GTB-UHD600-18S-RT
GTB-UHD600-28S-RT

18S-RT

28S-RT

User Manual

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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.

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

Warranty Information

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

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- lwIP
- jQuery

lwIP is licensed under the BSD license:

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Features

GTB-UHD600-18S-RT

- Simultaneously displays an Ultra Hi-Def source on up to eight Ultra HD displays
- Specifically designed to support multiple layers of splitting/cascading in large video distribution and signage applications, supporting hundreds of displays
- Supports resolutions up to 4K DCI-Cinema (4096 x 2160 at 60 Hz, 4:4:4 color space), 4K Ultra HD (3860 x 2160 at 60Hz, 4:4:4 color space), 1080p Full HD, and 1920x1200 WUXGA
- Supports HDR (High Dynamic Range) 10-bit Deep Color at 4K 4:4:4
- Supports 12-bit Deep Color at 1080p 4:4:4
- Supports HDR to SDR conversion
- Supports 4K to 1080P Auto-Downscale
- Supports built-in 1080P test pattern generator
- IP control via Telnet and UDP
- Supports Smart CEC control including IP to CEC bridge
- 3DTV pass-through
- Lip Sync pass-through
- EDID Management and Audio Mode selectors for rapid integration of source and displays
- Supports LPCM 7.1, Dolby Atmos®, Dolby® TrueHD, DTS:X™, and DTS-HD Master Audio™
- Supports the use of DVI sources and DVI displays with HDMI-to-DVI adapters (not included)
- Gefen Syner-G™ software's Discovery and Show-Me features simplify initial IP configuration
- Advanced EDID Management via Virtual Serial over USB, Telnet or UDP
- In-field firmware update via USB or via web interface
- Low-profile, surface-mountable enclosure

GTB-UHD600-28S-RT

- Simultaneously displays an Ultra Hi-Def source on up to eight Ultra HD displays
- Specifically designed to support multiple layers of splitting/cascading in large video distribution and signage applications, supporting hundreds of displays
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- Lip Sync pass-through
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- Supports LPCM 7.1, Dolby Atmos®, Dolby® TrueHD, DTS:X™, and DTS-HD Master Audio™
- Supports the use of DVI sources and DVI displays with HDMI-to-DVI adapters (not included)
- Gefen Syner-G™ software's Discovery and Show-Me features simplify initial IP configuration
- Advanced EDID Management via Virtual Serial over USB, Telnet or UDP
- In-field firmware update via USB or via web interface
- Low-profile, surface-mountable enclosure
- Routes up to two Ultra Hi-Def sources to eight Ultra HD displays
- Supports auto input switching for source redundancy
- Input Select button to manually route between two inputs

Package Contents

- (1) 4K Ultra HD 600 MHz 1:8 Splitter w/HDR and Scaling
  (1) 4K Ultra HD 600 MHz 1:8 Splitter Quick-Start Guide

  OR
- (1) 4K Ultra HD 600 MHz 2:8 Splitter w/HDR and Scaling
- (1) 4K Ultra HD 600 MHz 2:8 Splitter Quick-Start Guide

  AND
- (1) 5v/2.6A Power Supply (EXT-PS526AIP-LP-6)

Introduction - GTB-UHD600-18S-RT

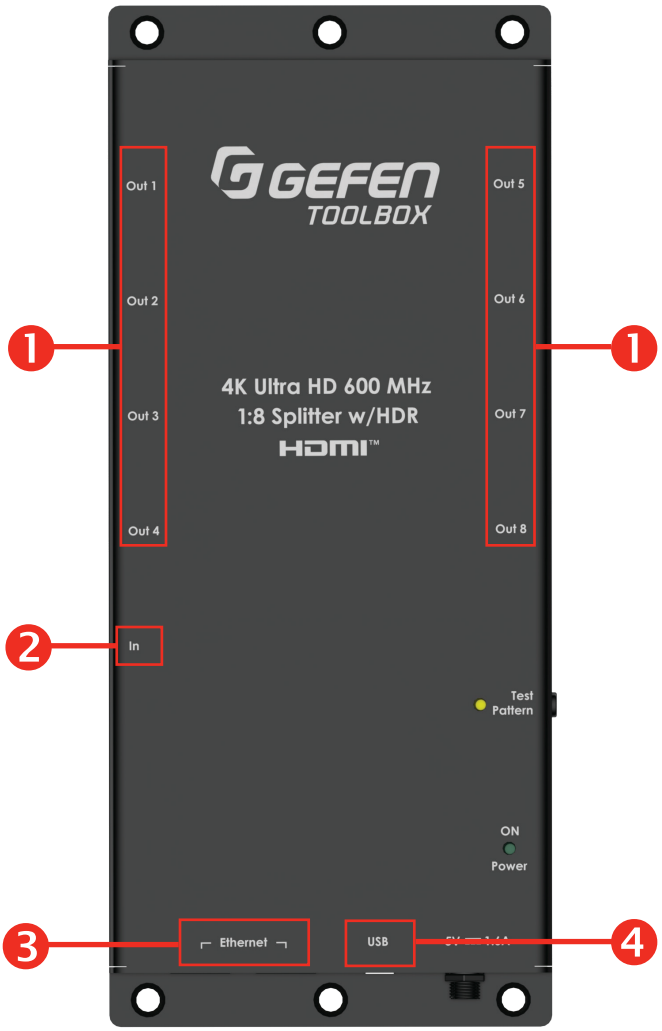
The Gefen GTB-UHD600-18S-RT routes one full bandwidth 4K Ultra HD 600 MHz source to eight 4K Ultra HD 600 MHz or Full HD 1080p displays. Independent scalers built into each output will automatically downscale the signal when connected to a 1080p TV.

This HDCP-compliant product has been specifically designed to support over 10 layers of splitting/cascading for flawless performance in large video distribution and signage applications, supporting hundreds of displays.

Cutting edge Smart CEC Management system built into the GTB-UHD600-18S-RT communicates with the source, other compatible splitters and the displays. It guarantees that a picture is always present on all displays by ensuring that connected displays are on and switched to the correct input.

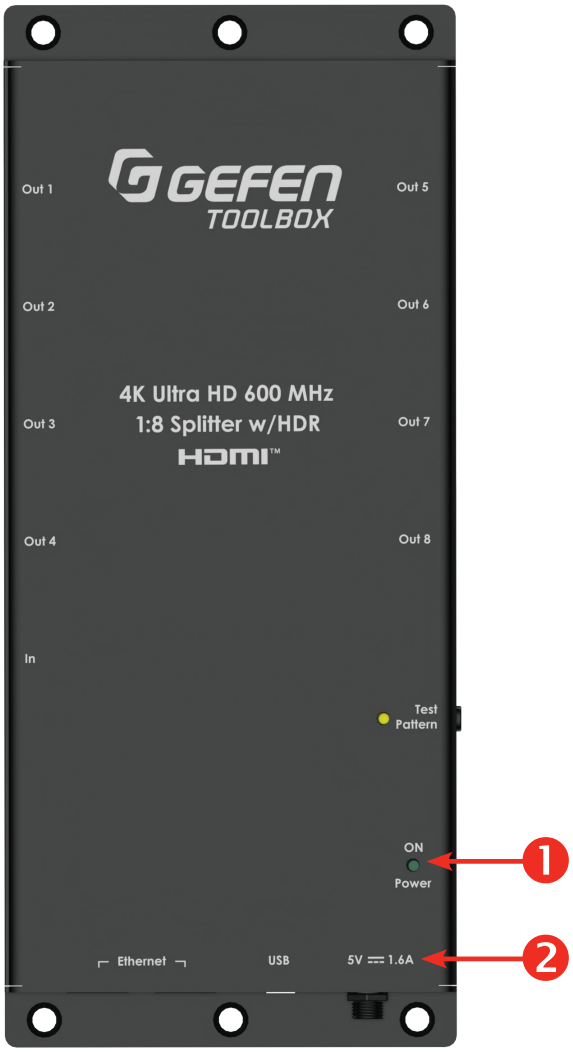
A built-in Pattern Generator helps in troubleshooting during installation or for routine maintenance. Resolutions up to 4K DCI (4096 x 2160 at 60 Hz), 4K Ultra HD (3860 x 2160 at 60 Hz, 4:4:4 color space),1080p Full HD, and 1920x1200 WUXGA are supported. HDR and multi-channel digital audio including 7.1 channels of LPCM and HBR (High Bit Rate) lossless formats are also passed through. The Gefen 1:8 Splitter is the perfect choice for any small or large 4K video distribution system.

GTB-UHD600-18S-RT Connections - Input/Output



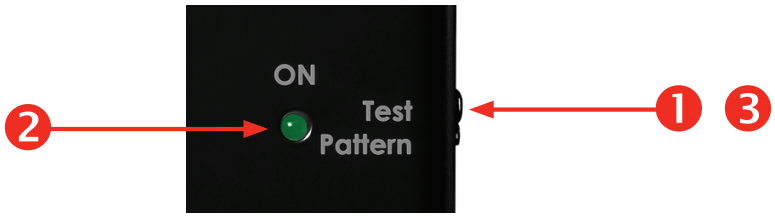
ID	Name	Description
1	Outputs	To a combination of eight 4K Ultra HD 600 MHz displays, Full HD 1080p displays or additional splitters.
2	Inputs	4K Ultra HD 600 MHz Source
3	Ethernet Input	To a network switch, computer, cascaded compatible splitter or a third-party controller. **NOTE:** The splitter ships in DHCP mode and if no DHCP server is found, it will use an APIPA address (169.254.x.x). Gefen Syner-G™ software can be used to discover the unit on the network.
4	Mini-USB Port	Mini-USB port can be used as a Virtual Serial Port for configuration, control and for firmware updates.

GTB-UHD600-18S-RT Connections - Power



ID	Name	Description
1	Power LED	Illuminates blue when the splitter is powered on.
2	Included 5V DC Power Supply	Connect the included 5V DC locking power supply, and plug it into an available electrical outlet.

GTB-UHD600-18S-RT Test Pattern Button/Factory Reset



ID	Name	Description
1	Test Pattern Button	Press and hold the **Test Pattern button** for 3 seconds to output a 1080p 60Hz Color Bar Test Pattern, which also displays the splitter's MAC address. This Test Pattern can be used during installation or routine maintenance to ensure that the displays are receiving a valid signal and to help making picture adjustments. When the Test Pattern is on, its associated LED will be illuminated green. Press and hold for 3 seconds to deactivate.
2	Test Pattern LED	The LED will illuminate green when Test Pattern is activated
3	Factory Reset	Return all settings to factory defaults. Press and hold the **Test Pattern button** for 10 seconds.

