4K ULTRA HD
60Hz, 4:2:0

Multi-Format HDMI & VGA KVM over IP

EXT-UHDV-KA-LANS-TX
EXT-UHDV-KA-LANS-RX

User Manual

Release A2

Important Safety Instructions

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.

Gefen/Core Brands, LLC warrants the equipment it manufactures to be free from defects in material and workmanship. If equipment fails because of such defects and Gefen LLC is notified within the specified warranty period* from the documented** date of purchase, Gefen will, at its option, repair or replace the equipment, provided that the equipment has not been subjected to mechanical, electrical, or other abuse or modifications. This warranty is in lieu of all other warranties expressed or implied, including without limitation, any implied warranty or merchantability or fitness for any particular purpose, all of which are expressly disclaimed. Warranty period begins on the date of purchase by the original end-purchaser, as indicated on the proof of purchase document**. This Limited Warranty extends to the original end-user purchaser of the product, and is not transferrable to any subsequent purchaser(s) or owner(s). Customers outside the continental United States of America are responsible for shipping charges to and from Gefen.

* Warranty period:

Passive Copper Cables without any electronic circuitry: 30 days. Cables must be in their original condition.

Electronics:

- 2 years unless specified otherwise.
- 3 years if specifically noted as such on Gefen web-page of a product. Documented** purchases made on or after March 29, 2017 only.

** Proof of purchase must be a written document, as deemed acceptable by Gefen/Core Brands, LLC.

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Petaluma, CA 94954 USA

Product Registration

Register your product here: http://www.gefen.com/kvm/Registry/Registration.jsp

Important

This product has been specifically designed for use with the Gefen Syner-G™ Software Suite, available for download at www.gefen.com. The Gefen Syner-G™ Discovery and Show-Me features simplify initial IP configuration

- Always make sure that the 4K Ultra HD HDMI & VGA KVM over IP is running the latest firmware.
- Gefen highly recommends the use of the Syner-G software and Matrix Controller (Gefen part no. EXT-CU-LAN) for setting up and controlling the operation of a Video-over-IP network using these products.
- Shielded CAT-5e (or better) cables should not exceed 330 feet (100 meters) between the Sender / Receiver unit and the network.
- By default, all Sender and Receiver units are set to channel 0.
- The HDMI inputs and outputs on this product also support Single-Link DVI and its standard VESA resolutions. Dual-Link DVI is not supported.
- Only the HDMI Input and Output will pass content from HDCP sources such as Blu-ray players and PlayStation® console systems. VGA does not support HDCP content. If HDCP encrypted content is being passed, the VGA output will not be active.
- By default, the source device will use the EDID from the display (or other sink device) which is connected the Receiver unit.
- If terminating network cables in the field, please adhere to the TIA/EIA568B specification. See the Network Cable Diagram (page 172) for details.

Important

- When connecting through a Local Area Network, a managed gigabit switch is required. Jumbo Frame Support (8k or greater) and IGMP Snooping must be enabled.
- A dedicated LAN is not required but highly recommended.
- When using HDCP-encrypted content, only the HDMI inputs and outputs can accept and display the content.
- We recommend that Sender and Receiver are first connected directly and functionality/performance is fully verified before integrating them into a Local Area Network.

- Supported USB Devices
  - ► HID-class devices: keyboard, mouse, joystick, and touch panels.
  - ► Bulk-only storage devices: USB flash drive, most storage devices, DVD-ROM, card readers, and printers.

- Known supported devices
  - ► USB to RS-232 adapter
  - ► Mobile devices: Android, iOS mobile devices
  - ► Connectivity devices: infrared remote controller, Bluetooth dongle
  - ► Security devices: Key dongle, security card reader
  - ► Full-speed USB audio devices
- Known Limits:
  - ► High-speed isochronous devices, such as webcams are NOT supported

This product uses UL-Listed power supplies

Licensing

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:

- jQuery
- Linux

Features

- Secure content distribution using AES-128 bit encryption
- Extends HDMI, VGA, USB, RS-232, bi-directional stereo analog audio, and IR over IP, using a Gigabit Local Area Network
- Supports input resolutions up to 4K 60Hz 4:2:0 on HDMI and up to 1920x1200, 60 Hz on VGA (WUXGA).
- Supports output resolutions up to 4K 30Hz 4:4:4 on HDMI and up to 1920x1200 60 Hz or 1080p Full HD on VGA
- Supported HDMI Features:
  - ► HDR
  - ► HDCP 2.2 and 1.4
  - ► Deep Color
  - ► Lip-Sync pass-through
- Supports uncompressed LPCM digital audio up to 7.1 channels
- Supports up to 7.1 channels of HBR (High Bit Rate) digital audio including Dolby Atmos®, Dolby® TrueHD, DTS:X™, and DTS-HD Master Audio™
- When used with Gefen DVI-to-HDMI cables (not included), supports the use of DVI sources and DVI displays up to 1080p Full HD and 1920x1200 (WUXGA)
- Built-in video wall controller accommodates any number of rows and columns up to 16x16
- Digital and analog audio break-out allows audio to be de-embedded from the HDMI output of the Receiver and be sent to a separate audio system, enhancing the impact of AV presentations.
- Quick mass-firmware-update, automated configuration, and enhanced control capabilities and system security when used with the Gefen EXT-CU-LAN Matrix Controller
- Built-in web interface, Telnet, and UDP
- Compatible with the Gefen Keyboard Switching Controller software, available for download at www.gefen.com
- Supports 39,900 Senders and a combination of just over 65,000 Sender and Receiver units, depending on the network bandwidth and number of ports on your network switch
- Two USB 2.0 ports with data rates up to 480 Mbps and backward-compatibility with USB 1.1
- Two USB 1.1 ports for use with Human Interface Devices (H.I.D.)
- Conforms to IEEE 802.3af PoE standard
- PoE (Power over Ethernet) allows the new Sender and Receiver units to be powered through a standard PoE-enabled IP network switch, without the need for external power supplies
- Three-port Gigabit Ethernet switch built into the Receiver unit
- Mode switch on Sender for sharpness or motion optimization of image

- Field-updatable firmware via EXT-CU-LAN controller or the built-in web server interface
- Locking power supply connectors
- Half-rack width Sender and Receiver enclosures are rack-mountable using EXT-RACK-1U-GRY
- Sender and Receiver can also be surface-mounted using the included L-brackets
- Low profile Receiver enclosure features an IR Extender port and can be hidden away behind the display

Packing List

The 4K Ultra HD HDMI & VGA KVM over IP ships with the items listed below. The packing contents of the Sender and Receiver unit are listed below. If any of these items are not present in the box when you first open it, immediately contact your dealer or Gefen.

EXT-UHDV-KA-LANS-TX

- 1 x EXT-UHDV-KA-LANS-TX unit
- 1 x EXT-PS526AIP-LP-6 5V 2.6A Power Supply
- 4 x Self-Adhesive Rubber-Feet
- 2 x L-Shaped Mounting Brackets
- 4 x Machine screws for L-Shaped Mounting Brackets
- 2 x Machine screws for EXT-RACK-1U-GRY
- 1 x Quick-Start Guide

EXT-UHDV-KA-LANS-RX

- 1 x EXT-UHDV-KA-LANS-RX unit
- 1 x EXT-PS54AULPN-6 5V 4A Power Supply
- 1 x AC Power Cord
- 4 x Self-Adhesive Rubber-Feet
- 2 x L-Shaped Mounting Brackets
- 4 x Machine screws for L-Shaped Mounting Brackets
- 2 x Machine screws for EXT-RACK-1U-GRY
- 1 x Quick-Start Guide

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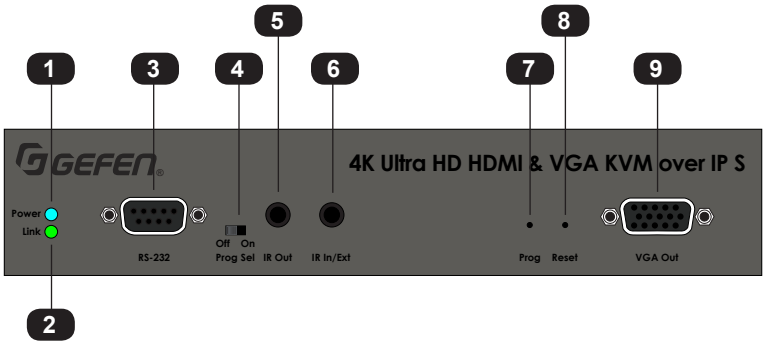
4K ULTRA HD
60Hz, 4:2:0

Multi-Format HDMI & VGA KVM over IP

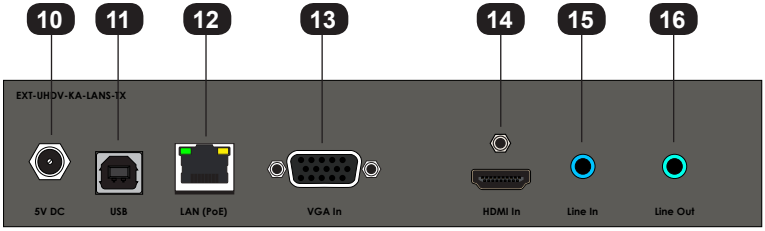
1 Getting Started

Sender Unit



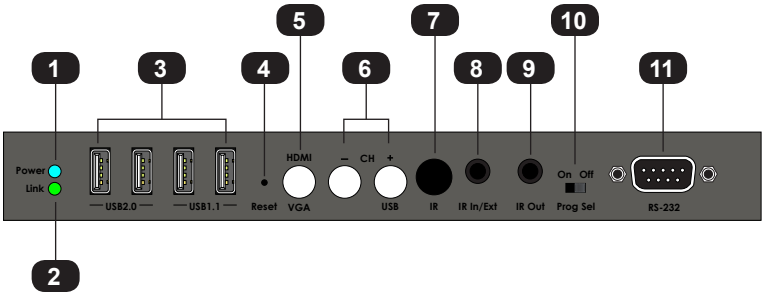
ID	Name	Description
1	Power	This LED glows solid blue when the unit is connected to an AC outlet and the unit is powered ON. See LED Status (page 18) for more information.
2	Link	This LED glows solid green when the Sender unit and Receiver unit are connected and passing video. See LED Status (page 18) for more information.
3	RS-232	Connect an RS-232 cable from this port to an RS-232 controller. See Using RS-232 (page 35) for more information.
4	Prog Sel	For factory use only. This switch **must** stay in the Off position.
5	IR Out	Connect an IR Emitter cable (Gefen part no. EXT-IREMIT) from this port to the UHD/HD source to control the source from the viewing location.
6	IR In/Ext	Connect an IR Extender (Gefen part no. EXT-RMT-EXTIRN) to this 3.5mm mini-stereo port. Alternatively, connect a 3.5mm mini-stereo connector from this port to the output of an automation system with an electrical IR output.
7	Prog	For factory use only.

ID	Name	Description
8	Reset	Press this button to reset the unit to factory-default settings. See Performing a Factory Reset (page 54) for more information.
9	VGA Out	Connect a VGA cable from this connector to a local VGA display. This port is used to monitor either the HDMI or VGA input signal.



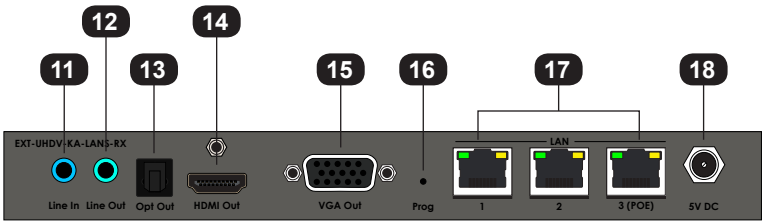
ID	Name	Description
10	Power	Connect the included 5V DC locking power supply to this power receptacle.
11	USB	Connect a USB cable from the computer to this USB port.
12	LAN (PoE)	Connects the Sender unit to a PoE-capable switch (or directly to the Receiver unit) using shielded CAT-5e (or better) cable.
13	VGA In	Connect a VGA cable from this connector to a VGA source.
14	HDMI In	Connect an HDMI cable from this connector to the UHD/HD source.
15	Line In	Connect a 3.5mm mini-stereo cable from the Line Out port on the multimedia PC to this port.
16	Line Out	Connect a 3.5mm mini-stereo cable from this port to the Line In port of a multimedia PC.

Receiver Unit

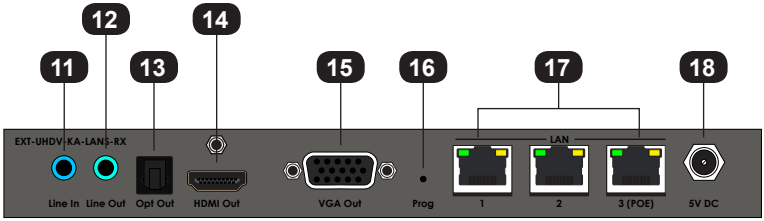


ID	Name	Description
1	Power	This LED glows solid blue when the unit is connected to an AC outlet and the unit is powered ON. See LED Status (page 18) for more information.
2	Link	This LED glows solid green when the Sender unit and Receiver unit are connected and passing video. See LED Status (page 18) for more information.
3	USB2.0 / USB1.1	Connect up to four USB devices to these USB ports. USB ports for both USB 2.0 and USB 1.1 are provided.
4	Reset	Press this button to reset the unit to factory-default settings. See Performing a Factory Reset (page 54) for more information.
5	HDMI / VGA	Press this button to switch between the HDMI and VGA input.
6	CH -/+	These buttons serve two purposes. 1) Press the - / + buttons button to decrement / increment, respectively, the current channel number. See Setting the Video Channel (page 19) for more information. 2) Press and hold the + (“USB”) button to switch between USB modes. See USB Control (page 39) for more information.

ID	Name	Description
7	IR	This IR sensor receives signals from the IR remote control of the UHD/HD source.
8	IR In/Ext	Connect an IR Extender (Gefen part no. EXT-RMT-EXTIRN) to this 3.5mm mini-stereo port. Alternatively, connect a 3.5mm mini-stereo connector from this port to the output of an automation system with an electrical IR output.
9	IR Out	Connect an IR Emitter cable (Gefen part no. EXT-IREMIT) from this port to the UHD/HD source to control the source from the viewing location.
10	Prog Sel	For factory use only. This switch **must** stay in the Off position.
11	RS-232	Connect an RS-232 cable from this port to an RS-232 device. See Using RS-232 (page 35) for more information.



ID	Name	Description
11	Line In	Connect a 3.5mm mini-stereo cable from the Line Out port on the multimedia PC to this port.
12	Line Out	Connect a 3.5mm mini-stereo cable from this port to the Line In port of a multimedia PC.
13	Opt Out	Connect an optical audio cable to this TOSLINK connector.
14	HDMI Out	Connect an HDMI cable from this connector to a HD/UHD display.



ID	Name	Description
15	VGA Out	Connect a VGA cable from this port to a VGA display.
16	Prog	For factory use only.
17	LAN 1, 2, 3 (PoE)	Connects the Receiver unit to the network (or directly to the Sender unit) using shielded CAT-5e (or better) cable.
18	5V DC	Connect the included 5V DC locking power supply to this power receptacle.

The 4K Ultra HD HDMI & VGA KVM over IP Sender and Receiver units can be connected over a Local Area Network (LAN) or they can be directly connected to one another. Both installations will be covered.

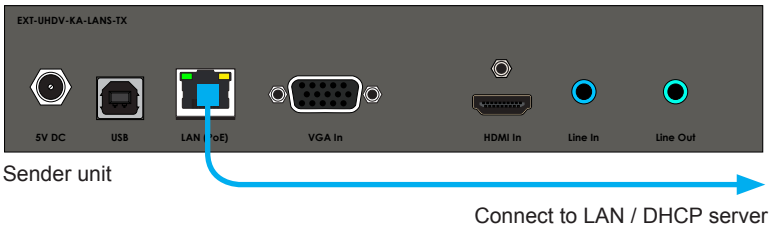
Local Area Network (LAN) Connection

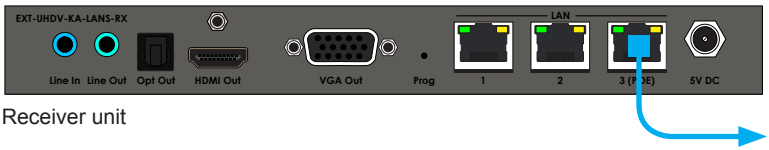
In order to connect the 4K Ultra HD HDMI & VGA KVM over IP to a Local Area Network (LAN), both the Sender and Receiver unit must first be set to *DHCP* mode or *Static* IP mode. *DHCP* mode will use the DHCP server to automatically assign an IP address for each Sender and Receiver unit that is connected to the network. *Static* IP mode will allow the IP address for each Sender and Receiver unit to be configured manually. Contact your network administrator if necessary.

1. Connect an HDMI cable from the UHD/HD source to the **HDMI In** port on the Sender unit.
2. Connect a VGA cable from the **VGA In** port on the Sender unit to the VGA source.
3. Connect a VGA cable from the **VGA OUT** port on the Sender unit to a local monitor.
4. Connect an HDMI cable from the UHD/HD display to the **HDMI Out** port on the Receiver unit.
5. Connect a VGA cable from the **VGA Out** port on the Receiver unit to a display.
6. Connect a CAT-5e (or better) cable between the **LAN (PoE)** port on the Sender unit and a Gigabit IP switch.
7. Connect **LAN 3 (PoE)** on the Receiver unit to the same network switch. Each cable run can be up to 330 feet (100 meters).

> **Important**
>
> If the IP switch is PoE-compliant and the Sender and Receiver are connected through their PoE ports, external power supplies will not be required. Additional Receivers or other devices connected to LAN 1 and LAN 2 ports of a Receiver will however need to be powered locally.

8. If **NOT USING** A PoE-compliant switch, then connect the included 5V DC power supplies to the Sender and Receiver unit.





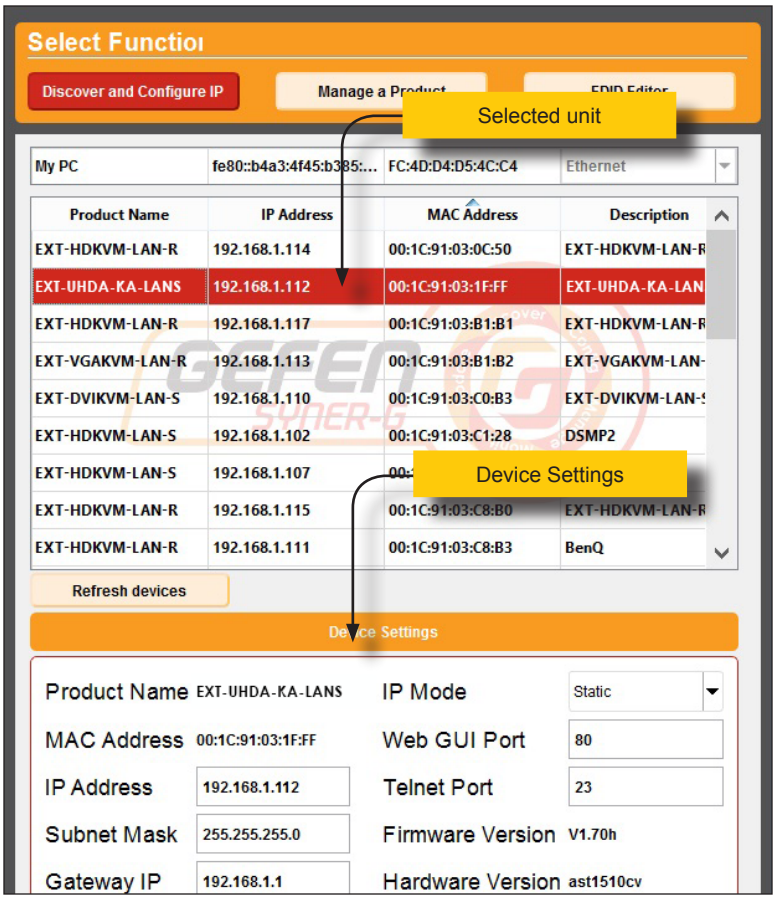
Receiver unit

Connect to LAN / DHCP server

9. Launch the Gefen Syner-G app to discover the IP address of the Sender/Receiver unit. See the Gefen Syner-G User Manual for more information.

