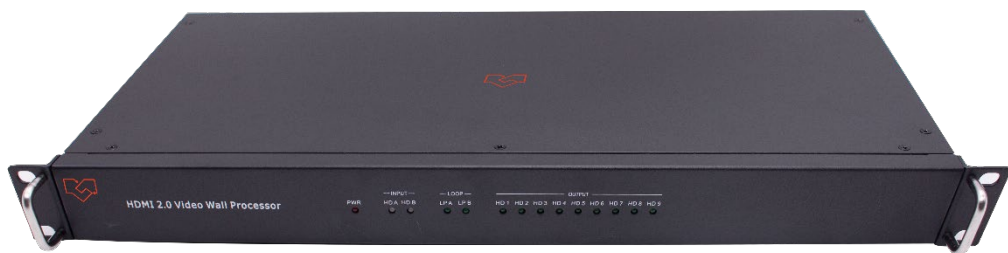




## **VLVW-MX29P**

2X9 HDMI 2.0 Videowall processor 18Gbp



# **User Manual**

**VER 1.02**

# Thank you for purchasing this product

Please read these instructions carefully for optimum performance and safety before connecting, operating, or adjusting this product. Please keep this manual for future reference.

## A surge protection device recommended

This product contains sensitive electrical components that electrical spikes may damage, surges, electric shocks, lightning strikes, etc. The use of surge protection systems is highly recommended to protect and extend the life of your equipment.

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# 1. Introduction

This product is an HDMI 2.0 Video Wall controller with 2 HDMI inputs, 2 HDMI loop outputs, and 9 HDMI scaling outputs for video wall processing. The Toslink jack terminal provides analog L/R audio and digital SPDIF audio output. The 5-pin phoenix jacket provides balanced L/R audio output. The product also supports the RS-232 bypass feature for the daisy chain and cascade connection among different units.

# 2. Features

- ☆ HDMI 2.0 and HDCP 2.2 compliant
- ☆ Supports multi-resolution up to 3840x2160@60Hz video output for video wall
- ☆ Supports Bezel Compensation with two modes
- ☆ Supports 2 channels HDMI loop out
- ☆ Supports PIP on a video wall
- ☆ Supports 180° rotation
- ☆ Supports RS-232 and TCP/IP control
- ☆ Supports CEC control with displayers by PC Tool or commands

# 3. Package Contents

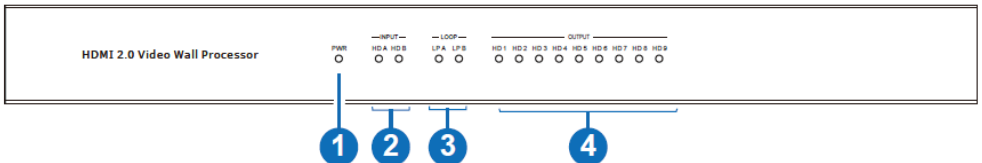
- ① 1 x Ultra HD Video Wall Processor
- ② 1 x AC Power Cord
- ③ 1 x 5-pin Phoenix Connector
- ④ 2 x 3-pin Phoenix Connector
- ⑤ 1x RS232 to Phoenix Cable
- ⑥ 1x Cat 6 cable
- ⑦ 1x USB to RS232 Cable
- ⑧ 1x User Manual