Splitter Connection Instructions

Video

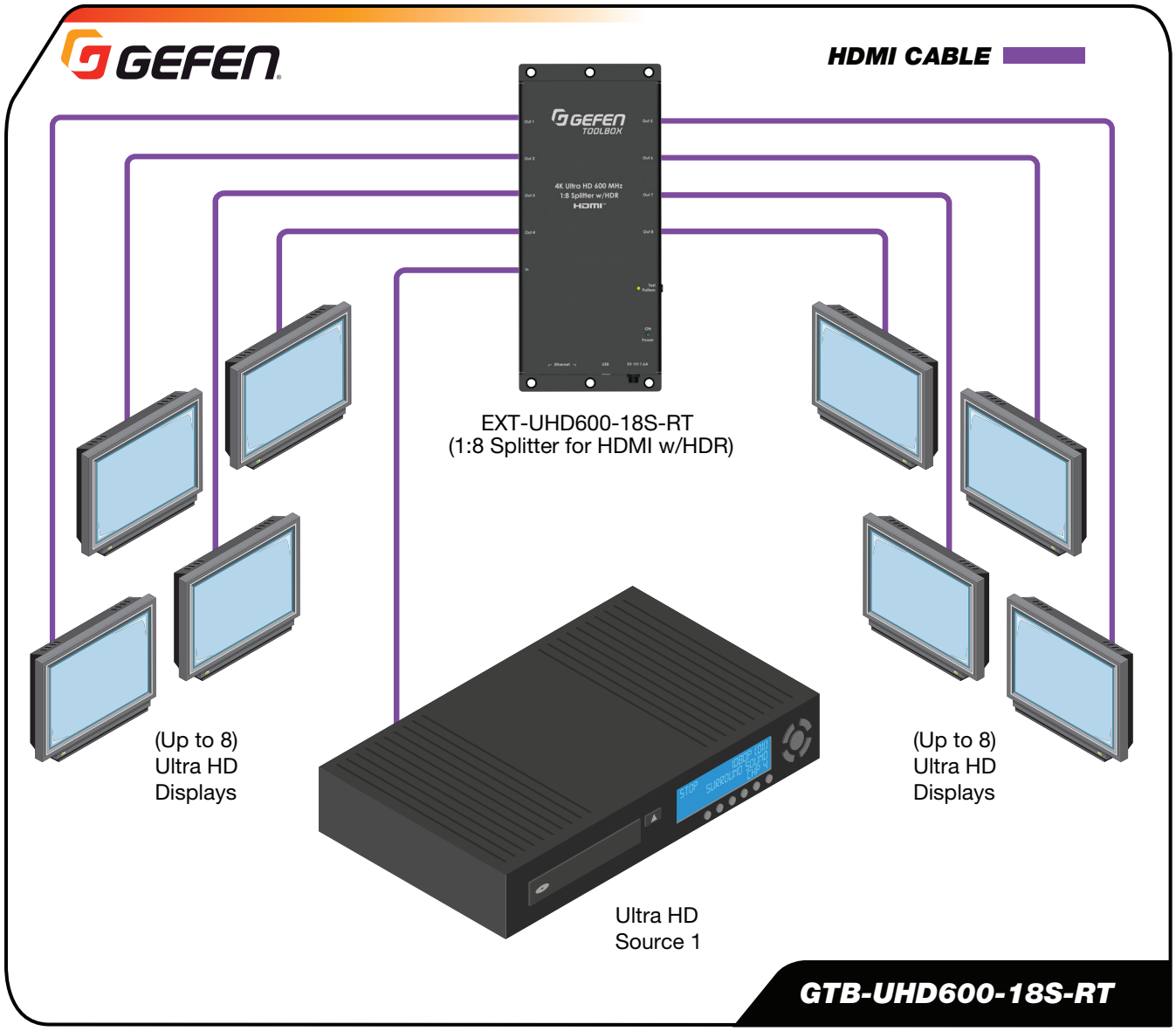
1. Using an HDMI cable, connect an Ultra HD source to the Input port of the splitter.
2. Connect HDMI cables (not included), to Out 1 - Out 8 ports. The HDMI cables can then be connected in any of the following ways:
   - ➤ Connect the HDMI cables to Ultra HD displays.

IMPORTANT
Cable quality is critical when handling 600 MHz HDMI signals. We highly recommend Gefen Locking HDMI cables. They have been designed and tested to work at 600 MHz and reliably transport the full 18 Gbps throughput of HDMI 2.0.

Power

1. Connect the included 5V DC locking power supply to the 5V DC power receptacle on the rear panel of the splitter.
2. Connect the power supply to an available electrical outlet.

GTB-UHD600-18S-RT Sample Diagram



Introduction - GTB-UHD600-28S-RT

The Gefen GTB-UHD600-28S-RT routes two full bandwidth 4K Ultra HD 600 MHz source to eight 4K Ultra HD 600 MHz or Full HD 1080p displays. Independent scalers built into each output will automatically downscale the signal when connected to a 1080p TV. This HDCP-compliant product has been specifically designed to support over 10 layers of splitting/cascading for flawless performance in large video distribution and signage applications, supporting hundreds of displays.

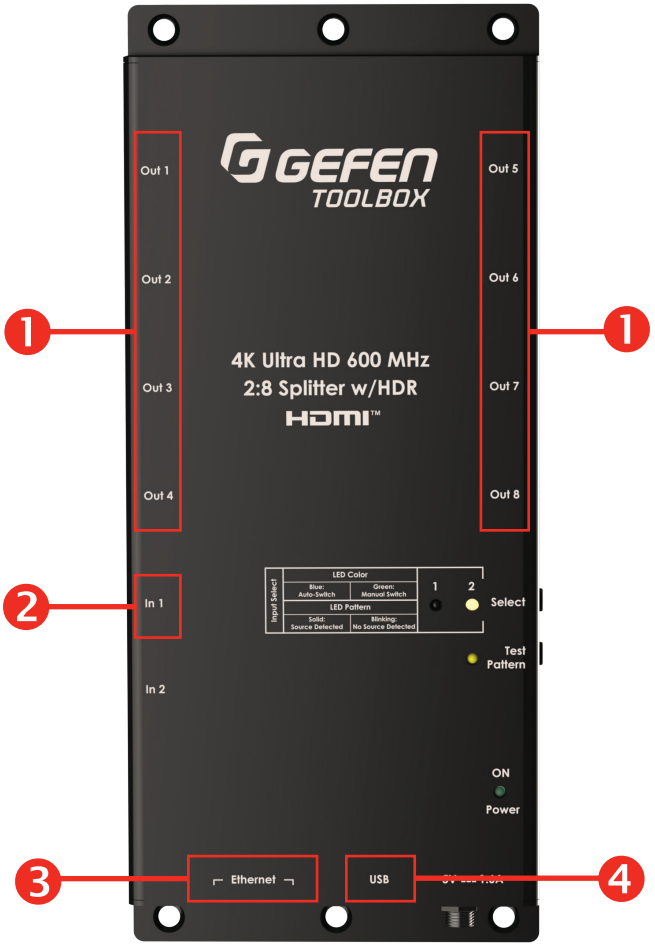
Cutting edge Smart CEC Management system built into the GTB-UHD600-28S-RT communicates with the source, other compatible splitters and the displays. It guarantees that a picture is always present on all displays by ensuring that connected displays are on and switched to the correct input.

A built-in Pattern Generator helps in troubleshooting during installation or for routine maintenance. Resolutions up to 4K DCI (4096 x 2160 at 60 Hz), 4K Ultra HD (3860 x 2160 at 60 Hz, 4:4:4 color space),1080p Full HD, and 1920x1200 WUXGA are supported. HDR and multi-channel digital audio including 7.1 channels of LPCM and HBR (High Bit Rate) lossless formats are also passed through. The Gefen 2:8 Splitter is the perfect choice for any small or large 4K video distribution system.

- Use up to two Full-Bandwidth 4K 600 MHz-capable HDMI cables to connect your HDMI sources to the input of the splitter.
- Connect up to eight displays or additional splitters to the HDMI Outputs, using Full-Bandwidth 4K 600 MHz-capable HDMI cables.

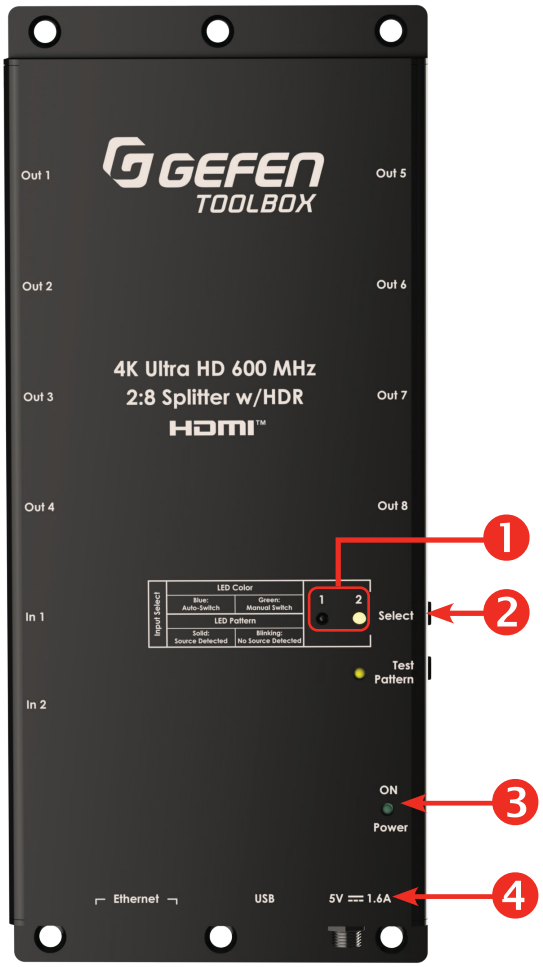
  DVI sources and displays can be used with HDMI-to-DVI adapters (Gefen part no. ADA-HDMIM-2-DVIFN).

GTB-UHD600-28S-RT Connections - Input/Output



ID	Name	Description
1	Outputs	To a combination of eight 4K Ultra HD 600 MHz displays, Full HD 1080p displays or additional splitters.
2	Inputs	4K Ultra HD 600 MHz Sources
3	Ethernet Input	To a network switch, computer, cascaded compatible splitter or a third-party controller. **NOTE:** The splitter ships in DHCP mode and if no DHCP server is found, it will use an APIPA address (169.254.x.x). Gefen Syner-G™ software can be used to discover the unit on the network.
4	Mini USB Port	Mini USB port can be used as a Virtual Serial Port for configuration, control and for firmware updates.

GTB-UHD600-28S-RT Connections - Power

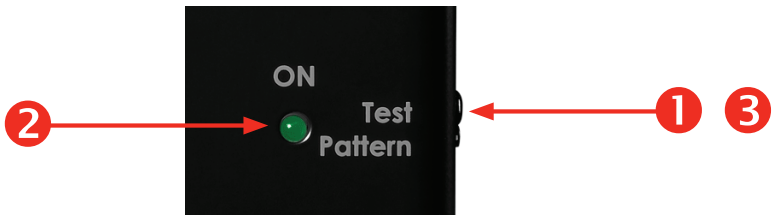


ID	Name	Description
1	Input Select LEDs	There are two Bi-color LEDs available to indicate the current input selected and operation mode. **Auto Switching Mode (Default)**: A Blue Input LED Status indicates the current input selected and that the splitter is in Auto Switching Mode. Auto Switching Mode is used for source redundancy. **HDMI Input 1** is always priority. If **Input 1** goes down, the splitter automatically switches to **Input 2**. **Manual Switching Mode:** Toggling the Input switch will trigger Manual override. A Green Input LED Status indicates the current input selected and that the splitter is in Manual Switch Mode. Refer to the LED Status table for more details (next page).
2	Input Select	**4K Ultra HD 600 MHz Sources** - Press and release the **Select button** to toggle between HDMI inputs.
3	Power LED	The LED will illuminate green when Test Pattern is activated.
4	Included 5V DC Power Supply	Connect the included 5V DC locking power supply and plug it into an available electrical outlet. When the splitter is powered-on, the Power LED will glow bright blue.

