Password
Enter the new password in this field.

Confirm New Password
Enter the new password in this field.

Discover Protocol Settings

Enable Discovery
Select **Enable** to find and perform simple IP configuration over a network using *Syner-G*.

Find Your Device
Click **Show Me** to have the front panel blink all LEDs to help find this device in an equipment rack.

Discover Read Only
The **Read Only** and **Read/Write** option dictates whether or not changes can be made to the switcher's IP settings remotely via *Syner-G*.

Product Description
By default, the part number is used as the description. If desired, type a new description.

System ► Settings

This tab is used to configure settings that relate to operational functions or factory default and rebooting operations.
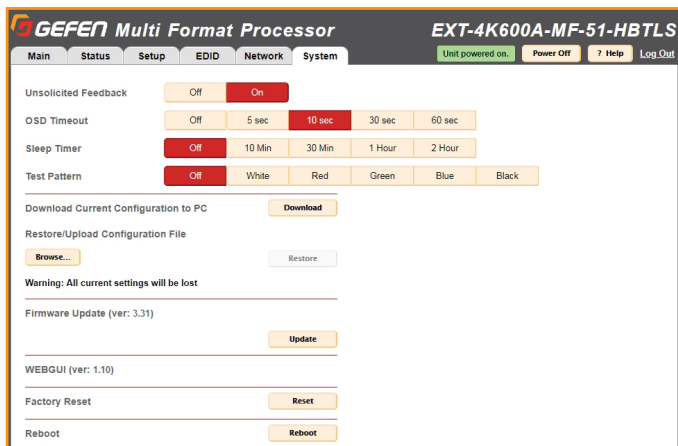
Unsolicited feedback
This option controls feedback information on both the *Serial* and *TCP/IP* interfaces and is used to relay the status of any changes made to options through any of the interfaces. This includes front panel, web server, Telnet, Serial and IR remote control. It informs any serial or TCP connected control device of changes that have NOT been made through those interfaces. It allows any external control interface to remain in sync with the unit.

OSD Timeout
Timeout is the duration, in seconds, when the OSD menu will be automatically dismissed. Select the amount of seconds (5 – 60 seconds). If set to **Off**, the OSD must be hidden manually by pressing the **Exit** button on the IR remote control.

Sleep Timer
Set an amount of time for the system to go to sleep after no user interaction has been detected.

Test Pattern
Select a *Test Pattern* color.

Download Current Configuration to PC
Click the **Download** button to download the current settings and configuration to a file.

Restore/Upload Configuration File
Click the **Browse** button to select the desired configuration file to upload to the switcher. Any current settings will be overwritten when uploading a configuration file.

Firmware Update
Click **Update** to access the firmware update file from the drive that contains the update file.

Factory Reset
Click the **Reset** button to set the switcher to factory-default settings. The IP settings are preserved to allow this to be executed remotely through TCP/IP or web interface without losing the connection. To reset *IP settings*, use the **Set Network Defaults** button in the *Network* tab.

Reboot
Click the **Reboot** button to reboot the switcher.

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Multi-Format 5x1 Scaler

03   Advanced Operation

Firmware Update

⚠️ Firmware update for this product is managed by *Gefen Syner-G™* software. For download and instructions, please download the software from:

http://www.gefen.com/synerg/

It's recommended that you perform a power cycle of the unit after the update has completed.

IMPORTANT: *DO NOT* power-off or disconnect power from the switcher at any time during the firmware update process.

Using Telnet

1. Launch the desired terminal application. For example, on the Windows operating system, we can use Hyperterminal; on Mac OS X, we can use the Terminal application.

2. In this example, we will use Terminal in Mac OS X. At the command prompt, type the following:

   `telnet IP_address`

   where `IP_address` is the IP address of the 4x1 Multiview Seamless Switcher.

3. After correct settings have been used in the terminal program, information similar to the following will be displayed:

   ```
   ********Welcome to the EXT-4K600A-MF-51-HBTLS********
                 Firmware Version: v3.66
    **************************************************


    >
   ```

4. Type `#help` for a list of commands or refer to the tables on the following pages.

Using RS-232

1. Launch the desired terminal application.

2. Selected the assigned COM port.

3. Configure the RS-232 port to the following settings.

Description	Setting
Baud rate	19200 (default)
Data bits	8
Parity	None
Stop bits	1
Hardware flow control	None

4. Connect to the RS-232 port (DB-9 connector). Only TxD, RxD, and GND pins are used.

5. Type `#help` for a list of commands or refer to the tables on the following pages.

> **i** **NOTE:** Depending upon the network, all related IP and Telnet settings will need to be assigned. Consult your network administrator to obtain the proper settings.
>
> It is highly recommended that you disable ECHO when controlling a serial (RS-232) device from a remote receiver. This setting can be changed with the command #SET_ECHO () using the RS-232 or IP Control interface.