10. Click the desired unit from the list. The currently selected unit will be highlighted in red.

11. Use the fields in the **Device Settings** section to change the IP settings, as necessary.



9. Once all IP settings have been adjusted, click the **Apply** button.

10. Click the **Reboot** button to apply changes.

11. Repeat steps 7 - 10 for each Sender and Receiver unit as necessary.

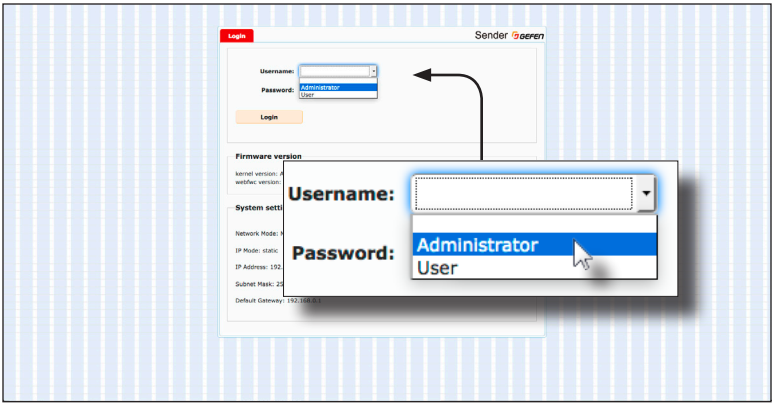
Information

The IP address of both the Sender and Receiver unit can be viewed by disconnecting the HDMI cable from the Sender unit (of from the source device), as shown in the example below.

12. Open your Web browser and enter the IP address of the desired Sender or Receiver unit in the address bar.

13. The **Login** screen will be displayed.

14. In order to change network settings, you must login as “Administrator”. Select the “Administrator” username from the drop-down list.



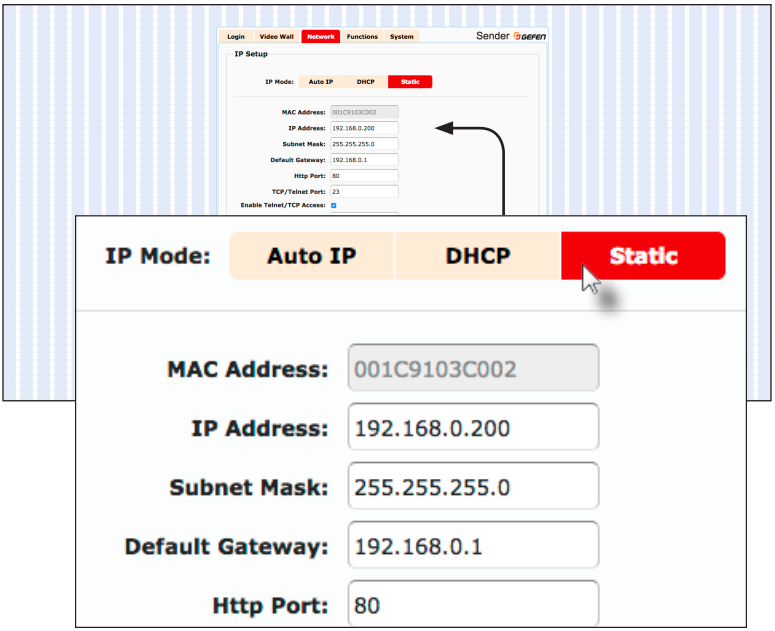
15. Type the password in the **Password** field. The default password for “Administrator” is `admin`. The password is case-sensitive and will be masked as it is entered.

Information

Passwords and operating features can be changed when logged in as Administrator. The User option has limited access. To change password credentials, see Changing the Password (page 10) for more information.

16. Click the **Login** button.

17. The **Network** will automatically be selected. The current IP Mode will be highlighted within the **IP Setup** window group.



18. Click the desired **IP Mode** button.

- If **Static** mode is selected, then enter the IP Address, Subnet Mask, and Default Gateway. Contact your system administrator if necessary.
- If **DHCP** mode is selected, then the IP address, subnet mask, and default gateway will be specified by the DHCP server.

19. Click the **Apply** button to save the changes. This operation will require a reboot.
20. Click the **Reboot** button near the bottom of the page.
21. Repeat steps 12 - 21 for each Sender and Receiver to be configured.
22. After the desired IP settings have been applied, set the video channel for each Sender unit. See Setting the Video Channel (page 19) for more information.

Important

The use of a Gigabit switch with “jumbo frame” capability is required when connecting the 4K Ultra HD HDMI & VGA KVM over IP to a network. The switch should be set to greater than 8K.

Using a Direct Connection

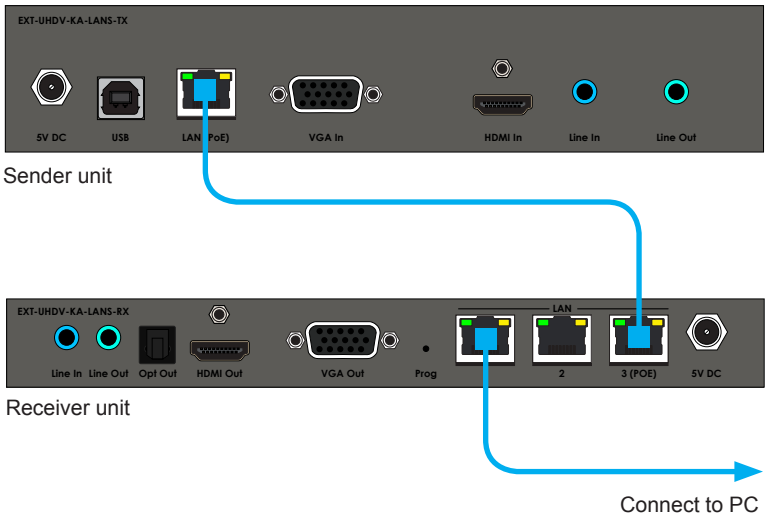
By default, the 4K Ultra HD HDMI & VGA KVM over IP is shipped in *Auto IP* mode. *Auto IP* mode is used for directly connecting Sender and Receiver units to one another. In *Auto IP* mode each Sender and Receiver unit assigns itself a unique IP address within the range of `169.254.x.x`. To configure the units to work over a LAN, we must access the Web interface of the Sender and Receiver unit on a computer. Then, we can change the network settings.

1. Connect an HDMI cable to connect the UHD/HD source to the **HDMI In** port on the Sender unit.

2. Connect an HDMI cable from the UHD/HD display to the **HDMI Out** port on the Receiver unit.

3. Connect a shielded CAT-5e (or better) cable from the **LAN (PoE)** port on the Sender unit to the **LAN 3 (PoE)** port on the Receiver unit. While any of the three ports on the Receiver can be used, we recommend using **LAN 3 (PoE)** for the sake of consistency.

4. Connect another shielded CAT-5e (or better) cable from one of the **LAN** ports on the Receiver unit to a PC.



5. Connect the included 5V DC locking power supplies to both the Sender unit and Receiver unit. Do not overtighten the locking connectors. Connect the included AC power cords from the power supplies to available electrical outlets.

6. Obtain the IP address of both the Sender and Receiver unit by disconnecting the HDMI cable from the Sender unit (or from the source device). Information, similar to the illustration on the next page, will be displayed.

7. Make note of both IP addresses. These IP addresses can be entered in a Web browser to access the built-in Web interface.

8. See Local Area Network (LAN) Connection (page 7) and follow steps 6 - 22, in order to configure your PC and access the built-in Web interface.

9. Set the video channel. By default, both the Sender and Receiver unit are set to channel 0. See Setting the Video Channel (page 19) for more information.

10. Once both Sender and Receiver units are configured using the built-in Web interface, the shielded CAT-5e cable, between the PC and the Receiver unit, can be disconnected.

11. See Supplementary Connections (page 14) for instructions on connecting USB, IR, RS-232, and audio cables.

Supplementary Connections

► **USB**
See USB Control (page 39) for more information on using USB devices.

1. Connect a USB cable from the computer to the **USB** port on the Sender unit.

2. Connect a maximum of four USB devices to the Receiver unit. Note that both USB 2.2 and USB 1.1 ports are supplied.

► **IR**

3. Connect an IR Emitter (Gefen part no. EXT-IREMIT) to the Sender unit and attach it to the IR sensor on the device to be controlled.

4. Connect an IR Extender (Gefen part no. EXT-RMT-EXTIRN) to the Receiver unit if the IR sensor will not be within line-of-site for proper IR control.

► **Audio**
See Audio Connections (page 46) for more information on using audio devices.

5. Connect a 3.5mm mini-stereo cable from the **Line In** port on the Sender unit to an audio source.

6. Connect a pair of powered speakers (or another audio output device) to the **Line Out** port on the Receiver unit.

7. Connect a USB microphone / headset to one of the **USB 2.0** ports on the Receiver unit

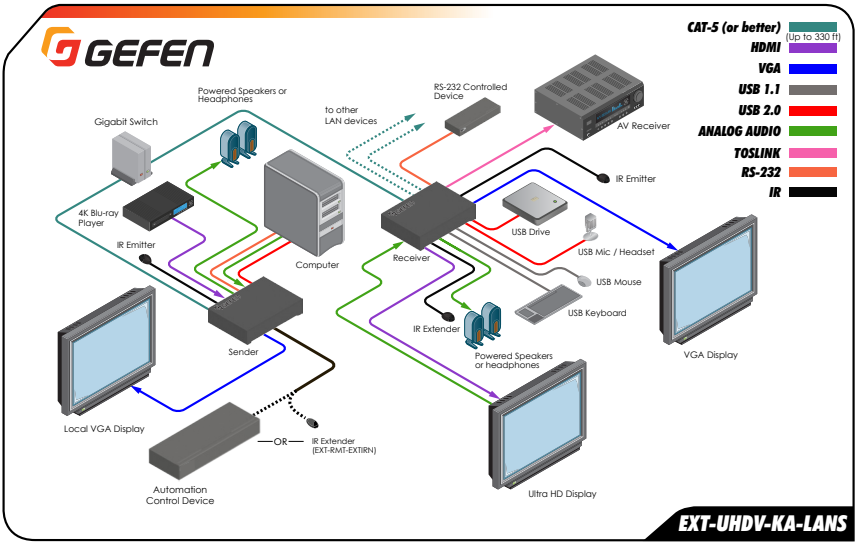
8. Connect a pair of powered speakers (or another audio output device) to the **Line Out** port on the Sender unit.

► **RS-232**

9. Connect an RS-232 cable from the PC or automation system to the **RS-232** port on the Sender unit.

10. Connect an RS-232 cable from the Receiver unit to the RS-232 device to be controlled.

Sample Wiring Diagram



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4K ULTRA HD
60Hz, 4:2:0

Multi-Format HDMI & VGA KVM over IP

2 Basic Operation

LED Status

The **Power** and **Link** LED indicators on the Sender and Receiver unit provides basic information on the current status of the 4K Ultra HD HDBaseT Extender w/ 2-way IR and POL.

The information, in the tables below, applies to both the Sender and Receiver unit.

Link

Status	Description
Off	• Connection is not established. • Check the cable between the Sender and Receiver unit.
On	• Connection is established and video is streaming.
Blinking	• System is in a state of transition. Connection is established but streaming has not started. • No video source detected. • Check that the Receiver unit is connected to the host.

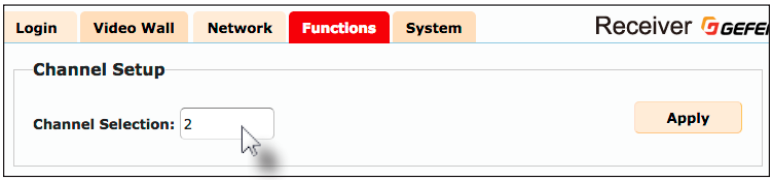
Power

Status	Description
Off	• No power.
On	• Power is on and the system is ready.
Blinking	• System is booting (not ready).

In order for a Sender and Receiver unit to communicate with one another, they must both be set to the same video channel. This is similar to changing the channel on a set-top box in order to view a different program. Pressing and releasing either the **CH +** or **CH -** buttons on the front of the Receiver unit can also be used to change the video channel. Both methods will be covered in this section. By default, all Sender and Receiver units are set to channel 0.

Setting the Channel using the Web Interface

1. Access the Web interface by entering the IP address of the desired Sender or Receiver unit.
2. Login as “Administrator” or “User”.
3. Click the **Functions** tab. The current channel is displayed within the **Channel Setup** window group.
4. Type the desired channel number. Channel numbers can range from 0 to 39900.
5. Click the **Apply** button on the right-hand side of **Channel Setup** window group.



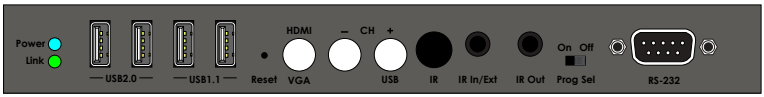
6. The following message will be displayed, at the top of the page, indicating that the selected channel has been applied.

If the entered value is invalid, then the following message will be displayed:

7. Access the Web interface of the next unit (Sender or Receiver) by entering its IP address.
8. Repeat steps 1 - 5 for each Sender and Receiver to be changed.

Setting the Channel using the Front Panel

1. Press the **-** or **+/USB** button to display the current channel number. Channel numbers range from 0 to 39900.



2. The current video channel of the Receiver unit will be shown on the connected display.

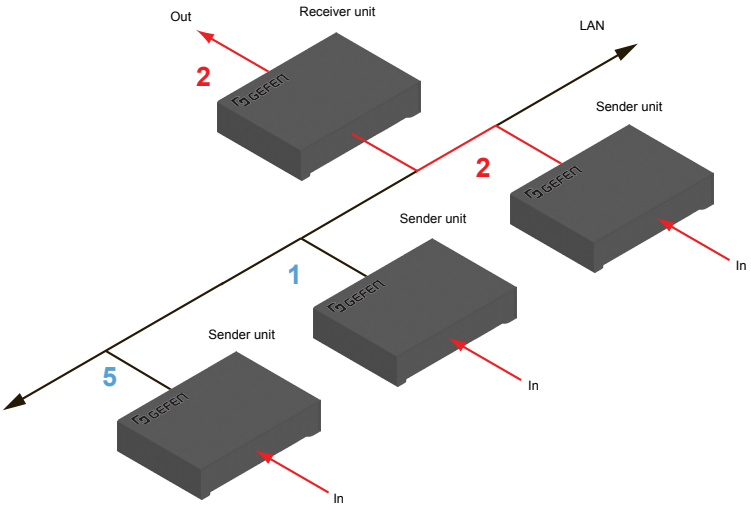
3. While the current video channel is being displayed, press and release the **Switch** button on the Receiver unit. The Receiver unit will change to the next available video channel that is being used by a Sender unit.

3. Once the current channel is displayed, do one of the following:

   - Press the **-** button to decrement the current channel number.
   - Press the **+/USB** button to increment the current channel number.

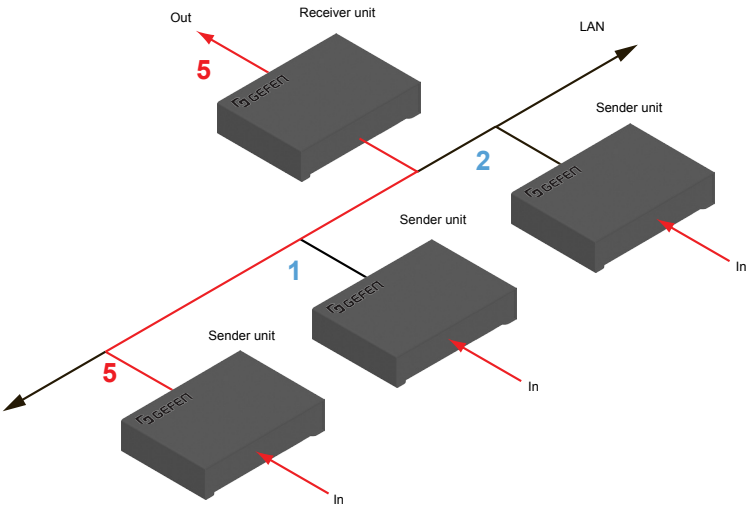
4. To set the video channel on a Sender unit, use the Web interface. See Setting the Channel using the Web Interface (page 19) for more information.

   The illustration below shows one Receiver unit and three Sender units. The numbers indicate the video channel for each unit. Here, the Receiver unit is currently set to channel 2 and is receiving the signal from the Sender unit, set to channel 2.



To switch the channel, and view the source that is connected to the Sender on channel 5, press and release the **+/USB** button to increment the video channel until the display shows the number 5.

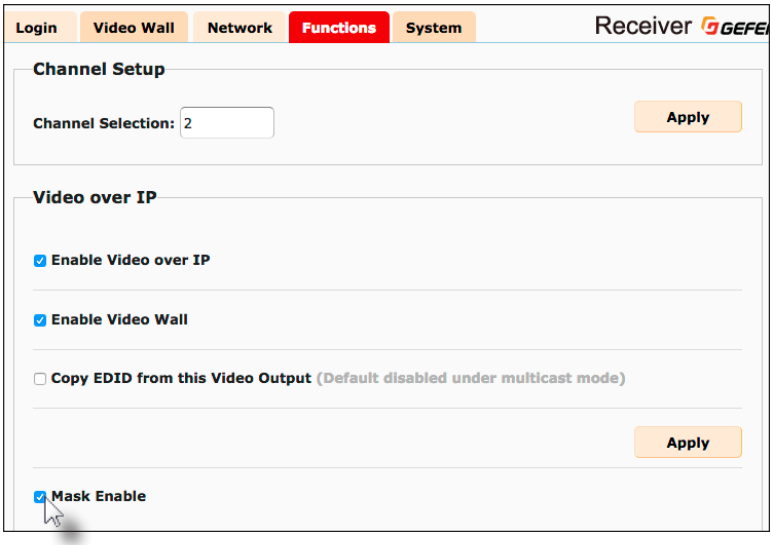
5. The Receiver unit, on channel 5, is now receiving the signal from the Sender unit on channel 5.



Use the **Block Video** option on a Sender unit to prevent video from being transmitted to each of the connected Receiver units (*multicast mode* only). Use the **Mask Video** option to selectively block video on the desired Receiver units.

► Mask Video

1. Access the Web interface of a Receiver unit by entering the IP address in the address bar of the browser.
2. Login as “Administrator”.
3. Click the **Functions** tab.
4. Under the **Video over IP** window group, check the **Mask Enable** box to mask the video. Deselect this check box to unmask (enable) video.

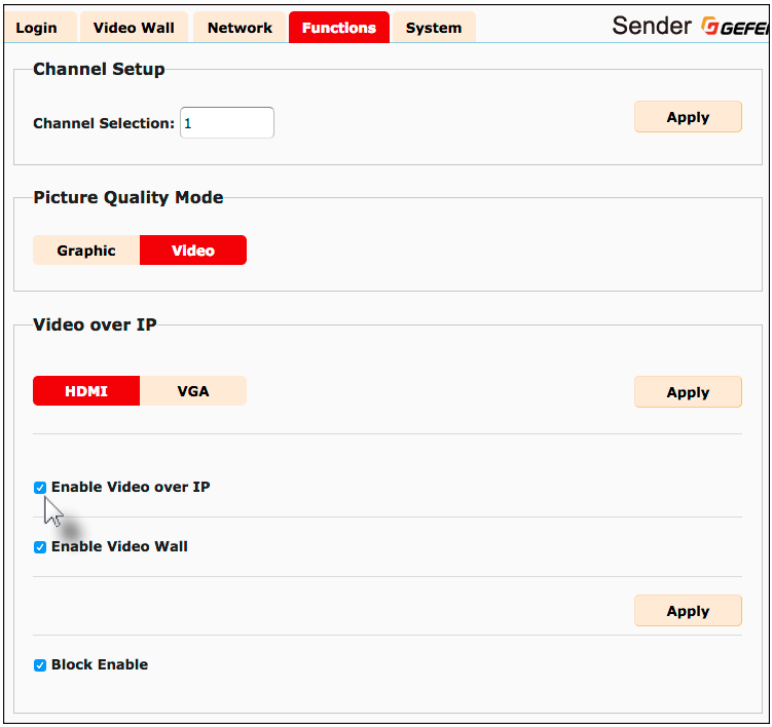


5. Click the **Apply** button within the **Video over IP** group.
6. Click the **Reboot** button at the bottom of the page.
7. Repeat steps 1 through 6 for each Receiver unit in the system.

► Block Video

> **Information**
> The Block Video option is only applicable in *multicast* mode.

1. Access the Web interface of a Sender unit by entering the IP address in the address bar of the browser.
2. Login as “Administrator”.
3. Click the **Functions** tab.
4. Under the **Video over IP** window group, check the **Block Enable** box to block the video. Deselect this check box to unblock (enable) video.



5. Click the **Apply** button within the **Video over IP** group.
6. Click the **Reboot** button at the bottom of the page.
7. Repeat steps 1 through 6 for each Sender unit in the system.