GTB-UHD600-28S-RT Connections - LED Status

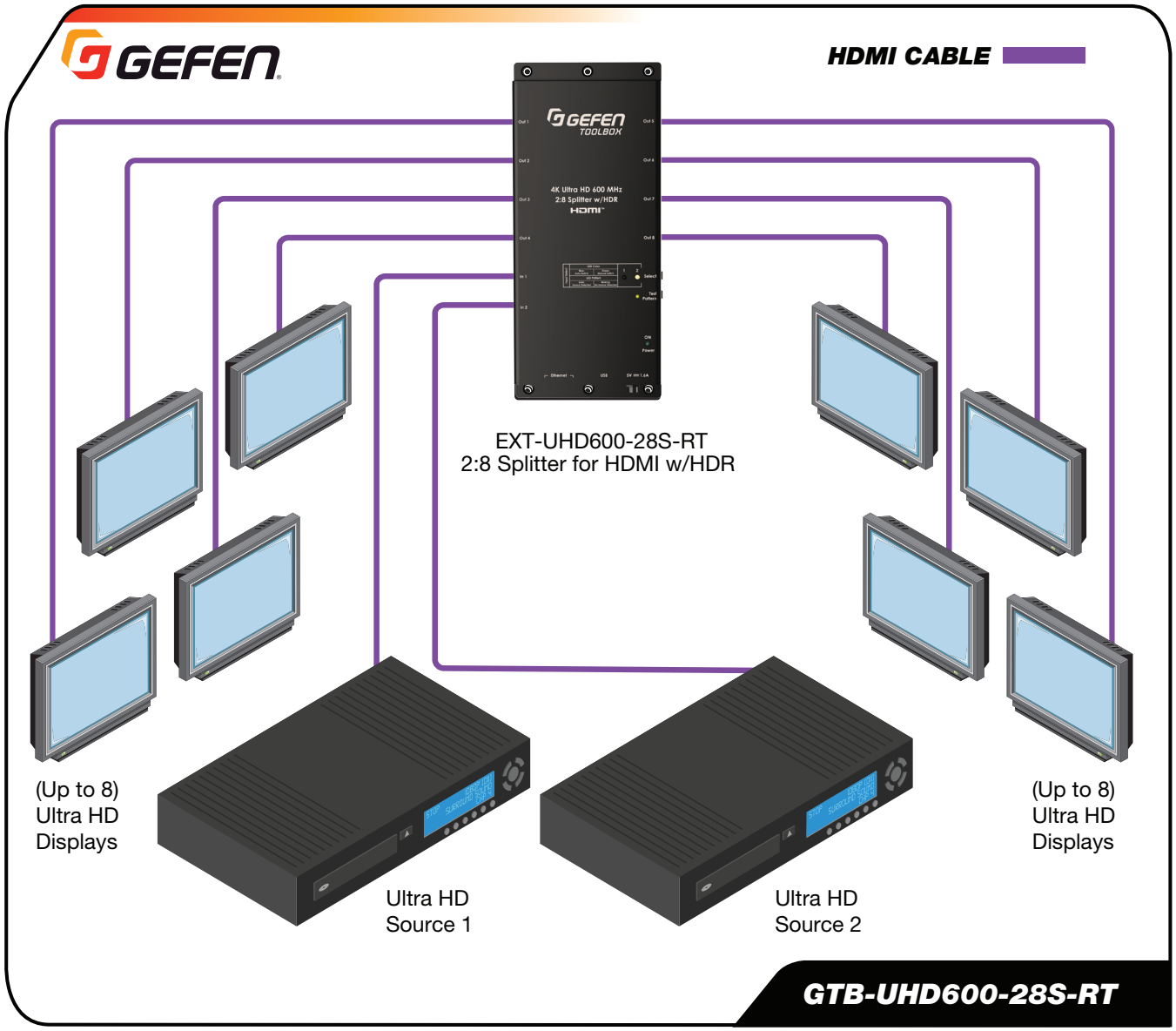
	Input 1 LED				Input 2			
	Sync Detected	No Sync	Auto Switch Mode	Manual Switch Mode	Sync Detected	No Sync	Auto Switch Mode	Manual Switch Mode
Input 1 Selected	LED Solid	LED Flashing (500ms ON/ OFF pattern)	LED Color: Blue	LED Color: Green	LED Inactive	LED Inactive	LED Inactive	LED Inactive
Input 2 Selected	LED Inactive	LED Inactive	LED Inactive	LED Inactive	LED Solid	LED Flashing (500ms ON/ OFF pattern)	LED Color: Blue	LED Color: Green

GTB-UHD600-28S-RT Test Pattern Button / Factory Reset



ID	Name	Description
1	Test Pattern Button	Press and hold the **Test Pattern button** for 3 seconds to output a 1080p 60Hz Color Bar Test Pattern, which also displays the splitter's MAC address. This Test Pattern can be used during installation or routine maintenance to ensure that the displays are receiving a valid signal and to help making picture adjustments. When the Test Pattern is on, its associated LED will be illuminated green. Press and hold for 3 seconds to deactivate.
2	Test Pattern LED	The LED will blink 4 times to acknowledge command.
3	Factory Reset	Return all settings to factory defaults. Press and hold the **Test Pattern button** for 10 seconds.

GTB-UHD600-28S-RT - Sample Diagrams



Video

1. Use HDMI cables to connect Ultra HD sources to the Input ports of the splitter.
2. Connect HDMI cables (not included), to Out 1 - Out 8 ports on the rear panel of the splitter. The HDMI cables can then be connected in any of the following ways:
   - ➤ Connect the HDMI cables to Ultra HD displays.
   - ➤ Connect the HDMI cables to additional EXT-UHD600 Splitters for cascading purposes.
   - ➤ Connect one of the HDMI cables to an Ultra HD display and the other cable to another EXT-UHD600 Splitter.

IMPORTANT
Cable quality is critical when handling 600 MHz HDMI signals. We highly recommend Gefen Locking HDMI cables. They have been designed and tested to work at 600 MHz and reliably transport the full 18 Gbps throughput of HDMI 2.0.

Power

1. Connect the included 5V DC locking power supply to the 5V DC power receptacle on the rear panel of the splitter.
2. Connect the power supply to an available electrical outlet.

Splitting and Scaling

This unit supports up to 8 simultaneous full bandwidth HDMI 2.0 outputs.

Source for splitting is dependent on the currently selected HDMI input. Each output has the ability to downscale its output resolution based on the detected sink devices capabilities:

- ➤ Downscaling from 4K to 1080p will occur when the native timing of the connected sink is 1080p (detected via EDID) and the HDMI input source resolution is CEA 4K Ultra HD (3840 x 2160)

This feature will affect the resolution and chroma sub-sampling rates only (when applicable). Refresh rates will not be converted.

For example: when the input signal 4K 3840 x 2160 @ 60 Hz 4:2:0 is detected and an output sink reports via EDID that its native resolution is 1920 x 1080, the resolution will be converted from 3840 x 2160 to 1080p and the chroma sub-sampling will be converted from 4:2:0 to 4:4:4.

- ➤ The downscaling feature only supports 4K Ultra HD CEA resolutions of 3840 x 2160 to CEA HD 1920 x 1080. Only progressive frames are supported.

The Master Status command is automatically triggered over UDP broadcast when the network cable is hot-plugged (removed and reinserted, or inserted after power has been applied).

The Master Status command is also automatically triggered in 5 second intervals when the test pattern is ON (enabled by default).

Feedback Examples:

- IP MODE: DHCP
- IP: 192.168.0.56
- NETMASK: 255.255.255.0
- GATEWAY: 192.168.0.1
- MAC ADDRESS: 00:1c:91:06:61:3e
- FIRMWARE VERSION IS 1.3
- TEST_PATTERN 0
- EDID_MODE 1
- CEC_AUTO_ON 1
- CEC_INTERVAL 10
- CEC_AUTO_OFF 0
- INPUT_SIGNAL Y
- INPUT_HDCP U
- INPUT_HPD H
- INPUT_MODE H
- INPUT_RESOLUTION 3840 2160
- INPUT_SCAN P
- INPUT_REFRESH 60
- INPUT_COLOR_D 08
- INPUT_COLOR_C 4:2:0
- OUTPUT_MODE 0 H H H H H H H H
- OUTPUT_HPD 0 L L L L L L L L
- OUTPUT_RSENSE 0 L L L L L L L L
- OUTPUT_HDCP 0 U U U U U U U U
- OUTPUT_RES 0 1 1 1 1 1 1 1 1
- TELNET_ACCESS 1
- TELNET_PORT 23
- UDP_ACCESS 1
- UDP_PORT 50007
- UDP_R_ACCESS 1
- REMOTE_UDP_IP 255.255.255.255
- REMOTE_UDP_PORT 50008
- DISCOVERY 1
- ETH_STATE 1 0

Refer to the API Commands List, page 31, to control these functions. See specific details for all commands beginning on page 32.

EDID Modes

- Internal Mode - 4K 600Mhz / 2 Channel Audio
- Internal Mode - 4K 600Mhz / Multi-Channel Audio
- Internal Mode - 720P / 2 Channel Audio
- Internal Mode - 720P / Multi-Channel Audio
- Internal Mode - 1080P / 2 Channel Audio
- Internal Mode - 1080P / Multi-channel Audio
- External Mode - EDID copied upon boot up from connected sink on HDMI output 1. When no output is detected, it will search in numerical order for a valid output.

*This is configured via IP (Telnet/UDP) or Virtual Serial Port

CEC Control

This product will feature CEC control capabilities that will enable specific functions to be implemented:

- **CEC Always On** – When this feature is enabled (by default), the unit will issue a CEC 'Power On' command to all outputs simultaneously at specific, user defined (default value is 10 seconds) intervals that will ensure that a display is always on.
- **CEC 'Power On'** – Sends a command via TCP/IP to turn on one or all sink devices on using CEC.
- **CEC Auto Off** – When this feature is enabled (disabled by default), a valid CEC 'Power Off' from a connected source device on the active HDMI input will trigger a CEC 'Power Off' command that is output from all HDMI outputs simultaneously.

  For example: This feature can be used to cascade a CEC 'Power Off' command via the HDMI outputs to be relayed to downstream HDMI products (e.g. additional splitter products with the same feature that can turn off displays).
- **CEC Auto Input Selection** – When this feature is enabled (by default) the unit will issue a CEC 'HDMI Input XX' command to all outputs simultaneously at specific, user defined (default value is 10 seconds) intervals that will ensure that 'HDMI Input XX' is the preferred and used input should a user change the sink's input value.