Commands List

Name	Command(s)	Description(s)
Administrator Pass	**#SET_ADMIN_PASS**	SET the administrator password (this can only be set when telnet login is enabled and the user is administrator. This password will affect other interface logins)
Aspect Ratio	**#GET_ASPECT**	GET or SET Aspect Ratio adjustment
	#SET_ASPECT	
Audio Link	**#GET_AUDIO_LINK**	GET or SET Audio Source link
	#SET_AUDIO_LINK	
Audio Routing	**SA**	GET current Audio Routing status
	A	SET Audio Routing
Auto Switching	**#GET_AUTO_SWITCH**	GET the Enable/Disable status of the auto-switching feature
	#SET_AUTO_SWITCH	Enable/Disable Auto-Switching feature
Auto Sync	**#AUTO_SYNC**	Initiate VGA Auto-sync feature
Brightness	**#GET_BRIGHTNESS**	GET or SET brightness adjustment value for one or more windows
	#SET_BRIGHTNESS	
Clock	**#GET_CLOCK**	GET VGA clock adjustment
	#SET_CLOCK	SET VGA clock adjustment value
Color	**#GET_COLOR**	GET color adjustment
	#SET_COLOR	SET color adjustment value
Contrast	**#GET_CONTRAST**	GET or SET contrast adjustment value for one or more windows
	#SET_CONTRAST	
Custom EDID	**#GET_CUSTOM_EDID**	Download a custom user EDID from an input
	#SEND_CUSTOM_EDID	Upload a custom user EDID for use with custom mode (EDID mode must be set to User-defined and Unlocked.)
Device Description	**#GET_DEVICE_DESC**	GET or SET the device description
	#SET_DEVICE_DESC	
Discovery	**#GET_DISCOVERY**	GET current status of the discovery service
	#SET_DISCOVERY	Enable/Disable the discovery service
Discovery Mode	**#GET_DISCOVERY_MODE**	GET or SET the discovery read/write mode
	#SET_DISCOVERY_MODE	
Echo	**#GET_ECHO**	GET serial local echo status
	#SET_ECHO	SET serial local echo
EDID Lock	**#GET_EDID_LOCK**	GET input EDID lock status
	#SET_EDID_LOCK	SET input EDID lock (prevents accidental custom EDID overwrite and valid only when EDID mode is set to custom mode)
EDID Mode	**#GET_EDID_MODE**	GET or SET input EDID mode
	#SET_EDID_MODE	
External EDID	**#GET_EXTERNAL_EDID**	Download external (bypass) EDID
Factory Reset	**#FACTORY_RESET**	Resets to factory defaults
Fade Time	**#GET_FADE_TIME**	Main (source) audio fade times when using the "auto" microphone mixer mode
	#SET_FADE_TIME	

Name	Command(s)	Description(s)
Feedback	#GET_FEEDBACK	GET status of unsolicited feedback
	#SET_FEEDBACK	Enable/Disable unsolicited feedback
Firmware version	#GET_FIRMWARE_VERSION	GET or SET firmware version
Gateway	#GET_GATEWAY	GET the current gateway address
	#SET_GATEWAY	SET the gateway address
Help	#HELP	Lists all available TCP/UDP commands. If a command is specified then both the description and syntax will be listed for the command.
Image Position	#GET_IMAGE_POS	GET VGA Image Position value(s)
	#SET_IMAGE_POS	SET VGA Image Position
Input Mode	#GET_INPUT_MODE	GET or SET the VGA input mode
	#SET_INPUT_MODE	
Internal EDID	#GET_INTERNAL_EDID	Download a preset internal EDID
IP Address	#GET_IP_ADDRESS	GET the current IP mode
	#SET_IP_ADDRESS	SET the IP mode to static or DHCP
IP Mode	#GET_IP_MODE	GET the current IP mode
	#SET_IP_MODE	SET the IP mode to Static or DHCP
IP Configuration	#GET_IPCONFIG	GET the current IP configuration
MAC Address	#GET_MAC_ADDR	Print the MAC address to the screen
Main Reduction	#SET_MAIN_REDUCTION	GET or SET Main (source) volume Reduction amount when mic is active while using the "auto" microphone mixer mode
	#GET_MAIN_REDUCTION	
Mic Volume	#GET_MIC_VOL	GET or SET microphone volume level
	#SET_MIC_VOL	
Mixer	#GET_MIXER	GET or SET microphone mixer mode
	#SET_MIXER	
Mute	#GET_MUTE	GET output audio mute status
	#SET_MUTE	SET output audio mute
Operator Password	#SET_OPER_PASS	SET the Operator Password (this can only be set when telnet login is enabled and the user is administrator. This password will affect other interface logins)
OSD Timeout	#GET_OSD_TIMEOUT	GET or SET the OSD timeout
	#SET_OSD_TIMEOUT	
Output HDCP	#GET_OUTPUT_HDCP	GET or SET output HDCP encoding mode
	#SET_OUTPUT_HDCP	
Output Resolution	#GET_OUTPUT_RES	GET the output resolution status
	#SET_OUTPUT_RES	SET output resolution
Overscan Adjustment	#GET_OVERSCAN_ADJ	GET Overscan Adjustment value(s)
	#SET_OVERSCAN_ADJ	SET Overscan Adjustment
Phase (VGA)	#GET_PHASE	GET VGA Phase Adjustment value(s)
	#SET_PHASE	SET VGA Phase Adjustment

Commands List

Name	Command(s)	Description(s)
Power	#GET_POWER	GET current power state
Power ON/OFF	#POWER	Power the unit on/off
Reboot	#REBOOT	Reboot the unit
Route Input Source	R	Route HDMI 1, HDMI 2, HDMI 3, DisplayPort, or VGA input to output
Routing Status	S	GET currently selected input
RS-232	#GET_RS232_BAUD	GET or SET the RS-232 communication baud rate
	#SET_RS232_BAUD	
Sharpness	#GET_SHARPNESS	GET Sharpness adjustment
	#SET_SHARPNESS	SET Sharpness adjustment value
Showme	#GET_SHOWME	GET the status of the discovery 'show me' feature
	#SET_SHOWME	Enable/Disable the discovery 'show me' feature
Sleep Timer	#GET_SLEEP_TIMER	GET or SET the Sleep Timer
	#SET_SLEEP_TIMER	
Subnet Mask	#GET_SUBNET	GET the current subnet mask
	#SET_SUBNET	SET the subnet mask
Telnet Access	#GET_TELNET_ACCESS	GET the current status of Telnet access
	#SET_TELNET_ACCESS	Enable/Disable Telnet access
Telnet Login	#GET_TELNET_LOGIN	GET the current status of the Telnet login process
	#SET_TELNET_LOGIN	Enable/Disable the Telnet login process
Telnet Welcome	#GET_TELNET_WELCOME	GET the current Telnet login welcome message status
	#SET_TELNET_WELCOME	Enable/Disable the Telnet login welcome message
	#VIEW_TELNET_WELCOME	View the telnet welcome message
Telnet Port	#GET_TELNET_PORT	GET the current Telnet communication port
	#SET_TELNET_PORT	SET the Telnet communication port
Test Pattern	#GET_TEST_PAT	GET or SET the Test Pattern
	#SET_TEST_PAT	
Tint	#GET_TINT	GET Tint adjustment
	#SET_TINT	SET Tint adjustment (only for composite video input)
VGA Auto Detect	#GET_VGA_AUTO_DETECT	GET or SET VGA to Auto Detect Mode
	#SET_VGA_AUTO_DETECT	
Volume	#GET_VOL	GET or SET Main (source) Volume level
	#SET_VOL	
Web Interface Port Number	#GET_WEB_PORT	GET the current web interface port number
	#SET_WEB_PORT	SET the web interface port number

Administrator Password (#SET_)

SET the administrator password (this can only be set when telnet login is enabled and the user is administrator. This password will affect other interface logins).

