ViewZ®

4K60 HDMI 2.0 / USB KVM EXTENDER OVER IP

Transmitter

Receiver
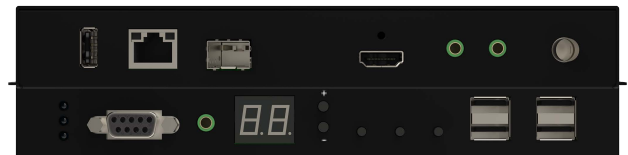
User Manual (202301 v.2)

Contents

1. Overview

The ViewZ 4K60 HDMI2.0 / USB KVM over IP Extender is composed of transmitter and receiver to extend HDMI, USB, RS232, and IR signals over IP via CATx cable and Gigabit Ethernet switch. It can be applied for point to point Unicast, point to multi-point or multi-point to multi-point multicast and video wall. Easy installation   with networking Giga Ethernet switch and CAT-5e/6 cable for building up the extension or broadcast system

2. Features

- HDMI2.0/USB2.0/1.1 over IP extension
- Support HDMI resolution up to 4K/60Hz
- Support HDMI loop-through on TX
- Support HDR10/HDR10+/Dolby Vision
- RS-232 bi-directional extension
- HDCP 1.4/2.2/2.3 compliant and Blu-Ray ready
- Two way IR extension
- Digital LED indicators with up and down button for group selection
- Automatic EDID configuration
- USB2.0 Camera upstream Port
- KM Over IP Roaming
- Seamless KM Switching on TX and RX
- Ultra low latency under 0.5 frame
- Networking environment under Giga Ethernet switch and CAT-5e/6 cable
- Point to point extension, unicast, multicast and video wall system
- Point to point extension via CAT-5e/6E cable without Ethernet switch up to 100M+
- Ethernet webpage management
- RS-232 serial control command management

3. Specification

MODEL NO.	Transmitter	Receiver
VIDEO INPUT	HDMI Type-A X 1	RJ45 X 1
VIDEO OUTPUT	RJ45 X 1	HDMI Type-A X 1
VIDEO LOOP-OUT	HDMI Type-A x1	NA
AUDIO INPUT	1 X 3.5mm Stereo Phone Jack (Line-In)	1 X 3.5 Mono Phone Jack (Line-In)
AUDIO OUPUT	1 X 3.5mm Stereo Phone Jack (Line-Out)	1 X 3.5mm Stereo Phone Jack (Line-Out)
USB INTERFACE	1 X USB Type B (USB2.0 for KVM)	2 X USB Type A (USB2.0) 2 X USB Type A (USB1.1) Note. (1) KVM can be with any USB ports (2) USB2.0 for Camera return under unicast mode
RS-232 SERIEAL	1 X DB9 Female	1 X DB9 Male
LINK INTERFACE	1 X RJ45 (AVoIP or POE) 1 X SFP (AVoIP)	1 X RJ45 (AVoIP or POE) 1 X SFP (AVoIP)
LED INDICATOR	POWER(BLUE) x 1 RJ45 LINK(GREEN) x 1 SFP LINK(GREEN) x 1 Selected Channel LED x 1	POWER(BLUE) x 1 RJ45 LINK(GREEN) x 1 SFP LINK(GREEN) x 1 Selected Channel LED x 1
USER CONTROL	Hardware Switches (From left to Right): Video Channel(CH+/CH-): Pushbutton Reset Channel: Pushbutton Set/Reset: Pushbutton Video/Image Selection: Pushbutton	Hardware Switches (From left to Right): Video Channel(CH+/CH-): Pushbutton Reset Channel: Pushbutton Set/Reset: Pushbutton Video/Image Selection: Pushbutton
IR INTERFACE	1x 3.5mm phone jack for IR emitter and receiver to control video source device	
HDMI INPUT RESOLUTION	3840X2160/60 /30/24, 1080p/ 60/50, 1080p /30/25, 1080i /60/50, 720p /60/50, 480i /60/50, 480p /60/50	
HDMI OUTPUT RESOLUTION	3840X2160/60/ 30/24, 1080p 30/25, 1080i 60/50,720p 60/50 480i 60/50, 480p 60/50	
HDMI LOOP OUT RESOLUTION	3840X2160/60/ 30/24, 1080p 30/25, 1080i 60/50,720p 60/50 480i 60/50, 480p 60/50	N/A
AUDIO FORMAT	LPCM up to 12-channels, Dolby Digital Plus, Dolby TrueHD, DTS HD Master Audio, Dolby ATMOS	
IP PROTOCOL	TCP, UDP, RTSP, RTP, DHCP, IGMP, Multicast, IPV4	
POWER INPUT	2.0mm power jack for DC12V/2A	
OPERATING TEMPERATURE	0~50°C	
STORAGE	-20~85°C	
OPERATING HUMIDITY	Up to 90% RH	
DIMENSION	205 x 107 x 30 mm (L x W x H)	
WEIGHT	0.75 Kg	

4. Hardware

4.1 Transmitter

No.	Feature	Description
1	Power Jack	12 VDC power supply with locking for 4K HDMI & USB over IP Extender
2	Audio Output	RCA connector for stereo audio output
3	Audio Input	RCA connector for stereo audio input.
4	HDMI Loop Out	HDMI Loop out connector for local display
5	HDMI Input	HDMI video input connector
6	Fiber Port	Fiberoptic (SFP module), multimode or single-mode, up to 30 km
7	RJ45 Connector	10/100/1000 Mbps self-adaptive Ethernet interface
8	ACT LED Indicator	ACT LED indicator turns green when 4K HDMI & USB over IP Extender is powered up
9	RJ45 LED Indicator	RJ45 LINK LED flickers green when network connection is waiting for video source, turns green when network connection and video source is functioning properly
10	SFP LED Indicator	SFP LINK LED indicator flickers green when network connection is waiting for video source, turns green when network connection and video source is functioning properly
11	RS-232 Connector	DB9 connector for RS-232 remote extension

12	IR Port	Connect IR extension cable to IR port and position the emitters near the devices you want to control
13	KM USB Port	PC USB port for remote additional device such as USB mouse, USB keyboard and USB pen drive connecting to PC
14	Group LED	Group configuration, set up the group ID
15	Group Channel -	Down the number for Group channel
16	Group Channel +	Up the number for Group channel
17	Select Group Channel	Enter the selected number for Group channel
18	Reset	Restart the 4K HDMI & USB over IP extension by pressing RESET button
19	G / V	Press G / V button to show current mode under graphic or video mode with OSD

