



## HDMI Video Wall Extender over IP



**Manual**  
DS-55300 • DS-55301

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# 1. Introduction

Thanks for purchasing HDMI Video Wall Extender over IP. Please read this manual and retain for future reference.

## 1.1 Features

- Only one CAT5e/6 or Fiber Optic cable required
- Adoptive visually lossless compression algorithm
- HDMI Digital Audio/Video extended distance up to 100 meters (330 feet) between Transmitter and Receiver (point-to-point); up to 30 kilometers between Transmitter and Receiver over Fiber Optic cabling (based on the quality of Fiber Optic and Transceiver modules). Supports Full HD video 1080P Deep Color and PC resolution 1920x1200@60Hz signals, over CAT.5e/6 cabling
- Support Crosspoint & Daisy Chain connection for both Transmitter and Receiver units
- Mapping different TX source, even some grouping loop for each receiver by LINK ID
- Video wall function supported, easily configurable through web UI
- Built-in Ethernet switch, cost-effective with high flexibility for expansion
- Wall-mount housing design for easy and robust installation
- Automatic Display Mode Detection
- Supports both Interlaced and Progressive Display Modes
- Supports DDC/DDC2B, Hot-Plug Detection (HPD) and HDCP compliant functions
- Supports Default EDID and EDID copy function for optimal PC-to-Screen performance Infrared Remote (IR) signal control communication Supports Serial (RS-232) bi-directional

## 1.2 Package Contents

1. HDMI Extender Transmitter (TX) x 1
2. HDMI Extender Receiver (RX) x 1
3. Power Supply DC 5V / 2A (TX & RX pair units) or optional 1 (single unit)
4. IR cables (IR blaster cable x 1; IR receiver cable x 1)
5. User's Manual x 1

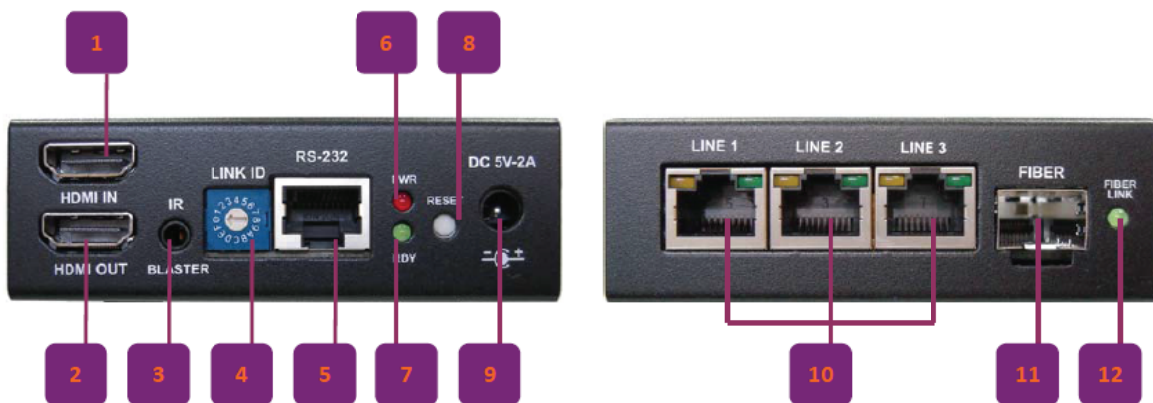
## 2. Specifications

		Transmitter	Receiver
Console Connectors	HDMI Output	HDMI (Female)	HDMI (Female)
	RS-232 Control Port	RJ-45	RJ-45
PC Connectors	DisplayPort Input	HDMI (Female)	N/A
Extension Port	RJ-45	Full HD Video 1080p / Audio	Extension + IR + RS232
RJ-45 Ports		3 (Line In or Line Out)	3 (Line In or Line Out)
Fiber Link		1	1
Cascaded-Chainable		up to 10 layers	up to 10 layers
Audio		Supports High Definition Audio, Surround Sound	
IR		Uni-directional	
RS-232		Bi-directional	
LED Indicators	Local Power	Red LED	
	Local Link	Green LED	
	Remote Power	Red LED	
	Remote Link	Green LED	
DDC supported		DDC, DDC2, DDC2B	
Extension Cable Type & Length		Cat.5e / Cat.6, max. length: 100m, Fiber max. 30km	
Video resolution		1920x1080@60Hz, Full HD 1080p, 48-bit	
Wide screen supported		Yes	
OS compatibility		OS Independent	
Power supply		External DC 5V / 2A power adapter	
Dimensions (L x W x H)		155 x 90 x 28.5 mm	
Weight		430 g	425 g
Housing material		Metal	
Operating temperature		0 - 50°C	
Humidity		0% - 80% RH	



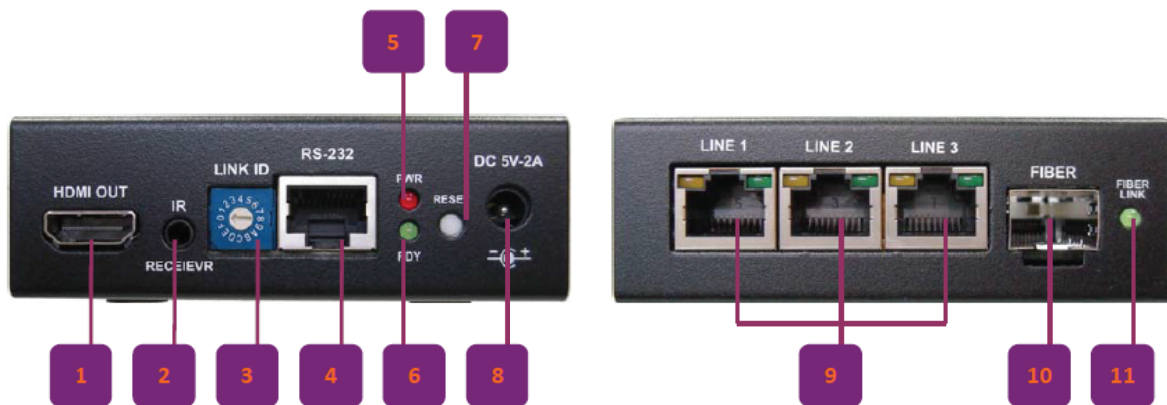
### 3. Detail Picture

#### Transmitter (TX):



1. **HDMI IN:** Connect to a HDMI source by using HDMI cable
2. **HDMI OUT:** Local HDMI output, connect to a display monitor by using HDMI cable
3. **IR:** IR blaster port, connect the IR blaster cable to this port (please refer to appendix 2)
4. **LINK ID:** ID selector, select AV Source (Max. 16 AV sources with ID 0 – F per unit).
5. **RS-232 Port:** Connect a RS-232 to RJ-45 adapter (optional) to this port (please refer to appendix 3)
6. **Power LED** (Solid Red when power present)
7. **Ready LED** (Solid Green when link present)
8. **Reset Button** (push for device reset, please refer to the appendix 1)
9. **Power Connector:** Connected to Power Adapter DC 5V/2A
10. **LINE Port:** Connect to the LINE port of TX's or RX's or controlling system.
11. **Fiber in/out:** Connect to a SFP fiber module if user needs to extend signal for longer distance.
12. **Fiber link:** Solid green when device is powered on and ready and LED will turn blinking when data is being transmitted between two units via fiber optic cable.

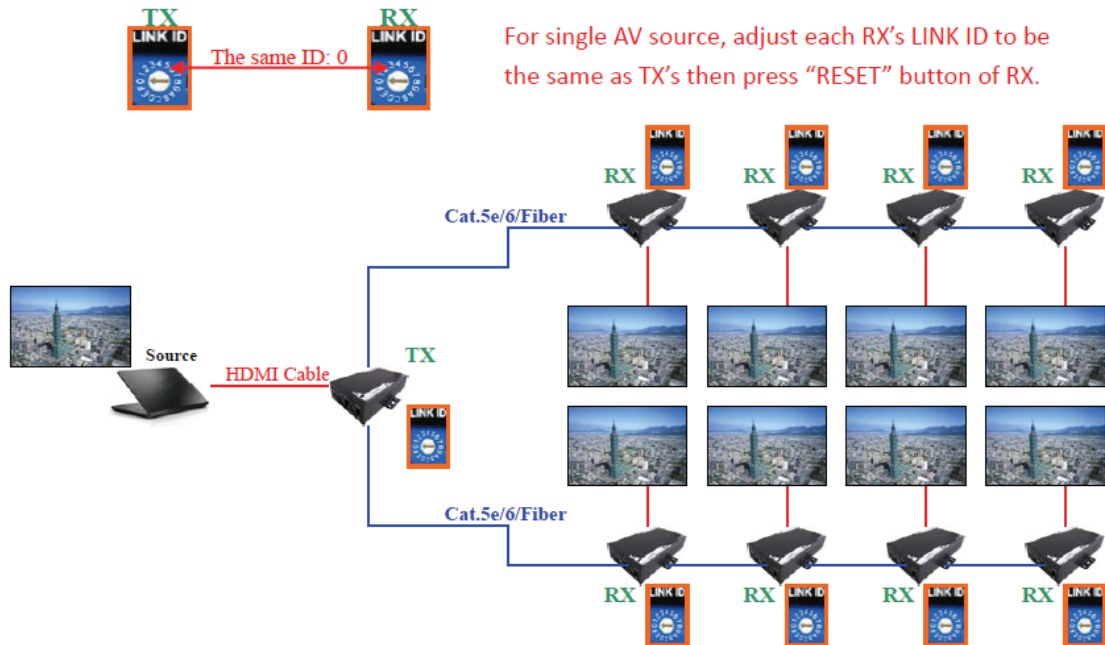
## Receiver (RX):



1. **HDMI OUT:** Connect to a display monitor by using HDMI cable
2. **IR:** IR receiver port, connect the IR receiver cable to this port (please refer to appendix 2)
3. **LINK ID:** ID selector, select AV Source (Max. 16 AV sources with ID 0 – F per unit).
4. **RS-232 Port:** Connect a RS-232 to RJ-45 adapter (optional) to this port (please refer to appendix 3)
5. **Power LED** (Solid Red when power present)
6. **Ready LED** (Solid Green when link present)
7. **Reset Button** (push for device reset, please refer to the appendix 1)
8. **Power Connector:** Connect the included 5V DC power supply to this receptacle.
9. **LINE Port:** Connect to the LINE port of TX's or RX's for signal extension.
10. **Fiber:** Connect to a SFP fiber module if user needs to extend longer distance.
11. **Fiber Link:** Solid green when device is powered on and ready and LED will turn blinking when data is being transmitted between two units via fiber optic cable.

