

# 4K 4x4 Seamless AUDIO AND VIDEO MATRIX

with Video Wall



**4K 4x4 Seamless Audio  
and Video Matrix with  
Video Wall**

**Part Number:  
EVMX44VW**

**EVOLUTION**  
BY  **VANCO**  
ADVANCING DIGITAL CONNECTIVITY

**www.vanco1.com • 800.626.6445**

## DEAR CUSTOMER

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

This product is 100% inspected and tested in the United States to verify  
HDMI performance parameters.

## WARNING

1. Do not expose this unit to water, moisture, or excessive humidity.
2. Do not install or place this unit in a built-in cabinet, or other confined space without adequate ventilation.
3. To prevent risk of electrical shock or fire hazard, due to overheating do not obstruct unit's ventilation openings.
4. Do not install near any source of heat, including other units that may produce heat.
5. Do not place unit near flames.
6. Only clean unit with a dry cloth.
7. Unplug unit during lightening storms or when not used for an extended period of time. A surge protector is strongly recommended.
8. Protect the power cord from being walked on or pinched, particularly at the plugs.
9. Use unit only with accessories specified by the manufacturer.
10. Refer all servicing to qualified personnel.

## CAUTION

HDMI is a very complex technology requiring continuous authentication of the signal and the same video resolution and audio settings on all electronic equipment in the system. When there are multiple sources and displays, the video resolution and audio setting on all connected units must be adjusted to correspond with that of the display having the lowest video and audio capability.

## FEATURES

# INTRODUCTION

The Evolution by Vanco EVMX44VW 4K 4x4 Matrix Switcher with Video Wall capability, allows 4 HDMI sources to be distributed up to 4 displays with full switching flexibility. The EVMX44VW features the ability of passing 4K@60Hz resolution and 4:4:4 Chroma Subsampling. Capable of 4 display video wall configurations, with ability for 180 degree screen rotation, as well as bezel adjustments. The EVMX44VW also has a scaling function, to achieve a variety of different resolution formats. Multiple audio options including the ability to connect up to four audio sources and distribute up to four zones, with both analog and digital outputs. The audio sources can also be utilized to embed audio onto the HDMI outputs. With the ability to control switching via front panel selections, IR, RS-232, and TCP/IP. Simply connect the matrix unit to the local network, and the switching can be controlled with any computer, tablet, and/or mobile device on the same network. An easy and intuitive user interface allows for full control. For a 2x2 video wall application, and the ability to switch to a matrix function where each display shows a different source, plus audio options, the EVMX44VW is the perfect solution.

## 4K 4x4 Seamless Audio and Video Matrix with Video Wall

### Part # EVMX44VW

- 4K 4x4 Matrix with Video Wall Modes
- Supports up to 4K@60Hz and 4:4:4 chroma subsampling
- Features resolution scaling with multiple formats available
- Supports up to a 4 display video wall
- Supports 180° screen rotation and bezel adjustments
- Includes built-in audio matrix to distribute up to four zones with analog and digital outputs
- Able to embed audio onto HDMI outputs
- IR pass-through to control sources from display locations
- Controllable via front panel, IR, RS-232 and TCP/IP
- Easy and intuitive User Interface to control switching and video wall functions via IP
- HDMI 2.0 and HDCP 2.2 compliant
- Rack mountable design
- Dimensions: 17" W x 8.7" D x 1.7" H (430mm x 220mm x 44mm)

## PACKAGE CONTENTS

- (1) EVMX44VW 4K 4x4 Matrix Switcher
- (1) IR Remote
- (4) IR Receivers
- (4) IR Emitters
- (5) 3-pin Phoenix Connectors
- (4) 5-pin Phoenix Connectors
- (1) AC Power Cord
- (1) Product Manual

## SPECIFICATIONS

HDMI Compliance .....	HDMI 2.0
HDCP Compliance .....	HDCP 2.2
Video Bandwidth .....	18 Gbps
Video Resolution .....	Up to 4K@60Hz, 4:4:4 Chroma Subsampling
Color Space .....	RGB, YCbCr 4:4:4/4:2:2
HDMI Amplitude .....	T.M.D.S +/- 0.4Vpp
Differential Impedance.....	100±15ohm
ESD Protection .....	Human-body Model: ±8kV (Air-gap discharge) , ±4kV (Contact discharge)
Baud Rate and Protocol.....	Baud rate: 9600, data bit: 8 Stop bit: 1, no parity checking
Ethernet .....	IE10.0+,HTML5
Housing .....	Metal Enclosure
Color .....	Black
Dimensions .....	17" W x 8.7" D x 1.7" H (430mm×220mm×44mm)
Weight .....	11 lbs
Power Supply .....	AC 110-240V
Power Consumption .....	60W (Max)
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-condensing)