## 4. Specifications

Technical	
HDMI Compliance	HDMI 2.0
HDCP Compliance	HDCP 2.2/1.4
RS-232	Baud rate: 57600, Data bit: 8, Stop bit: 1, no parity
Input Video Formats	1024x768@60, 1280x800@60, 1280x1024@60, 1280x960@60, 1360x768@60, 1366x768@60, 1440x900@60, 1400x1050@60, 1600x900@60, 1600x1200@60, 1680x1050@60, 1920x1200@60, 480p@60, 576p@50, 720p@50, 720p@60, 1080i@50, 1080i@60, 1080p@24, 1080p@25, 1080p@30, 1080p@50, 1080p@60, 3840x2160@24, 3840x2160@25, 3840x2160@30, 3840x2160@50, 3840x2160@60, 4096x2160@24, 4096x2160@30, 4096x2160@50, 4096x2160@60
Audio Format	2.0 channel, 5.1 channel, LPCM, Dolby, AC3, DTS
ESD Protection	Human-body Model: ±8kV (Air-gap discharge) , ±4kV (Contact discharge)
Mechanical	
Housing	Metal Enclosure
Color	Black
Dimension	430mm (W)×220mm (D)×44mm (H)
Weight	5Kg
Supply Voltage	110-220V AC
Operating Temperature	0°C ~ 40°C / 32°F ~ 104°F
Storage Temperature	-20°C ~ 70°C / -4°F ~ 158°F
Relative Humidity	10%~50% RH (Non-Condensation)

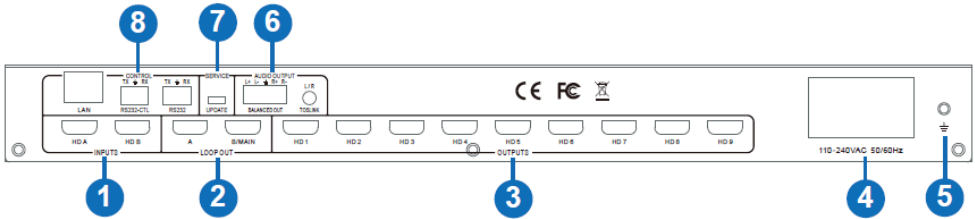
## 5. Operation Controls and Functions

### Front Panel



No.	Name	Function Description
1	Power LED	The power LED will be on when the unit is powered on.
2	INPUT LED	The LED will be on when the corresponding HDMI input port is connected to an active HDMI source device.
3	LOOP LED	The LED will be on when the corresponding LOOP OUT port is connected to the HDMI display device.
4	OUTPUT LED (1-9)	The LED will be on when the corresponding HDMI output port is connected to the HDMI display device.

### Rear Panel

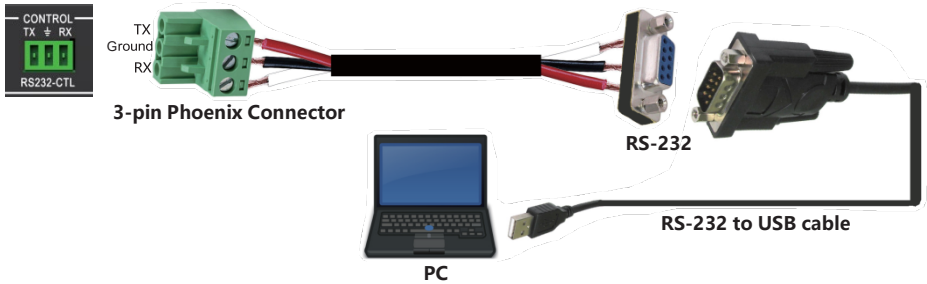


No.	Name	Function Description
1	INPUTS	HDMI signal input ports connect to HDMI source devices such as DVD or PS4 with HDMI cable.
2	LOOP OUT	HDMI signal loops out ports. Loop out HDMI A/B signal downstream. The RS-232 command can configure it.
3	OUTPUTS	HDMI signal scaling output for video wall.
4	110-240VAC	110-240V AC power input port.
5	GND	Ground the product housing.
6	AUDIO OUTPUT	TOSLINK: - Analog L/R audio output 3.5mm Stereo Jack. 20Hz ~ 20kHz, 1.5Vrms max - Digital SPDIF audio output BALANCED OUT: Balanced audio output port. 5-pin phoenix connector, 20Hz ~ 20kHz, 1.5Vrms max. BALANCED OUT: Balanced audio output port. 5-pin phoenix connector, 20Hz ~ 20kHz, 1.5Vrms max.
7	SERVICE	Firmware update port.
8	CONTROL	RS232: Bypass RS232-CTL commands to the next unit. RS232-CTL: External RS-232 control, Baud Rate: 57600 Data Bits:8, Parity: None Stop Bits:1 LAN: Network port for TCP/IP control. Connect to an active Ethernet link with an RJ45 cable.

