

ABERMAN
PROFESSIONAL AUDIO-VIDEO SOLUTIONS
MVS-VWM Series



**HDMI 2.0 4K60 (4:4:4) Modular Matrix
with Seamless Switching & VideoWall**

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1. System description

1.1 Introduction

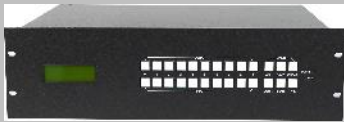
This series modular matrix switcher is a high-performance ultra high definition video signal switching device that supports 4K@60Hz-444 processing of input, output, switching, multiview and wall splicing

This product adopts a dual power redundancy design and a plug-in single card 4-way structure, which can support up to 8-160 signal inputs and 8-160 signal outputs

1.2 Features

- Support seamless switching between different input resolutions
- Comprehensive splicing display function, four screen window multiview function and zoom function
- Support synchronization for all output ports, there are two options: general mode and sync delay mode
- Supports 90°, and 180° rotation base on different output cards
- Support auto output resolution and user define output resolution, suitable for LED panel display
- Support free OSD display, three working options: Off, input label, output subtitle
- RGB video processing, perfectly restoring true colors
- Input cards: HDMI/HDBaseT/Fiber card/12G SDI, up to 3840x2160/4096x2160@60Hz input resolution 3G SDI/IP card, up to 1080p60 input resolution
- Output cards : HDMI/HDBaseT/Fiber card/12G SDI , up to 3840x2160/4096x2160@60Hz output resolution
- Support audio insert on input card and audio extracting on output card
- Provide multiple control ports: front panel buttons, remote control, RS232, network and web
- Dual power redundancy design

1.3 Specification-main unit

Chassis	8x8, 2U	16x16, 3U	32x32, 5U
Front view			
Rear view			
Size	483x365x89mm	483x365x134mm	483x365x223mm
Weight	9Kg	13Kg	23Kg
Power	100W*2 / 200W*2	200W*2 / 350W*2	350W*2 / 500W*2

Chassis	40x40, 6U	80x80, 11U	160x160, 20U
Front view			
Rear view			
Size	483x365x267mm	483x365x512mm	483x365x892mm
Weight	28Kg	60Kg	100Kg
Power	350W*2 / 500W*2	350W*4 / 500W*4	500W*8

1.4 Specification-input card and output card

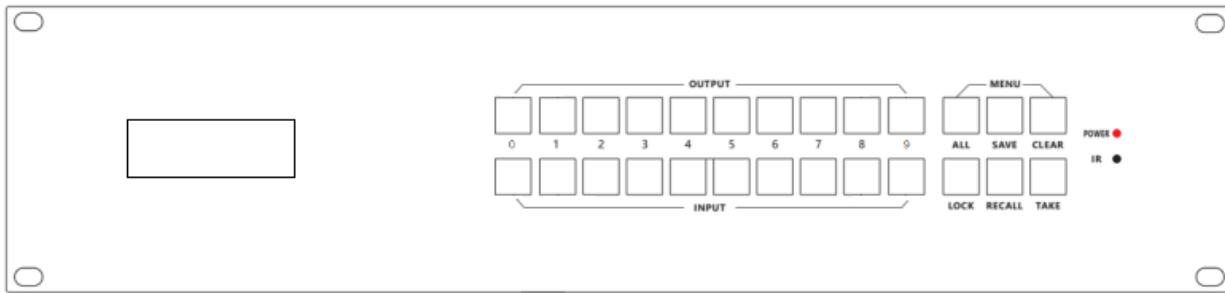
Input card	Interface	Signal	Resolution
	HDMI	HDMI,DVI	Up to 3840x2160@60
	DP	DP 1.2	Up to 3840x2160@60
	RJ45	HDbaseT	Up to 3840x2160@60, Support 24V POC
	BNC	3G SDI	480i,576i,1080i50/60,720p50/60,1080p24/25/29/30/50/60
		12G SDI	480i,576i,1080i50/60,720p50/60,1080p24/25/29/30/50/60,3840x2160p24/25/30/50/60,4096x2160p24/25/30/50/60
	DVI	HDMI,DVI	Up to 1920x1200@60 If need external LR audio input, please use DVI to DVI+3.5mm adapter
	VGA	VGA, YPbPr, CVBS	VGA input card, support following three signals VGA: From 640x480@60 to 1920x1200@60 YPbPr: Use VGA to YPbPr adapter 480i,576i,480p/576p,1080i50/60,720p50/60,1080p50/60 CVBS: Use VGA to YPbPr adapter PAL,NTSC
	RJ45	IP Stream	Support one channel 3840x2160p30 or four channel 1080p IP camera per card Support H.264/265 video format Support 1/4/9/16 multiview mode
	Fiber	LC	Sing mode and single cable, up to 3840x2160p60 Transmission distance 10 kilometers
Output card	Interface	Signal	Resolution
	HDMI	HDMI,DVI	Up to 3840x2160@60 Different daughter cards maybe have different resolution capability
	RJ45	HDBaseT	From 480p to 3840x2160@60, Support 24V POC Different daughter cards maybe have different resolution capability
	BNC	3G SDI	1080i50/60,720p50/60,1080p50/60
		12G SDI	4096x2160p50/60,3840x2160p25/30/50/60,1080i50/60,720p50/60,1080p30/50/60
	DVI	HDMI,DVI	From 1024x768 to 1920x1200@60 If need stand alone LR audio output, please use DVI to DVI+3.5mm adapter
	VGA	VGA, YPbPr, CVBS	VGA output card, support following three signals VGA: From 1024x768@60 to 1920x1200@60 YPbPr: Use VGA to YPbPr adapter 1080i50/60,720p50/60,1080p50/60 CVBS: Use VGA to YPbPr adapter, PAL/NTSC
	Fiber	LC	Sing mode and single cable. Up to 3840x2160p60 Transmission distance 10 kilometers