Syntax	#SET_ADMIN_PASS PARAM1
Parameters (param1)	PARAM1 = 1-12 ALPHANUMERIC CHARACTERS ALLOWED CHARACTERS: A-Z, a-z, 0-9 (CASE SENSITIVE, NO SPECIAL CHARACTERS)
Example	#SET_ADMIN_PASS ADMIN

Aspect Ratio (#SET_ / #GET_)

SET Aspect Ratio adjustment.

Syntax	#SET_ASPECT PARAM1 PARAM 2
Parameters	PARAM1 = 0 ~ 5 0 - ALL INPUTS (FEEDBACK LISTS ALL INPUTS IN ORDER 1 ~ 5) 1 - HDMI INPUT 1 2 - HDMI INPUT 2 3 - HDMI INPUT 3 4 - DISPLAYPORT INPUT 5 - VGA INPUT PARAM2 = 1 ~ 3 1 - 16:9 2 - 4:3 3 - AUTO
Examples	#SET_ASPECT 0 3; #SET_ASPECT 1 3

GET (Enable/Disable) Auto-Switching feature.

Syntax	#GET_ASPECT PARAM1
Parameters	PARAM1 = 0 ~ 5 0 - ALL INPUTS (FEEDBACK LISTS ALL INPUTS IN ORDER 1 ~ 5) 1 - HDMI INPUT 1 2 - HDMI INPUT 2 3 - HDMI INPUT 3 4 - DISPLAYPORT INPUT 5 - VGA INPUT
Examples	#GET_ASPECT 0; #GET_ASPECT 1

Commands

Audio Link (#SET_ / #GET_)

SET Audio Source link.

Syntax	#SET_AUDIO_LINK PARAM1 PARAM2
Parameters	PARAM1 = 1 ~ 5 1 - HDMI 1 2 - HDMI 2 3 - HDMI 3 4 - DISPLAYPORT 5 - VGA/YPBPR/COMPOSITE PARAM2 = 0 ~ 7 0 - EMBEDDED AUDIO (VALID WITH HDMI AND DISPLAYPORT INPUTS ONLY) 1 - EXTERNAL 1 AUDIO INPUT 2 - EXTERNAL 2 AUDIO INPUT 3 - EXTERNAL 3 AUDIO INPUT 4 - EXTERNAL 4 AUDIO INPUT 5 - EXTERNAL 5 AUDIO INPUT 6 - NO AUDIO 7 - NO CHANGE
Examples	#SET_AUDIO_LINK 1 0; #SET_AUDIO_LINK 2 1; #SET_AUDIO_LINK 3 2

GET Audio Source link.

Syntax	#GET_AUDIO_LINK PARAM1
Parameters	PARAM1 = 0 ~ 5 0 - ALL INPUTS (FEEDBACK LISTS IN THE ORDER SHOWN BELOW) 1 - HDMI 1 2 - HDMI 2 3 - HDMI 3 4 - DISPLAYPORT 5 - VGA/YPBPR/COMPOSITE FEEDBACK RESPONSES: 0 - EMBEDDED AUDIO 1 - EXTERNAL 1 AUDIO INPUT 2 - EXTERNAL 2 AUDIO INPUT 3 - EXTERNAL 3 AUDIO INPUT 4 - EXTERNAL 4 AUDIO INPUT 5 - EXTERNAL 5 AUDIO INPUT 6 - NO AUDIO 7 - NO CHANGE
Examples	#GET_AUDIO_LINK 0; #GET_AUDIO_LINK 2; #GET_AUDIO_LINK 5

Audio Routing (A / SA)

GET current Audio Routing status.

Syntax	A PARAM1
Parameters (param1)	PARAM1 = 0 ~ 6 0 - EMBEDDED AUDIO (VALID WITH HDMI AND DISPLAYPORT INPUTS ONLY) 1 - EXTERNAL 1 AUDIO INPUT 2 - EXTERNAL 2 AUDIO INPUT 3 - EXTERNAL 3 AUDIO INPUT 4 - EXTERNAL 4 AUDIO INPUT 5 - EXTERNAL 5 AUDIO INPUT 6 - NO AUDIO
Example	A 1, A 2, A 3
GET Audio Source.	SA (NO PARAMETER)
Example	SA

Auto Switching (#SET_ / #GET_)

SET current Audio Routing status.

Syntax	#SET_AUTO_SWITCH PARAM1
Parameters (param1)	PARAM1 = 0 ~ 1 0 - DISABLED 1 - ENABLED
Example	#SET_AUTO_SWITCH 1; #SET_AUTO_SWITCH 0

GET the Enable/Disable status of the auto-switching feature	#GET_AUTO_SWITCH
Example	#GET_AUTO_SWITCH

Auto Sync

Initiate VGA Auto-sync feature.

Syntax	#AUTO_SYNC
Parameters (param1)	#AUTO_SYNC
Example	#AUTO_SYNC

Brightness (#SET_ / #GET_)

SET brightness adjustment.

Syntax	#SET_BRIGHTNESS PARAM1 PARAM 2
Parameters	PARAM1 = 0 ~ 5 0 - ALL INPUTS (FEEDBACK LISTS ALL INPUTS IN ORDER 1 ~ 5) 1 - HDMI INPUT 1 2 - HDMI INPUT 2 3 - HDMI INPUT 3 4 - DISPLAYPORT INPUT 5 - VGA INPUT PARAM2 = 0 ~ 100 0 ~ 100 - BRIGHTNESS VALUE
Examples	#SET_BRIGHTNESS 0 50; #SET_BRIGHTNESS 1 50

GET brightness adjustment value.