## 6. RS-232/LAN Control Connection

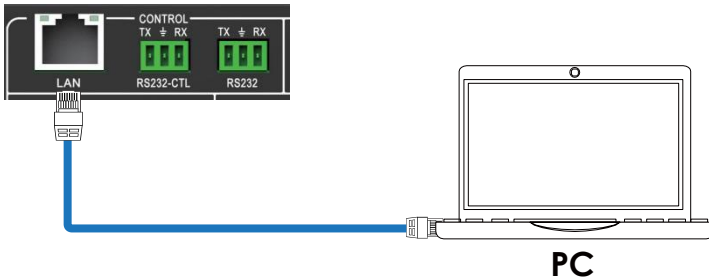
### 6.1 RS-232 Control Connection

The product supports RS-232 control. Connect the RS232-CTL port of the product to a PC via a serial cable, as shown in the following figure:



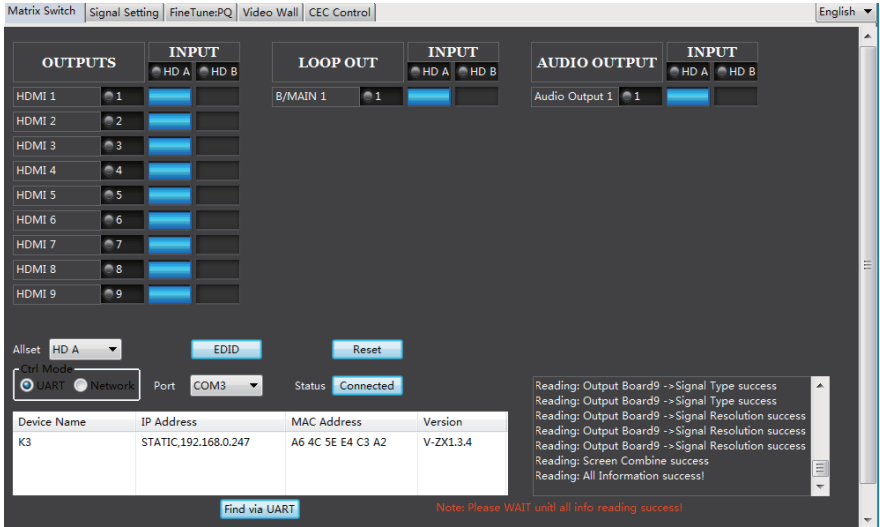
### 6.2 Network Control Connection

The product also supports Network control. Connect the LAN port of the product to a PC via a UTP cable, as shown in the following figure:



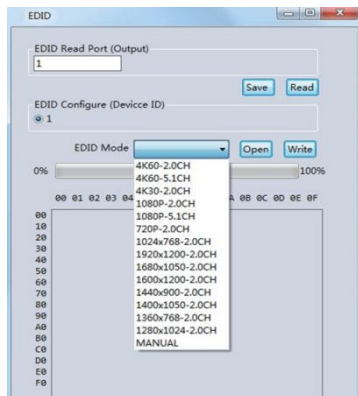
## 7. PC Tool User Guide

The PC tool is an installation-free control software that supports both UART and network control. It consists of five parts: Matrix Switch, Signal Setting, FineTune: PQ, Video Wall, and CEC Control. The UI is as follows:



### ■ Matrix Switch Page

1. You can select **UART** (with RS232 cable) or **Network** to connect the device; the baud rate is 57600 bps.
2. Select the input source for each scaling output port.
3. "AllSet" function: Select HD A or B input source to all the scaling output.
4. Select the input source for the B/MAIN output port.
5. Select an audio source for balanced audio output and Mini Toslink output.
6. Reset: The PC tool supports a reset system to recover factory configuration.
7. EDID Control: Click the "EDID" button on the Matrix Switch page, and there will be a pop-up EDID control window.