Configuring Unicast Mode

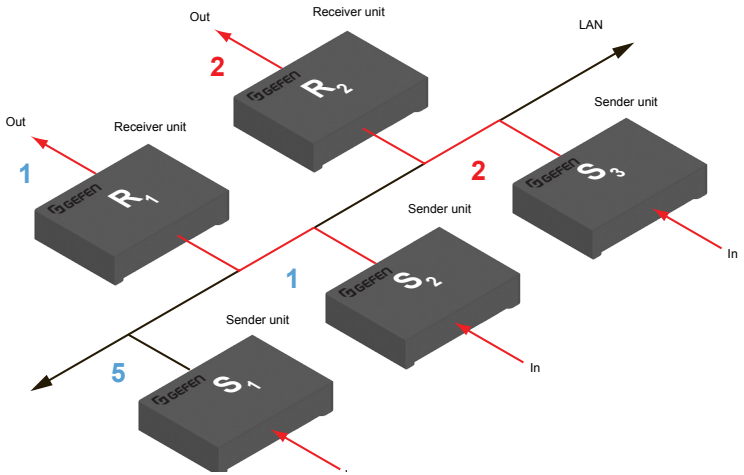
The term *unicast* is used to describe a configuration where information is sent from one point to another point. It is possible to have multiple Sender and Receiver units connected in a system. However, in *unicast* mode a Sender unit can communicate with only one Receiver unit at a time. In *unicast* mode, the 4K Ultra HD HDMI & VGA KVM over IP functions similar to a KVM switcher.

Information

The 4K Ultra HD HDMI & VGA KVM over IP Sender and Receiver units shipped from the factory in *unicast mode*.

The illustration, below, shows 3 Sender units (S1, S2, and S3) and 2 Receiver units (R1 and R2) on a network, operating in *unicast* mode. The video channels are notated in blue.

Figure 2.1 - Unicast mode: A Sender unit can communicate with only one Receiver unit at a time.



1. Access the Web interface for each Sender and Receiver unit that will be using *unicast mode*. In this example, we will start with Receiver unit R1.

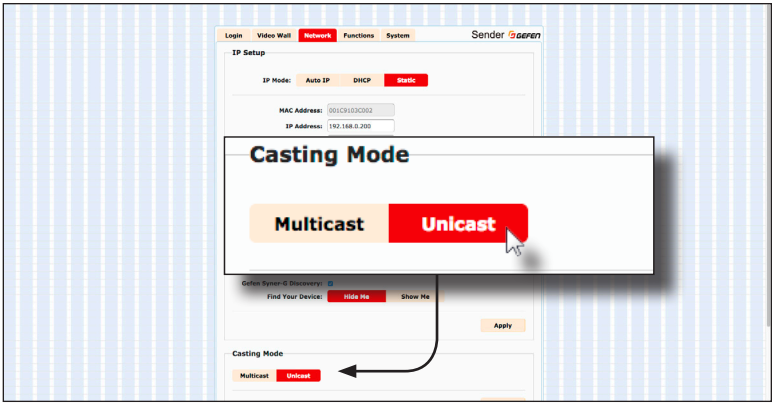
2. Login as “Administrator”.

Tip

In *unicast mode*, the 4K Ultra HD HDMI & VGA KVM over IP behaves as a KVM Switcher.

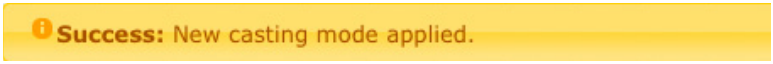
3. Click the **Network** tab.

4. Click the **Unicast** button under the **Network Mode** window group. When selected, the **Unicast** button will be highlighted in blue.

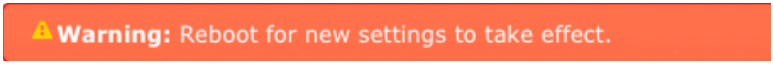


5. Click the **Apply** button in the lower-right corner of the **Network Mode** group.

6. The following message will be displayed, at the top of the page, indicating that the casting mode has been applied to the Sender or Receiver unit.



7. Click the **Reboot** button at the bottom of the page. If the **Reboot** button is not clicked, the following message will be displayed, indicating that the unit must be rebooted.



8. Repeat steps 1 - 7 in order to configure the Sender unit for *unicast* mode.

Important

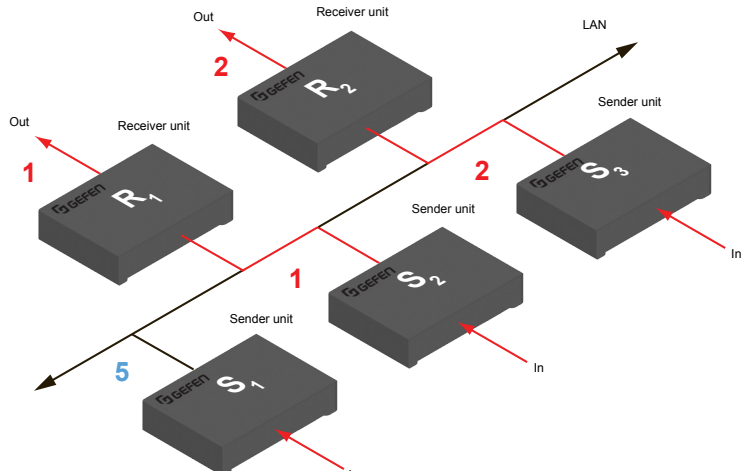
When switching between *unicast* and *multicast* modes, both Sender and Receiver units must be set to the same mode.

Switching between Sender units in Unicast mode

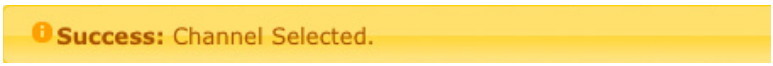
When multiple Sender and Receiver unit are used in *unicast* mode, the 4K Ultra HD HDMI & VGA KVM over IP behaves as a switcher. In *unicast* mode, a Sender unit can communicate with only one Receiver unit at a time.

In the example below, Receiver unit R1 will be switched to receive the source connected to Sender unit S1. To do this, simply change the video channel.

Figure 2.2 - Unicast mode: Receiver unit R1 is connected to Sender unit S2.

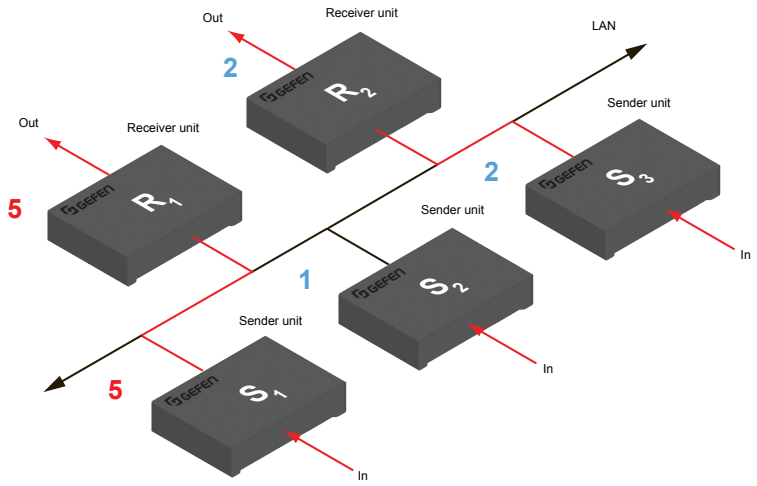


1. Access the Web interface for Receiver unit R1.
2. Login as “Administrator”.
3. Click the **Network** tab and change the video channel. Refer to Setting the Video Channel (page 19) if necessary.
4. Click the **Apply** button.
5. The following message will be displayed, at the top of the page, indicating that the new channel has been applied to the Sender or Receiver unit.



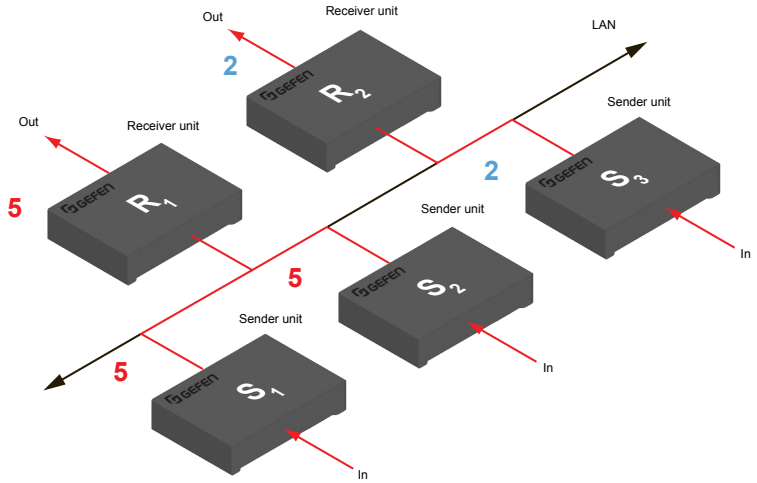
6. Receiver unit R1 is now receiving the UHD/HD source connected to Sender unit S1, as shown on the next page.

Figure 2.3 - Unicast mode: Receiver unit R1 is now connected to Sender unit S1.



Now, observe the result when both Sender S1 and S2 are set to channel 5:

Figure 2.4 - Unicast mode violation*: Two Sender units (S1 and S2) using the same video channel.*



In this example, Receiver R1 will continue to receive audio/video data from Sender S1, even though Sender S2 is set to the same channel. The reason for this is because Receiver R1 and Sender S1 were already set to the same channel and communicating (as depicted in Figure 2.3). However, this scenario violates the *unicast* mode rule: A Sender unit can communicate with only one Receiver unit at a time.

When using unicast mode, each of the Sender units must be assigned a unique channel and should never be changed. Use the Receiver unit to switch (channels) between Sender units.

Information

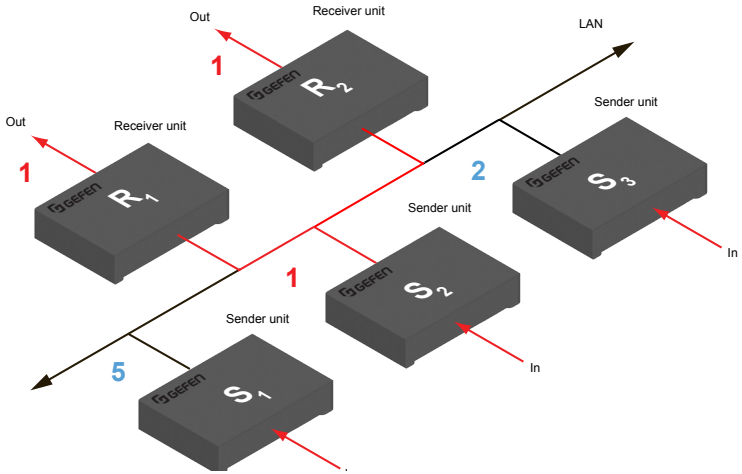
In *unicast* mode, if an additional Sender unit is introduced into a system with the same channel as another Sender unit, then the Receiver unit will continue to receive audio/video data from the Sender unit which was connected first.

Configuring Multicast Mode

The term multicast is used to describe a configuration where information is sent from one or more points to a set of other points. For example, a single Sender unit can transmit data to multiple Receiver units. In addition, if multiple Sender units are used, each Sender unit can transmit data to any Receiver that is not already receiving data from another Sender unit. In *multicast* mode, the 4K Ultra HD HDMI & VGA KVM over IP functions similar to a HD KVM matrix.

The illustration, below, shows 3 Sender units (S1, S2, and S3) and 2 Receiver units (R1 and R2) on a network, operating in *multicast* mode. The video channels are shown in blue.

Figure 2.5 - Multicast mode: A Sender unit can communicate with multiple Receiver units.



1. Access the Web interface for each Sender and Receiver unit that will be using *multicast mode*. In this example, we will start with Receiver S2.

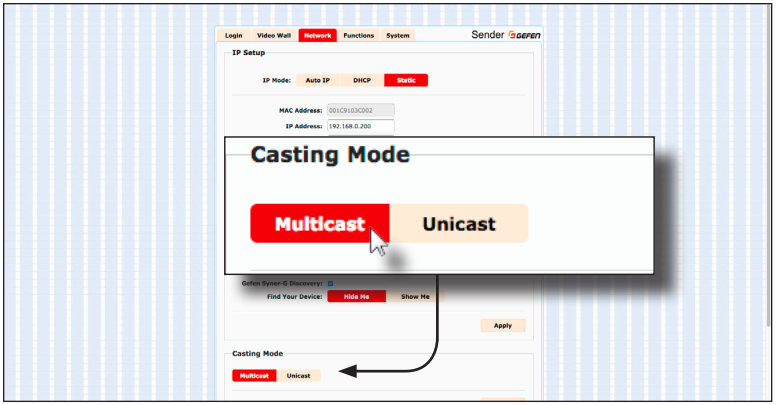
2. Login as “Administrator”.

Tip

In *multicast mode*, the 4K Ultra HD HDMI & VGA KVM over IP behaves as a HD KVM Matrix.

3. Click the **Network** tab.

4. Click the **Multicast** button under the **Network Mode** window group. When selected, the **Multicast** button will be highlighted in blue.



5. Click the **Apply** button in the lower-right corner of the **Network Mode** group.

   The following message will be displayed, at the top of the page, indicating that the casting mode has been applied to the Sender or Receiver unit.

   Success: New casting mode applied.

   If a display is connected to the Receiver unit, then the message “Starting USB” will be displayed. For more information on using USB under multicast mode, see USB under Multicast Mode (page 41).

6. Click the **Reboot** button at the bottom of the page. If the **Reboot** button is not clicked, the following message will be displayed, indicating that the unit must be rebooted.

   Warning: Reboot for new settings to take effect.

7. Repeat the steps above in order to configure the Sender unit to *multicast* mode.

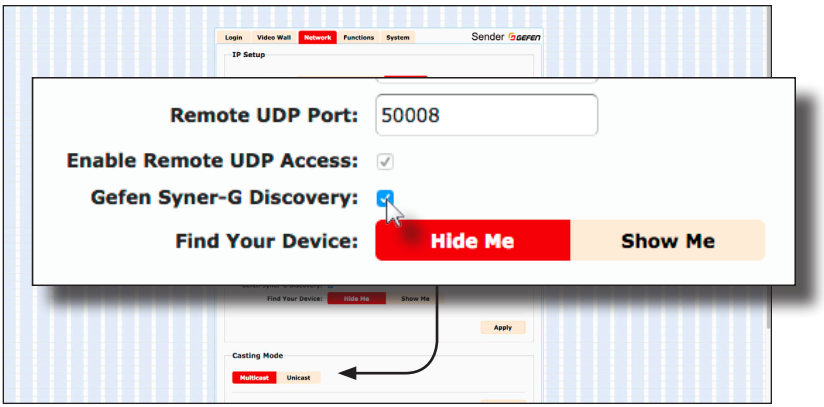
Important

When switching between *unicast* and *multicast* modes, both Sender and Receiver units must be set to the same mode.

Gefen Syner-G Discovery

Enabling the Gefen Syner-G Discovery feature allows the Gefen Syner-G Software Suite or Gefen Discovery Tool App to locate a Sender and/or Receiver on a network. Once the software is able to locate the unit, IP settings can be changed as desired.

1. Access the Web interface by entering the IP address of a Receiver or Sender unit.
2. Login as “Administrator”.
3. Click the **Network** tab.
4. Under the **IP Setup** window group, check the **Gefen Syner-G Discovery** box to allow the Gefen Syner-G software to locate the unit. If you do not want the unit to be discoverable, then un-check this box.
5. Click the **Apply** button.
6. Click the **Reboot** button at the bottom of the page to restart the unit and apply the change.

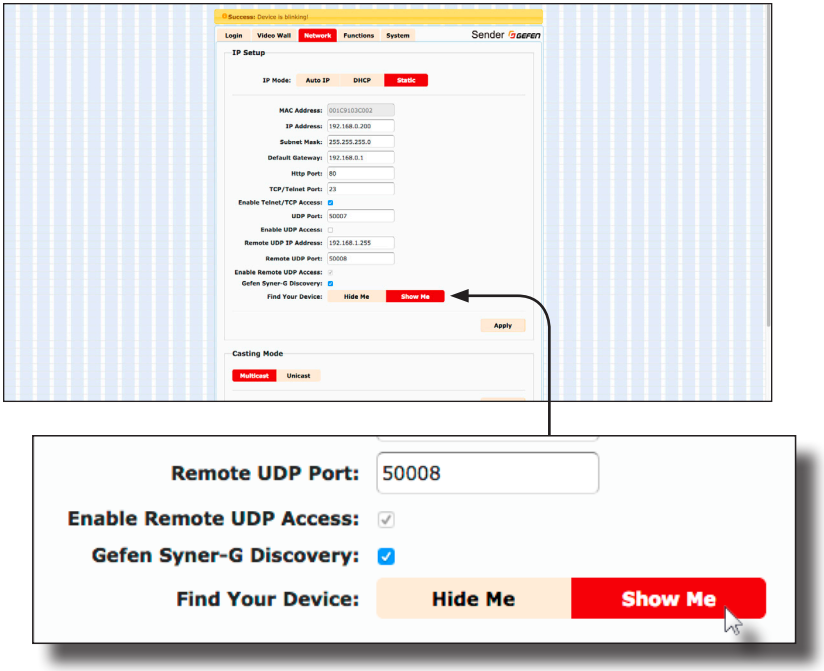


Finding Your Device

If several Sender and Receiver unit pairs are connected on a network, you may need to physically identify a particular Sender and/or Receiver unit. In such a case, use the **Find Your Device** feature.

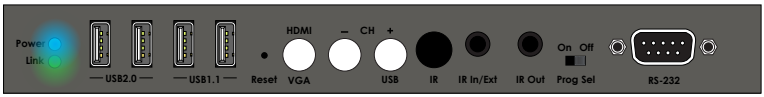
1. Access the Web interface by entering the IP address of a Receiver or Sender unit.
2. Login as “Administrator”.
3. Click the **Network** tab.
4. Under the **IP Setup** window group, click the **Show Me** button. By default, the **Hide Me** button will be selected.

   Although shown, below, it is not necessary to have the **Gefen Syner-G Discovery** option *enabled* in order to use the **Find Your Device** feature.

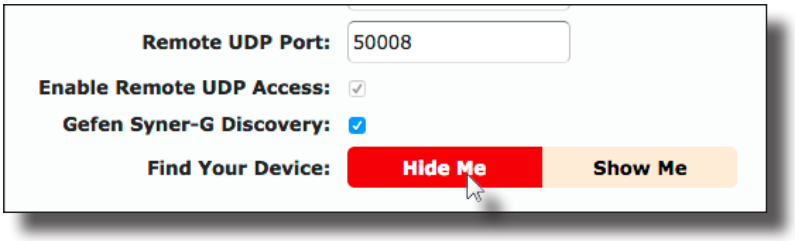


5. The following message will be displayed, at the top of the page, indicating that the LED indicators on the unit are blinking.

6. The **Power** and **Link** LED indicators will continue to blink until the **Hide Me** button is clicked.



7. Click the **Hide Me** button to stop both LED indicators from blinking.



8. The **Power** and **Link** LED indicators will stop blinking and the following message will be displayed at the top of the page.

The 4K Ultra HD HDMI & VGA KVM over IP supports RS-232 pass-through, allowing the control of remote RS-232 devices. The Sender and Receiver unit which are being used to pass-through the RS-232 data must be set to the same baud rate as the RS-232 host and client.

In the example below, an RS-232 device has been connected to Receiver R1. We want to control this product from Sender unit S3, using an automation control device. The channel numbers are listed in blue.

Figure 2.6 - Basic RS-232 connection

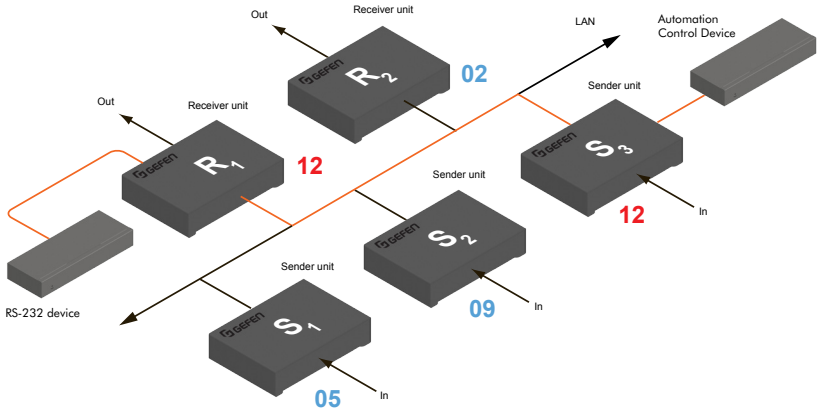
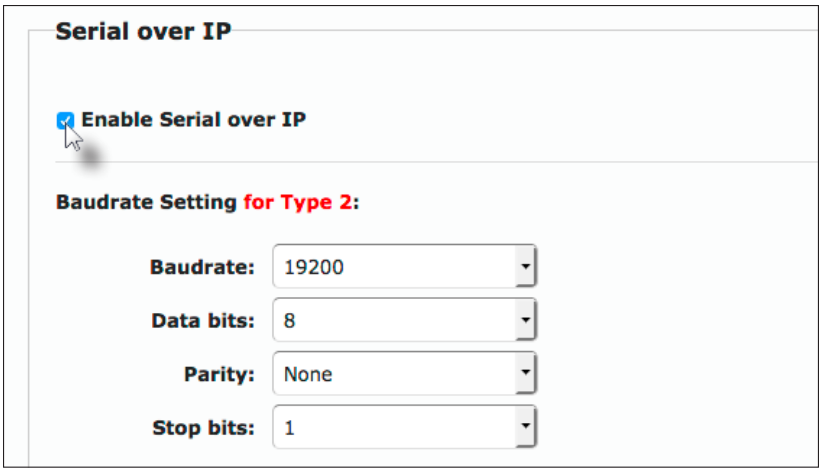


Table 2.1 - RS-232 settings for an arbitrary RS-232 device.