# PANEL DESCRIPTIONS

## Front Panel



1. LCD Panel: Displays current status
2. COM: Illuminates when matrix switcher is powered on
3. IR: IR Sensor to control the unit via included IR remote
4. LOCK: Locks/Unlocks front panel buttons (hold for 3 seconds to activate)
5. OUTPUT: Outputs 1-4 for output display selection
6. INPUT: Inputs 1-4 for input source selection
7. ALL: Set all outputs to the same input by pressing ALL+ INPUT # + TAKE
8. RES: Set the output scaler resolution based on the table on page 6  
Press RES + OUTPUT # + NEXT (to toggle through options) + TAKE
9. EDID: Set the EDID options for the input selected based on the table on page 6  
Press EDID + INPUT + NEXT + TAKE, change the EDID mode of port INPUT
10. NEXT: Select the next available option within a menu
11. SAVE: Save the current matrix setting as a preset by pressing SAVE + Output #(s). Up to 8 presets can be saved.
12. RECALL: Set the matrix to a previously saved preset by pressing: RECALL+OUTPUT #(s)
13. CLEAR: Cancel the current command function
14. ENTER: Set the displayed option or command function

## RESOLUTION

Set the output scaler resolution based on the below table

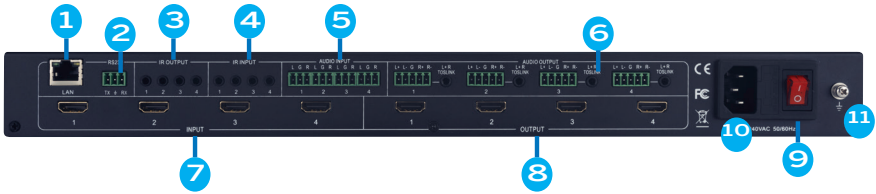
<i>Number</i>	<i>Output Resolution Setting</i>	<i>Number</i>	<i>Output Resolution Setting</i>
1	3840x2160p 60Hz	9	1440x1050 60Hz
2	3840x2160p 50Hz	10	1366x768 60Hz
3	3840x2160p 30Hz	11	1360x768 60Hz
4	3840x2160p 25Hz	12	1280x1024 60Hz
5	1920x1200 60Hz	13	1280x768 60Hz
6	1920x1080p 60Hz	14	1280x720p 60Hz
7	1920x1080p 50Hz	15	1280x720p 50Hz
8	1600x1200 60Hz	16	1024x768 60Hz

## EDID

Set the EDID options for the input selected based on the below table

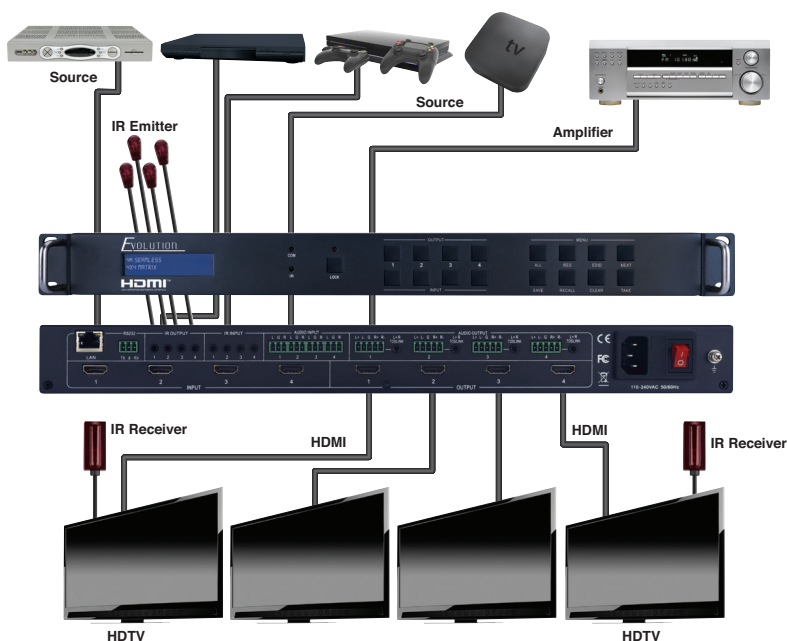
<i>Number</i>	<i>Output Resolution Setting</i>	<i>Number</i>	<i>Output Resolution Setting</i>
1	Manual	5	1920x1080 60Hz
2	3840x2160 60Hz	6	1280x1024 60Hz
3	3840x2160 30Hz	7	1280x720p 60Hz
4	1920x1200 60Hz	8	1024x768 60Hz

