User manual

P4K-HUL4E1 4K UHD HDMI & USB Over IP Extender P4K-HUL4E1-P 4K UDH HDMI & USB Over IP Extender with PoE



P4K-HRSUL4E1 / P4K-LHRSU1E4 P4K-HRSUL4E1-P/P4K-LHRSU1E4-P

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1. INTRODUCTION

The 4K HDMI & USB over IP Extender is a solution for audio, video and USB signal extension via Local Area Network (LAN). It can be used as audio, video and KVM extender over IP and applied to point to point, point to multi-point, multi-point to multi-point and screen wall broadcast system controlled by USB, RS-232, IR and configured the 4K HDMI & USB over IP Extender by web browser. An easy installation system built up with Giga Ethernet switch which has IGMP function and CATx cable for extension or broadcast. The P4K-HUL4E1-P supports PoE (Power over Ethernet) function.



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2. FEATURES & APPLICATIONS

- 4K HDMI over IP extension
- USB 2.0 over IP extension
- RS-232 bi-directional extension
- 4-bit DIP switch for 16 stream channel selection
- HDCP 1.4 compliant and Blu-Ray ready
- Support two-way IR extension
- Output video rotation
- Output video partial enlargement
- Automatic EDID configuration
- Networking environment under Giga Ethernet switch and CATx cable
- Point to point extension, unicast, multicast and screen wall system.
- Point to point extension via CAT5e cable without Ethernet switch up to 100M
- Ethernet webpage management
- RS-232 Serial control command management
- P4K-HUL4E1-P supports Power over Ethernet

3. SPECIFICATION

P4K-HUL4E1 P4K-HUL4E1-P 4K UHD HDMI Over IP Extender	P4K-HRSUL4E1 P4K-HRSUL4E1-P Transmitter	P4K- LHRSU1E4 P4K-LHRSU1E4-P Receiver	
VIDEO INPUT	HDMI Type-A female connector	None	
VIDEO OUTPUT	HDMI Type-A female connector for loop through VGA DB-15 female local output 2x 2 fem phana includer for the provided and provided and the prov		
IR	2x 3.5mm phone jack for IR en source device	litter and receiver to control video	
COMPRESSION	Visual lossless compression		
HDMI INPUT RESOLUTION	3840x2160 30/24, 1080p 60/50, 720p 60/50, 480i 60/50, 480p 60	1080p 30/25, 1080i 60/50 //50	
HDMI OUTPUT RESOLUTION	3840x2160 30/24, 1080p 30/25, 480i 60/50, 480p 60/50	1080i 60/50,720p 60/50	
VGA OUTPUT RESOLUTION	1080p 30/25, 1080i 60/50, 720p 480i 60/50, 480p 60/50	60/50	
AUDIO FORMAT	Stereo 192Kbps		
IP PROTOCOL	TCP, UDP, RTSP, RTP, DHCP, IGMP, Multicast, IPV4		
LAN PORT	RJ45 connector for Giga Ethernet		
SERIAL	DB-9 male connector for RS-23	32 extension	
	LAN port	None	
MANAGEMENI	Embedded webpage management	HDMI Type-A female connector	
POWER INPUT	2.0mm power jack for DC12V/2	A input	
OPERATING TEMPERATURE	0~55℃		
OPERATING HUMIDITY	5%~90% RH		
POWER SUPPLY	Power adapter AC in 100~240	/ (50~60Hz)	
ESD	ESD protection air gap dischar contact discharged ±4KV	′ge ±8KV,	
DIMENSION	194 x 114 x 28 mm		
WEIGHT	TX 620g, RX 610g		

** Product specifications are subject to change without notice.

4. HARDWARE DESCRIPTION

4.1 Transmitter P4K-HUL4E1/ 4K-HUL4E1-P (TX)



- 12 VDC power supply with locking for 4K HDMI & USB over IP Extender.
- 2. RCA connector for stereo audio output.
- 3. RCA connector for stereo audio input.
- 4. HDMI video input connector
- 5. 10/100/1000 Mbps self-adaptive Ethernet interface.
- ACT LED indicator turns green when 4K HDMI & USB over IP Extender is powered up.
- LINK LED indicator flickers green when network connection is waiting for video source, turns green when network connection and video source is functioning properly
- 8. DB9 connector for RS-232 remote extension
- 9. Connect IR extension cable to IR port and position the emitters near the devices you want to control
- PC USB port for remote additional device such as USB mouse, USB keyboard and USB pen drive connecting to PC
- 11. Group configuration, 4-bit DIP switch to set up the group ID
- 12. Restart the 4K HDMI & USB over IP extension by pressing RESET button