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

Confirm that the same RS-232 settings are assigned to both the Sender and Receiver units. To do this, access the Web interface on both the required Sender unit and Receiver unit to set the proper RS-232 settings. Follow the instructions on the next page.

1. Access the Web interface for the Sender unit and login as “Administrator”.
2. Click the **Functions** tab.
3. Locate the **Serial over IP** group and change the RS-232 settings to match the settings of the RS-232 device that is being used. In this case, we need to use the settings from Table 2.1 (see previous page).

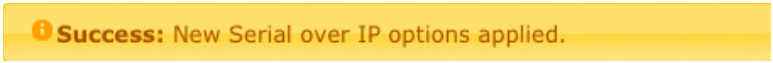


4. Make sure that the **Enable Serial over IP** box is checked.

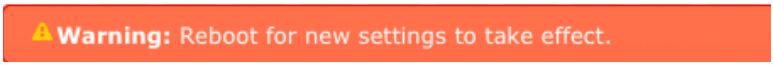
> **Important**
>
> If **Enable Serial over IP** is not checked, then RS-232 pass-through will be disabled.

5. Click the **Apply** button in the lower-right corner of the **Serial over IP** group.

6. The following message will be displayed, at the top of the page, indicating that the new Serial over IP options have been applied.



7. Click the **Reboot** button at the bottom of the page. If the **Reboot** button is not clicked, the following message will be displayed, indicating that the unit must be rebooted.

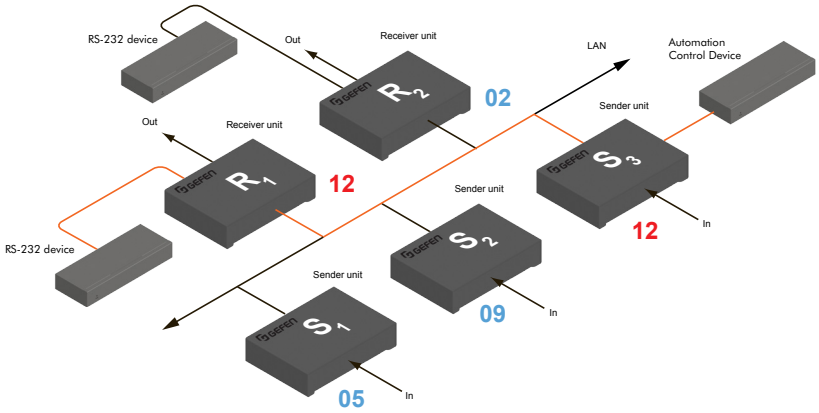


8. Repeat steps 1 - 7 for the Receiver unit.

RS-232 under Unicast Mode

In *unicast mode*, a Sender unit will be able to communicate with only one Receiver unit at a time.

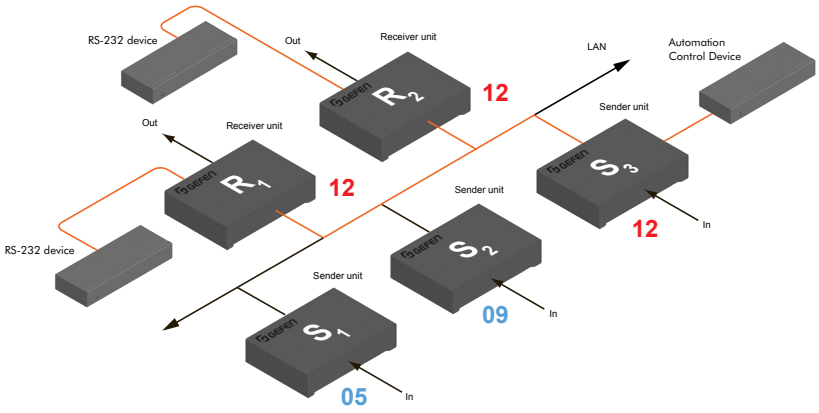
Figure 2.7 - In unicast mode, the host can talk to only one RS-232 device at a time.



RS-232 under Multicast Mode

In multicast mode, a Sender unit can communicate with multiple Receiver units simultaneously.

Figure 2.8 - In multicast mode, the host can talk to multiple RS-232 devices.



USB under Unicast Mode

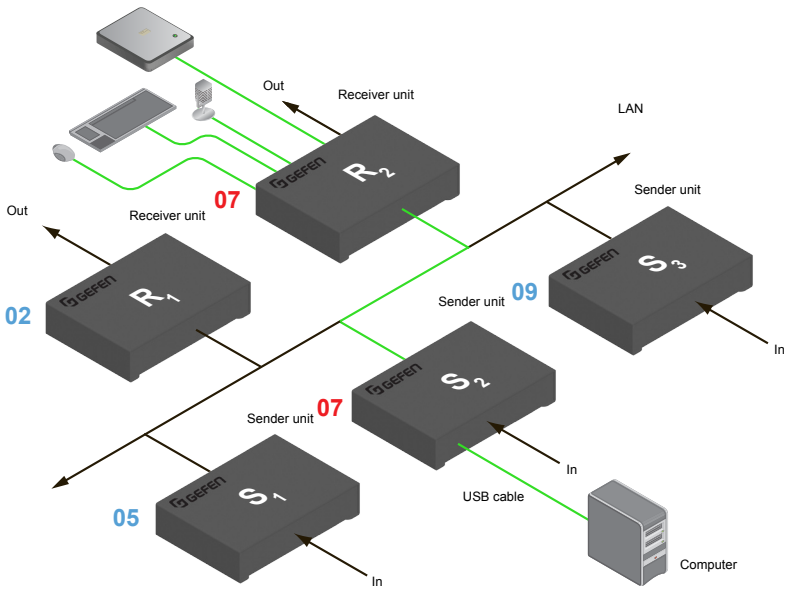
When connecting USB devices to the 4K Ultra HD HDMI & VGA KVM over IP, the functionality is similar to that of video and RS-232.

Information

The 4K Ultra HD HDMI & VGA KVM over IP Sender and Receiver units shipped from the factory in *unicast mode*.

As an example, we will start with our original diagram and connect a computer to Sender unit S2 and a keyboard, mouse, USB drive, and USB mic/headset to Receiver unit R2.

Figure 2.9 - Using USB devices under unicast mode.



1. Make sure the desired Sender and Receiver units are set to *unicast* mode. Refer to Configuring Unicast Mode if necessary.
2. Access the Web interface for the Sender unit.
3. Login as “Administrator”.
4. Click the **Functions** tab.

4. Locate the **USB over IP** group and make sure the **Enable USB over IP** box is checked. This is the default setting. Note that in *unicast* mode, the **Operation Mode** is automatically set to **Active on link** and cannot be changed.

5. Make sure that the **USB Mouse Mode** is set to **High Resolution**. This is the default setting. Use **Compatibility** mode *only* if using additional KVM switchers or other devices within the system that causes the mouse to behave erratically.

6. Click the **Apply** button within the **USB over IP** group, then click the **Reboot** button at the bottom of the page.

7. Connect the USB host (e.g. computer) to the **USB** port on the Sender unit.

8. Connect a USB device (keyboard and/or mouse) to a USB port on the Receiver unit. Up to 4 USB devices can be connected per network in *unicast* mode.

9. The keyboard and mouse (or other USB device) can now be used from the Receiver unit.

Important

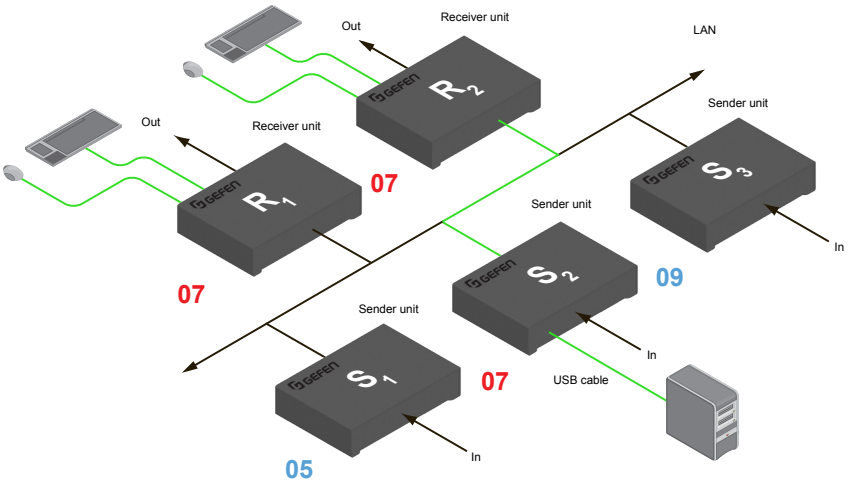
When enabling or disabling USB over IP, the **Apply** and **Reboot** buttons must be clicked to apply changes.

USB under Multicast Mode

When connecting USB devices to the 4K Ultra HD HDMI & VGA KVM over IP, the functionality is similar to that of video and RS-232. There are two USB modes available in multicast mode: *Active per request* mode and *Active on link* mode.

Using the last example, another keyboard and mouse device has been connected to Receiver R1. This will allow us to control the computer from two separate locations. For purposes of clarity, the USB drive and mic/headset have been removed.

Figure 2.9 - Using USB devices under multicast mode.

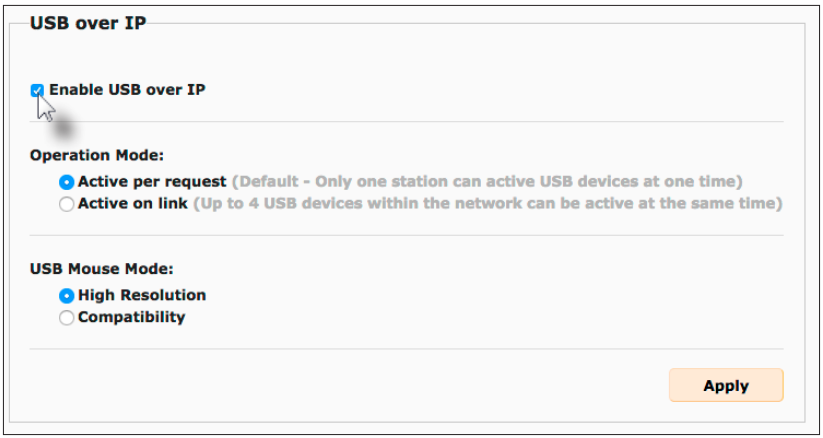


1. Make sure the desired Sender and Receiver units are set to *multicast* mode. Refer to Configuring Multicast Mode if necessary.

2. Access the Web interface for the Sender unit.

3. Click the **Functions** tab.

4. Locate the **USB over IP** group and make sure the **Enable USB over IP** box is checked. This is the default setting. See the illustration on the following page.



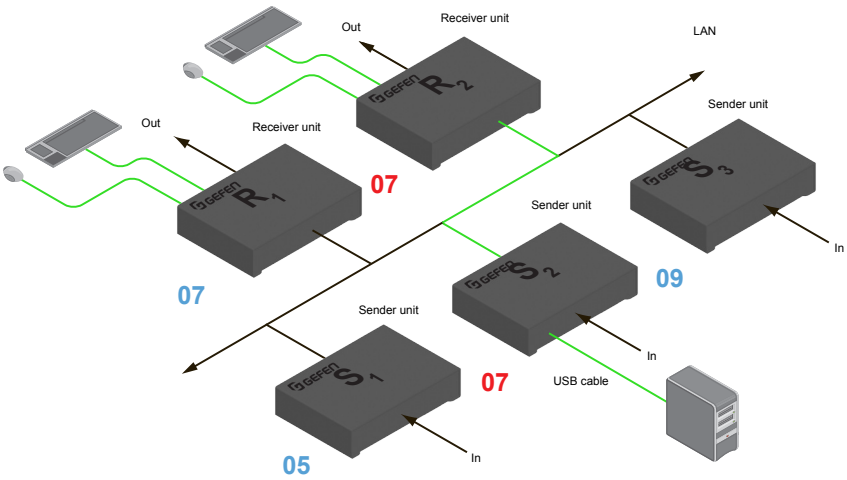
Note that in *multicast* mode, the **Operation Mode** for both Sender and Receiver units are automatically set to **Active per request** mode.

Under *Active per request* mode, multiple USB devices may be present on one or more Receiver units. However, only one Receiver unit can have USB control at a time.

By default, the first Receiver unit connected to the system will have USB control.
In the example, below, Receiver unit R2 currently has control (we arbitrarily connected Receiver unit R2 before Receiver unit R1).

See the diagram on the next page.

Figure 2.10 - Receiver unit R2 currently has USB control.



Important

If switching between *Active per request* mode and *Active on link* mode, the **Apply** and **Reboot** buttons must be clicked to apply changes.

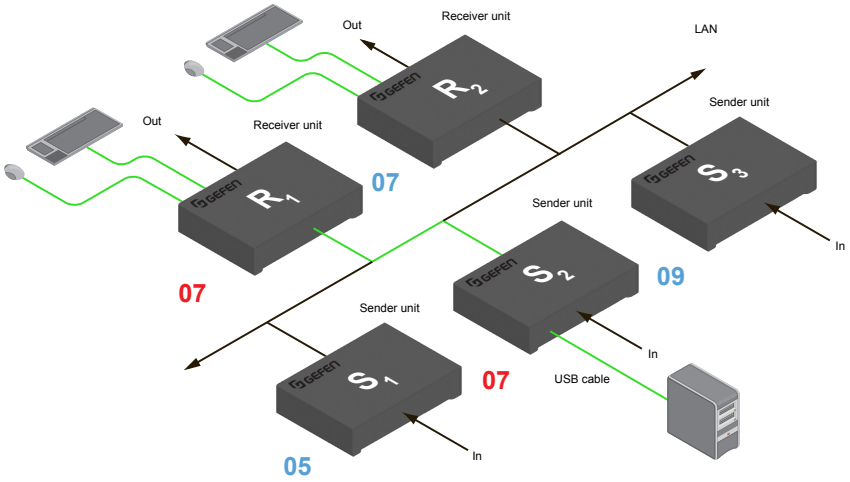
The next example will consist of switching USB control between two Receiver units. Using the diagram, above, Receiver unit R1 will have USB control.

To assign USB control to another Receiver unit, follow the steps on the next page.

Active per request mode

1. Press and hold the **CH +** USB button on the desired Receiver unit, for at least two seconds.
2. The message “Starting USB” will appear on the connected display.

Figure 2.11 - Receiver unit R1 has USB control.



3. In order to assign USB control to a different Receiver unit, repeat steps 1 - 2.

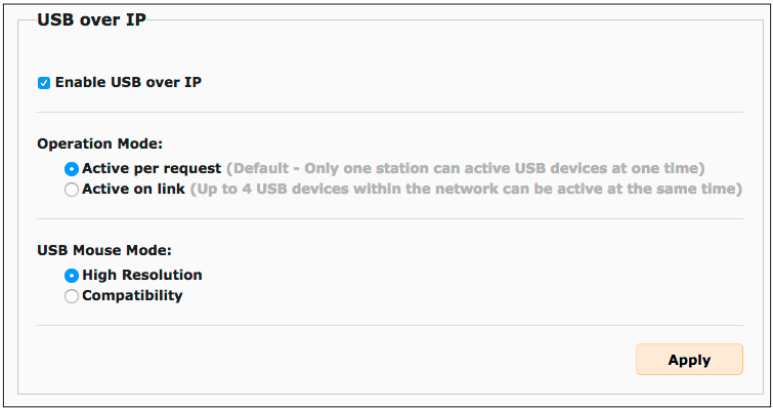
Important

If switching between *Active per request* mode and *Active on link* mode, the **Apply** and **Reboot** buttons must be clicked to apply changes.

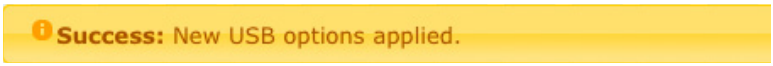
Active on link mode

Under *Active on link* mode, a maximum of four USB devices can be used within a system. In the diagram, on the previous page, the system is already using the maximum number of USB devices (2 USB devices per Receiver). If we had two more Receiver units (making a total of four Receiver units), we would only be able to connect one USB device to each Receiver unit. To switch to *Active on link* mode, follow the instruction below.

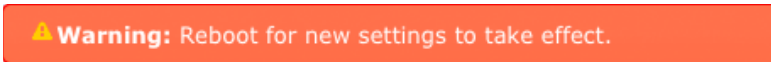
1. Access the Web interface for the Sender unit.
2. Login as “Administrator”.
3. Click the **Functions** tab.
4. Locate the **USB over IP** group and make sure the **Enable USB over IP** box is checked. This is the default setting.



5. Click the **Active on link** radio button within the **USB over IP** group.
6. Click the **Apply** button within the **USB over IP** group.
7. The following message will be displayed, at the top of the page, indicating that the new Serial over IP options have been applied.



8. Click the **Reboot** button at the bottom of the page. If the **Reboot** button is not clicked, the following message will be displayed, indicating that the unit must be rebooted.



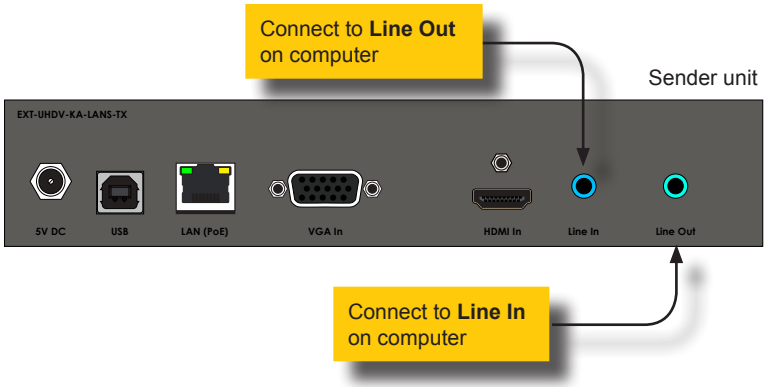
9. Repeat steps 2 - 8 for the Receiver unit.

Audio works in both unicast and multicast modes. The only difference between the two modes is that the **Line In** port is automatically disabled, on all Receiver units, in *multicast* mode. To illustrate how audio works with the 4K Ultra HD HDMI & VGA KVM over IP, we will set up a microphone and some speakers.

1. Connect a 3.5mm mini-stereo cable from the **Line In** port on the Sender unit to the Line Out port on the computer.

> **Information**
>
> When a cable is connected to the **Line In** port on the Sender unit, it takes priority over and replaces the audio from the HDMI input. The audio will be heard on the HDMI Out, Line Out, and Opt Out ports on the Receiver unit.

2. Connect another 3.5mm mini-stereo cable to from the **Line Out** port on the Sender unit to the Line In port on the computer.



3. Connect a 3.5mm mini-stereo cable from the **Line In** port on the Receiver to the output of a microphone pre-amp or another “Line Level” audio source.

> **Important**
>
> The **Line In** port requires “Line Level” audio output and certain microphones will require a pre-amp connected inline to be compatible. Alternately, you can use a USB mic connected to one of the USB 2.0 ports on the Receiver.

4. Connect the **Line Out** port to powered speakers or a pair of headphones.
5. Connect a Gefen CAB-TLINK-6MM TOSLINK cable from the **Opt Out** port to the Optical Digital Input of an AV receiver or amplifier.

In the diagram below, the mouse and keyboard USB devices have been removed from Sender unit S2 and Receiver unit R2, for purposes of clarity. Arrowheads indicate the audio signal path.

Figure 2.12 - Audio connections in unicast mode.

