ST-IPC6FOUSB4K-POE

4K 10.2Gbps HDMI USB KVM Extender Over IP via CATx Cable With POE & Video Wall Support

Product Manual

ST-IPC6FOUSB4K-R-POE
View of Remote Only, Front and Rear

Table of Contents

1. INTRODUCTION

The XTENDEX® 4K HDMI USB KVM Over IP Extender provides remote KVM (USB keyboard, USB mouse, and 4Kx2K HDMI monitor) access to a USB computer up to 394 feet (120 meters) over a Gigabit network using a single CAT5e/6/6a/7 cable. The extender consists of the ST-IPC6FOUSB4K-L-POE local unit that connects to a computer and the ST-IPC6FOUSB4K-R-POE remote unit that connects to an HDMI monitor, USB keyboard, and USB mouse.

The local and remote units can be connected together for a Point-to-Point connection via CATx cable, or a Point-to-Many or Many-to-Many connection via a Gigabit network switch.

2. Features

- Supports Ultra-HD 4Kx2K resolutions to 3840x2160 @30Hz, HDTV resolutions to 1080p, and up to 1920x1200 (WUXGA).
- Cascade network switches to extend the length long distances.
- HDMI features supported:
    - HDMI 1.4
    - RGB, YCbCr 4:4:4, YCbCr 4:2:2, and YCbCr 4:2:0
    - LPCM 5.1/7.1, Dolby Digital, and DTS
    - Bandwidth up to 340 MHz (10.2 Gbps)
- HDCP 1.4 compliant.
- Two USB 2.0 ports for keyboard, mouse, flash drive, or touchscreen display.
    - Keyboard and mouse are hot-pluggable.
- Power over Ethernet (PoE) – power supply not required at the local or remote unit when used with a switch that supports PoE.
- Supports video wall installations from 1x2 to 8x16 screens.
    - Displays can be rotated 90, 180 and 270°.
- Plug-and-Play installation allows receivers to find the transmitter automatically on the same network. (Network configuration may be required if using a managed network switch.)
- Bi-directional IR control from input and output locations.
- Manage transmitter/receiver connections and video wall configuration with built-in software or DIP switches.
- Supports full-duplex RS232 up to 115200 baud.
- Customizable EDID table.
- Easily expandable – add receivers as you add control stations.
- Mounting brackets included for easy surface/wall mounting.

3. PACKAGE CONTENTS

Main Unit. HDMI Extender (Transmitter and/or Receiver)
2x Power adapter DC 5V (1 per box)
2x IR TX cables, 2x IR RX cables (1 each per box)
2x Screw terminal plugs for RS232 cable termination (1 per box)
8x screws (4 per box)
4x detachable mounting ears (2 per box)
URL slip with path to this Product Manual

4. CABLES AVAILABLE

- Interface cables between the computer/display and the transmitter/receiver are required for proper operation.
    - Supports cable lengths to 20 feet for 4K resolutions and lengths to 50 feet for 1080p@60Hz using passive HDMI cables.
- Use HD-xx-MM cable to connect an HDMI source or display (not included).
- Use HD-ACT-xx-MM 4K HDMI Active Cables to connect an HDMI source or display up to 100 feet (not included).
- Use DP-HD-xx-MM cables to connect a DisplayPort computer or display up to 15 feet (not included).
- Use USB3C-HD4K-xx-MM to connect a 4K@30Hz computer with USB Type C connector up to 10 feet (not included).
- Use DVI-HD-xM-MM to connect a DVI computer up to 5 meters (not included).
    - Supports resolutions to 1080p.
- Use CAT6/6a/7 solid straight through cable for TIA/EIA-568B wiring terminated with standard RJ45 connectors (not included).
- One 5.92 ft (1.8 m) male USB Type A to male USB Type B cable included with the transmitter.

5. HARDWARE DESCRIPTION

5.1 Transmitter
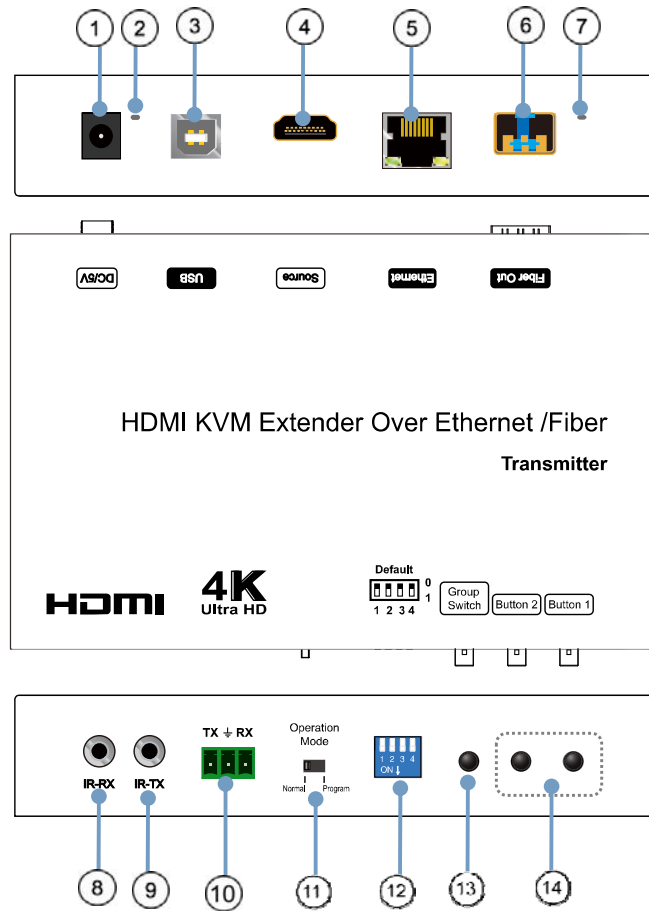
1) Power input port   2) Power input indicator   3) USB
4) HDMI input   5) Ethernet port **1**   6) Fiber Out
7) Indicator of status **2**   8) IR-RX port   9) IR-TX port
10) RS232 port
11) Normal: For serial over IP;
    Program: For serial control or getting debug information
12) 4 bit Dip switch   13) Group Switch **3**   14) Button 1 & 2 **4**

1 A. Green LED: Blinks when data is being transferred between the transmitter
    and receiver.
    B. Yellow LED: Illuminates solid to indicate a connection between the
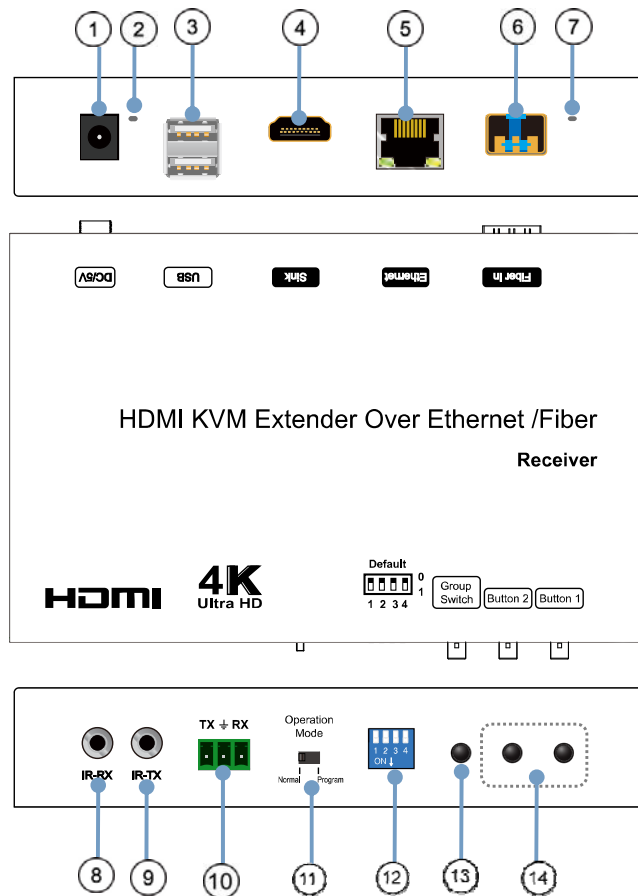   transmitter and receiver.

2 LED not used in this model.

3 After setting the DIP switch, press "Group Switch" button for 1 second.

4 Please refer to 5.3.

4 b i t s D I P S w i t c h :
Use 4bits DIP switch to select the ID for up to 16 groups
(such as 0001, 0010, 0101 etc)

5.2 Receiver

1) Power input port   2) Power input indicator   3) USB
4) HDMI output   5) Ethernet port **1**   6) Fiber In
7) Indicator of status **2**   8) IR-RX port   9) IR-TX port
10) RS232 port
11) Normal: For serial over IP;
    Program: For serial control or getting the debug information
12) 4 bit Dip switch   13) Group Switch **3**   14) Button 1 & 2 **4**

1 **A. Green LED: Blinks when data is being transferred between the transmitter and receiver.**
B. Yellow LED: Illuminates solid to indicate a connection between the transmitter and receiver.

2 **LED not used in this model.**

3 **After setting the DIP switch, press "Group Switch" button for 1 second.**

4 **Please refer to 5.3.**

4 b i t s D I P S w i t c h :
Use 4bits DIP switch to select the ID for up to 16 groups (such as 0001, 0010, 0101 etc)

6

5.3 Button Descriptions:

(Host: Transmitter; Client: Receiver)

Button State for Unicast Mode: HDMI Extender:

* Item will be described in Descriptions on page 8

| Unicast Digital	Button State		Receiver	
	Transmitter		Receiver	
	Button One :	Button Two :	Button One :	Button Two :
Momentary Press	Remote/Loopback*	Toggle Video Mode/ Graphic Mode*	Link on : Link Link off : Unlink	Toggle Video Mode/ Graphic Mode*
Long Press(3 sec)	Snoop (on/off)*	Anti-Dither (1 / 2 / off)*	N/A	Anti-Dither (1 / 2 / off)*
Short Press when Ethernet Link is Off	Not used	Not used	Not used	Not used
Long Press when Ethernet Link is Off	Not used	Ethernet Jumbo Frame (on/off)*	Not used	Ethernet Jumbo Frame (on/off)*
Long Press on Boot (Press until Red LED starts Blinking)	Engineering Mode*	N/A	Engineering Mode*	N/A
(Press until both Red LED and Green LED start Blinking)	Engineering Mode and Reset to default*	N/A	Engineering Mode and Reset to default*	N/A

Descriptions:

Feature /Button Feature	Descriptions
Remote/Loopback	When System is all setup, a short press of this button will change between remote / local loopback
Snoop (on/off)	When System is all setup and video is displayed at the client side, a long press of this button will cause the local loop back port to be enabled for Snooping feature.
Video Mode/ Graphic Mode	User can select to change between Video Mode / Graphic Mode using this button. The button state will be saved to flash, and remembered after rebooting. Video Mode: The firmware will automatically trade-off between bandwidth and video quality to ensure a smooth video playing experience. Graphic Mode: Firmware will fix the trade-off to ensure best graphic/text viewing experience.
Anti-Dither (1/2/off)	Anti-Dithering Mode is design to work with ATI graphic cards that provide dithering output. Dithering output is used to make coloring look better than it's original color depth. It uses visual transient to create a half-tone effect. However, this presents great difficulty for Video Compression to maintain low bandwidth even if the source display seems static. If the source content does not generate dithering output and this feature is turn on. It will create a blocking effect because the Video Engine is unable to detect pixel changes. User can avoid this issue by switching this feature to off.
Engineering Mode	1. Static IP: 192.168.0.88 2. User can connect to http://192.168.0.88 webpage for firmware update. 3. Firmware update file name will be: Host: webfwh.bin Client: webfwc.bin
Reset to Default	1. Reset any changes in SPI flash setup flag. 2. Re-generate Random MAC to avoid any possible MAC collision. After Reset to Default and the unit reboots, a new random MAC will be generated.
Ethernet Jumbo Frame	1. Enable/Disable Ethernet Jumbo Frame. 2. If link LED is solid then Jumbo is enabled. If link LED is blinking then Jumbo is disabled.