- 13. Press EDID button for manual EDID copy function
- 14. DB9 connector for VGA local display

4.2 Receiver P4K-LHRSU1E4/ P4K-LHRSU1E4-P (RX)



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- 12 VDC power supply with locking for 4K HDMI & USB over IP Extender.
- 2. RCA connector for stereo audio output.
- 3. RCA connector for stereo audio input.
- 4. HDMI video input connector
- 5. 10/100/1000 Mbps self-adaptive Ethernet interface.
- ACT LED indicator turns green when 4K HDMI & USB over IP Extender is powered up.
- LINK LED indicator flickers green when network connection is waiting for video source, turns green when network connection and video source is functioning properly
- 8. DB9 connector for RS-232 remote extension
- 9. Connect IR extension cable to IR port and position the emitters near the devices you want to control
- 10. Group configuration, 4-bit DIP switch to set up the group ID
- 11. Restart the 4K HDMI & USB over IP extension by pressing RESET button
- 12. Press EDID button for manual EDID copy function
- 4 USB ports for additional USB devices such as USB mouse, USB keyboard and USB pen drive.



Group Setting via 4-bit DIP switch



Setting the Transmitter and Receiver group ID via the 4-bit DIP switch. The correspondent receivers are required to switch to the same ID as the receiver. It can set up maximum 16 Group IDs. Reboot the system to apply the group setting.

5. INSTALLATION

- 5.1 Device Connection
 - 1. Check the power supply is unplugged.
 - Set up the group of the transmitter with the correspondent receiver for signal extension and display.
 - Connect the Transmitter to video source with HDMI cable, and connect Receiver to a monitor or display with HDMI cable.
 - 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.
- Connect the IR extension cable with Transmitter and the IR receiver cable with Receiver for remote control.





Unicast



Multicast

a. Video Distribution



b. Matrix Distribution







5.2 IP Configuration

The 4K HDMI & USB Over IP Extender can configure via LAN in the same subnet.

 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.

meral	
'ou can get IP settings assigned a his capability. Otherwise, you nee he appropriate IP settings	automatically if your network supports d to ask your network administrator for
O Obtain an IP address automa	tically
O Use the following IP add	ress
JP address:	169.254.0.221
Subnet mask:	255.255. 0 . 0
Default gateway:	- 4 - 4 - 9 - 1
Optain DNS server address a	utorsatically
Use the following DNS se	rver addresses:
Preferred DNS server:	34 - 4 - 4
Alternate DNS server:	
	Advanced.

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 Extender



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



Figure 5. Version Information of the Extender

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.



• Transmitter Firmware Update: please select



[webfw.bin] to update

 Receiver Firmware Update: please select [webfwc.bin] to update

ftp-shere (NAS-Partilink (NAS I	allc.bin version-c	2015/11/10 2015/11/10)下午BIN 0下午 個案
 ↓ 下戦 1010000000000000000000000000000000000	🗋 webfwc.bin	2015/11/10)下午BIN
🌇 OS (C:)			
🔜 Data (D.)			
◎ DVD RW 磁碟機 (E:) PHOTOSLI ↓	٢		>
檔案名稱(N) webfv	vc.bin	✓ 所有檔案	~
		開兪(Q) ▼	取消

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.

```
    Updste Firmware:
    Firmware Update Progress:
    firmware file name: webfixe.bin
    firmes:
    programming flash...
    programming boolloader...
    programming kernel...

Please wait... 3 %
```

Figure 8. Firmware Update Progress

Vgdate Firmware: Firmware file name: webfwc.bin firmware file name: webfwc.bin firmware file name: subfwc.bin firmware file name: subfwc.bin forgoraming toolShader... programming toolShader... programming parameters... programming parameters... Programming parameters... Programming completed DONE. Rebooting...