1.5 Output resolution and HEX index

Index	Output cards type						
	4K cards	4K30 cards	2K cards	DVI card	3G SDI card	VGA card	12G SDI card
	HDMI, HDBaseT Fiber	HDMI, HDBaseT	HDMI, HDBaseT				
00	4096x2160 p60	3840x2160p30	3840x2160p30	1920x1200p60	1920x1080p60	1920x1200p60	4096x2160p60
01	4096x2160 p50	3840x2160p25	3840x2160p25	1920x1080p60	1920x1080i60	1920x1080p60	4096x2160p50
02	3840x2160 p60	1920x1200p60	1920x1200p60	1920x1080p50	1920x1080p50	1680x1050p60	3840x2160p60
03	3840x2160 p50	1920x1080p60	1920x1080p60	1920x1080p30	1920x1080i50	1600x1200p60	3840x2160p50
04	3840x2160 p30	1920x1080p50	1920x1080p50	1680x1050p60	1920x1080p30	1360x768p60	3840x2160p30
05	3840x2160 p25	1920x1080p30	1920x1080p30	1600x1200p60	1280x720p60	1280x1024p60	3840x2160p25
06	3440x1440 p60	1680x1050p60	1680x1050p60	1360x768p60	1280x720p50	1280x768p60	1920x1080p60
07	2560x1600 p60	1600x1200p60	1600x1200p60	1280x1024p60		1280x720p60	1920x1080i60
08	2560x1440 p60	1360x768p60	1360x768p60	1280x768p60		1024x768p60	1920x1080p50
09	1920x1200 p60	1280x1024p60	1280x1024p60	1280x720p60			1920x1080i50
0A	1920x1080 p60	1280x768p60	1280x768p60	1280x720p50			1920x1080p30
0B	1920x1080 p50	1280x720p60	1280x720p60	1024x768p60			1280x720p60
0C	1920x1080 p30	1280x720p50	1280x720p50				1280x720p50
0D	1680x1050 p60	1024x768p60	1024x768p60				
0E	1600x1200 p60	USER	USER				
0F	1360x768p60	AUTO	AUTO				
10	1280x1024 p60						
11	1280x768p60						
12	1280x720p60						
13	1280x720p50						
14	1024x768p60						
15	USER						
16	AUTO						

2. Panel introduction

2.1 Front view



1. Installation screw: used to fix the control panel to the rack
2. LCM display screen: displays the routing status of each channel in the matrix.
3. Lock button : When activated, the inside light will be on, then all the buttons on the front panel will be locked and will not work. Press the button again, the light will turn off and unlock
4. TAKE/ENTER button: Execution action
5. OUT SELECT: Output 0, 1, 2...9, 10, 11... ,16
6. IN SELECT: Input 0, 1, 2...9, 10, 11... ,16
Press OUTPUT m +INPUT n +TAKE, switch input n to output m
7. ALL button: Press ALL + INPUT n +TAKE, switch input n to all output ports
8. SAVE button: Press SAVE+ OUTPUT n +TAKE, save current routing and screen layout to scene n
9. RECALL button: Press RECALL+ OUTPUT n +TAKE, load scene for current displaying
Note: The maximum number of scenarios for each model (chassis) is as follows:
8x8: 30; 16x16: 30; 32x32: 30; 40x40: 26; 80x80: 10; 160x160: 10
- 10.IR: IR receiver, can be disabled by RS232 command
- 11.Directly press TAKE button, front LCD panel will loop display IR ON/OFF,RS232 Baud Rate and IP parameters

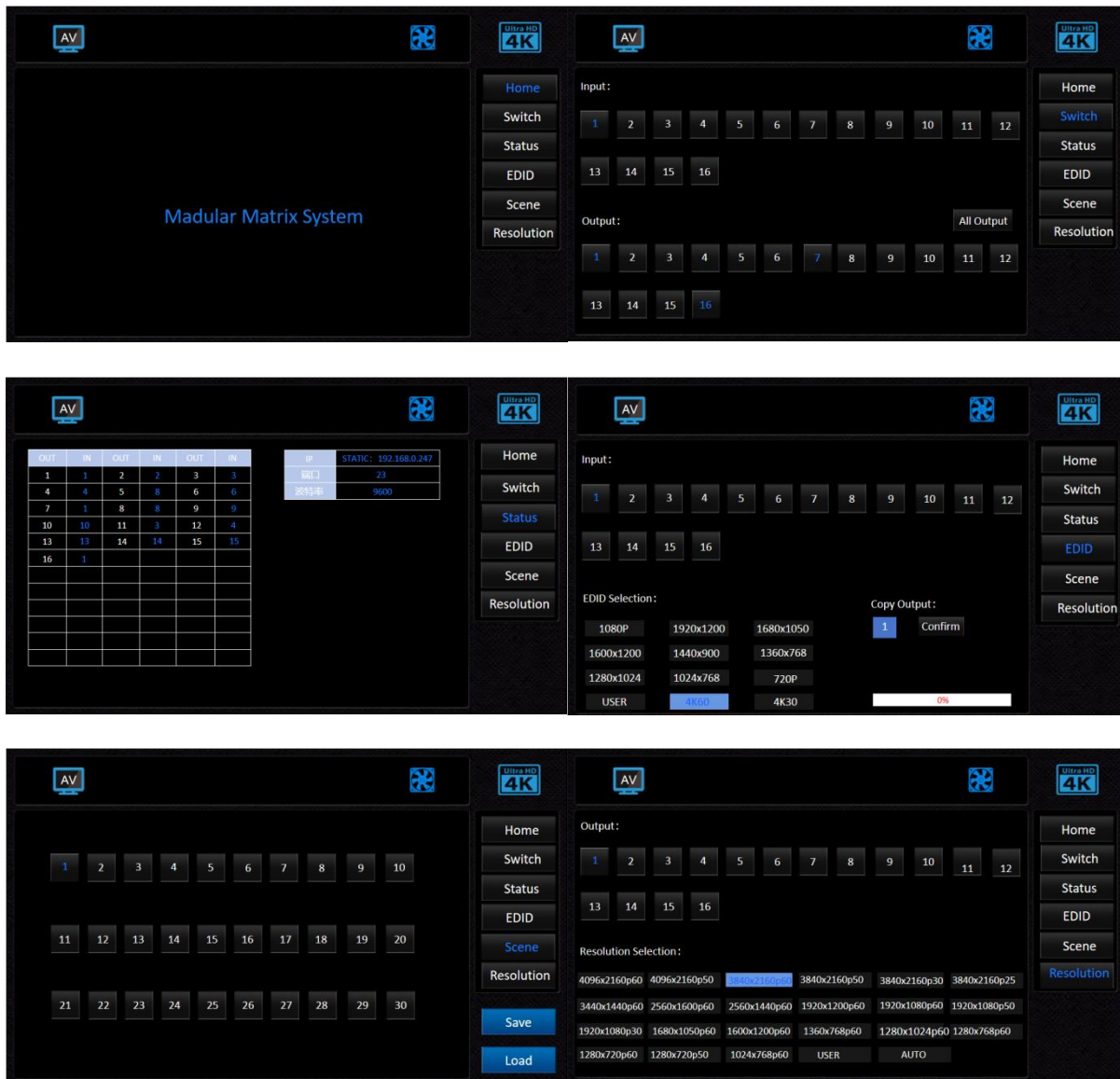
2.2 Touch Screen Control (option)

In addition to keypad and remote control operations, the front panel of this series matrix system can also be configured with a touchscreen operation mode:

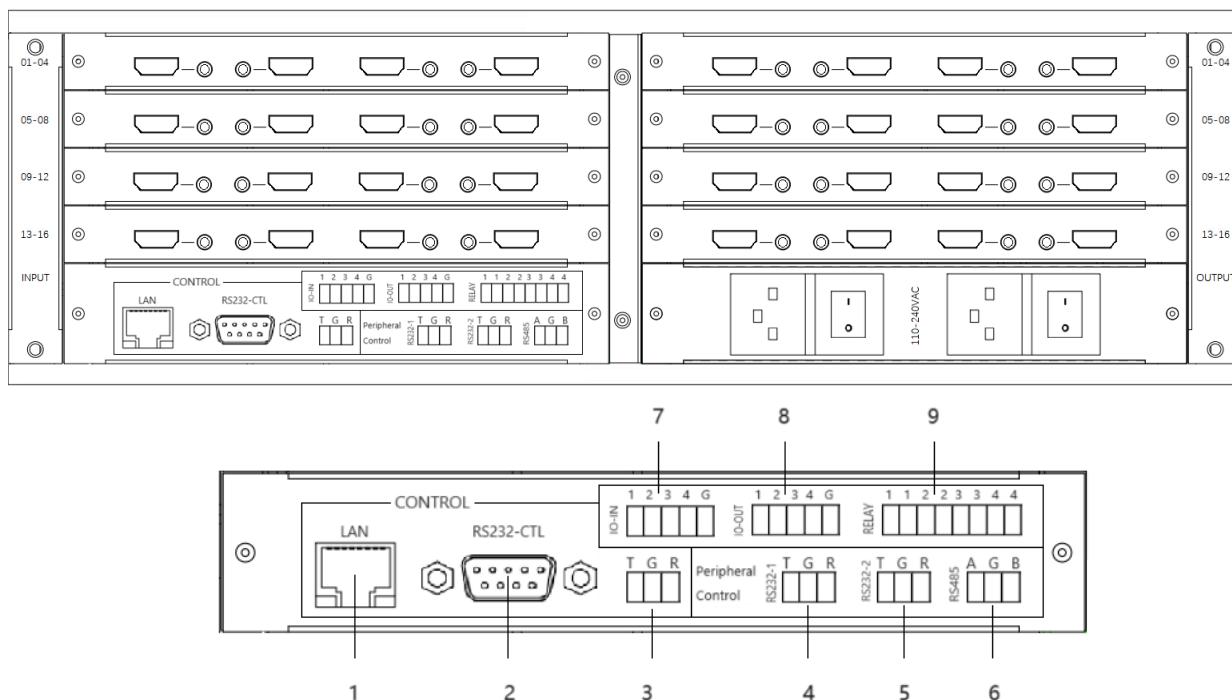


8x8-2U, 4.3-inch touchscreen, 480x272 pixels, TFT LCD panel
 16x16-3U/32x32-5U/40x40-6U/80x80-11U/160x160-20U, 7-inch touchscreen, 1024x600 pixels, TFT LCD panel

The operation interface is as follows:



2.3 Rear view



Index	Function	Description	Details
1	Main Control Use PC to control this switcher	TCP/IP or Web Control	IP address: 192.168.0.247 Submask: 255.255.255.0 Gateway: 192.168.0.1 Baud Rate: 9600 Web login account : admin Web login password : admin
2		RS232 Control	Baud Rate: 9600
3		PS232-Phoenix control	T: Matrix Switcher -> PC G: Ground R: Matrix Switcher <- PC
4	Peripheral Control Control other peripherals through this matrix switcher	RS232-1 Peripheral Control	T: Matrix Switcher -> Peripheral G: Ground R: Matrix Switcher <- Peripheral
5		RS232-2 Peripheral Control	T: Matrix Switcher -> Peripheral G: Ground R: Matrix Switcher <- Peripheral
6		RS485 Peripheral Control	Connect to peripheral's RS485 port G: Ground
7		GPIO-Input	4 inputs level detect, high or low G: Ground VIL : 0 ~ 2.0V VIH : 3.0 ~ 5.0V
8		GPIO-Output	4 outputs, high or low G: Ground VOL : 0 ~ 0.5V VOH : 4.5 ~ 5.0V
9		Relay Control	4 relays control, on or off G: Ground Rating: 48V/1A

3. Package

Content	Quantity
Matrix switcher unit	1
AC cord	2
USB to RS232 cable	1
1-meter net cable	1

4. PC Tool user guide

This PC tool is an installation free control software, included following tabs: Connect, Matrix, Signal, TV wall, System, Multiview, Peripheral and other more feature tabs

The initial login password is: 111111

4.1 Connect tab

Please note:

1. Use serial cable (straight line) or Ethernet cable
2. When using a serial port connection, the network port connection must be disconnected, and vice versa
3. When connecting through the network port, you must first search for and select the device before connecting

The screenshot displays the 'Connect' tab of the PC Tool software. It is divided into two main sections: 'RS232' and 'Network'. The 'Network' section is currently selected, showing fields for Network (TCP-Server), IP (192.168.0.247), Port (23), SubMask (255.255.255.0), and Gateway (192.168.0.1). Below these fields is a 'Search List' table with the following data:

Number	Device Name	IP	MAC	Version
1	LQSX_N8	192.168.0.247	50-0A-00-34-00-62	24

A red rectangle highlights the first row of the 'Search List' table. Below the table is a 'Search Device' button, which is circled in red. At the bottom right of the interface, there is a green checkmark icon inside a hexagon.

4.2 Matrix switch tab

Matrix

Switch

Output\Input	Input1	Input2	Input3	Input4	Input5	Input6	Input7	Input8
Output1	1							
Output2	2							
Output3	3							
Output4	4							
Output5	5							
Output6	6							
Output7	7							
Output8	8							

A A,B can be renamed

Allset: — Set one input to all output ports

Save/Load — Save or load scene, include video routing, wall splicing, multiview information

EDID — 1. Read EDID of displayer 2. Load one EDID file 3. Write EDID to input port

Allset: — Set one input to all output ports

Save/Load — Save or load scene, include video routing, wall splicing, multiview information

EDID — 1. Read EDID of displayer 2. Load one EDID file 3. Write EDID to input port

4.3 Signal config tab

Signal Config

Port	Input Type	Input Format	Output Format	Audio Select	Bind
1	HDMI	3840x2160p30	3840x2160p30	Embedded	Read
2	HDMI	No-Signal	No-Signal	Embedded	Read
3	HDMI	No-Signal	No-Signal	Embedded	Read
4	HDMI	No-Signal	No-Signal	Embedded	Read
5	HDMI	No-Signal	No-Signal	Embedded	Read
6	HDMI	No-Signal	No-Signal	Embedded	Read
7	HDMI	No-Signal	No-Signal	Embedded	Read
8	HDMI	No-Signal	No-Signal	Embedded	Read

Port	Output Type	Input Format	Output Format	Mute	Freeze
1	HDMI	3840x2160p30	3840x2160p60		Read
2	HDMI	No-Signal	3840x2160p60		Read
3	HDMI	No-Signal	3840x2160p60		Read
4	HDMI	No-Signal	3840x2160p60		Read
5	HDMI	No-Signal	3840x2160p60		Read
6	HDMI	No-Signal	3840x2160p60		Read
7	HDMI	No-Signal	3840x2160p60		Read
8	HDMI	No-Signal	3840x2160p60		Read