Button State for Multicast Mode: HDMI Extender:

* Item will be described in Descriptions on page 10

Multicast Digital	Button State			
	Transmitter		Receiver	
	Button One:	Button Two:	Button One:	Button Two:
Momentary Press	Remote/Loopback*	Video Mode/ Graphic Mode*	Link on: Link Link off: Unlink	Video Mode/ Graphic Mode*
Long Press (3 sec)	Snoop (on/off)*	Anti-Dither (1/2/off)	USB Link (on/off)	Anti-Dither (1/2/off)*
Short Press when Ethernet Link is Off	Not used	Not used	Not used	Not used
Long Press when Ethernet Link is Off	Not used	Ethernet Jumbo Frame (on/off)*	Not used	Ethernet Jumbo Frame (on/off)*
Long Press on Boot (Press until Red LED is Blinking)	Engineering Mode*	Use Loopback EDID (>A1.2)*	Engineering Mode*	Update EDID*
Long Press on Boot (Press until Red LED and Green LED are Blinking)	Engineering Mode and Reset to default*	N/A	Engineering Mode and Reset to default*	N/A

Descriptions:

Feature /Button Feature	Descriptions
Remote/Loopback	When System is all setup, a short press of this button will change between remote / local loopback
Snoop (on/off)	When System is all setup and video is displayed at the client side. Long Press of this button will cause the local loop back port to be enabled for Snooping feature.
Video Mode/ Graphic Mode	User can select to change between Video Mode / Graphic Mode using this button. The button state will be saved to flash, and remembered after rebooting.
	Video Mode: Firmware will automatically trade-off between bandwidth and video quality to ensure a smooth video playing experience.
	Graphic Mode: Firmware will fix the trade-off to ensure best graphic/text viewing experience.
Anti-Dither (1/2/off)	Anti-Dithering Mode is design to work with ATI graphic cards that provide dithering output. Dithering output is used to make coloring looks better than it's original color depth. It uses visual transient to create a half-tone effect. However, this presents great difficulty for Video Compression to maintain low bandwidth even if the source display seems static.
	If the source content does not generate dithering output and this feature is turn on. It will create a blocking effect because Video Engine are unable to detect pixel changes. User can avoid this issue by turning this feature to off.
Use Loopback EDID(>A1.2)	This feature should be explained with the client side "Update EDID" feature.
Update EDID	"Use Loopback EDID" & "Update EDID" feature is used for Multicast Mode to select which monitor/TV EDID is used for the system-wide EDID usage.
	During multicast setup, there may be a monitor/TV that has lower resolution. For example, 1 monitor/TV with 720p resolution with mostly 1080p solutions. Please select the monitor/TV with lowest resolution, to ensure that all can be displayed correctly.
	If you are using 1 pair of Host/Client with Multicast mode, you must update EDID correctly. If not, it will cause many compatibility issues.
	Operation: Once the button event is triggered correctly at the client side, and the system is setup correctly for Multicast, the selected EDID will be updated to Host Side.
	The same operation applies for Loopback EDID.
	In the system setup, the last EDID updated will stay in memory. If you setup this button multiple times, the last one triggered will be the one applied.
USB Link (ON/OFF)	This feature is used for USB with Multicast Mode setup.
	The selected client can gain control by pressing USB Link, and release control by pressing USB Link again.
	Other clients can also gain control by pressing USB Link. The control will be transfered to whichever client requests a USB Link.
Engineering Mode	1. Static IP: 192.168.0.88
	2. User can connect to http://192.168.0.88 webpage for firmware update.
	3. Firmware update file name will be: Host : webfwh.bin Client : webfwc.bin
Reset to Default	1. Reset Any changes in SPI flash setup flag.
	2. Re-generate Random MAC to avoid any possible MAC collision. After Reset to Default and a reboot cycle, a new random MAC will be generated.
Ethernet Jumbo Frame	1. Enable/Disable Ethernet Jumbo Frame.
	2. If link LED is solid then Jumbo is enabled. If link LED is blinking then Jumbo is disabled.

6. INSTALLATION

6.1 Device Connection

1. Verify the power supply is unplugged.
2. Set up the group of the transmitter with the corresponding receiver for signal extension and display.
3. Connect the Transmitter to a video source with HDMI cable, and connect the Receiver to a monitor or display with an HDMI cable.
4. Connect the USB cables from the Transmitter to a computer, and connect the USB additional devices such as USB mouse, USB keyboard and USB pen drive to the Receiver.
5. Connect the Transmitter and Receiver to the Ethernet switch with a network cable.
6. Power ON the Transmitter, Receiver and all the connected devices (in no particular order).
7. Connect the IR extension cable with Transmitter and the IR receiver cable with Receiver for remote control.
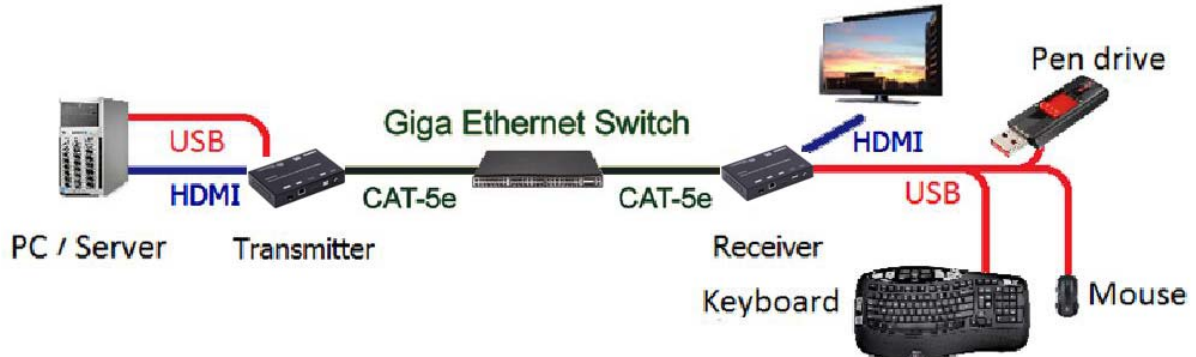
◆ **Configuration**

◆ Application Pattern

■ Unicast

■ Multicast

a. Video Distribution
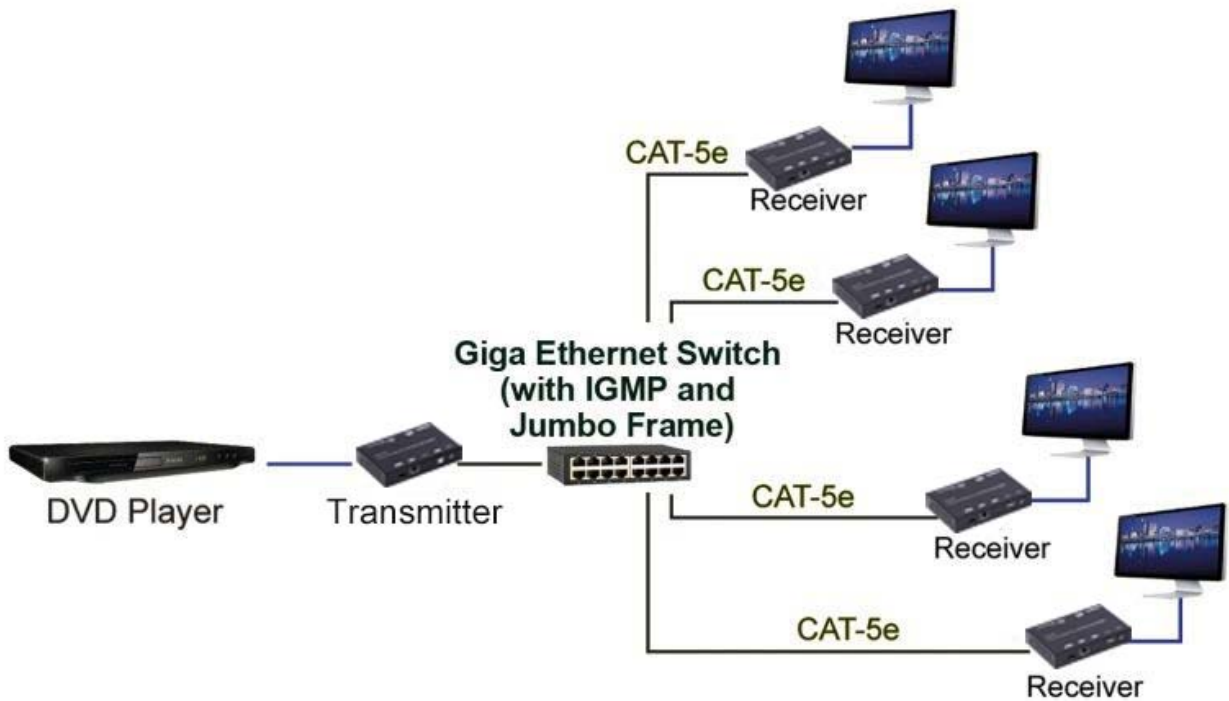
b. Matrix Distribution
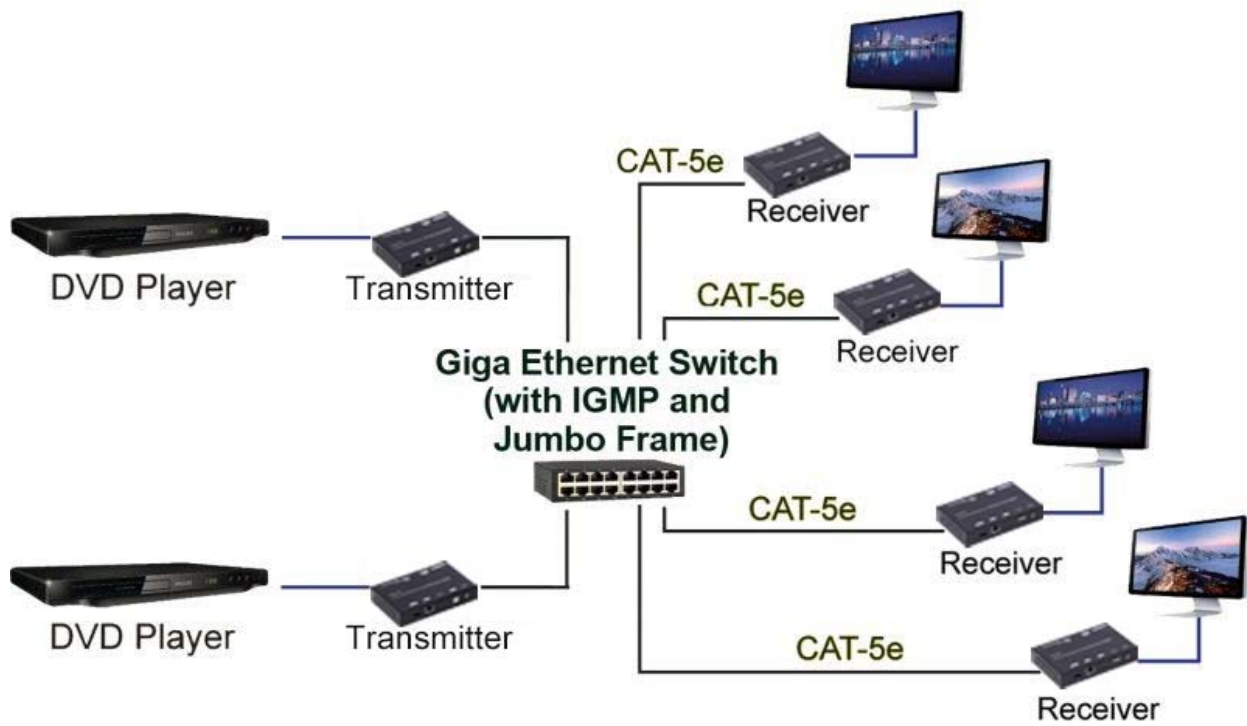
c. Billboard & Kiosk, PC to HDMI and USB Interactive Monitor
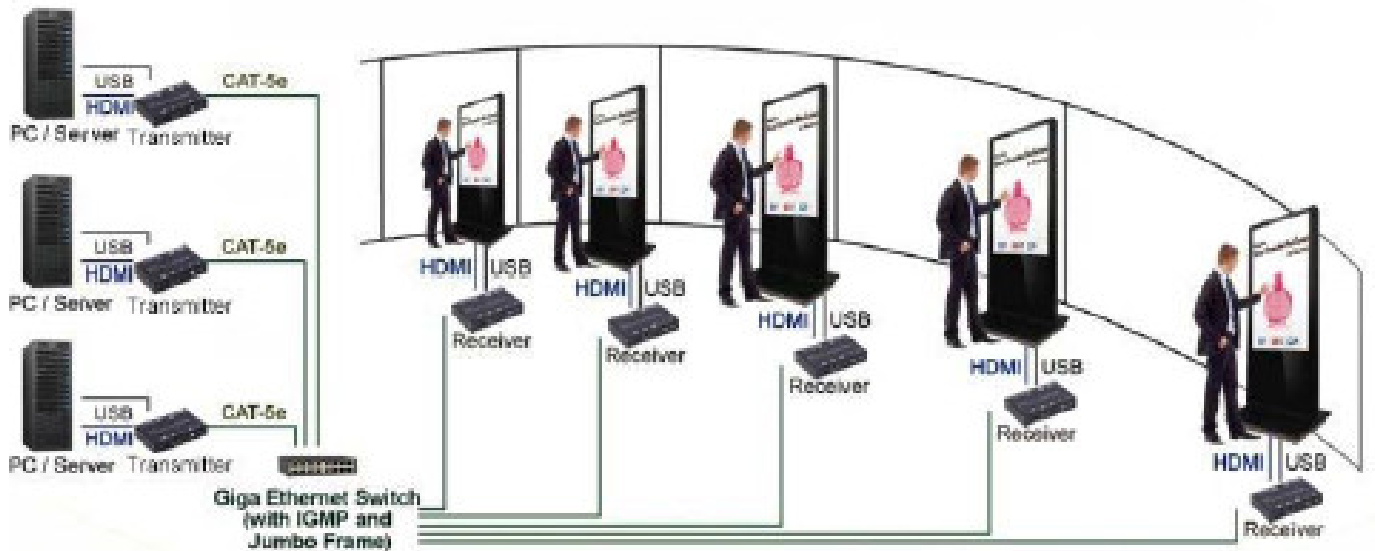
■ Screen Wall
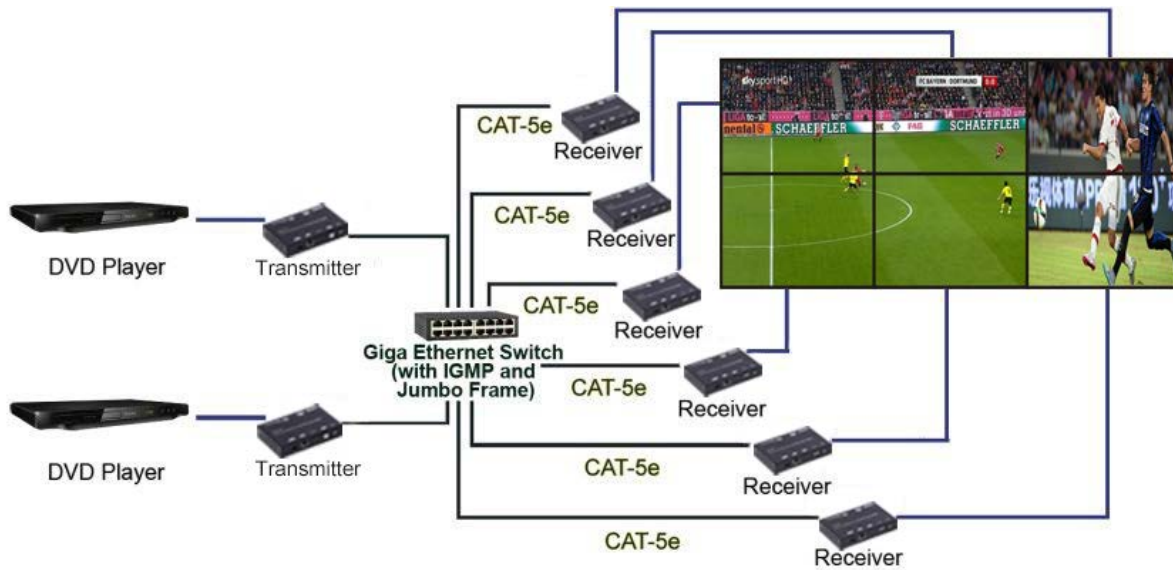
6.2 PC Tool Instructions

Step 1: See section 6.3 for setup. If using a network switch, the HDMI extender and computer must be in the same domain.