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

/ste	m Video Wall Network Functions
• v	ersion Information:
• u	pdate Firmware:
• U	tilities:
	Commands
	Factory Default Reboot
-	Console API Command
	Apply
	Output
• s	tatistics:

Figure 10. Utilities

6.1.4 [Statistics]

Indicating the extender linking and working status

u	odate Firmware:
u u	illies:
SI	atistics:
_	State Machine
	State: e search
	State, a_search
	Network
	ID (light Name), 97640065073
	ID (HUSE NAILIE), 62CHOD635D73
	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

Figure 11. Statistics of Linking and Working Status

6.2 Video Wall

To set up the video wall application

6.2.1 [Basic Setup]

Bezel and Gap Co	ompensation	
ow:		
1		••••••••••••••••••••••••••••••••••••••
он:		- (T
1		
vw:		2
1		
VH:		· · · · · · · · · · · · · · · · · · ·
1		UNIT: G. Torres
1 Row Position: 0 Column Position: 0	•	
Preferences		
Preferences Stretch Type:	Fit In	-
Preferences Stretch Type: Clockwise Rotate:	Fit in	-
Preferences Stretch Type: Clockwise Rotate: oply To: "This" devic	Fit in 0 e connected by ye	• • aar browser

Figure 12. 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:

- The viewable width must be less than the outside width, and the viewable height must be less than the outside height.
- If administrator doesn't need this, just set all values to 0.
- The unit is 0.1mm and the value MUST be integer.



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• 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 14. Vertical Monitor Number Setup



Figure 15. Horizontal Monitor Number Setup



Figure 16. Column Position Setup

• Preferences:

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

	-			
Stretch Type:	Fit In	•		
	Fit In			
Clockwise Rotate:	Stretch Out			

Figure 17. Video Stretch or Fit Screen Setup

Stretch Type:	Fit In	•	
Clockwise Rotate:	0	-	
	0		
	180		

Figure 18. Video Rotation Angle Setup

• Apply To:

- 1) All: Configure all Transmitter and Receiver in the same Group IP.
- This (Local): The IP you input into address bar of web browser.
- Hosts or Clients: select which Transmitter or Receiver you want to configure.

references			
Stretch Type:	Fit In	~	
Clockwise Rotate:	0	~	

Apply To: "All" device(s) in the list

100.0

Figure 19. Monitor Setting Application

• Show OSD:

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

Stretch Type:	Fit In	-	
Clockwise Rotate:	0	*	
		and a state of the	
Apply To: "This" devis	ce connected by y	ur browser	
Apply To: "This" devi This	Apply	our browser	
Apply To: "This" devi This Show OSD	Apply	ur browser	

Figure 20. Show OSD Check box

6.2.2 [Advance Setup]

Nersonal Setups		
Step 1: Cho	oose Control Target	
0 0 0 0		
Show OSD		
Step 2: Cor	itrol Options	
Reset to Bas	ic Setup:	
		Report
Stretch Type	E.	
Fit In	•	Apply
Clockwise R	state:	
0	· •	hosty
	d Manual Coloma la	
1	• X 1 •	Apply
Row Position		. Apply
Column Posi	tion:	Apply
		Conserved and
Horizontal S	hift:	E
	0	Apply
Vertical Shif		
	0	Appler
Horizontal S	cale Up (N pixels/column_count):	
0		Apply
Vertical Scal	e Up (N pixels/row count):	
0		Appler



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 22. Basic Setup of the Video Wall before Access

Sept2: In "Advanced Setup", choose the target of the video wall to control



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



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

Fit In	•	Apply
Fit In		
Stretch Out	1	

Figure 25. Video Stretch Type

Setup the rotation angle of the video output

0	*	Apply
0		· · · · · · · · · · · · · · · · · · ·
180		
270		

Figure	26.	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.

3	-	х	5	*	Apply
1					
2					
4					
5					
6					

Figure 27. Setup the Vertical and Horizontal Number of Monitor

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

0	-	Apply
0		
1		
2		
3		
4		
5		

Figure 28. Seup the Row Position of the Monitor

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

Figure 29. Setup Column 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
- Horizontal Scale Up: Setup the video horizontal scale up.
- Vertical Shift Scale Up: Setup the video vertical scale up.

Left Right 0		Apply
Vertical Shift:		Apply
Horizontal Scale Up (N pixel	ls/column_count):	
Horizontal Scale Up (N pixel 0 Vertical Scale Up (N pixels/	ls/column_count): row_count):	Apply

Figure 30. Output Video Adjustment

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



	-) (Apply

Figure 31. Consol API Command Input

6.3 Network: Update the network setup of the extender system

IP Mode:	Auto IP DHCP	Static	
IP Address:	169.254.6.167		
Subnet Mask:	255.255.0.0		
Default Gateway:	169.254.0.254		
asting Mode			

Figure 32. Network Setup

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6.3.1 [IP Setup]

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

IP Address: 169,254,6,167	
Subnet Mask: 255.255.0.0	
ult Gateway: 169.254.0.254	

Figure 33. Auto IP Setup

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

IP Mode:	Auto IP	DHCP	Static		
IP Address:	(From DHCP Se	rver)			
Subnet Mask:	(From DHCP Se	rver)			
Default Gateway:	(From DHCP Se	rver)			
				_	55