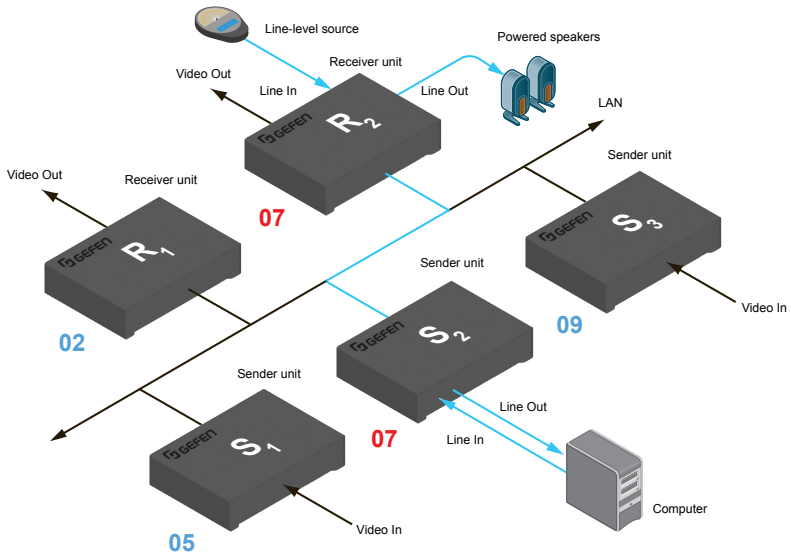
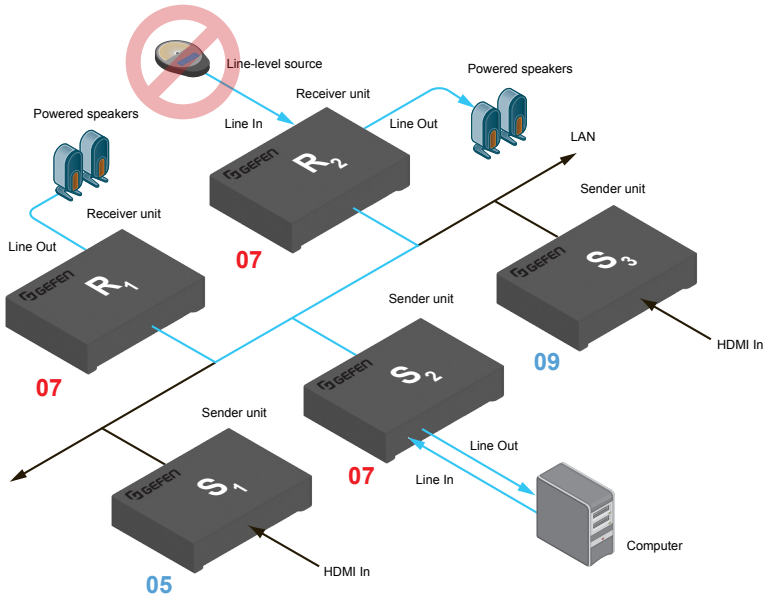


Figure 2.13 - The Line In port, on all Receiver units, is automatically disabled in multicast mode.



Audio Sources and De-Embedding

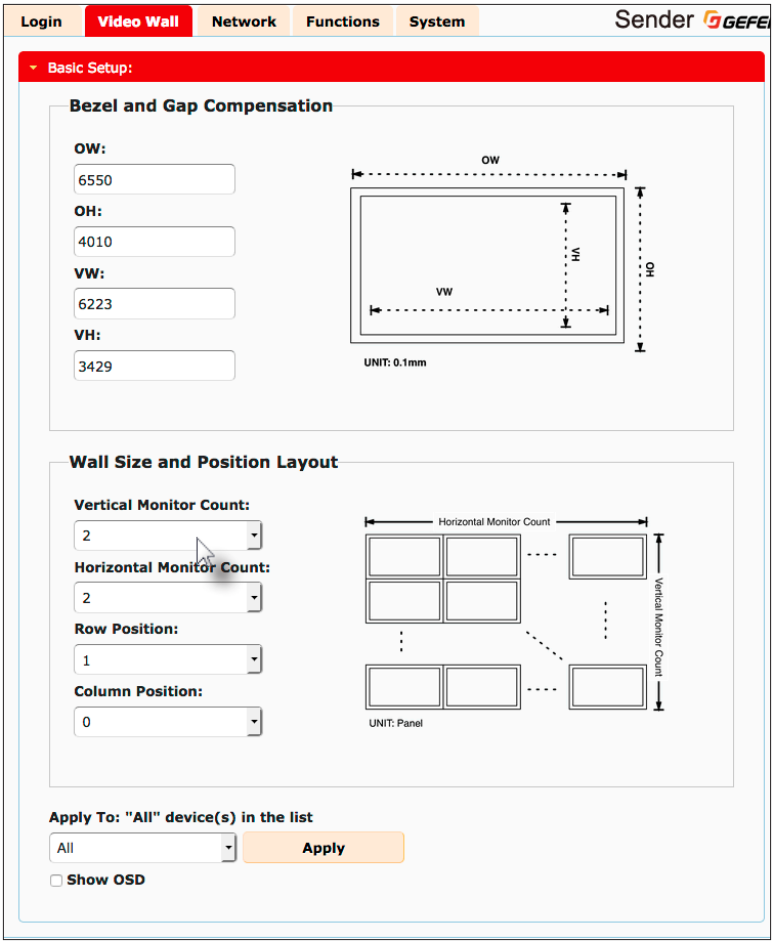
The following outlines the audio de-embedding functionality of this product.

- If a 3.5mm mini-stereo cable is connected to the **Line In** port on the Sender unit, then the HDMI audio will be disabled on the Receiver unit. The **Line Out** port, on the Receiver unit, will output audio from the source connected to the **Line In** port on the Sender unit.
- When a source is connected to the **Line In** port on the Sender unit, the audio will be heard on the **HDMI Out**, **Line Out**, and **Opt Out** ports.
- The **Line In** port on the Receiver unit will only pass audio to the **Line Out** port on the Sender unit when in *unicast mode*.
- The **Opt Out** port will de-embed both 2-channel PCM and Bitstream (up to 5.1 channel) audio from the HDMI In port. High-resolution (lossless) audio will not be outputted.
- HDMI source audio, from the Sender unit, will pass to the **HDMI Out** and **Opt Out** ports on the Receiver unit. HDMI audio will not be converted or down-mixed on the **Line Out** port on the Receiver unit.

The web interface 4K Ultra HD HDMI & VGA KVM over IP allows the creation of video walls up to 16 horizontal and 16 vertical displays. Video walls may contain any number or rows and columns and any combination of these can be enabled, as necesary.

Wall Size and Layout

1. Access the Web interface for the Receiver unit.
2. Login as “Administrator” or “User”.
3. Click the **Video Wall** tab.
4. Under the **Wall Size and Position Layout** window group, click the drop-down lists for the **Vertical Monitor Count** and **Horizontal Monitor Count** and select the number of rows and columns of displays, respectively.



5. Select the row and column positions using the **Row Position** and **Column Position** drop-down lists.
6. Click the drop-down list, next to the **Apply** button, to select the desired host or client to which these settings will be applied.

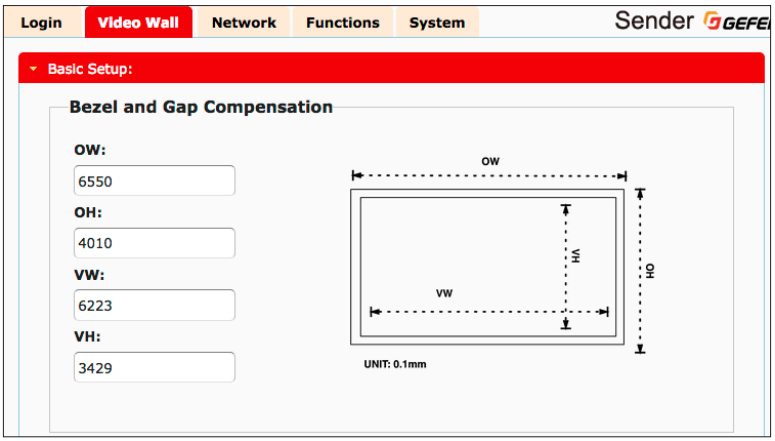
   If the **All** option is selected, then all parameters will be transferred to all Receiver units. For monitor count and bezel compensation in a video wall array of matching displays, this is fine, but the row and position will also be copied. There is an option for "This" unit that will apply to the current unit being interfaced with. The "This" option can be used to precisely set the proper position of each unit but would require the user to access the web interface of each unit to set. Alternatively, the drop-down will provide a list of all connected host (Sender units) and clients (Receiver units). This process allows the configuration of an entire video wall from a single unit.

Bezel and Gap Compensation

Display devices have a region where video data is not displayed. This area is called the *bezel*. *Bezel compensation* takes this area into account when a single video source is mapped across multiple displays. It is recommended, when a video wall is set up for the first time, that bezel compensation values be set to zero. Bezel compensation can be adjusted at any time.

The illustration on the left shows a 2x2 video wall without bezel compensation. Note how the circle is stretched, slightly, horizontally. On the right, bezel compensation is used to correct the “distorted” image.

1. Access the Web interface for the Sender unit.
2. Login as “Administrator” or “User”.
3. Click the **Video Wall** tab.
4. Adjust the values under the **Bezel and Gap Compensation** window group. Refer to the diagram, to the right of each field, to see the effect of each value. All entered values are applied to the physical displays in 0.1 millimeter increments.



The video mode can be changed using the **Mode** button or through the Web interface of the Sender unit. Consecutively pressing the **Mode** button on the Sender unit will switch between Graphic and Video mode.

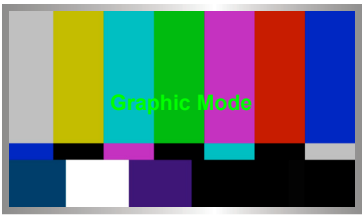
Using the Web interface

1. Access the Web interface for the Sender unit.
2. Login as “Administrator” or “User”.
3. Click the **Network** tab.
4. Click the desired mode within the **Picture Quality Mode** window group. The default setting is “Video”.

► **Video Mode**
If the HDMI signal is motion video, then click the **Video** button. This mode will optimize the frame rate.

► **Graphic Mode**
If the HDMI signal is a static image, then click the **Graphic** button.

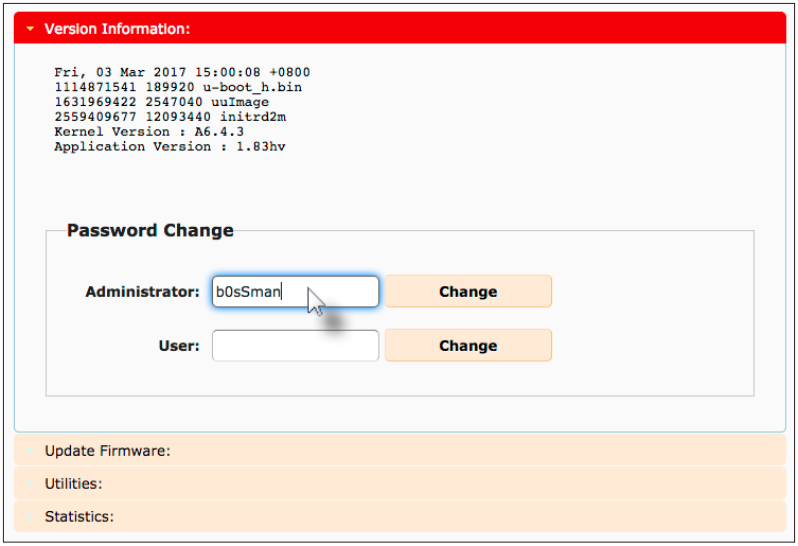
5. The selected mode will be displayed on the screen, as shown below.



6. Rebooting the Sender unit is *not* required for the changes to take effect.

Changing the Password

1. Access the Web interface for the Sender / Receiver unit.
2. Login as “Administrator”.
3. Click the **System** tab.
4. Under the **Password Change** window group, enter the new password for the desired username. Note that the new password will *not* be masked when it is entered.
5. Click the **Change** button.



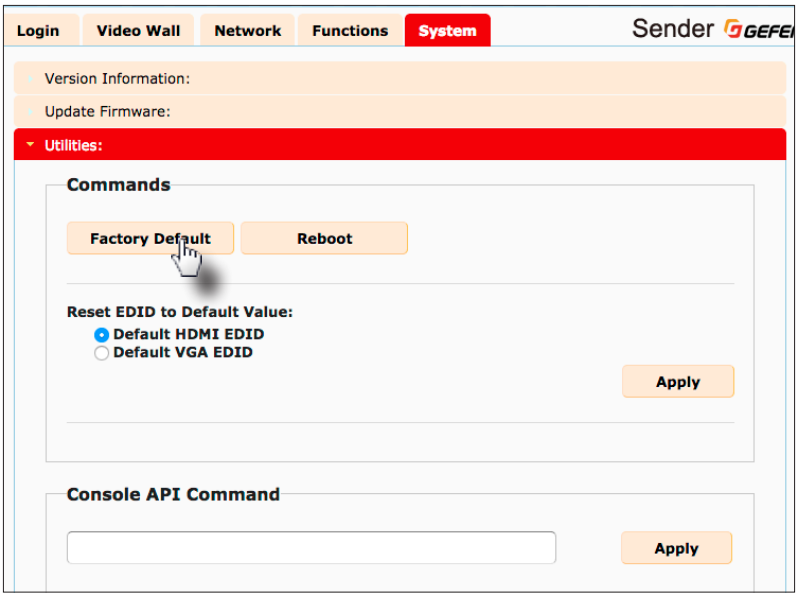
The 4K Ultra HD HDMI & VGA KVM over IP can be reset using the Web interface or using the buttons on the front panel. When using the Web interface, the Sender / Receiver units will automatically be reset to *Auto IP* mode. When using the front-panel buttons, the Sender / Receiver can be reset to either *Auto IP* or *Static IP* mode.

Reset using the Web Interface

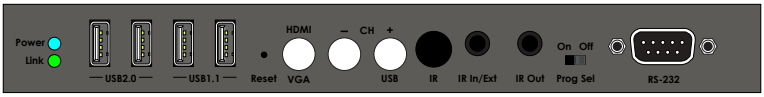
Information

Once a unit has been reset to Auto IP mode, the connection to the Web interface will be terminated. To reestablish a connection to the Web interface, from your computer, see Installation & Configuration (page 69).

1. Access the Web interface for the desired Sender / Receiver unit. It does not matter which unit is reset first.
2. Login as “Administrator”.
3. Click the **System** tab.
4. Click the **Utilities** rollout.
5. Click the **Factory Default** button.



5. Both the **Power** and **Link** LED indicators will begin to flash.



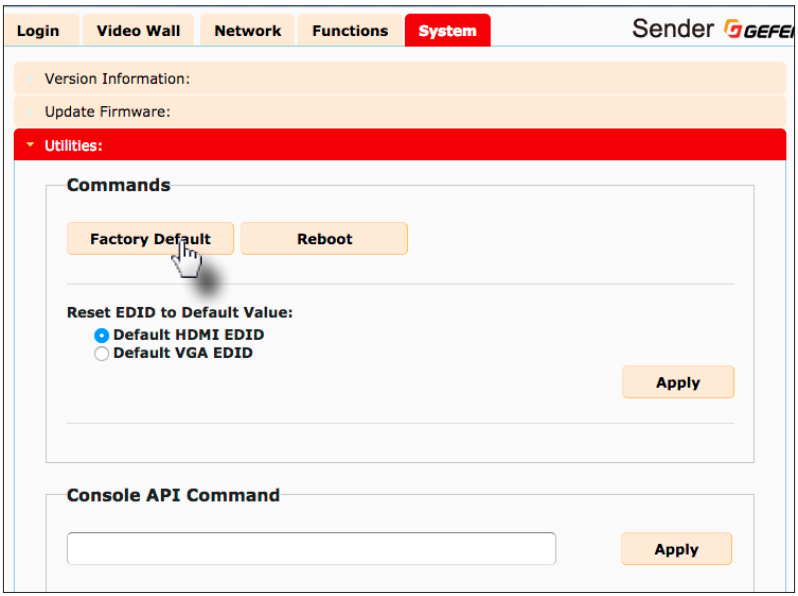
6. After both LED indicators stop flashing, the unit will be reset.

7. Repeat the process for each unit.

The 4K Ultra HD HDMI & VGA KVM over IP Sender or Receiver unit can be rebooted in three different ways: Using the Web interface, the Reset button on the front panel, or simply disconnecting and reconnecting the power.

Reboot using the Web Interface

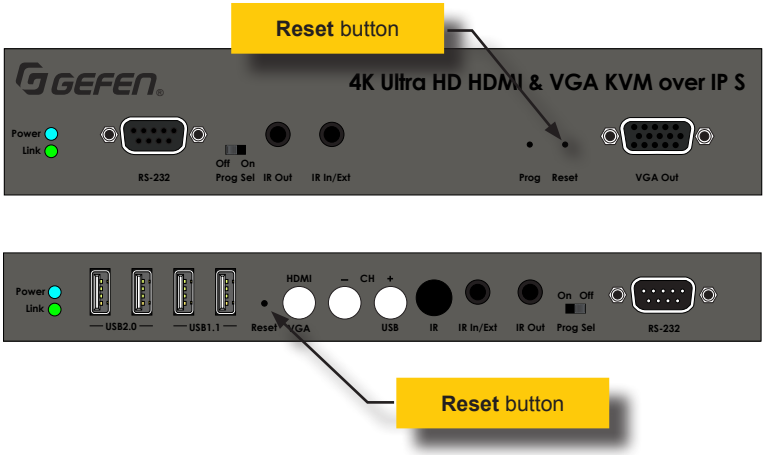
1. Access the Web interface for the Sender / Receiver unit.
2. Login as “Administrator”.
3. Click the **System** tab.
4. Click the **Utilities** rollout.
5. Click the **Reboot** button.



6. After a few moments, the **Power** LED indicator will flash.
7. Several seconds later, the **Power** LED indicator will glow solid blue and the **Link** LED indicator will begin to flash.
8. After both LED indicators stop flashing, the reboot process will be complete.

Reboot using the Front Panel

1. Press the **Reset** button, on the desired Sender or Receiver unit, using the end of a paper clip or other sharp pointed object.
2. After a few moments, the **Power** LED indicator will flash.
3. Several seconds later, the **Power** LED indicator will glow solid blue and the **Link** LED indicator will begin to flash.
4. After both LED indicators stop flashing, the reboot process will be complete.



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4K ULTRA HD
60Hz, 4:2:0

Multi-Format HDMI & VGA KVM over IP

3 Advanced Operation

Information

By default, the Telnet login credentials are disabled. This setting is required when using the Matrix controller (Gefen part no. EXT-CU-LAN) but can be enabled for security purposes. Use the `#use_telnet_login` command to enable or disable this feature.

1. Launch the desired terminal application (e.g. Windows Hyperterminal, etc).
2. Within the terminal program, enter the IP address of the Sender or Receiver unit that you wish to control.
3. Enter the TCP listening port. The default listening port is 23.
4. After the correct settings have been used in the terminal program, information similar to the following will be displayed.

   In the example, below, we are connected to the client (Receiver unit) and Telnet login has been *enabled*:

```
------------- Welcome to the Gefen Telnet Server -----------

ast2-client001C9103C8B3 login:
```

5. Login as “Administrator”. The default password is “admin”. To change the Telnet password, see the `#set_telnet_pass` command.
6. Type `#help` for a list of commands or refer to the tables on the following pages.

Important

Commands that are limited to a Sender or Receiver unit are marked as "Tx only" and "Rx only", respectively. Unless otherwise noted, commands can be used when connected to either a Sender or Receiver unit.