  For example: XX is defined as the input that is currently connected from the sink device to the unit.
- CEC is not 'Passthrough' on this product.

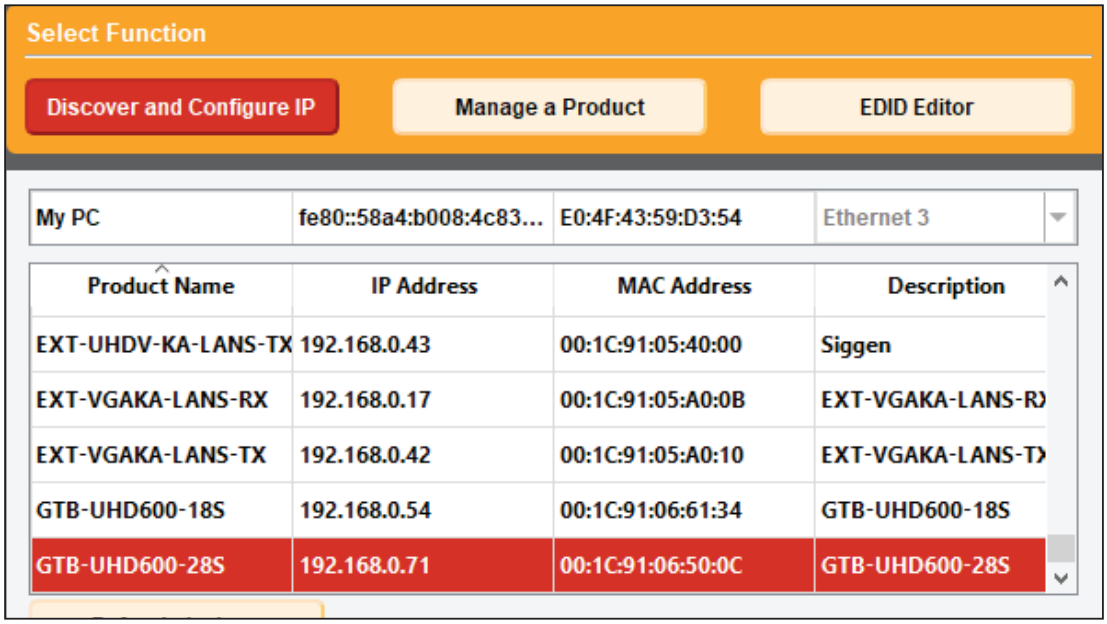
IP to CEC

This feature allows a CEC command to be sent to any source or any display. Refer the API Commands List, page 31, for **#SEND_INPUT_CEC** and **#SEND_OUTPUT_CEC** commands.

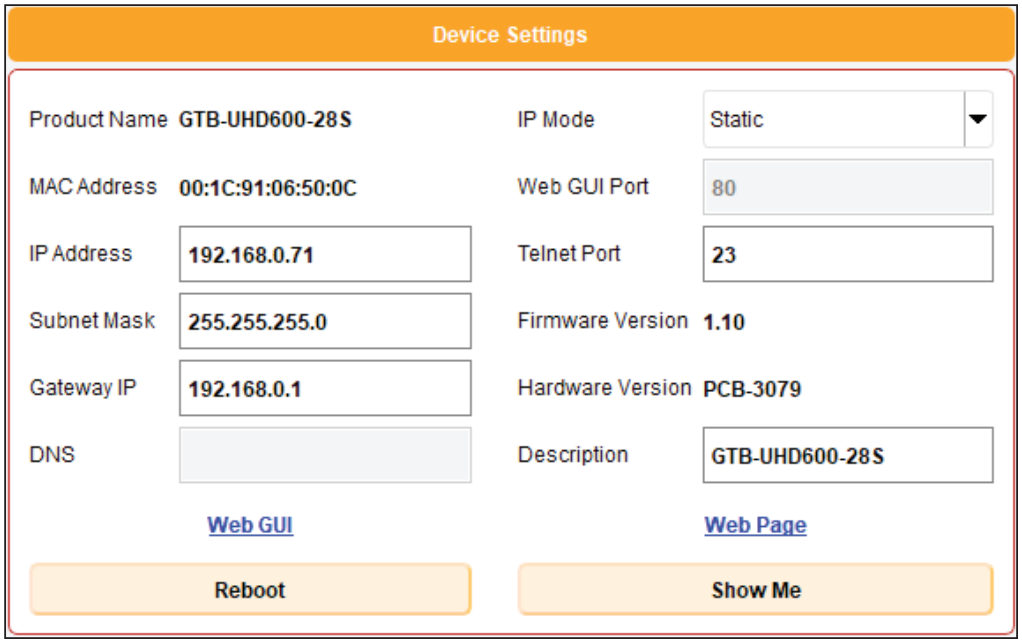
Detailed information for **#SEND_INPUT_CEC** can be found on page 35. Details for the **#SEND_OUTPUT_CEC** command can be found on page 35.

Network Configuration using Syner-G

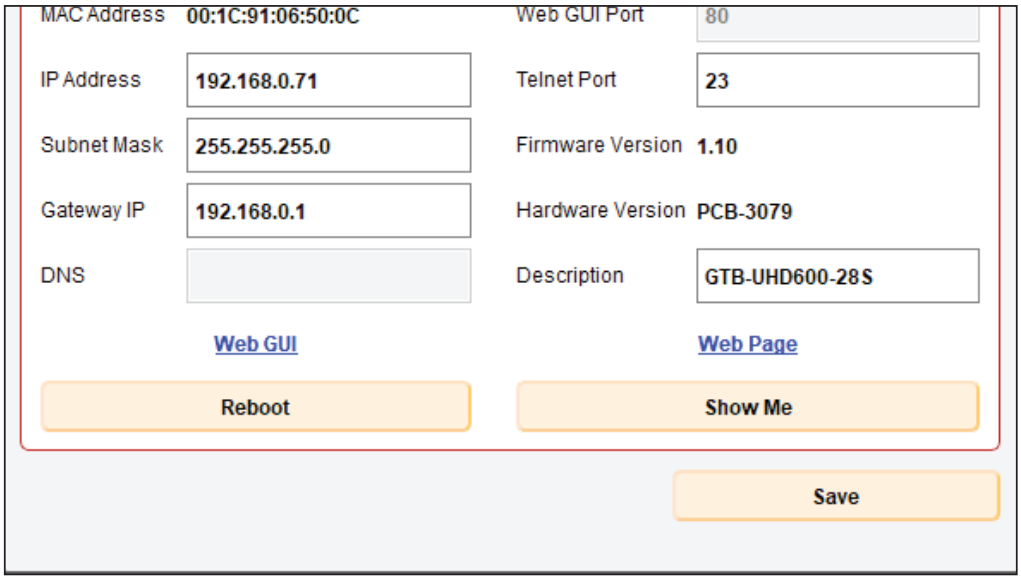
1. Launch the Gefen Syner-G application.
2. Select the **GTB-UHD600-28S-RT** (or **GTB-UHD600-18S-RT**) from the list of products.



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.
   - ➤ In *DHCP*, the WEB GUI Port is fixed at 80, and the Telnet Port is 23. In *Static* mode, these settings can be configured.



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



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

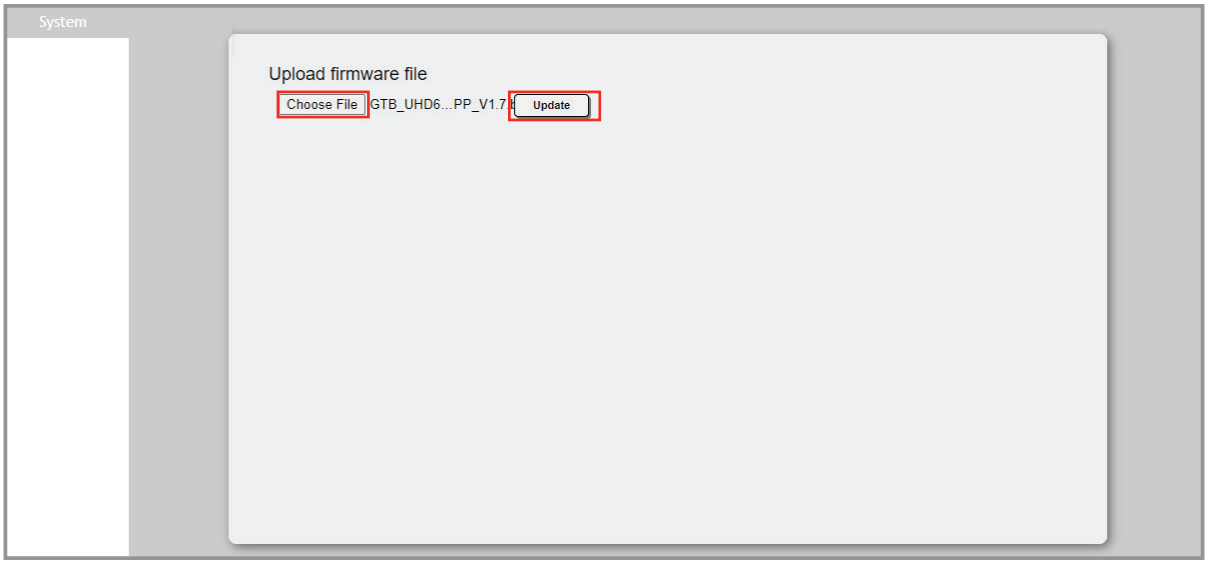
6. Use the IP address of the switcher to access the built-in web interface or start a Telnet session.

Firmware Update

> Firmware update for this product is supported via the web interface or manual update process using USB.
>
> **IMPORTANT: DO NOT** power-off or disconnect power from the switcher at any time during the firmware update process.

Web Interface Firmware Update

1. Using Syner-G to discover the unit, double-click the item to launch the web interface or manually enter the IP address into a browser.
2. Select **Choose File** to browse for the firmware file, then click **Update**.
3. The update will initiate, video turns off and the Test Pattern LED flashes green.
4. Once complete, the unit will reboot and the video signal will return. The message: "**Finish!URL Will Connection New IP!**" will be displayed.



Manual Firmware Update

1. Visit the Gefen downloads page for any firmware updates (https://store.nortekcontrol.com/assets/external_pages/Gefen_Downloads.html)
2. Connect USB Type A to Mini-B between PC and the unit. Press and hold the **Test Pattern** button, then power up.

   Program mode is initiated. Power LED is solid blue and the test Pattern LED is flashing green every 3 seconds. The USB drive will be detected.
3. Transfer firmware file to a USB drive. File transfer occurs, and the update process begins. Test pattern LED will start flashing quickly then turns off once complete. Power LED is always solid blue.

Using Virtual USB Serial

1. Launch the desired terminal application.
2. Selected the assigned COM port.
3. Configure the serial port to the following settings.

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

4. Connect to USB mini port.
5. Type `#help` for a list of commands or refer to the tables on the following pages.

> **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.