4.2 Receiver

No.	Feature	Description
1	Power Jack	12 VDC power supply with locking for 4K HDMI & USB over IP Extender
2	Audio Output	RCA connector for stereo audio output.
3	Audio Input	RCA connector for stereo audio input.
4	HDMI Output	HDMI Loop out connector for local display
5	Fiber Port	Fiberoptic (SFP module), multimode or single-mode, up to 30 km

6	RJ45 Connector	10/100/1000 Mbps self-adaptive Ethernet interface
7	ACT LED Indicator	ACT LED indicator turns green when 4K HDMI & USB over IP Extender is powered up
8	RJ45 LED Indicator	RJ45 LINK LED flickers green when network connection is waiting for video source, turns green when network connection and video source is functioning properly
9	SFP LED Indicator	SFP LINK LED indicator flickers green when network connection is waiting for video source, turns green when network connection and video source is functioning properly
10	RS-232 Connector	DB9 connector for RS-232 remote extension
11	IR Port	Connect IR extension cable to IR port and position the emitters near the devices you want to control
12	Group LED	Group configuration, set up the group ID
12	KM USB Port	PC USB port for remote additional device such as USB mouse, USB keyboard and USB pen drive connecting to PC
13	Group Channel -	Down the number for Group channel
14	Group Channel +	Up the number for Group channel
15	Select Group Channel	Enter the selected number for Group channel
16	Reset	Restart the 4K HDMI & USB over IP extension by pressing RESET button
17	G / V	Press G / V button to show current mode under graphic or video mode with OSD
18	USB 2.0 Port	USB2.0 Port can be connected with USB mouse, USB keyboard and USB pen drive. It can also connect to USB2.0 Camera to return recording video to transmitter under unicast mode
19	USB 1.1 Port	USB2.0 Port can be connected with USB mouse, USB keyboard and USB pen drive

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5. Installation

5.1 INSTALLATION

1. Check the power supply is unplugged.
2. Set up the group of the transmitter with the correspondent receiver for signal extension and display.
3. Connect the Transmitter to video source with HDMI cable, and connect Receiver to a monitor or display with HDMI cable.
4. Connect the USB cables from Transmitter to PC, and connect the USB additional devices such as USB mouse, USB keyboard and USB pen drive to Receiver.
5. Connect Transmitter and Receiver to the Ethernet switch with network cable.
6. Power on the Transmitter, Receiver and all the connected devices.
7. Power on and activate all the connected devices.
8. Connect the IR extension cable with Transmitter and the IR receiver cable with Receiver for remote control.

◆ **Configuration**

P4K-HRSUL4E1 Transmitter   P4K- LHRSU1E4 Receiver
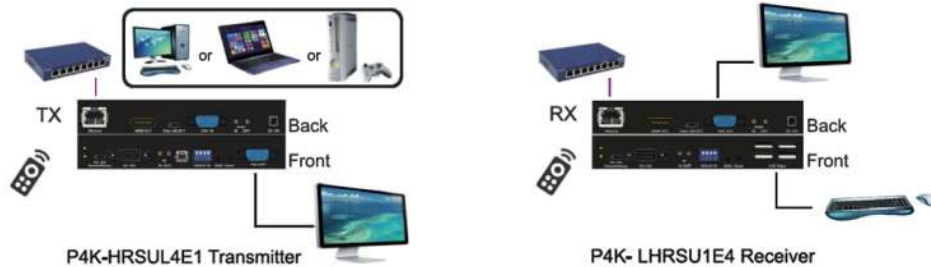
◆ **Application Pattern**

■ **Unicast**
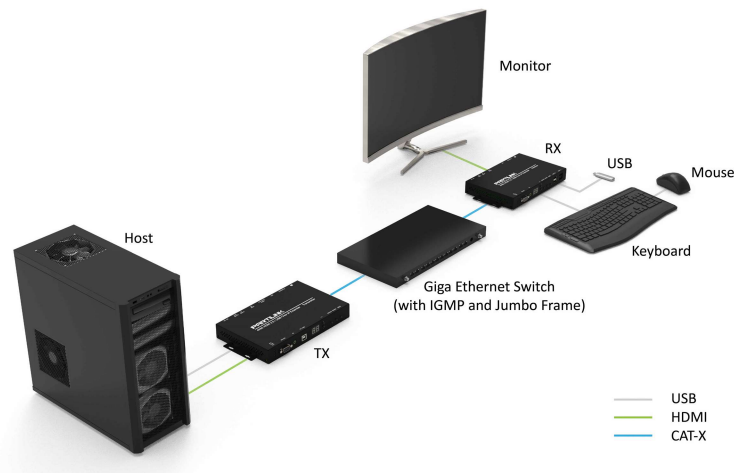
■ Multicast

a. Video Distribution

Monitor

RX

Host

Mouse

Giga Ethernet Switch
(with IGMP and Jumbo Frame)

Keyboard

TX

USB
HDMI
CAT-X

b. Matrix Distribution

Monitor

RX

TX

DVD Player

Giga Ethernet Switch
(with IGMP and Jumbo Frame)