Read All Input

Read All Output

More

No Signal, Input's Mode:

No Signal, Output's Mode:

Video Keep Alive mode when no signal input
1. BlackScreen 2. Bluescreen 3. No output

Output

Port: Rotate: Test Pattern:

Rotate selection for one output
1. 0° 2. 90° 3. 180°

Multiview Config

Port: Output Mode:

Config the output mode for the first output port of one output slot
1. Normal 2. Multiview

User Define Resolution

Port: H Width: V Height:

To define one user-define output resolution for one output port

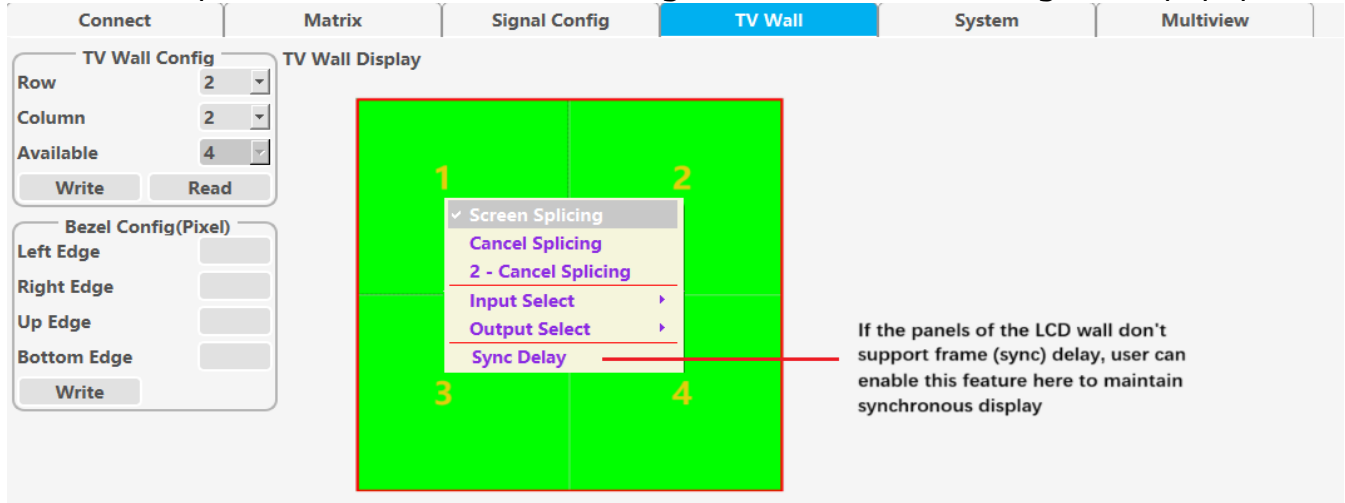
Write Read

When the first port of one output slot works on multiview mode, the other three output the same with the first port, including output resolution

4.4 TV wall tab

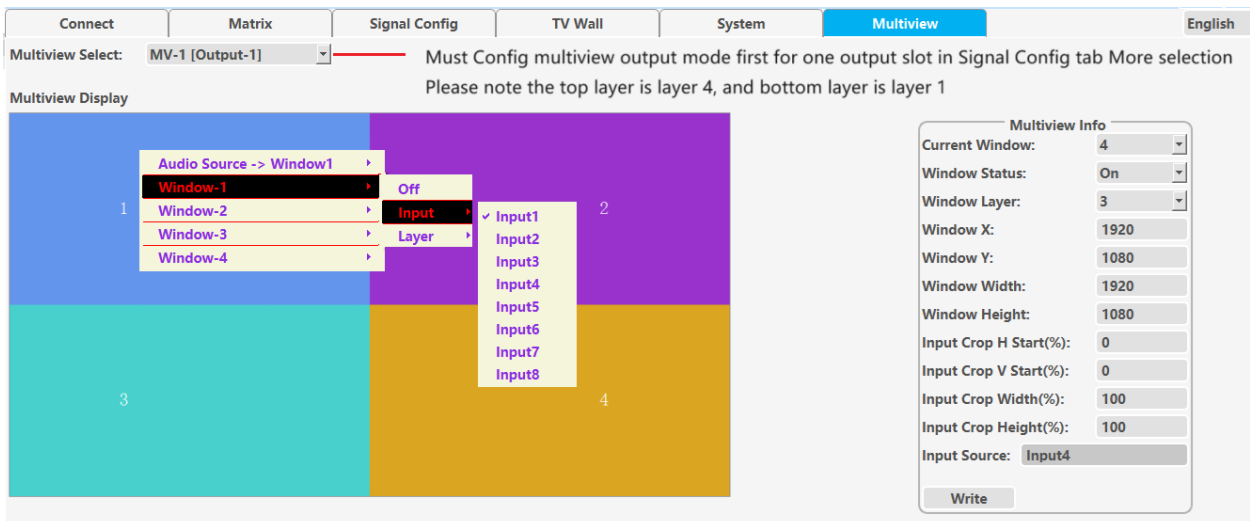
This tab set the splicing wall parameters: layout, border, input/output settings and so on.

The above operations can be achieved through mouse box selection, right-click popup, etc.



Please note: In order to ensure the synchronization of moving video on each screen during splicing output, if the output resolution of one or some splicing output ports is changed, please be sure to restart the device. Similarly, the various splicing operations of LED screens mentioned below also need to be done in this way.

4.5 Multiview tab



4.6 System tab

This tab sets network parameters, resets, reads software versions, etc

Connect | **Matrix** | **Signal Config** | **TV Wall** | **System** | **Multiview**

Network Module

Number	Device Name	IP	MAC	Version
1	LQSX_N8	192.168.0.247	50-0A-00-34-00-62	24

Search Device | Open Website | Load Default

Basic Config

UPNP Port	6432	Device Name	LQSX_N8
HTTP Port	80	MAC	50-0A-00-34-00-62
Device ID	1	IP Type	Static IP
Device ID Type	0	Static IP	192.168.0.247
User Name	admin	Subnet Mask	255.255.255.0
Password	admin	Gateway	192.168.0.1

Write

Port Config

Baud Rate	9600
Baud Rate Param	None 8 1
Flow Control	None
Work Mode	TCP Server
Remote IP	192.168.0.247
Remote Port	23
Local Port	23
Server Connect Count	3
TCP Server Style	0
Modbus TCP	None
Pack Time	10
Pack Len	200

☐ Sync Baud Rate

Write

Reset:

Firmware Version: Main

4.7 Peripheral tab

Connect | **Matrix** | **Signal Config** | **TV Wall** | **System** | **Multiview** | **Peripheral** | English

IO-IN

1	☐ High ☒ Low
2	☐ High ☒ Low
3	☐ High ☒ Low
4	☐ High ☒ Low

Read

IO-OUT

1	☐ High ☒ Low
2	☐ High ☒ Low
3	☐ High ☒ Low
4	☐ High ☒ Low

Read

Relay

1	☒ On ☐ Off
2	☒ On ☐ Off
3	☒ On ☐ Off
4	☒ On ☐ Off

Read Write

User Cmd Line

Set Cmd Line Num: 4 ☐ Loop Send

Peripheral	Port	Baudrate	HEX	Command Line	Send	Order	Delay(ms)
Peripheral	9600	☒	0A 99 55 44	Power off projector 1	Edit	1	1000
Peripheral	57600	☒	44 0A 55 99	Note2	Edit	2	1000
Peripheral	115200	☒	99 55 44 0A	Note3	Edit	3	1000
Output	1	☐	115200	SET ON	Edit	4	1000

Click here to send single command

Click here to send the command list one by one

Send

Peripheral

Input

Output

ASCII command

Select peripheral control interface.