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 splitter.

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

   ```
   Welcome to TELNET
   ```

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

UDP Configuration

1. Configure the desired control system for UDP.
2. Click the Network tab, within the web interface, and do the following. See **Network Configuration using Syner-G**, page 26, for more information.
   - ➤ Click the **Enabled** button next to UDP Access.
   - ➤ Enter the UDP listening port in the UDP Port field. The default UDP listening port is 23.
   - ➤ Click the **Enabled** button next to Remote UDP Access. This feature only needs to be enabled if feedback to the matrix is required. Otherwise, this feature can be disabled.
   - ➤ If enabling Remote UDP Access, enter the remote UDP IP address in the Remote UDP IP Address field. This IP address should be the same as the control system. The default IP address is 192.168.0.71.
   - ➤ If enabling Remote UDP Access, enter the remote UDP listening port in the Remote UDP Port field. The default remote UDP listening port is 23.
   - ➤ Click the **Save** button at the bottom of the Network screen.

CEC Control

Name	Command(s)	Description(s)	
CEC Auto ON	#GET_CEC_AUTO_ON	GET the status of CEC turn display ON function	pg. 34
	#SET_CEC_AUTO_ON	Enable/Disable CEC turn display ON function	
CEC Auto OFF	#GET_CEC_AUTO_OFF	GET the status of CEC turn display OFF function	
	#SET_CEC_AUTO_OFF	Enable/Disable CEC turn display OFF function	
CEC Interval	#GET_CEC_INTERVAL	GET status of CEC Auto ON interval	
	#SET_CEC_INTERVAL	SET the CEC Auto ON interval	pg. 35
CEC On	#SET_CEC_ON	Manually turn one or all displays on using CEC	
Input CEC	#SEND_INPUT_CEC	Send CEC command to specific source input	
Output CEC	#SEND_OUTPUT_CEC	Send CEC command to specific sink	

Discovery Service

Name	Command(s)	Description(s)	
Discovery	#GET_DISCOVERY	GET the current status of the discovery service	pg. 36
	#SET_DISCOVERY	Enable/Disable the discovery service	

Help

Name	Command(s)	Description(s)	
Help	#HELP	Prints all available TCP/UDP commands to the screen.	pg. 36

Input Status

Name	Command(s)	Description(s)	
Active Signal	#GETS_INPUT_SIGNAL	GET Active Signal status of one or all inputs	pg. 36
Color Depth	#GETS_INPUT_COLOR_D	GET Color Depth of HDMI input	
Chroma Sub-Sampling Ratio	#GETS_INPUT_COLOR_C	GET Chroma Sub-Sampling Ratio of HDMI input	pg. 37
HDCP Status	#GETS_INPUT_HDCP	GET HDCP status of one or all inputs	
HPD Status	#GETS_INPUT_HPD	GET HPD status of one or all inputs	
Refresh Rate	#GETS_INPUT_REFRESH	GET Refresh Rate of HDMI input	pg. 38
Resolution	#GETS_INPUT_RESOLUTION	GET resolution of HDMI input	
Scan Mode	#GETS_INPUT_SCAN	GET scan mode of HDMI input	
Video Mode	#GETS_INPUT_MODE	GET Video Mode of one or all inputs	

Manage EDID

Name	Command(s)	Description(s)	
EDID Mode	#GET_EDID_MODE	GET input EDID mode	pg. 39
	#SET_EDID_MODE	SET input EDID mode	
External EDID	#GET_EXTERNAL_EDID	Download modified external EDID	
Input EDID	#GET_INPUT_EDID	Download currently set EDID from an Input	
Internal EDID	#GET_INTERNAL_EDID	Download a preset internal EDID	pg. 40
Output EDID	#GET_OUTPUT_EDID	Download a downstream EDID from an Output	

Commands List

Master Status

Name	Command(s)	Description(s)	
Status	#STATUS	Prints Master Status response for all settings and status commands.	pg. 40

Network Settings

Name	Command(s)	Description(s)	
Gateway	#GET_GATEWAY	GET the current Gateway Address	pg. 41
	#SET_GATEWAY	SET the Gateway Address	
IP Address	#GET_IP_ADDRESS	GET the current IP mode	
	#SET_IP_ADDRESS	SET the IP Mode to static or DHCP	
IP Configuration	#GET_IPCONFIG	GET the current IP Configuration	pg. 42
IP Mode	#GET_IP_MODE	GET the current IP Mode	
	#SET_IP_MODE	SET the IP Mode to Static or DHCP	
MAC Address	#GET_MAC_ADDR	Print the MAC address to the screen	
Netmask	#GET_NETMASK	GET the current Netmask address	
	#SET_NETMASK	SET the Gateway Address	
Remote UDP IP Address	#GET_REMOTE_UDP_IP	GET the current Remote UDP IP address	
	#SET_REMOTE_UDP_IP	SET the Remote UDP IP address	
Remote UDP Communication Port	#GET_REMOTE_UDP_PORT	GET the current Remote UDP Communication Port	pg. 43
	#SET_REMOTE_UDP_PORT	SET the Remote_UDP Communication Port	
Telnet Access	#GET_TELNET_ACCESS	GET the current status of Telnet access	
	#SET_TELNET_ACCESS	Enable/Disable Telnet access	
Telnet Port	#GET_TELNET_PORT	GET the current Telnet communication port	
	#SET_TELNET_PORT	SET the Telnet communication port	
UDP Access	#GET_UDP_ACCESS	GET the current status of UDP access	pg. 44
	#SET_UDP_ACCESS	Enable/Disable UDP access	
UDP Port	#GET_UDP_PORT	GET the current UDP communication port	
	#SET_UDP_PORT	SET the UDP communication port	
UDP Remote Access	#GET_UDP_R_ACCESS	GET the current status of Remote UDP access	
	#SET_UDP_R_ACCESS	Enable/Disable Remote UDP access	

Output Status

Name	Command(s)	Description(s)	
HDCP	#GETS_OUTPUT_HDCP	GET HDCP Status of one or all outputs	pg. 45
HPD	#GETS_OUTPUT_HPD	GET HPD Status of one or all outputs	
Output Mode	#GETS_OUTPUT_MODE	GET Status of Output Mode for one or all outputs	pg. 46
Resolution Mode	#GETS_OUTPUT_RES	GET Output Resolution Mode of one or all outputs	
Rsense	#GETS_OUTPUT_RSENSE	GET Output Rsense of one or all outputs	

Routing			
Name	**Command(s)**	**Description(s)**	
BL Skip Mode	#GET_BL_SKIP_MODE	GET the status of bootloader Skip function	pg. 47
	#SET_BL_SKIP_MODE	SET bootloader Skip timer/detect function (used in automatic routing mode)	
BL Skip Timeout	#GET_BL_SKIP_TIMEOUT	GET timeout of bootloader Skip	
	#SET_BL_SKIP_TIMEOUT	SET timeout of bootloader Skip (used in automatic routing mode and bootloader Skip mode is set to timer)	
R (INPUT 1/INPUT 2)	R	Manually select between HDMI Input 1 and HDMI Input 2	
S (Get Current Input)	S	GET currently selected HDMI Input	
Routing Mode	#GET_ROUTING_MODE	GET HDMI input routing mode	pg. 48
	#SET_ROUTING_MODE	SET HDMI input routing mode	
Unlock Timeout	#GET_UNLOCK_TIMEOUT	GET timeout of automatic mode	
	#SET_UNLOCK_TIMEOUT	SET timeout of automatic mode	

System Settings			
Name	**Command(s)**	**Description(s)**	
Factory Reset	#FACTORY_RESET	Reset to factory defaults	pg. 48
Firmware Version	#GET_FW	GET Firmware Version	
Reboot	#REBOOT	Reboot the unit	

Test Pattern			
Name	**Command(s)**	**Description(s)**	
Test Pattern	#GET_TEST_PATTERN	GET the Test Pattern status	pg. 49
	#SET_TEST_PATTERN	SET the Test Pattern to ON or OFF	

CEC CONTROL

CEC Auto ON (#GET_ / #SET_)

GET the status of CEC turn display ON function.

Syntax	**#GET_CEC_AUTO_ON**
Example Feedback	CEC_AUTO_ON 1

SET: Enable/Disable CEC turn display OFF function

Syntax	**#SET_CEC_AUTO_ON PARAM1**
Parameters	PARAM1 = 0 ~ 1 0 - DISABLED 1 - ENABLED*
Examples	**#SET_CEC_AUTO_ON 0; #SET_CEC_AUTO_ON 1**
Example Feedback	CEC_AUTO_ON 0 CEC_AUTO_ON 1

CEC Auto OFF (#GET_ / #SET_)

GET the status of CEC turn display OFF function

Syntax	**#GET_CEC_AUTO_OFF**
Example Feedback	CEC_AUTO_OFF 1

SET: Enable/Disable CEC turn display OFF function

Syntax	**#SET_CEC_AUTO_OFF**

Parameters	#SET_CEC_AUTO_OFF PARAM1
	PARAM1 = 0 ~ 1
	0 - DISABLED*
	1 - ENABLED

Examples	**#SET_CEC_AUTO_OFF 0; #SET_CEC_AUTO_OFF 1**
Example Feedback	CEC_AUTO_OFF 0 CEC_AUTO_OFF 1

CEC Interval (#GET_ / #SET_)

GET status of CEC Auto ON interval

Syntax	**#GET_CEC_INTERVAL**
Example Feedback	CEC_INTERVAL 10

SET the CEC Auto ON interval

Syntax	**#SET_CEC_INTERVAL**

Parameters	#SET_CEC_INTERVAL PARAM1
	PARAM1 = 10 ~ 240 (SECONDS)

Example	**#SET_CEC_INTERVAL 10**
Example Feedback	CEC_INTERVAL 10

*Default setting.

CEC ON	
Manually turn one or all displays on using CEC	
Syntax	#SET_CEC_ON

Parameters	#SET_CEC_ON PARAM1
	PARAM1 = 0 ~ 8
	0 - ALL HDMI OUTPUTS
	1 - HDMI OUTPUT 1
	2 - HDMI OUTPUT 2
	3 - HDMI OUTPUT 3
	4 - HDMI OUTPUT 4
	5 - HDMI OUTPUT 5
	6 - HDMI OUTPUT 6
	7 - HDMI OUTPUT 7
	8 - HDMI OUTPUT 8

Examples	#SET_CEC_ON 0; #SET_CEC_ON 1
Example Feedback	CEC_ON 0 CEC_ON 1

Input CEC	
Send CEC command to specific source input	
Syntax	#SEND_INPUT_CEC

Parameters	#SEND_INPUT_CEC PARAM1 PARAM2
	PARAM1 = 0 ~ 2
	0 - ALL
	1 - INPUT 1
	2 - INPUT 2

Example Feedback	SEND_INPUT_CEC 1 ACK SEND_INPUT_CEC 1 FAIL

Output CEC	
Send CEC command to specific sink	
Syntax	#SEND_OUTPUT_CEC

Parameters	#SEND_OUTPUT_CEC PARAM1 PARAM2
	PARAM1 = 0 ~ 8
	0 - ALL HDMI OUTPUTS
	1 - HDMI OUTPUT 1
	2 - HDMI OUTPUT 2
	3 - HDMI OUTPUT 3
	4 - HDMI OUTPUT 4
	5 - HDMI OUTPUT 5
	6 - HDMI OUTPUT 6
	7 - HDMI OUTPUT 7
	8 - HDMI OUTPUT 8
	PARAM2 = CEC MESSAGE IN HEX

Example	#SEND_OUTPUT_CEC 1 0x04
Example Feedback	SEND_OUT_CEC 1 ACK SEND_OUTPUT_CEC 1 FAIL

*Default setting.