Step 2: Download the "st-ipc6fousb4k-poe-control.zip" from the NTI website (https://www.networktechinc.com/4k-hdmi-usb-poe-extender.html#tab-4) and unzip it to your computer.   Locate "4KOverIP2V5.exe" and open it.

Step 3: Click "Scan".
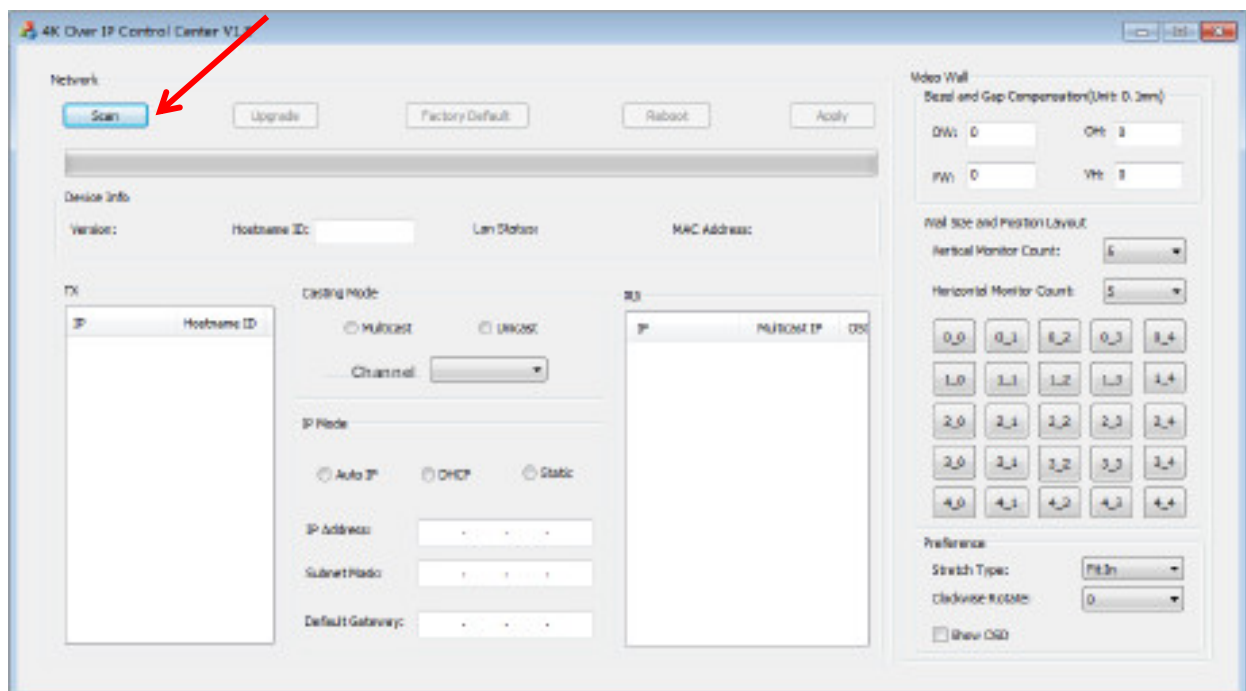
Step 4: Choose the TX or RX name (one at a time).
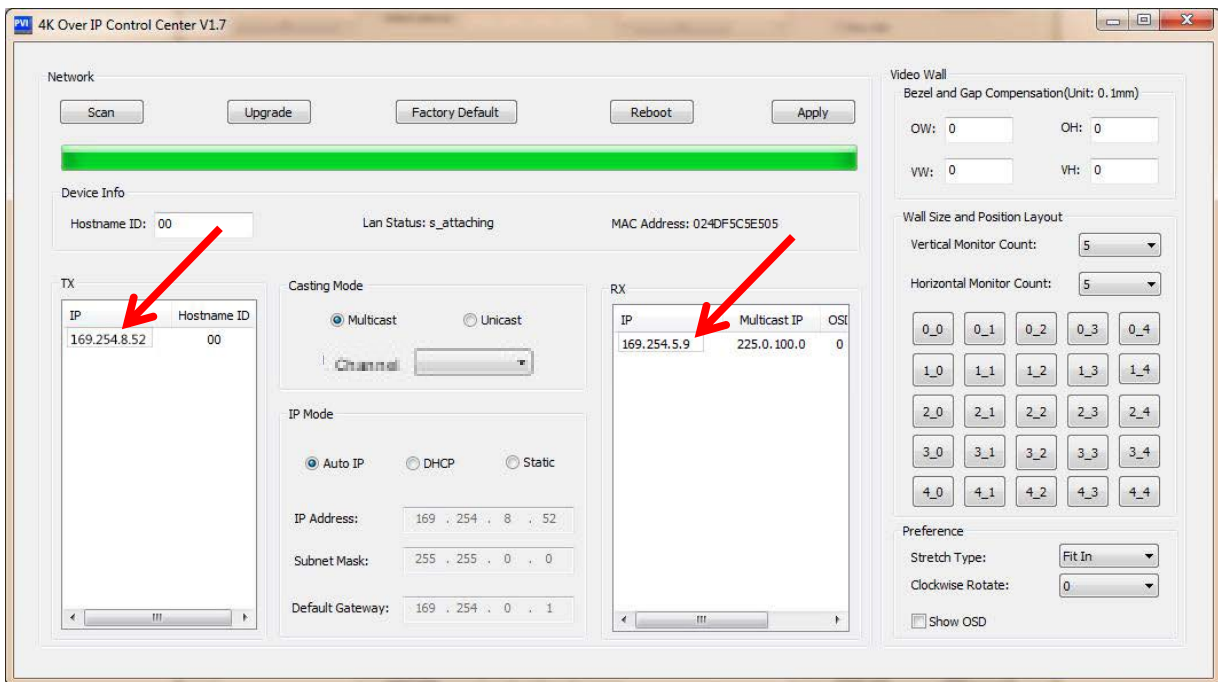
Step 5: If desired, change the Hostname ID, Casting Mode and/or IP Mode on the graphic tool interface.

Step 6: Once changes are made, click "Apply".
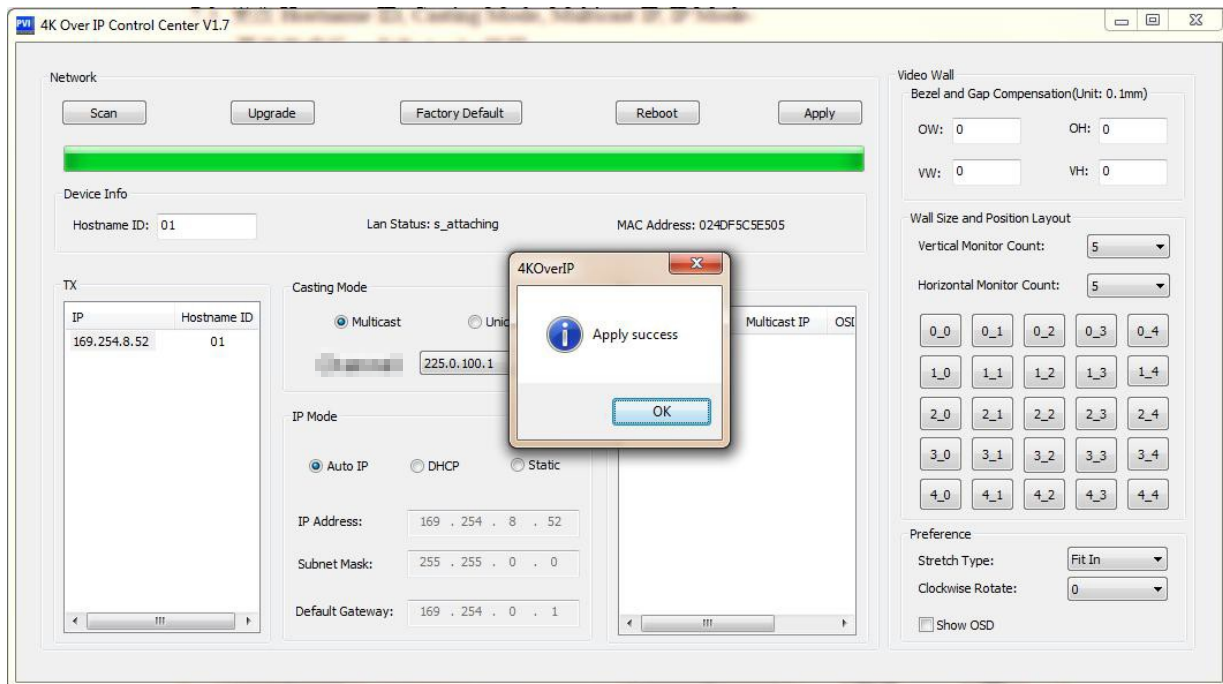
6.2.1 Multicast

Click "Multicast" on the graphic tool interface if you are configuring for One-to-Many or Many-to-Many application.
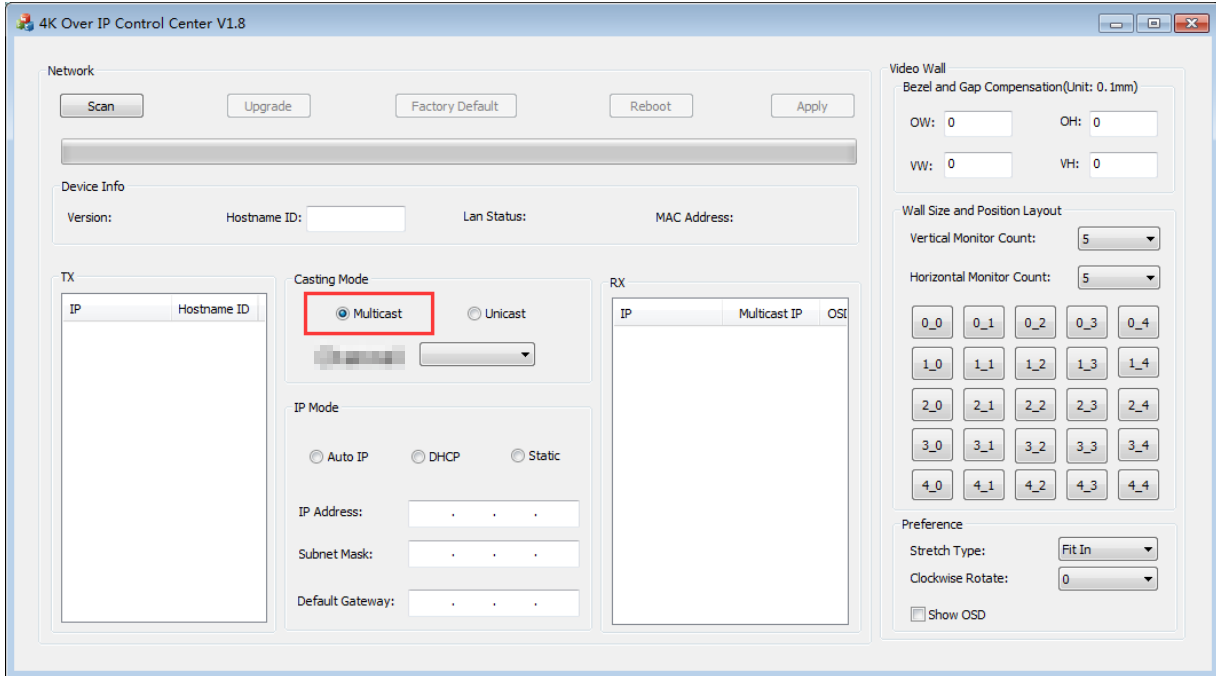
6.2.2 Channel