Discovery Service

Command	Description
#get_device_desc	Displays the device description
#get_discovery	Displays the current state of the discovery service
#get_discovery_mode	Displays the discovery read/write mode
#get_showme	Displays the status of the showme state
#set_device_desc	Sets the device description
#set_discovery	Enables or disables the discovery service
#set_discovery_mode	Sets the discovery mode
#set_showme	Enables or disables the "show me" feature

Help

Command	Description
#help	Displays a list of available commands

Network

Command	Description
#get_gateway	Displays the gateway IP address
#get_ip_address	Displays the IP address
#get_ip_mode	Displays the IP mode
#get_ipconfig	Displays the IP configuration information
#get_net_mode	Displays the network casting mode
#get_netmask	Displays the subnet mask address
#get_remote_udp_access	Displays the remote UDP access state
#get_remote_udp_ip	Displays the remote UDP IP address
#get_remote_udp_port	Displays the remote UDP listening port
#get_telnet_access	Displays the Telnet access state

Command	Description
#get_telnet_login	Displays the status of the Telnet login
#get_telnet_port	Displays the Telnet listening port
#get_telnet_welcome	Displays the Telnet welcome message
#get_udp_access	Displays the UDP access state
#get_udp_port	Displays the UDP listening port
#get_web_port	Displays the HTTP listening port
#set_gateway	Sets the gateway address
#set_ip_address	Sets the IP address
#set_ip_mode	Sets the IP mode
#set_net_mode	Sets the network casting mode
#set_netmask	Sets the subnet mask address
#set_remote_udp_access	Enables or disables remote UDP access
#set_remote_udp_ip	Sets the remote UDP IP address
#set_remote_udp_port	Sets the remote UDP listening port
#set_telnet_access	Enables or disables Telnet access
#set_telnet_login	Enables or disables the Telnet login
#set_telnet_pass	Sets the Telnet password
#set_telnet_port	Sets the Telnet listening port
#set_telnet_welcome	Sets the Telnet welcome message
#set_udp_access	Enables or disables UDP access
#set_udp_port	Sets the UDP listening port
#set_web_port	Sets the HTTP listening port

Routing

Command	Description
#get_rx_channel	Displays the channel of the Receiver unit (Rx only)
#get_v	Displays the current video input status
#request_usb	Requests USB control when active per request is enabled
r	Routes an input to a Receiver unit (Rx only)
v	Change the video input of Sender unit

RX Specific

Command	Description
#get_clk_lock	Displays the audio clock lock
#get_edid_copy	Displays the EDID copy state (Rx only)
#get_mask	Displays the current video mask state
#get_rx_id	Displays the ID of the Receiver unit
#get_vw	Displays the status of the video wall
#get_vw_bc	Displays the video wall bezel compensation
#get_vw_delay	Displays the video wall display delay
#get_vw_hscale	Displays the video wall horizontal up-scaling
#get_vw_layout	Displays the video wall horizontal and vertical maximum display count
#get_vw_osd	Displays the status of the video wall OSD
#get_vw_pos	Displays the video wall display position
#get_vw_shift	Displays the video wall display shift
#get_vw_vscale	Displays the video wall vertical up-scaling
#set_clk_lock	Sets the audio clock lock
#set_edid_copy	Enables or disables EDID copy
#set_mask	Enables or disables video masking
#set_rx_id	Sets the ID of the Receiver unit
#set_vw	Enable / disable video wall
#set_vw_bc	Sets the video wall bezel compensation
#set_vw_delay	Sets the video wall display delay
#set_vw_hscale	Displays the video wall horizontal up-scaling
#set_vw_layout	Sets the video wall horizontal and vertical maximum display count
#set_vw_osd	Enable / disable the video wall OSD
#set_vw_pos	Sets the video wall display position
#set_vw_shift	Sets the video wall display shift
#set_vw_vscale	Displays the video wall vertical up-scaling

Serial

Command	Description
#get_serial_allow	Displays the Serial-over-IP state
#get_serial_baud	Displays the serial baud rate setting
#get_serial_bits	Displays the serial data bits setting
#get_serial_parity	Displays the serial parity setting
#get_serial_stop	Displays the serial stop bits setting
#set_serial_allow	Enables or disables Serial-over-IP mode
#set_serial_baud	Sets the baud rate for the serial port
#set_serial_bits	Sets the data bits for the serial port
#set_serial_parity	Sets the parity setting for the serial port
#set_serial_stop	Sets the number of stop bits for the serial port

System

Command	Description
#get_firmware_version	Displays the firmware version
#factory_reset	Resets the unit to factory-default settings
#fw_upgrade	Upgrades firmware using external file
#reboot	Reboots the unit

TX Specific

Command	Description
#get_block	Displays the current video blocking state
#get_hdcp	Displays the HDCP state
#get_pq_mode	Displays the picture quality mode
#get_tx_channel	Displays the video channel
#set_block	Enables or disables video blocking
#set_hdcp_allow	Enables or disables HDCP-detection
#set_pq_mode	Sets the picture quality mode
#set_tx_channel	Sets the video channel

USB

Command	Description
#get_usb_allow	Displays the USB-over-IP state
#get_usb_mode	Displays the USB operating mode
#get_usb_mouse	Displays the mouse operating mode
#set_usb_allow	Enables / disables USB over IP
#set_usb_mode	Sets the USB operating mode
#set_usb_mouse	Sets the USB mouse mode

Video

Command	Description
#get_video_allow	Displays the Video-over-IP state
#set_video_allow	Sets the Video-over-IP state

Web Interface

Command	Description
#set_webui_ad_pass	Sets the administrator password for the web UI
#set_webui_user_pass	Sets the user password for the web UI

#help

Displays a list of available commands. The commands listed are specific to either the Sender or Receiver unit.

Syntax

```
#help
```

Parameters

```
None
```

Example

```
#help

#HELP
#FACTORY_RESET
#FW_UPGRADE
#GET_BLOCK
#GET_CLK_LOCK
#GET_DEVICE_DESC
#GET_DISCOVERY
#GET_DISCOVERY_MODE
#GET_EDID_COPY
#GET_FIRMWARE_VERSION
#GET_GATEWAY
#GET_HDCP
#GET_IP_ADDRESS
#GET_IP_MODE
#GET_IPCONFIG
#GET_MASK
#GET_NET_MODE
#GET_NETMASK
#GET_PQ_MODE
#GET_REMOTE_UDP_ACCESS
#GET_REMOTE_UDP_IP
#GET_REMOTE_UDP_PORT
#GET_RX_CHANNEL
#GET_RX_ID
#GET_SERIAL_ALLOW
#GET_SERIAL_BAUD
#GET_SERIAL_BITS
...
...
```

#factory_reset

Resets the unit to factory-default settings. *param1* must be included and set to 1.

Syntax

```
#factory_reset param1
```

Parameters

param1	Integer	1

Example

```
#factory_reset 1
RESET TO FACTORY DEFAULTS
```

Related Commands

#reboot

#fw_upgrade

Upgrades the firmware from the command.

Syntax

```
#fw_upgrade filename
```

Parameters

filename	String

Example

```
#fw_upgrade firmware_file_v2.bin
```

#get_block

Displays the current video blocking state. This command is only available when connected to a Sender unit. To enable or disable the video blocking state, refer to the #set_block command.

Syntax

```
#get_block
```

Parameters

```
None
```

Example

```
#get_block
BLOCK DISABLED
```

Related Commands

```
#get_mask
#set_block
```

#get_clk_lock

Displays the audio clock lock.

Syntax

```
#get_clk_lock
```

Parameters

```
None
```

Example

```
#get_clk_lock
CLK_LOCK 0
```

Related Commands

```
#set_clk_lock
```

#get_device_desc

Displays the description of the Sender / Receiver unit.

Syntax

```
#get_device_desc
```

Parameters

```
None
```

Example

```
#get_device_desc
DEVICE DESCRIPTION IS Genius Sender 2
```

Related Commands

```
#set_device_desc
```

#get_discovery

Displays the current discovery mode setting.

Syntax

```
#get_discovery
```

Parameters

```
None
```

Example

```
#get_discovery
DISCOVERY SERVICE SET TO ENABLED
```

Related Commands

```
#set_discovery
#set_showme
```

#get_discovery_mode

Displays the current discovery mode setting.

Syntax

```
#get_discovery_mode
```

Parameters

```
None
```

Example

```
#get_discovery_mode
DISCOVERY MODE 1
```

Related Commands

```
#set_discovery
#set_discovery_mode
#set_showme
```

#get_edid_copy

Displays the EDID copy state. This command is only available when connected to a Receiver unit.

Syntax

```
#get_edid_copy
```

Parameters

```
None
```

Example

```
#get_edid_copy
COPY EDID OF CONNECTED DISPLAY IS ENABLED
```

Related Commands

```
#set_edid_copy
```

#get_firmware_version

Displays the firmware version.

Syntax

```
#get_firmware_version
```

Parameters

```
None
```

Example

```
#get_firmware_version
FIRMWARE VERSION IS 1.83hv
```

Related Commands

```
#fw_upgrade
```

#get_gateway

Displays the gateway address of the Sender/Receiver unit.

Syntax

```
#get_gateway
```

Parameters

```
None
```

Example

```
#get_gateway
GATEWAY: 192.168.0.1
```

Related Commands

```
#get_ip_address
#get_ip_mode
#get_ipconfig
#get_netmask
#set_gateway
#set_ip_address
#set_ip_mode
#set_netmask
```

#get_hdcp

Displays the current HDCP state. This command is only available when connected to a Sender unit.

Syntax

```
#get_hdcp
```

Parameters

```
None
```

Example

```
#get_hdcp
HDCP ENCRYPTED SOURCE IS ENABLE
```

Related Commands

```
#set_hdcp_allow
```

#get_ip_address

Displays the current IP address of the Sender or Receiver unit.

Syntax

```
#get_ip_address
```

Parameters

```
None
```

Example

```
#get_ip_address
IP: 10.5.64.60
```

Related Commands

```
#get_gateway
#get_ip_mode
#get_ipconfig
#get_netmask
#get_web_port
#set_gateway
#set_ip_address
#set_ip_mode
#set_netmask
#set_web_port
```

#get_ip_mode

Displays the current IP mode.

Syntax

```
#get_ip_mode
```

Parameters

```
None
```

Example

```
#get_ip_mode
IP MODE IS SET TO DHCP
```

Related Commands

```
#get_gateway
#get_ip_address
#get_ipconfig
#get_netmask
#get_web_port
#set_gateway
#set_ip_address
#set_ip_mode
#set_netmask
#set_web_port
```

#get_ipconfig

Displays the current IP configuration. In addition to providing the MAC address and the broadcast IP address, this command also provides the same information as executing the `#get_ip_mode`, `#get_ip_address`, `#get_netmask`, and `#get_gateway` commands.

Syntax

```
#get_ipconfig
```

Parameters

```
None
```

Example

```
#get_ipconfig
IP CONFIGURATION IS :
IP MODE: DHCP
IP: 10.5.64.60
NETMASK: 255.255.255.0
GATEWAY: 10.5.64.1
MAC ADDRESS: 00-1C-91-03-C8-B3
```

Related Commands

```
#get_gateway
#get_ip_address
#get_netmask
#get_web_port
#set_gateway
#set_ip_address
#set_ip_mode
#set_netmask
#set_web_port
```

#get_mask

Displays the current video mask state. This command is only available when connected to a Receiver unit. To enable or disable video masking on a Receiver unit, refer to the #set_mask command.

Syntax

```
#get_mask
```

Parameters

```
None
```

Example

```
#get_mask
MASK DISABLED
```

Related Commands

```
#get_block
#set_mask
```

#get_net_mode

Displays the current network mode setting.

Syntax

```
#get_net_mode
```

Parameters

```
None
```

Example

```
#get_net_mode
NETWORK MODE SET TO MULTICAST
```

Related Commands

```
#set_net_mode
```

#get_netmask

Displays the current net mask setting.

Syntax

```
#get_netmask
```

Parameters

```
None
```

Example

```
#get_netmask
NETMASK: 255.255.255.0
```

Related Commands

```
#get_gateway
#get_ip_address
#get_ipconfig
#get_web_port
#set_gateway
#set_ip_address
#set_ip_mode
#set_netmask
#set_web_port
```

#get_pq_mode

Displays the picture quality mode. This command is only available when connected to a Sender unit.

Syntax

```
#get_pq_mode
```

Parameters

```
None
```

Example

```
#get_pq_mode
TRANSMITTER PICTURE QUALITY IS VIDEO
```

Related Commands

```
#set_pq_mode
```

#get_remote_udp_access

Displays the remote UDP access state.

Syntax

```
#get_remote_udp_access
```

Parameters

```
None
```

Example

```
#get_remote_udp_access
REMOTE UDP ACCESS IS ENABLED
```

Related Commands

```
#get_remote_udp_ip
#get_remote_udp_port
#get_udp_access
#get_udp_port
#set_remote_udp_access
#set_remote_udp_ip
#set_remote_udp_port
#set_udp_access
#set_udp_port
```

#get_remote_udp_ip

Displays the remote UDP IP address.

Syntax

```
#get_remote_udp_ip
```

Parameters

```
None
```

Example

```
#get_remote_udp_access
REMOTE UDP IP: 192.168.1.29
```

Related Commands

```
#get_remote_udp_access
#get_remote_udp_port
#get_udp_access
#get_udp_port
#set_remote_udp_access
#set_remote_udp_ip
#set_remote_udp_port
#set_udp_access
#set_udp_port
```

#get_remote_udp_port

Displays the remote UDP listening port.

Syntax

```
#get_remote_udp_port
```

Parameters

```
None
```

Example

```
#get_remote_udp_port
REMOTE UDP COMMUNICATIONS PORT: 50008
```

Related Commands

```
#get_remote_udp_access
#get_remote_udp_ip
#get_udp_access
#get_udp_port
#set_remote_udp_access
#set_remote_udp_ip
#set_remote_udp_port
#set_udp_access
#set_udp_port
```

#get_rx_channel

Displays the current channel of the Receiver unit. To set the video channel of a Receiver unit, use the r command.

Syntax

```
#get_rx_channel
```

Parameters

```
None
```

Example

```
#get_rx_channel
RECEIVER CHANNEL: 1
```

Related Commands

```
#get_tx_channel
#set_tx_channel
r
```

#get_rx_id

Displays the ID of the Receiver unit. This command is only available when connected to a Receiver unit.

Syntax

```
#get_rx_id
```

Parameters

```
None
```

Example

```
#get_rx_id
RX ID: 8
```

Related Commands

```
#set_rx_id
```

#get_serial_allow

Displays the Serial-over-IP state. Use the #set_serial_allow command to enable or disable the Serial-over-IP feature.

Syntax

```
#get_serial_allow
```

Parameters

```
None
```

Example

```
#get_serial_allow
SERIAL OVER IP is ENABLE
```

Related Commands

```
#get_serial_baud
#get_serial_parity
#get_serial_stop
#set_serial_allow
#set_serial_baud
#set_serial_bits
#set_serial_parity
#set_serial_stop
```

#get_serial_baud

Displays the serial baud rate setting. Use the #set_serial_baud command to set the baud rate.

Syntax

```
#get_serial_baud
```

Parameters

```
None
```

Example

```
#get_serial_baud
SERIAL BAUD RATE IS 19200
```

Related Commands

```
#get_serial_allow
#get_serial_bits
#get_serial_parity
#get_serial_stop
#set_serial_allow
#set_serial_baud
#set_serial_bits
#set_serial_parity
#set_serial_stop
```

#get_serial_bits

Displays the serial data bits setting. Use the #set_serial_bits command to set the number of data bits.

Syntax

```
#get_serial_bits
```

Parameters

```
None
```

Example

```
#get_serial_bits
SERIAL DATA BITS IS 8
```

Related Commands

```
#get_serial_allow
#get_serial_baud
#get_serial_parity
#get_serial_stop
#set_serial_allow
#set_serial_baud
#set_serial_bits
#set_serial_parity
#set_serial_stop
```

#get_serial_parity

Displays the serial parity bit setting. Use the #set_serial_parity command to set the parity bit.

Syntax

```
#get_serial_parity
```

Parameters

```
None
```

Example

```
#get_serial_parity
SERIAL PARITY MODE SET TO NONE
```

Related Commands

```
#get_serial_allow
#get_serial_baud
#get_serial_bits
#get_serial_stop
#set_serial_allow
#set_serial_baud
#set_serial_bits
#set_serial_parity
#set_serial_stop
```

#get_serial_stop

Displays the serial stop bits setting. Use the #set_serial_stop command to set the number of stop bits.

Syntax

```
#get_serial_stop
```

Parameters

```
None
```

Example

```
#get_serial_stop
SERIAL STOP BITS IS 1
```

Related Commands

```
#get_serial_allow
#get_serial_baud
#get_serial_bits
#get_serial_parity
#set_serial_allow
#set_serial_baud
#set_serial_bits
#set_serial_parity
#set_serial_stop
```

#get_showme

Displays the showme state.

Syntax

```
#get_showme
```

Parameters

```
None
```

Example

```
#get_showme
SHOW ME DISABLED
```

Related Commands

```
#set_showme
```

#get_telnet_access

Displays the Telnet access state. Use the #set_telnet_access command to enable or disable Telnet access.

Syntax

```
#get_telnet_access
```

Parameters

```
None
```

Example

```
#get_telnet_access
TELNET ACCESS IS ENABLED
```

Related Commands

```
#get_telnet_login
#get_telnet_port
#get_telnet_welcome
#set_telnet_access
#set_telnet_pass
#set_telnet_login
#set_telnet_pass
#set_telnet_port
#set_telnet_welcome
```

#get_telnet_login

Displays the Telnet login status.

Syntax

```
#get_telnet_login
```

Parameters

```
None
```

Example

```
#get_telnet_login
TELNET LOGIN SET TO DISABLED
```

Related Commands

```
#get_telnet_access
#get_telnet_port
#get_telnet_welcome
#set_telnet_access
#set_telnet_pass
#set_telnet_login
#set_telnet_pass
#set_telnet_port
#set_telnet_welcome
```

#get_telnet_port

Displays the Telnet listening port.

Syntax

```
#get_telnet_port
```

Parameters

```
None
```

Example

```
#get_telnet_port
TELNET COMMUNICATION PORT: 23
```

Related Commands

```
#get_telnet_access
#get_telnet_login
#get_telnet_welcome
#set_telnet_access
#set_telnet_pass
#set_telnet_login
#set_telnet_pass
#set_telnet_port
#set_telnet_welcome
```

#get_telnet_welcome

Displays the Telnet welcome message. Use the #set_telnet_welcome to create a custom welcome message.

Syntax

```
#get_telnet_welcome
```

Parameters

```
None
```

Example

```
#get_telnet_welcome
TELNET WELCOME SCREEN IS DISABLED
```

Related Commands

```
#get_telnet_access
#get_telnet_login
#get_telnet_port
#set_telnet_access
#set_telnet_pass
#set_telnet_login
#set_telnet_pass
#set_telnet_port
#set_telnet_welcome
```

#get_tx_channel

Displays the video channel of the Sender unit. This command is only available when connected to a Sender unit.

Syntax

```
#get_tx_channel
```

Parameters

```
None
```

Example

```
#get_tx_channel
TRANSMITTER CHANNEL: 1
```

Related Commands

```
#get_rx_channel
#set_tx_channel
r
```

#get_udp_access

Displays the UDP access state. Use the #set_udp_access command to enable or disable UDP access.

Syntax

```
#get_udp_access
```

Parameters

```
None
```

Example

```
#get_udp_access
UDP ACCESS IS ENABLED
```

Related Commands

```
#get_remote_udp_access
#get_remote_udp_ip
#get_remote_udp_port
#get_udp_port
#set_remote_udp_access
#set_remote_udp_ip
#set_remote_udp_port
#set_udp_access
#set_udp_port
```

#get_udp_port

Displays the local UDP listening port.

Syntax

```
#get_udp_port
```

Parameters

```
None
```

Example

```
#get_udp_port
UDP PORT SET TO 50007
```

Related Commands

```
#get_remote_udp_access
#get_remote_udp_ip
#get_remote_udp_port
#get_udp_access
#set_remote_udp_access
#set_remote_udp_ip
#set_remote_udp_port
#set_udp_access
#set_udp_port
```

#get_usb_allow

Displays the USB-over-IP state.

Syntax

```
#get_usb_allow
```

Parameters

```
None
```

Example

```
#get_usb_allow
USB OVER IP is ENABLE
```

Related Commands

```
#get_usb_mode
#get_usb_mouse
#set_usb_allow
#set_usb_mode
#set_usb_mouse
```

#get_usb_mode

Displays the USB operating mode.

Syntax

```
#get_usb_mode
```

Parameters

```
None
```

Example

```
#get_usb_mode
USB OPERATION MODE IS ACTIVE PER REQUEST
```

Related Commands

```
#get_usb_allow
#get_usb_mouse
#set_usb_allow
#set_usb_mode
#set_usb_mouse
```

#get_usb_mouse

Displays the mouse operating mode.

Syntax

```
#get_usb_mouse
```

Parameters

```
None
```

Example

```
#get_usb_mouse
USB MOUSE MODE IS HIGH RESOLUTION
```

Related Commands

```
#get_usb_allow
#get_usb_mode
#set_usb_allow
#set_usb_mode
#set_usb_mouse
```

#get_v

Displays the current video input status.

Syntax

```
#get_v
```

Parameters

```
None
```

Example

```
#get_v
V H
```

Related Commands

```
#set_video_allow
```

#get_video_allow

Displays the Video-over-IP status. Use the #set_video_allow command to enable or disable video over IP.

Syntax

```
#get_video_allow
```

Parameters

```
None
```

Example

```
#get_video_allow
VIDEO OVER IP is ENABLE
```

Related Commands

```
#set_video_allow
```

#get_vw

Displays the video wall enable/disable setting.

Syntax

```
#get_vw
```

Parameters

```
None
```

Example

```
#get_vw
VW 0
```

Related Commands

```
#get_vw_bc
#get_vw_delay
#get_vw_hscale
#get_vw_layout
#get_vw_osd
#get_vw_pos
#get_vw_shift
#get_vw_vscale
#set_vw
#set_vw_bc
#set_vw_delay
#set_vw_hscale
#set_vw_layout
#set_vw_osd
#set_vw_pos
#set_vw_shift
#set_vw_vscale
```

#get_vw_bc

Displays the video wall bezel compensation setting.