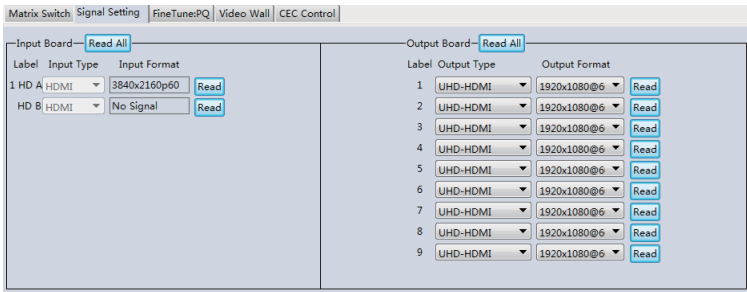
- a) Read each scaling output port downstream EDID and save it as a BIN file.
- b) Open an existing EDID file and write to the HDMI A and B input port as Manual EDID.
- c) Select predefined EDID and write to HDMI A and B input ports.

The predefined EDID option is as below:

4K60-2.0CH	1920x1200-2.0CH
4K60-5.1CH	1680x1050-2.0CH
4K30-2.0CH	1600x1200-2.0CH
4K30-5.1CH	1440x900-2.0CH
1080P-2.0CH	1400x1050-2.0CH
1080P-5.1CH	1360x768-2.0CH
720P-2.0CH	1280x1024-2.0CH
1024x768-2.0CH	Manual

## ■ Signal Setting Page

Users can read the resolution of each input port and set the resolution of each scaling output.



Available output resolutions:

No.	Output Resolution Setting	No.	Output Resolution Setting
1	3840x2160p 60Hz	9	1440x1050 60Hz
2	3840x2160p 50Hz	10	1366x768 60Hz
3	3840x2160p 30Hz	11	1360x768 60Hz
4	3840x2160p 25Hz	12	1280x1024 60Hz
5	1920x1200 60Hz	13	1280x768 60Hz
6	1920x1080p 60Hz	14	1280x720p 60Hz
7	1920x1080p 50Hz	15	1280x720p 50Hz
8	1600x1200 60Hz	16	1024x768 60Hz

**Note:** 3840x2160 25/30Hz can only be used for standalone display, not video wall.



## ■ FineTune: PQ Page

You can read and set each output's Brightness/Contrast/Saturation/Sharpness.

Select PQ FineTune Port: Output1

Brightness: 50

Contrast: 50

Saturation: 50

Sharpness: 50

Temperature: Cool

R-Gain: 0

G-Gain: 0

B-Gain: 0

R-Offset: 0

G-Offset: 0

B-Offset: 0

**Note:** Suggest always use the default setting 50/50/50/50. Do not change the default settings without special conditions; If there is a problem after changing, click "Reset" to return to the factory settings.

## ■ CEC Control Page

Device ID: 1

Auto Power ON

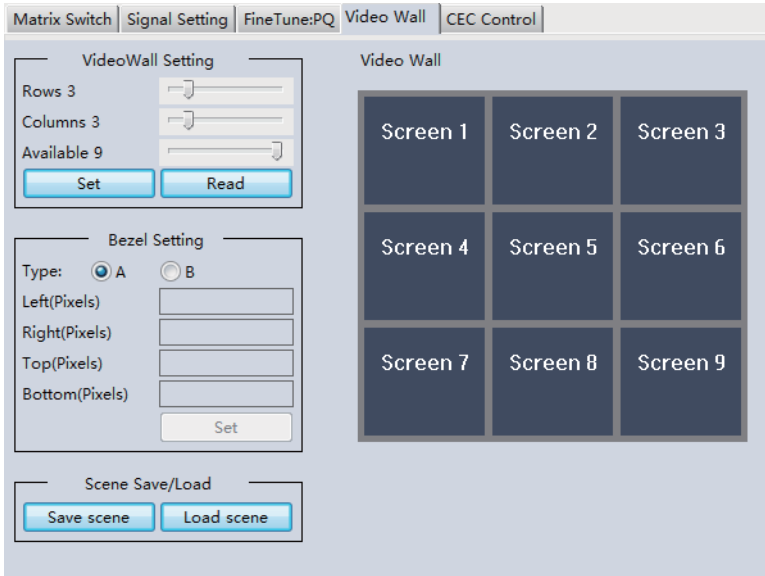
	Output				
Output 1	Power ON	Power OFF	Volume+	Volume-	Mute/Unmute
Output 2	Power ON	Power OFF	Volume+	Volume-	Mute/Unmute
Output 3	Power ON	Power OFF	Volume+	Volume-	Mute/Unmute
Output 4	Power ON	Power OFF	Volume+	Volume-	Mute/Unmute
Output 5	Power ON	Power OFF	Volume+	Volume-	Mute/Unmute
Output 6	Power ON	Power OFF	Volume+	Volume-	Mute/Unmute
Output 7	Power ON	Power OFF	Volume+	Volume-	Mute/Unmute
Output 8	Power ON	Power OFF	Volume+	Volume-	Mute/Unmute
Output 9	Power ON	Power OFF	Volume+	Volume-	Mute/Unmute