USB
HDMI
CAT-X
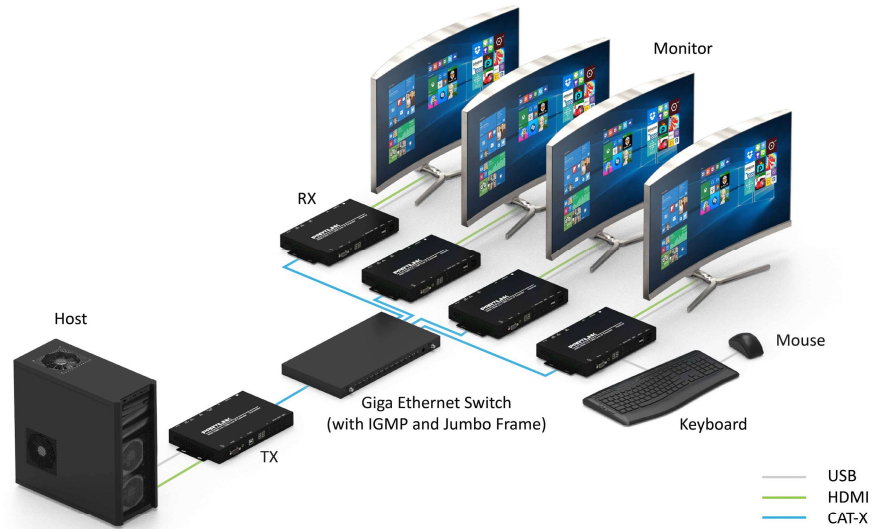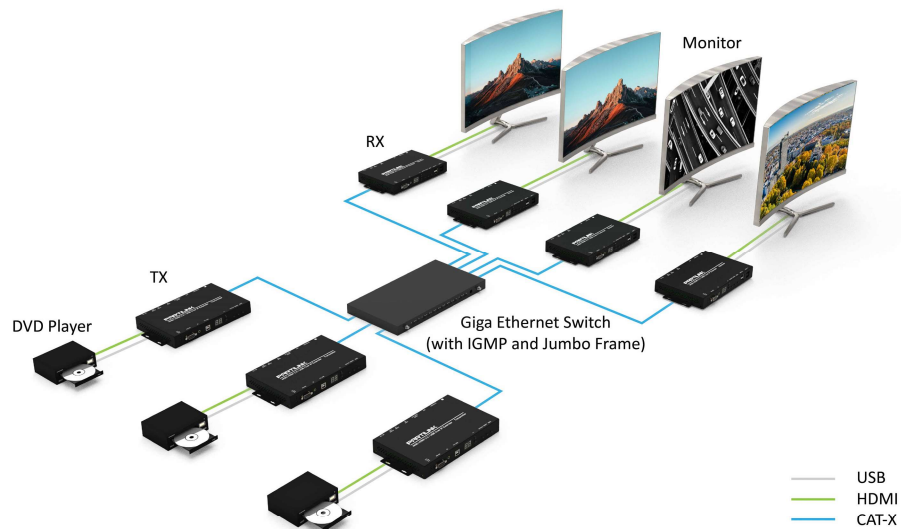
c. Billboard & Kiosk, PC to HDMI and USB   Interactive Monitor

USB
HDMI
CAT-X

Kiosk

Giga Ethernet Switch
(with IGMP and Jumbo Frame)

TX

RX

Host
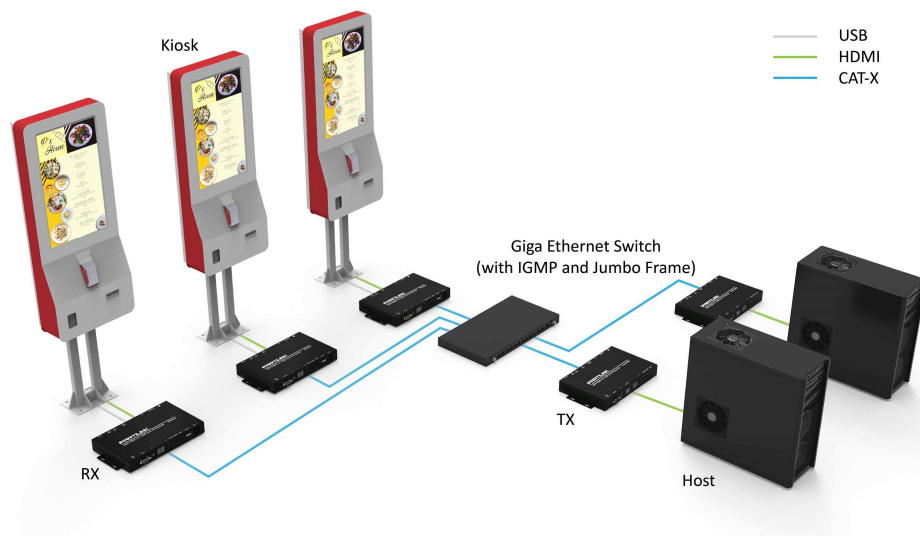
■ Video Wall
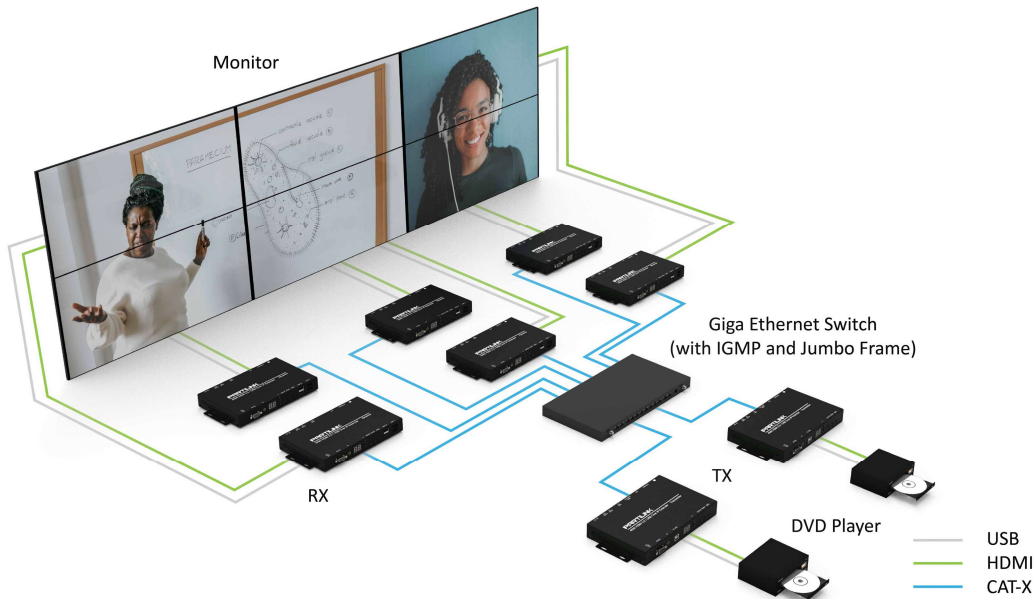
5.2 IP Configuration