Change the Channel number to be the same for the Transmitter and all Receivers to view the same source.   Each Transmitter will be assigned a different Channel number.
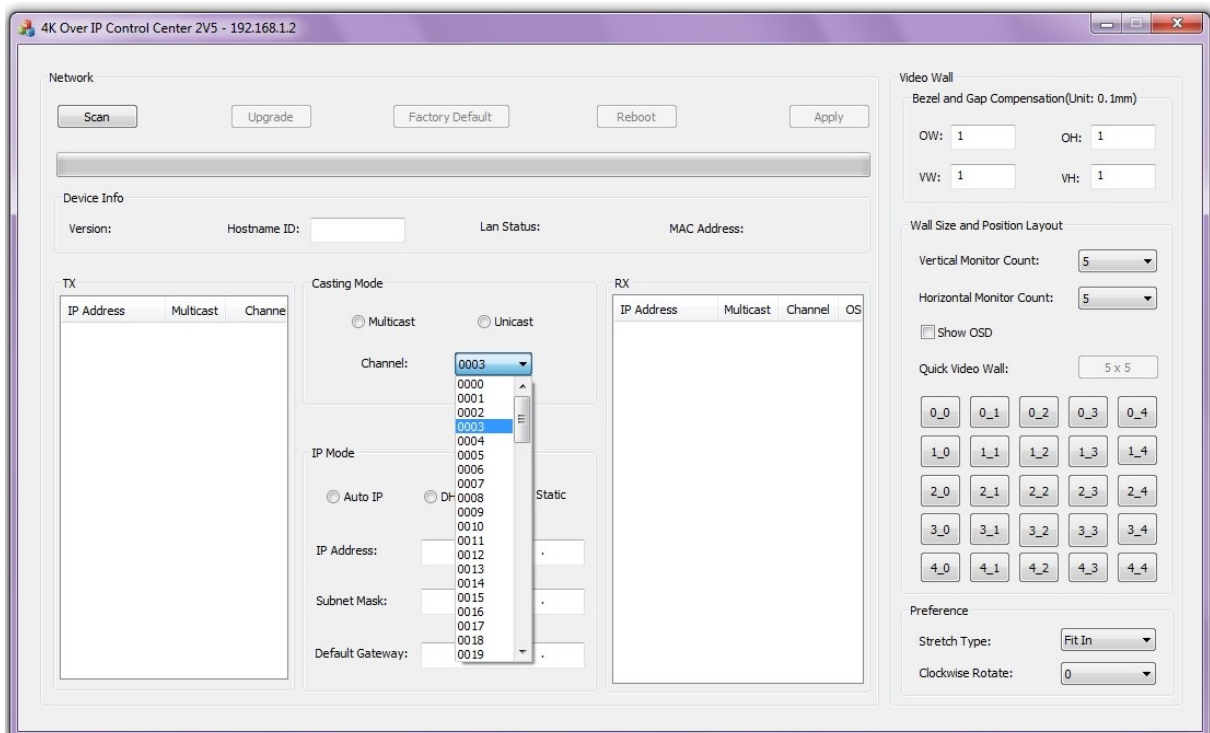
6.2.3 Video Wall

1. Set the Transmitter and Receiver with same Channel numbers.
2. Change the "Vertical Monitor Count" and "Horizontal Monitor Count" to create a video wall. **Note:Using this tool, the maximum video wall size is 5X5.**

For example, if you need create a 2x2 video wall, set the "Vertical Monitor Count" and "Horizontal Monitor Count" as "2" for each.
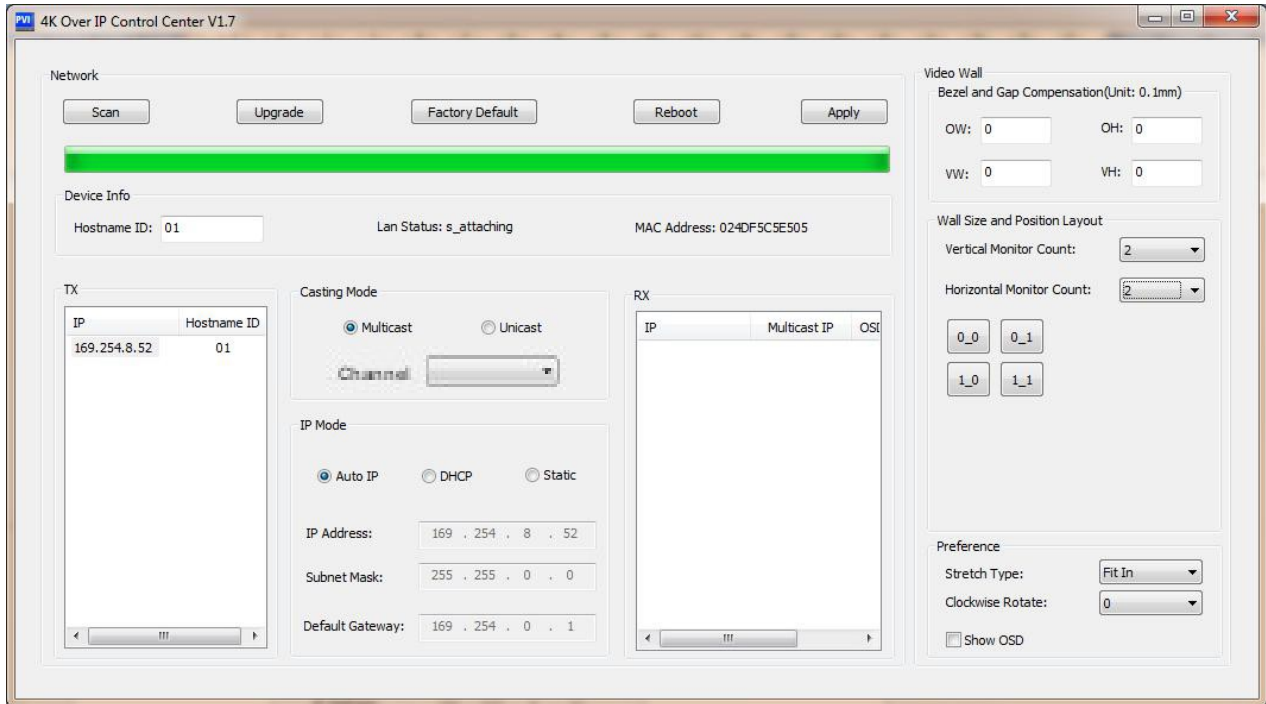
3. Click "Show OSD".
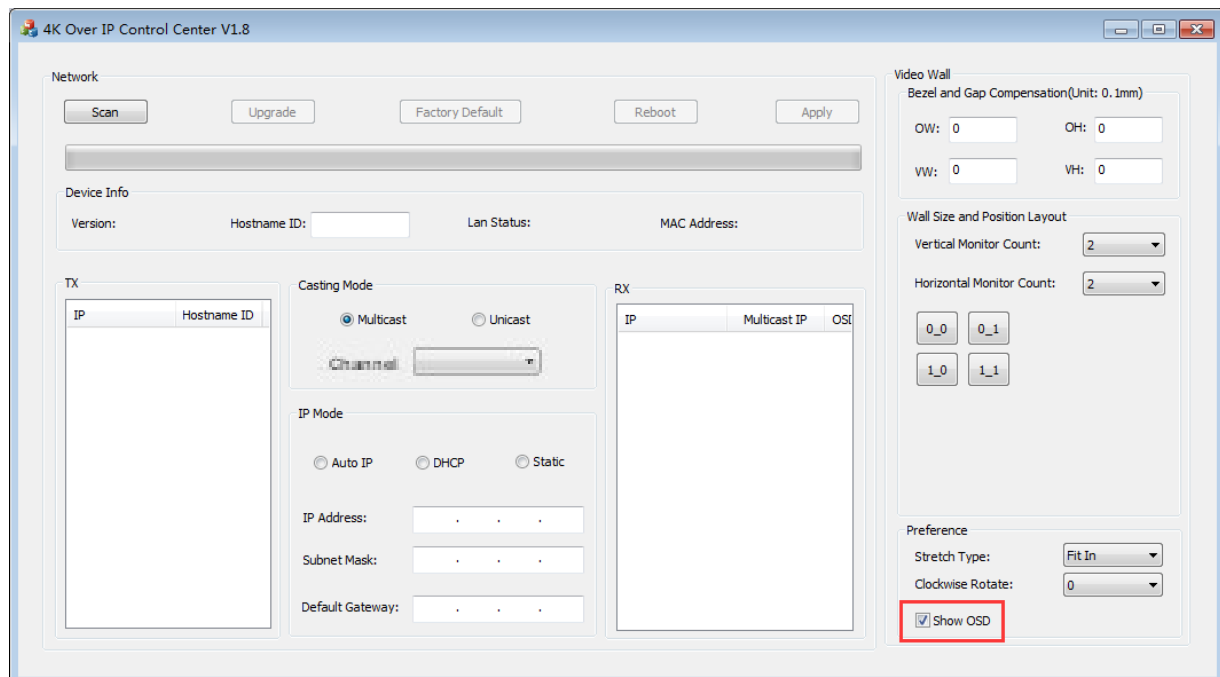
4. Select the RX and drag it to the corresponding position indated by the reference blocks. The position will be included in the OSD shown on the screen.
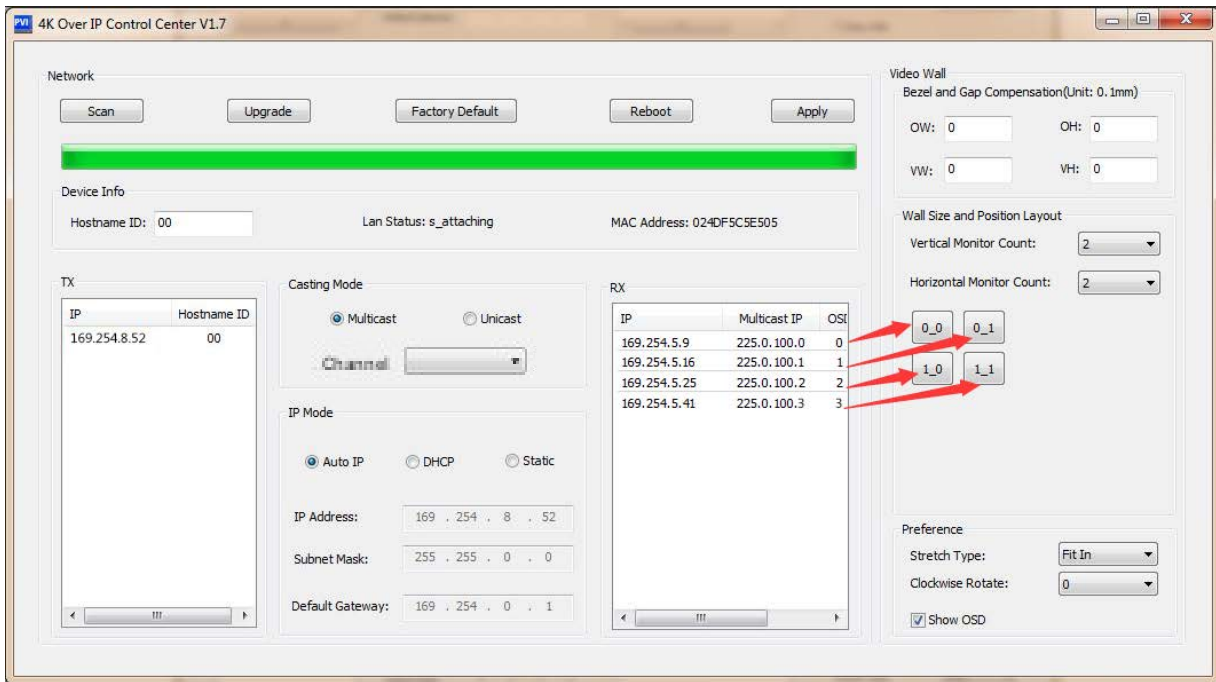
6.3 IP Configuration

The 4K HDMI & USB Over IP Extender can be configured via LAN provided the

Transmitter and Receiver are in the same subnet.

1. Assign a LAN IP address to a computer that is in the same subnet. The default IP address of the Transmitter and Receiver is B class

Networking: 169.254.xxx.xxx.

Figure 1. Internet Protocol (TCP/IP) Properties

2. Connect the TX and RX to the Ethernet switch, then also connect the PC to the Ethernet switch.

Because this unit supports DHCP, different units may have different server-assigned IP addresses, so the first thing we need know is the IP address of each unit.

There are two ways to get the IP address
A) Using the "Node List"

Open the "Node List.bat " found in the "Tool" folder. Click twice the "Node_list.bat" to open the dialog box.

Then we can see all the IP addresses of both the TX and RX as shown below in the dialog box.

Notes: An IP address with "Client" in the Hostname is an RX

An IP address with "Gateway" in the Hostname is a TX.

B) Using the OSD.