DISCOVERY SERVICES

Discovery (#GET_ / #SET_)

GET the current status of the discovery service

Syntax	**#GET_DISCOVERY**
Example Feedback	DISCOVERY 1

SET: Enable/Disable the discovery service

Syntax	**#SET_DISCOVERY**
Parameters	#SET_DISCOVERY PARAM1 PARAM1 - 0 ~ 1 0 - DISABLED 1 - ENABLED*
Example	**#SET_DISCOVERY 0; #SET_DISCOVERY 1**
Example Feedback	DISCOVERY 0 DISCOVERY 1

HELP

Prints all available TCP/UDP commands to the screen.

Syntax	**#HELP PARAM1**
Parameters	PRINTS THE DESCRIPTION AND SYNTAX OF THE COMMAND PARAM1 - ANY TCP/UDP COMMAND (NO '#')
Example	**#HELP SET_IP_MODE**

Example Feedback	SET THE IP MODE TO DHCP, STATIC, OR AUTO IP
	#SET_IP_MODE PARAM1
	PARAM1 = 0 - 2 (0 = STATIC; 1 = DHCP; 2 = AUTO IP)

INPUT STATUS

Active Signal (#GETS_)

GET active signal status of one or all inputs

Syntax	**#GETS_INPUT_SIGNAL**

Parameters	#GETS_INPUT_SIGNAL PARAM1
	PARAM1 = 0 ~ 2
	0 - ALL INPUTS
	1 - HDMI INPUT 1
	2 - HDMI INPUT 2

Example	**#GETS_INPUT_SIGNAL 0**; **#GETS_INPUT_SIGNAL 1** RESPONSE = N, Y N = NO CLOCK SIGNAL PRESENTS AT HDMI INPUT PORT Y = VALID CLOCK SIGNAL DETECTED AT HDMI INPUT PORT

Color Depth (#GETS_)

GET color depth of HDMI input

Syntax	**#GETS_INPUT_COLOR_D**
Parameters	#GETS_INPUT_COLOR_D
Example	**#GETS_INPUT_COLOR_D** RESPONSE = XX XX - COLOR DEPTH EXPRESSED IN BITS
Example Feedback	INPUT_COLOR_D 08

Chroma Sub-Sampling Ratio (#GETS_)	
GET Chroma Sub-Sampling Ratio of HDMI input	
Syntax	**#GETS_INPUT_COLOR_C**
Parameters	#GETS_INPUT_COLOR_C
Example	**#GETS_INPUT_COLOR_C** RESPONSE = J:A:B J - HORIZONTAL SAMPLING REFERENCE A - NUMBER OF CHR OMANANCE SAMPLES IN FIRST ROW OF J PIXELS B - NUMBER OF CHANGES IN CHROMANACE SAMPLES BETWEEN FIRST AND SECOND ROW OF J PIXELS
Example Feedback	INPUT_COLOR_C 4:2:0

HDCP Status (#GETS_)	
GET active signal status of one or all inputs	
Syntax	**#GETS_INPUT_HDCP**

Parameters	#GETS_INPUT_HDCP PARAM1
	PARAM1 = 0 ~ 2
	0 - ALL INPUTS
	1 - HDMI INPUT 1
	2 - HDMI INPUT 2

Example	**#GETS_INPUT_HDCP 0**; **#GETS_INPUT_HDCP 1** RESPONSE = 1, 2, U, F 1 = ENCRYPTED – 1.4 2 = ENCRYPTED – 2.2 U = UNENCRYPTED F = FAIL
Example Feedback	INPUT_HDCP 0 2 2 INPUT_HDCP 1 2

HPD Status (#GETS_)	
GET HPD status of one or all inputs	
Syntax	**#GETS_INPUT_HPD**

Parameters	#GETS_INPUT_HPD PARAM1
	PARAM1 = 0 ~ 2
	0 - ALL INPUTS
	1 - HDMI INPUT 1
	2 - HDMI INPUT 2

Example	**#GETS_INPUT_HPD 0**; **#GETS_INPUT_HPD 1** RESPONSE = L, H L = HPD LOW H = HPD HIGH
Example Feedback	INPUT_HPD 0 H H INPUT_HPD 1 H

Refresh Rate (#GETS_)	
GET Refresh Rate of HDMI input	
Syntax	#GETS_INPUT_REFRESH
Parameters	#GETS_INPUT_REFRESH
Example	#GETS_INPUT_REFRESH RESPONSE = XX XX - REFRESH FREQUENCY IN HZ
Example Feedback	INPUT_REFRESH 60

Resolution (#GETS_)	
GET resolution of HDMI input	
Syntax	#GETS_INPUT_RESOLUTION
Parameters	#GETS_INPUT_RESOLUTION
Example	#GETS_INPUT_RESOLUTION RESPONSE = XXXX YYYY XXXX - HORIZONTAL RESOLUTION YYYY - VERTICAL RESOLUTION
Example Feedback	INPUT_RESOLUTION 3840 2160

Scan Mode (#GETS_)	
GET scan mode of HDMI input	
Syntax	#GETS_INPUT_SCAN
Parameters	#GETS_INPUT_SCAN
Example	#GETS_INPUT_SCAN RESPONSE = I, P I - INTERLACED P - PROGRESSIVE
Example Feedback	INPUT_SCAN P

Video Mode (#GETS_)	
GET video mode of one or all inputs	
Syntax	#GETS_INPUT_MODE
Parameters	#GETS_INPUT_MODE PARAM1
Example	#GETS_INPUT_MODE 0; #GETS_INPUT_MODE 1
Example Feedback	INPUT_MODE 0 H H INPUT_MODE 1 H

MANGAGE EDID

EDID Mode (#GET_ / #SET_)

GET input EDID mode	
Syntax	**#GET_EDID_MODE**

Parameters	#GET_EDID_MODE PARAM1
	PARAM1 = 0 ~ 2
	0 - ALL INPUTS
	1 - HDMI INPUT 1*
	2 - HDMI INPUT 2

Examples	**#GET_EDID_MODE 0; #GET_EDID_MODE 1**
Example Feedback	EDID_MODE 0 1 1 EDID_MODE 1 1
SET input EDID mode	
Syntax	**#SET_EDID_MODE**

Parameters	#SET_EDID_MODE PARAM1 PARAM2
	PARAM1 = 0 ~ 2
	0 - ALL INPUTS
	1 - HDMI INPUT 1
	2 - HDMI INPUT 2
	PARAM2 = 1 ~ 7
	1 - INTERNAL MODE - UHD 600~ 4K 2CH
	2 - INTERNAL MODE - UHD 600~ 4K MULTICH
	3 - INTERNAL MODE - 720P 2CH
	4 - INTERNAL MODE - 720P MULTICH
	5 - INTERNAL MODE - 1080P 2CH
	6 - INTERNAL MODE - 1080P MULTICH
	7 - EXTERNAL

Examples	**#SET_EDID_MODE 0 1; #SET_EDID_MODE 1 1**
Example Feedback	EDID_MODE 0 1 1 EDID_MODE 1 1

External EDID

Download modified external EDID	
Syntax	**#GET_EXTERNAL_EDID**
Example Feedback	00FFFFFFFFFFFF00042100000000000…

Input EDID

Download currently set EDID from an Input	
Syntax	**#GET_INPUT_EDID**

Parameters	#GET_INPUT_EDID PARAM1
	PARAM1 = 1 ~ 2
	1 - HDMI INPUT 1
	2 - HDMI INPUT 2

Example	**#GET_INPUT_EDID 1**
Example Feedback	00FFFFFFFFFFFF00042100000000000…

Commands

Internal EDID (#GET_)	
Download a preset internal EDID	
Syntax	**#GET_INTERNAL_EDID**

Parameters	#GET_INTERNAL_EDID PARAM1
	PARAM1 = 1 ~ 6
	1 - INTERNAL MODE - UHD 600~ 4K 2CH
	2 - INTERNAL MODE - UHD 600~ 4K MULTICH
	3 - INTERNAL MODE - 720P 2CH
	4 - INTERNAL MODE - 720P MULTICH
	5 - INTERNAL MODE - 1080P 2CH
	6 - INTERNAL MODE - 1080P MULTICH

Example	**#GET_INTERNAL_EDID 1**
Example Feedback	00FFFFFFFFFFFF00042100000000000000…

Output EDID (#GET_)	
Download a downstream EDID from an Output	
Syntax	**#GET_OUTPUT_EDID**

Parameters	#GET_OUTPUT_EDID PARAM1
	PARAM1 = 1 ~ 8
	1 ~ 8 - HDMI OUTPUTS

Example	**#GET_OUTPUT_EDID 1**
Example Feedback	00FFFFFFFFFFFF00042100000000000000…

MASTER STATUS		
Prints master status response for all settings and status commands.		
Syntax	**#STATUS**	
Example Feedback	IP MODE: STATIC IP: 192.168.1.72 NETMASK: 255.255.255.0 GATEWAY: 192.168.1.1 MAC ADDRESS: 00-1C-91-03-70-1C FIRMWARE VERSION IS 1.0 S 1 ROUTING_MODE A TEST_PATTERN 1 EDID_MODE 0 1 1 CEC_AUTO_ON 1 CEC_INTERVAL 10 CEC_AUTO_OFF 1 BL_SKIP_MODE 1 BL_SKIP_TIMEOUT 30 UNLOCK_TIMEOUT 10 INPUT_SIGNAL 0 Y Y INPUT_HDCP 0 2 2 INPUT_HPD 0 H H	INPUT_MODE 0 H H INPUT_RESOLUTION 0 3840 2160 0640 0480 INPUT_SCAN 0 P P INPUT_REFRESH 0 60 60 INPUT_COLOR_D 0 08 08 INPUT_COLOR_C 0 4:2:0 4:4:4 OUTPUT_SIGNAL 0 H H H H D H H H OUTPUT_HPD 0 H H H L H H H H OUTPUT_RSENSE 0 H H H L H H H H OUTPUT_HDCP 0 A A A A U F A A OUTPUT_RES 0 1 1 1 1 1 1 2 2 TELNET_ACCESS 1 TELNET_PORT 23 UDP_ACCESS 1 UDP_PORT 50007 UDP_R_ACCESS 1 REMOTE_UDP_IP 192.168.1.29 REMOTE_UDP_PORT 50008 DISCOVERY 1

*Default setting.