The 4K HDMI & USB Over IP Extender can configure via LAN in the same subnet.
1. Assign a LAN IP address to the computer in the same subnet. The IP address default of the Transmitter and Receiver is B class Networking: 169.254.xxx.xxx.
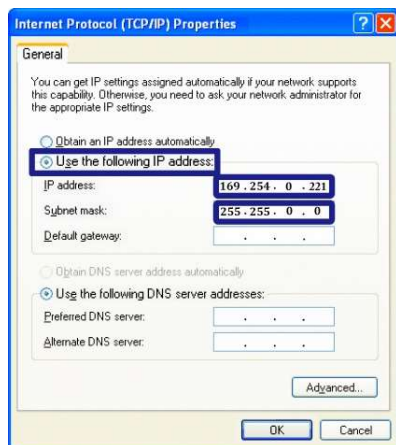
Figure 1. Internet Protocol (TCP/IP) Properties
2. Connect all devices with proper cables except video source, please refer to Figure 2
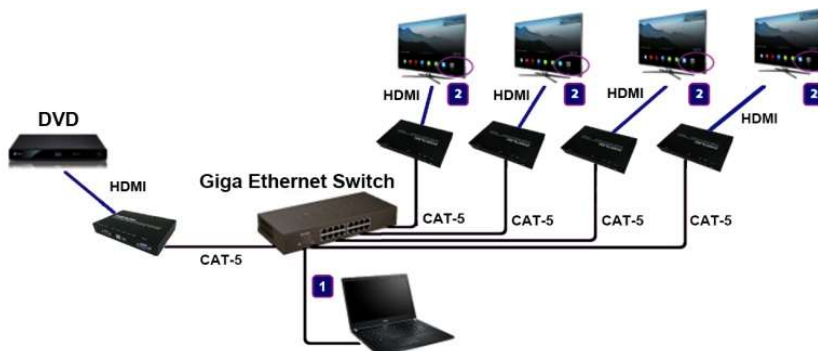
Figure 2. Demonstrate the 4K HDMI & USB Over IP

3. After activation, the device information including the Transmitter and Receiver IP address will be shown in the lower right corner. Remember the Transmitter and Receiver IP address on monitor screen and then plug HDMI video source cable into Transmitter.

Figure 3. Device IP Indication

4. The administrator can input Transmitter or Receiver IP address into address bar of web browser to enter the Extender Web UI. If link success, administrator will see the Web UI as shown in Figure 4.

Figure4. Web User Interface

6. WEB USER INTERFACE CONFIGURATION

6.1 System

The relevant information of the connected extender and setting

6.1.1 [Version Information]

Indicating the firmware version and relevant information of the devices
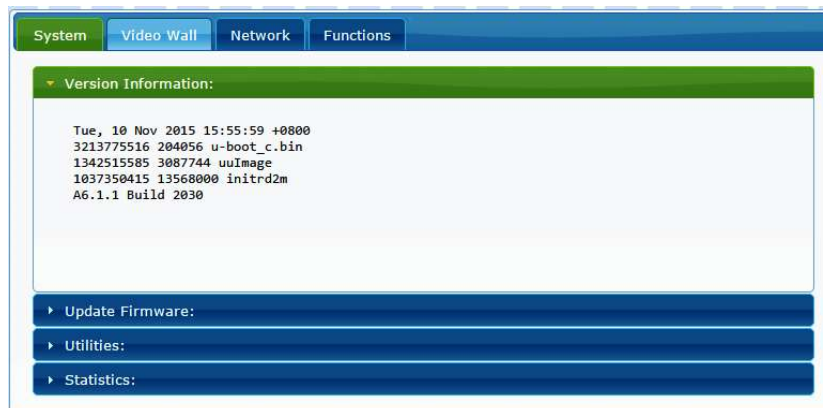
Figure5. Version Information

6.1.2 [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.
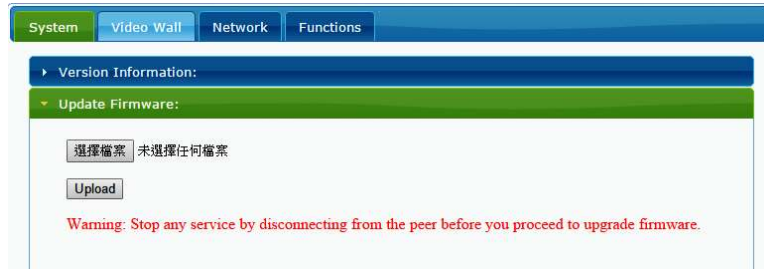
Figure 6. Update Firmware

● **Transmitter Firmware Update**: please select [webfw.bin] to update

● **Receiver Firmware Update**: please select [webfwc.bin] to update
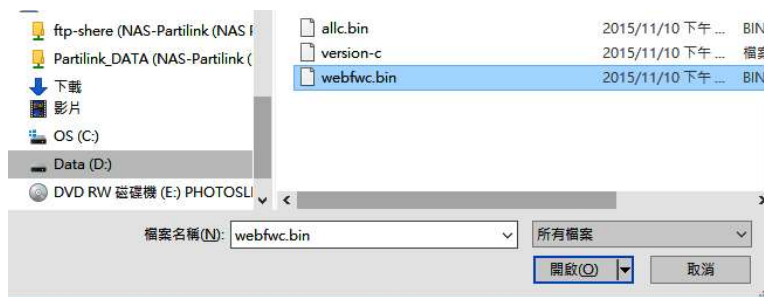
Figure 7. Select File to Update Firmware