Connect all devices using proper cables except the video source.
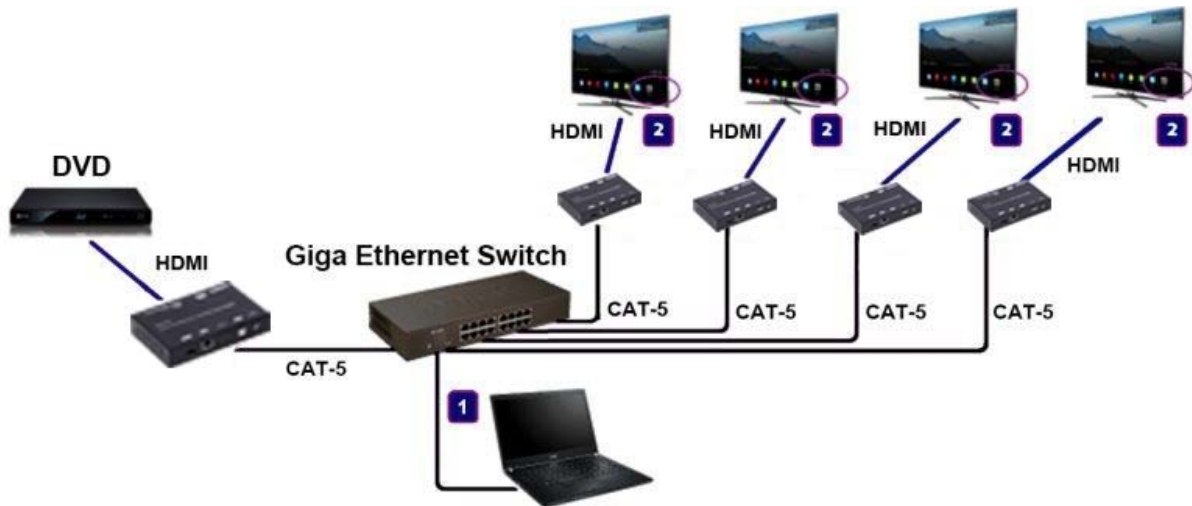
Figure 2. Demonstrate the 4K HDMI & USB Over IP Extender

After power-up, the device information including the Transmitter and Receiver IP address will be shown in the lower right corner. Make note of the Transmitter and Receiver IP address(es) on each monitor screen and then connect the HDMI video source cable to the Transmitter.
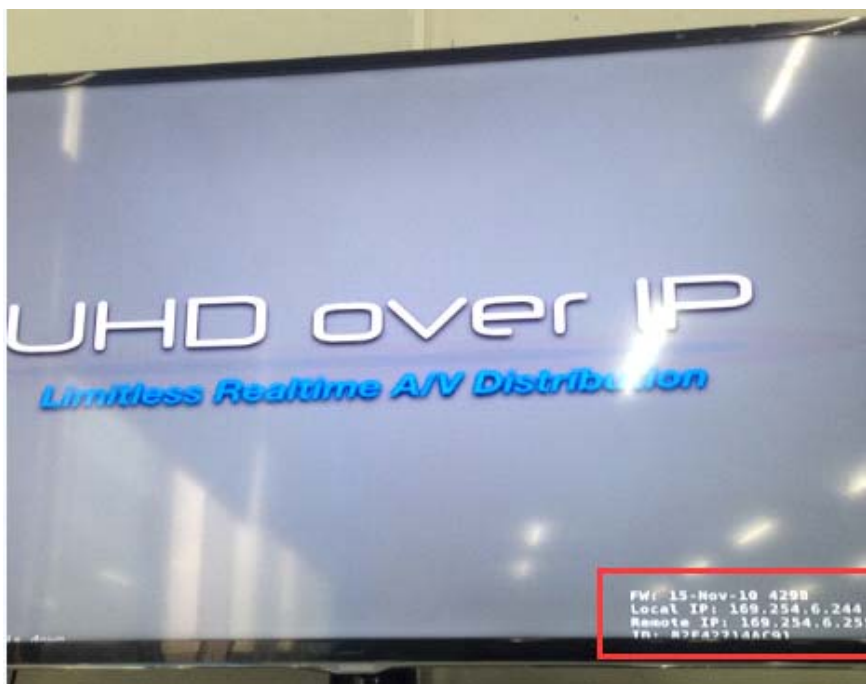
Figure 3. Device IP Indication

3. The administrator can enter a Transmitter or Receiver IP address into the address bar of the web browser (we recommend using Google Chrome) to enter the Extender's Web UI (User Interface).
If the link is successful, the user will see the Web UI as shown in Figure 4.
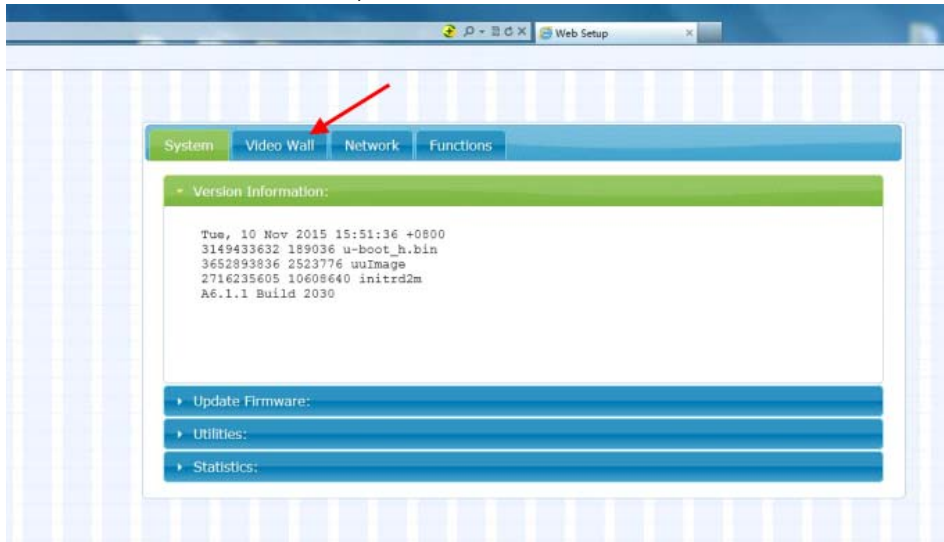
Figure4. Web User Interface

7. WEB USER INTERFACE CONFIGURATION

7.1 System

The relevant information of the connected extender and settings

7.1.1 [Version Information]

Indicating the firmware version and relevant information of the devices
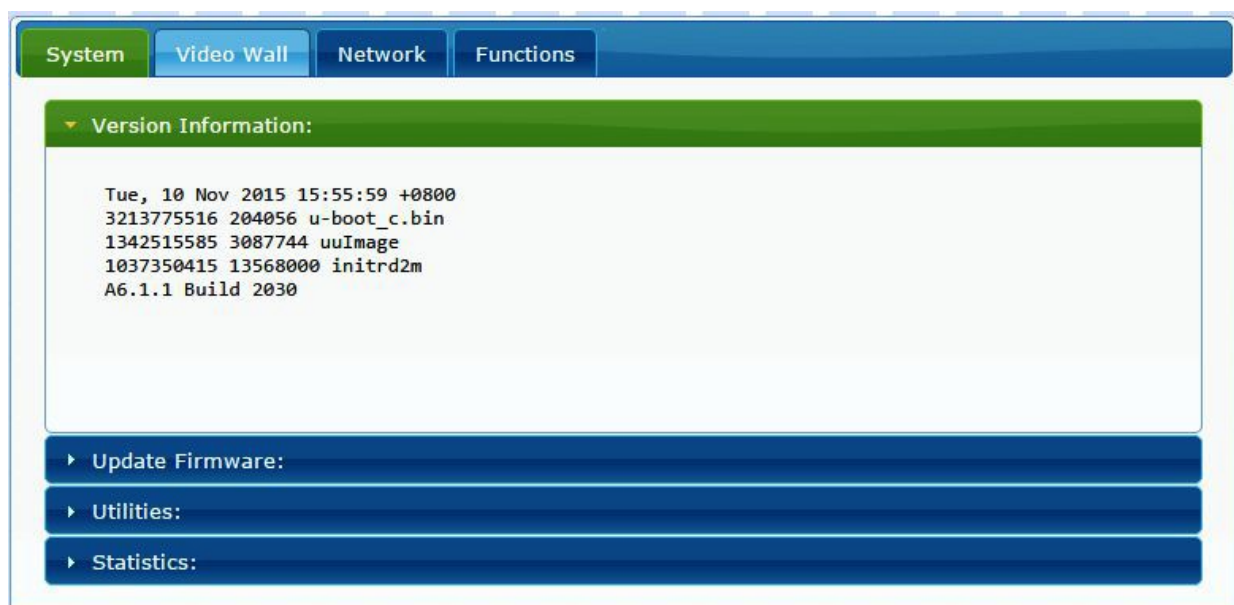
7.1.2 [Update Firmware]

To update the firmware of the connected extender, please click on the [Select File] to select the firmware and click on [Upload] to upload the firmware and update accordingly. **(No new firmware is currently available.)**
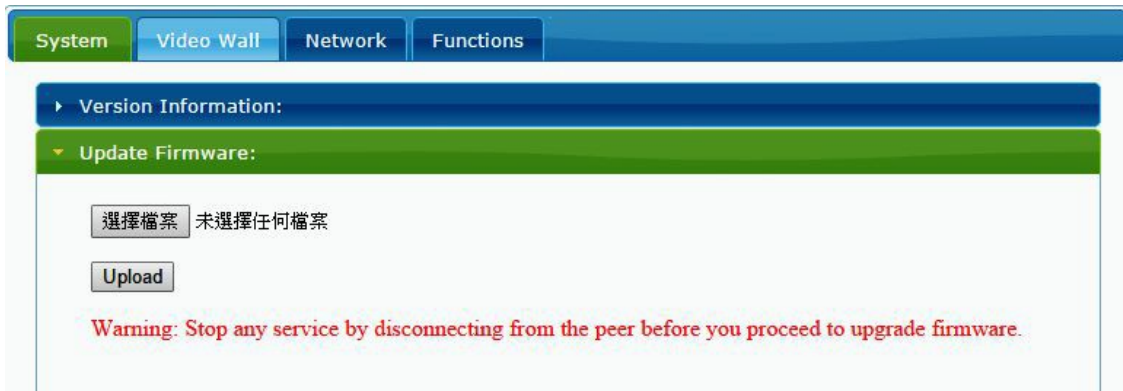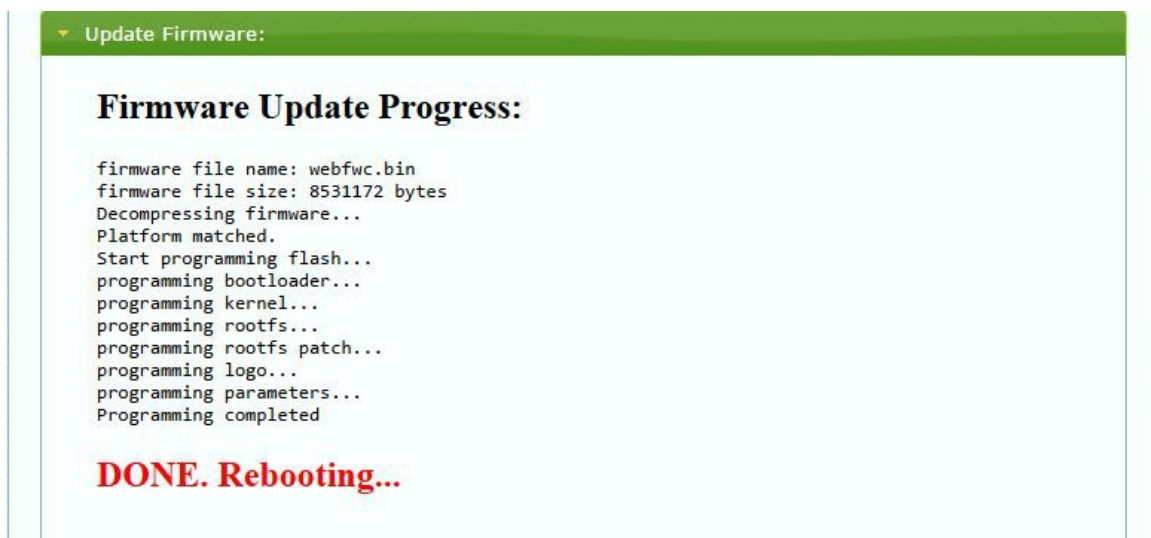

- Transmitter Firmware Update: please select [webfwh.bin] to update
- Receiver Firmware Update: please select [webfwc.bin] to update
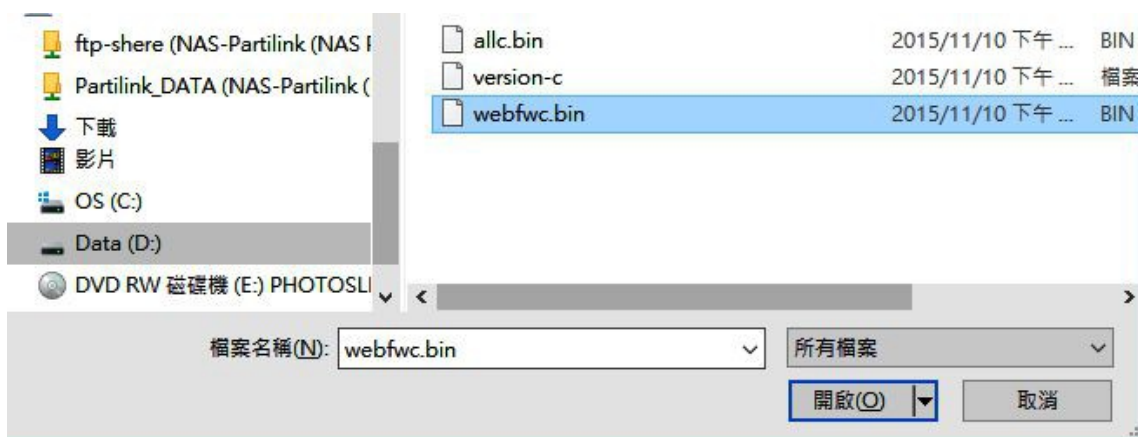
It takes time to update the firmware. During the process of updating, the web user interface shows the status as shown below. The extender system will reboot automatically after updating firmware. If it doesn't reboot automatically, reboot manually to apply the new firmware.