# PANEL DESCRIPTIONS



1. LAN: Connect to a local network such as a router or ethernet switch to give the matrix unit connectivity, this will give the ability to control the matrix unit via IP with any device on the network such as a computer, tablet, or mobile phone
2. RS232: Connect the included RS-232 cable to a computer or 3rd party control system for integration
3. IR OUT - 1-4: Connect the included IR Transmitters (TXs) to each port, the number on the IR output corresponds to the HDMI inputs (Connect this if you would like to control the sources from each display location)
4. IR IN - 1-4: Connect the included IR Receivers (RXs) to each port, the number on the IR input corresponds to the HDMI outputs (Place each IR RX at the corresponding display locations)
5. AUD INPUT – Connect audio sources via analog audio inputs to be routed and/or embedded onto HDMI Outputs
6. AUD OUTPUT: Connect up to four zones via analog and Toslink audio outputs to be extracted or routed to external audio components
7. INPUT: Connect HDMI sources to each corresponding HDMI input
8. OUTPUT: Connect HDMI display(s)
9. POWER SWITCH: Master switch to turn on/off power
10. POWER CONNECTOR: Connect the included power cord for power
11. GROUND: (Optional) connect to ground

## CONNECT AND OPERATE



1. Connect your sources such as a Blu-Ray Player, game console, A/V Receiver, Cable or Satellite Receiver, etc. to either the HDMI inputs on the unit. Insert and extract cables carefully with the power switched off. Connecting and disconnecting while the unit is powered can result in damage to circuitry
2. Connect the HDMI outputs that go to the displays
3. OPTIONAL: Connect the provided IR RX and IR TX cables if you wish to use IR routing. See below for additional detailed information
4. OPTIONAL: Connect an Ethernet cable from the TCP/IP port on the matrix to a local Area Network, or the provided RS232 cable with 3-pin phoenix connector to the RS232 port on the matrix
5. OPTIONAL: Connect audio inputs or outputs using the provided phoenix connector to embed, de-embed, and route audio. See instructions in the AUDIO MATRIX section of the manual for additional information
6. Connect the power cable to the power receptacle on the matrix
7. Connect power supply to an available electrical outlet and power on the device to test



# IR CONTROL

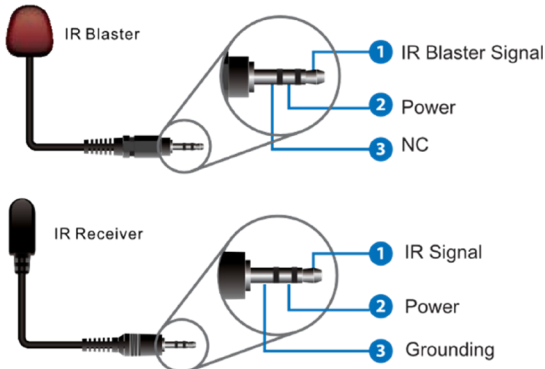
The EVMX44VW allows for IR pass-through to control the connected sources at the display locations. The IR signals are routed, so the sources are only controllable at a display location if the source is switched to that output.

## ***IR Emitters:***

Connect the IR Emitters (Blasters/TXs) to the "IR OUT" port on the back of the matrix unit, ensure that the IR Emitter is placed on the corresponding source (For example, IR OUT port 1 = HDMI input 1)

## ***IR Receivers:***

Connect the IR Receivers (RXs) to the "IR IN" port on the back of the matrix unit, ensure that the IR Receiver is routed to the corresponding display (For example, IR IN port 1 – HDMI output 1)



**NOTE:** Infrared receiving areas of source devices can be located by shining a flashlight onto the front of the device – the sensor should be able to be seen through the plastic as a small, round object inside. Place the IR Emitters around or near this area with the tip of the IR emitter near the IR sensor of the source. IR receivers should be placed at the display and line of sight, so that an IR remote can be pointed at the pigtail to receive IR signals.