NETWORK SETTINGS

Gateway (#GET_ / #SET_)

GET the current gateway address

Syntax	**#GET_GATEWAY**
Example Feedback	GATEWAY 192.168.1.1

SET the gateway address

Syntax	**#SET_GATEWAY**

Parameters	#SET_GATEWAY PARAM1
	PARAM1 = XXX.XXX.XXX.XXX (192.168.1.1*)
	XXX - 0 ~ 255

Example	**#SET_GATEWAY 192.168.1.1**
Example Feedback	GATEWAY 192.168.1.1

IP Address (#GET_ / #SET_)

GET the current IP mode

Syntax	**#GET_IP_ADDRESS**
Example Feedback	IP_ADDRESS 192.168.1.72

SET the IP mode to static or DHCP

Syntax	**#SET_IP_ADDRESS**

Parameters	#SET_IP_ADDRESS PARAM1
	PARAM1 = XXX.XXX.XXX.XXX (192.168.1.72*)
	XXX - 0 ~ 255

Example	**#SET_IP_ADDRESS 192.168.1.72**
Example Feedback	IP_ADDRESS 192.168.1.72

IP Configuration (#GET_)

GET the current IP configuration

Syntax	**#GET_IPCONFIG**
Example Feedback	IP CONFIGURATION IS : IP MODE: STATIC IP: 192.168.1.72 NETMASK: 255.255.255.0 GATEWAY: 192.168.1.1 MAC ADDRESS: 00-1C-91-03-70-1C

Commands

IP Mode (#GET_ / #SET_)

GET the current IP mode

Syntax	**#GET_IP_MODE**
	IP_MODE 1

SET the IP mode to static or DHCP

Syntax	**#SET_IP_MODE**

Parameters	#SET_IP_MODE PARAM1
	PARAM1 = 0 ~ 1
	0 - STATIC
	1 - DHCP*

Example	**#SET_IP_MODE 1**
Example Feedback	IP_MODE 1

MAC Address

Print the MAC address to the screen

Syntax	**#GET_MAC_ADDR**
Example Feedback	MAC ADDRESS IS: 00-1c-91-03-80-01

Netmask (#GET_ / #SET_)

GET the current netmask address

Syntax	**#GET_NETMASK**
Example Feedback	NETMASK 255.255.255.0

SET the gateway address

Syntax	**#SET_NETMASK**

Parameters	#SET_NETMASK PARAM1
	PARAM1 = XXX.XXX.XXX.XXX (255.255.255.0*)
	XXX - 0 ~ 255

Example	**#SET_NETMASK 255.255.255.0**
Example Feedback	NETMASK 255.255.255.0

Remote UDP IP Address (#GET_ / #SET_)

GET the current Remote UDP IP address

Syntax	**#GET_REMOTE_UDP_IP**
Example Feedback	REMOTE_UDP_IP 192.168.1.29

SET the Remote UDP IP address

Syntax	**#SET_REMOTE_UDP_IP**

Parameters	#SET_REMOTE_UDP_IP PARAM1
	PARAM1 = XXX.XXX.XXX.XXX (255.255.255.255*)
	XXX - 0 ~ 255

Example	**#SET_REMOTE_UDP_IP 192.168.1.29**
Example Feedback	REMOTE_UDP_IP 192.168.1.29

*Default setting.

Remote UDP Communication Port (#GET_ / #SET_)	
GET the current Remote UDP Communication Port	
Syntax	**#GET_REMOTE_UDP_PORT**
Example Feedback	REMOTE_UDP_PORT 50008
SET the Remote UDP Communication Port	
Syntax	**#SET_REMOTE_UDP_PORT**

Parameters	#SET_REMOTE_UDP_PORT PARAM1
	PARAM1 = 0 ~ 65535 (50008*)

Example	**#SET_REMOTE_UDP_PORT 50008**
Example Feedback	REMOTE_UDP_PORT 50008

Telnet Access (#GET_ / #SET_)	
GET the current status of Telnet access	
Syntax	**#GET_TELNET_ACCESS**
Example Feedback	TELNET_ACCESS 1
SET: Enable/Disable Telnet access	
Syntax	**#SET_TELNET_ACCESS**

Parameters	#SET_TELNET_ACCESS PARAM1
	PARAM1 = 0 ~ 1
	0 - DISABLED
	1 - ENABLED*

Example	**#SET_TELNET_ACCESS 1**
Example Feedback	TELNET_ACCESS 1

Telnet Port (#GET_ / #SET_)	
GET the current Telnet communication port	
Syntax	**#GET_TELNET_PORT**
Example Feedback	TELNET_PORT 23
SET the Remote UDP IP address	
Syntax	**#SET_TELNET_PORT**

Parameters	#SET_TELNET_PORT PARAM1
	PARAM1 = 0 ~ 65535 (23*)

Example	**#SET_TELNET_PORT 23**
Example Feedback	TELNET_PORT 23

*Default setting.

UDP Access (#GET_ / #SET_)	
GET the current status of UDP access	
Syntax	#GET_UDP_ACCESS
Example Feedback	UDP_ACCESS 1
SET the Remote UDP IP address	
Syntax	#SET_UDP_ACCESS

Parameters	#SET_UDP_ACCESS PARAM1
	PARAM1 = 0 ~ 1
	0 - DISABLED
	1 - ENABLED*

Example	#SET_UDP_ACCESS 1
Example Feedback	UDP_ACCESS 1

UDP Port (#GET_ / #SET_)	
GET the current UDP communication port	
Syntax	#GET_UDP_PORT
Example Feedback	UDP_PORT 50007
SET the UDP communication port	
Syntax	#SET_UDP_PORT

Parameters	#SET_UDP_PORT PARAM1
	PARAM1 = 0 ~ 65535 (50007*)

Example	#SET_UDP_PORT 50007
Example Feedback	UDP_PORT 50007

UDP Remote Access (#GET_ / #SET_)	
GET the current status of Remote UDP access	
Syntax	#GET_TELNET_PORT
Example Feedback	UDP_R_ACCESS 1
SET: Enable/Disable Remote UDP access	
Syntax	#SET_UDP_R_ACCESS

Parameters	#SET_UDP_R_ACCESS PARAM1
	PARAM1 = 0 ~ 1
	0 - DISABLED
	1 - ENABLED*

Example	#SET_UDP_R_ACCESS 1
Example Feedback	UDP_R_ACCESS 1

OUTPUT STATUS

HDCP (#GETS_)

GET HDCP Status of one or all outputs

Syntax	**#GETS_OUTPUT_HDCP**

Parameters	#GETS_OUTPUT_HDCP PARAM1
	PARAM1 = 0 ~ 8
	0 - ALL HDMI OUTPUTS
	1 - HDMI OUTPUT 1
	2 - HDMI OUTPUT 2
	3 - HDMI OUTPUT 3
	4 - HDMI OUTPUT 4
	5 - HDMI OUTPUT 5
	6 - HDMI OUTPUT 6
	7 - HDMI OUTPUT 7
	8 - HDMI OUTPUT 8

Example	**#GETS_OUTPUT_RSENSE 0**; **#GETS_OUTPUT_RSENSE 1** RESPONSE = L, H L = RSENSE LOW H = RSENSE HIGH
Example Feedback	OUTPUT_HDCP 0 A A A A U F A A OUTPUT_HDCP 1 A

HPD (#GETS_)

GET HPD Status of one or all outputs

Syntax	**#GETS_OUTPUT_HPD**

Parameters	#GETS_OUTPUT_HPD PARAM1
	PARAM1 = 0 ~ 8
	0 - ALL HDMI OUTPUTS
	1 - HDMI OUTPUT 1
	2 - HDMI OUTPUT 2
	3 - HDMI OUTPUT 3
	4 - HDMI OUTPUT 4
	5 - HDMI OUTPUT 5
	6 - HDMI OUTPUT 6
	7 - HDMI OUTPUT 7
	8 - HDMI OUTPUT 8

Example	**#GETS_OUTPUT_HPD 0**; **#GETS_OUTPUT_HPD 1** RESPONSE = L, H L = HPD LOW H = HPD HIGH
Example Feedback	OUTPUT_HPD 0 H H H L H H H H OUTPUT_HPD 1 H

Commands

Output Mode (#GETS_)	
GET Status of Output Mode for one or all outputs	
Syntax	**#GETS_OUTPUT_MODE**

Parameters	#GETS_OUTPUT_MODE PARAM1
	PARAM1 = 0 ~ 8
	0 - ALL HDMI OUTPUTS
	1 - HDMI OUTPUT 1
	2 - HDMI OUTPUT 2
	3 - HDMI OUTPUT 3
	4 - HDMI OUTPUT 4
	5 - HDMI OUTPUT 5
	6 - HDMI OUTPUT 6
	7 - HDMI OUTPUT 7
	8 - HDMI OUTPUT 8

Example	**#GETS_OUTPUT_MODE 0**; **#GETS_OUTPUT_MODE 1** RESPONSE = D, H D = DVI SIGNALING DETECTED H = HDMI SIGNALING DETECTED
Example Feedback	OUTPUT_SIGNAL 0 H H H H D H H H OUTPUT_SIGNAL 1 H

Resolution Mode (#GETS_)	
GET Output Resolution Mode of one or all outputs	
Syntax	**#GETS_OUTPUT_RES**

Parameters	#GETS_OUTPUT_RES PARAM1
	PARAM1 = 0 ~ 8
	0 - ALL HDMI OUTPUTS
	1 - HDMI OUTPUT 1
	2 - HDMI OUTPUT 2
	3 - HDMI OUTPUT 3
	4 - HDMI OUTPUT 4
	5 - HDMI OUTPUT 5
	6 - HDMI OUTPUT 6
	7 - HDMI OUTPUT 7
	8 - HDMI OUTPUT 8

Example	**#GETS_OUTPUT_RES 0**; **#GETS_OUTPUT_RES 1** RESPONSE = 1 ~ 2 1 - 4K 2 - 1080P
Example Feedback	OUTPUT_RES 0 1 1 1 1 1 1 2 2 OUTPUT_RES 1 1

Rsense (#GETS_)	
GET Output Rsense of one or all outputs	
Syntax	**#GETS_OUTPUT_RSENSE**

Parameters	#GETS_OUTPUT_RSENSE PARAM1
	PARAM1 = 0 ~ 8
	0 - ALL HDMI OUTPUTS
	1 - HDMI OUTPUT 1
	2 - HDMI OUTPUT 2
	3 - HDMI OUTPUT 3
	4 - HDMI OUTPUT 4
	5 - HDMI OUTPUT 5
	6 - HDMI OUTPUT 6
	7 - HDMI OUTPUT 7
	8 - HDMI OUTPUT 8

Example	**#GETS_OUTPUT_RSENSE 0**; **#GETS_OUTPUT_RSENSE 1** RESPONSE = L, H L = RSENSE LOW H = RSENSE HIGH
Example Feedback	OUTPUT_RSENSE 0 H H H L H H H H OUTPUT_RSENSE 1 H

*Default setting.