Peripheral selection means use rear RS232-1, RS232-2 or RS485 port to control

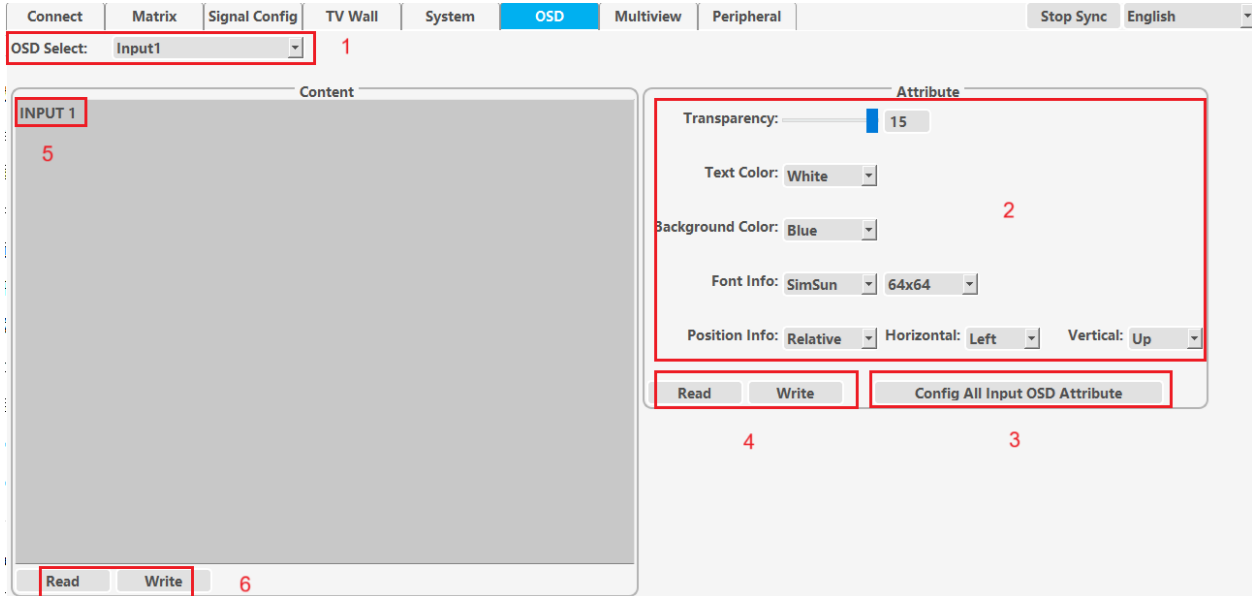
Input selection means control peripheral through input port such as HDBaseT card

Output selection means control peripheral through output port such as HDBaseT card

4.8 OSD tab

This feature only exists on some types of output card

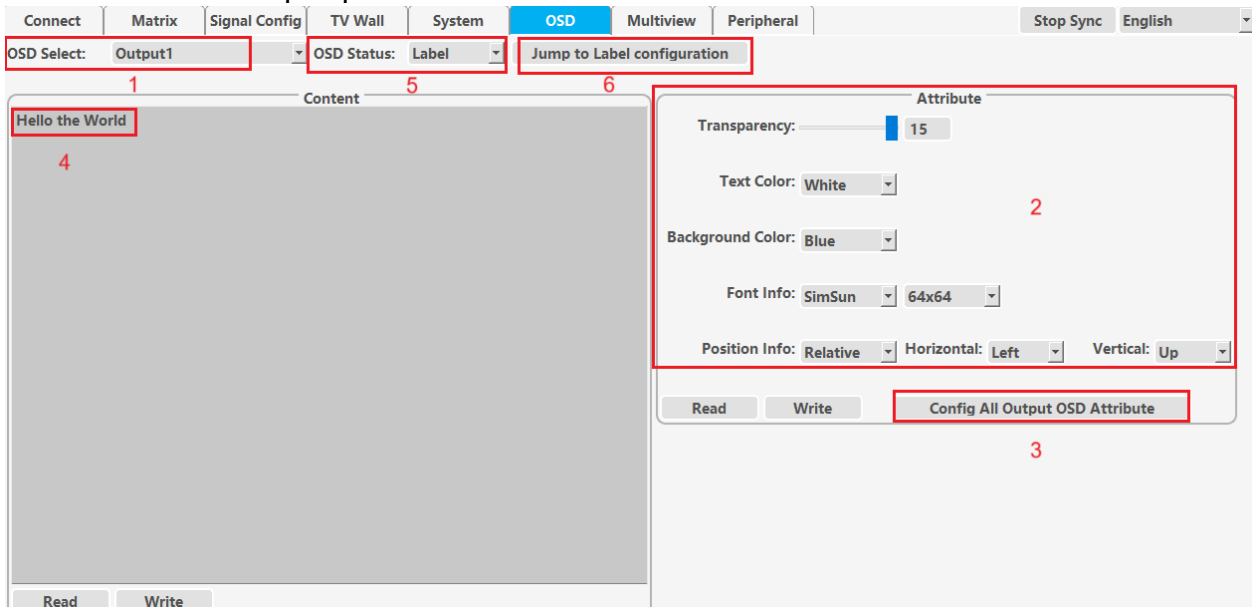
If **OSD Select** select input ports as below



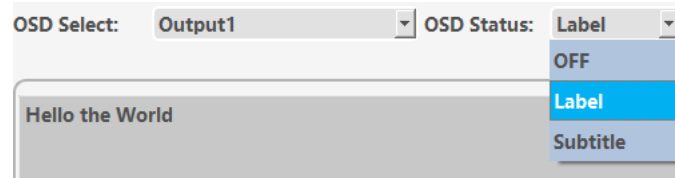
1. OSD Select: Select input port, then all below configuration is for label definition with this input port
2. OSD label parameters configuration, included Text Color, Background Color, Font, Size, Position
3. Config the OSD label Attribute Parameters to all input ports if needed (don't suggest)
4. Read or Write
5. Input OSD label contents
6. Read or Write

Please note, after config the input label, it will not directly display on the screen, and need to enable it on the output port.