## AUDIO MATRIX

In addition to an HDMI video distribution system, the EVMX44VW also includes a built-in audio matrix, where audio sources can be connected and be sent up to four individual zones.

The 4 sets of Audio output (LR and Toslink) channels can be independent of video and switched by the User Interface via TCP/IP. Audio Outputs utilize 5-pin Phoenix connectors to output balanced LR audio, and 4 mini Toslink jacks to output analog LR audio and digital audio.

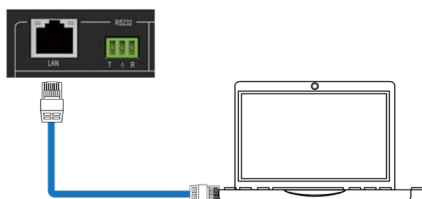
There are also 4 sets of analog audio inputs using 3-pin Phoenix connectors to input external analog LR audio, this can also be used to embed audio onto the HDMI outputs.

## RS-232/LAN CONTROL CONNECTION



### Network Control Connection

The product also supports Network control. Connect the LAN port of the matrix to a PC via a UTP (Cat5e/6) cable, as shown in the following figure:



**Note: Factory default network setting:**

IP Type	Static IP
Static IP	192 . 168 . 0 . 247
Subnet Mask	255 . 255 . 255 . 0
Gateway	192 . 168 . 0 . 1

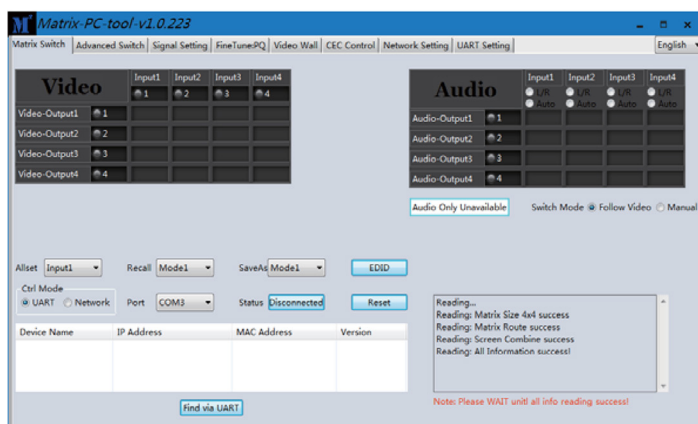
# EVMX44VW SOFTWARE

Before running the software which can be downloaded on the product page on [www.vanco1.com](http://www.vanco1.com), the password is needed to log in.

Default password of Administrator (access to all features): 111111

Default password of User (access to all features, except OSD function): 000000

## Connect with PC Tool

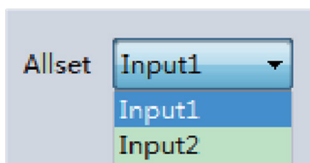


Select UART (with RS-232 cable) or Network to connect

## Matrix Switch Page



To switch one input port to all output ports, use the All set dropdown menu. For example, to switch input 1 to all outputs:



1. Recall mode: Recall a preset of inputs/outputs (maximum of 8 presets)
2. Save mode: Save the current input/output mapping to create a preset  
Note: Save/Recall button here works the same with front panel save/recall control, and also the same with Save/Load function on video wall page
3. System reset: Resets the matrix to factory settings
4. Audio Switch mode: Follow Video mode or Manual mode
  - When selecting Manual mode, separately switch L/R (Phoenix interface) and Toslink output(s)
  - Can also select to use HDMI embedded or corresponding external LR audio
5. EDID Control: Click the "EDID" button on Matrix Switch page, there will be a pop-up EDID control window. The following operations are:
  - a. Read EDID of one output port
  - b. Open one existing EDID file
  - c. Write EDID to one input port