ROUTING

BL Skip Mode (#GET_ / #SET_)

GET the status of bootloader Skip function

Syntax	`#GET_BL_SKIP_MODE`
Example Feedback	BL_SKIP_MODE 1

SET bootloader Skip timer/detect function (used in automatic routing mode)

Syntax	`#SET_BL_SKIP_MODE`

Parameters	#SET_BL_SKIP_MODE PARAM1
	PARAM1 = 0 ~ 1
	0 - DETECT 4K
	1 - TIMER*

Examples	`#SET_BL_SKIP_MODE 0; #SET_BL_SKIP_MODE 1`
Example Feedback	BL_SKIP_MODE 0 BL_SKIP_MODE 1

BL Skip Timeout (#GET_ / #SET_)

GET timeout of bootloader Skip

Syntax	`#GET_BL_SKIP_TIMEOUT`
Example Feedback	BL_SKIP_TIMEOUT 30

SET timeout of bootloader Skip (used in automatic routing mode and bootloader Skip mode is set to timer)

Syntax	`#SET_BL_SKIP_TIMEOUT`

Parameters	#SET_BL_SKIP_TIMEOUT PARAM1
	PARAM1 = 1 ~ 60 (SECONDS)

Example	`#SET_BL_SKIP_TIMEOUT 30`
Example Feedback	BL_SKIP_TIMEOUT 30

R (Input 1/Input 2)

Manually select between HDMI Input 1 and HDMI Input 2

Syntax	`R`
Parameters	R PARAM1 PARAM1 = 1 ~ 2 1 - HDMI 1 2 - HDMI 2
Example	`R 1`
Example Feedback	R1

S (Get Current Input)

GET currently selected HDMI Input

Syntax	`S`
Example Feedback	S1

Routing Mode (#GET_ / #SET_)	
GET HDMI input routing mode	
Syntax	#GET_ROUTING_MODE
Example Feedback	ROUTING_MODE A
SET HDMI input routing mode	
Syntax	#SET_ROUTING_MODE

Parameters	#SET_ROUTING_MODE PARAM1
	PARAM1 = A, M
	A - AUTOMATIC MODE (AUTO SELECT INPUT, PRIORITY TO HDMI INPUT 1 WITH HDMI INPUT 2 USED AS A FALLBACK SOUCE)*
	M - MANUAL

Example	#SET_ROUTING_MODE A
Example Feedback	ROUTING_MODE A

Unlock Timeout (#GET_ / #SET_)	
GET timeout of automatic mode	
Syntax	#GET_UNLOCK_TIMEOUT
Example Feedback	UNLOCK_TIMEOUT 10
SET timeout of automatic mode	
Syntax	#SET_UNLOCK_TIMEOUT

Parameters	#SET_UNLOCK_TIMEOUT PARAM1
	PARAM = 5 ~ 60 (SECONDS)

Example	#SET_UNLOCK_TIMEOUT 10
Example Feedback	UNLOCK_TIMEOUT 10

SYSTEM SETTINGS

Factory Reset	
Reset to Factory Defaults	
Syntax	#FACTORY_RESET
Example Feedback	RESET TO FACTORY DEFAULTS

Firmware Version	
GET Firmware Version	
Syntax	#GET_FW
Example Feedback	FIRMWARE VERSION IS 1.0

Reboot	
Reboot the unit	
Syntax	#REBOOT
Example Feedback	UNIT WILL REBOOT SHORTLY

TEST PATTERN CONTROL	
Test Pattern (#GET_ / #SET_)	
Get the Test Pattern status	
Syntax	**#GET_TEST_PATTERN**
Example Feedback	TEST_PATTERN 1
SET the test pattern to ON or OFF	
Syntax	**#SET_TEST_PATTERN**

Parameters	#SET_TEST_PATTERN PARAM1
	PARAM1 = 0 ~ 1
	0 - DISABLED
	1 - ENABLED*

Example	**#SET_TEST_PATTERN 1**
Example Feedback	TEST_PATTERN 1

*Default setting.

Factory Default Settings

IP Mode	DHCP
IP Address	192.168.1.72 (When Static mode is configured)
Subnet Mask	255.255.255.0 (When Static mode is configured)
Gateway	192.168.1.1 (When Static mode is configured)
Telnet Access	Enabled
Telnet Port	23
UDP Access	Enabled
UDP Remote Access	Enabled
UDP Remote IP Address	255.255.255.255
UDP Port	50007
UDP Remote Port	50008
EDID Mode	UHD 600/2K 2CH
CEC Auto ON	Enabled
CEC Auto OFF	Disabled
Routing Mode	Auto (Applies to EXT-UHD600-28S-RT only)

Input/Output Timing Supported Table

Timing	Inputs	Output		
		Bypass	To 1080p	To YUV420
640x480p@60	•	•		
640x480p@72	•	•		
640x480p@75	•	•		
640x480p@85	•	•		
720x400p@70	•	•		
720x400p@85	•	•		
720x480ip@59	•	•		
720x480ip@60	•	•		
720x480p@59	•	•		
720x480p@50	•	•		
720x576i@50	•	•		
720x576p@50	•	•		
800x600p@56	•	•		
800x600p@60	•	•		
800x600p@72	•	•		
800x600p@75	•	•		
800x600p@85	•	•		
848x480p@60	•	•		
1024x768p@60	•	•		
1024x768p@70	•	•		
1024x768p@75	•	•		
1024x768p@85	•	•		
1152x864p@70	•	•		
1152x864p@75	•	•		
1152x864p@85	•	•		
1280x720p@23				
1280x720p@24				
1280x720p@25	•	•		
1280x720p@29	•	•		
1280x720p@30	•	•		
1280x720p@50	•	•		
1280x720p@59	•	•		
1280x720p@60	•	•		
1280x768p@60	•	•		
1280x768p@60 (RB)	•	•		
1280x768p@75	•	•		
1280x768p@85	•	•		
1280x800p@60	•	•		
1280x800p@60 (RB)	•	•		
1280x800p@75	•	•		

Input/Output Timing Supported Table

Timing	Inputs	Output		
		Bypass	To 1080p	To YUV420
1280x800p@85	•	•		
1280x960p@60	•	•		
1280x960p@85	•	•		
1280x1024p@60	•	•		
1280x1024p@75	•	•		
1280x1024p@85	•	•		
1360x768p@60	•	•		
1366x768p@60 (RB)	•	•		
1366x768p@60	•	•		
1400x1050p@60	•	•		
1400x1050p@60 (RB)	•	•		
1440x900p@60	•	•		
1440x900p@60 (RB)	•	•		
1440x900p@75	•	•		
1600x900p@60 (RB)	•	•		
1600x1200p@50				
1600x1200p@60	•	•		
1600x1200p@65	•	•		
1600x1200p@70	•	•		
1600x1200p@75	•	•		
1600x1200p@85	•	•		
1680x1050p@60	•	•		
1680x1050p@60 (RB)	•	•		
1920x1080p@23	•	•		
1920x1080p@24	•	•		
1920x1080p@25	•	•		
1920x1080p@29	•	•		
1920x1080p@30	•	•		
1920x1080p@50	•	•		
1920x1080p@59	•	•		
1920x1080p@60	•	•		
1920x1080i@50	•	•		
1920x1080i@59	•	•		
1920x1080i@60	•	•		
1920x1200p@60 (RB)	•	•		
2560x1600p@60 (RB)				
2048x1080p@23	•	•		
2048x1080p@24	•	•		
2048x1080p@25	•	•		
2048x1080p@29	•	•		

Input/Output Timing Supported Table

Timing	Inputs	Output		
		Bypass	To 1080p	To YUV420
2048x1080p@30	●	●		
2048x1080p@50	●	●		
2048x1080p@59	●	●		
2048x1080p@60	●	●		
3840x2160p@23	●	●	●	
3840x2160p@24	●	●	●	
3840x2160p@25	●	●	●	
3840x2160p@29	●	●	●	
3840x2160p@30	●	●	●	
3840x2160p@50	●	●	●	●
3840x2160p@59	●	●	●	●
3840x2160p@60	●	●	●	●
4096x2160p@23	●	●	●	
4096x2160p@24	●	●	●	
4096x2160p@25	●	●	●	
4096x2160p@29	●	●	●	
4096x2160p@30	●	●	●	
4096x2160p@50	●	●	●	●
4096x2160p@59	●	●	●	●
4096x2160p@60	●	●	●	●

Specifications

Supported Formats	
Resolution	➢ 4K Ultra HD (3840 x 2160 @ 60 Hz 4:4:4 8-bit ➢ DCI Cinema (4096 x 21060 @ 60 Hz 4:4:4 8-bit) ➢ 1080p Full HD ➢ 1920x1200 WUXGA ➢ 3840 x 2160p 60 Hz (4:2:0) **Other resolution support:** » Common VESA resolution and timing support » Common CEA resolution and timing support
HDMI Specifications	➢ HDR (High Dynamic Range) – HLG/HDR10 ➢ HDCP 1.4 and 2.2 ➢ Deep Color (Support up to 16-bit)
Audio	➢ Uncompressed audio (LPCM) ➢ Up to 8 channels / 192 KHz sampling rate / 24-bit resolution ➢ Dolby Digital (AC-3), DTS, Dolby Digital EX, DTS-ES, Dolby Digital Plus, Dolby TrueHD, Dolby ATMOS, DTS-HD High Resolution Audio, DTS-HD Master Audio, DTS:X at all supported channels (mono, stereo, 7.1 channels, etc.) and sampling rates.
Maximum TMDS Clock/Bandwidth	600 MHz/18 Gbps
Video Input	
GTB-UHD600-18S-RT	**(1) Video Input:** (2/8) HDMI – 19-pin Type A Female
GTB-UHD600-28S-RT	**(2) Video Input:** (2/8) HDMI – 19-pin Type A Female
Video Output	
GTB-UHD600-18S-RT / GTB-UHD600-28S-RT	**(8) Video Output:** (2/8) HDMI – 19-pin Type A Female » Vertical clock refresh rate to support NTSC and PAL standards (e.g. 50Hz and 60 Hz)
Power	
Type	Switching Mode Power Supply
Power Supply Connector	5.5mm barrel/2.1mm pin, Locking
Power Supply	5V DC, locking, 5.5mm barrel/2.1mm pin
Amperage	2.6A
Power Consumption	13W
Temperature Limits	
Operating	**Ambient:** 0 to +40 °C / **Unit Surface:** +65 °C (no lower limit)
Storage	**Ambient:** -20 °C to +85 °C
MTBF (GTB-UHD600-18S-RT)	850000 hours
MTBF (GTB-UHD600-28S-RT)	775000 hours
Humidity Limits	
Operating	**Ambient:** 5 to +90%, Relative Humidity, non-condensing
Storage	**Ambient:** 0 to +95%, **Relative Humidity, non-condensing:** -20 °C to +85 °C
Physical	
Dimensions (W x H x D)	4.49" x 10.35" x 0.984" (114mm x 263mm x 25mm)
Net Weight	2.5 lbs. (1.2 kg)
Shipping Weight	4.0 lbs. (1.8kg)

Technical Support:
1-707-283-5900
1-800-472-5555

Technical Support Hours:
8:00 AM to 5:00 PM Monday through Friday, Pacific Time

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