If **OSD Select** select output ports as below



1. OSD Select: Select any output port, then the following items 2,3,4, OSD Attribute and Contents configuration are for Subtitle definition with this output port
2. OSD subtitle attribute configuration for the output port, include Transparency, Text Color, Background Color, Font, Size, Position (Relative or Absolute)
3. Config the OSD Subtitle Attribute Parameters to all output ports if needed (don't suggest)
4. Subtitle Contents for the output port
5. Select OSD working status for the output port, three options as below:



When select **Label**, then the OSD label which is defined on the corresponding input port will display on the screen.

For example, input 1 route to output 1, we set **Room 1** as OSD label for input 1, and select OSD working status to Label for output 1, then **Room 1** will displayed on the screen which connected to output 1.

When select **Subtitle**, then the OSD Subtitle which is defined on this output port will be displayed on the screen.

When select **OFF**, then there will be no OSD displayed on this output port.

6. On this output interface, if user want to directly re-config the input port OSD label which routed to this output port, he can directly click **Jump to Label Configuration** button

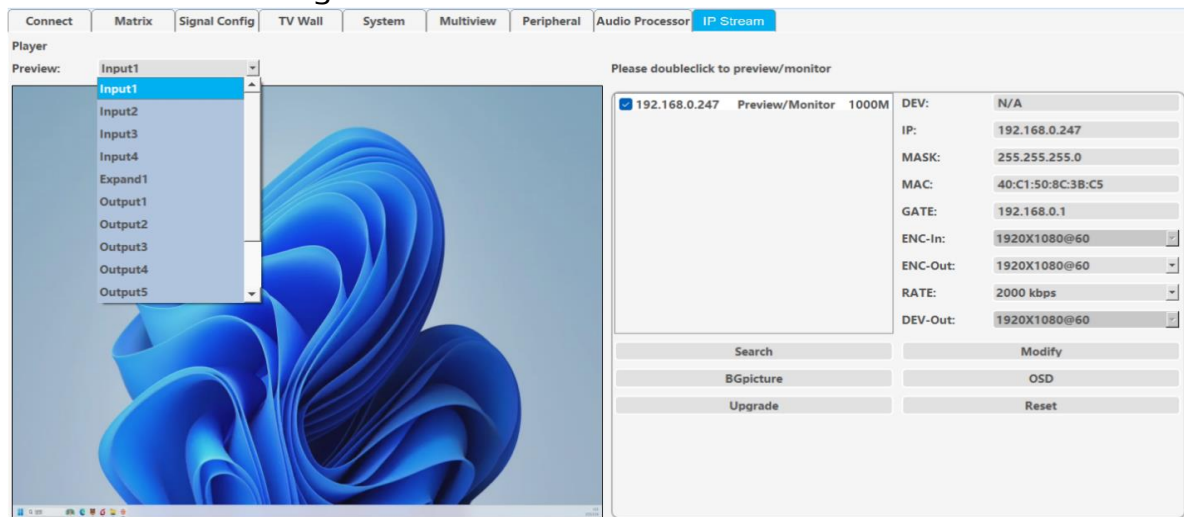
4.9 IP Stream tab

Include IP preview and IP decoding

4.9.1 Preview and Monitor function (Option)

This function is integrated into a dedicated control card, with exposed terminals identical to those of the general-purpose control card. Encoding format H.264/265, 1080p60

The Preview and Monitoring interface on the PC software like below:



Operable content:

1. After 30 seconds of booting up, you can click the "Search" button in the above interface to search for Preview and Monitor card. After the search is complete, click the entry to display and change the IP parameters. After modification, click the "Modify" button and wait for another 30 seconds to search again. Double click on the item to perform Preview and Monitor operations.
2. The "Background Image" button can load JPG images of 1920x1080 size and 24 bit color depth.
3. The "OSD" button can edit OSD character content, size, color, font, transparency, scrolling, etc.
4. Overlaying the background image and OSD together as an extended input port (EXPAND) for the matrix is equivalent to adding an additional input to the matrix.
5. Drop down menu for Preview and Monitor, with all input ports (including EXPAND extended input port for OSD characters/background image) and output ports available for selection.

Note: If the user wants to edit the "background image" or "OSD", they need to select "EXPAND" first from the drop-down menu here

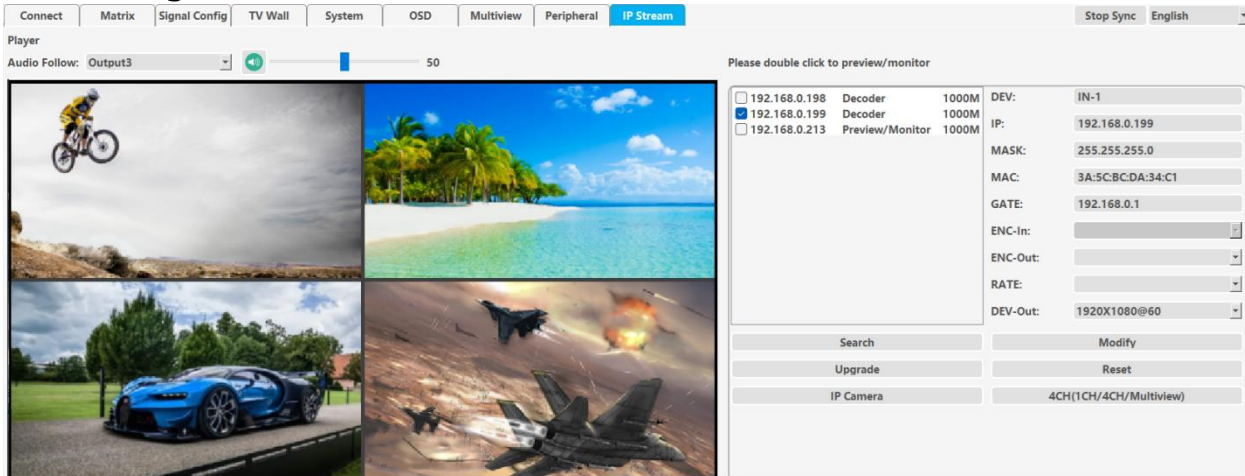
4.9.2 IP decoding function

This function is integrated with IP decoder card which support one channel 3840x2160p30 or four channel 1080p IP camera per card, video format H.264/265

The card also support 1/4/9/16 or other free multiview mode.

If user want to decode 2 or more IP cameras, he need to connect the network cable to the IP decoding card through a network switch.

The IP decoding interface on the PC software like below:



Operable content:

1. After 30 seconds of booting up, you can click the "Search" button in the above interface to search for IP Decoder card. After the search is complete, click the entry to display and change the IP parameters. After modification, click the "Modify" button and wait for another 30 seconds to search again. Double click on the item to perform preview IP camera video content.
 2. The "IP Camera" button, you can add/edit/delete RTSP stream here.
 3. The "1CH/4CH/Multiview" button, User can select three working mode
 3. "Single channel/Four channel/Multi view" button, with 3 working modes to choose from
 - A. Single channel camera: The IP decoding card only decodes one IP camera, and the content of the four input channels corresponding to this card is the same
 - B. Four cameras: IP decoding card decoding 4 IP cameras (as shown in the grid in the above figure, each grid represents one IP signal). The images from four cameras are fed to the matrix output through four channels of the IP decoding card

If there are only two or three cameras, the remaining channels output blue screens to the output card.