## 4. Connection Diagram

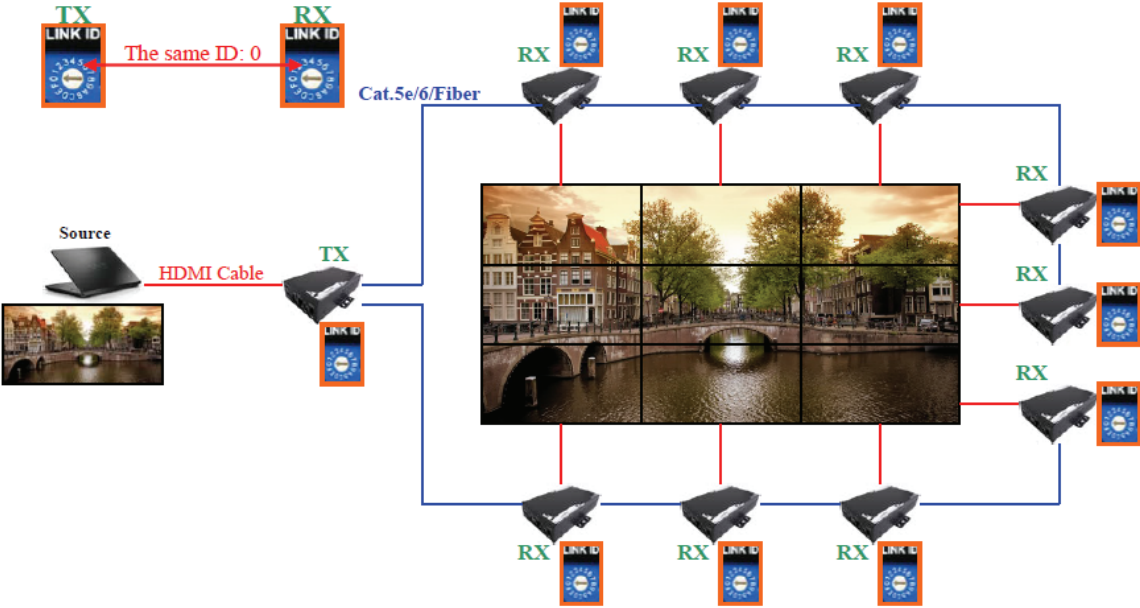
- Broadcasting Model with one single source



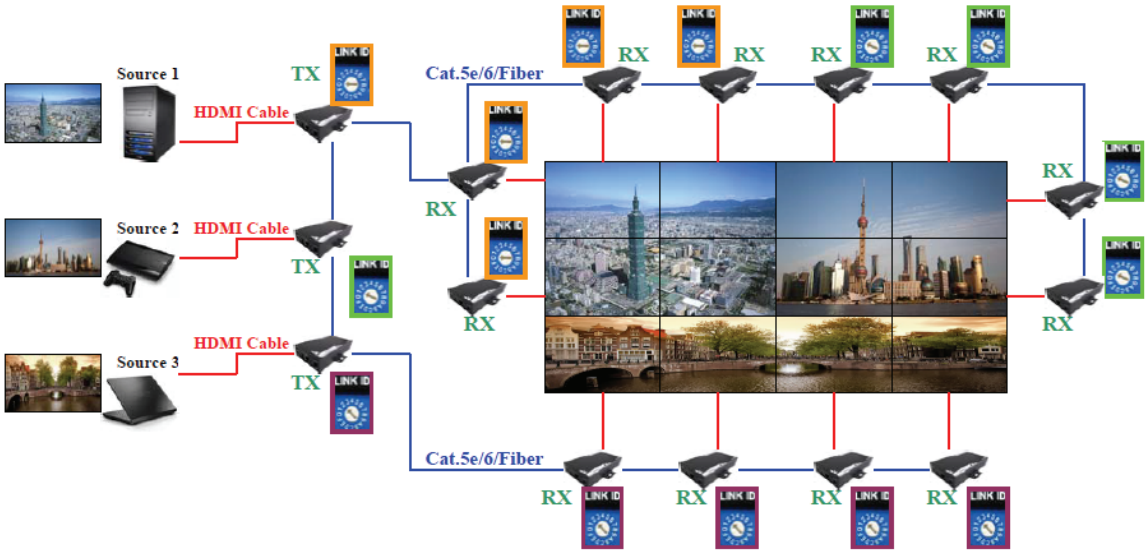
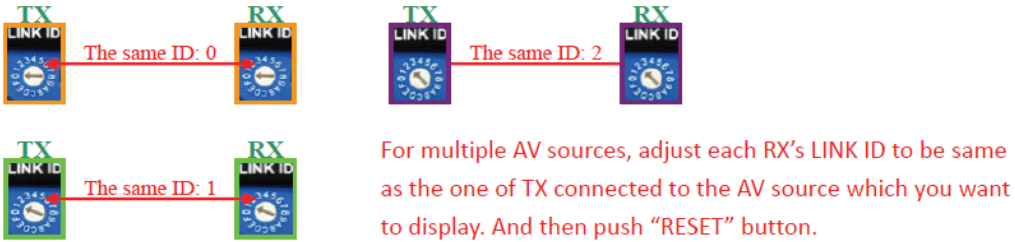
## Broadcasting Model with multi source



### Video Wall Model with single source

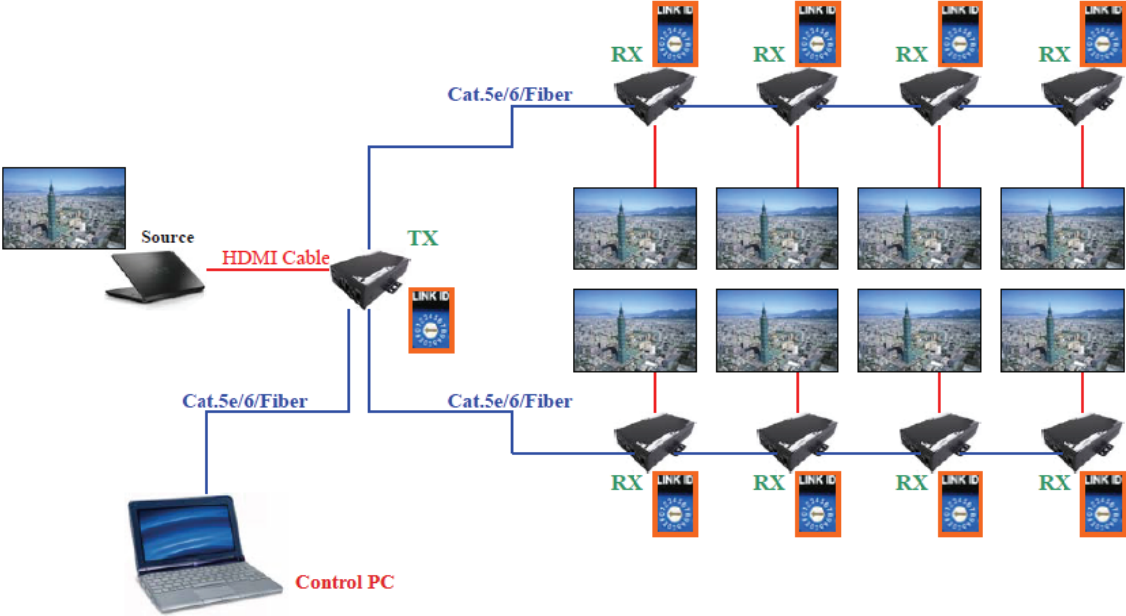


### Video Wall Model with multi source



## 5. Control system setup Preparation

Connect control PC to any one of the TX or RX as below, the whole broadcast or video wall system is an intranet system, hence the control PC just link to any one of the TX or RX, then the control PC can control the whole system.

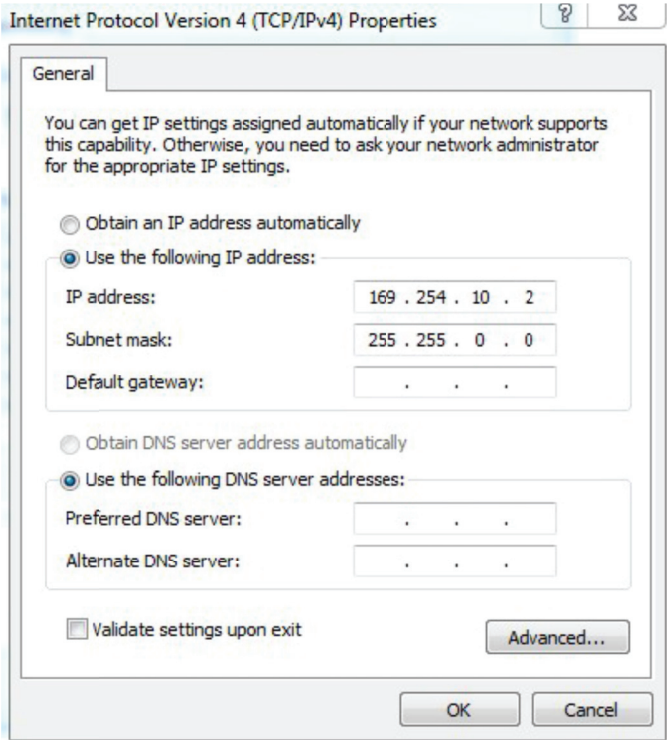


## TCP/IP Setting

Configure the control PC 's IP address setting as below:

**IP address:** 169. 254. 10. 2

**Subnet mask:** 255. 255. 0. 0

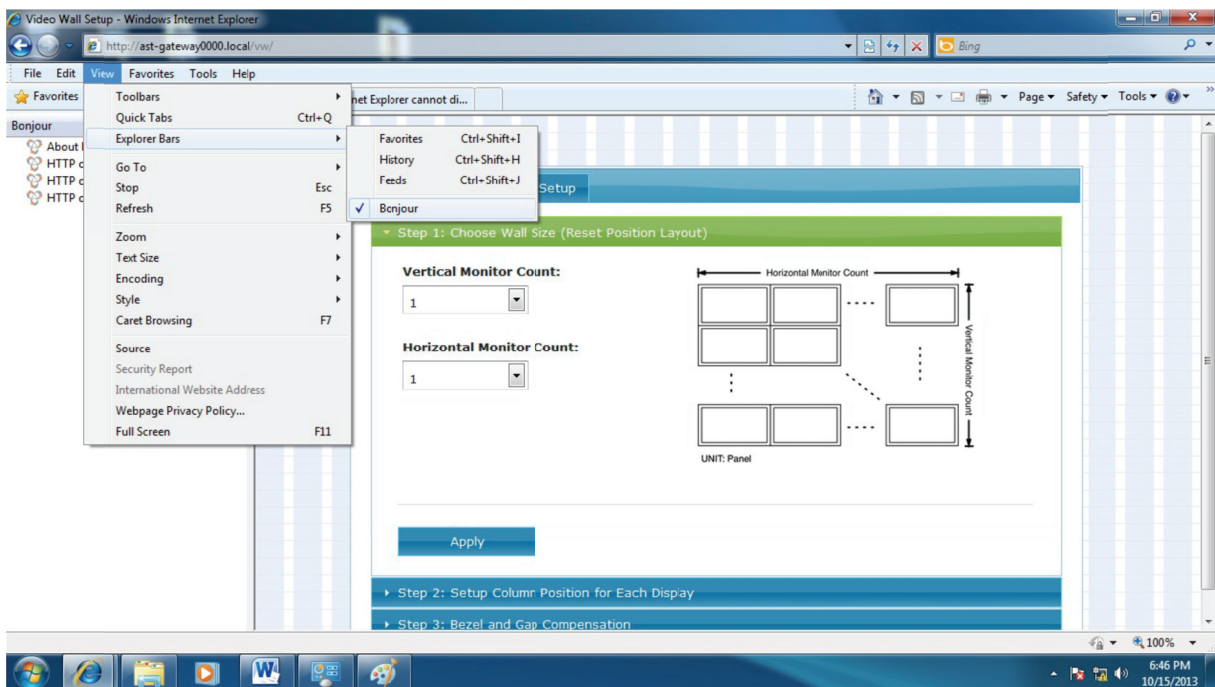




## “Bonjour SDK” Installation



Enable “Bonjour”, open the IE of the controlling PC,  
Route: View -> Explore Bars -> Bonjour