If **Auto Power On** is enabled, whenever the product is turned on, it will turn on all displays connected to it.

The product supports CEC functions, including Power on/off, Volume+/-, and Mute/Unmute.

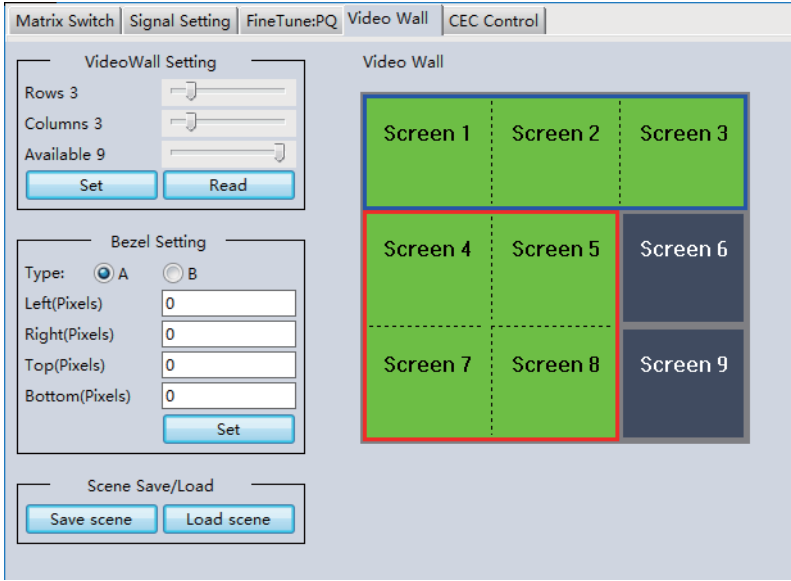
## ■ Video Wall Page

This page is used to configure a group of outputs to function as a video wall.



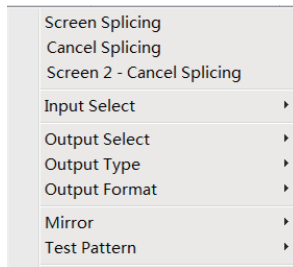
1. Use the Video Wall Setting controls to change how the displays are arranged on the Video Wall page:
  - a. Adjust the Rows and Columns sliders to change the displayed screen arrangement to permit proper Drag-and-Select of the desired screens for the video wall.
  - b. Change the Available slider to set how many outputs will be used for the Video Wall.
  - c. Click the "Set" button to change the Screen configuration.
2. Use the left mouse button to drag-select the screens set for video wall mode. The selected screens will be shown as bright blue.
3. Use the right mouse button to open a menu.
4. Select "Screen Stitching" from the menu to program the video wall mode. The selected screens will now be shown as bright green.
5. To change the displayed image, use the methods detailed in the section Controlling the Matrix Switcher; right-click to open the pop-up menu and select the desired input from the "Input Select" menu option.