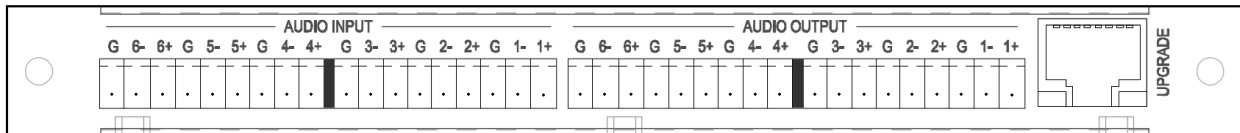
 - C. Multiview: After selecting this working mode, specialized PC tools can be used to layout the IP decoding card and camera arbitrarily, such as 1/4/9/16 multiview image segmentation, etc. (this mode is not recommended)
4. "Audio Follow" allows you to select the sound from the first IP source of the IP decoding card, or choose a certain output channel number, so that the output channel always has the corresponding sound when outputting the IP source
5. "Volume button", set the volume of the IP decoding card.

4.10 Audio Processor tab (Option)

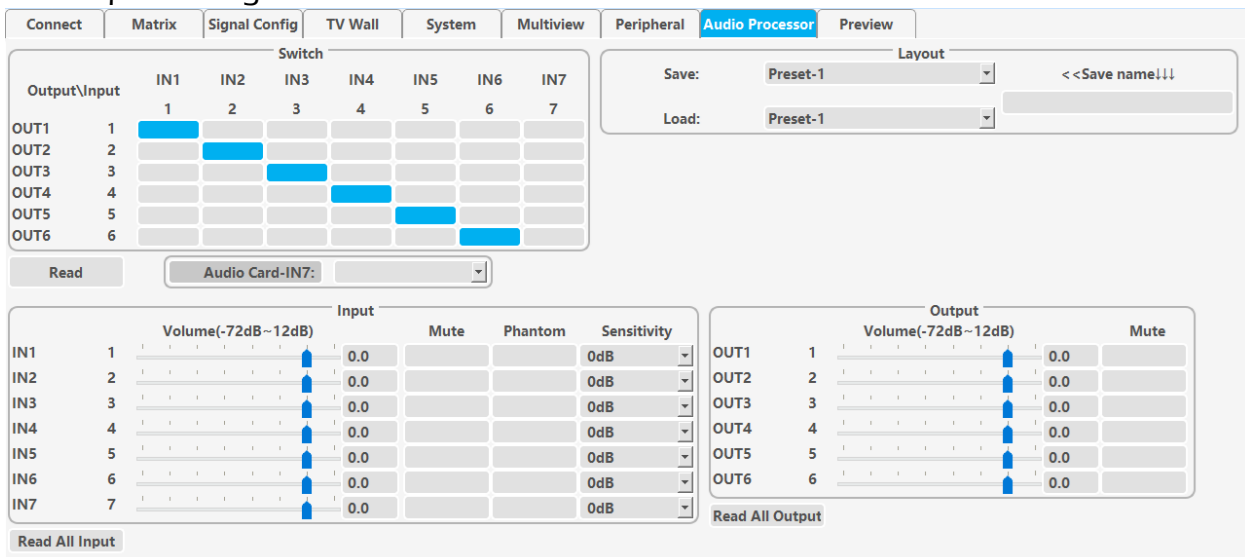
This audio processing card is designed specifically for use with modular video matrix. The card on the video matrix can only be inserted into the last output card slot of the modular video matrix.

The audio card integrates 7 balanced audio inputs (the 7th audio input is the audio corresponding to the video input channel, which can be selected through the matrix's PC software tool) and 6 balanced audio outputs. It can achieve audio switching and mixing, volume control, automatic mixing, automatic echo cancellation, automatic gain control, automatic feedback control, automatic noise reduction and other functions.

For some microphones that require it, phantom power can also be enabled.



The audio processing interface on PC software is as below:



Note:

1. The network port on the audio processing card is for upgrading audio software. For occasions with special requirements for configuration, this network port can also be used to accurately configure using dedicated audio PC software (which can be provided separately) to meet special on-site requirements. Then it can be controlled through the universal matrix PC software. The universal control interface is as shown above, and the control interface is the network port or serial port on the control card.
2. This audio processing card will not automatically save various parameters (switching, configuration, etc.) adjusted by the user. Users can manually save the set parameters to a preset scenario, and the last saved or called preset before shutdown will be automatically called upon the next time the device is turned on.

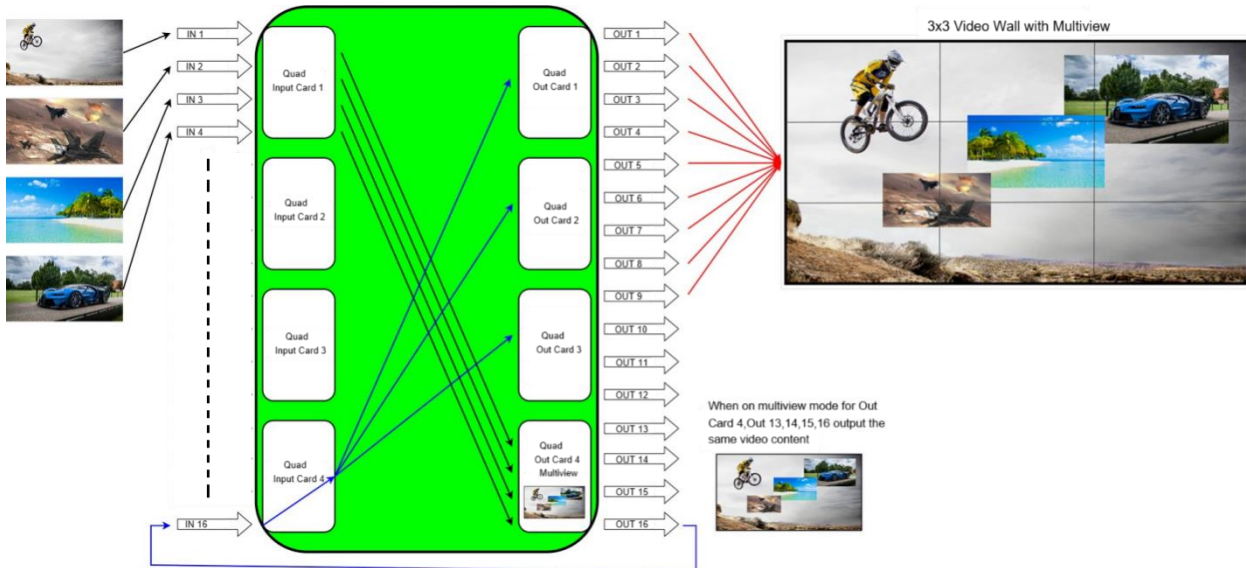
5. How to set multiview function of splicing wall

Step 1, set a certain output card (suggest to use the last output card) to work on the multiview mode. We call one of the output ports on this card as output port M

Step 2, use one of the input ports of a certain input card (suggest to use the last input port of the last input card) as the multiview source input port, called input port N

Step 3, connect an external HDMI short cable between output port M and input port N

Step 4, set the parameters of the splicing wall and select the input source of the splicing wall as input N



6. How to set pixel to pixel display with LED sender card and panel

Step 1, connect input cable between source and one input port of the matrix switcher.