## Video Wall setup procedure

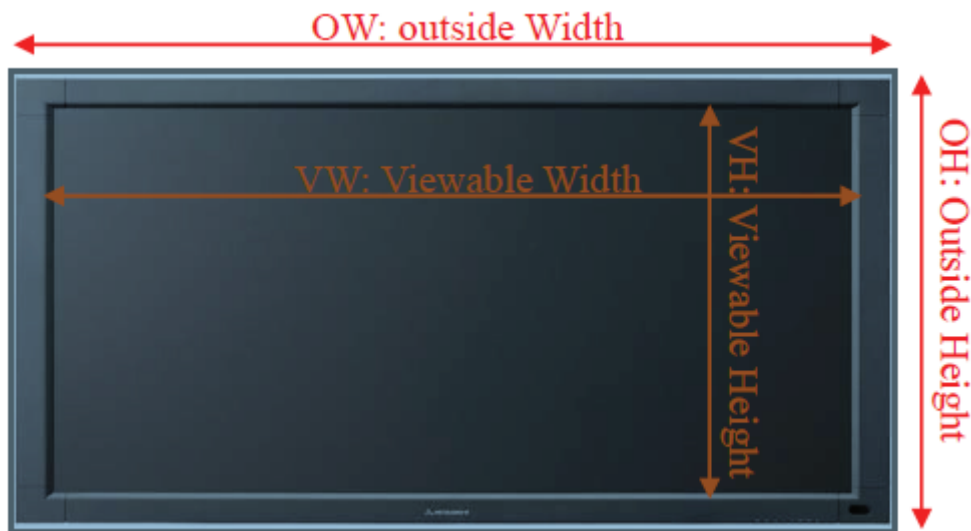
For every Video Wall setup, just only three key points as below need to be clarified.

**Monitor size detail**, including monitor outside width (**OW**) and outside height (**OH**), inner viewable

Width (**VW**) and viewable height (**VH**), this is for the Gap Compensation function. The OW, OH, VW,

VH is a number or value with the unit based on every 0.1mm. For example, if the outside width is

56.5cm, then  $56.5\text{cm} = 565\text{mm} = 5650$  unit.



**Video Wall size**, such as matrix 1x1, 2x2, 3x3, 4x4...etc, or even the rectangle 1x2, 1x3, 2x3, 2x4, 3x2, 3x4,...etc.

2 x 2 Matrix



2 x 3 Rectangle



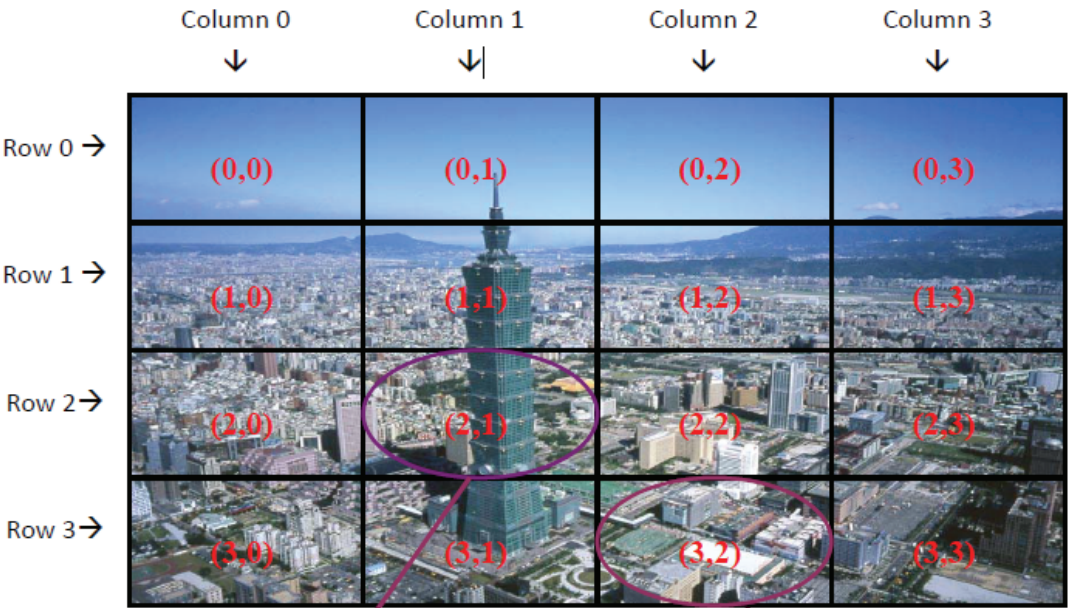
3 x 3 Matrix



3 x 4 Rectangle



**Monitor Position**, each monitor has its own row number and column number which represent its “Monitor Position” in its belonging Video Wall Group. Besides, these row and column number are started from 0, users can refer to below examples:



**Example 1:**  
 Monitor located at “row 2” and “column 1” in a 4 x 4 video wall group, then we can have (2,1) as its own monitor position in this group.

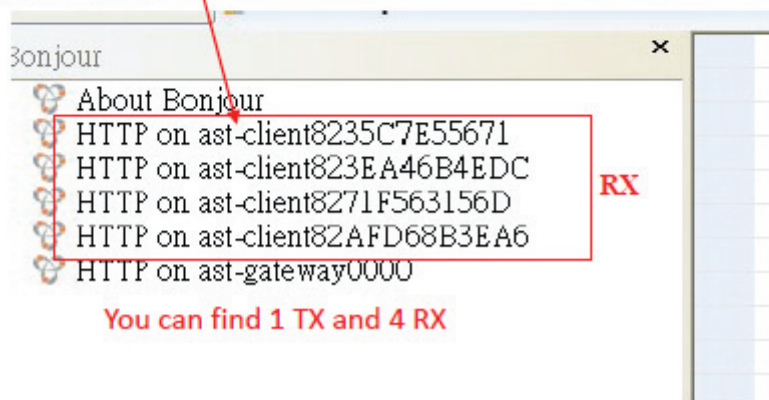
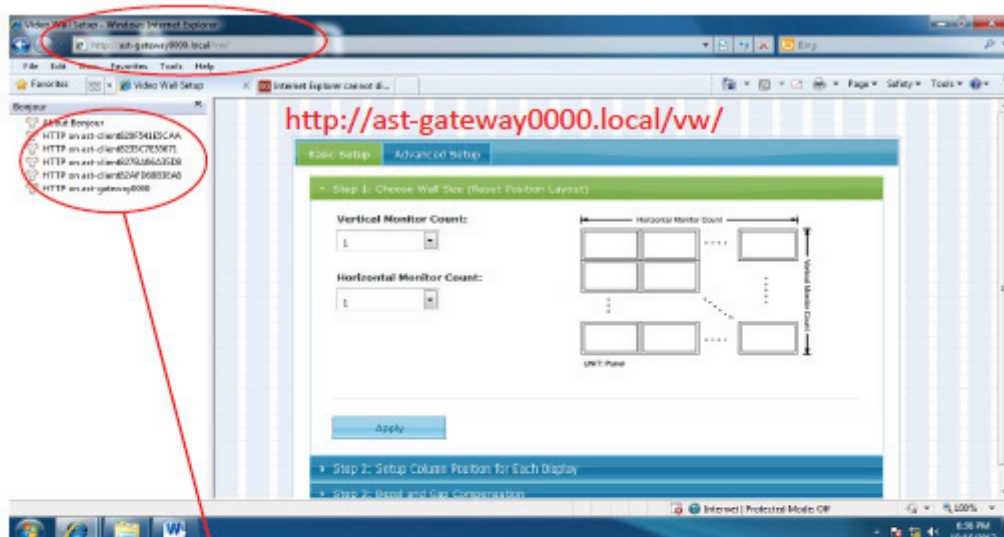
**Example 2:**  
 Monitor located at “row 3” and “column 2” in a 4 x 4 video wall group, then we can have (3,2) as its own monitor position in this group.

**Example 1, 2 X 2 Video Wall setting, please follow below setting procedures:**

Here we use monitor, Acer P246HL, as our model type.

1. Open the IE of the controlling PC. If the link is well, you will find the starting Page as below

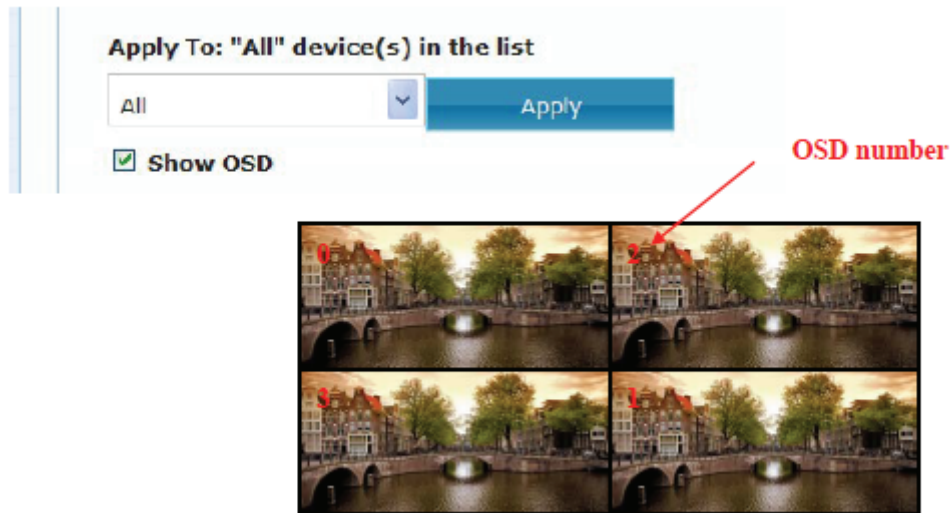




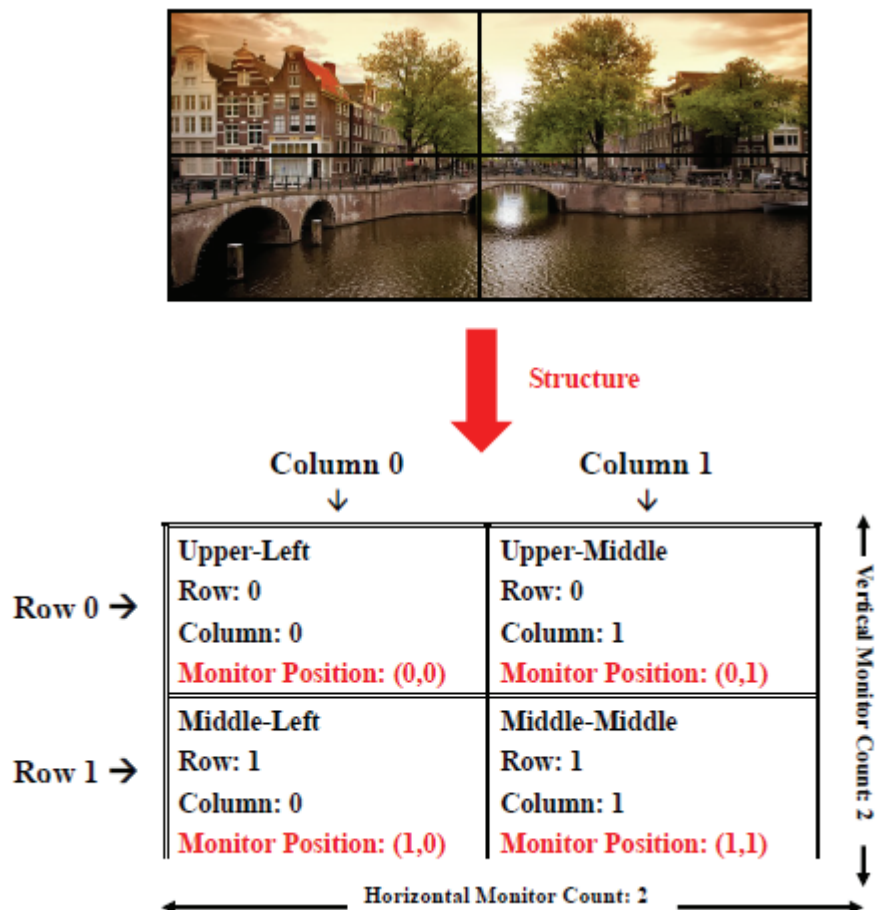
2. Double click any of the RX, then you can find the below chart, then click “Video Wall Setup”



3. Mark the “Show OSD” on the bottom, then you can see the OSD number showed on each display monitor, please be noted the OSD number is generated at random, not in order.