## Advanced Switch Page

The screenshot shows the 'Advanced Switch' configuration window. At the top, there are tabs: 'Matrix Switch', 'Advanced Switch' (selected), 'Signal Setting', 'FineTune:PQ', 'OSD CTRL', 'Video Wall', 'CEC Control', and 'Network Setting'. Below the tabs, a usage note reads: 'Usage notes: 1. Add input to output 2. Tick output and then start sending loop'. The interface is divided into two main sections. The left section contains two tables. The first table has columns 'Input' and 'Custom name', with rows for Input 1 through 4, all with a custom name of '-'. A red circle with the number '2' is next to the 'Input' column header. The second table has columns 'Output', 'Custom name', and 'Input Signal', with rows for Output 1 through 4, all with a custom name of 'Video-Output' followed by a number. A red circle with the number '1' is next to the 'Output' column header. Between these two tables is an arrow button '-->' with a red circle and the number '3' next to it. The right section contains configuration options: a radio button selected for 'Send cmd periodically at' with a value of '2000' ms; checkboxes for 'All outputs send combined' (unchecked), 'Wait others finished then start next loop' (unchecked), 'Send cmd only one loop' (unchecked), and 'Select all outputs' (unchecked); and 'Start' and 'Stop' buttons. A red circle with the number '4' is next to the 'Start' button.

The Advanced Switch page will repeatedly send a batch of matrix selection commands at the interval specified in the Send cmd periodically at text.

1. Select one or more outputs
2. Select one input
3. Use the arrow button "-->" to assign that input to the selected output or outputs
4. After completing all required selections, click the "Start" button to run the commands

The available options are:

**All outputs send combined** – Combine all outputs that have the same input number as a single command

**Wait others finished the start next loop** – Wait for all commands in the previous pass to complete before sending the next batch of commands.

**Send cmd only one loop** – Only send a single batch of commands

**Select all outputs** – Select all outputs when the option is checked

**Start** – Begin the command cycles

**Stop** – Stop the command cycles

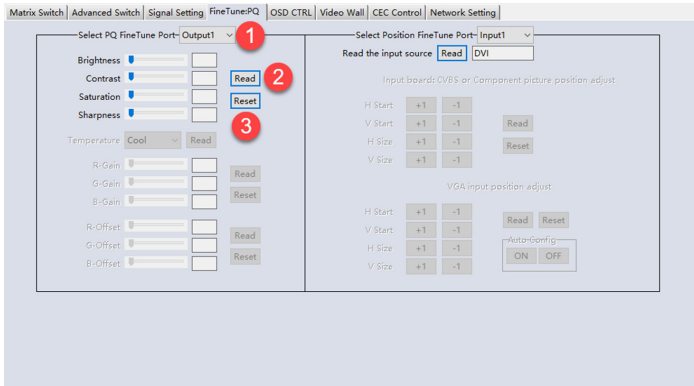
## Signal Setting Page

Label	Input Type	Input Format	Audio Select	Output Type	Output Format
1	UHD-HDMI	No Signal	Auto	UHD-HDMI	4K2Kp30
2	UHD-HDMI	No Signal	Auto	UHD-HDMI	4K2Kp30
3	UHD-HDMI	No Signal	Auto	UHD-HDMI	4K2Kp30
4	UHD-HDMI	No Signal	Auto	UHD-HDMI	4K2Kp30

- Audio Select: there are two options for input Audio Select
  - Auto: If the input source is HDMI signal, system will get the embedded audio; if the input source is DVI signal, the system will get the corresponding analog audio
  - External: System will get the corresponding analog audio
- Output Type: there are four options for output type:
  - UHD-HDMI (HDCP OFF)
  - UHD-DVI
  - UHD-HDCP-1.4
  - UHD-HDCP-2.2
- Output Format: Set the output scaler resolution based on the chart below

Number	Output Resolution Setting	Number	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

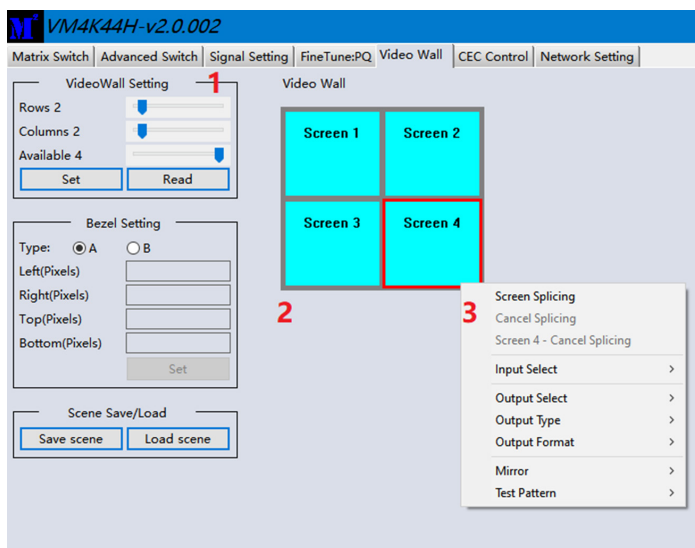
## FineTune Page



1. Choose the display by selecting the Output number corresponding to the display
2. Then click the "Read" button. Adjust Brightness, Contrast, Saturation, and/or Sharpness as desired.
3. If the video image looks incorrect after adjustments, reset to default settings by clicking on the "Reset button"

## Video Wall Page

The EVMX44VW can be utilized to setup a 2x2 (4 display) video wall with any source connected, and furthermore can display multiple sources on the 2x2 video wall display.