It takes time to update the firmware. During the process of update, the Web user interface
shows the status as below diagram. The extender system will reboot automatically after
updating firmware. If it doesn't reboot automatically, please reboot to apply the new
firmware manually.
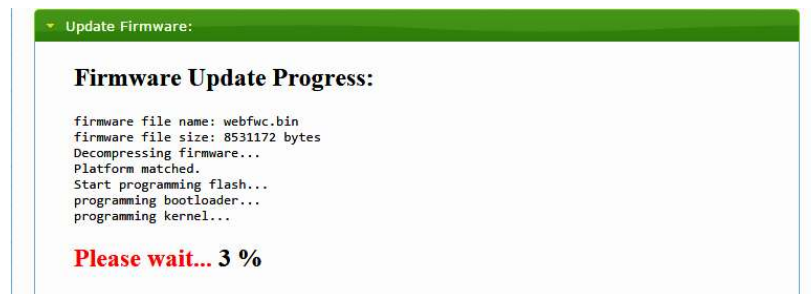
Figure 8. Firmware Update Progress
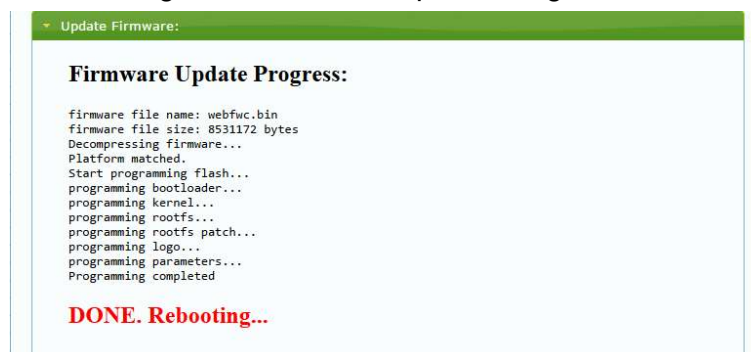
Figure 9. Firmware Upgrade Complete and Reboot

6.1.3 [Utilities]

There are some functions

● **Factory Default**:

Click on to return to the factory default when necessary

● **Reboot**:

Click on to reboot the extender system

● **Console API Command:**

Input Linux command for advanced setting

Figure 10. Utilities

6.1.4 [Statistics]

Indicating the extender linking and working status
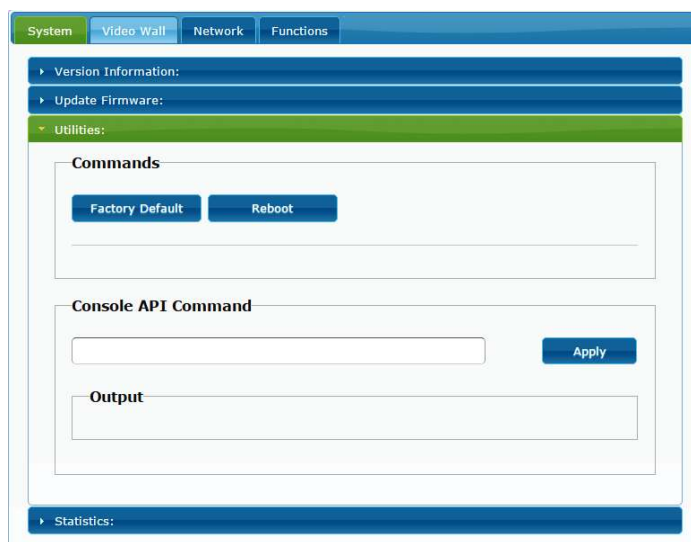
Figure 11. Statistics of Linking and Working Status

6.2 Video Wall

To set up the video wall application

Figure 12. Statistics of Linking and Working Status

6.2.1 [Basic Setup]
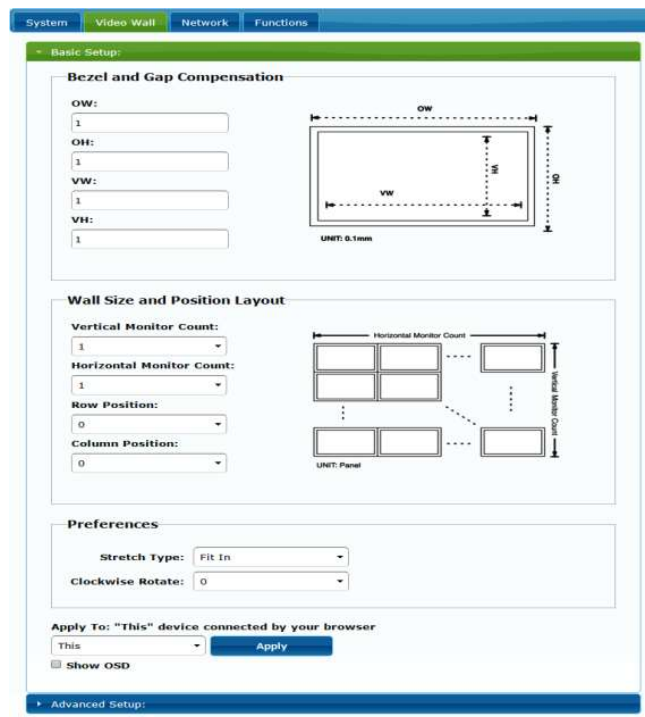
Figure 13. Basic Setup page

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

Please NOTE:

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

be less than the outside height.

b. If administrator doesn't need this, just set all values to 0.

c. The unit is 0.1mm and the value MUST be integer.

Figure 14. Monitor Bezel and Gap Setup

● **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

Figure 15. Vertical Monitor Number Setup

Figure 16. Wall size and Position Setup – Row Position
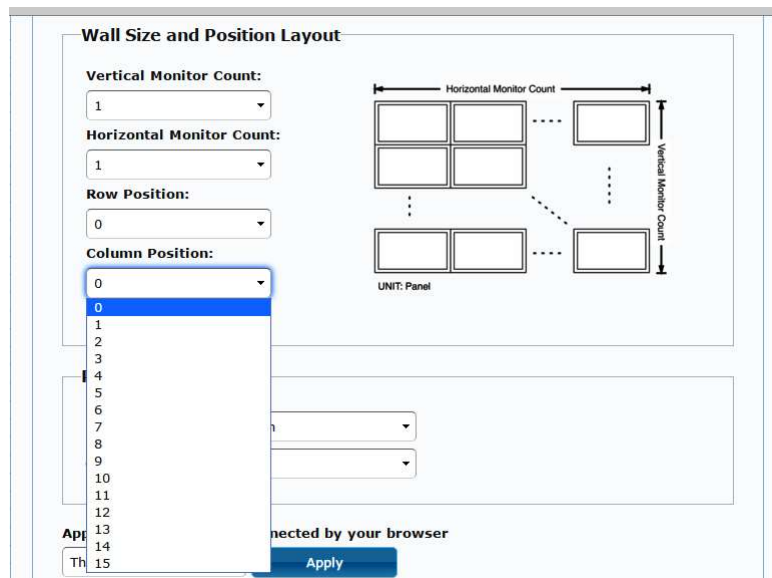
Figure 17. Wall size and Position Setup – Column Position