Step 2, connect output cable between LED panel (Sender Card) and one output port of the matrix switcher.

Step 3, read the EDID of LED panel (Sender Card) with PC Tool and download this EDID to the input port of the matrix switcher.

Step 4, set the output resolution of this output port as AUTO, or USER. When set USER, need configure its user define resolution first, and make the user defined resolution to match the physical resolution of the LED panel perfectly

7. How to fit with a LED wall with different physical size panel units -MultiPanel

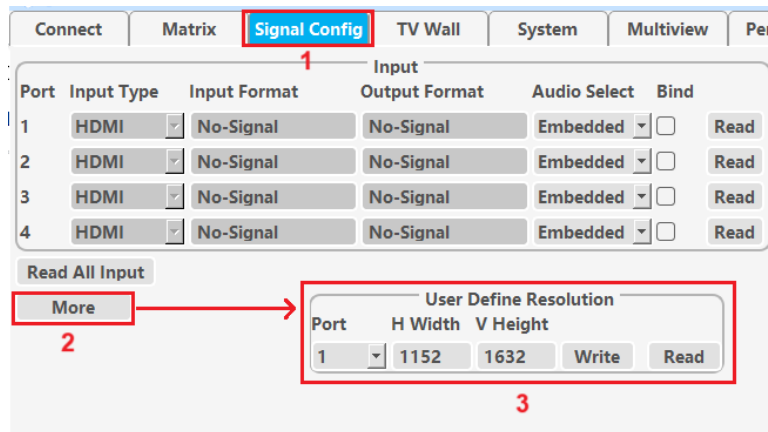
Sometimes we may encounter situations where the width or height of the LED splicing panel units are different.

In this case, we can follow below steps to set up one video wall

LED Wall

1152x1632	1152x1632	1152x1632	1152x1632	576x1632
Panel 1	Panel 2	Panel 3	Panel 4	Panel 5
Out 1	Out 2	Out 3	Out 4	Out 5
1152x1440	1152x1440	1152x1440	1152x1440	576x1440
Panel 6	Panel 7	Panel 8	Panel 9	Panel 10
Out 6	Out 7	Out 8	Out 9	Out 10

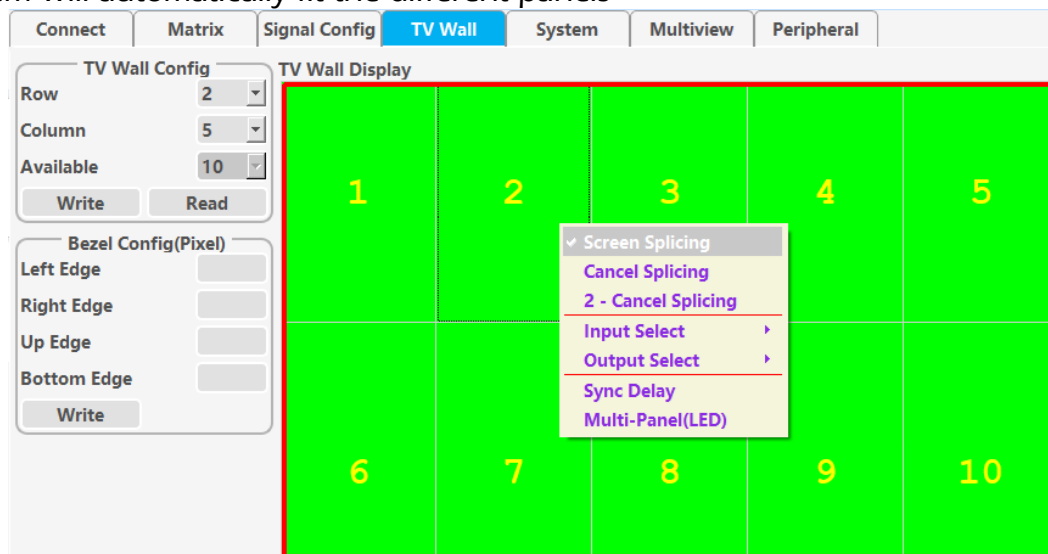
1. Set user define output resolution or select a right pre-define output resolution to the physical display resolution of the corresponding LED panel for each output port which displayed on this LED wall



2. Set up the video wall like normal operation

3. Turn to TV Wall Tab and press alt Q on PC keyboard

4. Press right button of the mouse, then appears the interface as below, and click MultiPanel, then system will automatically fit the different panels



5. If user want to exit MultiPanel function, he need cancel this video wall, then system will automatically exit MultiPanel function

6. Please note MultiPanel function is not included in scene save or recall

8. Best Practice

Aberman engineers design products at the highest quality standards. To get the best results from our products, please read this manual carefully. We recommend using the best quality connectors, cables, and adapters. Consider the points below when you choose accessories and position equipment.

For best results with HDMI/DVI, use good quality cables up to 5 meters long for 4K and up to 15 meters for 1080p, or shorter if you are using any connection adapters. If you need to place your equipment more than 15 meters apart, we recommend using a signal extender. See Aberman Smart Extension product line of signal extenders to find correct one. Use only graded Speed HDMI cables.

In industrial environments, use shielded CAT cables (STP, FTP, F/UTP or S/FTP) with digital extenders. To achieve best performance and maximum distance use appropriate fiber optical types (Multi or Single Mode) and grades for optical extenders.

9. Safety Instructions

WARNING: To reduce the risk of fire or electric shock, do not expose this device to rain or moisture. Do not use this device near water. Clean only with a dry cloth.

Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the device. This unit must be connected to an earthed mains socket outlet with the supplied cable. The AC wall outlet should be installed near to the unit and be easily accessible.

If using extenders which run a long distance, the protective earth circuit of the socket should be verified by a skilled person to ensure equipotential earth bonding. Do not use unit on objects or installations where power lines have grounding and/or different phase issues.

Unplug units during lightning storms or when unused for long periods of time.

Do not install unit near any heat sources such as radiators, heat registers, stoves, or devices (including amplifiers) that produce heat. Do not block any ventilation openings. This unit uses active cooling with fans. Do not install unit in dusty and/or dirty places. Use professional equipment racks with air condition and filters.

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