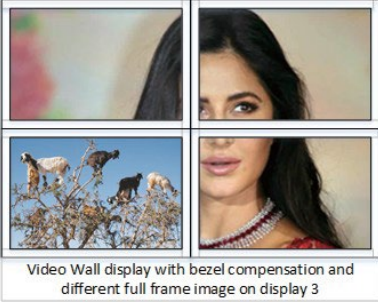
6. Repeating steps 2 ~ 5 above with different outputs allows for creating a second video wall. However, changing the **Rows**, **Columns**, and **Available** sliders will automatically delete the current video wall set up when the "Set" button is clicked. The following example shows a more unusual video wall set-up of two video walls with 1x3 and 2x2 configurations:



### Video Wall Context Menu

Right-clicking on any of the screen icons will display the following context menu:



<b>Screen Stitching</b>	This option connects the selected screens into a video wall configuration.
<b>Cancel Stitching</b>	Return the Video Wall configuration to normal outputs.
<b>Screen x – Cancel Stitching</b>	<p>Remove the single screen x from the video wall to allow the displaying of another full-frame image within the video wall configuration, as shown in this example:</p>  <p>Video Wall display with bezel compensation and different full frame image on display 3</p>
<b>Input Select</b>	Use the sub-menu to select the input to display on the video wall or the second input image shown in the above example.
<b>Output Select</b>	This option is only available for any screen not assigned to a video wall mode.
<b>Output Type</b>	This option is only available for any screen not assigned to a video wall mode.
<b>Output Format</b>	This option is only available for any screen not assigned to a video wall mode. It allows the setting of the output resolution for the selected screen output.
<b>Mirror</b>	Four sub-options: OFF (default), H (Horizontal), V (Vertical), and H+V; when you select H+V, you can make a 180° rotation with the selected screen.
<b>Test Pattern</b>	The output will display the Color Bar pattern when Test Pattern is enabled.

### Bezel Setting

The Bezel Setting section allows the entry of values to compensate for the display bezel thickness. These values may be entered as pixels (Type A) or millimeters (Type B). *Type A Bezel Settings*

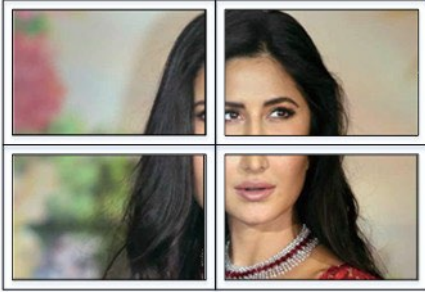
The image size will be adjusted to allow for the number of pixels entered in each entry box. Click the "Set" button to view the effect of the new values.

#### *Type B Bezel Settings*

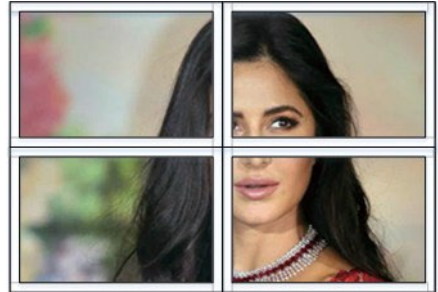
The image size will be adjusted to allow for the Inner and Outer display dimensions in each entry box. Click the "Set" button to view the effect of the new values.

## Bezel Compensation

The following images demonstrate the effect of not having bezel compensation and what correctly configured bezel compensation settings should produce:



No Bezel Compensation



Correct Bezel Compensation

## Layout Save/Load

The Save Scene/Layout and Load Scene/Layout buttons allow a video wall configuration to be saved or recalled at any time. Up to 10 configurations, each with its name, can be saved or recalled. Each Scene can optionally be given a name to identify that video wall scene set-up when saving.

## 8. Safety Instructions

To ensure this product's reliable operation and protect the safety of any person using or handling this device while powered, please observe the following instructions.

1. Do not operate either of these products outside the specified temperature and humidity range given in the above specifications.
2. Ensure there is adequate ventilation to allow this product to operate efficiently.
3. Qualified professionals should only repair the equipment as these products contain sensitive devices that any mistreatment may damage.
4. Only use this product in a dry environment. Do not allow any liquids or harmful chemicals to come into contact with these products.

# 9. Connection Diagram