● **Preferences**:

Select the video fit in the screen or stretch out and the rotate angle

Figure 18. Video Stretch or Fit Screen Setup
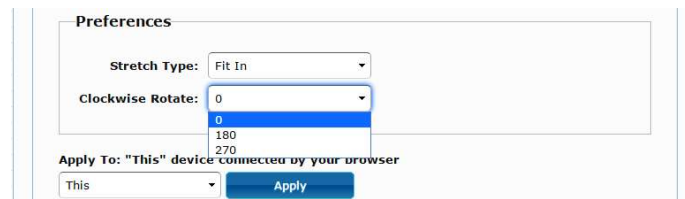
Figure 19. Video Rotation Angle Setup

● **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.
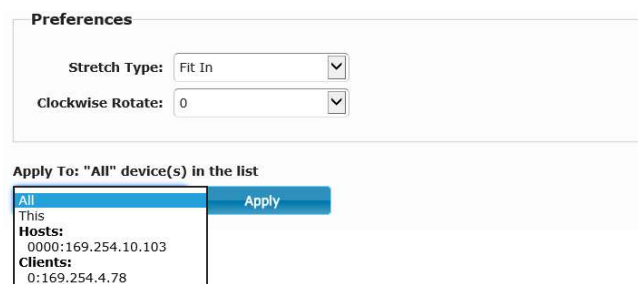
Figure 20. Monitor Setting Application

● **Show OSD:**

Check this box to output each receiver's specific number to the connected monitor

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Figure 21. Show OSD Check box

6.2.2 [Advance Setup]

Figure 22. Video Wall Advanced Setup

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

Step1: In "Basic Setup", select Vertical and Horizontal Monitor Count. For example, Vertical Monitor Count = 3, Horizontal Monitor Count = 5

Figure 23. Basic Setup of the Video Wall before Access

Sept2: In "Advanced Setup", choose the target of the video wall to control
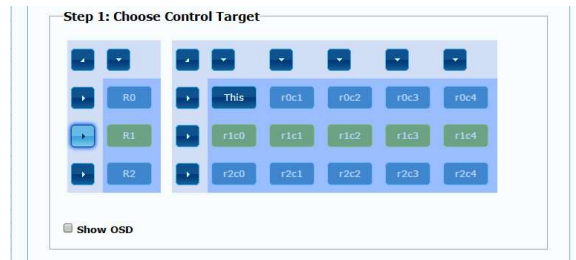
Figure 24. Choose Video Wall Control Target

If user make incorrect operations, press "Reset" in Reset to Basic Setup function.

Figure 25. Reset to Basic Setup

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

Figure 26. Video Stretch Type

Setup the rotation angle of the video output
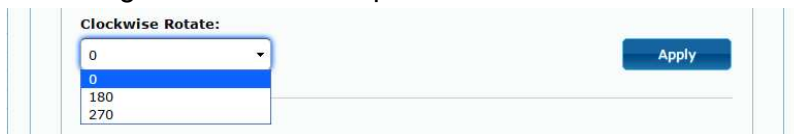
Figure 27. Clockwise Rotate

Set up the number of vertical and horizontal monitor based on the video wall layout. Vertical number 1~8 and horizontal number 1~16.

Setup the row postion of monitor, number from 0 to the total number of vertical monitor.
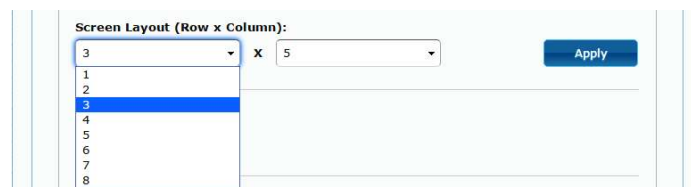
Figure 28. Setup the Vertical and Horizontal Number of Monitor

Setup the column position of monitor, number from 0 to the total number of horizontal monitor.
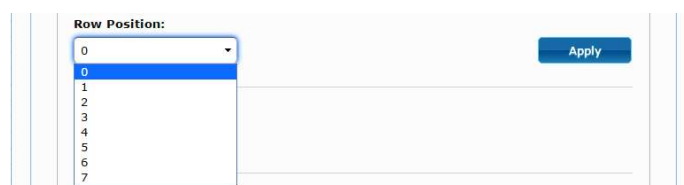
Figure 29. Seup the Row Position of the Monitor

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
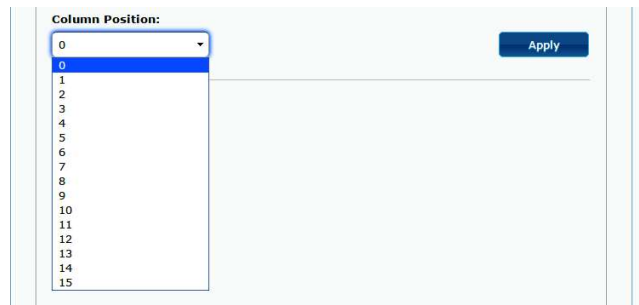
Figure 30. Setup Column Position of the Monitor

● **Horizontal Scale Up**: Setup the video horizontal scale up.

● **Vertical Shift Scale Up**: Setup the video vertical scale up.

Figure 31. Output Video Adjustment

● **Console API Command**: Input Linux command to do advanced setup.
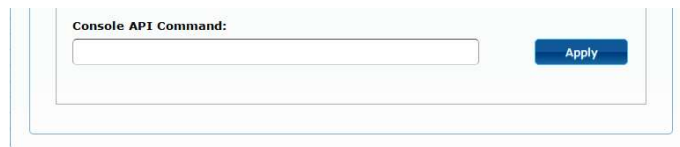
Figure 32. Consol API Command Input