4. After then, we have to do the video wall setting one by one. There are four monitors in a 2x2 video wall group, which are the upper-left, upper-right, lower left and the lower right, user can find below structure chart:



5. We first set the upper-left monitor: Measure the Monitor outside width (**OW**) and outside height (**OH**), inner viewable width (**VW**) and viewable height (**VH**), here we use monitor, model: Acer P246HL as example, the OW and OH of P246HL are 56.5cm and 33.5cm, VW and VH of P246HL are 53.5cm and 30.0cm, then we can have the below detail:

OW: 56.5cm = 565mm = 5650 unit (the unit is 0.1mm)

OH: 33.5cm = 335mm = 3350 unit

VW: 53.5cm = 535mm = 5350 unit

VH: 30.0cm = 300mm = 3000 unit

Key in the detail in the block "Bezel and Gap Compensation" as below:

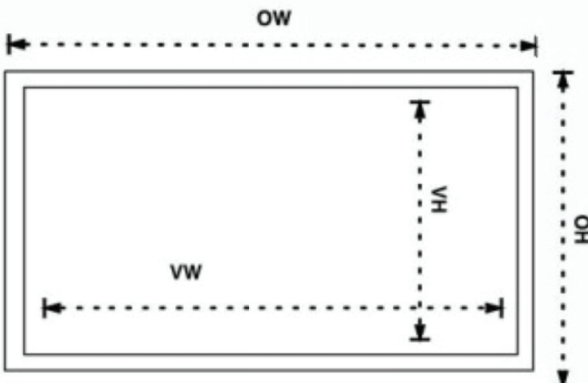
### Bezel and Gap Compensation

**OW:**

**OH:**

**VW:**

**VH:**



UNIT: 0.1mm

The diagram shows a rectangular monitor with a double-line border. Dashed lines indicate the overall width (OW) and height (OH) including the bezel, and the inner width (VW) and height (VH) of the display area.

Then finish the next block "Wall Size and Position Layout" as below:

### Wall Size and Position Layout

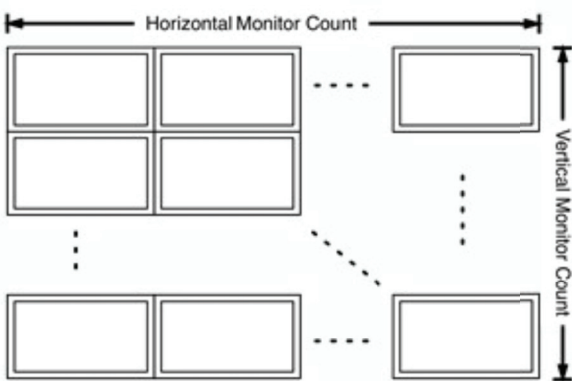
**Vertical Monitor Count:**

**Horizontal Monitor Count:**

**Row Position:**

**Column Position:**

**Single Host Mode**



UNIT: Panel

The diagram shows a grid of monitor panels. A 2x2 grid of panels is shown on the left, with a single panel on the right. Dashed lines indicate the overall horizontal and vertical counts. The unit is defined as 'Panel'.

Finally, click the arrow and choose Clients: 0, then click "apply", Client: 0 represent the OSD number of the monitor.

**Apply To:**

0:169.254.8.0

Apply

**Show OSD**

6. Now we go to the monitor upper-right, key in the monitor detail in the block” Bezel and Gap Compensation” as below just like before:

### Bezel and Gap Compensation

**OW:**

5650

**OH:**

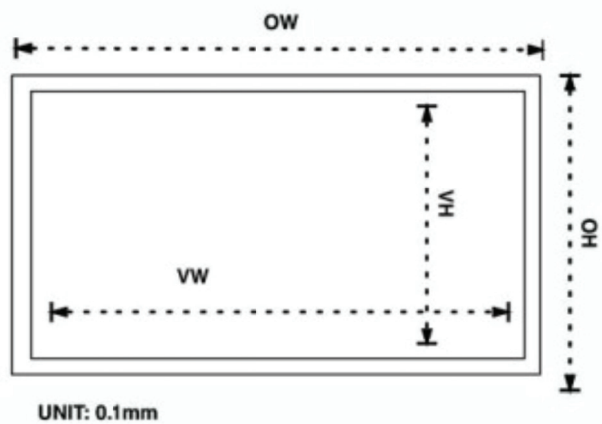
3350

**VW:**

5350

**VH:**

3000



Next is the block “Wall Size and Position Layout”, please follow below chart.

### Wall Size and Position Layout

**Vertical Monitor Count:**

2

**Horizontal Monitor Count:**

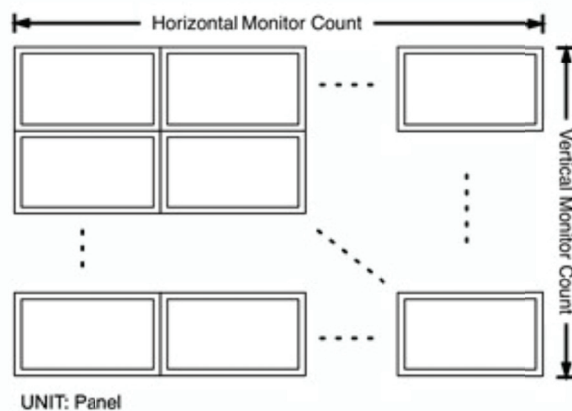
2

**Row Position:**

0

**Column Position:**

1



**Single Host Mode**

Click the arrow and choose Clients: 2, then click “apply”, Client: 2 represent the OSD number of the monitor.

7. The monitor lower-left:

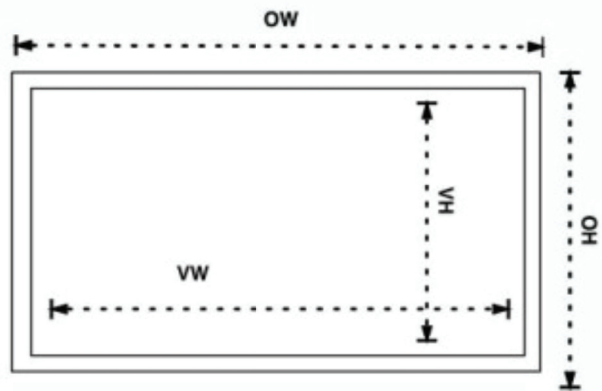
### Bezel and Gap Compensation

OW:

OH:

VW:

VH:



UNIT: 0.1mm

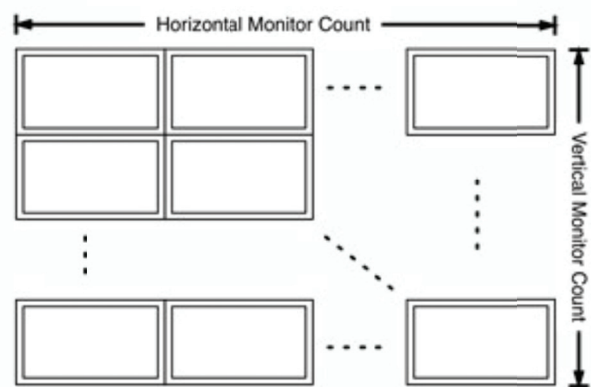
### Wall Size and Position Layout

Vertical Monitor Count:

Horizontal Monitor Count:

Row Position:

Column Position:



UNIT: Panel

Single Host Mode

Apply To:

Apply

Show OSD

8. The last one, monitor lower-right:

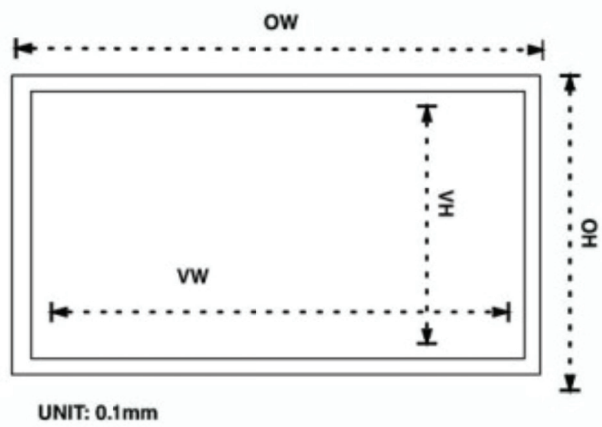
### Bezel and Gap Compensation

OW:

OH:

VW:

VH:



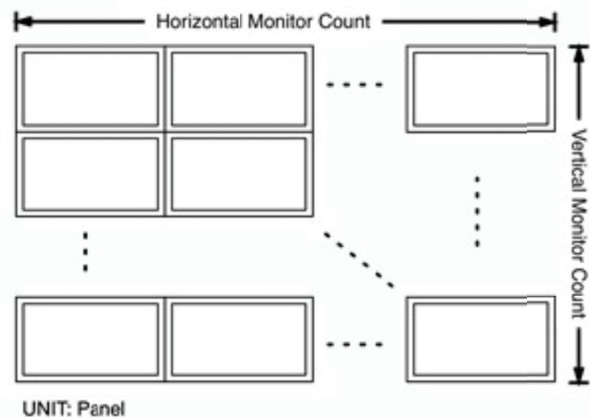
### Wall Size and Position Layout

Vertical Monitor Count:

Horizontal Monitor Count:

Row Position:

Column Position:



Single Host Mode

Apply To:

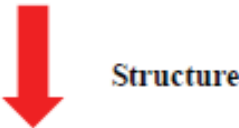
Apply

Show OSD



**Example 2, 3 X 3 Video Wall with single HDMI source setting, please follow below setting procedures:**

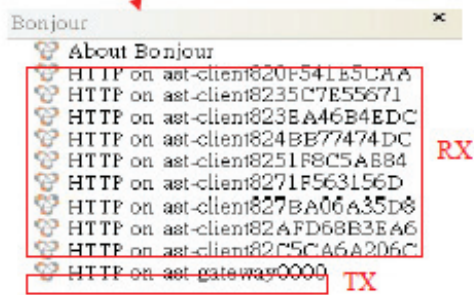
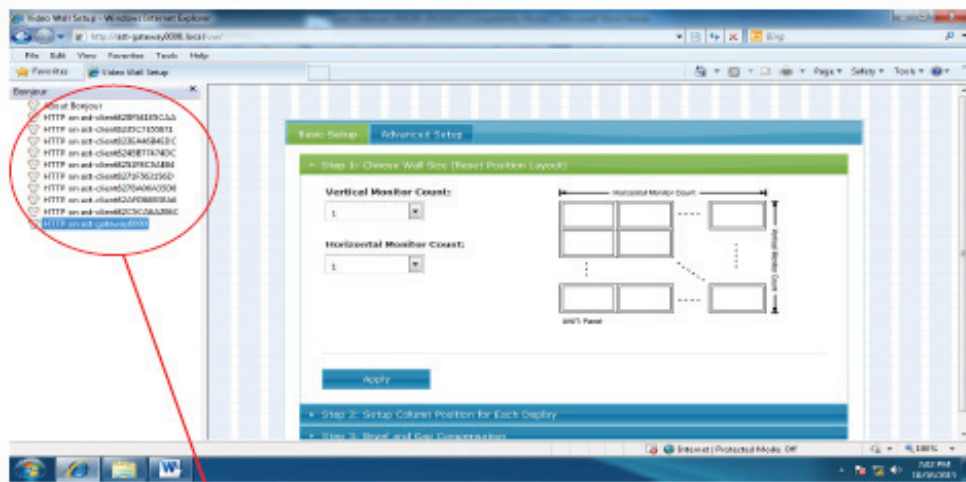
Before begin to the setting, we have to know the 3 X 3 video wall structure and each monitor's position in the video wall group as below chart, and then we will do each monitor's setting one by one.