Syntax	#GET_BRIGHTNESS PARAM1
Parameters	PARAM1 = 0 ~ 5 0 - ALL INPUTS (FEEDBACK LISTS ALL INPUTS IN ORDER 1 ~ 5) 1 - HDMI INPUT 1 2 - HDMI INPUT 2 3 - HDMI INPUT 3 4 - DISPLAYPORT INPUT 5 - VGA INPUT
Examples	#GET_BRIGHTNESS 0; #GET_BRIGHTNESS 1

Commands

Clock (#SET_ / #GET_)

SET VGA clock adjustment value.

Syntax	#SET_CLOCK PARAM1
Parameters (param1)	PARAM1 = -, + - - DECREASE CLOCK BY ONE STEP + - INCREASE CLOCK BY ONE STEP
Example	#SET_CLOCK – ; #SET_CLOCK +
GET VGA clock adjustment	#GET_CLOCK
Example	#GET_CLOCK

Color (#SET_ / #GET_)

SET color adjustment.

Syntax	#SET_COLOR PARAM1 PARAM 2
Parameters	PARAM1 = 0 ~ 5 0 - ALL INPUTS (FEEDBACK LISTS ALL INPUTS IN ORDER 1 ~ 5) 1 - HDMI INPUT 1 2 - HDMI INPUT 2 3 - HDMI INPUT 3 4 - DISPLAYPORT INPUT 5 - VGA INPUT PARAM2 = 0 ~ 100 0 ~ 100 - COLOR VALUE
Examples	#SET_COLOR 0 30; #SET_COLOR 1 30

GET color adjustment value.

Syntax	#GET_COLOR PARAM1
Parameters	PARAM1 = 0 ~ 5 0 - ALL INPUTS (FEEDBACK LISTS ALL INPUTS IN ORDER 1 ~ 5) 1 - HDMI INPUT 1 2 - HDMI INPUT 2 3 - HDMI INPUT 3 4 - DISPLAYPORT INPUT 5 - VGA INPUT
Examples	#GET_COLOR 0; #GET_COLOR 1

Contrast(#SET_ / #GET_)

SET contrast adjustment.

Syntax	#SET_CONTRAST PARAM1 PARAM 2
Parameters	PARAM1 = 0 ~ 5 0 - ALL INPUTS (FEEDBACK LISTS ALL INPUTS IN ORDER 1 ~ 5) 1 - HDMI INPUT 1 2 - HDMI INPUT 2 3 - HDMI INPUT 3 4 - DISPLAYPORT INPUT 5 - VGA INPUT PARAM2 = 0 ~ 100 0 ~ 100 - CONTRAST VALUE
Examples	#SET_CONTRAST 0 50; #SET_CONTRAST 1 50

GET contrast adjustment value.

Syntax	#GET_CONTRAST PARAM1
Parameters	PARAM1 = 0 ~ 5 0 - ALL INPUTS (FEEDBACK LISTS ALL INPUTS IN ORDER 1 ~ 5) 1 - HDMI INPUT 1 2 - HDMI INPUT 2 3 - HDMI INPUT 3 4 - DISPLAYPORT INPUT 5 - VGA INPUT
Examples	#GET_CONTRAST 0; #GET_CONTRAST 1

Custom EDID(#SEND_ / #GET_)

SET (upload) a custom user EDID to an input for use with custom mode (after entering the command, while "waiting" is shown, send the EDID as hex values with no spaces and no hard returns until the end). 'EDID mode must be set to User-defined and Unlocked.'

Syntax	#SEND_CUSTOM_EDID PARAM1
Parameters	PARAM1 = 1 ~ 4 1 - HDMI INPUT 1 2 - HDMI INPUT 2 3 - HDMI INPUT 3 4 - DISPLAYPORT INPUT
Examples	#SEND_CUSTOM_EDID 1

GET (download) the custom user EDID

Syntax	#GET_CUSTOM_EDID PARAM1
Parameters	PARAM1 = 1 ~ 4 1 - HDMI INPUT 1 2 - HDMI INPUT 2 3 - HDMI INPUT 3 4 - DISPLAYPORT INPUT
Examples	#GET_CUSTOM_EDID 1

Commands

Device Description (#SET_ / #GET_)

SET the device description.

Syntax	#SET_DEVICE_DESC PARAM1
Parameters	PARAM1 = ABCDEFGH...(29 CHARACTERS MAX, NO CASE OR SPECIAL CHARACTER LIMIT)
Examples	#SET_DEVICE_DESC DEVICE

GET the device description

Syntax	#GET_DEVICE_DESC

Discovery(#SET_ / #GET_)

SET (Enable/Disable) the Discovery service.

Syntax	#SET_DISCOVERY PARAM1
Parameters	PARAM1 = 0 ~ 1 0 - DISABLED 1 - ENABLED
Examples	#SET_DISCOVERY 0; #SET_DISCOVERY 1

GET the current status of the Discovery service.

Syntax	#GET_DISCOVERY

Discovery Mode(#SET_ / #GET_)

SET the Discovery Read/Write mode

Syntax	#SET_DISCOVERY_MODE PARAM1
Parameters	PARAM1 = 0 ~ 1 0 - READ ONLY 1 - READ/WRITE
Examples	#SET_DISCOVERY_MODE 0; #SET_DISCOVERY_MODE 1

GET the Discovery Read/Write mode.

Syntax	#GET_DISCOVERY_MODE

ECHO(#SET_ / #GET_)

SET the Serial local echo.

Syntax	#SET_ECHO PARAM 1
Parameters	PARAM1 = 0 ~ 1 0 - DISABLED 1 - ENABLED
Examples	#SET_ECHO 1

GET the Serial local echo status.

Syntax	#GET_ECHO

EDID Lock (#SET_ / #GET_)

SET input EDID Lock (prevents accidental custom EDID overwrite and valid only when EDID mode is set to custom mode).

Syntax	#SET_EDID_LOCK PARAM1
Parameters	PARAM1 = 1 ~ 4 1 - HDMI INPUT 1 2 - HDMI INPUT 2 3 - HDMI INPUT 3 4 - DISPLAYPORT INPUT PARAM2 = 0 ~ 1 0 - DISABLED 1 - ENABLED
Examples	#SET_EDID_LOCK 1 0

GET input EDID Lock status.