6.3 Network: Update the network setup of the extender
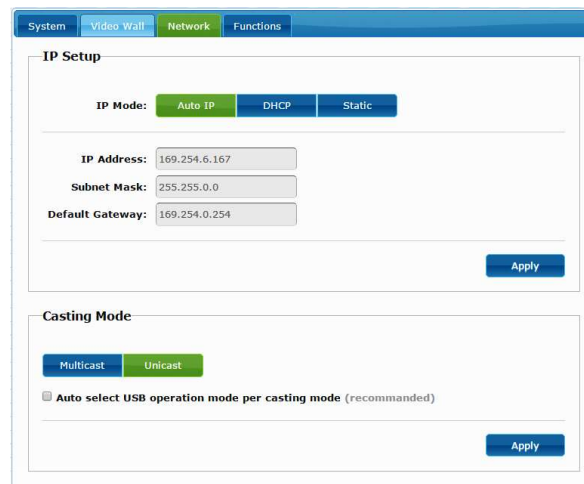
Figure 33. Network Setup

6.3.1 [IP Setup]

Figure 34. Auto IP Setup

- **Auto IP**: use automatically Extender assign IP system for example: 169.254.xxx.xxx

- **DHCP**: use the DHCP of the external device such as the IP sharer to assign IP

Figure 35. DHCP

- **Static**: use the static IP to assign manually

Figure 36. Assign Static IP

6.3.2 [Casting Mode]

Select the broadcast mode of the extender application

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

- **Unicast:** point to point broadcast

Figure 37. The Casting Mode Setup

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6.4 Functions

Setup the video output and USB extension mode

Figure 38. Video and USB over IP Functions

6.4.1 [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 one of the receivers.
- **Scaler Output Mode:**

Select the required scalar 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:** Setup the time of stop the video storage when detecting video lost to transmit

Figure 39. Video over IP Setup

Figure 40. Customize Scaler Output Mode

Figure 41. Timeout for Detecting Video Lost

6.4.2 [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.

Figure 42. USB over IP Functions

6.4.3 [Serial over IP]

set up the serial extension mode

- Select Type 2 as operation mode
- Set up the baud rate for Type 2.

Figure 43. Serial over IP

Figure 44. Broadcast Mode

7. BROADCAST CONFIGURATION SETTING

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

7.1 Multicast

To enable the USB interactive devices controlled by turns, please check "Auto select USB operation mode per casting mode"

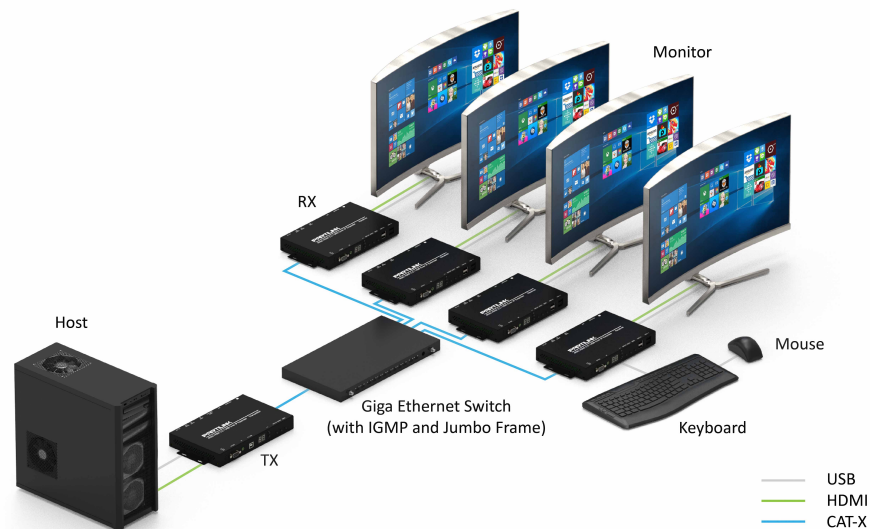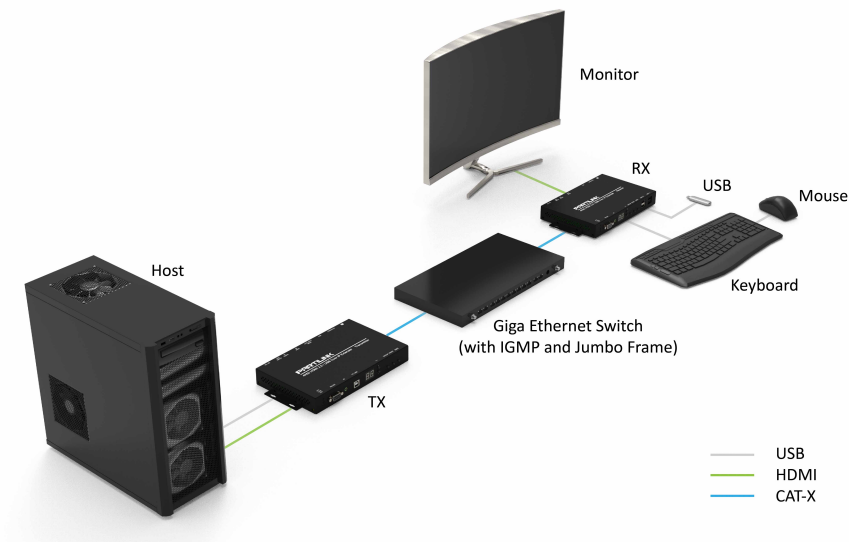Figure 45. USB Interaction Application

7.2 Unicast

Figure 46. Unicast Application

7.3 Matrix

Install multiple transmitters and setting ID of these transmitters individually, edit the group of transmitters and receivers. The correspondent receivers will output the video from the transmitter belonged to the same group ID.

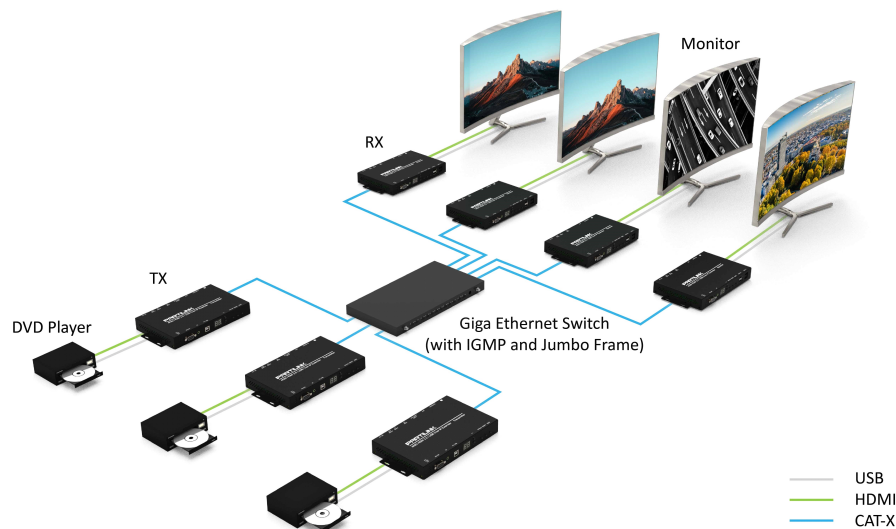Figure 47. Transmitter and Receiver Unit Grouping