Syntax

```
#get_vw_bc
```

Parameters

```
None
```

Example

```
#get_vw_bc
VW_BC 6223 6550 3429 4010
```

Related Commands

```
#get_vw_bc
#get_vw_delay
#get_vw_hscale
#get_vw_layout
#get_vw_osd
#get_vw_pos
#get_vw_shift
#get_vw_vscale
#set_vw
#set_vw_bc
#set_vw_delay
#set_vw_hscale
#set_vw_layout
#set_vw_osd
#set_vw_pos
#set_vw_shift
#set_vw_vscale
```

#get_vw_delay

Displays the video wall delay setting.

Syntax

```
#get_vw_delay
```

Parameters

```
None
```

Example

```
#get_vw_delay
VW_DELAY 0
```

Related Commands

```
#get_vw_bc
#get_vw_delay
#get_vw_hscale
#get_vw_layout
#get_vw_osd
#get_vw_pos
#get_vw_shift
#get_vw_vscale
#set_vw
#set_vw_bc
#set_vw_delay
#set_vw_hscale
#set_vw_layout
#set_vw_osd
#set_vw_pos
#set_vw_shift
#set_vw_vscale
```

#get_vw_hscale

Displays the video wall horizontal upscaling value.

Syntax

```
#get_vw_bc
```

Parameters

```
None
```

Example

```
#get_vw_bc
VW_HSCALE 0
```

Related Commands

```
#get_vw_bc
#get_vw_delay
#get_vw_hscale
#get_vw_layout
#get_vw_osd
#get_vw_pos
#get_vw_shift
#get_vw_vscale
#set_vw
#set_vw_bc
#set_vw_delay
#set_vw_hscale
#set_vw_layout
#set_vw_osd
#set_vw_pos
#set_vw_shift
#set_vw_vscale
```

#get_vw_layout

Displays the video wall horizontal and vertical display count.

Syntax

```
#get_vw_layout
```

Parameters

```
None
```

Example

```
#get_vw_layout
VW_LAYOUT 2 2
```

Related Commands

```
#get_vw_bc
#get_vw_delay
#get_vw_hscale
#get_vw_layout
#get_vw_osd
#get_vw_pos
#get_vw_shift
#get_vw_vscale
#set_vw
#set_vw_bc
#set_vw_delay
#set_vw_hscale
#set_vw_layout
#set_vw_osd
#set_vw_pos
#set_vw_shift
#set_vw_vscale
```

#get_vw_osd

Displays the enable / disable status of the video wall OSD.

Syntax

```
#get_vw_osd
```

Parameters

```
None
```

Example

```
#get_vw_osd
VW_OSD 0
```

Related Commands

```
#get_vw_bc
#get_vw_delay
#get_vw_hscale
#get_vw_layout
#get_vw_osd
#get_vw_pos
#get_vw_shift
#get_vw_vscale
#set_vw
#set_vw_bc
#set_vw_delay
#set_vw_hscale
#set_vw_layout
#set_vw_osd
#set_vw_pos
#set_vw_shift
#set_vw_vscale
```

#get_vw_pos

Displays the video wall display position.

Syntax

```
#get_vw_pos
```

Parameters

```
None
```

Example

```
#get_vw_pos
VW_POS 0 0
```

Related Commands

```
#get_vw_bc
#get_vw_delay
#get_vw_hscale
#get_vw_layout
#get_vw_osd
#get_vw_pos
#get_vw_shift
#get_vw_vscale
#set_vw
#set_vw_bc
#set_vw_delay
#set_vw_hscale
#set_vw_layout
#set_vw_osd
#set_vw_pos
#set_vw_shift
#set_vw_vscale
```

#get_vw_shift

Displays the video wall display shift.

Syntax

```
#get_vw_shift
```

Parameters

```
None
```

Example

```
#get_vw_shift
VW_SHIFT 0 0 0 0
```

Related Commands

```
#get_vw_bc
#get_vw_delay
#get_vw_hscale
#get_vw_layout
#get_vw_osd
#get_vw_pos
#get_vw_shift
#get_vw_vscale
#set_vw
#set_vw_bc
#set_vw_delay
#set_vw_hscale
#set_vw_layout
#set_vw_osd
#set_vw_pos
#set_vw_shift
#set_vw_vscale
```

#get_vw_vscale

Displays the video wall vertical upscaling value.

Syntax

```
#get_vw_vscale
```

Parameters

```
None
```

Example

```
#get_vw_vscale
VW_VSCALE 0
```

Related Commands

```
#get_vw_bc
#get_vw_delay
#get_vw_hscale
#get_vw_layout
#get_vw_osd
#get_vw_pos
#get_vw_shift
#get_vw_vscale
#set_vw
#set_vw_bc
#set_vw_delay
#set_vw_hscale
#set_vw_layout
#set_vw_osd
#set_vw_pos
#set_vw_shift
#set_vw_vscale
```

#get_web_port

Displays the HTTP listening port. Use the `#set_web_port` command to set the HTTP listening port.

Syntax

```
#get_web_port
```

Parameters

```
None
```

Example

```
#get_web_port
WEB INTERFACE PORT: 80
```

Related Commands

```
#get_gateway
#get_ip_address
#get_ipconfig
#set_gateway
#set_ip_address
#set_ip_mode
#set_netmask
#set_web_port
```

#reboot

Reboots the Sender / Receiver unit.

Syntax

```
#reboot
```

Parameters

```
None
```

Example

```
#reboot
UNIT WILL REBOOT SHORTLY
```

Related Commands

```
#factory_reset
```

#request_usb

Requests USB control when `ACTIVE PER REQUEST` USB mode is set.

Syntax

```
#request_usb
```

Parameters

```
None
```

Example

```
#request_usb
REQUESTING USB FROM SENDER
```

Related Commands

```
#set_usb_mode
```

#set_block

Enables or disables video blocking at a Sender unit.

Syntax

```
#set_block param1
```

Parameters

`param1` Integer [0 ... 1]

param1	Description
0	Disabled
1	Enabled

Example

```
#set_block 1
BLOCK ENABLED
```

Related Commands

```
#get_block
#set_mask
```

#set_clk_lock

Sets the audio clock lock. This command is only available on the Receiver unit. After executing this command, the unit must be rebooted to apply the changes.

Syntax

```
#set_block param1
```

Parameters

param1	Integer	[0 ... 500]

Example

```
#set_clk_lock 100
PLEASE REBOOT THE UNIT TO APPLY CHANGES
```

Related Commands

```
#get_clk_lock
```

#set_device_desc

Sets the description for the Sender / Receiver unit. The description string cannot exceed 30 characters in length. Spaces and underscore characters are acceptable. Avoid using symbols and special characters.

Syntax

```
#set_description param1
```

Parameters

param1	String

Example

```
#set_description Blu-ray_Panasonic
PRODUCT DESCRIPTION SET
```

Related Commands

```
#get_device_desc
```

#set_discovery

Enables or disables the discovery feature. The default value is On.

Syntax

```
#set_discovery param1
```

Parameters

`param1` Integer [0 ... 1]

param1	Description
0	Off
1	On

Example

```
#set_discovery 0
DISCOVERY SERVICE SET TO DISABLED
```

Related Commands

```
#get_discovery
#set_showme
#get_showme
```

#set_discovery_mode

Sets the discovery read / write mode.

Syntax

```
#set_discovery_mode param1
```

Parameters

`param1` Integer [0 ... 1]

param1	Description
0	Read only mode
1	Read / write mode

Example

```
#set_discovery_mode 1
DISCOVERY MODE 1
```

Related Commands

```
#get_edid_copy
```

#set_edid_copy

Enables or disables the EDID copy state. When *param1* = 1, the downstream EDID (connected to the Receiver unit) is copied to the Sender unit. If *param1* = 0, then the internal (default) EDID is used. This command is only available when connected to a Receiver unit. After executing this command, the unit must be rebooted to apply the changes.

Syntax

```
#set_edid_copy param1
```

Parameters

`param1` Integer [0 ... 1]

param1	Description
0	Off
1	On

Example

```
#set_edid_copy 1
COPY EDID OF CONNECTED DISPLAY SET TO ENABLED
PLEASE REBOOT THE UNIT TO APPLY CHANGES
```

Related Commands

`#get_edid_copy`

#set_gateway

Sets the gateway address. This command is only applicable when using Static IP mode. *param1* must be specified using dot-decimal notation. After executing this command, the unit must be rebooted to apply the changes.

Syntax

```
#set_gateway param1
```

Parameters

param1	IP Address

Example

```
#set_gateway 192.168.1.1
GATEWAY ADDRESS SET TO 192.168.1.1
PLEASE REBOOT THE UNIT TO APPLY CHANGES
```

Related Commands

```
#get_gateway
#get_ip_address
#get_ip_mode
#get_ipconfig
#get_netmask
#get_web_port
#set_ip_address
#set_ip_mode
#set_netmask
#set_web_port
```

#set_hdcp_allow

Blocks or unblocks HDCP-encrypted sources. This command ***does not*** decrypt HDCP content and is only available when connected to a Sender unit. After executing this command, the unit must be rebooted to apply the changes.

Syntax

```
#set_hdcp_allow param1
```

Parameters

`param1` Integer [0 ... 1]

param1	Description
0	Disabled
1	Enabled

Example

```
#set_hdcp_allow 1
HDCP ENCRYPTED SOURCE SET TO ENABLED
PLEASE REBOOT THE UNIT TO APPLY CHANGES
```

Related Commands

`#get_hdcp_allow`

#set_ip_address

Sets the IP address. *param1* must be specified using dot-decimal notation. After executing this command, the unit must be rebooted to apply the changes.

Syntax

```
#set_ip_address param1
```

Parameters

param1	IP Address

Example

```
#set_gateway 192.168.1.1
GATEWAY ADDRESS SET TO 192.168.1.1
PLEASE REBOOT THE UNIT TO APPLY CHANGES
```

Related Commands

```
#get_gateway
#get_ip_address
#get_ip_mode
#get_ipconfig
#get_netmask
#get_web_port
#set_gateway
#set_ip_mode
#set_netmask
#set_web_port
```

#set_ip_mode

Sets the IP mode. After executing this command, the unit must be rebooted to apply the changes.

Syntax

```
#set_ip_mode param1
```

Parameters

`param1` Integer [0 ... 2]

param1	Description
0	Static
1	DHCP
2	Auto IP

Example

```
#set_ip_mode 1
IP MODE SET TO DHCP
PLEASE REBOOT THE UNIT TO APPLY CHANGES
```

Related Commands

```
#get_gateway
#get_ip_address
#get_ip_mode
#get_ipconfig
#get_netmask
#get_web_port
#set_ip_address
#set_gateway
#set_netmask
#set_web_port
```

#set_mask

Enables or disables video masking at a Receiver unit.

Syntax

```
#set_mask param1
```

Parameters

`param1` Integer [0 ... 1]

param1	Description
0	Disabled
1	Enabled

Example

```
#set_mask 1
MASK ENABLED
```

Related Commands

```
#get_mask
#set_block
```

#set_net_mode

Sets the network casting mode.

Syntax

```
#set_net_mode param1
```

Parameters

`param1` Integer [0 ... 1]

param1	Description
0	Unicast
1	Multicast

Example

```
#set_net_mode 0
NETWORK CASTING MODE SET TO UNICAST
```

Related Commands

```
#get_net_mode
```

#set_netmask

Sets the network mask address. *param1* must be specified using dot-decimal notation. After executing this command, the unit must be rebooted to apply the changes.

Syntax

```
#set_netmask param1
```

Parameters

param1	IP Address

Example

```
#set_netmask 255.255.255.0
NETMASK ADDRESS SET TO 255.255.255.0
PLEASE REBOOT THE UNIT TO APPLY CHANGES
```

Related Commands

```
#get_gateway
#get_ip_address
#get_ip_mode
#get_ipconfig
#get_netmask
#get_web_port
#set_ip_address
#set_ip_mode
#set_gateway
#set_web_port
```

#set_pq_mode

Sets the picture quality mode. This command is only available when connected to a Sender unit.

Syntax

```
#set_pq_mode param1
```

Parameters

`param1` Integer [0 ... 1]

param1	Description
0	Graphic
1	Video

Example

```
#set_pq_mode 1
TRANSMITTER PICTURE QUALITY SET TO VIDEO
```

Related Commands

```
#get_pq_mode
```

#set_remote_udp_access

Enables or disables remote UDP access. After executing this command, the unit must be rebooted to apply the changes.

Syntax

```
#set_remote_udp_access param1
```

Parameters

`param1` Integer [0 ... 1]

param1	Description
0	Disabled
1	Enabled

Example

```
#set_remote_udp_access 1
REMOTE UDP ACCESS SET TO ENABLED
PLEASE REBOOT THE UNIT TO APPLY CHANGES
```

Related Commands

```
#get_remote_udp_access
#get_remote_udp_ip
#get_remote_udp_port
#get_udp_access
#get_udp_port
#set_remote_udp_access
#set_remote_udp_ip
#set_remote_udp_port
#set_udp_access
#set_udp_port
```

#set_remote_udp_ip

Set the remote UDP IP address. *param1* must be specified using dot-decimal notation. After executing this command, the unit must be rebooted to apply the changes.

Syntax

```
#set_remote_udp_ip param1
```

Parameters

param1	IP address

Example

```
#set_remote_udp_ip 192.168.1.29

REMOTE UDP IP ADDRESS SET TO 192.168.1.29
PLEASE REBOOT THE UNIT TO APPLY CHANGES
```

Related Commands

```
#get_remote_udp_access
#get_remote_udp_ip
#get_remote_udp_port
#get_udp_access
#get_udp_port
#set_remote_udp_access
#set_remote_udp_port
#set_udp_access
#set_udp_port
```

#set_remote_udp_port

Set the remote UDP listening port. After executing this command, the unit must be rebooted to apply the changes.

Syntax

```
#set_remote_udp_port param1
```

Parameters

param1	Integer	[0 ... 65535]

Example

```
#set_remote_udp_port 50008

REMOTE UDP COMMUNICATIONS PORT IS SET TO PORT 50008
PLEASE REBOOT THE UNIT TO APPLY CHANGES
```

Related Commands

```
#get_remote_udp_access
#get_remote_udp_ip
#get_remote_udp_port
#get_udp_access
#get_udp_port
#set_remote_udp_access
#set_remote_udp_ip
#set_udp_access
#set_udp_port
```

#set_rx_id

Sets the ID of the Receiver unit. This command is only available when connected to a Receiver unit.

Syntax

```
#set_rx_id param1
```

Parameters

param1	Integer	[0 ... 65535]

Example

```
#set_rx_id 1
RX ID: 1
```

Related Commands

```
#get_rx_id
```

#set_serial_allow

Enables or disables serial over IP. After executing this command, the unit must be rebooted to apply the changes.

Syntax

```
#set_serial_allow param1
```

Parameters

`param1` Integer [0 ... 1]

param1	Description
0	Disable
1	Enable

Example

```
#set_serial_allow 0
SERIAL OVER IP SET TO DISABLED
PLEASE REBOOT THE UNIT TO APPLY CHANGES
```

Related Commands

```
#get_serial_allow
#get_serial_baud
#get_serial_bits
#get_serial_parity
#get_serial_stop
#set_serial_baud
#set_serial_bits
#set_serial_parity
#set_serial_stop
```

#set_serial_baud

Sets the baud rate for the serial port. After executing this command, the unit must be rebooted to apply the changes.

Syntax

```
#set_serial_baud param1
```

Parameters

`param1` Integer [0 ... 9]

param1	Description (baud rate)
0	300
1	600
2	1200
3	2400
4	4800
5	9600
6	19200
7	38400
8	57600
9	115200

Example

```
#set_serial_baud 6
SERIAL BAUD RATE SET TO 19200
PLEASE REBOOT THE UNIT TO APPLY CHANGES
```

Related Commands

```
#get_serial_allow
#get_serial_baud
#get_serial_bits
#get_serial_parity
#get_serial_stop
#set_serial_allow
#set_serial_bits
#set_serial_parity
#set_serial_stop
```

#set_serial_bits

Sets the data bits for the serial port. After executing this command, the unit must be rebooted to apply the changes.

Syntax

```
#set_serial_bits param1
```

Parameters

`param1` Integer [0 ... 3]

param1	Description (data bits)
0	5
1	6
2	7
3	8

Example

```
#set_serial_bits 3
SERIAL DATA BITS SET TO 8
PLEASE REBOOT THE UNIT TO APPLY CHANGES
```

Related Commands

```
#get_serial_allow
#get_serial_baud
#get_serial_bits
#get_serial_parity
#get_serial_stop
#set_serial_allow
#set_serial_baud
#set_serial_bits
#set_serial_parity
#set_serial_stop
```

#set_serial_parity

Sets the parity bit for the serial port. After executing this command, the unit must be rebooted to apply the changes.

Syntax

```
#set_serial_parity param1
```

Parameters

`param1` Integer [0 ... 2]

param1	Description
0	None
1	Odd
2	Even

Example

```
#set_serial_parity 0
SERIAL PARITY MODE SET TO NONE
PLEASE REBOOT THE UNIT TO APPLY CHANGES
```

Related Commands

```
#get_serial_allow
#get_serial_baud
#get_serial_bits
#get_serial_parity
#get_serial_stop
#set_serial_allow
#set_serial_baud
#set_serial_bits
#set_serial_stop
```

#set_serial_stop

Sets the number of stop bits for the serial port. After executing this command, the unit must be rebooted to apply the changes.

Syntax

```
#set_serial_stop param1
```

Parameters

`param1` Integer [0 ... 1]

param1	Description (stop bits)
0	1
1	2

Example

```
#set_serial_stop 0
SERIAL STOP BITS SET TO 1
PLEASE REBOOT THE UNIT TO APPLY CHANGES
```

Related Commands

```
#get_serial_allow
#get_serial_baud
#get_serial_bits
#get_serial_parity
#get_serial_stop
#set_serial_allow
#set_serial_baud
#set_serial_bits
#set_serial_parity
```

#set_showme

Enables or disables the “Show Me” feature. When the “Show Me” feature is enabled, then both the **Power** and **Link** LED indicators, on the front panel, will flash. This quickly identifies a unit and is useful when multiple units are being used. The default setting is *disabled*.

Syntax

```
#set_showme param1
```

Parameters

`param1` Integer [0 ... 1]

param1	Description
0	Disabled
1	Enabled

Example

```
#set_showme 1
SHOW ME ENABLED
```

Related Commands

```
#get_discovery
#set_discovery
```

#set_telnet_access

Enables or disables Telnet access. After executing this command, the unit must be rebooted to apply the changes.

Syntax

```
#set_telnet_access param1
```

Parameters

`param1` Integer [0 ... 1]

param1	Description
0	Disabled
1	Enabled

Example

```
#set_telnet_access 1
TELNET ACCESS SET TO ENABLED
PLEASE REBOOT THE UNIT TO APPLY CHANGES
```

Related Commands

```
#get_telnet_access
#get_telnet_login
#get_telnet_port
#get_telnet_welcome
#set_telnet_login
#set_telnet_pass
#set_telnet_port
#set_telnet_welcome
```

#set_telnet_login

Enables or disables the Telnet login process. After executing this command, the unit must be rebooted to apply the changes.

Syntax

```
#set_telnet_login param1
```

Parameters

`param1` Integer [0 ... 1]

param1	Description
0	Disabled
1	Enabled

Example

```
#set_telnet_login 1
TELNET INTERFACE LOGIN SET TO ENABLED
PLEASE REBOOT THE UNIT TO APPLY CHANGES
```

Related Commands

```
#get_telnet_access
#get_telnet_pass
#get_telnet_port
#get_telnet_welcome
#set_telnet_access
#set_telnet_pass
#set_telnet_port
#set_telnet_welcome
```

#set_telnet_pass

Sets the Telnet password. The password cannot exceed 8 characters in length and is case-sensitive. No special characters are allowed. The default password is `admin`. After executing this command, the unit must be rebooted to apply the changes.

Syntax

```
#set_telnet_pass param1
```

Parameters

`param1`	String

Example

```
#set_telnet_pass b055man
TELNET INTERFACE PASSWORD IS SET b055man
PLEASE REBOOT THE UNIT TO APPLY CHANGES
```

Related Commands

```
#get_telnet_access
#get_telnet_pass
#get_telnet_port
#get_telnet_welcome
#set_telnet_access
#set_telnet_login
#set_telnet_port
#set_telnet_welcome
```

#set_telnet_port

Sets the Telnet listening port. After executing this command, the unit must be rebooted to apply the changes.

Syntax

```
#set_telnet_port param1
```

Parameters

param1	Integer	[0 ... 65535]

Example

```
#set_telnet_port 23
TELNET COMMUNICATIONS PORT SET TO PORT 23
PLEASE REBOOT THE UNIT TO APPLY CHANGES
```

Related Commands

```
#get_telnet_access
#get_telnet_pass
#get_telnet_port
#get_telnet_welcome
#set_telnet_access
#set_telnet_login
#set_telnet_pass
#set_telnet_welcome
```

#set_telnet_welcome

Enables / disables the Telnet welcome screen. After executing this command, the unit must be rebooted to apply the changes.