Firmware Update Progress:

```
firmware file name: webfwc.bin
firmware file size: 8531172 bytes
Decompressing firmware...
Platform matched.
Start programming flash...
programming bootloader...
programming kernel...
programming rootfs...
programming rootfs patch...
programming logo...
programming parameters...
Programming completed
```

DONE. Rebooting...
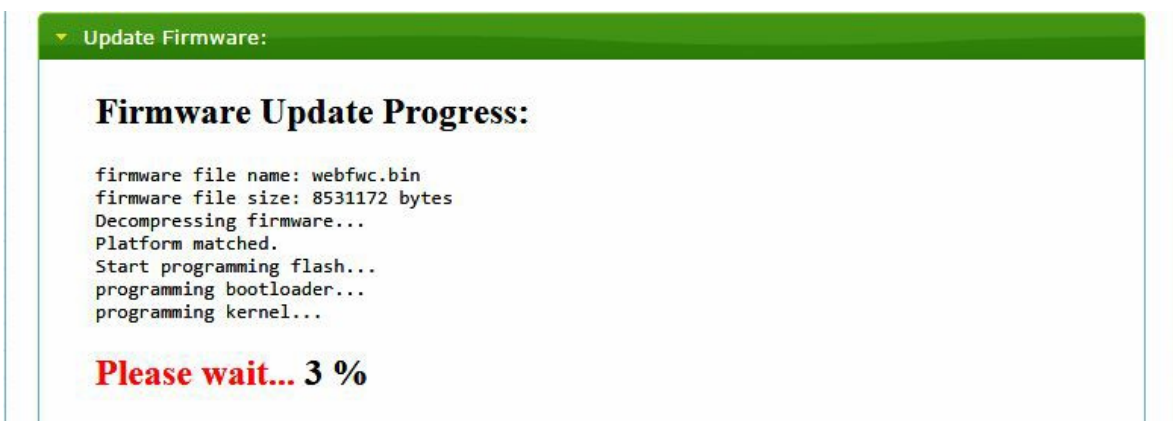
7.1.3 [Utilities]

There are some functions under Utilities:

- **Factory Default:** Click on to return the device to factory default settings when needed.
- **Reboot:** Click on to reboot the extender (RX or TX)
- **Console API Command:** Input Linux command for advanced setting
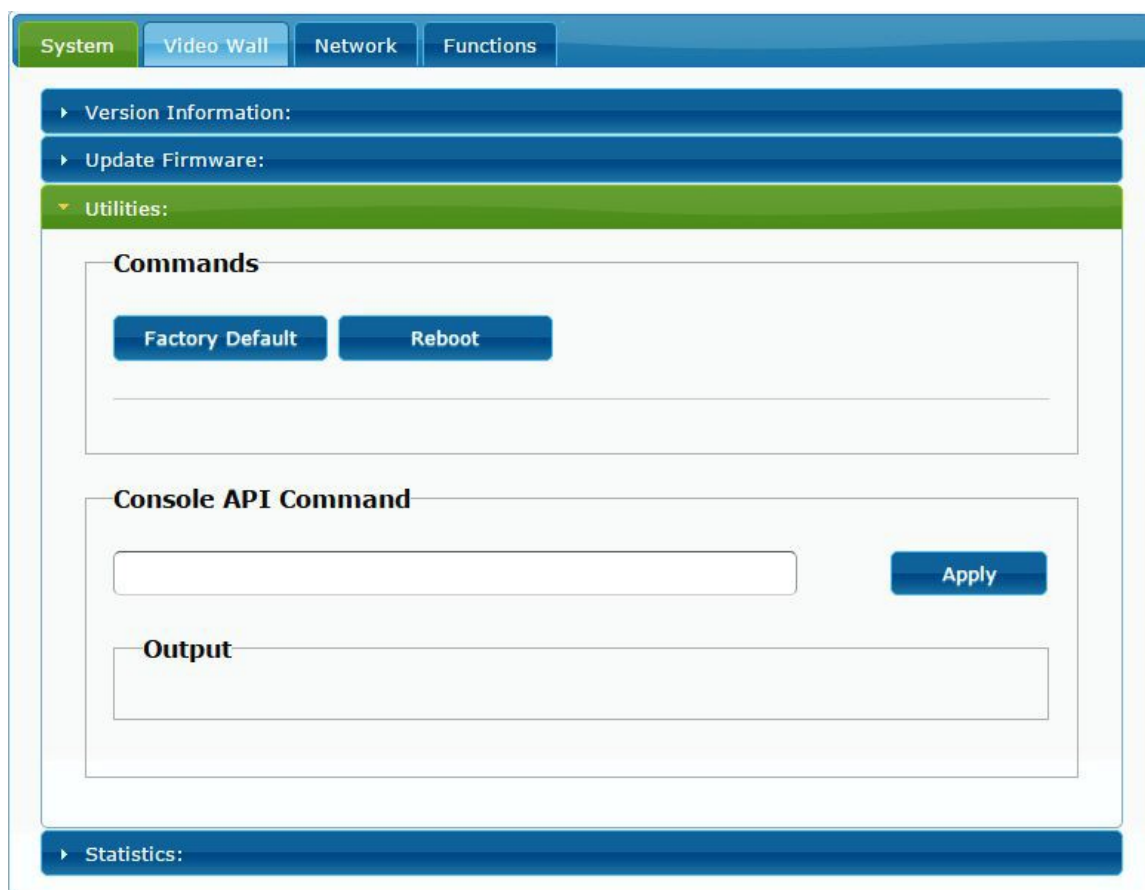
7.1.4 [Statistics]

Indicates the extender link and working status

| System | Video Wall | Network | Functions |

▶ Version Information:

▶ Update Firmware:

▶ Utilities:

▼ Statistics:

State Machine

State: s_search

Network

ID (Host Name): 82CA8D853D73

IP Address: 169.254.6.167

Subnet Mask: 255.255.0.0

Default Gateway: 169.254.0.254

MAC Address: 82CA8D853D73

Casting Mode: Unicast Mode

Link Status: on

Link Mode: 1G

Video

Local Video Output:

attached=n

Video Timing Information:

```
timing=[34] 640x480p@60Hz H- V-
type=RGB
HDCP=n (Disable)
color depth=0
```

7.2 Video Wall

To set up the video wall application

7.2.1 [Basic Setup]

● **Bezel and Gap Compensation:**

Dimension of the screen (inside and outside width and height)

OW: outside width   **OH:** outside height

VW: viewable width   **VH:** viewable height

NOTE:

1) The viewable width must be less than the outside width, and the viewable height must be less than the outside height.

2)   If administrator doesn't need this, just set all values to 0.
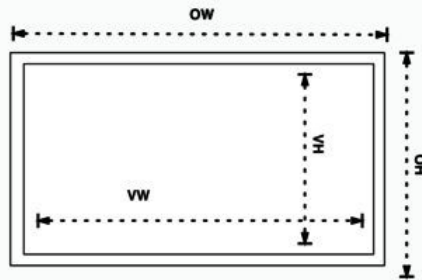
3)   The unit is 0.1mm and the value MUST be an integer.

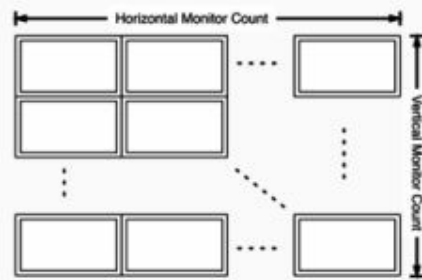**Bezel and Gap Compensation**

OW: 1
OH: 1
VW: 1
VH: 1

UNIT: 0.1mm

● **Wall Size and Position Layout:**

Select number of vertical and/ or horizontal monitors, row position and column position. Vertical monitor number 1~8, horizontal monitor number 1~16

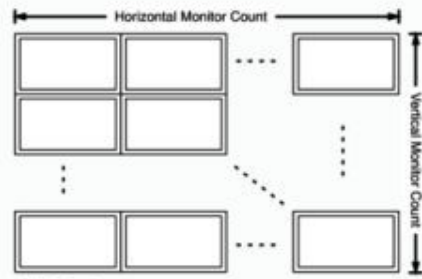**Wall Size and Position Layout**

Vertical Monitor Count:
1
1
2
3
4
5
6
7
8

0

Horizontal Monitor Count
Vertical Monitor Count
UNIT: Panel

Wall Size and Position Layout

Vertical Monitor Count:
1

Horizontal Monitor Count:
1

Row Position:
0
0
1
2
3
4
5
6
7

Horizontal Monitor Count
Vertical Monitor Count
UNIT: Panel

Preferences

Preferences: Select the video to "fit in" the screen or "stretch out" and then provide the rotation angle (if applicable- leave at 0 if not).

● **Apply To:**

1) All: Configure all Transmitter and Receiver in the same Group IP.

2) This (Local): The IP you input into address bar of web browser.

3) Hosts or Clients: select which Transmitter or Receiver you want to configure.

● **Show OSD:**

Check the "Show OSD" box to output a number to each receiver's connected monitor.

7.2.2 [Advance Setup]

Before entering the "Advanced Setup", please complete the "Basic Setup" as follows:

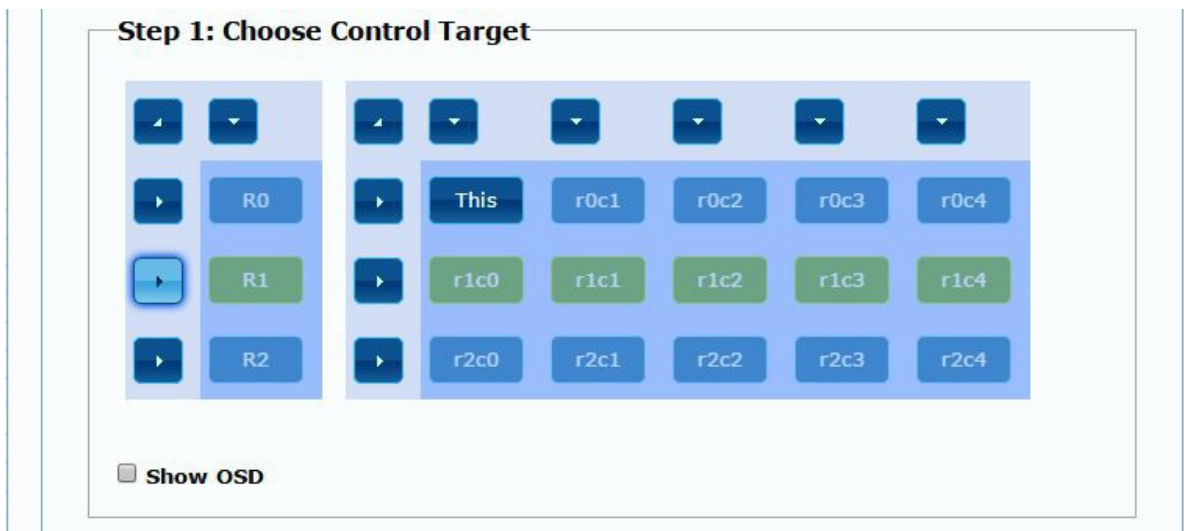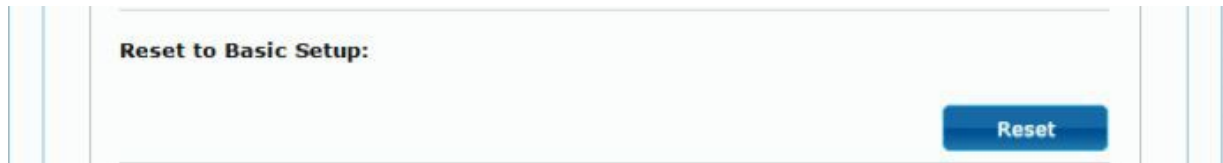Step 1: In "Basic Setup", select Vertical and Horizontal Monitor Count. For example Vertical Monitor Count = 3, Horizontal Monitor Count = 5
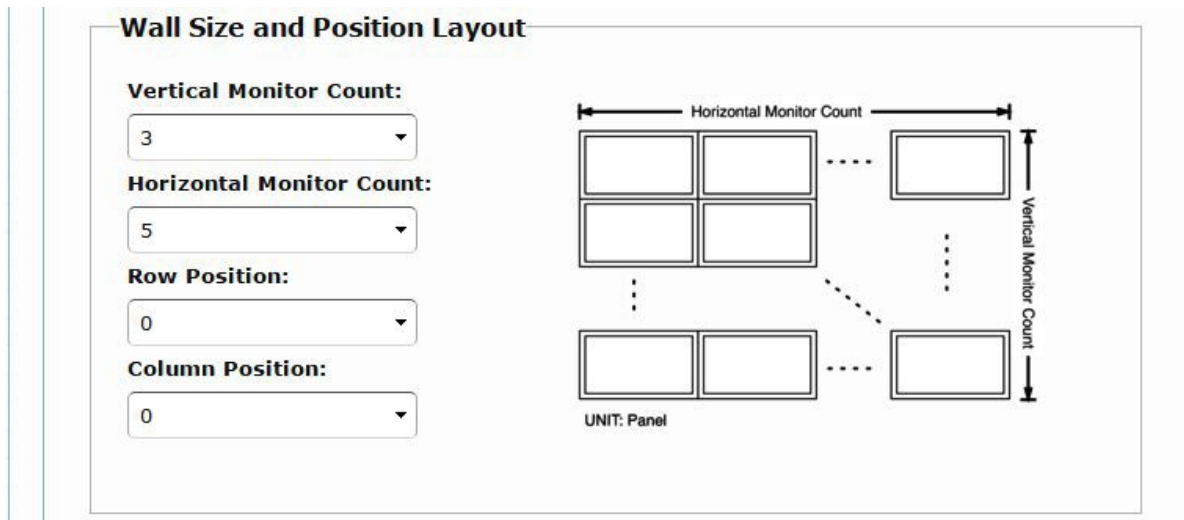
Step 2: In "Advanced Setup", choose the target (receiver) of the video wall to control

If incorrect settings are made, press the "Reset" in Reset to Basic Setup function.