Figure 48. Multicast Application

7.4 Video Wall

A 3x5 (row x column) video wall setting example here for reference. In multicast and matrix application mode, access the Web user interface of correspondent receiver to setup
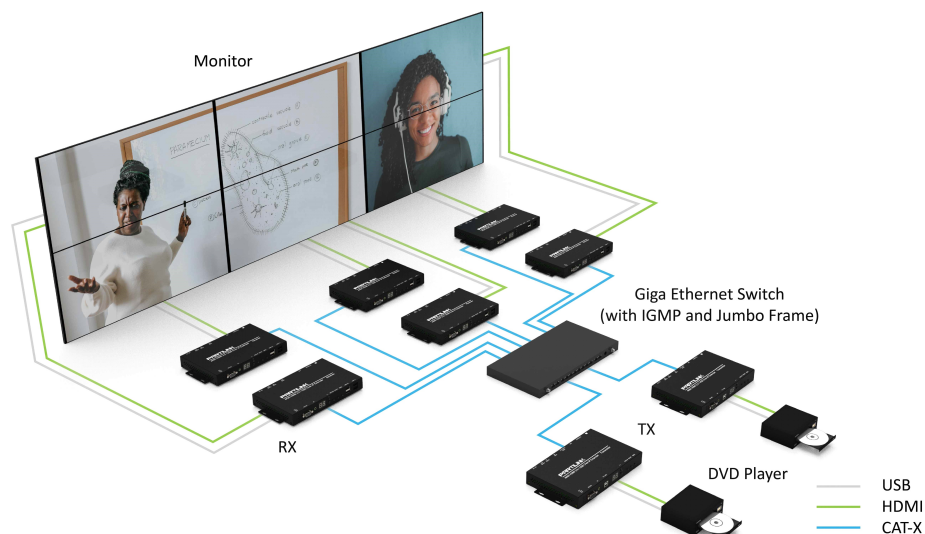

Figure 49. Example for the Video Wall Control

7.4.1 [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"

Step2: Set up the horizontal monitor count to "5"

Step3: Set up the row position of the monitor to 0

Step4: Set up the column position to 0

Step5: Apply the setting to the extender system

Administrator can complete each Extender position setting after following 5 steps in above. And then follow the above steps to set the other Extenders to the rest of 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 other detailed setting of the video output

7.4.2 [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.
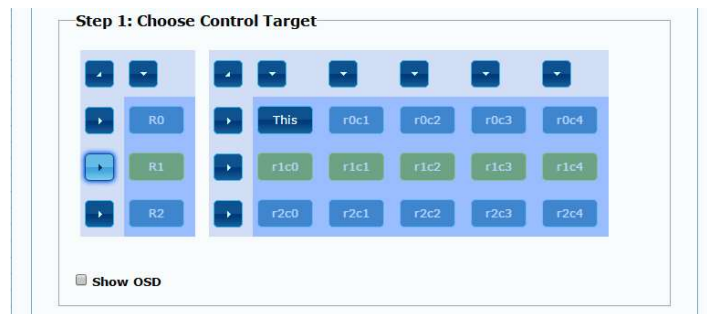

Figure 50. Example for the Video Wall Control

Here's the diagram of the actual video wall layout showing the selected monitor in the upper left corner with green outline.
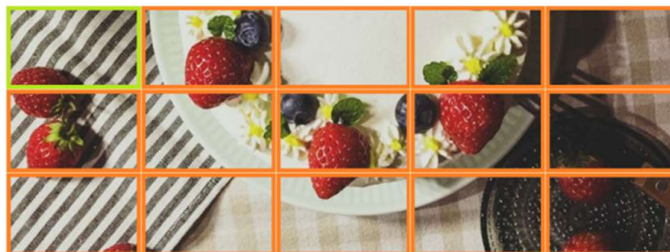

Figure 51. Example for the Video Wall Control

Return to the previous setup of video wall quickly when incorrect operation was input.

Figure 52. Reset

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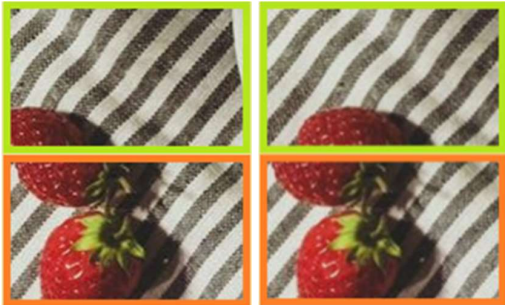

Figure 53. Example for Adjust the Monitor of Video Wall

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

Figure 54. Example for Adjust the Monitor of Video

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

Figure 55. Example for Adjust the Monitor of Video Wall

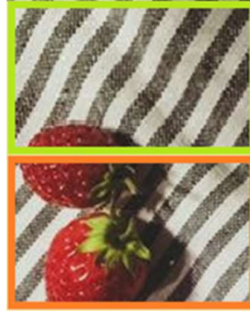**Vertical Scale Up:** To scale up the video output vertically as the monitor shown with green outline

Figure 56. Example for Adjust the Monitor of Video

8. PACKAGE CONTENTS

1. VZ-1TRX-IP-NP TX HDMI & USB extender over IP transmitter (1)

2. VZ-1TRX-IP-NP RX / 8RE23-F01H01R0PA HDMI & USB extender over IP receiver (1)

3. DC12V 2A power adapter, one comes with the transmitter VZ-1TRX-IP-NP TX and one comes with receiver VZ-1TRX-IP-NP RX. Please NOTE: The standard package of PoE model doesn't include power adapter.

4. IR receiver cable comes with receiver (1)

5. IR emitter cable comes with transmitter (1)

6. User manual (1)

7. Rear bracket (2)

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