Syntax	#GET_EDID_LOCK PARAM1
Parameters	PARAM1 = 1 ~ 4 1 - HDMI INPUT 1 2 - HDMI INPUT 2 3 - HDMI INPUT 3 4 - DISPLAYPORT INPUT
Examples	#GET_EDID_LOCK 1

EDID Mode (#SET_ / #GET_)

SET input EDID Mode.

Syntax	#SET_EDID_MODE PARAM1 PARAM2
Parameters	PARAM1 = 1 ~ 4 1 - HDMI INPUT 1 2 - HDMI INPUT 2 3 - HDMI INPUT 3 4 - DISPLAYPORT INPUT PARAM2 = 1 ~ 6 1 - INTERNAL - 1080P 2 CH 2 - INTERNAL - 4K UHD 300 MHZ 2 CH 3 - INTERNAL - 4K UHD 600 MHZ 2 CH 4 - EXTERNAL (LOCAL HDMI) 5 - EXTERNAL (HDBASET) 6 - CUSTOM MODE - USER
Examples	#SET_EDID_MODE 1 3

GET input EDID mode.

Syntax	#GET_EDID_MODE PARAM1
Parameters	PARAM1 = 0 ~ 4 0 - ALL INPUTS (FEEDBACK LISTS ALL INPUTS IN ORDER 1 ~ 4) 1 - HDMI INPUT 1 2 - HDMI INPUT 2 3 - HDMI INPUT 3 4 - DISPLAYPORT INPUT
Examples	#GET_EDID_MODE 1; #GET_EDID_MODE 0

Commands

External EDID

Download External EDID.

Syntax	#GET_EXTERNAL_EDID
Parameters	PARAM1 = L, H L - LOCAL HDMI H - HDBASET
Examples	#GET_EXTERNAL_EDID L

Factory Reset

Reset to factory defaults.

Syntax	#FACTORY_RESET

Fade Time (#SET_ / #GET_)

SET main (source) audio fade times when using the "auto" microphone mixer mode.

Syntax	#SET_FADE_TIME PARAM1 PARAM2
Parameters	PARAM1 = 0 ~ 1 0 - FADE DOWN TIME 1 - FADE UP TIME PARAM2 = 250 ~ 5000 - TIME IN MILLISECONDS
Examples	#SET_FADE_TIME 0 500; #SET_FADE_TIME 1 500

GET main (source) audio fade times when using the "auto" microphone mixer mode.

Syntax	#GET_FADE_TIME PARAM1

Parameters	#GET_FADE_TIME PARAM1
	PARAM1 = 0 ~ 1
	0 - FADE DOWN TIME
	1 - FADE UP TIME

Examples	#GET_FADE_TIME 0; #GET_FADE_TIME 1

Feedback (#SET_ / #GET_)

SET (Enable/Disable) unsolicited feedback.

Syntax	#SET_FEEDBACK PARAM1
Parameters	PARAM1 = 0 ~ 1 0 - DISABLED 1 - ENABLED
Examples	#SET_FEEDBACK 1

GET status of unsolicited Feedback.

Syntax	#GET_FEEDBACK

Firmware Update

GET (perform) Firmware version.

Syntax	#FIRMWARE_UPDATE

Firmware Version

GET Firmware version.

Syntax	#GET_FIRMWARE_VERSION

Gateway (#SET_ / #GET_)

SET the Gateway address.

Syntax	#SET_GATEWAY PARAM1
Parameters (param1)	PARAM1 = XXX.XXX.XXX.XXX XXX - 0 ~ 255
Examples	#SET_GATEWAY 192.168.1.1

GET the current Gateway address.

Syntax	#GET_GATEWAY

Help

Lists all available TCP/UDP commands. If a command is specified then both the description and syntax will be listed for the command.

Syntax	#HELP (OPTIONAL PARAM1)
Parameters (param1)	PARAM1 = ANY TCP/UDP COMMAND (NO '#')
Example	#HELP GET_IPCONFIG

Image Position (#SET_ / #GET_)

SET VGA image position.

Syntax	#SET_IMAGE_POS PARAM1 PARAM2
Parameters	PARAM1 = U, D, L, R U - SHIFT IMAGE UP D - SHIFT IMAGE DOWN L - SHIFT IMAGE LEFT R - SHIFT IMAGE RIGHT PARAM2 = 0 ~ 100 0 ~ 100 - ADJUSTMENT VALUE IN PIXELS
Examples	#SET_IMAGE_POS U 10; #SET_IMAGE_POS D 10 #SET_IMAGE_POS L 10; #SET_IMAGE_POS R 10

GET VGA image position value(s).

Syntax	#GET_IMAGE_POS PARAM1
Parameters	PARAM1 = 0, U, D, L, R 0 - ALL (FEEDBACK ORDER IS VERTICAL, HORIZONTAL) U - UP D - DOWN L - LEFT R - RIGHT
Examples	#GET_IMAGE_POS 0; #GET_IMAGE_POS U

Commands

Input Mode (#SET_ / #GET_)

SET VGA input mode.

Syntax	#SET_INPUT_MODE PARAM1
Parameters	PARAM1 = 1 ~ 3 1 - VGA MODE 2 - YPBPR MODE 3 - COMPOSITE MODE
Examples	#SET_FEEDBACK 1

GET VGA input mode.

Syntax	#GET_INPUT_MODE

Internal EDID

Download a preset Internal EDID.

Syntax	#GET_INTERNAL_EDID PARAM1
Parameters	PARAM1 = 1 ~ 6 1 - INTERNAL - HDMI 1080P 2 CH 2 - INTERNAL - HDMI 4K UHD 300 MHZ 2 CH 3 - INTERNAL - HDMI 4K UHD 600 MHZ 2 CH 4 - INTERNAL - DP 1080P 2 CH 5 - INTERNAL - DP 300 MHZ 2 CH 6 - INTERNAL - DP 600 MHZ 2 CH
Examples	#GET_INTERNAL_EDID 1

Internal EDID

Download a preset Internal EDID.