Reset to Basic Setup:

Reset

Setup the video output to "Fit In' or "Stretch Out" mode in the screen

Stretch Type:

Fit In

Fit In
Stretch Out

Apply

Setup the rotation angle of the video output

Clockwise Rotate:

0

0
180
270

Apply

Set up the vertical and horizontal position number of the monitor based on the video wall layout. Vertical number 1~8 and horizontal number 1~16. Setup the row position of the monitor, numbered from 0 to the total number of vertical monitors.

Screen Layout (Row x Column):

3   X   5

1
2
3
4
5
6
7
8
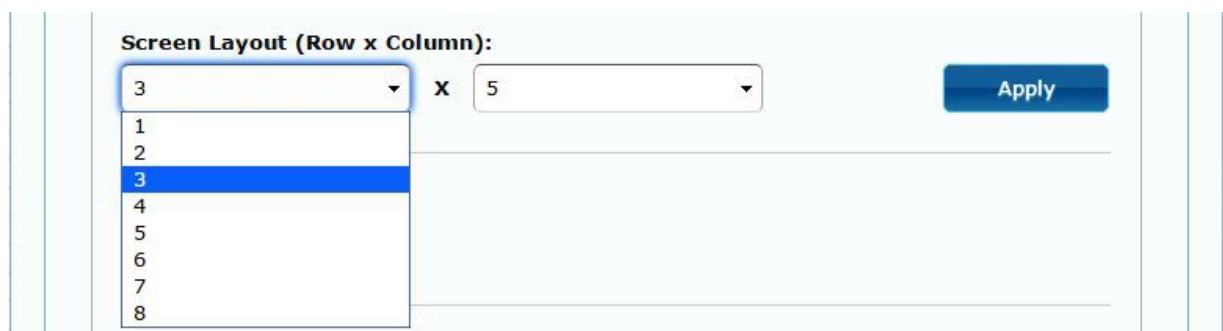
Apply

Setup the column position of monitor, numbered from 0 to the total number of horizontal monitors.

Row Position:

| 0 | ▼ | Apply |

0
1
2
3
4
5
6
7

Column Position:

| 0 | ▼ | Apply |

0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15

Setup the video position shift and video enlarge.
● **Horizontal Shift:** Setup the video horizontal shift, Left or Right
● **Vertical Shift:** Setup the video vertical shift, Up or Down
● **Horizontal Scale Up:** Setup the video horizontal scale up
● **Vertical Scale Up:** Setup the video vertical scale up.

Horizontal Shift:

| Left | Right | 0 | Apply |

Vertical Shift:

| Up | Down | 0 | Apply |

Horizontal Scale Up (N pixels/column_count):

| 0 | Apply |

Vertical Scale Up (N pixels/row_count):

| 0 | Apply |

- **Consol API Command:** Input Linux command to do advanced setup.

7.3 Network: Update the network setup of the extender system

7.3.1 [IP Setup]

- **Auto IP:** Use to automatically assign the extender IP system for example: 169.254.xxx.xxx.

- **DHCP:** Use a DHCP Server to assign the IP.

IP Setup

| IP Mode: | Auto IP | DHCP | Static |

IP Address:	(From DHCP Server)
Subnet Mask:	(From DHCP Server)
Default Gateway:	(From DHCP Server)

Apply

- **Static:** Use the static IP setting to assign the IP address manually.

IP Setup

| IP Mode: | Auto IP | DHCP | Static |

IP Address:	192.168.0.50
Subnet Mask:	255.255.255.0
Default Gateway:	192.168.0.1

Apply

7.3.2 [Casting Mode]

Select the broadcast mode of the extender application

- **Multicast:** point-to-many points or many-to-many points broadcast

- **Unicast:** point-to-point broadcast

Casting Mode

Multicast   Unicast

☐ Auto select USB operation mode per casting mode (recommended)

Apply

7.4 Functions:

Setup the video output and USB extension mode for Transmitter

| System | Video Wall | Network | Functions |

Video over IP

☑ Enable Video over IP

☑ Enable Video Wall

☐ Copy EDID from this Video Output *(Default disabled under multicast mode)*

Scaler Output Mode: Pass-Through ▼

Timeout for Detecting Video Lost: 10 seconds ▼
☐ Turn off screen on video lost

Apply

USB over IP

☑ Enable USB over IP

Operation Mode:
○ Auto select mode *(Recommanded, choose per network casting mode)*
● Active on link *(Unicast network's default mode)*
○ Active per request *(Multicast network's default mode)*

Compatibility Mode:
☑ K/M over IP *(Uncheck when mouse/keyboard/touch panel not working as expected)*

Apply

Setup the video output and USB extension mode for Receiver

| System | Video Wall | Network | Functions |

Video over IP

☑ Enable Video over IP

☑ Enable Video Wall

Maximum Bit Rate: Best Effort ▼

Maximum Frame Rate: Capture up to 100% of frames

Apply

USB over IP

☑ Enable USB over IP

Operation Mode:
○ Auto select mode *(Recommanded, choose per network casting mode)*
● Active on link *(Unicast network's default mode)*
○ Active per request *(Multicast network's default mode)*

Compatibility Mode:
☐ Mouse not responding well *(Check when USB mouse responding is slow and queer)*
☑ K/M over IP *(Uncheck when mouse/keyboard/touch panel not working as expected)*

Apply

35

7.4.1 [Video over IP]: Setup the video output mode
- **Enable Video over IP:** Check to enable video extension over IP
- **Enable Video Wall:** Check to enable the video extension for building up video wall
- **Enable EDID Copy:** This function is limited to copy just one of the receivers.
- **Scaler Output Mode:** Select the required scaler output mode or select "customize" and input 8 Hex values for more video output resolution and refresh rate selections.
1) 80000004: HD 720p60
2) 81000061: WXGA 1366x768@60
3) 81000040: WXGA+ 1440x900@60
4) 81000051: WUXGA 1920x1200@60
5) 8100003C: SXGA+ 1400x1050@60

- **Timeout for Detecting Video Lost:** Set the amount of time before the monitor turns off when a loss of video is detected

Customize Scaler Output Mode for Receiver

● Customize Scaler Output Mode for Receiver

● Timeout for Detecting Video Lost
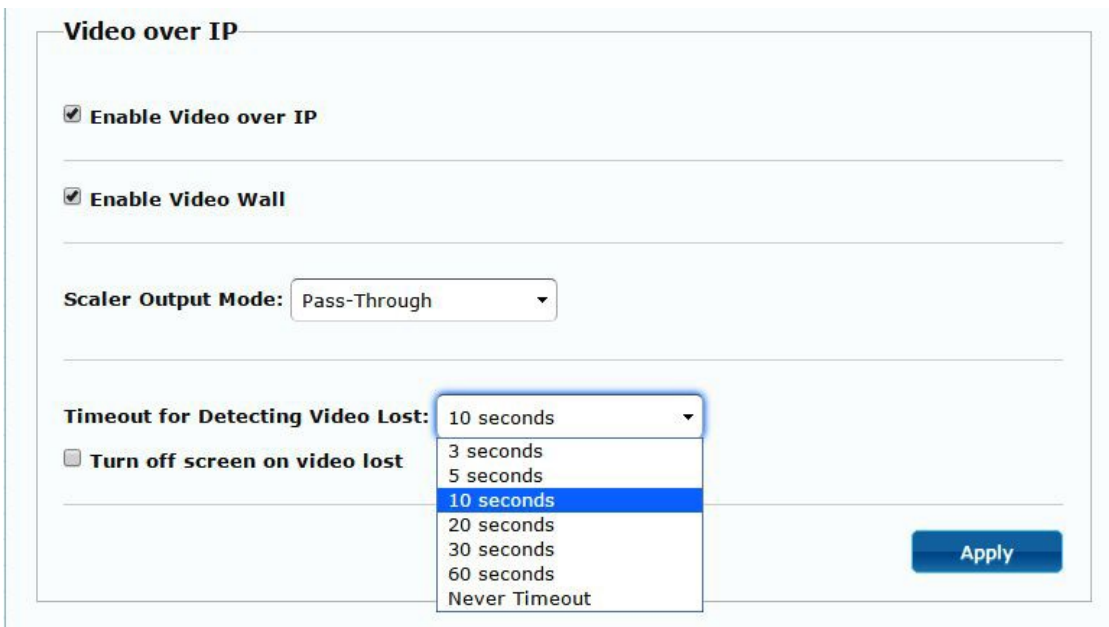
7.4.2 [USB over IP]: Setup the USB extension mode
● **Enable USB over IP:** Check to enable USB extension mode over IP
● **Operation Mode:** Including "auto select mode", "active on line" and "active per request" modes for option.
● **Compatibility Mode:** Check to enable USB keyboard, USB mouse transmission mode.

7.4.3 [Serial over IP]: set up the serial extension mode
- Select Type 2 as operation mode
- Set up the baud rate for Type 2.

Serial Over IP

Broadcast Mode Setting

8. BROADCAST CONFIGURATION SETTING

There are some examples to show the setup for unicast, multicast, matrix and video wall. Broadcast setting including unicast and multicast

8.1 Multicast:

To enable the USB interactive devices controlled by turns, please check "Auto select USB operation mode per casting mode"
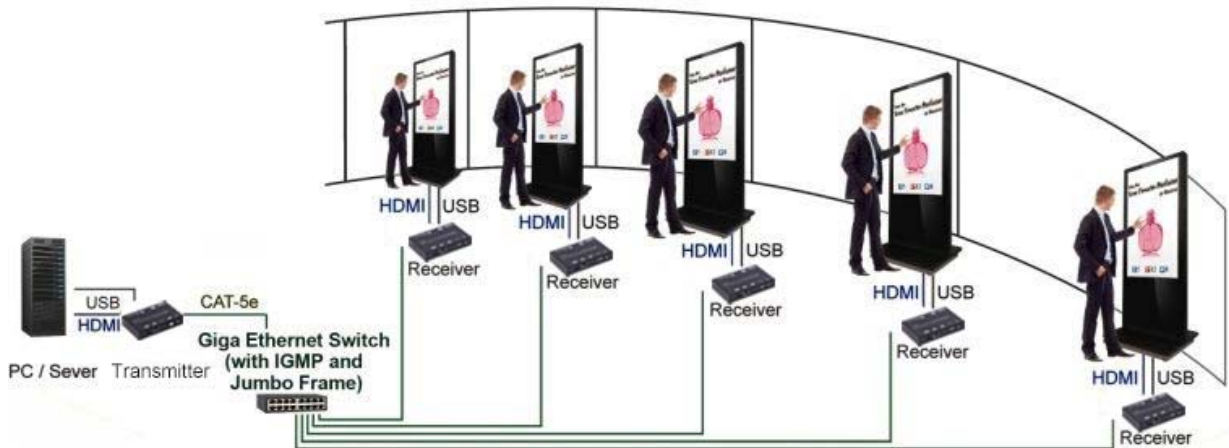
8.2 Unicast:
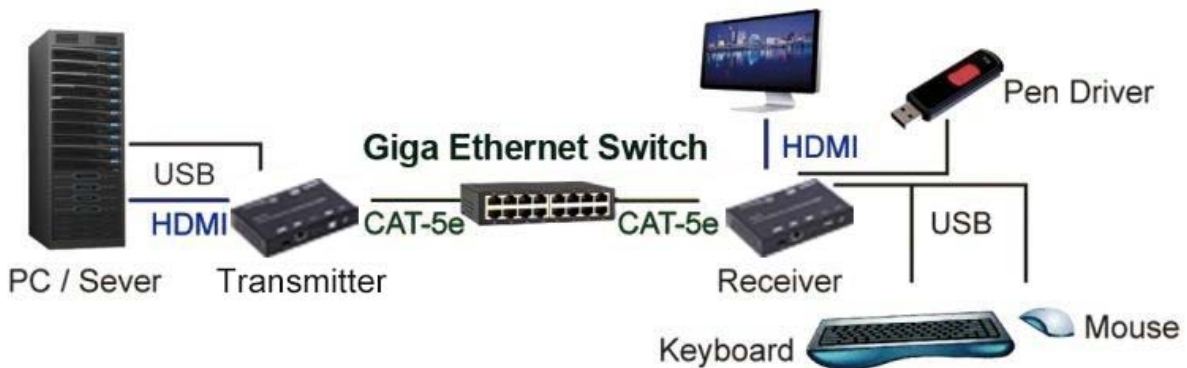
8.3 Matrix:

Install multiple transmitters and set the ID of these transmitters individually, then edit the group of transmitters and receivers. The corresponding receivers will output the video from the transmitter belonging to the same group ID.

8.4 Video wall:

A 3X5 (row x column) video wall setting example is shown here for reference. In multicast and matrix application mode, access the web user interface of the corresponding receiver to setup.

8.4.1 (Basic Setup)

Please refer to "Section 6.2.1 Basic setup" and follow the steps as below.