		Column 0 ↓	Column 1 ↓	Column 2 ↓		
Row 0 →	Upper-Left Row: 0 Column: 0 <b>Monitor Position: (0,0)</b>	Upper-Middle Row: 0 Column: 1 <b>Monitor Position: (0,1)</b>	Upper-Right Row: 0 Column: 2 <b>Monitor Position: (0,2)</b>	↑ Vertical Monitor Count: 3 ↓		
Row 1 →	Middle-Left Row: 1 Column: 0 <b>Monitor Position: (1,0)</b>	Middle-Middle Row: 1 Column: 1 <b>Monitor Position: (1,1)</b>	Middle-Right Row: 1 Column: 2 <b>Monitor Position: (1,2)</b>			
Row 2 →	Lower--Left Row: 2 Column: 0 <b>Monitor Position: (2,0)</b>	Lower-Middle Row: 2 Column: 1 <b>Monitor Position: (2,1)</b>	Lower-Right Row: 2 Column: 2 <b>Monitor Position: (2,2)</b>			
		← Horizontal Monitor Count: 3 →				

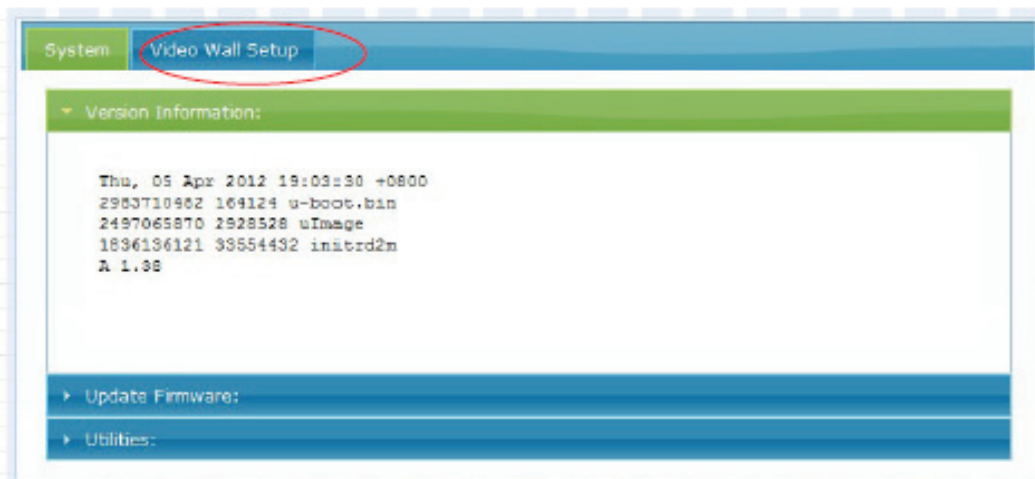
Please follow the below procedure step by step:

1. Open IE of the controlling system, and key in <http://ast-gateway0000.local/>, you will find the below picture:



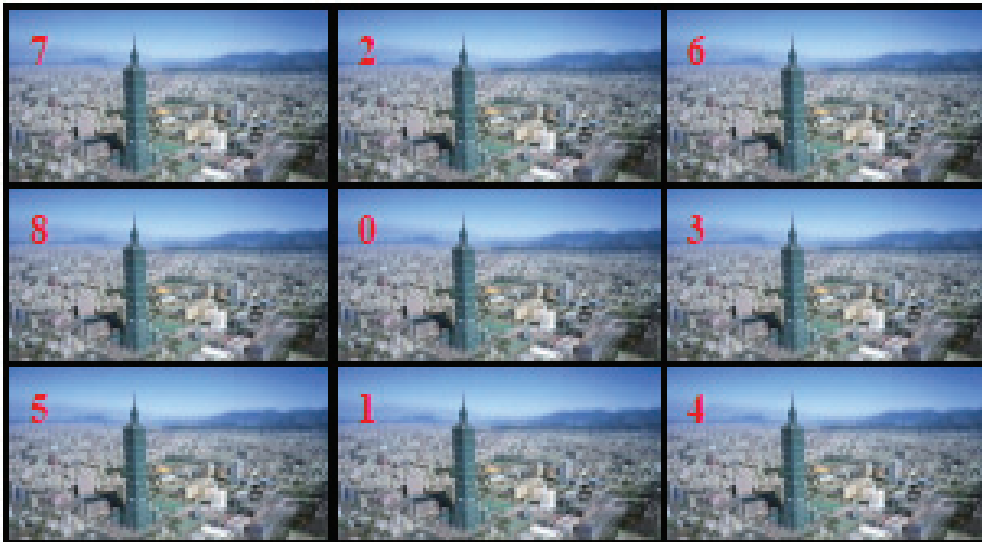
You can find 1TX and 9 RX

2. Double click any one of the “RX”, then click” Video Wall Setup”



3. Mark the “Show OSD” on the bottom, then you can see the OSD number showed on each display monitor, please be noted the OSD number is generated at random, not in sequence.





4. Then we first go to the Upper-Left monitor with OSD number:7

**Bezel and Gap Compensation**

OW: 5650

OH: 3350

VW: 5350

VH: 3000

UNIT: 0.1mm

Please be noted the OW, OH, VW, VH value is always the same for the following each one setting.

**Wall Size and Position Layout**

Vertical Monitor Count: 3

Horizontal Monitor Count: 3

Row Position: 0

Column Position: 0

Single Host Mode

UNIT: Pixel

Apply To: 7:169.254.8.51

Show OSD

Click "Apply" after all the number setting is done.

5. The Upper-Middle monitor with OSD number 2:

**Wall Size and Position Layout**

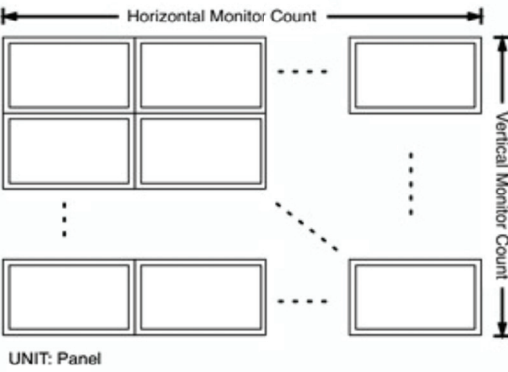
**Vertical Monitor Count:**  
3

**Horizontal Monitor Count:**  
3

**Row Position:**  
0

**Column Position:**  
1

**Single Host Mode**



UNIT: Panel

**Apply To:**

2:169.254.8.76

Apply

**Show OSD**

6. The Upper-Right monitor with OSD number: 6

**Wall Size and Position Layout**

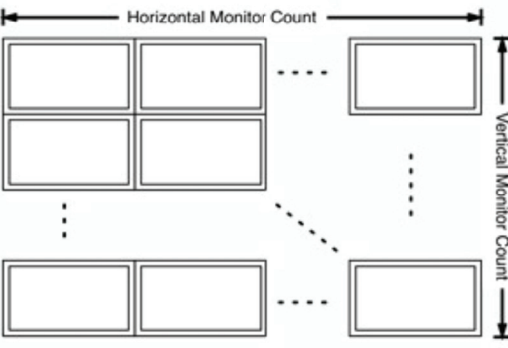
**Vertical Monitor Count:**  
3

**Horizontal Monitor Count:**  
3

**Row Position:**  
0

**Column Position:**  
2

**Single Host Mode**



UNIT: Panel

**Apply To:**

6:169.254.8.6

Apply

**Show OSD**

7. The Middle-Left monitor with OSD number: 8

**Wall Size and Position Layout**

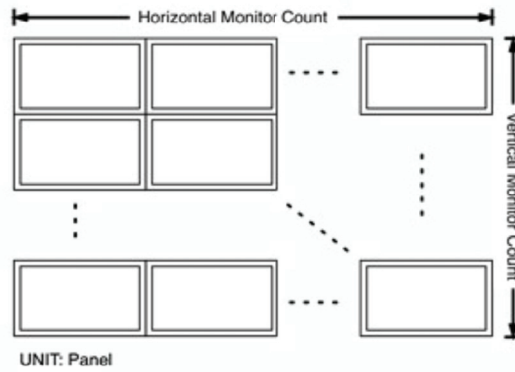
Vertical Monitor Count:

Horizontal Monitor Count:

Row Position:

Column Position:

Single Host Mode



Apply To:

8:169.254.6.52

Apply

Show OSD

8. The Middle-Middle monitor with OSD number: 0

**Wall Size and Position Layout**

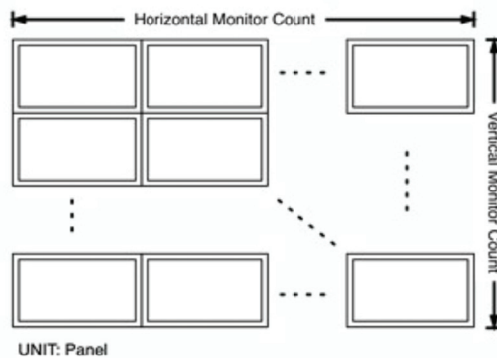
Vertical Monitor Count:

Horizontal Monitor Count:

Row Position:

Column Position:

Single Host Mode



Apply To:

0:169.254.5.212

Apply

Show OSD

9. The Middle-Right monitor with OSD number: 3

**Wall Size and Position Layout**

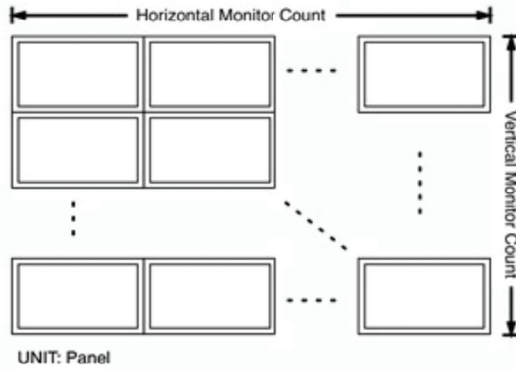
Vertical Monitor Count:

Horizontal Monitor Count:

Row Position:

Column Position:

Single Host Mode



Apply To:

Apply

Show OSD

10. The Lower-Left monitor with OSD number: 5

**Wall Size and Position Layout**

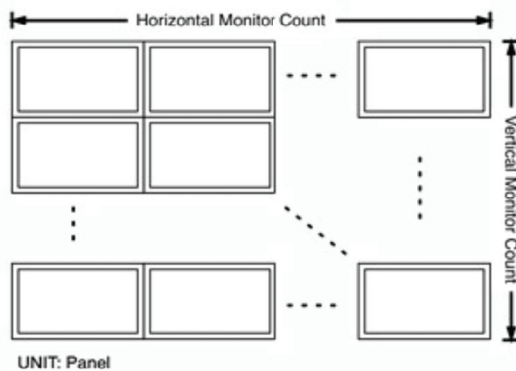
Vertical Monitor Count:

Horizontal Monitor Count:

Row Position:

Column Position:

Single Host Mode



Apply To:

Apply

Show OSD

11. The Lower-Middle monitor with OSD number: 1

**Wall Size and Position Layout**

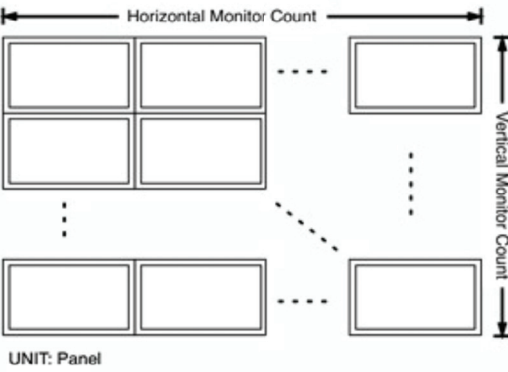
**Vertical Monitor Count:**  
3

**Horizontal Monitor Count:**  
3

**Row Position:**  
2

**Column Position:**  
1

**Single Host Mode**



UNIT: Panel

**Apply To:**

1:169.254.8.0

**Show OSD**

12. Finally, the Lower-Right with OSD number: 4

**Wall Size and Position Layout**

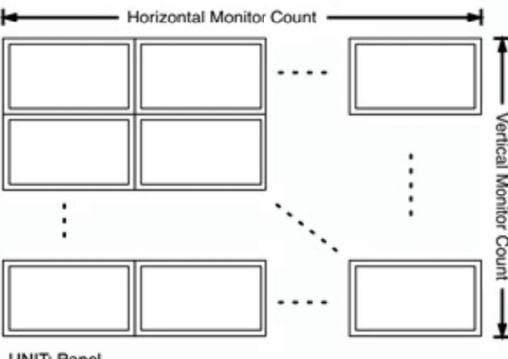
**Vertical Monitor Count:**  
3

**Horizontal Monitor Count:**  
3

**Row Position:**  
2

**Column Position:**  
2

**Single Host Mode**



UNIT: Panel

**Apply To:**

4:169.254.9.221

**Show OSD**



**Example 3, 2 X 4 Video Wall with 3 HDMI source setting, please follow below setting procedures:**

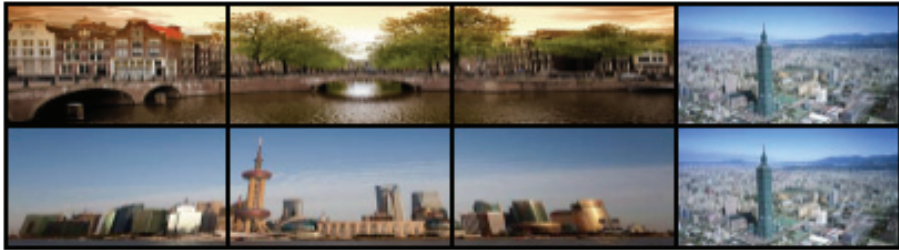
A 2 x 4 video wall group can be shaped with different combination, such as below examples.



**Example 1,**  
2X4 video wall is shaped from 1 of 2X2 video wall, and 2 of 1X2 video wall.



**Example 2,**  
2X4 video wall is shaped from 1 of 1X4 video wall, and 2 of 1X2 video wall.



**Example 3,**  
2X4 video wall is shaped from 2 of 1X3 video wall, and 2 of 1X1 video wall.



**Example 4,**  
2X4 video wall is shaped from 8 of 1X1 video wall

Here we take below example 2 and show you how to set a 2X4 video wall shaped from 1 of 1X4 video wall and 2 of 1X2 video wall. We first separate the 2X4 video wall into its basic component.



Separate



Group 1: 1X4 Video Wall

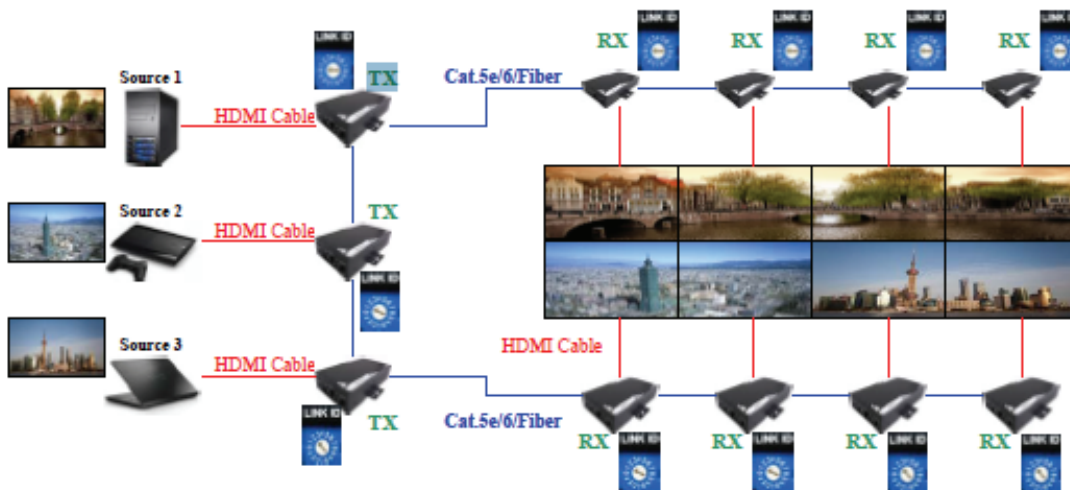


Group 2: 1X2 Video Wall

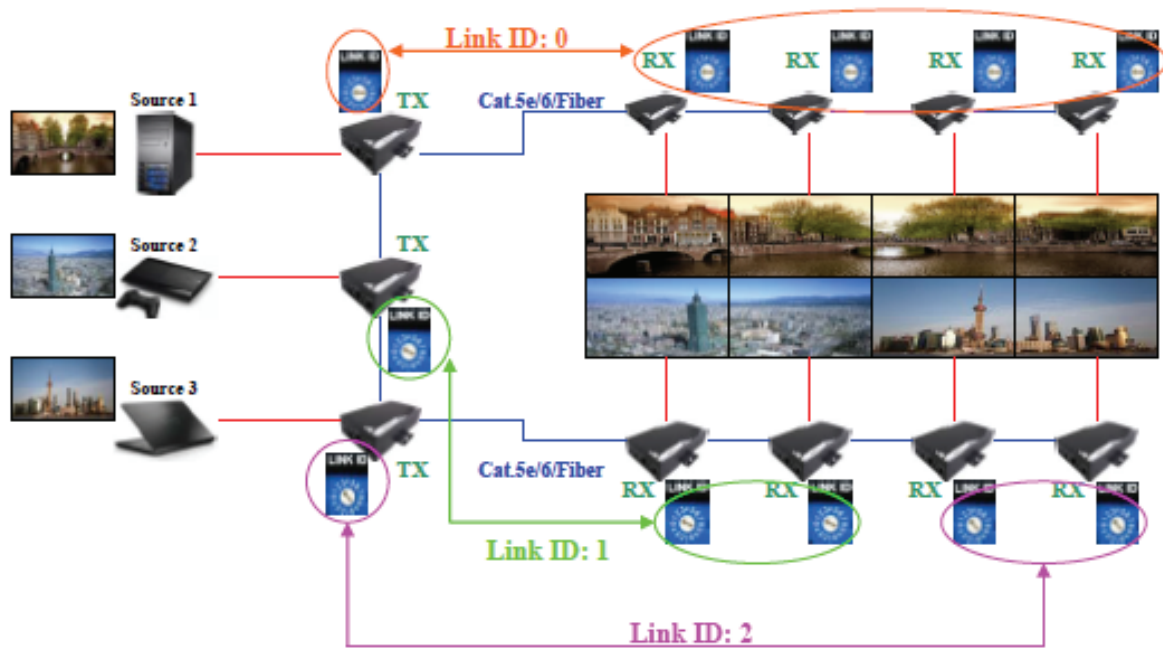


Group 3: 1X2 Video Wall

We now have 3 video groups: group 1, group 2, and group 3, we just set each video group one by one. Before we begin the set up, we have to know the hardware installation and connection please follow below hardware installation.

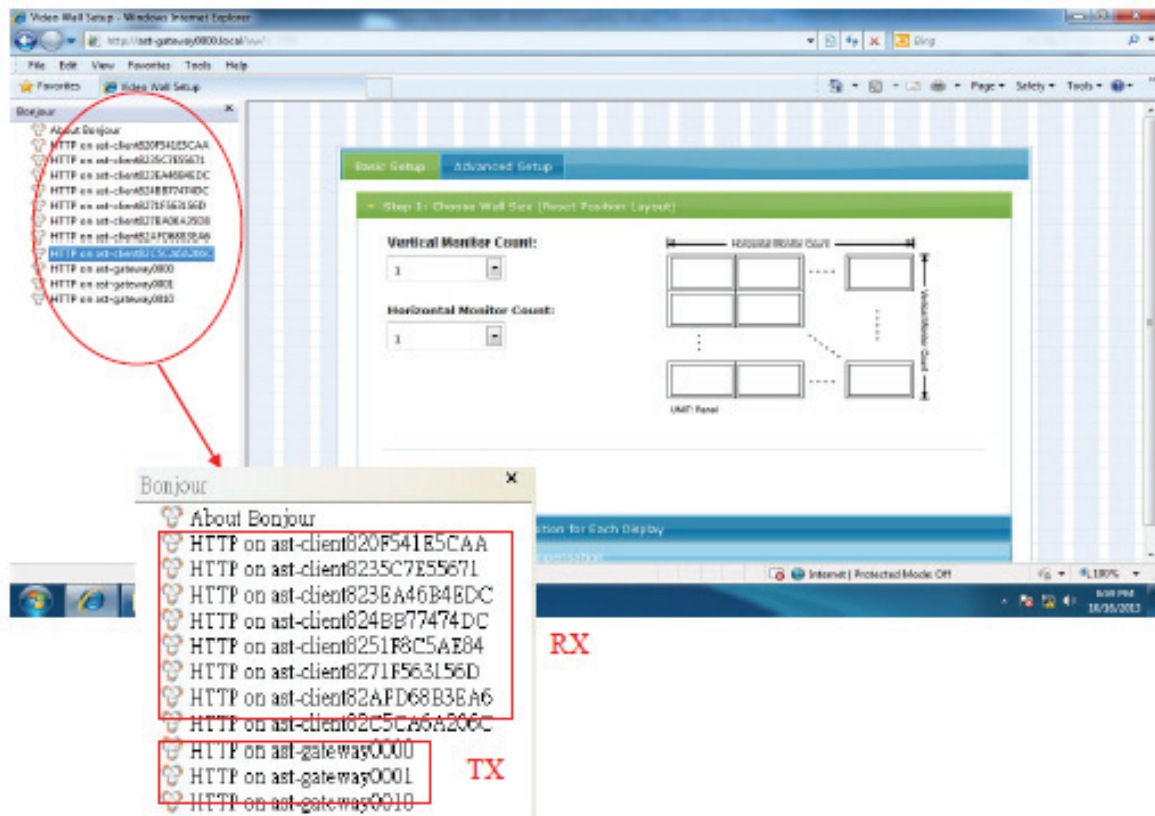


As below diagram showed, the video wall group 1 displays the video from HDMI source 1, and the group 2 displays the video from source 2, and the group 3 displays the video from source 3. The key matter is user have to turn the LINK ID to let each Receiver's(RX) ID number is the same as the one of the Transmitter (TX) of the HDMI source. User just follow the rule that the LINK ID's number must be the same as long as they are in the same video wall group, no matter Transmitter(TX) or Receiver(RX), just turn the "LINK ID" and push reset.