Syntax	#GET_INTERNAL_EDID PARAM1
Parameters	PARAM1 = 1 ~ 6 1 - INTERNAL - HDMI 1080P 2 CH 2 - INTERNAL - HDMI 4K UHD 300 MHZ 2 CH 3 - INTERNAL - HDMI 4K UHD 600 MHZ 2 CH 4 - INTERNAL - DP 1080P 2 CH 5 - INTERNAL - DP 300 MHZ 2 CH 6 - INTERNAL - DP 600 MHZ 2 CH
Examples	#GET_INTERNAL_EDID 1

IP Configuration

Download the current IP Configuration.

Syntax	#GET_IPCONFIG

IP Address (#SET_ / #GET_)

SET the IP Address.

Syntax	#SET_IP_ADDRESS PARAM1
Parameters	PARAM1 = XXX.XXX.XXX.XXX XXX - 0 ~ 255
Examples	#SET_IP_ADDRESS 192.168.1.72

GET the current IP Address.

Syntax	#GET_IP_ADDRESS

IP Mode (#SET_ / #GET_)

SET the IP Mode to STATIC or DHCP.

Syntax	#SET_IP_ADDRESS PARAM1
Parameters	#SET_IP_MODE PARAM1 PARAM1 = 0 ~ 1 0 - STATIC 1 - DHCP
Examples	#SET_IP_MODE 0

GET the current IP mode.

Syntax	#GET_IP_MODE

MAC Address

Print the MAC address to the screen.

Syntax	#GET_MAC_ADDR

Main Reduction (#SET_ / #GET_)

SET main (source) volume reduction amount when mic is active when using the "auto" microphone mixer mode.

Syntax	#SET_MAIN_REDUCTION PARAM1
Parameters	PARAM1 = 1 ~ 24 1 ~ 24 - DECIBELS OF MAIN (SOURCE) VOLUME REDUCTION
Examples	#SET_FEEDBACK 1

GET main (source) volume reduction amount when mic is active when using the "auto" microphone mixer mode.

Syntax	#GET_MAIN_REDUCTION

Commands

Mic Volume (#SET_ / #GET_)

SET microphone volume level.

Syntax	#SET_MIC_VOL PARAM1 (PARAM2 OPTIONAL PARAMETER WHEN USING "+" OR "-" TO INCREASE OR DECREASE MIC VOLUME BY VALUE)
Parameters	PARAM1 = 0 ~ 50, +, - 0 ~ 50 - VOLUME LEVEL + - INCREASE VOLUME - - DECREASE VOLUME PARAM2 = 0 ~ 50 (VOLUME INCREASE/DECREASE VALUE)
Examples	#SET_MIC_VOL 30; #SET_MIC_VOL - 10; #SET_MIC_VOL + 10

GET microphone volume level.

Syntax	#GET_MIC_VOL

Mixer (#SET_ / #GET_)

SET microphone mixer mode.

Syntax	#SET_MIXER PARAM1
Parameters	PARAM1 = 0 ~ 2 0 - MICROPHONE MIX OFF 1 - MICROPHONE MIX ON 2 - MICROPHONE MIX AUTO
Examples	#SET_MIXER 2

GET microphone mixer mode.

Syntax	#GET_MIXER

Mute (#SET_ / #GET_)

SET output audio Mute.

Syntax	#SET_MUTE PARAM1 PARAM2
Parameters	PARAM1 = 0, S, M 0 - BOTH MAIN (SOURCE) AND MIC S - MAIN (SOURCE) AUDIO M - MICROPHONE INPUT PARAM2 = 0 ~ 1 0 - UNMUTE 1 - MUTE
Examples	#SET_MUTE 0 1; #SET_MUTE S 1

GET output audio Mute status.

Syntax	#GET_MUTE PARAM1
Parameters	PARAM1 = 0, S, M 0 - BOTH MAIN (SOURCE) AND MIC (FEEDBACK LISTED IN ORDER MAIN, MICROPHONE) S - MAIN (SOURCE) AUDIO M - MICROPHONE INPUT
Examples	#GET_MUTE 0; #GET_MUTE S; #GET_MUTE M

Operator Password

SET the operator password (this can only be set when telnet login is enabled and the user is administrator. This password will affect other interface logins).

Syntax	#SET_OPER_PASS PARAM1
Parameters	PARAM1 = 1-12 ALPHANUMERIC CHARACTERS ALLOWED CHARACTERS: A-Z, a-z, 0-9 (CASE SENSITIVE, NO SPECIAL CHARACTERS)
Examples	#SET_OPER_PASS OPERATOR

OSD Timeout (#SET_ / #GET_)

SET the OSD Timeout.

Syntax	#SET_OSD_TIMEOUT PARAM1
Parameters	PARAM1 = 0 ~ 4 0 - OFF 1 - 5 SECONDS 2 - 10 SECONDS 3 - 30 SECONDS 4 - 60 SECONDS
Examples	#SET_OSD_TIMEOUT 3

GET the OSD Timeout.

Syntax	#GET_OSD_TIMEOUT

Output HDCP (#SET_ / #GET_)

SET output HDCP encoding mode.

Syntax	#SET_OUTPUT_HDCP PARAM1
Parameters	PARAM1 = 1 ~ 2 1 - ACTIVE (HDCP PASS-THROUGH) 2 - ON (ALWAYS ENCRYPT WITH HDCP 1.4)
Examples	#SET_OUTPUT_HDCP 2; #SET_OUTPUT_HDCP 1

GET output HDCP encoding mode.

Syntax	#GET_OUTPUT_HDCP

Commands

Output Resolution (#SET_ / #GET_)

SET Output Resolution.

Syntax	#SET_OUTPUT_RES PARAM1
Parameters	PARAM1 = 1 ~ 11 1 - 1024 x 768 60 HZ 2 - 1280 x 800 60 HZ 3 - 1360 x 768 60 HZ 4 - 1680 x 1050 60 HZ 5 - 1920 x 1200 60 HZ 6 - 1280 x 720 50 HZ 7 - 1280 x 720 60 HZ 8 - 1920 x 1080 50 HZ 9 - 1920 x 1080 60 HZ 10 - 3840 x 2160 30 HZ 11 - NATIVE
Examples	#SET_OUTPUT_RES 5

GET the Output Resolution status.

Syntax	#GET_OUTPUT_RES

Overscan Adjustment (#SET_ / #GET_)

SET Overscan adjustment.