Step1: Set up the vertical monitor count to "3"
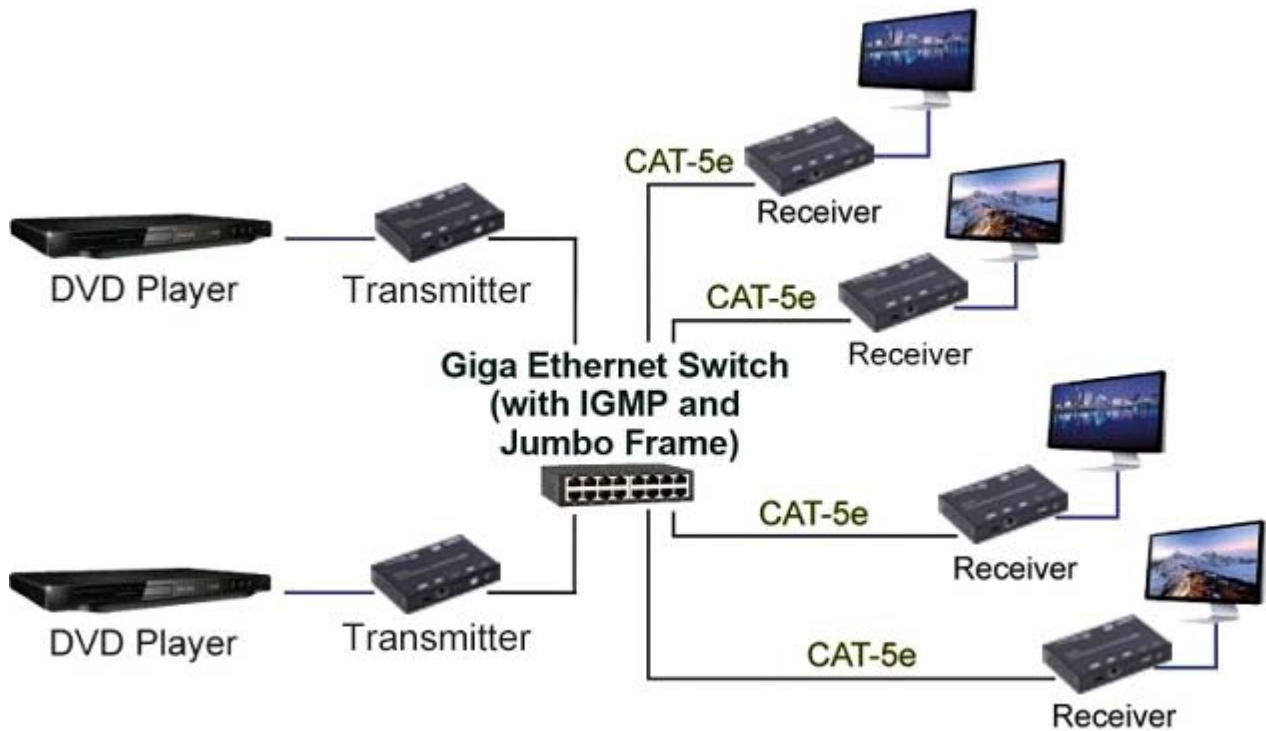
Step 2: Set up the horizontal monitor count to "5"

Step 3: Set up the row position of the monitor to 0

Step 4: Set up the column of the monitor to 0

Step 5: Apply the setting to the extender system

The administrator can complete each Extender position setting after following step 5 above, and then following the above steps to set the other extenders to the rest of the row and column positions from 0x1, 0x2, 0x3 to 3x5

After the basic setup of the video wall, please access the advanced setup to proceed to other detailed settings of the video output.

8.4.2 Advanced Setup

Select the monitor you want to control. The one you select will show "This" in green in video wall matrix layout. Take below diagram for example, the monitor we select to control here is the monitor in the upper left corner.

Example for the video wall control

Here's the diagram of the actual video wall layout showing the selected monitor in the upper left corner with green outline.
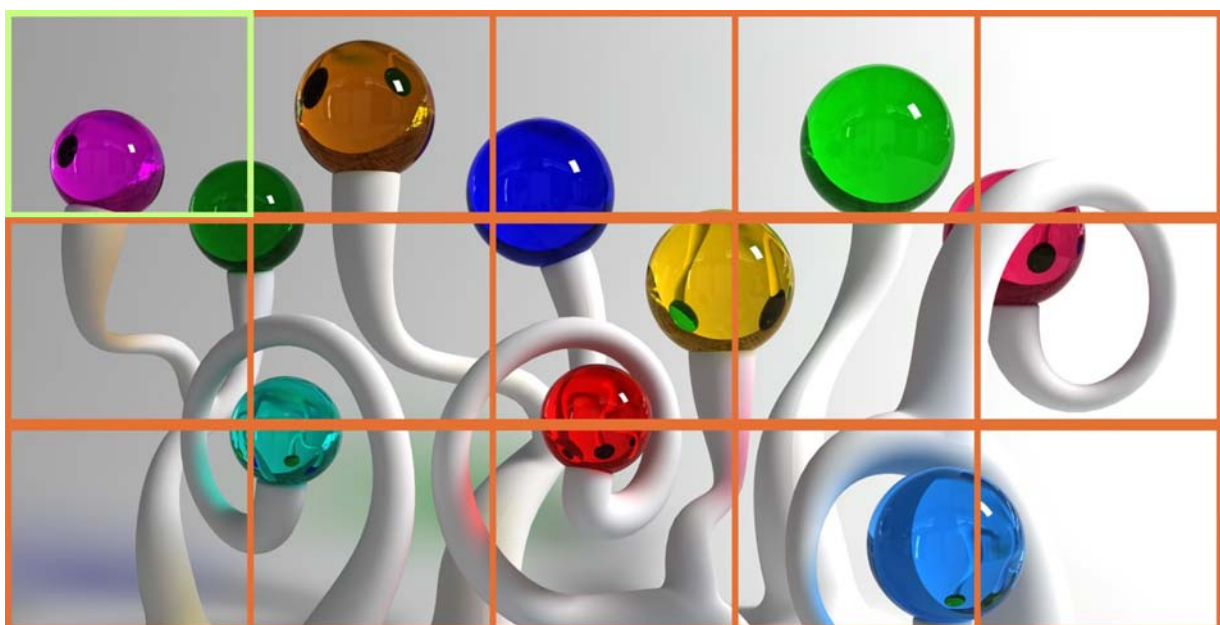
Return to the previous setup of video wall quickly when the incorrect operation has been input

Reset

Adjust the horizontal position of the video output, "Left/Right Shift", the selected monitor to adjust is shown with green outline.
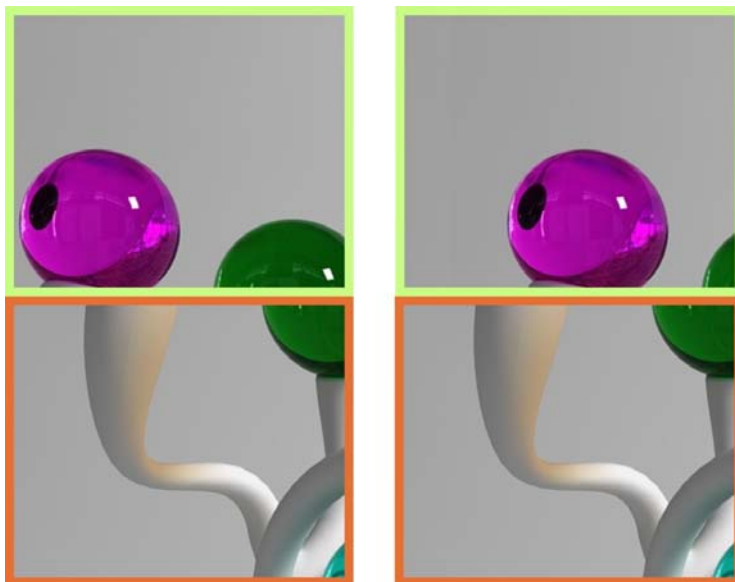
Adjust the vertical position of the video output, "Up/Down Shift", the selected monitor to adjust is shown with green outline.

Horizontal Scale Up: To scale up the video output horizontally as the monitor shown with green outline

Vertical Scale Up: To scale up the video output vertically as the monitor shown with green outline

SPECIFICATIONS

Local Unit
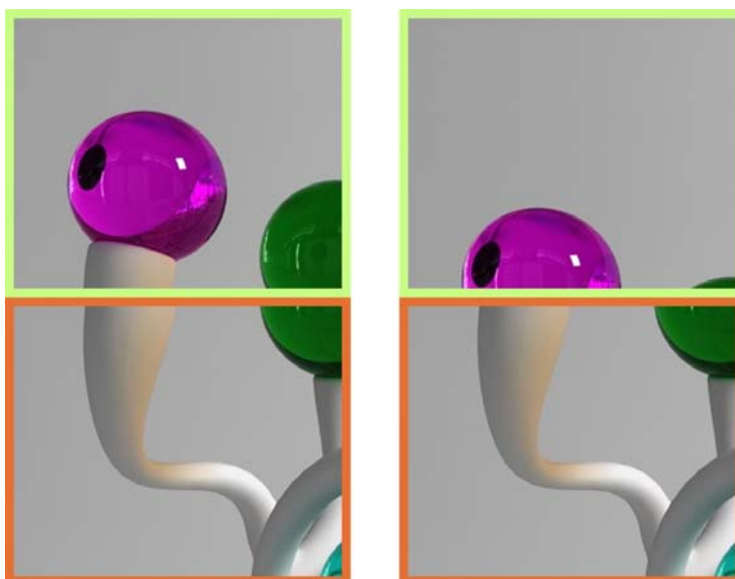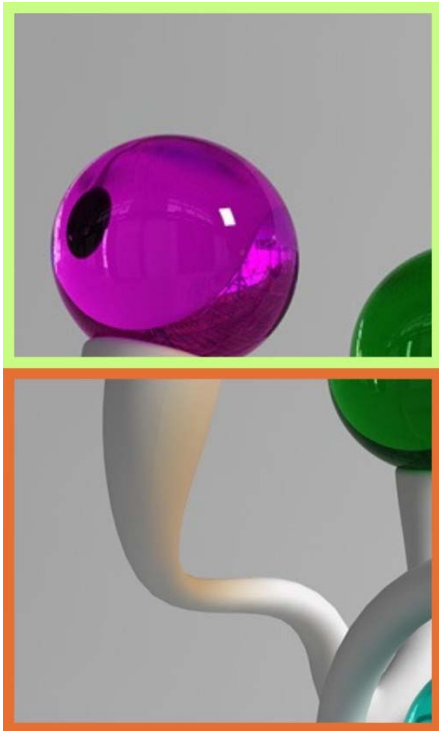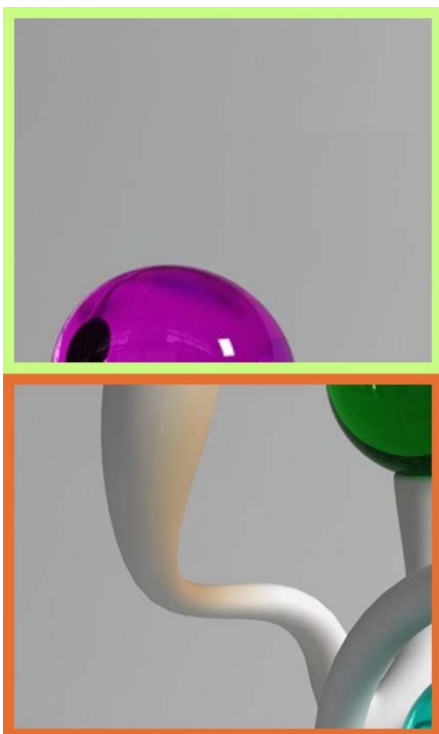- Compatible with a USB computer with Ultra-HD HDMI output.
- Multiplatform support: Windows 7/8/10/11, Windows Server 2008/2012/2016/2019/2022, Linux, FreeBSD, and MAC OS 10/11/12/13.
- One female HDMI connector.
- One female USB Type B connector.
- Two female 3.5mm ports for connecting an IR emitter and receiver (included).
  - IR frequency: 38kHz to 56kHz
- 3-pin screw terminal for RS232.
  - Supports full-duplex RS232 up to 115200 baud.
- One female RJ45 port for sending/receiving high definition video/audio, USB, RS232, and IR signals.
- One SFP receptacle – fiber extension not supported at this time.
- DIP switch for specifying unit ID.

Remote Unit
- One female HDMI connector.
  - Supports Ultra-HD 4Kx2K resolutions to 3840x2160 @30Hz, HDTV resolutions to 1080p, and up to 1920x1200 (WUXGA).
  - Supports embedded digital audio through HDMI compatible TVs or audio receivers.
- Two female USB 2.0 Type A connectors for keyboard, mouse, flash drive, or touchscreen display.
  - Keyboard and mouse are hot-pluggable.
- Two female 3.5mm ports for connecting an IR emitter and receiver (included).
  - IR frequency: 38kHz to 56kHz
- 3-pin screw terminal for RS232.
  - Supports full-duplex RS232 up to 115200 baud.
- One female RJ45 port for sending/receiving high definition video/audio, USB, RS232, and IR signals.

- One SFP receptacle – fiber extension not supported at this time.
- DIP switch for specifying unit ID.

Power
- Power over Ethernet: With a switch that supports PoE, a power supply is not required at the local or remote unit.
  - Compliant with IEEE 802.3af, class 0 standards.
- Local and remote unit:
  - Input: 100 to 240 VAC at 50 or 60 Hz via AC adapter (included).
  - Output: 5VDC, 2A

Dimensions
- WxDxH (in): 6.30x4.06x1.18 (160x103x30 mm).

Environmental
- Operating temperature: 23 to 95°F (-5 to 35°C).
- Storage temperature: 14 to 140°F (-10 to 60°C).
- Operating relative humidity: 5 to 90% non-condensing RH.

Regular Approvals
- CE, FCC, RoHS

Max Distance
- 394 feet over CAT5e/6/6a/7 cable.
- Cascade network switches to extend the length long distances.

WARRANTY

The warranty period on this product (parts and labor) is two (2) years from the date of purchase. Please contact Network Technologies Inc at (800) 742-8324 (800-RGB-TECH) or (330) 562-7070 or visit our website at http://www.networktechinc.com for information regarding repairs and/or returns. A return authorization number is required for all repairs/returns.