After all the hardware is settle down, then we can begin to set up the video wall, please follow the below procedure step by step:

1. Open the IE of the control system, and key in <http://ast-gateway0000.local/>, you will find the below picture:





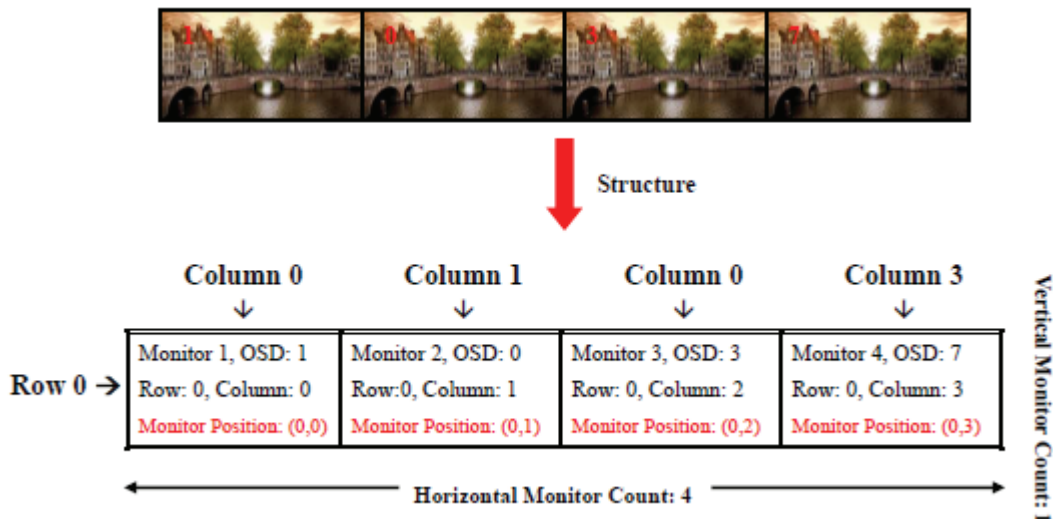
2. Double click any of the RX, and click “Video Wall Setup”



3. Mark the “Show OSD” on the bottom, then you can see the OSD number showed on each display monitor, please be noted the OSD number is generated at random, not in order.




4. Group 1 video wall setting: the Video Wall setting for multi-source is proceeding group by group. Let’s start from group 1, the group one is a 1X4 video wall, we can have its structure and each monitor’s position as below chart:



Monitor 1 of group 1 setting:

**Bezel and Gap Compensation**

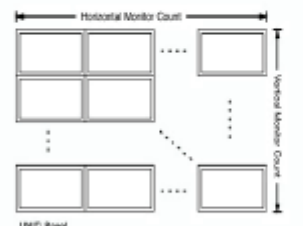
OW: 5050  
OH: 3350  
VW: 5350  
VH: 3000



UNIT: 0.1mm

**Wall Size and Position Layout**

Vertical Monitor Count: 1  
Horizontal Monitor Count: 4  
Row Position: 0  
Column Position: 0



Single Host Mode

Apply To: 1: 69.254.8.0

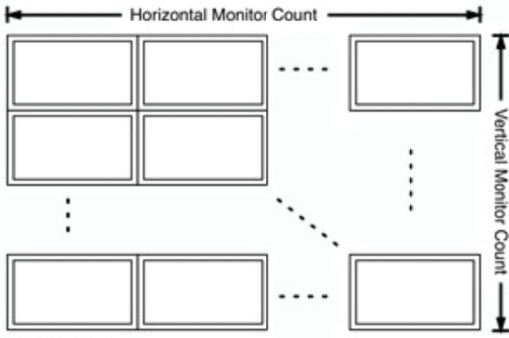
Show OSD

*The OW, OH, VW, VH value is always the same for the following each one setting*

Monitor 2 of group 1 setting:

**Wall Size and Position Layout**

Vertical Monitor Count: 1  
Horizontal Monitor Count: 4  
Row Position: 0  
Column Position: 1



UNIT: Panel

Single Host Mode

Apply To: 0:169.254.5.212

Show OSD

Monitor 3 of group 1 setting:

**Wall Size and Position Layout**

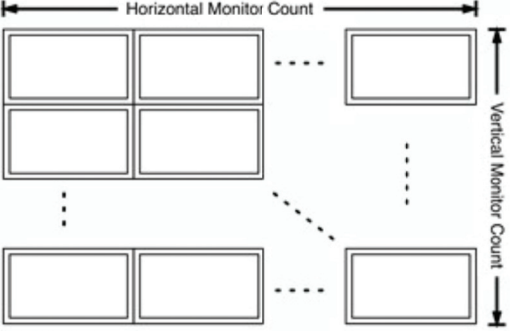
**Vertical Monitor Count:**  
1

**Horizontal Monitor Count:**  
4

**Row Position:**  
0

**Column Position:**  
2

**Single Host Mode**



UNIT: Panel

Apply To:

3:169.254.9.50

Apply

**Show OSD**

Monitor 4 of group 1 setting:

**Wall Size and Position Layout**

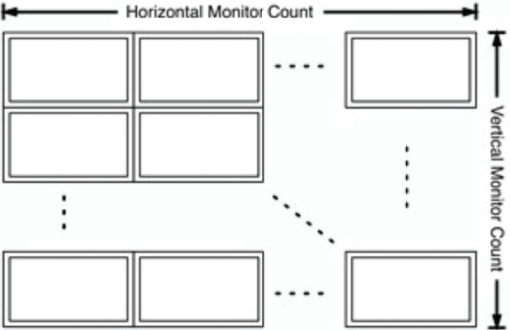
**Vertical Monitor Count:**  
1

**Horizontal Monitor Count:**  
4

**Row Position:**  
0

**Column Position:**  
3

**Single Host Mode**



UNIT: Panel

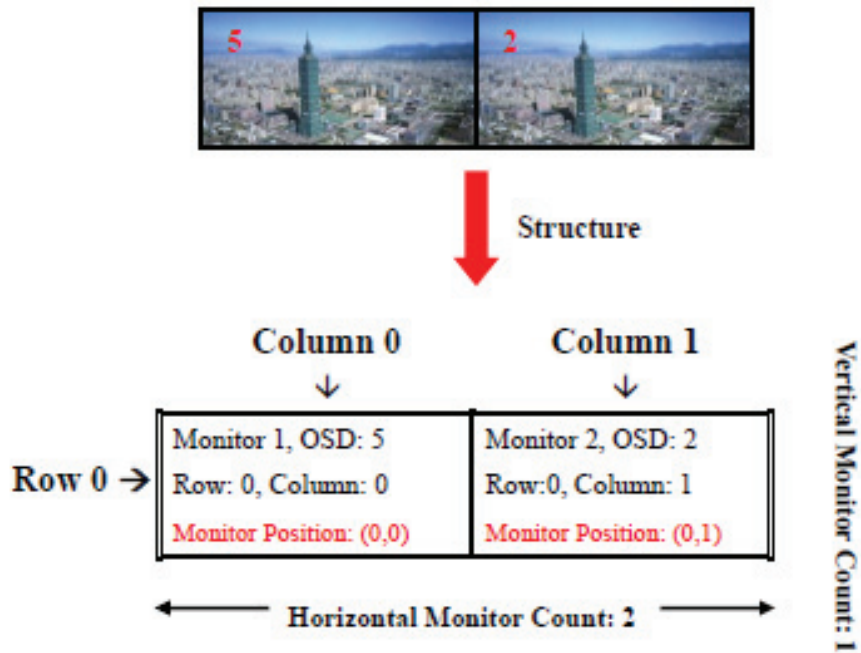
Apply To:

7:169.254.6.52

Apply

**Show OSD**

## Group 2 video wall setting



Monitor 1 of group 2 setting:

Wall Size and Position Layout

Vertical Monitor Count: 1

Horizontal Monitor Count: 2

Row Position: 0

Column Position: 0

Single Host Mode

Apply To: 5: 169.254.1.250

Show OSD

Monitor 2 of group 2 setting:

Wall Size and Position Layout

Vertical Monitor Count: 1

Horizontal Monitor Count: 2

Row Position: 0

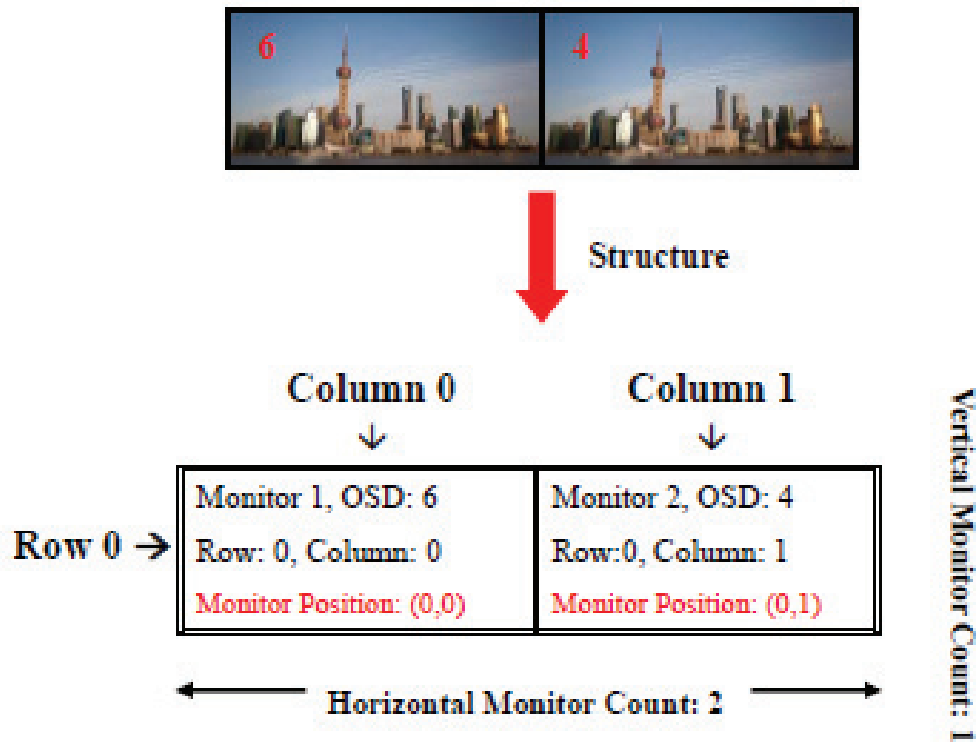
Column Position: 1

Single Host Mode

Apply To: 2: 169.254.1.76

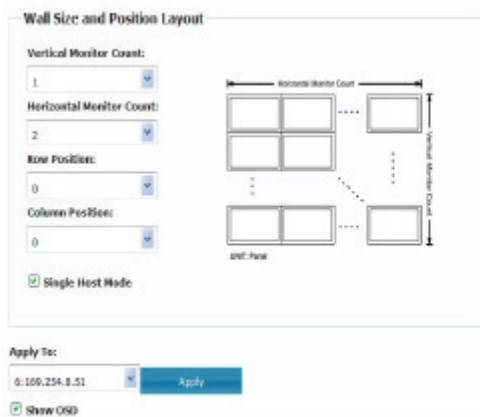
Show OSD

6. Group 3 video wall setting:



Monitor 1 of group 3 setting:

Monitor 2 of group 3 setting:

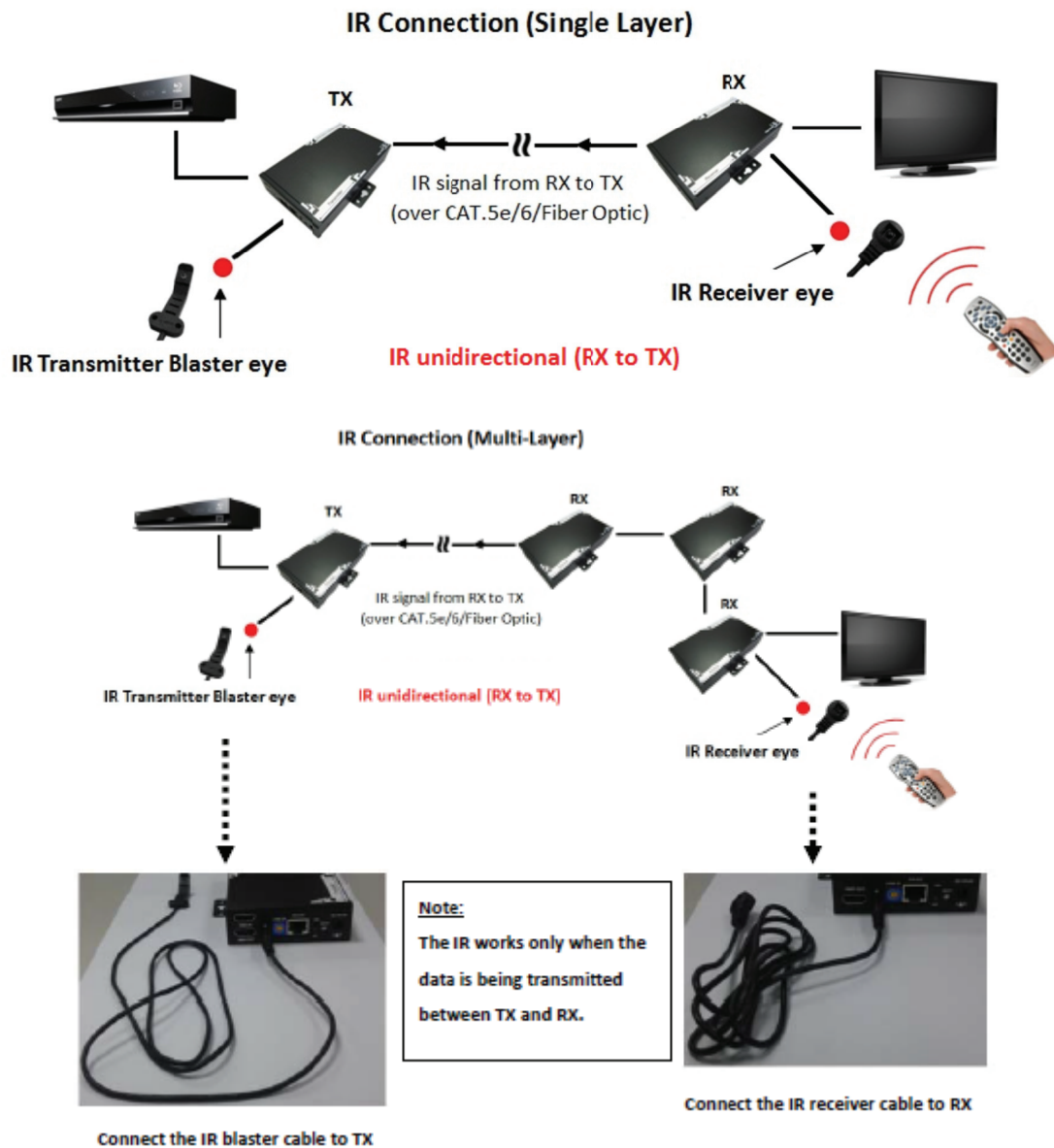


**Appendix 1: Reset button**

- **Short press:**  
Short press is for device reset when "LINK ID: changed, user just push "RESET" button when turning the LINK ID for changing display source.
- **Long Press:**  
Long press is for device default function, if user wants to make whole device back to default, please press the "RESET" button longer, and release when both Power LED (red) and Ready LED (green) lighted.

## Appendix 2: IR Connection

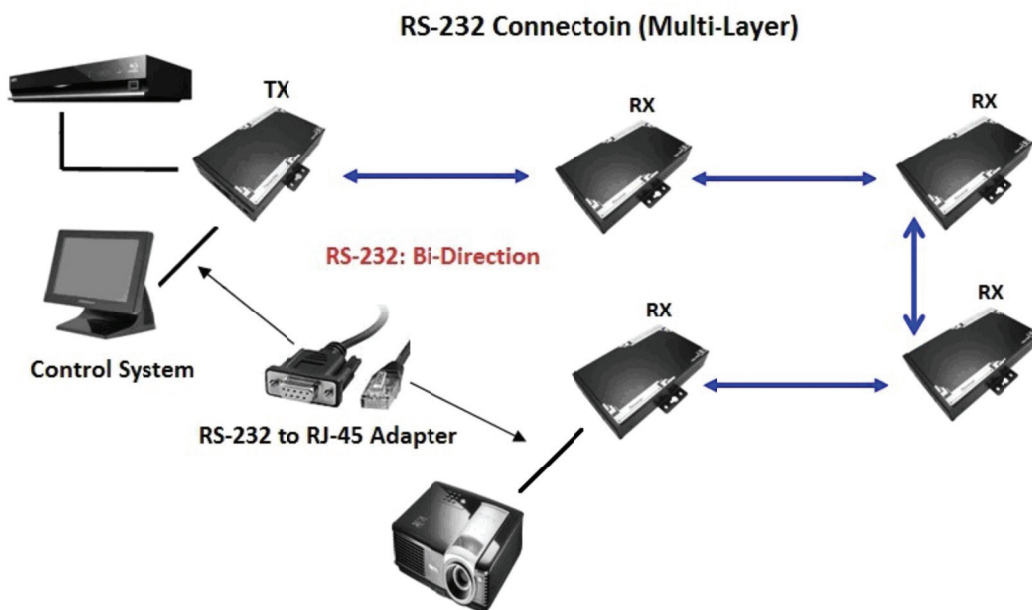
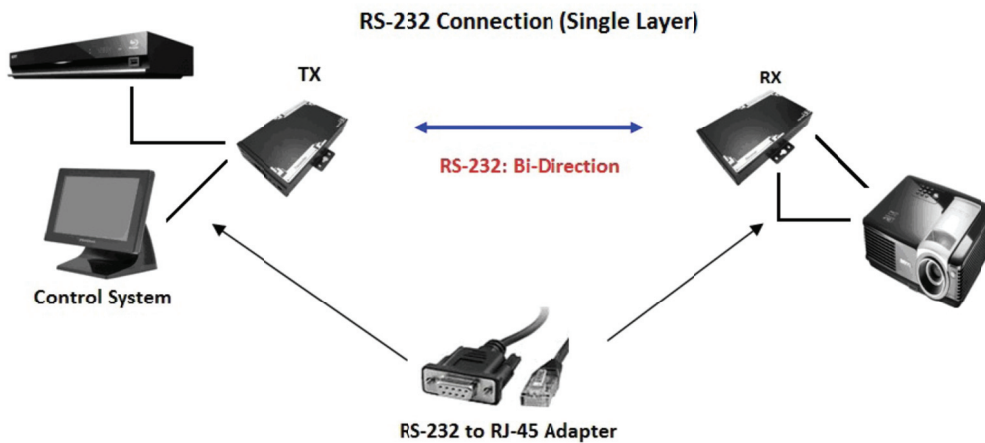
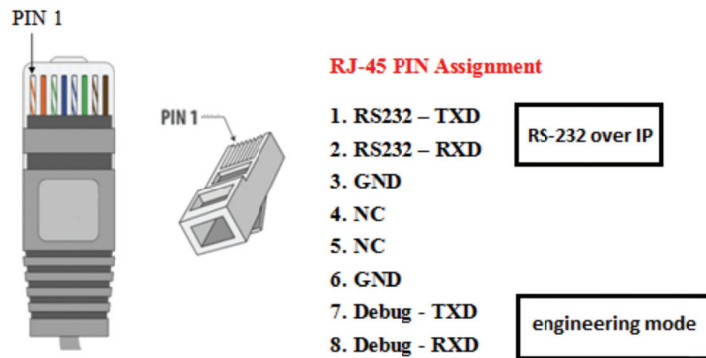
- Connect the IR blaster cable to the TX's IR connector.
- Connect the IR receiver cable to the RX's IR connector.
- Put the remote control pointed to the IR receiver eye.
- Put the IR Transmitter Blaster eye pointed to the IR sensor of the AV source which is intended to be controlled by the remote control.



## Appendix 3: RS-232 connection

- Connect the device (e.g. PC, projector...etc.) to the RS-232 port of RX by a RS-232 to RJ-45 adapter.
- Connect the control system to the RS-232 port of TX by a RS-232 to RJ-45 adapter.

- Operating the control system.
- The RS-232 connection is bi-directional, the device and the control system are interchangeable and Control System is able to control the device at TX or RX.
- Please refer to below RS-232 pin assignment chart.





Hinweis: Bei falscher Installation und unsachgemäßem Gebrauch im Wohnbereich kann das Gerät Störungen bei Rundfunkgeräten und anderen elektronischen Geräten verursachen. Ein sachgemäßer Gebrauch liegt vor, wenn das Gerät, soweit durchführbar, mit geschirmten Anschlusskabeln betrieben wird (bei Netzwerkprodukten zusätzlich geschirmter Kabel der Kategorie 5e und höher). Das Gerät wurde getestet und liegt innerhalb der Grenzen für Computerzubehör der Klasse A gemäß den Anforderungen nach EN 55022. Warnung: Dieses Produkt entspricht der Prüfklasse A –es kann im Wohnbereich Funkstörungen verursachen; in diesem Fall kann vom Betreiber verlangt werden, angemessene Maßnahmen durchzuführen und dafür aufzukommen. Konformitätserklärung: Das Gerät erfüllt die EMV-Anforderungen nach EN 55022 Klasse A für ITE und EN 55024. Geräte mit externer oder eingebauter Spannungsversorgung erfüllen weiterhin die Anforderungen nach EN 61000-3-2 und EN 61000-3-3. Damit sind die grundlegenden Schutzanforderungen der EMV-Richtlinie 2004/108/EC erfüllt. Die CE-Konformität wurde nachgewiesen. Die entsprechenden Erklärungen sind beim Hersteller hinterlegt.

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