Syntax	#SET_OVERSCAN_ADJ PARAM1 PARAM2 PARAM3
Parameters	PARAM1 = 1 ~ 5 1 - HDMI INPUT 1 2 - HDMI INPUT 2 3 - HDMI INPUT 3 4 - DISPLAYPORT INPUT 5 - VGA INPUT PARAM2 = H, V H -HORIZONTAL V - VERTICAL PARAM3 = - 10 ~ 10 0 ~ 10 - OVERSCAN ADJUSTMENT IN PERCENTAGE
Examples	#SET_OVERSCAN_ADJ 1 H 10; #SET_OVERSCAN_ADJ 1 V 10

GET Overscan adjustment value(s).

Syntax	#GET_OVERSCAN_ADJ PARAM1 PARAM2
Parameters	PARAM1 = 1 ~ 5 1 - HDMI INPUT 1 2 - HDMI INPUT 2 3 - HDMI INPUT 3 4 - DISPLAYPORT INPUT 5 - VGA INPUT PARAM2 = H, V, 0 H -HORIZONTAL V - VERTICAL 0 - ALL (FEEDBACK ORDER IS HORIZONTAL, VERTICAL)
Examples	#GET_OVERSCAN_ADJ 1 0; #GET_OVERSCAN_ADJ 1 H

Phase VGA (#SET_ / #GET_)

SET VGA phase adjustment.

Syntax	#SET_PHASE PARAM1
Parameters	PARAM1 = -, + - - DECREASE PHASE BY ONE STEP + - INCREASE PHASE BY ONE STEP
Example	#SET_PHASE -; #SET_PHASE +

GET VGA phase adjustment value.

Syntax	#GET_PHASE

Power (#GET)

GET current power state.

Syntax	#GET_POWER

Power ON/OFF

Power the unit On/Off.

Syntax	#POWER PARAM1
Parameters	PARAM1 = 0 ~ 1 0 - OFF 1 - ON
Example	#POWER 1; #POWER 0

Reboot

Reboot the unit.

Syntax	#REBOOT

Route Input Source

Route HDMI 1, HDMI 2, HDMI 3, DisplayPort, or VGA input to output.

Syntax	R PARAM
Parameters	PARAM1 = 1 ~ 5 1 - HDMI 1 2 - HDMI 2 3 - HDMI 3 4 - DISPLAYPORT 5 - VGA/YPBPR/COMPOSITE
Examples	R 1

Commands

RS-232 Baud (#SET_ / #GET_)

SET the RS-232 communication baud rate.

Syntax	#SET_RS232_BAUD PARAM1
Parameters	PARAM1 = 1 ~ 6 1- 115200 2 - 57600 3 - 38400 4 - 19200 5 - 9600 6 - 4800
Example	#SET_RS232_BAUD 1

GET the RS-232 communication baud rate.

Syntax	#GET_RS232_BAUD

Sharpness (#SET_ / #GET_)

SET sharpness adjustment.

Syntax	#SET_SHARPNESS PARAM1 PARAM 2
Parameters	PARAM1 = 0 ~ 5 0 - ALL INPUTS (FEEDBACK LISTS ALL INPUTS IN ORDER 1 ~ 5) 1 - HDMI INPUT 1 2 - HDMI INPUT 2 3 - HDMI INPUT 3 4 - DISPLAYPORT INPUT 5 - VGA INPUT PARAM2 = 0 ~ 20 0 ~ 20 - SHARPNESS VALUE
Examples	#SET_SHARPNESS 0 10; #SET_SHARPNESS 1 10

GET sharpness adjustment value.

Syntax	#GET_SHARPNESS PARAM1
Parameters	PARAM1 = 0 ~ 5 0 - ALL INPUTS (FEEDBACK LISTS ALL INPUTS IN ORDER 1 ~ 5) 1 - HDMI INPUT 1 2 - HDMI INPUT 2 3 - HDMI INPUT 3 4 - DISPLAYPORT INPUT 5 - VGA INPUT
Examples	#GET_SHARPNESS 0; #GET_SHARPNESS 1

Showme (#SET_ / #GET_)

SET (Enable/Disable) the discovery 'SHOW ME' feature.

Syntax	#SET_SHOWME PARAM1
Parameters	PARAM1 = 0 ~ 1 0 - DISABLED 1 - ENABLED
Examples	#SET_SHOWME 1; #SET_SHOWME 0

GET the status of the discovery 'SHOW ME' feature.

Syntax	#GET_SHOWME

Sleep Timer (#SET_ / #GET_)

SET the sleep timer.

Syntax	#SET_SLEEP_TIMER PARAM1
Parameters	PARAM1 = 0 ~ 4 0 - OFF 1 - 10 MINUTES 2 - 30 MINUTES 3 - 1 HOUR 4 - 2 HOURS
Examples	#SET_SLEEP_TIMER 0

GET the sleep timer.

Syntax	#GET_SLEEP_TIMER

Subnet (#SET_ / #GET_)

SET the Subnet Mask.

Syntax	#SET_SUBNET PARAM1
Parameters	PARAM1 = XXX.XXX.XXX.XXX XXX - 0 ~ 255
Examples	#SET_SUBNET 255.255.255.0

GET the current Subnet Mask.

Syntax	#GET_SUBNET

Telnet Access (#SET_ / #GET_)

SET (Enable/Disable) Telnet Access

Syntax	#SET_TELNET_ACCESS PARAM1
Parameters	PARAM1 = 0 ~ 1 0 - DISABLED 1 - ENABLED
Examples	#SET_TELNET_ACCESS 1

GET the current status of Telnet access.

Syntax	#GET_TELNET_ACCESS

Telnet Login (#SET_ / #GET_)

SET (Enable/Disable) the Telnet login process.

Syntax	#SET_TELNET_LOGIN PARAM1
Parameters	PARAM1 = 0 ~ 1 0 - DISABLED 1 - ENABLED
Examples	#SET_TELNET_LOGIN 0

GET the current status of Telnet login process.

Syntax	#GET_TELNET_LOGIN

Commands

Telnet Port (#SET_ / #GET_)

SET the Telnet communication port.