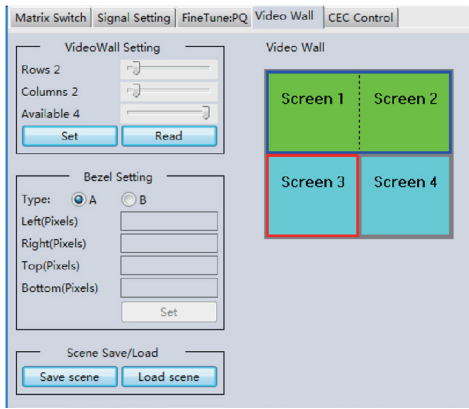


1. Use the Video Wall Setting controls to change how the displays are arranged on the Video Wall page:
  - a. Adjust the Rows and Columns sliders to change the displayed screen arrangement to permit proper Drag-and-Select of the desired screens for the video wall
  - b. Change the Available slider to set how many outputs will be used for the Video Wall
  - c. Click "Set" to change the Screen configuration
2. Use the left mouse button to drag-select the screens that will be 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 Splicing" 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: 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 a different set of outputs allows the creation of 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.



## Video Wall Page


The following example shows a more video wall set-up of two video walls with two 2x1 configurations:



## Video Wall Context Menu

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

Screen Splicing	
Cancel Splicing	
Screen 2 - Cancel Splicing	
Input Select	▸
Output Select	▸
Output Type	▸
Output Format	▸
Mirror	▸
Test Pattern	▸

Screen Splicing	This option connects the selected screens into a video wall configuration
Cancel Splicing	Return the Video Wall configuration to normal outputs
Screen x - Cancel Splicing	<p>3840x2160p 30Hz</p>  <p>Video Wall display with bezel compensation and different full frame image on display 3</p>
Input Select	Use the sub-menu to select the input to display on the video wall or the secondary input image shown in the above example
Output Select	This option is only available for any screen that is not assigned to a video wall mode
Output Type	This option is only available for any screen that is not assigned to a video wall mode
Output Format	This option is only available for any screen that is not assigned to a video wall mode. It allows setting of the output resolution for the selected screen output
Mirror	<p>Two sub options :</p> <p>OFF ( default ), ON ( H+V Mirror)</p> <p>When select "ON", you can make 180° rotation with the selected screen</p>
Test Pattern	When Test Pattern is enabled, the output will display Color Bar pattern

## ***Bezel Setting***

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

### ***Type A Bezel Settings***

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

### ***Type B Bezel Settings***

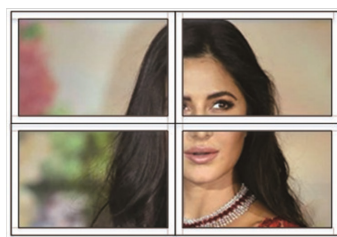
The image size will be adjusted to allow for the Inner and Outer display dimensions as entered in each of the entry boxes. Click the "Set" button to view the effect of the new values.

## ***Bezel Compensation***

The following images demonstrate the effect of not having bezel compensation and what a 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 their own name can be saved or recalled. When saving, each Scene can optionally be given a name to identify that video wall scene setup.

## CEC Control Page

If Auto Power On is enabled, every time when the product is turned on, it will turn on all the sources and displays which are connected to it.