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IP Mode:	Auto IP	DHCP	Static	
	C			
IP Address:	192.168.0.50			
Subnet Mask:	255.255.255.0			
efault Gateway:	192.168.0.1			

Static: use the static IP to assign manually

Figure 35. 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

Multicast	Unicast				
Auto select	USB operation n	node per casting	mode (recom	nanded)	

Figure 36. The Casting Mode Setup



6.4 Functions:

Setup the video output and USB extension mode

yatan _	State Small Network Functions
Video	over IP
🛎 Enabl	in Video over IP
🖲 Enabl	e Video Wall
Scaler (Sutput Hode: Pass-Through
Timeou 🛙 Turn	t for Detecting Video Lost: 10 seconds +
USB ov	Apply:
🖹 Enebi	ie USB over IP
Operati © Ar # Ar © Ar	nn Node: ato select mode (Recommander), choose per network casting mode) (two on link (whichast instance's uletant) mode) (tive per request (Hulticast antwork's default mode)
Compat ≧ K,	Ibility Mode: /M over IP (Uncheck when mouse/keybeard/touch panel not working as expected)
	Apply

Figure 37. 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) 8000004: 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

🕈 Enable Video over	IP		
🖉 Enable Video Wall			
Scaler Output Mode:	Pass-Through 🔹		
	Pass-Through Full HD 1080p60		
	Full HD 1080p50		
Turn off screen on	Ultra HD 2160p25 Customize	•	

Figure 38. Video over IP Setup

Video over IP		
🖲 Enable Video over IP		
🖲 Enable Video Wall		
Scaler Output Mode: Pass-Through	•	
Timeout for Detecting Video Loct	10 coronite	
Turn off screen on video lost	3 seconds 5 seconds	
	10 seconds	
	20 seconds 30 seconds 60 seconds	Apply

Figure 39. Customize Scaler Output Mode

Video over IP		
🖲 Enable Video over IP		
🖲 Enable Video Wall		
Scaler Output Mode: Pass-Through	*	
Timeout for Detecting Video Lost:	10 seconds	
Turn off screen on video lost	3 seconds 5 seconds	
	10 seconds	
	20 seconds 30 seconds 60 seconds	Apply

Figure 40. 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.

	Enable USB over IP
Op	eration Mode:
	Auto select mode (Recommanded, choose per network casting mode)
	O Active on link (Unicast network's default mode)
	Active per request (Multicast network's default mode)
Co	mpatibility Mode:
	& K/M over IP (Uncheck when mouse/keyboard/touch panel not working as expected)
	Apply

Figure 41. 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.

Enable Serial ove	r IP				
Operation Mode:					
O Type 1 (Need	extra control in	struction. Fo	r advanced	usage.)	
Type 2 (Recor	mmanded. Duml	b redirection.)		
O Type 2 guest	mode				
Baudrate Setting fo	r Type 2:				
Baudrate:	115200	•			
1.00.000	(
Data bits:	8				
Parity:	None	•			
Stee bilter	1				
Stop bits:	1000 C				
stop bits:					

Figure 42. Serial over IP

Multicast	Unicast				
Auto select	USB operation mo	de per casting m	ode (recomma	ndod)	
- Auto select	USB Operation mot	se per casting in	oue (recomma	inded)	
					Applie

Figure 43. Broadcast Mode Setting



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 44. USB Interaction Application

7.2 Unicast:



Figure 45. 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.



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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

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

RO	This r0c1	r0c2	r0c3	r0c4	
R1	1c0 rici	(102	r163	r104	
R2	2c0 r2c1	12c2	1263	r2c4	

monitor in the upper left corner.

Figure 53. 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 54. Example for the Video Wall Control



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

Reset to Basic Setup:		
	Reset	

Figure 55. Reset

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



Figure 56. 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 57. Example for Adjust the Monitor of Video Wall

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



Figure 58. 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 59. Example for Adjust the Monitor of Video Wall

8. PACKAGE CONTENTS

- 1. P4K-HRSUL4E1 / P4K-HRSUL4E1-P HDMI & USB extender over IP transmitter (1)
- 2. P4K-LHRSU1E4 / P4K-LHRSU1E4-P HDMI & USB extender over IP receiver (1)
- DC12V 2A power adapter, one comes with the transmitter P4K-HRSUL4E1 (1) and one comes with receiver P4K-LHRSU1E4 (1). 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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