Syntax	#SET_TELNET_PORT PARAM1
Parameters	PARAM1 = 1 ~ 65535 1 ~ 65535 – USABLE PORT RANGE (CANNOT CONFLICT WITH OTHER SERVICE PORTS)
Examples	#SET_TELNET_PORT 23

GET the current Telnet communication port.

Syntax	#GET_TELNET_PORT

Telnet Welcome (#SET_ / #GET_ / #VIEW)

SET (Enable/Disable) the Telnet welcome message.

Syntax	#SET_TELNET_WELCOME PARAM1
Parameters	PARAM1 = 0 ~ 1 0 - DISABLED 1 - ENABLED
Examples	#SET_TELNET_WELCOME 1

GET the status of the Telnet welcome message.

Syntax	#GET_TELNET_WELCOME

VIEW the Telnet welcome message.

Syntax	#VIEW_TELNET_WELCOME

Test Pattern (#SET_ / #GET_)

SET the Test pattern.

Syntax	#SET_TEST_PAT PARAM1
Parameters	PARAM1 = 0 ~ 5 0 - OFF 1 - WHITE 2 - RED 3 - GREEN 4 - BLUE 5 - BLACK
Examples	#SET_TEST_PAT 0

GET the Test pattern.

Syntax	#GET_TEST_PAT

Tint (#SET_ / #GET_)

SET Tint adjustment (only for composite video input).

Syntax	#SET_TINT PARAM1
Parameters	PARAM1 = 0 ~ 100 0 ~ 100 - TINT VALUE
Examples	#SET_TINT 50

GET tint adjustment value.

Syntax	#GET_TINT

VGA Auto Detect (#SET_ / #GET_)

SET VGA to Auto Detect mode.

Syntax	#SET_VGA_AUTO_DETECT PARAM1
Parameters	PARAM1 = 0 ~ 1 0 - OFF 1 - ON
Examples	#SET_VGA_AUTO_DETECT 0

GET VGA to Auto Detect mode.

Syntax	#GET_VGA_AUTO_DETECT

Volume (#SET_ / #GET_)

SET Main (source) volume level.

Syntax	#SET_VOL PARAM1 (PARAM2 OPTIONAL PARAMETER WHEN USING "+" OR "-" TO INCREASE OR DECREASE VOLUME BY VALUE)
Parameters	PARAM1 = 0 ~ 50, +, - 0 ~ 50 - VOLUME LEVEL + - INCREASE VOLUME - - DECREASE VOLUME PARAM2 = 0 ~ 50 (VOLUME INCREASE/DECREASE VALUE)
Examples	#SET_VOL 50; #SET_VOL - 10; #SET_VOL + 10

GET Main (source) volume level.

Syntax	#GET_VOL

Web Interface Port Number (#SET_ / #GET_)

SET the web interface port number.

Syntax	#SET_WEB_PORT PARAM1
Parameters	PARAM1 = 1 ~ 65535
Examples	#SET_WEB_PORT 80

GET the current web interface port number.

Syntax	#GET_WEB_PORT

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Multi-Format 5x1 Scaler

04   Appendix

Default Settings

Description	Setting
MAC Address	Device-dependent (cannot be modified)
IP Address	192.168.1.72
Subnet Mask	255.255.255.0
Default Gateway	192.168.1.1
HTTP Listening Port	80
Telnet Listing Port	23
Telnet / TCP Access	Enabled
Gefen Syner-G Discovery	Enabled
Gefen Syner-G Discovery Mode	Read / Write
Gefen Syner-G Show Device	Hide Me

Description	Setting
Input Names	Input 1 - Input 4
Input HDCP	Allow
Output HDCP	Follow Input
Output Resolution	Native (preferred resolution in display's EDID)

Specifications*

- Recommended HDBaseT™ Receiver: EXT-UHDA-HBTL-RX
- Maximum Input TMDS Clock/Bandwidth: 600 MHz/18 Gbps
- Maximum Output TMDS Clock/Bandwidth: 300 MHz/10.2 Gbps
- Video Input Connectors:
  - (3) HDMI Type A 19-pin, locking, female
  - (1) DisplayPort™ 20-pin, female
  - (1) VGA HD-15, female
- Video Output Connectors:
  - (1) HDMI Type A 19-pin, locking, female
  - (1) HDBaseT™ RJ-45, shielded
- L/R Unbalanced Analog Audio Input ports: (5) 3-pin Phoenix with removable plug
- L/R Balanced/Unbalanced Mic/Line Input port: (1) 3-pin Phoenix with removable plug
- L/R Analog Unbalanced Audio Output port: (1) 3-pin Phoenix with removable plug
- Input Control port: (1) 6-pin Phoenix with removable plug
- RS-232 port: (1) 3-pin Phoenix with removable plug
- IR In/Ext port: (1) 3.5mm mini-stereo jack
- IR Extender type: EXT-RMT-EXTIRN
- IR Output port: (1) 3.5mm mini-mono jack
- IR Remote Battery: (1) Lithium (CR2025)
- Firmware Update port: (1) USB Type-A, female
- Input Select Switches: (5) tact-type, with Blue LED indicator backlight
- Auto-Switching On/Off Switch: (1) tact-type, with Blue LED indicator backlight
- Power On/Off Switch: (1) tact-type, with Blue LED indicator backlight
- Mic/Line Configuration Switch: (1) 3-position slide-type
- Power Supply Connector: (1) 5.5mm barrel/2.1mm pin, Locking
- Power Supply: (1) 12V DC, locking, 5.5mm barrel/2.1mm pin
- Power Consumption:
  - Not powering a Receiver: 12W maximum
  - Powering a Receiver: 24W maximum
- Operating Temperature: +32 to +122 °F (0 to +50 °C)
- Operating Humidity: 5% to 90% RH, non-condensing
- Storage Temperature: -4 to +185 °F (-20 to +85 °C)
- Storage Humidity: 0% to 95% RH, non-condensing
- MTBF: 50000 hours
- Dimensions (W x H x D, not including the connectors): 8.8" x 1.75" x 6.25" (223mm x 44mm x 158mm)
- Net Weight: 2.5 lbs. (1.2 kg)
- Shipping Weight: 4.0 lbs. (1.8kg)

* Features and specifications are subject to change without notice.

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