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

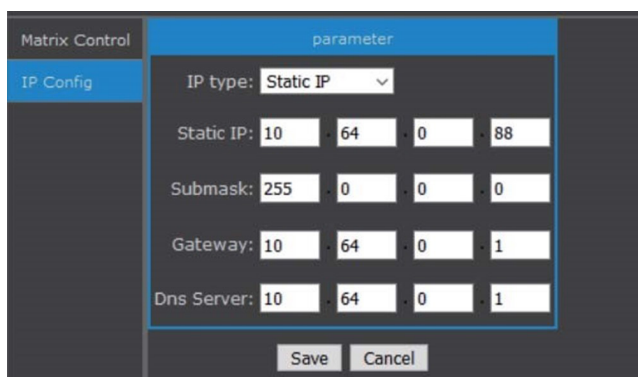
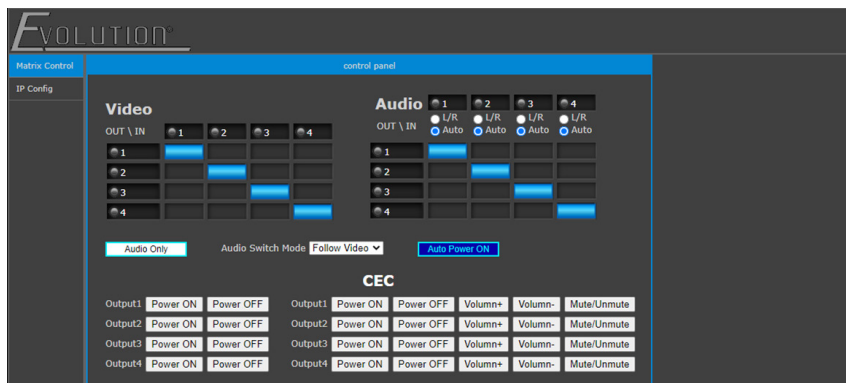
## Control via Web

The built-in Web GUI interface provides basic control of the matrix switcher and access to the network settings. The default IP Address of a unit is 192.168.0.247. The following will be displayed when the web interface is accessed each time:

The default User Name is: admin

The default Password is: admin

After entering the User Name and Password, an interface similar to the following will be displayed:



The IP Config tab is used to change the IP settings of the matrix switcher. Enter any necessary changes and click "Save" to program the switcher to the new settings or click "Cancel" to reject the changes.

## LIMITED WARRANTY

With the exceptions noted in the next paragraph, Vanco warrants to the original purchaser that the equipment it manufactures or sells will be free from defects in materials and workmanship for a period of two years from the date of purchase. Should this product, in Vanco's opinion, prove defective within this warranty period, Vanco, at its option, will repair or replace this product without charge. Any defective parts replaced become the property of Vanco. This warranty does not apply to those products which have been damaged due to accident, unauthorized alterations, improper repair, modifications, inadequate maintenance and care, or use in any manner for which the product was not originally intended.

Items integrated into Vanco products that are made by other manufacturers, notably computer hard drives and liquid crystal display panels, are limited to the term of the warranty offered by the respective manufacturers. Such specific warranties are available upon request to Vanco. A surge protector, power conditioner unit, or an uninterruptible power supply must be installed in the electrical circuit to protect against power surges.

If repairs are needed during the warranty period the purchaser will be required to provide a sales receipt/sales invoice or other acceptable proof of purchase to the seller of this equipment. The seller will then contact Vanco regarding warranty repair or replacement.

## TECHNICAL SUPPORT

In case of problems, please contact Vanco Technical Support by dialing 1-800-626-6445. You can also email technical support issues to [techsupport@vanco1.com](mailto:techsupport@vanco1.com).

When calling, please have the Model Number, Serial Number (affixed to the bottom of the unit) and Invoice available for reference during the call.

Please read this Instruction Manual prior to calling or installing this unit, since it will familiarize you with the capabilities of this product and its proper installation.

All active electronic products are 100% inspected and tested to insure highest product quality and trouble-free installation and operation. The testing process utilizes the types of high-definition sources and displays typically installed for entertainment and home theater applications.

For additional information, such as helpful installation videos, etc. please visit [www.vanco1.com](http://www.vanco1.com)

## LIABILITY STATEMENT

Every effort has been made to ensure that this product is free of defects. The manufacturer of this product cannot be held liable for the use of this hardware or any direct or indirect consequential damages arising from its use. It is the responsibility of the user and installer of the hardware to check that it is suitable for their requirements and that it is installed correctly. All rights are reserved. No parts of this manual may be reproduced or transmitted by any form or means electronic or mechanical, including photocopying, recording or by any information storage or retrieval system without the written consent of the publisher.

Manufacturer reserves the right to revise any of its hardware and software following its policy to modify and/or improve its products where necessary or desirable. This statement does not affect the legal rights of the user in any way.



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