Syntax

```
#set_telnet_welcome param1
```

Parameters

`param1` Integer [0 ... 1]

param1	Description
0	Disabled
1	Enabled

Example

```
#set_telnet_welcome Welcome!
TELNET WELCOME SCREEN IS ENABLED
PLEASE REBOOT THE UNIT TO APPLY CHANGES
```

Related Commands

```
#get_telnet_access
#get_telnet_pass
#get_telnet_port
#get_telnet_welcome
#set_telnet_access
#set_telnet_login
#set_telnet_pass
#set_telnet_port
```

#set_tx_channel

Sets the video channel for the Sender unit. This command is only available when connected to the Sender unit.

Syntax

```
#set_tx_channel param1
```

Parameters

param1	Integer	[0 ... 255]

Example

```
#set_tx_channel 1
TRANSMITTER CHANNEL SET TO 1
```

Related Commands

```
#get_tx_channel
#get_rx_channel
r
```

#set_udp_access

Enables or disables UDP access. After executing this command, the unit must be rebooted to apply the changes.

Syntax

```
#set_udp_access param1
```

Parameters

`param1` Integer [0 ... 1]

param1	Description
0	Disabled
1	Enabled

Example

```
#set_udp_access 0
UDP ACCESS SET TO DISABLED
PLEASE REBOOT THE UNIT TO APPLY CHANGES
```

Related Commands

```
#get_remote_udp_access
#get_remote_udp_ip
#get_remote_udp_port
#get_udp_access
#get_udp_port
#set_remote_udp_access
#set_remote_udp_ip
#set_remote_udp_port
#set_udp_port
```

#set_udp_port

Sets the local UDP listening port. After executing this command, the unit must be rebooted to apply the changes.

Syntax

```
#set_udp_port param1
```

Parameters

param1	Integer	[0 ... 65535]

Example

```
#set_udp_port 50007
UDP COMMUNCATION IS SET TO PORT 50007
PLEASE REBOOT THE UNIT TO APPLY CHANGES.
```

Related Commands

```
#get_remote_udp_access
#get_remote_udp_ip
#get_remote_udp_port
#get_udp_access
#get_udp_port
#set_remote_udp_access
#set_remote_udp_ip
#set_remote_udp_port
#set_udp_access
```

#set_usb_allow

Enables or disables the USB-over-IP feature. After executing this command, the unit must be rebooted to apply the changes.

Syntax

```
#set_usb_allow param1
```

Parameters

`param1` Integer [0 ... 1]

param1	Description
0	Disabled
1	Enabled

Example

```
#set_usb_allow 1
USB OVER IP SET TO ENABLED
PLEASE REBOOT THE UNIT TO APPLY CHANGES
```

Related Commands

```
#get_usb_allow
#get_usb_mode
#get_usb_mouse
#set_usb_mode
#set_usb_mouse
```

#set_usb_mode

Sets the USB operating mode. After executing this command, the unit must be rebooted to apply the changes.

Syntax

```
#set_udp_port param1
```

Parameters

`param1` Integer [0 ... 1]

param1	Description
0	Active per request
1	Active on link

Example

```
#set_usb_mode 0
USB OPERATION MODE SET TO ACTIVE PER REQUEST
PLEASE REBOOT THE UNIT TO APPLY CHANGES
```

Related Commands

```
#get_usb_allow
#get_usb_mode
#get_usb_mouse
#set_usb_allow
#set_usb_mouse
```

#set_usb_mouse

Sets the USB mouse mode. After executing this command, the unit must be rebooted to apply the changes.

Syntax

```
#set_udp_port param1
```

Parameters

`param1` Integer [0 ... 1]

param1	Description
0	High resolution
1	Compatibility

Example

```
#set_usb_mouse 0
USB MOUSE MODE SET TO HIGH RESOLUTION
PLEASE REBOOT THE UNIT TO APPLY CHANGES
```

Related Commands

```
#get_usb_allow
#get_usb_mode
#get_usb_mouse
#set_usb_allow
#set_usb_mode
```

#set_video_allow

Enables or disables the Video-over-IP feature. After executing this command, the unit must be rebooted to apply the changes.

Syntax

```
#set_video_allow param1
```

Parameters

`param1` Integer [0 ... 1]

param1	Description
0	Disabled
1	Enabled

Example

```
#set_video_allow 1
VIDEO OVER IP IS SET TO ENABLED
PLEASE REBOOT THE UNIT TO APPLY CHANGES
```

Related Commands

```
#get_video_allow
```

#set_vw

Enable / disable the video wall. After executing this command, the unit must be rebooted to apply the changes.

Syntax

```
#set_vw param1
```

Parameters

`param1` Integer [0 ... 1]

param1	Description
0	Disable
1	Enable

Example

```
#set_vw 1
VW 1
PLEASE REBOOT THE UNIT TO APPLY CHANGES
```

Related Commands

```
#get_vw_bc
#get_vw_delay
#get_vw_hscale
#get_vw_layout
#get_vw_osd
#get_vw_pos
#get_vw_shift
#get_vw_vscale
#set_vw_bc
#set_vw_delay
#set_vw_hscale
#set_vw_layout
#set_vw_osd
#set_vw_pos
#set_vw_shift
#set_vw_vscale
```

#set_vw_bc

Sets the video wall bezel compensation value. All arguments are expressed in 0.1 mm units:

`param1` is the video width
`param2` is the overall width
`param3` is the video height
`param4` is the overall height

Syntax

```
#set_vw_bc param1 param2 param3 param4
```

Parameters

`param1`	Integer	[0 ... 99999]
`param2`	Integer	[0 ... 99999]
`param3`	Integer	[0 ... 99999]
`param4`	Integer	[0 ... 99999]

Example

```
#set_vw_bc 190 200 90 100
VW_BC 190 200 90 100
```

Related Commands

```
#get_vw_bc
#get_vw_delay
#get_vw_hscale
#get_vw_layout
#get_vw_osd
#get_vw_pos
#get_vw_shift
#get_vw_vscale
#set_vw
#set_vw_delay
#set_vw_hscale
#set_vw_layout
#set_vw_osd
#set_vw_pos
#set_vw_shift
#set_vw_vscale
```

#set_vw_delay

Sets the video wall display delay in microseconds.

Syntax

```
#set_vw_delay param1
```

Parameters

param1	Integer	[0 ... 99999]

Example

```
#set_vw_delay 16000
VW_DELAY 16000
```

Related Commands

```
#get_vw_bc
#get_vw_delay
#get_vw_hscale
#get_vw_layout
#get_vw_osd
#get_vw_pos
#get_vw_shift
#get_vw_vscale
#set_vw_bc
#set_vw_hscale
#set_vw_layout
#set_vw_osd
#set_vw_pos
#set_vw_shift
#set_vw_vscale
```

#set_vw_hscale

Sets the video wall horizontal upscaling.

Syntax

```
#set_vw_hscale param1
```

Parameters

param1	Integer	[0 ... 1]

Example

```
#set_vw_hscale 1
VW_HSCALE 1
```

Related Commands

```
#get_vw_bc
#get_vw_delay
#get_vw_hscale
#get_vw_layout
#get_vw_osd
#get_vw_pos
#get_vw_shift
#get_vw_vscale
#set_vw
#set_vw_delay
#set_vw_layout
#set_vw_osd
#set_vw_pos
#set_vw_shift
#set_vw_vscale
```

#set_vw_layout

Sets the maximum horizontal and vertical display count for the video wall:

`param1` is the maximum horizontal display count.
`param2` is the maximum vertical display count.

Syntax

```
#set_vw_layout param1 param2
```

Parameters

`param1`	Integer	[0 ... 15]
`param2`	Integer	[0 ... 15]

Example

```
#set_vw_layout 2 2
VW_LAYOUT 2 2
```

Related Commands

```
#get_vw_bc
#get_vw_delay
#get_vw_hscale
#get_vw_layout
#get_vw_osd
#get_vw_pos
#get_vw_shift
#get_vw_vscale
#set_vw_bc
#set_vw_delay
#set_vw_hscale
#set_vw_osd
#set_vw_pos
#set_vw_shift
#set_vw_vscale
```

#set_vw_osd

Enable / disable the video wall OSD.

Syntax

```
#set_vw_osd param1
```

Parameters

`param1` Integer [0 ... 1]

param1	Description
0	Disable
1	Enable

Example

```
#set_vw_osd 1
VW_OSD 1
```

Related Commands

```
#get_vw_bc
#get_vw_delay
#get_vw_hscale
#get_vw_layout
#get_vw_osd
#get_vw_pos
#get_vw_shift
#get_vw_vscale
#set_vw
#set_vw_delay
#set_vw_hscale
#set_vw_layout
#set_vw_pos
#set_vw_shift
#set_vw_vscale
```

#set_vw_pos

Sets the video wall position.

`param1` is the row position.
`param2` is the column position.

Syntax

```
#set_vw_pos param1 param2
```

Parameters

`param1`	Integer	[0 ... 15]
`param2`	Integer	[0 ... 15]

Example

```
#set_vw_pos 2 2
VW_POS 2 2
```

Related Commands

```
#get_vw_bc
#get_vw_delay
#get_vw_hscale
#get_vw_layout
#get_vw_osd
#get_vw_pos
#get_vw_shift
#get_vw_vscale
#set_vw_bc
#set_vw_delay
#set_vw_hscale
#set_vw_layout
#set_vw_osd
#set_vw_shift
#set_vw_vscale
```

#set_vw_shift

Sets the video wall display shift. param2 must be specified in increments of eight pixels (e.g. 0, 8, 16, 24, etc.)

Syntax

```
#set_vw_shift param1 param2
```

Parameters

`param1` Character

param1	Description
U	Shift up
D	Shift down
L	Shift left
R	Shift right

`param2` Integer [0 ... 80000]

Example

```
#set_vw_shift L 16
VW_SHIFT L 16
```

Related Commands

```
#get_vw_bc
#get_vw_delay
#get_vw_hscale
#get_vw_layout
#get_vw_osd
#get_vw_pos
#get_vw_shift
#get_vw_vscale
#set_vw
#set_vw_delay
#set_vw_hscale
#set_vw_layout
#set_vw_osd
#set_vw_pos
#set_vw_vscale
```

#set_vw_vscale

Sets the video wall vertical upscaling.

Syntax

```
#set_vw_vscale param1
```

Parameters

param1	Integer	[0 ... 15]

Example

```
#set_vw_vscale 1
VW_VSCALE 1
```

Related Commands

```
#get_vw_bc
#get_vw_delay
#get_vw_hscale
#get_vw_layout
#get_vw_osd
#get_vw_pos
#get_vw_shift
#get_vw_vscale
#set_vw_bc
#set_vw_delay
#set_vw_hscale
#set_vw_layout
#set_vw_osd
#set_vw_shift
```

#set_web_port

Sets the HTTP listening port.

Syntax

```
#set_web_port param1
```

Parameters

param1	Integer	[0 ... 65535]

Example

```
#set_web_port 82
WEB INTERFACE PORT SET TO 80
PLEASE REBOOT THE UNIT TO APPLY CHANGES
```

Related Commands

```
#get_gateway
#get_ip_address
#get_ip_mode
#get_ipconfig
#get_netmask
#get_web_port
#set_gateway
#set_ip_address
#set_ip_mode
#set_netmask
```

#set_webui_ad_pass

Sets the Administrator password for the Web interface login. The password cannot exceed eight characters in length. The default password is `admin`.

Syntax

```
#set_webui_ad_pass param1
```

Parameters

`param1`	Password

Example

```
#set_webui_ad_pass b05Sman
WEB UI ADMINISTRATOR PASSWORD IS SET
```

Related Commands

`#set_webui_user_pass`

#set_webui_user_pass

Sets the User password for the Web interface login. The password cannot exceed eight characters in length. The default password is `user`.

Syntax

```
#set_webui_user_pass param1
```

Parameters

`param1`	Password

Example

```
#set_webui_user_pass m1ni0n
WEB UI USER PASSWORD IS SET
```

Related Commands

```
#set_webui_ad_pass
```

r

Changes a Receiver unit to the specified video channel. Changing the video channel allows a Receiver unit to accept the signal from a Sender unit that uses the same video channel. This command is only available when connected to a Receiver unit. Do not precede this command with the # symbol.

Syntax

```
r param1
```

Parameters

param1	Integer	[0 ... 255]

Example

```
r 1
TRANSMITTER 1 ROUTED TO RECEIVER
```

Related Commands

v

v

Changes the video input on the Sender unit. This command is only available when connected to a Receiver unit. Do not precede this command with the # symbol. The `t` argument will toggle between the VGA and HDMI inputs.

Syntax

```
v param1
```

Parameters

`param1` Character

param1	Description
V	VGA
H	HDMI
T	Toggle

Example

```
v h
V H
```

Related Commands

`r`

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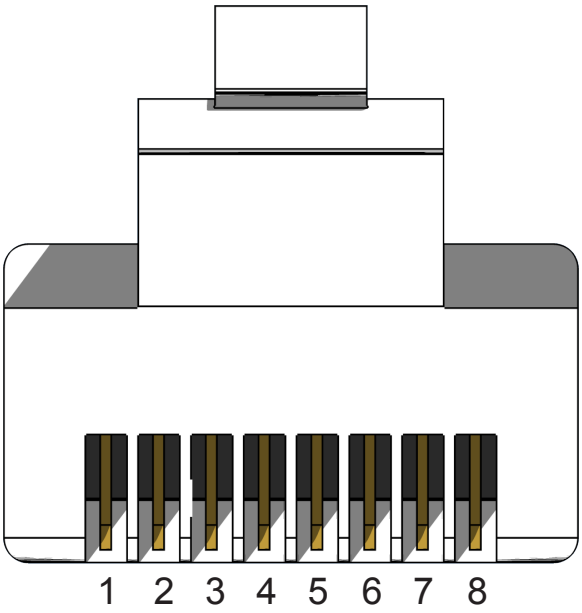
4K ULTRA HD
60Hz, 4:2:0

Multi-Format HDMI & VGA KVM over IP

4 Appendix

Front of RJ-45 Connector



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

Pin	Color	Description
1	Orange / White	TD+ (Transmit Data, positive differential signal)
2	Orange	TD- (Transmit Data, negative differential signal)
3	Green / White	RD+ (Receive Data, positive differential signal)
4	Blue	Unused
5	Blue / White	Unused
6	Green	RD- (Receive Data, negative differential signal)
7	Brown / White	Unused
8	Brown / White	Unused

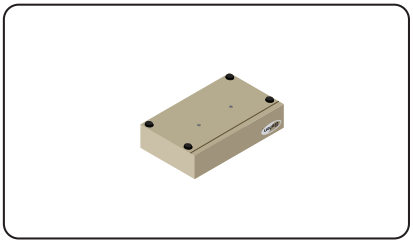
Information

Shielded CAT-5e (or better) cabling is recommended.

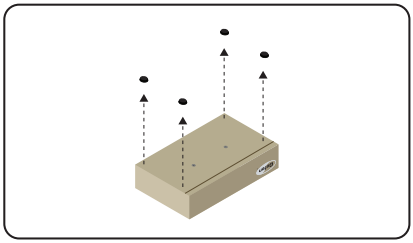
Rack Tray Installation

The following illustrations provide instructions for installing the Sender and/or Receiver unit(s) in the *Gefen 1U Rack Tray* (Gefen part no. EXT-RACK-1U).

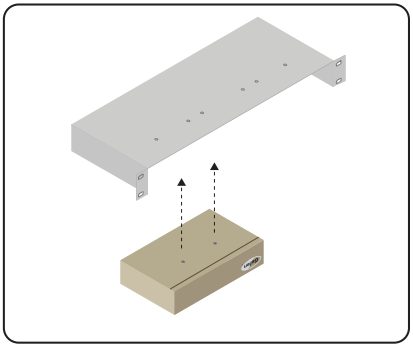
Step 1 Turn unit upside down.



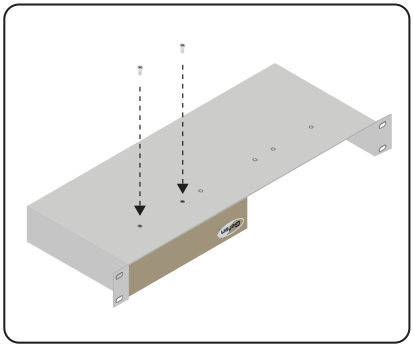
Step 2 Remove rubber feet.



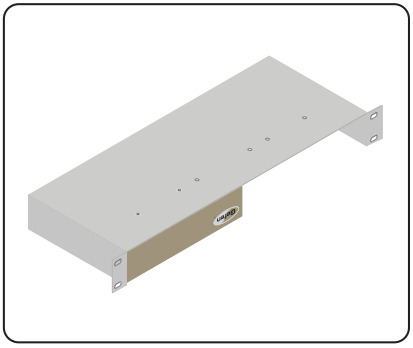
Step 3 Line up holes on unit and rack tray.



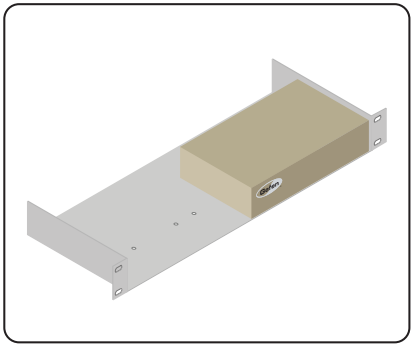
Step 4 Install countersink screws .



Step 5 Ensure the unit is installed securely.



Step 6 Unit has been installed into rack tray.



Supported Formats	
Resolutions (max.)	• 4K Ultra HD 60 Hz, 4:2:0 • 1080p Full HD (60 Hz) • 1920 x 1200 60 Hz (WUXGA)

Connectors, Controls, and Indicators	
Video Input (Sender)	• 1 x HDMI Type A 19-pin, female, locking • 1 x VGA HD-15, female
Video Output (Sender)	• 1 x VGA HD-15, female
Video Output (Receiver)	• 1 x HDMI Type-A, female, locking • 1 x VGA HD-15, female
Line Input (Sender)	• 1 x 3.5mm mini-stereo jack
Line Output (Sender)	• 1 x 3.5mm mini-stereo jack
Line Input (Receiver)	• 1 x 3.5mm mini-stereo jack
Line Output (Receiver)	• 1 x 3.5mm mini-stereo jack
Optical Digital Audio Output (Receiver)	• 1 x TOSLINK®
USB Host Interface port (Sender)	• 1 x USB Type B, female
USB Device ports (Receiver)	• 2 x USB 2.0 Type A, female • 2 x USB 1.1 Type A, female
RS-232 port (Sender)	• 1 x DB-9, female
RS-232 port (Receiver)	• 1 x DB-9, female
IR Sensor (Receiver)	• 1 x located on front panel
IR In/Ext (Sender / Receiver)	• 1 x 3.5mm mini-stereo jack
IR Out (Sender / Receiver)	• 1 x 3.5mm mini-stereo jack
IR Extender type	• EXT-RMT-EXTIRN
Ethernet port (Sender)	• 1 x RJ-45, shielded, PoE
Ethernet ports (Receiver)	• 3 x RJ-45, shielded, 1 with PoE
Channel Up/USB-Request (Receiver)	• 1 x tact-type
Channel Down (Receiver)	• 1 x tact-type
HDMI / VGA Selector (Receiver)	• 1 x tact-type
Mode button (Sender)	• 1 x tact-type, recessed
Reset button (Sender / Receiver)	• 1 x tact-type, recessed
Program button (Sender / Receiver)	• 1 x tact-type, recessed
Program Select switch (Sender / Receiver)	• 1 x slide=type, recessed
Link Indicator (Sender / Receiver)	• 1 x LED, green
Power Indicator (Sender / Receiver)	• 1 x LED, blue

Connectors, Controls, and Indicators	
Power Supply jack (Sender / Receiver)	• 1 x 5V DC, 2.5mm pin and 5.5mm barrel, locking

Operational	
Power Requirements (Sender / Receiver)	• 5V DC or PoE
Power Consumption	• Sender: 8W • Receiver: 19W
Operating Temperature (Sender / Receiver)	• +32 to +122 °F (0 to +50 °C)
Operating Humidity (Sender / Receiver)	• 5% to 90% RH, non-condensing
Storage Temperature (Sender / Receiver)	• -4 to +185 °F (-20 to +85 °C)
Storage Humidity (Sender / Receiver)	• 0% to 95% RH, non-condensing
MTBF	• Sender: 50000 hours • Receiver: 50000 hours

Physical	
Dimensions (W x H x D), without connectors or feet	• Sender 8.4” x 1.7” x 4.3” (214mm x 43mm x 108mm) • Receiver 8.4” x 1.0” x 4.3” (214mm x 25mm x 108mm)
Unit Weight	• Sender 1.7 lbs. (0.8 kg) • Receiver 1.5 lbs. (0.7 kg)

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